DULUTH CITY HALL - PROJECT # 14-02-TR

INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR

DULUTH, MINNESOTA 55802

EXIT SYMBOLS – FLOOR PLAN

EXIT — DENOTES EXIT

57'-3" — DENOTES EXIT ACCESS TRAVEL DISTANCE.

WHERE COMMON PATH OF EGRESS TRAVEL IS NOTED ADD IT TO EXIT ACCESS TRAVEL DISTANCE TO ACHIEVE THE THE EXIT ACCESS TRAVEL DISTANCE.

COMMON PATH OF EGRESS TRAVEL REFER TO SYMBOL BELOW.

REFER TO FLOOR PLAN

57'-3" — DENOTES COMMON PATH OF EGRESS TRAVEL DISTANCE

WHERE COMMON PATH OF EGRESS TRAVEL IS NOTED ADD IT TO EXIT ACCESS TRAVEL DISTANCE TO ACHIEVE THE THE EXIT ACCESS TRAVEL DISTANCE.

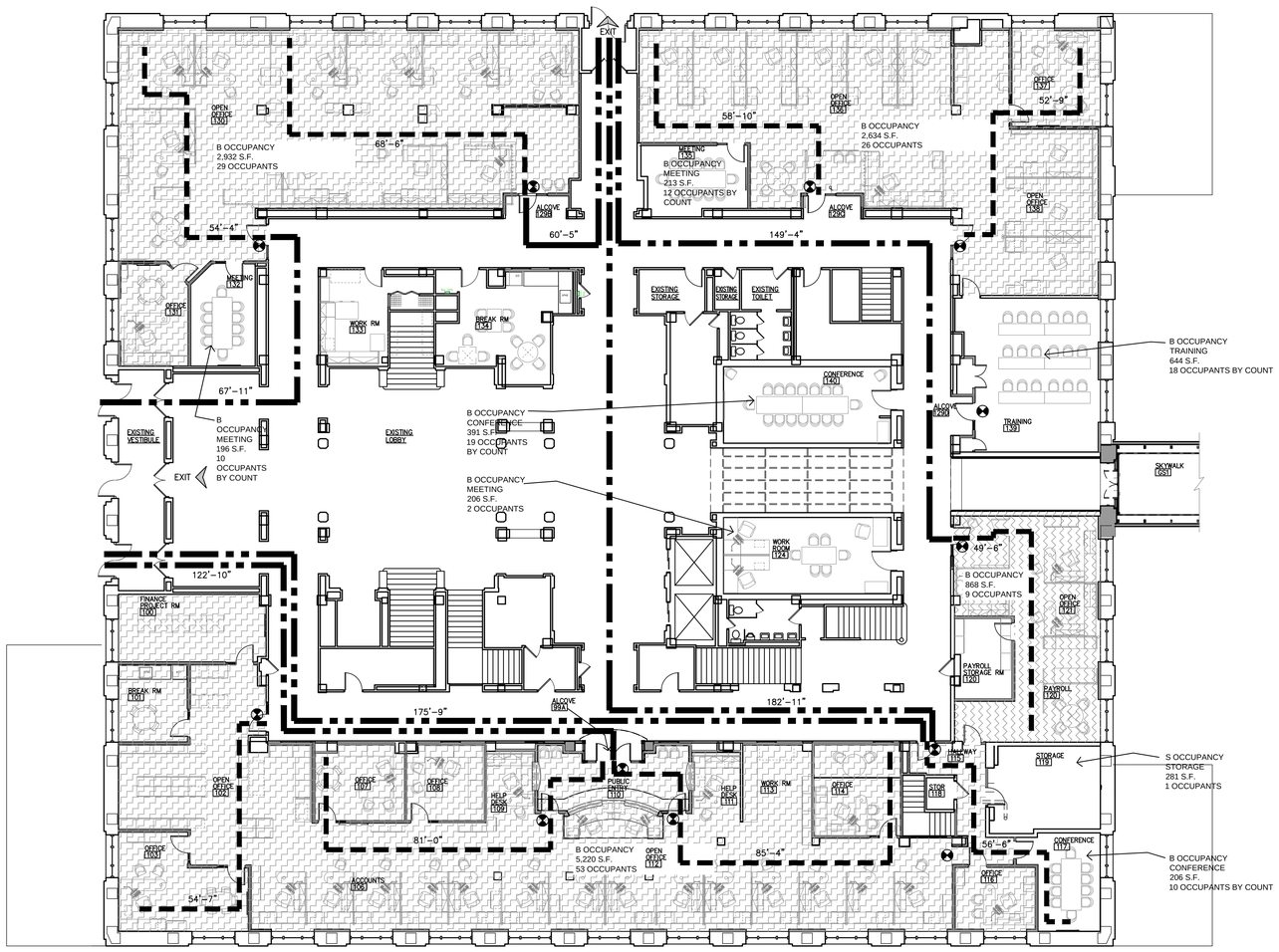
REFER TO FLOOR PLAN

DENOTES AREA USED TO CALCULATE OCCUPANT LOAD

DENOTES EXIT SIGN/LIGHT

EXIT NOTES – FLOOR PLAN

- COMMON PATH OF EGRESS TRAVEL
  1. PER IBC, CHAPTER 10, ITEM 1014.3, THE COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED 100'-0" per EXCEPTION 1.
- EXIT ACCESS TRAVEL DISTANCE
  1. PER IBC, CHAPTER 10, TABLE 1016.1, THE EXIT ACCESS TRAVEL DISTANCE FOR B OCCUPANCY IN AN SPRINKLED BUILDING SHALL NOT EXCEED 300'-0"
- EXIT SIGN/LIGHTS:
  1. VERIFY AND COORDINATE SIGN LOCATIONS WITH ELECTRICAL DRAWINGS
  2. REFER TO ELECTRICAL DRAWINGS FOR MORE INFORMATION.



1 / T1 FIRST FLOOR EGRESS PLAN

3/32"=1'-0"

NORTH

SHEET INDEX

ARCHITECTURAL:

MECHANICAL:

ELECTRICAL:

CONTACTS

ARCHITECT:

John Ivey Thomas Associates, Inc. Architects
413 East Superior Street
Duluth, MN 55802
(218) 722-8271
CONTACT: ROBERT FERN
E-MAIL : jtassoc@cpinternet.net

MECHANICAL & ELECTRICAL ENGINEER:

Gausman & Moore
Suite 310, 501 South Lake Ave
Duluth, MN 55802
(218) 722-2555
MECH CONTACT: KALYSTA DAVIS
E-MAIL : kdavis@gausman.com
ELEC CONTACT: LYSSA HATTENBERGER
E-MAIL : lhattenberger@gausman.com

CODE SUMMARY

City Hall Renovation - First Floor
411 West First Street, Duluth, Minnesota

Code Summary

- 2007 Minnesota State Building Code (MSBC), which adopts and amends the 2006 International Building Code (IBC).
- 2009 Minnesota State Mechanical and Fuel Gas Code, Chapter 1346.
- 2014 National Electrical Code (NEC).
- 2012 Minnesota State Plumbing Code, Chapter 4715.
- 2007 Minnesota State Fire Code.
- 2009 Minnesota State Commercial Energy code, Chapter 1323.
- 2007 Minnesota State Accessibility code, Chapter 1341.
- 2010 Duluth Unified Development Chapter (UDC).
- 2007 Minnesota State Rehabilitation of Existing Buildings, Chapter 1311
- 2000 International Building Code, Guidelines for Rehabilitation of Existing Buildings as adopted by and with Minnesota amendments.

1) Occupancy Group: B

2) Type of Construction: II B

3) Allowable Building Area (Table 503)
B Occupancy: 23,000 S.F./Floor – 46,000 S.F./Floor Sprinklered; 4 stories maximum; Frontage increase not required or calculated.

Actual Building Area:

Ground	31,814
First	28,467
Second	28,467
Third	24,547
Fourth	18,318
Total	131,613 S.F.

Project Area (First Floor) 16,300 S.F.
This project does not change the occupancy classification, construction type, or increase building area.

4) Sprinkler System: Building has an automatic sprinkler system.

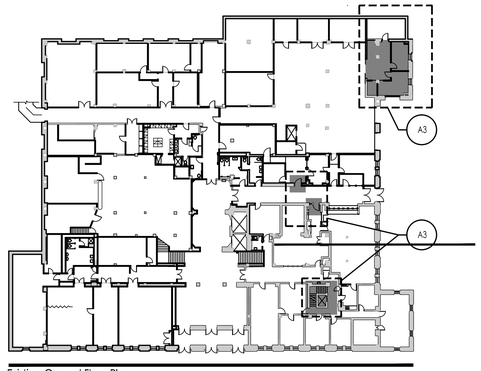
5) Fire Alarm: Bldg. has an automatic fire alarm system w/monitoring.

6) Height/Number of Stories: Existing Basement (Ground Floor); 4 stories (First to Fourth Floor)

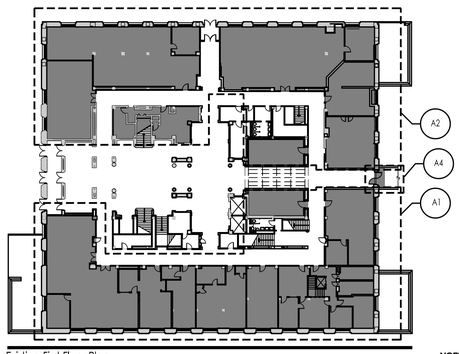
7) Occupant Load: First Floor Project Area
B Occupancy: 16,300 (area not incl. foyer/corridors) ÷ 100 (factor) = 163 occupants
This project does not increase the occupant load for this building.

8) Separations Required:
Corridors: 0 with sprinkler system – Table 1017.1
Existing Corridor Doors: 0 – MN Conservation Code Chapter 6
New Corridor Doors: 0 – IBC 1017.1
Stairway: 0 – MN Conservation Code Chapter 6
New Shaftway: 1 hour/30 minute not more than 3 stories – MN Conservation Code 405.2
Transoms: Existing allowed per MN Conservation Code 403.14.1.3 Exception 603.3
Glazing: Existing allowed per MN Conservation Code 403.14.1.3 Exception 603.7

9) Minimum Plumbing Fixtures: Existing toilet rooms to remain as is.
This project does not change occupant load.



Existing Ground Floor Plan



Existing First Floor Plan

KEY PLAN OF PROJECT AREAS

NORTH

LINE IS TWO INCHES AT FULL SCALE on a 30x42 sheet (IF NOT 2" – SCALE ACCORDINGLY)

413 GROUP

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 ARCHITECT under the laws of the State of MINNESOTA

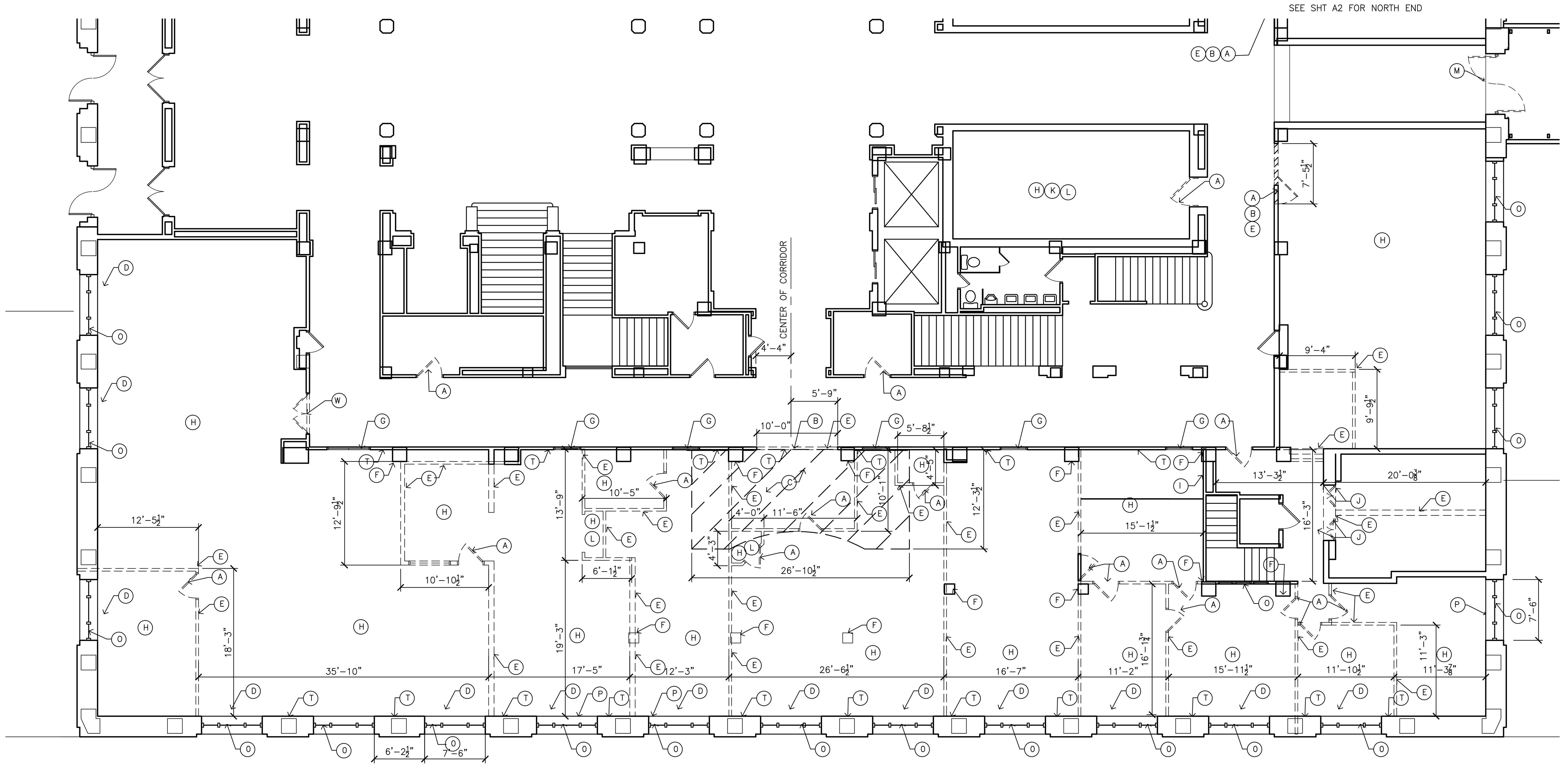
ROBERT W. FERN
Reg. No. 20088
Date 9-19-14

TITLE SHEET – EGRESS PLAN

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

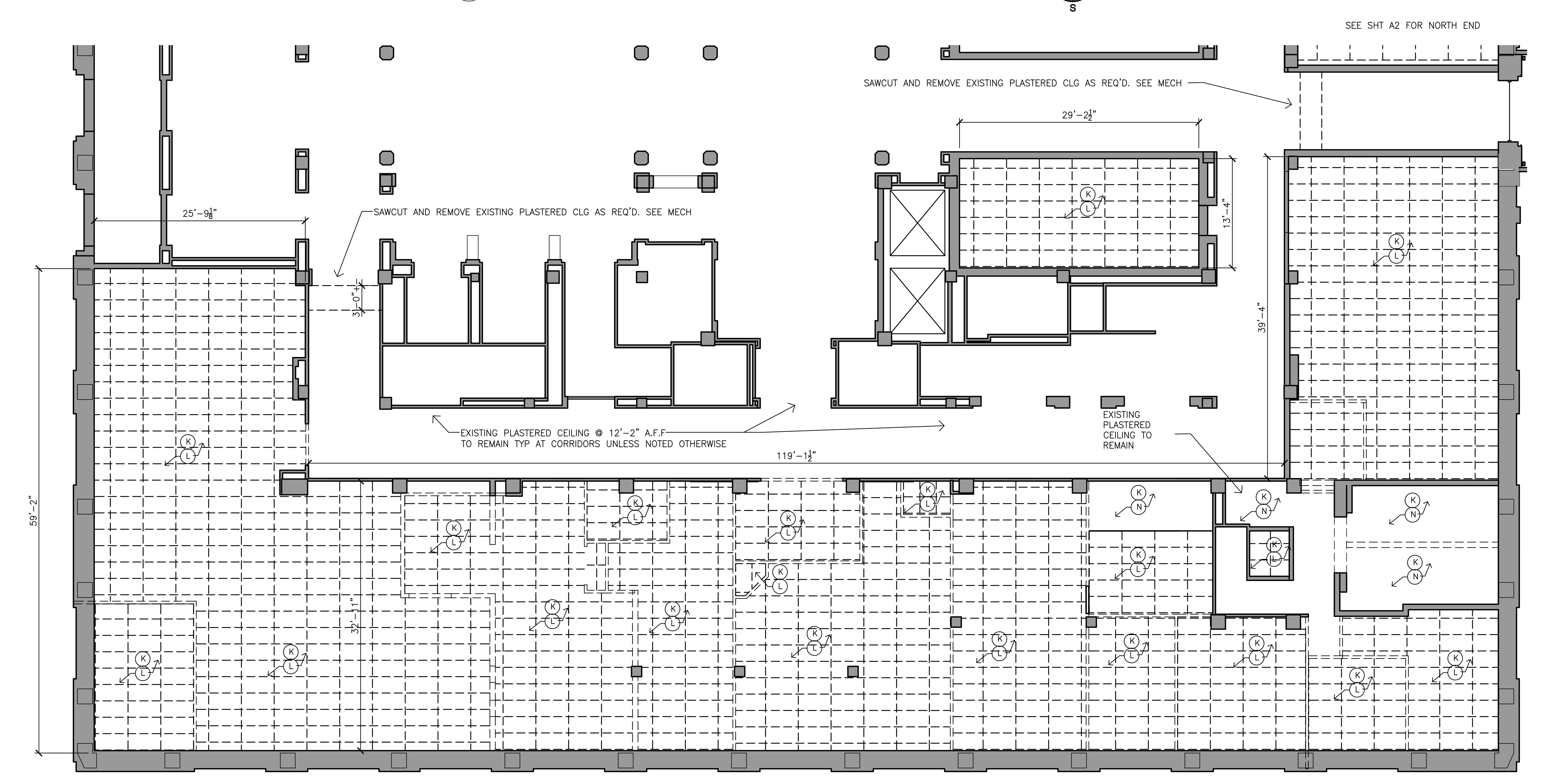
DULUTH CITY HALL – PROJECT #14-02-TR
INTERIOR RENOVATIONS– PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 2323 | Date 9-19-14
Drawn By JL, SW | Drawer 22
Sheet: T1
of: 8



1 A1 PARTIAL FIRST FLOOR DEMO PLAN – SOUTH END
1/8"=1'-0"

NORTH W E S



2 A1 PARTIAL FIRST FLOOR DEMO CEILING PLAN – SOUTH END
1/8"=1'-0"

NORTH W E S

DEMOLITION NOTES

Contractor to protect all existing surfaces and finishes to remain.

A Carefully remove and salvage existing wood door, door frame, and transom. Turn over to owner. Prepare opening as required for new hollow metal door frame and wood casings.

B Saw cut existing terrazzo floor at bottom of cast-in coved base for new terrazzo tile interface.

C Saw cut and remove existing concrete topping down as required for new terrazzo tile and leveling bed. Protect existing structural slab.

D Existing radiators to remain. Remove loose plaster behind and prepare for patching.

E Saw cut and remove existing clay tile and plaster wall full height. Remove and salvage all existing wood baseboards, chair rails, and other moldings for reuse. Turn surplus over to owner.

F Remove existing plaster at columns that are integral with former wall and prepare as required for plaster patching. Remove and salvage for reuse existing wood base, chair rail, and moldings.

G Existing wood door, frame, and transom to remain. Remove existing latch set and transom controls and turn over to owner. Remove and salvage existing door casings and wood baseboards from non-corridor side for new wall construction on non-corridor side.

H Remove existing carpet and adhesive down to concrete topping. Prep floor as required for new finish.

I Remove and dispose of existing wood folding door and track.

J Remove and salvage existing vault doors and frame. Turn over to owner.

K Existing sprinkler piping to remain. Modify as required for new ceiling system, room layout and clg height. See mech plans.

L Remove all components of suspended acoustical tile ceiling system. Remove all loose and solid plaster and furring from underside of floor deck above.

M Remove existing aluminum door leafs from existing frame (frame and transom to remain).

N Saw cut and remove existing suspended plaster or gypsum board ceiling system. Remove existing loose or solid plaster from underside of floor deck above.

O Existing windows and stools to remain. Protect from damage. Refer to specifications for shades.

P Remove and salvage existing chair rail at window. Prepare walls as required to install salvaged chair rail full width of room.

Q Remove existing chair rail as required for installation of new base cabinet and countertop.

R Remove and salvage existing wood bookshelf unit – turn over to owner.

S Remove and dispose of existing base cabinet and countertop.

T Remove and salvage existing wood chair rail and wood baseboard plus moldings.

U Remove existing gypsum and stud wall and doors/frame.

V Remove existing sliding doors and track. Turn over to owner.

W Carefully remove and salvage existing wood doors, and transom. Turn over to owner. Existing door trim to remain. Prepare opening as required for new hollow metal door frame and separate transom into existing opening.

LINE IS TWO INCHES
AT FULL SCALE on a 30x42 sheet
(IF NOT 2" – SCALE ACCORDINGLY)

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[illegible]
ROBERT W. FERN

Date 9-19-14 Reg. No. 20088

SOUTH FIRST FLOOR – DEMOLITION PLANS

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

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Job No. 2323	Date 9-19-14
Drawn By: JL, SW	Drawer 22

Sheet: A1

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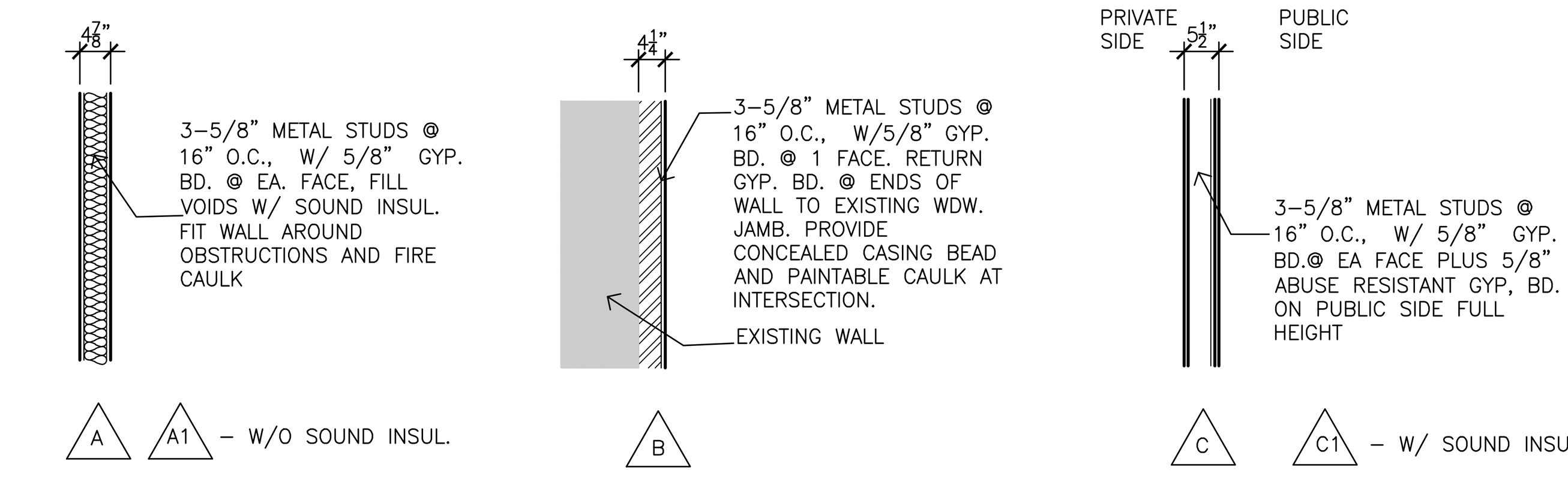
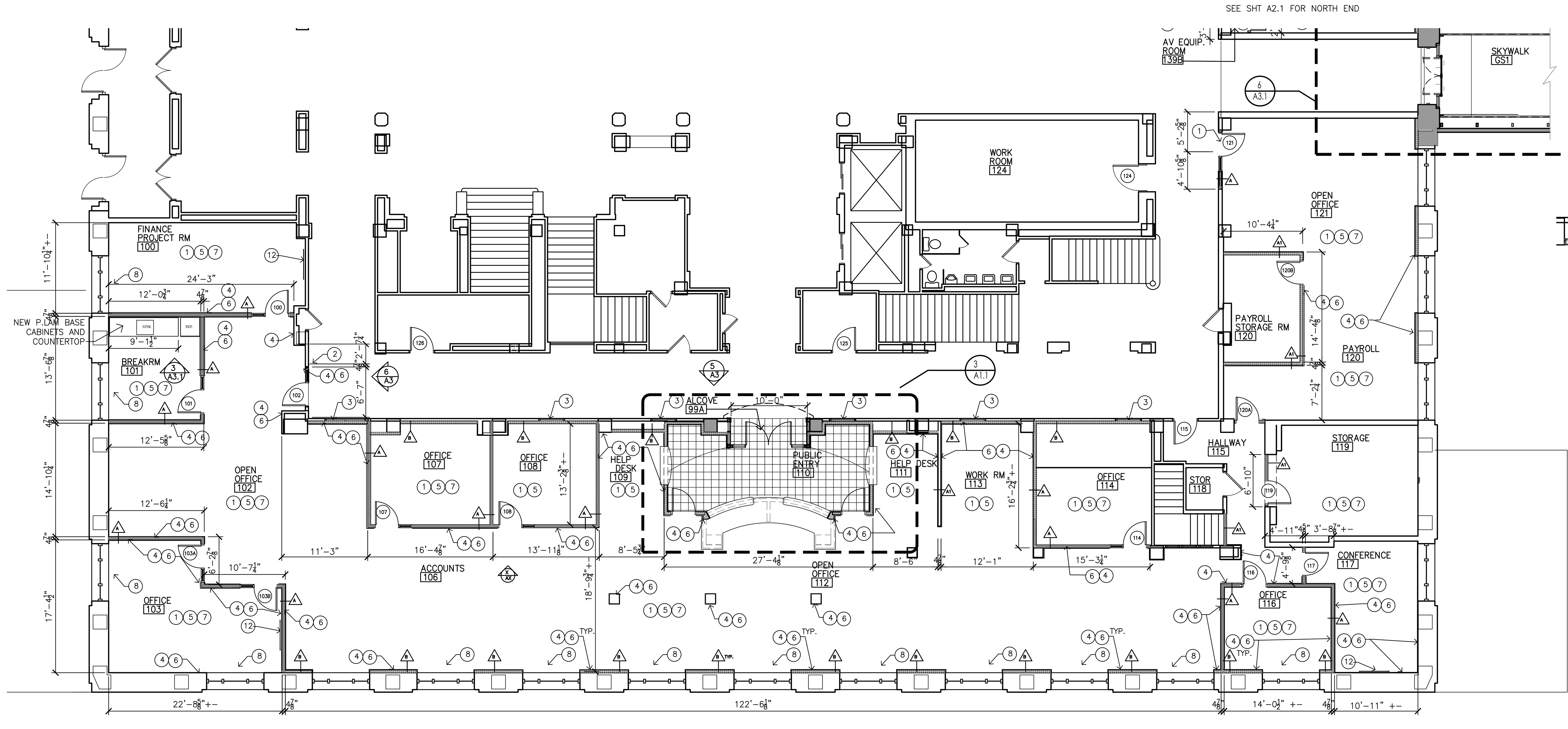
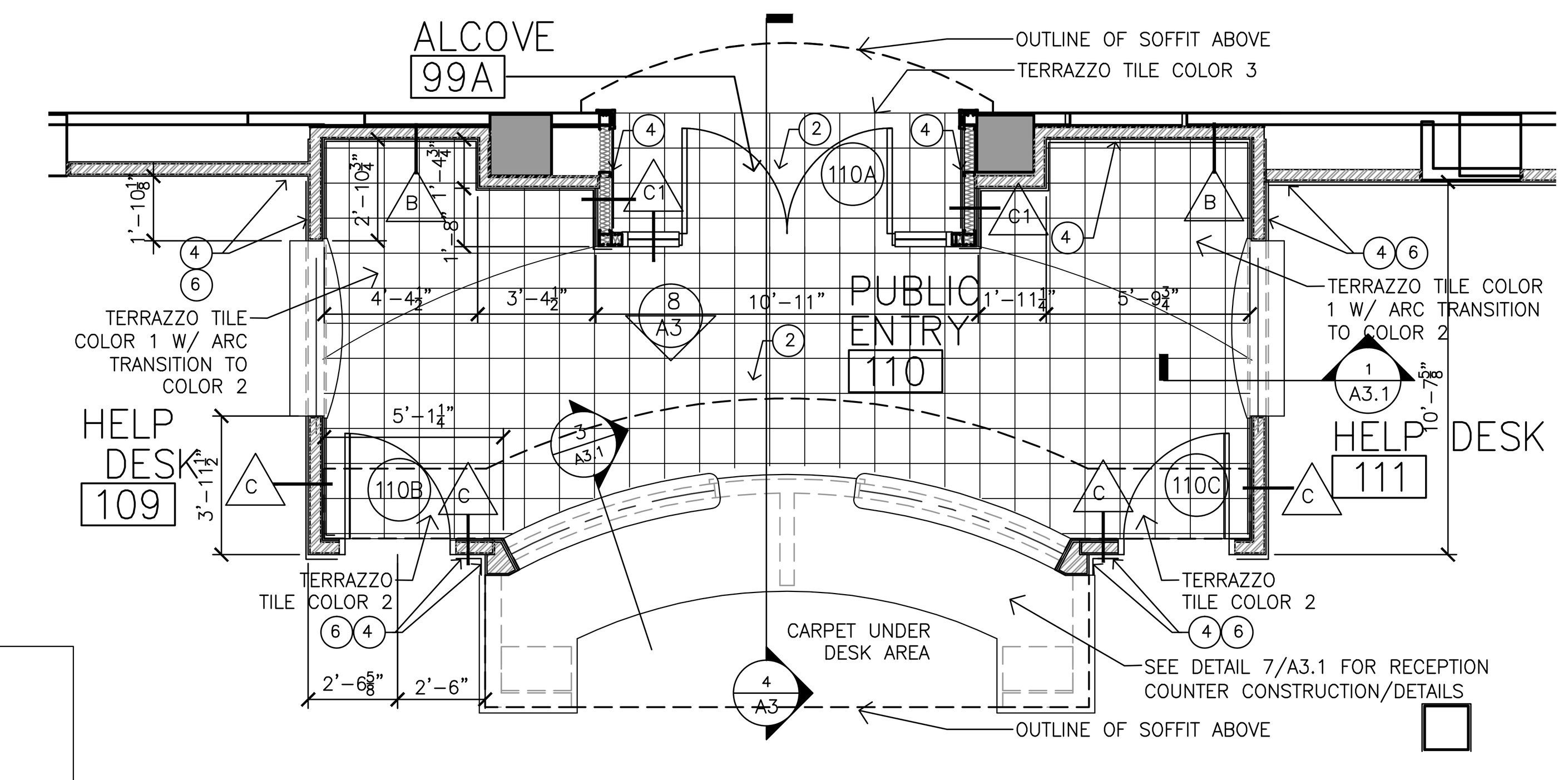


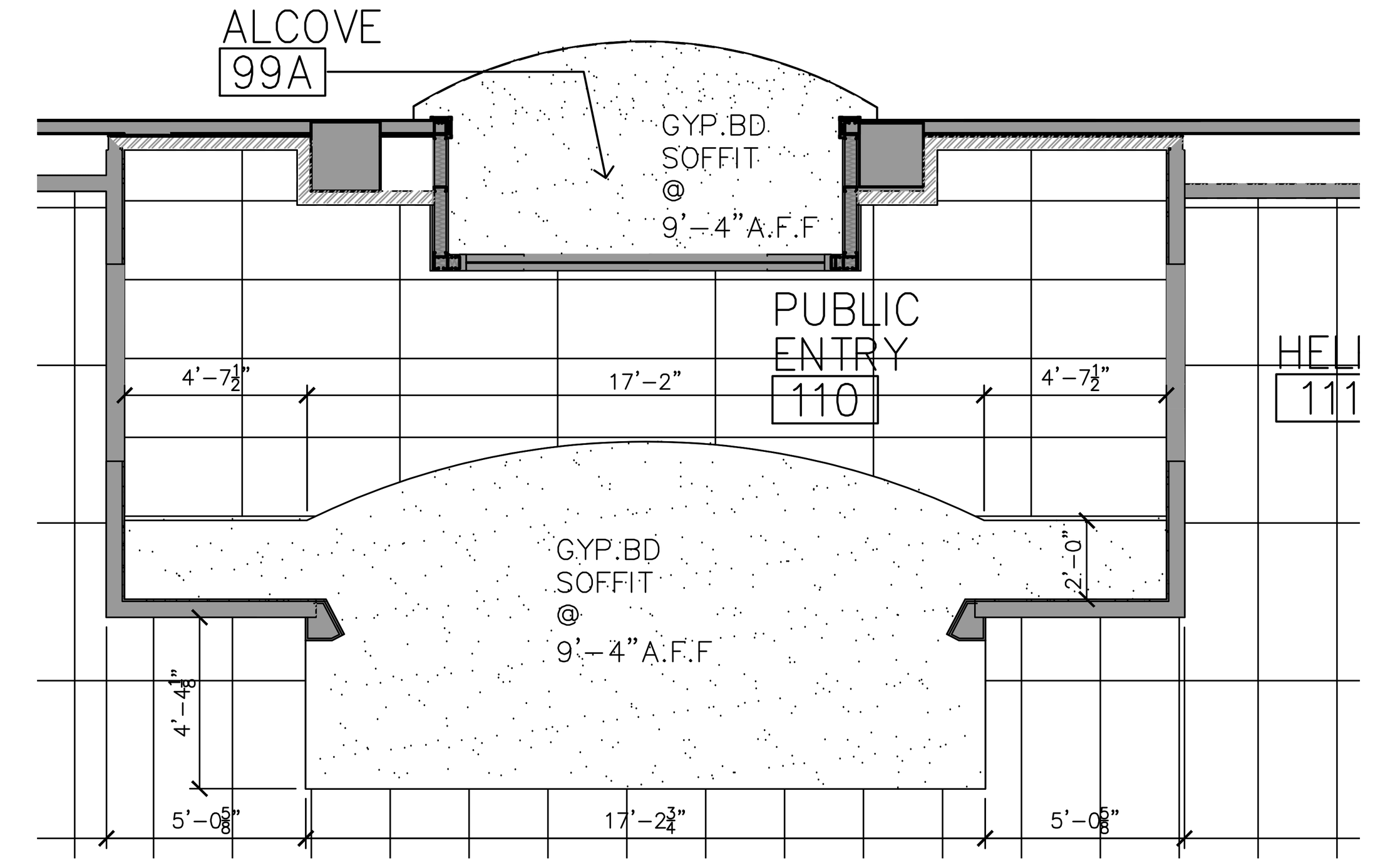
WALL TYPES ALL PARTITION WALLS TO BE CONSTRUCTED FULL HEIGHT FROM FLOOR TO UNDERSIDE OF FLOOR DECK ABOVE. FIT WALL AROUND EXISTING OBSTRUCTIONS THAT ARE TO REMAIN.



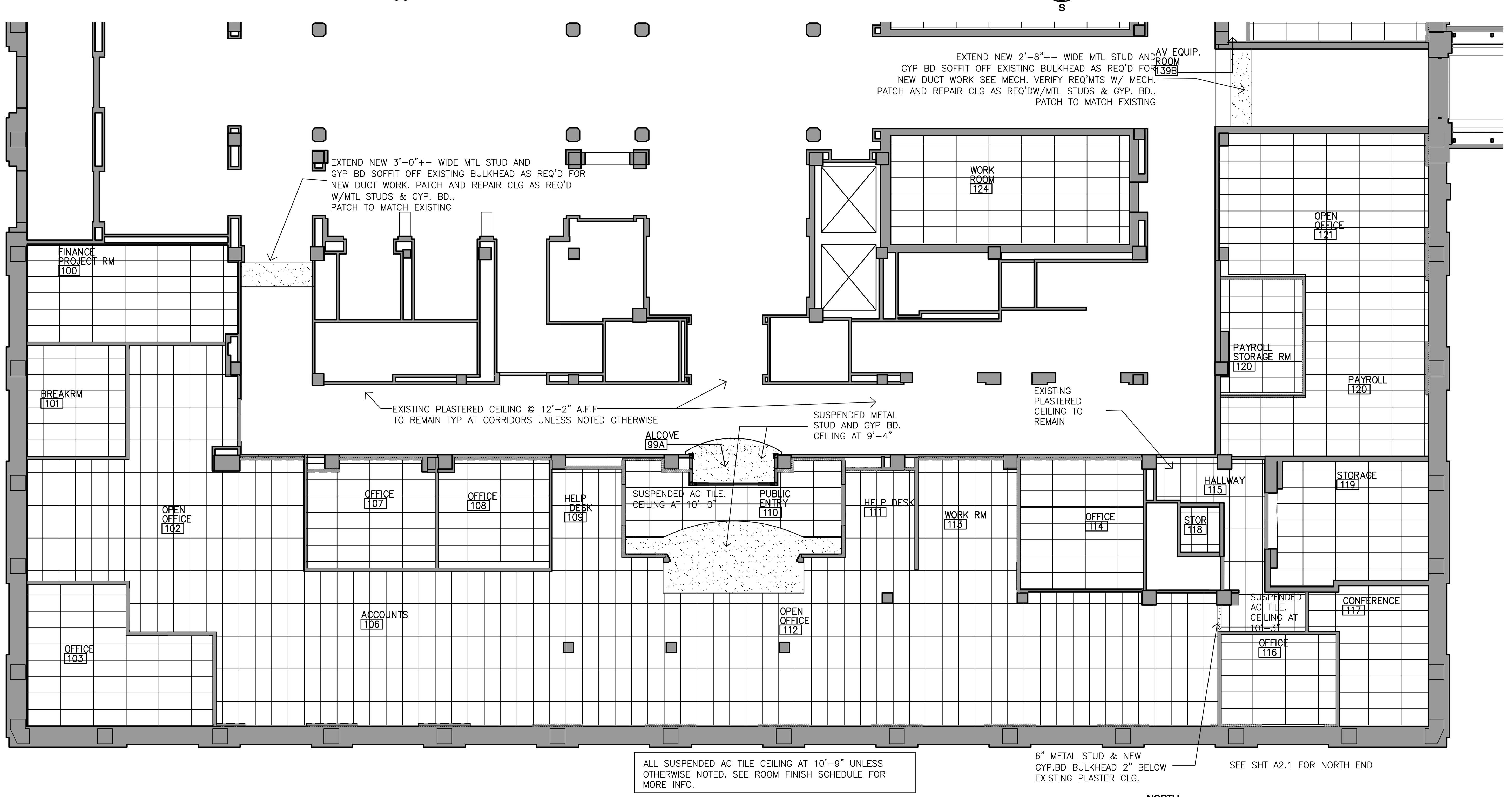
1 A1.1 PARTIAL FIRST FLOOR – FINANCE DEPT –SOUTH END 1/8"=1'-0"



3 A1.1 ENLARGED PLAN @ PURCHASING PUBLIC ENTRY 1/4"=1'-0"
SEE DETAIL 7/A3.1 FOR 1/2" PLAN, ADDITIONAL DIMENSIONS AND NOTES



4 A1.1 ENLARGED PLAN REFLECTED CLG @ PUBLIC ENTRY 1/4"=1'-0"
SEE DETAIL 7/A3.1 FOR 1/2" PLAN, ADDITIONAL DIMENSIONS AND NOTES



ALL SUSPENDED AC TILE CEILING AT 10'-9" UNLESS OTHERWISE NOTED. SEE ROOM FINISH SCHEDULE FOR MORE INFO.

2 A1.1 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN – SOUTH END 1/8"=1'-0"
SEE MECHANICAL & ELECTRICAL PLAN FOR MECHANICAL AND ELECTRICAL LAYOUTS. COORIDINATE AS REQUIRED.

CONSTRUCTION NOTES
See plans and specification for additional requirements.

1 Patch and repair existing floor surfaces as required for new floor construction.

2 New terrazzo tile over new concrete infill (existing topping removed – see demolition notes). Thin set tile and align with existing terrazzo.

3 Existing wood doors and transoms at corridor are to be modified as follows:

- Remove any room numbering/labeling from glass.
- Remove existing latch assembly and cover holes with blank plate matching existing hardware style.
- Paint non-corridor side of glass light and transom. Color as selected.
- Screw door shut from non-corridor side.
- Secure mail slot to prevent opening (if equipped).
- Infill non-corridor side of door louver with painted plywood and screw to door (if equipped).
- Refinish corridor side of door panel, casings and transom.
- Construct new wall assembly on non-corridor side in front of secured door – see plan for wall type.

4 Install salvaged chair rail – match, fit, align with existing. Contractor to fill old nail holes and defects. Prep, touch-up stain and varnish all chair rails – see specifications. Supplement shortages as required with new, matching species and profile.

5 Contractor to fill old nail holes and defects on all chair rails and wood base boards. Prep, touch-up stain, and varnish all woodwork – see specification.

6 Install salvaged wood baseboard and side moldings. Supplement shortage as required with new, matching species and profile. Prep, touch-up stain, and varnish existing and new.

7 Patch existing plaster to new condition – see specification. Plaster patching to align existing and match texture. Patch to be invisible when painted.

8 Patch existing plaster behind radiators (to remain) as best as possible (patching of plaster visible beyond radiator). Prep, prime, and paint wall and radiator

9 Install window film on all glass panels at ea. Window unit. See specifications.

10 Paint entire wall with Markerboard/Whiteboard paint. Contractor to resurface existing walls with skim coat plaster or install new gyp. bd surface to level 5 standard. See specifications

11 Wall to receive Projection/Whiteboard wall paper. See elevation.

12 Provide solid blocking for wall hung tv's. Coordinate location with electrical contractor and A/V supplier.

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Date 9-19-14 Reg. No. 20088

SOUTH FIRST FLOOR – PLAN AND DETAILS

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL – PROJECT # 14-02-TR
INTERIOR RENOVATIONS- PHASE 1: FIRST FLOOR
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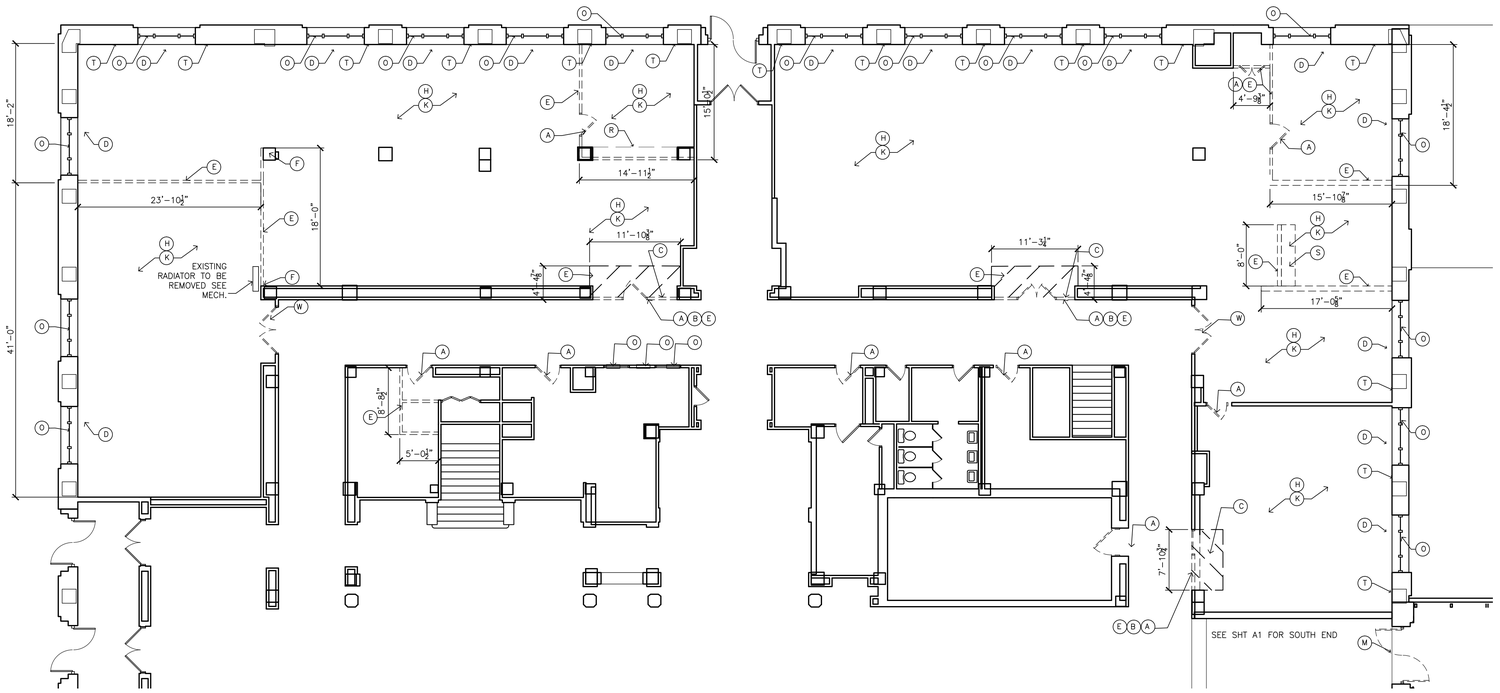
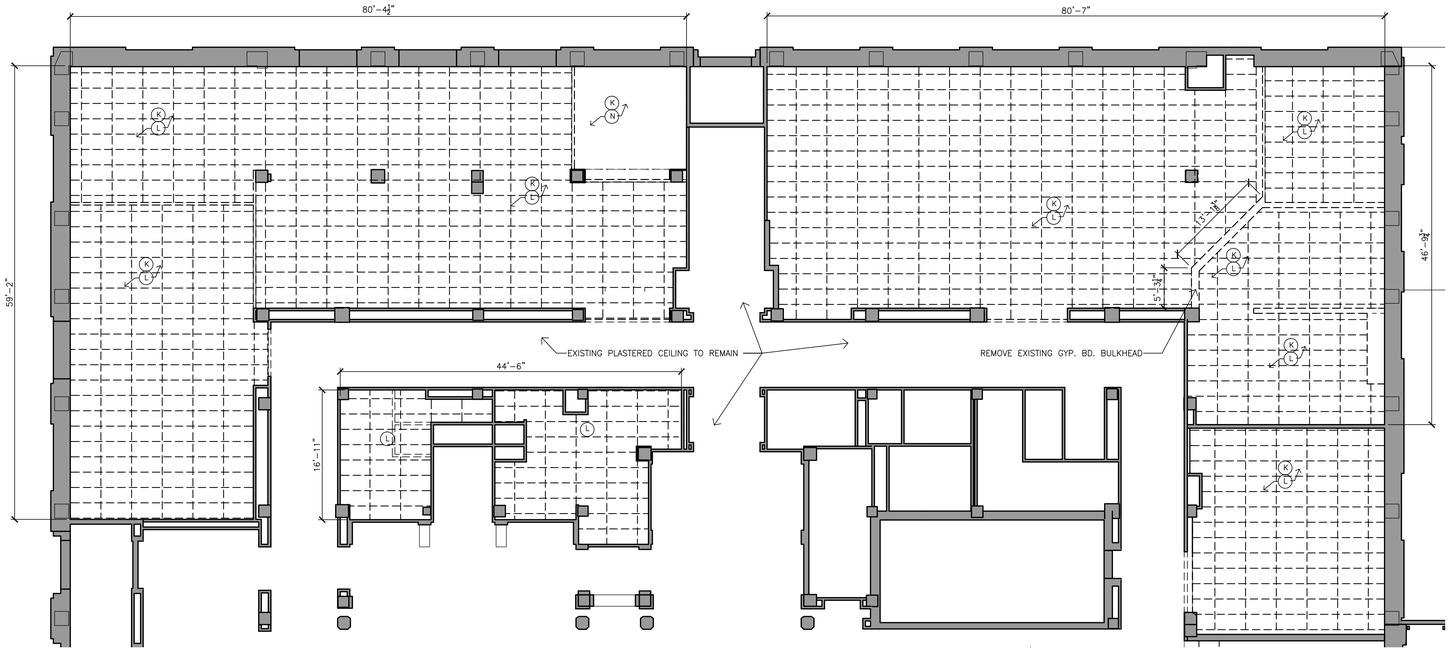


1 A2 PARTIAL FIRST FLOOR DEMO PLAN – NORTH END

1/8"=1'-0"



2 A2 PARTIAL FIRST FLOOR DEMO CEILING PLAN –NORTH END

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ROBERT W. FERN

Date 3-5-13 Reg. No. 20088

NORTH FIRST FLOOR – DEMOLITION PLAN

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL– PROJECT # 14-02-TR
INTERIOR RENOVATIONS– PHASE 1: FIRST FLOOR
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Drawn By JL, SW	Drawer 22

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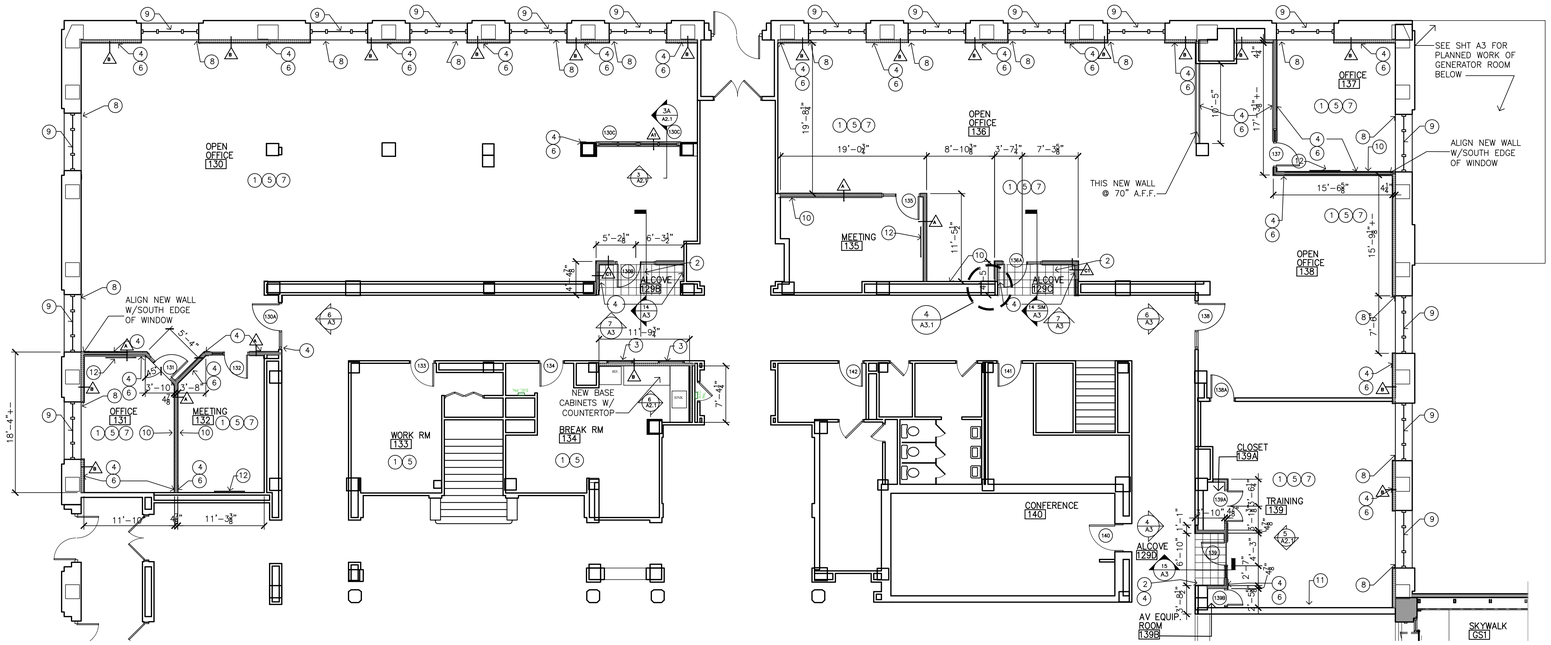
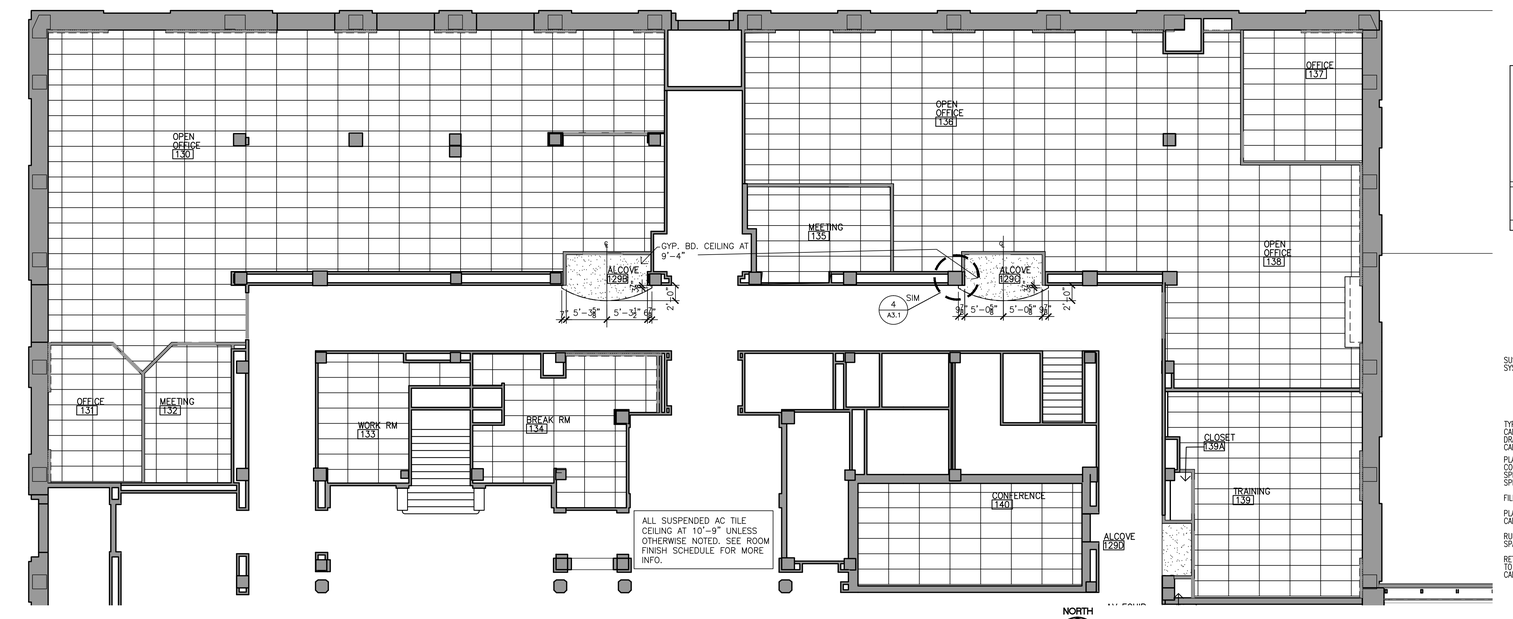


1 A2.1 PARTIAL FIRST FLOOR– MIS DEPARTMENT – NORTH END

1/8"=1'-0"

SEE SHT A1.1 FOR SOUTH END

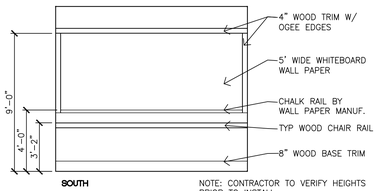


2 A2.1 PARTIAL FIRST FLOOR REFLECTED CEILING PLAN –NORTH END

SEE MECHANICAL & ELECTRICAL PLAN FOR MECHANICAL AND ELECTRICAL LAYOUTS. COORDINATE AS REQUIRED.

1/8"=1'-0"

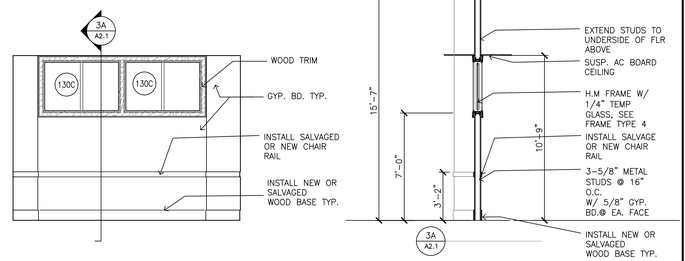
SEE SHT A1.1 FOR SOUTH END



NOTE: CONTRACTOR TO VERIFY HEIGHTS PRIOR TO INSTALL.

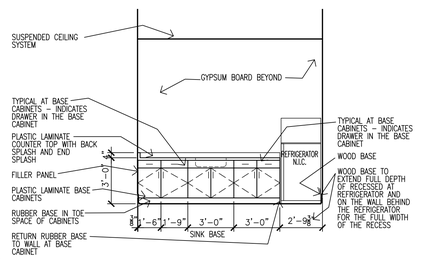
5 A2.1 ELEVATIONS – TRAINING RM 139

1/4"=1'-0"



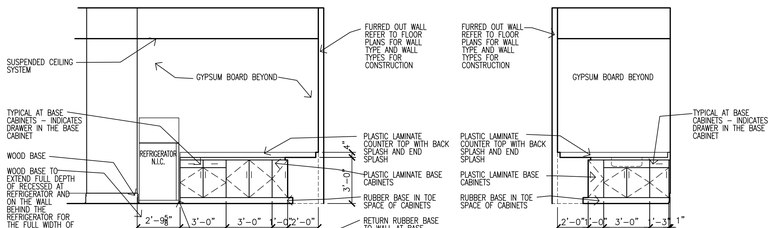
3 A2.1 ELEVATION & SECTION @ INTERIOR TRANSOM LITES

1/4"=1'-0"



4 A2.1 ELEVATION @ BREAK RM 101

1/4"=1'-0"



6 A2.1 ELEVATIONS @ BREAK RM 134

1/4"=1'-0"

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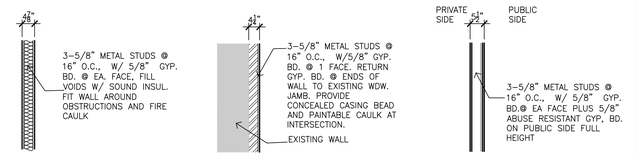
WALL TYPES ALL PARTITION WALLS TO BE CONSTRUCTED FULL HEIGHT FROM FLOOR TO UNDERSIDE OF FLOOR DECK ABOVE. FIT WALL AROUND EXISTING OBSTRUCTIONS THAT ARE TO REMAIN.



CONSTRUCTION NOTES

See plans and specification for additional requirements.

1 Patch and repair existing floor surfaces as required for new floor construction.

2 New terrazzo tile over new concrete infill (existing topping removed – see demolition notes). Thin set tile and align with existing terrazzo.

3 Existing wood doors and transoms at corridor are to be modified as follows:

- Remove any room numbering/labeling from glass.
- Remove existing latch assembly and cover holes with blank plate matching existing hardware style.
- Paint non-corridor side of glass light and transom. Color as selected.
- Screw door shut from non-corridor side.
- Secure mail slot to prevent opening (if equipped).
- Infill non-corridor side of door louver with painted plywood and screw to door (if equipped).
- Refinish corridor side of door panel, casings and transom.
- Construct new wall assembly on non-corridor side in front of secured door – see plan for wall type.

4 Install salvaged chair rail – match, fit, align with existing. Contractor to fill old nail holes and defects. Prep, touch-up stain and varnish all chair rails – see specifications. Supplement shortages as required with new, matching species and profile.

5 Contractor to fill old nail holes and defects on all chair rails and wood base boards. Prep, touch-up stain, and varnish all woodwork – see specification.

6 Install salvaged wood baseboard and side moldings. Supplement shortage as required with new, matching species and profile. Prep, touch-up stain, and varnish existing and new.

7 Patch existing plaster to new condition – see specification. Plaster patching to align existing and match texture. Patch to be invisible when painted.

8 Patch existing plaster behind radiators (to remain) as best as possible (patching of plaster visible beyond radiator). Prep, prime, and paint wall and radiator

9 Install window film on all glass panels at ea. Window unit. See specifications.

10 Paint entire wall with Markerboard/Whiteboard paint. Contractor to resurface existing walls with skim coat plaster or install new gyp. bd surface to level 5 standard. See specifications

11 Wall to receive Projection/Whiteboard wall paper. See elevation.

12 Provide solid blocking for wall hung tv's. Coordinate location with electrical contractor and A/V supplier.

413 GROUP

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ROBERT W. FERN

Date 5/15/14 Reg. No. 20088

NORTH FIRST FLOOR – PLAN AND DETAILS

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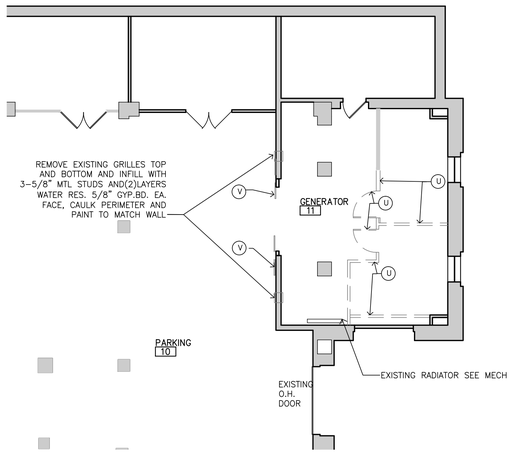
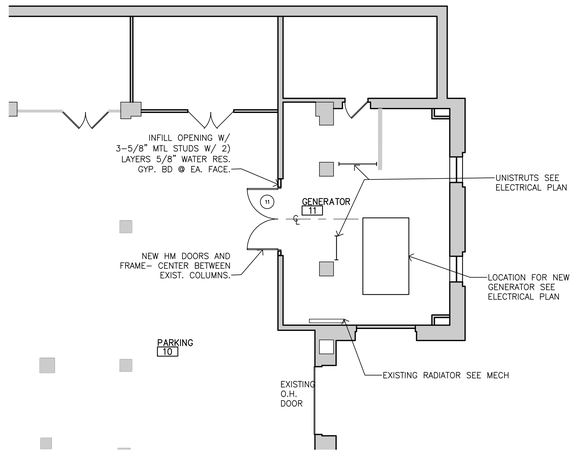
Sheet: A2.1 of: 8



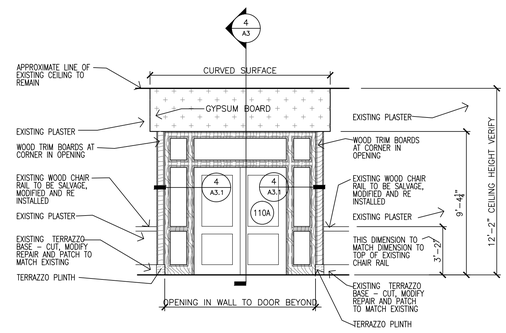
1 A3 PARTIAL GROUND FLOOR DEMO PLAN

1/8"=1'-0"



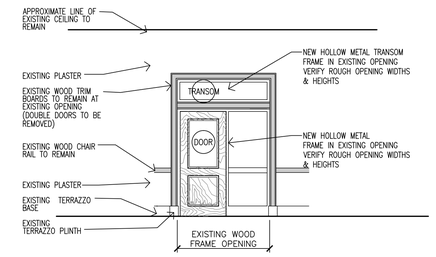
2 A3 PARTIAL GROUND FLOOR PLAN

1/8"=1'-0"



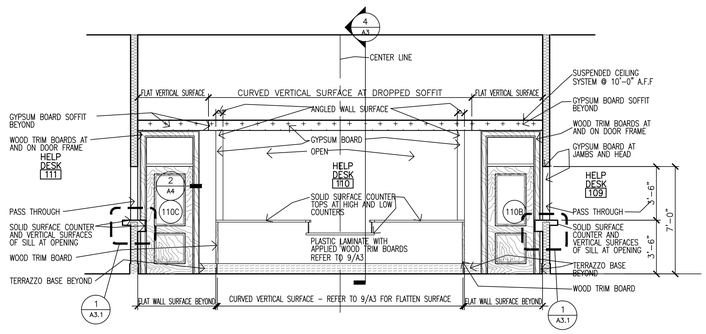
5 A3 INTERIOR ELEVATION @ ALCOVE 99A

1/4"=1'-0"



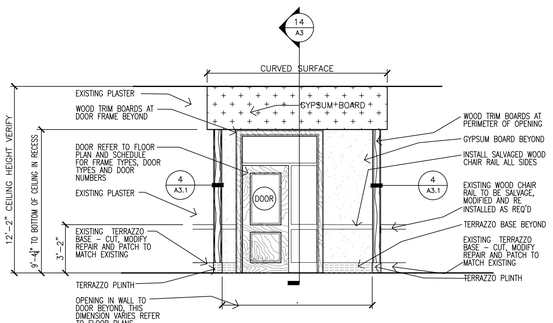
6 A3 TYP ELEVATION @ DR 102, 130A, & 138

1/4"=1'-0"



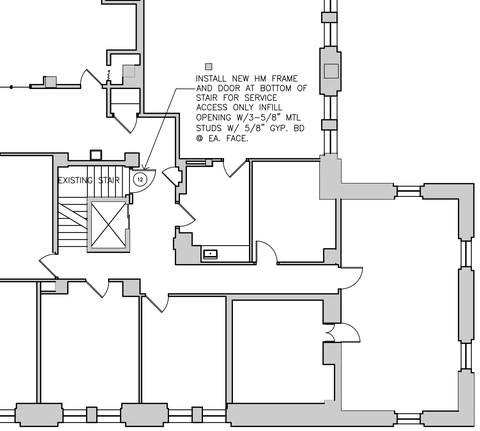
8 A3 INTERIOR ELEVATION @ PUBLIC ENTRY COUNTER

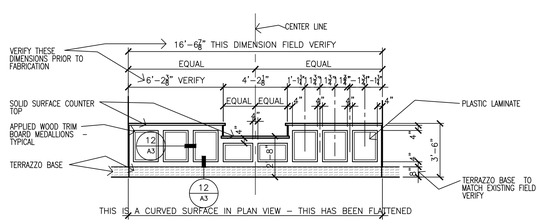
1/4"=1'-0"



7 A3 INTERIOR ELEVATION @ ALCOVES TYP.

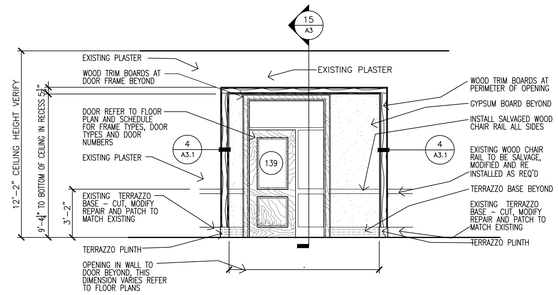
1/4"=1'-0"





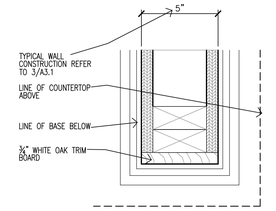
9 A3 FLATTENED ELEVATION @ PUBLIC ENTRY COUNTER

1/4"=1'-0"



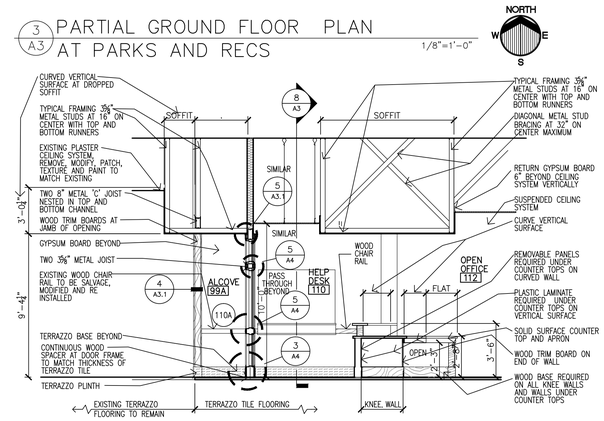
10 A3 ELEVATION @ ALCOVE 129D

1/4"=1'-0"



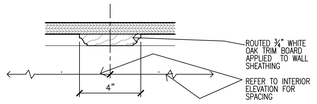
11 A3 KNEE WALL END TRIM BOARD @ PUBLIC ENTRY COUNTER

3"=1'-0"



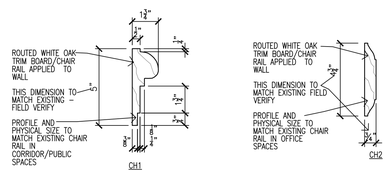
3 A3 PARTIAL GROUND FLOOR PLAN AT PARKS AND RECS

1/8"=1'-0"



12 A3 VERTICAL TRIM BOARD @ PUBLIC ENTRY COUNTER

3"=1'-0"

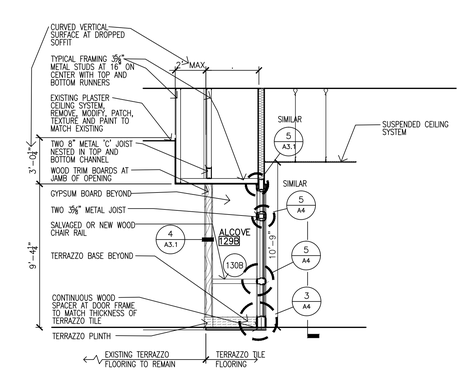


NOTES:

- WOOD CHAIR RAILS
1. CH1 THIS DESIGNATES A WOOD CHAIR RAIL PROFILE
2. CH1 PROFILE:
   A. THIS PROFILE SHALL BE USED IN CORRIDORS AND OR ALCOVES.
3. CH2 PROFILE:
   A. THIS PROFILE SHALL BE USED IN OFFICE SPACES AND ALL OTHER SPACES NOT REFERENCED IN ITEM 2 ABOVE
4. FIELD VERIFY CONFIGURATION, SIZES AND PROFILES OF EXISTING CHAIR RAILS.
5. CHAIR RAIL PROFILES CH1 AND CH2 SHALL MATCH PROFILE AND SIZE OF EXISTING CHAIR RAILS AT THE LOCATIONS LISTED ABOVE.

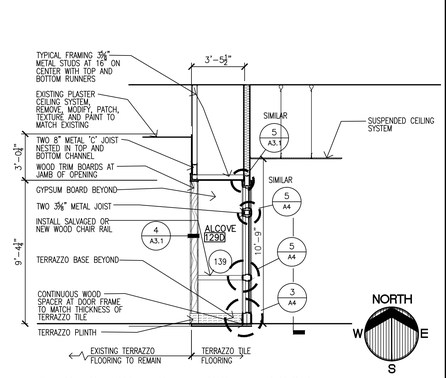
13 A3 CHAIR RAIL PROFILES

3"=1'-0"



14 A3 SECTION @ ALCOVE 129B &129C

1/4"=1'-0"



15 A3 SECTION @ ALCOVE 129D

1/4"=1'-0"

LINE IS TWO INCHES AT FULL SCALE on a 30x42 sheet (IF NOT 2" - SCALE ACCORDINGLY)

413 GROUP

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 ARCHITECT under the laws of the State of MINNESOTA.

ROBERT W. FERN

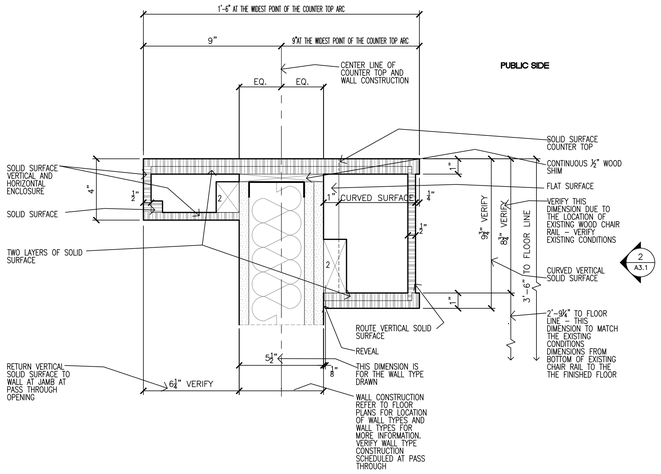
Date 5/5/14 Reg. No. 20188

GROUND FLOOR - PLAN AND DETAILS

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

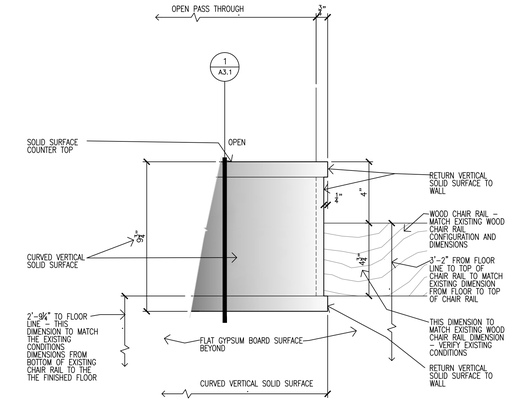
DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 2323 Date 9-19-14
Drawn By SWJR Drawer 22
Sheet: A3 of: 8



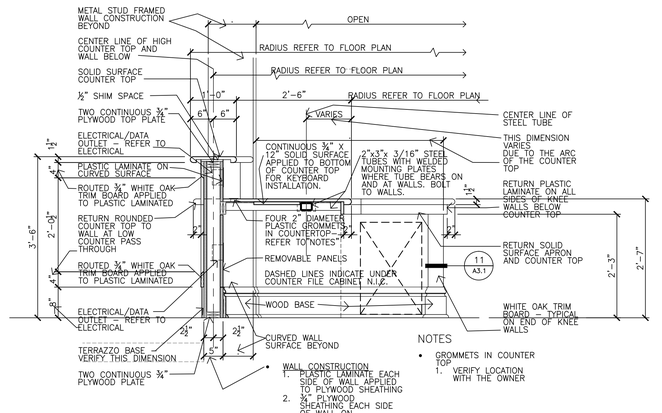
1 A3.1 SECTION AT PASS THROUGH COUNTER

3"=1'-0"



2 A3.1 PARTIAL FRONT ELEVATION @ COUNTER TRIM

3"=1'-0"



NOTES

- GROMMETS IN COUNTER TOP
  1. VERIFY LOCATION WITH THE OWNER

3 A3.1 SECTION @ COUNTER

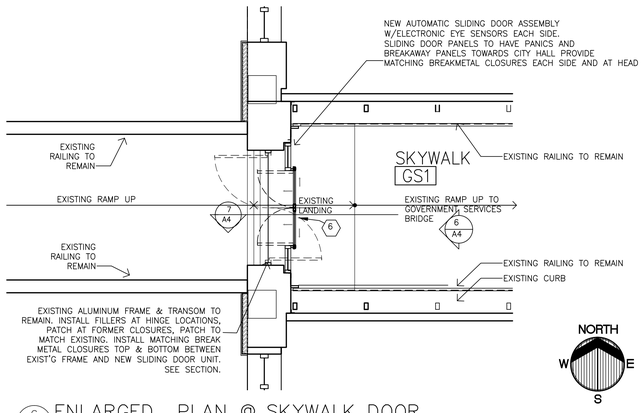
3/4"=1'-0"

4 A3.1 CORNER DETAIL @ ALCOVE 99A, OTHER ALCOVES SIMILAR

3"=1'-0"

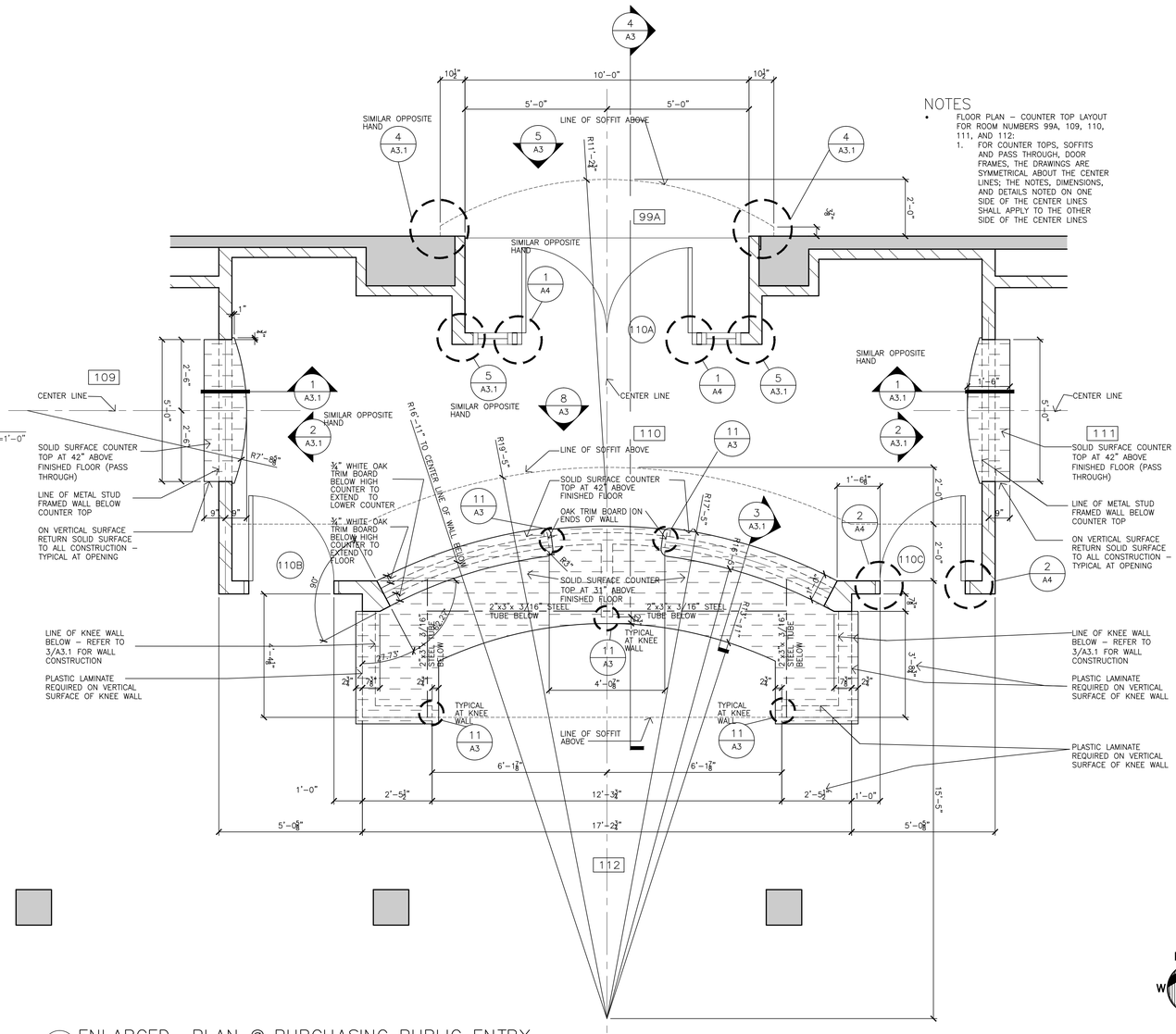
5 A3.1 JAMB DETAIL @ DR 110A OTHER ALCOVE JAMBS SIMILAR

3"=1'-0"



6 A3.1 ENLARGED PLAN @ SKYWALK DOOR

1/4"=1'-0"



NOTES

- FLOOR PLAN – COUNTER TOP LAYOUT FOR ROOM NUMBERS 99A, 109, 110, 111, AND 112:
  1. FOR COUNTER TOPS, SOFFITS AND PASS THROUGH, DOOR FRAMES, THE DRAWINGS ARE SYMMETRICAL ABOUT THE CENTER LINES; THE NOTES, DIMENSIONS, AND DETAILS NOTED ON ONE SIDE OF THE CENTER LINES SHALL APPLY TO THE OTHER SIDE OF THE CENTER LINES

7 A3.1 ENLARGED PLAN @ PURCHASING PUBLIC ENTRY

1/2"=1'-0"

LINE IS TWO INCHES AT FULL SCALE on a 30x42 sheet (IF NOT 2" – SCALE ACCORDINGLY)

413 GROUP

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 Architect under the laws of the State of MINNESOTA.

ROBERT W. FERN

Reg. No. 20188

Date 9/5/14

SECTIONS AND DETAILS

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL – PROJECT #14-02-TR
INTERIOR RENOVATIONS – PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 2323 Date 9-19-14
Drawn By SW, JL Drawer 22
Sheet: A3.1 of: 8

ROOM FINISH SCHEDULE

	ROOM NO.	ROOM NAME	FLOOR (1), (2) mat'l.	FLOOR fin.	BASE (3)	WALLS (4) NORTH	WALLS EAST	WALLS SOUTH	WALLS WEST	CEILING (5) mat'l.	CEILING ht.	REMARKS
GROUND FLOOR SOUTH HALF	10	PARKING	CONCRETE	CONCRETE	EXISTING	----------	EXISTING/GYPSUM BOARD	----------	----------	-------	-------	
	11	GENERATOR	CONCRETE	CONCRETE	EXISTING	----------	----------	----------	EXISTING/GYPSUM BOARD	-------	-------	
FIRST FLOOR - SOUTH HALF	99A	ALCOVE	CONCRETE	TERRAZZO	TERRAZZO	----------	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	REFER TO DETAIL 4/A3	
	100	FINANCE PROJECT ROOM	CONCRETE	CARPET (1)	EXIST WD & MD	EXISTING PLASTER	EXISTING PLASTER*	GYPSUM BOARD	EXISTING PLASTER	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	101	BREAK ROOM	CONCRETE	VINYL COMP TILE	WD./ 4" RUBBER	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	EXISTING PLASTER	SUSP. AC. T.	10'-0"	(6)
	102	OPEN OFFICE	CONCRETE	CARPET (1)	EXIST WD & MD	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	EXISTING PLASTER/ GYP.BD.	SUSP. AC. T.	10'-0"	
	103	OFFICE	CONCRETE	CARPET (1)	EXIST WD & MD	GYPSUM BOARD	GYPSUM BOARD*	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	104	NOT USED										
	105	NOT USED										
	106	ACCOUNTS	CONCRETE	CARPET (1)	EXIST WD & MD	GYPSUM BOARD		EXISTING PLASTER/GYP. BD		SUSP. AC. T.	10'-0"	
	107	OFFICE	CONCRETE	CARPET (1)	4" RUBBER	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD*	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	108	OFFICE	CONCRETE	CARPET (1)	4" RUBBER	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	SUSP. AC. T.	10'-0"	
	109	HELP DESK	CONCRETE	CARPET (1)	WOOD	GYPSUM BOARD	GYPSUM BOARD	----------	GYPSUM BOARD	SUSP. AC. T.	10'-0"	
	110	PUBLIC ENTRY	CONCRETE	TERRAZZO	TERRAZZO	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	VARIES*	VARIES*	*SEE 2/A1.1
	111	HELP DESK	CONCRETE	CARPET (1)	WOOD	GYPSUM BOARD	GYPSUM BOARD	----------	GYPSUM BOARD	SUSP. AC. T.	10'-0"	
	112	OPEN OFFICE	CONCRETE	CARPET (1)	EXISTING WD./WD	GYPSUM BOARD	GYPSUM BOARD	EXISTING/GYPSUM BOARD		SUSP. AC. T.	10'-0"	
	113	WORK ROOM	CONCRETE	CARPET (1)	WOOD	GYPSUM BOARD	GYPSUM BOARD	----------	GYPSUM BOARD	SUSP. AC. T.	10'-0"	
	114	OFFICE	CONCRETE	CARPET (1)	4" RUBBER	GYPSUM BOARD*	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	115	HALLWAY	CONCRETE	CARPET (1)	EXISTING WD./WD	EXISTING PLASTER/GYPSUM BOARD	EXISTING PLASTER/GYPSUM BOARD	EXISTING/GYPSUM BOARD	EXISTING/GYPSUM BOARD	SUSP. AC. T.	10'-3"	
	116	OFFICE	CONCRETE	CARPET (1)	EXISTING WD./WD	GYPSUM BOARD	GYPSUM BOARD	EXISTING PLASTER	GYPSUM BOARD	SUSP. AC. T.	10'-3"	
	117	CONFERENCE	CONCRETE	CARPET (1)	EXISTING WD./WD	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER*	GYPSUM BOARD	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	118	STORAGE	CONCRETE	VINYL COMP TILE	4" RUBBER	EXISTING	EXISTING	EXISTING	EXISTING	SUSP. AC. T.	WATER FORMER	
	119	STORAGE	CONCRETE	VINYL COMP TILE	4" RUBBER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	
	120	WORK ROOM	CONCRETE	CARPET (1)	EXISTING WD./WD	GYPSUM BOARD	EXISTING PLASTER/GYP.BD	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	
	121	OPEN OFFICE	CONCRETE	CARPET (1)	EXISTING WD./WD	EXISTING PLASTER	EXISTING PLASTER/GYP. BD.	GYPSUM BOARD	EXISTING PLASTER/GYPSUM BOARD	SUSP. AC. T.	10'-0"	
	122	PAYROLL STORAGE	CONCRETE	CARPET (1)	EXIST WD./4" RUBBER	GYPSUM BOARD	GYPSUM BOARD	GYPSUM BOARD	EXISTING PLASTER	SUSP. AC. T.	10'-0".	
	123	NOT USED										
	124	WORK ROOM	CONCRETE	CARPET (1)	EXISTING WD	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0".	
FIRST FLOOR - NORTH HALF	129B	ALCOVE	CONCRETE	TERRAZZO	TERRAZZO	GYPSUM BOARD	EXISTING PLASTER/ GYP.BD.	----------	GYP. BD.	GYPSUM BOARD	REFER TO DETAIL 14/A3	
	129C	ALCOVE	CONCRETE	TERRAZZO	TERRAZZO	GYPSUM BOARD	EXISTING PLASTER/ GYP.BD.	----------	GYP. BD.	GYPSUM BOARD	REFER TO DETAIL 14/A3	
	129D	ALCOVE	CONCRETE	TERRAZZO	TERRAZZO	GYP. BD.	GYPSUM BOARD	EXISTING PLASTER/ GYP.BD.	----------	GYPSUM BOARD	REFER TO DETAIL 15/A3	
	130	OPEN OFFICE	CONCRETE	CARPET (1)	EXISTING WD./WD	EXISTING PLASTER/GYPSUM BOARD	EXISTING PLAST	EXISTING PLASTER/GYPSUM BOARD	EXISTING PLASTER	SUSP. AC. T.	10'-0"	
	131	OFFICE	CONCRETE	CARPET (1)	EXISTING WD./WD	GYPSUM BOARD *	GYPSUM BOARD*	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	132	MEETING	CONCRETE	CARPET (1)	EXISTING WD./WD	GYPSUM BOARD	EXISTING PLASTER	EXISTING PLASTER *	GYPSUM BOARD*	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	133	WORK ROOM	CONCRETE	VINYL COMP TILE	4" RUBBER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	WATER FORMER	
	134	BREAK ROOM	CONCRETE	VINYL COMP TILE	4" RUBBER	EXISTING PLASTER/GYP.BD	EXISTING PLASTER/GYP.BD	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	WATER FORMER	(6)
	135	MEETING	CONCRETE	CARPET (2)	EXISTING WD./WD	GYPSUM BOARD*	GYPSUM BOARD	EXIST'G PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	136	OPEN OFFICE	CONCRETE	CARPET (2)	EXISTING WD./WD	EXISTING PLASTER/GYPSUM BOARD	EXISTING PLASTER/GYPSUM BOARD	EXISTING PLASTER/GYPSUM BOARD*	EXISTING PLASTER/GYPSUM BOARD	SUSP. AC. T.	10'-0"	*DRY ERASE PAINT SEE 1/A2.1
	137	OFFICE	CONCRETE	CARPET (2)	EXISTING WD./WD	EXISTING PLASTER/GYPSUM BOARD	EXISTING PLASTER	GYPSUM BOARD*	GYPSUM BOARD	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	138	OPEN OFFICE	CONCRETE	CARPET (2)	EXISTING WD./WD	GYPSUM BOARD	EXISTING PLASTER/GYP.BD.	EXIST'G PLASTER	EXIST'G PLASTER	SUSP. AC. T.	10'-0"	
	139	TRAINING	CONCRETE	CARPET (2)	EXISTING WD./WD	EXIST'G PLASTER	EXISTING PLASTER/GYPSUM BOARD	EXISTING PLASTER*	EXISTING PLASTER/GYPSUM BOARD	SUSP. AC. T.	10'-0"	*WALL TO RECEIVE DRY ERASE PAINT
	139A	CLOSET	CONCRETE	CARPET (1)	EXIST WD./4" RUBBER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	
	139B	AV EQUIP	CONCRETE	CARPET (1)	EXIST WD./4" RUBBER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	
	140	CONFERENCE	CONCRETE	CARPET (1)	EXISTING WD	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	EXISTING PLASTER	SUSP. AC. T.	10'-0"	

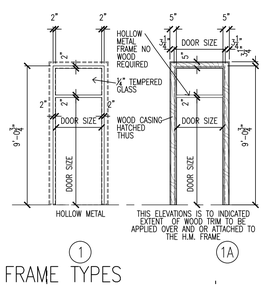
NOTES – ROOM FINISH SCHEDULE

(1) WHERE EXISTING FLOOR COVERINGS ARE SCHEDULED TO BE DEMOLISHED AND REMOVED: CLEAN, PREP AND PATCH FLOOR TO ACCOMMODATE THE SCHEDULED FLOOR FINISH AND IN ACCORDANCE WITH THE FLOOR FINISHES MANUFACTURES INSTALLATION INSTRUCTIONS. AT LOCATIONS WERE EXISTING WALL CONSTRUCTION HAS BEEN DEMOLISHED AND REMOVED PATCH EXISTING FLOOR TO ACCOMMODATE THE FLOOR FINISH. AT THESE LOCATIONS PROVIDE SMOOTH TRANSITION BETWEEN ADJOINING FLOOR SURFACES.
(2) CARPET INSTALLER TO PROVIDE FURNISH AND INSTALL FLOOR FILL TRANSITIONS WHERE CARPET ABUTS TERRAZZO TILE/FLOOR. TOP OF CARPET TO ALIGN WITH TILE.
(3) EXISTING AND REINSTALLED WOOD BASEBOARD: AT JUNCTURE POINTS INSTALL AND FIT FOR AN EVEN ALIGNMENT AT TRANSITIONS, FILL ALL HOLES AND GOUGES. BASEBOARD IS TO BE SANDED AND PREPARED TO PROVIDE AN EVEN APPEARANCE AND ADHESION FOR STAIN AND VARNISH. STAIN IS TO BE OF THE TYPE AND APPLIED TO EVEN OUT APPEARANCE AND ALLOW WOOD GRAIN TO SHOW THOUGH.
(4) EXISTING PLASTER WALLS SHALL BE PATCHED/REPAIRED TO NEW CONDITION. REPAIRS TO ALIGN AND MATCH TEXTURE, AND BE INVISIBLE WHEN PAINTED – REFER TO SPECIFICATION.
(5) HEIGHT OF CEILINGS IS APPROXIMATE. ADJUSTMENTS UP OR DOWN MAY BE REQUIRED TO ALIGN WITH FORMER CEILING/WALL FINISH LINES.
(6) PROVIDE, FURNISH AND INSTALL RUBBER BASE AT CABINET TOE SPACE & AT EXPOSED CABINET END PANELS. SEE INTERIOR ELEVATIONS.

DOOR SCHEDULE

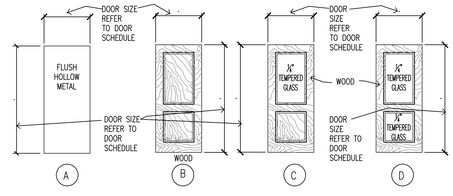
	DOOR NO.	SIZE w.	SIZE h.	SIZE t.	DOOR TYPE	FRAME TYPE	JAMB	UL LABEL	REMARKS
FIRST FLOOR - SOUTH	100	3'-0"	7'-0"	1¾"	C	2	METAL STUD	———	
	101	3'-0"	7'-0"	1 3/4"	C	2	METAL STUD		
	102	3'-0"	6'-10"	1 3/4"	D*	7*& 7B*	EXIST OPENING		* GLASS W/ WINDOW FILM
	103A	3'-0"	7'-0"	1 3/4"	C	2	METAL STUD		
	103B	3'-0"	7'-0"	1 3/4"	C	2			
	107	3'-0"	7'-0"	1 3/4"	C	2			
	108	3'-0"	7'-0"	1 3/4"	C	2			
	110A	2) 3'-0"	7'-0"	1 3/4"	D	3			
	110B	3'-0"	7'-0"	1 3/4"	C	1			
	110C	3'-0"	7'-0"	1 3/4"	C	1			
	114	3'-0"	7'-0"	1 3/4"	C	2			
	115	3'-0"	7'-0"	1 3/4"	C*	1*			* GLASS W/ WINDOW FILM
	116	3'-0"	7'-0"	1 3/4"	C	1			
	117	3'-0"	7'-0"	1 3/4"	C	1	METAL/EXIST		
	119	3'-0"	7'-0"	1 3/4"	B	6	METAL STUD		
	120A	3'-0"	7'-0"	1 3/4"	C	1	METAL STUD		
	120B	3'-0"	7'-0"	1 3/4"	B	6			
	121	3'-0"	7'-0"	1 3/4"	D	2A			
	124	3'-0"	7'-0"	1 3/4"	C*	1*	EXIST		* GLASS W/ WINDOW FILM
	125	3'-0"	7'-0"	1 3/4"	B	1	EXIST		
	126	3'-0"	7'-0"	1 3/4"	B	1	EXIST		
FIRST FLOOR - NORTH	130A	3'-6"	6'-10"	1 3/4"	D*	7*& 7B*	EXIST OPENING		* GLASS W/ WINDOW FILM
	130B	3'-6"	7'-0"	1 3/4"	D	2A			
	130C	INTERIOR WINDOW				6			
	131	3'-0"	7'-0"	1 3/4"	C	2*			* 4"-2" FRAME SIZE
	132	3'-0"	7'-0"	1 3/4"	C	2			
	133	3'-0"	7'-0"	1 3/4"	C*	1*	EXIST		* GLASS W/ WINDOW FILM
	134	3'-0"	7'-0"	1 3/4"	C*	1*	EXIST		* GLASS W/ WINDOW FILM
	135	3'-0"	7'-0"	1 3/4"	C	2	METAL STUD		
	136A	3'-6"	7'-0"	1 3/4"	D	2A			
	137	3'-0"	7'-0"	1 3/4"	C	2			
	138	3'-0"	6'-10"	1 3/4"	C*	7*& 7B*	EXIST OPENING		* GLASS W/ WINDOW FILM
	138A	3'-0"	7'-0"	1 3/4"	C	1	EXIST OPENING		
	139	3'-0"	7'-0"	1 3/4"	C*	2A*			* GLASS W/ WINDOW FILM
	139A	2'-0"-0"	7'-0"	1 3/4"	B	6			
	139B	2'-0"	7'-0"	1 3/4"	B	6			
	140	3'-0"	7'-0"	1 3/4"	C*	1*	EXIST		* GLASS W/WINDOW FILM
	141	3'-0"	7'-0"	1 3/4"	B	1	EXIST		
	142	3'-0"	7'-0"	1 3/4"	B	1	EXIST		
GROUND FLR SOUTH	11	2) 4'-0"	7'-0"	1 3/4"	A	5	METAL STUD	90 MIN	
	12	3'-0"	7'-0"	1 3/4"	B	6	METAL STUD		
	13	3'-0"	7'-0"	1 3/4"	C*				* GLASS W/WINDOW FILM
	14*	3'-0"			C*				* ADD WINDOW FILM TO EXISTING DOOR GLASS

14* – NOTE: DOOR IS AN EXISTING DOOR. STYLE IS SIMILAR TO "C" VERIFY DOOR GLASS SIZE.

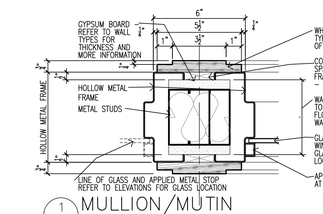


1 FRAME TYPES 1A

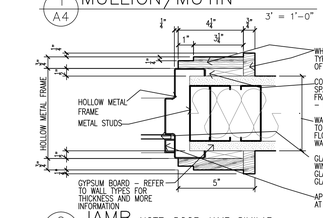
NOTE
* WOOD DOORS:
1. SHALL BE SOLID CORE WHITE OAK
2. AND SHALL MATCH EXISTING DOORS



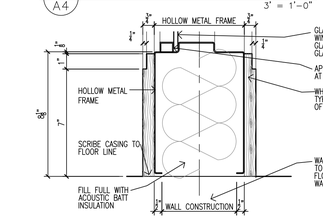
DOOR TYPES



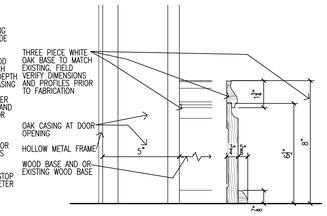
1 A4 MULLION/MUTIN 3" = 1'-0"



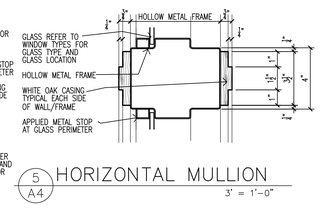
2 A4 JAMB NOTE: DOOR JAMB SIMILAR 3" = 1'-0"



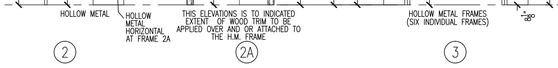
3 A4 SILL 3" = 1'-0"



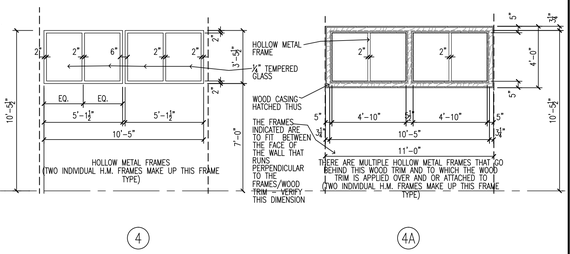
4 A4 ELEVATION AT JAMB & BASE PROFILE 3" = 1'-0"



5 A4 HORIZONTAL MULLION 3" = 1'-0"

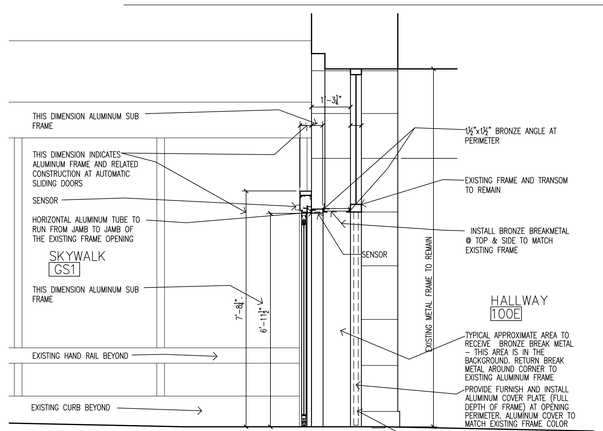


2 2A 3 3A

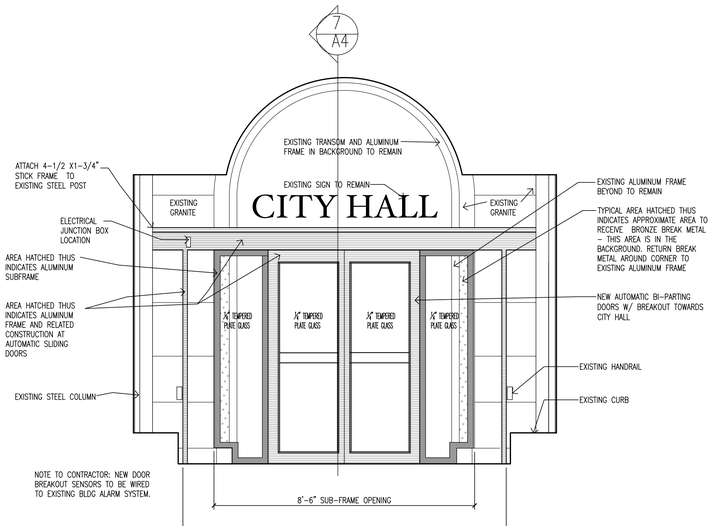


4 4A

FRAME TYPES continued

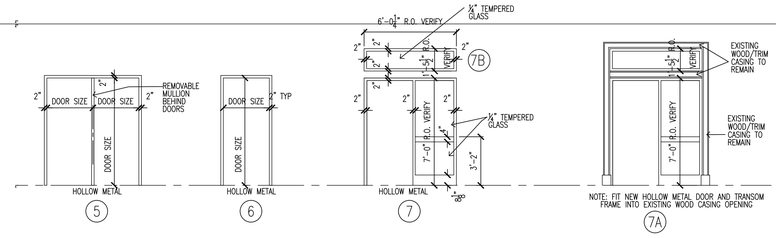


7 A4 SECTION AT SKYWALK – NEW DOOR 1/2"=1'-0"



6 A4 ELEVATION AT SKYWALK – NEW DOOR 1/2"=1'-0"

FRAME TYPES continued



5 6 7 7A

LINE IS TWO INCHES AT FULL SCALE on a 30x42 sheet (IF NOT 2" – SCALE ACCORDINGLY)

413 GROUP

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 Architect under the laws of the State of MINNESOTA.
ROBERT W. FERN
Date 5/5/14 Reg. No. 20188

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL – PROJECT # 14-02-TR
INTERIOR RENOVATIONS – PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

SCHEDULES, SKYWALK PLAN & FRAME TYPES

Job No. 2323 Date 9-19-14
Drawn By: SMW, JL Drawer 22
Sheet: A4 of: 8

GENERAL MECHANICAL SYMBOLS

Symbol	Description
	REVISION NUMBER - SHOWN ON PLANS
	POINT WHERE NEW CONNECTS TO EXISTING
-	NUMBER OF DETAIL ON SHEET
---	NUMBER OF SHEET WHERE DETAIL APPEARS
X	KEYNOTE
	CONTINUATION SYMBOL
Unoccupied Unoccupied	ROOM NAME AND NUMBER
XXX-XX	MECHANICAL EQUIPMENT TAG
XXX-XX *EXISTING*	EXISTING MECHANICAL EQUIPMENT TAG (TYPICAL FOR ALL EXISTING TAGS)
	ITEM TO BE DEMOLISHED
	AREA NOT IN CONTRACT

HVAC SYMBOLS

Symbol	Description
16"x8"	SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
16"/8"	OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
16"Ø	ROUND DUCT SIZE TAG (DIAMETER)
(E)	EXISTING DUCT TAG
	DUCT BEING DEMOLISHED
E/A	EXHAUST AIR
O/A	OUTSIDE AIR
L/A	RELIEF AIR
R/A	RETURN AIR
S/A	SUPPLY AIR
T/A	TRANSFER AIR
C 12" 0	INLET/OUTLET SIZE; GRILLES, REGISTERS, AND DIFFUSERS TAG; CFM; TYPE
J 12"-48"-2 0	NECK SIZE; SLOT LENGTH; NUMBER OF SLOTS; LINEAR DIFFUSER TAG; CFM; TYPE
F	FIRE DAMPER
S	SMOKE DAMPER
M	MOTORIZED DAMPER
B	MANUAL BALANCING DAMPER
D	BACKDRAFT DAMPER
C	COMBINATION FIRE/SMOKE DAMPER
CO2	CARBON DIOXIDE SENSOR
CO	CARBON MONOXIDE SENSOR
H	HUMIDISTAT
HS	HUMIDITY SENSOR
NO2	NITROGEN DIOXIDE SENSOR
S	SENSOR
TH	TEMPERATURE & HUMIDITY SENSOR
TS	TEMPERATURE SENSOR
T	THERMOSTAT
SW	MANUAL SWITCH
	SUPPLY OUTLET
	RETURN/EXHAUST INLET
	LINEAR DIFFUSER
	SUPPLY DUCT RISE
	RETURN DUCT RISE
	SUPPLY DUCT DROP
	RETURN DUCT DROP
	VARIABLE AIR VOLUME TERMINAL

FIRE PROTECTION SYMBOLS

Symbol	Description
FP-D	FIRE PROTECTION DRY
FP-O	FIRE PROTECTION OTHER
FP-PA	FIRE PROTECTION PRE-ACTION
FP-W	FIRE PROTECTION WET

PLUMBING AND PIPING SYMBOLS

Symbol	Description
CD	CONDENSATE DRAINAGE
CW	DOMESTIC COLD WATER
HW	DOMESTIC HOT WATER
CHW	DOMESTIC HOT WATER-CIRCULATING
REF-L	REFRIGERANT-LIQUID
REF-S	REFRIGERANT-SUCTION
V	SANITARY VENT
SS	SANITARY WASTE
	BELOW GROUND PIPING
(E)	EXISTING PIPING
	PIPING BEING DEMOLISHED
	SHUT-OFF VALVE

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	FP	FIRE PUMP
ACC	AIR COOLED CONDENSER	GI	GREASE INTERCEPTOR
ACCU	AIR COOLING CONDENSING UNIT	GRV	GRAVITY ROOF VENTILATOR
AFMS	AIR FLOW MEASURING STATION	H	HUMIDIFIER
AHU	AIR HANDLING UNIT	HWP	HEATING WATER PUMP
AS	AIR SEPARATOR	HX	HEAT EXCHANGER
B	BOILER	HPU	HEAT PUMP UNIT
CF	CABINET FAN	HRU	HEAT RECOVERY UNIT
CF	CHEMICAL FEEDER	ILC	INLINE CENTRIFUGAL
CFP	CHEMICAL FEEDER PUMP	PF	PROPELLER FAN
CH	CHILLER	PRV	POWER ROOF VENTILATOR
CRU	CONDENSATE RETURN UNIT	PWF	POWER WALL FAN
CT	COOLING TOWER	RE	RETURN/EXHAUST FAN
CUH	CABINET UNIT HEATER	RTU	ROOFTOP UNIT
CWP	CONDENSER WATER PUMP	SA	SHOCK ABSORBER
CHWP	CHILLED WATER PUMP	SAT	SOUND ATTENUATOR
DBP	DOMESTIC WATER BOOSTER PUMP	SEP	SEWAGE EJECTOR PUMP
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	US	UTILITY SET
ET	EXPANSION TANK	UV	UNIT VENTILATOR
EWH	ELECTRIC WATER HEATER	WFMS	WATER FLOW MEASURING STATION
FCU	FAN COIL UNIT	WH	WATER HEATER

ABBREVIATIONS

&	AND	ID	INDIRECT
Ø	ROUND	IN	INCH
A	AIR	INL	INLET
AB	ABOVE BASE	INSUL	INSULATION
ABV	ABOVE	INT	INTERIOR
AC	AIR CONDITIONING	INV	INVERT
ACOUS	ACOUSTICAL	INWG	INCHES WATER GAUGE
AD	AREA DRAIN	JST SPC	JOIST SPACE
ADD	ADDENDUM	JT	JOINT
ADDL	ADDITIONAL	LAB	LABORATORY
AFF	ABOVE FINISHED FLOOR	LB	POUND
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	LB/HR	POUNDS PER HOUR
AG	ABOVE GROUND	LAT	LEAVING AIR TEMPERATURE
ALT	ALTERNATE	LF	LINEAL FOOT
ALUM	ALUMINUM	LOC	LOCATION
AP	ACCESS PANEL	LP	LOW PRESSURE
APPROX	APPROXIMATE	LPG	LIQUEFIED PETROLEUM GAS
ARCH	ARCHITECT/ARCHITECTURAL	LR	LIQUID REFRIGERANT
AV	ACID RESISTANT VENT	LS	LAWN SPRINKLER
AW	ACID RESISTANT WASTE	LVR	LOUVER
AUTO	AUTOMATIC	LWT	LEAVING WATER TEMPERATURE
BLDG	BUILDING	M/A	MIXED AIR
BLW	BELOW	MAN	MANUAL
BM	BEAM	MATL	MATERIAL
BO	BY OTHER	MAV	MANUAL AIR VENT
BOT	BOTTOM	MAX	MAXIMUM
BSMT	BASEMENT	MBD	MOTORIZED BYPASS DAMPER
BTU	BRITISH THERMAL UNITS	MBH	ONE THOUSAND BTU PER HOUR
BTUH	BRITISH THERMAL UNITS PER HOUR	MCF	ONE THOUSAND CUBIC FEET
BTWN	BETWEEN	MCW	MAKE-UP COLD WATER
CAP	CAPACITY	MD	MOTORIZED DAMPER
CB	CATCH BASIN	MECH	MECHANICAL
CCW	COUNTER CLOCKWISE	MFR	MANUFACTURER
CFCV	CONSTANT FLOW CONTROL VALVE	MH	MANHOLE
CFM	CUBIC FEET PER MINUTE	MIN	MINIMUM
CHW	CIRCULATING HOT WATER	MISC	MISCELLANEOUS
CI	CAST IRON	MTR	MOTOR
CLG	CEILING	MU/A	MAKE-UP/AIR
CLG	COOLING	N	NECK
CO	CLEAN OUT	NC	NOISE CRITERIA
COL	COLUMN	NC	NORMALLY CLOSED
COMB	COMBINATION	NIC	NOT IN CONTRACT
CONC	CONCRETE	NO	NUMBER
COND	CONDENSATE	NO	NORMALLY OPEN
CONF	CONFERENCE	NOM	NOMINAL
CONN	CONNECT	NTS	NOT TO SCALE
CONST	CONSTRUCTION	O	OXYGEN
CONT	CONTINUE/CONTINUATION	O/A	OUTSIDE AIR
CONTR	CONTRACT/CONTRACTOR	OC	ON CENTER
COORD	COORDINATE	OF	OVERFLOW
CTR	CENTER	OPNG	OPENING
CUFT	CUBIC FEET	ORD	OVERFLOW ROOF DRAIN
CV	CHECK VALVE	PD	PRESSURE DROP
CW	COLD WATER	PIV	POST INDICATOR VALVE
CW	CLOCKWISE	PLBG	PLUMBING
D	DEGREE	PR	PAIR
DB	DRY BULB	PREL	PRELIMINARY
DET	DETAIL	PRESS	PRESSURE
DIA	DIAMETER	PRIM	PRIMARY
DIAG	DIAGONAL	PRV	PRESSURE REDUCING VALVE
DISCH	DISCHARGE	PSI	POUNDS PER SQUARE INCH
DIV	DIVISION	PSIG	POUNDS PER SQUARE INCH GAUGE
DI	DEIONIZED WATER	PW	POTABLE WATER
DMPR	DAMPER	PWR	POWER
DN	DOWN	R	DUCT RISER
DWG	DRAWING	R/A	RETURN AIR
DW	DISTILLED WATER	RCP	RADIANT CEILING PANEL
EA	EACH	RD	ROOF DRAIN
EAT	ENTERING AIR TEMPERATURE	REC	RECESSED
EL	ELBOW	RED	REDUCER
ELEC	ELECTRICAL	REFR	REFRIGERATION
ELEV	ELEVATION	RH	RELATIVE HUMIDITY
EP	EXPLOSION PROOF	REQD	REQUIRED
EQ	EQUAL	REV	REVERSE
EQUIP	EQUIPMENT	RL/A	RELIEF AIR
EWC	ELECTRIC WATER COOLER	RM	ROOM
EWT	ENTERING WATER TEMPERATURE	RPM	REVOLUTIONS PER MINUTE
E/A	EXHAUST AIR	RW	RAIN WATER
EAH	EXHAUST HOOD	SF	SQUARE FOOT
EXIST	EXISTING	S/A	SUPPLY AIR
EXP	EXPANSION	SAN	SANITARY
EXPJT	EXPANSION JOINT	SCHED	SCHEDULE
EXT	EXTERIOR	SECT	SECTION
F	DEGREES FAHRENHEIT	SF	SQUARE FOOT
FCO	FLOOR CLEAN OUT	SD	SMOKE DAMPER
FD	FLOOR DRAIN	SHT	SHEET
FD	FIRE DAMPER	SIM	SIMILAR
FDV	FIRE DEPARTMENT VALVE	SLV	SLEEVE
FHC	FIRE HOSE CABINET	SM	SURFACE MOUNT
FL	FLOOR	SP	STANDPIPE
FLEX	FLEXIBLE	SP	STATIC PRESSURE
FLG	FLANGE	SPEC	SPECIFICATION
FO	FUEL OIL	SPS	STATIC PRESSURE STATION
FOV	FUEL OIL VENT	SQ	SQUARE
FOR	FUEL OIL RETURN	SR	SUCTION REFRIGERANT
FOS	FUEL OIL SUPPLY	SSD	SOIL SUBDRAIN
FPM	FEET PER MINUTE	SS	STAINLESS STEEL
FRP	FIBERGLASS REINFORCED PIPE	STD	STANDARD
FS	FULL SIZE	STM	STEAM
FS	FLOOR SINK	STRUCT	STRUCTURAL
FT	FOOT/FEET	SUCT	SUCTION
FTG	FOOTING	SUSP	SUSPENDED
FTR	FIN TUBE RADIATION	T	THERMOSTAT
FUT	FUTURE	TCP	TEMPERATURE CONTROL PANEL
GA	GAGE/GAUGE	TD	TEMPERATURE DROP
GAL	GALLON	TDR	TRENCH DRAIN
GALV	GALVANIZED	TEFC	TOTALLY ENCLOSED FAN COOLED
GC	GENERAL CONTRACTOR	TEMP	TEMPERATURE
GEN	GENERATOR	TYP	TYPICAL
GENL	GENERAL	UFD	UNDER FLOOR DUCT
GPH	GALLONS PER MINUTE	UG	UNDERGROUND
GR	GRADE	VAC	VACUUM
GW	GREASE WASTE	V	VENT
HB	HOSE BIB	VAV	VARIABLE AIR VOLUME
HD	HEAD	VEL	VELOCITY
HORZ	HORIZONTAL	VENT	VENTILATION
HP	HORSE POWER	VERT	VERTICAL
HP	HIGH PRESSURE	VOL	VOLUME
HTG	HEATING	VTR	VENT THROUGH ROOF
HTR	HEATER	W	WASTE
HW	HOT WATER	WB	WET BULB
HYD	HYDRANT	WCO	WALL CLEAN OUT
		WH	WALL HYDRANT

DIVISION 15000 - MECHANICAL SPECIFICATIONS

SECTION 15010 - GENERAL PROVISIONS

A. GENERAL CONDITIONS

1. THE GENERAL CONDITIONS, SPECIAL CONDITIONS, SUPPLEMENTARY CONDITIONS, BUILDING OWNER'S MECHANICAL SPECIFICATIONS AND "GENERAL CONDITIONS OF THE CONTRACT," CURRENT EDITION, ESTABLISHED IN STANDARD FORM BY THE AMERICAN INSTITUTE OF ARCHITECTS SHALL APPLY TO ALL WORK ON THIS PROJECT EXCEPT AS MODIFIED BELOW. THIS CONTRACTOR SHALL BE FAMILIAR WITH THESE PROVISIONS AND ADHERE TO THESE REQUIREMENTS. THIS CONTRACTOR SHALL COORDINATE MECHANICAL WORK WITH ALL OTHER TRADES, AND BUILDING OWNER PRIOR TO INSTALLATION.

B. RELATED DOCUMENTS

1. THIS CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS, ELECTRICAL PLANS AND SPECIFICATIONS. SUCH PLANS AND SPECIFICATIONS ARE A PART OF THE CONTRACT DOCUMENTS. CONTRACTORS SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL CONDITIONS SURROUNDING THE WORK.

C. PLANS AND SPECIFICATIONS

1. THROUGHOUT THE COURSE OF THE WORK, THE BUILDING OWNER MAY REQUEST MINOR CHANGES AND ADJUSTMENTS TO THE PLANS AND SPECIFICATIONS. THE CONTRACTOR SHALL MAKE SUCH ADJUSTMENTS WITHOUT ADDITIONAL COST TO THE BUILDING OWNER, WHERE SUCH ADJUSTMENTS ARE NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE SYSTEMS, AND WITHIN THE INTENT OF THE CONTRACT DOCUMENTS.

2. IT IS THE INTENT OF THE PLANS AND SPECIFICATIONS TO FORM A GUIDE FOR A COMPLETE INSTALLATION. EVERYTHING NECESSARY FOR THE COMPLETION AND SUCCESSFUL OPERATION OF THE WORK, WHETHER OR NOT DEFINITELY SPECIFIED OR INDICATED ON THE DRAWINGS SHALL BE PROVIDED AS IF SO SPECIFIED OR INDICATED WITHOUT ADDITIONAL COST TO THE BUILDING OWNER. THE MECHANICAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO INSTALLATION.

3. NOTWITHSTANDING ANY OTHER PROVISIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR BEARS ULTIMATE RESPONSIBILITY FOR COMPLIANCE OF THE INSTALLATION WITH THE REQUIREMENTS OF THE BUILDING OWNER AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.

D. MODIFICATIONS

1. IF ANY ERRORS, DISCREPANCIES OR OMISSIONS APPEAR IN THE DRAWINGS, SPECIFICATIONS OR OTHER CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING OF SUCH ERROR OR OMISSION. IN THE EVENT OF THE CONTRACTOR FAILING TO GIVE SUCH NOTICE BEFORE CONSTRUCTION AND/OR FABRICATION OF THE WORK, THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE RESULTS OF ANY SUCH ERRORS, DISCREPANCIES OR OMISSIONS AND THE ASSOCIATED COST OF RECTIFYING.

E. CODE COMPLIANCE

1. THIS CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF ALL STATE AND LOCAL CODES REGULATING THIS WORK. HOWEVER, THIS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLYING WITH ANY REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS THAT MAY BE IN EXCESS OF ANY GOVERNING CODES.

F. PERMITS, FEES, LICENSES

1. THIS CONTRACTOR SHALL PAY ALL FEES AND RELATED CHARGES FOR PERMITS, LICENSES, ETC., REQUIRED FOR INSTALLATION OF THE MECHANICAL SYSTEM.

G. WARRANTY

1. ALL CONSTRUCTION WORK SHALL BE PERFORMED IN A FIRST-CLASS WORKMANLIKE MANNER AND SHALL BE IN GOOD AND USABLE CONDITION AT THE DATE OF COMPLETION. THIS CONTRACTOR SHALL REQUIRE ANY PERSONS PERFORMING ANY SUCH WORK TO GUARANTEE THE SAME TO BE FREE FROM ANY AND ALL DEFECTS IN WORKMANSHIP AND MATERIALS FOR ONE (1) YEAR FROM THE DATE OF COMPLETION THEREOF. THIS CONTRACTOR SHALL ALSO REQUIRE ANY SUCH PERSONS TO BE RESPONSIBLE FOR THE REPLACEMENT OR REPAIR WITHOUT ANY ADDITIONAL COST TO ANY AND ALL WORK DONE OR FURNISHED BY OR THROUGH SUCH PERSONS WHICH SHALL BECOME DEFECTIVE WITHIN ONE (1) YEAR AFTER SUBSTANTIAL COMPLETION OF WORK. THE CORRECTION OF SUCH WORK SHALL INCLUDE WITHOUT ADDITIONAL COST ALL EXPENSES AND DAMAGES IN CONNECTION WITH SUCH REMOVAL, REPLACEMENT OR REPAIR OF ANY PART OF THE WORK WHICH MAY BE DAMAGED OR DISTURBED THEREBY.

2. ALL WARRANTIES OR GUARANTEES AS TO MATERIALS OR WORKMANSHIP WITH RESPECT TO THE BUILDING OWNERS WORK SHALL BE WRITTEN SO THAT SUCH WARRANTIES OR GUARANTEES SHALL BE TO ENSURE THE BENEFIT OF BOTH BUILDING OWNER AND TENANT AS THEIR RESPECTIVE INTERESTS APPEAR AND CAN BE DIRECTLY ENFORCED BY EITHER.

H. FIELD QUALITY CONTROL

1. UPON COMPLETION OF INSTALLATION OF MECHANICAL EQUIPMENT, START-UP AND OPERATE EQUIPMENT TO DEMONSTRATE CAPABILITY AND COMPLIANCE WITH REQUIREMENTS.

2. REMOVE MALFUNCTIONING EQUIPMENT, REPLACE WITH NEW EQUIPMENT AND RETEST.

3. REMOVE MALFUNCTIONING HVAC UNITS, REPLACE WITH NEW HVAC UNITS AND RETEST.

SECTION 15100 - BASIC MATERIALS AND METHODS

A. MECHANICAL RELATED WORK

1. MATERIALS AND EQUIPMENT DESIGNED TO BE NEW SHALL BE FREE OF DEFECTS.

2. MATERIALS AND EQUIPMENT DESIGNED TO BE REUSED SHALL BE VERIFIED BY THIS CONTRACTOR TO BE IN GOOD WORKING CONDITION. IF MATERIALS AND EQUIPMENT DO NOT MEET THE DESIGN INTENT, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF SAID MATERIALS AND EQUIPMENT.

3. DESIGN AND INSTALL PIPING AND DUCTWORK TO PRESENT A NEAT ORDERLY APPEARANCE. ROUTE PARALLEL WITH BUILDING WALLS AND CONSTRUCTION.

4. PROVIDE VIBRATION ISOLATION AND FLEXIBLE CONNECTIONS ON ALL MOVING EQUIPMENT.

5. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR INSTALLATION OF NEW SYSTEMS AND EQUIPMENT AS INDICATED ON PLANS.

B. EQUIPMENT ORDER

1. THE CONTRACTOR SHALL ORDER ALL EQUIPMENT REQUIRED WITHIN TEN DAYS UPON RECEIPT OF CONTRACT IN ORDER TO ENSURE TIMELY RECEIPT OF MATERIAL. SUBSTITUTIONS AFTER THIS DATE DUE TO LACK OF PLACEMENT OF ORDER WILL NOT BE APPROVED.

C. HANGERS, SUPPORTS, AND SLEEVES

1. SUPPORT PIPING ADEQUATELY FROM SLABS OR OTHER STRUCTURAL MEMBERS AT INTERVALS IN COMPLIANCE WITH INDUSTRY STANDARDS AND AUTHORITY HAVING JURISDICTION.

2. ALL HORIZONTAL PIPING PENETRATING WALLS SHALL BE FITTED WITH SLEEVES MADE OF STANDARD STEEL PIPE 1 INCH LARGER THAN THE PIPE AND INSULATION DIAMETER. SLEEVES SHALL BE CUT FLUSH WITH THE WALL ON BOTH SIDES. SEAL THE SLEEVE VOIDS WITH NONSHRINKING SEALANT. ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE SEALED IN COMPLIANCE WITH UL.

3. PROVIDE ESCUTCHEON PLATES ON ALL EXPOSED PIPE PENETRATIONS THROUGH WALLS.

D. EQUIPMENT IDENTIFICATION

1. IDENTIFY PIPING, DUCTWORK AND EQUIPMENT IN COMPLIANCE WITH THE BUILDING OWNER'S CRITERIA AND IN COMPLIANCE WITH INDUSTRY STANDARDS.

E. CLEANING AND TESTING

1. CLEAN, DISINFECT, AND TEST ALL PLUMBING AND PIPING SYSTEMS AS REQUIRED BY THE BUILDING OWNER CRITERIA AND GOVERNING CODES.

SECTION 15200 - INSULATION

A. MECHANICAL INSULATION

1. INSULATION SHALL BE OWENS-CORNING, MANVILLE CORPORATION, CERTAIN-TEED, KNAUF, OR EQUAL. ALL INSULATING MATERIALS SHALL HAVE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 723 NOT EXCEEDING FLAME SPREAD 25 AND SMOKE DEVELOPED 50. INSULATION ACCESSORIES SUCH AS ADHESIVES, MASTICS, CEMENT, TAPES AND GLASS CLOTH SHALL HAVE THE SAME COMPONENT RATING AS LISTED ABOVE.

2. INSULATE SUPPLY AIR AND OUTSIDE AIR DUCTWORK WITHIN CONDITIONED SPACE WITH FIBERGLASS BLANKET MINIMUM 1-1/2 INCH THICK, 1 POUND PER CUBIC FOOT DENSITY, VAPOR BARRIER JACKET WITH 2 INCH TAB, GLASS REINFORCED LAMINATED ALUMINUM FOIL AND KRAFT PAPER JACKET. INSULATION THICKNESS SHALL BE IN COMPLIANCE WITH APPLICABLE CODE REQUIREMENTS.

3. INSULATE ALL DOMESTIC COLD AND HOT WATER PIPING WITH ONE OR TWO PIECE MOLDED FIBERGLASS PIPE INSULATION, MINIMUM 1 INCH THICK, 3 LB. PER CU. FT. DENSITY, WITH ALL SERVICE JACKET, SELF-SEALING LAP. INSULATION THICKNESS SHALL BE IN COMPLIANCE WITH APPLICABLE CODE REQUIREMENTS.

4. INSULATE CONDENSATE DRAIN PIPING WITH A MINIMUM 1/2 INCH THICK CLOSED CELL FLEXIBLE RUBBER PIPE INSULATION.

5. INSULATE REFRIGERANT SUCTION PIPING WITH A MINIMUM 1 INCH THICK CLOSED CELL FLEXIBLE RUBBER PIPE INSULATION.

6. INSULATE LAVATORY P-TRAP, HOT/COLD SUPPLY PIPING AND SHUT-OFFS WITH "LAV GUARD 2" PIPING COVER MANUFACTURED BY TRUEBRO, INC. E-Z SERIES, WHITE. PIPING SHALL BE SECURED WITH SNAP CLIP FLUSH MOUNTED FASTENERS. ANGLE STOP VALVES SHALL BE SECURED WITH LOCKING LID ACCESS COVER. COVER SHALL BE NON-YELLOWING AND FIRE RETARDANT.

SECTION 15300 - FIRE PROTECTION

A. FIRE PROTECTION SYSTEMS

1. PROVIDE ALTERATIONS TO THE EXISTING FIRE PROTECTION SYSTEM TO ACCOMMODATE THE NEW FLOOR PLAN AND NEW REFLECTED CEILING PLAN. ALL CHANGES SHALL BE IN COMPLIANCE WITH NFPA, LOCAL FIRE AUTHORITIES AND THE BUILDING OWNER.

2. ENTIRE BUILDING TO BE FULLY SPRINKLERED. EXTEND MAINS FROM FIRE PROTECTION ASSEMBLY ROOM TO SPRINKLER MAINS.

3. SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR FIRE PROTECTION MAIN FROM THE FLANGED CONNECTION POINT INSIDE THE BUILDING AND DISTRIBUTION INTO BUILDING.

4. FLOW SWITCH AND FLOW ALARM SERVING EACH ZONE SHALL BE INTERCONNECTED TO THE BASE BUILDING FIRE ALARM SYSTEM.

5. SPRINKLER HEADS IN FINISHED CEILINGS SHALL BE SEMI-RECESSED TYPE WITH CHROME FINISH. SPRINKLER HEADS IN GYPSUM BOARD CEILINGS SHALL BE CONCEALED TYPE WITH WHITE COVER PLATE TO MATCH ADJACENT CEILING COLOR. SPRINKLER HEADS IN 2 FOOT X 2 FOOT CEILING TILES MUST BE CENTERED. WHERE SPRINKLER HEADS OCCUR IN 2 FOOT X 4 FOOT CEILING TILES, HEADS MUST BE CENTERED IN THE RIGHT OR LEFT HALF OF THE TILE.

6. QUICK RESPONSE TYPE SPRINKLER HEADS TO BE PROVIDED IN ALL AREAS.

7. NOTIFY THE BUILDING OWNER OF THE TIME AND DURATION OF THE FIRE PROTECTION WORK. DO NOT LEAVE THE SYSTEM INOPERABLE OVERNIGHT. THE SPRINKLER SYSTEM SHALL BE FULLY CHARGED AND OPERATIONAL WHEN THE SPRINKLER CONTRACTOR IS OFF SITE.

8. SPRINKLER SYSTEM SHALL COMPLY WITH NFPA 13 AND LOCAL FIRE AUTHORITY. SPRINKLER PRODUCTS TO BE VIKING, ELKHART, OR POTTER ROEMER.

SECTION 15400 - PLUMBING

A. DOMESTIC WATER PIPING SYSTEMS

1. PIPING FOR COLD AND HOT WATER SYSTEMS SHALL BE TYPE 'L' COPPER TUBING ABOVE GRADE, WITH WROUGHT COPPER SOLDER FITTINGS JOINED USING 95-5 LEAD FREE SOLDER, AND TYPE 'K' COPPER TUBING BELOW GRADE 3 INCHES AND SMALLER. DIELECTRIC COUPLINGS SHALL BE USED BETWEEN STEEL AND COPPER CONNECTIONS.

B. WASTE AND VENT PIPING SYSTEMS

1. WASTE AND VENT PIPING SHALL BE SERVICE WEIGHT HUBLESS CAST IRON PIPE AND HUBLESS CAST IRON DRAINAGE FITTINGS.

2. ABOVE GROUND SANITARY SEWERS SHALL BE SERVICE WEIGHT "NO-HUB" CAST IRON PIPE.

3. SCHEDULE 40 POLYVINYL CHLORIDE PLASTIC PIPE (PVC) PIPING MAY BE ALLOWED FOR WASTE PIPING ONLY PENDING THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION, STATE PLUMBING CODE REVIEW AND WRITTEN ACCEPTANCE BY THE AUTHORITY HAVING JURISDICTION.

4. WALL CLEANOUT: JOSAM SERIES 58790, OR EQUAL, WALL CLEANOUT TEE, RECESSED BRONZE TAPPED PLUG AND STAINLESS STEEL ACCESS COVER WITH SCREW. UNIT SPECIFIED IS WITH NO-HUB CONNECTION. CONTRACTOR TO COORDINATE PIPE FITTINGS AND MATERIAL AND PROVIDE SAME.

C. REFRIGERATION PIPING SYSTEMS

1. REFRIGERATION PIPING SHALL BE TYPE ACR HARD DRAWN COPPER TUBING AND WROUGHT COPPER SOLDER JOINT FITTINGS JOINED USING BRAZED JOINTS. PROVIDE SUCTION AND LIQUID PIPE SIZES AS REQUIRED BY THE AIR COOLED CONDENSING UNIT MANUFACTURER BASED ON THE ACTUAL CONDENSING UNIT LOCATION AND THE DEVELOPED PIPING LENGTHS. PITCH AS REQUIRED BY THE MANUFACTURER AND INDUSTRY PRACTICE.

2. PROVIDE ALL SOLENOID VALVES, SHUT-OFF VALVES AND ACCESSORIES REQUIRED BY THE AIR COOLED CONDENSING UNIT MANUFACTURER TO PROVIDE A COMPLETE AND OPERABLE REFRIGERATION PIPING SYSTEM.

D. CONDENSATE DRAIN PIPING SYSTEMS

1. CONDENSATE DRAIN PIPING INSIDE THE BUILDING SHALL BE TYPE 'L' HARD DRAWN COPPER WITH WROUGHT COPPER SOLDER FITTINGS.

2. CONDENSATE DRAIN PIPING OUTSIDE THE BUILDING SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE PLASTIC PIPE (PVC) WITHIN LIMITS OF STATE BUILDING CODE WITH PVC PLASTIC, SOCKET TYPE, SOLVENT CEMENT JOINT FITTINGS.

3. PROVIDE TRAP AT OUTLET OF CONDENSATE DRAIN FROM AIR CONDITIONING UNIT, SIZED 1/2 INCH DEEPER THAN THE MAXIMUM FAN STATIC PRESSURE. ROUTE CONDENSATE DRAIN TO INDIRECT WASTE TO CAO PARKING FLOOR WITH AIR GAP.

E. PLUMBING FIXTURES AND TRIM

1. ALL FIXTURES FITTED TO WALL SHALL BE CAULKED WITH WHITE SILICONE CONSTRUCTION SEALANT BETWEEN WALL AND FIXTURE.

2. PROVIDE ALL FIXTURES AND EQUIPMENT WITH INDIVIDUAL WATER SHUT-OFF VALVE AT POINT OF CONNECTION.

3. REFER TO PLUMBING FIXTURE SCHEDULE FOR MAKE, MODEL NUMBER, AND ACCESSORIES.

4. ITEM P-9A SINGLE COMPARTMENT SINK: ELKAY MODEL NO. DLH222210, OR EQUAL SELF-RIMMING SINGLE COMPARTMENT SINK. UNIT SHALL BE CONSTRUCTED OF 18 GAUGE STAINLESS STEEL WITH FULLY UNDERCOATED UNDERSIDE TO DAMPEN SOUND AND PREVENT CONDENSATION. UNIT SHALL BE 22 INCHES LONG X 22 INCHES WIDE X 10 INCHES DEEP WITH 3 HOLES ON 4 INCH CENTERS. PROVIDE ZURN STAINLESS STEEL BASKET STRAINER. FIXTURE TRIM SHALL BE ZURN MODEL NO. Z831B4 WITH SWING GOOSENECK SPOUT, 1.5 GPM VANDAL-RESISTANT PRESSURE COMPENSATING FEMALE AERATOR, 4 INCH VANDAL-RESISTANT METAL WRIST BLADE HANDLES, AND POLISHED CHROME PLATED FINISH.

SECTION 15500 - HEATING, VENTILATING AND AIR CONDITIONING

A. METAL DUCTWORK

1. CONSTRUCT ALL LOW VELOCITY DUCTWORK OF APPROPRIATE GAUGE SHEET METAL FOR INDICATED SIZES IN ACCORDANCE WITH SMACNA STANDARDS AND CMC 2010 - CHAPTER 6. ROUTE DUCTWORK SUBSTANTIALLY AS SHOWN ON THE CONTRACT DOCUMENTS. ALL BENDS AND CURVES SHALL BE LONG RADIUS. SEAL ALL DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS: ABOVE 2 INCHES W.G. STATIC PRESSURE - SEAL CLASS "A"; BETWEEN 1 INCH AND 2 INCH W.G. - SEAL CLASS "B"; LESS THAN 1 INCH W.G. - SEAL CLASS "C". DUCT SIZES SHOWN ON DRAWINGS ARE INSIDE DIMENSION.

2. INSTALL RIGID ALL METAL DUCT SUPPORT SYSTEMS AS INDICATED IN SMACNA STANDARDS. SUPPORT HORIZONTAL DUCTS WITHIN 2 FEET OF EACH ELBOW AND WITHIN 4 FEET OF EACH BRANCH INTERSECTION USING STRAP HANGERS ON EACH SIDE OF FITTING. SUPPORT VERTICAL DUCTS AT A MAXIMUM INTERVAL OF 6 FEET. NO WOOD SHALL BE USED TO SUPPORT OR BRACE DUCTS. PROVIDE SWAY AND SEISMIC BRACING AS REQUIRED BY STATE AND LOCAL CODES.

3. THE AIR DISTRIBUTION SYSTEM SHALL BE FABRICATED AS RECOMMENDED IN THE LATEST EDITION OF THE SMACNA LOW VELOCITY DUCT MANUAL AND INSTALLED WHERE SHOWN ON PLAN. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL REQUIRED DAMPERS, TRANSITIONS AND CONNECTIONS TO AIR TERMINALS NECESSARY FOR A COMPLETE OPERATING SYSTEM.

4. ALL DUCTWORK SHALL BE GALVANIZED STEEL UNLESS OTHERWISE SPECIFIED, WITH GAUGES AND REINFORCING IN ACCORDANCE WITH SMACNA. CONSTRUCT AND SUPPORT NEW DUCTWORK IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS FOR UP TO 2-INCH WG. SECURELY ATTACH ALL DUCTWORK TO THE BUILDING CONSTRUCTION IN A MANNER TO BE FREE FROM VIBRATION AND SWAYING UNDER OPERATING CONDITIONS. PROVIDE OFFSETS, ELBOWS AND TRANSITIONS IN DUCTWORK AS REQUIRED FOR COMPLETE INSTALLATION. SQUARE TURN ELBOWS SHALL BE FITTED WITH TURNING VANES. VANES SHALL BE DOUBLE THICKNESS, FASTENED TO RUNNERS AND ADEQUATELY BRACED.

5. SEAL JOINTS IN ALL SUPPLY AIR DUCTS WITH 3M INDUSTRIAL SEALANT 800, OR EQUAL, IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS TO PRODUCE A LEAKAGE RATE OF NOT MORE THAN 5 PERCENT.

6. MAKE RETURN AIR AND VENTILATION AIR DUCT CONNECTIONS TO ALL EQUIPMENT, IN CEILING PLENUM SPACE, OR ON ROOF WITH A MINIMUM 4 INCH FLEXIBLE CONNECTION BETWEEN THE EQUIPMENT AND DUCT.

7. MANUAL BALANCING DAMPERS: FACTORY FABRICATED, WITH REQUIRED HARDWARE AND ACCESSORIES. STIFFEN DAMPER BLADES FOR STABILITY. INCLUDE LOCKING DEVICE TO HOLD SINGLE-BLADE DAMPERS IN A FIXED POSITION WITHOUT VIBRATION. CLOSE DUCT PENETRATIONS FOR DAMPER COMPONENTS TO SEAL DUCT CONSISTENT WITH PRESSURE CLASS.

A) PRESSURE CLASSES OF 3-INCH WG OR HIGHER: END BEARINGS OR OTHER SEALS FOR DUCTS WITH AXLES FULL LENGTH OF DAMPER BLADES AND BEARINGS AT BOTH ENDS OF OPERATING SHAFT.

B) STANDARD BALANCING DAMPERS: MULTIPLE OR SINGLE BLADE, PARALLEL OR OPPOSED BLADE DESIGN, STANDARD LEAKAGE RATING, AND SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS.

1) STEEL FRAMES: HAT-SHAPED, GALVANIZED SHEET STEEL CHANNELS, MINIMUM OF 0.064 INCH THICK, WITH MITERED AND WELDED CORNERS; FRAMES WITH FLANGES WHERE INDICATED FOR ATTACHING TO WALLS AND FLANGELESS FRAMES WHERE INDICATED FOR INSTALLING IN DUCTS.

2) ROLL-FORMED STEEL BLADES: 0.064 INCH THICK, GALVANIZED SHEET STEEL.

3) BLADE AXLES: GALVANIZED STEEL.

4) BEARINGS: OIL-IMPREGNATED BRONZE, MOLDED SYNTHETIC, OR STAINLESS-STEEL SLEEVE.

5) TIE BARS AND BRACKETS: GALVANIZED STEEL.

C) JACKSHAFT: 1 INCH DIAMETER, GALVANIZED STEEL PIPE ROTATING WITHIN PIPE BEARING ASSEMBLY MOUNTED ON SUPPORTS AT EACH MULLION AND AT EACH END OF MULTIPLE DAMPER ASSEMBLIES.

1) LENGTH AND NUMBER OF MOUNTINGS: APPROPRIATE TO CONNECT LINKAGE OF EACH DAMPER IN MULTIPLE DAMPER ASSEMBLY.

D) DAMPER HARDWARE: ZINC PLATED, DIE CAST CORE WITH DIAL AND HANDLE MADE OF 3/32 INCH THICK ZINC PLATED STEEL, AND A 3/4 INCH HEXAGON LOCKING NUT. INCLUDE CENTER HOLE TO SUIT DAMPER OPERATING ROD SIZE. INCLUDE ELEVATED PLATFORM FOR INSULATED DUCT MOUNTING.

8. DUCT ACCESS DOORS: PROVIDE ACCESS DOORS IN DUCTWORK ADJACENT TO EACH ITEM OF EQUIPMENT INSTALLED IN DUCTWORK, INCLUDING, BUT NOT LIMITED TO: HYDRONIC COILS, VARIABLE VOLUME TERMINALS, DUCT REHEAT COILS, DUCT THERMOSTATS, STATIC PRESSURE SENSORS, AND CONTROL DAMPERS. ACCESS PANEL SHALL BE OF SUFFICIENT SIZE FOR ACCESS TO EQUIPMENT AND FOR PROPER CLEANING.

A) CONSTRUCTION: CONSTRUCT OF SAME OR GREATER GAUGE AS DUCTWORK SERVED, PROVIDE INSULATED DOORS FOR INSULATED DUCTWORK. PROVIDE FLUSH FRAMES FOR UNINSULATED DUCTWORK, EXTENDED FRAMES FOR EXTERNALLY INSULATED DUCT. PROVIDE ONE SIDE HINGED, OTHER SIDE WITH ONE HANDLE-TYPE LATCH FOR DOORS 12 INCHES HIGH AND SMALLER, TWO HANDLE-TYPE LATCHES FOR LARGER DOORS.

B) MANUFACTURER: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE DUCT ACCESS DOORS OF ONE OF THE FOLLOWING:

1) AIR BALANCE INC.
2) CESCO.
3) NAILOR.
4) RUSKIN MFG. CO.

B. COMBINATION FIRE/SMOKE DAMPER

1. GREENHECK MODEL NO. FSD-212, OR EQUAL, 1-1/2 HOUR FIRE RESISTANCE RATING CONSTRUCTION AND TESTED IN ACCORDANCE WITH UL SAFETY STANDARD 555. FRAME SHALL BE A MINIMUM 16 GAUGE GALVANIZED STEEL FORMED INTO A STRUCTURAL HAT CHANNEL SHAPE WITH TABBED CORNERS FOR REINFORCEMENT. EACH FIRE/SMOKE DAMPER SHALL HAVE A 1-1/2 HOUR FIRE PROTECTION RATING, 165 DEGREE RELEASE TEMPERATURE, 250 DEGREE TEMPERATURE RATING, AND SHALL INCLUDE A UL LABEL IN ACCORDANCE WITH UL LABELING PROCEDURES. FIRE/SMOKE DAMPER SHALL BE EQUIPPED FOR VERTICAL INSTALLATION AS REQUIRED BY THE LOCATION SHOWN. FIRE/SMOKE DAMPERS SHALL BE INSTALLED IN ACCORDANCE WITH THE DAMPER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE TRADITIONAL BREAKAWAY STYLE TRANSVERSE JOINTS ON BOTH SIDES OF ALL FIRE/SMOKE DAMPERS INSTALLED.

C. DIFFUSERS, REGISTERS AND GRILLES

1. DIFFUSERS, REGISTERS AND GRILLES WHERE SHOWN ON DRAWINGS AND AS SCHEDULED SHALL BE TITUS, OR EQUAL.

D. SPLIT SYSTEM AIR CONDITIONING UNIT

1. WALL HUNG UNIT SHALL BE FUJITSU OR EQUAL. UNIT SHALL BE LOCATED AS SHOWN ON DRAWINGS. PROVIDE SUPPORT AS REQUIRED AND COORDINATE ALL REQUIRED SERVICE CLEARANCES. UNIT SHALL CONSIST OF CABINET, REFRIGERANT COIL, ELECTRIC COIL, FAN, FAN MOTOR, AND FILTERS. UNIT SHALL BE EQUIPPED WITH AUTOMATIC AND MANUAL RESET THERMAL CUTOUT, AIRFLOW PROVING DEVICE, AND ONE TIME FUSES IN TERMINAL BOX FOR OVERCURRENT PROTECTION.

2. AIR COOLED CONDENSING UNIT SHALL BE FUJITSU OR EQUAL. UNIT SHALL BE LOCATED AT THE BUILDING OWNER'S DESIGNATED LOCATION. CONTRACTOR TO VERIFY. PROVIDE SUPPORT AS REQUIRED AND COORDINATE ALL REQUIRED SERVICE CLEARANCES. UNIT SHALL CONSIST OF COMPRESSOR(S), OUTDOOR CASING, CONDENSER COIL, CONDENSER FAN(S), MOTORS, AND UNIT OPERATING AND SAFETY CONTROLS. UNIT SHALL BE EQUIPPED WITH AUTOMATIC NONRECYCLING PUMPDOWN, CRANKCASE HEATER AND TIMING DEVICE TO PREVENT EXCESSIVE COMPRESSOR CYCLING, AND LOW AMBIENT CONTROLS. PROVIDE REFRIGERANT RECEIVER SIZED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS IF REQUIRED BY MANUFACTURER AND LIQUID AND SUCTION LINE SERVICE VALVES.

E. AUTOMATIC TEMPERATURE CONTROL - SPLIT SYSTEM AIR CONDITIONING UNIT

1. PROVIDE, UNLESS NOTED OTHERWISE, ALL THERMOSTATS, SENSORS, CONTROLLERS, RELAYS, CONTACTORS, DAMPERS, ACTUATORS, VALVES AND ALL OTHER MATERIALS NECESSARY FOR A COMPLETE AND PROPERLY OPERATING ELECTRONIC TEMPERATURE CONTROL SYSTEM AS SPECIFIED BELOW. ALL CONTROL WIRING SHALL BE BY THE MECHANICAL CONTRACTOR AND SHALL BE INSTALLED IN CONDUIT.

2. PROVIDE A 7-DAY PROGRAMMABLE COOLING/HEATING AUTOMATIC CHANGEOVER THERMOSTAT TO CONTROL THE OPERATION OF THE AIR HANDLING UNIT SYSTEM. THE THERMOSTAT SHALL BE FURNISHED WITH A SUB BASE THAT INCLUDES AN AUTO-ON FAN SWITCH, AN ON-OFF-AUTO SYSTEM SWITCH. UNLESS NOTED OTHERWISE, MOUNT THERMOSTAT AT 60 INCHES ABOVE FINISHED FLOOR.

3. PROVIDE CONTROL DEVICES TO ACCOMPLISH THE FOLLOWING CONTROL SEQUENCES:

A) OCCUPIED COOL CYCLE:

1) COOLING RESPONDS TO REQUIREMENT OF ROOM THERMOSTAT.

B) UNOCCUPIED COOL CYCLE:

1) UNIT CYCLES TO MAINTAIN THE SETPOINT OF ROOM THERMOSTAT.

F. TESTING, ADJUSTING AND BALANCING

1. TESTING AND BALANCING OF ALL SUPPLY AIR, RETURN AIR, VENTILATION AIR, AND EXHAUST AIR SYSTEMS TO BE PROVIDED BY AN INDEPENDENT NEBB OR AABC CERTIFIED COMPANY. BALANCE AIR SYSTEMS TO THE INDICATED DESIGN AIR FLOWS AT EACH OUTLET AND AS SCHEDULED ON EQUIPMENT.

2. SUBMIT A MINIMUM OF TWO (2) CERTIFIED COPIES OF A COMPLETE AIR BALANCE TEST REPORT TO THE OWNER FOR REVIEW AND COMMENT. REPORTS MUST BE SUBMITTED PRIOR TO RECEIVING FINAL PAYMENT.

3. THESE ARE TO BE "CERTIFIED" BALANCE REPORTS AND ARE TO INCLUDE THE SPECIFICATIONS OF ALL EQUIPMENT INSTALLED ON THE PROJECT AS WELL AS THE RESULTS OF THE BALANCING. ANY NON-CERTIFIED OR INCOMPLETE REPORTS WILL BE REJECTED.

4. COORDINATE TESTING, ADJUSTING AND BALANCING WITH THE BUILDING OWNER'S FIELD REPRESENTATIVE PRIOR TO FINAL BIDS.

SECTION 15900 - HVAC SYSTEM CLEANING

A. GENERAL - SUMMARY AND SUBMITTALS

1. EXTENT OF THIS SECTION INCLUDES THE REMOVAL OF DIRT, MOLD, BACTERIA, FUNGI, DUST, AND MISCELLANEOUS DEBRIS FROM INSIDE EXISTING DUCTWORK, ACCESSORIES, AND HVAC EQUIPMENT THAT IS TO BE REUSED.

2. SCOPE OF CLEANING SERVICES INCLUDES THE FOLLOWING:

A) REMOVAL AND DISPOSAL OF DIRT, BACTERIA, FUNGI, DUST, MISCELLANEOUS DEBRIS, AND OTHER CONTAMINATES.

B) CLEANING OF ALL SUPPLY DUCTWORK, DIFFUSERS, GRILLES, AND REGISTERS.

C) CLEANING OF DAMPERS, SUPPLY AIR FANS, AND OTHER HVAC EQUIPMENT.

D) REPAIR AND SEAL DAMAGED MECHANICAL INSULATION WITH APPLICABLE MECHANICAL INSULATION AS SPECIFIED IN SECTION 15250.

3. PROVIDE DOCUMENTATION OF CLEANING PROCESS, INCLUDING INFORMATION ON ALL MATERIALS TO BE USED; AND DESCRIPTION OF INTENDED STEP BY STEP PROCEDURES.

B. PRODUCTS - MATERIALS, EQUIPMENT AND WORK AREA PREPARATION

1. PROVIDE THE FOLLOWING MATERIALS AND EQUIPMENT RELATED TO HVAC SYSTEM CLEANING.

A) SHEET METAL PATCHES: PROVIDE GALVANIZED SHEET METAL OF SAME GAUGE AS EXISTING DUCTWORK.

B) ACCESS DOORS: PRE-MANUFACTURED WITH LOCKING SEAL.

C) CAULK: USE A SILICONE BASED PRODUCT SPECIFICALLY RATED FOR SEALING DUCTWORK.

D) AIR TIGHT PLUGS.

E) ELECTRIC AND MANUAL CLEANING DEVICES.

F) CHEMICALS FOR CLEANING COILS, DAMPERS, AND FANS.

G) MECHANICAL INSULATION AND SEALING (REFER TO SECTION 15250).

2. FOR HVAC CLEANING, USE A VACUUM COLLECTION SYSTEM FILTERS CAPABLE OF MAINTAINING UP TO 1 INCH OF STATIC PRESSURE INSIDE THE ISOLATED AREA OF DUCTWORK.

3. FILTRATION ON ALL INDOOR VACUUM SYSTEMS CAPABLE OF PREVENTING CONTAMINATION OF RELATED SPACES.

4. PROTECT ALL FURNISHINGS, EQUIPMENT, ETC. IN WORK AREA WITH POLYETHYLENE OR EQUIVALENT COVERING AND CONTAINMENT BARRIERS.

5. SEAL OFF ENDS AND OPENING OF ANY DUCTWORK SYSTEMS NOT UNDERGOING CLEANING.

6. SUITABLY SUPPORT AND BRACE DUCTWORK WHICH WILL BE ENTERED BY CLEANING CONTRACTOR.

C. EXECUTION

1. CLEANING DUCTS:

A) CLEANING CONTRACTOR SHALL COORDINATE WITH THE OWNER AND PROJECT CONTRACTORS BEFORE COMMENCING WITH SYSTEM CLEANING.

B) SMALL DUCTS ARE THOSE WHICH ARE NOT ACCESSIBLE TO PERSONNEL TO ENTER FOR CLEANING PURPOSES.

C) VACUUM COLLECTION SYSTEM CLEANING METHOD SHALL BE USED IN THE AREAS SPECIFIED.

D) VACUUM COLLECTION SYSTEM CLEANING METHOD:

1) PROVIDE PROTECTIVE SEALS FOR DUCTWORK UNDERGOING CLEANING. SEAL ALL ACCESS POINTS.

2) EXISTING INSULATION ON EXTERIOR OF DUCTWORK, AND DUCTWORK SHALL BE NEATLY CUT, AS REQUIRED, IN ORDER TO PROVIDE ACCESS TO FACILITATE CLEANING OF THE DUCTWORK AND COMPONENTS. NO ACCESS OPENING SHALL BE LARGER THAN 22 INCHES BY 22 INCHES.

3) INSTALL THE VACUUM COLLECTION SYSTEM UNIT AT A PREDETERMINED LOCATION AND CLEAN THE SECTION OF THE DUCTWORK AS REQUIRED. PRE-VACUUM DIFFUSERS, GRILLES, AND REGISTERS IN AFFECTED DUCTWORK. ISOLATE EQUIPMENT WHICH GENERATES NOISE FROM OCCUPIED AREAS.

4) REPLACE DAMAGED MECHANICAL INSULATION. COMPLY WITH SECTION 15250.

5) PATCH DUCTWORK IN SUCH A MANNER TO PREVENT AIR LEAKAGE. WHEN INTERNAL INSULATION HAS BEEN CUT FOR AN ACCESS, COAT ALL EXPOSED EDGES WITH APPROVED MECHANICAL INSULATION REPAIR COATING OR FORM.

6) SEAL ACCESS OPENINGS WITH GALVANIZED SHEET METAL OF THE SAME GAUGE AS EXISTING DUCTWORK, OVERLAPPING THE OPENING, ZIP-SCREW INTO PLACE, AND SILICONE SEAL AT THE SEAMS. PROVIDE PRE-MANUFACTURED ACCESS DOORS AT ALL NEW OPENINGS. CAP ALL ONE INCH OR LESS HOLES WITH AIR-TIGHT PLUGS.

2. CLEANING HVAC UNITS:

A) CHEMICALLY CLEAN AND POWER WASH ALL COILS, DAMPERS, AND FAN UNITS.

B) PREPARE WORK AREA, ADJACENT EQUIPMENT AND SURFACES WITH POLYETHYLENE OR EQUIVALENT SHEETING.

C) COVER AND TAPE ALL ELECTRICAL SURFACES AND FAN BEARINGS.

D) ON SURFACES WITH INTERNAL INSULATION, VACUUM SURFACES AND REPAIR/COAT WITH APPROVED MECHANICAL INSULATION REPAIR COATING.

E) ON METAL SURFACES, APPLY CLEANING SOLUTION TO SURFACE, HAND SCRUB, AND RINSE WITH PRESSURE WASHER.

F) CLEANING SEQUENCE SHALL BE HVAC UNIT, CEILING, COILS, CONDENSATE PANS, FAN INSIDE, FAN OUTSIDE, WALLS (TOP TO BOTTOM), AND FLOOR.

G) AN APPROVED COIL CLEANER SHALL BE APPLIED TO ALL COIL FACINGS USING A LOWER PRESSURE SPRAYER.

H) PRESSURE WASH COILS AS NEEDED TO ENSURE THOROUGH RINSING.

I) DRAIN AND DRY ALL AREAS OF THE COILS.

J) DRAIN ALL MOISTURE AND DRY ALL SURFACES.

END OF DIVISION 15

GENERAL NOTES-PROJECT

* COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, 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 EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.
* FIRE SEAL AROUND DUCT AND PIPING PENETRATIONS OF FIRE RATED WALLS. REFER TO SPECIFICATION.
* LOCATE DUCTWORK, PIPING AND MECHANICAL EQUIPMENT AWAY FROM THE SPACE ABOVE ELECTRICAL PANELS. TRANSFORMERS AND OTHER ELECTRICAL EQUIPMENT.
* PROVIDE SLEEVES AND/OR OPENINGS TO RUN PIPES AND DUCTS THROUGH FOUNDATIONS, FLOORS, WALLS, AND ROOF.
* 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 WITHIN SPACE AND WITHIN CLOSE PROXIMITY OF SPACE.
* THE MECHANICAL CONTRACTOR SHALL PERFORM SERVICE AND REPAIR ON THE EXISTING EQUIPMENT AND ITS ACCESSORIES AS NECESSARY FOR A COMPLETE AND PROPER OPERATING SYSTEM. THIS CONTRACTOR SHALL ALSO VISIT THE SITE, PRIOR TO FINAL BIDDING, AND VERIFY ALL EXISTING SITE CONDITIONS. PROVIDE ALL MATERIAL AND COMPONENTS AS NEEDED TO BRING THE EQUIPMENT TO FULL COMPLIANCE OF THE OWNER'S CRITERIA AND LOCAL AUTHORITY HAVING JURISDICTION.
* WHERE FLOOR DRAINS OCCUR WITHIN THE LIMITS OF CONSTRUCTION, PREVENT CONSTRUCTION DEBRIS FROM ENTERING DRAIN BODY BY SEALING DRAIN OPENING PRIOR TO START OF WORK.

GENERAL NOTES-HVAC

* CONTRACTOR SHALL LOCATE THERMOSTATS AND TEMPERATURE SENSORS AT 5'-0" AFF, A MINIMUM OF 8" FROM LIGHT SWITCH.
* REFER TO PIPING DRAWINGS FOR THERMOSTAT AND TEMPERATURE SENSOR LOCATIONS.
* CONDENSATE DRAINS SHALL BE SUPPLIED FOR ALL COOLING EQUIPMENT. CONTRACTOR SHALL ENSURE PROPER INSTALLATION AND DRAINAGE AS REQUIRED BY FEDERAL, STATE, AND LOCAL CODES. CONDENSATE PIPING SHALL BE TYPE "L" COPPER.
* ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 2" W.G. UNLESS NOTED OTHERWISE.
* THIS CONTRACTOR SHALL BE REQUIRED TO REPLACE FILTERS ON HVAC EQUIPMENT AFTER ALL DUST PRODUCING CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO THE FINAL PUNCH

GENERAL NOTES-PLUMBING

* PITCH UNDERFLOOR SANITARY WASTE AND STORM PIPING 3" AND GREATER AT 1/8" PER FOOT, UNLESS NOTED OTHERWISE. PITCH ALL OTHER WASTE PIPING AT 1/4" PER FOOT UNLESS OTHERWISE NOTED.
* FIELD VERIFY LOCATION AND INVERTS OF SITE UTILITIES PRIOR TO INSTALLATION.
* WASTE AND VENT PIPING BELOW FLOOR AND THROUGH FLOOR SHALL BE 2" MINIMUM.
* PROVIDE CLEANOUT AT BASE OF ALL PLUMBING RISERS.
* FIELD VERIFY ALL NEW WATER, WASTE, AND VENT PIPING CONNECTIONS AND PROVIDE NEW CONNECTIONS AS REQUIRED FOR PROPERLY OPERATING SYSTEMS.

GENERAL NOTES-FIRE PROTECTION

* PROVIDE ALTERATIONS TO THE EXISTING FIRE PROTECTION SYSTEM AS REQUIRED TO ACCOMMODATE THE NEW FLOOR PLAN AND NEW CEILING TYPES. PROVIDE A COMPLETE WET TYPE SYSTEM INCLUDING NEW MAINS, BRANCHES, HEADS, VALVES, AND ACCESSORIES AS REQUIRED. REUSE EXISTING SYSTEM EQUIPMENT WHERE APPLICABLE. THE SYSTEM SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS AND AS PER REQUIREMENTS OF THE STATE BUILDING CODE, LOCAL FIRE DEPARTMENT, AND ALL FEDERAL, STATE, AND LOCAL AUTHORITIES, NFPA, AND FACTORY MUTUAL.
* THE BUILDINGS COMPLETE OPERATIONAL FIRE PROTECTION SYSTEMS SHALL REMAIN IN PLACE. THIS CONTRACTOR SHALL REPAIR ANY DAMAGE TO THIS SYSTEM CREATED BY THE REMOVAL OF ANY OTHER MECHANICAL SYSTEMS OR COMPONENTS.
* THIS CONTRACTOR SHALL COORDINATE PHASING OF SPRINKLER WORK WITH THE GENERAL CONTRACTOR PRIOR TO STARTING WORK.

MECHANICAL SHEET INDEX

* NOTE *
ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET.THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

NORTH
W E
S

413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218) 722-2555 Fax (218) 722-9306
Project No. 83166

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 Engineer under the laws of the State of Minnesota.
JAMES D. MANNING, III
Date 09/19/14 Reg. No. 18261

MECHANICAL TITLE SHEET AND SPECIFICATIONS

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

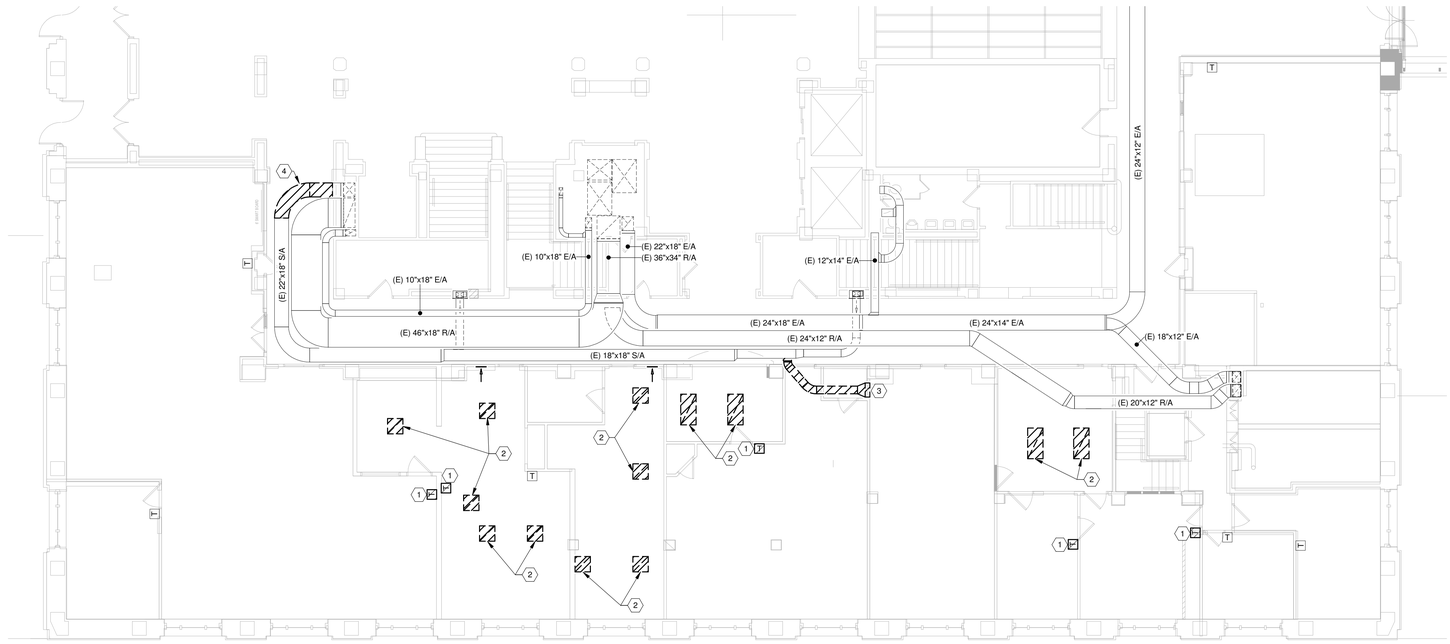
DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 83166	Date 09/19/14
Drawn By: K. DAVIS	Drawer

Sheet: M0.0
of: X

KEYNOTES:

1 REMOVE EXISTING THERMOSTAT AND ALL ASSOCIATED CONTROL WIRING.
2 REMOVE EXISTING RETURN GRILLE
3 REMOVE GRILLE AND DUCTWORK BACK TO MAIN AND CAP AIRTIGHT.
4 REMOVE PORTION OF DUCT AS INDICATED. PREPARE DUCT FOR NEW CONNECTION.



1 / M2.1 PARTIAL FIRST FLOOR HVAC DEMOLITION PLAN - SOUTH END
1/8" = 1'-0" 0 4' 8' 16'

NORTH W E S

413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
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Duluth, Minnesota 55802
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FIRST FLOOR HVAC DEMOLITION PLAN - SOUTH

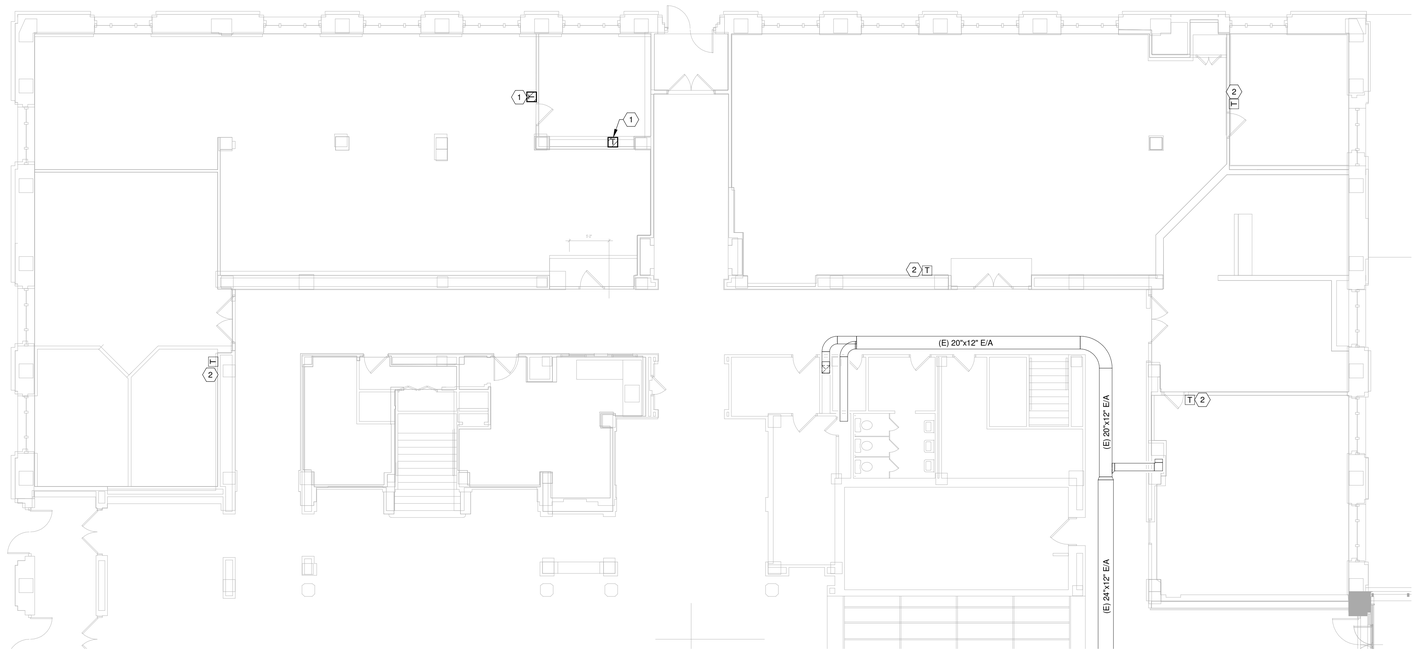
John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN 55802

Job No. 83166 Date 09/19/14
Drawn By K. DAVIS Drawer
Sheet: M2.1
of: X

KEYNOTES:

1 REMOVE EXISTING THERMOSTAT AND ALL ASSOCIATED CONTROL WIRING.
2 EXISTING THERMOSTAT AND CONTROL WIRING TO REMAIN.



1 / M2.2 PARTIAL FIRST FLOOR HVAC DEMOLITION PLAN - NORTH END
1/8" = 1'-0" 0 4' 8' 16'

NORTH
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413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
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Suite 310
Duluth, Minnesota 55802
(218) 722-2555 Fax (218) 722-9306
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FIRST FLOOR HVAC DEMOLTION PLAN - NORTH

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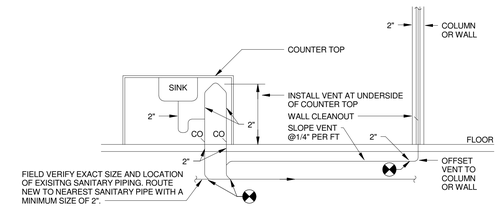
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 83166 Date 09/19/14
Drawn By: K. DAVIS Drawer
Sheet:
M2.2
of: X

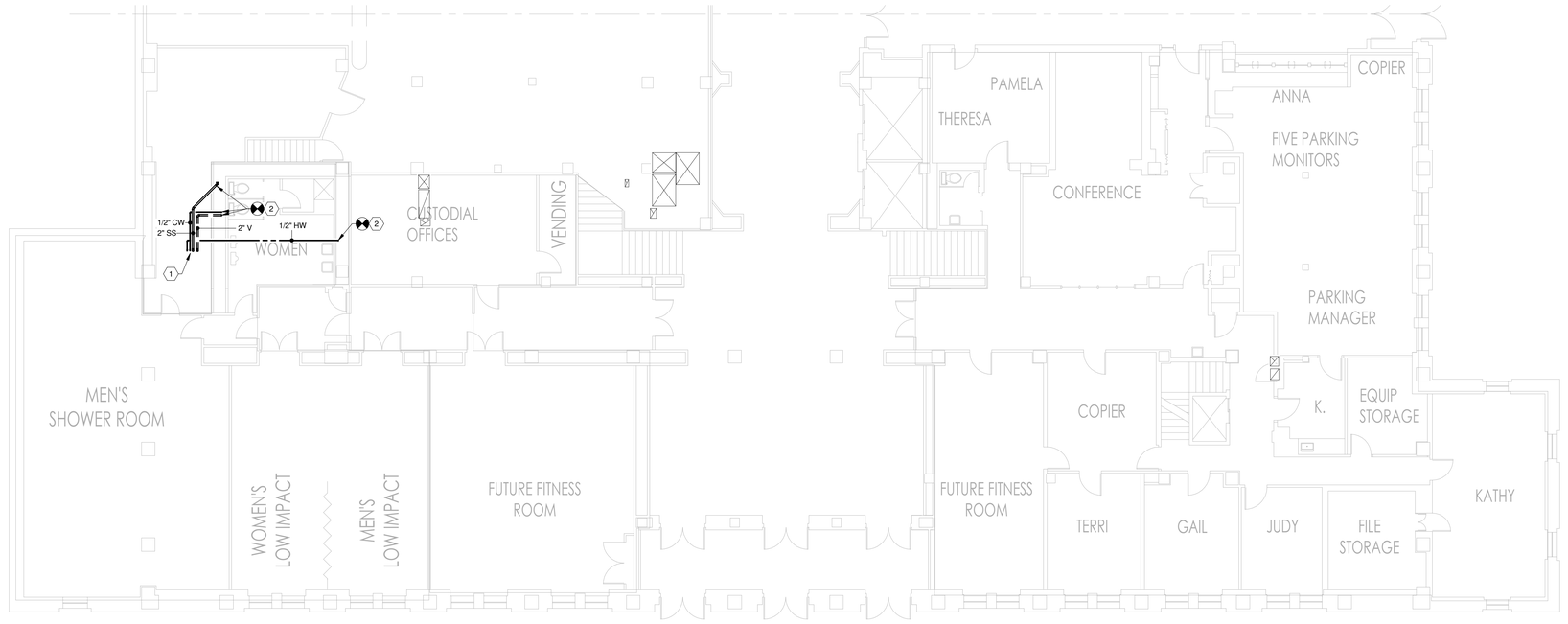
KEYNOTES:

1 HOT WATER, COLD WATER, SANITARY, AND VENT PIPING UP TO SK-1 ON FIRST FLOOR. ISLAND VENT SINK AND RUN PIPING ABOVE CEILING OF GROUND FLOOR. CONNECT TO EXISTING WATER, SANITARY, AND VENT PIPING.

2 CONNECT TO EXISTING PIPE AND FIELD VERIFY EXACT SIZE, LOCATION, AND ELEVATION OF EXISTING PIPING.



2 / M3.1 ISLAND VENT PIPING DETAIL
NO SCALE



1 / M3.1 PARTIALGROUND FLOOR PLUMBING AND HVAC PLAN - SOUTH END
1/8" = 1'-0"
0 4' 8' 16'

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413 GROUP

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Mechanical and Electrical Engineers
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Duluth, Minnesota 55802
(218) 722-2555 Fax (218) 722-9306
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JAMES D. MANNING, III
Date: 09/19/14 Reg. No. 18251

GROUND FLOOR PLUMBING AND HVAC PLAN - SOUTH

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN 55802

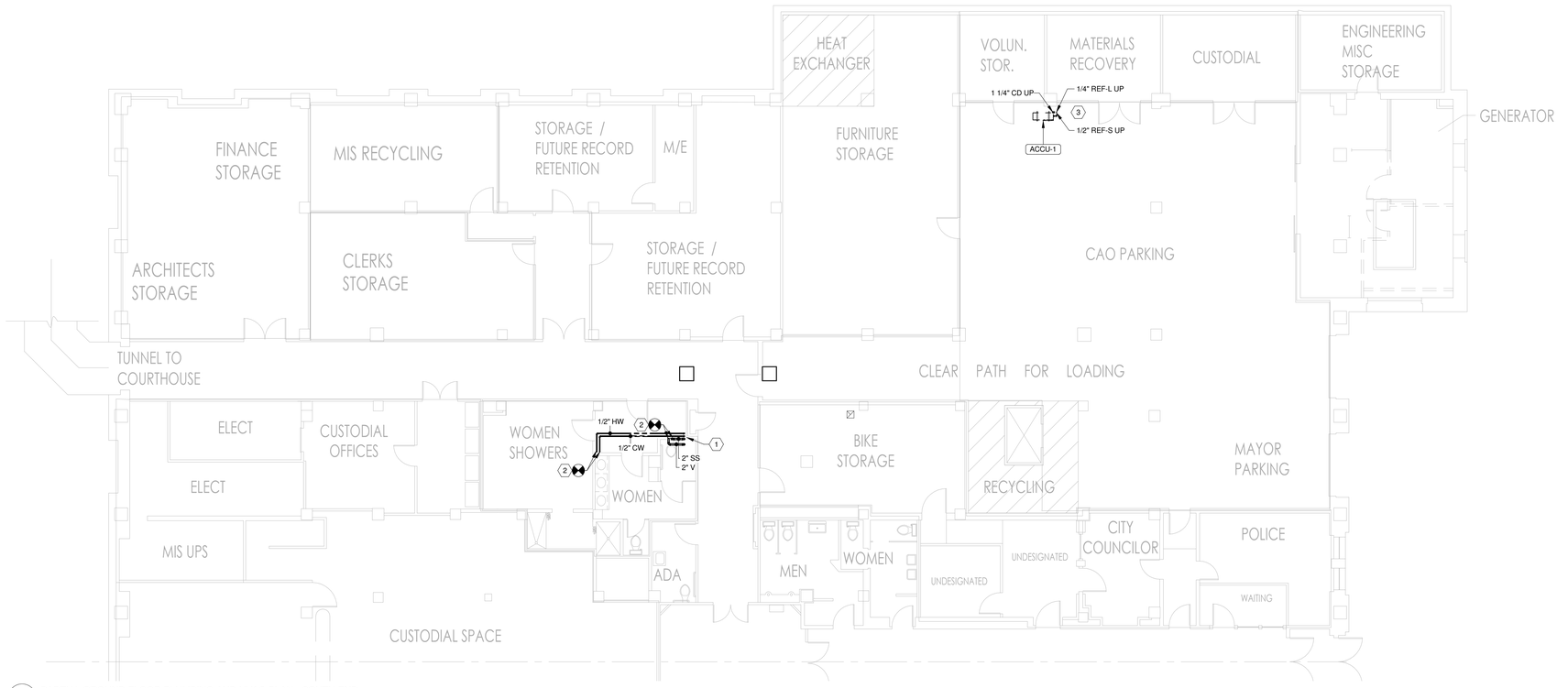
Job No. 83166 Date 09/19/14
Drawn By: K. DAVIS Drawer
Sheet:
M3.1
of: X

KEYNOTES:

1	HOT WATER, COLD WATER, SANITARY, AND VENT PIPING UP TO SK-1 ON FIRST FLOOR. ISLAND VENT SINK AND RUN PIPING ABOVE CEILING OF GROUND FLOOR TO CONNECTO TO EXISTING WATER, SANITARY, AND VENT PIPING.
2	FIELD VERIFY EXACT SIZE, LOCATION, AND ELEVATION OF EXISTING PIPING.
3	CONDENSATE FROM AC ABOVE TO DRAIN ONTO FLOOR.

AIR COOLED CONDENSING UNIT SCHEDULE

UNIT NO.	LOCATION	MANUFACTURER	MODEL NO.	CAPACITY	COOLING EFFICIENCY (EER)	REFRIGERANT	OUTDOOR AIR TEMP	HOT GAS BY-PASS	LOW AMBIENT KIT	VOLTAGE	PHASE	REMARKS
ACCU-1	GROUND FLOOR- CAO PARKING	DAIKIN	RMXS48LVJU	48000 Btu/h	10.3	R-410A	95.0 °F	No	No	208 V	1	



1 M3.2 PARTIAL GROUND FLOOR PLUMBING AND HVAC PLAN - SOUTH END
1/8" = 1'-0"
0 4' 8' 16'

NORTH W E S

413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
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Duluth, Minnesota 55802
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JAMES D. MANNING, III
Reg. No. 18261
Date 09/19/14

GROUND FLOOR PLUMBING AND HVAC PLAN - NORTH

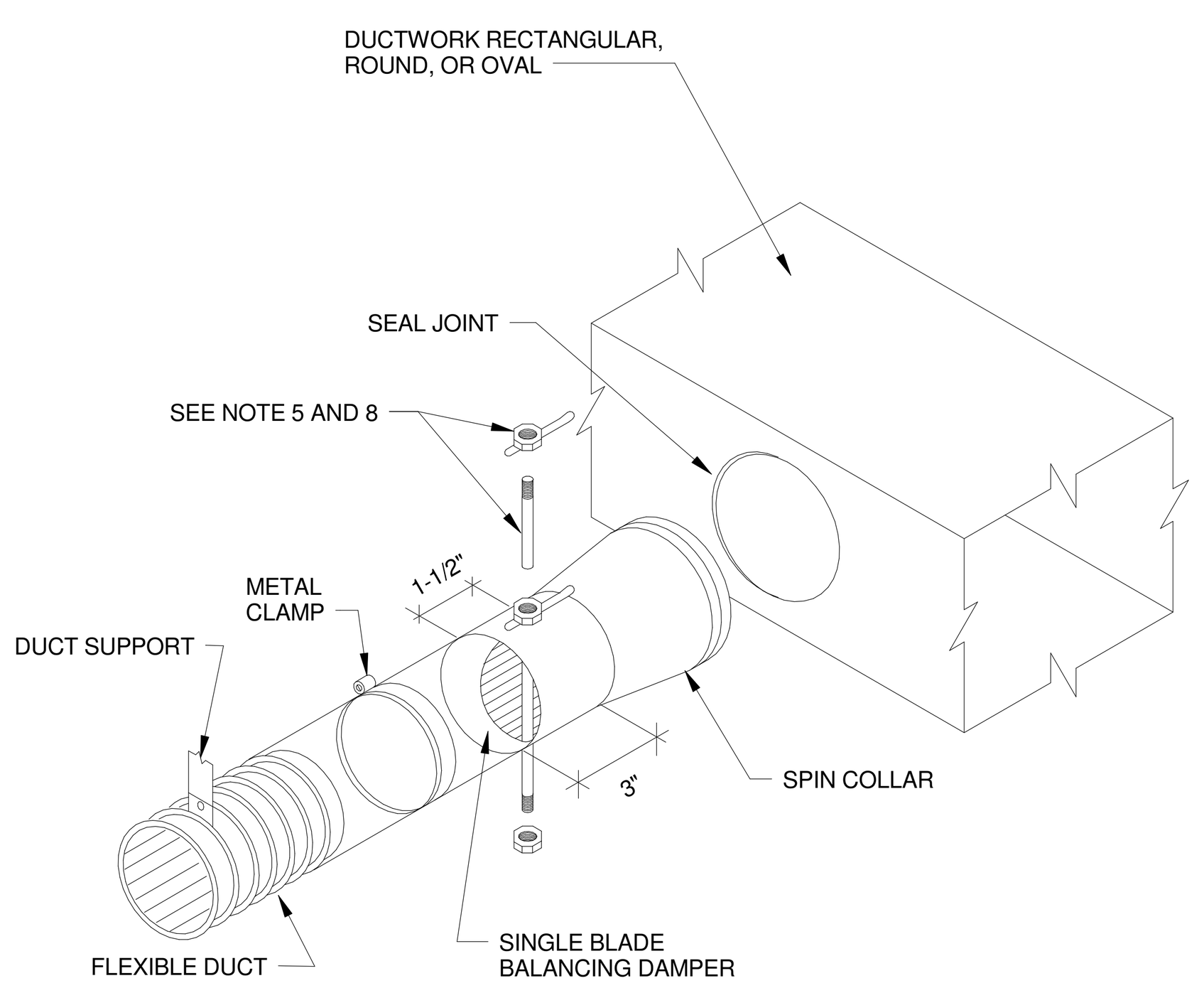
John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN 55802

Job No. 83166 Date 09/19/14
Drawn By K. DAVIS Drawer
Sheet: M3.2
of: X

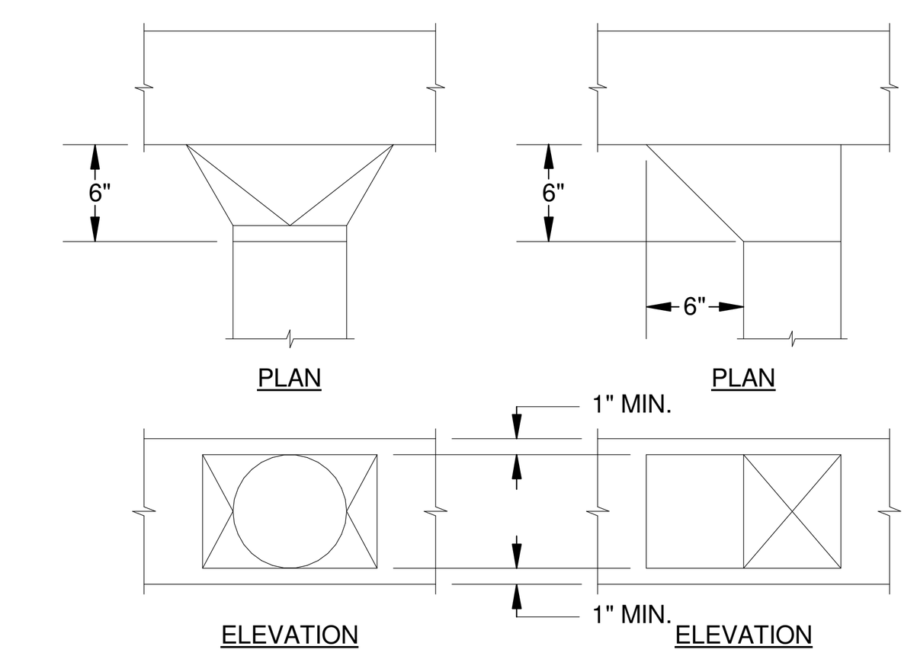
KEYNOTES:

1 DUCTWORK CROSSINGS OVER EXISTING CORRIDOR/LOBBY PLASTER CEILINGS SHALL BE INSTALLED WITHOUT CUTTING AND PATCHING IN PUBLIC CORRIDORS. PROVIDE WALL OPENINGS AS REQUIRED AND PATCH TO MATCH EXISTING.
2 HOT WATER, COLD WATER, SANITARY, AND VENT PIPING UP FROM BELOW. ISLAND VENT SINK AND RUN PIPES ABOVE CEILING IN GROUND FLOOR.
3 EXTEND SOFFIT FACE TO ENCLOSE DUCTWORK CROSSING THE CORRIDOR. EXTEND EXISTING SPRINKLER HEAD AS REQUIRED FOR MODIFIED SOFFIT.
4 MODIFY EXISTING FIRE PROTECTION SYSTEM AS REQUIRED TO ACCOMMODATE THE NEW FLOOR PLAN AND NEW CEILING TYPES.
5 INSTALL NEW THERMOSTAT TO CONTROL EXISTING STEAM RADIATORS
6 FIELD VERIFY EXISTING DUCT SIZES AND CONDITIONS.
7 PROVIDE COMBINATION FIRE/SMOKE DAMPER PER SPECIFICATION AT THIS LOCATION.
8 BALANCING DAMPER WITH REMOTE OPERATOR INTO THE CEILING SPACE OF PROJECT FINANCE ROOM.

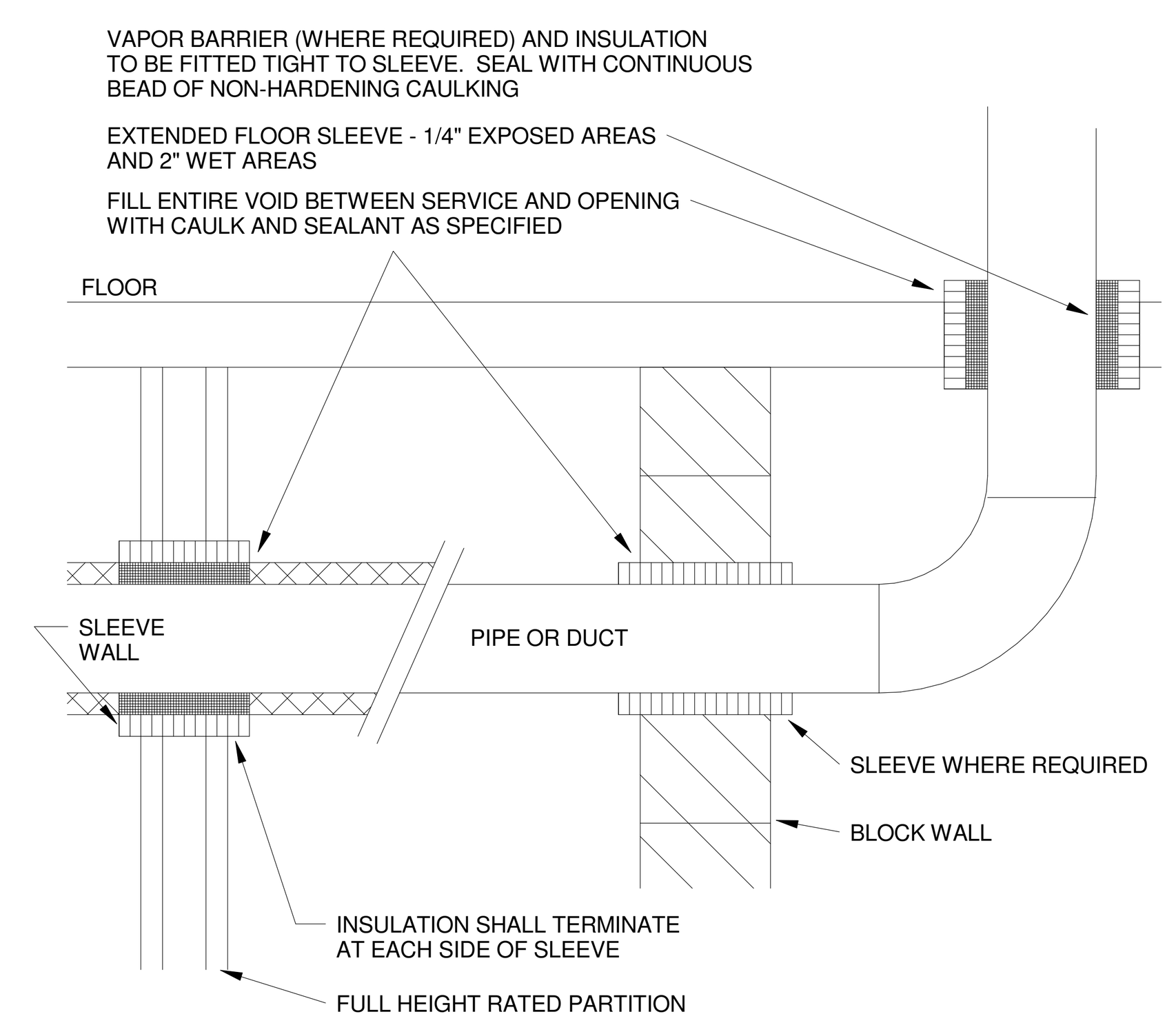


NOTES:
1. SUPPORT DUCTWORK AS REQUIRED.
2. BAND FLEX TO COLLAR 1/2" MINIMUM FROM OUTBOARD END OF COLLAR.
3. INSTALL SPIN COLLAR DAMPER IN OPEN POSITION; FINAL ADJUSTMENT BY TAB CONTRACTOR.
4. PULL FLEXIBLE DUCT INSULATION UP TO END OF SPIN COLLAR AT EDGE OF RECTANGULAR DUCTWORK; SEAL VAPOR BARRIER WITH GREY TAPE TO PREVENT MOISTURE MIGRATION.
5. PROVIDE EXTENSION RODS TO ACCOMMODATE INSULATION, PULL TO EDGE OF DUCTWORK AS REQUIRED AND SEAL TO EFFECT VAPOR BARRIER.
6. POP RIVET OR SHEET METAL SCREWS, MINIMUM 3 EACH AT 120 INTERVALS, CONNECTING STOVEPIPE TO COLLAR. ENSURE RIVETS OR SCREWS DO NOT INTERFERE WITH DAMPER.
7. TAPE AND SEAL ALL JOINTS TO PREVENT LEAKAGE.
8. INSTALL LOCKING QUADRANT AND HANDLE ON BOTTOM OF DUCT FOR EASY SERVICE (SHOWN ON TOP FOR EASE OF ILLUSTRATION ONLY).

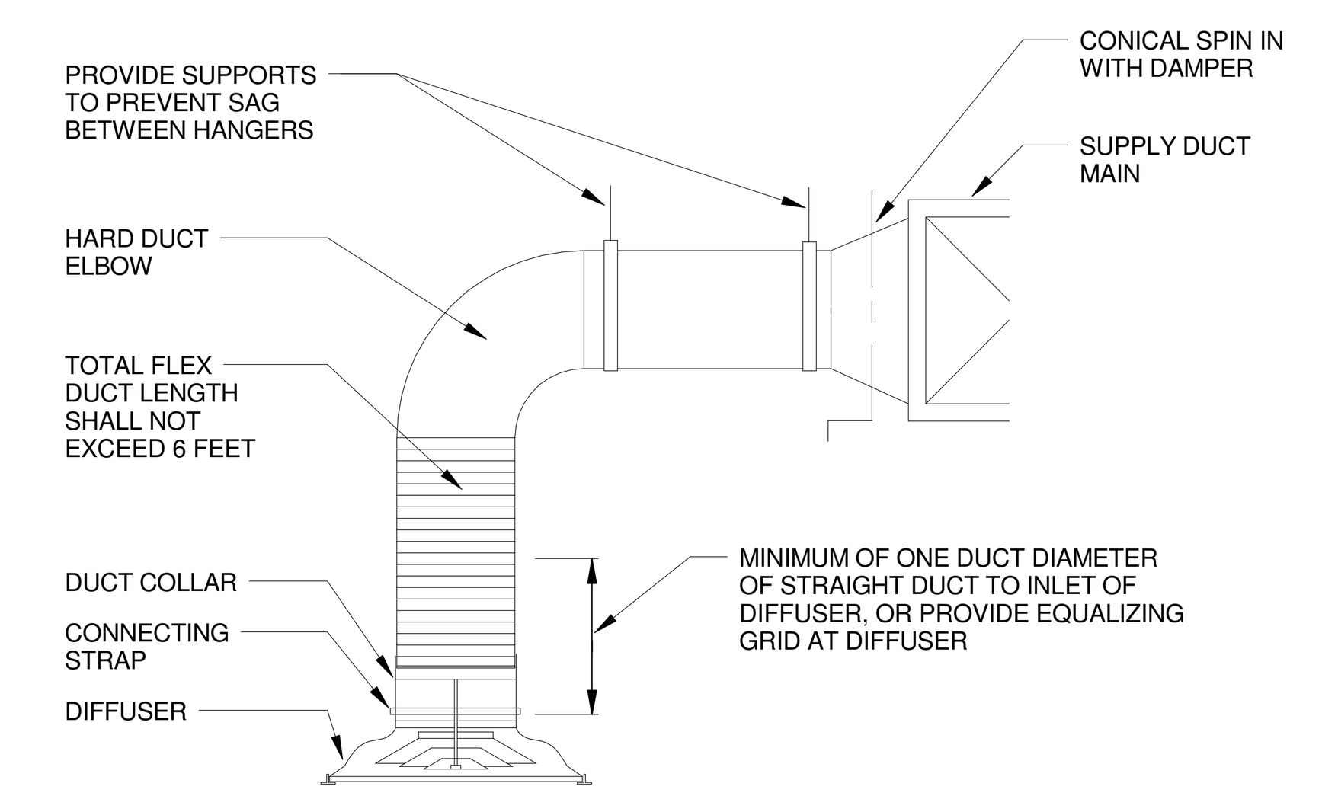
7 / M4.1 SPIN COLLAR FREXIBLE DUCT CONNECTOR WITH DAMPER
NO SCALE



4 / M4.1 DUCT TAKE-OFF DETAIL
NO SCALE



3 / M4.1 DUCT OR PIPE WALL AND FLOOR PENETRATION DETAIL
NO SCALE



2 / M4.1 DIFFUSER FLEXIBLE DUCT CONNECTION
NO SCALE

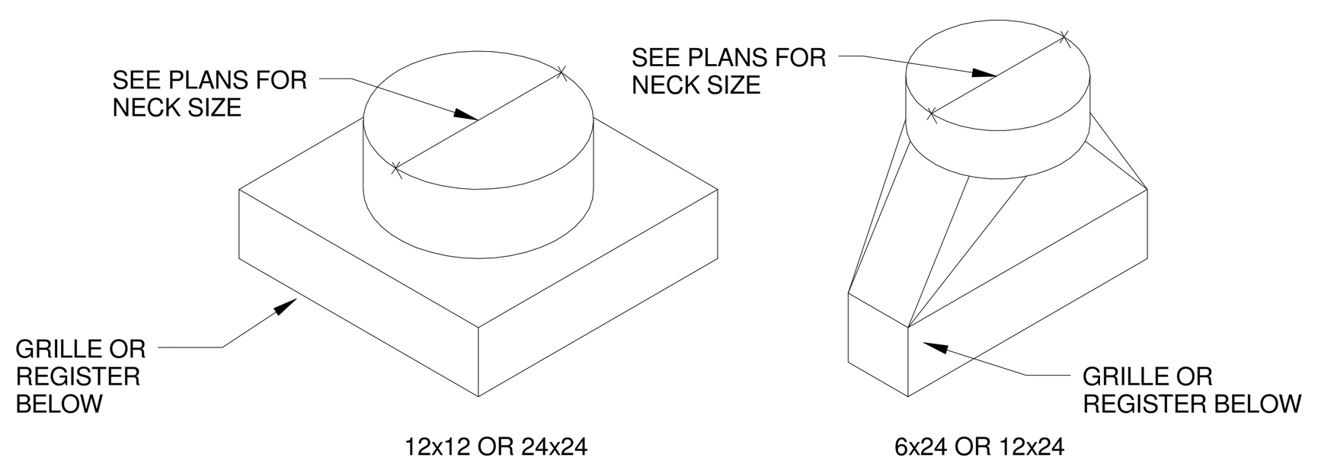
PLUMBING FIXTURE SCHEDULE

FIXTURE SYMBOL	FIXTURE DESCRIPTION	PIPE SIZE WASTE	PIPE SIZE VENT	PIPE SIZE CW	PIPE SIZE HW	REMARKS
SK-1	1-COMPARTMENT SINK	2"	1 1/2"	1/2"	1/2"	STAINLESS STEEL

AIR TERMINAL SCHEDULE

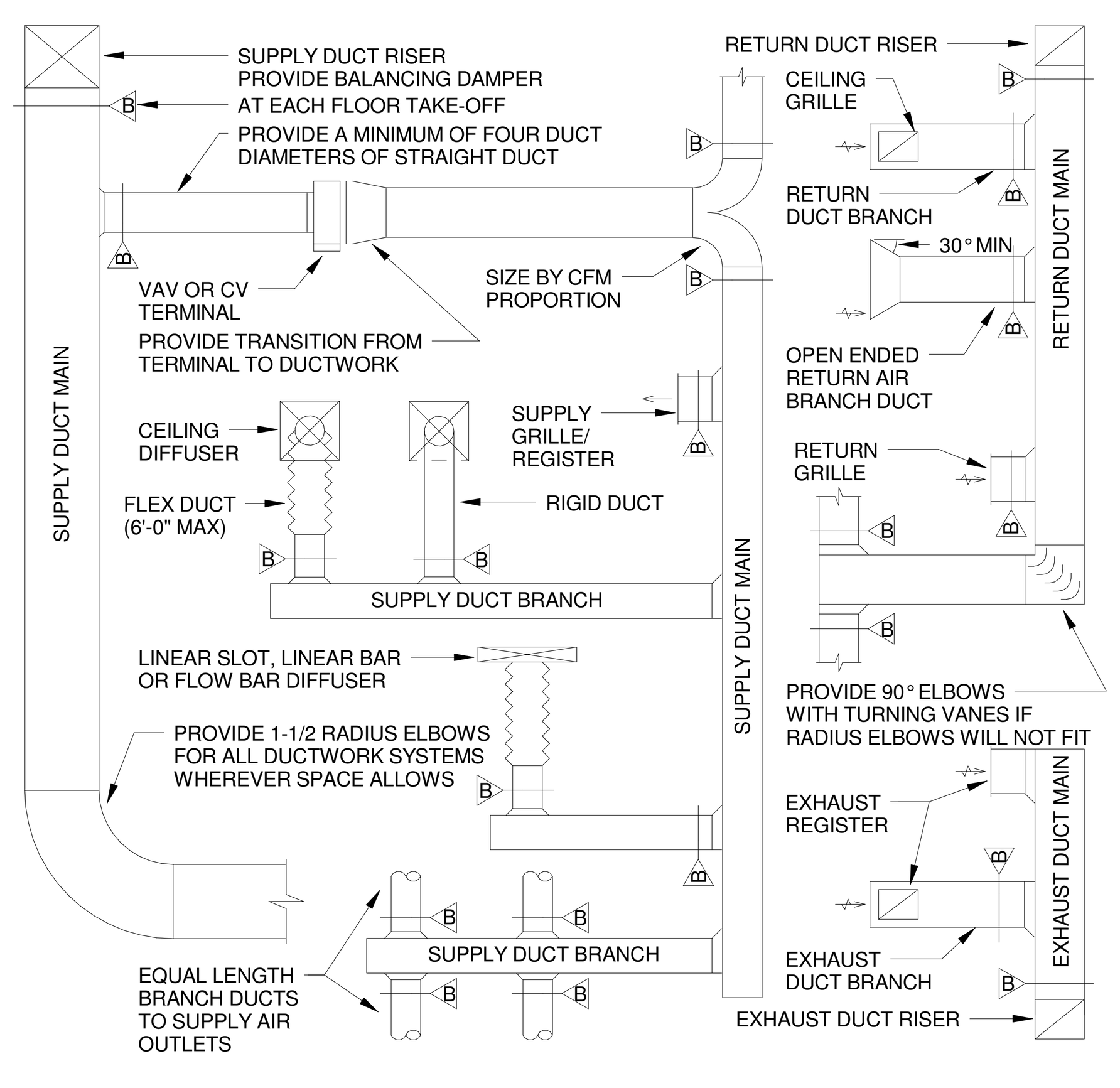
TYPE	SERVICE	MANUFACTURER	MODEL NO.	VOLUME DAMPER	FINISH	FRAME & BORDER TYPE	MATERIAL	DESCRIPTION
A	CEILING DIFFUSER	TITUS	TMSA	---	WHITE ENAMEL	NOTE 1	STEEL	24x24 MODULAR FULL-FACE DIFFUSER WITH ROUND NECK
B	CEILING DIFFUSER	TITUS	TMSA	---	WHITE ENAMEL	NOTE 1	STEEL	12x12 MODULAR FULL-FACE DIFFUSER WITH ROUND NECK
H	SUPPLY REGISTER	TITUS	300RL	OPPOSED BLADE DAMPER	WHITE ENAMEL	NOTE 1	STEEL	DOUBLE DEFLECTION REGISTER WITH FRONT BLADES PARALLEL TO LONG DIMENSION. 3/4" SPACING.
M	CEILING RETURN / TRANSFER GRILLE	TITUS	50F	---	WHITE ENAMEL	NOTE 1	ALUMINUM	1/2" x 1/2" x 1" EGGCRATE GRID.
Q	TRANSFER GRILLE	TITUS	350RL	---	WHITE ENAMEL	NOTE 1	STEEL	35 DEG. FIXED DEFLECTION GRILLE WITH BLADES IN HORIZONTAL POSITION. 3/4" SPACING.

NOTE: CONTRACTOR TO VERIFY CEILING TYPE AND PROVIDE PROPER FRAME AND BORDER TYPE.

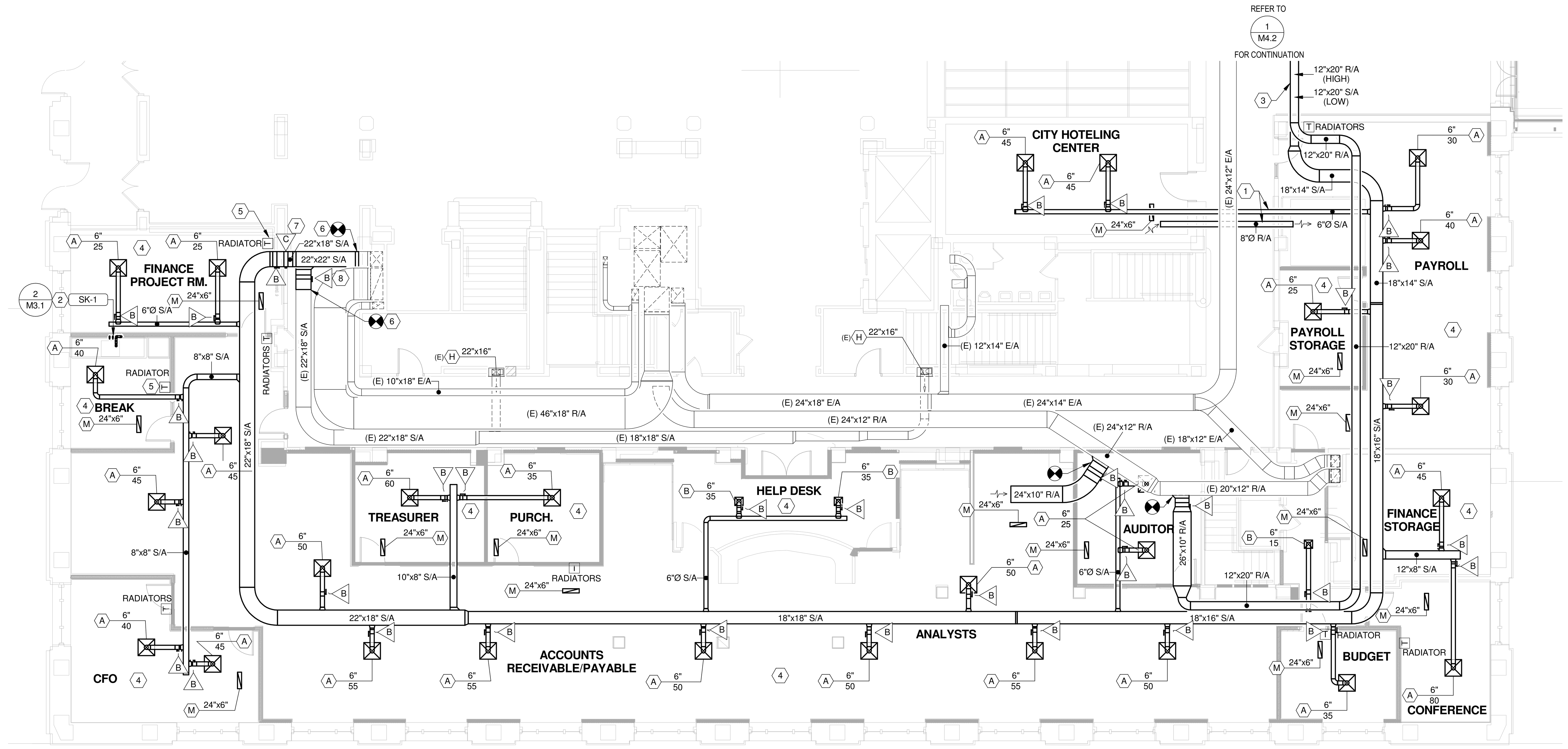


6 / M4.1 GRILLE & REGISTER BOOT DETAIL
NO SCALE

NOTES:
1. REFER TO HVAC FLOOR PLANS FOR DUCT SIZES
2. REFER TO SCHEDULES FOR GRILLES, REGISTERS, DIFFUSERS AND TERMINAL SIZES AND TYPES
3. PROVIDE A MANUAL TYPE BALANCING DAMPER FOR EACH SUPPLY OUTLET AND RETURN INLET
4. ALL DUCT RUNOUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSER NECK SIZE, UNLESS OTHERWISE NOTED
5. FLEX DUCT WILL NOT BE ALLOWED ON RETURN OR EXHAUST DUCTWORK SYSTEMS
6. PROVIDE 12" AIR CUSHION AT THE END OF EACH SUPPLY MAIN AND BRANCH DUCT
7. INDIVIDUAL BRANCH BALANCING DAMPERS NOT REQUIRED FOR SUPPLY OR EXHAUST REGISTERS



5 / M4.1 DUCTWORK INSTALLATION DIAGRAM
NO SCALE



1 / M4.1 PARTIAL FIRST FLOOR PLUMBING, HVAC, AND FIRE PROTECTION PLAN - SOUTH END
1/8" = 1'-0" 0 4' 8' 16'

NORTH

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Date 09/19/14 Reg. No. 18261

FIRST FLOOR PLUMBING, HVAC, AND FIRE PROTECTION PLAN - SOUTH

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DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
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Job No. 83166	Date 09/19/14
Drawn By: K. DAVIS	Drawer

Sheet:
M4.1
of: X

KEYNOTES:

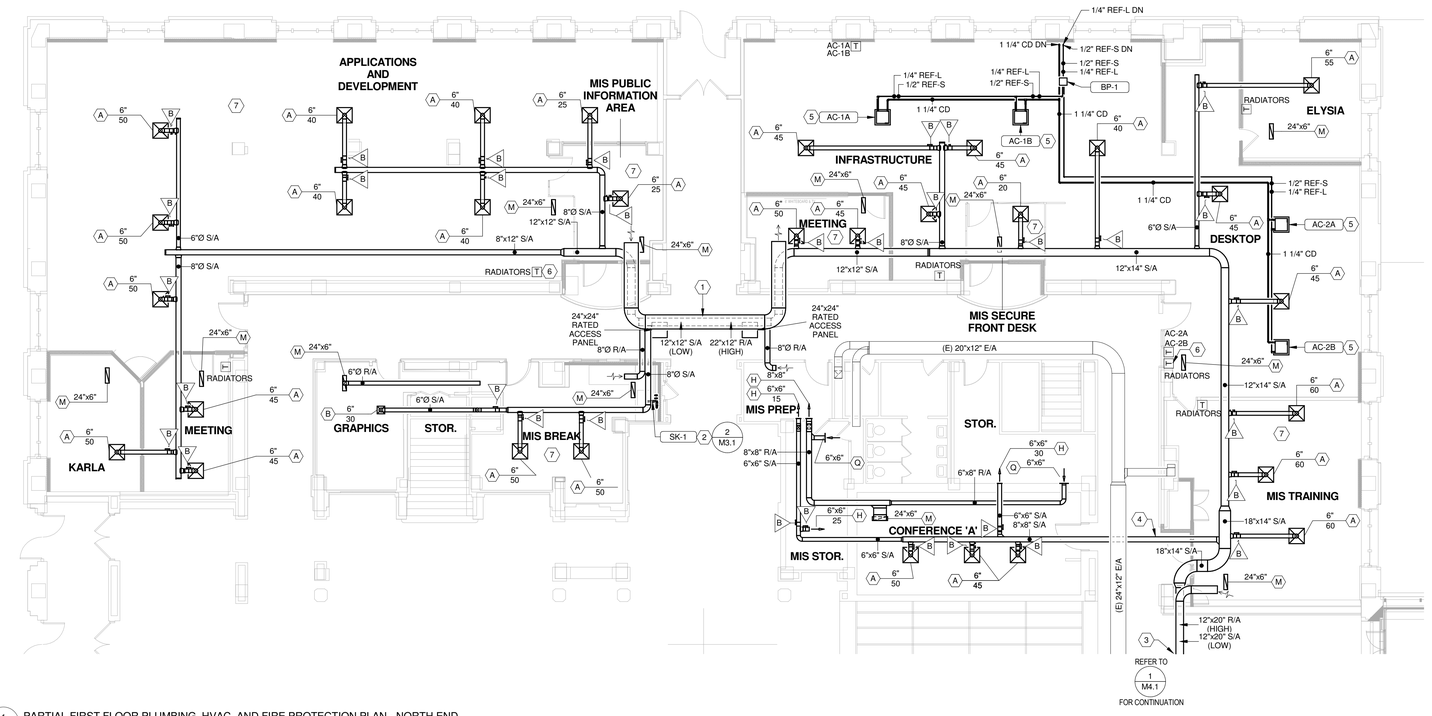
1. THIS DUCTWORK ROUTED ABOVE EXISTING PLASTER CEILING. PROVIDE WALL OPENINGS EACH SIDE FOR DUCTWORK INSTALLATION. PROVIDE RATED ACCESS PANELS AS INDICATED.
2. HOT WATER, COLD WATER, SANITARY, AND VENT PIPING UP FROM BELOW. ISLAND VENT SINK AND RUN PIPES ABOVE CEILING IN GROUND FLOOR.
3. EXTEND SOFFIT FACE TO ENCLOSE DUCTWORK CROSSING THE CORRIDOR. EXTEND EXISTING SPRINKLER HEAD AS REQUIRED FOR MODIFIED SOFFIT.
4. DUCTWORK CROSSINGS OVER EXISTING CORRIDOR/LOBBY PLASTER CEILINGS SHALL BE INSTALLED WITHOUT CUTTING AND PATCHING IN PUBLIC CORRIDORS. PROVIDE WALL OPENINGS AS REQUIRED AND PATCH TO MATCH EXISTING.
5. COOLING SYSTEM IS TEMPORARY AND SHALL BE INSTALLED AND REMOVABLE WITH THE LEAST AMOUNT OF IMPACT ON THE SPACE.
6. INSTALL NEW THERMOSTAT TO CONTROL EXISTING STEAM RADIATORS
7. MODIFY EXISTING FIRE PROTECTION SYSTEM AS REQUIRED TO ACCOMMODATE THE NEW FLOOR PLAN AND NEW CEILING TYPES.

BRANCH PROVIDER SCHEDULE

UNIT NO.	LOCATION	MANUFACTURER	MODEL NO.	REMARKS
BP-1	MIS EAST	DAIKIN	BPMKS048A2U	2 PORTS

AC UNIT SCHEDULE

UNIT NO.	AREA SERVED	MANUFACTURER	MODEL NO.	AIRFLOW	TOTAL COOLING CAP.	ENTERING AIR TEMP.	LEAVING AIR TEMP.	VOLTAGE	PHASE	REMARKS
AC-1A	MIS EAST	DAIKIN	FFQ12LVJU	353 CFM	12000 Btu/h	90.0 °F	58.5 °F	208 V	1	TEMPORARY COOLING
AC-1B	MIS EAST	DAIKIN	FFQ12LVJU	353 CFM	12000 Btu/h	90.0 °F	58.5 °F	208 V	1	TEMPORARY COOLING
AC-2A	MIS EAST	DAIKIN	FFQ12LVJU	353 CFM	12000 Btu/h	90.0 °F	58.5 °F	208 V	1	TEMPORARY COOLING
AC-2B	MIS EAST	DAIKIN	FFQ12LVJU	353 CFM	12000 Btu/h	90.0 °F	58.5 °F	208 V	1	TEMPORARY COOLING



1 M4.2 PARTIAL FIRST FLOOR PLUMBING, HVAC, AND FIRE PROTECTION PLAN - NORTH END

1/8" = 1'-0"

0 4' 8' 16'

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Sheet: M4.2
of: X

LIGHTING

	MOUNTING HEIGHT
A — FIXTURE TYPE; 21 — CEILING OUTLET SWITCH CIRCUIT NO.	
A — SWITCH; A — FIXTURE TYPE; 21 — CIRCUIT NO.	
RECESSED OUTLET	
BRACKET FIXTURE	AS NOTED
LED FIXTURE	
BRACKET LED FIXTURE	AS NOTED
EXIT LIGHT FIXTURE; DENOTES WALL MOUNTED; DENOTES ARROW DIRECTION	
DENOTES NUMBER OF HEADS	
EBU — TWIN HEAD EMERGENCY BATTERY UNIT WITH LIGHTS, CHARGER AND BATTERY	
EBU-RC — EMERGENCY BATTERY UNIT WITH REMOTE CAPABILITY	
ELRH — EMERGENCY LIGHT WITH SINGLE REMOTE HEAD	
ELRH — EMERGENCY LIGHT WITH DOUBLE REMOTE HEADS	

SWITCHES

SWITCH 1-POLE	48"
3 OR 4 WAY SWITCH.	48"
2 — POLE SWITCH	48"
SWITCH & PILOT	48"
MASTER ON/OFF SWITCH	48"
MASTER DIMMER SWITCH (SIZE AS REQUIRED)	48"
DIMMER SWITCH (SIZE AS REQUIRED)	48"
KEY SWITCH	48"
OCCUPANCY SENSOR — CEILING TYPE	
OCCUPANCY SENSOR — WALL TYPE	48"
DAYLIGHT SENSOR	48"
TIME CLOCK	

NOTE: MOUNT SWITCHES AT 46" A.F.F. IN BLOCK COURSE WALLS.

RECEPTACLES

DUPLEX RECEPTACLE	18" OR AS NOTED
DOUBLE DUPLEX RECEPTACLE	"
DUPLEX REC. TOP HALF SWITCHED	"
120/208/240 VOLT RECEPTACLE	"
GFI — GROUND FAULT INTERRUPTER; DUPLEX RECEPTACLE (FEED THRU TYPE)	"
WP — WEATHERPROOF GFI RECEPTACLE	"
FLOOR OUTLET	
PLUG-IN-STRIP	AS NOTED

NOTE: MOUNT OUTLETS AT 16" A.F.F. IN BLOCK COURSE WALLS.
NOTE: MOUNT OUTLETS ABOVE BASEBOARD RADIATION AT 24".

MOTORS

MOTOR OUTLET — SEE SCHEDULE (REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS)	
STARTER	48"
LOCKABLE DISCONNECT SWITCH	48"
COMBINATION STARTER DISCONNECT	48"

OTHERS

PUSH BUTTON	48"
THERMOSTAT	54"
RELAY	54"
SPECIAL PURPOSE OUTLET	AS NOTED
JUNCTION BOX	
T — TRANSFORMER (GROUND PER NEC)	AS NOTED
CABLE TRAY	

FIRE ALARM

MANUAL PULL STATION	48"
FIRE ALARM AUDIBLE/VISUAL DEVICE (HORN/STROBE) 15 CANDELA	MOUNT 80" A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER.
FIRE ALARM AUDIBLE/VISUAL DEVICE (HORN/STROBE) 30, 60, 95, 110 CANDELA STROBE	MOUNT 80" A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER.
FIRE ALARM AUDIBLE DEVICE (HORN)	MOUNT 80" A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER.
FIRE ALARM VISUAL DEVICE (STROBE) 15 CANDELA	MOUNT 80" A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER.
FIRE ALARM VISUAL DEVICE (STROBE) 30, 60, 95, 110 CANDELAS	MOUNT 80" A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER.
THERMAL DETECTOR	
S — SMOKE DETECTOR	
D — DUCT SMOKE DETECTOR	

SIGNALS

TELEPHONE	18" OR AS NOTED
W — TELEPHONE — WALL MOUNTED	48"
TELEPHONE FLOOR OUTLET	
VOICE/DATA OUTLET	18" OR AS NOTED
C — VOICE/DATA — CAMERA	
WAP — VOICE/DATA — WIRELESS ACCESS POINT	
TELEPHONE TERM.	
A — 6-PORT VOICE/DATA OUTLET (SINGLE GANG BOX)	

SECURITY

DOOR SWITCH	48"
C — TV CAMERA OUTLET	AS NOTED
M — TV MONITOR OUTLET	AS NOTED
MOTION DETECTOR	AS NOTED
CR — CARD READER	48"
KP — KEY PADS	48"
SCP — SECURITY CONTROL PANEL	

HOMERUN

- LP3N-101 3,4,5 — 3 — SINGLE POLE CIRCUITS CIRCUIT NO.'S
- LP3N-101 2/3 — 1 — TWO POLE CIRCUIT CIRCUIT NO./BREAKER
- LP3N-101 3/3 — 1 — THREE POLE CIRCUIT CIRCUIT NO./BREAKER

EXISTING OUTLETS & CONDUITS

- EXISTING CONDUIT
- INTERCEPT EXISTING CONDUIT & EXTEND AS SHOWN
- E — EXISTING OUTLET WITH NEW FIXTURE OR DEVICE. PATCH AS REQUIRED, REMOVE EXISTING FIXTURE & INSTALL NEW.
- E — REMOVE EXISTING FIXTURE OR DEVICE & BLANK OUTLET. PATCH AS REQUIRED.
- EX — REMOVE EXISTING RECEPTACLE & BLANK OUTLET.
- "EX" BEFORE A SYMBOL MEANS EXISTING
- EXFBH — REMOVE EXISTING F.A. BREAK GLASS STATION & BLANK OUTLET. PATCH AS REQUIRED.
- EXD — REMOVE EXISTING F.A. DETECTOR & BLANK OUTLET. PATCH AS REQUIRED.
- EX — EXISTING OUTLET & FIXTURE TO REMAIN.
- EX — EXISTING SWITCH TO REMAIN.
- EX — REMOVE EXISTING SWITCH & BLANK OUTLET PATCH AS REQUIRED.
- "X" PLACED OVER A DEVICE MEANS DISCONNECT AND REMOVE EXISTING DEVICE.

REFERENCE INDICATION

- 1 — SEE NOTE INDICATED BY NUMBER
- EQP1 — SEE EQUIPMENT SCHEDULE FOR MORE INFORMATION
- 1 — REVISION

PANEL DESIGNATION SYSTEM

L3N-101
①②③ ④ ⑤

① L = LIGHTING
P = POWER
D = DISTRIBUTION
S = SWITCHBOARD
M = MOTOR CONTROL CENTER
R = RELAY PANEL

② 1 = 120/240V-1Ø
2 = 240/3Ø
3 = 120/208V-3Ø
4 = 277/480V-3Ø
5 = -SPECIAL-

③ N = NORMAL POWER SOURCE
E = EMERGENCY POWER SOURCE
U = UNINTERRUPTIBLE POWER SOURCE

④ B = BASEMENT FLOOR
G = GROUND FLOOR
1 = FIRST FLOOR
2 = SECOND FLOOR
ETC.

⑤ 01 = PANELBOARD #1
02 = PANELBOARD #2
03 = PANELBOARD #3
ETC.

CONDUIT

- CONDUIT IN CEILING OR WALL
- CONDUIT IN FLOOR
- SR — SURFACE RACEWAY
- SC — SURFACE CONDUIT
- SEE NOTES OR SPEC. FOR PARTICULAR SYSTEM

PROVIDE QUANTITY OF #12 CONDUCTORS IN 1/2" CONDUIT, MINIMUM, TO OBTAIN SWITCHING AND POWER FEED CIRCUITING AS SHOWN.

* NOTE *

ALL OF THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

INDEX OF ELECTRICAL DRAWINGS

DIVISION 26 - ELECTRICAL WORK

BASIC ELECTRICAL REQUIREMENTS

SECTION 26001 - REFERENCES

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to work of this section.

SECTION 26010 - SUMMARY OF ELECTRICAL WORK

Scope of Work

Provide all labor, materials, equipment and services necessary for the installation and completion of the Electrical Work. In general, this includes but is not limited to the following:

Wiring for Power and Lighting — Security Provisions — Lighting Control System
Lighting Fixtures — Voice/Data
Low Voltage — Fire Alarm

Provide a complete installation of the type specified, ready for use by the owner. Parts or equipment not specifically mentioned but necessary for a complete installation shall be furnished and installed.

Workmanship

The work shall be done in a workmanlike manner by persons experienced and skilled in the trade.

Current Characteristics

The current supply for lighting and power is 120/208 volts, three phase, 4 wire connected. Electricity will be obtained from the existing building service and distribution.

Inspection of Site

Before submitting a proposal for the work, examine the site, investigate the means of connecting services, and become familiar with all site conditions and limitations. No extras will be allowed because of this Contractor's misunderstanding of the amount of work involved due to his lack of knowledge of site conditions and/or project requirements.

Demolition

Provide necessary demolition to facilitate new construction work associated with this project, coorindate all outages with owner minimum 72 hours in advance, owner retains right to first salvage. Provide disposal of all removed material. Maintain circuit continuity as required.

General

It is the intent of these diagrammatic drawings to provide project scope, including but not limited to demolition, phased demolition, and new construction. Existing information indicated on these plans does not represent all existing conditions. This contractor shall become familiar with existing conditions, scope of phasing, and project intent prior to bid submission. No extras will be allowed due to the lack of knowledge of existing conditions.

SECTION 26015 - ELECTRICAL SYSTEM PERFORMANCE

Codes, Permits and Fees

Electrical work shall comply with the 2014 edition of the National Electric Code, including State and Local Building Code. If, in any instance, Local Building Code, If, in any instance, the plans and specifications conflict with such laws or applicable codes and standards, the law the law, code, or standard shall take precedence. This, however, shall not be construed as relieving the Contractor from complying with any requirements of the drawings and specifications that may be in excess of the rules and not contrary to the same.

The Contractor shall obtain the necessary permits and pay all required fees, including code required submittals.

Manufacturer's Directions: Install or apply manufactured material according to the manufacturer's directions, unless specifically designated otherwise.

SECTION 26020 - ELECTRICAL COORDINATION

Coordination With Other Contractors

Coordinate the work with that of other contractors, to avoid interferences, and to expedite the work of each.

Temporary Light and Power

Provide facilities for temporary light and power, including those not affected by demolition.

SECTION 26025 - ELECTRICAL SUBMITTALS

Shop Drawings and Manufacturer's Data

Submit for review shop drawings and manufacturer's standard product information for lighting. Such submittals shall first be checked and stamped by the contractor and submittals to Architect for approval. Electronic submittals are acceptable.

Maintenance Manual

Prepare a complete maintenance manual covering the equipment furnished including shop drawings, wiring diagrams, catalogs, operating and maintenance instructions. Information shall be typewritten or printed material neatly folded to 8 1/2" x 11" size and bound in a sturdy manila folder or loose leaf notebook. When the portfolio is complete, it shall be turned over to the Architect or transmittal to the Owner. The The Maintenance Manual shall also include completed As-Constructed drawings that include all field revisions.

SECTION 26035 - ELECTRICAL PRODUCTS

Laboratory Listing

All electrical materials and equipment, for which such service is available, shall be that which is listed by the Underwriter's Laboratory Inc. (UL), Factory Mutual, or other nationally recognized laboratory approved by the Architect.

Substitution of Brands of Materials

The request for permission to substitute another brand must be made by the contractor not by a subcontractor or material supplier, and must be accompanied by complete information for approval by Architect.

To be "equivalent" shall mean to possess the same performance qualities and characteristics and fulfill the utilitarian function without any decrease in quality, durability and longevity, but not necessarily identical. It must be of such size and shape as to fit into the available space with room for servicing where such is necessary.

In case such substituted equipment or material causes additional cost to any other portion of the work of this or other Contractors, such additional cost shall be borne by the Contractor making the substitution. Refer to light fixture schedule and bid form for alternate pricing requirments.

SECTION 26040 - CLOSEOUT

Instructions to Owner's Personnel

Instruct the Owner's personnel in the operation and maintenance of the equipment supplied in this contract. This included a minimum of two (2) four hour training sessions, one at close out and second within 90 days per owner schedule, including required system adjustments.

SECTION 26045 - ELECTRICAL RELATED WORK

Cutting and Patching

The Contractor shall perform all necessary cutting and shall patch where he has damaged other work.

Patching shall be done in such a manner as to return the parts affected to the condition of undisturbed work. Consult the Architect and Engineer before cutting structural members of finished materials.

Openings around electrical penetrations through fire resistance rated walls, partitions, floors or ceilings shall be fire stopped using approved methods, such as 3M "Fire Barrier", or approved equivalent. All penetrations associated with raceway installation through floor and beams (approved by architect) shall be core drilled. Hammer drill or similar methods are strictly prohibited.

BASIC MATERIALS AND METHODS

SECTION 26110 - RACEWAYS

PART 1 - GENERAL

Install above floor interior conductors in EMT unless noted otherwise. Provide steel set screw connectors and couplings.

PART 2 - PRODUCTS

Connectors and couplings for raceway shall be of steel set screw type. Malleable type fittings will not be accepted. Provide related PVC components and materials per manufacture requirements.

Provide 2 channel power poles as manufactured by Hubbell or equivalent. Color by architect.

PART 3 - EXECUTION

Raceways, surface mounted and installed in a workmanlike manner, rigidly supported, and square with the building construction.

Pull boxes shall be installed in long runs where necessary to facilitate pulling wires. Provide vertical conductor support per NEC. Expansion fittings shall be furnished and installed where conduits run through building expansion joints, these to be O.Z. type AX, or approved equivalent. Follow manufacturer's instruction as to installation of the joints.

Seal around raceways where they pass through floors, walls, or transitions.

SECTION 26120 - WIRES AND CABLES

PART 1 - GENERAL

Furnish and install conductors and cables for all systems. Conductors shall be UL listed for the purpose.

PART 2 - PRODUCTS

Conductors for branch circuits and feeders shall be copper. Insulation for conductors #8 and smaller shall be type THWN, THHN and for larger sizes shall be type THHW or THWN. The wire size for branch circuits shall be #12 as a minimum for receptacles and #10 for lighting, and larger where so indicated on the drawings. Solid conductors for sizes smaller than #8 AWG, stranded for #8 AWG and larger.

PART 3 - EXECUTION

Conductors shall be carefully handled and installed in accordance with manufacturer's directions.

Branch circuit conductors shall be color coded as required by NEC. Neutrals shall be white or gray, and ground wires shall be green.

Connections and lugs shall be UL listed for the type of cable being used. All cables and conductors to be installed in raceway.

SECTION 26130 - OUTLET BOXES

Outlet boxes shall be of type suitable to their use, and of size required by code. They shall be galvanized steel, except that those exposed to the weather shall be cast alloy with a gasket. Boxes shall not be mounted back to back. At common wall partitions in offices, install boxes with at least one stud between outlets.

SECTION 26142 - CONNECTIONS TO EQUIPMENT

Make electrical connections to all equipment shown on the drawings by equipment symbol. Ahead of each peace of equipment furnish and install a disconnect in accordance with code requirements. Field verify all connection requirements.

SECTION 26143 - WIRING DEVICES

PART 1 - GENERAL

Furnish and install wiring devices of Bryant, Hubbell, Sierra, Leviton, P & S, G.E., Slater, A-H, or approved equivalent manufacturer.

PART 2 - PRODUCTS

Switches: Each switch outlet shall be spec grade equipped with a 20 ampere rocker switch, color to match existing, in poles required, rated at T20 volts. Switch handle color shall match existing.

Occupancy Sensors: Furnish and install devices and associated system wiring best suited to location shown. Provide dual technology type OS to control lighting associated with space that's indicated on drawings.

Receptacles: Each receptacle outlet shall be spec grade equipped with a 20 ampere duplex plug receptacle of the three pole grounding color to match existing.

Ground-Fault Interrupters: Provide "feed-thru" type ground- fault circuit interrupters, with heavy-duty duplex receptacles, termination type, being installed in a 2-3/4" deep outlet box without adapter, grounding type UL-rated Class A, Group 1, rated 20 amperes, 120 volts, 60 Hz, with solid state ground-fault sensing and signaling; with 5 milliamperes ground-fault trip level; equip with NEMA configuration 5-20R. Receptacles on the outside of the building shall each have a gasketed spring lift UL listed IN USE "WP" coverplate and stainless steel mounting screws mounted vertically with a duplex U ground GFI 20A receptacle.

Plates: All wall mounted devices shall be equipped with stainless steel #302 plates in configurations required.

SECTION 26195 - IDENTIFICATION

Devices shall be identified by various means as described below and elsewhere in this specification. Loads shall be described by their usage, not by machine numbers or room numbers on the drawings. Provide in permanent black marker circuit number on back of faceplate on a wiring compartment of lighting fixtures.

SECTION 26470 - PANEL BOARDS AND CABINETS

PART 1 - GENERAL

Panel boards are existing to remain. Provide circuit breakers as required for new equipment/devices.

Furnish and install dead-front panelboards with switching and overcurrent protective devices in quantities, ratings, types, and arrangements shown. Equip with aluminum bus bars, full sized neutral bar, and ground bus. Provide bolt-in type heavy-duty, thermomagnetic circuit breakers. Manufacturer to be Eaton Cutler Hammer or equivalent. Provide shop drawings for the Architect's and Engineer's review.

PART 2 - PRODUCTS

Circuit Breakers: Circuit breakers shall be molded case thermo-magnetic bolt-on type with quick make and quick break, and with a minimum of 10,000 rms amperes symmetrical interrupting capacity. Breakers shall have a higher interrupting capacities where called for on the schedule. Multiple pole breakers shall have a common trip. Provide handle ties for breakers associated with furniture system that share neutrals.

PART 3 - EXECUTION

Circuit Directories: Each cabinet shall be equipped with a carefully prepared and typed directory circuits reflecting as-built conditions (new and existing) behind a clear plastic sheet, made out using room names or numbers on the doors, not the numbers on the drawings. Verify with Owner prior to final typing.

Cleaning: Before the final inspection, the interior of the cabinet shall be cleaned of debris, and the panels and fronts shall be cleaned of paint and dirt.

SECTION 26510 - LIGHTING FIXTURES

PART 1 - GENERAL

Provide light fixtures type as indicated on plans. Install in accordance with manufacturer requirements.

PART 3 - EXECUTION

All fixtures shall be substantially supported. LED and fluorescent fixtures shall be supported from structural members of the building. Furnish and install structural steel angles where required to span between joists or runner channels to accomplish this purpose. Bolts used to support lighting shall be at 1/4" diameter with washers.

Any accumulation of dust and dirt shall be wiped off the fixtures, lamps and lenses before the final inspection.

SECTION 26923 - DIGITAL OCCUPANCY AND DAYLIGHT MANAGEMENT CONTROL SYSTEM

PART 1 - GENERAL

SUMMARY:

The intent of this set of specifications is to provide a complete, functional, intelligent, low-voltage lighting control system for the control of LED lighting sources.

Where shown on the drawings, the contractor shall furnish and install a complete low voltage lighting control system consisting of, but not limited to, relays, contactors, controllers, enclosures, switch station and miscellaneous components as required for a complete and operable lighting control system.

Where applicable standards have been established, all items of equipment, individual components and installation methods shall meet the requirements of these standards, including, but not limited to, Underwriter Laboratories (UL), the National Electrical Code (NEC), Federal Communications Commission (FCC) and any local or state codes that may be applicable.

Low-voltage lighting control systems manufactured by the following manufacturers , or pre-approved equivalent, shall be considered provided they meet the requirements of these specifications and provide the quality and performance specified herein,

1. ILC - Intelligent Lighting Controls, Inc.

Listing of a manufacturer as acceptable does not in any way relieve the contractor from the responsibility for providing a lighting control system that meets all the requirements of these specifications.

All manufacturers shall submit to the specifying engineer a line-by-line compliance comparison between each specifications requirement and the system being proposed.

All manufacturers shall submit to the specifying engineer a line-by-line compliance comparison between each specifications requirement and the system being proposed.

Any ambiguities in the drawings or specifications shall be brought to the attention of the specifying engineer for clarification.

SECTION 27000 - GENERAL PROVISIONS FOR COMMUNICATIONS

PART 1 - GENERAL

Common Work Results: Remove existing Category 5 cables at existing workstation and copier locations that are part of this renovation; cables, connectors, and patch panels no longer in use and removed in the renovated areas shall be disposed of by the Contractor. Utilize existing 4-post open frame server racks for new Category 6 and 6a work. Coordinate phasing of Category 6 system installation. Provide new Category 6 and 6a horizontal cables, faceplates, adaptor plates, patch panels, patch cables, cable supports and accessories necessary to provide the Owner with a complete and operational communications cabling system for voice/data locations indicated on the drawings. Provide Category 6a cables at all WAP locations. Label, test, and document Category 6 and 6a cabling. It is the contractors responsibility to maintain service continuity to staff not affected by construction.

Operation, Maintenance, and Warranties: Communication systems shall be fully functioning and shall be demonstrated as operational prior to substantial completion. Telecommunications cabling system and workmanship shall be warranted by the contractor for a period of one year for the time of substantial completion. The Category 6 and 6a communications cabling system shall be covered by the manufacturer for a minimum period of 15 years. The Category 6 and 6a extended warranties shall be an applications assurance warranty offered by the connectivity hardware manufacturer.

PART 2 - PRODUCTS

Cable Supports: Cable hooks (J-hooks) shall be 2-inch wide full radius cross-section to support cables without sagging or crimping; include all required fasteners for cable supports. J-hooks shall be product from Chatsworth "RapidTrack", "Caddy", "B-Line", Arlington plastic support, or prior approved equal.

Termination Blocks and Patch Panels: Horizontal computer and workstation data cables will be terminated on rack mounted Category 6 and 6a patch panels mounted in the equipment rack. Patch panels shall be 24 or 48 ports (sized as required for quantity of new cables plus a minimum of 10% spare ports) and shall be product from Commscope, Leviton, Hubbell, OCC, Ortronics, Panduit, Tyco or prior approved equal.

Copper Horizontal Cable: Horizontal voice and data cable shall be Category 6 and Category 6a (WAP locations only) and shall be one of the following products: Berk-Tek (LANmark 2000), Commscope (UltraPipe), General (GenSPEED 6500), Hitachi (Supra 660), Superior Essex (DataGrain 6+), or prior approved equal. Industry standard conductor insulation color coding (blue, orange, green, brown).

Faceplates and Connectors: Faceplates for all workstations outlets shall be high impact plastic and shall provide for flush mounting of jacks; color for faceplates and jacks shall match existing. Faceplates shall have a clear plastic cover over the label compliant with TIA/EIA 606 work area labeling standard. Jacks shall be of the same manufacturer as the Category 6 patch panels.

Patch Cords: Copper patch cords shall be from the same manufacturer as the Category 6 patch panels. Furnish two patch cords for every voice and data workstation outlet (one 5-feet and one 10-feet in length).

PART 3 - EXECUTION

Pathways: The main communications pathways for the communication cabling system including workstation junction boxes, conduits, floor boxes, power poles, and furniture system will be specified in the electrical work and will be installed by the electrical contractor. When communications cables are not installed in conduit, the communications contractor shall provide a J-Hook cable support system (or Arlington plastic cable straps) or utilize existing cable tray system. Cable supports shall be installed at intervals not greater than 5 feet and shall be installed independent of other support systems.

Identification (Labeling): Identification and labeling for communications shall conform to ANSI/TIA/EIA 606 standards and match existing labeling system. Both ends of all communications cables, workstation jacks, patch panels, and equipment racks shall be labeled with permanent polyester labels and color coded as follows: Blue - Voice/Data, Green - WAP's, and Red - Cameras and Door Access.

Commissioning and Testing: The communications cabling contractor shall test all new Category 6 and 6a cabling. Provide the engineer with one electronic document of the detailed test report and two printed copies of summary test reports. Test reports shall have outlets identified matching labeling on faceplates; provide a neatly labeled set of drawings indicated voice/data outlet identification labels. The engineer will review the test results and forward all documentation to the Owner after test results are found to be satisfactory. Level III test equipment shall be utilized for testing the Category 6 and 6a cabling. All Category 6 and 6a cables shall exceed the parameters established by ANSI/TIA/EIA 568-C.2.

Structured Cabling: The voice and data cabling products and installation practices shall follow standards established in ANSI/TIA/EIA-568-C.1 and C.2 and ANSI/NECA/BICSI-568. Install voice and data cables in a "star" configuration from voice/data outlet locations to rack-mounted patch panels in the existing 4-post equipment racks.

Vertical and Horizontal Cable Management: Provide cable management, both vertically and horizontally, for new Category 6 and 6a cabling associated with existing server racks. Cable management system to be manufactured by Panduit Patchlink or approved equivalent.

SECTION 283100 - FIRE DETECTION AND ALARM

PART 1 - GENERAL

Provide fire alarm detection and/or notification devices as indicated on plan, match existing manufacturer and models. Install in accordance with manufacturer requirements.

NORTH

413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218)722-2555 FAX 722-9306
Project No. 83166

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.
DAVE T. BLUME
Date 09/19/14 Reg. No. 24671

TITLE SHEET AND SPECIFICATION

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

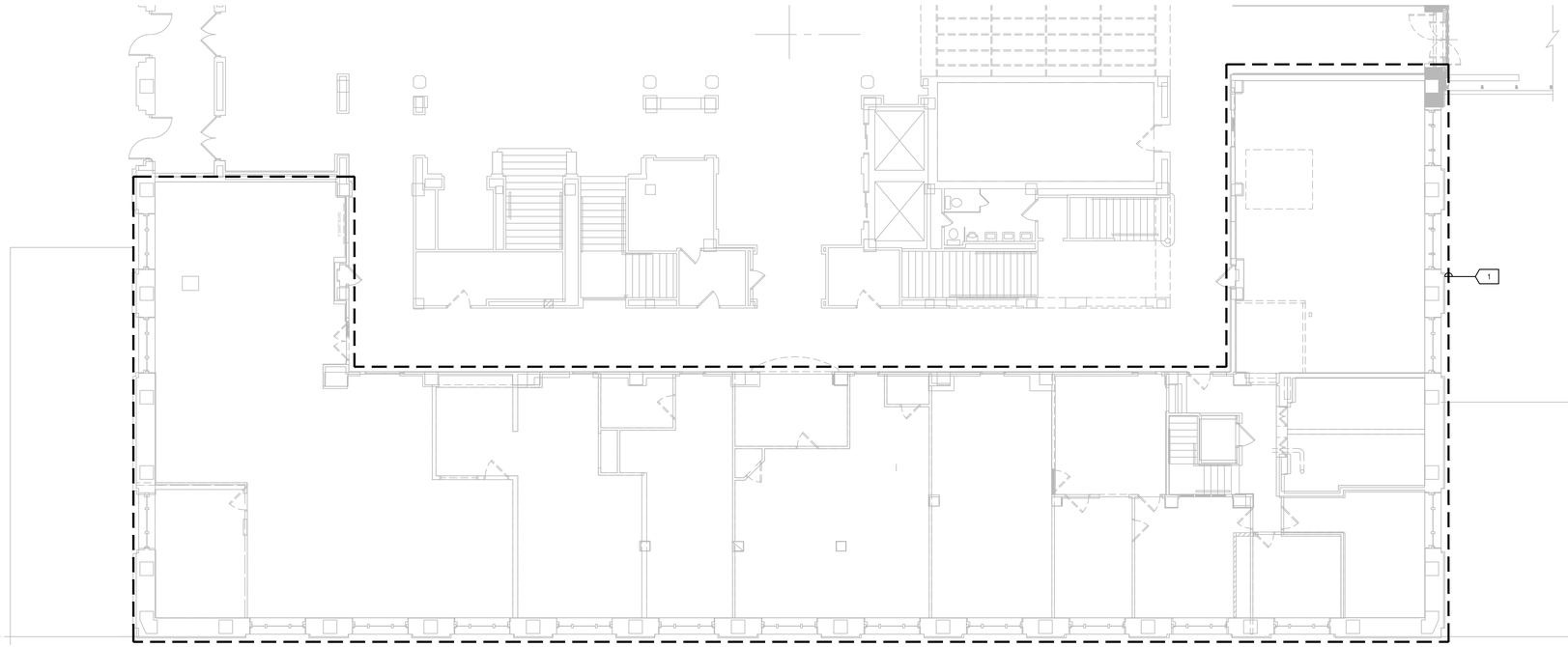
Job No. 83166	Date 09/19/14
Drawn By LAH	Drawer
Sheet: E1.0	
of: X	

GENERAL NOTES:

A IT IS THE INTENT OF THESE DIAGRAMMATIC DRAWINGS TO PROVIDE THE PROJECT SCOPE INCLUDING BUT NOT LIMITED TO DEMOLITION AND NEW CONSTRUCTION. EXISTING INFORMATION INDICATED ON THESE PLANS DOES NOT REPRESENT ALL EXISTING CONDITIONS. THIS CONTRACTOR SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS, SCOPE OF PHASING, AND PROJECT INTENT PRIOR TO BID SUBMISSION. NO EXTRAS WILL BE ALLOWED DUE TO THE LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

NUMBERED NOTES:

1 DISCONNECT AND REMOVE ALL LIGTHING, LIGHTING CONTROLS, RECEPTACLES, VOICE/DATA OUTLETS, TELEPHONE OUTLETS AND EQUIPMENT TO FACILITATE NEW CONSTRUCTION WORK ASSOCIATED WITH THIS PROJECT. COORDINATE ALL OUTAGES WITH OWNER MINIMUM OF 72 HOURS IN ADVANCE. OWNER RETAINS RIGHT TO FIRST SALVAGE. PROVIDE DISPOSAL OF ALL REMOVED MATERIAL.



1 / E2.1 PARTIAL FIRST FLOOR DEMOLITION PLAN - SOUTH END

SCALE: 0' 8'

NORTH W E S

413 GROUP

Gausman &Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218)722-2555 FAX 722-9306
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DAVE T. BLUME

Date 09/19/14 Reg. No. 24671

FIRST FLOOR DEMOLITION PLAN - SOUTH

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 83166	Date 09/19/14
Drawn By LAH	Drawer

Sheet: E2.1 of: X

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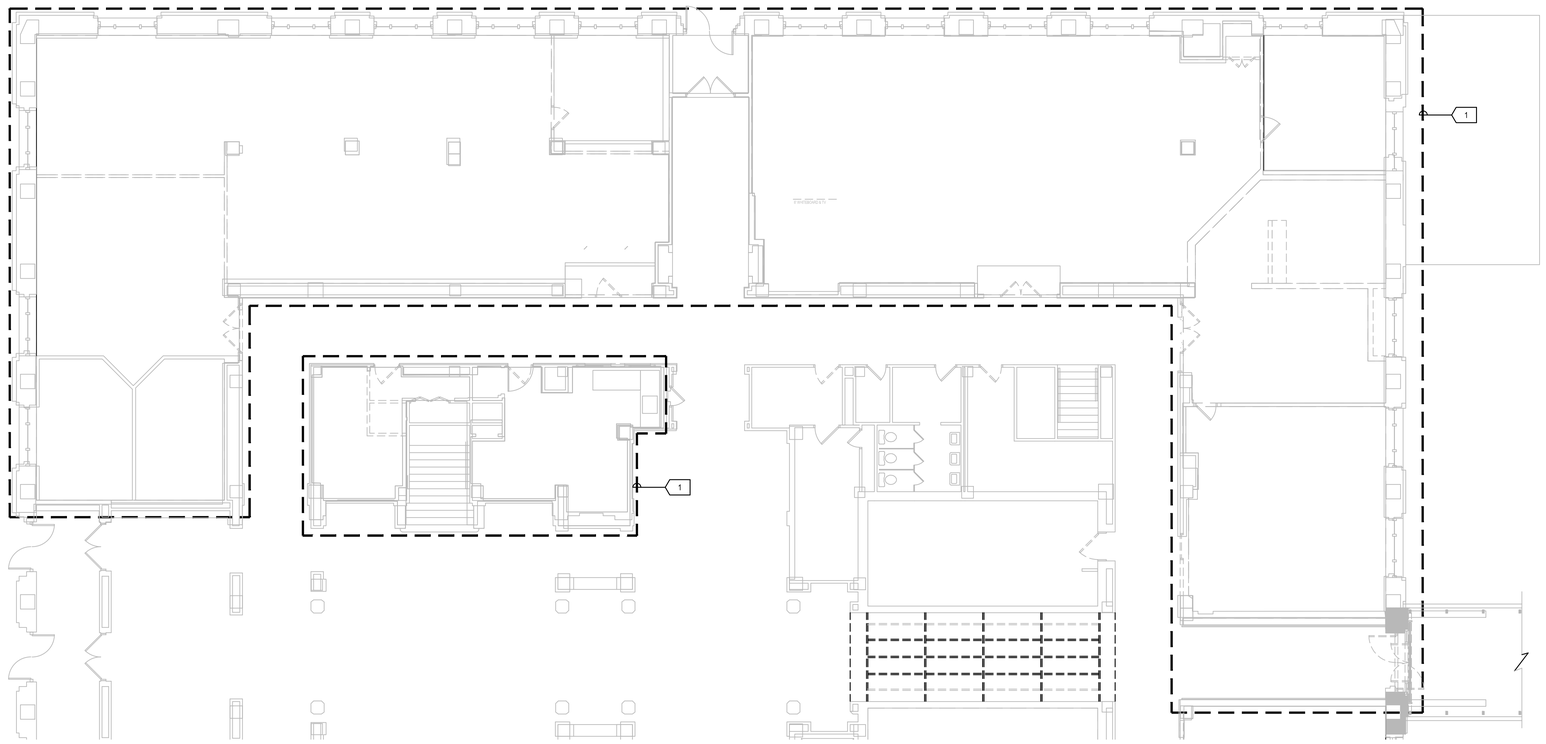


1 / E2.2 PARTIAL FIRST FLOOR DEMOLITION PLAN - NORTH END

SCALE: 0' 8'

NORTH
W E
S

413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218)722-2555 FAX 722-9306
Project No. 83166 ©

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.

DAVE T. BLUME

Date 09/19/14 Reg. No. 24671

FIRST FLOOR DEMOLITION PLAN - NORTH

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 83166	Date 09/19/14
Drawn By LAH	Drawer

Sheet: E2.2 of: x

GENERAL NOTES:

A TYPICAL, PROVIDE ALL NEW CAT 6 CABLING AND DEVICES AS INDICATED. UTILIZE EXISTING DEVICE BOXES/LOCATIONS TO EXTENT AVAILABLE. PROVIDE SURFACE MOUNTED DEVICES AS REQUIRED.

B BID ALTERNATE: PROVIDE ADD ALTERNATE FOR COMPLETE AND OPERATIONAL MIS AREA COOLING SYSTEM AS INDICATED ON PLANS. THIS INCLUDES BUT IS NOT LIMITED TO INDOOR CASSETTES, CONDENSING UNIT, RELATED ELECTRICAL WIRING AND CONNECTIONS, AND ASSOCIATED CONTROLS. REFER TO BID ALTERNATE ON THE BID FORM.

NUMBERED NOTES:

1 CAMERA TO BE MOUNTED NEAR CEILING, VERIFY EXACT MOUNTING HEIGHT AND LOCATION WITH OWNER PRIOR TO ROUGH-IN.

2 CAMERA TO BE MOUNTED ABOVE DISPLAY CASE, VERIFY EXACT MOUNTING HEIGHT AND LOCATION WITH OWNER PRIOR TO ROUGH-IN.

3 PROVIDE DATA JACK MOUNTED ABOVE ACCESSIBLE CEILING OR JUST BELOW JOISTS (IN OPEN CEILINGS) WITH 3' PATCH CORD FOR WAP. PROVIDE WAP ENCLOSURE AS MANUFACTURED BY OBERON MODEL 1064 2X2. ENCLOSURES MAY BE SURFACE MOUNTED OR RECESSED, CONTRACTOR TO FIELD VERIFY.

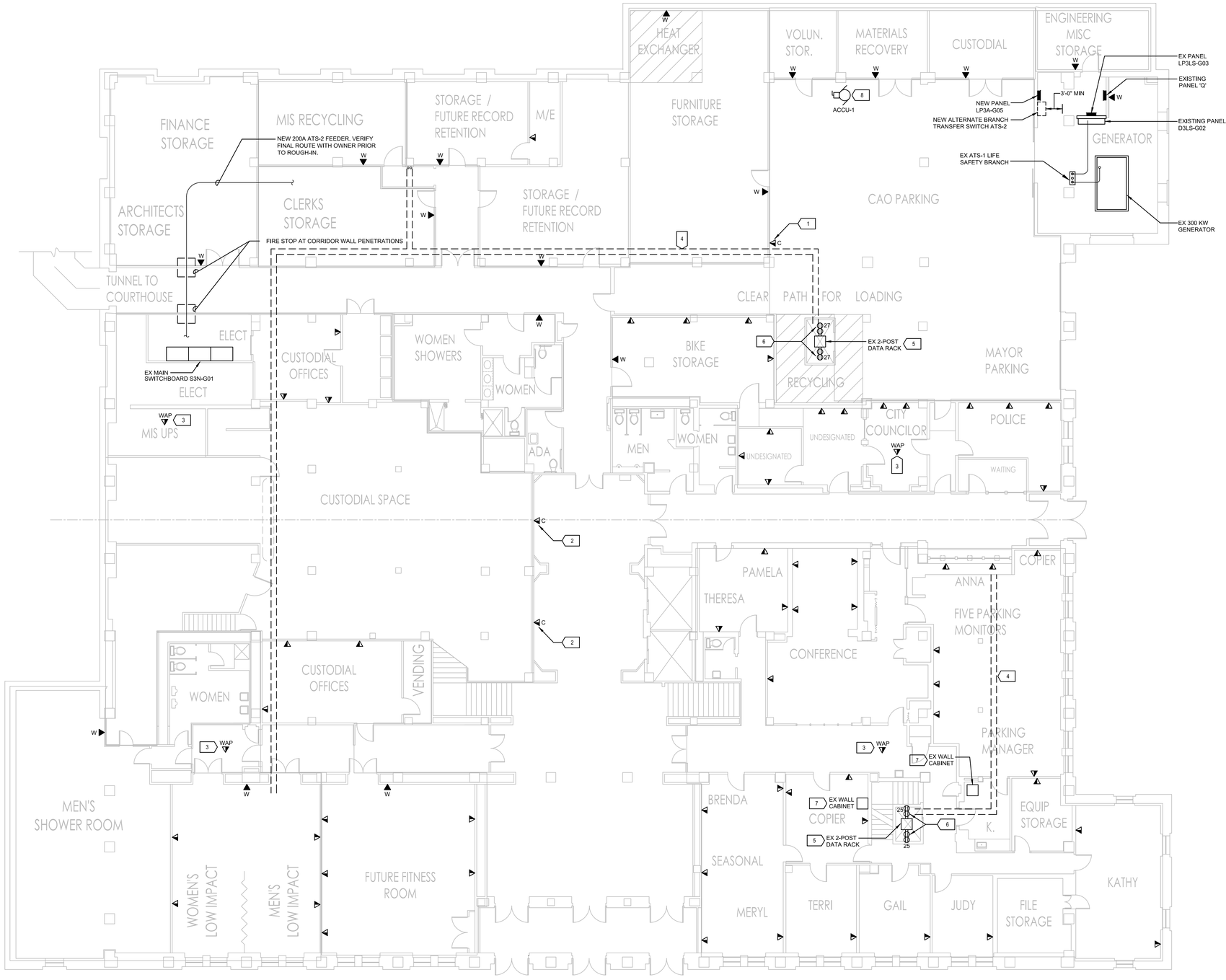
4 TYPICAL, UTILIZE EXISTING CABLE TRAY FOR ROUTING OF NEW LOW VOLTAGE CABLING. LOCATION IS APPROXIMATE, FIELD VERIFY LOCATION AND SPARE CAPACITY PRIOR TO BID.

5 UTILIZE EXISTING 2-POST DATA RACK FOR ALL NEW LOW VOLTAGE CABLING. PROVIDE PUNCH DOWN BLOCKS AS REQUIRED FOR NEW CAT 6 CABLING.

6 PROVIDE QUAD PLEX RECEPTACLES MOUNTED TO SIDE OF EXISTING DATA RACK. CONNECT TO ALTERNATE BRANCH PANEL LP3A-G05 AS INDICATED.

7 DISCONNECT AND REMOVE EXISTING WALL MOUNTED DATA RACKS AS REQUIRED TO FACILITATE INSTALLATION OF ALL NEW CAT 6 CABLING AND ASSOCIATED DEVICES ARE INSTALLED COMPLETE. COORDINATE EXACT REQUIREMENTS WITH OWNER.

8 PROVIDE NEW 30A, 208V, 1Ø, CIRCUIT BREAKER IN NEAREST NON-EMERGENCY PANEL TO SERVE AIR CONDITIONING CONDENSING UNIT ACCU-1 AND ASSOCIATED CASSETTES/BP UNITS. PROVIDE 2 #10 + GROUND IN 3/4" CONDUIT AND LOCAL SERVICE DISCONNECTING MEANS. PROVIDE INTERCONNECT BETWEEN CONDENSING UNIT AND BP UNITS AS REQUIRED.



1 E3.0 GROUND FLOOR POWER AND SYSTEMS PLAN
SCALE: 0' 8'

NORTH

413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218)722-2555 FAX 722-9306
Project No. 83166

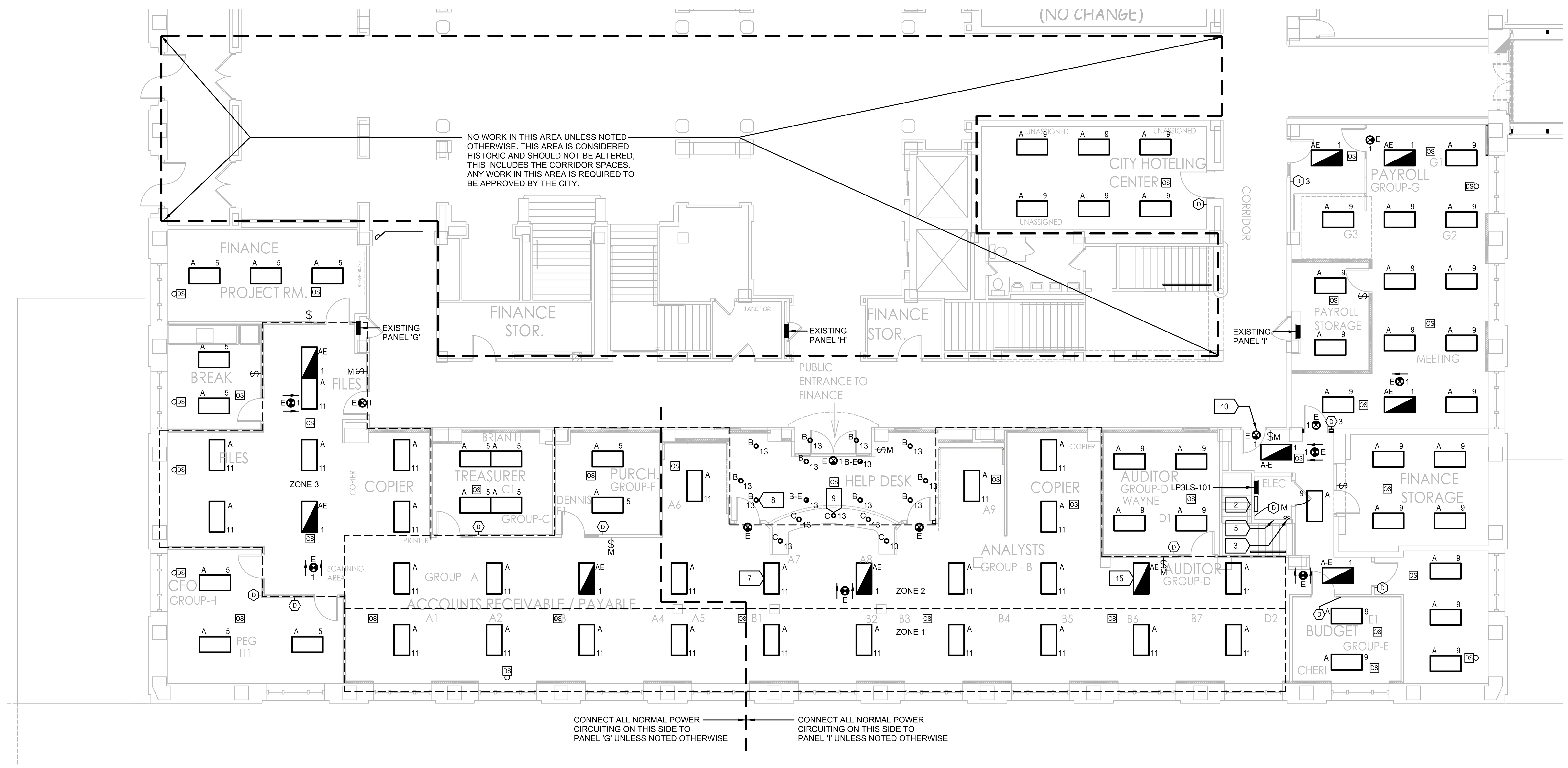
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Minnesota.
DAVE T. BLUME
Date 09/19/14 Reg. No. 24671

GROUND FLOOR POWER & SYSTEMS PLAN

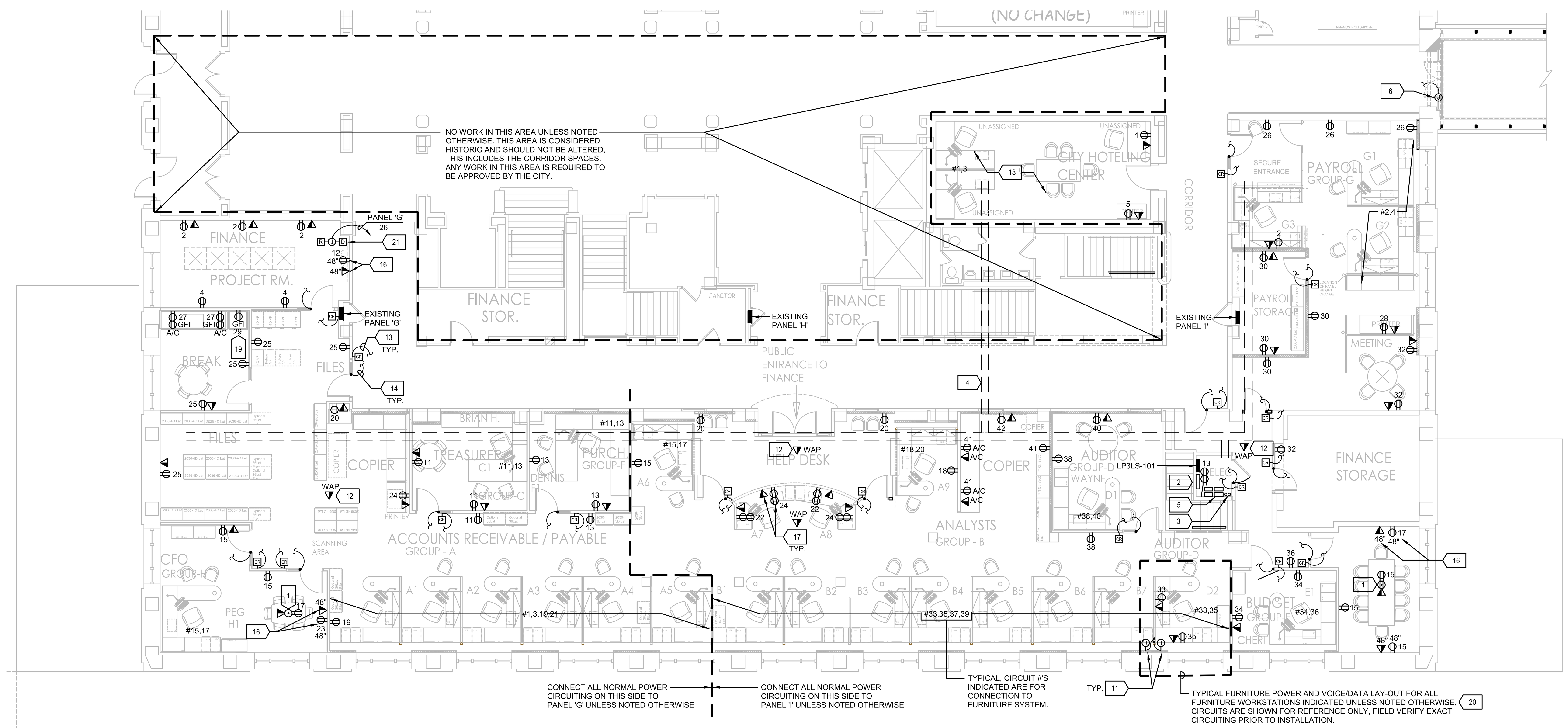
John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 83166 Date 09/19/14
Drawn By LAH Drawer
Sheet: E3.0
of: X



1 / E3.1 PARTIAL FIRST FLOOR LIGHTING PLAN - SOUTH END
SCALE: 0' 8'



2 / E3.1 PARTIAL FIRST FLOOR POWER AND SYSTEMS PLAN - SOUTH END
SCALE: 0' 8'

LIGHTING CONTROL MATRIX

SYSTEM INPUTS	SYSTEM OUTPUTS	Controlled by local LV override switch (es)	Controlled by local photo gathering device 15' from window	Controlled by a set time out control	Controlled by local ceiling or wall vacancy sensor	LV dimmers (0-10V with on/off switch)	N/A	N/A	N/A	N/A	N/A
Open Office - Zone 1		●	●	●	●						
Open Office - Zone 2		●		●	●						
Open Office - Zone 3		●	●	●	●						
Offices with exterior windows			●		●						
Offices without exterior windows					●						
Conference/meeting rooms with exterior windows			●		●	●					
Conference/meeting rooms without exterior windows					●	●					
Corridors					●						
Store rooms					●						
Break rooms with exterior windows			●		●						
Break rooms without exterior windows					●						
Department entry bulkheads				●							
Training Rooms			●		●	●					
Help Desk				●	●						

GENERAL NOTES:

A .TYPICAL, CONNECT ALL NORMAL POWER CIRCUITING SHOWN ON THIS PLAN TO EXISTING PANELS 'G AND I' UNLESS NOTED OTHERWISE. CONNECT ALL EMERGENCY EGRESS LIGHTING CIRCUITS TO PANEL LP3LS-101 UNLESS NOTED OTHERWISE.

B TYPICAL, FIELD VERIFY EXACT LOCATIONS OF ALL DEVICES AND/OR EQUIPMENT. ARCHITECTURAL BACKGROUNDS ARE BASED OFF OF ORIGINAL BUILDING DOCUMENTS AND MAY NOT REFLECT ACTUAL BUILDING CONSTRUCTION.

C TYPICAL, PROVIDE ALL NEW CAT 6 CABLING AND DEVICES AS INDICATED. ROUTE ALL CAT 6 CABLING TO DATA CLOSETS ON GROUND FLOOR UNLESS NOTED OTHERWISE.

D COORDINATE POWER AND DATA REQUIREMENTS AND LOCATIONS FOR A/V EQUIPMENT WITH A/V DESIGNER AND/OR SUPPLIER PRIOR TO ROUGH-IN.

E TYPICAL, NO WORK IN CORRIDOR SPACES UNLESS NOTED OTHERWISE.

F TYPICAL, REFER TO LIGHTING CONTROL PLANS FOR FINAL DEVICE LOCATIONS AND QUANTITIES. DEVICES SHOWN ON THIS PLAN FOR REFERENCE AND DESIGN INTENT ONLY.

NUMBERED NOTES:

1 PROVIDE POKE THROUGH WITH TWO (2) DUPLEX RECEPTACLES AND A MINIMUM OF (2) CAT 6 DATA OUTLETS AS MANUFACTURED BY WIREMOLD SERIES #6ATC MULTI-SERVICE UNIT OR EQUIVALENT. .

2 PROVIDE LIGHTING CONTROL PANEL AS MANUFACTURED BY 'ILC' OR APPROVED EQUIVALENT. PROVIDE 20A, 120V DEDICATED POWER CONNECTION FROM PANEL 'I' AS REQUIRED.

3 EXISTING SPARE CONDUITS ROUTED THROUGH ELECTRICAL CLOSET TO REMAIN. CONDUITS MAY BE UTILIZED FOR WORK ASSOCIATED WITH THIS PROJECT.

4 TYPICAL, UTILIZE EXISTING CABLE TRAY FOR ROUTING OF NEW LOW VOLTAGE CABLING. LOCATION IS APPROXIMATE, FIELD VERIFY PRIOR TO BID.

5 OWNER FURNISHED DOOR ACCESS HEAD END EQUIPMENT LOCATION. PROVIDE DEDICATED 20A, 120V POWER CONNECTION AS REQUIRED.

6 PROVIDE CONNECTION TO AUTOMATIC DOOR OPERATOR AS REQUIRED. PROVIDE CONNECTION TO EXISTING BUILDING ALARM SYSTEM AS REQUIRED.

7 TYPICAL, TYPE 'A' LIGHT FIXTURES ARE FURNISHED BY OWNER, INSTALLED BY ELECTRICAL CONTRACTOR.

8 TYPICAL, PROVIDE TYPE 'B' LIGHT FIXTURE AS MANUFACTURED BY PHILLIPS/DAY-BRITE MODEL #S5R830K7 OR EQUIVALENT.

9 TYPICAL, PROVIDE TYPE 'C' LIGHT FIXTURE AS MANUFACTURED BY SOLERIO MODEL #MP2-W-F-T-1-SC WITH CUSTOM COLOR BRUSHED BRASS FINISH AND SCREW IN LED LAMPS OR EQUIVALENT. MOUNT FIXTURE TO 6'-8" TO BOTTOM, FIELD VERIFY EXACT HEIGHT WITH OWNER PRIOR TO INSTALLATION.

10 TYPICAL, PROVIDE TYPE 'E' EXIT LIGHT FIXTURE AS MANUFACTURED BY PHILLIPS/CHLORIDE MODEL #55L3WR OR EQUIVALENT.

11 TYPICAL, PROVIDE JUNCTION BOX AT 18" AFF IN FURRED WALL FOR POWER AND VOICE/DATA CABLE/WHIP EXTENSION TO FURNITURE. COORDINATE LOCATION OF JUNCTION BOX WITH POWERED FURNITURE SPINE TO FACILITATE CABLE/WHIP LENGTH.

12 PROVIDE DATA JACK MOUNTED ABOVE ACCESSIBLE CEILING WITH 3' PATCH CORD FOR WAP. PROVIDE CEILING MOUNTED WAP ENCLOSURE AS MANUFACTURED BY OBERON MODEL 1064 2X2.

13 PROVIDE 3/4" EMPTY CONDUIT WITH PULL STRING ROUTED TO ELECTRICAL CLOSET FOR OWNER FURNISHED CARD READER. VERIFY EXACT REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.

14 PROVIDE 3/4" EMPTY CONDUIT FROM HOLLOW METAL DOOR FRAME TO ABOVE ACCESSIBLE CEILING FOR DOOR STRIKE AND/OR SENSORS ASSOCIATED WITH DOOR PROVIDED BY OWNER.

15 TYPICAL, TYPE 'A-E' AND 'B-E' LIGHT FIXTURES ARE CONNECTED TO EMERGENCY LIFE SAFETY CIRCUIT IN PANEL LP3LS-101 UNLESS NOTED OTHERWISE.

16 PROVIDE RECEPTACLE AND VOICE/DATA OUTLET FOR OWNER FURNISHED SMART TV/COMPUTER. FIELD VERIFY EXACT LOCATION AND MOUNTING HEIGHT OF DEVICES PRIOR TO ROUGH-IN.

17 CONCEAL CONDUIT/WIRING FOR RECEPTACLES AND VOICE/DATA OUTLETS WITHIN FURNITURE SYSTEM, SURFACE MOUNT WHERE REQUIRED.

18 PROVIDE SURFACE MOUNT RACEWAY FOR RECEPTACLE AND VOICE/DATA OUTLETS AS REQUIRED TO FACILITATE EXISTING PLASTER/GYP BOARD WALLS TO REMAIN IN THIS AREA.

19 PROVIDE REMOTE TEST BUTTON FOR GFI RECEPTACLE MOUNTED BEHIND REFRIGERATOR.

20 TYPICAL PROVIDE (2) TWO RECEPTACLES AND (2) TWO VOICE/DATA OUTLETS (TWO PER BOX) PER DESK/CUBICLE. UTILIZE EXISTING RECEPTACLES AND DATA JACKS PROVIDED WITH FURNITURE TO EXTENT AVAILABLE. LOCATIONS ARE SHOWN FOR REFERENCE ONLY. VERIFY LOCATION WITH OWNER FURNITURE PLAN PRIOR TO INSTALLATION.

21 PROVIDE 120V DUCT SMOKE DETECTOR INTERLOCKED WITH ASSOCIATED FIRE SMOKE DAMPER. PROVIDE SUPERVISED RELAY TO INTERCONNECT TO EXISTING FIRE ALARM SYSTEM. UPON ACTIVATION SHUT DOWN OF ASSOCIATED AIR HANDLING UNIT SHALL OCCUR.

NORTH
W E
S

413 GROUP

Gausman &Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218)722-2555 FAX 722-9306
Project No. 83166 ©

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DAVE T. BLUME
[illegible]
Date 09/19/14 Reg. No. 24671

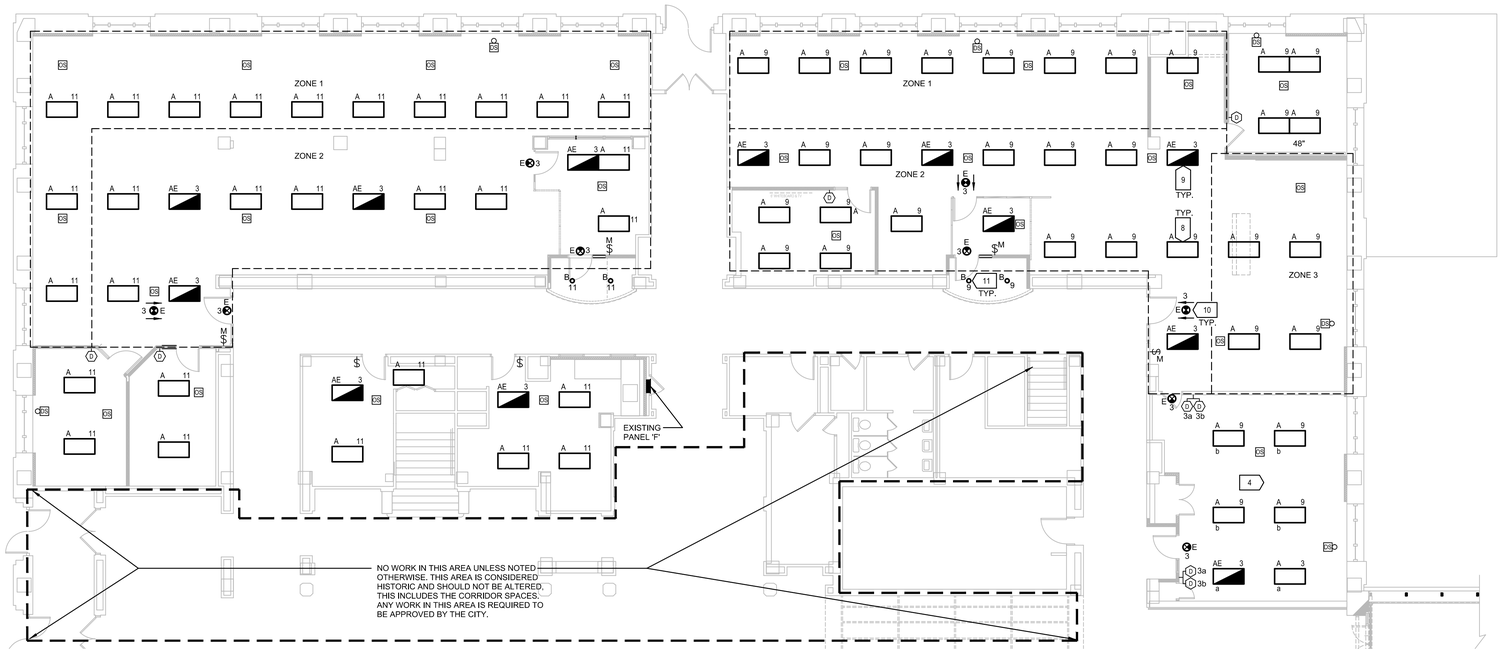
FIRST FLOOR LIGHTING, POWER & SYSTEMS PLANS - SOUTH

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 83166	Date 09/19/14
Drawn By: LAH	Drawer

Sheet: E3.1
of: X



1 E3.2 PARTIAL FIRST FLOOR LIGHTING PLAN - NORTH END

SCALE: 0' 8'

LIGHTING CONTROL MATRIX

SYSTEM INPUTS \ SYSTEM OUTPUTS	Controlled by local LV override switch (es)	Controlled by local photo sensing device 15' from window	Controlled by a set time out control	Controlled by local ceiling or wall vacancy sensor	LV dimmers (0-10V with on/off switch)	N/A	N/A	N/A	N/A	N/A
Open Office - Zone 1	●	●	●	●						
Open Office - Zone 2	●		●	●						
Open Office - Zone 3	●	●	●	●						
Offices with exterior windows		●		●						
Offices without exterior windows				●						
Conference/meeting rooms with exterior windows		●		●	●					
Conference/meeting rooms without exterior windows				●	●					
Corridors				●						
Store rooms				●						
Break rooms with exterior windows		●		●						
Break rooms without exterior windows				●						
Department entry bulkheads			●							
Training Rooms		●		●	●					
Help Desk			●	●						

GENERAL NOTES:

A TYPICAL, CONNECT ALL NORMAL POWER CIRCUITING SHOWN ON THIS PLAN TO EXISTING PANEL 'F' UNLESS NOTED OTHERWISE. CONNECT ALL EMERGENCY EGRESS LIGHTING CIRCUITS TO PANEL LP3LS-101 UNLESS NOTED OTHERWISE.

B TYPICAL, FIELD VERIFY EXACT LOCATIONS OF ALL DEVICES AND/OR EQUIPMENT. ARCHITECTURAL BACKGROUNDS ARE BASED OFF OF ORIGINAL BUILDING DOCUMENTS AND MAY NOT REFLECT ACTUAL BUILDING CONSTRUCTION.

C TYPICAL, PROVIDE ALL NEW CAT 6 CABLING AND DEVICES AS INDICATED. ROUTE ALL CAT 6 CABLING TO DATA CLOSETS ON GROUND FLOOR UNLESS NOTED OTHERWISE.

D COORDINATE POWER AND DATA REQUIREMENTS AND LOCATIONS FOR A/V EQUIPMENT WITH A/V DESIGNER AND/OR SUPPLIER PRIOR TO ROUGH-IN.

E TYPICAL, NO WORK IN CORRIDOR SPACES UNLESS NOTED OTHERWISE.

F CIRCUITING DESIGNATED WITH AN 'A' NEXT TO IT IS TO BE CONNECTED TO THE EMERGENCY ALTERNATE BRANCH PANEL UNLESS NOTED OTHERWISE (IE - 3A).

G TYPICAL, REFER TO LIGHTING CONTROL PLANS FOR FINAL DEVICE LAY-OUT AND QUANTITIES. DEVICES SHOWN ON THIS PLAN FOR REFERENCE AND DESIGN INTENT ONLY.

H BID ALTERNATE: PROVIDE ADD ALTERNATE FOR COMPLETE AND OPERATIONAL MIS AREA COOLING SYSTEM AS INDICATED ON PLANS. THIS INCLUDES BUT IS NOT LIMITED TO INDOOR CASSETTES, CONDENSING UNIT, RELATED ELECTRICAL WIRING AND CONNECTIONS, AND ASSOCIATED CONTROLS. REFER TO BID ALTERNATE ON THE BID FORM.

NUMBERED NOTES:

1 PROVIDE POKE THROUGH WITH TWO (2) DUPLEX RECEPTACLES AND A MINIMUM OF (2) CAT 6 DATA OUTLETS AS MANUFACTURED BY WIREMOLD SERIES #6ATC MULTI-SERVICE UNIT OR EQUIVALENT.

2 UTILIZE EXISTING RECEPTACLES IN THIS AREA TO EXTENT AVAILABLE. MAINTAIN CIRCUIT CONTINUITY.

3 TYPICAL, UTILIZE EXISTING CABLE TRAY FOR ROUTING OF NEW LOW VOLTAGE CABLING. LOCATION IS APPROXIMATE, FIELD VERIFY PRIOR TO BID.

4 PROVIDE CEILING MOUNTED RECEPTACLE AND VOICE/DATA OUTLET FOR OWNER FURNISHED PROJECTOR. VERIFY EXACT LOCATION AND REQUIREMENTS WITH OWNER AND A/V SUPPLIER/DESIGNER PRIOR TO ROUGH-IN.

5 PROVIDE RECEPTACLE AND VOICE/DATA OUTLET FOR OWNER FURNISHED SMART TV/COMPUTER. FIELD VERIFY EXACT LOCATION AND MOUNTING HEIGHT OF DEVICES PRIOR TO ROUGH-IN.

6 PROVIDE RECEPTACLE AND VOICE/DATA OUTLET MOUNTED INTEGRAL TO FURNITURE FOR COPIER LOCATION.

7 PROVIDE REMOTE TEST BUTTON FOR GFI RECEPTACLE MOUNTED BEHIND REFRIGERATOR.

8 TYPICAL, TYPE 'A LIGHT FIXTURES ARE FURNISHED BY OWNER, INSTALLED BY ELECTRICAL CONTRACTOR.

9 TYPICAL, TYPE 'AE' LIGHT FIXTURES ARE CONNECTED TO EMERGENCY LIFE SAFETY CIRCUIT IN PANEL LP3LS-101 UNLESS NOTED OTHERWISE.

10 TYPICAL, PROVIDE TYPE 'E' EXIT LIGHT FIXTURE AS MANUFACTURED BY PHILLIPS/CHLORIDE MODEL #55L3WR OR EQUIVALENT.

11 TYPICAL, PROVIDE TYPE 'B' LIGHT FIXTURE AS MANUFACTURED BY PHILLIPS/DAY-BRITE MODEL #5SR830K7 OR EQUIVALENT.

12 PROVIDE SURFACE MOUNTED RACEWAY FOR RECEPTACLE AND VOICE/DATA OUTLET ASSOCIATED WITH PRINTER LOCATION TO FACILITATE EXISTING WALL TO REMAIN.

13 TYPICAL, PROVIDE (2) TWO RECEPTACLES AND (2) TWO VOICE/DATA OUTLETS (TWO PER BOX) PER DESK/CUBICLE. UTILIZE EXISTING RECEPTACLES AND DATA JACKS PROVIDED WITH EXISTING FURNITURE TO EXTENT AVAILABLE. LOCATIONS AREA SHOWN FOR REFERENCE ONLY,. VERIFY LOCATION WITH OWNER FURNITURE PLAN PRIOR TO INSTALLATION.

14 PROVIDE DATA JACK MOUNTED ABOVE ACCESSIBLE CEILING WITH 3' PATCH CORD FOR WAP. PROVIDE CEILING MOUNTED WAP ENCLOSURE AS MANUFACTURED BY OBERON MODEL 1064 2X2.ER

15 PROVIDE 3/4" EMPTY CONDUIT FROM HOLLOW METAL DOOR FRAME TO ABOVE ACCESSIBLE CEILING FOR DOOR STRIKE AND/OR SENSORS ASSOCIATED WITH DOOR PROVIDED BY OWNER.

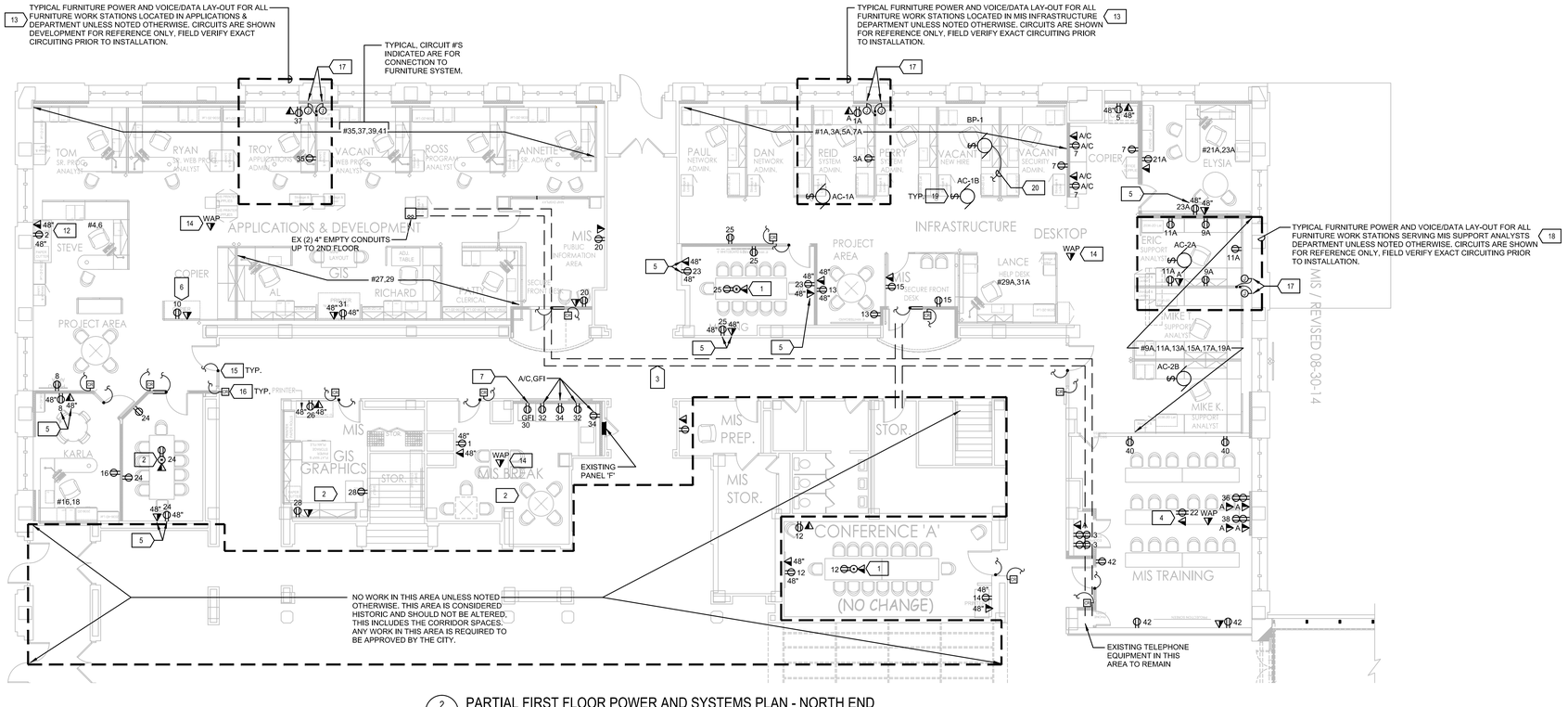
16 PROVIDE 3/4" EMPTY CONDUIT WITH PULL STRING ROUTED TO ELECTRICAL CLOSET FOR OWNER FURNISHED CARD READER. VERIFY EXACT REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.

17 TYPICAL, PROVIDE JUNCTION BOXES AT 18" AFF IN FURRED WALL FOR POWER AND VOICE/DATA CABLE/WHIP EXTENSION TO FURNITURE. COORDINATE LOCATION OF JUNCTION BOX WITH POWERED FURNITURE SPINE TO FACILITATE CABLE/WHIP LENGTH.

18 TYPICAL, PROVIDE (5) FIVE RECEPTACLES AND (1) ONE SIX PORT VOICE/DATA OUTLET PER DESK/CUBICLE. UTILIZE EXISTING RECEPTACLES AND DATA JACKS PROVIDED WITH EXISTING FURNITURE TO EXTENT AVAILABLE. LOCATIONS AREA SHOWN FOR REFERENCE ONLY,. VERIFY LOCATION WITH OWNER FURNITURE PLAN PRIOR TO INSTALLATION.

19 PROVIDE 20A, 208V, 1Ø CIRCUIT BREAKER IN PANEL 'Q' TO SERVE AIR CONDITIONING BP/CASSETTES (AC-1A,1B,2A,2B, & BP-1). REMOVE EXISTING SPARE BREAKERS TO ALLOW INSTALLATION OF NEW TWO POLE BREAKER. PROVIDE (2) #10 + GND IN 3/4" CONDUIT AND LOCAL SERVICE DISCONNECTING MEANS.

20 TYPICAL, PROVIDE (2) #10 + GND IN 3/4" CONDUIT FOR INTERCONNECT WIRING BETWEEN ALL CASSETTES AND BP UNIT AS REQUIRED.



2 E3.2 PARTIAL FIRST FLOOR POWER AND SYSTEMS PLAN - NORTH END

SCALE: 0' 8'

413 GROUP

Gausman &Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218)722-2555 FAX 722-9306
Project No. 83166

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.
DAVE T. BLUME
Date 09/19/14 Reg. No. 24671

FIRST FLOOR LIGHTING, POWER & SYSTEMS PLANS - NORTH

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

NORTH

Job No.	Date
83166	09/19/14
Drawn By	Drawer
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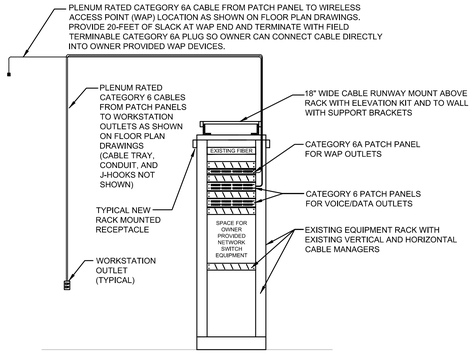


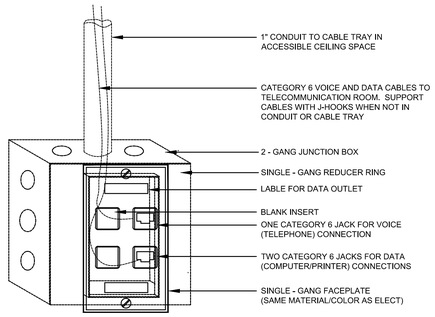
GENERAL NOTES:

1. PROVIDE A 10-FOOT SERVICE LOOP ON CABLES TERMINATED IN THE TELECOMMUNICATIONS EQUIPMENT RACK. SERVICE LOOP SHALL BE LOOSELY BUNDLED IN A FIGURE-8 PATTERN AND PLACED ON CABLE RUNWAY ABOVE RACK.

2. BOND TELECOMMUNICATION CONDUITS, RUNWAY, CABLE TRAY, AND EQUIPMENT RACK TO TELECOMMUNICATIONS AND BUILDING GROUNDING SYSTEM.

3. PROVIDE PERMANENT CABLE LABEL ATTACHED TO CABLE NEAR FIELD TERMINABLE PLUG ON CATEGORY 6A CABLE WITH SAME LABELING SCHEME AS VOICE/DATA WORKSTATION LOCATIONS.

1 E4.1 EQUIPMENT RACK ELEVATION - TYPICAL
SCALE: 0' NTS



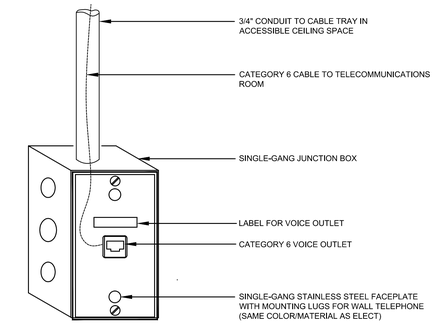
NOTES:
1. TERMINATE VOICE AND DATA OUTLETS WITH T568B PIN-OUT SEQUENCE.

2. ROUTE CABLES TO TELECOMMUNICATION ROOMS AND TERMINATE ON RACK-MOUNTED CATEGORY 6 PATCH PANELS.

3. LABEL VOICE AND DATA JACK WITH THE TELECOMMUNICATION ROOM NUMBER, PATCH PANEL NUMBER AND JACK POSITION NUMBER (EXAMPLE: 005-A-18).

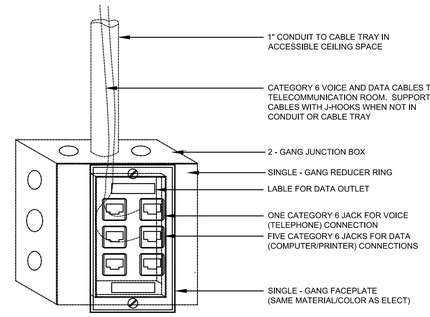
4. INSTALL BLANK INSERT ON OPEN PORTS WHEN JACKS ARE NOT INSTALLED.

2 E4.1 VOICE/DATA OUTLET DETAIL
SCALE: 0' NTS



NOTES:
1. TERMINATE VOICE OUTLETS WITH T568B PIN-OUT SEQUENCE.

3 E4.1 WALL TELEPHONE OUTLET DETAIL
SCALE: 0' NTS



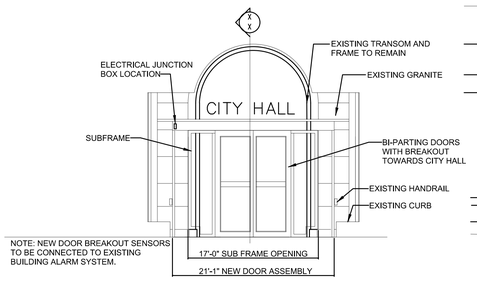
NOTES:
1. TERMINATE VOICE AND DATA OUTLETS WITH T568B PIN-OUT SEQUENCE.

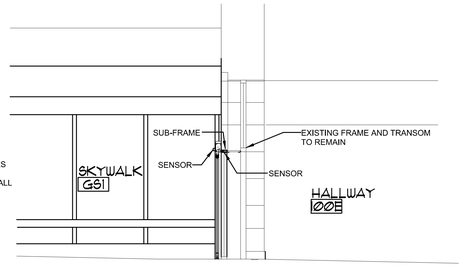
2. ROUTE CABLES TO TELECOMMUNICATION ROOMS AND TERMINATE ON RACK-MOUNTED CATEGORY 6 PATCH PANELS.

3. LABEL VOICE AND DATA JACK WITH THE TELECOMMUNICATION ROOM NUMBER, PATCH PANEL NUMBER AND JACK POSITION NUMBER (EXAMPLE: 005-A-18).

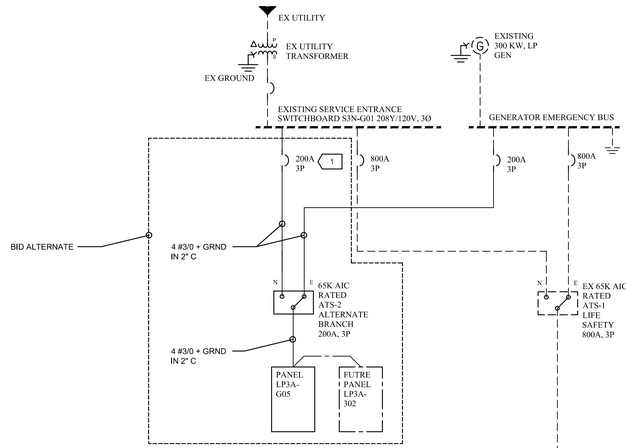
4. INSTALL BLANK INSERT ON OPEN PORTS WHEN JACKS ARE NOT INSTALLED.

4 E4.1 6-PORT VOICE/DATA OUTLET DETAIL (MIS DEPARTMENT)
SCALE: 0' NTS





5 E4.1 SKYWALK DOOR DETAILS
SCALE: 0' 16'



6 E4.1 PARTIAL ONE-LINE DIAGRAM
SCALE: 0' NTS

GENERAL NOTES:

A ALL EQUIPMENT/GEAR INDICATED DASHED (— — —) IS EXISTING TO REMAIN, ALL EQUIPMENT/GEAR INDICATED CONTINUOUS (———) IS NEW, AND ALL EQUIPMENT INDICATED AS CENTER LINE (— - —) IS FUTURE UNLESS NOTED OTHERWISE.

B BID ALTERNATE: PROVIDE DEDUCT ALTERNATE TO ELIMINATE ATS-2, PANELBOARD LP3A-G05, NEW 200A FEEDER BREAKER IN EXISTING SWITCHBOARD S3N-G01, RELATED CONDUIT AND WIRE INSTALLATION. REFER TO BID ALTERNATE ON THE BID FORM.

NUMBERED NOTES:

1 PROVIDE 200A, 3P CIRCUIT BREAKER, MATCH EXISTING TYPE AND MANUFACTURER.

NORTH

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Gausman &Moore
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Project No. 83166

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Date 09/19/14 Reg. No. 24671

DETAILS & SCHEDULES

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

Job No. 83166 | Date 09/19/14
Drawn By LAH | Drawer
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of: X

D3LS-G02

PANEL NAME:	D3LS-G02	VOLT:	208Y/120	BUS SIZE:	800A	REMARKS:
LOCATION:	GEN RM	PH:	3	MAIN BRKR:	MLO	
MOUNTING:	SURFACE	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
	FUTURE ELEVATOR		200	1							2	200		LP3LS-G04	
			/	3							4	/			
			3	5							6	3			
	FUTURE ELEVATOR		200	7							8	100		FUTURE LP3LS-301	
			/	9							10	/			
			3	11							12	3			
	FUTURE ELEVATOR PNL		100	13							14	200		FUTURE SF-1	
			/	15							16	/			
			3	17							18	3			
	SPARE		100	19							20	200		FUTURE SF-2	
			/	21							22	/			
			3	23							24	3			
	LP3LS-G03		100	25	830						26			SPACE & BUS	
			/	27		2400					28			SPACE & BUS	
			3	29			150				30			SPACE & BUS	
	LP3LS-101		100	31	590						32			SPACE & BUS	
			/	33		663					34			SPACE & BUS	
			3	35			0				36			SPACE & BUS	
	SPACE & BUS			37							38			SPACE & BUS	
	SPACE & BUS			39							40			SPACE & BUS	
	SPACE & BUS			41							42			SPACE & BUS	

PER PHASE TOTAL VA	1420	3063	150
TOTAL CONNECTED VA		4633	V.A.
TOTAL CONNECTED AMPS		13	AMPS
3 x HIGHEST PHASE		9189	V.A.
HIGHEST AMPS		26	AMPS

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LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	0	X 1.25 =	0
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	0	X 1.25 =	0
M =	REMAINING MOTORS	0	X 1 =	0
N =	NON-CONTINUOUS	0	X 1 =	0
R =	RECEPTACLE	0	* =	0
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	0
TOTAL CALCULATED AMPS			=	0

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

ERROR: THE TOTAL CONNECTED VA DOES NOT MATCH WITH THE TYPI
0

LP3LS-101

PANEL NAME:	LP3LS-101	VOLT:	208Y/120	BUS SIZE:	100 AMPS	REMARKS:
LOCATION:	ELEC CLST	PH:	3	MAIN BRKR:	MLO	
MOUNTING:	SURFACE	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
	EGRESS LIGHTING	L	20/1	1	590						2	20/1		SPARE	
	EGRESS LIGHTING	L	20/1	3		663					4	20/1		SPARE	
	SPARE		20/1	5							6	20/1		SPARE	
	SPARE		20/1	7							8	20/1		SPARE	
	SPARE		20/1	9							10	20/1		SPARE	
	SPARE		20/1	11							12	20/1		SPARE	
	SPARE		20/1	13							14	20/1		SPARE	
	SPARE		20/1	15							16	20/1		SPARE	
	SPARE		20/1	17							18	20/1		SPARE	
	SPARE		20/1	19							20	20/1		SPARE	
	SPACE & BUS			21							22			SPACE & BUS	
	SPACE & BUS			23							24			SPACE & BUS	
	SPACE & BUS			25							26			SPACE & BUS	
	SPACE & BUS			27							28			SPACE & BUS	
	SPACE & BUS			29							30			SPACE & BUS	
	SPACE & BUS			31							32			SPACE & BUS	
	SPACE & BUS			33							34			SPACE & BUS	
	SPACE & BUS			35							36			SPACE & BUS	
	SPACE & BUS			37							38			SPACE & BUS	
	SPACE & BUS			39							40			SPACE & BUS	
	SPACE & BUS			41							42			SPACE & BUS	

PER PHASE TOTAL VA	590	663	0
TOTAL CONNECTED VA		1253	V.A.
TOTAL CONNECTED AMPS		3	AMPS
3 x HIGHEST PHASE		1989	V.A.
HIGHEST AMPS		6	AMPS

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LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	1253	X 1.25 =	1566
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	0	X 1.25 =	0
M =	REMAINING MOTORS	0	X 1 =	0
N =	NON-CONTINUOUS	0	X 1 =	0
R =	RECEPTACLE	0	* =	0
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	1566
TOTAL CALCULATED AMPS			=	4

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

LP3A-G05

PANEL NAME:	LP3A-G05	VOLT:	208Y/120	BUS SIZE:	225 AMPS	REMARKS:
LOCATION:	GEN RM	PH:	3	MAIN BRKR:	200 AMPS	FEED THROUGH LUGS
MOUNTING:	SURFACE	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
MIS	FURNITURE RECEPTS	R	20/1	1	540						2	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	3		540					4	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	5			540				6	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	7	540						8	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	9		360					10	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	11			540				12	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	13	360						14	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	15		540					16	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	17			360				18	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	19	540						20	20/1		SPARE	
MIS	FURNITURE RECEPTS	R	20/1	21		720					22			SPACE & BUS	
MIS	FURNITURE RECEPTS	R	20/1	23			360				24			SPACE & BUS	
IT CLOS	IT RACK RECEPTS	R	20/1	25	360						26			SPACE & BUS	
IT CLOS	IT RACK RECEPTS	R	20/1	27		360					28			SPACE & BUS	
MIS	FURNITURE RECEPTS	R	20/1	29			180				30			SPACE & BUS	
MIS	FURNITURE RECEPTS	R	20/1	31	180						32			SPACE & BUS	
	SPARE		20/1	33							34			SPACE & BUS	
	SPARE		20/1	35							36			SPACE & BUS	
	SPARE		20/1	37							38			SPACE & BUS	
	SPARE		20/1	39							40			SPACE & BUS	
	SPARE		20/1	41							42			SPACE & BUS	

PER PHASE TOTAL VA	2520	2520	1980
TOTAL CONNECTED VA		7020	V.A.
TOTAL CONNECTED AMPS		19	AMPS
3 x HIGHEST PHASE		7560	V.A.
HIGHEST AMPS		21	AMPS

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LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	0	X 1.25 =	0
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	0	X 1.25 =	0
M =	REMAINING MOTORS	0	X 1 =	0
N =	NON-CONTINUOUS	0	X 1 =	0
R =	RECEPTACLE	7020	* =	7020
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	7020
TOTAL CALCULATED AMPS			=	19

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

EX PANEL F

PANEL NAME:	EX PANEL F	VOLT:	208Y/120	BUS SIZE:	225 AMPS	REMARKS:
LOCATION:	ELEC CLT	PH:	3	MAIN BRKR:	MLO	
MOUNTING:	FLUSH	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
	RECEPTACLES	R	20/1	1	180			1000			2	20/1	R	PRINTER	
	RECEPTACLES	R	20/1	3		540			180		4	20/1	R	RECEPTACLES	
	COPIER	R	20/1	5			1000			180	6	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	7	540			1000			8	20/1	R	RECEPTACLES	
	LIGHTS	L	20/1	9		1496			1000		10	20/1	R	COPIER	
	LIGHTS	L	20/1	11			1232			540	12	20/1	R	LIGHTS	
	RECEPTACLES	R	20/1	13	360			1000			14	20/1	R	PRINTER	
	RECEPTACLES	L	20/1	15		360			360		16	20/1	R	RECEPTACLES	
	WATER HEATER	M	60	17						180	18	20/1	R	RECEPTACLES	
		M	/	19				360			20	20/1	R	RECEPTACLES	
		M	3	21					180		22	20/1	R	PROJECTOR	
	RECEPTACLES	R	20/1	23			540			720	24	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	25	540			1000			26	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	27		540			360		28	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	29			540			1000	30	20/1	R	REFRIGERATOR	
	PRINTER	R	20/1	31	1000			360			32	20/1	R	RECEPTACLES	
	LIGHTS	L	20/1	33					360		34	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	35			360			360	36	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	37	540			360			38	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	39		540			360		40	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	41			1000			540	42	20/1	R	RECEPTACLES	

PER PHASE TOTAL VA	8240	6276	8192
TOTAL CONNECTED VA		22708	V.A.
TOTAL CONNECTED AMPS		63	AMPS
3 x HIGHEST PHASE		24720	V.A.
HIGHEST AMPS		69	AMPS

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LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	3068	X 1.25 =	3860
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	0	X 1.25 =	0
M =	REMAINING MOTORS	0	X 1 =	0
N =	NON-CONTINUOUS	0	X 1 =	0
R =	RECEPTACLE	19620	* =	14810
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	18670
TOTAL CALCULATED AMPS			=	52

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

PANEL G

PANEL NAME:	PANEL G	VOLT:	208Y/120	BUS SIZE:	225 AMPS	REMARKS:
LOCATION:	CLOSET	PH:	3	MAIN BRKR:	MLO	
MOUNTING:	FLUSH	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
	RECEPTACLES	R	20/1	1	540			540			2	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	3		540			360		4	20/1	R	RECEPTACLES	
	LIGHTS	L	20/1	5			616				6	20/1	L	LIGHTS	
	LIGHTS	L	20/1	7							8	20/1	L	LIGHTS	
	LIGHTS	L	20/1	9							10	20/1	L	STAIRWELL	
	RECEPTACLES	R	20/1	11			360			180	12	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	13	360						14	20/1		EXISTING	
	RECEPTACLES	R	20/1	15		540					16	20/1		EXISTING	
	RECEPTACLES	R	20/1	17			360				18	20/1		EXISTING	
	RECEPTACLES	R	20/1	19	720			1000			20	20/1	R	COPIER	
	RECEPTACLES	R	20/1	21		540					22	20/1		EXISTING	
	RECEPTACLES	R	20/1	23			540			1000	24	20/1	R	PRINTER	
	RECEPTACLES	R	20/1	25	900			200			26	20/1	N	DUCT SMOKE DETECTOR	
	RECEPTACLES	R	20/1	27		720					28			SPACE	
	REFRIGERATOR	R	20/1	29			1000				30			SPACE	

PER PHASE TOTAL VA	4260	2700	4056
TOTAL CONNECTED VA		11016	V.A.
TOTAL CONNECTED AMPS		31	AMPS
3 x HIGHEST PHASE		12780	V.A.
HIGHEST AMPS		35	AMPS

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LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	616	X 1.25 =	770
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	0	X 1.25 =	0
M =	REMAINING MOTORS	0	X 1 =	0
N =	NON-CONTINUOUS	200	X 1 =	200
R =	RECEPTACLE	10200	* =	10100
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	11070
TOTAL CALCULATED AMPS			=	31

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

EX PANEL H

PANEL NAME:	EX PANEL H	VOLT:	208Y/120	BUS SIZE:	225 AMPS	REMARKS:
LOCATION:	CLOSET	PH:	3	MAIN BRKR:	MLO	
MOUNTING:	FLUSH	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
	LIGHTS - OUTSIDE	L	20/1	1							2	20/1	L	LIGHTS - ENT MAIN FLR	
	LIGHTS DOWN	L	20/1	3							4	20/1	L	LIGHTS - COPY CTR	
	NIGHT LIGHTS 2 & 3	L	20/1	5							6	20/1	L	NIGHT LIGHTS 4	
	HALL LIGHTS	L	20/1	7							8	20/1	L	HALL LIGHTS	
	ELEVATOR LIGHTS 2	L	20/1	9							10	20/1	L	3RD FLR HALL LIGHTS	
	4TH FLOOR LIGHTS	L	20/1	11							12	20/1	L	LIGHTS - OUTSIDE	
	CITY CTR ENTRY LTS	L	20/1	13							14	20/1	L	ROTUNDA LIGHTS	
	ROTUNDA LIGHTS	L	20/1	15							16	20/1	L	ROTUNDA LIGHTS	
	ROTUNDA LIGHTS	L	20/1	17							18	20/1		SPARE	
	SPARE		20/1	19							20	20/1	L	COPY ROOM LIGHTS	
	EXISTING	R	20/1	21							22	20/1	L	LIGHTS	
	EXISTING	R	20/1	23							24	20/1	R	EXISTING	
	EXISTING	R	20/1	25							26	20/1	R	CLOSET RECEPT	
	EXISTING	R	20/1	27							28	20/1	R	EXISTING	
	EXISTING	R	20/1	29							30	20/1	R	EXISTING	
	EXISTING	R	20/1	31							32	20/1	R	EXISTING	
	LIGHTS	L	20/1	33							34	20/1	R	CONTROL PANEL	
	LIGHTS	L	20/1	35							36	20/1	R	RECEPTACLES	
	COMPUTER HUB	R	20/1	37							38	40	M	WATER HEATER	
	EXISTING	R	20/1	39							40	/	M		
	EXISTING	R	20/1	41							42	3	M		

PER PHASE TOTAL VA	0	0	0
TOTAL CONNECTED VA		0	V.A.
TOTAL CONNECTED AMPS		0	AMPS
3 x HIGHEST PHASE		0	V.A.
HIGHEST AMPS		0	AMPS

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LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	0	X 1.25 =	0
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	0	X 1.25 =	0
M =	REMAINING MOTORS	0	X 1 =	0
N =	NON-CONTINUOUS	0	X 1 =	0
R =	RECEPTACLE	0	* =	0
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	0
TOTAL CALCULATED AMPS			=	0

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

EX PANEL I

PANEL NAME:	EX PANEL I	VOLT:	208Y/120	BUS SIZE:	225 AMPS	REMARKS:
LOCATION:	CLOSET	PH:	3	MAIN BRKR:	100 AMPS	
MOUNTING:	FLUSH	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
	RECEPTACLES	R	20/1	1	540			540			2	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	3		360			360		4	20/1	R	RECEPTACLES	
	PRINTER	R	20/1	5			1000				6	20/1	L	LIGHTS	
	LIGHTS - STAIRWELL	L	20/1	7							8	20/1	L	LIGHTS - TOILET RMS	
	LIGHTS	L	20/1	9		1144					10	20/1	L	LIGHTS	
	LIGHTS	L	20/1	11			1232				12	20/1	L	LIGHTS	
	LIGHTS	L	20/1	13	540						14	20/1	L	LIGHTS	
	RECEPTACLES	R	20/1	15		180					16	20/1	L	LIGHTS	
	RECEPTACLES	R	20/1	17			180			360	18	20/1	R	RECEPTACLES	
	TRAFFIC	R	20/1	19				540			20	20/1	R	RECEPTACLES	
	EXISTING		20/1	21					720		22	20/1	R	RECEPTACLES	
	EXISTING		20/1	23						720	24	20/1	R	RECEPTACLES	
	EXISTING		20/1	25				540			26	201	R	RECEPTACLES	
	MAIN	C	100	27					1000		28	20/1	R	PRINTER	
		C	/	29						720	30	20/1	R	RECEPTACLES	
		C	3	31			540				32	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	33		540			540		34	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	35			540			360	36	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	37	720			540			38	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	39		720			360		40	20/1	R	RECEPTACLES	
	RECEPTACLES	R	20/1	41			540			1000	42	20/1	R	COPIER	

PER PHASE TOTAL VA	4500	5924	6652
TOTAL CONNECTED VA		17076	V.A.
TOTAL CONNECTED AMPS		47	AMPS
3 x HIGHEST PHASE		19956	V.A.
HIGHEST AMPS		55	AMPS

9/19/2014

LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	2916	X 1.25 =	3645
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	0	X 1.25 =	0
M =	REMAINING MOTORS	0	X 1 =	0
N =	NON-CONTINUOUS	0	X 1 =	0
R =	RECEPTACLE	14160	* =	12080
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	15725
TOTAL CALCULATED AMPS			=	44

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

EX PANEL Q

PANEL NAME:	EX PANEL Q	VOLT:	208Y/120	BUS SIZE:	100 AMPS	REMARKS:
LOCATION:	GEN RM	PH:	3	MAIN BRKR:	70 AMPS	
MOUNTING:	SURFACE	WIRE:	4	GND BUS:	YES	GFI:

RM. NO.	LOAD DESCRIPTION	TYPE	BRKR	CCT	V.A.	V.A.	V.A.	V.A.	V.A.	V.A.	CCT	BRKR	TYPE	LOAD DESCRIPTION	RM. NO.
	ACCU-1	LM	30/	1	2808						2	20/1	R	POLICE SECRETART	
		LM	2	3		2808					4	20/1	R	POLICE CREDIT UNION	
	BP-1, AC-1A,1B,2A,2B	M	20/	5			500				6	20/1	M	POLICE LAB EXHST	
		M	2	7	500						8	20/1	R	POLICE LAB RECEPTS	
	GEN BATT CHRGR	N	20/1	9							10	20/1	R	EXISTING	
	EXISTING	N	20/1	11							12	20/1	R	TUNNEL SUMP PUMP	

PER PHASE TOTAL VA	3308	2808	500
TOTAL CONNECTED VA		6616	V.A.
TOTAL CONNECTED AMPS		18	AMPS
3 x HIGHEST PHASE		9924	V.A.
HIGHEST AMPS		28	AMPS

9/19/2014

LOAD TYPE		CONNECTED	MULTIPLIER	TOTAL
L =	LIGHTING	0	X 1.25 =	0
C =	CONTINUOUS	0	X 1.25 =	0
LM =	LARGEST MOTOR	5616	X 1.25 =	7020
M =	REMAINING MOTORS	1000	X 1 =	1000
N =	NON-CONTINUOUS	0	X 1 =	0
R =	RECEPTACLE	0	* =	0
K/K2/K3 =	KITCHEN EQUIP	0	** =	0
TOTAL CALCULATED LOAD (VA)			=	8020
TOTAL CALCULATED AMPS			=	22

* 1ST 10KVA + (>10KVA)/2
** 0 PIECES @ 100%

GENERAL NOTES:

A PANELS 'F', 'G', 'H', AND 'I' ARE EXISTING TO REMAIN. ALL CIRCUITS SHOWN ITALICIZED ARE EXISTING TO REMAIN AND ALL CIRCUITS SHOWN BOLD ARE NEW. UTILIZE EXISTING CIRCUIT BREAKERS TO EXTENT AVAILABLE, PROVIDE NEW WHERE REQUIRED.

B DISCONNECT EXISTING CORRIDOR, ROTUNDA, RESTROOM, AND NIGHT LIGHTS INDICATED IN PANEL 'H' AND RECONNECT TO NEW LIFE SAFETY PANEL LP3LS-101.

413 GROUP

Gausman & Moore
Mechanical and Electrical Engineers
501 South Lake Avenue
Suite 310
Duluth, Minnesota 55802
(218)722-2555 FAX 722-9306
Project No. 83166

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.

DAVE T. BLUME

Date 09/19/14 Reg. No. 24671

DETAILS & SCHEDULES

John Ivey Thomas Associates Inc. Architects, 413 East Superior Street, Duluth, Minnesota 55802 (218) 722-8271

DULUTH CITY HALL - PROJECT # 14-02-TR
INTERIOR RENOVATIONS - PHASE 1: FIRST FLOOR
411 WEST FIRST STREET, DULUTH, MN. 55802

NORTH
W E
S

Job No.	Date
83166	09/19/14
Drawn By	Drawer
LAH	

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