

Gloss Nails

Summit Orchard
470 NW Chipman Rd.
Lee's Summit, MO 64086

RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
05/06/2020

Landlord's Tenant Improvements

Construction Documents

04-24-20



DRAWING INDEX

ARCHITECTURAL	
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A-101a	UL ASSEMBLY U425

MECHANICAL	
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ME-201	SPECIFICATIONS - MECHANICAL AND ELECTRICAL
ME-301	SCHEDULES AND DETAILS - MECHANICAL AND ELECTRICAL
ME-401	FIRST FLOOR PLAN - MECHANICAL AND ELECTRICAL

ARCHITECT
SLAGGIE ARCHITECTS, INC.
4600 MADISON AVENUE, SUITE 350
KANSAS CITY, MO 64112
PHONE: (888) 756-1958

MEP ENGINEER
SMITH & BOUCHER ENGINEERS
25501 WEST VALLEY PARKWAY, SUITE 200
OLATHE, KS 66061
PHONE: (913) 345-0617

DOOR #	ROOM #	ROOM NAME	WIDTH	HEIGHT	TYPE	FRAME TYPE	HEAD DETAIL	JAMB DETAIL	HDWR. GROUP #	COMMENTS
D001	110	AREA D	3'-0"	8'-0"	1GWA	SF08			1	

DOOR HARDWARE

Hardware Set No. 1 (Single Storefront Aluminum/ Glass Door)

Qty.			
1	Continuous Hinge	CFM-HD1	628
1	Mortise Deadlock	MS1850SN	Adams Rite
1	Thumb Turn	4069-01	Adams Rite
1	Cylinder Mortise	D51 41 101	Sargent
1	w/ interchangeable construction core (exterior face) (store core provided by tenant)		
1	Status Indicator	4069-00	Adams Rite
1	Push Bar & Pull	98" 15847	Rockwood
1	Concealed Closer	2033 H-Bumper	LC
1	Threshold	2335SFG 36" Aluminum Pan	Pemko
1	Adhesive Header Sign	This Door to Remain Unlocked During Business Hours	Adams Rite
1	Set Weatherstrip	By Door Manuf.	
1	Door Sweep	By Door Manuf.	

DOOR TYPE LEGEND

Door Type:	Material:
1 = Single	A = Aluminum
2 = Double	F = Fiberglass
8 = Blind	P = Plastic
O = Overhead	S = Steel
P = Pocket	W = Wood
S = Sliding	

Door Type Code:	Construction:
(Per Door Schedule)	
1 F S W	

Defining Feature:	Construction:
B = Fabric	C = Colling
E = Embossed	G = Grille
F = Flush	H = Hollow Core
G = Glass	M = Medium Sile
L = Louver	N = Narrow Sile
N = Narrow Lite	P = Panel (Sectional)
S = Security	R = Shutter
T = Traffic	S = Sliding Glass
V = View Lite(s)	W = Wide Sile

Example Shown = Single Flush Solid Core Wood

STOREFRONT GENERAL NOTES:

- SEE FLOOR PLANS FOR DOOR SWING DIRECTIONS.
- MANUFACTURER / FABRICATOR TO FIELD VERIFY ALL ALL DIMENSIONS / OPENINGS PRIOR TO GLASS FABRICATION.
- ALL DOORS TO RECEIVE 1/4" GLASS IN COLOR TO MATCH OTHER GLASS IN RESPECTIVE STOREFRONT UNLESS OTHERWISE NOTED.
- MANUFACTURER / FABRICATOR TO DETERMINE FINAL LOCATION OF HEAT-STRENGTHENED AND TEMPERED GLASS AS REQUIRED BY LOCAL CODE.
- PROVIDE HEAD AND SILL FLASHING AS REQUIRED PER STOREFRONT MANUFACTURER'S RECOMMENDATIONS.

FRAME TYPES:

EXTERIOR STOREFRONT (SF):
KAWNEER TRIFAB VERSAGLAZE 451-T
2" x 1/2" FRAME DIMENSION
4 1/2" x 4 1/2" FRAME DIMENSION
FINISH: CLEAR ANODIZED

GLASS TYPES:

- GL-1 INSULATED LOW-E GLASS
COLOR / FINISH: CLEAR NON-REFLECTIVE
GLASS: AGC ENERGY SLECT 40
 - PROVIDE TEMPERED GLASS WHERE INDICATED.
MANUFACTURER / FABRICATOR TO DETERMINE FINAL LOCATION OF HEAT-STRENGTHENED AND TEMPERED GLASS AS REQUIRED BY LOCAL CODE.
- NOTE: ALL STOREFRONT GLASS UNITS TO BE TYPE GL-1 UNLESS NOTED OTHERWISE

DRAWING SYMBOL LEGEND

SYMBOL	NAME	DESCRIPTION
	NEW DOOR IN NEW WALL	NEW DOOR (XXXX) AND FRAME IN NEW WALL. SEE DOOR SCHEDULE FOR DOOR INFORMATION.
	STOREFRONT	EXTERIOR ALUMINUM STOREFRONT. SEE FRAME TYPE ELEVATIONS FOR DETAILS. SF# INDICATES FRAME # ON FRAME TYPES SHEET.
	DOWNSPOUT	6"x6" PREFINISHED (KYNAR 500) ALUMINUM SHOP-FABRICATED BOX DOWNSPOUT FROM GUTTER OR SCUPPER ABOVE. CONTINUE TO UNDERGROUND STORM DRAIN SYSTEM PER CIVIL DRAWINGS U.N.O. SEE EXTERIOR ELEVATIONS FOR EXTERIOR FINISHES. HIDDEN SEAM - TYPICAL.
	ELEVATION	HEIGHT ABOVE FINISH FLOOR ELEVATION.
	WALL TYPE TAG	WALL TYPE SYMBOL INDICATES TYPE OF WALL CONSTRUCTION WITH FIRE RATING AND HEIGHT WHERE APPLICABLE. REFER TO WALL TYPES (SHEET A-002) FOR DETAILS.
	ENLARGED PLAN OR DETAIL TAG	ENLARGED DETAIL SYMBOL INDICATES A PORTION OF THE DRAWING WHICH IS ENLARGED OR DETAILED. REFER TO SHEET AND DRAWING # INDICATED FOR ASSOCIATED DRAWING.
	WALL SECTION TAG	SECTION SYMBOL INDICATES LOCATION OF SECTION CUT AND DIRECTION VIEWED. REFER TO SHEET AND DRAWING # INDICATED FOR ASSOCIATED SECTION.
	GRID LINE MARKER	STRUCTURAL GRID MARKER. REFERS TO STRUCTURAL ENGINEERING DRAWINGS' GRID LINE NUMBERING SYSTEM.

GENERAL NOTES

- ALL NEW CONSTRUCTION SHALL MEET LATEST EDITIONS OF ALL APPLICABLE NATIONAL, STATE, AND LOCAL BUILDING CODES.
- BUILDING PERMIT WILL BE REQUIRED FOR THE PROJECT. PERMIT SHALL BE OBTAINED AND PAID FOR BY THE GENERAL CONTRACTOR.
- CONTRACTOR SHALL VISIT THE JOB SITE AND SHALL REVIEW THE CONTRACT DOCUMENTS TO FAMILIARIZE HIMSELF WITH THE REQUIREMENTS AND INTENT OF THE SCOPE OF WORK PRIOR TO BID. ANY DEFICIENCIES OR DISCREPANCIES DISCOVERED SHALL BE REPORTED TO THE PROJECT MANAGER OR THE ARCHITECT FOR REVIEW AND CLARIFICATION PRIOR TO COMMENCING ANY WORK.
- EACH CONTRACTOR AND SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF HIS WORK WITH THE WORK OF SUB-CONTRACTORS OR OTHER CONTRACTORS.
- WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY. QUALITY MATERIALS SHALL BE USED THROUGHOUT. ALL WORK SHALL BE DONE IN A MANNER SO AS TO MATCH ADJACENT WORK AND FINISHES AND AS APPROVED BY OWNER.
- CONTRACTORS SHALL BE RESPONSIBLE FOR CONTAINING THEIR WORK WITHIN THE WORK AREA AND PROTECTING THE PUBLIC FROM INJURIES AT ALL TIMES. CONTRACTOR SHALL SECURE THE WORK AT THE END OF EACH WORK DAY.
- KEEP PREMISES BROOMED CLEAN AT ALL TIMES FROM FOREIGN MATERIAL CREATED UNDER THE CONTRACT. PROVIDE TARPALLINS TO PROTECT ALL FINISHES, SURFACES, AND EQUIPMENT.
- AREAS FOR MATERIAL STORAGE, TRASH DISPOSAL, WORKMEN'S PARKING, ETC., SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
- ALL WOOD BLOCKING AND PLYWOOD BACKING SHALL BE FIRE RETARDANT TREATED.
- ALL DIMENSIONS SHALL BE VERIFIED BY CONTRACTOR.

CODE REVIEW

ALL WORK UNDER THIS CONTRACT SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS AND DRAWINGS, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS OF ALL GOVERNING BODIES INVOLVED.

PROJECT INFORMATION SUMMARY:

BUILDING OCCUPANCY:	GROUP B
BUILDING CONSTRUCTION CLASS:	TYPE IIB
TENANT SPACE AREA:	1702.7 S.F.
BUILDING PROTECTED BY AUTOMATIC SPRINKLER SYSTEM:	YES
BUILDING IS PROTECTED BY AUTOMATIC FIRE ALARM SYSTEM (NFPA 70 AND NFPA 72):	YES

APPLICABLE CODES:

BUILDING CODE:	INTERNATIONAL BUILDING CODE	2018 EDITION
MECHANICAL CODE:	INTERNATIONAL MECHANICAL CODE	2018 EDITION
PLUMBING CODE:	INTERNATIONAL PLUMBING CODE	2018 EDITION
ELECTRICAL CODE:	NATIONAL ELECTRIC CODE	2017 EDITION
FIRE CODE:	INTERNATIONAL FIRE CODE	2018 EDITION
GAS CODE:	INTERNATIONAL FUEL GAS CODE	2018 EDITION
AND ALL CITY, STATE, AND LOCAL ORDINANCES AND FACILITIES	ACCESSIBLE AND USABLE BUILDINGS	2017 EDITION

FIRE-RESISTANCE - BUILDING ELEMENTS (TABLE 601):

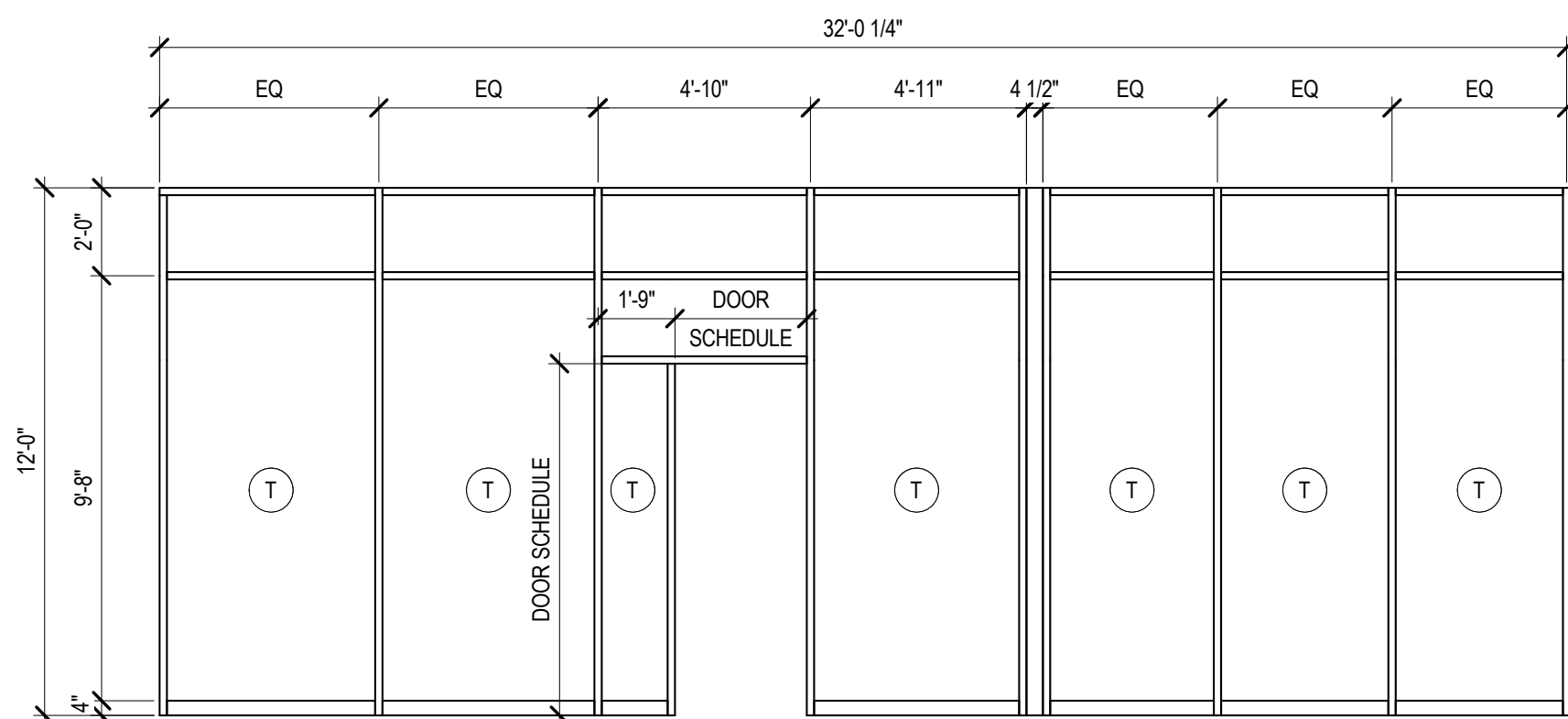
FOR TYPE IIB CONSTRUCTION:	
PRIMARY STRUCTURAL FRAME:	0 HRS
BEARING WALLS (EXTERIOR AND INTERIOR):	0 HRS
NONBEARING WALLS - EXTERIOR:	PER TABLE 602
NONBEARING WALLS - INTERIOR:	0 HRS
FLOOR CONSTRUCTION:	0 HRS
ROOF CONSTRUCTION:	0 HRS

FIRE-RESISTANCE FOR EXTERIOR WALLS - FIRE SEPARATION DISTANCE (TABLE 602):

OCCUPANCY GROUP B	
X < 5'	1 HR
5' ≤ X < 10'	1 HR
10' ≤ X < 30'	0 HRS
X ≥ 30'	0 HRS

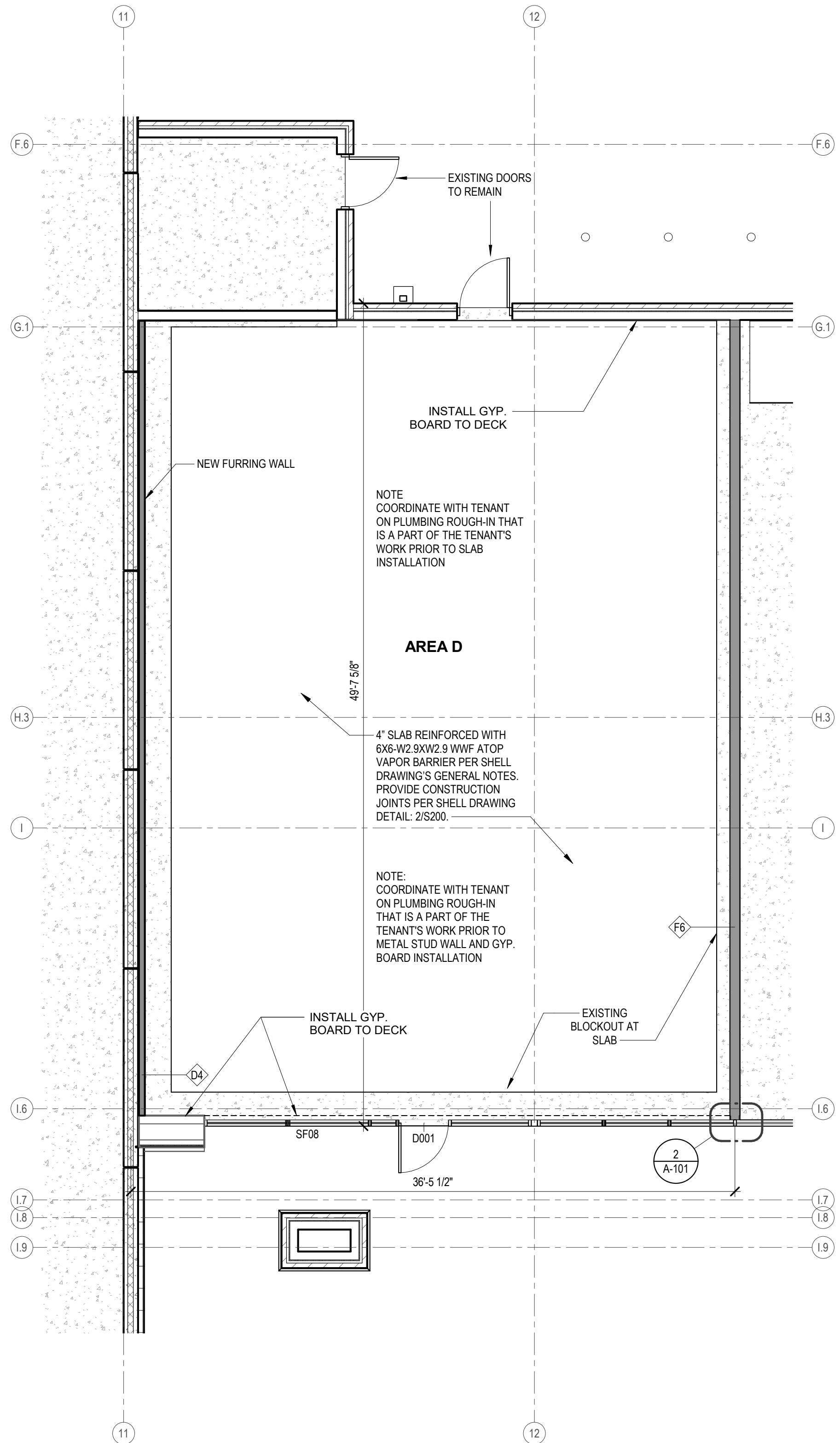
NOTE:

OCCUPANCY LOAD AND EXITING WILL BE PROVIDED IN THE TENANT FINISH PLANS SUBMITTED FOR EACH INDIVIDUAL TENANT



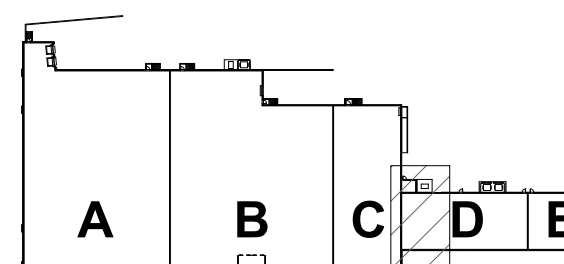
SF08

1/4\"/>



Floor Plan - First Floor - Construction

1



KEY PLAN

NOT TO SCALE

GENERAL NOTES:

- FLOOR:
 - ADJUST BASE HEIGHT FOR THICKNESS OF FLOOR FINISH AS REQUIRED

- STUDS:
 - 22 GAUGE STEEL (MIN); INCREASE GAUGE AS REQUIRED FOR SPECIFIC HEIGHT REQUIREMENTS. RE: STRUCTURAL
 - SPACING AT 16\"/>

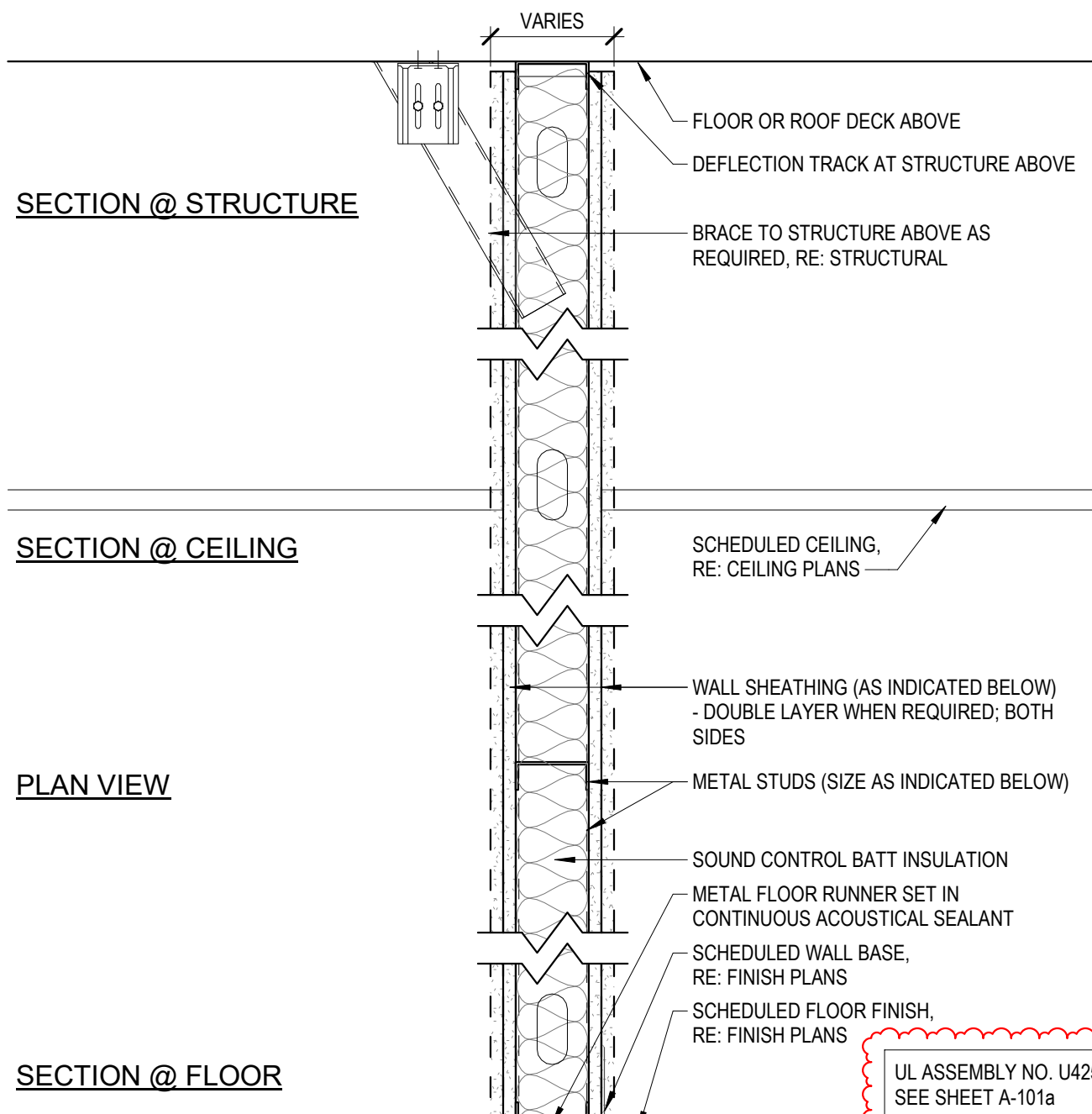
- SHEATHING:
 - USE TYPE X GYPSUM WALL BOARD (GWB) TYPICAL U.N.O.
 - PROVIDE MOISTURE RESISTANT GWB (GREENBOARD) AT ALL RESTROOM WALLS
 - PROVIDE CEMENT BOARD AT ALL CERAMIC TILE APPLICATIONS, U.N.O.
 - 5/8\"/>

- INSULATION:
 - FORMALDEHYDE FREE FIBERGLASS EQUAL TO JOHNS MANVILLE OR OWENS CORNING
 - TYPICALLY OCCURS IN DEMISING WALLS BETWEEN TENANT SPACES
 - PROVIDE THERMAL BATTS AT EXTERIOR WALLS AS INDICATED ON PLAN DETAILS AND WALL SECTIONS

- FIRE RATING:
 - PROVIDE FIRE RATED CONSTRUCTION ONLY WHERE INDICATED ON PLANS

Wall Type 'D'

1 1/2\"/>

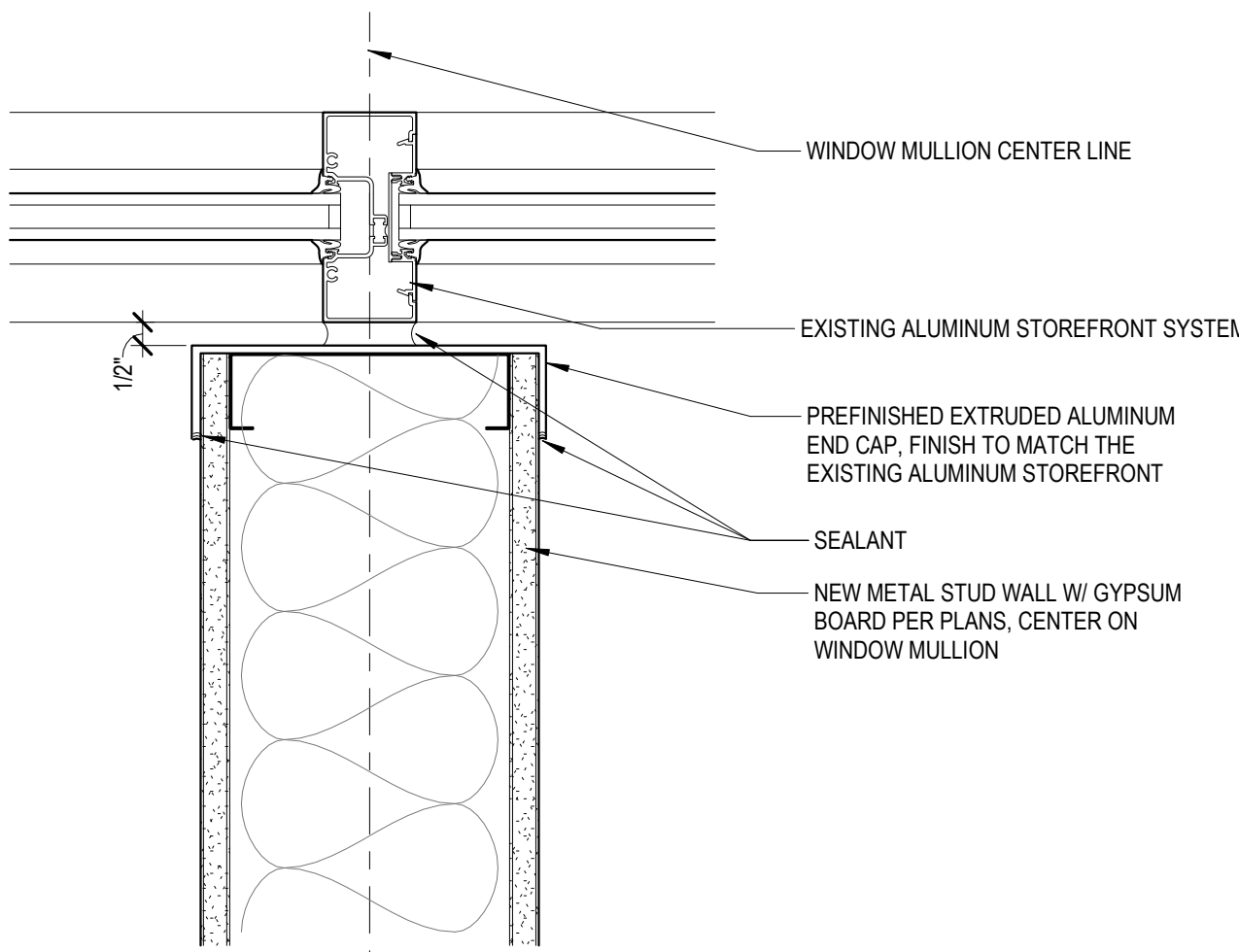


WALL TYPE	STUD SIZE	WALL SHEATHING	WALL THICKNESS	INSULATION TYPE	RATING
F1	3 5/8"	1/2" GWB - 1 LAYER	4 5/8"	SOUND BATTS	45 MIN
F2	3 5/8"	5/8" GWB - 1 LAYER	4 7/8"	SOUND BATTS	1 HOUR
F3	3 5/8"	1/2" GWB - 2 LAYERS	5 5/8"	SOUND BATTS	1 1/2 HOUR
F4	3 5/8"	5/8" GWB - 2 LAYERS	6 1/8"	SOUND BATTS	2 HOUR
F5	6"	1/2" GWB - 1 LAYER	7"	SOUND BATTS	45 MIN
F6	6"	5/8" GWB - 1 LAYER	7 1/4"	SOUND BATTS	1 HOUR
F7	6"	1/2" GWB - 2 LAYERS	8"	SOUND BATTS	1 1/2 HOUR
F8	6"	5/8" GWB - 2 LAYERS	8 1/2"	SOUND BATTS	2 HOUR

FIRE BARRIER

Wall Type 'F'

1 1/2\"/>



Plan Detail

2

3\"/>

UL Product iQ™

BXUVU425

- Design/System/Construction/Assembly Usage Disclaimer
- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
 - Authorities Having Jurisdiction should be consulted before construction.
 - Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot and always address every construction nuance encountered in the field.
 - When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
 - Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada Design Criteria and Allowable Variances

Design No. U425

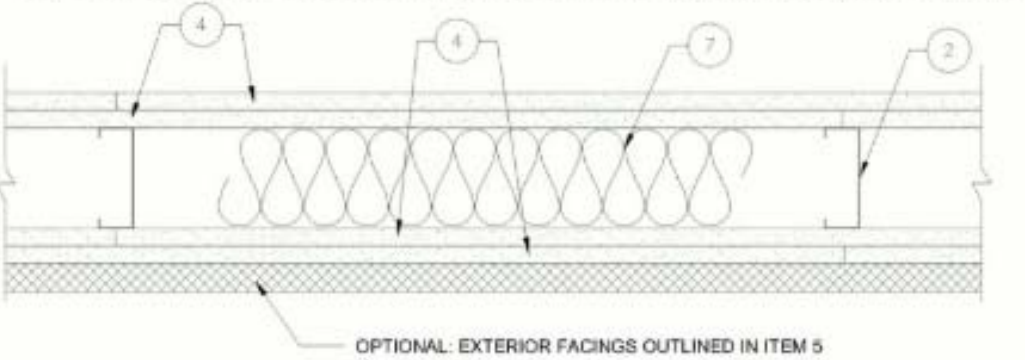
March 05, 2020

Bearing Wall Rating — 3/4 Hr., 1, 1-1/2 or 2 Hr.
(See Items 2, 4 and 5)

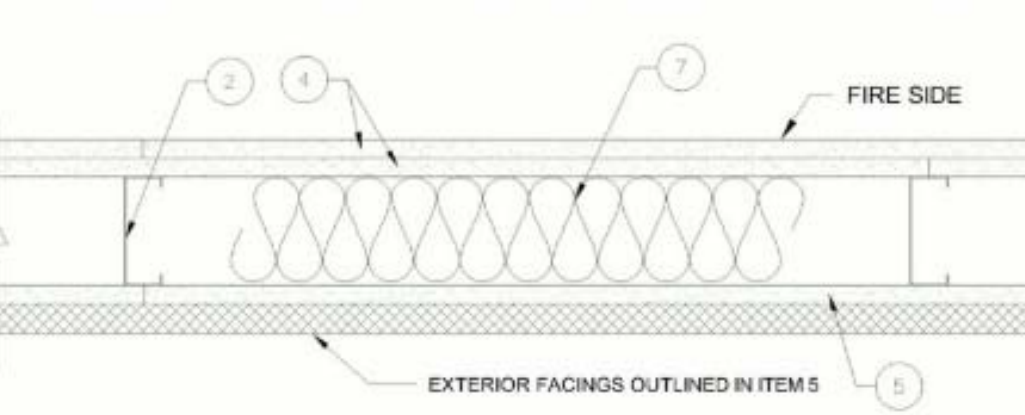
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

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

INTERIOR OR EXTERIOR WALL (FIRE FROM EITHER SIDE), SEE TABLE I



EXTERIOR WALL (FIRE FROM INTERIOR SIDE ONLY), SEE TABLE II



1. **Steel Floor and Ceiling Tracks** — (Not Shown) — Top and bottom tracks of wall assemblies shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 MSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. OC.

2. **Steel Studs** — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. **Steel Studs — Framing Members*** — In lieu of Item 2 — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12

steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.
IB METAL INC — NITROSTUD

2B. **Steel Studs — Framing Members*** — In lieu of Item 2 — Min 3-5/8 in. wide, No. 20 MSG (0.036 in., min. thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

BAILEY METAL PRODUCTS LTD

3. **Lateral Support Members** — (Not Shown) — Where required for lateral support of studs, support may be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Gypsum Board*** — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U505. Gypsum board bearing the UL Classification Marking as to Fire Resistance. Applied vertically with joints between layers staggered. Outer layer of 3 layer construction may be applied horizontally unless specified below. The thickness and number of layers and percent of design load for the 45 min, 1 hr., 1-1/2 hr and 2 hr ratings are as follows:

TABLE I Interior or Exterior Walls (Fire From Either Side)			
Wallboard Protection Both Sides of Wall - No. of Layers & Thkns of Board in. Each Layer			
Rating			% of Design Load
45 min	1 layer, 1/2 in. thick		100
1 hr	1 layer, 5/8 in. thick		100
1-1/2 hr	2 layers, 1/2 in. thick		100
2 hr	2 layers, 5/8 in. thick or		80
2 hr	3 layers, 1/2 in. thick		100
2 hr	2 layers, 3/4 in. thick		100

Note: Exterior facings allowed for use with Item 5 are also allowed to be installed on one side of the above walls.

TABLE II
Exterior Walls (Fire From Interior Side Only)

Wallboard Protection on Interior Side of Wall - No. of Layers & Thkns of Board in. Each Layer			
Rating			% of Design Load
45 min	1 layer, 5/8 in. thick		100
1 hr	2 layers, 1/2 in. thick		100
1-1/2 hr	2 layers, 5/8 in. thick		100
2 hr	3 layers, 1/2 in. thick		100
2 hr	2 layers, 3/4 in. thick		100

AMERICAN GYPSUM CO (View Classification) — CNXR.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CNXR.R19374

CABOT MANUFACTURING ULC (View Classification) — CNXR.R23570

CERTAINTED GYPSUM INC (View Classification) — CNXR.R3660

CGC INC (View Classification) — CNXR.R19751

CONTINENTAL BUILDING PRODUCTS OPERATING CO. L L C (View Classification) — CNXR.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CNXR.R2717

LOADMASTER SYSTEMS INC (View Classification) — CNXR.R11809

NATIONAL GYPSUM CO (View Classification) — Riyadh, Saudi Arabia — CNXR.15208

NATIONAL GYPSUM CO (View Classification) — CNXR.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CNXR.R7094

PANEL REY S A (View Classification) — CNXR.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CNXR.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CNXR.R27517

UNITED STATES GYPSUM CO (View Classification) — CNXR.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CNXR.R38438

USG MEXICO S A DE CV (View Classification) — CNXR.R16089

4A. **Gypsum Board** — Nom. 3/4 in. gypsum board applied vertically with joints between layers staggered. The thickness and number of layers and percent of design load for the 2 hr ratings are shown in the table above.
CGC INC — Types AR, IP-AR, IP-X3, or ULTRACODE

UNITED STATES GYPSUM CO — Types AR, IP-AR, IP-X3, or ULTRACODE

USG BORAL DRYWALL SFZ LLC — Type ULTRACODE

USG MEXICO S A DE CV — Types AR, IP-AR, IP-X3, or ULTRACODE

4B. **Gypsum Board*** — (As an alternate to Item 4) — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers on interior walls (multilayer systems) staggered a min of 12 in.
GEORGIA-PACIFIC GYPSUM L L C — GreenGlast Type X, Type DGG

NATIONAL GYPSUM CO — Type PSW-6.

CERTAINTED GYPSUM INC — GlasRoc

4C. **Gypsum Board*** — (As an alternate to Item 4) — 5/8 in. thick, 4 ft wide, paper surfaced applied vertically only and secured as described in Item 6.
GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

NATIONAL GYPSUM CO — Type SBWB

4D. **Wall and Partition Facings and Accessories*** — (As an alternate to Item 4) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

4E. **Wall and Partition Facings and Accessories*** — (As an alternate to Item 4) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock S27.

4F. **Gypsum Board*** — (As an alternate to 5/8 in. Type PSW in Item 4) — Nom. 5/16 in. thick gypsum panels applied vertically. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in Item 4, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 4.
NATIONAL GYPSUM CO — Type PSW.

4G. **Wall and Partition Facings and Accessories*** — (As an alternate to 5/8 in. thick board as outlined in Item 4) — Nominal 1-3/8 in. thick, 4 ft wide panels, applied vertically or horizontally. Fastened to studs as described in Item 6.
PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock S45

5. **Gypsum Boards** — For exterior walls, Rating from Interior Side Only - 1/2 or 5/8 in. thick. Classified or unclassified gypsum boards applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws spaced 12 in. OC, along studs and tracks. One of the following exterior facings are to be applied over the gypsum board.

a. **Siding, Brick, or Stucco** — Aluminum siding, steel siding, brick veneer, or stucco attached to studs over gypsum sheathing and meeting the requirements of local code agencies. When a min 3-3/4 in. thick brick veneer facing is used, the Exterior Wall Rating is applicable with exposure on either face. Brick veneer wall attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick. When a min 3-3/4 in. thick brick veneer facing is used, Foamed Plastic (Item 10) may be used.

b. **Cementitious Backer Units*** — 1/2 or 5/8 in. thick, attached vertically or horizontally to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, waler head steel screws, spaced 8 in. OC. Studs spaced a max of 16 in. OC. Joints covered with glass fiber mesh tape.
UNITED STATES GYPSUM CO — Type DC8

NATIONAL GYPSUM CO — Type PermBase, or DuraBacker

c. **Fiber-Cement Siding** — Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

d. **Molded Plastic*** — Solid vinyl siding mechanically secured to framing members in accordance with manufacturer's recommended installation details.
ALSID, DIV OF ASSOCIATED MATERIALS INC

e. **Wood Structural Panel or Lap Siding** — APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

f. **Building Units*** — (Not Shown) — 3 in. thick 18 x 24 in. cellular glass blocks, applied to the gypsum board (Item 5) with PC-BB adhesive or fastened with 4 anchors spaced a maximum 24 in. OC. 4 anchors fastened by manufacturer with 1-1/4 in. long #6 drywall screws.
PITTSBURGH CORNING CORP — Type FormGlass

6. **Fasteners** — (Not Shown) — Screws used to attach wallboard to studs: self-tapping bugle head sheet steel type, spaced 12 in. OC. First layer Type S-12 by 1 in. long for 1/2 and 5/8 in. thick wallboards and 1-1/4 in. long for 3/4 in. thick wallboard. Second layer Type S-12 by 1-5/8 in. long for 1/2 and 5/8 in. thick wallboards and 2-1/4 in. long for 3/4 in. thick wallboard. Third layer Type S-12 by 1-7/8 in. long. Fasteners when Item 4G is used: First layer #6 x 2 in. long drywall screw spaced 8 in. OC along the perimeter and 12 in. OC in the field. Second layer #6 x 4 in. long drywall screw spaced 8 in. OC along the perimeter and 12 in. OC in the field. Horizontal joints to be staggered 12 in. between layers.

7. **Batts and Blankets*** — Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
See **Batts and Blankets** (B2J2) Category for names of Classified companies.

7A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.
U S GREENFIBER L L C — #8735, IN5745, IN5750LD for use with wet or dry application, IN5765LD and IN5773LD are to be used for dry application only.

7B. **Fiber, Sprayed*** — As an alternate to Item 7 — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft³.
NU-WOOD CO INC — Cellulose Insulation

7C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lb/ft³.
INTERNATIONAL CELLULOSE CORP — Celbar-RL

7D. **Fiber, Sprayed*** — (Optional) — As an alternate to Batts and Blankets (Item 7) — Spray applied mineral wool insulation. The fiber is applied with adhesive, at a minimum density of 4.0 gdf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCA2).
AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

8. **Joint Tape and Compound** — (Not Shown) — Vinyl or casen, dry or premixed joint compound applied in two coats to joints and screw heads of outer layer. Perforated paper tape, 2 in. wide, embedded in first layer of compound over all joints of outer layer.

9. **Furring Channels** — (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws.

10. **Foamed Plastic*** — (Optional, Not Shown) For use with brick veneer as outlined in Item 5a - Maximum 2 in. thick rigid polystyrene insulation attached to studs with fasteners of sufficient length to penetrate the foam and

3/16 in. into the stud. A minimum 1 in. air space is to be maintained between the outer surface of the foamed plastic and the inner surface of the brick veneer.
ATLAS MOLDED PRODUCTS, A DIVISION OF ATLAS ROOFING CORPORATION — Type ThermaStar

OWENS CORNING SCIENCE AND TECHNOLOGY, LLC

10A. **Foamed Plastic*** — (Optional, Not shown) — For use with brick veneer as outlined in Item 5a - Mortar drop protection - Foamed plastic with mortar control device attached, continuous, by drainage holes at bottom of air space behind brick veneer.
OWENS CORNING SCIENCE AND TECHNOLOGY, LLC — WeegGuard

10B. **Foamed Plastic*** — Polysiocyanurate foamed plastic insulation boards, any thickness. Classified in accordance with BRV and / or CCWW. May be used with any exterior facing shown under Items 5a, 5c, 5d and 5e.
ATLAS ROOFING CORP — "EnergyShield Pro Wall Insulation", "EnergyShield Pro 2 Wall Insulation", "EnergyShield GSF Pro and EnergyShield Ply Pro

CARLISLE COATINGS & WATERPROOFING INC — Type R2+ SHEATHE

DUPONT DE NEMOURS, INC. — Type Therma Sheathing, Therma Light Duty Insulation, Therma Heavy Duty Insulation, Therma Metal Building Board, Therma White Finish Insulation, Therma c Exterior Insulation, Therma XARMOR c Exterior Insulation, Therma HI Insulation, Therma Plus Liner Panel, Therma Heavy Duty Plus (HDP), TUFF-R™ c Insulation, Therma Butler-SynWall Insulation Board and Therma Morton Heavy Duty Insulation

FIRESTONE BUILDING PRODUCTS CO L L C — "Everner" CI Foil Exterior Wall Insulation" and "Everner" CI Glass Exterior Wall Insulation"

HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Type "Xci Class A", "Xci 286", "Xci Foil (Class A)", "Xci CG", "Xci Foil", "Xci CG NH", "Xci Foil NH"

RMAX OPERATING L L C — Types "TSK-8500", "ECOMAXI FR", "TSK-8510", "ECOMAXI FR White", "ECOMAXI", "ECOMAXI FR Air Barrier", "Thermaseath-XP", "Thermaseath", "Durasheath", "Thermaseath-3", "Durasheath-3".

10C. **Building Unit*** — Polysiocyanurate foamed plastic composite insulation boards, any thickness. Classified in accordance with BZXX. May be used with any exterior facing shown under Items 5a, 5c, 5d and 5e.
HUNTER PANELS, A DIVISION OF CARLISLE CONSTRUCTION MATERIALS, LLC — Type "Xci NH" and "Xci Ply"

LAMINATORS INC — Type "Omega CI"

RMAX OPERATING L L C — Types Thermaheath-SI, ECOMASEL, ECOMAXI FR Ply, ThermaBase-CI, "ECOMAXI Ply", attached to studs with Type S screws long enough to penetrate the studs a minimum of three threads.

10D. **Foamed Plastic*** — (As an alternate to Item 10 - Not Shown) — Expanded polystyrene insulation installed to a maximum nominal density of 2.0 lb/ft³.

BASF CORP STYRENIC FOAMS DIV — — Type Neopor "Y" Series

11. **Cementitious Backer Units*** — (Optional, Not Shown - For Use as an additional layer over required gypsum boards) - 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide- Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing.
NATIONAL GYPSUM CO — Type DuraBacker, PermBase, DuraBacker Plus, or PermBase Plus

12. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) — For use with Item 1, Items 2 and 2A, Item 3, Item 4 to 4B, Item 6, Item 7, Item 8 and Item 9. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 4 to 4B), install Reflector membrane with the gold side facing outwards. Membrane installed with 150 staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When Reflector membrane is used an additional layer of Gypsum Board that is identical to the one used in the first layer and as specified in Item 4 to 4B shall be installed over the membrane. The additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 4 to 4B except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 7. On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels, 25 MSG galv steel, spaced vertically 24 in. OC. Large portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. Over the Resilient Channels install 3/4 inch thick SONQpan panel secured to the Resilient Channels with drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONQpan panel install the same Gypsum Board as specified in Item 4 (and 4 alternates) with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.
MSL — Reflector membrane, SONQpan panel.

13. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) - When the Wall Assembly is used as an External Wall, on the External side of the wall one of the following Wall and Partition and Facing Accessories may be used, refer to Items (A) to (C) below.

A. **Non Insulated System with Metal Channels** — Install moisture barrier over the Gypsum Board Item 4 and install Acryc Metal Channels vertically at a horizontal spacing not greater than 24 inches OC over the moisture barrier. Acryc Metal Channels attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2, using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Install Acryc Panels on Acryc Metal Channels using 1-1/4" long corrosion coated stainless steel screws spaced at a max spacing of 24 inches OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels shall be Tremco Ilmod 600 pre compressed polyurethane foam sealant.

B. **Insulated System with Metal Channels** — Install moisture barrier over the Gypsum Board Item 4. Install galvanized Z girt channels specified by the manufacturer over the moisture barrier and the Gypsum Board Item 4. Z girt channels to be installed horizontally at a max. spacing of 24" OC. Z girt channels attached through the Gypsum Board and the moisture barrier to the Steel Studs Item 2, with screws provided by the manufacturer at a max spacing of 24 inches OC. Install mineral wool insulation between the Z girts. Maximum thickness of mineral wool insulation not to exceed 6 in. As per manufacturer's instructions install Acryc Metal Channels vertically over the Z girts at a max horizontal spacing of 24 in. OC. Acryc Panels installed on Acryc channel with 1-1/4" long corrosion coated stainless steel screws at a max spacing of 24 in. OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116).

Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels to be Tremco Ilmod 600 pre compressed polyurethane foam sealant.

C. **Non Insulated Wood Strapping System** — Install moisture barrier over the Gypsum Board Item 4 and install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC, over the moisture barrier. 1" x 3" wood strapping attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2, using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acryc Panels to be installed on the 1" x 3" wood strapping using manufacturers approved stainless steel fasteners spaced at maximum 24 inches OC along with Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco Ilmod 600 pre compressed polyurethane foam sealant.

D. **Insulated Wood Strapping System** — Install moisture barrier over the Gypsum Board Item 4. Install Extruded Polystyrene Insulation over moisture barrier, max thickness of insulation not to exceed 4 inches. Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC. Wood strapping attached through the insulation, the Gypsum Board and moisture barrier to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acryc Panels to be installed over the wood strapping using manufacturers approved stainless steel fasteners at a max spacing of 24 in. OC, and Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco Ilmod 600 pre compressed polyurethane foam sealant.
ACRYC PANEL INDUSTRIES — Nominal 5/8 inch thick Acryc Panel.

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

Last Updated on 2020-03-05

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

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PROJECT NAME: 1923002 ME101.dwg
LAST CORRECTION: 1923002 ME101.dwg
DATE: 1923002 ME101.dwg
DRAWN BY: Charles Booby
CHECKED BY: Charles Booby
DATE: 1923002 ME101.dwg
DATE: 1923002 ME101.dwg

CONDUIT AND WIRE

- ARROWS INDICATE CONDUIT AND WIRE HOME RUN(S) TO PANEL WITH 2-#12 AWG CONDUCTORS UNLESS NOTED OR OTHERWISE REQUIRED.
- CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
- CONDUIT RUN UNDERGROUND OR CONCEALED IN FLOOR SLAB.
- TELEPHONE CONDUIT
- LOW VOLTAGE CONDUIT AND WIRING

LIGHTING

- BATTERY OPERATED EMERGENCY LIGHT (WALL MOUNTED)
- BATTERY OPERATED EMERGENCY LIGHT (CEILING MOUNTED)
- SURFACE/RECESSED LIGHT FIXTURE
- FLUORESCENT LIGHT FIXTURE
- FLUORESCENT STRIP FIXTURE
- SHADING DENOTES EMERGENCY FIXTURE
- POLE MOUNTED LIGHT FIXTURE
- EXIT LIGHT - DOUBLE FACE - ARROWS AS SHOWN
- EXIT LIGHT - SINGLE FACE - ARROWS AS SHOWN
- LIGHTING SWITCHES-SINGLE POLE, 3-WAY, 4-WAY, KEY, LOW VOLTAGE, PILOT LIGHT
- DIMMER WITH SINGLE POLE SWITCH
- DIMMER WITH THREE WAY SWITCH (WATTAGE NOTED)
- WALL MOUNTED MOTION SENSOR
- CEILING MOUNTED MOTION SENSOR (LETTER DENOTES TYPE)
- SWITCH AND DUPLEX RECEPTACLE
- DENOTES A WALL MOUNTED FIXTURE

WIRING DEVICES

- DUPLEX RECEPTACLE.
- LINE THRU DEVICE INDICATES ABOVE COUNTER
- DUPLEX RECEPTACLE WITH ISOLATED GROUND (SINGLE AND FOURPLEX SIMILAR)
- DUPLEX RECEPTACLE - TOP HALF SWITCHED - BOTTOM HALF TO HAVE POWER AT ALL TIMES
- DUPLEX RECEPTACLE ON EMERGENCY POWER (SINGLE AND FOURPLEX SIMILAR)
- FOURPLEX RECEPTACLE
- SINGLE RECEPTACLE
- CEILING MOUNTED RECEPTACLE
- MULTI-SERVICE FLOOR BOX
- DIVIDED POWER POLE
- FLOOR BOX W/DUPLEX RECEPTACLE
- SPECIAL RECEPTACLE W/NEMA CONFIGURATION AS NOTED
- CLOCK RECEPTACLE
- MULTI-OUTLET ASSEMBLY

COMMUNICATIONS

- TELEPHONE OUTLET
- LINE THRU DEVICE INDICATES ABOVE COUNTER
- DATA OUTLET
- TELEPHONE/DATA OUTLET
- FLOOR BOX WITH COMMUNICATIONS OUTLET
- TELEVISION ANTENNA OUTLET
- TELEPHONE CABINET OR PLYWOOD BOARD

SECURITY

- CLOSED CIRCUIT TV CAMERA
- CARD READER
- DOOR LOCK
- SECURITY MONITOR
- WATCH TOUR
- ELECTRIC DOOR LOCK
- MOTION SENSOR - SECURITY
- MOTION SENSOR (WALL MOUNTED) - SECURITY

PUBLIC ADDRESS

- MICROPHONE OUTLET
- SPEAKER. ('H' DENOTES HORN TYPE)
- SPEAKER VOLUME CONTROL
- SPEAKER CONDUIT AND WIRING
- PUBLIC ADDRESS AMPLIFIER AND CABINET
- BUZZER
- BELL
- INTERCOM OUTLET
- INTERCOM OUTLET - MASTER
- CLOCK SYSTEM RECEPTACLE WITH SINGLE FACE ('D' DENOTES DOUBLE FACE)

POWER DEVICE AND CONTROLS

- THERMOSTAT
- DISCONNECT SWITCH. 30A-3P, NON-FUSED EXCEPT AS NOTED
- MANUAL MOTOR STARTER
- MAGNETIC MOTOR STARTER
- COMBINATION MOTOR STARTER AND DISCONNECT SWITCH
- MOTOR
- PANELBOARD (SEE ONE-LINE)
- DISTRIBUTION PANELBOARD
- CONTACTOR
- AUTOMATIC TRANSFER SWITCH
- PHOTOCELL
- JUNCTION BOX
- PUSHBUTTON
- TRANSFORMER

FIRE ALARM

- MANUAL PULL STATION
- PHOTOELECTRIC DETECTOR ('D' DENOTES IN DUCT) ('B' DENOTES BEAM-TYPE) ('R' DENOTES IN RETURN AIR PLENUM)
- IONIZATION DETECTOR ('D' DENOTES IN DUCT) ('P' DENOTES PLENUM-TYPE)
- INFRARED DETECTOR ('D' DENOTES IN DUCT)
- THERMOTECTOR ('D' DENOTES IN DUCT) FIXED TEMPERATURE AS NOTED
- DOOR HOLDER
- CHIME
- BELL
- FIRE ALARM STROBE LIGHT
- FIRE ALARM SPEAKER - ARROWS DENOTE PROJECTORS IF ANY. ('L' DENOTES COMBINATION SPEAKER AND VISUAL FIRE LIGHT)
- FIRE HORN. ('L' DENOTES COMBINATION HORN AND VISUAL FIRE LIGHT)
- REMOTE ALARM LAMP
- POST INDICATOR SWITCH
- FLOW SWITCH
- GATE SWITCH
- FIREMAN'S PHONE JACK

FIRE PROTECTION

- FIRE PROTECTION PIPING
- FIRE HOSE CABINET
- FIRE DEPARTMENT VALVE
- UPRIGHT SPRINKLER HEAD
- PENDENT SPRINKLER
- RECESSED SPRINKLER
- RECESSED SPRINKLER WITH CLOSURE PLATE
- SIDEWALL SPRINKLER.
- DOUBLE CHECK DETECTOR BACKFLOW PREVENTER
- FIRE PROTECTION SIAMESE CONNECTION
- FIRE PROTECTION SIDEWALK SIAMESE CONNECTION
- POST INDICATOR VALVE

MEDICAL GAS

- VAC MEDICAL VACUUM
- OX OXYGEN
- NO NITROUS OXIDE
- MA MEDICAL COMPRESSED AIR
- N NITROGEN
- O₂ OXYGEN OUTLET
- V VACUUM OUTLET
- MA MEDICAL AIR OUTLET
- N₂ NITROUS OXIDE OUTLET
- N NITROGEN OUTLET

HVAC

- CWS CHILLED WATER SUPPLY
- CWR CHILLED WATER RETURN
- CHWS CHILLED/HOT WATER SUPPLY
- CHWR CHILLED/HOT WATER RETURN
- HWS HEATING HOT WATER SUPPLY
- HWR HEATING HOT WATER RETURN
- CTS COOLING TOWER SUPPLY
- CTR COOLING TOWER RETURN
- STM LOW PRESSURE STEAM
- RTN LOW PRESSURE CONDENSATE RETURN
- STM-50 HIGH PRESSURE STEAM - NO'S GIVE GAUGE PRESSURE IN P.S.I.
- RTN-50 HIGH PRESSURE RETURN - NO'S GIVE GAUGE PRESSURE IN P.S.I.
- RD REFRIGERANT DISCHARGE
- RL REFRIGERANT LIQUID
- RS REFRIGERANT SUCTION
- FOS FUEL OIL SUPPLY
- FOR FUEL OIL RETURN
- A COMPRESSED AIR
- D DRAIN (CONDENSATE)
- H₂S THERMOSTAT - ('S' DENOTES SENSOR)
- H₂S HUMIDISTAT - ('S' DENOTES SENSOR)
- H₂ THERMOSTAT/HUMIDITY SENSOR
- CO₂ CARBON DIOXIDE SENSOR
- THC THERMOSTAT/HUMIDITY SENSOR/CO₂ SENSOR
- HUMIDIFIER
- SUPPLY AIR FLOW INDICATOR
- RETURN AND EXHAUST AIR FLOW INDICATOR
- SUPPLY DIFFUSER
- SUPPLY STRIP DIFFUSER
- RETURN GRILLE OR EXHAUST REGISTER

HOSPITAL

- N NURSE CALL CONDUIT AND WIRING
- M MONITOR CONDUIT AND WIRING
- NMS NURSE CALL MASTER STATION
- N₁ NURSE CALL BEDSIDE STATION - SINGLE PATIENT
- N₂ NURSE CALL BEDSIDE STATION - DOUBLE PATIENT
- E₁P EMERGENCY PUSHBUTTON STATION ('P' DENOTES PULL CORD)
- S STAFF STATION
- D_B DOME LIGHT - CEILING MOUNTED ('B' DENOTES WITH BUZZER)
- H_B DOME LIGHT - WALL MOUNTED ('B' DENOTES WITH BUZZER)
- Z ZONE DOME LIGHT
- B CODE BLUE PUSHBUTTON

PLUMBING

- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- RECIRCULATING DOMESTIC HOT WATER
- DOMESTIC TEMPERED WATER
- SOFT DOMESTIC COLD WATER
- SOFT DOMESTIC HOT WATER
- SOFT RECIRCULATING HOT WATER
- SOIL OR WASTE ABOVE GRADE OR FLOOR
- SOIL OR WASTE BELOW GRADE OR FLOOR
- STORM ABOVE GRADE OR FLOOR
- STORM BELOW GRADE OR FLOOR
- ST/O STORM OVERFLOW ABOVE GRADE OR FLOOR
- ST/O STORM OVERFLOW BELOW GRADE OR FLOOR
- PLUMBING VENT
- G GAS (NATURAL)
- LP LIQUIFIED PETROLEUM
- PD PUMP DISCHARGE
- HB HOSE BIBB
- WH WALL HYDRANT
- WCO WALL CLEAN OUT
- CO CLEAN OUT
- FCO FLOOR CLEAN OUT
- FLOOR DRAIN, AREA DRAIN, FLOOR SINK
- ROOF DRAIN, OVERFLOW ROOF DRAIN
- SHOWER HEAD.
- REDUCED PRESSURE BACKFLOW PREVENTER
- PLUMBING VENT RISER CALL-OUT NUMBER

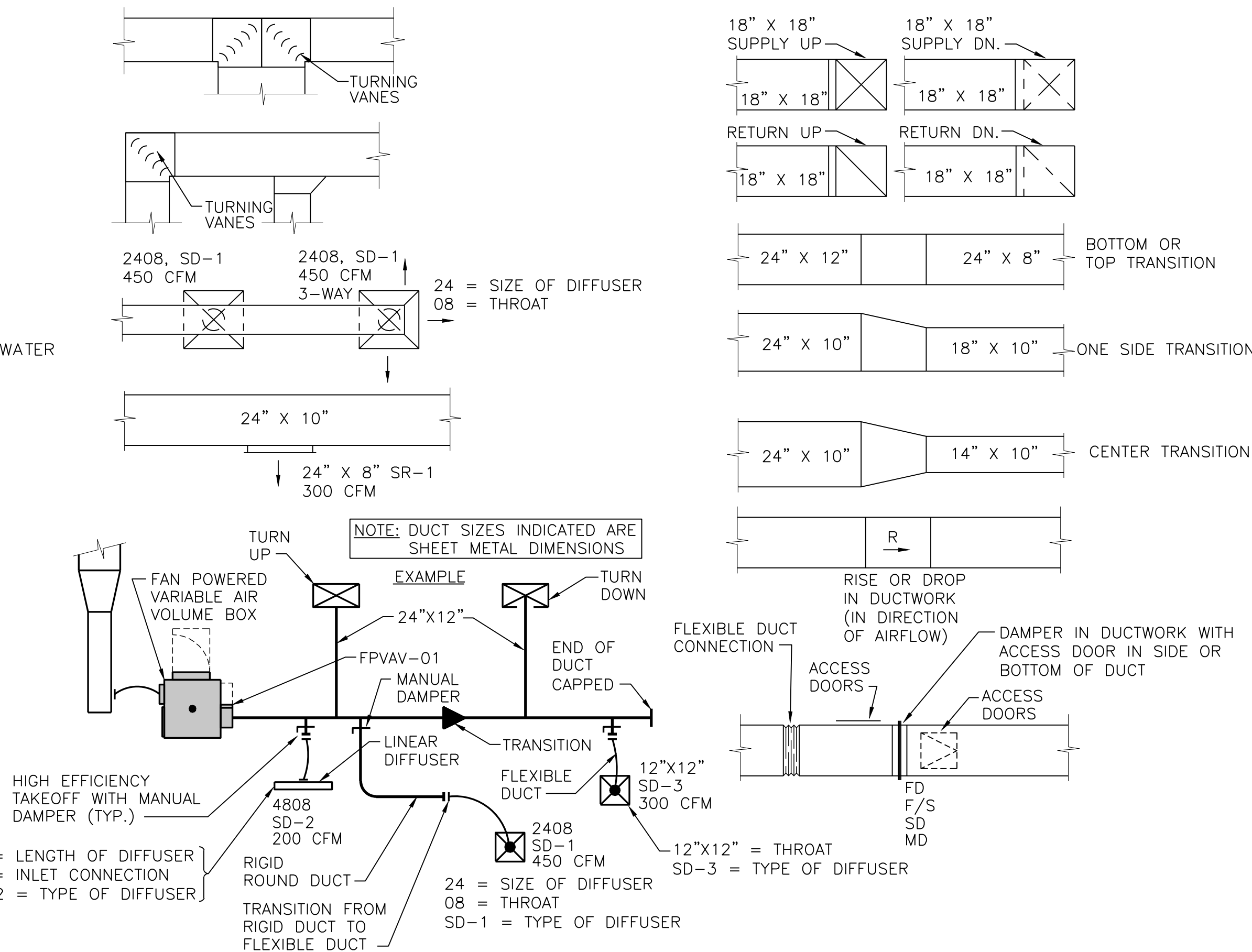
GENERAL

- MECHANICAL NOTE REFERENCE
- ELECTRICAL NOTE REFERENCE
- DEMOLITION NOTE REFERENCE
- REVISION NOTE REFERENCE
- CONNECT TO EXISTING WORK
- DETAIL REFERENCE - NO./SHEET NO.
- SECTION CUT - SECTION/SHEET NO.

PIPING

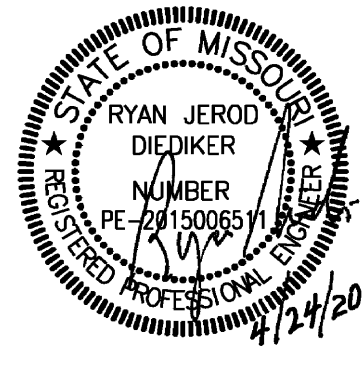
- ELBOW DOWN
- ELBOW UP
- TEE UP
- TEE DOWN
- CAP
- UNION
- REDUCER (OR INCREASER)
- PIPE FLEX
- STRAINER
- RISE IN PIPING
- DROP IN PIPING
- GUIDE
- ANCHOR
- PRESSURE GAUGE WITH GAUGE COCK
- TEMPERATURE GAUGE
- FLOW INDICATOR
- THERMOMETER.
- SITE GLASS
- EXPANSION JOINT
- FILTER-DRIER
- DRIP ASSEMBLY
- BASKET STRAINER
- SHUTOFF VALVE
- SHUTOFF VALVE IN RISER
- BALANCING VALVE
- CALIBRATED BALANCING VALVE
- RELIEF VALVE
- TEST PLUG
- TRIPLE DUTY VALVE
- CHECK VALVE.
- AUTOMATIC CONTROL VALVE (2-WAY)
- AUTOMATIC CONTROL VALVE (3-WAY)
- AUTO FLOW CONTROL VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE

DUCTWORK



MECHANICAL AND ELECTRICAL SYMBOLS AND ABBREVIATIONS

"SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED. REFER TO FLOOR PLANS FOR ALL SYMBOLS AND ABBREVIATIONS."



RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
05/06/2020

Gloss Nails Tenant Improvements

Client Name
Summit Orchard
470 NW Chipman Rd.
Lee's Summit, MO 64086



Revisions:

Project #:

####

Construction
Documents

04-24-20

SYMBOLS AND
ABBREVIATIONS - MECH.
AND ELEC.

smith&boucher
ENGINEERS

25501 west valley parkway, suite 200 olathe, ks 66061
phone 913.345.2127 fax 913.345.0617
project number 1923002

ME101

PROJECT NAME: C:\projects\1923002\ME201.dwg
LAST CORRECTION: \NAME:
SUBSEQUENT: 1923002 Friday, April 24, 2020 12:04:23 PM
PLOTTED BY: DATE: TIME:
Charles Boly Friday, April 24, 2020 1:41:32 PM

PART 1 - GENERAL REQUIREMENTS - HVAC

- 1.1 SUMMARY OF WORK
- A. THE CONTRACT DOCUMENTS REQUIRE THE FURNISHING AND INSTALLING OF COMPLETE FUNCTIONING MECHANICAL SYSTEMS, AND EACH ELEMENT THEREOF, AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS OR REASONABLY INFERRED, TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION THE SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED, INCLUDING EVERY ARTICLE, DEVICE OR ACCESSORY, WHETHER OR NOT SPECIFICALLY CALLED FOR BY ITEM. ELEMENTS OF THE WORK INCLUDE MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, AND UTILITIES.
- B. SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.
- C. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER BY EXPERIENCED MECHANICS OR THE PROPER TRADE.
- 1.2 COORDINATION, MEASUREMENTS AND LAYOUTS
- A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
- B. THE CONTRACTOR SHALL EMPLOY A COMPETENT FOREMAN ON THE JOB TO SEE THAT WORK IS DONE IN ACCORDANCE WITH THE BEST PRACTICES AND IN A SATISFACTORY AND WORKMANLIKE MANNER. THE FOREMAN SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND SHALL EXECUTE HIS WORK IN SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION, WHERE LOCAL CONDITIONS NECESSITATE A REARRANGEMENT, THE CONTRACTOR SHALL PREPARE, AND SUBMIT FOR APPROVAL, DRAWINGS OF THE PROPOSED REARRANGEMENT. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, FURNISHING SUCH OFFSETS, FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSION.
- 1.3 PERMITS AND FEES
- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION, OTHER THAN THOSE DEPOSITS OR FEES WHICH ARE FULLY REFUNDABLE TO THE OWNER.
- 1.4 SUBMITTALS, MATERIALS AND EQUIPMENT
- A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED HEREIN, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
- B. AS SOON AS POSSIBLE AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SIX COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT TO BE FURNISHED FOR THIS PROJECT. SUBMITTALS SHALL INCLUDE MANUFACTURER'S NAME, MODEL NUMBER, DESCRIPTIVE ENGINEERING DATA AND ALL NECESSARY INFORMATION AS TO FINISH, MATERIAL GAUGES AND ACCESSORIES. AFTER SUCH SHOP DRAWINGS ARE PROCESSED, THREE COPIES WILL BE RETURNED TO THE CONTRACTOR. THE CONTRACTOR SHALL, UPON RECEIPT OF REVIEWED SHOP DRAWINGS PROCEED WITH THE PROCUREMENT AND INSTALLATION OF SUCH EQUIPMENT.
- 1.5 CODES, LAWS, AND STANDARDS
- A. ALL WORK SHALL BE INSTALLED IN COMPLIANCE WITH ALL GOVERNING CODES, APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES OR STATUTES OF REGULATORY BODIES HAVING JURISDICTION. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH SAID LAWS, REGULATIONS, ORDINANCES, STATUTES OR CODES, WITHOUT INCREASED COST TO THE OWNER. ANY POINT IN QUESTION SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL. WORK INDICATED ON THE DOCUMENTS THAT IS IN EXCESS OF CODE REQUIREMENTS SHALL NOT BE REDUCED IN QUALITY AND/OR QUANTITY.
- B. COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMENTS AFFECTED BY CONNECTIONS OF SERVICES.
- 1.6 RECORD DOCUMENTS
- A. THIS CONTRACTOR SHALL PREPARE A COMPLETE "AS-BUILT" SET OF DRAWINGS INCORPORATING ALL CHANGES MADE DURING CONSTRUCTION. LOCATION OF UNDERGROUND PIPING SHALL BE LOCATED BY DIMENSION FROM COLUMN LINES.
- B. THIS CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER'S REPRESENTATIVE FIVE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING FINAL COPIES OF EQUIPMENT SHOP DRAWINGS, MANUFACTURER'S LITERATURE FOR ALL EQUIPMENT INSTALLED ON THE PROJECT SHOWING ALL DETAILS OF EQUIPMENT, REPLACEMENT PART DATA AND MAINTENANCE AND OPERATING INSTRUCTIONS. MANUALS SHALL INCLUDE COPIES OF ALL EQUIPMENT WARRANTIES.
- 1.7 GUARANTEES AND WARRANTIES
- A. THE CONTRACTOR SHALL GUARANTEE COMPLETE SYSTEM OPERATION AND THAT THE MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED WILL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS AND WILL GIVE SATISFACTORY SERVICE UNDER THE SPECIFIED OPERATING CONDITIONS. THE CONTRACTOR AGREES TO REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY PART OF THE APPARATUS WHICH PROVES OR BECOMES DEFECTIVE WITHIN ONE YEAR AFTER THE SYSTEM IS ACCEPTED. NO EQUIPMENT WARRANTY OR GUARANTEE SHALL START UNTIL THE TIME OF BUILDING ACCEPTANCE.
- B. ALL WARRANTIES ISSUED BY EQUIPMENT MANUFACTURERS SHALL BE FILLED OUT IN THE OWNER'S NAME AND GIVEN TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF WORK PERFORMED UNDER THIS SECTION.
- 1.8 FINAL INSPECTION
- A. AFTER COMPLETION OF THE ENTIRE PROJECT THE CONTRACTOR SHALL REQUEST FINAL INSPECTION OF THIS PROJECT IN WRITTEN FORM ADDRESSED TO THE ARCHITECT ALONG WITH A STATEMENT TO THE EFFECT THAT ALL INSTALLATIONS HAVE BEEN COMPLETED, CHECKED, ADJUSTED AND BALANCED IN ACCORDANCE WITH REQUIREMENTS OF THIS PROJECT. UPON RECEIPT OF WRITTEN NOTIFICATION OF COMPLETION AND REQUEST FOR FINAL INSPECTION THE ENGINEER WILL PERFORM A FINAL INSPECTION OF THIS WORK AND, IF ALL INSTALLATIONS ARE AS REPRESENTED BY THE CONTRACTOR, THE ENGINEER WILL SUBMIT WRITTEN RECOMMENDATION OF ACCEPTANCE.
- 1.9 CLEANING
- A. DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE WORK SHALL BE REMOVED TO KEEP THE PREMISES REASONABLE CLEAN AT ALL TIMES.
- B. AFTER COMPLETION OF THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED SURFACES AND EQUIPMENT, REMOVE ALL DIRT, DEBRIS, CRATING, CARTONS, ETC., AND LEAVE ALL INSTALLATIONS FINISHED AND READY FOR OPERATION.
- 1.10 CUTTING AND PATCHING
- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING OF WALLS, FLOORS, CEILINGS AND ROOFS REQUIRED FOR PERFORMANCE OF HIS WORK.
- B. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT.
- C. PATCH ALL OPENINGS TO MATCH ADJACENT CONSTRUCTION IN BOTH MATERIAL AND FINISH.
- D. ALL CUTTING OF EXISTING CONCRETE FLOORS/SLABS ON GRADE IN THE INTERIOR OF THE BUILDING SHALL BE PERFORMED BY "SAW CUTTING" AND SHALL BE PERFORMED BY THIS CONTRACTOR.
- 1.11 TEMPORARY HEAT
- A. THE CONTRACTOR SHALL COOPERATE WITH THE GENERAL CONTRACTOR TO PROVIDE TEMPORARY HEAT AS SOON AS POSSIBLE FOR USE DURING CONSTRUCTION IF TEMPORARY HEAT IS REQUIRED. AIR HANDLING EQUIPMENT SHALL NOT BE OPERATED AT ANY TIME WITHOUT FILTERS IN PLACE AND ALL EQUIPMENT SHALL BE PROTECTED FROM DAMAGE. OPERATING THE EQUIPMENT FOR TEMPORARY HEAT SHALL NOT START THE WARRANTY PERIOD OF THE EQUIPMENT USED.
- 1.12 INTERRUPTION OF SERVICES
- A. THE CONTRACTOR SHALL SCHEDULE ANY SERVICE INTERRUPTIONS TO THE EXISTING BUILDING WITH THE OWNER'S REPRESENTATIVE. SUCH INTERRUPTIONS SHALL BE PLANNED SO AS TO BE AT TIMES TO CAUSE THE LEAST INCONVENIENCE AND INTERRUPTION TO THE FACILITY'S SCHEDULE.
- 1.13 EXISTING CONDITIONS
- ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS FOR THIS PROJECT HAVE BEEN DETERMINED FROM AVAILABLE DRAWINGS AND FIELD INVESTIGATIONS. CONTRACTORS MAKING PROPOSALS FOR THIS WORK SHALL INVESTIGATE ALL EXISTING CONDITIONS AND BASE THEIR PROPOSALS ON THEIR OBSERVATIONS TO PROVIDE COMPLETE AND FUNCTIONING INSTALLATIONS IN ACCORDANCE WITH THE INTENT OF THE DRAWING AND SPECIFICATIONS FOR THIS PROJECT AND ALL APPLICABLE GOVERNING CODES, RULES, REGULATIONS AND ORDINANCES. FAILURE TO DETERMINE EXISTING CONDITIONS WHICH CAUSE ADDITIONAL WORK WILL NOT CONSTITUTE GROUNDS FOR ADDITIONAL COMPENSATION.
- PART 2 - HEATING, VENTILATING AND AIR CONDITIONING
- 2.1 GENERAL REQUIREMENTS
- A. SEE PART 1 FOR GENERAL REQUIREMENTS.
- 2.2 BELT DRIVES AND GUARDS
- A. ALL BELT DRIVES SHALL BE OF THE MULTIPLE "V" TYPE, DAYTON, GATES OR EQUAL. STANDARD SLIDE RAILS OR OTHER MEANS OF BELT ADJUSTMENT SHALL BE PROVIDED FOR EACH MOTOR USED WITH A BELT DRIVE.
- B. REMOVABLE STEEL GUARDS WITH EXPANDED METAL SCREENS OF ACCEPTABLE DESIGN SHALL BE PROVIDED OVER ALL EXPOSED BELT DRIVES AND COUPLINGS.
- 2.3 MOTORS AND STARTERS
- A. THE CONTRACTOR SHALL ONLY RUN ALL AIR HANDLING UNITS IN THE BUILDING DURING THE TESTING PERIOD PRIOR TO COMPLETION OF THE WORK. UNITS SHALL NOT BE RUN WITHOUT FILTERS IN PLACE.
- B. FILTERS SHALL BE AS MANUFACTURED BY AMERICAN AIR FILTER, CAMEL FARR OR CAMBRIDGE.
- 2.4 FLEXIBLE CONNECTORS
- A. THE CONTRACTOR SHALL INSTALL FLEXIBLE DUCT CONNECTIONS BETWEEN EACH PIECE OF EQUIPMENT HAVING A FAN, AND ITS SHEET METAL SUPPLY AND RETURN DUCTWORK CONNECTIONS, WHICH, WHEN COMPLETED SHALL BE AIRTIGHT.
- B. CONNECTORS SHALL PROVIDE A MINIMUM OF 2 INCHES BETWEEN METAL TO INSURE AGAINST TRANSMISSION OF VIBRATION FROM THE FAN UNIT TO THE DUCTWORK.
- 2.5 MOTORS AND STARTERS
- A. ALL ELECTRIC MOTORS SHALL BE FURNISHED FOR OPERATION ON ELECTRICAL SERVICES AS DESIGNATED AND SHALL HAVE STARTING TORQUE CHARACTERISTICS SUITABLE FOR THE EQUIPMENT SERVED. ANY CHANGES TO THE ELECTRICAL WIRING DUE TO EQUIPMENT BEING FURNISHED, OTHER THAN THAT SPECIFIED, IS THE RESPONSIBILITY OF THE CONTRACTOR.
- B. THE MECHANICAL CONTRACTOR SHALL FURNISH TO THE ELECTRICAL CONTRACTOR ALL STARTERS AND STARTER OVERLOADS, ALL NECESSARY WIRING DIAGRAMS AND INSTRUCTIONS TO FACILITATE THE INSTALLATION OF POWER AND CONTROL WIRING TO ALL EQUIPMENT.

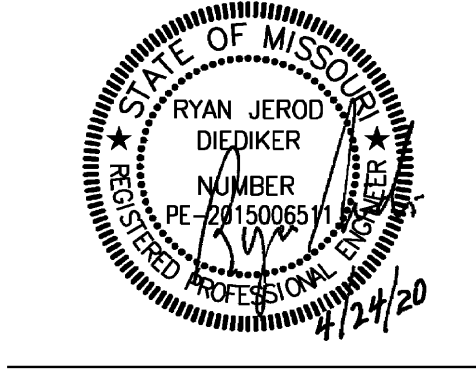
- 2.6 SHEET METAL DUCTWORK
- A. SHEET METAL DUCTS AND CONNECTIONS SHALL BE CONSTRUCTED OF G90 GALVANIZED SHEETS OF MILD STEEL. THE DUCTS SHALL BE CONSTRUCTED TO THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) 2" W.G. PRESSURE CLASS STANDARDS. NO DUCT SHALL BE CONSTRUCTED WITH LESS THAN 24 GAUGE METAL. LOCAL CODES REQUIRING HEAVIER GAUGES SHALL GOVERN. ALL DUCTS SHALL BE SEALED TO SMACNA "B" CLASSIFICATION.
- B. DUCT SECTIONS SHALL BE JOINED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION AND REQUIREMENTS OF THE BUILDING CODE HAVING JURISDICTION.
- C. DUCT DIMENSIONS SHOWN ARE SHEET METAL DIMENSIONS AND DO NOT NEED TO BE ADJUSTED FOR INSULATION/LINING.
- D. CURVED ELBOWS SHALL BE CONSTRUCTED WITH INSIDE RADIUS NOT LESS THAN THE DUCT WIDTH IN THE SAME PLANE. SQUARE ELBOWS SHALL HAVE TURNING VANES. TURNING VANES SHALL BE DESIGNED IN ACCORDANCE WITH ASHRAE RECOMMENDATIONS. MANUFACTURED VANES SHALL BE BY TITUS OR APPROVED EQUAL.
- E. CROSSBREAK ALL DUCTWORK SURFACES OVER 18 INCHES IN WIDTH.
- F. FULL AREAS SHALL BE MAINTAINED IN TRANSITIONS WHERE A CHANGE IN THE CONFIGURATION OF THE DUCT OCCURS. ALL TAPERING JOINTS SHALL BE REDUCED GRADUALLY.
- G. JOINTS IN DUCTS SHALL BE MADE PRACTICALLY AIRTIGHT AND ANY OPEN CORNER SHALL BE NEATLY PATCHED AND SOLDERED TIGHT. DUCT TAPE WILL NOT BE ACCEPTED AS A JOINT PATCH. LOW PRESSURE SYSTEM DUCT LEAKAGE SHALL NOT EXCEED 2%.
- H. CONCEALED ROUND DUCTS SHALL BE CONSTRUCTED TO SMACNA 2" W.G. STANDARDS WITH GROOVED LONGITUDINAL SEAMS AND SLEEVED TYPE TRANSVERSE JOINTS.
- 2.7 FLEXIBLE DUCT
- A. FLEXIBLE DUCTS SHALL BE UL181 CLASS THERMAFLEX M-KE, OR APPROVED EQUAL. HARD PIPE STIFFENERS SHALL BE PROVIDED AT LENGTHS OVER 8 FEET AND SHALL NOT HAVE ANY AIR FLOW OBSTRUCTION.
- 2.8 DUCTWORK SUPPORTS
- A. ALL HORIZONTAL DUCTS SHALL BE SUPPORTED WITH HANGERS SPACED NOT MORE THAN 8'-0" APART. HANGERS FOR DUCTS SMALLER THAN 21 INCHES SHALL CONSIST OF 22 GAUGE GALVANIZED STEEL STRIPS SECURELY FASTENED TO THE DUCT AND THE BUILDING CONSTRUCTION. DUCTS OVER 31 INCHES IN WIDTH SHALL BE HUNG WITH 1/4 INCH STEEL ANGLE ON THE BOTTOM OF THE DUCT SUPPORTED WITH STEEL RODS OF APPROPRIATE SIZE SECURELY FASTENED TO THE BUILDING STRUCTURE. ALL SUPPORTS TO MEET SMACNA STANDARDS.
- 2.9 DUCTWORK INSULATION/LINER
- A. INSULATION AND LINER AS SCHEDULED ON THE DRAWINGS.
- B. INSULATION/LINER SHALL BE BY CERTAIN-TEED, JOHNS MANVILLE, KNAUF INSULATION, OR OWENS CORNING UNLESS NOTED OTHERWISE ON THE DRAWINGS. INSULATION SHALL BE APPLIED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- C. ALL INSULATION/LINER SHALL BE UL LISTED; FLAME SPREAD/FUEL CONTRIBUTED/SMOKE DEVELOPED RATING OF 25/50/50 OR LESS IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.
- 2.10 OPERATING AND MAINTENANCE MANUALS
- A. THE EQUIPMENT MANUFACTURER SHALL FURNISH THE OWNER TWO BOUND SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL SYSTEMS.
- 2.11 START-UP/TESTING, ADJUSTING, BALANCING
- A. THE CONTRACTOR SHALL COMPLETE ALL EQUIPMENT INSTALLATIONS; CHECK ALL CONTROL WIRING, START UP AND ADJUST ALL EQUIPMENT AND PLACE ALL SYSTEMS IN OPERATION.
- B. AFTER COMPLETION AND START-UP OF ALL SYSTEMS THE CONTRACTOR SHALL ARRANGE FOR TESTING, ADJUSTING AND BALANCING OF ALL AIR SYSTEMS.
- C. TESTING, ADJUSTING AND BALANCING OF ALL AIR SYSTEMS SHALL BE PERFORMED BY A NEBB OR AABC CERTIFIED TEST AND BALANCE CONTRACTOR.
- D. UPON COMPLETION OF TESTING, ADJUSTING AND BALANCING, A COMPLETE REPORT OF ALL FINDINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THIS PROJECT.
- 2.12 CURBS
- A. CURBS FOR ROOF MOUNTED HEATING, VENTILATING AND AIR CONDITIONING UNITS SHALL BE PROVIDED BY THE EQUIPMENT MANUFACTURER AND SHALL BE DESIGNED TO COMPENSATE FOR SLOPES OF STRUCTURAL STEEL TO PROVIDE LEVEL SUPPORT OF EQUIPMENT. CURBS SHALL BE INSULATED TYPE WITH 1-1/2 INCH THICK INSULATION AND A MINIMUM DENSITY OF 3 POUNDS.
- 2.13 PACKAGE ROOFTOP HVAC UNITS: 25 TON AND SMALLER
- A. UNITS SHALL BE DEDICATED DOWNFLOW OR HORIZONTAL AIRFLOW. OPERATING RANGE SHALL BE BETWEEN 115 DEGREES F AND 0 DEGREES F. COOLING AS STANDARD FROM THE FACTORY FOR ALL UNITS. COOLING PERFORMANCE SHALL BE RATED IN ACCORDANCE WITH DOE AND/OR AIR TESTING PROCEDURES. ALL UNITS SHALL BE FACTORY ASSEMBLED, INTERNALLY WIRED, FULLY CHARGED WITH R-410A OR R-407C, AND 100% RUN-TESTED BEFORE LEAVING THE FACTORY. WIRING INTERNAL TO THE UNIT SHALL BE COLORED AND NUMBERED FOR SIMPLIFIED IDENTIFICATION. UNITS SHALL BE UL LISTED AND LABELED, CLASSIFIED IN ACCORDANCE TO THE LATEST ANSI AND UL STANDARDS FOR GAS-FIRED CENTRAL FURNACES AND CENTRAL COOLING AIR CONDITIONERS. UNITS SHALL BE TRANE, YORK, MCQUAY, LENNOX OR CARRIER.
- B. UNIT CASING SHALL BE CONSTRUCTED OF ZINC COATED, HEAVY GAUGE, GALVANIZED STEEL. EXTERIOR SURFACES SHALL BE CLEANED, PHOSPHATIZED AND FINISHED WITH A WEATHER-RESISTANT BAKED ENAMEL OR ACRYLIC POLYURETHANE FINISH. UNITS SURFACE SHALL BE TESTED 500 HOURS IN A SALT SPRAY TEST IN COMPLIANCE WITH ASTM B117. CABINET CONSTRUCTION SHALL ALLOW FOR ALL MAINTENANCE. SERVICE PANELS SHALL PROVIDE A WATER AND AIR TIGHT SEAL.
- C. THE TOP COVER SHALL BE ONE PIECE OR WHERE SEAMS EXIST, IT SHALL BE DOUBLE HEMMED AND GASKET SEALED TO PREVENT WATER LEAKAGE.
- D. ALL UNITS SHALL BE DIRECT-DRIVE SCROLL TYPE COMPRESSOR(S) WITH CENTRIFUGAL OIL PUMP PROVIDING POSITIVE LUBRICATION TO MOVING PARTS. MOTOR SHALL BE SUCTION GAS-COOLED AND SHALL HAVE A VOLTAGE UTILIZATION RANGE OF PLUS OR MINUS 10% OF UNIT NAMEPLATE VOLTAGE. CRANKCASE HEATER, INTERNAL TEMPERATURE AND CURRENT-SENSITIVE MOTOR OVERLOADS SHALL BE INCLUDED FOR MAXIMUM PROTECTION. THE COMPRESSORS HALL HAVE INTERNAL SPRING VIBRATION AND SOUND MUFFLING TO MINIMIZE VIBRATION TRANSMISSION AND NOISE. EXTERNAL HIGH PRESSURE CUTOUT SHALL BE PROVIDED. LOW PRESSURE SWITCHES SHALL BE STANDARD. INTERNAL TEMPERATURE AND CURRENT SENSITIVE MOTOR OVERLOADS SHALL BE INCLUDED FOR MAXIMUM PROTECTION. EXTERNAL DISCHARGE TEMPERATURE LIMIT, WINDING TEMPERATURE LIMIT AND COMPRESSOR OVERLOAD SHALL BE PROVIDED.
- E. EACH REFRIGERANT CIRCUIT SHALL HAVE INDEPENDENT FIXED ORIFICE EXPANSION DEVICES, SERVICE PRESSURE PORTS AND REFRIGERANT LINE FILTER DRYERS FACTORY INSTALLED AS STANDARD. AN AREA SHALL BE PROVIDED FOR REPLACEMENT SUCION LINE DRIERS.
- F. INTERNALLY FINNED MINIMUM 3/8 INCH COPPER TUBES MECHANICALLY BONDED TO CONFIGURED ALUMINUM PLATE FIN SHALL BE STANDARD. COILS SHALL BE LEAK TESTED AT THE FACTORY TO ENSURE PRESSURE INTEGRITY.
- G. GAS HEAT SHALL BE AGA OR U.L. APPROVED AS APPLICABLE AND ALL SAFETY FEATURES SHALL COMPLY WITH THE REQUIREMENTS OF ALL AGENCIES HAVING JURISDICTION. BURNERS SHALL BE INDUCED OR FORCED DRAFT COMBUSTION TYPE BLOWER WITH DIRECT SPARK IGNITION SYSTEM AND REDUNDANT MAIN GAS VALVE. THE HEAT EXCHANGER SHALL BE CONSTRUCTED OF CORROSION-RESISTANT STEEL SIMILAR TO ALUMINIZED OR STAINLESS STEEL.
- H. THE OUTDOOR FANS SHALL BE DIRECT-DRIVE, STATICALLY AND DYNAMICALLY BALANCED, DRAW THROUGH IN THE VERTICAL DISCHARGE POSITION. THE FAN MOTOR(S) SHALL BE PERMANENTLY LUBRICATED AND HAVE BUILT-IN THERMAL OVERLOAD PROTECTION.
- I. UNITS SHALL HAVE BELT-DRIVEN, FC CENTRIFUGAL FANS WITH ADJUSTABLE MOTOR SHEAVES. UNITS SHALL HAVE AN ADJUSTABLE IDLER-ARM ASSEMBLY FOR QUICK-ADJUSTMENT TO FAN BELTS AND MOTOR SHEAVES. ALL MOTORS SHALL BE INTERNALLY PROTECTED. OVERSIZED MOTORS SHALL BE AVAILABLE FOR HIGH STATIC OPERATIONS. UNITS SHALL BE CAPABLE OF PROVIDING A MINIMUM OF 1 INCH EXTERNAL STATIC PRESSURE AT SCHEDULED UNIT CFM. SEE SCHEDULE FOR REQUIRED E.S.P.
- J. UNITS(S) SHALL BE COMPLETELY FACTORY WIRED WITH NECESSARY CONTROLS AND CONTACTOR PRESSURE LUGS OR TERMINAL BLOCK FOR POWER WIRING. UNIT SHALL BE PROVIDED WITH A FACTORY MOUNTED FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER FOR SINGLE POINT WIRING.
- K. ACCESSORIES:
1. MOTORIZED OUTSIDE AIR DAMPER: FIELD INSTALLED RAIN HOOD AND SCREEN SHALL PROVIDE UP TO SCHEDULED QUANTITY OF OUTSIDE AIR.
2. OVERSIZED MOTORS: FIELD INSTALLED OVERSIZED MOTORS SHALL BE AVAILABLE IF NECESSARY TO ACHIEVE THE SCHEDULED STATIC PRESSURE.
3. 120 VOLT RECEPTACLE WIRED AHEAD OF UNIT DISCONNECT. PROVIDE DISCONNECT SWITCH AND TRANSFORMER, IF REQUIRED, FOR THE SERVICE RECEPTACLE.
4. COIL GUARDS: COIL GUARDS SHALL BE FIELD-INSTALLED FOR CONDENSER COIL PROTECTION ON ALL UNITS.
5. INSULATION KIT: PROVIDE A COMPLETE KIT FOR ALL UNITS TO PREVENT HIGH HUMIDITY CONDENSATION FORMING ON BOTTOM OF UNIT WHEN MOUNTED ON A DOWNFLOW CURB.
6. DIFFERENTIAL PRESSURE SWITCHES: THIS FIELD-INSTALLED OPTION ALERTS ON INDIVIDUAL FAN FAILURE. THE FAN FAILURE SWITCH WILL DISABLE ALL UNIT FUNCTIONS AND "FLASH" THE SERVICE LED ON THE ZONE SENSOR.
7. A COUNTER BALANCED BAROMETRIC RELIEF DAMPER SHALL BE PROVIDED FOR SPACE PRESSURE CONTROL.
8. 7-DAY PROGRAMMABLE SPACE THERMOSTAT SHALL BE PROVIDED FOR TEMPERATURE CONTROL DURING OCCUPIED AND UNOCCUPIED TIMES. THERMOSTAT SHALL HAVE AUTOMATIC CHANGEOVER.
9. ECONOMIZER CONTROL PACKAGE WITH OUTDOOR/RETURN/RELIEF DAMPER PACKAGE, AUTOMATIC DAMPER OPERATOR, MIXED AIR CONTROLLER AND CHANGEOVER THERMOSTAT.
- 2.14 PAINTING: (SEE ARCHITECTURAL SECTION "PAINTING")
- A. PAINTING, EXCEPT AS SPECIFIED HEREIN, SHALL BE DONE BY OTHERS.
- B. EQUIPMENT WHICH HAS DAMAGED FINISH SHALL BE REPAINTED TO MATCH THE ORIGINAL FACTORY FINISH. ALL EXPOSED FERROUS METAL FURNISHED UNDER THIS CONTRACT, SUCH AS HANGERS, STRUTS, STRUCTURAL STEEL, ETC., SHALL BE GIVEN ONE COAT OF TNEDEC GRAY PRIMER.

PART 1 - GENERAL REQUIREMENTS - ELECTRICAL

- 1.1 SUMMARY OF WORK
- A. THE CONTRACT DOCUMENTS REQUIRE THE FURNISHING AND INSTALLING OF COMPLETE FUNCTIONING ELECTRICAL SYSTEMS, AND EACH ELEMENT THEREOF, AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS OR REASONABLY INFERRED, TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION THE SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED, INCLUDING EVERY ARTICLE, DEVICE OR ACCESSORY, WHETHER OR NOT SPECIFICALLY CALLED FOR BY ITEM. ELEMENTS OF THE WORK INCLUDE MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, AND UTILITIES.
- B. SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.
- C. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER BY EXPERIENCED MECHANICS OF THE PROPER TRADE.
- 1.2 COORDINATION, MEASUREMENTS AND LAYOUTS
- A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
- B. THE CONTRACTOR SHALL EMPLOY A COMPETENT FOREMAN ON THE JOB TO SEE THAT WORK IS DONE IN ACCORDANCE WITH THE BEST PRACTICES AND IN A SATISFACTORY AND WORKMANLIKE MANNER. THE FOREMAN SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND SHALL EXECUTE HIS WORK IN SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION, WHERE LOCAL CONDITIONS NECESSITATE A REARRANGEMENT, THE CONTRACTOR SHALL PREPARE, AND SUBMIT FOR APPROVAL, DRAWINGS OF THE PROPOSED REARRANGEMENT. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, FURNISHING SUCH OFFSETS, FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSION.
- 1.3 PERMITS AND FEES
- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION, OTHER THAN THOSE DEPOSITS OR FEES WHICH ARE FULLY REFUNDABLE TO THE OWNER.
- 1.4 SUBMITTALS, MATERIALS AND EQUIPMENT
- A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED HEREIN, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
- B. AS SOON AS POSSIBLE AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SIX COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT TO BE FURNISHED FOR THIS PROJECT. SUBMITTALS SHALL INCLUDE MANUFACTURER'S NAME, MODEL NUMBER, DESCRIPTIVE ENGINEERING DATA AND ALL NECESSARY INFORMATION AS TO FINISH, MATERIAL GAUGES AND ACCESSORIES. AFTER SUCH SHOP DRAWINGS ARE PROCESSED, THREE COPIES WILL BE RETURNED TO THE CONTRACTOR. THE CONTRACTOR SHALL, UPON RECEIPT OF REVIEWED SHOP DRAWINGS PROCEED WITH THE PROCUREMENT AND INSTALLATION OF SUCH EQUIPMENT.
- 1.5 CODES, LAWS, AND STANDARDS
- A. ALL WORK SHALL BE INSTALLED IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE, THE NATIONAL BOARD OF FIRE UNDERWRITERS, THE NATIONAL ELECTRICAL SAFETY CODE, AND ALL GOVERNING CODES, APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES OR STATUTES OF REGULATORY BODIES HAVING JURISDICTION. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH SAID LAWS, REGULATIONS, ORDINANCES, STATUTES OR CODES, WITHOUT INCREASED COST TO THE OWNER. ANY POINT IN QUESTION SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL. WORK INDICATED ON THE DOCUMENTS THAT IS IN EXCESS OF CODE REQUIREMENTS SHALL NOT BE REDUCED IN QUALITY AND/OR QUANTITY.
- B. COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMENTS AFFECTED BY CONNECTIONS OF SERVICES.
- 1.6 RECORD DOCUMENTS
- A. THIS CONTRACTOR SHALL PREPARE A COMPLETE "AS-BUILT" SET OF DRAWINGS INCORPORATING ALL CHANGES MADE DURING CONSTRUCTION. LOCATION OF UNDERGROUND CONDUIT SHALL BE LOCATED BY DIMENSION FROM COLUMN LINES.
- B. THIS CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER'S REPRESENTATIVE FIVE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING FINAL COPIES OF EQUIPMENT SHOP DRAWINGS, MANUFACTURER'S LITERATURE FOR ALL EQUIPMENT INSTALLED ON THE PROJECT SHOWING ALL DETAILS OF EQUIPMENT, REPLACEMENT PART DATA AND MAINTENANCE AND OPERATING INSTRUCTIONS. MANUALS SHALL INCLUDE COPIES OF ALL EQUIPMENT WARRANTIES.
- 1.7 GUARANTEES AND WARRANTIES
- A. THE CONTRACTOR SHALL GUARANTEE COMPLETE SYSTEM OPERATION AND THAT THE MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED WILL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS AND WILL GIVE SATISFACTORY SERVICE UNDER THE SPECIFIED OPERATING CONDITIONS. THE CONTRACTOR AGREES TO REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY PART OF THE APPARATUS WHICH PROVES OR BECOMES DEFECTIVE WITHIN ONE YEAR AFTER THE SYSTEM IS ACCEPTED. NO EQUIPMENT WARRANTY OR GUARANTEE SHALL START UNTIL THE TIME OF BUILDING ACCEPTANCE.
- B. ALL WARRANTIES ISSUED BY EQUIPMENT MANUFACTURERS SHALL BE FILLED OUT IN THE OWNER'S NAME AND GIVEN TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF WORK PERFORMED UNDER THIS SECTION.
- 1.8 FINAL INSPECTION
- A. AFTER COMPLETION OF THE ENTIRE PROJECT THE CONTRACTOR SHALL REQUEST FINAL INSPECTION OF THIS PROJECT IN WRITTEN FORM ADDRESSED TO THE ARCHITECT ALONG WITH A STATEMENT TO THE EFFECT THAT ALL INSTALLATIONS HAVE BEEN COMPLETED, CHECKED, ADJUSTED AND BALANCED IN ACCORDANCE WITH REQUIREMENTS OF THIS PROJECT. UPON RECEIPT OF WRITTEN NOTIFICATION OF COMPLETION AND REQUEST FOR FINAL INSPECTION THE ENGINEER WILL PERFORM A FINAL INSPECTION OF THIS WORK AND, IF ALL INSTALLATIONS ARE AS REPRESENTED BY THE CONTRACTOR, THE ENGINEER WILL SUBMIT WRITTEN RECOMMENDATION OF ACCEPTANCE.
- 1.9 CLEANING
- A. DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE WORK SHALL BE REMOVED TO KEEP THE PREMISES REASONABLE CLEAN AT ALL TIMES.
- B. AFTER COMPLETION OF THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED SURFACES AND EQUIPMENT, REMOVE ALL DIRT, DEBRIS, CRATING, CARTONS, ETC., AND LEAVE ALL INSTALLATIONS FINISHED AND READY FOR OPERATION.
- 1.10 OPENINGS AND SLEEVES
- A. ALL PIPING THROUGH EXTERIOR OR FOUNDATION WALLS SHALL PASS THROUGH SCHEDULE 40 GALVANIZED STEEL SLEEVES WHICH SHALL BE LARGE ENOUGH TO ALLOW FOR PIPE SEAL MATERIAL. SLEEVES IN NEW CONSTRUCTION SHALL HAVE A MINIMUM 2 INCH WATERSTOP IN THE CENTER OF THE SLEEVE. NO SLEEVES ARE PERMITTED THROUGH CONCRETE STRUCTURAL MEMBERS.
1. SPACE BETWEEN PIPE AND SLEEVE IN EXTERIOR UNDERGROUND WALLS SHALL BE SEALED WITH LINK-SEAL, FLEXICRAFT OR METRAREX LINK STYLE PIPE SEALS.
2. IN ABOVE GRADE EXTERIOR WALLS PACK THE SPACE BETWEEN PIPE AND SLEEVE WITH MINERAL WOOL AND THEN COMPLETE SEAL WITH APPROVED CAULKING COMPOUND FLUSH WITH FINISHED SURFACE. PROVIDE PIPE COLLAR ON INTERIOR SIDE OF WALL.
3. ALL PIPING THROUGH FLOORS SHALL BE PROVIDED WITH SCHEDULE 40 GALVANIZED STEEL PIPE SLEEVES, EXTENDING 1 INCH ABOVE THE FLOOR.
- C. IN FIRE RATED WALLS: CAULKING SHALL BE A PURE CERAMIC FIBER MADE OF ALUMINA-SILICA, "CERAFIBER-FS" BY JOHNS-MANVILLE. SEALANT SHALL BE GUN GRADE. AN ACRYLIC 2-PART GUN APPLIED, FIRE RETARDANT ELASTIC SEALANT, "DYMERIC" BY TREMCO OR EQUAL BY PERMITTE NO. 1113FR.
1. LIMIT THE SIZE OF THE SPACE BETWEEN THE WALL OR FLOOR AND THE OUTSIDE OF THE PIPE OR DUCT TO 1 INCH MAXIMUM. THIS SPACE IS SUFFICIENT TO ALLOW SOME MOVEMENT OF THE PIPES OR DUCT WITHOUT CRACKING THE CAULKING OR SEALANT.
2. FOR OPENINGS IN WALLS, THE CAULKING SHALL BE APPLIED TO A MINIMUM OF 3 INCH TOTAL DEPTH. SEALANT SHALL THEN BE APPLIED ON BOTH SIDES OF THE WALL OPENING A MINIMUM OF 1/2 INCH IN DEPTH, FINISHED FLUSH WITH THE WALL. D.
- D. FOR OPENINGS IN FLOORS, THE CAULKING SHALL BE APPLIED FROM THE UPPER SIDE TO A MINIMUM OF 3 INCH TOTAL DEPTH RECESSED 1/2 INCH BELOW THE FINISHED FLOOR. THIS 1/2 INCH RECESS SHALL THEN BE FILLED WITH SEALANT FLUSH WITH FINISHED FLOOR.
- 1.11 CUTTING AND PATCHING
- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING OF WALLS, FLOORS, CEILINGS AND ROOFS REQUIRED FOR PERFORMANCE OF HIS WORK.
- B. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT.
- C. PATCH ALL OPENINGS TO MATCH ADJACENT CONSTRUCTION IN BOTH MATERIAL AND FINISH.
- D. ALL CUTTING OF EXISTING CONCRETE FLOORS/SLABS ON GRADE IN THE INTERIOR OF THE BUILDING SHALL BE PERFORMED BY "SAW CUTTING" AND SHALL BE PERFORMED BY THIS CONTRACTOR.
- 1.12 TEMPORARY HEAT
- A. THE CONTRACTOR SHALL COOPERATE WITH THE GENERAL CONTRACTOR TO PROVIDE TEMPORARY HEAT AS SOON AS POSSIBLE FOR USE DURING CONSTRUCTION IF TEMPORARY HEAT IS REQUIRED. AIR HANDLING EQUIPMENT SHALL NOT BE OPERATED AT ANY TIME WITHOUT FILTERS IN PLACE AND ALL EQUIPMENT SHALL BE PROTECTED FROM DAMAGE. OPERATING THE EQUIPMENT FOR TEMPORARY HEAT SHALL NOT START THE WARRANTY PERIOD OF THE EQUIPMENT USED.
- 1.13 INTERRUPTION OF SERVICES
- A. THE CONTRACTOR SHALL SCHEDULE ANY SERVICE INTERRUPTIONS TO THE EXISTING BUILDING WITH THE OWNER'S REPRESENTATIVE. SUCH INTERRUPTIONS SHALL BE PLANNED SO AS TO BE AT TIMES TO CAUSE THE LEAST INCONVENIENCE AND INTERRUPTION TO THE FACILITY'S SCHEDULE.
- 1.14 EXISTING CONDITIONS
- ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS FOR THIS PROJECT HAVE BEEN DETERMINED FROM AVAILABLE DRAWINGS AND FIELD INVESTIGATIONS. CONTRACTORS MAKING PROPOSALS FOR THIS WORK SHALL INVESTIGATE ALL EXISTING CONDITIONS AND BASE THEIR PROPOSALS ON THEIR OBSERVATIONS TO PROVIDE COMPLETE AND FUNCTIONING INSTALLATIONS IN ACCORDANCE WITH THE INTENT OF THE DRAWING AND SPECIFICATIONS FOR THIS PROJECT AND ALL APPLICABLE GOVERNING CODES, RULES, REGULATIONS AND ORDINANCES. FAILURE TO DETERMINE EXISTING CONDITIONS WHICH CAUSE ADDITIONAL WORK WILL NOT CONSTITUTE GROUNDS FOR ADDITIONAL COMPENSATION.

PART 2 - ELECTRICAL

- 2.1 GENERAL REQUIREMENTS
- A. SEE PART 1 FOR GENERAL REQUIREMENTS.
- 2.2 IDENTIFICATION OF SWITCHES AND APPARATUS
- A. ALL CABINETS, SAFETY SWITCHES, AND OTHER APPARATUS USED FOR OPERATION AND CONTROL OF CIRCUITS, APPLIANCES, AND EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY IDENTIFIED BY MEANS OF ENGRAVED PLASTIC PLATES EITHER BLACK WITH WHITE LETTERS OR WHITE WITH BLACK LETTERS.
- 2.3 GROUNDING
- A. ALL CONDUCTORS, MOTOR FRAMES, RACEWAYS, CABINETS, ETC., THAT REQUIRE GROUNDING SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, THOSE OF THE SERVING UTILITY AND LOCAL AUTHORITIES HAVING JURISDICTION.
- 2.4 SAFETY SWITCHES
- A. SAFETY SWITCHES, AS MANUFACTURED BY GENERAL ELECTRIC, CROUSE-HINDS, CUTLER-HAMMER, SQUARE D, SIEMENS, OR APPROVED EQUAL, SHALL BE FURNISHED AND INSTALLED (WHERE NOT FURNISHED BY OTHERS) WHEREVER SHOWN ON THE DRAWINGS SPECIFIED, OR REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- B. SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE, UNDERWRITERS' LABORATORIES SHORT CIRCUIT LABELED FOR AT LEAST 100,000 AMPERES WITH CLASS R REJECTION FUSEHOLDERS SO AS TO COMPLY WITH NEC 100-9. SWITCHES INSIDE OF BUILDING SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURES. SWITCHES OUTSIDE OF BUILDING SHALL BE FURNISHED IN NEMA 3R ENCLOSURES UNLESS OTHERWISE SPECIFIED.
- C. EACH MOTOR SHALL BE PROVIDED WITH A DISCONNECTING MEANS IN ACCORDANCE WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
- 2.5 CONDUIT
- A. ALL ELECTRICAL WIRING, INCLUDING LOW VOLTAGE WIRING, SHALL BE INSTALLED IN CONDUIT AS HEREIN SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH NOMINAL SIZE SHALL BE USED BELOW GRADE; NO LESS THAN 1/2 INCH NOMINAL SIZE SHALL BE USED ABOVE GRADE.
- B. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 EPC-40-PVC. ALL CONDUITS SHALL BE INSTALLED WITH MINIMUM 24 INCH COVER.
- C. CONDUIT INSTALLED IN CONCRETE SLABS OR ABOVE GROUND SHALL BE GALVANIZED RIGID STEEL OR EPC-40-PVC.
- D. WHEN PVC CONDUITS PENETRATE CONCRETE FLOOR CONSTRUCTION, CONTRACTOR SHALL USE RIGID STEEL OR IMC ELBOWS AND EXTENSION. PVC CONDUIT/FITTINGS SHALL NOT BE PERMITTED TO BE EXPOSED ABOVE THE FLOOR.
- E. THINWALL TUBING SHALL BE E.M.T.
- F. ALL FITTINGS SHALL BE OF THE COMPRESSION TYPE AND WATERTIGHT FOR UNDERGROUND AND IN SLAB LOCATIONS. COMPRESSION OR SCREWED FITTINGS FOR INDOOR.
- G. CONDUIT FOR INTERIOR WIRING, IN GENERAL, SHALL BE THINWALL TUBING UNLESS OTHERWISE NOTED.
- H. RACEWAYS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND FITTING TO FITTING. A RUN OF CONDUIT BETWEEN OUTLETS OR FITTINGS SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER-BENDS INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE OUTLET OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW. THE SYSTEM SHALL BE COMPLETE WITH OUTLETS, DISTRIBUTION BOXES, ETC., SMOOTH INSIDE AND MECHANICALLY SECURE IN PLACE. APPROVED STRAPS, HANGERS, OR SUPPORTS SHALL BE USED TO SECURE CONDUITS IN PLACE. CONDUITS SHALL, IN GENERAL, BE SUPPORTED AT INTERVALS NOT EXCEEDING 10'-0" AND WITHIN 3'-0" OF EACH OUTLET BOX, JUNCTION BOX, CABINET OR FITTING.
- I. CONDUITS SHALL BE PROTECTED DURING CONSTRUCTION; PLUG AND KEEP CLEAN AND DRY. CONDUIT ENDS SHALL BE BUTTED IN CENTERS OF COUPLINGS. NO CRACKS OR FLATTENED SECTIONS WILL BE PERMITTED AT BENDS OR JOINTS. WORK ELSEWHERE. ALL ENDS OF CONDUIT SHALL BE REAMED TO REMOVE ROUGH EDGES. RUNNING THREADS WILL NOT BE PERMITTED.
- J. CONDUITS SHALL BE CONCEALED WITHIN THE WALLS, CEILINGS, AND FLOORS WHERE POSSIBLE AND UNLESS OTHERWISE NOTED. EXPOSED CONDUIT SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE BUILDING LINES.
- 2.6 WIRE AND CABLE
- A. WIRE AND CABLE SHALL BE COPPER.
- B. ALL CONDUCTORS SHALL BE COPPER.
- C. NO. 10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID WITH TYPE THHN INSULATION AND NO. 8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED WITH TYPE THHN INSULATION EXCEPT THAT CONDUCTORS WITHIN 3 INCHES OF LIGHT FIXTURE BALLASTS SHALL HAVE RHH, THHN, OR EQUAL INSULATION RATED FOR 90 DEGREES C APPLICATION.
- 2.7 IDENTIFICATION OF EQUIPMENT
- A. ALL SERVICE ENTRANCE EQUIPMENT, DISCONNECT SWITCHES, PANELBOARDS, RELAYS, MOTOR STARTERS, CONTACTORS, TELEPHONE TERMINAL CABINETS, TV EQUIPMENT AND RISER JUNCTION BOXES, AND OTHER ELECTRICAL EQUIPMENT UNDER THIS CONTRACT, SHALL BE PROVIDED WITH PROPER IDENTIFICATION. IDENTIFICATION SHALL BE BY THE USE OF ENGRAVED COLOR CODED PLASTIC NAMEPLATES WITH WHITE LETTERING SCREWED TO THE COVER OF THE EQUIPMENT. USE OF EMBOSSED PLASTIC "TAP" LABELS AS PREPARED BY "TYPEWRITER" TYPE EQUIPMENT SHALL NOT BE USED. COLOR CODING SHALL BE AS FOLLOWS:
1. EQUIPMENT CONNECTED TO A NORMAL POWER SOURCE SHALL BE BLACK WITH WHITE LETTERS.



Gloss Nails
Tenant Improvements
Client Name
Summit Orchard
470 NW Chipman Rd.
Lee's Summit, MO 64086

	Revisions:
Project #:	#####
Construction Documents	
04-24-20	
SPECIFICATIONS - MECHANICAL AND ELECTRICAL	
ME201	



ROOFTOP UNIT SCHEDULE - GAS HEAT		
DESIGNATION		RTU-1
MANUFACTURER		YORK
MODEL NO.		2.1078
NOMINAL TONNAGE		6.5
CAPACITY	CFM	2800
	TOTAL COOLING CAPACITY (MBH)	80.4
	SENSIBLE COOLING CAPACITY (MBH)	58.8
	ENT. AIR (DBWB)	80/67
	LVG. AIR (DBWB)	59.1/57.2
	MINIMUM E.E.R.	11.8
	HEATING INPUT (MBH)	120
	HEATING OUTPUT (MBH)	96
	STAGES OF HEATING	2
UNIT DATA	EFFICIENCY	80%
	OUTSIDE AIR CFM	SET BY TENANT
	TOTAL S.P. (IN. W.G.)	1.0
	FAN BRAKE HP	1.97
	FAN MOTOR HP	2.0
	NO. OF COMPRESSORS	2
	STAGES OF COOLING	2
	SMOKE DETECTORS	YES, NOTE 3
	RECEPTACLE	NOTE 4
FILTER	RELIEF	BAROMETRIC
	ECONOMIZER	DIFF. ENTHALPY
	TYPE	2"
ELECT. CONT.	EFFICIENCY	MERV 8
	VOLTAGE/PHASE	208/3
	MAXIMUM AMPACITY	36.2
	MINIMUM OVERCURRENT PROTECTION	45
	PANEL & CIRCUIT	D1L-2.4.6
	WIRE & CONDUIT	(3) #8 #10G, 3/4"C.
	OVERCURRENT DEVICE	45A/3P CB
	DISCONNECT	60A-3P NF NEMA 3R
CONTROL SEQUENCE		NOTE 5
REFERENCE DRAWING/DETAIL		ME401
REMARKS		NOTE 1, 2

NOTES:

FURNISH WITH ALUMINIZED FIBERGLASS, INTELLISPAN FAN, STANDARD 10" DUCT, 10" INSULATION, ROOFBURST AND HAIL GUARD KIT. PROVIDE MODULATING OUTDOOR AIR DAMPER CAPABLE OF DEMAND CONTROL VENTILATION WITH CO2 SENSOR LOCATED IN UNIT OR DUCTWORK.

ROUTE DUCTWORK DOWN FROM UNIT TO THE BOTTOM OF STRUCTURE. REFER TO DETAIL AND INSULATION/LINER REQUIREMENTS.

FURNISH WITH FACTORY INSTALLED SMOKE DETECTOR IN RETURN AIR DUCT SYSTEM. PROVIDE FIRE ALARM CONTROLLER TO CONNECT TO FIRE ALARM CONTROL PANEL AS REQUIRED.

FACTORY PROVIDED GFI / WP RECEPTACLE, UNPOWERED. FACTORY PROVIDE TO FIELD WIRE PER PLANS.

PROVIDE FACTORY CONTROLLER FOR STAND-ALONE OPERATION. PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT IN LOCKBOX. THERMOSTAT MOUNT IN SPACE, TENANT TO RELOCATE TO ITS FINAL LOCATION.

DUCTWORK SCHEDULE						
SERVICE	DUCT MATERIAL	DUCT SHAPE	SMACNA REQUIREMENTS			OTHER REQUIREMENTS
			CLASSIFICATION	SEAL CLASS	LEAKAGE CLASS	
SUPPLY AIR DUCTS CONNECTED TO RTU	GALVANIZED STEEL	RECTANGULAR	2" WG POSITIVE	B	12	1", 3LB DENSITY LINER PAINTABLE WHERE EXPOSED
	GALVANIZED STEEL	ROUND/FLAT OVAL (EXPOSED)	4" WG POSITIVE SPIRAL SEAM/FLAT OVAL	B	3	PAINTABLE WHERE EXPOSED
RETURN AIR AND TRANSFER AIR DUCTWORK	GALVANIZED STEEL	RECTANGULAR	2" WG NEGATIVE	B	12	1", 3LB DENSITY LINER PAINTABLE WHERE EXPOSED
GENERAL EXHAUST DUCTS TO THE INLET OF THE FAN	GALVANIZED STEEL	RECTANGULAR OR ROUND	2" WG NEGATIVE	B - RECTANGULAR A - ROUND	12 - RECTANGULAR 3 - ROUND	PAINTABLE WHERE EXPOSED

NOTES:

1: SEE DUCTWORK INSULATION SCHEDULE FOR REQUIREMENTS ON DUCT INSULATION

DUCTWORK INSULATION SCHEDULE	
SERVICE	INSULATION
CASINGS, HOUSINGS AND PLENUMS	2", 6 L.B. FIBERGLASS BOARD, GCVB
CONCEALED DUCTWORK AS FOLLOWS:	1-1/2", 1.5 L.B. RIGID FIBERGLASS BLANKET, VAPOR BARRIER FACED,
ALL ROUND SUPPLY AIR AND UNLINED BRANCH TAKE-OFFS FOR ROUND DUCTS	WITH HEAVY DUTY FOIL SCrim-KRAFT FACING.
AND IN-LINE TRANSITIONS.	
EXHAUST AIR BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR	
RELIEF AIR	

NOTES:

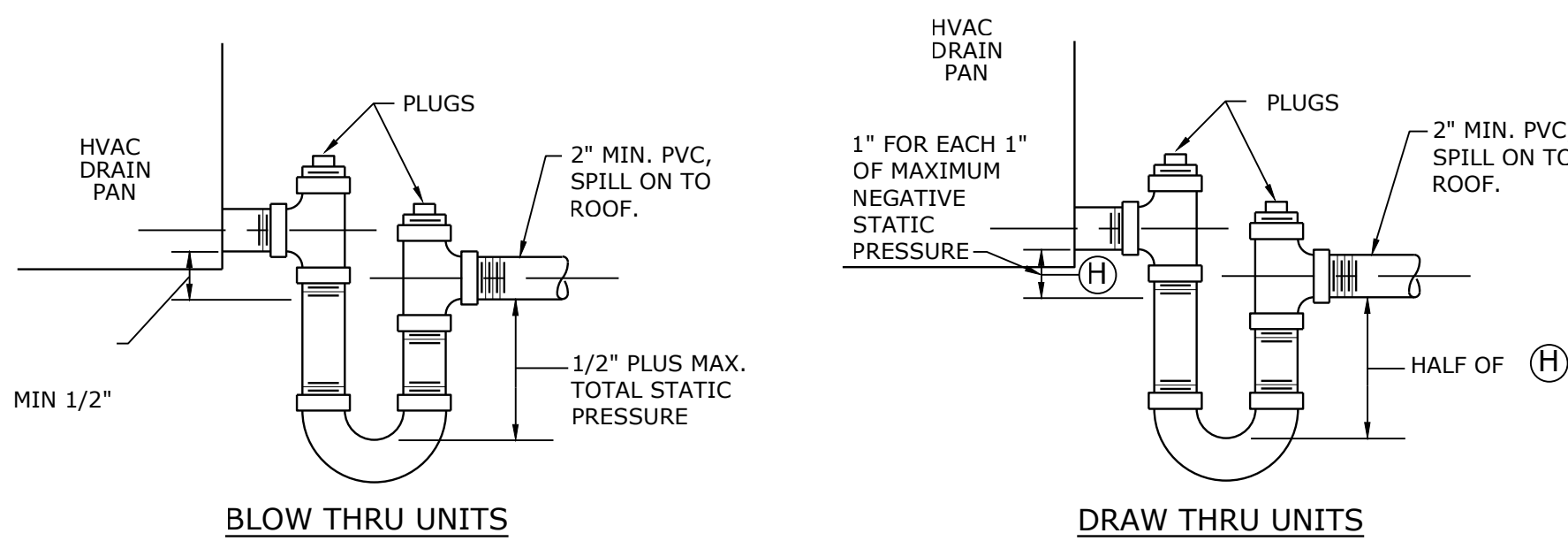
- 1: SEE DUCTWORK SCHEDULE FOR ITEMS THAT ARE TO BE LINED.
- 2: EXPOSED, LOW PRESSURE, ROUND AND FLAT OVAL SUPPLY AIR DUCTWORK IS NOT INSULATED

STRUCTURE. REFER TO DETAIL AND INSULATION/LINER REQUIREMENTS.

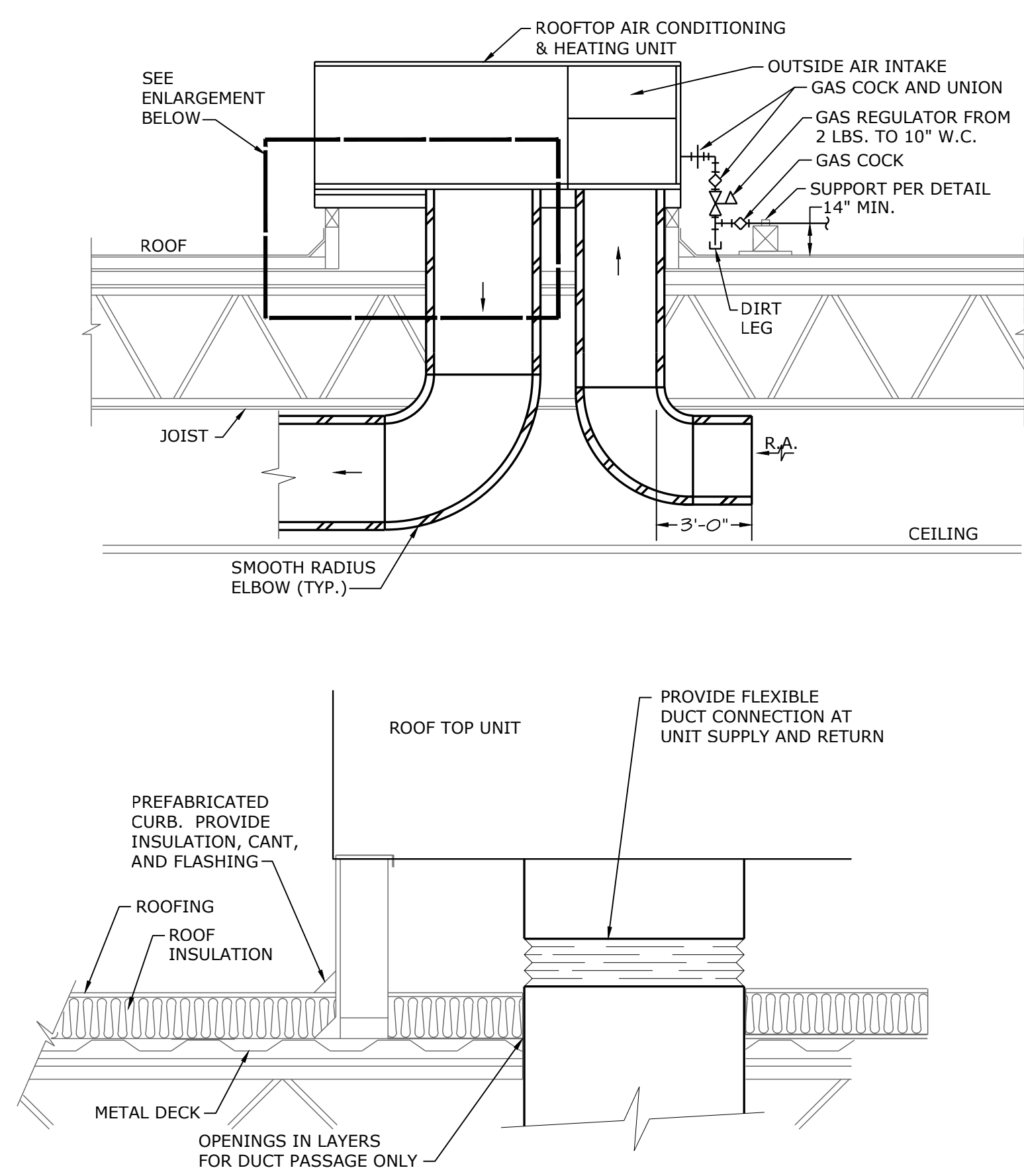
3. FURNISH WITH FACTORY INSTALLED SMOKE DETECTOR IN RETURN AIR DUCT SECTION. FIRE ALARM CONTRACTOR TO CONNECT TO FIRE ALARM CONTROL PANEL AS REQUIRED.

4. FACTORY PROVIDED GFI / WP RECEPTACLE, UNPOWERED. CONTRACTOR TO FIELD WIRE PER PLANS.

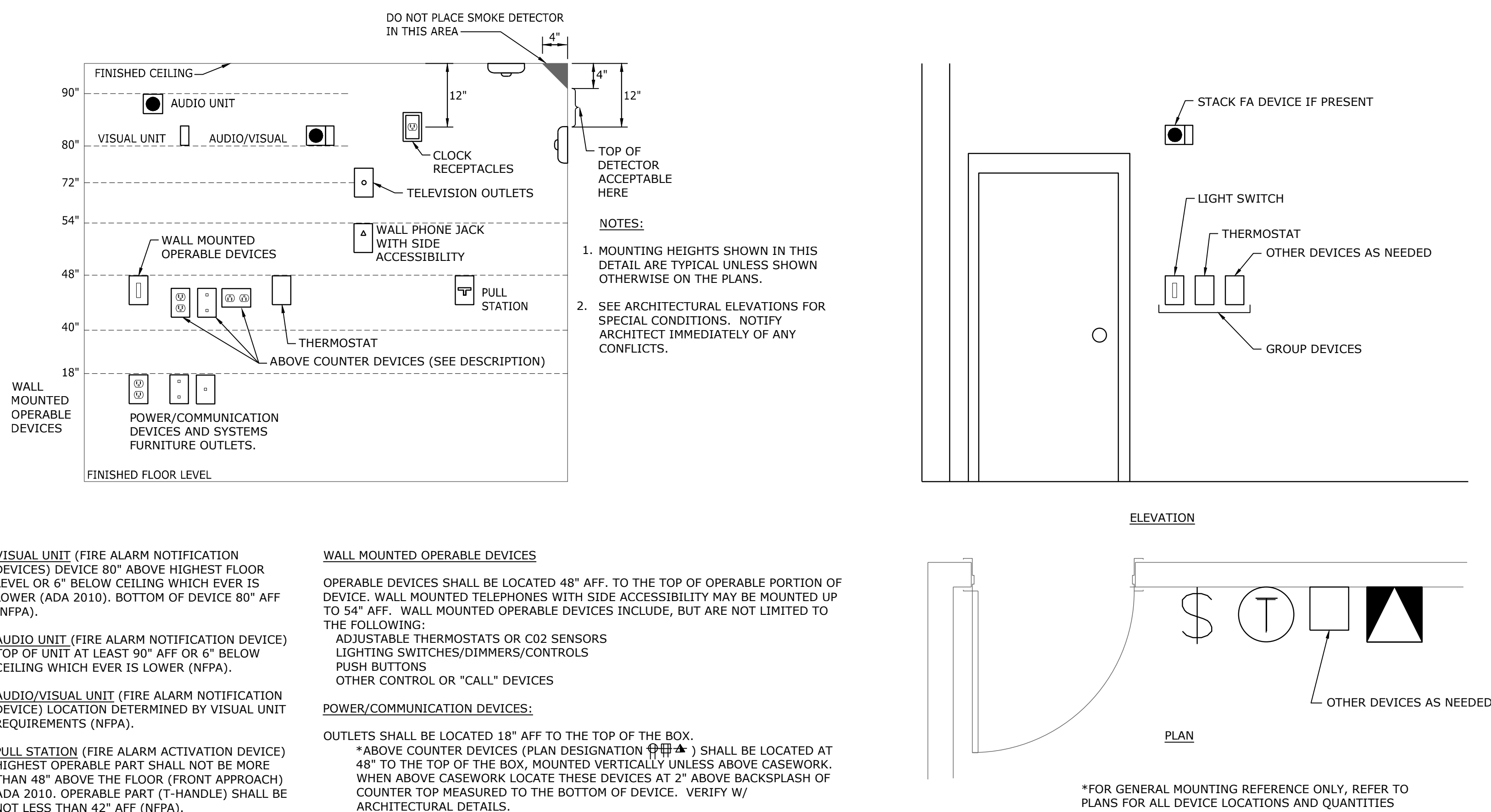
5. PROVIDE FACTORY CONTROLLER FOR STAND-ALONE OPERATION. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT IN LOCKBOX TEMPORARILY MOUNT IN SPACE, TENANT TO RELOCATE TO ITS FINAL LOCATION.



CONDENSATE DRAIN TRAP DETAIL



ROOFTOP UNIT AND CURB DETAIL



WALL MOUNTED DEVICES: MOUNTING HEIGHTS

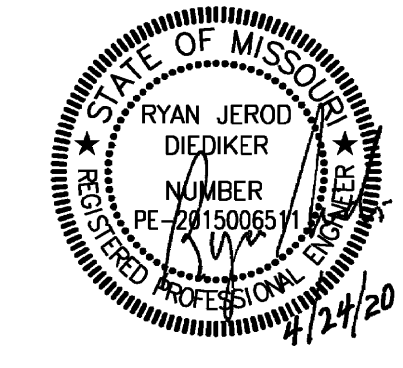
PANEL D1L		225 A		AIC:		225 A			
MAIN BUS AMPS:		225 A		SECTIONS:		1 - 42 SPACE		EQUIPMENT GROUND BUS	
VOLTAGE:		208Y/120 V		MOUNTING:		SURFACE			
PHASES/WIRES:		3 PH / 4 W		LOCATION:				SERVICE ENTRANCE	

CIRCUIT DESCRIPTION	POLES	AMPS	CKT NO	CKT NO	AMPS	POLES	CIRCUIT DESCRIPTION
LTG - EMERGENCY	1	20	1	2	45	3	RTU-1
PREPARED SPACE			3	4			
PREPARED SPACE			5	6			
PREPARED SPACE			7	8	20	1	RTU-RECEPTACLES ROOF
PREPARED SPACE			9	10			PREPARED SPACE
PREPARED SPACE			11	12			PREPARED SPACE
PREPARED SPACE			13	14			PREPARED SPACE
PREPARED SPACE			15	16			PREPARED SPACE
PREPARED SPACE			17	18			PREPARED SPACE
PREPARED SPACE			19	20			PREPARED SPACE
PREPARED SPACE			21	22			PREPARED SPACE
PREPARED SPACE			23	24			PREPARED SPACE
PREPARED SPACE			25	26			PREPARED SPACE
PREPARED SPACE			27	28			PREPARED SPACE
PREPARED SPACE			29	30			PREPARED SPACE
PREPARED SPACE			31	32			PREPARED SPACE
PREPARED SPACE			33	34			PREPARED SPACE
PREPARED SPACE			35	36			PREPARED SPACE
PREPARED SPACE			37	38			PREPARED SPACE
PREPARED SPACE			39	40			PREPARED SPACE
PREPARED SPACE			41	42			PREPARED SPACE

		ITALIC - EXISTING	
		BOLD - NEW	



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**RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI**

05/06/2020

Gloss Nails

Tenant Improvements

Client Name
Summit Orchard
470 NW Chipman Rd.
Lee's Summit, MO 64086


PROJECT NAME: Summit Orchards - Gloss Noils
AUTOCAD FILE LOCATION \NAME: X:\19\19230\1923002\Drawings\01-1923002_ME301.dwg
LAST CORRECTION BY ♦ DATE ♦ TIME: Friday, April 24, 2020 12:03:39 PM
PLOTTED BY ♦ DATE ♦ TIME: Charles Booty Friday, April 24, 2020 1:42:05 PM

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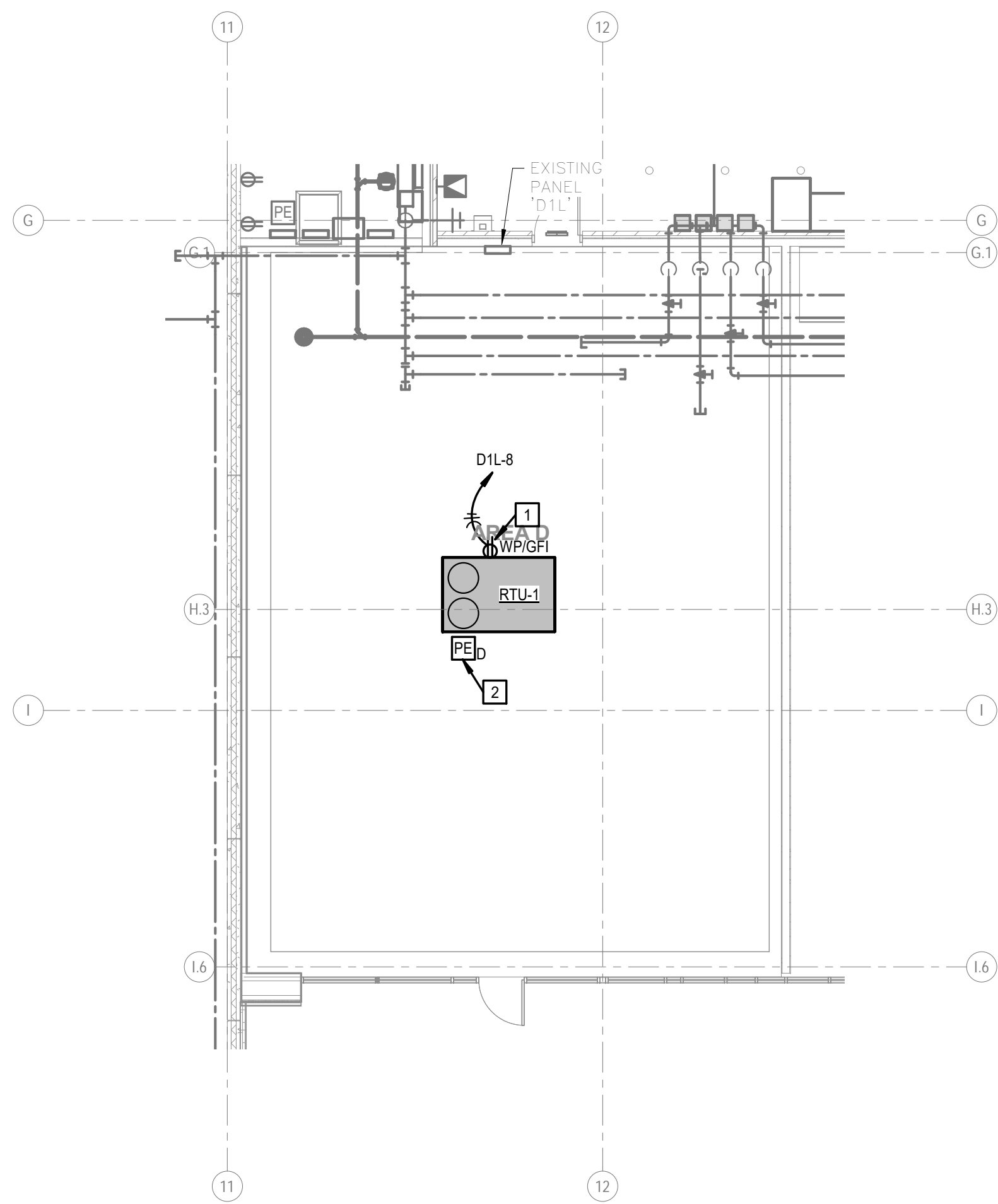
Construction Documents
04-24-20

SCHEDULES AND DETAILS - MECHANICAL AND ELECTRICAL

ME301


smith&boucher
ENGINEERS
25501 west valley parkway, suite 200 olathe, ks 66061
phone 913.345.2127 fax 913.345.0617
project number 1923002

25501 west valley parkway, suite 200 olathe, ks 66061
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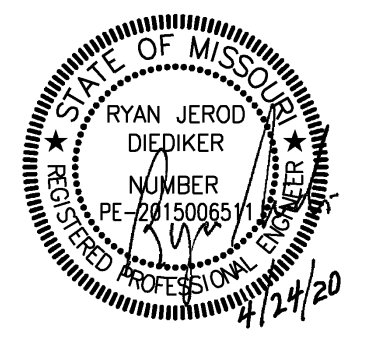
ELECTRICAL GENERAL NOTES:

1. REFER TO M/E SCHEDULES AND DETAILS FOR MECHANICAL EQUIPMENT CIRCUITING INFORMATION.
2. FIRESTOP ALL CONDUIT PENETRATIONS THROUGH FIRE ROUTED WALLS AND FLOORS AFTER INSTALLATION IS COMPLETE.
3. 120V BRANCH CIRCUITING SHALL BE AS FOLLOWS: (UNLESS NOTED OTHERWISE)

0'-100'=12 AWG.
101'-150'=10AWG.
151'-250'=8AWG.

ELECTRICAL PLAN NOTES

- 1 WEATHER PROOF GFI RECEPTACLE
FACTORY PROVIDED WITH EQUIPMENT.
PROVIDE ELECTRIC CONNECTION AS
REQUIRED BY MANUFACTURER'S
RECOMMENDATIONS. REFER TO
MECHANICAL SCHEDULE FOR ADDITIONAL
DETAIL.
- 2 FACTORY PROVIDED AND INSTALLED DUCT
MOUNT SMOKE DETECTOR FOR SHUTDOWN
OF OUTSIDE AIR INT. LOCATED IN
SUPPLY AND RETURN DUCT. MAKE
CONNECTIONS TO DUCT AS REQUIRED FOR
CORRECT OPERATION AS NOTED IN THE
SPECIFICATIONS AND TO THE FIRE ALARM
PANEL. UNIT TO ALSO SHUTDOWN UPON
DETECTION OF SMOKE AT ANY OF THE
FIRE/SMOKE DAMPERS ASSOCIATED WITH
THIS EQUIPMENT. DEMONSTRATION WILL
BE THE RESPONSIBILITY OF THE FIRE
ALARM OR MECHANICAL CONTRACTOR.
INCLUDING FIRE MARSHAL ACCEPTANCE
TESTS.



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LEE'S SUMMIT, MISSOURI
05/06/2020**

Gloss Nails

Tenant Improvements

Client Name
Summit Urncard
470 NW Chipman Rd.
Lee's Summit, MO 64086

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Construction Documents

04-24-20

**FIRST FLOOR PLAN -
MECHANICAL AND
ELECTRICAL**

ME401