

Fire Hall No. 1 Generator Project

602 West 2nd Street, Duluth, MN

July 21, 2015

Project #: 15-5-RH

Bid #: 15-0500

Bid Opening Date: Tuesday, August 4, 2015 @ 2:00 PM CST



City of Duluth

Property and Facilities Management
1532 W Michigan Street
Duluth, MN 55806
(218) 730-4416

TABLE OF CONTENTS

BIDDING REQUIREMENTS

INVITATION TO BID
INSTRUCTIONS TO BIDDERS
BID FORM
NON-COLLUSION AFFIDAVIT
EEO COMPLIANCE & AFFIRMATIVE ACTION
RESPONSIBLE CONTRACTOR VERIFICATION

CONDITIONS OF CONTRACT

DRAFT CONSTRUCTION CONTRACT
GENERAL CONDITIONS
PREVAILING WAGE RATES

MECHANICAL & ELECTRICAL SPECIFICATIONS

DRAWINGS



CITY OF DULUTH INVITATION TO BID

PROJECT NAME/DESCRIPTION: FIRE STATION # 1 GENERATOR PROJECT

BID NUMBER: 15-0500

BID OPENING: TUESDAY, AUGUST 4, 2015 AT 2:00 PM

PROJECT DESCRIPTION: Replace existing diesel generator with a natural gas generator from City Hall per the attached plans and specifications.

PRE-BID/WALK-THROUGH: A **mandatory** pre-bid walk-through will be conducted at 9:00am on Tuesday, July 28, 2015, at Fire Hall #1, located at 602 West 2nd Street, Duluth. All interested bidders must attend.

QUESTIONS: Please submit any questions regarding this project via e-mail to purchasing@duluthmn.gov. Responses will be provided to all interested bidders as an addendum to this solicitation.

The selected contractor will be issued a construction contract (draft attached). Notice to Proceed will be issued once the agreement is fully executed.

Please note that the City of Duluth Supplemental Conditions apply to this project and will be included in the contract. This document can be found online at <http://www.duluthgov.info/engineering/documents/SupplementalGenConditions4-15-11.pdf> . Hard copies may be made available upon request.

Proposal forms, contract documents, plans and specifications are on file at the following offices: City Architect's Office; Duluth Builder's Exchange; Minnesota Builder's Exchange. Copies of these plans and specifications may be obtained from ShelDon Planroom, 124 E Superior St, Duluth, MN 55802. Copies of bidding documents may be obtained by purchase from ShelDon.

INSTRUCTIONS TO BIDDERS

All bids must be complete, signed, and transmitted in a sealed envelope plainly marked with the bid number, subject matter, and opening date. The City of Duluth reserves the right to split the award where there is a substantial savings to the City, to waive informalities and to reject any and all bids. Bidder must state in their proposal if bid price is based on acceptance of the total order. Do not include sales tax in the unit price. Price may not be the only consideration for bid award. Bids must be firm for a minimum of 60 days.

Bids must be received in Purchasing before 2:00 PM local time on the bid opening date specified on the Invitation for Bids. The City Purchasing Agent or her designee will conduct a public bid opening in Room 100 immediately following receipt of the bids. Bid results will be posted online at http://www.duluthgov.info/db_frames/bid_information.cfm once all bids have been reviewed.

No alternatives to the specification will be considered unless specifically requested. Erasures or other changes to the bid must be initialed and dated.

The following documents must be submitted with your bid:

1. **Bid Bond** - A certified check or bank draft, payable to the order of the City of Duluth, negotiable U.S. Government Bonds (at par value), or a satisfactory bid bond executed by the bidder and acceptable surety, in an amount equal to five per cent (5%) of the total bid. Bids may be withdrawn without forfeiture of surety if the request is submitted by the Bidder and received at the Purchasing Office in writing or by telephone prior to the scheduled bid opening.
2. **Acknowledgment of Addendum** (if applicable) – any changes to this solicitation will be announced via Addendum. A signed copy of the Addendum(s) must be submitted with your bid.
3. **Responsible Contractor** - No construction contract in excess of \$50,000 will be awarded unless the Bidder is a "responsible contractor" as defined in Minnesota Statute §16C.285, subdivision 3. All Bidders submitting a proposal for this project must verify that they meet the minimum criteria specified in the statute by submitting a Responsible Contractor Verification and Certification of Compliance form (attached). The owner or officer of the company must sign the form under oath verifying compliance with each of the minimum criteria. Making a false statement under oath will render the Bidder or subcontractor that makes the false statement ineligible to be awarded a construction project and may result in termination of a contract awarded to a Bidder or subcontractor that submits a false statement. Bidders must obtain verification of compliance from all subcontractors. Bidders must submit signed copies of verifications and certifications of compliance from subcontractors at the City's request.

Please note that the following requirements also apply to this project, and any additional required documents must be submitted prior to award/contract execution. Submitting these documents with your bid will assist in expediting the process.

1. **Insurance** – Contractor must provide proof of Public Liability and Automobile Liability Insurance with limits not less than \$1,500,000 Single Limit prior to the commencement of work. The City of Duluth must be named as an additional insured. Please refer to the draft Contract, Section 7.
2. **Affidavit of Non-Collusion** – The successful bidder shall be required to execute the attached affidavit stating that he/she has not entered into a collusive agreement with any other person, firm, or corporation in regard to any bid submitted.
3. **Performance & Payment Bonds** – The awarded contractor will be required to submit performance and payments bonds in the full amount of the project cost prior to award.
4. **Affirmative Action/EEO** - The contractor must take affirmative action to ensure that the employees and applicants for employment are not discriminated against because of their race, color, creed, sex or national origin, and must meet the affirmative action goals. Contractors are encouraged to subcontract with Disadvantaged Business Enterprises (DBEs) when possible. A current list of certified DBEs is available on the Minnesota Unified Certification website at <http://mnucp.metc.state.mn.us> . Contractor will comply with all applicable Equal Employment Opportunity laws and regulations. Awarded contractor will

submit the attached Equal Employment Opportunity (EEO) Affirmative Action Policy Statement & Compliance Certificate.

5. **Out of State Contractor** - Unless a State of Minnesota Certificate of Exemption is provided, any out-of-state bidder receiving a bid award will have 8% retained from invoice payments on any contracts over \$50,000. Submit a signed copy of the signed exemption form when submitting Payment and Performance Bonds. This form may be found at the following web address:
http://www.revenue.state.mn.us/Forms_and_Instructions/sde.pdf

6. **Prevailing Wage** - Not less than the minimum salaries and prevailing wages as set forth in the contract documents must be paid on this project.

The City of Duluth is an Equal Opportunity Employer. Contractor shall comply with all applicable Equal Employment Opportunity laws and regulations.

CITY OF DULUTH

A handwritten signature in black ink, appearing to read "Amanda Ashbach".

Amanda Ashbach
Purchasing Agent

**15-0500 – FIRE HALL #1 GENERATOR PROJECT
BID FORM**

ITEM	PRICE
Replace existing diesel generator as per the attached plans and specifications.	\$
	\$
TOTAL	\$

TOTAL PRICE IN WRITING

Bids must be signed by an officer authorized to bind the bidder to its provisions.

Signature _____ Date _____

Name/Title _____

Company Name _____

Address _____

City, State, Zip _____

Tel. _____

AFFIDAVIT AND INFORMATION REQUIRED OF BIDDERS

Affidavit of Non-Collusion:

I hereby swear (or affirm) under penalty of perjury:

That I am the bidder (if the bidder is an individual), a partner in the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the bidder is a corporation);

That the attached bid or bids have been arrived at by the bidder independently and have been submitted without collusion with and without agreement, understanding, or planned common course of action with any other vendor or materials, supplied, equipment or services described in the invitation to bid, designed to limit independent bidding or competition;

That the contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids;

That a family relationship between a City of Duluth employee and bidder/proposer are in non-collusion; and

That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed: _____

Firm Name: _____

Subscribed and sworn to me before this ____ day of _____, _____

NOTARY PUBLIC _____

My commission expires: _____

Bidder's E.I. Number _____
(Number used on employer's quarterly Federal Tax return)

**EQUAL EMPLOYMENT OPPORTUNITY EEO AFFIRMATIVE ACTION
POLICY STATEMENT & COMPLIANCE CERTIFICATE**

TO: City of Duluth, MN PROJECT NUMBER & DESCRIPTION _____

FROM: _____

(FIRM's name, address, telephone number)

A) **Employment:** It is the policy of the above named FIRM to afford equal opportunity for employment to all individuals regardless of race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance and/or disability. The FIRM will take affirmative action to ensure that we will: (1) recruit, hire, and promote all job classifications without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability, except where sex is a bona fide occupational qualification; (2) base decisions on employment so as to further the principle of equal employment opportunity; (3) ensure that promotion decisions are in accord with the principles of equal employment opportunity by imposing only valid requirements for promotional opportunities; (4) ensure that all personnel actions such as compensation, benefits, transfers, layoffs, return from layoff, FIRM sponsored training, education tuition assistance, social and recreational programs will be administered without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. The FIRM also intends full compliance with Veteran affirmative action requirements. Additionally, minority and female employees shall be encouraged to participate in all FIRM activities and refer applicants.

I have designated (name) _____ to direct the establishment of and to monitor the implementation of personnel procedures to guide the FIRM's affirmative action program. Where PROJECTS exceed \$500,000, this official shall also serve as the liaison officer that administers the FIRM's ■Minority Business Enterprise Program.● This official is charged with designing and implementing audit and reporting systems that will keep management informed on a monthly basis of the status of the equal opportunity area.

Supervisors have been made to understand that their work performance is being evaluated on the basis of their equal opportunity efforts and results, as well as other criteria. It shall be the responsibility of the FIRM and its supervisors to take actions to prevent harassment of employees placed through affirmative action efforts.

- B) **Reports:** Unless exempted by law and regulation, the FIRM shall make available and file those reports related to equal opportunity as may be required by the City of Duluth and State and Federal compliance agencies. Requirements and Reports are defined in 41CFR60 ■Compliance Responsibility for Equal Opportunity• published by the U. S. Department of Labor which is incorporated herein by reference. Additional requirements are defined in various State and Federal Civil Rights Legislation and Rules promulgated thereunder.
- C) **Nonsegregated Facilities:** The FIRM certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM certifies that it will not maintain or provide for its employees any segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this certificate. As used in this Certification, the term ■segregated facilities• means any waiting rooms, work area, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation for entertainment area, transportation, and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise.
- D) **Affirmative Action Compliance Program:** Unless exempted by regulation and law, the FIRM■if the FIRM has 50 or more employees and if the value of current contracts with the City of Duluth exceeds \$50,000■shall prepare and maintain a written affirmative action compliance program that meets the requirement as set forth in 41CFR60.
- E) **Non-Compliance:** The FIRM certifies that it is not currently in receipt of any outstanding letters of deficiencies, show cause, probable cause, or other such notification of non-compliance with EEO Laws and Regulations.

- F) **Employment Goals - ■Construction• Projects:** It shall be the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the on-site workforce will be minority employees and that no less than 7% of the on-site workforce will be female employees. Further, it is the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the work hours generated shall be worked by minority employees and that no less than 7% of the work hours generated shall be worked by female employees.
- G) **Subcontractors:** The FIRM will for all its PROJECT subcontractors regardless of tier (unless exempted by law and regulation) that received in excess of \$2,500 require that: (1) the subcontractor shall execute an ■EEO Statement and Certification• similar in nature to this ■Statement and Certification•, (2) said documentation to be maintained on file with the FIRM or subcontractor as may be appropriate.

Executed this _____ day of _____, 20__ by:

Printed name and title

Signature

NOTE: In addition to the various remedies prescribed for violation of Equal Opportunity Laws, the penalty for false statements is prescribed in 18 U.S.C. 1001.

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

PROJECT TITLE: _____

Minn. Stat. § 16C.285, Subd. 7. **IMPLEMENTATION.** ... any prime contractor or subcontractor that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project...

Minn. Stat. § 16C.285, Subd. 3. **RESPONSIBLE CONTRACTOR, MINIMUM CRITERIA.** "Responsible contractor" means a contractor that conforms to the responsibility requirements in the solicitation document for its portion of the work on the project and verifies that it meets the following minimum criteria:

- | | |
|-----|---|
| (1) | <p>The Contractor:</p> <ul style="list-style-type: none">(i) is in compliance with workers' compensation and unemployment insurance requirements;(ii) is currently registered with the Department of Revenue and the Department of Employment and Economic Development if it has employees;(iii) has a valid federal tax identification number or a valid Social Security number if an individual; and(iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative. |
| (2) | <p>The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 177.24, 177.25, 177.41 to 177.44, 181.13, 181.14, or 181.722, and has not violated United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity:</p> <ul style="list-style-type: none">(i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of \$25,000 or more within the three-year period;(ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final;(iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees;(iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27;(v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or(vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties;* |

(3)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order;*
(4)	The contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office;*
(5)	The contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification;*
	* Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5), occurring prior to July 1, 2014, shall not be considered in determining whether a contractor or related entity meets the minimum criteria.
(6)	The contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions; and
(7)	All subcontractors that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6).

Minn. Stat. § 16C.285, Subd. 5. **SUBCONTRACTOR VERIFICATION.**

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project.

If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause (7). A prime contractor and subcontractors shall not be responsible for the false statements of any subcontractor with which they do not have a direct contractual relationship. A prime contractor and subcontractors shall be responsible for false statements by their first-tier subcontractors with which they have a direct contractual relationship only if they accept the verification of compliance with actual knowledge that it contains a false statement.

Minn. Stat. § 16C.285, Subd. 4. **VERIFICATION OF COMPLIANCE.**

A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3 at the time that it responds to the solicitation document.

A contracting authority may accept a sworn statement as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. Failure to verify compliance with any one of the minimum criteria or a false statement under oath in a verification of compliance shall render the prime contractor or subcontractor that makes the false statement ineligible to be awarded a construction contract on the project for which the verification was submitted.

A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria.

CERTIFICATION

By signing this document I certify that I am an owner or officer of the company, and I swear under oath that:

- 1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285,**
- 2) I have included Attachment A-1 with my company's solicitation response, and**
- 3) if my company is awarded a contract, I will also submit Attachment A-2 as required.**

Authorized Signature of Owner or Officer:

Printed Name:

Title:

Date:

Company Name:

NOTE: Minn. Stat. § 16C.285, Subd. 2, (c) If only one prime contractor responds to a solicitation document, a contracting authority may award a construction contract to the responding prime contractor even if the minimum criteria in subdivision 3 are not met.

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT WITH PRIME CONTRACTOR RESPONSE

PROJECT TITLE: _____

Minn. Stat. § 16C.285, Subd. 5. A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. ...

FIRST TIER SUBCONTRACTOR NAMES (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

PROJECT TITLE: _____

This form must be submitted to the Project Manager or individual as identified in the solicitation document.

Minn. Stat. § 16C.285, Subd. 5. ... If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors. ...

ADDITIONAL SUBCONTRACTOR NAMES (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

ADDITIONAL SUBCONTRACTOR NAMES (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-2	
<p>By signing this document I certify that I am an owner or officer of the company, and I swear under oath that:</p> <p>All additional subcontractors listed on Attachment A-2 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.</p>	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

CONTRACTOR & CITY OF DULUTH

THIS AGREEMENT, effective as of the date of attestation by the City Clerk, is made by and between the **CITY OF DULUTH**, a municipal corporation, hereinafter referred to as the "CITY," party of the first part, and **Contractor, address**, hereinafter referred to as the "Contractor," party of the second part;

WITNESSETH: That the Contractor and the City agree as follows:

1. The following shall be deemed to be part of this contract:
 - a. The annexed resolution and legal advertisement of the City Council.
 - b. The bid request and specifications, as modified by irreconcilable language in this written contract.
 - c. The bid by Contractor, as modified by irreconcilable language in this written contract.
 - d. The performance bond and payment bond certification.
 - e. All provisions of law applicable to a contract of this nature.
2. The Contractor agrees to furnish and deliver to the **Department** all labor, supervision, material, equipment, supplies, insurance, performance bond, payment bond and everything else necessary for general construction of **Project** at **location**, all in strict accordance with plans and specifications prepared by **design co. or city architect**, your bid of \$ and **resolution no. passed on date**. Contractor shall not commence performance of any work under this contract until Contractor receives authorization from the City's Purchasing Agent in writing and dated.
3. The City agrees to pay progress payments and make final payments to the Contractor as stated in the contract specifications. The total amount payable under this contract shall not exceed **dollar amount spelled out (\$)** unless the contract is modified by formal amendment or change order. Payments under this Agreement shall be made from the following accounts **funding** and **RQ no.**
4. The Contractor shall furnish and maintain in full force and effect until this contract is completely performed by the Contractor, a performance bond and payment bond if and when required by law, or if and when required by the City.
5. Inasmuch as this contract concerns work, materials and equipment needed for the public benefit, the provisions of this contract relating to the time of performance and completion of work and delivery of materials or equipment are of the essence of this contract.
6. The Contractor will defend, indemnify and save the City harmless from all costs, charges, damages, and loss of any kind that may grow out of the matters covered by this contract. Said obligation does not include indemnification of the City for claims of liability arising

out of the sole negligent or intentional acts or omissions of City but shall include but not be limited to the obligation to defend, indemnify and save harmless the City in all cases where claims of liability against the City arise out of acts or omissions of City which are derivative of the negligence or intentional acts or omissions of Contractor such as, and including but not limited to, the failure to supervise, the failure to warn, the failure to prevent such act or omission by Contractor and any other such source of liability. In addition Contractor will comply with all local, state and federal laws, rules and regulations applicable to this contract and to the work to be done and things to be supplied hereunder.

7. Insurance

a. Contractor shall provide the following minimum amounts of insurance from insurance companies authorized to do business in the state of Minnesota, which insurance shall indemnify Contractor and City from all liability described in Paragraph 6 above, subject to provisions below.

- (1) Workers' compensation insurance in accordance with the laws of the State of Minnesota.
- (2) Public Liability and Automobile Liability Insurance with limits not less than **\$1,500,000** Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be in a company approved by the city of Duluth; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.
- (3) City of Duluth shall be named as **Additional Insured** under the Public Liability, Excess/Umbrella Liability* and Automobile Liability, or as an alternate, Contractor may provide Owners-Contractors Protective policy, naming itself and the City of Duluth. Contractor shall also provide evidence of Statutory Minnesota Workers Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-days notice of cancellation, non-renewal or material change provisions included. The City of Duluth does not represent or guarantee that these types or limits of coverage are adequate to protect the Contractor's interests and liabilities.

**An umbrella policy with a "following form" provision is acceptable if written verification is provided that the underlying policy names the City of Duluth as an additional insured.*

- (4) If a certificate of insurance is provided, the form of the certificate shall contain an unconditional requirement that the insurer notify the City without fail not less than 30 days prior to any cancellation, non-renewal or modification of the policy or coverages evidenced by said certificate and shall further provide that failure to give such notice to City will render any such change or changes in said policy or coverages ineffective as against the City.

- (5) The use of an “ACORD” form as a certificate of insurance shall be accompanied by two forms – 1) ISO Additional Insured Endorsement (CG-2010 pre-2004) and 2) Notice of Cancellation Endorsement (IL 7002) or equivalent, as approved by the Duluth City Attorney’s Office.
- b. The insurance required herein shall be maintained in full force and effect during the life of this Agreement and shall protect Contractor, its employees, agents and representatives from claims and damages including but not limited to personal injury and death and any act or failure to act by Contractor, its employees, agents and representatives in the negligent performance of work covered by this Agreement.
- c. Certificates showing that Contractor is carrying the above described insurance in the specified amounts shall be furnished to the City prior to the execution of this Contract and a certificate showing continued maintenance of such insurance shall be on file with the City during the term of this Contract.
- d. Contractor shall be required to provide insurance meeting the requirements of this Paragraph 7 unless Contractor successfully demonstrates to the satisfaction of the City Attorney, in the exercise of his or her discretion, that such insurance is not reasonably available in the market. If Contractor demonstrates to the satisfaction of the City Attorney that such insurance is not reasonably available, the City Attorney may approve an alternative form of insurance which is reasonably available in the market which he or she deems to provide the highest level of insurance protection to the City which is reasonably available.
8. No claim whatsoever shall be made by the Contractor against any officer, agent or employee of the City for, or on account of, anything done, or omitted to be done, in connection with this contract. If this contract is not made in conformity with mandatory provisions of any statute or of the ordinances and charter of the City of Duluth, the Contractor agrees to raise no defense and make no claim against the City on the basis of ratification, laches, estoppel, or implied contract.
9. The Contractor shall not assign, transfer, convey or otherwise dispose of this contract, or his right to execute it, or his right, title or interest in or to it, or any part thereof, without the consent of the City, evidenced by a resolution duly adopted by the City Council. The prohibition contained in this paragraph shall not be deemed to prevent the contractor from subcontracting. Contractor shall remain primarily responsible for all work performed by any subcontractor.
10. The Contractor agrees that in the hiring of common or skilled labor for the performance of any work under this contract, Contractor will not discriminate by reason of race, creed or color, religion, national origin, sex, marital status, status with regard to public assistance, disability or age.
11. The Contractor agrees that Contractor shall not in any manner discriminate against or intimidate or prevent the employment of any person or persons, or on being hired, prevent or conspire to prevent any person or persons from the performance or work under this contract on account of race, creed or color, religion, national origin, sex, marital status, status with regard to public assistance, disability or age.

12. The contractor agrees that, as provided in Minnesota Statutes 16C.05, Subd. 5, contractor's books, records, documents, and accounting procedures and practices are subject to examination by the City or the state auditor for six years from the date of final payment under this contract.
13. This contract may be cancelled or terminated by the City and all moneys due or to become due hereunder may be forfeited for any failure to perform any terms or conditions of this contract including but not limited to any violation of the terms or conditions of Section 10 or 11 of this contract.
14. Any waiver by any party of any provision of this contract shall not imply a subsequent waiver of that or any other provision.
15. This contract is made in the state of Minnesota and shall be construed and interpreted in accordance with the laws of the State of Minnesota. The appropriate venue and jurisdiction for any litigation hereunder shall be in a court located in St. Louis, County, Minnesota, and the parties to this Agreement waive objection to the jurisdiction of this court, whether based on convenience or otherwise.
16. This Agreement constitutes the entire agreement between the City and the Contractor on the subject matter hereof. It may not be changed, modified, discharged or extended except by written instrument duly executed on behalf of the City and the Contractor. The Contractor agrees that no representations or warranties made by the City shall be binding upon the City unless expressed in writing herein.
17. This Agreement shall not be in force and effect, or in any way binding upon the City until the same shall have been approved by the Department Head, signed by the Mayor, attested by the Clerk, and countersigned by the City Auditor.
18. The Contractor unconditionally guarantees to perform all work pursuant to this contract in a good and workmanlike manner, in strict compliance with the specifications and instructions hereto attached, and to the satisfaction of the City of Duluth.
19. This Agreement may be executed in counterparts, each of which shall be deemed to be original and all of which together shall constitute the binding and enforceable agreement of the parties hereto. This Agreement may be executed and delivered by a party by facsimile or PDF transmission, which transmission copy shall be considered an original and shall be binding and enforceable against such party.

Countersigned:

CITY OF DULUTH-Client

By

City Auditor
Approved this _____ day of _____

Mayor

Attest:

Department Director
Approved this _____ day of _____

City Clerk
Attested this _____ day of _____

Purchasing Agent
Approved this _____ day of _____

Contractor
Consultant (Service Provider)

By

Assistant City Attorney
Approved this _____ day of _____

Company Representative

Its

Title of Representative
Approved this _____ day of _____

GENERAL CONDITIONS 4-15-11

PART I

101. DEFINITIONS

Wherever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

- a. The term "Contract" means the Contract executed by the City of Duluth in its capacity as agent for the City of Duluth and the Contractor, of which these GENERAL CONDITIONS form a part.
- b. The term "City" means the City of Duluth, Minnesota, which is authorized to undertake this Contract and within which the Project Area is situated or any employee of the City of Duluth designated by the City of Duluth for the purpose of inspecting, directing, or having in charge the work embraced in this Contract.
- c. The term "Contractor" means the person, firm, or corporation entering into the Contract with the City to construct and install the Improvements embraced in this Contract.
- d. The term "Project Area" means site within which is specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this Contract.
- e. The term "Architect" means the architect or engineer licensed to practice architecture or engineering and serving the City with architectural or engineering services, or his authorized representative or successor.
- f. The term "Change Order" means a written order to the Contractor, signed by the City, issued after execution of the Contract, authorizing and directing a change in the Work or an adjustment in the contract sum or the contract time. The contract sum and the contract time may be changed only by Change Order.
- g. The term "Contract Documents" means and shall include the following: Executed Agreement, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings), and all requested submittals such as Certificate of Insurance, performance and payment bonds, EEO Affirmative Action Policy Statement & Compliance Certificate, Certificate of Non-Collusion.
- h. The term "Drawings" means the drawings listed in the Schedule of Drawings.
- i. The term "Field Order" means a written interpretation necessary for the proper execution of the Work, in the form of drawings or otherwise issued to the Contractor by the City or the Architect.
- j. The term "Technical Specifications" means that part of the Contract Documents which describes, outlines and stipulates the quality of the materials to be furnished, the quality of workmanship required, and the methods to be used in carrying out the construction work to be performed under this Contract.
- k. The term "Addenda" or "Addendum" means any changes, revisions or clarifications of the Contract Documents which have been duly issued by the City to prospective Bidders prior to time of receiving Bids.
- l. The term "Work" means all labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated in such construction.

102. SUPERINTENDENCE BY CONTRACTOR

- a. Except where the Contractor is an individual and gives his personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the City and the Architect, on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.
- b. The Contractor shall lay out his own work and he shall be responsible for all work executed by him under the Contract. He shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

103. SUBCONTRACTS

- a. The Contractor shall not execute an agreement with any subcontractor, or permit any subcontractor to perform any work included in this contract until he has submitted a noncollusion affidavit from the subcontractor in substantially the form attached and has received written approval of such subcontractor from the City.
- b. No proposed subcontractor shall be disapproved by the City except for cause.
- c. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to require compliance by each subcontractor with the applicable provisions of this Contract.
- e. Nothing contained in this Contract shall create any contractual relationship between the subcontractor and the City.

104. OTHER CONTRACTS

The City may award, or may have awarded, other contracts for additional work, and the Contractor shall cooperate fully with such other Contractors, by scheduling his own work with that to be performed under other Contracts as may be directed by the City. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor as scheduled.

105. FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or materialmen engaged upon this Contract. He shall be prepared to guarantee to each of his subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

106. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts or neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or subcontractor by agreement or arbitration, if such other Contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the City on account of damage alleged to have been so sustained, the City shall notify this Contractor, who shall defend at his own expense any suit based upon such claim, and, if any judgment or claims against the City shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith.

107. PROGRESS SCHEDULE

The Contractor shall submit for approval immediately after execution of the Agreement, a carefully prepared Progress Schedule, showing the proposed dates of starting and of completing each of the various sections of the work, the anticipated monthly payments to become due the Contractor and the accumulated percent of progress each month.

108. PAYMENTS

1) Partial Payments.

- a. The Contractor shall prepare his requisition of partial payment as of the last day of the month and submit it, with the required number of copies, to the City contracting officer for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) five percent (5%) of the total amount, this sum to be retained until final payment and (2) the amount of all previous payments. The total value of the work completed to date shall be based on the estimated quantities of work completed and on the unit prices

contained in the agreement. The value of materials properly stored on site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for the inspection of the Architect and the City.

b. Monthly or partial payments made by the City to the Contractor are moneys advanced for the purpose of assisting the Contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the City. Such payments shall not constitute a waiver of the right of the City to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the City in all details.

2) Final Payment.

a. After final inspection and acceptance by the Architect and the City of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the carefully measured and computed quantity of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments. Final payment to the Contractor shall be made subject to his furnishing the City with a release in satisfactory form of all claims against the City arising under and by virtue of his contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release as provided under Section 113 hereof.

b. The City, before paying the final estimate, may require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the City deems the same necessary in order to protect its interest. The City, however, may if it deems such action advisable make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

c. Withholding of any amount due the City under Section 403, entitled "Liquidated Damages," under SPECIAL CONDITIONS, shall be deducted from the final payment due the Contractor.

3) Withholding Payments

The City may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the City and, if it so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the City and will not require the City to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the City elects to do so. The failure or refusal of the City to withhold any moneys from the Contractor shall in no wise impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

4) Payments Subject to Submission of Certificates.

Each payment to the Contractor by the City shall be made subject to submissions by the Contractor of all written certifications required of him and his subcontractors by Section II, Part II Supplementary General Conditions for Federally, State of Minnesota, and/or City Assisted Activities.

109. CHANGES IN THE WORK

a. The City may make changes in the scope of work required to be performed by the Contractor under the Contract by making additions thereto, or by omitting work therefrom, without invalidating the Contract, and without relieving the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without

relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless is expressly provided otherwise.

b. Except for the purpose of affording protection against any emergency endangering health, life, or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the Improvements or supply additional labor, services, or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the City authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.

c. If applicable unit prices are contained in the Agreement (established as a result of either a unit price bid or a Supplement Schedule of Unit Prices), the City shall order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract; provided that, in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than twenty-five percent (25%) in accordance with Section entitled Unit Prices, under INSTRUCTIONS TO BIDDERS.

d. If applicable unit prices are not contained in the Agreement or if the total net change increases or decreases the total Contract Price more than twenty-five (25%), the City shall, before ordering the Contractor to proceed with desired changes, request an itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:

(1) If the proposal is acceptable, the City will prepare the change order in accordance therewith for acceptance by the Contractor.

(2) If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the City may order the Contractor to proceed with the work on a cost-plus limited basis; provided that this basis shall not apply to costs incurred by Contractor for any work done by any subcontractor, which work may proceed under the basis set forth in sub-subparagraph (3) below. A cost-plus-limited basis is defined as the net cost of the Contractor's labor, materials, and insurance plus fifteen percent (15%) of said net cost to cover overhead and profit, the total cost not to exceed a specified limit.

(3) If the proposal of the Contractor is not acceptable in whole or part because of the proposals of one or more of the subcontractors and prompt agreement between the two parties cannot be reached, the City may order the Contractor to proceed with the work and reimburse Contractor for work done by any subcontractor on the basis of that subcontractor's net cost of labor, materials, and insurance plus twenty percent (20%) of said net cost to cover overhead and profit, the total cost not to exceed a specified limit. Contractor shall supply all data to City which is necessary to determine any such subcontractor's net costs.

e. Each change order shall include in its final form:

(1) A detailed description of the change in the work.

(2) The Contractor's proposal (if any) of a confirmed copy thereof.

(3) A definite statement as to the resulting change in the Contract price and/or time.

(4) The statement that all work involved in the change shall be performed in accordance with the Contract requirements except as modified by the change order.

110. CLAIMS FOR EXTRA COST

a. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten (10) days after the receipt of such instructions, and in any event, before proceeding to execute the work, submit his protest thereto in writing to the City, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

b. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

- c. Any discrepancies which may be discovered between actual conditions and those represented by the documents shall at once be reported to the City and work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the City.
- d. If, on the basis of the available evidence, the City determines that an adjustment of the Contract Price and/or time is justifiable, the procedure shall then be as provided in Section 109 hereof.

111. TERMINATION, DELAYS, AND LIQUIDATED DAMAGES

a. Termination of Contract.

If the Contractor refuses or fails to execute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, the City, by written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination, the City may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the City for any additional cost incurred by the City in its completion of the work and they shall also be liable to the City for liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work such materials, tools, equipment, and plant as may be on the site of the work and necessary therefore.

b. Liquidated Damages for Delays.

If the work is not completed within the time stipulated in Section 7 (Special Conditions) hereof, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the City as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount as set forth in Section 7 (Special Conditions) hereof and the Contractor and his sureties shall be liable to the City for the amount thereof.

c. Excusable Delays.

The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due: (1) To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

(2) To any acts of the City;

(3) To causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in their performance of some other contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones, and other extreme weather conditions; and

(4) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (1), (2) and (3) of this paragraph "c". Provided, however, that the Contractor promptly notify the City in writing within ten (10) days the cause of the delay. Upon receipt of such notification, the City shall ascertain the facts and the cause of the delay. If, upon the basis of facts and the terms of the Contract, the delay is properly excusable, the City shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

112. ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the City; provided, however, that assignments to banks, trust companies, or other financial institutions may be made without the consent of the City. No assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract

in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

113. DISPUTES

a. All disputes arising under this Contract or its interpretation, whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of the first event giving rise to the dispute, be presented by the Contractor to the City for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim together with its character and scope. In the meantime, the Contractor shall proceed with the work as directed by the City. Any claim not presented within the time limit specified within this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of the first event giving rise to it, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the City of notice thereof.

b. The Contractor shall submit in detail his claim and his proof thereof. Each decision by the City will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to his last known address or actually delivered to Contractor or its managing agent. All interpretations or decisions of the City shall be consistent with the Contract and its intent.

c. If the Contractor does not agree with any decision of the City, he shall in no case allow the dispute to delay the work but shall notify the City promptly that he is proceeding with the work under protest and he may then accept the matter in question from the final release. If the Contractor does not agree with any decision of the City, he may submit the matter to arbitration no later than thirty (30) days after the date on which the Contractor received the City's decision; provided, however, that the City shall not be required to submit to arbitration without its prior written consent; and if the City does consent to arbitration, then the Contractor shall pay all costs of such arbitration.

114. TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy on Drawings or Technical Specifications, the matter shall be immediately submitted to the City, without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

115. SHOP DRAWINGS

a. All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Architect or the City, as directed by the City, in two copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the Contract time will be granted by reason of his failure in this respect.

b. Any drawing submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

c. If a shop drawing with the Contractor involves only a minor adjustment in the interest of the City not involving a change in Contract price or time, the Architect may approve the drawing. The approval shall be

general, shall not relieve the Contractor from his responsibility for adherence to the Contract or for any error in the drawing and shall contain in substance the following: "The modification shown on the attached drawing is approved in the interest of the City to effect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract price or time; that it is subject generally to all Contract stipulation and covenants; and that it is without prejudice to any and all rights of the City under the Contract and surety bond or bonds."

116. REQUEST FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the City for any additional information not already in his possession which should be furnished by the City under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted in writing from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two (2) weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the City may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

117. MATERIALS AND WORKMANSHIP

- a. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as an equal to any particular standard, the City shall decide the question of equality.
- b. The Contractor shall furnish to the City for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he proposes to incorporate in the work. (See Section 118 hereof)
- c. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.
- d. Materials specified by reference to the number or symbol of a specific standard, such as A.S.T.M. Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The Standards referred to, except as modified in the Technical Specifications shall have full force and effect as though printed therein.
- e. The City may require the Contractor to dismiss from the work such employee or employees as the City may deem incompetent, or careless, or insubordinate.

118. SAMPLES, CERTIFICATES AND TESTS

- a. The Contractor shall submit all material or equipment samples, certificates, affidavits, etc. as called for in the Contract Documents or required by the Architect, promptly after award of the Contract and acceptance of the Contractor's Bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the City or the Architect. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time. Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin,

the name and address of the producer and all specifications or other detailed information which will assist the Architect or the City in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

b. Approval of any materials shall be general only and shall not constitute a waiver of the City's right to demand full compliance with Contract requirements. After actual deliveries, the City or the Architect will have such check tests made as they deem necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and equipment have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the City or the Architect will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

c. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

(1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the City or the Architect; (2) The Contractor shall assume all costs of retesting materials which fail to meet Contract requirements;

(3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient; and

(4) The City will pay for all other testing expenses.

119. CARE OF WORK

a. The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the City.

b. In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the City is authorized to act at his own discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the City. Any compensation claimed by the Contractor on account of such emergency work will be determined by the City as provided in Section 109 hereof.

c. The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.

d. The Contractor shall shore up, brace, underpin, secure and protect as may be necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjacent or adjoining property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the City from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of such injury or damage to adjoining structures and their premises.

120. ACCIDENT PREVENTION

a. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his fault or negligence in connection with the prosecution of the work. The safety provisions of applicable Federal, State and local laws and ordinances and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the City may determine to be reasonably necessary. Machinery, equipment, and all hazards shall be guarded in accordance

with the safety provisions of the A Manual of Accident Prevention in Construction published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.

b. The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.

121. SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

122. USE OF PREMISES

a. The Contractor shall confine his equipment, storage of materials, and construction operations to the Contract limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be directed by the City, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.

b. The Contractor shall comply with all reasonable instructions of the City and the ordinances and codes of the Local Government regarding signs, advertising, traffic, fires, explosives, danger signals, barricades.

123. REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for the work, and put the whole site of the work and public rights of way in a neat and clean condition. Trash burning on the site of the work will be subject to prior approval of the City and existing State and local regulations.

124. INSPECTION

a. All materials and workmanship shall be subject to inspection, examination or test by the City or the Architect at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on. The City shall have the right to reject defective or substandard material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge therefor. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the City may contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any moneys which may be due the Contractor, without prejudice to any other rights or remedies of the City.

b. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. (See Section 118 hereof). All tests by the City will be performed in such a manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the Technical Specifications.

c. The Contractor shall notify the City sufficiently in advance of back-filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent by the City, the Contractor shall uncover for inspection and recover such facilities all at his own expense, when so requested by the City.

Should it be considered necessary or advisable by the City at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his subcontractors the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15 percent of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.

d. Inspection of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.

e. Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the City or its agents shall relieve the Contractor or his sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

125. REVIEW BY THE CITY

The City, its authorized representatives and agents, and the Architect, shall, at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, and other relevant data and records pertaining to this Contract; provided, however, that all instructions and approvals with respect to work will be given to the Contractor only by the City through its authorized representative or agents.

126. FINAL INSPECTION

When the work embraced in this Contract is substantially completed, the Contractor shall notify the City in writing that the work will be ready for final inspection on a definite date which shall be stated in such notice. The notice shall bear the signed concurrence of the representative of the City having charge of inspection. If the City determines that the status of the Improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in such notice, or as soon thereafter as is practicable.

127. DEDUCTION FOR UNCORRECTED WORK

If the City deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the City and subject to settlement, in case of dispute, as herein provided.

128. TIME

a. The Contract Time is the period of time allotted in the Contract for completion of the Work. The date of commencement of the Work is the date established in a notice to proceed issued by the City to the Contractor. The Contractor shall begin the Work upon receipt of the notice to proceed.

b. The term "day" as used herein shall mean calendar day.

c. If a date of completion is included in the Contract, it shall be the Date of Substantial Completion of the Work, including authorized extensions thereto. The "Date of Substantial Completion of the Work" is the date certified by the City when construction is sufficiently complete, in accordance with the Contract, so the City may occupy the Work for the use for which it is intended.

129. INSURANCE

The Contractor shall carry the following insurance, at his expense and no direct payment for premiums shall be made by the City. Carriage of such insurance shall in no way alleviate the Contractor of his responsibilities under the contract.

a. The Contractor will be required to carry insurance of the kinds and in the amounts hereinafter specified. The Contractor shall not commence work under the contract until he has obtained all the insurance required by these specifications and until such insurance has been approved by the City Attorney, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor shall have been so obtained and approved.

b. Insurance

The Contractor shall provide Commercial General Liability in an amount not less than \$1,500,000.00 combined single limit and Automobile Liability Insurance in an amount not less than \$1,500,000.00 combined single limit shall be in a company licensed to do business in Minnesota; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability. Property damage coverage for explosion, collapse, and underground Axcu to be included. City of Duluth shall be named as Additional Insured under the Commercial General Liability policy. Contractor shall also provide evidence of Statutory Worker's Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-day notice of cancellation, non-renewal, or material change provision included.

c. Subcontractor's Insurance

In the event any work contemplated by the contract is sublet, the Contractor shall have the duty to assure that the subcontractors provide insurance in accord with the minimum requirements hereinabove imposed on the Contractor.

d. Proof of Insurance

The Contractor shall not proceed with the work contemplated in this contract until he has furnished the City Attorney of the City of Duluth with satisfactory proof of the existence and carriage of insurance of the kinds and in the amounts specified.

e. Indemnification

The Contractor shall defend, indemnify and save harmless the City and all of its officers, agents and employees from all suits, actions or claims of any character, name and description brought for on account of any injuries or damages received or sustained by any person, persons or property, by or from the act or acts of said Contractor, or by or in consequence of any negligence in safeguarding the work, or through the use of unacceptable materials in constructing the work, or by or on account of any act or omission, neglect or misconduct of said Contractor, or from any claims or amount arising or recovered under the Workmen's Compensation Law or any other law, by-law, ordinance, order or decree, and so much of the money due the said Contractor under and by virtue of his contract, as shall be considered necessary by the City may be retained for the use of the City or in case no money is due, his surety shall be held until such suit or suits, action or actions, claim or claims, for injuries or damages as aforesaid, shall have been settled and suitable evidence to that effect furnished to the City. The Contractor shall indemnify and save harmless the City from any and all losses caused by or on account of any claims or amounts recovered for any infringement of patent, trademark, or copyright. The unauthorized use by the Contractor of public or private property for any purpose may be considered an injury or damage to the property so used.

130. PATENTS

The Contractor shall hold and save the City, its officers, employees, representatives and agents, and the Architect, harmless from liability of any nature or kind, including costs and expenses, for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the City, unless otherwise specifically stipulated in the Technical Specifications.

131. WARRANTY

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the City free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the City. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notices for the work when no formal contract is entered into for such materials.

132. GENERAL GUARANTY

- a. Neither the final certificate of payment nor any provisions in the Contract nor partial or entire use of the improvements embraced in this Contract by the City or the public shall constitute an acceptance of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which subsequently appears. The City will give notice of defective materials and work with reasonable promptness.
- b. If, within one year after the Date of Substantial Completion or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract, any of the Work is found to be defective or not in accordance with the specifications of the Contract, the Contractor shall correct it promptly upon receipt of a written notice from the City to do so, unless the City has previously given the Contractor a written acceptance of such condition or work.

133. ENVIRONMENTAL CONDITIONS

Waste Disposal: The SUBRECIPIENT shall comply with the most recent Minnesota Pollution Control Agency (MPCA) waste disposal requirements and include said disposal requirements in the project's base bid specifications. Waste material, including but not limited to: construction/demolition debris, asbestos-containing material, residential lead paint waste, hazardous waste, and above- and under-ground tanks, shall be disposed of at MPCA-permitted landfill sites only. Copies of all notification, shipment, and landfill receipt records shall be maintained in the subrecipient's project file.

Minnesota Pollution Control Agency
520 Lafayette Rd., St. Paul, MN 55155
(800) 657-3864

a. Construction/Demolition Waste.

Construction/demolition debris will be disposed of at a Minnesota Pollution Control Agency (MPCA) permitted landfill site only, with copies of all landfill receipts for said debris maintained in the subrecipient's project file.

(Solid Waste Management Rules, Chapter 7001 & 7035)

b. Asbestos-Containing Waste.

All asbestos removal and disposal shall be in strict accordance with all applicable permits. The contract bidder shall include the price of all permits, testing, removal, and disposal in the project base bid.

- Project asbestos-containing material removal pursuant to USEPA 40 CFR 61.145 Standard for Demolition and Renovation.
- All asbestos-containing waste material shall be disposed of pursuant to USEPA 40 CFR 61.150 at a MPCA permitted landfill site only, in accordance with the provisions of USEPA 40 CFR 61.154.

- For all asbestos-containing material, a copy of the MPCA Notification of Demolition and Renovation record and all Waste Shipment records shall be maintained in the subrecipient's project file.

c. Hazardous Waste Material.

The MPCA shall be contacted for instructions on handling and disposing of materials containing Polychlorinated Biphenyls (PCBs) or any other identified/encountered hazardous materials. A copy of all correspondence and disposal records shall be maintained in the subrecipient's project file.

- MPCA Hazardous Waste Compliance Guide -- October 1989, Revised January 1991

- MPCA Hazardous Waste Fact Sheet Checklist -- August 1993

d. Above and Below Ground Storage Tanks.

The MPCA Tanks and Spills Section shall be contacted for instructions on handling or removal of all above- and underground tanks identified/encountered. A copy of all correspondence and disposal records shall be maintained in the subrecipient's project file.

e. Residential Lead Paint Waste.

Projects whose activities produce residential lead paint waste are responsible for the management and proper disposal of the waste at an MPCA permitted landfill site only, pursuant to Minn. Stat. sections 116.87, 116.875, 116.88. A copy of the Residential Lead Abatement Notification and Shipping forms shall be maintained in the subrecipient's project file.

134. CONTRACTOR'S RECORDS

The contractor agrees that, as provided in Minnesota Statutes 16C.05, Subd. 5, contractor's books, records, documents, and accounting procedures and practices are subject to examination by the city or the state auditor for three years from the date of execution of this contract.

(End of Document)

General Decision Number: MN150041 05/29/2015 MN41

Superseded General Decision Number: MN20140041

State: Minnesota

Construction Type: Building

County: St Louis County in Minnesota.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015
1	05/22/2015
2	05/29/2015

ASBE0049-007 06/01/2014

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Includes the application of all insulating materials, protective coverings, coatings & finishes to all types of mechanical systems).....	\$ 26.82	23.80

BOIL0647-007 01/01/2013

	Rates	Fringes
BOILERMAKER.....	\$ 32.40	25.37

BRMN0001-050 05/01/2014

ST LOUIS (Remaining Northern part)

Rates	Fringes
-------	---------

TILE SETTER.....	\$ 24.57	20.42
------------------	----------	-------

BRMN0003-008 05/01/2014

ST. LOUIS COUNTY (City of Duluth and South of a line between Townships #54 & #55, 2 miles north of Cotton)

Rates	Fringes
-------	---------

BRICKLAYER.....	\$ 32.20	20.10
-----------------	----------	-------

BRMN0003-011 05/01/2008

ST. LOUIS (City of Duluth and south of Township Line 55)

Rates	Fringes
-------	---------

TILE SETTER.....	\$ 24.13	17.38
------------------	----------	-------

BRMN0016-002 05/01/2014

ST. LOUIS COUNTY (North of a line between Townships #54 & #55, 2 miles north of Cotton)

Rates	Fringes
-------	---------

BRICKLAYER.....	\$ 31.75	20.55
-----------------	----------	-------

CARP0068-005 07/01/2012

Rates	Fringes
-------	---------

SOFT FLOOR LAYER.....	\$ 30.94	11.75
-----------------------	----------	-------

CARP0361-012 07/11/2011

DULUTH AREA including Alborn, Arnold, Bartlett, Birch, Brookstone, Canyon, Clinton, Culver, Floodwood, Gowan, Island, Kelsey, Lakewood, Meadowlands, Munger, Palmers, Payne, Prasit, Shaw, Taft)

Rates	Fringes
-------	---------

CARPENTER (Including Acoustical Installation, Drywall Hanging, Form Work & Overhead Door Installation).....	\$ 27.20	14.75
---	----------	-------

CARP0606-001 05/01/2012

EXCLUDING DULUTH AREA

	Rates	Fringes
CARPENTER (Including Acoustical Installation, Drywall Hanging, Form Work & Overhead Door Installation).....	\$ 27.97	12.72

ELEC0242-012 06/01/2014		

ST. LOUIS (South part bounded on the north by the north line of
Kelsey Township extended east & west)

	Rates	Fringes
ELECTRICIAN.....	\$ 32.54	24.07

ELEC0294-006 06/01/2014		

ST. LOUIS (North part bounded on the south by the south line of
Ellsburg Township, extended east & west)

	Rates	Fringes
ELECTRICIAN.....	\$ 33.72	73.34%

ENGI0049-045 05/01/2015		

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1.....	\$ 37.74	17.15
GROUP 2.....	\$ 37.40	17.15
GROUP 3.....	\$ 35.99	17.15
GROUP 4.....	\$ 35.65	17.15
GROUP 5.....	\$ 35.48	17.15
GROUP 6.....	\$ 33.97	17.15
GROUP 7.....	\$ 32.85	17.15
GROUP 8.....	\$ 30.84	17.15

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Truck & Crawler Crane with 200' of Boom & Over,
including Jib (\$.50 premium with 300' of Boom & over,
including jib); & Tower Crane 250' & Over.

GROUP 2: Truck & Crawler Crane with 150' of Boom, up to but
not including 200' of Boom, including Jib; & Tower Crane
200' & Over.

GROUP 3: Traveling Tower Crane; Truck & Crawler Crane, up to

but not including 150' of Boom, including Jib; Tower Crane (Stationary) up to 200'; All-Terrain Vehicle Crane, Boom Truck over 100 ft.

GROUP 4: Backhoe/Track/Trackhoe, Hoist (3 drums or more); Overhead Crane (inside building perimeter), Excavator.

GROUP 5: Asphalt Spreader, Bulldozer, Curb Machine, Drill, Forklift, Compressor 450 CFM or over (2 or more machines); Boom Truck up to 100 ft, Loader over 1 cu yd, Hoist (1 or 2 drums); Mechanic; Milling Machine, Roller, Scraper, Tractor over D2.

GROUP 6: Bobcat/Skid Loader, Loader up to 1 cu. yd., Tractor D2 or similar size.

GROUP 7: Compressor 600 CFM or over, Crane Oiler.

GROUP 8: Oiler.

IRON0512-018 05/01/2015

	Rates	Fringes
IRONWORKER, ORNAMENTAL, REINFORCING, AND STRUCTURAL.....	\$ 31.04	23.45

LABO1091-011 01/01/2014

	Rates	Fringes
LABORER (ASBESTOS ABATEMENT) Removal from Floors, Walls & Ceilings.....	\$ 27.89	16.31

LABO1091-013 05/01/2012

ST. LOUIS (South of T 55 N)

	Rates	Fringes
Laborers:		
GROUP 1.....	\$ 21.95	14.93
GROUP 2.....	\$ 22.10	14.93
GROUP 3.....	\$ 22.35	14.93
GROUP 4.....	\$ 22.65	14.93

LABORER CLASSIFICATIONS

GROUP 1: Common or General, Asphalt Shoveler, Carpenter Tender, Form Stripping

GROUP 2: Vibrating Plate

GROUP 3: Pipelayer

GROUP 4: Mason Tender (Brick, Cement/Concrete)

LABO1097-008 05/01/2012

ST.LOUIS (North of T 55N)

	Rates	Fringes
LABORER		
GROUP 1.....	\$ 20.62	16.25
GROUP 2.....	\$ 21.02	16.25

LABORERS CLASSIFICATIONS

GROUP 1 - Common or General, Asphalt Shoveler, Carpenter
Tender, Form Stripping, Mason Tender (Brick,
Cement/Concrete)

GROUP 2 - Pipelayer, Vibrating Plate

PAIN0106-001 05/01/2013

	Rates	Fringes
GLAZIER.....	\$ 26.28	15.47

FOOTNOTE:

1 to 4 years service - 1 week paid vacation; 5 to 11 years -
2 weeks paid vacation; 11 years or more - 3 weeks paid
vacation

PAIN0106-013 05/01/2014

	Rates	Fringes
Painters:		
New:		
Brush, Roller.....	\$ 28.81	15.27
Spray, Drywall		
Finisher/Taper.....	\$ 29.41	15.27
Repaint:		
Brush, Roller.....	\$ 27.31	15.27
Spray, Drywall		
Finisher/Taper.....	\$ 27.91	15.27

PLAS0633-024 05/01/2012

ST. LOUIS (North of White Face River) COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 26.71	14.64

PLAS0633-059 05/01/2012

CARLTON & ST. LOUIS (South of T 55N) COUNTIES

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 29.69	16.30

PLUM0011-019 05/12/2014

ST. LOUIS (South of an east-west line drawn through Cotton)

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 37.27	14.03

PLUM0589-007 05/01/2014

ST. LOUIS (North of an East- West line drawn through Cotton)

	Rates	Fringes
PLUMBER/PIPEFITTER		
Contracts \$90,000.00 and		
under.....	\$ 39.46	17.01
Contracts over \$90,000.00...	\$ 39.46	17.01

ROOF0096-024 07/05/2013

ST. LOUIS (South of Hwy 16, excluding City of Forbes)

	Rates	Fringes
ROOFER.....	\$ 31.15	14.08

* ROOF0096-025 05/01/2015

ST. LOUIS (Remaining Northern two-thirds)

	Rates	Fringes
ROOFER.....	\$ 28.89	11.13

SHEE0010-045 05/01/2009

ST. LOUIS (Southern one-third)

Rates	Fringes
-------	---------

SHEET METAL WORKER (Including
HVAC Duct Installation).....\$ 31.61 16.52

SHEE0010-056 05/01/2008

ST. LOUIS (Northern two-thirds)

	Rates	Fringes
SHEET METAL WORKER (Including HVAC Duct Installation).....\$ 29.99		16.08

SUMN2009-050 07/27/2009

	Rates	Fringes
LABORER: Landscape.....\$ 12.88		4.61
TRUCK DRIVER: Dump Truck.....\$ 19.15		5.70

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

=====

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification
and wage rates that have been found to be prevailing for the
cited type(s) of construction in the area covered by the wage
determination. The classifications are listed in alphabetical
order of "identifiers" that indicate whether the particular
rate is a union rate (current union negotiated rate for local),
a survey rate (weighted average rate) or a union average rate
(weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed
in dotted lines beginning with characters other than "SU" or
"UAVG" denotes that the union classification and rate were
prevailing for that classification in the survey. Example:
PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of
the union which prevailed in the survey for this
classification, which in this example would be Plumbers. 0198

indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION

**City of Duluth
Fire Hall #1 Genset
Duluth, Minnesota**

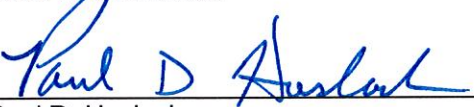
**Mechanical and Electrical
Specifications**

Prepared by:

**Gausman & Moore Associates, Inc.
501 South Lake Avenue, Suite 310
Duluth, MN 55802
Phone: (218) 722-2555
Fax: (218) 722-9306**

Gausman & Moore Project No.: 83896

I hereby certify that these construction documents or reports were 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 D. Haslach _____ Reg.No. 24488


Dave T. Blume _____ Reg. No. 24671

June 3, 2015

PROJECT MANUAL INDEX

- 1. MECHANICAL SPECIFICATION SECTIONS**
- 2. ELECTRICAL SPECIFICATION SECTIONS**
- 3. APPENDIX; MECHANICAL AND ELECTRICAL DRAWINGS**

TABLE OF CONTENTS – MECHANICAL WORK

SECTION

NO. OF PAGES

DIVISION 21-NOT USED

DIVISION 22-NOT USED

DIVISION 23

230500	COMMON WORK RESULTS FOR HVAC	6
231123	NATURAL GAS PIPING	8
233113	METAL DUCTS	6
233300	AIR DUCT ACCESSORIES	4
235100	BREECHINGS, CHIMNEYS, AND STACKS	2

SECTION 230500 - COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Piping materials and installation instructions common to most piping systems.
 - 2. Transition fittings.
 - 3. Dielectric fittings.
 - 4. Mechanical sleeve seals.
 - 5. Sleeves.
 - 6. Escutcheons.
 - 7. Grout.
 - 8. HVAC demolition.
 - 9. Equipment installation requirements common to equipment sections.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver pipes and tubes with factory applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

1.4 COORDINATION

- A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for HVAC installations.

PART 2 - PRODUCTS

2.1 PIPE, TUBE, AND FITTINGS

- A. Refer to individual Division 23 piping Sections for pipe, tube, and fitting materials and joining methods.
- B. Pipe Threads: ASME B1.20.1 for factory threaded pipe and pipe fittings.

2.2 JOINING MATERIALS

- A. Refer to individual Division 23 piping Sections for special joining materials not listed below.

- d. Pipeline Seal and Insulator, Inc.
- 2. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
- 3. Pressure Plates: Plastic. Include two for each sealing element.
- 4. Connecting Bolts and Nuts: Carbon steel with corrosion resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.5 SLEEVES

- A. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

2.6 GROUT

- A. Description: ASTM C 1107, Grade B, nonshrink and nonmetallic, dry hydraulic cement grout.
 - 1. Characteristics: Post hardening, volume adjusting, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
 - 2. Design Mix: 5000 psi, 28 day compressive strength.
 - 3. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 HVAC DEMOLITION

- A. Disconnect, demolish, and remove HVAC systems, equipment, and components indicated to be removed.
 - 1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - 2. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
 - 3. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - 4. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - 5. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - 6. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
- B. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.
- C. Patch existing construction where disturbed by work of this Division.
 - 1. Work shall be done by skilled mechanics experienced in the particular type of work involved. Patching and remodeling work shall conform to the standards of the specifications of the Project, where applicable; where not specified, work shall conform to the highest standards of the trade.
 - 2. Existing construction that has been damaged as a result of the Work shall be repaired to an extent and as required to match adjacent existing undamaged construction.

- C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- D. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- E. Welded Joints: Construct joints according to AWS D10.12, using qualified processes and welding operators according to Part 1 "Quality Assurance" Article.
- F. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.4 PIPING CONNECTIONS

- A. Make connections according to the following, unless otherwise indicated:
 - 1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
 - 2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
 - 3. Dry Piping Systems: Install dielectric unions and flanges to connect piping materials of dissimilar metals.
 - 4. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.
- C. Install HVAC equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

3.6 GROUTING

- A. Mix and install grout for HVAC equipment base bearing surfaces, pump and other equipment base plates, and anchors.
- B. Clean surfaces that will come into contact with grout.
- C. Provide forms as required for placement of grout.

SECTION 231123 – NATURAL GAS PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Sections include the following:
 - 1. Division 23 Section: "Common Work Results for HVAC" for required piping specialties.

1.2 SUMMARY

- A. Provide a complete gas distribution system, including making final gas connections to each gas burning appliance.
- B. Extend new gas piping from the existing service to serve the new generator.
- C. Provide temporary connection, during construction, for the existing generator to remain functional.
- D. Make provisions with the utility company for a gas service pressure changes. All expense involved in providing the service changes shall be paid for by this Contractor.
- E. Remove all gas piping in the present building not being reused.
- F. Code Compliance: Comply with applicable provisions of Minnesota State Building Code, NBFO and AGA.
- G. Local Utility Compliance: Comply with requirements of local gas utility company.
- H. Section Includes:
 - 1. Pipes, tubes, and fittings.
 - 2. Piping specialties.
 - 3. Piping and tubing joining materials.
 - 4. Valves.
 - 5. Pressure regulators.
 - 6. Mechanical sleeve seals.
 - 7. Grout.

1.3 SUBMITTALS

- A. Operation and Maintenance Data: For pressure regulators to include in emergency, operation, and maintenance manuals.

1.4 QUALITY ASSURANCE

- A. ANSI Standard: Comply with ANSI Z223.1, "National Fuel Gas Code."

4. Forged Steel Flanges and Flanged Fittings: ASME B16.5, minimum Class 150, including bolts, nuts, and gaskets of the following material group, end connections, and facings:
 - a. Material Group: 1.1.
 - b. End Connections: Threaded or butt welding to match pipe.
 - c. Lapped Face: Not permitted underground.
 - d. Gasket Materials: ASME B16.20, metallic, flat, asbestos free, aluminum o-rings, and spiral wound metal gaskets.
 - e. Bolts and Nuts: ASME B18.2.1, carbon steel aboveground and stainless steel underground.
5. Protective Coating for Underground Piping: Factory applied, three layer coating of epoxy, adhesive, and PE.
 - a. Joint Cover Kits: Epoxy paint, adhesive, and heat shrink PE sleeves.

2.2 PIPING SPECIALTIES

- A. Appliance Flexible Connectors:
 1. Indoor, Fixed Appliance Flexible Connectors: Comply with ANSI Z21.24.
 2. Operating Pressure Rating: 0.5 psig.
 3. End Fittings: Zinc coated steel.
 4. Threaded Ends: Comply with ASME B1.20.1.
 5. Maximum Length: 72 inches
- B. Y-Pattern Strainers:
 1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
 2. End Connections: Threaded ends for NPS 2 and smaller; flanged ends for NPS 2-1/2 and larger.
 3. Strainer Screen: 60-mesh startup strainer, and perforated stainless steel basket with 50 percent free area.
 4. CWP Rating: 125 psig.

2.3 JOINING MATERIALS

- A. Joint Compound and Tape: Suitable for natural gas.

2.4 MANUAL GAS SHUTOFF VALVES

- A. See "Aboveground Manual Gas Shutoff Valve Schedule" Articles for where each valve type is applied in various services.
- B. General Requirements for Metallic Valves, NPS 2 and Smaller: Comply with ASME B16.33.
 1. CWP Rating: 125 psig
 2. Threaded Ends: Comply with ASME B1.20.1.
 3. Dryseal Threads on Flare Ends: Comply with ASME B1.20.3.
 4. Tamperproof Feature: Locking feature for valves indicated in "Aboveground Manual Gas Shutoff Valve Schedule" Articles.
 5. Listing: Listed and labeled by an NRTL acceptable to authorities having jurisdiction for valves 1 inch and smaller.
 6. Service Mark: Valves 1-1/4 inches to NPS 2 shall have initials "WOG" permanently marked on valve body.

9. Pressure regulator shall maintain discharge pressure setting downstream, and not exceed 150 percent of design discharge pressure at shutoff.
10. Atmospheric Vent: Factory or field installed, stainless steel screen in opening if not connected to vent piping.

C. Appliance Pressure Regulators: Comply with ANSI Z21.18.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Eaton Corporation; Controls Div.
 - b. Maxitrol Company.
2. Body and Diaphragm Case: Die-cast aluminum.
3. Springs: Zinc plated steel; interchangeable.
4. Diaphragm Plate: Zinc plated steel.
5. Seat Disc: Nitrile rubber.
6. Seal Plug: Ultraviolet stabilized, mineral filled nylon.
7. Factory Applied Finish: Minimum three layer polyester and polyurethane paint finish.
8. Regulator may include vent limiting device, instead of vent connection, if approved by authorities having jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for natural-gas piping system to verify actual locations of piping connections before equipment installation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Close equipment shutoff valves before turning off natural gas to premises or piping section.
- B. Inspect natural-gas piping according to NFPA 54 and the International Fuel Gas Code to determine that natural-gas utilization devices are turned off in piping section affected.
- C. Comply with NFPA 54 and the International Fuel Gas Code requirements for prevention of accidental ignition.

3.3 OUTDOOR PIPING INSTALLATION

- A. Comply with NFPA 54 and the International Fuel Gas Code for installation and purging of natural-gas piping.
- B. Install fittings for changes in direction and branch connections.
- C. Aboveground, Exterior and Underground, Exterior Wall Pipe Penetrations Mechanical Sleeve Seal Installation: Interior wall penetration sleeves and sleeve seals are specified in Division 23 Section "Common Work Results for HVAC."

3.5 VALVE INSTALLATION

- A. Install regulators and overpressure protection devices with maintenance access space adequate for servicing and testing.

3.6 PIPING JOINT CONSTRUCTION

- A. Join pipe and fittings in accordance with Division 23 Section "Common Work Results for HVAC," and the following:
 - 1. Flared Joints: Cut tubing with roll cutting tool. Flare tube end with tool to result in flare dimensions complying with SAE J513. Tighten finger tight, then use wrench. Do not overtighten.

3.7 HANGER AND SUPPORT INSTALLATION

- A. Provide hangers, supports, and anchor devices complying with industry standards.

3.8 CONNECTIONS

- A. Install piping adjacent to appliances to allow service and maintenance of appliances.
- B. Connect piping to appliances using manual gas shutoff valves and unions. Install valve within 72 inches of each gas-fired appliance and equipment. Install union between valve and appliances or equipment.
- C. Sediment Traps: Install tee fitting with capped nipple in bottom to form drip, as close as practical to inlet of each appliance.

3.9 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Test, inspect, and purge natural gas according to NFPA 54 and the International Fuel Gas Code and authorities having jurisdiction.
- C. Natural-gas piping will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

3.10 INDOOR PIPING SCHEDULE

- A. Aboveground, distribution piping shall be one of the following:
 - 1. Steel pipe with malleable iron fittings and threaded joints.
 - 2. Steel pipe with wrought steel fittings and welded joints.
- B. Distribution piping valves shall be one of the following:
 - 1. Two piece, full port, bronze ball valves with bronze trim.

END OF SECTION 231123

SECTION 233113 - METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes metal ducts for supply, return, outside, and exhaust air-distribution systems in pressure classes from minus 2 to plus 10 inch wg. Metal ducts include the following:
 - 1. Rectangular ducts and fittings.
- B. Refer to Part 4 – Schedule.
- C. Related Sections include the following:
 - 1. Division 23 Section “Air Duct Accessories” for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.3 QUALITY ASSURANCE

- A. SMACNA Standards: Comply with SMACNA “HVAC Duct Construction Standards, Metal and Flexible” for fabrication and installation of metal ductwork.
- B. NFPA Compliance:
 - 1. NFPA 90A, “Installation of Air Conditioning and Ventilating Systems.”
 - 2. NFPA 90B, “Installation of Warm Air Heating and Air Conditioning Systems.”
- C. Field Reference Manual: Have available for reference at project field office, copy of SMACNA “HVAC Duct Construction Standards, Metal and Flexible.”

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- A. Comply with SMACNA’s “HVAC Duct Construction Standards - Metal and Flexible” for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G90 coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.
- C. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.
- D. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.4 RECTANGULAR DUCT FABRICATION

- A. Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and complying with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.
 - 1. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure class.
 - 2. Deflection: Duct systems shall not exceed deflection limits according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
- B. Transverse Joints: Prefabricated slide-on joints and components constructed using manufacturer's guidelines for material thickness, reinforcement size and spacing, and joint reinforcement.
 - 1. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - a. Ductmate Industries, Inc.
 - b. Nexus Inc.
 - c. Sheet Metal Connectors, Inc.
 - d. Ward Industries, Inc.
- C. Formed-On Flanges: Construct according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-4, using corner, bolt, cleat, and gasket details.
 - 1. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - a. Ductmate Industries, Inc.
 - b. Lockformer.
 - c. Sheet Metal Connectors, Inc.
 - 2. Duct Size: Maximum 30 inches wide and up to 2 inch wg pressure class.
 - 3. Longitudinal Seams: Pittsburgh lock sealed with noncuring polymer sealant.
- D. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19 inches and larger and 0.0359 inch thick or less, with more than 10 sq. ft. of nonbraced panel area unless ducts are lined.

PART 3 - EXECUTION

3.1 DUCT APPLICATIONS

- A. Static Pressure Classes: Unless otherwise indicated, construct ducts according to the following:
 - 1. Exhaust Ducts: 3-inch wg.

3.2 DUCT INSTALLATION

- A. Construct and install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," unless otherwise indicated.
- B. Install ducts with fewest possible joints.
- C. Install fabricated fittings for changes in directions, size, and shape and for connections.

3.7 CONNECTIONS

- A. Make connections to equipment with flexible connectors according to Division 23 Section "Air Duct Accessories."
- B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.8 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections according to SMACNA's "HVAC Air Duct Leakage Test Manual" and prepare test reports:
 - 1. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.
 - 2. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If pressure classes are not indicated, test entire system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure. Give seven days' advance notice for testing.
 - 3. Maximum Allowable Leakage: Comply with requirements for Leakage Class 3 for round and flat oval ducts, Leakage Class 12 for rectangular ducts in pressure classes lower than and equal to 2 inch wg (both positive and negative pressures), and Leakage Class 6 for pressure classes from 2 to 10 inch wg.
 - 4. Remake leaking joints and retest until leakage is equal to or less than maximum allowable.

3.9 CLEANING NEW SYSTEMS

- A. Mark position of dampers and air-directional mechanical devices before cleaning, and perform cleaning before air balancing.
- B. Use service openings, as required, for physical and mechanical entry and for inspection.
 - 1. Create other openings to comply with duct standards.
 - 2. Disconnect flexible ducts as needed for cleaning and inspection.
 - 3. Remove and reinstall ceiling sections to gain access during the cleaning process.
- C. Vent vacuuming system to the outside. Include filtration to contain debris removed from HVAC systems, and locate exhaust down wind and away from air intakes and other points of entry into building.
- D. Clean the following metal duct systems by removing surface contaminants and deposits:
 - 1. Intake and exhaust, air ducts, dampers, and actuators.
- E. Mechanical Cleaning Methodology:
 - 1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
 - 2. Use vacuum collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
 - 3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, or duct accessories.

SECTION 233300 - AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Motorized control dampers.
 - 2. Flexible connectors.

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's specifications for each type of duct accessory, including dimensions, capacities, and materials of construction; and installation instructions.

1.4 QUALITY ASSURANCE

- A. SMACNA Compliance: Comply with applicable portions of Sheet Metal and Air Conditioning Contractor's National Association (SMACNA) high pressure and low pressure duct construction standards.
- B. Industry Standards: Comply with American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) recommendations pertaining to construction of duct accessories, except as otherwise indicated.
- C. UL Compliance:
 - 1. Construct, test, and label fire dampers in accordance with Underwriters Laboratories (UL) Standard 555 "Fire Dampers and Ceiling Dampers".
 - 2. Construct, test, and label smoke dampers in accordance with Underwriters Laboratories (UL) Standard 555S, "Standard for Leakage Rated Dampers for Use in Smoke Control Systems".
- D. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

- A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated.
- B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G90 coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.

- B. Provide duct accessories of materials suited to duct materials; use galvanized steel accessories in galvanized steel ducts.
- C. Install flexible connectors immediately adjacent to equipment in ducts associated with the generator.
- D. For fans developing static pressures of 5-inch wg and higher, cover flexible connectors with loaded vinyl sheet held in place with metal straps.
- E. Coordinate with other work, including ductwork, as necessary to interface installation of duct accessories properly with other work.
- F. Field Quality Control: Operate installed duct accessories to demonstrate compliance with requirements. Test for air leakage while system is operating. Repair or replace faulty accessories, as required to obtain proper operation and leakproof performance.
- G. Use concealed anchorages where possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to make a weathertight connection.
- H. Form closely fitted joints with exposed connections accurately located and secured.
- I. Provide perimeter reveals and openings of uniform width for sealants and joint fillers, as indicated.
- J. Install concealed gaskets, flashings, joint fillers, and insulation as louver installation progresses, where weathertight louver joints are required.

3.2 ADJUSTING

- A. Adjust duct accessories for proper settings.
- B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.

END OF SECTION 233300

SECTION 235100 - BREECHINGS, CHIMNEYS, AND STACKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Field-fabricated metal engine exhaust.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain listed system components through one source from a single manufacturer.
- B. Certified Sizing Calculations: Manufacturer shall certify venting system sizing calculations.

PART 2 - PRODUCTS

2.1 FIELD-FABRICATED METAL ENGINE EXHAUST

- A. Fabricate engine exhaust from ASTM A 53/A 53M, Type E (electric-resistance welded), Grade B; or ASTM A 106, Type S, Grade B, Schedule 80 pipe; with welded joints and carbon-steel fittings and flanges.
 - 1. Wrought-Steel Fittings: ASME B16.9, wall thickness to match adjoining pipe.
 - 2. Wrought Cast- and Forged-Steel Flanges and Flanged Fittings: ASME B16.5, Class 150, including bolts, nuts, and gaskets.
 - 3. Provide insulation on engine exhaust to prevent injury to persons in vicinity of equipment.

2.2 GUYING AND BRACING MATERIALS

- A. Cable: Galvanized, stranded wires of quantities and thickness required by the manufacturer.
- B. Pipe: Galvanized steel, NPS 1-1/4.
- C. Angle Iron: Galvanized steel, 2 by 2 by 0.25 inch.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Field-Fabricated Metal Engine Exhaust: Steel pipe for use with engine exhaust.

3.2 INSTALLATION OF LISTED VENTS AND CHIMNEYS

- A. Locate to comply with minimum clearances from combustibles and minimum termination heights according to product listing or NFPA 211, whichever is most stringent.

TABLE OF CONTENTS – ELECTRICAL WORK

<u>SECTION</u>	<u>NO. OF PAGES</u>
DIVISION 26	
260500 COMMON WORK RESULTS FOR ELECTRICAL	4
260519 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES	4
260526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS	4
260529 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS	4
260533 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS	6
260553 IDENTIFICATION FOR ELECTRICAL SYSTEMS	4
262726 WIRING DEVICES	4
263213 ENGINE GENERATORS	6
263600 TRANSFER SWITCHES	2
DIVISION 27-NOT USED	
DIVISION 28-NOT USED	

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Electrical equipment coordination and installation.
 - 2. Common electrical installation requirements.
 - 3. Electrical demolition.
 - 4. Touchup painting.

1.3 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. NBR: Acrylonitrile-butadiene rubber.

1.4 COORDINATION

- A. Coordinate arrangement, mounting, and support of electrical equipment:
 - 1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 - 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 - 3. To allow right of way for piping and conduit installed at required slope.
 - 4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.
- C. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
- D. Coordinate chases, slots, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.
- E. Coordinate electrical testing of electrical, mechanical, and architectural items, so equipment and systems that are functionally interdependent are tested to demonstrate successful interoperability.
- F. Coordinate connecting electrical service to components furnished under other sections, include connections for equipment specified in other Sections.

3.4 DEMOLITION

- A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.
- B. Identify and maintain services that pass through remodeled area and serve devices and equipment outside the remodeled area.
- C. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.
- D. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches (50 mm) below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.
- E. Remove demolished material from Project site.
- F. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.
- G. Removal of PCB Ballasts: Provide a suitable collection container at the project site. Check transformers and the ballasts in all fluorescent fixtures being removed, rewired, or reinstalled under this Contract. Some transformers and ballasts are clearly labeled to indicate whether they do or do not contain PCBs. If a transformer or ballast is not labeled, assume that it contains PCBs. Remove from the fixtures all ballasts known or assumed to contain PCBs and place them in the designated collection container. Place hazardous material including, but not limited to, mercury switches and lamps in the designated collection container. Pick up the container and recycle or dispose of it legally. Comply with the requirements of federal, state, and local pollution control agency guidelines for removal and disposal of fluorescent lamps.
- H. Existing Utilities: Locate existing utilities in excavation areas. If utilities are indicated to remain, support and protect services during excavation operations.
 - 1. Remove existing underground utilities indicated to be removed.
 - 2. Uncharted or Incorrectly Charted Utilities: Contact utility owner immediately for instructions.
 - 3. Maintain and protect existing building services which transit the area affected by selective demolition.
- I. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

3.5 FIELD QUALITY CONTROL

- A. Inspect installed components for damage and faulty work. Replace damaged or faulty components.

END OF SECTION 260500

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Building wires and cables rated 600 V and less.
 - 2. Connectors, splices, and terminations rated 600 V and less.

1.3 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

- A. Field quality-control test reports.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. American Insulated Wire Corp.; a Leviton Company.
 - 2. General Cable Corporation.
 - 3. Senator Wire & Cable Company.
 - 4. Southwire Company.
 - 5. Or pre-approved equivalent.
- B. Copper Conductors: Comply with NEMA WC 70.
- C. Conductor Insulation: Comply with NEMA WC 70 for Types THHN-THWN.

3.4 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

3.5 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly.

3.6 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
- B. Tests and Inspections:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test feeder conductors, between generator transfer switch(s), and associated panelboard for compliance with requirements.
 - 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.
 - a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
 - b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
- C. Test Reports: Prepare a written report to record the following:
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- D. Remove and replace malfunctioning units and retest as specified above.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Methods and materials for grounding systems and equipment.

1.3 SUBMITTALS

- A. Field quality-control test reports.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 - 4. Bonding Jumper: Copper tape, braided conductors, terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

2.2 CONNECTORS

- A. Listed and labeled by a nationally recognized testing laboratory acceptable to authorities having jurisdiction for applications in which used, and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, bolted pressure-type, with at least two bolts.
 - 1. Pipe Connectors: Clamp type, sized for pipe.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

- C. Grounding and Bonding for Piping:
 - 1. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.
- D. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. IMC: Intermediate metal conduit.
- C. RMC: Rigid metal conduit.

1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.

- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with single-bolt conduit clamps.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners.
 - 5. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 - 6. To Light Steel: Sheet metal screws.
 - 7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

3.4 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete.

SECTION 260533 - RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Raceways.
 - 2. Fittings.
 - 3. Boxes.
 - 4. Enclosures.
 - 5. Cabinets for electrical wiring.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

1.4 COORDINATION

- A. Coordinate layout and installation of raceways, boxes, enclosures, cabinets, and suspension system with other construction that penetrates ceilings or is supported by them, including new and/or existing light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.
- B. Coordinate layout and installation of raceway and boxes with other construction elements to ensure maximum headroom, working clearance, and access.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Available Manufacturers: Provide products that comply with requirements.
- B. Rigid Steel Conduit: ANSI C80.1.
- C. LFMC: Flexible steel conduit with PVC jacket.
- D. EMT: ANSI C80.3.
- E. LFMC: Flexible steel conduit with PVC jacket.

3. Key latch to match panelboards.
4. Metal barriers to separate wiring of different systems and voltage.
5. Accessory feet where required for freestanding equipment.

2.4 FACTORY FINISHES

- A. Finish: For enclosure or cabinet components, provide manufacturer's standard finish inside and prime-coat finish ready for field painting on outside of enclosure or cabinet.

2.5 SLEEVES FOR RACEWAYS

- A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
- B. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
 1. Exposed Conduit: RNC, Type EPC-80-PVC.
 2. Underground Conduit: RNC, Type EPC-80-PVC, direct buried.
 3. Connection to Vibrating Equipment (Including generator: LFMC).
- B. Comply with the following indoor applications, unless otherwise indicated:
 1. Exposed, Not Subject to Physical Damage: EMT.
 2. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 3. Boxes and Enclosures: NEMA 250, Type 1.
 4. Minimum Raceway Size: 1/2-inch (16-mm) trade size.

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Support raceways as specified in Division 26 Section "Hangers and Supports for Electrical Systems."
- E. Arrange stub-ups so curved portions of bends are not visible above the finished slab.
- F. Flexible Conduit Connections: Use maximum of 72 inches (1830 mm) of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 1. Use LFMC.

3.7 PROTECTION

- A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Identification for raceway.
 - 2. Warning labels and signs.
 - 3. Equipment identification labels.
 - 4. Miscellaneous identification products.

1.3 COORDINATION

- A. Coordinate identification names, abbreviations, colors, and other features with requirements in the Contract Documents, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual, and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.
- B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.
- C. Coordinate installation of identifying devices with location of access panels and doors.
- D. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 RACEWAY IDENTIFICATION MATERIALS

- A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.
- B. Color for Printed Legend:
 - 1. Power Circuits: Black letters on an orange field.
 - 2. Legend: Indicate system or service and voltage.
- C. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

2.2 WARNING LABELS AND SIGNS

- A. Comply with NFPA 70 and 29 CFR 1910.145.

- D. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.
1. Labeling Instructions:
 - a. Indoor Equipment: Engraved, laminated acrylic or melamine label. Provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where 2 lines of text are required, use labels 2 inches (50 mm) high.
 2. Equipment to be Labeled:
 - a. Panelboards, electrical cabinets, and enclosures.
 - b. Electrical switchgear and switchboards.
 - c. Emergency system boxes and enclosures.
 - d. Disconnect switches.
 - e. Push-button stations.
 - f. Power transfer equipment.

3.2 INSTALLATION

- A. Verify identity of each item before installing identification products.
- B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- C. Apply identification devices to surfaces that require finish after completing finish work.
- D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- E. Attach nonadhesive signs and plastic labels with screws and auxiliary hardware appropriate to the location and substrate.
- F. Color-Coding for Phase and Voltage Level Identification, 600 V and Less: Use the colors listed below for ungrounded feeder conductors.
1. Color shall be factory applied or, for sizes larger than No. 10 AWG if authorities having jurisdiction permit, field applied.
 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - d. Neutral: White.
 - e. Ground: Green.
 3. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

END OF SECTION 260553

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Receptacles, and associated device plates.

1.3 SUBMITTALS

- A. Product Data: Not applicable.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
 - 1. Cooper Wiring Devices; a division of Cooper Industries, Inc. (Cooper).
 - 2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
 - 3. Leviton Mfg. Company Inc. (Leviton).
 - 4. Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).

2.2 STRAIGHT BLADE RECEPTACLES

- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 configuration 5-20R, and UL 498.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Cooper; 5351 (single), 5352 (duplex).
 - b. Hubbell; HBL5351 (single), CR5352 (duplex).
 - c. Leviton; 5891 (single), 5352 (duplex).
 - d. Pass & Seymour; 5381 (single), 5352 (duplex).

5. Connect devices to branch circuits using pigtails that are not less than 6 inches (152 mm) in length.
6. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
7. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
8. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
9. Tighten unused terminal screws on the device.
10. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

- E. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

3.2 CONNECTIONS

- A. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.
- B. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.3 FIELD QUALITY CONTROL

- A. Replace damaged or defective components.

3.4 CLEANING

- A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION 262726

SECTION 263213 - ENGINE GENERATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Installation of spare natural gas packaged engine-generator set stored at Duluth City Hall for emergency power supply with the following features:
 - a. Gas engine.
 - b. Unit-mounted cooling system.
 - c. Unit-mounted control and monitoring.
 - d. Remote exhaust.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative (Ziegler) who is trained and approved for installation of unit for this Project.
 - 1. Maintenance Proximity: Not more than one (1) hour normal travel time from Installer's place of business to Project site.
- B. Source Limitations: Manufacturers authorized representative matching existing generator for start-up services.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Applicable to Relocation of Existing comply with:
 - 1. C ASME B15.1.
 - 2. NFPA 37.
 - 3. NFPA 70.
 - 4. NFPA 110 requirements for Level 1 emergency power supply system.
 - 5. UL 2200.

1.4 PROJECT CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:
 - 1. Notify Owner no fewer than seven days in advance of proposed interruption of electrical service.
 - 2. Do not proceed with interruption of electrical service without Owner's written permission.

2.4 CONTROL AND MONITORING

- A. Automatic Starting System Sequence of Operation of Relocated Unit: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of generator set. When mode-selector switch is switched to the on position, generator set starts. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms. Operation of a new remote emergency-stop switch also shuts down generator set. Locate outside of existing boiler room
- B. Remote Emergency-Stop Switch: Provide new surface; wall mounted, unless otherwise indicated; and labeled. Push button shall be protected from accidental operation. Locate in access hall outside of existing boiler room. Provide conduit and wire per manufacturer requirements.

2.5 VIBRATION ISOLATION DEVICES

- A. Elastomeric Isolator Pads: Provide new oil- and water-resistant elastomer or natural rubber, arranged in single or multiple layers, molded with a nonslip pattern and galvanized-steel baseplates of sufficient stiffness for uniform loading over pad area, and factory cut to sizes that match requirements of supported equipment.
 - 1. Material: Standard neoprene.
 - 2. Durometer Rating: As recommended by the manufacturer for the application.
 - 3. Number of Layers: Provide multiple layers separated by stainless steel shims as recommended by the manufacturer for the application.

2.6 SOURCE QUALITY CONTROL

- A. Project-Specific Equipment Tests: After relocation, factory test engine-generator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:
 - 1. Test components and accessories furnished with installed unit that are not identical to those on tested prototype to demonstrate compatibility and reliability.
 - 2. Full load run.
 - 3. Maximum power.
 - 4. Voltage regulation.
 - 5. Transient and steady-state governing.
 - 6. Single-step load pickup.
 - 7. Safety shutdown.
 - 8. Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.
 - 9. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, equipment bases, and conditions, with Installer present, for compliance with requirements for installation and other conditions affecting packaged engine-generator performance.

3. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.
 - a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
 - b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
 - c. Verify acceptance of charge for each element of the battery after discharge.
 - d. Verify that measurements are within manufacturer's specifications.
 4. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
 5. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
 6. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg (120 kPa). Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
 7. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
 8. Harmonic-Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.
 9. Noise Level Tests: Measure A-weighted level of noise emanating from generator-set installation, including engine exhaust and cooling-air intake and discharge, at two locations on the property line, and compare measured levels with required values.
- C. Coordinate tests with tests for transfer switches and run them concurrently.
 - D. Test instruments shall have been calibrated within the last 12 months, traceable to standards of NIST, and adequate for making positive observation of test results. Make calibration records available for examination on request.
 - E. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - F. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
 - G. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
 - H. Remove and replace malfunctioning units and retest as specified above.
 - I. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.
 - J. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

SECTION 263600 - TRANSFER SWITCHES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Transfer switches rated 600 V and less, including the following:
 - a. Relocation of existing automatic transfer switches.

1.3 PROJECT CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service:
 - 1. Notify Owner no fewer than seven days in advance of proposed interruption of electrical service.
 - 2. Do not proceed with interruption of electrical service without Owner's written permission.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Existing

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Identify components according to Division 26 Section "Identification for Electrical Systems."
- B. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.2 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Provide raceway size at no additional cost to Owner as necessary to accommodate required wiring for existing components.
- B. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."
- C. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

APPENDIX

MECHANICAL DRAWINGS

M0.1	Title Sheet & Ground Floor Mechanical Plan
M1.1	Enlarged Mechanical Plans
M2.1	Mechanical Details

ELECTRICAL DRAWINGS

E0.1	Title Sheet
E1.1	Ground Floor Electrical Plans
E2.1	Details Sheet
E3.1	One-line Diagram

INDEX OF MECHANICAL DRAWINGS

- M0.1 TITLE SHEET & GROUND FLOOR MECHANICAL PLAN
- M1.1 ENLARGED MECHANICAL PLANS
- M2.1 MECHANICAL DETAILS

GENERAL NOTES-PROJECT

- * COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
- * THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
- * FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
- * LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS, TRANSFORMERS, AND OTHER ELECTRICAL EQUIPMENT.
- * ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.
- * PIPE SIZES SHOWN SHALL BE CONTINUED IN THE DIRECTION OF FLOW UNTIL ANOTHER SIZE IS SHOWN.
- * FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
- * INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE RESPECTIVE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AT A LEVEL OF QUALITY AND WORKMANSHIP CONSISTENT WITH THE SPECIFICATIONS.
- * LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.
- * INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.
- * REMOVE ALL UNUSED PIPING, DUCTWORK AND ACCESSORIES.
- * THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS .
- * SEAL ALL WALL PENETRATIONS WATER TIGHT.
- * ALL EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 3" W.G. UNLESS NOTED OTHERWISE.

M0.1

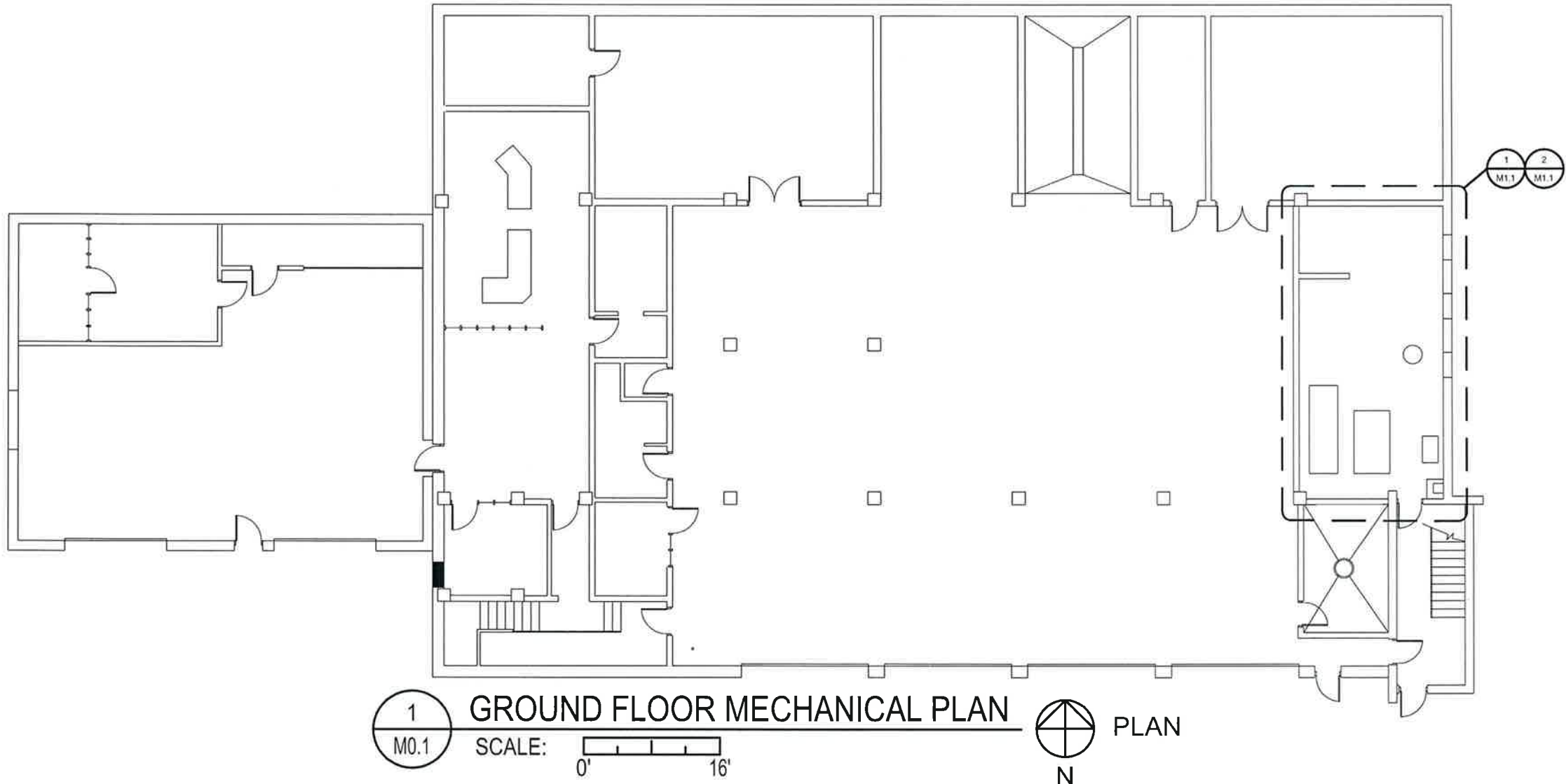
Date: 06/03/15
Drawn: PDH
Checked: LAO
Proj.No.: 83896

Gausman & Moore
Mechanical and Electrical Engineers

DULUTH

City of Duluth Fire Hall #1
Generator Replacement

TITLE SHEET & GROUND
FLOOR MECHANICAL
PLAN



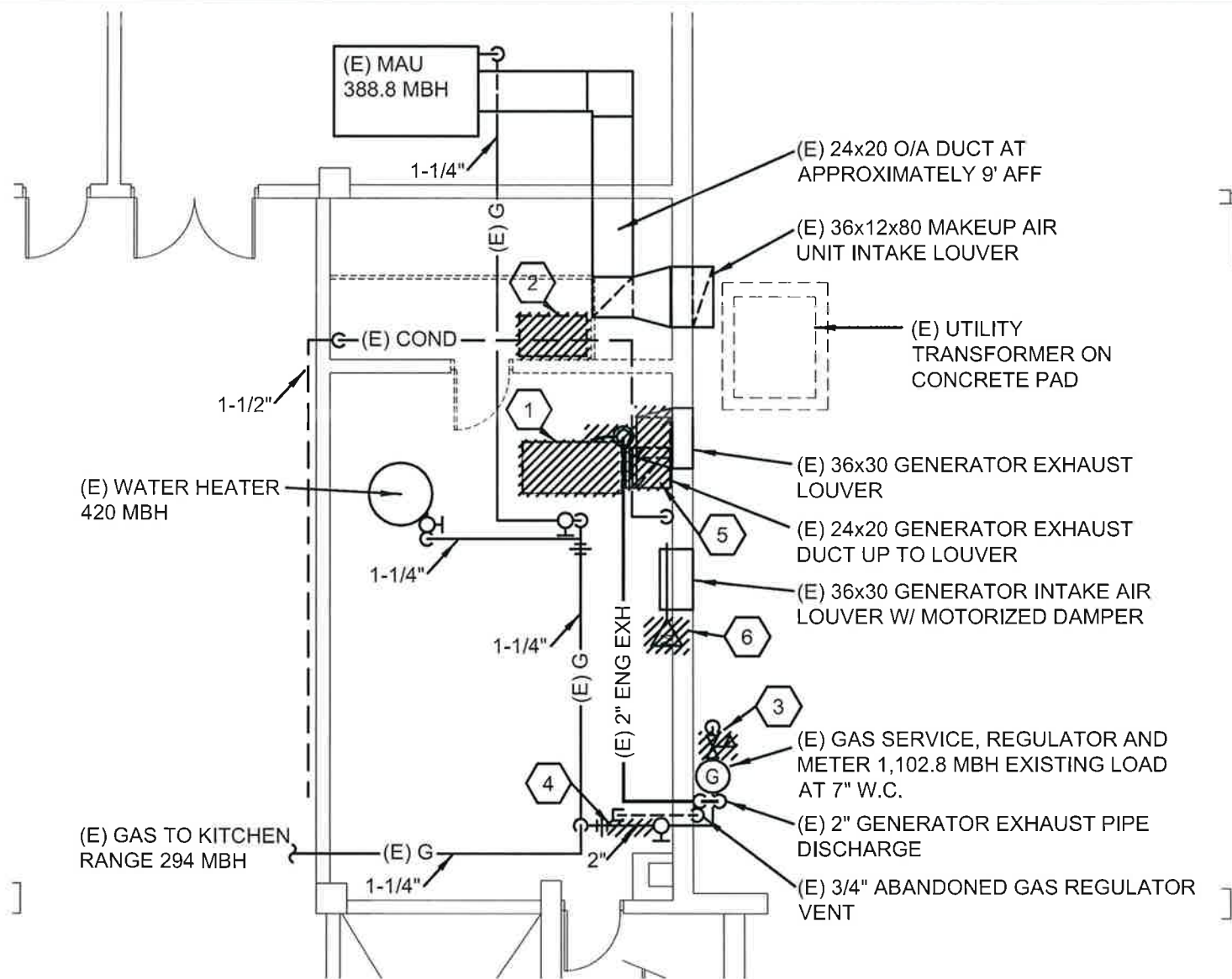
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed PROFESSIONAL ENGINEER under the laws of the State of Minnesota.

Paul D. Haslach
Signature

PAUL D. HASLACH
Name

24488
License #

06/03/15
Date



1
M1.1

ENLARGED GENERATOR ROOM DEMOLITION PLAN

SCALE: 0' 8'

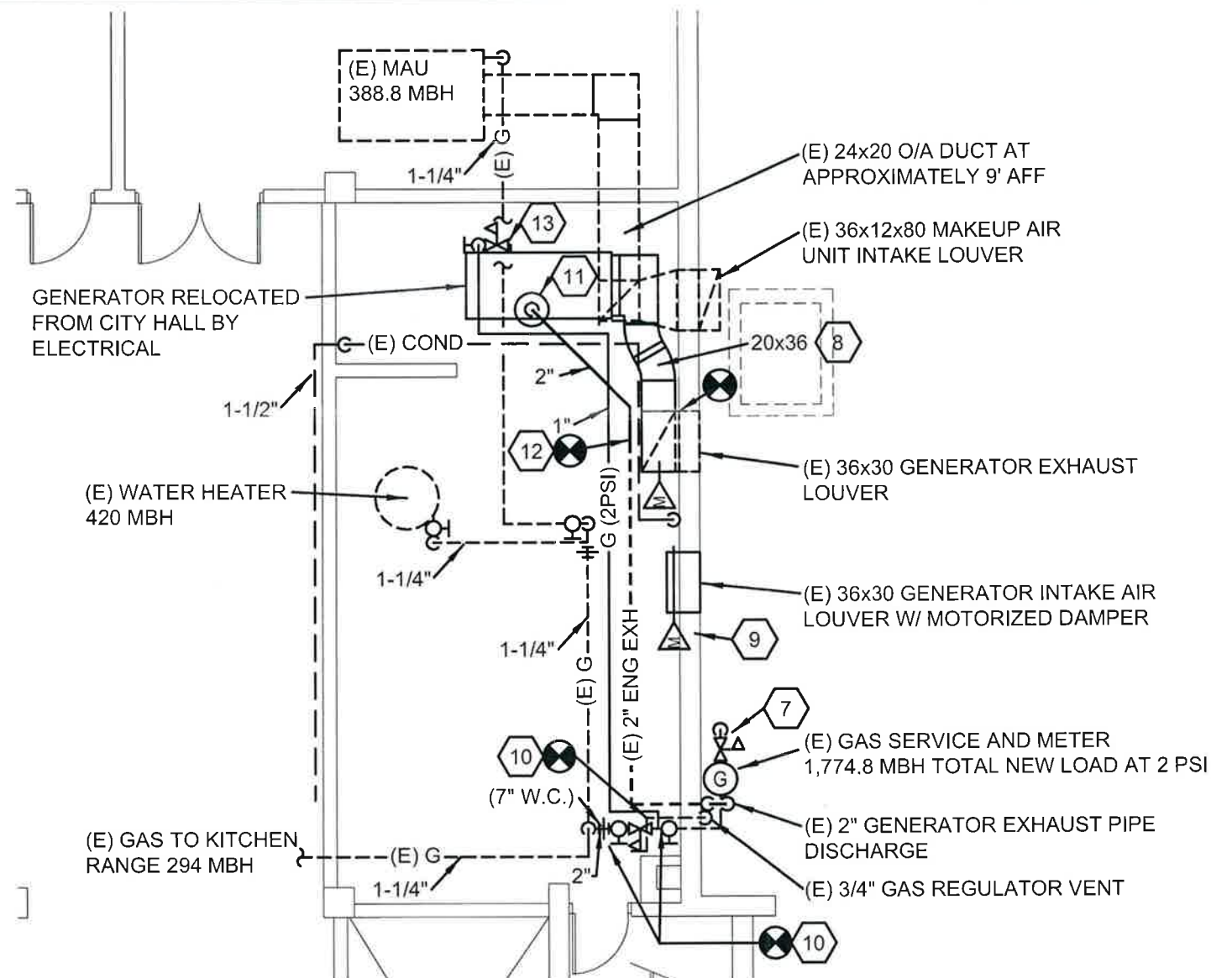
PLAN

GENERAL NOTES:

A REFER TO SHEET M0.1 FOR GENERAL NOTES ASSOCIATED WITH THIS SHEET.

NUMBERED NOTES:

1. EXISTING DEISEL GENERATOR SALVAGED BY ELECTRICAL. SALVAGE ASSOCIATED EXHAUST PIPING, MUFFLER AND DUCTWORK CONNECTION AND TURN OVER TO OWNER. COORDINATE PHASING OF DEMOLITION AND NEW WORK.
2. EXISTING DEISEL FUEL TANK REMOVED AND SALVAGED BY ELECTRICAL. COORDINATE WITH ELECTRICAL FOR ANY MECHANICAL WORK REQUIRED.
3. COORDINATE WITH GAS UTILITY FOR REMOVAL OR REPLACEMENT OF EXISTING GAS SERVICE REGULATOR TO CHANGE FROM 7" TO 2 PSI SERVICE PRESSURE.
4. REMOVE EXISTING SECTION OF 2" GAS PIPING FROM MAIN SHUT OFF VALVE TO UNION.
5. REMOVE EXISTING 24x20 GENERATOR EXHAUST DUCT FROM GENERATOR TO LOUVER CONNECTION.
6. REMOVE EXISTING MOTORIZED DAMPER ACTUATOR.
7. COORDINATE WITH GAS UTILITY TO CONVERT EXISTING SERVICE TO 2 PSI INTO BUILDING.



2
M1.1

ENLARGED GENERATOR ROOM MECHANICAL PLAN

SCALE: 0' 8'

PLAN

NUMBERED NOTES:

8. 20x36 GENERATOR EXHAUST DUCT. ROUTE NEAR FLOOR AND UP TO EXISTING EXHAUST LOUVER CONNECTION. COORDINATE CONNECTION SIZE WITH GENERATOR (28-1/2x28 VERIFY) REQUIREMENTS AND TRANSITION TO THE 20x36. PROVIDE NEW MOTORIZED DAMPER AND ACTUATOR NEAR LOUVER.
9. PROVIDE NEW MOTORIZED DAMPER ACTUATOR ON EXISTING INTAKE DAMPER.
10. PROVIDE NEW 2" (2 PSI) GAS PIPING FROM EXISTING MAIN SHUT OFF VALVE TO EXISTING UNION WITH A 1" (2 PSI) TEE BRANCH LINE SERVING THE GENERATOR AND A NEW PRESSURE REGULATOR AND S.O.V. TO REGULATE THE EXISTING SYSTEM PIPING DOWN TO 7" W.C. VENT REGULATOR TO OUTSIDE VIA CONNECTION TO EXISTING 3/4" GAS REGULATOR VENT THROUGH WALL.
11. GENERATOR ENGINE EXHAUST MUFFLER RELOCATED FROM CITY HALL WITH GENERATOR.
12. 2" ENGINE EXHAUST PIPE CONNECTED TO EXISTING, COORDINATE EXACT ROUTING WITH EXISTING CONDITIONS.
13. PROVIDE PRESSURE REGULATOR AT THE GENERATOR PROVIDING FINAL OPERATING PRESSURE REQUIRED. VERIFY GENERATOR OPERATING PRESSURE. VENT REGULATOR TO OUTSIDE AS REQUIRED. PROVIDE SHUT OFF VALVE ON GAS PIPE DROP DOWN TO REGULATOR.

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.


Signature

PAUL D. HASLACH
Name

24488 06/03/15
License # Date

M1.1

Date: 06/03/15
Drawn: PDH
Checked: LAO
Proj. No.: 83896

Gausman & Moore
Mechanical and Electrical Engineers



City of Duluth Fire Hall #1
Generator Replacement

ENLARGED MECHANICAL
PLANS

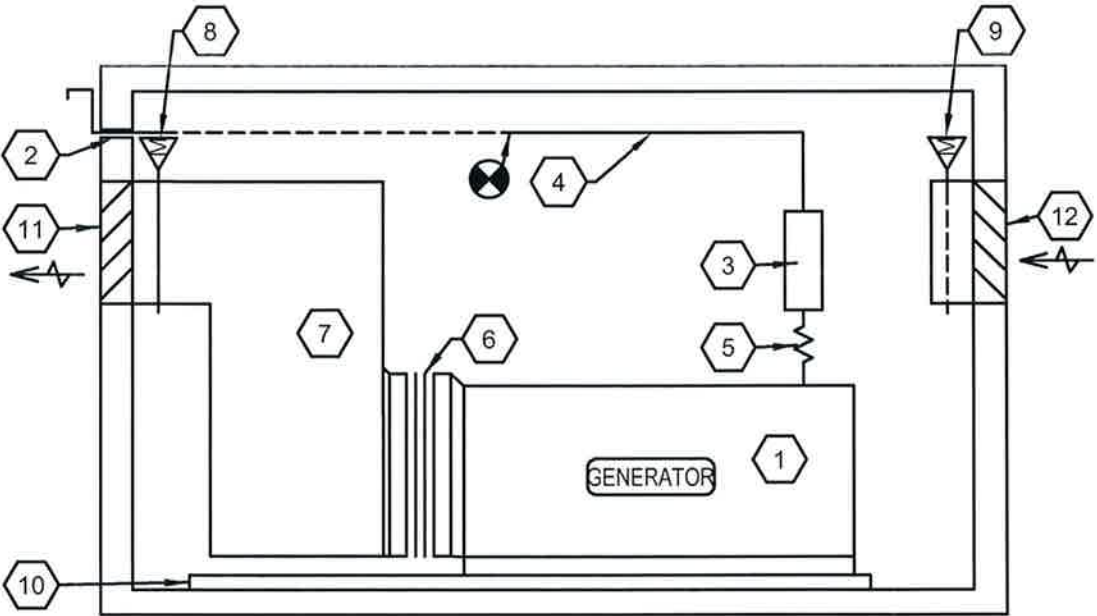
DAMPER SEQUENCE OF OPERATION:

IN GENERATOR RUN MODE:

- ON START UP OF THE GENERATOR:
 - THE OUTSIDE AIR AND EXHAUST AIR MOTORIZED DAMPER SHALL OPEN.
- IN GENERATOR STOP MODE:
 - OUTDOOR AIR AND EXHAUST AIR MOTORIZED DAMPERS SHALL CLOSE.

EMERGENCY GENERATOR NUMBERED NOTES:

1. EMERGENCY GENERATOR RELOCATED AND INSTALLED BY DIVISION 26 CONTRACTOR.
2. EXISTING EXHAUST FLUE THROUGH WALL.
3. MUFFLER RELOCATED FROM CITY HALL BY DIVISION 26 CONTRACTOR AND INSTALLED BY DIVISION 23 CONTRACTOR.
4. EXHAUST FLUE, PROVIDED BY DIVISION 23 CONTRACTOR.
5. EXHAUST FLUE FLEX CONNECTION. PROVIDED BY DIVISION 23 CONTRACTOR.
6. DUCT TRANSITION AND FLEX CONNECTION. PROVIDED BY DIVISION 23 CONTRACTOR.
7. EXHAUST AIR DUCTWORK. PROVIDED BY DIVISION 23 CONTRACTOR
8. EXHAUST AIR MOTORIZED DAMPER, NORMALLY CLOSED. PROVIDED BY DIVISION 23 CONTRACTOR.
9. OUTSIDE AIR MOTORIZED DAMPER, NORMALLY CLOSED. EXISTING DAMPER. NEW ACTUATOR PROVIDED BY DIVISION 23 CONTRACTOR.
10. CONCRETE HOUSEKEEPING PAD. PROVIDED BY DIVISION 26 CONTRACTOR.
11. EXISTING EXHAUST AIR LOUVER.
12. EXISTING OUTDOOR AIR LOUVER AND DAMPER.



1

GENERATOR INSTALLATION DETAIL

NO SCLAE

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 D. Haslach

Signature

PAUL D. HASLACH

Name

24488

License #

06/03/15

Date

M2.1

Date: 06/03/15

Drawn: PDH

Checked: LAO

Proj.No.: 83896

Gausman & Moore
Mechanical and Electrical Engineers

DULUTH
MINNESOTA

City of Duluth Fire Hall #1
Generator Replacement

MECHANICAL DETAILS

INDEX OF ELECTRICAL DRAWINGS

- E0.1 TITLE SHEET
- E1.1 GROUND FLOOR ELECTRICAL PLAN
- E2.1 DETAILS SHEET
- E3.1 ONE-LINE DIAGRAM

NUMBERED NOTES:

- 1 PROVIDE SERVICE ENTRANCE CONDUCTORS ROUTED DOWN WALL INSIDE NEW POURED CONCRETE FLOOR ON TOP OF EXISTING FLOOR. CORE DRILL EXISTING CONCRETE WALL AS REQUIRED. PROVIDE VERTICAL FRAMING/FORM WORK FOR CONCRETE ENCASEMENT PER NEC.
- 2 EXTEND NEW 20A, 1P, 120V BRANCH CIRCUIT FROM NEAREST 208Y/120V PANEL FOR CONNECTION TO GENERATOR BATTERY CHARGER.
- 3 EXTEND NEW 20A, 1P, 120V BRANCH CIRCUIT FROM NEAREST 208Y/120V PANEL FOR CONNECTION TO GENERATOR BLOCK HEATER.
- 4 PROVIDE CONCRETE SLAB EXTENSION TO MATCH EXISTING FOR NEW CT/METER CABINET, FIELD VERIFY EXACT DIMENSION REQUIREMENTS.
- 5 PROVIDE CT CABINET PER UTILITY COMPANY REQUIREMENTS. PROVIDE METER SOCKET, PER UTILITY REQUIREMENTS, MOUNTED TO CT CABINET. METER IS PROVIDED BY UTILITY COMPANY. PROVIDE 1" C MINIMUM BETWEEN METER SOCKET AND CT CABINET FOR CONTROL WIRING PROVIDE BY UTILITY.

NUMBERED NOTES:

- 6 CONTRACTOR TO HAND DIG AND/OR EXCAVATE SOIL TO FACILITATE INSTALLATION OF SERVICE ENTRANCE CONDUCTORS. INSTALL SERVICE ENTRANCE CONDUCTORS PER NEC MINIMUM DEPTH FOR ROUTING THROUGH SIDE WALL OF BUILDING AT GROUND LEVEL. PROVIDE GALVANIZED RIGID STEEL SLEEVE WITH LINK SEALS AND WEATHERPROOF EXTERIOR WALL GROUT.
- 7 PROVIDE CONTROL WIRING FROM EXISTING DAMPER ACTUATORS TO RELOCATED GENERATOR AS REQUIRED. PROVIDE NEW CONTROL RELAY(S) AS REQUIRED. COORDINATE WITH MECHANICAL.
- 8 PROVIDE ACCESS COVER/BOX FOR EXISTING GROUNDING ELECTRODE CONDUCTORS AS REQUIRED TO FACILITATE NEW CONCRETE FLOOR INSTALLATION. PROTECT GROUNDING CONDUCTORS DURING INSTALLATION OF CONCRETE FLOOR.
- 9 CONCRETE ENCASE SERVICE ENTRANCE CONDUCTORS AT POINT OF ENTRY OF BUILDING TO ELEVATION OF LOWEST EXISTING FLOOR SLAB. CONDUCTORS TO CONTINUE UNDER FLOOR AS INDICATED.
- 10 DISCONNECT AND REMOVE CT CABINET TO FACILITATE INSTALLATION OF NEW. CONTRACTOR TO COORDINATE PHASING OF DEMOLITION AND INSTALLATION NEW TO PROVIDE MINIMUM DOWN TIME TO OWNER.
- 11 REMOVE AND RELOCATE SALVAGED FUEL TANK ASSOCIATED WITH EXISTING GENERATOR. STORE IN GARAGE AREA, FINAL LOCATION TO BE DETERMINED BY OWNER. REMOVE REMAINING OIL AND PROPERLY DISPOSE OF PRIOR TO RELOCATION.
- 12 DISCONNECT AND REMOVE DISCONNECT SWITCH, METER SOCKETS AND ASSOCIATED WIRE GUTTER AND CONDUIT/CONDUCTORS TO FACILITATE WALL DEMOLITION. REMOVE CONDUIT/CONDUCTORS BACK TO SOURCE.
- 13 DISCONNECT AND REMOVE CONTROL WIRING BETWEEN DAMPERS AND EXISTING GENERATOR TO BE REMOVED. DAMPERS TO REMAIN FOR CONNECTION TO RELOCATED GENERATOR.
- 14 REMOVE EXISTING FENCE ASSEMBLY.
- 15 RELOCATE EXISTING EMERGENCY LIGHT TO FACILITATE WALL DEMOLITION.

GENERAL NOTES:

- A ELECTRICAL CONTRACTOR TO INCLUDE DEMOLITION INDICATED ON THESE PLANS TO FACILITATE 35 KVA GENERATOR AND ASSOCIATED GEAR REMOVAL AND INSTALLATION OF RELOCATED 45 KVA GENERATOR AND ASSOCIATED GEAR. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL. COORDINATE ALL PHASES WITH OWNER TO FACILITATE DEMOLITION AND NEW CONSTRUCTION. COORDINATE ALL OUTAGES WITH OWNER MINIMUM OF ONE (1) WEEK IN ADVANCE. OWNER RETAINS RIGHT TO FIRST SALVAGE. PROVIDE DISPOSAL OF ALL REMOVED MATERIAL.
- B INCLUDE CUTTING PATCHING, AND RESTORATION OF FINISHES NECESSARY FOR THIS WORK. SURFACES DAMAGED BY THIS WORK AND SPACES AROUND CONDUITS PASSING THROUGH FLOORS AND WALLS SHALL BE NEATLY PATCHED AND FINISHED TO MATCH. STRUCTURAL MEMBERS SHALL NOT BE CUT OR PENETRATED IN ANY MANNER WITHOUT PRIOR APPROVAL BY OWNER'S AUTHORIZED REPRESENTATIVE. THE SPACES AROUND THE CONDUITS SHALL BE SEALED TO PREVENT ENTRANCE OF MOISTURE, PATCHED AND FINISHED TO MATCH.
- C LEAVE THE SITE CLEAN AND READY FOR OCCUPANCY. REMOVE DIRT, DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT AND WIRE SCRAPS AND MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THIS DIVISION OF THE WORK DURING CONSTRUCTION. COMPONENTS SHALL BE FREE OF DUST, GRIT, AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK.

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.

Signature

DAVE T. BLUME
Name

24671 06/03/15
License # Date

E0.1

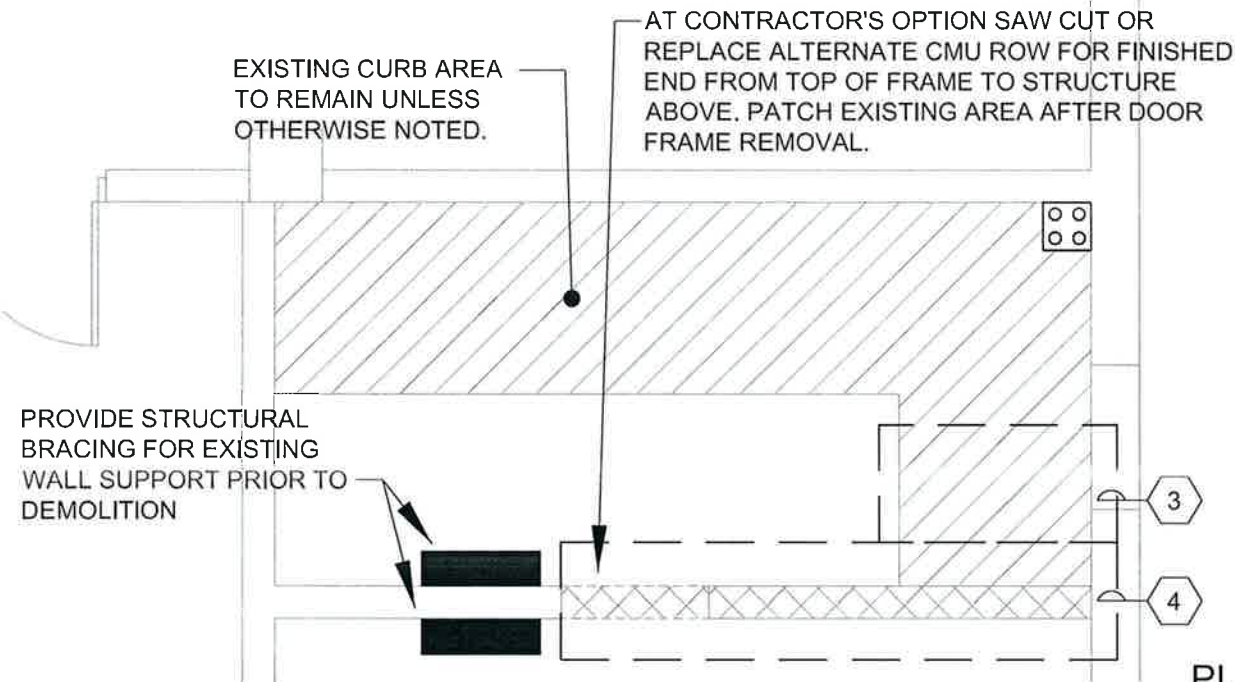
Date: 06/03/15
Drawn: LAH
Checked: SLH
Proj. No.: 83896

Gausman & Moore
Mechanical and Electrical Engineers

DULUTH
MINNESOTA

City of Duluth Fire Hall #1
Generator Replacement

TITLE SHEET



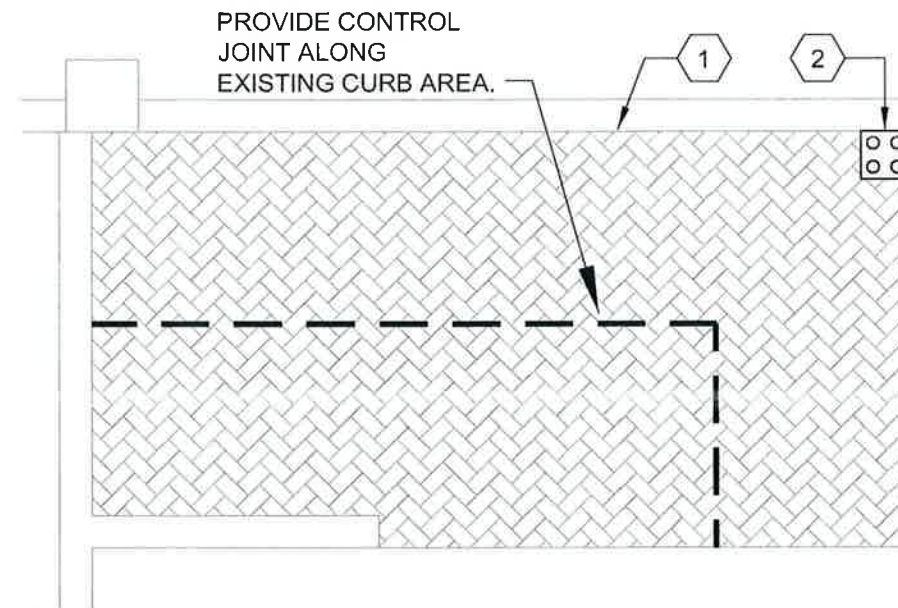
2
E1.1

GENERATOR ROOM CONSTRUCTION PLAN (EX)

SCALE: 0' 4'

PLAN

N



3
E1.1

GENERATOR ROOM CONSTRUCTION PLAN (NEW)

SCALE: 0' 4'

PLAN

N

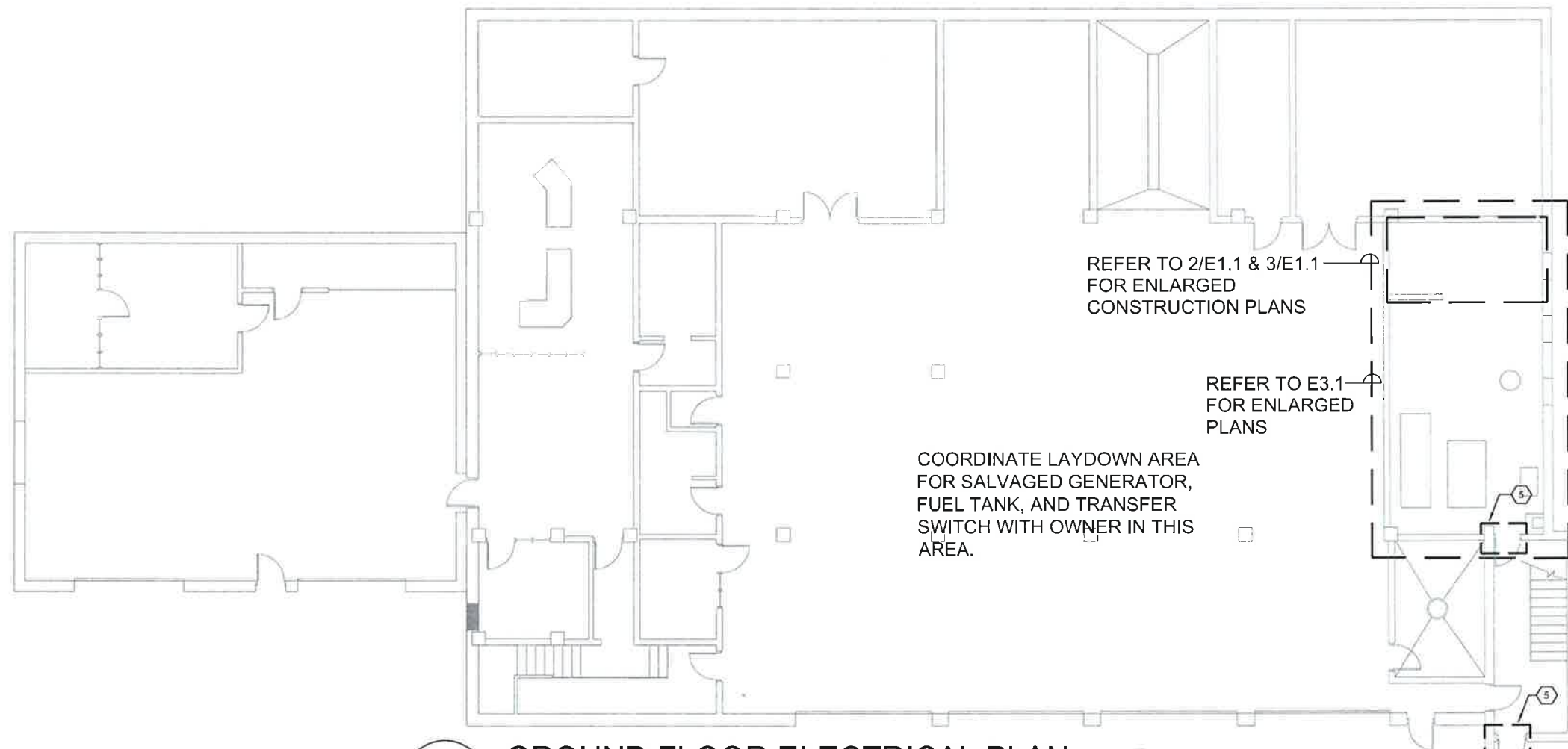
NUMBERED NOTES: X

- 1 PROVIDE POURED CONCRETE SLAB IN GENERATOR ROOM 6" OVERALL HEIGHT. COORDINATE POUR WITH INSTALLATION OF NEW SERVICE ENTRANCE SECONDARY CONDUCTORS.
- 2 EXISTING GROUND CONDUCTORS TO BE PROTECTED AND ACCESSIBLE DURING AND AFTER NEW FLOOR INSTALLATION.

HATCH KEY

- EXISTING 3" CONCRETE PAD
- EXISTING CMU WALL - REMOVED
- NEW CONCRETE FLOOR - 6" OAH

- 3 SAW CUT EXISTING CURB AREA TO FACILITATE NEW SERVICE ENTRANCE INSTALLATION.
- 4 REMOVE/RELOCATE ELECTRICAL SYSTEMS TO FACILITATE WALL AND DOOR DEMOLITION. PROTECT EXISTING SYSTEMS.
- 5 REMOVE EXISTING DOOR AND FRAME TO FACILITATE GENERATOR REPLACEMENT. PROVIDE NEW FRAME MATCHING AND REINSTALL EXISTING DOOR AND HARDWARE. PROVIDE TEMPORARY AND SECURED EXTERIOR ENCLOSURE AS REQUIRED COORDINATED WITH PHASING. REVIEW AND COORDINATE WITH OWNER.



1
E1.1

GROUND FLOOR ELECTRICAL PLAN

SCALE: 0' 16'

PLAN

N

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.

Signature

DAVE T. BLUME
Name

24671 06/03/15
License # Date

E1.1

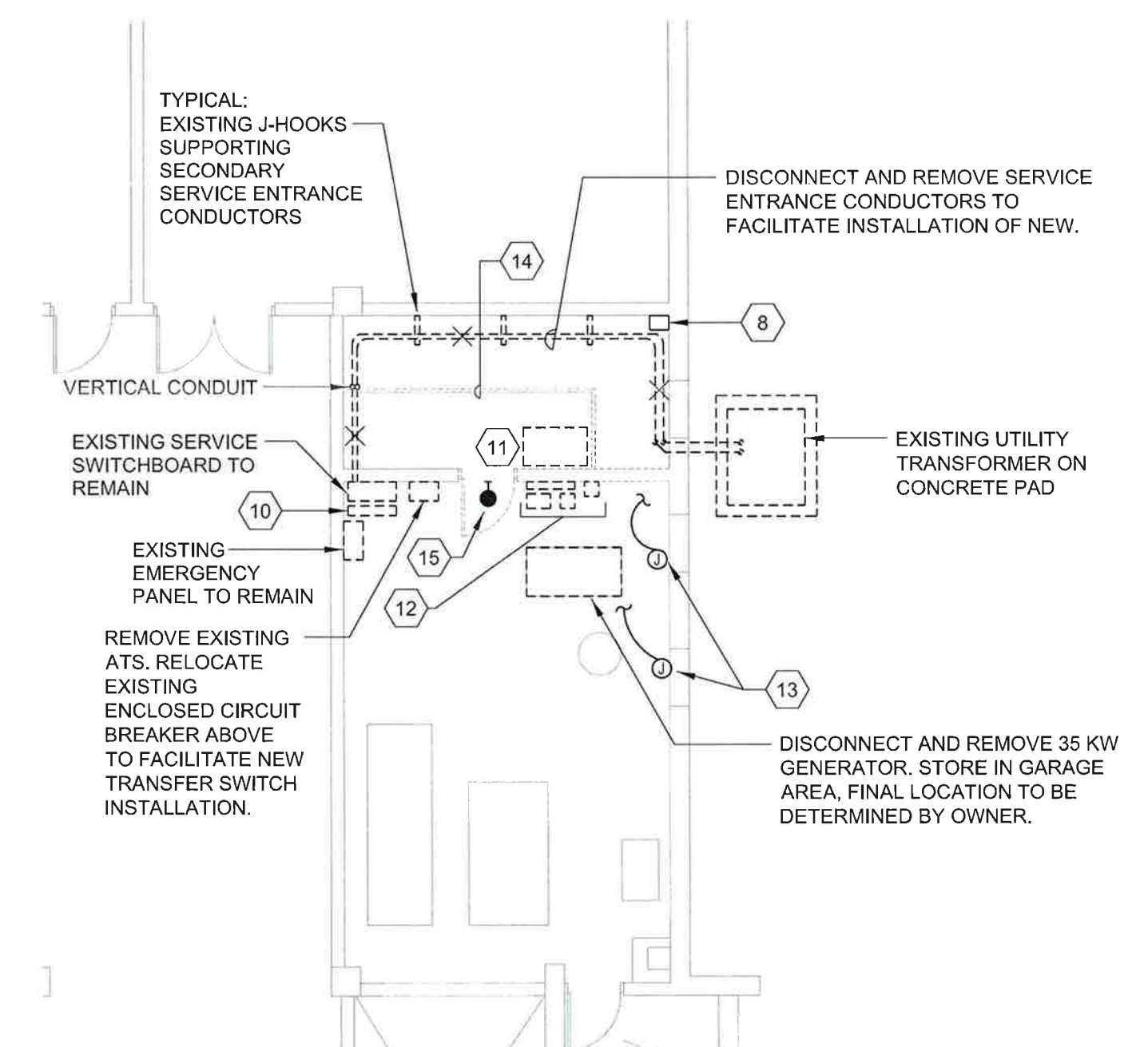
Date: 06/03/15
Drawn: LAH
Checked: SLH
Proj. No.: 83896

Gausman
& Moore
Mechanical and
Electrical Engineers

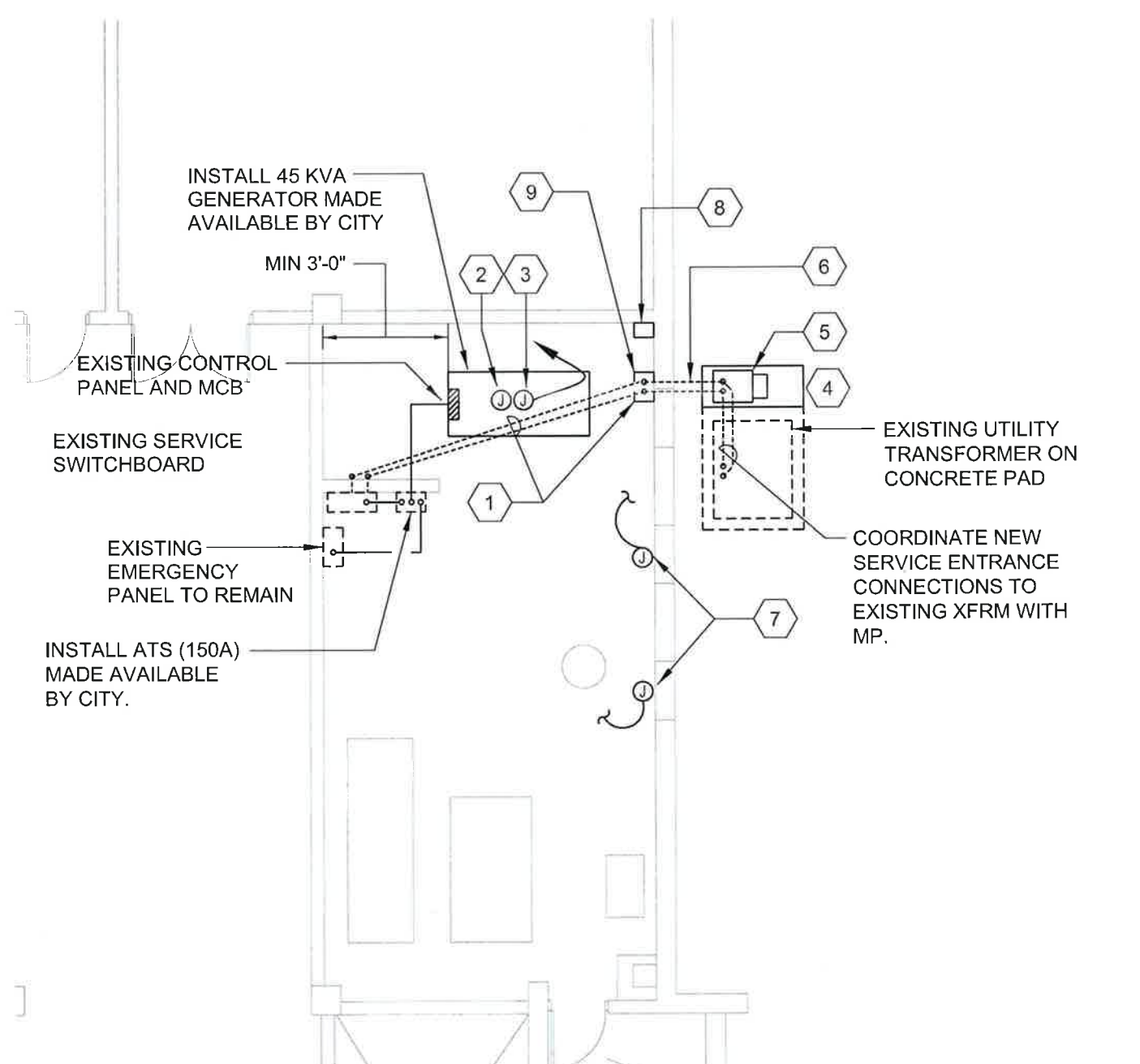
DULUTH
MINNESOTA

City of Duluth Fire Hall #1
Generator Replacement

GROUND FLOOR
ELECTRICAL PLAN



1 ENLARGED GENERATOR ROOM DEMOLITION PLAN
E2.1 SCALE: 0' 8'
PLAN
N



2 ENLARGED GENERATOR ROOM ELECTRICAL PLAN
E2.1 SCALE: 0' 8'
PLAN
N

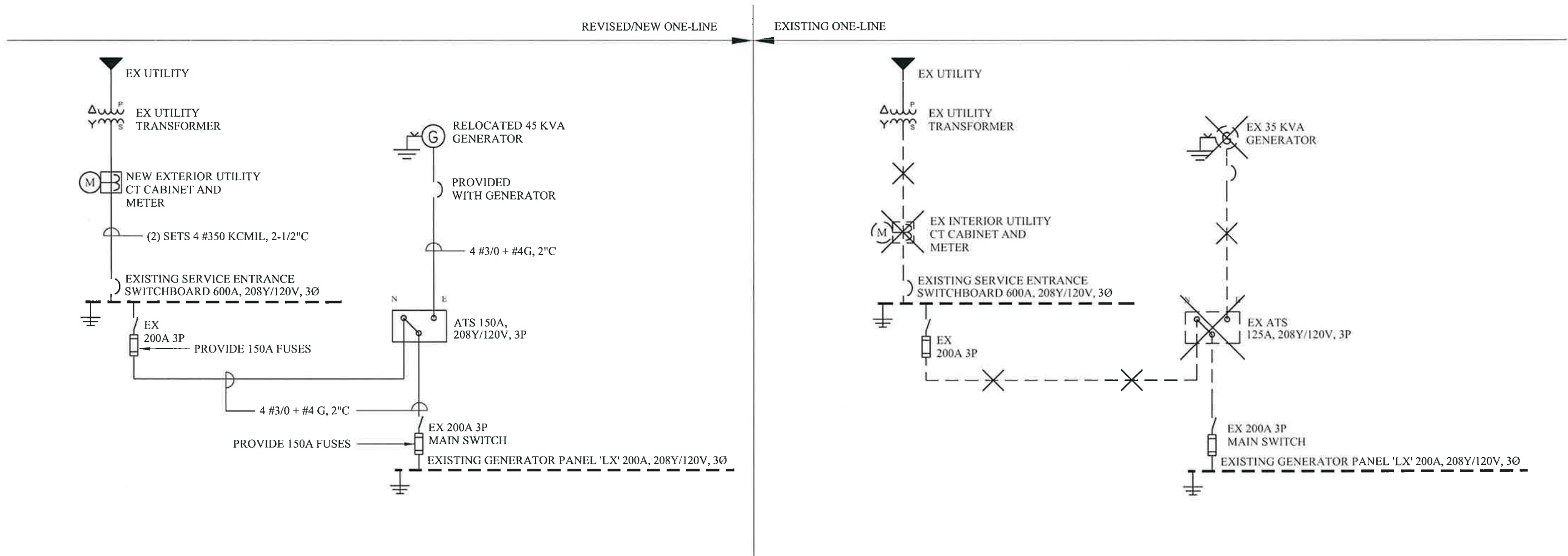
GENERAL NOTES:

- A REFER TO SHEET E0.1 FOR NUMBERED NOTES ASSOCIATED WITH THIS SHEET.

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.

Signature
DAVE T. BLUME
Name
24671 06/03/15
License # Date

E2.1			
Date: 06/03/15	Drawn: LAH	Checked: SLH	Proj. No.: 83896
Gausman & Moore Mechanical and Electrical Engineers			
City of Duluth Fire Hall #1 Generator Replacement			
DETAILS SHEET			



1
E3.1

PARTIAL EXISTING/REVISED ONE-LINE DIAGRAMS

SCALE: 0' NTS

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.

Signature

DAVE T. BLUME

Name

24671

License #

06/03/15

Date

E3.1

Date: 06/03/15

Drawn: LAH

Checked: SLH

Proj. No.: 83896

Gausman
& Moore
Mechanical and
Electrical Engineers

DULUTH
MINNESOTA

City of Duluth Fire Hall #1
Generator Replacement

ONE-LINE DIAGRAM