

LSC 2012

IFC 2012

II-B

S-2

ALFF CONSTRUCTION - TENANT FINISH

6860 S 118TH ST, OMAHA, NEBRASKA

CONSULTANTS:

ARCHITECTURAL: GRID ARCHITECTURE, LLC
2645 N 165 ST
OMAHA, NE 68116
TEL: (402) 960-6625
FAX: (866) 443-7821

STRUCTURAL: PERFORMANCE ENGINEERING
11811 FORT ST, SUITE 104
OMAHA, NE 68164
TEL: (402) 343-3960

MECHANICAL ELECTRICAL & PLUMBING: MORRISSEY ENGINEERING
4940 N 118TH ST
OMAHA, NE 68164
TEL: (402) 491-4144

DRAWING INDEX:

Table with 4 columns: SHEET NO., SHEET TITLE, SHEET NO., SHEET TITLE. Lists architectural, structural, electrical, and mechanical sheets including floor plan, roof plan, and mechanical details.

ABBREVIATIONS:

Table listing various construction abbreviations such as AB (Anchor Bolt), AC (Acoustical Ceiling), ADJ (Adjacent), etc., with their full names.



7/31/2023, 8:47:45 AM
BLD-23-07459

CODE INFORMATION:

GROUP B / S-2 GOING INTO B / S-2

- REFERENCE CODES: COMMERCIAL BUILDING CODE - 2018 IBC
INTERNATIONAL EXISTING BUILDING CODE - 2018 IBC
SECTION 301.3.2 - WORK AREA COMPLIANCE METHOD - LEVEL 2
ELECTRICAL CODE - 2017 NEC
ENERGY CODE - 2018 IECC
FIRE CODE - 2012 LIFE SAFETY CODE & 2012 IFC
ACCESSIBILITY CODE - 2018 IBC (INCLUDING ICC/ANSI A117.1-2009)
MECHANICAL CODE - CH. 40 OMAHA MUNICIPAL CODE & 2012 IMC
PLUMBING CODE - CH. 49 OMAHA MUNICIPAL CODE & 2018 OMAHA PLUMBING CODE
ZONING - CH. 55 OMAHA MUNICIPAL CODE

CHAPTER 3 - USE & OCCUPANCY CLASSIFICATION:
CHAPTER 5 - GENERAL BUILDING HEIGHTS AND AREAS:
CHAPTER 6 - TYPES OF CONSTRUCTION:
CHAPTER 9 - FIRE PROTECTION SYSTEMS:
CHAPTER 10 - MEANS OF EGRESS:
SECTION 1004 - OCCUPANT LOAD:
TOTAL AREA: 10,840 S.F.
TOTAL OFFICE: 6,356 S.F.
WAREHOUSE / STORAGE: 2,331 S.F. / 500 = 5 PEOPLE
TOTAL OCCUPANTS = 129 OCCUPANTS
SECTION 1015.1 - EXITS REQUIRED: 8 AND PROVIDED

ENERGY CODE COMPLIANCE - IECC 2018:
COMMISSIONING IS NOT REQUIRED AS EQUIPMENT WITHIN THE SCOPE OF WORK MEETS THE CAPACITY EXCEPTIONS IN THE CODE (IECC 2018 - C408.2)

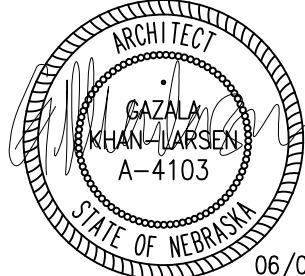
PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED, MAINTAINED AND INSPECTED PER IFC 906. PROVIDE AS REQUIRED BY FIRE MARSHAL.
SEE SCHEDULES FOR FIRE EXT. TYPE

APPROVED BY FRANK REIDA & MARTIN GOMEZ: 03/21/23



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GAZALA KHAN-LARSEN, AM
COORDINATING PROFESSIONAL FOR ALFF
CONSTRUCTION TENANT FINISH
06/02/23

A0.0
TITLE SHEET

# PROPOSED DEMO PLAN

3/16" = 1'-0"



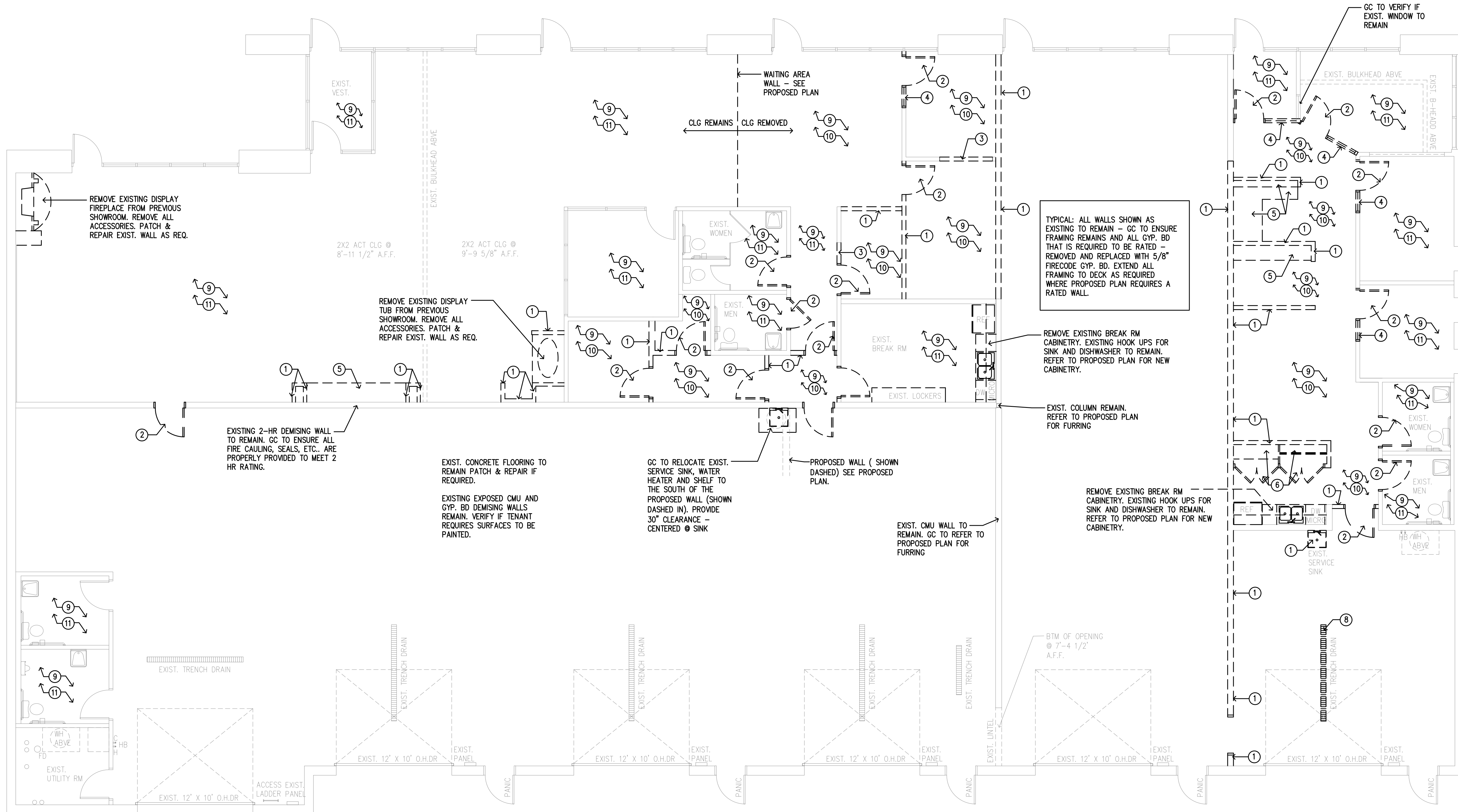
## CODED DEMO NOTES:

PATCH & REPAIR ALL EXISTING WALLS AS REQ.

- ① REMOVE EXISTING WALLS W/GYP. BD, FINISHES & ALL ACCESSORIES
- ② REMOVE EXISTING DOOR, SIDELITES, DOOR FRAMES, DOOR STOPS, CLOSERS, HARDWARE, ETC. SEE PROPOSED FLOOR PLAN FOR NEW DOOR WHERE APPLICABLE.
- ③ REMOVE EXISTING WALL W/GYP. BD, FINISHES & ALL ACCESSORIES AS REQUIRED TO ACCOMMODATE PROPOSED DOOR & SIDELITE - SEE PLAN
- ④ REMOVE EXISTING GLASS SIDELITES, TRANSOMS, ACCESSORIES, AS REQ.
- ⑤ REMOVE EXISTING COUNTER, CABINERY & ALL ACCESSORIES.
- ⑥ REMOVE EXISTING CABINET DOORS, ROD, SHELVING & ALL ACCESSORIES
- ⑦ REMOVE EXISTING SERVICE SINK, FAUCET & ALL ACCESSORIES. SUBCONTRACTOR TO CUT & CAP ALL UNUSED CONDUIT AT FIN. FLR LEVEL FILLING W/INSULATION & PATCHING AS REQUIRED.
- ⑧ REMOVE EXISTING TRENCH DRAIN & ALL ACCESSORIES. SUBCONTRACTOR TO CUT & CAP ALL UNUSED CONDUIT AT FIN. FLR LEVEL FILLING W/INSULATION & PATCHING AS REQUIRED. REFER TO MECHANICAL SHEETS FOR MORE INFO.
- ⑨ EXISTING FLOORING & BASE TO BE REMOVED AND PREPPED FOR NEW FLOORING. . SEE PROPOSED PLANS.
- ⑩ REMOVE EXISTING CEILING TILES, CEILING GRID AND ALL ACCESSORIES.
- ⑪ EXISTING CEILING TILES, CEILING GRID TO REMAIN. MODIFY IF REQUIRED PER REFLECTED CEILING PLAN.

## GENERAL DEMOLITION NOTES:

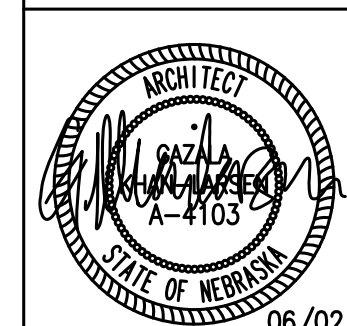
1. SUBCONTRACTOR SHALL CUT AND CAP ALL UNUSED EXISTING FLOOR CONDUIT AT FINISHED FLOOR LEVEL, FILLING WITH INSULATION AND PATCHING WITH CONCRETE. VERIFY ALL LOCATIONS
2. PATCH ALL EXISTING WALLS TO REMAIN WHERE ADJACENT WALLS HAVE BEEN REMOVED. MATCH EXISTING MATERIALS, TEXTURE AND FINISH WHERE NOTED
3. REMOVE ALL DEMOLISHED MATERIALS FROM THE SITE AS NECESSARY. HOWEVER, MATERIAL REMOVAL MAY BE REQUIRED MORE FREQUENTLY SO SCRAP MATERIALS DO NOT HINDER THE PROGRESS OF OTHER TRADES.
4. FACE OF NEWLY EXTENDED WALLS SHALL BE FLUSH WITH THE FACE OF THE EXISTING WALL
5. ALL SUBCONTRACTORS TO USE CAUTION DURING DEMOLITION. DO NOT DAMAGE SALVAGEABLE MATERIALS OR FINISHES TO REMAIN. THE COST OF ANY ITEMS DAMAGED WILL BE DEDUCTED FROM THE CONTRACT AMOUNT.
6. SUBCONTRACTOR SHALL VISIT THE SITE BEFORE SUBMITTING A BID. VERIFY THAT ALL SALVAGEABLE MATERIALS ARE IN GOOD WORKING CONDITION. SUBCONTRACTORS ARE RESPONSIBLE FOR REPLACING ANY INADEQUATE MATERIAL WITH NEW @ SUBCONTRACTOR'S SOLE COST & EXPENSE IF NOT BROUGHT TO TENANT'S ATTENTION PRIOR TO BID SUBMITTAL.
7. ALL EXISTING WALLS TO REMAIN SHALL BE PATCHED/SKIM COATED AS REQUIRED TO MAKE SMOOTH W/NEW ADJACENT WALLS.
8. ALL INTERIOR SURFACES DAMAGED OR LEFT UNFINISHED BY DEMILOTION SHALL BE PATCHED TO MATCH EXISTING ADJACENT SURFACES IN MATERIAL, COLOR & TEXTURE.
9. CUT & PATCH CONCRETE AS REQUIRED -COORDINATE LOCATION OF ALL PROPOSED PLUMBING/HVAC AND OTHER CUTS OR PATCHING REQUIRED FOR DEMO AND PROPOSED ITEMS.
10. THE CONTRACTOR SHALL COORDINATE WITH THE LANDLORD/OWNER ALL PROVISIONS REQUIRED FOR DUST CONTROL, DEBRIS REMOVAL SHUT-OFFS, ETC.
11. CONTRACTOR SHALL USE OWNERS ACCESS ROUTE FOR WORKMEN, MATERIAL SUPPLY AND REMOVAL TO CONSTRUCTION DEBRIS CONTAINER. INTERIOR FINISHES SHALL BE PROTECTED AT ALL TIMES.
12. ANY WORK THAT AFFECTS ADJACENT AREAS OF THE SPACE WILL NEED TO BE COORDINATED WITH OWNER.
13. REMOVE EXISTING INTERIOR DOORS, DOOR FRAMES, DOOR STOPS, CLOSERS, HARDWARE, ETC. WHERE NOTED
14. ALL WALLS DESIGNATED FOR DEMOLITION TO BE REMOVED COMPLETELY INCLUDING ALL MATERIALS ABOVE CEILING HEIGHT (IE. METAL STUD KICKERS, SUPPORTS, FASTENERS, BRACING, ETC.). ALL FASTENERS TO THE FLOOR SHALL BE REMOVED BELOW, OR FLUSH WITH, THE CONCRETE FLOOR.
15. FRAMING SUBCONTRACTORS SHALL PROVIDE WOOD BLOCKING IN WALLS FOR ALL WALL MOUNTED FIXTURES, SIGNS, EQUIPMENT, CABINETS, COAT RACKS, DOOR BUMPERS STOPS, TOILET ACCESSORIES, ETC. AS NEEDED.
16. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS AND CONDITIONS. CONTACT ARCHITECT WITH ANY DISCREPANCIES OR CONFLICTS THAT OCCUR ON THE PLAN WITH FIELD CONDITIONS.



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06/02/23

D1.1  
DEMO PLAN & NOTES

REVISIONS/DATES		
NO.	DATE	DESCRIPTION

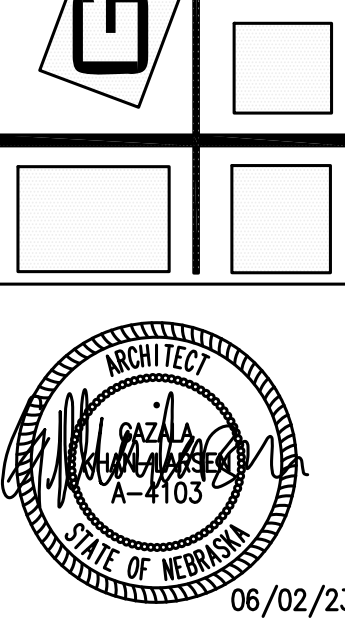
OWNER AND CONTRACTOR AGREE AS A CONDITION OF THE CONTRACT THAT THE ARCHITECT AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED BY THE OWNER OR CONTRACTOR. THE ARCHITECT AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED BY THE OWNER OR CONTRACTOR. THE ARCHITECT AND ENGINEER SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED BY THE OWNER OR CONTRACTOR.

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NO.	DESCRIPTION

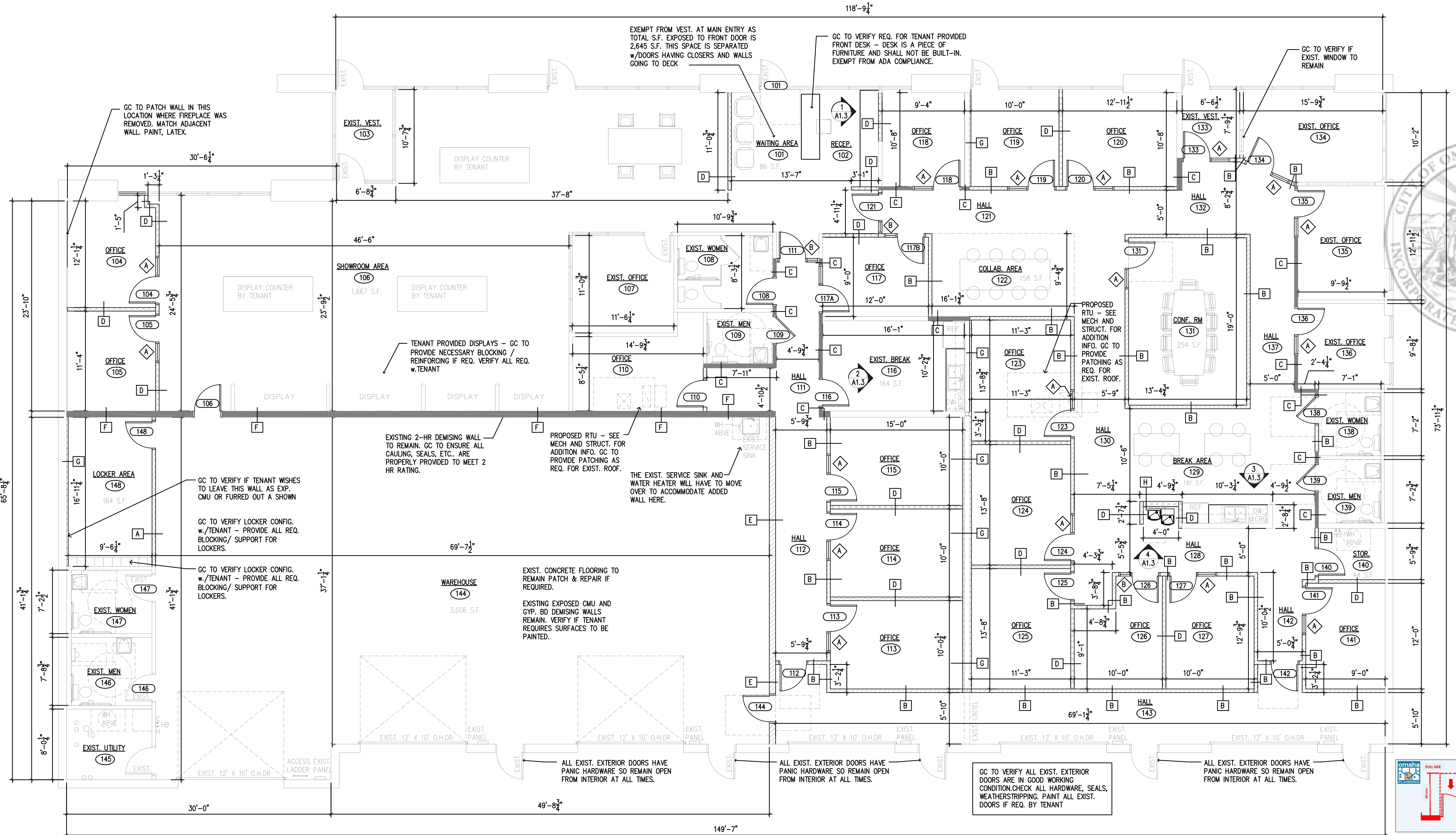
OWNER AND CONTRACTOR REPRESENTATIVE AS SHOWN ON THESE PLANS SHALL BE RESPONSIBLE FOR VERIFYING ALL LOCAL, STATE AND FEDERAL REGULATIONS AND ORDINANCES THAT APPLY TO THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL LOCAL, STATE AND FEDERAL REGULATIONS AND ORDINANCES THAT APPLY TO THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

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CREATE + BUILD + INSPIRE  
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**A1.1**  
PROPOSED FLOOR PLAN



EXEMPT FROM VEST. AT MAIN ENTRY AS TOTAL S.F. EXPOSED TO FRONT DOOR IS 2,645 S.F. THIS SPACE IS SEPARATED w/DOORS HAVING CLOSERS AND WALLS GOING TO DECK

GC TO VERIFY REQ. FOR TENANT PROVIDED FRONT DESK - DESK IS A PIECE OF FURNITURE AND SHALL NOT BE BUILT-IN. EXEMPT FROM ADA COMPLIANCE.

GC TO VERIFY IF EXIST. WINDOW TO REMAIN

GC TO PATCH WALL IN THIS LOCATION WHERE FIREPLACE WAS REMOVED. MATCH ADJACENT WALL. PAINT, LATEX.

EXIST. VEST. 103

SHOWROOM AREA 106  
1,667 S.F.

EXIST. WOMEN 108

EXIST. MEN 109

COLLAB. AREA 122  
158 S.F.

CONF. RM 131  
254 S.F.

TENANT PROVIDED DISPLAYS - GC TO PROVIDE NECESSARY BLOCKING/REINFORCING IF REQ. VERIFY ALL REQ. w.TENANT

EXISTING 2-HR DEMISING WALL TO REMAIN. GC TO ENSURE ALL CAULING, SEALS, ETC. ARE PROPERLY PROVIDED TO MEET 2 HR RATING.

PROPOSED RTU - SEE MECH AND STRUCT. FOR ADDITION INFO. GC TO PROVIDE PATCHING AS REQ. FOR EXIST. ROOF.

THE EXIST. SERVICE SINK AND WATER HEATER WILL HAVE TO MOVE OVER TO ACCOMMODATE ADDED WALL HERE.

GC TO VERIFY IF TENANT WISHES TO LEAVE THIS WALL AS EXP. CMU OR FURRED OUT AS SHOWN

GC TO VERIFY LOCKER CONFIG. w./TENANT - PROVIDE ALL REQ. BLOCKING/SUPPORT FOR LOCKERS.

GC TO VERIFY LOCKER CONFIG. w./TENANT - PROVIDE ALL REQ. BLOCKING/SUPPORT FOR LOCKERS.

EXIST. CONCRETE FLOORING TO REMAIN PATCH & REPAIR IF REQUIRED.

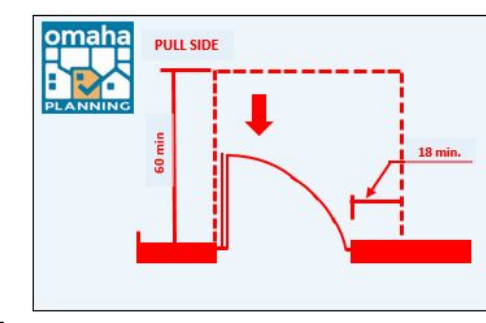
EXISTING EXPOSED CMU AND GYP. BD DEMISING WALLS REMAIN. VERIFY IF TENANT REQUIRES SURFACES TO BE PAINTED.

ALL EXIST. EXTERIOR DOORS HAVE PANIC HARDWARE SO REMAIN OPEN FROM INTERIOR AT ALL TIMES.

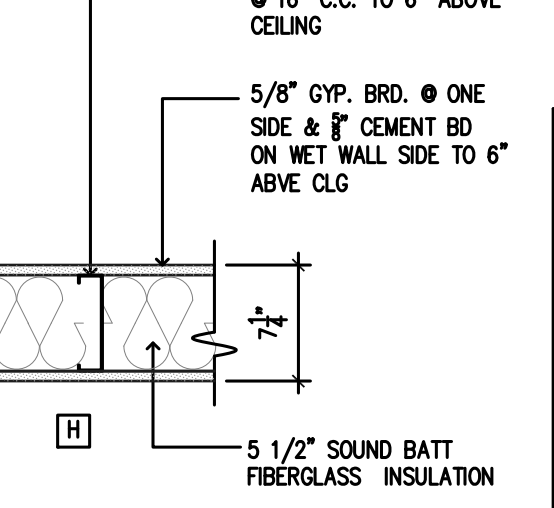
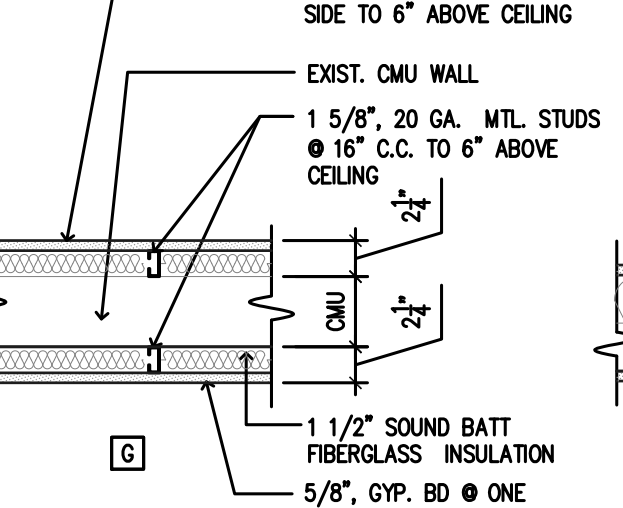
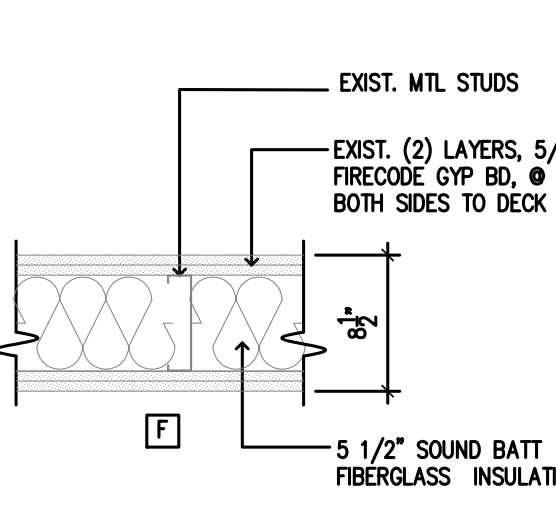
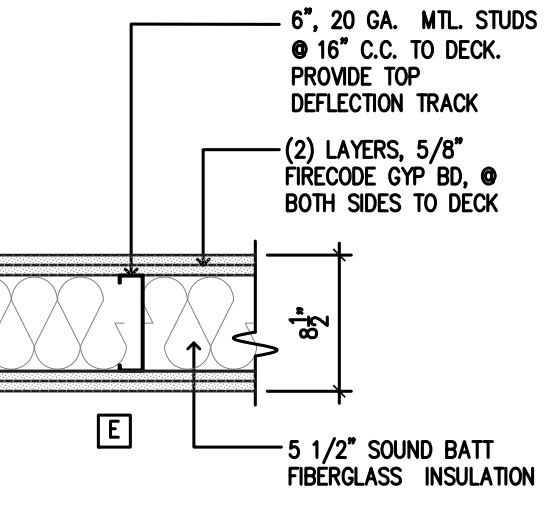
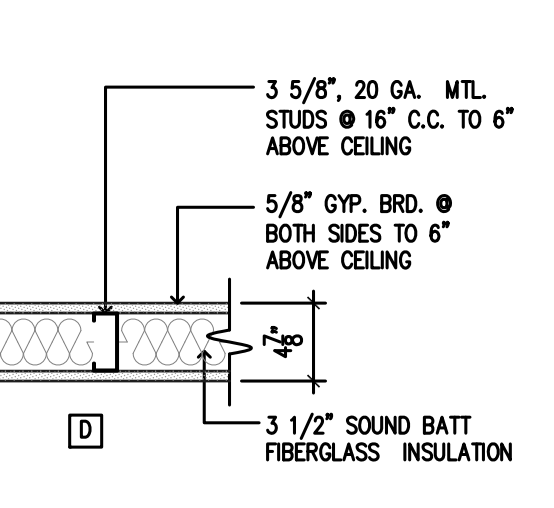
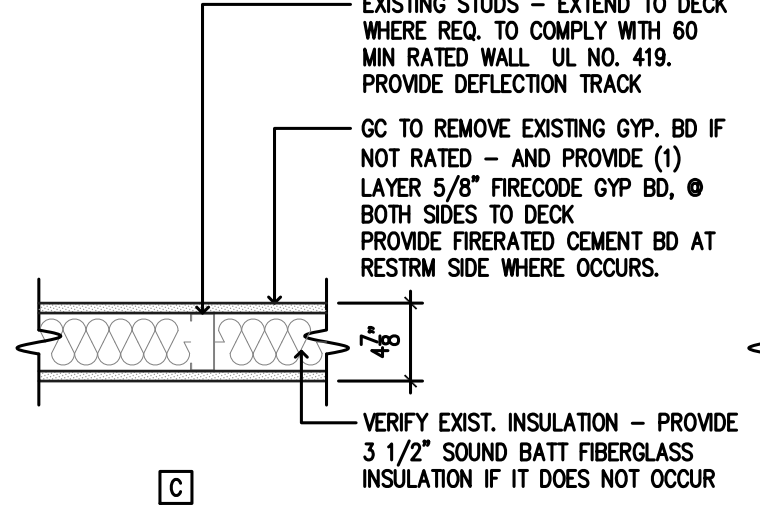
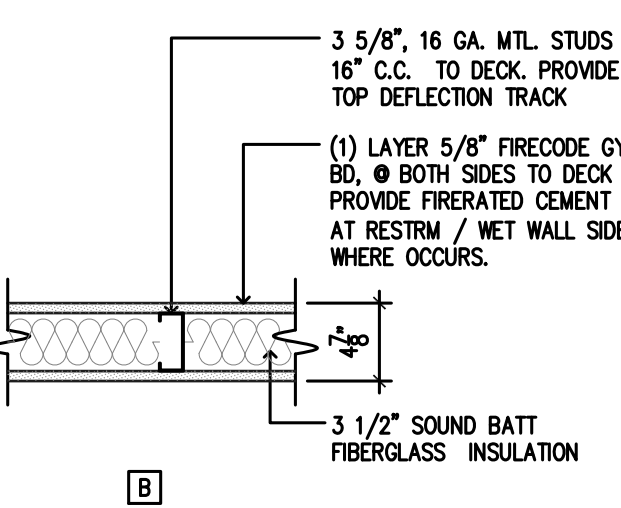
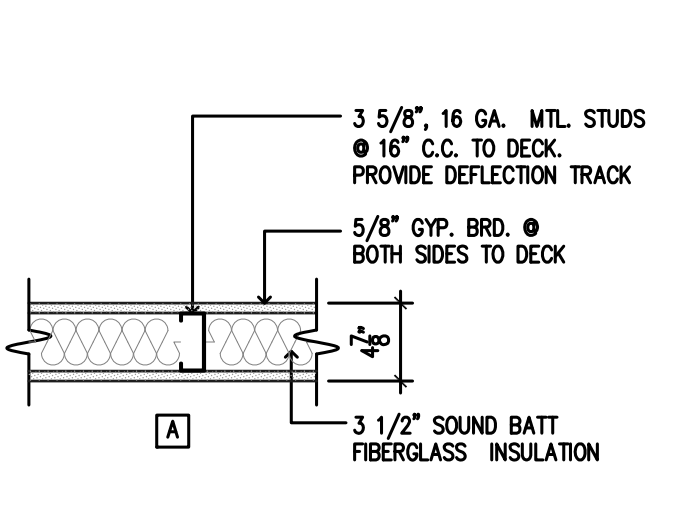
ALL EXIST. EXTERIOR DOORS HAVE PANIC HARDWARE SO REMAIN OPEN FROM INTERIOR AT ALL TIMES.

GC TO VERIFY ALL EXIST. EXTERIOR DOORS ARE IN GOOD WORKING CONDITION. CHECK ALL HARDWARE, SEALS, WEATHERSTRIPPING. PAINT ALL EXIST. DOORS IF REQ. BY TENANT

ALL EXIST. EXTERIOR DOORS HAVE PANIC HARDWARE SO REMAIN OPEN FROM INTERIOR AT ALL TIMES.



**PROPOSED FLOOR PLAN**  
3/16" = 1'-0"



**WALL TYPE NOTES:**  
NOTE 1: BRACE ALL WALLS TO STRUCTURE AS REQUIRED  
NOTE 2: GC TO ENSURE APPROPRIATE STUD GAGE IS PROVIDED FOR STUD HEIGHT  
NOTE 3: GC TO APPLY CEMENT BOARD / PURPLE BD. OR EQUIVALENT AT ALL WET WALLS  
NOTE 4: GC PROVIDE TOP DEFLECTION TRACK WHERE WALLS GO TO DECK TO ACCOMMODATE FOR MOVEMENT

1 WALL TYPES  
1" = 1'-0"

ROOM FINISH SCHEDULE

GC TO VERIFY ALL FINISHES W/TENANT (SEE PLAN FOR ADDITIONAL INFORMATION)

Table with columns: ROOM #, ROOM NAME, FLOOR FINISH, BASE FINISH, WALL FINISHES (NORTH, SOUTH, EAST, WEST), CEILING FINISH, CEILING HEIGHT, NOTES. Lists 148 rooms with their respective finishes and requirements.

NOTE 1: GC TO PROVIDE TRANSITION STRIPS WHERE REQUIRED FOR ALL FLOOR FINISH CHANGES. ALL TRANSITION STRIPS TO MEET ADA AND NOT CAUSE ANY TRIP HAZARD.

NOTE 2: GC TO VERIFY ALL CEILING HEIGHTS W/TENANT

FINISHES

FINAL COLORS AND SELECTIONS SHALL BE PICKED BY TENANT

Table with columns: FINISH TYPE, DESCRIPTION. Lists materials for ACT, OPT TILE, LVP, VINYL BASE, LAMINATE, SOLID SURFACE, LAMINATE, MAIN PAINT, EPOXY FLOORING, PAINTED FRAMES, FRP, and FIRE EXTINGUISHER CABINETS.

DOOR SCHEDULE

GC TO VERIFY ALL FINISHES W/TENANT

Table with columns: DOOR MARK, DOORS, LEAF, MATERIAL, FINISH, TYPE, FRAME, HARDWARE, LOCK, RATING, NOTES. Lists 148 doors with their specifications.

NOTE 1: GC TO VERIFY EXISTING HARDWARE & MODIFY AS REQ. TO PROVIDE HARDWARE SPECIFIED

NOTE 2: DOOR STAIN TO MATCH EXISTING.

HARDWARE SET:

GC TO VERIFY ALL FINISHES W/TENANT - MATCH EXIST. GC TO COORDINATE ALL SECURITY REQ. FOR HARDWARE W/TENANT

HARDWARE SET #1: RETROFIT EXISTING DOOR TO PROVIDE HARDWARE THAT MEETS THE FOLLOWING: GC TO VERIFY WHAT EXISTING HARDWARE CAN REMAIN.

- 3 EA. OFFSET PIVOTS
1 EA. SURFACE CLOSER, LCN, 4041, MATCH ALUM. FINISH
1 EA. OFFSET ENTRY PULL, 1" DIA. 9" CTC, 2 1/2" PROJ., MATCH ALUM. FINISH
1 EA. PUSH BAR, 1" DIA. 2 1/2" PROJ., MATCH ALUM. FINISH
1 EA. CYLINDER LOCK, 'ADAMS RITE', MS-1850A, W/ EXIT INDICATOR & MORTISED CYLINDER, KEYS EXT. & THUMB Ø INT., MATCH ALUM. FINISH
1 EA. 1/2" THRESHOLD, AL
1 EA. DOOR SWEEP, MATCH ALUM. FINISH
1 EA. WEATHERSTRIPPING

NOTE #1: A. LOCKING DEVICE MUST BE READILY DISTINGUISHABLE AS LOCKED

B. A READILY VISIBLE SIGN MUST BE POSTED ON THE EGRESS SIDE ON OR ADJACENT TO THE DOOR STATING: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. THE SIGN SHALL BE IN LETTERS 1" HIGH ON A CONTRASTING BLACK BACKGROUND

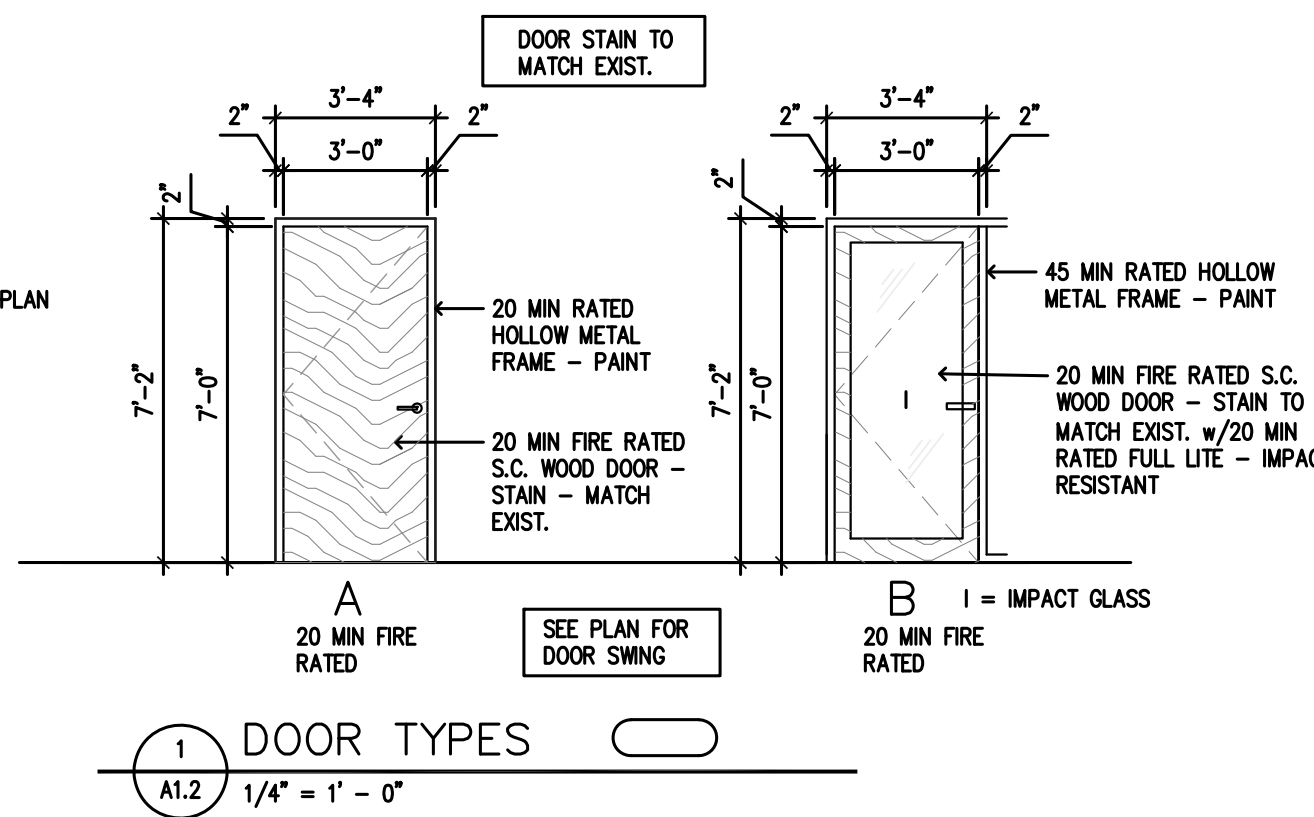
HARDWARE SET #2:

- 3 EA. HINGES, STANLEY, FBB191, 4.5 X 4.5, NRP, 26D
1 EA. OFFICE LOCKSET, LEVER LOCK, 'FALCON' DANE 626
1 EA. WALL STOP - 'ROCKWOOD', 409, US26D
3 EA. SILENCER - 'IVES', SR64, GRAY

HARDWARE SET #3:

- 3 EA. HINGES, STANLEY, FBB191, 4.5 X 4.5, NRP, 26D
1 EA. PASSAGE LATCHSET, LEVER LOCK, 'FALCON' DANE 626
1 EA. CLOSER, LCN, 4041, AL
1 EA. WALL STOP - 'ROCKWOOD', 409, US26D
3 EA. SILENCER - 'IVES', SR64, GRAY

FOR RESTROOMS ONLY: RESTROOM SIGNAGE - 'ROCKWOOD', (MEN) OR (WOMEN) - SEE PLAN BLACK - VERIFY COLOR W/TENANT



ACCESSIBILITY WORK SCOPE

B/S-2 OCCUPANCY GOING INTO B/S-2 OCCUPANCY. GC SHALL UPDATE WHATEVER IS POSSIBLE TO COMPLY W/ADA. MODIFY / PROVIDE PER BELOW STANDARDS WHERE POSSIBLE: PROVIDING MIN. 20% OF TOTAL COSTS FOR UPGRADE TO ADA COMPLIANCE.

- 1. GC TO UPGRADE EXISTING RESTROOMS PER BELOW TO THE BEST ABILITY POSSIBLE.
A. ADA TASK TYPE WATER CLOSET. SEAT HEIGHT AT 18" A.F.F.
B. GRAB BARS BY AMERICAN SPECIALTIES, INC. SERIES 3800, OR APPROVED EQUAL. MOUNT AT 2'-11" A.F.F.
C. EXIST. SURFACE MOUNTED LAV SHALL REMAIN - PROVIDE ADA LEVER FAUCET & TRUBRO #103-EZ 'SNAP-ON' DRAIN PIPE INSULATION AT EXPOSED PLUMBING ONLY IF NOT PRESENT
D. MIRROR - MOUNT SO THE BOTTOM EDGE OF THE REFLECTIVE SURFACE IS 40" MAX. A.F.F. FIELD COORDINATE. ALL MIRROR SIZES SHALL BE FIELD VERIFIED.
E. SURFACE MOUNTED DUAL TOILET PAPER DISPENSER BY AMERICAN SPECIALTIES, INC. OR APPROVED EQUAL. MOUNT @ 2'-0" A.F.F. TO CENTERLINE AND 3'-0" TO FARTHEST EDGE FROM REAR WALL.
F. SANITARY NAPKIN DISPOSAL, BY AMERICAN SPECIALTIES, INC. OR APPROVED EQUAL. MOUNT @ 1'-8" A.F.F. TO CENTERLINE - (IN WOMEN'S ONLY)
G. SURFACE MOUNTED ROLL PAPER TOWEL DISPENSER. MOUNT SO BOTTOM OF PAPER SLOT IS 4'-0" A.F.F. (MAX)
H. SURFACE MOUNTED SOAP DISPENSER BY AMERICAN SPECIALTIES OR APPROVED EQUAL - MOUNT @ 3'-4" AFF TO BOTTOM OF DISPENSER.

45 MINUTE RATED GLASS: CONTACT: SEAN WILLIAMS 817-808-9431 FIREGLASS.COM

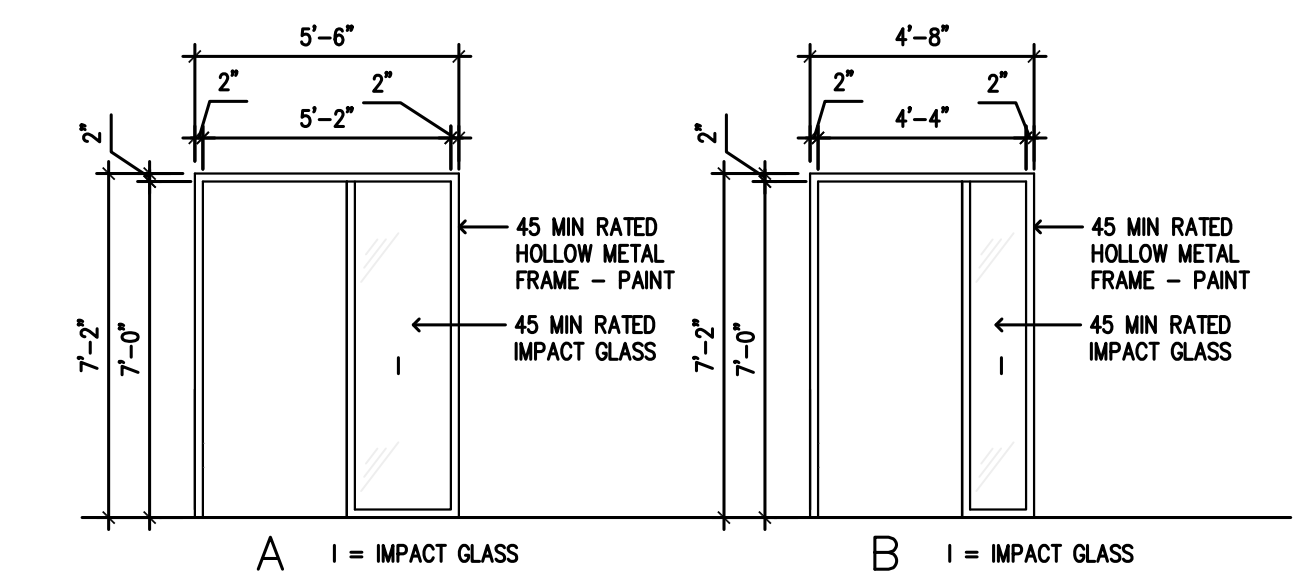
GLASS LIMITATIONS FOR 45 MIN RATED GLASS: TOTAL SIZE CANNOT EXCEED 3,325 SQ INCHES AND MAXIMUM WIDTH OR HEIGHT OF 95". VERIFY W/MANUFACTURER.

THE ABOVE IS PER LITE IMPACT RATED GLASS - IF IN A DOOR OR WITHIN 2' OF THE DOOR OR FLOOR TO A DOOR:

GLASS SHALL BE PYROSTOP - 3/4" GLASS E119 TESTED PRODUCT W/SAFETY GLASS INCORPORATED. (ASTM E119 TESTED - EXEMPT FROM LIMITATIONS)

IBC 716.6.7.2 AREA LIMITATION: TOTAL AREA OF GLAZING SHALL NOT EXCEED 25% OF THE AREA OF A COMMON WALL WITH ANY ROOM. GC TO VERIFY SIZE W/MANUF. AND ENSURE ALL GLAZING COMPLEXES. EXCEPTION: ASTM E119 TESTED GLASS. GLASS SPECIFIED SHALL BE ASTM E119 PER ABOVE.

GLASS SHALL BE PYROSTOP - 3/4" GLASS E119 TESTED PRODUCT W/SAFETY GLASS INCORPORATED. (ASTM E119 TESTED - EXEMPT FROM LIMITATIONS)



WINDOW TYPES

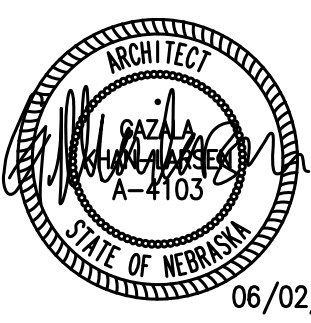
REVISIONS/DATES

Table with columns: NO., DATE, DESCRIPTION. Revision table for the document.

ALFF CONSTRUCTION - TENANT FINISH

CREATE + BUILD + INSURE

GRID ARCHITECTURE, LLC T. 402.980.6625 F. (866) 443-7821



06/02/23

A1.2 SCHEDULES

REVISIONS/DATES		
NO.	DATE	DESCRIPTION

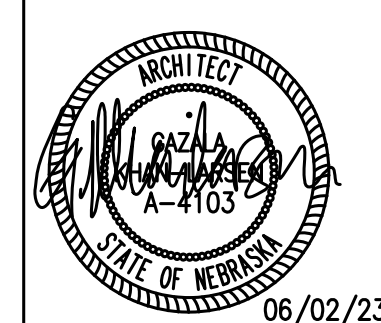
OWNER AND CONTRACTOR AGREE THAT ALL DIMENSIONS AND FINISHES SHOWN ON THIS DRAWING ARE THE PROPERTY OF GRID ARCHITECTURE, LLC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND FINISHES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.



**ALFF CONSTRUCTION - TENANT FINISH**  
 6860 S 118TH ST  
 OMAHA, NEBRASKA

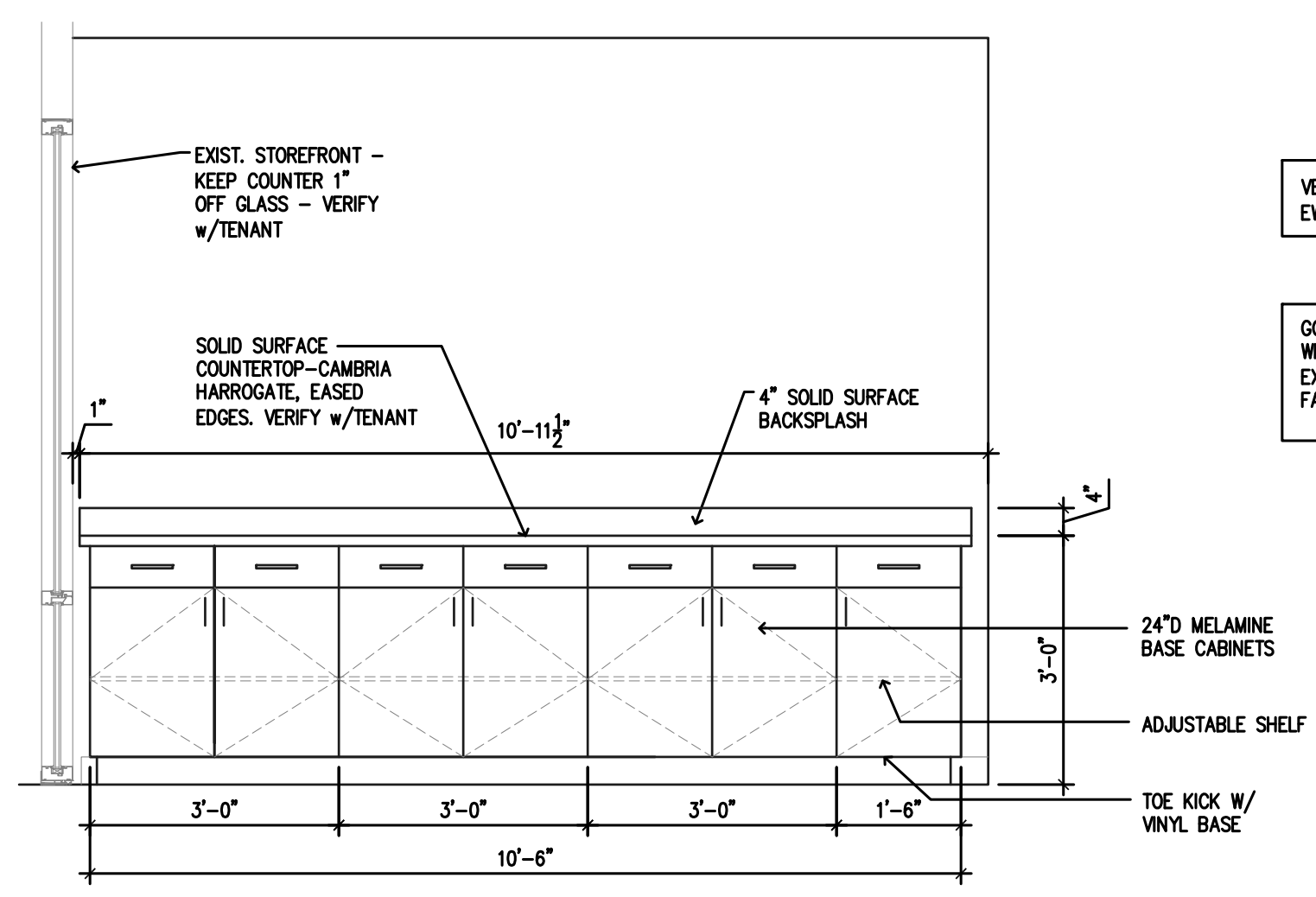
CREATE + BUILD + INHABIT

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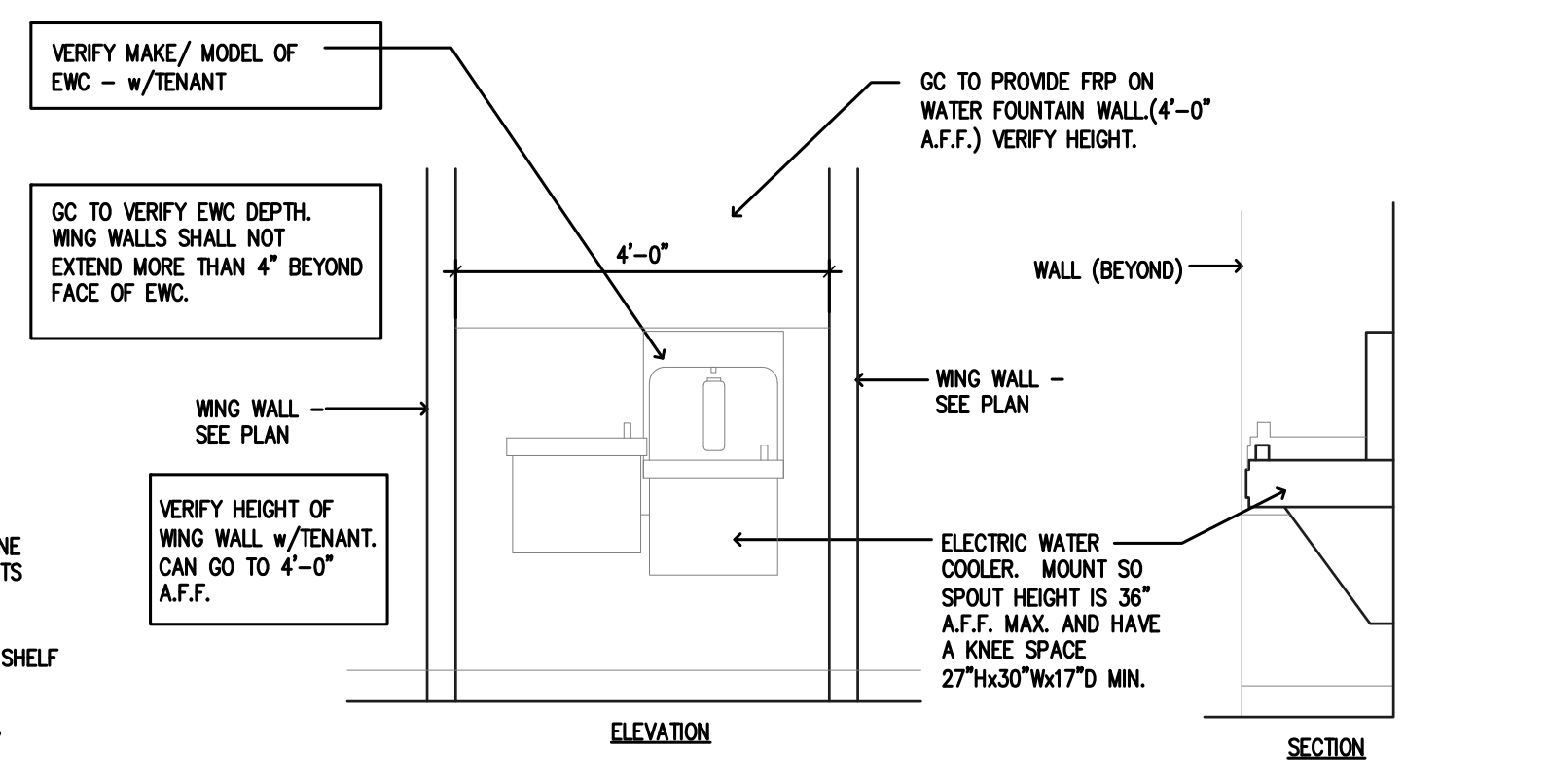


06/02/23

**A1.3**  
MILLWORK ELEVATIONS

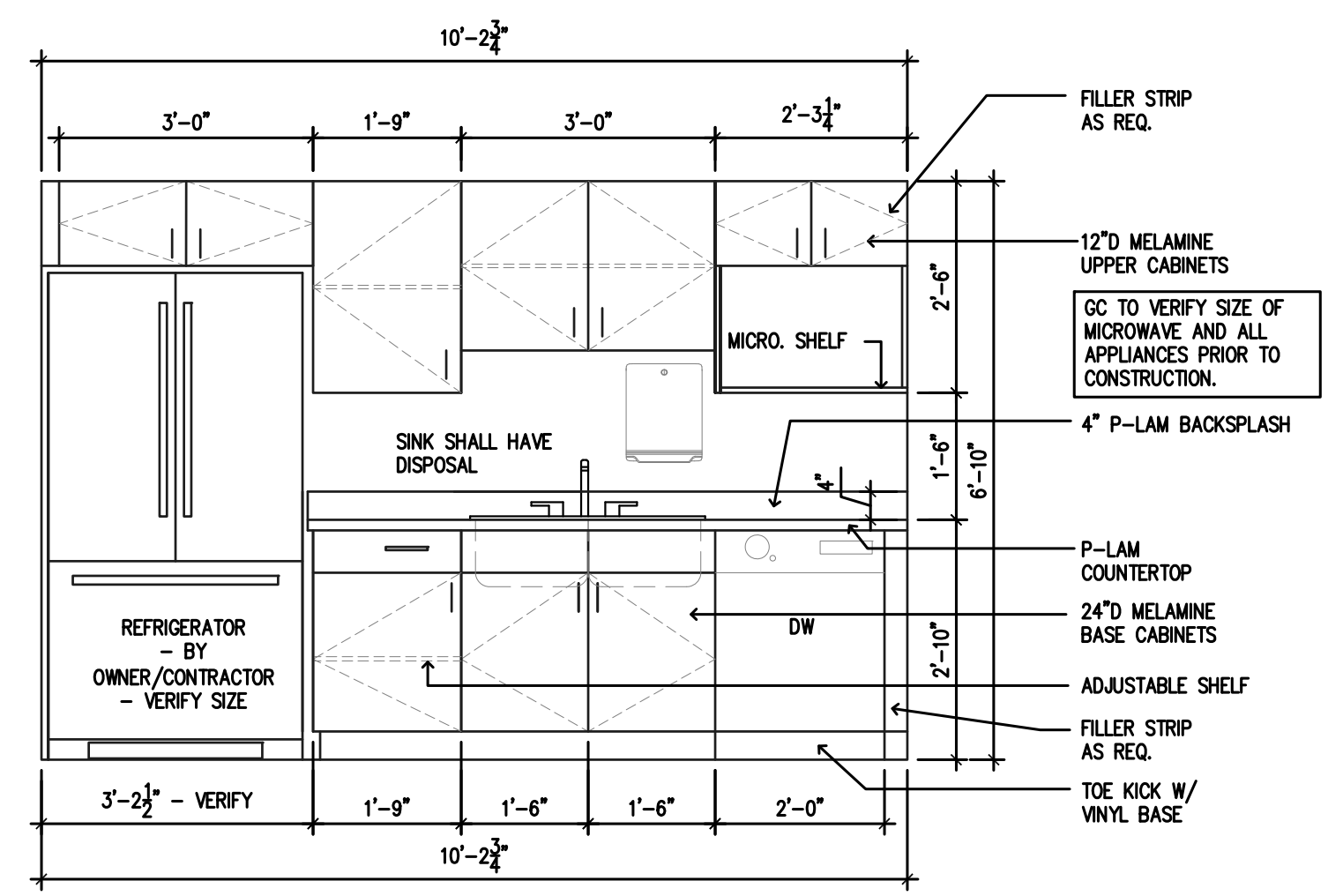


**1 COUNTER ELEVATION**  
A1.3 1/2" = 1'-0"



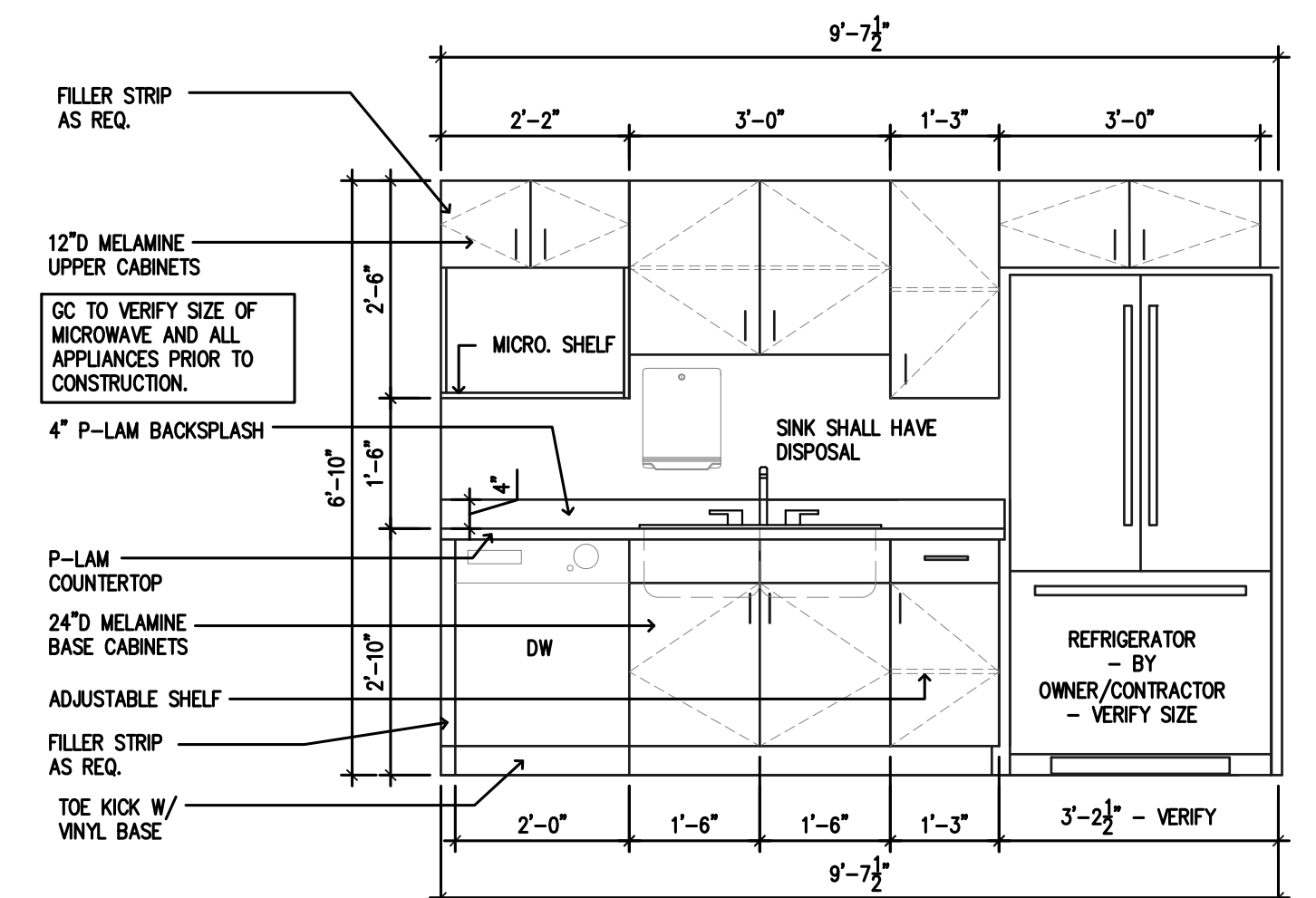
**4 ELEVATION**  
A1.3 1/2" = 1'-0"

**NOTES**  
 1. GENERAL CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING AND COORDINATING ADEQUATE BLOCKING FOR ALL TOILET ACCESSORIES.



**2 CABINET ELEV.** (BREAK RM 116)  
A1.3 1/2" = 1'-0"

PER ANSI 606.2 EXCEPTION #1 UNDER SINK ACCESS NOT REQ. WITH PARALLEL APPROACH AND NO RANGE IN COUNTER.

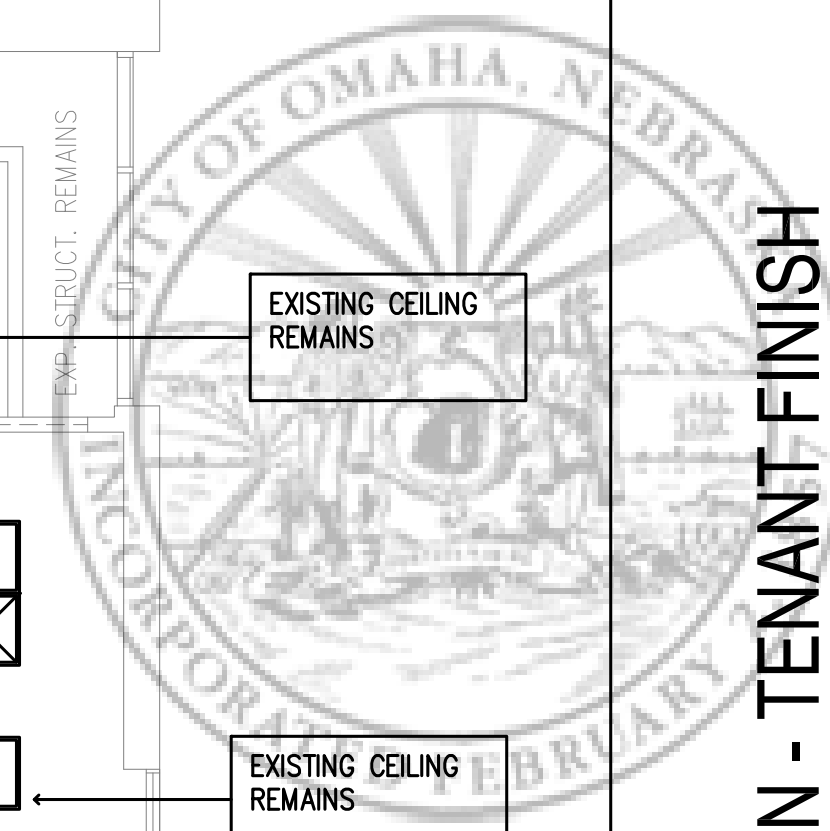


**3 CABINET ELEV.** (BREAK AREA 129)  
A1.3 1/2" = 1'-0"

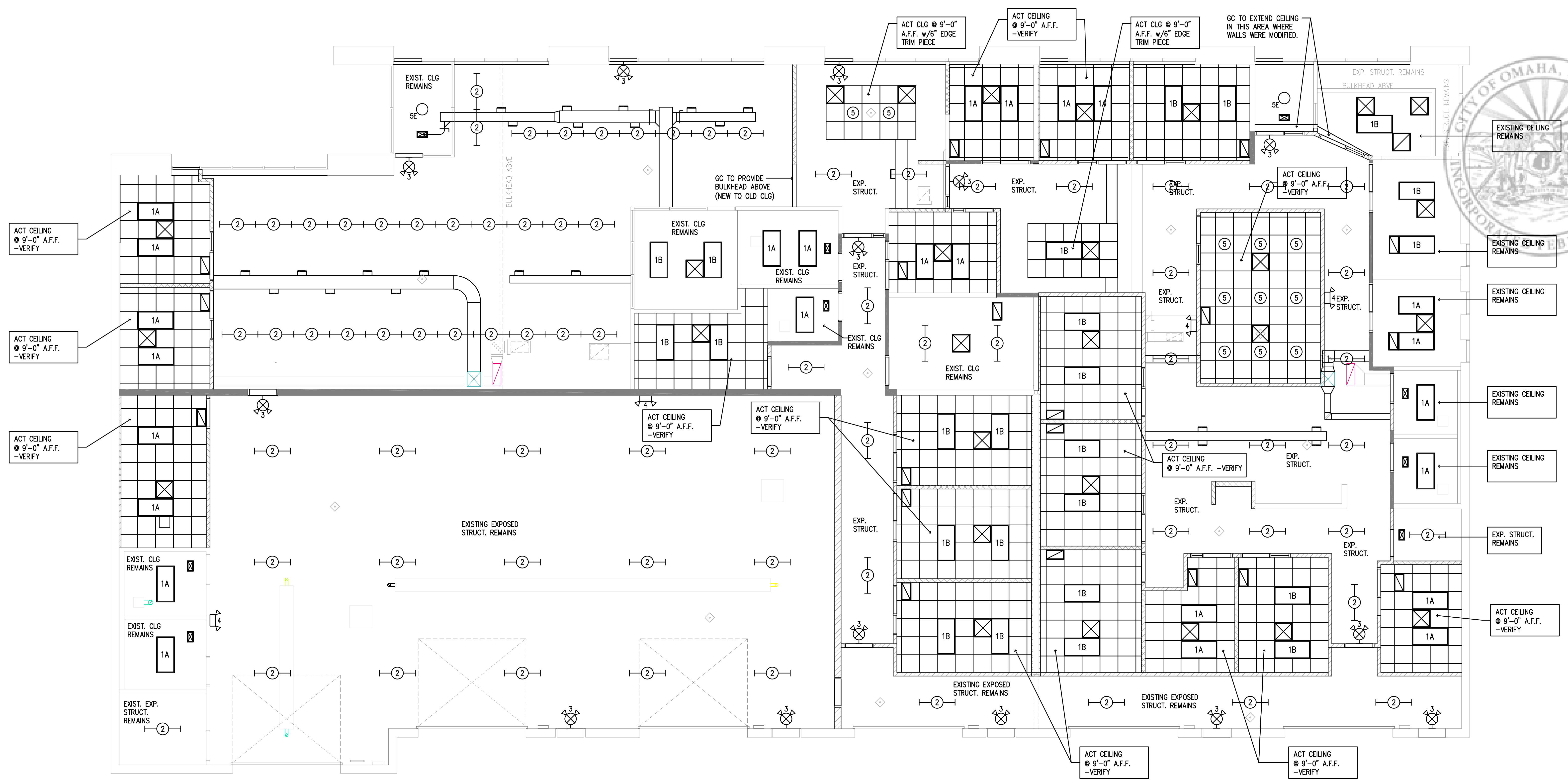
PER ANSI 606.2 EXCEPTION #1 UNDER SINK ACCESS NOT REQ. WITH PARALLEL APPROACH AND NO RANGE IN COUNTER.

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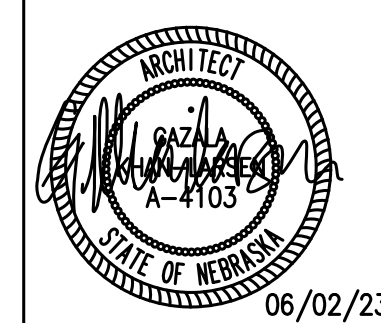
**REFLECTED CEILING PLAN**  
 3/16" = 1'-0" NORTH

**GENERAL REFLECTED CEILING NOTES:**

1. PROVIDE AND INSTALL ALL NECESSARY BLOCKING FOR CEILING SYSTEMS.
2. COORDINATE LOCATION OF EXIT SIGNAGE, EMERGENCY LIGHTING, AND ANY OTHER CEILING MOUNTED LIFE/SAFETY SYSTEMS W/ ELECTRICAL.
3. CENTER ACT GRIDS IN ROOMS, U.N.O.
4. WALL MOUNTED EXIT LIGHTS SHALL BE MOUNTED 6" ABOVE DOOR FRAME & CENTERED ON DOOR.
5. CEILING MOUNTED EXIT LIGHTS SHALL BE MOUNTED 10" FROM WALL & CENTERED ON DOOR.

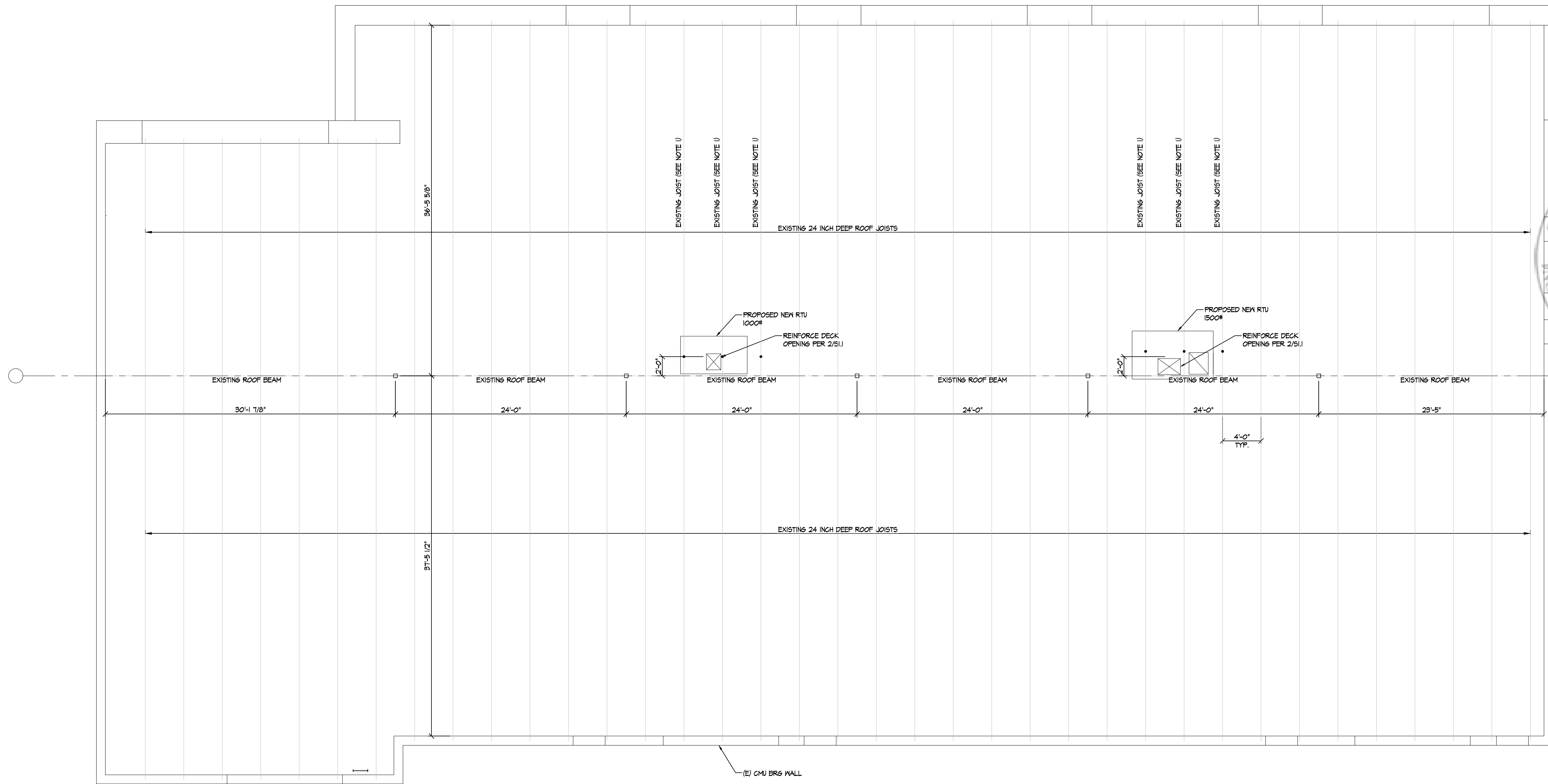
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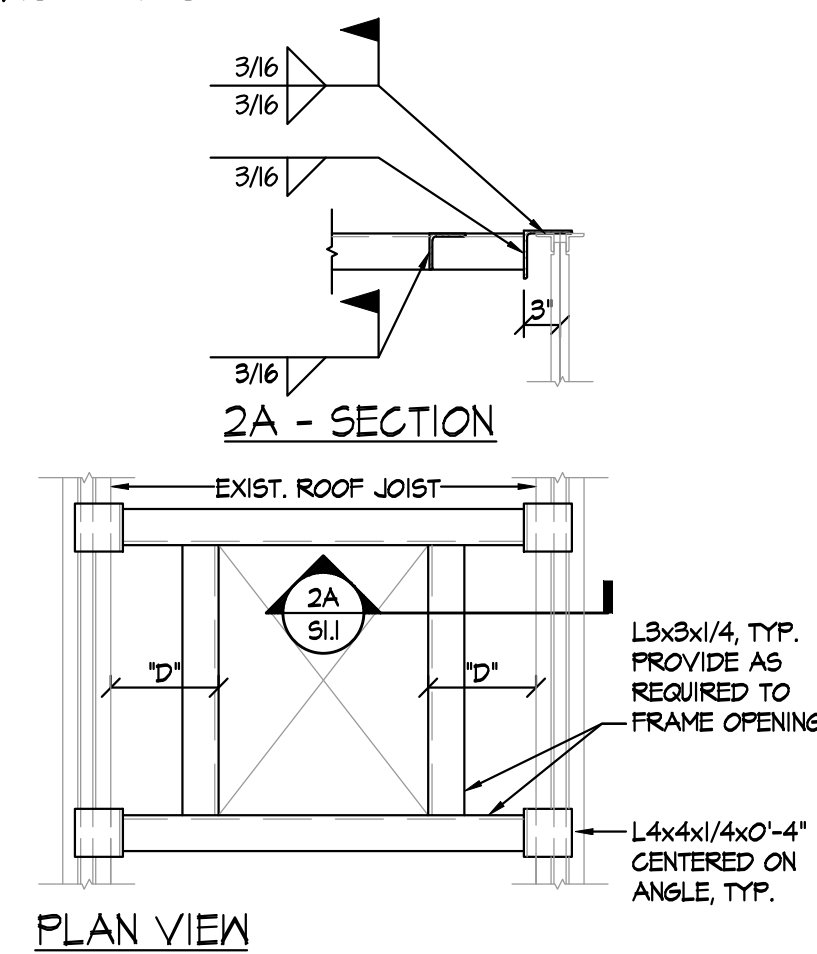


06/02/23

**A1.4**  
 REFLECTED CEILING PLAN & NOTES

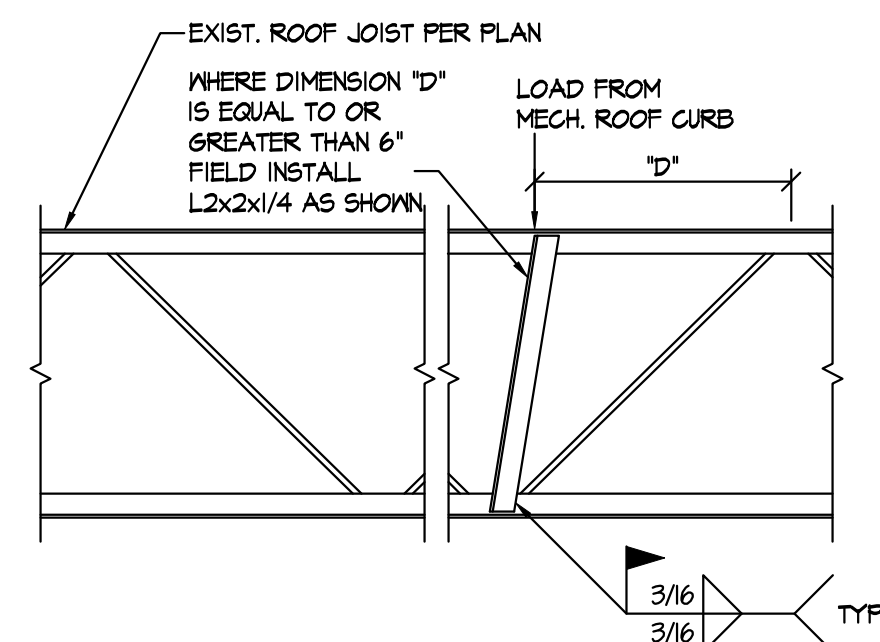


1  
S.I.1  
**ROOF FRAMING PLAN**  
SCALE: 3/16" = 1'-0"



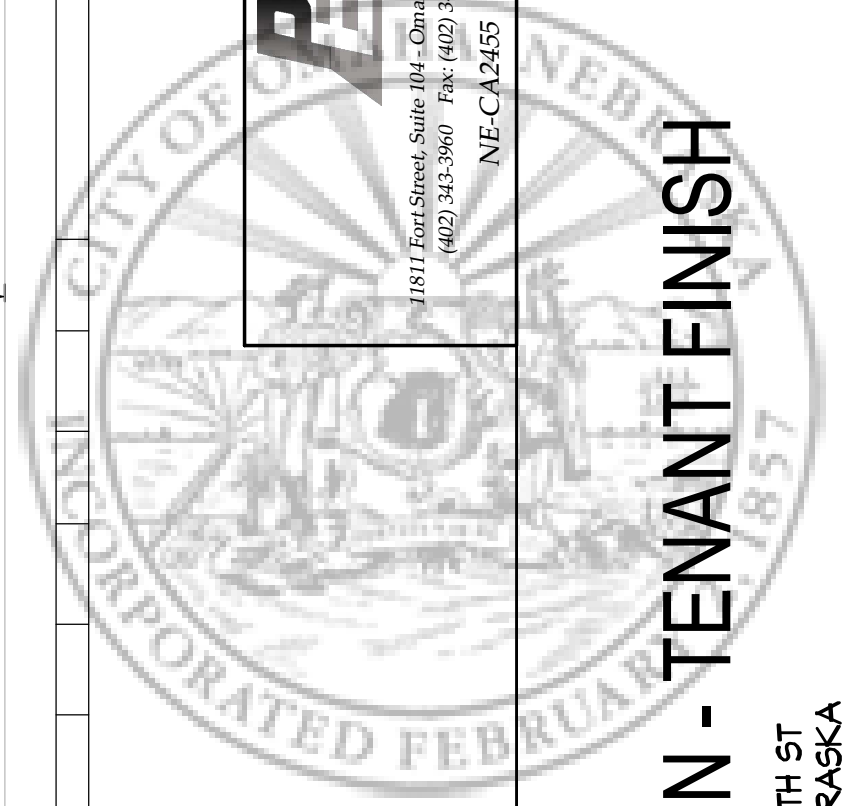
2  
S.I.1  
**ROOF OPENING SUPPORT DETAIL**  
SCALE: 3/4" = 1'-0"

- NOTES:
1. TYPICAL ROOF OPENING DETAIL SHOWN APPLIES TO ALL ROOF OPENINGS WHERE LEAST DIMENSION IS 18" OR LARGER. REINFORCE ROOF OPENINGS LESS THAN 18" BY WELDING 16 GA. SHEET METAL 1'-0" WIDER THAN OPENING TO METAL ROOF DECK. WHERE DIMENSION 'D' IS LESS THAN 6" ANGLE MAY BE OMITTED.
  2. CUT OPENINGS AFTER PLACEMENT OF ROOF DECK.
  3. PROVIDE JOIST REINFORCING AS REQUIRED PER 'JOIST LOAD STRUT DETAIL'.



3  
S.I.1  
**JOIST LOAD STRUT DETAIL**  
SCALE: 3/4" = 1'-0"

**PERFORMANCE Engineering**  
399 Perry Street, Suite 204A - Omaha, NE 68104  
(402) 343-3860 Fax: (402) 343-3961  
PE # 230619  
NE-C-2455

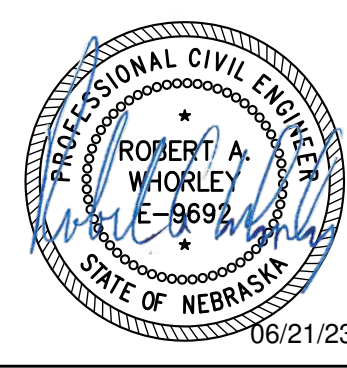


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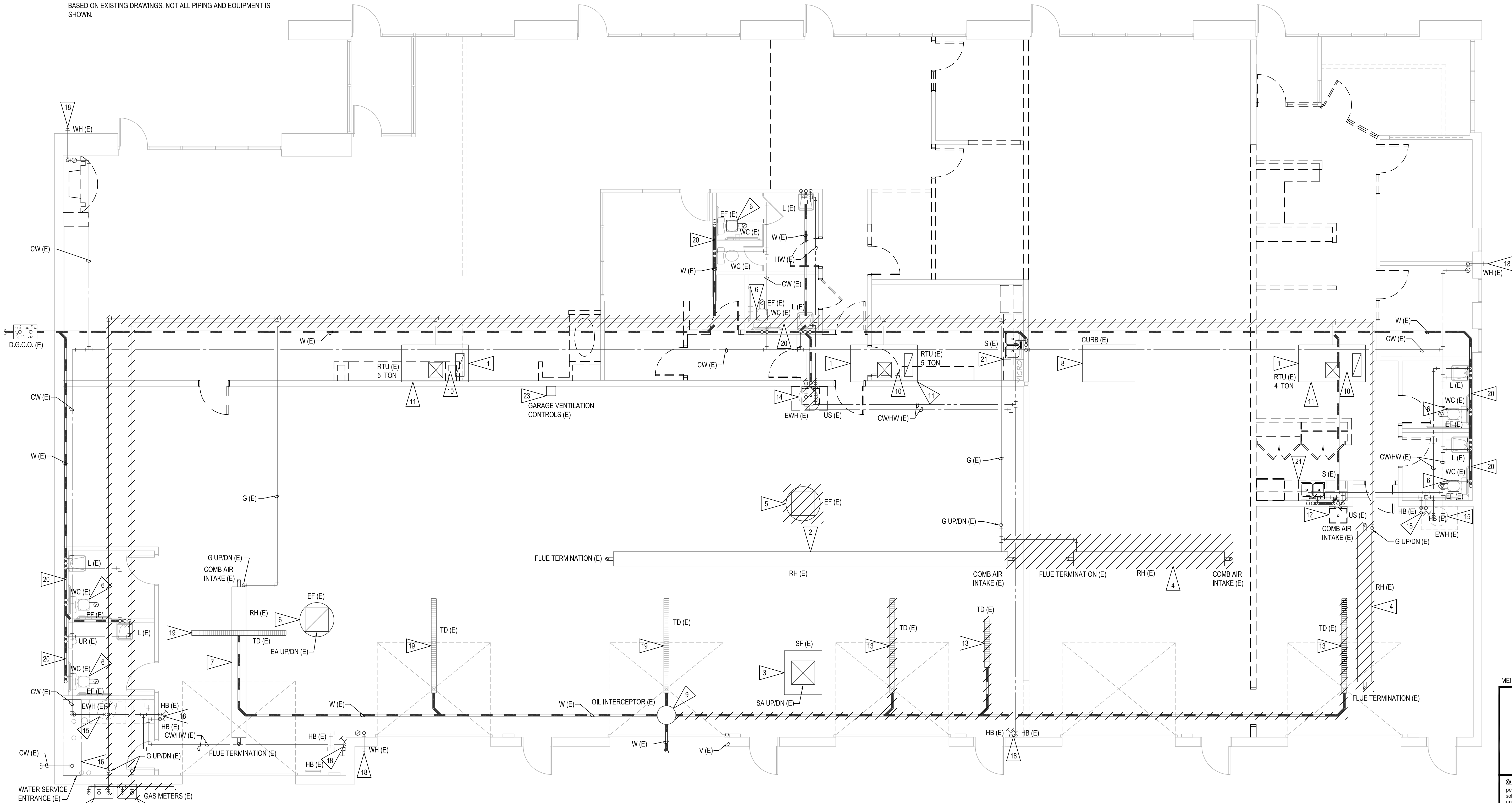
**S.I.1**  
ROOF FRAMING PLAN

**DEMOLITION NOTES**

- ALL MECHANICAL ITEMS SHOWN ARE EXISTING. NOT ALL EXISTING MECHANICAL ITEMS ARE SHOWN. ITEMS SHOWN DASHED/HATCHED ARE TO BE RELOCATED / REMOVED.
- EXISTING DRAWINGS ARE BASED ON APPROXIMATIONS FROM FIELD OBSERVATIONS. DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY EXACT LOCATION OF ALL EXISTING EQUIPMENT, DUCTWORK AND PIPING. EQUIPMENT, DUCTWORK AND PIPING DISCOVERED ON SITE TO BE REMOVED BUT NOT INDICATED ON PLANS TO BE IDENTIFIED BY CONTRACTOR AND REMOVED AS DIRECTED BY ENGINEER.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO PROVIDING NEW WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING REMOVAL AS REQUIRED TO ACCOMMODATE ACTUAL CONDITIONS.
- COORDINATE PHASING OF DEMOLITION AND REMOVAL WITH GENERAL CONTRACTOR. PLAN ALL WORK TO MINIMIZE SHUT DOWNS. WHERE APPLICABLE, COORDINATE EXTENT OF DEMOLITION WORK WITH NEW WORK.
- HOLES CUT IN WALLS, FLOORS AND CEILINGS TO PERMIT THE REMOVAL OF EXISTING EQUIPMENT, PIPING, ETC. SHALL BE CAREFULLY MADE AND RESTRICTED TO THE SMALLEST PRACTICAL SIZE. PATCH ALL HOLES NOT REQUIRED FOR NEW WORK TO MATCH EXISTING. SEAL ALL HOLES OF EXTERIOR ENVELOPE WATER TIGHT.
- THE OWNER RESERVES THE FIRST RIGHT OF SALVAGE OF ANY ITEMS REMOVED. CONTRACTOR SHALL REMOVE ALL UNWANTED MATERIALS FROM THE SITE. OWNER'S DUMPSTER OR OTHER TRASH RECEPTACLES ARE NOT TO BE UTILIZED.
- ALL PIPING AND EQUIPMENT SHOWN ON THIS SHEET IS EXISTING BASED ON EXISTING DRAWINGS. NOT ALL PIPING AND EQUIPMENT IS SHOWN.
- FIELD VERIFY EXACT LOCATION OF ALL PIPING. ADJUST ROUTING OF NEW PIPING AS REQUIRED.
- REMOVE ALL EXISTING PLUMBING SHOWN TO BE REMOVED AS WELL AS OTHER PLUMBING REQUIRED TO ACCOMMODATE NEW WORK. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL REMOVED PLUMBING. ALL UNUSED PLUMBING SHALL BE COMPLETELY REMOVED FROM SITE.
- PLUMBING CONTRACTOR SHALL PROVIDE FLOOR CUTTING AND PATCHING AS REQUIRED FOR INSTALLATION OF BELOW FLOOR PIPING.
- COORDINATE ALL ROOF WORK WITH GENERAL CONTRACTOR AND ROOFING CONTRACTORS. MAINTAIN EXISTING ROOF WARRANTY.

**DEMOLITION FLAG NOTES**

- EXISTING ROOFTOP UNIT TO REMAIN. PROVIDE COMPLETE SERVICE INCLUDING, CLEANING OF COILS COMPLETE CHARGE OF REFRIGERANT, CHANGE OF BELTS AND NEW FILTERS. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER. RELOCATE EXISTING RADIANT HEATER. PROVIDE COMPLETE SERVICE. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER. SEE SHEET M1.1 FOR NEW LOCATION.
- RELOCATE EXISTING SUPPLY AIR FAN. PROVIDE COMPLETE SERVICE INCLUDING, CHANGE OF BELTS. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER. SEE SHEET M1.1 FOR NEW LOCATION. COORDINATE ROOF PATCHING WITH GENERAL CONTRACTOR AND ROOFING CONTRACTOR.
- REMOVE EXISTING RADIANT HEATER, COMBUSTION AIR, FLUE VENT AND CONTROLS COMPLETE. COORDINATE PATCHING ROOF PENETRATION WITH GENERAL CONTRACTOR AND ROOFING CONTRACTOR.
- REMOVE EXISTING EXHAUST FAN AND CONTROLS COMPLETE. COORDINATE PATCHING ROOF PENETRATION WITH GENERAL CONTRACTOR AND ROOFING CONTRACTOR.
- EXISTING EXHAUST FAN, DUCT AND CONTROLS TO REMAIN. PROVIDE COMPLETE SERVICE INCLUDING, CHANGE OF BELTS. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER.
- EXISTING RADIANT HEATER TO REMAIN. PROVIDE COMPLETE SERVICE. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER.
- EXISTING ROOF CURB TO REMAIN. SEE SHEET M1.1 FOR NEW RTU LOCATED ON EXISTING ROOF CURB.
- EXISTING OIL INTERCEPTOR AND ASSOCIATED VENT PIPING TO REMAIN.
- REMOVE EXISTING DIFFUSERS, GRILLES AND EXISTING SUPPLY/RETURN DUCT BACK TO DUCT DROPS THROUGH ROOF. PREPARE EXISTING SUPPLY/RETURN DUCTS FOR NEW DUCT CONNECTIONS. SEE SHEET M1.1 FOR NEW DUCT CONNECTIONS.
- RELOCATE EXISTING ROOFTOP UNIT THERMOSTAT. PROVIDE ADDITIONAL CONTROL WIRING AS REQUIRED. SEE SHEET M1.1 FOR NEW LOCATION.
- REMOVE EXISTING PLUMBING FIXTURE. REMOVE EXISTING CW, HW, W, AND V PIPING FROM FIXTURE BACK TO MAIN. CAP AND INSULATE PIPING. DO NOT ALLOW DEAD LEGS OF SANITARY PIPING.
- REMOVE/FILL EXISTING TRENCH DRAIN. REMOVE EXISTING WASTE AND VENT PIPING AND CAP BACK AT MAIN. CAP AND INSULATE PIPING. DO NOT ALLOW DEAD LEGS OF SANITARY PIPING.
- RELOCATE EXISTING ELECTRIC WATER HEATER AND UTILITY SINK. EXTEND PIPING AS REQUIRED. SEE SHEET M2.1 FOR NEW LOCATION AND NEW PIPING.
- EXISTING ELECTRIC WATER HEATER TO REMAIN. PROVIDE COMPLETE SERVICE. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER.
- EXISTING WATER SERVICE ENTRANCE TO REMAIN.
- REMOVE EXISTING GAS PIPING MAIN BACK TO METER. COORDINATE NEW METER SIZE AND LOCATION WITH MUD. SEE SHEET M2.1 FOR ADDITIONAL GAS SERVICE INFORMATION.
- EXISTING WALL HYDRANT/HOSE BIBS TO REMAIN.
- EXISTING TRENCH DRAIN TO REMAIN.
- EXISTING RESTROOM PLUMBING FIXTURES TO REMAIN.
- REMOVE EXISTING PLUMBING FIXTURE. REMOVE EXISTING CW, HW, W, AND V PIPING FROM FIXTURE BACK TO MAIN. CAP AND INSULATE PIPING. DO NOT ALLOW DEAD LEGS OF SANITARY PIPING.
- EXISTING 2-PSIG GAS SERVICE AND METER BY LOCAL UTILITIES DISTRICT TO REMAIN. SEE SHEET M2.1 FOR ADDITIONAL GAS SERVICE INFORMATION.
- EXISTING GARAGE VENTILATION CONTROLS TO REMAIN.



**FLOOR PLAN - MECHANICAL DEMOLITION**

1 M0.1 3/16" = 1'-0"

MEI 23198 NEBRASKA COA NUMBER = CA-0835

**morrissey engineering inc**  
 mechanical | electrical | lighting | technology | commissioning

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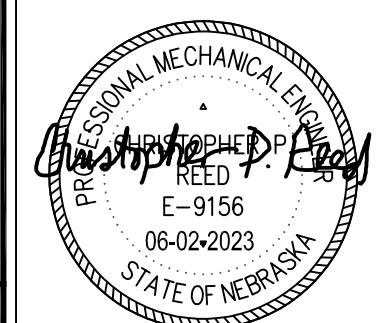
note: do not scale drawings. verify all dimensions and clearances from architectural, structural, shop and other appropriate drawings or at site. lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. do not fabricate prior to verification of clearance for all trades.

REVISIONS/DATES		
NO.	DATE	DESCRIPTION



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 OMAHA, NEBRASKA

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**M0.1**  
 FLOOR PLAN - MECHANICAL DEMOLITION

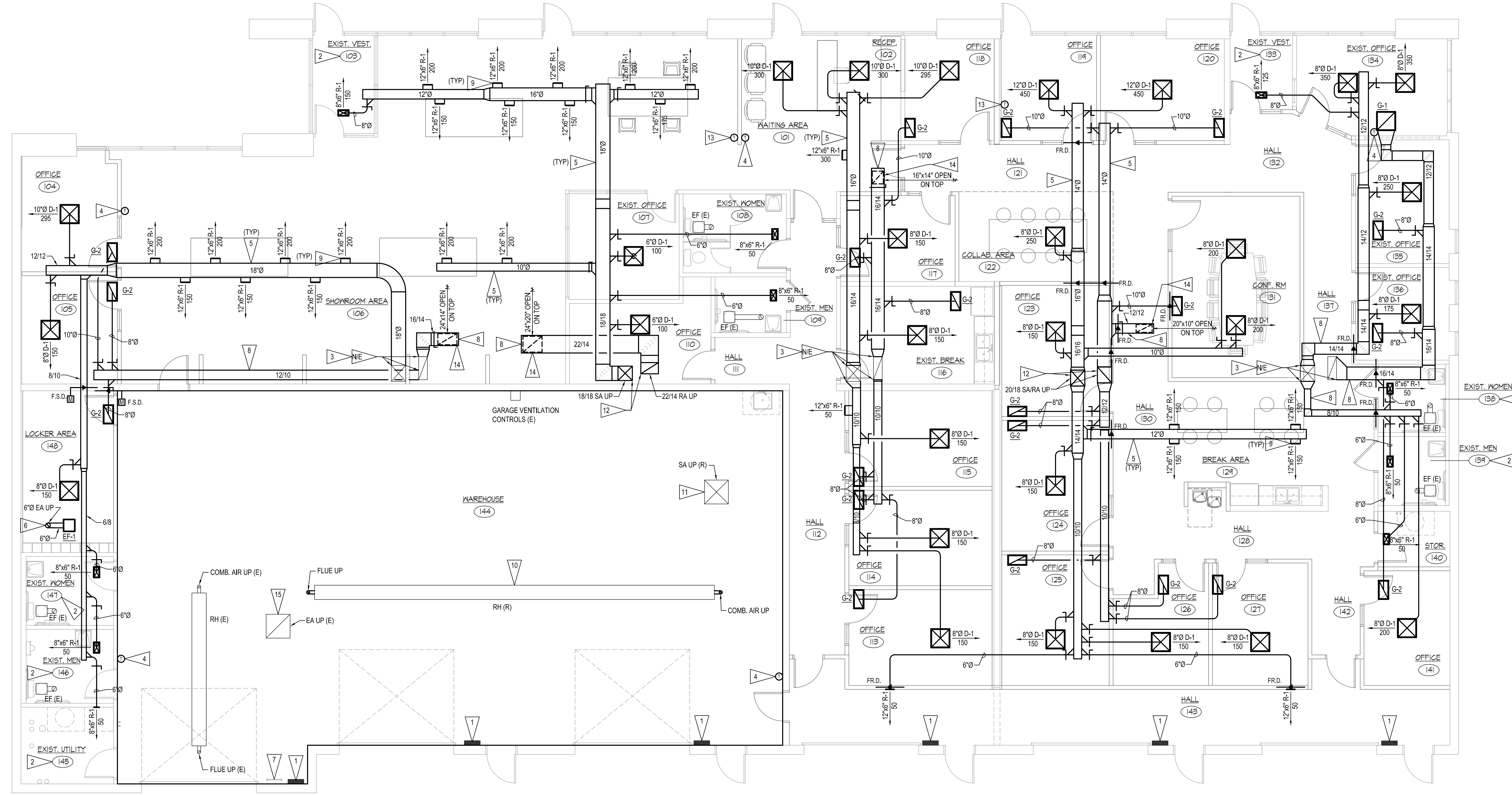


**GENERAL NOTES**

- DO NOT ROUTE DUCTWORK OR LOCATE EQUIPMENT ABOVE ELECTRICAL PANELS. MAINTAIN ALL CODE REQUIRED CLEARANCES.
- MECHANICAL ITEMS SHOWN LIGHT AND / OR INDICATED WITH (E) ARE EXISTING. ITEMS INDICATED WITH A (R) ARE RELOCATED. ALL ITEMS SHOWN DARK ARE NEW.
- EXISTING DRAWINGS ARE BASED ON EXISTING CONSTRUCTION DOCUMENTS AND APPROXIMATION FROM FIELD OBSERVATIONS. DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY EXACT LOCATION OF ALL MECHANICAL ITEMS. MECHANICAL ITEMS DISCOVERED ON SITE TO BE REMOVED BUT NOT INDICATED ON PLANS TO BE IDENTIFIED BY CONTRACTOR AND REMOVED / RELOCATED AS DIRECTED BY THE ENGINEER.
- PLANS ARE SCHEMATIC IN NATURE. COORDINATE EXACT ROUTING AND EQUIPMENT LOCATIONS WITH ALL OTHER TRADES. PROVIDE OFFSETS AS REQUIRED.
- UNLESS OTHERWISE NOTED, ROUTE DUCTWORK AS HIGH AS POSSIBLE. UTILIZE JOIST SPACE AND OPEN WEBBING OF JOIST TO AVOID CONFLICTS. COORDINATE EXACT ROUTING WITH STRUCTURE, LIGHTS AND ALL OTHER TRADES. PROVIDE NECESSARY OFFSETS, TRANSITIONS AND EXTENSIONS AS REQUIRED TO COMPLETE INSTALLATION AT NO ADDITIONAL COST TO OWNER.
- CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO NEW WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING DUCTWORK AS NECESSARY TO AVOID CONFLICTS WITH EXISTING CONDITIONS AND WITH ALL TRADES OF NEW WORK AT NO ADDITIONAL COST TO THE OWNER.
- COORDINATE ALL ROOF, WALL, AND FLOOR PENETRATIONS WITH GENERAL CONTRACTOR. SEAL PENETRATIONS OF EXTERIOR ENVELOPE WATERTIGHT.
- MAINTAIN CODE AND MANUFACTURER'S REQUIRED CLEARANCES AROUND ALL MECHANICAL EQUIPMENT TO ALLOW PROPER OPERATION AND FOR EASY MAINTENANCE AND FILTER ACCESS. INSTALL ALL MECHANICAL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH CURRENTLY ADOPTED LOCAL AND STATE CODES AS WELL AS OWNER STANDARDS.
- MECHANICAL CONTRACTOR TO PROVIDE ALL LOW VOLTAGE CONTROL WIRING AND ELECTRICAL CONTRACTOR TO PROVIDE ALL POWER AND LINE VOLTAGE CONTROL WIRING REQUIRED FOR COMPLETE OPERATION OF ALL MECHANICAL EQUIPMENT.
- SEE DUCT FITTING DETAIL 1 ON SHEET M3.1.
- SPACE IS LIMITED. COORDINATE DUCT ROUTING WITH STRUCTURE AND ALL OTHER TRADES. OFFSET AND EXTEND DUCTWORK AS REQUIRED TO AVOID CONFLICTS.
- INSTALL ALL VOLUME DAMPERS ABOVE ACCESSIBLE CEILING OR IN ACCESSIBLE LOCATIONS.
- ROUND RUN-OUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSER NECK UNLESS NOTED OTHERWISE. SEE DIFFUSER CONNECTION DETAIL 2 ON SHEET M3.1.

**FLAG NOTES**

- CONNECT NEW TO EXISTING. FIELD VERIFY EXISTING SIZE AND LOCATION PRIOR TO PROVIDING NEW WORK.
- DO NOT ROUTE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS. MAINTAIN ALL CODE REQUIRED CLEARANCES.
- CONNECT NEW SAIRA DUCT TO EXISTING SAIRA DUCT DROP. FIELD VERIFY EXISTING DUCT LOCATION AND SIZE. TRANSITION SAIRA DUCT TO EXISTING DUCT DROPS AS REQUIRED.
- RELOCATE THERMOSTAT/HUMIDISTAT TO LOCATION INDICATED TO CONTROL RTU. COORDINATE T-STAT LOCATION WITH ARCHITECT, TENANT AND ELECTRICAL CONTRACTOR. PROVIDE ADDITIONAL CONTROL WIRING AS REQUIRED.
- ROUTE DUCT TIGHT TO BOTTOM OF STRUCTURE. DOUBLE WALL DUCT, WITH 1" INTERSTITIAL LINER, SHALL BE PROVIDED WITH GRIP FINISH PAINT FOR FIELD APPLIED FINAL PAINT COLOR. COORDINATE FINAL COLOR WITH ARCHITECT AND OWNER.
- E.A. DUCT UP FROM EF TO EXHAUST CAP. COORDINATE WITH STRUCTURE.
- DO NOT ROUTE DUCT OR PIPING OVER ROOF ACCESS LADDER. MAINTAIN CLEARANCES FOR ACCESS TO ROOF.
- EXPOSED RECTANGULAR DUCT SHALL BE LINED. ROUTE DUCT TIGHT TO BOTTOM OF STRUCTURE. COORDINATE DUCT ROUTING WITH LIGHT FIXTURES AND ARCHITECTURAL.
- PAINT EXPOSED DUCTWORK AND REGISTERS VISIBLE TO PUBLIC. COORDINATE EXACT COLOR WITH ARCHITECT AND OWNER. CONSTRUCT DUCT TO BE PAINTED WITH GRIP FINISH.
- RELOCATE EXISTING RADIANT HEATER TO LOCATION INDICATED. PROVIDE NEW COMBUSTION AIR AND FLUE VENT PENETRATIONS UP THROUGH ROOF TO ROOF CAP.
- RELOCATE EXISTING SUPPLY AIR FAN TO LOCATION INDICATED. RECONNECT EXISTING CONTROLS FOR GARAGE VENTILATION. COORDINATE SUPPLY AIR DUCT WITH STRUCTURE, GENERAL CONTRACTOR AND ROOFING CONTRACTOR. BALANCE SUPPLY AIR FAN TO 2000 CFM.
- S.A.I.R.A. DUCTS UP THROUGH ROOF TO ROOFTOP EQUIPMENT. COORDINATE WITH STRUCTURE. TRANSITION TO RTU OPENING SIZES AS REQUIRED.
- PROVIDE THERMOSTAT/SENSOR/HUMIDISTAT AT LOCATION INDICATED TO CONTROL RTU. COORDINATE T-STAT LOCATION WITH ARCHITECT, TENANT AND ELECTRICAL CONTRACTOR.
- MOUNT DUCT AS HIGH AS POSSIBLE AND MAINTAIN 12" AIR GAP ABOVE OPENING.
- BALANCE EXISTING EXHAUST FAN TO 2000 CFM.



00001 - MPE (Frank Reida)  
HVAC to meet IMC 2012 or ASHRAE 62.1

**1 FLOOR PLAN - HVAC**  
M1.1 3/16" = 1'-0"



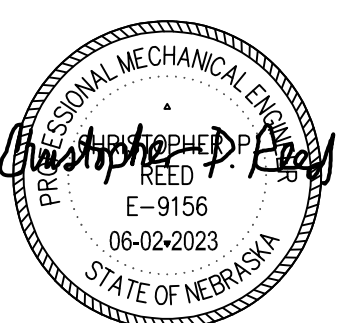
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**M1.1**  
FLOOR PLANS - HVAC



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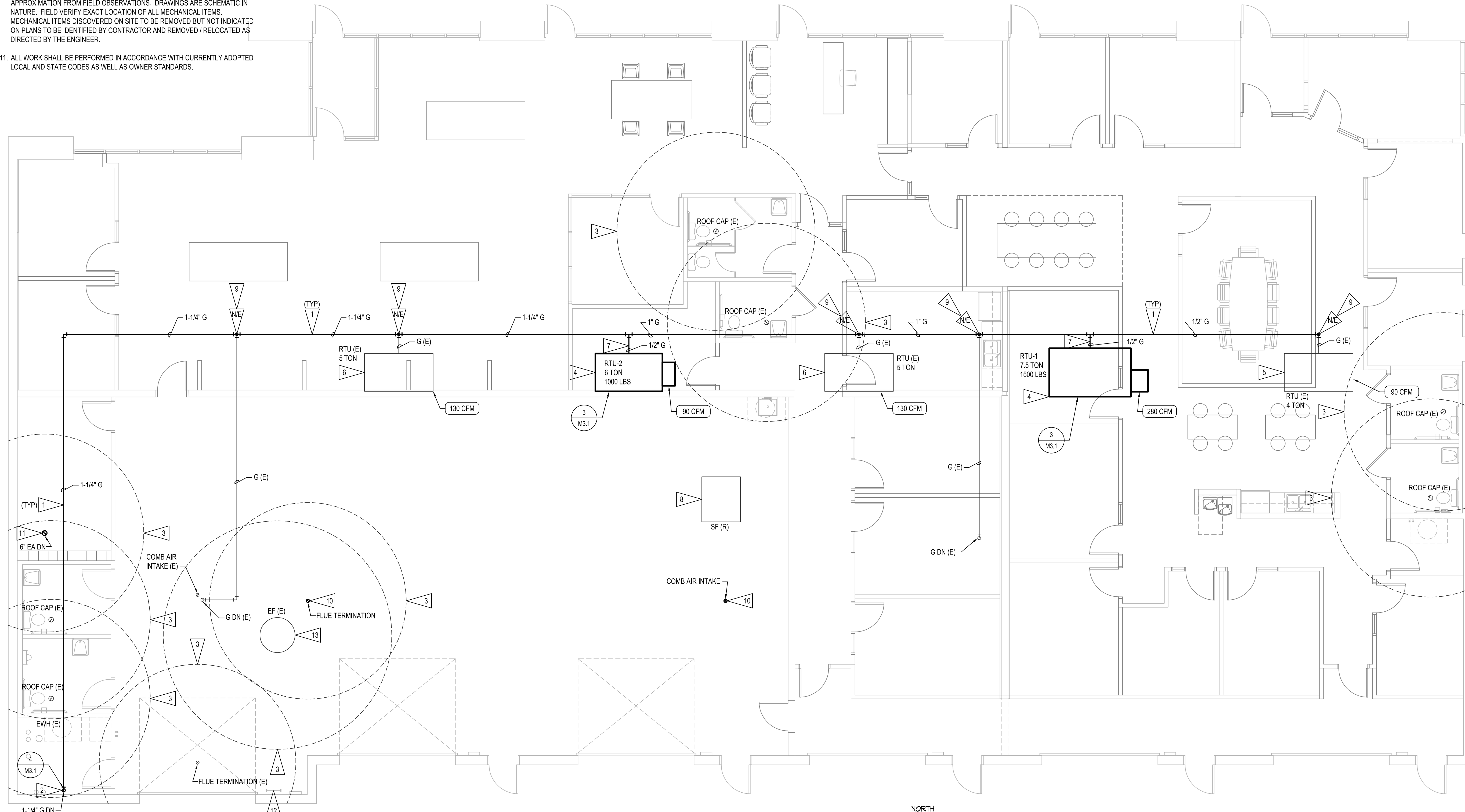
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**GENERAL NOTES**

1. SEAL ALL ROOF PENETRATIONS WATER TIGHT. COORDINATE ALL PENETRATIONS WITH GENERAL CONTRACTOR AND ROOFING CONTRACTOR.
2. MECHANICAL ITEMS SHOWN LIGHT AND / OR INDICATED WITH (E) ARE EXISTING. ITEMS INDICATED WITH (R) ARE RELOCATED. ALL ITEMS SHOWN DARK ARE NEW.
3. DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY EXACT LOCATION OF ALL MECHANICAL ITEMS. MECHANICAL ITEMS DISCOVERED ON SITE TO BE REMOVED BUT NOT INDICATED ON PLANS TO BE IDENTIFIED BY CONTRACTOR AND REMOVED / RELOCATED AS DIRECTED BY THE ENGINEER.
4. MAINTAIN MANUFACTURER'S REQUIRED CLEARANCE AROUND ALL MECHANICAL EQUIPMENT TO ALLOW PROPER OPERATION, SAFETY AND FOR EASY MAINTENANCE AND FILTER ACCESS. INSTALL ALL MECHANICAL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
5. ALL ROOFTOP EQUIPMENT SHALL BE LOCATED A MINIMUM 10'-0" FROM BUILDING EDGE. PLACE OSHA APPROVED GUARDRAIL AT LOCATIONS WHERE MECHANICAL EQUIPMENT IS CLOSER THEN 10'-0" FROM BUILDING EDGE.
6. COORDINATE EXACT EQUIPMENT LOCATIONS WITH ROOF STRUCTURE AND STRUCTURAL DRAWINGS.
7. ALL OUTDOOR AIR INTAKES SHALL BE LOCATED AT LEAST 10 FEET FROM EXHAUST OUTLETS, COMBUSTION AIR STACKS AND PLUMBING VENTS.
8. COORDINATE ALL ROOF WORK WITH GENERAL CONTRACTOR AND ROOFING CONTRACTOR. ALL ROOF SUPPORTS FOR MECHANICAL SYSTEMS SHALL BE COMPATIBLE WITH ROOF CONSTRUCTION.
9. (XXX CFM) BALANCE OUTSIDE AIR TO CFM INDICATED.
10. EXISTING DRAWINGS ARE BASED ON EXISTING CONSTRUCTION DOCUMENTS AND APPROXIMATION FROM FIELD OBSERVATIONS. DRAWINGS ARE SCHEMATIC IN NATURE. FIELD VERIFY EXACT LOCATION OF ALL MECHANICAL ITEMS. MECHANICAL ITEMS DISCOVERED ON SITE TO BE REMOVED BUT NOT INDICATED ON PLANS TO BE IDENTIFIED BY CONTRACTOR AND REMOVED / RELOCATED AS DIRECTED BY THE ENGINEER.
11. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH CURRENTLY ADOPTED LOCAL AND STATE CODES AS WELL AS OWNER STANDARDS.

**FLAG NOTES**

- |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <p>NE</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> | <p>CONNECT NEW TO EXISTING. FIELD VERIFY EXISTING SIZE AND LOCATION PRIOR TO PROVIDING NEW WORK.</p> <p>SUPPORT GAS PIPING ON ROOF WITH PIPE STANDS COMPATIBLE WITH ROOF SYSTEM. COORDINATE REQUIREMENTS WITH BUILDING OWNER AND ROOFING CONTRACTOR.</p> <p>1-1/4" GAS DOWN THROUGH ROOF. SEAL ROOF PENETRATION WATER TIGHT.</p> <p>MAINTAIN 10'-0" MINIMUM FROM ALL OUTSIDE AIR INTAKES.</p> <p>RTU ON ROOF CURB. COORDINATE EXACT LOCATION WITH STRUCTURE. COORDINATE LAYOUT SO THAT SUPPLY/RETURN AIR OPENING IS CLEAR OF STRUCTURE. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES.</p> <p>EXISTING 4 TON RTU TO REMAIN. PROVIDE COMPLETE SERVICE INCLUDING CLEANING OF COILS COMPLETE CHARGE OF REFRIGERANT, CHANGE OF BELTS AND NEW FILTERS. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER. BALANCE SUPPLY AIR TO 1600 CFM. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNIT.</p> <p>EXISTING 5 TON RTU TO REMAIN. PROVIDE COMPLETE SERVICE INCLUDING CLEANING OF COILS COMPLETE CHARGE OF REFRIGERANT, CHANGE OF BELTS AND NEW FILTERS. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER. BALANCE SUPPLY AIR TO 1995 CFM. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNIT.</p> <p>CONNECT 1/2" GAS TO RTU. PROVIDE GAS COCK, PRESSURE REGULATOR AND DIRT LEG PRIOR TO CONNECTION TO EQUIPMENT. CONNECT PER MANUFACTURER RECOMMENDATIONS. SEE DETAIL. 3 SHEET M3.1.</p> <p>RELOCATE EXISTING SUPPLY AIR FAN TO LOCATION INDICATED. RECONNECT EXISTING CONTROLS FOR GARAGE VENTILATION. COORDINATE SUPPLY AIR DUCT WITH STRUCTURE. GENERAL CONTRACTOR AND ROOFING CONTRACTOR. BALANCE SUPPLY AIR FAN TO 2000 CFM.</p> | <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> | <p>CONNECT NEW G TO EXISTING G AT LOCATION INDICATED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING G. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION IF EXISTING LOCATION VARIES FROM WHAT IS INDICATED ON PLAN.</p> <p>PROVIDE NEW COMBUSTION AIR AND FLUE VENT PENETRATIONS THROUGH ROOF TO ROOF CAP. COORDINATE ROOF PENETRATIONS WITH GENERAL CONTRACTOR AND ROOFING CONTRACTOR.</p> <p>PROVIDE ROOF CAP ON EA DUCT UP FROM EF-1. COORDINATE WITH STRUCTURE.</p> <p>DO NOT ROUTE DUCT OR PIPING OVER ROOF ACCESS LADDER. MAINTAIN CLEARANCES FOR ACCESS TO ROOF.</p> <p>EXISTING EXHAUST FAN TO REMAIN. PROVIDE COMPLETE SERVICE INCLUDING CHANGE OF BELTS. REPORT ADDITIONAL NEEDED REPAIRS TO BUILDING OWNER. BALANCE EXHAUST AIR TO 2000 CFM. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES AROUND UNIT.</p> |
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**1 ROOF PLAN - MECHANICAL**  
 M1.2 3/8" = 1'-0"



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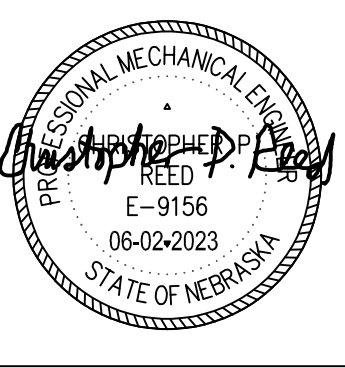
MEI 23198 NEBRASKA COA NUMBER = CA-0835

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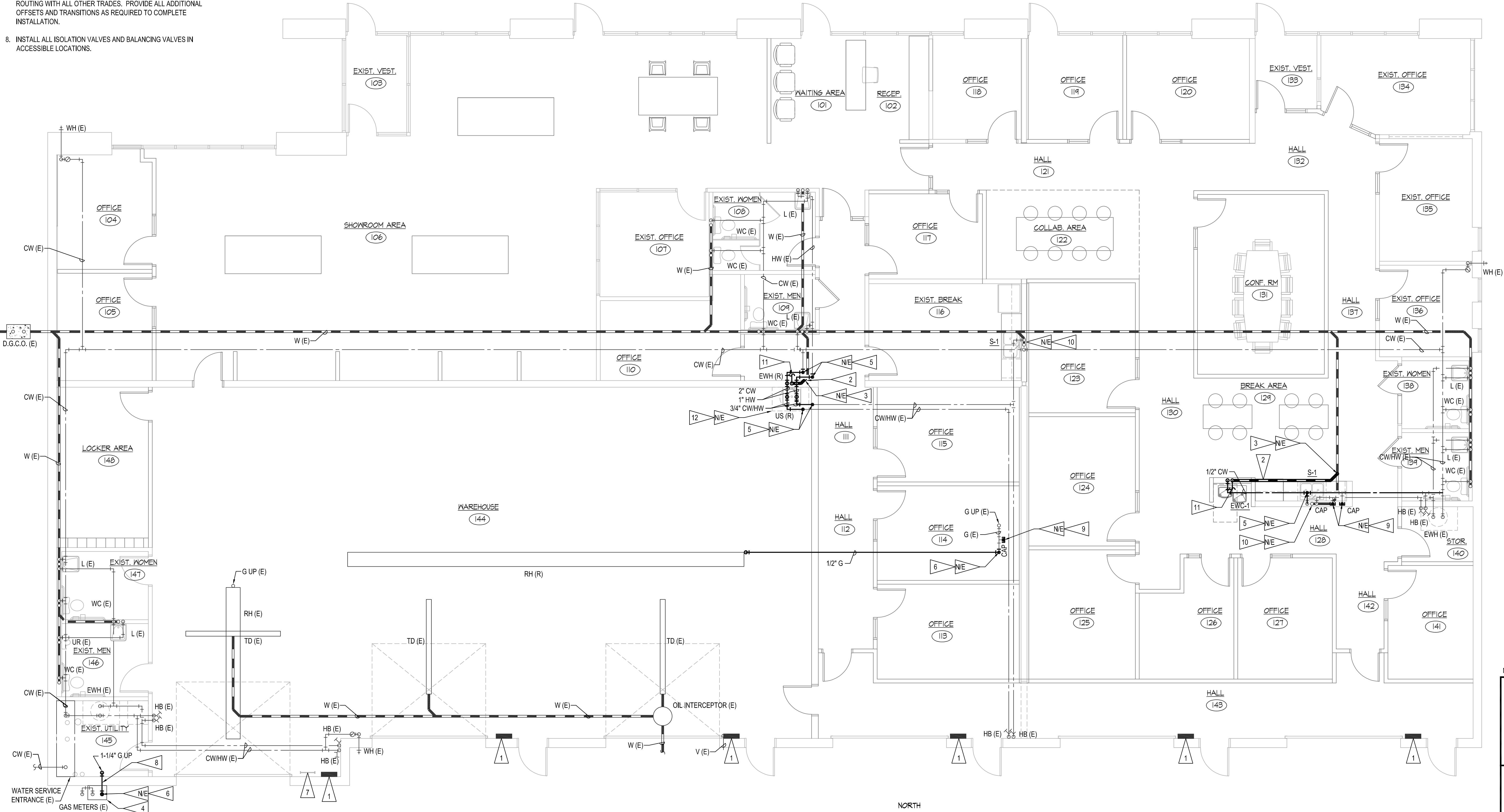
**M1.2**  
 ROOF PLAN - MECHANICAL

**GENERAL NOTES**

- NOT ALL EXISTING MECHANICAL ITEMS ARE SHOWN ON PLAN. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO NEW WORK. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING PIPING AS NECESSARY TO AVOID CONFLICTS WITH EXISTING CONDITIONS AND WITH ALL TRADES OF NEW WORK.
- MECHANICAL ITEMS SHOWN LIGHT AND / OR INDICATED WITH (E) ARE EXISTING. ALL ITEMS SHOWN DARK ARE NEW. ALL ITEMS INDICATED WITH (R) ARE RELOCATED ITEMS.
- DO NOT ROUTE PIPING ABOVE ELECTRICAL PANELS. MAINTAIN ALL CODE REQUIRED CLEARANCES.
- COORDINATE EXACT LOCATION OF ALL FLOOR, WALL, AND ROOF PENETRATIONS AND WORK TO BE PERFORMED ABOVE THE FLOORS AND ROOF WITH GENERAL CONTRACTOR. SEAL ALL PENETRATIONS OF EXTERIOR ENVELOPE WEATHER TIGHT.
- UNLESS OTHERWISE NOTED, ROUTE PIPING AS HIGH AS POSSIBLE. UTILIZE JOIST SPACE AND OPEN WEBBING OF JOISTS TO AVOID CONFLICTS. COORDINATE EXACT ROUTING WITH STRUCTURE, LIGHTS, DUCTWORK, AND ALL OTHER TRADES. PROVIDE NECESSARY OFFSETS, TRANSITIONS, AND EXTENSIONS AS REQUIRED TO COMPLETE INSTALLATION AT NO ADDITIONAL COST TO OWNER.
- PLANS ARE SCHEMATIC IN NATURE. PIPE ROUTING IS SHOWN FOR CLARITY AND FOR GENERAL ROUTING INFORMATION. COORDINATE EXACT ROUTING WITH ALL OTHER TRADES. PROVIDE ALL ADDITIONAL OFFSETS AS REQUIRED TO COMPLETE INSTALLATION.
- SPACE ABOVE LOWERED CEILINGS IS LIMITED. COORDINATE PIPE ROUTING WITH ALL OTHER TRADES. PROVIDE ALL ADDITIONAL OFFSETS AND TRANSITIONS AS REQUIRED TO COMPLETE INSTALLATION.
- INSTALL ALL ISOLATION VALVES AND BALANCING VALVES IN ACCESSIBLE LOCATIONS.
- ALL PIPING SHOWN FOR CLARITY. ROUTE WASTE, VENT, WATER AND GAS PIPING CONCEALED IN CHASES, IN WALLS OR ABOVE CEILINGS AS REQUIRED.
- DO NOT ROUTE WATER PIPING IN EXTERIOR WALLS UNLESS OTHERWISE NOTED. PIPING ROUTED IN EXTERIOR WALLS SHALL BE LOCATED ON WARM-IN-WINTER SIDE OF INSULATION.
- NOT ALL CLEANOUTS ARE SHOWN. PROVIDE CLEANOUTS PER OMAHA PLUMBING CODE. COORDINATE CLEANOUT LOCATIONS WITH GENERAL CONTRACTOR.
- COORDINATE ALL BELOW GRADE PIPING WITH EXISTING STRUCTURAL FOOTINGS. OFFSET BELOW GRADE PIPING AS REQUIRED TO AVOID CONFLICTS.
- SEE PLUMBING FIXTURE SCHEDULE ON SHEET M.1 FOR PLUMBING FIXTURE CONNECTION REQUIREMENTS.
- ALL PLUMBING SHALL BE IN ACCORDANCE WITH THE LOCAL PLUMBING CODE. NOT ALL CLEANOUTS SHOWN. PROVIDE CLEANOUTS AS REQUIRED PER AUTHORITY HAVING JURISDICTION. COORDINATE CLEANOUT LOCATIONS WITH GENERAL CONTRACTOR.
- SEE WASTE AND VENT RISER DIAGRAMS ON SHEET M3.1 FOR COMPLETE PLUMBING SIZES AND CONFIGURATION.
- EXPOSED PIPING SHALL BE PAINTED. COORDINATE WITH ARCHITECT AND GENERAL CONTRACTOR.

**FLAG NOTES**

- CONNECT NEW TO EXISTING. FIELD VERIFY EXISTING SIZE AND LOCATION PRIOR TO PROVIDING NEW WORK.
- DO NOT ROUTE PIPING ABOVE ELECTRICAL PANELS. MAINTAIN ALL CODE REQUIRED CLEARANCES.
- SAW CUT FLOOR AS REQUIRED TO ALLOW BELOW GRADE PIPE INSTALLATION. PATCH FLOOR TO MATCH EXISTING.
- CONNECT NEW WASTE TO EXISTING 4" WASTE AT LOCATION INDICATED. FIELD VERIFY EXACT SIZE, LOCATION, ELEVATION AND DIRECTION OF FLOW OF EXISTING WASTE. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION IF EXISTING LOCATION VARIES FROM WHAT IS INDICATED ON PLAN. SAW CUT FLOOR AS REQUIRED. PATCH FLOOR TO MATCH EXISTING.
- EXISTING 2-PSIG GAS SERVICE AND METER BY LOCAL UTILITIES DISTRICT TO REMAIN. FIELD VERIFY EXACT LOCATION OF EXISTING SERVICE AND METER. EXISTING CONNECTED LOAD = 750 CFH, NEW TOTAL CONNECTED LOAD = 938 AT 315'-0" OF EQUIVALENT LENGTH. SEE SHEET M1.2 FOR GAS PIPE ROUTING ON ROOF.
- CONNECT NEW CW/HW TO EXISTING CW/HW AT LOCATION INDICATED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING CW/HW. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION IF EXISTING LOCATION VARIES FROM WHAT IS INDICATED ON PLAN.
- CONNECT NEW G TO EXISTING G AT LOCATION INDICATED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING G. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION IF EXISTING LOCATION VARIES FROM WHAT IS INDICATED ON PLAN.
- DO NOT ROUTE PIPING OVER ROOF ACCESS LADDER. MAINTAIN CLEARANCES FOR ACCESS TO ROOF.
- GAS THROUGH WALL AND UP THROUGH ROOF. SEAL EXTERIOR WALL AND ROOF PENETRATIONS WEATHER TIGHT. COORDINATE EXACT LOCATION WITH GENERAL CONTRACTOR.
- CAP EXISTING PIPE BACK AT MAIN. FIELD VERIFY EXACT LOCATION.
- CONNECT NEW SINK (S-1) TO EXISTING CW, HW, V, AND W PIPING. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING PIPES. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION IF EXISTING LOCATION VARIES FROM WHAT IS INDICATED ON PLAN.
- CONNECT NEW V TO EXISTING V. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING V. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION TO EXISTING.
- RELOCATE EXISTING UTILITY SINK AND ELECTRIC WATER HEATER ABOVE TO LOCATION INDICATED. EXTEND CW, HW, V, AND WASTE AS REQUIRED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING V. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION TO EXISTING.



**FLOOR PLAN - PIPING**  
 1 M2.1 3/16" = 1'-0"



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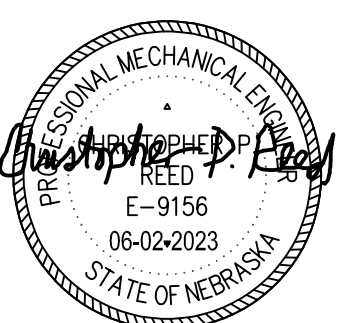
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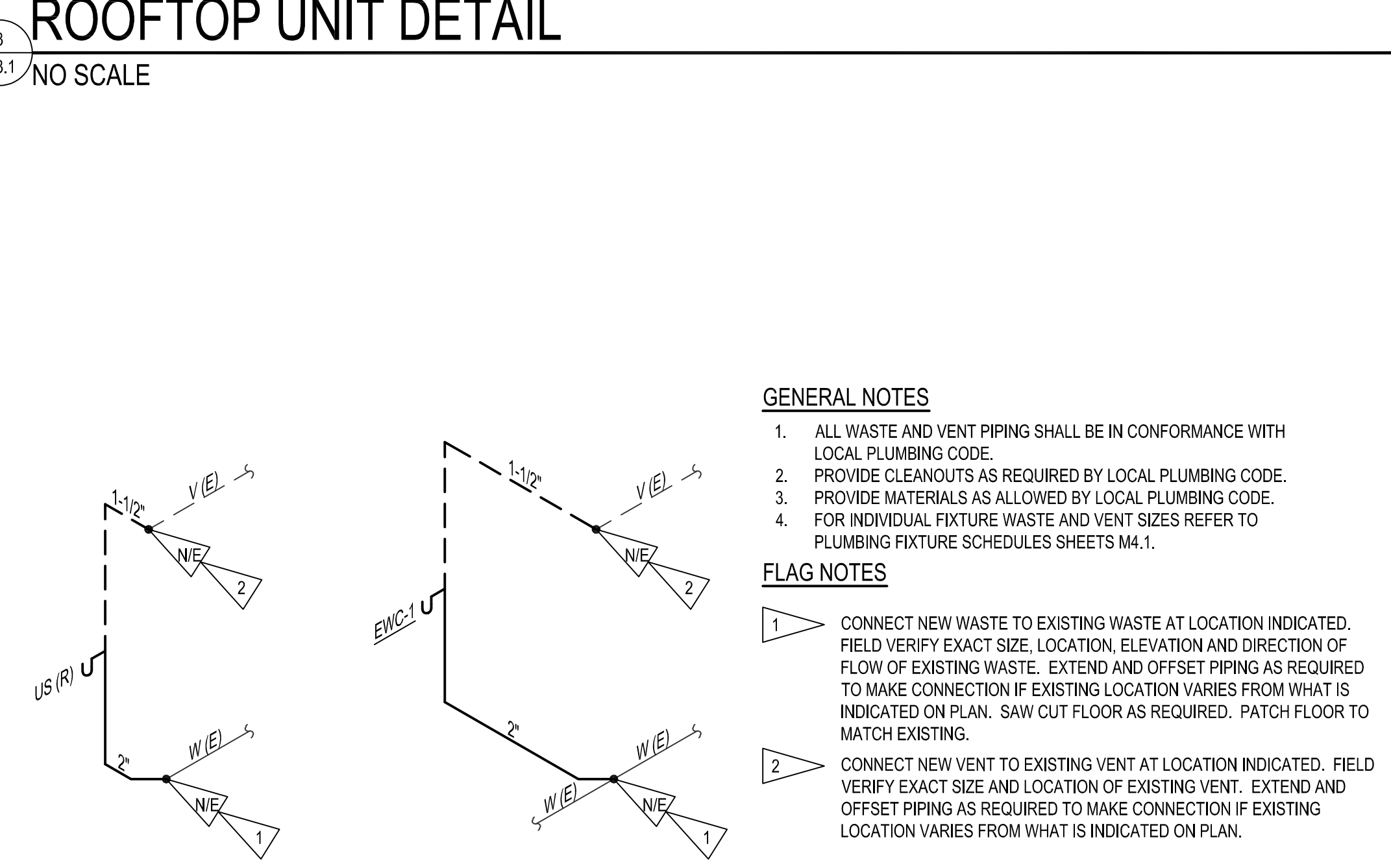
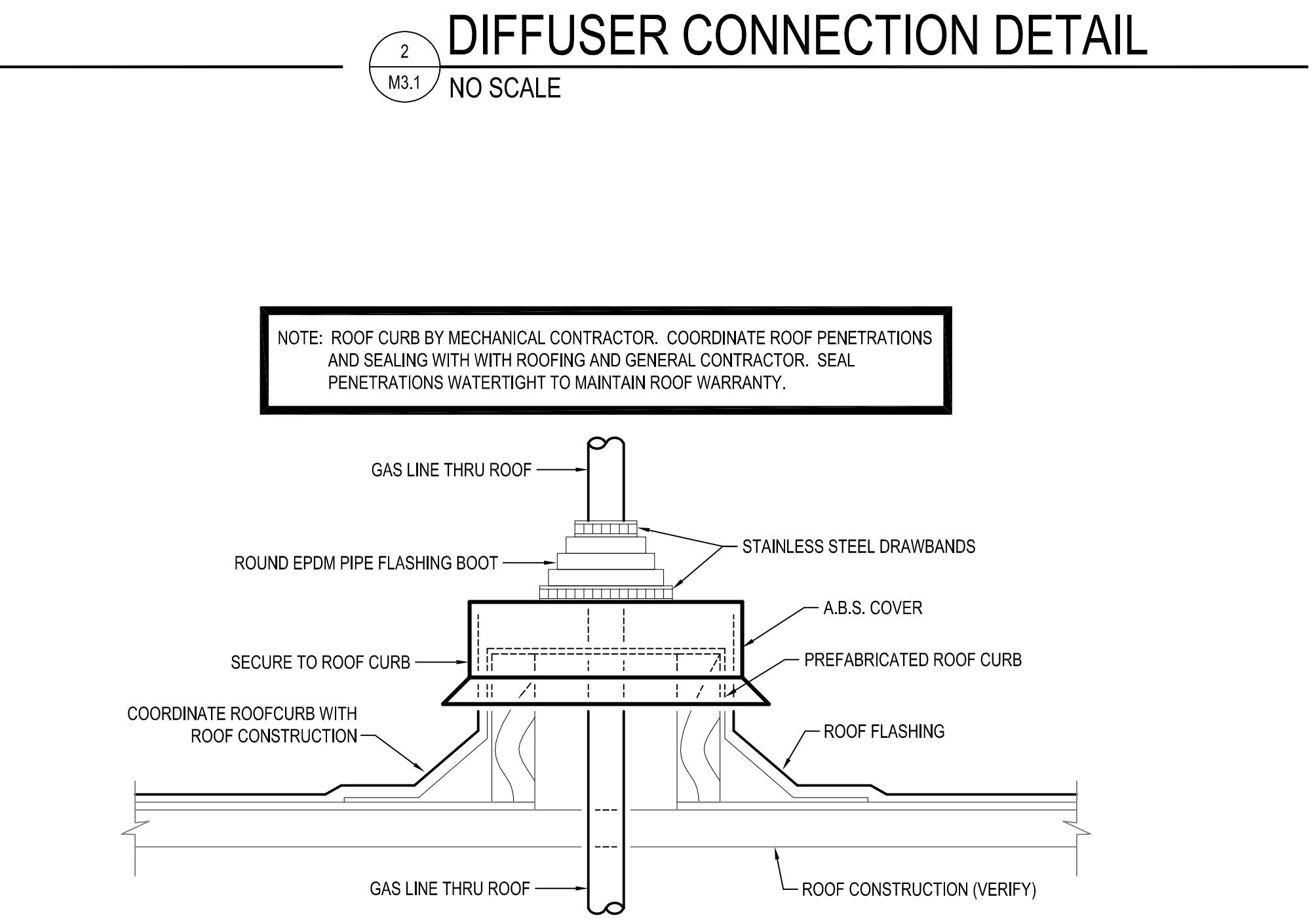
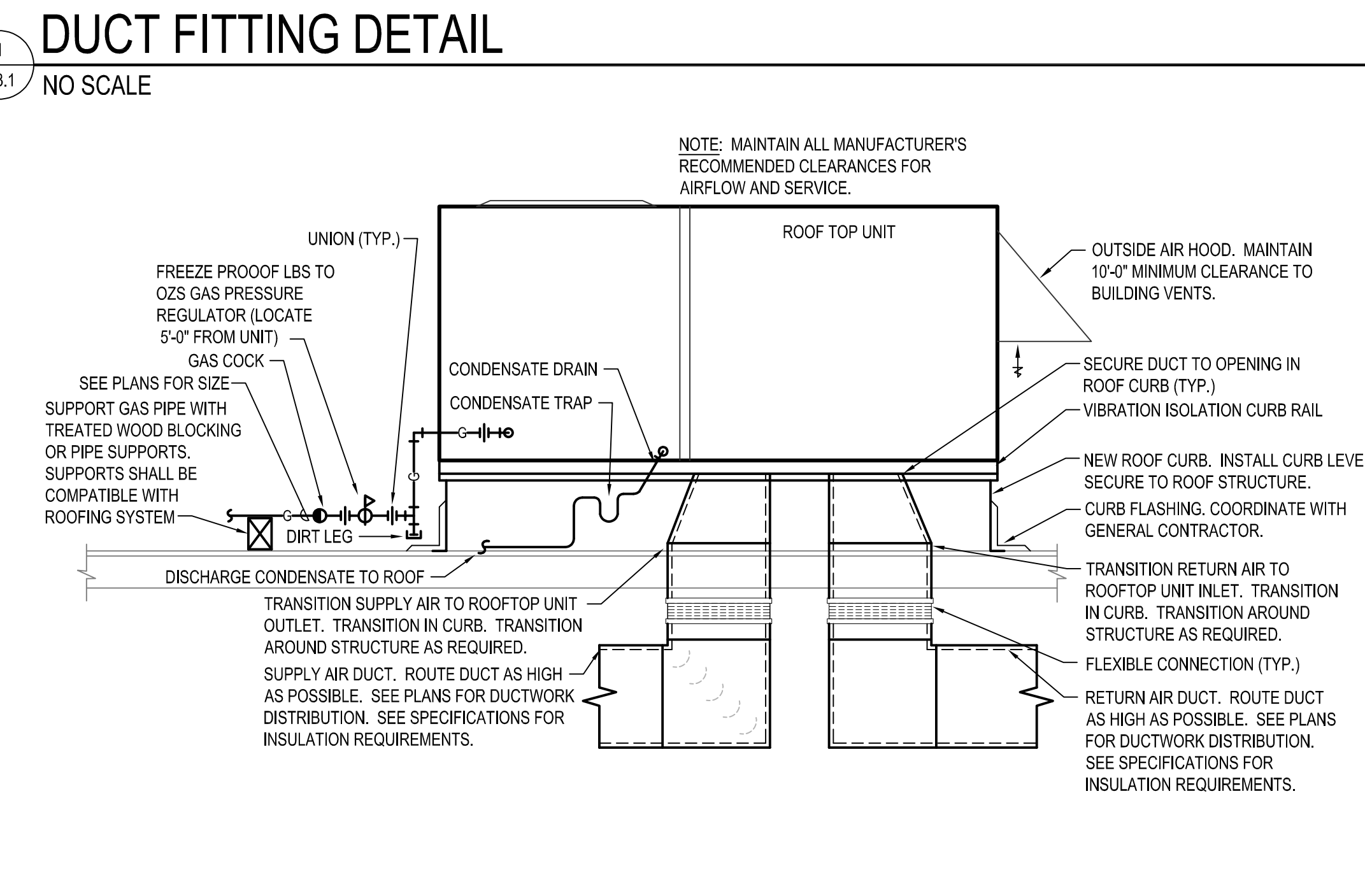
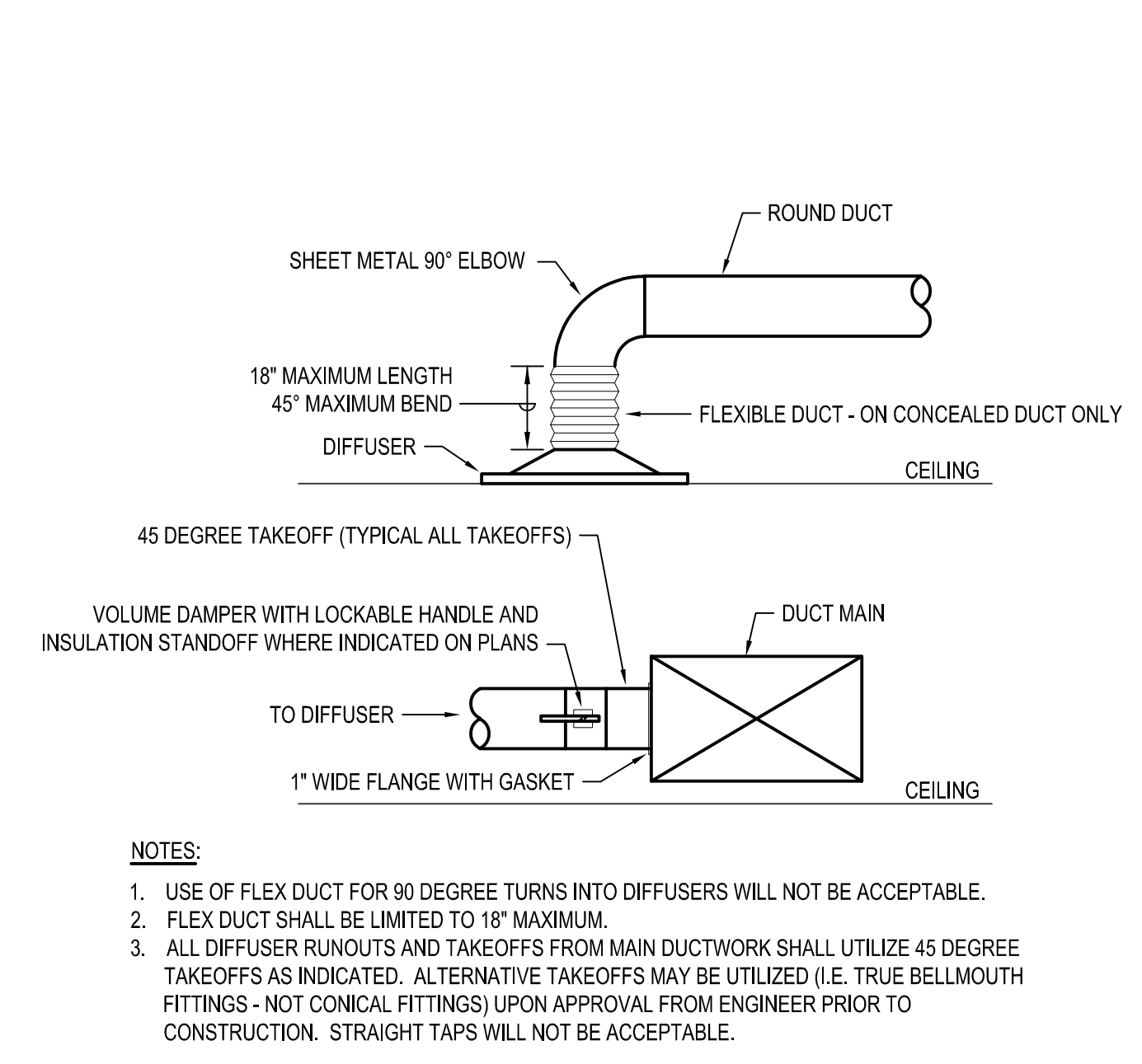
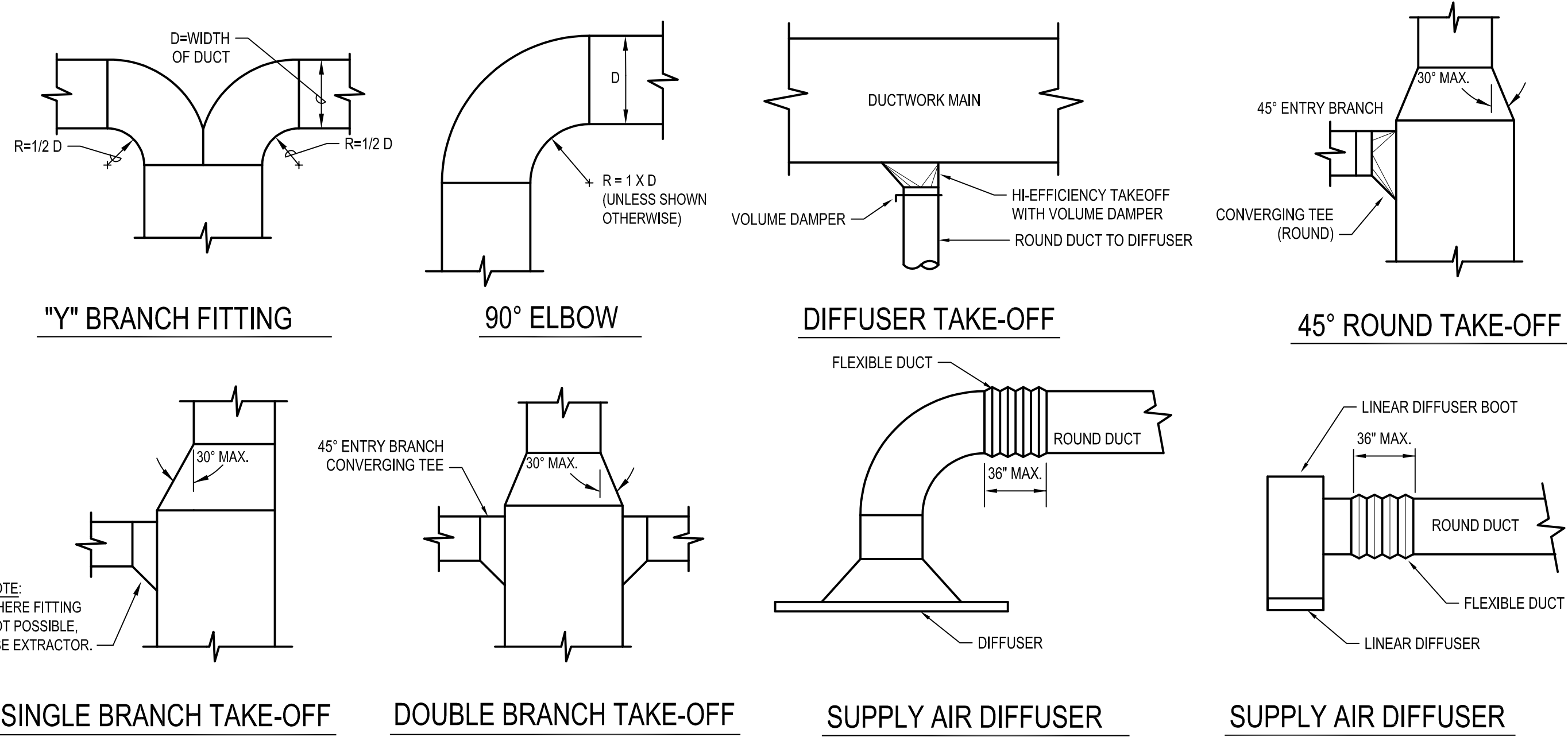
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**M2.1**  
 FLOOR PLAN - PIPING



- GENERAL NOTES**
1. ALL WASTE AND VENT PIPING SHALL BE IN CONFORMANCE WITH LOCAL PLUMBING CODE.
  2. PROVIDE CLEANOUTS AS REQUIRED BY LOCAL PLUMBING CODE.
  3. PROVIDE MATERIALS AS ALLOWED BY LOCAL PLUMBING CODE.
  4. FOR INDIVIDUAL FIXTURE WASTE AND VENT SIZES REFER TO PLUMBING FIXTURE SCHEDULES SHEETS M4.1.
- FLAG NOTES**
1. CONNECT NEW WASTE TO EXISTING WASTE AT LOCATION INDICATED. FIELD VERIFY EXACT SIZE, LOCATION, ELEVATION AND DIRECTION OF FLOW OF EXISTING WASTE. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION IF EXISTING LOCATION VARIES FROM WHAT IS INDICATED ON PLAN. SAW CUT FLOOR AS REQUIRED. PATCH FLOOR TO MATCH EXISTING.
  2. CONNECT NEW VENT TO EXISTING VENT AT LOCATION INDICATED. FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING VENT. EXTEND AND OFFSET PIPING AS REQUIRED TO MAKE CONNECTION IF EXISTING LOCATION VARIES FROM WHAT IS INDICATED ON PLAN.

- NOTES:**
1. USE OF FLEX DUCT FOR 90 DEGREE TURNS INTO DIFFUSERS WILL NOT BE ACCEPTABLE.
  2. FLEX DUCT SHALL BE LIMITED TO 18" MAXIMUM.
  3. ALL DIFFUSER RUNOUTS AND TAKEOFFS FROM MAIN DUCTWORK SHALL UTILIZE 45 DEGREE TAKEOFFS AS INDICATED. ALTERNATIVE TAKEOFFS MAY BE UTILIZED (I.E. TRUE BELLMOUTH FITTINGS - NOT CONICAL FITTINGS) UPON APPROVAL FROM ENGINEER PRIOR TO CONSTRUCTION. STRAIGHT TAPS WILL NOT BE ACCEPTABLE.



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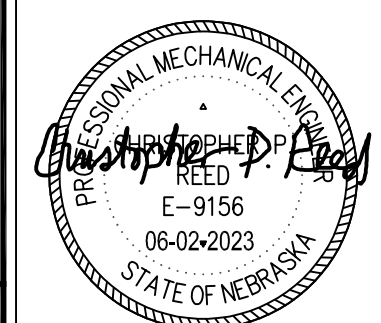
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**M3.1**  
MECHANICAL DETAILS

### ROOF-TOP UNIT SCHEDULE

GENERAL	PLAN TAG	RTU-1	RTU-2
MANUFACTURER	LENNOX (14)	LENNOX (14)	
MODEL NUMBER	LG092H4E	LG072H4E	
SERVES	SEE PLANS	SEE PLANS	
CONFIGURATION	(1)	(1)	
MAXIMUM SIZE (LxW)(IN)	102"x61"x47" (2)	86"x47"x47" (2)	
MAXIMUM WEIGHT (LBS.)	1,500	1,000	
REMARKS	-	-	
AIRFLOW			
TOTAL AIRFLOW (CFM)	3,000	2,400	
TOTAL SP (IN. W.C.)	(9)	(9)	
EXTERNAL SP (IN. W.C.)	0.50	0.50	
EXHAUST FAN AIRFLOW (CFM)	3,000 (12)	2,400 (12)	
MINIMUM OUTSIDE AIRFLOW (CFM)	SEE M1.2	SEE M1.2	
ECONOMIZER OUTSIDE AIRFLOW (CFM)	3,000	2,400	
REMARKS	-	-	
ELECTRICAL			
VOLTS	208	208	
PHASE	3	3	
MAXIMUM FUSE SIZE (AMPS)	50	45	
MINIMUM CIRCUIT AMPACITY (MCA)	46	32	
REMARKS	(3)	(3)	
DX COOLING			
AMBIENT AIR TEMPERATURE (F)	95	95	
MINIMUM NET EER	12.3	12.2	
NOMINAL CAPACITY (TONS)	7.5	6.0	
MIN. NET TOTAL COOLING (MBH)	95.1	69.9	
MIN. NET SENSIBLE COOLING (MBH)	68.5	52.9	
NO. OF COMPRESSORS	2	1	
MINIMUM STEPS OF UNLOADING	3	2	
REMARKS	(11)	(11)	
CONDENSER FAN			
TYPE	PROP	PROP	
SIZE	2 @ 24"	1 @ 20"	
HP	1/3	1/3	
SUPPLY FAN			
TYPE	F.C.	F.C.	
SIZE	22x9	10x10	
HP	3.75	1.5	
GAS FIRED HEATING			
FUEL	NAT. GAS	NAT. GAS	
INPUT - HIGH / LOW	180 / 117	108 / 81	
OUTPUT - HIGH / LOW	144 / 93	87 / 66	
EFFICIENCY	80%	81%	
REMARKS	TWO STAGE	TWO STAGE	
ACCESSORIES			
ROOF CURB	(13)	(4)	
FILTERS	(5)	(5)	
ECONOMIZER	(6)	(6)	
THERMOSTAT	(7)	(7)	
CONTROLS	(8)	(8)	
REMARKS	(10)	(10)	
REMARKS	(1) DOWN FLOW CONSTANT VOLUME HIGH EFFICIENCY ROOFTOP UNIT WITH DX COOLING, GAS-FIRED HEAT AND HOT GAS REHEAT. (2) STANDARD UNIT DIMENSIONS. ADDITIONAL SPACE REQUIRED FOR ROOF CURB AND OTHER UNIT ACCESSORIES. (3) PROVIDE INTEGRAL DISCONNECT. (4) MANUFACTURER'S STANDARD INSULATED 14" ROOF CURB. (5) 2" PLEATED DISPOSABLE. (6) REFERENCE ENTHALPY CONTROLLED OUTSIDE AIR ECONOMIZER. (7) PROVIDE PROGRAMMABLE THERMOSTAT WITH 7-DAY SET BACK, HEAT/COOL/AUTO, FAN ON/OFF/AUTO. PROVIDE THERMOSTAT WITH INTEGRAL HUMIDISTAT. (8) INTEGRATED SOLID STATE CONTROLS WITH BLOWER AND LIMIT CONTROLS. (9) VERIFY TOTAL STATIC PRESSURE WITH MANUFACTURER'S COMPONENTS. (10) PROVIDE COIL HAIL GUARDS. (11) DEHUMIDIFICATION SYSTEM WITH HOT GAS REHEAT AND CONTROLS. PROVIDE WITH RETURN AIR HUMIDISTAT. (12) PROVIDE WITH POWER EXHAUST OPTION. (13) PROVIDE INSULATED CURB ADAPTOR. FIELD VERIFY EXISTING ROOFTOP UNIT CURB AND CURB ADAPTOR REQUIREMENTS. (14) SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURER'S: LENNOX, TRANE, CARRIER, YORK.		

### ENERGY CODE COMPLIANCE

CODE	2018 IECC	
ComCHECK	YES	(1)
COMMISSIONING	NO	(2)
TAB REPORT	YES	(3) (4)
REMARKS	1. ComCHECK COMPLIANCE REPORT CAN BE FOUND ON THIS SHEET. 2. COMMISSIONING IS NOT REQUIRED BECAUSE EQUIPMENT WITHIN THE SCOPE OF WORK MEETS THE CAPACITY EXCEPTIONS IN THE CODE. 3. REQUIRED DOCUMENTS (REFER TO CODE) SHALL BE PROVIDED TO THE BUILDING OWNER OR OWNER REPRESENTATIVE WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY. 4. SEE RESPECTIVE SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION.	

### MECHANICAL SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
TYPICAL PIPING			
	PIPE TEE/ELBOW		DRAIN
	ELBOW ON FLOOR UP		STRAINER WITH BLOWDOWN
	ISOLATION VALVE (BALL OR BUTTERFLY)		CHECK VALVE (ARROW INDICATES FLOW)
	BALANCING VALVE		AUTOMATIC CONTROL VALVE (TWO-WAY / THREE-WAY)
	GATE VALVE		PRESSURE REGULATING VALVE (PRV)
	GLOBE VALVE		PRESSURE GAUGE
	PRESSURE/TEMPERATURE TEST POINT		THERMOSTAT
PLUMBING			
	DOMESTIC COLD WATER PIPING		GAS COOK
	DOMESTIC HOT WATER PIPING (NUMBER INDICATES TEMPERATURE)		FLOOR DRAIN - SIZE TYPE
	DOMESTIC HOT WATER CIRCULATION PIPING (NUMBER INDICATES TEMPERATURE)		ROOF DRAIN - SIZE TYPE
	SANITARY WASTE (BELOW GRADE)		DOWN ROOF DRAIN - SEE TYPE
	VENT PIPING		HOSE BIB
	STORM PIPING (BELOW GRADE)		WALL HYDRANT (NON-FREEZE)
	STORM PIPING (ABOVE GRADE)		VITR. THROUGH ROOF
	OVERFLOW STORM PIPING (BELOW GRADE)		I.E. INVERT ELEVATION
	OVERFLOW STORM PIPING (ABOVE GRADE)		FLOW LINE
	ACID WASTE PIPING (BELOW GRADE)		WATER CLOSET (SEE SPECIFICATIONS FOR TYPE)
	ACID WASTE PIPING (ABOVE GRADE)		URINAL (SEE SPECIFICATIONS FOR TYPE)
	ACID VENT PIPING		LAVATORY (SEE SPECIFICATIONS FOR TYPE)
	COMPRESSED AIR PIPING		SEWER (SEE SPECIFICATIONS FOR TYPE)
	NATURAL GAS PIPING		ELECTR. WATER COOLER (SEE SPECIFICATIONS FOR TYPE)
	SANITARY PIPING		MCP SEWER (SEE SPECIFICATIONS FOR TYPE)
	SITE STORM PIPING		DUCTILE IRON
	SITE WATER PIPING		CAST IRON
			POLY VINYL CHLORIDE
HVAC			
	SIDE WALL SUPPLY REGISTER OR GRILLE (NEEDLE AIR TAIL APPROXIMATE)		SENSOR
	SIDE WALL RETURN OR EXHAUST REGISTER OR GRILLE (NEEDLE AIR TAIL APPROXIMATE)		THERMOSTAT
	SUPPLY AIR REGISTER (NEEDLE AIR TAIL APPROXIMATE)		MOTORIZED CONTROL DAMPER WITH ACTUATOR
	SUPPLY AIR, OUTSIDE AIR OR MIXED AIR DUCT END OR RISER UP / RISER DN		BACKDRAFT DAMPER
	RETURN AIR, EXHAUST AIR OR RELIEF AIR DUCT END OR RISER UP / RISER DN		FIRE DAMPER WITH SLEEVE AND ACCESS DOOR
	RECTANGULAR DUCTWORK (WIDTH/DEPTH/HEIGHT) (FIRST NUMBER IS SIDE SHOWN)		SMOKE DAMPER WITH SLEEVE AND ACCESS DOOR
	ROUND DUCTWORK (DIAMETER/HEIGHT) (SPIRAL DUCT IN EXPOSED AREAS)		SUPPLY AIR
	TURNING VANES		RETURN AIR
			EXHAUST AIR
			RELIEF AIR
			OUTSIDE AIR
			MIXED AIR

### DIFFUSER REGISTER AND GRILLE SCHEDULE

PLAN TAG	D-1	R-1	G-1	G-2
MANUFACTURER	KRUEGER (4)	KRUEGER (4)	KRUEGER (4)	KRUEGER (4)
MODEL NUMBER	PLQ	880H	EG5	EG5
FUNCTION	SUPPLY	SUPPLY	RETURN	RETURN
DESCRIPTION	FLAT PLATE	REGISTER	GRILLE	GRILLE
DEFLECTION	4-WAY	DOUBLE	EGG-CRATE	EGG-CRATE
MAX. STATIC PRESSURE (IN W.G.)	0.1"	0.1"	0.10	0.10
CONSTRUCTION MATERIAL	STEEL	STEEL	ALUMINUM	ALUMINUM
FINISH	WHITE	WHITE (3)	WHITE (3)	WHITE (3)
NET SIZE (IN)	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS
FACE SIZE (IN)	24" x 24"	NECK + 1-3/4"	24" x 24"	12" x 24"
ACCESSORIES	O.B.D.	O.B.D.	-	-
REMARKS (1) (2)	(1) (2) (5)	(1) (2)	(1) (2) (5)	(1) (2) (5)
REMARKS	(1) VERIFY CEILING CONSTRUCTION PRIOR TO FURNISHING MATERIAL. (2) NOISE CRITERIA (NC) SHALL BE LESS THAN 25 ON DIFFUSERS, REGISTERS AND GRILLES LOCATED IN OCCUPIED SPACES. (3) COORDINATE PAINTING REQUIREMENTS WITH ARCHITECTURAL DRAWINGS AND GENERAL CONTRACTOR. (4) SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURER'S: TITUS, PRICE, KRUEGER, NAILOR. (5) PROVIDE WITH INSULATED BACK PAN.			

### FAN SCHEDULE

PLAN TAG	EF-1	
MANUFACTURER	GREENHECK (3)	
MODEL NUMBER	SP-B150	
SERVES	SEE PLANS	
TYPE	(1)	
MAXIMUM WEIGHT (LBS)	15	
ROOF/WALL OPENING SIZE	15 x 14	
ACCESSORIES	(2)	
AIRFLOW (CFM)	75	
TOTAL SP (IN. W.C.)	0.50	
CLASS	-	
WHEEL TYPE	-	
MINIMUM WHEEL DIA.	-	
MAXIMUM SONES	2.6	
MAXIMUM FAN RPM	765	
AMPS	1.8	
RPM	-	
WATTS	128	
VOLTS	115	
PHASE	1	
TYPE	O.D.P.	
CONTROL DEVICE	(4) (5)	
REMARKS	-	
REMARKS	1. CEILING EXHAUST FAN. 2. PLASTIC INTAKE GRILLE, DISCHARGE DUCT COLLAR, INTEGRAL DISCONNECT, GRAVITY BACKDRAFT DAMPER AND ROOF CAP. 3. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING MANUFACTURER'S: GREENHECK, ACME, TWIN CITY AND COOK. 4. FAN SHALL RUN UPON OCCUPANCY DETECTION. SEE ELECTRICAL. 5. SPEED CONTROLLER FOR BALANCING.	

### Ventilation Rate Schedule

Room Number	Room Name	Occupancy Category	Area (SF)	Area OA Rate (CFM/SF)	People	People OA Rate (CFM / P)	Total OA Rate Required (CFM)
SOUTH OFFICES							
104 OFFICE	Office		122	0.06	1	5	12
105 OFFICE	Office		114	0.06	1	5	12
106B SHOWROOM	Office		1062	0.06	6	5	94
145 EXIST UTILITY	Storage		78	0.12	0	0	9
146 EXIST MEN	Restroom		71	0	0	0	0
147 EXIST WOMEN	Restroom		66	0	0	0	0
148 LOCKER ROOM	Locker Room		161	0	0	0	0
			Total:		127		
SHOWROOM							
103 EXIST VEST	Corridors		66	0.06	0	0	4
106A SHOWROOM	Office		606	0.06	4	5	56
107 EXIST OFFICE	Office		128	0.06	1	5	13
108 EXIST WOMEN	Restroom		90	0	0	0	0
109 EXIST MEN	Restroom		44	0	0	0	0
110 OFFICE	Office		133	0.06	1	5	13
			Total:		86		
CENTER OFFICES							
101 WAITING AREA	Reception areas		291	0.06	3	5	32
111 HALL	Corridors		284	0.06	0	0	17
113 OFFICE	Office		151	0.06	1	5	14
114 OFFICE	Office		150	0.06	1	5	14
115 OFFICE	Office		150	0.06	1	5	14
116 EXIST BREAK	Breakroom		165	0.06	1	5	15
117 OFFICE	Office		108	0.06	1	5	11
118 OFFICE	Office		112	0.06	1	5	12
			Total:		130		
BREAK AND CONFERENCE							
119 OFFICE	Office		101	0.06	1	5	11
120 OFFICE	Office		141	0.06	1	5	13
121 HALL	Corridors		469	0.06	0	0	28
122 COLLAB AREA	Office		152	0.06	4	5	29
123 OFFICE	Office		155	0.06	1	5	14
124 OFFICE	Office		154	0.06	1	5	14
125 OFFICE	Office		154	0.06	1	5	14
126 OFFICE	Office		111	0.06	1	5	12
127 OFFICE	Office		128	0.06	1	5	13
129 BREAK AREA	Breakroom		589	0.06	4	5	55
131 CONF RM	Conference		255	0.06	6	5	45
143 HALL	Corridors		440	0.06	0	0	26
			Total:		276		
NORTH OFFICES							
133 EXIST VEST	Corridors		51	0.06	0	0	3
134 EXIST OFFICE	Office		157	0.06	1	5	14
135 EXIST OFFICE	Office		129	0.06	1	5	13
136 EXIST OFFICE	Office		98	0.06	1	5	11
138 EXIST WOMEN	Restroom		51	0	0	0	0
139 EXIST MEN	Restroom		51	0	0	0	0
140 STOR	Storage		44	0.12	0	0	5
141 OFFICE	Office		108	0.06	1	5	11
			Total:		58		
WAREHOUSE							
144 WAREHOUSE	Garage		2663	0	0	0	0
			Total:		0		
TENANT FINISH TOTAL OUTSIDE AIR							
			Total:		677		
REMARKS							
1. VENTILATION RATES BASED ON ASHRAE STD 62.1 VENTILATION RATE PROCEDURE. 2. BALANCE OUTSIDE AIR TO QUANTITIES INDICATED ON MECHANICAL PLANS.							

### PLUMBING FIXTURE SCHEDULE (1)

TAG	FIXTURE (2)	FAUCET/ FLUSH/VALVE/ ACCESSORY (2)	DESCRIPTION	CONNECTIONS
EWC-1		MODEL: HALSEY-TAYLOR HTHB-HAC8BLPV-WF	DESCRIPTION: BARRIER FREE WALL MOUNTED BI-LEVEL WATER COOLER WITH BOTTLE FILLER. ADA COMPLIANT. YES. NUMBER OF BUBBLERS: TWO BUBBLERS WITH TWO-STREAM MOUND BUILDING BUBBLER WITH ANTI-SQUIRT FEATURE. BOTTLE FILLER: SENSOR ACTIVATED FILL STATION WITH 20 SECOND SHUT OFF. FIXTURE UNIT CAPACITY: 8 GPH. FIXTURE CABINET MATERIAL: VINYL COVERED STEEL. THERMOSTAT: ADJUSTABLE SET AT 50°F. ELECTRICAL: 120V, 3 WIRE CORD AND PLUG. ACTIVATION: PUSH BAR ACTUATION MECHANISM. PLASTIC COMPONENTS INTEGRATED WITH SILVER ION ANTI-MICROBIAL PROTECTION.	CW HW WASTE VENT 1/2" - 1-1/2" 1-1/2"
			REMARKS:	
S-1		MODEL: ELKAY LRAD-3319	DESCRIPTION: COUNTER MOUNTED 18 GA STAINLESS STEEL SINK W/ GOOSENECK SWING SPOUT. ADA COMPLIANT. YES. FIXTURE DIMENSIONS: DOUBLE BOWL 33" X 19" X 6-1/2"(ADA) CONSTRUCTION: FAUCET INLET SPACING TO MATCH SINK OPENINGS. HANDLE: SINGLE HANDLE POLISHED CHROME ADA LEVER. SPOUT: GOOSENECK SWING AND PULL DOWN WITH 1-1/2 GPM FLOW AERATOR. DRAIN: 1-1/2" GRID STRAINER WITH 3-1/2" REMOVABLE STAINLESS STEEL CRUMB CUP. ADA INSULATION KIT: PROVIDE SUPPLY AND DRAIN SOFT MOLDED INSULATION KITS FROM FIXTURE TO WALL. COVERINGS TO BE CUSHIONED JACKET PLASTIC COVERING WITH SELF STICKING FASTENING SYSTEM. FOOD WASTE DISPOSER: IN-SINK ERATOR, BADGER 5XP, 115VAC, 3/4 (1/2) HP DISPOSER. INCLUDE MOTOR WITH OVERLOAD PROTECTION AND RESET BUTTON. WALL SWITCH, CORROSION RESISTANT CHAMBER WITH JAM RESISTANT STAINLESS STEEL GRINDER, SPLASH GUARD, AND COMBINATION COVER/STOPPER.	CW HW WASTE VENT 1/2" 1/2" 1-1/2" 1-1/2"
			REMARKS:	

(1) SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS INCLUDING STOPS, FITTINGS AND ALL OTHER SPECIALTIES.  
(2) PICTURES OF FIXTURES DO NOT INDICATE ACTUAL FIXTURE SPECIFIED. PICTURES ARE GRAPHICAL IN NATURE. SEE DESCRIPTION FOR ACTUAL FIXTURE AND MODEL.

### COMcheck Software Version 4.1.5.2 Mechanical Compliance Certificate

**Project Information**

Energy Code: 2018 IECC  
 Project Title: ALFF CONSTRUCTION  
 Location: Omaha, Nebraska  
 Climate Zone: 5a  
 Project Type: New Construction

Construction Site: 6860 S 118TH ST Omaha, NE  
 Owner/Agent:  
 Designer/Contractor: Nick Manning Morrissey Engineering Inc 4940 North 118th St Omaha, NE 68164

Credits: 1.0 Required 1.0 Provided  
 Reduced Lighting Power, 1.0 credit

**Mechanical Systems List**

Quantity System Type & Description

1 HVAC System 1 (Single Zone):  
 Heating: 1 each - Central Furnace, Gas, Capacity = 180 kBtu/h  
 Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE  
 Cooling: 1 each - Single Package DX Unit, Capacity

# MECHANICAL SPECIFICATIONS

## SECTION 220100 - GENERAL REQUIREMENTS FOR PLUMBING

### A. RELATED DOCUMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

2. Division 22 and 23 Conditions apply to this Section.

### B. SUMMARY

1. This Section includes general mechanical requirements and shall apply to all phases of the work specified indicated on the drawings or required to provide for complete installation of plumbing systems.

2. Refer to Section 230100 for General Requirements for Mechanical

3. Refer to Section 230500 for Basic Mechanical Materials and Methods

## SECTION 220720 - PIPE INSULATION FOR PLUMBING

A. MINERAL-FIBER INSULATION: Glass fibers bonded with a thermosetting resin. Preformed Pipe Insulation: Comply with ASTM C 547, Type 1, with factory-applied, all-purpose, vapor-retarder jacket. Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less. Apply insulation to pipes but securing each layer of preformed pipe insulation to pipe with wire, tape, or bands without deforming insulation materials.

B. FLEXIBLE ELASTOMERIC THERMAL INSULATION: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials and Type II for sheet materials. Adhesive as recommended by insulation material manufacturer. Ultraviolet-Protective coating as recommended by insulation manufacturer. Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less. Follow manufacturer's written instructions for applying insulation. Seal longitudinal seams and end joints with manufacturer's recommended adhesive

C. VAPOR RETARDER: On piping systems operating below ambient space temperature, seal joints and seams with vapor-retarder mastic. Seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic Mastics.

### D. INSULATION APPLICATION SCHEDULE

- Service: Domestic cold water (CW)  
Thickness/Material: 1/2" Mineral Fiber  
Vapor Retarder Required: Yes
- Service: Domestic hot water and circulating water (HW, HWC)  
Thickness/Material: Mineral Fiber. Apply the following insulation thicknesses:
  - Systems without recirculation: 1/2"
  - 1/2" to 2" pipe: 1"
  - 2 1/2" and larger: 1-1/2"Vapor Retarder Required: No
- Plumbing vents (V or AV), 2 foot section below roof  
Thickness/Material: 1/2" Mineral Fiber  
Vapor Retarder Required: Yes
- Service: Sanitary waste piping  
Insulation Material: None

## SECTION 221116 - WATER DISTRIBUTION PIPING

A. DOMESTIC WATER PIPING: Above ground; hard copper tube, ASTM B 88, Type L; copper, 95-5 solder-joint fittings; and soldered joints. Underground; Soft copper tube, ASTM B 88, Type K; wrought-copper, solder-joint pressure fittings; and soldered joints.

B. VALVES: Provide gate, ball or butterfly isolation valves close to main on each branch and riser serving plumbing fixtures or equipment, and where indicated. Provide globe, ball or butterfly valve for throttling where indicated. Provide supply stops at each plumbing fixture. Provide calibrated or automatic balancing valves as indicated.

C. TESTING: Test water distribution piping according to authority having jurisdiction. Clean and disinfect water distribution piping. Fill water piping. Check components to determine that they are not air bound and that piping is full of water.

## SECTION 221316 - DRAINAGE AND VENT PIPING

A. ABOVEGROUND, SANITARY WASTE AND VENT AND STORM PIPING: CISPI 301, ASTM A888, Hubless, cast-iron soil pipe; hubless, cast-iron, soil-pipe fittings and hubless, cast-iron, Neoprene seave coupling with stainless steel clamps.

B. UNDERGROUND, SANITARY WASTE, AND VENT AND STORM PIPING: ASTM A74, Hub-and-spigot, cast-iron soil pipe, service class; hub-and-spigot, cast-iron, soil-pipe fittings, lead & oakum or compression joints.

C. PIPING INSTALLATION: Make changes in direction for drainage and vent piping using appropriate branches, bends, and long-sweep bends. Do not make change in direction of flow greater than 90 degrees. Lay buried building drain piping beginning at low point of each system. Install true to grades and alignment indicated, with unbroken continuity of invert. Place hub ends of piping upstream. Install required gaskets according to manufacturer's written instructions.

D. SLOPE: Install drainage and vent piping at the following minimum slopes, unless otherwise indicated:

1. Sanitary Piping: 2 percent downward in direction of flow for piping 3-inch NPS and smaller; 1 percent downward in direction of flow for piping 4-inch NPS and larger.

2. Vent Piping: 1 percent down toward vertical fixture vent or toward vent stack.

E. TESTING: Test drainage and vent piping according to procedures of authorities having jurisdiction.

## SECTION 221319 - PLUMBING SPECIALTIES

A. WATER HAMMER ARRESTERS: ASME A112.26.1M, ASSE 1010, or PDI-WH 201, bellows or piston type with pressurized cushioning chamber. Provide at each battery of fixtures.

B. WATER PRESSURE REGULATORS: water regulators, rated for initial working pressure of 150 psig minimum, of size, flow rate, and inlet for 80 psig outlet pressure. Install on building service piping.

C. WALL CLEANOUTS (WCO): Cast iron body adaptable to pipe with cast bronze, brass cleanout plug; stainless steel cover, vandal proof screws. Install as shown and as required by code.

E. CLEANOUT PLUGS (CO): Cast iron or brass, threads complying with ANSI B2.1, countersunk head. Engrave heads to identify system.

F. FLOOR CLEANOUTS (FCO): Cast iron body and frame with cleanout plug and adjustable round nickel bronze top. Provide to match floor system:

- Exposed finish type, standard mill finish.
- Exposed flush type, standard non-slip scored or abrasive finish.
- Exposed flush type, standard mill finish and carpet marker.
- Heavy duty for traffic applications.

G. VENT FLASHING (VTR): 24" square minimum. Non-plasticized, chlorinated, polyethylene, concealed, waterproof membrane, 0.40" thick, solvent weldable or Lead sheet, 2-1/2" lb/sf, concealed.

H. VENT FLASHING (VTR): 24" square minimum. Non-plasticized, chlorinated, polyethylene, concealed, waterproof membrane, 0.40" thick, solvent weldable or Lead sheet, 2-1/2" lb/sf, concealed.

## 224000 PLUMBING FIXTURES

A. Installation: Install handles for accessible water closets and urinals with handle mounted on wide side of compartment. Install individual stop valve in each water supply to fixture. Install water-supply stop valves in accessible locations. Install traps on fixture outlets. Omit traps on fixtures having integral traps and on indirect wastes. Vent all fixtures as required by local code. Seal joints between fixtures and walls, floors, and counters using sanitary-type, 1-part, mildew-resistant, silicone sealant. Match sealant color to fixture color. Install hot and cold water supply, waste and vent piping of sizes indicated, but not smaller than required by authorities having jurisdiction

B. See Plumbing Fixture Schedule on sheet M4.1 for plumbing fixture specifications.

## SECTION 230100 - GENERAL REQUIREMENTS FOR MECHANICAL

A. WARRANTIES - All materials, workmanship and equipment shall be warranted against defects or against injury from proper and usual wear for a period of one year after the date of substantial completion. Any item that becomes defective within the warranty period shall be repaired or replaced, at no additional cost to the Owner. Warranty shall include repair of faulty workmanship.

B. DEFINITIONS ABBREVIATIONS - The following shall apply throughout the contract documents:

Furnish Indicated	Supply and deliver to site ready for installation
Provide	Noted, scheduled or specified
ADA	Furnish, install and connect complete and ready for final use
ANSI	Americans with Disabilities Act
ASME	American National Standards Institute
ASHRAE	American Society of Mechanical Engineers
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
NEC	National Electric Code (NFPA 70)
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
UL	Underwriters Laboratories Inc.

C. CODES AND STANDARDS - All work shall be performed by competent craftsmen skilled in the trade involved and shall be done in a manner consistent with normal industry standards. All work shall conform to the currently adopted edition of the National Electric Code (NEC), Local Building Code, Local Plumbing Code, Local Mechanical Code, Local Fire Code, and all other applicable state and local codes or standards. Where there is a conflict between the code and the contract documents, the code shall have precedence only then it is more stringent than the contract documents.

D. PERMITS - Contractor shall become familiar and comply with all requirements regarding permits, fees, licenses, etc. All permits, licenses, inspections and arrangements required for the work shall be obtained by Contractor's effort and expense. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor.

E. SUBMITTALS - Shop drawings shall be submitted to Architect/Engineer for all items of mechanical equipment including the following:

Diffusers, Registers, Grilles  
Sheet Metal Accessories  
HVAC equipment  
Plumbing Fixtures  
Plumbing Specialties

1. Shop drawings include fabrication and installation drawings, diagrams, schedules and other data specifically prepared for the project. Include dimensions and notations showing compliance with specified standards. Unless otherwise noted, submit a minimum of six (6) copies of shop drawings for review. Electronic copies (in pdf format) by e-mail are acceptable in lieu of hard copies.

2. Architect/Engineer will review or take appropriate action for submittals. Review is only to determine general conformance with design shown in contract documents. Review of submittals shall not relieve contractor of responsibility for deviation from requirements of the contract documents or from errors or omissions within submittals.

F. MATERIALS - All materials and equipment used in the construction of the project shall be new unused and undamaged unless otherwise specified. Materials and equipment shall be of latest design standards of manufacturer specified. Verify installation details and requirements for materials and equipment furnished by others and installed under this contract.

G. DEMONSTRATION AND TRAINING - Instruct Owner's personnel to adjust, operate, and maintain mechanical systems. Schedule training with Owner with at least seven days' advance notice.

H. STARTING AND ADJUSTING - Start and test all equipment and operating components to confirm proper operation. Test and adjust all systems to achieve designed capacity and performance. All equipment and systems discrepancies shall be corrected prior to final acceptance.

## SECTION 230500 - BASIC MECHANICAL MATERIALS AND METHODS

A. PIPING INSTALLATION: Install piping at required slope. Install components with pressure rating equal to or greater than system operating pressure. Install piping in concealed locations, except in equipment rooms and service areas. Install piping free of sags and bends. Install piping at right angles or parallel to building walls. Install piping tight to slabs, beams, joists, columns, walls, and other building elements. Locate groups of pipes parallel to each other, spaced to permit valve servicing. Install fittings for changes in direction and branch connections. Install pipe escutcheons for exposed pipe penetrations walls and ceilings. Install sleeves for pipes passing through concrete and masonry walls, and concrete floor and roof slabs. Provide dielectric fitting where two different types of pipe materials are joined. Comply with MSS-89 for pipe hanger selection and application.

B. EQUIPMENT INSTALLATION: Install equipment per manufacturer's recommendations Install equipment as high as possible. Install equipment level and plumb, parallel and perpendicular to building. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Install equipment giving right of way to piping installed at required slope.

### C. LABELING AND IDENTIFYING

Piping: Provide pipe markers on each system where pipe is exposed to view and above removable ceilings. Include pipe description of system and arrows showing normal direction of flow.

Equipment: Install engraved plastic-laminate sign or equipment marker on or near each major item of mechanical equipment.

D. CUTTING AND PATCHING: Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of trades involved. Repair cut surfaces to match adjacent surfaces.

## SECTION 230593 - TESTING, ADJUSTING, AND BALANCING

A. Examine air-handling equipment to ensure clean filters have been installed, bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation. Check dampers for proper position.

B. Perform testing and balancing procedures on each system according to the procedures contained in NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" and this Section.

C. Adjust fans to deliver total design airflow within the maximum allowable rpm listed by the fan manufacturer. Provide new fan sheaves as required. Measure fan airflow, static pressure, rpm and amp draw.

D. Adjust volume dampers to achieve design airflow within 10% of specified values. Adjust diffusers, registers and grilles. Adjust minimum and maximum outside airflow.

E. Prepare report listing date, project information, equipment data and measured airflow results. Report shall include drawing indicating locations of air outlets and final measured airflow of each outlet. Submit four copies of report to engineer for review.

## SECTION 230700 - DUCT INSULATION

A. MINERAL-FIBER BLANKET THERMAL INSULATION: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II, with all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film. Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less. Apply insulation materials, accessories, and finishes according to the manufacturer's written instructions with the least number of joints practical. Seal joints and seams with vapor-retarder mastic on cold air ducts. Seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic.

C. ACOUSTICAL DUCT LINER: ASTM C 518 with resin and black mat coated surface exposed to air stream to prevent erosion of glass fibers. Thermal Conductivity (k-Value): 0.26 at 75 deg F mean temperature. Nominal Density 1.5 lbs per cubic foot, minimum noise reduction characteristic shall be 0.55 for 1" thickness; rated for 6000 fpm air velocity; air friction multiplier less than 1.6 at 2000 fpm. Adhere a duct liner with 100 percent coverage of adhesive. Butt transverse joints without gaps and coat joint with adhesive. Secure liner with mechanical fasteners. Apply metal nosing on leading edge of liner.

D. EXISTING INSULATION: All existing insulation damaged by this contractor shall be replaced with new insulation as specified within.

### E. APPLICATION SCHEDULE

- Service: SUPPLY AIR - Rectangular, exposed in finished spaces  
Thickness/Material: 1-1/2" Duct Liner  
Minimum Installed R-Value: R6  
Vapor Retarder Required: Yes
- Service: SUPPLY AIR - Rectangular, concealed  
Thickness/Material: 2-3/16" Mineral-Fiber Blanket  
Minimum Installed R-Value: R6  
Vapor Retarder Required: Yes
- Service: SUPPLY AIR - Round, concealed  
Thickness/Material: 2-3/16" Mineral-Fiber Blanket  
Minimum Installed R-Value: R6  
Vapor Retarder Required: Yes
- Service: SUPPLY AIR - Round, exposed in finished spaces  
Thickness/Material: Double wall with 1" interstitial insulation.  
Minimum Installed R-Value: R6
- Service: RETURN AIR - Rectangular, exposed in finished spaces  
Thickness/Material: 1-1/2" Duct Liner  
Minimum Installed R-Value: R6  
Vapor Retarder Required: Yes
- Service: RETURN AIR - Rectangular, concealed  
Thickness/Material: 2-3/16" Mineral-Fiber Blanket  
Minimum Installed R-Value: R6  
Vapor Retarder Required: Yes
- Service: RETURN AIR - Round, concealed  
Thickness/Material: 2-3/16" Mineral-Fiber Blanket  
Minimum Installed R-Value: R6  
Vapor Retarder Required: Yes
- Service: GENERAL EXHAUST AIR - From fan back 36" into building  
Thickness/Material: 2-3/16" Mineral-fiber Blanket  
Minimum Installed R-Value: R6  
Vapor Retarder Required: Yes

## SECTION 231123 - NATURAL GAS PIPING

A. STEEL PIPE: Pipe: ASTM A 53; Type E or S; Grade B; Schedule 40; black. Malleable-iron. Threaded Fittings ASME B16.3, Class 150, standard pattern, with threaded ends according to ASME B1.20.1. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends according to ASME B1.20.1. Joint Compound and Tape: Suitable for natural gas.

B. Install and test gas piping according to NFPA 54 "National Fuel Gas Code" and Authority having jurisdiction.

## SECTION 233113 - METAL DUCTS AND ACCESSORIES

A. GENERAL: Drawings indicate general arrangement of ducts, fittings, and accessories. Minor modifications to route, size and shape of duct may be made to meet structural and other interference. Changes which could affect system performance shall be reviewed by Architect/Engineer prior to fabrication or installation of duct. Coordinate layout with suspended ceiling, fire- and smoke-control dampers, lighting layouts, and similar finished work.

B. DUCT FABRICATION: Sizes shown on plans are inside clear dimensions. Ductwork utilizing duct liner shall be increased in size to accommodate the duct liner thickness.

C. MATERIAL: Construct all rectangular and round ducts from galvanized sheet steel; Lock-forming quality; ASTM A 653/A 653M, G90 coating designation; mill-phosphatized finish for surfaces of ducts exposed to view.

D. QUALITY ASSURANCE: Fabricate and install duct per SMACNA's "HVAC Duct Construction Standards—Metal and Flexible" and applicable codes. Comply with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," unless otherwise indicated.

E. PRESSURE CLASS: Unless otherwise noted construct all ducts to 2.0" WG positive or 2.0" WG negative pressure class.

F. DUCT SEALING: UL classified, non-combustible, flame spread 25 or less, smoke developed rating of 540 or less, resistant to water, pressure rupture rating of 16" WG minimum, suitable for use alone or with tape, application an operational temperature ranges appropriate for usage. Seal all duct per SMACNA class 'C' duct seal requirements.

G. TURNING VANES: Fabricate of 1-1/2" wide, curved blades 3/4" on center. Provide turning vanes in all mitered elbows and duct turns.

H. DUCT ACCESS DOORS: Install insulated duct access doors with hinges and latches for access to inlet side of coils, equipment, control dampers, fire dampers, and smoke dampers.

I. VOLUME DAMPERS: Fabricate single blade dampers for duct sizes 9 1/2" high x 30" width maximum. Fabricate multi-blade dampers of opposed blade pattern using minimum 16 gauge steel with maximum blade sizes 6" x 48" for larger ducts. Provide end bearings with end seals for pressure class required except in round duct 12" in diameter and smaller. Provide locking indicating quadrant regulators on all volume dampers. Mark ends of damper shafts for open/closed indication. Insulated ducts to have elevated dial indicators. Motorized dampers to have 115 volt operators. Provide manual volume dampers at branch take-offs and as shown. Provide motorized dampers as indicated

J. FLEXIBLE CONNECTORS: Flame-retarded or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1. Neoprene double-coated woven glass fiber fabric in accordance with NFPA 90A, suitable for temperatures and pressures of application, approximately 6" wide, crimped into metal edge strip. Provide flexible connections to motor driven equipment.

K. FLEXIBLE DUCTS: Factory-fabricated, insulated, round duct, with an outer jacket enclosing 1-1/2-inch-thick, glass-fiber insulation around a continuous inner liner, steel-wire helix encapsulated in polyethylene inner liner. Comply with UL 181, Class 1. Final connections to air outlets and terminal units may be made with flexible duct. Install flexible ducts with metal collars or sleeves with draw bands. Length of flexible duct shall not exceed 36" path shall not exceed 45°.

REVISIONS/DATES		
NO.	DATE	DESCRIPTION

DESIGNER CONTRACTOR TO COMPLETE ALL REQUIREMENTS OF SERVICE AND PERFORM CONTRACT WORK UNDER THE SUPERVISION OF THE ARCHITECT. THIS DOCUMENT AND THE INFORMATION CONTAINED THEREIN ARE THE PROPERTY OF ARCHITECT/ENGINEER AND SHALL REMAIN HIS PROPERTY. NO PART OF THIS DOCUMENT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.



**ALFF CONSTRUCTION - TENANT FINISH**  
6660 S 118TH ST  
OMAHA, NEBRASKA

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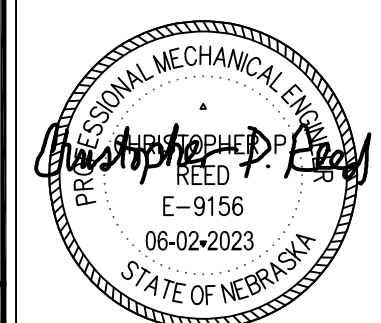
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MEI 23198 NEBRASKA COA NUMBER = CA-0835

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note: do not scale drawings. verify all dimensions and clearances from architectural, structural, shop and other appropriate drawings or at site. lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. do not fabricate prior to verification of clearances for all trades.



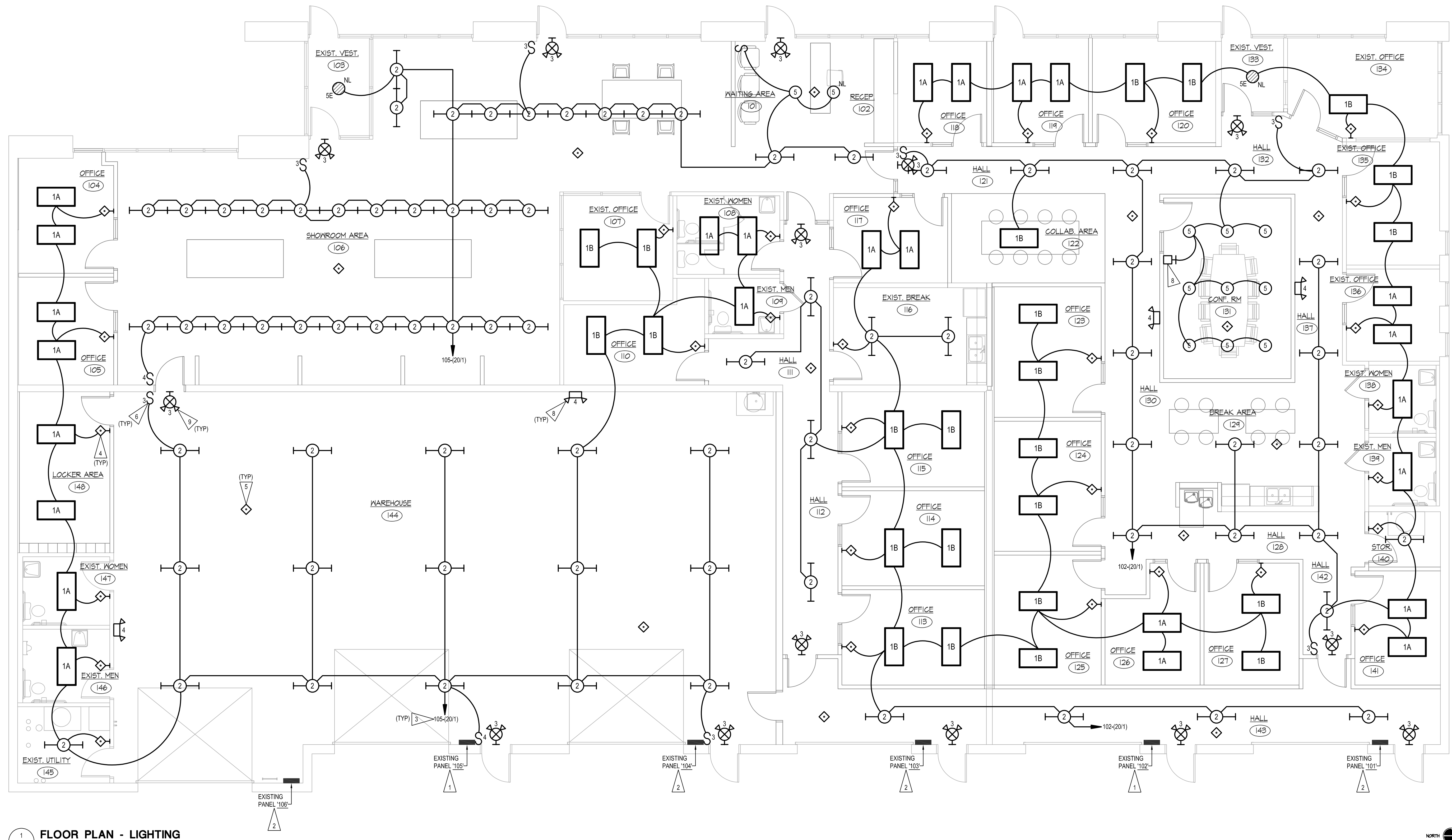
**M5.1**  
MECHANICAL SPECIFICATIONS

REVISIONS/DATES		
NO.	DATE	DESCRIPTION

BEFORE CONTRACT DOCUMENTS ARE PRINTED OR BECOME A RECORD DRAWING, THE ARCHITECT AND THE CONTRACTOR SHALL REVIEW AND APPROVE ALL REVISIONS AND CORRECTIONS TO THE DRAWINGS AND SPECIFICATIONS. ANY REVISIONS OR CORRECTIONS SHALL BE MADE IN WRITING AND APPROVED BY THE ARCHITECT AND THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OMAHA, NEBRASKA.



**ALFF CONSTRUCTION - TENANT FINISH**  
6660 S 118TH ST  
OMAHA, NEBRASKA



**1 FLOOR PLAN - LIGHTING**  
E1.1 1/4" = 1'-0"

LIGHTING FIXTURE SCHEDULE											
FIXT #	MANUFACTURER	CATALOG NO. (NOTE 2)	LAMP DATA			MOUNTING				DESCRIPTION	REMARKS
			QTY.	SIZE	TYPE (NOTE 3)	VOLTAGE	SIZE	FINISH	CL. (IN)		
1A	LITHONIA, NOTE 1	2BLT4 48L ADPT EZ1 LP835	N/A	4,800 LM / 3500K	LED	120/277	X	X		2X4 TROFFER	
1B	LITHONIA, NOTE 1	2BLT4 60L ADPT EZ1 LP835	N/A	6,000 LM / 3500K	LED	120/277	X	X		2X4 TROFFER	
2	LITHONIA, NOTE 1	ZL1D L48 5000LM FST MVOLT 35K 80CRI VH	N/A	5,000 LM / 3500K	LED	120/277	X	X		4FT STRIP LIGHT	
3	LITHONIA, NOTE 1	LHQM LED R HO	N/A	N/A	LED	120/277	X	X	X	SINGLE FACE EXIT LT	W/ EM HEADS
4	LITHONIA, NOTE 1	ELM2L	N/A	N/A	LED	120/277	X		X	BATTERY LIGHT	
5	LITHONIA, NOTE 1	LDN4 3515 L04AR LSS MVOLT GZ10	N/A	1,500 LM / 3500K	LED	120/277	X	X		4IN DOWNLIGHT	
5E	LITHONIA, NOTE 1	LDN4 3515 L04AR LSS MVOLT GZ10 EL	N/A	1,500 LM / 3500K	LED	120/277	X	X		4IN DOWNLIGHT	W/ EMERG. BATTERY

- NOTES:**
- FIXTURE SHALL BE CONSIDERED EQUAL AS MANUFACTURED BY COLUMBIA, DAY-BRITE, COOPER, AND H.E. WILLIAMS.
  - CONTRACTOR SHALL VERIFY LIGHT FIXTURE CATALOG NUMBER & INSTALLATION REQUIREMENTS PRIOR TO ORDERING.
  - LAMP TYPE DESCRIPTION: LED=LIGHT EMITTING DIODE
  - PROVIDE LENGTH AS REQUIRED TO INSTALL AS INDICATED ON PLANS. SEE ARCHITECTURAL DETAILS FOR ADDITIONAL INFORMATION. PROVIDE WITH SUPER NON BENDABLE EXTRUSION. PROVIDE ALL REQUIRED JUMPER CABLES, TERMINATORS, POWER SUPPLIES, CONNECTORS, ETC. AS REQUIRED TO INSTALL.

**GENERAL NOTES**

- MINIMUM SIZE FOR BRANCH CIRCUIT CONDUITS SHALL BE 1/2". MINIMUM DATA/COMMUNICATIONS CONDUIT SIZE SHALL BE 1". SEE DRAWINGS FOR AREAS WHERE LARGER CONDUITS ARE REQUIRED.
- AT CONTRACTOR'S OPTION, THE USE OF MULTIWIRE BRANCH CIRCUITS IS ALLOWED. PROVIDE MEANS TO SIMULTANEOUSLY DISCONNECT ALL CIRCUIT BREAKERS SHARING A COMMON NEUTRAL.
- PROVIDE A GREEN INSULATED GROUND WIRE IN ALL LIGHTING AND POWER BRANCH CIRCUITS.
- COORDINATE ROUTING OF EXPOSED CONDUIT WITH OWNER AND GENERAL CONTRACTOR PRIOR TO ROUGH IN. MOUNT EXPOSED CONDUIT TIGHT AND PARALLEL TO STRUCTURE.

**FLAG NOTES**

- EXISTING PANELBOARD SERVING AREA OF REMODEL. PROTECT DURING DEMOLITION. REUSE EXISTING CIRCUITS WHERE POSSIBLE. PROVIDE NEW BREAKERS AS REQUIRED TO ACCOMMODATE REMODEL. PROVIDE AN UPDATED TYPED CIRCUIT DIRECTORY AFTER REMODEL IS COMPLETE.
- EXISTING PANELBOARD SERVING AREA OF REMODEL. PROTECT DURING DEMOLITION. REUSE EXISTING CIRCUITS WHERE POSSIBLE. TRANSFER ANY EXISTING BRANCH CIRCUITS REMAINING AFTER DEMOLITION TO PANELS UTILIZED IN REMODEL. CONTACT OPD TO REMOVE METER SERVING PANEL TO AVOID UNNECESSARY CHARGES TO THE OWNER.
- CONNECT TO EXISTING (20'1) BREAKER IN PANEL INDICATED THAT BECOMES SPARE DURING DEMOLITION OR EXISTING SPARE (20'1) BREAKER IN PANEL SERVING AREA OF REMODEL.
- PROVIDE LINE VOLTAGE WALL BOX OCCUPANCY SENSOR - SEE LIGHTING CONTROL DEVICE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE NEW CEILING MOUNTED OCCUPANCY SENSOR - SEE SPECIFICATIONS. ROUTE CIRCUIT THROUGH NEW POWER PACK WITH AUXILIARY RELAYS. CONTROLLED BY NEW OCCUPANCY SENSOR(S). PROVIDE AUXILIARY POWER PACKS AS REQUIRED. SEE DETAIL 1 FOR ADDITIONAL INFORMATION.
- CONNECT SWITCH DOWNSTREAM OF OCCUPANCY SENSORS. SWITCH SHALL SERVE AS MANUAL SHUTOFF ONLY.
- PROVIDE NEW 0-10V WALL BOX DIMMER - LITHONIA #SD BC OR EQUAL.
- CONNECT TO BRANCH CIRCUIT SERVING GENERAL LIGHTING IN SAME ROOM AS EMERGENCY LIGHT. CONNECT BATTERY SENSING LEADS AHEAD OF LOCAL SWITCHING.
- CONNECT TO BRANCH CIRCUIT SERVING GENERAL LIGHTING IN SAME ROOM AS EXIT LIGHT. CONNECT BATTERY SENSING LEADS AHEAD OF LOCAL SWITCHING.

1  
E3.1

MEI 23198 NEBRASKA COA NUMBER = CA-0835

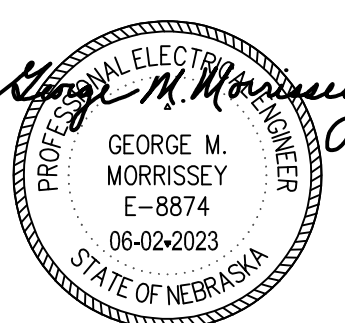
**morrissey engineering inc**  
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note:  
do not scale drawings. verify all dimensions and clearances from architectural, structural, shop and other appropriate drawings or at site. lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. do not fabricate prior to verification of clearance for all trades.

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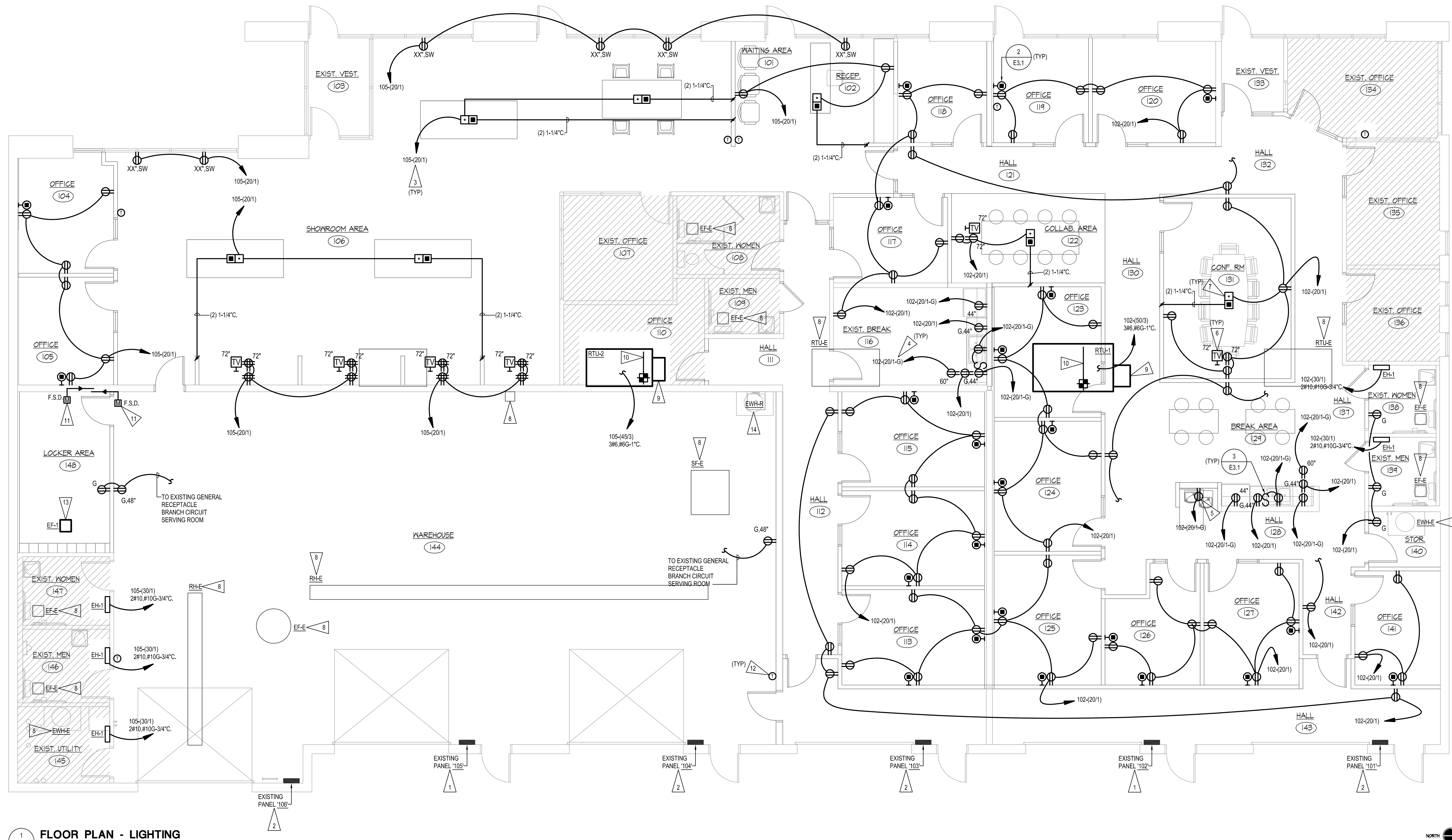
**E1.1**  
FLOOR PLAN - LIGHTING

REVISIONS/DATES		
NO.	DATE	DESCRIPTION

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**ALFF CONSTRUCTION - TENANT FINISH**  
 6660 S 118TH ST  
 OMAHA, NEBRASKA



**1 FLOOR PLAN - LIGHTING**  
 1/4" = 1'-0"

ELECTRIC HEAT SCHEDULE									
MARK	MANUFACTURER	CATALOG NUMBER	WATTS	VOLTS	PHASE	AMP	LENGTH	BTUH	REMARKS
EH-1	KING	LPWA1227L/PWASA	2750	120	1	22.9	NA	-	SURFACE MOUNT - NOTES 1 AND 2

- NOTES:
1. PROVIDE WITH INTEGRAL SERVICE DISCONNECT AND THERMOSTAT.
  2. INSTALL PER MANUFACTURERS INSTRUCTIONS.

**GENERAL NOTES**

1. MINIMUM SIZE FOR BRANCH CIRCUIT CONDUITS SHALL BE 1/2" MINIMUM DATA/COMMUNICATIONS CONDUIT SIZE SHALL BE 1". SEE DRAWINGS FOR AREAS WHERE LARGER CONDUITS ARE REQUIRED.
2. AT CONTRACTOR'S OPTION, THE USE OF MULTIWIRE BRANCH CIRCUITS IS ALLOWED. PROVIDE MEANS TO SIMULTANEOUSLY DISCONNECT ALL CIRCUIT BREAKERS SHARING A COMMON NEUTRAL.
3. PROVIDE A GREEN INSULATED GROUND WIRE IN ALL LIGHTING AND POWER BRANCH CIRCUITS.
4. COORDINATE ROUTING OF EXPOSED CONDUIT WITH OWNER AND GENERAL CONTRACTOR PRIOR TO ROUGH IN. MOUNT EXPOSED CONDUIT TIGHT AND PARALLEL TO STRUCTURE.

**FLAG NOTES**

1. EXISTING PANELBOARD SERVING AREA OF REMODEL. PROTECT DURING DEMOLITION. REUSE EXISTING CIRCUITS WHERE POSSIBLE. PROVIDE NEW BREAKERS AS REQUIRED TO ACCOMMODATE REMODEL. PROVIDE AN UPDATED TYPED CIRCUIT DIRECTORY AFTER REMODEL IS COMPLETE.
2. EXISTING PANELBOARD SERVING AREA OF REMODEL. PROTECT DURING DEMOLITION. REUSE EXISTING CIRCUITS WHERE POSSIBLE. TRANSFER ANY EXISTING BRANCH CIRCUITS REMAINING AFTER DEMOLITION TO PANELS UTILIZED IN REMODEL. CONTACT OPOD TO REMOVE METER SERVING PANEL TO AVOID UNNECESSARY CHARGES TO THE OWNER.
3. CONNECT TO EXISTING (201) BREAKER IN PANEL INDICATED THAT BECOMES SPARE DURING DEMOLITION OR EXISTING SPARE (201) BREAKER IN PANEL SERVING AREA OF REMODEL.
4. PROVIDE NEW 'GF' TYPE CIRCUIT BREAKER IN PANEL INDICATED TO SERVE BRANCH CIRCUIT NOTED.
5. LOCATE RECEPTACLE FOR ELECTRIC WATER COOLER SO THAT CORD AND PLUG ARE CONCEALED INSIDE OR BEHIND WATER COOLER. PROVIDE 'GF' TYPE CIRCUIT BREAKER.
6. PROVIDE ROUGH IN FOR AUDIO / VISUAL EQUIPMENT. PROVIDE THREE GANG LARGE CAPACITY BACK BOX - HUBBELL #HBL263 OR EQUAL. PROVIDE TWO 1-1/2" AND ONE 2". WITH PULL STRING FROM BACK BOX STUBBED ABOVE ACCESSIBLE CEILING. TERMINATE ENDS WITH INSULATING BUSHINGS. COORDINATE LOCATION OF BOX WITH OWNER PRIOR TO ROUGH IN.
7. PROVIDE WIREMOLD #RFB4 MULTI-SERVICE FLOOR BOX. PROVIDE TWO 1" UNDERGROUND DATA CONDUITS WITH PULL STRINGS FROM FLOOR BOX LOW VOLTAGE COMPARTMENTS TO LOCATIONS INDICATED ON PLAN. TERMINATE CONDUITS WITH INSULATING BUSHINGS. COORDINATE FLOORING TYPE WITH ARCHITECTURAL PLANS PRIOR TO PURCHASE. PROVIDE AFFIX COVER PLATE IF INSTALLED AT TILE AND AFFIX COVER PLATE IF INSTALLED AT CARPET. PROVIDE CARPET INLAY IF APPLICABLE. COORDINATE COLOR OF COVER PLATE WITH ARCHITECT PRIOR TO PURCHASE. COORDINATE EXACT LOCATION OF FLOOR BOX AND UNDERGROUND CONDUIT ROUTING WITH ARCHITECT AND GENERAL CONTRACTOR PRIOR TO CONSTRUCTION. COORDINATE EXACT LOCATION OF FLOOR BOX WITH ARCHITECT PRIOR TO ROUGH IN. SAW CUT FLOOR AS REQUIRED TO ALLOW FOR INSTALL OF CONDUITS. PATCH FLOOR TO MATCH ADJACENT SURFACES.
8. EXISTING MECHANICAL EQUIPMENT TO REMAIN. PROTECT DURING DEMOLITION.
9. ROOF TOP UNIT PROVIDED WITH INTEGRAL DISCONNECT.
10. PROVIDE DUCT SMOKE DETECTOR IN SUPPLY AIR DUCT. CONNECT TO SHUT DOWN MECHANICAL EQUIPMENT IN EVENT OF ALARM CONDITION. PROVIDE REMOTE INDICATOR / RESET STATION WHEN DUCT DETECTOR IS NOT LOCATED IN ACCESSIBLE CEILING SPACE. PROVIDE FIRE ALARM RELAY(S) TO SHUT DOWN ALL MECHANICAL EQUIPMENT SERVING SAME AIR SYSTEM.
11. PROVIDE 120V CONNECTION AND FIRE ALARM WIRING TO COMBINATION FIRE / SMOKE DAMPER. PROVIDE DUCT SMOKE DETECTOR INTERLOCKED WITH DAMPER WITHIN 5'-0" OF DAMPER. SEE DETAIL FOR ADDITIONAL INFORMATION.
12. PROVIDE ROUGH IN FOR THERMOSTAT / SENSOR. PROVIDE 1/2" WITH PULL STRING FROM ROUGH IN TO MECHANICAL EQUIPMENT SERVED. COORDINATE REQUIREMENTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH IN.
13. CONNECT EXHAUST FAN TO BRANCH CIRCUIT SERVING LIGHT FIXTURES WITHIN SAME ROOM AS EXHAUST FAN. CONNECT DOWNSTREAM OF OCCUPANCY SENSOR(S) SERVING ROOM. EXHAUST FAN PROVIDED WITH INTEGRAL DISCONNECT.
14. DISCONNECT EXISTING WATER HEATER TO ALLOW FOR RELOCATION BY OTHERS. RECONNECT IN NEW LOCATION INDICATED. COORDINATE ORIGINAL LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO DEMOLITION.

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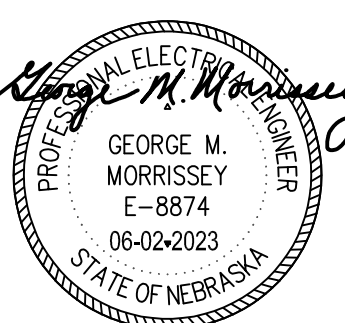
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note:  
 do not scale drawings. verify all dimensions and clearances from architectural, structural, shop and other appropriate drawings or at site. lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. do not fabricate prior to verification of clearance for all trades.

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**E2.1**  
 FLOOR PLAN - POWER



# ELECTRICAL SPECIFICATIONS

## SECTION 260100 - GENERAL ELECTRICAL REQUIREMENTS

**A. WARRANTIES** - All materials, workmanship and equipment shall be warranted against defects or against injury from proper and usual wear for a period of one year after the date of substantial completion. Any item that becomes defective within the warranty period shall be repaired or replaced, at no additional cost to the Owner. Warranty shall include repair of faulty workmanship.

**B. DEFINITIONS ABBREVIATIONS** - The following shall apply throughout the contract documents:

Furnish Supply and deliver to site ready for installation

Indicated Noted, scheduled or specified

Provide Furnish, install and connect complete and ready for final use

NEC National Electrical Code (NFPA 70)

NEMA National Electrical Manufacturers Association

NFPA National Fire Protection Association

UL Underwriters Laboratories Inc.

**C. CODES AND STANDARDS** - All work shall be performed by competent craftsmen skilled in the trade involved and shall be done in a manner consistent with normal industry standards. All work shall conform to the currently adopted edition of the National Electrical Code (NEC), Local Building Code, and all other applicable state and local codes or standards. Where there is a conflict between the code and the contract documents, the code shall have precedence only when it is more stringent than the contract documents.

**D. PERMITS** - Contractor shall become familiar and comply with all requirements regarding permits, fees, licenses, etc. All permits, licenses, inspections and arrangements required for the work shall be obtained by Contractor's effort and expense. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor.

**E. MATERIALS** - All materials and equipment used in the construction of the project shall be new unused and undamaged unless otherwise specified. Materials and equipment shall be of latest design standards of manufacturer specified. Verify installation details and requirements for materials and equipment furnished by others and installed under this contract.

**F. DEMONSTRATION AND TRAINING** - Instruct Owner's personnel to adjust, operate, and maintain electrical systems. Schedule training with Owner with at least seven days' advance notice.

**G. STARTING AND ADJUSTING** - Start and test all equipment and operating components to confirm proper operation. Test and adjust all systems to achieve designed capacity and performance. All equipment and systems discrepancies shall be corrected prior to final acceptance.

**H. TEMPORARY POWER AND LIGHTING** - Use electric power from Owner's existing system without metering and without payment of use charges.

- Provide receptacle outlets adequate for connection of power tools and construction equipment.
- Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

## SECTION 260500 - BASIC ELECTRICAL MATERIALS AND METHODS

**A. QUALITY ASSURANCE** - Electrical Components, Devices, and Accessories shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

**B. COORDINATION** - Coordinate chases, slots, insets, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the work.

**C. CONDUCTORS** - All conductors shall be installed in raceways. Conductors for pilot and control circuits shall be #14. All other conductors shall be #12 or larger.

1. Conductors, No. 10 AWG and Smaller: Solid or stranded copper.

2. Conductors, Larger Than No. 10 AWG: Stranded copper.

3. Insulation: Thermoplastic, rated at 75 deg C minimum.

4. Wire Connectors and Splices: Units of size, ampacity rating, material, type, and class suitable for service indicated.

**D. RACEWAYS** - Minimum raceway size shall be ½". Raceway types and applications shall be as follows:

1. Electrical metallic tubing (EMT): ANSI C80.3, zinc-coated steel, with set-screw or compression fittings. EMT shall be used for all other applications not listed below.

2. Liquid tight flexible metal conduit (LFMC): Zinc-coated steel with sunlight-resistant and mineral-oil-resistant plastic jacket. LFMC shall be used for connections to vibrating equipment or in wet or damp locations

3. Raceway Fittings: Specifically designed for the raceway type with which used.

**E. JUNCTION AND DEVICE BOXES** - Minimum box size shall be 4" square with extension or plaster ring as required. Box types and applications shall be as follows:

1. Sheet metal boxes: NEMA OS 1 galvanized steel. Sheet metal boxes shall be used for all surface mounted applications and flush mounting in gypsum or plaster walls.

2. Masonry boxes: square cornered suitable for flush mounting in masonry construction.

3. Cast metal boxes: NEMA FB 1, Type FD, cast box with gasketed cover. Cast metal boxes shall be used for exterior surface mounted applications.

**F. ELECTRICAL IDENTIFICATION** - All conductors shall be color coded throughout the installation. Color coding shall be as prescribed by ANSI A13.1 and NFPA 70.

**G. FIRESTOPPING** - Apply firestopping to cable and raceway penetrations of fire-rated floor and wall assemblies to achieve fire-resistance rating of the assembly.

**H. DEMOLITION** - Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.

1. Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.

2. Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches below the surface of adjacent construction. Cap raceways and patch surface to match existing finish.

3. Remove deminished material from Project site.

4. Remove, store, clean, reinstall, reconnect, and make operational components indicated for relocation.

5. Existing utilities shall not be interrupted without prior written approval from the owner. All interruptions shall occur during off hours.

**I. CUTTING AND PATCHING** - Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

1. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing fireproofing has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

## SECTION 262416 - PANELBOARDS

**A. GENERAL** - Each existing panelboard modified in remodel and panelboard shall be furnished with a new typed directory card indicating the load served by each branch circuit.

**B. OVERCURRENT PROTECTIVE DEVICES** - Thermal-magnetic circuit breakers with inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger. Circuit breaker lugs shall be mechanical style, suitable for number, size, trip ratings, and material of conductors.

1. Each overcurrent protective device shall have an application listing appropriate for the application.

## SECTION 262726 - WIRING DEVICES

**A. GENERAL** - Devices shall be installed plumb and secure. Unless otherwise indicated, flush mount wiring devices with long dimension vertical, and grounding terminal of receptacles on bottom.

1. Unless otherwise indicated wiring devices shall be mounted at the following heights, measured from finished floor to centerline of device.

Wall switches = 44"

Receptacles = 16"

2. Group adjacent devices under single multi-gang wall plates.

3. Wiring devices shall be manufactured by Pass and Seymour, Leviton, Hubbell, or General Electric.

**B. RECEPTACLES** - Duplex receptacles shall be specification grade 20 ampere, 120 volt.

1. Ground fault interrupting (GFI) receptacles shall be feed-through type arranged to protect connected downstream receptacles on same circuit.

2. Receptacles serving owner furnished equipment shall have configuration to match that of equipment plug.

**C. SWITCHES** - Snap switches shall be specification grade, quiet type, single pole, two pole, or three-way to suit conditions.

**D. DEVICE COLOR** - Color shall be white unless otherwise indicated or required by code.

**E. WALL PLATES** - Plates shall be smooth finish plastic in single and combination types to match corresponding wiring devices. Match color of associated device(s).

## SECTION 265100 - LIGHTING

**A. LUMINAIRE AND LIGHTING COMPONENTS** - All metal parts and components shall be free from burrs, sharp corners, and edges. All fixtures shall be shipped pre-wired and ready for mounting.

1. Doors, frames, and other internal access mechanisms shall be smooth operating, free from light leakage under operating conditions, and arranged to permit relamping without use of tools.

**B. EMERGENCY POWER SUPPLY UNIT** - Unit shall be a self-contained, modular, battery/inverter unit factory mounted within fixture body, 1100 lumen output minimum.

1. Fixture shall be provided with a test switch and light-emitting diode indicator light which is visible and accessible without opening fixture or entering ceiling space.

2. Battery shall be a sealed, maintenance-free, nickel-cadmium type with minimum 5-year nominal life with fully automatic, solid-state, constant-current type charger.

3. Relay shall automatically energize lamp or LEDs from unit when normal supply circuit voltage drops to 80 percent of nominal voltage or below. When normal voltage is restored, relay disconnects lamp, and battery is automatically recharged and floated on charger.

### C. LED LIGHT SOURCE REQUIREMENTS:

1. Rated life (L70): Minimum 50,000 hours as defined by IES LM80 and TM21.

2. Color Rendering Index (CRI): 80 CRI minimum.

3. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

4. Power Factor (100% output): >0.95

### D. LED DRIVER REQUIREMENTS:

1. 0-10V Dimming.

2. Total Harmonic Distortion Rating: Less than 20 percent.

3. Ambient Temperature Rating: -40° to +55° C.

4. Power Factor (100% output): >0.95

**E. WARRANTY** - Include labor allowance required for replacement on-site at no extra cost to Owner within 1-year construction warranty. Transfer remainder of the manufacturer's warranty, including ballast manufacturer's labor stipend to owner after 1-year construction warranty.

1. Ballast and Drivers: 5-year replacement warranty.

2. LED system Warranty: 5-year replacement warranty.

**F. FINISHES** - Luminaire finishes shall be manufacturer's standard, unless otherwise indicated. Painted finishes shall be applied over corrosion-resistant treatment or primer, free of defects. Metallic finishes shall be corrosion resistant.

**K. INSTALLATION** - Luminaires shall be set level, plumb, and square with ceiling and walls, and secured according to manufacturer's written instructions and approved submittal materials.

1. Luminaires in or on grid-type suspended ceilings shall be supported with support clips and a minimum of four ceiling support system rods or wires for each fixture, located not more than 6 inches from fixture corners.

2. Luminaires of Sizes Less Than Ceiling Grid shall be arranged as indicated on reflected ceiling plans or center in acoustical panel, and supported independently with at least two 3/4-inch metal channels spanning and secured to ceiling tees.

## SECTION 265200 - LIGHTING CONTROL

**A. OCCUPANCY SENSORS** - Sensor adapts or "learns" patterns of use specific to controlled space to reduce false switching.

1. Ceiling Sensors: Dual technology with infrared and microphonic or ultrasonic 32 kHz or 40 kHz sensors integrated into one housing. 360 degree field of view with a minimum coverage of 20 foot radius at 9' mounting height, with sensor centered in coverage area. Sensor shall mount tight to ceiling surface and shall have a white finish. Provide associated power packs for sensor power and load switching relays. Sensorswitch CM PDT 10 or equivalent by Hubbell or Wattstopper.

2. Wall Box Sensors: Passive dual technology with 180 degree adjustable field of view capable of sensing small motion to 20' when mounted at 4'. Pushbutton on sensor face provides manual on/manual off load control. Load may be manually turned on or off at any time. Mount in wall box with decorator style faceplate, sensor shall have gray finish with 302 stainless steel plate. Integral switch in sensor housing shall be rated for 800W ballast or incandescent load at 120V, 1200W ballast load at 277V, and 144 hp motor load at 120V. Sensorswitch WSD PDT or equivalent by Hubbell or Wattstopper.

3. Adjust occupancy sensors tailored to actual use conditions of controlled space. Make adjustments before and after Owner has occupied space.

**B. LIGHTING CONTROL** - See plans and details for requirements of lighting control.

**C. WARRANTY** - Manufacturer and Installer agree to repair or replace devices that fail in materials or workmanship within two years from date of substantial completion.

**D. MANUFACTURERS**

1. Lighting control system shall be manufactured by SensorSwitch, Wattstopper, Leviton.

## SECTION 268100 - FIRE ALARM

**A. SUBMISSIONS TO AUTHORITIES HAVING JURISDICTION** - Submit to authorities having jurisdiction. Include copies of annotated Contract Drawings as needed to depict component locations to facilitate review. Resubmit if required to make clarifications or revisions to obtain approval. On receipt of comments from authorities having jurisdiction, submit them to Engineer for review.

**B. DUCT SMOKE DETECTORS** - Duct smoke detector shall be ionization type with sampling tube sized as recommended by the manufacturer for the specific duct size, air velocity, and installation conditions where applied.

1. Provide fan shutdown relay(s) rated to interrupt fan motor-control circuit where required.

**C. WIRE** - wiring shall be as follows unless otherwise recommended by the manufacturer or required by the authority having jurisdiction:

Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75 deg C, color-coded insulation.

Low-Voltage Circuits: No. 16 AWG, minimum.

Line-Voltage Circuits: No. 12 AWG, minimum.

Power-Limited Circuits: NFPA 70, Types FPL, FPLR, or FPLP, as recommended by manufacturer.

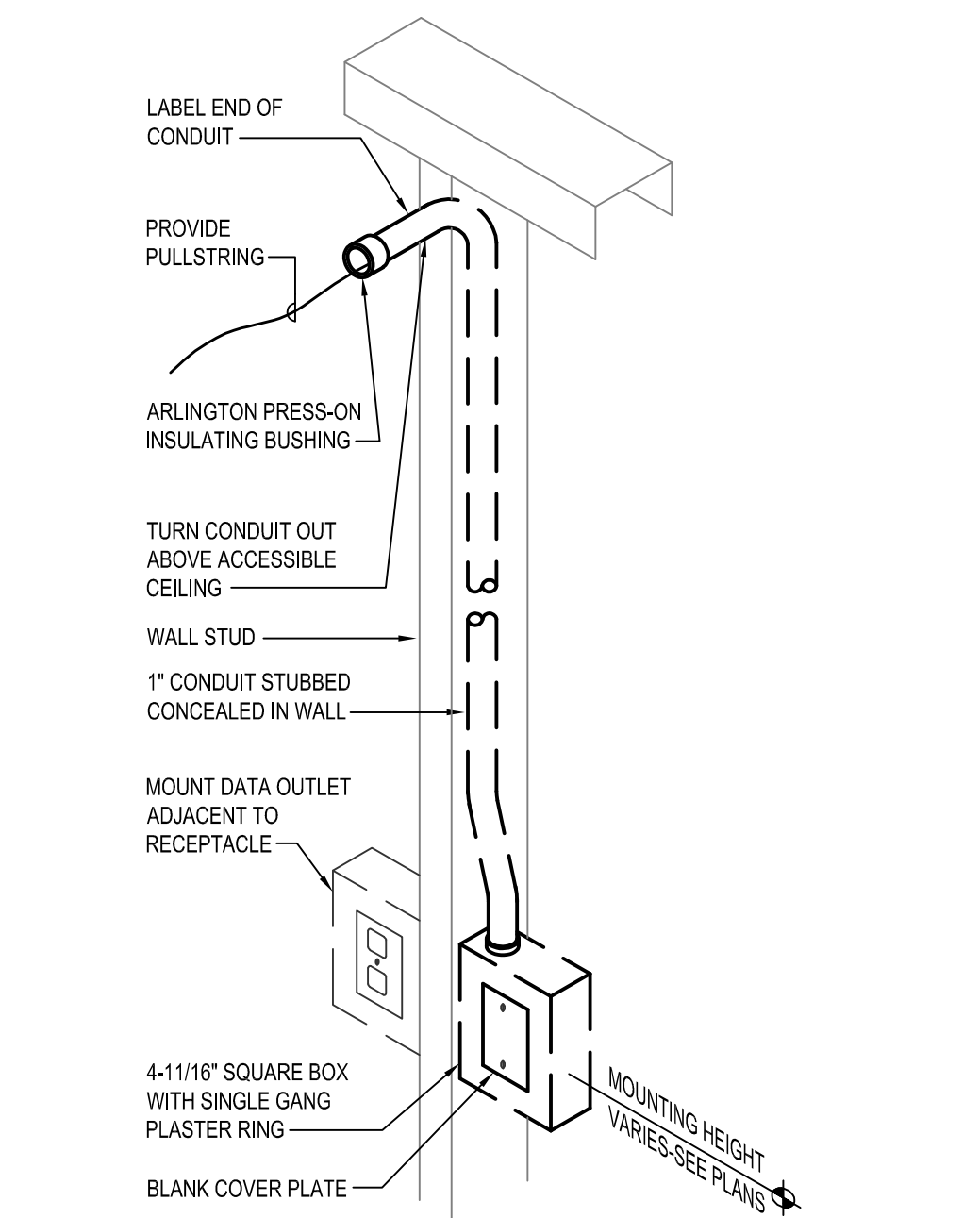
1. Fire alarm wiring shall be installed in raceway. Conceal raceway except in unfinished spaces and as indicated.

**D. MANUFACTURERS** - Subject to compliance with requirements, provide products by one of the following: Cerberus Pyrotechnics, Edwards Systems Technology, Notifier, Stimpex.

**E. FIELD SERVICE AND TESTING** - Engage a factory-authorized service representative to inspect field-assembled components and connections and to supervise pretesting, testing, and adjustment of the system. Report results in writing. Test the system according to procedures outlined in NFPA 72. Correct deficiencies indicated by tests and complete retest work affected by such deficiencies.

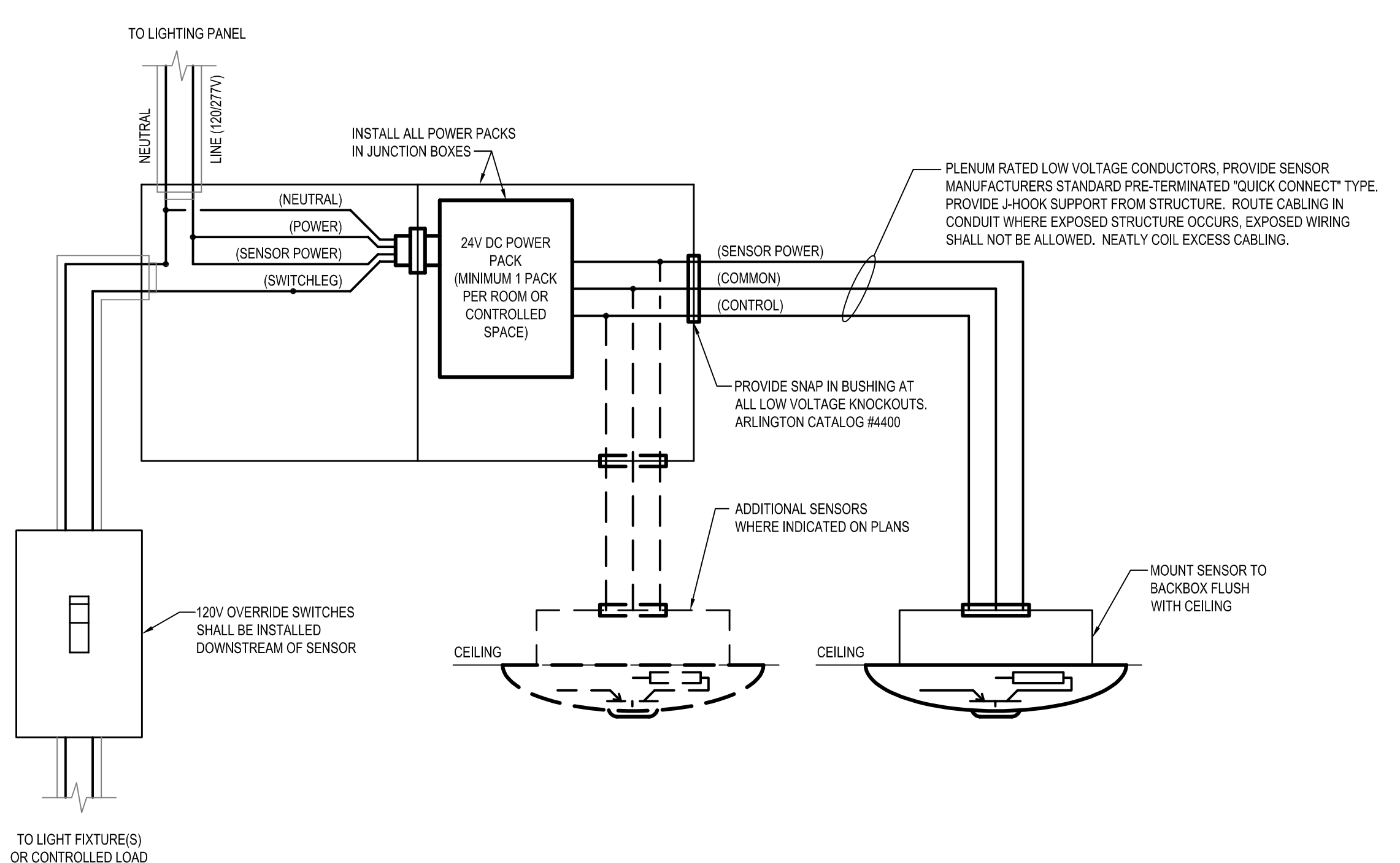
1. Occupancy Adjustments: When requested within one year of date of Substantial Completion, provide on-site assistance in adjusting sound levels, controls, and sensitivities to suit actual occupied conditions. Provide up to two requested visits to Project site for this purpose.

ELECTRICAL SYMBOLS			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
<b>LIGHTING</b>			
○	LUMINAIRE	⊗	BASE/POLE SWITCH
○	LUMINAIRE	⊗	3-WAY SWITCH
○	LUMINAIRE CONNECTED TO EMERGENCY CIRCUIT OR BATTERY	⊗	4-WAY SWITCH
○	EMERGENCY BATTERY PACK	⊗	WALL BOX DIMMER SWITCH
○	WALL MOUNTED LUMINAIRE	⊗	CEILING MOUNTED MOTION SENSOR SWITCH
○	WALL MOUNTED LUMINAIRE	⊗	WALL MOUNTED MOTION SENSOR SWITCH
○	WALL MOUNTED LUMINAIRE	⊗	LOW VOLTAGE LIGHTING CONTROL SWITCH
○	TRACK LUMINAIRE	⊗	PHOTOCELL
○	EMERGENCY BATTERY PACK	⊗	CEILING MOUNTED EXT LIGHT WITH DIRECTIONAL ARROW
○	POLE MOUNTED LUMINAIRE	⊗	WALL OR END MOUNTED EXT LIGHT WITH DIRECTIONAL ARROW
○	RECESSED LUMINAIRE		
<b>FIRE ALARM</b>			
○	WALL/POLE FIRE ALARM BELL	⊗	FIRE ALARM HOORN BELL
○	WALL/POLE FIRE ALARM BELL	⊗	FIRE ALARM HOORN BELL
○	DOUBLE RECEPTACLE	⊗	FLOOR BOX, ASSEMBLY WITH POWER & DATA
○	1/2" GENETEC SPD TYPE	⊗	PUSH-IN FLOOR BOX
○	1/2" GENETEC ISOLATED GROUND TYPE	⊗	MULTI-OUTLET ASSEMBLY - LENGTH AS INDICATED
○	1/2" GENETEC HOSPITAL GRADE TYPE	⊗	MOTOR/TYPE IDENTIFIED BY POWER RATING
○	1/2" TYP GENETEC TAMPER RESISTANT TYPE	⊗	GROUNDING SWITCH
○	1/2" GENETEC HOSPITAL SERIAL BOND TYPE	⊗	THERMAL ELEMENT SWITCH
○	DOUBLE SWITCHING GENETEC RED DEVICE	⊗	SWITCH & FUSE
○	SINGLE SWITCHING GENETEC SPLIT WIRE DEVICE	⊗	MAGNETIC MOTOR STARTER
○	HORIZONTAL MOUNTED DUPLEX RECEPTACLE	⊗	COMBINATION MAGNETIC STARTER/RECONNECT
○	CEILING MOUNTED DUPLEX RECEPTACLE	⊗	MOTOR CONTROL PUSHBUTTON SECTION
○	SINGLE RECEPTACLE	⊗	RELAY
○	TRIPLE RECEPTACLE NEMA 4A/5 (250V 50A)		
○	TRIPLE RECEPTACLE NEMA 4A/5 (250V 50A)		
○	1/4" GENETEC WELDER RECEPTACLE NEMA 4A/5 (50V 50A)		
○	SPECIAL PURPOSE RECEPTACLE NEMA CONFORMS INDICATED		
<b>COMMUNICATION</b>			
○	WALL PHONE OUTLET	○	CEILING SPEAKER
○	WALL COMMUNICATIONS DATA OUTLET	○	WALL SPEAKER
○	CEILING COMMUNICATIONS DATA OUTLET	○	WALL MICROPHONE OUTLET
○	CEILING WIRELESS ACCESS POINT OUTLET	○	CEILING MICROPHONE OUTLET
○	VOLUME CONTROL	○	VOLUME CONTROL
○	CONDUIT SLEEVE (IF UNLESS NOTED OTHERWISE ON PLANS)	○	CALLING DEVICE
○		○	WALL CLOCK
<b>SECURITY</b>			
○	MOTION MOUNTED SECURITY MOTION DETECTOR	○	VIDEO SURVEILLANCE CAMERA (INDICATED TYPE)
○	WALL MOUNTED SECURITY MOTION DETECTOR	○	SECURITY CARD READER
○	WALL MOUNTED REQUEST TO EXIT MOTION SENSOR	○	ELECTRIC STRIKE
○	DOOR POSITION SWITCH	○	ELECTRONIC LOCK INTERACTION
○	MAGNETIC LOCK	○	INTRUSION ZONE
○	WIRELESS STATION	○	WANDER GUARD
<b>GENERAL</b>			
○	LIGHTING PANEL	○	WALL MOUNTED SECTION BOX
○	DISTRIBUTION PANEL SWITCHBOARD OR MOTOR CONTROL CENTER	○	JUNCTION BOX
○	CABINET, ENCLOSURE OR CONTROL PANEL, TYPE INDICATED ON PLANS	○	CRACK SEAL
○	BRANCH CIRCUIT - EXPOSED	○	CIRCUIT DOWN
○	BRANCH CIRCUIT CONCEALED IN CEILING OR WALL	○	CIRCUIT UP
○	BRANCH CIRCUIT CONCEALED IN DOOR	○	CIRCUIT THROUGH
○	MEMORIAL TO PANEL QUANTITY OF ARROWS INDICATES QUANTITY OF CIRCUITS	○	CIRCUIT BREAK
○	SPECIAL PURPOSE HOIST/SLUIC AS INDICATED	○	BELL
○	TERMINATED	○	PUSHBUTTON



**3 DISPOSAL CONNECTION DETAIL**  
E3.1 NOT TO SCALE

**2 DATA/COMM ROUGH-IN DETAIL**  
E3.1 NOT TO SCALE



**1 TYPICAL CEILING OCCUPANCY SENSOR CONNECTION DETAIL**  
E3.1 NOT TO SCALE

**COMcheck Software Version 4.1.5.4**  
**Interior Lighting Compliance Certificate**

**Project Information**  
Energy Code: 2018 IECC  
Project Title: ALFF CONSTRUCTION  
Project Type: New Construction

Construction Site: 6860 S 118TH ST, Omaha, NE  
Owner/Agent:  
Designer/Contractor: Nick Manning, Morrisey Engineering Inc, 4940 North 118th St, Omaha, NE 68164

**Additional Efficiency Package(s)**

Credits: 1.0 Required, 1.0 Proposed, Reduced Lighting Power: 1.0 credit

**Allowed Interior Lighting Power**

Area Category	Floor Area (ft <sup>2</sup> )	Allowed Watts / ft <sup>2</sup>	Allowed Watts (B X C)
1-Office	11413	0.71	8115
		Total Allowed Watts =	8115

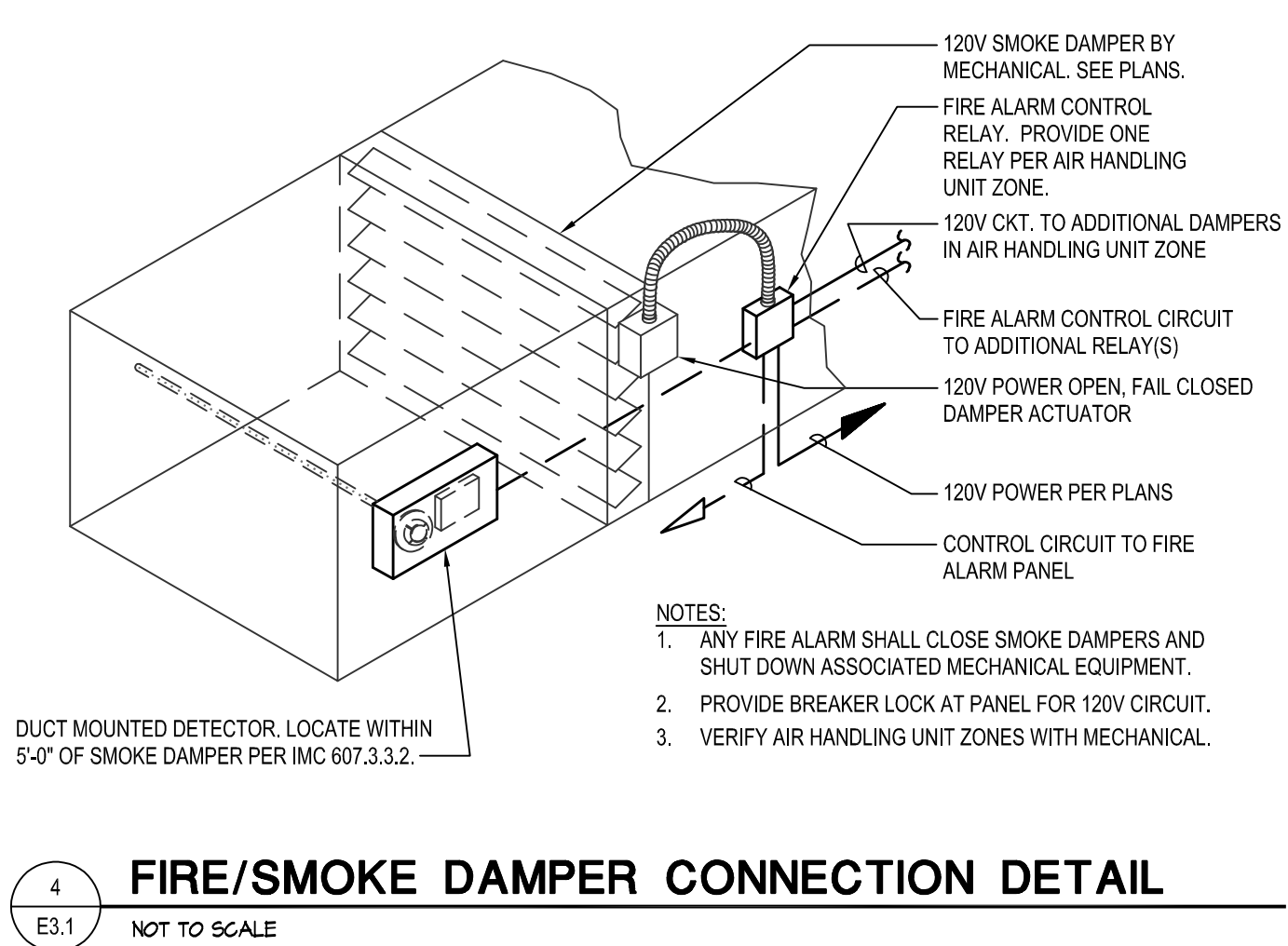
**Proposed Interior Lighting Power**

Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	Lamps / Fixture	# of Fixtures	Fixture Watt.	(C X D)
1-Office: LED 1A: 2X4 TROFFER: Other:	1	25	40	1000
LED: 1B: 2X4 TROFFER: Other:	1	25	47	1175
LED: 2: 4FT STRIP LIGHT: Other:	1	75	41	3075
LED: 5: 4IN DOWNLIGHT: Other:	1	13	18	234
		Total Proposed Watts =	5484	

**Interior Lighting PASSES: Design 32% better than code**

**Interior Lighting Compliance Statement**  
Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Package 4.1.5.4 and comply with any applicable mandatory requirements listed in the Inspection Checklist.

Nick Manning - Electrical Project Manager  
Date: June 2, 2023



**4 FIRE/SMOKE DAMPER CONNECTION DETAIL**  
E3.1 NOT TO SCALE

MEI 23198 NEBRASKA COA NUMBER = CA-0635

**morrissey engineering inc**  
mechanical | electrical | lighting | technology | commissioning

4940 North 118th Street  
Omaha, NE 68164  
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note:  
do not scale drawings. verify all dimensions and clearances from architectural, structural, shop and other appropriate drawings or at site. lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. do not fabricate prior to verification of clearance for all trades.

**REVISIONS/DATES**

NO.	DATE	DESCRIPTION

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**ALFF CONSTRUCTION - TENANT FINISH**  
6860 S 118TH ST  
OMAHA, NEBRASKA