



Construction Services & Inspections Division
Planning & Economic Development Department

Room 100
411 West First Street
Duluth, Minnesota 55802



218-730-5240



permittingservices
@duluthmn.gov

BUILDING APPEAL BOARD AGENDA
Wednesday, January 10, 2024 – 3:00 p.m.
City Council Chambers, 3rd Floor of City Hall

1. Call Meeting to Order
2. Roll Call
3. Approve minutes of October 11, 2023
4. New Business: An Appeal of the Issuance of three Building Permits on November 27, 2023 dated December 18, 2023
 - a. Building Appeal Board Staff Report with Attachments
5. Adjournment

Building Appeal Board
Wednesday, October 11, 2023

MEMBERS PRESENT: Nancy Janzig; Bill Scalzo; Justin Hoffman; Brian Morse; Shawn Krizaj

MEMBERS ABSENT: Mark Pleml; Jordy Sargent; John Miller; Don O'Connor; Rick Wallin; John Hinzmann

STAFF PRESENT: Blake Nelson; Steve Hanke; Bonnie Engseth

1. ROLL CALL
2. Motion made by Board Member Scazo, seconded by Board Member Morse to approve the August 9, 2023 minutes. Motion passed.
3. OLD BUSINESS

Potential Changes to the City Code related to the Building Appeal Board

- a) Blake Nelson stated that he and Steven Robertson proposed several changes to the Building Appeal Board section of Chapter 10 of the city code.
- b) A discussion was held by the Board regarding the proposed changes to Article IV. Building Appeal Board, Sec. 10.5 and the Board recommended the following:

1. Sec. 10-5 paragraph (a) should read: There is hereby established a building appeal board, which shall hear and determine appeals under the State Fire Code and Duluth Housing Code. Such board shall consist of nine members who shall be appointed by the mayor, subject to the approval of the city council and who shall serve without compensation. The Duluth fire chief shall be an appointed member of the board. The building official shall be appointed as an ex officio member of the board and shall have no vote on any matter before the board and shall act as secretary of the board.

One member of the board shall work in the area of finance; one member shall be a registered architect; one member shall be a registered engineer working in the area of building construction design; one member shall be engaged in the business of residential building construction or commercial construction; one member shall work in the area of building materials supply; and two members shall be appointed from the general citizenry of the City of Duluth.

2. Sec. 10-5 paragraph (c) (1) should read: To hear appeals from decisions made by the building official in enforcing or interpreting the Duluth Housing Code, Chapter 29A, of the Duluth City Code;
3. Sec. 10-5 paragraph (d) should read: Any owner or occupant who wishes to appeal a decision of the building official or fire marshal shall serve written notice of appeal upon the issuing authority within 15 days after receiving notice of such decision and pay the appeal fee. The appeal fee shall be set in accordance with Section 31-6(a) of this Code. The notice of appeal shall contain a complete statement of the matter in controversy and relief requested. If the appeal is from a decision of the fire marshal, the building official shall forward a copy of the notice of appeal to the fire chief. The building official shall notify the appellant of the time and place of the hearing. If the appellant

withdraws their appeal in writing prior to the date and time set therefore, the building official shall refund the aforesaid fee. At the hearing, the board shall hear all relevant evidence and arguments. After due deliberation, the board shall render its decision in writing and notify the appellant of its decision by U.S. mail, electronic means or personal service. The building official shall keep an indexed record of decisions of the board. If the board grants an appellant an extension of time to do an act, then, at the next meeting after expiration of that period of time, the matter shall be set on the meeting agenda for the board's review and action;

4. Sec. 10-5 paragraph (e) (1) and (2) should read: (1) Housing code appeals and appeals of demolition or other orders. The board may remedy any error is has found the building official has made in the interpretation of the housing code or of Article II or III of Chapter 10, Duluth City Code, or their successors. The board may also grant such relief as it deems reasonable from strict compliance with each provision of these parts of Duluth City Code, but no relief shall be granted unless it is found that:
 - (A) There is substantial compliance with the provisions of the Code; and
 - (B) No detriment to public health or safety will result from grant such relief; and
 - (C) The intent of the Code is not compromised; and
 - (D) The relief granted will not result in increased cost expense to the city;
- (2) Variances from the minimum requirements of the fire code may be recommended to the state fire marshal only if:
 - (A) There is substantial compliance with the provisions of the fire code; and
 - (B) The safety of the building occupants and general public will not be jeopardized; and
 - (C) Undue hardship will result to the application if relief is not granted.
- (c) Board Member Janzig asked what the next step is in approving the changes. Blake Nelson stated it will go to the attorney's office. Counsel Steve Hanke stated the changes will go before the task force, then to the city council.
- (d) The Board also discussed the Building Appeal application and Blake Nelson stated he will look look at the form and make changes to better clarify what is needed by the appellant.

Motion to adjourn made by Board Member Hoffmann, seconded by Board Member Morse at 4:05 p.m.
Motion passed.



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TMPLT 371-vA120822-1222

BUILDING APPEAL BOARD

STAFF REPORT FOR JANUARY 10, 2024 MEETING

BAB File #23-002

DATE: January 2, 2024

Plat Parcel 010-4380-02380

Lots 228, 230, 232, 234 AND 236, INCLUDING Lot 229, MINNESOTA AVENUE, UPPER DULUTH

APPELLANT: Sola Properties, LLC, and South Pier Inn, LLC

FILING DATE: December 7 and December 18, 2023

APPEAL REQUEST: An appeal to reverse the issuance of building permits. Building permit(s) for Bldgs. 1, 2 & 3 were issued in error.

LOCATION OF PROPERTY: 723 South Lake Avenue ("Dragestil"); Project Proposer: Park Point Land Co LLC, and Heirloom Construction

BACKGROUND DATA:

- a) The project was initially proposed as a one structure, five-unit hotel, at 723 S Lake Avenue. The Planning Commission approved a Special Use Permit (PL21-119) for a Hotel on August 10, 2021. The project was resubmitted as a five-structure hotel (4 new structures, and 1 remodel of an existing structure). The Planning Commission approved a Special Use Permit (PL22-035) for a 5-Structure Hotel on April 12, 2022.
- b) Four building permit applications were submitted on April 7, 2023: BBDLG2304-021 (Building 1), BBLDG 2304-022 (Building 2), BBLDG 2304-023 (Building 3), and BBLDG 2304-024 (Building 4)
- c) BBDLG2304-024 has not been issued. It is still under review. The last correspondence between the City and the Project Proposer on this permit was on September 8, 2023, asking for more information.
- d) Once the building permit applications for BBDLG2304-021, 022, and 023 were considered complete by the Permit Coordinator, they were reviewed at "triage/plan intake" on May 23, 2023, and routed electronically (via trakit, the city's permitting software) to CSI Plans Examiner, Planning, Engineering, and Fire. The applicants'

representative communicated to the city that that they will make amendments to the submitted plans, and that city review can be delayed until revisions are submitted. A follow up communication on June 10, 2023, from the applicant's representative indicated that city review can begin again.

- e) Fire Division asks for additional information on July 12, 2023 (Fire Extinguisher Location, Exit Signs, Sprinkler Riser Room, etc). Planning Division approved permit review, indicating conformance with appropriate zoning standards and approvals on October 6, 2023. Building Code Review was completed on October 6, 2023. Engineering review of utilities and stormwater was completed on November 22, 2023.
- f) CSI Permit Coordinator Emailed the Applicant on November 27, 2023, that the permit was ready to be issued and that fees were due. On November 30, 2023, the applicant submitted a check for the remaining fees and the permit was issued.
- g) On Thursday, December 14, 2023, an email communication was sent by the Building Official to the Project Prosper stating: The city received an appeal on behalf of Sola Properties LLC and South Pier Inn regarding the issued building permits. While there is a pending appeal of the issued building permits, all additional work on site related to these permits shall stop until the appeal is resolved. Emergency/repair work related to the Sanitary, storm sewer connection and water service utility work may conclude to protect the utilities from damage due to freezing and maintaining proper service. But no additional onsite work, including tree removal, grading or fill may occur until after the appeal is resolved.

CODE REFERENCES:

The City has adopted the MN Building Code by Ordinance.

City Ordinance Chapter 10 Article II Section 10-3.

City Ordinance Chapter 50-37 (O) 2 (b): An appeal from a decision regarding a building permit must be taken to the building appeals board created in Article IV of Section 10 of the City Code or to the state building official;

STAFF RECOMMENDATIONS: It is the recommendation of the Building Official that Building Permits: BBLDG2304-021, 2304-022 & 2304-023 were issued in accordance to MN Building Code Section 1300.0120 Subp.7-10 & 12 and 1300.0130 Subp. 1, 2, 5 & 6 and shall remain valid.

ATTACHED EXHIBITS: Submitted Appeal application to the Building Appeal Board.

Unique Documents To The 3 Permits (-021 for Bldg 1, -022 for Bldg 2, and -023 for Bldg 3)

- Permit Approval, Issued Nov 30, 2023
- Approved Construction Plans Approved October 6, 2023
- Permit Application
- PRC (Plan Review Comments) October 10, 2023
- Civil
- Energy Compliance Sheet June 21, 2023
- UDC Summary

Common Documents that Apply to All 3 Permits

- Building Safety Site Map from City GIS
- Survey for Lotus 2018
- Survey for Heirloom 2022
- Life Safety Code Summary
- UDC Sustainability Checklist
- Site Plan (Dumpster Enclosure, Snow Storage) May 19, 2023 Arola
- Tree Inventory (Showing Trees to Be Removed and Tree Preservation Plan) by SAS 1-26-23
- Approved Alternative Landscape Plan Signed 10-2-23
- CAF Calculation for 4 Structures
- Soils Report (Geotechnical) September 29, 2023 (Addressed as 723 S Lake, But is For Entire Development Site)
- Moisture Vapor Barrier Spec Sheet for Interior Latex Primer-Sealer
- Summary and Acknowledgment of Commercial Plan Review-Special Inspectors Form (Separate, But Identical Document, Signed For All 3 Permits)
- Design Pro Handout
- Representative Structural Calculations for Dragestil Hotel, Meyer Borgman Johnson 4-17-23
- Plan Review Comments June 27, 2023
- Electrical/Lighting Plan 4-16-23
- BXUV.U407 and U348 Spec Sheet
- FC-WJ Spec Sheet
- Lighting Cut Sheet (MWP10-1-1)
- Lighting Cut Sheet (McGraw Edison)
- Lighting Cut Sheet (WAC)
- Lighting Cut Sheet (Core 200 LX)
- Lighting Electrical Fixtures
- Email from CSI, Permit Issued Nov 30, 2023
- Email from Arola About Geotechnical Evaluation Report October 5, 2023
- Email from Arola About Revisions to Plan Review October 5, 2023
- Email from Heirloom Acknowledging Knotweed, Stormwater and Weeds (Two Separate Emails, One from DB and One from MS)

2020 MINNESOTA BUILDING CODE ADMINISTRATION

(14) Electric substation facilities, including:

- (a) foundations that support electrical equipment;
- (b) foundations and enclosures affixed with an Interstate Industrialized Buildings Commission (IIBC) label that contain electrical equipment only; and
- (c) fencing that encloses the substation facilities or any part thereof.

Unless otherwise exempted, plumbing, electrical, and mechanical permits are required for subitems (1) to (14).

B. Gas:

- (1) Portable heating, cooking, or clothes drying appliances;
- (2) Replacement of any minor part that does not alter approval of equipment or make the equipment unsafe; and
- (3) Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

C. Mechanical:

- (1) Portable heating appliances;
- (2) Portable ventilation appliances and equipment;
- (3) Portable cooling units;
- (4) Steam, hot, or chilled water piping within any heating or cooling equipment regulated by this code;
- (5) Replacement of any part that does not alter approval of equipment or make the equipment unsafe;
- (6) Portable evaporative coolers;
- (7) Self-contained refrigeration systems containing ten pounds (4.5 kg) or less of refrigerant or that are actuated by motors of one horsepower (0.75 kW) or less; and
- (8) Portable fuel cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

D. Electrical: a municipality must not require an electrical permit if the work falls under the jurisdiction of the commissioner or if the work is exempt from inspection under Minnesota Statutes, Section 326B.36, subdivision 7. This exemption does not exempt the work from other *State Building Code* requirements relating to electrical equipment.

Subp. 5. Emergency repairs. If equipment replacements and repairs must be performed in an emergency situation, the permit application shall be submitted to the building official within the next working business day.

Subp. 6. Repairs. Application or notice to the building official is not required for ordinary repairs to structures. The repairs shall not include the opening or removal of any wall, partition, or portion of a wall or partition, the removal or cutting of any structural beam or load bearing support, or the

removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement, or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent or similar piping, electric wiring, or mechanical or other work affecting public health or general safety.

Subp. 7. Application for permit. To obtain a permit, the applicant shall file an application in writing on a form furnished by the Department of Building Safety for that purpose.

The application shall:

- A. Identify and describe the work to be covered by the permit for which application is made;
- B. Describe the land on which the proposed work is to be done by legal description, street address, or similar description that will readily identify and definitely locate the proposed building or work;
- C. Indicate the use and occupancy for which the proposed work is intended;
- D. Indicate the type of construction;
- E. Be accompanied by construction documents and other information as required by the code;
- F. State the valuation of the proposed work;
- G. Be signed by the applicant, or the applicant's authorized agent; and
- H. Give other data and information required by the building official.

Subp. 8. Action on application. The building official shall examine or cause to be examined applications for permits and amendments within a reasonable time after filing. If the application or the construction documents do not conform to the requirements of pertinent laws, the building official shall reject the application and notify the applicant of the reasons. The building official shall document the reasons for rejecting the application. The applicant may request written documentation of the rejection and the reasons for the rejection. When the building official is satisfied that the proposed work conforms to the requirements of the code and applicable laws and ordinances, the building official shall issue a permit.

Subp. 9. Time limitation of application. An application for a permit for any proposed work shall be considered abandoned 180 days after the date of filing, unless the application has been pursued in good faith or a permit has been issued; except that the building official is authorized to grant one or more extensions of time for additional periods not exceeding 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

Subp. 10. Validity of permit. The issuance or granting of a permit or approval of plans, specifications, and computations, shall not be construed to be a permit for any violation of the code or of any other ordinance of the jurisdiction. Permits presuming to give authority to violate or cancel the provisions of the code or other ordinances of the jurisdiction are not valid. Any permit issued becomes invalid if the work authorized by the permit is suspended or abandoned for more than 180 days. The 180 days commences the first day the work was suspended or abandoned.

2020 MINNESOTA BUILDING CODE ADMINISTRATION

Subp. 11. Expiration. Every permit issued expires unless the work authorized by the permit is commenced within 180 days after its issuance. The building official shall grant, in writing, extensions of time, for periods not more than 180 days each if the applicant demonstrates justifiable cause for the extension to the building official.

Subp. 12. Suspension or revocation. The building official may suspend or revoke a permit issued under the code if the permit is issued in error; on the basis of incorrect, inaccurate, or incomplete information; or in violation of any ordinance or regulation or the code.

Subp. 13. Information and placement of permit. The building permit or a copy shall be kept on the site of the work until the completion of the project. Pursuant to Minnesota Statutes, Section 15.41, the permit shall specify the name and address of the applicant, and the general contractor, if one exists. All construction permits shall be posted in a conspicuous and accessible place at the premises or site of construction.

Subp. 14. Responsibility. Every person who performs work for the installation or repair of building, structure, electrical, gas, mechanical, or plumbing systems, for which the code is applicable, shall comply with the code. The person, firm, or organization securing the permit is responsible for code compliance for the work being performed.

1300.0130

CONSTRUCTION DOCUMENTS

Subpart 1. Submittal documents. Construction documents, special inspection and structural observation programs, and other data shall be submitted in one or more sets with each application for a permit.

Exception: The building official may waive the submission of construction documents and other data if the nature of the work applied for is such that reviewing of construction documents is not necessary to obtain compliance with the code.

The building officer may require plans or other data be prepared according to the rules of the Board of Architecture, Engineering, Land Surveying, Landscape Architecture, Geoscience and Interior Design, Chapter 1800, and Minnesota Statutes, Sections 326.02 to 326.15, and other state laws relating to plan and specification preparation by occupational licenses. If special conditions exist, the building official may require additional construction documents to be prepared by a licensed design professional.

Subp. 2. Information on construction documents. Construction documents shall be dimensioned and drawn upon suitable material. Electronic media documents are permitted to be submitted when approved by the building official. Construction documents shall be of sufficient clarity to indicate the location, nature, and extent of the work proposed and show in detail that it will conform to the code and relevant laws, ordinances, rules, and regulations, as determined by the building official.

Subp. 3. Manufacturer's installation instructions. When required by the building official, manufacturer's installation

instructions for construction equipment and components regulated by the code, shall be available on the job site at the time of inspection.

Subp. 4. Site plan. The construction documents submitted with the application for permit shall be accompanied by a site plan drawn to scale, showing the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades, and the proposed finished grades, and it shall be drawn according to an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The building official may waive or modify the requirement for a site plan if the application for permit is for alteration or repair or when otherwise warranted.

Subp. 5. Examination of documents. The building official shall examine or cause to be examined the accompanying construction documents to ascertain whether the construction indicated and described complies with the requirements of the code and other pertinent laws and ordinances.

Subp. 6. Approval of construction documents.

A. If the building official issues a permit, the construction documents shall be approved in writing or by a stamp, stating "Reviewed for Code Compliance," dated, and signed by the building official or an authorized representative. One set of the construction documents that were reviewed shall be retained by the building official. The other set shall be returned to the applicant, kept at the site of the work, and open to inspection by the building official or an authorized representative.

B. Any code deficiencies identified by the building official during the plan review process for construction documents that are prepared by a design professional who is licensed or certified under Minnesota Statutes, Sections 326.02 to 326.15, must be itemized by the building official through a comprehensive plan review letter only. Any code deficiencies identified by the building official during the plan review process for construction documents that are not prepared by a licensed or certified design professional may be marked directly on the document or itemized by the building official through a comprehensive plan review letter. The issuance of a permit based on construction documents and other data does not prevent the building official from requiring the correction of errors in the construction documents and other data. All sets of required construction documents, including the site copy, municipality copy, or inspector copy, must be marked identically by the building official, with one copy retained by the building official after construction is completed. Work regulated by the code must be installed according to the reviewed construction documents. Work that does not comply with approved construction documents must not proceed until the applicant submits changes that are approved by the building official.

Subp. 7. Previous approvals. The code in effect at the time of application shall be applicable.



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**MINNESOTA CERTIFIED PARALEGAL

December 18, 2023

VIA EMAIL ONLY
rowecke@DuluthMN.gov

City of Duluth
c/o Reina Owecke
Construction Services & Inspections Division
City Hall, Room 100
411 West First Street
Duluth, MN 55802

Re: **Building Appeal Form**
Building Permits BBLD-G2304-022, BBLD-G2304-023, BBLD-G2304-024
Pursuant to Special Use Permit File No. PL-22-035
723 S. Lake Avenue
Project No. BAB23-002

Dear Folks:

Enclosed please find a Building Appeal Form to supplement the appeal filed by Sola Properties, LLC, on December 7, 2023, with the City Clerk. The form is submitted as requested by Reina Owecke, of your office, to complete the appeal process. The following is a summary of our appeal documents:

On Thursday, December 7, 2023, this office filed an appeal with the City Clerk on behalf of Sola Properties, LLC, and South Pier Inn, LLC to appeal action related to a special use permit issued for 723 S. Lake Avenue. (A copy of the appeal letter with exhibits is attached as Exhibit A.)

On Friday, December 8, 2023, this office submitted correspondence to the City Clerk clarifying that the specific action appealed was the issuance of three building permits on November 27, 2023, and noting that the appeal should have referred to File PL-22-035 (rather than a 2021 special use permit file). The December 8, 2023, correspondence included payment of a filing fee of \$350. (A copy of the letter is attached as Exhibit B.)

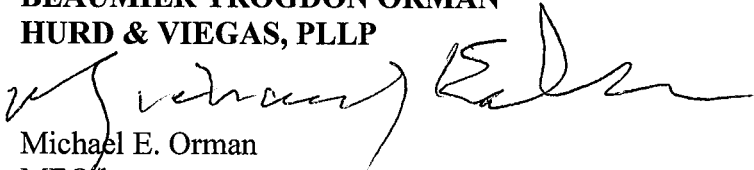
On Friday, December 15, 2023, after our office was notified that payment should have been made to the Construction Services Department in the amount of \$145, we delivered our check to the Construction Services Department. We subsequently received an email on the afternoon of Friday, December 15, 2023,

Page | 2
December 18, 2023

from Ms. Owecke instructing us to file the Building Appeal Board Application form, which is attached, and allowing us to email this directly to her.

If you have any questions, please do not hesitate to contact me.

Very truly yours,
BEAUMIER TROGDON ORMAN
HURD & VIEGAS, PLLP

A handwritten signature in black ink, appearing to read "Michael E. Orman", is written over the printed name.

Michael E. Orman
MEO/kam
Enclosure

cc: Betty Sola
Dale Sola
Rand Sola
Steve Sola
Branden Robinson



Construction Services & Inspections Division
Planning & Economic Development Department

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Doc 243-vD122922-1219

Building Appeal Board Application Form

City of Duluth MN

Submit this form and the items indicated below to Construction Services & Inspections at the address above.

This completed Application form and additional information must be accompanied by the filing fee of \$145 (check payable to City of Duluth). Appeals must be submitted within 15 days of notification of the decision being appealed.

For appeals requesting the stay of a demolition order, the following information is required to be submitted with the application for appeal:

1. Documentation that the owner has dedicated sufficient funds to pay for the repair of the building
2. A valid contract to have the repair completed within 18 months.

Incomplete applications will be determined incomplete and will not be placed on the agenda.

The deadline for application is 14 days prior to the scheduled Building Appeal Board meeting.

Appellant Name: _____ Property location: _____
 Appellant Mailing Address: _____
(street) (city) (state/zip)
 Appellant Phone Number: _____ E-mail: _____

Type of appeal

- | | |
|---|---|
| <input type="checkbox"/> Housing Code Order (DLC Chapter 29A) | <input type="checkbox"/> Request Stay of Demolition Order (DLC Section 10-3) |
| <input type="checkbox"/> Fire Code Order (DLC Chapter 21) | <input type="checkbox"/> Other Building Official Order (DLC Chapter 10, Articles II or III) |

NOTE: Appeals to building official decisions administering the MN State Building Code are to the State Appeals Board. See <http://www.dli.mn.gov/about-department/boards-and-councils/state-appeals-board>

Description of item you are appealing: (ie, specific code section, interpretation or order being appealed)

Statement of the matter in controversy: _____

Relief requested: _____

You may use the back of this form or attach other documents to this application if needed.

Office Use
 Date Received
 File No.

www.duluthmn.gov

The City of Duluth is an Equal Opportunity Employer.



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ANGELA J. PECARINA
**MINNESOTA CERTIFIED PARALEGAL

December 7, 2023

VIA HAND DELIVERY and EMAIL
ibjohnson@duluthmn.gov

City of Duluth
City Clerk
Planning Commission
City Hall, Room 318
411 West First Street
Duluth, MN 55802

**Re: Appeal
Special Use Permit File No. PL-21-119
723 S. Lake Avenue**

Dear Folks:

This office represents Sola Properties, LLC, and South Pier Inn, LLC. South Pier Inn, LLC, is the owner of the property located at 701 S. Lake Avenue and 718 Minnesota Avenue, City of Duluth. These properties share boundary lines with the property at 723 S. Lake Avenue.

Sola Properties, LLC, and South Pier Inn, LLC, hereby submit this appeal of the approval of the special use permit for construction on 723 S. Lake Avenue that was granted to Blumberg-Park Point LLC.

The reasons for this appeal include issues with the construction design that are set forth in detail in the attached report by JBI and correspondence from attorney William Burns dated November 28, 2023. In addition, Sola Properties, LLC, and South Pier Inn, LLC, were never consulted by Blumberg-Park Point LLC, Park Point Land Co., L.L.C., or Heirloom Properties, LLC, regarding the proposed development and never gave their approval for the project—contrary to information believed to have been provided to the Planning Commission by the developer.

Highlights of the issues with the construction are the following:

- 1) The project as designed will threaten the retaining wall on Sola Properties land and the lateral support.
- 2) Construction will destroy the trees along the boundary line.

Page | 2
December 7, 2023

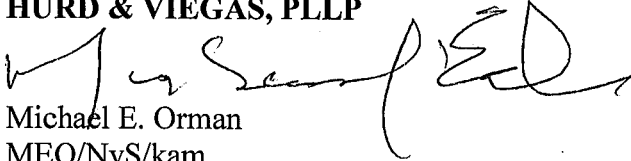
- 3) Building 4's proximity to the boundary line (only 2 feet) will result in the intrusion of snow loads from the roof onto Sola Properties' land. This will pose a threat to guests in the parking lot that is on Sola Properties' land and adjacent to the boundary line.
- 4) The 2' setback will not allow for construction or maintenance of the exterior of Building 4 without trespassing upon Sola Properties' land.
- 5) The construction will result in excessive storm runoff on to Sola Properties' land. There are problems with stormwater management and the impact it will have on Sola Properties land in general and the retaining wall in particular.

On December 7, 2023, work began on site with curb cuts in front of the parcel to be developed. Sola Properties, LLC, and South Pier Inn, LLC, oppose any further development of the property until these and other issues are addressed.

Sola Properties, LLC, and South Pier Inn, LLC, will be pursuing civil remedies as well as administrative remedies.

If you have any questions, please do not hesitate to contact me.

Very truly yours,
BEAUMIER TRODON ORMAN
HURD & VIEGAS, PLLP



Michael E. Orman

MEO/NvS/kam

Enclosures

JB1 Report

Drawings

Correspondence dated Nov. 28, 2023

cc: Branden Robinson – South Pier Inn (via email only)
Jean Coleman (jcoleman@duluthmn.gov)
Duluth Planning and Zoning (planning@duluthmn.gov)



Dragestil Hotel – Opinion of Project Impact

JBI Construction Adviser, LLC

Jeff Iisakka, President

11-29-23

1. Objective – Provide an opinion on how the proposed Dragestil Hotel Development Project located at 723 South Lake Avenue in Duluth may impact adjacent landowners and the public.
2. Reference documents - Comments below are based on review of these design documents and CS&I comments.
 - a. Arola Architecture Studio Plans dated 5-19-23 numbered: Title, Site, A0.1, A0.2, A0.3, A0.4, A2.1-1, A2.1-3, A2.2, A2.3, A2.4, A3.1, A3.2, A4.1, A4.2, A5.1, A5.2, A6.0, A7.1, A7.2
 - b. Northland Consulting Engineers Plans dated 4-7-23 numbered: 1 thru 16 (The City did not review sheets 1 thru 9)
 - c. LHB Boundary/Topographic Survey dated 3-7-18 numbered: 1 of 1
 - d. SAS+Associates UDC Landscape Plan dated 8-12-23 numbered: L-1.1
 - e. City of Duluth – Construction Services & Inspections Division, Plan Review dated 6-27-23 with final comments on 9-27-23
3. Site photos - In preparation of this report, photos were taken of the site on 11-16-23. They are referenced below and attached.
4. Impact of South Pier Inn property
 - a. South Pier Inn retaining wall – The design plans show no existing grades at the top or base of the L-shaped retaining wall running E/W and N/S, so it is unclear how the final development grades will impact the wall and adjacent property.
 - Large trees are located on the lower grade side of the wall (development side). They are located on the South Pier Inn property or are shared with the development property. New grading cuts and fills at and around these trees will impact the South Pier Inn property and trees. **See photos #6 through #13.**
 - There is concern that any trapped water against the retaining wall may have an adverse effect on the future integrity of the wall.
 - The CS&I Plan Review, item 7.b/c, expresses concern that grading will be required on adjacent properties to accomplish the desired construction. There is no comment from the Architect. The plans do not sufficiently address this concern.

- b. Building 4 proximity – Building 4 is only 2' from the property line and will impact the South Pier Inn property. **See photos #14, #15, and #16.**
- There are concerns about the feasibility of construction. Assuming Building 4 has shallow foundations, a requirement is that the horizontal foundation insulation must extend a minimum of 4' beyond the building line. This won't be feasible since the building is 2' away from the property line.
 - Access for heavy equipment, platform lifts, and scaffolding will not be available on the north side of the building unless South Pier Inn grants permission.
 - With the eave 1' away, storm water run-off from the roof will fall on a 2' wide strip of land that will have to drain onto the South Pier Inn property.
 - Heavy snow is going to accumulate on the metal roofs and eventually slide off. Trajectory will cause several feet of snow to drop directly on parked cars in the South Pier Inn lot.
 - The large cedar tree located on the South Pier Inn property between the property line and parking lot curb overhangs approximately 8' into the Development property. Physical construction of Building 4 will damage both the tree's canopy and root system.

5. Storm water management

- a. Current problems - It has been noted in conversation with Solas that, prior to any future development, there currently exists storm water concerns. During certain times of the year there are storm drainage inadequacies on the site with storm drains backing up.
- b. Drainage swales – The civil engineer is trying to maintain a 1% slope at all the drainage swales (1' drop in 100' of travel). Most notably this occurs in the 6' space between Buildings 1,2,3. This may be an industry minimum, but experience dictates it is very difficult to maintain this slope without a hard surface such as concrete or asphalt. In the author's opinion, there will be standing water in these areas, especially around Buildings 1,2,3.
- c. Drainage between buildings 6' apart – The close proximity of Buildings 1,2,3 will have several impacts to the site.
 - Lots of rainwater will be falling from the roofs in a tightly constrained 6' area. Two layers of 2" horizontal rigid foundation insulation will be solid between the buildings and will prevent storm water from naturally seeping into the ground, causing 100% runoff. Given the minimal sloped swales, drainage problems are expected.
 - Heavy snow accumulating on the roofs will eventually slide off in one great moment, causing several feet of snow that will require evacuation. This will further exacerbate the blockage of natural flow of storm water across the ground east to west.

- There are new sanitary sewer and water utilities between the buildings that must run deep to avoid frost. It does not seem feasible that they can be successfully placed between shallow foundation buildings without the excavation undermining the foundations.
 - A minimum of 16" of cover is required above the horizontal insulation around the buildings at the shallow foundations. Since a 1% slope on the swale between Buildings 1,2,3 will result in an approximate 7" drop in the grade from east to west in the 60' distance, there is concern that 16" of cover at the west end of the buildings cannot be achieved.
- d. Perforated storm drain – The proposed design plans indicate most of the grade adjacent to Buildings 1,2,3 is being drained by a north/south 6" perforated storm drain that is wrapped with 4" of rock and geotextile fabric. Storm water flowing naturally via swales between buildings eventually dumps into an existing Lake Avenue manhole. There are several concerns regarding this design.
- Although it is unclear on the plans, it is assumed that ground water will have to dump into an open grate system that carries the water into the 6" storm pipe. It is the author's opinion that, under certain fall and spring freeze/thaw conditions, these open grate systems will freeze up, thus not allowing surface water to enter the storm drain system and be properly vacated. There's a good chance ponding of water will occur for extended periods.
 - A 6" perforated storm pipe as detailed seems inadequately sized for the large area it is servicing. It may need to be a larger solid plastic pipe (8 or 10") with a clear definition of how swale water will successfully enter the storm pipe. A direct connection of gutters and downspouts may be required.
 - It should be noted that the 6" perforated design was NOT reviewed by CS&I. In fact, they specifically stamped the plan sheet with the perforated pipe detail as "Not Reviewed for Building Code Compliance".
- e. Snow storage – The plan does not adequately address snow storage. It shows snow being stored within the limits of the required parking area. Parking is already at a minimum, and the author believes that valuable parking may not be available for extended periods.

End of Report

Project # 2301 By Jeff Iisakka Date 11-29-23 Sheet 1 Of 6

Google Earth Site Plan

North

South Pier Inn

Building 1

Building 2

Building 3

Building 4

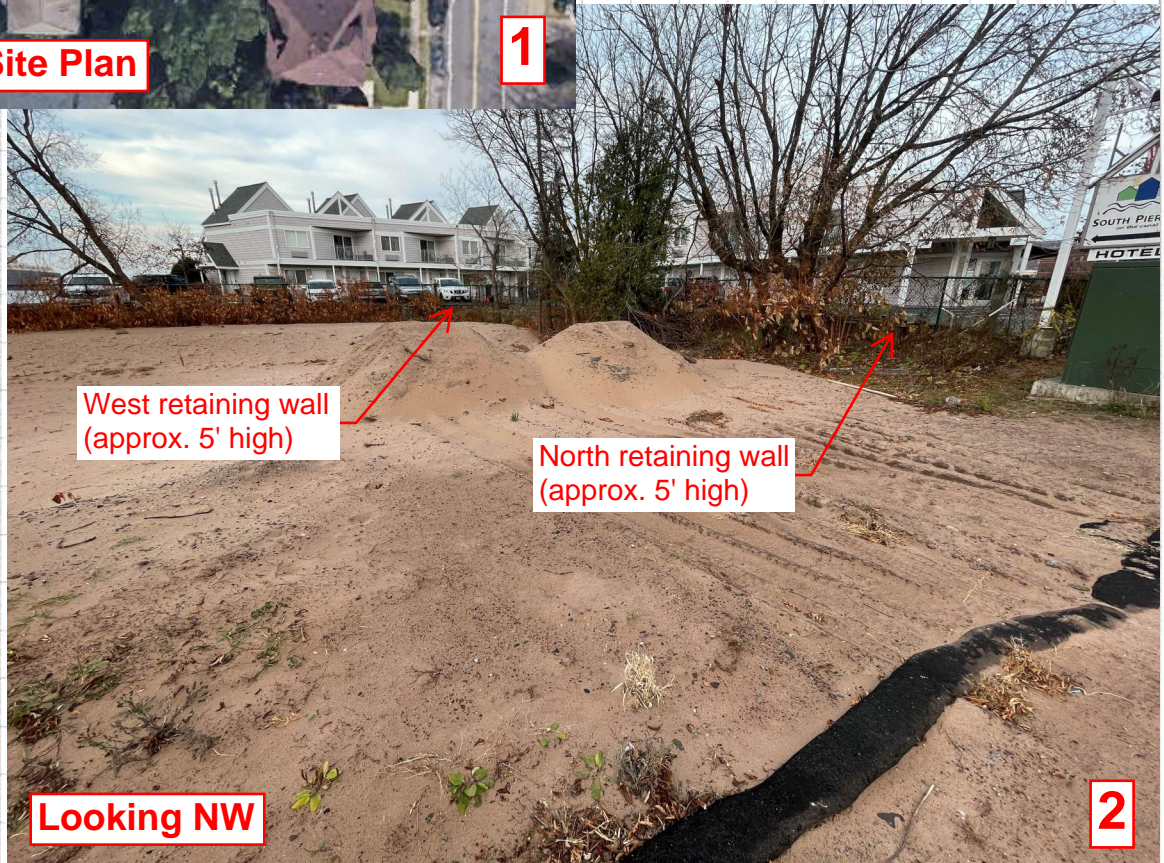
Building 5

Existing building foundations (now removed)

Approx. location of (2) soil borings

Approx. Dragestil Hotel property limits

1





Project	Dragestil Hotel - Opinion of Project Impact				
Subject	Site Photos (11-16-23)				
Project #	2301	By	Jeff Iisakka	Date	11-29-23
Sheet	2	Of	6		



Existing building foundations have been removed and some sand fill has been placed



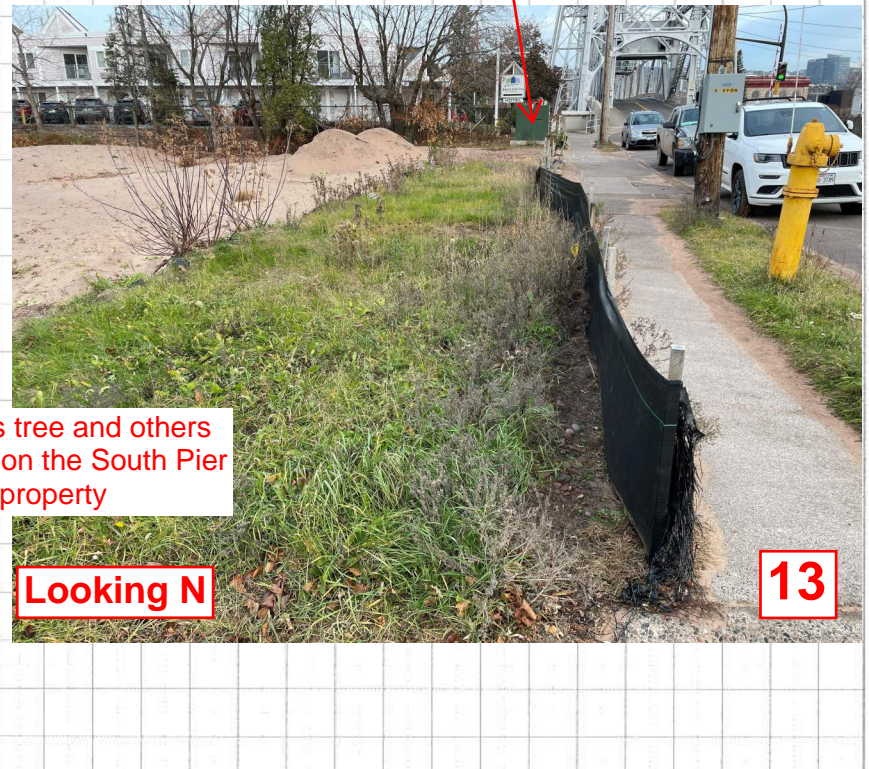
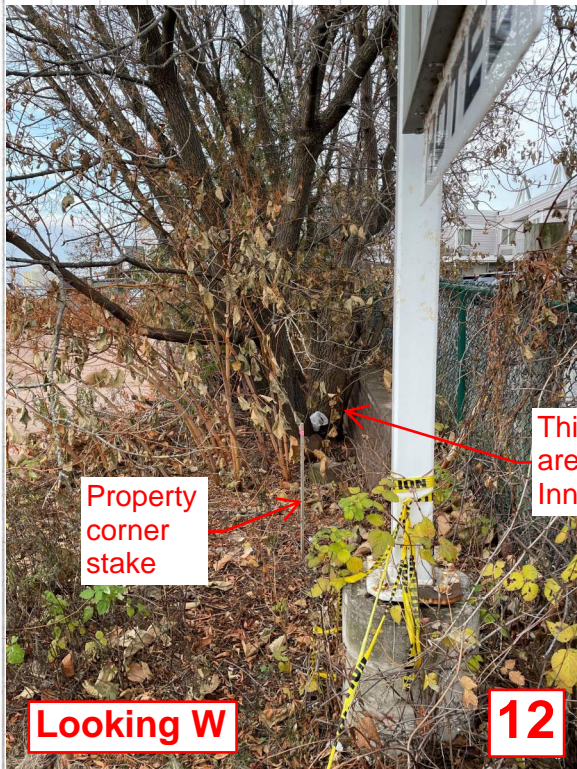
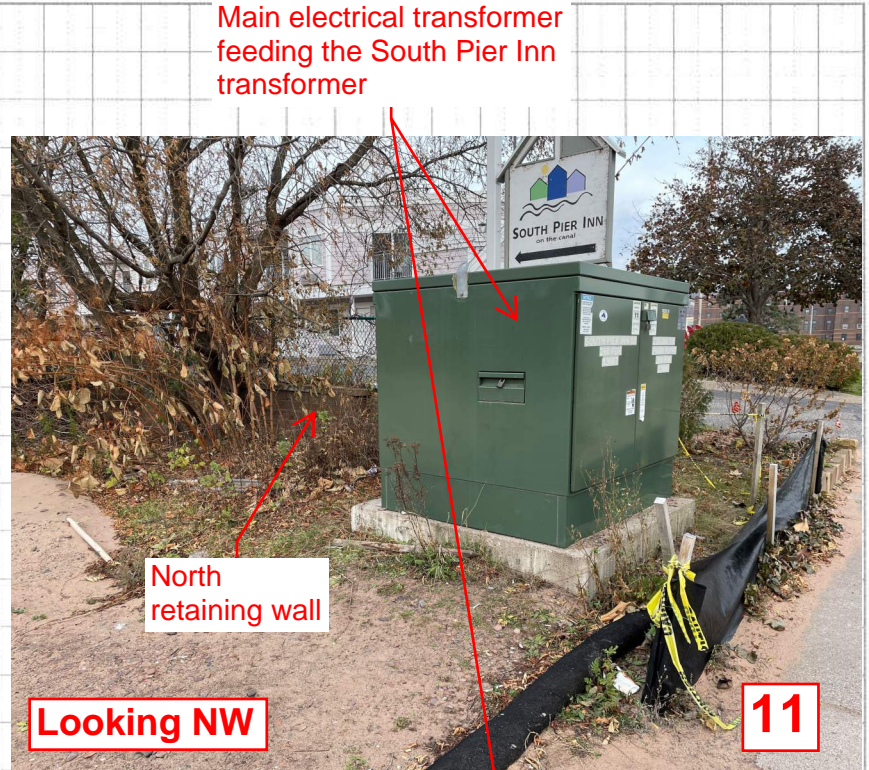


Project	Dragestil Hotel - Opinion of Project Impact				
Subject	Site Photos (11-16-23)				
Project #	2301	By	Jeff Iisakka	Date	11-29-23
Sheet	3	Of	6		



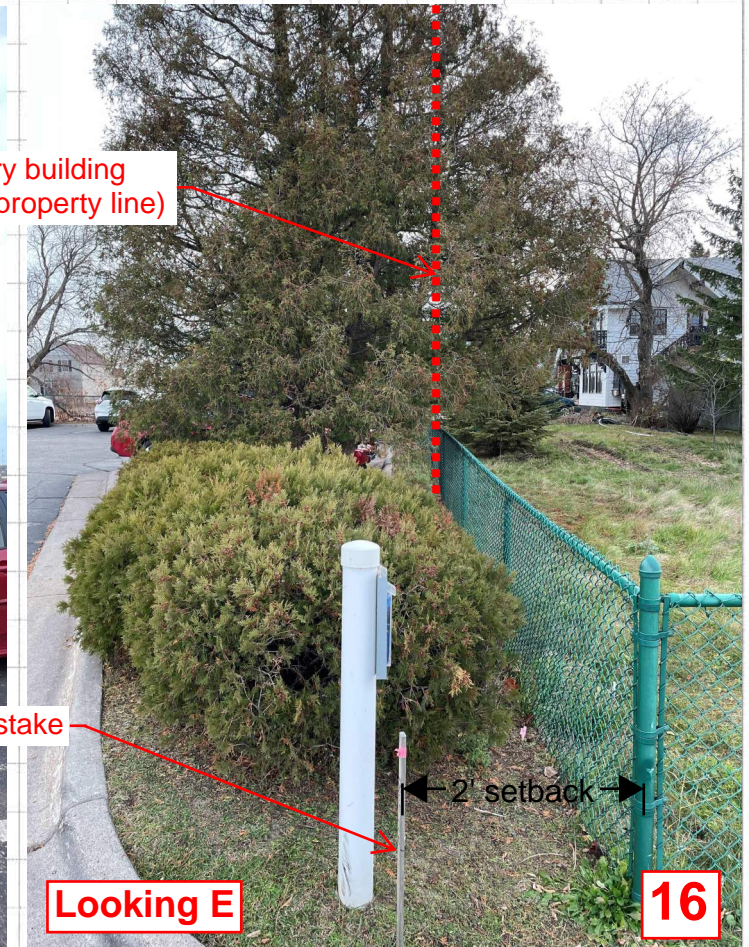
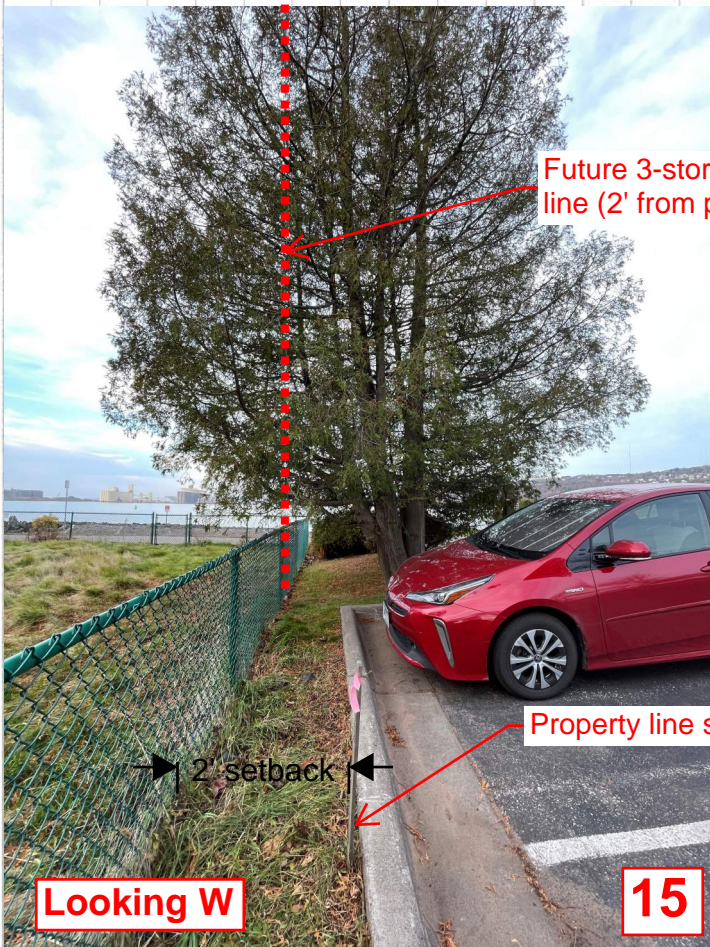
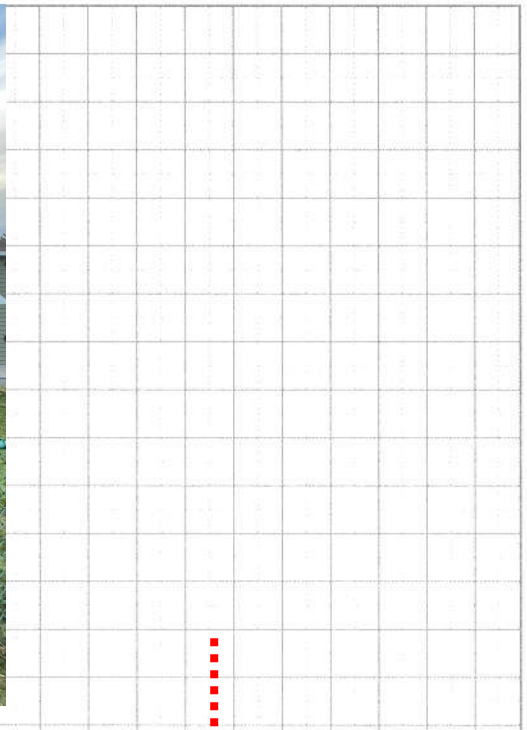


Project	Dragestil Hotel - Opinion of Project Impact				
Subject	Site Photos (11-16-23)				
Project #	2301	By	Jeff lisakka	Date	11-29-23
Sheet	4	Of	6		





Project	Dragestil Hotel - Opinion of Project Impact				
Subject	Site Photos (11-16-23)				
Project #	2301	By	Jeff Iisakka	Date	11-29-23
Sheet	5	Of	6		





Project	Dragestil Hotel - Opinion of Project Impact				
Subject	Site Photos (11-16-23)				
Project #	2301	By	Jeff Iisakka	Date	11-29-23
Sheet	6	Of	6		



Approx. property line



Approx. property line

Building foundation may conflict with UG power

How does swale water enter the 6" PVC?

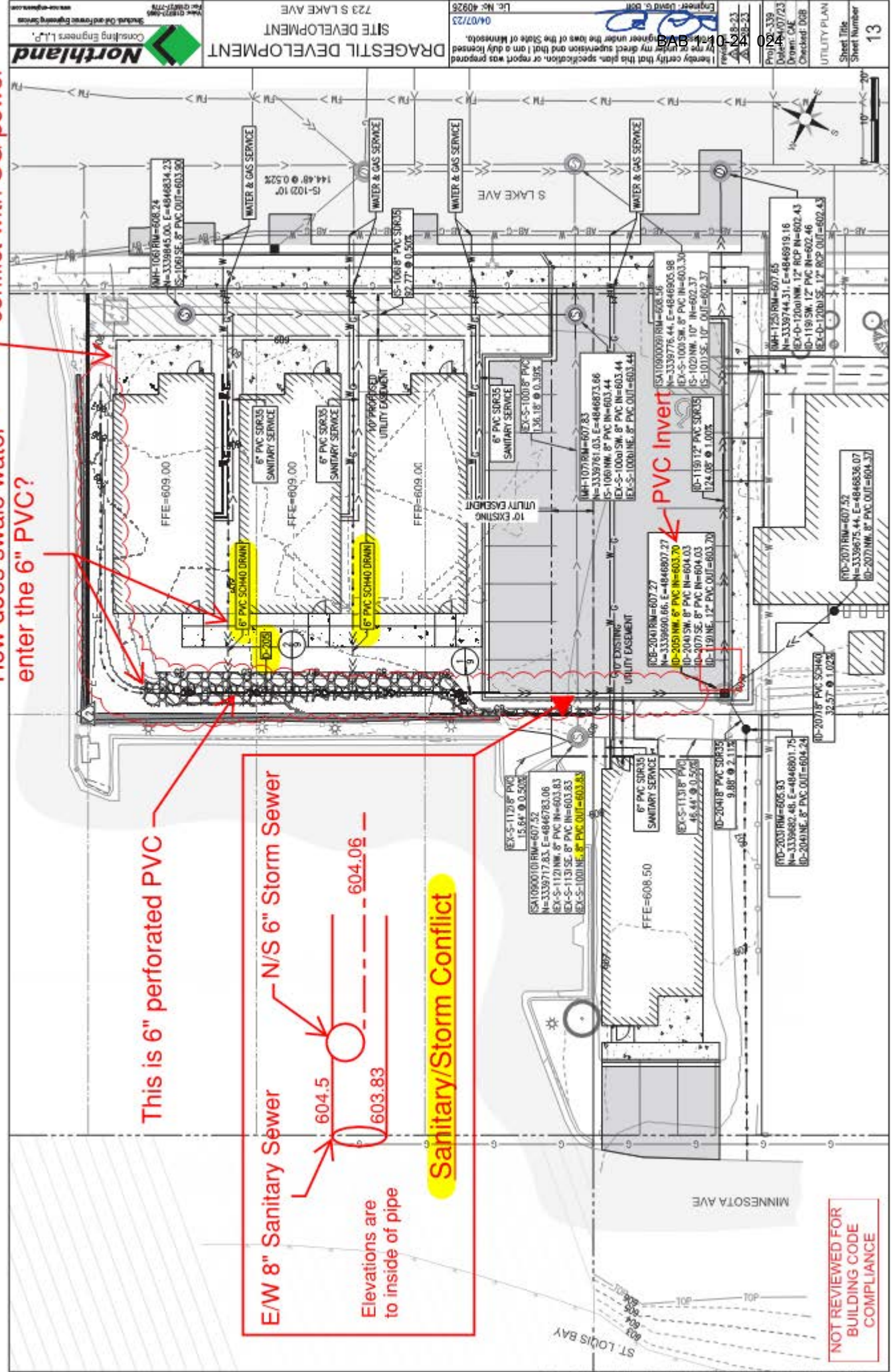
This is 6" perforated PVC

E/W 8" Sanitary Sewer

N/S 6" Storm Sewer

Elevations are to inside of pipe

Sanitary/Storm Conflict



NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE

Approx 75' travel between A and B = .75' drop (606.1 + .75 = 606.85)

Point B - 6" PVC Invert = 605.1. (assuming 6" of cover, grade is 606.1)

Exist. grade at retaining wall = 606'

Point A - Start swale (Current = 605.0, should be = 606.85)

Estimated 605'

At current design, grade will be 9" lower than the bottom of the 6" PVC

Will storm water impact the retaining wall?

Exist. grade at retaining wall = 605'

140' @ 1% = 1.4' drop.
Point A 603.7 + 1.4 =
Point B 605.1

No place for this water and snow to go

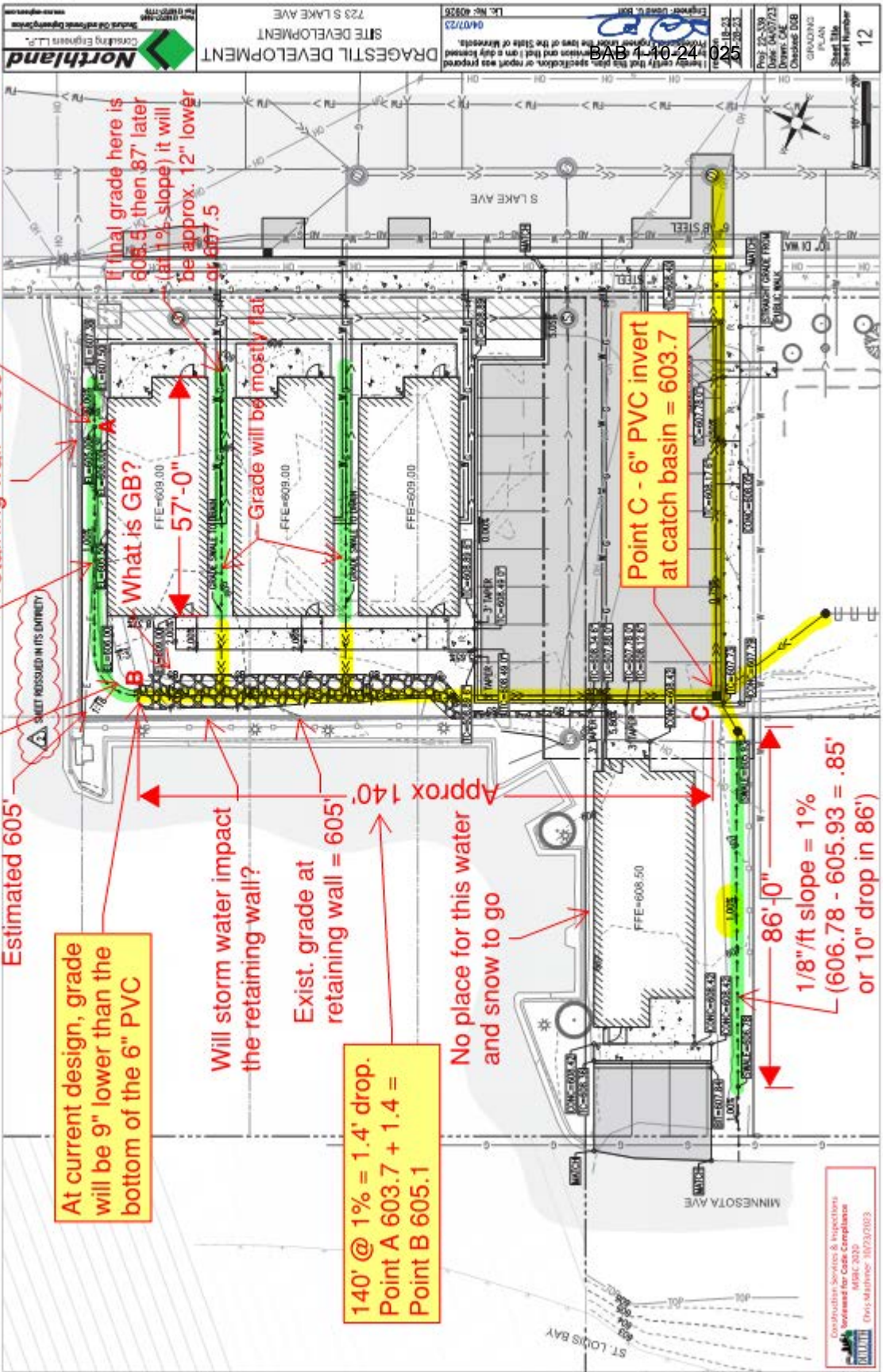
Approx 140'

Point C - 6" PVC invert at catch basin = 603.7

86'-0" 1/8" ft slope = 1%
(606.78 - 605.93 = .85' or 10" drop in 86')

What is GB?
57'-0"
if final grade here is 605.5 then .87' later (at 1% slope) it will be approx. 12" lower or 607.5

Grade will be mostly flat



HANFT FRIDE
A PROFESSIONAL ASSOCIATION

DULUTH OFFICE:
1000 U.S. BANK PLACE
130 WEST SUPERIOR STREET
DULUTH, MN 55802-2094
TELEPHONE: 218/722-4766
FAX: 218/529-2401

CLOQUET OFFICE:
1219 -14TH STREET
CLOQUET, MN 55720
TELEPHONE: 218/879-3333
FAX: 218/879-3201

☐ REPLY TO CLOQUET OFFICE

WWW.HANFTLAW.COM

EMAIL: WMB@HANFTLAW.COM

November 28, 2023

WILLIAM M. BURNS
FREDERICK A. DUDDERAR, JR.
R. THOMAS TORGERSON*
CHERYL M. PRINCE*
ROBIN C. MERRITT*
JENNIFER L. CAREY*
MARK D. PILON*
JACOB J. BAKER*
SCOTT A. WITTY*
LEAH L. FISHER*
BRENT W. MALVICK
KIMBERLY E. BRZEZINSKI*
JOHN B. SCHULTE
HOLLY E. HALLER
JESSE W. SMITH
JESSICA L. MCKNIGHT

RICHARD R. BURNS,* OF COUNSEL
CHARLES H. ANDRESEN, OF COUNSEL

*ALSO ADMITTED IN WISCONSIN

Via Email Only

Mr. Steven Robertson
Senior Planner
City of Duluth Planning and Construction
411 W. First Street, Room 210
Duluth, MN 55802
srobertson@duluthmn.gov

Re: 723 S. Lake Avenue – “Dragestil Hotel”
Our File: 28580.002

Dear Steven:

Hanft Fride has had the privilege of representing the Solas, owners of the South Pier Inn, for over 20 years. We have now met with them on several occasions regarding the referenced project adjacent to the South Pier Inn, where you have advised them that a building permit or permits are likely to be issued imminently.

It is important here for us to put the City on notice of the number of concerns that exist with the plan presented by Dragestil Hotel. These concerns relate to harm and damage to the South Pier Inn which the Solas see as probable based on the plans that they have reviewed. The City will be held responsible if its permitted work causes or contributes to damage to the South Pier Inn.

The level of concern by the Sola ownership is such that they engaged Jeff Iisakka, now retired but formerly a long-term Kraus-Anderson construction official, to review the plans developed for the Dragestil hotel. Mr. Iisakka identified issues of concern. The issues are numerous, but at least four of them are of a nature where damage to the Sola property may be imminent. These include:

1. There has been communication between Dragestil and the City regarding trees, particularly several large cedars, which would inhibit some of the proposed construction. It needs to be understood that these trees are either wholly the property of the Sola ownership or jointly owned with Dragestil. No

November 28, 2023

Page 2

action with respect to these trees can be authorized without the consent of the South Pier Inn ownership, i.e., the Solas.

2. We are not sure at this point in time whether Building 4 is going to be permitted now, but it appears to be so close to the Sola property line that construction cannot occur without utilizing the Sola property, nor could the wall of that building be repaired, or, for that matter, even painted. The Solas will not be granting permission to Dragestil to enter on their property for construction or maintenance of this building or any other.
3. Jeff Iisakka has reported to the Solas that the stormwater management on the site as reviewed by him is inadequate. That includes issues over the slopes, the size of the drain, the issues with frozen sand during many months of the year, and otherwise. This stormwater could damage the Solas' retaining wall, their parking lot, and otherwise damage and devalue their property.
4. It appears that the metal roof on one of the buildings extends to within a foot of the property line. Snow and ice will likely come off of these roofs onto cars in the Solas' lot, damaging the cars, causing water runoff on the Sola property from its melting, and otherwise be inappropriate.

The staff recommendation and finding in the original Planning Commission approval here included four buildings and it appears only three are currently being permitted. This seems inconsistent with the findings which provided that the "project be limited, constructed, and maintained consistent with plans titled 'Hotel Site Plan' submitted on July 13, 2021". It does not appear that any different plan other than the complete plan has been approved by the Planning Commission.

Jeff Iisakka will be made available to you to provide more specific engineering-type detail to these issues.

I am emailing you a copy of this letter with a copy to Jean Coleman of the City Attorney's office as well.

Very truly yours,



William M. Burns

WMB/bmk

c: Ms. Jean Coleman (jcoleman@duluthmn.gov)
 Mr. Branden Robinson (branden@southpierinn.com)
 Mr. Dale Sola (soladale@gmail.com)
 Mr. Rand Sola (randmade@yahoo.com)
 Mr. Steven Sola (stevensola@rocketmail.com)



Beaumier Trogon
Orman Hurd & Viegas, PLLP
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TERRY A. TROGDON, Of Counsel*†
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PARALEGALS
APRILLE A. BEYER**
KAYLA ANDRENA MOORE**
ANGELA J. PECARINA
**MINNESOTA CERTIFIED PARALEGAL

December 8, 2023

VIA HAND DELIVERY

City of Duluth
City Clerk
City Hall, Room 330
411 West First Street
Duluth, MN 55802

Re: Appeal
Special Use Permit File No. PL-21-119 (PL-22-035)
723 S. Lake Avenue

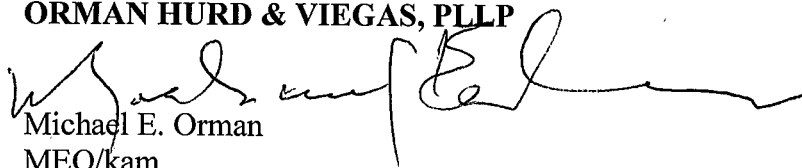
Dear Folks:

On December 7, 2023, this office filed an appeal on behalf of Sola Properties, LLC, and South Pier Inn, LLC to appeal action related to a special use permit issued for 723 S. Lake Avenue. The appeal should have referred File PL-22-035 and to the specific action appealed, which is the issuance of three building permits on November 27, 2023.

In addition, enclosed please find our firm's check for the \$350 filing fee.

If you have any questions, please do not hesitate to contact me.

Very truly yours,
BEAUMIER TROGDON
ORMAN HURD & VIEGAS, PLLP


Michael E. Orman
MEO/kam
Enclosure

cc: Branden Robinson

CHECK-10-24 029

DATE	DESCRIPTION	INVOICE #	AMOUNT	DEDUCTION	NET AMOUNT
125.00	City of Duluth				
12/08/23	South Pier Inn (7720.001) Appeal Fee		350.00		350.00

CHECK DATE	CONTROL NUMBER	TOTALS	Gross:	Ded:	Net:
12/08/23	4088		350.00	0.00	350.00

4088

Beaumier Trogon Orman Hurd & Viegas, PLLP

227 West First Street, Suite 610
Duluth, MN 55802
218-722-1000



www.northshore.bank
218-722-4784

75-10/919



DATE

CHECK

AMOUNT

12/08/23

4088

****\$350.00

PAY

TO THE
ORDER
OF

City of Duluth
411 W 1st St
Duluth MN 55802-1185

*** THREE HUNDRED FIFTY & 00/100 DOLLARS

VOID AFTER 90 DAYS

AUTHORIZED SIGNATURE

⑈004088⑈ ⑆091900106⑆ 5048533⑈

PERMIT

Site Address: 713 S LAKE AVE
Application Date: 04/07/2023
Applicant: HEIRLOOM CONSTRUCTION
Owner: PARK POINT LAND CO LLC
Subdivision: UPPER DULUTH LAKE AVENUE
Lot/Block: 0000/000
Parcel ID: 010-4380-02380
Parcel Legal Description:
 Lots 228, 230, 232, 234 AND 236, INCLUDING Lot 229,
 MINNESOTA AVENUE, UPPER DULUTH
Description of Work Authorized by Permit:
 BUILDING 1 - NEW 3 STORY, 3-UNIT HOTEL: DRAGESTIL HOTEL

Permit Type: BS BLDG COM
 NEW PRINCIPLE BLDG
Permit Number: BBLDG2304-021
Permit Issued Date: 11/30/2023
Permit Status: ISSUED
General Site Info: BUILDING 1 - DRAGESTIL
 HOTEL

Conditions:

This permit authorizes work only as described in the reviewed application and plans on file in the Construction Services & Inspections Division and in compliance with all applicable laws, rules and ordinances. The permit holder is responsible for requesting inspections. Failure to call for inspections for all permitted work, including a final inspection, is a violation of the code. This permit becomes invalid if the work authorized by the permit is suspended or abandoned for more than 180 days. 1300.0120 Subp. 10.

WARNING before digging call Gopher State One Call 1-800-252-1166. REQUIRED BY LAW.

Please call Dave Hjelle for all required construction inspections. He can be reached at 218-409-5414.

Work shall be consistent with the plans and information provided with the permit application and shall comply with applicable codes, ordinances and laws and conditions of approval.

Approved by: Tara Smith

Date: 11/30/2023

Applicant Mailing Address:

HEIRLOOM CONSTRUCTION
 PO BOX 3144
 DULUTH, MN 55803

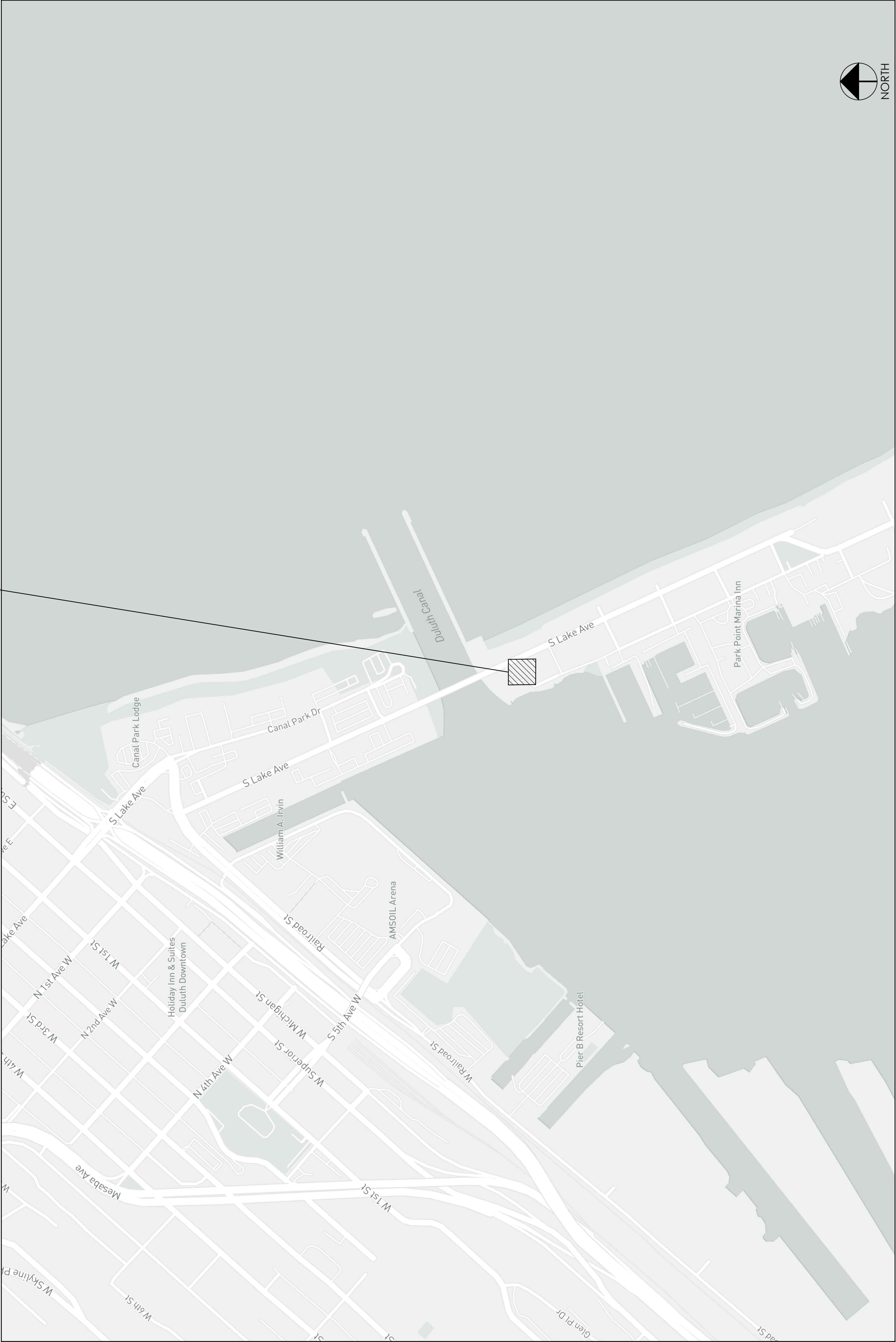
Valuation: \$826,250.00

BUILDING	\$6,833.38
PERMITS	
STATE	\$413.13
SURCHARGE	
PLAN REVIEW	\$4,441.70
FEE	
CAF	\$2,820.00

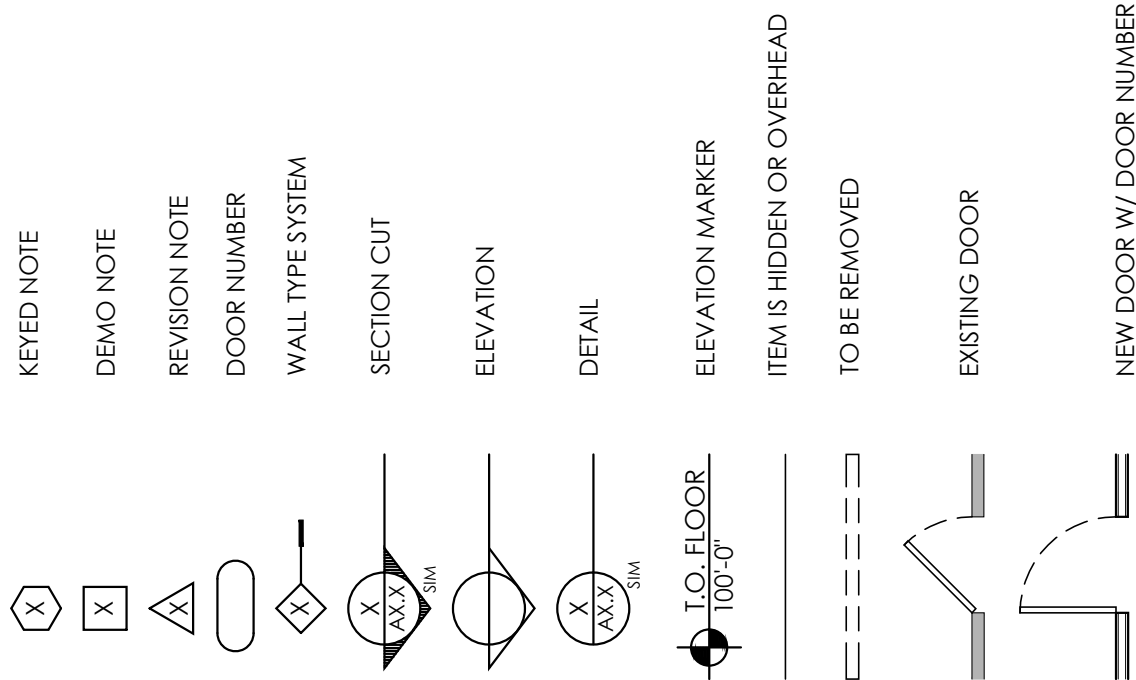
Total Fees: \$14,508.21

LOCATION MAP - DULUTH, MN

PROJECT LOCATION



SYMBOL LEGEND



PROJECT TEAM

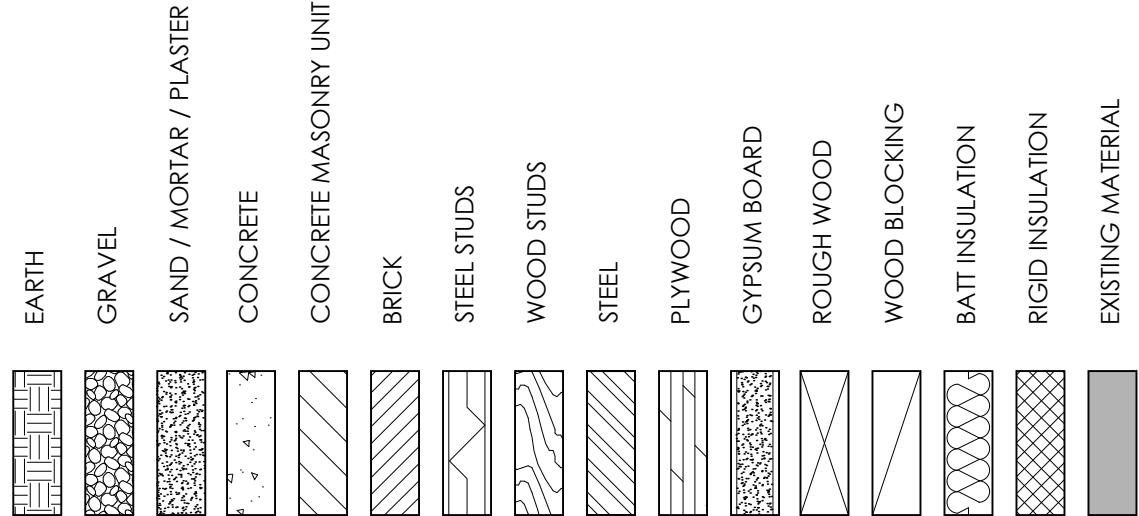
ARCHITECT
AROLA ARCHITECTURE STUDIO, LLC
501 S. LAKE AVENUE, SUITE 205
DULUTH, MINNESOTA 55802

STRUCTURAL ENGINEER
MEYER BORGMAN JOHNSON
501 S. LAKE AVENUE, SUITE 200
DULUTH, MN 55802

CONTRACTOR
HERLOOM CONSTRUCTION
CONTACT: DAN BUERSKIN
202 E. 1ST STREET
DULUTH, MN 55802

OWNER
HERLOOM PROPERTIES
CONTACT: MIKE SCHRAEPFER
202 E. 1ST STREET
DULUTH, MN 55802

MATERIAL LEGEND



SHEET INDEX

TITLE	SHEET INDEX / LEGENDS
SITE	SITE PLAN
	ZONING SUMMARY
ARCHITECTURAL	
A0.1	CODE SUMMARY
	LIFE SAFETY PLANS
A0.2	CODE DRAWINGS
	WALL TYPES
A0.3	GENERAL NOTES
A0.4	STRUCTURAL NOTES
A2.1-1	FOUNDATION PLAN, BUILDING #2, #3
A2.1-3	FOUNDATION PLAN, BUILDING #1
A2.2	FIRST FLOOR PLAN
A2.3	SECOND FLOOR PLAN
A2.4	THIRD FLOOR PLAN
	ROOF PLAN
A3.1	EXTERIOR ELEVATIONS
A3.2	EXTERIOR ELEVATIONS
A4.1	BUILDING SECTIONS
A4.2	BUILDING SECTIONS
A5.1	TYPICAL WALL SECTION
	DETAILS
A5.2	DETAILS
A6.0	SCHEDULES
A7.1	FIRE STOPPING DETAILS
A7.2	FIRE STOPPING DETAILS

LANDSCAPE
L1.0 TREE PRESERVATION & REPLACEMENT PLAN

MECHANICAL & ELECTRICAL - DELAYED SUBMITTAL

CIVIL - SUBMITTED SEPARATELY

SHEET NO.

TITLE

 AROLA ARCHITECTURE STUDIO, LLC 501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802 218-740-5219 WWW.AROLARCH.COM	I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULUTH LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.	SIGNATURE  RYAN J. AROLA DATE 5/11/2023 LICENSE NO. 52478	DRAGESTIL HOTEL - BUILDINGS 1, 2, 3 SOUTH LAKE AVENUE / MINNESOTA AVENUE DULUTH, MN 55802	<div>  Construction Services & Inspections Reviewed for Code Compliance MSBC 2020 Chris Machmer 10/06/2023 </div>	ISSUE DATE 5/19/2023	PROJECT NO. 2166	REVISIONS	SHEET NO. A0.1

CODE SUMMARY - S. LAKE AVE. BUILDINGS (BUILDINGS #1, #2, #3)

2020 MINNESOTA BUILDING CODE					
CODICES USED:	OCCUPANCY:	CONSTRUCTION TYPE:			
	SECTION 310 GROUP R-1	SECTION 602 TYPE V-B	RESIDENTIAL [TRANSIENT]		
		SECTION 506 OCCUPANCY			
ALLOWABLE AREA:	R-1	7,000 SF	7,000 SF	0.688	3
					35,454 SF

ACTUAL AREA:						
	OCCUPANCY	BASEMENT	1st FLOOR	2nd FLOOR	3rd FLOOR	TOTAL
R-1		0 SF	1,241 SF	1,170 SF	1,100 SF	3,511 SF

ALLOWABLE HEIGHT:	SECTION 504	OCCUPANCY	HEIGHT	STORIES	ACTUAL HT	STORIES
		R-1	60 FT	3	35 FT	3
		NO				
	SECTION 505					
		NO				
	SECTION 506					
		NO				

AUTOMATIC SPRINKLER SYSTEM:	SECTION 903	NFPA 13 SPRINKLER SYSTEM WILL BE INSTALLED
FIRE ALARM & DETECTION SYSTEMS:	SECTION 907	WILL COMPLY

BEARING WALLS [INT.]	0 HOUR
NONBEARING WALLS [EXT.]	0 HOUR
NONBEARING WALLS [INT.]	0 HOUR

TABLE 602	EXTERIOR WALLS	ROOF CONSTRUCTION	0 HOUR
		<5 FEET	1 HOUR
		5 FEET TO <10 FEET	1 HOUR
		10 FEET TO <30 FEET	0 HOUR
		> 30 FEET	0 HOUR

	EXTERIOR WALL OPENINGS	WILL COMPLY
SECTION 706	FIRE WALLS	NOT REQUIRED
SECTION 707	FIRE BARRIERS	WILL COMPLY
		1 HOUR AT EXIT

SECTION 713	SHAFT ENCLOSURES	NOT APPLICABLE
ACCESSIBILITY REQUIREMENTS	SECTION 11	ACCESSIBILITY
		WILL COMPLY
		SEE NOTE 4 BELOW

PROJECT REQUIREMENTS

OCCUPANCY:	R-1	Residential (Transient)

PROJECT AREA:	R-1	11,895 SF
---------------	-----	-----------

PROJECT HEIGHT:	TABLE 1004.5	FUNCTION	AREA	OCCUPANT LOAD	OCCUPANT LOAD FACTOR
35'					

R-1 (FIRST FLOOR UNIT)	1,241 SF	200 SF	GROSS	6 OCCUPANTS
R-1 (SECOND FLOOR UNIT)	1,170 SF	200 SF	GROSS	6 OCCUPANTS
R-1 (THIRD FLOOR UNIT)	1,100 SF	200 SF	GROSS	6 OCCUPANTS

NUMBER OF EXITS: SECTION 1006 1

EXIT ACCESS TRAVEL DISTANCE:	TABLE 1017	Z30111
BATHTUBS - DRINKING		

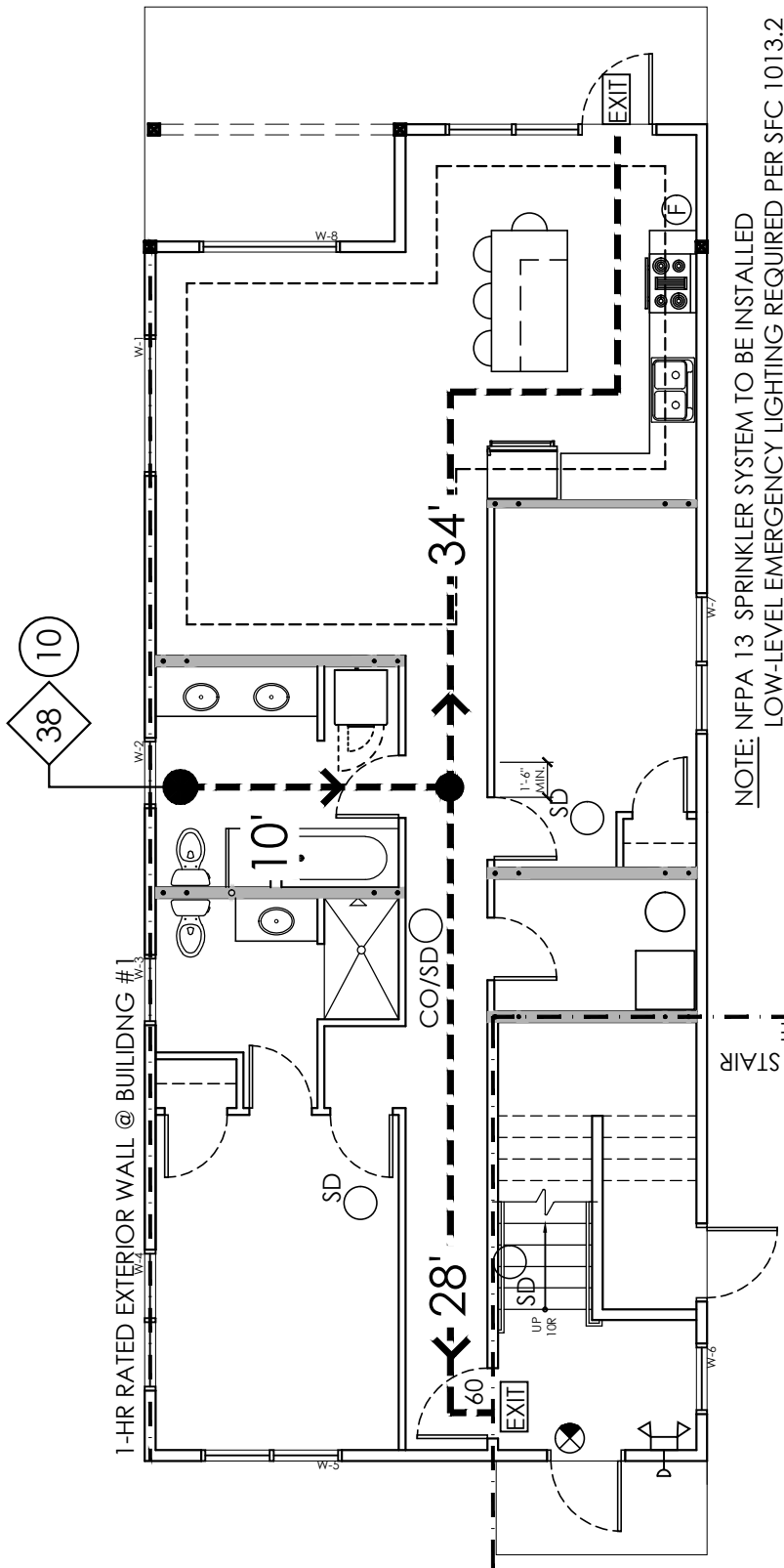
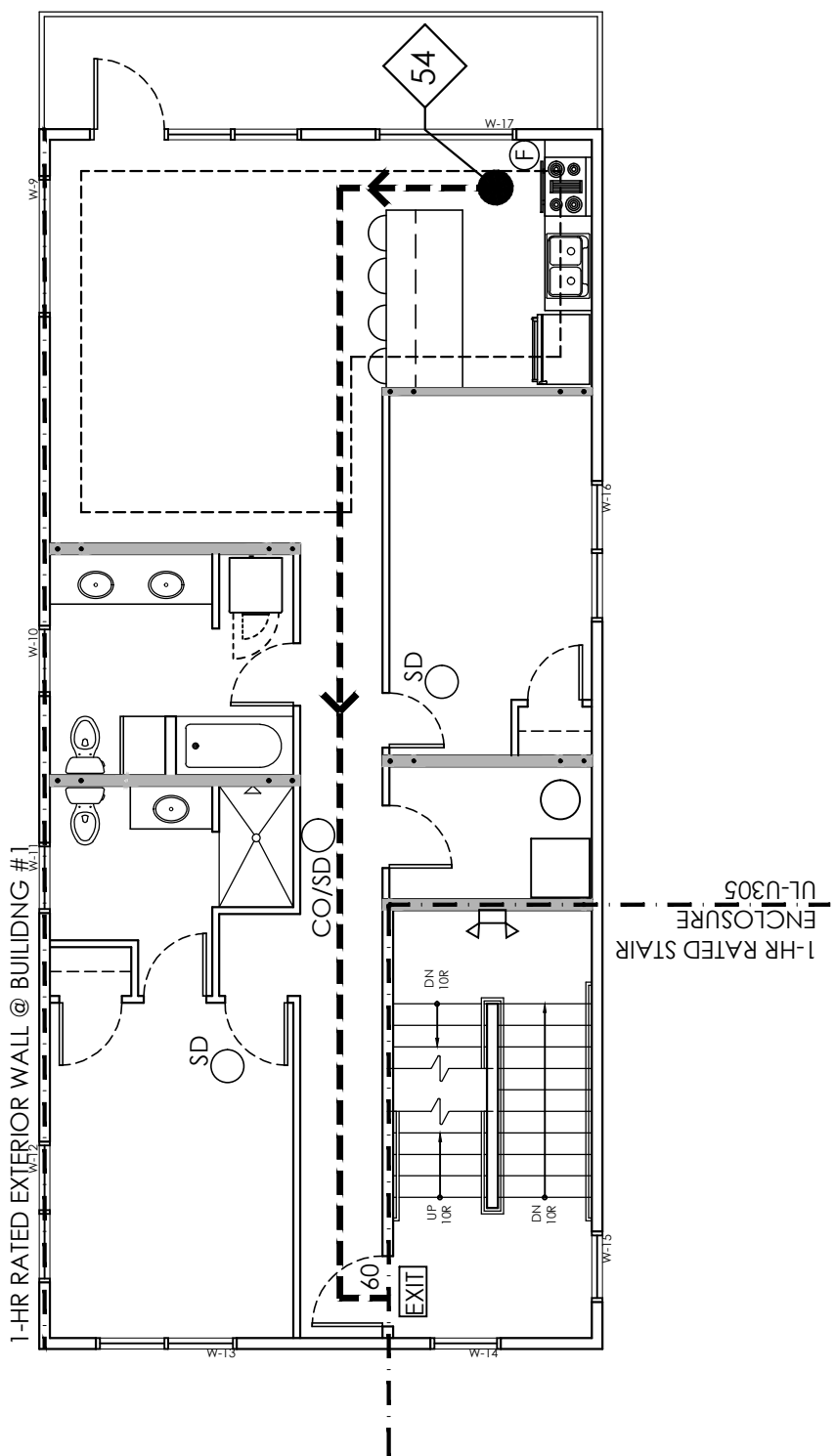
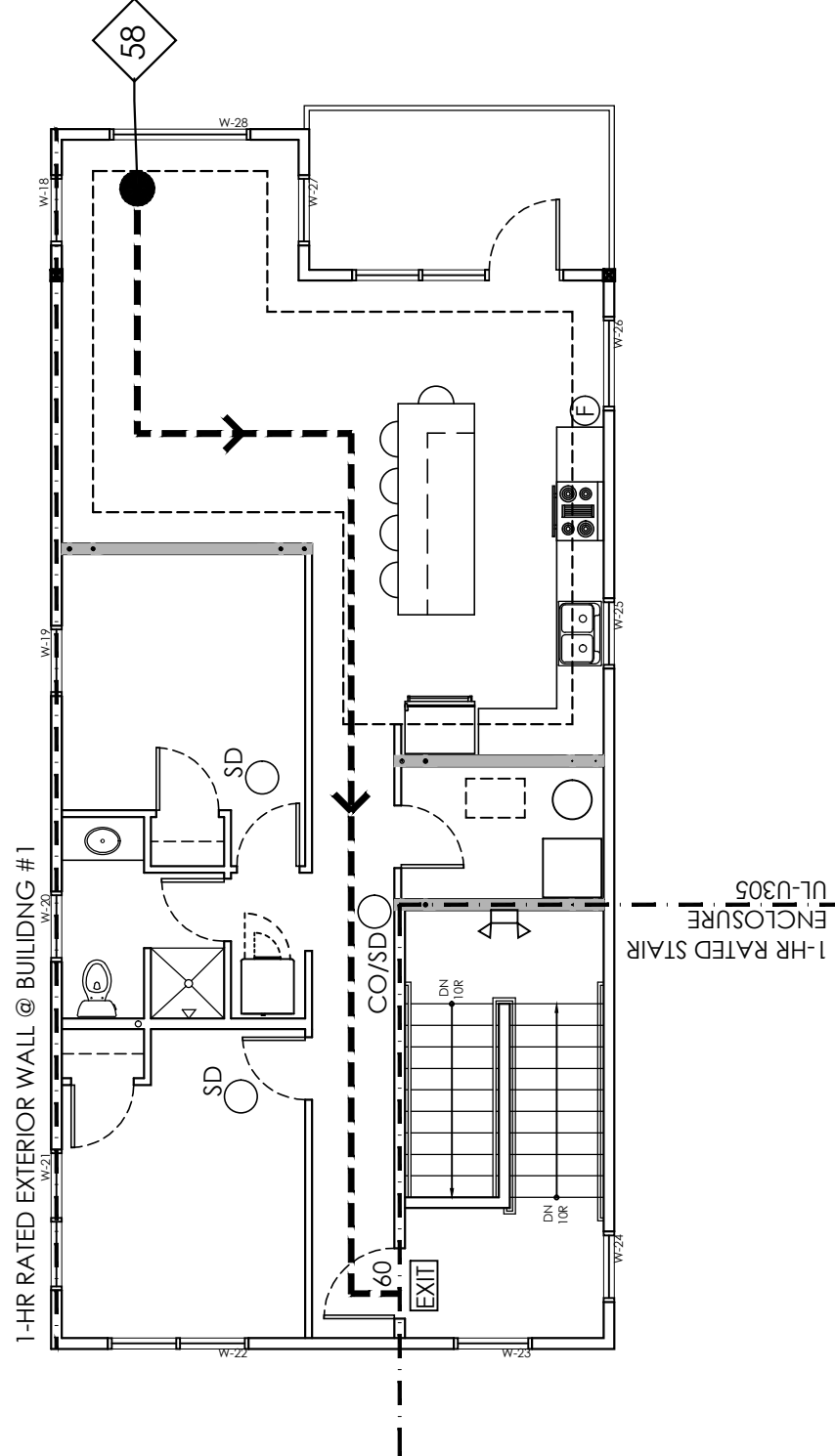
IDENTIFICATION NUMBER	DATE	DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
R-1	-	1 PER UNIT	0	1 PER UNIT	0	0
FIXTURES PROVIDED		15-0	15	6-9	0	0

COMMENTS

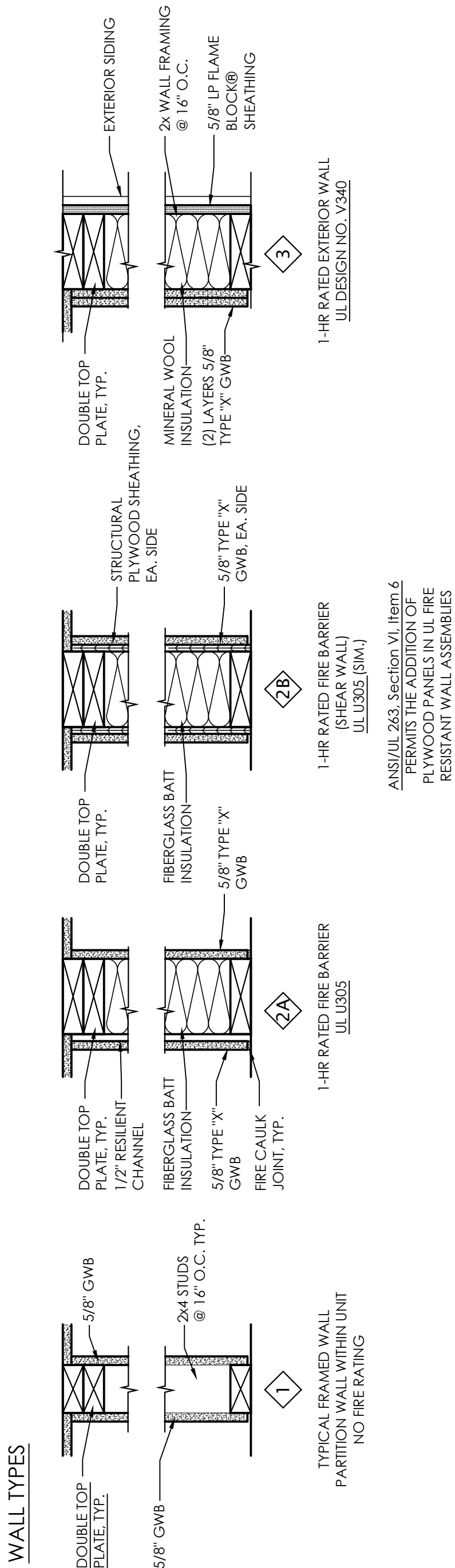
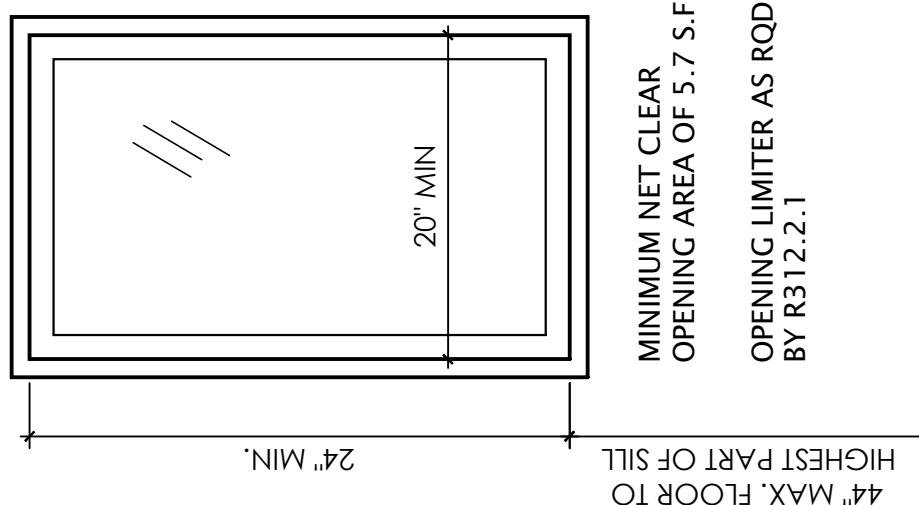
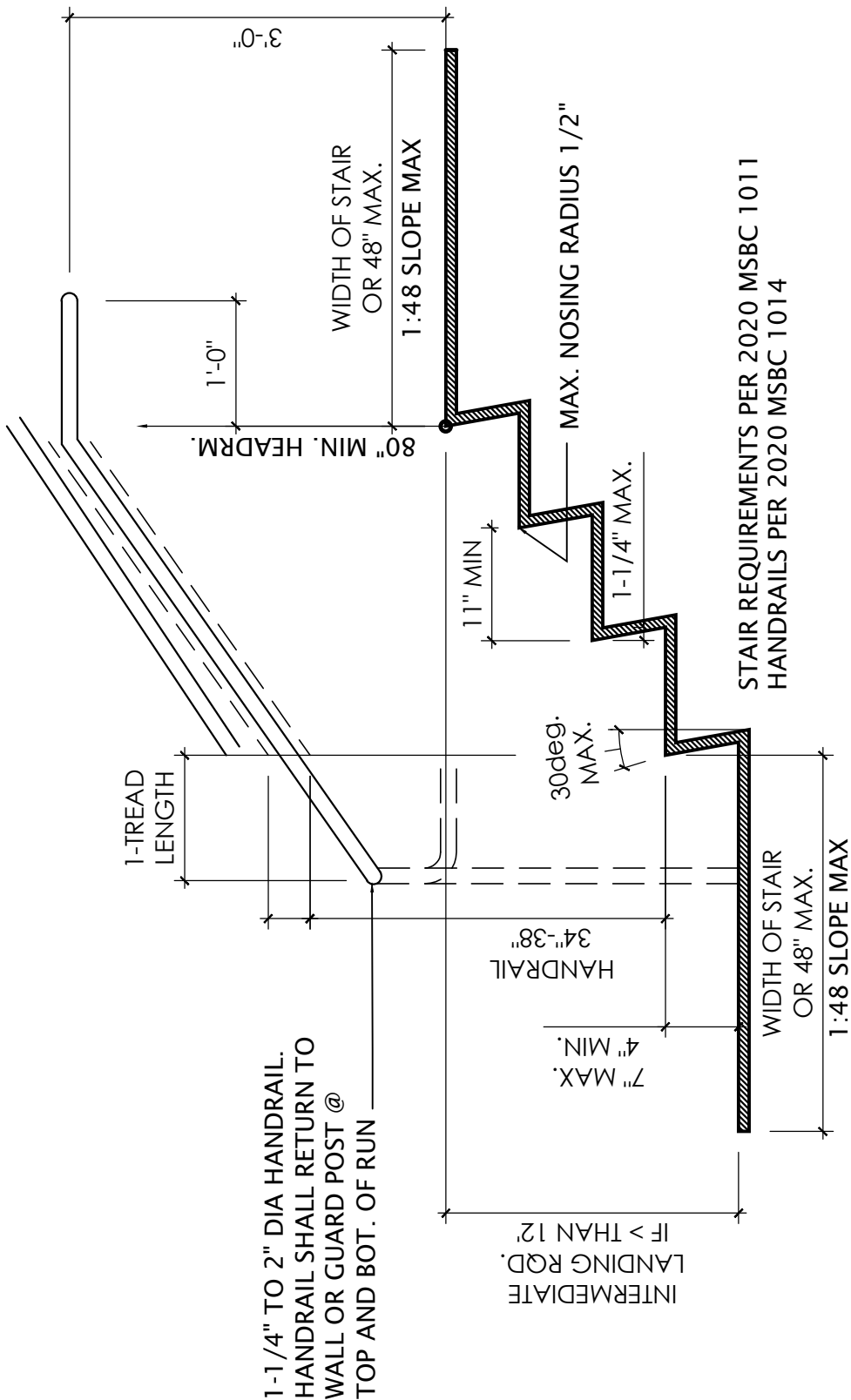
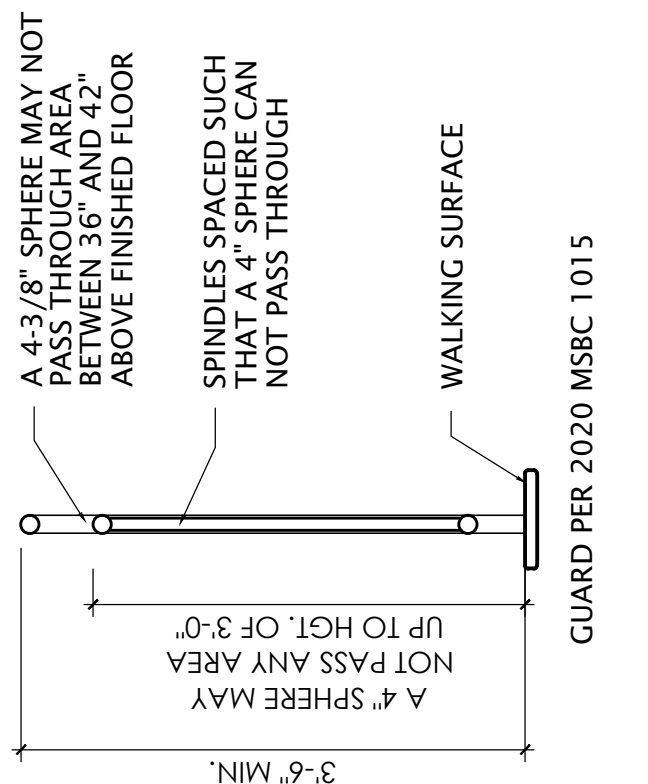
1. BUILDINGS #1, #2, AND #3 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS ONE BUILDING PER 705.3
2. BUILDING #4 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS A SEPARATE BUILDING AND AN IMAGINARY PROPERTY LINE IS SHOWN PER 705.3
3. EXISTING BUILDING ON PROPERTY HAS 3 RENTAL UNITS, ONE OF WHICH IS A TYPE B UNIT. BUILDING HAS RAMP AND ENTRY COMPLIANT WITH MN ACCESSIBILITY CODE. UPGRADES WILL BE MADE TO CONVERT TO A TYPE A UNIT.

LIFE SAFETY PLANS

1/8"=1'-0"



NOTE: NFPA 13 SPRINKLER SYSTEM TO BE INSTALLED
LOW-LEVEL EMERGENCY LIGHTING REQUIRED PER SFC 1013.2



TYPICAL STRUCTURAL NOTES:
These notes, specify requirements for the structural design represented in these documents. The construction and materials shall comply with all pertinent codes and references.

The contractor shall verify all dimensions and existing conditions in the field that affect construction prior to commencing work. Resolve any discrepancies with the architect prior to construction.

The drawings and specifications represent the completed structure. The contractor is responsible for bracing and shoring (without overstressing) all structural elements as necessary until completion of the project.

DEFERRED SUBMITTALS:
The following items shall be issued as deferred submittals per IBC:

 Prefabricated Wood Floor and/or Roof Trusses and I-Joists

All engineering design provided by others and submitted for review shall bear the certification stamp and signature of a qualified professional engineer who is licensed in the State of Minnesota. Under circumstances all MA review shop drawings that are considered to be copied/copied construction documents for submittals. The detailer shall produce and submit original documents for review.

All items issued as deferred submittals shall be issued a minimum of 30 days prior to installation and shall not be installed until their design and submittal documents have been reviewed for general conformance to the drawings by the general contractor, the engineer, of record and the building official. A copy of the deferred submittal shall be forwarded to the city after the engineer of record has reviewed the documents and prior to the erection of the deferred submittal items.

DESIGN CODES AND STANDARDS:

2020 Minnesota State Building Code and 2018 International Building Code, as amended and adopted by the State of Minnesota

MATERIAL PROPERTIES:

Reinforcing Steel (Fy):	Typical	60,000 psi	ATSM A615 Grade 60
	Weldable	60,000 psi	ATSM A706 Grade 60
Cast-in-Place Concrete (f'c) at 28 days, 4,000 psi u.n.o.			
Structural Fasteners:	Grade 36 Anchor Rods, U.N.O.	36,000 psi	ASTM F1554
	Threaded Rods	36,000 psi	ASTM A36
SAWN LUMBER:			
Hem Fir (HF) No. 2 or better: (Joists and Headers)		Fb 850 psi	
		Fc 1300 psi parallel to grain	
		Fv 150 psi	
		E 1,300,000 psi	
Spruce-Pine-Fir (SPF) No. 2 or better: (Studs and Built-up Posts)		Fb 875 psi	
		Fc 1150 psi parallel to grain	
		Fc 425 psi perpendicular to grain	
		E 1,400,000 psi	
Southern Yellow Pine (SYP) No. 2 or better: (Preservative Treated Wood)		Fv 175 psi	
		Fc Varies with Lumber width (refer to NDS)	
		Fc Varies with Lumber width (refer to NDS)	
		Fc 565 psi perpendicular to grain	
Douglas-Fir-Larch (DFL) No. 1 or better: (Heavy Timber, full sawn)		Fb 1200 psi	
		Fv 170 psi	
		Fc 1000 psi parallel to grain	
		Fc 625 psi perpendicular to grain	
Cedar No. 2 grade: (Wood Decks and Railings)		Ft 825 psi	
		E 1,600,000 psi	
		Fb 800 psi	
		Fv 225 psi	
Glue Laminated Timber Beams: Southern Pine 24F-V8		E 1,400,000 psi	
		Fb 2,400 psi top and bottom tension	
		Fv 200 psi	
		E 1,700,000 psi	

STRUCTURAL COMPOSITE LUMBER: Laminated Veneer Lumber (1 3/4" x Depth)		Fb 2,900 psi	
		Fv 285 psi	
		Fc 2,150 psi parallel to grain	
		Fc 750 psi perpendicular to grain	
Glue Laminated Timber Beams: Southern Pine 24F-V8		E 2,000,000 psi	
		Fb 2,400 psi top and bottom tension	
		Fv 200 psi	
		E 1,700,000 psi	

DESIGN LOADS:			
Risk Category:	II		
LATERAL LOADS:			
Primary Frame Wind Data:			
Basic Ultimate Wind Speed:	V ult = 106 mph		
Wind Importance Factor:	1.0		
Exposure:	D		

Primary Seismic Data:	No design required		
GRAVITY LOADS:			
Ground Snow Load, Pg:	60 psf		
Flat-Roof Snow Load, Pf:	42 psf		
Snow Exposure Factor, Ce:	0.70		
Snow Load Importance Factor, I:	1.0		
Residential Floor Live Load:	40 psf		
Habitable Attics and Sleeping Areas:	30 psf		
Residential Balconies and Decks:	60 psf		
Floor Topping and Finish Allowance:	20 psf		
Mech/Electrical/Misc Allowances:	5 psf		

FOUNDATIONS:

The contractor shall verify the location of all existing and new underground utilities prior to beginning excavation.

Unless insulated, shallow, frost-protected foundations are utilized, the minimum dimension from exterior grade to bottom of footing shall typically be 60". Where footings are located adjacent to an unheated space, minimum dimension from exterior grade to bottom of footing shall be 72". **The basis of design for shallow, frost-protected foundations is ASCE 32 (Fw=3130)**

Footings are designed for an assumed minimum soil bearing pressure of 2,000 pounds per square foot on undisturbed, native material (IBC-Table 1806.2 "Presumptive Load-Bearing Values"). Contractor shall be responsible for verification of all bearing soils consistent with this assumption and shall provide the services of a qualified geotechnical engineer as necessary.

Refer to the Geotechnical Evaluation Report prepared by Braun Interlec for additional recommendations and confirmation of assumed minimum allowable bearing pressure (3,000 psi allowable was confirmed). The report was furnished after drawings were issued for construction (report is dated September 29, 2023, Braun Project B2309036).

All topsoil, fill, organics, and/or other unsuitable bearing material shall be removed below the footings and/or within the building area.

Foundation and retaining walls shall be back filled with free draining fill.

Provide drain tile required by the contract documents.

Backfill equally on both sides of foundation walls to prevent overturning or lateral wall movement.

REINFORCED CONCRETE:

The detailing, fabrication and erection of all reinforcing shall be in accordance with the latest edition of ACI-315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures and ACI-318, "Building Code Requirements for Structural Concrete."

All reinforcing bars are deformed and continuous, unless noted otherwise. Refer to drawings for reinforcing lap length schedule.

Provide suitable wire spacers, chairs, etc. for support of reinforcing steel in proper position while placing concrete. All bars shall be tied to prevent displacement while placing concrete. All chairs and slab bolsters shall be plastic or steel with plastic tips. The fabricator shall submit a complete list of accessories and placing details with the shop drawings.

Provide a minimum 3/4 inch chamfer for all exposed concrete corners unless otherwise indicated on Architectural drawings.

Aluminum conduit, aluminum sleeves and aluminum embeds are not permitted in concrete.

Exterior concrete to have 6% +/- 1% entrained air.

Calcium chloride is not permitted as a concrete additive.

Concrete Cover on Reinforcing:

Topping Slab:	3/4" clear top
Slab on grade:	upper third of slab, UNO on plan.
Footings:	3" clear bottom and sides
	2" clear top
Walls w/#5 bar and smaller:	1 1/2" clear to earth or weather face
	3/4" clear to interior face

CONCRETE SLABS ON GRADE:

The contractor shall submit control or construction joint locations to the architect for approval. Joints shall be detailed as shown on the drawings. The joints shall be spaced as noted below:

Exterior slabs:	24 times slab thickness, maximum;
Interior slabs:	36 times slab thickness, maximum;
Interior slabs w/ carpeting:	48 times slab thickness, maximum.

The panels formed by control or construction joints shall not be "L" shaped and the panel aspect ratio shall not exceed 1.5.

Mechanically vibrate concrete around trench drains, floor ducts, construction joint dowels, architectural features and other embedded items.

WOOD FRAMING- DIMENSION LUMBER:

All member sizes given in the drawings are nominal dimensions. All lumber shall be kiln-dried, maximum moisture content 15% and grade marked according to the National Forest Products Association Regulations.

All joists (greater than 2 x 8) shall be supported laterally at the ends and at each support by solid blocking except where ends or joists are nailed to a header, band or rim joist or to an adjoining stud. Solid blocking shall be not less than 2" in thickness and the full depth of the joist.

Wood joists shall bear on the full width of supporting members, stud walls, beams, etc., unless otherwise noted.

Do not notch or cut joist unless approved by the engineer.

All beams and joists not bearing on supporting members shall be framed with prefabricated hangers appropriate for both the supported and supporting member.

Provide minimum double stud at bearing ends of all beams and headers; provide solid vertical blocking through floors to the support below.

All walls shall have single bottom plate and double top plate.

Double top plate splices shall lap 4'-0" and be nailed with 8- 16d sinkers nails equally spaced with 4" end distance, unless noted otherwise on plan.

Unless otherwise noted, bottom plates of all exterior stud walls and interior bearing walls shall be anchored to new concrete with 5/8" diameter anchor bolts at 4'-0" o.c.

All exterior lumber and all lumber in contact with concrete or masonry shall be treated Southern Yellow Pine. Each wall segment shall have a minimum of 2 anchors with one anchor located within 12" of each end.

All exposed connectors or those in contact with treated lumber shall have corrosion protection (stainless steel or as otherwise approved).

GLUED LAMINATED TIMBER:

Glued laminated members shall be fabricated in conformance with ANSI Standard A190.1, American National Standard for Structural Glued Laminated Timber, or other code-approved design, manufacturing and/or quality assurance procedures.

Each member shall bear an AITC or APA-ENS identification mark or be accompanied by a certificate of conformance.

Glued laminated timber supplier shall submit shop drawings showing erection plan, bearing conditions, and anchorage details for approval.

For appearance classification of Architectural, Premium, Framing, or Industrial, refer to the architectural drawings.

Adhesive shall be wet-use exterior waterproof glue.

All member sizes are given on plan and are net dimensions.

One coat of end sealer shall be applied immediately after trimming in either shop or field.

Do not drill, cut or notch members unless approved by the engineer or the glued laminated member manufacturer.

Glue laminated members that are treated with wood preservative shall comply with AITC 109.

PREFABRICATED WOOD FLOOR AND ROOF TRUSSES:

Truss Plate Manufacturer shall be a current member in good standing of the Truss Plate Institute. The Truss Fabricator shall participate in a third-party quality assurance program that is approved by a code approved inspection agency or that meets the requirement of the Truss Plate Institute.

Truss Supplier shall submit shop drawings and design calculations for review.

Prior to fabrication of trusses the Truss Supplier shall submit a record copy of shop drawings and design calculations incorporating review comments. The shop drawings are certified by a qualified Professional Engineer registered in the state where the project is located.

The configuration of the web members for roof trusses shall be determined by the manufacturer in accordance with all architectural and structural criteria. Field modification of prefabricated trusses is not permitted.

The truss chords shall be designed for the following minimum dead loads and deflection criteria.

Roof: top chord 10 psf; bottom chord 10 psf

Floor: top chord 15 psf; bottom chord 10 psf

Roof: Live load deflection < L/360, total load deflection < L/240
Floor: Live load deflection < L/480, total load deflection < L/360 (3/4" maximum)

Truss spacing shall not exceed 24" OC, unless noted otherwise on plan.

Align truss web members throughout a bay. The contractor shall coordinate any mechanical requirements with the truss fabricator.

Truss Plate connections shall be designed in accordance with the Truss Plate Institute.

All roof truss bearing points shall be anchored with a minimum of one Simpson H1 truss anchor.

All floor truss bearing points shall be anchored with a minimum of one Simpson H2.5 truss anchor.

WOOD STRUCTURAL PANELS:

Wood structural panels shall conform to the requirement of "U.S. Product Standard PS 1 for Construction and Industrial Plywood"; "U.S. Product Standard PS 2 Performance Standard for Wood-Based Structural-Use Panels", or APA PMP-108 Performance Standards. Panels shall be APA Rated Sheathing, Exposure 1, of the thickness and Span Rating shown on the drawings.

Wood structural panel installation shall be in conformance with APA recommendations. Allow 1/8" spacing at panel ends and edges, unless otherwise recommended by the panel manufacturer.

All roof sheathing and sub-flooring shall be installed with face grain perpendicular to supports, except as indicated on the drawings.

Floor and roof sheathing shall either be blocked or tongue-and-groove. Floor sheathing shall be field glued to the framing using adhesives meeting APA Specifications AFS-01 or ASTM D3496.

When roof sheathing is nailed directly to blocking, the blocking shall be nailed to support members with a minimum of 16d nails at 4' OC.

Sub-flooring sheathing shall have tongue and groove joints or be supported by blocking.

Sub-flooring panels shall be field glued to the framing using adhesives meeting APA Specifications AFS-01 or ASTM D3496.

Tongue and Groove panels shall be glued at the tongue and groove joint.

Shear wall sheathing and exterior wall sheathing shall be installed horizontally and blocked with 2x framing at all panel edges.

Prefabricated shear walls shall be installed according to the manufacturer's recommendations, including all anchor bolts and connection to adjacent framing.

WOOD FASTENERS – NAILING:

Framing nail sizes specified on the drawings are based on the following specification U.N.O.:

Size	Length	Diameter
6d	2"	0.113"
8d	2 1/2"	0.131"
10d	3"	0.148"
12d	3 1/4"	0.148"
16d	3 3/4"	0.148"

All framing nails shall conform to ASTM F667, "Standard Specification for Power Driven Fasteners: Nails, Spikes and Staples" and NER-272 "Power Driven Staples and Nails for Use in All Types of Building Construction"

Nails shall be identified by labels attached to their containers that show the manufacturer's name and MSF report number, nail shank diameter, and length. Submit this information prior to framing.

If the contractor proposes the use of alternate nails, they shall submit (prior to construction) nail specifications with certified calculations showing structural equivalence to the engineer for review and approval.

Nails fastening APA rated plywood sheathing shall be driven flush to the face of sheathing with no counter sinking permitted. A nail sheathing as necessary to comply.

WOOD FASTENERS – STRUCTURAL WOOD SCREWS:

Structural wood screws as specified in the drawings refer to threaded steel screws that are self-drilling, dowel-type fasteners used primarily for wood-to-wood connections. These carbon steel screws are manufactured by a cold-formed process and are heat-treated with rolled threads. No pre-drilling is required.

Screws are specified in the drawings per nominal diameter and length. The diameter refers to a nominal measure of the threads, which is larger than the untreaded shaft of the fastener. Length specified does not include fastener head. Actual dimensions and available lengths vary with manufacturer.

Acceptable products are listed below. Contractor may submit alternate products for approval by structural engineer of record.

The following minimum dimensions and material properties shall apply:

Size	Min Shank: Root Diameters (in)	Acceptable Products
1/4" Diam	0.169": 0.150"	GRK RSS
5/16" Diam	0.169": 0.172"	GRK RSS, Simpson SDWH, Fastenmaster Timberlok
		GRK RSS, Simpson SDWS, Fastenmaster Ledgerlok
3/8" Diam	0.219": 0.191"	
Minimum Allowable Tensile strength of fastener (lbs.):		
1/4" Diameter	1112 lbs	
5/16" Diameter	1210 lbs	
3/8" Diameter	1505 lbs	
Minimum Allowable Shear strength of fastener (lbs.):		
1/4" Diameter	754 lbs	
5/16" Diameter	770 lbs	
3/8" Diameter	910 lbs	
Minimum Bending Yield Strength:		
	165,000 psi	



ARCHITECTURE STUDIO, LLC

501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802

218-740-5219

WWW.AROLAARCH.COM

SIGNATURE _____

RYAN J. AROLA


DATE 5/11/2023

LICENSE NO. 52478

OF THE STATE OF MINNESOTA.


I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULUTH LICENSED ARCHITECT UNDER THE LAWS

PAUL A. JOHNSON

Signature: 

DATE 5/11/2023

LICENSE # 20379



Construction Services & Inspections

Reviewed for Code Compliance

MSBC 2020

Chris Machmer 10/10/2023

DULUTH, MN 55802

SOUTH LAKE AVENUE / MINNESOTA AVENUE

DRAGESTIL HOTEL - BUILDINGS 1, 2, 3

ISSUE DATE

5/19/2023

PROJECT NO.

2166

REVISIONS

SHEET NO.

A0.4

REVISIONS

PROJECT NO.

ISSUE DATE
5/19/2023

ISSUE DATE

DRAGESTIL HOTEL - BUILDINGS 1, 2, 3
SOUTH LAKE AVENUE / MINNESOTA AVENUE
DULUTH, MN 55802

DULUTH, MN 55802

DULUTH, MN 55802

Construction Services & Inspections
Reviewed for Code Compliance
MSBC 2020
Chris Macomber 10/05/2023

MSBC 2020

Chris Machmer 10/06/2023

Date: _____
License #: _____

License #
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Signature: _____

PAUL A. JOHNSON

LUL A. JOHNSON

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DATE 5/11/2023
LICENSE NO. 52478

SIGNATURE _____
RYAN J. AROLA

OF THE STATE OF MINNESOTA.

DULY LICENSED ARCHITECT UNDER THE LAWS
OR DIRECT SUPERVISION AND THAT I AM
OR REPORT WAS PREPARED BY ME OR UNDER

I HEREBY BY CERTIFY THIS PLAN, SPECIFICATION,

AROLA

ARCHITECTURE STUDIO, LLC

501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802

218-740-5219

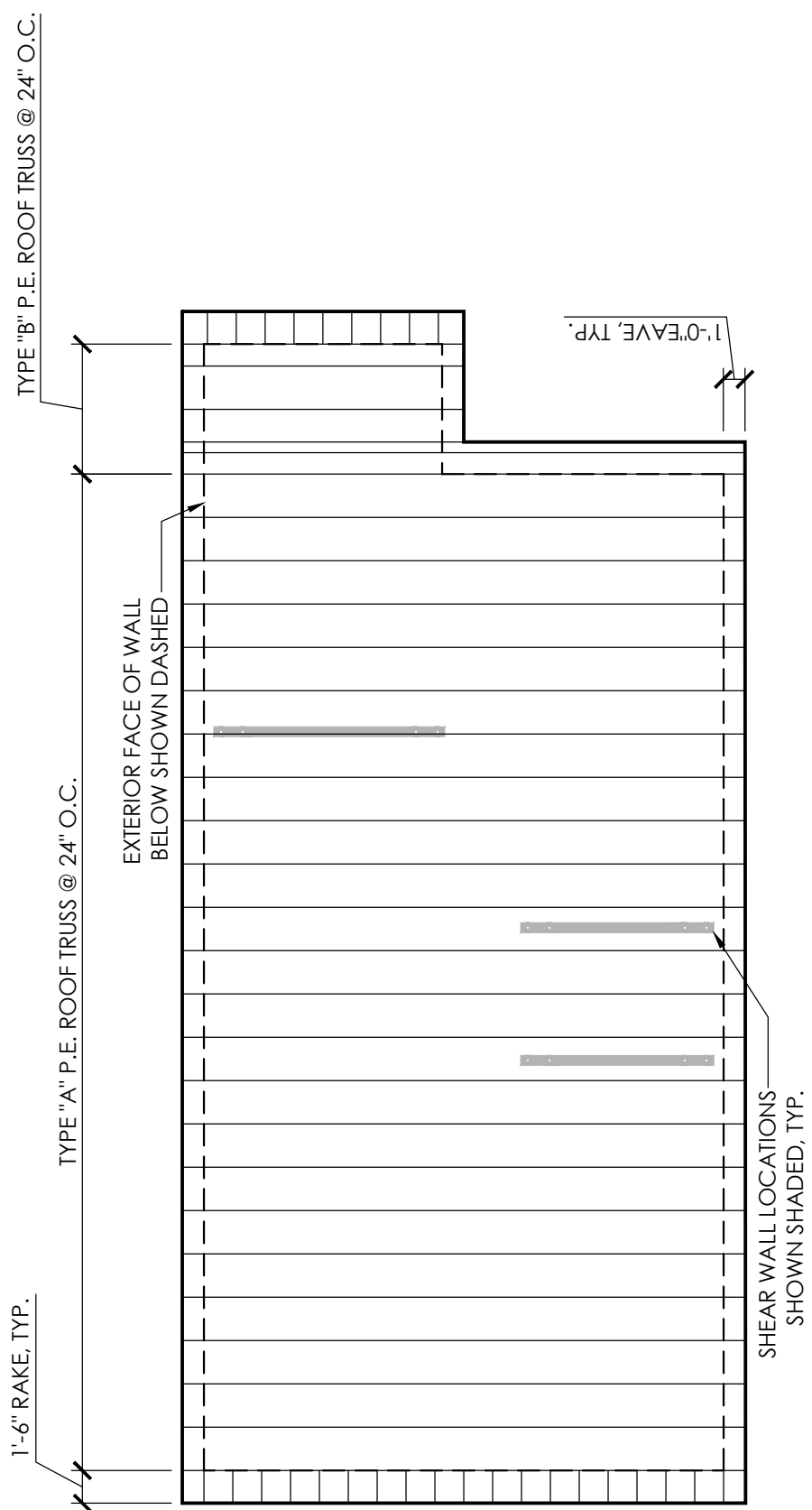
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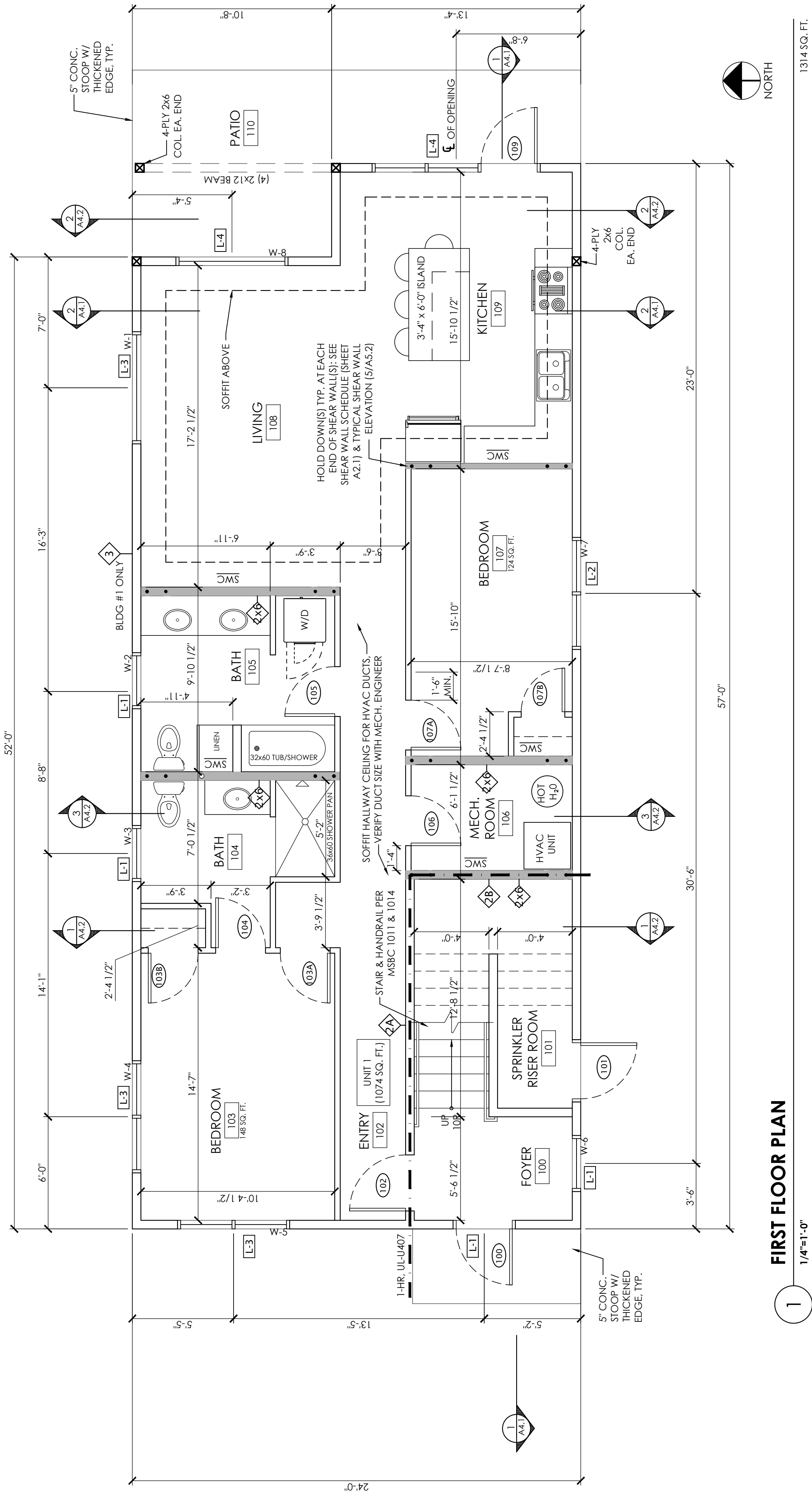
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218-740-5219
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NOTE: TRUSS DIAGRAMS ARE SCHEMATIC. FINAL TRUSS DESIGN BY TRUSS SUPPLIER





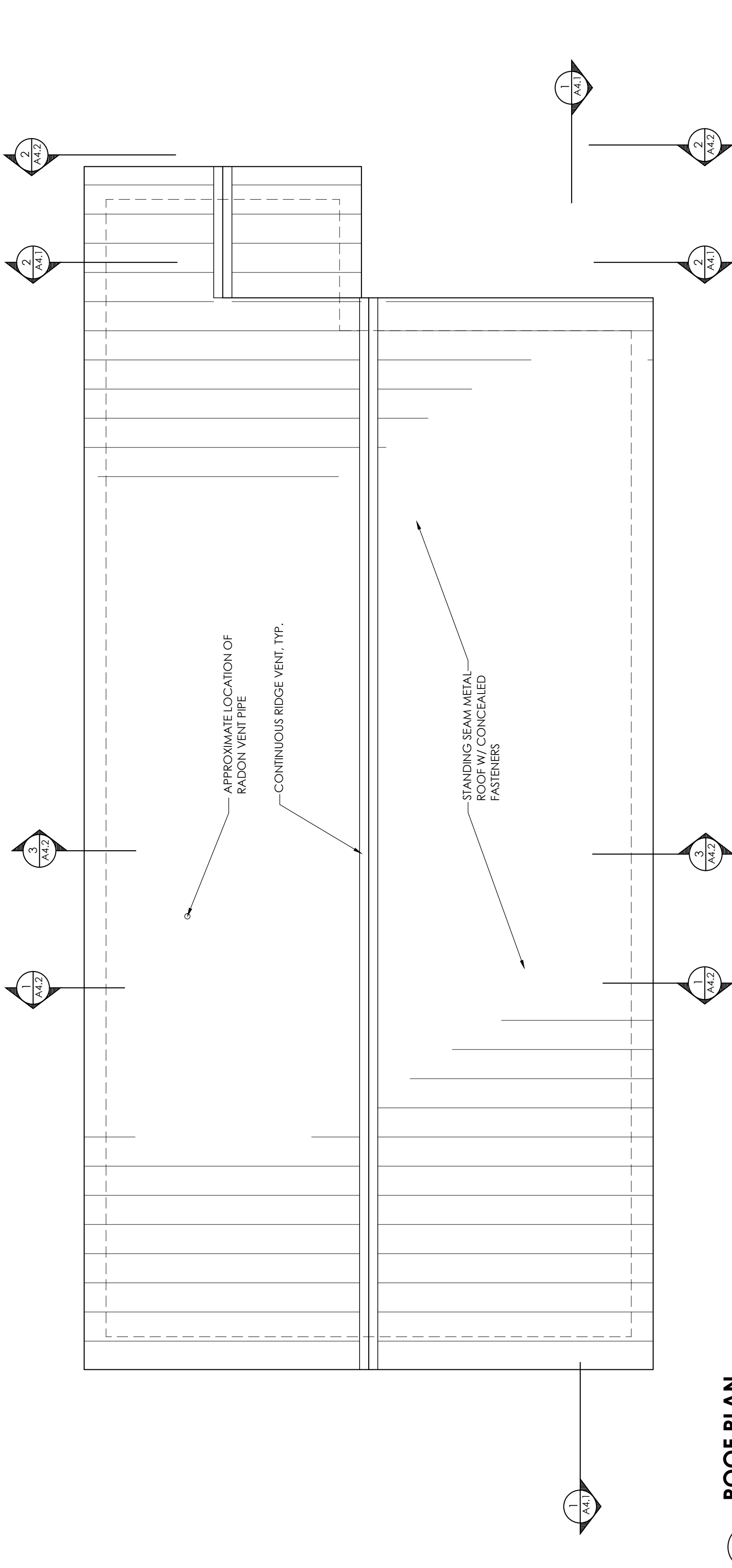
FIRST FLOOR PLAN

1/4"=1'-0"

1314 S.Q. ET.

- GENERAL FRAMING NOTES:**
1. SEE HEADER SCHEDULE FOR SIZE & BEARING REQUIREMENTS.
 2. WHERE WINDOWS ARE 6" APART, HEADERS ARE REQUIRED TO USE CONCEALED FLANGE JOIST HANGERS (SIMPSON HUC28-2) FOR THE HEADERS AND 4" CANT KING STUDS AT EACH 6" JAMB BETWEEN WINDOW OPENINGS.
 3. ALL EXTERIOR WALLS ARE SHEAR WALLS, TYPE SW4, INTERIOR WALLS USED AS SHEAR WALLS ARE AS NOTED ON PLAN. REFER TO WOOD SHEAR WALL CONSTRUCTION SCHEDULE, TYP.
 4. SEE SHEET A2.1 FOR SHEER WALL SCHEDULE

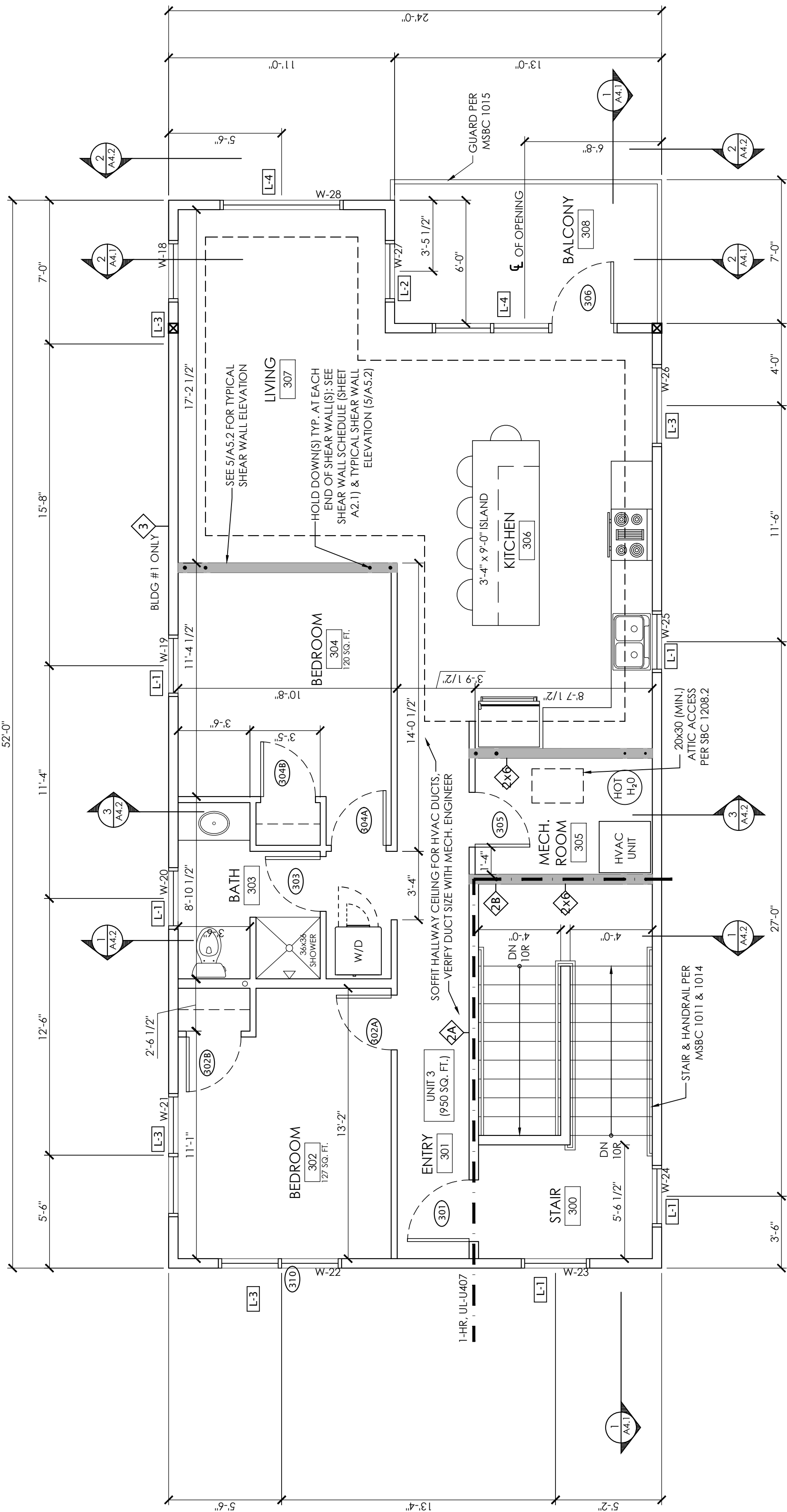
HEADER SCHEDULE	
MARK	DESCRIPTION
L-1	(2) 2X6 BOXED BEAM WOOD W/ 1-1/2" MIN. BRG. EACH END
L-2	(2) 2X6 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-3	(2) 2X10 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-4	(3) 2X12 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END



2

ROOF PLAN

1/4"=1'-0"

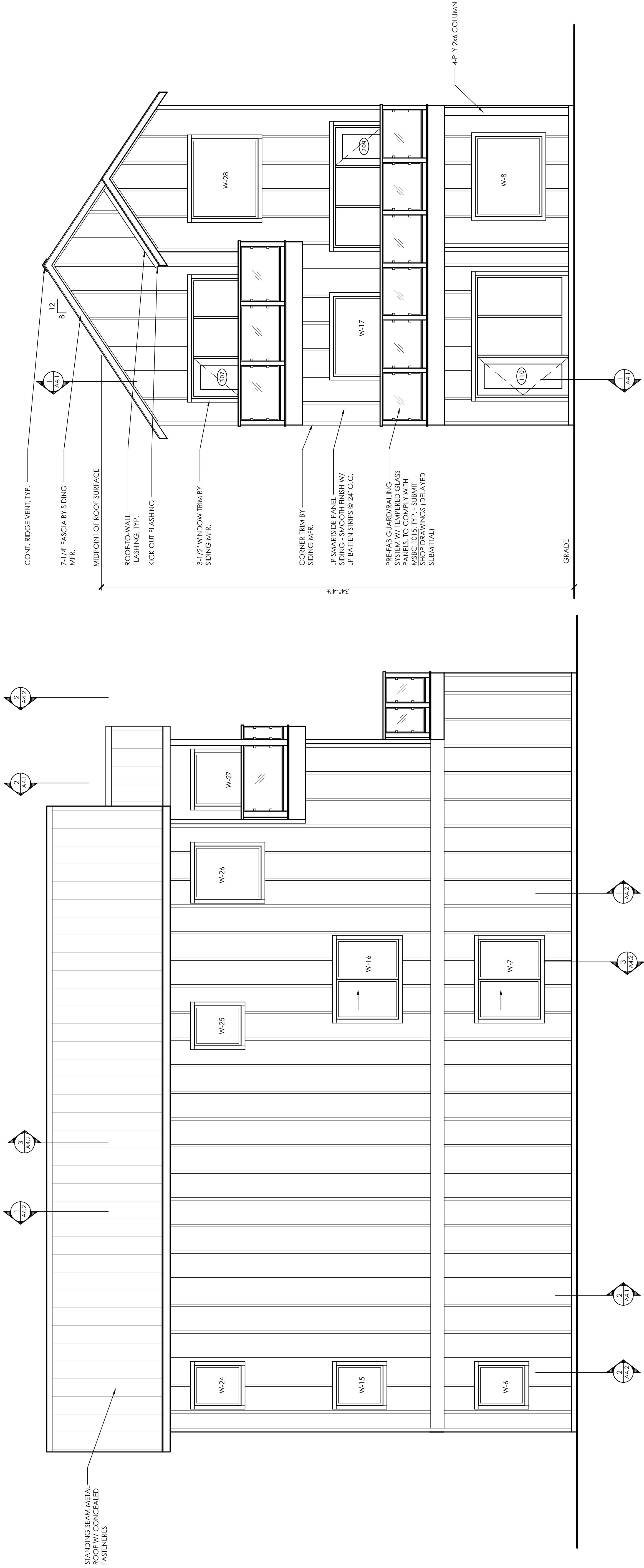


1
1/4"=1'-0"

GENERAL FRAMING NOTES:

1. SEE HEADER SCHEDULE FOR SIZE & BEARING REQUIREMENTS
2. WHEN WINDOWS ARE 6" APART, HEADERS ARE REQUIRED TO USE CONCEALED FLANGE JOIST HEADERS (SIMPSON HUC28-2) FOR THE HEADERS AND 4 CONT. KING STUDS AT EACH 6" JAMB BETWEEN WINDOW OPENINGS.
3. ALL EXTERIOR WALLS ARE SHEAR WALLS. TYPE SWA. INTERIOR WALLS USE AS SHEAR WALLS ARE AS NOTED ON PLAN. REFER TO WOOD 3 SHEAR WALL CONSTRUCTION SCHEDULE. TYPE 1.

MARK	DESCRIPTION
L-1	(2) 2X4 BOXED BEAM WOOD W/ 1-1/2" MIN. BRG. EACH END
L-2	(2) 2X8 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-3	(2) 2X10 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-4	(3) 2X12 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END



SOUTH ELEVATION (BUILDING #1,2,3)

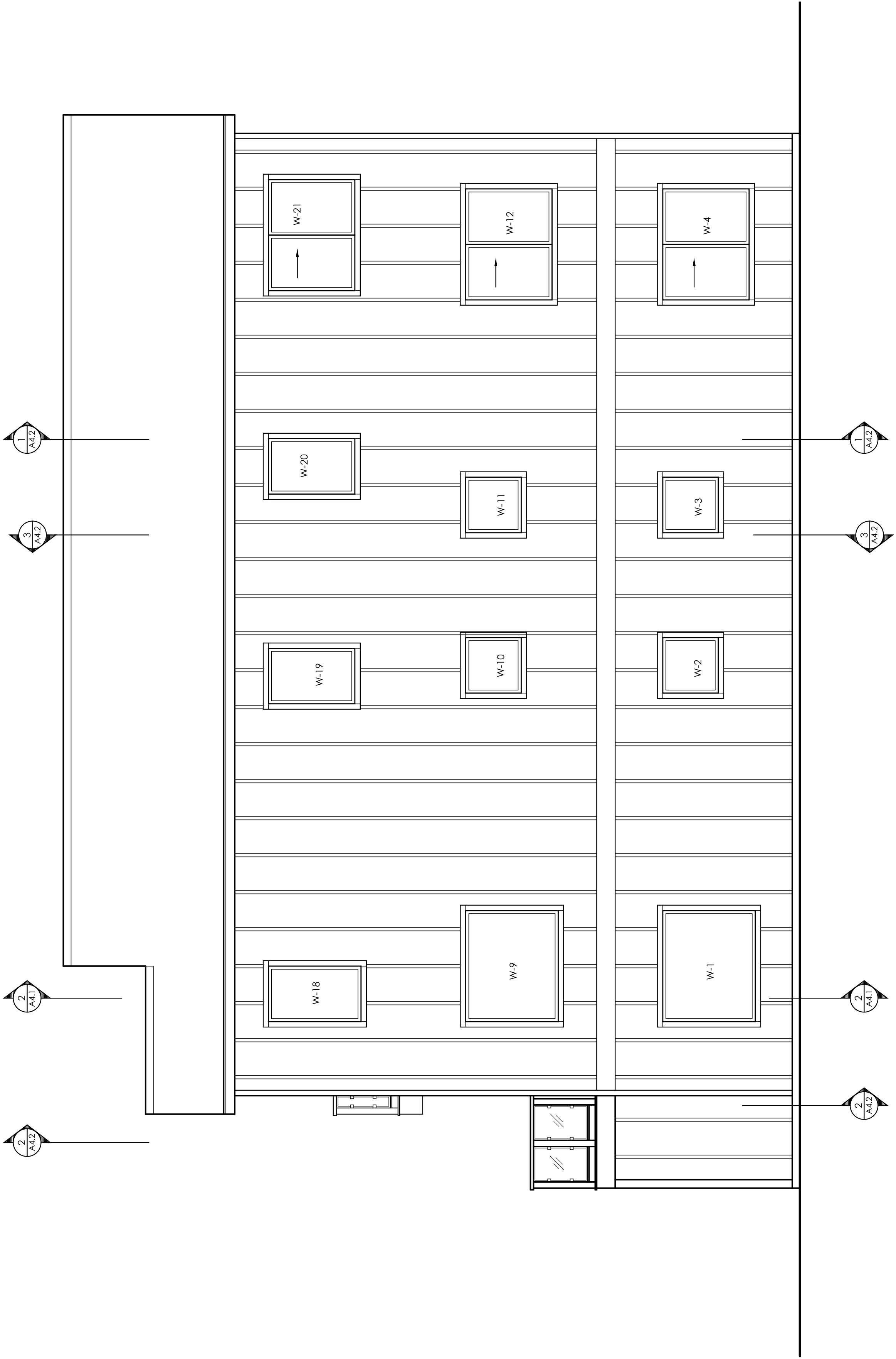
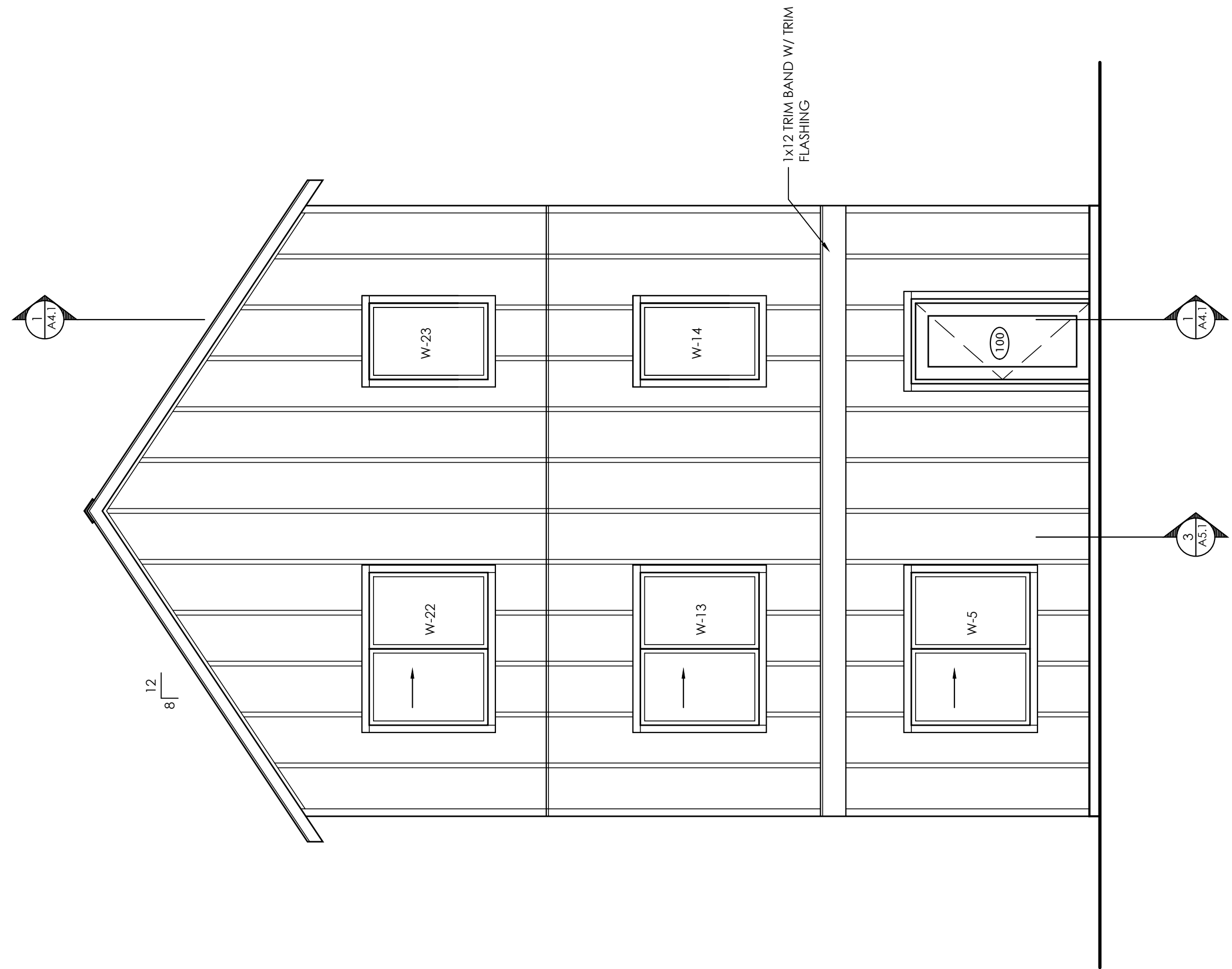
EAST ELEVATION (BUILDING #1,2,3)

1/4"=1'-0"

1/4"=1'-0"

% OF OPENING CALCULATIONS

THIRD FLOOR	41 SQ. FT. (WINDOWS)/436 SQ. FT. (WALL AREA) = 8.3%
SECOND FLOOR	38.5 SQ. FT. (WINDOWS)/490 SQ. FT. (WALL AREA) = 7.8%
FIRST FLOOR	58.5 SQ. FT. (WINDOWS)/554 SQ. FT. (WALL AREA) = 10.5%



% OF OPENING CALCULATIONS

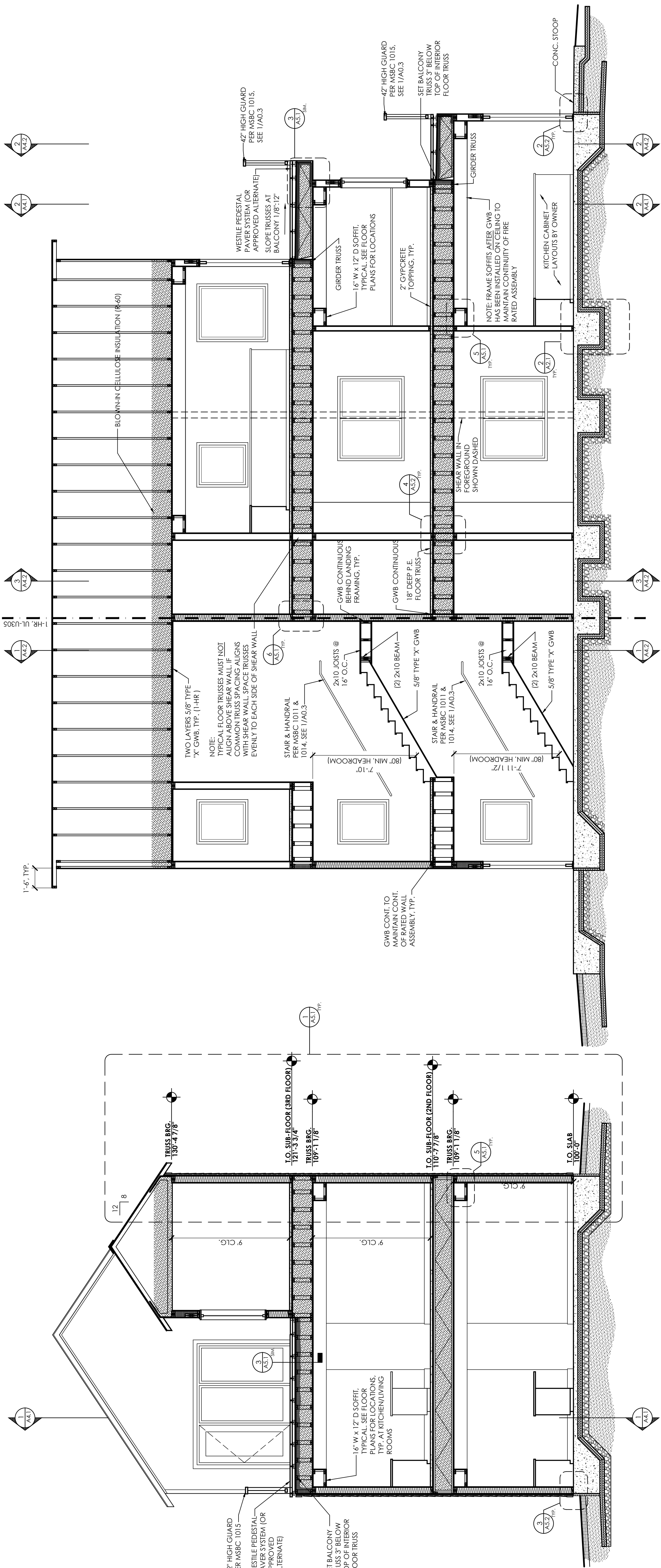
THIRD FLOOR		86 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 18.2%
SECOND FLOOR		76 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 16.2%
FIRST FLOOR		76 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 16.2%

NORTH ELEVATION (BUILDING #1,2,3)

1/4"=1'-0"

WEST ELEVATION (BUILDING #1,2,3)

1/4"=1'-0"



LONGITUDINAL SECTION

BUILDING SECTION

REVISIONS

ISSUE DATE

Construction Services & Inspections
Reviewed for Code Compliance
MSBC 2020
Chris Machmer 10/06/2023

Chris Machmer 10/06/2023

State: _____ License #: _____

License #:

PAUL A. JOHNSON

Print Name: PAUL A. JOHNSON

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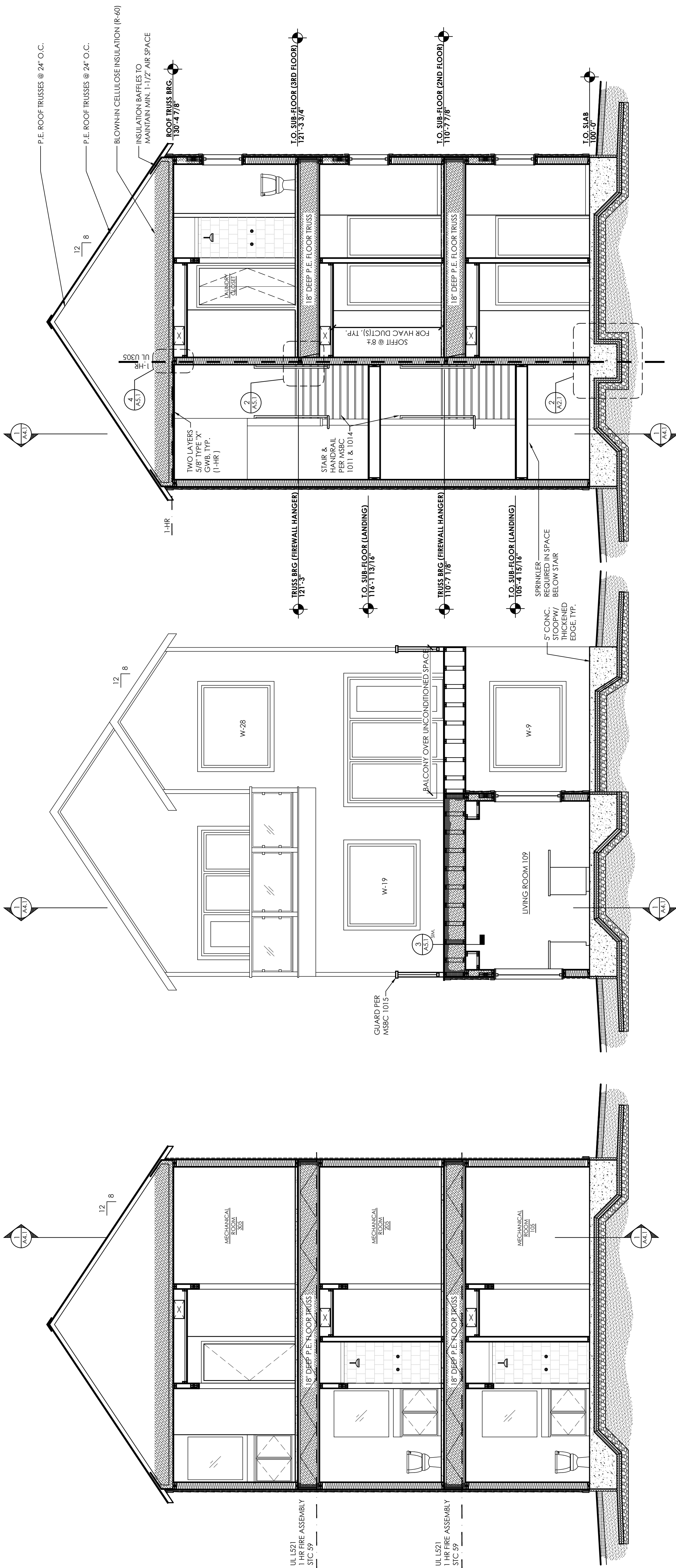
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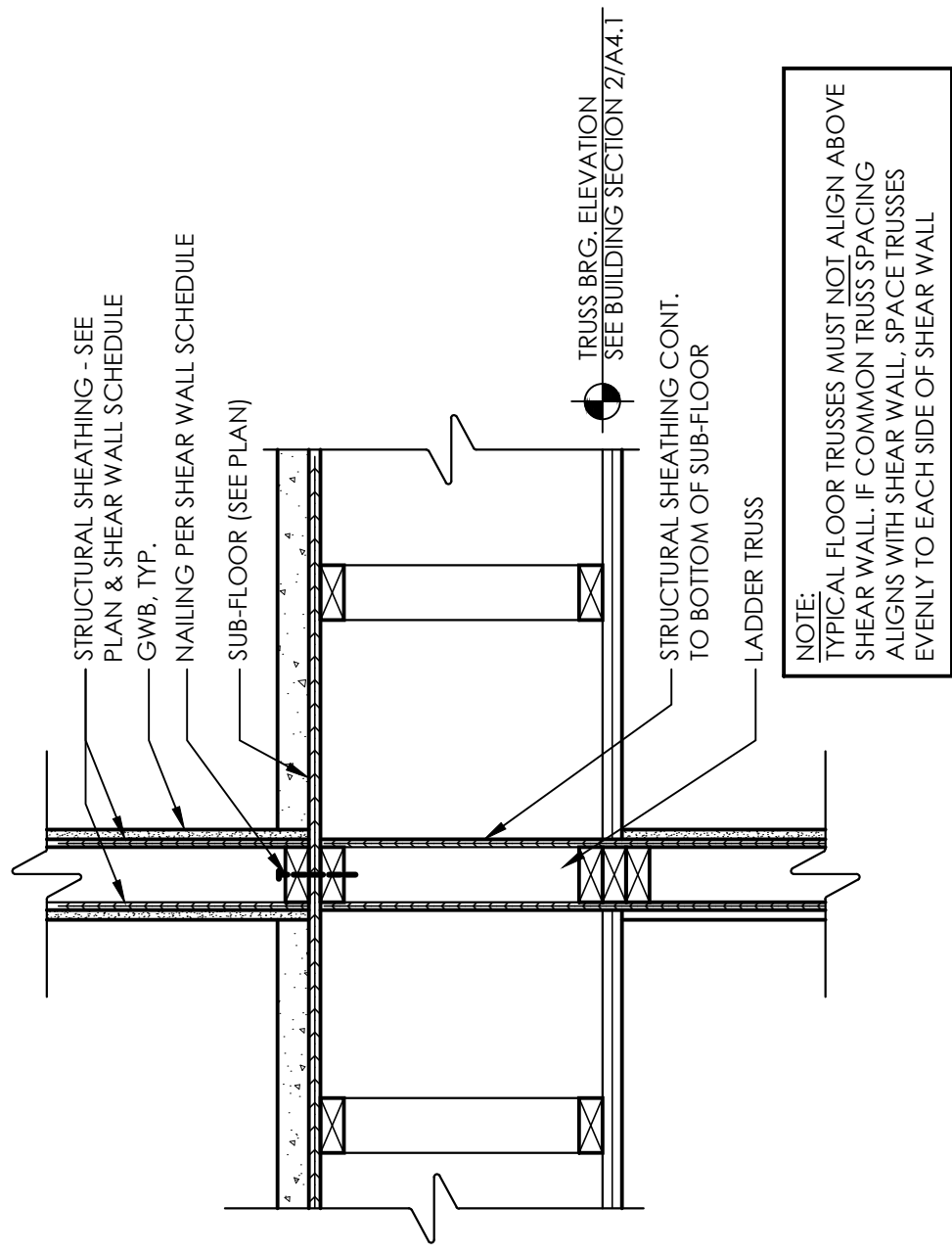
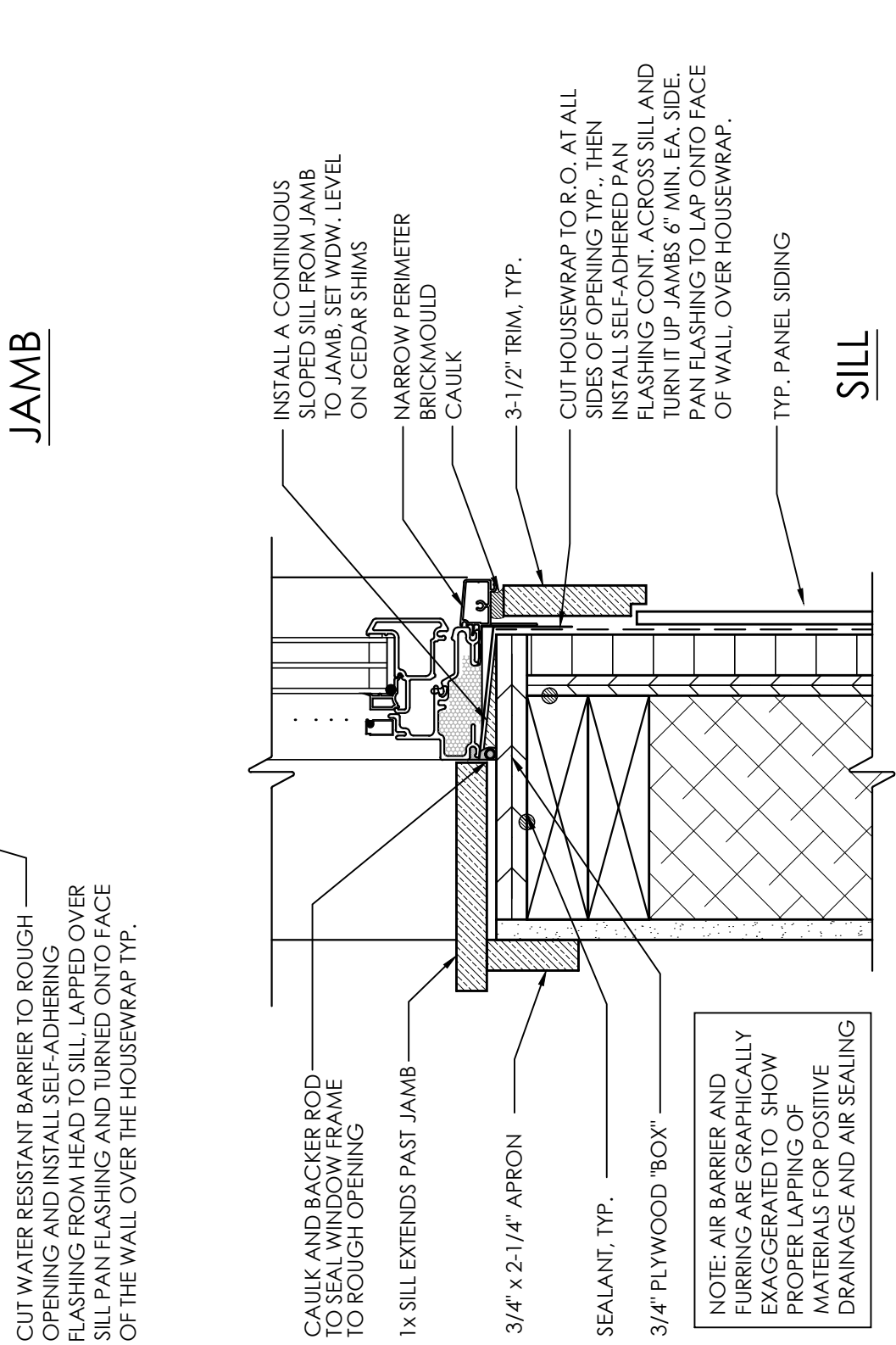
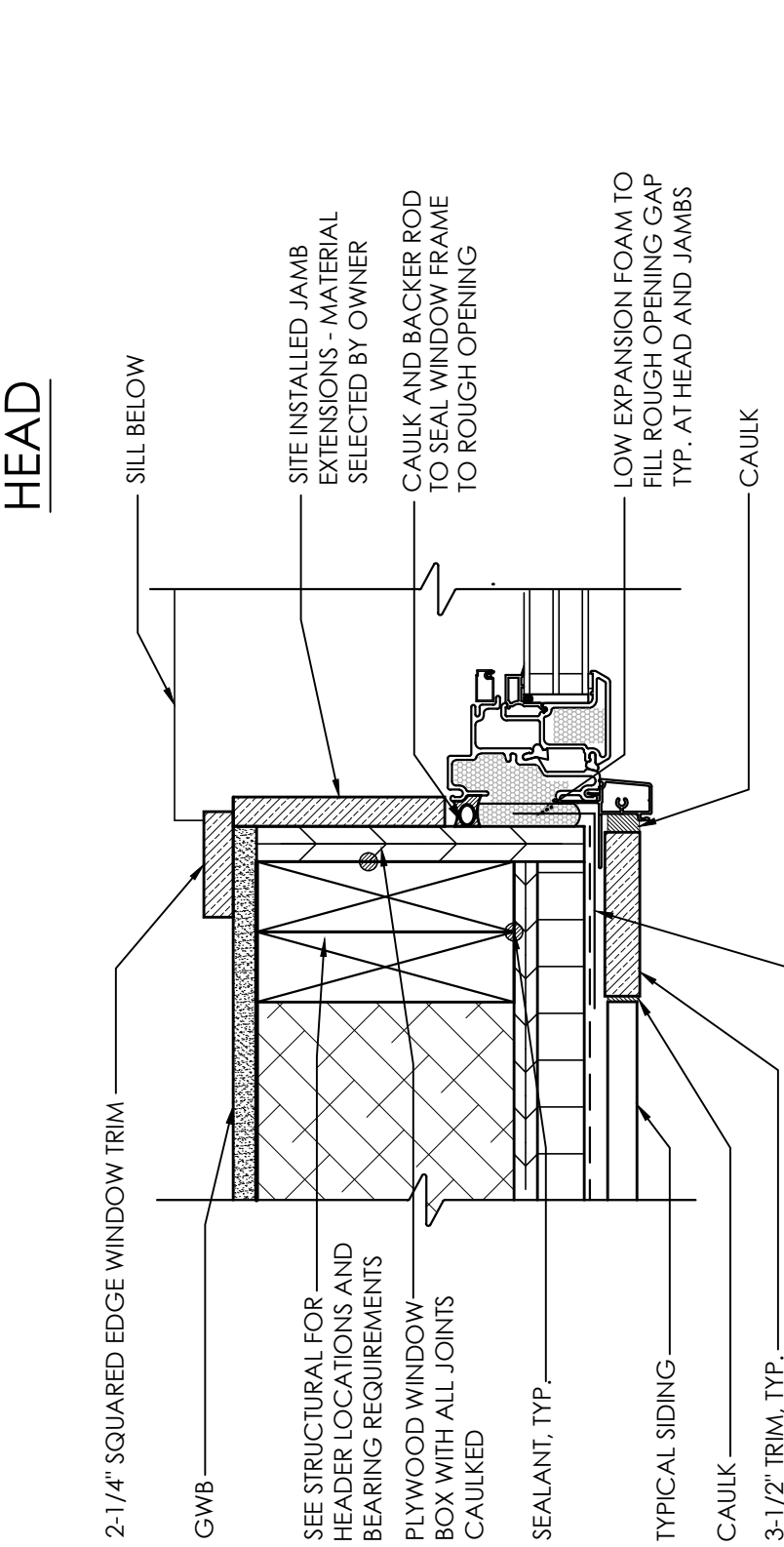
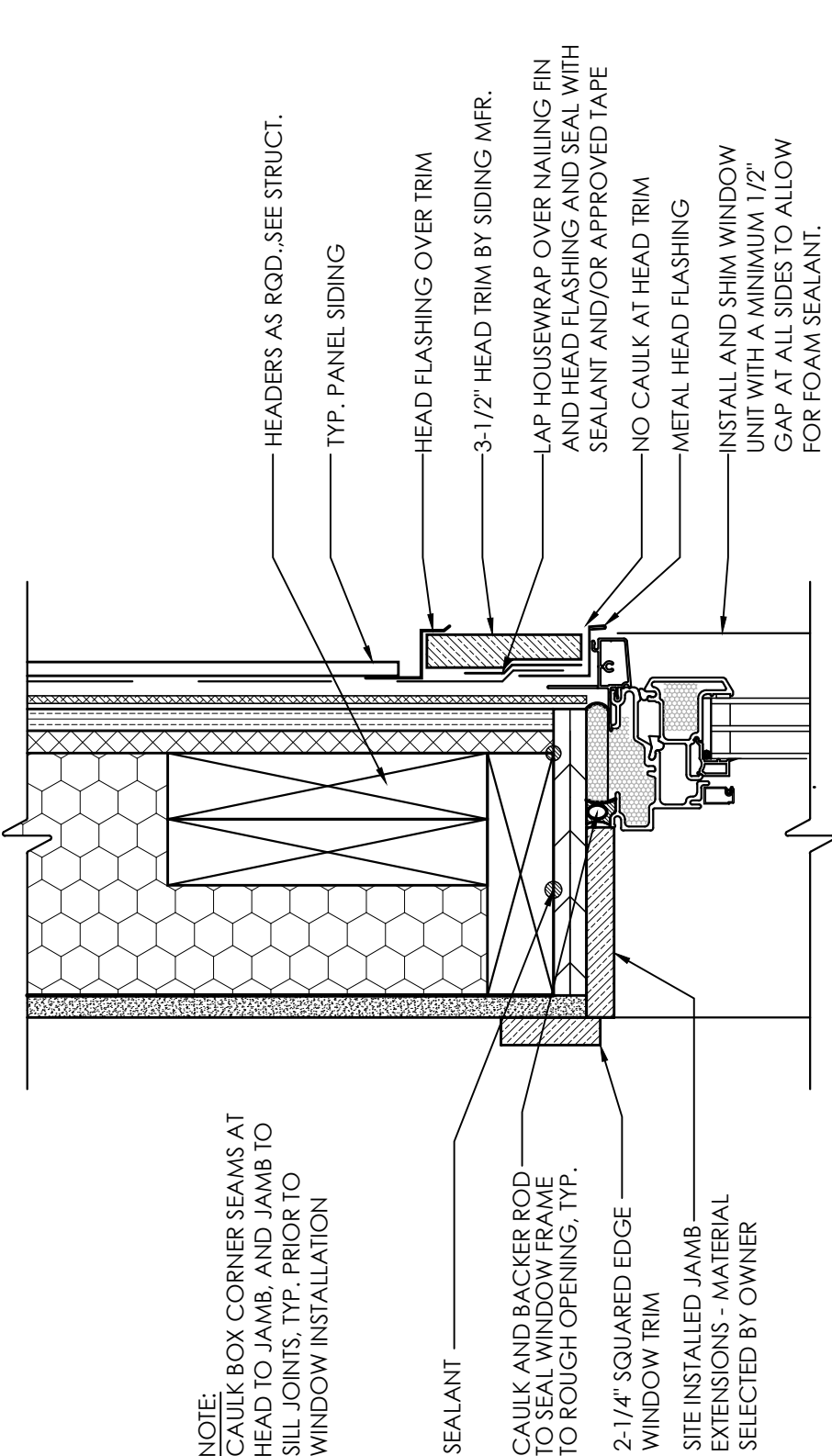
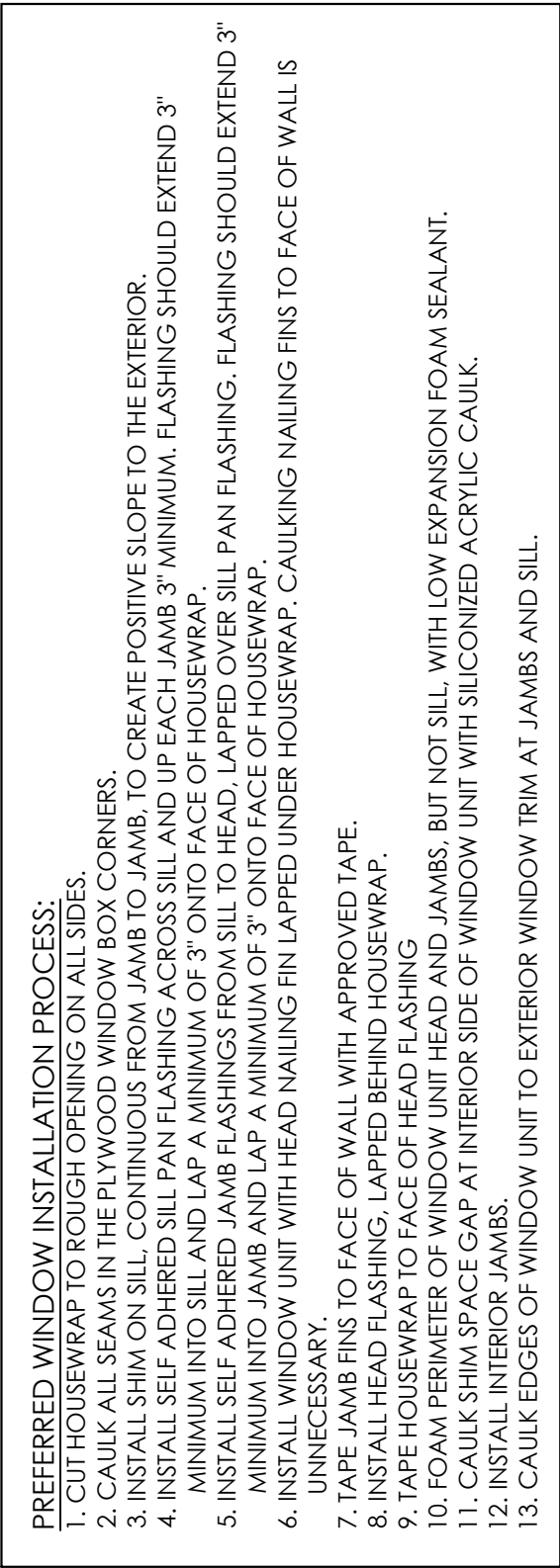
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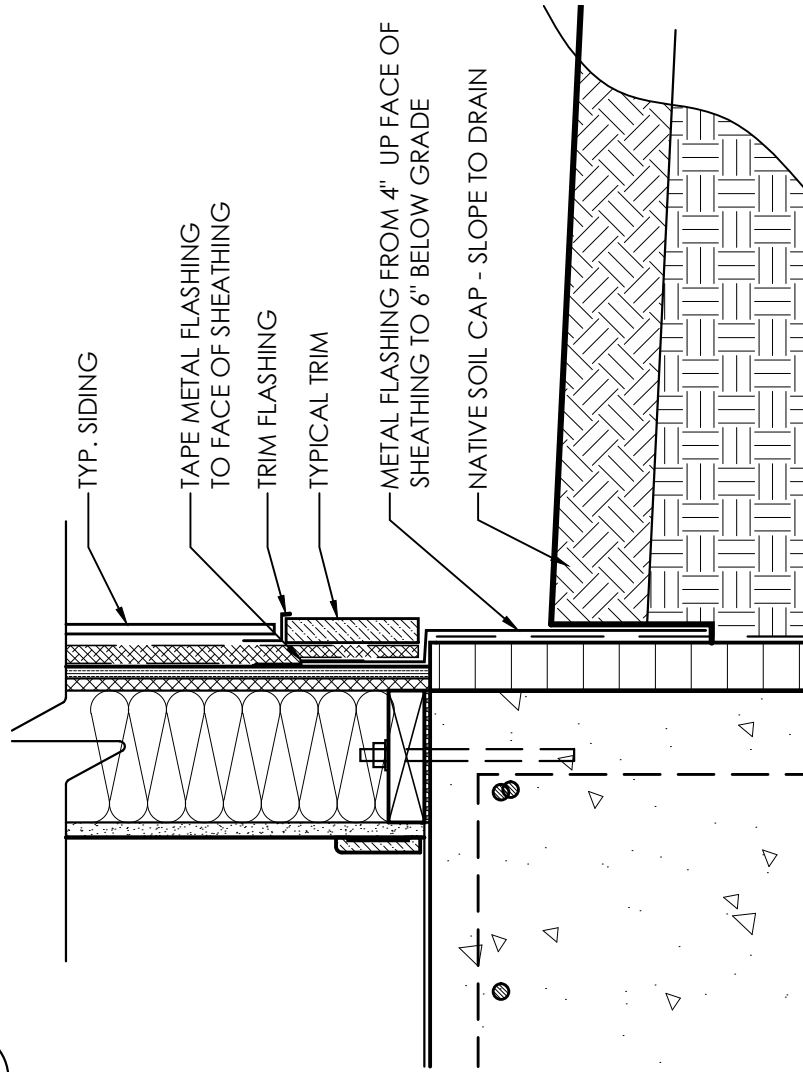
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AROLA
ARCHITECTURE STUDIO, LLC

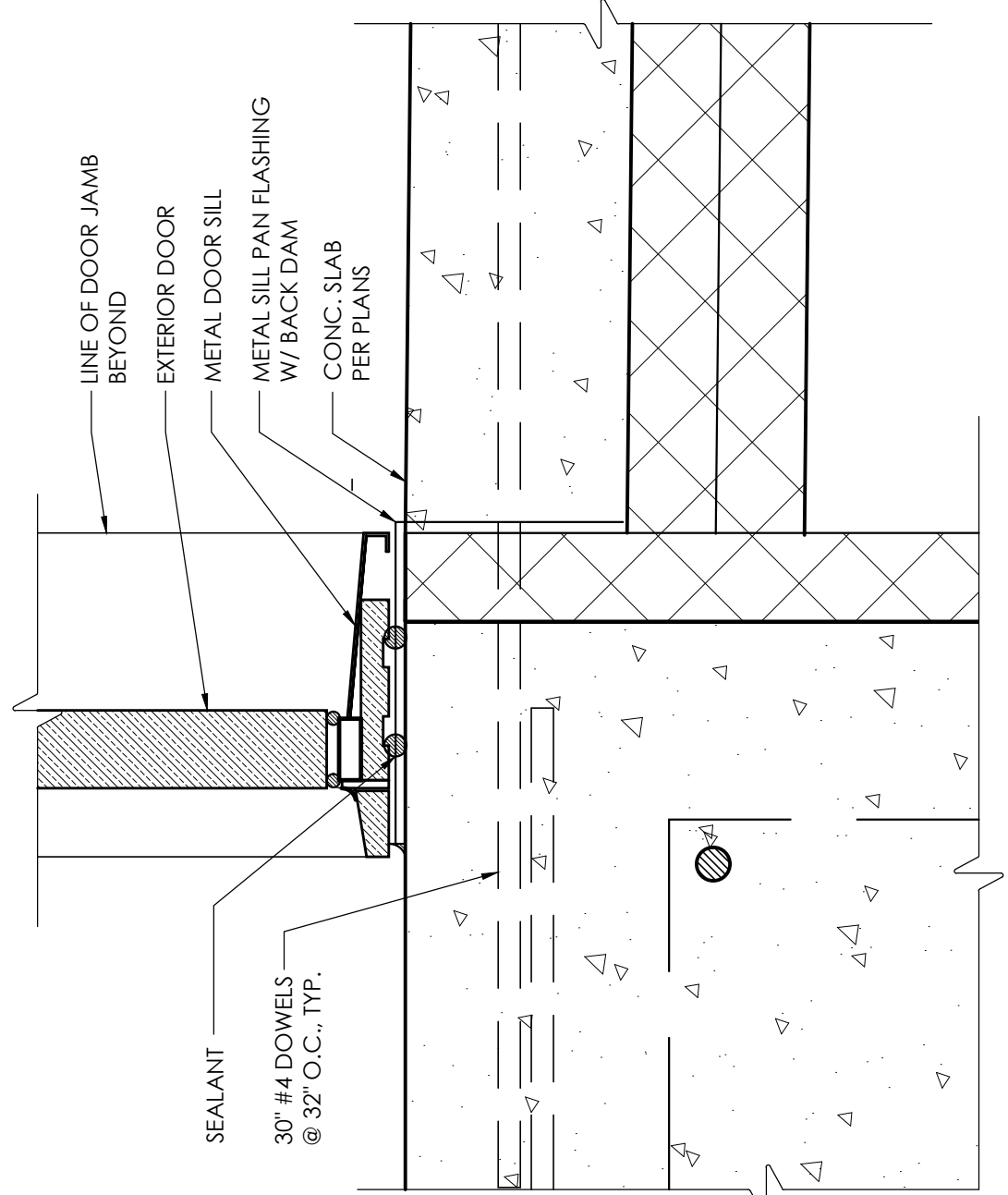




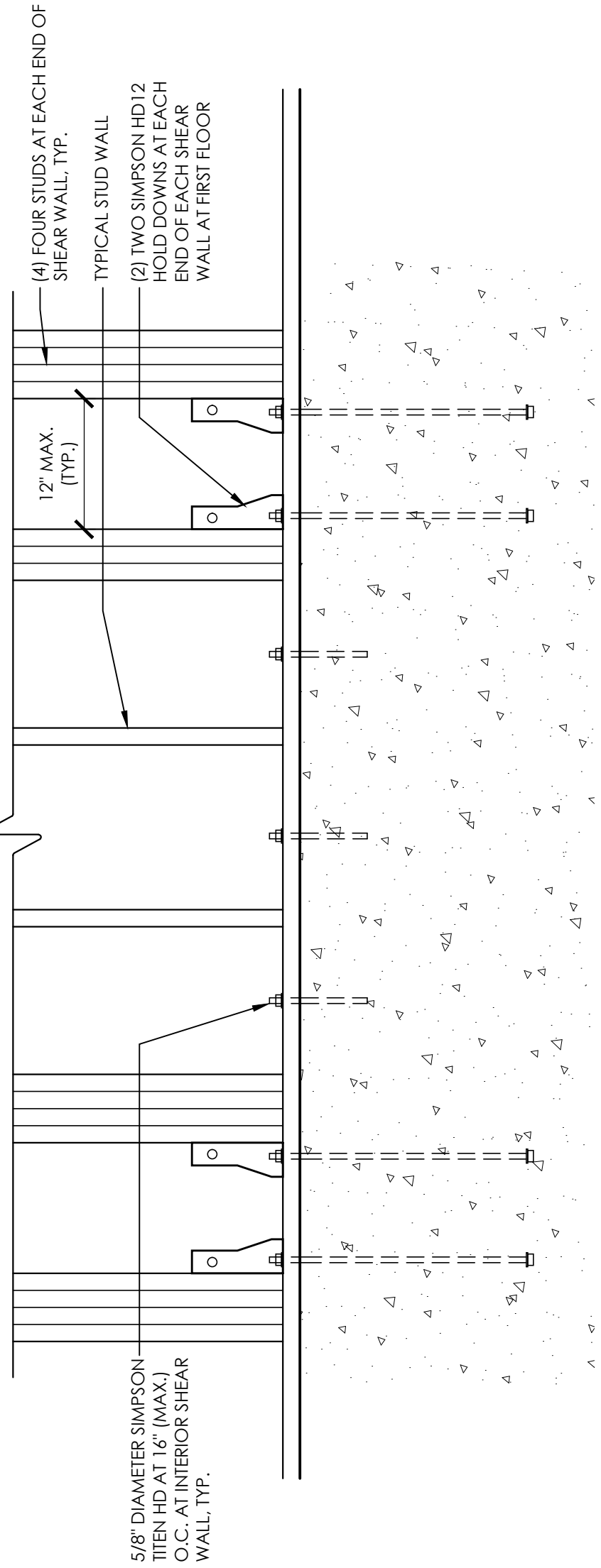
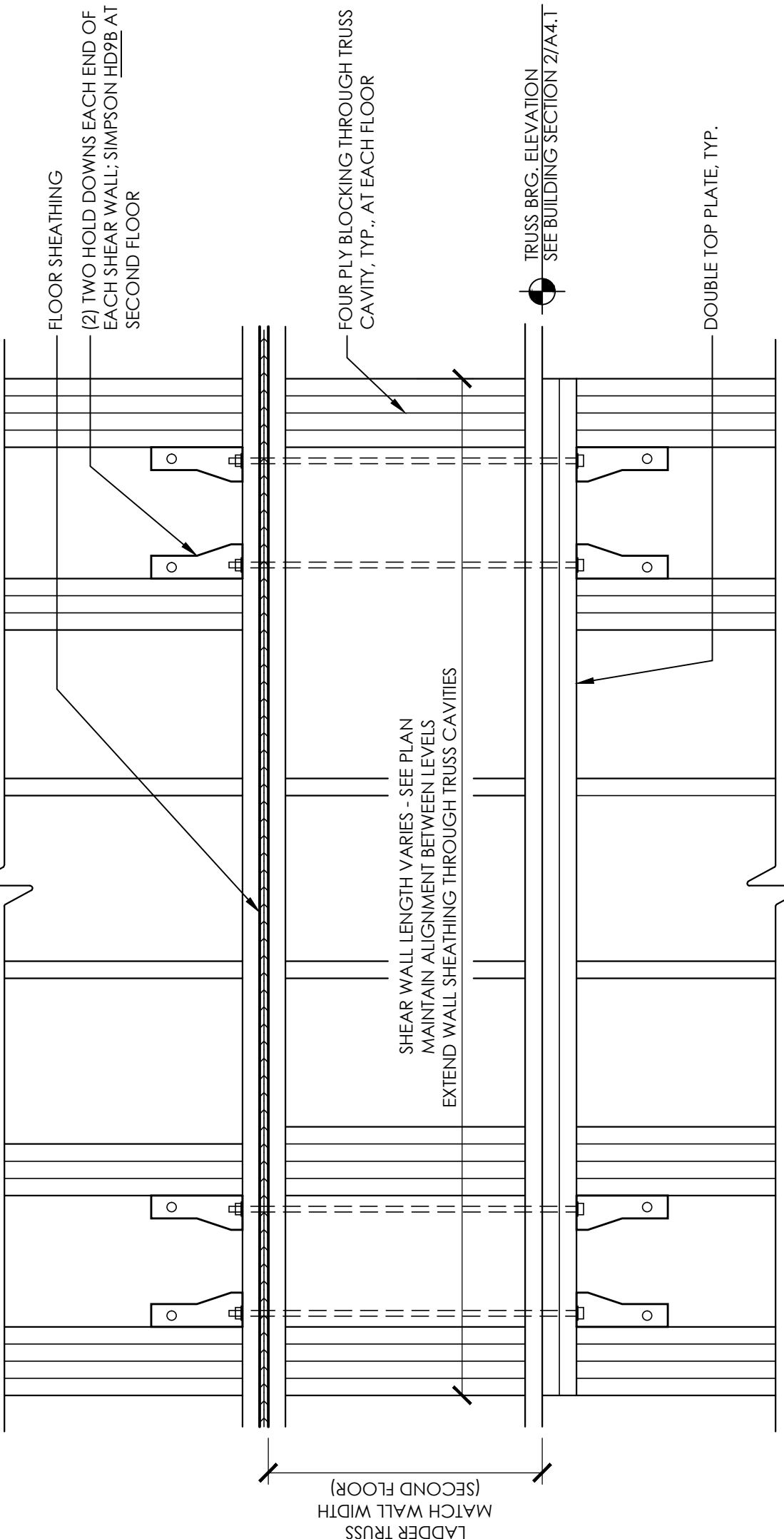
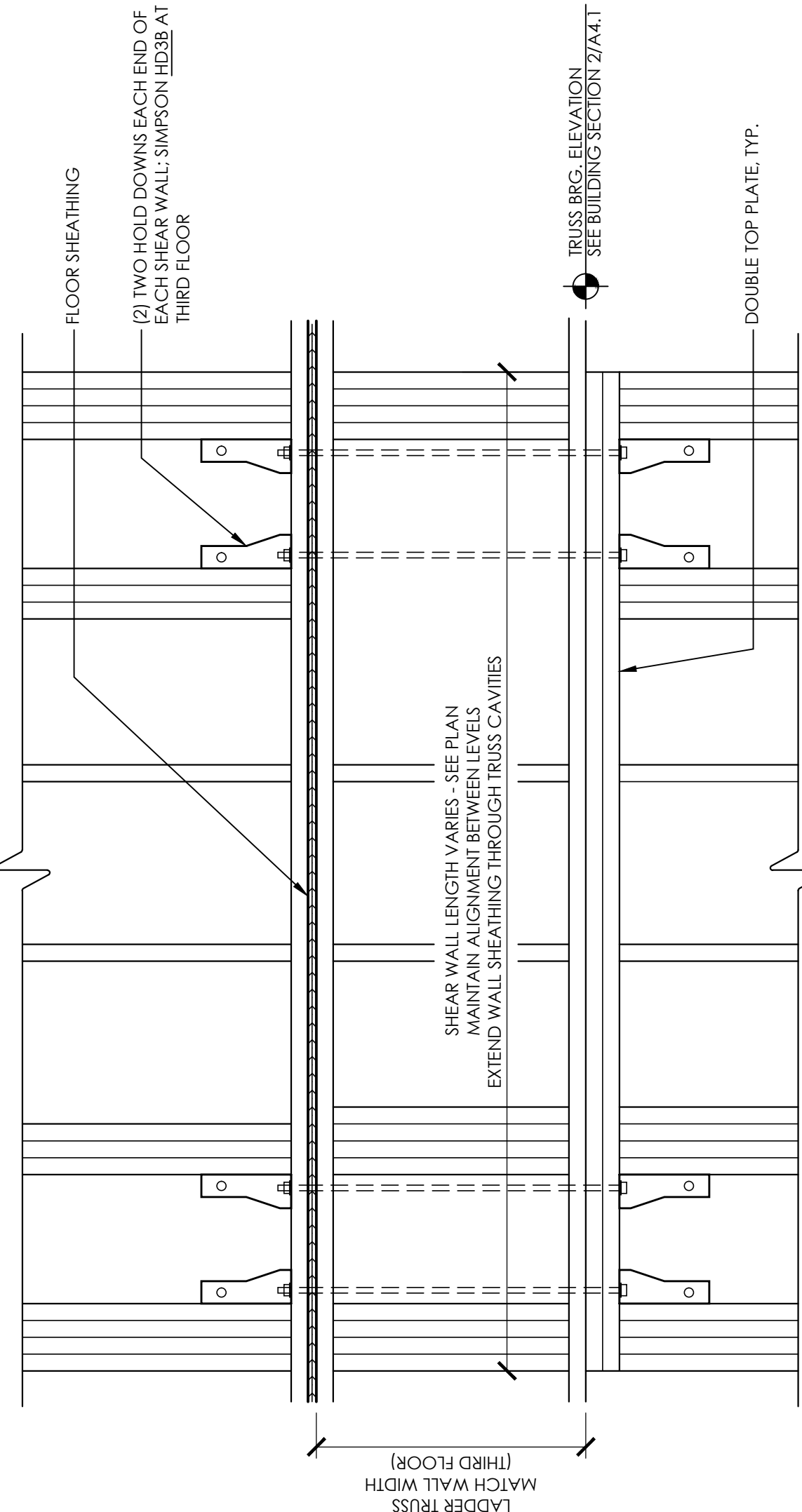
TYPICAL SHEAR WALL AT NON-BEARING CONDITION



TYPICAL SILL DETAIL

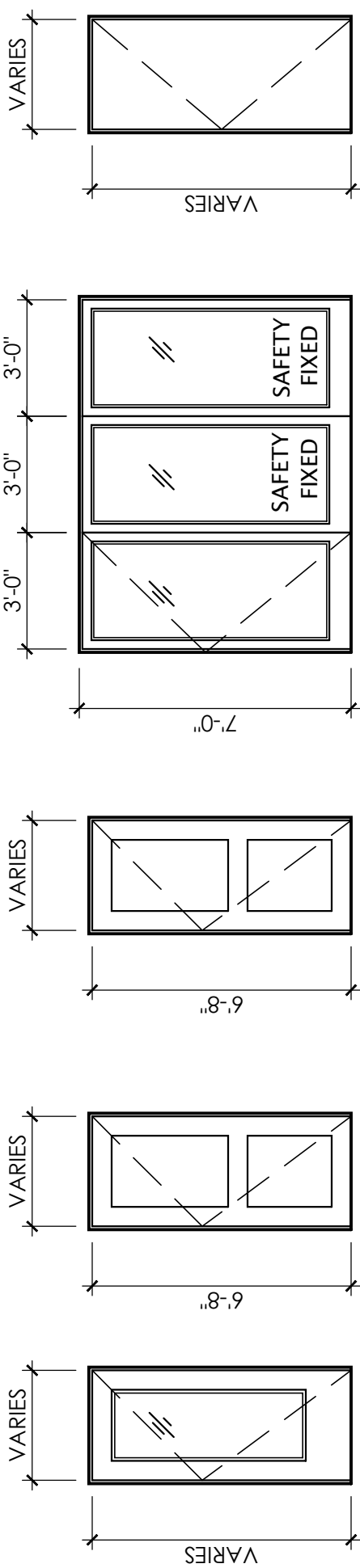


THRESHOLD DETAIL



TYPICAL INTERIOR SHEAR WALL ELEVATION

DOOR TYPES



*VERIFY INTERIOR DOOR STYLE W/ OWNER
*REFER TO DOOR SCHEDULE FOR UNIT SIZES
*FINAL DOOR SELECTIONS BY OWNER
*SAFETY GLAZING REQUIRED; ALL DOORS

DOOR SCHEDULE

DOOR NO.	DOOR SIZE	DOOR TYPE	DOOR FINISH	FRAME TYPE	FRAME FINISH	HWYR TYPE	FIRE RATING	COMMENTS
100	3'-0" x 6'-8"	D-1	PRE-FIN.	-	-	H-1	-	
101	3'-0" x 6'-8"	D-5	PRE-FIN.	-	-	H-1	1-HR RATED	
102	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
103A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
103B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
104	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
105	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
106	3'-0" x 6'-8"	D-1	PRE-FIN.	-	-	H-4		
107A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
107B	2'-4" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		OUTSWING PATIO DOOR UNIT
109	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		
201	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
202A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
202B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
203	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
204	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
205	3'-0" x 6'-8"	D-3	PRE-FIN.	-	-	H-4		
206A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
206B	2'-4" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		OUTSWING PATIO DOOR UNIT
207	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		
301	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
302A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
302B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
303	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
304A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
304B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
305	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-4		
306	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		OUTSWING PATIO DOOR UNIT

HARDWARE GROUPS:

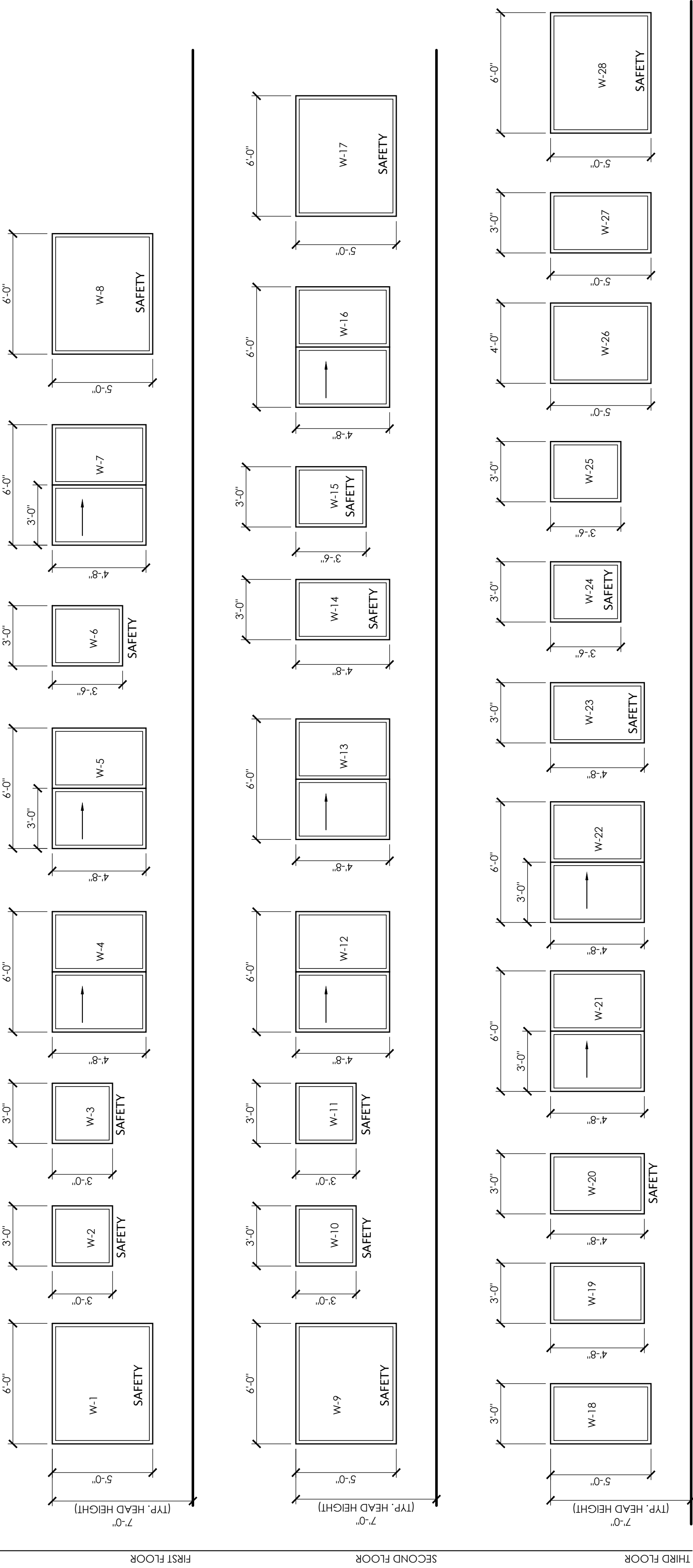
H-1	H-2	H-3
BUTTS	BUTTS	BUTTS
CLOSER	CLOSER	CLOSER
LOCKSET: ENTRANCE	LOCKSET: PASSAGE	LOCKSET: UNIT ENTRY
HOTEL ACCESS LOCK		HOTEL ACCESS LOCK
NO DEADBOLT	WALLSTOP	NO DEAD HOTEL ACCESS LOCK
GASKET		WALLSTOP
SWEEP		GASKET
THRESHOLD		SWEEP
		THRESHOLD
H-4	H-5	H-6
BUTTS	BUTTS	
CLOSER	CLOSER	
LOCKSET: KEYED DEADBOLT	LOCKSET: PRIVACY	
WITH THUMB TURN	WALLSTOP	
WALLSTOP		

DOOR SCHEDULE NOTES:

1. VERIFY VERIFY LOCKSET SELECTIONS WITH OWNER
2. PROVIDE KNOXBOX FOR FIRE DEPARTMENT ACCESS

WINDOW SCHEDULE - BUILDINGS #1, 2, 3

*PROVIDE WINDOW OPENING CONTROL DEVICES PER MSBC 1015.8.1



SHEET NO.

A6.1

REVISIONS

PROJECT NO.
2166

ISSUE DATE
5/19/2023

DRAGESTIL HOTEL - BUILDINGS 1, 2, 3
SOUTH LAKE AVENUE / MINNESOTA AVENUE
DULUTH, MN 55802

Construction Services & Inspections
MSBC 2020
Reviewed for Code Compliance
Chris Machmer 10/06/2023



License #
20379

Date
5/11/2023

Signature
Paul A. Johnson

Signature
Paul A. Johnson

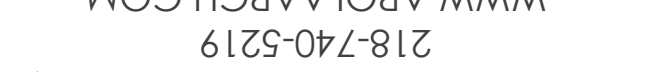

SIGNATURE
RYAN J. AROLA

DATE
5/11/2023

LICENSE NO. 52478

ARCHITECTURE STUDIO, LLC
218-740-5219
501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802
WWW.AROLAARCH.COM



 <p>AROLA ARCHITECTURE STUDIO, LLC 501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802 218-740-5219 WWW.AROLAARCH.COM</p>	DATE <u>5/11/2023</u> LICENSE NO. <u>52478</u>	
	SIGNATURE <u>Ryan J. Arola</u> OF THE STATE OF MINNESOTA I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.	
PAUL A. JOHNSON State Architect 		
DATE <u>5/11/2023</u> License # <u>20379</u>		SIGNATURE <u>Paul A. Johnson</u>

L HOTEL - BUILDINGS 1, 2
 AVENUE / MINNESOTA AVENUE
 55802

ISSUE DATE	5/19/2023
PROJECT NO.	2166
REVIEWS	
SHEET NO.	A7.1

Page 2 of 2

January 15, 2015

Hilti Firestop Systems

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University of Illinois at Chicago, Inc.

* indicates select products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

FC 1008

System Nom. F-C-1009

2. Chase Wall – Optional. The through penetrant (item 3) may be routed through a 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board chase wall having a fire rating consistent with that of the floor-ceiling assembly. Depth of chase wall to be min 1 in. greater than the diameter of the through penetrant. The chase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Nom 2 by 4 in. (51 by 102 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs. Nom 2 by 4 in.

B. Sill Plate — Nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 132 mm) or parallel 2 by 4 in. (51 by 102 mm) lumber plates. Lightly buffed.

C. Diameter of opening to be max 1 in. (25 mm) larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. (25 mm) greater than the diam of the pipe. Plates may be discontinuous over openings, terminating at two opposing edges of opening. Max length of discontinuity to be 1 in. (25 mm) greater than diam of through penetrant.

D. Steel Pipe — The double top plate shall consist of two nom 2 by 4 in. (51 by 102 mm), 2 by 6 in. (51 by 132 mm) or two sets of parallel 2 by 4 in. (51 by 102 mm) lumber plates with a max dimension 1 in. (25 mm) greater than the diam of the pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity to be 1 in. (25 mm) greater than diam of through penetrant.

E. Steel Plate — When lumber plates are discontinuous, nom 1/2 in. (38 mm) wide No. 20 gauge (or heavier) galv steel plates shall be installed to connect each discontinuous lumber plate and to provide a form for the fill material. Steel plates shall be lap 2 in. (51 mm) onto each discontinuous lumber plate and secured to lumber plates with steel screws or nails.

F. Through Penetrants — One metallic pipe, conduit or tubing to be installed within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The annular space within the firestop system shall be min 0 in. (point contact) to max 1 in. (25 mm).

The following types and sizes of metallic pipes or conduits may be used:

A. Steel Pipe — Nom 1 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Non-Pipe — Nom 4 in. (102 mm) diam (or smaller) cast or ductile iron pipe.

C. Copper Tubing — Nom 102 (mm) diam (or smaller) Type L (or heavier) copper tubing.

D. Copper Tube — Nom 102 (mm) 4 in. diam (or smaller) Regular (or heavier) copper pipe.

E. Fill Void or Canity Material — Sealant — Min 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with the top surface of the floor or the sole plate. Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with bottom surface of ceiling or lower top surface of floor.

HLT CONSTRUCTION CHEMICALS, DIV OF HILTI INC. — CPS® S.S.I.G. GCP, CPB®, FS-OZE or FS-OZE Max Illuminant Sealant (Note 1). Range apply only when FS-OZE Sealant is used.)

* indicates select products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

CLASSIFIED
by
C 00147

Declassify on:
16 USC 479a and 479a-10a

System No. F.C-1009

FC-1009

ANSI/UL 479 (ASTM E84)	CANULC S115
F Rating — and 2 Hr (See Item 1)	F Rating — and 2 Hr (See Item 1)
T Rating — 1/4 Hr	FT Rating — 1/4 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FT Rating — and 2 Hr (See Item 1)
L Rating At 400°F — 4 CFM/sq ft	FT Rating — 1/4 Hr
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400°F — 4 CFM/sq ft

1. Floor-Ceiling Assembly. — The 1 or 2 hr fire-rated solid or trussed lumber post floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L501 Series Floor-Ceiling Designs in the U. S. Fire Resistance Directory. The F Rating of the freestop system is equal to the rating of the floor-ceiling assembly. The general construction features of the floor-ceiling assembly are summarized below:
 - A. Flooring System. — Lumber or plywood subfloor with finish floor of lumber, plywood or floor topping mixture (as specified in the individual L501 Series Designs) in (25 mm) greater than the diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. (25 mm) greater than the diam of the pipe.
 - B. Wood Joists. — Non 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members with bridging as required and with ends freestopped.
 - C. Furring Channels. — (Not Shown) — (As required) Resilient galvanized steel furring installed in accordance with the manner specified in the individual L501 Series Designs in the Fire Resistance Directory.
 - D. Floor and Ceiling Finish Materials. — (As required) The floor and ceiling finish materials shall be as specified in the individual Floor-Ceiling Design. Diam of opening to be max 1 in. (25 mm) larger than diam of pipe.

UL
Hilti Firestop Systems

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January 16, 2015

Page 1 of 2

Page 2 of 2

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January 15, 2015

Hilti Firestop Systems

System No. F-C-0002

FC 0002

2. Chase Wall — (Optional). The 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board chase wall shall be constructed of the materials and in the manner specified in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs — Nom 2 by 4 in x 2 by 6 in, (51 by 102 or 51 by 152 mm) lumber studs.
 - Sole Plate — Nom 2 by 4 in or 2 by 6 in, (51 by 102 or 51 by 152 mm) lumber plates.
 - Gypsum Board — One side top plate shall consist of two min of 2 by 4 in, (51 by 102 or 51 by 152 mm) lumber planks. Max dim of opening ≤ 1 m.
 - Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
 - Fill Void or Cavity Material+ — Sealant— Min .34 in, (.19 mm) thickness of fill material applied within the annulus on top surface of floor or sole plate of chase wall. Min .58 in, (.16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the ceiling or lower top plate.
3. HLT CONSTRUCTION CHEMICALS, DIV OF HILTI INC.— FS ONE Sealant, FS ONE MAX Intranslucent Sealant or CP805 Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

CERTIFIED
US
CLASSIFIED BY
Underwriters Laboratories Inc.
UL 1479 AND CANULC S115

System No. F.C.-0002

ANSI/UL1479 ASTM E814	CANULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 1 and 2 Hr (See Item 1)	FT Ratings — 1 and 2 Hr (See Item 1)
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Ratings — 1 and 2 Hr (See Item 1)

The diagram shows a cross-section of a fire-rated floor-ceiling assembly. On the left, a vertical wall section is shown with labels 1A, 2B, and 3 pointing to different layers. The main part of the diagram shows a horizontal section of the floor and ceiling. Label 1 points to the top layer of the ceiling. Label 2 points to the middle section containing wavy lines representing insulation or a specific material. Label 3 points to the bottom layer of the ceiling. Labels 1A, 2A, 2B, 2C, 2D, 3A, and 3B point to various details and joints within the assembly.

SECTION A-A

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or milled lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L200 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:

- A. Floor System — Lumber of plywood subfloor with finish floor of lumber; plywood or Floor "Topping Mixture" as specified in the individual Floor-Ceiling Design.
- B. Wood Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members with bridging as required and with ends firestopped.
- C. Furring Channels — (Not Shown) — Resilient galv. steel furring installed perpendicular to wood joists between board and wood joists as required in the individual Floor-Ceiling Design. Furring channels spaced max 24 in. (610 mm) OC.
- D. Gypsum Board — Nom 4 ft (122 cm) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. Gypsum board installed over furring channels.

The F, FH and T, FTH Ratings of the firestop system are equal to the hourly fire rating of the floor-ceiling assembly in which it is installed.

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January 15, 2015

Page: 1 of 2

0600 SMH

System No. HW-S-0090

ANSI/UL2079
CANULC S115

ANSI/UL2079	CANULC S115
Assembly Rating — 1 Hr	F Rating — 1 Hr
Joint Width — 1/2 In Max	FJ Rating — 1 Hr
	FH Rating — 1 Hr
	FTH Rating — 1 Hr
	Joint Width — 1/2 In Max

Classified by
UL Classified by
UL 2079 and CANULC S115

UL Classified by
UL 2079 and CANULC S115

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UL 2079 and CANULC S115

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UL 2079 and CANULC S115

UL Classified by
UL 2079 and CANULC S115

0600 SMH

0600 SMH

System No. HW-S-0090

System No. HW-S-0090

ANSI/UL2079

ANSI/UL2079

CANULC S115

CANULC S115

Assembly Rating — 1 Hr

Assembly Rating — 1 Hr

Joint Width — 1/2 In Max

Joint Width — 1/2 In Max

F Rating — 1 Hr

F Rating — 1 Hr

FJ Rating — 1 Hr

FJ Rating — 1 Hr

FH Rating — 1 Hr

FH Rating — 1 Hr

FTH Rating — 1 Hr

FTH Rating — 1 Hr

Joint Width — 1/2 In Max

Joint Width — 1/2 In Max

UL Classified by

UL Classified by

UL 2079 and CANULC S115

UL 2079 and CANULC S115

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UL 2079 and CANULC S115

UL 2079 and CANULC S115

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UL 2079 and CANULC S115

UL 2079 and CANULC S115

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CLASSIFIED

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 Underwriters Laboratories Inc.
 B.U.L. #478

System No. WL-2128

F Rating — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nominal 2 by 4 in. (51 by 102 mm) under spaced 16 in. (406 mm) OC. Steel studs to be min. 2 1/2 in. (64 mm) wide and spaced max. 24 in. (610 mm) OC.

B. Gypsum — Gypsum board shall be 5/8 in. (16 mm) thick and one coat on each side. The gypsum board shall be Type X-1 type, minimum thickness, number of layers, moisture type and sheet orientation shall as specified in the individual Wall and Partition Design. Max. diam of opening is 3-1/2 in. (89 mm).

2. Metallic Sleeve Optional — Nom. 3-1/2 in. (89 mm) (or smaller) cylindrical sleeve fabricated from mini 0.015 in. thick (28 gauge) galv steel and having a min 1-1/4 in. (32 mm) lap along longitudinal seam. Length of sleeve to be installed flush with wall surfaces.

3. Through Penetrants — One nonmetallic pipe installed within the firestop system. Pipe may be installed at an angle not greater than 45 degrees thru the wall. If the pipe has a flange, it must be welded to the wall. The flange of the pipe must be welded to the wall. The periphery of opening shall be min. 1 1/4 in. (32 mm) to max. 1 1/8 in. (17.5 mm). The following types and sizes of nonmetallic pipes may be used:

A. Polyvinyl Chloride (PVC) Pipe — Nom. 2 in. (51 mm), (51 mm), (51 mm) diam (or smaller) Schedule 40 PVC pipe for use in closed (press or vented drain, waste or vent) piping systems.

B. Chromated Polyvinyl Chloride (CPVC) Pipe — Nom. 2 in. (51 mm) diam (or smaller) SDK13.5 CPVC pipe for use in closed (process or supply) piping systems.

4. Fill Material — Sealant — For 1 hr F Rating, min. 5/8 in. (16 mm) thickness of fill material applied within the annulus. Flush with both surfaces of wall. For 2 hr F Rating, min. 1-1/4 in. (32 mm) thickness of fill material applied within annulus. Flush with both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. — FS-ONE Sealant or FS-ONE MAX Fluorescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada).

HilTI Firestop Systems

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[illegible]

UL LISTED
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Underwriters Laboratories Inc.
To UL 1075

System No. F-C-2203
F Rating — 1 Hr
T Rating — 1 Hr

A detailed cross-sectional diagram of a fire-rated floor assembly. The diagram shows various layers and components labeled with circled numbers 1 through 5.
 - Label 1 points to the bottom surface of the concrete slab.
 - Label 2 points to the top surface of the concrete slab.
 - Label 3 points to the interior side of the vertical firestop assembly.
 - Label 4 points to the exterior side of the vertical firestop assembly.
 - Label 5 points to the top surface of the concrete slab above the firestop assembly.
 The diagram illustrates the integration of structural elements like joists, girders, and floor slabs with fire-resistant materials such as concrete, steel, and specialized firestop products like cast-in-place concrete or precast concrete units.

1. Floor Ceiling Assembly.—The 1 hr fire-rated solid or truss lumber joist/floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L200 Series Floor/Ceiling Designs in the U.L. Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:
 - A. Flooring System.—Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture*, as specified in the individual Floor/Ceiling Design.
 - B. Wood Joist.—Non 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, I-beams or Structural Wood Joist®.
 - C. Gypsum Board.—Non 5/8 in. (16 mm) thick, 14 ft (4.2 m) wide as specified in the individual Floor/Ceiling Design.
2. Closet Flange.—Acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) closet stud sized to accommodate drain pipe. Closet flange installed over drain piping within floor opening with flange secured to plywood floor with steel screws. Diam of circular opening through flooring (Item 1A) to be max 1/2 in. (13 mm) larger than outside diam of closet flange.
3. Drain Piping.—Non 4 in. (102 mm) diam (or smaller) Schedule 40 acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) drain pipe.
4. Fill, Void or Cavity Material.—Sealant.—Min. 3/4 in. (19 mm) thickness of fill material applied within the annulus, flush with the bottom surface of floor.
5. Water Coat.—(Not Shown)—Floor mounted vitreous china water coat.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTING — FS-ONE Sealant or FS-ONE MAX Innufluent Sealant

* Indicates such products shall bear the U.L. or cUL Certification Mark for jurisdictions employing the U.L. or cUL Certification (such as Canada), respectively.

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January 5, 2017

FC 2203

NOTE: SELECTED FIRE-STOP DETAILS ARE FOR TYPICAL CONDITIONS. SUB-CONTRACTORS SHALL PROVIDE FIRE-STOP PRODUCT INFORMATION AND DETAIL(S) SPECIFIC TO SITE CONDITIONS AT REQUEST OF BUILDING OFFICIAL

FIRE STOPPING DETAILS


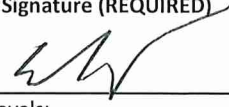
NO SCALE



BAB 1-10-24 052
Doc 332-vA052021-0221

Commercial and 3+ Multi-family Plan Review & Building Permit Application

Complete All Items and the Checklist

Project Name Dragestil Hotel - Building #1		Application Date 4/6/2023	
Site Address 723 S. Lake Ave		Parcel ID Number 010-4380-02380	
Legal Description: Subdivision, Lot & Block or other description Lots 228, 230, 232,234, & 236 INCLUDING LOT 229 MN AVE.			
Applicant Name HEIRLOOM CONSTRUCTION		Applicant is: <input type="checkbox"/> Owner <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Owner's Agent	
Contractor license #: BC695608			
Applicant Address 204 E 1ST STREET		City DULUTH	State MN Zip 55802
Applicant Email (REQUIRED) danb@rentwithheirloom.com		Applicant Phone (REQUIRED) 218-590-6917	
Owner Name Park Point Land Co., LLC			
Owner Address P.O. BOX 3144		City DULUTH	State MN Zip 55803
Owner Email (REQUIRED) mike@rentwithheirloom.com		Owner Phone (REQUIRED) 218-269-9691	
Detailed Description of proposed work:		Residential (1 or 2 Family or Townhouse) <input checked="" type="checkbox"/> Multi-family Residential <input type="checkbox"/> Commercial <input type="checkbox"/>	
Construction of (4) four buildings; three stories each, 1 rental unit on each floor			
Check Applicable: <input checked="" type="checkbox"/> New Building <input type="checkbox"/> Interior Remodel w/ Change of Use Addition <input type="checkbox"/> Interior Remodel No Change of Use Sitework/Foundation Only <input type="checkbox"/> Demolition <input type="checkbox"/> Other			
Project Valuation. Include materials and labor for all work: \$826,250			
Permit Fee:		Plan Review Fee:	State Surcharge: Total Enclosed:
Design Professional (Architect or Engineer) or Plan Preparer Name Arola Architecture Studio, Jed Lahti			
Design Professional or Plan Preparer Address 501 S. Lake Ave, #205		City Duluth	State MN Zip 55802
Design Professional or Plan Preparer Email (REQUIRED) jed@arolaarch.com		Phone (REQUIRED) 218-740-5219	
Commercial Multi-Family	Occupancy Use Group(s) circle: A B E F H I M R S U R		Sprinklered? No NFPA 13 <input checked="" type="checkbox"/> NFPA 13 R
	Type(s) of Construction (circle): IA IB IIA IIB IIIA IIIB IV VA VB VB		Food Service Facility? <input checked="" type="checkbox"/> No Yes State Const. Project # - If applicable
Does the project site or any area to be disturbed by construction contain wetlands? <input checked="" type="checkbox"/> No Yes			
I do hereby make application for a building permit. The application and accompanying documents are complete and accurate. Work shall be consistent with the plans and information provided with the permit application and shall comply with applicable codes, ordinances and laws and conditions of approval. Work shall not begin until a building permit has been issued.		Applicant's Signature (REQUIRED)	
			
I am the owner of the property described herein and I authorize the submittal of a permit application for the work described here and on accompanying plans, specifications, and other construction documents.		Owner's Signature (REQUIRED)	
			

Office Use

Zone District:

Stormwater Zone:

Special Approvals:

LUtech:

duluthmn.gov/csi | 218-730-5240 | permissingservices@duluthmn.gov





Plan Review Comment Sheet (PRC)



Date: October 10, 2023
Address: 713 S Lake Ave
Permit #: BBLDG2304-021
Description: Dragestil Hotel – 3-unit Building 1

**Do Not Detach from
 Site Copy of
 Stamped Reviewed Plans.**

- Plan review is based upon the provisions of the 2020 Minnesota State Building Code.
- Plan approval is conditional upon compliance with all of the following and all plan review notes on plans.
- Approval of plans, specifications or computations shall not be construed to be a permit for any violation of the building code or any other applicable code or ordinance. MSBC 1300.0120, Subp. 10
- One set of the approved construction documents shall be kept at the site of work and open to inspection by the building official, inspectors and other Construction Services staff. MSBC 1300.0130, Subp. 6

Changes to Plans - Code related changes to issued permit plans must be submitted to Construction Services for review and approval prior to the changes being started. Go to the site below & follow the plan change submittal procedure.

<http://www.duluthmn.gov/construction-services-inspections/plan-change-submittals/>

Information & Conditions for Code Compliance

1. Project Contact Information

2. Code Information

Architect Firm: Arola Architecture, 218-740-5219	Occupancy Classification for Project: R-1
Structural Engineer: MBJ, 218-310-4329	Occupancy Classification for Building: R-1
Owner: Park Point Land Co., 218-269-9691	Change of Occupancy Classifications for Building: N/A
Applicant: Heirloom Construction, 218-590-6917	Construction Type: VB
Inspector: Dave Hjelle, 218-409-5414	Special Inspections: YES
Plan Reviewer: Chris Machmer, 218-730-5247	Code: MSBC 2020 Sprinkled: NFPA 13

3. Mechanical, Electrical, Plumbing, Sprinkler Work

No mechanical, electrical, plumbing, or sprinkler work may proceed prior to obtaining a separate permit for each discipline. Mechanical, electrical, plumbing, and sprinkler plans have not been reviewed at this time.

4. Means of Egress Illumination, Fire Extinguishers, and Exit Signage

Work with the building inspector and Fire Marshal to appropriately site Means of Egress Illumination, Fire Extinguishers, and Exit signage.

5. Staked Property Lines

Property lines must be staked by a licensed land surveyor prior to start of construction activities. Stakes shall be maintained throughout the project, and replaced as necessary if disturbed.

6. Site Control – Site Work, Adjacent Structures, and Surface Runoff

This is a sensitive site. The contractor must take strict measures to ensure that site disturbance and site runoff will not extend beyond property boundaries onto adjacent property or ROW. Oversize excavation may not extend beyond the property line. Adjacent structures, such as retaining walls, shall not be impacted by construction activities.

7. Pre-Construction Meeting

It is the applicant's responsibility to contact the inspector before work begins.

Inspections

The Construction Inspector assigned to this project is **Dave Hjelle 218-409-5414**. Please contact all City Inspectors a minimum of 24 hours in advance to schedule inspections. Inspections are required by the building code. **Failure to call for required inspections, including a final inspection for all permitted work, is a violation of the code.**

Delayed Submittals as required by MSBC 1300.0130, Subp. 9B:			
Description	Due By	Date Received	Information Location
ASI's impacting building code items – complete plan change form: Link on first page	When issued to the project		
Firestopping details – Engineering Judgments specific to the project, standard details in addition to those provided	Prior to installation		
Shop Drawings for roof trusses - Engineer to review and approve prior to submittal	Prior to installation		
Shop Drawings for floor trusses - Engineer to review and approve prior to submittal	Prior to installation		

DRAGESTIL DEVELOPMENT		723 S LAKE AVE		SITE DEVELOPMENT		Lic. No: 40926		Engineer: David G. Boll		04/07/23		I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.		revision		BAB		Proj: 22-339		Date: 04/07/23		Drawn: CAF		Checked: DGB		GENERAL NOTES		Sheet Title		2	
Northland Consulting Engineers L.L.P.		Structural, Civil and Forensic Engineering Services		Voice: (218) 277-5995		Fax: (218) 277-7779		www.nce-engineers.com																							

NOT REVIEWED FOR BUILDING CODE COMPLIANCE

ENGINEER'S AUTHORITY

THE ENGINEER SHALL GIVE ALL ORDERS AND DIRECTIONS CONTEMPLATED UNDER THIS CONTRACT AND SPECIFICATIONS RELATIVE TO THE EXECUTION OF THE WORK. THE ENGINEER SHALL DETERMINE THE AMOUNT, QUALITY, ACCEPTABILITY, AND FITNESS OF THE SEVERAL KINDS OF WORK AND MATERIALS WHICH ARE TO BE PAID FOR UNDER THIS CONTRACT AND SHALL DECIDE ALL QUESTIONS WHICH MAY ARISE IN RELATION TO SAID WORK AND THE CONSTRUCTION THEREOF.

THE ENGINEER'S ESTIMATES AND DECISIONS SHALL BE FINAL AND CONCLUSIVE, EXCEPT AS HEREIN OTHERWISE EXPRESSLY PROVIDED. IN CASE ANY QUESTIONS SHALL ARISE BETWEEN THE PARTIES HERETO RELATIVE TO SAID CONTRACT OR SPECIFICATIONS, THE DETERMINATION OF DECISION OF THE ENGINEER SHALL BE A CONDITION PRECEDENT TO THE RIGHT OF THE CONTRACTOR TO RECEIVE ANY MONEY OR PAYMENT FOR WORK UNDER THIS CONTRACT AFFECTED IN ANY MANNER OR TO ANY EXTENT BY SUCH QUESTION.

THE ENGINEER SHALL DECIDE THE MEANING AND INTENT OF ANY PORTION OF THE SPECIFICATIONS AND OF ANY PLAN OR DRAWINGS WHERE THE SAME MAY BE FOUND OBSCURE OR BE IN DISPUTE. ANY DIFFERENCES OR CONFLICTS IN REGARD TO THEIR WORK WHICH MAY ARISE BETWEEN THE CONTRACTOR UNDER THIS CONTRACT AND OTHER CONTRACTORS PERFORMING WORK FOR THE OWNER SHALL BE ADJUSTED AND DETERMINED BY THE ENGINEER.

THE CONTRACTOR IS TO FURNISH THE ENGINEER OR SUPERVISOR WITH ALL REQUIRED ASSISTANCE TO FACILITATE THOROUGH INSPECTION, OR CULLING OVER REMOVAL OF DOUBTFUL OR DEFECTIVE MATERIAL, OR FOR THE THOROUGH EXAMINATION INTO ANY OF THE WORK PERFORMED, OR FOR ANY OTHER PURPOSE REQUIRED IN THE DISCHARGE OF THEIR DUTIES, FOR WHICH SERVICE NO ADDITIONAL ALLOWANCE WILL BE MADE. THE ENGINEER OR SUPERVISOR MAY STOP THE WORK ENTIRELY IF THERE IS NOT SUFFICIENT QUANTITY OF SUITABLE AND APPROVED MATERIALS ON THE SITE TO CARRY IT ON PROPERLY, OR FOR ANY GOOD AND SUFFICIENT CAUSE; ALSO TO SEE THAT ALL OF THE PROVISIONS OF THIS CONTRACT AND SPECIFICATION ARE FAITHFULLY ADHERE TO, AND SHALL HAVE THE POWER TO DISMISS ANY EMPLOYEE OF THE CONTRACTOR FOR INCOMPETENCE, INTOXICATION, WILLFUL NEGLIGENCE, OR DISREGARD OF ORDERS.

THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE ACTS OF OMISSIONS OF THE CONTRACTOR, OR ANY SUBCONTRACTORS, OR ANY OF THE THEIR SUPERINTENDENCE, AGENTS, OR EMPLOYEES.

CHANGES IN WORK

NO CHANGES IN THE WORK COVERED BY THE APPROVED CONTRACT DOCUMENTS SHALL BE MADE WITHOUT HAVING PRIOR WRITTEN APPROVAL BY THE ENGINEER.

AMERICANS WITH DISABILITIES ACT (ADA)

ALL PEDESTRIAN FACILITIES ON THIS PROJECT MUST BE CONSTRUCTED ACCORDING TO PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) WHICH CAN BE FOUND AT: <http://www.dot.state.mn.us/ada/pdf/PROWAG.pdf> and MnDOT STANDARD PLANS 5-297.250 & 5-297.254

THE CONTRACTOR MUST DESIGNATE A RESPONSIBLE PERSON COMPETENT IN ALL ASPECTS OF PROWAG TO ASSESS PROPOSED SIDEWALK LAYOUT AT EACH SITE BEFORE WORK BEGINS. THE DESIGNATED PERSON MUST HAVE ATTENDED THE MnDOT ADA CONSTRUCTION CERTIFICATION COURSE AND RECEIVED A PASSING SCORE, WITHIN THE PAST 3 YEARS. FOR CLASS DATES AND LOCATIONS PLEASE REFER TO THE FOLLOWING LINK AT: <http://www.dot.state.mn.us/ada/training.html>. A MINIMUM OF ONE PERSON PER PROJECT MUST POSSESS A VALID ADA CONSTRUCTION CERTIFICATION CARD ANYTIME ADA WORK IS BEING PERFORMED ON THE PROJECT. IF WORK ON ELECTRICAL COMPONENTS IS THE ONLY ADA WORK TAKING PLACE ON THE PROJECT THE ELECTRICIAN MUST HAVE IN THEIR POSSESSION A CURRENT MnDOT SIGNALS AND LIGHTING CERTIFICATION.

THE CONTRACTOR AND THE ENGINEER SHALL WORK TOGETHER TO CONSTRUCT ALL PEDESTRIAN FACILITIES SET FORTH IN THE PLANS AND REQUIREMENTS OF PROWAG.

IF THE PLAN OR SITE CONDITIONS DO NOT ALLOW ACCESSIBILITY STANDARDS TO BE MET, THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER TO DETERMINE A RESOLUTION. THE ENGINEER SHALL RESPOND TO THE CONTRACTOR, IN A TIMELY MANNER (UP TO 24 HOURS), WITH A SOLUTION ON HOW TO PROCEED. THE CONTRACTOR SHALL MITIGATE ANY POTENTIAL DELAYS BY PROGRESSING OTHER AVAILABLE WORK ON THE PROJECT.

IF THE CONTRACTOR CONSTRUCTS ANY PEDESTRIAN FACILITIES THAT ARE NOT PER PLAN, DO NOT MEET THE REQUIREMENTS OF PROWAG, OR DO NOT FOLLOW THE AGREED UPON RESOLUTION WITH THE ENGINEER, THE CONTRACTOR WILL BE RESPONSIBLE FOR CORRECTING THE DEFICIENT FACILITIES WITH NO COMPENSATION PAID FOR THE CORRECTIVE WORK.

SURVEY STAKES & BENCHMARKS

THE CONTRACTOR IS RESPONSIBLE FOR ALL STAKING OPERATIONS UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.

IF NOTED IN THE CONTRACT DOCUMENTS FOR THE OWNER TO PROVIDE STAKING OPERATIONS, THE CONTRACTOR SHALL GIVE THE ENGINEER AT LEAST 72 HOURS NOTICE IN WRITING BEFORE REQUIRING ANY SURVEYS OR CONSTRUCTION STAKES TO BE SET, OR BEFORE COMMENCING WORK ON ANY PORTION OF THE CONTRACT, OR AT ANY NEW PLACE, AS WELL AS AT ANY PLACE WHERE WORK HAS BEEN RELINQUISHED OR STOPPED FOR ANY CAUSE.

THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION OF ALL SUCH STAKES AND BENCH MARKS IN THEIR PROPER POSITIONS, AND IN CASE OF ANY OF THEM BEING LOST, DESTROYED, OR OBLITERATED AFTER ONCE HAVING BEEN GIVEN, THE CONTRACTOR SHALL AT ONCE NOTIFY THE OWNER IN WRITING AND ALL EXPENSE INCURRED BY THE OWNER IN REPLACING THE SAME MAY BE CHARGED AGAINST THE CONTRACTOR AND DEDUCTED FROM THE ESTIMATES.

GENERAL CIVIL NOTES

SHOP DRAWINGS

SHOP DRAWINGS FOR THE FOLLOWING ITEMS, BUT NOT LIMITED TO, SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION IF APPLICABLE;

- A. BITUMINOUS MIX DESIGN
- B. CONCRETE MIX DESIGN
- C. STORM SEWER COMPONENTS
- D. WATER MAIN COMPONENTS
- E. SANITARY SEWER COMPONENTS
- F. CONCRETE STRUCTURES
- G. STORM WATER TREATMENT MATERIALS
- H. GEOSYNTHETIC PRODUCTS

DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD; THEREFORE, THEY SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY THE ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE ONE ELECTRONIC COPY TO BE MARKED AND RETURNED.

SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS, IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER. THE DESIGN DRAWINGS AND SPECIFICATION SHALL CONTROL AND SHALL BE FOLLOWED.

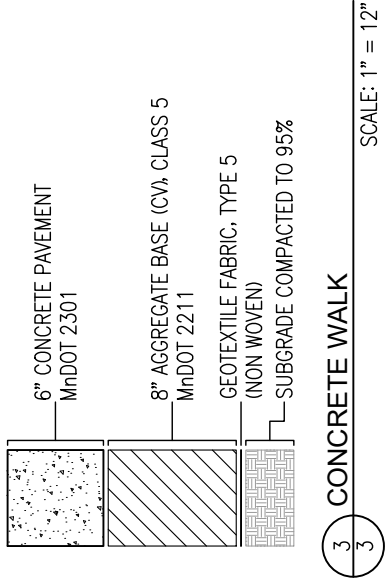
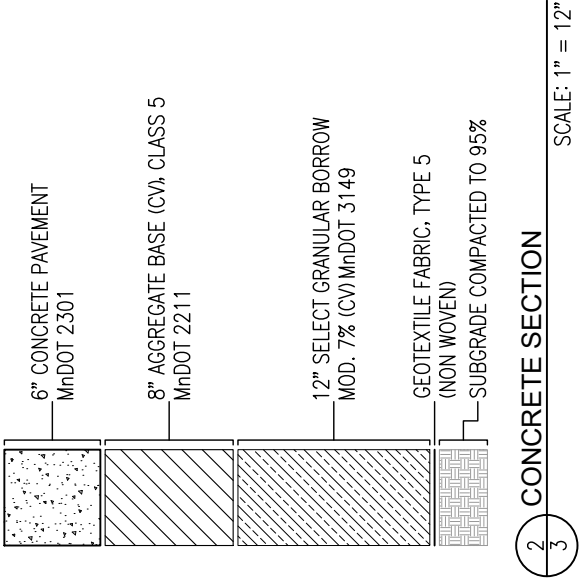
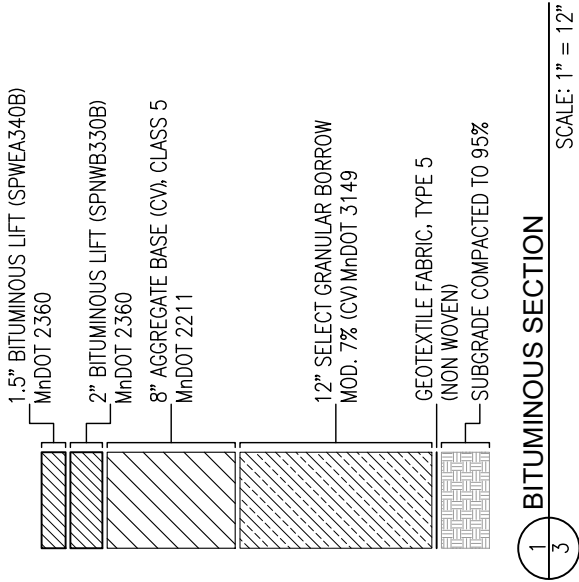
UTILITIES

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS TO UTILITY LEVEL "D" AS DEFINED BY C/ASCE 38-02. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "GSOC" AT (1-800-252-1166) TWO WORKING DAYS PRIOR TO ANY EXCAVATION OR CONSTRUCTION.

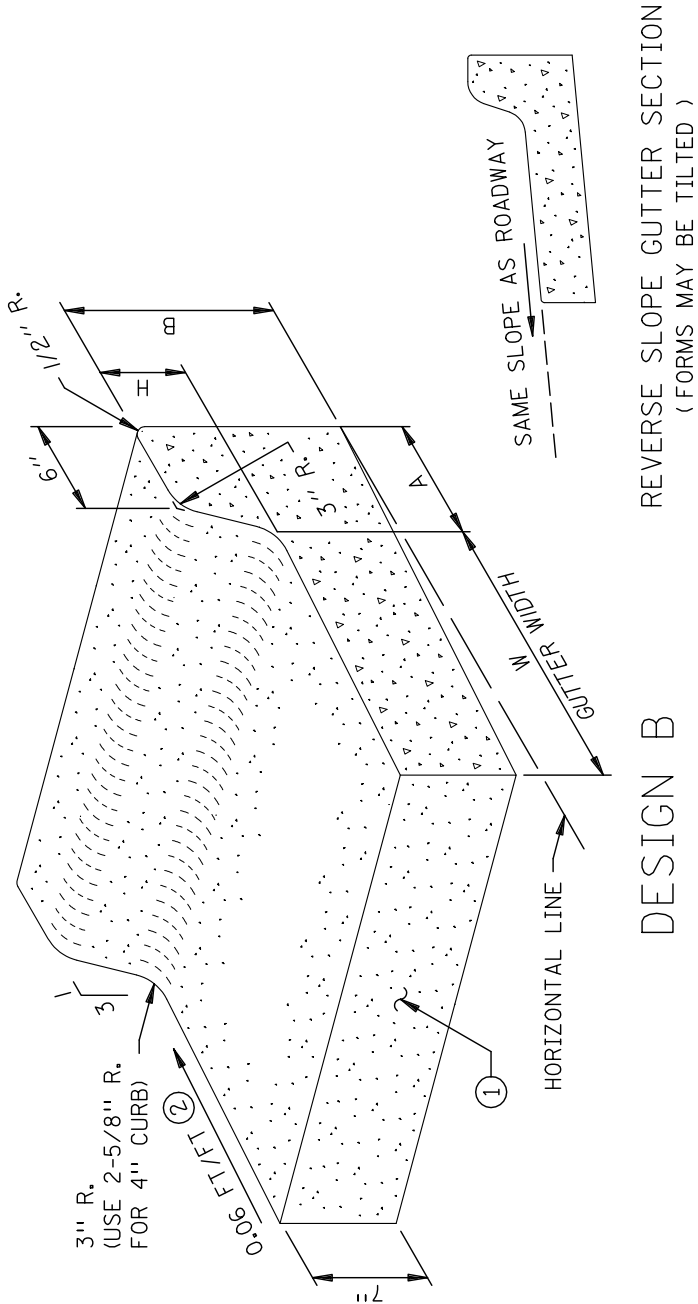
GEOTECHNICAL & MATERIAL TESTING

THE CONTRACTOR SHALL VERIFY RECOMMENDATIONS NOTED IN THE GEOTECHNICAL REPORT PRIOR TO INSTALLATION OF SITE IMPROVEMENT MATERIALS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN THE GEOTECHNICAL REPORT AND THE PLANS.

OWNER HAS OPTION TO COMPLETE QUALITY ASSURANCE OF MATERIAL TESTING. MATERIAL TESTING SHALL FOLLOW THE MnDOT SCHEDULE OF MATERIAL CONTROL UNLESS NOTED IN THE CONTRACT DOCUMENTS.



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BUILDING CODE
COMPLIANCE



- NOTES:
- LONGITUDINAL JOINT WHEN ADJACENT TO RIGID PAVEMENT OR BASE.
SEE STANDARD PLANS MANUAL FOR JOINT INFORMATION.
 - SLOPE 0.06 FT/FT NORMAL, UNLESS OTHERWISE SPECIFIED. IF A DIFFERENT GUTTER SLOPE IS PERMITTED, THE FORM MAY BE TILTED.

DESIGN B				W = 12"				W = 24"			
				DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE	
DIMENSIONS				CU. YDS.		LIN. FT.		CU. YDS.		LIN. FT.	
H	A	B		PER	FT.	PER	FT.	PER	FT.	PER	FT.
6	8"	13-1/2"		B612	0.0474	21.1		B624	0.0690	14.5	

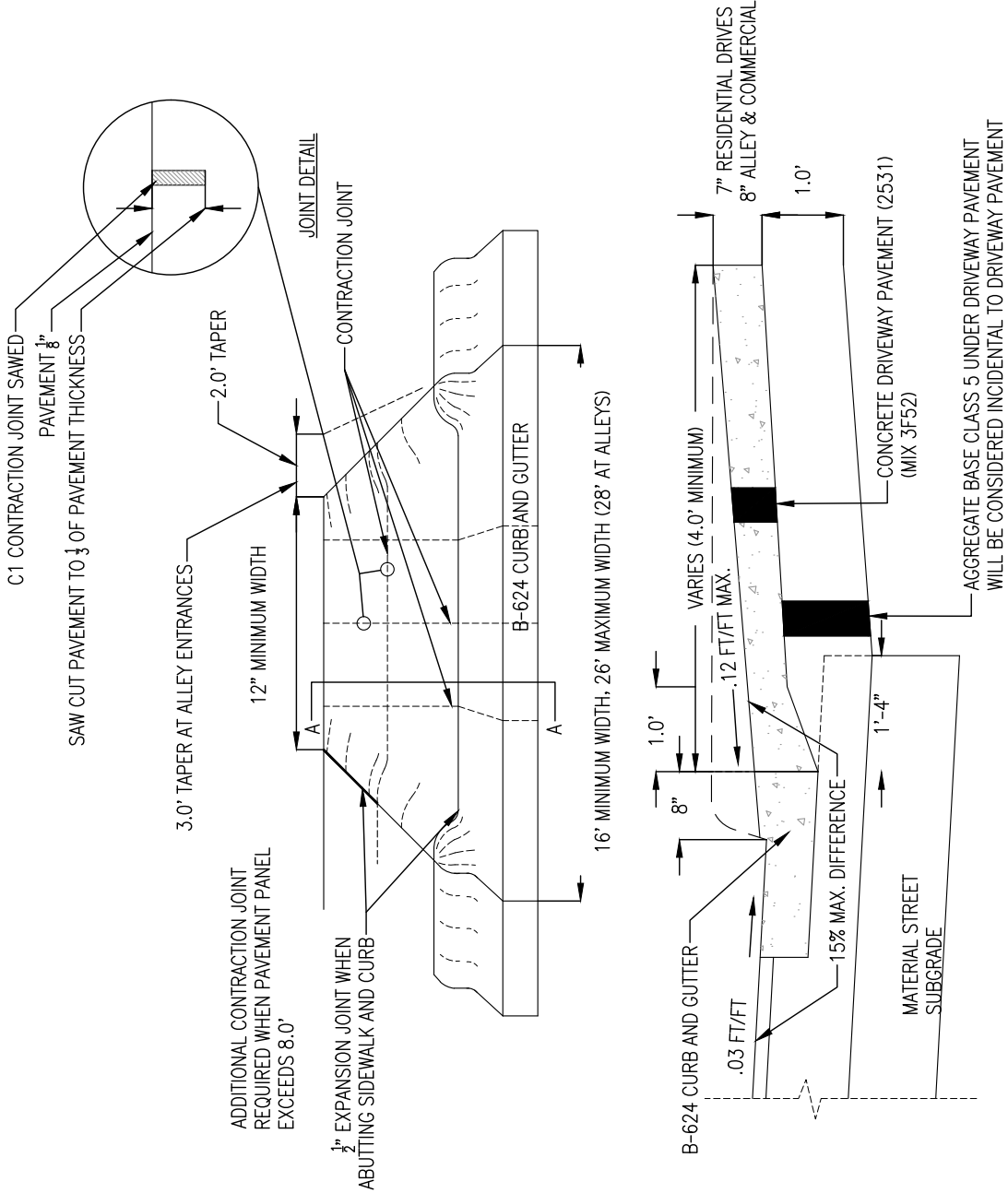
CONCRETE CURB AND GUTTER – DESIGN B612 & B624

SEE MnDOT STANDARD PLATE 7100H

NTS.

V:\Projects\22-339 - Dragestil Development\DWG\1 Title.dwg
Jul 28, 2023 - 10:40am
chase

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COMPLIANCE



- NOTES:
- WHERE THERE IS NO SIDEWALK OR THERE IS A GRASS BOULEVARD BETWEEN THE SIDEWALK AND THE BACK OF CURB THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF.
 - WHERE THERE IS SIDEWALK DIRECTLY BEHIND THE CURB, DRIVEWAY PROFILE SLOPE SHALL BE FLATTENED TO MEET ADA ACCESSIBLE ROUTE STANDARDS

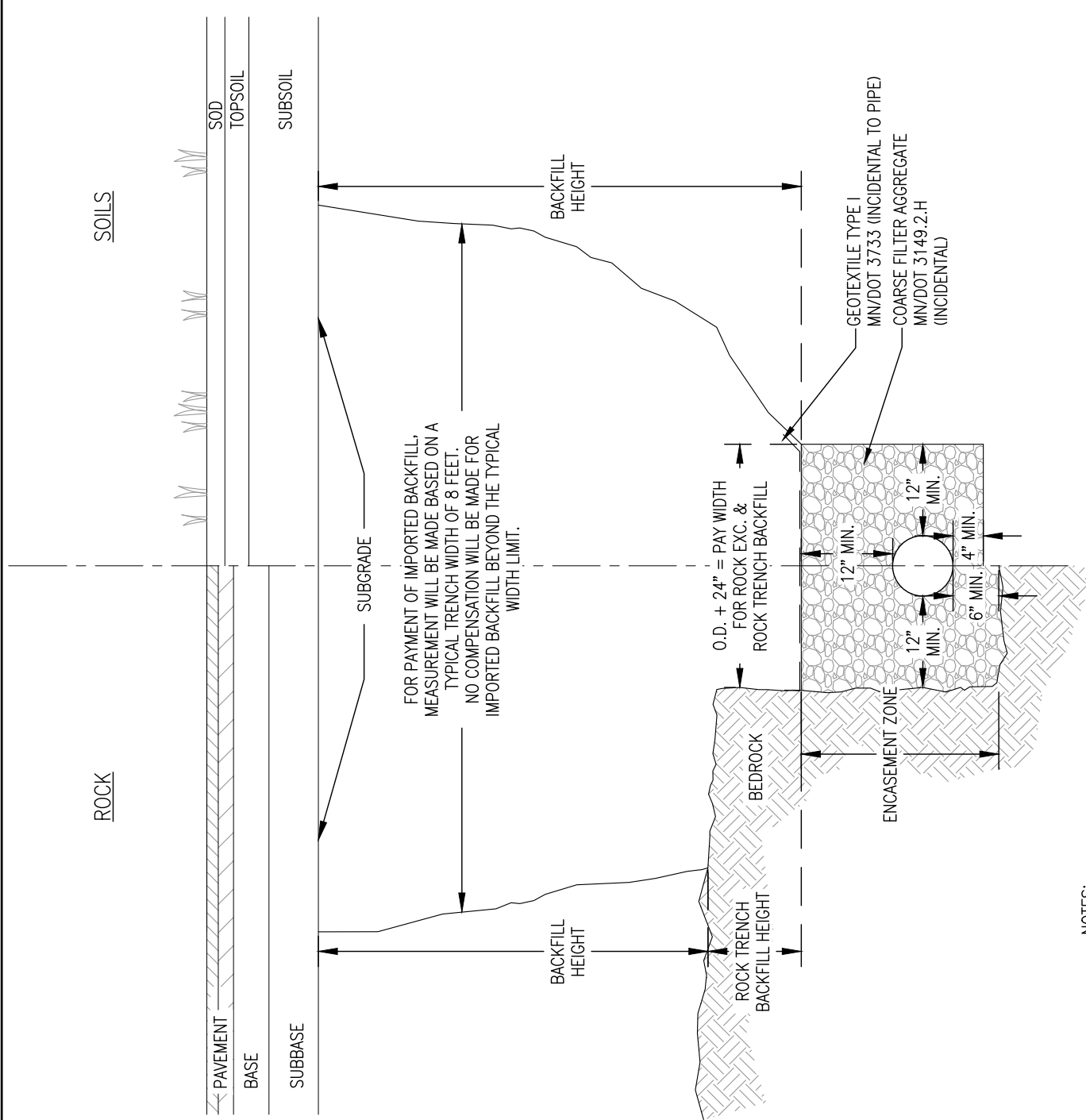
DRIVEWAY & ALLEY ENTRANCES

REVISED/APPROVED 04/05/2019

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

STR-5

NO SCALE



NOTES:

- EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
- PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
- A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
- TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
- ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
- BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
- COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

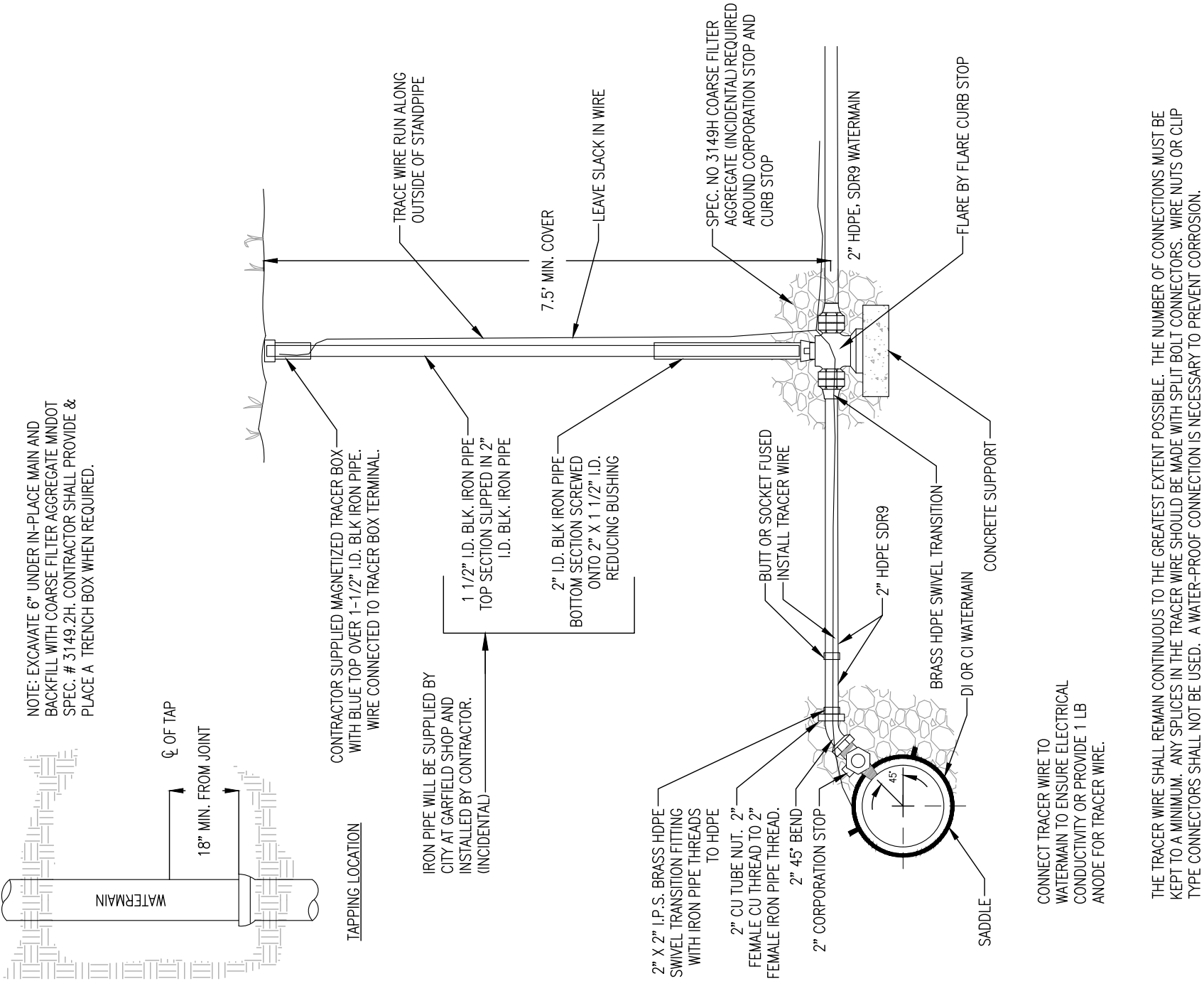
PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING

REVISED/APPROVED 04/05/2019

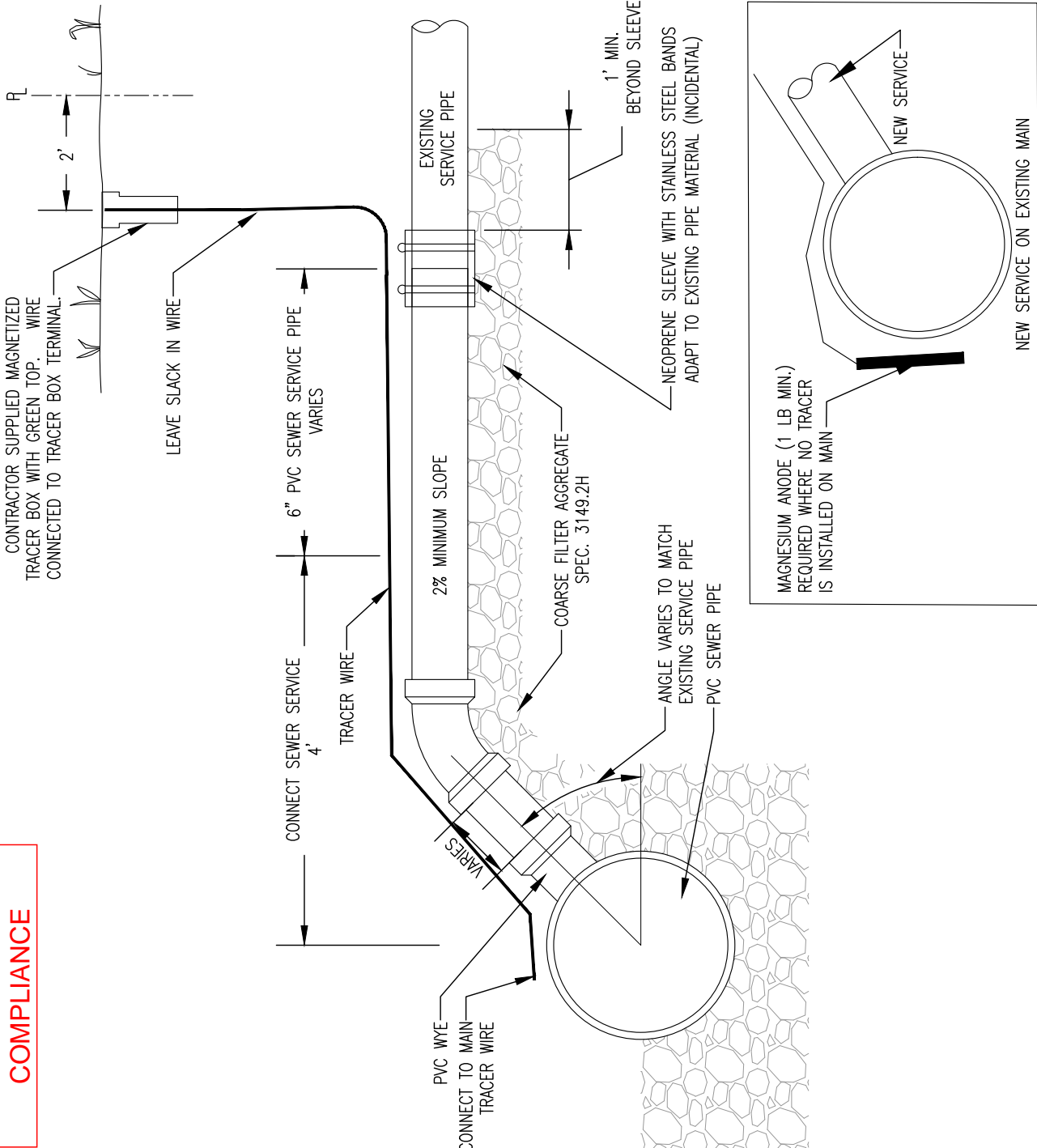
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

EX-3

NO SCALE



THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. THE NUMBER OF CONNECTIONS MUST BE KEPT TO A MINIMUM. ANY SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS OR CLIP TYPE CONNECTORS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.



1. BID ITEM FOR PVC WYE INCLUDES FURNISHING AND INSTALLING WYE IN SEWER MAIN.
 2. CONNECT SEWER SERVICE INCLUDES 6" PVC SEWER SERVICE PIPE (TO 4' FROM C/L) AND ALL FITTINGS
 3. 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE C/L OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
 - 4.
 5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SANITARY SEWER MAINS AND SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
 6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
 7. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE VIA SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

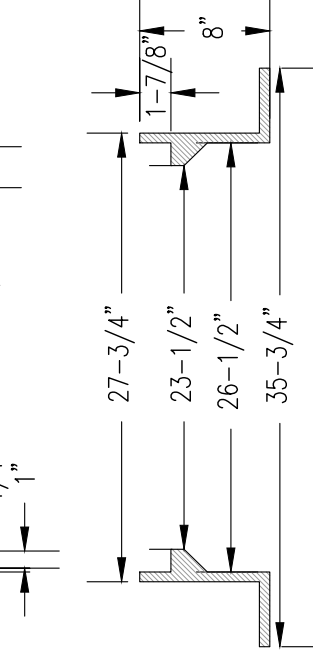
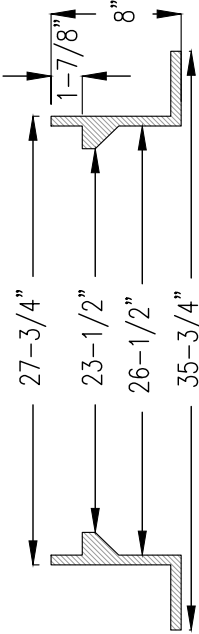
**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**

2" HDPE WATERMAIN CONNECTION TO DI OR CI	W-7	TYPICAL SEWER SERVICE CONNECTION		SAN-2
REVISED/APPROVED 04/05/2019 CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	REVISED/APPROVED 02/19/2015	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

DRAGESTIL DEVELOPMENT
SITE DEVELOPMENT
723 S LAKE AVE

Professional Engineer under the laws of the State of Minnesota.
by me or under my direct supervision and that I am a duly licensed
member of this plan, specification, or report was prepared
04/07/23
Engineer: David G. Roth
Lic. NO: 40926

Northland
Consulting Engineers L.L.P.
Structural, Civil and Forensic Engineering Services
www.nce-engineers.com



NOTE: SUITABLE FOR HS25 WHEEL LOADS

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BUILDING CODE
COMPLIANCE**

SANITARY CASTING DETAIL		SAN - 1	STORM MANHOLE CASTING		STRM - 1
REVISED/APPROVED 2/01/2013	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	REVIEWED/APPROVED 2/01/2013	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE

Northland Consulting Engineers L.L.P.

Structural, Civil and Forensic Engineering Services

www.nce-engineers.com

Voice: (218) 272-5995
Fax: (218) 272-7779

DRAGESTIL DEVELOPMENT
SITE DEVELOPMENT
723 S LAKE AVE

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

04/07/23

Engineer: David G. Roth
Lic. No: 409226

revision _____

Proj: 22-339

Date: 04/07/23

Drawn: CAE

Checked: DDB

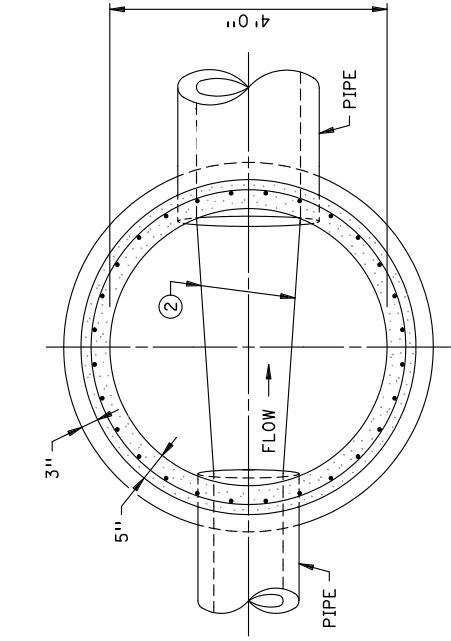
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DETAILS

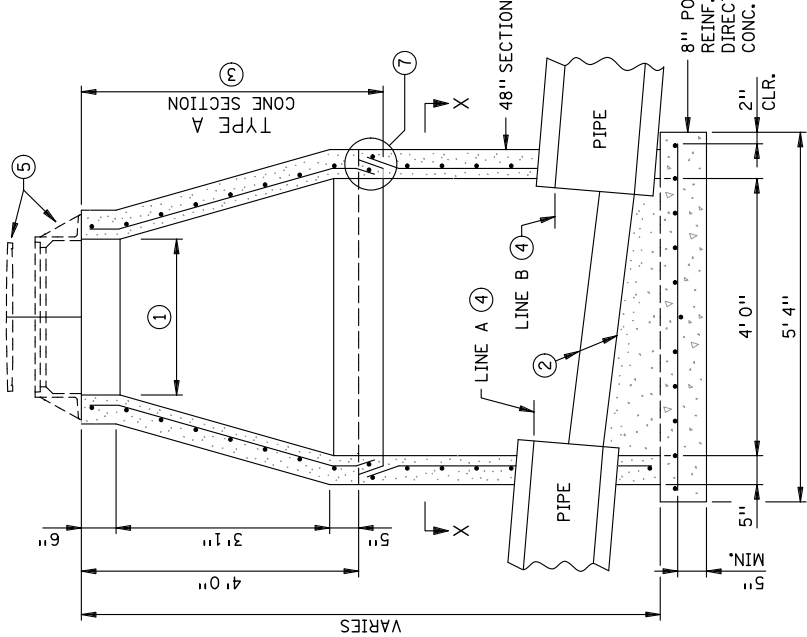
Sheet Title _____

Sheet Number _____

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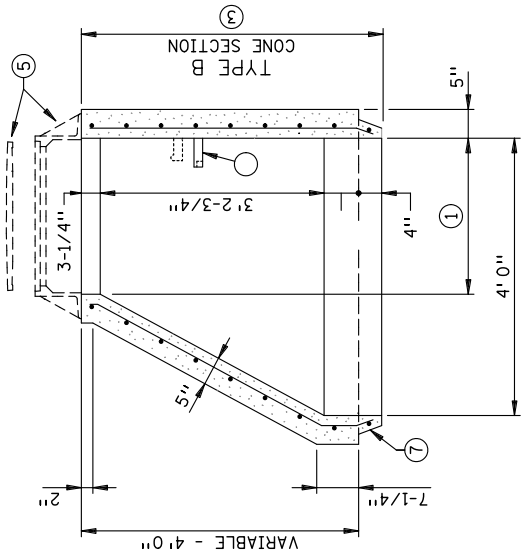


SECTION X-X



SECTIONAL VIEW
TYPE A CONE

- NOTES:
- REINFORCING: SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
- ① 2' 3" NOMINAL OPENING.
- ② PROVIDE MORTAR FILLETS TO FIT THE BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET.
- ③ TYPE A CONE SECTION SHALL BE USED UNLESS OTHERWISE INDICATED IN THE PLANS. FOR SHORT CONE SECTION USE TYPE C. SEE STANDARD PLATE 4010.



SECTIONAL VIEW
TYPE B CONE
SEE TYPE A CONE FOR ADDITIONAL INFORMATION

- ④ THE ELEV. OF LINE A SHALL BE EQUAL TO OR ABOVE LINE B.
- ⑤ REFER TO PLAN FOR CASTINGS REQUIRED. USE ADJUSTING RINGS WHERE NECESSARY, SEE STANDARD PLATES INDEX. CASTING AND PRECAST CONC. ADJUSTING RINGS SHALL BE SET ON FULL MORTAR BEDS. NO PIPE OR STRUCTURE ALLOWED ABOVE TOP OF CONE.
- ⑥ REFER TO PLANS FOR ANY STEP REQUIREMENTS.
- ⑦ SEE STANDARD PLATES INDEX FOR OTHER APPROVED JOINTS.

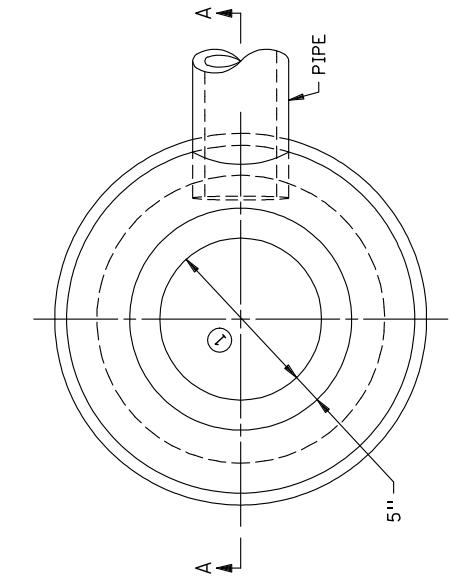
DESIGN F

APPROVED APRIL 16, 2014
Christy L. By
STATE DESIGN ENGINEER

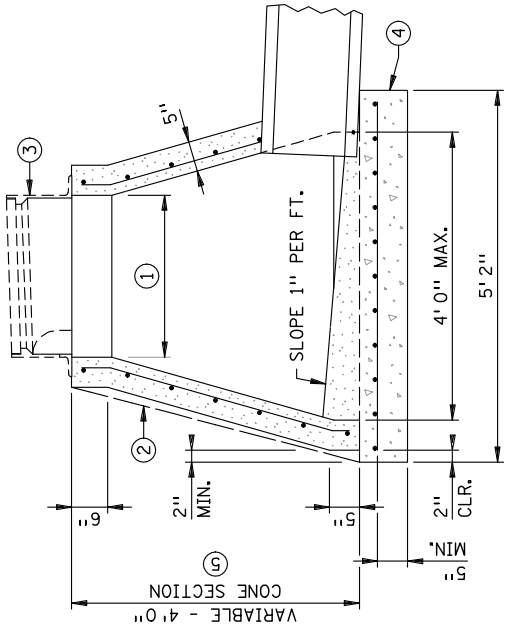
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
MANHOLE OR CATCH BASIN
TYPE A & B CONE SECTIONS
PRECAST

SPECIFICATION
REFERENCE
2506

STANDARD
PLATE
NO.
4005M



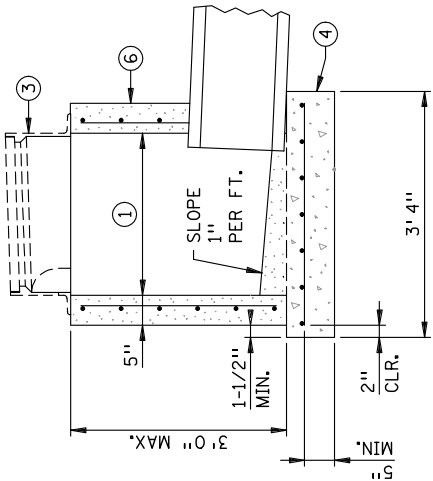
TOP VIEW
REINFORCEMENT NOT SHOWN



SECTION A-A
DESIGN G

- NOTES:
- REINFORCING: SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
- ① 2' 3" NOM. OPENING. WHEN GRATE FRAME CASTING NO. 802A OR NO. 805 IS USED, SEE STANDARD PLATES CASTING LIST.
- ② A STRAIGHT TAPERED WALL IS ACCEPTABLE.
- ③ REFER TO PLAN FOR CASTINGS REQUIRED. USE ADJUSTING RINGS WHERE NECESSARY, SEE STANDARD PLATES INDEX. CASTING AND PRECAST CONC. ADJUSTING RINGS SHALL BE SET ON FULL MORTAR BEDS.
- ④ 8 IN. POURED CONCRETE BASE. BASE REINFORCEMENT: 0.12 SQ. IN. PER FT. IN EACH DIRECTION. AN APPROVED ALTERNATE PRECAST CONCRETE BASE MAY BE USED.

TOP VIEW
REINFORCEMENT NOT SHOWN



SECTION B-B
DESIGN H

- ⑤ HEIGHT OF STRUCTURE MAY BE INCREASED UP TO 1 FT. BY THE USE OF A PRECAST SECTION OR CONCRETE BLOCK CONSTRUCTION ABOVE THE CONE SECTION. SEE STANDARD PLATE 4002 FOR BLOCK CONSTRUCTION.
- ⑥ AS AN ALTERNATE, BRICK OR CONCRETE BLOCK MASONRY MAY BE USED. FOR MATERIALS & CONSTRUCTION METHODS, SEE STANDARD PLATE 4002. CONE SECTION DETAILS OF 4002 DO NOT APPLY.

DESIGN G
DESIGN H

APPROVED JULY 31, 1995
Shelly R. Roshak
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

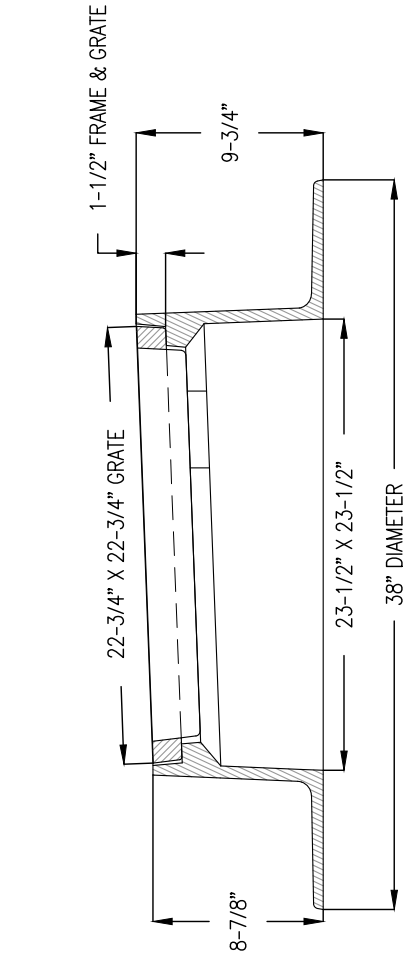
MANHOLE OR CATCH BASIN
PRECAST

SPECIFICATION
REFERENCE
2506

REVISED
8-22-96

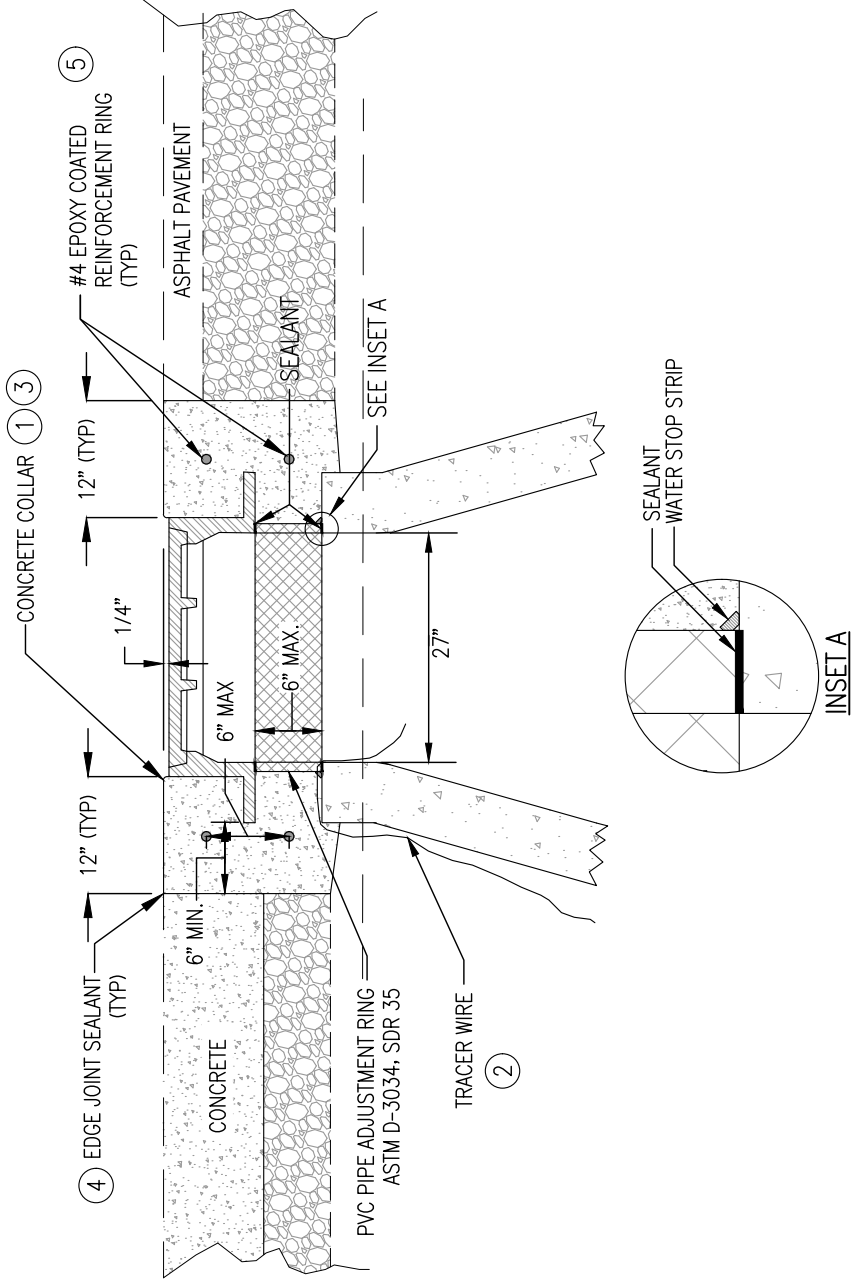
STANDARD
PLATE
NO.
4006L

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE



- NOTES:
1. COMPONENT NO'S: FRAME 5005. GRATE 816 (STD PLATE 4154).
 2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
 3. WEIGHT: FRAME 262#; GRATE 131#
 4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.

NOT TO SCALE

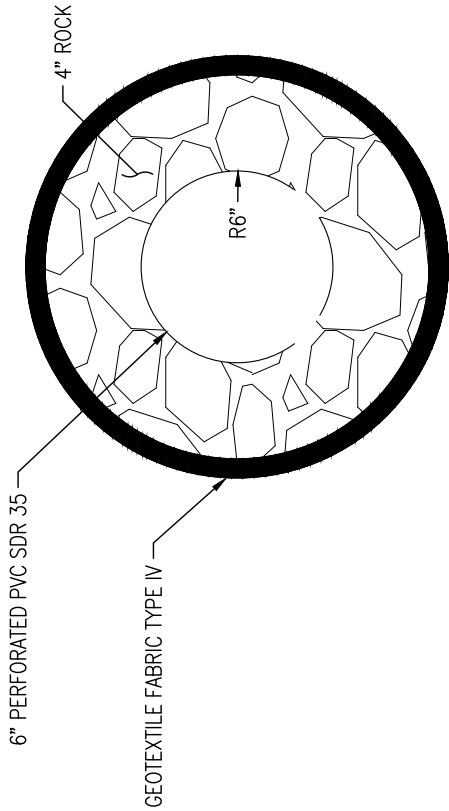


- NOTES:**
- ① CONCRETE (MIX NO. 3652) COLLAR TO ENCASE CASTING AND ADJUSTMENT RING.
 - ② TRACER WIRE, IF REQUIRED, FOR PLASTIC PIPE ON PROJECT
 - ③ CONCRETE COLLAR SHALL BE CIRCULAR LAYOUT. PAVEMENT AND BASE SHALL BE CUT OUT WITH ROTATING CUTTING DEVICE.
 - ④ FINISH CONCRETE EDGE WITH 1/4" RADIUS. SEAL JOINT BETWEEN PAVEMENT AND COLLAR.
 - ⑤ MAINTAIN 3.5" COVER ON REINFORCEMENT.

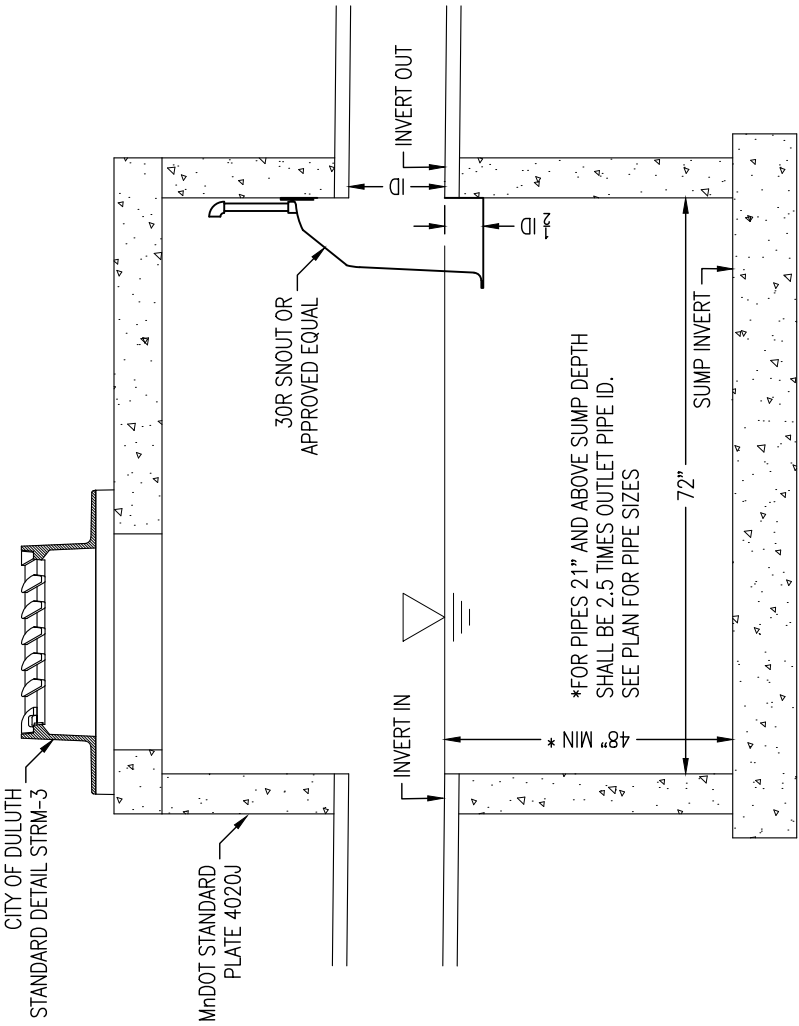
**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**

CATCH BASIN CASTINGS	STRM-3	CONCRETE ENCASED CASTING COLLAR FOR STORM MH IN ROADWAY, WALKS, & DRIVES	STRM-5A
REVIEWED/APPROVED 04/05/2019	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES

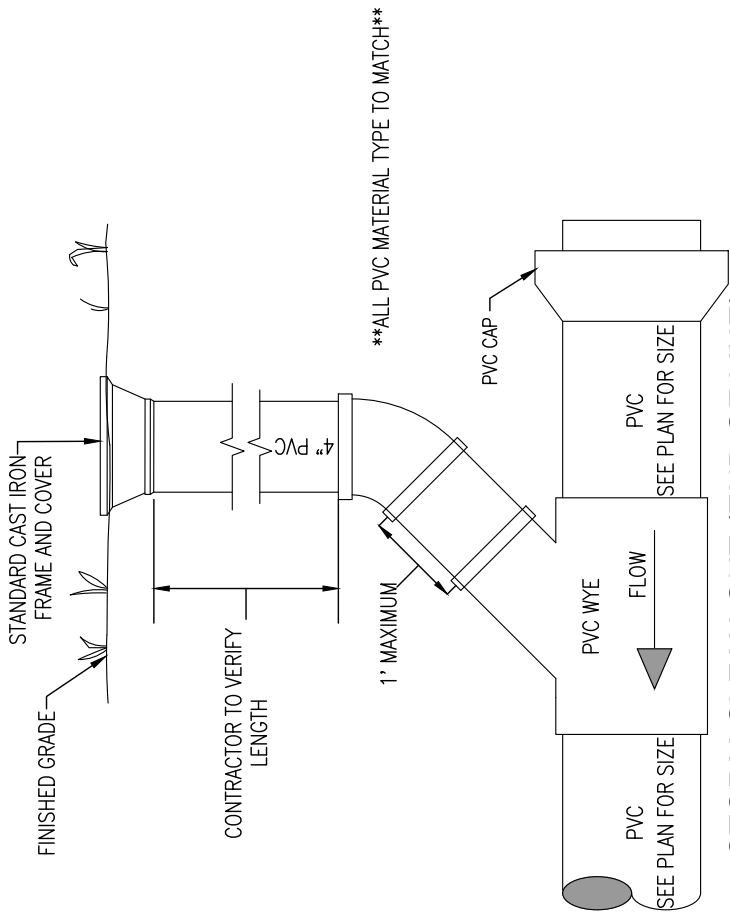
NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE



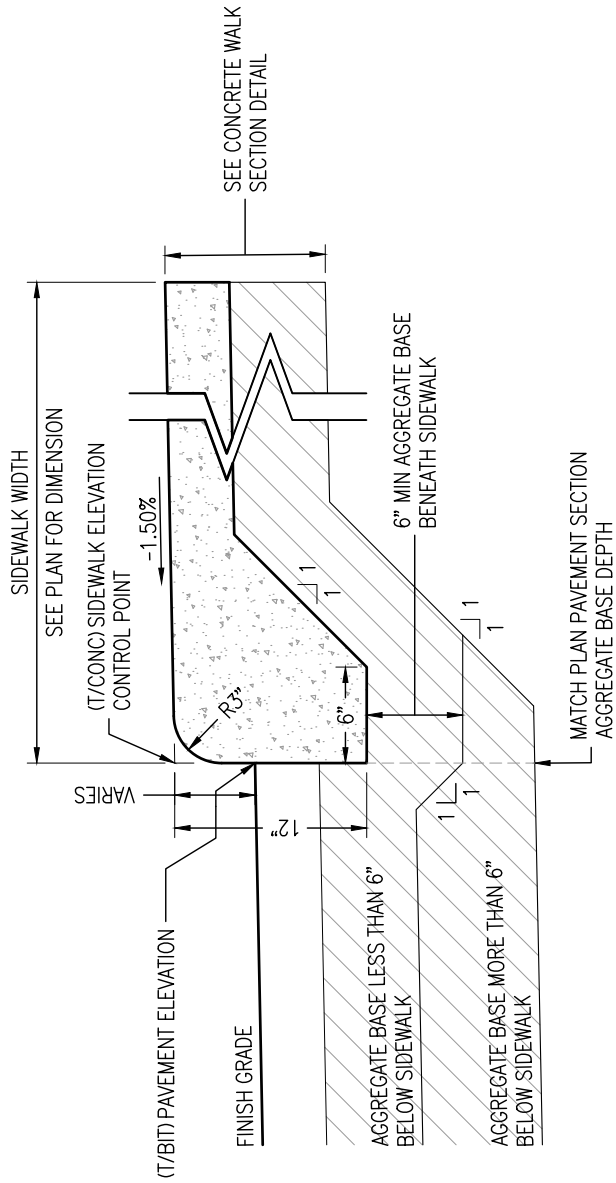
2 PERFORATED PIPE STORM DRAIN
NTS.



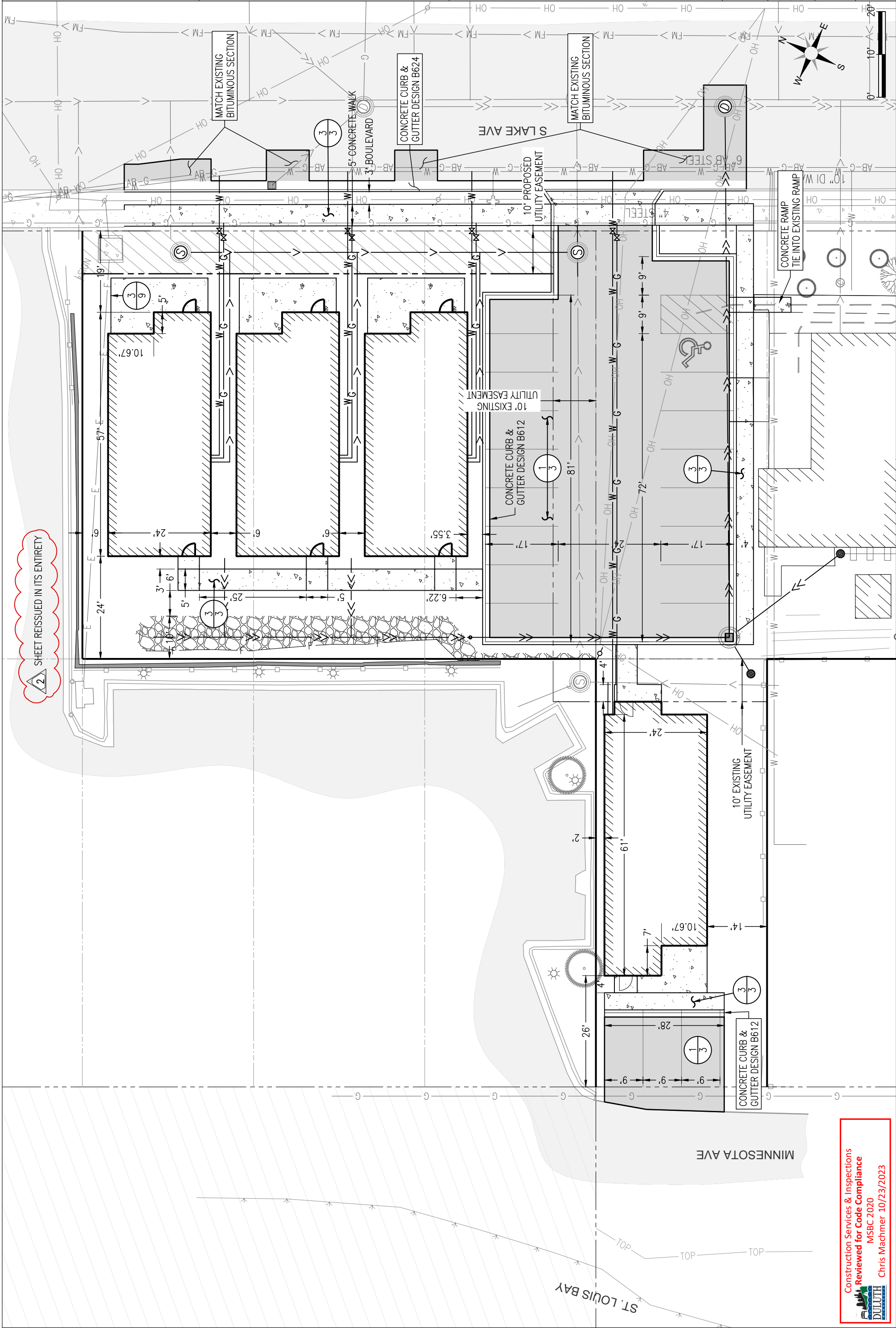
SEDIMENT REMOVAL CATCH BASIN, DESIGN 72-4020
NTS.

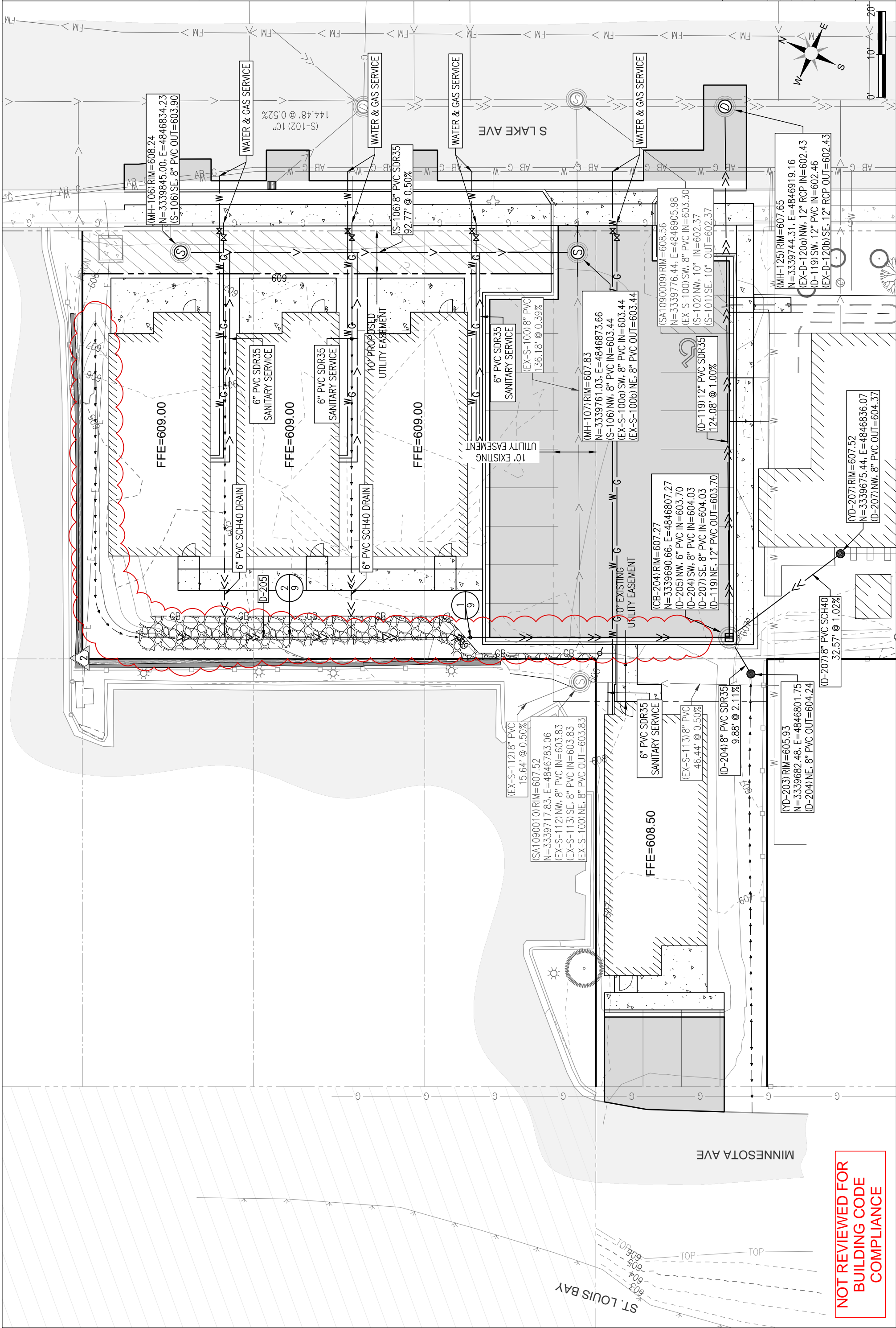


1 STORM CLEAN OUT (END OF LINE)
NTS.

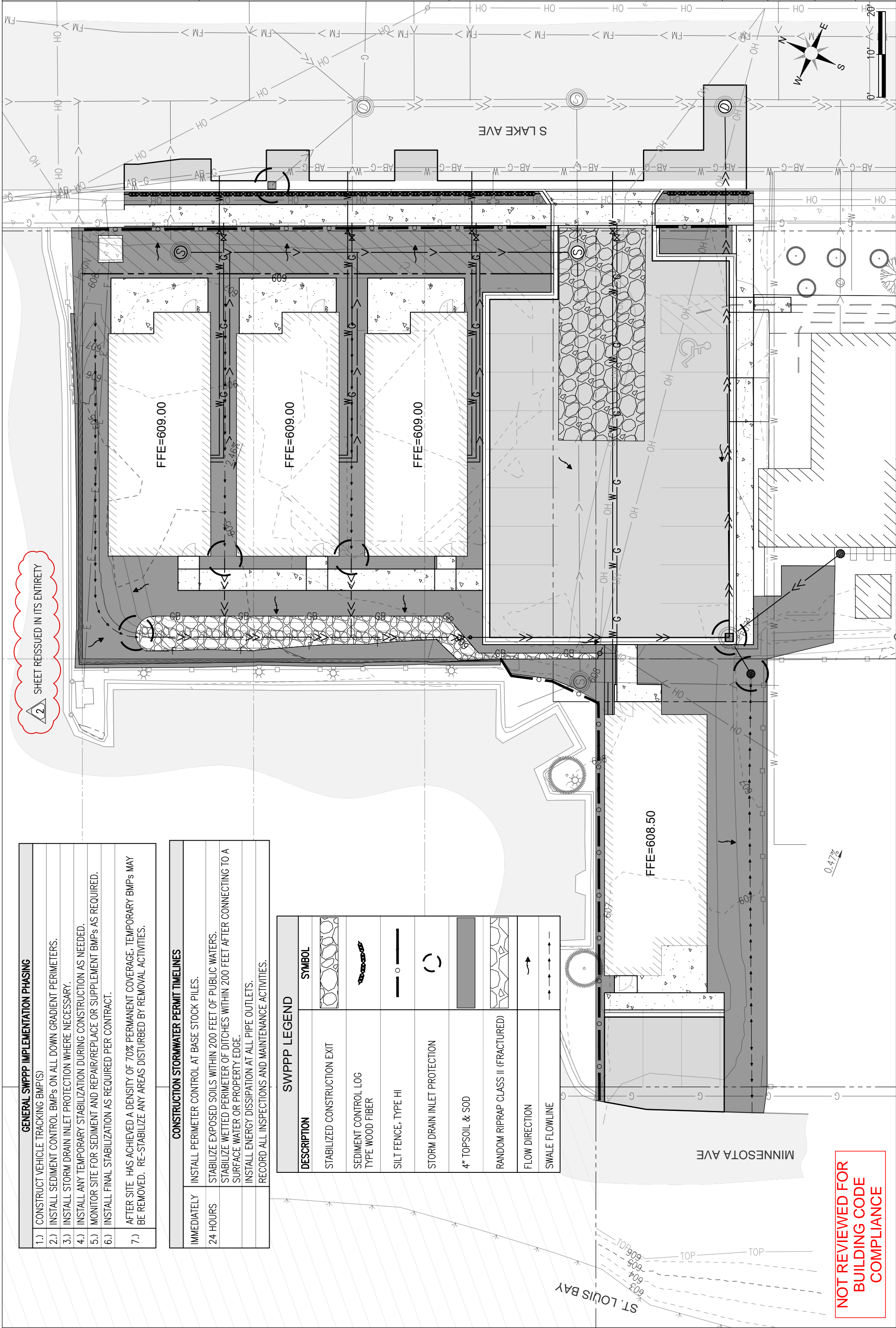


3 CONCRETE WALK - THICKENED EDGE
SEE PLAN FOR LOCATION
NTS.












**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**



GENERAL SWPPP IMPLEMENTATION PHASING	
1.)	CONSTRUCT VEHICLE TRACKING BMP(S)
2.)	INSTALL SEDIMENT CONTROL BMPs ON ALL DOWN GRADIENT PERIMETERS.
3.)	INSTALL STORM DRAIN INLET PROTECTION WHERE NECESSARY.
4.)	INSTALL ANY TEMPORARY STABILIZATION DURING CONSTRUCTION AS NEEDED.
5.)	MONITOR SITE FOR SEDIMENT AND REPAIR/REPLACE OR SUPPLEMENT BMPs AS REQUIRED.
6.)	INSTALL FINAL STABILIZATION AS REQUIRED PER CONTRACT.
7.)	AFTER SITE HAS ACHIEVED A DENSITY OF 70% PERMANENT COVERAGE, TEMPORARY BMPs MAY BE REMOVED. RE-STABILIZE ANY AREAS DISTURBED BY REMOVAL ACTIVITIES.

CONSTRUCTION STORMWATER PERMIT TIMELINES	
IMMEDIATELY	INSTALL PERIMETER CONTROL AT BASE STOCK PILES.
24 HOURS	STABILIZE EXPOSED SOILS WITHIN 200 FEET OF PUBLIC WATERS.
	STABILIZE WETTED PERIMETER OF DITCHES WITHIN 200 FEET AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.
	INSTALL ENERGY DISSIPATION AT ALL PIPE OUTLETS.
	RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES.

SWPPP LEGEND	
DESCRIPTION	SYMBOL
STABILIZED CONSTRUCTION EXIT	
SEDIMENT CONTROL LOG TYPE WOOD FIBER	
SILT FENCE, TYPE HI	
STORM DRAIN INLET PROTECTION	
4" TOPSOIL & SOD	
RANDOM RIPRAP CLASS II (FRACTURED)	
FLOW DIRECTION	
SWALE FLOWLINE	

**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**

EROSION PREVENTION PRACTICES

CONTRACTOR SHALL MINIMIZE THE NEED FOR DISTURBANCE OF PORTIONS OF THE PROJECT WITH STEEP SLOPES. WHEN STEEP SLOPES MUST BE DISTURBED, CONTRACTOR MUST USE TECHNIQUES SUCH AS PHASING AND STABILIZATION PRACTICES DESIGNED FOR STEEP SLOPES.

CONTRACTOR SHALL STABILIZE ALL EXPOSED SOIL AREAS, INCLUDING STOCKPILES. STABILIZATION MUST BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHEN CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION MUST BE COMPLETED NO LATER THAN 14 CALENDAR DAYS AFTER THE CONSTRUCTION ACTIVITY HAS CEASED.

FOR PUBLIC WATERS THAT THE MNDNR HAS PROMULGATED "WORK IN WATER RESTRICTIONS" DURING SPECIFIED FISH SPANNING TIME FRAMES, CONTRACTOR MUST COMPLETE STABILIZATION OF ALL EXPOSED SOIL AREAS WITHIN 200 FEET OF THE WATER'S EDGE, AND THAT DRAIN TO THESE WATERS, WITHIN 24 HOURS DURING THE RESTRICTION PERIOD.

CONTRACTOR MUST STABILIZE THE NORMAL WETTED PERIMETER OF THE LAST 200 LINEAR FEET OF TEMPORARY OR PERMANENT DRAINAGE DITCHES OR SWALES THAT DRAIN WATER FROM THE SITE WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE. CONTRACTOR MUST COMPLETE STABILIZATION OF REMAINING PORTIONS OF TEMPORARY OR PERMANENT DITCHES OR SWALES WITHIN 14 CALENDAR DAYS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE AND CONSTRUCTION IN THAT PORTION OF THE DITCH TEMPORARILY OR PERMANENTLY CEASES.

TEMPORARY OR PERMANENT DITCHES OR SWALES BEING USED AS SEDIMENT CONTAINMENT SYSTEM DURING CONSTRUCTION DO NO NEED TO BE STABILIZED. CONTRACTOR MUST STABILIZE THESE AREAS WITHIN 24 HOURS AFTER THEIR USE AS A SEDIMENT CONTAINMENT SYSTEM CEASES.

CONTRACTOR MUST NOT USE MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR EROSION PREVENTION PRACTICES WITHIN ANY PORTION OF THE NORMAL WETTED PERIMETER OF A TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE SECTION WITH A CONTINUOUS SLOPE OF GREATER THAN 2 PERCENT.

CONTRACTOR MUST PROVIDE TEMPORARY OR PERMANENT ENERGY DISSIPATION AT ALL PIPE OUTLETS WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER OR PERMANENT STORMWATER TREATMENT SYSTEM.

CONTRACTOR MUST NOT DISTURB MORE LAND (I.E., PHASING) THAN CAN BE EFFECTIVELY INSPECTED AND MAINTAINED.

SEDIMENT CONTROL PRACTICES

CONTRACTOR MUST ESTABLISH SEDIMENT CONTROL BMPs ON ALL DOWNGRADIENT PERIMETERS OF THE SITE AND DOWNGRADIENT AREAS OF THE SITE THAT DRAIN TO ANY SURFACE WATER, INCLUDING CURB AND GUTTER SYSTEMS. CONTRACTOR MUST LOCATE SEDIMENT CONTROL PRACTICES UPGRADIENT OF ANY BUFFER ZONES. CONTRACTOR MUST INSTALL SEDIMENT CONTROL PRACTICES BEFORE ANY UPGRADIENT LAND-DISTURBING ACTIVITIES BEGIN AND MUST KEEP THE SEDIMENT CONTROL PRACTICES IN PLACE UNTIL THEY ESTABLISH PERMANENT COVER.

IF DOWNGRADIENT SEDIMENT CONTROLS ARE OVERLOADED, BASED ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE REQUIREMENTS, CONTRACTOR MUST INSTALL ADDITIONAL UPGRADIENT SEDIMENT CONTROL PRACTICES OR REDUNDANT BMPs TO ELIMINATE THE OVERLOADING AND AMEND THE SWPPP TO IDENTIFY THESE ADDITIONAL PRACTICES AS REQUIRED IN ITEM 6.3.

CONTRACTOR MUST RE-INSTALL ALL SEDIMENT CONTROL PRACTICES ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING OR GRUBBING, OR PASSAGE OF VEHICLES, IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY IS COMPLETED. CONTRACTOR MUST RE-INSTALL SEDIMENT CONTROL PRACTICES BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.

CONTRACTOR MUST PROTECT ALL STORM DRAIN INLETS USING APPROPRIATE BMPs DURING CONSTRUCTION UNTIL THEY ESTABLISH PERMANENT COVER ON ALL AREAS WITH POTENTIAL FOR DISCHARGING TO THE INLET.

CONTRACTOR MAY REMOVE INLET PROTECTION FOR A PARTICULAR INLET IF A SPECIFIC SAFETY CONCERN IS IDENTIFIED.

CONTRACTOR MUST PROVIDE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS AT THE BASE OF STOCKPILES ON THE DOWNGRADIENT PERIMETER.

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE

CONTRACTOR MUST LOCATE STOCKPILES OUTSIDE OF NATURAL BUFFERS OR SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS UNLESS THERE IS A BYPASS IN PLACE FOR THE STORMWATER.

CONTRACTOR MUST INSTALL A VEHICLE TRACKING BMP TO MINIMIZE THE TRACK OUT OF SEDIMENT FROM THE CONSTRUCTION SITE OR ONTO PAVED ROADS WITHIN THE SITE.

CONTRACTOR MUST USE STREET SWEEPING IF VEHICLE TRACKING BMPs ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING ONTO THE STREET.

CONTRACTOR MUST INSTALL TEMPORARY SEDIMENT BASINS AS REQUIRED IN SECTION 14.

IN ANY AREAS OF THE SITE WHERE FINAL VEGETATIVE STABILIZATION WILL OCCUR, CONTRACTOR MUST RESTRICT VEHICLE AND EQUIPMENT USE TO MINIMIZE SOIL COMPACTION.

CONTRACTOR MUST PRESERVE TOPSOIL ON THE SITE, UNLESS INFEASIBLE.

CONTRACTOR MUST DIRECT DISCHARGES FROM BMPs TO VEGETATED AREAS UNLESS INFEASIBLE.

CONTRACTOR MUST PRESERVE A 50 FOOT NATURAL BUFFER OR, IF A BUFFER IS INFEASIBLE ON THE SITE, PROVIDE REDUNDANT PERIMETER SEDIMENT CONTROLS WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF THE PROJECT'S EARTH DISTURBANCES AND STORMWATER FLOWS TO THE SURFACE WATER. CONTRACTOR MUST INSTALL PERIMETER SEDIMENT CONTROLS AT LEAST 5 FEET APART UNLESS LIMITED BY LACK OF AVAILABLE SPACE. NATURAL BUFFERS ARE NOT REQUIRED ADJACENT TO ROAD DITCHES, JUDICIAL DITCHES, COUNTY DITCHES, STORMWATER CONVEYANCE CHANNELS, STORM DRAIN INLETS, AND SEDIMENT BASINS.

DEWATERING AND BASIN DRAINING

CONTRACTOR MUST DISCHARGE TURBID OR SEDIMENT-LADEN WATERS RELATED TO DEWATERING OR BASIN DRAINING TO A TEMPORARY OR PERMANENT SEDIMENT BASIN ON THE PROJECT SITE UNLESS INFEASIBLE. CONTRACTOR MAY DEWATER TO SURFACE WATERS IF THEY VISUALLY CHECK TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED AND NUISANCE CONDITIONS WILL NOT RESULT FROM THE DISCHARGE. IF CONTRACTOR CANNOT DISCHARGE THE WATER TO A SEDIMENTATION BASIN PRIOR TO ENTERING A SURFACE WATER, CONTRACTOR MUST TREAT IT WITH APPROPRIATE BMPs SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE SURFACE WATER OR DOWNSREAM PROPERTIES.

IF CONTRACTOR MUST DISCHARGE WATER CONTAINING OIL OR GREASE, THEY MUST USE AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE (E.G., CARTRIDGE FILTERS, ABSORBENTS PADS) PRIOR TO DISCHARGE.

CONTRACTOR MUST DISCHARGE ALL WATER FROM DEWATERING OR BASIN-DRAINING ACTIVITIES IN A MANNER THAT DOES NOT CAUSE EROSION OR SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS OR INUNDATION OF WETLANDS IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS THAT CAUSES SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.

IF CONTRACTOR USE FILTERS WITH BACKWASH WATER, THEY MUST HAUL THE BACKWASH WATER AWAY FOR DISPOSAL, RETURN THE BACKWASH WATER TO THE BEGINNING OF THE TREATMENT PROCESS, OR INCORPORATE THE BACKWASH WATER INTO THE SITE IN A MANNER THAT DOES NOT CAUSE EROSION.

INSPECTIONS AND MAINTENANCE

CONTRACTOR MUST INSPECT AND MAINTAIN ALL PERMANENT STORMWATER TREATMENT BMPs.

CONTRACTOR MUST INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs AND POLLUTION PREVENTION MANAGEMENT MEASURES TO ENSURE INTEGRITY AND EFFECTIVENESS. CONTRACTOR MUST REPAIR, REPLACE OR SUPPLEMENT ALL NONFUNCTIONAL BMPs WITH FUNCTIONAL BMPs BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY. CONTRACTOR MAY TAKE ADDITIONAL TIME IF FIELD CONDITIONS PREVENT ACCESS TO THE AREA.

DURING EACH INSPECTION, CONTRACTOR MUST INSPECT SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS BUT NOT CURB AND GUTTER SYSTEMS, FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION. CONTRACTOR MUST REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS, INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS AND RESTABILIZE THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. CONTRACTOR MUST COMPLETE REMOVAL AND STABILIZATION WITHIN SEVEN (7) CALENDAR DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. CONTRACTOR MUST USE ALL REASONABLE EFFORTS TO OBTAIN ACCESS. IF PRECLUDED, REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) DAYS OF OBTAINING ACCESS.

CONTRACTOR MUST INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS, STREETS AND CURB AND GUTTER SYSTEMS WITHIN AND ADJACENT TO THE PROJECT FOR SEDIMENTATION FROM EROSION OR TRACKED SEDIMENT FROM VEHICLES. CONTRACTOR MUST REMOVE SEDIMENT FROM ALL PAVED SURFACES WITHIN ONE (1) CALENDAR DAY OF DISCOVERY OR, IF APPLICABLE, WITHIN A SHORTER TIME TO AVOID A SAFETY HAZARD TO USERS OF PUBLIC STREETS.

CONTRACTOR MUST REPAIR, REPLACE OR SUPPLEMENT ALL PERIMETER CONTROL DEVICES WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE HEIGHT OF THE DEVICE.

CONTRACTOR MUST DRAIN TEMPORARY AND PERMANENT SEDIMENTATION BASINS AND REMOVE THE SEDIMENT WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME.

POLLUTION PREVENTION MANAGEMENT MEASURES

CONTRACTOR MUST PLACE BUILDING PRODUCTS AND LANDSCAPE MATERIALS THAT ARE CONSIDERED TO BE A SOURCE OF CONTAMINATION, PESTICIDES, FERTILIZERS, AND CHEMICALS UNDER COVER TO MINIMIZE CONTACT WITH STORMWATER.

CONTRACTOR MUST STORE HAZARDOUS MATERIALS AND TOXIC WASTE IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.

CONTRACTOR MUST PROPERLY STORE, COLLECT AND DISPOSE SOLID WASTE IN COMPLIANCE WITH MINN. R. CH. 7035.

CONTRACTOR MUST POSITION PORTABLE TOILETS SO THEY ARE SECURE AND WILL NOT TIP OR BE KNOCKED OVER.

CONTRACTOR MUST TAKE REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED INCLUDING THE USE OF DRIP PANS OR ABSORBENT'S UNLESS INFEASIBLE. CONTRACTOR MUST ENSURE ADEQUATE SUPPLIES ARE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND THAT AN APPROPRIATE DISPOSAL METHOD IS AVAILABLE FOR RECOVERED SPILLED MATERIALS. CONTRACTOR MUST REPORT AND CLEAN UP SPILLS IMMEDIATELY AS REQUIRED BY MINN. STAT. 115.061, USING DRY CLEAN UP MEASURES WHERE POSSIBLE.

CONTRACTOR MUST LIMIT VEHICLE EXTERIOR WASHING AND EQUIPMENT TO A DEFINED AREA OF THE SITE. CONTRACTOR MUST CONTAIN RUNOFF FROM THE WASHING AREA IN A SEDIMENT BASIN OR OTHER SIMILARLY EFFECTIVE CONTROLS AND MUST DISPOSE WASTE FROM THE WASHING ACTIVITY PROPERLY. CONTRACTOR MUST PROPERLY USE AND STORE SOAPS, DETERGENTS, OR SOLVENTS.

CONTRACTOR MUST PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS RELATED TO THE CONSTRUCTION ACTIVITY. CONTRACTOR MUST PREVENT LIQUID AND SOLID WASHOUT WASTES FROM CONTACTING THE GROUND AND MUST DESIGN THE CONTAINMENT SO IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR AREAS. CONTRACTOR MUST PROPERLY DISPOSE LIQUID AND SOLID WASTES IN COMPLIANCE WITH MPCA RULES. CONTRACTOR MUST INSTALL A SIGN INDICATING THE LOCATION OF THE WASHOUT FACILITY.

PERMANENT COVER

CONTRACTOR MUST COMPLETE ALL CONSTRUCTION ACTIVITY AND MUST INSTALL PERMANENT COVER OF ALL AREAS. PERMANENT (VEGETATIVE) COVER MUST CONSIST OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH.

CONTRACTOR MUST CLEAN THE PERMANENT STORMWATER TREATMENT SYSTEM OF ANY ACCUMULATED SEDIMENT AND MUST ENSURE THE SYSTEM IS OPERATING AS DESIGNED.

CONTRACTOR MUST REMOVE ALL SEDIMENT FROM CONVEYANCE SYSTEMS

CONTRACTOR MUST REMOVE ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPs. CONTRACTOR MAY LEAVE BMPs DESIGNED TO DECOMPOSE ON-SITE IN PLACE.

Northland

Consulting Engineers L.L.P.

Structural, Civil and Forensic Engineering Services

Voice: (218) 271-5995
Fax: (218) 271-7779

www.nce-engineers.com

DRAGESTIL DEVELOPMENT

SITE DEVELOPMENT

723 S LAKE AVE

By me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

04/07/23

Lic. No: 40926

Engineer: David C. Boll

revision

BAB

Proj: 22-339

Date: 04/07/23

Drawn: CAF

Checked: DGB

SWPPP

NOTES

96

Sheet Title

Sheet Number

15

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. THESE SHALL BE CONSIDERED A MINIMUM STANDARD FOR THE PROTECTION OF CONSTRUCTION WORKERS AND THE TRAVELING PUBLIC. MnDOT 1707 PUBLIC CONVENIENCE AND SAFETY AND MnDOT 1710 TRAFFIC CONTROL DEVICES ALSO SHALL APPLY.

THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE & POLICE CHIEFS (911) AND LOCAL SCHOOL DISTRICTS OF ANY AND ALL DETOURS, CLOSURES, AND REOPENING OF TRAFFIC IN ORDER TO ALLOW TIME TO REARRANGE ROUTES OF TRAVEL.

WHEN RESIDENTIAL ACCESS MUST BE RESTRICTED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO EACH AFFECTED RESIDENT NOT LESS THAN 72 HOURS IN ADVANCE.

TEMPORARY TRAFFIC CONTROL DISTANCE				
POSTED SPEED LIMIT	ADVANCE WARNING SIGN SPACING (A)	CHANNELIZING DEVICE SPACING (G)	TAPER LENGTH (L)	BUFFER SPACE (B)
0-30	100	25	200	200
35-40	325	25	325	305
45-50	600	50	600	425
55	750	50	700	500

**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**





Commercial Plan Review – Energy Compliance Worksheet

Applies to new construction, additions, alterations, renovations, repairs and changes of use for commercial buildings, systems and equipment. Commercial buildings are all buildings except detached one- and two- family dwellings, multiple single-family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane. Information on construction documents shall comply with MN Rules 1323.0100 Subp. 10. When commissioning is required, it shall be specified in construction documents prior to permit approval.

Project: _____ Address: _____

■ **Project Information:** Select all that apply.

- ☐ New Construction ☐ Alteration ☐ Change in Space Conditioning
☐ Addition ☐ Change in Use

■ **Energy Code Exceptions:** The following conditions are not required to comply with this code if the energy use of the building is not increased: select if applies.

- ☐ Storm windows installed over existing ☐ Reroofing without exposing sheathing or insulation
☐ Glass-only replacement ☐ Alteration replacing <50% light fixtures
☐ Vestibule exception for existing door replacement ☐ Bulb and Ballast ONLY replacement
☐ Existing ceiling, wall, and/or floor cavities exposed and filled with insulation ☐ Existing ceiling, wall, and/or floor cavities NOT exposed

■ **Building and Occupancy Type Compliance:** *Residential buildings* shall meet the provisions of IECC-Residential Provisions (RE), MSBC Ch. 1322. *Commercial buildings* shall meet the provisions of IECC—Commercial Provisions (CE), MSBC Ch. 1323. For *Mixed occupancy buildings* which include both residential and commercial occupancies, **each occupancy shall be separately considered and meet the applicable provisions of IECC - Commercial Provisions (MSBC 1323) and IECC - Residential Provisions (MSBC 1322) specific the occupancy.**

Indicate all that apply:

- ☐ **Commercial Building** *For this code, all buildings that are not included in the definition of Residential Building.*
☐ **Residential Building** *For this code, includes detached one- and two-family dwellings and multiple single family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.*
☐ **Mixed Occupancy Building** *Where a building includes both residential and commercial occupancies, each occupancy shall be separately considered and meet the applicable provisions of Chapter 1322 and Chapter 1323.*

■ **System Commissioning:** Indicate whether System Commissioning is required for the project based on compliance method. Prior to issuance of building permit, the name of the individual or company that will provide the system commissioning must be provided and acknowledged by the project owner. Commissioning is required to be completed prior to final inspection.

- ☐ Yes ☐ No

ENERGY CODE COMPLIANCE DRAWING SHEET(S) For all compliance methods

Submit separate energy code compliance drawing sheet(s) with the following components:

- ☐ Narrative explanation of energy code compliance approach
☐ Drawings depicting the thermal envelope and continuous air barrier
☐ Schedule of energy-related features, including building construction components, building services and equipment, prescribed or used in the compliance calculations and analysis. For each item, list:
 ▪ The U-value, R-value, or other relevant energy metric associated with the item
 ▪ The plan sheet or specification section where the item is located in the construction documents.
☐ Narrative explanation of commissioning and project completion requirements per ASHRAE 90.1-2016 or IECC Section 408.

Energy Code Compliance

- STEP 1** Select ONLY ONE compliance method for the entire project using this form. 1a, 1b, 2, or 3
- STEP 2** Under selected compliance method, select ONE option from each section
- STEP 3** Prepare forms, reports or other documentation as indicated for the method and path chosen
- STEP 4** Prepare ENERGY CODE COMPLIANCE DRAWING SHEET(S) see front of worksheet for requirements
- STEP 5** Submit items from Steps 1-4 and other construction documents with permit application package

☐ **1a. ASHRAE Standard Compliance** for NEW COMMERCIAL BUILDINGS, ADDITIONS, ALTERATIONS & REPAIRS

Comply with the provisions of the following ASHRAE 90.1-2016 sections 5-10: Select one option from each section and submit required documentation.

Section 5 Building Envelope

- ☐ PRESCRIPTIVE BUILDING ENVELOPE OPTION
Submit **Standard 90.1-2016: Building Envelope Compliance Forms - Part 1 and Part 2**
- ☐ BUILDING ENVELOPE TRADE-OFF OPTION Submit **Standard 90.1-2016: Building Envelope Compliance Forms - Part 1 and COMcheck report** for the ASHRAE building envelope trade-off option

Section 6 Heating, Ventilation and Air Conditioning

- ☐ HVAC SIMPLIFIED APPROACH OPTION Submit **Standard 90.1-2016: HVAC Compliance Forms - Part 1**
- ☐ HVAC MANDATORY PROVISIONS and PRESCRIPTIVE PATH
Submit **Standard 90.1-2016: HVAC Compliance Forms - Part 2 and Part 3**

Section 7 Service Water Heating

- ☐ PRESCRIPTIVE PATH
Submit **Standard 90.1-2016: Service Water Heating Compliance Forms**

Section 8 Power

Only one compliance path is available for power distribution systems

Section 9 Lighting

- ☐ BUILDING AREA METHOD
Submit **Standard 90.1-2016: Lighting Compliance Forms**
- ☐ SPACE-BY-SPACE METHOD
Submit **Standard 90.1-2016: Lighting Compliance Forms**

Section 10 Other Equipment

Comply with provisions of Section 10.

☐ **1b. ASHRAE Energy Cost Budget Compliance** for NEW BUILDINGS and ADDITION

Comply with the provisions of ASHRAE 90.1 2016 Section 11 Energy Cost Budget. See additional handout for submittal requirements for this compliance method.

☐ **2. IECC Prescriptive Compliance** for NEW BUILDINGS, ADDITIONS, ALTERATIONS & REPAIRS

Comply with the provisions of the following INTERNATIONAL ENERGY CONSERVATION CODE (IECC), MN RULES CHAPTER 1323 sections: Select one option from Section C403.

Section C402 Building Envelope Requirements

Section C403 Building Mechanical Systems

Comply with mandatory provisions and either:

- ☐ Section C403.3 Simple systems
- ☐ Section C403.4 Complex systems

Section C404 Service Water Heating

Section C405 Electrical Power and Lighting Systems

For NEW BUILDINGS ONLY

Section C406 Additional Efficiency Packages

Comply with at least one of the following:

- ☐ Section C406.2 Efficient HVAC Performance
- ☐ Section C406.3 Efficient Lighting System
- ☐ Section C406.4 On-Site Supply of Renewable Energy

Submit COMcheck reports or other documentation to show compliance with IECC for all sections.

☐ **3. IECC Total Building Performance** for NEW BUILDINGS

Comply with the IECC MN RULES CHAPTER 1323 C401.2 (3). See additional handout for submittal requirements for this compliance method.



COMcheck Software Version COMcheckWeb

Envelope Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Location: Duluth, Minnesota
 Climate Zone: 7
 Project Type: New Construction
 Vertical Glazing / Wall Area: 15%

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Building Area

Floor Area

1-Three Story Wood Framed Hote (Hotel) : Nonresidential	3965
---	------

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U- Factor ^(a)
Floor: Heated Slab-On-Grade Fully Insulated (user specified perimeter R-value + R-10.0 under slab), [Bldg. Use 1 - Three Story Wood Framed Hote] (c)	176	---	10.0	0.550	0.602
Roof: Attic Roof, Wood Joists, [Bldg. Use 1 - Three Story Wood Framed Hote]	1224	60.0	0.0	0.017	0.021
NORTH					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	1630	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	138	---	---	0.300	0.370
EAST					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	835	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	90	---	---	0.300	0.370
Door: Glass (over 50% glazing): Metal Frame, Non-Entrance Door, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	192	---	---	0.300	0.370
SOUTH					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	1640	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	238	---	---	0.300	0.370
WEST					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story	835	21.0	6.0	0.043	0.051

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U- Factor ^(a)
Wood Framed Hote]					
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	53	---	---	0.300	0.370
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	40	---	---	0.300	0.770

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.

(c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 4% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title

Signature

Date



Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Project Type: New Construction

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Three Story Wood Framed Hote (Hotel)	3965	0.75	2974
Total Allowed Watts =			2974

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Three Story Wood Framed Hote (Hotel)				
Total Proposed Watts =				0

Interior Lighting TBD: No lighting fixtures specified



Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Project Type: New Construction
 Exterior Lighting Zone: 2 (Residentially zoned area (LZ2))

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Total Tradable Watts (a) =				0
Total Allowed Watts =				0
Total Allowed Supplemental Watts (b) =				400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.

(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

Exterior Lighting TBD: No exterior fixtures are defined.



COMcheck Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Location: Duluth, Minnesota
 Climate Zone: 7
 Project Type: New Construction

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Mechanical Systems List

Quantity System Type & Description

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

 Name - Title

 Signature

 Date



Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR1] ¹	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C406 [PR9] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Footings / Foundation Inspection	Complies?	Comments/Assumptions
C303.2 [FO4] ²	Slab edge insulation installed per manufacturer's instructions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.2.1 [FO6] ¹	Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [FO3] ²	Installed slab-on-grade insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.4 [FO7] ²	Slab edge insulation depth/length. Slab insulation extending away from building is covered by pavement or ≥ 10 inches of soil.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Envelope Assemblies table for values.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Framing / Rough-In Inspection	Complies?	Comments/Assumptions
C303.1.3 [FR12] ²	Fenestration products rated in accordance with NFRC.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.1.3 [FR13] ¹	Fenestration products are certified as to performance labels or certificates provided.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.4.3 [FR10] ¹	Vertical fenestration SHGC value.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.4.3, C402.4.3.4 [FR8] ¹	Installed vertical fenestration U-factor and SHGC consistent with label specifications and as reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.5.7 [FR17] ³	Vestibules are installed on all building entrances. Doors have self-closing devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.5.5, C403.2.4.3 [ME3] ³	Stair and elevator shaft vents have motorized dampers that automatically close. Refernece section C403.7.7 for operational details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.7.7 [ME58] ³	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed. Reference section language for operational details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26] ²	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.7 [EL27] ²	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.8.2, C405.8.2.1 [EL28] ²	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.9 [EL29] ²	Total voltage drop across the combination of feeders and branch circuits $\leq 5\%$.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Insulation Inspection	Complies?	Comments/Assumptions
C303.1 [IN3] ¹	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is ≤ 3 in 12.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.2.1 [IN20] ¹	Insulation installed on a suspended ceiling having ceiling tiles is not being specified for roof/ceiling assemblies. Continuous insulation board installed in 2 or more layers with edge joints offset between layers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.1 [IN10] ²	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.2 [IN7] ¹	Above-grade wall insulation installed per manufacturer's instructions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [IN6] ¹	Installed above-grade wall insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.3 [IN8] ²	Installed floor insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.6 [IN18] ³	Radiant panels and associated components, designed for heat transfer from the panel surfaces to the occupants or indoor space are insulated with a minimum of R-3.5.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [IN2] ¹	Installed roof insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports. For some ceiling systems, verification may need to occur during Framing Inspection.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.5.1.1 [IN1] ¹	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor-permeable wrapping material to minimize air leakage.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C402.5 [FI55] ¹	Building envelope contains a continuous air barrier that has been tested and deemed to limit air leakage <= 0.40 cfm/ft2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.5.6 [FI37] ¹	Weatherseals installed on all loading dock cargo door openings and provide direct contact along the top and sides of vehicles parked in the doorway.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.1.1 [FI57] ¹	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Doc 049-A-0419
Contact – Planning 218-730-5580

UDC Zoning Compliance Summary

The Unified Development Chapter (UDC), zone district maps and overlay maps are available online at <http://www.duluthmn.gov/> on the Community Planning Department web pages. References are to Duluth Unified Development Chapter unless otherwise noted.

Project Address:	723 Lake Ave. S	Parcel ID#:	010-4380-02380
Proposed Use:	HOTEL		

With this summary form, provide a site plan based on a boundary survey which is accurate, drawn to scale and shows clearly and in adequate detail that the proposal complies with the UDC as well as applicable building and fire code provisions.

For zoning review, in addition to this summary and a site plan, provide a narrative summary of UDC requirements and how compliance is achieved for each applicable provision.

Provide the following information about the project:

Zone District (See UDC Table 50-13.3-1) and zoning maps online. MU-N

Is the proposed use permitted in the zone district? Table 50-19.8

- | | |
|---|---|
| <input type="checkbox"/> Permitted use | <input type="checkbox"/> Accessory use |
| <input checked="" type="checkbox"/> Special use | <input type="checkbox"/> Not listed |
| <input type="checkbox"/> Permitted upper story only | <input type="checkbox"/> Legal Non-conforming use (See UDC 50-38) |

Dimensional standards for zone district 50-14 through 50-17

Required	Dimensional Standard	Proposed
	Minimum lot area	24,800 SQ. FT.
50 FEET	Min. lot frontage	200 FEET
20 FEET	Min. front yard depth	20 FEET
ZERO FEET	Min. side yard width	6 FEET
N.A.	Min. corner lot front side yard width	
25 FEET	Min. rear yard depth	25 FEET
75 FEET	Max. Building height	35 FEET

Note additional dimensional standards in 50-21.

Which overlay districts apply to this site (see overlay districts in UDC 50-18 or online?)

☐ Natural resources Overlay 50-18.1

Does the site contain wetlands? 50-18.1.B

☐ Yes ☒ No

■ Wetlands delineation prepared (50-18.1.B(1a))

☐ Yes ☒ No

Flood Plain 50-18.1.C

☐ Floodway 50-18.1.C.2

■ Is the proposed use permitted in a floodway?

☐ Yes ☒ No

■ Does the proposed use require a special use permit?

☐ Yes ☒ No

• If so, review procedures in UDC Article V for application for a special use permit.

☐ Flood Fringe 50-18.1.C.3

■ Is the proposed use permitted in a flood fringe?

☐ Yes ☒ No

■ Does the proposed use require a special use permit?

☐ Yes ☒ No

• If so, review procedures in UDC Article V for application for a special use permit.

☐ General Flood Plain District 50-18.1.C.4

■ Is the proposed use permitted in the general flood plain district?

☐ Yes ☒ No

■ If not, floodway/flood fringe determination required prior to determining permitted and special uses.

Shorelands 50-18.1.D and Table 50-18.D.1

Minimum Required	Shoreland Standard (Table 50-18.1.D-1)	Proposed
	Structure Setback from High Water Level	
	Impervious Surface Setback from High Water Level	
	Minimum width of Naturally Vegetative Buffer	

☒ Storm Water Management and Erosion Control 50-18.1.E

■ What is the total area of land disturbance?

6500 SQ. FT.

■ What is the total of new impervious area created and/or redeveloped?

6500 SQ. FT.

■ Project is in:

☐ Zone A

☐ Zone B

☐ Airport Overlay 50-18.2

■ Project is in Airport Safety Zone:

☐ A

☐ B

☐ C

OR

☐ Sky Harbor Airport Overlay Zone

☐ Historic Resources Overlay 50-18.3

■ Project is on a site listed in UDC Exhibits 50-18.3-2 or 50-18.3-2.

☐ Skyline Parkway Overlay 50-18.4

■ Project is within 200' of Skyline Parkway (downhill side only)

☐ Higher Education Overlay 50-18.5

■ Project is on a site within the HE-O boundary 50-18.5.D

Do use specific standards apply to this project? 50-20

☐ Residential Uses 50-20.1

☐ Public, Institutional and Civic Uses 50-20.2

☐ Commercial Uses 50-20.3

☐ Industrial Uses 50-20.4

☐ Major Utility or Wireless Telecommunications Facility

■ Is a special use permit required? 50-20.4.E

☐ Yes ☐ No

☐ Accessory Uses 50-20.5

Is the lot served by municipal sewer?

☒ Yes ☐ No

Are exceptions or encroachments listed in UDC 50-21.3 utilized for this project?

■ If so, describe each

Do connectivity and circulation requirements apply to this project? 50-23.

☐ Yes ☐ No

Do off street parking requirements apply to this project? 50-24.

☐ Yes ☐ No

■ How many off street parking spaces are required per Table 50-24.2 with the adjustments in 50-23.3?

10

■ Are transit adjustments or shared parking used?

☐ Yes ☒ No

■ What is the maximum number of off street parking spaces allowed? 50-24.4

15

Location of parking spaces must comply with 50-24.6

■ Is a loading space required?

☐ Yes ☒ No

Landscaping Requirements 50-25	Yes	No
Street frontage landscaping (50-25.3)	YES	
Parking lot landscaping (50-25.4)	NO	
Landscaping between differing land uses (50-25.5)	YES	
Tree preservation (50-25.9)	YES	

Screening Requirements 50-26	Yes	No
Mechanical equipment screening, roof or ground mounted (50-26.1)		NO
Service or off street loading area screening (50-26.2)		NO
Commercial container screening (50-26.3)	YES	

Do sign standards apply? 50-27.

☒ Yes

If YES, separate sign permit application required. Find forms and submittal requirements on the Construction Services or Community Planning Web pages.

☐ No Why Not?

Do sustainability standards apply? 50-29.

☐ Yes ☐ No

☒ Yes How many points required from Table 50-29-1?

3

If YES, submit sustainability checklist with building permit application. Sustainability checklist available on Construction Services web page.

☐ No Why Not?

Do design standards apply? 50-30

☒ Yes ☒ No

- | | |
|---|---|
| <input type="checkbox"/> Multi-family residential | <input type="checkbox"/> Industrial |
| <input checked="" type="checkbox"/> Commercial | <input type="checkbox"/> Parking garage |
| <input type="checkbox"/> Mixed Use | |

Do exterior lighting standards apply? 50-31

☒ Yes ☐ No

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Multi-family residential | <input type="checkbox"/> Mixed use |
| <input checked="" type="checkbox"/> Commercial or Institutional | <input type="checkbox"/> Industrial |

UDC Applications

If the project requires any type of UDC application process, including:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Zoning Map Amendment | <input checked="" type="checkbox"/> Variance |
| <input checked="" type="checkbox"/> District Plan Adoption or Amendment | <input checked="" type="checkbox"/> Special Use or Interim Use Permit |
| <input checked="" type="checkbox"/> Subdivision Plat Approval or Amendment | <input checked="" type="checkbox"/> Planning Review |
| <input checked="" type="checkbox"/> Vacation of Street | <input checked="" type="checkbox"/> Sidewalk Use Permit |
| <input checked="" type="checkbox"/> Concurrent Use of Streets Permit | <input checked="" type="checkbox"/> Historic Construction/Demolition Permit |
| <input checked="" type="checkbox"/> Historic Resource Designation | <input checked="" type="checkbox"/> Other |

The process must be completed and written documentation provided at the time of application for a building permit.

See UDC Article V and the UDC Application Manual (online at <http://www.duluthmn.gov/>) for information about UDC application submittal requirements and procedures.

PERMIT

Site Address: 715 S LAKE AVE
Application Date: 04/07/2023
Applicant: HEIRLOOM CONSTRUCTION
Owner: PARK POINT LAND CO LLC
Subdivision: UPPER DULUTH LAKE AVENUE
Lot/Block: 0000/000
Parcel ID: 010-4380-02380
Parcel Legal Description:
 Lots 228, 230, 232, 234 AND 236, INCLUDING Lot 229,
 MINNESOTA AVENUE, UPPER DULUTH
Description of Work Authorized by Permit:
 BUILDING 2 - NEW 3 STORY, 3-UNIT HOTEL: DRAGESTIL HOTEL

Permit Type: BS BLDG COM
 NEW PRINCIPLE BLDG
Permit Number: BBLDG2304-022
Permit Issued Date: 11/30/2023
Permit Status: ISSUED
General Site Info: BUILDING 2 - DRAGESTIL
 HOTEL

Conditions:

This permit authorizes work only as described in the reviewed application and plans on file in the Construction Services & Inspections Division and in compliance with all applicable laws, rules and ordinances. The permit holder is responsible for requesting inspections. Failure to call for inspections for all permitted work, including a final inspection, is a violation of the code. This permit becomes invalid if the work authorized by the permit is suspended or abandoned for more than 180 days. 1300.0120 Subp. 10.

WARNING before digging call Gopher State One Call 1-800-252-1166. REQUIRED BY LAW.

Please call Dave Hjelle for all required construction inspections. He can be reached at 218-409-5414.

D U L U T H
M I N N E S O T A

Work shall be consistent with the plans and information provided with the permit application and shall comply with applicable codes, ordinances and laws and conditions of approval.

Approved by: Tara Smith

Date: 11/30/2023

Applicant Mailing Address:

HEIRLOOM CONSTRUCTION
 PO BOX 3144
 DULUTH, MN 55803

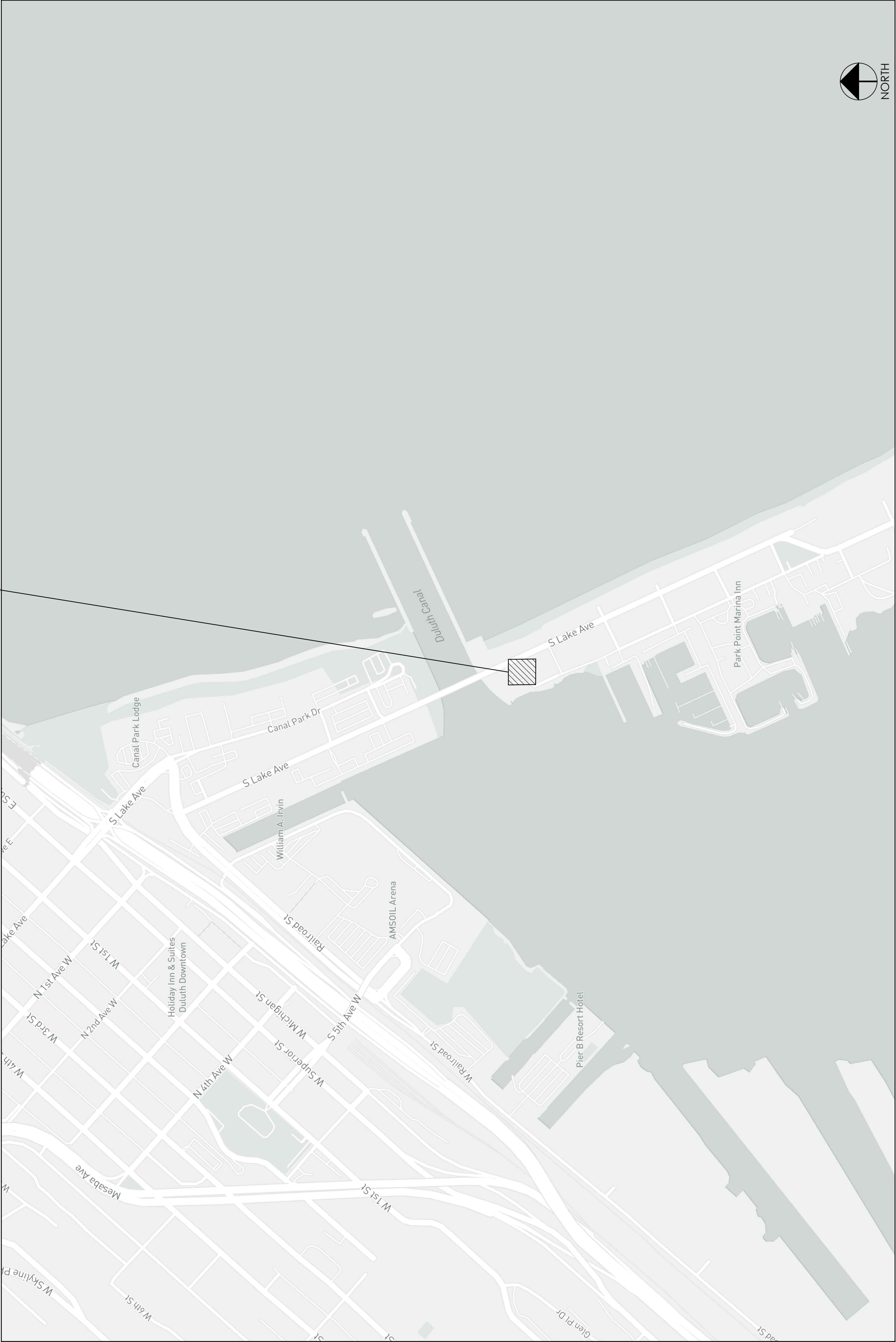
Valuation: \$826,250.00

BUILDING	\$6,833.38
PERMITS	
STATE	\$413.13
SURCHARGE	
PLAN REVIEW	\$4,441.70
FEE	
CAF	\$2,820.00

Total Fees: \$14,508.21

LOCATION MAP - DULUTH, MN

PROJECT LOCATION



SYMBOL LEGEND

	KEYED NOTE
	DEMO NOTE
	REVISION NOTE
	DOOR NUMBER
	WALL TYPE SYSTEM
	SECTION CUT
	ELEVATION
	DETAIL
	ELEVATION MARKER
	ITEM IS HIDDEN OR OVERHEAD
	TO BE REMOVED
	EXISTING DOOR
	NEW DOOR W/ DOOR NUMBER

PROJECT TEAM

ARCHITECT
AROLA ARCHITECTURE STUDIO, LLC 501 S. LAKE AVENUE, SUITE 205 DULUTH, MINNESOTA 55802
STRUCTURAL ENGINEER
MEYER BORGMAN JOHNSON 501 S. LAKE AVENUE, SUITE 200 DULUTH, MN 55802
CONTRACTOR
HERLOOM CONSTRUCTION CONTACT: DAN BUERSKIN 202 E. 1ST STREET DULUTH, MN 55802
OWNER
HERLOOM PROPERTIES CONTACT: MIKE SCHRAEPPER 202 E. 1ST STREET DULUTH, MN 55802

MATERIAL LEGEND

	EARTH
	GRAVEL
	SAND / MORTAR / PLASTER
	CONCRETE
	CONCRETE MASONRY UNIT
	BRICK
	STEEL STUDS
	WOOD STUDS
	STEEL
	PLYWOOD
	GYPSUM BOARD
	ROUGH WOOD
	WOOD BLOCKING
	BATT INSULATION
	RIGID INSULATION
	EXISTING MATERIAL

SHEET INDEX

TITLE	SHEET INDEX / LEGENDS
SITE	SITE PLAN
	ZONING SUMMARY
ARCHITECTURAL	
A0.1	CODE SUMMARY
	LIFE SAFETY PLANS
A0.2	CODE DRAWINGS
	WALL TYPES
A0.3	GENERAL NOTES
A0.4	STRUCTURAL NOTES
A2.1-1	FOUNDATION PLAN, BUILDING #2, #3
A2.1-3	FOUNDATION PLAN, BUILDING #1
A2.2	FIRST FLOOR PLAN
A2.3	SECOND FLOOR PLAN
A2.4	THIRD FLOOR PLAN
	ROOF PLAN
A3.1	EXTERIOR ELEVATIONS
A3.2	EXTERIOR ELEVATIONS
A4.1	BUILDING SECTIONS
A4.2	BUILDING SECTIONS
A5.1	TYPICAL WALL SECTION
	DETAILS
A5.2	DETAILS
A6.0	SCHEDULES
A7.1	FIRE STOPPING DETAILS
A7.2	FIRE STOPPING DETAILS

LANDSCAPE

L1.0 TREE PRESERVATION & REPLACEMENT PLAN

MECHANICAL & ELECTRICAL - DELAYED SUBMITTAL

CIVIL - SUBMITTED SEPARATELY

SHEET NO.

TITLE

 <p>AROLA ARCHITECTURE STUDIO, LLC 501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802 218-740-5219 WWW.AROLARCH.COM</p>	<p>DATE 5/11/2023 LICENSE No. 52478</p>		<p>DRAGESTIL HOTEL - BUILDINGS 1, 2, 3 SOUTH LAKE AVENUE / MINNESOTA AVENUE DULUTH, MN 55802</p>	<p>ISSUE DATE 5/19/2023</p>	<p>PROJECT NO. 2166</p>	<p>REVISIONS</p>	<p>SHEET NO. A0.1</p>
	<p>SIGNATURE RYAN J. AROLA</p> <p>I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.</p>						

CODE SUMMARY - S. LAKE AVE. BUILDINGS (BUILDINGS #1, #2, #3)

2020 MINNESOTA BUILDING CODE						
CODES USED:						
OCCUPANCY:	SECTION 310	GROUP R-1	RESIDENTIAL [TRANSIENT]			
CONSTRUCTION TYPE:	SECTION 602	TYPE V-B				
ALLOWABLE AREA:	SECTION 506	OCCUPANCY				
	R-1		7,000 SF	7,000 SF	0.688	3
						35,454 SF

ACTUAL AREA:						
	OCCUPANCY	BASEMENT	1st FLOOR	2nd FLOOR	3rd FLOOR	TOTAL
	R-1	0 SF	1,241 SF	1,170 SF	1,100 SF	3,511 SF

ALLOWABLE HEIGHT:	SECTION 504	OCCUPANCY	HEIGHT	STORIES	ACTUAL HT	STORIES
		R-1	60 FT	3	35 FT	3
		NO				
	SECTION 500					
		NO				
	SECTION 504					
		NO				

<p>OCCUPANCY SEPARATION:</p> <p>TABLE 508.4</p> <p>NONE</p>	<p>NEPA 13 SPRINKLER SYSTEM WILL BE INSTALLED</p>
---	---

PERFORMING OF INITIAL JOBS:	SECTION 700	INITIAL JOBS OF INITIAL JOBS WILL BE INSTALLED
ALARM & DETECTION SYSTEMS:	SECTION 907	WILL COMPLY

FIRE RESISTIVE REQUIREMENTS:	TABLE 601	BUILDING ELEMENTS	PRIMARY STRUCTURAL FRAME	0 HOUR
			BEARING WALLS [EXT.]	0 HOUR
			BEARING WALLS [INT.]	0 HOUR
			NONBEARING WALLS [EXT.]	0 HOUR
			NONBEARING WALLS [INT.]	0 HOUR
			FLOOR CONSTRUCTION	0 HOUR
			ROOF CONSTRUCTION	0 HOUR
	TABLE 602	EXTERIOR WALLS	<5 FEET	1 HOUR
			5 FEET TO <10 FEET	1 HOUR
			10 FEET TO <30 FEET	0 HOUR
			> 30 FEET	0 HOUR
	SECTION 705	BUILDINGS ON SAME LOT	WILL COMPLY, SEE NOTE 4 BELOW	
		EXTERIOR WALL OPENINGS	WILL COMPLY	
		FIRE WALLS	NOT REQUIRED	
	SECTION 706	FIRE BARRIERS	WILL COMPLY	1 HOUR AT EXIT ST
	SECTION 707	FIRE PARTITIONS	WILL COMPLY	1 HOUR
	SECTION 708	FLOOR & ROOF ASSEMBLIES	WILL COMPLY	1 HOUR
	SECTION 711	SHAFT ENCLOSURES	NOT APPLICABLE	
	SECTION 713			
ACCESSIBILITY REQUIREMENTS	SECTION 11	ACCESSIBILITY	WILL COMPLY	SEE NOTE 4 BELOW

PROJECT REQUIREMENTS

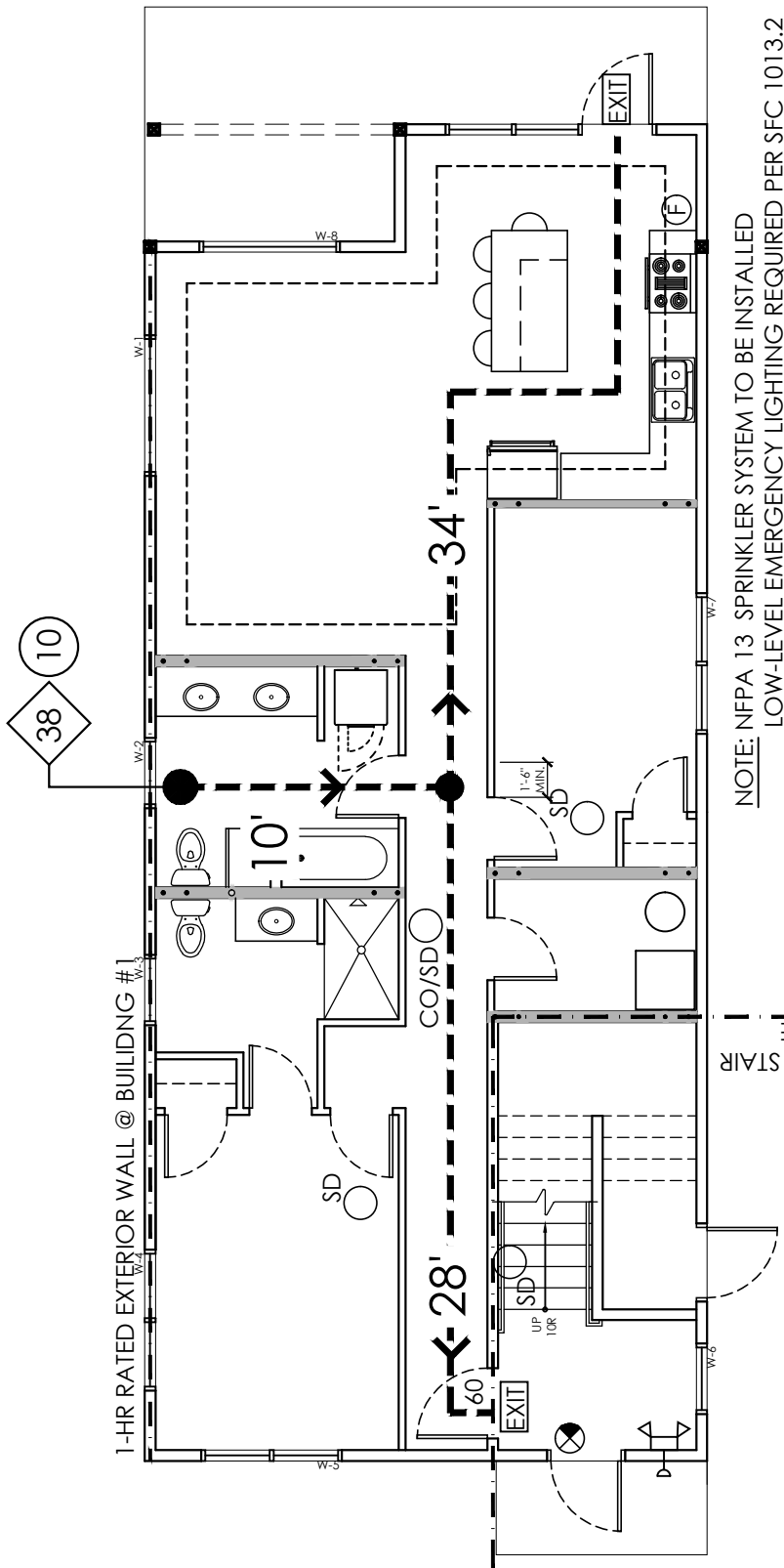
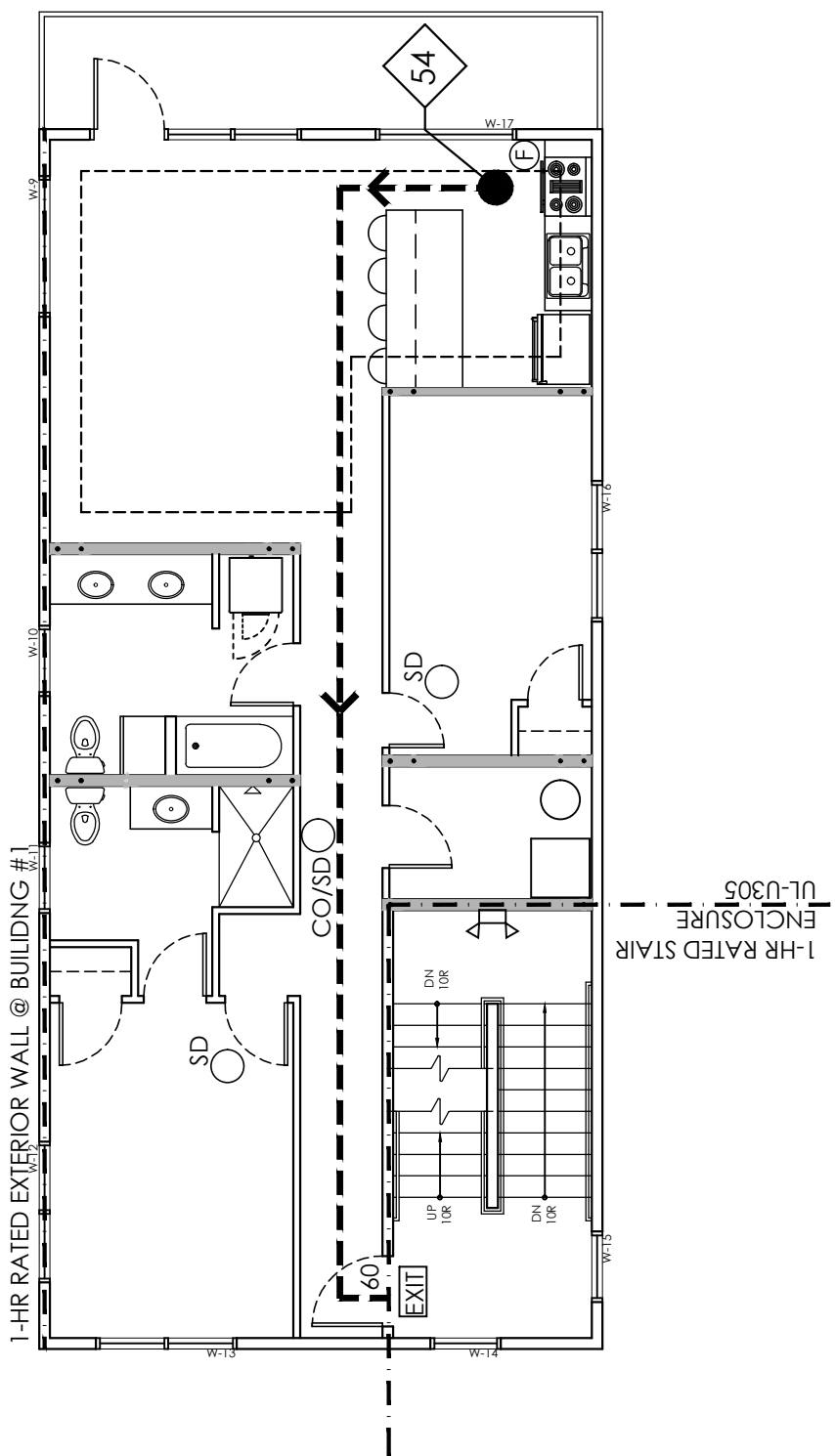
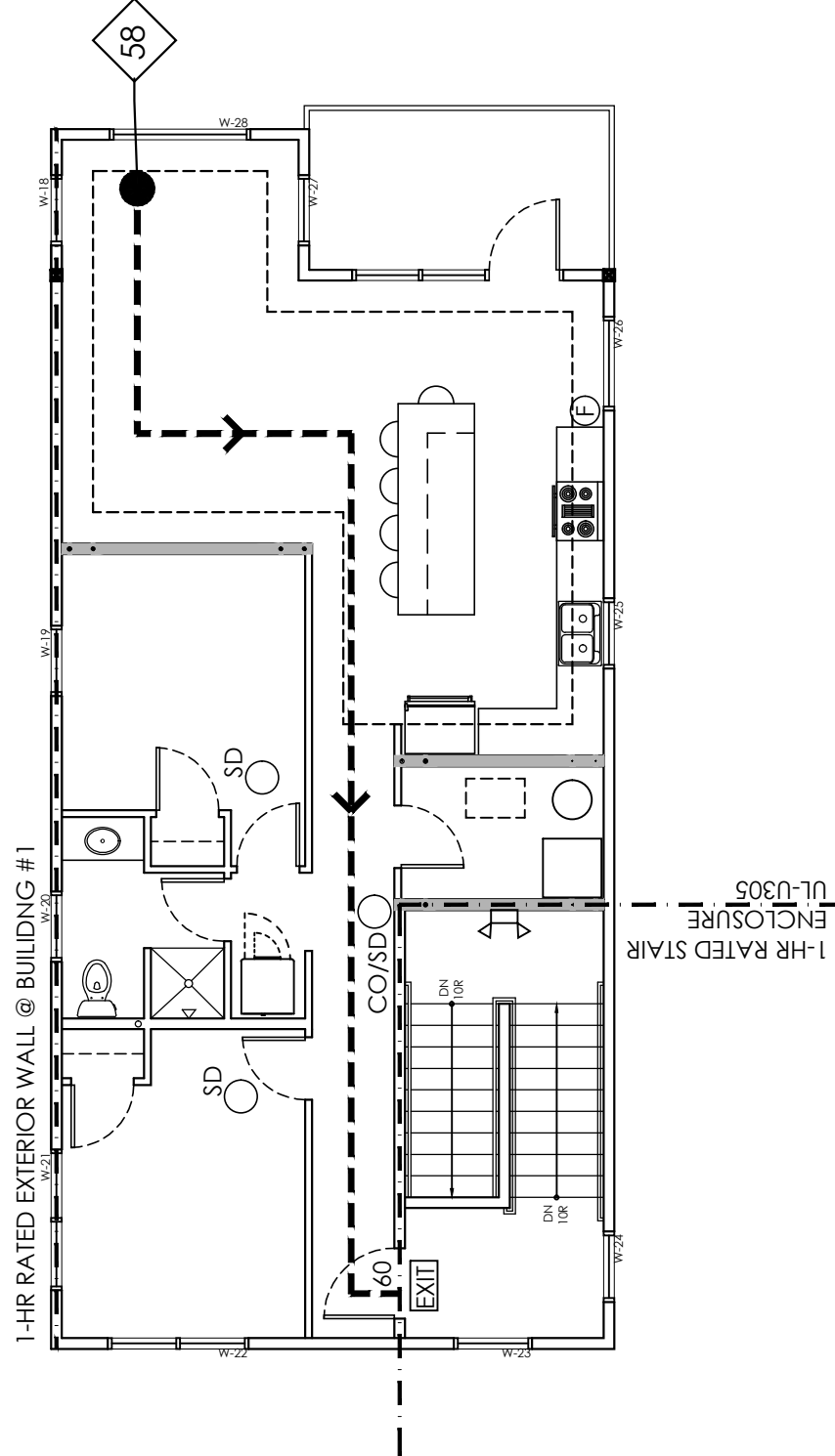
Occupancy:	Residential (Transient)									
Project Area:		R-1		11,895 SF						
Project Height:		35'								
Occupant Load:	TABLE 1004.5	Function	Area	Occ Load Factor			Occupant Load			
		R-1 (FIRST FLOOR UNIT)	1,241 SF	GROSS			6 OCCUPANTS			
		R-1 (SECOND FLOOR UNIT)	1,170 SF	GROSS			6 OCCUPANTS			
		R-1 (THIRD FLOOR UNIT)	1,100 SF	GROSS			6 OCCUPANTS			
				TOTAL OCCUPANT LOAD			18 OCCUPANTS			
Number of Exits:	SECTION 1006	1								
Exit Access Travel Distance:	TABLE 1017	250 FT								
Sanitation Requirements:	TABLE 2902.1	Description	Occ. Load	W.C.-Urinal	Lavatories	Bathrooms - Showers	Drinking Fountains	Service Sink		
		R-1	-	1 PER UNIT	1 PER UNIT	1 PER UNIT	0	0		
		Fixtures Provided	15-0	15-0	15	6-9	0	0		

COMMENTS

1. BUILDINGS #1, #2, AND #3 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS ONE BUILDING PER 705.3
2. BUILDING #4 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS A SEPARATE BUILDING AND AN IMAGINARY PROPERTY LINE IS SHOWN PER 705.3
3. EXISTING BUILDING ON PROPERTY HAS 3 RENTAL UNITS. ONE OF WHICH IS A TYPE B UNIT. BUILDING HAS RAMP AND ENTRY COMPLIANT WITH MN ACCESSIBILITY CODE. UPGRADES WILL BE MADE TO CONVERT TO A TYPE A UNIT.

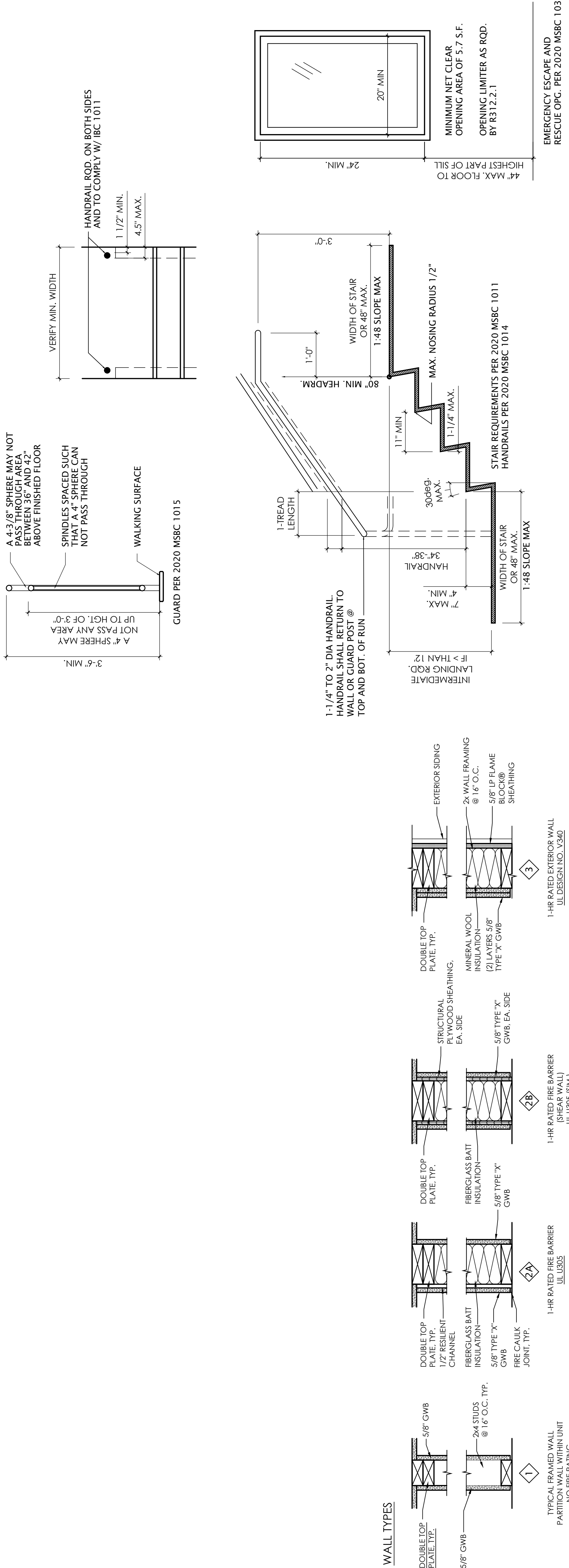
LIFE SAFETY PLANS

1/8"=1'-0"



CODE REQUIREMENTS

3/4"=1'-0"



TYPICAL STRUCTURAL NOTES:
These notes, specify requirements for the structural design represented in these documents. The construction and materials shall comply with all pertinent codes and references.

The contractor shall verify all dimensions and existing conditions in the field that affect construction prior to commencing work. Resolve any discrepancies with the architect prior to construction.

The drawings and specifications represent the completed structure. The contractor is responsible for bracing and shoring (without overstressing) all structural elements as necessary until completion of the project.

DEFERRED SUBMITTALS:
The following items shall be issued as deferred submittals per IBC:
Prefabricated Wood Floor and/or Roof Trusses and I-Joists

All engineering design provided by others and submitted for review shall bear the certification stamp and signature of a qualified professional engineer who is licensed in the State of Minnesota. Under circumstances all the review shop drawings that are considered to be copied/copied construction documents for submittals. The detailer shall produce and submit original documents for review.

All items issued as deferred submittals shall be issued a minimum of 30 days prior to installation and shall not be installed until their design and submittal documents have been reviewed for general conformance to the drawings by the general contractor, the engineer, of record and the building official. A copy of the deferred submittal shall be forwarded to the city after the engineer of record has reviewed the documents and prior to the erection of the deferred submittal items.

DESIGN CODES AND STANDARDS:

2020 Minnesota State Building Code and 2018 International Building Code, as amended and adopted by the State of Minnesota

MATERIAL PROPERTIES:

Reinforcing Steel (Fy):
Typical 60,000 psi
Weldable 60,000 psi

Cast-in-Place Concrete (f'c) at 28 days, 4,000 psi u.n.o.

Structural Fasteners:
Grade 36 Anchor Rods, U.N.O.
Threaded Rods 36,000 psi ASTM F1554
36,000 psi ASTM A36

SAWN LUMBER:

Hem Fir (HF) No. 2 or better:
(Joists and Headers)
Fb 850 psi
Fc 1300 psi parallel to grain
Fv 150 psi
E 1,300,000 psi

Spruce-Pine-Fir (SPF) No. 2 or better:
(Studs and Built-up Posts)
Fb 875 psi
Fc 1150 psi parallel to grain
Fc 425 psi perpendicular to grain
E 1,400,000 psi

Southern Yellow Pine (SYP) No. 2 or better:
(Preservative Treated Wood)
Fv 175 psi
Fc Varies with Lumber width (refer to NDS)
Fc Varies with Lumber width (refer to NDS)
Fc 565 psi perpendicular to grain
E 1,600,000 psi

Douglas-Fir-Larch (DFL) No. 1 or better:
(Heavy Timber, full sawn)
Fv 170 psi
Fc 1000 psi parallel to grain
Fc 625 psi perpendicular to grain
Ft 825 psi
E 1,600,000 psi

Cedar No. 2 grade:
(Wood Decks and Railings)
Fb 800 psi
Fv 225 psi
E 1,400,000 psi

STRUCTURAL COMPOSITE LUMBER:
Laminated Veneer Lumber
(1 3/4" x Depth)

Fb 2,900 psi
Fv 285 psi
Fc 2,150 psi parallel to grain
Fc 750 psi perpendicular to grain
E 2,000,000 psi

Glue Laminated Timber Beams:
Southern Pine 24F-V8
Fb 2,400 psi top and bottom tension
Fv 200 psi
E 1,700,000 psi

DESIGN LOADS:

Risk Category: II

LATERAL LOADS:
Primary Frame Wind Data: V ult = 106 mph
Basic Ultimate Wind Speed: 110
Wind Importance Factor: D
Exposure: D

Primary Seismic Data: No design required

GRAVITY LOADS:

Ground Snow Load, Pg: 60 psf
Flat-Roof Snow Load, Pf: 42 psf
Snow Exposure Factor, Ce: 0.70
Snow Load Importance Factor, I: 1.0

Residential Floor Live Load: 40 psf
Habitatle Attics and Sleeping Areas: 30 psf
Residential Balconies and Decks: 60 psf
Floor Topping and Finish Allowance: 20 psf
Mech/Electrical/Misc Allowances: 5 psf

FOUNDATIONS:

The contractor shall verify the location of all existing and new underground utilities prior to beginning excavation.

Unless insulated, shallow, frost-protected foundations are utilized, the minimum dimension from exterior grade to bottom of footing shall typically be 60". Where footings are located adjacent to an unheated space, minimum dimension from exterior grade to bottom of footing shall be 72". **The basis of design for shallow, frost-protected foundations is ASCE-32 (Fw-3130)**

Footings are designed for an assumed minimum soil bearing pressure of 2,000 pounds per square foot on undisturbed, native material (IBC-Table 1806.2 "Presumptive Load-Bearing Values"). Contractor shall be responsible for verification of all bearing soils consistent with this assumption and shall provide the services of a qualified geotechnical engineer as necessary. **Refer to the Geotechnical Evaluation Report prepared by Braun Interlec for additional recommendations and confirmation of assumed minimum allowable bearing pressure (3,000 psi allowable was confirmed). The report was furnished after drawings were issued for construction (report is dated September 29, 2023, Braun Project B2309036).**

All topsoil, fill, organics, and/or other unsuitable bearing material shall be removed below the footings and/or within the building area.

Foundation and retaining walls shall be back filled with free draining fill. Provide drain tile required by the contract documents.

Backfill equally on both sides of foundation walls to prevent overturning or lateral wall movement.

REINFORCED CONCRETE:

The detailing, fabrication and erection of all reinforcing shall be in accordance with the latest edition of ACI-315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures and ACI-318, "Building Code Requirements for Structural Concrete."

All reinforcing bars are deformed and continuous, unless noted otherwise. Refer to drawings for reinforcing lap length schedule.

Provide suitable wire spacers, chairs, etc. for support of reinforcing steel in proper position while placing concrete. All bars shall be tied to prevent displacement while placing concrete. All chairs and slab bolsters shall be plastic or steel with plastic tips. The fabricator shall submit a complete list of accessories and placing details with the shop drawings.

Provide a minimum 3/4 inch chamfer for all exposed concrete corners unless otherwise indicated on Architectural drawings.

Aluminum conduit, aluminum sleeves and aluminum embeds are not permitted in concrete.

Exterior concrete to have 6% +/- 1% entrained air.

Calcium chloride is not permitted as a concrete additive.

Concrete Cover on Reinforcing:

Topping Slab: 3/4" clear top
Slab on Grade: upper third of slab, UNO on plan.
Footings: 3" clear bottom and sides
2" clear top
Walls w/#5 bar and smaller: 1 1/2" clear to earth or weather face
3/4" clear to interior face

CONCRETE SLABS ON GRADE:

The contractor shall submit control or construction joint locations to the architect for approval. Joints shall be detailed as shown on the drawings. The joints shall be spaced as noted below:

Exterior slabs: 24 times slab thickness, maximum;
Interior slabs: 36 times slab thickness, maximum;
Interior slabs w/ carpeting: 48 times slab thickness, maximum.

The panels formed by control or construction joints shall not be "L" shaped and the panel aspect ratio shall not exceed 1.5.

Mechanically vibrate concrete around trench drains, floor ducts, construction joint dowels, architectural features and other embedded items.

WOOD FRAMING- DIMENSION LUMBER:

All member sizes given in the drawings are nominal dimensions.
All lumber shall be kiln-dried, maximum moisture content 15% and grade marked according to the National Forest Products Association Regulations.

All joists (greater than 2 x 8) shall be supported laterally at the ends and at each support by solid blocking except where ends of joists are nailed to a header, band or rim joist or to an adjoining stud. Solid blocking shall be not less than 2" in thickness and the full depth of the joist.

Wood joists shall bear on the full width of supporting members, stud walls, beams, etc., unless otherwise noted.

Do not notch or cut joist unless approved by the engineer.

All beams and joists not bearing on supporting members shall be framed with prefabricated hangers appropriate for both the supported and supporting member.

Provide minimum double stud at bearing ends of all beams and headers; provide solid vertical blocking through floors to the support below.

All walls shall have single bottom plate and double top plate.

Double top plate splices shall lap 4'-0" and be nailed with 8- 16d sinkers nails equally spaced with 4" end distance, unless noted otherwise on plan.

Unless otherwise noted, bottom plates of all exterior stud walls and interior bearing walls shall be anchored to new concrete with 5/8" diameter anchor bolts at 4'-0" o.c.

All exterior lumber and all lumber in contact with concrete or masonry shall be treated Southern Yellow Pine. Each wall segment shall have a minimum of 2 anchors with one anchor located within 12" of each end.

All exposed connectors or those in contact with treated Lumber shall have corrosion protection (stainless steel or as otherwise approved).

GLUED LAMINATED TIMBER:
Glued laminated members shall be fabricated in conformance with ANSI Standard A190.1, American National Standard for Structural Glued Laminated Timber, or other code-approved design, manufacturing and/or quality assurance procedures.

Each member shall bear an AITC or APA-ENS identification mark or be accompanied by a certificate of conformance.

Glued laminated timber supplier shall submit shop drawings showing erection plan, bearing conditions, and anchorage details for approval.

For appearance classification of Architectural, Premium, Framing, or Industrial, refer to the architectural drawings.

Adhesive shall be wet-use exterior waterproof glue.

All member sizes are given on plan and are net dimensions.

One coat of end sealer shall be applied immediately after trimming in either shop or field.

Do not drill, cut or notch members unless approved by the engineer or the glued laminated member manufacturer.

Glue laminated members that are treated with wood preservative shall comply with AITC 109.

PREFABRICATED WOOD FLOOR AND ROOF TRUSSES:

Truss Plate Manufacturer shall be a current member in good standing of the Truss Plate Institute. The Truss Fabricator shall participate in a third-party quality assurance program that is approved by a code approved inspection agency or that meets the requirement of the Truss Plate Institute.

Truss Supplier shall submit shop drawings and design calculations for review.

Prior to fabrication of trusses the Truss Supplier shall submit a record copy of shop drawings and design calculations incorporating review comments. The shop drawings are certified by a qualified Professional Engineer registered in the shop state where the project is located.

The configuration of the web members for roof trusses shall be determined by the manufacturer in accordance with all architectural and structural criteria. Field modification of prefabricated trusses is not permitted.

The truss chords shall be designed for the following minimum dead loads and deflection criteria.

Roof: top chord 10 psf; bottom chord 10 psf

Floor: top chord 15 psf; bottom chord 10 psf

Roof: Live load deflection < L/360, total load deflection < L/240
Floor: Live load deflection < L/480, total load deflection < L/360 (3/4" maximum)

Truss spacing shall not exceed 24" OC, unless noted otherwise on plan.

Align truss web members throughout a bay. The contractor shall coordinate any mechanical requirements with the truss fabricator.

Truss Plate connections shall be designed in accordance with the Truss Plate Institute.

All roof truss bearing points shall be anchored with a minimum of one Simpson H1 truss anchor.

All floor truss bearing points shall be anchored with a minimum of one Simpson H2.5 truss anchor.

WOOD STRUCTURAL PANELS:

Wood structural panels shall conform to the requirement of "U.S. Product Standard PS 1 for Construction and Industrial Plywood"; "U.S. Product Standard PS 2 Performance Standard for Wood-Based Structural-Use Panels", or APA PMP-108 Performance Standards. Panels shall be APA Rated Sheathing, Exposure 1, of the thickness and Span Rating shown on the drawings.

Wood structural panel installation shall be in conformance with APA recommendations. Allow 1/8" spacing at panel ends and edges, unless otherwise recommended by the panel manufacturer.

All roof sheathing and sub-flooring shall be installed with face grain perpendicular to supports, except as indicated on the drawings.

Floor and roof sheathing shall either be blocked or tongue-and-groove. Floor sheathing shall be field glued to the framing using adhesives meeting APA Specifications AFS-01 or ASTM D3496.

When roof sheathing is nailed directly to blocking, the blocking shall be nailed to support members with a minimum of 16d nails at 4' OC.

Sub-flooring sheathing shall have tongue and groove joints or be supported by blocking.

Sub-flooring panels shall be field glued to the framing using adhesives meeting APA Specifications AFS-01 or ASTM D3496.

Tongue and Groove panels shall be glued at the tongue and groove joint.

Shear wall sheathing and exterior wall sheathing shall be installed horizontally and blocked with 2x framing at all panel edges.

Prefabricated shear walls shall be installed according to the manufacturer's recommendations, including all anchor bolts and connection to adjacent framing.

WOOD FASTENERS – NAILING:

Framing nail sizes specified on the drawings are based on the following specification U.N.O.:

Size	Length	Diameter
6d	2"	0.113"
8d	2 1/2"	0.131"
10d	3"	0.148"
12d	3 1/4"	0.148"
16d	3 3/4"	0.148"

All framing nails shall conform to ASTM F667, "Standard Specification for Power Driven Fasteners: Nails, Spikes and Staples" and NER-272 "Power Driven Staples and Nails for Use in All Types of Building Construction"

Nails shall be identified by labels attached to their containers that show the manufacturer's name and NBS report number, nail shank diameter, and length. Submit this information prior to framing.

If the contractor proposes the use of alternate nails, they shall submit (prior to construction) nail specifications with certified calculations showing structural equivalence to the engineer for review and approval.

Nails fastening APA rated plywood sheathing shall be driven flush to the face of sheathing with no counter sinking permitted. A nail sheathing as necessary to comply.

WOOD FASTENERS — STRUCTURAL WOOD SCREWS:

Structural wood screws as specified in the drawings refer to threaded steel screws that are self-drilling, dowel-type fasteners used primarily for wood-to-wood connections. These carbon steel screws are manufactured by a cold-formed process and are heat-treated with rolled threads. No pre-drilling is required.

Screws are specified in the drawings per nominal diameter and length. The diameter refers to a nominal measure of the threads, which is larger than the untreaded shaft of the fastener. Length specified does not include fastener head. Actual dimensions and available lengths vary with manufacturer.

Acceptable products are listed below. Contractor may submit alternate products for approval by structural engineer or record.

The following minimum dimensions and material properties shall apply:

Size	Min Shank: Root Diameters (in)	Acceptable Products
1/4" Diam	0.169"; 0.150"	GRK RSS
5/16" Diam	0.169"; 0.172"	GRK RSS, Simpson SDWH, Fastenmaster Timberlok
3/8" Diam	0.219"; 0.191"	GRK RSS, Simpson SDWS, Fastenmaster Ledgerlok

Minimum Allowable Tensile strength of fastener (lbs):
1/4" Diameter 1112 lbs
5/16" Diameter 1210 lbs
3/8" Diameter 1505 lbs

Minimum Allowable Shear strength of fastener (lbs):
1/4" Diameter 754 lbs
5/16" Diameter 770 lbs
3/8" Diameter 910 lbs

Minimum Bending Yield Strength: 165,000 psi

ARCHITECTURE STUDIO, LLC

501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802

218-740-5219

WWW.ARCHITECTURESTUDIO.COM

SIGNATURE

RYAN J. AROLA

DATE 5/11/2023

LICENSE NO. 52478

PAUL A. JOHNSON

Signature

Paul Johnson

Legitimate

DATE 5/11/2023

LICENSE # 20379

DRAGESTIL HOTEL - BUILDINGS 1, 2, 3

SOUTH LAKE AVENUE / MINNESOTA AVENUE

DULUTH, MN 55802

Construction Services & Inspections

Reviewed for Code Compliance

MSBC 2020

Chris Machmer 10/10/2023

ISSUE DATE

5/19/2023



PROJECT NO.

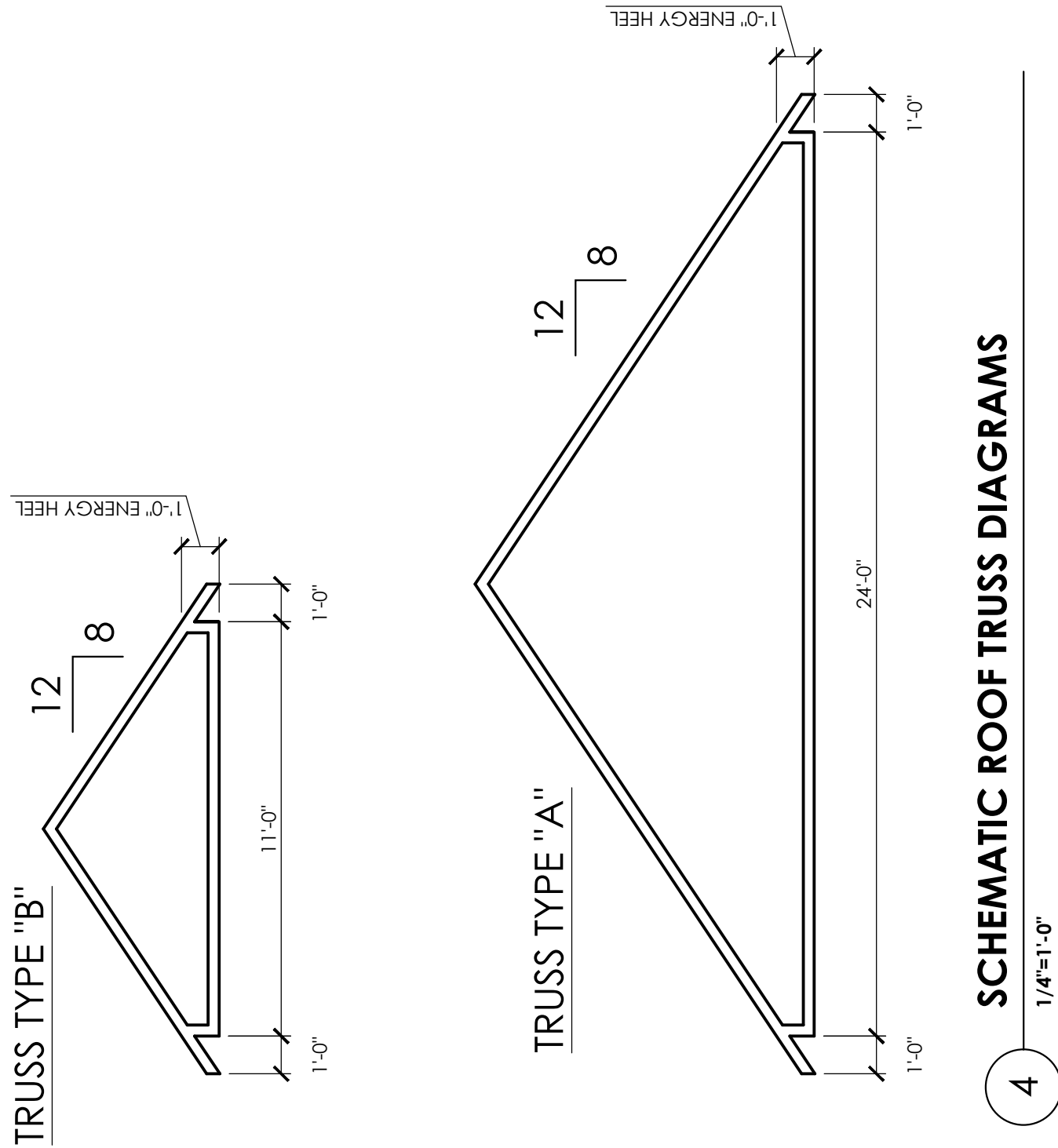
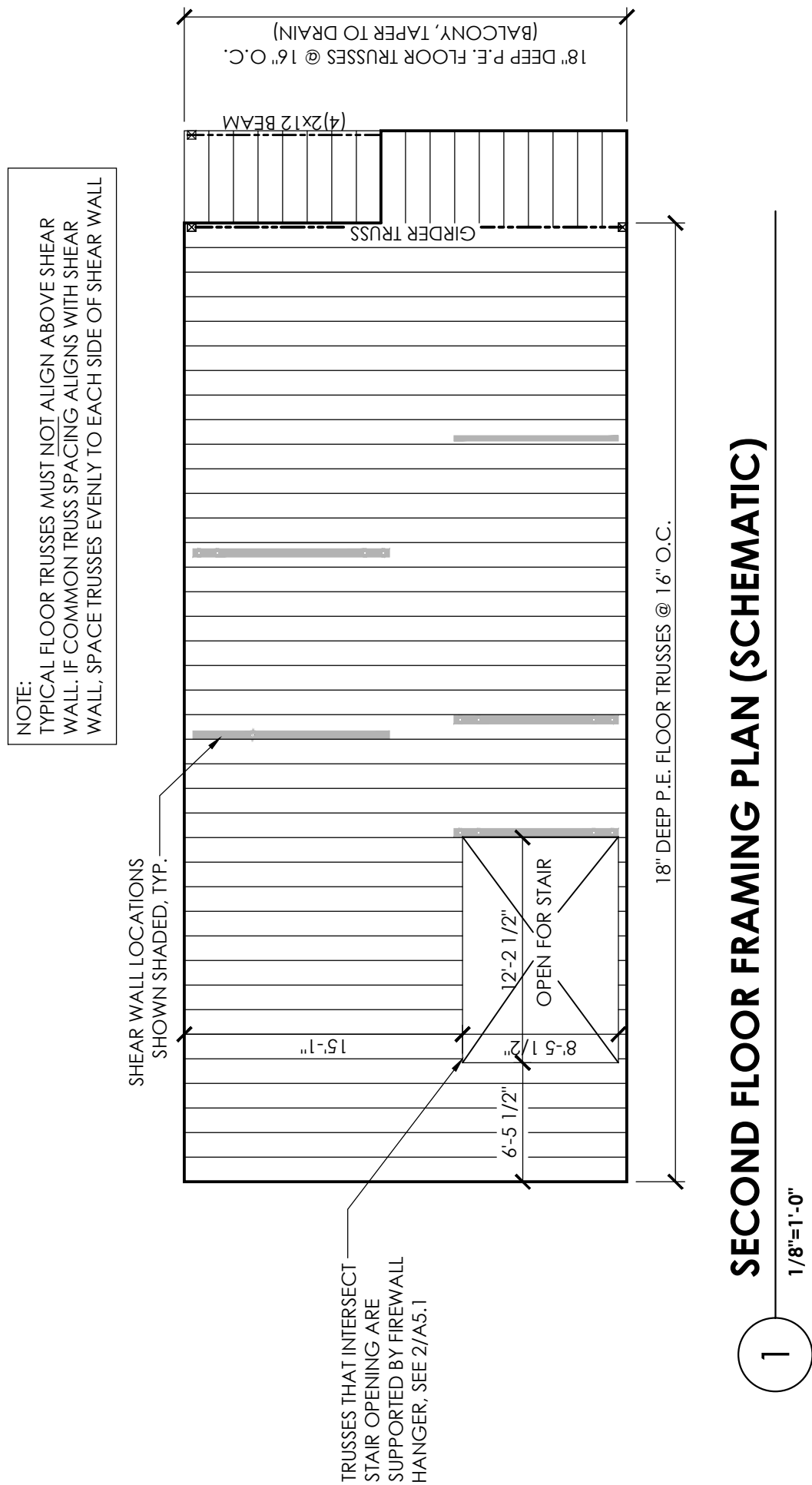
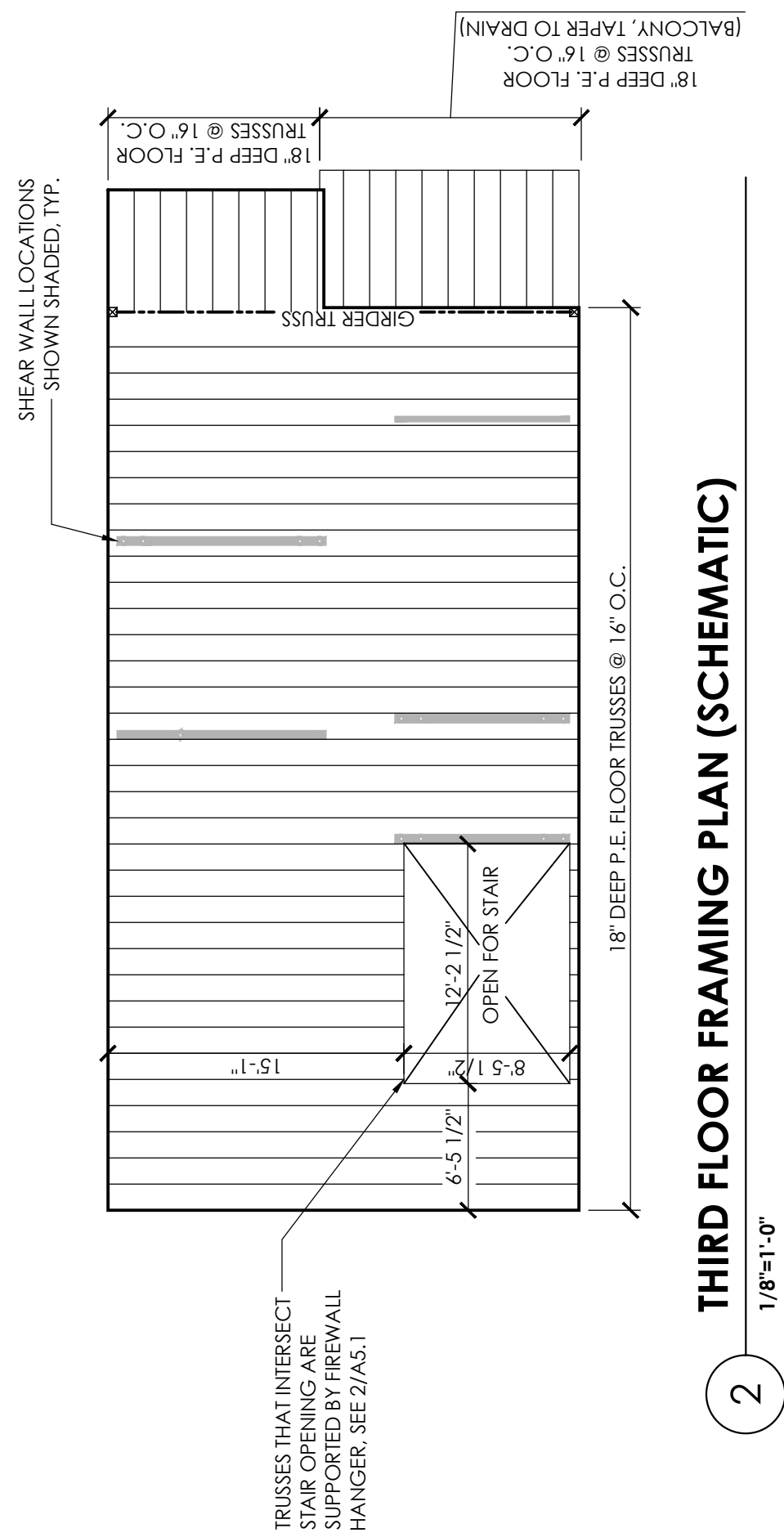
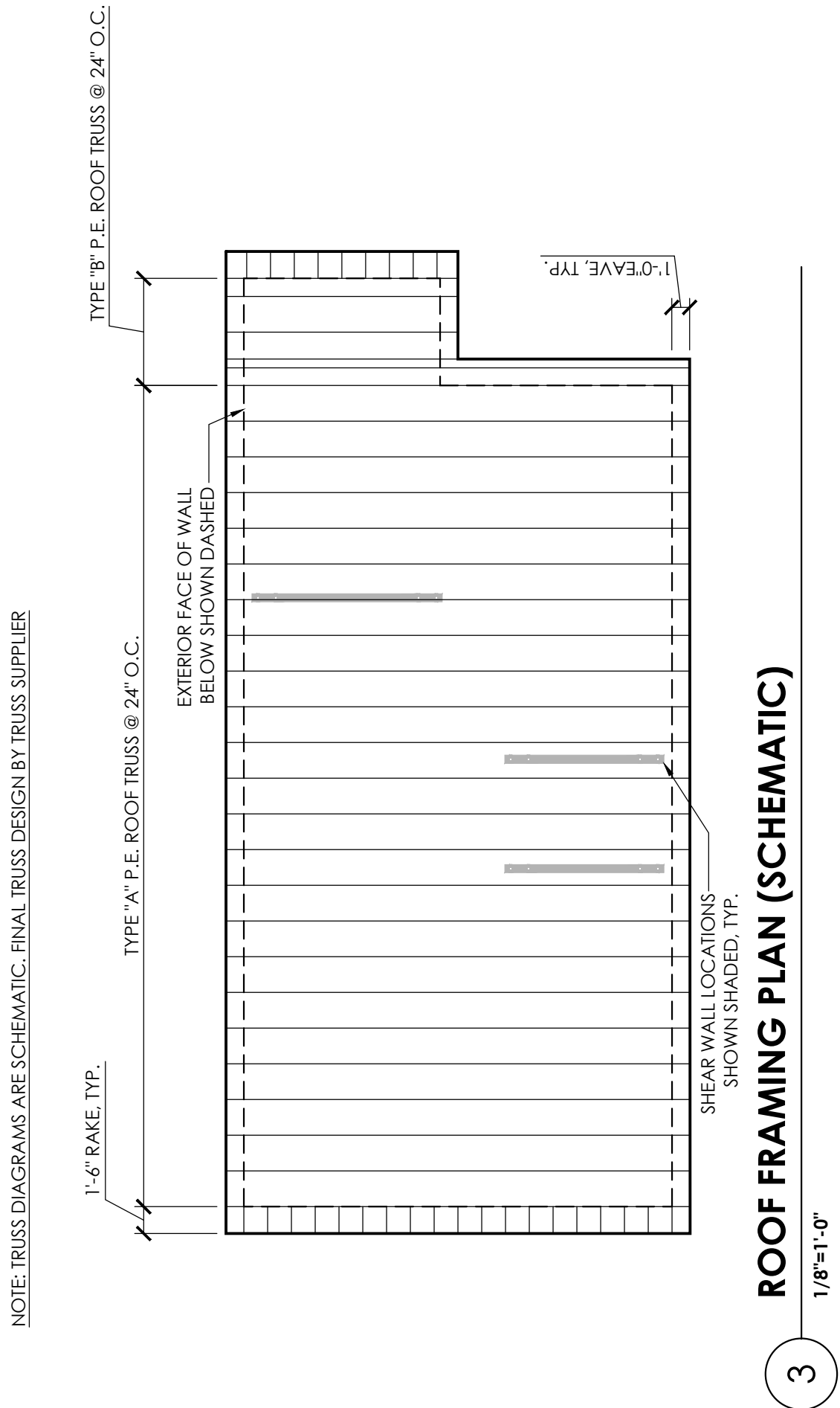
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REVISIONS

SHEET NO.

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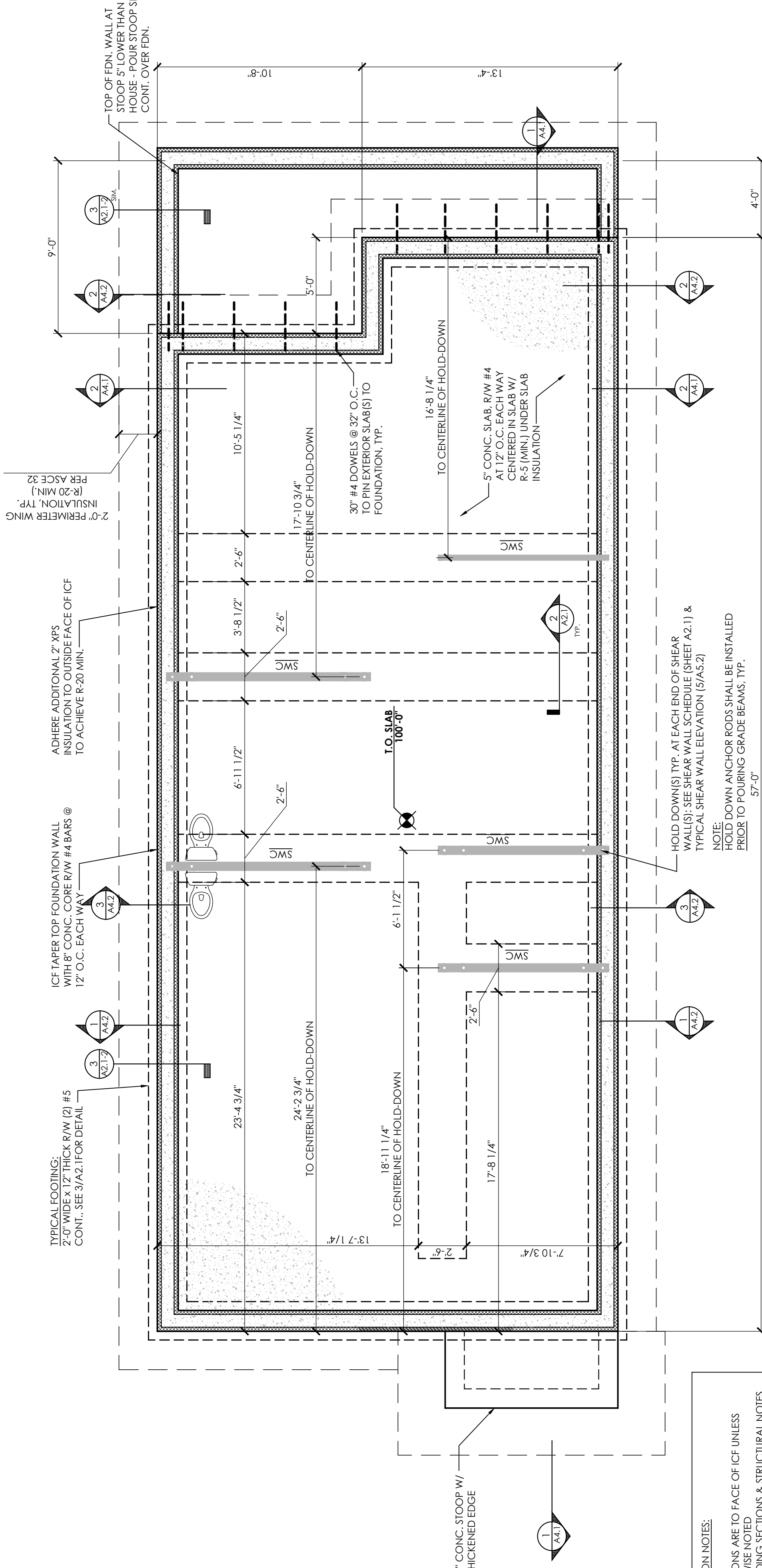
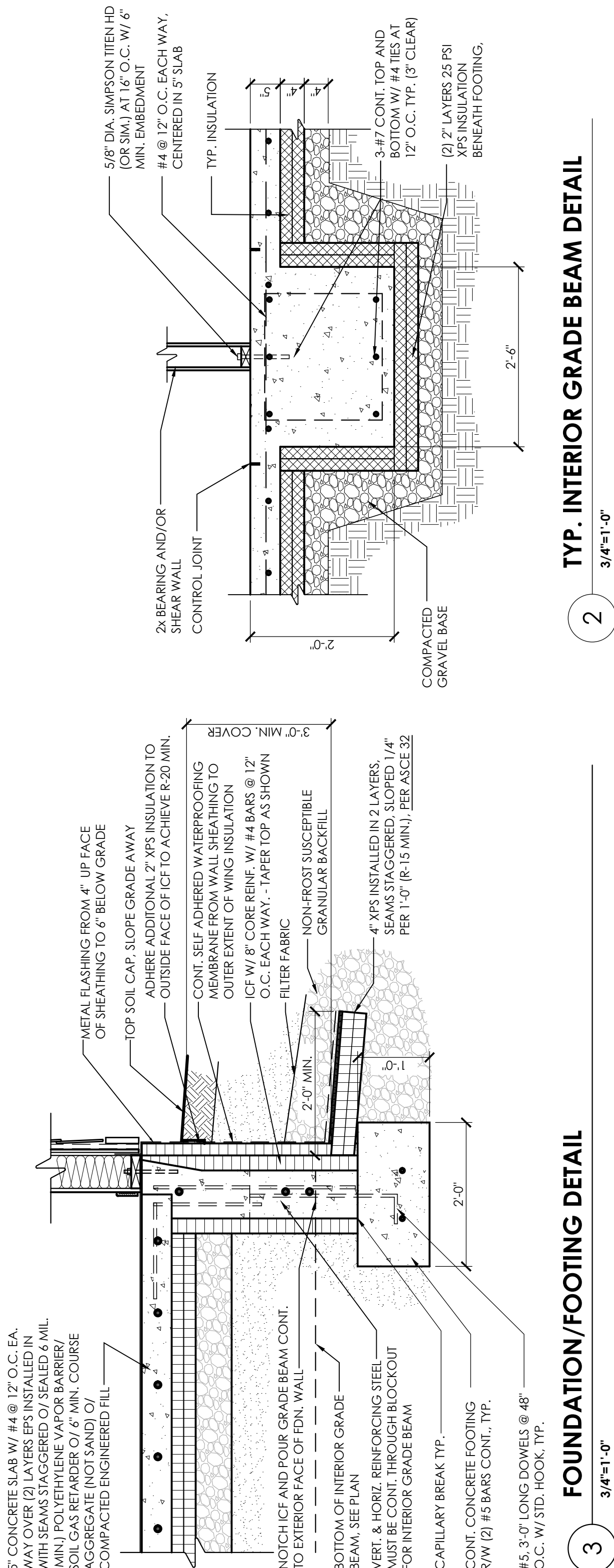
 <p>AROLA ARCHITECTURE STUDIO, LLC</p> <p>501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802 218-740-5219 WWW.AROLAARCH.COM</p>		<p>I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p>SIGNATURE: <u><i>Paul A. Johnson</i></u> RYAN J. AROLA DATE: <u>5/11/2023</u> LICENSE NO. <u>52478</u></p>		<p>DRAGESTIL HOTEL - BUILDINGS 1, 2, 3 SOUTH LAKE AVENUE / MINNESOTA AVENUE DULUTH, MN 55802</p> <p>Reviewed for Code Compliance MSBC 2020 Chris Machmer 10/06/2023</p> <p></p>		<p>ISSUE DATE: <u>5/19/2023</u> PROJECT NO. <u>2166</u> REVISIONS</p>		<p>SHEET NO. A1.1</p>	
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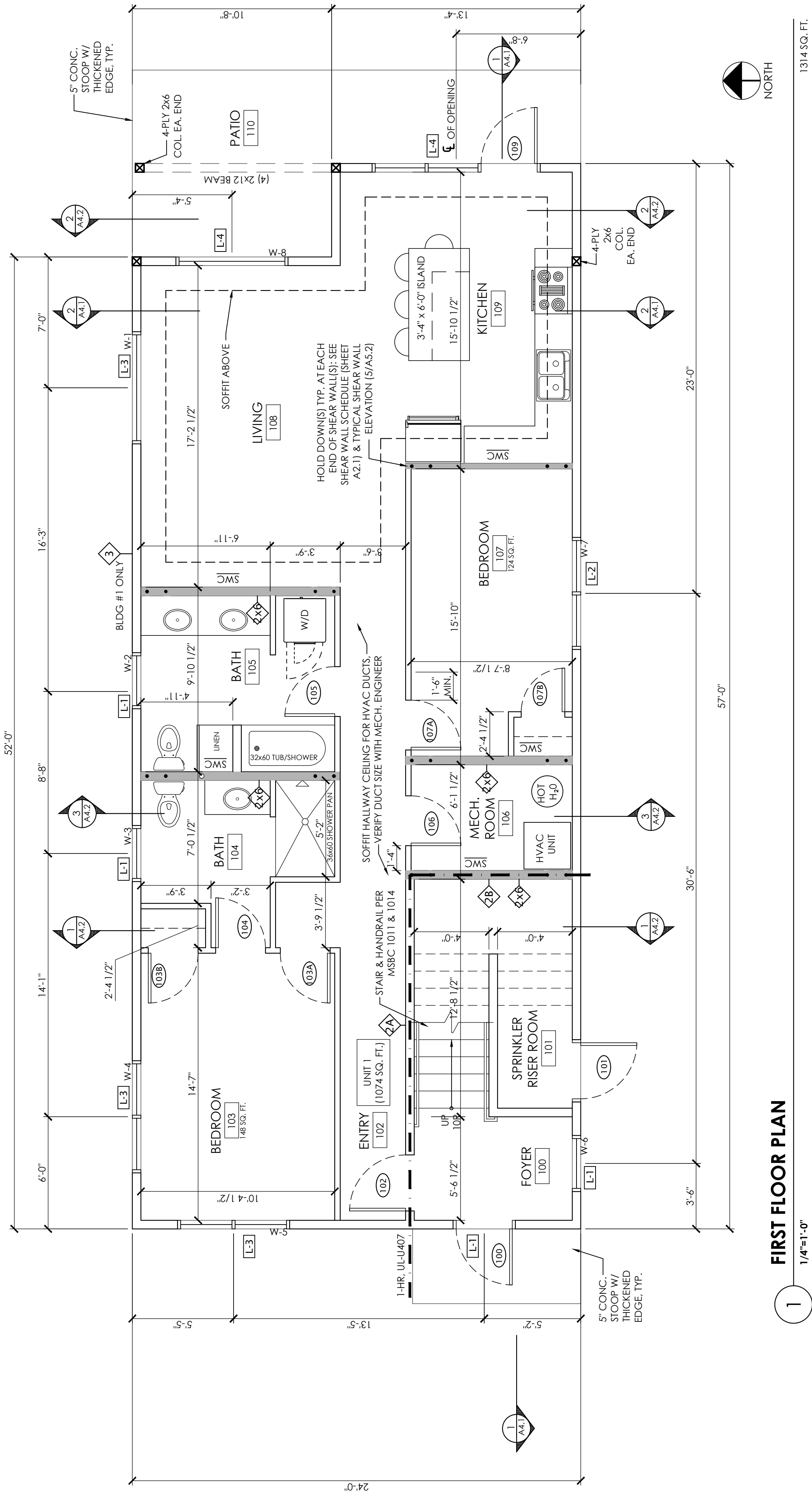
WOOD SHEAR WALL CONSTRUCTION SCHEDULE						
WALL TYPE	WALL PANEL CONSTRUCTION	WALL PANEL FASTENING			SEE NOTE	TOP AND SILL PLATE FASTENING - SEE NOTE 20
		EDGE SPACING	INTERMEDIATE SPACING	MINIMUM FASTENER SIZE		
SWA	1 LAYER 5/8" GYP BOARD ONCE SIDE OF WALL - BLOCKED	7"	7"	6d COOLER OR WALL BOARD NAIL 1 3/4" LONG OR		
	1 LAYER EXTERIOR SHEATHING ONE SIDE OF WALL - BLOCKED	3"	12"	16 GA STAPLE, 1 1/2" LESS, 1 5/8" LONG	11 TO 15	16d AT 6" OR 3" x 0.131" AT 4"
SWB	1 LAYER 1/2" OSB OR PLYWOOD ONE SIDE OF WALL - BLOCKED	3"	12"	16d COMMON OR GALVANIZED BOX NAIL	16, 18	16d AT 7" OR 3" x 0.131" AT 2"
	1 LAYER 1/2" GWB ONE SIDE OF WALL - BLOCKED	7"	7"	8d COMMON OR GALVANIZED BOX NAIL	16, 18	16d AT 3" OR 3" x 0.131" AT 2"
SWC	1 LAYER 1/2" OSB OR PLYWOOD EACH SIDE OF WALL - BLOCKED	3"	12"	16d COMMON OR GALVANIZED BOX NAIL	17 TO 19	16d AT 7" OR 3" x 0.131" AT 2"

- NOTES:
1. PROVIDE 2 STUDS AT EACH END OF SHEAR WALL. END STUDS SHALL RECEIVE EDGE NAILING.
 2. ALL BLOCKING IN WALLS SHALL MEET OR EXCEED STUD GRADE.
 3. JOINTS SHALL OCCUR AT THE CENTERLINE OF STUDS AND BLOCKING.
 4. REINFORCE ARCHITECT IF ADDITIONAL LAYERS OF 6" BOARD ARE REQUIRED FOR FINISHES.
 5. CONTRACTOR'S OPTION - PROVIDE CLIPS AT TOP AND SILL PLATE BY ALTERNATE MANUFACTURER THAT MEET OR EXCEED CAPACITY OF CLIPS INDICATED IN SCHEDULE.
 6. SEE SHEAR WALL BASE CONNECTION SCHEDULE FOR ANCHORAGE TO SUPPORT MATERIAL.
 7. SEE HOLD DOWN SCHEDULE FOR HOLD DOWN INFORMATION.
 8. TOP AND SILL PLATE NAILING SHALL BE STAGGERED WHERE NAILS ARE SPACED AT 7" O.C.
 9. TOP AND SILL PLATE NAILING SHALL BE STAGGERED WHERE NAILS ARE SPACED AT 12" O.C.
 10. ALL FASTENERS IN CONTACT WITH TREATED WOOD SHALL BE GALVANIZED.
- ADDITIONAL NOTES PER SCHEDULE:
11. ALL WALLBOARD NAILS INDICATED IN SCHEDULE SHALL BE 0.120" DIA. AND HAVE MINIMUM 38° HEAD.
 12. STUDS SHALL BE GALVANIZED, HAVE 7/16" MINIMUM CROWN WIDTH AND BE INSTALLED PER MANUFACTURER'S TRAINING WEBSITES.
 13. 6d NAILS MAY BE SUBSTITUTED WITH NO. 6 - 2" TYPE W DRYWALL SCREWS. 8d NAILS MAY BE SUBSTITUTED WITH NO. 6 - 2 1/2" TYPE W DRYWALL SCREWS.
 14. PROVIDE EXTERIOR GYP BOARD WHERE SHEAR WALL IS AN EXTERIOR WALL.
 15. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING TO MATCH THE WALL SIZE.
 16. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING 2" NOMINAL OR WIDER.
 17. PROVIDE 1" MINIMUM PENETRATION INTO STUD AT 16d NAIL AND 1 3/8" MIN AT 8d NAIL.
 18. PROVIDE 1 1/2" MINIMUM PENETRATION INTO STUD AT 16d NAIL AND 1 3/8" MIN AT 8d NAIL.
 19. STUDS AT ADJOINING PANEL EDGES SHALL BE 3" NOMINAL WOOD OR GREATER.
 20. USE EITHER SPECIFIED CLIP ANGLE OR NAILING AS SPECIFIED BY REFERRING DETAIL.

- ADDITIONAL NOTES PER SCHEDULE:
1. ALL WALLBOARD NAILS INSTALLED IN SCHEDULE SHALL BE 0.120 DIA AND HAVE MINIMUM 38° HEAD.
 2. ALL WALLBOARD NAILS SHALL BE GALVANIZED, HAVE 7/16" MINIMUM CROWN WIDTH AND BE INSTALLED AT 16" ON CENTER TO MATCH STUD SPACING.
 3. STUDS TO BE TRAINING MEMBERS.
 4. 84 NAILS MAY BE SUBSTITUTED WITH NO. 6, 2 TYPE DRYWALL SCREWS 84 NAILS MAY BE SUBSTITUTED WITH NO. 6, 2 TYPE DRYWALL SCREWS.
 5. 84 NAILS MAY BE SUBSTITUTED WITH NO. 2, 1/2" TYPE DRYWALL SCREWS.
 6. PROVIDE EXTERIOR GYP BOARD WHERE SHEAR WALL IS AN EXTERIOR WALL.
 7. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING TO MATCH THE WALL STUD SIZE.
 8. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING TO MATCH THE WALL STUD SIZE.
 9. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING TO MATCH THE WALL STUD SIZE.
 10. PROVIDE 1" MINIMUM PENETRATION INTO STUD AT TOP, NAIL AND 1/8" MIN AT 84 NAIL.
 11. STUDS AT ADJOINING PANEL SHALL BE 9" NOMINAL WIDTH OR GREATER.
 12. USE THE UPPER SPECIFIED CLIP ANGLE OR SHALL BE AS SPECIFIED BY REFERING DETAIL.



FOUNDATION NOTES:
DIMENSIONS ARE TO
OTHERWISE NOTED
SEE BUILDING SECTION
FOR REINFORCING



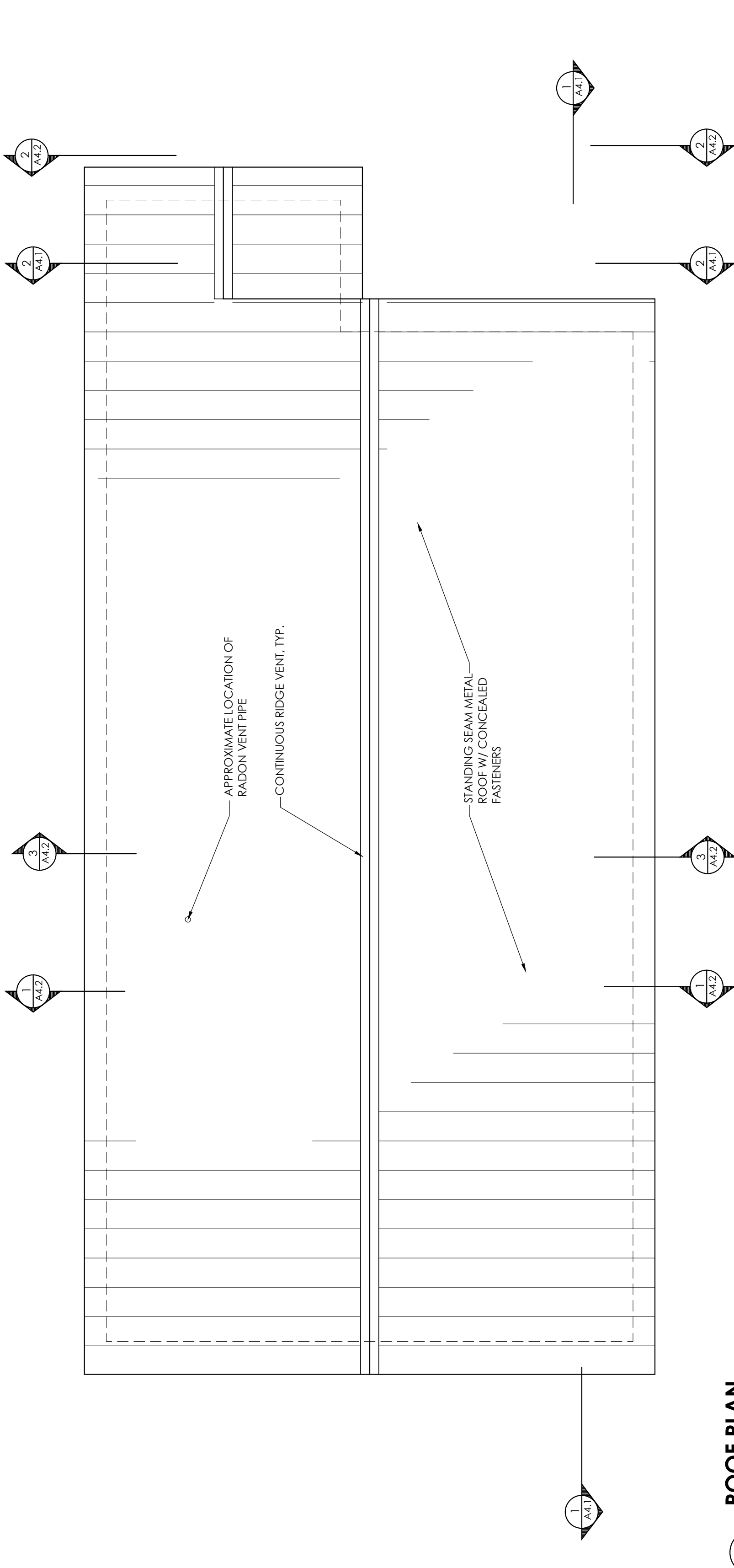
FIRST FLOOR PLAN

1/4"=1'-0"

1314 SQ. FT.

- GENERAL FRAMING NOTES:**
1. SEE HEADER SCHEDULE FOR SIZE & BEARING REQUIREMENTS
 2. WHERE WINDOWS ARE 6" APART, HEADERS ARE REQUIRED TO USE CONCEALED FLANGE JOIST HANGERS (SIMPSON HUC28-2) FOR THE HEADERS AND 4" CANT KING STUDS AT EACH 6" JAMB BETWEEN WINDOW OPENINGS.
 3. ALL EXTERIOR WALLS ARE SHEAR WALLS, TYPE SW4, INTERIOR WALLS USED AS SHEAR WALLS ARE AS NOTED ON PLAN. REFER TO WOOD SHEAR WALL CONSTRUCTION SCHEDULE, TYP.
 4. SEE SHEET A2.1 FOR SHEER WALL SCHEDULE

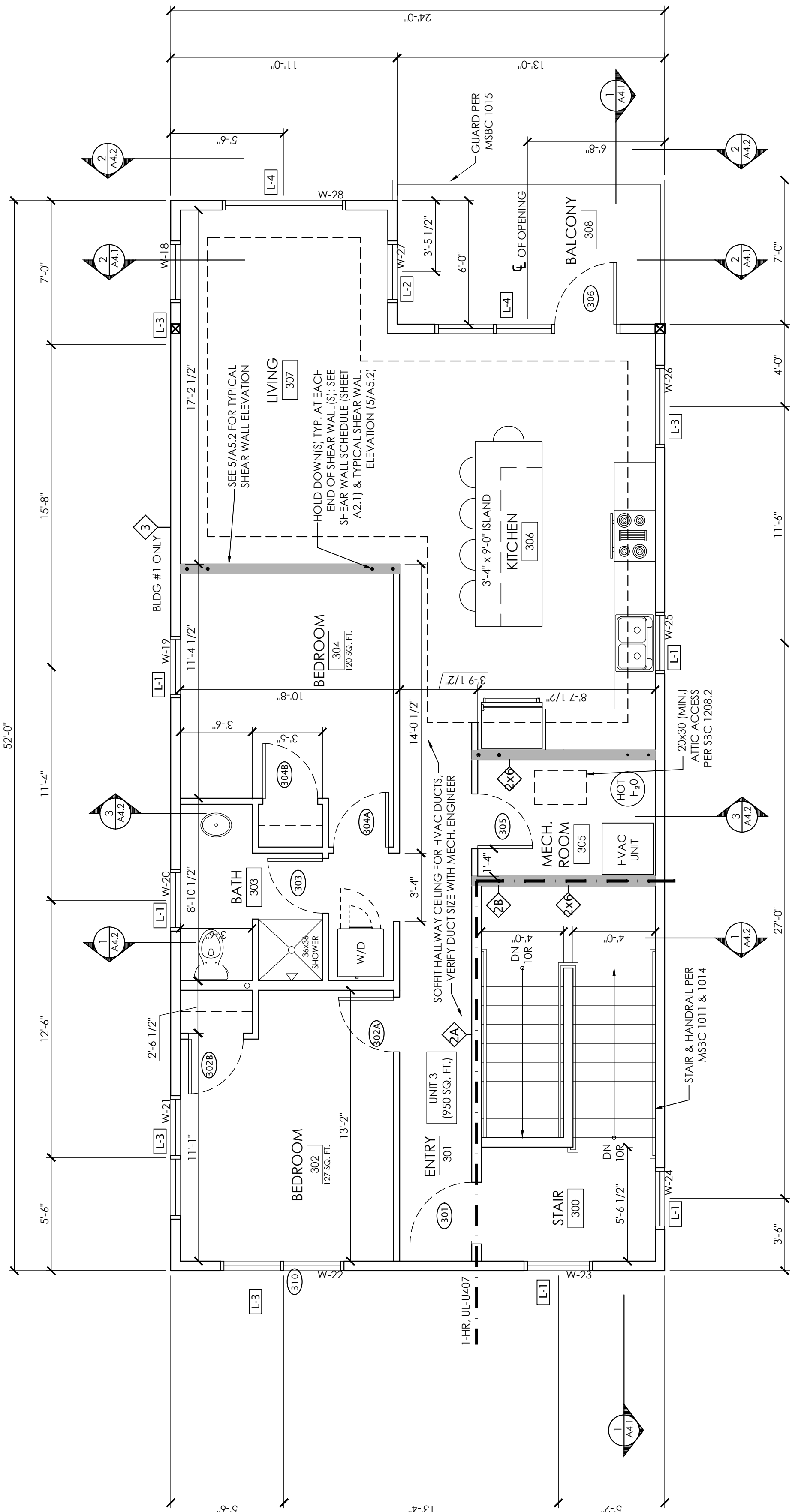
HEADER SCHEDULE	
MARK	DESCRIPTION
L-1	(2) 2X6 BOXED BEAM WOOD W/ 1-1/2" MIN. BRG. EACH END
L-2	(2) 2X6 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-3	(2) 2X10 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-4	(3) 2X12 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END



ROOF PLAN

2

1/4"=1'-0"



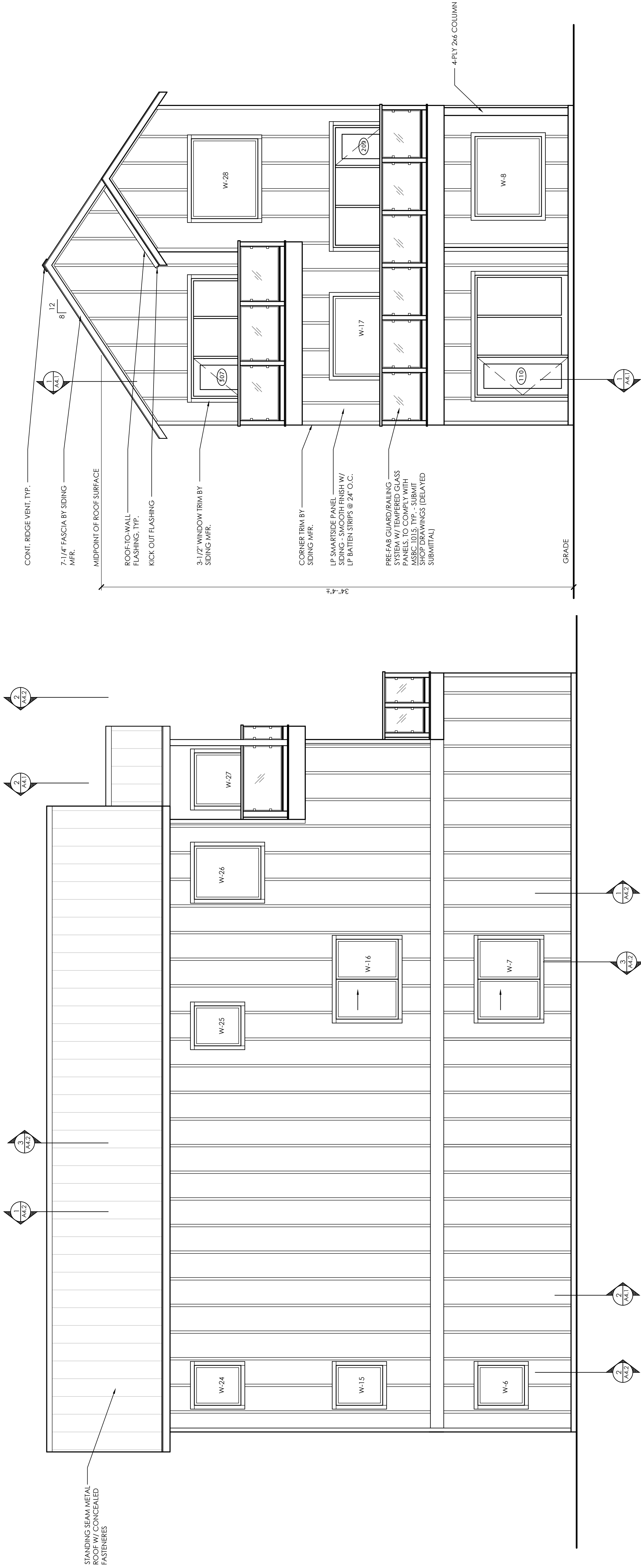
1
THIRD FLOOR PLAN
1/4"=1'-0"

1/4"=1'-0"

1170 SQ. FT.

- GENERAL FRAMING NOTES:**
1. SEE HEADER SCHEDULE FOR SIZE & BEARING REQUIREMENTS
 2. WHERE WINDOWS ARE 6" APART, HEADERS ARE REQUIRED TO USE CONCEALED FLANGE JOIST HANGERS (SIMPSON HCU28-2) FOR THE HEADERS AND 4 CONT. JOIST STUDS AT EACH 6" JAMB BETWEEN WINDOW OPENINGS.
 3. ALL EXTERIOR WALLS ARE SHEAR WALLS. TYPE SWA, INTERIOR WALLS USED AS SHEAR WALLS ARE AS NOTED ON PLAN. REFER TO WOOD SHEAR WALL CONSTRUCTION SCHEDULE, TYPE 1.

MARK	DESCRIPTION
L-1	(2) 2X4 BOXED BEAM WOOD W/ 1-1/2" MIN. BRG. EACH END
L-2	(2) 2X8 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-3	(2) 2X10 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-4	(3) 2X12 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END



SOUTH ELEVATION (BUILDING #1,2,3)

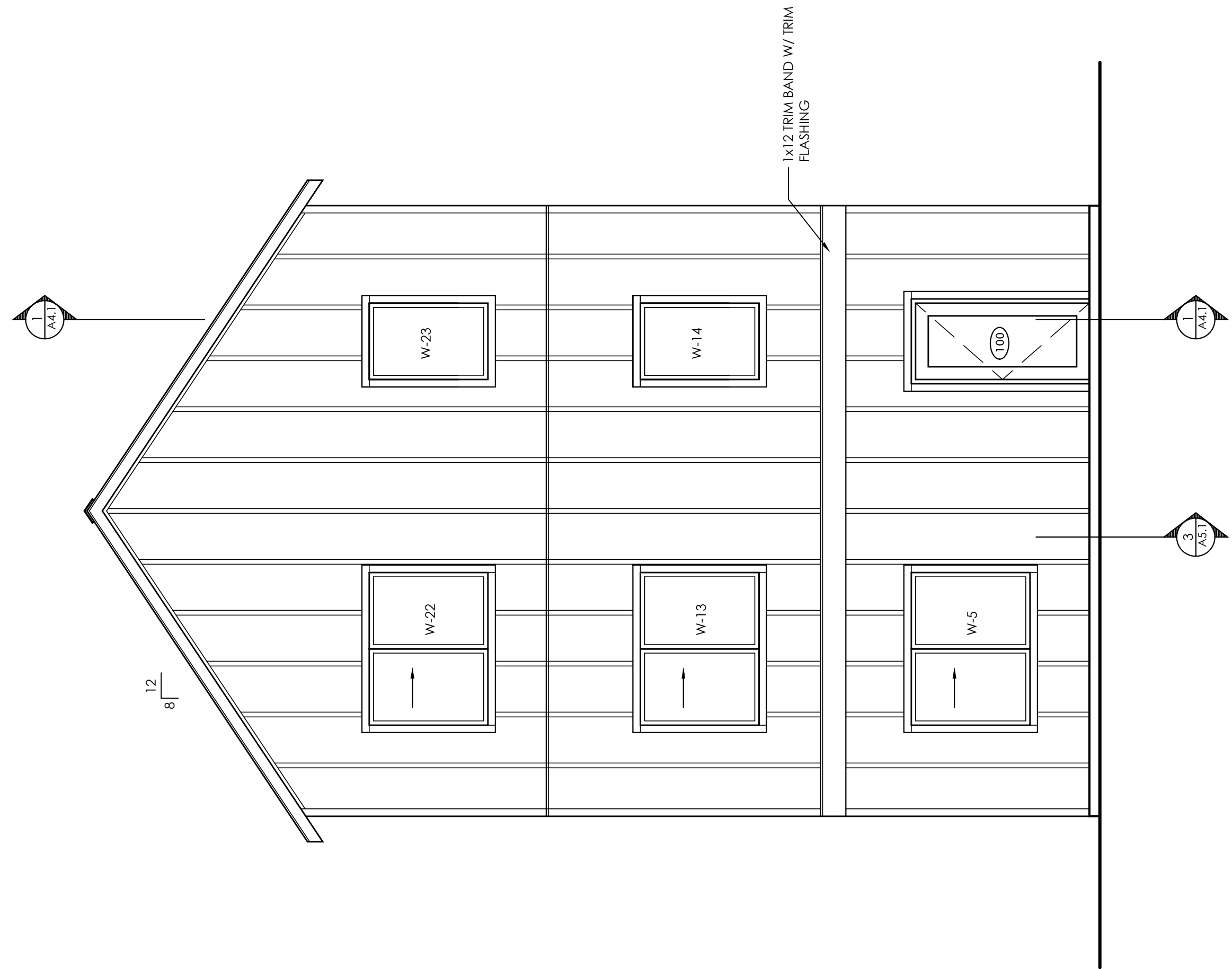
EAST ELEVATION (BUILDING #1,2,3)

1/4"=1'-0"

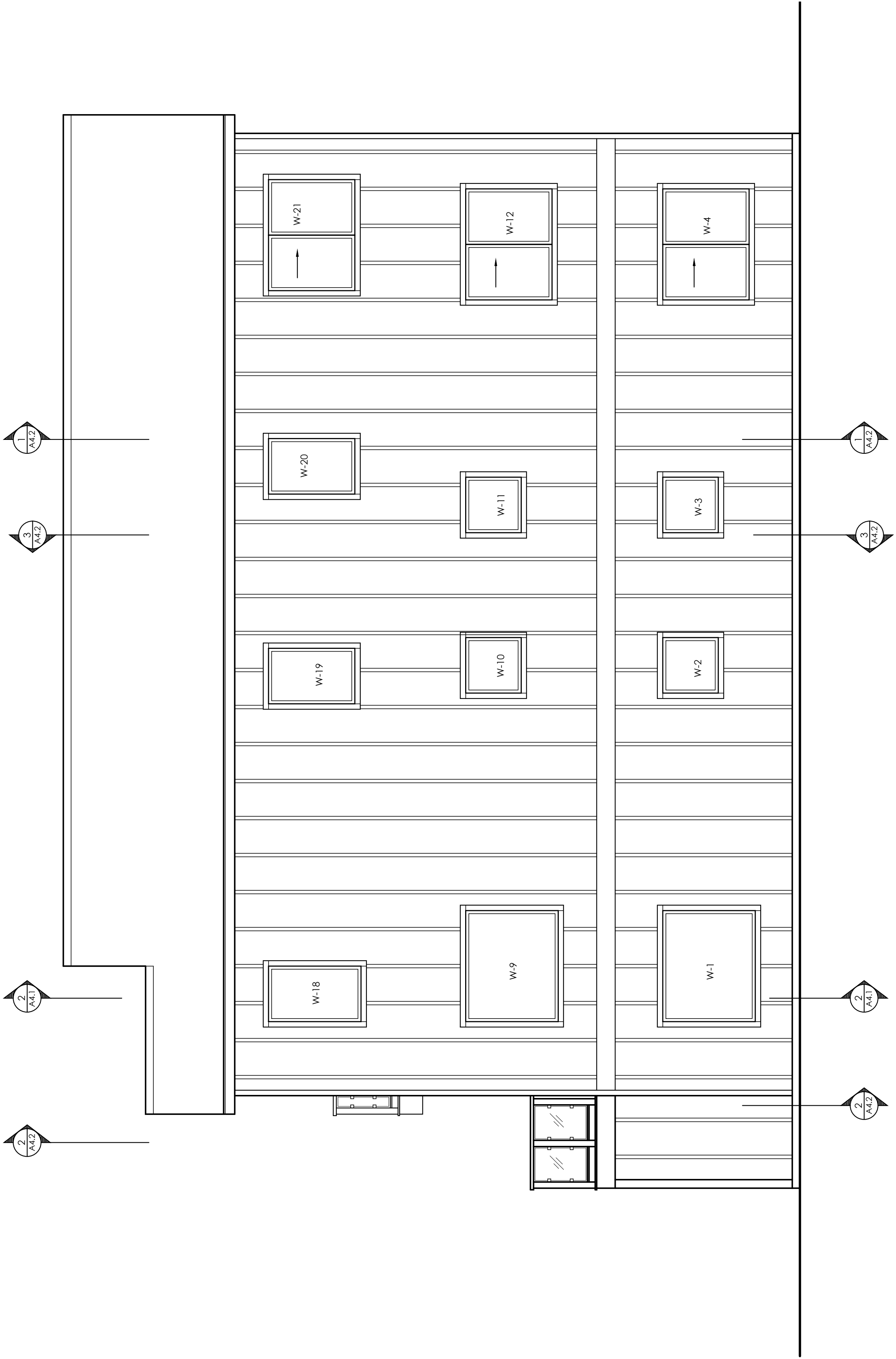
1/4"=1'-0"

% OF OPENING CALCULATIONS

THIRD FLOOR	41 SQ. FT. (WINDOWS)/436 SQ. FT. (WALL AREA) = 8.3%
SECOND FLOOR	38.5 SQ. FT. (WINDOWS)/490 SQ. FT. (WALL AREA) = 7.8%
FIRST FLOOR	58.5 SQ. FT. (WINDOWS)/554 SQ. FT. (WALL AREA) = 10.5%



WEST ELEVATION (BUILDING #1,2,3)




NORTH ELEVATION (BUILDING #1,2,3)

% OF OPENING CALCULATIONS	
THIRD FLOOR	86 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 18.2%
SECOND FLOOR	76 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 16.2%
FIRST FLOOR	76 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 16.2%

REVISIONS

PROJECT NO. 2166

ISSUE DATE 5/19/2023

**DULUTH**
MSBC 2020
Reviewed for Code Compliance
Chris Machmer 10/06/2023

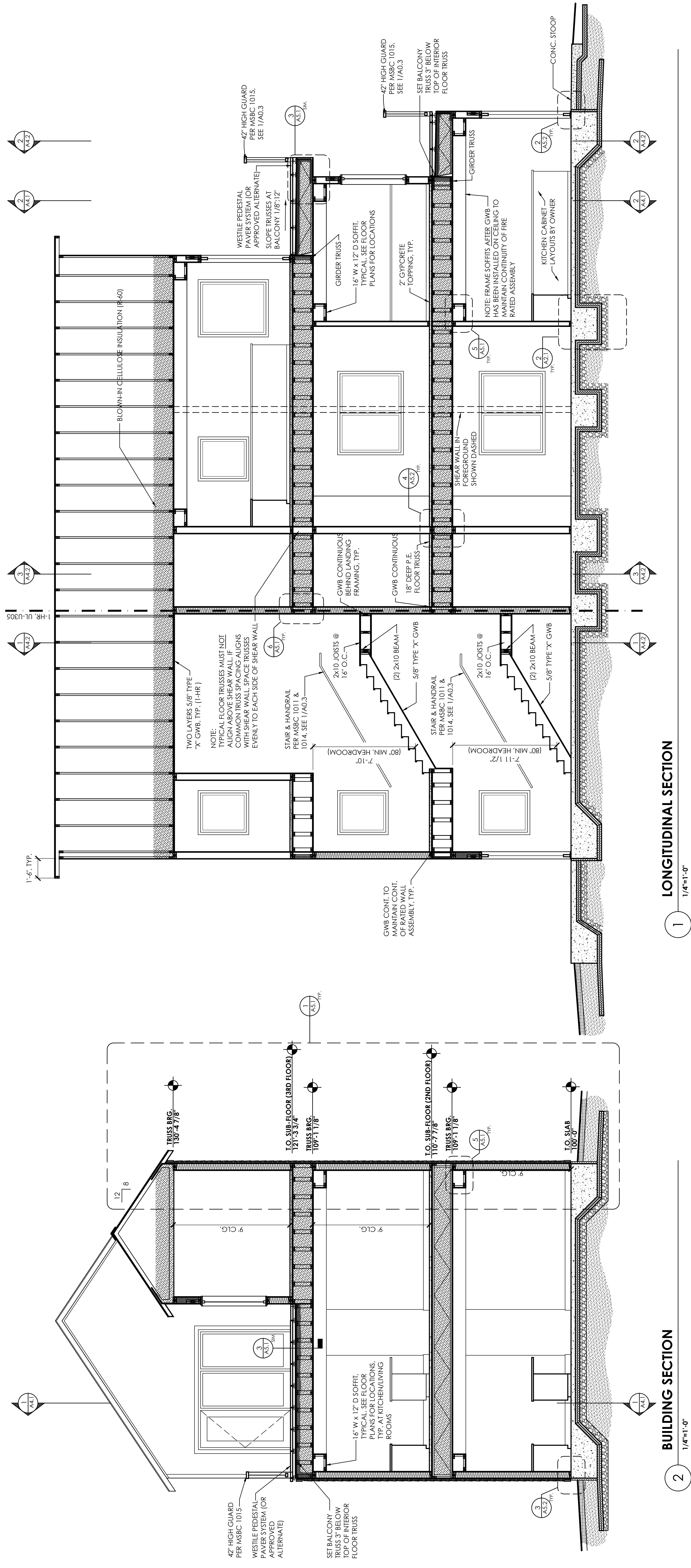
DRAGESTIL HOTEL - BUILDINGS 1, 2, 3
SOUTH LAKE AVENUE / MINNESOTA AVENUE
DULUTH, MN 55802

License # 20379

Date: 5/11/2023
Signature: *Paul A. Johnson*
Paul A. JOHNSON
Professional Engineer

DATE: 5/11/2023
LICENSE NO. 52478
SIGNATURE: *Ryan J. Arola*
RYAN J. AROLA
OF THE STATE OF MINNESOTA.
I HEREBY CERTIFY THIS PLAN, SPECIFICATION,
OR REPORT WAS PREPARED BY ME OR UNDER
MY DIRECT SUPERVISION AND THAT I AM
A DULUTH LICENSED ARCHITECT UNDER THE LAWS

**AROLA**
ARCHITECTURE STUDIO, LLC
501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802
218-740-5219
WWW.AROLAARCH.COM



DRAGESTIL HOTEL - BUILDINGS 1, 2, 3
SOUTH LAKE AVENUE / MINNESOTA AVENUE
DULUTH, MN 55802

1

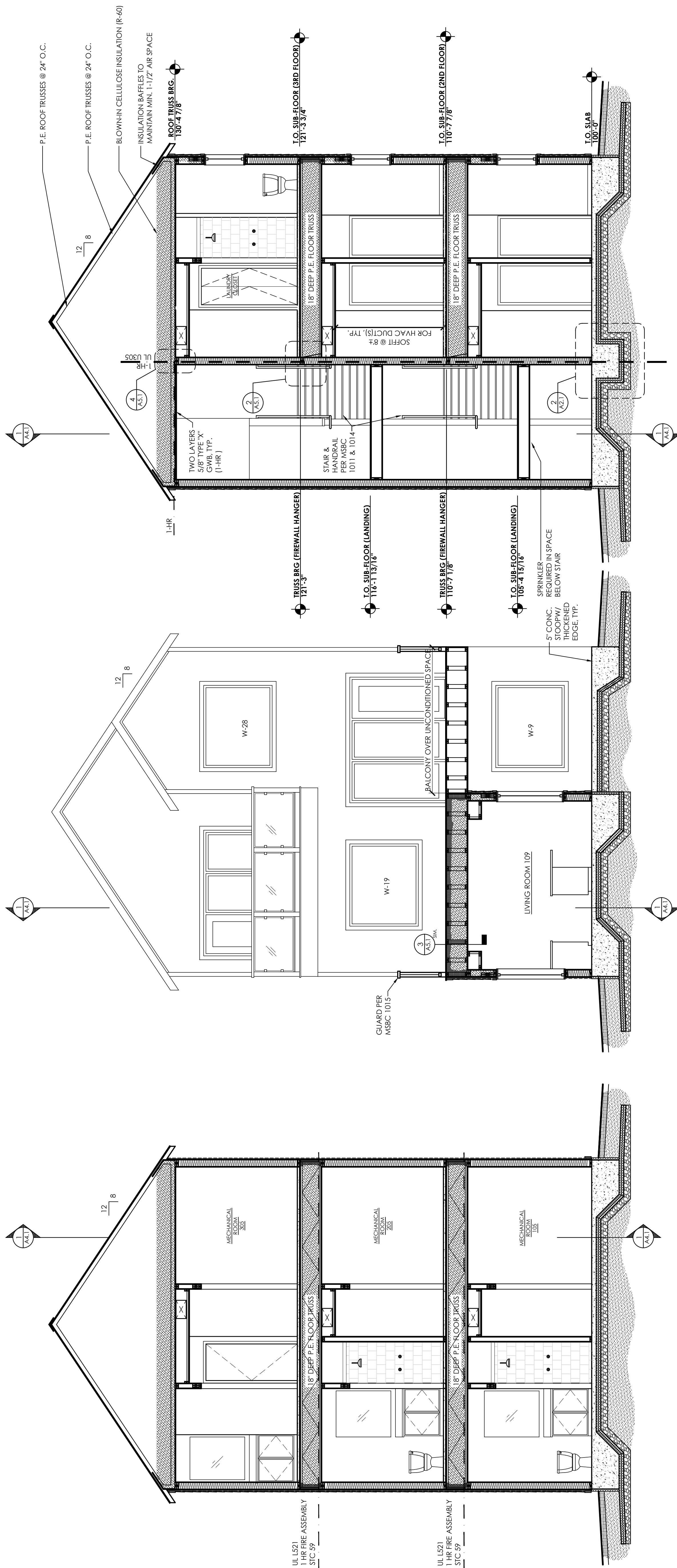
Print Name: Paul Johnson
Signature: Paul Johnson

AN J. AROLA
LIC 023

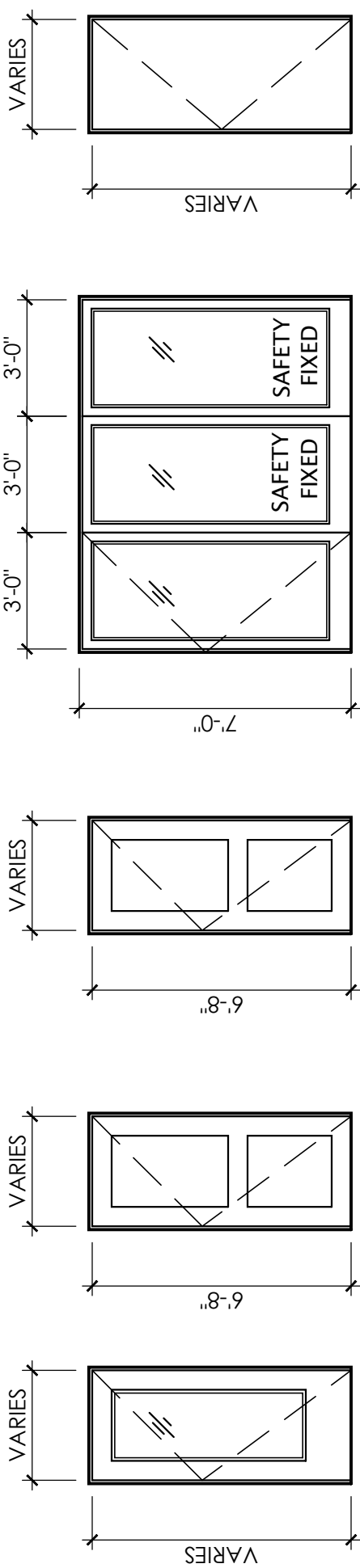
42



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501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802
218-740-5219
WWW.AROLARCH.COM



DOOR TYPES



*VERIFY INTERIOR DOOR STYLE W/ OWNER
*REFER TO DOOR SCHEDULE FOR UNIT SIZES
*FINAL DOOR SELECTIONS BY OWNER
*SAFETY GLAZING REQUIRED; ALL DOORS

DOOR SCHEDULE

DOOR NO.	DOOR SIZE	DOOR TYPE	DOOR FINISH	FRAME TYPE	FRAME FINISH	HWYR TYPE	FIRE RATING	COMMENTS
100	3'-0" x 6'-8"	D-1	PRE-FIN.	-	-	H-1	-	
101	3'-0" x 6'-8"	D-5	PRE-FIN.	-	-	H-1	1-HR RATED	
102	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
103A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
103B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
104	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
105	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
106	3'-0" x 6'-8"	D-1	PRE-FIN.	-	-	H-4		
107A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
107B	2'-4" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		OUTSWING PATIO DOOR UNIT
107	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		
201	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
202A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
202B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
203	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
204	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
205	3'-0" x 6'-8"	D-3	PRE-FIN.	-	-	H-4		
206A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
206B	2'-4" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		OUTSWING PATIO DOOR UNIT
207	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		
301	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
302A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
302B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
303	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
304A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
304B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
305	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-4		
306	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		OUTSWING PATIO DOOR UNIT

HARDWARE GROUPS:

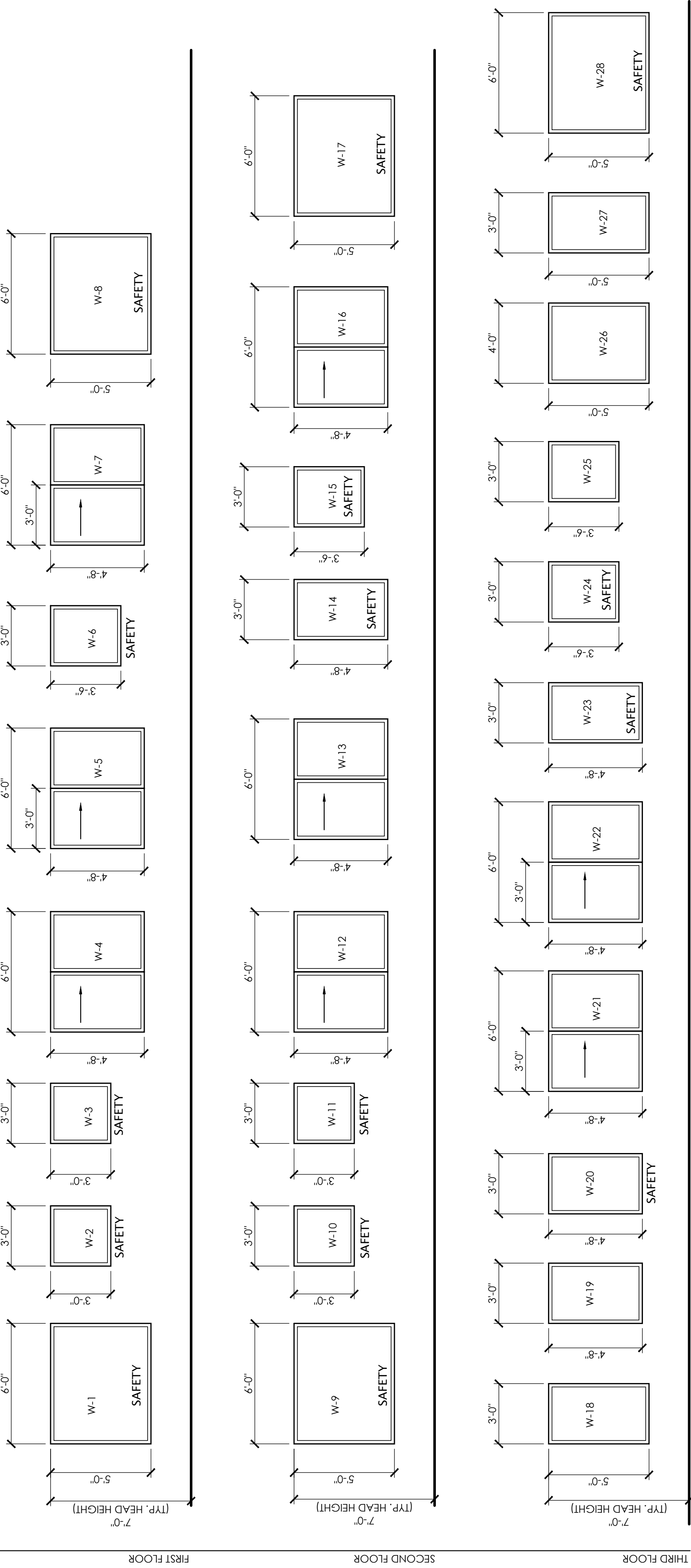
H-1	H-2	H-3
BUTTS	BUTTS	BUTTS
CLOSER	CLOSER	CLOSER
LOCKSET: ENTRANCE	LOCKSET: PASSAGE	LOCKSET: UNIT ENTRY
HOTEL ACCESS LOCK		HOTEL ACCESS LOCK
NO DEADBOLT	WALLSTOP	NO DEAD HOTEL ACCESS LOCK
GASKET		WALLSTOP
SWEEP		GASKET
THRESHOLD		SWEEP
		THRESHOLD
H-4	H-5	H-6
BUTTS	BUTTS	
CLOSER	CLOSER	
LOCKSET: KEYED DEADBOLT	LOCKSET: PRIVACY	
WITH THUMB TURN	WALLSTOP	
WALLSTOP		

DOOR SCHEDULE NOTES:

1. VERIFY VERIFY LOCKSET SELECTIONS WITH OWNER
2. PROVIDE KNOXBOX FOR FIRE DEPARTMENT ACCESS

WINDOW SCHEDULE - BUILDINGS #1, 2, 3

*PROVIDE WINDOW OPENING CONTROL DEVICES PER MSBC 1015.8.1





ARCHITECTURE STUDIO, LLC
218-740-5219
WWW.AROLAARCH.COM

501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802

SIGNATURE
RYAN J. AROLA

DATE
5/11/2023

LICENSE NO. 52478

I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULUTH LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

Stamp: **DULUTH**

PAUL A. JOHNSON

Signature: *Paul Johnson*

License #
20379

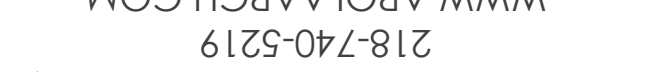
Date
5/11/2023

Construction Services & Inspections
MSBC 2020
Reviewed for Code Compliance
Chris Machmer 10/06/2023

DULUTH, MN 55802

SOUTH LAKE AVENUE / MINNESOTA AVENUE


DRAGESTIL HOTEL - BUILDINGS 1, 2, 3

<div style="text-align: center;">  <p>AROLA ARCHITECTURE STUDIO, LLC</p> </div> <p>501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802 218-740-5219 WWW.AROLAARCH.COM</p>	<p>I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p>SIGNATURE <u><i>Ryan J. Arola</i></u> RYAN J. AROLA DATE <u>5/11/2023</u> LICENSE NO. <u>52478</u></p>
<p>PAUL A. JOHNSON <i>Paul A. Johnson</i> Signature</p>	
<p>DATE <u>5/11/2023</u> License # <u>20379</u></p>	

L HOTEL - BUILDINGS 1, 2
 AVENUE / MINNESOTA AVENUE
 55802

ISSUE DATE 5/19/2023	PROJECT NO. 2166	REVIEWS		SHEET NO. A7.1
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[illegible]



 Classified by
 Underwriters Laboratories
 for use in UL 1009 and CANULC S115

System No. F-C-1009

ANSUL L79 (ASTM E84)	CANULC S115
F Rating — 1 and 2 Hr (See Item 1)	F Rating — 1 and 2 Hr (See Item 1)
T Rating — 1/4 Hr	FT Rating — 1/4 Hr
L Rating At Ambient — Less Than 1 CFM/sq. ft	FT Rating — 1 and 2 Hr (See Item 1)
L Rating At 400°F — 4 CFM/sq. ft	FT Rating — 1/4 Hr
	L Rating At Ambient — Less Than 1 CFM/sq. ft
	L Rating At 400°F — 4 CFM/sq. ft

SECTION A-A

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the U.L. Fire Resistance Directory. The F Rating of the firestop system is equal to the rating of the floor-ceiling assembly. The general construction features of the floor-ceiling assembly are summarized below:
 - A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or floor "topping moisture" as specified in the individual L500 Series Designs in the U.L. Fire Resistance Directory. The finish floor shall be at least 1/2" (13 mm) thicker than the dimension of the subfloor, a maximum dimension 1 in. (25 mm) greater than the diameter of the pipe.
 - B. Wood Joists — Nom. 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members, with bridging as required and with ends firestopped.
 - C. Furring Channels — (Not Shown) — (As required) Resilient galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the U.L. Fire Resistance Directory.
 - D. Fire-Resistant Sealant — (As required) Fire-resistant sealant shall be as specified in the individual Floor-Ceiling Design. Daim of opening to be max. 1 in. (25 mm), larger than diam. of pipe.


Hilti Firestop Systems

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 January 15, 2015

Page 1 of 2

Page 2 of 2

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January 15, 2015

Hilti Firestop Systems

System No. F-C-0002

FC 0002

2. Chase Wall — (Optional). The 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board chase wall shall be constructed of the materials and in the manner specified in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs — Nom 2 by 4 in x 2 by 6 in, (51 by 102 or 51 by 152 mm) lumber studs.
 - Sole Plate — Nom 2 by 4 in or 2 by 6 in, (51 by 102 or 51 by 152 mm) lumber plates.
 - Gypsum Board — One side top plate shall consist of two min of 2 by 4 in, (51 by 102 or 51 by 152 mm) lumber planks. Max dim of opening ≤ 1 m.
 - Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
 - Fill Void or Cavity Material+ — Sealant— Min .34 in, (.19 mm) thickness of fill material applied within the annulus on top surface of floor or sole plate of chase wall. Min .58 in, (.16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the ceiling or lower top plate.
3. HLT CONSTRUCTION CHEMICALS, DIV OF HILTI INC.— FS ONE Sealant, FS ONE MAX Intranslucent Sealant or CP805 Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

UL LISTED
Classified by
UL Solutions
to UL 1479 and CANULC S115

System No. F.C.-0002

ANSI/UL 1479 (ASTM E834)	CANULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 1 and 2 Hr (See Item 1)	FT Ratings — 1 and 2 Hr (See Item 1) FH Ratings — 1 and 2 Hr (See Item 1) FTH Ratings — 1 and 2 Hr (See Item 1)

SECTION A-A

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:

- A. Floor System — Lumber or plywood subfloor with finish floor of lumber; plywood or Floor Topping Mixture^a as specified in the individual Floor-Ceiling Design.
- B. Wood Joins^b — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members^c with bridging as required and with ends fastened.
- C. Furring Channels^d — (Not Shown) — Resilient galv steel lurring installed perpendicular to wood joists between board and wood joists as required in the individual Floor-Ceiling Design. Furring channels spaced max. 24 in. (610 mm) OC.
- D. Gypsum Board^e — Nom 4 ft (122 cm) wide by 3/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. Gypsum board shall be installed in accordance with the requirements of the UL Fire Resistance Directory.

The F, FH and 1, FT, FTH Ratings of the freestop system are equal to the hourly fire rating of the floor-ceiling assembly in which it is installed.

Hilti
Hilti Freestop Systems

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January 15, 2015

Page: 1 of 2

0600 SMH

System No. HW-S-0090

0600 SMH

ANSI/UL2079

Assembly Rating — 1 HR

Joint Width — 1/2 in. Max.

CANULC S115

F Rating — 1 HR

F Rating — 1 HR

FH Rating — 1 HR

FTH Ratings — 1 HR

Joint Width — 1/2 in. Max.

1. **Fire Assembly** — The 1 hr fire-rated wood joist, wood trusses or combination wood joist and steel trusses shall be constructed of the materials and in the manner described in the individual L500 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Flooring System** — Lumber or plywood subfloor with finish floor, plywood or Floor Topping Material¹ as specified in the individual Floor-Ceiling Design.
- B. **Wood Joists** — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Joist Beams.
- C. **Gypsum Board** — Nom 4 ft. (122 mm) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design.

2. **Wall Assembly** — The 1 hr rated gypsum board/lumber stud wall assembly shall be constructed of the materials and in the manner described in the individual L030 Series Fire Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** — Wall framing to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Top plate installed parallel or perpendicular to direction of wood joists and secured to bottom of joists with steel fasteners spaced max 24 in. (610 mm) OC.
- B. **Sealant** — Sealant shall be applied to the bottom of the wall assembly and shall be applied to the bottom of the wall assembly as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a max 1/2 in. (13 mm) gap shall be maintained between the top of the gypsum board and the ceiling of the floor-ceiling assembly.
- 3. **Joint System** — Fill, Void or Cavity Material² — Sealant — Max separation between the bottom of the ceiling and the top of the wall is 1/2 in. (13 mm).

1. HLT CONSTRUCTION CHEMICALS, DIV OF HLT INC. — FS-ONE Sealant, Opti-Sealant or FS-ONE MAX Inexpensive Sealant.
 2. HLT CONSTRUCTION CHEMICALS shall bear the UL or cUL Certification Mark or products employing the UL or cUL Certification (such as CertiSeal), respectively.

ANSI/UL2079

Assembly Rating — 1 HR

Joint Width — 1/2 in. Max.

CANULC S115

F Rating — 1 HR

F Rating — 1 HR

FH Rating — 1 HR

FTH Ratings — 1 HR

Joint Width — 1/2 in. Max.

1. **Fire Assembly** — The 1 hr fire-rated wood joist, wood trusses or combination wood joist and steel trusses shall be constructed of the materials and in the manner described in the individual L500 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Flooring System** — Lumber or plywood subfloor with finish floor, plywood or Floor Topping Material¹ as specified in the individual Floor-Ceiling Design.
- B. **Wood Joists** — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Joist Beams.
- C. **Gypsum Board** — Nom 4 ft. (122 mm) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design.

2. **Wall Assembly** — The 1 hr rated gypsum board/lumber stud wall assembly shall be constructed of the materials and in the manner described in the individual L030 Series Fire Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. **Studs** — Wall framing to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Top plate installed parallel or perpendicular to direction of wood joists and secured to bottom of joists with steel fasteners spaced max 24 in. (610 mm) OC.
- B. **Sealant** — Sealant shall be applied to the bottom of the wall assembly and shall be applied to the bottom of the wall assembly as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a max 1/2 in. (13 mm) gap shall be maintained between the top of the gypsum board and the ceiling of the floor-ceiling assembly.
- 3. **Joint System** — Fill, Void or Cavity Material² — Sealant — Max separation between the bottom of the ceiling and the top of the wall is 1/2 in. (13 mm).

1. HLT CONSTRUCTION CHEMICALS, DIV OF HLT INC. — FS-ONE Sealant, Opti-Sealant or FS-ONE MAX Inexpensive Sealant.
 2. HLT CONSTRUCTION CHEMICALS shall bear the UL or cUL Certification Mark or products employing the UL or cUL Certification (such as CertiSeal), respectively.

ANSI/UL2079

Assembly Rating — 1 HR

Joint Width — 1/2 in. Max.

UL
Listed Product
Classified by
UL 1479
Underwriters Laboratories, Inc.

System No. WL-2178

F Rating — 1 and 2 Hr (See Item 1)
I Rating — 0 Hr

The diagram illustrates the Firestop System assembly. The top portion shows a cross-sectional view of a wall and floor junction. A cylindrical sleeve (labeled 1) is installed through the wall. The sleeve has a flange at the bottom (labeled 2) and a gasket (labeled 3). The wall itself is labeled 4. Section lines A-A are indicated. Below the cross-section is a circular top-down view of the sleeve's end, showing internal details like the gasket and reinforcement. To the right of the main assembly is a section line labeled SECTION AA.

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/wall assembly shall be constructed of the materials and in the manner specified in the individual UG00, U400, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nominal 2 by 4 in. (51 by 102 mm) under spaced 16 in. (406 mm) OC. Steel studs to be min 2 1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
- B. Gypsum Board — Gypsum board shall vary from 5/8 in. (16 mm) thick to 1 1/2 in. (38 mm) thick depending upon the type thickness, number of layers and joint treatment required. All joints shall be reinforced with mesh tape or equivalent.
- C. Fastener Type and Spacing Installation shall be as specified in the individual Wall and Partition Design. Max diam of opening 1/3 - 1/2 in. (8 - 13 mm).
- D. Metallic Sleeve Optional — Nom 3 - 1/2 in. (89 mm) (or smaller) cylindrical sleeve fabricated from min 0.016 in. thick (28 gauge) galv steel sheet and having a min 1 - 1/4 in. (32 mm) lip along longitudinal seam. Length of sleeve to be installed flush with wall surfaces.
- E. Penetrations — One nonmetallic pipe installed within the firestop system. Pipe may be installed at an angle not greater than 45 degrees to vertical. Penetration shall be sealed with a minimum of 1 1/2 in. (38 mm) of nonmetallic material. Penetration shall be installed in accordance with UL 1479, (6 mm) max hole size. The following types and sizes of nonmetallic pipes may be used:
 - A. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) (or smaller) Schedule 40 PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) SDK133 CPVC pipe for use in closed (process or supply) piping systems.
 - C. Fiberglass Reinforced Plastic (FRP) Pipe — For 1 hr F Rating, nom 58 in. (15 mm) thickness of all material applied within the annulus. Flush with both surfaces of wall. For 2 hr F Rating, nom 1 - 1/4 in. (32 mm) thickness of all material applied within annulus. Flush with both surfaces of wall.
- F. HLT CONSTRUCTION CHEMICALS, DIV OF HULT INC. — FS-ONE Sealant or FS-ONE MAX Fluorescent Sealant.
 - * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

HULT

Firestop Systems

Reproduced by HULT, Inc. Courtesy of
Underwriters Laboratories, Inc.
January 26, 2015

[illegible]

UL LISTED
Classified by
Underwriters Laboratories Inc.
to UL 1479

System No. FC-C-2203

F Rating — 1 hr
T Rating — 1 hr

FC 2203

1. **Fire Ceiling Assembly.**—The 1 hr fire-rated solid or louvered lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the U.L. Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:

- A. **Flooring System.**—Lumber or plywood subfloor with finish floor of lumber, plywood or floor "topping mixture" as specified in the individual Floor-Ceiling Design.
- B. **Wood Joist.**—Nom. 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, Iusses or Structural Wood Joist Beams.—Nom. 16 in. (406 mm) deep (or deeper).
- C. **Gypsum Board.**—Nom. 5/8 in. (16 mm) thick, 14 ft (4.2 m) wide as specified in the individual Floor-Ceiling Design.
- D. **Closest Flange.**—Acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) closet studs sized to accommodate drain pipe. Closet flange installed over drain piping within floor opening with flange secured to plywood floor with steel screws. Diam. of circular opening through flooring (Item 1A) to be max. 12 in. (305 mm), (13 mm) larger than outside diam. of closet flange.
- E. **Drain Piping.**—Nom. 4 in. (102 mm) diam. (or smaller) Schedule 40 acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) drain pipe.
- F. **Fill, Void or Cavity Material.**—Sealant.—Min. 3/4 in. (19 mm) thickness of fil material applied within the annulus, flush with the bottom surface of floor.
- G. **Water Coat.**—(Not Shown)—Floor mounted vitreous china water coat.

HILTI CONSTRUCTION CHEMICALS, DIV. OF HILTI INC. — FS ONE Sealant or FS ONE MAX Fluorescent Sealant

* Indicates such products shall bear the U.L. or cUL Certification Mark for jurisdictions employing the U.L. or cUL Certification (such as Canada), respectively.

HILTI
Hilti Firestop Systems

Reproduced by HILTI Inc. Courtesy of
Underwriters Laboratories, Inc.
January 6, 2017

NOTE: SELECTED FIRE-STOP DETAILS ARE FOR TYPICAL CONDITIONS. SUB-CONTRACTORS SHALL PROVIDE FIRE-STOP PRODUCT INFORMATION AND DETAIL(S) SPECIFIC TO SITE CONDITIONS AT REQUEST OF BUILDING OFFICIAL

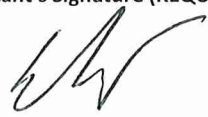

1 FIRE STOPPING DETAILS
NO SCALE



BAB 1-10-24 111
Doc 332-vA052021-0221

Commercial and 3+ Multi-family Plan Review & Building Permit Application

Complete All Items and the Checklist

Project Name Dragestil Hotel - Building #2		Application Date 4/6/2023	
Site Address 723 S. Lake Ave		Parcel ID Number 010-4380-02380	
Legal Description: Subdivision, Lot & Block or other description Lots 228, 230, 232,234, & 236 INCLUDING LOT 229 MN AVE.			
Applicant Name HEIRLOOM CONSTRUCTION		Applicant is: Owner <input type="checkbox"/> Contractor <input checked="" type="checkbox"/> Owner's Agent <input type="checkbox"/> Contractor license #: BC695608	
Applicant Address 204 E 1ST STREET		City DULUTH	State MN Zip 55802
Applicant Email (REQUIRED) danb@rentwithheirloom.com		Applicant Phone (REQUIRED) 218-590-6917	
Owner Name Park Point Land Co., LLC			
Owner Address P.O. BOX 3144		City DULUTH	State MN Zip 55803
Owner Email (REQUIRED) mike@rentwithheirloom.com		Owner Phone (REQUIRED) 218-269-9691	
Detailed Description of proposed work: Residential (1 or 2 Family or Townhouse) <input type="checkbox"/> Multi-family Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Construction of (4) four buildings; three stories each, 1 rental unit on each floor			
Check Applicable: Interior Remodel w/ Change of Use <input type="checkbox"/> Interior Remodel No Change of Use <input type="checkbox"/> Demolition <input type="checkbox"/> <input checked="" type="checkbox"/> New Building Addition <input type="checkbox"/> Sitework/Foundation Only <input type="checkbox"/> Other <input type="checkbox"/>			
Project Valuation. Include materials and labor for all work: \$826,250			
Permit Fee:		Plan Review Fee:	State Surcharge: Total Enclosed:
Design Professional (Architect or Engineer) or Plan Preparer Name Arola Architecture Studio, Jed Lahti			
Design Professional or Plan Preparer Address 501 S. Lake Ave, #205		City Duluth	State MN Zip 55802
Design Professional or Plan Preparer Email (REQUIRED) jed@arolaarch.com		Phone (REQUIRED) 218-740-5219	
Commercial Multi-Family	Occupancy Use Group(s) circle: A B E F H I M R S U R		Sprinklered? No <input type="checkbox"/> NFPA 13 <input checked="" type="checkbox"/> NFPA 13 R <input type="checkbox"/>
	Type(s) of Construction (circle): IA IB IIA IIB IIIA IIIB IV VA VB VB		Food Service Facility? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> State Const. Project # - If applicable
Does the project site or any area to be disturbed by construction contain wetlands? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes			
I do hereby make application for a building permit. The application and accompanying documents are complete and accurate. Work shall be consistent with the plans and information provided with the permit application and shall comply with applicable codes, ordinances and laws and conditions of approval. Work shall not begin until a building permit has been issued. I am the owner of the property described herein and I authorize the submittal of a permit application for the work described here and on accompanying plans, specifications, and other construction documents.		Applicant's Signature (REQUIRED) 	
		Owner's Signature (REQUIRED) 	

Office Use

Zone District:

Stormwater Zone:

Special Approvals:

LUTech:

duluthmn.gov/csi | 218-730-5240 | permissingservices@duluthmn.gov





Plan Review Comment Sheet (PRC)



Date: October 10, 2023
Address: 715 S Lake Ave
Permit #: BBLDG2304-022
Description: Dragestil Hotel – 3-unit Building 2

**Do Not Detach from
 Site Copy of
 Stamped Reviewed Plans.**

- Plan review is based upon the provisions of the 2020 Minnesota State Building Code.
- Plan approval is conditional upon compliance with all of the following and all plan review notes on plans.
- Approval of plans, specifications or computations shall not be construed to be a permit for any violation of the building code or any other applicable code or ordinance. MSBC 1300.0120, Subp. 10
- One set of the approved construction documents shall be kept at the site of work and open to inspection by the building official, inspectors and other Construction Services staff. MSBC 1300.0130, Subp. 6

Changes to Plans - Code related changes to issued permit plans must be submitted to Construction Services for review and approval prior to the changes being started. Go to the site below & follow the plan change submittal procedure.

<http://www.duluthmn.gov/construction-services-inspections/plan-change-submittals/>

Information & Conditions for Code Compliance

1. Project Contact Information

2. Code Information

Architect Firm: Arola Architecture, 218-740-5219	Occupancy Classification for Project: R-1
Structural Engineer: MJB, 218-310-4329	Occupancy Classification for Building: R-1
Owner: Park Point Land Co., 218-269-9691	Change of Occupancy Classifications for Building: N/A
Applicant: Heirloom Construction, 218-590-6917	Construction Type: VB
Inspector: Dave Hjelle, 218-409-5414	Special Inspections: YES
Plan Reviewer: Chris Machmer, 218-730-5247	Code: MSBC 2020 Sprinkled: NFPA 13

3. Mechanical, Electrical, Plumbing, Sprinkler Work

No mechanical, electrical, plumbing, or sprinkler work may proceed prior to obtaining a separate permit for each discipline. Mechanical, electrical, plumbing, and sprinkler plans have not been reviewed at this time.

4. Means of Egress Illumination, Fire Extinguishers, and Exit Signage

Work with the building inspector and Fire Marshal to appropriately site Means of Egress Illumination, Fire Extinguishers, and Exit signage.

5. Staked Property Lines

Property lines must be staked by a licensed land surveyor prior to start of construction activities. Stakes shall be maintained throughout the project, and replaced as necessary if disturbed.

6. Site Control – Site Work, Adjacent Structures, and Surface Runoff

This is a sensitive site. The contractor must take strict measures to ensure that site disturbance and site runoff will not extend beyond property boundaries onto adjacent property or ROW. Oversize excavation may not extend beyond the property line. Adjacent structures, such as retaining walls, shall not be impacted by construction activities.

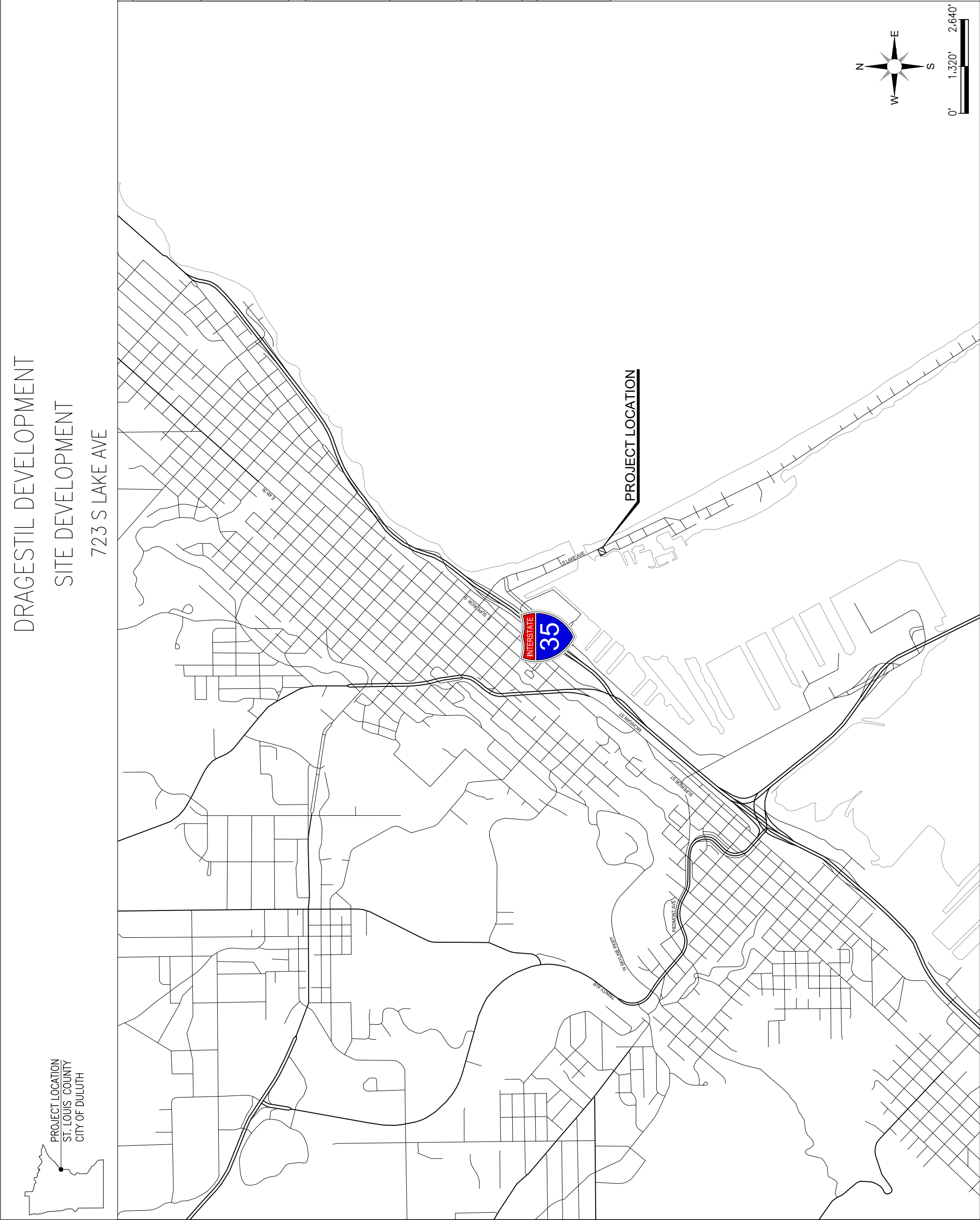
7. Pre-Construction Meeting

It is the applicant's responsibility to contact the inspector before work begins.

Inspections

The Construction Inspector assigned to this project is **Dave Hjelle 218-409-5414**. Please contact all City Inspectors a minimum of 24 hours in advance to schedule inspections. Inspections are required by the building code. **Failure to call for required inspections, including a final inspection for all permitted work, is a violation of the code.**

Delayed Submittals as required by MSBC 1300.0130, Subp. 9B:			
Description	Due By	Date Received	Information Location
ASI's impacting building code items – complete plan change form: Link on first page	When issued to the project		
Firestopping details – Engineering Judgments specific to the project, standard details in addition to those provided	Prior to installation		
Shop Drawings for roof trusses - Engineer to review and approve prior to submittal	Prior to installation		
Shop Drawings for floor trusses - Engineer to review and approve prior to submittal	Prior to installation		



DRAGESTIL DEVELOPMENT
SITE DEVELOPMENT
723 S LAKE AVE

PROJECT LOCATION
ST. LOUIS COUNTY
CITY OF DULUTH

1-800-252-1166

The map displays the city of Duluth, Minnesota, with a focus on the area around Interstate 35. A callout labeled "PROJECT LOCATION" points to a specific spot on I-35, just north of Superior St. The map shows a dense grid of streets, including Superior St, Washington St, Spruce St, and others. A compass rose in the top right corner indicates North (N), South (S), East (E), and West (W). A scale bar below the compass rose shows distances of 0', 1,320', and 2,640'. The Interstate 35 shield is visible on the highway.

Structural, Civil and Forensic Engineering Services
www.nce-engineers.com

DRAGESTIL DEVELOPMENT
SITE DEVELOPMENT
723 S LAKE AVE

Voice: (218) 271-5995
Fax: (218) 271-7779

Engineer: David G. Boll
04/07/23
Lic. No: 40926

hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

revision

BAB

Proj: 22-339
Date: 04/07/23
Drawn: CAE
Checked: DGB

114
TITLE

Sheet Title
Sheet Number
1

Construction Services & Inspections
Reviewed for Code Compliance
MSBC 2020
Chris Machmer 10/23/2023

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE

ENGINEER'S AUTHORITY

THE ENGINEER SHALL GIVE ALL ORDERS AND DIRECTIONS CONTEMPLATED UNDER THIS CONTRACT AND SPECIFICATIONS RELATIVE TO THE EXECUTION OF THE WORK. THE ENGINEER SHALL DETERMINE THE AMOUNT, QUALITY, ACCEPTABILITY, AND FITNESS OF THE SEVERAL KINDS OF WORK AND MATERIALS WHICH ARE TO BE PAID FOR UNDER THIS CONTRACT AND SHALL DECIDE ALL QUESTIONS WHICH MAY ARISE IN RELATION TO SAID WORK AND THE CONSTRUCTION THEREOF.

THE ENGINEER'S ESTIMATES AND DECISIONS SHALL BE FINAL AND CONCLUSIVE, EXCEPT AS HEREIN OTHERWISE EXPRESSLY PROVIDED. IN CASE ANY QUESTIONS SHALL ARISE BETWEEN THE PARTIES HERETO RELATIVE TO SAID CONTRACT OR SPECIFICATIONS, THE DETERMINATION OF DECISION OF THE ENGINEER SHALL BE A CONDITION PRECEDENT TO THE RIGHT OF THE CONTRACTOR TO RECEIVE ANY MONEY OR PAYMENT FOR WORK UNDER THIS CONTRACT AFFECTED IN ANY MANNER OR TO ANY EXTENT BY SUCH QUESTION.

THE ENGINEER SHALL DECIDE THE MEANING AND INTENT OF ANY PORTION OF THE SPECIFICATIONS AND OF ANY PLAN OR DRAWINGS WHERE THE SAME MAY BE FOUND OBSCURE OR BE IN DISPUTE. ANY DIFFERENCES OR CONFLICTS IN REGARD TO THEIR WORK WHICH MAY ARISE BETWEEN THE CONTRACTOR UNDER THIS CONTRACT AND OTHER CONTRACTORS PERFORMING WORK FOR THE OWNER SHALL BE ADJUSTED AND DETERMINED BY THE ENGINEER.

THE CONTRACTOR IS TO FURNISH THE ENGINEER OR SUPERVISOR WITH ALL REQUIRED ASSISTANCE TO FACILITATE THOROUGH INSPECTION, OR CULLING OVER REMOVAL OF DOUBTFUL OR DEFECTIVE MATERIAL, OR FOR THE THOROUGH EXAMINATION INTO ANY OF THE WORK PERFORMED, OR FOR ANY OTHER PURPOSE REQUIRED IN THE DISCHARGE OF THEIR DUTIES, FOR WHICH SERVICE NO ADDITIONAL ALLOWANCE WILL BE MADE. THE ENGINEER OR SUPERVISOR MAY STOP THE WORK ENTIRELY IF THERE IS NOT SUFFICIENT QUANTITY OF SUITABLE AND APPROVED MATERIALS ON THE SITE TO CARRY IT ON PROPERLY, OR FOR ANY GOOD AND SUFFICIENT CAUSE; ALSO TO SEE THAT ALL OF THE PROVISIONS OF THIS CONTRACT AND SPECIFICATION ARE FAITHFULLY ADHERE TO, AND SHALL HAVE THE POWER TO DISMISS ANY EMPLOYEE OF THE CONTRACTOR FOR INCOMPETENCE, INTOXICATION, WILLFUL NEGLIGENCE, OR DISREGARD OF ORDERS.

THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE ACTS OF OMISSIONS OF THE CONTRACTOR, OR ANY SUBCONTRACTORS, OR ANY OF THE THEIR SUPERINTENDENCE, AGENTS, OR EMPLOYEES.

CHANGES IN WORK

NO CHANGES IN THE WORK COVERED BY THE APPROVED CONTRACT DOCUMENTS SHALL BE MADE WITHOUT HAVING PRIOR WRITTEN APPROVAL BY THE ENGINEER.

AMERICANS WITH DISABILITIES ACT (ADA)

ALL PEDESTRIAN FACILITIES ON THIS PROJECT MUST BE CONSTRUCTED ACCORDING TO PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) WHICH CAN BE FOUND AT: <http://www.dot.state.mn.us/ada/pdf/PROWAG.pdf> and MnDOT STANDARD PLANS 5-297.250 & 5-297.254

THE CONTRACTOR MUST DESIGNATE A RESPONSIBLE PERSON COMPETENT IN ALL ASPECTS OF PROWAG TO ASSESS PROPOSED SIDEWALK LAYOUT AT EACH SITE BEFORE WORK BEGINS. THE DESIGNATED PERSON MUST HAVE ATTENDED THE MnDOT ADA CONSTRUCTION CERTIFICATION COURSE AND RECEIVED A PASSING SCORE, WITHIN THE PAST 3 YEARS. FOR CLASS DATES AND LOCATIONS PLEASE REFER TO THE FOLLOWING LINK AT: <http://www.dot.state.mn.us/ada/training.html>. A MINIMUM OF ONE PERSON PER PROJECT MUST POSSESS A VALID ADA CONSTRUCTION CERTIFICATION CARD ANYTIME ADA WORK IS BEING PERFORMED ON THE PROJECT. IF WORK ON ELECTRICAL COMPONENTS IS THE ONLY ADA WORK TAKING PLACE ON THE PROJECT THE ELECTRICIAN MUST HAVE IN THEIR POSSESSION A CURRENT MnDOT SIGNALS AND LIGHTING CERTIFICATION.

THE CONTRACTOR AND THE ENGINEER SHALL WORK TOGETHER TO CONSTRUCT ALL PEDESTRIAN FACILITIES SET FORTH IN THE PLANS AND REQUIREMENTS OF PROWAG.

IF THE PLAN OR SITE CONDITIONS DO NOT ALLOW ACCESSIBILITY STANDARDS TO BE MET, THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER TO DETERMINE A RESOLUTION. THE ENGINEER SHALL RESPOND TO THE CONTRACTOR, IN A TIMELY MANNER (UP TO 24 HOURS), WITH A SOLUTION ON HOW TO PROCEED. THE CONTRACTOR SHALL MITIGATE ANY POTENTIAL DELAYS BY PROGRESSING OTHER AVAILABLE WORK ON THE PROJECT.

IF THE CONTRACTOR CONSTRUCTS ANY PEDESTRIAN FACILITIES THAT ARE NOT PER PLAN, DO NOT MEET THE REQUIREMENTS OF PROWAG, OR DO NOT FOLLOW THE AGREED UPON RESOLUTION WITH THE ENGINEER, THE CONTRACTOR WILL BE RESPONSIBLE FOR CORRECTING THE DEFICIENT FACILITIES WITH NO COMPENSATION PAID FOR THE CORRECTIVE WORK.

SURVEY STAKES & BENCHMARKS

THE CONTRACTOR IS RESPONSIBLE FOR ALL STAKING OPERATIONS UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS.

IF NOTED IN THE CONTRACT DOCUMENTS FOR THE OWNER TO PROVIDE STAKING OPERATIONS, THE CONTRACTOR SHALL GIVE THE ENGINEER AT LEAST 72 HOURS NOTICE IN WRITING BEFORE REQUIRING ANY SURVEYS OR CONSTRUCTION STAKES TO BE SET, OR BEFORE COMMENCING WORK ON ANY PORTION OF THE CONTRACT, OR AT ANY NEW PLACE, AS WELL AS AT ANY PLACE WHERE WORK HAS BEEN RELINQUISHED OR STOPPED FOR ANY CAUSE.

THE CONTRACTOR IS RESPONSIBLE FOR THE PRESERVATION OF ALL SUCH STAKES AND BENCH MARKS IN THEIR PROPER POSITIONS, AND IN CASE OF ANY OF THEM BEING LOST, DESTROYED, OR OBLITERATED AFTER ONCE HAVING BEEN GIVEN, THE CONTRACTOR SHALL AT ONCE NOTIFY THE OWNER IN WRITING AND ALL EXPENSE INCURRED BY THE OWNER IN REPLACING THE SAME MAY BE CHARGED AGAINST THE CONTRACTOR AND DEDUCTED FROM THE ESTIMATES.

GENERAL CIVIL NOTES

SHOP DRAWINGS

SHOP DRAWINGS FOR THE FOLLOWING ITEMS, BUT NOT LIMITED TO, SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION IF APPLICABLE;

- A. BITUMINOUS MIX DESIGN
- B. CONCRETE MIX DESIGN
- C. STORM SEWER COMPONENTS
- D. WATER MAIN COMPONENTS
- E. SANITARY SEWER COMPONENTS
- F. CONCRETE STRUCTURES
- G. STORM WATER TREATMENT MATERIALS
- H. GEOSYNTHETIC PRODUCTS

DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD; THEREFORE, THEY SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY THE ENGINEER OF RECORD. CONTRACTOR SHALL REVIEW DRAWINGS FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, AND ALL SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO. SUBMITTALS SHALL INCLUDE ONE ELECTRONIC COPY TO BE MARKED AND RETURNED.

SHOP DRAWING SUBMITTALS PROCESSED BY THE ENGINEER ARE NOT CHANGE ORDERS. THE PURPOSE OF SHOP DRAWING SUBMITTALS BY THE CONTRACTOR IS TO DEMONSTRATE TO THE ENGINEER THAT THE CONTRACTOR UNDERSTANDS THE DESIGN CONCEPT BY INDICATING WHICH MATERIAL IS INTENDED TO BE FURNISHED AND INSTALLED AND BY DETAILING THE INTENDED FABRICATION AND INSTALLATION METHODS, IF DEVIATIONS, DISCREPANCIES, OR CONFLICTS BETWEEN SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS ARE DISCOVERED EITHER PRIOR TO OR AFTER SHOP DRAWING SUBMITTALS ARE PROCESSED BY THE ENGINEER. THE DESIGN DRAWINGS AND SPECIFICATION SHALL CONTROL AND SHALL BE FOLLOWED.

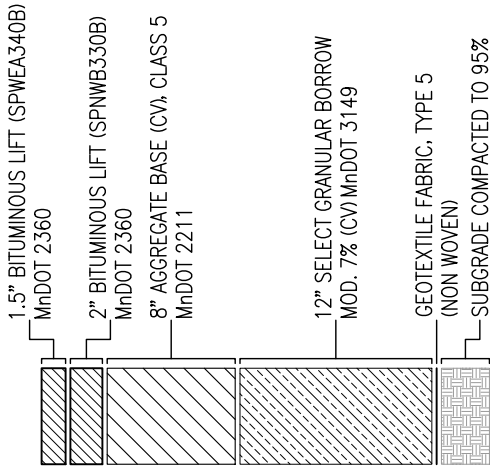
UTILITIES

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS TO UTILITY LEVEL "D" AS DEFINED BY C/ASCE 38-02. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "GSOC" AT (1-800-252-1166) TWO WORKING DAYS PRIOR TO ANY EXCAVATION OR CONSTRUCTION.

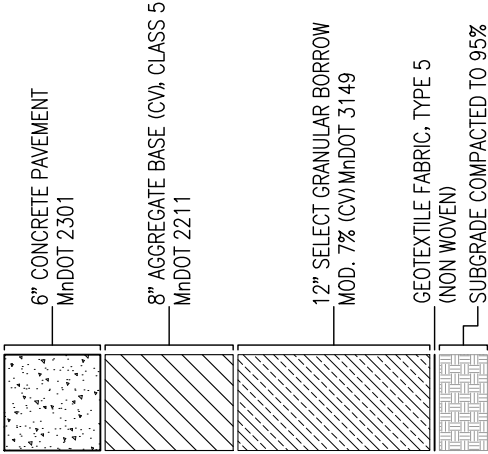
GEOTECHNICAL & MATERIAL TESTING

THE CONTRACTOR SHALL VERIFY RECOMMENDATIONS NOTED IN THE GEOTECHNICAL REPORT PRIOR TO INSTALLATION OF SITE IMPROVEMENT MATERIALS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN THE GEOTECHNICAL REPORT AND THE PLANS.

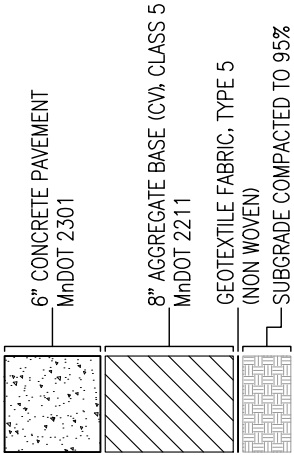
OWNER HAS OPTION TO COMPLETE QUALITY ASSURANCE OF MATERIAL TESTING. MATERIAL TESTING SHALL FOLLOW THE MnDOT SCHEDULE OF MATERIAL CONTROL UNLESS NOTED IN THE CONTRACT DOCUMENTS.



1 BITUMINOUS SECTION
SCALE: 1" = 12"

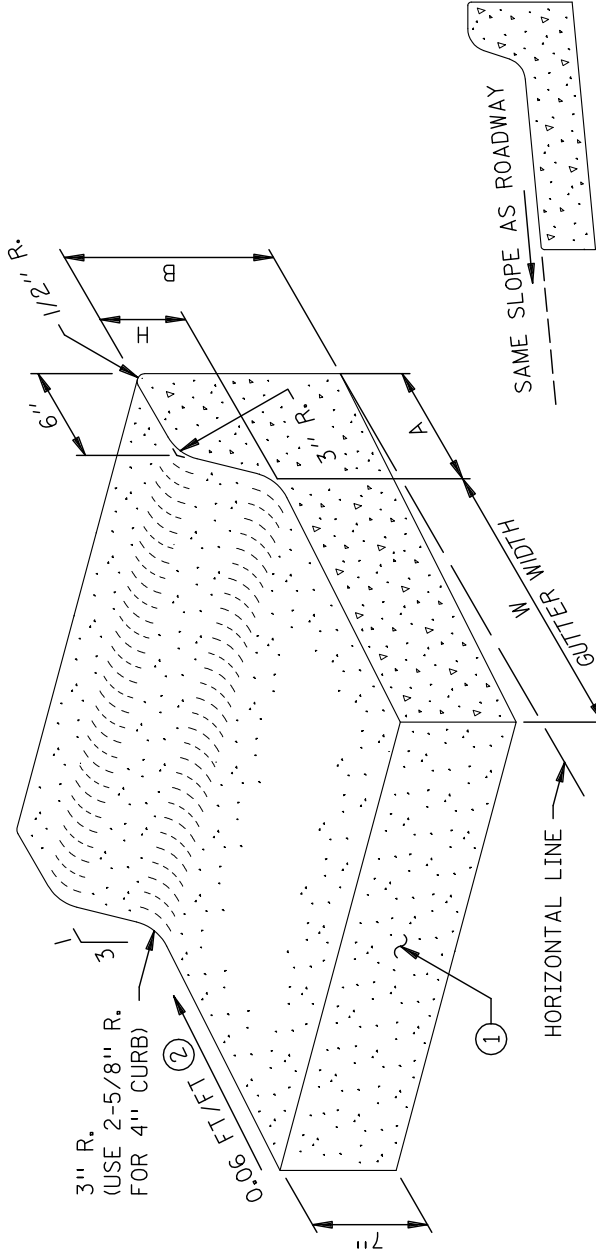


2 CONCRETE SECTION
SCALE: 1" = 12"



3 CONCRETE WALK
SCALE: 1" = 12"

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE



DESIGN B
REVERSE SLOPE GUTTER SECTION
(FORMS MAY BE TILTED)

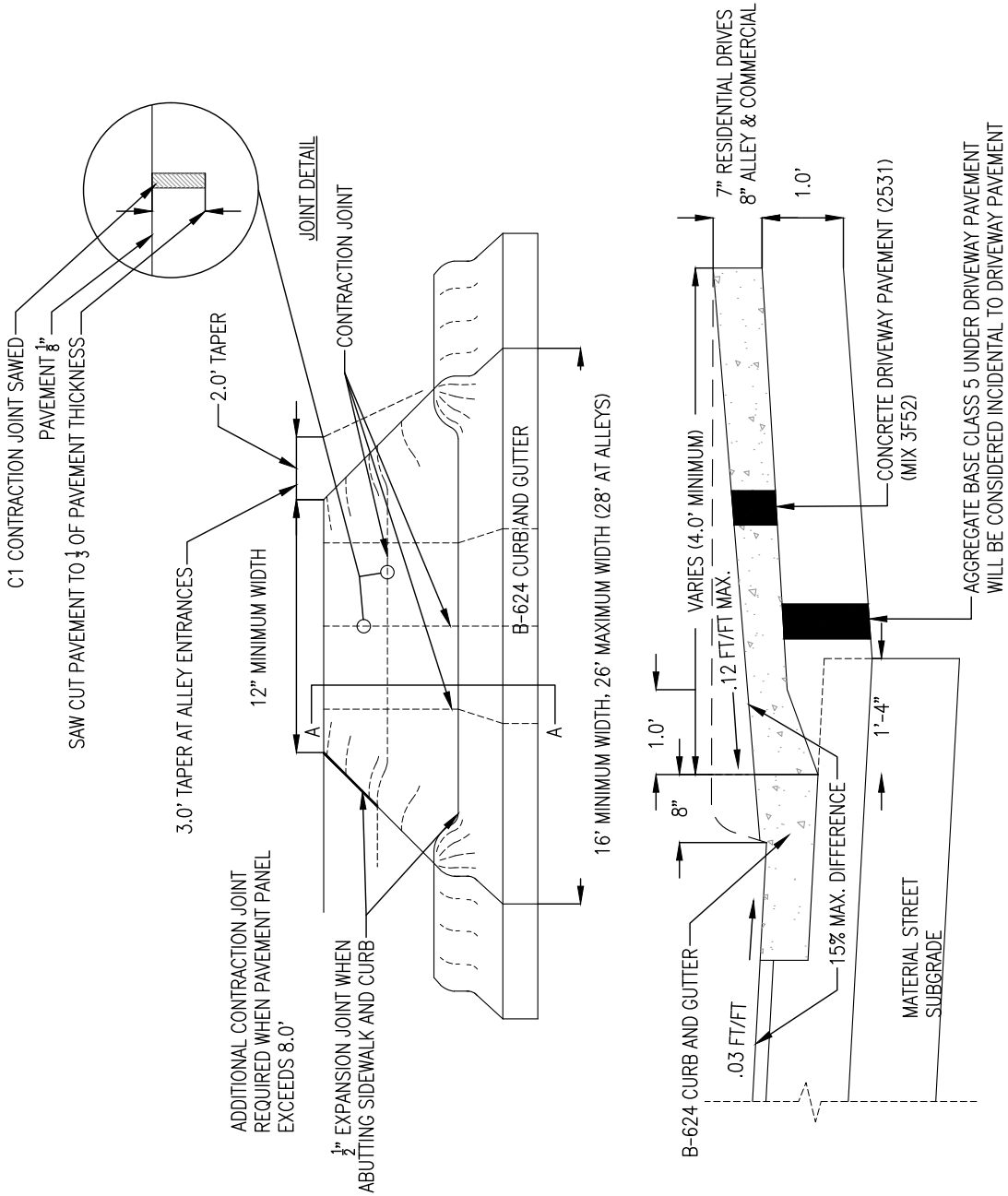
- NOTES:
- LONGITUDINAL JOINT WHEN ADJACENT TO RIGID PAVEMENT OR BASE.
SEE STANDARD PLANS MANUAL FOR JOINT INFORMATION.
 - SLOPE 0.06 FT/FT NORMAL, UNLESS OTHERWISE SPECIFIED. IF A DIFFERENT GUTTER SLOPE IS PERMITTED, THE FORM MAY BE TILTED.

DESIGN B				W = 12"				W = 24"			
				DESIGN NO.		CONCRETE		DESIGN NO.		CONCRETE	
DIMENSIONS				CU. YDS.		LIN. FT.		CU. YDS.		LIN. FT.	
H	A	B		PER	FT.	PER	FT.	PER	FT.	PER	FT.
6	8"	13-1/2"		B612	0.0474	21.1		B624	0.0690	14.5	

CONCRETE CURB AND GUTTER – DESIGN B612 & B624
SEE MnDOT STANDARD PLATE 7100H
NTS.

V:\Projects\22-339 - Dragestil Development\DWG\1 Title.dwg Jul 28, 2023 - 10:40am chase

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE



- NOTES:
- WHERE THERE IS NO SIDEWALK OR THERE IS A GRASS BOULEVARD BETWEEN THE SIDEWALK AND THE BACK OF CURB THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF.
 - WHERE THERE IS SIDEWALK DIRECTLY BEHIND THE CURB, DRIVEWAY PROFILE SLOPE SHALL BE FLATTENED TO MEET ADA ACCESSIBLE ROUTE STANDARDS

DRIVEWAY & ALLEY ENTRANCES

REVISED/APPROVED 04/05/2019

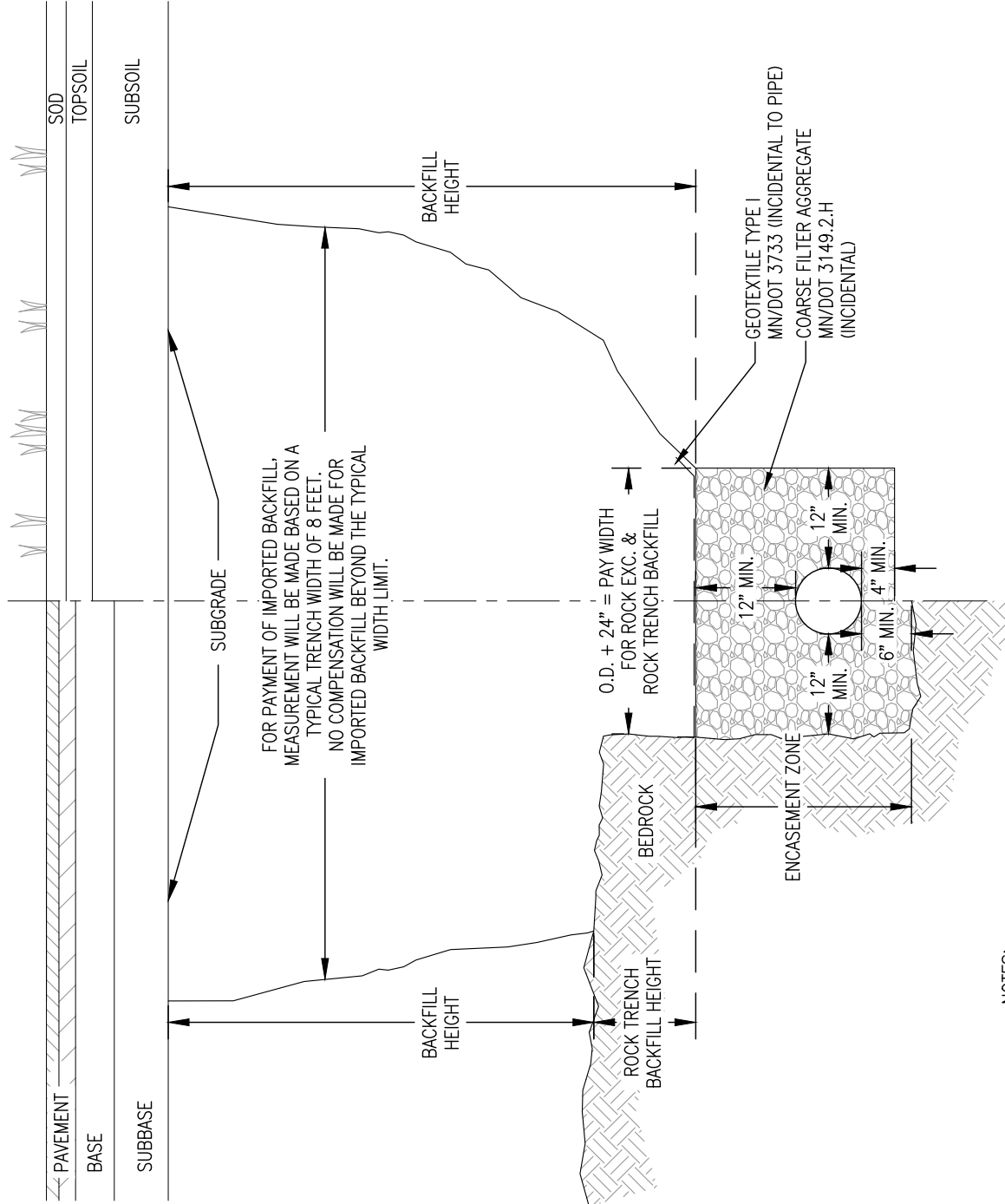
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

STR-5

NO SCALE

ROCK

SOILS



NOTES:

- EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
- PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
- A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
- TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
- ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
- BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
- COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

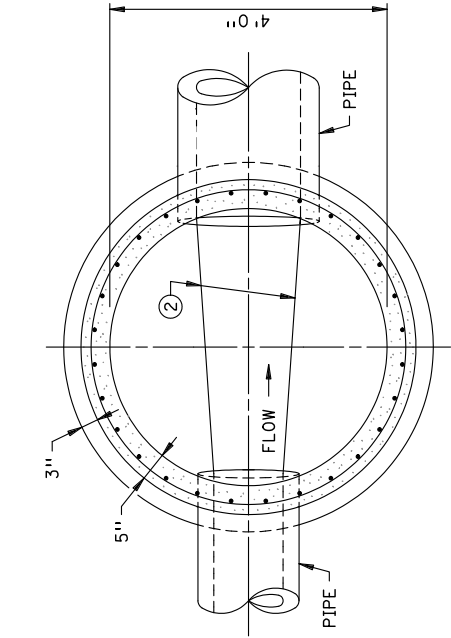
PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING

EX-3

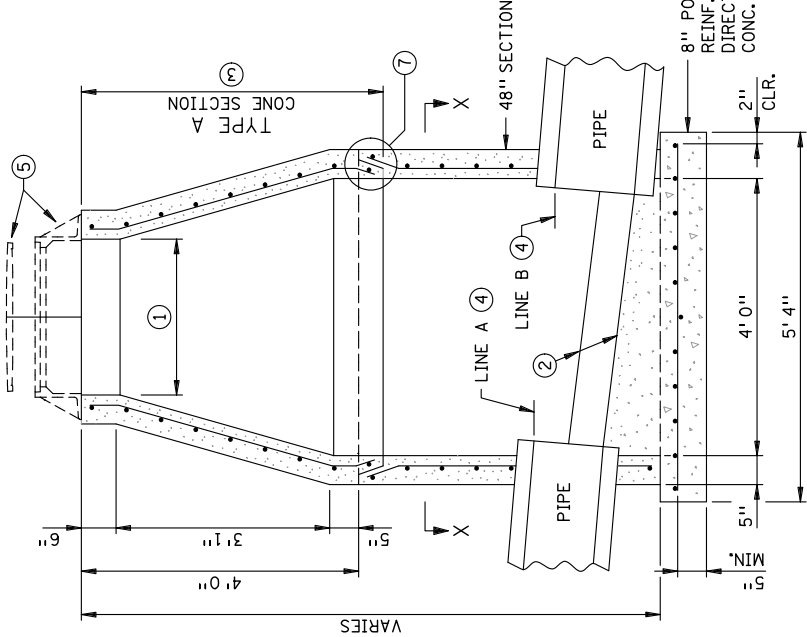
REVISED/APPROVED 04/05/2019

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

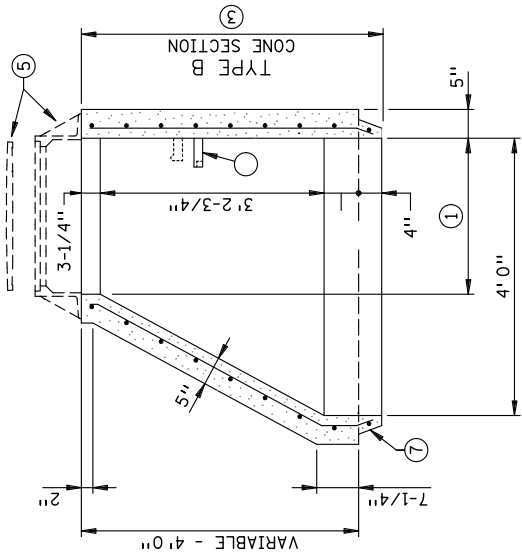


SECTION X-X



SECTIONAL VIEW
TYPE A CONE

- NOTES:
- REINFORCING: SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
- ① 2' 3" NOMINAL OPENING.
- ② PROVIDE MORTAR FILLETS TO FIT THE BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET.
- ③ TYPE A CONE SECTION SHALL BE USED UNLESS OTHERWISE INDICATED IN THE PLANS. FOR SHORT CONE SECTION USE TYPE C. SEE STANDARD PLATE 4010.



SECTIONAL VIEW
TYPE B CONE
SEE TYPE A CONE FOR ADDITIONAL INFORMATION

- ④ THE ELEV. OF LINE A SHALL BE EQUAL TO OR ABOVE LINE B.
- ⑤ REFER TO PLAN FOR CASTINGS REQUIRED. USE ADJUSTING RINGS WHERE NECESSARY, SEE STANDARD PLATES INDEX. CASTING AND PRECAST CONC. ADJUSTING RINGS SHALL BE SET ON FULL MORTAR BEDS. NO PIPE OR STRUCTURE ALLOWED ABOVE TOP OF CONE.
- ⑥ REFER TO PLANS FOR ANY STEP REQUIREMENTS.
- ⑦ SEE STANDARD PLATES INDEX FOR OTHER APPROVED JOINTS.

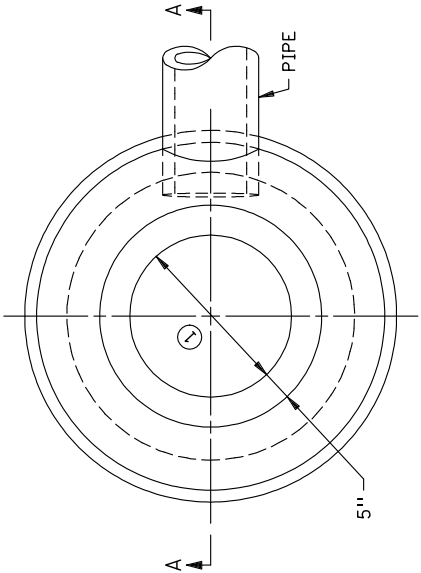
DESIGN F

APPROVED APRIL 16, 2014
Christy L. By
STATE DESIGN ENGINEER

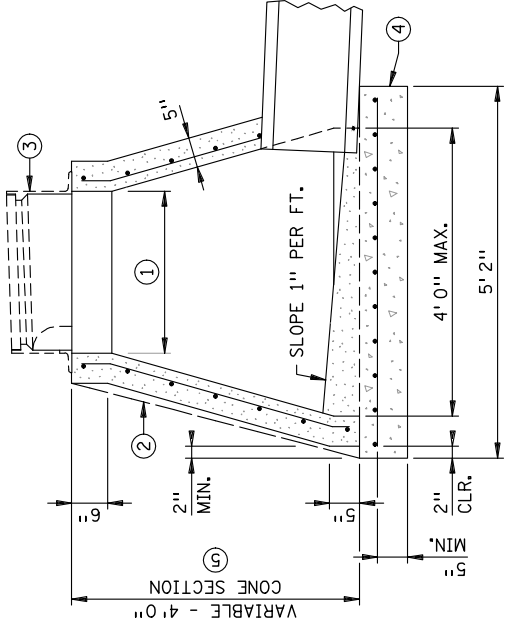
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
MANHOLE OR CATCH BASIN
TYPE A & B CONE SECTIONS
PRECAST

SPECIFICATION
REFERENCE
2506

STANDARD
PLATE
NO.
4005M

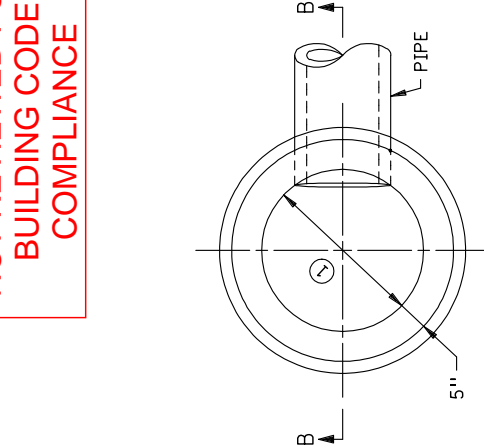


TOP VIEW
REINFORCEMENT NOT SHOWN

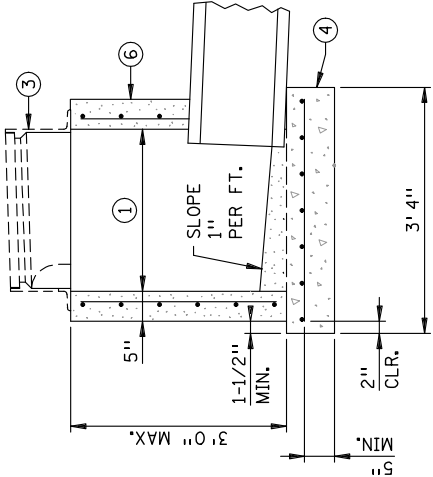


SECTION A-A
DESIGN G

- NOTES:
- REINFORCING: SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
- ① 2' 3" NOM. OPENING. WHEN GRATE FRAME CASTING NO. 802A OR NO. 805 IS USED, SEE STANDARD PLATES CASTING LIST.
- ② A STRAIGHT TAPERED WALL IS ACCEPTABLE.
- ③ REFER TO PLAN FOR CASTINGS REQUIRED. USE ADJUSTING RINGS WHERE NECESSARY, SEE STANDARD PLATES INDEX. CASTING AND PRECAST CONC. ADJUSTING RINGS SHALL BE SET ON FULL MORTAR BEDS.
- ④ 8 IN. POURED CONCRETE BASE. BASE REINFORCEMENT: 0.12 SQ. IN. PER FT. IN EACH DIRECTION. AN APPROVED ALTERNATE PRECAST CONCRETE BASE MAY BE USED.



TOP VIEW
REINFORCEMENT NOT SHOWN



SECTION B-B
DESIGN H

- ⑤ HEIGHT OF STRUCTURE MAY BE INCREASED UP TO 1 FT. BY THE USE OF A PRECAST SECTION OR CONCRETE BLOCK CONSTRUCTION ABOVE THE CONE SECTION. SEE STANDARD PLATE 4002 FOR BLOCK CONSTRUCTION.
- ⑥ AS AN ALTERNATE, BRICK OR CONCRETE BLOCK MASONRY MAY BE USED. FOR MATERIALS & CONSTRUCTION METHODS, SEE STANDARD PLATE 4002. CONE SECTION DETAILS OF 4002 DO NOT APPLY.

DESIGN G
DESIGN H

APPROVED JULY 31, 1995
Shelly R. Roshak
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

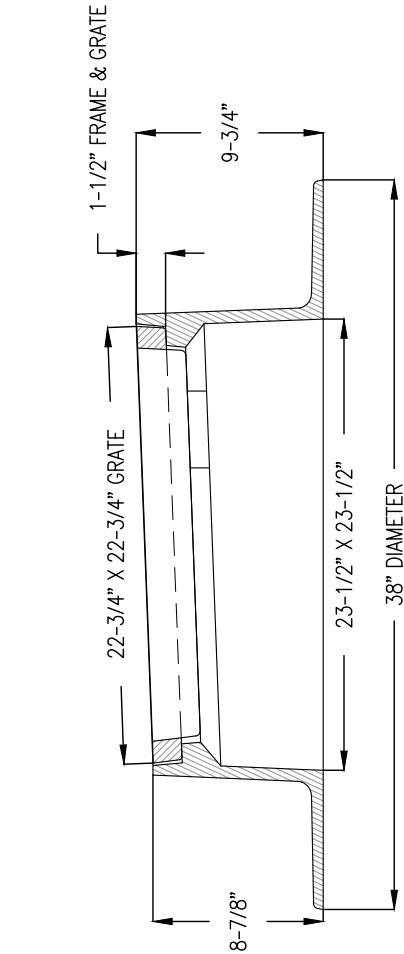
MANHOLE OR CATCH BASIN
PRECAST

SPECIFICATION
REFERENCE
2506

REVISED
8-22-96

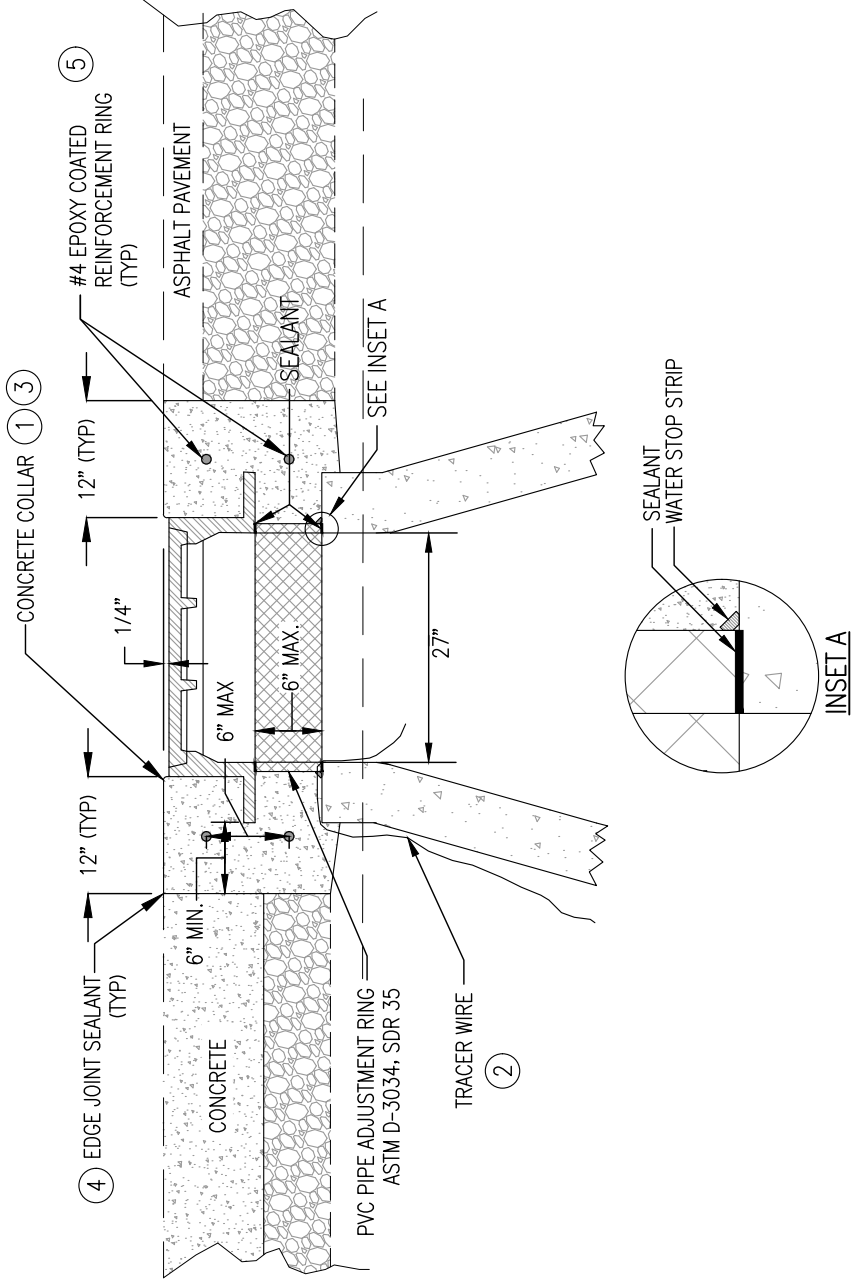
STANDARD
PLATE
NO.
4006L

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE



NOTES:

1. COMPONENT NO'S: FRAME 5005. GRATE 816 (STD PLATE 4154).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME 262#; GRATE 131#
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.

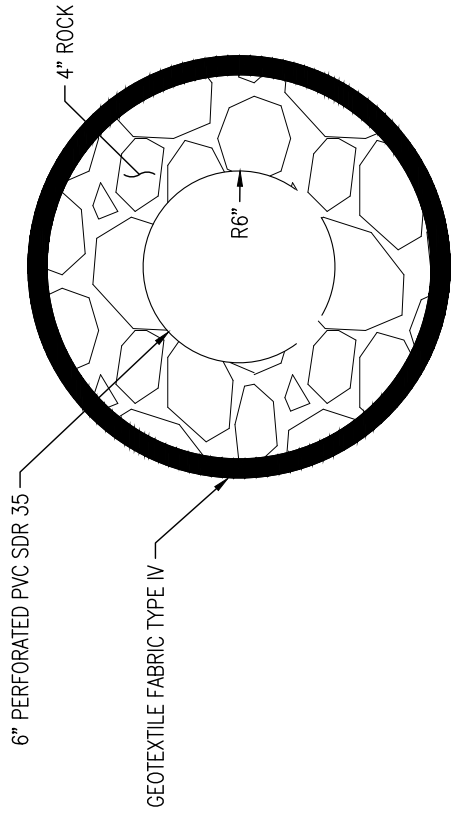


- NOTES:**
- ① CONCRETE (MIX NO. 3652) COLLAR TO ENCASE CASTING AND ADJUSTMENT RING.
 - ② TRACER WIRE, IF REQUIRED, FOR PLASTIC PIPE ON PROJECT
 - ③ CONCRETE COLLAR SHALL BE CIRCULAR LAYOUT. PAVEMENT AND BASE SHALL BE CUT OUT WITH ROTATING CUTTING DEVICE.
 - ④ FINISH CONCRETE EDGE WITH 1/4" RADIUS. SEAL JOINT BETWEEN PAVEMENT AND COLLAR.
 - ⑤ MAINTAIN 3.5" COVER ON REINFORCEMENT.

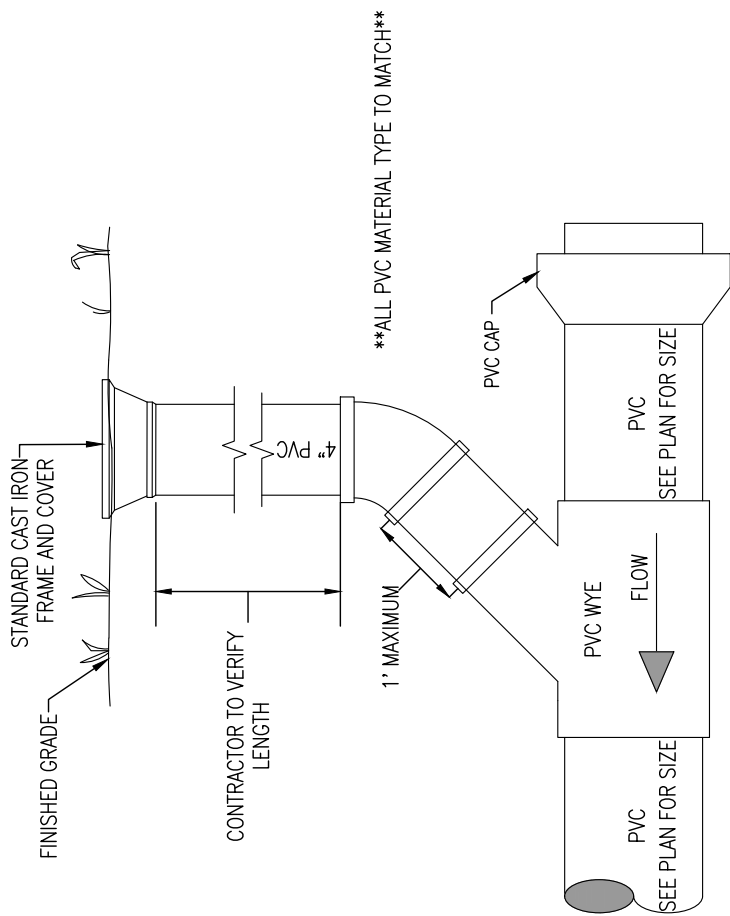
NOT TO SCALE

CATCH BASIN CASTINGS	STRM-3	CONCRETE ENCASED CASTING COLLAR FOR STORM MH IN ROADWAY, WALKS, & DRIVES	STRM-5A
REVISED/APPROVED 04/05/2019	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES

**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**

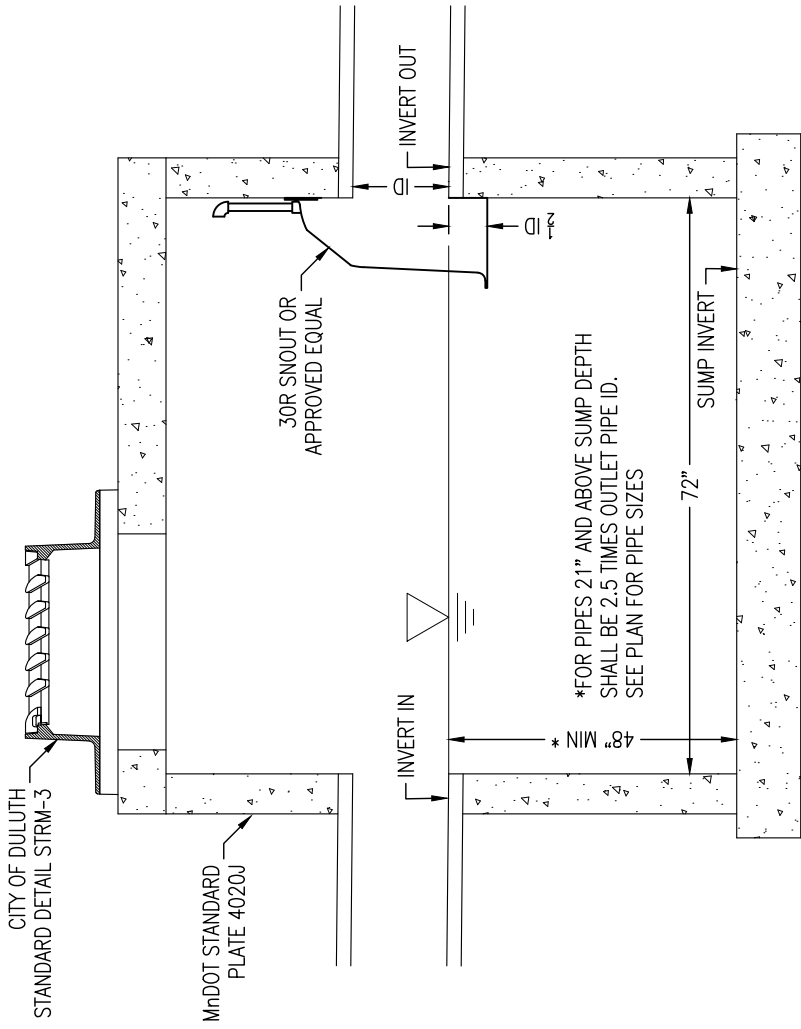


PERFORATED PIPE STORM DRAIN

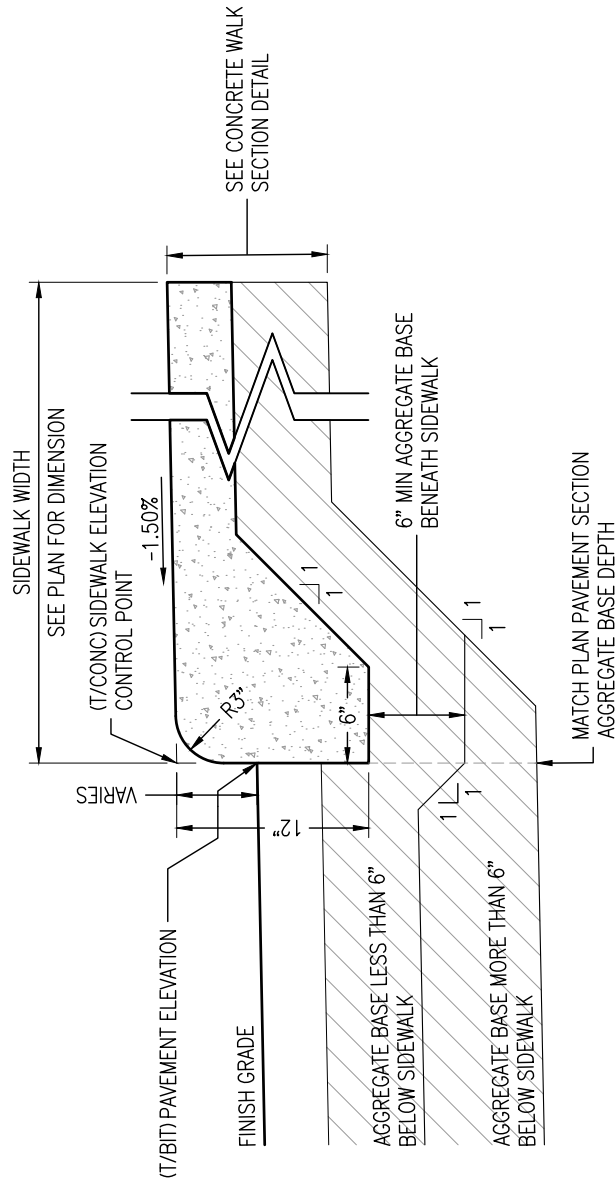


1
9

STORM CLEAN OUT (END OF LINE)



SEDIMENT REMOVAL CATCH BASIN, DESIGN 72-4020

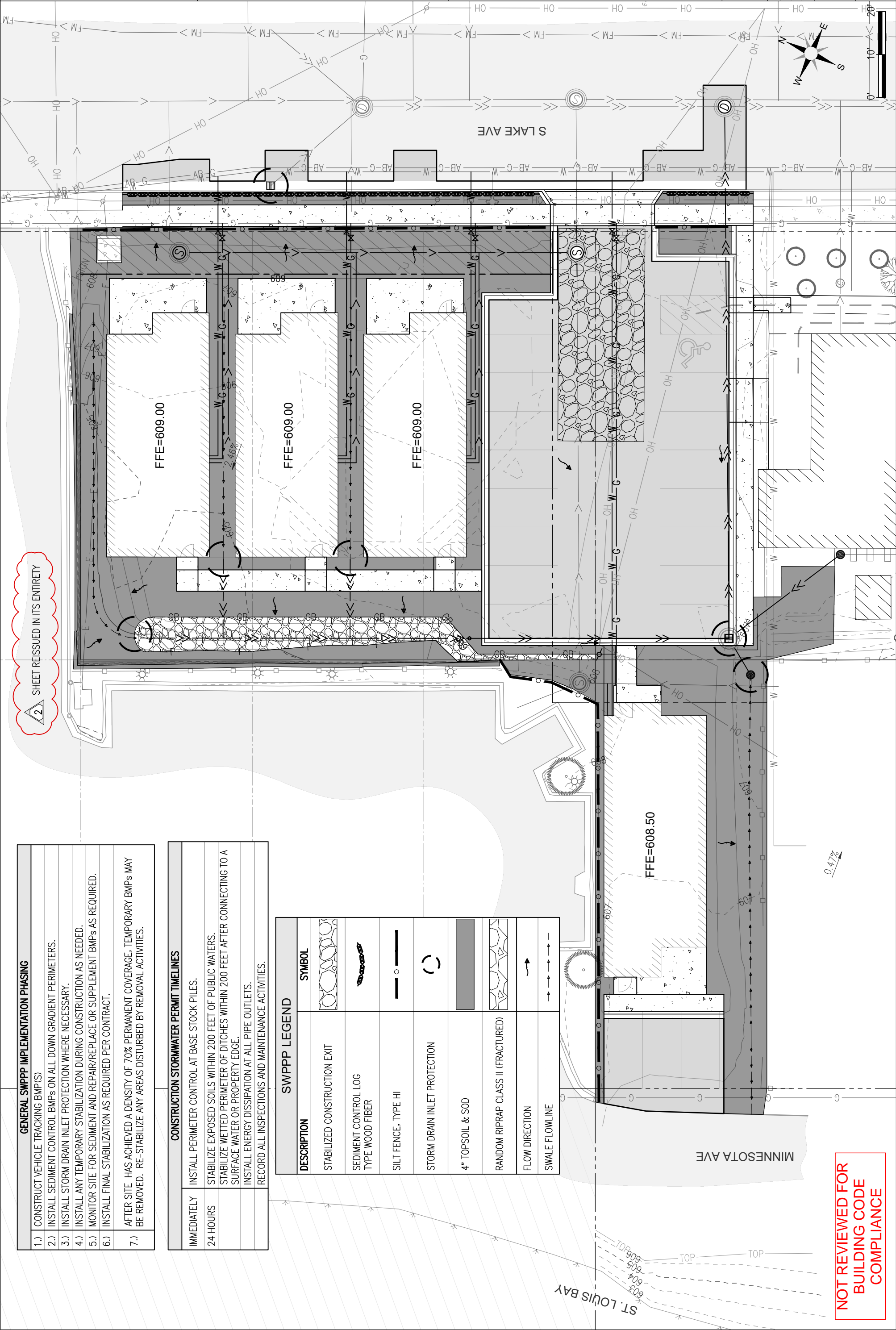


3
9

CONCRETE WALK - THICKENED EDGE

SEE PLAN FOR LOCATION

NTS.



2 SHEET REISSUED IN ITS ENTIRETY

GENERAL SWPPP IMPLEMENTATION PHASING	
1.)	CONSTRUCT VEHICLE TRACKING BMP(S)
2.)	INSTALL SEDIMENT CONTROL BMPs ON ALL DOWN GRADIENT PERIMETERS.
3.)	INSTALL STORM DRAIN INLET PROTECTION WHERE NECESSARY.
4.)	INSTALL ANY TEMPORARY STABILIZATION DURING CONSTRUCTION AS NEEDED.
5.)	MONITOR SITE FOR SEDIMENT AND REPAIR/REPLACE OR SUPPLEMENT BMPs AS REQUIRED.
6.)	INSTALL FINAL STABILIZATION AS REQUIRED PER CONTRACT.
7.)	AFTER SITE HAS ACHIEVED A DENSITY OF 70% PERMANENT COVERAGE, TEMPORARY BMPs MAY BE REMOVED. RE-STABILIZE ANY AREAS DISTURBED BY REMOVAL ACTIVITIES.

CONSTRUCTION STORMWATER PERMIT TIMELINES	
IMMEDIATELY	INSTALL PERIMETER CONTROL AT BASE STOCK PILES.
24 HOURS	STABILIZE EXPOSED SOILS WITHIN 200 FEET OF PUBLIC WATERS.
	STABILIZE WETTED PERIMETER OF DITCHES WITHIN 200 FEET AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.
	INSTALL ENERGY DISSIPATION AT ALL PIPE OUTLETS.
	RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES.

SWPPP LEGEND	
DESCRIPTION	SYMBOL
STABILIZED CONSTRUCTION EXIT	
SEDIMENT CONTROL LOG TYPE WOOD FIBER	
SILT FENCE, TYPE HI	
STORM DRAIN INLET PROTECTION	
4" TOPSOIL & SOD	
RANDOM RIPRAP CLASS II (FRACTURED)	
FLOW DIRECTION	
SWALE FLOWLINE	

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE

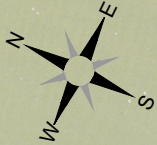
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. THESE SHALL BE CONSIDERED A MINIMUM STANDARD FOR THE PROTECTION OF CONSTRUCTION WORKERS AND THE TRAVELING PUBLIC. MnDOT 1707 PUBLIC CONVENIENCE AND SAFETY AND MnDOT 1710 TRAFFIC CONTROL DEVICES ALSO SHALL APPLY.

THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE & POLICE CHIEFS (911) AND LOCAL SCHOOL DISTRICTS OF ANY AND ALL DETOURS, CLOSURES, AND REOPENING OF TRAFFIC IN ORDER TO ALLOW TIME TO REARRANGE ROUTES OF TRAVEL.

WHEN RESIDENTIAL ACCESS MUST BE RESTRICTED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO EACH AFFECTED RESIDENT NOT LESS THAN 72 HOURS IN ADVANCE.

TEMPORARY TRAFFIC CONTROL DISTANCE				
POSTED SPEED LIMIT	ADVANCE WARNING SIGN SPACING (A)	CHANNELIZING DEVICE SPACING (G)	TAPER LENGTH (L)	BUFFER SPACE (B)
0-30	100	25	200	200
35-40	325	25	325	305
45-50	600	50	600	425
55	750	50	700	500

**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**





Commercial Plan Review – Energy Compliance Worksheet

Applies to new construction, additions, alterations, renovations, repairs and changes of use for commercial buildings, systems and equipment. Commercial buildings are all buildings except detached one- and two- family dwellings, multiple single-family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane. Information on construction documents shall comply with MN Rules 1323.0100 Subp. 10. When commissioning is required, it shall be specified in construction documents prior to permit approval.

Project: _____ Address: _____

■ **Project Information:** Select all that apply.

- | | | |
|---|--|---|
| <input type="checkbox"/> New Construction | <input type="checkbox"/> Alteration | <input type="checkbox"/> Change in Space Conditioning |
| <input type="checkbox"/> Addition | <input type="checkbox"/> Change in Use | |

■ **Energy Code Exceptions:** The following conditions are not required to comply with this code if the energy use of the building is not increased: select if applies.

- | | |
|---|--|
| <input type="checkbox"/> Storm windows installed over existing | <input type="checkbox"/> Reroofing without exposing sheathing or insulation |
| <input type="checkbox"/> Glass-only replacement | <input type="checkbox"/> Alteration replacing <50% light fixtures |
| <input type="checkbox"/> Vestibule exception for existing door replacement | <input type="checkbox"/> Bulb and Ballast ONLY replacement |
| <input type="checkbox"/> Existing ceiling, wall, and/or floor cavities exposed and filled with insulation | <input type="checkbox"/> Existing ceiling, wall, and/or floor cavities NOT exposed |

■ **Building and Occupancy Type Compliance:** *Residential buildings* shall meet the provisions of IECC-Residential Provisions (RE), MSBC Ch. 1322. *Commercial buildings* shall meet the provisions of IECC—Commercial Provisions (CE), MSBC Ch. 1323. For *Mixed occupancy buildings* which include both residential and commercial occupancies, **each occupancy shall be separately considered and meet the applicable provisions of IECC - Commercial Provisions (MSBC 1323) and IECC - Residential Provisions (MSBC 1322) specific the occupancy.**

Indicate all that apply:

- | | |
|--|--|
| <input type="checkbox"/> Commercial Building | <i>For this code, all buildings that are not included in the definition of Residential Building.</i> |
| <input type="checkbox"/> Residential Building | <i>For this code, includes detached one- and two-family dwellings and multiple single family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.</i> |
| <input type="checkbox"/> Mixed Occupancy Building | <i>Where a building includes both residential and commercial occupancies, each occupancy shall be separately considered and meet the applicable provisions of Chapter 1322 and Chapter 1323.</i> |

■ **System Commissioning:** Indicate whether System Commissioning is required for the project based on compliance method. Prior to issuance of building permit, the name of the individual or company that will provide the system commissioning must be provided and acknowledged by the project owner. Commissioning is required to be completed prior to final inspection.

- | | |
|------------------------------|-----------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No |
|------------------------------|-----------------------------|

ENERGY CODE COMPLIANCE DRAWING SHEET(S) For all compliance methods

Submit separate energy code compliance drawing sheet(s) with the following components:

- | |
|---|
| <input type="checkbox"/> Narrative explanation of energy code compliance approach |
| <input type="checkbox"/> Drawings depicting the thermal envelope and continuous air barrier |
| <input type="checkbox"/> Schedule of energy-related features, including building construction components, building services and equipment, prescribed or used in the compliance calculations and analysis. For each item, list: <ul style="list-style-type: none">▪ The U-value, R-value, or other relevant energy metric associated with the item▪ The plan sheet or specification section where the item is located in the construction documents. |
| <input type="checkbox"/> Narrative explanation of commissioning and project completion requirements per ASHRAE 90.1-2016 or IECC Section 408. |

Energy Code Compliance

- STEP 1** Select ONLY ONE compliance method for the entire project using this form. 1a, 1b, 2, or 3
- STEP 2** Under selected compliance method, select ONE option from each section
- STEP 3** Prepare forms, reports or other documentation as indicated for the method and path chosen
- STEP 4** Prepare ENERGY CODE COMPLIANCE DRAWING SHEET(S) see front of worksheet for requirements
- STEP 5** Submit items from Steps 1-4 and other construction documents with permit application package

☐ **1a. ASHRAE Standard Compliance** for NEW COMMERCIAL BUILDINGS, ADDITIONS, ALTERATIONS & REPAIRS

Comply with the provisions of the following ASHRAE 90.1-2016 sections 5-10: Select one option from each section and submit required documentation.

Section 5 Building Envelope

- ☐ PRESCRIPTIVE BUILDING ENVELOPE OPTION
Submit **Standard 90.1-2016: Building Envelope Compliance Forms - Part 1 and Part 2**
- ☐ BUILDING ENVELOPE TRADE-OFF OPTION Submit **Standard 90.1-2016: Building Envelope Compliance Forms - Part 1 and COMcheck report** for the ASHRAE building envelope trade-off option

Section 6 Heating, Ventilation and Air Conditioning

- ☐ HVAC SIMPLIFIED APPROACH OPTION Submit **Standard 90.1-2016: HVAC Compliance Forms - Part 1**
- ☐ HVAC MANDATORY PROVISIONS and PRESCRIPTIVE PATH
Submit **Standard 90.1-2016: HVAC Compliance Forms - Part 2 and Part 3**

Section 7 Service Water Heating

- ☐ PRESCRIPTIVE PATH
Submit **Standard 90.1-2016: Service Water Heating Compliance Forms**

Section 8 Power

Only one compliance path is available for power distribution systems

Section 9 Lighting

- ☐ BUILDING AREA METHOD
Submit **Standard 90.1-2016: Lighting Compliance Forms**
- ☐ SPACE-BY-SPACE METHOD
Submit **Standard 90.1-2016: Lighting Compliance Forms**

Section 10 Other Equipment

Comply with provisions of Section 10.

☐ **1b. ASHRAE Energy Cost Budget Compliance** for NEW BUILDINGS and ADDITION

Comply with the provisions of ASHRAE 90.1 2016 Section 11 Energy Cost Budget. See additional handout for submittal requirements for this compliance method.

☐ **2. IECC Prescriptive Compliance** for NEW BUILDINGS, ADDITIONS, ALTERATIONS & REPAIRS

Comply with the provisions of the following INTERNATIONAL ENERGY CONSERVATION CODE (IECC), MN RULES CHAPTER 1323 sections: Select one option from Section C403.

Section C402 Building Envelope Requirements

Section C403 Building Mechanical Systems

Comply with mandatory provisions and either:

- ☐ Section C403.3 Simple systems
- ☐ Section C403.4 Complex systems

Section C404 Service Water Heating

Section C405 Electrical Power and Lighting Systems

For NEW BUILDINGS ONLY

Section C406 Additional Efficiency Packages

Comply with at least one of the following:

- ☐ Section C406.2 Efficient HVAC Performance
- ☐ Section C406.3 Efficient Lighting System
- ☐ Section C406.4 On-Site Supply of Renewable Energy

Submit COMcheck reports or other documentation to show compliance with IECC for all sections.

☐ **3. IECC Total Building Performance** for NEW BUILDINGS

Comply with the IECC MN RULES CHAPTER 1323 C401.2 (3). See additional handout for submittal requirements for this compliance method.



COMcheck Software Version COMcheckWeb

Envelope Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Location: Duluth, Minnesota
 Climate Zone: 7
 Project Type: New Construction
 Vertical Glazing / Wall Area: 15%

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Building Area

Floor Area

1-Three Story Wood Framed Hote (Hotel) : Nonresidential	3965
---	------

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U- Factor ^(a)
Floor: Heated Slab-On-Grade Fully Insulated (user specified perimeter R-value + R-10.0 under slab), [Bldg. Use 1 - Three Story Wood Framed Hote] (c)	176	---	10.0	0.550	0.602
Roof: Attic Roof, Wood Joists, [Bldg. Use 1 - Three Story Wood Framed Hote]	1224	60.0	0.0	0.017	0.021
NORTH					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	1630	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	138	---	---	0.300	0.370
EAST					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	835	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	90	---	---	0.300	0.370
Door: Glass (over 50% glazing): Metal Frame, Non-Entrance Door, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	192	---	---	0.300	0.370
SOUTH					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	1640	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	238	---	---	0.300	0.370
WEST					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story	835	21.0	6.0	0.043	0.051

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor ^(a)
Wood Framed Hote]					
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	53	---	---	0.300	0.370
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	40	---	---	0.300	0.770

- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
- (b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
- (c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 4% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title

Signature

Date



Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Project Type: New Construction

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts
1-Three Story Wood Framed Hote (Hotel)	3965	0.75	2974
Total Allowed Watts =			2974

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Three Story Wood Framed Hote (Hotel)				
Total Proposed Watts =				0

Interior Lighting TBD: No lighting fixtures specified



Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Project Type: New Construction
 Exterior Lighting Zone: 2 (Residentially zoned area (LZ2))

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Total Tradable Watts (a) =				0
Total Allowed Watts =				0
Total Allowed Supplemental Watts (b) =				400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.

(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

Exterior Lighting TBD: No exterior fixtures are defined.



COMcheck Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Location: Duluth, Minnesota
 Climate Zone: 7
 Project Type: New Construction

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Mechanical Systems List

Quantity System Type & Description

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

 Name - Title

 Signature

 Date



Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR1] ¹	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C406 [PR9] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C303.2 [FO4] ²	Slab edge insulation installed per manufacturer's instructions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.2.1 [FO6] ¹	Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [FO3] ²	Installed slab-on-grade insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.4 [FO7] ²	Slab edge insulation depth/length. Slab insulation extending away from building is covered by pavement or ≥ 10 inches of soil.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Envelope Assemblies table for values.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Framing / Rough-In Inspection	Complies?	Comments/Assumptions
C303.1.3 [FR12] ²	Fenestration products rated in accordance with NFRC.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.1.3 [FR13] ¹	Fenestration products are certified as to performance labels or certificates provided.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.4.3 [FR10] ¹	Vertical fenestration SHGC value.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.4.3, C402.4.3.4 [FR8] ¹	Installed vertical fenestration U-factor and SHGC consistent with label specifications and as reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.5.7 [FR17] ³	Vestibules are installed on all building entrances. Doors have self-closing devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.5.5, C403.2.4.3 [ME3] ³	Stair and elevator shaft vents have motorized dampers that automatically close. Refernece section C403.7.7 for operational details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.7.7 [ME58] ³	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed. Reference section language for operational details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26] ²	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.7 [EL27] ²	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.8.2, C405.8.2.1 [EL28] ²	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.9 [EL29] ²	Total voltage drop across the combination of feeders and branch circuits $\leq 5\%$.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Insulation Inspection	Complies?	Comments/Assumptions
C303.1 [IN3] ¹	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is ≤ 3 in 12.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.2.1 [IN20] ¹	Insulation installed on a suspended ceiling having ceiling tiles is not being specified for roof/ceiling assemblies. Continuous insulation board installed in 2 or more layers with edge joints offset between layers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.1 [IN10] ²	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.2 [IN7] ¹	Above-grade wall insulation installed per manufacturer's instructions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [IN6] ¹	Installed above-grade wall insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.3 [IN8] ²	Installed floor insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.6 [IN18] ³	Radiant panels and associated components, designed for heat transfer from the panel surfaces to the occupants or indoor space are insulated with a minimum of R-3.5.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [IN2] ¹	Installed roof insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports. For some ceiling systems, verification may need to occur during Framing Inspection.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.5.1.1 [IN1] ¹	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor-permeable wrapping material to minimize air leakage.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C402.5 [FI55] ¹	Building envelope contains a continuous air barrier that has been tested and deemed to limit air leakage <= 0.40 cfm/ft2.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.5.6 [FI37] ¹	Weatherseals installed on all loading dock cargo door openings and provide direct contact along the top and sides of vehicles parked in the doorway.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.1.1 [FI57] ¹	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Doc 049-A-0419
Contact – Planning 218-730-5580

UDC Zoning Compliance Summary

The Unified Development Chapter (UDC), zone district maps and overlay maps are available online at <http://www.duluthmn.gov/> on the Community Planning Department web pages. References are to Duluth Unified Development Chapter unless otherwise noted.

Project Address: 723 Lake Ave. S **Parcel ID#:** 010-4380-02380
Proposed Use: HOTEL

With this summary form, provide a site plan based on a boundary survey which is accurate, drawn to scale and shows clearly and in adequate detail that the proposal complies with the UDC as well as applicable building and fire code provisions.

For zoning review, in addition to this summary and a site plan, provide a narrative summary of UDC requirements and how compliance is achieved for each applicable provision.

Provide the following information about the project:

Zone District (See UDC Table 50-13.3-1) and zoning maps online. MU-N

Is the proposed use permitted in the zone district? Table 50-19.8

- | | |
|---|---|
| <input type="checkbox"/> Permitted use | <input type="checkbox"/> Accessory use |
| <input checked="" type="checkbox"/> Special use | <input type="checkbox"/> Not listed |
| <input type="checkbox"/> Permitted upper story only | <input type="checkbox"/> Legal Non-conforming use (See UDC 50-38) |

Dimensional standards for zone district 50-14 through 50-17

Required	Dimensional Standard	Proposed
	Minimum lot area	24,800 SQ. FT.
50 FEET	Min. lot frontage	200 FEET
20 FEET	Min. front yard depth	20 FEET
ZERO FEET	Min. side yard width	6 FEET
N.A.	Min. corner lot front side yard width	
25 FEET	Min. rear yard depth	25 FEET
75 FEET	Max. Building height	35 FEET

Note additional dimensional standards in 50-21.

Which overlay districts apply to this site (see overlay districts in UDC 50-18 or online?)

☐ Natural resources Overlay 50-18.1

Does the site contain wetlands? 50-18.1.B

☐ Yes ☒ No

■ Wetlands delineation prepared (50-18.1.B(1a))

☐ Yes ☒ No

Flood Plain 50-18.1.C

☐ Floodway 50-18.1.C.2

■ Is the proposed use permitted in a floodway?

☐ Yes ☒ No

■ Does the proposed use require a special use permit?

☐ Yes ☒ No

• If so, review procedures in UDC Article V for application for a special use permit.

☐ Flood Fringe 50-18.1.C.3

■ Is the proposed use permitted in a flood fringe?

☐ Yes ☒ No

■ Does the proposed use require a special use permit?

☐ Yes ☒ No

• If so, review procedures in UDC Article V for application for a special use permit.

☐ General Flood Plain District 50-18.1.C.4

■ Is the proposed use permitted in the general flood plain district?

☐ Yes ☒ No

■ If not, floodway/flood fringe determination required prior to determining permitted and special uses.

Shorelands 50-18.1.D and Table 50-18.D.1

Minimum Required	Shoreland Standard (Table 50-18.1.D-1)	Proposed
	Structure Setback from High Water Level	
	Impervious Surface Setback from High Water Level	
	Minimum width of Naturally Vegetative Buffer	

☒ Storm Water Management and Erosion Control 50-18.1.E

■ What is the total area of land disturbance?

6500 SQ. FT.

■ What is the total of new impervious area created and/or redeveloped?

6500 SQ. FT.

■ Project is in:

☐ Zone A

☐ Zone B

☐ Airport Overlay 50-18.2

■ Project is in Airport Safety Zone:

☐ A

☐ B

☐ C

OR

☐ Sky Harbor Airport Overlay Zone

☐ Historic Resources Overlay 50-18.3

■ Project is on a site listed in UDC Exhibits 50-18.3-2 or 50-18.3-2.

☐ Skyline Parkway Overlay 50-18.4

■ Project is within 200' of Skyline Parkway (downhill side only)

☐ Higher Education Overlay 50-18.5

■ Project is on a site within the HE-O boundary 50-18.5.D

Do use specific standards apply to this project? 50-20

☐ Residential Uses 50-20.1

☐ Public, Institutional and Civic Uses 50-20.2

☐ Commercial Uses 50-20.3

☐ Industrial Uses 50-20.4

☐ Major Utility or Wireless Telecommunications Facility

■ Is a special use permit required? 50-20.4.E

☐ Yes ☐ No

☐ Accessory Uses 50-20.5

Is the lot served by municipal sewer?

☒ Yes ☐ No

Are exceptions or encroachments listed in UDC 50-21.3 utilized for this project?

■ If so, describe each

Do connectivity and circulation requirements apply to this project? 50-23.

☐ Yes ☐ No

Do off street parking requirements apply to this project? 50-24.

☐ Yes ☐ No

■ How many off street parking spaces are required per Table 50-24.2 with the adjustments in 50-23.3?

10

■ Are transit adjustments or shared parking used?

☐ Yes ☒ No

■ What is the maximum number of off street parking spaces allowed? 50-24.4

15

Location of parking spaces must comply with 50-24.6

■ Is a loading space required?

☐ Yes ☒ No

Landscaping Requirements 50-25	Yes	No
Street frontage landscaping (50-25.3)	YES	
Parking lot landscaping (50-25.4)	NO	
Landscaping between differing land uses (50-25.5)	YES	
Tree preservation (50-25.9)	YES	

Screening Requirements 50-26	Yes	No
Mechanical equipment screening, roof or ground mounted (50-26.1)		NO
Service or off street loading area screening (50-26.2)		NO
Commercial container screening (50-26.3)	YES	

Do sign standards apply? 50-27.

☒ Yes

If YES, separate sign permit application required. Find forms and submittal requirements on the Construction Services or Community Planning Web pages.

☐ No Why Not?

Do sustainability standards apply? 50-29.

☐ Yes ☐ No

☒ Yes How many points required from Table 50-29-1?

3

If YES, submit sustainability checklist with building permit application. Sustainability checklist available on Construction Services web page.

☐ No Why Not?

Do design standards apply? 50-30

☒ Yes ☒ No

- | | |
|---|---|
| <input type="checkbox"/> Multi-family residential | <input type="checkbox"/> Industrial |
| <input checked="" type="checkbox"/> Commercial | <input type="checkbox"/> Parking garage |
| <input type="checkbox"/> Mixed Use | |

Do exterior lighting standards apply? 50-31

☒ Yes ☐ No

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Multi-family residential | <input type="checkbox"/> Mixed use |
| <input checked="" type="checkbox"/> Commercial or Institutional | <input type="checkbox"/> Industrial |

UDC Applications

If the project requires any type of UDC application process, including:

- | | |
|--|---|
| ■ Zoning Map Amendment | ■ Variance |
| ■ District Plan Adoption or Amendment | ■ Special Use or Interim Use Permit |
| ■ Subdivision Plat Approval or Amendment | ■ Planning Review |
| ■ Vacation of Street | ■ Sidewalk Use Permit |
| ■ Concurrent Use of Streets Permit | ■ Historic Construction/Demolition Permit |
| ■ Historic Resource Designation | ■ Other |

The process must be completed and written documentation provided at the time of application for a building permit.

See UDC Article V and the UDC Application Manual (online at <http://www.duluthmn.gov/>) for information about UDC application submittal requirements and procedures.

PERMIT

Site Address: 717 S LAKE AVE
Application Date: 04/07/2023
Applicant: HEIRLOOM CONSTRUCTION
Owner: PARK POINT LAND CO LLC
Subdivision: UPPER DULUTH LAKE AVENUE
Lot/Block: 0000/000
Parcel ID: 010-4380-02380
Parcel Legal Description:
 Lots 228, 230, 232, 234 AND 236, INCLUDING Lot 229,
 MINNESOTA AVENUE, UPPER DULUTH
Description of Work Authorized by Permit:
 BUILDING 3 - NEW 3 STORY, 3-UNIT HOTEL: DRAGESTIL HOTEL

Permit Type: BS BLDG COM
 NEW PRINCIPLE BLDG
Permit Number: BBLDG2304-023
Permit Issued Date: 11/30/2023
Permit Status: ISSUED
General Site Info: BUILDING 3 - DRAGESTIL
 HOTEL

Conditions:

This permit authorizes work only as described in the reviewed application and plans on file in the Construction Services & Inspections Division and in compliance with all applicable laws, rules and ordinances. The permit holder is responsible for requesting inspections. Failure to call for inspections for all permitted work, including a final inspection, is a violation of the code. This permit becomes invalid if the work authorized by the permit is suspended or abandoned for more than 180 days. 1300.0120 Subp. 10.

WARNING before digging call Gopher State One Call 1-800-252-1166. REQUIRED BY LAW.

Please call Dave Hjelle for all required construction inspections. He can be reached at 218-409-5414.

Work shall be consistent with the plans and information provided with the permit application and shall comply with applicable codes, ordinances and laws and conditions of approval.

Approved by: Tara Smith

Date: 11/30/2023

Applicant Mailing Address:

HEIRLOOM CONSTRUCTION
 PO BOX 3144
 DULUTH, MN 55803

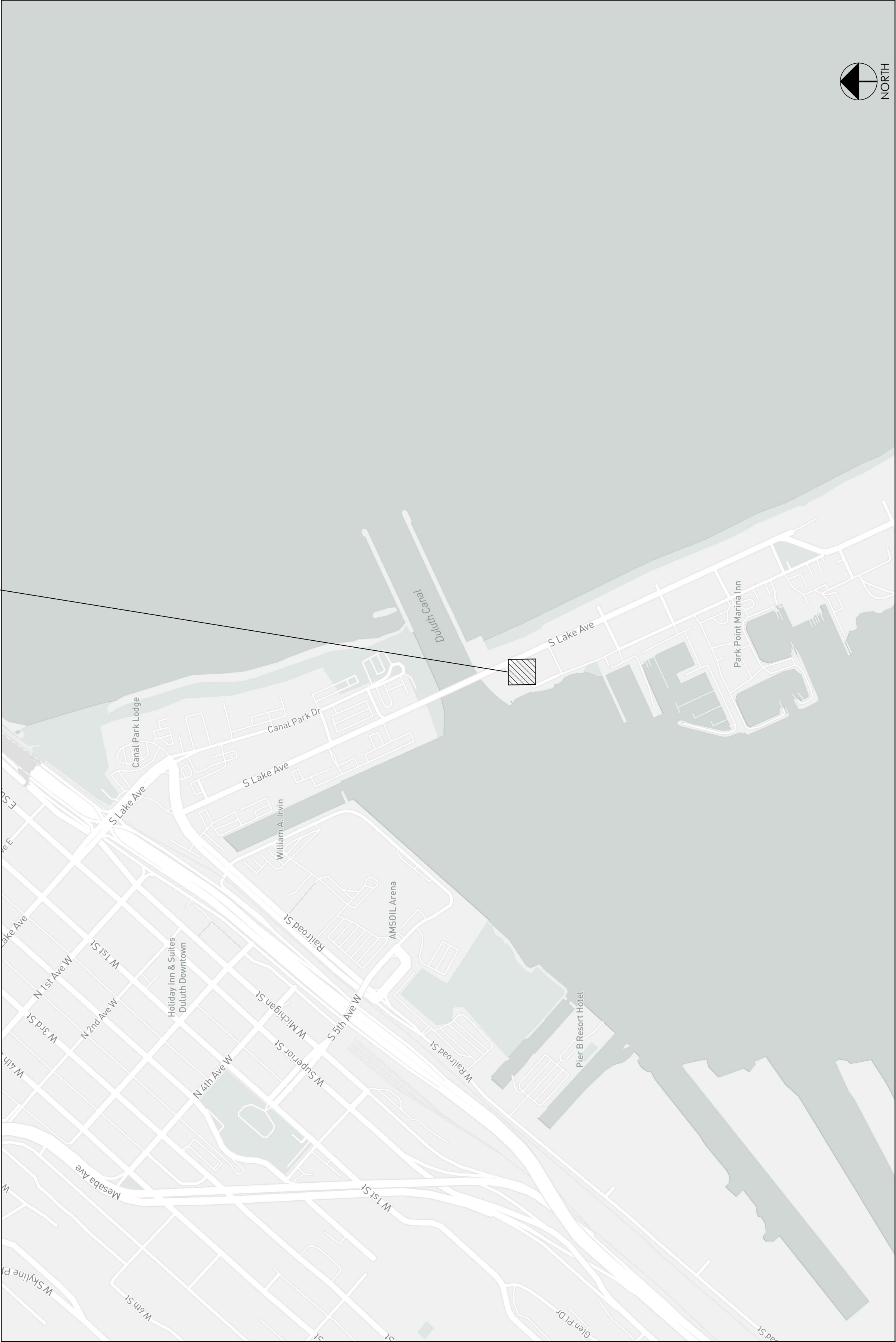
Valuation: \$826,250.00

BUILDING	\$6,833.38
PERMITS	
STATE	\$413.13
SURCHARGE	
PLAN REVIEW	\$4,441.70
FEE	
CAF	\$2,820.00

Total Fees: \$14,508.21

LOCATION MAP - DULUTH, MN

PROJECT LOCATION



SYMBOL LEGEND

	KEYED NOTE
	DEMO NOTE
	REVISION NOTE
	DOOR NUMBER
	WALL TYPE SYSTEM
	SECTION CUT
	ELEVATION
	DETAIL
	ELEVATION MARKER
	ITEM IS HIDDEN OR OVERHEAD
	TO BE REMOVED
	EXISTING DOOR
	NEW DOOR W/ DOOR NUMBER

PROJECT TEAM

ARCHITECT
AROLA ARCHITECTURE STUDIO, LLC 501 S. LAKE AVENUE, SUITE 205 DULUTH, MINNESOTA 55802
STRUCTURAL ENGINEER
MEYER BORGMAN JOHNSON 501 S. LAKE AVENUE, SUITE 200 DULUTH, MN 55802
CONTRACTOR
HERLOOM CONSTRUCTION CONTACT: DAN BUERSKIN 202 E. 1ST STREET DULUTH, MN 55802
OWNER
HERLOOM PROPERTIES CONTACT: MIKE SCHRAEPPER 202 E. 1ST STREET DULUTH, MN 55802

MATERIAL LEGEND

	EARTH
	GRAVEL
	SAND / MORTAR / PLASTER
	CONCRETE
	CONCRETE MASONRY UNIT
	BRICK
	STEEL STUDS
	WOOD STUDS
	STEEL
	PLYWOOD
	GYPSUM BOARD
	ROUGH WOOD
	WOOD BLOCKING
	BATT INSULATION
	RIGID INSULATION
	EXISTING MATERIAL

SHEET INDEX

TITLE	SHEET INDEX / LEGENDS
SITE	SITE PLAN
	ZONING SUMMARY
ARCHITECTURAL	
A0.1	CODE SUMMARY
	LIFE SAFETY PLANS
A0.2	CODE DRAWINGS
	WALL TYPES
A0.3	GENERAL NOTES
A0.4	STRUCTURAL NOTES
A2.1-1	FOUNDATION PLAN, BUILDING #2, #3
A2.1-3	FOUNDATION PLAN, BUILDING #1
A2.2	FIRST FLOOR PLAN
A2.3	SECOND FLOOR PLAN
A2.4	THIRD FLOOR PLAN
	ROOF PLAN
A3.1	EXTERIOR ELEVATIONS
A3.2	EXTERIOR ELEVATIONS
A4.1	BUILDING SECTIONS
A4.2	BUILDING SECTIONS
A5.1	TYPICAL WALL SECTION
	DETAILS
A5.2	DETAILS
A6.0	SCHEDULES
A7.1	FIRE STOPPING DETAILS
A7.2	FIRE STOPPING DETAILS

LANDSCAPE

L1.0 TREE PRESERVATION & REPLACEMENT PLAN

MECHANICAL & ELECTRICAL - DELAYED SUBMITTAL

CIVIL - SUBMITTED SEPARATELY

SHEET NO.

TITLE

 AROLA ARCHITECTURE STUDIO, LLC 501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802 218-740-5219 WWW.AROLARCH.COM	I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULUTH LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.	SIGNATURE  RYAN J. AROLA DATE 5/11/2023 LICENSE NO. 52478	DRAGESTIL HOTEL - BUILDINGS 1, 2, 3 SOUTH LAKE AVENUE / MINNESOTA AVENUE DULUTH, MN 55802	<div>  Construction Services & Inspections Reviewed for Code Compliance MSBC 2020 Chris Machmer 10/06/2023 </div>	ISSUE DATE 5/19/2023	PROJECT NO. 2166	REVISIONS	SHEET NO. A0.1

CODE SUMMARY - S. LAKE AVE. BUILDINGS (BUILDINGS #1, #2, #3)

2020 MINNESOTA BUILDING CODE			
CODES USED:			
OCCUPANCY:	SECTION 310	GROUP R-1	RESIDENTIAL (TRANSIENT)
CONSTRUCTION TYPE:	SECTION 402	TYPE V-B	
ALLOWABLE AREA:	SECTION 506	OCCUPANCY	
		R-1	7,000 SF 0.688 3
			35,454 SF

ACTUAL AREA:		540 FT	570 FT	29.61 FT		
	OCCUPANCY	BASEMENT	1st FLOOR	2nd FLOOR	3rd FLOOR	TOTAL
	R-1	0 SF	1,241 SF	1,170 SF	1,100 SF	3,511 SF

ALLOWABLE HEIGHT:	SECTION 504	OCCUPANCY	HEIGHT	STORIES	ACTUAL HT	ACTUAL STORIES
		R-1	60 FT	3	35 FT	3
						BUILDING TOTAL
						3,511 SF

SECTION 508	NO
MIXED OCCUPANCY:	
OCCUPANCY SEPARATION:	NONE
TABLE 508.4	
AUTOMATIC SPRINKLER SYSTEM:	SECTION 903
NFPA 13 SPRINKLER SYSTEM WILL BE INSTALLED	
SECTION 907	WILL COMPLY
THE HAZARD DETECTION SYSTEM:	

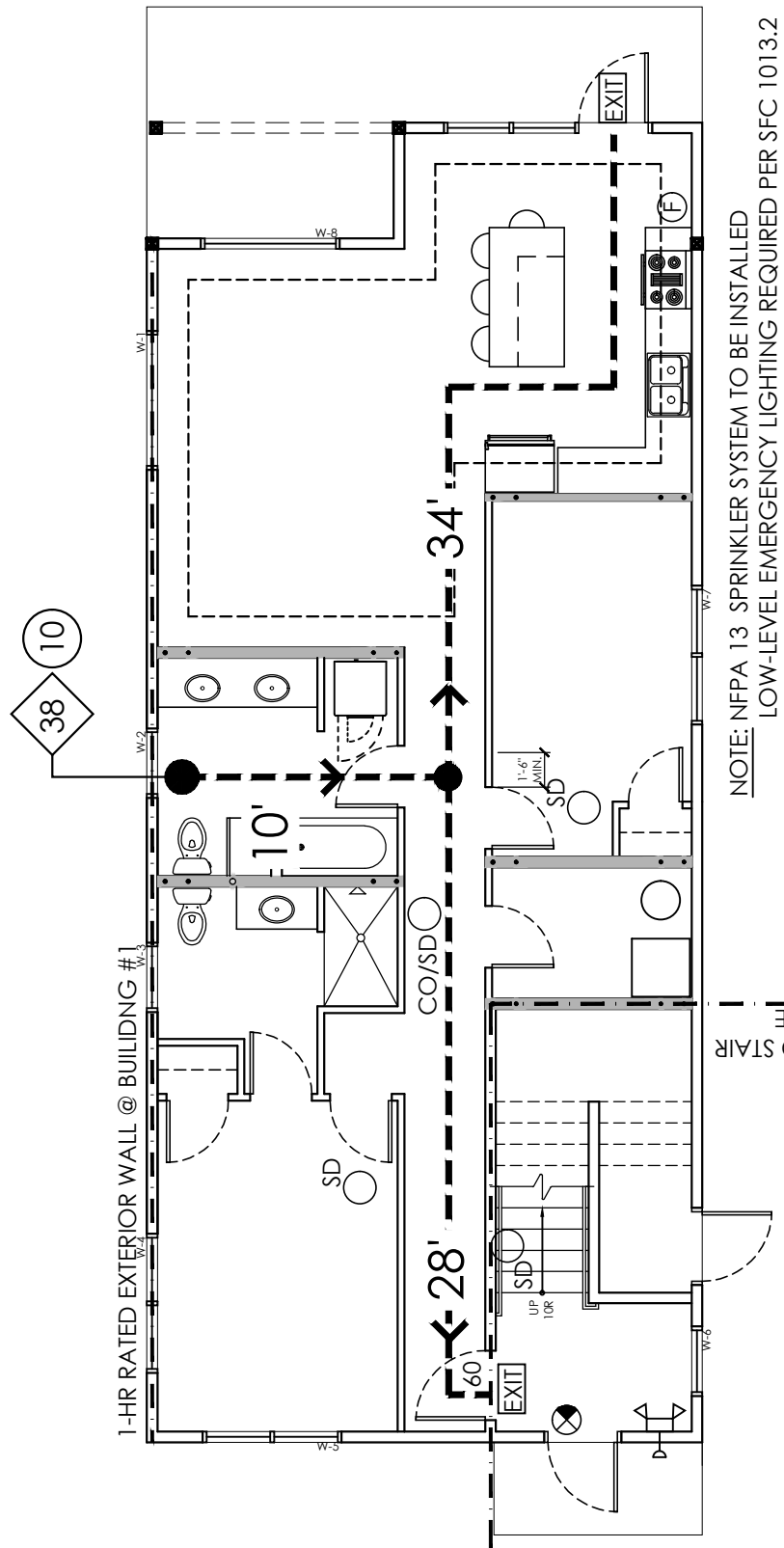
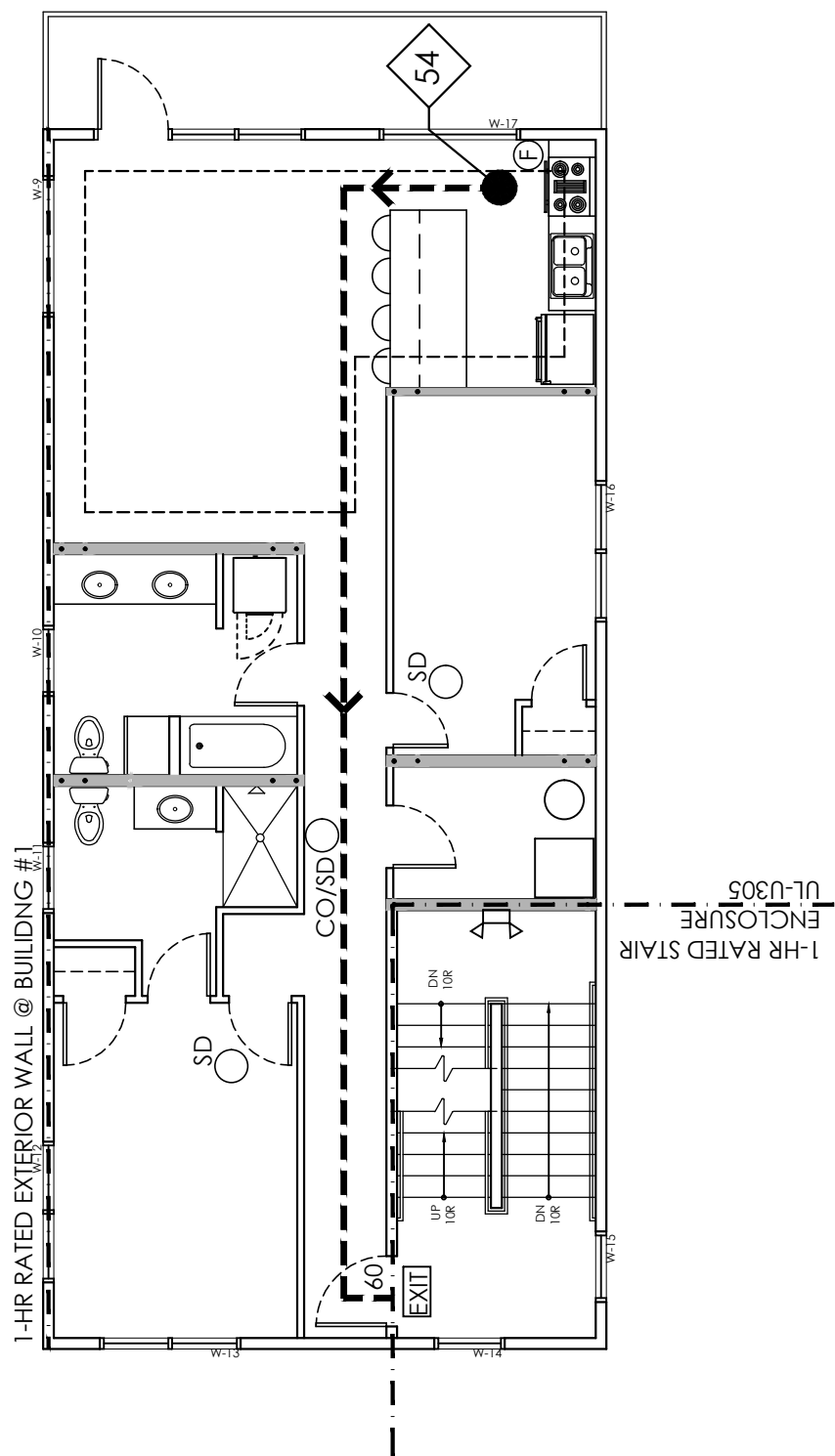
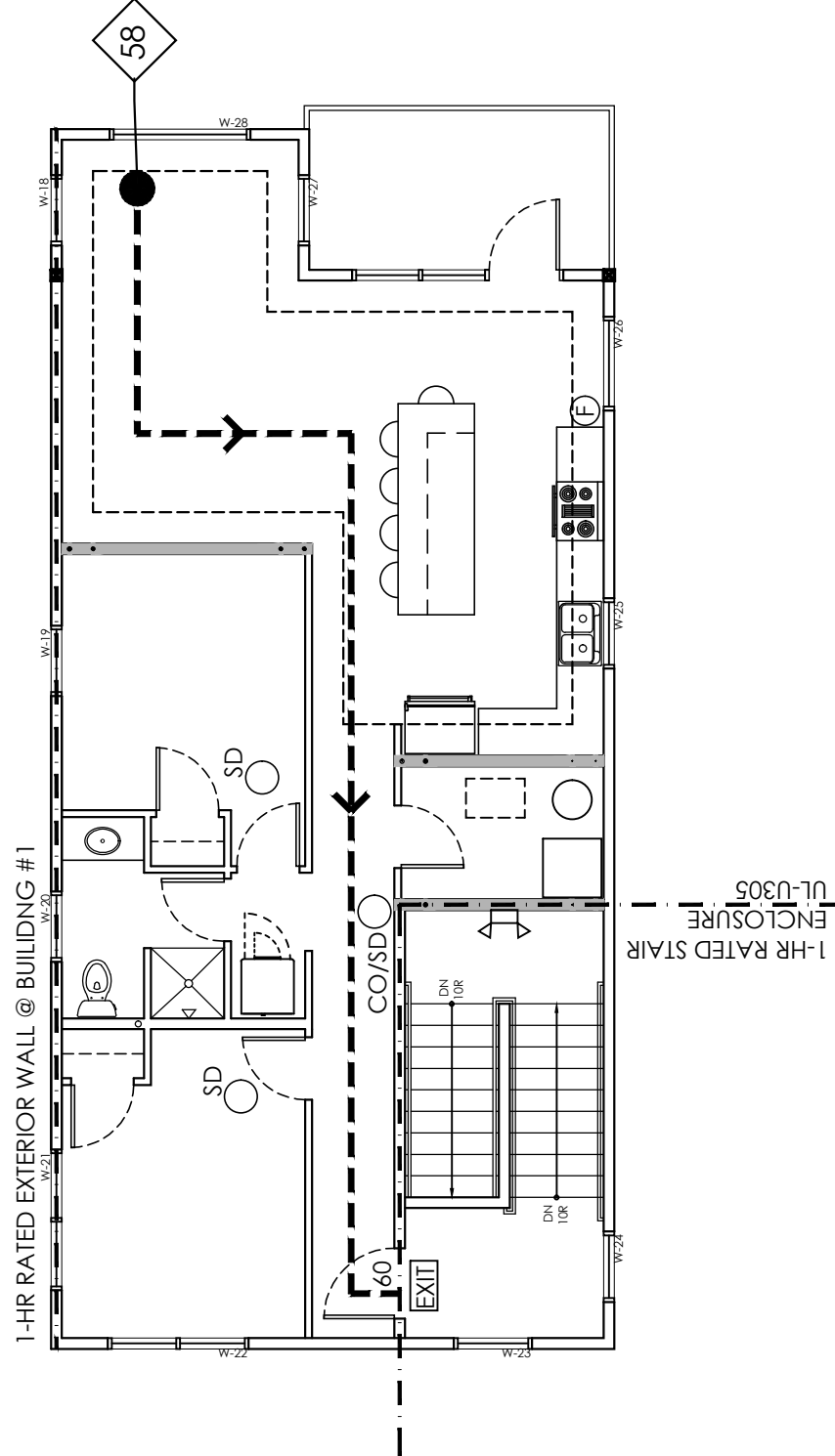
FIRE RESISTIVE REQUIREMENTS:	TABLE 601	BUILDING ELEMENTS	PRIMARY STRUCTURAL FRAME	0 HOUR
			BEARING WALLS [EXT.]	0 HOUR
			BEARING WALLS [INT.]	0 HOUR
			NONBEARING WALLS [EXT.]	0 HOUR
			NONBEARING WALLS [INT.]	0 HOUR
			FLOOR CONSTRUCTION	0 HOUR
			ROOF CONSTRUCTION	0 HOUR
	TABLE 602	EXTERIOR WALLS	<5 FEET	1 HOUR
			5 FEET TO <10 FEET	1 HOUR
			10 FEET TO < 30 FEET	0 HOUR
			> 30 FEET	0 HOUR
	SECTION 705	BUILDINGS ON SAME LOT	WILL COMPLY, SEE NOTE 4 BELOW	
		EXTERIOR WALL OPENINGS	WILL COMPLY	
	SECTION 706	FIRE WALLS	NOT REQUIRED	
	SECTION 707	FIRE BARRIERS	WILL COMPLY	1 HOUR AT EXIT ST
	SECTION 708	FIRE PARTITIONS	WILL COMPLY	1 HOUR
	SECTION 711	FLOOR & ROOF ASSEMBLIES	WILL COMPLY	1 HOUR
	SECTION 713	SHAFT ENCLOSURES	NOT APPLICABLE	

PROJECT REQUIREMENTS

Occupancy:	Residential (Transient)									
Project Area:	R-1									
	R-1	11,895 SF								
	35'									
	Occupant Load:	TABLE 1004.5	Function	Area	Occ Load Factor			Occupant Load		
Project Height:	R-1 (FIRST FLOOR UNIT)		1,241 SF	GROSS			6 OCCUPANTS			
	R-1 (SECOND FLOOR UNIT)		1,170 SF	GROSS			6 OCCUPANTS			
	R-1 (THIRD FLOOR UNIT)		1,100 SF	GROSS			6 OCCUPANTS			
	TOTAL OCCUPANT LOAD						18 OCCUPANTS			
Number of Exits:	SECTION 1006		1							
	EXIT ACCESS TRAVEL DISTANCE:		TABLE 1017		250 FT					
Sanitation Requirements:	TABLE 2002.1		Description		Occ. Load		W.C.-URINAL		LAVATORIES	
	R-1		FURNITURES PROVIDED		-		1 PER UNIT		1 PER UNIT	
			15-0		15		6-9		0	
							0		0	














COMMENTS

1. BUILDINGS #1, #2, AND #3 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS ONE BUILDING PER 705.3
2. BUILDING #4 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS A SEPARATE BUILDING AND AN IMAGINARY PROPERTY LINE IS SHOWN PER 705.3
3. EXISTING BUILDING ON PROPERTY HAS 3 RENTAL UNITS. ONE OF WHICH IS A TYPE B UNIT. BUILDING HAS RAMP AND ENTRY COMPLIANT WITH MN ACCESSIBILITY CODE. UPGRADES WILL BE MADE TO CONVERT TO A TYPE A UNIT.



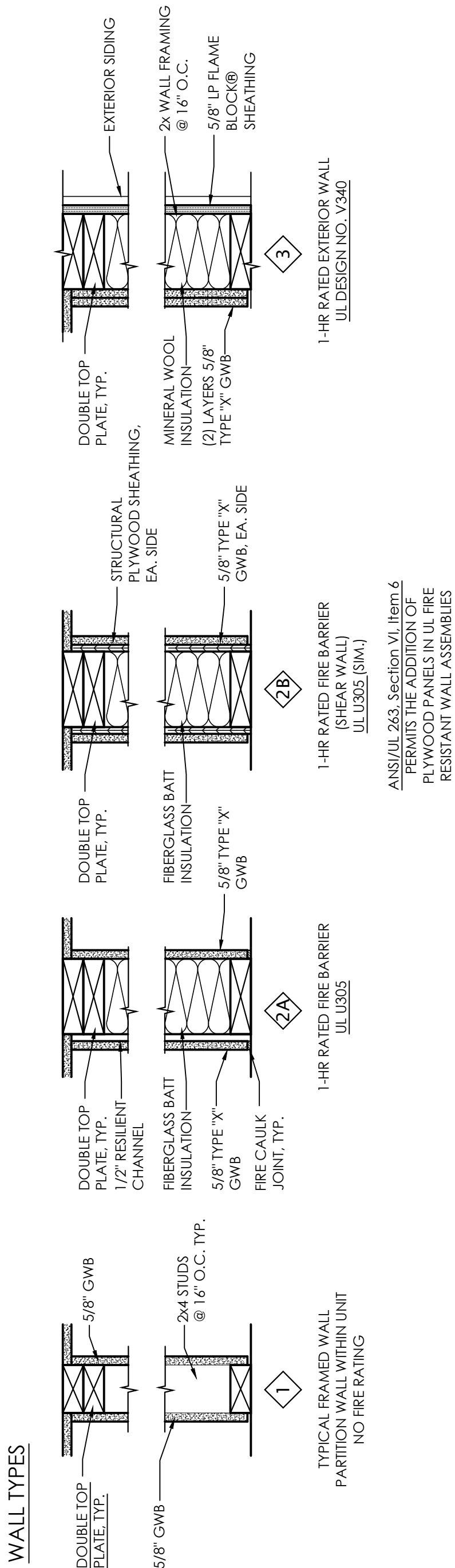
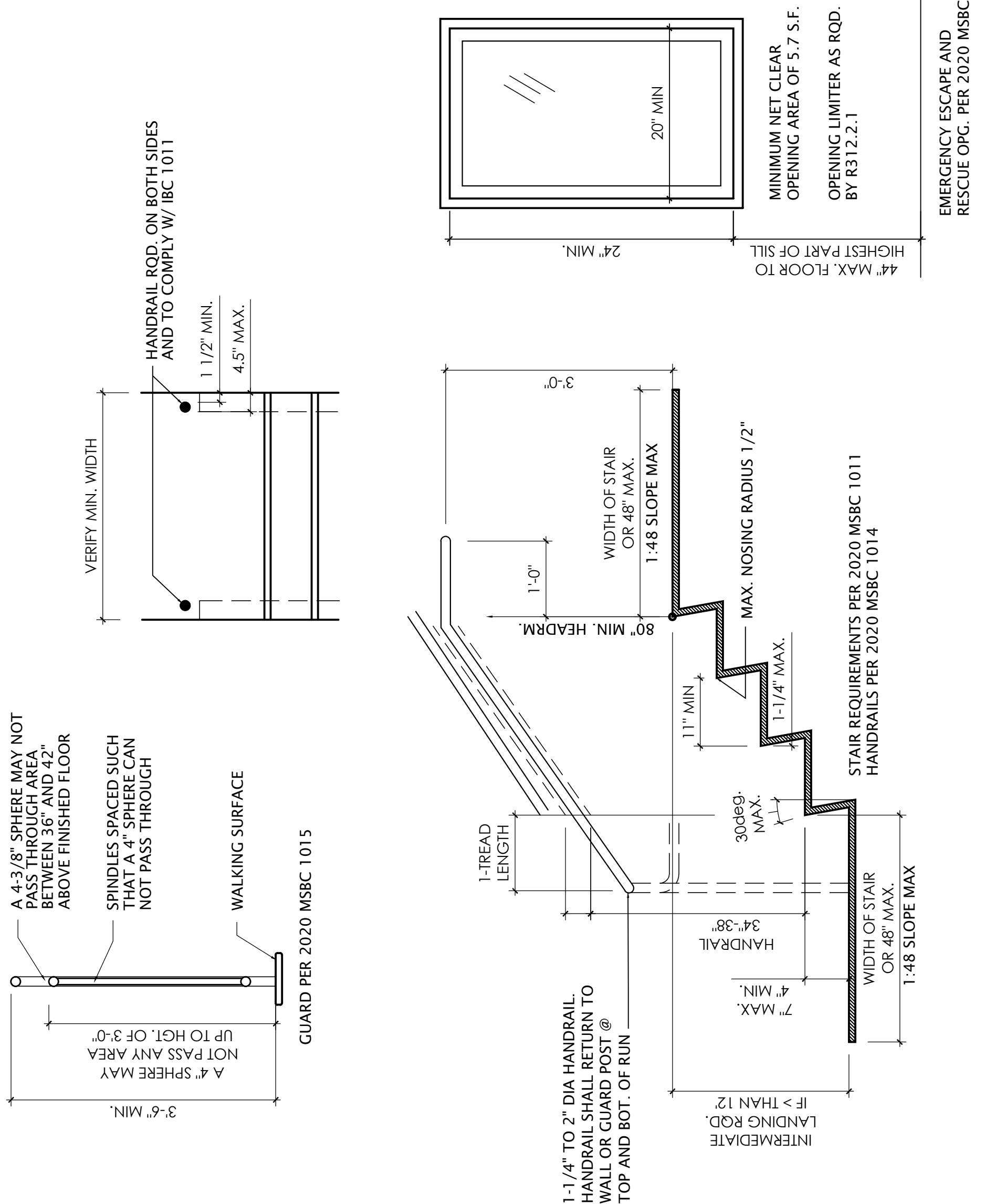
LIFE SAFETY PLANS

1/8"=1'-0"

- ### LIFE SAFETY LEGEND
- | | |
|---|--|
|  | EXIT ACCESS TRAVEL DISTANCE
(SHORTEST DISTANCE) |
|  | COMMON PATH OF EGRESS TRAVEL |
|  | COMMON PATH OF EGRESS TERMINATION POINT |
|  | PATH OF TRAVEL WITH DIRECTION AND DISTANCE |
|  | EXIT SIGNS |
|  | MANEUVERING CLEARANCE |
|  | FIRE EXTINGUISHER |
|  | 30 MIN FIRE-RESISTIVE RATED CONSTRUCTION |
|  | 1 HOUR FIRE-RESISTIVE RATED CONSTRUCTION |
|  | 2 HOUR FIRE-RESISTIVE RATED CONSTRUCTION |
|  | FIRE RATED DOOR / FRAME ASSEMBLY
(NUMBER INDICATES RATING IN MINUTES) |
|  | EMERGENCY LIGHT |
|  | CO/SMOKE DETECTORS |

CODE REQUIREMENTS

3/4"=1'-0"



TYPICAL STRUCTURAL NOTES:
These notes, specify requirements for the structural design represented in these documents. The construction and materials shall comply with all pertinent codes and references.

The contractor shall verify all dimensions and existing conditions in the field that affect construction prior to commencing work. Resolve any discrepancies with the architect prior to construction.

The drawings and specifications represent the completed structure. The contractor is responsible for bracing and shoring (without overstressing) all structural elements as necessary until completion of the project.

DEFERRED SUBMITTALS:
The following items shall be issued as deferred submittals per IBC:
Prefabricated Wood Floor and/or Roof Trusses and I-Joists

All engineering design provided by others and submitted for review shall bear the certification stamp and signature of a qualified professional engineer who is licensed in the State of Minnesota. Under circumstances all the review shop drawings that are considered to be copied/copied construction documents for submittals. The detailer shall produce and submit original documents for review.

All items issued as deferred submittals shall be issued a minimum of 30 days prior to installation and shall not be installed until their design and submittal documents have been reviewed for general conformance to the drawings by the general contractor, the engineer, of record and the building official. A copy of the deferred submittal shall be forwarded to the city after the engineer of record has reviewed the documents and prior to the erection of the deferred submittal items.

DESIGN CODES AND STANDARDS:

2020 Minnesota State Building Code and 2018 International Building Code, as amended and adopted by the State of Minnesota

MATERIAL PROPERTIES:
Reinforcing Steel (Fy):
Typical 60,000 psi
Weldable 60,000 psi

Cast-in-Place Concrete (f'c) at 28 days, 4,000 psi u.n.o.

Structural Fasteners:
Grade 36 Anchor Rods, U.N.O.
Threaded Rods 36,000 psi ASTM F1554
36,000 psi ASTM A36

SAWN LUMBER:

Hem Fir (HF) No. 2 or better:
(Joists and Headers)
Fb 850 psi
Fc 1300 psi parallel to grain
Fv 150 psi
E 1,300,000 psi

Spruce-Pine-Fir (SPF) No. 2 or better:
(Studs and Built-up Posts)
Fb 875 psi
Fc 1150 psi parallel to grain
Fc 425 psi perpendicular to grain
E 1,400,000 psi

Southern Yellow Pine (SYP) No. 2 or better:
(Preservative Treated Wood)
Fv 175 psi
Fc Varies with Lumber width (refer to NDS)
Fc Varies with Lumber width (refer to NDS)
Fc 565 psi perpendicular to grain
E 1,600,000 psi

Douglas-Fir-Larch (DFL) No. 1 or better:
(Heavy Timber, full sawn)
Fv 170 psi
Fc 1000 psi parallel to grain
Fc 625 psi perpendicular to grain
Ft 825 psi
E 1,600,000 psi

Cedar No. 2 grade:
(Wood Decks and Railings)
Fb 800 psi
Fv 225 psi
E 1,400,000 psi

STRUCTURAL COMPOSITE LUMBER:
Laminated Veneer Lumber
(1 3/4" x Depth)
Fb 2,900 psi
Fv 285 psi
Fc 2,150 psi parallel to grain
Fc 750 psi perpendicular to grain
E 2,000,000 psi

Glue Laminated Timber Beams:
Southern Pine 24F-V8
Fb 2,400 psi top and bottom tension
Fv 200 psi
E 1,700,000 psi

DESIGN LOADS:
Risk Category: II
LATERAL LOADS:
Primary Frame Wind Data: V ult = 106 mph
Basic Ultimate Wind Speed: 110
Wind Importance Factor: D
Exposure: No design required

Primary Seismic Data: No design required
GRAVITY LOADS:
Ground Snow Load, Pg: 60 psf
Flat-Roof Snow Load, Pf: 42 psf
Snow Exposure Factor, Ce: 0.70
Snow Load Importance Factor, I: 1.0

Residential Floor Live Load: 40 psf
Habitatle Attics and Sleeping Areas: 30 psf
Residential Balconies and Decks: 60 psf
Floor Topping and Finish Allowance: 20 psf
Mech/Electrical/Misc Allowances: 5 psf

FOUNDATIONS:

The contractor shall verify the location of all existing and new underground utilities prior to beginning excavation.

Unless insulated, shallow, frost-protected foundations are utilized, the minimum dimension from exterior grade to bottom of footing shall typically be 60". Where footings are located adjacent to an unheated space, minimum dimension from exterior grade to bottom of footing shall be 72". **The basis of design for shallow, frost-protected foundations is ASCE-32 (Fw-3130)**

Footings are designed for an assumed minimum soil bearing pressure of 2,000 pounds per square foot on undisturbed, native material (IBC-Table 1806.2 "Presumptive Load-Bearing Values"). Contractor shall be responsible for verification of all bearing soils consistent with this assumption and shall provide the services of a qualified geotechnical engineer as necessary. **Refer to the Geotechnical Evaluation Report prepared by Braun Interlec for additional recommendations and confirmation of assumed minimum allowable bearing pressure (3,000 psi allowable was confirmed). The report was furnished after drawings were issued for construction (report is dated September 29, 2023, Braun Project B2309036).**

All topsoil, fill, organics, and/or other unsuitable bearing material shall be removed below the footings and/or within the building area.

Foundation and retaining walls shall be back filled with free draining fill. Provide drain tile required by the contract documents.

Backfill equally on both sides of foundation walls to prevent overturning or lateral wall movement.

REINFORCED CONCRETE:

The detailing, fabrication and erection of all reinforcing shall be in accordance with the latest edition of ACI-315, "Manual of Standard Practice for Detailing Reinforced Concrete Structures and ACI-318, "Building Code Requirements for Structural Concrete."

All reinforcing bars are deformed and continuous, unless noted otherwise. Refer to drawings for reinforcing lap length schedule.

Provide suitable wire spacers, chairs, etc. for support of reinforcing steel in proper position while placing concrete. All bars shall be tied to prevent displacement while placing concrete. All chairs and slab bolsters shall be plastic or steel with plastic tips. The fabricator shall submit a complete list of accessories and placing details with the shop drawings.

Provide a minimum 3/4 inch chamfer for all exposed concrete corners unless otherwise indicated on Architectural drawings.

Aluminum conduit, aluminum sleeves and aluminum embeds are not permitted in concrete.

Exterior concrete to have 6% +/- 1% entrained air.

Calcium chloride is not permitted as a concrete additive.

Concrete Cover on Reinforcing:

Topping Slab: 3/4" clear top
Slab on Grade: upper third of slab, UNO on plan.
Footings: 3" clear bottom and sides
2" clear top
Walls w/#5 bar and smaller: 1 1/2" clear to earth or weather face
3/4" clear to interior face

CONCRETE SLABS ON GRADE:

The contractor shall submit control or construction joint locations to the architect for approval. Joints shall be detailed as shown on the drawings. The joints shall be spaced as noted below:

Exterior slabs: 24 times slab thickness, maximum;
Interior slabs: 36 times slab thickness, maximum;
Interior slabs w/ carpeting: 48 times slab thickness, maximum.

The panels formed by control or construction joints shall not be "L" shaped and the panel aspect ratio shall not exceed 1.5.

Mechanically vibrate concrete around trench drains, floor ducts, construction joint dowels, architectural features and other embedded items.

WOOD FRAMING- DIMENSION LUMBER:

All member sizes given in the drawings are nominal dimensions.
All lumber shall be kiln-dried, maximum moisture content 15% and grade marked according to the National Forest Products Association Regulations.

All joists (greater than 2 x 8) shall be supported laterally at the ends and at each support by solid blocking except where ends of joists are nailed to a header, band or rim joist or to an adjoining stud. Solid blocking shall be not less than 2" in thickness and the full depth of the joist.

Wood joists shall bear on the full width of supporting members, stud walls, beams, etc., unless otherwise noted.

Do not notch or cut joist unless approved by the engineer.

All beams and joists not bearing on supporting members shall be framed with prefabricated hangers appropriate for both the supported and supporting member.

Provide minimum double stud at bearing ends of all beams and headers; provide solid vertical blocking through floors to the support below.

All walls shall have single bottom plate and double top plate.

Double top plate splices shall lap 4'-0" and be nailed with 8- 16d sinkers nails equally spaced with 4" end distance, unless noted otherwise on plan.

Unless otherwise noted, bottom plates of all exterior stud walls and interior bearing walls shall be anchored to new concrete with 5/8" diameter anchor bolts at 4'-0" o.c.

All exterior lumber and all lumber in contact with concrete or masonry shall be treated Southern Yellow Pine. Each wall segment shall have a minimum of 2 anchors with one anchor located within 12" of each end.

All exposed connectors or those in contact with treated lumber shall have corrosion protection (stainless steel or as otherwise approved).

GLUED LAMINATED TIMBER:
Glued laminated members shall be fabricated in conformance with ANSI Standard A190.1, American National Standard for Structural Glued Laminated Timber, or other code-approved design, manufacturing and/or quality assurance procedures.
Each member shall bear an AITC or APA-ENS identification mark or be accompanied by a certificate of conformance.

Glued laminated timber supplier shall submit shop drawings showing erection plan, bearing conditions, and anchorage details for approval.

For appearance classification of Architectural, Premium, Framing, or Industrial, refer to the architectural drawings.

Adhesive shall be wet-use exterior waterproof glue.

All member sizes are given on plan and are net dimensions.

One coat of end sealer shall be applied immediately after trimming in either shop or field.

Do not drill, cut or notch members unless approved by the engineer or the glued laminated member manufacturer.

Glue laminated members that are treated with wood preservative shall comply with AITC 109.

PREFABRICATED WOOD FLOOR AND ROOF TRUSSES:

Truss Plate Manufacturer shall be a current member in good standing of the Truss Plate Institute. The Truss Fabricator shall participate in a third-party quality assurance program that is approved by a code approved inspection agency or that meets the requirement of the Truss Plate Institute.

Truss Supplier shall submit shop drawings and design calculations for review.

Prior to fabrication of trusses the Truss Supplier shall submit a record copy of shop drawings and design calculations incorporating review comments. The shop drawings are certified by a qualified Professional Engineer registered in the state where the project is located.

The configuration of the web members for roof trusses shall be determined by the manufacturer in accordance with all architectural and structural criteria. Field modification of prefabricated trusses is not permitted.

The truss chords shall be designed for the following minimum dead loads and deflection criteria.

Roof: top chord 10 psf; bottom chord 10 psf

Floor: top chord 15 psf; bottom chord 10 psf

Roof: Live load deflection < L/360, total load deflection < L/240
Floor: Live load deflection < L/480, total load deflection < L/360 (3/4" maximum)

Truss spacing shall not exceed 24" OC, unless noted otherwise on plan.

Align truss web members throughout a bay. The contractor shall coordinate any mechanical requirements with the truss fabricator.

Truss Plate connections shall be designed in accordance with the Truss Plate Institute.

All roof truss bearing points shall be anchored with a minimum of one Simpson H1 truss anchor.

All floor truss bearing points shall be anchored with a minimum of one Simpson H2.5 truss anchor.

WOOD STRUCTURAL PANELS:

Wood structural panels shall conform to the requirement of "U.S. Product Standard PS 1 for Construction and Industrial Plywood"; "U.S. Product Standard PS 2 Performance Standard for Wood-Based Structural-Use Panels", or APA PMP-108 Performance Standards. Panels shall be APA Rated Sheathing, Exposure 1, of the thickness and Span Rating shown on the drawings.

Wood structural panel installation shall be in conformance with APA recommendations. Allow 1/8" spacing at panel ends and edges, unless otherwise recommended by the panel manufacturer.

All roof sheathing and sub-flooring shall be installed with face grain perpendicular to supports, except as indicated on the drawings.

Floor and roof sheathing shall either be blocked or tongue-and-groove. Floor sheathing shall be field glued to the framing using adhesives meeting APA Specifications AFS-01 or ASTM D3496.

When roof sheathing is nailed directly to blocking, the blocking shall be nailed to support members with a minimum of 16d nails at 4' OC.

Sub-flooring sheathing shall have tongue and groove joints or be supported by blocking.

Sub-flooring panels shall be field glued to the framing using adhesives meeting APA Specifications AFS-01 or ASTM D3496.

Tongue and Groove panels shall be glued at the tongue and groove joint.

Shear wall sheathing and exterior wall sheathing shall be installed horizontally and blocked with 2x framing at all panel edges.

Prefabricated shear walls shall be installed according to the manufacturer's recommendations, including all anchor bolts and connection to adjacent framing.

WOOD FASTENERS – NAILING:

Framing nail sizes specified on the drawings are based on the following specification U.N.O.:

Size	Length	Diameter
6d	2"	0.113"
8d	2 1/2"	0.131"
10d	3"	0.148"
12d	3 1/4"	0.148"
16d	3 1/2"	0.148"

All framing nails shall conform to ASTM F667, "Standard Specification for Power Driven Fasteners: Nails, Spikes and Staples" and NER-272 "Power Driven Staples and Nails for Use in All Types of Building Construction"

Nails shall be identified by labels attached to their containers that show the manufacturer's name and NBS report number, nail shank diameter, and length. Submit this information prior to framing.

If the contractor proposes the use of alternate nails, they shall submit (prior to construction) nail specifications with certified calculations showing structural equivalence to the engineer for review and approval.

Nails fastening APA rated plywood sheathing shall be driven flush to the face of sheathing with no counter sinking permitted. A nail sheathing as necessary to comply.

WOOD FASTENERS — STRUCTURAL WOOD SCREWS:

Structural wood screws as specified in the drawings refer to threaded steel screws that are self-drilling, dowel-type fasteners used primarily for wood-to-wood connections. These carbon steel screws are manufactured by a cold-formed process and are heat-treated with rolled threads. No pre-drilling is required.

Screws are specified in the drawings per nominal diameter and length. The diameter refers to a nominal measure of the threads, which is larger than the untreaded shaft of the fastener. Length specified does not include fastener head. Actual dimensions and available lengths vary with manufacturer.

Acceptable products are listed below. Contractor may submit alternate products for approval by structural engineer or record.

The following minimum dimensions and material properties shall apply:

Size	Min Shank: Root Diameters (in)	Acceptable Products
1/4" Diam	0.169"; 0.150"	GRK RSS
5/16" Diam	0.169"; 0.172"	GRK RSS, Simpson SDWH, Fastenmaster Timberlok
3/8" Diam	0.219"; 0.191"	GRK RSS, Simpson SDWS, Fastenmaster Ledgerlok

Minimum Allowable Tensile strength of fastener (lbs):
1/4" Diameter 1112 lbs
5/16" Diameter 1210 lbs
3/8" Diameter 1505 lbs

Minimum Allowable Shear strength of fastener (lbs):
1/4" Diameter 754 lbs
5/16" Diameter 770 lbs
3/8" Diameter 910 lbs

Minimum Bending Yield Strength: 165,000 psi



ARCHITECTURE STUDIO, LLC

501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802

218-740-5219

WWW.AROLAARCH.COM

SIGNATURE

RYAN J. AROLA

DATE

5/11/2023

LICENSE NO.

52478

OF THE STATE OF MINNESOTA.

MY DIRECT SUPERVISION AND THAT I AM OR REPORT WAS PREPARED BY ME OR UNDER DULUTH, MN 55802

PAUL A. JOHNSON

Signature

Paul Johnson

License #

20379

DATE

5/11/2023

LICENSE NO.

52478

CONSTRUCTION SERVICES & INSPECTIONS

Reviewed for Code Compliance

MSBC 2020

Chris Machmer 10/10/2023

DRAGESTIL HOTEL - BUILDINGS 1, 2, 3

SOUTH LAKE AVENUE / MINNESOTA AVENUE

DULUTH, MN 55802

ISSUE DATE

5/19/2023

PROJECT NO.

2166

REVISIONS

SHEET NO.

A0.4

WOOD SHEAR WALL CONSTRUCTION SCHEDULE						
WALL TYPE	WALL PANEL CONSTRUCTION	WALL PANEL FASTENING			SEE NOTE	TOP AND SILL PLATE FASTENING - SEE NOTE 20
		EDGE SPACING	INTERMEDIATE SPACING	MINIMUM FASTENER SIZE		
SWA	1 LAYER 5/8" GYP BOARD ONCE SIDE OF WALL - BLOCKED	7"	7"	6d COOLER OR WALL BOARD NAIL 1 3/4" LONG OR		
	1 LAYER EXTERIOR SHEATHING ONE SIDE OF WALL - BLOCKED	3"	12"	16 GA STAPLE, 1 1/2" LESS, 1 5/8" LONG	11 TO 15	16d AT 6" OR 3" x 0.131" AT 4"
SWB	1 LAYER 1/2" OSB OR PLYWOOD ONE SIDE OF WALL - BLOCKED	3"	12"	16d COMMON OR GALVANIZED BOX NAIL	16, 18	16d AT 7" OR 3" x 0.131" AT 2"
	1 LAYER 1/2" GWB ONE SIDE OF WALL - BLOCKED	7"	7"	8d COMMON OR GALVANIZED BOX NAIL	16, 18	16d AT 3" OR 3" x 0.131" AT 2"
SWC	1 LAYER 1/2" OSB OR PLYWOOD EACH SIDE OF WALL - BLOCKED	3"	12"	16d COMMON OR GALVANIZED BOX NAIL	17 TO 19	16d AT 7" OR 3" x 0.131" AT 2"

NOTES:

1. PROVIDE 2 STUDS AT EACH END OF SHEAR WALL. END STUDS SHALL RECEIVE EDGE NAILING.
2. ALL BLOCKING IN WALLS SHALL MEET OR EXCEED STUD GRADE.
3. JOINTS SHALL OCCUR AT THE CENTERLINE OF STUDS AND BLOCKING.
4. REINFORCE ARCHITECT IF ADDITIONAL LAYERS OF 6" BOARD ARE REQUIRED FOR FINISHES.
5. CONTRACTOR'S OPTION - PROVIDE CLIPS AT TOP AND SILL PLATE BY ALTERNATE MANUFACTURER THAT MEET OR EXCEED CAPACITY OF CLIPS INDICATED IN SCHEDULE.
6. SEE SHEAR WALL BASE CONNECTION SCHEDULE FOR ANCHORAGE TO SUPPORT MATERIAL.
7. SEE HOLD DOWN SCHEDULE FOR HOLD DOWN INFORMATION.
8. TOP AND SILL PLATE NAILING SHALL BE STAGGERED WHERE NAILS ARE SPACED AT 7" O.C.
9. TOP AND SILL PLATE NAILING SHALL BE STAGGERED WHERE NAILS ARE SPACED AT 7" O.C.
10. ALL FASTENERS IN CONTACT WITH TREATED WOOD SHALL BE GALVANIZED.

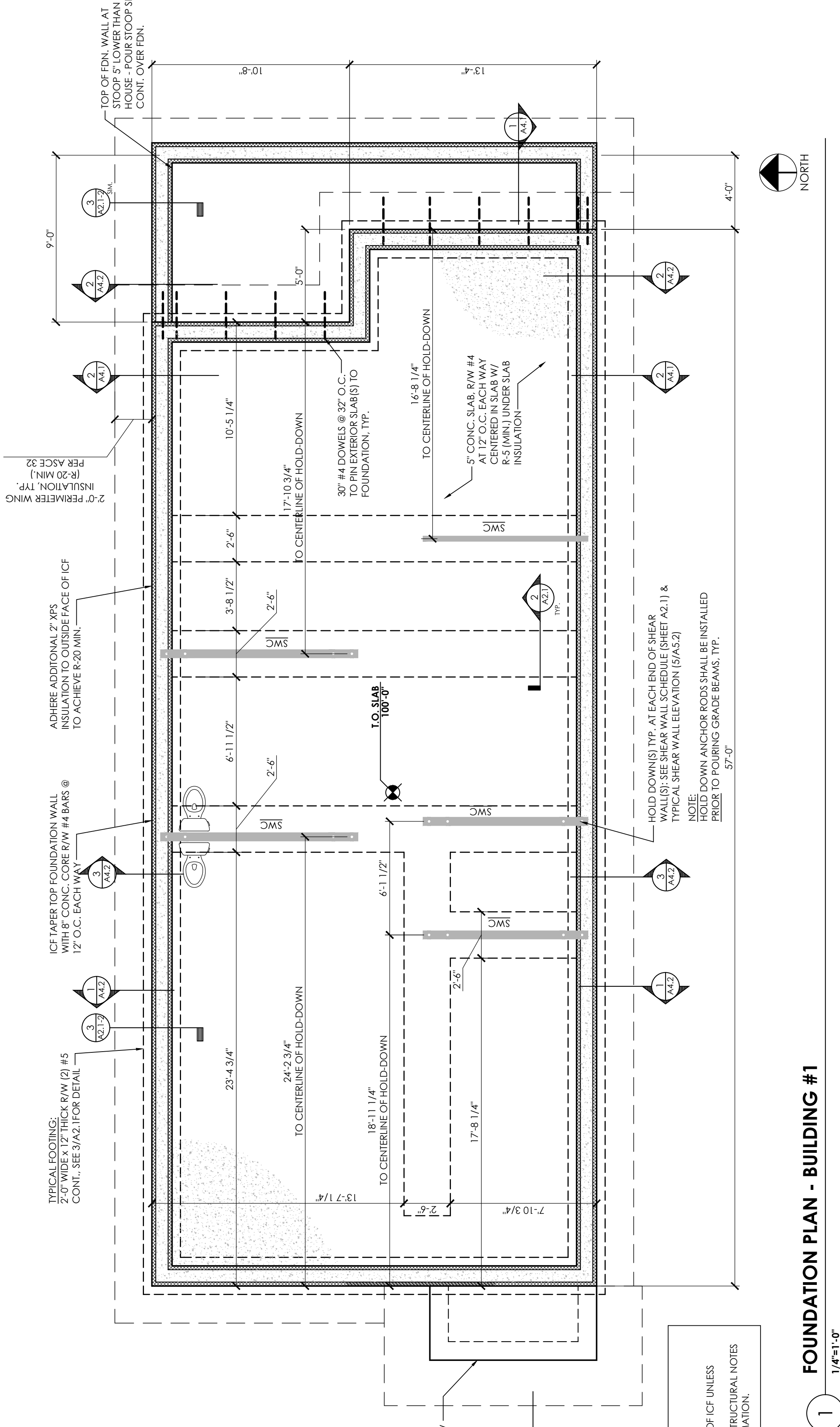
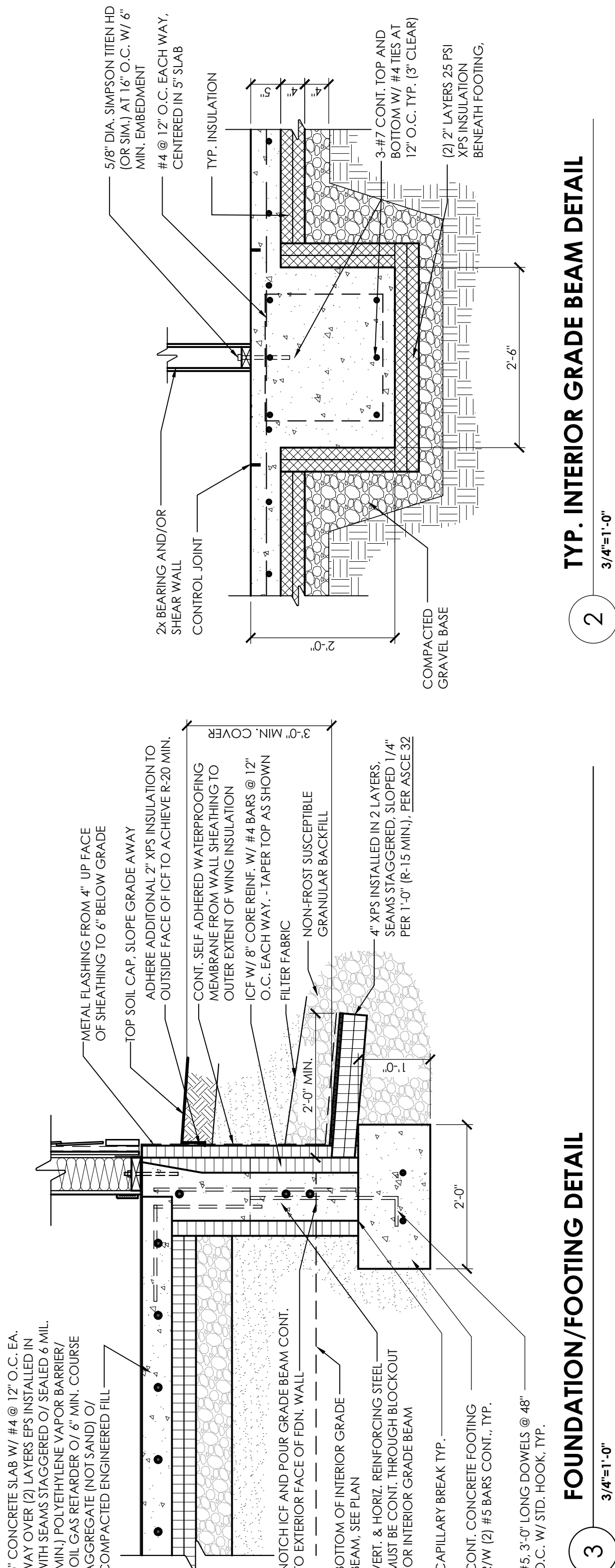
ADDITIONAL NOTES PER SCHEDULE:

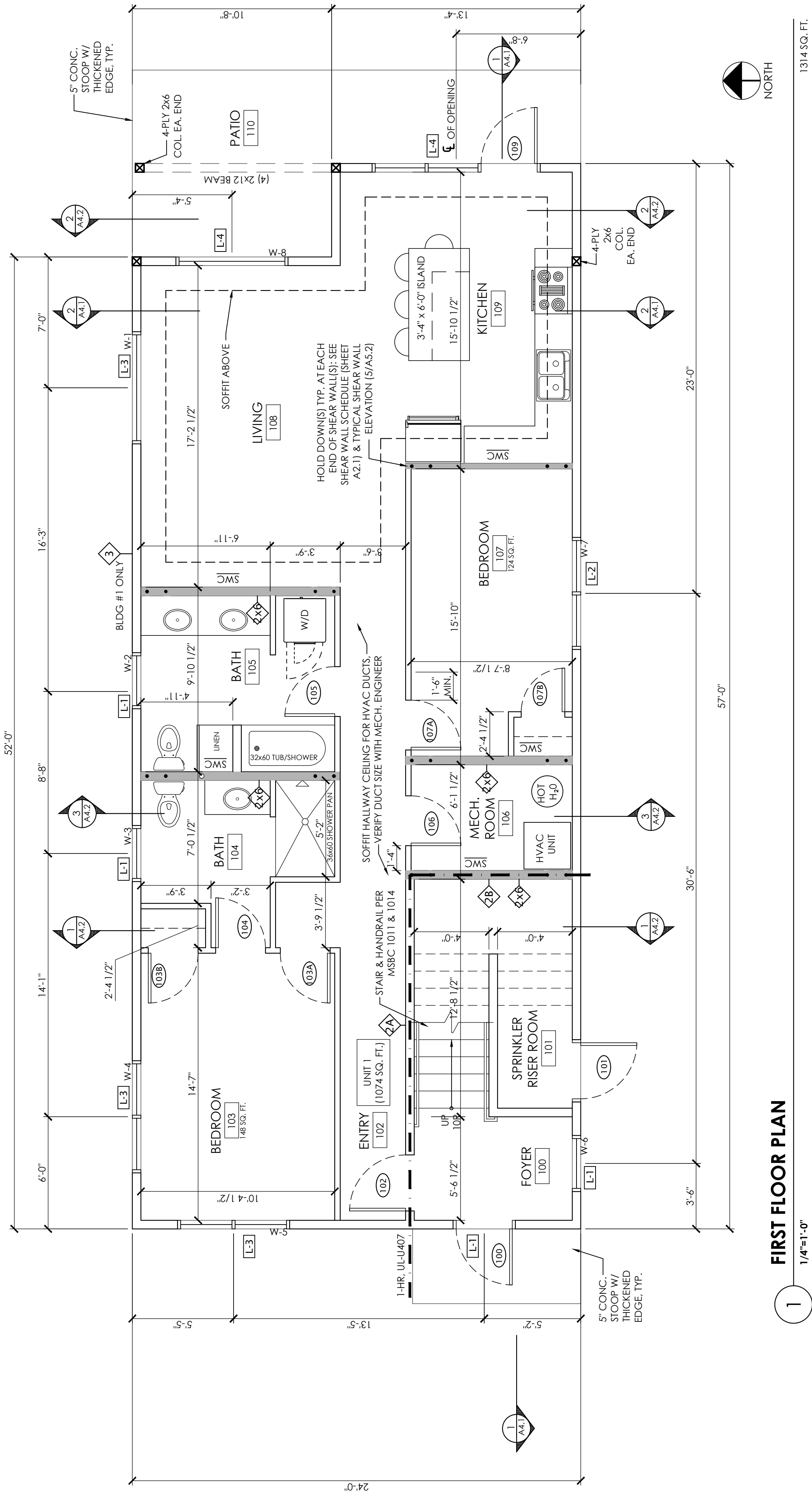
11. ALL WALLBOARD NAILS INDICATED IN SCHEDULE SHALL BE 0.120" DIA. AND HAVE MINIMUM 38° HEAD.
12. STUDS SHALL BE GALVANIZED, HAVE 7/16" MINIMUM CROWN WIDTH AND BE INSTALLED PER MANUFACTURER'S TRAINING WEBSITE.
13. 6d NAILS MAY BE SUBSTITUTED WITH NO. 6 - 2" TYPE W DRYWALL SCREWS. 8d NAILS MAY BE SUBSTITUTED WITH NO. 6 - 2 1/2" TYPE W DRYWALL SCREWS.
14. PROVIDE EXTERIOR GYP BOARD WHERE SHEAR WALL IS AN EXTERIOR WALL.
15. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING TO MATCH THE WALL SIZE.
16. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING 2" NOMINAL OR WIDER.
17. PROVIDE 1" MINIMUM PENETRATION INTO STUD AT 16d NAIL AND 3/8" MIN AT 8d NAIL.
18. PROVIDE 1 1/2" MINIMUM PENETRATION INTO STUD AT 16d NAIL AND 1/2" MIN AT 8d NAIL.
19. STUDS AT ADJOINING PANEL EDGES SHALL BE 3" NOMINAL WOOD OR GREATER.
20. USE EITHER SPECIFIED CLIP ANGLE OR NAILING AS SPECIFIED BY REFERRING DETAIL.

5' CONC. STOOP W/
THICKENED EDGE

FOUNDATION NOTES:

1. DIMENSIONS ARE TO FACE OF ICE UNLESS
OTHERWISE NOTED.
2. SEE BUILDING SECTIONS & STRUCTURAL NOTES
FOR REINFORCING INFORMATION.





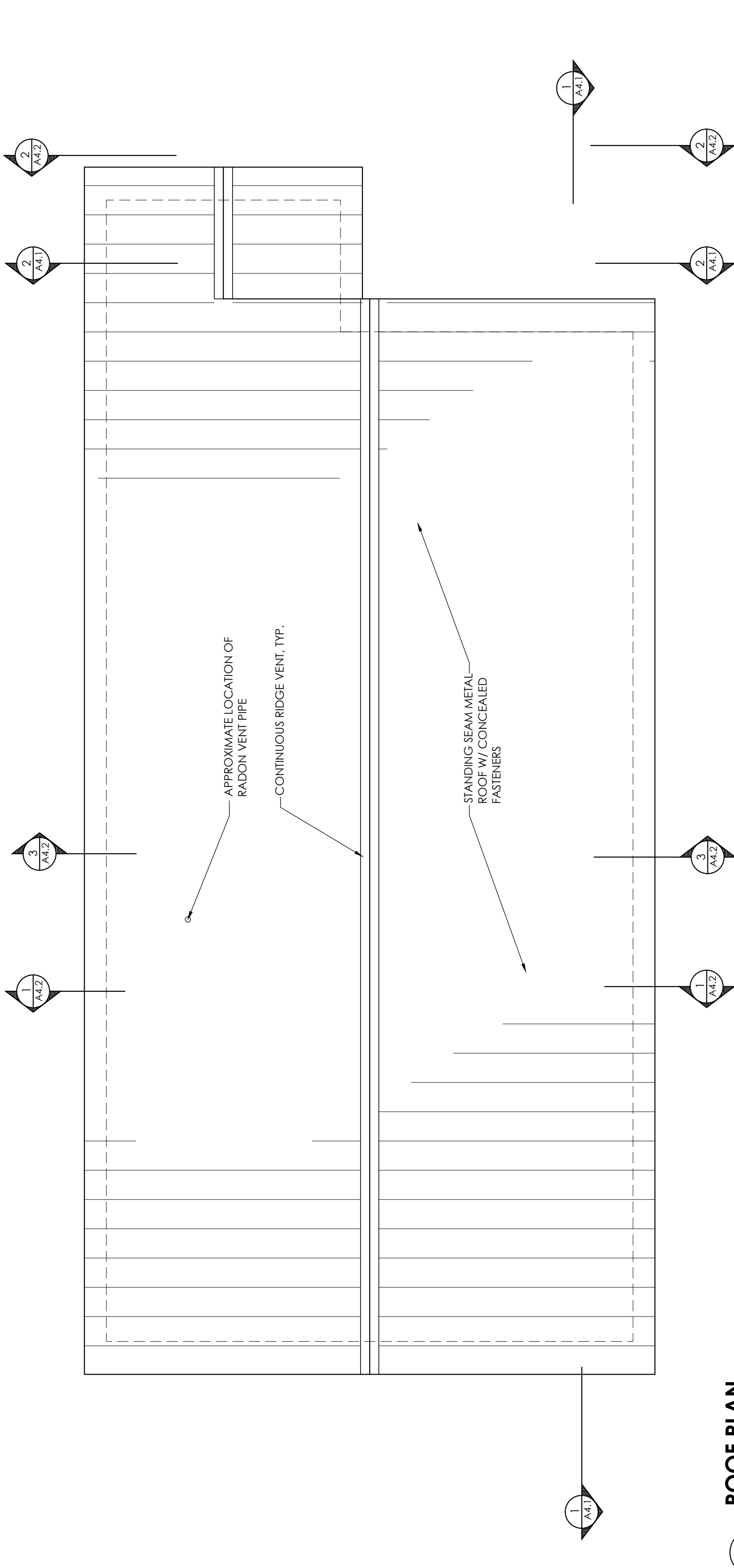
FIRST FLOOR PLAN

1/4"=1'-0"

1314 S.Q. ET.

- GENERAL FRAMING NOTES:**
1. SEE HEADER SCHEDULE FOR SIZE & BEARING REQUIREMENTS
 2. WHERE WINDOWS ARE 6" APART, HEADERS ARE REQUIRED TO USE CONCEALED FLANGE JOIST HANGERS (SIMPSON HUC28-2) FOR THE HEADERS AND 4" CANT KING STUDS AT EACH 6" JAMB BETWEEN WINDOW OPENINGS.
 3. ALL EXTERIOR WALLS ARE SHEAR WALLS, TYPE SW4, INTERIOR WALLS USED AS SHEAR WALLS ARE AS NOTED ON PLAN. REFER TO WOOD SHEAR WALL CONSTRUCTION SCHEDULE, TYP.
 4. SEE SHEET A2.1 FOR SHEER WALL SCHEDULE

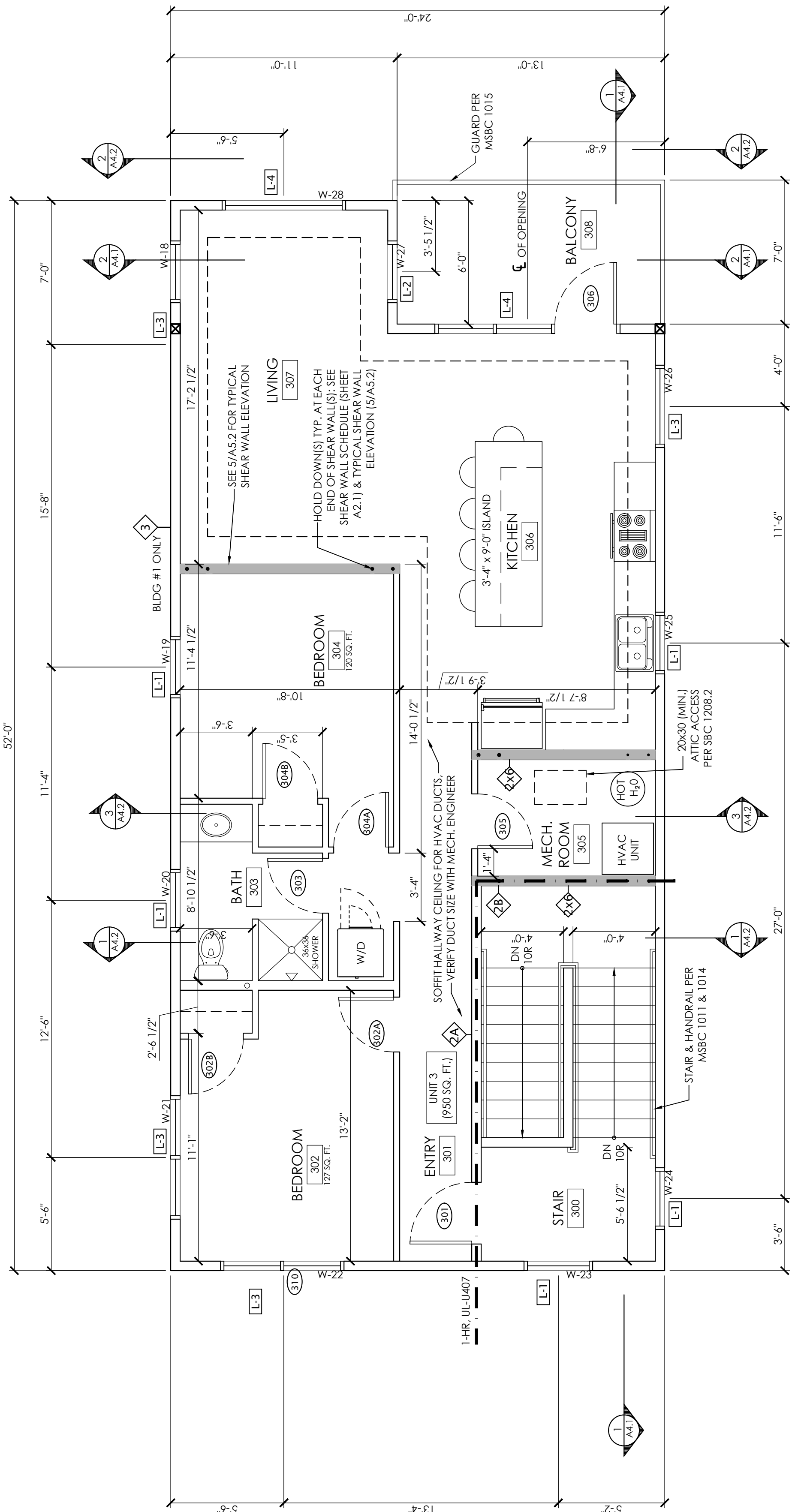
HEADER SCHEDULE	
MARK	DESCRIPTION
L-1	(2) 2X6 BOXED BEAM WOOD W/ 1-1/2" MIN. BRG. EACH END
L-2	(2) 2X6 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-3	(2) 2X10 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-4	(3) 2X12 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END



ROOF PLAN

2

1/4"=1'-0"



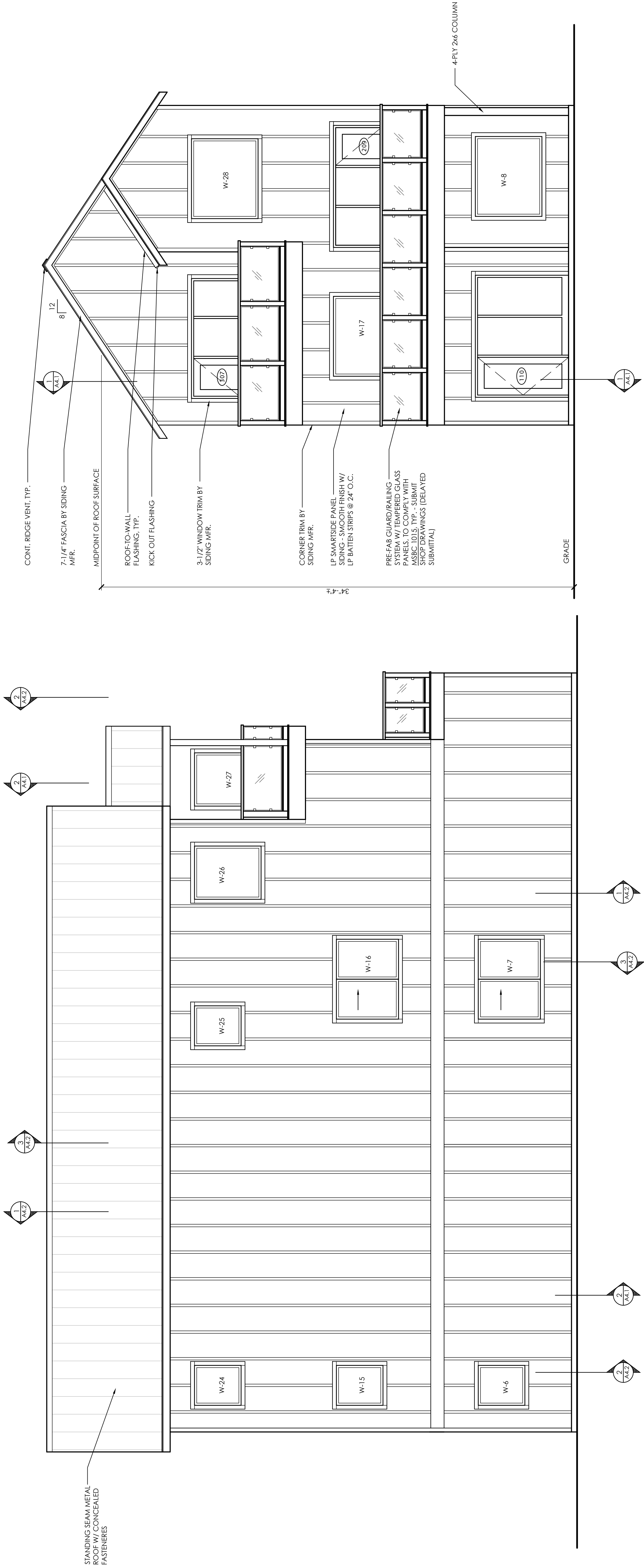
1
THIRD FLOOR PLAN
1/4"=1'-0"

1/4"=1'-0"

1170 SQ. FT.

- GENERAL FRAMING NOTES:**
1. SEE HEADER SCHEDULE FOR SIZE & BEARING REQUIREMENTS
 2. WHERE WINDOWS ARE 6" APART, HEADERS ARE REQUIRED TO USE CONCEALED FLANGE JOIST HANGERS (SIMPSON HUC8-2) FOR THE HEADERS AND 4" CONT. JOIST STUDS AT EACH 6" JAMB BETWEEN WINDOW OPENINGS.
 3. ALL EXTERIOR WALLS ARE SHEAR WALLS. TYPE SWA, INTERIOR WALLS USED AS SHEAR WALLS ARE AS NOTED ON PLAN. REFER TO WOOD SHEAR WALL CONSTRUCTION SCHEDULE, TYPE 1.

MARK	DESCRIPTION
L-1	(2) 2X4 BOXED BEAM WOOD W/ 1-1/2" MIN. BRG. EACH END
L-2	(2) 2X8 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-3	(2) 2X10 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END
L-4	(3) 2X12 BOXED BEAM WOOD W/ 3" MIN. BRG. EACH END



SOUTH ELEVATION (BUILDING #1,2,3)

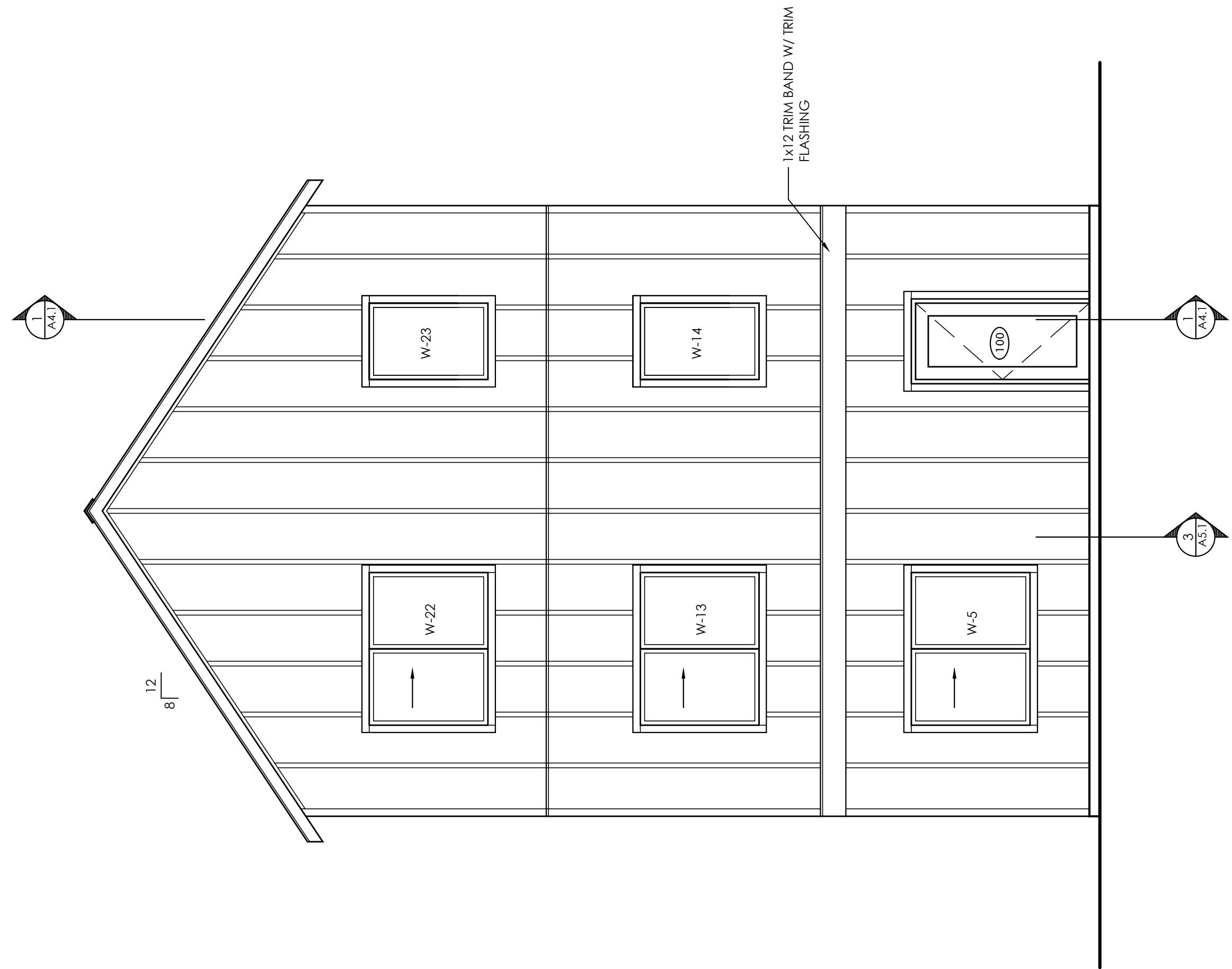
EAST ELEVATION (BUILDING #1,2,3)

1/4"=1'-0"

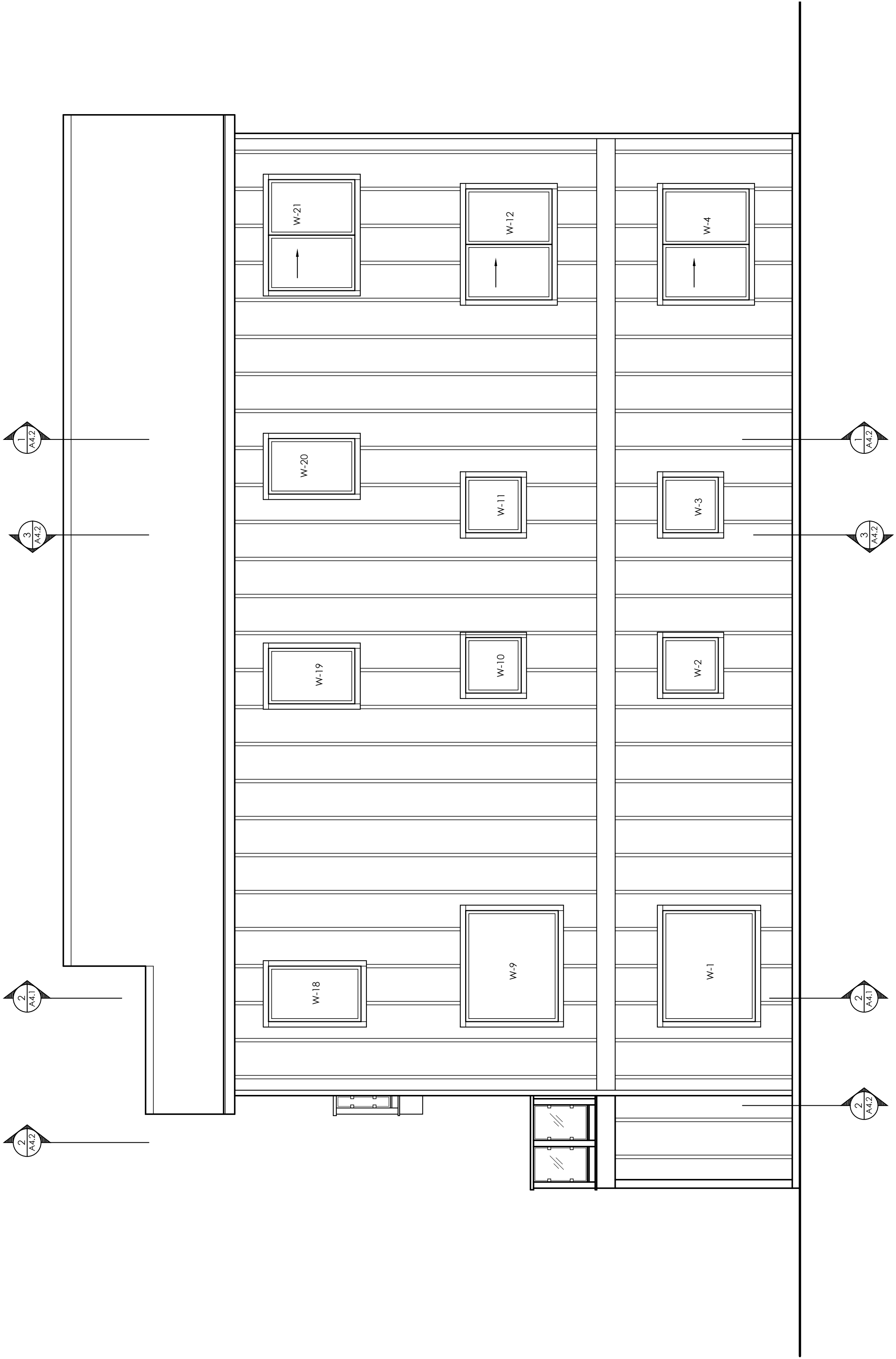
1/4"=1'-0"

% OF OPENING CALCULATIONS

THIRD FLOOR	41 SQ. FT. (WINDOWS)/436 SQ. FT. (WALL AREA) = 8.3%
SECOND FLOOR	38.5 SQ. FT. (WINDOWS)/490 SQ. FT. (WALL AREA) = 7.8%
FIRST FLOOR	58.5 SQ. FT. (WINDOWS)/554 SQ. FT. (WALL AREA) = 10.5%

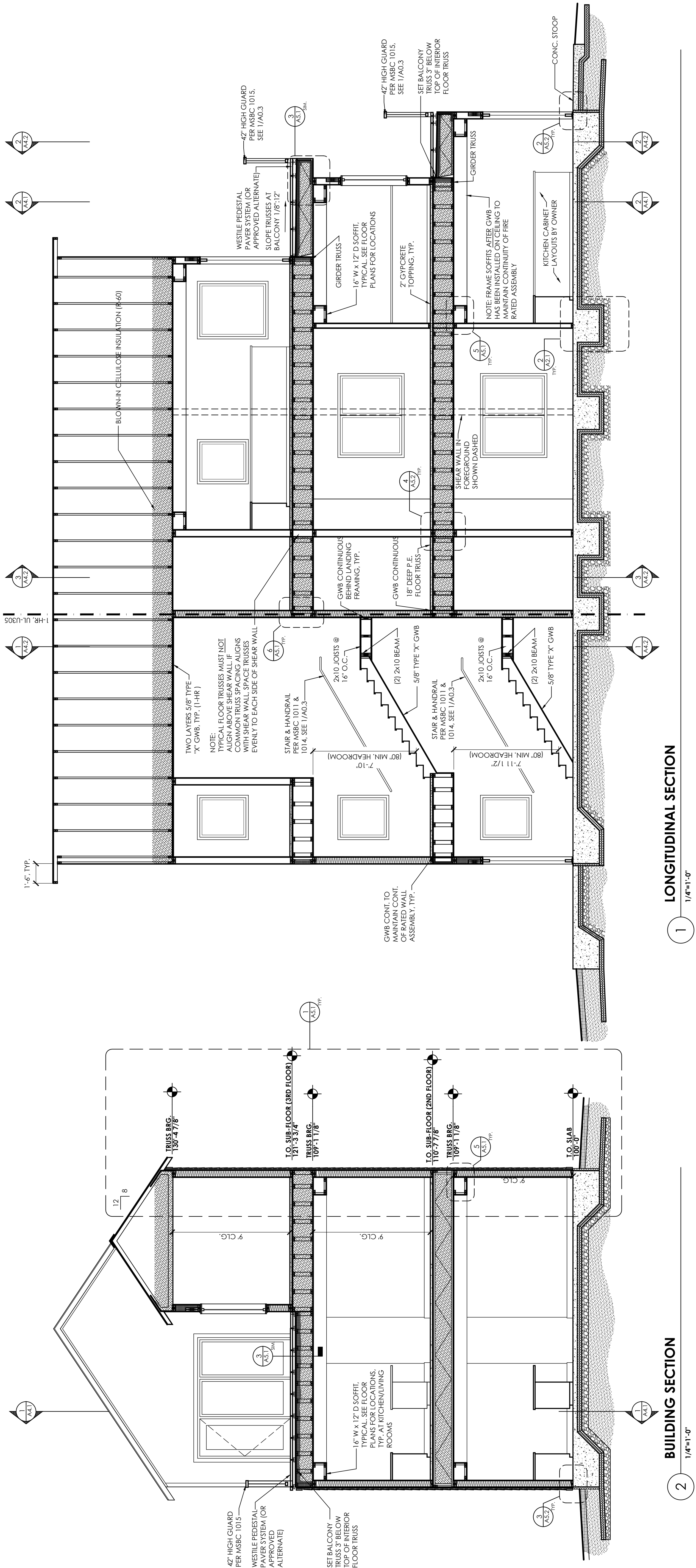


WEST ELEVATION (BUILDING #1,2,3)



NORTH ELEVATION (BUILDING #1,2,3)

% OF OPENING CALCULATIONS	
THIRD FLOOR	86 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 18.2%
SECOND FLOOR	76 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 16.2%
FIRST FLOOR	76 SQ. FT. (WINDOWS)/470 SQ. FT. (WALL AREA) = 16.2%



REVISIONS

PROJECT NO.
2166

ISSUE DATE
5/19/2023

DRAGESTIL HOTEL - BUILDINGS 1, 2, 3

SOUTH LAKE AVENUE / MINNESOTA AVENUE

DULUTH, MN 55802

Construction Services & Inspections

Reviewed for Code Compliance

MSBC 2020

Chris Machmer 10/06/2023

License #
20379

Date
5/11/2023

Signature: *Paul A. Johnson*

PAUL A. JOHNSON

Engineer

SIGNATURE

RYAN J. AROLA

DATE

5/11/2023

LICENSE NO.

52478

OF THE STATE OF MINNESOTA.

OR REPORT WAS PREPARED BY ME OR UNDER

MY DIRECT SUPERVISION AND THAT I AM

A DULY LICENSED ARCHITECT UNDER THE LAWS

HERE BY CERTIFY THIS PLAN, SPECIFICATION,

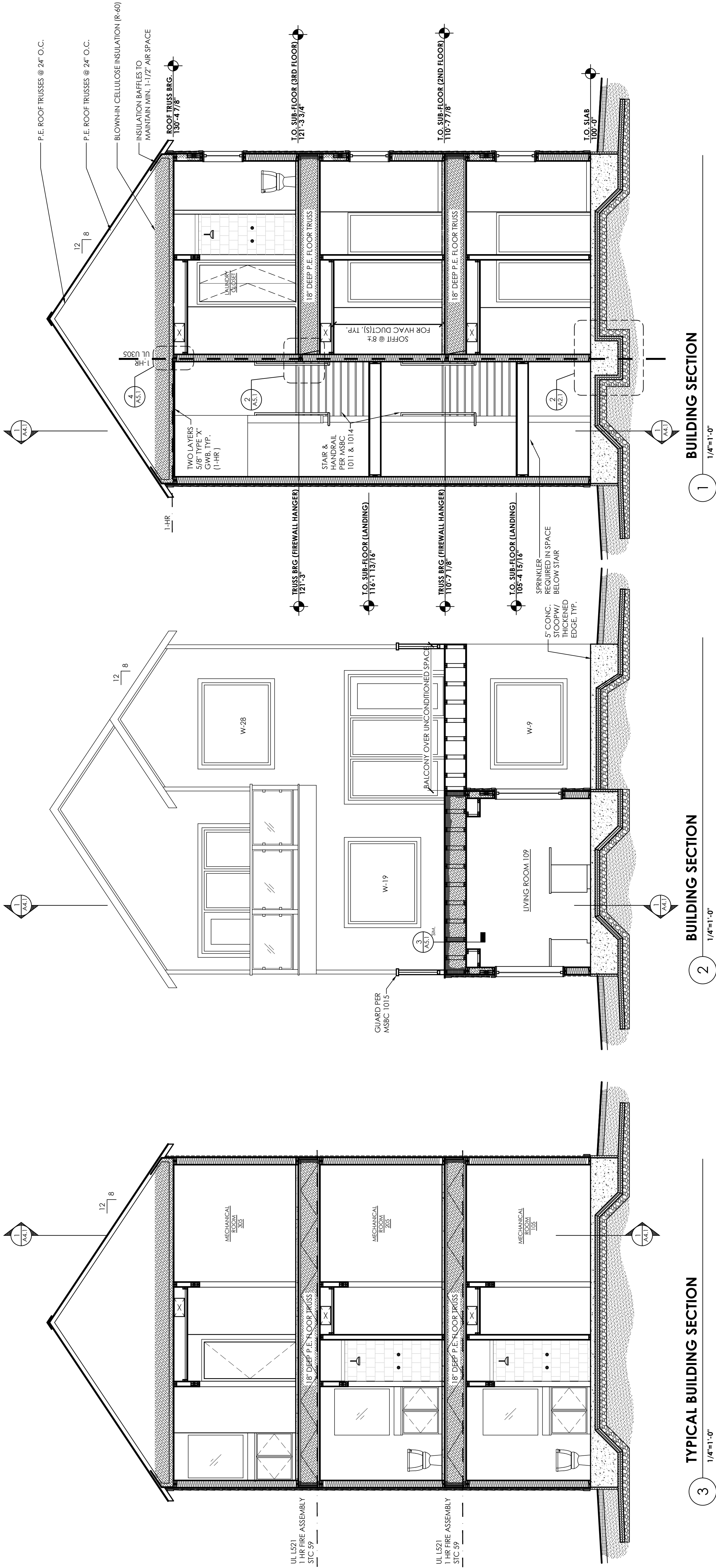
AROLA

ARCHITECTURE STUDIO, LLC

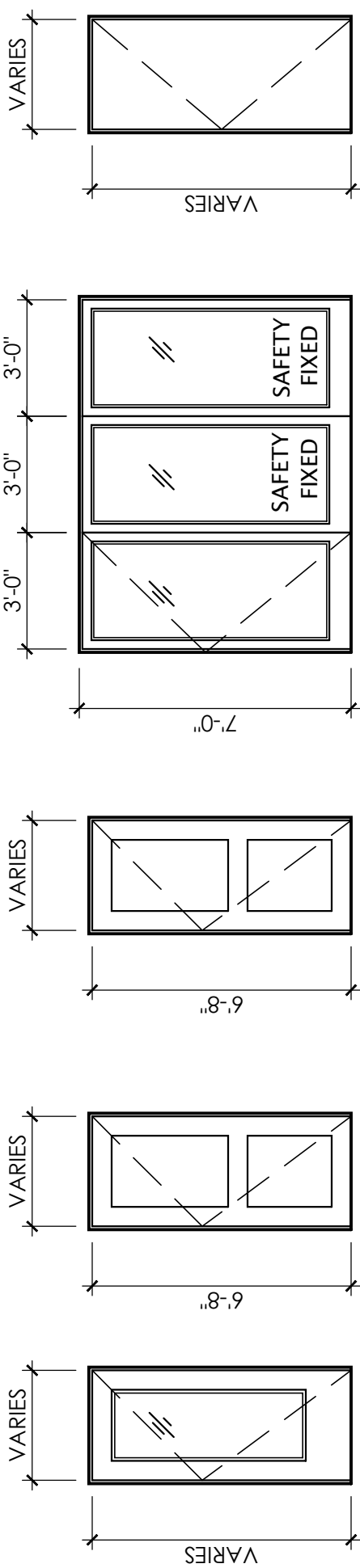
501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802

218-740-5219

WWW.AROLAARCH.COM



DOOR TYPES



*VERIFY INTERIOR DOOR STYLE W/ OWNER
*REFER TO DOOR SCHEDULE FOR UNIT SIZES
*FINAL DOOR SELECTIONS BY OWNER
*SAFETY GLAZING REQUIRED; ALL DOORS

DOOR SCHEDULE

DOOR NO.	DOOR SIZE	DOOR TYPE	DOOR FINISH	FRAME TYPE	FRAME FINISH	HWYR TYPE	FIRE RATING	COMMENTS
100	3'-0" x 6'-8"	D-1	PRE-FIN.	-	-	H-1	-	
101	3'-0" x 6'-8"	D-5	PRE-FIN.	-	-	H-1	1-HR RATED	
102	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
103A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
103B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
104	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
105	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
106	3'-0" x 6'-8"	D-1	PRE-FIN.	-	-	H-4		
107A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
107B	2'-4" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		OUTSWING PATIO DOOR UNIT
107	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		
201	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
202A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
202B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
203	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
204	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
205	3'-0" x 6'-8"	D-3	PRE-FIN.	-	-	H-4		
206A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
206B	2'-4" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		OUTSWING PATIO DOOR UNIT
207	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		
301	3'-0" x 6'-8"	D-2	PRE-FIN.	-	-	H-3	1-HR RATED	
302A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
302B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
303	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
304A	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-5		
304B	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-2		
305	2'-8" x 6'-8"	D-3	PRE-FIN.	-	-	H-4		
306	9'-0" x 7'-0"	D-4	PRE-FIN.	-	-	-		OUTSWING PATIO DOOR UNIT

HARDWARE GROUPS:

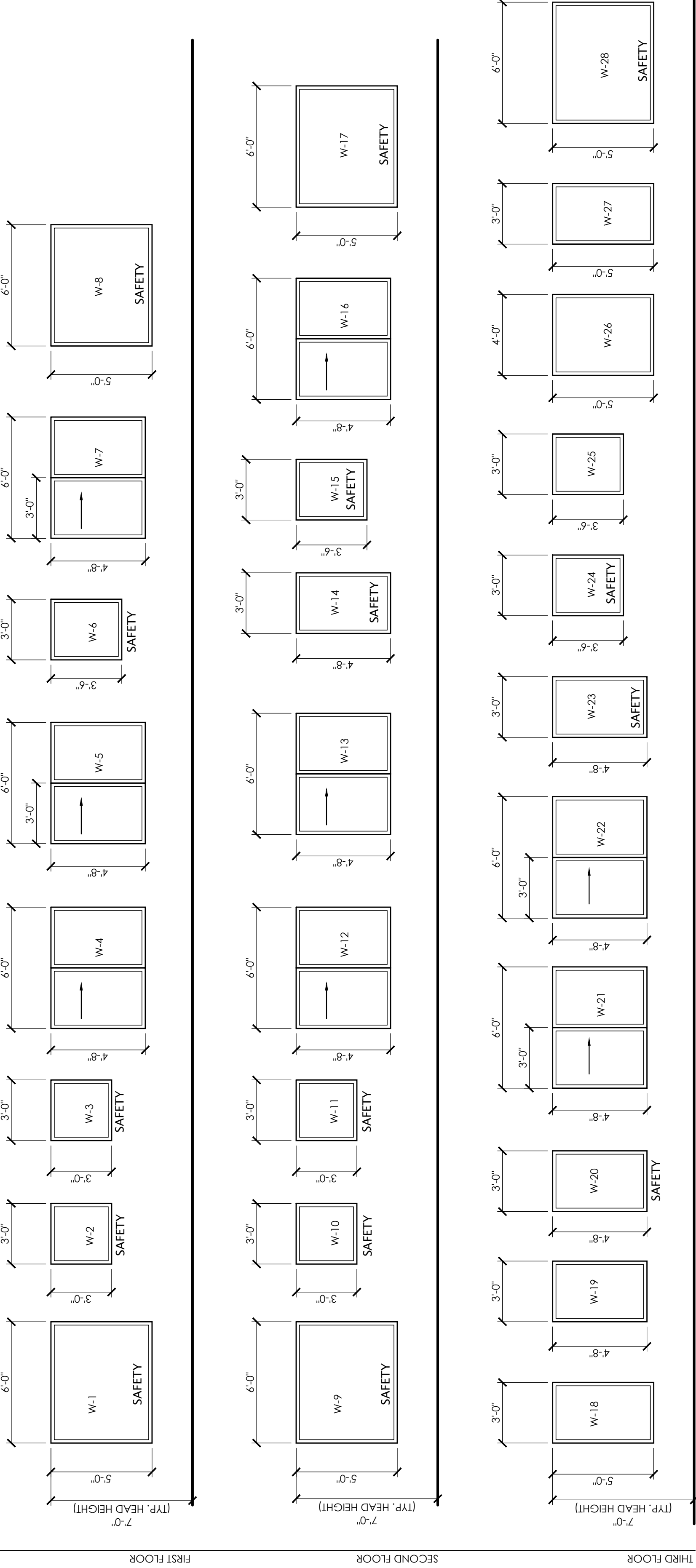
H-1	H-2	H-3
BUTTS	BUTTS	BUTTS
CLOSER	CLOSER	CLOSER
LOCKSET: ENTRANCE	LOCKSET: PASSAGE	LOCKSET: UNIT ENTRY
HOTEL ACCESS LOCK		HOTEL ACCESS LOCK
NO DEADBOLT	WALLSTOP	NO DEAD HOTEL ACCESS LOCK
GASKET		WALLSTOP
SWEEP		GASKET
THRESHOLD		SWEEP
		THRESHOLD
H-4	H-5	H-6
BUTTS	BUTTS	
CLOSER	CLOSER	
LOCKSET: KEYED DEADBOLT	LOCKSET: PRIVACY	
WITH THUMB TURN	WALLSTOP	
WALLSTOP		

DOOR SCHEDULE NOTES:

1. VERIFY LOCKSET SELECTIONS WITH OWNER
2. PROVIDE KNOXBOX FOR FIRE DEPARTMENT ACCESS

WINDOW SCHEDULE - BUILDINGS #1, 2, 3

*PROVIDE WINDOW OPENING CONTROL DEVICES PER MSBC 1015.8.1



DRAGESTIL HOTEL - BUILDINGS 1, 2, 3
SOUTH LAKE AVENUE / MINNESOTA AVENUE
DULUTH, MN 55802

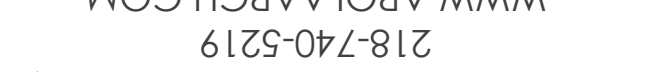
Construction Services & Inspections
MSBC 2020
Reviewed for Code Compliance
Chris Machmer 10/06/2023



Signature: *Paul Johnson*
Paul A. Johnson
Date: 5/11/2023
License #: 20379

Signature: *Ryan J. Arola*
RYAN J. AROLA
DATE: 5/11/2023
LICENSE NO.: 52478

ARCHITECTURE STUDIO, LLC
218-740-5219
WWW.AROLAARCH.COM
501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802

<div style="text-align: center;">  <p>AROLA ARCHITECTURE STUDIO, LLC</p> </div> <p>501 LAKE AVE. SOUTH - SUITE 205 - DULUTH, MN 55802 218-740-5219 WWW.AROLAARCH.COM</p>	<p>I HEREBY CERTIFY THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p>SIGNATURE <u><i>Ryan J. Arola</i></u> RYAN J. AROLA DATE <u>5/11/2023</u> LICENSE NO. <u>52478</u></p>
<p>PAUL A. JOHNSON (Seal) <i>Paul A. Johnson</i> Signature</p> <p>DATE <u>5/11/2023</u> License # <u>20379</u></p>	

L HOTEL - BUILDINGS 1, 2
 AVENUE / MINNESOTA AVENUE
 55802

ISSUE DATE 5/19/2023	PROJECT NO. 2166	REVIEWS		SHEET NO. A7.1
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[illegible]

CLASSIFIED
by
C
Declassify on:
UNCLASSIFIED
Authority: 25
in 14, 179 and 25X10175

System No. F-C-1009

ANSUL L79 (ASTM E84)	CANULC S115
F Rating — 1 and 2 Hr (See Item 1)	F Rating — 1 and 2 Hr (See Item 1)
T Rating — 1/4 Hr	FT Rating — 1/4 Hr
L Rating At Ambient — Less Than 1 CFM/sq. ft	FT Rating — 1 and 2 Hr (See Item 1)
L Rating At 400°F — 4 CFM/sq. ft	FT Rating — 1/4 Hr
	L Rating At Ambient — Less Than 1 CFM/sq. ft
	L Rating At 400°F — 4 CFM/sq. ft


SECTION A-A

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the U.S. Fire Resistance Directory. The F Rating of the firestop system is equal to the rating of the floor-ceiling assembly. The general construction features of the floor-ceiling assembly are summarized below:
 - A. Flooring System — Lumber or plywood outdoor with finish floor of lumber, plywood or floor "topping moisture" as specified in the individual L500 Series Designs in the U.S. Fire Resistance Directory. The flooring shall be at least 1/2" (12.7 mm) thicker than the diameter of the pipe.
 - B. Wood Joists — Nom. 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members, with bridging as required and with ends firestopped.
 - C. Furring Channels — (Not Shown) — (As required) Resistant galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the U.S. Fire Resistance Directory.
 - D. Firestop Sealant — Firestop sealant shall be as specified in the individual Floor-Ceiling Design. Daim of opening to be max. 1 in. (25 mm) larger than diam of pipe.

HLITI
Hilti Firestop Systems

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January 15, 2015

Page 1 of 2




CLASSIFIED
UL

Classified by
UL Classified
Underwriters Laboratories Inc.
to UL 1479 and CANULC 515

System No. F-C-0002

FC 0002



Hilti Firestop Systems


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 January 15, 2015

Page 2 of 2

2. Chase Wall — (Optional). The 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board chase wall shall be constructed of the materials and in the manner specified in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 A. Studs — Nom 2 by 4 in or 2 by 6 in, (51 by 102 or 51 by 152 mm) lumber studs.
 B. Sole Plate — Nom 2 by 4 in or 2 by 6 in, (51 by 102 or 51 by 152 mm) lumber plates.
 C. Gypsum Board — The inside top plate shall consist of two min of 2 by 4 in, (51 by 102 or 51 by 152 mm) lumber plates. Max dim of opening ≤ 1 in.
 D. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
 3. Fill Void or Cavity Material* — Sealant — Min .34 in, (9 mm) thickness of fill material applied within the annulus on top surface of floor or sole plate of chase wall. Min .58 in, (16 mm) thickness of fill material applied within the annulus, flush with the bottom surface of the ceiling or lower top plate.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. — FS ONE Sealant, FS ONE MAX Intranslucent Sealant or CP805 Sealant.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.


 Classified by
 Underwriters Laboratories
 to UL 1479 and CANULC S115


System No. F.C-0002

ANSULF1479 (ASTM E834)	CANULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 1 and 2 Hr (See Item 1)	FT Ratings — 1 and 2 Hr (See Item 1)
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Ratings — 1 and 2 Hr (See Item 1)

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below:

- A. Floor System — Lumber of plywood subfloor with finish floor of lumber; plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design.
- B. Wood Joists* — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
- C. Furring Channels* — (Not Shown) — Resilient galv steel furring installed perpendicular to wood joists between board and wood joists as required in the individual Floor-Ceiling Design. Furring channels spaced max. 24 in. (610 mm) OC.
- D. Gypsum Board* — Nom 4 1/2 in. (122 mm) wide by 3/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design. Gypsum board installed in accordance with the UL Fire Resistance Directory.

The F, FH and 1, FT, FTH Ratings of the firestop system are equal to the hourly fire rating of the floor-ceiling assembly in which it is installed.


 Hilti Firestop Systems

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 January 15, 2015

Page: 1 of 2

0600 SSWH

Classified by
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to UL 2079 and CANULC S115

System No. HW-S-0090

ANSI/UL2079	CANULC S115
Assembly Rating — 1 HR	F Rating — 1 HR
Joint Width — 1/2 In Max.	FJ Rating — 1 HR
	FH Rating — 1 HR
	FTH Ratings — 1 HR
	Joint Width — 1/2 In Max.

1. Fire Assembly — The 1 hr rated wood joist wall system or combination wood joist wall system shall be constructed of the materials and in the manner described in the individual L300 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. Flooring System — Lumber or plywood subfloor with finish floor, plywood or Floor Topping Matured as specified in the individual Floor-Ceiling Design.
 - B. Wood Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Joist Beams — Nom 10 in. (254 mm) deep by 58 in. (1473 mm) wide by 58 in. (1473 mm) thick as specified in the individual Floor-Ceiling Design.
 - C. Gypsum Board — Nom 4 ft. (122 cm) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design.
2. Wall Assembly — The 1 hr rated gypsum board/lumber stud wall assembly shall be constructed of the materials and in the manner described in the individual L300 Series Fire Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - A. Studs — Wall framing to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Top plate installed parallel or perpendicular to direction of wood joints and secured to bottom of joists with steel fasteners spaced max 24 in. (610 mm) OC.
 - B. Mineral Wool Insulation — Mineral wool insulation shall be installed between the studs and shall be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a max 12 in. (318 mm) gap shall be maintained between the top of the gypsum board and the ceiling of the floor-ceiling assembly.
 3. Joint System — Fill, Void or Cavity Material — Sealant — Max separation between the bottom of the ceiling and the top of the wall is 1/2 in. (13 mm). Min 58 in. (1473 mm) thickness of material installed to fill joint, flush with each surface of the wall.
- * HLTI CONSTRUCTION CHEMICALS, DIV OF HLTI INC. — FS-ONE Sealant, Cretek Sealant or FS-ONE MAX Intumescent Sealant. These products shall bear the UL or cUL Certification Mark or produce employing the UL or cUL Certification (such as Certaguard), respectively.

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January 28, 2015

HLTI
Hilti Firestop Systems

UL
Listed Product
Classified by
UL 1479
Underwriters Laboratories, Inc.

System No. WL-2178

F Rating — 1 and 2 Hr (See Item 1)
I Rating — 0 Hr

The diagram illustrates a cross-section of a fire-rated wall assembly. Label 1 points to the outermost layer, which is a gypsum wallboard. Label 2 points to the inner core, which consists of multiple layers of steel studs or channels. Label 3 points to the joint between the wallboard and the inner core. A section line labeled 'AA' is drawn horizontally through the center of the assembly, indicating the plane for Section AA-AA.

SECTION AA-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, U400, V400 or W400 Series Wall and Partition Designs in the U.L. Fire Resistance Directory and shall include the following construction features:

- A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nominal 2 x 4 in. (51 by 102 mm) under spaced 16 in. (406 mm) OC. Steel studs to be min 2 1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
- B. Gypsum Wallboard — Gypsum wallboard shall vary from 5/8 in. (16 mm) thick for 1 hr rating to 1 1/2 in. (38 mm) thick for 2 hr rating. Minimum thickness of nonmetallic pipe installed within the firestop system shall be as specified in the individual Wall and Partition Design. Max diam of opening 1/3 - 1/2 in. (8 - 13 mm).
- C. Fastener type and sheet installation shall be as specified in the individual Wall and Partition Design.
- D. Metallic Sleeve Optional — Nom 3 - 1/2 in. (89 mm) (or smaller) cylindrical sleeve fabricated from min 0.016 in. thick (28 gauge) galv steel sheet and having a min 1 - 1/4 in. (32 mm) plate along longitudinal seam. Length of sleeve to be installed flush with wall surfaces.
- E. Through Penetrations — One nonmetallic pipe installed within the firestop system. Pipe may be installed at an angle not greater than 45 degrees to vertical. Maximum length of penetration shall be limited to 14 in. (355 mm). The following types and sizes of nonmetallic pipes may be used:
 - A. Polyvinyl Chloride (PVC) Pipe — Nom 2 in. (51 mm) (or smaller) Schedule 40 PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
 - B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 2 in. (51 mm) diam (or smaller) SDK133 CPVC pipe for use in closed (process or supply) piping systems.
 - C. Fiberglass Reinforced Plastic (FRP) Pipe — For 1 hr F Rating, nom 5/8 in. (16 mm) thickness of all material applied within the annulus. Flush with both surfaces of wall. For 2 hr F Rating, nom 1 - 1/4 in. (32 mm) thickness of all material applied within annulus. Flush with both surfaces of wall.
- F. HLT CONSTRUCTION CHEMICALS, DIV OF HULT INC. — FS-ONE Sealant or FS-ONE MAX Fluorescent Sealant.
 - * Indicates such products shall bear the U.L. Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

HULT

Firestop Systems

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January 26, 2015

[illegible]

Classified by
UL Classified
to UL 1878

System No. F.C.-2203

F Rating — 1 hr

T Rating — 1 hr

FC 2203

1. **Fire Ceiling Assembly** — The 1 hr fire-rated solid or louvered lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual UL207 Series Floor-Ceiling Designs in the U.L. Fire Resistance Directory. The general construction features of the floor-ceiling assembly are summarized below.

A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or floor "Topping Mixture" as specified in the individual Floor-Ceiling Design.

B. Wood Joist — Nom. 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, lusses or Structural Wood Joists.

C. Gypsum Board — Nom. 5/8 in. (16 mm) thick, 14 1/2 in. wide as specified in the individual Floor-Ceiling Design.

2. **Closest Flange** — Acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) closet studs sized to accommodate drain pipe. Closet flange installed over drain piping within floor opening with flange secured to plywood floor with steel screws. Diam of circular opening through flooring (Item 1A) to be max. 12 in. (31 mm) larger than outside diam of closet flange.

3. **Drain Piping** — Nom. 4 in. (102 mm) diam (or smaller) Schedule 40 acrylonitrile butadiene styrene (ABS) or polyvinyl chloride (PVC) drain pipe installed over drain piping within floor opening with flange secured to plywood floor with steel screws. Diam of circular opening through flooring (Item 1A) to be max. 12 in. (31 mm) larger than outside diam of closet flange.

4. **Fill, Void or Cavity Material** — Sealant — Min. 3/4 in. (19 mm) thickness of fil material applied within the annulus, flush with the bottom surface of floor.

5. **Water Closet** — (Not Shown) — Floor mounted vitreous china water closet.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. — FS-ONE Sealant or FS-ONE MAX Fluorescent Sealant

* Indicates such products shall bear the U.L. or cUL Certification Mark for jurisdictions employing the U.L. or cUL Certification (such as Canada), respectively.

HILTI
Hilti Firestop Systems

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January 6, 2017

NOTE: SELECTED FIRE-STOP DETAILS ARE FOR TYPICAL CONDITIONS. SUB-CONTRACTORS SHALL PROVIDE FIRE-STOP PRODUCT INFORMATION AND DETAIL(S) SPECIFIC TO SITE CONDITIONS AT REQUEST OF BUILDING OFFICIAL

1 FIRE STOPPING DETAILS
NO SCALE



Complete All Items and the Checklist

Project Name Dragestil Hotel - Building #3		Application Date 4/6/2023	
Site Address 723 S. Lake Ave		Parcel ID Number 010-4380-02380	
Legal Description: Subdivision, Lot & Block or other description Lots 228, 230, 232,234, & 236 INCLUDING LOT 229 MN AVE.			
Applicant Name HEIRLOOM CONSTRUCTION		Applicant is: Owner <input checked="" type="checkbox"/> Contractor <input checked="" type="checkbox"/> Owner's Agent <input type="checkbox"/> Contractor license #: BC695608	
Applicant Address 204 E 1ST STREET		City DULUTH	State MN Zip 55802
Applicant Email (REQUIRED) danb@rentwithheirloom.com		Applicant Phone (REQUIRED) 218-590-6917	
Owner Name Park Point Land Co., LLC			
Owner Address P.O. BOX 3144		City DULUTH	State MN Zip 55803
Owner Email (REQUIRED) mike@rentwithheirloom.com		Owner Phone (REQUIRED) 218-269-9691	
Detailed Description of proposed work: Residential (1 or 2 Family or Townhouse) <input checked="" type="checkbox"/> Multi-family Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Construction of (4) four buildings; three stories each, 1 rental unit on each floor			
Check Applicable: <input checked="" type="checkbox"/> New Building <input type="checkbox"/> Interior Remodel w/ Change of Use Addition <input type="checkbox"/> Interior Remodel No Change of Use Sitework/Foundation Only <input type="checkbox"/> Demolition <input type="checkbox"/> Other			
Project Valuation. Include materials and labor for all work: \$826,250			
Permit Fee:		Plan Review Fee:	State Surcharge: Total Enclosed:
Design Professional (Architect or Engineer) or Plan Preparer Name Arola Architecture Studio, Jed Lahti			
Design Professional or Plan Preparer Address 501 S. Lake Ave, #205		City Duluth	State MN Zip 55802
Design Professional or Plan Preparer Email (REQUIRED) jed@arolaarch.com		Phone (REQUIRED) 218-740-5219	
Commercial Multi-Family	Occupancy Use Group(s) circle: A B E F H I M R S U R		Sprinklered? <input type="checkbox"/> No <input checked="" type="checkbox"/> NFPA 13 <input checked="" type="checkbox"/> NFPA 13 R
	Type(s) of Construction (circle): IA IB IIA IIB IIIA IIIB IV VA VB VB		Food Service Facility? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes State Const. Project # - If applicable
Does the project site or any area to be disturbed by construction contain wetlands? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes			
I do hereby make application for a building permit. The application and accompanying documents are complete and accurate. Work shall be consistent with the plans and information provided with the permit application and shall comply with applicable codes, ordinances and laws and conditions of approval. Work shall not begin until a building permit has been issued.		Applicant's Signature (REQUIRED) 	
I am the owner of the property described herein and I authorize the submittal of a permit application for the work described here and on accompanying plans, specifications, and other construction documents.		Owner's Signature (REQUIRED) 	

Office Use
LUTech:

Zone District:

Stormwater Zone:

Special Approvals:

duluthmn.gov/csi | 218-730-5240 | permittingservices@duluthmn.gov





Plan Review Comment Sheet (PRC)



Date: October 10, 2023
Address: 717 S Lake Ave
Permit #: BBLDG2304-023
Description: Dragestil Hotel – 3-unit Building 3

**Do Not Detach from
 Site Copy of
 Stamped Reviewed Plans.**

- Plan review is based upon the provisions of the 2020 Minnesota State Building Code.
- Plan approval is conditional upon compliance with all of the following and all plan review notes on plans.
- Approval of plans, specifications or computations shall not be construed to be a permit for any violation of the building code or any other applicable code or ordinance. MSBC 1300.0120, Subp. 10
- One set of the approved construction documents shall be kept at the site of work and open to inspection by the building official, inspectors and other Construction Services staff. MSBC 1300.0130, Subp. 6

Changes to Plans - Code related changes to issued permit plans must be submitted to Construction Services for review and approval prior to the changes being started. Go to the site below & follow the plan change submittal procedure.

<http://www.duluthmn.gov/construction-services-inspections/plan-change-submittals/>

Information & Conditions for Code Compliance

1. Project Contact Information

2. Code Information

Architect Firm: Arola Architecture, 218-740-5219	Occupancy Classification for Project: R-1
Structural Engineer: MJB, 218-310-4329	Occupancy Classification for Building: R-1
Owner: Park Point Land Co., 218-269-9691	Change of Occupancy Classifications for Building: N/A
Applicant: Heirloom Construction, 218-590-6917	Construction Type: VB
Inspector: Dave Hjelle, 218-409-5414	Special Inspections: YES
Plan Reviewer: Chris Machmer, 218-730-5247	Code: MSBC 2020 Sprinkled: NFPA 13

3. Mechanical, Electrical, Plumbing, Sprinkler Work

No mechanical, electrical, plumbing, or sprinkler work may proceed prior to obtaining a separate permit for each discipline. Mechanical, electrical, plumbing, and sprinkler plans have not been reviewed at this time.

4. Means of Egress Illumination, Fire Extinguishers, and Exit Signage

Work with the building inspector and Fire Marshal to appropriately site Means of Egress Illumination, Fire Extinguishers, and Exit signage.

5. Staked Property Lines

Property lines must be staked by a licensed land surveyor prior to start of construction activities. Stakes shall be maintained throughout the project, and replaced as necessary if disturbed.

6. Site Control – Site Work, Adjacent Structures, and Surface Runoff

This is a sensitive site. The contractor must take strict measures to ensure that site disturbance and site runoff will not extend beyond property boundaries onto adjacent property or ROW. Oversize excavation may not extend beyond the property line. Adjacent structures, such as retaining walls, shall not be impacted by construction activities.

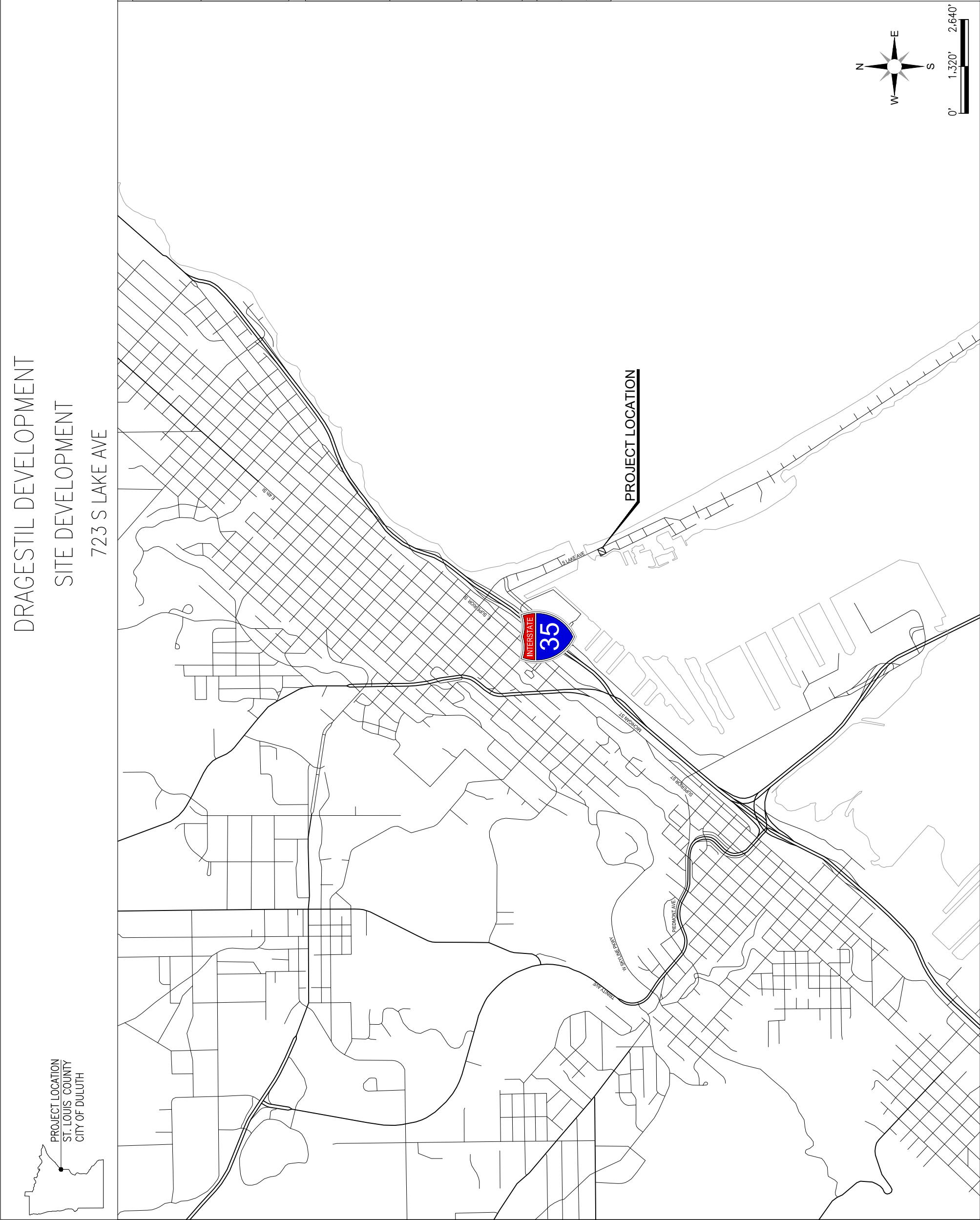
7. Pre-Construction Meeting

It is the applicant's responsibility to contact the inspector before work begins.

Inspections

The Construction Inspector assigned to this project is **Dave Hjelle 218-409-5414**. Please contact all City Inspectors a minimum of 24 hours in advance to schedule inspections. Inspections are required by the building code. **Failure to call for required inspections, including a final inspection for all permitted work, is a violation of the code.**

Delayed Submittals as required by MSBC 1300.0130, Subp. 9B:			
Description	Due By	Date Received	Information Location
ASI's impacting building code items – complete plan change form: Link on first page	When issued to the project		
Firestopping details – Engineering Judgments specific to the project, standard details in addition to those provided	Prior to installation		
Shop Drawings for roof trusses - Engineer to review and approve prior to submittal	Prior to installation		
Shop Drawings for floor trusses - Engineer to review and approve prior to submittal	Prior to installation		



DRAGESTIL DEVELOPMENT
SITE DEVELOPMENT
723 S LAKE AVE

PROJECT LOCATION
ST. LOUIS COUNTY
CITY OF DULUTH

1-800-252-1166

Northland
Consulting Engineers L.L.P.

Structural, Civil and Forensic Engineering Services
www.nce-engineers.com

Voice: (218) 271-5995
Fax: (218) 271-7779

DRAGESTIL DEVELOPMENT
SITE DEVELOPMENT
723 S LAKE AVE

Lic. No: 40926
04/07/23

Engineer: David G. Boll

hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

revision

173
TITLE

Sheet Title
Sheet Number
1

Proj: 22-339-4
Date: 04/07/23
Drawn: CAE
Checked: DGB

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. AVAILABLE AT: <http://www.dot.state.mn.us/pre-letting/spec/index.html>

THE 2019 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY. AVAILABLE AT: <http://www.duluthmn.gov/engineering/standard-construction-specifications>

UTILITY DETAIL LEVEL

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW.

BASIS OF BEARING/CONTROL
CONTROL BASED ON THE ST. LOUIS COUNTY TRANSVERSE MERCATOR COORDINATE SYSTEM OF 1996

NAME:	NORTHING:	EASTING:	ELEV:
NA			

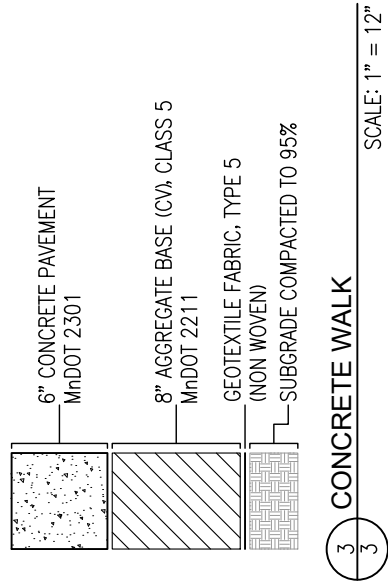
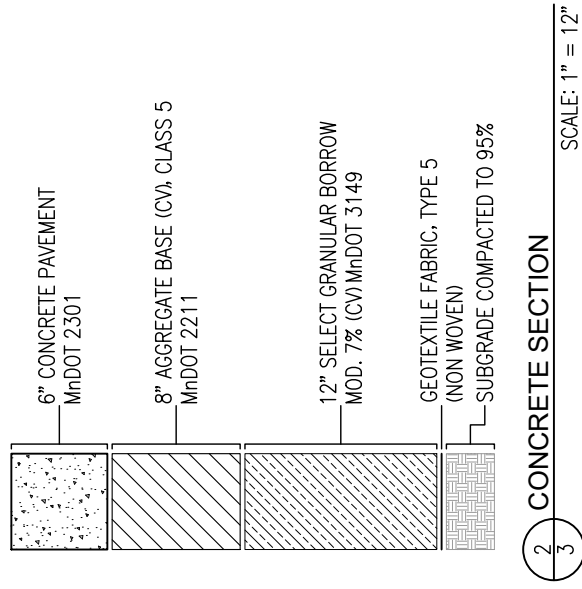
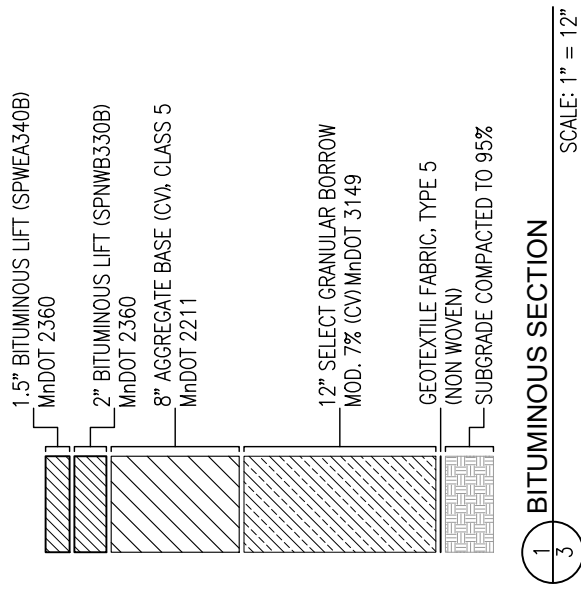
SHEET INDEX

SHEET NO	DESCRIPTION
1	TITLE
2	GENERAL NOTES
3-9	DETAILS
10	EXISTING CONDITIONS & REMOVALS
11	SITE PLAN
12	GRADING PLAN
13	UTILITY PLAN
14	SWPPP
15	SWPPP NOTES
16	TRAFFIC CONTROL

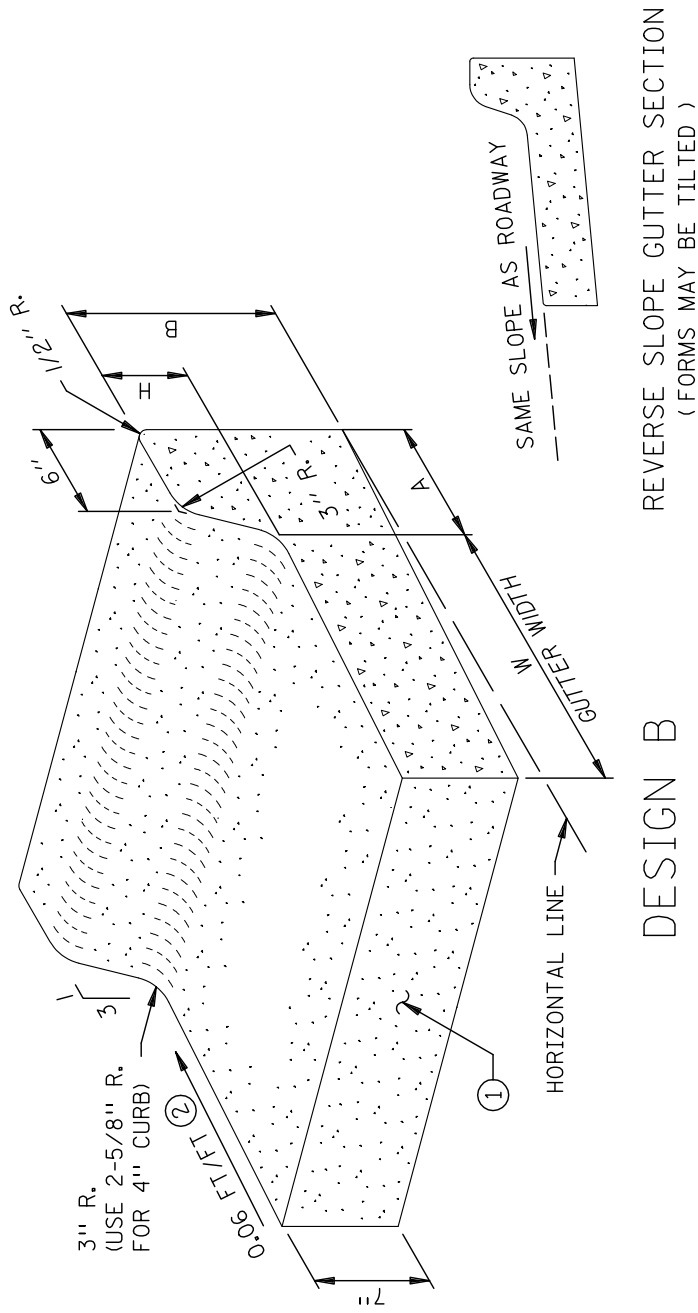
---THIS PLAN CONTAINS 16 SHEETS---

Construction Services & Inspections
Reviewed for Code Compliance
MSBC 2020
Chris Machmer 10/23/2023

0' 1,320' 2,640'



**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**



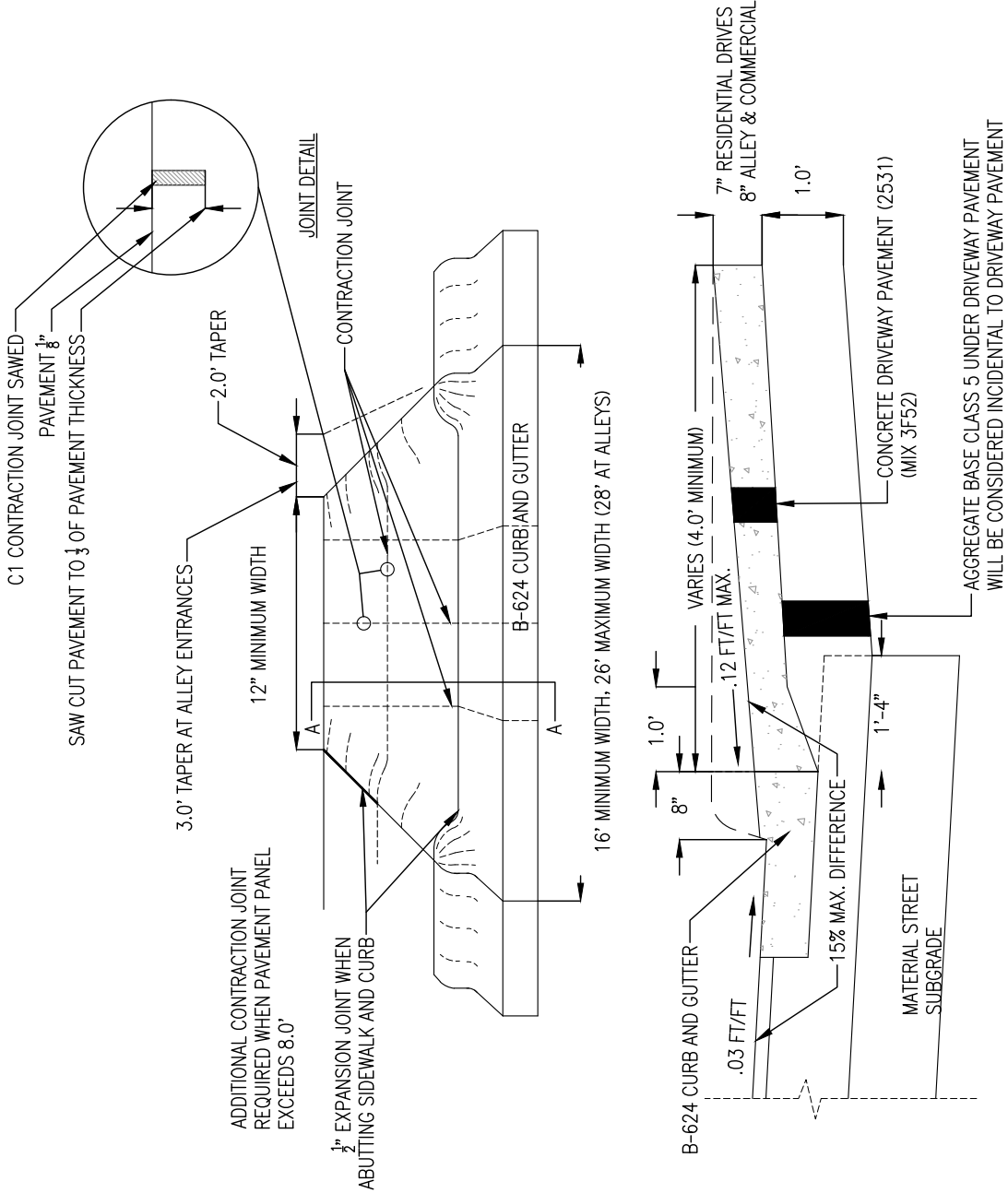
- NOTES:
- ① LONGITUDINAL JOINT WHEN ADJACENT TO RIGID PAVEMENT OR BASE.
SEE STANDARD PLANS MANUAL FOR JOINT INFORMATION.
 - ② SLOPE 0.06 FT/FT NORMAL, UNLESS OTHERWISE SPECIFIED. IF A DIFFERENT GUTTER SLOPE IS PERMITTED, THE FORM MAY BE TILTED.

DESIGN B			W = 12"						W = 24"		
			DIMENSIONS			DESIGN NO.			CONCRETE		
H	A	B	CU. YDS. LIN. FT.	LIN. FT. CU. YD.				DESIGN NO.	CU. YDS. LIN. FT.	LIN. FT. PER CU. YD.	
6 8"	13-1/2"		0.0474	21.1				B624	0.0690	14.5	

CONCRETE CURB AND GUTTER - DESIGN B612 & B624
SEE MnDOT STANDARD PLATE 7100H
NTS.

V:\Projects\22-339 - Dragestil Development\DWG\1 Title.dwg
Jul 28, 2023 - 10:40am
chase

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE



- NOTES:
- WHERE THERE IS NO SIDEWALK OR THERE IS A GRASS BOULEVARD BETWEEN THE SIDEWALK AND THE BACK OF CURB THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF.
 - WHERE THERE IS SIDEWALK DIRECTLY BEHIND THE CURB, DRIVEWAY PROFILE SLOPE SHALL BE FLATTENED TO MEET ADA ACCESSIBLE ROUTE STANDARDS

SECTION A-A

DRIVEWAY & ALLEY ENTRANCES

REVISED/APPROVED 04/05/2019

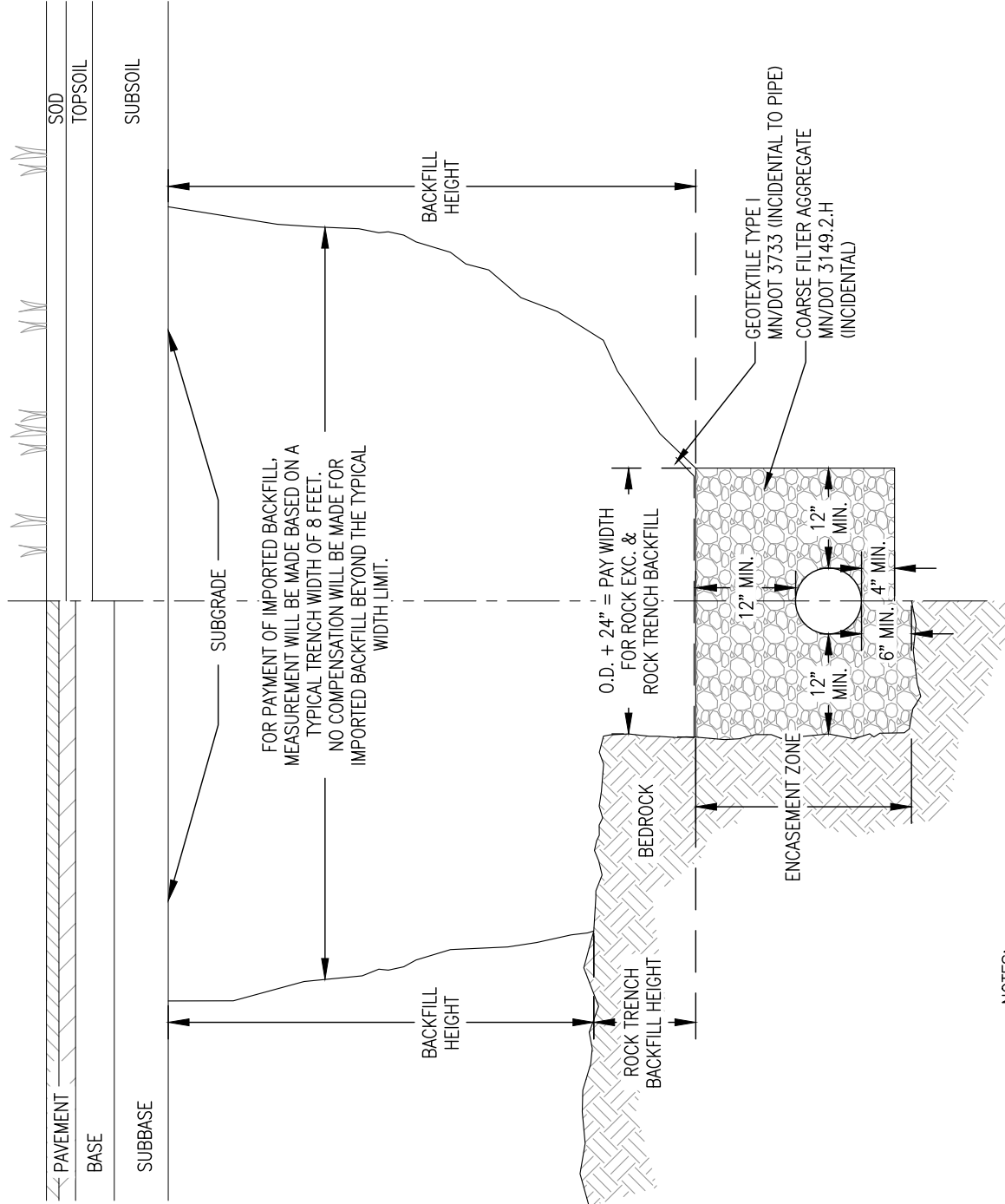
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

STR-5

NO SCALE

ROCK

SOILS



FOR PAYMENT OF IMPORTED BACKFILL, MEASUREMENT WILL BE MADE BASED ON A TYPICAL TRENCH WIDTH OF 8 FEET. NO COMPENSATION WILL BE MADE FOR IMPORTED BACKFILL BEYOND THE TYPICAL WIDTH LIMIT.

O.D. + 24" = PAY WIDTH FOR ROCK EXC. & ROCK TRENCH BACKFILL

NOTES:

- EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
- PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
- A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
- TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
- ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
- BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
- COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

PVC AND CORRUGATED POLYETHYLENE SEWER PIPE BEDDING

EX-3

REVISED/APPROVED 04/05/2019

CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES

NO SCALE

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Consulting Engineers L.L.P.

Structural, Civil and Forensic Engineering Services

www.nce-engineers.com

Dragestil Development

Site Development

723 S Lake Ave

Dragestil Development

Site Development

723 S Lake Ave

04/07/23

Lic. No: 40926

Engineer: David G. Boll

Professional Engineer under the laws of the State of Minnesota.

by me or under my direct supervision and that I am a duly licensed

revision

173

DETAILS

Sheet Title

Sheet Number

6

Project: 22-339

Date: 04/07/23

Drawn: CAE

Checked: DGB

BAB

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE

WGT. 298 LBS	MATL. GRAY IRON CLASS 35B
WGT. 122 LBS	TOT.WGT. 420 LBS. SPEC. ASTM A-48-74

NOTE: SUITABLE FOR HS25 WHEEL LOADS

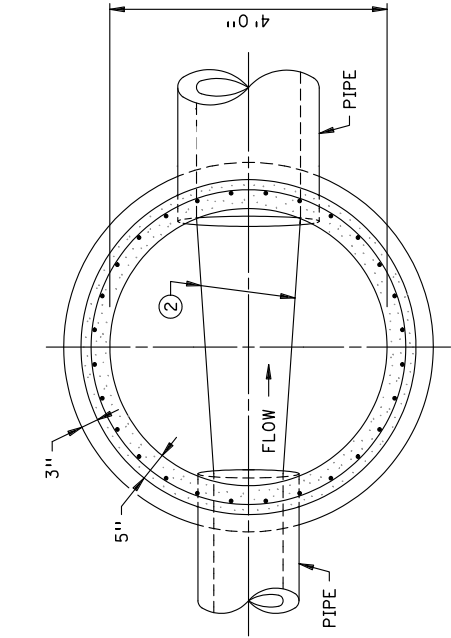
NOTE: T/CAST SHALL BE .03' BELOW
FINISHED PAVEMENT SURFACE.

WGT. 298 LBS	MATERIAL: GRAY IRON CLASS 35B
WGT. 122 LBS	TOTAL WEIGHT 420 LBS. SPEC.: ASTM A-48-74

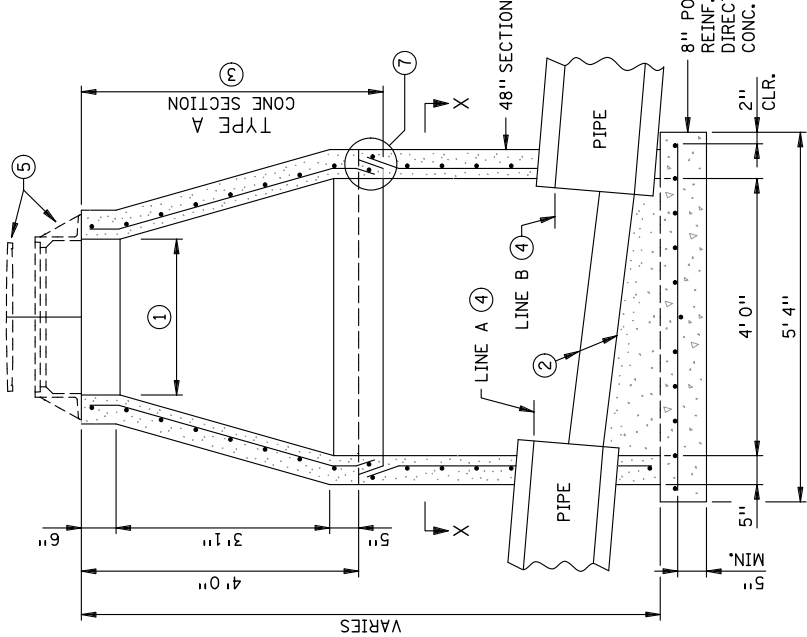
NOTE: SUITABLE FOR HS25 WHEEL LOADS

NOTE: T/CAST SHALL BE .03' BELOW
FINISHED PAVEMENT SURFACE.

SANITARY CASTING DETAIL		STORM MANHOLE CASTING	
REVISD/APPROVED 2/01/2013	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	REVIEWED/APPROVED 2/01/2013	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES
SAN-1		STRM-1	
NO SCALE		NO SCALE	

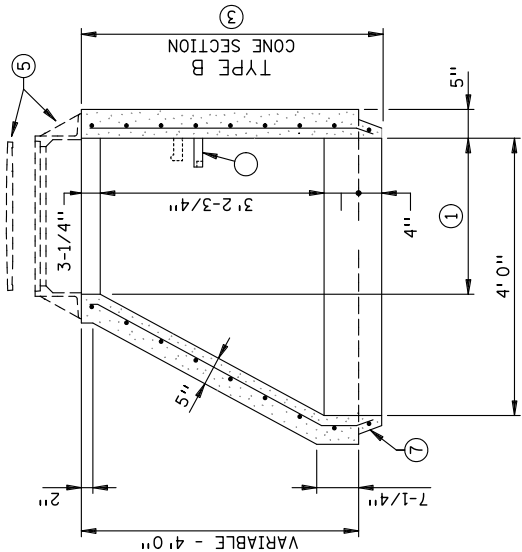


SECTION X-X



SECTIONAL VIEW
TYPE A CONE

- NOTES:
- REINFORCING: SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
- ① 2' 3" NOMINAL OPENING.
- ② PROVIDE MORTAR FILLETS TO FIT THE BOTTOM PORTION OF PIPE TO DIRECT FLOW TO OUTLET.
- ③ TYPE A CONE SECTION SHALL BE USED UNLESS OTHERWISE INDICATED IN THE PLANS. FOR SHORT CONE SECTION USE TYPE C. SEE STANDARD PLATE 4010.



SECTIONAL VIEW
TYPE B CONE
SEE TYPE A CONE FOR ADDITIONAL INFORMATION

- ④ THE ELEV. OF LINE A SHALL BE EQUAL TO OR ABOVE LINE B.
- ⑤ REFER TO PLAN FOR CASTINGS REQUIRED. USE ADJUSTING RINGS WHERE NECESSARY, SEE STANDARD PLATES INDEX. CASTING AND PRECAST CONC. ADJUSTING RINGS SHALL BE SET ON FULL MORTAR BEDS. NO PIPE OR STRUCTURE ALLOWED ABOVE TOP OF CONE.
- ⑥ REFER TO PLANS FOR ANY STEP REQUIREMENTS.
- ⑦ SEE STANDARD PLATES INDEX FOR OTHER APPROVED JOINTS.

DESIGN F

APPROVED APRIL 16, 2014

STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

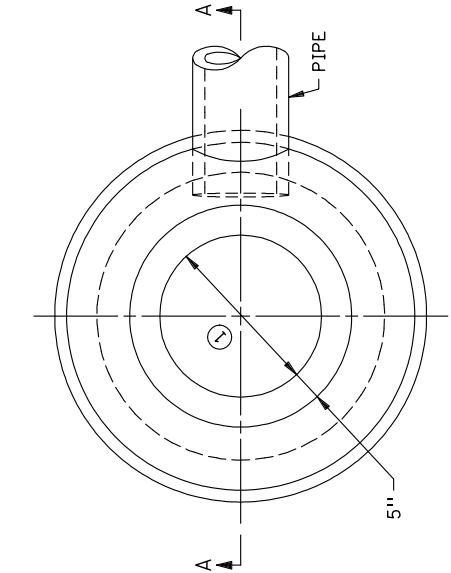
MANHOLE OR CATCH BASIN
TYPE A & B CONE SECTIONS
PRECAST

SPECIFICATION
REFERENCE

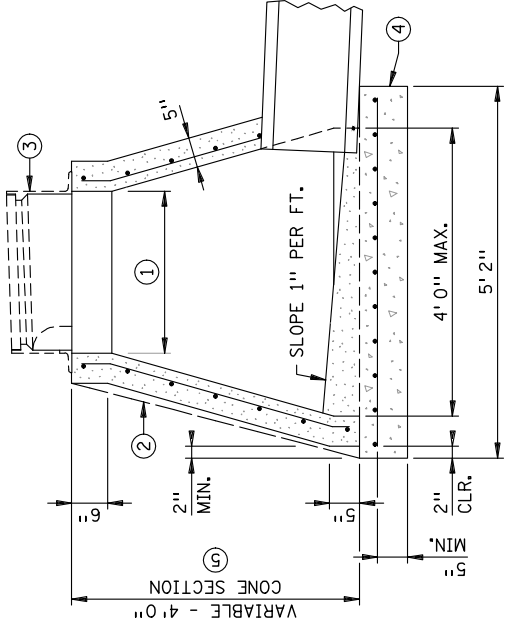
2506

STANDARD
PLATE
NO.

4005M



TOP VIEW
REINFORCEMENT NOT SHOWN

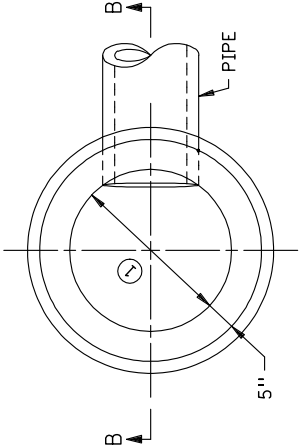


SECTION A-A
DESIGN G

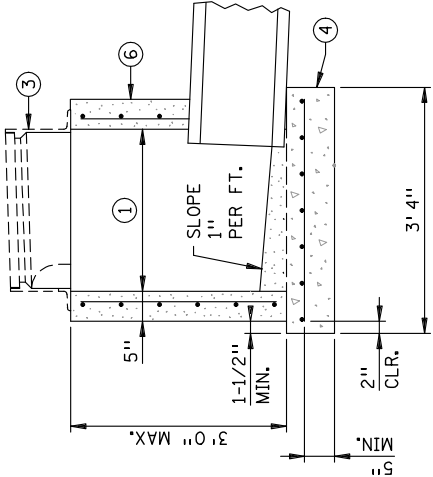
- NOTES:
- REINFORCING: SINGLE LINE STEEL WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ. IN. PER FOOT OF HEIGHT.
- ① 2' 3" NOM. OPENING. WHEN GRATE FRAME CASTING NO. 802A OR NO. 805 IS USED, SEE STANDARD PLATES CASTING LIST.
- ② A STRAIGHT TAPERED WALL IS ACCEPTABLE.
- ③ REFER TO PLAN FOR CASTINGS REQUIRED. USE ADJUSTING RINGS WHERE NECESSARY, SEE STANDARD PLATES INDEX. CASTING AND PRECAST CONC. ADJUSTING RINGS SHALL BE SET ON FULL MORTAR BEDS.
- ④ 8 IN. POURED CONCRETE BASE. BASE REINFORCEMENT: 0.12 SQ. IN. PER FT. IN EACH DIRECTION. AN APPROVED ALTERNATE PRECAST CONCRETE BASE MAY BE USED.

- ⑤ HEIGHT OF STRUCTURE MAY BE INCREASED UP TO 1 FT. BY THE USE OF A PRECAST SECTION OR CONCRETE BLOCK CONSTRUCTION ABOVE THE CONE SECTION. SEE STANDARD PLATE 4002 FOR BLOCK CONSTRUCTION.
- ⑥ AS AN ALTERNATE, BRICK OR CONCRETE BLOCK MASONRY MAY BE USED. FOR MATERIALS & CONSTRUCTION METHODS, SEE STANDARD PLATE 4002. CONE SECTION DETAILS OF 4002 DO NOT APPLY.

SECTION B-B
DESIGN H



TOP VIEW
REINFORCEMENT NOT SHOWN



NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE

DESIGN G
DESIGN H

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

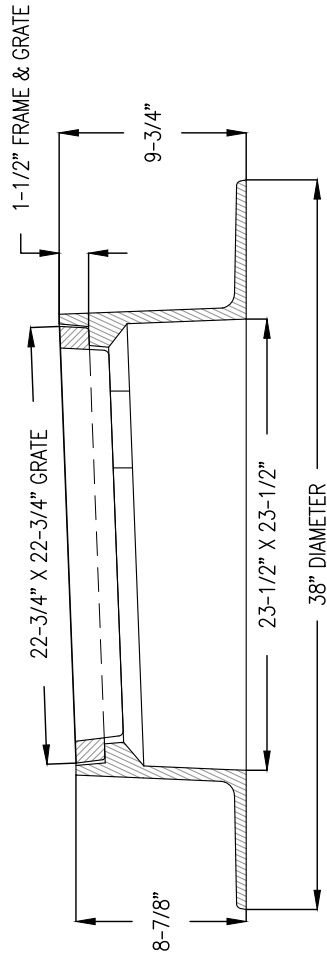
MANHOLE OR CATCH BASIN
PRECAST

SPECIFICATION
REFERENCE

2506

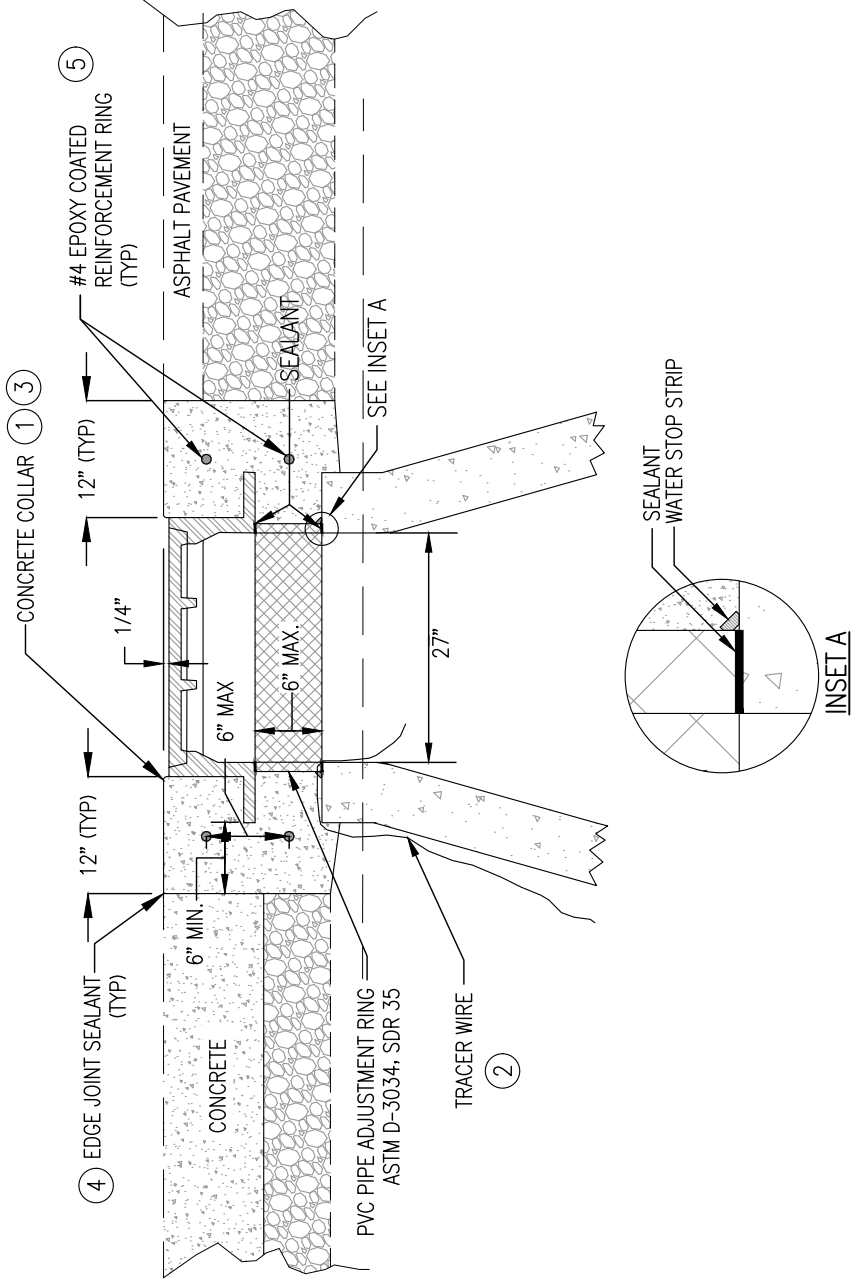
STANDARD
PLATE
NO.

4006L



NOTES:

1. COMPONENT NO'S: FRAME 5005. GRATE 816 (STD PLATE 4154).
2. MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B
3. WEIGHT: FRAME 262#; GRATE 131#
4. ALL GUTTERS UPSTREAM OF CATCH BASINS SHALL BE STAMPED, "NO DUMPING, LEADS TO LAKE" WITH A CITY SUPPLIED STAMP.



NOTES:

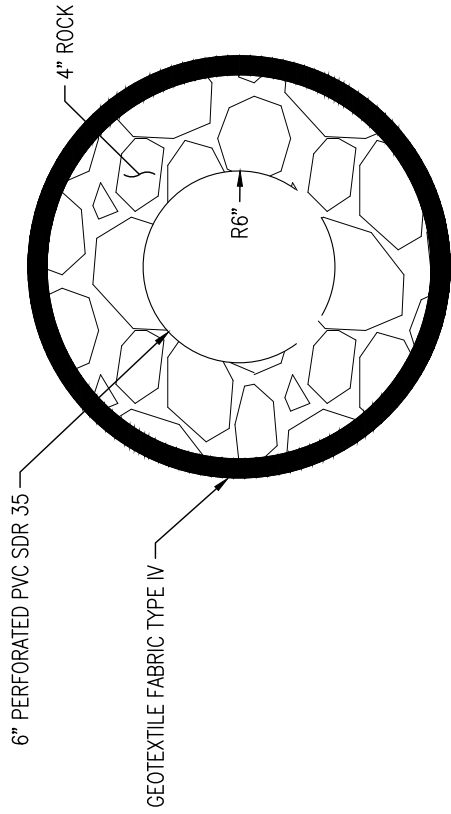
- ① CONCRETE (MIX NO. 3652) COLLAR TO ENCASE CASTING AND ADJUSTMENT RING.
- ② TRACER WIRE, IF REQUIRED, FOR PLASTIC PIPE ON PROJECT
- ③ CONCRETE COLLAR SHALL BE CIRCULAR LAYOUT. PAVEMENT AND BASE SHALL BE CUT OUT WITH ROTATING CUTTING DEVICE.
- ④ FINISH CONCRETE EDGE WITH 1/4" RADIUS. SEAL JOINT BETWEEN PAVEMENT AND COLLAR.
- ⑤ MAINTAIN 3.5" COVER ON REINFORCEMENT.

NOT TO SCALE

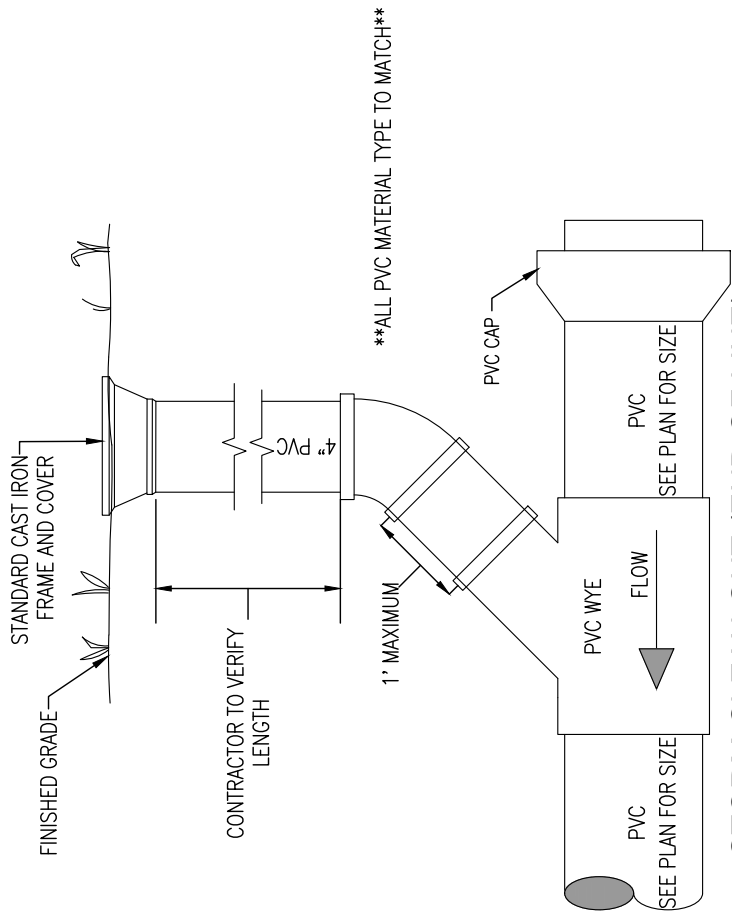
**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**

CATCH BASIN CASTINGS	STRM-3	CONCRETE ENCASED CASTING COLLAR FOR STORM MH IN ROADWAY, WALKS, & DRIVES	STRM-5A
REVIEWED/APPROVED 04/05/2019	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES	NO SCALE	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES

**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**



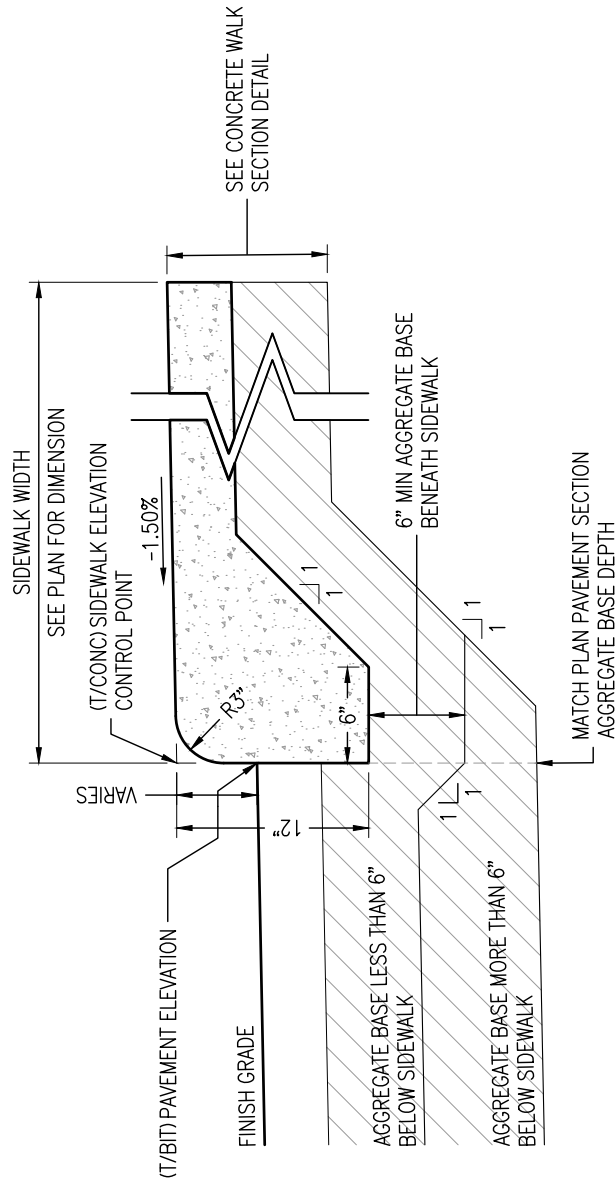
PERFORATED PIPE STORM DRAIN



1
9

STORM CLEAN OUT (END OF LINE)

NTS.

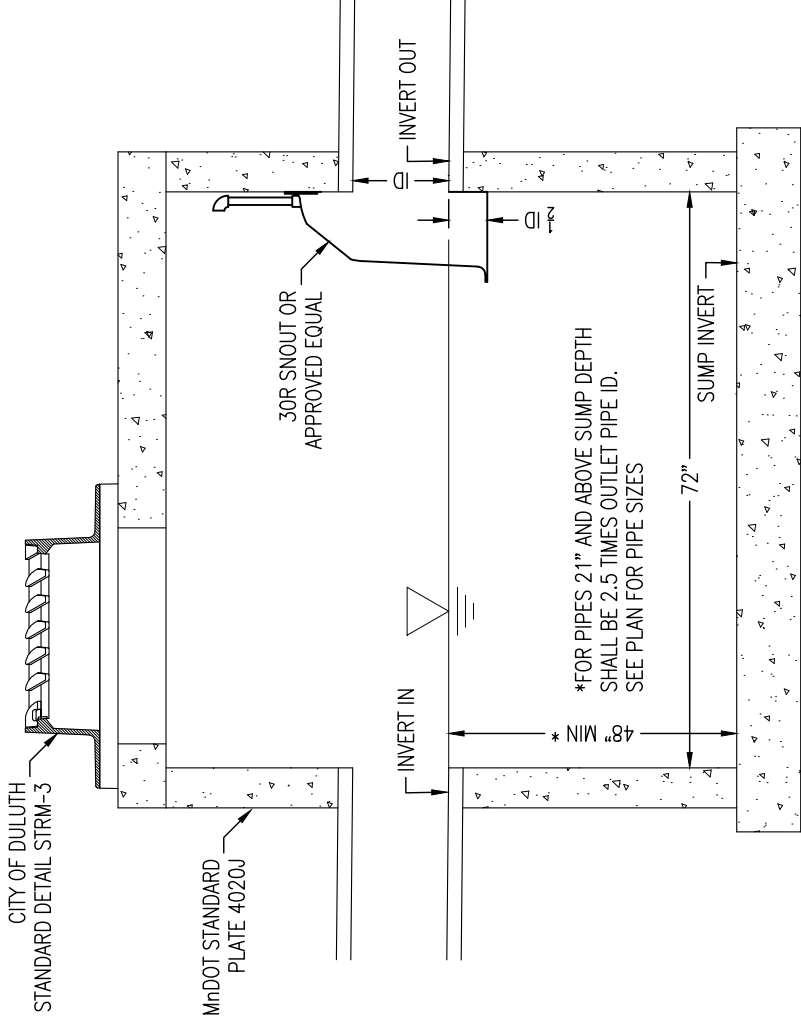


3/9

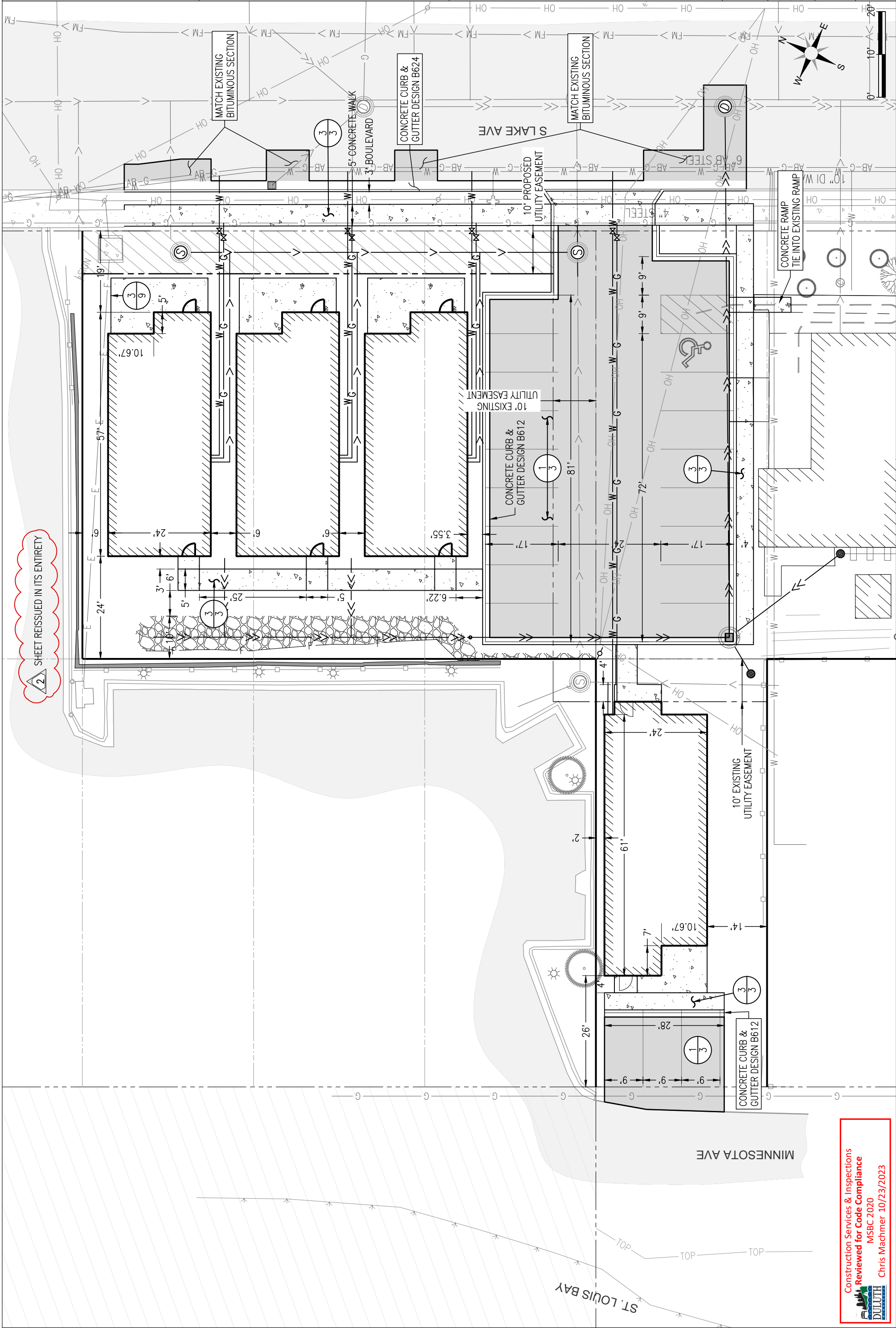
CONCRETE WALK - THICKENED EDGE

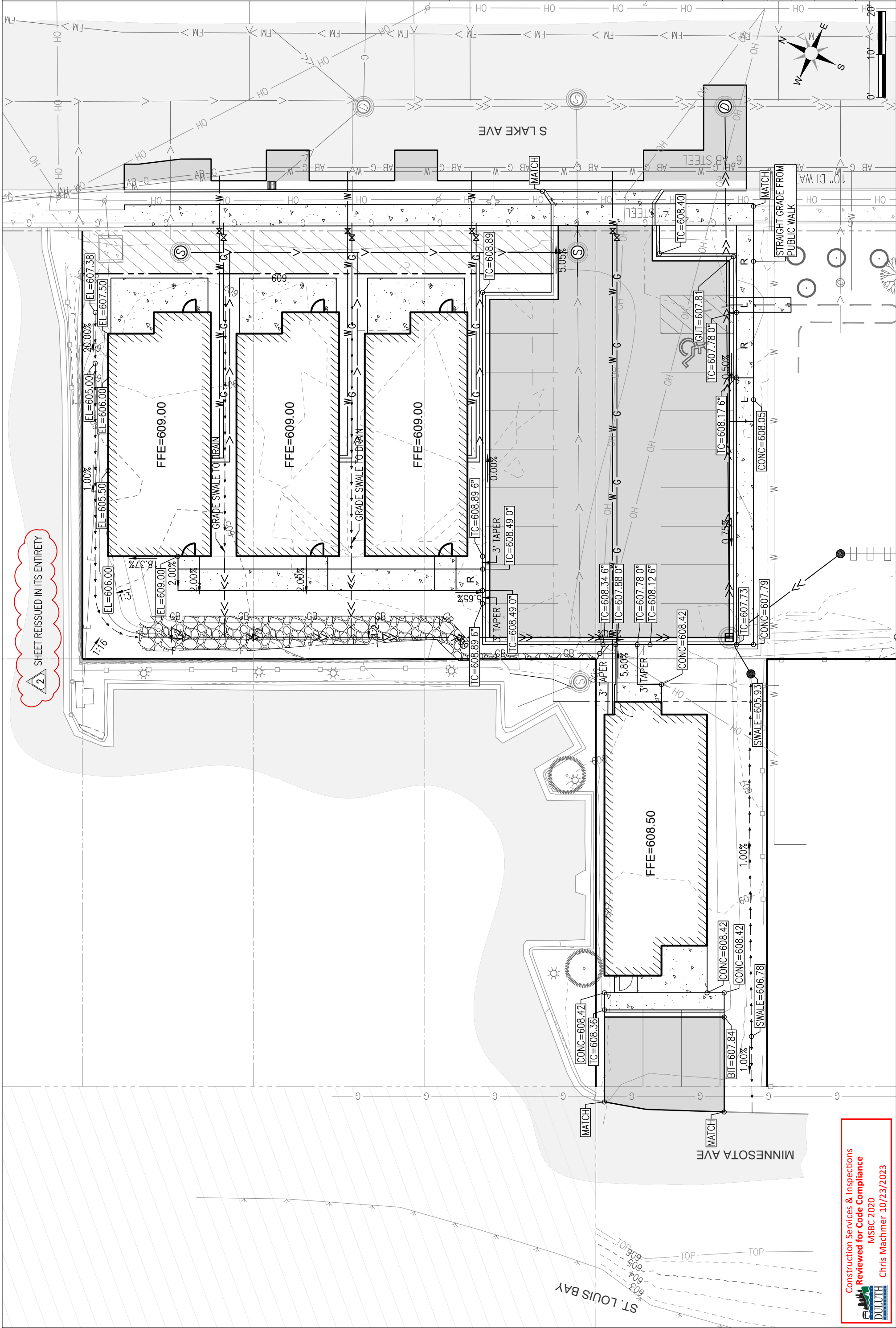
SEE PLAN FOR LOCATION

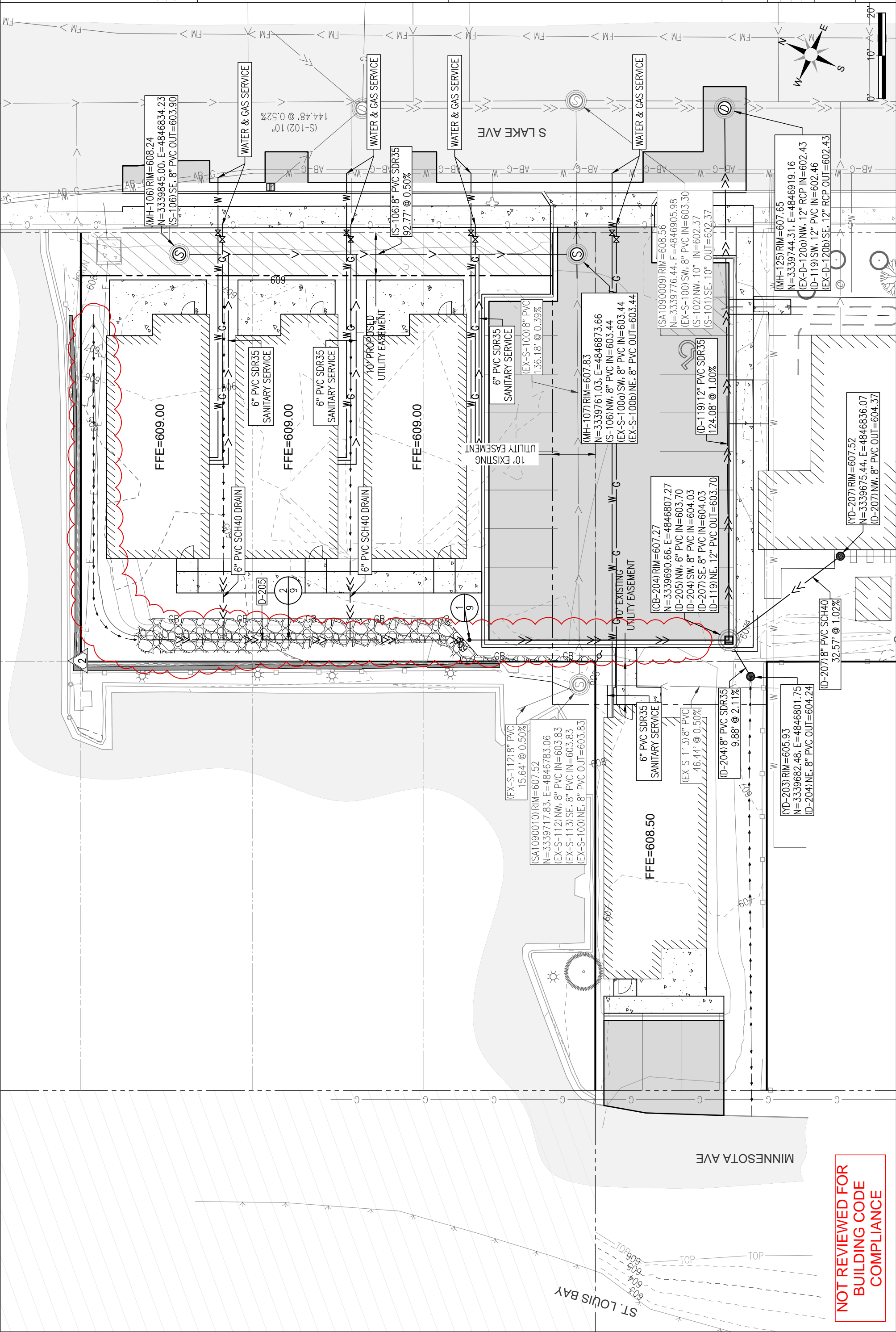
NTS.



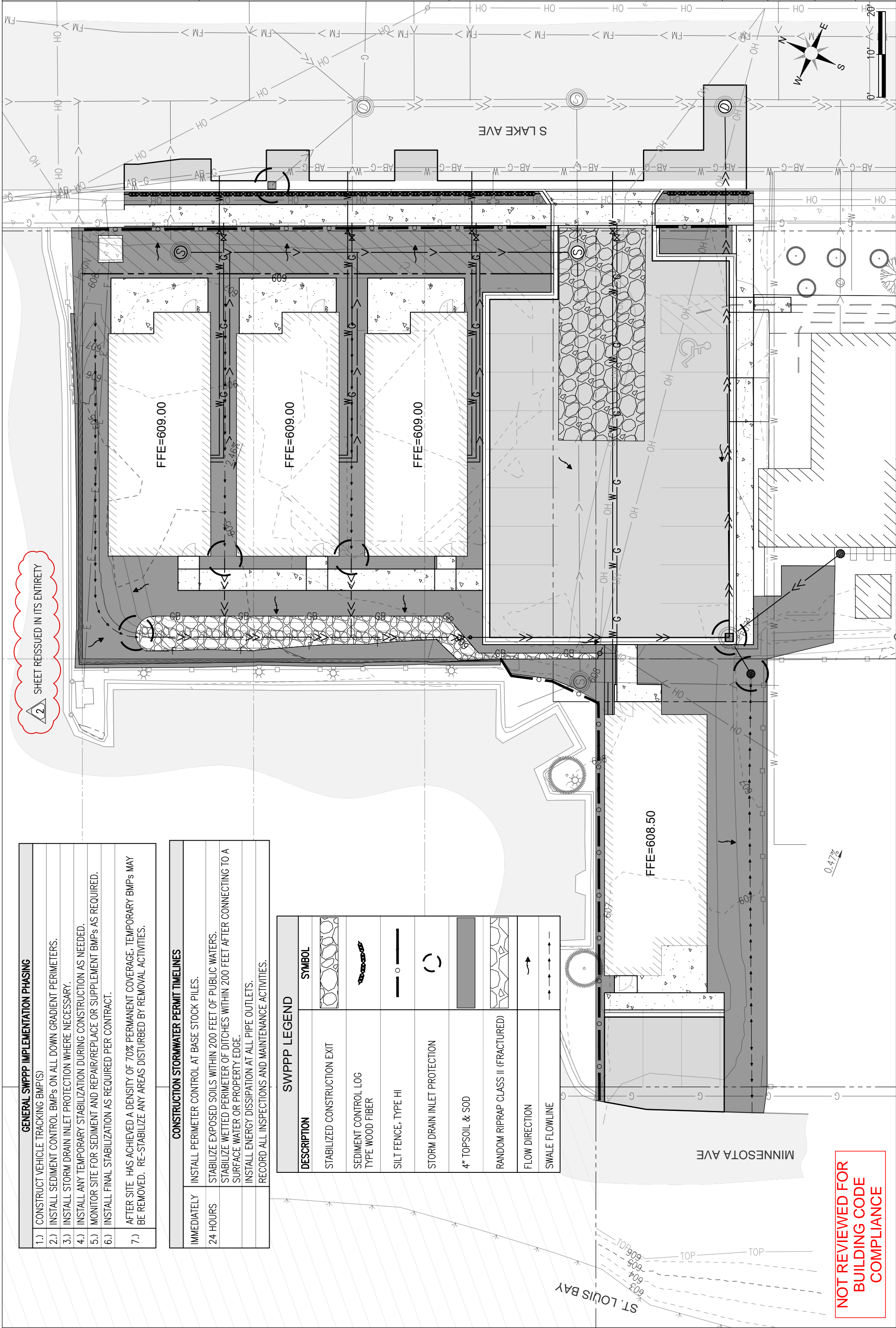
SEDIMENT REMOVAL CATCH BASIN, DESIGN 72-4020















NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE



GENERAL SWPPP IMPLEMENTATION PHASING	
1.)	CONSTRUCT VEHICLE TRACKING BMP(S)
2.)	INSTALL SEDIMENT CONTROL BMPs ON ALL DOWN GRADIENT PERIMETERS.
3.)	INSTALL STORM DRAIN INLET PROTECTION WHERE NECESSARY.
4.)	INSTALL ANY TEMPORARY STABILIZATION DURING CONSTRUCTION AS NEEDED.
5.)	MONITOR SITE FOR SEDIMENT AND REPAIR/REPLACE OR SUPPLEMENT BMPs AS REQUIRED.
6.)	INSTALL FINAL STABILIZATION AS REQUIRED PER CONTRACT.
7.)	AFTER SITE HAS ACHIEVED A DENSITY OF 70% PERMANENT COVERAGE, TEMPORARY BMPs MAY BE REMOVED. RE-STABILIZE ANY AREAS DISTURBED BY REMOVAL ACTIVITIES.

CONSTRUCTION STORMWATER PERMIT TIMELINES	
IMMEDIATELY	INSTALL PERIMETER CONTROL AT BASE STOCK PILES.
24 HOURS	STABILIZE EXPOSED SOILS WITHIN 200 FEET OF PUBLIC WATERS.
	STABILIZE WETTED PERIMETER OF DITCHES WITHIN 200 FEET AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE.
	INSTALL ENERGY DISSIPATION AT ALL PIPE OUTLETS.
	RECORD ALL INSPECTIONS AND MAINTENANCE ACTIVITIES.

SWPPP LEGEND	
DESCRIPTION	SYMBOL
STABILIZED CONSTRUCTION EXIT	
SEDIMENT CONTROL LOG TYPE WOOD FIBER	
SILT FENCE, TYPE HI	
STORM DRAIN INLET PROTECTION	
4" TOPSOIL & SOD	
RANDOM RIPRAP CLASS II (FRACTURED)	
FLOW DIRECTION	
SWALE FLOWLINE	

**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**

EROSION PREVENTION PRACTICES

CONTRACTOR SHALL MINIMIZE THE NEED FOR DISTURBANCE OF PORTIONS OF THE PROJECT WITH STEEP SLOPES. WHEN STEEP SLOPES MUST BE DISTURBED, CONTRACTOR MUST USE TECHNIQUES SUCH AS PHASING AND STABILIZATION PRACTICES DESIGNED FOR STEEP SLOPES.

CONTRACTOR SHALL STABILIZE ALL EXPOSED SOIL AREAS, INCLUDING STOCKPILES. STABILIZATION MUST BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHEN CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION MUST BE COMPLETED NO LATER THAN 14 CALENDAR DAYS AFTER THE CONSTRUCTION ACTIVITY HAS CEASED.

FOR PUBLIC WATERS THAT THE MNDNR HAS PROMULGATED "WORK IN WATER RESTRICTIONS" DURING SPECIFIED FISH SPANNING TIME FRAMES, CONTRACTOR MUST COMPLETE STABILIZATION OF ALL EXPOSED SOIL AREAS WITHIN 200 FEET OF THE WATER'S EDGE, AND THAT DRAIN TO THESE WATERS, WITHIN 24 HOURS DURING THE RESTRICTION PERIOD.

CONTRACTOR MUST STABILIZE THE NORMAL WETTED PERIMETER OF THE LAST 200 LINEAR FEET OF TEMPORARY OR PERMANENT DRAINAGE DITCHES OR SWALES THAT DRAIN WATER FROM THE SITE WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE. CONTRACTOR MUST COMPLETE STABILIZATION OF REMAINING PORTIONS OF TEMPORARY OR PERMANENT DITCHES OR SWALES WITHIN 14 CALENDAR DAYS AFTER CONNECTING TO A SURFACE WATER OR PROPERTY EDGE AND CONSTRUCTION IN THAT PORTION OF THE DITCH TEMPORARILY OR PERMANENTLY CEASES.

TEMPORARY OR PERMANENT DITCHES OR SWALES BEING USED AS SEDIMENT CONTAINMENT SYSTEM DURING CONSTRUCTION DO NO NEED TO BE STABILIZED. CONTRACTOR MUST STABILIZE THESE AREAS WITHIN 24 HOURS AFTER THEIR USE AS A SEDIMENT CONTAINMENT SYSTEM CEASES.

CONTRACTOR MUST NOT USE MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR EROSION PREVENTION PRACTICES WITHIN ANY PORTION OF THE NORMAL WETTED PERIMETER OF A TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE SECTION WITH A CONTINUOUS SLOPE OF GREATER THAN 2 PERCENT.

CONTRACTOR MUST PROVIDE TEMPORARY OR PERMANENT ENERGY DISSIPATION AT ALL PIPE OUTLETS WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER OR PERMANENT STORMWATER TREATMENT SYSTEM.

CONTRACTOR MUST NOT DISTURB MORE LAND (I.E., PHASING) THAN CAN BE EFFECTIVELY INSPECTED AND MAINTAINED.

SEDIMENT CONTROL PRACTICES

CONTRACTOR MUST ESTABLISH SEDIMENT CONTROL BMPs ON ALL DOWNGRADIENT PERIMETERS OF THE SITE AND DOWNGRADIENT AREAS OF THE SITE THAT DRAIN TO ANY SURFACE WATER, INCLUDING CURB AND GUTTER SYSTEMS. CONTRACTOR MUST LOCATE SEDIMENT CONTROL PRACTICES UPGRADIENT OF ANY BUFFER ZONES. CONTRACTOR MUST INSTALL SEDIMENT CONTROL PRACTICES BEFORE ANY UPGRADIENT LAND-DISTURBING ACTIVITIES BEGIN AND MUST KEEP THE SEDIMENT CONTROL PRACTICES IN PLACE UNTIL THEY ESTABLISH PERMANENT COVER.

IF DOWNGRADIENT SEDIMENT CONTROLS ARE OVERLOADED, BASED ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE REQUIREMENTS, CONTRACTOR MUST INSTALL ADDITIONAL UPGRADIENT SEDIMENT CONTROL PRACTICES OR REDUNDANT BMPs TO ELIMINATE THE OVERLOADING AND AMEND THE SWPPP TO IDENTIFY THESE ADDITIONAL PRACTICES AS REQUIRED IN ITEM 6.3.

CONTRACTOR MUST RE-INSTALL ALL SEDIMENT CONTROL PRACTICES ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING OR GRUBBING, OR PASSAGE OF VEHICLES, IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY IS COMPLETED. CONTRACTOR MUST RE-INSTALL SEDIMENT CONTROL PRACTICES BEFORE THE NEXT PRECIPITATION EVENT EVEN IF THE SHORT-TERM ACTIVITY IS NOT COMPLETE.

CONTRACTOR MUST PROTECT ALL STORM DRAIN INLETS USING APPROPRIATE BMPs DURING CONSTRUCTION UNTIL THEY ESTABLISH PERMANENT COVER ON ALL AREAS WITH POTENTIAL FOR DISCHARGING TO THE INLET.

CONTRACTOR MAY REMOVE INLET PROTECTION FOR A PARTICULAR INLET IF A SPECIFIC SAFETY CONCERN IS IDENTIFIED.

CONTRACTOR MUST PROVIDE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS AT THE BASE OF STOCKPILES ON THE DOWNGRADIENT PERIMETER.

NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE

CONTRACTOR MUST LOCATE STOCKPILES OUTSIDE OF NATURAL BUFFERS OR SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS UNLESS THERE IS A BYPASS IN PLACE FOR THE STORMWATER.

CONTRACTOR MUST INSTALL A VEHICLE TRACKING BMP TO MINIMIZE THE TRACK OUT OF SEDIMENT FROM THE CONSTRUCTION SITE OR ONTO PAVED ROADS WITHIN THE SITE.

CONTRACTOR MUST USE STREET SWEEPING IF VEHICLE TRACKING BMPs ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING ONTO THE STREET.

CONTRACTOR MUST INSTALL TEMPORARY SEDIMENT BASINS AS REQUIRED IN SECTION 14.

IN ANY AREAS OF THE SITE WHERE FINAL VEGETATIVE STABILIZATION WILL OCCUR, CONTRACTOR MUST RESTRICT VEHICLE AND EQUIPMENT USE TO MINIMIZE SOIL COMPACTION.

CONTRACTOR MUST PRESERVE TOPSOIL ON THE SITE, UNLESS INFEASIBLE.

CONTRACTOR MUST DIRECT DISCHARGES FROM BMPs TO VEGETATED AREAS UNLESS INFEASIBLE.

CONTRACTOR MUST PRESERVE A 50 FOOT NATURAL BUFFER OR, IF A BUFFER IS INFEASIBLE ON THE SITE, PROVIDE REDUNDANT PERIMETER SEDIMENT CONTROLS WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF THE PROJECT'S EARTH DISTURBANCES AND STORMWATER FLOWS TO THE SURFACE WATER. CONTRACTOR MUST INSTALL PERIMETER SEDIMENT CONTROLS AT LEAST 5 FEET APART UNLESS LIMITED BY LACK OF AVAILABLE SPACE. NATURAL BUFFERS ARE NOT REQUIRED ADJACENT TO ROAD DITCHES, JUDICIAL DITCHES, COUNTY DITCHES, STORMWATER CONVEYANCE CHANNELS, STORM DRAIN INLETS, AND SEDIMENT BASINS.

DEWATERING AND BASIN DRAINING

CONTRACTOR MUST DISCHARGE TURBID OR SEDIMENT-LADEN WATERS RELATED TO DEWATERING OR BASIN DRAINING TO A TEMPORARY OR PERMANENT SEDIMENT BASIN ON THE PROJECT SITE UNLESS INFEASIBLE. CONTRACTOR MAY DEWATER TO SURFACE WATERS IF THEY VISUALLY CHECK TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED AND NUISANCE CONDITIONS WILL NOT RESULT FROM THE DISCHARGE. IF CONTRACTOR CANNOT DISCHARGE THE WATER TO A SEDIMENTATION BASIN PRIOR TO ENTERING A SURFACE WATER, CONTRACTOR MUST TREAT IT WITH APPROPRIATE BMPs SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE SURFACE WATER OR DOWNSREAM PROPERTIES.

IF CONTRACTOR MUST DISCHARGE WATER CONTAINING OIL OR GREASE, THEY MUST USE AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE (E.G., CARTRIDGE FILTERS, ABSORBENTS PADS) PRIOR TO DISCHARGE.

CONTRACTOR MUST DISCHARGE ALL WATER FROM DEWATERING OR BASIN-DRAINING ACTIVITIES IN A MANNER THAT DOES NOT CAUSE EROSION OR SCOUR IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS OR INUNDATION OF WETLANDS IN THE IMMEDIATE VICINITY OF DISCHARGE POINTS THAT CAUSES SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.

IF CONTRACTOR USE FILTERS WITH BACKWASH WATER, THEY MUST HAUL THE BACKWASH WATER AWAY FOR DISPOSAL, RETURN THE BACKWASH WATER TO THE BEGINNING OF THE TREATMENT PROCESS, OR INCORPORATE THE BACKWASH WATER INTO THE SITE IN A MANNER THAT DOES NOT CAUSE EROSION.

INSPECTIONS AND MAINTENANCE

CONTRACTOR MUST INSPECT AND MAINTAIN ALL PERMANENT STORMWATER TREATMENT BMPs.

CONTRACTOR MUST INSPECT ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs AND POLLUTION PREVENTION MANAGEMENT MEASURES TO ENSURE INTEGRITY AND EFFECTIVENESS. CONTRACTOR MUST REPAIR, REPLACE OR SUPPLEMENT ALL NONFUNCTIONAL BMPs WITH FUNCTIONAL BMPs BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY. CONTRACTOR MAY TAKE ADDITIONAL TIME IF FIELD CONDITIONS PREVENT ACCESS TO THE AREA.

DURING EACH INSPECTION, CONTRACTOR MUST INSPECT SURFACE WATERS, INCLUDING DRAINAGE DITCHES AND CONVEYANCE SYSTEMS BUT NOT CURB AND GUTTER SYSTEMS, FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION. CONTRACTOR MUST REMOVE ALL DELTAS AND SEDIMENT DEPOSITED IN SURFACE WATERS, INCLUDING DRAINAGE WAYS, CATCH BASINS, AND OTHER DRAINAGE SYSTEMS AND REESTABLISH THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL. CONTRACTOR MUST COMPLETE REMOVAL AND STABILIZATION WITHIN SEVEN (7) CALENDAR DAYS OF DISCOVERY UNLESS PRECLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. CONTRACTOR MUST USE ALL REASONABLE EFFORTS TO OBTAIN ACCESS. IF PRECLUDED, REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) DAYS OF OBTAINING ACCESS.

CONTRACTOR MUST INSPECT CONSTRUCTION SITE VEHICLE EXIT LOCATIONS, STREETS AND CURB AND GUTTER SYSTEMS WITHIN AND ADJACENT TO THE PROJECT FOR SEDIMENTATION FROM EROSION OR TRACKED SEDIMENT FROM VEHICLES. CONTRACTOR MUST REMOVE SEDIMENT FROM ALL PAVED SURFACES WITHIN ONE (1) CALENDAR DAY OF DISCOVERY OR, IF APPLICABLE, WITHIN A SHORTER TIME TO AVOID A SAFETY HAZARD TO USERS OF PUBLIC STREETS.

CONTRACTOR MUST REPAIR, REPLACE OR SUPPLEMENT ALL PERIMETER CONTROL DEVICES WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE HEIGHT OF THE DEVICE.

CONTRACTOR MUST DRAIN TEMPORARY AND PERMANENT SEDIMENTATION BASINS AND REMOVE THE SEDIMENT WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME.

POLLUTION PREVENTION MANAGEMENT MEASURES

CONTRACTOR MUST PLACE BUILDING PRODUCTS AND LANDSCAPE MATERIALS THAT ARE CONSIDERED TO BE A SOURCE OF CONTAMINATION, PESTICIDES, FERTILIZERS, AND CHEMICALS UNDER COVER TO MINIMIZE CONTACT WITH STORMWATER.

CONTRACTOR MUST STORE HAZARDOUS MATERIALS AND TOXIC WASTE IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045 INCLUDING SECONDARY CONTAINMENT AS APPLICABLE.

CONTRACTOR MUST PROPERLY STORE, COLLECT AND DISPOSE SOLID WASTE IN COMPLIANCE WITH MINN. R. CH. 7035.

CONTRACTOR MUST POSITION PORTABLE TOILETS SO THEY ARE SECURE AND WILL NOT TIP OR BE KNOCKED OVER.

CONTRACTOR MUST TAKE REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS, INCLUDING FUEL, FROM ANY AREA WHERE CHEMICALS OR FUEL WILL BE LOADED OR UNLOADED INCLUDING THE USE OF DRIP PANS OR ABSORBENTS UNLESS INFEASIBLE. CONTRACTOR MUST ENSURE ADEQUATE SUPPLIES ARE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND THAT AN APPROPRIATE DISPOSAL METHOD IS AVAILABLE FOR RECOVERED SPILLED MATERIALS. CONTRACTOR MUST REPORT AND CLEAN UP SPILLS IMMEDIATELY AS REQUIRED BY MINN. STAT. 115.061, USING DRY CLEAN UP MEASURES WHERE POSSIBLE.

CONTRACTOR MUST LIMIT VEHICLE EXTERIOR WASHING AND EQUIPMENT TO A DEFINED AREA OF THE SITE. CONTRACTOR MUST CONTAIN RUNOFF FROM THE WASHING AREA IN A SEDIMENT BASIN OR OTHER SIMILARLY EFFECTIVE CONTROLS AND MUST DISPOSE WASTE FROM THE WASHING ACTIVITY PROPERLY. CONTRACTOR MUST PROPERLY USE AND STORE SOAPS, DETERGENTS, OR SOLVENTS.

CONTRACTOR MUST PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS RELATED TO THE CONSTRUCTION ACTIVITY. CONTRACTOR MUST PREVENT LIQUID AND SOLID WASHOUT WASTES FROM CONTACTING THE GROUND AND MUST DESIGN THE CONTAINMENT SO IT DOES NOT RESULT IN RUNOFF FROM THE WASHOUT OPERATIONS OR AREAS. CONTRACTOR MUST PROPERLY DISPOSE LIQUID AND SOLID WASTES IN COMPLIANCE WITH MPCA RULES. CONTRACTOR MUST INSTALL A SIGN INDICATING THE LOCATION OF THE WASHOUT FACILITY.

PERMANENT COVER

CONTRACTOR MUST COMPLETE ALL CONSTRUCTION ACTIVITY AND MUST INSTALL PERMANENT COVER OF ALL AREAS. PERMANENT (VEGETATIVE) COVER MUST CONSIST OF A UNIFORM PERENNIAL VEGETATION WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH.

CONTRACTOR MUST CLEAN THE PERMANENT STORMWATER TREATMENT SYSTEM OF ANY ACCUMULATED SEDIMENT AND MUST ENSURE THE SYSTEM IS OPERATING AS DESIGNED.

CONTRACTOR MUST REMOVE ALL SEDIMENT FROM CONVEYANCE SYSTEMS

CONTRACTOR MUST REMOVE ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPs. CONTRACTOR MAY LEAVE BMPs DESIGNED TO DECOMPOSE ON-SITE IN PLACE.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. THESE SHALL BE CONSIDERED A MINIMUM STANDARD FOR THE PROTECTION OF CONSTRUCTION WORKERS AND THE TRAVELING PUBLIC. MnDOT 1707 PUBLIC CONVENIENCE AND SAFETY AND MnDOT 1710 TRAFFIC CONTROL DEVICES ALSO SHALL APPLY.

THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE & POLICE CHIEFS (911) AND LOCAL SCHOOL DISTRICTS OF ANY AND ALL DETOURS, CLOSURES, AND REOPENING OF TRAFFIC IN ORDER TO ALLOW TIME TO REARRANGE ROUTES OF TRAVEL.

TEMPORARY TRAFFIC CONTROL DISTANCE				
POSTED SPEED LIMIT	ADVANCE WARNING SIGN SPACING (A)	CHANNELIZING DEVICE SPACING (G)	TAPER LENGTH (L)	BUFFER SPACE (B)
0-30	100	25	200	200
35-40	325	25	325	305
45-50	600	50	600	425
55	750	50	700	500



**NOT REVIEWED FOR
BUILDING CODE
COMPLIANCE**



Commercial Plan Review – Energy Compliance Worksheet

Applies to new construction, additions, alterations, renovations, repairs and changes of use for commercial buildings, systems and equipment. Commercial buildings are all buildings except detached one- and two- family dwellings, multiple single-family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane. Information on construction documents shall comply with MN Rules 1323.0100 Subp. 10. When commissioning is required, it shall be specified in construction documents prior to permit approval.

Project: _____ Address: _____

■ **Project Information:** Select all that apply.

- ☐ New Construction ☐ Alteration ☐ Change in Space Conditioning
☐ Addition ☐ Change in Use

■ **Energy Code Exceptions:** The following conditions are not required to comply with this code if the energy use of the building is not increased: select if applies.

- ☐ Storm windows installed over existing ☐ Reroofing without exposing sheathing or insulation
☐ Glass-only replacement ☐ Alteration replacing <50% light fixtures
☐ Vestibule exception for existing door replacement ☐ Bulb and Ballast ONLY replacement
☐ Existing ceiling, wall, and/or floor cavities exposed and filled with insulation ☐ Existing ceiling, wall, and/or floor cavities NOT exposed

■ **Building and Occupancy Type Compliance:** *Residential buildings* shall meet the provisions of IECC-Residential Provisions (RE), MSBC Ch. 1322. *Commercial buildings* shall meet the provisions of IECC—Commercial Provisions (CE), MSBC Ch. 1323. For *Mixed occupancy buildings* which include both residential and commercial occupancies, **each occupancy shall be separately considered and meet the applicable provisions of IECC - Commercial Provisions (MSBC 1323) and IECC - Residential Provisions (MSBC 1322) specific the occupancy.**

Indicate all that apply:

- ☐ **Commercial Building** *For this code, all buildings that are not included in the definition of Residential Building.*
☐ **Residential Building** *For this code, includes detached one- and two-family dwellings and multiple single family dwellings (townhouses) as well as Group R-2, R-3 and R-4 buildings three stories or less in height above grade plane.*
☐ **Mixed Occupancy Building** *Where a building includes both residential and commercial occupancies, each occupancy shall be separately considered and meet the applicable provisions of Chapter 1322 and Chapter 1323.*

■ **System Commissioning:** Indicate whether System Commissioning is required for the project based on compliance method. Prior to issuance of building permit, the name of the individual or company that will provide the system commissioning must be provided and acknowledged by the project owner. Commissioning is required to be completed prior to final inspection.

- ☐ Yes ☐ No

ENERGY CODE COMPLIANCE DRAWING SHEET(S) For all compliance methods

Submit separate energy code compliance drawing sheet(s) with the following components:

- ☐ Narrative explanation of energy code compliance approach
☐ Drawings depicting the thermal envelope and continuous air barrier
☐ Schedule of energy-related features, including building construction components, building services and equipment, prescribed or used in the compliance calculations and analysis. For each item, list:
 ▪ The U-value, R-value, or other relevant energy metric associated with the item
 ▪ The plan sheet or specification section where the item is located in the construction documents.
☐ Narrative explanation of commissioning and project completion requirements per ASHRAE 90.1-2016 or IECC Section 408.

Energy Code Compliance

- STEP 1** Select ONLY ONE compliance method for the entire project using this form. 1a, 1b, 2, or 3
- STEP 2** Under selected compliance method, select ONE option from each section
- STEP 3** Prepare forms, reports or other documentation as indicated for the method and path chosen
- STEP 4** Prepare ENERGY CODE COMPLIANCE DRAWING SHEET(S) see front of worksheet for requirements
- STEP 5** Submit items from Steps 1-4 and other construction documents with permit application package

☐ **1a. ASHRAE Standard Compliance** for NEW COMMERCIAL BUILDINGS, ADDITIONS, ALTERATIONS & REPAIRS

Comply with the provisions of the following ASHRAE 90.1-2016 sections 5-10: Select one option from each section and submit required documentation.

Section 5 Building Envelope

- ☐ PRESCRIPTIVE BUILDING ENVELOPE OPTION
Submit **Standard 90.1-2016: Building Envelope Compliance Forms - Part 1 and Part 2**
- ☐ BUILDING ENVELOPE TRADE-OFF OPTION Submit **Standard 90.1-2016: Building Envelope Compliance Forms - Part 1 and COMcheck report** for the ASHRAE building envelope trade-off option

Section 6 Heating, Ventilation and Air Conditioning

- ☐ HVAC SIMPLIFIED APPROACH OPTION Submit **Standard 90.1-2016: HVAC Compliance Forms - Part 1**
- ☐ HVAC MANDATORY PROVISIONS and PRESCRIPTIVE PATH
Submit **Standard 90.1-2016: HVAC Compliance Forms - Part 2 and Part 3**

Section 7 Service Water Heating

- ☐ PRESCRIPTIVE PATH
Submit **Standard 90.1-2016: Service Water Heating Compliance Forms**

Section 8 Power

Only one compliance path is available for power distribution systems

Section 9 Lighting

- ☐ BUILDING AREA METHOD
Submit **Standard 90.1-2016: Lighting Compliance Forms**
- ☐ SPACE-BY-SPACE METHOD
Submit **Standard 90.1-2016: Lighting Compliance Forms**

Section 10 Other Equipment

Comply with provisions of Section 10.

☐ **1b. ASHRAE Energy Cost Budget Compliance** for NEW BUILDINGS and ADDITION

Comply with the provisions of ASHRAE 90.1 2016 Section 11 Energy Cost Budget. See additional handout for submittal requirements for this compliance method.

☐ **2. IECC Prescriptive Compliance** for NEW BUILDINGS, ADDITIONS, ALTERATIONS & REPAIRS

Comply with the provisions of the following INTERNATIONAL ENERGY CONSERVATION CODE (IECC), MN RULES CHAPTER 1323 sections: Select one option from Section C403.

Section C402 Building Envelope Requirements

Section C403 Building Mechanical Systems

Comply with mandatory provisions and either:

- ☐ Section C403.3 Simple systems
- ☐ Section C403.4 Complex systems

Section C404 Service Water Heating

Section C405 Electrical Power and Lighting Systems

For NEW BUILDINGS ONLY

Section C406 Additional Efficiency Packages

Comply with at least one of the following:

- ☐ Section C406.2 Efficient HVAC Performance
- ☐ Section C406.3 Efficient Lighting System
- ☐ Section C406.4 On-Site Supply of Renewable Energy

Submit COMcheck reports or other documentation to show compliance with IECC for all sections.

☐ **3. IECC Total Building Performance** for NEW BUILDINGS

Comply with the IECC MN RULES CHAPTER 1323 C401.2 (3). See additional handout for submittal requirements for this compliance method.



COMcheck Software Version COMcheckWeb

Envelope Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Location: Duluth, Minnesota
 Climate Zone: 7
 Project Type: New Construction
 Vertical Glazing / Wall Area: 15%

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Building Area

Floor Area

1-Three Story Wood Framed Hote (Hotel) : Nonresidential	3965
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Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U- Factor ^(a)
Floor: Heated Slab-On-Grade Fully Insulated (user specified perimeter R-value + R-10.0 under slab), [Bldg. Use 1 - Three Story Wood Framed Hote] (c)	176	---	10.0	0.550	0.602
Roof: Attic Roof, Wood Joists, [Bldg. Use 1 - Three Story Wood Framed Hote]	1224	60.0	0.0	0.017	0.021
NORTH					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	1630	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	138	---	---	0.300	0.370
EAST					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	835	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	90	---	---	0.300	0.370
Door: Glass (over 50% glazing): Metal Frame, Non-Entrance Door, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	192	---	---	0.300	0.370
SOUTH					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story Wood Framed Hote]	1640	21.0	6.0	0.043	0.051
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	238	---	---	0.300	0.370
WEST					
Ext. Wall: Wood-Framed, 16in. o.c., [Bldg. Use 1 - Three Story	835	21.0	6.0	0.043	0.051

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U- Factor ^(a)
Wood Framed Hote]					
Window: Wood Frame: Operable, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	53	---	---	0.300	0.370
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID TBD, SHGC 0.41, VT 0.72, [Bldg. Use 1 - Three Story Wood Framed Hote] (b)	40	---	---	0.300	0.770

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.

(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.

(c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 4% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title

Signature

Date



Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Project Type: New Construction

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Three Story Wood Framed Hote (Hotel)	3965	0.75	2974
Total Allowed Watts =			2974

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
1-Three Story Wood Framed Hote (Hotel)				
Total Proposed Watts =				0

Interior Lighting TBD: No lighting fixtures specified



Exterior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Project Type: New Construction
 Exterior Lighting Zone: 2 (Residentially zoned area (LZ2))

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Total Tradable Watts (a) =				0
Total Allowed Watts =				0
Total Allowed Supplemental Watts (b) =				400

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.

(b) A supplemental allowance equal to 400 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

Exterior Lighting TBD: No exterior fixtures are defined.



COMcheck Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
 Project Title: Dragestil Hotel
 Location: Duluth, Minnesota
 Climate Zone: 7
 Project Type: New Construction

Construction Site:
 723 S. LAKE AVENUE
 DULUTH, Minnesota 55802

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required 1.0 Proposed
 Enhanced Envelope Performance, 1.0 credit

Mechanical Systems List

Quantity System Type & Description

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

 Name - Title

 Signature

 Date



Inspection Checklist

Energy Code: 2018 IECC

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR1] ¹	Plans and/or specifications provide all information with which compliance can be determined for the building envelope and document where exceptions to the standard are claimed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C406 [PR9] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C303.2 [FO4] ²	Slab edge insulation installed per manufacturer's instructions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.2.1 [FO6] ¹	Exterior insulation protected against damage, sunlight, moisture, wind, landscaping and equipment maintenance activities.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [FO3] ²	Installed slab-on-grade insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.4 [FO7] ²	Slab edge insulation depth/length. Slab insulation extending away from building is covered by pavement or ≥ 10 inches of soil.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. See the Envelope Assemblies table for values.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Framing / Rough-In Inspection	Complies?	Comments/Assumptions
C303.1.3 [FR12] ²	Fenestration products rated in accordance with NFRC.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.1.3 [FR13] ¹	Fenestration products are certified as to performance labels or certificates provided.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.4.3 [FR10] ¹	Vertical fenestration SHGC value.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.4.3, C402.4.3.4 [FR8] ¹	Installed vertical fenestration U-factor and SHGC consistent with label specifications and as reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.5.7 [FR17] ³	Vestibules are installed on all building entrances. Doors have self-closing devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C402.5.5, C403.2.4.3 [ME3] ³	Stair and elevator shaft vents have motorized dampers that automatically close. Refernece section C403.7.7 for operational details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.7.7 [ME58] ³	Outdoor air and exhaust systems have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Check gravity dampers where allowed. Reference section language for operational details.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
---	----------------------	---	------------------------	---	---------------------

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26] ²	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.7 [EL27] ²	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.8.2, C405.8.2.1 [EL28] ²	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.9 [EL29] ²	Total voltage drop across the combination of feeders and branch circuits $\leq 5\%$.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
---	----------------------	---	------------------------	---	---------------------

Section # & Req.ID	Insulation Inspection	Complies?	Comments/Assumptions
C303.1 [IN3] ¹	Roof insulation installed per manufacturer's instructions. Blown or poured loose-fill insulation is installed only where the roof slope is ≤ 3 in 12.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.2.1 [IN20] ¹	Insulation installed on a suspended ceiling having ceiling tiles is not being specified for roof/ceiling assemblies. Continuous insulation board installed in 2 or more layers with edge joints offset between layers.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.1 [IN10] ²	Building envelope insulation is labeled with R-value or insulation certificate providing R-value and other relevant data.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.2 [IN7] ¹	Above-grade wall insulation installed per manufacturer's instructions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [IN6] ¹	Installed above-grade wall insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.3 [IN8] ²	Installed floor insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.2.6 [IN18] ³	Radiant panels and associated components, designed for heat transfer from the panel surfaces to the occupants or indoor space are insulated with a minimum of R-3.5.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C105 [IN2] ¹	Installed roof insulation type and R-value consistent with insulation specifications reported in plans and COMcheck reports. For some ceiling systems, verification may need to occur during Framing Inspection.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Envelope Assemblies table for values.
C402.5.1.1 [IN1] ¹	All sources of air leakage in the building thermal envelope are sealed, caulked, gasketed, weather stripped or wrapped with moisture vapor-permeable wrapping material to minimize air leakage.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
---	----------------------	---	------------------------	---	---------------------

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C402.5 [FI55] ¹	Building envelope contains a continuous air barrier that has been tested and deemed to limit air leakage ≤ 0.40 cfm/ft ² .	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C402.5.6 [FI37] ¹	Weatherseals installed on all loading dock cargo door openings and provide direct contact along the top and sides of vehicles parked in the doorway.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.1.1 [FI57] ¹	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
---	----------------------	---	------------------------	---	---------------------



Doc 049-A-0419
Contact – Planning 218-730-5580

UDC Zoning Compliance Summary

The Unified Development Chapter (UDC), zone district maps and overlay maps are available online at <http://www.duluthmn.gov/> on the Community Planning Department web pages. References are to Duluth Unified Development Chapter unless otherwise noted.

Project Address:	723 Lake Ave. S	Parcel ID#:	010-4380-02380
Proposed Use:	HOTEL		

With this summary form, provide a site plan based on a boundary survey which is accurate, drawn to scale and shows clearly and in adequate detail that the proposal complies with the UDC as well as applicable building and fire code provisions.

For zoning review, in addition to this summary and a site plan, provide a narrative summary of UDC requirements and how compliance is achieved for each applicable provision.

Provide the following information about the project:

Zone District (See UDC Table 50-13.3-1) and zoning maps online. MU-N

Is the proposed use permitted in the zone district? Table 50-19.8

- | | |
|---|---|
| <input type="checkbox"/> Permitted use | <input type="checkbox"/> Accessory use |
| <input checked="" type="checkbox"/> Special use | <input type="checkbox"/> Not listed |
| <input type="checkbox"/> Permitted upper story only | <input type="checkbox"/> Legal Non-conforming use (See UDC 50-38) |

Dimensional standards for zone district 50-14 through 50-17

Required	Dimensional Standard	Proposed
	Minimum lot area	24,800 SQ. FT.
50 FEET	Min. lot frontage	200 FEET
20 FEET	Min. front yard depth	20 FEET
ZERO FEET	Min. side yard width	6 FEET
N.A.	Min. corner lot front side yard width	
25 FEET	Min. rear yard depth	25 FEET
75 FEET	Max. Building height	35 FEET

Note additional dimensional standards in 50-21.

Which overlay districts apply to this site (see overlay districts in UDC 50-18 or online?)

☐ Natural resources Overlay 50-18.1

Does the site contain wetlands? 50-18.1.B

☐ Yes ☒ No

■ Wetlands delineation prepared (50-18.1.B(1a))

☐ Yes ☒ No

Flood Plain 50-18.1.C

☐ Floodway 50-18.1.C.2

■ Is the proposed use permitted in a floodway?

☐ Yes ☒ No

■ Does the proposed use require a special use permit?

☐ Yes ☒ No

• If so, review procedures in UDC Article V for application for a special use permit.

☐ Flood Fringe 50-18.1.C.3

■ Is the proposed use permitted in a flood fringe?

☐ Yes ☒ No

■ Does the proposed use require a special use permit?

☐ Yes ☒ No

• If so, review procedures in UDC Article V for application for a special use permit.

☐ General Flood Plain District 50-18.1.C.4

■ Is the proposed use permitted in the general flood plain district?

☐ Yes ☒ No

■ If not, floodway/flood fringe determination required prior to determining permitted and special uses.

Shorelands 50-18.1.D and Table 50-18.D.1

Minimum Required	Shoreland Standard (Table 50-18.1.D-1)	Proposed
	Structure Setback from High Water Level	
	Impervious Surface Setback from High Water Level	
	Minimum width of Naturally Vegetative Buffer	

☒ Storm Water Management and Erosion Control 50-18.1.E

■ What is the total area of land disturbance?

6500 SQ. FT.

■ What is the total of new impervious area created and/or redeveloped?

6500 SQ. FT.

■ Project is in:

☐ Zone A

☐ Zone B

☐ Airport Overlay 50-18.2

■ Project is in Airport Safety Zone:

☐ A

☐ B

☐ C

OR

☐ Sky Harbor Airport Overlay Zone

☐ Historic Resources Overlay 50-18.3

■ Project is on a site listed in UDC Exhibits 50-18.3-2 or 50-18.3-2.

☐ Skyline Parkway Overlay 50-18.4

■ Project is within 200' of Skyline Parkway (downhill side only)

☐ Higher Education Overlay 50-18.5

■ Project is on a site within the HE-O boundary 50-18.5.D

Do use specific standards apply to this project? 50-20

☐ Residential Uses 50-20.1

☐ Public, Institutional and Civic Uses 50-20.2

☐ Commercial Uses 50-20.3

☐ Industrial Uses 50-20.4

☐ Major Utility or Wireless Telecommunications Facility

■ Is a special use permit required? 50-20.4.E

☐ Yes ☐ No

☐ Accessory Uses 50-20.5

Is the lot served by municipal sewer?

☒ Yes ☐ No

Are exceptions or encroachments listed in UDC 50-21.3 utilized for this project?

■ If so, describe each

Do connectivity and circulation requirements apply to this project? 50-23.

☐ Yes ☐ No

Do off street parking requirements apply to this project? 50-24.

☐ Yes ☐ No

■ How many off street parking spaces are required per Table 50-24.2 with the adjustments in 50-23.3?

10

■ Are transit adjustments or shared parking used?

☐ Yes ☒ No

■ What is the maximum number of off street parking spaces allowed? 50-24.4

15

Location of parking spaces must comply with 50-24.6

■ Is a loading space required?

☐ Yes ☒ No

Landscaping Requirements 50-25	Yes	No
Street frontage landscaping (50-25.3)	YES	
Parking lot landscaping (50-25.4)	NO	
Landscaping between differing land uses (50-25.5)	YES	
Tree preservation (50-25.9)	YES	

Screening Requirements 50-26	Yes	No
Mechanical equipment screening, roof or ground mounted (50-26.1)		NO
Service or off street loading area screening (50-26.2)		NO
Commercial container screening (50-26.3)	YES	

Do sign standards apply? 50-27.

☒ Yes

If YES, separate sign permit application required. Find forms and submittal requirements on the Construction Services or Community Planning Web pages.

☐ No Why Not?

Do sustainability standards apply? 50-29.

☐ Yes ☐ No

☒ Yes How many points required from Table 50-29-1?

3

If YES, submit sustainability checklist with building permit application. Sustainability checklist available on Construction Services web page.

☐ No Why Not?

Do design standards apply? 50-30

☒ Yes ☒ No

- | | |
|---|---|
| <input type="checkbox"/> Multi-family residential | <input type="checkbox"/> Industrial |
| <input checked="" type="checkbox"/> Commercial | <input type="checkbox"/> Parking garage |
| <input type="checkbox"/> Mixed Use | |

Do exterior lighting standards apply? 50-31

☒ Yes ☐ No

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Multi-family residential | <input type="checkbox"/> Mixed use |
| <input checked="" type="checkbox"/> Commercial or Institutional | <input type="checkbox"/> Industrial |

UDC Applications

If the project requires any type of UDC application process, including:

- | | |
|--|---|
| ■ Zoning Map Amendment | ■ Variance |
| ■ District Plan Adoption or Amendment | ■ Special Use or Interim Use Permit |
| ■ Subdivision Plat Approval or Amendment | ■ Planning Review |
| ■ Vacation of Street | ■ Sidewalk Use Permit |
| ■ Concurrent Use of Streets Permit | ■ Historic Construction/Demolition Permit |
| ■ Historic Resource Designation | ■ Other |

The process must be completed and written documentation provided at the time of application for a building permit.

See UDC Article V and the UDC Application Manual (online at <http://www.duluthmn.gov/>) for information about UDC application submittal requirements and procedures.



The City of Duluth has tried to ensure that the information contained in this map or electronic document is accurate. The City of Duluth makes no warranty or guarantee concerning the accuracy of the information contained in this map or electronic document. The drawing data is a compilation of records, information and data located in various City, County and State offices and other sources affecting the area shown and is to be used for reference purposes only. The City of Duluth shall not be liable for errors contained within this data provided or for any damages in connection with the use of this information contained within.

SITE MAP

Building Safety

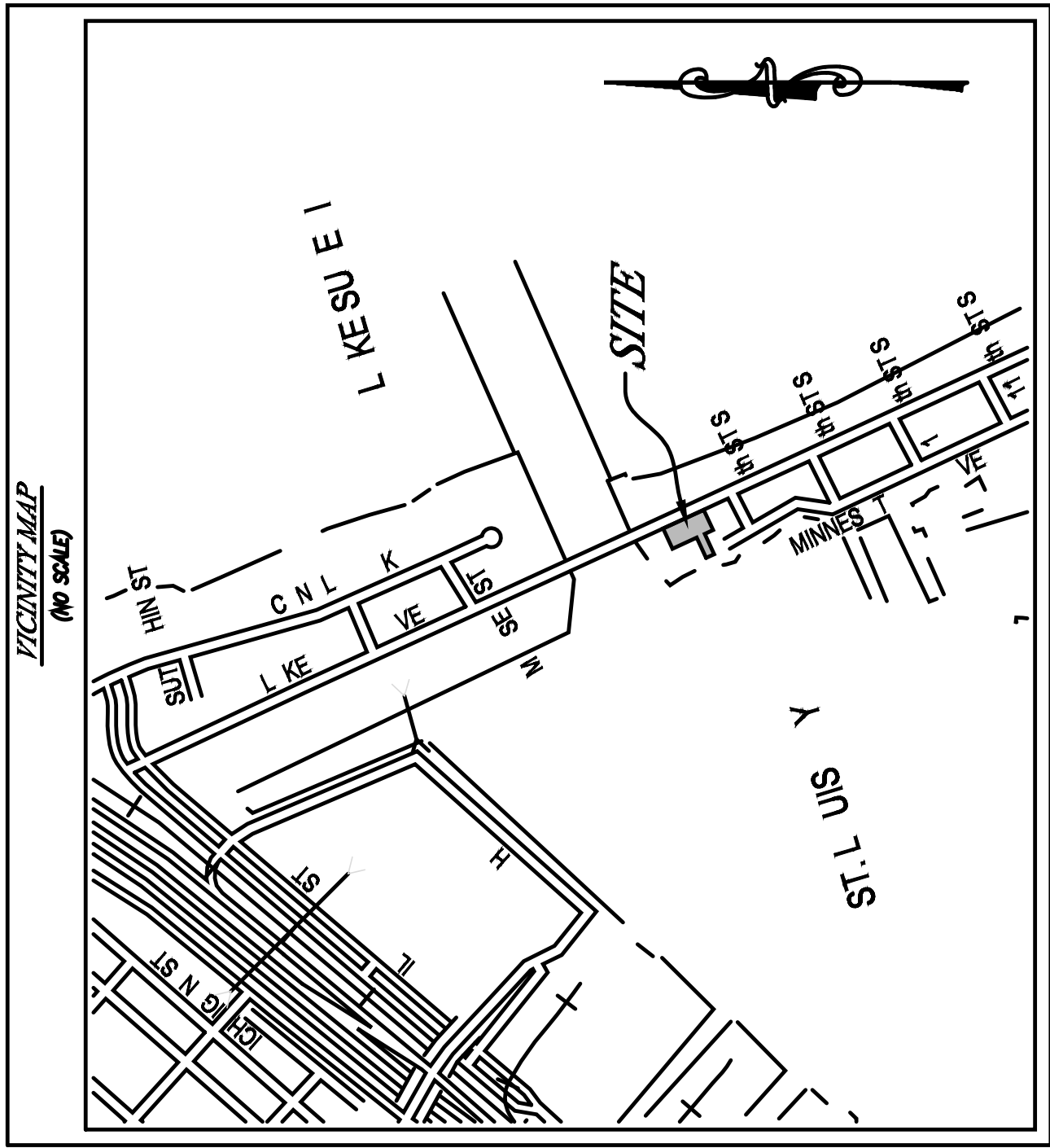
0 12.5 25 50 Feet
1 inch = 25 feet
N
Printed: 4/7/2023

Boundary/ Topographic Survey

LOTUS REALTY SERVICES, INC.

Lots 228, 230, 232, 234 and 236, UPPER DULUTH, LAKE AVENUE
and

Lot 229, UPPER DULUTH, MINNESOTA AVENUE
City of Duluth, St. Louis County, Minnesota



- NOTES
1. PROPERTY ADDRESS: 723 SOUTH LAKE AVENUE, DULUTH, MINNESOTA.
 2. THE PROPERTY HAS DIRECT PHYSICAL ACCESS TO SOUTH LAKE AVENUE AND MINNESOTA AVENUE, PUBLIC STREETS.
 3. DATE OF SURVEY: FEBRUARY 13 AND 16, 2018.
 4. BASIS OF BEARING IS GRID NORTH, ST. LOUIS COUNTY TRANSVERSE MERCATOR 96 COORDINATE SYSTEM.
 5. HORIZONTAL DATUM = ST. LOUIS TRANSVERSE MERCATOR 1996 (SOUTH 96).
 6. VERTICAL DATUM = NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
 7. UNDERGROUND UTILITY LOCATIONS ARE BASED UPON A Gopher STATE ONE CALL NON-EXCAVATION DESIGN SURVEY TICKET NUMBER 180430647, DATED FEBRUARY 12, 2018, AND MAPS SENT BY RESPECTIVE UTILITIES.
CHARTER COMMUNICATIONS (800) 778-9140
CITY OF DULUTH - ENGINEERING (216) 730-6200
CITY OF DULUTH - TRAFFIC (216) 730-4420
DULUTH ENERGY SYSTEMS - STEAM (216) 723-3601
CENTURYLINK (866) 742-6062
LANDOT (866) 366-5760
MINNESOTA POWER (216) 720-2767
NORTHEAST SERVICE COOPERATIVE (216) 688-4744
 8. CURB AND SIDEWALK ON SOUTHERLY SIDE OF SOUTH LAKE AVENUE NOT LOCATED AT TIME OF SURVEY, DUE TO EXCESSIVE SNOW AND ICE. FEATURES DRAWN ARE BASED SOLELY ON AERIAL IMAGERY AVAILABLE.
 9. CITY OF DULUTH UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE HISTORIC MAPPING ONLY.
 10. BUILDING SHOWN DO NOT INCLUDE ROOF LINE EAVE MEASUREMENTS.



LEGEND	
	BOUNDARY LINE, THIS SURVEY
	BITUMINOUS SURFACE
	BUILDING
	CONCRETE SURFACE
	5 FOOT CONTOUR
	1 FOOT CONTOUR
	CURB & GUTTER
	GRAVEL SURFACE
	RP-RAP SURFACE
	VACATED STREET (NUMBER 743)
	EASEMENT LINE
	FENCE LINE
	BLOCK LINE
	LOT LINE
	VACATED PLAT LINE
	OVERHEAD ELECTRIC
	BURIED ELECTRIC
	BURIED FIBER OPTIC
	ABANDONED GAS
	BURIED GAS
	BURIED SANITARY SEWER
	BURIED SANITARY SEWER FORCE MAIN
	BURIED STORM
	OVERHEAD TELEPHONE
	BURIED WATER
	BRUSH LINE/EDGE
	SIGN
	SOIL BORING
	BOLLARD
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN (SQUARE)
	LIGHT POLE
	GUY WIRE OR ANCHOR
	POWER POLE/LIGHT POLE
	POWER POLE
	ELECTRICAL PANEL
	WATER VALVE
	HYDRANT
	GAS METER
	CLEAN OUT
	EVERGREEN TREE
	DECIDUOUS TREE
	BUSH
	5/8" x 24" REBAR WITH ALUMINUM CAP INSCRIBED MINNESOTA PLUS 44076

(SCALE IN FEET)

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State of Bearing is Grid North,
St. Louis County Transverse
Mercator 96 Coordinate System.

LRS

PERFORMANCE
DRIVEN DESIGN.
LRSinc.com

FILE: 180430647.dwg

SHEET 1 of 1 SHEETS

DATE PREPARED: 02/07/18

PROJ. NO.: 180474

FILE: 180430647.dwg

SHEET 1 of 1 SHEETS

Date: 02/07/2018

License # 44076

Print Name: Paul A. Vogel

Signature:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

EIGHTH ST EET

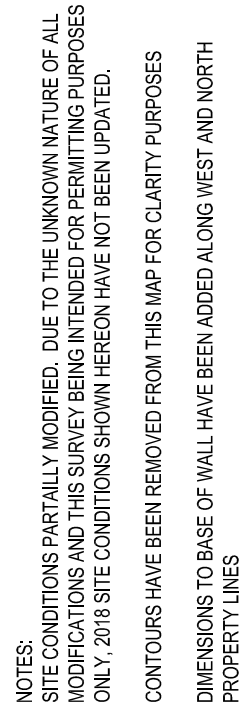
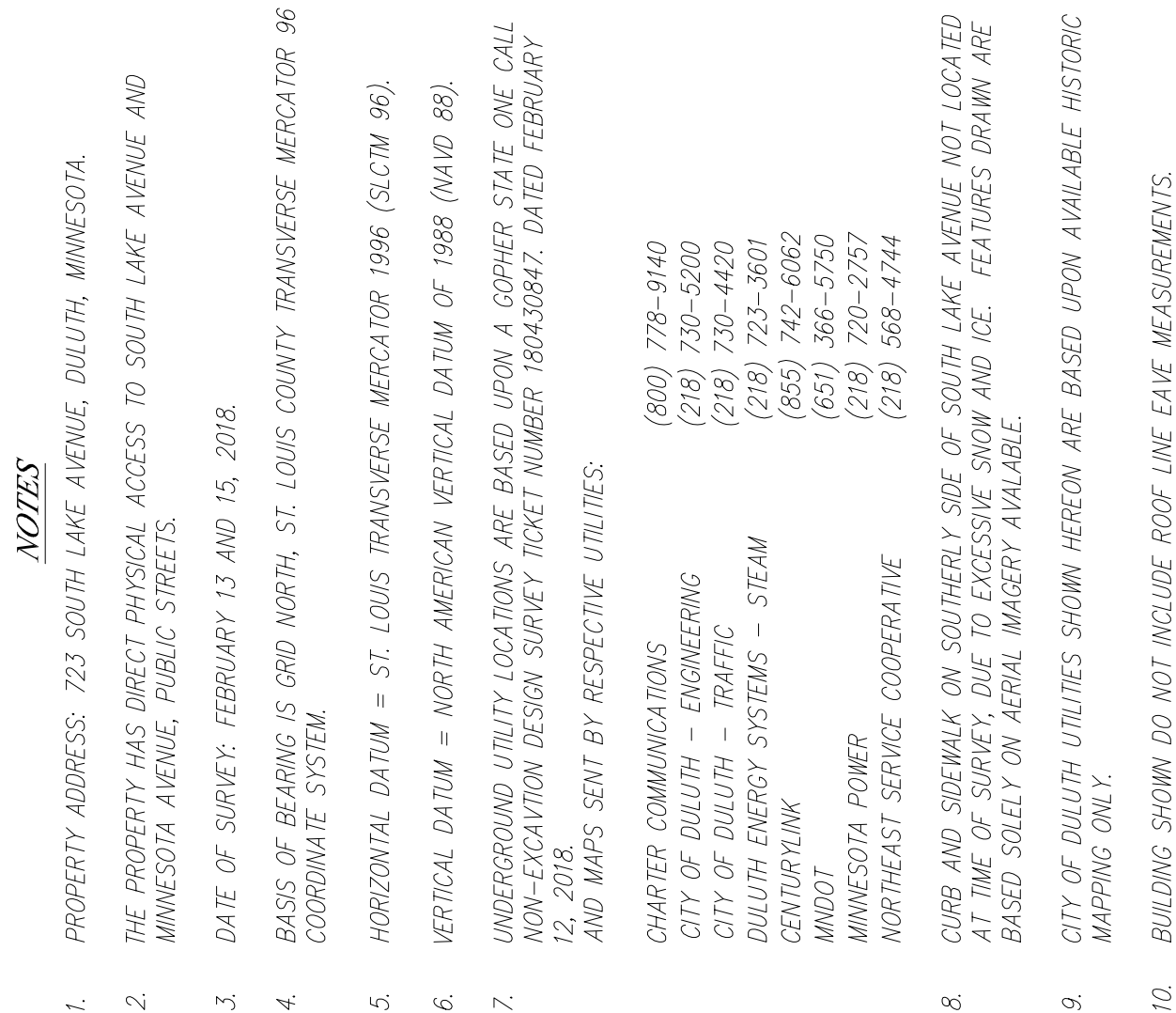
DULUTH

MINNESOTA AVENUE

S UTH L KE VENUE





SEVENTH ST EET (A. FULL N. ST. EET)

*PREPARED FOR: HEIRLOOM CONSTRUCTION
Lots 228, 230, 232, 234 and 236, UPPER DULUTH, LAKE AVENUE
and
Lot 229, UPPER DULUTH, MINNESOTA AVENUE
City of Duluth, St. Louis County, Minnesota*



CLIENT NAME HAS BEEN UPDATED

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

1-10-24 209	
	PERFORMANCE DRIVEN DESIGN. 
REUSED: 06/22/23 DATE PREPARED: 03/07/18	PRO NO.: 18014 FILE: 18014/056
I hereby certify that this specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.	License #: 44075 Date: 08/22/2022 
Print Name: Paul A. Vogel	Signature: 
P. A. Vogel, S. S., 500 Duane Ave. #50021 18-2776 LDB Corp.	

- LIFE SAFETY LEGEND
- EXIT ACCESS TRAVEL DISTANCE
(SHORTEST DISTANCE)

COMMON PATH OF EGRESS TRAVEL

COMMON PATH OF EGRESS TERMINATION POINT

PATH OF TRAVEL WITH DIRECTION AND DISTANCE

EXIT SIGNS

MANEUVERING CLEARANCE

FIRE EXTINGUISHER

30 MIN FIRE-RESISTIVE RATED CONSTRUCTION

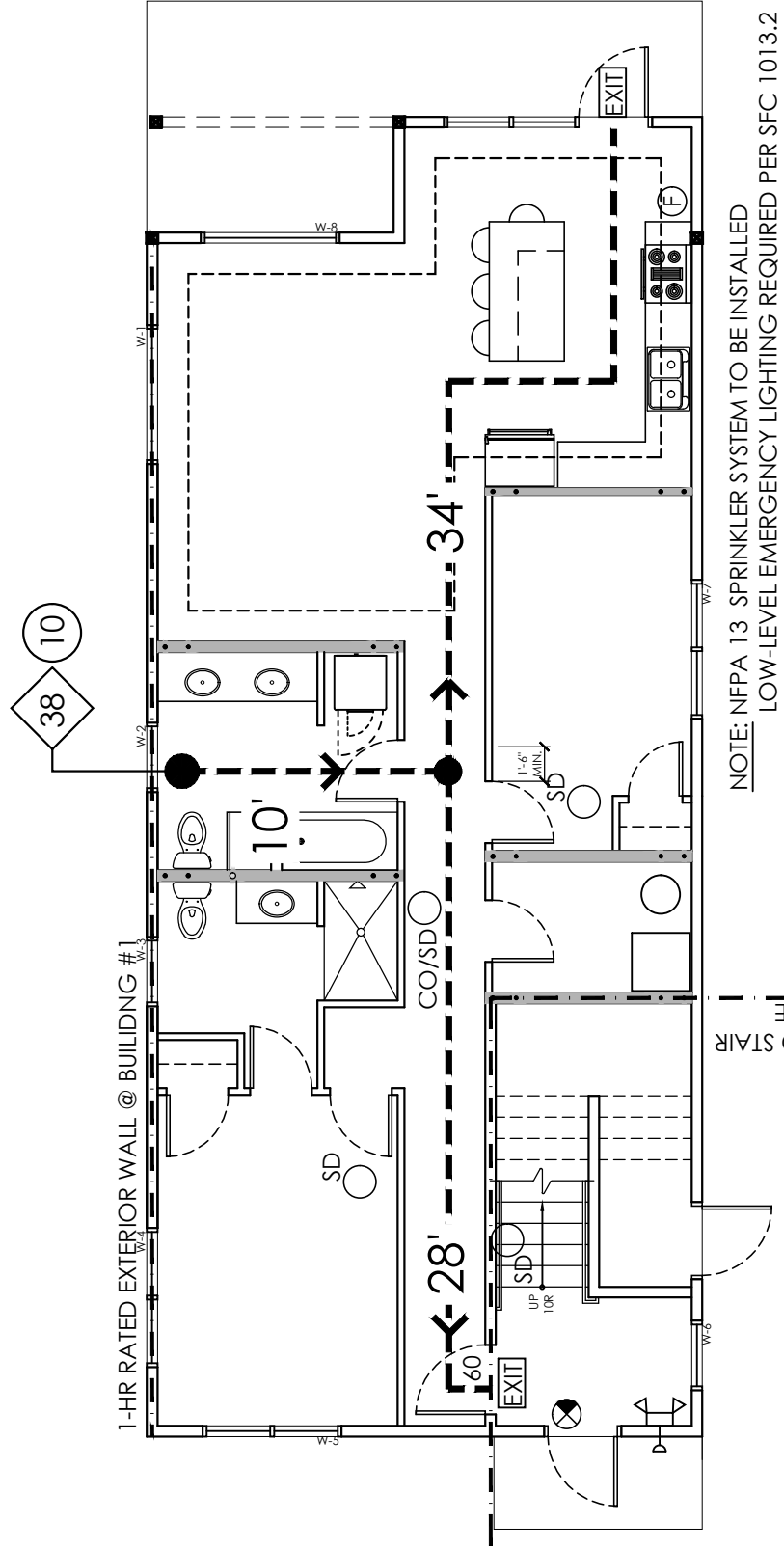
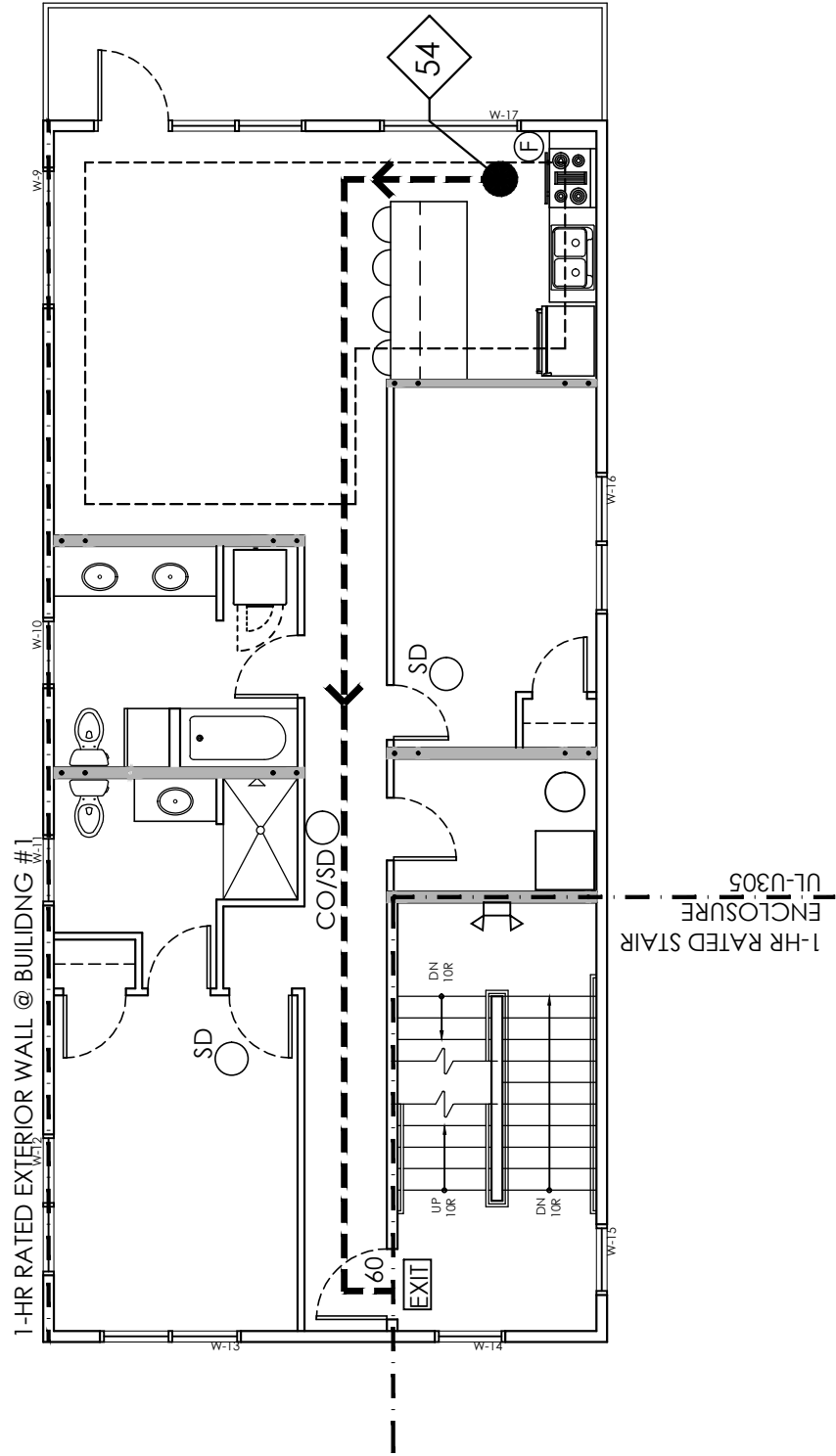
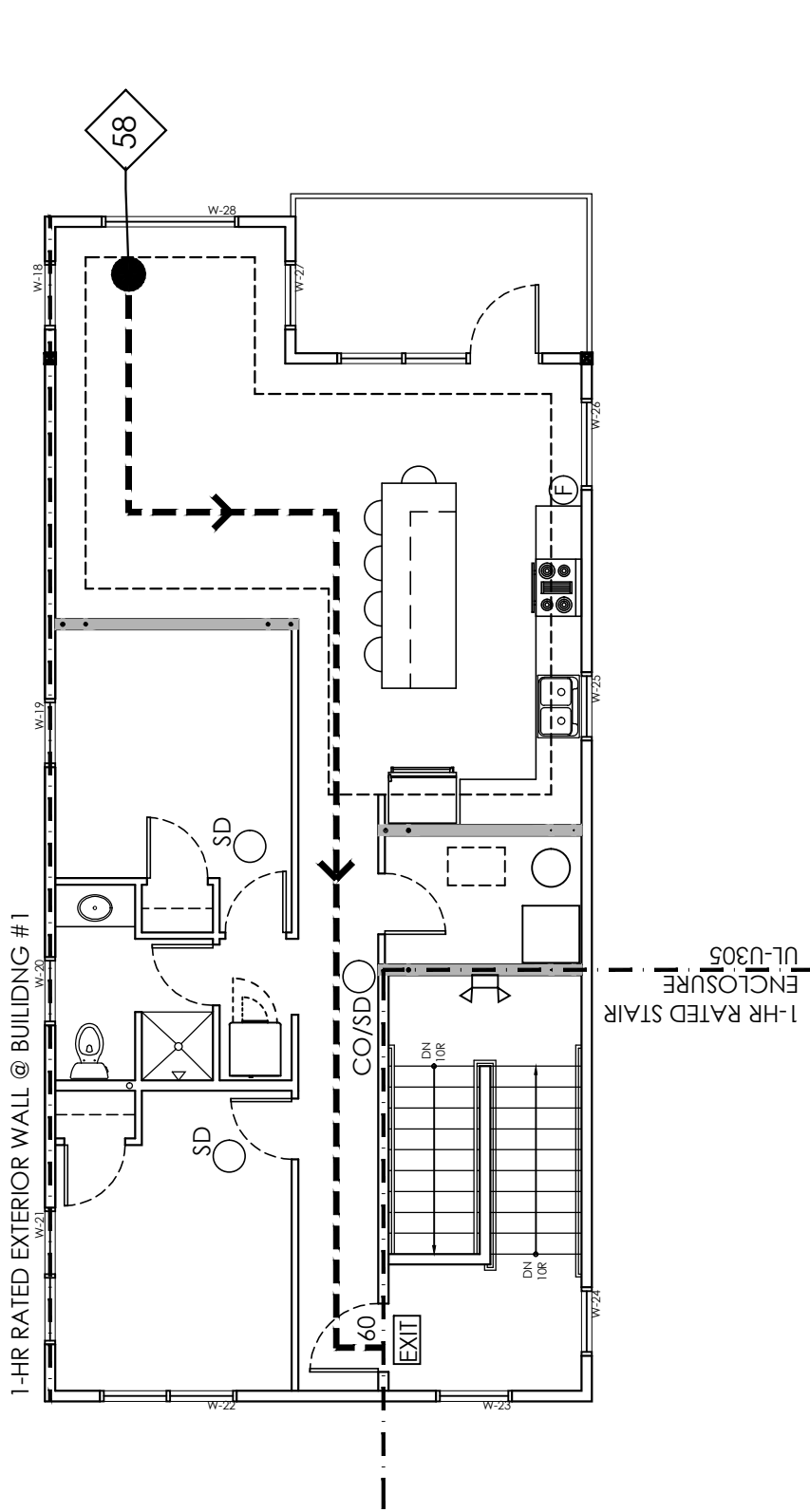
1 HOUR FIRE-RESISTIVE RATED CONSTRUCTION

2 HOUR FIRE-RESISTIVE RATED CONSTRUCTION

FIRE RATED DOOR / FRAME ASSEMBLY
(NUMBER INDICATES RATING IN MINUTES)

EMERGENCY LIGHT

CO/SMOKE DETECTORS



LIFE SAFETY PLANS

1/8"=1'-0"

CODE SUMMARY - S. LAKE AVE. BUILDINGS (BUILDINGS #1, #2, #3)

CODICES USED:	2020 MINNESOTA BUILDING CODE				
OCCUPANCY:	SECTION 310	GROUP R-1	RESIDENTIAL (TRANSIENT)		
CONSTRUCTION TYPE:	SECTION 602	TYPE V-B			
ALLOWABLE AREA:	SECTION 506	OCCUPANCY			ALLOWABLE AREA
		R-1	7,000 SF	7,000 SF	0.688
					3

ACTUAL AREA:			540 FT	570 FT	29.61 FT		
	OCCUPANCY	BASEMENT	1st FLOOR	2nd FLOOR	3rd FLOOR	TOTAL	
	R-1	0 SF	1,241 SF	1,170 SF	1,100 SF	3,511 SF	

ALLOWABLE HEIGHT:	SECTION 504	OCCUPANCY	HEIGHT	STORIES	ACTUAL HT	ACTUAL STORIES
		R-1	60 FT	3	35 FT	3
MIXED OCCUPANCY:	SECTION 508	NO				

OCCUPANCY SEPARATION:	TABLE 508.4	NONE
AUTOMATIC SPRINKLER SYSTEM:	SECTION 903	NFPA 13 SPRINKLER SYSTEM WILL BE INSTALLED
FIRE ALARM & DETECTION SYSTEMS:	SECTION 907	WILL COMPLY

FIRE RESISTIVE REQUIREMENTS:	TABLE 601	BUILDING ELEMENTS	PRIMARY STRUCTURAL FRAME	0 HOUR
			BEARING WALLS (EXT.)	0 HOUR
			BEARING WALLS (INT.)	0 HOUR
			NONBEARING WALLS (EXT.)	0 HOUR
			NONBEARING WALLS (INT.)	0 HOUR
			FLOOR CONSTRUCTION	0 HOUR
			ROOF CONSTRUCTION	0 HOUR
	TABLE 602	EXTERIOR WALLS	<5 FEET	1 HOUR
			5 FEET TO <10 FEET	1 HOUR
			10 FEET TO < 30 FEET	0 HOUR
			> 30 FEET	0 HOUR
	SECTION 705	BUILDINGS ON SAME LOT	WILL COMPLY, SEE NOTE 4 BELOW	
		EXTERIOR WALL OPENINGS	WILL COMPLY	
	SECTION 706	FIRE WALLS	NOT REQUIRED	
	SECTION 707	FIRE BARRIERS	WILL COMPLY	1 HOUR AT EXIT STAIRWAYS
	SECTION 708	FIRE PARTITIONS	WILL COMPLY	1 HOUR
	SECTION 711	FLOOR & ROOF ASSEMBLIES	WILL COMPLY	1 HOUR
	SECTION 713	SHAFT ENCLOSURES	NOT APPLICABLE	
ACCESSIBILITY REQUIREMENTS	SECTION 11	ACCESSIBILITY	WILL COMPLY	SEE NOTE 4 BELOW

PROJECT REQUIREMENTS

OCCUPANCY:	Residential (Transient)										
PROJECT AREA:		R-1									
PROJECT HEIGHT:		35'									
OCCUPANT LOAD:		TABLE 1004.5		FUNCTION		AREA		OCC LOAD FACTOR		OCCUPANT LOAD	
				R-1 (FIRST FLOOR UNIT)		1,241 SF		200 SF		GROSS	
				R-1 (SECOND FLOOR UNIT)		1,170 SF		200 SF		GROSS	
				R-1 (THIRD FLOOR UNIT)		1,100 SF		200 SF		GROSS	
										TOTAL OCCUPANT LOAD	
NUMBER OF EXITS:		SECTION 1006									
EXIT ACCESS TRAVEL DISTANCE:		TABLE 1017									
		DESCRIPTION		OCC. LOAD		W.C.-URINAL		LAVATORIES		BATHUBS - SHOWERS	
SANITATION REQUIREMENTS:		TABLE 2902.1		R-1		-		1 PER UNIT		1 PER UNIT	
		FIXTURES PROVIDED		15-0		15		6-9		0	
										0	

COMMENTS

- BUILDINGS #1, #2, AND #3 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS ONE BUILDING PER 705.3
- BUILDING #4 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS A SEPARATE BUILDING AND AN IMAGINARY PROPERTY LINE IS SHOWN PER 705.3
- EXISTING BUILDING ON PROPERTY HAS 3 RENTAL UNITS. ONE OF WHICH IS A TYPE B UNIT. BUILDING HAS RAMP AND ENTRY COMPLIANT WITH MN ACCESSIBILITY CODE. UPGRADES WILL BE MADE TO CONVERT TO A TYPE A UNIT.

1

1/8"=1'-0"

1. BUILDINGS #1, #2, AND #3 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS ONE BUILDING PER 705.3

2. BUILDING #4 AS LABELED ON ARCHITECTURAL SITE PLAN SHALL BE REGULATED AS A SEPARATE BUILDING AND AN IMAGINARY PROPERTY LINE IS SHOWN PER 705.3

3. EXISTING BUILDING ON PROPERTY HAS 3 RENTAL UNITS. ONE OF WHICH IS A TYPE B UNIT. BUILDING HAS RAMP AND ENTRY COMPLIANT WITH MN ACCESSIBILITY CODE. UPGRADES WILL BE MADE TO CONVERT TO A TYPE A UNIT.

SHEET NO.

A0.1



Doc 120-A-0419
Contact Planning 730-5580

UDC SUSTAINABILITY CHECKLIST

Instructions

- Figure out how many points you need based on UDC Section 50-29:
 - Residential development with 3-29 units: 3 points.
 - Residential development with 30 or more units: 4 points.
 - Non-residential development with 10,000 to 25,000 sq. ft: 3 points.
 - Non-residential development with a total square footage of more than 25,000 sq. ft: 4 points.
- Write the number of points in the Points Earned column for those items your project will include.
- The responsible Minnesota licensed architect or engineer shall prepare a Sustainability Summary which includes the following:
 - A detailed narrative description of each menu item used to earn points for the project.
 - Clear references to the location within the construction documents (plans, specifications, or other documents) where each item is addressed (sheet, page, detail, etc.)
 - A statement that the plans, specifications and construction documents provide compliance with the items used to earn points for the project.
 - Certification by the licensed architect or engineer.
- Attach any documentation required for those items
- For those items indicated with "x" in the menu table, complete the table with name, firm or licensing and signature of special inspector.
- Enter the total points for your project on the last page of the worksheet.
- The architect or engineer for the project and the owner must sign and date this checklist and special inspection program.**

PROJECT ADDRESS: 723 S. Lake Avenue

Item	Points Available	Points Earned	Documentation Needed	Name of Special Inspector	Inspection Firm or MN License	Signature of Special Inspector
LOCATION						
Development on previously used or developed land that is contaminated with waste or pollution (brownfield site)	1.50		Geotechnical Report			
Development on previously used or developed land that is not contaminated (site re-use)	0.75	.75				

Development on a previously undeveloped site that is located immediately adjacent to existing city roadway and utility infrastructure	0.25						
ENERGY EFFICIENCY							
Meet ASHRAE standard 189.1 (Section 7.4.2) for building envelope design ^[1]	1.50		x				
Meet ASHRAE standard 189.1 (Section 7.4.6) for lighting ^[1]	0.75	.75	x				
Meet ASHRAE standard 189.1 (Section 7.4.3) for HVAC equipment ^[1]	0.75	.75	x				
Meet Energy Star standards for low rise residential or exceed ASHRAE 90.1-2004 energy efficiency standards by 15%. ^[2]	1.00		x				
ALTERNATIVE ENERGY							
Generate or acquire a minimum of 15% of the electricity needed by the development from alternative energy sources (solar, wind, etc)	1.00		x				
Install solar panels on a minimum of 15% of homes dwelling units contained in one-family, two-family, or townhouse dwellings	0.75		x				
Pre-wire a minimum of 10% of residential dwelling units for solar panels	0.25	.25	x				
Install solar panels on primary structure, or at least 50% of buildings in a multi-building complex	0.75		x				
PASSIVE SOLAR							
A minimum of 20% of residential dwelling units or lots are oriented within 20° of east-west for maximum passive solar exposure	1.00						
At least 20% of non-residential buildings have one longer axis oriented east-west for maximum solar exposure	1.00						
WATER							
Install a "cool roof" or green vegetated roof on the primary structure, or at least 50% of primary buildings in a multi-building complex. Cool roofs shall have a Solar Reflectance Index of 78 for flat roofs or 29 for roofs with a slope greater than 2:12. Green or vegetated roofs shall include vegetation on at least 50% of the roof area (25% for renovated buildings) and shall use only plant materials permitted by the landscaping standards in Section 50-25	2.00		x				
Meet ASHRAE standard 189.1 (Section 6.3.1) for site water use reduction ^[1]	0.75		x				

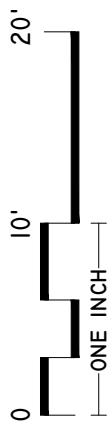


LANDSCAPE ARCHITECTURE
+ ASSOCIATES
WWW.SASLANDARCH.COM
219 WEST FIRST STREET, SUITE 350
DULUTH, MN 55802
(P) 218.391.1335
MAIL@SASLANDARCH.COM

CONSENT TO DRAW AND PERMIT FOR THE PREPARATION OF THESE PLANS BE DUPLICATED, DISCLOSED OR OTHERWISE USED WITHOUT WRITTEN CONSENT OF SAS+ASSOCIATES.

ISSUE RECORD/REVISION	DATE
PURPOSE	

DRAGESTIL DEVELOPMENT 723 S. LAKE AVE. DULUTH, MINNESOTA



SHEET KEY

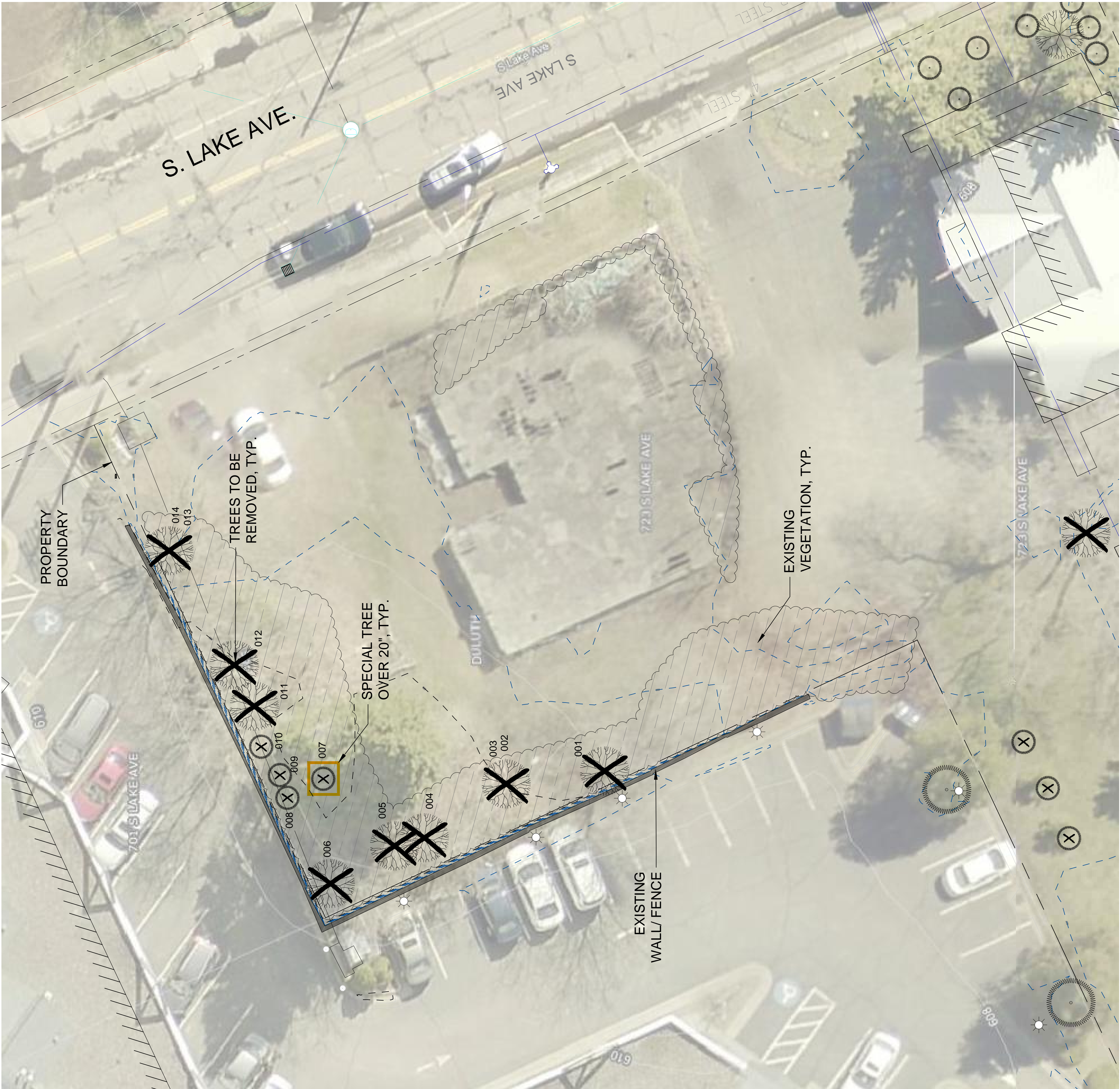
TREE INVENTORY	
SHEET TITLE	
DATE:	1/26/2023
DRAWN BY:	AMA
CHECKED BY:	LWS
PROJECT NUMBER	23000
SHEET NUMBER	L-1.0

TREE PRESERVATION AND REPLACEMENT PLAN				
TREES TO BE REMOVED				
ID NO.	Species	DBH	UDC Designation	Notes
001	Boxelder	14.25	Tree of Interest	Split trunk
002	Crabapple	8.25	Tree of Interest	Split trunk
003	Crabapple	10.25	Tree of Interest	
004	Crabapple	14.25	Tree of Interest	
005	Silver Maple	13.75	Tree of Interest	
006	DEAD		Tree of Interest	
007	White Spruce	25.50	Special Tree	
008	Balsam Fir	12.00	Tree of Interest	Top broken
009	Boxelder	12.00	Tree of Interest	Bent
010	BROKEN/ DEAD		Tree of Interest	
011	Boxelder	10.75	Tree of Interest	
012	Boxelder	9.50	Tree of Interest	
013	Boxelder	18.75	Tree of Interest	
014	Boxelder	10.25	Tree of Interest	
Total DBH Removed		159.5		

DBH REPLACEMENT REQUIREMENTS (50-25.9)					
Tree Type	# to be Removed	Removal Threshold	DBH to be Removed	% DBH to be Replaced (if over threshold)	Replacement Requirement (in.)
Trees of Interest	13	20 or more	134.0	20%	0.0
Special Trees	0	10 or more	0.0	40%	0.0
Special Trees > 20" DBH	1*	Only with approval	25.5	60%	15.3

Table 50-25.3: Tree Replacement Required				
Tree Type	Removal Threshold	% DBH to be Replaced	Replacement Standards	
			If Replacing With Special Trees	If Replacing with Trees of Interest
Special Tree 20 inch DBH or greater	Prohibited unless approved pursuant to subsection (b) below	If approval received, 60% of DBH removed to be replaced		
Special Trees Between 8 and 20 inch DBH	10 or more	40% of DBH removed to be replaced	1 inch DBH per 1.5 inch of DBH required to be replaced	1 inch DBH per 1 inch of DBH required to be replaced
Trees of Interest	20 or more	20% of DBH removed to be replaced		

Per the removal thresholds in the UDC Table 50-25-3 (10 or more for Special Trees; 20 or more for Trees of Interest), the proposed development at 723 S. Lake Ave will be required to replace 15.3 inches if approval is granted by the Land Use Supervisor to remove the 25.5" Special Tree. No other removal thresholds were met.





PROJECT: Dragestil Development

SUBJECT: Alternative Landscape Plan

MEMO DATE: September 18, 2023

FROM: Luke Sydow
SAS+Associates
Duluth, MN 55802

TO: Jenn Reed Moses
City of Duluth Planning Department

Jenn,

SAS is requesting approval of an alternative landscape plan for the Dragestil Development project on S. Lake Avenue. The need for an alternative approach to the required street frontage trees (UDC 50-25.3) is a result of several factors:

- 1) *The boulevard along S. Lake Avenue in this location are only 3 feet wide; this is not a sustainable width for tree growth/ survival*
- 2) *Directly behind the sidewalk is a 10' utility easement, preventing planting of trees in this area*
- 3) *Overhead utility lines run directly above the boulevard on S. Lake Ave.*

In order to meet the intent of the UDC, we have proposed extra shrubs/ grasses behind the sidewalk on S. Lake Avenue (72 proposed; only 24 required by the UDC). This will provide a good amount of screening and visual interest without compromising utilities. The required street trees have been moved to the rear of the property, which will provide shade, visual interest, and screening from the rear yard adjacent property.

Please contact SAS+ Associates with any questions.

Regards,

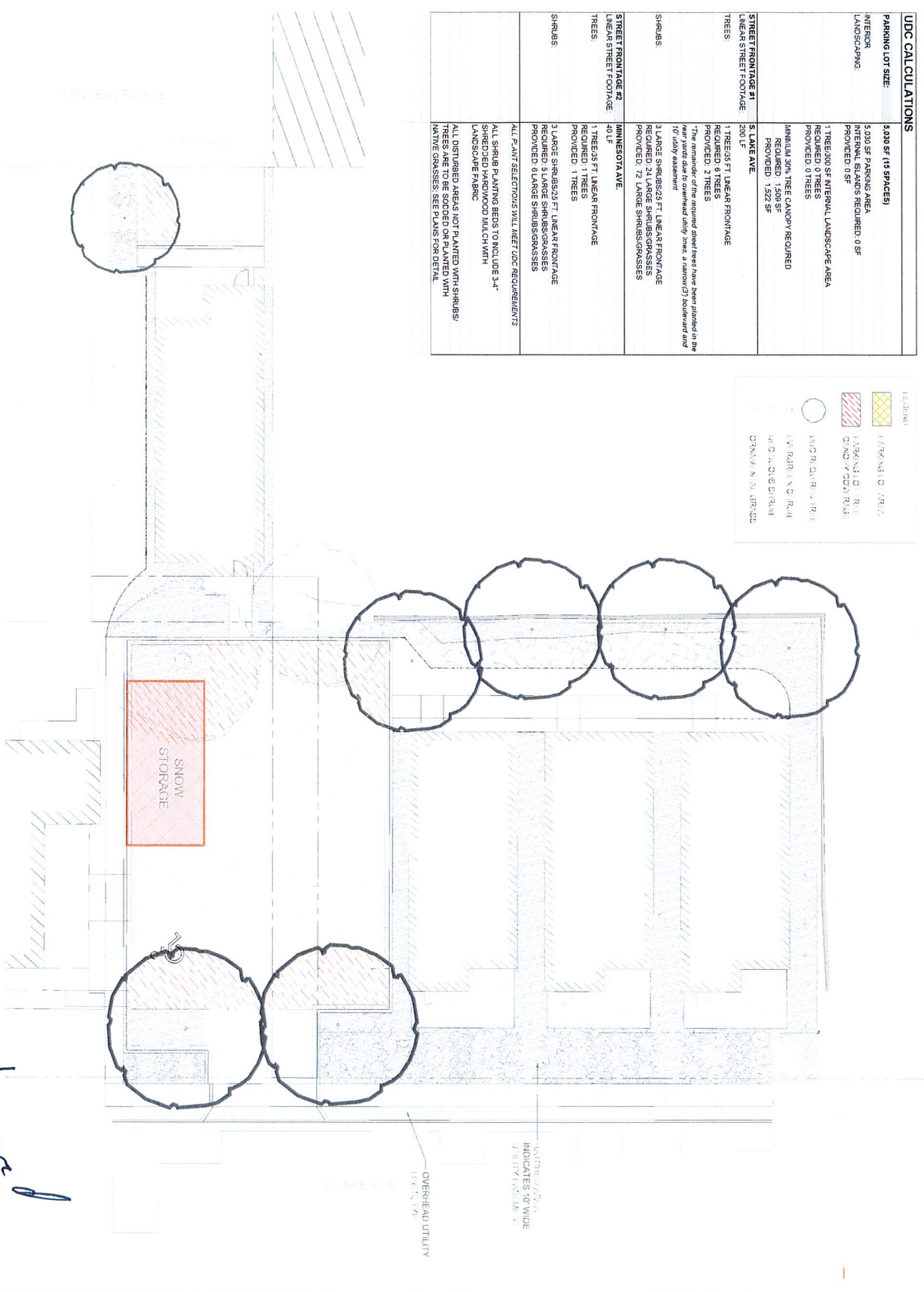
Luke Sydow, PLA
Principle

Approved
10/2/23

UDC CALCULATIONS	
PARKING LOT SIZE:	5,030 SF (15 SPACES)
INTERIOR LANDSCAPING:	5,030 SF PARKING AREA INTERNAL ISLANDS REQUIRED 0 SF PROVIDED 0 SF
	1 TREE/300 SF INTERNAL LANDSCAPE AREA REQUIRED 0 TREES PROVIDED 0 TREES
	MINIMUM 20% TREE CANOPY REQUIRED REQUIRED 1,509 SF PROVIDED 1,522 SF
STREET FRONTAGE #1 LINEAR STREET FOOTAGE	5 LANE AVE 200 LF
TREES	1 TREE/55 FT LINEAR FRONTAGE REQUIRED 6 TREES PROVIDED 2 TREES <small>*The remainder of the required street trees have been planted in the rear yards due to overhead utility lines. A narrow (3') boulevard and 10' utility easement</small>
SHRUBS	3 LARGE SHRUBS/25 FT LINEAR FRONTAGE REQUIRED 24 LARGE SHRUBS/GRASSES PROVIDED 72 LARGE SHRUBS/GRASSES
STREET FRONTAGE #2 LINEAR STREET FOOTAGE	MINNESOTA AVE 40 LF
TREES	1 TREE/55 FT LINEAR FRONTAGE REQUIRED 1 TREES PROVIDED 1 TREES
SHRUBS	3 LARGE SHRUBS/25 FT LINEAR FRONTAGE REQUIRED 3 LARGE SHRUBS/GRASSES PROVIDED 0 LARGE SHRUBS/GRASSES
	ALL PLANT SELECTIONS WILL MEET UDC REQUIREMENTS
	ALL SHRUB PLANTING BEDS TO INCLUDE 3-4" SHREDED BARK MULCH WITH LANDSCAPE FABRIC
	ALL DISTURBED AREAS NOT PLANTED WITH SHRUBS/ TREES ARE TO BE SOCCED OR PLANTED WITH NATIVE GRASSES. SEE PLANS FOR DETAIL

LEGEND

- 1/2" X 3/4" X 1/4" AREA
- PARKING LOT - 15 SPACES
- 1" X 2" X 1/4" AREA
- UDC REQUIRED TREE
- UDC REQUIRED SHRUB
- UDC REQUIRED GRASS



Approved
10/10/22
[Signature]



SAS
LANDSCAPE ARCHITECTURE
+ ASSOCIATES
WWW.SASLANDSCAPE.COM

723 S. LAKE AVE.
DULUTH, MINNESOTA

UDC LANDSCAPE PLAN
DATE: 8/17/2023
SCALE: 1" = 10'
PROJECT NUMBER: 23000
SHEET NUMBER: L-1.1

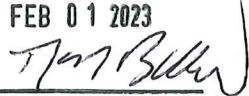


Capacity Availability Fees (CAF)

Commercial Detail Report

Municipality: Duluth

Month: February **Year:** 2023

Proposed Occupant: Dragestil Hotel	Type of Business: Hotel	APPROVAL: CAF Determination Ok'd FEB 01 2023 By  Western Lake Superior Sanitary District
Site Address: Street: 723 Lake Ave. S. State: MN Zip: 55802		
Total Square Footage	Building Permit Number:	

Use	Quantity in Square Feet	CAF Credits (Units)	CAF Charges (Units)
Proposed 4 Triplex Buildings	12 Units total – each with individual laundry	0	12

New CAF Units	Total Units Credited	Total Charges	
12	0	CAF UNITS: 12	
		FEE DUE:\$11,280	

Questions please call 218-722-3336 and ask to speak with Dan Belden or Sam Lobby

Geotechnical Evaluation Report

Dragestil Hotel
723 South Lake Avenue
Duluth, Minnesota

Prepared for

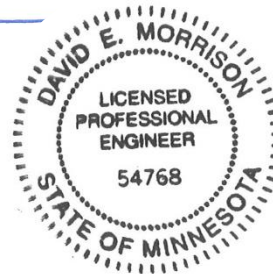
Heirloom Property Management

Professional Certification:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.



David E. Morrison, PE
Project Engineer
License Number: 54768
September 29, 2023



September 29, 2023

Project B2309036

Mr. Dan Buerskin
Heirloom Construction LLC
101 E. Superior Street, Suite A
Duluth, MN 55802

Re: Geotechnical Evaluation
Dragestil Hotel
723 Sough Lake Avenue
Duluth, Minnesota

Dear Mr. Buerskin:

We are pleased to present this Geotechnical Evaluation Report for the proposed Dragestil Hotel in Duluth, Minnesota.

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact David Morrison at 218.624.4967 or dmorrison@braunintertec.com.

Sincerely,

BRAUN INTERTEC CORPORATION



David E. Morrison, PE
Project Engineer



Joseph C. Butler, PE
Business Unit Leader, Senior Engineer

Table of Contents

Description	Page
A. Introduction.....	1
A.1. Project Description.....	1
A.2. Site Conditions and History	3
A.3. Purpose.....	5
A.4. Background Information and Reference Documents.....	5
A.5. Scope of Services	6
B. Results	7
B.1. Geologic Overview	7
B.2. Previous Geotechnical Information.....	7
B.3. Boring Results.....	8
B.4. Groundwater	8
B.5. Laboratory Test Results.....	9
C. Recommendations	10
C.1. Design and Construction Discussion	10
C.1.a. Soil Correction and Dewatering	10
C.1.b. Ground Improvements.....	10
C.1.c. Deep Foundations	11
C.1.d. Topsoil	12
C.1.e. Reuse of On-Site Soils.....	12
C.1.f. Groundwater	12
C.2. Site Grading and Subgrade Preparation.....	12
C.2.a. Building Subgrade Excavations.....	12
C.2.b. Excavation Oversizing.....	14
C.2.c. Excavated Slopes	14
C.2.d. Excavation Dewatering.....	15
C.2.e. Pavement and Exterior Slab Subgrade Preparation.....	15
C.2.f. Pavement Subgrade Proofroll	16
C.2.g. Engineered Fill Materials and Compaction	16
C.2.h. Special Inspections of Soils.....	17
C.3. Foundations.....	18
C.3.a. Foundation Design Parameters.....	18
C.3.b. Frost Protection of At-Grade Slabs.....	18
C.4. Aggregate Piers or Stone Columns.....	19
C.4.a. Net Allowable Bearing Pressure	20
C.4.b. Settlement.....	20
C.5. Helical Piles.....	20
C.6. Interior Slabs	21
C.6.a. Subgrade Modulus	21
C.6.b. Moisture Vapor Protection	21
C.7. Frost Protection.....	21
C.8. Pavements and Exterior Slabs	22
C.8.a. Design Sections	22
C.8.b. Concrete Pavements	23
C.8.c. Subgrade Drainage	23
C.8.d. Performance and Maintenance	23

Table of Contents (continued)

Description	Page
C.9. Utilities	24
C.9.a. Subgrade Stabilization.....	24
C.9.b. Corrosion Potential	24
C.10. Equipment Support	24
D. Procedures.....	25
D.1. Penetration Test Borings	25
D.2. Exploration Logs	25
D.2.a. Log of Boring Sheets.....	25
D.2.b. Geologic Origins	25
D.3. Material Classification and Testing	26
D.3.a. Visual and Manual Classification	26
D.3.b. Laboratory Testing	26
D.4. Groundwater Measurements.....	26
E. Qualifications.....	26
E.1. Variations in Subsurface Conditions.....	26
E.1.a. Material Strata	26
E.1.b. Groundwater Levels	27
E.2. Continuity of Professional Responsibility.....	27
E.2.a. Plan Review	27
E.2.b. Construction Observations and Testing	27
E.3. Use of Report.....	27
E.4. Standard of Care.....	28

Appendix

Soil Boring Location Sketch

Log of Boring Sheets ST-1 to ST-6

Descriptive Terminology of Soil

A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the design and construction of the expansion to the existing Dragestil Hotel, located at 723 South Lake Avenue in Duluth, Minnesota. The project will include the construction of four (4) multi-resident buildings. Buildings 1 thru 3 will have a footprint of 1,075 square foot and building 4 will have a footprint of 1,225 square feet. Currently the Dragestil Hotel consists of one (1) existing multi-resident building. Tables 1 and 2 provide project details.

Table 1. Building Description

Aspect	Description
Below grade levels	None (Provided)
Above grade levels	Three (Provided)
Lowest level floor elevations (feet)	Buildings 1,2 and 3 - 609 (Provided) Building 4 – 608 1/2 (Provided)
Column loads (kips)	Less than 120 (Assumed)
Wall loads (kips)	Less than 15 (Assumed)
Nature of construction	Wood framed structure. Thickened edge concrete slab foundation Grade supported slabs
Cuts or fills for buildings	Less than 2 feet (Provided)
Tolerable building settlement (inch)	Less than 1 (Assumed)

Table 2. Site Aspects and Grading Description

Aspect	Description
Pavement type	Bituminous
Assumed pavement loads	Light-duty: 50,000 ESALs*
Grade changes	Less than 2 (Provided)

*Equivalent 18,000-lb single axle loads based on 20-year design.

The figure below shows an illustration of the proposed site layout.

Figure 1. Site Layout

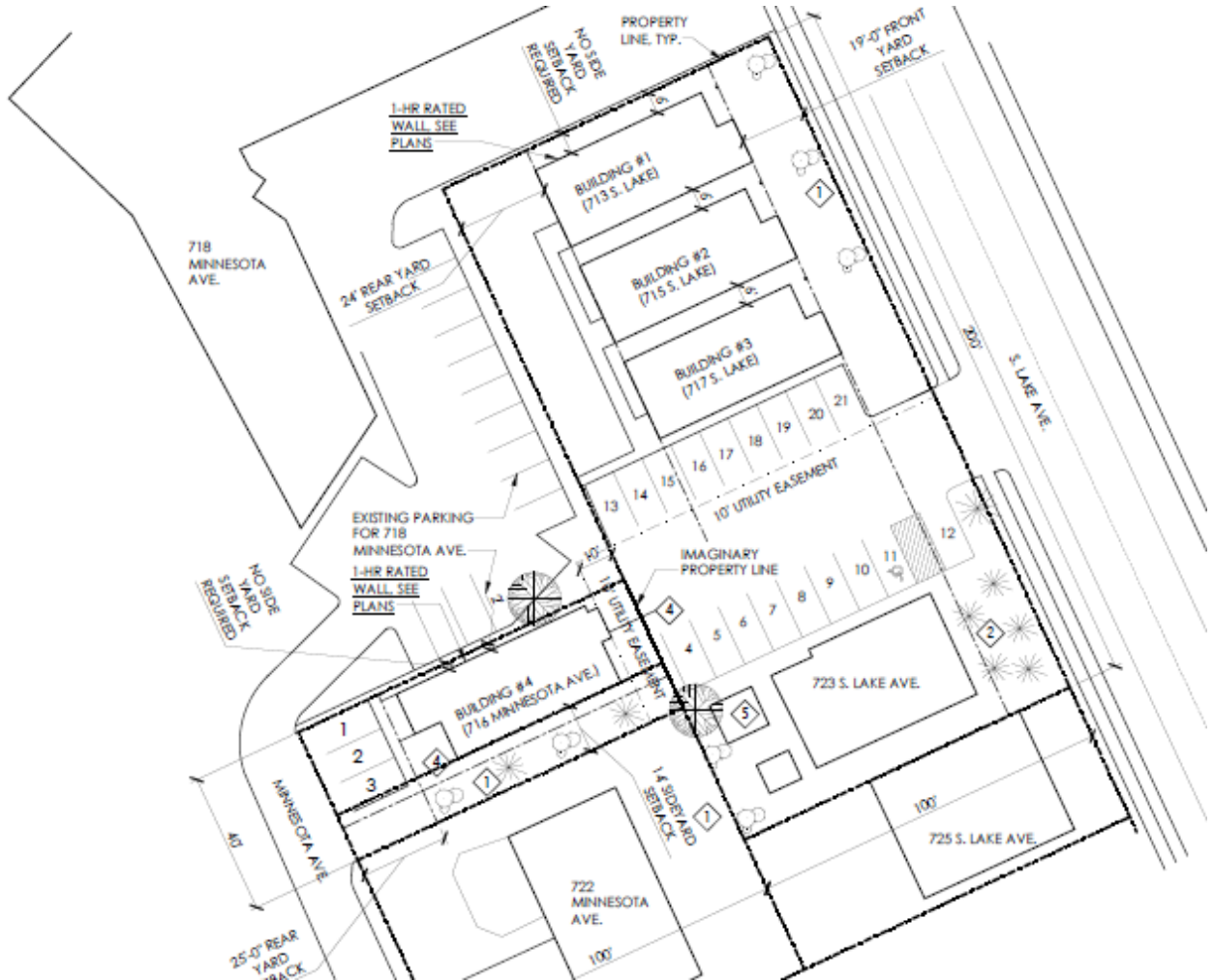


Figure provided by Heirloom Construction dated May 19, 2023.

A.2. Site Conditions and History

Currently, the site exists as multiple vacant lots. Previously the sites were occupied by various residential buildings, as shown in Photograph1 below. The residential buildings and foundations have since been razed. The foundations for the buildings along South Lake Avenue (building 1, 2 and 3) have been removed and partially backfilled. As shown in Photograph 2, below. Borings ST-3 through ST-6 were performed within these building footprint, below surrounding grades, thus elevations at these boring locations are not representative of overall site grades.

Photograph 1. Aerial Photograph of the Site in August 2022



Photograph provided by Google Earth®.

Photograph 2. Aerial Photograph of the Site in June 2023



Photograph provided by Google Earth®.

A.3. Purpose

The purpose of our geotechnical evaluation was to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of the proposed buildings and pavements.

A.4. Background Information and Reference Documents

We reviewed the following information:

- Results of Preliminary Soil Borings letter for the Proposed Park Point Apartment, prepared by Twin Ports Testing, dated November 30, 2017.

- Dragestil Development civil plan sheets prepared by Northland Consulting Engineers, dated July 18, 2023.
- Dragestil Hotel – Buildings 1,2,3 plan sheets prepared by Arola Architecture Studio, LLC, dated May 19, 2023.
- Dragestil Hotel – Building 4 plan sheets prepared by Arola Architecture Studio, LLC, dated May 19, 2023.
- Minnesota Geologic Map, “Geologic Map of Minnesota, Quaternary Geology”, prepared by Hobbes and Goebel, dated 1982.
- Aerial photos from Google Earth®

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses and/or recommendations.

A.5. Scope of Services

We performed our scope of services for the project in accordance with our Proposal QTB184822 to Mr. dan Buerskin of Heirloom Property Management, dated September 19, 2023, and authorized on the same day. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewing the background information and reference documents previously cited.
- Select, stake and clearing the exploration location of underground utilities. We acquired the surface elevations and locations with GPS technology using the State of Minnesota’s permanent GPS base station network. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.
- Performing six (6) standard penetration test (SPT) borings, denoted as ST-1 to ST-6, to nominal depths of 20 feet below grade across the site.

- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.
- Perform engineering analysis including bearing capacity and settlement calculations.
- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for structure and pavement subgrade preparation and the design of foundations, floor slabs, exterior slabs, utilities, stormwater improvements and pavements.

Our scope of services did not include environmental services or testing and our geotechnical personnel performing this evaluation are not trained to provide environmental services or testing. We can provide environmental services or testing at your request.

B. Results

B.1. Geologic Overview

We based the geologic origins used in this report on the soil types, in-situ and laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.

B.2. Previous Geotechnical Information

Twin Ports Testing performed a preliminary investigation letter for this site in November of 2017, to aid in determining the feasibility of future construction on the site. The investigation consisted of performing two (2) continuously samples push probes, denoted at PP- and PP-2, to a nominal depth of 15 feet below the existing ground surface.

B.3. Boring Results

Table 3 provides a summary of the soil boring results; in the general order we encountered the strata. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheets in the Appendix include definitions of abbreviations used in Table 3.

Table 3. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Topsoil fill	SM		<ul style="list-style-type: none"> ▪ Encountered in borings ST-1 and ST-2. ▪ Contained roots. ▪ Black in color ▪ Thicknesses at boring locations varied from 5 to 6 inches. ▪ Moisture condition generally moist
Fill	SM, SP, SP-SM		<ul style="list-style-type: none"> ▪ Encountered in all borings and push probes. ▪ Moisture condition generally moist to wet. ▪ Thicknesses at boring locations varied from 1 1/2 to 9 feet. ▪ Existing fill contained variable amounts of gravel, cobbles or boulders.
Alluvial	SP-SM, SM	5 BPF to 56 blows per foot of penetration (BPF)	<ul style="list-style-type: none"> ▪ General penetration resistance of 5 to 21 BPF. ▪ Moisture condition generally water bearing. ▪ Containment variable amounts of gravel.

*Abbreviations defined in the attached Descriptive Terminology sheets.

For simplicity in this report, we define existing fill to mean existing, uncontrolled or undocumented fill.

B.4. Groundwater

Table 4 summarizes the depths where we observed groundwater; the attached Log of Boring sheets in the Appendix also include this information and additional details. Note that borings ST-1 and ST-2 were performed in the areas of Building 4 and borings ST-3 to ST-6 were performed in the area of Buildings 1, 2 and 3.

Table 4. Groundwater Summary

Location	Surface Elevation	Measured or Estimated Depth to Groundwater (ft)	Corresponding Groundwater Elevation (ft)
ST-1	605.82	4.5	601 1/2
ST-2	607.09	4.5	602 1/2
ST-3	603.35	2.0	601 1/2
ST-4	604.25	2.5	602
ST-5	606.89	4.5	602 1/2
ST-6	602.81	2..0	601

At the time of our observation, the groundwater surface elevation appeared to range from elevation 601 to 602 1/2 feet. If groundwater was observed in a piezometer over the course of several days, we would expect the groundwater level would stabilize near the elevation of Lake Superior. Groundwater at this site will fluctuate seasonally and annually, in unison with the lake. Project planning should plan for seasonal and annual groundwater fluctuation.

Lake Superior was observed to be at elevation 602.40 on September 20, 2023 (as reported by the Army Corp of Engineers website).

B.5. Laboratory Test Results

The boring logs show the results of laboratory testing we performed, next to the tested sample depth.

The moisture content of the sands varied from approximately 1.8 to 30.4 percent, indicating that the materials ranged from below or above of its probable optimum moisture content, depending on if the sample was below the groundwater level.

Our mechanical analyses indicated that the sands contained 1 to 11 percent silt and clay by weight. And

C. Recommendations

C.1. Design and Construction Discussion

The borings generally encountered sand fill soils over native alluvial sands. The existing fill soils encountered in the borings (ST-3 to ST-6) near buildings 1, 2 and 3 extended to an elevation of approximately 602 feet. The existing fill soils in borings (ST-1 and ST-2) near building 4 extended to an elevation of approximately 597 feet. Below the fill, the borings encountered native alluvial sands. Groundwater is anticipated to be encountered at or near the surface elevation of Lake Superior. The annual average elevation of Lake Superior is approximately 602 feet.

The existing fill soils are not homogeneous in composition and are variably compacted. If the existing fill soils are relied upon for support of structural building loads, settlements may be excessive.

Based on the anticipated excavation depth to remove the existing fill soils, the excavation for buildings 1, 2 and 3 will extend near the anticipated groundwater elevation. Typical soil corrections techniques appear suitable at this locations. The excavations of the existing fill soils for building 4 will extend approximately 5 feet below the anticipated groundwater elevation. Dewatering, excavation and replacement is an acceptable mitigation technique, however, other mitigation techniques may be a more cost effective solution. Below are options to mitigate the settlement of existing fill soils:

C.1.a. Soil Correction and Dewatering

We recommend the existing fill and organic soils be completely removed from below the proposed buildings and their oversize areas and replaced with structural fill. Based on the borings, excavation depths will generally range from 1 1/2 feet to 4 feet for building 1, 2 and 3 and 9 feet for building 4. The existing fill may be able to be reused as structural fill. We recommend structural fill be placed "in the dry" thus. As mentioned above, existing fill soils extend to an elevation of approximately 597 feet at the building 4 location. The assumed elevation of Lake Superior is 602 feet. Dewatering will be needed to perform the soil correction at the building 4 location.

After soil corrections are completed, we anticipate the building can be designed to bear on conventional spread footings and grade supported slab. As described in section C.3 below.

C.1.b. Ground Improvements

Based on the anticipated depth of excavations needed to remove the existing fill from the building 4 area, we suspect that conventional dewatering and soil corrections would incur significant costs. Thus,

we recommend considering as an alternative option performing ground improvements with aggregate piers or stone columns, commonly known by trade names such as: Geopier, Vibro Piers, Vibro Stone Columns, etc. It should be noted that the installation equipment for aggregate piers is relatively large and there may not be sufficient space at the site to allow for this technique. Site constraints should be discussed with the aggregate pier contractor.

A subgrade improved with aggregate piers or stone columns will reduce the potential for detrimental settlement associated with the existing fill and organic soils, provide adequate bearing capacity, provide support for slabs, eliminate the need for deep excavations, and reduce the volume of subgrade soils disturbed at the site.

Different contractors use varying techniques to construct aggregate piers but generally consist of excavating soil from a hole with an auger or vibrating a probe into the ground, and then building a column of clean, open-graded aggregate. The contractor constructs the pier by placing the aggregate in lifts from the bottom of the pier and compacting each lift before placing aggregate for the subsequent lift. The vibratory energy, and sometimes ramming action, causes the aggregate to interlock, forming a stiff pier that provides soil reinforcement and increases shear resistance. Due to the many variations in techniques, we recommend using performance-based specifications with design-build contracting. We recommend requiring the contractor to have at least five years of experience in performing this work, and to demonstrate performing the proposed protection system(s) on at least three previous projects of similar size and scope. The specifications should require the design engineer be licensed in the project state. We can assist you with developing a list of pre-qualified contractors prior to bidding or with reviewing contractor experience as part of the bidding process.

Further recommendations for aggregate piers are described in section C. 4 below.

C.1.c. Deep Foundations

As discussed above, based on the anticipated depth of excavations needed to remove the existing fill from the building 4 area, we suspect that dewatering and soil corrections would incur significant costs. Deep foundation elements can be considered for support of the proposed building. Deep foundations transfer load from foundations and slabs to suitable bearing strata at depth. Several deep foundation systems are available for consideration; helical pile, driven pile, drilled piers, micropile, amongst others. Based on the assumed building loads, we anticipate helical piles will be the most cost-effective deep foundation option.

Helical pile are hollow tubes or solid square steel rods, which are typically 1 1/2 to 3 1/2 inches in diameter with several flights of steel plate augers. These augers are screwed into the ground until a specified torque criteria and minimum depth is met. Similar to the spread footings, the helical piers will move somewhat under structure loads, but typically to a lesser extent. The magnitude of this movement will be dependent upon helical pier type selected and the soil conditions. Further recommendations for helical piles are described in section C. 5 below.

C.1.d. Topsoil

Topsoil was encountered in borings ST-1 and ST-2. Topsoil contains organic materials; organic materials absorb water, are frost susceptible and are weak. We recommend topsoil be stripped from below the proposed building, pavements, and slabs prior to grading.

C.1.e. Reuse of On-Site Soils

The site appears to consist of structural fill quality native sands. The native sands that are free of debris and organic material can be considered for structural fill. We will note that the sands are likely to fine to be considered for reused as a free draining material. We recommend that a sieve analysis be completed to confirm that the material meets project specifications prior to use on the project.

C.1.f. Groundwater

Groundwater was observed in the borings with elevations ranging from 601 to 602 1/2 feet. As previously mentioned, we expect the groundwater level elevation will be near the surface of Lake Superior.

If groundwater is encountered, we recommend dewatering to be performed such that any utilities or backfill materials are placed in a “dry” state. Dewatering of high-permeability soils (e.g., sands) from within the excavation with conventional pumps has the potential to loosen the soils, due to upward flow. A well contractor should develop a dewatering plan; the design team should review this plan.

C.2. Site Grading and Subgrade Preparation

C.2.a. Building Subgrade Excavations

We recommend removing unsuitable materials from below the buildings and their oversized areas. We define unsuitable materials as existing fill, frozen materials, organic soils, existing structures, existing utilities, vegetation and soft/loose soils. Table 5 shows the anticipated excavation depths, bottom elevations and anticipated depth below finished floor elevation, based on a finished floor elevation of 609 feet for buildings 1, 2 and 3 and an elevation of 608 1/2 for building 4, for each of the borings.

Borings ST-1 and ST-2 were performed in the areas of building 4 and borings ST-3 to ST-6 were performed in the area of buildings 1, 2 and 3. Note that excavation for building 4 will extend below the anticipated groundwater elevation.

Table 5. Building Excavation Depths

Location	Approximate Surface Elevation (ft)	Anticipated Excavation Depth (ft)	Anticipated Bottom Elevation (ft)	Anticipated Finished Floor Elevation (ft)	Anticipated Depth Below Floor (ft)
ST-1	605.82	9	597	608 1/2	11 1/2
ST-2	607.09	9	598	608 1/2	10 1/2
ST-3	603.35	1 1/2	602	609	7
ST-4	604.25	1 1/2	603	609	6
ST-5	606.89	4	603	609	6
ST-6	602.81	1 1/2	601 1/2	609	7 1/2

Excavation depths will vary between the borings. Portions of the excavations may also extend deeper than indicated by the borings. A geotechnical representative should observe the excavations to make the necessary field judgments regarding the suitability of the exposed soils.

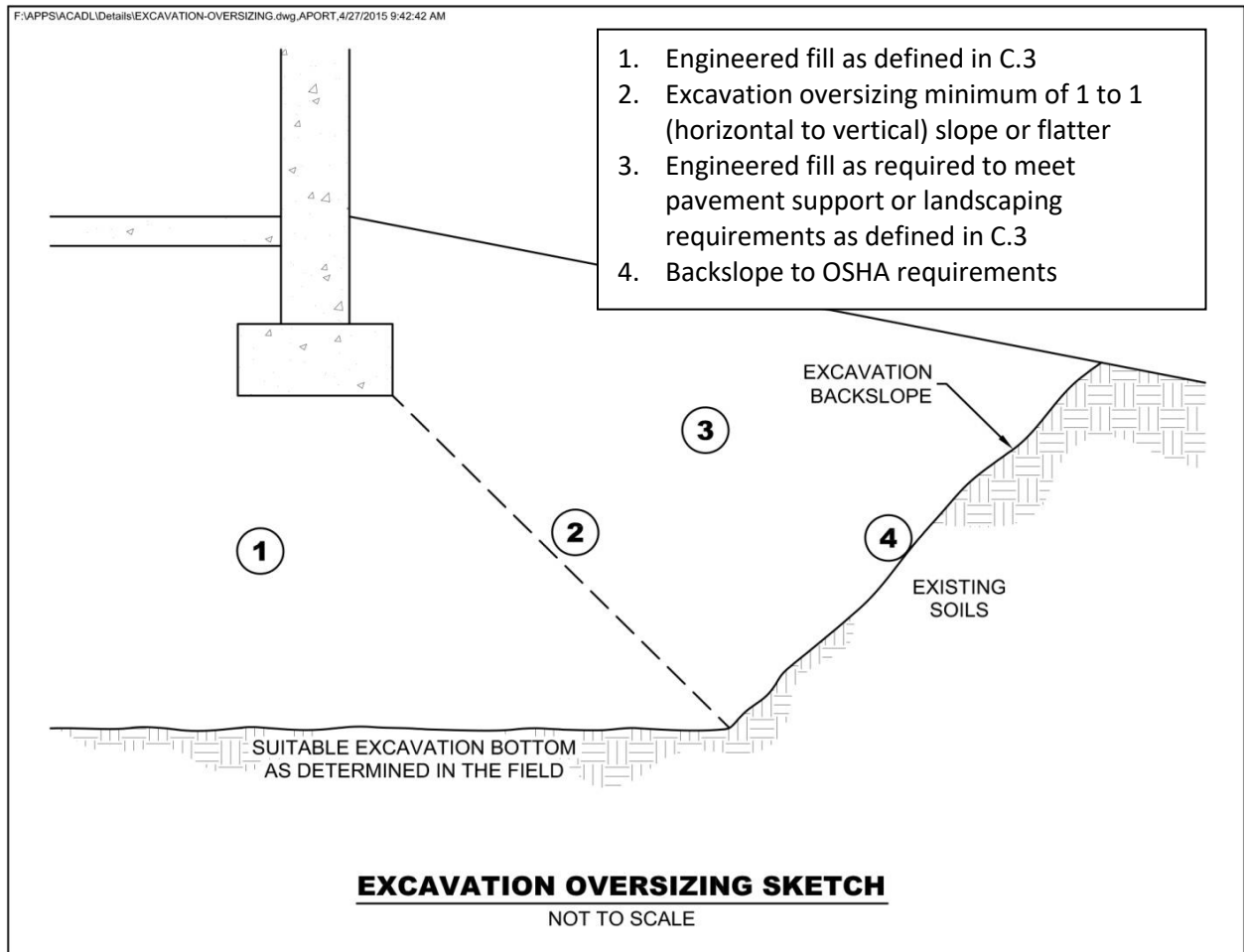
The contractor should use equipment and techniques to minimize soil disturbance. If soils become disturbed or are wet, we recommend excavation and replacement.

Prior to the placement of engineered fill or footings, we recommend surface compacting the exposed soils in the bottoms of the excavations with a minimum of five passes by a large (minimum diameter of 3 1/2 feet), smooth-drum compactor. Areas that yield or pump during surface compaction may require additional subcutting.

C.2.b. Excavation Oversizing

When removing unsuitable materials below structures or pavements, we recommend the excavation extend outward and downward at a slope of 1H:1V (horizontal:vertical) or flatter. See Figure 2 for an illustration of excavation oversized.

Figure 2. Generalized Illustration of Oversizing



C.2.c. Excavated Slopes

Based on the borings, we anticipate on-site soils in excavations will consist of fill sands. These soils are typically considered Type C Soil under OSHA (Occupational Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type C soils should have a gradient no steeper than 1 1/2H:1V. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

C.2.d. Excavation Dewatering

We anticipate that excavations for foundations of Buildings 1, 2 and 3 will not extended below the groundwater table. If excavations extended below the groundwater elevation dewatering may be required.

Excavations for the soil correction of Building 4 will encounter groundwater. Dewatering of high-permeability soils (e.g., sands) from within the excavation with conventional pumps has the potential to loosen the soils, due to upward flow. A well contractor should develop a dewatering plan; the design team should review this plan.

C.2.e. Pavement and Exterior Slab Subgrade Preparation

We recommend the following steps for pavement and exterior slab subgrade preparation, understanding the site will have a grade change of 2 feet or less. Note that project planning may need to require additional subcuts to limit frost heave.

1. Strip unsuitable soils consisting of topsoil, organic soils, peat, vegetation, existing structures and pavements from the area, within 3 feet of the surface of the proposed pavement grade.
2. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.
3. Slope subgrade soils to areas of sand or drain tile to allow the removal of accumulating water.
4. Scarify, moisture condition and surface compact the subgrade with at least 5 passes of a large roller with a minimum drum diameter of 3 1/2 feet.
5. Place pavement engineered fill to grade and compact in accordance with Section C.2 to bottom of pavement and exterior slab section. See Section C.7 for additional considerations related to frost heave.
6. Proofroll the pavement or exterior slab subgrade as described in Section C.2.f.

Section C.3 provides recommended pavement design sections. Note, we recommend sloping subgrade soils to promote drainage and removal of accumulated water.

C.2.f. Pavement Subgrade Proofroll

After preparing the subgrade as described above and prior to the placement of the aggregate base, we recommend proofrolling the subgrade soils with a fully loaded tandem-axle truck. We also recommend having a geotechnical representative observe the proofroll. Areas that fail the proofroll likely indicate soft or weak areas that will require additional soil correction work to support pavements.

The contractor should correct areas that display excessive yielding or rutting during the proofroll, as determined by the geotechnical representative. Possible options for subgrade correction include moisture conditioning and recompaction, subcutting and replacement with soil or crushed aggregate, chemical stabilization and/or geotextiles. We recommend performing a second proofroll after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

C.2.g. Engineered Fill Materials and Compaction

Table 6 below contains our recommendations for engineered fill materials.

Table 6. Engineered Fill Materials*

Locations To Be Used	Engineered Fill Classification	Possible Soil Type Descriptions	Gradation	Additional Requirements
<ul style="list-style-type: none"> ▪ Below foundations ▪ Below interior slabs 	Structural fill	GP, GW, SP, SP-SM	100% passing 2-inch sieve <12% passing #200 sieve	< 2% Organic Content (OC)
<ul style="list-style-type: none"> ▪ Drainage layer ▪ Non-frost-susceptible 	<ul style="list-style-type: none"> ▪ Free-draining ▪ Non-frost-susceptible fill 	GP, GW, SP, SW	100% passing 1-inch sieve < 50% passing #40 sieve < 5% passing #200 sieve	< 2% OC
Pavements	Pavement fill	SP, SM, SC, CL	100% passing 3-inch sieve	< 2% OC PI < 15%

* Engineered fill materials should satisfy any applicable environmental regulations.

We recommend spreading engineered fill in loose lifts of approximately 8 inches thick. We recommend compacting engineered fill in accordance with the criteria presented below in Table 7. The project

documents should specify relative compaction of engineered fill, based on the structure located above the engineered fill, and vertical proximity to that structure.

Table 7. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically SP, SP-SM)	> 12% Passing #200 Sieve (typically SM)
Below foundations and oversizing zones	95	±3	-1 to +3
Below interior slabs	95	±3	-1 to +3
Within 3 feet of pavement subgrade	100	±3	-1 to +3
More than 3 feet below pavement subgrade	95	±3	±3

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material. Frost should not penetrate under foundations during construction.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

C.2.h. Special Inspections of Soils

We recommend including the site grading and placement of engineered fill within the building pad under the requirements of Special Inspections, as provided in Chapter 17 of the International Building Code, which is part of the Minnesota State Building Code. Special Inspection requires observation of soil conditions below engineered fill or footings, evaluations to determine if excavations extend to the anticipated soils, and if engineered fill materials meet requirements for type of engineered fill and compaction condition of engineered fill. A licensed geotechnical engineer should direct the Special Inspections of site grading and engineered fill placement. The purpose of these Special Inspections is to evaluate whether the work is in accordance with the approved Geotechnical Report for the project. Special Inspections should include evaluation of the subgrade, observing preparation of the subgrade

(surface compaction or dewatering, excavation oversizing, placement procedures and materials used for engineered fill, etc.) and compaction testing of the engineered fill.

C.3. Foundations

We understand that a monolithic thickened edge slab will be used for support of the building. The following sections provide recommendations for both foundation systems.

C.3.a. Foundation Design Parameters

Table 8 below contains our recommended parameters for foundation design.

Table 8. Recommended Spread Footing Design Parameters

Item	Description
Maximum net allowable bearing pressure (psf)	3,000
Minimum factor of safety for bearing capacity failure	3.0
Minimum embedment below final exterior grade for heated structures (inches)	60
Minimum embedment below final exterior grade for unheated structures or for footings not protected from freezing temperatures during construction (inches)	72
Total estimated settlement (inch)	Less than 1/2
Differential settlement (inch)	Less than 1/2

C.3.b. Frost Protection of At-Grade Slabs

Based upon our understanding of the proposed building, we understand that a monolithic footing-floor-slab system will be used for the project. We recommend grading to direct surface drainage away from the structure helps limit the potential for saturation and subsequent heaving to occur. Still, even limited amounts of movement can create tripping hazards. One option to help limit the potential for heaving to occur is to remove frost-susceptible soils present below the overlying slab “footprints” down to bottom-of-footing grades or to a maximum depth of 5 feet below subgrade elevations, whichever is least, and replace them with non frost-susceptible (NFS) backfill consisting of sand having less than 5 percent of the particles by weight passing a #200 sieve.

If a sand subcut below the slab is considered, the sand needs to be drained by the use of draitile. The tile could be placed along the perimeter of the structure and drained to a storm drain or an appropriate location for gravity drainage to a lower area.

Another alternative for reducing frost-related heave is to place at least 2 inches of extruded polystyrene foam insulation below the slabs and extend it approximately 7 feet beyond the outer edges of the slabs. The insulation may have to be buried below a cushion of sand or gravel to protect it during construction

C.4. Aggregate Piers or Stone Columns

Based on the anticipated depth of excavations needed to remove the existing fill from the building 4 area, it appears that dewatering and conventional soil corrections would have significant costs. Thus, we recommend performing ground improvements with aggregate piers or stone columns, commonly known by trade names such as: Geopier, Vibro Piers, Vibro Stone Columns, etc.

A subgrade improved with aggregate piers or stone columns will reduce the potential for detrimental settlement associated with the existing fill to occur, provide adequate bearing capacity, eliminate the need for deep excavations, reduce impacts to adjacent site features, and reduce the volume of subgrade soils disturbed at this site.

Different contractors use varying techniques to construct aggregate piers but generally consist of excavating soil from a hole with an auger or vibrating a probe into the ground, and then building a column of clean, open-graded aggregate. The contractor constructs the pier by placing the aggregate in lifts from the bottom of the pier and compacting each lift before placing aggregate for the subsequent lift. The vibratory energy, and sometimes ramming action, causes the aggregate to interlock, forming a stiff pier that provides soil reinforcement and increases shear resistance. Due to the many variations in techniques, we recommend using performance-based specifications with design-build contracting. We recommend requiring the contractor to have at least five years of experience in performing this work, and to demonstrate performing the proposed protection system(s) on at least three previous projects of similar size and scope. The specifications should require the design engineer be licensed in the project state. We can assist you with developing a list of pre-qualified contractors prior to bidding or with reviewing contractor experience as part of the bidding process.

Aggregate piers are a Special Inspection item in accordance with Chapter 17 of the IBC. The observations should include installed length, consistency of soil profile with the geotechnical evaluation confirmation of the materials, and confirmation of installation techniques.

We recommend installing aggregate piers under both foundations and floor slabs for the building. The aggregate piers should extend through the existing fill to bear on the underlying alluvial and glacial soils.

C.4.a. Net Allowable Bearing Pressure

The aggregate pier designer will determine the allowable soil bearing capacity of footings bearing upon rammed aggregate piers. However, aggregate piers are typically able to support net allowable bearing pressures of 3,000 to 5,000 pounds per square foot (PSF). This value includes a safety factor of at least 3.0 with regard to bearing capacity failure.

C.4.b. Settlement

The aggregate pier designer will determine the settlement of footings bearing upon rammed aggregate piers. However, aggregate piers typically limit total and differential settlement of spread footing foundations to less than 1 inch and 1/2 inch, respectively.

C.5. Helical Piles

Helical pile are hollow tubes or solid square steel rods, which are typically 1 1/2 to 3 1/2 inches in diameter with several flights of steel plate augers. These augers are screwed into the ground until a specified torque criteria and minimum depth is met. Similar to the spread footings, the helical piers will move somewhat under structure loads, but typically to a lesser extent. The magnitude of this movement will be dependent upon helical pier type selected and the soil conditions.

We recommend helical piles with a hollow-tube shaft rather than a square solid tube shaft, to increase buckling resistance through soft zones. The contractor may also need to grout the helical piles to provide additional buckling resistance. Due to the disturbance and relatively small shaft diameter, helical pile design usually ignores drag loads but not if the pile design incorporates grout.

Due to the many proprietary systems with some competing design approaches, we recommend using a performance-based specification for helical piles, along with design-build contracting. We recommend requiring the contractor to have at least five years of experience in performing this work, and to demonstrate performing the proposed protection system(s) on at least three previous projects of similar size and scope. The specifications should require the design engineer be licensed in the project state. We can assist you with developing a list of pre-qualified contractors prior to bidding or with reviewing contractor experience as part of the bidding process.

Helical piles are a Special Inspection item in accordance with Chapter 17 of the IBC. The observations should include installed length, torque, confirmation of the materials, and confirmation of installation techniques.

C.6. Interior Slabs

C.6.a. Subgrade Modulus

The anticipated floor subgrade is poorly graded sand with silt (SP-SM). We recommend using a modulus of subgrade reaction, k , of 200 pounds per square inch per inch of deflection (pci) to design the slabs. If the slab design requires placing 6 inches of compacted crushed aggregate base immediately below the slab, the slab design may increase the k -value by 50 pci. We recommend that the aggregate base materials be free of bituminous. In addition to improving the modulus of subgrade reaction, an aggregate base facilitates construction activities and is less weather sensitive.

C.6.b. Moisture Vapor Protection

Excess transmission of water vapor could cause floor dampness, certain types of floor bonding agents to separate, or mold to form under floor coverings. If project planning includes using floor coverings or coatings, we recommend placing a vapor retarder or vapor barrier immediately beneath the slab. We also recommend consulting with floor covering manufacturers regarding the appropriate type, use and installation of the vapor retarder or barrier to preserve warranty assurances.

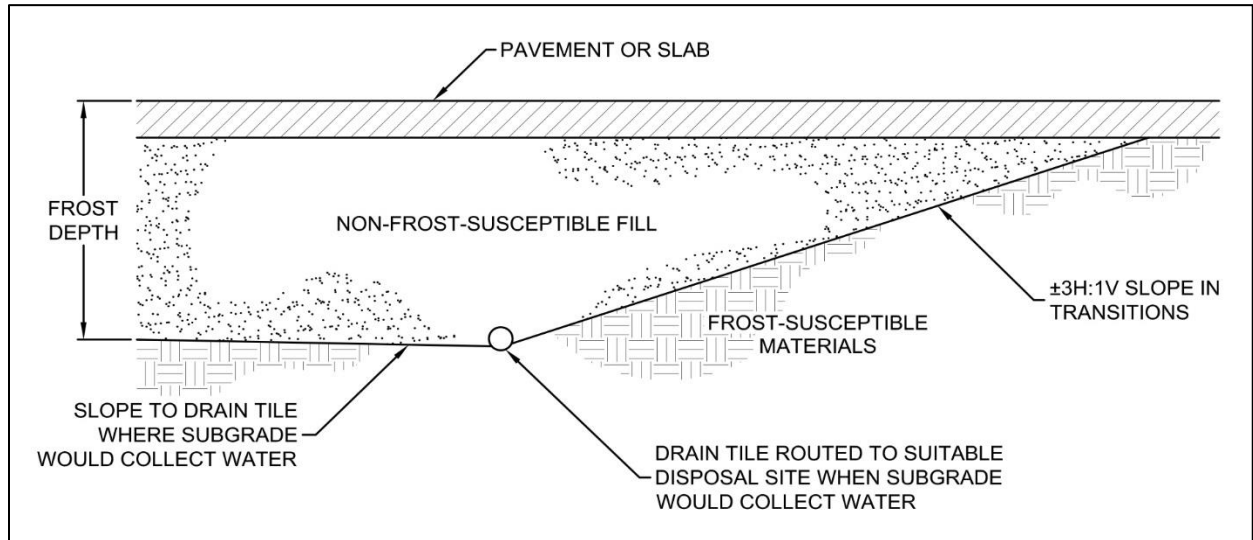
C.7. Frost Protection

We consider the poorly graded sand and poorly graded sands with silt to be slightly frost susceptible. While the proposed construction will remove the majority of these soils, unfavorable amounts of heaving could occur if these soils become saturated and freeze. Grading to direct surface drainage away from buildings helps limit the potential for saturation and subsequent heaving to occur. Still, even limited amounts of movement can create tripping hazards.

One method to help limit the potential for heaving to occur is to remove frost-susceptible soils present below the overlying slab or pavement area down to bottom-of-footing grades, and replace the excavated material with non-frost-susceptible, engineered fill. We recommend providing drainage at the base of the subcut, as well as gradual transitions from this subcut (3H:1V or flatter gradient).

Figure 3 shows an illustration summarizing some of the recommendations above.

Figure 3. Frost Protection Geometry Illustration



An alternative method to reduce the risk of heaving is to support the slabs on frost-depth footings, and suspend the slabs at least 4 inches above the underlying subgrade soils. With this alternative, we recommend making accommodations for differential frost heave at transition areas.

Over the life of the pavement or slab, cracks may develop and joints may open up, which will expose the subgrade and allow water to enter the subgrade. This water entering the subgrade increases the likelihood of heave. It will be critical that the owner develop a detailed maintenance program to repair any cracks and joints that may develop during the useful life of the various surface features. The maintenance program should pay special attention to areas where dissimilar materials abut one another, where construction joints occur and where shrinkage cracks develop.

C.8. Pavements and Exterior Slabs

C.8.a. Design Sections

Our scope of services for this project did not include laboratory tests on subgrade soils to determine an R-value for pavement design. Based on our experience with similar sand soils anticipated at the pavement subgrade elevation, we recommend pavement design assume an R-value of 70. Note the contractor may need to perform limited removal of unsuitable or less suitable soils to achieve this value. Table 9 provides recommended pavement sections, based on the soils support and traffic loads.

We based the concrete pavement designs on a modulus of subgrade reaction (k) of 200 pci.

Table 9. Recommended Bituminous Pavement Sections

Use	Light Duty (Bituminous)	Light Duty (Concrete)
Minimum asphalt thickness (inches)	3 1/2	---
Minimum concrete thickness (inches)	---	6
Minimum aggregate base thickness (inches)	6	4

C.8.b. Concrete Pavements

We recommend placing an aggregate base below the pavement to provide a suitable subgrade for concrete placement, reduce faulting and help dissipate loads. Appropriate mix designs, panel sizing, jointing, doweling and edge reinforcement are critical to performance of rigid pavements. We recommend you contact your civil engineer to determine the final design or consult with us for guidance on these items.

C.8.c. Subgrade Drainage

We recommend installing perforated drainpipes throughout pavement areas at low points, around catch basins, and behind curb in landscaped areas. We also recommend installing drainpipes along pavement and exterior slab edges where exterior grades promote drainage toward those edge areas. The contractor should place drainpipes in small trenches, extended at least 8 inches below the granular subbase layer, or below the aggregate base material where no subbase is present.

C.8.d. Performance and Maintenance

We based the above pavement designs on a 20-year performance life for bituminous and a 20-year life for concrete. This is the amount of time before we anticipate the pavement will require reconstruction. This performance life assumes routine maintenance, such as seal coating and crack sealing. The actual pavement life will vary depending on variations in weather, traffic conditions and maintenance.

It is common to place the non-wear course of bituminous and then delay placement of wear course. For this situation, we recommend evaluating if the reduced pavement section will have sufficient structure to support construction traffic.

Many conditions affect the overall performance of the exterior slabs and pavements. Some of these conditions include the environment, loading conditions and the level of ongoing maintenance. With regard to bituminous pavements in particular, it is common to have thermal cracking develop within the first few years of placement, and continue throughout the life of the pavement. We recommend developing a regular maintenance plan for filling cracks in exterior slabs and pavements to lessen the potential impacts for cold weather distress due to frost heave or warm weather distress due to wetting and softening of the subgrade.

C.9. Utilities

C.9.a. Subgrade Stabilization

Earthwork activities associated with utility installations located inside the building area should adhere to the recommendations in Section C.2.

For exterior utilities, we anticipate the soils at typical invert elevations will be suitable for utility support. However, if construction encounters unfavorable conditions such as soft clay, organic soils or perched water at invert grades, the unsuitable soils may require some additional subcutting and replacement with sand or crushed rock to prepare a proper subgrade for pipe support. Project design and construction should not place utilities within the 1H:1V oversizing of foundations.

C.9.b. Corrosion Potential

A majority of the soil borings indicated the site predominantly consists of sandy soils. We consider these soils non- to slightly corrosive to metallic conduits. If utilities extend through clay soils, we recommend bedding the utilities in sandy soil free of any clay lumps or constructing the utilities with non-corrosive materials.

C.10. Equipment Support

The recommendations included in the report may not be applicable to equipment used for the construction and maintenance of this project. We recommend evaluating subgrade conditions in areas of shoring, scaffolding, cranes, pumps, lifts and other construction equipment prior to mobilization to determine if the exposed materials are suitable for equipment support, or require some form of subgrade improvement. We also recommend project planning consider the effect that loads applied by

such equipment may have on structures they bear on or surcharge – including pavements, buried utilities, below-grade walls, etc. We can assist you in this evaluation.

D. Procedures

D.1. Penetration Test Borings

We drilled the penetration test borings with an all-terrain tire-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance to ASTM D1586. The boring logs show the actual sample intervals and corresponding depths.

We sealed penetration test boreholes meeting the Minnesota Department of Health (MDH) Environmental Borehole criteria with an MDH-approved grout.

D.2. Exploration Logs

D.2.a. Log of Boring Sheets

The Appendix includes Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials, and present the results of penetration resistance in-situ tests performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater measurements.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

D.2.b. Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance in-situ testing performed for the project, (4) laboratory test

results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

D.3. Material Classification and Testing

D.3.a. Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

D.3.b. Laboratory Testing

The exploration logs in the Appendix note most of the results of the laboratory tests performed on geologic material samples. We performed the tests in general accordance with ASTM procedures.

D.4. Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the as noted on the boring logs.

E. Qualifications

E.1. Variations in Subsurface Conditions

E.1.a. Material Strata

We developed our evaluation, analyses and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work, or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such

variations could increase construction costs, and we recommend including a contingency to accommodate them.

E.1.b. Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs, and interpreted in the text of this report. Note that the observation periods were relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

E.2. Continuity of Professional Responsibility

E.2.a. Plan Review

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

E.2.b. Construction Observations and Testing

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

E.3. Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

E.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix



Drawing Information

Project No:
B2309036

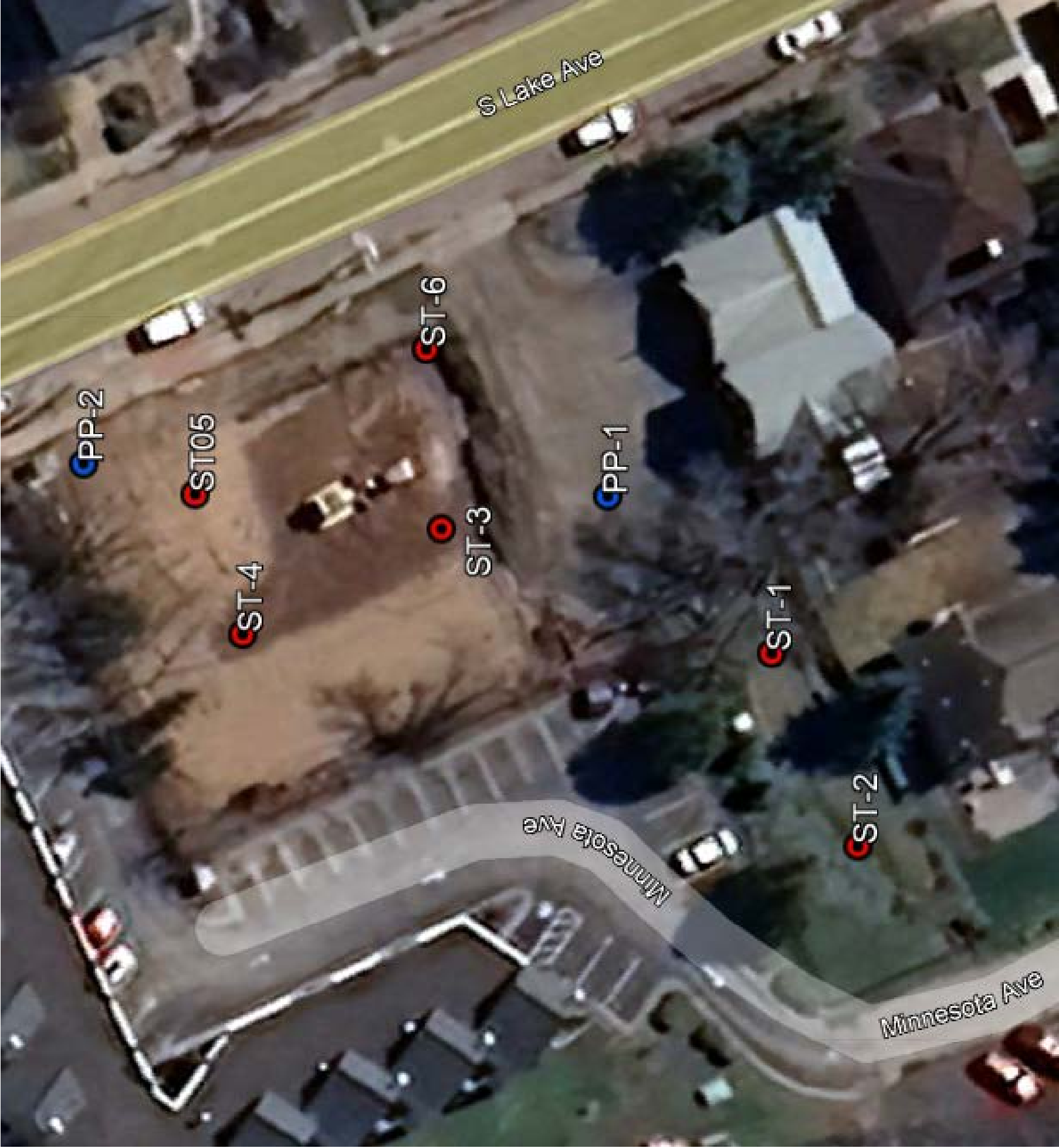
Date Drawn: 9/27/2023

Project Information

Dragestil Hotel

723 South Lake
Avenue
Duluth, Minnesota

AB 1-10-24 25
Site Sketch



● DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

● DENOTES APPROXIMATE LOCATION OF PUSH PROBES BY TWIN PORTS TESTING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2309036 Geotechnical Evaluation Dragestil Hotel 723 South Lake Avenue Duluth, Minnesota					BORING: ST-1		
					LOCATION: See attached sketch See attached figure		
					DATUM:		
					NORTHING:		EASTING:
DRILLER: M. Heinzen		LOGGED BY: D. Morrison		START DATE: 09/20/23		END DATE: 09/20/23	
SURFACE ELEVATION: 605.8 ft		RIG: 7505		METHOD: 3 1/4" HSA		SURFACING: Asphalt WEATHER: Partly Cloudy	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
605.4 0.4	 Water Level	SILTY SAND (SM), fine to medium-grained, with roots, black, moist (TOPSOIL FILL) FILL: POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, with Gravel, brown, moist <div style="border: 1px solid black; padding: 2px; display: inline-block;">Wood at 8 feet</div>	5	5-5-5 (10) 0"			No recovery
			5	2-3-3 (6) 5"			
			5	6-8-7 (15) 10"			
596.8 9.0							
		POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist to wet, medium dense (ALLUVIUM)	10	6-6-5 (11) 7"			Water observed at 5.0 feet with 4.5 feet of tooling in the ground while drilling. Water observed at 2.5 feet immediately after withdrawal of auger.
	10		10-9-9 (18) 12"				
591.8 14.0							
	15		3-3-4 (7) 13"				
		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, with Gravel, brown, wet, loose to medium dense (ALLUVIUM)	20	5-5-6 (11) 10"			Water observed at 5.0 feet with 4.5 feet of tooling in the ground while drilling. Water observed at 2.5 feet immediately after withdrawal of auger.
584.8 21.0							
	25						
		END OF BORING					
		Boring immediately backfilled with bentonite grout					
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2309036 Geotechnical Evaluation Dragestil Hotel 723 South Lake Avenue Duluth, Minnesota					BORING: ST-2		
					LOCATION: See attached figure		
					DATUM:		
					NORTHING:		EASTING:
DRILLER:	M. Heinzen	LOGGED BY:	D. Morrison	START DATE:	09/20/23	END DATE:	09/20/23
SURFACE ELEVATION:	607.1 ft	RIG:	7505	METHOD:	3 1/4" HSA	SURFACING:	Asphalt
				WEATHER:		Partly Cloudy	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
606.6 0.5	▼	SILTY SAND (SM), fine to medium-grained, with roots, black, moist (TOPSOIL FILL)		3-3-3 (6) 3"			
		FILL: POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, with Gravel, and organic, brown, moist	5	2-2-2 (4) 4"		14	P200=11%
598.1 9.0		POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, wet, very loose to medium dense (ALLUVIUM)	10	3-1-1 (2) 2"		24	P200=8%
593.1 14.0		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, with Gravel, brown, moist, loose (ALLUVIUM)	15	2-1-2 (3) 2"			
587.1 20.0				6-8-7 (15) 8"			
586.1 21.0		SILTY SAND (SM), fine to medium-grained, with Gravel, brown, moist, very dense (ALLUVIUM)	20	8-4-2 (6) 12"			
		END OF BORING		12-24-20 (44) 15"			Water observed at 5.5 feet with 4.5 feet of tooling in the ground while drilling.
		Boring immediately backfilled with bentonite grout	25				Water observed at 2.5 feet immediately after withdrawal of auger.
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2309036 Geotechnical Evaluation Dragestil Hotel 723 South Lake Avenue Duluth, Minnesota					BORING: ST-3		
					LOCATION: See attached figure		
					DATUM:		
					NORTHING:		EASTING:
DRILLER: M. Heinzen		LOGGED BY: D. Morrison		START DATE: 09/20/23		END DATE: 09/20/23	
SURFACE ELEVATION: 603.4 ft		RIG: 7505		METHOD: 3 1/4" HSA		SURFACING: Asphalt WEATHER: Partly Cloudy	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
601.9	▼	FILL: POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist					
1.5	⊗	POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist to wet, loose to dense (ALLUVIUM)		3-3-3 (6) 6"			
			5	3-2-3 (5) 4"		30	P200=1%
				4-3-3 (6) 9"			
			10	8-5-5 (10) 2"			
				12-20-17 (37) 14"			
			15	12-16-26 (42) 15"			
585.9							
17.5		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, with Gravel, brown, wet, medium dense (ALLUVIUM)		9-11-17 (28) 15"			
582.4			20				
21.0		END OF BORING					Water observed at 2.0 feet with 2.5 feet of tooling in the ground while drilling.
		Boring immediately backfilled with bentonite grout					Water observed at 1.0 feet immediately after withdrawal of auger.
			25				
			30				

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2309036 Geotechnical Evaluation Dragestil Hotel 723 South Lake Avenue Duluth, Minnesota					BORING: ST-4		
					LOCATION: See attached figure		
					DATUM:		
					NORTHING:		EASTING:
DRILLER: M. Heinzen		LOGGED BY: D. Morrison		START DATE: 09/20/23		END DATE: 09/20/23	
SURFACE ELEVATION: 604.3 ft		RIG: 7505		METHOD: 3 1/4" HSA		SURFACING: Asphalt WEATHER: Partly Cloudy	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
602.8	▼	FILL: POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist					
1.5	⊗	POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist to wet, loose to dense (ALLUVIUM)	3-3-4 (7) 5"				
	5		5-3-3 (6) 12"				
			10-7-9 (16) 13"				
	10		9-8-7 (15) 14"				
			9-24-16 (40) 14"				
			15	3-12-9 (21) 13"			
586.8		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, with Gravel, brown, wet, medium dense (ALLUVIUM)	20	3-5-7 (12) 10"			
583.3							
21.0		END OF BORING					
		Boring immediately backfilled with bentonite grout					
			25				Water observed at 2.0 feet with 2.5 feet of tooling in the ground while drilling. Water observed at 1.0 feet immediately after withdrawal of auger.
			30				

See Descriptive Terminology sheet for explanation of abbreviations

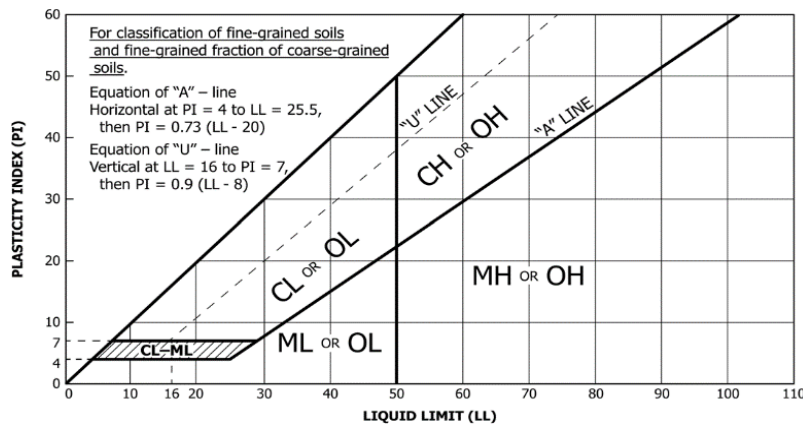
Project Number B2309036 Geotechnical Evaluation Dragestil Hotel 723 South Lake Avenue Duluth, Minnesota					BORING: ST-5		
					LOCATION: See attached figure		
					DATUM:		
					NORTHING:	EASTING:	
DRILLER: M. Heinzen		LOGGED BY: D. Morrison		START DATE: 09/20/23	END DATE: 09/20/23		
SURFACE ELEVATION: 606.9 ft		RIG: 7505	METHOD: 3 1/4" HSA	SURFACING: Asphalt	WEATHER: Partly Cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
602.9 4.0	▼	FILL: POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist		2-2-2 (4) 4"		2	P200=1%
	⊗	POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, wet, loose to dense (ALLUVIUM)	5	2-2-3 (5) 7"			
			10	4-4-2 (6) 5"			
			15	2-2-3 (5) 6"			
			20	9-9-10 (19) 12"			
			25	9-17-16 (33) 14"			
585.9 21.0		END OF BORING		13-11-6 (17) 13"			Water observed at 5.0 feet with 4.5 feet of tooling in the ground while drilling.
		Boring immediately backfilled with bentonite grout					

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2309036 Geotechnical Evaluation Dragestil Hotel 723 South Lake Avenue Duluth, Minnesota					BORING: ST-6		
					LOCATION: See attached figure		
					DATUM:		
					NORTHING:		EASTING:
DRILLER: M. Heinzen		LOGGED BY: D. Morrison		START DATE: 09/20/23		END DATE: 09/20/23	
SURFACE ELEVATION: 602.9 ft		RIG: 7505		METHOD: 3 1/4" HSA		SURFACING: Asphalt WEATHER: Partly Cloudy	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
601.4	▼	FILL: POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist					
1.5	⊗	POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, brown, moist to wet, very loose to very dense (ALLUVIUM)	4-3-3 (6) 4"				
			5 4-2-2 (4) 4"				
			5-3-5 (8) 13"				
			10 11-4-7 (11) 13"				
			13-11-9 (20) 14"				
			15 19-32-24 (56) 16"				
585.4		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, with Gravel, brown, wet, medium dense (ALLUVIUM)	20 12-9-8 (17) 16"				
581.9		END OF BORING					Water observed at 2.0 feet with 2.5 feet of tooling in the ground while drilling.
21.0		Boring immediately backfilled with bentonite grout					Water observed at 1.0 feet immediately after withdrawal of auger.
			25				
			30				

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Group Symbol	Soil Classification
					Group Name ^B
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines ^C)	$C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel ^E
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$) ^D	GP	Poorly graded gravel ^E
		Gravels with Fines (More than 12% fines ^C)	Fines classify as ML or MH	GM	Silty gravel ^{EFG}
			Fines Classify as CL or CH	GC	Clayey gravel ^{EFG}
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines ^H)	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand ^I
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$) ^D	SP	Poorly graded sand ^I
		Sands with Fines (More than 12% fines ^H)	Fines classify as ML or MH	SM	Silty sand ^{FGI}
			Fines classify as CL or CH	SC	Clayey sand ^{FGI}
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{KLM}
			PI < 4 or plots below "A" line ^J	ML	Silt ^{KLM}
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OL	Organic clay ^{KLMN} Organic silt ^{KLMQ}
			PI plots on or above "A" line	CH	Fat clay ^{KLM}
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots below "A" line	MH	Elastic silt ^{KLM}
			Liquid Limit – oven dried Liquid Limit – not dried <0.75	OH	Organic clay ^{KLMP} Organic silt ^{KLMQ}
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OL	Organic clay ^{KLMP} Organic silt ^{KLMQ}
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

- A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains $\geq 15\%$ sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
I. If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains $\geq 30\%$ plus No. 200 predominantly gravel, add "gravelly" to group name.
N. PI ≥ 4 and plots on or above "A" line.
O. PI < 4 or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



DD Dry density, pcf
WD Wet density, pcf
P200 % Passing #200 sieve
MC Moisture content, %
OC Organic content, %

Laboratory Tests

q_p Pocket penetrometer strength, tsf
 q_u Unconfined compression test, tsf
LL Liquid limit
PL Plastic limit
PI Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions^{L M}

trace..... 0 to 5%
little..... 6 to 14%
with..... $\geq 15\%$

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose 0 to 4 BPF
Loose 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils Blows Per Foot Approximate Unconfined Compressive Strength

Very soft..... 0 to 1 BPF..... < 0.25 tsf
Soft..... 2 to 4 BPF..... 0.25 to 0.5 tsf
Medium..... 5 to 8 BPF..... 0.5 to 1 tsf
Stiff..... 9 to 15 BPF..... 1 to 2 tsf
Very Stiff..... 16 to 30 BPF..... 2 to 4 tsf
Hard..... over 30 BPF..... > 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:




Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.









Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (, at the end of drilling (, or at some time after drilling ().

Sample Symbols

 Standard Penetration Test
 Modified California (MC)
 Auger
 Grab Sample
 Rock Core
 Thinwall (TW)/Shelby Tube (SH)
 Texas Cone Penetrometer
 Dynamic Cone Penetrometer


**SHERWIN
WILLIAMS®**

Moisture Vapor Barrier™ Interior Latex Primer-Sealer

B72W00011 White

CHARACTERISTICS

Interior Latex Moisture Vapor Barrier Primer-Sealer is a coating designed to help reduce the loss of moisture vapor through walls and ceilings.

Moisture Vapor Barrier Primer-Sealer combines a primer-sealer and finish in a single product.

Moisture Vapor Barrier Primer-Sealer is specially formulated for manufactured housing facilities.

- Upon field installation of the home, this product can be topcoated with any Sherwin-Williams' interior latex or alkyd product.
- Designed to prime-seal and finish new and previously painted drywall.
- The waterborne formula is user-friendly, delivering easy clean-up with soap and water.

Color: White
For best topcoat color development, use the recommended "P"-shade primer. Check color before use.

Coverage: 200-270 sq.ft.per gallon
@ 6.0-8.0 mils wet;
1.6-2.1 mils dry

Drying and recoat times are temperature, humidity, and film thickness dependent

Drying Time, @ 77°F, 50% RH:

Touch: 1 hour
Recoat: 1 hour
Top coat: 2 hours

Finish: 0-8 units @85°

Tinting with CCE only:

Base	oz. per gallon	Strength
White	0-4	SherColor

White B72W00011

V.O.C. (less exempt solvents):

less than 50 grams per litre; .42 lbs. per gallon
As per 40 CFR 59.406

Volume Solids: 27 ± 2%

Weight Solids: 43 ± 2%

Weight per Gallon: 10.57 lbs

Flash Point: N.A.

Vehicle Type: Vinyl Acrylic/Styrene
Butadiene

Shelf Life: 36 months unopened

WVP Perms (US): As per ASTM E96

less than 1 perm grains/(hr ft² in Hg)

Flame & Smoke Rating: As per ASTM E84
Class A

COMPLIANCE

As of 11/03/2020, Complies with:

OTC	Yes
OTC Phase II	Yes
SCAQMD	Yes
CARB	Yes
CARB SCM 2007	Yes
Canada	Yes
LEED® v4 & v4.1 Emissions	Yes
LEED® v4 & v4.1 V.O.C.	Yes
EPD-NSF® Certified	No
MIR-Manufacturer Inventory	No
MPI®	Yes

APPLICATION

Do not thin. Reduction will adversely affect the perm rating.

Apply at temperatures above 50°F.

Brush:
Purdy Clearcut or Contractor Series Nylon-Polyester

Roller:
Use 3/8 - 3/4 inch nap cover, Contractor Series Polyester or Purdy White Dove

For specific brushes and rollers, please refer to our Brush and Roller Guide on sherwin-williams.com

Spray—Airless:

Pressure: 2000 p.s.i.
Tip: .017-.019 inch

SPECIFICATIONS

Moisture Vapor Barrier can be used directly over previously painted surfaces, or bare drywall. Can be used as a primer and finish.

Drywall:

Self-prime use 2 coats of Moisture Vapor Barrier Primer-Sealer

Or

1 coat Moisture Vapor Barrier Primer/Sealer
Achieve minimum 3.2 mils D.F.T.

Drywall:

1 coat Moisture Vapor Barrier Primer-Sealer
2 coats Sherwin-Williams Interior, Latex or Alkyd, Architectural Finishes

Moisture Vapor Barrier

Interior Latex Primer-Sealer

SURFACE PREPARATION

WARNING! Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (**NIOSH** approved) and proper containment and cleanup. For more information, call the National Lead Information Center at **1-800-424-LEAD** (in US) or contact your local health authority.

Previously Painted Surfaces

Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Glossy surfaces should be sanded dull. Recognize that any surface preparation short of total removal of the old coating may compromise the service length of the system.

Caulking - Gaps between windows, doors, trim, and other through-wall openings can be filled with the appropriate caulk after priming the surface. Allow proper drying time before application of the finish.

Drywall - Fill cracks and nail holes with patching paste-spackle and sand smooth. Joint compounds must be cured and sanded smooth. Remove all sanding dust.

SURFACE PREPARATION

Mildew - Prior to attempting to remove mildew, it is always recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions may be advised.

Mildew may be removed before painting by washing with a solution of 1 part liquid bleach and 3 parts water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with water and allow the surface to dry before painting. Wear protective eyewear, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach-water solution.

CAUTIONS

For interior use only.
Protect from freezing.
Non-photochemically reactive.
Not for use under wallpaper.
Not for use on vinyl or other plastic surfaces.

Before using, carefully read CAUTIONS on label

Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (**NIOSH** approved) or leave the area. Avoid contact with eyes and skin. Wash hands after using. Keep container closed when not in use. Do not transfer contents to other containers for storage. **FIRST AID:** In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room, or physician immediately. **WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. **DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN.**

HOTW 11/03/2020 B72W00011 08 01

CLEANUP INFORMATION

Clean spills, spatters, hands and tools immediately after use with soap and warm water. After cleaning, flush spray equipment with compliant cleanup solvent to prevent rusting of the equipment. Follow manufacturer's safety recommendations when using solvents.



Commercial Plan Review - Special Inspection Form

Summary and Acknowledgment

Minnesota State Building Code 1305 Chapter 17

Instructions: Determination of required special inspections per MSBC Section 1705 shall be by the design professional or structural engineer of record. All parties shall sign the form as indicated. Special Inspector(s) must be approved by the Building Official.

PROJECT ADDRESS

PERMIT NO.

Technical (2)		Req'd	Not Req'd	Description (3)	Inspection Type (4)	Inspection Frequency (5)	Name of Inspector (6)
Section	Article						
1705.1.1	Special Cases		X				
1705.2	Steel		X				
1705.3	Concrete	X		cast-in-place concrete placement, sampling, testing and curing	SI-T	Continuous	Braun Intertec
1705.4	Masonry		X				
1705.5	Wood		X				
1705.6	Soils	X		Earthwork	SI-T	Continuous	Braun Intertec
1705.7	Pile Foundations		X				
1705.8	Pier Foundations		X				
1705.9	Helical Pile Foundations		X				
1705.14	Sprayed Fire Resistant Coatings						
1705.15	Mastic & Intumescent Fire Resistant Coatings						
1705.16	EIFS						
1705.17	Fire Resistant Penetrations & Joints						
1705.18	Smoke Control						

(1) Permit No. to be provided by the Building Official

(2) Referenced to the specific technical scope section in the program

(3) Use descriptions per IBC Chapter 17, as adopted by Minnesota State Building Code

(4) Special Ins. - Technical (SI-T); Special Ins. - Structural (SI-S)

(5) Continuous, Periodic, Weekly, Monthly, per Floor, etc.

(6) Name of Special Inspector assigned

ACKNOWLEDGMENTS (each appropriate representative shall sign below)

Name		Signature	Firm	Phone
Owner	Mike Schraepfer		Park Point Land Co	218.269.9691
Contractor	Dan Buerskin PM		Heirloom Const	218.590.6917
Arch / DP	RYAN AROLA		AROLA ARCHITECTURE STUDIO	218-740-5219
SER	Paul Johnson		MBJ	218-600-5801
SI-T	Joseph C. Butler		Braun Intertec	218.624.4967
SI-S	Joseph C. Butler		Braun Intertec	218.624.4967
TA	Joseph C. Butler		Braun Intertec	218.624.4967
F				

DP = Design Professional of Record SER = Structural Engineer of Record SI-T = Special Inspector - Technical SI-S = Special Inspector - Structural

TA = Testing Agency F = Fabricator

Construction Services REVIEWED BY

Date

duluthmn.gov/csi | 218-730-5240 | permitingservices@duluthmn.gov





Commercial Plan Review – Designation of Design Professional

For commercial and 3+ multi-family residential projects with a valuation over \$250,000, a licensed design professional in responsible charge (DPRC) must be designated. The DPRC will be responsible for reviewing and coordinating all submittal documents, including those prepared by others, and including phased and deferred submittal items, for compatibility with the design of the building, the code, and any plans previously or concurrently submitted to Construction Services for approval.

The DPRC will act as the single point of contact for plan review and coordination of submittal items. The DPRC will be responsible for submittal of revisions to approved plans after issuance of permits. In addition to designating the DPRC, information is to be provided on this form for the designer of site work, utilities, plumbing and mechanical systems, and the structural engineer. For design-build projects, the DPRC will be required to review contractor/builder designed work for compatibility with the design of the building and approved plans prior to submittal to Construction Services for code review. For all projects, ensurance of coordination of design across disciplines prior to submittal for code review will be the responsibility of the DPRC.

Project Address

Project Name

DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE (DPRC)

Name	Email
Firm	Phone

ARCHITECT ☐ Same as DPRC

Name	Email
Firm	Phone

CIVIL ENGINEER ☐ N/A

Name	Email
Firm	Phone

STRUCTURAL ENGINEER ☐ N/A- No structural work

Name	Email
Firm	Phone

MECHANICAL/PLUMBING ENGINEER ☐ N/A- No mechanical or plumbing work

Name	Email
Firm	Phone

MEYER BORGMAN JOHNSON

STRUCTURAL DESIGN + ENGINEERING

REPRESENTATIVE
STRUCTURAL CALCULATIONS

FOR

DRAGESTIL HOTEL
DULUTH, MN

MBJ Job No.: 22.575.0

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.



Paul A. Johnson, PE

Registration No. 20379

April 17, 2023



ASCE 7 Hazards Report

Address:

801 S Lake Ave
Duluth, Minnesota
55802

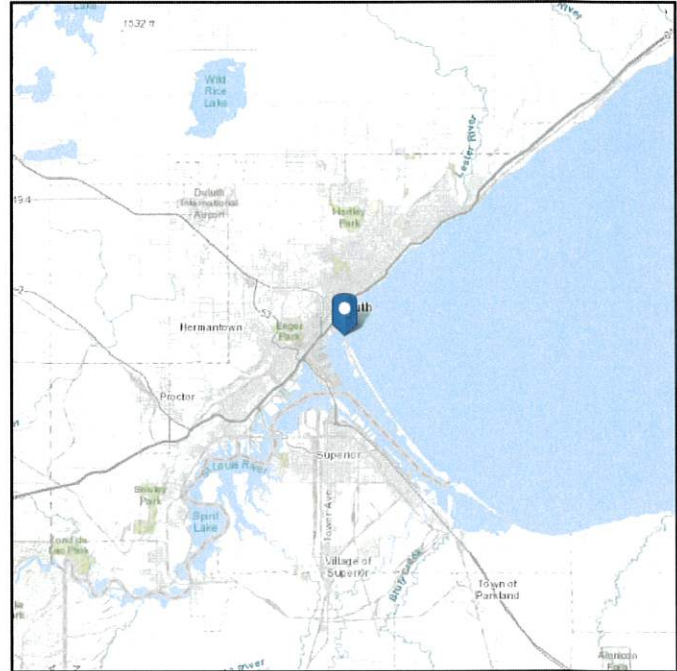
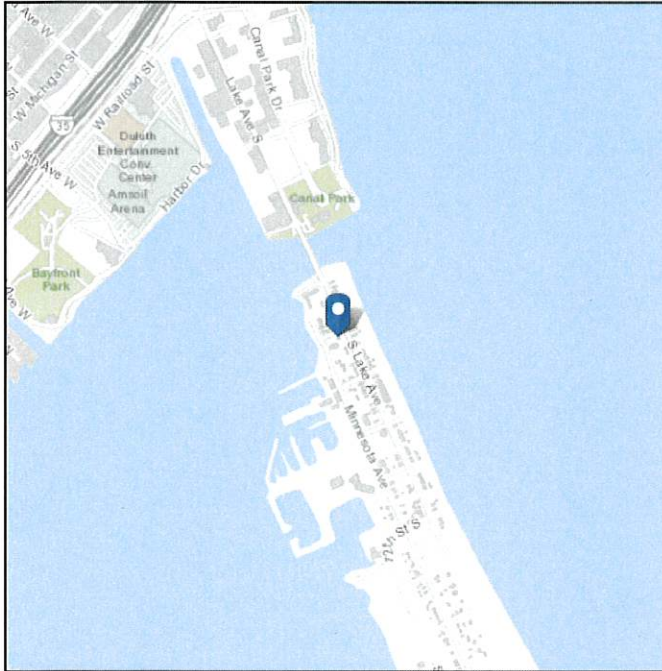
Standard: ASCE/SEI 7-16

Risk Category: II

Soil Class: D - Stiff Soil

Latitude: 46.776914

Longitude: -92.091887

Elevation: 609.1619170883251 ft
(NAVD 88)


Wind

Results:

Wind Speed	106 Vmph
10-year MRI	72 Vmph
25-year MRI	79 Vmph
50-year MRI	85 Vmph
100-year MRI	90 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2

Date Accessed: Mon Apr 17 2023

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.



Snow

Results:

Ground Snow Load, p_g :	60 lb/ft ²
Mapped Elevation:	609.2 ft
Data Source:	ASCE/SEI 7-16, Table 7.2-8
Date Accessed:	Mon Apr 17 2023

Values provided are ground snow loads. In areas designated "case study required," extreme local variations in ground snow loads preclude mapping at this scale. Site-specific case studies are required to establish ground snow loads at elevations not covered.

Snow load values are mapped to a 0.5 mile resolution. This resolution can create a mismatch between the mapped elevation and the site-specific elevation in topographically complex areas. Engineers should consult the local authority having jurisdiction in locations where the reported 'elevation' and 'mapped elevation' differ significantly from each other.

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Company
723 Lake Avenue South
Duluth, MN 55802
218-722-1056

JOB TITLE Dragestil Hotel BAB 1-10-24 267

JOB NO. _____ SHEET NO. _____
CALCULATED BY JP DATE 8/29/22
CHECKED BY _____ DATE _____

Wind Loads - MWFRS all h (Except for Open Buildings)

Kh (case 2) = 1.19
Base pressure (q_h) = 17.5 psf
Roof Angle (θ) = 33.7 deg
Roof tributary area:
Wind normal to ridge $= (h/2) \cdot L$: 1120 sf
Wind parallel to ridge $= (h/2) \cdot L$: 420 sf

Bldg dim parallel to ridge = 64.0 ft
Bldg dim normal to ridge = 24.0 ft
h = 35.0 ft
ridge ht = 39.0 ft

GCpi = +/-0.18
G = 0.85
qi = qh

Nominal Wind Surface Pressures (psf)

Surface	Wind Normal to Ridge				Wind Parallel to Ridge				
	L/B = 0.38		h/L = 1.46		L/B = 2.67		h/L = 0.55		
	Cp	q _h GC _p	w/+q _h GC _{pl}	w/-q _h GC _{pl}	Dist.*	Cp	q _h GC _p	w/+q _h GC _{pl}	w/-q _h GC _{pl}
Windward Wall (WW)	0.80	11.9	see table below			0.80	11.9	see table below	
Leeward Wall (LW)	-0.50	-7.4	-10.6	-4.3		-0.27	-4.0	-7.1	-0.8
Side Wall (SW)	-0.70	-10.4	-13.6	-7.3		-0.70	-10.4	-13.6	-7.3
Leeward Roof (LR)	-0.60	-8.9	-12.1	-5.8		Included in windward roof			
Neg Windward Roof pressure	-0.23	-3.4	-6.5	-0.2	0 to h/2*	-0.92	-13.7	-16.9	-10.6
Pos/min Windward Roof press.	0.20	3.0	-0.2	6.1	h/2 to h*	-0.88	-13.1	-16.3	-10.0
					h to 2h*	-0.52	-7.7	-10.9	-4.6
					Min press.	-0.18	-2.7	-5.8	0.5

*Horizontal distance from windward edge

NOTE: The code requires the MWFRS be designed for minimum ultimate force of 16 psf multiplied by the wall area plus an 8 psf force applied to the vertical projection of the roof.

Parapet

z	Kz	Kzt	qp (psf)
0.0 ft	1.03	1.00	0.0

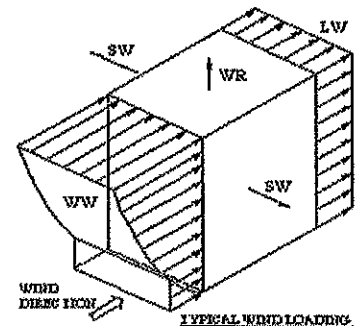
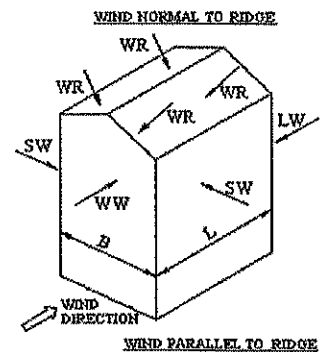
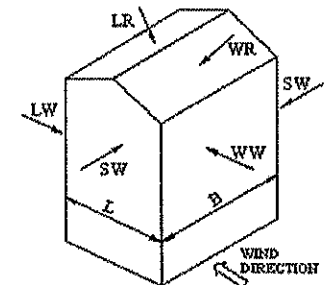
Windward parapet: 0.0 psf (GCpn = +1.5)

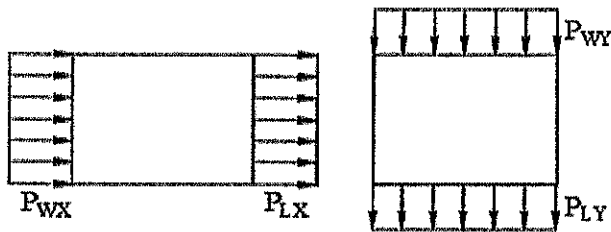
Leeward parapet: 0.0 psf (GCpn = -1.0)

Windward roof overhangs : 11.9 psf (upward - add to windward roof pressure)

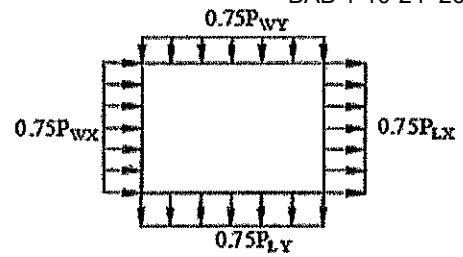
Windward Wall Pressures at "z" (psf)

z	Kz	Kzt	Windward Wall			Combined WW + LW	
			$q_z GC_p$	$w/+q_h GC_{pi}$	$w/-q_h GC_{pi}$	Wind Normal to Ridge	Wind Parallel to Ridge
0 to 15'	1.03	1.00	10.3	7.1	13.4	17.7	14.2
20.0 ft	1.08	1.00	10.8	7.7	14.0	18.2	14.8
25.0 ft	1.13	1.00	11.2	8.1	14.4	18.7	15.2
30.0 ft	1.16	1.00	11.6	8.4	14.7	19.0	15.6
h = 35.0 ft	1.19	1.00	11.9	8.8	15.1	19.4	15.9
ridge = 39.0 ft	1.22	1.00	12.1	9.0	15.3	19.6	16.1

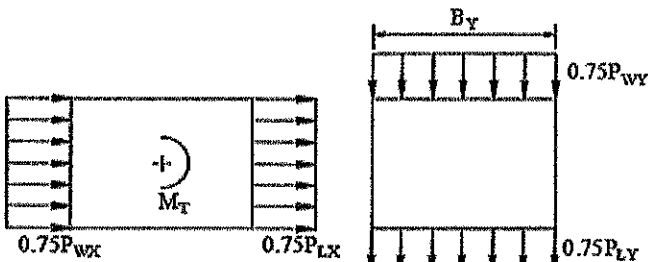




CASE 1



CASE 3



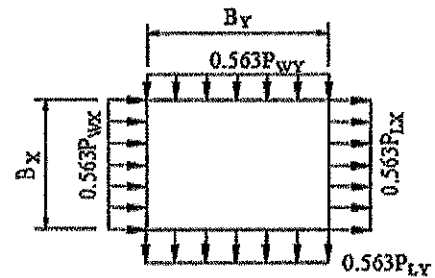
$$M_T = 0.75(P_{WX} + P_{LX})B_X e_X$$

$$e_X = \pm 0.15 B_X$$

$$M_T = 0.75(P_{WY} + P_{LY})B_Y e_Y$$

$$e_Y = \pm 0.15 B_Y$$

CASE 2



$$M_T = 0.563(P_{WX} + P_{LX})B_X e_X + 0.563(P_{WY} + P_{LY})B_Y e_Y$$

$$e_X = \pm 0.15 B_X \quad e_Y = \pm 0.15 B_Y$$

CASE 4

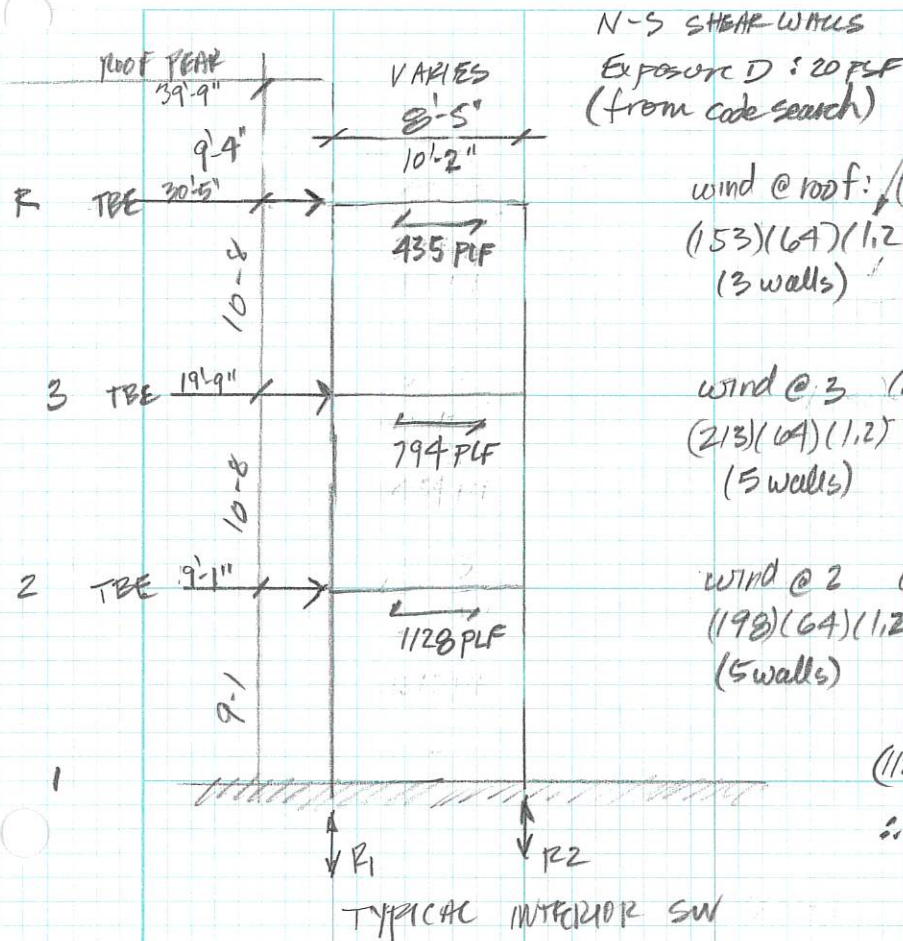
Wind Forces at Floors

Total Floors = 1
T/Fdn (dist below grade) = 2.0 ft

Building dimension (parallel with ridge) = 64.0 ft
Building dimension (normal to ridge) = 24.0 ft
L is the building dimension parallel to the wind direction

e = 9.60 ft
e = 3.60 ft

Level	Elevation Above Grade (ft)	Height of Centroid to Fdn (ft)	Wind Normal to Ridge						Wind Parallel to Ridge			
			L	B	Area (sf)	Applied Force (k)	Story Shear (k)	Overturning Moment (k)	Area	Applied Force (k)	Story Shear (k)	Overturning Moment (k)
Equip, etc		0.00	wind on equip, screenwalls, etc =									
Parapet	0.00	0.00				0.0		0.0		0.0		
T/Ridge		0.00			0.0	0.0		0.0	0.0	0.0		0.0
Roof	15.00	17.00	24.0	64.0	480.0	8.5	8.5	0.0	180.0	2.6	2.6	0.0
1	0.00	2.00	24.0	64.0	480.0	8.5	17.0	127.6	180.0	2.6	5.1	38.5
Fdn		0.00						161.6				48.7



wind @ roof: $(10 \text{ psf}) \left(\frac{9.33}{2} \right) + (20 \text{ psf}) \left(\frac{10.67}{2} \right) = 153 \text{ PLF}$
 $(153)(64)(1.2) = 11750 / (2)(8.42) + 10.16 = 435 \text{ PLF}$
 (3 walls)

wind @ 3: $(20 \text{ psf})(10.67) = 213 \text{ PLF}$
 $(213)(64)(1.2) = 16358 / (3)(8.42) + (2)(10.16) = 359 \text{ PLF}$
 (5 walls)

wind @ 2: $(20 \text{ psf})(10.67 + 9.08) = 198 \text{ PLF}$
 $(198)(64)(1.2) = 15206 / (3)(8.42) + (2)(10.16) = 334 \text{ PLF}$
 (5 walls)

$(1128)(10.16) = 11460 / 4650 = 2.5$
 $\therefore \text{MIN (3) } 5/8" \phi \text{ TITEN HD AB PER WALL}$

8'-5" walls $P_R = (435)(8.42) = 3663$
 $P_3 = (359)(8.42) = 3023$
 $P_2 = (334)(8.42) = 2812$

$M_1 = (3663)(30.42) + (3023)(19.75) + (2812)(9.08) = R(8.42)$
 $R = 23357$

$M_2 = (3663)(21.34) + (3023)(10.67) = R(8.42)$
 $R = 13114$

$M_3 = (3663)(10.67) = R(8.42)$
 $R = 4642$

10'-2" walls $P_R = (435)(10.16) = 4420$
 $P_3 = (359)(10.16) = 3647$
 $P_2 = (334)(10.16) = 3393$

$(4420)(30.42) + (3647)(19.75) + (3393)(9.08) = R(10.16)$
 $R = 23356$

$(4420)(21.34) + (3647)(10.67) = R(10.16)$
 $R = 13114$

$(4420)(10.67) = R(10.16)$
 $R = 4642$

EACH WALL:

(2) Simpson HD 12 @ 1 = (2)(12690) = 25380 ✓

(2) Simpson HD 9B @ 2 = (2)(8430) = 16860 ✓

(2) Simpson HD 3B @ 3 = (2)(3050) = 6100 ✓

E-W SHEAR WALLS

- total shear = $(24)(20 \text{ psf}) \times 35' = 16800/2 = 8400 \text{ per wall}$
 $8400/61 = 138 \text{ PLF}$
- by inspection SWA ($1/2'' \text{ gyp} + 1/2'' \text{ ZIP sheathing}$) is acceptable
- by inspection no HD required
- TITEN HD $5/8'' \phi @ 48'' \text{ OC}$ capacity = $1765/4 = 441 \text{ PLF}$ OK
- The bearing wall south of the stair is available for use as a shear wall. It is $\sim 14'$ long and was not included above

Cavity					
ROOF	DL 20 PSF	FLOOR	DL	1 3/4" gy/crcte	16
	LL 42 PSF			3/4" plywood	3
				18" trusses @ 16" oc	4
				5/8" gyp	3
				Mechanical + misc	4
					<u>30 PSF</u>

LL 40 PSF (residential)

TL C	ROOF:	$(12+1)(62) =$	806 PLF	0.6 DL ONLY
	3RD:	$(12)(70) =$	840 PLF	156
	2ND:	$(12)(70) =$	840 PLF	216
	1ST:	$(12)(70) =$	840 PLF	216
	WALL:	$(32)(10) =$	320 PLF	192
			<u>2806 PLF</u>	
	GB:	$\frac{(30)(24)(150)}{144} =$	750 PLF	<u>450</u> 1230
			<u>3556 PLF</u>	say 4000 PLF

max bkg pressure (assumed per IBC table 1806.2) = 2000 PSF
 \therefore min foundation width = $4000/2000 = 2'-0"$ ✓

Check GB for uplift resistance:

(NO DL was considered)

$$P = 23 \text{ ksf} \times 1.6 = 37.4 \text{ k} \quad M_u = (37.4)(21.5)/6 = 101 \text{ ft-k (conservative)}$$

$$min = (60)(24)(.0033)$$

$$= 2.38 \text{ or}$$

1/3 more than reqd

$$A_s \sim \frac{101}{(4)(21)} (1.33) = 1.60 \quad 3-\#7 = 1.80$$

$$a = \frac{(60)(1.8)}{(1.85)(4)(30)} = 1.06 \quad \phi M_n = (0.9)(1.80)(60)(20.5 - \frac{1.06}{2})(1/2) = 162 \text{ ft-k}$$

OK

stirrups @ $\sim d/2$ (12" oc)

$$\phi V_c = \frac{(0.75)(2)\sqrt{4000}(30)(21)}{1600} = 60 \text{ k}$$

$$\text{UPLIFT } R = 12'(\text{assumed}) \times 1230 + (450)(10) = 19.3 \text{ k}$$

+ 50% contribution \therefore OK

$$\phi V_s = \frac{(0.75)(60)(1.4)(21)}{12} = 32 \text{ k}$$

Typical Headers: $TL = 840 \text{ PLF}$ (from floor or roof) say 900 PLF

L1 (2) 2×6 3'-0" span $M = \frac{(900)(3)^2(12)}{8} = 12150 \text{ in}\cdot\text{lb}$

$f_b = 12150 / 19.7 = 617 \text{ psi}$ OK

L2 (2) 2×8 4'-0" span $M = \frac{(900)(4)^2(12)}{8} = 21600 \text{ in}\cdot\text{lb}$

$f_b = 21600 / 31.5 = 686 \text{ psi}$ OK

L3 (2) 2×10 6'-0" span $M = \frac{(900)(6)^2(12)}{8} = 48600 \text{ in}\cdot\text{lb}$

$f_b = 48600 / 47.1 = 1032 \text{ psi}$ OK

L4 (3) 2×12 9'-0" span $M = \frac{(600)(9)^2(12)}{8} = 72900 \text{ in}\cdot\text{lb}$

$W = (4+2)(40+30+20) = 540$

$f_b = 72900 / 94.9 = 768 \text{ psi}$ OK

L5 NA

2nd floor beam @ patio $W = 600 \text{ PLF}$ (conservative)

$M = \frac{(600)(12)^2(12)}{8} = 129600 \text{ in}\cdot\text{lb}$

4ply 2×12 $f_b = 129600 / (4)(31.6) = 1024 \text{ psi}$ OK

2ply $1\frac{3}{4} \times 11\frac{7}{8} \text{ LVL}$ $f_b = 129600 / 823 = 1574 \text{ psi}$ OK

WOOD SHEAR WALL CONSTRUCTION SCHEDULE

WALL TYPE	WALL PANEL CONSTRUCTION	WALL PANEL FASTENING		SEE NOTES	TOP AND SILL PLATE FASTENING		ENG / USER NOTES
		EDGE SPACING	MINIMUM FASTENER SIZE		SIMPSON OR USP CLIP ANGLE	COMMON OR FRAMING NAILS	
SWA	1 LAYER 5/8" GYP BOARD ONE SIDE OF WALL - UNBLOCKED	7"	6d COOLER OR WALLBOARD NAIL 1 3/4" LONG OR 16 GA. STAPLE, 1 1/2" LEGS, 1 5/8" LONG	10 TO 14	A34 OR MP34 AT 36" OC	16d AT 16" OR 3" x 0.131" AT 12"	SHEAR ALLOW FOR SPF (PLF)
SWB	1 LAYER 5/8" GYP BOARD ONE SIDE OF WALL - UNBLOCKED	4"		10 TO 14	A34 OR MP34 AT 36" OC	16d AT 12" OR 3" x 0.131" AT 8"	
SWC	1 LAYER 5/8" GYP BOARD ONE SIDE OF WALL - BLOCKED	7"		10 TO 15	A34 OR MP34 AT 36" OC	16d AT 16" OR 3" x 0.131" AT 8"	WIND SEISMIC
SWD	1 LAYER 5/8" GYP BOARD ONE SIDE OF WALL - BLOCKED	4"		10 TO 15	A34 OR MP34 AT 24" OC	16d AT 12" OR 3" x 0.131" AT 8"	115
SWE	1 LAYER 5/8" GYP BOARD BOTH SIDES OF WALL - BLOCKED	7"		10 TO 15	A34 OR MP34 AT 18" OC	16d AT 8" OR 3" x 0.131" AT 4"	145
SWF	1 LAYER 5/8" GYP BOARD BOTH SIDES OF WALL - BLOCKED	4"		10 TO 15	A35 OR MP34 AT 18" OC	16d AT 6" OR 3" x 0.131" AT 4"	145
SWG	2 LAYERS 5/8" GYP BOARD ONE SIDE OF WALL - BLOCKED	9" BASE PLY 7" FACE PLY	BASE PLY - 6d COOLER NAIL OR WALLBOARD NAIL 1 3/4" LONG OR 16 GA. STAPLE, 1 1/2" LEGS, 1 5/8" LONG	10 TO 15	A35 OR MPA1 AT 24" OC	16d AT 8" OR 3" x 0.131" AT 6"	115
SWH	2 LAYERS 5/8" GYP BOARD BOTH SIDES OF WALL - BLOCKED	9" BASE PLY 7" FACE PLY	FACE PLY - 8d COOLER NAIL OR WALLBOARD NAIL 2 3/8" LONG OR 15 GA. STAPLE, 1 1/2" LEGS, 2 1/4" LONG	10 TO 15	A35 OR MPA1 AT 12" OC	16d AT 4" OR 3" x 0.131 AT 3"	145
SWJ	1 LAYER 15/32" OSB OR PLYWOOD ONE SIDE OF WALL - BLOCKED	4"	10d COMMON OR GALVANIZED BOX NAIL	16, 18, 19, 20	A35 OR MPA1 AT 12" OC	16d AT 3" OR 3" x 0.131 AT 2"	145
SWK	1 LAYER 15/32" OSB OR PLYWOOD ONE SIDE OF WALL - BLOCKED	3"	8d COMMON OR GALVANIZED BOX NAIL	16, 18, 19, 20	LS90 OR MP9 AT 16" OC	16d AT 3" OR 3" x 0.131 AT 2"	125 for 1/2" gyp
SWL	1 LAYER 15/32" OSB OR PLYWOOD ONE SIDE OF WALL - BLOCKED	3"	10d COMMON OR GALVANIZED BOX NAIL	17 TO 20	LS90 OR MP9 AT 12" OC	16d AT 2" OR 3" x 0.131 AT 2"	175
SWM	1 LAYER 15/32" OSB OR PLYWOOD ONE SIDE OF WALL - BLOCKED	2"	8d COMMON OR GALVANIZED BOX NAIL	17 TO 20	LS90 OR MP9 AT 12" OC	16d AT 2"	290
SWN	1 LAYER 15/32" OSB OR PLYWOOD ONE SIDE OF WALL - BLOCKED	2"	10d COMMON OR GALVANIZED BOX NAIL	17 TO 20	LS90 OR MP9 AT 12" OC	16d AT 2"	250 for 1/2" gyp

- NOTES:
1. PROVIDE 2 STUDS AT EACH END OF SHEAR WALL. END STUDS SHALL RECEIVE EDGE NAILING.

2. ALL BLOCKING IN WALLS SHALL MEET OR EXCEED STUD GRADE.

3. PANEL JOINTS SHALL OCCUR AT THE CENTERLINE OF STUDS AND BLOCKING.

4. VERIFY WITH ARCHITECT IF ADDITIONAL LAYERS OF GYP BOARD ARE REQUIRED FOR FINISHES.

5. CONTRACTOR'S OPTION - PROVIDE CLIPS AT TOP AND SILL PLATE BY ALTERNATE MANUFACTURER THAT MEET OR EXCEED CAPACITY OF CLIPS INDICATED IN SCHEDULE.

6. SEE SHEAR WALL BASE CONNECTION SCHEDULE FOR ANCHORAGE TO SUPPORT MATERIAL.

7. SEE HOLD DOWN SCHEDULE FOR HOLD DOWN INFORMATION.

8. PROVIDE NAILING AT CLIP ANGLES PER MANUFACTURER'S RECOMMENDATIONS.

9. TOP AND SILL PLATE NAILING SHALL BE STAGGERED WHERE NAILS ARE SPACED AT 2" OC.
- ADDITIONAL NOTES PER SCHEDULE:
10. FASTENER SPACING AT INTERMEDIATE SUPPORTS SHALL MATCH THE SCHEDULED EDGE SPACING.

11. ALL WALLBOARD NAILS INDICATED IN SCHEDULE SHALL BE 0.120" DIA AND HAVE MINIMUM 3/8" HEAD.

12. STAPLES SHALL BE GALVANIZED, HAVE 7/16" MINIMUM CROWN WIDTH AND BE INSTALLED PARALLEL TO FRAMING MEMBERS.

13. 6d NAILS MAY BE SUBSTITUTED WITH DRYWALL SCREWS OR NO. 6 1 1/4" TYPE S OR W SCREWS.

14. PROVIDE EXTERIOR GYP BOARD WHERE SHEAR WALL IS AN EXTERIOR WALL.

15. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING TO MATCH THE WALL STUD SIZE.

16. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING 2" NOMINAL OR WIDER.

17. BLOCK ALL PANEL EDGES WITH WOOD BLOCKING 3" NOMINAL OR WIDER. STAGGER NAILS.

18. FASTENER SPACING AT INTERIOR SUPPORTS SHALL BE 12" OC, UNLESS NOTED OTHERWISE.

19. PROVIDE 1 1/2" MINIMUM PENETRATION INTO STUD AT 10d NAIL AND 1 3/8" MIN AT 8d NAIL.

20. PROVIDE FASTENERS AT INTERMEDIATE SUPPORTS SPACED AT 12" OC MAXIMUM.

WOOD SHEAR WALL CONSTRUCTION SCHEDULE

NO SCALE

ENGINEER/USER NOTES:

1. USE WITH WO-210 AND WO-250. IF WALL TYPES ARE CHANGED IN THIS SCHEDULE, CHANGE THE CORRESPONDING WALL TYPES ON WO-210.
2. THE ALLOWABLE VALUES SHOWN ARE FOR SPF #2 SPECIES. SEE IBC 2006 TABLE 2306.4.5 FOR GYP BOARD INFO. SEE IBC 2006 TABLE 2306.4.1 FOR WOOD INFO.
3. THE ALLOWABLE VALUES SHOWN ARE FOR WIND OR SEISMIC SHORT TERM LOADING. DECREASE ALLOWABLE VALUES FOR NORMAL (CUMULATIVE 10 YRS APPLIED FORCE) AND PERMANENT LOADS. SEE IBC TABLES REFERENCED ABOVE.
4. WOOD SHEAR WALLS MAY NOT BE USED TO RESIST LOADS IMPOSED BY MASONRY OR CONCRETE CONSTRUCTION.
5. GYP BOARD MAY BE USED TO RESIST SHEAR IN SEISMIC CATEGORIES A-D
6. SHEAR VALUES SHOWN ARE BASED ON A MAXIMUM STUD SPACING OF 16" OC.
7. MAXIMUM ASPECT RATIO FOR WOOD STRUCTURAL PANEL WALLS = 3.5:1 (USING REDUCTION FACTOR IF SEISMIC). SEE NDS TABLE 4.3.4 FOR MORE INFORMATION.
8. MAXIMUM ASPECT RATIO FOR GYPSUM SHEATHED WALLS = 1.5:1 FOR UNBLOCKED WALLS; 2:1 FOR BLOCKED WALLS. SEE NDS TABLE 4.3.4 FOR MORE INFORMATION.
9. AT WALLS WITH LARGE ASPECT RATIOS, 2 STUDS AT THE ENDS OF THE SHEAR WALLS MAY NOT SATISFY CHORD FORCES.
10. CLIP ANGLES ARE SPACING SHOWN IS BASED ON ALLOWABLE WIND SHEAR VALUES. IF WALL IS CONTROLLED BY SEISMIC, CLIP SPACING WILL BE CONSERVATIVE.

MEYER | BORGMAN | JOHNSON
STRUCTURAL DESIGN + ENGINEERING

12/30/2014 4:22:41 PM

WO-205

Drage steel SWA = SWE (1/2" gyp) one side + SWK (zip sheathing) opp side = 125 + 450 = 675 PLF capacity
Drage steel SWB = SWL one side + SWE (1/2" gyp) opp side = 772 + 125 = 897 PLF capacity
Drage steel SWC = SWL both sides = 772 + 772 = 1544 PLF capacity

Titen HD® Design Information — Concrete



Titen HD® Allowable Tension Loads in Normal-Weight Concrete

Size (in.)	Drill Bit Dia. (in.)	Embed. Depth (in.)	Critical Edge Dist. (in.)	Critical Spacing (in.)	Tension Load		
					$f'_c \geq 2,000$ psi (13.8 MPa Concrete)	$f'_c \geq 3,000$ psi (20.7 MPa Concrete)	$f'_c \geq 4,000$ psi (27.6 MPa Concrete)
					Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)
¾ (19.1)	¾	1½ (38)	6 (152)	4 (102)	2,070 (9.2)	—	520 (2.3)
		2¾ (70)	3 (76)	6 (152)	4,297 (19.1)	—	1,075 (4.8)
		3¾ (95)	—	—	7,087 (31.5)	347 (1.5)	1,770 (7.9)
½ (12.7)	½	2¾ (70)	4 (102)	8 (203)	4,610 (20.5)	—	1,155 (5.1)
		3¾ (92)	—	—	7,413 (33.0)	412 (1.8)	1,855 (8.3)
		5¾ (146)	—	—	10,278 (45.7)	297 (1.3)	2,570 (11.4)
⅝ (15.9)	⅝	2¾ (70)	5 (127)	10 (254)	4,610 (20.5)	—	1,155 (5.1)
		4¾ (105)	—	—	8,742 (38.9)	615 (2.7)	2,185 (9.7)
		5¾ (146)	—	—	12,953 (57.6)	1,764 (7.8)	3,240 (14.4)
¾ (19.1)	¾	2¾ (70)	6 (152)	12 (305)	4,674 (20.8)	—	1,170 (5.2)
		4¾ (117)	—	—	10,340 (46.0)	1,096 (4.9)	2,585 (11.5)
		5¾ (146)	—	—	13,765 (61.2)	1,016 (4.5)	3,440 (15.3)

- The allowable loads listed are based on a safety factor of 4.0.
- Refer to allowable load-adjustment factors for spacing and edge distance on pages 198 and 199.
- The minimum concrete thickness is 1½ times the embedment depth.
- Tension and shear loads for the Titen HD anchor may be combined using the elliptical interaction equation ($n=5\%$). Allowable load may be interpolated for concrete compressive strengths between 2,000 psi and 4,000 psi.

Titen HD® Allowable Shear Loads in Normal-Weight Concrete

Size (in.)	Drill Bit Dia. (in.)	Embed. Depth (in.)	Critical Edge Dist. (in.)	Critical Spacing (in.)	Shear Load		
					$f'_c \geq 2,000$ psi (13.8 MPa Concrete)	$f'_c \geq 3,000$ psi (20.7 MPa Concrete)	$f'_c \geq 4,000$ psi (27.6 MPa Concrete)
					Ultimate lb. (kN)	Std. Dev. lb. (kN)	Allowable lb. (kN)
¾ (19.1)	¾	1½ (38)	6 (152)	4 (102)	2,912 (13.0)	—	730 (3.2)
		2¾ (70)	4½ (114)	6 (152)	6,353 (28.3)	—	1,585 (7.1)
		3¾ (95)	—	—	6,377 (28.4)	1,006 (4.5)	1,595 (7.1)
½ (12.7)	½	2¾ (70)	6 (152)	8 (203)	6,435 (28.6)	—	1,605 (7.1)
		3¾ (92)	—	—	9,324 (41.5)	1,285 (5.7)	2,330 (10.4)
		5¾ (146)	—	—	11,319 (50.3)	1,245 (5.5)	2,830 (12.6)
⅝ (15.9)	⅝	2¾ (70)	7½ (191)	10 (254)	7,745 (34.5)	—	1,940 (8.6)
		4¾ (105)	—	—	8,706 (38.7)	1,830 (8.1)	2,175 (9.7)
		5¾ (146)	—	—	12,498 (55.6)	2,227 (9.9)	3,125 (13.9)
¾ (19.1)	¾	2¾ (70)	9 (229)	12 (305)	7,832 (34.8)	—	1,960 (8.7)
		4¾ (117)	—	—	11,222 (49.9)	2,900 (12.9)	2,805 (12.5)
		5¾ (146)	—	—	19,793 (88.0)	3,547 (15.8)	4,950 (22.0)

- The allowable loads listed are based on a safety factor of 4.0.
- Refer to allowable load-adjustment factors for spacing and edge distance on pages 198 and 199.
- The minimum concrete thickness is 1½ times the embedment depth.
- Tension and shear loads for the Titen HD anchor may be combined using the elliptical interaction equation ($n=5\%$). Allowable load may be interpolated for concrete compressive strengths between 2,000 psi and 4,000 psi.

* See page 12 for an explanation of the load table icons.

Titen HD® Design Information — Concrete



Titen HD® Allowable Shear Loads in Normal-Weight Concrete, Load Applied Parallel to Concrete Edge

Size (in.)	Drill Bit Dia. (in.)	Embed. Depth (in.)	Minimum Edge Dist. (in.)	Minimum End Dist. (in.)	Minimum Spacing (in.)	Shear Load Based on Concrete Edge Distance	
						$f'_c \geq 2,500$ psi (17.2 MPa Concrete)	Allowable lb. (kN)
						Ultimate lb. (kN)	Std. Dev. lb. (kN)
¾ (19.1)	¾	2¾ (70)	—	—	—	4,660 (20.7)	1,165 (5.2)
		3¾ (93)	1¾ (45)	8 (203)	8	—	1,530 (6.8)
		4¾ (114)	—	—	—	6,840 (30.4)	880 (3.8)
½ (12.7)	½	2¾ (70)	—	—	—	7,800 (34.7)	300 (1.3)
		3¾ (93)	1¾ (45)	8 (203)	8	—	1,530 (6.8)
		4¾ (114)	—	—	—	4,820 (21.4)	585 (2.6)
⅝ (15.9)	⅝	2¾ (70)	—	—	—	—	1,580 (7.0)
		3¾ (93)	1¾ (45)	10 (254)	10	—	1,765 (7.9)
		4¾ (114)	—	—	—	7,060 (31.4)	1,284 (5.7)

- The allowable loads listed are based on a safety factor of 4.0.
- The minimum concrete thickness is 1½ times the embedment depth.

Titen HD® Allowable Tension Loads in Normal-Weight Concrete Stemwall

Size (in.)	Drill Bit Dia. (in.)	Embed. Depth (in.)	Stemwall Width (in.)	Min. End Dist. (in.)	Tension Load	Tension Load
					$f'_c \geq 2,500$ psi (17.2 MPa Concrete)	$f'_c \geq 4,500$ psi (31.0 MPa Concrete)
					Ultimate lb. (kN)	Allow. lb. (kN)
¾ (19.1)	¾	10 (254)	6 (152)	8 (203)	15,420 (68.6)	3,855 (17.1)
		—	—	—	—	20,300 (90.3)
		—	—	—	—	5,075 (22.6)
½ (12.7)	½	10 (254)	6 (152)	4¾ (111)	14,280 (63.5)	3,570 (15.9)
		—	—	—	—	19,040 (84.7)
		—	—	—	—	4,760 (21.2)

- The allowable loads are based on a safety factor of 4.0.
- The minimum anchor spacing is 15 inches.
- The minimum concrete thickness (depth) is 12 inches.
- Allowable loads may be interpolated for compressive strengths between 2,500 and 4,500 psi.



The Titen HD® screw anchor ¾" x 6" and ¾" x 7" (models THDT75600H and THDT75700H) have a 1" section under the head that is unthreaded to allow installation into tilt-up wall braces.

* See page 12 for an explanation of the load table icons.

HDB/HD

Holdowns

Simpson Strong-Tie offers a wide variety of bolted holdowns offering low-deflection performance for a range of load requirements.

The HD3B is a light-duty holdown designed for use in shearwalls and braced-wall panels, as well as other lateral applications.

The HD5B, HD7B and HD9B bolted holdowns incorporate the proven design of our HD08 SDS-style holdown and feature a unique seat design which greatly minimizes deflection under load. HDB and HD holdowns are self-jigging, ensuring that the code-required minimum of seven bolt diameters from the end of the post is met. They can be installed directly on the sill plate or raised above it and are suitable for back-to-back applications where eccentricity is a concern. HDBs and HDs are designed to provide loads for intermediate-load-range shearwalls, braced-wall panels and lateral applications.

Material: See table

Finish: HD3B/HD5B/HD7B/HD9B — Galvanized;

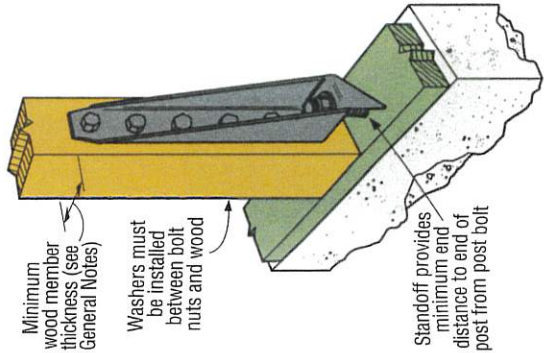
HD — Simpson Strong-Tie gray paint; HDG available.

For stainless steel options, see engineering letter L-C-SSHD at strongtie.com.

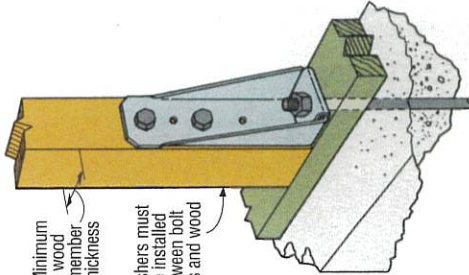
Installation:

- See Holdown and Tension Tie General Notes on pp. 49–50
- Bolt holes shall be a minimum of 1/2" to a maximum of 1/4" larger than the bolt diameter (per 2015/2018 NDS, section 12.1.3.2)
- Stud bolts should be snugly tightened with standard cut washers between the wood and nut (BPs are required in the City and County of Los Angeles)
- HD and HDB holdowns are self-jigging and will ensure minimum bolt end distance when installed flush with the sill plate
- Standard cut washer is required under the anchor nut for HD12 with 1" anchor and HD19 with 1 1/4" anchors

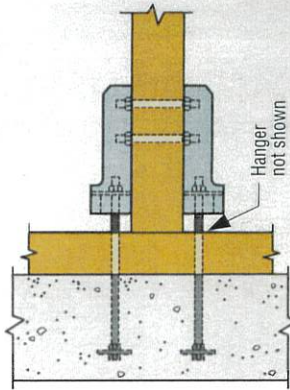
Codes: See p. 11 for Code Reference Key Chart



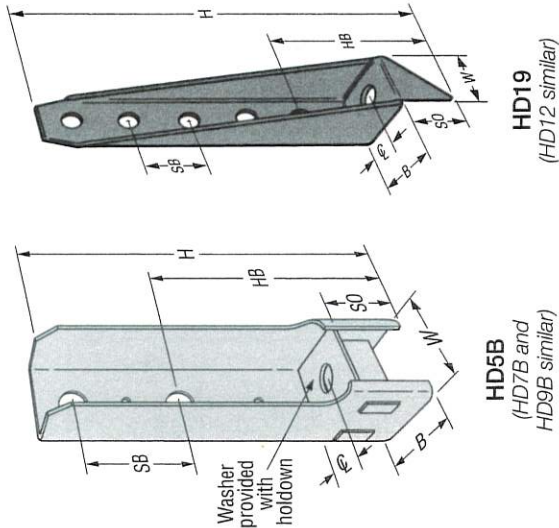
Vertical HD19 Installation



Vertical HD3B Installation

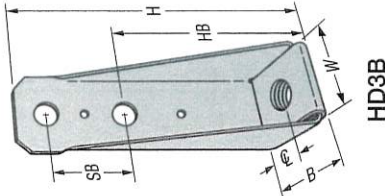


Horizontal HDB Installation (plan view)



HD5B (HD7B and HD9B similar)

HD19 (HD12 similar)



HD3B

HDB/HD

Holdowns (cont.)

These products are available with additional corrosion protection. For more information, see p. 14.

Model No.	Material		Dimensions (in.)						Fasteners (in.)		Minimum Wood Member Size (in.)	Allowable Tension Loads (160)		Deflection at Highest Allowable Load	Code Ref.
	Base (in.)	Body (ga.)	HB	SB	W	H	B	CL	S0	Anchor Dia. Bolt	Stud Bolts	DF/SP	SPF/HF		
HD3B	—	12	4 3/4	2 1/2	2 1/2	8 5/8	2 1/4	1 5/16	3/8	5/8	(2) 5/8	1,895	1,610	0.156	IBC, FL, LA
												2,525	2,145	0.169	
												3,130	3,050	0.12	
												3,130	3,050	0.12	
HD5B	3/8	10	5 1/4	3	2 1/2	9 3/8	2 1/2	1 1/4	2	5/8	(2) 3/4	2,405	2,070	0.153	IBC, FL, LA
												3,750	3,190	0.129	
												4,505	3,785	0.156	
												4,935	4,195	0.15	
HD7B	3/8	10	5 1/4	3	2 1/2	12 3/8	2 1/2	1 1/4	2	7/8	(3) 3/4	6,645	5,650	0.142	IBC, FL, LA
												7,310	6,215	0.154	
												7,345	6,245	0.155	
												7,740	6,580	0.159	
HD9B	3/8	7	6 1/4	3 3/4	2 7/8	14	2 1/2	1 1/4	2 3/8	7/8	(3) 7/8	9,920	8,430	0.178	IBC, FL, LA
												9,920	8,430	0.178	
												10,035	8,530	0.179	
												11,350	9,215	0.171	
HD12	3/8	3	7	4	3 3/8	20 5/16	4 1/4	2 1/8	3 3/8	1 1/8	(4) 1	12,665	10,765	0.171	IBC, FL, LA
												14,220	12,085	0.162	
												11,775	9,215	0.171	
												13,335	11,055	0.177	
HD19	3/8	3	7	4	3 3/8	24 1/2	4 1/4	2 1/8	3 3/8	1 1/8	(5) 1	16,735	14,225	0.191	IBC, FL, LA
												16,775	12,690	0.2	
												19,360	15,270	0.18	
												19,070	16,210	0.137	

1. To achieve published loads, machine bolts shall be installed with the nut on the opposite side of the holdown. If this orientation is reversed, the designer shall reduce the allowable loads shown per NDS requirements when bolt threads are in the shear plane.
2. All references to bolts are for structural quality through bolts (not lag screw or carriage bolts) equal to or better than ASTM A307, Grade A.
3. HD19 with 1 1/4" anchor rod requires No. 1 post (or better) to achieve published loads.



Construction Services & Inspections Division
 Planning & Economic Development Department

Room 100
 411 West First Street
 Duluth, Minnesota 55802



218-730-5240



permittingservices
 @duluthmn.gov

June 27, 2023

Arola 8/17/23

COD 8/29/23

COD 9/27/23

Re: Plan Review for Permit BBLDG2304-021 @ XXX S LAKE AVE- DRAGESTIL HOTEL

Good morning, Jed,

Construction documents for the project referenced above have been reviewed for compliance with the 2020 Minnesota State Building Code. Please respond to the following comments or requests for information.

Address each comment (below each comment) in another color and return the Word document by email. Once comment responses have been received, plan review will continue. It is not necessary to submit updated drawings until comments have been properly addressed and authorization given.

**Note: These comments apply to Buildings 1-3. I haven't performed an exhaustive review of the Building #4 plans, but I'm assuming most of these comments will apply to that set as well.*

1. Life Safety & Code Summary:

- a. Please show fire extinguisher locations on the Life Safety plans. (SEE REVISED PLANS) Accepted.
- b. Please show exit access travel distance to the protected interior exit stairway (rather than all the way out). (SEE REVISED PLANS) Accepted.
- c. You can remove the common path travel distance from single exit floors.
- d. Level 1 common path & exit access travel distances are transposed. Please correct. (SEE REVISED PLANS) Can you check travel distances – looks like the 32' might be closer to 40'? Should the travel distance diamond sync with the shortest travel distance? REVIEWED AND UPDATED DISTANCES
- e. Please note on Life Safety plan that low level exit lighting is required. (SEE REVISED PLANS) Accepted.
- f. In the Code Summary, I believe A t – tabular area should be 7,000. Do you need the area increase? If not, you may omit this to avoid confusion. (SEE REVISED CODE SUMMARY) Accepted – not required. Tabular allowable area 21,000 sq ft.
- g. Actual areas in the Code Summary appear to be correct when compared with the plans. Areas in the Project Requirements section appear to differ. Please make consistent. (AREA CALCULATIONS IN PROJECT REQUIREMENTS ARE FOR UNITS ONLY AND DO NOT INCLUDE STAIR/FOYER. IF THIS IS INCORRECT, PLEASE NOTIFY AND CODE SUMMARY WILL BE REVISED) I was looking at this incorrectly. We shouldn't be including any of the area within the stair enclosure. Disregard! Hat in hand, I don't know what I was thinking when I said disregard this comment. We need to look at all the area within the exterior walls when performing gross occupant load factor calculations. If this was a net occupant load factor, we could exclude the stair enclosure. The requirements and exclusions can be found in the IBC

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definitions, Floor Area, gross and Floor Area, net. Apologies – I am going to ask you to revise the areas in the code summaries to include all the space inside the exterior walls, and re-calc the occupant loads based on the full floor areas. There are no other code impacts aside from consistency in the code summary.

- h. Please show the rated exterior wall on the life safety plans for Bldg 1-3, and note rating on Bldg 1 as noted on plans for Bldg 4. SEE REVISED DRAWING
2. **Special Inspections** – If required, a completed Special Inspections form must be submitted prior to permit issuance. All required inspectors and other principals should be listed and sign the form. You can locate the form at the following link: (SPECIAL INSPECTION FORM SHALL BE SUBMITTED) Accepted pending receipt of completed form.
3. **Geotechnical Report:**
 - a. Is the final geotechnical report available? (GEO TECHNICAL REPORT WAS PROVIDED BY PREVIOUS OWNER. NO FINAL GEO TECHNICAL REPORT WAS PROVIDED)
 - b. In the preliminary geotech report, it is noted that this is a fill site. The geotechnical engineer recommends installing the foundations on native soils, or excavating to native soils, and building back with engineered fill to support the foundation. The engineer notes in the report that existing soils are not suitable for building support. The construction documents don't indicate how the fill site is being prepared to address the recommendations in the report. Project foundation notes and design indicate presumptive values were used to design the foundation, and that soil conditions should be verified to confirm design assumptions are appropriate. Please provide documentation as to how the existing soil conditions will be corrected to support the new structures. (REMOVAL OF BAD SOILS HAS OCCURRED UNDER A PERMIT ISSUED FOR REMOVAL OF OLD FOUNDATION, SOME CLEAN FILL HAS BEEN ADDED TO SITE, ENGINEERED FILL SHALL BE INSPECTED PER SPECIAL INSPECTIONS FORM) We will need a final soils report with final recommendations for soil corrections and foundation type and sizing. REPORT WILL BE PREPARED BY BRAUN PER SPECIAL INSPECTIONS SHEET
 - c. Work entailing soil corrections will require special inspections. Please complete the form linked above as necessary. (SEE ABOVE) Accepted.
4. **Structural:**
 - a. Structural design criteria live load for balconies & decks is noted as 60 PSF. Should it be 63 PSF, based on a local live load of 42 PSF? (NO. I REVIEWED THIS WITH STRUCTURAL ENGINEER – (OCCUPANCY SERVED LOCAL LIVE LOAD = 40 PSF x 1.5 = 60 PSF) Accepted.
 - b. Please provide the basis for design of the shallow frost protected foundations in the structural notes. Note R-values required for frost protection on the plans. Accepted.
 - c. Please provide R-value requirements for the insulation protecting the shallow foundations supporting the decks over unconditioned space, or provide frost depth footings. (DECKS HAVE BEEN REMOVED FROM THE DESIGN) The post supporting the 2nd floor balcony (over unheated space) must be frost protected. How is this being achieved? SEE REVISED FOUNDATION PLANS The foundation notes on Sheet A0.4 states that footings adjacent to unheated space "shall be 72." I'm concerned that the post supporting the balcony is resting upon a shallow foundation under unheated space. It's highly unusual to have a post such as this over unheated space that is not on a full frost depth footing, or, as in this case, following the requirements set forth in the engineering notes. Can the engineer provide a response as to how this post will be frost protected? I recognize the drawings are certified – I'm just trying to understand this method of frost protection because, as I say, it's very unusual.

- d. Please add 60" dimension grade to top of footing on Detail 2/A5.1 to make consistent with note on Sht A2.1-2. (FOUNDATION FOR BUILDING 4 SHALL BE A SHALLOW FROST PROTECTED FOUNDATION, SEE REVISED PLANS) Accepted.

5. Energy Code:

- a. Please note on plans a minimum of R-5 insulation is required under slab, and a minimum of R-20 insulation is required 48" down and/or out from the foundation wall. Please note on plans (you may already have the R-20 for frost protection). (SEE REVISED PLANS) Accepted.
- b. Proposed insulation on plans appears to differ from the energy code documentation submitted. Please make consistent. (SEE REVISED COMCHECK REPORT) Typical exterior wall (Sht A5.1) appears to use R-21 in the cavity, and R-3.6 continuous. Comcheck uses R-21 in the cavity and R-6 continuous. Please make consistent.
- c. Anywhere insulation is proposed, please provide an R-value on the plan. (SEE REVISED PLANS) Accepted.

6. Rated Construction:

- a. What is the use of the under stair space with door on the first level of the plans? This arrangement does not appear to comply with Section 1011.7.3. Please review, and revise plans as necessary. (SEE REVISED PLANS, PER OUR PHONE CONVERSATION, DOOR TO UNDERSTAIR SPACE/SPRINKLER RISER ROOM WILL BE MOVED TO THE EXTERIOR WALL) Accepted.
- b. Wall type 2A should be listed as a fire barrier, rather than fire partition. Please revise. (SEE REVISED PLANS, WALL TYPES SHEET A0.2) Accepted.
- c. Please show how shaft continuity is maintained from foundation to roof deck. As drawn, the floor trusses appear to penetrate the outer membrane of the shaft to bear on the fire barrier walls. Please revise plans to show the floor supported outside the shaft. (SEE REVISED PLANS, DETAIL 2/A5.1) Accepted.
- d. Doors entering into the interior exit stair shaft should be rated to 1-hr per Table 716.1(2). Please update the door schedule accordingly. (SEE REVISED PLANS & SCHEDULES) Accepted.
- e. This stair shaft should terminate at the roof deck, or at a top enclosure with the same fire-resistance rating as the rated horizontal assemblies used for the floors. Please provide top of wall details depending on which method is utilized at the top. (SEE REVISED PLANS, DETAIL 4/A5.1) Accepted.
- f. UL U407 appears to only address bearing walls requiring a ½ hr rating. Please provide a UL listed wall assembly that provides a 1 hr rating at bearing walls not identified as shear walls. (SEE REVISED PLANS, WALL TYPES SHEET A0.2) Accepted.
- g. When referencing UL assemblies, the proposed assembly should directly match the listing. In the rare instance a listed assembly can't be found, please provide a prescriptive rating from Chapter 7 of the MSBC. This comment impacts wall types 2A, 2B, and 3. (SEE REVISED PLANS, WALL TYPES SHEET A0.2) Accepted. Accept plywood is assembly 2B – thanks for the citation!
- h. UL assembly U348 appears to require the addition of 5/8" gyp board to the exterior side of the assembly. Please correct the wall type detail. (SEE REVISED PLANS, WALL TYPES SHEET A0.2) Accepted.
- i. The percentage of openings on the north side of Building #1 appears to exceed the limitations provided in Table 705.8. This table requires use of a full NFPA 13 sprinkler to increase the allowable percentage of openings. Please reduce the opening percentages, or install an NFPA 13 sprinkler system. (PLANS & CODE SUMMARY REVISED TO SPECIFY A NFPA 13 SYSTEM) Note above 3rd floor floorplan on the life safety specifies NFPA 13R. Please make consistent with new approach. Otherwise, accepted.

7. Survey & Grading:

- a. Please provide an updated copy of the boundary survey where the line weights and text are corrected such that the property line is clear in relation to the nearby retaining wall and other site features. (NEW SURVEY FORTHCOMING) Accepted.

- b. The grading work appears to run right up to the property line, and possibly beyond. Please describe how the property line is clearly defined at regular intervals in the field to avoid encroaching on adjacent property.
- c. How is the grading work to be limited such that it doesn't impact adjacent properties? (SEE GENERAL NOTES) Accepted.
 - i. What is the plan to protect the retaining wall on the adjacent property during construction activities?
 - ii. How will runoff to adjacent property be controlled? It appears that the new grades will be 2-4' above the current site at the swale running along the north and west sides of the site.

8. Accessibility:

- a. Please provide a minimum of one Accessible Unit as required by Section 1107.6.1 of the Accessibility code. The unit shall have communication features as required by 1107.6.1.3. Identify which unit will be accessible, and revise plans as necessary to show compliance with accessibility requirements. (I HAVE RECEIVED CAD DRAWING OF THE EXISTING DRAGSTIL HAUS AND WILL VERIFY AND DESIGN MODIFICATIONS AS REQUIRED TO MAKE 1 TYPE A UNIT) Accepted, pending Type A details.
- b. Please provide one Type B unit on the first floor of each building (excepting the building with an accessible unit) per Section 1107.7.1.1. An accessible route to each building shall be provided, to include curb ramps where necessary. Please identify the Type B units on the plans, and provide necessary details addressing the Type B requirements. Revise the site plan to show the accessible route(s), and any required curb ramp(s). We understand the existing building contains a Type B unit. (PER OUR PHONE CONVERSATION, TYPE B UNITS IN EACH BUILDING NOT REQUIRED) Accepted.

9. General:

- a. Is there a project specification available for review? If so, please provide. (NO PROJECT SPECIFICATION) Accepted.
- b. Correct guard detail on Sht A0.2 to read "A 4-3/8 sphere", rather than "an 8" sphere." (SEE REVISED PLANS, SHEET A 0.2) Accepted.
- c. Please provide floor and roof trusses as a delayed submittal for review prior to installation. (NOTED) Accepted.
- d. Provide shop drawings for pedestal style roof paver system prior to installation. (NOTED) Accepted.
- e. Provide shop drawings for the pre-fab glass deck guard system prior to installation.
- f. Please call out a ridge vent on Section 1/A5.1. (NOTED) Accepted.
- g. Please confirm deck beams, columns, connection hardware, and foundation support have been designed/evaluated by the Engineer of Record. (DECKS HAVE BEEN REMOVED FROM DESIGN) Please confirm post, beam, and footing supporting the 2nd floor balcony have been designed by the engineer of record. CONFIRMED
- h. I believe Door 102A in the door schedule should be listed as Door 102. (SEE REVISED DRAWINGS/SCHEDULES) Accepted.
- i. Please provide door hardware group details for unit entry doors, and exterior egress door on the first level. (SEE REVISED DRAWINGS/SCHEDULES) Accepted.
- j. Please provide an evaluation report for the polyamide smart membrane vapor retarder. (REMOVED FROM TYPICAL WALL ASSEMBLY, SEE 1/A5.1) We need to have a Class II vapor retarder here, unless the meeting the requirements of 1404.3.2. We can accept a paint on Class II vapor retarder. Please provide spec or ES report documenting the Class rating. NOTE REVISED TO CLASS II, PAINT SPEC SUBMITTED
- k. Please note on window schedule Sht A6.1 which door/windows require safety glazing. (SEE REVISED DRAWINGS/SCHEDULES) Accepted if including D-4 fixed panels. SEE REVISED SCHEDULE
- l. Detail callout on Sht A4.1 at balcony floor cantilever should be 4/A5.2. (SEE REVISED DRAWINGS) I think this callout should be 3/A5.1. SEE REVISED DRAWING

When all comments are complete and closed, Construction Services will require submittal of an electronic set of construction documents incorporating all changes since the plans were first submitted for review.

If you need to discuss any of the above notes, please email or call.

Thank you,

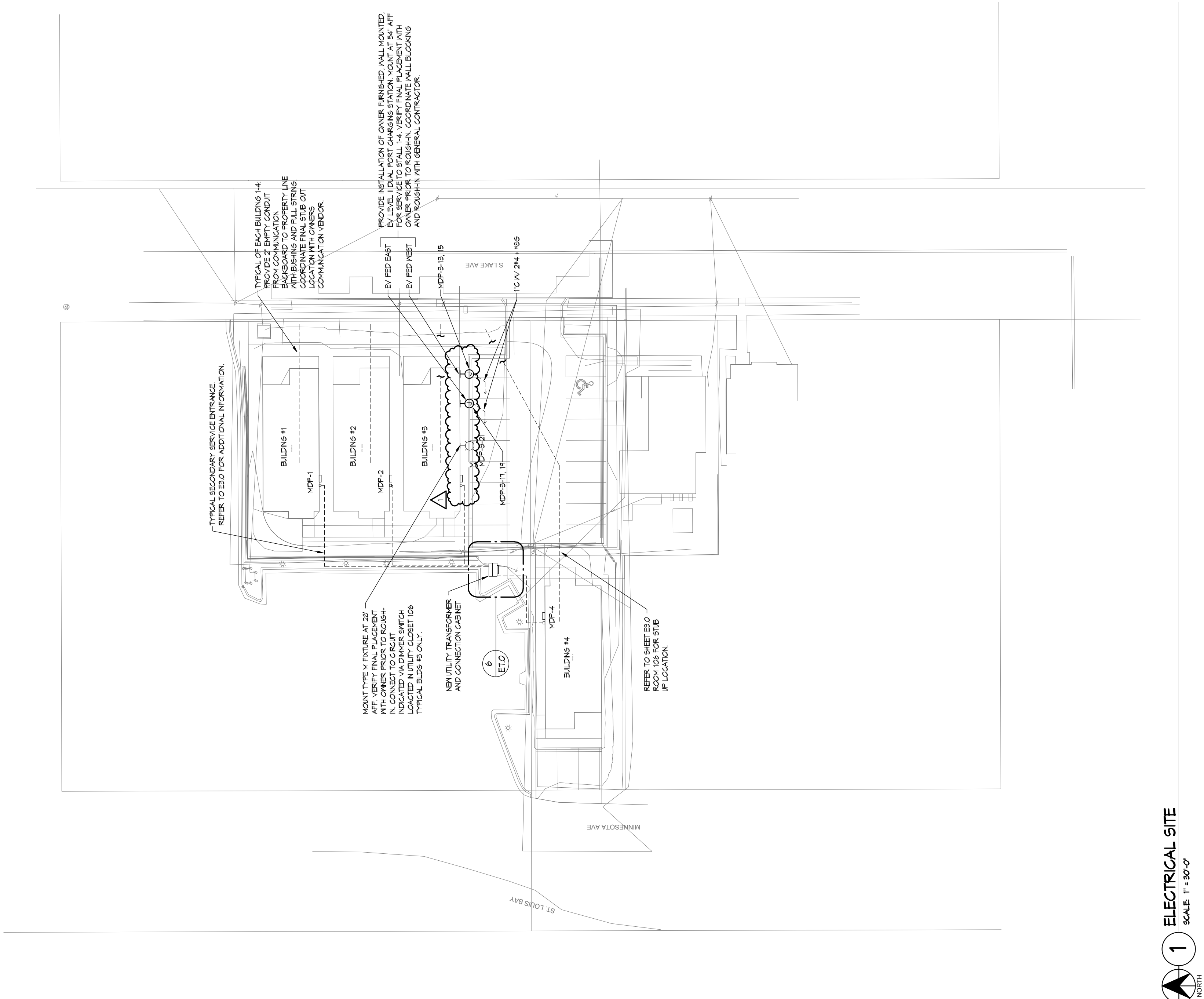
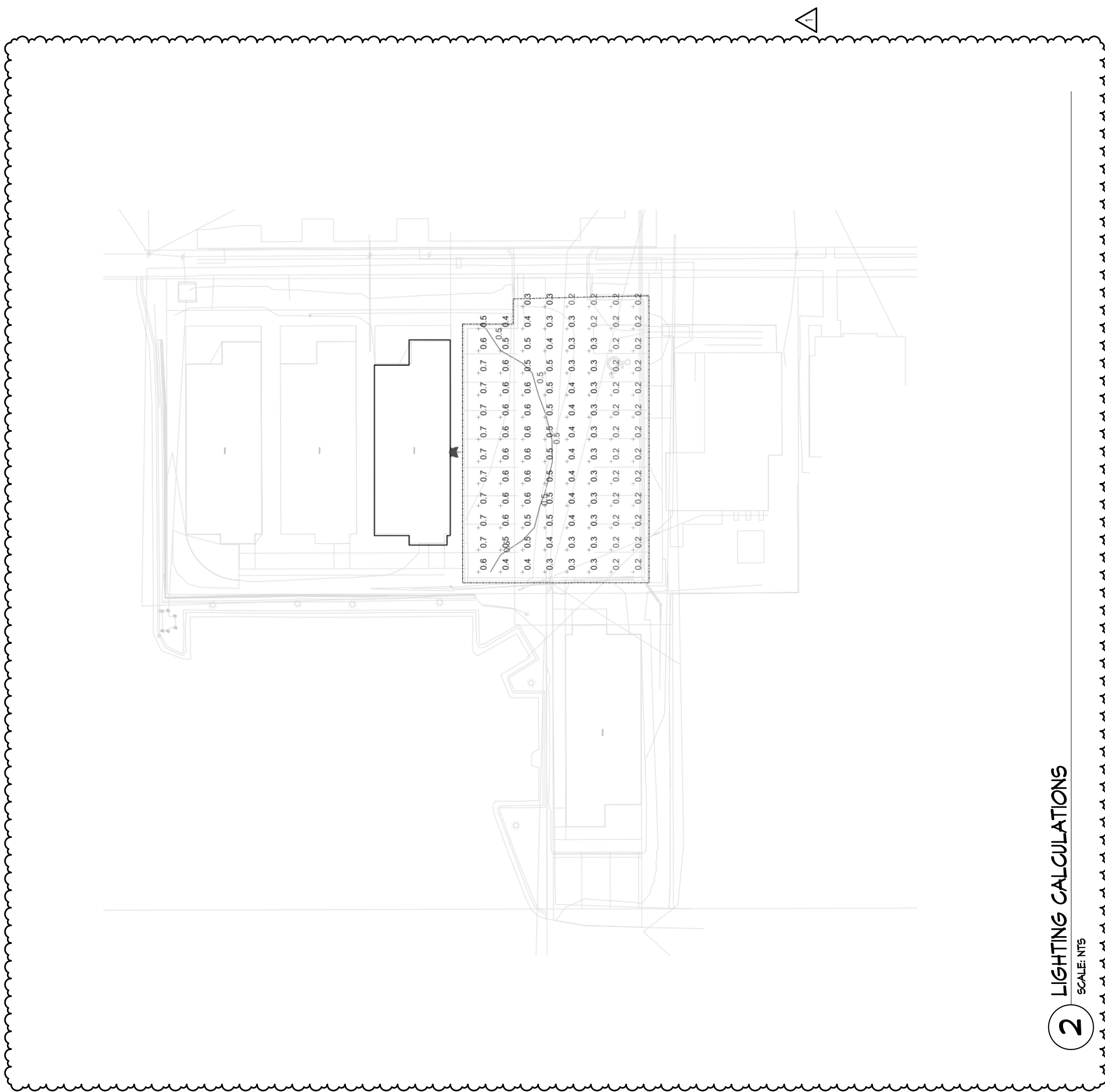
Chris Machmer

Construction Services – Plans Examiner

411 W. 1st St. Room 100, Duluth, MN 55802

V (218) 730-5247





Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
 - Authorities Having Jurisdiction should be consulted before construction.
 - Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
 - When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
 - Only products which bear UL's Mark are considered Certified.
-

Design No. **U348**

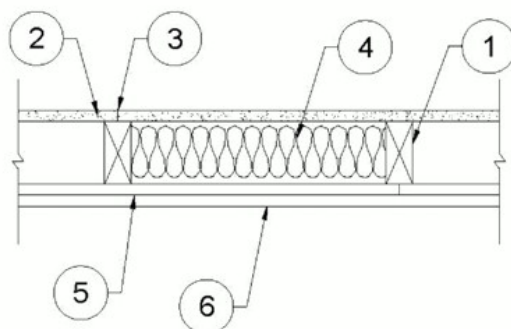
March 16, 2023

Bearing Wall Rating - 1 Hr Rating Exposed to Fire on Interior Face Only (See Item 6 and 7)**Bearing Wall Rating - 1 Hr Rating Exposed to Fire on Either Face (See Item 8)****For Wood Studs, Finish Rating — 23 min (Exposed to Fire on Interior Face)**

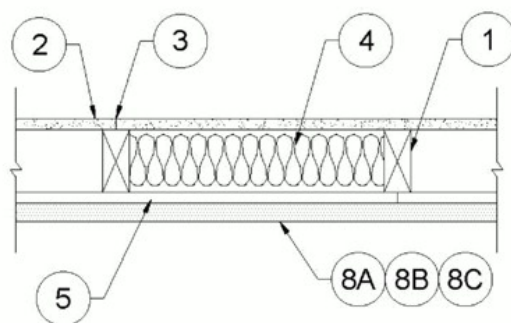
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

1-HOUR
(FIRE FROM INTERIOR ONLY)



1-HOUR
(FIRE FROM EITHER FACE)



1. **Wood Studs** — Nom 2 by 4 in., spaced 16 in. OC in with two 2 by 4 top and one 2 by 4 bottom plates. As an option, nom 2 by 6 in., spaced 24 in. OC with two 2 by 6 top and one 2 by 6 bottom plates may be used in lieu of 2 by 4 studs and plates. Studs effectively fire stopped.

1A. Steel Studs and Floor and Ceiling Tracks — As an option to Item 1 — (Not Shown) — Top and bottom tracks of wall assemblies shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 MSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C. Steel studs min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC. Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2. Gypsum Board* — **Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Nom. 5/8 in. thick, 4 ft. wide, applied vertically, and nailed to studs and bearing plates 7 in. OC. with 6d cement coated nails, 1-7/8 in. long, 0.0915 in. shank diam. and 1/4 in. diam. head. When steel framing is substituted for wood framing, 1 in. long Type S steel screws are used in lieu of nails.

CABOT MANUFACTURING ULC ([View Classification](#)) — CKNX.R25370

AMERICAN GYPSUM CO ([View Classification](#)) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO ([View Classification](#)) — CKNX.R19374

CERTAINTED GYPSUM INC ([View Classification](#)) — CKNX.R3660

CGC INC ([View Classification](#)) — CKNX.R19751

GEORGIA-PACIFIC GYPSUM L L C ([View Classification](#)) — CKNX.R2717

CERTAINTED GYPSUM INC ([View Classification](#)) — CKNX.R18482

NATIONAL GYPSUM CO ([View Classification](#)) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM ([View Classification](#)) — CKNX.R7094

PANEL REY S A ([View Classification](#)) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD ([View Classification](#)) — CKNX.R19262

GEORGIA-PACIFIC GYPSUM L L C ([View Classification](#)) — CKNX.R6937

THAI GYPSUM PRODUCTS PCL ([View Classification](#)) — CKNX.R27517

UNITED STATES GYPSUM CO ([View Classification](#)) — CKNX.R1319

USG MEXICO S A DE C V ([View Classification](#)) — CKNX.R16089

3. Joints and Nailheads — Wallboard joints covered with tape and joint compound. Nail heads covered with joint compound.

4. **Batts and Blankets*** — Faced or unfaced mineral fiber insulation, 3-1/2 in. thick, nom 3.0 pcf, pressure fit in the wall cavity between stud, plates, and cross bracing. If 2 by 6 in. studs (Item 1) are used, min. 5-1/2 in. of unfaced mineral fiber insulation, nom 3.0 pcf, pressure fit in the wall cavity between stud, plates, and cross bracing. Insulation may be applied in multiple layers to achieve final thickness.

See **Batts and Blankets*** (BZJZ) category for names of Classified manufacturers.

4A. **Batts and Blankets*** — As an Alternate to Item 4 when wood studs are used. - As an Alternate to Item 4 when steel studs are used, but Optional Items 7A or 7B are required. Faced or unfaced glass fiber batts, 3-1/2 in. thick, having a min density of 0.9 pcf (min R-13 thermal insulation rating), pressure fit in the wall cavity between stud, plates, and cross bracing.

See **Batts and Blankets*** (BZJZ) category for names of Classified manufacturers.

4B. **Fiber, Sprayed*** — As an Alternate to Item 4 when wood studs are used. - As an Alternate to Item 4 when steel studs are used, but Optional Items 7A or 7B are required.— (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

Applegate Greenfiber Acquisition LLC — INS735, NS745, INS750LD, and Insulmax for use with wet or dry application. INS765LD and INS773LD are to be used for dry application only.

4C. **Fiber, Sprayed*** — As an Alternate to Item 4 when wood studs are used. - As an Alternate to Item 4 when steel studs are used, but Optional Items 7A or 7B are required.- Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

4D. **Fiber, Sprayed*** — As an Alternate to Item 4 when wood studs are used. - As an Alternate to Item 4 when steel studs are used, but Optional Items 7A or 7B are required.— Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

NU-WOOL CO INC — Cellulose Insulation

5. **Building Units*** — Building units placed with the laminate face against or laminate face away from, and nailed to, the wood framing with 1-7/8 in. long, 6d nails, spaced 6 in. OC. on the perimeter and 12 in. OC. in the field. When steel framing is substituted for wood framing, Type S steel screws are used in lieu of nails with a minimum penetration length through the steel stud of 3/8 in.

LOUISIANA-PACIFIC CORP — Type Blazeguard 1-Side

LOUISIANA-PACIFIC CORP — Type LP FlameBlock 1-Side

6. **Exterior Facings** — (For use with Wood Studs, Item 1) - Any exterior facing approved by the Authority Having Jurisdiction installed in accordance with the manufacturer's installation instructions.

7. **Exterior Facings** — (Not Shown) (For use with steel Studs, Item 1A, but limited to the use of Mineral Wool Insulation Item 4) - Any exterior facing approved by the Authority Having Jurisdiction installed in accordance with the manufacturer's installation instructions.

7A. **Cementitious Stucco** — (Optional unless Item 1A, Steel Studs, are used in conjunction with Item 4A, 4B, 4C or 4D Batts and Blankets - Not Shown) - Portland cement or synthetic stucco systems with self-furring metal lath or adhesive base coat. Thickness from 1/2 in. to 3/4 in. depending on system.

7B. **Brick Veneer** — (Optional unless Item 1A, Steel Studs, are used in conjunction with Item 4A, 4B 4C or 4D Batts and Blankets - Not Shown) Brick veneer, minimum thickness of 2.3 inches, meeting the requirements of local code agencies. When brick veneer is used, the rating is applicable with exposure on either face. Brick veneer fastened with corrugated metal wall ties attached over sheathing to wood studs with 8d nail per tie: ties spaced not more than each sixth course of brick and max 32 in. OC horizontally. One in. air space provided between brick veneer and sheathing. For steel studs, Type S steel screws are used in lieu of nails with a minimum penetration length through the steel stud of 3/8 in.

6/23/23, 12:14 PM

BXUV.U348 | UL Product iQ

BAB-1-10-24-287

8. **Exterior Facings** — (Not Shown) — Required for 1 Hour Rating on the Exterior Face. The following exterior facing shall be installed in accordance with the manufacturer's installation instructions:

8A. **Brick** — Brick veneer, minimum thickness of 2.3 inches, meeting the requirements of local code agencies. Brick veneer attached to the studs with corrugated metal wall ties attached to each stud with 8d cement coated nails, every sixth course of bricks and max 32 in. OC horizontally. One in. air space provided between brick veneer and sheathing. For steel studs, Type S steel screws are used in lieu of nails with a minimum penetration length through the steel stud of 3/8 in.

8B. **Cementitious Stucco** — Portland cement with self-furring metal lath. Minimum thickness of 3/4 in. with a mix ratio of 1:4 for scratch coat and 1:5 for brown coat, by volume, cement to sand.

8C. **Gypsum Board*** — Nom. 5/8 in. thick, 4 ft. wide exterior sheathing applied vertically. Single layer nailed to wood studs and bearing plates 6 in. OC with 1-7/8 in. long 6d cement coated nails. Vertical joints centered over studs and staggered min. 1 stud cavity from the vertical joints of the building units (Item #5). The joints and nail heads do not need to be treated with joint compound.

GEORGIA-PACIFIC GYPSUM L L C — Types DGG

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2023-03-16

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. **U407**

June 19, 2023

Nonbearing Wall Ratings — 1/2 or 1 HR. (See Items 1, 1A, 2, 2A and 6)

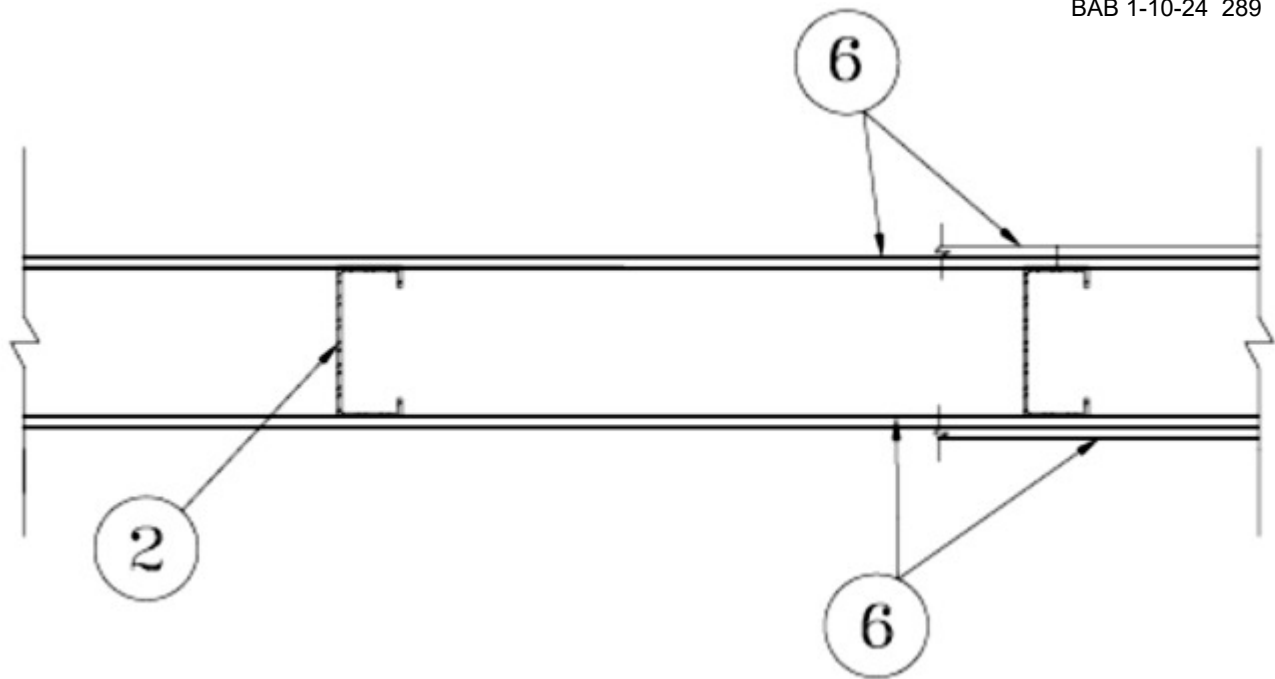
Bearing Wall Rating — 1/2 HR. (See Items 3 and 6)

Finish Rating — (See Item 3)

Loaded Per 2005 NDS Supplement, ASD Method, Wall Braced by Sheathing, 100% of Design Load Applied to Wall.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. Floor and Ceiling Runners — (Not shown- For the 1/2 or 1 Hour Nonbearing Wall Ratings) — For use with Item 2 - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. Framing Members*— Floor and Ceiling Runners — (Not shown, As an alternate to Item 1 - For the 1/2 or 1 Hour Nonbearing Wall Ratings) — For use with Item 2A, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, min depth to accommodate stud size, attached to floor and ceiling with fasteners 24 in. OC. max.

CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1B. Framing Members* - Floor and Ceiling Runner — (Not shown, As an alternate to Item 1 - For the 1/2 or 1 Hour Nonbearing Wall Ratings) — For use with Item 2B, proprietary channel shaped runners, min depth to accommodate stud size, attached to floor and ceiling with fasteners 24 in. OC. max.

CEMCO, LLC — Viper25™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™ Track

IMPERIAL MANUFACTURING GROUP INC — Viper25™ Track

1C. Framing Members*— Floor and Ceiling Runners — (Not shown, As an alternate to Item 1 - For the 1/2 or 1 Hour Nonbearing Wall Ratings) — For use with Item 2C, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, min depth to accommodate stud size, attached to floor and ceiling with fasteners 24 in. OC. max.

TELLING INDUSTRIES L L C — TRUE-TRACK™

1D. Framing Members*— Floor and Ceiling Runners — (Not shown, As an alternate to Item 1 - For the 1/2 or 1 Hour Nonbearing Wall Ratings) — For use with Item 2E, channel shaped, fabricated from min. 0.018 in. (min bare metal thickness) galvanized steel, min depth to accommodate stud size, attached to floor and ceiling with fasteners 24 in. OC. max.

RESCUE METAL FRAMING, L L C — AlphaTRAK

2. Steel Studs — (For the 1/2 or 1 Hour Nonbearing Wall Ratings) Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min. 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

2A. Framing Members*— Steel Studs — (Not shown, As an alternate to Item 2- For the 1/2 or 1 Hour Nonbearing Wall Ratings) — channel shaped studs, min. 3-5/8 in. deep, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2B. Framing Members* - Steel Studs — (Not shown, As an alternate to Item 2- For the 1/2 or 1 Hour Nonbearing Wall Ratings) - Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height

CEMCO, LLC — Viper25™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper25™

IMPERIAL MANUFACTURING GROUP INC — Viper25™

2C. Framing Members*— Steel Studs — (Not shown, As an alternate to Item 2- For the 1/2 or 1 Hour Nonbearing Wall Ratings) — channel shaped studs, min. 3-5/8 in. deep, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

TELLING INDUSTRIES L L C — TRUE-STUD™

2D. Framing Members* - Steel Studs — (As an alternate to Item 2- For the 1/2 or 1 Hour Nonbearing Wall Ratings) - For use with Item 1 (3-5/8 in. wide track), channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 1-1/4 in. wide by 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2E. Framing Members*— Steel Studs — (Not shown, As an alternate to Item 2- For the 1/2 or 1 Hour Nonbearing Wall Ratings) — channel shaped studs, min. 3-5/8 in. deep, fabricated from min. 0.018 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

RESCUE METAL FRAMING, L L C — AlphaSTUD

3. Wood Studs — (Not shown, As an alternate to Items 1 and 2- For the 1/2 Bearing Wall Rating) - Nom 2 by 4 in. spaced 16 in. OC max, effectively firestopped. When wood studs are used, Finish Rating is 16 Min.

4. Batts and Blankets* — (Optional, not shown) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

5. Furring Channels — (Optional, not shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws for steel studs and 1 in. long Type S screws for wood studs.

6. Gypsum Board* — 5/8 in. thick paper surfaced, with beveled, square, or tapered edges, applied either horizontally or vertically. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers need not be staggered.

1/2 Hour Bearing Rating On Wood Studs - Single layer secured with 1-5/8 in. long Type S steel screws spaced 12 in. OC at the perimeter and in the field.

1/2 Hour Nonbearing Rating On Steel Studs - Single layer secured with 1 in. long Type S steel screws spaced 8 in. OC at the perimeter and 8 in. OC in the field.

1 Hour Nonbearing Rating On Steel Studs - Base layer boards secured with 1 in. long Type S steel screws spaced 16 in. OC at the perimeter and 16 in. OC in the field. Face layer boards secured with 1-5/8 in. long Type S steel screws spaced 16 in. OC at the perimeter and 16 in. OC in the field. When joints are aligned, screws are offset 8 in. between layers.

CGC INC — 5/8 in. thick Type FC30

UNITED STATES GYPSUM CO — 5/8 in. thick Type FC30

USG MEXICO S A DE C V — 5/8 in. thick Type FC30

7. Joint Tape and Compound — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

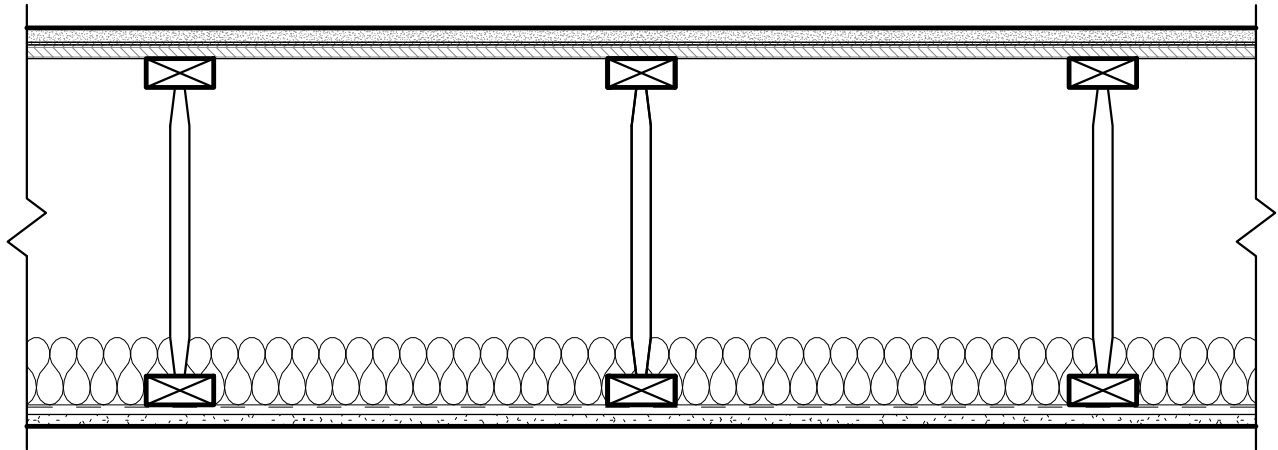
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Last Updated on 2023-06-19

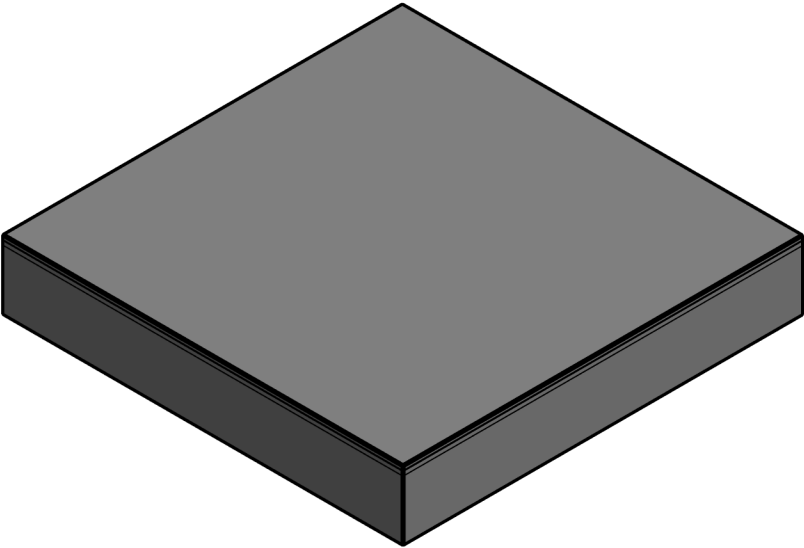
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DESIGN NO.	UL L521, UL L550, UL L563
FIRE RATING	1 HOUR
CONSTRUCTION TYPE	18" [457 MM] WOOD TRUSS
SOUND TRANSMISSION CLASS (STC)	59
IMPACT INSULATION CLASS (IIC)	48
SOUND TEST	G9876.01
SYSTEM THICKNESS (INCHES)	20.72 IN.
SYSTEM THICKNESS (MM)	526 MM



Revit System Family
(Copy & Paste into your Revit project)



ASSEMBLY REQUIREMENTS:

SUBFLOOR TOPPING MIXTURE:	3/4" [19 MM] USG LEVELROCK® BRAND 2500 SERIES FLOOR UNDERLAYMENTS
SOUND ATTENUATION MAT:	1/8" [3.2 MM] USG LEVELROCK® SAM-N12™ SOUND ATTENUATION MAT
SUBFLOOR:	23/32" [18.2 MM] WOOD STRUCTURAL PANEL
STRUCTURE:	18" [457 MM] PARALLEL CHORD OPEN WEB WOOD TRUSSES, AT 24" [610 MM] O.C.
INSULATION:	3-1/2" [89 MM] GLASS FIBER BATT INSULATION, SUPPORTED BY RESILIENT CHANNEL
RESILIENT CHANNEL:	1/2" [12.7 MM] RESILIENT CHANNEL, 25 GA. (0.018"), SPACED 16" [406 MM] O.C. MAX.
GYPSUM PANEL:	5/8" [15.9 MM] SHEETROCK® ECOSMART GYPSUM PANEL (UL TYPE ULIX™)

GENERAL FLOOR CEILING NOTES:

- FOR THE MOST UP-TO-DATE DETAILS, INCLUDING CONSTRUCTION VARIATIONS, REFER TO THE PUBLISHED ASSEMBLY IN THE UL PRODUCT IQ™ DATABASE OR GA DESIGN MANUAL.
- FRAMING SIZES AND INSULATION THICKNESS ARE MINIMUM UNLESS OTHERWISE STATED IN THE PUBLISHED ASSEMBLY.
- FRAMING AND FASTENER SPACINGS ARE MAXIMUM UNLESS OTHERWISE STATED IN THE PUBLISHED ASSEMBLY.
- PANEL ORIENTATION SHALL BE AS SPECIFIED IN THE PUBLISHED ASSEMBLY.
- REFER TO APPLICABLE CODES REQUIREMENTS TO ENSURE COMPLIANCE PRIOR TO CONSTRUCTION.
- WHERE ACOUSTICAL PERFORMANCE IS PROVIDED IN AN ESTIMATED RANGE, THE VALUES ARE BASED ON LABORATORY TEST DATA OF SIMILARLY CONSTRUCTED ASSEMBLIES.
- WHERE DESIGN NO. INDICATES "PER", THE FIRE RATING IS BASED ON LABORATORY TEST DATA OF THE REFERENCED SIMILARLY CONSTRUCTED ASSEMBLIES.

NOTES: **TYPE M PARKING LOT**

FIXTURE TYPE:

PROJECT:



Head tilts to 90° degree

FEATURES

Construction

- Sealed die-casting profile for outdoor applications.
- Suitable for applications requiring 3G testing prescribed by ANSI C136.31.

Optics

- Light engines are available in standard 4000 K and 5000 K (70 CRI) configurations.
- Scalable Lumen Packages from 3,500 to 10,500 Lumens.
- Tempered UV coated flat lens provide outstanding performance, uniformity and glare control.

Electrical

- Standard drivers feature electronic universal voltage (120-277V 50/60Hz) operation.
- Greater than 0.9 power factor, less than 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments.

Lifespan

- Estimated 50,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

Warranty

- Five-year warranty.

Applications

- Security, pathway and perimeter lighting, Building entryways and walkways.

SPECIFICATIONS

Mounting

0° to +90° tilt adjustments, To meet the needs of customers with different lighting angles.



Housing

Suitable for both indoor and outdoor application, also suitable for J-BOX mounting and surface mounting.

Photocell

Optional for photocell, and allows for security and energy saving.

Lens

Polycarbonate optical lens with UV stabilizers do not exhibit yellowing and deformation.

PRODUCT DESCRIPTION

Slim wall pack is available in two watts for a variety of applications including building perimeter, entrances, stairways and security lighting. MWP10 series of luminaires provides a low-profile architectural style with the power of bright, energy efficient LEDs. It has a rugged aluminum construction with multi-mount capabilities. 0° to +90° tilt adjustments. For a building that has a modern or futuristic look.

ORDERING INFORMATION

EXAMPLE: MWP10-40W-27V-50K-D



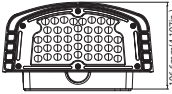
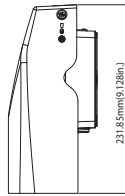
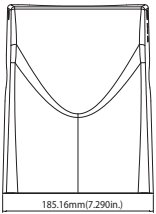
Model	Power Consumption	Input Voltage	CCT	Finish	Photocell (Option)	Dimmable	Internal Code
MWP10 = Wall Pack Series	27 = 27Watts 40 = 40Watts 67 = 67Watts 80 = 80Watts	27V = 120-277V	40K = 4000K 50K = 5000K	D = Dark Bronze	P0 = 120-277V Photocell Blank = Without Photocell	D = 0-10 Dimmable Blank = NON Dimmable	Blank = Alphanumeric

Note : The 80W is limited to dimmable.

DIMENSIONS

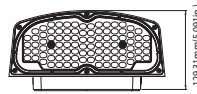
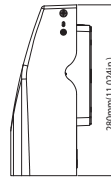
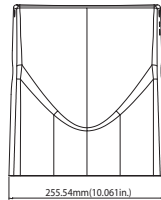
unit: mm/inch

Small size: 27W/40W



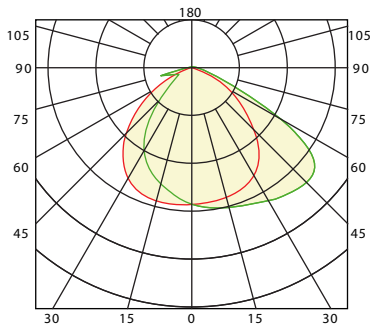
Net Weight:
27W: 1.52kg(3.351lb)
40W: 1.80kg(3.968lb)

Medium size: 67W/80W



Net Weight:
67W: 3.32kg(7.319lb)
80W: 3.54kg(7.804lb)

PHOTOMETRICS



ACCESSORIES



Photocell

No. PC-JL-120-277V

USE: Photocell is field installed or pre-installed in factory
by requesting

PERFORMANCE DATA		3000K(70CRI)		4000K(70CRI)		5000K(70CRI)	
SYSTEM WATTS	VOLTAGE	LUMENS	LPW	LUMENS	LPW	LUMENS	LPW
27W	120-277VAC	3500lm	130 lm/W	3600lm	133 lm/W	3600lm	133 lm/W
40W	120-277VAC/347-480V	5000lm	125 lm/W	5200lm	130 lm/W	5200lm	130 lm/W
67W	120-277VAC/347-480V	8600lm	128 lm/W	8800lm	131 lm/W	8800lm	131 lm/W
80W	120-277VAC	10000lm	125 lm/W	10500lm	131 lm/W	10500lm	131 lm/W

ELECTRICAL DATA				
Number Of Drivers	Driver Current (mA)	Nominal Power (W)	INPUT VOLTAGE (V)	CURRENT (Amps)
1	430	27	120	0.23
		27	208	0.13
		27	240	0.11
		27	277	0.10
1	640	40	120	0.33
		40	208	0.19
		40	240	0.17
		40	277	0.14
1	1110	67	120	0.56
		67	208	0.32
		67	240	0.28
		67	277	0.24
1	2120	80	120	0.67
		80	208	0.38
		80	240	0.33
		80	277	0.29

DLC MODEL NO.

SYSTEM WATTS	VOLTAGE	CCT	DLC NO.	DLC Classification
27W	120-277V	4000K	MWP1027W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1027W27V50KD [P0,Blank][X,Blank]	Premium
40W	120-277V	4000K	MWP1040W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1040W27V50KD [P0,Blank][X,Blank]	Premium
		4000K	MWP1040W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1040W27V50KD [P0,Blank][X,Blank]	Premium
67W	120-277V	4000K	MWP1067W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1067W27V50KD [P0,Blank][X,Blank]	Premium
		4000K	MWP1067W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1067W27V50KD [P0,Blank][X,Blank]	Premium
80W	120-277V	4000K	MWP1080W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1080W27V50KD [P0,Blank][X,Blank]	Premium

Project		Catalog #		Type	
Prepared by		Notes		Date	



McGraw-Edison

GWC Galleon Wall

Wall Mount Luminaire

Typical Applications

Exterior Wall • Walkway

Interactive Menu

- Ordering Information [page 2](#)
- Product Specifications [page 2](#)
- Optical Configurations [page 3](#)
- Energy and Performance Data [page 4](#)
- Control Options [page 6](#)

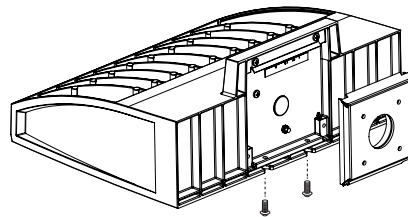
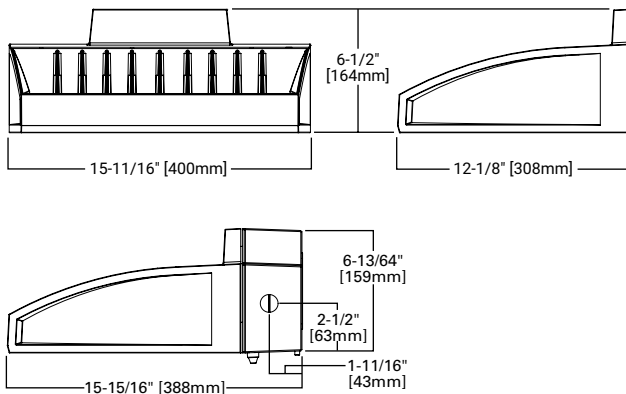
Product Certifications



Quick Facts

- Choice of thirteen high-efficiency, patented AccuLED Optics™
- Downward and inverted wall mounting configurations
- Eight lumen packages from 3,215 up to 17,056
- Efficacies up to 154 lumens per watt

Dimensional Details



Connected Systems

- WaveLinx
- Enlighted

Ordering Information

SAMPLE NUMBER: GWC-SA2C-740-U-T4FT-GM

Product Family ¹	Light Engine		Color Temperature	Voltage	Distribution	Finish
	Configuration	Drive Current				
GWC=Galleon Wall	SA1=1 Square SA2=2 Squares ²	A=615mA B=800mA C=1000mA D=1200mA ⁴	722=70CRI, 2200K 727=70CRI, 2700K 730=70CRI, 3000K 735=70CRI, 3500K 740=70CRI, 4000K 750=70CRI, 5000K 760=70CRI, 6000K 827=80CRI, 2700K 830=80CRI, 3000K AMB=Amber, 590nm ^{3,4}	U=120-277V 1=120V 2=208V 3=240V 4=277V 8=480V ^{6,7} 9=347V ⁶	T2=Type II T3=Type III T4FT=Type IV Forward Throw T4W=Type IV Wide SL2=Type II w/Spill Control SL3=Type III w/Spill Control SL4=Type IV w/Spill Control SLL=90° Spill Light Eliminator Left SLR=90° Spill Light Eliminator Right RW=Rectangular Wide Type I 5NQ=Type V Square Narrow 5MQ=Type V Square Medium 5WQ=Type V Square Wide	AP=Grey BZ=Bronze BK=Black DP=Dark Platinum GM=Graphite Metallic WH=White
Options (Add as Suffix)			Controls and Systems Options (Add as Suffix)		Accessories (Order Separately)	
F=Single Fused (120, 277 or 347V. Must Specify Voltage) FF=Double Fused (208, 240 or 480V. Must Specify Voltage) 10K=10kV Surge Module 20K=Series 20kV UL 1449 Surge Protective Device DIM=External 0-10V Dimming Leads ^{9,10} CBP=Battery Pack with Back Box, Cold Weather Rated ^{2,4,14,33} CBP-CEC=Battery Pack with Back Box, Cold Weather Rated, CEC compliant ^{2,4,14} L90=Optics Rotated 90° Left R90=Optics Rotated 90° Right HSS=Factory Installed House Side Shield ²³ GRSBK=Factory Installed Glare Shield, BK ^{4,27} GRSWH=Factory Installed Glare Shield, WH ^{4,27} UPL=Uplight Housing ¹³ HA=50°C High Ambient ¹² LCF=Light Square Trim Plate Painted to Match Housing ²² MT=Factory Installed Mesh Top CC=Coastal Construction finish ⁵ CE=CE Marking and Small Terminal Block ²⁴ AHD145=After Hours Dim, 5 Hours ¹⁶ AHD245=After Hours Dim, 6 Hours ¹⁶ AHD255=After Hours Dim, 7 Hours ¹⁶ AHD355=After Hours Dim, 8 Hours ¹⁶ DALI=DALI Driver ¹¹			BPC=Button Type Photocontrol (120, 208, 240 or 277V. Must Specify Voltage) PR=NEMA 3-PIN Twistlock Photocontrol Receptacle PR7=NEMA 7-PIN Twistlock Photocontrol Receptacle ¹⁵ SPB1=Dimming Occupancy Sensor with Bluetooth Interface, <8' Mounting ^{19,34} SPB2=Dimming Occupancy Sensor with Bluetooth Interface, 8' - 20' Mounting ^{19,34} SPB4=Dimming Occupancy Sensor with Bluetooth Interface, 21' - 40' Mounting ^{19,34} MS-LXX=Motion Sensor for On/Off Operation ^{17,18,19} MS/DIM-LXX=Motion Sensor for Dimming Operation ^{17,18,19} ZW=WaveLinX-enabled 4-PIN Twistlock Receptacle ^{29,30} ZD=WaveLinX Module with DALI driver and 4-PIN Receptacle ^{29,30} SWPD4XX=WaveLinX Sensor Only, 7'-15' ^{31,32} SWPD5XX=WaveLinX Sensor Only, 15'-40' ^{31,32} WOBXX=WaveLinX Sensor with Bluetooth, 7'-15' ^{31,32} WOFXX=WaveLinX Sensor with Bluetooth, 15'-40' ^{31,32} LWR-LW=Enlightened Wireless Sensor, Wide Lens for 8'-16' Mounting Height ^{19,20,21} LWR-LN=Enlightened Wireless Sensor, Narrow Lens for 16'-40' Mounting Height ^{19,20,21}		OA/RA1013=Photocontrol Shorting Cap ²⁸ OA/RA1016=NEMA Photocontrol - Multi-Tap 105-285V ²⁸ OA/RA1201=NEMA Photocontrol - 347V ²⁸ OA/RA1027=NEMA Photocontrol - 480V ²⁸ MA1252=10kV Circuit Module Replacement MA1059XX=Thru-branch Back Box (Must Specify Color) LS/HSS=Field Installed House Side Shield ^{23,25} LS/GRSBK=Glare Shield, Black ^{8,25,27} LS/GRSWH=Glare Shield, White ^{8,25,27} LS/PFS=Perimeter Shield, Black FSIR-100=Wireless Configuration Tool for Occupancy Sensor ¹⁷ WOLC-7P-10A=WaveLinX Outdoor Control Module (7-pin) ^{26,29} SWPD4-XX=WaveLinX Wireless Sensor, 7' - 15' Mounting Height ^{29,30,31,32} SWPD5-XX=WaveLinX Wireless Sensor, 15' - 40' Mounting Height ^{29,30,31,32}	
NOTES: 1. DesignLight Consortium® Qualified. Refer to www.designlights.org , Qualified Products List under Family Models for details. 2. Two light squares with CBP options limited to 25°C. Not available in combination with sensor options at 1200mA. 3. Narrow-band 590nm +/- 5nm for wildlife and observatory use. Choose drive current A; supplied at 500mA drive current only. Available with 5WQ, 5MQ, SL2, SL3 and SL4 distributions. Can be used with HSS option. 4. Not available with HA option. 5. Coastal construction finish salt spray tested to over 5,000-hours per ASTM B117, with a scribe rating of 9 per ASTM D1654. 6. Require the use of a step down transformer. Not available in combination with sensor options at 1200mA. 7. 480V must use Wye system only. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems). 8. Reserved. 9. Cannot be used with other control options. 10. Low voltage control leads extended 18" from fixture. 11. Not available in 1200mA. When used with CBP or HA options, only available with single light square. 12. Not available in 1200mA, UPL or CBP options. Available with single light square. 13. Not available with SL2, SL3, SL4, HA, CBP, PR or PR7 options. 14. Operates a single light square only. Operates at -20°C to +40°C. Backbox is non-IP rated. Control option limited to BPC. 15. Compatible with standard 3-PIN photocontrols, 5-PIN or 7-PIN ANSI controls. 16. Requires the use of BPC photocontrol or the PR7 or PR photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information. 17. The FSIR-100 configuration tool is required to adjust parameters such as high and low modes, sensitivity, time delay and cutoff. Consult your lighting representative at Cooper Lighting Solutions for more information. 18. Replace LXX with L08 (<8' mounting), L20 (8'-20' mounting) or L40W (21'-40' mounting). 19. Includes integral photosensor. 20. Enlighted wireless sensors are factory installed requiring network components in appropriate quantities. 21. White sensor shipped on all housing color options. 22. Not available with HSS or GRS options. 23. Not for use with 5NQ, 5MQ, 5WQ or RW optics. The light square trim plate is painted black when the HSS option is selected. 24. CE is not available with the 1200, DALI, LWR, MS, MS/DIM, BPC, PR or PR7 options. Available in 120-277V only. 25. One required for each light square. 26. Requires PR7. 27. Not for use with T4FT, T4W or SL4 optics. 29. Cannot be used in conjunction with additional photocontrol or other controls systems (BPC, PR, PR7, MS, LWR). 30. WAC Gateway required to enable field-configurability: Order WAC-PoE and WPOE-120 (10V to PoE injector) power supply if needed. 31. Requires ZW or ZD receptacle. 32. Replace XX with sensor color (WH, BZ, or BK). 33. Specify 120V or 277V. 34. Smart device with mobile application required to change system defaults. See controls section for details.						

Product Specifications

Construction

- Driver enclosure thermally isolated from optics for optimal thermal performance
- Die-cast aluminum heat sinks
- IP66 rated housing
- 1.5G vibration rated

Optics

- Patented, high-efficiency injection-molded AccuLED Optics technology
- 13 optical distributions
- IDA Certified (3000K CCT and warmer only)

Electrical

- LED driver assembly mounted for ease of maintenance
- Standard with 0-10V dimming
- Optional 10kV or 20kV surge module
- Suitable for operation in -40C to 40C ambient environments. Optional 50C high ambient (HA) configuration.

Mounting

- Gasketed and zinc plated rigid steel mounting attachment

- "Hook-N-Lock" mechanism for easy installation

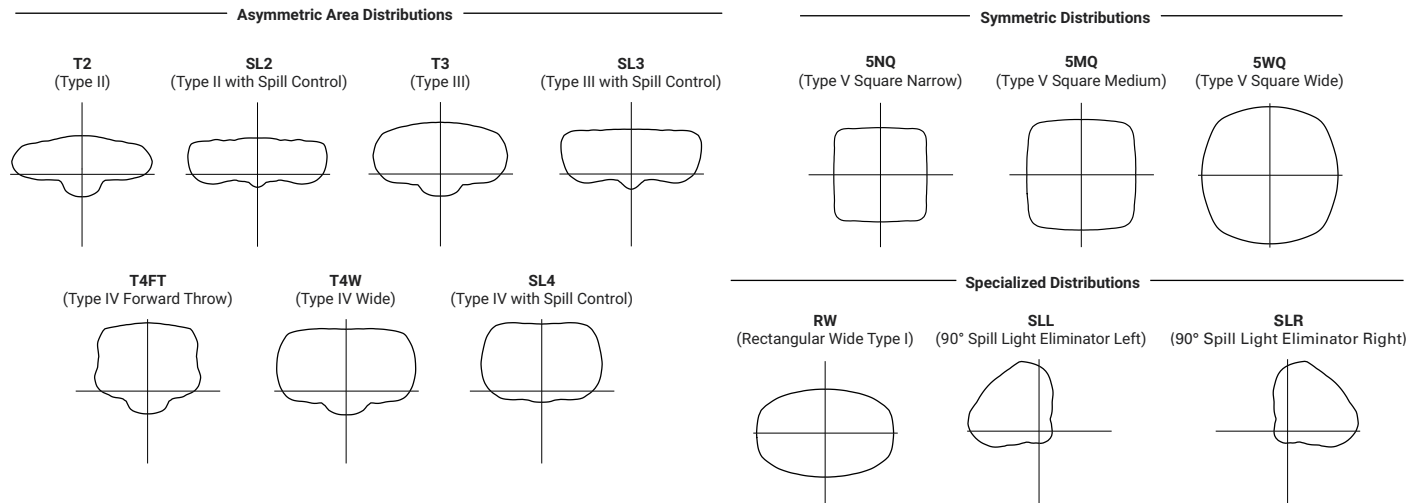
Finish

- Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness
- Heat sink is powder coated black
- RAL and custom color matches available
- Coastal Construction (CC) option available

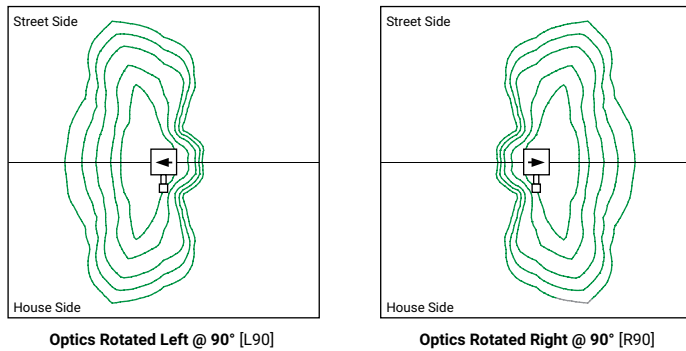
Warranty

- Five-year warranty

Optical Distributions



Optic Orientation



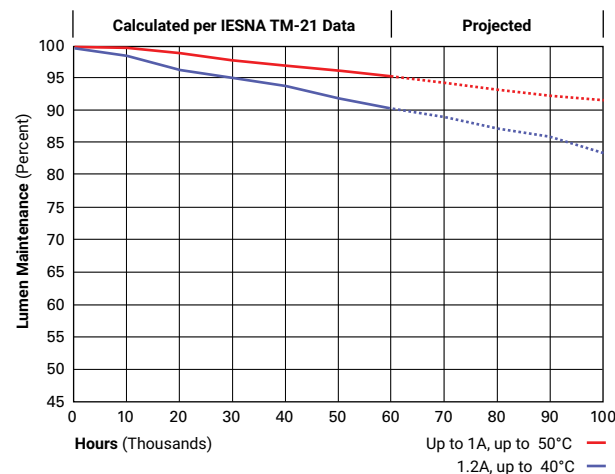
Energy and Performance Data

Lumen Multiplier

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

Lumen Maintenance

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	> 416,000
1.2A	Up to 40°C	> 90%	> 205,000



Energy and Performance Data

 View GWC Galleon Wall IES files

4000K/5000K/6000K CCT, 70 CRI

Number of Light Squares		1				2			
Drive Current		615mA	800mA	1050mA	1.2A	615mA	800mA	1050mA	1.2A
Nominal Power (Watts)		34	44	59	67	66	86	113	129
Input Current @ 120V (A)		0.30	0.39	0.51	0.58	0.58	0.77	1.02	1.16
Input Current @ 208V (A)		0.17	0.22	0.29	0.33	0.34	0.44	0.56	0.63
Input Current @ 240V (A)		0.15	0.19	0.26	0.29	0.30	0.38	0.48	0.55
Input Current @ 277V (A)		0.14	0.17	0.23	0.25	0.28	0.36	0.42	0.48
Input Current @ 347V (A)		0.11	0.15	0.17	0.20	0.19	0.24	0.32	0.39
Input Current @ 480V (A)		0.08	0.11	0.14	0.15	0.15	0.18	0.24	0.30
Optics									
T2	Lumens	4,883	5,989	7,412	8,131	9,543	11,703	14,485	15,891
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3
	Lumens per Watt	144	136	126	121	145	136	128	123
T3	Lumens	4,978	6,105	7,556	8,288	9,729	11,929	14,764	16,196
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3
	Lumens per Watt	146	139	128	124	147	139	131	126
T4FT	Lumens	5,008	6,140	7,599	8,337	9,783	11,998	14,850	16,290
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	147	140	129	124	148	140	131	126
T4W	Lumens	4,942	6,060	7,502	8,229	9,658	11,843	14,658	16,080
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3
	Lumens per Watt	145	138	127	123	146	138	130	125
SL2	Lumens	4,874	5,979	7,399	8,117	9,528	11,684	14,461	15,863
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G3
	Lumens per Watt	143	136	125	121	144	136	128	123
SL3	Lumens	4,976	6,104	7,555	8,287	9,727	11,927	14,763	16,194
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	146	139	128	124	147	139	131	126
SL4	Lumens	4,729	5,799	7,178	7,873	9,239	11,333	14,025	15,387
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4
	Lumens per Watt	139	132	122	118	140	132	124	119
5NQ	Lumens	5,134	6,296	7,793	8,547	10,033	12,303	15,226	16,704
	BUG Rating	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2
	Lumens per Watt	151	143	132	128	152	143	135	129
5MQ	Lumens	5,228	6,412	7,935	8,705	10,216	12,529	15,508	17,011
	BUG Rating	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	154	146	134	130	155	146	137	132
5WQ	Lumens	5,242	6,428	7,956	8,728	10,244	12,563	15,548	17,056
	BUG Rating	B3-U0-G1	B3-U0-G2	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	154	146	135	130	155	146	138	132
SLL/SLR	Lumens	4,373	5,365	6,640	7,283	8,547	10,481	12,973	14,231
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	129	122	113	109	130	122	115	110
RW	Lumens	5,087	6,238	7,721	8,472	9,941	12,190	15,088	16,553
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	150	142	131	126	151	142	134	128

* Nominal lumen data for 70 CRI. BUG rating for 4000K/5000K. Refer to IES files for 3000K BUG ratings.

3000K CCT, 80 CRI

Number of Light Squares		1				2			
Drive Current		615mA	800mA	1050mA	1.2A	615mA	800mA	1050mA	1.2A
Nominal Power (Watts)		34	44	59	67	66	86	113	129
Input Current @ 120V (A)		0.30	0.39	0.51	0.58	0.58	0.77	1.02	1.16
Input Current @ 208V (A)		0.17	0.22	0.29	0.33	0.34	0.44	0.56	0.63
Input Current @ 240V (A)		0.15	0.19	0.26	0.29	0.30	0.38	0.48	0.55
Input Current @ 277V (A)		0.14	0.17	0.23	0.25	0.28	0.36	0.42	0.48
Input Current @ 347V (A)		0.11	0.15	0.17	0.20	0.19	0.24	0.32	0.39
Input Current @ 480V (A)		0.08	0.11	0.14	0.15	0.15	0.18	0.24	0.30
Optics									
T2	Lumens	3,880	4,759	5,890	6,461	7,583	9,300	11,510	12,628
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G3
	Lumens per Watt	114	108	100	96	115	108	102	98
T3	Lumens	3,956	4,851	6,004	6,586	7,731	9,479	11,732	12,870
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2
	Lumens per Watt	116	110	102	98	117	110	104	100
T4FT	Lumens	3,980	4,879	6,038	6,625	7,774	9,534	11,800	12,945
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	117	111	102	99	118	111	104	100
T4W	Lumens	3,927	4,816	5,961	6,539	7,675	9,411	11,648	12,778
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3
	Lumens per Watt	116	109	101	98	116	109	103	99
SL2	Lumens	3,873	4,751	5,880	6,450	7,571	9,285	11,491	12,605
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	114	108	100	96	115	108	102	98
SL3	Lumens	3,954	4,851	6,004	6,585	7,729	9,478	11,731	12,868
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	116	110	102	98	117	110	104	100
SL4	Lumens	3,758	4,608	5,704	6,256	7,342	9,006	11,145	12,227
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B1-U0-G3	B1-U0-G3	B1-U0-G3
	Lumens per Watt	111	105	97	93	111	105	99	95
5NQ	Lumens	4,080	5,003	6,193	6,792	7,973	9,776	12,099	13,274
	BUG Rating	B2-U0-G0	B2-U0-G1	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2
	Lumens per Watt	120	114	105	101	121	114	107	103
5MQ	Lumens	4,154	5,095	6,305	6,917	8,118	9,956	12,323	13,518
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	122	116	107	103	123	116	109	105
5WQ	Lumens	4,166	5,108	6,322	6,936	8,140	9,983	12,355	13,553
	BUG Rating	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2
	Lumens per Watt	123	116	107	104	123	116	109	105
SLL/SLR	Lumens	3,475	4,263	5,276	5,787	6,792	8,329	10,309	11,309
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G3	B2-U0-G3
	Lumens per Watt	102	97	89	86	103	97	91	88
RW	Lumens	4,042	4,957	6,135	6,732	7,900	9,687	11,990	13,154
	BUG Rating	B2-U0-G1	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B3-U0-G2
	Lumens per Watt	119	113	104	100	120	113	106	102

* Nominal lumen data for 70 CRI. BUG rating for 4000K/5000K. Refer to IES files for 3000K BUG ratings.

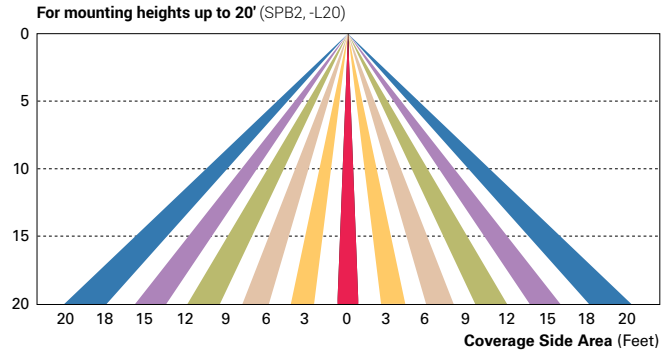
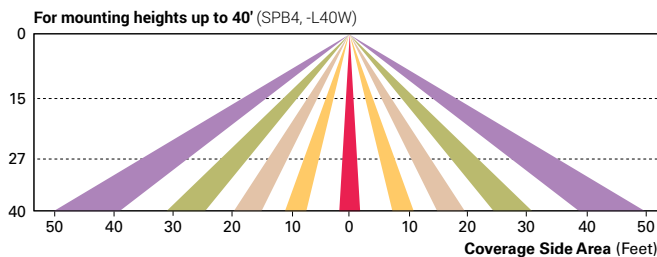
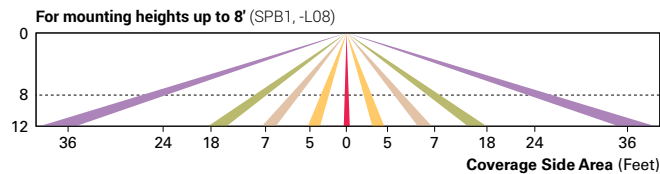
Control Options

0-10V This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

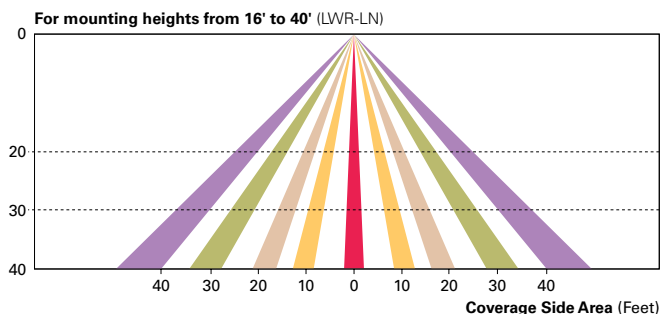
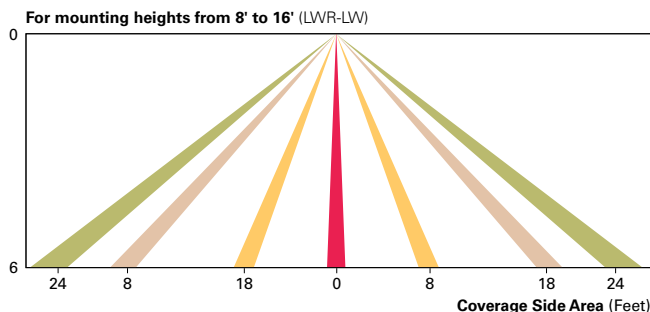
Photocontrol (BPC, PR, and PR7) Optional button-type photocontrol (BPC) and photocontrol receptacles (PR and PR7) provide a flexible solution to enable “dusk-to-dawn” lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PR7 receptacle.

After Hours Dim (AHD) This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a “dusk-to-dawn” period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

Dimming Occupancy Sensor (SPB, MS/DIM-LXX and MS-LXX) These sensors are factory installed in the luminaire housing. When the SPB or MS/DIM sensor options are selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. SPB motion sensors require the Sensor Configuration mobile application by Wattstopper to change factory default dimming level, time delay, sensitivity and other parameters. Available for iOS and Android devices. The SPB sensor is factory preset to dim down to approximately 10% power with a time delay of five minutes. The MS/DIM occupancy sensors require the FSIR-100 programming tool to adjust factory defaults.



Enlighted Wireless Control and Monitoring System (LWR-LW and LWR-LN) The Enlighted control system is a connected lighting solution, combining LED luminaires with an integrated wireless sensor system. The sensor controls the lighting system in compliance with the latest energy codes while collecting valuable data about building performance and use. Software applications utilizing energy dashboards maximize data inputs to help optimize the use of other resources beyond lighting.

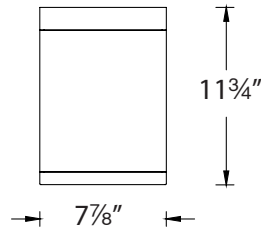


WaveLinx Wireless Outdoor Lighting Control Module (WOLC-7P-10A) The 7-pin wireless outdoor lighting control module enables WaveLinx to control outdoor area, site and flood lighting. WaveLinx controls outdoor lighting using schedules to provide ON, OFF and dimming controls based on astronomic or time schedules based on a 7 day week.

TUBE ARCHITECTURAL DS-CD08

LED Ceiling Mounts

WAC LIGHTING



Fixture Type:

TYPE C REAR PATIO

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

The latest energy efficient LED technology in an appealing cylindrical profile delivers accent lighting. Comes in various light beam angle options.

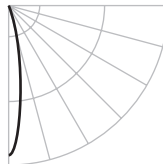

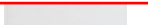


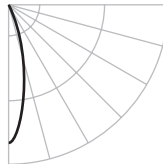
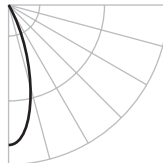
FEATURES

- High performance exterior rated LED ceiling light
- Solid aluminum construction
- 5 year warranty

SPECIFICATIONS

Input: Universal voltage 120V - 277VAC, 50/60Hz Electronic
Dimming: low voltage (ELV) : 100% - 5%
 0-10V: 100% - 1%
Light Source: High output 3 Step Mac Adam Ellipse COB
 Rated life of 60,000 hours at L70
Finish: Electrostatically powder coated, white, black, bronze and graphite
Standards: IP65 rated, ETL & cETL wet location listed, Energy Star® 2.2 rated Title 24 JA8-2016 Compliant
Operating Temp: -13°F to 122°F (-25°C to 50°C)

ORDERING NUMBER

Diameter	Watt	Beam	Beam Angle	Color	Temp	CRI	Reference Output ¹ Lumens	CBCP	Efficacy (Lm/W)	Light Distribution	Finish
		S Spot	18°	927	2700K	90	3080	15187	67		<div>BK Black </div> <div>WT White </div> <div>BZ Bronze </div> <div>GH Graphite </div>
				27	2700K	85	3865	19064	84		
				930	3000K	90	3275	16156	71		
				30	3000K	85	3935	19387	86		
				35	3500K	85	4030	19872	88		
40	4000K	85	4095	20195	89						
DS-CD08	46W	N Narrow	25°	927	2700K	90	3185	10536	68		
27	2700K			85	4000	13226	87				
930	3000K			90	3390	11208	74				
30	3000K			85	4070	13450	88				
35	3500K			85	4170	13786	91				
DS-CD0834	34W	40	4000K	85	4240	14010	92				
		F Flood	35°	927	2700K	90	3015	5475	66		
				27	2700K	85	3785	7211	82		
				930	3000K	90	3210	6111	70		
				30	3000K	85	3850	7334	84		
35	3500K			85	3945	7517	86				
40	4000K	85	4010	7639	87						

DS-CD08- -

¹Reference output shows 46W output. Multiply by 0.8 to determine output for 34W combinations.

Example: DS-CD08-N927-BK

wacighting.com
 Phone (800) 526.2588
 Fax (800) 526.2585

Headquarters/Eastern Distribution Center
 44 Harbor Park Drive
 Port Washington, NY 11050

Central Distribution Center
 1600 Distribution Ct
 Lithia Springs, GA 30122

Western Distribution Center
 1750 Archibald Avenue
 Ontario, CA 91760



BAB 1-10-24 304

CORE 200 LX

UP + DOWN SCONCE

PROJECT

Job _____
Type _____
Part # _____

Notes

TYPE H FRONT ENTRY

SPECIFICATIONS

- Source** Two Xicato XTM LED modules - up to 1300 lumens each
- CCT** 2700K, 3000K, 3500K or 4000K
- Color Consistency** 1x2 SDCM (MacAdam) along BBL, CCT +/- 40K to 70K, Duv +/- .001
- CRI (Ra)** 83 or 98
- Driver / Location** Included / Remote mount or deep canopy options
- Dimming** 0-10V or phase dimming to 10% standard; DALI, DMX and 1% dimming available
- Input Voltage** 100 to 277VAC, phase dimmable versions are 120VAC only
- Power** Up to 28 watts max, depending on LED module / driver
- Reflector** 20°, 40° or 60° - field replaceable without tools
- Material** CNC machined aluminum with stainless steel hardware
- Finish** Powder coat - TGIC polyester for exterior and interior use
- Weight** 2.5 lb. [1.1 kg], ADA Compliant Version 2.2 lb. [1 kg]
- Location** Listed for Wet & Damp locations
- Approvals** ETL Listed to UL 1598, 2108, 8750 and CSA C22.2# 9 & #250.0
- L80 Life** > 50,000 hours at 80% lumen maintenance based on IESNA LM-80-08
- Warranty** Lifetime Limited Warranty - see warranty for details
- IES Files** LM-79-08 IES files available
- Modifications** Any modification or customization is possible - consult factory



ORDERING LOGIC

Model	Driver		# of Circuits	Mounting Location	Up Direction				Down Direction				Shell Color	Options
	Location	Dimming			Output	CRI	C.C.T.	Reflector	Output	CRI	C.C.T.	Reflector		
C2LU														
	R=Remote	N=None	1	D=Damp	07=700lm	83=83	27=2700K	20=20°	07=700lm	83=83	27=2700K	20=20°	XX	ADA=ADA Compliant
	D=Deep Canopy	P=Phase	2	W=Wet	10=950lm	98=98	30=3000K	40=40°	10=950lm	98=98	30=3000K	40=40°	(see chart on page 4)	
		V=0-10V			13=1300lm		35=3500K	60=60°	13=1300lm		35=3500K	60=60°		
		Z=Other					40=4000K				40=4000K		ZZ=Custom	

Example Part Number: C2LU-RN1D-07832720-13832740-S3

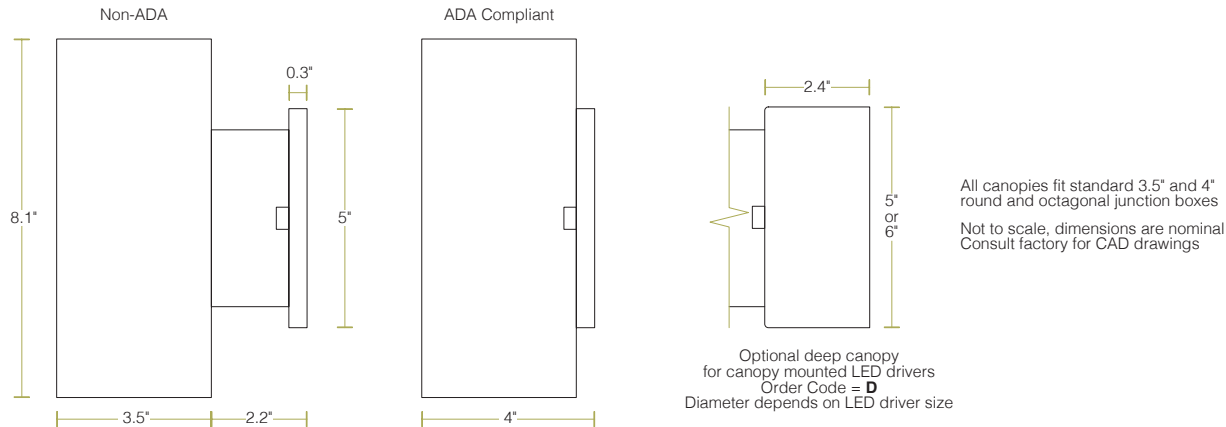
CORE 200 LX Up + Down Sconce - Remote Driver, No Dimming, 1 Circuit, Damp Location - UP= 700 lm, 83 CRI, 2700K, 20° Reflector - DOWN= 1300 lm, 83 CRI, 2700K, 40° Reflector - S3 Red Shell



CORE 200 LX

UP + DOWN SCONCE

DIMENSIONS



LED OPTIONS

Reflector Option	LES ¹	CRI	LED Specifications		
			Lumens ^{2, 3, 4}	Wattage ⁵ (W)	Efficacy ⁶ (lm/W)
20°, 40° & 60°	19mm	Ra = 83 ± 3	700	5.6	129
			950	8.2	118
			1300	11.7	111
		Ra = 98 R9 ≥ 90 R15 ≥ 95	700	7.4	97
			950	10.9	89
			1300	15.6	83

¹ LES: Light Emitting Surface diameter

² ±10%

³ Source lumens - see photometrics on page 3 for LOR to calculate delivered lumens

⁴ Higher lumen outputs are available in CORE / QUBE 300 and 400 series

⁵ Maximum luminaire wattage including LED driver = LED wattage x 1.2

⁶ Higher efficacies are available via lower drive currents - consult factory

CONTROL OPTIONS

Standard LED Drivers* (included in base price)	Order Code V = 0-10V dimming to 10%
	Order Code P = Phase dimming to 10% Compatible with both forward and reverse phase dimmers
Optional LED Drivers*	eldoLED 0-10V, DALI, or DMX dimming to 0%
	Lutron Hi-lume™ A-series, EcoSystem or forward phase dimming to 1% Lutron Hi-lume™ 5-series, EcoSystem dimming to 5%

* Standard LED drivers are suitable for Wet Location

* Optional LED drivers are suitable for Damp Location

* All LED drivers must be mounted in a deep canopy or remote

* Dual LED drivers available for independent Up + Down control

* Choosing different lumen outputs for Up + Down may require dual drivers
Consult factory for details

* For EM applications:

All LED drivers may be used with 3rd party inverter style systems



BAB 1-10-24 306

CORE 200 LX

UP + DOWN SCONCE

PHOTOMETRICS

LM-79-08 IES files available

Beam Angle	Order Code	Intensity Plot (cd) (1300lm)	Polar Plot (cd) (1300lm)	Cone Diagram (1300lm)	Description												
20°	20			<div><div>Illuminance at Center</div><div>Beam Diameter</div><table><tr><td>5'</td><td>166 fc</td><td>1.9'</td></tr><tr><td>10'</td><td>42 fc</td><td>3.8'</td></tr><tr><td>15'</td><td>18 fc</td><td>5.7'</td></tr><tr><td>20'</td><td>10 fc</td><td>7.6'</td></tr></table></div>	5'	166 fc	1.9'	10'	42 fc	3.8'	15'	18 fc	5.7'	20'	10 fc	7.6'	CBCP = 3195 cd/klm Beam Angle = 21° Field Angle = 63° LOR = 89.4% Beam = full width @ 50% Field = full width @ 90%
5'	166 fc	1.9'															
10'	42 fc	3.8'															
15'	18 fc	5.7'															
20'	10 fc	7.6'															
40°	40			<div><div>Illuminance at Center</div><div>Beam Diameter</div><table><tr><td>5'</td><td>84 fc</td><td>3.9'</td></tr><tr><td>10'</td><td>21 fc</td><td>7.9'</td></tr><tr><td>15'</td><td>9 fc</td><td>11.8'</td></tr><tr><td>20'</td><td>5 fc</td><td>15.7'</td></tr></table></div>	5'	84 fc	3.9'	10'	21 fc	7.9'	15'	9 fc	11.8'	20'	5 fc	15.7'	CBCP = 1607 cd/klm Beam Angle = 43° Field Angle = 73° LOR = 88.7% Beam = full width @ 50% Field = full width @ 90%
5'	84 fc	3.9'															
10'	21 fc	7.9'															
15'	9 fc	11.8'															
20'	5 fc	15.7'															
60°	60			<div><div>Illuminance at Center</div><div>Beam Diameter</div><table><tr><td>5'</td><td>55 fc</td><td>5.6'</td></tr><tr><td>10'</td><td>14 fc</td><td>11.3'</td></tr><tr><td>15'</td><td>6 fc</td><td>16.9'</td></tr><tr><td>20'</td><td>3 fc</td><td>22.6'</td></tr></table></div>	5'	55 fc	5.6'	10'	14 fc	11.3'	15'	6 fc	16.9'	20'	3 fc	22.6'	CBCP = 1050 cd/klm Beam Angle = 59° Field Angle = 86° LOR = 85.2% Beam = full width @ 50% Field = full width @ 90%
5'	55 fc	5.6'															
10'	14 fc	11.3'															
15'	6 fc	16.9'															
20'	3 fc	22.6'															

Beam Shaping Options

Add the order code shown below to the options box at the end of the part number:

Order Code	Description
-HL	Honeycomb Louver
-DF	Diffusion Lens
-SF	Satin finish on any standard reflector
-LS	Linear Spread Lens (60° x 1°)
-WW	Wall Wash Lens (shifts beam 20° from vertical)



BAB 1-10-24 307

CORE 200 LX

UP + DOWN SCONCE

COLOR OPTIONS

Basic Powder Coat



GW
Gloss White



SW
Satin White
AW Antimicrobial option



TW
Textured
Matte White



TB
Textured
Matte Black

Satin Anodized Effect Powder Coat



CS
Clear Silver



OB
Oil-Rubbed
Bronze

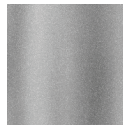


DB
Dark Bronze

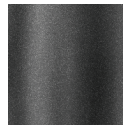


SB
Satin Black

Metallic Powder Coat



SG
Silver Gray



CG
Charcoal
Gray



CU
Copper



BR
Brass

Gloss Powder Coat (80-95% Gloss)



GO
Orange
(RAL 2003)



GR
Red
(RAL 3020)



GM
Magenta
(RAL 4010)



GB
Blue
(RAL 5015)

Aluminum



BA
Brushed Aluminum
Cost adder applies.

Special Order



RAL _ _ _ _
Most RAL Classic Colors (80-95% Gloss) are available for powder coat - consult ALW. Minimum setup fee applies. See: alwusa.com/finishes for more information



CAT _ _ _ _
The complete range of powder coat colors from the Tiger Drylac and TCI catalogs are available - consult ALW. Minimum setup fee applies.

Custom



CCM _ _ _ _
Custom powder coat color matching is available - consult ALW. Premium setup fee applies.

Printed or on-screen colors are only approximations - consult actual Color Chip Set before specifying
Note: An individual setup fee will apply to each unique Special Order/Custom Finish per purchase order.
(ex: RAL 5023 and RAL 2008 are specified for multiple line items on a purchase order. 2x setup fees will apply)

DESCRIPTION

The Halo Surface Mount LED Downlight (SMD) is an low profile surface mounting luminaire with a modern look and high performance. SMD4 (4") is designed for installation in many 3-1/2" and 4" square, octagon, or round junction boxes. Supply wire adapter with LED quick wiring connector included. The SMD4 may also retrofit in 4" aperture IC and Non-IC recessed housings. Compliant with NFPA® 70, NEC® Section 410.16 (A)(3) and 410.16 (C)(5).

Catalog #	Type
Project	
Comments	Date
Prepared by	

SPECIFICATION FEATURES

HOUSING

- Non-electrically conductive polycarbonate frame.
- High impact diffuse polystyrene lens provides shielding to the light guide with no pixilation
- Stamped aluminum housing provides thermal cooling achieving L70 at 50,000 hours in IC and non-IC applications

GASKETS

- Closed cell gasket achieves restrictive airflow and wet location requirements without additional caulking

OPTICS

- Precision acrylic light guide organizes source flux into wide distribution with 1.2 – 1.4 spacing criteria useful for general area illumination

LED

- Mid power led array provide a uniform source with high efficiency and long life.
- Available in 90 CRI minimum, R9 greater than 50 and color accuracy within 3 SDCM provide color accuracy and uniformity

DRIVER

- Integral 120V 50/60Hz constant current driver provides noise free operation.
- Continuous, flicker-free dimming from 100% to 5% with select leading or trailing edge 120V phase cut dimmers.
- Dimming to 5% is best assured using dimmers with low end trim adjustment. Consult dimmer manufacturer for compatibility and conditions of use. (Note some dimmers require a neutral in the wallbox.)
- Inline electrical quick connect and E26 adapter (provided) provides mains connections.

MOUNTING/RETENTION

- Adjustable spider plate allows for quick installation into both junction boxes and recessed housings.
- Friction blades included

ELECTRICAL JUNCTION BOX MOUNTING

- The SMD may be used in compatible electrical junction boxes in direct contact with insulation including spray foam insulation.
- Suitable for installation in many 3-1/2" and 4" square, octagon, and round electrical junction boxes.
- Installer must ensure compatibility of fit, wiring and proper mounting in the electrical junction box. This includes all applicable national and local electrical and building coded

RECESSED HOUSING MOUNTING

- May be installed in IC recessed housings in direct contact with insulation
- Note:** Not for use in recessed housing in direct contact with spray foam insulation. Refer to NEMA LSD 57-2013.

Friction Blade 4"

- Precision formed friction blades included
- For retrofit in 4" nominal housings
- Friction blade design allows the SMD to be installed in any position within the housing aperture (360 degrees)

DESIGNER SKINS (SOLD SEPARATELY)

- SMD skins are accessory rings in both round and square. These skins attach to the SMD for a permanent finish. Refer to the SMD accessories specification sheet for details.
- Matte White (Paintable)
- Satin Nickel
- Tuscan Bronze

WARRANTY

- Five year limited warranty, consult website for details. www.cooperlighting.com

COMPLIANCE

- cULus listed / certified for use with Halo housings, classified for use with other's housings, see instruction sheet for conditions of acceptability.
- Wet and Damp Location listed, airtight per ASTM-E283
- Suitable for use in closets, compliant with NFPA® 70, NEC® Section 410.16 (A)(3) and 410.16 (C)(5)
- EMI/RFI emissions per FCC 47CFR Part 15B
- Contains no mercury or lead and RoHS compliant.
- Photometric testing in accordance with IES LM-79-08
- Lumen maintenance projections in accordance with IES LM-80-08 and TM-21-11.
- Can be used for State of California Title 24 high efficacy luminaire compliance, reference the California Energy Commission Title 20 Appliance Efficiency Database for current listings.
- Can be used for International Energy Conservation Coe (IECC) and Washington State Energy Code high efficiency luminaire compliance



SMD4 Series

4 inch Round and Square

SMD4R SMD4S

4" Surface Mount Downlight

Suitable for ceiling or wall electrical junction boxes

Suitable for 4" recessed housing retrofit

Non-conductive Dead Front

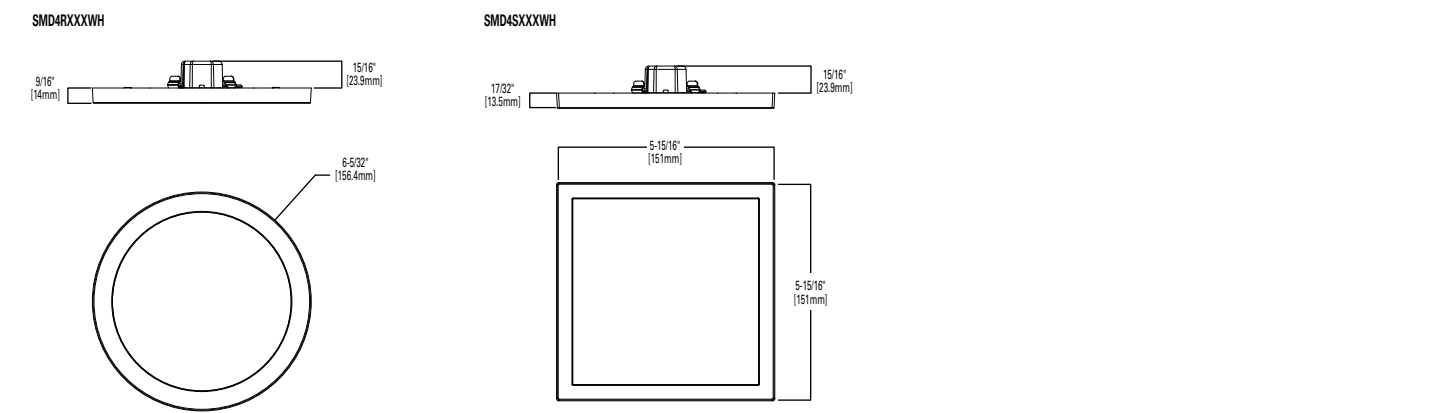
ENERGY DATA

	Round	Square
Lumens (5000K models)	786	810
Input Power	9.7 W	10 W
Input Current	0.0811 A	0.0829 A
Efficiency	81 lm/W	81 lm/W
THD	13.3	13.2
Input Voltage	120V	
Frequency	50/60 Hz	
CRI	90 CRI	
Power Factor	0.99	
T Ambient	-30 - +40°C	
Sound Rating	Class A	



Refer to ENERGY STAR® Qualified Products List.
Can be used to comply with California Title 24 High Efficacy requirements.
Certified to California Appliance Efficiency Database under JA8.

DIMENSIONS



ORDERING INFORMATION

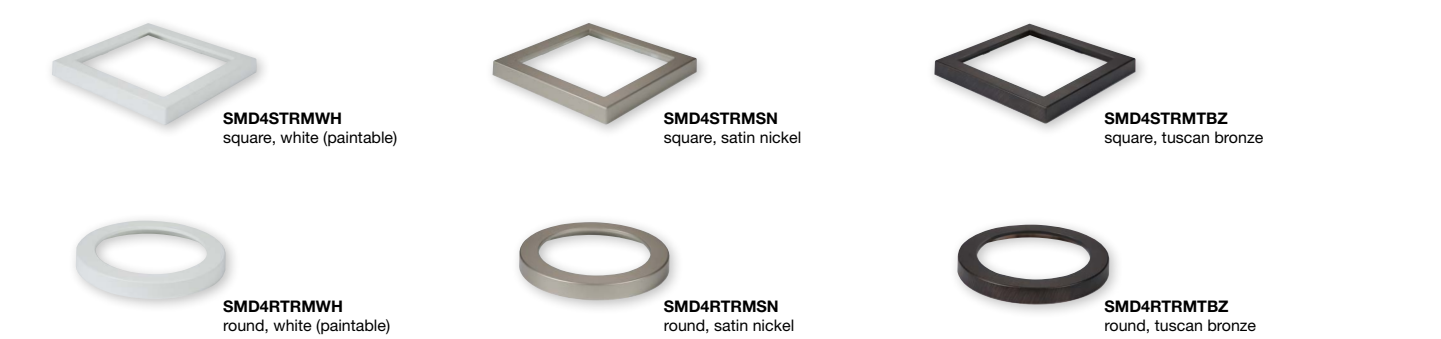
SAMPLE NUMBER: SMD4R6930WH=4" Round Surface Mount Downlight, 90CRI, 3000K
Junction Box Installation: Order junction box separately, as supplied by others, to complete installation.
Recessed Installation: Order Halo recessed housing separately to complete installation.

Models	Lumens	CRI / CCT	Finish	Accessories
SMD4R = 4" Round Surface Mount Downlight, 120V SMD4S = 4" Square Surface Mount Downlight, 120V	6 =600 lumen series	927 =90CRI, 2700K 930 =90CRI, 3000K 935 =90CRI, 3500K 940 =90CRI, 4000K 950 =90CRI, 5000K	WH =Mate White	Designer Trims SMD4RTRMSN =4" Round SMD Satin Nickel SMD4RTRMTBZ =4" Round SMD Tuscan Bronze SMD4RTRMWH =4" Round SMD White (paintable) SMD4STRMSN =4" Square SMD Satin Nickel SMD4STRMTBZ =4" Square SMD Tuscan Bronze SMD4STRMWH =4" Square SMD White (paintable) T24HWKIT = Title 24 Cable harness kit used to convert incandescent and low voltage housings to LED HE26LED = E26 Screw base adapter for retrofit (included)



ACCESSORIES

Designer Trims



HOUSING COMPATIBILITY

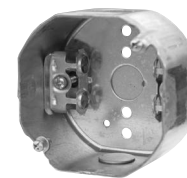
The SMD4 is UL Listed in Halo recessed housings, and is UL Classified for use with any 4 inch diameter recessed housing constructed of steel or aluminum with an internal volume that exceeds 62.3 in³ in addition to those noted below:

Compatible Halo LED Housings with LED luminaire connector (high-efficacy compliant)		
HALO LED	Recessed Can Size	Catalog Number
	4"	H995ICAT, H995RICAT, H245ICAT, H245RICAT
Compatible Halo Incandescent E26 Screwbase Housings		
HALO	Recessed Can Size	Catalog Number
	4"	H99ICAT, H99TAT, H99RTAT, E4ICATSB, E4TATSB, E4RTATSB

COMPATIBLE WITH COOPER LIGHTING SOLUTIONS' CROUSE-HINDS JUNCTION BOXES



TP316
for non-metallic cable
4" x 4" x 2-1/8"
(102mm x 102mm x 54mm)



TP317
for metal clad cable
4" x 4" x 2-1/8"
(102mm x 102mm x 54mm)

- **TP316** - for non-metallic cable
- **TP317** - for metal clad cable
- UL Listed
- Refer to www.crouse-hinds.com

COMPATIBLE WITH MANY OTHER JUNCTION BOXES*



4" octagon light fixture/fan steel box
4" x 4" x 2-1/8"
(102mm x 102mm x 54mm)



4" octagon steel box
4" x 4" x 1-1/2"
(102mm x 102mm x 38mm)



4" square deep steel box
4" x 4" x 2-1/8"
(102mm x 102mm x 54mm)



4" square standard steel box
4" x 4" x 1-1/2"
(102mm x 102mm x 38mm)



4" round new work non-metallic light fixture/fan box
4" diameter x 2-3/16"
(102mm x 56mm)



3-1/2" round new work non-metallic ceiling box
3-1/2" diameter x 2-3/4"
(89mm x 70mm)



3-1/2" round old work non-metallic box
4-1/4" O.D. flange, 3-1/2" I.D. x 2-5/8"
(108mm O.D., 89mm I.D. x 67mm)



4" round surface mount box
4" diameter x 1-1/2"
(102mm x 38mm)
Requires SLD4RAD adapter

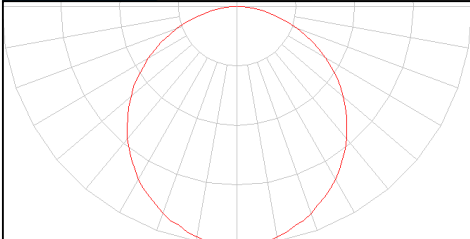


4" round new work non-metallic box with hanger bar assembly
4" diameter x 2-3/16" (102mm x 56mm)

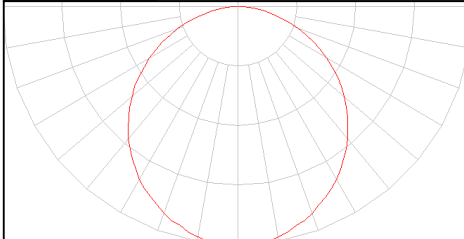
*This is a representative list of compatible junction boxes only. Information contained in this literature about other manufacturers' products is from published information made available by the manufacturer and is deemed to be reliable, but has not been verified. Cooper Lighting Solutions makes no specific recommendation on product selection and there are no warranties of performance or compatibility implied. Installer must determine that site conditions are suitable to allow proper installation of the mounting bracket in the box.

PHOTOMETRIC DATA

SMD4R6927WH		
Luminaire lumens		690
Input watts		9.5
LER (LPW)		73
Spacing Criteria	0-180	1.26
	90-270	1.26
	Diagonal	1.38
Beam angle (degrees)		112
Field angle (degrees)		162
Max. Candela		243
Zonal lumen	Lumens	% Lumens
0-30	187	27.2%
0-40	306	44.5%
0-60	542	78.6%
0-90	690	100.00%



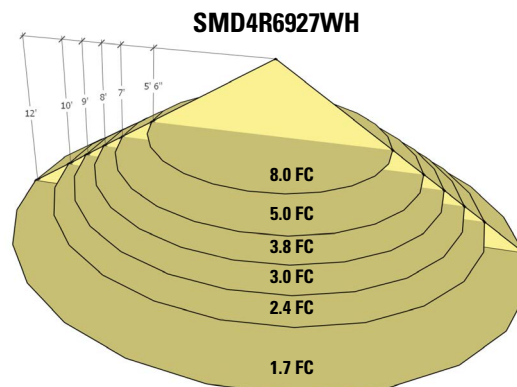
SMD4S6927WH		
Luminaire lumens		750
Input watts		9.5
LER (LPW)		79
Spacing Criteria	0-180	1.24
	90-270	1.24
	Diagonal	1.36
Beam angle (degrees)		109
Field angle (degrees)		162
Max. Candela		278
Zonal lumen	Lumens	% Lumens
0-30	207	27.6%
0-40	336	44.9%
0-60	589	78.6%
0-90	750	100.00%



Cat. No.	CRI	CCT	Lumens	Power (W)	LPW
SMD4R6927WH	93	2700	690	9.50	72.6
SMD4R6930WH	93	3000	700	9.70	72.2
SMD4R6935WH	94	3500	740	9.70	76.3
SMD4R6940WH	94	4000	760	9.80	77.6
SMD4R6950WH	91	5000	786	9.70	81.0
SMD4S6927WH	92	2700	750	9.50	78.9
SMD4S6930WH	92	3000	790	9.90	79.8
SMD4S6935WH	93	3500	740	9.90	74.7
SMD4S6940WH	93	4000	800	10.10	79.2
SMD4S6950WH	90	5000	810	10.00	81.0

Foot-candle Values at Nadir 0 degree Aiming Angle			
DD (FT)	SMD4R6927WH (FC)	SMD4S6927WH (FC)	DIA (FT)
5.5	8.0	9.2	16.3
7	5.0	5.7	20.9
8	3.8	4.3	23.8
9	3.0	3.4	26.8
10	2.4	2.8	29.7
12	1.7	1.9	35.7

DD = distance down to illuminated work plane
FC = initial foot-candles at nadir
DIA = diameter



Multiplier Table					
CCT Option	2700K	3000K	3500K	4000K	5000K
CCT Multiplier	1.00	1.014	1.042	1.083	1.083



FIXTURE B

SlimSurface is a 5/8" thick LED surface mounted luminaire with the appearance of a recessed downlight. Easy to install into most standard j-boxes, the SlimSurface LED square apertures are available as a 4" 650lm & 6" 1000lm fixture.

Project: _____

Location: _____

Cat.No: _____

Type: _____

Lamps: _____ Qty: _____

Notes: _____

Ordering guide

example: S4S830K7AL

Series	CRI	CCT	Lumens	Finish	Dimming
S4SSlimSurface 4" Square	8 80 9 90 ¹	27K 2700K	7 650lm	blank White	blank ELV / Triac (120V)
		30K 3000K		AL Aluminum	
		35K 3500K		BK Black	
		40K 4000K		W White	
S6SSlimSurface 6" Square	8 80 9 90 ¹	27K 2700K	10 1000lm	blank White	blank ELV / Triac (120V)
		30K 3000K		AL Aluminum	
		35K 3500K		BK Black	
		40K 4000K		W White	
				AL Aluminum	Z10U 0-10V (120V-277V)
				BK Black	
				W White	
				AL Aluminum	

1. Configurations using 90 CRI are only available with 2700K and 3000K CCT.



White



Black



Aluminum

Features

- Flange:** One piece plastic flange. Injection molded white, applied aluminum or black.
- Lens:** High transmittance lens allowing for smooth, comfortable light pattern.
- Power supply:** Integral class 2 driver. Factory wired electronic LED driver (see Electrical section for specifications)
- LED Strip:** Utilizes LEDs.
- Lifetime:** Expected lifetime 50,000 hours and backed by a 5-year warranty (see Philips.com/warranties for details).
- Compliance:** Non-conductive fixture for shower light application.

Electrical

Electronic power supply: RoHS compliant. Class 2 power unit. Unit tolerates sustained open circuit and short circuit output conditions without damage.

Dimming: Intended for ELV/Triac (120V) or 0-10V dimming (120V-277V) based on the configuration. Min 90°C supply conductors.

Electrical specifications	Dimming	Input volts	Input frequency	Input current	Input Power	THD Factor	Power Factor	Minimum Operating Temp.
Slim 4" 650lm	Triac	120V	50/60Hz	0.08A	9.5W	<15%	>0.9	-20°C
	0-10V	120V	50/60Hz	0.08A	10.0W	<20%	>0.9	-20°C
		277V	50/60Hz	0.04A	10.2W	<20%	>0.9	-20°C
Slim 6" 1000lm	Triac	120V	50/60Hz	0.13A	14.2W	<15%	>0.9	-20°C
	0-10V	120V	50/60Hz	0.12A	14.5W	<20%	>0.9	-20°C
		277V	50/60Hz	0.06A	14.7W	<20%	>0.9	-20°C

For more details, please see LED-DIM spec sheet.

Labels

cULus listed.
Wall-mounted: damp location only.
Ceiling-mounted: wet location.
Title 24 (JA8-2016) on 90CRI S6S models.
ENERGY STAR® certified.

S4S & S6S SlimSurface LED

BAB 1-10-24 313

Square 4" & 6" Apertures

Compatibility

Installs into standard J-box applications:



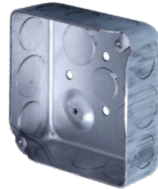
3 1/2" round (plastic)



4" square (plastic)
Not compatible with S5R



4" octagonal (metal)



4" square (metal)
Not compatible with S4S

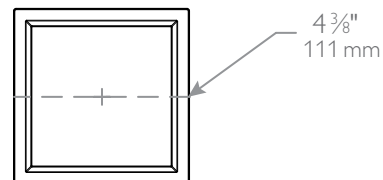
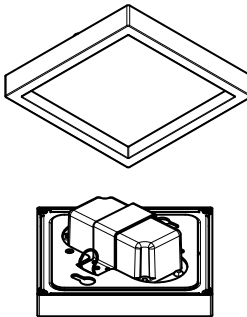
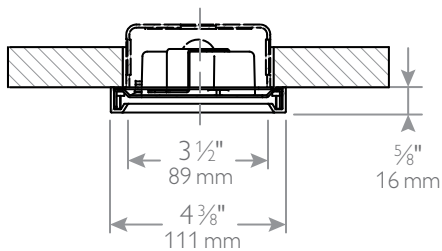


Fire rated J-box
Fire rated classification is per the ceiling and junction box ratings.

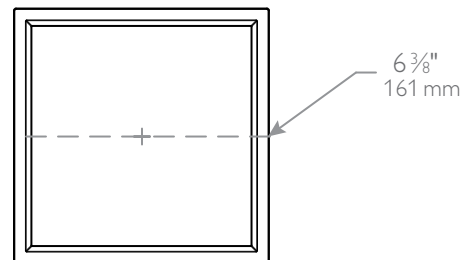
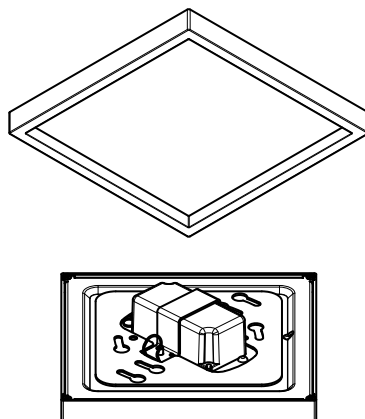
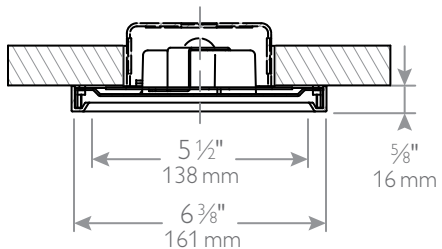
Note: A 2 1/8" deep octagon junction box is recommended for through circuit wiring applications.

Dimensions

SlimSurface LED 4" downlight



SlimSurface LED 6" downlight



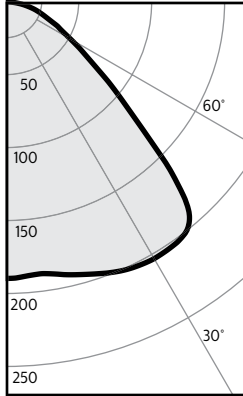
S4S & S6S SlimSurface LED

BAB 1-10-24 314

Square 4" & 6" Apertures

S4S927K7 • 10 W LED, 90 CRI, 2700 K

Candela Curves



Angle	Mean CP	Lumens
0	189	18
5	188	
10	189	
15	193	55
20	198	
25	201	93
30	203	
35	202	126
40	196	
45	153	116
50	103	
55	71	66
60	51	
65	39	38
70	28	
75	21	21
80	13	
85	4	5
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	8	7.5'
6'	5	9.0'
7'	4	10.5'
8'	3	12.0'
9'	2	13.5'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	22.5	0.40
6'	14.7	0.26
7'	10.5	0.19
8'	8.8	0.16
9'	7.0	0.13

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%	
Wall	70	50	30	10	50	10	50	10	50	10	0	
RCR	Zonal cavity method - Effective floor reflectance = 20%											
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100
	1	110	106	102	99	104	97	100	94	96	91	87
	2	101	94	88	83	92	82	89	80	85	78	74
	3	93	84	76	70	82	70	79	68	76	67	64
	4	86	75	67	61	73	60	71	59	69	59	56
	5	79	67	59	53	66	52	64	52	62	51	49
	6	73	61	52	46	60	46	58	46	56	45	43
	7	68	55	47	41	54	41	53	41	52	40	38
	8	63	50	42	37	50	37	48	36	47	36	34
	9	59	46	38	33	46	33	45	33	44	33	31
10	55	43	35	30	42	30	41	30	40	30	28	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	166	30.7%
0-40	292	54.2%
0-60	474	88.0%
0-90	539	100.0%

CRI and CCT adjustment factors

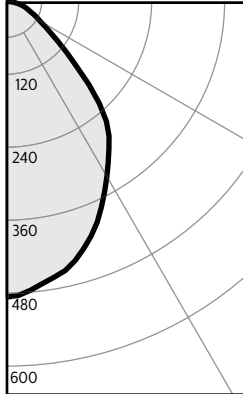
90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 943GFR

Output lumens:	539lms	Efficacy:	59.3lm/w
Spacing Criterion:	1.5	CCT:	2700K
Beam Angle:	86°	CRI:	90 min
Input Watts:	9.1W		

S6S927K10 • 14 W LED, 90 CRI, 2700 K

Candela Curves



Angle	Mean CP	Lumens
0	486	45
5	476	
10	460	
15	441	123
20	410	
25	373	170
30	333	
35	296	184
40	258	
45	193	147
50	131	
55	90	83
60	65	
65	51	50
70	39	
75	30	30
80	20	
85	9	9
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	19	5.5'
6'	14	6.6'
7'	10	7.7'
8'	8	8.8'
9'	6	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	21.8	2.80
6'	14.2	1.84
7'	10.2	1.31
8'	8.5	1.09
9'	6.8	0.88

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%	
Wall	70	50	30	10	50	10	50	10	50	10	0	
RCR	Zonal cavity method - Effective floor reflectance = 20%											
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100
	1	111	107	103	100	105	98	100	95	97	93	88
	2	103	96	90	85	94	84	90	82	87	80	77
	3	95	86	79	74	85	73	82	72	79	71	68
	4	88	78	70	65	77	64	74	63	72	63	60
	5	82	71	63	57	70	57	68	56	66	56	53
	6	76	65	57	51	64	51	62	51	61	50	48
	7	71	59	52	46	59	46	57	46	56	45	43
	8	67	55	47	42	54	42	53	42	52	41	39
	9	63	51	43	38	50	38	49	38	48	38	36
10	59	47	40	35	47	35	46	35	45	35	33	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	338	40.2%
0-40	522	62.1%
0-60	753	89.5%
0-90	841	100.0%

CRI and CCT adjustment factors

90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 957GFR

Output lumens:	841lms	Efficacy:	63.2lm/w
Spacing Criterion:	1.1	CCT:	2700K
Beam Angle:	82°	CRI:	90 min
Input Watts:	13.3W		

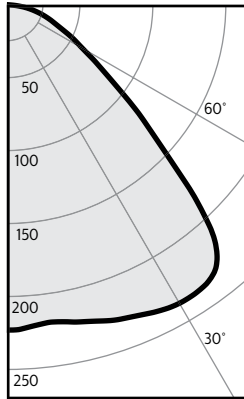
S4S & S6S SlimSurface LED

BAB 1-10-24 315

Square 4" & 6" Apertures

S4S827K7 • 10W LED, 80 CRI, 2700K

Candela Curves



Angle	Mean CP	Lumens
0	223	21
5	221	
10	221	
15	225	64
20	229	
25	233	108
30	237	
35	236	146
40	224	
45	175	133
50	121	
55	83	76
60	60	
65	44	44
70	33	
75	24	25
80	15	
85	5	6
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	9	7.5'
6'	6	9.0'
7'	5	10.5'
8'	3	12.0'
9'	3	13.5'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	25.9	0.41
6'	17.0	0.27
7'	12.1	0.19
8'	10.1	0.16
9'	8.1	0.13

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100	100	
1	110	106	102	99	104	97	100	94	96	91	87	87	87	87	87	87	
2	101	94	88	83	92	82	89	80	85	78	74	74	74	74	74	74	
3	93	84	76	70	82	70	79	69	77	67	64	64	64	64	64	64	
4	86	75	67	61	74	60	71	59	69	59	56	56	56	56	56	56	
5	79	67	59	53	66	53	64	52	62	51	49	49	49	49	49	49	
6	73	61	52	46	60	46	58	46	57	45	43	43	43	43	43	43	
7	68	55	47	41	55	41	53	41	52	41	38	38	38	38	38	38	
8	63	51	42	37	50	37	49	37	47	36	34	34	34	34	34	34	
9	59	46	38	33	46	33	45	33	44	33	31	31	31	31	31	31	
10	55	43	35	30	42	30	41	30	40	30	28	28	28	28	28	28	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	192	30.9%
0-40	338	54.4%
0-60	547	88.0%
0-90	622	100.0%

CRI and CCT adjustment factors

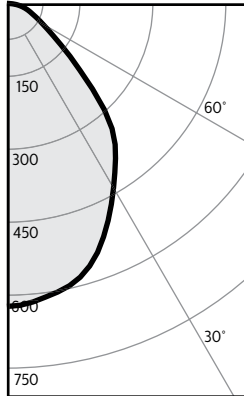
90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 944GFR

Output lumens:	622 lms	Efficacy:	67.6 lm/w
Spacing Criterion:	1.5	CCT ³ :	2700K
Beam Angle:	101°	CRI:	80 min
Input Watts ² :	9.2 W		

S6S827K10 • 14W LED, 80 CRI, 2700K

Candela Curves



Angle	Mean CP	Lumens
0	625	59
5	618	
10	604	
15	584	164
20	546	
25	494	227
30	440	
35	390	244
40	337	
45	250	193
50	170	
55	117	108
60	85	
65	65	65
70	51	
75	39	41
80	27	
85	12	13
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	25	5.5'
6'	17	6.6'
7'	13	7.7'
8'	10	8.8'
9'	8	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	24.2	3.68
6'	15.8	2.42
7'	11.3	1.73
8'	9.5	1.44
9'	7.5	1.15

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100	100	
1	111	107	103	100	105	98	100	95	97	93	88	88	88	88	88	88	
2	103	96	90	85	94	84	90	82	87	80	77	77	77	77	77	77	
3	95	86	79	74	85	73	82	72	79	71	68	68	68	68	68	68	
4	88	78	70	65	77	64	74	63	72	63	60	60	60	60	60	60	
5	82	71	63	57	70	57	68	56	66	56	53	53	53	53	53	53	
6	76	65	57	51	64	51	62	51	61	50	48	48	48	48	48	48	
7	71	59	52	46	59	46	57	46	56	45	43	43	43	43	43	43	
8	67	55	47	42	54	42	53	42	52	41	39	39	39	39	39	39	
9	63	51	43	38	50	38	49	38	48	38	36	36	36	36	36	36	
10	59	47	40	35	47	35	46	35	45	35	33	33	33	33	33	33	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	449	40.4%
0-40	693	62.3%
0-60	994	89.3%
0-90	1113	100.0%

CRI and CCT adjustment factors

90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 964GFR

Output lumens:	1113 lms	Efficacy:	83.1 lm/w
Spacing Criterion:	1.1	CCT ³ :	2700K
Beam Angle:	83°	CRI:	80 min
Input Watts ² :	13.4 W		

1. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
2. Wattage: controlled to within 5%
3. Correlated Color Temperature: within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.

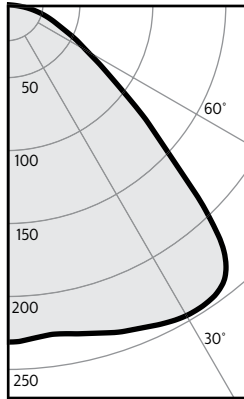
S4S & S6S SlimSurface LED

BAB 1-10-24 316

Square 4" & 6" Apertures

S4S830K7 • 10W LED, 80 CRI, 3000K

Candela Curves



Report: 945GFR

Output lumens:	653 lms	Efficacy:	71.8 lm/w
Spacing Criterion:	1.5	CCT ³ :	3000 K
Beam Angle:	86°	CRI:	80 min
Input Watts ² :	9.1 W		

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	9	7.5'
6'	6	9.0'
7'	5	10.5'
8'	4	12.0'
9'	3	13.5'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	27.2	0.40
6'	17.9	0.26
7'	12.8	0.19
8'	10.6	0.16
9'	8.5	0.13

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	106	100	
1	110	106	102	99	104	97	100	94	96	91	87	100	94	96	91	87	
2	101	94	88	83	92	82	89	80	85	78	74	89	80	85	78	74	
3	93	84	76	70	82	70	79	69	77	67	64	82	70	79	69	67	
4	86	75	67	61	74	60	71	59	69	59	56	74	60	71	59	69	
5	79	67	59	53	66	52	64	52	62	51	49	66	52	64	52	62	
6	73	61	52	46	60	46	58	46	57	45	43	60	46	58	46	57	
7	68	55	47	41	55	41	53	41	52	40	38	55	41	53	41	52	
8	63	51	42	37	50	37	49	36	47	36	34	50	37	49	36	47	
9	59	46	38	33	46	33	45	33	44	33	31	46	33	45	33	44	
10	55	43	35	30	42	30	41	30	40	30	28	42	30	41	30	40	

Zonal lumens & percentages

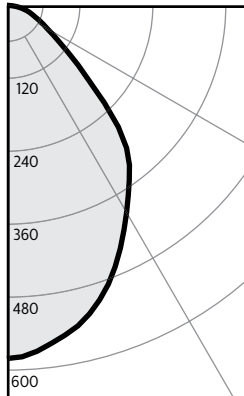
Zone	Lumens	%Luminaire
0-30	202	30.9%
0-40	355	54.3%
0-60	574	87.9%
0-90	653	100.0%

CRI and CCT adjustment factors

90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

S6S830K10 • 14W LED, 80 CRI, 3000K

Candela Curves



Report: 958GFR

Output lumens:	1006 lms	Efficacy:	75.1 lm/w
Spacing Criterion:	1.1	CCT ³ :	3000 K
Beam Angle:	82°	CRI:	80 min
Input Watts ² :	13.4 W		

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	23	5.5'
6'	16	6.6'
7'	12	7.7'
8'	9	8.8'
9'	7	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	26.2	3.33
6'	17.1	2.18
7'	12.2	1.56
8'	10.2	1.30
9'	8.1	1.04

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	106	100	
1	111	107	103	100	105	98	100	95	97	93	88	100	95	97	93	88	
2	103	96	90	85	94	84	90	82	87	80	77	90	82	87	80	77	
3	95	86	79	74	85	73	82	72	79	71	68	82	72	79	71	68	
4	88	78	70	65	77	64	74	63	72	63	60	74	63	72	63	60	
5	82	71	63	57	70	57	68	56	66	56	53	68	56	66	56	53	
6	76	65	57	51	64	51	62	51	61	50	48	62	51	61	50	48	
7	71	59	52	46	59	46	57	46	56	45	43	57	46	56	45	43	
8	67	55	47	42	54	42	53	42	52	41	39	53	42	52	41	39	
9	63	51	43	38	50	38	49	38	48	38	36	49	38	48	38	36	
10	59	47	40	35	47	35	46	35	45	35	33	46	35	45	35	33	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	405	40.2%
0-40	625	62.1%
0-60	900	89.5%
0-90	1006	100.0%

CRI and CCT adjustment factors

90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

1. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
2. Wattage: controlled to within 5%
3. Correlated Color Temperature: within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.

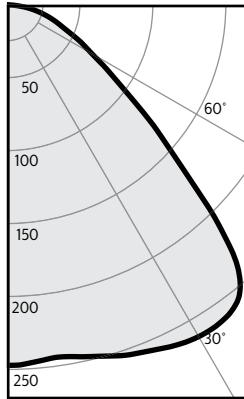
S4S & S6S SlimSurface LED

BAB 1-10-24 317

Square 4" & 6" Apertures

S4S835K7 • 10W LED, 80 CRI, 3500 K

Candela Curves



Angle	Mean CP	Lumens
0	247	23
5	245	
10	245	
15	249	71
20	255	
25	259	121
30	263	
35	262	163
40	249	
45	194	149
50	135	
55	93	86
60	67	
65	50	50
70	37	
75	27	28
80	17	
85	6	7
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	10	7.5'
6'	7	9.0'
7'	5	10.5'
8'	4	12.0'
9'	3	13.5'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	29.1	0.40
6'	19.1	0.26
7'	13.6	0.19
8'	11.4	0.16
9'	9.1	0.13

38"x38"x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100	100	
1	110	106	102	99	104	97	100	94	96	91	87	87	87	87	87	87	
2	101	94	88	83	92	82	89	80	85	78	74	74	74	74	74	74	
3	93	84	76	70	82	70	79	69	77	67	64	64	64	64	64	64	
4	86	75	67	61	74	60	71	59	69	59	56	56	56	56	56	56	
5	79	67	59	53	66	53	64	52	62	51	49	49	49	49	49	49	
6	73	61	52	46	60	46	58	46	57	45	43	43	43	43	43	43	
7	68	55	47	41	55	41	53	41	52	40	38	38	38	38	38	38	
8	63	51	42	37	50	37	49	36	47	36	34	34	34	34	34	34	
9	59	46	38	33	46	33	45	33	44	33	31	31	31	31	31	31	
10	56	43	35	30	42	30	41	30	40	30	28	28	28	28	28	28	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	216	30.9%
0-40	379	54.3%
0-60	614	87.9%
0-90	698	100.0%

CRI and CCT adjustment factors

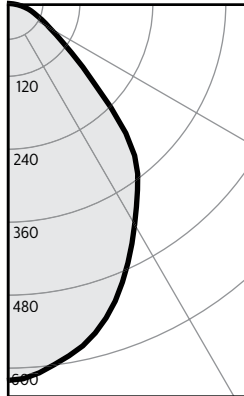
90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 946GFR

Output lumens:	698lms	Efficacy:	76.7lm/w
Spacing Criterion:	1.5	CCT ³ :	3500K
Beam Angle:	99°	CRI:	80min
Input Watts ² :	9.1W		

S6S835K10 • 14W LED, 80 CRI, 3500 K

Candela Curves



Angle	Mean CP	Lumens
0	620	58
5	610	
10	589	
15	561	157
20	521	
25	471	217
30	420	
35	375	235
40	327	
45	242	188
50	163	
55	113	106
60	82	
65	63	64
70	48	
75	37	38
80	24	
85	11	11
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	25	5.5'
6'	17	6.6'
7'	13	7.7'
8'	10	8.8'
9'	8	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	28.6	3.58
6'	18.7	2.35
7'	13.3	1.68
8'	11.2	1.40
9'	8.9	1.12

38"x38"x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	106	106	100	100	
1	111	107	103	100	105	98	100	95	97	93	88	88	88	88	88	88	
2	103	96	90	85	94	84	90	82	87	80	77	77	77	77	77	77	
3	95	86	79	74	85	73	82	72	79	71	68	68	68	68	68	68	
4	88	78	70	65	77	64	74	63	72	63	60	60	60	60	60	60	
5	82	71	63	57	70	57	68	56	66	56	53	53	53	53	53	53	
6	76	65	57	51	64	51	62	51	61	50	48	48	48	48	48	48	
7	71	59	52	46	59	46	57	46	56	45	43	43	43	43	43	43	
8	67	55	47	42	54	42	53	42	52	41	39	39	39	39	39	39	
9	63	51	43	38	50	38	49	38	48	38	36	36	36	36	36	36	
10	59	47	40	35	47	35	46	35	45	35	33	33	33	33	33	33	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	432	40.2%
0-40	667	62.1%
0-60	961	89.5%
0-90	1074	100.0%

CRI and CCT adjustment factors

90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 959GFR

Output lumens:	1074lms	Efficacy:	80.8lm/w
Spacing Criterion:	1.1	CCT ³ :	3500K
Beam Angle:	82°	CRI:	80min
Input Watts ² :	13.3W		

1. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
2. Wattage: controlled to within 5%
3. Correlated Color Temperature: within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.

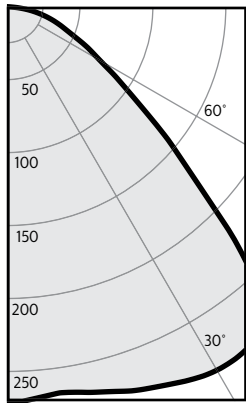
S4S & S6S SlimSurface LED

BAB 1-10-24 318

Square 4" & 6" Apertures

S4S840K7 • 10W LED, 80 CRI, 4000K

Candela Curves



Angle	Mean CP	Lumens
0	271	26
5	269	
10	269	
15	273	78
20	279	
25	284	133
30	288	
35	287	179
40	272	
45	212	163
50	148	
55	103	94
60	74	
65	55	55
70	41	
75	30	30
80	19	
85	6	8
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	11	7.5'
6'	8	9.0'
7'	6	10.5'
8'	4	12.0'
9'	3	13.5'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	31.9	0.40
6'	20.9	0.26
7'	15.0	0.19
8'	12.5	0.16
9'	10.0	0.13

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	106	106	100	
1	110	106	102	99	104	97	100	94	96	91	87	87	87	96	91	87	
2	101	94	88	83	92	82	89	80	85	78	74	74	74	85	78	74	
3	93	84	76	70	82	70	79	68	76	67	64	64	64	76	67	64	
4	86	75	67	60	73	60	71	59	69	58	56	56	56	69	58	56	
5	79	67	59	53	66	52	64	52	62	51	49	49	49	62	51	49	
6	73	61	52	46	60	46	58	46	56	45	43	43	43	56	45	43	
7	68	55	47	41	54	41	53	41	51	40	38	38	38	51	40	38	
8	63	50	42	37	50	37	48	36	47	36	34	34	34	48	36	34	
9	59	46	38	33	46	33	45	33	43	33	31	31	31	43	33	31	
10	55	43	35	30	42	30	41	30	40	30	28	28	28	40	30	28	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	237	30.9%
0-40	416	54.3%
0-60	674	87.9%
0-90	766	100.0%

CRI and CCT adjustment factors

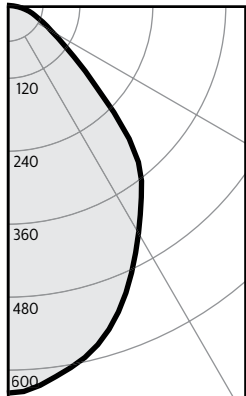
90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 947GFR

Output lumens:	766 lms	Efficacy:	84.2 lm/w
Spacing Criterion:	1.5	CCT ³ :	4000K
Beam Angle:	99°	CRI:	80 min
Input Watts ² :	9.1W		

S6S840K10 • 14W LED, 80 CRI, 4000K

Candela Curves



Angle	Mean CP	Lumens
0	637	59
5	626	
10	604	
15	577	162
20	535	
25	484	223
30	432	
35	385	241
40	336	
45	249	193
50	168	
55	116	109
60	84	
65	65	66
70	49	
75	38	39
80	25	
85	11	12
90	0	

Single unit data

Height to Lighted Plane	Initial center beam foot-candles	Beam dia. (ft)*
5'	25	5.5'
6'	18	6.6'
7'	13	7.7'
8'	10	8.8'
9'	8	9.9'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq.ft.
5'	30.3	3.68
6'	19.8	2.41
7'	14.1	1.72
8'	11.8	1.44
9'	9.4	1.15

38'x38'x10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Coefficients of utilization

Ceiling	80%				70%				50%				30%				0%
Wall	70	50	30	10	50	10	50	10	50	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%																
Room Cavity Ratio	0	119	119	119	119	116	116	111	111	106	106	100	100	106	106	100	
1	111	107	103	100	105	98	100	95	97	93	88	88	88	97	93	88	
2	103	96	90	85	94	84	90	82	87	80	77	77	77	87	80	77	
3	95	86	79	74	85	73	82	72	79	71	68	68	68	79	71	68	
4	88	78	70	65	77	64	74	63	72	63	60	60	60	72	63	60	
5	82	71	63	57	70	57	68	56	66	56	53	53	53	66	56	53	
6	76	65	57	51	64	51	62	51	61	50	48	48	48	61	50	48	
7	71	59	52	46	59	46	57	46	56	45	43	43	43	56	45	43	
8	67	55	47	42	54	42	53	42	52	41	39	39	39	52	41	39	
9	63	51	43	38	50	38	49	38	48	38	36	36	36	48	38	36	
10	59	47	40	35	47	35	46	35	45	35	33	33	33	45	35	33	

Zonal lumens & percentages

Zone	Lumens	%Luminaire
0-30	443	40.2%
0-40	685	62.1%
0-60	987	89.5%
0-90	1103	100.0%

CRI and CCT adjustment factors

90 CRI 2700K = 84%
80 CRI 2700K = 100%
80 CRI 3000K = 100%
80 CRI 3500K = 105%
80 CRI 4000K = 109%

Report: 960GFR

Output lumens:	1103 lms	Efficacy:	82.9 lm/w
Spacing Criterion:	1.1	CCT ³ :	4000K
Beam Angle:	82°	CRI:	80 min
Input Watts ² :	13.3W		

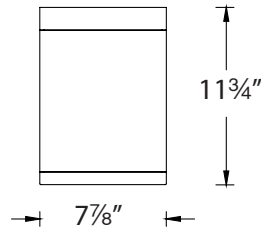
1. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.
2. Wattage: controlled to within 5%
3. Correlated Color Temperature: within specs as defined in ANSI_NEMA_ANSI C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.



TUBE ARCHITECTURAL DS-CD08

LED Ceiling Mounts

WAC LIGHTING



Fixture Type:

FIXTURE C

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

The latest energy efficient LED technology in an appealing cylindrical profile delivers accent lighting. Comes in various light beam angle options.

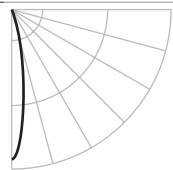
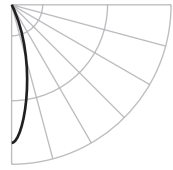
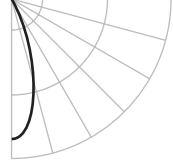
FEATURES

- High performance exterior rated LED ceiling light
- Solid aluminum construction
- 5 year warranty

SPECIFICATIONS

Input: Universal voltage 120V - 277VAC, 50/60Hz Electronic
Dimming: low voltage (ELV) : 100% - 5%
 0-10V: 100% - 1%
Light Source: High output 3 Step Mac Adam Ellipse COB
 Rated life of 60,000 hours at L70
Finish: Electrostatically powder coated, white, black, bronze and graphite
Standards: IP65 rated, ETL & cETL wet location listed, Energy Star® 2.2 rated Title 24 JA8-2016 Compliant
Operating Temp: -13°F to 122°F (-25°C to 50°C)

ORDERING NUMBER

Diameter	Watt	Beam	Angle	Color	Temp	CRI	Reference Output ¹	Efficacy (Lm/W)	Light Distribution	Finish		
DS-CD08	46W	S Spot	18°		927	2700K	90	3080	15187	67		<div>BK Black</div> <div>WT White</div> <div>BZ Bronze</div> <div>GH Graphite</div>
					27	2700K	85	3865	19064	84		
					930	3000K	90	3275	16156	71		
					30	3000K	85	3935	19387	86		
					35	3500K	85	4030	19872	88		
					40	4000K	85	4095	20195	89		
	34W	N Narrow	25°		927	2700K	90	3185	10536	68		
					27	2700K	85	4000	13226	87		
					930	3000K	90	3390	11208	74		
					30	3000K	85	4070	13450	88		
					35	3500K	85	4170	13786	91		
					40	4000K	85	4240	14010	92		
		F Flood	35°		927	2700K	90	3015	5475	66		
					27	2700K	85	3785	7211	82		
					930	3000K	90	3210	6111	70		
					30	3000K	85	3850	7334	84		
					35	3500K	85	3945	7517	86		
					40	4000K	85	4010	7639	87		

DS-CD08- -

¹Reference output shows 46W output. Multiply by 0.8 to determine output for 34W combinations.

Example: DS-CD08-N927-BK

wacighting.com
 Phone (800) 526.2588
 Fax (800) 526.2585

Headquarters/Eastern Distribution Center
 44 Harbor Park Drive
 Port Washington, NY 11050

Central Distribution Center
 1600 Distribution Ct
 Lithia Springs, GA 30122

Western Distribution Center
 1750 Archibald Avenue
 Ontario, CA 91760

Project		Catalog #		Type	
Prepared by		Notes		Date	



Metalux SNLED Lensed

Lensed LED Strip Round and Square Lens

Typical Applications

Storage / Utility • Coves • Display Cases • Task and General Area

Interactive Menu

- Order Information [page 2](#)
- Photometric Data [page 3](#)
- Product Warranty

Product Certification



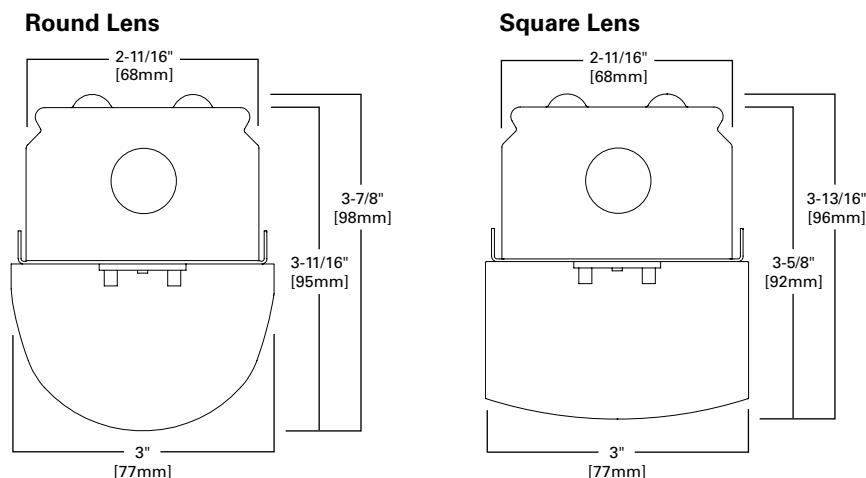
Product Features



Top Product Features

- Standard (SL) and High lumen/High Efficacy (HL) packages
- High efficiencies - up to 153 LPW
- Three different lens types for optical control
- Two different reflectors for precise distribution control
- Available CCT: 3000K, 3500K, 4000K and 5000K
- Minimum CRI of 80; 90 CRI available

Dimensional Details



[additional product diagrams](#)

Order Information

SAMPLE ORDER NUMBER: **4SNLED-LD5-46SL-LN-UNV-L835-CD1-U**
8TSNLED-LD5-200HL-SLN-UNV-EL7W-L840-CD2-U

Length	Series	Lamp Type
Length	Series	Lamp Type
2=2 ft. 4=4 ft. 8T=8 ft.	SNLED=Commercial LED Striplight ⁽⁹⁾	LD5=LED 5.0
Notes (9) DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.		

LED Lumen Packages

LED Lumen Packages ⁽¹⁾

2 ft. Round Lens			4 ft. Round Lens			8 ft. Round Lens			2 ft. Square Lens			4 ft. Square Lens			8 ft. Square Lens		
LC	LN	LW	LC	LN	LW	LC	LN	LW	SLC	SLN	SLW	SLC	SLN	SLW	SLC	SLN	SLW
18SL	18SL	16SL	18SL	18SL	16SL	60SL	60SL	54SL	19SL	19SL	16SL	19SL	19SL	15SL	60SL	64SL	50SL
22SL	22SL	20SL	22SL	22SL	20SL	68SL	68SL	61SL	24SL	24SL	20SL	23SL	23SL	19SL	70SL	70SL	58SL
26SL	26SL	23SL	26SL	26SL	23SL	75SL	75SL	67SL	27SL	27SL	22SL	27SL	27SL	22SL	78SL	77SL	64SL
34HL	32HL	30HL	30SL	30SL	27SL	83SL	83SL	74SL	37HL	37HL	30HL	30SL	30SL	25SL	84SL	84SL	70SL
Clear	Semi-frost narrow	Full frost wide	34SL	34SL	30SL	90SL	91SL	81SL	48HL	48HL	41HL	35SL	35SL	29SL	93SL	93SL	77SL
			37SL	37SL	33SL	98SL	98SL	88SL	Clear	Semi-frost narrow	Full frost wide	39SL	39SL	32SL	100SL	100SL	83SL
			41SL	41SL	37SL	105SL ⁽¹⁰⁾	106SL	95SL				42SL	42SL	35SL	108SL	108SL	90SL
			46SL	46SL	41SL	130HL ⁽¹⁰⁾	130HL ⁽¹⁰⁾	110HL				47SL	46SL	39SL	116SL	116SL	96SL
			49SL	53SL	44SL	170HL ⁽¹⁰⁾	170HL ⁽¹⁰⁾	150HL				50SL	50SL	41SL	125SL	125SL	104SL
			52SL	56SL	47SL	Clear	Semi-frost narrow	Full frost wide				54SL	54SL	45SL	131SL	130SL	108SL
			56SL	61SL	50SL							58SL	58SL	48SL	130HL	130HL	130HL
			63SL	64SL	56SL							63SL	63SL	52SL	170HL ⁽¹⁰⁾	170HL ⁽¹⁰⁾	170HL ⁽¹⁰⁾
			66SL	50HL	58SL							65SL	65SL	54SL	200HL	200HL	200HL
			52HL	54HL	44HL							77SL	78SL	64SL	Clear	Semi-frost narrow	Full frost wide
			55HL	60HL	48HL							85SL	85SL	70SL			
			60HL	74HL	54HL							54HL	54HL	46HL			
			76HL		65HL							57HL	57HL	48HL			
			Clear	Semi-frost narrow	Full frost wide							62HL	62HL	52HL			
												68HL	68HL	57HL			
												82HL	82HL	69HL			
												97HL	97HL	81HL			
												Clear	Semi-frost narrow	Full frost wide			
Notes SL denotes standard lumen output. HL denotes high lumen output. Additional LEDs to obtain lumen package. For comparable lumen packages, HL efficacy is greater than SL efficacy. 26SL: 2600 delivered lumens, standard lumen output 170HL: 17000 delivered lumens, high output. (1) Nominal lumen values. See table for value and fixture length. (10) DALI and Step-dim versions require two drivers.									Notes Same notes apply as round (column on left)								

Lens	Voltage	Options	Color Temp / CCT
Lens	Voltage	Options	Color Temp / CCT
Round LC=Clear Lens LN=Semi-Frost Lens - Narrow LW=Full Frost Lens - Wide Square SLC=Square / Flat Clear Lens SLN=Square / Flat Semi - Frost Lens - Narrow SLW=Square / Flat Full Frost Lens - Wide	UNV=Universal Voltage 120-277 347=347V ^{(12),(13),(14)} 480=480V ⁽²⁾	Emergency EL7W=7-watt, 120V-277V emergency battery pack installed ^{(2),(6)} EL14W=14-watt 120V-277V emergency battery pack installed ^{(2),(6)} GTR2=Bodine Generator Transfer Relay ⁽⁶⁾ ETRD=Iota Emergency Transfer Relay with dimming control ⁽⁶⁾ Wiring PI/CPI=Plug in and cross over plug in options ⁽⁵⁾ PC6/515P=(NEMA 5-15P) 6 ft. Cord with NEMA Straight Plug ^{(7),(8)} PC6/L715=(NEMA L7-15P) 6 ft. Cord with NEMA Twist Plug ^{(7),(8)} Motion Sensors ⁽¹¹⁾ LB-ERMS360=360° Low Bay Motion Sensor - End of Row LB-MRMS360=360° Low Bay Motion Sensor - Middle of Row HB-ERMS360=360° High Bay Motion Sensor - End of Row ⁽³⁾ HB-MRMS360=360° High Bay Motion Sensor - Middle of Row ⁽³⁾	CCT/CRI L830=3000K, 80 CRI L835=3500K, 80 CRI L840=4000K, 80 CRI L850=5000K, 80 CRI L930=3000K, 90 CRI L935=3500K, 90 CRI L940=4000K, 90 CRI L950=5000K, 90 CRI
Notes (2) 4 ft. and 8 ft. only. (12) 347V CD driver is limited to 50W max output before requiring 2 drivers (no 85W 347V solution). (13) 347 SD Driver require qty 2 transformers for Dual switch legs can not offer with EBP due to space requirements for 3 ed transformer for EBP charge circuit.(14) All other drivers at 347V requires single transformer for Driver. If EBP is included, would require second transformer THD an PF affected by transformer (no DLC). (2) 4 ft. and 8 ft. only. (3) Motion Sensor offers dimmability. (5) With integral test switch/indicator/laser test. For approximate delivered lumens multiply the lumens per watt of the desired fixture by the wattage of the emergency battery pack (100 lm/W x 7=700 lumens). IES-format photometry for luminaire under emergency operation available. (6) Used to bypass local control during outage. Must be used in conjunction with UL 1008 device (provided by others). GTR2 and ETR2 options include 2 relays on fixtures with dimming drivers. ETRD option only requires one relay when used on a dimming fixture. Must specify voltage as 120V or 277V when ordering these devices. (7) Most common C&P shown. Must specify location for cord. All "end" locations will be on the end with sensor installed. (8) Consult tech support on numerous options for this feature. (11) Sensors provided in separate externally mounted enclosure. See SRL spec sheet for fully integrated/connected sensors.			

Order Information (continued)

Driver Type	Number of Drivers	Packaging	Accessories		
Drive Type	Number of Drivers	Packaging	Accessories (Order Separately)		
CD =0-10V Dimming Driver (10%-100% Dimming) HCD =0-10V Dimming Driver (1%-100% Dimming) SD =Step-dim (Bi Level) ⁽²⁾ SLTD =Fifth Light (DALI) Driver ^{(2), (4)}	1 =1 Driver 2 =2 Drivers	U =Unit Pack	AVC-Chain/Set =36" Chain Hanger (Use 1 set per fixture) SCF =Fixed Stem Set (Specify Length) SCS =Swivel Stem Set (Specify Length) SCA =Adjustable 48" Stem Set EYE CHAIN SET/3FT =Eye Bolt Chain (Use 1 set per fixture) WG/SNF-2FT =2 ft Wire Guard WG/SNF-4FT =4 ft Wire Guard ATB/Spacer-U =Spacer 1-1/2" to 2-1/2" from ceiling (Use 2 per fixture) TOGGLE =Single Toggle No. 2 (Specify Length) Y-TOGGLE =Y Toggle No. 2 (Specify Length) GRP-SNF-U =Gripper Hanger 550702P PK =SNLED Long Row Aligner Extension	Round Replacement Lenses SNLED-LENS-LW-2FT-U =Replacement Lens 2 ft, Full Frost SNLED-LENS-LN-2FT-U =Replacement Lens 2 ft, Semi Frost SNLED-LENS-LC-2FT-U =Replacement Lens 2 ft, Clear SNLED-LENS-LW-4FT-U =Replacement Lens 4 ft, Full Frost SNLED-LENS-LN-4FT-U =Replacement Lens 4 ft, Semi Frost SNLED-LENS-LC-4FT-U =Replacement Lens 4 ft, Clear	Square Replacement Lenses SNLED-SQLENS-SLW-2FT-U =Replacement Lens 2 ft, Full Frost SNLED-SQLENS-SLN-2FT-U =Replacement Lens 2 ft, Semi Frost SNLED-SQLENS-SLC-2FT-U =Replacement Lens 2 ft, Clear SNLED-SQLENS-SLW-4FT-U =Replacement Lens 4 ft, Full Frost SNLED-SQLENS-SLN-4FT-U =Replacement Lens 4 ft, Semi Frost SNLED-SQLENS-SLC-4FT-U =Replacement Lens 4 ft, Clear
Notes (2) 4 ft. and 8 ft. only. (4) For a complete listing of Fifth Light products, visit www.eaton.com/lightingsystems					

Product Specifications

Construction

- Die-formed of cold rolled steel with numerous knockouts for easy installation
- Groove for Tong Hanger
- Convertible end plate for continuous row alignment
- Channel/wireway cover secured with sheet metal screws
- Surface, pendant or stem mounting

Controls

- 0-10V dimming drivers to 10% or to 1% options
- Step-dimming option
- Fifth Light DALI 2.0 driver option

Electrical

- Long-life LED system with electrical driver for optimal performance
- LED's available in 3000K, 3500K, 4000K or 5000K with CRI of 80 standard or optional 90 CRI
- TM21 rating of L87>60,000 hours
- Electronic drivers available for 120-277V, 347V and 480 applications
- Operating temperature of -20°C to 40°C; Ideal for cold storage environments

Emergency Battery Pack Option

- Optional 120V-277V integral emergency battery pack available in 7W or 14W
- 7-watt battery provides approximately 900 lumens; 14-watt battery approximately 1800 lumens depending on efficacy
- 90-minute backup period for code compliance
- Test switch with laser pointer allows safe testing from floor
- Patented EZ Key prevents accidental discharge during construction
- Generator transfer options available

Finish

- Multi-stage, iron phosphate pretreatment
- Highly reflective paint after fabrication
- Standard baked white enamel finish

Shielding

- Three round lensed optical distributions available: Clear with linear ribs (LC), semi-frost for narrow distribution (LN) and full frost for wide distribution (LW)
- Three square lensed optical distributions available: clear with linear ribs (SLC), semi-frost for narrow distribution (SLN) and full frost for wide distribution (SLW)

Compliance

- cULus Listed for damp locations
- RoHS compliant
- State of California Title 24 high efficacy luminaire
- DesignLights Consortium® Qualified and classified for DLC Standard and DLC Premium (refer to www.designlights.org)
- Suitable for closet use when installed to NEC 410.16 spacings standards

Warranty

- Five year warranty

Photometric Data



View IES files

Energy and Performance Data

CCT Table

Approximate Color Temperature Multiplier	
2700K	.93
3000K	.98
3500K	1.0
4000K	1.02
5000K	1.02

CRI

Lumen multiplier (80CRI to 90CRI)			
3000K	3500K	4000K	5000K
0.805	0.840	0.846	0.901

Shipping Data

Length	Wt.
2 ft.	4.3 lbs.
4 ft.	8.2 lbs.
8 ft.	15.1 lbs.

Energy and Performance Data

Wattage: Round Clear Lens

SNLED Type	Lumen Type	Length	Catalog Number**	Nominal 3500K Lumens	Wattage	lm/W
Clear Lens (LC)	Standard	2 ft.	2SNLED-LD5-18SL-LC-UNV-L8XX-CD1-U	1960	14	137.4
Clear Lens (LC)	Standard	2 ft.	2SNLED-LD5-22SL-LC-UNV-L8XX-CD1-U	2420	18	133.7
Clear Lens (LC)	Standard	2 ft.	2SNLED-LD5-26SL-LC-UNV-L8XX-CD1-U	2747	21	131.1
Clear Lens (LC)	High	2 ft.	2SNLED-LD5-34HL-LC-UNV-L8XX-CD1-U	3487	27	131.2
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-18SL-LC-UNV-L8XX-CD1-U	1890	13	145.0
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-22SL-LC-UNV-L8XX-CD1-U	2344	16	146.4
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-26SL-LC-UNV-L8XX-CD1-U	2699	18	146.3
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-30SL-LC-UNV-L8XX-CD1-U	3077	21	145.4
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-34SL-LC-UNV-L8XX-CD1-U	3567	25	143.3
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-37SL-LC-UNV-L8XX-CD1-U	3924	28	141.6
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-41SL-LC-UNV-L8XX-CD1-U	4269	31	139.6
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-46SL-LC-UNV-L8XX-CD1-U	4718	35	136.8
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-49SL-LC-UNV-L8XX-CD1-U	5051	38	134.4
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-52SL-LC-UNV-L8XX-CD1-U	5478	41	133.3
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-56SL-LC-UNV-L8XX-CD1-U	5880	46	127.4
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-63SL-LC-UNV-L8XX-CD1-U	6358	52	123.1
Clear Lens (LC)	Standard	4 ft.	4SNLED-LD5-66SL-LC-UNV-L8XX-CD1-U	6628	55	120.2
Clear Lens (LC)	High	4 ft.	4SNLED-LD5-52HL-LC-UNV-L8XX-CD1-U	5171	37	139.5
Clear Lens (LC)	High	4 ft.	4SNLED-LD5-55HL-LC-UNV-L8XX-CD1-U	5409	39	138.5
Clear Lens (LC)	High	4 ft.	4SNLED-LD5-60HL-LC-UNV-L8XX-CD1-U	5893	43	136.7
Clear Lens (LC)	High	4 ft.	4SNLED-LD5-76HL-LC-UNV-L8XX-CD1-U	7774	62	125.1
Clear Lens (LC)	Standard	8 ft.	8TSNLED-LD5-60SL-LC-UNV-L8XX-CD1-U	6154	42	145.4
Clear Lens (LC)	Standard	8 ft.	8TSNLED-LD5-68SL-LC-UNV-L8XX-CD1-U	7134	50	143.3
Clear Lens (LC)	Standard	8 ft.	8TSNLED-LD5-75SL-LC-UNV-L8XX-CD1-U	7847	55	141.6
Clear Lens (LC)	Standard	8 ft.	8TSNLED-LD5-83SL-LC-UNV-L8XX-CD1-U	8537	61	139.6
Clear Lens (LC)	Standard	8 ft.	8TSNLED-LD5-90SL-LC-UNV-L8XX-CD1-U	9437	69	136.8
Clear Lens (LC)	Standard	8 ft.	8TSNLED-LD5-98SL-LC-UNV-L8XX-CD1-U	10101	75	134.4
Clear Lens (LC)	Standard	8 ft.	8TSNLED-LD5-105SL-LC-UNV-L8XX-CD1-U	10956	82	133.3
Clear Lens (LC)	High	8 ft.	8TSNLED-LD5-130HL-LC-UNV-L8XX-CD2-U	11786	86	136.7
Clear Lens (LC)	High	8 ft.	8TSNLED-LD5-170HL-LC-UNV-L8XX-CD2-U	15549	124	125.1

* Consult factory for stock availability. ** Lumen portion of catalog number may not match actual lumens.

Energy and Performance Data

Wattage: Round Semi-frost Lens, Narrow

SNLED Type	Lumen Type	Length	Catalog Number**	Nominal 3500K Lumens	Wattage	lm/W
Semi-Frost Lens (LN)	Standard	2 ft.	2SNLED-LD5-18SL-LN-UNV-L8XX-CD1-U	1903	14	133.4
Semi-Frost Lens (LN)	Standard	2 ft.	2SNLED-LD5-22SL-LN-UNV-L8XX-CD1-U	2350	18	129.8
Semi-Frost Lens (LN)	Standard	2 ft.	2SNLED-LD5-26SL-LN-UNV-L8XX-CD1-U	2667	21	127.3
Semi-Frost Lens (LN)	High	2 ft.	2SNLED-LD5-32HL-LN-UNV-L8XX-CD1-U	3385	27	127.4
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-18SL-LN-UNV-L8XX-CD1-U	1835	13	140.8
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-22SL-LN-UNV-L8XX-CD1-U	2276	16	142.2
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-26SL-LN-UNV-L8XX-CD1-U	2620	18	142.0
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-30SL-LN-UNV-L8XX-CD1-U	2987	21	141.2
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-34SL-LN-UNV-L8XX-CD1-U	3463	25	139.2
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-37SL-LN-UNV-L8XX-CD1-U	3809	28	137.5
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-41SL-LN-UNV-L8XX-CD1-U	4144	31	135.6
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-46SL-LN-UNV-L8XX-CD1-U	4581	35	132.8
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-49SL-LN-UNV-L8XX-CD1-U	4903	38	130.4
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-53SL-LN-UNV-L8XX-CD1-U	5318	41	129.4
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-56SL-LN-UNV-L8XX-CD1-U	5708	46	123.7
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-61SL-LN-UNV-L8XX-CD1-U	6172	52	119.5
Semi-Frost Lens (LN)	Standard	4 ft.	4SNLED-LD5-64SL-LN-UNV-L8XX-CD1-U	6435	55	116.7
Semi-Frost Lens (LN)	High	4 ft.	4SNLED-LD5-50HL-LN-UNV-L8XX-CD1-U	5020	37	135.4
Semi-Frost Lens (LN)	High	4 ft.	4SNLED-LD5-54HL-LN-UNV-L8XX-CD1-U	5252	39	134.5
Semi-Frost Lens (LN)	High	4 ft.	4SNLED-LD5-60HL-LN-UNV-L8XX-CD1-U	5721	43	132.7
Semi-Frost Lens (LN)	High	4 ft.	4SNLED-LD5-74HL-LN-UNV-L8XX-CD1-U	7548	62	121.5
Semi-Frost Lens (LN)	Standard	8 ft.	8TSNLED-LD5-60SL-LN-UNV-L8XX-CD1-U	5975	42	141.2
Semi-Frost Lens (LN)	Standard	8 ft.	8TSNLED-LD5-68SL-LN-UNV-L8XX-CD1-U	6926	50	139.2
Semi-Frost Lens (LN)	Standard	8 ft.	8TSNLED-LD5-75SL-LN-UNV-L8XX-CD1-U	7619	55	137.5
Semi-Frost Lens (LN)	Standard	8 ft.	8TSNLED-LD5-83SL-LN-UNV-L8XX-CD1-U	8289	61	135.6
Semi-Frost Lens (LN)	Standard	8 ft.	8TSNLED-LD5-91SL-LN-UNV-L8XX-CD1-U	9162	69	132.8
Semi-Frost Lens (LN)	Standard	8 ft.	8TSNLED-LD5-98SL-LN-UNV-L8XX-CD1-U	9807	75	130.4
Semi-Frost Lens (LN)	Standard	8 ft.	8TSNLED-LD5-106SL-LN-UNV-L8XX-CD1-U	10636	82	129.4
Semi-Frost Lens (LN)	High	8 ft.	8TSNLED-LD5-130HL-LN-UNV-L8XX-CD2-U	11442	86	132.7
Semi-Frost Lens (LN)	High	8 ft.	8TSNLED-LD5-170HL-LN-UNV-L8XX-CD2-U	15095	124	121.5

* Consult factory for stock availability. ** Lumen portion of catalog number may not match actual lumens.

Energy and Performance Data

Wattage: Round Full-frost Lens, Wide

SNLED Type	Lumen Type	Length	Catalog Number**	Nominal 3500K Lumens	Wattage	lm/W
Full Frost Lens (LW)	Standard	2 ft.	2SNLED-LD5-16SL-LW-UNV-L8XX-CD1-U	1750	14	122.7
Full Frost Lens (LW)	Standard	2 ft.	2SNLED-LD5-20SL-LW-UNV-L8XX-CD1-U	2162	18	119.4
Full Frost Lens (LW)	Standard	2 ft.	2SNLED-LD5-23SL-LW-UNV-L8XX-CD1-U	2453	21	117.1
Full Frost Lens (LW)	High	2 ft.	2SNLED-LD5-30HL-LW-UNV-L8XX-CD1-U	2975	27	112.0
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-16SL-LW-UNV-L8XX-CD1-U	1688	13	129.5
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-20SL-LW-UNV-L8XX-CD1-U	2093	16	130.8
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-23SL-LW-UNV-L8XX-CD1-U	2410	18	130.7
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-27SL-LW-UNV-L8XX-CD1-U	2748	21	129.8
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-30SL-LW-UNV-L8XX-CD1-U	3186	25	128.0
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-33SL-LW-UNV-L8XX-CD1-U	3504	28	126.5
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-37SL-LW-UNV-L8XX-CD1-U	3812	31	124.7
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-41SL-LW-UNV-L8XX-CD1-U	4214	35	122.1
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-44SL-LW-UNV-L8XX-CD1-U	4511	38	120.0
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-47SL-LW-UNV-L8XX-CD1-U	4892	41	119.1
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-50SL-LW-UNV-L8XX-CD1-U	5251	46	113.8
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-56SL-LW-UNV-L8XX-CD1-U	5678	52	109.9
Full Frost Lens (LW)	Standard	4 ft.	4SNLED-LD5-58SL-LW-UNV-L8XX-CD1-U	5920	55	107.3
Full Frost Lens (LW)	High	4 ft.	4SNLED-LD5-44HL-LW-UNV-L8XX-CD1-U	4412	37	119.0
Full Frost Lens (LW)	High	4 ft.	4SNLED-LD5-48HL-LW-UNV-L8XX-CD1-U	4615	39	118.2
Full Frost Lens (LW)	High	4 ft.	4SNLED-LD5-54HL-LW-UNV-L8XX-CD1-U	5028	43	116.6
Full Frost Lens (LW)	High	4 ft.	4SNLED-LD5-65HL-LW-UNV-L8XX-CD1-U	6633	62	106.7
Full Frost Lens (LW)	Standard	8 ft.	8TSNLED-LD5-54SL-LW-UNV-L8XX-CD1-U	5496	42	129.8
Full Frost Lens (LW)	Standard	8 ft.	8TSNLED-LD5-61SL-LW-UNV-L8XX-CD1-U	6371	50	128.0
Full Frost Lens (LW)	Standard	8 ft.	8TSNLED-LD5-67SL-LW-UNV-L8XX-CD1-U	6371	50	128.0
Full Frost Lens (LW)	Standard	8 ft.	8TSNLED-LD5-74SL-LW-UNV-L8XX-CD1-U	7625	61	124.7
Full Frost Lens (LW)	Standard	8 ft.	8TSNLED-LD5-81SL-LW-UNV-L8XX-CD1-U	8428	69	122.1
Full Frost Lens (LW)	Standard	8 ft.	8TSNLED-LD5-88SL-LW-UNV-L8XX-CD1-U	9022	75	120.0
Full Frost Lens (LW)	Standard	8 ft.	8TSNLED-LD5-95SL-LW-UNV-L8XX-CD1-U	9785	82	119.1
Full Frost Lens (LW)	High	8 ft.	8TSNLED-LD5-110HL-LW-UNV-L8XX-CD1-U	11356	103	109.9
Full Frost Lens (LW)	High	8 ft.	8TSNLED-LD5-150HL-LW-UNV-L8XX-CD2-U	15739	158	99.5

* Consult factory for stock availability. ** Lumen portion of catalog number may not match actual lumens.

Energy and Performance Data

Wattage: Square Flat Clear Lens

SNLED Type	Lumen Type	Length	Catalog Number**	Nominal 3500K Lumens	Wattage	lm/W
Flat Clear Lens (SLC)	Standard	2 ft.	2SNLED-LD5-19SL-SLC-UNV-L8XX-CD1-U	1936	14	135.7
Flat Clear Lens (SLC)	Standard	2 ft.	2SNLED-LD5-24SL-SLC-UNV-L8XX-CD1-U	2391	18	132.1
Flat Clear Lens (SLC)	Standard	2 ft.	2SNLED-LD5-27SL-SLC-UNV-L8XX-CD1-U	2714	21	129.5
Flat Clear Lens (SLC)	High	2 ft.	2SNLED-LD5-37HL-SLC-UNV-L8XX-CD1-U	3669	27	138.1
Flat Clear Lens (SLC)	High	2 ft.	2SNLED-LD5-48HL-SLC-UNV-L8XX-CD1-U	4830	36	134.5
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-19SL-SLC-UNV-L8XX-CD1-U	1868	13	143.3
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-23SL-SLC-UNV-L8XX-CD1-U	2316	16	144.7
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-27SL-SLC-UNV-L8XX-CD1-U	2666	18	144.5
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-30SL-SLC-UNV-L8XX-CD1-U	3040	21	143.6
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-35SL-SLC-UNV-L8XX-CD1-U	3524	25	141.6
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-39SL-SLC-UNV-L8XX-CD1-U	3876	28	139.9
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-42SL-SLC-UNV-L8XX-CD1-U	4217	31	138.0
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-47SL-SLC-UNV-L8XX-CD1-U	4662	35	135.1
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-50SL-SLC-UNV-L8XX-CD1-U	4990	38	132.7
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-54SL-SLC-UNV-L8XX-CD1-U	5412	41	131.7
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-58SL-SLC-UNV-L8XX-CD1-U	5809	46	125.9
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-63SL-SLC-UNV-L8XX-CD1-U	6281	52	121.6
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-65SL-SLC-UNV-L8XX-CD1-U	6549	55	118.7
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-77SL-SLC-UNV-L8XX-CD1-U	7697	70	110.0
Flat Clear Lens (SLC)	Standard	4 ft.	4SNLED-LD5-85SL-SLC-UNV-L8XX-CD1-U	8490	85	100.4
Flat Clear Lens (SLC)	High	4 ft.	4SNLED-LD5-54HL-SLC-UNV-L8XX-CD1-U	5441	37	146.8
Flat Clear Lens (SLC)	High	4 ft.	4SNLED-LD5-57HL-SLC-UNV-L8XX-CD1-U	5692	39	145.7
Flat Clear Lens (SLC)	High	4 ft.	4SNLED-LD5-62HL-SLC-UNV-L8XX-CD1-U	6201	43	143.8
Flat Clear Lens (SLC)	High	4 ft.	4SNLED-LD5-68HL-SLC-UNV-L8XX-CD1-U	6795	48	140.8
Flat Clear Lens (SLC)	High	4 ft.	4SNLED-LD5-82HL-SLC-UNV-L8XX-CD1-U	8181	62	131.7
Flat Clear Lens (SLC)	High	4 ft.	4SNLED-LD5-97HL-SLC-UNV-L8XX-CD1-U	9705	79	122.7
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-60SL-SLC-UNV-L8XX-CD1-U	6080	42	143.6
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-70SL-SLC-UNV-L8XX-CD1-U	7048	50	141.6
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-78SL-SLC-UNV-L8XX-CD1-U	7753	50	139.9
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-84SL-SLC-UNV-L8XX-CD1-U	8435	61	138.0
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-93SL-SLC-UNV-L8XX-CD1-U	9323	69	135.1
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-100SL-SLC-UNV-L8XX-CD1-U	9980	75	132.7
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-108SL-SLC-UNV-L8XX-CD1-U	10824	82	131.7
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-116SL-SLC-UNV-L8XX-CD1-U	11618	61	125.9
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-125SL-SLC-UNV-L8XX-CD2-U	12562	69	121.6
Flat Clear Lens (SLC)	Standard	8 ft.	8TSNLED-LD5-131SL-SLC-UNV-L8XX-CD2-U	13097	75	118.7
Flat Clear Lens (SLC)	High	8 ft.	8TSNLED-LD5-130HL-SLC-UNV-L8XX-CD2-U	12402	82	143.8
Flat Clear Lens (SLC)	High	8 ft.	8TSNLED-LD5-170HL-SLC-UNV-L8XX-CD2-U	16361	103	131.7
Flat Clear Lens (SLC)	High	8 ft.	8TSNLED-LD5-200HL-SLC-UNV-L8XX-CD2-U	19411	158	122.7

* Consult factory for stock availability. ** Lumen portion of catalog number may not match actual lumens.

Energy and Performance Data

Wattage: Square Flat Semi-frost Lens, Narrow

SNLED Type	Lumen Type	Length	Catalog Number**	Nominal 3500K Lumens	Wattage	lm/W
Flat Semi-frost Lens (SLN)	Standard	2 ft.	2SNLED-LD5-19SL-SLN-UNV-L8XX-CD1-U	1931	14	135.3
Flat Semi-frost Lens (SLN)	Standard	2 ft.	2SNLED-LD5-24SL-SLN-UNV-L8XX-CD1-U	2385	18	131.7
Flat Semi-frost Lens (SLN)	Standard	2 ft.	2SNLED-LD5-27SL-SLN-UNV-L8XX-CD1-U	2706	21	129.1
Flat Semi-frost Lens (SLN)	High	2 ft.	2SNLED-LD5-37HL-SLN-UNV-L8XX-CD1-U	3659	27	137.7
Flat Semi-frost Lens (SLN)	High	2 ft.	2SNLED-LD5-48HL-SLN-UNV-L8XX-CD1-U	4816	36	134.2
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-19SL-SLN-UNV-L8XX-CD1-U	1863	13	142.9
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-23SL-SLN-UNV-L8XX-CD1-U	2309	16	144.3
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-27SL-SLN-UNV-L8XX-CD1-U	2659	18	144.1
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-30SL-SLN-UNV-L8XX-CD1-U	3032	21	143.2
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-35SL-SLN-UNV-L8XX-CD1-U	3514	25	141.2
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-39SL-SLN-UNV-L8XX-CD1-U	3866	28	139.5
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-42SL-SLN-UNV-L8XX-CD1-U	4206	31	137.6
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-46SL-SLN-UNV-L8XX-CD1-U	4649	35	134.7
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-50SL-SLN-UNV-L8XX-CD1-U	4976	38	132.4
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-54SL-SLN-UNV-L8XX-CD1-U	5397	41	131.4
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-58SL-SLN-UNV-L8XX-CD1-U	5793	46	125.6
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-63SL-SLN-UNV-L8XX-CD1-U	6264	52	121.3
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-65SL-SLN-UNV-L8XX-CD1-U	6530	55	118.4
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-78SL-SLN-UNV-L8XX-CD1-U	7676	70	109.7
Flat Semi-frost Lens (SLN)	Standard	4 ft.	4SNLED-LD5-85SL-SLN-UNV-L8XX-CD1-U	8466	85	100.1
Flat Semi-frost Lens (SLN)	High	4 ft.	4SNLED-LD5-54HL-SLN-UNV-L8XX-CD1-U	5426	37	146.4
Flat Semi-frost Lens (SLN)	High	4 ft.	4SNLED-LD5-57HL-SLN-UNV-L8XX-CD1-U	5676	39	145.3
Flat Semi-frost Lens (SLN)	High	4 ft.	4SNLED-LD5-62HL-SLN-UNV-L8XX-CD1-U	6184	43	143.4
Flat Semi-frost Lens (SLN)	High	4 ft.	4SNLED-LD5-68HL-SLN-UNV-L8XX-CD1-U	6776	48	140.5
Flat Semi-frost Lens (SLN)	High	4 ft.	4SNLED-LD5-82HL-SLN-UNV-L8XX-CD1-U	8158	62	131.3
Flat Semi-frost Lens (SLN)	High	4 ft.	4SNLED-LD5-97HL-SLN-UNV-L8XX-CD1-U	9679	79	122.4
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-64SL-SLN-UNV-L8XX-CD1-U	6063	42	143.2
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-70SL-SLN-UNV-L8XX-CD1-U	7028	50	141.2
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-77SL-SLN-UNV-L8XX-CD1-U	7731	55	139.5
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-84SL-SLN-UNV-L8XX-CD1-U	8411	61	137.6
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-93SL-SLN-UNV-L8XX-CD1-U	9297	69	134.7
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-100SL-SLN-UNV-L8XX-CD1-U	9952	75	132.4
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-108SL-SLN-UNV-L8XX-CD1-U	10794	82	131.4
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-116SL-SLN-UNV-L8XX-CD1-U	11586	92	125.6
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-125SL-SLN-UNV-L8XX-CD2-U	12527	103	121.3
Flat Semi-frost Lens (SLN)	Standard	8 ft.	8TSNLED-LD5-130SL-SLN-UNV-L8XX-CD2-U	13061	110	118.4
Flat Semi-frost Lens (SLN)	High	8 ft.	8TSNLED-LD5-130HL-SLN-UNV-L8XX-CD2-U	12368	86	143.4
Flat Semi-frost Lens (SLN)	High	8 ft.	8TSNLED-LD5-170HL-SLN-UNV-L8XX-CD2-U	16316	124	131.3
Flat Semi-frost Lens (SLN)	High	8 ft.	8TSNLED-LD5-200HL-SLN-UNV-L8XX-CD2-U	19357	158	122.4

* Consult factory for stock availability. ** Lumen portion of catalog number may not match actual lumens.

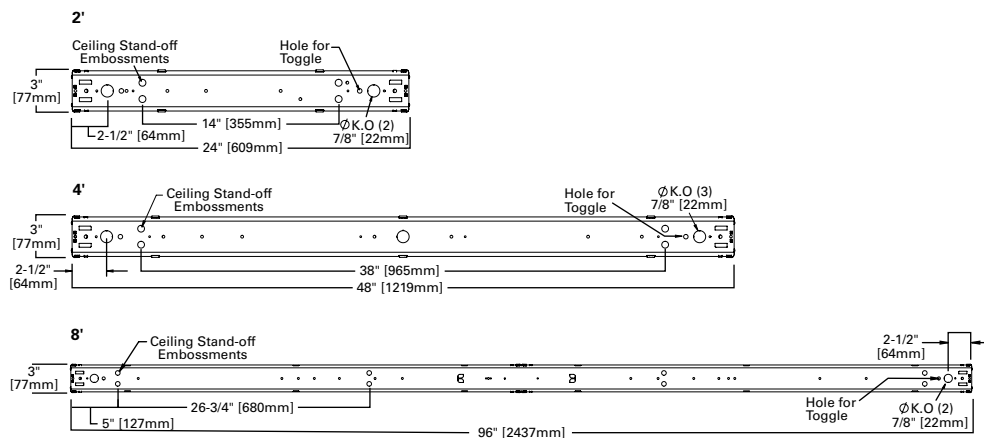
Energy and Performance Data

Wattage: Square Flat Full-frost Lens, Wide

SNLED Type	Lumen Type	Length	Catalog Number**	Nominal 3500K Lumens	Wattage	lm/W
Flat Full-frost Lens (SLW)	Standard	2 ft.	2SNLED-LD5-16SL-SLW-UNV-L8XX-CD1-U	1604	14	112.4
Flat Full-frost Lens (SLW)	Standard	2 ft.	2SNLED-LD5-20SL-SLW-UNV-L8XX-CD1-U	1981	18	109.4
Flat Full-frost Lens (SLW)	Standard	2 ft.	2SNLED-LD5-22SL-SLW-UNV-L8XX-CD1-U	2248	21	107.3
Flat Full-frost Lens (SLW)	High	2 ft.	2SNLED-LD5-30HL-SLW-UNV-L8XX-CD1-U	3077	27	115.8
Flat Full-frost Lens (SLW)	High	2 ft.	2SNLED-LD5-41HL-SLW-UNV-L8XX-CD1-U	4051	36	
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-15SL-SLW-UNV-L8XX-CD1-U	1547	13	118.7
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-19SL-SLW-UNV-L8XX-CD1-U	1918	16	119.8
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-22SL-SLW-UNV-L8XX-CD1-U	2209	18	119.7
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-25SL-SLW-UNV-L8XX-CD1-U	2518	21	119.0
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-29SL-SLW-UNV-L8XX-CD1-U	2919	25	117.3
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-32SL-SLW-UNV-L8XX-CD1-U	3211	28	115.9
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-35SL-SLW-UNV-L8XX-CD1-U	3494	31	114.3
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-39SL-SLW-UNV-L8XX-CD1-U	3862	35	111.9
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-41SL-SLW-UNV-L8XX-CD1-U	4134	38	110.0
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-45SL-SLW-UNV-L8XX-CD1-U	4483	41	109.1
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-48SL-SLW-UNV-L8XX-CD1-U	4812	46	104.3
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-52SL-SLW-UNV-L8XX-CD1-U	5203	52	100.7
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-54SL-SLW-UNV-L8XX-CD1-U	5425	55	98.4
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-64SL-SLW-UNV-L8XX-CD1-U	6376	70	91.1
Flat Full-frost Lens (SLW)	Standard	4 ft.	4SNLED-LD5-70SL-SLW-UNV-L8XX-CD1-U	7033	48	83.1
Flat Full-frost Lens (SLW)	High	4 ft.	4SNLED-LD5-46HL-SLW-UNV-L8XX-CD1-U	4564	37	123.1
Flat Full-frost Lens (SLW)	High	4 ft.	4SNLED-LD5-48HL-SLW-UNV-L8XX-CD1-U	4774	39	122.2
Flat Full-frost Lens (SLW)	High	4 ft.	4SNLED-LD5-52HL-SLW-UNV-L8XX-CD1-U	5201	43	120.6
Flat Full-frost Lens (SLW)	High	4 ft.	4SNLED-LD5-57HL-SLW-UNV-L8XX-CD1-U	5699	48	118.1
Flat Full-frost Lens (SLW)	High	4 ft.	4SNLED-LD5-69HL-SLW-UNV-L8XX-CD1-U	6862	62	110.4
Flat Full-frost Lens (SLW)	High	4 ft.	4SNLED-LD5-81HL-SLW-UNV-L8XX-CD1-U	8141	79	102.9
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-50SL-SLW-UNV-L8XX-CD1-U	5037	42	119.0
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-58SL-SLW-UNV-L8XX-CD1-U	5838	50	117.3
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-64SL-SLW-UNV-L8XX-CD1-U	6422	55	115.9
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-70SL-SLW-UNV-L8XX-CD1-U	6987	61	114.3
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-77SL-SLW-UNV-L8XX-CD1-U	7723	69	111.9
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-83SL-SLW-UNV-L8XX-CD1-U	8267	75	110.0
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-90SL-SLW-UNV-L8XX-CD1-U	8966	82	109.1
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-96SL-SLW-UNV-L8XX-CD1-U	9624	92	104.3
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-104SL-SLW-UNV-L8XX-CD1-U	10406	103	100.7
Flat Full-frost Lens (SLW)	Standard	8 ft.	8TSNLED-LD5-108SL-SLW-UNV-L8XX-CD1-U	10850	110	98.4
Flat Full-frost Lens (SLW)	High	8 ft.	8TSNLED-LD5-130HL-SLW-UNV-L8XX-CD2-U	10402	86	120.6
Flat Full-frost Lens (SLW)	High	8 ft.	8TSNLED-LD5-170HL-SLW-UNV-L8XX-CD2-U	13723	124	110.4
Flat Full-frost Lens (SLW)	High	8 ft.	8TSNLED-LD5-200HL-SLW-UNV-L8XX-CD2-U	16281	158	102.9

* Consult factory for stock availability. ** Lumen portion of catalog number may not match actual lumens.

Dimensional and Mounting Details



DESCRIPTION

The LED APX series is UL924 code compliant solution for indoor exit requirements. It is available as AC only (APX6) or self-powered (APX7) with a maintenance free nickel cadmium battery. The self-powered version will operate for a minimum of 90 minutes during a power outage. All models feature an LED source available in red or green, are field configurable for single or double face and are universal mount (ceiling, wall or end). The polycarbonate housing is available in white or black.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Electrical

- Dual voltage input 120/277 VAC, 60Hz
- Solid-State voltage limited charger (APX7)
- Brownout circuit (APX7)
- Test switch / Power indicator light (APX7)

Housing Construction

- All components are injection molded, color stable, high impact thermoplastic material
- Available in a white or black finish
- Components are of snap-fit construction to facilitate under 5-minute installation
- Reinforcing ribs throughout to provide maximum strength connections
- All components including battery and electronics are located inside the exit housing

- Snap-out or snap-in chevron directional indicators have full 3/4" stroke
- Universal exits can be field configured as single face or double face
- Snap-fit canopy with mounting screws included with all exits
- Exit can be ceiling, wall, or end mounted
- Universal J-box mounting pattern
- Operating temperature range 10 °C to 40 °C

Battery

- Sealed nickel cadmium
- Maintenance free, long life
- Full recharge time: 24 hrs (max.)

Code Compliance

- UL 924 Listed
- UL Damp Location Listed
- Life Safety NFPA 101
- NEC/OSHA
- Most State and Local Codes
- operating temperature range 10 °C to 40 °C
- California Energy Code compliant

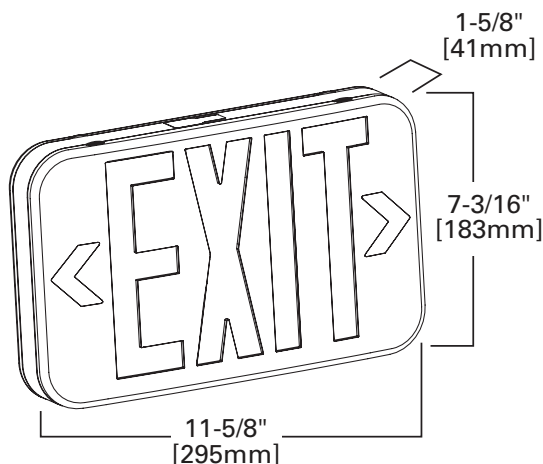
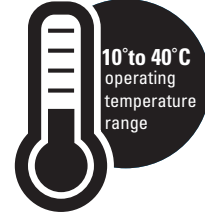
Lamp Data

- AC LED: Long life LED lamps provide uniform diffused illumination
- DC: LED DC lamps (Brighter in emergency mode, APX7)

Warranty

- Five-year warranty
- Seven-year prorated battery warranty

T20 Certified to California Title 20 Appliance Database



APX SERIES

THERMOPLASTIC EXIT
AC ONLY SELF POWERED
EMERGENCY
LED LAMPS
EXIT LIGHTING

ENERGY DATA

Maximum power consumption under all charge conditions:

Sealed Nickel Cadmium Battery LED Exits - Red

Input Power:
120V = .99W
277V = 1.14W
Input Current (Max.):
120V = .07A
277V = .07A
Power Factor:
120V = >.12
277V = >.06

Energy Data AC Only LED Exits - Red

Input Power:
120V = 1.31W
277V = 1.74W
Input Current (Max.):
120V = .07A
277V = .08A
Power Factor:
120V = >.12
277V = >.08

LED Exits - Green

Input Power:
120V = .93W
277V = 1.05W
Input Current (Max.):
120V = .07A
277V = .07A
Power Factor:
120V = >.11
277V = >.05

LED Exits - Green

Input Power:
120V = 1.33W
277V = 1.76W
Input Current (Max.):
120V = .07A
277V = .07A
Power Factor:
120V = >.05
277V = >.03

ORDERING INFORMATION

SAMPLE NUMBER: APX7RBK

Series	Battery	Face Options	Letter Colors	Housing Color	Remote Heads Powered
APX	6 = no battery (AC only) 7 = nickel cadmium battery	_ = Universal	R = Red G = Green	_ = White BK = Black	APX6R, APX6G, APX6RBK, APX6GBK APX7R, APX7G, APX7RBK, APX7GBK

TECHNICAL DATA

Lamps

Self-Powered LED versions of the All Pro Emergency Series Exits use energy efficient, long life LEDs to provide uniform diffuse illumination of the exit face. Both the red and green LEDs require no maintenance and consume a total of 2.0 watts. The low operating costs and zero maintenance requirement makes LED lamps the wisest choice for exit signs today. Emergency illumination is provided by LED lamps,

Housing Construction

Rugged, durable, injection molded thermoplastic materials are used throughout the All Pro Emergency Series Exits. All structural components are designed with reinforcing ribs to add additional rigidity and to maximize structural integrity. These materials are impact and scratch resistant, and they have been UV stabilized to resist discoloration due to age and ultraviolet radiation. All components are designed to be of snap-fit construction - no mechanical fasteners - to facilitate installation in under 5-minutes. Any components required for installation (wirenuts, wire leads, universal metal J-box bracket, etc.) are all included with each exit. The universal design of the All Pro Series Exits enables universal exits to be configured as single face or double face in the field. All Self-Powered All Pro Series Exits can be wall, ceiling, or end mounted; a rugged, snap-fit, low profile canopy with captive screws is included with every exit for ceiling and end mounting applications. The housings are available with a white or black finish.

Lens

Lenses are made from durable impact resistant thermoplastic. All exit faces are designed with full 3/4" stroke snap-out or snap-in chevron directional indicators to insure maximum visibility and compliance with the latest codes.

Solid-State Charger (APX7)

Supplied with a 120/277 VAC, voltage regulated solid-state charger. Immediately upon restoration of AC current after a power failure, the charger provides a high charge rate. The charge circuit reacts to the condition of the battery and regulates the charging process in order to maintain peak battery capacity and maximize battery life. Solid-state construction recharges the battery following a power failure in accordance with UL 924.

Brownout Circuit (APX7)

The brownout circuit on All Pro exits monitors the flow of AC current to the exit and activates the emergency lighting system when a predetermined reduction of AC power occurs. This dip in voltage will cause most ballasted fixtures to extinguish causing loss of normal lighting even though a total power failure has not occurred.

Test Switch/Power Indicator Light (APX7)

A test switch located on the bottom of the exit permits the activation of the emergency circuit for a complete operational systems check. The Power Indicator Light provides visual assurance that the AC power is on.

Sealed Nickel Cadmium Battery

All Pro Emergency sealed nickel cadmium batteries are maintenance free with a life expectancy of 10 years. The sealed rechargeable nickel cadmium battery offers high discharge rates and stable performance over a wide range of temperatures. The specially designed resealable vent automatically controls cell pressure, assuring safety and reliability. This battery is best suited for harsh ambient temperatures because the electrolyte is not active in the electrochemical process.

Warranty

The All Pro Series exit signs are backed by a five-year warranty.



Because Lighting Speaks Volumes

V1185-65

1-Light Indoor Foundry Bronze Downrod Mini Pendant
with Bell-Shaped Bowl

Catalog #: BAB 1-10-24 332

Type: **FIXTURE F**

Project:

Prepared By:

Description

This indoor foundry bronze downrod mini pendant features a bell-shaped bowl. Enjoy this piece's sleek, modern design. Clean, minimal, and solid color design blends in seamlessly with surroundings and existing décor. Compact light fits easily in small spaces. Open/uncovered bell-shaped bowl provides convenient access for quick and easy light bulb replacement and helps prevent dust accumulation. Perfect complement to kitchens, islands, dining rooms, bars, studies, desks, restaurants, and many other indoor areas. Suitable for dry locations only. Beautifully finished in sophisticated foundry bronze.

Downrod Model #	V0090-65
Downrod Quantity	3
Downrod Size (in.)	12
Sloped Ceiling Swivel Included?	Yes (Up to 90 Degrees)
Electrical Wire Length (ft.)	8
Installation Location	Dry
Light #	1
Watts per Light (W)	75
Total Wattage (W)	75
Light Bulb(s) Included?	No
Dimmable?	Yes
Base	E26
Voltage (Volts)	120V
Safety Ratings	cULus Listed
Assembly	Assembly Required
Accessory 1 (Sold Separately)	V0090-65 12" Foundry Bronze Downrod Stem
Accessory 2 (Sold Separately)	V0089-65 6" Foundry Bronze Downrod Stem



Specifications

Style	Modern
Type of Lighting	Indoor Hanging Lighting
Product Type	Pendant
Product Subtype	Mini
Height (in.)	9
Width (in.)	6.5
Length or Extension/Projection (in.)	6.5
Finish	Foundry Bronze
Main Material	Steel
Other Material	Foundry Bronze Bell-Shaped Bowl
Light Direction	Down
Installation/Mounting Position	Downward
Downrod Stems Included?	Yes

At a Glance

- Sturdy, Exquisite Construction
- Stunning Bell-Shaped Foundry Bronze Bowl
- Perfect Complement to Kitchens, Islands, Dining Rooms, Bars, Studies, Desks, Restaurants, and Many Other Indoor Areas
- Sophisticated Foundry Bronze Finish
- Modern Design
- Clean, Minimal, and Solid Color Design Blends in Seamlessly with Surroundings and Existing Décor
- Open/Uncovered Bell-Shaped Bowl Provides Convenient Access for Quick and Easy Light Bulb Replacement and Helps Prevent Dust Accumulation
- Compact Light Fits Easily in Small Spaces
- Medium Base (E26) Compatible with Incandescent, Halogen, Self-Ballast-Fluorescent, and LED Light Bulbs
- Compatible with All Dimmers
- Suitable for Dry Locations Only
- Heat-Resistant Components Withstand Up to 75 Watts
- 1-Light Fixture (Bulb Not Included)
- Three FREE 12" Downrod Stems (Included with Purchase) (Additional Sold Separately)
- FREE Sloped Ceiling Canopy with Swivel (Up to 90 Degrees) (Included with Purchase) (Additional Sold Separately)
- FREE 8' Electrical Wire (Included with Purchase)
- Individually Inspected for Quality Assurance
- cULus Listed for Safety

Brink Bathroom Sconce

Model & Size	Color Temp & CRI	Watt	LED Lumens	Delivered Lumens	Finish
WS-77612 12"	2700K 90	10.5W	863	779	AL Brushed Aluminum
	3000K 90	10.5W	905	791	BK Brushed Black
	3500K 90	10.5W	935	840	BR Brushed Brass

FIXTURE G

Example: **WS-77612-27-AL**

DESCRIPTION

A beautiful bar of pure LED light radiates through the co-extruded acrylic diffuser for brighter illumination, and an adjustable back plate adds versatility to this design's many attributes. It's a clean modern sconce anywhere you mount it.

FEATURES

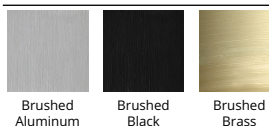
- Conversion plate for 4" J box included
- Adjustable backplate
- Driver installed within the Junction Box, driver dimension: 2.76" x 1.26" x 1.18"
- 5 year warranty

SPECIFICATIONS

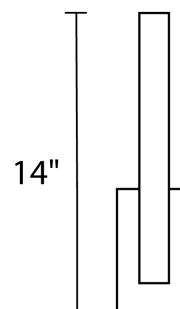
Color Temp:	3500K, 3000K, 2700K
Input:	120-277 VAC, 50/60Hz
CRI:	90
Dimming:	ELV: 100-5%
Rated Life:	85000 Hours
Mounting:	Can be mounted on wall in all orientations
Standards:	ETL, cETL, Energy Star 2.0 Damp Location Listed
Construction:	Aluminum hardware with co-extruded acrylic diffuser



FINISHES



LINE DRAWING



WS-77612

Brink

Bathroom Sconce

Model & Size	Color Temp & CRI	Watt	LED Lumens	Delivered Lumens	Finish
WS-77618 18"	2700K 90	15.5W	1155	910	AL Brushed Aluminum
	3000K 90	15.5W	1225	1015	BK Brushed Black
	3500K 90	15.5W	1330	1115	BR Brushed Brass

Example: **WS-77618-27-AL**

DESCRIPTION

A beautiful bar of pure LED light radiates through the co-extruded acrylic diffuser for brighter illumination, and an adjustable back plate adds versatility to this design's many attributes. It's a clean modern sconce anywhere you mount it.

FEATURES

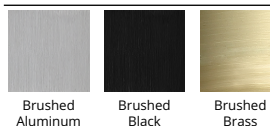
- Conversion plate for 4" J box included
- Adjustable backplate
- Driver installed within the Junction Box, driver dimension: 2.76" x 1.26" x 1.18"
- 5 year warranty

SPECIFICATIONS

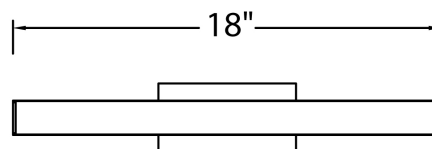
Color Temp:	3500K, 3000K, 2700K
Input:	120-277 VAC, 50/60Hz
CRI:	90
Dimming:	ELV: 100-5%
Rated Life:	85000 Hours
Mounting:	Can be mounted on wall in all orientations
Standards:	ETL, cETL, Energy Star 2.0 Damp Location Listed
Construction:	Aluminum hardware with co-extruded acrylic diffuser



FINISHES



LINE DRAWING



WS-77618

Brink

Bathroom Sconce

Model & Size	Color Temp & CRI	Watt	LED Lumens	Delivered Lumens	Finish
WS-77624 24"	2700K 90	20.5W	1595	1330	AL Brushed Aluminum
	3000K 90	20.5W	1720	1440	BK Brushed Black
	3500K 90	20.5W	1785	1510	BR Brushed Brass

Example: **WS-77624-27-AL**

DESCRIPTION

A beautiful bar of pure LED light radiates through the co-extruded acrylic diffuser for brighter illumination, and an adjustable back plate adds versatility to this design's many attributes. It's a clean modern sconce anywhere you mount it.

FEATURES

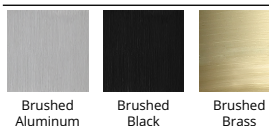
- Conversion plate for 4" J box included
- Adjustable backplate
- Driver installed within the Junction Box, driver dimension: 2.76" x 1.26" x 1.18"
- 5 year warranty

SPECIFICATIONS

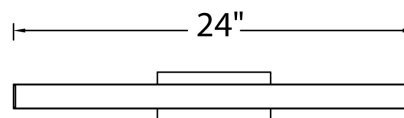
Color Temp:	3500K, 3000K, 2700K
Input:	120-277 VAC, 50/60Hz
CRI:	90
Dimming:	ELV: 100-5%
Rated Life:	85000 Hours
Mounting:	Can be mounted on wall in all orientations
Standards:	ETL, cETL, Energy Star 2.0 Damp Location Listed
Construction:	Aluminum hardware with co-extruded acrylic diffuser



FINISHES



LINE DRAWING



WS-77624

Brink Bathroom Sconce

Model & Size	Color Temp & CRI	Watt	LED Lumens	Delivered Lumens	Finish
WS-77636 36"	2700K 90	30W	2365	1985	AL Brushed Aluminum
	3000K 90	30W	2445	2095	BK Brushed Black
	3500K 90	30W	2561	2180	BR Brushed Brass

Example: **WS-77636-27-AL**

DESCRIPTION

A beautiful bar of pure LED light radiates through the co-extruded acrylic diffuser for brighter illumination, and an adjustable back plate adds versatility to this design's many attributes. It's a clean modern sconce anywhere you mount it.

FEATURES

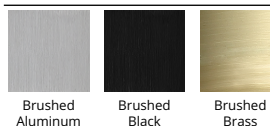
- Conversion plate for 4" J box included
- Adjustable backplate
- Driver installed within the Junction Box, driver dimension: 2.76" x 1.26" x 1.18"
- 5 year warranty

SPECIFICATIONS

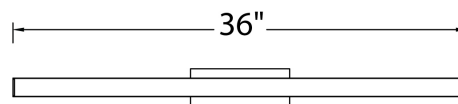
Color Temp:	3500K, 3000K, 2700K
Input:	120-277 VAC, 50/60Hz
CRI:	90
Dimming:	ELV: 100-5%
Rated Life:	85000 Hours
Mounting:	Can be mounted on wall in all orientations
Standards:	ETL, cETL, Energy Star 2.0 Damp Location Listed
Construction:	Aluminum hardware with co-extruded acrylic diffuser



FINISHES



LINE DRAWING



WS-77636



BAB 1-10-24 337

CORE 200 LX

UP + DOWN SCONCE

FIXTURE H

PROJECT

Job		Notes
Type		
Part #		

SPECIFICATIONS

- Source** Two Xicato XTM LED modules - up to 1300 lumens each
- CCT** 2700K, 3000K, 3500K or 4000K
- Color Consistency** 1x2 SDCM (MacAdam) along BBL, CCT +/- 40K to 70K, Duv +/- .001
- CRI (Ra)** 83 or 98
- Driver / Location** Included / Remote mount or deep canopy options
- Dimming** 0-10V or phase dimming to 10% standard; DALI, DMX and 1% dimming available
- Input Voltage** 100 to 277VAC, phase dimmable versions are 120VAC only
- Power** Up to 28 watts max, depending on LED module / driver
- Reflector** 20°, 40° or 60° - field replaceable without tools
- Material** CNC machined aluminum with stainless steel hardware
- Finish** Powder coat - TGIC polyester for exterior and interior use
- Weight** 2.5 lb. [1.1 kg], ADA Compliant Version 2.2 lb. [1 kg]
- Location** Listed for Wet & Damp locations
- Approvals** ETL Listed to UL 1598, 2108, 8750 and CSA C22.2# 9 & #250.0
- L80 Life** > 50,000 hours at 80% lumen maintenance based on IESNA LM-80-08
- Warranty** Lifetime Limited Warranty - see warranty for details
- IES Files** LM-79-08 IES files available
- Modifications** Any modification or customization is possible - consult factory



ORDERING LOGIC

Model	Driver		# of Circuits	Mounting Location	Up Direction				Down Direction				Shell Color	Options
	Location	Dimming			Output	CRI	C.C.T.	Reflector	Output	CRI	C.C.T.	Reflector		
C2LU														
	R =Remote	N =None	1	D =Damp	07 =700lm	83 =83	27 =2700K	20 =20°	07 =700lm	83 =83	27 =2700K	20 =20°	XX	ADA =ADA Compliant
	D =Deep	P =Phase	2	W =Wet	10 =950lm	98 =98	30 =3000K	40 =40°	10 =950lm	98 =98	30 =3000K	40 =40°	(see chart on page 4)	
	Canopy	V =0-10V			13 =1300lm		35 =3500K	60 =60°	13 =1300lm		35 =3500K	60 =60°		
		Z =Other					40 =4000K				40 =4000K		ZZ =Custom	

Example Part Number: **C2LU-RN1D-07832720-13832740-S3**

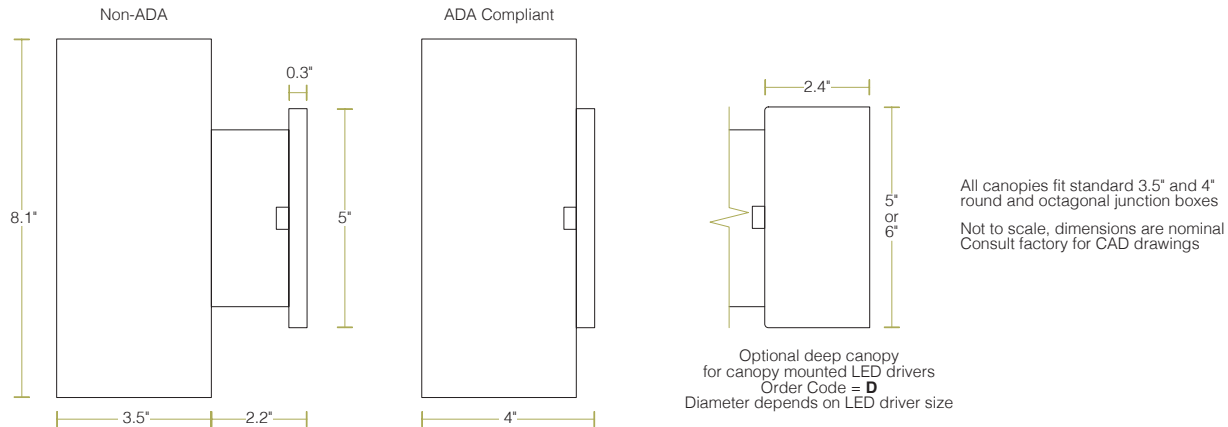
CORE 200 LX Up + Down Sconce - Remote Driver, No Dimming, 1 Circuit, Damp Location - UP= 700 lm, 83 CRI, 2700K, 20° Reflector - DOWN= 1300 lm, 83 CRI, 2700K, 40° Reflector - **S3** Red Shell



CORE 200 LX

UP + DOWN SCONCE

DIMENSIONS



LED OPTIONS

Reflector Option	LES ¹	CRI	LED Specifications		
			Lumens ^{2, 3, 4}	Wattage ⁵ (W)	Efficacy ⁶ (lm/W)
20°, 40° & 60°	19mm	Ra = 83 ± 3	700	5.6	129
			950	8.2	118
			1300	11.7	111
		Ra = 98 R9 ≥ 90 R15 ≥ 95	700	7.4	97
			950	10.9	89
			1300	15.6	83

¹ LES: Light Emitting Surface diameter

² ±10%

³ Source lumens - see photometrics on page 3 for LOR to calculate delivered lumens

⁴ Higher lumen outputs are available in CORE / QUBE 300 and 400 series

⁵ Maximum luminaire wattage including LED driver = LED wattage x 1.2

⁶ Higher efficacies are available via lower drive currents - consult factory

CONTROL OPTIONS

Standard LED Drivers* (included in base price)	Order Code V = 0-10V dimming to 10%
	Order Code P = Phase dimming to 10% Compatible with both forward and reverse phase dimmers
Optional LED Drivers*	eldoLED 0-10V, DALI, or DMX dimming to 0%
	Lutron Hi-lume™ A-series, EcoSystem or forward phase dimming to 1%
	Lutron Hi-lume™ 5-series, EcoSystem dimming to 5%

* Standard LED drivers are suitable for Wet Location

* Optional LED drivers are suitable for Damp Location

* All LED drivers must be mounted in a deep canopy or remote

* Dual LED drivers available for independent Up + Down control

* Choosing different lumen outputs for Up + Down may require dual drivers
Consult factory for details

* For EM applications:

All LED drivers may be used with 3rd party inverter style systems



BAB 1-10-24 339

CORE 200 LX

UP + DOWN SCONCE

PHOTOMETRICS

LM-79-08 IES files available

Beam Angle	Order Code	Intensity Plot (cd) (1300lm)	Polar Plot (cd) (1300lm)	Cone Diagram (1300lm)	Description												
20°	20			<div>Illuminance at Center</div> <div>Beam Diameter</div> <table><tr><td>5'</td><td>166 fc</td><td>1.9'</td></tr><tr><td>10'</td><td>42 fc</td><td>3.8'</td></tr><tr><td>15'</td><td>18 fc</td><td>5.7'</td></tr><tr><td>20'</td><td>10 fc</td><td>7.6'</td></tr></table>	5'	166 fc	1.9'	10'	42 fc	3.8'	15'	18 fc	5.7'	20'	10 fc	7.6'	CBCP = 3195 cd/klm Beam Angle = 21° Field Angle = 63° LOR = 89.4% Beam = full width @ 50% Field = full width @ 90%
5'	166 fc	1.9'															
10'	42 fc	3.8'															
15'	18 fc	5.7'															
20'	10 fc	7.6'															
40°	40			<div>Illuminance at Center</div> <div>Beam Diameter</div> <table><tr><td>5'</td><td>84 fc</td><td>3.9'</td></tr><tr><td>10'</td><td>21 fc</td><td>7.9'</td></tr><tr><td>15'</td><td>9 fc</td><td>11.8'</td></tr><tr><td>20'</td><td>5 fc</td><td>15.7'</td></tr></table>	5'	84 fc	3.9'	10'	21 fc	7.9'	15'	9 fc	11.8'	20'	5 fc	15.7'	CBCP = 1607 cd/klm Beam Angle = 43° Field Angle = 73° LOR = 88.7% Beam = full width @ 50% Field = full width @ 90%
5'	84 fc	3.9'															
10'	21 fc	7.9'															
15'	9 fc	11.8'															
20'	5 fc	15.7'															
60°	60			<div>Illuminance at Center</div> <div>Beam Diameter</div> <table><tr><td>5'</td><td>55 fc</td><td>5.6'</td></tr><tr><td>10'</td><td>14 fc</td><td>11.3'</td></tr><tr><td>15'</td><td>6 fc</td><td>16.9'</td></tr><tr><td>20'</td><td>3 fc</td><td>22.6'</td></tr></table>	5'	55 fc	5.6'	10'	14 fc	11.3'	15'	6 fc	16.9'	20'	3 fc	22.6'	CBCP = 1050 cd/klm Beam Angle = 59° Field Angle = 86° LOR = 85.2% Beam = full width @ 50% Field = full width @ 90%
5'	55 fc	5.6'															
10'	14 fc	11.3'															
15'	6 fc	16.9'															
20'	3 fc	22.6'															

Beam Shaping Options

Add the order code shown below to the options box at the end of the part number:

Order Code	Description
-HL	Honeycomb Louver
-DF	Diffusion Lens
-SF	Satin finish on any standard reflector
-LS	Linear Spread Lens (60° x 1°)
-WW	Wall Wash Lens (shifts beam 20° from vertical)



BAB 1-10-24 340

CORE 200 LX

UP + DOWN SCONCE

COLOR OPTIONS

Basic Powder Coat



GW
Gloss White



SW
Satin White
AW Antimicrobial option



TW
Textured
Matte White



TB
Textured
Matte Black

Satin Anodized Effect Powder Coat



CS
Clear Silver



OB
Oil-Rubbed
Bronze



DB
Dark Bronze

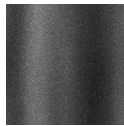


SB
Satin Black

Metallic Powder Coat



SG
Silver Gray



CG
Charcoal
Gray



CU
Copper



BR
Brass

Gloss Powder Coat (80-95% Gloss)



GO
Orange
(RAL 2003)



GR
Red
(RAL 3020)



GM
Magenta
(RAL 4010)



GB
Blue
(RAL 5015)

Aluminum



BA
Brushed Aluminum
Cost adder applies.

Special Order



RAL _ _ _ _
Most RAL Classic Colors (80-95% Gloss) are available for powder coat - consult ALW. Minimum setup fee applies. See: alwusa.com/finishes for more information



CAT _ _ _ _
The complete range of powder coat colors from the Tiger Drylac and TCI catalogs are available - consult ALW. Minimum setup fee applies.

Custom



CCM _ _ _ _
Custom powder coat color matching is available - consult ALW. Premium setup fee applies.

Printed or on-screen colors are only approximations - consult actual Color Chip Set before specifying
Note: An individual setup fee will apply to each unique Special Order/Custom Finish per purchase order.
(ex: RAL 5023 and RAL 2008 are specified for multiple line items on a purchase order. 2x setup fees will apply)

Item #
F625L-CL

Product Family Name:
Skinnie 44

Category:
EXTERIOR FAN

Certification
4009339

Patents:

Notes:

UPC Code:
706411069420

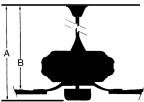
Finish:
Coal

Category Type:
Ceiling Fan



FIXTURE I

Image File Name: F625L-CL.jpg



MEASUREMENTS

Blade Finish:

Blade Material:
ABS

Blade Sweep:
44"

Downrod 1:
6

Ceiling to Lowest Point: (Dim A)
13.88

No. of Blades:
3

Blade Pitch:
18

Downrod 1 Outside Dia:
.75

Ceiling to Blade (Dim B)
10.25

Reversible Blades:
No

Slope:
Yes

Hanging Weight:
9.48

Downrod 2 Outside Dia:

Lead Wire:
8"

Motor Size:
DC 123*15mm

	Low	Low/Med.	Medium	Med/High	High
RPM:	58				186
Amps:	0.09				0.58
Watts:	3.51				33.87
CFM:	1589.0				4765.0
CFM/Watts:	452.71				140.68



CONTROLS

Pull Chain Control:
No

Reversible:
No

Smart Control:
No

Integrated Smart Control:

Works with Remote Control:
Yes

Included Remote Control:
RC1000

Compatible Remote Control(s):

Works with Wall Control:
Yes

Included Wall Control:

Compatible Wall Control(s):
WC1000

Compatible Smart Control:
BD-1000



SHIPPING

Carton Width:
10.5

Carton Weight:
14.08

Master Pack Width:

Carton Height:
12.0

Carton Cubic Feet:
2.188

Master Pack Height:

Carton Length:
30.0

Small Package Shippable:
Yes

Master Pack Length:

Master Pack Weight:

Master Cubic Feet:

Multi-Pack:
1

Master Pack:

1



LED

Wet
Location

ETL
Intertek

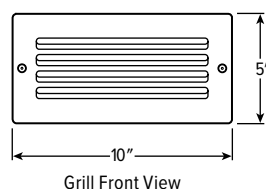


WARNING:Handling this product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands with soap and water after installing, handling, cleaning or otherwise touching this product. For more information go to: www.P65Warnings.ca.gov.

For additional information, please contact Customer Care: 1-800-221-7977 | Product depicted on this spec sheet is protected by United States Federal and/or State laws including US Patent, Trademark and/or Copyright and unfair competition laws. Unauthorized reproduction or use carries severe legal penalties.

S10^{LED} 10" Rectangular Step Light

BAB 1-10-24 342



CATALOG #: _____

Type: _____

PROJECT: _____

FIXTURE J

FEATURES

- Sealed for weather tight performance
- Choice of open, hooded and grill faceplates in a variety of finishes
- LEDs provide high-efficacy and a variety of color temperature options
- LED module with driver allows for easy replacement or upgrades
- Available with frosted or opal lens
- Adjustable mounting brackets
- Designed for concrete pour applications
- Made Right Here® in the USA

SPECIFICATIONS

- HOUSING** – Minimum .188" thick cast aluminum housing with two 1/2" NPS threaded hub and plugged conduit entry points.
- SHIELD** – Removable cast aluminum shield gasketed and secured with countersunk, stainless steel allen head screws.
- LENS** – Polycarbonate or frosted tempered glass, sealed with silicone.
- FINISH** – Super durable polyester powder coat meets and exceeds AAMA 2604 specifications for outdoor durability.
- ELECTRICAL** – High quality mid-power LED board. Rated for 50,000 hours at 70% lumen maintenance (L70). Prewired at factory for easy field installation.
- MOUNTING** – Recessed wall mount. Adjustable aluminum mounting brackets provided.
- LISTINGS** –
 - cETLus conforms to UL STD 1598; Certified to CAN/CSA STD C22.2 No. 250.0. Suitable for wet locations.
 - RoHS compliant.
- WARRANTY** – 5-year limited warranty, see hew.com/warranty.

ORDERING EXAMPLE: S10 - G - L3/840 - FTG - DBZ - DIM - 120

ORDERING INFO

SERIES	FACEPLATE STYLE	LUMENS ^[1]	CRI	CCT	LENS
S10	O Open	L3 300lm	8 80	27 2700K	FTG Frosted tempered glass, .188" thick
	H Hood			30 3000K	OPAL Opal polycarbonate, .125" thick
	G Grill			35 3500K	
				40 4000K	

FACEPLATE FINISH ^[2]	DRIVER	VOLTAGE
BLK Black ^[3]	DIM Dimming driver prewired for 0-10V low voltage applications	120 120V
DBZ Dark bronze		277 277V
DBR Medium bronze		
GRAY Standard gray		
GRN Green ^[4]		
SLV Satin aluminum ^[5]		
WHT White ^[6]		
RAL#_____ Specify custom color		

NOTES

- Lumen output based on 4000K CCT, G faceplate style and FTG lens. Actual lumens may vary +/-5%.
- See page 4 for FACEPLATE FINISH OPTIONS.
- RAL #9004.

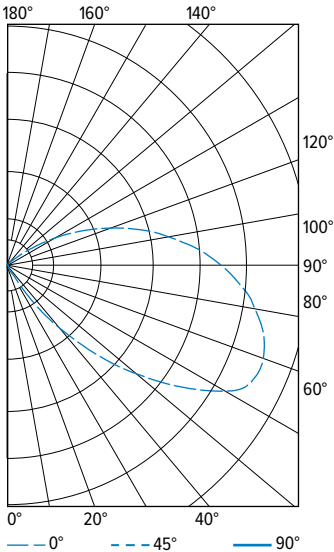
- RAL #6005.
- RAL #9006.
- RAL #9003.



S10^{LED}
10" Rectangular Step Light

PHOTOMETRY

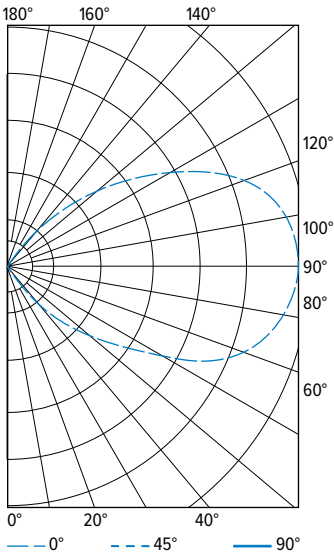
S10-G-L3/840-FTG-DBZ-120 Report #: ITL86573; 01/28/16 | Total Luminaire Output: 271 lumens; 13.8 Watts | Efficacy: 19.6 lm/W | 83 CRI; 4076K CCT



CANDLEPOWER DISTRIBUTION	VERTICAL ANGLE	HORIZONTAL ANGLE	ZONAL LUMENS
		0°	
	0	0	
	5	1	0
	15	3	0
	25	7	1
	35	37	5
	45	88	15
	55	144	31
	65	181	47
	75	176	52
	85	155	48
	90	141	
	95	125	36
	105	89	23
	115	51	10
	125	14	2
	135	1	0
	145	1	0
	155	0	0
	165	0	0
	175	0	0
	180	0	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	1	1
	0 - 40	6	2
	0 - 60	52	19
	0 - 90	199	74
	90 - 180	72	27
	0 - 180	271	100

S10-O-L3/830-FTG-BLK 09/07/16 | Total Luminaire Output: 610 lumens; 10.7 Watts | Efficacy: 57.0 lm/W | 80 CRI; 4000K CCT



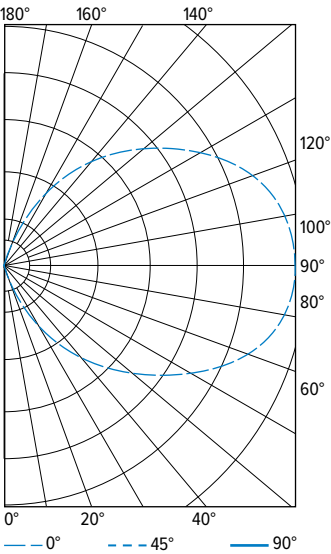
CANDLEPOWER DISTRIBUTION	VERTICAL ANGLE	HORIZONTAL ANGLE	ZONAL LUMENS
		0°	
	0	0	
	5	0	0
	15	1	0
	25	8	1
	35	28	4
	45	88	14
	55	166	35
	65	255	62
	75	308	86
	85	332	100
	90	336	
	95	331	100
	105	316	87
	115	255	63
	125	173	37
	135	97	16
	145	33	5
	155	12	1
	165	2	0
	175	0	0
	180	0	

LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	1	0
	0 - 40	5	1
	0 - 60	55	9
	0 - 90	302	49
	90 - 180	309	51
	0 - 180	610	100



S10^{LED} 10" Rectangular Step Light

S10-O-L3/830-OPAL-BLK 09/07/16 | Total Luminaire Output: 433 lumens; 10.7 Watts | Efficacy: 40.5 lm/W | 80 CRI; 4000K CCT

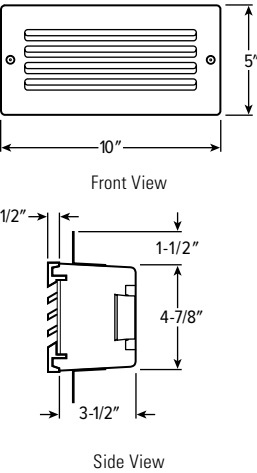


CANDLEPOWER DISTRIBUTION	VERTICAL ANGLE	HORIZONTAL ANGLE	ZONAL LUMENS
		0°	
	0	0	
	5	0	0
	15	7	1
	25	30	4
	35	64	10
	45	93	20
	55	121	31
	65	149	42
	75	174	52
	85	182	57
	90	181	
	95	181	57
	105	170	52
	115	153	43
	125	128	31
	135	95	20
	145	63	10
	155	31	4
	165	8	1
	175	0	0
	180	0	

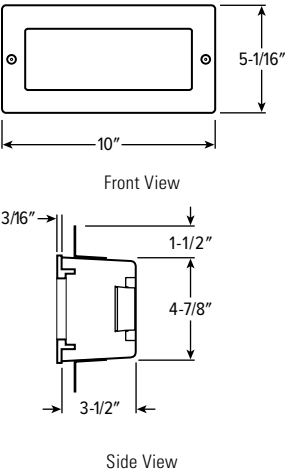
LUMEN SUMMARY	ZONE	LUMENS	% FIXTURE
	0 - 30	4	0
	0 - 40	14	3
	0 - 60	64	15
	0 - 90	216	50
	90 - 180	218	50
	0 - 180	433	100

CROSS SECTIONS

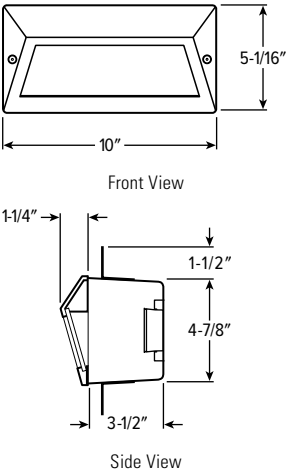
GRILL



OPEN

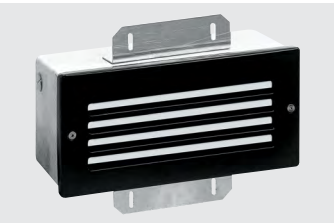


HOODED



FACEPLATE STYLES

GRILL



OPEN



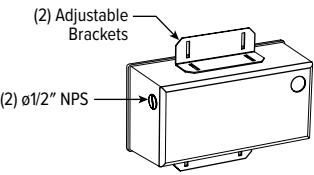
HOODED



S10^{LED}




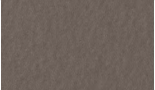

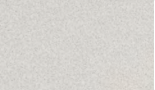
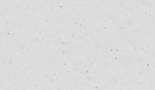
10" Rectangular Step Light

MOUNTING DETAILS



Recessed wall mount. Aluminum brackets allow adjustable recessed wall mounting. Two 1/2" NPS threaded hub and plugged conduit entry points.

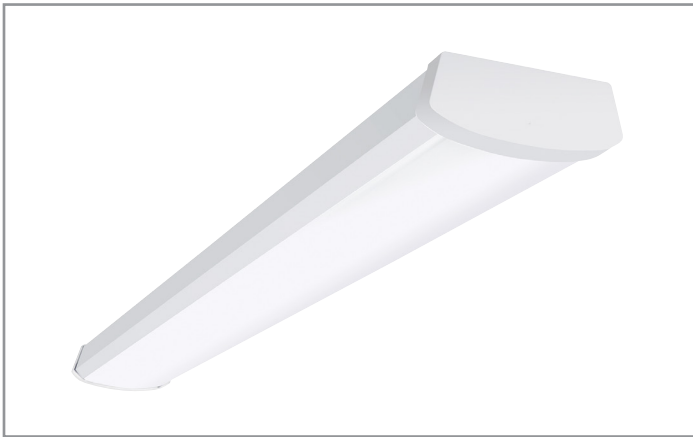
FACEPLATE FINISH OPTIONS

WHITE	BLACK	GREEN	MEDIUM BRONZE	DARK BRONZE	SILVER	GRAY
						

For custom color, please specify RAL code or a manufacturer code with description. All custom colors other than RAL require two sample swatches, minimum 1" square.



Project		Catalog #		Type	
Prepared by		Notes		Date	



Metalux

NWS Selectable Wrap

LED Wraparound with Selectable Lumens and CCT

Typical Applications

• Offices • Education • Healthcare • Retail

Interactive Menu

- Order Information [page 2](#)
- Product Specifications [page 3](#)
- Product Warranty

Product Certification



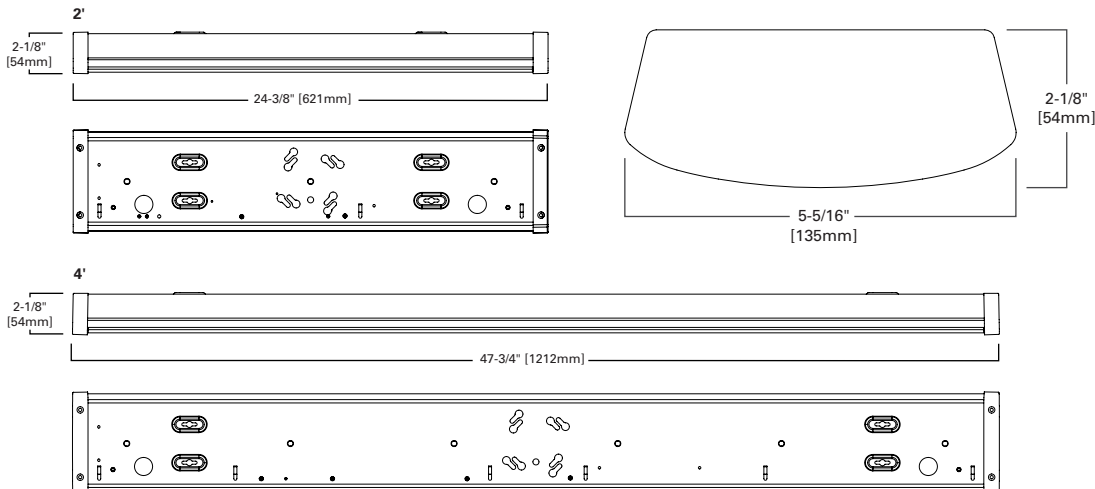
Product Features



Top Product Features

- Selectable CCT 3500K, 4000K, 5000K and selectable lumens up from 2,000-5,200 lumens
- Up to 143 lm/w efficiency, ideal for replacing two or three lamp fluorescent wraparounds (up to 96W equivalent)
- 0-10V dimming standard with 120-277V UNV
- Phase cut 120V triac dimming with "R" ordering option
- Suitable for ceiling, wall, or suspension mounting and row mounting
- DLC 5.1 Compliant
- Optional integrated microwave motion sensor (MS) available for 4' type

Dimensional and Mounting Details



Order Information and Performance Data

Size	Catalog Number	UPC	Volt	Sensor	Lumen Setting	Nominal CCT	CRI	Delivered Nominal Lumens	Watts	Efficacy (lm/W)	Wt.	Units per Pallet
2 ft	2NWS3C3-UNV	080083257485	120-277V	NO	High	3500K	82	2,522	21.8	116	3.1 lbs.	224
						4000K	82	2,679	21.0	128		
						5000K	82	2,574	21.7	119		
					Medium	3500K	82	2,266	18.0	126		
						4000K	82	2,366	17.5	135		
						5000K	82	2,294	18.1	127		
					Low	3500K	82	2,009	15.8	127		
						4000K	82	2,087	15.3	136		
						5000K	82	2,032	15.8	128		
4ft	4NWS3C3-UNV	080083257522	120-277V	NO	High	3500K	82	4,937	40.6	122	4.6 lbs.	112
						4000K	82	5,272	38.9	136		
						5000K	82	5,010	40.7	123		
					Medium	3500K	82	4,324	33.1	130		
						4000K	82	4,498	31.8	141		
						5000K	82	4,357	33.2	131		
					Low	3500K	82	3,800	28.5	133		
						4000K	82	3,930	27.5	143		
						5000K	82	3,822	28.5	134		
4ft	4NWS3C3MS-UNV	080083257607	120-277V	YES	High	3500K	82	4,851	38.9	125	4.6 lbs.	112
						4000K	82	5,016	37.7	133		
						5000K	82	4,872	38.8	126		
					Medium	3500K	82	4,145	32.7	127		
						4000K	82	4,285	31.7	135		
						5000K	82	4,216	32.5	130		
					Low	3500K	82	3,675	28.7	128		
						4000K	82	3,766	27.8	135		
						5000K	82	3,729	28.5	131		
4ft	4NW35C3R	080083257447	120V	NO	3500L	3000K	82	3,830	35.8	107		
						3500K	82	4,124	34.0	121		
						4000K	82	3,954	35.5	111		

Accessories

Accessories (Order Separately)

EBPLED7W=User Installed, Remote Mount, 7 Watt LED Emergency Battery Pack
EBPLED14W=User Installed, Remote Mount, 14 Watt LED Emergency Battery Pack
Y-TOGGLE-10 2PK=(2) Y-Toggle Cable Kits at 10FT long

Load Data

	2'	4'
PF	>=0.98	>=0.98
THD%	<20%	<20%
Low Temp Start	-20	-20

Shipping Data

Catalog Base	Wt.	Units per Pallet
2NW	3.1 lbs.	224
4NW	4.6 lbs.	112

Product Specifications

Construction

- Cold rolled steel die form housing with finished ends
- Post painted with high gloss white powder coating
- High-impact plastic end caps

Shielding

- Smooth white lens provides glare-free performance
- Standard LED blended for wide area coverage
- Replaces 2 or 3-lamp fluorescents up to 96W

Installation

- Surface (wall or ceiling) mount via junction box or direct to surface
- Suspension mount capable using standard V-hook or Y-toggle mounting kits

Electrical

- Projected life of L70 at 50,000 hours
- Efficacy up to 143 lm/W
- Phase cut dimming down to 10% (120V)
- 0-10V dimming down to 10% for UNV skus (120-277V)
- User installed, remote mount, 7 & 14 Watt LED emergency battery pack options are available

Compliance

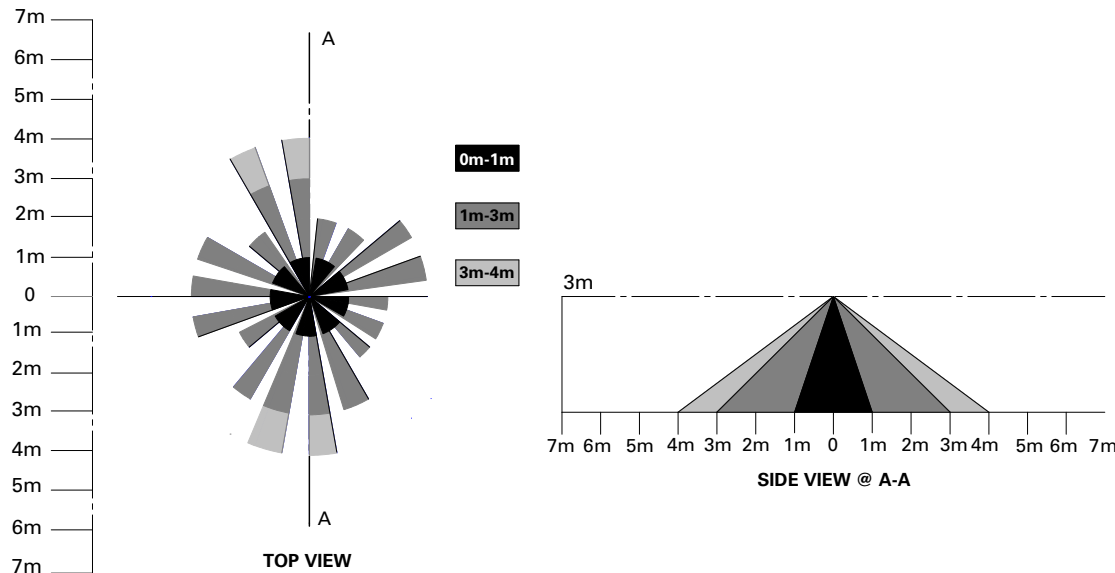
- UL/cUL listed for damp location
- Rated for -4F (-20C) to 104F (40C) ambient operating temperatures
- Meets FCC Part 15 Class B requirements
- RoHS compliant
- LED complies with IESNA LM-79 and LM-80
- ENERGY STAR® Certified luminaire (For 120V sku only) - consult ENERGY STAR® Certified Product List
- DLC 5.1 Standard Qualified

Limited Warranty

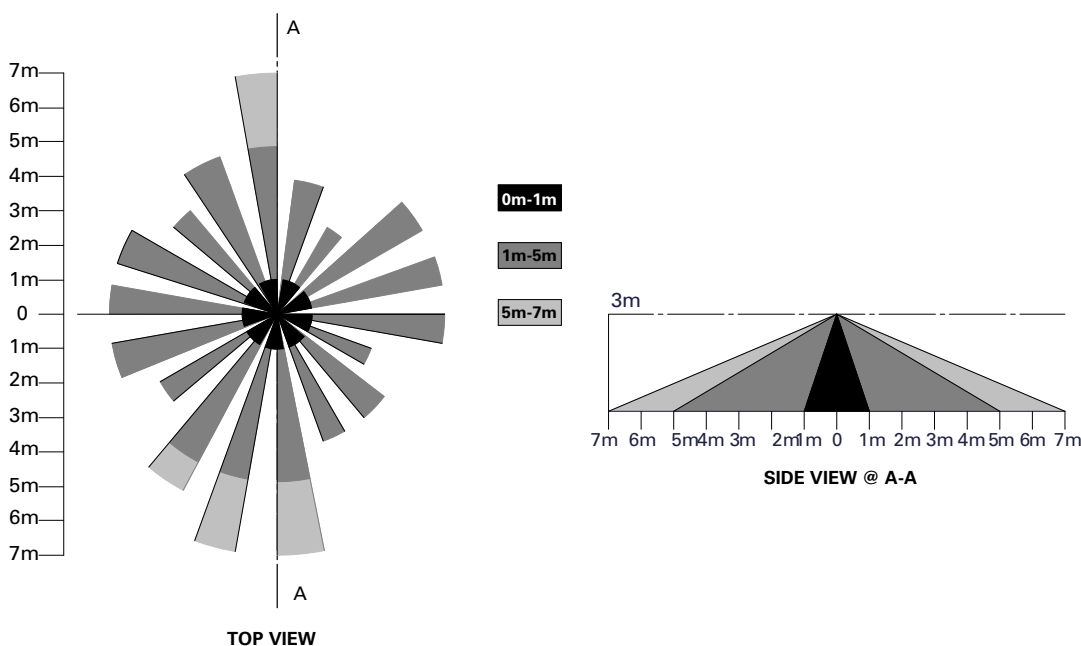
- Five year limited warranty

Sensor Coverage ("MS" SKU Designation)

NWS SENSOR DETECTION 50% COVERAGE

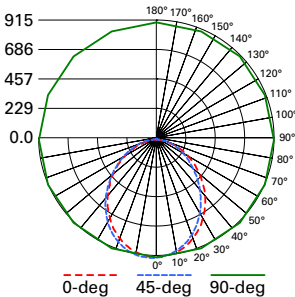


NWS SENSOR DETECTION 100% COVERAGE

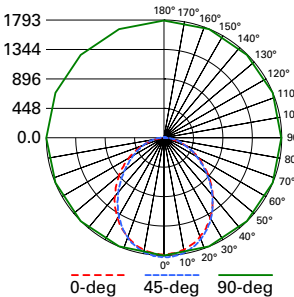


Photometric Data

[View IES files](#)



2NWS3C3
Electronic Driver
Linear LED 3500K
Lumens: 2266
Input Watts: 18W
Efficacy: 126 LPW
Test Report: 2NWS3C3-UNV-MID-3500K.IES



4NWS3C3
Electronic Driver
Linear LED 3500K
Lumens: 4402
Input Watts: 33.9W
Efficacy: 130 LPW
Test Report: 4NWS3C3-UNV-MID-3500K.IES

Description

The Halo ML56 LED Downlighting System is a series of modular LED Modules for use with designated 5" or 6" ML56 LED trims in new construction, remodel and retrofit installation. Compatible with Halo 5" H550 and 6" H750, H2750 Series LED housings. And in retrofit of existing housings the ML56 Series fits 5" or 6" Halo and others. ML56 Modules are offered in 600 Series, 900 Series, and 1200 Series, 90CRI, and four color temperatures 2700K, 3000K, 3500K, 4000K. ML56 Modules are universal voltage 120V – 277V and dimmable at 120V. The ML56 lens provides uniform diffuse illumination standard.

Specification Features

Mechanical

Light Module

- Module includes LED package, LED driver, heat sink, and lens
- Durable die-cast aluminum construction.
- Heat sink designed to conduct heat away from the LED keeping the junction temperatures below specified maximums, including insulated ceiling environments

Lens

- Impact-resistant polycarbonate
- Convex form for lamp-like appearance
- High lumen transmission
- Diffusing for even illumination

Mounting

- Modules attach to reflector and baffle trims via locking tabs, and attach to eyeballs via keyed twist-to-lock mating bosses
- The complete module and trim assembly installs into housings with precision formed torsion springs located on the trim
- Friction Blade mounting is an alternate option using the accessory 6" Friction Blade Kit model ML56CLIP (order separately). Friction blades provide alternative to torsion springs for retrofit in 6" housings without torsion mounting tabs. ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series). For eyeball trim (694 series) use ML7RAB retrofit adapter band.

Housing Compatibility

A complete ML56 system includes a LED Module, LED trim, and a compatible housing (new construction, remodel, or existing retrofit). Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing – Trim Section in this document.

LED

- 900 Series = 900 design lumens typical.
- Delivered lumens vary depending upon 5" or 6", color temperature, and trim finish.

- Color Temperature options: 2700K, 3000K, 3500K, 4000K
- CRI: 90, R9>50
- L70 at 50,000 hours, projected in accordance with IES TM-21
- LED is a chip on board design consisting of a multiple LED package to create one virtual light source for a productive "cone of light"

Color Specification & Quality Standards

- A tight chromaticity specification to ensure LED color uniformity, sustainable Color Rendering Index (CRI) and Correlated Color Temperature (CCT) over the useful life of the LED
- LED color uniformity of 3 SDCM exceeds ENERGY STAR® color standards per ANSI C78.377- 2008.
- High color performance with 90CRI minimum, and R9 greater than 50.
- Every Halo LED Module is quality tested and performance measured, and then serialized in a permanent record to register lumens, wattage, CRI and CCT.
- Halo LED serialized testing and measurement process ensures color and lumen consistency on a per-unit basis, and validates long-term product consistency over time
- Halo ML56 LED Modules include lumen, CRI, and CCT designations in the model number Example: **ML5609930**
56 = 5" / 6" aperture series
09 = 900 lumen series
9 = >90 CRI
30 = 3000K nominal CCT

Electrical Power Connections

- LED connector is a non-screw base luminaire disconnect offering easy installation with the matching Halo 5" H550 series and 6" H750 and H2750 series housings (housing selected depends upon LED trim 5" or 6").
- LED Connector meets high-efficacy luminaire requirement for a non-screw base, and where required.
- The included E26 medium screw-base Edison adapter* provides easy retrofit of incandescent housings (see Housing Section).

Catalog #	Type
Project	
Comments	
Prepared by	

Ground Connection

Separate grounding cable included on the module for attachment to the housing during installation.

LED Driver

- Driver is universal voltage 120V-277V, and may be controlled from a switch in this range of main inputs (switchable at 120V, 220V, 230V, 240V, and 277V)
- Driver is dimmable at 120V operation when connected to a compatible dimmer.
- Driver is a high efficiency, electronic power supply providing DC power to the LED.
- Driver meets FCC EMI/RFI Consumer Level limits on 120V main inputs, and is compliant for use in residential and commercial installations.
- Driver features high power factor, low THD, and has integral thermal protection in the event of over temperature or internal failure.
- Driver is replaceable, if replacement should be required.

Dimming

Designed for dimming capability to nominal 5% in normal operation with standard 120V Leading Edge (LE) and Trailing Edge (TE) phase control dimmers (Consult dimmer manufacturer for dimmer compatibility and details. Note, some dimmers require a neutral in the wallbox.)

Warranty

Cooper Lighting Solutions provides a (5) five year limited warranty on the Halo ML56 LED Module.

LED Module in New or Retrofit Existing Construction – Housings other than Halo

- If used in recessed housings other than Halo the Cooper Lighting Solutions 5-year limited warranty applies to the LED Module and Trim only.
- As with any electrical installation, a qualified electrician must ensure compatibility of use with a particular housing; this includes all applicable national and local electrical and building codes. Installer is responsible to properly and securely retain the LED Module and LED Trim in the housing at time of installation.



ML56 LED System

900 Series / 90 CRI

ML5609927

ML5609930

ML5609935

ML5609940

**5-Inch and 6-Inch
900 Lumen LED
Module for
New Construction,
Remodel and Retrofit**

**For use with 59x and 69x
Series Trims**

**FOR USE IN
INSULATED CEILING
AND NON-INSULATED
CEILING RATED
HOUSINGS**

**HIGH EFFICACY LED
WITH INTEGRAL
DRIVER - DIMMABLE**

Energy Data

ML56 900/90 Series

(Values at non-dimming line voltage)

Minimum Starting Temp: -30°C (-22°F)

EMI/RFI: FCC Title 47 CFR, Part 15, (Consumer)

Sound Rating: Class A

Input Voltage: UNV 120V-277V

Power Factor: >0.95 @ 120V and >0.9 @ 277V

Input Frequency: 50/60Hz

THD: <20%

Input Power: 9.4W

Input Current at 120V: 0.15A

Input Current at 277V: 0.08A

Driver Compliance: UL8750, Class II rated

Maximum IC (Insulated Ceiling) Ambient Continuous Operating Temperature: 25°C (77°F)

Maximum Non-IC Ambient Continuous Operating Temperature: 40°C (104°F)

D2W™



ML5609927

5" or 6" LED 900 Series



ML5609930

5" or 6" LED 900 Series



ML5609935

5" or 6" LED 900 Series



ML5609940

5" or 6" LED 900 Series

Compliance

- cULus listed 1598 Luminaire (Halo housings)
- UL Classified when used in retrofit (refer to housing section)
- cULus listed for damp locations
- cULus Wet location listed with baffle and reflector trims only
- Airtight certified per ASTM E283 (not exceeding 2.0 CFM under 57 Pascals pressure difference)
- IP66 ingress protection rated with baffle and reflector trims only
- RoHS compliant
- May be used in IC (insulated ceiling) housings in direct contact with insulation* and combustible material
- Can be used for California Title 24 compliance
- Can be used for International Energy Conservation Code (IECC) high efficiency luminaire compliance.
- Can be used for Washington State Energy Code compliance
- ENERGY STAR® certified luminaire - consult ENERGY STAR® Certified product list
- EMI/RFI per FCC 47CFR Part 15 Class B Consumer limits (commercial and residential compliant)
- Photometric testing in accordance with IES LM-79
- Lumen maintenance projections in accordance with IES LM-80 and TM-21
- CE Mark - "Conformité Européenne" conformity with the Council of European Communities Directives, meeting internationally recognized compliance when used with Halo H550, H750, and H2750 Series LED housings only

* Not for use with housings in direct contact with spray foam insulation.

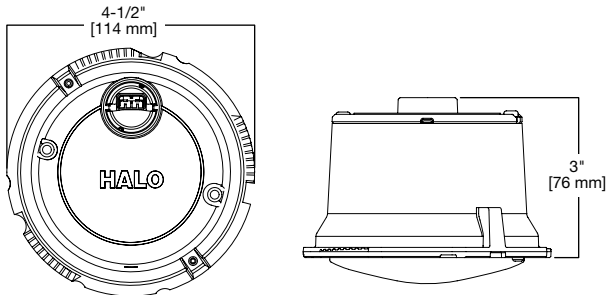


Refer to ENERGY STAR® Qualified Products List.

Can be used to comply with California Title 24 High Efficacy requirements.



Dimensions



Ordering Information

Sample Number: **ML5609930 593WB**

Order LED Module and trim separately.

A complete system also includes a compatible housing (new construction, remodel, or existing retrofit). Housing aperture size in the ML56 System is determined by the ML56 trim dimensions.

ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to Housing Section in this document.

ML56 LED Modules 900 Series / 90 CRI

ML5609927= 5"/6" LED module, 900 lumen, 90CRI, 2700K
ML5609930= 5"/6" LED module, 900 lumen, 90CRI, 3000K
ML5609935= 5"/6" LED module, 900 lumen, 90CRI, 3500K
ML5609940= 5"/6" LED module, 900 lumen, 90CRI, 4000K
ML5609D2W930= 5"/6" dim-to-warm LED module, 900 lumen, 90CRI, 1850K

California non-E26 modules¹

ML5609927-CA= 5/6" LED module, 900 lumen, 90CRI, 2700K, California non-E26
ML5609930-CA= 5/6" LED module, 900 lumen, 90CRI, 3000K, California non-E26
ML5609935-CA= 5/6" LED module, 900 lumen, 90CRI, 3500K, California non-E26
ML5609940-CA= 5/6" LED module, 900 lumen, 90CRI, 4000K, California non-E26

ML56 LED 5" and 6" Trims

590 Series - 5" LED Trims

591WB=5" LED trim, polymer "dead-front", shallow white baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)
592SC=5" LED trim, specular reflector & white flange
592H=5" LED trim, haze reflector & white flange
592W=5" LED trim, white reflector & flange
593WB=5" LED trim, white micro-step baffle & flange
593BB=5" LED trim, black micro-step baffle & white flange
593SNB=5" LED trim, satin nickel micro-step baffle & flange
593TBZB=5" LED trim, tuscan bronze micro-step baffle & flange
594WB=5" LED directional trim, white eyeball, baffle & flange – shallow and standard housings
594SNB=5" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings
594TBZB=5" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings
595WW=5" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange
596WB=5" LED trim, white shallow baffle & flange – shallow and standard housings

690 Series - 6" LED Trims

691WB=6" LED trim, polymer "dead-front", white shallow baffle & flange – shallow and standard housings (For use with 600 Series LED light modules only)
692SC=6" LED trim, specular reflector & white flange
692H=6" LED trim, haze reflector & white flange
692W=6" LED trim, white reflector & flange
693WB=6" LED trim, white micro-step baffle & flange
693BB=6" LED trim, black micro-step baffle & white flange
693SNB=6" LED trim, satin nickel micro-step baffle & flange
693TBZB=6" LED trim, tuscan bronze micro-step baffle & flange
694WB=6" LED directional trim, white eyeball, baffle & flange – shallow and standard housings
694SNB=6" LED directional trim, satin nickel eyeball, baffle & flange – shallow and standard housings
694TBZB=6" LED directional trim, tuscan bronze eyeball, baffle & flange – shallow and standard housings
695WW=6" LED trim, wall wash - specular reflector, repositionable specular kick reflector, white flange
696WB=6" LED trim, white shallow baffle & flange – for use with shallow and standard housings

ML56 System Accessories

ML56CLIP=Friction clip mounting kit - For retrofitting non-torsion spring housings, 6" clips*
WW595SC=5" Wall wash insert - kick reflector for 595WW (1-included with trim) double or corner wall wash**
WW695SC=6" Wall wash insert - kick reflector for 695WW (1-included with trim) double or corner wall wash**
TRM590WH=5" LED oversize trim ring for use with 59* series trims, white 6.3" I.D., 7.5" O.D. Ring slips over LED trim. Inset design allows 5" trim to fit into oversize ring for an even trim surface
TRM690WH=6" LED oversize trim ring for use with 69* series trims, white 6.9" I.D., 9.5" O.D. Ring slips over LED trim. Inset design allows 6" trim to fit into oversize ring for an even trim surface

*ML56CLIP is compatible with 6" baffle and reflector trims only (691, 692, 693, 695, 696 series).


For eyeball trim (694 series) use ML7RAB retrofit adapter band.

**Wall wash trims 595WW and 695WW feature an exclusive repositionable kick reflector for fine-tuning adjustment of the wall wash effect. The WW595SC and WW695SC are repositionable kick reflectors sold separately for addition to the wall wash trim when a double or corner wall wash is needed, or for replacement of original kick reflector included with the trim.


Notes: 1. California product only.

Lighting Info


ML5609927

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	890
Watts	9.4
Lumens Per Watt (Efficacy)	95.0
Color Accuracy (CRI)	94
Light Color (CCT) Correlated Color Temperature (CCT)	2700K
	
MODEL# ML5609927	


ML5609930

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	953
Watts	9.4
Lumens Per Watt (Efficacy)	101
Color Accuracy (CRI)	94
Light Color (CCT) Correlated Color Temperature (CCT)	3000K
	
MODEL# ML5609930	

ML5609935

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1019
Watts	9.3
Lumens Per Watt (Efficacy)	109
Color Accuracy (CRI)	93
Light Color (CCT) Correlated Color Temperature (CCT)	3500K
	
MODEL# ML5609935	

ML5609940

PRODUCT SPECIFICATIONS	
Lumens (Light Output)	1041
Watts	9.4
Lumens Per Watt (Efficacy)	111
Color Accuracy (CRI)	93
Light Color (CCT) Correlated Color Temperature (CCT)	4000K
	
MODEL# ML5609940	

Housing – Trim Compatibility

Housing compatibility in the ML56 System is determined by the ML56 trim dimensions. ML56 trims are available in 5" and 6" aperture (5" = 59xx series and 6" = 69xx series trims). Refer to ML56 TRIMS in this document. (Note "X" in the trim model number denotes finish code.)

Housing – Compatibility

The ML56 LED module - trim combination is cULus Listed or UL Classified for use with any 5" or 6" diameter recessed housing constructed of steel or aluminum with an internal volume that exceeds 115 in³ in addition to those noted below.

Halo and All-Pro UL Listed Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H750ICAT	6" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		H750RICAT	6" LED, Insulated Ceiling, Air-Tite, Remodel Housing
		H750T	6" LED, Non-IC, Air-Tite, New Construction Housing
		H750TCP	6" LED, Non-IC, New Construction/Remodel Chicago Plenum Housing
		E750ICAT	6" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		E750RICAT	6" LED, Insulated Ceiling, Air-Tite, Remodel Housing
Halo	Shallow Housings	H2750ICAT	6" LED, Shallow, Insulated Ceiling, Air-Tite, New Constr. (use with 691X, 694X, 696X trims only)
		H2750RICAT	6" LED, Shallow, Insulated Ceiling, Air-Tite, Remodel (use with 691X, 694X, 696X trims only)

HALO - Incandescent E26 Screwbase Housings

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H7ICAT	6" Insulated Ceiling, Air-Tite New Construction Housing
		H7RICAT	6" Insulated Ceiling, Air-Tite Remodel Housing
		H7ICT	6" Insulated Ceiling, New Construction Housing
		H7RICT	6" Insulated Ceiling, Remodel Housing
		H7ICATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket
		H7ICTNB	6" Insulated Ceiling, New Construction Housing, No Socket Bracket
		H7T	6" Non-IC, New Construction Housing
		H7RT	6" Non-IC, Remodel Housing
		H7TNB	6" Non-IC, New Construction Housing, No Socket Bracket
		H7TCP	6" Non-IC, Chicago Plenum, New Construction/Remodel Housing
		H7UICAT	6" Insulated Ceiling, Universal, Air-Tite, New Construction Housing
		E7ICAT	6" Insulated Ceiling, Air-Tite New Construction Housing
		E7RICAT	6" Insulated Ceiling, Air-Tite Remodel Housing
		E7ICATNB	6" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket
		E7TAT	6" Non-IC, Air-Tite New Construction Housing
		E7RTAT	6" Non-IC, Air-Tite Remodel Housing
		E7TATNB	6" Non-IC, Air-Tite New Construction Housing, No Socket Bracket
Halo	Shallow Housings	H27ICAT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)
		H27RICAT	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)
		H27T	6" Shallow, Non-IC, New Construction Housing (use with 691X, 694X, 696X trims only)
		H27RT	6" Shallow, Non-IC, Remodel Housing (use with 691X, 694X, 696X trims only)
		E27ICAT	6" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 691X, 694X, 696X trims only)
		E27RICAT	6" Shallow, Insulated Ceiling, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)
		E27TAT	6" Shallow, Non-IC, Air-Tite New Construction Housing (use with 691X, 694X, 696X trims only)
		E27RTAT	6" Shallow, Non-IC, Air-Tite Remodel Housing (use with 691X, 694X, 696X trims only)

Halo LED Retrofit Enclosures

Brand	Type	Catalog Number	Description
Halo	Retrofit	ML7BXRFK	6" Retrofit Enclosure, Non-IC, BX Whip
		ML7E26RFK	6" Retrofit Enclosure, Non-IC, E26 Screw base Interface

Housing Compatibility - Continued

5" Trims: 591X, 592X, 593X, 594X, 595X, 596X

(Note shallow housings for use with 591X, 594X, 596X trims only)

HALO - LED Housings with LED Luminaire Connector - High-Efficacy Compliant

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H550ICAT	5" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		H550RICAT	5" LED, Insulated Ceiling, Air-Tite, Remodel Housing
		E550ICAT	5" LED, Insulated Ceiling, Air-Tite, New Construction Housing
		E550RICAT	5" LED, Insulated Ceiling, Air-Tite, Remodel Housing

HALO - Incandescent E26 Screwbase Housings

Brand	Housing Type	Catalog Number	Description
Halo	Standard Housings	H5ICAT	5" Insulated Ceiling, Air-Tite New Construction Housing
		H5RICAT	5" Insulated Ceiling, Air-Tite Remodel Housing
		H5ICATNB	5" Insulated Ceiling, Air-Tite New Construction Housing, No Socket Bracket
		H5T	5" Non-IC, New Construction Housing
		H5RT	5" Non-IC, Remodel Housing
		H5TNB	5" Non-IC, New Construction Housing, No Socket Bracket
		H5TM	5" Non-IC, New Construction Housing (Canada)
Halo	Shallow Housings	H25ICAT	5" Shallow, Insulated Ceiling, Air-Tite New Construction (use with 591X, 594X, 596X trims only)
		H25RICAT	5" Shallow, Insulated Ceiling, Air-Tite Remodel (use with 591X, 594X, 596X trims only)
		H25ICATNB	5" Shallow, Insulated Ceiling, Air-Tite New Construction, No Socket Bracket (use with 591X, 594X, 596X trims only)

Housings - UL Classified for Retrofit Compatibility

6" Trims: 691X, 692X, 693X, 694X, 695X, 696X

(Note shallow housings for use with 691X, 694X, 696X trims only)

Brand	Housing Type	Description
Juno	Standard Housings	IC22, IC22R, IC22W, IC22S, IC23, IC23W, TC2, TC2R, IC2
	Shallow Housings	IC21, IC21R (use with 691X, 694X, 696X trims only)
Capri	Standard Housings	CR1, PR1, QL1
	Shallow Housings	R9ASIC/PS9RM (use with 691X, 694X, 696X trims only)
Elco		HL7ICA (EL7ICA)
Lithonia	Standard Housings	LC6, L7X
	Shallow Housings	L7XP (use with 691X, 694X, 696X trims only)
Thomas		PS1
Commercial Electric		C7ICA, H3
Progress	Standard Housing	P87-AT †*
	Shallow Housing	P86TG (use with 691X, 694X, 696X trims only)
Lightolier		1104ICS †*, 1104ICR †*

† Requires replacement of torsion springs with Friction Clips. Order Friction Clip Kit separately: ML56CLIP

* ML56CLIP is compatible with only baffle and reflector trims

5" Trims: 591X, 596X

Brand	Housing Type	Catalog Number
Juno	Standard Housings	IC20, IC25S, IC25W, TC20

ML56 900 Series Compliance Table**90 CRI LED Modules with ML56 Trims**

	ML5609927	ML5609930	ML5609935	ML5609940
593BB	WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
693BB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
593TBZB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
693TBZB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
593SNB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
693SNB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
592H	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
593WB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
592W	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
595WW	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
592SC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
692H	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
695WW	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
693WB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
692SC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
596WB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
692W	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
594TBZB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
694TBZB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
594SNB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
696WB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
694SNB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
694WB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
594WB	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
594WB-30	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC
694WB-30	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC	ES, T24, WSEC, IECC

Code Descriptions:

ES = ENERGY STAR® Certified Luminaire

T24 = Can be used to comply with California Title 24 High Efficacy requirements. Certified to California Title 20 Appliance Efficiency Database.

IECC = International Energy Conservation Code "High Efficacy"

WSEC = Washington State Energy Code - "High Efficacy" Luminaire

ML56 900 Series Lumen Table

90 CRI LED Modules with ML56 trims		ML5609927		ML5609930		ML5609935		ML5609940	
	Trim Catalog #	Lumens	LPW	Lumens	LPW	Lumens	LPW	Lumens	LPW
0° Tilt Angle	593BB	560.4	58.1	602.0	63.0	636.3	66.9	660.1	69.3
	693BB	629.0	65.3	675.8	70.7	714.2	75.1	740.9	77.8
	593TBZB	638.6	66.2	686.0	71.8	725.1	76.2	752.2	79.0
	693TBZB	664.0	68.9	713.4	74.6	753.9	79.3	782.1	82.2
	593SNB	704.2	73.0	756.5	79.1	799.6	84.1	829.5	87.1
	693SNB	735.0	76.2	789.7	82.6	834.6	87.8	865.8	90.9
	592H	788.0	81.7	846.6	88.6	894.8	94.1	928.2	97.5
	593WB	825.4	85.6	886.7	92.8	937.2	98.5	972.2	102.1
	592SC	853.2	88.5	916.6	95.9	968.7	101.9	1005.0	105.6
	592W	832.3	86.3	894.2	93.5	945.1	99.4	980.4	103.0
	595WW	852.3	88.4	915.7	95.8	967.8	101.8	1004.0	105.5
	695WW	858.4	89.0	922.2	96.5	974.7	102.5	1011.1	106.2
	692H	856.6	88.9	920.3	96.3	972.7	102.3	1009.1	106.0
	692W	881.8	91.5	947.4	99.1	1001.3	105.3	1038.8	109.1
	692SC	880.7	91.4	946.2	99.0	1000.1	105.2	1037.5	109.0
	693WB	868.8	90.1	933.4	97.6	986.5	103.7	1023.4	107.5
	596WB	881.0	91.4	946.5	99.0	1000.3	105.2	1037.7	109.0
	694TBZB	892.3	92.6	958.6	100.3	1013.1	106.5	1051.0	110.4
	696WB	907.9	94.2	975.4	102.0	1030.9	108.4	1069.5	112.3
	594TBZB	887.9	92.1	953.9	99.8	1008.2	106.0	1045.9	109.9
	694SNB	908.8	94.3	976.3	102.1	1031.9	108.5	1070.5	112.4
	594SNB	892.3	92.6	958.6	100.3	1013.1	106.5	1051.0	110.4
	694WB	946.1	98.1	1016.5	106.3	1074.3	113.0	1114.5	117.1
	594WB	947.6	98.3	1018.1	106.5	1076.0	113.1	1116.3	117.3
30° Tilt Angle	594WB-30	918.3	95.3	986.6	103.2	1042.7	109.6	1081.7	113.6
	694WB-30	892.3	92.6	958.6	100.3	1013.1	106.5	1051.0	110.4

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 5" Trims • 900 Series • 90 CRI
Multiplier Table

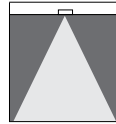
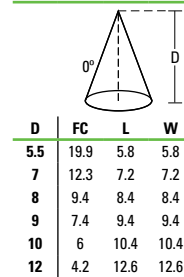
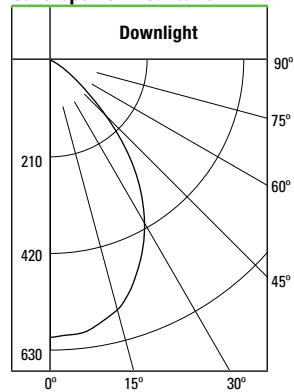
CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.88	1.00	1.04	1.10

Table based upon testing with 3000°K color temperature, 90CRI.

Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609930-592SC

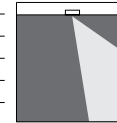
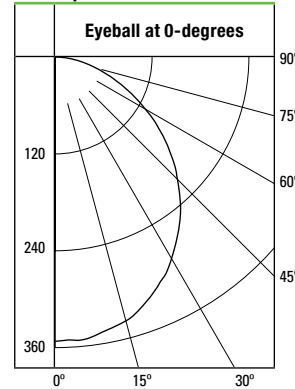
Test Number	P130008
Light Module	900 Series, 90CRI
Trim	5" Aperture, Specular Clear Trim
Lumens	827
Efficacy	61.7 Lm/W
SC	1.06


Cone of Light

Candlepower Distribution

Zonal Lumen Summary

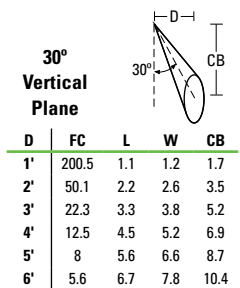
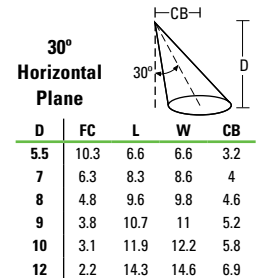
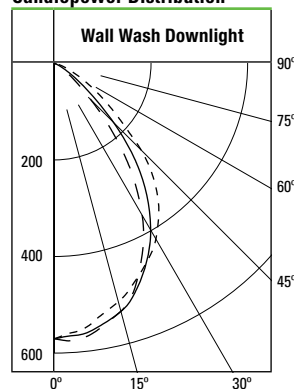
Zone	Lumens	%Fixture
0-30	428	51.8
0-40	639	77.2
0-60	817	98.8
0-90	827	100
90-180	0	0
0-180	827	100

ML5609930-594WB

Test Number	P130064
Light Module	900 Series, 90CRI
Trim	5" Aperture, Directional Eyeball
Lumens	918
Efficacy	68.5 Lm/W
SC	1.22


Candlepower Distribution

Zonal Lumen Summary

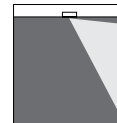
Zone	Lumens	%Fixture
0-30	271	29.5
0-40	437	47.6
0-60	744	81
0-90	918	100
90-180	0	0
0-180	918	100


Candlepower Distribution

Legend

0-deg: — — — — —	Wall
90-deg: — — — — —	Side
180-deg: — — — — —	Room

ML5609930-595WW

Test Number	P130088
Light Module	900 Series, 90CRI
Trim	5" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	826
Efficacy	61.6 Lm/W
SC	1.06


Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	3.4	2.2	0.8	0.2	0.1	0	0
2'	11.8	8.6	3.7	1.1	0.3	0.1	0
3'	13.7	11.4	6.1	2.4	0.9	0.3	0.1
4'	9.6	8.7	6.2	3.3	1.5	0.6	0.3
5'	6.4	6	4.7	3.2	1.9	0.9	0.4
6'	4.3	4.1	3.5	2.6	1.8	1.1	0.6
7'	3	2.9	2.5	2	1.5	1.1	0.7
8'	2.1	2.1	1.9	1.6	1.3	1	0.7
9'	1.6	1.5	1.4	1.2	1	0.8	0.6
10'	1.2	1.2	1.1	1	0.8	0.7	0.6

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--			--4'--		
1'	3.6	2.8	3.6	3.4	1.6	3.4
2'	12.8	11.6	12.8	12.1	7.3	12.1
3'	16.1	17.5	16.1	14.6	12.3	14.6
4'	12.9	14.8	12.9	11.1	12.3	11.1
5'	9.5	10.6	9.5	8.2	9.5	8.2
6'	6.9	7.5	6.9	6.1	6.9	6.1
7'	5	5.3	5	4.5	5.1	4.5
8'	3.7	3.9	3.7	3.4	3.8	3.4
9'	2.8	2.9	2.8	2.6	2.8	2.6
10'	2.1	2.2	2.1	2	2.2	2

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

Photometry 6" Trims • 900 Series • 90 CRI

Multiplier Table

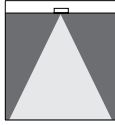
CCT Option	2700 K	3000 K	3500 K	4000 K
CCT Multiplier	0.88	1.00	1.04	1.10

Table based upon testing with 3000°K color temperature, 90CRI.

Multipliers may be used to determine relative lumen values with other color temperatures.

ML5609930-692SC

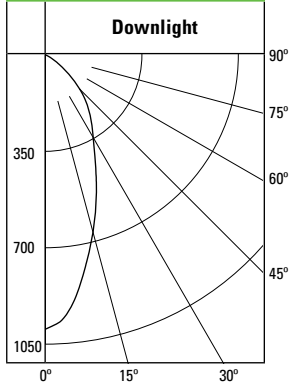
Test Number	P130104
Light Module	900 Series, 90CRI
Trim	6" Aperture, Specular Clear Trim
Lumens	853
Efficacy	63.7 Lm/W
SC	0.66



Cone of Light

D	FC	L	W
5.5	32.9	3.6	3.6
7	20.3	4.6	4.6
8	15.6	5.2	5.2
9	12.3	5.8	5.8
10	10	6.6	6.6
12	6.9	7.8	7.8

Candlepower Distribution

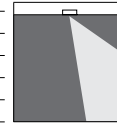


Zonal Lumen Summary

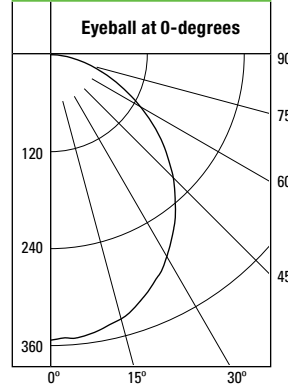
Zone	Lumens	%Fixture
0-30	469	54.9
0-40	649	76.1
0-60	842	98.7
0-90	853	100
90-180	0	0
0-180	853	100

ML5609930-694WB

Test Number	P130160
Light Module	900 Series, 90CRI
Trim	6" Aperture, Directional Eyeball
Lumens	917
Efficacy	68.4 Lm/W
SC	1.21



Candlepower Distribution

30°
Horizontal
Plane

D	FC	L	W	CB
5.5	10.3	6.6	6.6	3.2
7	6.3	8.3	8.6	4
8	4.8	9.6	9.8	4.6
9	3.8	10.7	11	5.2
10	3.1	12	12.2	5.8
12	2.2	14.3	14.6	6.9

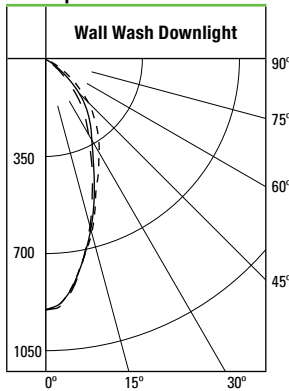
30°
Vertical
Plane

D	FC	L	W	CB
1'	200.5	1.1	1.2	1.7
2'	50.1	2.2	2.6	3.5
3'	22.3	3.3	3.8	5.2
4'	12.5	4.5	5.2	6.9
5'	8	5.6	6.6	8.7
6'	5.6	6.7	7.8	10.4

Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	271	29.5
0-40	437	47.6
0-60	744	81.1
0-90	917	100
90-180	0	0
0-180	917	100

Candlepower Distribution

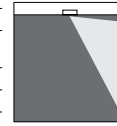


Legend

0-deg:	— — — — —	Wall
90-deg:	— — — — —	Side
180-deg:	— — — — —	Room

ML5609930-695WW

Test Number	P130184
Light Module	900 Series, 90CRI
Trim	6" Aperture, Wall Wash with Specular Clear Trim and Specular Clear Kick Reflector
Lumens	832
Efficacy	62.1 Lm/W
SC	0.69



Zonal Lumen Summary

Zone	Lumens	%Fixture
0-30	445	53.5
0-40	622	74.8
0-60	813	97.7
0-90	832	100
90-180	0	0
0-180	832	100

Single Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	●	1'	2'	3'	4'	5'	6'
1'	2.5	1.4	0.5	0.2	0	0	0
2'	10.9	7.7	3.4	1.1	0.3	0.1	0
3'	11.6	9.5	5.5	2.5	0.9	0.3	0.1
4'	8.7	7.5	5.2	3	1.5	0.6	0.3
5'	6.2	5.5	4.1	2.8	1.7	0.9	0.4
6'	4.4	4	3.2	2.3	1.5	1	0.6
7'	3.3	3	2.5	1.9	1.3	0.9	0.6
8'	2.5	2.3	1.9	1.5	1.1	0.8	0.6
9'	2	1.8	1.5	1.2	0.9	0.7	0.5
10'	1.5	1.4	1.3	1	0.8	0.6	0.5

Multiple Unit Footcandles

2.5' From Wall (Distance From Fixture Along Wall)

DD	--3'--			--4'--		
1'	2.6	1.9	2.6	2.5	1	2.5
2'	11.9	10.8	11.9	11.1	6.7	11.1
3'	14.1	15.1	14.1	12.5	11	12.5
4'	11.8	12.9	11.8	10.2	10.4	10.2
5'	8.9	9.8	8.9	7.8	8.3	7.8
6'	6.7	7.4	6.7	5.9	6.4	5.9
7'	5.1	5.6	5.1	4.6	5	4.6
8'	4	4.3	4	3.6	3.9	3.6
9'	3.2	3.4	3.2	2.9	3.1	2.9
10'	2.5	2.7	2.5	2.3	2.5	2.3

Photometric tests are per IES measurement standards. Tests represent typical fixture performance. Field results may vary.

L70
25°C

50,000 Hours



NOTES:

FIXTURE TYPE: **FIXTURE M**

PROJECT:



Head tilts to 90° degree

FEATURES

Construction

- Sealed die-casting profile for outdoor applications.
- Suitable for applications requiring 3G testing prescribed by ANSI C136.31.

Optics

- Light engines are available in standard 4000 K and 5000 K (70 CRI) configurations.
- Scalable Lumen Packages from 3,500 to 10,500 Lumens.
- Tempered UV coated flat lens provide outstanding performance, uniformity and glare control.

Electrical

- Standard drivers feature electronic universal voltage (120-277V 50/60Hz) operation.
- Greater than 0.9 power factor, less than 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments.

Lifespan

- Estimated 50,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations.

Warranty

- Five-year warranty.

Applications

- Security, pathway and perimeter lighting, Building entryways and walkways.

SPECIFICATIONS

Mounting

0° to +90° tilt adjustments, To meet the needs of customers with different lighting angles.



Housing

Suitable for both indoor and outdoor application, also suitable for J-BOX mounting and surface mounting.

Photocell

Optional for photocell, and allows for security and energy saving.

Lens

Polycarbonate optical lens with UV stabilizers do not exhibit yellowing and deformation.

PRODUCT DESCRIPTION

Slim wall pack is available in two watts for a variety of applications including building perimeter, entrances, stairways and security lighting. MWP10 series of luminaires provides a low-profile architectural style with the power of bright, energy efficient LEDs. It has a rugged aluminum construction with multi-mount capabilities. 0° to +90° tilt adjustments. For a building that has a modern or futuristic look.

ORDERING INFORMATION

EXAMPLE: MWP10-40W-27V-50K-D



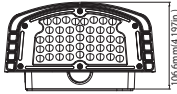
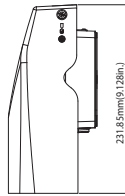
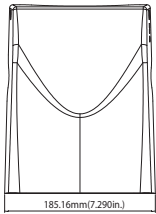
Model	Power Consumption	Input Voltage	CCT	Finish	Photocell (Option)	Dimmable	Internal Code
MWP10 = Wall Pack Series	27 = 27Watts 40 = 40Watts 67 = 67Watts 80 = 80Watts	27V = 120-277V	40K =4000K 50K =5000K	D = Dark Bronze	P0 =120-277V Photocell Blank =Without Photocell	D =0-10 Dimmable Blank = NON Dimmable	Blank = Alphanumeric

Note : The 80W is limited to dimmable.

DIMENSIONS

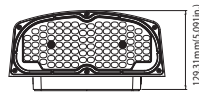
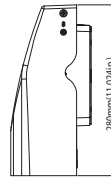
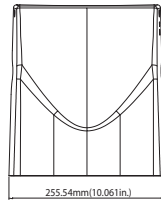
unit: mm/inch

Small size: 27W/40W



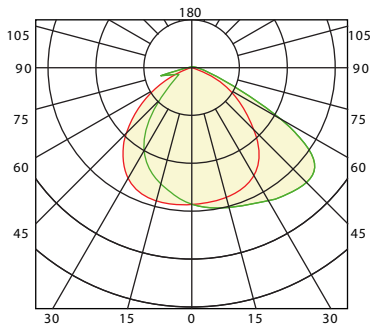
Net Weight:
27W: 1.52kg(3.351lb)
40W: 1.80kg(3.968lb)

Medium size: 67W/80W



Net Weight:
67W: 3.32kg(7.319lb)
80W: 3.54kg(7.804lb)

PHOTOMETRICS



ACCESSORIES



Photocell

No. PC-JL-120-277V

USE: Photocell is field installed or pre-installed in factory
by requesting

PERFORMANCE DATA		3000K(70CRI)		4000K(70CRI)		5000K(70CRI)	
SYSTEM WATTS	VOLTAGE	LUMENS	LPW	LUMENS	LPW	LUMENS	LPW
27W	120-277VAC	3500lm	130 lm/W	3600lm	133 lm/W	3600lm	133 lm/W
40W	120-277VAC/347-480V	5000lm	125 lm/W	5200lm	130 lm/W	5200lm	130 lm/W
67W	120-277VAC/347-480V	8600lm	128 lm/W	8800lm	131 lm/W	8800lm	131 lm/W
80W	120-277VAC	10000lm	125 lm/W	10500lm	131 lm/W	10500lm	131 lm/W

ELECTRICAL DATA				
Number Of Drivers	Driver Current (mA)	Nominal Power (W)	INPUT VOLTAGE (V)	CURRENT (Amps)
1	430	27	120	0.23
		27	208	0.13
		27	240	0.11
		27	277	0.10
1	640	40	120	0.33
		40	208	0.19
		40	240	0.17
		40	277	0.14
1	1110	67	120	0.56
		67	208	0.32
		67	240	0.28
		67	277	0.24
1	2120	80	120	0.67
		80	208	0.38
		80	240	0.33
		80	277	0.29

DLC MODEL NO.

SYSTEM WATTS	VOLTAGE	CCT	DLC NO.	DLC Classification
27W	120-277V	4000K	MWP1027W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1027W27V50KD [P0,Blank][X,Blank]	Premium
40W	120-277V	4000K	MWP1040W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1040W27V50KD [P0,Blank][X,Blank]	Premium
		4000K	MWP1040W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1040W27V50KD [P0,Blank][X,Blank]	Premium
67W	120-277V	4000K	MWP1067W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1067W27V50KD [P0,Blank][X,Blank]	Premium
		4000K	MWP1067W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1067W27V50KD [P0,Blank][X,Blank]	Premium
80W	120-277V	4000K	MWP1080W27V40KD [P0,Blank][X,Blank]	Premium
		5000K	MWP1080W27V50KD [P0,Blank][X,Blank]	Premium

Steven Robertson

From: Tara Smith
Sent: Thursday, November 30, 2023 3:14 PM
To: danb@rentwithheirloom.com; RYAN@AROLAARCH.COM; JED@AROLAARCH.COM
Cc: Chris Machmer; David Hjelle; Steven Robertson
Subject: ISSUED PERMITS: EEC2304-004, BSHFP2308-006, BBLDG2304-021, BBLDG2304-022, BBLDG2304-023 - DRAGESTIL HOTEL

November 30, 2023

danb@rentwithheirloom.com; RYAN@AROLAARCH.COM; JED@AROLAARCH.COM

RE: ISSUED PERMITS: EEC2304-004, BSHFP2308-006, BBLDG2304-021, BBLDG2304-022, BBLDG2304-023 - DRAGESTIL HOTEL

Good Afternoon,

Your permits have been issued. Please use the link below to access your documents:

[DRAGESTIL HOTEL](#)

Please print all items to scale and in color. One set of the reviewed and stamped construction documents shall be kept at the site of the work and always available for inspection by the Building Official, Building Inspectors, and City of Duluth Staff.

Inspections will not occur unless ALL ATTACHMENTS are properly printed and on site for review by the inspector.

Permit Holder Responsibilities Form: <https://duluthmn.gov/media/7200/handout-commercial-permit-holder-responsibilities-173.pdf>

If you have any questions regarding code or technical requirements, the inspection process, or what inspectors will be looking for, feel free to call your inspector prior to starting your project.

Be sure to contact the inspector listed on the permit to schedule inspections.

This permit becomes invalid if the work authorized by the permit is suspended or abandoned for more than 180 days. MR 1300.0120 Subp. 10.

Let me know if you have any questions!

Thank you,

Tara Smith | Permit Coordinator | **Construction Services & Inspections** | 411 West First Street Duluth, MN 55802 | 218-730-5176 | tsmith@duluthmn.gov



Steven Robertson

From: Jed Lahti <jed@arolaarch.com>
Sent: Thursday, October 5, 2023 10:22 AM
To: Chris Machmer
Subject: Fwd: FW: Dragestil Hotel Geotechnical Evaluation Report
Attachments: image001.png; Dragestil Hotel Geo Report.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Chris,

Email from Paul Johnson (MBJ) is forwarded below.

I'll be sending another email with the Geo Tech report and additional commentary & code summary changes.

Jed

----- Forwarded message -----

From: Paul Johnson <pjohnson@mbjeng.com>
Date: Thu, Oct 5, 2023 at 9:56 AM
Subject: RE: FW: Dragestil Hotel Geotechnical Evaluation Report
To: Jed Lahti <jed@arolaarch.com>

Jed

MBJ has reviewed the final Geotechnical Report dated 9/29/2023 for the Dragestil Hotel prepared by Braun Intertec (Braun project B2309036, copy attached). The observations, test results and recommendations are consistent with the design of foundations MBJ completed for buildings 1-3 of the subject project. Based on our review of this report we have several comments:

1. Existing fill soils must be removed for all buildings as noted in the report. The required minimum excavation for buildings 1-3 will extend to near the anticipated groundwater elevation. The required minimum excavation for building 4 will extend approximately five feet below the anticipated groundwater elevation and will require extensive dewatering or an alternate (deep) foundation design.
2. Soil correction including backfill and compaction as well as dewatering must be completed as noted in the report.
3. The maximum recommended net allowable soil bearing pressure is 3,000 PSF, which exceeds the assumed (minimum) design value of 2,000 PSF.
4. With respect to frost protection, we recommend the contractor carefully install horizontal insulation as indicated on the drawings and review the recommendations contained within the report regarding removal of poor soils and proper slope of grade.

Please don't hesitate to contact me should you have questions or require any additional information.

Paul

Paul A. Johnson, PE

Associate

501 Lake Avenue South, Suite 200

Duluth, MN 55802

d 218.600.5801 | c 218.310.4329



mbjeng.com

PE (MN, NC, ND, WI)

NOTICE: The information in this e-mail and any attachments are confidential and solely for the use of the intended recipient(s). If you receive this e-mail in error, please notify the sender and delete the e-mail from your system immediately.

From: Jed Lahti <jed@arolaarch.com>
Sent: Tuesday, October 3, 2023 10:04 AM
To: Paul Johnson <pjohnson@mbjeng.com>
Subject: Fwd: FW: Dragestil Hotel Geotechnical Evaluation Report

Dragestil Geo Tech Report

----- Forwarded message -----

From: Daniel Buerskin <danb@rentwithheirloom.com>
Date: Mon, Oct 2, 2023 at 8:46 AM
Subject: FW: Dragestil Hotel Geotechnical Evaluation Report
To: Jed Lahti <jed@arolaarch.com>

Good Morning,

Attached is the geotech report. Everything on Lake Ave where the borings took place before and where we excavated. However, the MN Ave building 4 is not favorable. We're going to have to talk about what we are going to do there as I believe if I'm reading this correctly, the foundation we are proposing there will not work without a massive excavation that we don't have room for.

I think it is safe to say we won't be starting anything on that lot this year. We will concentrate our efforts on buildings 1,2,3 for now as we work through this. Please let me know if this will work to get us going on the permits.

--Thanks,

Dan Buerskin
Project Manager
Heirloom Construction

t. 218.390.4317
m. 218.590.6917
e. danb@rentwithheirloom.com
w. www.rentwithheirloom.com

From: Moen-Kienzle, Angela <AMoen-kienzle@braunintertec.com>
Date: Friday, September 29, 2023 at 4:24 PM
To: danb@rentwithheirloom.com <danb@rentwithheirloom.com>
Cc: Morrison, David <DMorrison@braunintertec.com>
Subject: Dragestil Hotel Geotechnical Evaluation Report

Please find the geotechnical evaluation report attached for the Dragestil Hotel in Duluth, Minnesota. Please contact David Morrison with any questions at dmorrison@braunintertec.com or 218.624.4967.

Thanks, have a great day!

Angie Moen-Kienzle

Project Assistant
4511 West First Street, Suite 4 | Duluth, MN 55807

218.624.4967 direct

amoen-kienzle@braunintertec.com

braunintertec.com | [Twitter: Braun Intertec](#) | [LinkedIn: Braun Intertec](#)

Steven Robertson

From: Jed Lahti <jed@arolaarch.com>
Sent: Thursday, October 5, 2023 10:24 AM
To: Chris Machmer
Subject: Re: FW: Dragestil - Revisions per plan review comments
Attachments: image001.png; 2166 - (A0.1) Code Summary Life Safety BLDG 4.pdf; 2166 (A0.1) Life Safety Plans Code Summary BLDG 1-3.pdf; Dragestil Hotel Geo Report.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Chris,

PDFs of the revised code summary(s) are attached. Final Geo Tech report attached.

See my previous email with comments from Paul Johnson regarding the geo tech report.

Heirloom would like to move forward with Buildings 1-3 ASAP while we reevaluate building #4. Bad soils in that area will require additional foundation design work.

Jed

On Wed, Sep 27, 2023 at 1:31 PM Chris Machmer <cmachmer@duluthmn.gov> wrote:

Good afternoon, Jed,

I spent some time with the Dragestil plans yesterday, and found a couple of minor outstanding items. I'm cutting and pasting the associated comments and responses here rather than sending the whole letter back to you.

1.g. Actual areas in the Code Summary appear to be correct when compared with the plans. Areas in the Project Requirements section appear to differ. Please make consistent. (AREA CALCULATIONS IN PROJECT REQUIREMENTS ARE FOR UNITS ONLY AND DO NOT INCLUDE STAIR/FOYER. IF THIS IS INCORRECT, PLEASE NOTIFY AND CODE SUMMARY WILL BE REVISED) I was looking at this incorrectly. We shouldn't be including any of the area within the stair enclosure. Disregard!

Hand in hand, I don't know what I was thinking when I said disregard this comment. We need to look at all the area within the exterior walls when performing gross occupant load factor calculations. If this was a net occupant load factor, we could exclude the stair enclosure. The requirements and exclusions can be found in the IBC definitions, Floor Area, gross and Floor Area, net. Apologies – I am going to ask you to revise the areas in the code summaries to include all the

space inside the exterior walls, and re-calc the occupant loads based on the full floor areas. There are no other code impacts aside from consistency in the code summary.

4.c. Please provide R-value requirements for the insulation protecting the shallow foundations supporting the decks over unconditioned space, or provide frost depth footings. (DECKS HAVE BEEN REMOVED FROM THE DESIGN) The post supporting the 2nd floor balcony (over unheated space) must be frost protected. How is this being achieved? SEE REVISED FOUNDATION PLANS

The foundation notes on Sheet A0.4 states that footings adjacent to unheated space "shall be 72." I'm concerned that the post supporting the balcony is resting upon a shallow foundation under unheated space, It's highly unusual to have a post such as this over unheated space that is not on a full frost depth footing, or, as in this case, following the requirements set forth in the engineering notes. Can the engineer provide a response as to how this post will be frost protected? I recognize the drawings are certified – I'm just trying to understand this method of frost protection because, as I say, it's very unusual.

I suspect the foundation plans may change based on the geotech recommendations, so the preceding comment may be irrelevant.

Beyond these couple of items, things are looking pretty good. Please let me know if you have any questions.

Thank you,

Chris Machmer | Plans Examiner | **Construction Services & Inspections** | 411 West First Street Duluth, MN 55802 | 218-730-5247 | cmachmer@duluthmn.gov

From: Jed Lahti <jed@arolaarch.com>
Sent: Tuesday, September 26, 2023 9:38 AM
To: Chris Machmer <cmachmer@duluthmn.gov>
Subject: Re: FW: Dragestil - Revisions per plan review comments

Thanks for the update, Chris.

I'll see if I can get the geotech info for the engineer prior to the final report being issued and have him verify that the design is compatible with the conditions in the report.

Jed

On Tue, Sep 26, 2023 at 9:27 AM Chris Machmer <cmachmer@duluthmn.gov> wrote:

Jed,

I haven't done my final review of the plans, but if all comments are addressed, I wouldn't anticipate needing anything else.

Your plans are on my list to review this week; shooting to pull everything together ahead of your final submittals.

Has your engineer revised or updated his design based on the Geotech report recommendations? We will want to see that the foundation design reflects those recommendations based on the investigation. That would be the only outstanding item I can think of that may slow things down.

Thanks,

Chris Machmer | Plans Examiner | **Construction Services & Inspections** | 411 West First Street Duluth, MN 55802 | 218-730-5247 | cmachmer@duluthmn.gov

From: Jed Lahti <jed@arolaarch.com>
Sent: Tuesday, September 26, 2023 9:17 AM
To: Chris Machmer <cmachmer@DuluthMN.gov>
Subject: Re: FW: Dragestil - Revisions per plan review comments

Hi Chris,

The Geotech site work was completed last week. Braun will have the report completed by the end of this week.

I've responded to Jenn & Chris Lee's planning questions.

Can you let me know if there is anything else you need from me so that when the Geotech report is submitted there are no other loose ends. Dan Buerskin at Heirloom Construction is REALLY getting anxious about getting the site work started and can't get an excavator to commit to the project until a permit is issued.

Thanks,

Jed

On Wed, Sep 13, 2023 at 8:40 AM Jed Lahti <jed@arolaarch.com> wrote:

Great!

The geotech report will be a quick turnaround; a day or two, so end of week next week.

Thanks,

Jed

On Wed, Sep 13, 2023 at 8:19 AM Chris Machmer <cmachmer@duluthmn.gov> wrote:

Jed,

Sounds good! When do you anticipate the geotech report will be available for review?

Yes, we can approach the Accessible Unit work as an after issue plan change.

Thanks,

Chris Machmer | Plans Examiner | **Construction Services & Inspections** | 411 West First Street Duluth, MN 55802 | 218-730-5247 | cmachmer@duluthmn.gov

Construction Services & Inspections office is temporarily located on the third floor, during construction of our space.

Take the elevator to the third floor & turn right to find us.

From: Jed Lahti <jed@arolaarch.com>
Sent: Wednesday, September 13, 2023 8:12 AM
To: Chris Machmer <cmachmer@duluthmn.gov>
Subject: Re: FW: Dragestil - Revisions per plan review comments

Chris,

Braun is scheduled to do the geotech work next Wednesday, Sept. 20.

Regarding accessibility, there is a long term renter in the existing Dragestil Unit that I need to field verify and the building owner would like to wait until Oct. 1 before I can get access to the building. Will this hold up permitting or can we plan to submit those drawings after the permit has been issued.

Thanks,

Jed

On Fri, Sep 8, 2023 at 1:09 PM Chris Machmer <cmachmer@duluthmn.gov> wrote:

Good afternoon, Jed,

I just wanted to follow up with a more comprehensive explanation of why we can't accept the submitted report, and address all the interested parties. Note that the building official is cc'd here, and he agrees with the need for a final report.

The reasons, in no order of importance are as follows:

- This is not a full geotechnical investigation – this is a letter commenting on the results of two borings.
- This letter was not produced for this project, and is 6 years old.
- We understand there has been some filling activities on the site since the letter was produced. The letter may not now accurately reflect site conditions.
- The two push probes were performed in areas where no buildings will be sited.
- The letter is not certified by an engineer licensed in Minnesota.
- The letter explicitly states it evaluates site feasibility, and is not a formal investigation.
- A geotechnical report should provide detailed recommendations for any necessary soil corrections, defines allowable bearing capacity for corrected soils (not a range), recommended type of footing, depth, and size. The letter addresses these items generally, and not definitively.
- This letter does not provide a basis for foundation design.
- There no definitive approach to dewatering methods, or if dewatering is required.
- A geotechnical investigation is required by Chapter 18 of the IBC.

Please let me know if you have any questions.

Thank you,

Chris Machmer | Plans Examiner | **Construction Services & Inspections** | 411 West First Street Duluth, MN 55802
| 218-730-5247 | cmachmer@duluthmn.gov

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From: Jed Lahti <jed@arolaarch.com>
Sent: Friday, September 8, 2023 10:56 AM
To: Chris Machmer <cmachmer@DuluthMN.gov>
Subject: Re: FW: Dragestil - Revisions per plan review comments

Can you call David Morrison (Braun Intertec) regarding the soils report?

He reviewed the "Preliminary Report" produced by TPT and said that everything in that report is adequate to be a final report.

David's cell number is 218-410-1076.

Thanks,

Jed

On Thu, Sep 7, 2023 at 4:20 PM Jed Lahti <jed@arolaarch.com> wrote:

Chris,

Signed special inspections form attached.

Latex Paint spec attached as well.

Thanks,

Jed

On Thu, Sep 7, 2023 at 3:46 PM Jed Lahti <jed@arolaarch.com> wrote:

Thanks, Chris.

Give me a call at your convenience to fill me in on the geotechnical report requirements. I'm getting questions from the owner/contractor that I can't answer; this is new to me.

It seems to me that we can't get a final determination & report until excavation is complete.

Thanks,

Jed

On Thu, Sep 7, 2023 at 3:28 PM Chris Machmer <cmachmer@duluthmn.gov> wrote:

Hi Jed,

We'll need the owner's, contractor's, and Ryan's signatures on the form as well.

Hey, I saw your resubmittal come through. I won't get to my review on it until late next week, but took a quick spin through the review comments in case there was anything I could quickly respond to.

I do want to clarify, we will need a final geotechnical report as described below prior to issuing a permit. We can chat more about this if you like.

Thanks much,

Chris Machmer | Plans Examiner | **Construction Services & Inspections** | 411 West First Street Duluth, MN 55802 | 218-730-5247 | cmachmer@duluthmn.gov

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From: Jed Lahti <jed@arolaarch.com>
Sent: Wednesday, September 6, 2023 8:01 AM
To: Chris Machmer <cmachmer@DuluthMN.gov>
Subject: Re: Dragestil - Revisions per plan review comments

I'm going to review your comments today.

PDF of the special inspections form is attached.

Jed

On Tue, Aug 29, 2023 at 4:06 PM Chris Machmer <cmachmer@duluthmn.gov> wrote:

Hi Jed,

Please see the attached for my follow on responses. One additional comment at 1.h.

Mostly small stuff, but we are going to need a final soils report with specific recommendations from the geotechnical engineer for soil corrections, and footing sizes. The soils report provided states explicitly that the site was evaluated for feasibility only, and is not a formal geotech evaluation, which we would expect to see for this site.

Let me know if you have any questions.

Thanks,

Chris Machmer | Plans Examiner | **Construction Services & Inspections** | 411 West First Street Duluth, MN 55802 | 218-730-5247 | cmachmer@duluthmn.gov

Construction Services & Inspections office is temporarily located on the third floor, during construction of our space.

Take the elevator to the third floor & turn right to find us.

From: Jed Lahti <jed@arolaarch.com>
Sent: Thursday, August 17, 2023 4:57 PM
To: Chris Machmer <cmachmer@DuluthMN.gov>
Subject: Dragestil - Revisions per plan review comments

Chris,

I still owe you the special inspections form. Waiting on signatures.

I also will be sending plans of the existing Dragestil Haus - Unit 1; our Type A unit. I need to get access to the building to verify a few things and will provide drawings detailing any modifications that need to be made.

Thanks,
Jed

--

AROLA ARCHITECTURE STUDIO, LLC

501 S. Lake Avenue, Suite 205

Duluth, Minnesota 55802

o. (218) 740-5219

c. (612) 247-7500

www.arolaarch.com

From: [Daniel Buerskin](#)
To: [Adam Fulton](#); [Michael Schraepfer](#); [Ryan Arola](#); [Jed Lahti](#)
Cc: [Steven Robertson](#); [Chris Lee](#)
Subject: Re: Dragestil project - Minnesota Point
Date: Tuesday, October 24, 2023 10:53:23 AM
Attachments: [image001.png](#)
[IMG_0147\[1\].png](#)
[IMG_0150\[95\].png](#)
[IMG_0152\[15\].png](#)
[IMG_0153\[99\].png](#)
[IMG_0154\[79\].png](#)

Good morning Adam and Team,

Thank you for the email. We look forward to a permit as it has been a very long time coming. Below are some comments on your points. Please feel free to reach out if you have questions.

- Knotweed. This Spring the knotweed on our property was removed and disposed of properly. A good amount of remaining knotweed is on the neighboring property so we are unable to touch it. They are however causing a negative impact on our site and should be dealt with as soon as possible as it has now spread to our property on the new prep work. We are happy to work together with the neighbor to rectify the issue, but we will not be doing anything to their property.
- Stormwater control is understood.
- Trees. Thank you for offering help from your office to address trees. We have 2 trees that are "shared" trees. Both are considered scrub trees from what I'm told by Luke with SAS and should be removed by code. We will not be cutting tree on the neighboring property per their request. I would appreciate a conversation onsite with someone from your office to show exactly what we are doing there because once we are done you will certainly be getting a call from the neighbors. Attached are pictures of the survey staking that has been completed to show where the trees fall on the lot line. There are only a couple trees that actually fall on or across the line. Please let me know whom I should be reaching out to for a meeting and attach their contact info.

Have a great day!

--Thanks,

signature_2329662279



Dan Buerskin
Project Manager
Heirloom Construction

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From: Adam Fulton <afulton@DuluthMN.gov>

Date: Tuesday, October 24, 2023 at 8:24 AM

To: Michael Schraepfer <michael.schraepfer@gmail.com>, danb@rentwithheirloom.com <danb@rentwithheirloom.com>, Ryan Arola <ryan@arolaarch.com>, Jed Lahti <jed@arolaarch.com>

Cc: Steven Robertson <srobertson@DuluthMN.gov>, Chris Lee <clee@DuluthMN.gov>

Subject: Dragestil project - Minnesota Point

Dragestil team,

I understand that the building permit for the Dragestil project will likely be issued shortly. With that being said, we are doing some additional communication with you because of a few concerns raised by adjacent property owners. Those include:

- Presence of knotweed. This is a concern that relates to site management, predominately. Please follow state guidance on knotweed, and ask that your contractors do, too.
<https://www.mda.state.mn.us/plants/pestmanagement/weedcontrol/noxiouslist/knotweed>.
- The adjacent owners are very concerned about stormwater on the site. As you know, stormwater must remain on site, or be discharged to the city's storm sewer system, not onto adjacent properties. Please ensure that extra precautions are in place throughout construction and that the contractor is extra communicative with the city during early-stage operations of the systems.
- Please ensure adequate tree protection measures are in place during construction for any trees that are being retained on or near the site, and especially on adjacent sites. Our City Forester can assist with best practices here if you have any questions. Please inform your contractor of this requirement, preferably in writing, to ensure that there are no issues. This is a major concern.

Thanks for taking the time to consider these items in more detail. We are excited about the project and look forward to construction starting!

Adam

Adam W. Fulton, AICP | Deputy Director, Planning & Economic Development | he/him/his | **City of Duluth** | 411 West First Street, Duluth, MN 55802 | 218-730-5325 | afulton@duluthmn.gov

From: [Michael Schraepfer](#)
To: [Adam Fulton](#)
Cc: danb@rentwithheirloom.com; [Ryan Arola](#); [Jed Lahti](#); [Steven Robertson](#); [Chris Lee](#)
Subject: Re: Dragestil project - Minnesota Point
Date: Tuesday, October 24, 2023 10:39:34 AM

Hey Adam,

Thanks for reaching out, we are elated to finally have communication on a permit! I'm sure this will be a challenging build with the neighbors. We are tracking on taking care of the trees and managing the Storm water with our contractor and will heed your guidelines in managing those issues.

I do want to bring up a specific issue with the Knotweed, as well as have a general conversation about the development process thus far on this site.

The knotweed: There are two pictures attached below. One from our initial meeting with the solas in early June, and one from mid September. You can see, we've cleared our land up to the silt fence in the first picture and there is no evidence of knotweed in June (probably was there though I'm sure). You can see in the second picture the knotweed is 8' tall and grows up to our excavated sand, which is 2' from our property edge. This knotweed is 100% entangled in their privacy fence and retaining wall. In our meeting with them they claim the property line was 2' on our side of the retaining wall. I don't know the property line to be fact, but the point is two fold:

1. This is largely their issue to remediate. And I need the city to hold them accountable to do so so that it doesn't spread further onto my property. Handling this knotweed will definitely affect their retaining wall and fence.
2. I have reached out to the solas on what they plan to do about it, and offered to assist them with no response. I'd be happy to do so. It's likely is easiest from accessing our side of the fence and retaining wall. I do not want to touch their property, however I am currently fine with them accessing ours to handle this and will aid in the process for any knotweed that has grown onto our property.

General Process: I want to be clear, the city is to support both sides, not just the Solas because they are louder. Our permit process was upended by a planning error in the midst of their complaints - and it cost me both this construction season and about \$30k. I didn't squabble, I took it on the chin with a smile even though there wasn't an apology, or any communication or effort to expedite the remaining process. Seeing this email today that appears to be on behalf of the solas benefit makes me want to just be clear - we need support as property owners too. I know you care about both sides, but the louder voice can prevail sometimes. I know the Solas have a lot of time, money and sway with the city. But that shouldn't be allowed to railroad our project.

How do you propose we address managing the knotweed that has grown on our property given the amount on the Sola's property and its location within their retaining wall and fence? I've read the guidelines, I forwarded them to the Solas in my email a month ago. It says they are required to manage it. Who will enforce that?

Thank you for everything you guys do. I'm sure its a difficult and thankless job sometimes!

On Oct 24, 2023, at 8:23 AM, Adam Fulton <afulton@DuluthMN.gov> wrote:

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