

Structural Notes

DESIGN CRITERIA

- Building Code: 2018 International Building Code and ASCE 7-16 (except Chapter 14)
 - Building Risk Category: II
- Design Loads
 - Uniform Floor Live Loads (reduced per Building Code, UNO)

Partitions	20 psf
General Areas	100 psf
 - Roof Loads
 - Uniform Roof Live Load (reduced per Building Code) 20 psf
 - Concentrated Roof Live Load 300 lbs
 - Rain Loads: Rain Intensity, $i = 7.2$ in/hr (15-min duration/ 100 yr MRI)
 - Wind Loads:

Basic Wind Speed V (ult) = 114 mph; V (asd) = 88.3 mph
 Wind Exposure: C
 Internal Pressure Coefficient, $GC_p = +/- 0.18$ (Enclosed Building)
 Directionality Factor, $K_d = 0.85$

 - Component and Cladding Pressures (psf)

GENERAL

- Reference to standards or specifications of technical societies, organizations, or associations means the standard or specification referenced by the governing Building Code shown on the Drawings, unless specifically noted otherwise.
- Material, workmanship, and design shall conform to the referenced Building Code.
- For dimensions not shown in the Structural Drawings, see the Architectural Drawings.
- Contractor responsibilities include, but are not limited to, the following:
 - Coordinate the Structural Documents with the Architectural, Mechanical, Electrical, Plumbing, and Civil Documents. Architect/Structural Engineer shall be notified of any discrepancy or omission prior to installation of associated work.
 - Coordinate Structural Documents with Architectural and MPE Documents for location and quantity of miscellaneous framing for items such as roof drains, suspended or supported mechanical units, etc. Refer to Architectural and MPE Documents for additional miscellaneous structural elements that may not appear in the Structural Documents.
 - Equipment/Framing Verification
 - Mechanical Equipment: Submit actual weights of equipment to be used for review at least 3 weeks prior to fabrication and construction. Coordinate opening sizes and locations with Mechanical Contractor.
 - Miscellaneous Framing: Verify framing shown on the Structural Drawings for mechanical equipment, Owner-furnished items, partitions, etc. is consistent with the requirements of such items.
 - The structure is stable only in its completed form. Temporary supports required for stability during all intermediate stages of construction shall be designed, furnished, and installed by the Contractor.
 - Contractor has sole responsibility for jobsite safety and complying with all health and safety precautions as required by any regulatory agency. In performing construction observation visits to the jobsite, the Structural Engineer will have no control over, nor responsibility for, the Contractor's means, methods, sequences, techniques, or Procedures in performing the work.
 - Contractor is responsible for locating concrete reinforcement prior to installation of post-installed anchors, through bolts, or other post-installed items in concrete. Existing reinforcement including post-tensioning tendons shall not be cut or otherwise damaged while installing post-installed anchors.
 - Contractor shall field verify all existing conditions, elevations, and site conditions prior to construction and fabrication. Contractor shall immediately notify Structural Engineer of any existing conditions that are in conflict with the Structural Documents.

CAST-IN-PLACE CONCRETE

- Concrete Properties
 - Normal Weight Structural Concrete

	28-Day, f_c (min.) (max.)	w/cm Ratio	Entrained Air
Footings (Isolated / Continuous)	4,000 psi	----	None Required
Grade Beams	3,000 psi	----	None Required
Slabs-on-Ground	3,500 psi	0.48	None Required
Slabs on Composite Steel Deck	3,500 psi	0.48	None Required
Mechanical Equipment Pads:			
Interior	3,000 psi	----	None Required
Exterior	3,000 psi	----	5.0 +/- 1.5%
All Other Structural Concrete	4,000 psi	0.40	5.0 +/- 1.5%

Note: All concrete shall be assigned the exposure classes FO, SO, WO, and CO, except concrete in Aggressive Environment shall be assigned the exposure classes F3, S3, W1, and C2 (see ACI 318).
- Construction Joint Locations: No horizontal construction joints are permitted except as shown on the Structural Drawings. Obtain written consent for additional joints.
- Pipes or ducts shall not exceed one-third the slab or wall thickness unless specifically detailed. See mechanical and electrical drawings for location of sleeves, accessories, etc.
 - Conduit shall not be placed within the slab-on-ground. Conduit shall be installed below the slab-on-ground within the granular subbase.
- Special Finishes: Refer to Architectural Drawings for molds, grooves, ornaments, clips or grounds required to be encased in concrete and for location of floor finishes and slab depressions.
- Defect Repair: Honey-combing, spalls, cracks, etc. shall be repaired. Extent of defective area to be determined by the Structural Engineer.
- Curing
 - Begin curing procedures immediately following commencement of the finishing operation.
 - Concrete shall be moist cured in accordance with ACI 308. See Specification for additional information.
 - All concrete slabs that are to have exposed stained or polished concrete finish shall be wet cured a minimum of 7 days in strict accordance with ACI 301. The acceptable methods of wet curing are ponding, continuous fogging, continuous sprinkling; or application of mats or fabric kept continuously wet.

WOOD

- Structural framing plans depict the primary structural framing system. Contractor shall provide secondary and miscellaneous framing as required to complete the project (see architectural drawings).
 - Dressed Seasoned Lumber: S4S, 19% maximum moisture content at time of dressing.
 - Interior and Exterior Loadbearing Walls:

Southern Pine, No. 2 grade
 - Lintels, Floor Joists and Beams:

Southern Pine, No. 2 grade
 - Wood in Contact with Concrete or Masonry or Exposed to Weather:

Foundation grade pressure-treated.
 Use galvanized nails in pressure-treated wood.
 - Structural Glued Laminated Timber: Comply with American Institute of Timber Construction (AITC). Minimum allowable bending stress = 2,400 psi (dry).
 - Structural Panels
 - Floor Panels: Tongue-and-groove APA rated Sturd-I-Floor (plywood or OSB).
 - Panels shall have a Span Rating of 24 and Exposure 1.
 - Panels shall be placed with the "Strength Axis" perpendicular to the supports. End joints shall be staggered.
 - Floor Panels Shall be both glued and nailed
 - Panels shall be nailed with 10d (0.148 dia.) at a maximum of 12 inches at both panel edge supports and at intermediate supports unless noted otherwise. Nailing shall be completed before glue sets.
 - Panels shall have glue applied at supports, end joints and tongue and groove joints. Adhesives shall conform to APA Specification AF-G-01 or ASTM D3496, and applied in accordance with the adhesive manufacturer's recommendations. For OSB panels with sealed surfaces, use only solvent-based glues in accordance with panel manufacturer's recommendations.
 - Wall Panels: APA rated sheathing
 - Panels may be installed either horizontally or vertically.
 - Panels shall be a minimum of 24-inches wide.
 - There shall be a 1/8-inch gap at panel edges and ends.
 - Roof panels: APA rated sheathing (plywood or OSB).
 - Panels shall have a Span Rating of 40/20 and Exposure 1.
 - Panels shall be placed with the long direction perpendicular to the supports and shall be a minimum of 24-inches wide and continuous over at least 2 supports.
 - Roof panels shall be both glued (exterior glue) and nailed.
 - Long panel edges shall be supported with Edge Clips, one located midway between each support. There shall be a 1/8-inch gap at panel edges and ends.
 - OSB panels shall be installed with the textured side up.
 - Wood Shearwalls
 - Shearwalls shall be constructed with 15/32" Structural I APA rated wood structural panels. Panels shall be oriented with the long dimension in the vertical direction. Oriented strand board (OSB) may be used in lieu of plywood. OSB panels shall be APA rated and shall comply with Product Standard PS 2.
 - Insulating Sheathing Systems shall not be substituted for wood shearwalls.
 - Solid 2x blocking shall be provided at unsupported, horizontal panel edges.
 - Nail panels with 8d nails spaced at 6 inches at the perimeter of the panels and at 12" at intermediate supports, UNO.
 - Double 2x framing studs shall be used at the ends of each shear wall, UNO.
- Connections for Structural Timber: Galvanized strong-tie connectors by the Simpson Company or approved

REINFORCEMENT

- Reinforcing Bars: ASTM A615, Grade 60
 - Reinforcing bars are not to be welded.
- Welded Wire Reinforcement (WWR): ASTM A1064, 8" minimum side and end laps
- Reinforcement Placement (UNO)
 - Concrete Reinforcement Cover

Below Grade:	Unformed	3" clear
	Formed	2" clear
Slabs		3/4" clear
 - Masonry reinforcing steel: Place in the center of CMU cells, unless otherwise noted in drawings.
- Reinforcement Splices
 - Reinforcement marked "Continuous" can be spliced at locations determined by Contractor. All other reinforcement shall be spliced only at locations shown or noted, unless approved in writing by Structural Engineer.
 - Splice Lengths (UNO)

Concrete Reinforcement: Class B Tension Lap
 Masonry Reinforcement: #4 - 24" / #5 - 30" / #6 - 48" / #7 - 60"

CONCRETE CONSTRUCTION	INSPECTION FREQUENCY	REFERENCED STANDARD
1. Inspection of reinforcing steel placement and installation. Grade, size, quantity, quality, location, spacing, clearances.	P	ACI 318 Ch. 20, 25.2, 25.3, 26.6.1-26.6.3 / IBC 1908.4
2. Inspection of anchors cast in concrete. Verify compliance of the following: diameter, grade, type, length, number, placement, and embedment depth.	C	ACI 318 17.8.2 / AISC 360 N5.7
3. Inspection of post-installed mechanical anchors installed in hardened concrete members. Verify anchor type, anchor dimensions, hole diameter and clearing procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque.	C	ACI 318 17.8.2 Use of post installed anchors must be approved by Structural Engineer
4. Inspection of post-installed adhesive anchors and reinforcing steel installed in hardened concrete members. Verify adhesive type, anchor rod dimensions, hole diameter and clearing procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque.	C	ACI 318 17.8.2.4 Use of post installed anchors must be approved by Structural Engineer
5. Verify use of required design mix.	P	ACI 318 Ch. 19, 26.4.3, 26.4.4 / IBC 1904.1, 1904.2, 1906.2, 1906.3
6. Sampling fresh concrete from concrete discharge. Mold one set of specimens for compressive strength testing for each 150 cubic yards or each 5,000 square feet of slab or wall surface area for each mix design placed in any one day. No fewer than five tests for a given class of concrete for the entire project.		ACI 318 26.5, 26.12 / IBC 1906.10 ASTM C172, ASTM C31
a. Mold (5) 4x8-inch compressive strength cylinders, break and report (1) at 7-days, (3) at 28-days, or mold (4) 6x12-inch compressive strength cylinders, break and report (1) at 7-days, (2) at 28-days.	C	
b. Remaining specimen(s) shall be broken as directed by the Structural Engineer if compressive strengths do not appear adequate.		
c. For each test method, record:		
i. Slump		
ii. Air Content		
iii. Unit Weight		
iv. Temperature, ambient and concrete		
v. Batch and discharge times		
vi. Location and placement		
vii. Any pertinent information, such as addition of water, addition of admixtures, etc.		
d. Report in writing on the same day as tests are performed. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing agency, concrete design compressive strength, location of concrete placement in structure, concrete mix proportions and materials, compressive breaking strength and type of break.		
e. Verify compliance with construction documents.		
7. Inspection of concrete conveying and placement for proper application techniques.	C	ACI 318 26.5 / IBC 1906.6-1908.6
8. Inspection for maintenance of specified curing temperature and techniques.	P	ACI 318 26.5.3-26.5.5 / IBC 1908.9
9. Inspection of formwork for shape, location, and dimensions of the concrete member being formed.	P	ACI 318 26.11.1.2(b)
10. Perform testing of Floor Flatness and Levelness of concrete slab placements in accordance with ASTM E1155. See specifications.	P	ACI 117-10

General Special Inspection Notes

- This Structural Quality Assurance Plan includes:
- The Statement of Special Inspections which defines the scope of testing and inspection that is required for this project.
 - The responsibilities of the Contractor.
 - Structural Observations

Refer to other portions of the Construction Documents for Special Inspections required of architectural, mechanical, electrical, or other building components.

Special Inspector shall be hired by the Contractor and shall be approved by the Building Official and the Architect. Contractor shall submit to owner the name and qualifications of the Structural Inspector(s).

Special Inspector shall maintain records of inspections in accordance with Chapter 17 of the Building Code and shall distribute these records to the Building Official, Architect, and Structural Engineer on a weekly basis, unless noted otherwise below. Reports shall indicate that work inspected/tested was done in conformance to the Construction Documents. Discrepancies shall be brought to the immediate attention of the Contractor for correction. If the discrepancies are not corrected, they shall be brought to the attention of the Building Official, Architect, and Structural Engineer prior to completion of that phase of the work.

At the conclusion of the project, the Special Inspector shall submit a final report documenting required special inspections and correction of any discrepancies noted in the inspections.

STATEMENT OF SPECIAL INSPECTIONS

- Special Inspector shall perform the following tests and inspections of all structural elements included within this Statement of Special Inspections.
- The following elements are part of the Seismic-Force-Resisting (SFR) System, and require additional Special Inspections or Testing for Seismic Resistance:
 - Moment Frames and their Foundations
 - Floor and Roof Diaphragms
 - The following tables contain material, components and work that require special inspection or testing:
 - Inspection Frequency, C – Continuous special inspection. Special inspection by the special inspector who is present when and where the work to be inspected is being performed.
 - Inspection Frequency, P – Periodic special inspection. Special inspection by the special inspector who is intermittently present where the work to be inspected has been or is being performed. For structural steel, observe the items on a random basis.
 - See Steel section for additional information for inspection tasks.



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 Dhunna Gas Station - Crystal Springs
 Date: 5/8/2023
 Project No: 20230210001
 Highway 27, Crystal Springs, MS 39059
 New Construction
 Construction Documents
 Revision # Rev Date
 Structural Notes
 S 101 A

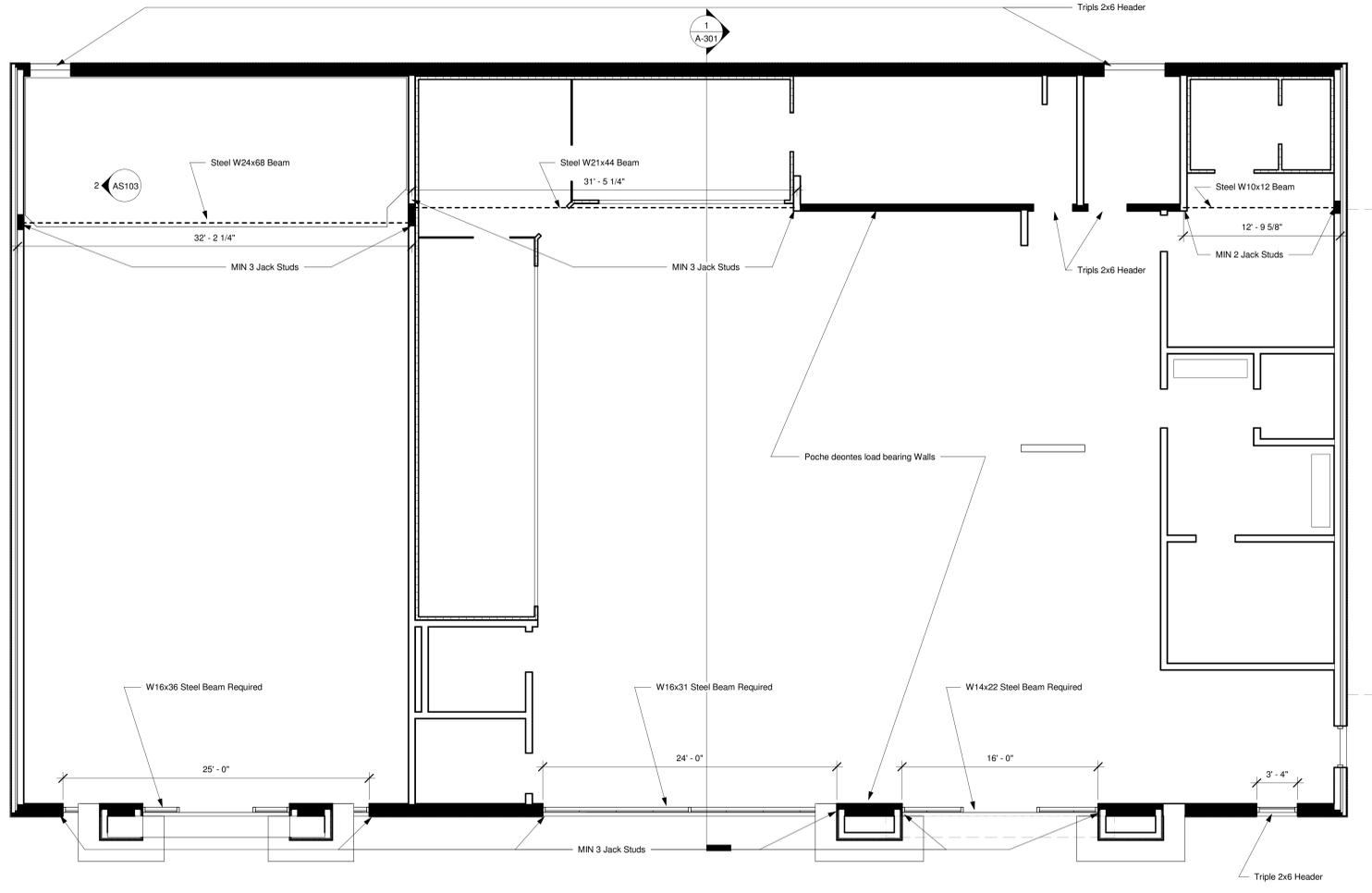
MS CONSTRUCTION LAW: 1. PURSUANT TO SECTION 73-1-39, PRIVATELY OWNED BUILDINGS THAT ARE THREE (3) STORIES IN HEIGHT OR MORE, OR BUILDINGS THAT ARE MORE THAN 100 SQUARE FEET, UNLESS THE PROJECT IS SPECIFICALLY EXEMPTED BY SECTION 73-1-38, 2. PURSUANT TO SECTION 73-1-38, PRIVATELY OWNED BUILDINGS OWNED BY THE STATE OF MISSISSIPPI IF THE PROJECT CONTAINS MORE THAN TEN THOUSAND (10,000) SQUARE FEET OF GROUND FLOOR AREA, OR IF THE PROJECT IS THREE (3) OR MORE STORIES IN HEIGHT, UNLESS SPECIFICALLY EXEMPTED BY SECTION 73-1-38.



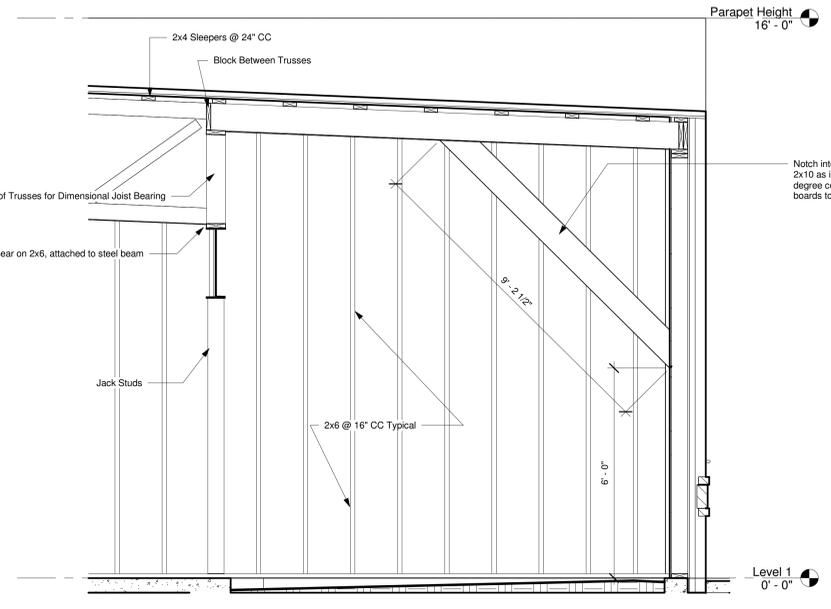
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General Notes

1. All Wood Framing Members shall be #2 Southern Pine or better.
2. Where horizontal members cannot bear on load bearing plates, steel ties shall be used.
3. All connections shall have the number of recommended fasteners per IRC framing regulations.
4. All wood members that are in direct contact with concrete shall be treated.
5. All Wall framing shall be 2x4 @ 16" CC.
6. Typical 2x6 Box Header at all Openings unless noted otherwise.
7. All Built up Beams shall be glued & screwed.
8. Block at end of framing. For joist larger than 2x8, block every 6" CC.
9. Truss supplier shall provide engineered submittals for Architectural review.
10. Truss design by manufacturer shall follow all points listed under 2304.4 of the IBC 2018 Edition.
11. MANUFACTURED TRUSSES
 - A. LATERAL SUPPORT
 - A. Trusses must be laterally supported at end supports (including supports adjacent to overhangs) with hangers or blocking.
 - B. Install 2x4 above bottom chord @ 6" CC for entire length of building for lateral support.
 - B. MINIMUM BEARING LENGTH
 - A. Minimum end bearing: 3" for all trusses.
12. METAL BUILDING TIES
 - A. Install Hurricane Ties @ Every Joist connection at top plate at exterior wall and at top of beams at interior supports.
 - B. Install foundation ties per foundation plan.
 - C. Install Metal x-Brace Ties @ 9' Centers between all ceiling joists.
 - D. Install Column Connection per detail.



① First Floor Framing
3/16" = 1'-0"



② Framing Elevation @ Corners
1/2" = 1'-0"

Dhunna Gas Station - Crystal Springs

Project No 20230210001 Date 5/8/2023

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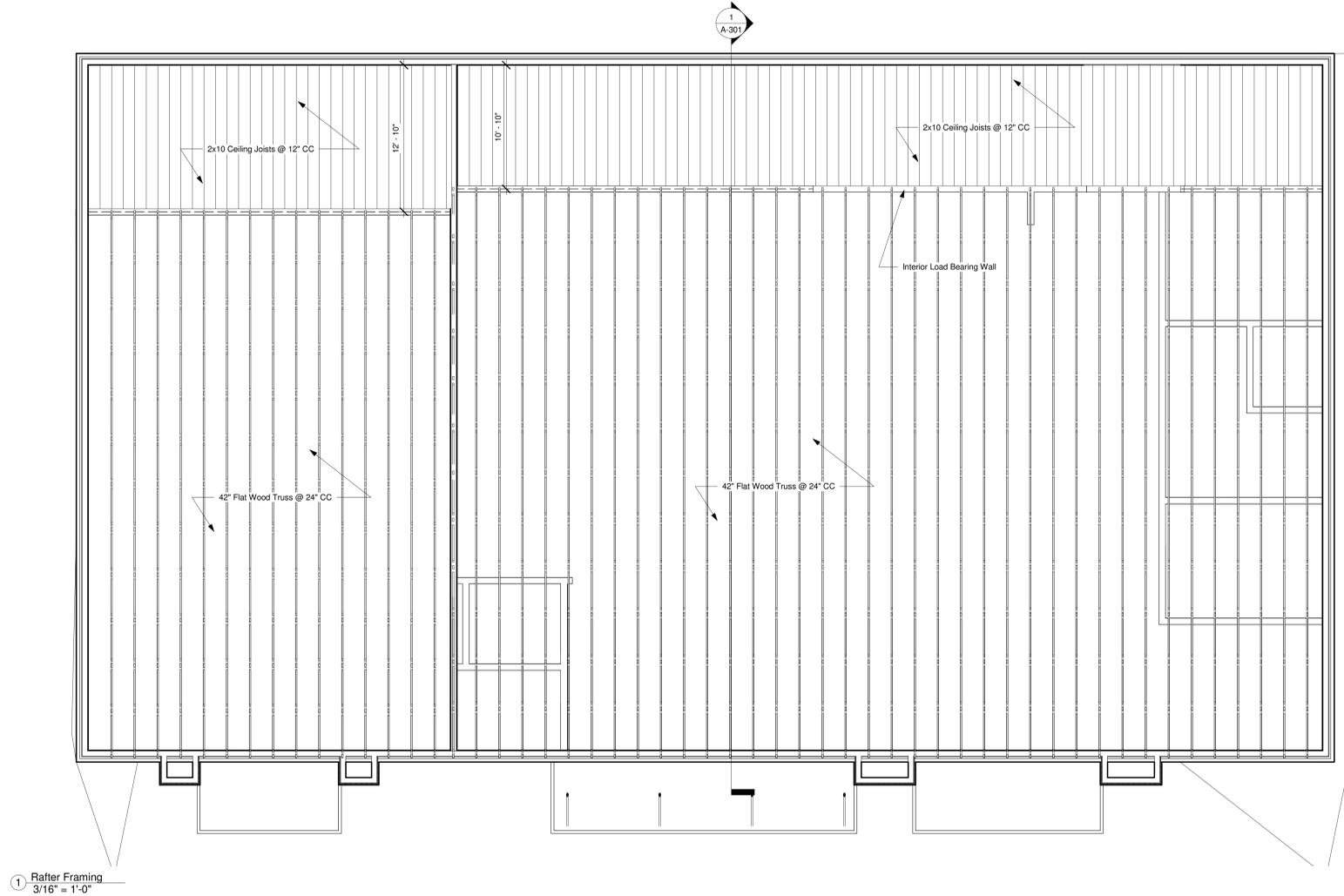
HWY 27, Crystal Springs, MS 39059
New Construction

Construction Documents

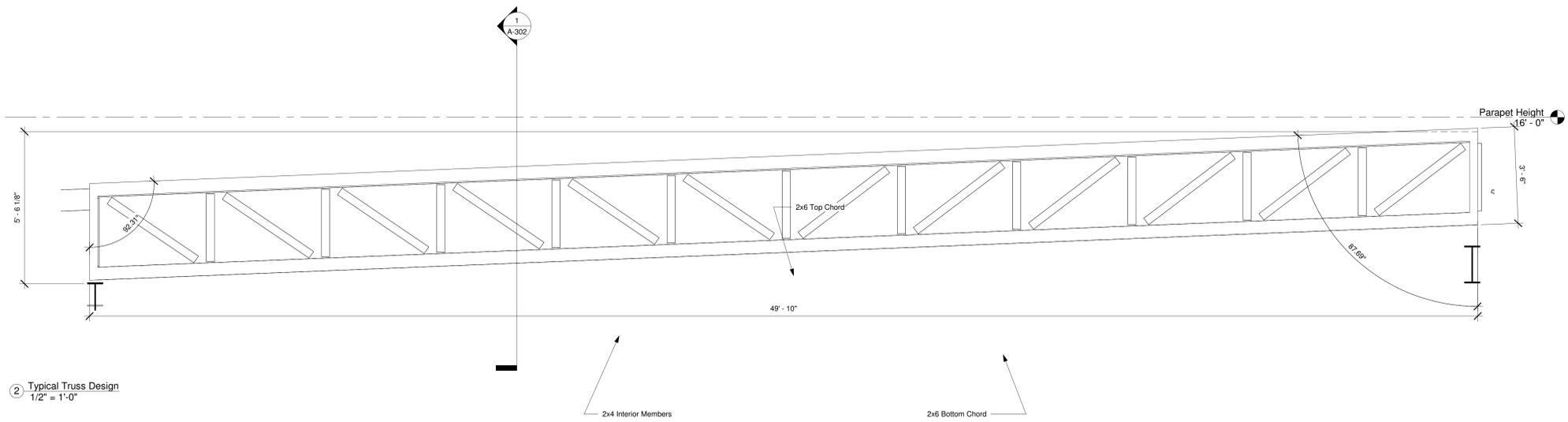
Revision	#	Rev Date

Framing & Section Details

S 103
A



① Rafter Framing
3/16" = 1'-0"



② Typical Truss Design
1/2" = 1'-0"

*** Use manufacturers standard truss plate at all connections ***

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 - B. Install foundation ties per foundation plan.
 - C. Install Metal x-Brace Ties @ 9' Centers between all ceiling joists.
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Project No. 20230210001 Date 5/8/2023

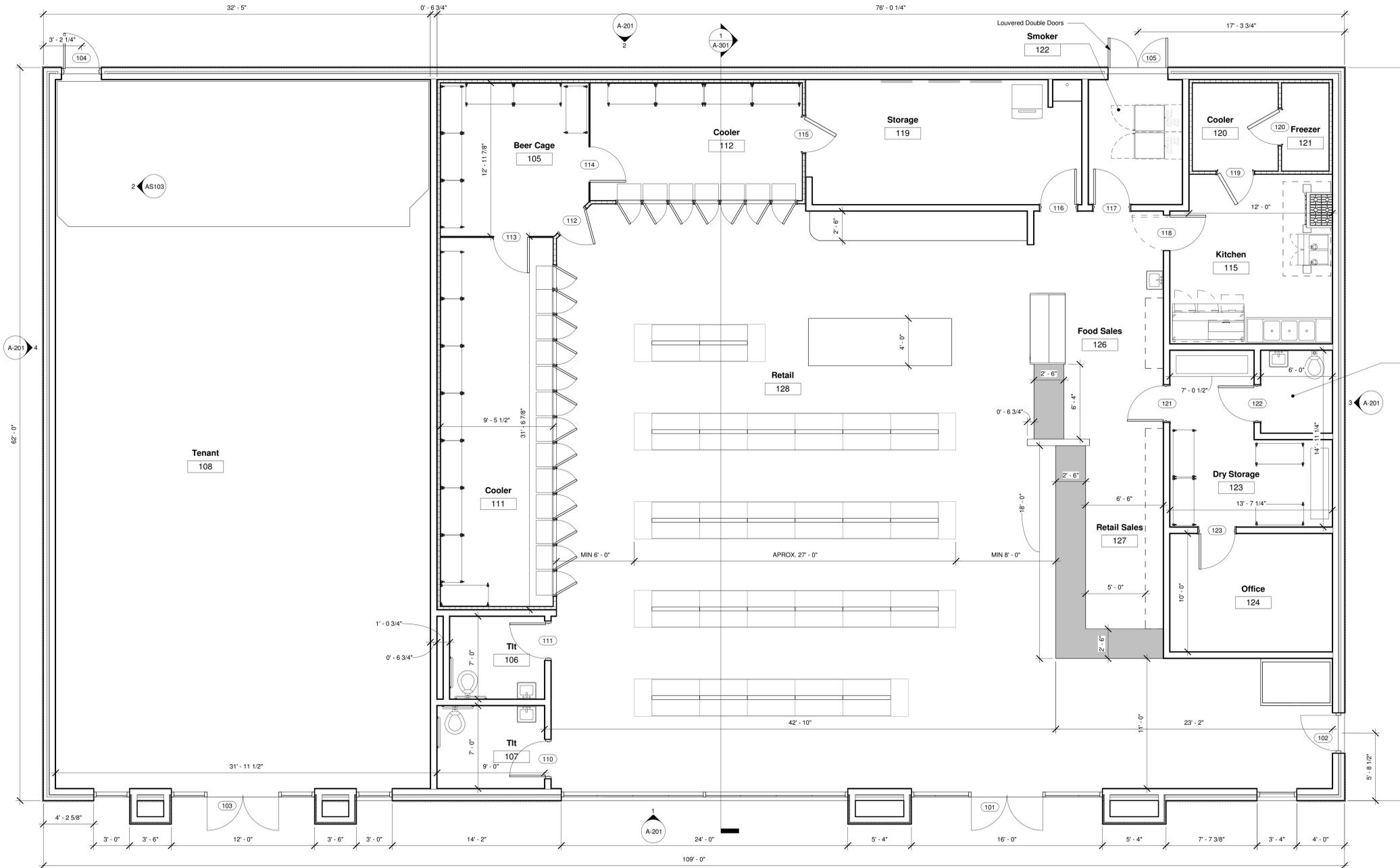
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HWY 27, Crystal Springs, MS 39059
New Construction

Construction Documents		
Revision	#	Rev Date
CD	3	5/8/23

Framing & Section Details

S 104
A



1 Floor Plan
1/4" = 1'-0"

Door Schedule

Mark	Height	Width	Frame Material	Description	Finish	Operation	Hinges	Locket Type	#
101	7'-0"	6'-0"	Aluminum	Thin Framed Full Height Lite	Prefinished	Swing	Full Height Hinge	Passage w Closer, DB, & Flush Bolt	101
102	7'-0"	3'-0"	Aluminum	Thin Framed Full Height Lite	Prefinished	Swing	Full Height Hinge	Passage w Closer & DB	102
103	7'-0"	6'-0"	Aluminum	Thin Framed Full Height Lite	Prefinished	Swing	Full Height Hinge	Passage w Closer, DB, & Flush Bolt	103
104	7'-0"	3'-0"	Steel	Hollow Metal Panel	Painted	Swing	1-1/2 Pair	Panic Hardware w Keyed Lever Ext.	104
105	7'-0"	5'-0"	Steel	Hollow Metal Panel	Painted	Swing	1-1/2 Pair	Panic Hardware w Keyed Lever Ext. & Flush Bolt	105
110	7'-0"	3'-0"	Steel	Hollow Metal Panel	Painted	Swing	Full Height Hinge	Passage w Closer & DB (include exterior Privacy indicator)	110
111	7'-0"	3'-0"	Steel	Hollow Metal Panel	Painted	Swing	Full Height Hinge	Passage w Closer & DB (include exterior Privacy indicator)	111
112	7'-0"	3'-0"	Per Manf.	Thin Framed Full Height Lite	Prefinished	Swing	1-1/2 Pair	Passage w Weather Seal & Closer	112
113	6'-0"	3'-0"	Fencing	Fencing	Fencing	Swing	1-1/2 Pair	Passage	113
114	6'-0"	3'-0"	Fencing	Fencing	Fencing	Swing	1-1/2 Pair	Passage	114
115	7'-0"	3'-0"	Per Manf.	Insulated Door Solid Door Panel	Per Manf.	Swing	1-1/2 Pair	Passage	115
116	7'-0"	3'-0"	Steel	Hollow Metal Panel	Painted	Swing	1-1/2 Pair	Keyed Storage	116
117	7'-0"	3'-0"	Steel	Hollow Metal Panel	Painted	Swing	1-1/2 Pair	Passage	117
118	7'-0"	3'-0"	Steel	Stainless Double Action Door	Prefinished	Double Action Swing	1-1/2 Pair	Spring Hinges	118
119	7'-0"	3'-0"	Per Manf.	Insulated Door Solid Door Panel	Per Manf.	Swing	1-1/2 Pair	Passage	119
120	7'-0"	3'-0"	Per Manf.	Insulated Door Solid Door Panel	Per Manf.	Swing	1-1/2 Pair	Passage	120
121	7'-0"	3'-0"	Steel	Hollow Metal Panel	Painted	Swing	1-1/2 Pair	Keyed Storage	121
122	7'-0"	3'-0"	Steel	Wood Veneered Panel	Sealed	Swing	1-1/2 Pair	Privacy	122
123	7'-0"	3'-0"	Steel	Wood Veneered Panel	Sealed	Swing	1-1/2 Pair	Privacy	123

Room Schedule

Number	Name	Area	Perimeter	Ceiling Finish	Wall Finish	Floor Finish	Base Finish	Comments	#
105	Beer Cage	158 SF	49' - 2 1/8"	Insulated Metal Panel	Insulated Metal Panel	Quarry Tile	Cove Base		105
106	Tlt	56 SF	29' - 10 1/2"	Vinyl Covered ACT	Full Height Wall Tile	Floor Tile	Cove Base		106
107	Tlt	63 SF	32' - 0"	Vinyl Covered ACT	Full Height Wall Tile	Floor Tile	Cove Base		107
108	Tenant	1882 SF	182' - 8 1/2"	Unfinished	Unfinished	Unfinished	Unfinished		108
111	Cooler	295 SF	81' - 4 1/8"	Insulated Metal Panel	Insulated Metal Panel	Quarry Tile	Cove Base		111
112	Cooler	177 SF	55' - 3 1/8"	Insulated Metal Panel	Insulated Metal Panel	Quarry Tile	Cove Base		112
115	Kitchen	190 SF	55' - 10 1/2"	Vinyl Covered ACT	Grey FRP	Quarry Tile	Cove Base		115
119	Storage	242 SF	72' - 3 3/4"	Unfinished	Painted Plywood	Quarry Tile	Cove Base		119
120	Cooler	54 SF	29' - 3 3/4"	Insulated Metal Panel	Insulated Metal Panel	Quarry Tile	Cove Base		120
121	Freezer	30 SF	22' - 10 3/4"	Insulated Metal Panel	Insulated Metal Panel	Quarry Tile	Cove Base		121
122	Smoker	83 SF	36' - 9 1/2"	Painted Plywood	Painted Plywood	Quarry Tile	Cove Base		122
123	Dry Storage	154 SF	57' - 1"	2x2 ACT	5/8" Drywall	Floor Tile	Rubber Base		123
124	Office	136 SF	47' - 2 1/2"	2x2 ACT	5/8" Drywall	Floor Tile	Rubber Base		124
125	Tlt	42 SF	26' - 0"	2x2 ACT	Full Height Wall Tile	Floor Tile	Cove Base		125
126	Food Sales	220 SF	61' - 10 3/4"	2x2 ACT	5/8" Drywall	Floor Tile	Rubber Base		126
127	Retail Sales	164 SF	54' - 6 3/4"	2x2 ACT	5/8" Drywall	Floor Tile	Rubber Base		127
128	Retail	2265 SF	227' - 9 1/4"	2x2 ACT & WD Look Tile	5/8" Drywall	Floor Tile	Rubber Base		128

General Finish Notes

- All dimensions pulled from face of wall covering.
- +/- Dimensions allow for some tolerance in construction. If dimension varies more than 2% from indicated, notify Architect.
- Coordinate all plumbing, mechanical, & electrical fixtures with their respective plans. Discrepancies between fixture locations between MPE plans and architectural should be brought up to the Architect as soon as possible.
- Coordinate all window and doors openings at exterior walls with elevations.

General Roof Notes

- Roof insulation shall be open cell spray foam with a depth of 6 inches at the underside of the roof deck.
- Roofing to be standing seam metal roof panels with 1-3/4" MIN seams.



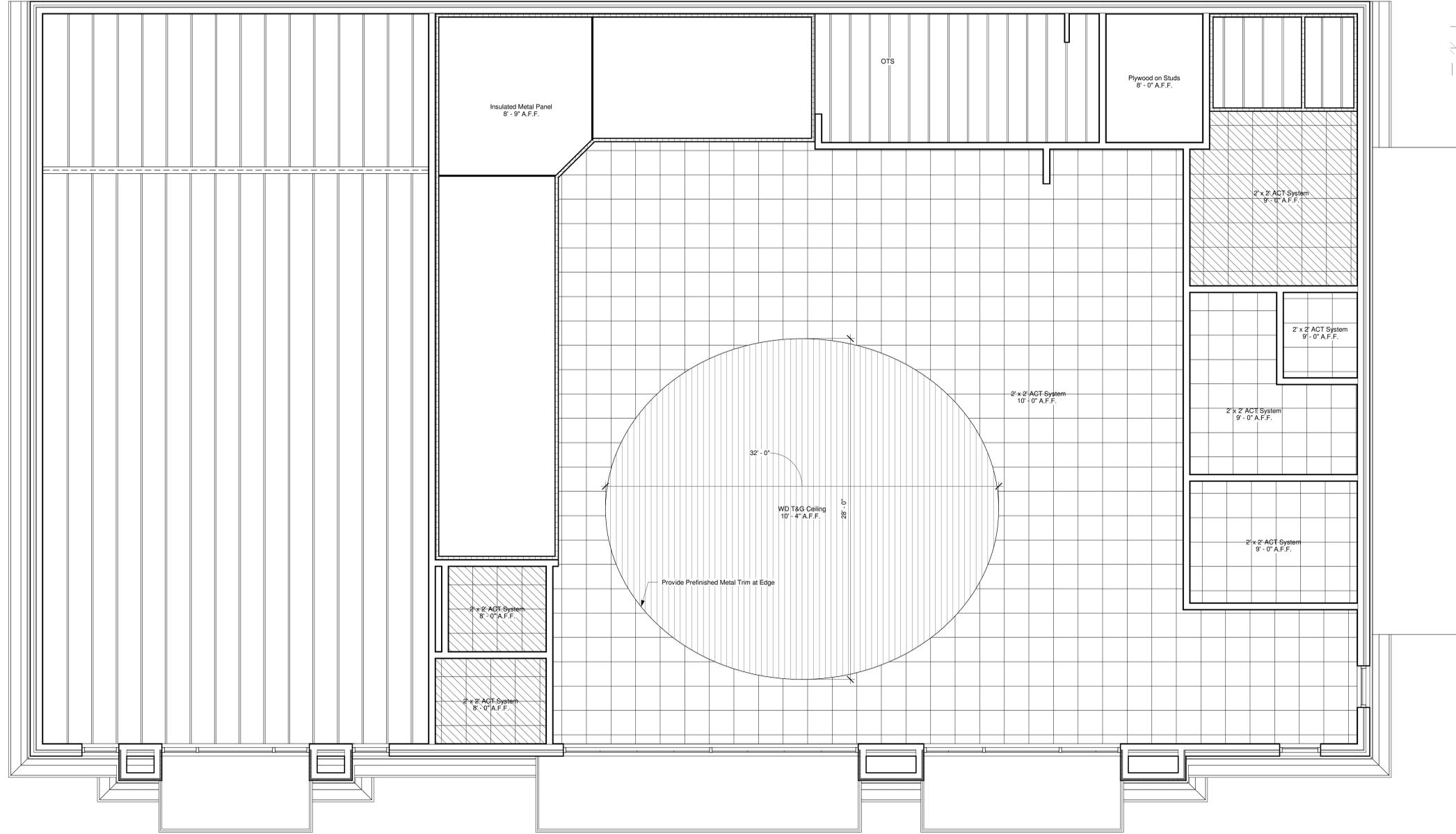
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HWY 27, Crystal Springs, MS 39059
 New Construction

Construction Documents		
Revision	#	Rev Date
DD	2	1/14/23
CD	3	5/8/23

First Floor

101
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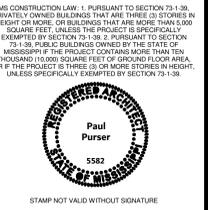


1 Reflected Ceiling Plan
1/4" = 1'-0"

General Ceiling Notes

- Any Ceiling Patterns not identified below are open to the structure above and do not require finishing.

- 2x2 Lay In Tile w Tegular Edge
- 2x2 Lay In Tile w Vinyl Covering
- Rigid Vinyl Tile - Impressed with Wood Texture



Dhunna Gas Station - Crystal Springs

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Date 5/8/2023

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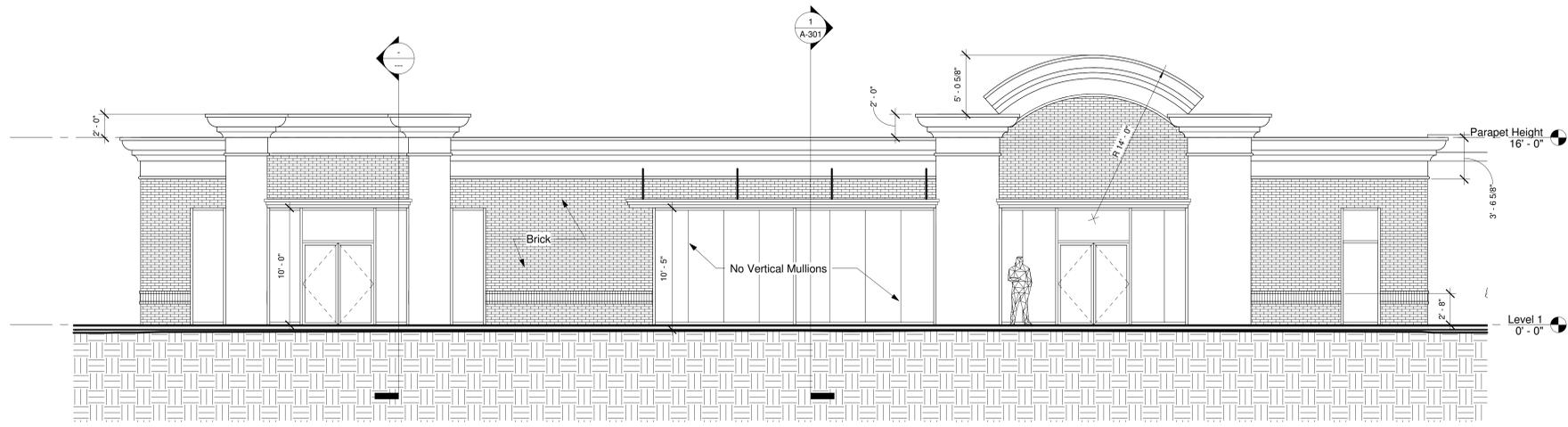
HWY 27, Crystal Springs, MS 39059
New Construction

Construction Documents

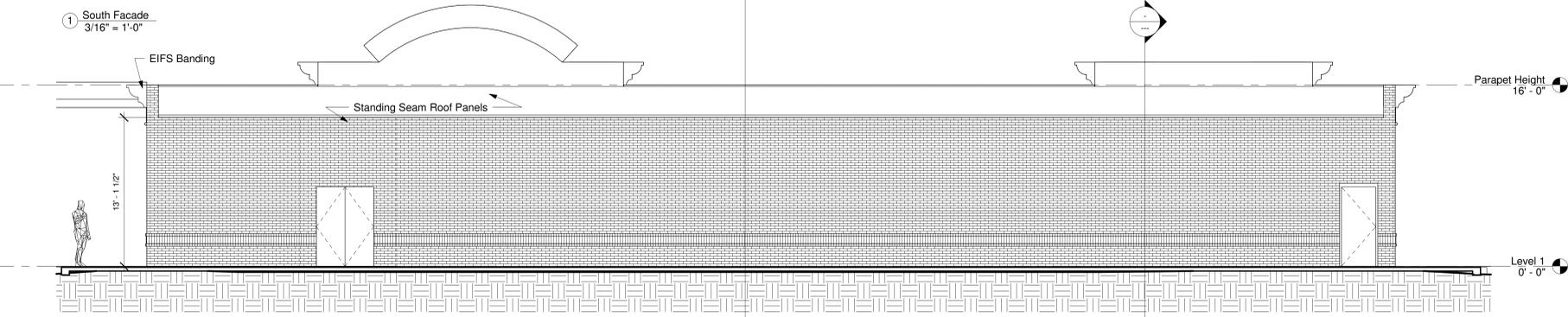
Revision	#	Rev Date

Reflected Ceiling Plan

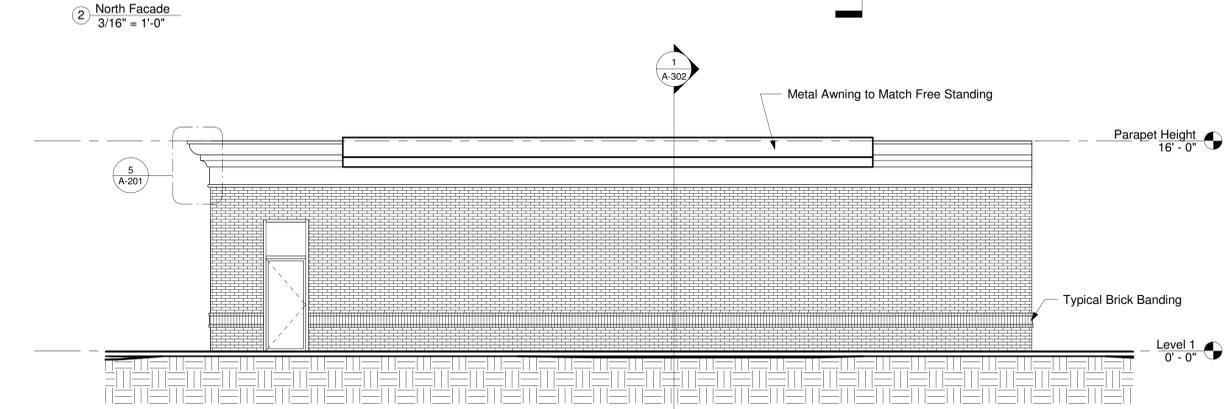
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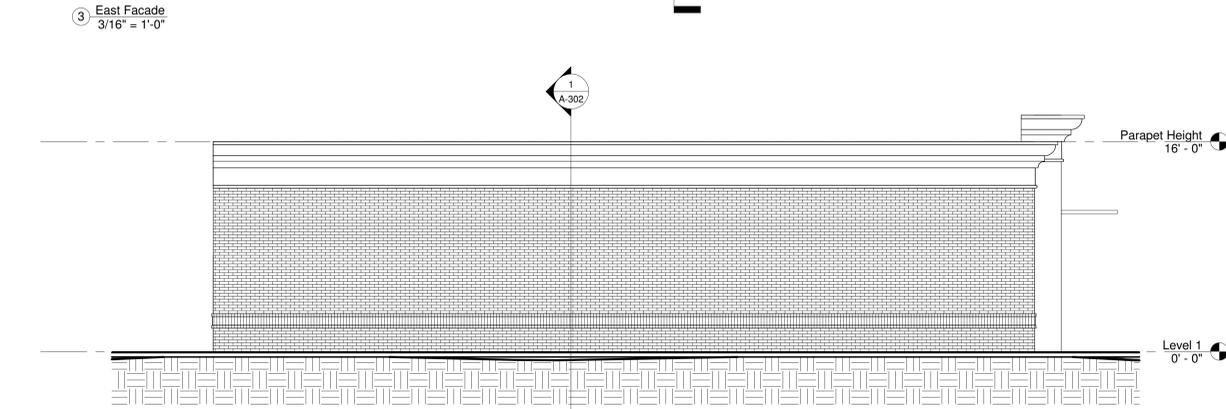
1 South Facade
3/16" = 1'-0"



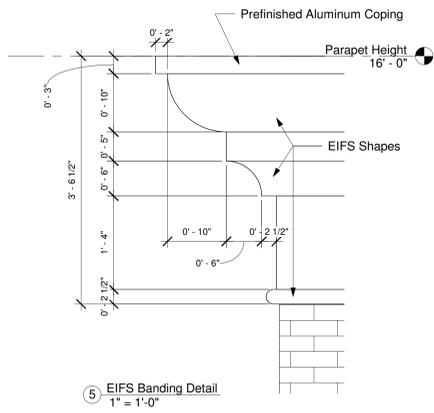
2 North Facade
3/16" = 1'-0"



3 East Facade
3/16" = 1'-0"



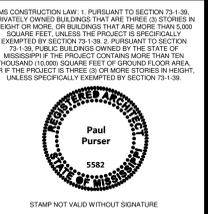
4 West Facade
3/16" = 1'-0"



5 EIFS Banding Detail
1" = 1'-0"

General Notes

1. Coordinate Brick Color with Owner.
2. Coordinate EIFS Color with Owner.
3. Coordinate Awning Color with Owner.
4. Provide mounting brackets thru brick to structure for awnings.



Dhunna Gas Station - Crystal Springs

Date

5/8/2023

Project No

20230210001

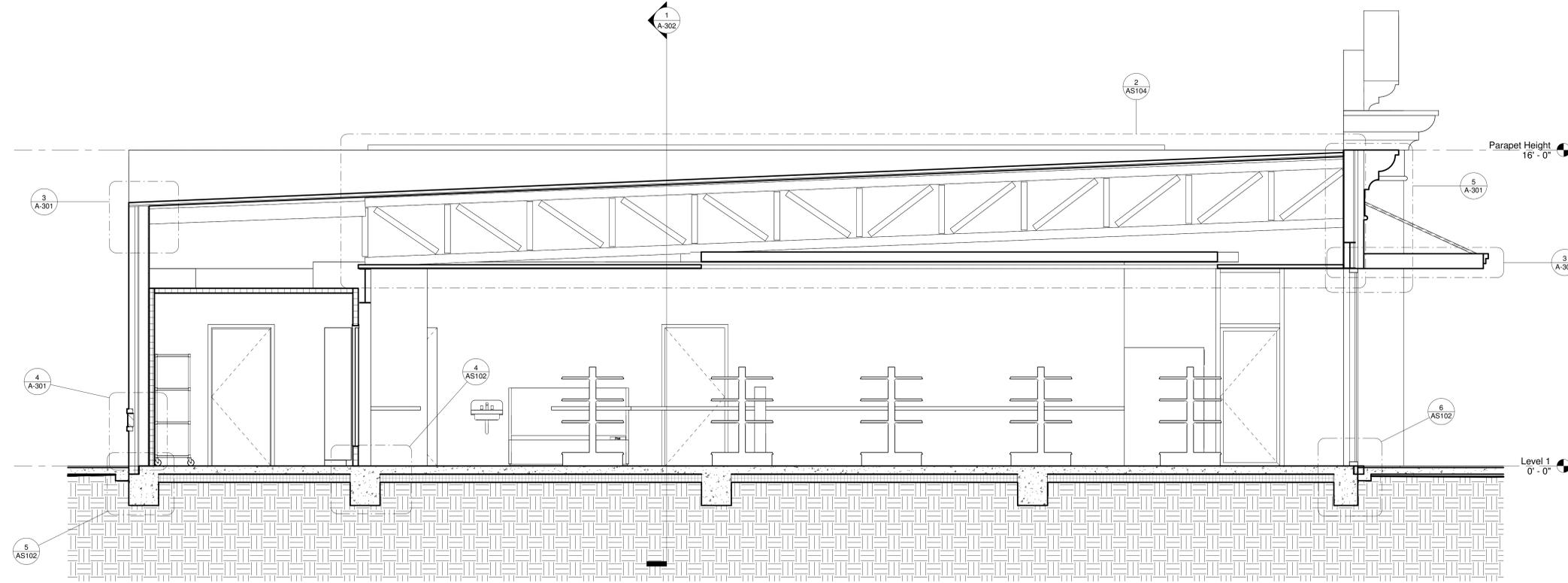
Construction Documents

Revision	#	Rev Date
DD	2	1/14/23
CD	3	5/8/23

Building Elevations

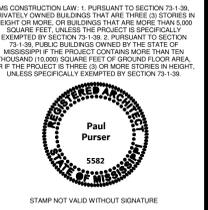
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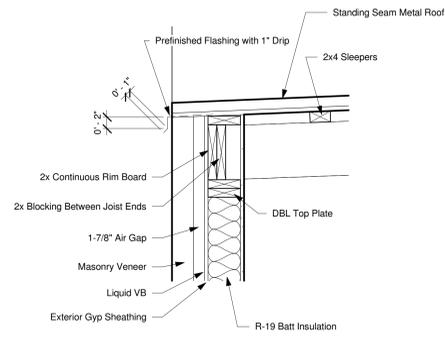


General Section Notes

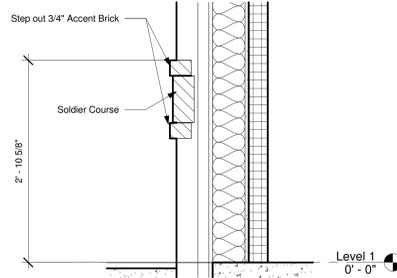
1. Exterior air/water barrier and thermal insulation to be installed so as to provide a continuous separation of the building exterior from all interior occupied or conditioned spaces.
2. All anchors, fasteners, relief angles and attachment devices to be hot dipped galvanized steel.
3. All wood framing unless noted otherwise.



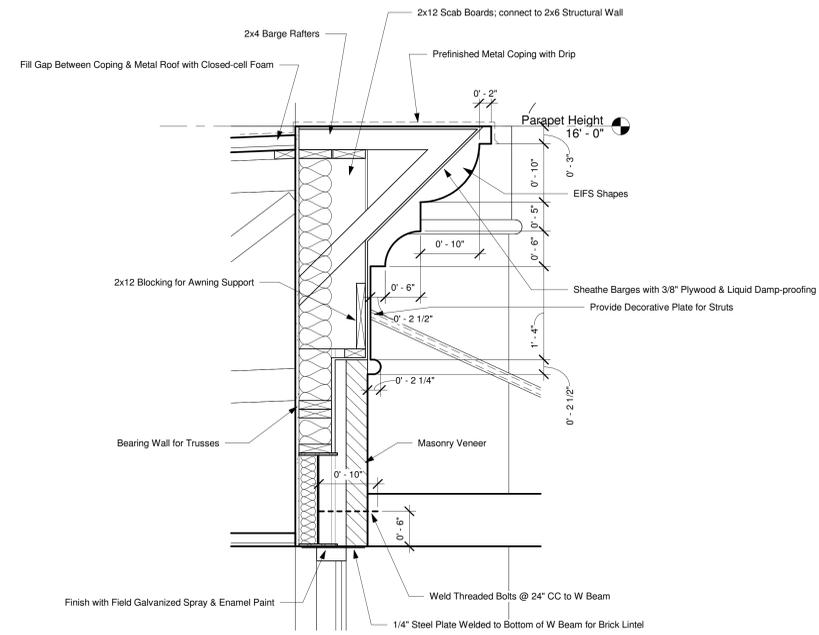
1 N/S Building Section
3/8" = 1'-0"



3 Typical Lower Soffit Detail
1" = 1'-0"



4 Typical Wall Detail
1" = 1'-0"



5 Typical Upper Soffit Detail
1" = 1'-0"

Dhunna Gas Station - Crystal Springs

Project No. 20230210001 Date 5/8/2023

PURSER & COMPANY | 601.376.9647 DRAWINGS@PURSERANDCOMPANY.COM

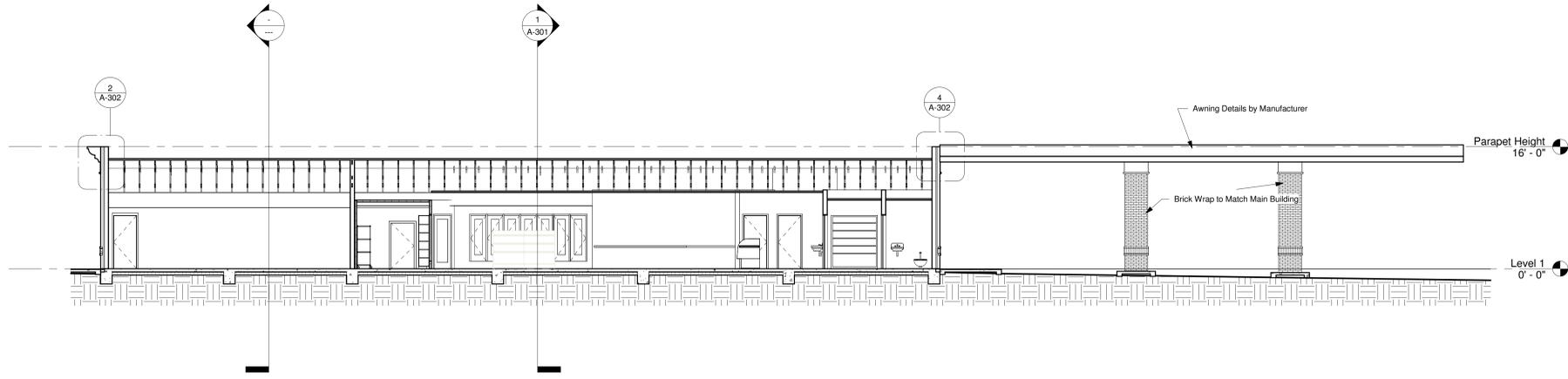
HWY 27, Crystal Springs, MS 39059
New Construction

Construction Documents

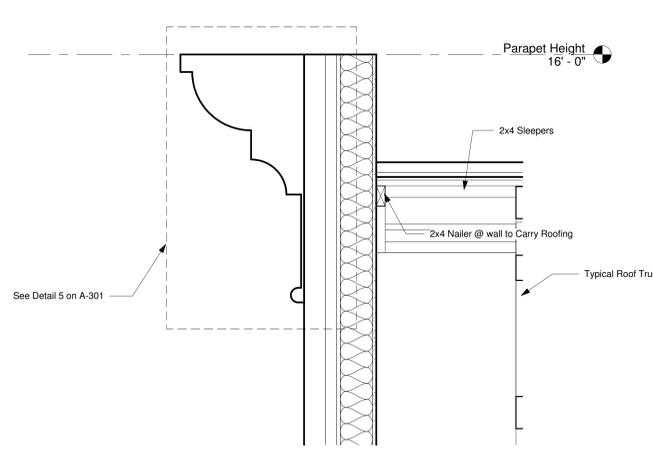
Revision	#	Rev Date
DD	2	1/14/23
CD	3	5/8/23

Building Sections

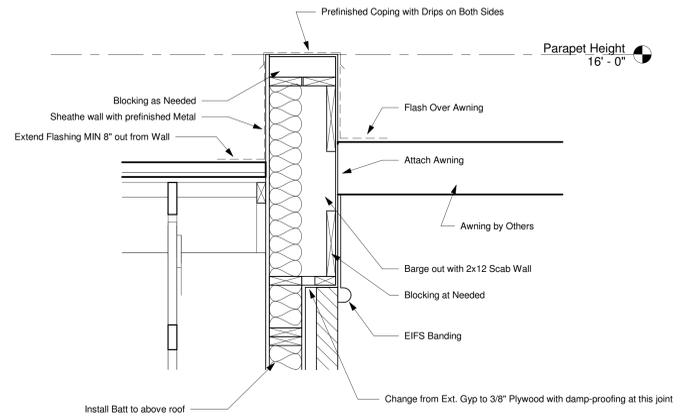
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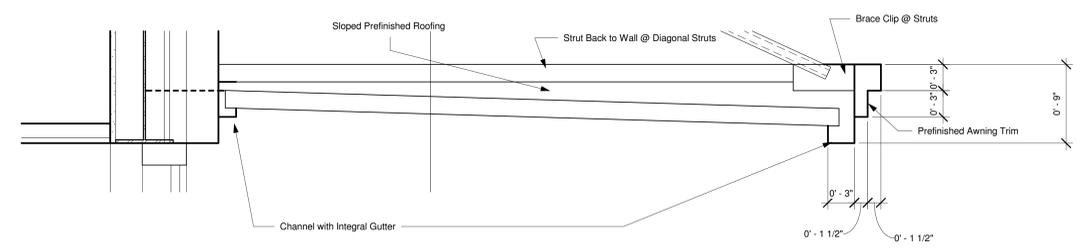
1 E/W Building Section
1/8" = 1'-0"



2 Parapet Detail
1" = 1'-0"



4 Trucker Awning Connection
1" = 1'-0"



3 Typical Awning Detail
1 1/2" = 1'-0"

General Notes

1. All Wood Framing Members shall be #2 Southern Pine or better.
2. Where horizontal members cannot bear on load bearing plates, steel ties shall be used.
3. All connections shall have the number of recommended fasteners per IRC framing regulations.
4. All wood members that are in direct contact with concrete shall be treated.
5. All Wall Framing shall be 2x4 @ 16" CC.
6. Typical 2x6 Box Header at all Openings unless noted otherwise.
7. All Built up Beams shall be glued & screwed.
8. Block all end of framing. For joist larger than 2x8, block every 6' CC.
9. Truss supplier shall provide engineered submittals for Architectural review.
10. Truss design by manufacturer shall follow all points listed under 2304.4 of the IBC 2018 Edition.
11. MANUFACTURED TRUSSES
 - A. LATERAL SUPPORT
 1. Trusses must be laterally supported at end supports (including supports adjacent to overhangs) with hangers or blocking.
 2. Install 2x4 above bottom chord @ 6' CC for entire length of building for lateral support.
 - B. MINIMUM BEARING LENGTH
 1. Minimum end bearing: 3' for all trusses.
12. METAL BUILDING TIES
 - A. Install Hurricane Ties @ Every Joist connection at top plate at exterior wall and at top of beams at interior supports.
 - B. Install foundation ties per foundation plan.
 - C. Install Metal x-Brace Ties @ 9' Centers between all ceiling joists.
 - D. Install Column Connection per detail.

MS CONSTRUCTION LAW: 1. PURSUANT TO SECTION 73-1-39, PRIVATELY OWNED BUILDINGS THAT ARE THREE (3) STORIES IN HEIGHT OR MORE, OR BUILDINGS THAT ARE MORE THAN 4,000 SQUARE FEET, OR BUILDINGS THAT ARE MORE THAN 4,000 SQUARE FEET, OR BUILDINGS OWNED BY THE STATE OF MISSISSIPPI IF THE PROJECT CONTAINS MORE THAN TEN THOUSAND (10,000) SQUARE FEET OF GROUND FLOOR AREA, OR IF THE PROJECT IS THREE (3) OR MORE STOREYS IN HEIGHT, UNLESS SPECIFICALLY EXEMPTED BY SECTION 73-1-39.

STAMP NOT VALID WITHOUT SIGNATURE

Dhunna Gas Station - Crystal Springs

Project No. 20230210001
Date: 5/8/2023

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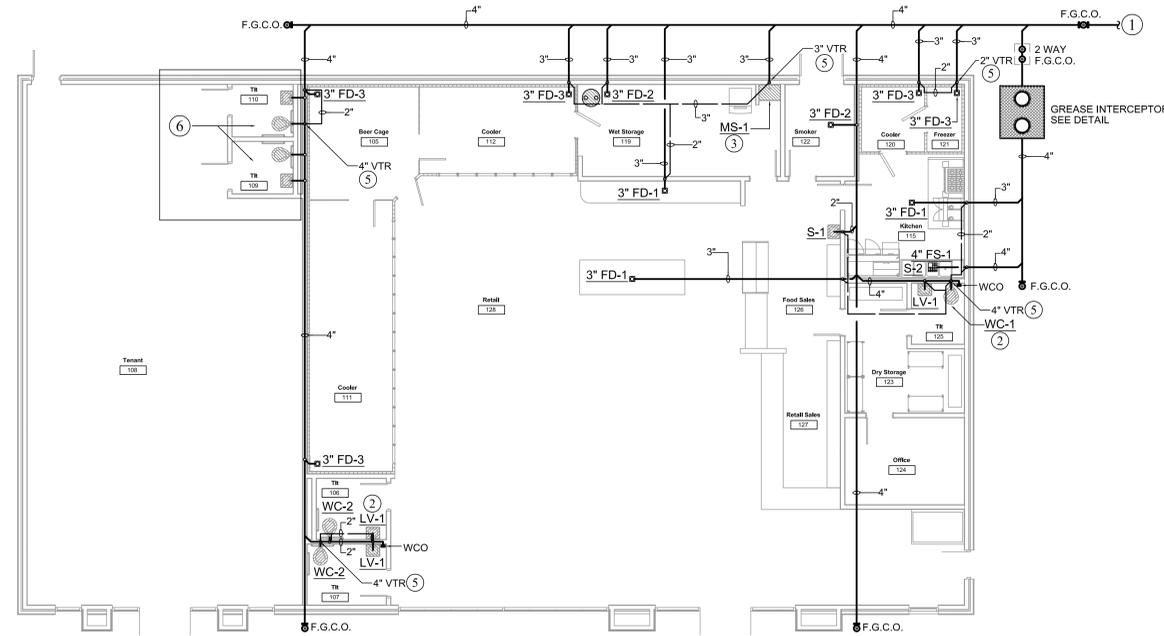
HWY 27, Crystal Springs, MS 39059
New Construction

Construction Documents

Revision	#	Rev Date

Building Sections

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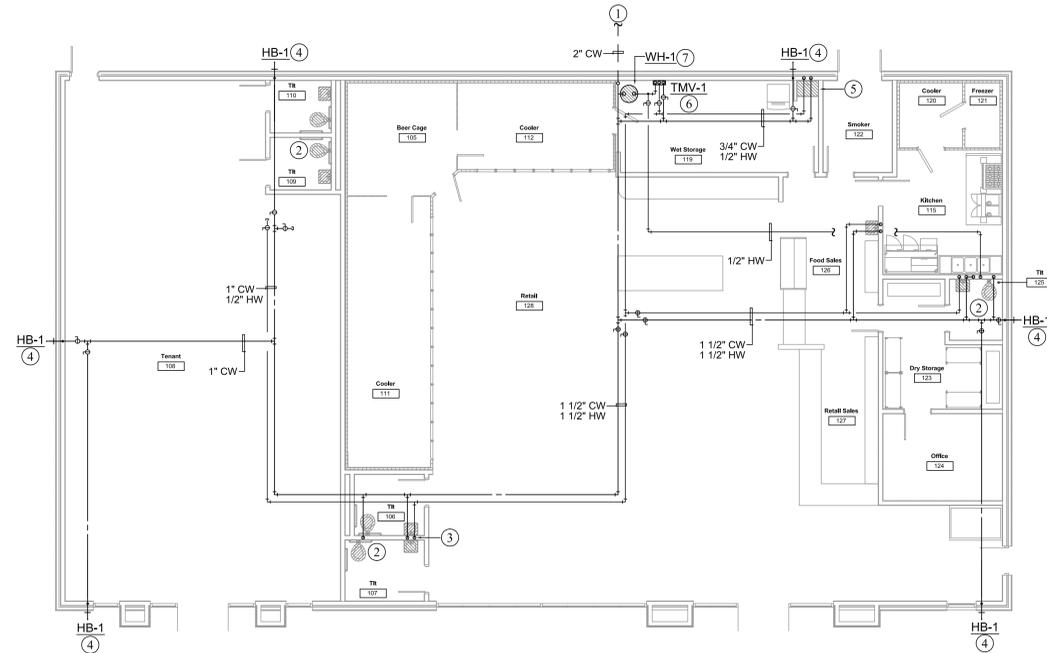


GENERAL NOTES:

- CONTRACTOR TO INSTALL PLUMBING ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
- SLOPE AND SUPPORT ALL PIPING PER CODE REQUIREMENTS. PROVIDE AND INSTALL UL LISTED FIRE STOP COLLARS AND FIRE CAULK ALL PLUMBING PENETRATIONS AT RATED WALL AND FLOOR ASSEMBLIES.
- NOTIFY THE ENGINEER 48 HOURS BEFORE THE WASTE AND VENT PIPING SYSTEM WILL BE PRESSURE TESTED ACCORDING TO 2018 INTERNATIONAL PLUMBING CODE.
- NOTIFY THE ENGINEER 48 HOURS BEFORE ANY PIPING ABOVE THE SLAB IN THE WALLS OR CEILINGS IS COVERED. FAILURE TO NOTIFY ENGINEER FOR INSPECTION WILL CAUSE ALL PIPING TO BE UNCOVERED AND PRESSURE TESTED IN THE PRESENCE OF THE ENGINEER.
- ALL BELOW GRADE SANITARY SEWER AND VENT PIPING TO BE SCHEDULE 80 PVC WITH SOLVENT WELD JOINTS. ALL ABOVE GRADE WASTE AND VENT TO BE SCHEDULE 40 PVC WITH SOLVENT JOINTS. INSTALL PIPING, JOINTS, AND FITTINGS PER MANUFACTURER'S RECOMMENDATIONS. WASTE PIPING SHOWN ON THIS DRAWING IS ROUTED BELOW THE FLOOR AND INSIDE THE WALLS TO FIXTURE ROUGH IN LOCATIONS.
- ALL VENT PIPING SHOWN IS IN THE WALL AND ABOVE CEILING EXCEPT WHERE OTHERWISE NOTED.
- ALL BELOW GRADE PIPE TRENCHES SHALL BE BACKFILLED WITH SELECT SANDY CLAY MATERIAL, AND STAMPED TO PROVIDE CONTINUOUS PIPE SUPPORT. SLOPE AND SUPPORT ALL PIPING ACCORDING TO THE INTERNATIONAL PLUMBING CODE.
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- ALL PLUMBING ON THIS PROJECT WILL BE CONCEALED BELOW FLOOR, ABOVE CEILING, IN WALL, IN CHASE, OR ELSE AS PER ENGINEER.
- COORDINATE VENT STACK THRU ROOF TO BE MINIMUM 15 FEET FROM ANY FRESH AIR INTAKE.
- SUPPLY WATER PIPING TO BE HARD DRAWN TYPE 'L' COPPER TUBING WITH SOLDERED FITTINGS.
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NUMBERED NOTES:

- ① ROUTE SANITARY WASTE PIPING BELOW GRADE TO APPROVED POINT OF CONNECTION ON PUBLIC SANITARY SEWER SYSTEM. PLUMBING CONTRACTOR RESPONSIBLE FOR INSTALLING COMPLETE PLUMBING SYSTEM AS SHOWN TO A POINT APPROXIMATELY FIVE FEET FROM THE BUILDING FOUNDATION. PLUMBING CONTRACTOR TO COORDINATE IN ADVANCE WITH THE SITE CONTRACTOR IN REGARD TO ALL UTILITY CONNECTION POINTS. FIELD VERIFY THE INVERT ELEVATION OF ANY EXISTING SYSTEMS IF APPLICABLE AND ROUTE NEW PIPING ACCORDINGLY. SEE CIVIL SITE UTILITY PLAN FOR CONTINUATION AND COORDINATE WITH UTILITY PROVIDER FOR THE CONNECTION POINT TO PUBLIC SANITARY SEWER. INSTALL FINISH GRADE CLEANOUTS AT EACH CHANGE OF DIRECTION AND EVERY 75 FEET ALONG ROUTE AS REQUIRED.
- ② PROVIDE AND INSTALL NEW PLUMBING FIXTURES AS SHOWN. ROUTE NEW SANITARY SEWER PIPING BELOW GRADE TO EACH FIXTURE. ROUGH IN 4" WASTE PIPING TO EACH WATER CLOSET AND 2" WASTE TO LAVATORIES. VENT EACH FIXTURE TRAP UP IN WALL TO CONNECT TO PLUMBING VENT PIPING. SEE PLUMBING FIXTURE SCHEDULE FOR ADDITIONAL INFORMATION.
- ③ ROUGH-IN 3" WASTE PIPING TO NEW SERVICE SINK. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. CONTINUE PLUMBING VENT PIPING UP TO ABOVE THE CEILING AND CONNECT TO VENT PIPING THRU THE ROOF.
- ④ PROVIDE AND INSTALL NEW 3" FLOOR DRAIN WITH WITH SURESEAL TRAP SEAL.
- ⑤ ROUTE VENT PIPING UP THROUGH GALVANIZED ROOF JACK FLASHING AND TERMINATE 12" ABOVE ROOF LEVEL. COORDINATE WITH ARCHITECTURAL.
- ⑥ CONTRACTOR TO STUB UP AND ROUGH IN APPROPRIATE SIZED WASTE PIPING FOR FUTURE FIXTURE CONNECTION (S). CAP AND PLUG PIPE AT PENETRATION. TYPICAL.



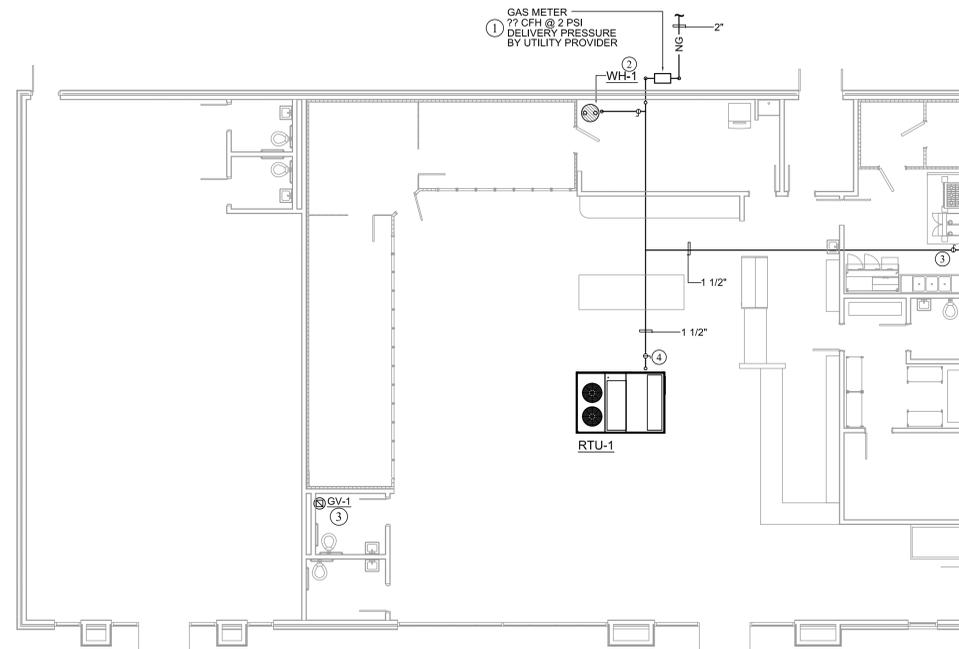
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- LICENSED GAS CONTRACTOR TO BE EXPERIENCED IN DESIGN AND INSTALLATION OF LP GAS PIPING SYSTEM PER NFPA 58, NFPA 54, AND INTERNATIONAL FUEL GAS CODE, CURRENT EDITIONS.
- ALL NATURAL GAS PIPING ON THIS PROJECT SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED FITTINGS. EXPOSED PIPING TO BE WIRE BRUSHED, CLEANED, PAINTED WITH TWO COATS OF RUST RESISTANT PRIMER, AND THEN PAINTED TO MATCH THE NEW GAS METER.
- VALVES TO BE BRONZE FULL PORT BALL VALVES WITH THREADED FITTINGS.
- METALLIC PIPE EXPOSED TO CORROSIVE ACTION, SUCH AS SOIL CONDITION OR MOISTURE, SHALL BE PROTECTED. PROVIDE PROTECTIVE COATING OR WRAPPING APPROVED FOR APPLICATION. WIRE BRUSH AND CLEAN ALL EXPOSED PIPING. SPRAY PRIME AND FINISH PAINT TO MATCH COLOR OF THE ADJACENT SURFACE TO PIPE.
- PRIOR TO ACCEPTANCE AND INITIAL OPERATION, CONTRACTOR SHALL BE INSPECT AND PRESSURE TEST ALL PIPING INSTALLATION PER INTERNATIONAL FUEL GAS CODE.

NUMBERED NOTES:

- ① CONTRACTOR TO COORDINATE WITH CIVIL SITE PLAN AND PUBLIC UTILITY PROVIDER FOR THE INSTALLATION OF NEW DOMESTIC WATER SERVICE, METER, AND SUPPLY TO BUILDING. ROUTE PIPING A MINIMUM OF 18" BELOW GRADE TO FOUNDATION WALL AND SLEEVE PIPING UP THRU SLAB AND TURN UP IN WALL. INSTALL A MAIN SHUTOFF GATE TYPE VALVE IN RECESSED VALVE BOX BELOW GRADE OUTSIDE BUILDING. CONTINUE PIPING UP AND ROUTE ABOVE THE CEILING AS SHOWN.
- ② ROUTE 1" COLD WATER SUPPLY TO EACH WATER CLOSET AND 1/2" HOT AND 1/2" COLD WATER SUPPLY DOWN IN WALL AND CONNECT TO EACH SINK OR LAVATORY. SEE PLUMBING FIXTURE SCHEDULE FOR MORE INFORMATION. INSTALL FIXTURE PER MANUFACTURER'S RECOMMENDATIONS. TYPICAL.
- ③ ROUTE 1/2" HOT AND 1/2" COLD WATER SUPPLY DOWN IN WALL BEHIND FIXTURE OR AS REQUIRED. INSTALL FIXTURE PER MANUFACTURER RECOMMENDATION. TYPICAL.
- ④ ROUTE 3/4" COLD WATER DOWN IN WALL TO FREEZELESS HOSE BIBB. CONNECT PER MANUFACTURERS RECOMMENDATIONS. TYPICAL.
- ⑤ ROUTE 1/2" HOT AND 1/2" COLD WATER SUPPLY TO MOP SINK FAUCET SET PER MANUFACTURER'S INSTRUCTIONS.
- ⑥ THERMOSTATIC MIXING VALVE LOCATED IN MECHANICAL ROOM AS SHOWN. MINIMUM FLOW RATE 1 TO 100 GPM. MAXIMUM PRESSURE DROP OF 5 PSI. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. MANUFACTURER REPRESENTATIVE TO SETUP.
- ⑦ PROVIDE DIRECT VENT TYPE GAS WATER HEATER. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE DIRECT VENT TYPE VENT KIT FOR INTAKE/ EXHAUST PIPING. SEE APPLIANCE DETAIL FOR ADDITIONAL REQUIREMENTS. ROUTE 1" GAS SUPPLY PIPING TO GAS WATER HEATER. PROVIDE AND INSTALL VENTLESS GAS REGULATOR SIZED TO REGULATE PRESSURE FROM 2PSI TO 7 OUNCES OR PER MANUFACTURER'S RECOMMENDATIONS. REDUCE SIZE TO EQUIPMENT CONNECTION. PROVIDE AND INSTALL REQUIRED SHUT-OFF VALVES. PRESSURE RELIEF, EXPANSION TANK, DIRT LEG, GAS COCK, AND UNIONS PER MANUFACTURER'S RECOMMENDATIONS. ROUTE NATURAL GAS PIPING ABOVE CEILING LEVEL AND DOWN ALONG WALL TO WATER HEATER CONNECTION. SUPPORT PIPING ALONG WALL AND AS HIGH AS POSSIBLE TO THE CEILING. COORDINATE POWER OUTLET WITH ELECTRICAL CONTRACTOR. SEE DETAIL.
- ⑧ ROUTE 1/2" COLD WATER TO ICE MAKER SUPPLY BOX BEHIND APPLIANCE REQUIRING DOMESTIC COLD WATER SUPPLY. PROVIDE AND INSTALL SHUTOFF VALVE ON SUPPLY PIPING ABOVE THE CEILING. TYPICAL.

LEGEND	
COLD WATER PIPING	----
HOT WATER PIPING	----



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- CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NEW FLOOR PENETRATIONS FOR NEW SANITARY SEWER ROUGH IN AND FIRE STOPPING ALL WALL, CEILING, AND FLOOR PENETRATIONS OF FIRE RATED ASSEMBLIES. SEE ARCHITECTURAL PLANS FOR WALL RATINGS ON THIS PROJECT. CONTRACTOR TO CONSIDER ALL FLOOR PENETRATIONS AS RATED.
- CONTRACTOR IS RESPONSIBLE FOR ITEMS INCLUDING FIXTURE MOUNTING HEIGHTS, GRAB BARS, FAUCET HANDLES, SEATS, PIPING INSULATION, LAVATORY BARRIERS, AND ELSE REQUIRED TO ENSURE THE ACCESSIBLE FIXTURES ON THIS PROJECT MEET THE REQUIREMENTS OF THE ADA GUIDELINE. CONSULT ENGINEER OR ARCHITECT FOR INFORMATION AS REQUIRED.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NEW FLOOR PENETRATIONS FOR NEW SANITARY SEWER ROUGH IN AND FIRE STOPPING ALL WALL, CEILING, AND FLOOR PENETRATIONS OF FIRE RATED ASSEMBLIES. SEE ARCHITECTURAL PLANS FOR WALL RATINGS ON THIS PROJECT. CONTRACTOR TO CONSIDER ALL FLOOR PENETRATIONS AS RATED.
- PENETRATIONS THROUGH PARTITIONS AND FLOORS SHALL BE SLEEVED AND SEALED TO MAINTAIN INTEGRITY OF PARTITION AND FLOOR RATING.
- LICENSED GAS CONTRACTOR TO BE EXPERIENCED IN DESIGN AND INSTALLATION OF LP GAS PIPING SYSTEM PER NFPA 58, NFPA 54, AND INTERNATIONAL FUEL GAS CODE, CURRENT EDITIONS.
- ALL NATURAL GAS PIPING ON THIS PROJECT SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED FITTINGS. EXPOSED PIPING TO BE WIRE BRUSHED, CLEANED, PAINTED WITH TWO COATS OF RUST RESISTANT PRIMER, AND THEN PAINTED TO MATCH THE NEW GAS METER.
- VALVES TO BE BRONZE FULL PORT BALL VALVES WITH THREADED FITTINGS.
- METALLIC PIPE EXPOSED TO CORROSIVE ACTION, SUCH AS SOIL CONDITION OR MOISTURE, SHALL BE PROTECTED. PROVIDE PROTECTIVE COATING OR WRAPPING APPROVED FOR APPLICATION. WIRE BRUSH AND CLEAN ALL EXPOSED PIPING. SPRAY PRIME AND FINISH PAINT TO MATCH COLOR OF THE ADJACENT SURFACE TO PIPE.
- PRIOR TO ACCEPTANCE AND INITIAL OPERATION, CONTRACTOR SHALL BE INSPECT AND PRESSURE TEST ALL PIPING INSTALLATION PER INTERNATIONAL FUEL GAS CODE.

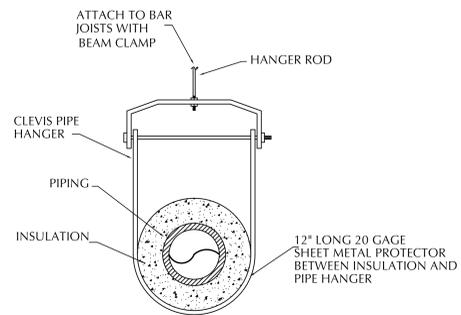
LEGEND	
COLD WATER PIPING	----
HOT WATER PIPING	----

NUMBERED NOTES:

- ① ROUTE NEW NATURAL GAS PIPING UNDERGROUND FROM EXISTING PIPING TO SPECIFIED LOCATION. COORDINATE WITH CIVIL SITE PLAN AND OTHER UTILITIES AS REQUIRED. PROVIDE AND INSTALL NATURAL GAS METER, SHUTOFF VALVE, AND REGULATOR AS REQUIRED. CONSULT LOCAL UTILITY PROVIDER FOR SPECIFIC REQUIREMENTS. SIZE REGULATOR FOR ?? CFH @ 2 PSI PRESSURE (VERIFY WITH FINAL APPROVED EQUIPMENT). CONTINUE NATURAL GAS PIPING FROM METER AND ROUTE AS SHOWN. SLEEVE PIPE THROUGH EXTERIOR WALL AND SEAL ANNULAR VOID. RISE UP TO ABOVE CEILING LEVEL AND ROUTE AS SHOWN. PROVIDE DIRT LEG, UNION, AND PRESSURE REGULATOR AT EACH APPLIANCE. REDUCE THE NATURAL GAS PRESSURE TO THE APPLIANCE RATED PRESSURE REQUIREMENTS. SEE MANUFACTURER APPLIANCE INSTALLATION MANUAL FOR THE NATURAL GAS PRESSURE RATING AND APPLIANCE INSTALLATION INSTRUCTIONS. PROVIDE THREADED FITTINGS FOR 2-1/2" AND SMALLER PIPE. SLEEVES REQUIRED FOR ALL WALL AND FLOOR PENETRATIONS. SEAL AIR AND WATER TIGHT TO PREVENT WATER INTRUSION.
- ② PROVIDE DIRECT VENT TYPE GAS WATER HEATER. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE DIRECT VENT TYPE VENT KIT FOR INTAKE/ EXHAUST PIPING. SEE APPLIANCE DETAIL FOR ADDITIONAL REQUIREMENTS. ROUTE 1" GAS SUPPLY PIPING TO GAS WATER HEATER (OR PER MANUFACTURER). PROVIDE AND INSTALL VENTLESS GAS REGULATOR SIZED TO REGULATE PRESSURE FROM 2PSI TO 7 OUNCES OR PER MANUFACTURER'S RECOMMENDATIONS. REDUCE SIZE TO EQUIPMENT CONNECTION. PROVIDE AND INSTALL REQUIRED SHUT-OFF VALVES, PRESSURE RELIEF, EXPANSION TANK, DIRT LEG, GAS COCK, AND UNIONS PER MANUFACTURER'S RECOMMENDATIONS. ROUTE NATURAL GAS PIPING ABOVE CEILING LEVEL AND DOWN ALONG WALL TO WATER HEATER CONNECTION. SUPPORT PIPING ALONG WALL AND AS HIGH AS POSSIBLE TO THE CEILING. COORDINATE POWER OUTLET WITH ELECTRICAL CONTRACTOR. SEE DETAIL.
- ③ ROUTE 1 1/2" GAS SUPPLY PIPING TO OWNER PROVIDED KITCHEN EQUIPMENT. PROVIDE AND INSTALL VENTLESS GAS REGULATOR SIZED TO REGULATE PRESSURE FROM 2PSI TO 7 OUNCES, OR PER MANUFACTURER'S RECOMMENDATIONS. REDUCE SIZE TO EQUIPMENT CONNECTION. HARD PIPE GAS THROUGH APPLIANCE CASING. PROVIDE AND INSTALL UNION, GAS COCK, SHUT-OFF VALVE, DIRT LEG, AND/OR ELSE RECOMMENDED OR REQUIRED BY MANUFACTURER. COORDINATE WITH ENGINEER PRIOR TO INSTALLING FINAL NATURAL GAS PIPING SIZES TO ALLOW FOR VERIFICATION OF FINAL EQUIPMENT SELECTION AND CAPACITY. TYPICAL ALL LOCATIONS.
- ④ ROUTE 1 1/2" GAS SUPPLY PIPING TO ROOFTOP AIR HANDLER. PROVIDE AND INSTALL VENTLESS GAS REGULATOR SIZED TO REGULATE PRESSURE FROM 2PSI TO 7 OUNCES, OR PER MANUFACTURER'S RECOMMENDATIONS. REDUCE SIZE TO EQUIPMENT CONNECTION. HARD PIPE GAS THROUGH APPLIANCE CASING. PROVIDE AND INSTALL UNION, GAS COCK, SHUT-OFF VALVE, DIRT LEG, AND/OR ELSE RECOMMENDED OR REQUIRED BY MANUFACTURER. TYPICAL ALL LOCATIONS.

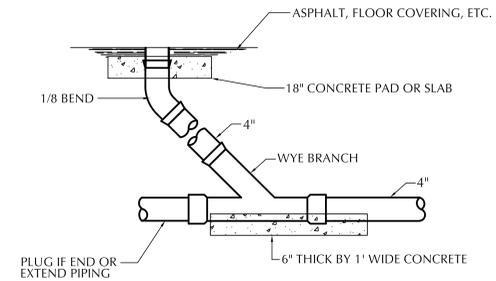
LEGEND	
NATURAL GAS PIPE	—NG—

FLOOR PLAN - ROOF
SCALE: 1/8" = 1' - 0"

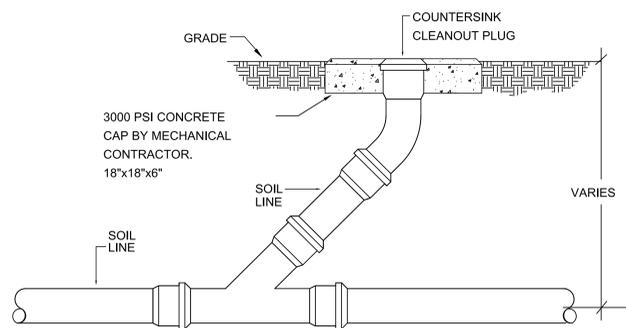


SUPPORT ALL PIPING ACCORDING TO THE IPC
 INSULATE ALL PIPING ACCORDING TO THE SPECIFICATIONS
 INSULATE ALL COLD PIPING WHICH WILL FORM CONDENSATE
 ON THE OUTSIDE OF THE PIPE. SEE DRAWINGS AND SPECS.

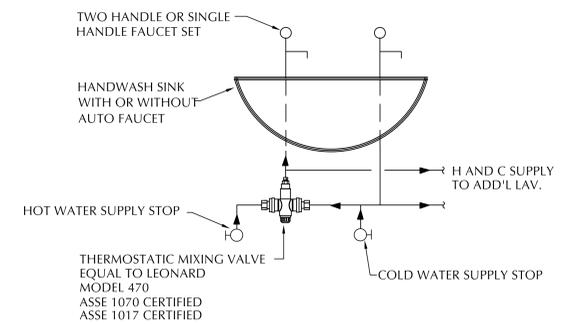
TYPICAL PIPE HANGER DETAIL



TYPICAL SANITARY SEWER CLEANOUT



CLEANOUT DETAIL (FGCO)



VALVE APPROXIMATELY 6"x4"

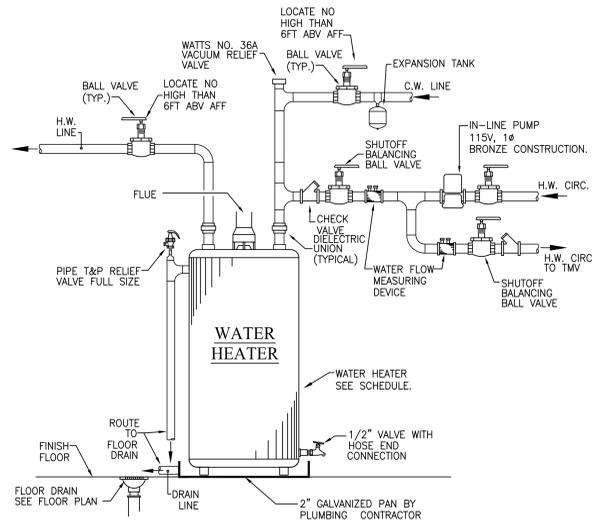
INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

PROVIDE SUPPORT AS REQUIRED.

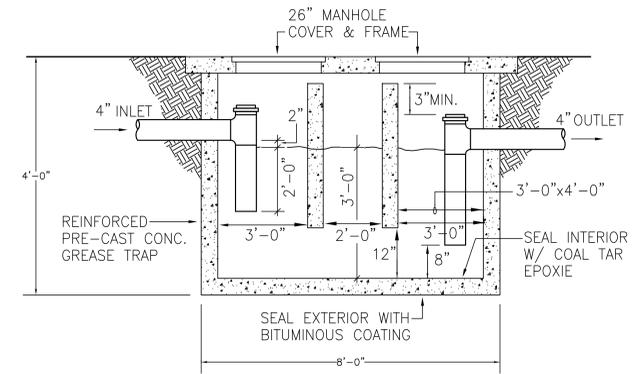
INSULATE ALL EXPOSED SUPPLY AND WASTE PIPING INCLUDING MIXING VALVE UNDER LAVATORY TO MEET ADA GUIDELINE REQUIREMENTS.

VALVE TO PROVIDE MAXIMUM 109 DEGREE F WATER TO HANDWASH SINKS.

HANDWASH SINK MIXING VALVE DETAIL
 NO SCALE

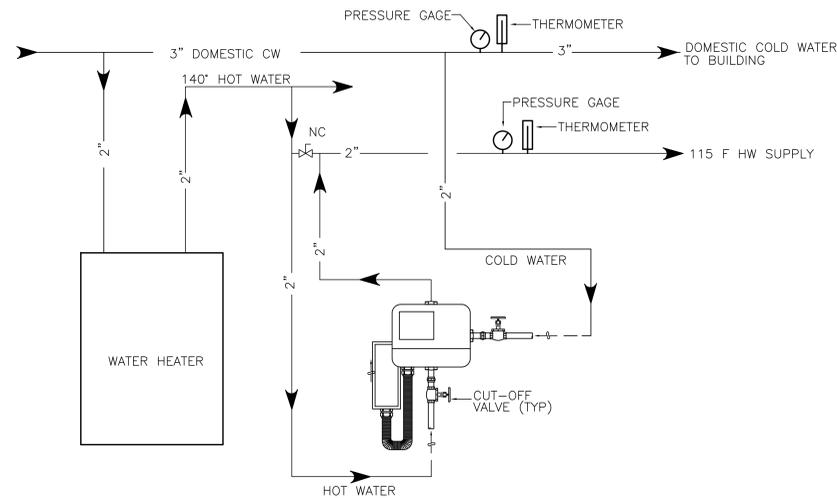


TYPICAL WATER HEATER DETAILS



1000 GALLON
GREASE TRAP DETAIL

THE DIVISION 15 CONTRACTOR SHALL PROVIDE AND INSTALL 120V TO 24 V TRANSFORMERS, LOW VOLTAGE CONTROL WIRING, FOR MECHANICAL COMPONENTS SHOWN ON THE DRAWINGS AND IN THE CONTROLS SUBMITTALS. THE MECHANICAL DIVISION 15 CONTRACTOR WILL NOT BE RESPONSIBLE FOR INSTALLING ANY 120 VOLT POWER WIRING TO ANY CONTROLLERS. THAT RESPONSIBILITY IS THE ELECTRICAL DIVISION 16 CONTRACTOR.

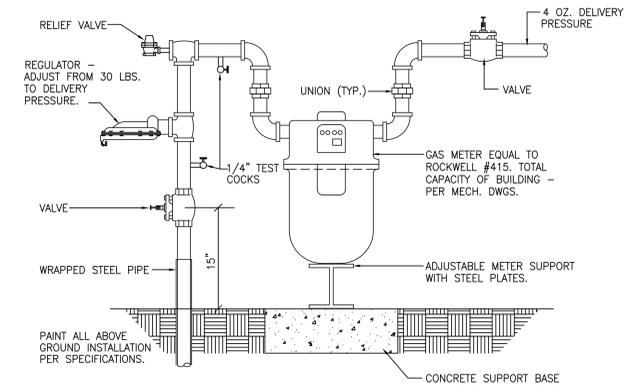


PROVIDE AND INSTALL THERMOSTATIC MIXING VALVE UNIT EQUAL TO POWERS MODEL INTLSTN LFIS075VL. VALVE CAPABLE OF FLOW RANGE FROM 1 GPM TO 50 GPM HOT WATER WITH MAX PRESSURE DROP OF 5 PSI.

MANUFACTURER'S REPRESENTATIVE MUST INSPECT THE MIXING VALVE INSTALLATION AND PROVIDE INITIAL BALANCING AND OWNER TRAINING FOR VALVE OPERATION. CONTRACTOR MUST ASSIST IN START-UP AND PROVIDE ANY AND ALL ITEMS REQUESTED OR REQUIRED BY MANUFACTURER'S REPRESENTATIVE TO ENABLE SYSTEM TO OPERATE AS INTENDED.

POWER: 115 V (AC), 50 / 60 HZ, 20 VA
ACTUATOR LOAD: 24 V (DC), 0.55 A, 13 W

TYPICAL THERMOSTATIC MIXING VALVE DETAIL
NO SCALE



GAS METER AND REGULATOR DETAIL

MECHANICAL DETAILS
SCALE: NONE



HVAC SYMBOLS & ABBREVIATIONS

ABBREVIATIONS

AD	ACCESS DOOR	EWT	ENTERING WATER TEMPERATURE	OPNG	OPENING
AHU	AIR HANDLING UNIT	EUH	ELECTRIC UNIT HEATER	P	PRESSURE
AI	ANALOG INPUT	EXH	EXHAUST	PAT	PREHEAT AIR TEMP
AO	ANALOG OUTPUT	FCU	FAN COIL UNIT	PSI	POUNDS PER SQUARE INCH
AFF	ABOVE FINISH FLOOR	FD	FIRE DAMPER	PTU	PACKAGED TERMINAL UNIT
AFG	ABOVE FINISH GRADE	F/SD	FIRE/SMOKE DAMPER	QTY	QUANTITY
AFMD	AIR FLOW MEASURING DEVICE	FPM	FEET PER MINUTE	RAD	RETURN AIR DAMPER
ARCH	ARCHITECTURAL	FSTAT	FREEZESTAT	REQ'D	REQUIRED
BD	BACKDRAFT DAMPER	GPM	GALLONS PER MINUTE	R/A	RETURN AIR
BI	BINARY INPUT	GUH	GAS UNIT HEATER	RAT	RETURN AIR TEMP.
BO	BINARY OUTPUT	H	HUMIDISTAT	RPM	REVOLUTIONS PER MINUTE
BTUH	BRITISH THERMAL UNITS/HOUR	HVV	HEATING WATER VALVE	SA	SOUND ATTENUATOR
BYP	BYPASS	HWP	HOT WATER PUMP	S/A	SUPPLY AIR
CAT	COOLING AIR TEMP	KW	KILOWATT	SAT	SUPPLY AIR TEMP
CFM	CUBIC FEET PER MINUTE	LAT	LEAVING AIR TEMPERATURE	SD	SPLITTER DAMPER
CHP	CHILLED WATER PUMP	LF	LINEAR FEET	SF	SUPPLY FAN
CHWV	CHILLED WATER VALVE	LG	LONG	SP	STATIC PRESSURE
CLG	CEILING	LVG	LEAVING	S	SENSOR
DB	DRY BULB	LWT	LEAVING WATER TEMP	SS	STAINLESS STEEL
dF	DEGREES FAHRENHEIT	MAT	MIXED AIR TEMP	T	THERMOSTAT
DIFF	DIFFUSER	MAX	MAXIMUM	TSP	TOTAL STATIC PRESSURE
DN	DOWN	MBH	THOUSAND BTU/HR	TYP	TYPICAL
DWG	DRAWING	MBC	MODULAR BUILDING CONTROLLER	UH	UNIT HEATER
EA	EACH	M.D.	MOTORIZED DAMPER	VAV	VARIABLE AIR VOLUME
EAT	ENTERING AIR TEMPERATURE	MECH	MECHANICAL	VFD	VARIABLE FREQUENCY DRIVE
EF	EXHAUST FAN	MVD	MANUAL VOLUME DAMPER	VD	VOLUME DAMPER
ELEC	ELECTRICAL	NC	NORMALLY CLOSED	2W	TWO WAY
EL	ELEVATION	NO	NORMALLY OPEN	2WO	TWO WAY CORNER
EQ	EQUAL	O/A	OUTSIDE AIR	3W	THREE WAY
ESP	EXTERNAL STATIC PRESSURE	OAT	OUTDOOR AIR TEMP	4W	FOUR WAY
EWB	ELECTRIC WALL HEATER	OAD	OUTDOOR AIR DAMPER	WB	WET BULB
		OBD	OPPOSED BLADE DAMPER	WFMD	WATER FLOW MEASURING DEVICE

PIPING SYMBOLS

	AUTOMATIC AIR VENT		GAS COCK
	BUTTERFLY VALVE		HOSE BIB W/ VACCUUM BREAKER
	BALANCING VALVE		HOT WATER HEATING RETURN
	BOTTOM CONNECTION BRANCH		HOT WATER HEATING SUPPLY
	CAPPED PIPE END		O.S.&Y. VALVE
	CHECK VALVE		PIPE RISE OR DROP
	COMBINATION SHUT-OFF/ BALANCING VALVE		RETURN LINE
	CONCENTRIC REDUCER		RISER DN
	CONDENSATE DRAIN		RISER UP
	CHILLED WATER RETURN		SLURRY LINE
	CHILLED WATER SUPPLY		SOLENOID VALVE
	CUT-OFF VALVE (ABOVE GRADE)		SIDE CONNECTION BRANCH
	CUT-OFF VALVE (BELOW GRADE)		TEE DOWN
	CUT-OFF VALVE (GATE VALVE WITH HOSE COUPLING)		TEE UP
	ECCENTRIC REDUCER		THERMOMETER
	ELBOW UP		THERMOMETER WELL
	ELBOW DOWN		TOP CONNECTION BRANCH
	FLEXIBLE PIPE CONNECTION		UNION
	FLOW IN DIRECTION OF ARROW		2-WAY AUTOMATIC CONTROL VALVE
	FUEL OIL RETURN		3-WAY AUTOMATIC CONTROL VALVE
	FUEL OIL SUPPLY		Y-TYPE STRAINER
	FUEL OIL VENT		Y-TYPE STRAINER
	GAUGE COCK		WATER FLOW MEASURING DEVICE (WFMD)

DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
	RISE IN DUCT, IN DIRECTION OF AIR FLOW
	DROP IN DUCT, IN DIRECTION OF AIR FLOW
	SUPPLY AIR DUCT, UP
	SUPPLY AIR DUCT, DN
	RETURN, EXHAUST, OR OUTSIDE AIR DUCT, UP
	RETURN, EXHAUST, OR OUTSIDE AIR DUCT, DN
	RETURN OR EXHAUST GRILLE, CEILING MTD.
	DIFFUSER SYMBOL 4-WAY
	DIFFUSER SYMBOL 2-WAY
	DUCTWORK
	VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES.
	SPLITTER FURNISH MANUAL VOLUME DPR. IN EACH LEG OF ALL SPLITTERS.
	MANUAL VOLUME DAMPER
	FIRE DAMPER
	LINEAR SLOT DIFFUSER
	THERMOSTAT, HUMIDISTAT, SENSOR WALL THERMOSTAT MTD. 5'-0" AFF.
	INDICATES POINT OF CONNECTION BETWEEN NEW AND EXISTING APPURTENANCES.
	INDICATES POINT OF DISCONNECT BETWEEN NEW AND EXISTING APPURTENANCES.

A. INSTALLATION

ALL PIPING OR DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASES OR ABOVE CEILINGS. PROVIDE ACCESS PANELS IN HARD CEILINGS ADJACENT TO OPERABLE MECHANICAL DEVICES INCLUDING DAMPERS, VALVES, CONTROLS, AND TERMINAL UNITS (IF NOT ACCESSIBLE THROUGH ATTIC). PANELS TO MAINTAIN SAME FIRE RATING AS CEILING SYSTEM AND HAVE HINGED AND LATCHED DOOR. PANELS TO BE MINIMUM 12"x12" AND MAXIMUM 24"x24" DEPENDING ON THE DEVICE TO BE ACCESSED.

THERMOSTATS SHALL BE LOCATED 5'-0" ABOVE FLOOR AND SHALL CLEAR ALL EQUIPMENT. THERMOSTATS LOCATED NEXT TO DOORS SHALL BE LOCATED ON LATCH SIDE OF DOOR, AND AT SAME LEVEL AS LIGHT SWITCH. COORDINATE WITH ARCHITECTURAL.

COORDINATE DIFFUSER, GRILLE, AND REGISTER LOCATIONS WITH LAY-IN CEILING GRID AND ARCHITECTURAL CEILING PLAN. EXACT LOCATION OF DEVICES IS NOT CRITICAL BUT SHOULD BE LOCATED WITHIN TWO FEET OF SPOT SHOWN ON DRAWINGS.

THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN THE COORDINATION OF WORK OF ALL TRADES TO ASSURE PROPER INSTALLATION AND CLEARANCES. DRAWINGS ARE ESSENTIALLY DIAGRAMMATICAL AND THEREFORE CONTRACTOR SHOULD PLAN EXACT ROUTING OF DUCT AND PIPE BASED ON FIELD CONDITIONS. PROVIDE ADDITIONAL TRANSITIONS AND OFFSETS AS NECESSARY (AT NO ADDITIONAL COST TO OWNER) TO COMPLETE INSTALLATION AND MAINTAIN REQUIRED CEILING HEIGHTS.

ACCESS PANELS IN DUCTWORK AND NON-ACCESSIBLE CEILINGS SHALL BE PROVIDED FOR OPERATION AND MAINTENANCE OF ALL BOXES, COILS, VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. PROVIDE MINIMUM 24"x24" CEILING ACCESS PANEL FOR VAV BOXES AND 12"x12" FOR DAMPERS. COORDINATE EXACT PLACEMENT OF ACCESS PANELS AND EQUIPMENT SO THAT REASONABLE MAINTENANCE SPACE IS AVAILABLE. NO ACCESS PANELS SHALL BE PROVIDED IN SECURE AREAS.

INSTALLATION OF ALL EQUIPMENT AND SYSTEMS SHALL BE IN ACCORDANCE WITH STANDARD DETAILS, SECTIONS, AND ELEVATIONS SHOWN ON THE DRAWINGS.

CONTRACTOR SHALL MAINTAIN A CLEAR SERVICE AREA AROUND ALL EQUIPMENT FOR MAINTENANCE SUCH AS, FILTER REMOVAL, MOTOR AND DRIVE ADJUSTMENTS, COIL AND TUBE CLEANING OR REMOVAL. PROVIDE ALL DRAIN PIPING FROM MECHANICAL EQUIPMENT WITH 2" AIR GAP CONNECTION AT WASTE PIPE, FLOOR DRAIN, OR ETC.

B. DUCTWORK

ALL DUCT RUNOUTS TO DIFFUSERS, RETURN AIR GRILLES, AND EXHAUST GRILLES SHALL BE COMPLETE WITH MANUAL VOLUME DAMPERS UNLESS NOTED OTHERWISE. LOCATE DAMPERS SO THEY ARE ACCESSIBLE FROM LAY-IN CEILING, ATTIC, OR ACCESS PANEL.

ROUND SUPPLY RUNOUTS TO DIFFUSERS SHALL BE HARD METAL. MAXIMUM 6'-0" OF FLEXIBLE DUCT MAY BE USED FOR FINAL CONNECTION TO DIFFUSER.

DUCT TRANSITIONS SHALL BE PROVIDED AS REQUIRED FROM ALL EQUIPMENT CONNECTIONS TO DUCT SIZES INDICATED ON DRAWINGS.

PROVIDE EASED INLET RECTANGULAR TO ROUND TAPS AT DUCT TAPS IF ROUND DUCT SIZE IS TOO LARGE FOR BELL MOUTH TAP TO TRUNK DUCT.

ALL EXTERIOR OPENINGS (INTAKE AND EXHAUST DUCTS, LOUVERS, FANS, ETC.) SHALL BE PROVIDED WITH BIRD SCREENING WHICH SHALL BE EASILY REMOVED FOR CLEANING AND ACCESS TO EQUIPMENT.

ALL DUCT SIZES INDICATE OUTSIDE DIMENSIONS OF SHEET METAL. NO ALLOWANCE FOR INSULATION IS SHOWN ON DRAWINGS.

PROVIDE HEMMED EDGES OVER RAW ENDS OF INSULATION AND SEAL WITH MASTIC FOR ALL LINED RETURN AIR DUCTS STUBBED INTO RETURN AIR PLENUMS.

ALL DUCT PLENUMS AND DUCTS (MINIMUM OF 5'-0" FROM LOUVER) CONNECTED TO EXTERIOR LOUVERS SHALL HAVE LIQUID TIGHT SEAMS AND LIQUID TIGHT CONNECTION TO LOUVER. SLOPE DOWN TO LOUVER AND ATTACH SO WATER WILL DRAIN TO OUTSIDE. PROVIDE 24"x24" (OR EQUIVALENT) ACCESS DOOR AT LOUVER IN EASILY ACCESSIBLE LOCATION FOR ACCESS TO LOUVER PLENUM AND LOUVER.

ALL RECTANGULAR DUCT SHALL BE GALVANIZED SHEET METAL WITH 2" EXTERIOR DUCT WRAP FIBERGLASS INSULATION. SEAL ALL DUCT JOINTS AND INSULATION JOINTS AIRTIGHT.

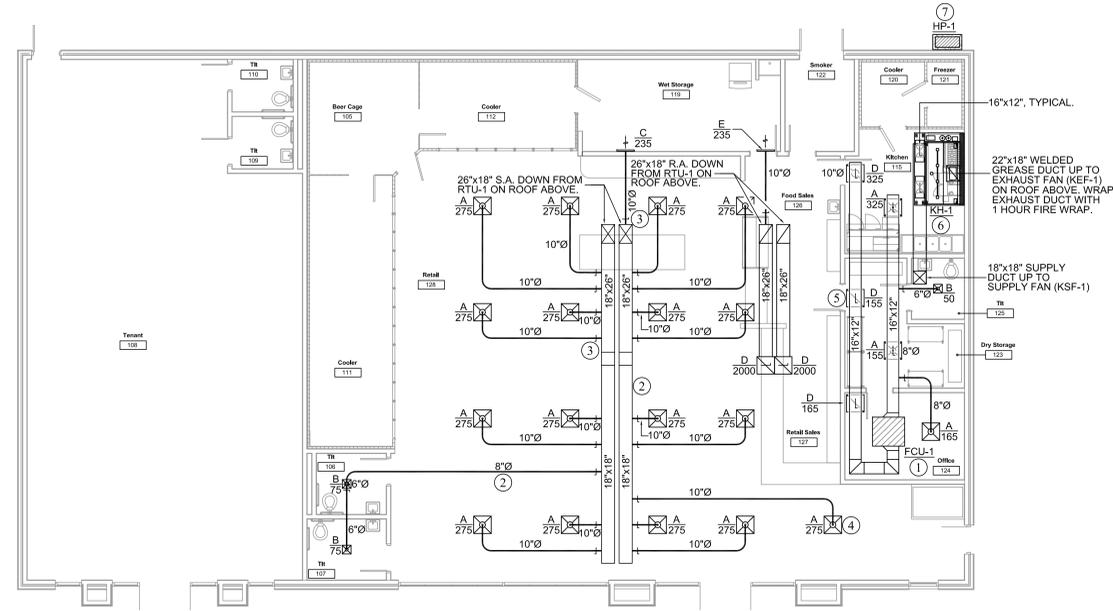
ALL ROUND BRANCH DUCTS SHALL BE GALVANIZED SHEET METAL WITH SAME INSULATION AS ABOVE. FLEXIBLE DUCTS OF NO MORE THAN 6 FEET MAY BE USED FOR DEVICE CONNECTIONS. ALL BRANCH DUCTS MUST HAVE STARTING COLLARS WITH INTEGRAL BALANCING DAMPERS.

SUPPORT ALL DUCT ACCORDING TO THE INTERNATIONAL MECHANICAL CODE AND SMACNA.

C. EQUIPMENT INSTALLATION

SAFE-OFF AIRTIGHT AROUND ALL COILS, SOUND TRAPS, FILTERS, ETC. WITH 16 GAGE GALVANIZED SHEET METAL SET IN NON-HARDENING FIRE RETARDANT MASTIC.

SUPPLY AIR DIFFUSER	
AIRFLOW	DUCT/NECK SIZE
0 - 100 CFM	6" ROUND
110 - 220 CFM	8" ROUND
225 - 400 CFM	10" ROUND
410 - 600 CFM	12" ROUND



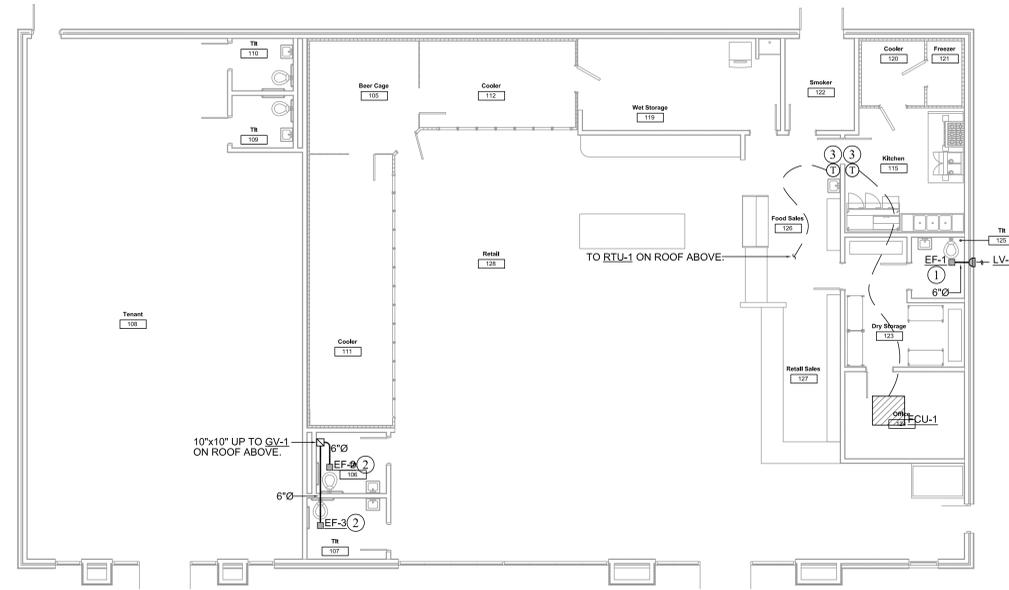
GENERAL NOTES:

- ALL CENTRAL AIR HANDLING UNITS SUPPLYING MORE THAN 2000 CFM AND/OR SERVING AN EXIT CORRIDOR SHALL HAVE SMOKE DETECTION TO INTERRUPT POWER. AHU SMOKE CONTROLS SHALL BE CONNECTED TO THE AUTOMATIC FIRE ALARM SYSTEM AS REQUIRED BY CODE.
- ALL INTERIOR DUCT TO BE INSULATED WITH 2" FIBERGLASS DUCT WRAP WITH FOIL BACK VAPOR BARRIER. SEAL ALL SEAMS AND LAPS WITH 2" HIGH PRESSURE FOIL TAPE. SEAL ALL DUCT JOINTS WITH MASTIC DUCT SEALANT.
- RECTANGULAR DUCT TO BE GALVANIZED SHEET METAL. LOW PRESSURE ROUND BRANCH DUCT TO BE SNAP LOCK GALVANIZED SHEET METAL TO WITHIN SIX FEET OF THE DIFFUSER CONNECTIONS WHERE FLEXIBLE DUCT MAY BE USED.
- ALL DUCT PENETRATING FIREWALLS SHALL BE EQUIPPED WITH DYNAMIC RATED FIRE DAMPERS. PROVIDE ACCESS PANELS AT EACH SIDE OF ALL FIRE DAMPER LOCATIONS. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND THE INTERNATIONAL MECHANICAL CODE.
- CONTRACTOR TO COORDINATE ALL ROOF LEVEL MECHANICAL WORK INCLUDING PENETRATIONS AND EQUIPMENT INSTALLATION WITH GENERAL CONTRACTOR.
- PROVIDE ACCESS PANELS IN DUCTS AT ALL FIRE AND FIRE/SMOKE DAMPERS WHERE APPLICABLE.
- COORDINATE HORIZONTAL ROUTE OF DUCT THROUGH EXTERIOR WALL WITH COLUMNS, WINDOWS, OVERHANGS, ETC.
- CONTRACTOR TO CONSULT ENGINEER WITH ALL QUESTIONS BEFORE PROCEEDING WITH WORK.
- COORDINATE WORK WITH OWNER. ALL WORK IN THE OCCUPIED SPACE TO BE COMPLETED AT OWNER'S CONVENIENCE.
- ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE 2018 INTERNATIONAL CODE SERIES.
- DUCT SIZES SHOWN MAY BE MODIFIED BY THE CONTRACTOR TO ACCOMMODATE CLEARANCE REQUIREMENTS AS LONG AS THE NET FREE AIRFLOW AREA IS NOT CHANGED. CONSULT ENGINEER FOR ASSISTANCE.
- RECTANGULAR DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR. NO ALLOWANCE FOR INSULATION.
- MOUNT ALL DUCTWORK AS HIGH AS POSSIBLE. TRANSITION DUCT IN UPWARD DIRECTION TO MAINTAIN MAXIMUM CLEARANCE BETWEEN DUCT AND CEILING. COORDINATE ROUTING OF DUCT WITH BOTH PLUMBING TRADES, ELECTRICAL TRADES, AND STRUCTURE.
- THE DESIGN MECHANICAL ENGINEER WILL NOT BE RESPONSIBLE FOR THE RESULTS OF VALUE ENGINEERING BY THE CONTRACTOR/OWNER WHICH INVOLVES MODIFICATION OF THE MECHANICAL AND HVAC SYSTEMS AND THEIR CAPACITIES, ETC.
- PROVIDE REDUCERS, TRANSITIONS, AND FITTINGS AS REQUIRED FOR ALL CONNECTIONS AT EQUIPMENT AS SHOWN.
- PROVIDE REINFORCED CONCRETE BASE FOR ALL NEW EQUIPMENT AS SHOWN ON DRAWING. CHAMFER PAD EDGES AT 45 DEGREE ANGLE.
- ALL EQUIPMENT, LABOR, MATERIAL, AND COORDINATION TO COMPLETE THIS PROJECT PER THE DESIGN INTENT SHALL BE PROVIDED BY CONTRACTOR.
- COORDINATE INSTALLATION OF EQUIPMENT AND UTILITIES WITH CONDITIONS AT SITE. CONTRACTOR MAY MODIFY ROUTING OF DUCT AS REQUIRED BY SITE CONDITIONS. IF CHANGES IN SIZE ARE REQUIRED CONSULT ENGINEER.
- CONTRACTOR IS RESPONSIBLE FOR ALL WORK REQUIRED TO COMPLETE THE PROJECT IN AGREEMENT WITH THE DESIGN INTENT SHOWN ON THESE DRAWINGS. ANY DUCT DIMENSION SHOWN MAY BE MODIFIED BY CONTRACTOR FOR COORDINATION PURPOSES WHILE ENSURING THAT AIRFLOW AREA DOES NOT DECREASE.
- PROVIDE AABC OR NEBB TAB AGENT TO TEST, ADJUST, AND BALANCE THE AIR SYSTEMS MODIFIED ON THIS PROJECT TO WITHIN +/- 10%. PROVIDE COMPLETE TAB REPORT TO ENGINEER BEFORE SCHEDULING FINAL INSPECTION. COMPLETE FINAL BALANCING AND SUBMIT REPORT TO ENGINEER.
- THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL 120V TO 24 V TRANSFORMERS AND LOW VOLTAGE CONTROL WIRING FOR MECHANICAL COMPONENTS SHOWN ON THE DRAWINGS AND IN THE CONTROLS SUBMITTALS. THE MECHANICAL CONTRACTOR WILL NOT BE RESPONSIBLE FOR INSTALLING ANY 120 VOLT POWER WIRING TO ANY CONTROLLERS. THAT RESPONSIBILITY IS THE ELECTRICAL CONTRACTOR.
- ALL BRANCH DUCT STARTING COLLARS SHOULD HAVE BALANCING DAMPERS, ABOVE SUSPENDED CEILINGS.
- MAXIMUM LENGTH OF FLEXIBLE DUCT IS SIX FEET. FLEXIBLE DUCT SHOULD NOT BE USED TO MAKE ABRUPT CHANGES IN DIRECTION OR FOR EXHAUST OR RETURN AIR.
- MINOR MODIFICATION OF DUCT SIZING AND ROUTING MAY BE REQUIRED DURING INSTALLATION. ANY CHANGES WHICH INCREASES/DECREASES AIRFLOW AREA BY GREATER THAN 10% SHOULD BE PREAPPROVED.
- ALL EQUIPMENT, LABOR, MATERIAL, AND COORDINATION TO COMPLETE THIS PROJECT PER THE DESIGN INTENT SHALL BE PROVIDED BY CONTRACTOR.

NUMBERED NOTES:

- 1 PROVIDE AND INSTALL HORIZONTAL FAN COIL UNIT MOUNTED ABOVE CEILING LEVEL AS SHOWN. ROUTE HORIZONTAL SUPPLY AND RETURN AIR DUCT FROM FCU AND SEAL AIR TIGHT. PROVIDE REFRIGERANT PIPING TO CORRESPONDING CONDENSING UNIT AND CONTROLS TO THERMOSTATS. SUPPORT FROM STRUCTURE ABOVE. SEE SHEET M.6 FOR FAN COIL UNIT DETAIL.
- 2 PROVIDE AND INSTALL NEW LOW PRESSURE SUPPLY DUCT SIZED AND ROUTED AS SHOWN WITH TRANSITIONS BY CONTRACTOR. HOLD DUCT AS HIGH AS POSSIBLE TO STRUCTURE AND CONSTRUCT/ROUTE IN A NEAT AND ORGANIZED MANNER.
- 3 PROVIDE AND INSTALL MANUAL BALANCING DAMPERS AT ALL BRANCH DUCT TAKE OFFS. ALL TYPICAL.
- 4 PROVIDE AND INSTALL NEW CEILING MOUNTED SUPPLY GRILLES IN LOCATIONS SHOWN. CONNECT TO NEW DUCT WITH TRANSITION AND FITTING AS REQUIRED. COORDINATE WITH ARCHITECTURAL CEILING LAYOUT AND ELECTRICAL LAYOUT. ALL TYPICAL.
- 5 PROVIDE AND INSTALL CUBE CORE RETURN AIR GRILLES WITH MANUAL VOLUME DAMPERS IN CEILING AT LOCATIONS SHOWN. SEE GRILLE SCHEDULE FOR SIZES. TYPICAL ALL LOCATIONS.
- 6 PROVIDE AND INSTALL STAINLESS STEEL KITCHEN HOOD. INCLUDE EXHAUST/SUPPLY FANS, CONTROL PANELS, LIGHTS, FILTERS, FIRE SUPPRESSION, GREASE CUP, TEMPERATURE SENSOR, ANY OTHER CODE REQUIRED COMPONENTS. ROUTE WELDED GREASE EXHAUST DUCT UP EXHAUST COLLAR UP TO UPBLAST GREASE VAPOR TYPE CENTRIFUGAL EXHAUST FAN AND SUPPLY DUCT FROM SUPPLY FAN DOWN TO SUPPLY PLENUM. TRANSITION DUCTS TO FANS AND HOODS AS REQUIRED. EXHAUST DUCT TO BE SEAMLESS, WELDED, 16 GAUGE, STAINLESS STEEL GREASE DUCT. SUPPLY DUCT TO BE GALVANIZED DUCT EXTERNAL INSULATED. INSTALL PER MANUFACTURERS RECOMMENDATIONS, IMC 2018 AND LOCAL CODE. SLOPE EXHAUST DUCT 1/8" PER FOOT TOWARD HOOD.
- 7 PLACE CONDENSING UNIT AT LOCATION SHOWN. ROUTE NEW REFRIGERANT PIPING ABOVE GRADE TO EXTERIOR WALL AND TURN UP IN WALL TO ABOVE CEILING. ROUTE TO CORRESPONDING AIR HANDLER. INSULATE REFRIGERANT PIPING TO PREVENT CONDENSATION. SEAL PIPING PENETRATIONS WITH WATER PROOF CAULKING TO PREVENT WATER INTRUSION. SIZE AND INSTALL AS PER MANUFACTURER ACCORDING TO LENGTH AND ELEVATION. INSTALL CONDENSING UNITS ON 4" REINFORCED CONCRETE EQUIPMENT PAD.

SUPPLY AIR DIFFUSER	
AIRFLOW	DUCT/NECK SIZE
0 - 100 CFM	6" ROUND
110 - 220 CFM	8" ROUND
225 - 400 CFM	10" ROUND
410 - 600 CFM	12" ROUND



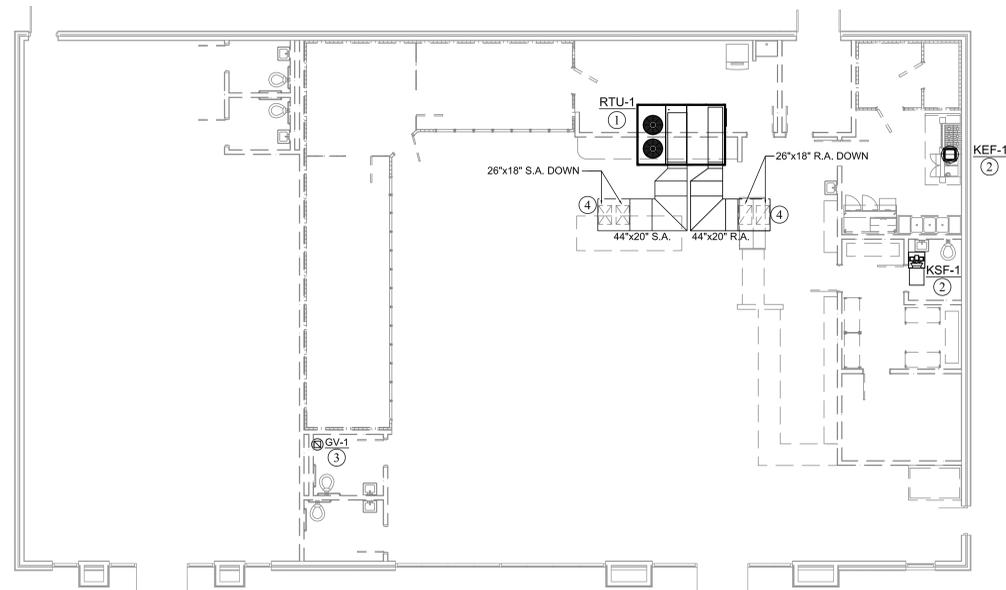
GENERAL NOTES:

- ALL CENTRAL AIR HANDLING UNITS SUPPLYING MORE THAN 2000 CFM AND/OR SERVING AN EXIT CORRIDOR SHALL HAVE SMOKE DETECTION TO INTERRUPT POWER. AHU SMOKE CONTROLS SHALL BE CONNECTED TO THE AUTOMATIC FIRE ALARM SYSTEM AS REQUIRED BY CODE.
- ALL INTERIOR DUCT TO BE INSULATED WITH 2" FIBERGLASS DUCT WRAP WITH FOIL BACK VAPOR BARRIER. SEAL ALL SEAMS AND LAPS WITH 2" HIGH PRESSURE FOIL TAPE. SEAL ALL DUCT JOINTS WITH MASTIC DUCT SEALANT.
- RECTANGULAR DUCT TO BE GALVANIZED SHEET METAL. LOW PRESSURE ROUND BRANCH DUCT TO BE SNAP LOCK GALVANIZED SHEET METAL TO WITHIN SIX FEET OF THE DIFFUSER CONNECTIONS WHERE FLEXIBLE DUCT MAY BE USED.
- ALL DUCT PENETRATING FIREWALLS SHALL BE EQUIPPED WITH DYNAMIC RATED FIRE DAMPERS. PROVIDE ACCESS PANELS AT EACH SIDE OF ALL FIRE DAMPER LOCATIONS. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND THE INTERNATIONAL MECHANICAL CODE.
- CONTRACTOR TO COORDINATE ALL ROOF LEVEL MECHANICAL WORK INCLUDING PENETRATIONS AND EQUIPMENT INSTALLATION WITH GENERAL CONTRACTOR.
- PROVIDE ACCESS PANELS IN DUCTS AT ALL FIRE AND FIRE/SMOKE DAMPERS WHERE APPLICABLE.
- COORDINATE HORIZONTAL ROUTE OF DUCT THROUGH EXTERIOR WALL WITH COLUMNS, WINDOWS, OVERHANGS, ETC.
- CONTRACTOR TO CONSULT ENGINEER WITH ALL QUESTIONS BEFORE PROCEEDING WITH WORK.
- COORDINATE WORK WITH OWNER. ALL WORK IN THE OCCUPIED SPACE TO BE COMPLETED AT OWNER'S CONVENIENCE.
- ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE 2018 INTERNATIONAL CODE SERIES.
- DUCT SIZES SHOWN MAY BE MODIFIED BY THE CONTRACTOR TO ACCOMMODATE CLEARANCE REQUIREMENTS AS LONG AS THE NET FREE AIRFLOW AREA IS NOT CHANGED. CONSULT ENGINEER FOR ASSISTANCE.
- RECTANGULAR DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR. NO ALLOWANCE FOR INSULATION.
- MOUNT ALL DUCTWORK AS HIGH AS POSSIBLE. TRANSITION DUCT IN UPWARD DIRECTION TO MAINTAIN MAXIMUM CLEARANCE BETWEEN DUCT AND CEILING. COORDINATE ROUTING OF DUCT WITH BOTH PLUMBING TRADES, ELECTRICAL TRADES, AND STRUCTURE.
- THE DESIGN MECHANICAL ENGINEER WILL NOT BE RESPONSIBLE FOR THE RESULTS OF VALUE ENGINEERING BY THE CONTRACTOR/OWNER WHICH INVOLVES MODIFICATION OF THE MECHANICAL AND HVAC SYSTEMS AND THEIR CAPACITIES, ETC.
- PROVIDE REDUCERS, TRANSITIONS, AND FITTINGS AS REQUIRED FOR ALL CONNECTIONS AS SHOWN.
- PROVIDE REINFORCED CONCRETE BASE FOR ALL NEW EQUIPMENT AS SHOWN ON DRAWING. CHAMFER PAD EDGES AT 45 DEGREE ANGLE.
- ALL EQUIPMENT, LABOR, MATERIAL, AND COORDINATION TO COMPLETE THIS PROJECT PER THE DESIGN INTENT SHALL BE PROVIDED BY CONTRACTOR.
- COORDINATE INSTALLATION OF EQUIPMENT AND UTILITIES WITH CONDITIONS AT SITE. CONTRACTOR MAY MODIFY ROUTING OF DUCT AS REQUIRED BY SITE CONDITIONS. IF CHANGES IN SIZE ARE REQUIRED CONSULT ENGINEER.
- CONTRACTOR IS RESPONSIBLE FOR ALL WORK REQUIRED TO COMPLETE THE PROJECT IN AGREEMENT WITH THE DESIGN INTENT SHOWN ON THESE DRAWINGS. ANY DUCT DIMENSION SHOWN MAY BE MODIFIED BY CONTRACTOR FOR COORDINATION PURPOSES WHILE ENSURING THAT AIRFLOW AREA DOES NOT DECREASE.
- PROVIDE AABC OR NEBB TAB AGENT TO TEST, ADJUST, AND BALANCE THE AIR SYSTEMS MODIFIED ON THIS PROJECT TO WITHIN +/- 10%. PROVIDE COMPLETE TAB REPORT TO ENGINEER BEFORE SCHEDULING FINAL INSPECTION. COMPLETE FINAL BALANCING AND SUBMIT REPORT TO ENGINEER.
- THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL 120V TO 24 V TRANSFORMERS AND LOW VOLTAGE CONTROL WIRING FOR MECHANICAL COMPONENTS SHOWN ON THE DRAWINGS AND IN THE CONTROLS SUBMITTALS. THE MECHANICAL CONTRACTOR WILL NOT BE RESPONSIBLE FOR INSTALLING ANY 120 VOLT POWER WIRING TO ANY CONTROLLERS. THAT RESPONSIBILITY IS THE ELECTRICAL CONTRACTOR.
- ALL BRANCH DUCT STARTING COLLARS SHOULD HAVE BALANCING DAMPERS, ABOVE SUSPENDED CEILINGS.
- MAXIMUM LENGTH OF FLEXIBLE DUCT IS SIX FEET. FLEXIBLE DUCT SHOULD NOT BE USED TO MAKE ABRUPT CHANGES IN DIRECTION OR FOR EXHAUST OR RETURN AIR.
- MINOR MODIFICATION OF DUCT SIZING AND ROUTING MAY BE REQUIRED DURING INSTALLATION. ANY CHANGES WHICH INCREASES/DECREASES AIRFLOW AREA BY GREATER THAN 10% SHOULD BE PREAPPROVED.
- ALL EQUIPMENT, LABOR, MATERIAL, AND COORDINATION TO COMPLETE THIS PROJECT PER THE DESIGN INTENT SHALL BE PROVIDED BY CONTRACTOR.

NUMBERED NOTES:

- PROVIDE AND INSTALL NEW CEILING MOUNTED EXHAUST FAN AT LOCATION SHOWN. SUPPORT EQUIPMENT WITH ALL THREAD ROD AND UNISTRUT FROM STRUCTURE ABOVE. ROUTE NEW LOW PRESSURE EXHAUST DUCT ABOVE CEILING AND TERMINATE WITH FIXED BLADE, EXTRUDED ALUMINUM, DRAINABLE, EXTERIOR WALL LOUVER WITH EXPANDED METAL BIRD SCREEN SIZED AS SHOWN. SEAL PERIMETER OF LOUVER AT OPENING WITH MATCHING MORTAR OR GROUT. BALANCE TO QUANTITY OF EXHAUST AIR PER SCHEDULE.
- PROVIDE AND INSTALL NEW CEILING MOUNTED EXHAUST FAN AT LOCATION SHOWN. SUPPORT EQUIPMENT WITH ALL THREAD ROD AND UNISTRUT FROM STRUCTURE ABOVE. ROUTE NEW LOW PRESSURE EXHAUST DUCT ABOVE CEILING AND OVER TO 10"x10" EXHAUST DUCT UP TO GRAVITY VENTILATOR GV-1 ON ROOF ABOVE. BALANCE TO QUANTITY OF EXHAUST AIR PER SCHEDULE. ROOF CURB, FLASHING, PATCHING, AND REPAIR OF ROOF BY CONTRACTOR.
- PROVIDE AND INSTALL 7 DAY PROGRAMMABLE, 2 STAGE HEAT/COOL ON/OFF LOW VOLTAGE THERMOSTAT AT LOCATION SHOWN. ROUTE CONTROL WIRING ABOVE CEILING AND DOWN IN WALLS FROM AIR HANDLER TO THERMOSTAT. PROVIDE TRANSFORMER, WIRING, THERMOSTAT, AND ELSE REQUIRED FOR COMPLETE INSTALLATION. MOUNT AT SAME HEIGHT AND ADJACENT TO LIGHT SWITCH. TYPICAL AS SHOWN.

SUPPLY AIR DIFFUSER	
AIRFLOW	DUCT/NECK SIZE
0 - 100 CFM	6" ROUND
110 - 220 CFM	8" ROUND
225 - 400 CFM	10" ROUND
410 - 600 CFM	12" ROUND



GENERAL NOTES:

ALL CENTRAL AIR HANDLING UNITS SUPPLYING MORE THAN 2000 CFM AND/OR SERVING AN EXIT CORRIDOR SHALL HAVE SMOKE DETECTION TO INTERRUPT POWER. AHU SMOKE CONTROLS SHALL BE CONNECTED TO THE AUTOMATIC FIRE ALARM SYSTEM AS REQUIRED BY CODE.

ALL INTERIOR DUCT TO BE INSULATED WITH 2" FIBERGLASS DUCT WRAP WITH FOIL BACK VAPOR BARRIER. SEAL ALL SEAMS AND LAPS WITH 2" HIGH PRESSURE FOIL TAPE. SEAL ALL DUCT JOINTS WITH MASTIC DUCT SEALANT.

RECTANGULAR DUCT TO BE GALVANIZED SHEET METAL. LOW PRESSURE ROUND BRANCH DUCT TO BE SNAP LOCK GALVANIZED SHEET METAL TO WITHIN SIX FEET OF THE DIFFUSER CONNECTIONS WHERE FLEXIBLE DUCT MAY BE USED.

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CONTRACTOR TO COORDINATE ALL ROOF LEVEL MECHANICAL WORK INCLUDING PENETRATIONS AND EQUIPMENT INSTALLATION WITH GENERAL CONTRACTOR.

PROVIDE ACCESS PANELS IN DUCTS AT ALL FIRE AND FIRE/SMOKE DAMPERS WHERE APPLICABLE.

COORDINATE HORIZONTAL ROUTE OF DUCT THROUGH EXTERIOR WALL WITH COLUMNS, WINDOWS, OVERHANGS, ETC.

CONTRACTOR TO CONSULT ENGINEER WITH ALL QUESTIONS BEFORE PROCEEDING WITH WORK.

COORDINATE WORK WITH OWNER. ALL WORK IN THE OCCUPIED SPACE TO BE COMPLETED AT OWNER'S CONVENIENCE.

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PROVIDE REDUCERS, TRANSITIONS, AND FITTINGS AS REQUIRED FOR ALL CONNECTIONS AS SHOWN.

PROVIDE REINFORCED CONCRETE BASE FOR ALL NEW EQUIPMENT AS SHOWN ON DRAWING. CHAMFER PAD EDGES AT 45 DEGREE ANGLE.

ALL EQUIPMENT, LABOR, MATERIAL, AND COORDINATION TO COMPLETE THIS PROJECT PER THE DESIGN INTENT SHALL BE PROVIDED BY CONTRACTOR.

COORDINATE INSTALLATION OF EQUIPMENT AND UTILITIES WITH CONDITIONS AT SITE. CONTRACTOR MAY MODIFY ROUTING OF DUCT AS REQUIRED BY SITE CONDITIONS. IF CHANGES IN SIZE ARE REQUIRED CONSULT ENGINEER.

CONTRACTOR IS RESPONSIBLE FOR ALL WORK REQUIRED TO COMPLETE THE PROJECT IN AGREEMENT WITH THE DESIGN INTENT SHOWN ON THESE DRAWINGS. ANY DUCT DIMENSION SHOWN MAY BE MODIFIED BY CONTRACTOR FOR COORDINATION PURPOSES WHILE ENSURING THAT AIRFLOW AREA DOES NOT DECREASE.

PROVIDE AABC OR NEBB TAB AGENT TO TEST, ADJUST, AND BALANCE THE AIR SYSTEMS MODIFIED ON THIS PROJECT TO WITHIN +/- 10% . PROVIDE COMPLETE TAB REPORT TO ENGINEER BEFORE SCHEDULING FINAL INSPECTION. COMPLETE FINAL BALANCING AND SUBMIT REPORT TO ENGINEER.

THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL 120V TO 24 V TRANSFORMERS AND LOW VOLTAGE CONTROL WIRING FOR MECHANICAL COMPONENTS SHOWN ON THE DRAWINGS AND IN THE CONTROLS SUBMITTALS. THE MECHANICAL CONTRACTOR WILL NOT BE RESPONSIBLE FOR INSTALLING ANY 120 VOLT POWER WIRING TO ANY CONTROLLERS. THAT RESPONSIBILITY IS THE ELECTRICAL CONTRACTOR.

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ALL EQUIPMENT, LABOR, MATERIAL, AND COORDINATION TO COMPLETE THIS PROJECT PER THE DESIGN INTENT SHALL BE PROVIDED BY CONTRACTOR.

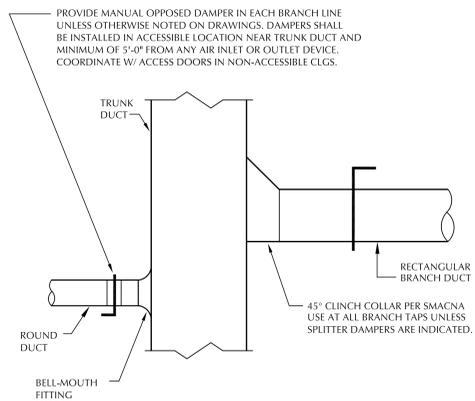
FOR EXTERIOR DUCT, PROVIDE 2" RIGID EXTERIOR BOARD TYPE FIBERGLASS DUCT INSULATION WITH FSK VAPOR BARRIER. SEAL ALL SEAMS AND JOINTS TO BE AIR TIGHT. PROVIDE SECONDARY GALVANIZED METAL DUCT JACKET AROUND THE PERIMETER OF THE INSULATED AIR DISTRIBUTION DUCT. SEAL ALL JOINTS AND SEAMS WATER TIGHT.

NUMBERED NOTES:

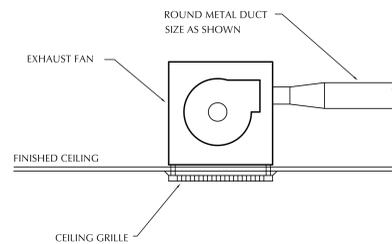
- ① PROVIDE AND INSTALL NEW ROOFTOP AIR HANDLER AS SHOWN. PROVIDE MANUFACTURER'S REQUIRED CURB, DUCT CONNECTIONS, CONTROL CONNECTIONS, START UP, AND BALANCING OF THIS SYSTEM FOR FULLY FUNCTIONAL SYSTEM PERFORMING TO DESIGN REQUIREMENTS. ROOF PENETRATION(S), ROOF CURB, FLASHING, PATCHING, AND REPAIR OF ROOF BY CONTRACTOR.
- ② PROVIDE AND INSTALL KITCHEN HOOD EXHAUST FAN / SUPPLY FAN FOR KITCHEN EQUIPMENT AS SHOWN. INSTALL PER MANUFACTURER'S INSTALLATION REQUIREMENTS. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR. BALANCE TO QUANTITY OF EXHAUST/MAKE-UP AIR PER SCHEDULE. FAN SUPPORTS, DUCT CONNECTIONS, ROOF PENETRATION, FLASHING, PATCHING, AND REPAIR OF ROOF BY CONTRACTOR.
- ③ PROVIDE AND INSTALL NEW GRAVITY VENTILATOR AS SHOWN. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR. PROVIDE DUCT CONNECTIONS, ROOF PENETRATIONS, AND SUPPORTS AS REQUIRED. ALL TYPICAL.
- ④ PROVIDE AND INSTALL 44"x44" INSULATED DUCT PLENUM ON MANUFACTURER'S ROOF CURB. SEAL PLENUM AIR AND WATER TIGHT ON ALL FOUR SIDES AS REQUIRED. TAP 26"x18" CONNECTIONS INTO BOTTOM OF PLENUM WHERE INDICATED AND ROUTE AS SHOWN ON FIRST FLOOR PLAN. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR. PROVIDE DUCT CONNECTIONS, ROOF PENETRATIONS, AND SUPPORTS AS REQUIRED. ALL TYPICAL.

FLOOR PLAN - ROOF
SCALE: 1/8" = 1' - 0"

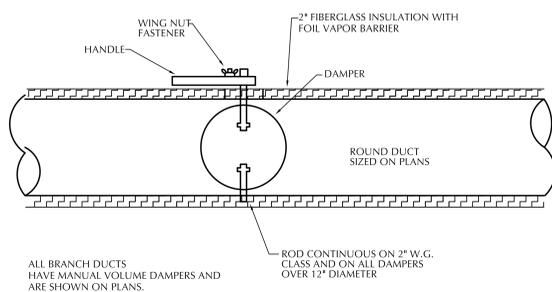
NOTE:
DAMPERS SHALL BE PROVIDED IN ALL BRANCH RUN-OUTS TO DIFFUSERS,
R.A AND EXHAUST GRILLES, UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS.
LOCATE DAMPERS SO THEY ARE ACCESSIBLE FROM LAY-IN CEILING OR ACCESS DOORS.



BRANCH DUCT TAP DETAIL

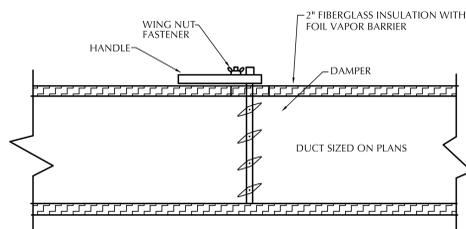


CEILING MOUNTED EXHAUST FAN



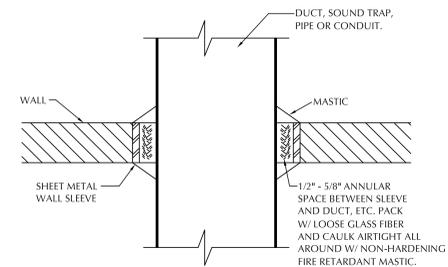
ALL BRANCH DUCTS HAVE MANUAL VOLUME DAMPERS AND ARE SHOWN ON PLANS.

ROUND DUCT MANUAL DAMPER



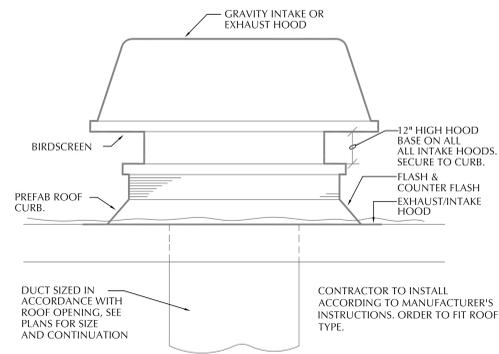
RECTANGULAR DUCT MANUAL DAMPER

NOTE: THIS DETAIL APPLICABLE AT MECHANICAL ROOM WALL PENETRATIONS, SMOKE TIGHT WALLS, SOUND CONTROL PARTITIONS AND WHERE OTHERWISE INDICATED.

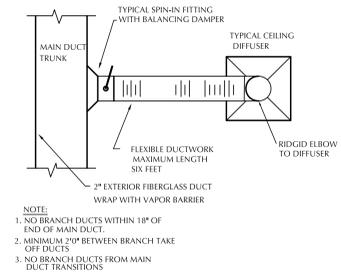


WALL PENETRATION DETAIL

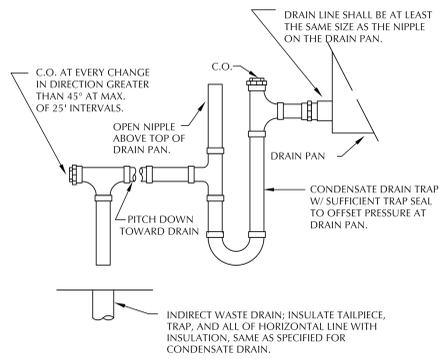
MECHANICAL DETAILS
SCALE: NONE



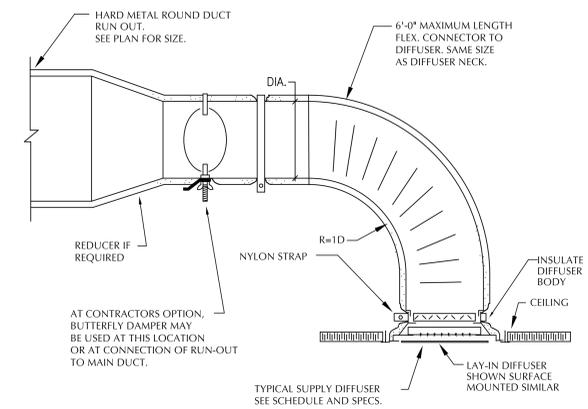
ROOF MOUNTED GRAVITY EXHAUST/INTAKE VENTILATOR DETAIL



TYPICAL ROUND BRANCH DUCT TAKE-OFF

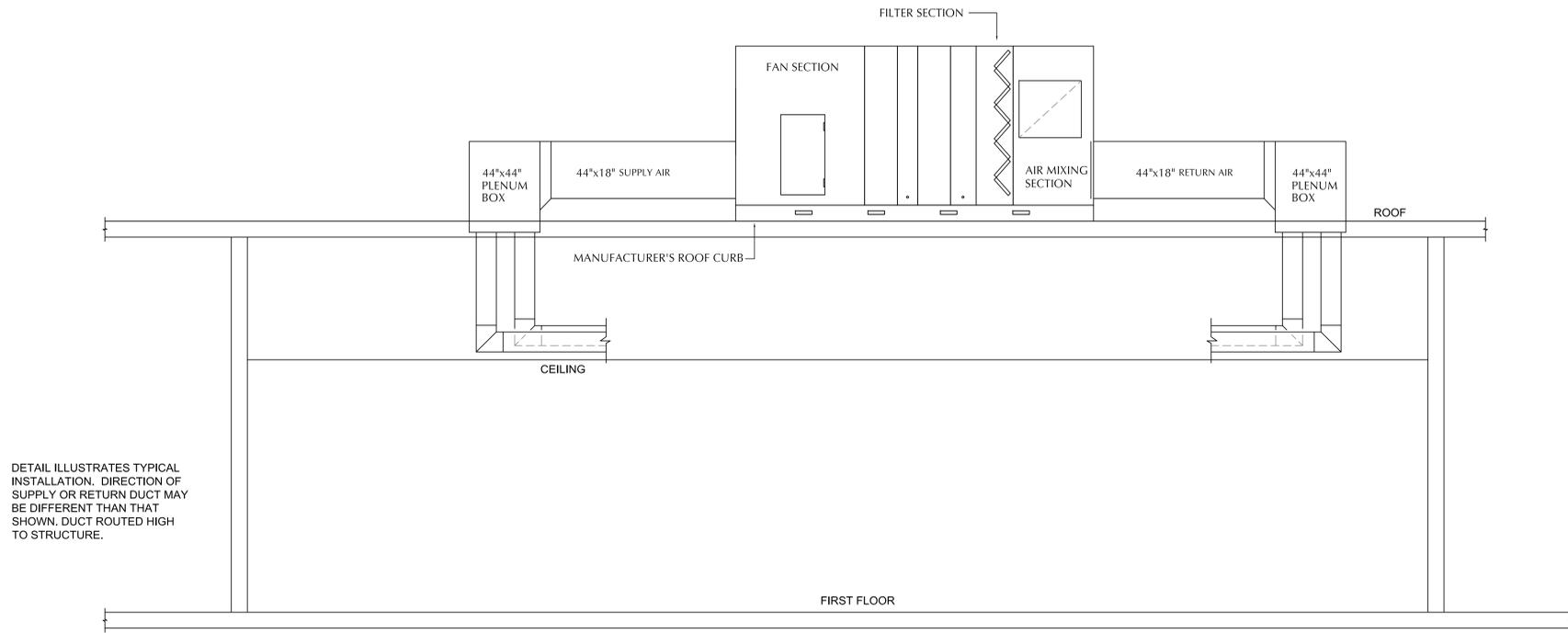


CONDENSATE DRAIN TRAP DETAIL



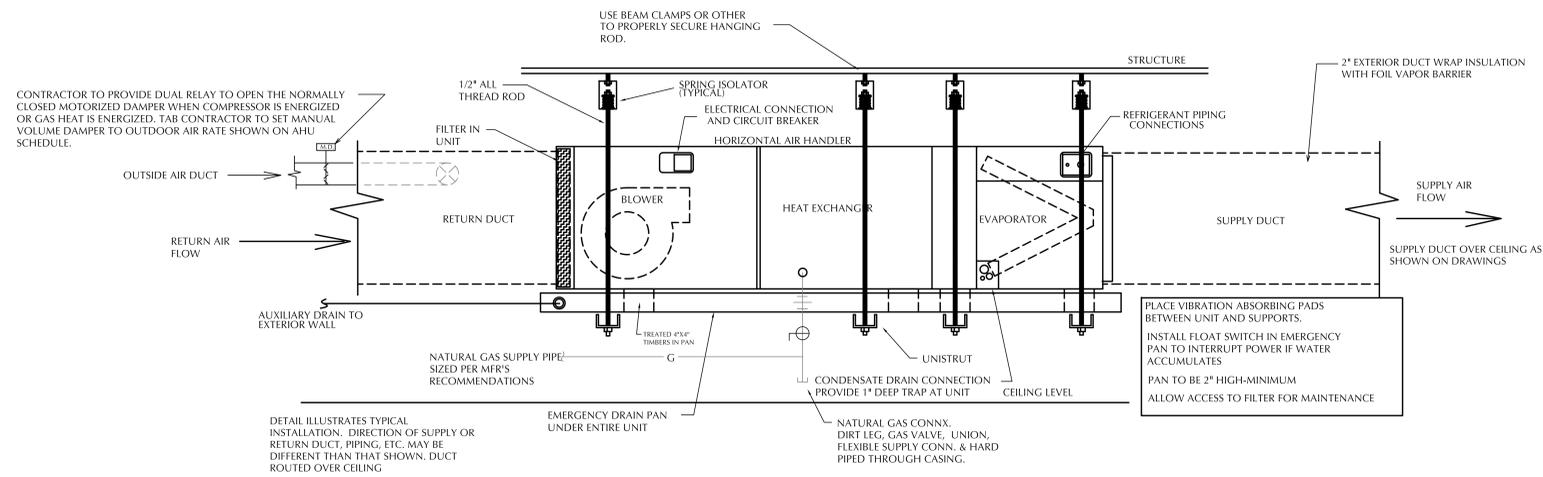
ALL CEILING AIR DEVICES ON THIS PROJECT TO HAVE CEILING RADIATION DAMPERS APPROVED FOR ARCHITECTURAL REQUIRED FIRE RATING.

TYPICAL DIFFUSER MOUNTING



DETAIL ILLUSTRATES TYPICAL INSTALLATION. DIRECTION OF SUPPLY OR RETURN DUCT MAY BE DIFFERENT THAN THAT SHOWN. DUCT ROUTED HIGH TO STRUCTURE.

RTU-1 ELEVATION SCHEMATIC



CONTRACTOR TO PROVIDE DUAL RELAY TO OPEN THE NORMALLY CLOSED MOTORIZED DAMPER WHEN COMPRESSOR IS ENERGIZED OR GAS HEAT IS ENERGIZED. TAB CONTRACTOR TO SET MANUAL VOLUME DAMPER TO OUTDOOR AIR RATE SHOWN ON AHU SCHEDULE.

DETAIL ILLUSTRATES TYPICAL INSTALLATION. DIRECTION OF SUPPLY OR RETURN DUCT, PIPING, ETC. MAY BE DIFFERENT THAN THAT SHOWN. DUCT ROUTED OVER CEILING

FCU-1 SIDE VIEW
SCALE: NONE

EXHAUST FAN SCHEDULE									
MARK	GREENHECK MODEL	CFM	MAX RPM	STATIC * W.G.	DRIVE TYPE	MOUNTING	ELECTRICAL	REMARKS	
EF-1 THRU EF-3	SP-A90	75	878	25"	DIRECT	CEILING	115V, 14 WATT	CONTROLLED BY LIGHT SWITCH.	
PROVIDE ACCESSORIES AS SHOWN OR NOTED. PROVIDE WITH FACTORY MOUNTED DISCONNECT AT ALL FANS. BACKDRAFT DAMPERS, VIBRATION ISOLATION KIT, FLEXIBLE CONNECTIONS, FACTORY FAN SPEED CONTROL, WHITE ALUMINUM GRILLE, AND MOUNTING HARDWARE WITH ALL FANS. PRODUCTS SHALL BE MADE IN USA PER 2CFR 200.322 ESSER GUIDELINES.									

LOUVER SCHEDULE									
MARK	EQUAL TO RUSKIN MODEL	DUTY TYPE	SIZE	MOUNTING	COLOR	REQUIRED CFM	MATERIAL	REMARKS	
LV-1	ELF6375DX	EXHAUST AIR	12"x12"	EXTERIOR WALL SURFACE	TO MATCH	AS SHOWN	ALUMINUM	USED AS LOUVERED EXTERIOR WALL GRILLE INCLUDE 3/4" MESH SCREEN, FACTORY KYNAR FINISH, EXTENDED SILL, CHANNEL FRAME.	

GRAVITY VENTILATOR SCHEDULE									
MARK	MAKE	MODEL	TYPE	FINISH	WIDTH	HEIGHT	FACE VELOCITY	P.D.	REMARKS
GV-1	COOK	12 PR	ROOF TOP GRAVITY VENTILATOR	ALUMINUM	20"	20"	500 FPM	0.05"	

GRILLE, REGISTER, DIFFUSER SCHEDULE									
MARK	EQUAL TO TITUS MODEL	DUTY TYPE	SIZE	MOUNTING	COLOR	REQUIRED CFM	MATERIAL	REMARKS	
A	TMS AA	SUPPLY	24"x24"	LAY-IN	WHITE	AS SHOWN	ALUMINUM	SUPPLY AIR DIFFUSER	
B	TMS AA	SUPPLY	12"x12"	LAY-IN	WHITE	AS SHOWN	ALUMINUM	SUPPLY AIR DIFFUSER	
C	300 FL	SUPPLY	18"x12"	WALL SURFACE	WHITE	AS SHOWN	ALUMINUM	LOUVERED INTERIOR SUPPLY AIR WALL GRILLE.	
D	50F	RETURN	24"x24"	LAY-IN	WHITE	AS SHOWN	ALUMINUM	CUBE CORE GRILLE	
E	350 FL	RETURN	18"x12"	WALL SURFACE	WHITE	AS SHOWN	ALUMINUM	LOUVERED INTERIOR RETURN AIR WALL GRILLE (3/4" BLADE SPACING)	

SUPPLY DIFFUSERS WILL HAVE ROUND NECK SIZES AS SHOWN ON DRAWING. NECK SIZE OF DIFFUSER SHOULD MATCH DUCT SIZE WHICH SERVES THAT DIFFUSER. FOR THE SURFACE MOUNTED SUPPLY DIFFUSERS, A PLASTER RING MAY BE USED. NOTE: MECHANICAL CONTRACTOR TO COORDINATE DIFFUSERS WITH CEILING TYPES.

HORIZONTAL FAN COIL UNIT SCHEDULE												
MARK	EQUAL TO LENNOX MOD.	TOTAL CFM	MAX O.A. CFM	COOLING			ELECTRICAL	ELECTRIC HEAT		RATED LOAD AMPS	OUTPUT (W)	REMARKS
				CAP	EA DB/WB	LA DB/WB		SIZE	ELECTRICAL			
FCU-1	MMDB02454	695	70	24 MBH	80°/67°	55°/55°	208V/1PH	--	--	1.7	160	HORIZONTAL SPLIT SYSTEM, THREE SPEEDMOTOR.

NOTES: EACH UNIT SHOULD BE EQUIPPED WITH THE APPROPRIATE SIZE EVAPORATOR COIL. VERIFY ELECTRICAL REQUIREMENTS PER MANUFACTURER'S RECOMMENDATIONS.

HEAT PUMP UNIT SCHEDULE									
MARK	EQUAL TO LENNOX MOD.	COOLING CAP. TOTAL BTU/H	TYPE HP/CU	HEATING CAPACITY	ELECTRICAL REQ.	MCA	MAX FUSE SIZE	REMARKS	
HP-1	MLB03054M	24 MBH	HP	24 MBH	208/1PH	25.0	40 A	2-STAGE HEAT PUMP	

NOTES: INSTALL ACCORDING TO MANUFACTURER'S INSTALLATION REQUIREMENTS.

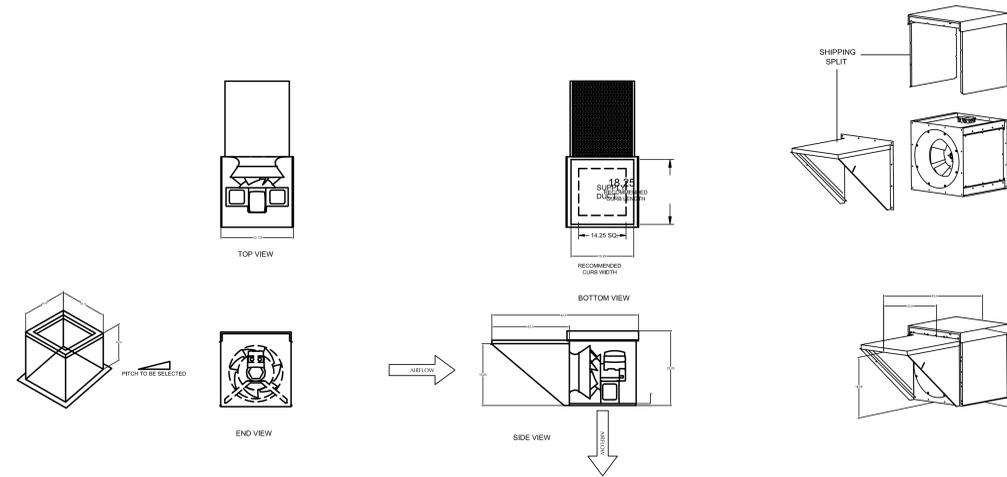
PACKAGED UNIT SCHEDULES														
MARK	MAKE	MODEL	FAN DATA			COOLING TOT BTUH	GAS HEAT		COMPRESSORS	ELECTRICAL			PRE-FILTER	REMARKS
			CFM	OA	ESP		INPUT BTU	OUTPUT BTU		VOLTS	MCA	MOP		
RTU-1	LENNOX	LGT150H4EM1Y	5,000	1,000	0.5"	141,000	180,000	144,000	2	208/3PH	61.0	80	MERV 8	SEE NOTES INDICATED BELOW

NOTES:
 1.) UNIT SHALL BE SUPPLIED WITH MODULATING OA/RA DAMPER CONTROL FOR ECONOMIZER .
 2.) PROVIDE WITH MANUFACTURER'S ROOF CURB TO MATCH DUCT DROP ORIENTATION(S).
 3.) DIRECT DRIVE PLENUM FAN WITH EC MOTOR
 4.) HUMIDITROL HOT GAS REHEAT
 5.) CS7500 COLOR TOUCHSCREEN PROGRAMMABLE TSTAT
 6.) DUAL ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF
 7.) FACTORY 120V CONVENIENCE OUTLET
 8.) FACTORY DISCONNECT
 9.) SUPPLY AND RETURN SMOKE DETECTORS
 10.) CONDENSER HAIL GUARDS
 11.) WARRANTY: 1 YEAR UNIT PARTS, 5 YEAR COMPRESSOR PARTS.

Direct Drive Mixed Flow Filtered Roof Supply Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION				
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS
1	KSF-1	KSQ-12-M2	1,490	0.613	1,750	0.44	124	0.75	208/60/3	TF	1750	1

KSF-01 : SELECTED OPTIONS AND ACCESSORIES
Horizontal Weatherhood Intake, Bottom (Curb Mounted) Discharge
UL/cUL 705 Listed - "Power Ventilators"
Switch, NEMA-3R, Toggle, Shipped Separate
Damper Shipped Loose, WD-330-PB-14.25X14.25, Gravity Operated, Not Coated
1" Aluminum Primary Filter

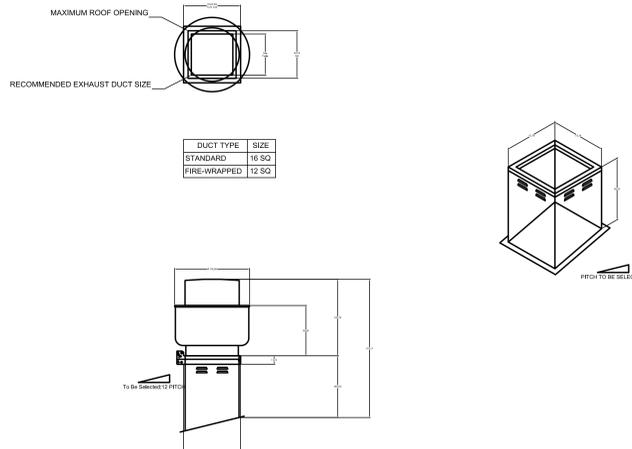


Direct Drive Upblast Centrifugal Roof Exhaust Fan

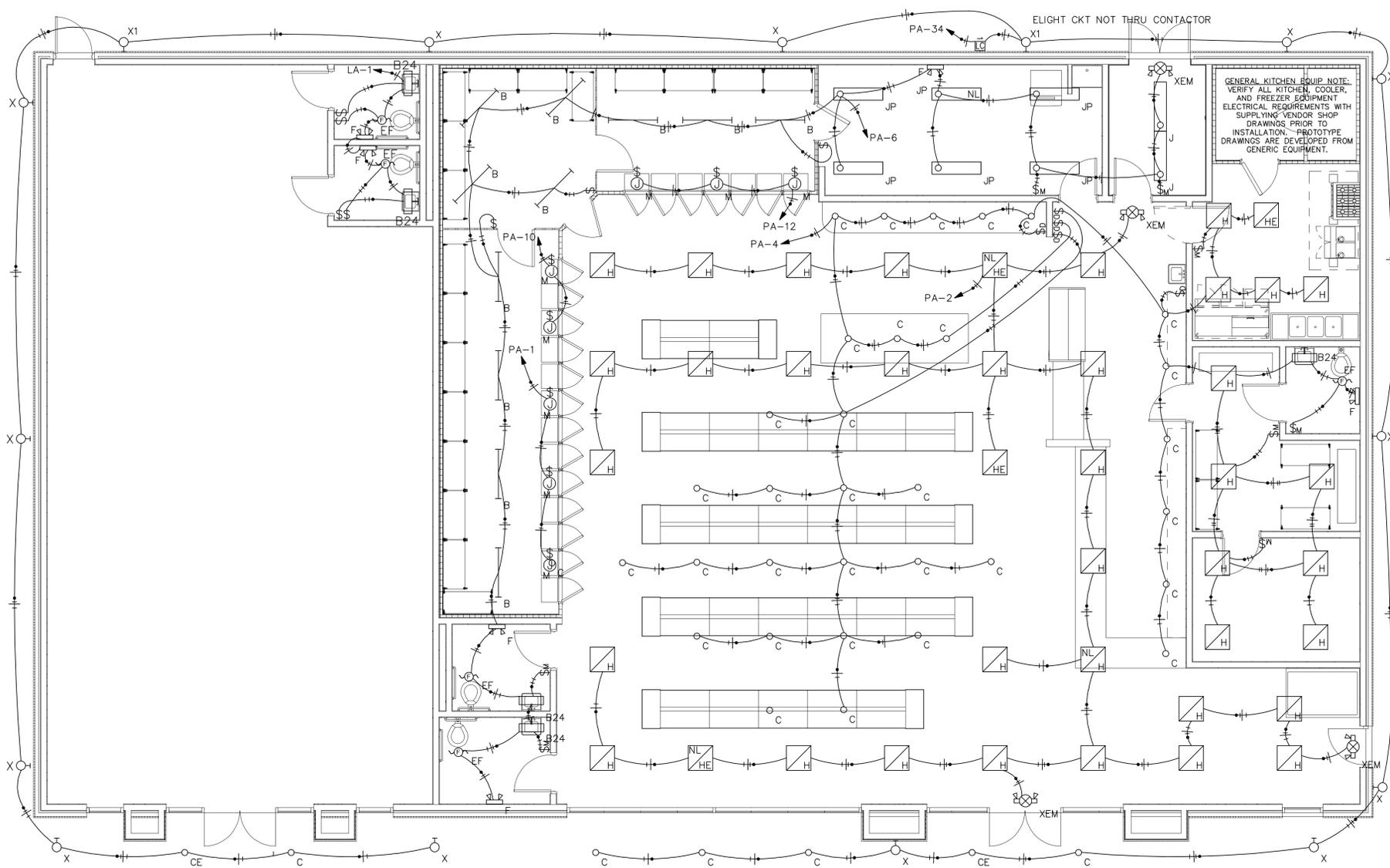
MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	KEF-1	CUE-140-VG	1,862	0.994	1,462	0.6	122	1	208/60/3	TF	1725	1	4.6

*NEC FLA - Based on table 430.250 or 430.248 of National Electrical Code 2020. Actual motor FLA may vary for sizing thermal overload, consult factory

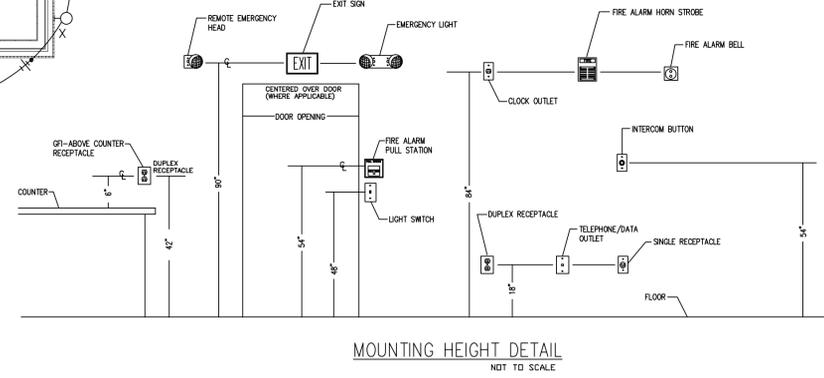
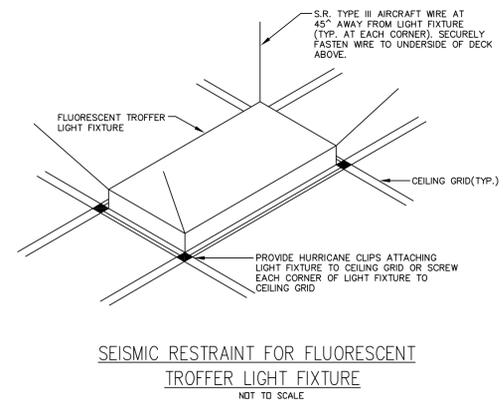
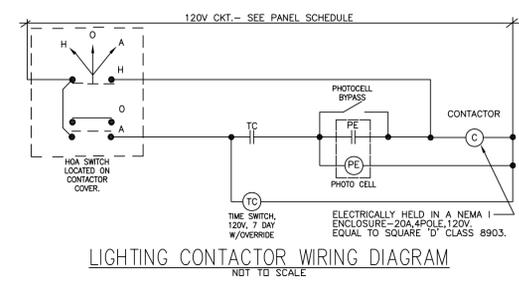
KEF-01 : SELECTED OPTIONS AND ACCESSORIES
Standard Curb Cap Size - 22 Square
UL/cUL 705 Listed - "Power Ventilators"
Switch, NEMA-1, Toggle, Shipped with Unit
Hinge, Factory Installed
Foam Curb Seal (Factory Applied)
Birdscreen: Stainless Steel, nom. 85% Free Area



DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB. CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.
OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.

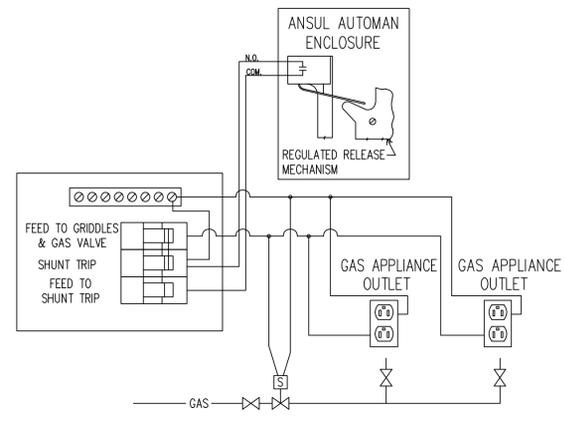
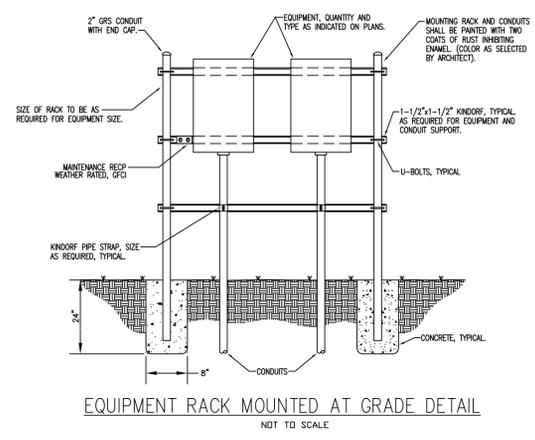
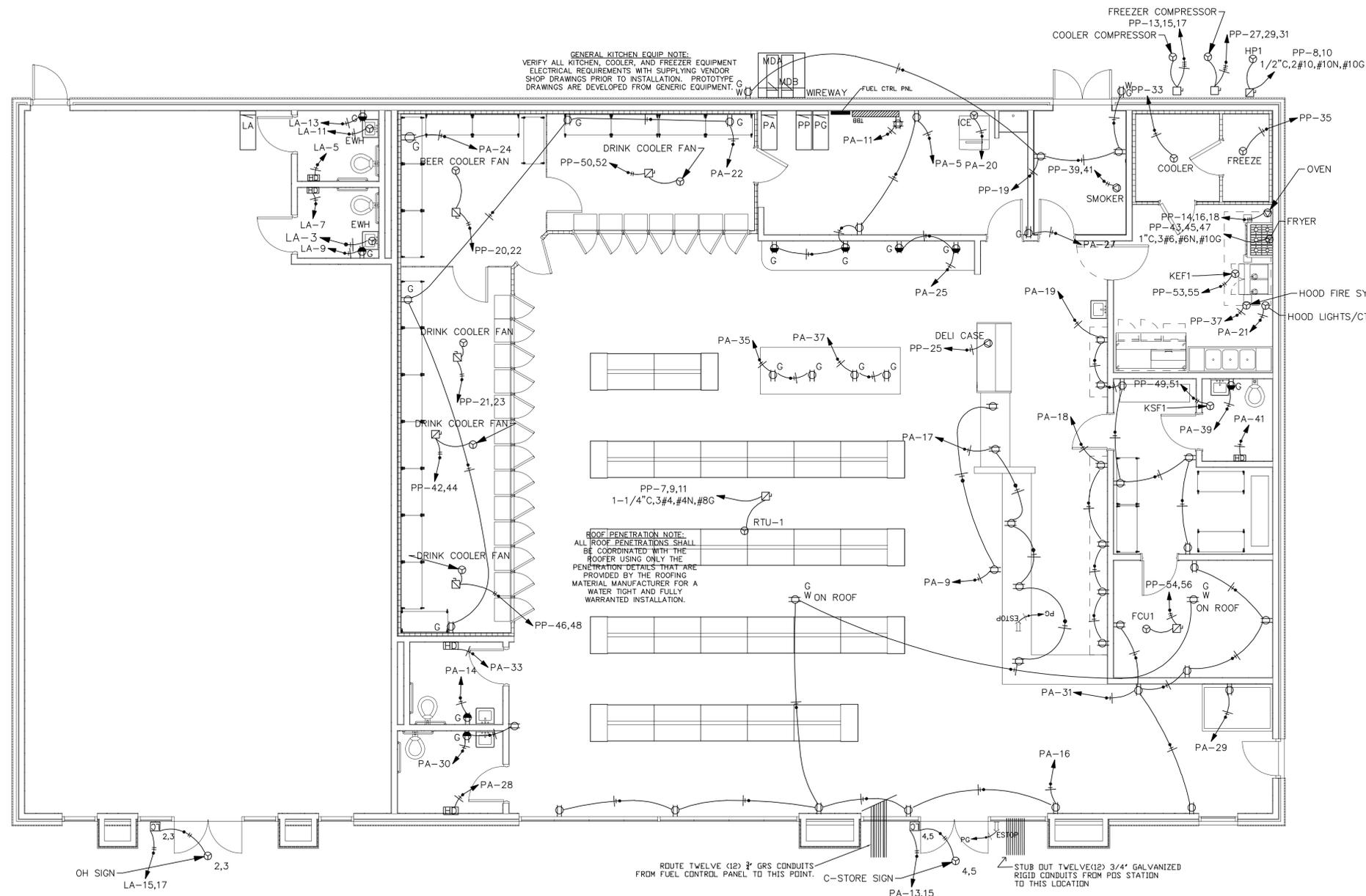


LIGHTING PLAN
SCALE: 3/16" = 1'-0"



CALLOUT	SYMBOL	NOTE 1	NOTE 2	NOTE 3	QUANTITY
DIMMER	\$ _D	LED DIMMER COMPATIBLE WITH LIGHTING	MOUNT CENTERLINE OF BOX AT 45" AFF UNLESS NOTED OTHERWISE		5
Generic Switch	\$	SINGLE-POLE, SINGLE THROW SWITCH	MOUNT CENTERLINE OF BOX AT 45" AFF UNLESS NOTED OTHERWISE		7
LC	\$ _{LC}	MULTI-POLE LIGHTING CONTACTOR	SUBSCRIPT INDICATES POLE NUMBER ON CONTACTOR		3
MOTION	\$ _M	MOTION DETECTOR SWITCH, PASS & SEYMOUR #WSP200 OR EQUIVALENT.	MOUNT CENTERLINE OF BOX AT 45" AFF UNLESS NOTED OTHERWISE		8

CALLOUT	SYMBOL	LAMP	DESCRIPTION	BALLAST	MOUNTING	MODEL	INPUT WATTS	VOLTS
B	—	(1) 57W LED	VAPORTIGHT LED, INTERNAL PRISMATIC LENS, 15% DR HIGH IMPACT ADDITIVE, UNIVERSAL VOLTAGE, 4000K, 1 DIMMING DRIVER	ELECTRONIC	CEILING	COOPER 4V12 LD4 6 DR UNV L840 CD1	57.3	120V 1P 2W
B24	—	(1) 17.5W LED	24" WALL MOUNT LED, 3000K COLOR, INTEGRAL PIR SENSOR, DIMS TO 10% WHEN ROOM UNOCCUPIED, NIGHT WITHOUT LUMEN MANAGEMENT	ELECTRONIC	WALL	LITHONIA WL2 18L LPS30 NES7 N100 DIM10	17.5	120V 1P 2W
C	o	(1) 26W LED	4000K, 2500LM, CR190, CLEAR REFLECTOR, WIDE DIST, MATTE DIFFUSE, ELDOLED 0-10V LINEAR DIMMING < 1%	ELECTRONIC	RECESSED	GOTHAM LIGHTING EV04 40/25 AR WD LD 120 CR190 EZB	26	120V 1P 2W
CE	o	(1) 26W LED (1) 0.02W LED	4000K, 2500LM, CR190, CLEAR REFLECTOR, WIDE DIST, MATTE DIFFUSE, ELDOLED 0-10V LINEAR DIMMING < 1%	ELECTRONIC ELECTRONIC	RECESSED	GOTHAM LIGHTING EV04 40/25 AR WD LD 120 CR190 EZB ELSD	26 0.015	120V 1P 2W
F	—	(2) 5.4W LED	DUAL HEAD EMERGENCY LIGHT, WHITE, LITHIUM IRON PHOSPHATE, LED, UL LISTED DAMP LOCATION, 50F-104F, SELF-DIAGNOSTICS, UNIVERSAL VOLTAGE 120-277V 50 CR 60HZ, 6" PATH CLEARANCE AT 38" 7.5 CEILING, 56" 10' CEILING, 58" 12' CEILING.	ELECTRONIC	WALL	LITHONIA EMLT W LP06VS LTP SD	19.2	120V 1P 2W
H	—	(1) 27W LED	ARCHITECTURAL LED TROFFER, 90 CRI, 3000K TO 5000K ADJUSTABLE CCT	ELECTRONIC	RECESSED	CREE CR22 32L 9ACK CMA UNV	27	120V 1P 2W
HE	—	(1) 27W LED (1) 4W LED	ARCHITECTURAL LED TROFFER, 90 CRI, 3000K TO 5000K ADJUSTABLE CCT	ELECTRONIC ELECTRONIC	RECESSED	CREE CR22 32L 9ACK CMA UNV E2	27 4	120V 1P 2W
J	—	(1) 40W LED	LED NARROW STRIP LIGHT,	ELECTRONIC	CEILING	METALLUX 4SLSTP4040DD 120V	40	120V 1P 2W
JP	—	(1) 40W LED	LED NARROW STRIP LIGHT,	ELECTRONIC	PENDANT	METALLUX 4SLSTP4040DD 120V	40	120V 1P 2W
M	—	(1)		ELECTRONIC	CEILING	JUNCTION BOX FOR NEON LIGHTS WITH WALL SWITCH	250	120V 1P 2W
P	—	(1) 100W	LIGHTS SUPPLIED WITH GAS CANOPY	ELECTRONIC	CEILING	SEE GAS CANOPY	100	120V 1P 2W
P1	—	(1) 277W LED	DSX2 LED W/4 (20) LED LIGHT ENGINES, (2) 1050mA DRIVERS, AMBPC LED, TYPE TAM OPTICS WITH HOUSE SIDE SHIELD, NIGHTTIME FRIENDLY, EPA 1.1,	ELECTRONIC	POLE	LITHONIA DSX2 LED 80C 1000 50K AMBPC TAM MVOLT HS SPA	277	120V 1P 2W
X	—	(1) 61W LED	DECORATIVE WALL MOUNTED FORWARD THROW LED, NIGHTTIME FRIENDLY,	ELECTRONIC	WALL	LITHONIA MRW LED P4 40K SR2 MVOLT	61	120V 1P 2W
X1	—	(1) 61W LED	BATTERY LED BACKUP DECORATIVE WALL MOUNTED FORWARD THROW LED, WITH 10H UP LIGHTING, EMERGENCY BATTERY BACKUP	ELECTRONIC	CEILING	LITHONIA MRW LED P4 40K SR2 MVOLT E20WC	61	120V 1P 2W
XEM	—	(1) 7W 7WMR16	COMBINATION EXIT EMERGENCY LIGHT WITH AUTOMATIC BATTERY BACKUP, CEILING OR WALL MOUNT - RED LETTERS - BLACK	ELECTRONIC	CEILING	ASTRALITE EEU MR R B	14	120V 1P 2W



POWER & AUX ELEC PLAN
SCALE: 3/16" = 1'-0"

CALLOUT	SYMBOL	NEMA	VOLTS	FEATURES	NOTE 1	NOTE 2	NOTE 3	QUANTITY
COUNTER GFCI	⊕	5-20R	120V 1P 2W	G, GND	MOUNTED 2" ABOVE COUNTER WITH BACKSPASH, 6" ABOVE COUNTER WITHOUT BACKSPASH. MOUNTED 45° AFF WHERE NOT COUNTER IS PRESENT UNLESS NOTED OTHERWISE ON ARCHITECT DETAILS.	HUBBELL GFR15 (15A) OR GFR20 (20A) W/PLATE OR EQUIVALENT	GFCI DUPLEX RECEPTACLE, COMMERCIAL, SELF TESTING, TAMPER RESISTANT, WEATHER RESISTANT, LED, HEAVY DUTY, UL AND CSA APPROVED.	9
GFCI	⊕	5-15R	120V 1P 2W	G, GND	MOUNT AT 18" AFF. HUBBELL GFR15 (15A) OR GFR20 (20A) W/PLATE OR EQUIVALENT	GFCI DUPLEX RECEPTACLE, COMMERCIAL, SELF TESTING	TAMPER RESISTANT, WEATHER RESISTANT, LED, HEAVY DUTY, UL AND CSA APPROVED.	10
HAND	⊕		120V 1P 2W	GND	EXCEL DRYER XL-SB XLERATOR HAND DRYER OR AS SPECIFIED BY ARCHITECT	MOUNT AT 45° AFF IN MEN'S ROOM. MOUNT AT 43° AFF IN WOMEN'S ROOM.	STAINLESS STEEL HEATED UNIT	5
QUAD	⊕	5-15R	120V 1P 2W	GND	TWO RECP'S MOUNT AT 18" AFF. HUBBELL DR515XXWRTR (15A) OR DR520XXWRTR (20A) W/PLATE OR EQUIVALENT	COMMERCIAL GRADE, WEATHER RESISTANT, TAMPER RESISTANT, BACK AND SIDE WRED.	HEAVY DUTY, UL AND CSA APPROVED.	1
STANDARD	⊕	5-15R	120V 1P 2W	GND	MOUNT AT 18" AFF. HUBBELL DR515XXWRTR (15A) OR DR520XXWRTR (20A) W/PLATE OR EQUIVALENT	COMMERCIAL GRADE, WEATHER RESISTANT, TAMPER RESISTANT, BACK AND SIDE WRED.	HEAVY DUTY, UL AND CSA APPROVED.	33
WP	⊕	5-15R	120V 1P 2W	W, G, GND	MOUNT 24" AFF IN A UL APPROVED WEATHERPROOF ENCLOSURE THAT MATAINS WEATHERPROOF RATING WHILE A PLUG IS INSERTED.	HUBBELL GFR15 (15A) OR GFR20 (20A) W/PLATE OR EQUIVALENT	GFCI DUPLEX RECEPTACLE, COMMERCIAL, SELF TESTING, TAMPER RESISTANT, WEATHER RESISTANT, LED, HEAVY DUTY, UL AND CSA APPROVED.	4

1. IF A 5-15R IS THE ONLY RECEPTACLE ON THE CIRCUIT THEN UPGRADE RECEPTACLE TO 5-20R
2. RECEPTACLE COLOR TO BE SPECIFIED BY ARCHITECT.
3. RECEPTACLE COLOR AND LIGHT SWITCH COLORS ARE TO MATCH.

CALLOUT	SYMBOL	NOTE 1	NOTE 2	NOTE 3
TBB	—	4' x 4' x 3/4" PLYWOOD PAINTED TWO COATS BLUE ENAMEL.	PROVIDE ONE #6(G) - 1/2" CONDUIT CONNECTED TO THE BUILDING SERVICE GROUND.	ROUTE ONE 3" CONDUIT FROM BACKBOARD TO PROPERTY LINE AS DIRECTED BY LOCAL TELEPHONE VENDOR FOR TELEPHONE SERVICE ENTRANCE. INSTALL PULL STRING/WIRE IN CONDUIT.

WIREWAY table with columns for ROOM, MOUNTING SURFACE, FED FROM, and LOAD KVA. Includes sub-tables for CONN. KVA, CALC. KVA, and BALANCED 3-PHASE LOAD.

PP table with columns for ROOM, MOUNTING SURFACE, FED FROM, and LOAD KVA. Includes sub-tables for CONN. KVA, CALC. KVA, and BALANCED 3-PHASE AMPS.

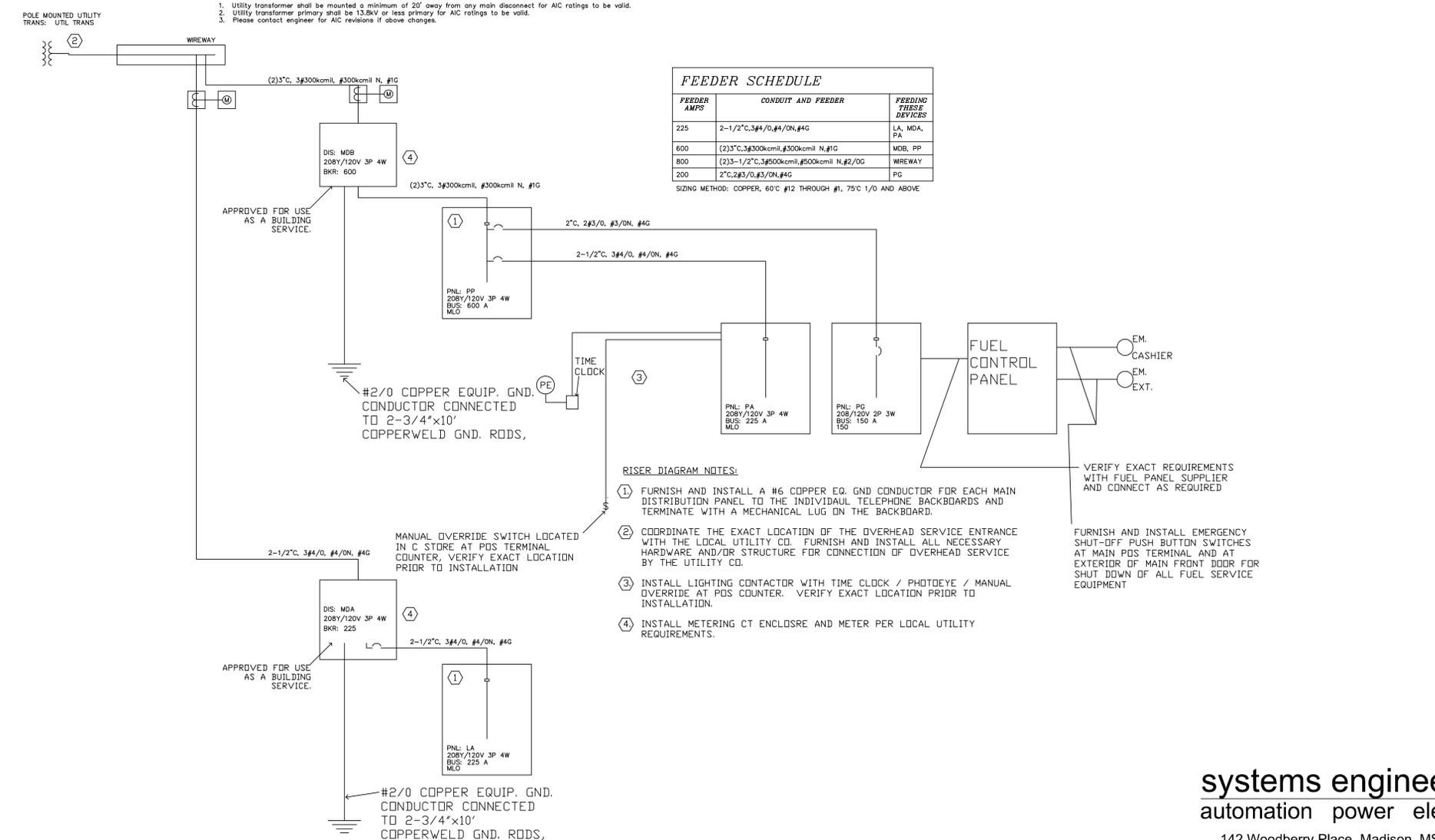
PA table with columns for ROOM, MOUNTING SURFACE, FED FROM, and LOAD KVA. Includes sub-tables for CONN. KVA, CALC. KVA, and BALANCED 3-PHASE AMPS.

LA table with columns for ROOM, MOUNTING SURFACE, FED FROM, and LOAD KVA. Includes sub-tables for CONN. KVA, CALC. KVA, and BALANCED 3-PHASE AMPS.

PG table with columns for ROOM, MOUNTING SURFACE, FED FROM, and LOAD KVA. Includes sub-tables for CONN. KVA, CALC. KVA, and BALANCED 3-PHASE AMPS.

FAULT CURRENT SCHEDULE table with columns for DEVICE, FAULT, AIC RATING, L-N VOLTS, UTILITY, and FED FROM. Includes a table for TRANSFORMER and DIRECTLY CONNECTED MOTOR LOAD.

VOLTAGE DROP SCHEDULE table with columns for DEVICE, FEEDER, BRANCH CIRCUIT, and TOTAL VOLTAGE DROP.



FEEDER SCHEDULE table with columns for FEEDER AMPS, CONDUIT AND FEEDER, and FEEDING THESE DEVICES.

Dhurna Gas Station - Crystal Springs

Project No. 20230210001 Date 02/10/2023

Construction Documents

Revision table with columns for Revision, Rev Date, and description.

Unnamed

systems engineering automation power electrical

142 Woodberry Place, Madison, MS 39110 601-214-5513 LannyPurvisPE@SystemsEng.com

