

Belzoni Gas Station



Dhunna Gas Station - Belzoni

1/26/2024

Date

20230703001

Project No

PURSER & COMPANY | 601.376.9647 DRAWINGS@PURSERANDCOMPANY.COM

650 1st St, Belzoni, MS 39008

New Construction

Construction Documents

Revision	#	Rev Date
SD	2	1/7/24
DD	3	1/14/23
CD	4	1/26/24

Cover Sheet

000

G

Project Directory

Project Information

Name: Dhunna Gas Station - Crystal Springs
Address: Highway 27, Crystal Springs, MS 39059

Client

Shivam Dhunna
468 Fairfield Dr.
Madison, MS 39110
(601) 218-8883
Contact: Sunny Dhunna

Architect

Purser & Company, PA
160 McTyre Ave, STE B
Jackson, MS 39202
(601) 376-9647
Contact: Paul Purser (paul@purserandcompany.com)

Drawing Index

Table with 2 columns: Sheet Number, Sheet Name. Lists sheets G-000 through E-104 including Cover Sheet, Reference, Site Layout, Structural Notes, Foundation & Details, Framing & Section Details, First Floor, Reflected Ceiling Plan, Building Elevations, Building Sections, Plumbing Symbols & Abbreviations, Plumbing Waste, Plumbing Supply, Roof, Plumbing Details, Plumbing Schedules, HVAC Symbols & Abbreviations, HVAC Floor Plan, Exhaust, Mechanical Details, Mechanical Schedules, Electrical, Lighting Plan, Power and Aux Plan, and Electrical Schedules.

Project Notes

Project Alternates

- 1. None

Energy Code Requirements

- 1. IBC 2015 Energy Code is the mandatory energy code standard for this project.
2. All mechanical and electrical building system installed should meet all requirements of the energy code.
3. Main roof insulation will be 6 inches of open cell spray foam insulation.
4. Exterior walls will 5.5 inches of fiberglass batt insulation.
5. Continuous air barrier to be provided at building envelope per IBC 2015 Energy Code. Air barrier joints and seams to be sealed and all joints and material transitions. Joints to be securely installed as to not dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind or mechanical units.

Thermal Envelope Requirements

- 1. Roofs = R-38 ci (insulation entirely above deck)
2. Walls = R-19 + R-7.5ci (wood framed walls)
3. Slab on Grade = no requirement

Fenestration Requirements (U-factor)

- 1. Fixed = U-Factor 0.46
2. Operable = U-Factor 0.60
3. Entrances = U-Factor 0.77
4. SHGC = U-Factor 0.25

General Information

- 1. Do not scale drawings. If dimensions are in question, the contractor shall be responsible for obtaining clarification from the architect before continuing with the construction. Contractors shall verify, on the site, all dimensions and equipment locations, and notify architect promptly in writing of any discrepancies.
2. Contractors shall be responsible to determine the on site conditions and perform all necessary work to complete the project.
3. Contractors shall maintain safe methods of egress for occupied buildings and in site area during construction.
4. All casework dimensions shall be field verified before unit fabrication or installation.
5. Dimensions, notes, finishes, and fixtures shown on typical floor plans shall apply to similar, symmetrical, or opposite hand plans, sections, or details.
6. Typical, or typ., shall mean that condition is representative for similar conditions throughout. U.N.O. Details are usually keyed and noted "Typ." only one time when they first occur.
7. Partitions are dimensioned from finish face U.N.O.
8. Dimensions to masonry are to actual finish face U.N.O.
9. Owner to have right of refusal for all materials, furniture, fixtures and good within the limits of the construction contract.

Project Code Requirements

1. Applicable Codes and Standards :

- A. IBC - International Building Code (2018 edition)
B. IMC - International Mechanical Code (2018 edition)
C. IPC - International Plumbing Code (2018 edition)
D. IEC - International Electrical Code (2018 edition)
E. IFC - International Fire Code (2018 edition)
F. ADA 2010- Americans with Disabilities Act

2. Building Code Requirements Occupancy Classification

Group B: Business

B. General Building Heights and Area

- 1. Group B, Type IV; 14,500 SF allowed per floor, 2 stories allowed
2. Area modifications for Fire Suppression - x2 = 29,000 SF per floor, 3 stories allowed
3. Area perimeter increases - x.75 = 50,750 SF per floor 3 stories allowed.

C. Types of Construction

Construction Type IV requirements:

Primary Structural Frame - 0hr

Bearing Walls

Exterior - 0hr

Interior - 0hr

Non-bearing Walls

Interior - 0hr

Floor Construction - 0hr

Roof Construction - 0hr

D. Means of Egress

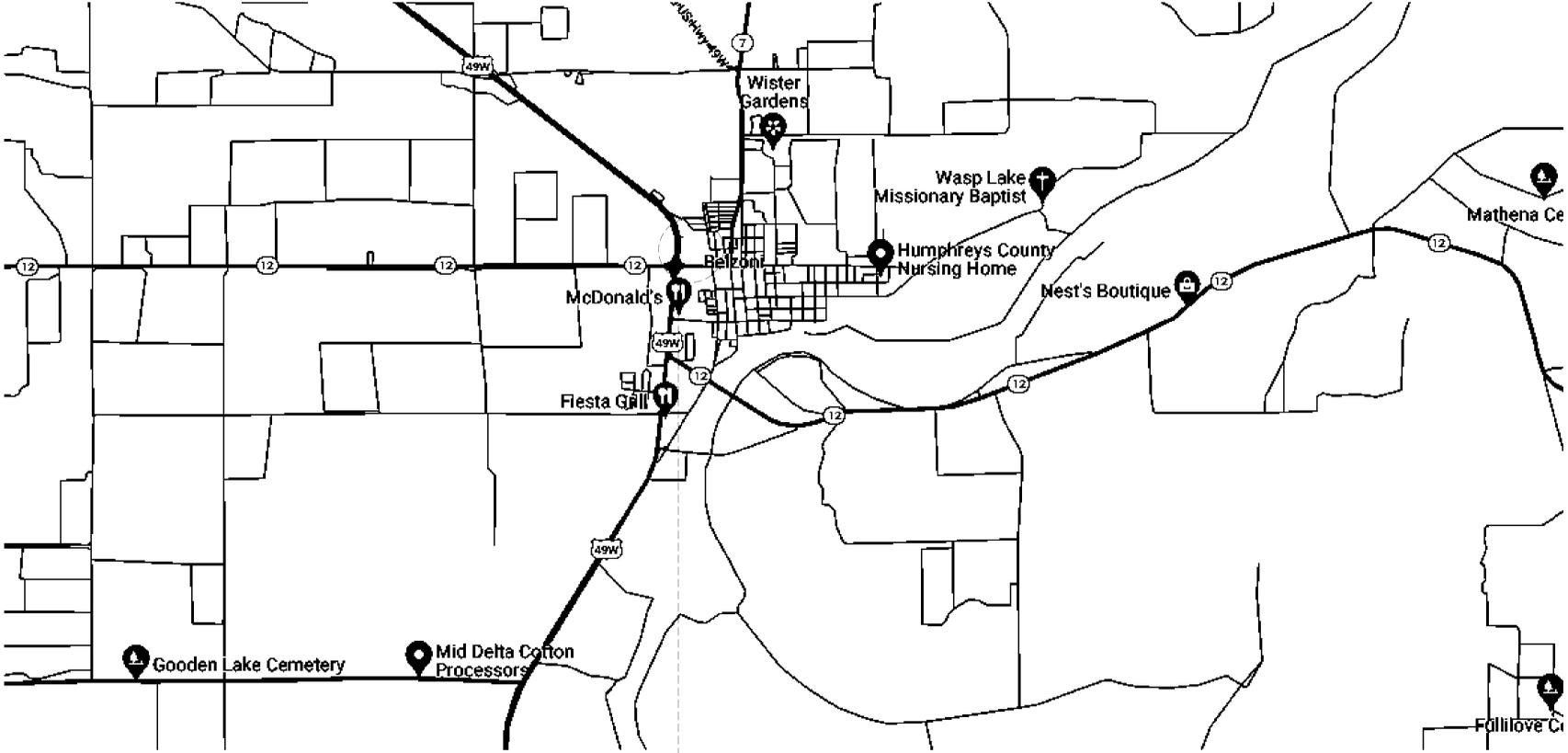
Common Path of Egress Travel - 75 ft.

Exit Access Travel Distance - 200 ft.

E. Fire Protection Systems

Fire Suppression - Yes

Comprehensive list of abbreviations and their meanings, including terms like AIR CONDITIONING, QUARTZ RESINOUS FLOORING, QUARTER, QUARTRY TILE, R, RISER, RADIUS, RUBBER BASE, RUBBER, RUBBER CONCRETE PIPE, ROOF DRAIN, REFERENCE, REFRIGERATOR, REINFORCED, REINFORCED CONCRETE PIPE, REVISION, RIGHT HAND, ROOM, ROUND, ROUGH OPENING, ROOF PAPER SYSTEM, RETURN REGISTER, SOUTH, SOLID CORE, SEAT COVER DISPENSER, STAINED/SEALED CONCRETE FLOOR, SCHEDULE, SOAP DISPENSER, SECTION, SHEET, SHEATHING, SIMILAR, SCORE JOINT, SEAMLESS JOINT WALL COVERING, SANITARY NAPKIN DISPENSER, SANITARY NAPKIN DISPOSAL UNIT, SANITARY NAPKIN / TAMPON DISPENSER, SOUNDPROOF, SPRAYER, SPECIFICATIONS, SPECIMEN PASS THRU CABINET, SQUARE, SANITARY SEWER, SHOWER SOAP DISPENSER, STAINLESS STEEL, SOUND TRANSMISSION COEFFICIENT, STANDARD, STEEL, STORAGE, SUPPLEMENTAL, SHEET, SVSK, SERVICE SINK, SHOWER, SHOWER CURTAIN, SOUTHERN YELLOW PINE, TREAD, TOP & BOTTOM, TONGUE & GROOVE, TOWEL BAR, TO BE DETERMINED, TO BE REMOVED, TELEPHONE, TEMPORARY, THRESHOLD, THICK/THICKNESS, TOILET, TO MATCH EXISTING, TOP OF CURB, TOP OF STEEL, TOILET PAPER DISPENSER, TOILET PAPER HOLDER, TRANSOM, TELEVISION, TYPICAL, UNDERCOUNTER, UNLESS NOTED OTHERWISE, VAPOR BARRIER, VISUAL DISPLAY, VISUAL COMMUNICATION BOARD, VINYL COMPOSITE TILE, VERIFY IN FIELD, VINYL TILE, VENT THROUGH ROOF, VINYL WALL COVERING, WEST, WOOD BASE, WATER CLOSET, WOOD COUNTER TOP, WOOD BASE, WIDTH, WINDOW, WALL GUARD, WATER HEATER, WATERPROOFING, WATER RESISTANT, WAINSCOT.



Site Locale

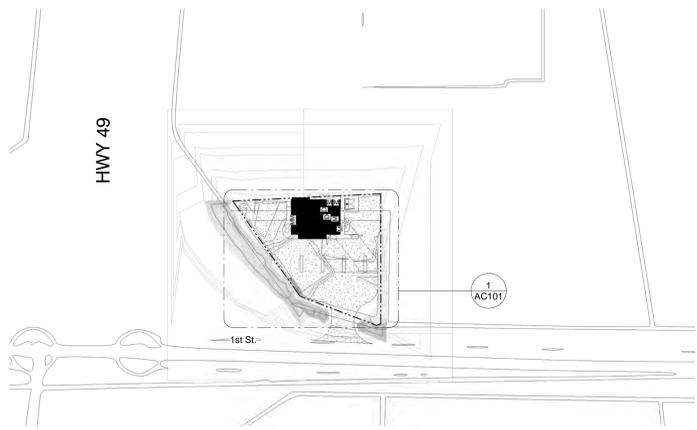


Dhunna Gas Station - Belzoni
Date: 1/26/2024
Project No: 20230703001

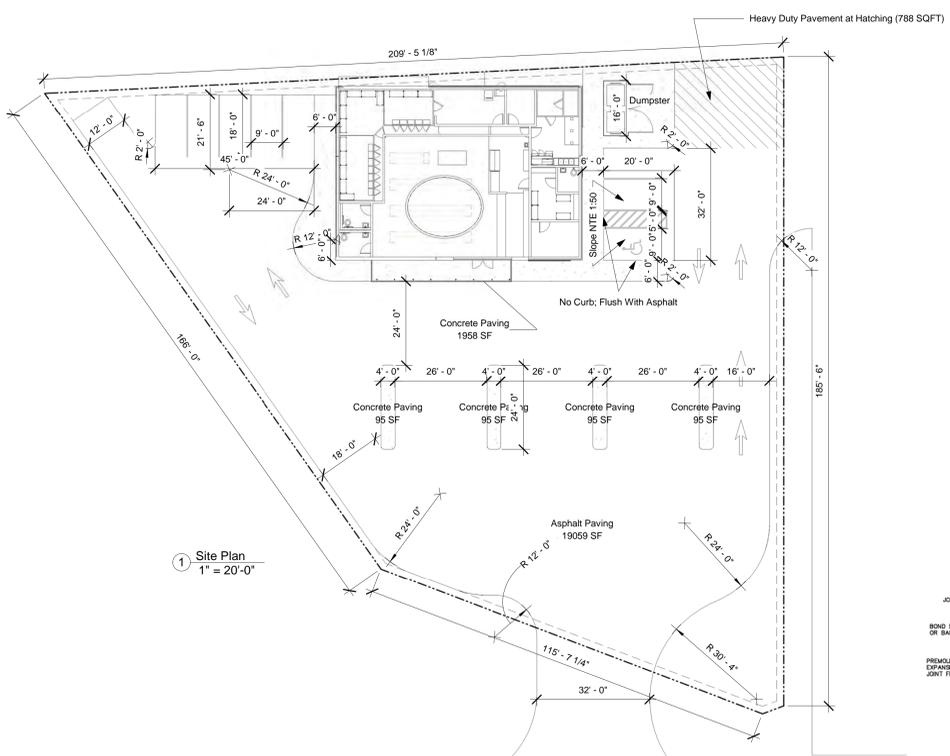
650 1st St, Belzoni, MS 39008
New Construction

Construction Documents table with columns: Revision, #, Rev Date. Row 1: CD, 4, 1/26/24.

Reference
001 A

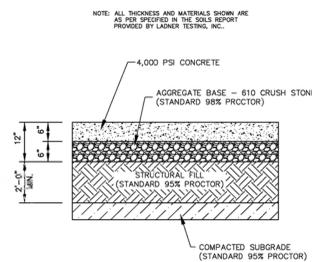


2 Composite Site Plan - New
1" = 100'-0"

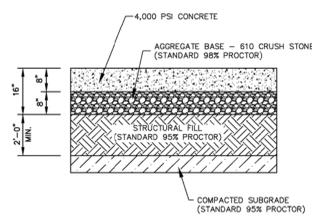


1 Site Plan
1" = 20'-0"

Typical Pavement

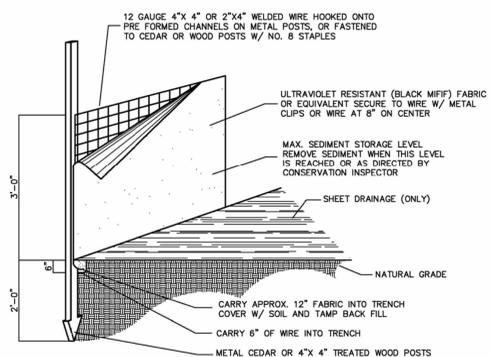


Heavy Duty Pavement

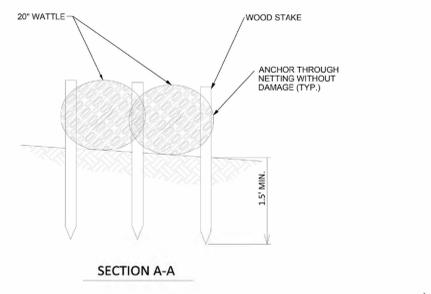
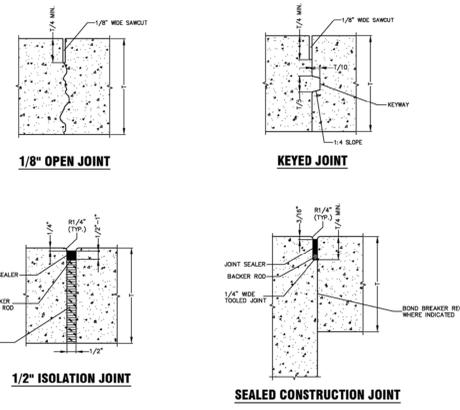


GENERAL EROSION AND SEDIMENT CONTROL NOTES

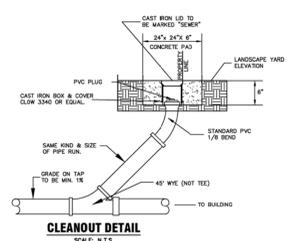
1. THE CONSTRUCTION ACTIVITY FOR THIS PROJECT DISTURBS LESS THAN 5 ACRES AND SHALL COMPLY WITH THE SMALL CONSTRUCTION GENERAL PERMIT PART 1.B. THE CONTRACTOR SHALL COMPLETE THE REQUIRED SMALL CONSTRUCTION NOTICE OF INTENT AND DEVELOP A STORM WATER POLLUTION PLAN (SWPPP) AS REQUIRED BY PART III OF MISSISSIPPI'S SMALL CONSTRUCTION GENERAL PERMIT.
2. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY PLANNING AND DESIGN MANUAL FOR THE CONTROL OF EROSION, SEDIMENT AND STORM WATER.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN LAND GRADING.
4. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
5. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING BUT NOT LIMITED TO, OFF SITE BORROW OR WASTE AREA), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
6. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
7. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
8. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICES.
9. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEAN UP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICE SHALL BE MADE IMMEDIATELY.



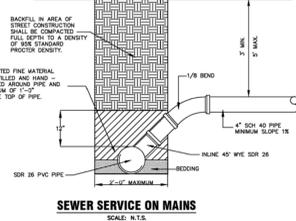
SILT FENCE DETAIL
SCALE: N.T.S.



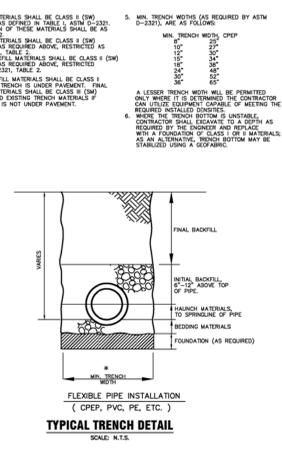
SECTION A-A
DROP INLET PROTECTION



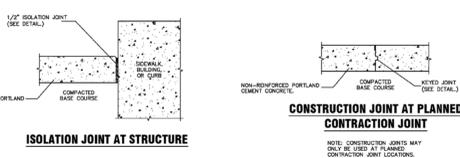
CLEANOUT DETAIL
SCALE: N.T.S.



SEWER SERVICE ON MAINS
SCALE: N.T.S.



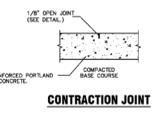
TYPICAL TRENCH DETAIL
SCALE: N.T.S.



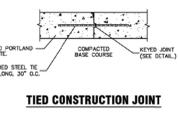
ISOLATION JOINT AT STRUCTURE



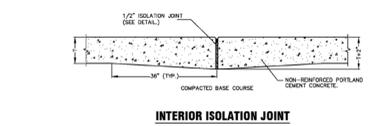
CONSTRUCTION JOINT AT PLANNED CONTRACTION JOINT



CONTRACTION JOINT



TIED CONSTRUCTION JOINT



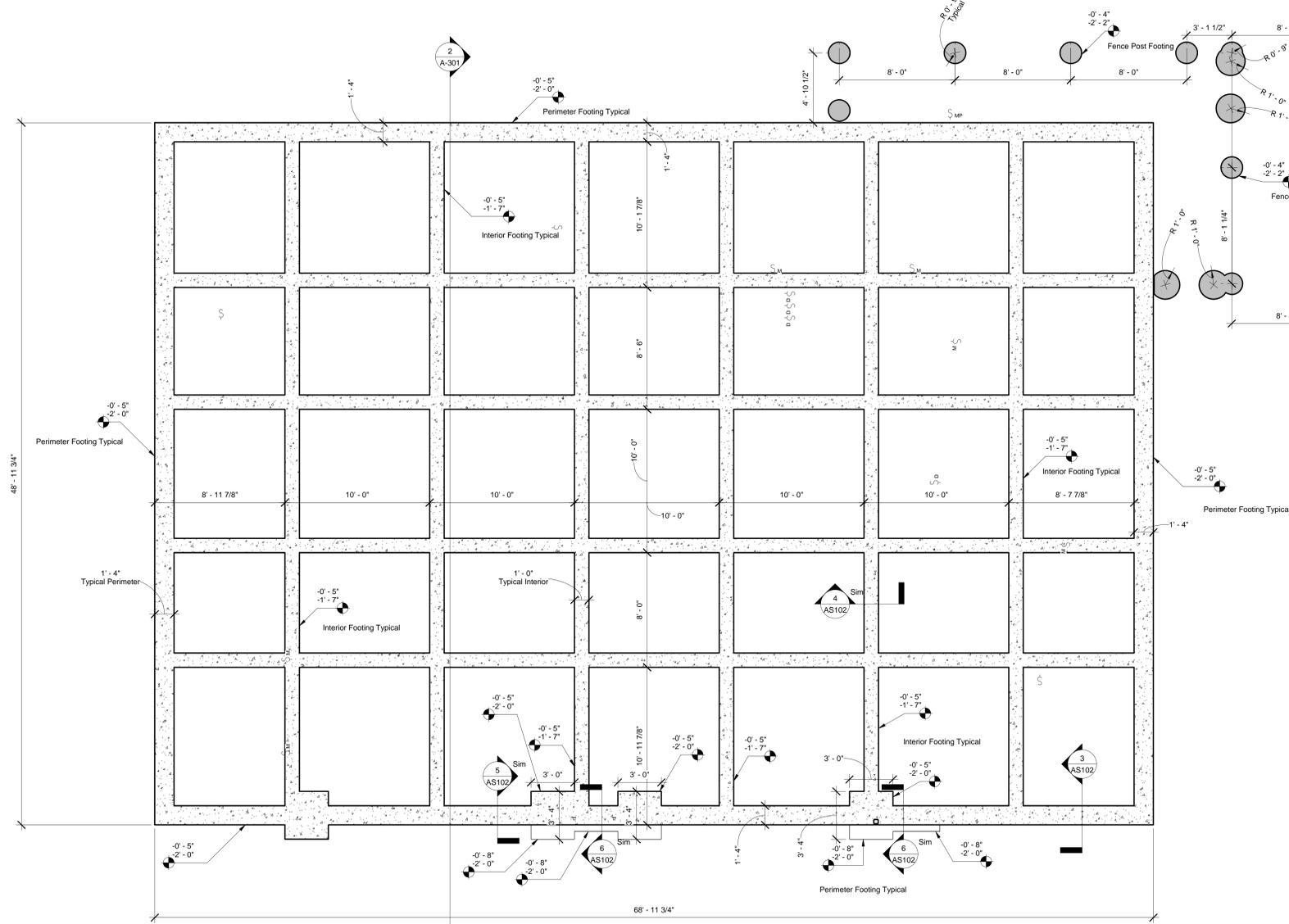
INTERIOR ISOLATION JOINT

General Site Notes

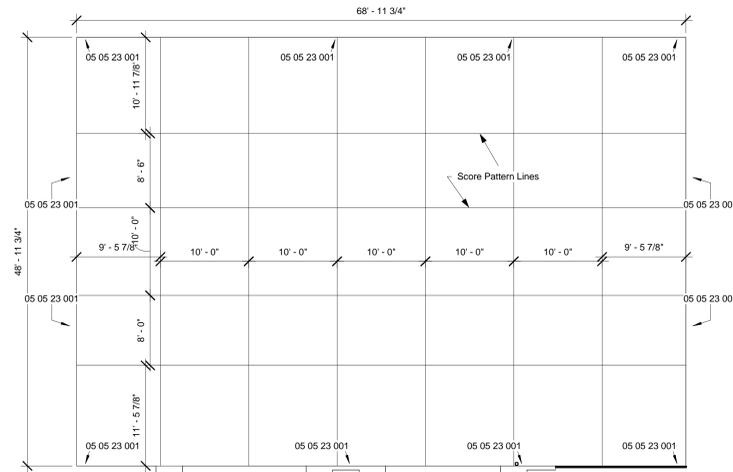
1. LEGAL DESCRIPTION:
 - A. A PARCEL OF LAND CONTAINING 0.5737 ACRE, MORE OR LESS, LOCATED IN THE SW 1/4 OF THE SE 1/4 OF SECTION 34, T-16-N, R-3-W, HUMPHREYS COUNTY, MISSISSIPPI; SAID PARCEL OF THE LAND BEING PART OF THAT CERTAIN 1.22 ACRE TRACT DESCRIBED IN DEED BOOK 92, PAGE 462 OF THE RECORDS OF THE CHANCERY CLERK OF HUMPHREYS COUNTY; AND SAID PARCEL BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE PRESENT NORTH RIGHT-OF-WAY LINE, 50.0 FEET FROM THE CENTERLINE OF MISSISSIPPI STATE HIGHWAY NO. 12 THAT IS OPPOSITE STATION 1106+48.4, SAID POINT BEING 2154.0 FEET WEST OF AND 96.0 FEET NORTH OF THE SOUTHEAST CORNER OF SECTION 34, TOWNSHIP 16 NORTH, RANGE 3 WEST, HUMPHREYS COUNTY, MISSISSIPPI; THENCE NORTH ALONG THE WEST BOUNDARY LINE OF THE PLANTERS GIN LOT AS RECORDED IN DEED BOOK 24, PAGE 431 OF THE LAND DEED RECORDS OF HUMPHREYS COUNTY, MISSISSIPPI, A DISTANCE OF 185.5 FEET TO AN IRON PIN AT THE NORTHEAST CORNER OF THE LOT HEREIN DESCRIBED; THENCE SOUTH 87°09'55" WEST A DISTANCE OF 209.43 FEET TO AN IRON PIN ON THE EAST RIGHT-OF-WAY LINE OF U.S. HIGHWAY 49-W; THENCE SOUTH 35°55' EAST ALONG THE SAID RIGHT-OF-WAY LINE A DISTANCE OF 166.0 FEET TO AN IRON PIN; THENCE SOUTH 69°25' EAST A DISTANCE OF 115.6 FEET TO AN IRON PIN; THENCE SOUTH 89° EAST A DISTANCE OF 3.4 FEET TO THE BEGINNING.
 - Finish floor elevation shall be a minimum of 5' above new asphalt at outer perimeter concrete sidewalk 5' curb.
 - Slope building perimeter sidewalk a minimum of 1/4" per 12" away from building.
 - Remove 2 existing pumps; add 5 pumps in the configuration as shown.

General Notes

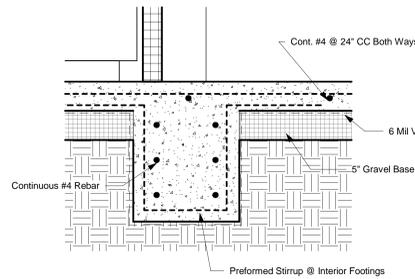
1. Construction Notice of Intent (CNOI) Submission:
 - a. The Contractor is obligated to prepare and submit a Construction Notice of Intent (CNOI) in accordance with the latest guidelines from the Mississippi Department of Environmental Quality (MDEQ). This submission must include a copy of the Storm Water Pollution Prevention Plan (SWPPP). Both the CNOI permit and SWPPP must be maintained on-site for inspection by the MDEQ until project completion.
2. Erosion Control Measures Compliance:
 - a. Silt fencing and other erosion control measures must adhere to the relevant sections of the Mississippi Standard Specifications for State Aid Road and Bridge Construction, as per the latest edition.
3. Property Protection Measures:
 - a. The Contractor is responsible for implementing additional measures as necessary to safeguard properties from construction-related damage, exercising prudence and reason.
4. Preparation of Erosion Control Infrastructure:
 - a. Before commencing any stripping or excavation, the Contractor must install all required silt.
5. Preservation of Undisturbed Areas:
 - a. A minimal buffer of undisturbed areas around the site's perimeter must be maintained where feasible. This buffer serves to mitigate erosion by wind and water, as well as reduce sediment runoff.
6. Surface Runoff Management:
 - a. Earth fill procedures should incorporate temporary diversions to mitigate surface runoff.
7. Hazardous Material Containment:
 - a. Protective measures must be provided by the Contractor for containing hazardous materials, such as petroleum products and lubricants.
8. Trash Management on Site:
 - a. Trash containers must be provided on-site for the disposal of all construction materials, with measures in place to prevent site debris from entering the storm drainage system.
9. Routine Inspection and Maintenance:
 - a. The Contractor is obliged to inspect all erosion control measures installed and undertake necessary repairs at least weekly during dry periods. Additionally, all erosion control measures must be diligently inspected and repaired within 24 hours following a rainfall event.
10. Storm Water Discharge Quality Assurance:
 - a. Erosion control measures must be maintained to ensure that storm water discharge is devoid of a. Debris, oil, silt, and other floating materials, except in trace amounts; b. Eroded soils and other materials that may form objectionable deposits in receiving waters; c. Suspended solids, turbidity, and color at levels inconsistent with receiving water standards; d. Chemicals at concentrations that could lead to violations of State Water Quality Criteria in receiving waters.
11. Record Keeping Requirements:
 - a. Adequate records must be maintained documenting the inspection and repair of all erosion control measures installed.
12. Regulatory Familiarity:
 - a. The Contractor must acquaint themselves with the Storm Water Construction General Permit Regulations and the "Planning and Design Manual for the Control of Erosion, Sediment, and Stormwater" published by the MDEQ, Mississippi Soil & Water Commission, and the USDA Soil Conservation Service.
13. Best Management Practices (BMPs) Implementation:
 - a. Utilize the Best Management Practices (BMPs) outlined in the referenced material for the implementation of additional measures as necessary.
14. Construction Entrance Requirements:
 - a. Stone construction entrances are mandated at designated entry/exit points where equipment/trucks will enter and exit the construction site.
15. Employee Training and Certification:
 - a. Ensure that all personnel involved in erosion control activities are adequately trained and certified in accordance with applicable regulations and industry standards.
16. Community Engagement and Communication:
 - a. Establish communication channels with the local community to provide updates on erosion control measures, project progress, and address any concerns or inquiries.
17. Weather Monitoring and Response Plan:
 - a. Develop a weather monitoring system and response plan to anticipate and mitigate erosion risks during periods of inclement weather.
18. Ecological Impact Assessment:
 - a. Conduct an ecological impact assessment to identify sensitive habitats or species that may be affected by erosion control measures, and implement mitigation measures as necessary.
19. Material Sourcing and Sustainability:
 - a. Source erosion control materials from sustainable suppliers and ensure that their extraction or production does not cause adverse environmental impacts.
20. Long-Term Maintenance Plan:
 - a. Develop a long-term maintenance plan to ensure the continued effectiveness of erosion control measures beyond the construction phase, including periodic inspections and repairs.



① Foundation Footings
1/4" = 1'-0"

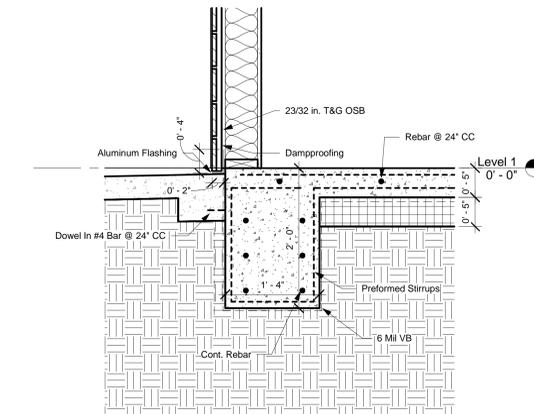


② Foundation Slab
1/8" = 1'-0"

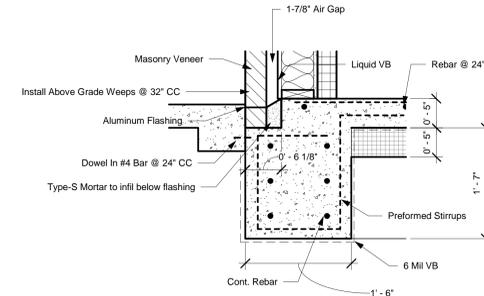


④ Interior Footing Detail
1" = 1'-0"

⑤ Exterior Footing @ Storefront
1" = 1'-0"



③ Typical Exterior Footing
1" = 1'-0"



⑥ Exterior Footing Detail @ Brick
1" = 1'-0"

General Notes

- Concrete Mix shall bear at least 3500 PSI
- Contractor shall verify all dimensions with Architectural drawings before detailing and construction begin.
- Field Verify all conditions shown. Notify Architect/Engineer in writing of any differences.
- Include corner stirrups at all 90 degree footing junctures.
- Install 6 Mil plastic water barrier at bottom of all footings.
- DO NOT Over-excavate footings; if footings are over-excavated, recompact to industry standards.
- Reinforce Footings with continuous #4 Rebar x6 in all footings; include preformed stirrups at all footings on 48" CC.
- Include #4 Rebar at 24" CC both ways at entire slab.
- If joint to be saw cut, perform work within 48 hours after concrete pour.
- Wait slab for a minimum of 7 days post pour.
- Install J-bolts with minimum of 7" embedment @ 5" CC at perimeter walls for plate install and hold down.

Specific Notes

- 05 05 23 001 Install STHD10 Strap Tie Holddown here



Dhunna Gas Station - Belzoni
Date 1/26/2024
Project No 20230703001

PURSER & COMPANY | 601.203.4060 DRAWINGS@PURSERANDCOMPANY.COM

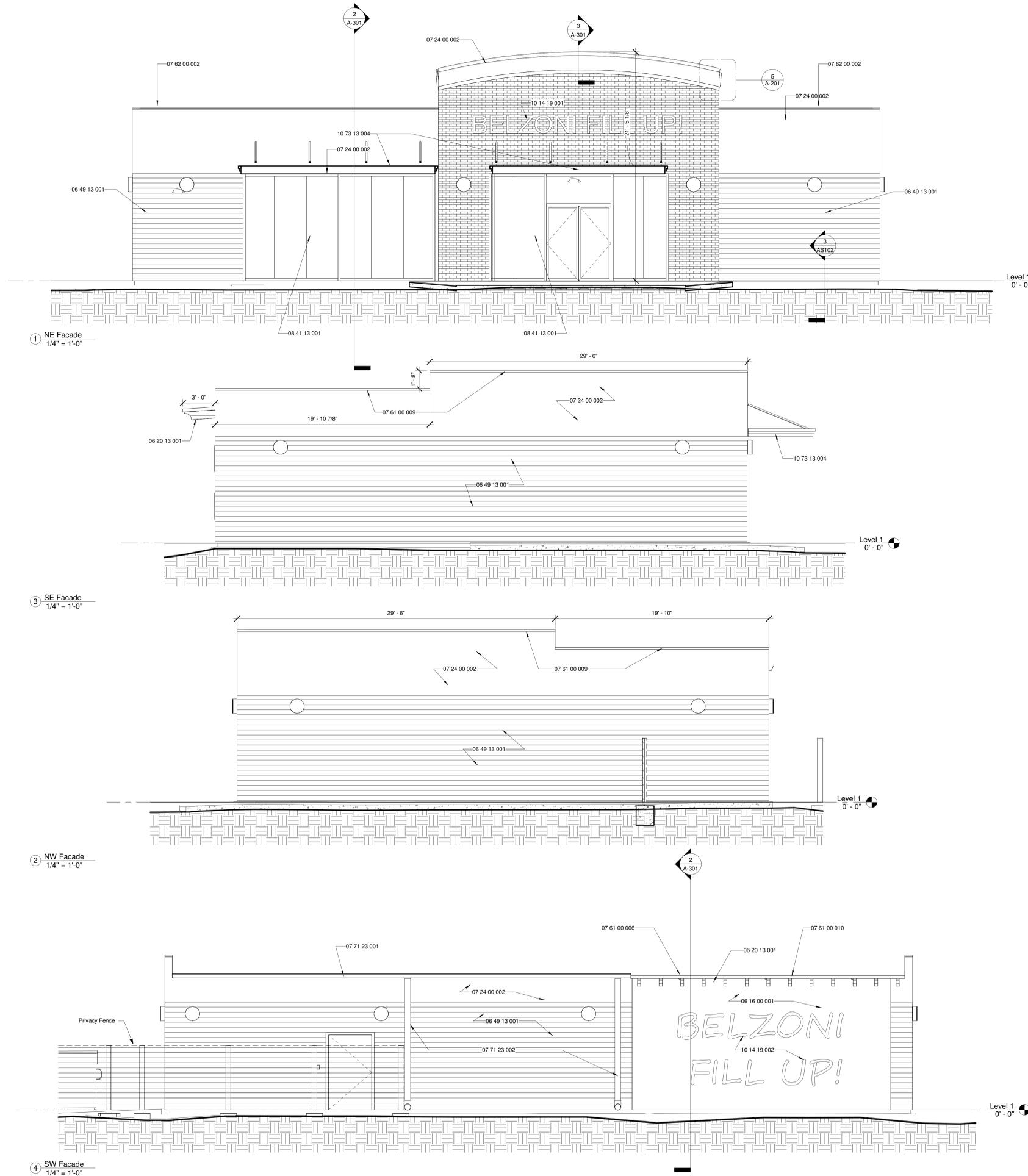
650 1st St, Belzoni, MS 39008
New Construction

Construction Documents

Revision	#	Rev Date
CD	4	1/26/24

Foundation & Details

S 102
A

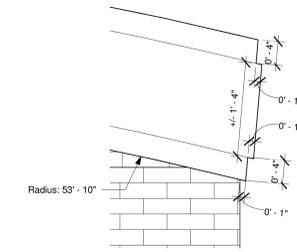


General Notes

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.

Specific Notes

- 06 16 00 001 Sheathing with Dampproofing as exterior finish; dampproofing to be black in color
- 06 20 13 001 4x10 Cypress OR Treated SYP; provide steel strap at top side to connect to interior truss for a minimum of 2' on both members for a full length of 4' of strapping; secure underside with hidden flange metal tie (paint tie black)
- 06 49 13 001 1x6 Wood Board as rain screen (stained); see detail
- 07 24 00 002 EIFS wall finish at upper wall
- 07 61 00 006 Standing Seam Roof Panel; 24 GA Galvanized finish
- 07 61 00 009 Prefinished metal cap @ all parapet walls; wrap up wall so that parapet cap covers wall flashing and wall flashing extends down roof by a minimum of 8"
- 07 61 00 010 Provide 1-3/4" drip edge with matching roof finish
- 07 62 00 002 Cap Parapet with wall prefinished metal trim
- 07 71 23 001 Prefinished 5x5 gutter with downspouts as shown on elevations
- 07 71 23 002 Prefinished 4x3 Downspout
- 08 41 13 001 Aluminum storefront assembly
- 10 14 19 001 20" Dimensional Letter Signage with high metallic brass finish
- 10 14 19 002 30" Dimensional Letter Signage with high metallic brass finish
- 10 73 13 004 New Aluminum Pan Awning to be supported from wall; include integral drain with spouts at ends



5 EIFS Detail
1" = 1'-0"



Dhunna Gas Station - Belzoni
Date 1/26/2024
Project No. 20230703001

PURSER & COMPANY | 601.376.9647 DRAWINGS@PURSERANDCOMPANY.COM

650 1st St, Belzoni, MS 39008
New Construction

Construction Documents

Revision	#	Rev Date
DD	3	1/14/23
CD	4	1/26/24

Building Elevations

201
A

PLUMBING SYMBOLS & ABBREVIATIONS

ABBREVIATIONS

A.S.M.E.	AMERICAN SOCIETY OF MECH. ENGINEERS	HR.	HOUR
A.S.T.M.	AMERICAN SOCIETY FOR TESTING MATERIAL	H.W.	HOT WATER
A/C	AIR CONDITIONING	I.D.	INSIDE DIAMETER
ABV.	ABOVE	IND.	INDIRECT
APPROX.	APPROXIMATE	INV.	INVERT
BLDG.	BUILDING	I.W.	INDIRECT WASTE
BOT.	BOTTOM	KIT.	KITCHEN
BRKR.	BREAKER	K.W.	KILOWATT
B.W.V.	BACK WATER VALVE	MECH.	MECHANICAL
CL	CENTER LINE	MIN.	MINUTE
C.O.	CLEAN OUT	M.H.	MANHOLE
C.P.	CHROME PLATED	MOD.	MODEL
C.V.	CHECK VALVE	N.I.C.	NOT IN CONTRACT
CONC.	CONCRETE	N.T.S.	NOT TO SCALE
CONT.	CONTINUATION	#	DIAMETER
COND.	CONDENSATE	O.D.	OUTSIDE DIAMETER
CONN.	CONNECTION	O.S.&Y.	OUTSIDE SCREW & YOKE VALVE
CAP.	CAPACITY	P.&T.	PRESSURE & TEMPERATURE
CLG.	CEILING	PLUMB.	PLUMBING
C.I.P.	CAST IRON PIPE	PROP.	PROPERTY
C.W.	COLD WATER	R.D.	ROOF DRAIN
DN.	DOWN	RED.	REDUCER
DR.	DRAIN	REINF.	REINFORCING
DET.	DETAIL	REQ'D.	REQUIRED
DIAG.	DIAGRAM	R.F.	ROOF
DIAM.	DIAMETER	R.M.	ROOM
DIM.	DIMENSION	R.P.M.	REVOLUTIONS PER MINUTE
DOM.	DOMESTIC	R.W.L.	RAIN WATER LEADER
DWG.	DRAWING	SAN.	SANITARY
EA.	EACH	SCH.	SCHEDULE
E.D.F.	ELECTRIC DRINKING FOUNTAIN	SECT.	SECTION
ELEC.	ELECTRICAL	SHT.	SHEET
ELEV.	ELEVATION	SPECS.	SPECIFICATIONS
EMERG.	EMERGENCY	SPKR.	SPRINKLER
E.W.H.	ELECTRIC WATER HEATER	S/S	STAINLESS STEEL
EXIST.	EXISTING	S.S.	SERVICE SINK
F.D.	FLOOR DRAIN	TEMP.	TEMPERATURE
FL.	FLOOR	T.O.P.	TOP OF PIPE
F.O.	FUEL OIL	TYP.	TYPICAL
FT.	FOOT	T.S.	TAMPER SWITCH
F.U.	FIXTURE UNIT	VAC.	VACUUM
F.C.O.	FLUSH CLEAN OUT	V.C.P.	VITRIFIED CLAY PIPE
FIN.	FINISHED	V.T.R.	VENT THRU ROOF
FIXT.	FIXTURE	V.	VENT
FUT.	FUTURE	VS.	VENT STACK
GA.	GAUGE	W/	WITH
G.V.	GATE VALVE		
GAL.	GALLONS		
GALV.	GALVANIZED		
GEN.	GENERAL		
G.P.H.	GALLONS PER HOUR		
G.P.M.	GALLONS PER MINUTE		
H.B.	HOSE BIBB		
HD.	HEAD		
H.P.	HORSE POWER		

PIPING SYMBOLS

	ACID WASTE		UNION
	ACID VENT		CLEAN OUT PLUG
	SANITARY SEWER		FLOOR CLEAN OUT
	SANITARY VENT		IN LINE STRAINER
	GREASE WASTE		WATER HAMMER SHOCK ABSORBER (PLAN VIEW)
	STORM DRAIN		WATER HAMMER ARRESTOR (ELEVATION)
	DENTAL COMPRESSED AIR		POST INDICATOR VALVE
	DENTAL VACUUM		FLOW SWITCH
	COMPRESSED AIR		FIRE DEPT. SIAMESE CONNECTION
	TEMPERED WATER		SEMI-RECESSED CHROME PENDENT
	COLD WATER		UPRIGHT FIRE SPRINKLER HEAD
	HOT WATER (120°)		INSTITUTIONAL TYPE PENDENT SPRINKLER
	HOT WATER RECIRCULATION (120°)		INSTITUTIONAL TYPE SIDEWALL
	HOT WATER (140°)		INSTITUTIONAL TYPE EXTENDED COVERAGE SIDEWALL
	HOT WATER RECIRCULATION (140°)		DRY PENDENT SPRINKLER
	HOT WATER (180°)		EXTRA LARGE ORIFICE 286' UPRIGHT
	HOT WATER RECIRCULATION (180°)		PRESSURE GAUGE WITH COCK
	FIRE PROTECTION WATER		PLUMBING RISER
	AUTOMATIC FIRE SPRINKLER		CONNECTION OF NEW TO EXISTING
	FIRE TEST DRAIN		HOSE BIBB W/ VACUUM BREAKER
	GAS		RISER DOWN
	FUEL OIL SUPPLY		FLOW IN DIRECTION OF ARROW
	FUEL OIL RETURN		RISER UP
	FUEL OIL VENT		PIPE RISE OR DROP
	CUT-OFF VALVE (ABOVE GRADE)		TOP CONNECTION BRANCH
	CUT-OFF VALVE (BELOW GRADE)		BOTTOM CONNECTION BRANCH
	PRESSURE REDUCING VALVE		SIDE CONNECTION BRANCH
	CHECK VALVE		CAP ON END OF PIPE
	BALANCING VALVE		CONCENTRIC REDUCER
	O.S.&Y. VALVE		ECCENTRIC REDUCER
	PRES. AND TEMP. RELIEF VALVE		
	GAS COCK		
	WATER FLOW MEASURING DEVICE		

GENERAL NOTES:

CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL PLUMBING INSTALLATIONS WITH OTHER TRADES SUCH AS ELECTRICAL, STRUCTURAL, HVAC, LIGHTING, CEILING CONSTRUCTION AND SUPPORTS, ETC. ANY CONFLICTS ARISING OUT OF A LACK OF CONSTRUCTION COORDINATION OR DUE TO LACK OF CONSIDERATION FOR THE NEEDS OF OTHER TRADES SHALL BE RESOLVED AT NO EXPENSE TO THE OWNER.

ALL PIPING SHALL BE INSTALLED IN SUCH A MANNER THAT CONFLICTS WITH AIR CONDITIONING DUCTS AND WITH CEILING LIGHTS WILL NOT OCCUR. SOME PIPING SHALL BE INSTALLED WITH SLEEVES THROUGH WALLS. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING THE SIZES OF SLEEVES AND THE ELEVATIONS AT WHICH OPENINGS ARE TO BE MADE PRIOR TO INSTALLATION OF STRUCTURAL MEMBERS.

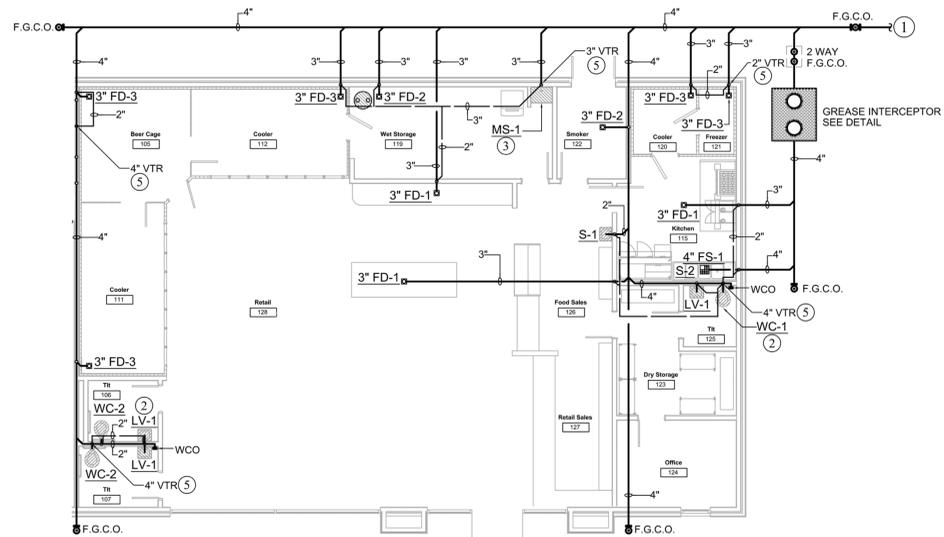
FOR EVERY PIPE SLEEVE PENETRATING FIRE RATED WALLS AND SLABS, USE A FIRE BARRIER WRAP STRIP, FIRE RATED CAULK AND PUTTY, ASTM E-814, U.L. LISTED, CAPABLE OF RAPID EXPANSION WHEN EXPOSED TO HEAT. COMPLIES WITH BOCA, ICBO AND SSBC. PROVIDES 3 HOUR FIRE RATING. SEE FIRESTOPPING SPECIFICATION.

ALL SANITARY AND STORM DRAINAGE PIPING SHALL BE INSTALLED AT 1/8" PER FOOT SLOPE UNLESS OTHERWISE NOTED. FIXTURE ARMS AND SMALL BRANCHES SHALL BE SLOPED IN ACCORDANCE WITH THE INTERNATIONAL PLUMBING CODE.

PROVIDE ACCESS PANELS FOR SHOCK ABSORBERS AND GATE VALVES AND CLEANOUT COVERS FOR CLEANOUT PLUGS AS SPECIFIED. EACH ITEM SHALL BE PROVIDED WITH ITS ACCESS PANEL OR COVER. ACCESS PANELS AND CLEANOUT COVERS SHALL BE EASILY ACCESSIBLE AND CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING THESE ITEMS SO THAT SHOCK ABSORBER, VALVE, OR CLEANOUT LIES WITHIN WALL OR CEILING IMMEDIATELY BEHIND COVER OR PANEL. CONTRACTOR SHALL COORDINATE THE LOCATION OF PANELS AND COVERS WITH OTHER TOILET ACCESSORIES AND FIXTURES AS WELL AS ARCHITECTURAL LAYOUT.

DURING FINAL PUNCH LIST INSPECTION, CONTRACTOR SHALL HAVE ALL CLEANOUT COVERS AND ACCESS PANELS OPENED AND ITEMS EXPOSED FOR VERIFICATION AS TO THEIR INSTALLATION BY CONTRACTING OFFICER.

PROVIDE AUTOMATIC TRAP PRIMERS FOR ALL FLOOR DRAINS.

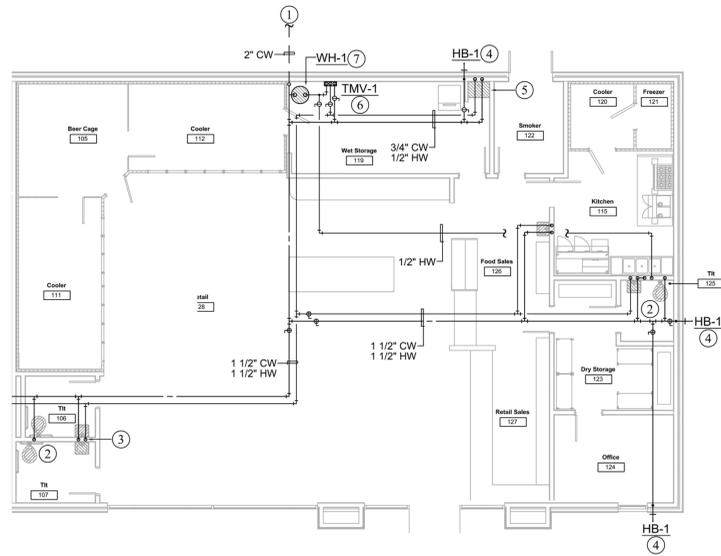


GENERAL NOTES:

- 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 WASTE 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.
- SLOPE AND SUPPORT ALL PIPING ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE.
- ALL WASTE PIPING TO BE SLOPED AT 1/8" OR 1/4" PER FOOT AS REQUIRED FOR THE PIPE SIZE IN CONFORMANCE WITH THE 2018 INTERNATIONAL PLUMBING CODE.
- 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.
- ALL DOMESTIC WATER PIPING TO BE INSULATED WITH 1" PREFORMED FIBERGLASS PIPE INSULATION WITH ALL SERVICE JACKET. APPLY ADHESIVE LABELS ON PIPING ABOVE CEILING TO SHOWN CONTENTS AND FLOW. LABELS TO BE INSTALLED EVERY TWENTY FEET.
- PIPING TO BE SUPPORTED WITH CLEVIS TYPE HANGERS AT SPACING AS REQUIRED BY THE 2018 IPC. FOR DOMESTIC WATER PIPING, THE HANGERS SHALL BE LARGE ENOUGH FOR THE PIPE AND INSULATION TO PASS THROUGH. INSTALL SHEET METAL SADDLE AT ALL HANGER LOCATIONS AT BOTTOM OF PIPE.
- ROUGH IN PLUMBING CONNECTIONS FOR THE NEW FIXTURES ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. ALL NEW SUPPLY WATER PIPING TO BE SOLDERED TYPE L COPPER.
- 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.

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.



GENERAL NOTES:

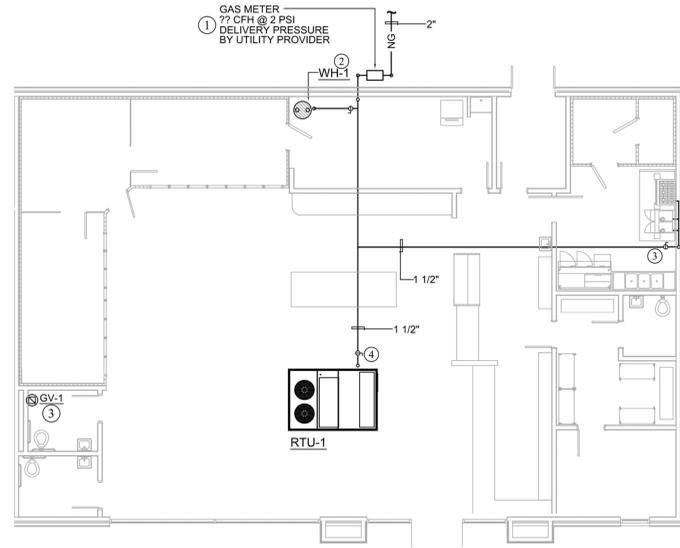
- CONTRACTOR TO INSTALL PLUMBING ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
- SLOPE AND SUPPORT ALL PIPING PER CODE REQUIREMENTS. PROVIDE AND INSTALL UL LISTED FIRE STOP COLLARS AND FIRE CAULK ALL PLUMBING PENETRATIONS AT RATED WALL AND FLOOR ASSEMBLIES.
- 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 WASTE 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.
- SLOPE AND SUPPORT ALL PIPING ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE.
- ALL WASTE PIPING TO BE SLOPED AT 1/8" OR 1/4" PER FOOT AS REQUIRED FOR THE PIPE SIZE IN CONFORMANCE WITH THE 2018 INTERNATIONAL PLUMBING CODE.
- 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.
- ALL DOMESTIC WATER PIPING TO BE INSULATED WITH 1" PREFORMED FIBERGLASS PIPE INSULATION WITH ALL SERVICE JACKET. APPLY ADHESIVE LABELS ON PIPING ABOVE CEILING TO SHOWN CONTENTS AND FLOW. LABELS TO BE INSTALLED EVERY TWENTY FEET.
- PIPING TO BE SUPPORTED WITH CLEVIS TYPE HANGERS AT SPACING AS REQUIRED BY THE 2018 IPC. FOR DOMESTIC WATER PIPING, THE HANGERS SHALL BE LARGE ENOUGH FOR THE PIPE AND INSULATION TO PASS THROUGH. INSTALL SHEET METAL SADDLE AT ALL HANGER LOCATIONS AT BOTTOM OF PIPE.
- ROUGH IN PLUMBING CONNECTIONS FOR THE NEW FIXTURES ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. ALL NEW SUPPLY WATER PIPING TO BE SOLDERED TYPE L COPPER.
- 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.

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	----



GENERAL NOTES:

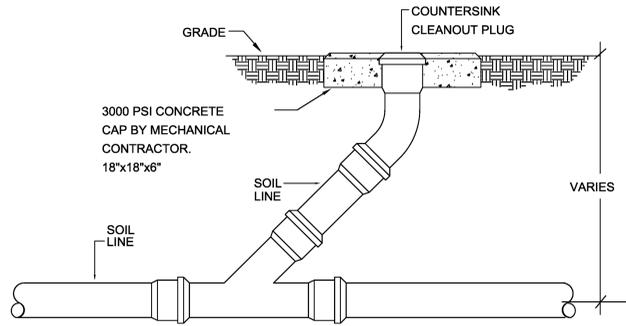
- CONTRACTOR TO INSTALL PLUMBING ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
- SLOPE AND SUPPORT ALL PIPING PER CODE REQUIREMENTS. PROVIDE AND INSTALL UL LISTED FIRE STOP COLLARS AND FIRE CAULK ALL PLUMBING PENETRATIONS AT RATED WALL AND FLOOR ASSEMBLIES.
- 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 WASTE 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.
- SLOPE AND SUPPORT ALL PIPING ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE.
- ALL WASTE PIPING TO BE SLOPED AT 1/8" OR 1/4" PER FOOT AS REQUIRED FOR THE PIPE SIZE IN CONFORMANCE WITH THE 2018 INTERNATIONAL PLUMBING CODE.
- 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.
- ALL DOMESTIC WATER PIPING TO BE INSULATED WITH 1" PREFORMED FIBERGLASS PIPE INSULATION WITH ALL SERVICE JACKET. APPLY ADHESIVE LABELS ON PIPING ABOVE CEILING TO SHOWN CONTENTS AND FLOW. LABELS TO BE INSTALLED EVERY TWENTY FEET.
- PIPING TO BE SUPPORTED WITH CLEVIS TYPE HANGERS AT SPACING AS REQUIRED BY THE 2018 IPC. FOR DOMESTIC WATER PIPING, THE HANGERS SHALL BE LARGE ENOUGH FOR THE PIPE AND INSULATION TO PASS THROUGH. INSTALL SHEET METAL SADDLE AT ALL HANGER LOCATIONS AT BOTTOM OF PIPE.
- ROUGH IN PLUMBING CONNECTIONS FOR THE NEW FIXTURES ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. ALL NEW SUPPLY WATER PIPING TO BE SOLDERED TYPE L COPPER.
- 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	----

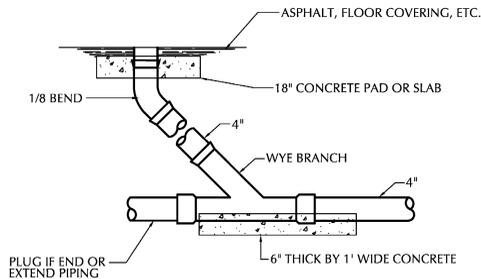
NUMBERED NOTES:

- 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—

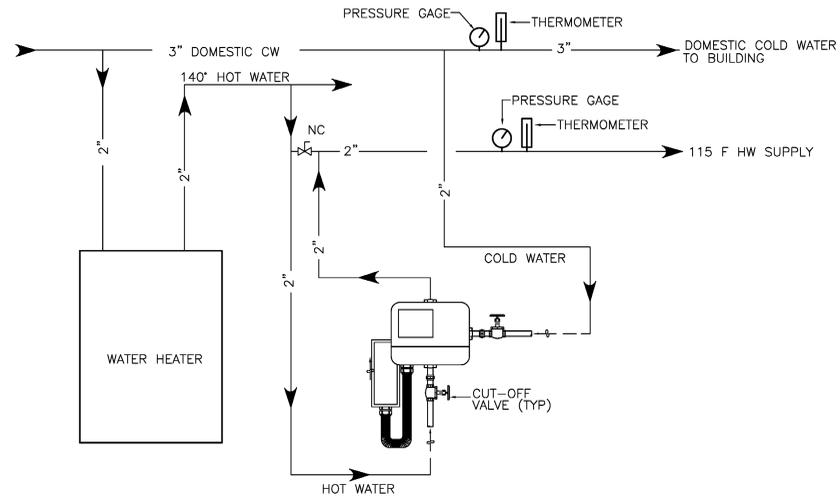


CLEANOUT DETAIL (FGCO)



TYPICAL SANITARY SEWER CLEANOUT

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.

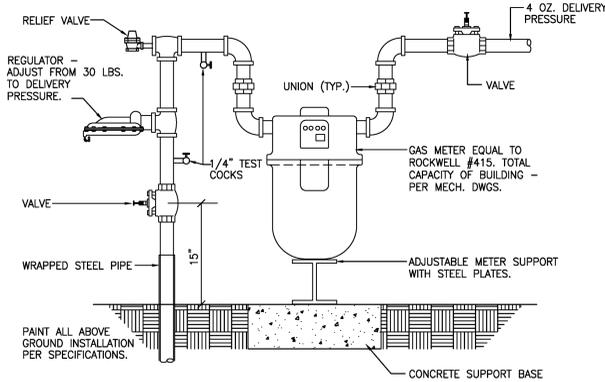


PROVIDE AND INSTALL THERMOSTATIC MIXING VALVE UNIT EQUAL TO POWERS MODEL INTLSTN LFIS075VL. VALVE CAPABLE OF FLOW RANGE FROM 1 GPM TO 50 GPM HOT WATER WITH MAX PRESSURE DROP OF 5 PSI.

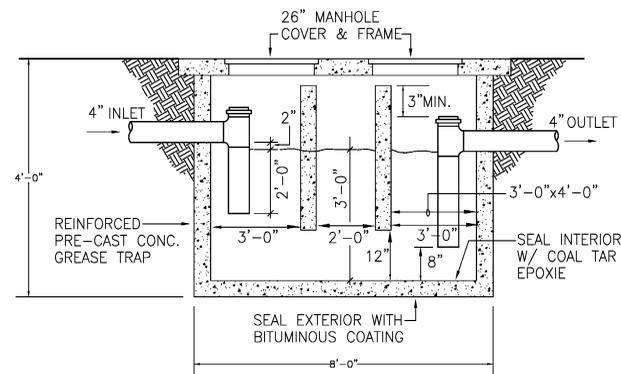
MANUFACTURER'S REPRESENTATIVE MUST INSPECT THE MIXING VALVE INSTALLATION AND PROVIDE INITIAL BALANCING AND OWNER TRAINING FOR VALVE OPERATION. CONTRACTOR MUST ASSIST IN START-UP AND PROVIDE ANY AND ALL ITEMS REQUESTED OR REQUIRED BY MANUFACTURER'S REPRESENTATIVE TO ENABLE SYSTEM TO OPERATE AS INTENDED.

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

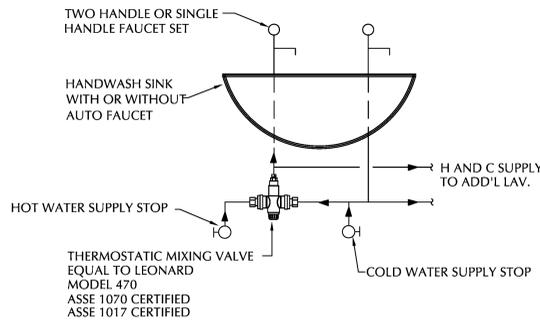
TYPICAL THERMOSTATIC MIXING VALVE DETAIL
NO SCALE



GAS METER AND REGULATOR DETAIL



1000 GALLON
GREASE TRAP DETAIL



VALVE APPROXIMATELY 6"x4"

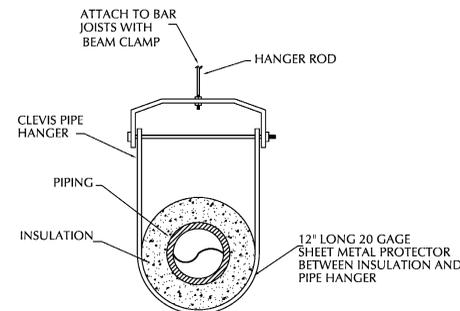
INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

PROVIDE SUPPORT AS REQUIRED.

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

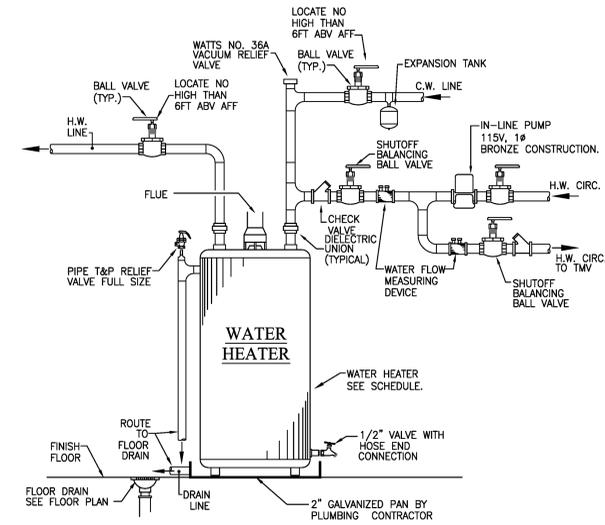
VALVE TO PROVIDE MAXIMUM 109 DEGREE F WATER TO HANDWASH SINKS.

HANDWASH SINK MIXING VALVE DETAIL
NO SCALE



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 WATER HEATER DETAILS

WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	STORAGE GAL	RECOVERY GPH	DISCHARGE TEMP	TEMP RISE	FUEL TYPE	INPUT	CHARACTERISTICS	REMARKS
WH-1	AO SMITH	BTR-197	100	193	120° F	80° F	GAS	199,000 BTUH	120V, 1 PH	COORDINATE ELECTRICAL WITH DIV. 16 CONTRACTOR.

PRODUCTS SHALL BE MADE IN USA PER 2CFR 200.322 ESSER GUIDELINES.

EXPANSION TANK SCHEDULE

MARK	MAKE	SYSTEM	SYSTEM DESIGN PARAMETERS				TANK SIZE	
			TEMP. RANGE	VOLUME	FILL PRESSURE	RELIEF	MODEL	GAL.
ET-1	WATTS	DOMESTIC HOT WATER	40-140 F	4.5 GAL	20	150	PLT-12	4.5

PRODUCTS SHALL BE MADE IN USA PER 2CFR 200.322 ESSER GUIDELINES.

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE TYPE	SUPPLY AND AIR CHAMBER FOR FIXTURE		TRIM REQ' TS.	WASTE/VENT REQ' TS.		MTG. HEIGHT (FLR. to RIM)	LOCATION	REMARKS
		HW	CW		WASTE	VENT			
WC-1	FLOOR MOUNTED WATER CLOSET	-	1"	FLUSH VALVE STOP/SEAT	4"	2"	15"	TOILET	ELONGATED, TOP SPUD, FLOOR OUTLET, STANDARD, SIPHON ACTION, WHITE, CHINA, NOTE 1. FIXTURE EQUAL TO KOHLER K-4350, SLOAN FLUSH VALVE EQUAL TO ROYAL M# 111, CHROME PLATED, 1.6 GPF
WC-2	FLOOR MOUNTED WATER CLOSET	-	1"	FLUSH VALVE STOP/SEAT	4"	2"	17 1/2"	TOILET	ACCESSIBLE, ASME A112.19.2 A.D.A., ELONGATED, TOP SPUD, FLOOR OUTLET, STANDARD, SIPHON ACTION, WHITE, CHINA, NOTE 1. FIXTURE EQUAL TO KOHLER K-4368, SLOAN FLUSH VALVE EQUAL TO ROYAL M# 111, CHROME PLATED, 1.6 GPF
L-1	SINK	1/2"	1/2"	FAUCET, STOPS DRAIN	2"	2"	34"	AS SHOWN	ZURN MODEL #5340, 20" x 18" WALL MOUNTED LAV, VITREOUS CHINA, 4" CENTERS, FOR CONCEALED ARMS SUPPORT, WITH BACKSPASH, WITH CHICAGO FAUCET MODEL 895-3177CABCP W/ 1.5 GPM LAMINAR FLOW CONTROL FAUCET, GRID DRAIN, CAST BRASS P-TRAP, BRASS STOPS AND RIGID SUPPLIES, AND JR SMITH #0710 SERIES FLOOR MOUNTED CARRIER.
S-1	HANDWASH SINK	1/2"	1/2"	FAUCET, STOPS DRAIN	2"	2"	34"	AS SHOWN	WALL HUNG, STAINLESS, 4"CTRS, HANDWASH SINK, 18"D x 20"W. GOOSENECK FAUCET WITH 4" WRISTBLADE HANDLES, NSF.
S-2	3-COMP POT SINK	1/2"	1/2"	FAUCET, STOPS DRAIN	2"	2"	34"	AS SHOWN	3-COMPARTMENT, 300 SERIES STAINLESS STEEL, 8" CTR HOLE, TILE EDGE SPLASH, ROLLED EDGE, STAINLESS LEGS, NSF, 60" x 15". BACK SPLASH MOUNT FAUCET WITH WRISTBLADES HANDLES.
FFCO	FLOOR CLEANOUT	-	-	-	PER PIPE SIZE	-	-	AS SHOWN	JAY R SMITH MODEL #4021S FLOOR CLEANOUT WITH NICKEL BRONZE COVER AND GASKET SEAL BRONZE PLUG.
MS-1	MOPSINK	1/2"	1/2"	-	3"	2"	-	AS SHOWN	ACORN TERRAZZO-WARE MODEL #TNC-24-SH-SSC CORNER TYPE, FLOOR MOUNTED MOP SINK, DROP FRONT, STAINLESS STEEL CAP, WITH CHICAGO FAUCET MODEL 897-CP FAUCET WITH VACUUM BREAKER SPOUT, PAIL HOOK, AND WALL BRACKET.
TP-1	TRAP PRIMER	-	1/2"	-	-	-	-	AS SHOWN	JOSAM 88300 TRAP PRIMER VALVE AND DISTRIBUTION UNIT
HB-1	HOSE BIBB	-	3/4"	-	-	-	-	AS SHOWN	EQUAL TO WOODFORD MODEL B65 FREEZELESS RECESSED WALL HYDRANT.
IMB-1	ICE MAKER BOX	-	1/2"	-	-	-	-	AS SHOWN	RECESSED BOX IN WALL WITH 1/2" ANGLE STOP FIXTURE EQUAL TO WATER TITE M# W9700
FD-1	FLOOR DRAIN	-	1/2"	-	3"	2"	-	AS SHOWN	ZURN MODEL #ZB-415-B FLOOR DRAIN WITH ADJUSTABLE ROUND NICKEL BRONZE STRAINER.
FD-2	FLOOR DRAIN	-	1/2"	-	4"	2"	-	AS SHOWN	12" ROUND FLOOR DRAIN, BRONZE GRATE, EQUAL TO JR SMITH MODEL# 2230
FD-3	FLOOR DRAIN	-	1/2"	-	3"	2"	-	AS SHOWN	EQUAL TO ZURN M# ZB-415-4, ADJUSTABLE STRAINER HEAD

- NOTE:**
- TOILET SEATS TO BE AMERICAN STANDARD 5311.012 MOLDED (OR EQUAL), WHITE, WITH OPEN FRONT IN PUBLIC USE AREAS. SEATS TO BE SOLID PLASTIC W/STAINLESS HINGES.
 - ALL FIXTURES TO BE WHITE IN COLOR UNLESS OTHERWISE SPECIFICALLY NOTED.
 - CONTRACTOR TO PROVIDE AND INSTALL ALL SEATS, GRAB BARS, HAND HELD DEVICES, OFFSET MIXING VALVES, FAUCET HANDLES, INSULATION, AND ETC TO MEET REQUIREMENTS OF THE ADA ACCESSIBILITY GUIDELINE.
 - ALL EXPOSED PLUMBING TO BE CHROME PLATED BRASS. NO PLASTIC IS ACCEPTABLE.

ALL PLUMBING FIXTURES AND COMPONENTS INCLUDING, BUT NOT LIMITED TO, WATER CLOSETS, FLUSH VALVES, SINKS, FAUCETS, ETC. TO HAVE FINAL APPROVAL BY OWNER.

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	HWV	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/ VACUUM 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 200 → CFM 4-WAY
	DIFFUSER SYMBOL 200 → CFM 2-WAY
	DIFFUSER SYMBOL 200 → CFM 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.

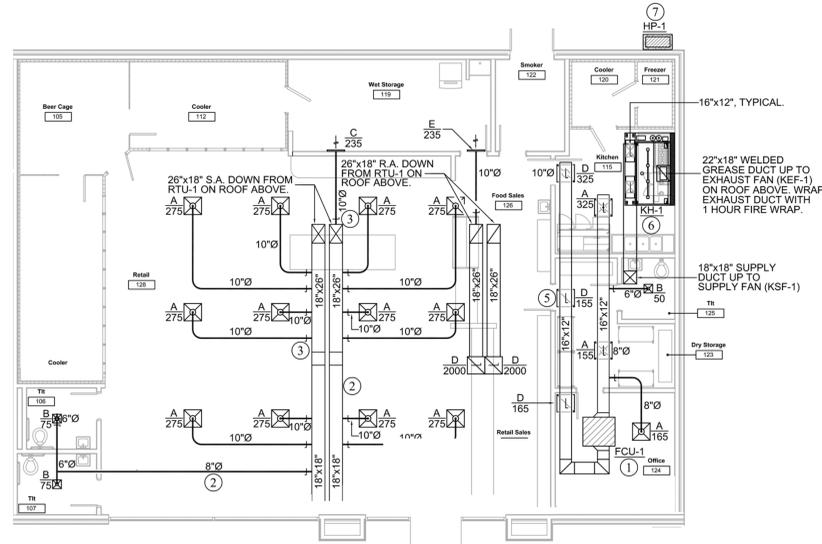
ALL ROUND BRANCH DUCTS SHALL BE GALVANIZED SHEET METAL WITH SAME INSULATION AS ABOVE. FLEXIBLE DUCTS OF NO MORE THAN 6 FEET MAY BE USED FOR DEVICE CONNECTIONS. ALL BRANCH DUCTS MUST HAVE STARTING COLLARS WITH INTEGRAL BALANCING DAMPERS.

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



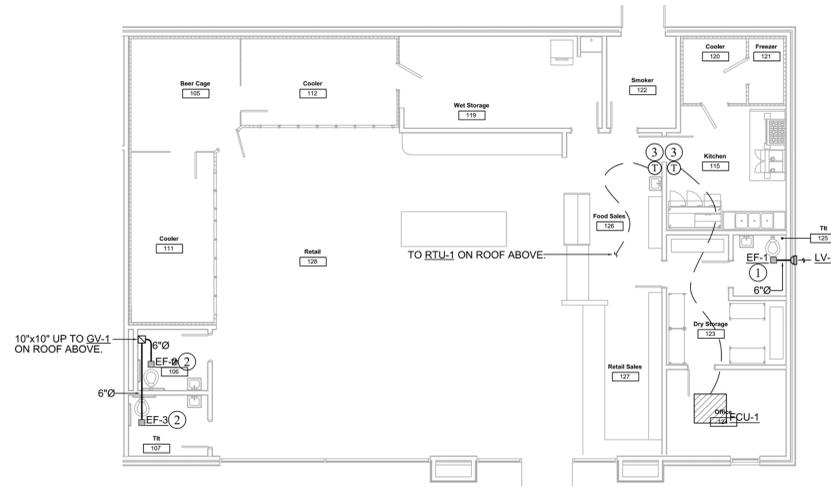
GENERAL NOTES:

- 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, 18 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 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.

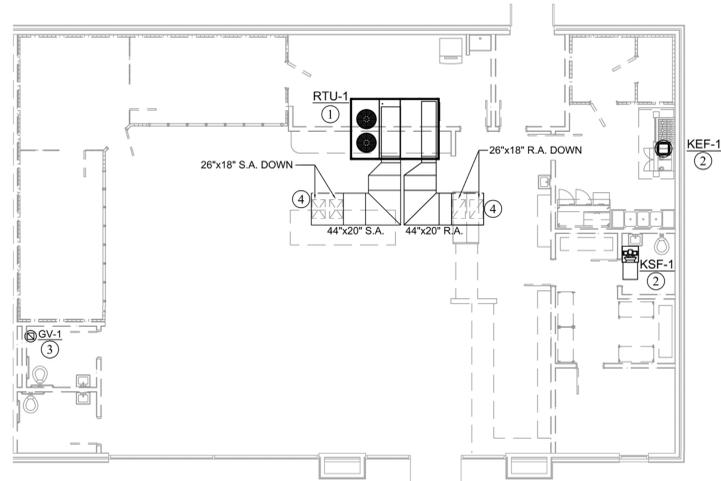
MINOR MODIFICATION OF DUCT SIZING AND ROUTING MAY BE REQUIRED DURING INSTALLATION. ANY CHANGES WHICH INCREASES/DECREASES AIRFLOW AREA BY GREATER THAN 10% SHOULD BE PREAPPROVED.

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

NUMBERED NOTES:

- 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.

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.

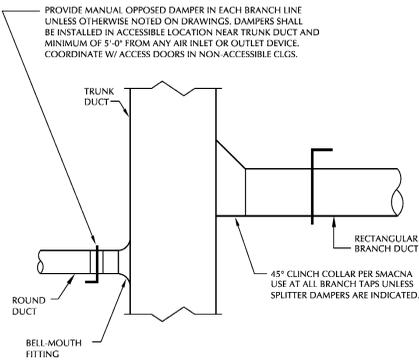
ALL EQUIPMENT, LABOR, MATERIAL, AND COORDINATION TO COMPLETE THIS PROJECT PER THE DESIGN INTENT SHALL BE PROVIDED BY CONTRACTOR.

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.

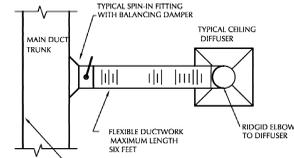
NUMBERED NOTES:

- 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.

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

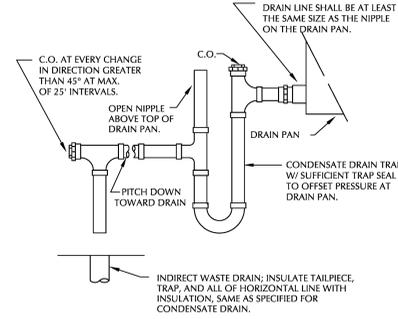


BRANCH DUCT TAP DETAIL



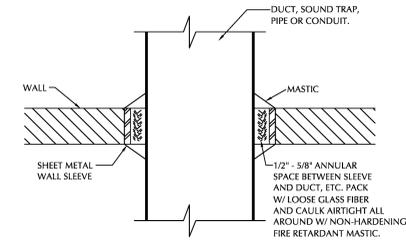
NOTE:
1. NO BRANCH DUCTS WITHIN 18" OF
END OF MAIN DUCT.
2. MINIMUM 10" BETWEEN BRANCH TAKE
OFF DUCTS.
3. NO BRANCH DUCTS FROM MAIN
DUCT TRANSITIONS.

TYPICAL ROUND BRANCH DUCT TAKE-OFF

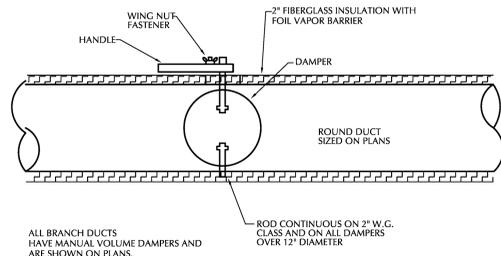


CONDENSATE DRAIN TRAP DETAIL

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

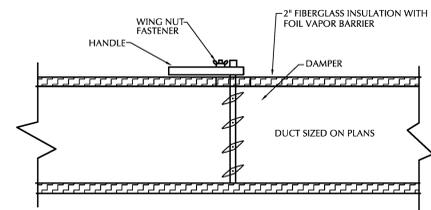


WALL PENETRATION DETAIL

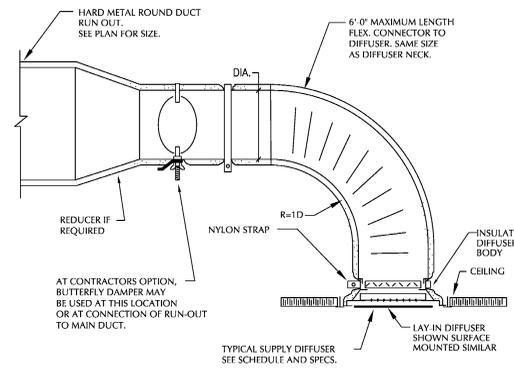


ALL BRANCH DUCTS
HAVE MANUAL VOLUME DAMPERS AND
ARE SHOWN ON PLANS.

ROUND DUCT MANUAL DAMPER



RECTANGULAR DUCT MANUAL DAMPER

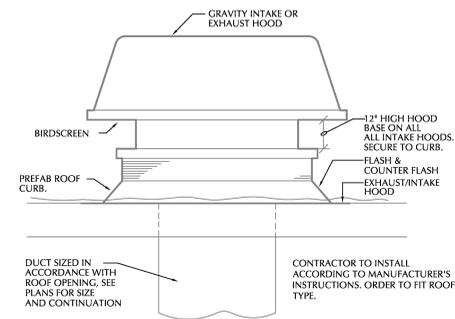


REDUCER IF
REQUIRED

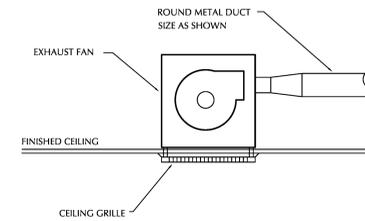
AT CONTRACTORS OPTION,
BUTTERFLY DAMPER MAY
BE USED AT THIS LOCATION
OR AT CONNECTION OF RUN-OUT
TO MAIN DUCT.

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

TYPICAL DIFFUSER MOUNTING

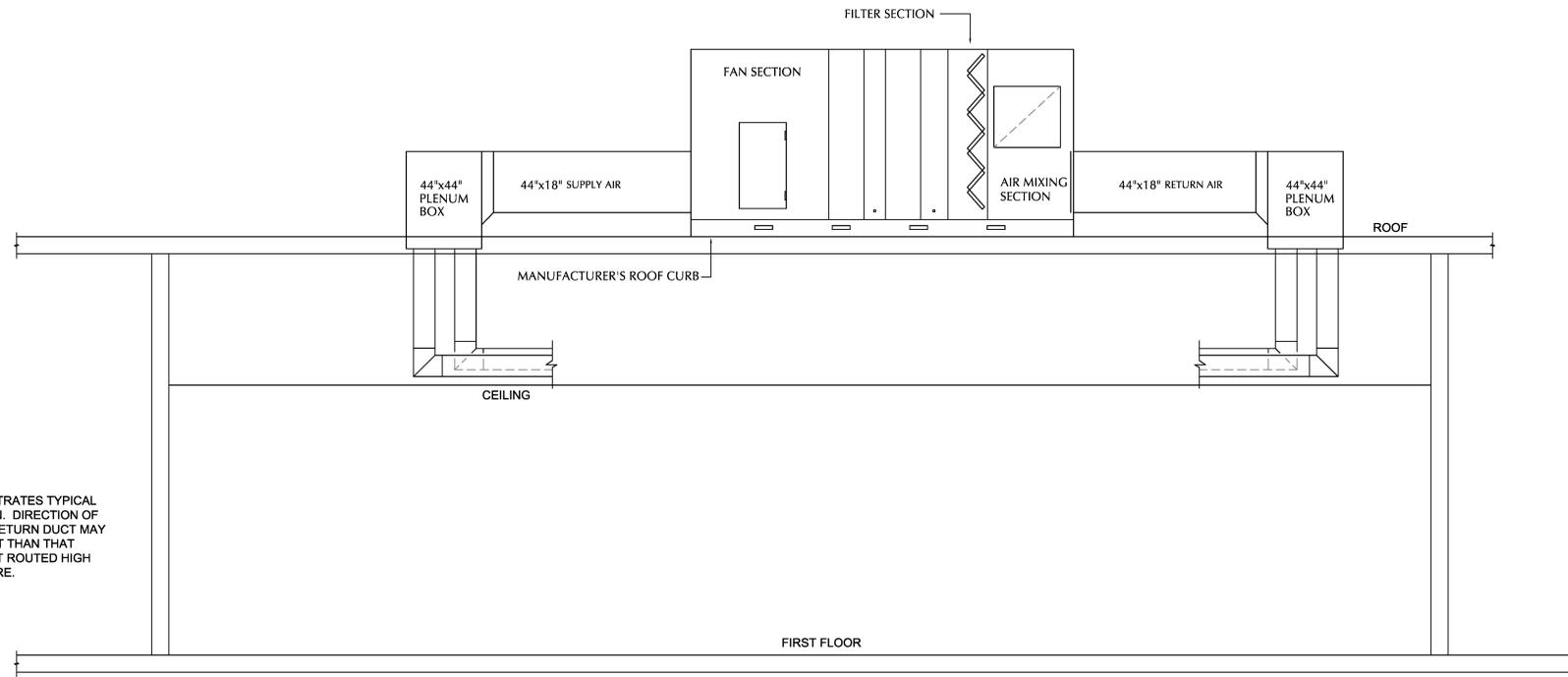


ROOF MOUNTED GRAVITY EXHAUST/INTAKE VENTILATOR DETAIL

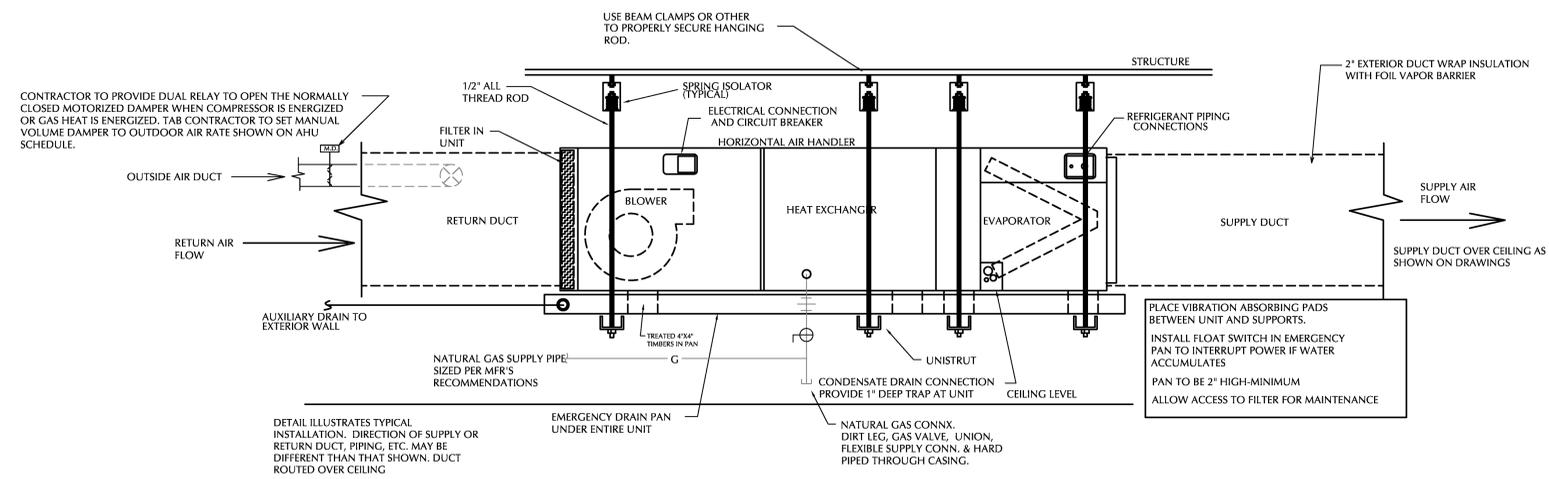


CEILING MOUNTED EXHAUST FAN

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



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		RATED LOAD AMPS	OUTPUT (W)	REMARKS
				CAP	EA DB/WB	LA DB/WB	SIZE	ELECTRICAL			
FCU-1	MMD802454	695	70	24 MBH	80°/67°	55°/55°	208V/1PH	--	1.7	160	HORIZONTAL SPLIT SYSTEM, THREE SPEEDMOTOR.

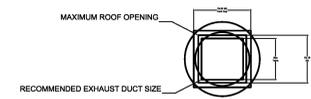
NOTES: EACH UNIT SHOULD BE EQUIPPED WITH THE APPROPRIATE SIZE EVAPORATOR COIL. VERIFY ELECTRICAL REQUIREMENTS PER MANUFACTURER'S RECOMMENDATIONS.

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	

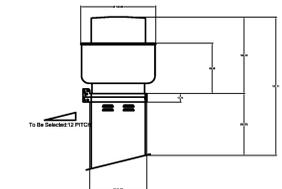
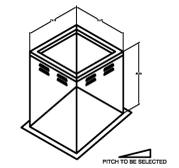
NOTES: INSTALL ACCORDING TO MANUFACTURER'S INSTALLATION REQUIREMENTS.

PACKAGED UNIT SCHEDULES														
MARK	MAKE	MODEL	FAN DATA			COOLING		GAS HEAT		COMPRESSORS	ELECTRICAL		PRE-FILTER	REMARKS
			CFM	OA	ESP	TOT BTUH	INPUT BTU	OUTPUT BTU	VOLTS		MCA	MOP		
RTU-1	LENNOX	LGT108H4EM1Y	5,000	1,000	0.5"	103,000	132,000	105,000	2	208/3PH	61.0	80	MERV 8	SEE NOTES INDICATED BELOW

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



DUCT TYPE	SIZE
STANDARD	16 SQ
FIRE-WRAPPED	12 SQ



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.

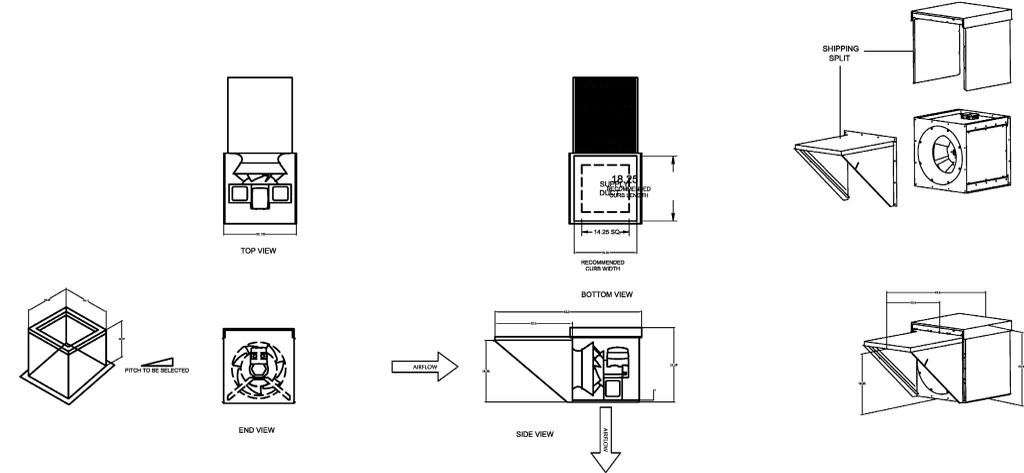
Direct Drive Mixed Flow Filtered Roof Supply Fan												
MARK INFORMATION			FAN INFORMATION						MOTOR INFORMATION			
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS
1	KSF-1	KSQ-12-M2	1,480	0.613	1,750	0.44	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
1	KEF-1	CUE-140-VG	1,862	0.994	1,462	0.6	122	1	208/60/3	TF	1725	1

*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



HOOD INFORMATION

HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST COLLAR(S)					SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION	
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	WIDTH	LENGTH	DIA.	CFM	S.P.	MUA CFM			AC CFM
1	KH-1	GHEW-88-S	88	48	24	430 SS WHERE EXPOSED	HEAVY	1862	9	18		1862	0.494	1490		215.277	SINGLE

HOOD INFORMATION

HOOD NO.	MARK	LIGHTING DETAILS			FOOT CANDLES	GREASE FILTRATION DETAILS			UTILITY CABINET(S)							
		FIXTURE TYPE	BULB / LAMP INFO	QTY		TYPE / MODEL	MATERIAL	QTY	SIZE (IN.)	LOCATION	FIRE SYSTEM	CONTROLS	TYPE	SIZE	MODEL	INTERFACE
1	KH-1	INCANDESCENT (GLOBE)	100W A19 (BULBS NOT INCL.)	4	45.69	BAFFLE	STAINLESS STEEL	2	3	16	20	LEFT	ANSUL R102	6	GKC	

SUPPLY PLENUM INFORMATION

HOOD NO.	MARK	POS.	TYPE	SIZE (IN.)			INSULATED	DAMPER(S)	LED LIGHT(S)	TOTAL SUPPLIED	QTY	TOTAL CFM	TOTAL S.P.	COLLARS					
				L	W	H								TYPE	MOUNTING	QTY	W	L	DIA.
1	KH-1	FRONT	ASP	100	14	4	NO	YES	NO	1490	0.02	MUA	FACTORY	2	12	30	745	298	

HOOD OPTIONS

UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #MH11726
 BACK INTEGRAL AIR SPACE - 3 IN WIDE
 18 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED
 FACTORY MOUNTED EXHAUST COLLAR(S)
 BACKSPASH 60.00 IN HIGH 100.00 IN LONG
 PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
 STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

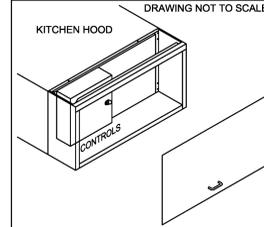
CONTROL INFORMATION

MARK	MODEL	LOCATION	TYPE	USER INTERFACE	LOCATION	FAN #	TYPE	FAN	FAN MARK	ZONE	CFM	FANS CONTROLLED					
												MOTOR HP	MOTOR VOLT	CYCLE	MOTOR PHASE	MOTOR STARTER IN PANEL	VFD IN PANEL
KH-1 CONTROLS	GKC-CV-S-11-1-1-0	LEFT CABINET ON KH-01	FULL COLOR TOUCHSCREEN	HOOD - FACE MOUNT LEFT END OF KH-01 SECTION 1	1	EXHAUST	E1	KEF-01	KEF-01	1	1862	1	208	60	3	NO	NO
					2	SUPPLY	S1	KSF-01	KSF-01	1	1650	0.75	208	60	3	YES	NO

CONTROL FEATURES

HOOD LIGHT CONTROL
 TEMP SENSORS (FACTORY INSTALLED) - QTY. 1
 DRY FIRE CONTACTS - QTY. 2
 LIGHTS OFF DURING FIRE
 EXHAUST MAX DURING FIRE
 SUPPLY OFF DURING FIRE

CABINET DETAILS



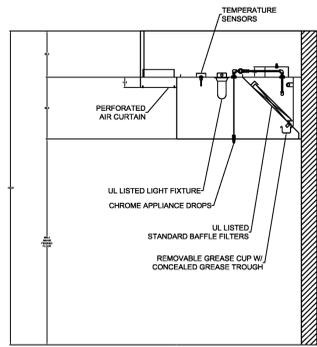
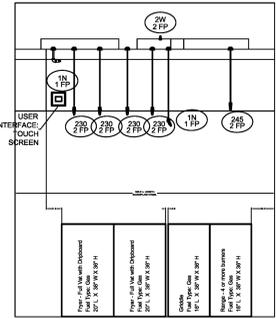
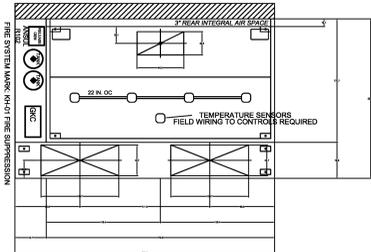
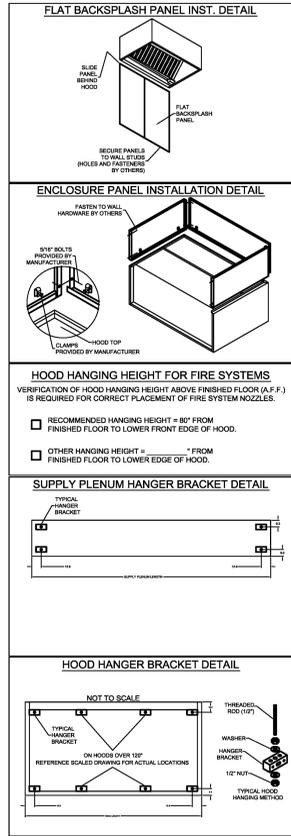
USER INTERFACE DETAILS

MOUNTING TYPE:
 FACTORY MOUNTED:
 FACE MOUNT LEFT SIDE OF HOOD
 USER INTERFACE CONTROL
 FANS AND LIGHTS
 INTERFACE CABLE LENGTH
 50FT (FACTORY PROVIDED)

MOUNTING LOCATION:
 UTILITY CABINET ON HOOD
 (INNER CONTROL BOX: 12 X 20 X 6)

NOTES:
 1) WHEN CONTROLS ARE MOUNTED IN HOOD-MOUNTED OR WALL-MOUNTED UTILITY CABINET, FOR HOOD OR WALL CABINET DIMENSIONS SEE HOOD SUBMITTAL.
 2) MINIMUM OF 36" OF CLEARANCE RECOMMENDED IN FRONT OF CONTROL CABINET

ZONE CONFIGURATION										WIRING DIAGRAM CODE: #WWW		
ZONE #	ZONE	ROOM TEMP								JOB NAME	RBR - CALHOUN STATION 1-4	
1	Z1	PRESET								MODEL	GKC-CV-S-11-1-1-0	
										SERIAL NUMBER	WDSNIF	
										NAME	KH-01 CONTROLS	
										DOC NUMBER	###	
										REV	###	
HOOD CONFIGURATION										FACTORY SETTINGS / PARAMETERS FAN DETAIL		
HOOD #	HOOD	HOOD MARK	ZONE	EXHAUST	SUPPLY	MB-TEMP SENSORS	HCB					
1	H1	KH-01 SECTION 1	Z1	E1	S1	TS1	NO					
FAN CONFIGURATION										GENERAL SETTINGS		
FAN #	TYPE	FAN	FAN MARK	ZONE	MIN CFM	MAX CFM	MODEL S.F.P.	VFD ADDRESS	MIN FREQ.	MAX FREQ.	MIN VDC	MAX VDC
1	EXHAUST	E1	KEF-01	Z1	-	1862	NO	-	-	-	-	10.0
2	SUPPLY	S1	KSF-01	Z1	-	1650	NO	-	-	-	-	10.0



SECTION 16000 ELECTRICAL

16000 SCOPE OF WORK

- The work described under this section of the specifications includes furnishing all material, labor, and equipment, except as furnished under other sections of the specification, to install all electrical work as shown in the drawings and as specified and referred to herein.
- The contractor shall furnish all labor, materials, and equipment, pay all fees and cost, shall obtain all permits, approvals, and inspections to provide a complete electrical installation.
- All electrical equipment and the resultant installation of such equipment, devices, etc., shall be in strict compliance with the National Electric Code, NFPA 70, all applicable local, state, and federal codes, and the Standard for Electrical Safety in the Workplace, NFPA 70E.
- The contractor shall take responsibility for field verification of all dimensions and locations of existing, relocated, and new equipment, and shall be responsible for coordination with the work of other trades necessary to the project.
- These drawings are intended to outline the scope of work required to provide a complete and operable project conclusion. All miscellaneous components, parts, fasteners, splices, and other incidental items necessary to provide a completed project shall be provided whether or not specifically noted.
- All connections to existing power, and all testing shall be done with the assistance and guidance of the construction manager and the local power company.
- Contractor shall notify the construction manager immediately of any conflicts arising from discovered conditions at any phase of the project.
- At any location where excavation or associated work causes damage to existing underground utilities, the contractor shall restore the damaged system to a like-new state.
- Contractor shall verify all final locations of electrical equipment prior to installation with the construction manager.
- Locations of other equipment specified by other trades or provided by the owner are approximate. Coordinate exact location in the field prior to roughing in and routing conduit.
- See architectural reflected ceiling plans and elevations for exact locations for light fixtures in lay-in or drywall ceilings, and on interior or exterior walls.
- Conduits are not necessarily shown on plan drawings for the sake of clarity. Provide conduits between devices and to panels per requirements listed in Division 16 specifications. Indicate the exact routing of conduit on plan drawings as part of as-built documentation to be submitted after final completion.
- The general contractor shall field-verify all existing conditions prior to beginning any work and shall immediately notify the architect and engineer of any discrepancies. Failure to do so indicates that the contractor accepts the conditions as they exist and shall perform the work required as shown and specified.
- The electrical contractor shall review mechanical drawings and specifications to obtain locations, wiring requirements, control wiring schemes, interlock wiring, and thermostat locations.
- Equipment shall be mounted on materials suitable for the environment in which it is installed with the appropriate NEMA enclosure rating.
- Working clearances for electrical equipment shall be in compliance with Article 110 and 408.
- The dedicated electrical space extending from the floor to the structural ceiling with the width and depth of the panelboard or switchboard must be clear of all piping, ducts, equipment foreign to the electrical or architectural appurtenances in accordance with NEC 110 & 408. Coordinate installation of electrical equipment with other trades prior to roughing in equipment.
- The electrical contractor shall obtain and review the mechanical and special equipment submittals prior to submitting the electrical submittals. Any electrical equipment, conduit, and wire size changes resulting from this review shall also be submitted for approval.

- Regulations: Comply with all applicable codes, rules, and regulations. All materials, equipment, and work must comply with the latest adopted code and the applicable municipal and life safety codes.
- Permits: Obtain and pay for all permits, fees, and licenses required to perform work described herein.
- Inspections: All work must be inspected and approved by local authorities. Prior to final approval, furnish the architect with certificates of inspection and approvals by the local authorities.

3. Work Listed Elsewhere

- Furnish and install motor controls unless in motor control center. Furnish hole cutting in pre-cast structural concrete.

4. Existing Services and Remodel Area

- Maintain all services, power, sound, telephone, etc., to existing buildings or areas. Interruptions of services required for "cut-over" or connections of new cables, etc., shall be done at the convenience of the tenant and be approved in writing by the tenant prior to the interruption.

5. Temporary Power

- Provide temporary power as required by the general contractor. This service shall be maintained throughout the entire project as the work progresses.
- Provide outlets at convenient points and in sufficient
- DEPTH OF NOT LESS THAN 18 INCHES BELOW FINISHED GRADE. CONDUIT SHALL BE SCHEDULE 40 PVC.

6. SUPPORT OF CONDUIT:

- All conduit shall be properly supported and securely fastened in place.
- Conduit run horizontally along walls or ceilings shall be supported by straps or hangers not more than 10 feet apart.
- All conduit runs shall be installed in a straight and workmanlike manner.

9. CONDUIT BODIES:

- Conduit bodies shall be used where necessary for access to conductors in conduit runs and shall be installed as directed by the engineer.

10. CONDUIT SEALS:

- All conduit penetrations through fire-rated walls or floors shall be sealed to maintain the fire rating of the assembly.

9. CONDUIT BENDING:

- All conduit bending shall be done accurately to ensure proper alignment of conduit runs and to avoid damage to conductors.

10. CONDUIT INSTALLATION IN SLAB:

- Conduit installed in the slab shall be elevated a minimum of 2 inches above grade and shall be securely supported to ensure proper positioning during concrete placement.

11. CONDUIT INSTALLATION IN EXPOSED LOCATIONS:

- Conduit installed in exposed locations, such as along walls or ceilings, shall be installed with proper offsets and alignments.

12. EXPANSION FITTINGS:

- Expansion fittings shall be installed where required to accommodate thermal expansion and contraction of conduit systems.

13. 15. CONDUIT IDENTIFICATION:

- All conduit runs shall be properly identified with legible markings indicating circuit number and contents.

14. CAPPING AND SEALING:

- All open ends of conduit shall be capped or sealed to prevent the entry of moisture, dirt, or debris.

15. Electrical Installation Guidelines:

16. Underground Conduits:

- Conduits shall be
 - A minimum of 24" below grade or 18" below grade encased in a 3" thick concrete envelopment.
 - Trenching, backfilling, and concrete work for electrical installations shall comply with local regulations.

17. Conduit Installation:

- The contractor is responsible for providing sleeves and chases where conduits pass through floors or walls, sealing openings, and installing esutchcon plates for exposed conduits.
- All empty conduits shall be equipped with a pull wire.

18. Conduit Fittings:

- Rigid conduit fittings shall include double locknuts and bushings. For EMT or flexible conduits, fittings shall have insulated threads.

19. Wiring Devices and Boxes:

- Receptacles requiring surface weatherproof mounting shall be installed in an FS conduit box.
- Outlet boxes in exposed or wet locations shall be cast steel, while concealed locations shall use sheet steel boxes.
- Boxes shall be securely attached to the structure, independent of conduit support.

20. Hangers/Inserts:

- Unistrut, hangers, and supports required for the electrical work shall be furnished and installed.

21. Concrete and Excavation:

- The contractor shall provide all concrete, excavation, fill, backfill, and steel required unless otherwise noted in the specifications.

22. Final Location of Features:

- A list of manufacturers whose specification-grade equipment is acceptable is provided. Substitutions require approval from the architect.

25. Shop Drawings:

- Six sets of shop drawings for various equipment, including service entrance sections, switchboards, panelboards, lighting fixtures, transformers, and generators, shall be submitted to the architect for approval.

26. Final Inspection and Test:

- The contractor shall furnish all meters, cables, connections, and apparatus for the final inspection and test.

27. Electrical Testing and Safety:

28. Grounding:

- All EMT, flexible conduit, MC cable, or PVC conduit shall be provided with an insulated green ground wire.

30. Communication Systems:

- Provide all necessary material and labor required by the telephone company for delivering service to the telephone terminal board.
- All conduit, trenching, and backfill shall be provided by the electrical contractor in accordance with the telephone company standards.

32. Data:

- All data outlets are to have wall plates to match the device plate.

33. Guarantee:

- Guarantee all material, equipment, and workmanship for one year from the date of final acceptance. Replace without charge any material or equipment found defective during this period.

34. General Electrical Notes:

35. Lighting:

- Verify lamp type, color, number of lamps per fixture, lens type, and voltage before ordering new fixtures to match existing.

36. Emergency Lighting:

- Verify ceiling or wall mounting for emergency exit signs.

37. Power:

- Outlets on opposite sides of fire-rated walls shall be separated by a minimum horizontal distance of 24".

38. FINAL ACCEPTANCE:

- UPON FINAL INSPECTION, DEMONSTRATE TO THE ENGINEER THAT ALL LIGHTING, OUTLETS, SWITCHES, EMERGENCY LIGHTING, AND ALL OTHER EQUIPMENT IS PROPERLY INSTALLED AND OPERATING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- UPON COMPLETION OF THE INSTALLATION, ALL SWITCHPLATES, COVERPLATES, AND FIXTURES SHALL BE CLEANED OF ALL DIRT, PAINT, ETC.
- IN ADDITION TO OTHER CODE REQUIRED TESTS, TEST THE CONTINUITY OF THE GROUNDING CONDUCTOR SYSTEM AND VERIFY THAT GROUNDING CONDUCTORS ARE SECURELY CONNECTED. ALL EQUIPMENT SHALL BE GROUNDED, AND THE SYSTEM SHALL MEET NEC REQUIREMENTS.
- UPON COMPLETION OF THE WORK, SUBMIT TO THE ENGINEER FOR HIS APPROVAL, THE MANUFACTURER'S CERTIFICATE THAT THE INSTALLATION HAS BEEN MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- AS-BUILT DRAWINGS SHALL BE PROVIDED TO THE ENGINEER UPON COMPLETION OF THE WORK, SHOWING ANY DEVIATIONS FROM THE CONTRACT DOCUMENTS.

40. AS-BUILT DRAWINGS:

- UPON COMPLETION OF THE PROJECT, PROVIDE THE ARCHITECT AND ENGINEER WITH THREE (3) COPIES OF AS-BUILT DRAWINGS. THE AS-BUILT DRAWINGS SHALL INDICATE ANY CHANGES MADE DURING CONSTRUCTION AND SHALL BE CLEARLY MARKED TO SHOW SUCH CHANGES.

41. FINAL CONNECTION:

- ALL FINAL CONNECTIONS TO EQUIPMENT INSTALLED UNDER THIS SECTION SHALL BE MADE IN THE PRESENCE OF THE ENGINEER.

42. OPERATION AND MAINTENANCE MANUALS:

- PROVIDE OPERATION AND MAINTENANCE MANUALS FOR ALL ELECTRICAL EQUIPMENT INSTALLED UNDER THIS SECTION. MANUALS SHALL BE SUBMITTED TO THE ENGINEER UPON COMPLETION OF THE WORK.

43. INSPECTION:

- ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE ENGINEER AT ALL TIMES DURING THE PROGRESS OF THE WORK.

44. SUBMITTALS:

- ALL SHOP DRAWINGS, PRODUCT DATA, SAMPLES, AND OTHER SUBMITTALS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

45. CHANGES AND ALTERATIONS:

- NO CHANGES OR ALTERATIONS TO THE CONTRACT WORK WILL BE MADE EXCEPT UPON WRITTEN ORDER OF THE ENGINEER.

46. CODE COMPLIANCE:

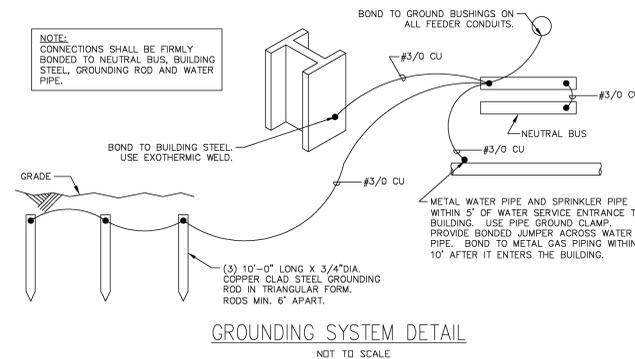
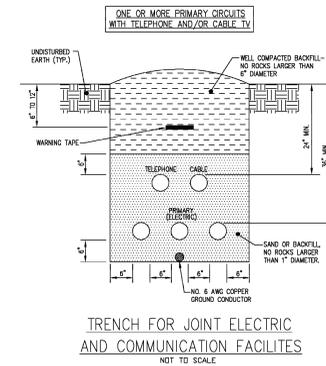
- ALL WORK SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL CODES AND REGULATIONS.

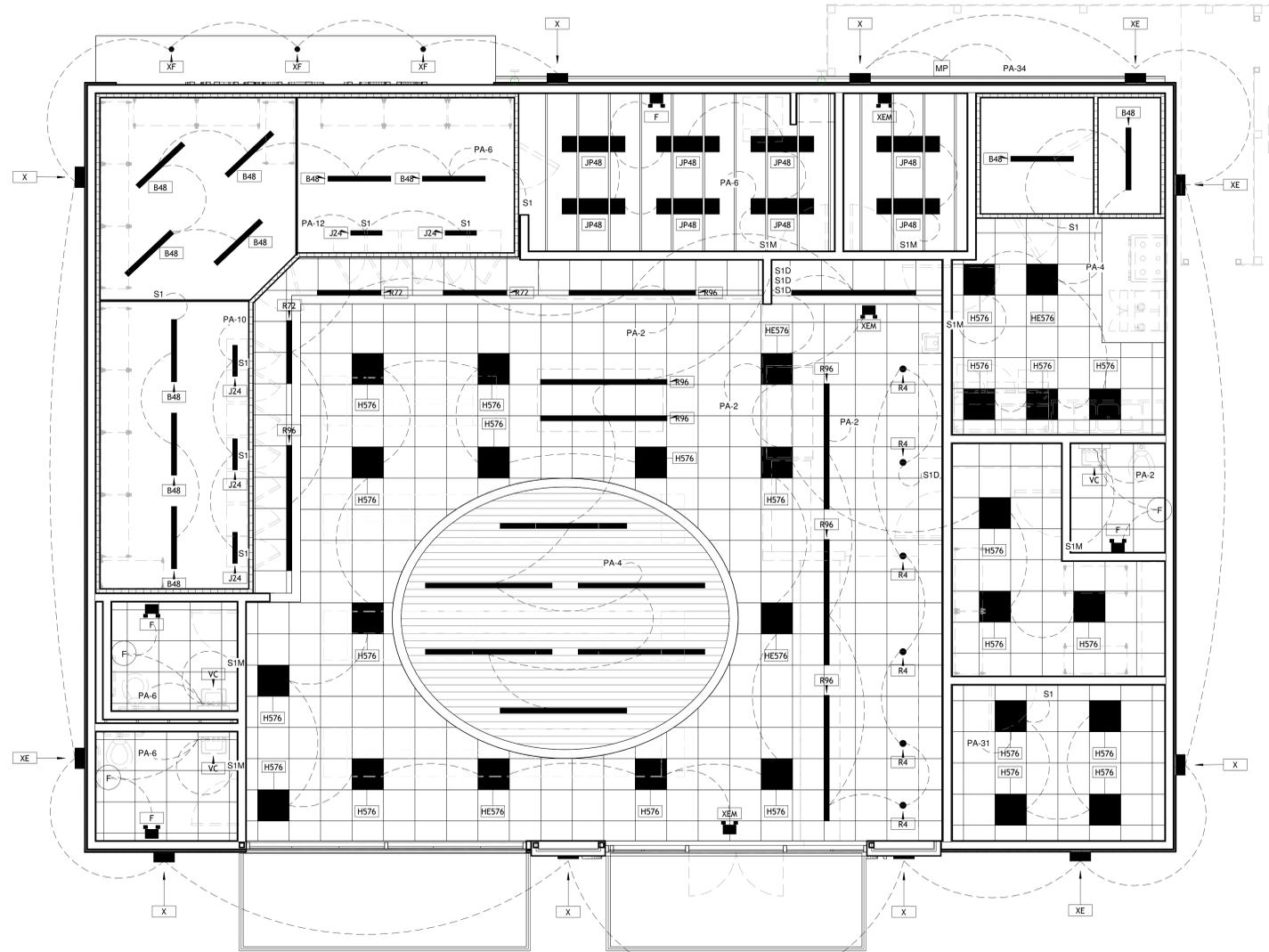
47. WARRANTY:

- PROVIDE A ONE-YEAR WARRANTY ON ALL MATERIALS AND WORKMANSHIP. REPLACE, REPAIR, OR ADJUST ANY DEFECTIVE WORK AT NO COST TO THE OWNER.

ACCEPTABLE FUSE EQUIVALENTS						
UL CLASS	VOLT	DESCRIPTION	BUSSMAN	RELIANCE	SHAWMUT	LITTLEFUSE
RK1	250	TIME DELAY	LPM-RK	LENRK	A2D-R	LLSRK
RK1 (A)	600	TIME DELAY	LPS-RK	LESRK	A6D-R	LLSRK
RK5	250	TIME DELAY	FRN-RK	ECNR	TR-R	FLNR
RK5 (A)	600	TIME DELAY	FRS-R	SCSR	TRS-R	FLSR
L	600	TIME DELAY	KRP-C	KLU	A4BY	---
L (A)	600	FAST ACTING	KLU	LCL	---	KLLU
L (B)	600	FAST ACTING	KTU	LCU	---	---
K1	250	FAST ACTING	KWN-R	---	---	---
K1 (A)	600	FAST ACTING	KWS-R	---	---	---
RK1 (B)	250	FAST ACTING	KTN-R	NSR	A2K	---
RK1 (C)	600	FAST ACTING	KTS-R	SCR	A6K	---
J	600	FAST ACTING	JKS	JLC	A4J	JLS
T	250	QUICK	JIN	---	A3T	JLN
T (A)	600	QUICK	JIS	---	---	JLS

NOTE: FUSES NOT LISTED ABOVE MUST BE APPROVED BY DESIGNER/ENGINEER.





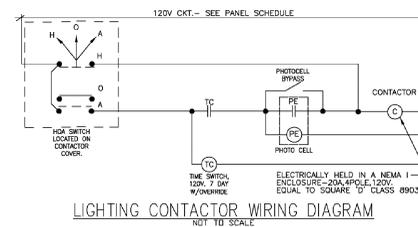
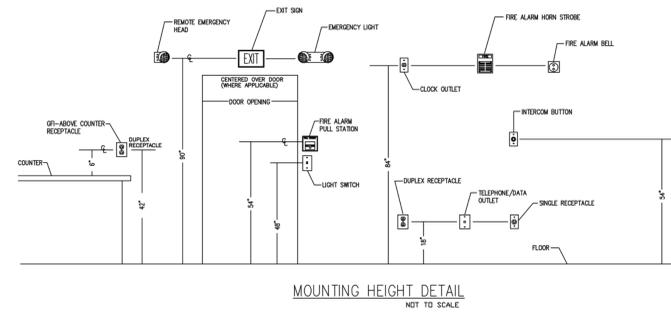
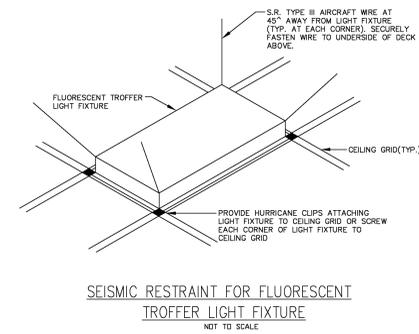
1 Lighting Plan
1/4" = 1'-0"

Lighting Fixture Schedule

Type Mark	Type	Wattage	Lamp	Description	Mounting	Model	Panel	Electrical Data	Mark
B48	4x48 Vapor Tight	57 W	LED	Vaportight Led, Internal Prismatic Lens, 15% DR High Impact Additive, Universal Voltage, 4000k, 1 Dimming Driver	Ceiling	Cooper 4VT2 LD4 6 DR UNV L840 CD1	120 V/1-40 VA	B48	
11	F	Emergency Lighting	19 W	LED	Dual Head Emergency Light, White, Lithium Iron Phosphate, Led, UL Listed Damp Location, 50f-104f, Self-Diagnostics, Universal Volt Age 120-277v 50 Or 60hz, 6' Path Egress At 38' 7.5 Ceiling, 56' 1 0' Ceiling, 58' 121 Ceiling.	Wall	Lithonia ELMLT W LP06VS LTP SD	120 V/1-100 VA	F
4	H576	2x2 Grid Recessed	27 W	LED	Architectural Led Trouffer, 90 Cri, 3000k To 5000k Adjustable Cct	Grid Recessed	CREE CR22 32L 9ACK CMA UNV	120 V/1-0 VA	H576
23	HE576	2x2 Grid Recessed EB	27 W	LED	Architectural Led Trouffer, 90 Cri, 3000k To 5000k Adjustable CCT	Grid Recessed	CREE CR22 32L 9ACK CMA UNV EB	120 V/1-0 VA	HE576
4	J24	4x24 Narrow Strip	40 W	LED	LED Narrow Strip Light	Ceiling	Metalux 4SLSTP4040DD 120V	120 V/1-40 VA	J24
5	JP48	4x48 Narrow Strip	40 W	LED	LED Narrow Strip Light	Pendant	Metalux 4SLSTP4040DD 120V	120 V/1-40 VA	JP48
8	R4	4" Round Wall Wash	26 W	LED	Lensed Wall Wash	Grid Recessed	Gotham Lighting EVO4LW 40/25 ARFL LD 120 EZB	120 V/1-15 VA	R4
6	R72	4" Linear Recessed - 4'	45 W	LED	Architectural Led Trouffer, 80 Cri, 3000k to 4000k Adjustable CCT	Grid Recessed	Metalux 4RBG6-SL1-L8SCT3 120V	120 V/1-5 VA	R72
3	R96	4" Linear Recessed - 8'	89 W	LED	Architectural Led Trouffer, 80 Cri, 3000k to 4000k Adjustable CCT	Grid Recessed	Metalux 8RBG6-SL1-L8SCT3 120V	120 V/1-5 VA	R96
14	VC	Vanity Sconce	18 W	LED	24" Wall Mount Led, 3000k Color, Integral PIR Sensor, Dims To 10% When Room Unoccupied, Light Without Lumen Management	Wall	Lithonia WL2 18L LP830 NES7 N100 DIM10	120 V/1-15 VA	VC
3	X	Decorative Wall Sconce	60 W	LED	Decorative Wall Mounted Forward Throw Led, Nighttime Friendly.	Wall	Lithonia MRW LED P4 40K SR2 MVOL T	120 V/1-60 VA	X
7	XE	Decorative Wall Sconce E	60 W	LED	Decorative Wall Mounted Forward Throw Led, Nighttime Friendly, With Emergency Backup	Wall	Lithonia MRW LED P4 40K SR2 MVOL T E20WC	120 V/1-60 VA	XE
4	XEM	Emergency Directional Lighting	14 W	LED	Combination Exit Emergency Light with Automatic Battery Backup, Ceiling Or Wall Mount - Red Letters - Black	Ceiling	Astralite EEU MR R B	120 V/1-100 VA	XEM
3	XF	Wide Angle Flood Signage Light	8 W	LED	Tracer LED Floodlight directed to signage with die cast housing (IP66 rated)	Soffit	Cooper TCRS8W-BK-7030	120 V/1-15 VA	XF

Electrical Fixture Schedule

Symbol	Description	Notes	Comments
MP	Multi-Pole Lighting Contactor	Subscript indicates Pole Number on Contactor	
S1	Single-Pole Throw Switch	Mount Centerline of Box @ 42" AFF UNO	
S1D	Single-Pole Dimmer Switch	Mount Centerline of Box @ 42" AFF UNO	
S1M	Single-Pole Motion Switch	Mount Centerline of Box @ 42" AFF UNO	Motion Detcor Switch, Pass & Seymour #WSP200 or Equal



FAULT	CURRENT	SCHEDULE	UTILITY			FED FROM			FEEDER			TRANSFORMER			TOTAL MOTOR			DIRECTLY CONNECTED MOTOR LOAD								
			FAULT	X	R	DEVI	FAUL	X	R	SIZE	X/1000	R/1000	LENGTH	X	R	KVA	Z%	XR RATIO	FAULT AT PRIMARY	X	R	FAULT	X	R		
UTIL TRANS	42,721	65,000	120V	41,667	0.002824	0.0005648																				
WIREWAY	30,417	35,000	120V	29,352	0.003878	0.001294	UTIL TRANS	41,667	0.002824	0.0005648	(2)#500kcm	10.0195	0.0135	54'	0.0011	0.0007										
MDA	26,087	42,000	120V	25,300	0.004319	0.001961	WIREWAY	29,352	0.003878	0.001294	#4/0	0.041	0.062	11'	0.0004	0.0007										
LA	14,215	35,000	120V	13,988	0.006626	0.005449	MDA	25,300	0.004319	0.001961	#4/0	0.041	0.062	56'	0.0023	0.0035										
MOB	28,281	42,000	120V	27,213	0.004125	0.001559	WIREWAY	29,352	0.003878	0.001294	(2)#300kcm	10.0205	0.022	12'	0.0002	0.0003										
PP	26,359	42,000	120V	25,288	0.004378	0.001831	MOB	27,213	0.004125	0.001559	(2)#300kcm	10.0205	0.022	12'	0.0003	0.0003										
PA	22,315	35,000	120V	21,533	0.00491	0.002636	PP	25,288	0.004378	0.001831	#4/0	0.041	0.062	13'	0.0005	0.0008										
PG	22,402	30,000	120V	21,568	0.004858	0.002712	PP	25,288	0.004378	0.001831	#3/0	0.042	0.077	11'	0.0005	0.0009										

- Utility transformer shall be mounted a minimum of 20' away from any main disconnect for AIC ratings to be valid.
- Utility transformer primary shall be 33.8kV or less primary for AIC ratings to be valid.
- Please contact engineer for AIC revisions if above changes.

WIREWAY

CIRCUIT #	BREAKER TRIP/POLES	CIRCUIT DESCRIPTION	LOAD KVA			FEDER	REWAYWAY	AND CONDUCTORS
			A	B	C			
1	225/3	BREAKER MDA	1.94	2.23	3.5	2-1/2" C, 3#4/0, #4/0N, #4G		
2	600/3	BREAKER MOB	45.1	59.3	38.9	(2)3" C, 3#500kcmIL, #500kcmIL N, #1G		
3	20/3	SPARE	0	0	0			
4	20/3	SPARE	0	0	0			
5	20/3	SPARE	0	0	0			

TOTAL CONNECTED		KVA BY PHASE			CORR KVA		CALC KVA	
CONN KVA	CALC KVA	A	B	C	CONN KVA	CALC KVA		
13.4	16.8	(125%)			24.9	36.2		(65%)
LIGHTING	21.6	5.4	(25%)		CONTINUOUS	1	1.25	(125%)
LARGEST MOTOR	66.6	66.6	(100%)		NONCONTINUOUS	5.9	5.9	(100%)
MOTORS	17.3	13.7	(80%)		HEATING	21.8	21.8	(100%)
RECEPTACLES					COOLING	21.8	0	(0%)
TOTAL LOAD					148			
BALANCED 3-PHASE LOAD					430 A			

PG

CIRCUIT #	CIRCUIT DESCRIPTION	LOAD KVA		CIRCUIT #	CIRCUIT DESCRIPTION	LOAD KVA	
		A	B			A	B
1	20/1 DSP 1	0.8	0	1	20/1 PNL PG 6-STOP CXT PANEL PG	0.2	15
3	20/1 SWITCHED NEUTRAL	0	0	3	20/1 RTU-1	7.21	7.21
5	20/1 DSP 3	0.8	0	5	20/1 HP1	0	10
7	20/1 SWITCHED NEUTRAL	0	0	7	20/1 SPARE	0	40/2
9	20/1 DSP 5	0.8	0	9	20/1 SPARE	0	10
11	20/1 SWITCHED NEUTRAL	0	0	11	20/1 COOLER COMPRESSOR	1.33	1.33
13	20/1 DSP 9	0.8	0	13	20/3	1.33	1.33
15	20/1 SWITCHED NEUTRAL	0	0	15	20/1	1.33	1.33
17	20/1 DSP 5	0.8	0	17	20/1 RECEPTACLE	0.72	1.1
19	20/1 SWITCHED NEUTRAL	0	0	19	20/1 DRINK COOLER FAN	0.72	1.1
21	20/1 SWITCHED NEUTRAL	0	0	21	20/2	1.1	1.1
23	20/1 SUBMERGED PUMP 1	1	0	23	20/1 BEER COOLER COOLING UNIT	2.63	2.63
25	20/1 SWITCHED NEUTRAL	0	0	25	20/1 DELI CASE	1.8	1.33
27	20/1 SUBMERGED PUMP 2	1	0	27	20/3	1.33	1.33
29	20/1 SWITCHED NEUTRAL	0	0	29	20/1 RECEPTACLE	0.72	1.1
31	20/1 SWITCHED NEUTRAL	0	0	31	20/1 BEER COOLER FAN	0.72	1.1
33	20/1 SUBMERGED PUMP 3	1	0	33	20/1 BEER COOLER COOLING UNIT	2.63	2.63
35	20/1 SWITCHED NEUTRAL	0	0	35	20/1 RECEPTACLE	0.72	1.1
37	20/1 DSP 24,6,8,10 LIGHTS	0.5	0	37	20/1 COOLER COMPRESSOR	1.8	1.33
39	20/1 SWITCHED NEUTRAL	0	0	39	20/1	1.33	1.33
41	20/1 SWITCHED NEUTRAL	0	0	41	20/1 COOLER	1.33	0.5
43	20/1 SPARE	0	0	43	20/1 FREEZE	0.5	0.5
TOTAL CONNECTED		KVA BY PHASE		TOTAL CONNECTED		KVA BY PHASE	
CONN KVA		CALC KVA		CONN KVA		CALC KVA	
1		1.25 (125%)		11		11 (100%)	
LARGEST MOTOR		0.25 (25%)		3		3 (100%)	
TOTAL LOAD		15.5		15.5		15.5	
BALANCED LOAD		74.5 A		74.5 A		74.5 A	

pp

CIRCUIT #	CIRCUIT DESCRIPTION	LOAD KVA			CIRCUIT #	CIRCUIT DESCRIPTION	LOAD KVA		
		A	B	C			A	B	C
1	20/1 PNL PG 6-STOP CXT PANEL PG	0.2	15	2	225/3 PANEL PA	9.02	10.9	8.74	
3	20/1 RTU-1	7.21	7.21	3	20/1 SPARE	0	0	0	
5	20/1 HP1	0	10	5	20/1 RECEPTACLE	0.72	6	20/1 LIGHTING	
7	20/1 SPARE	0	40/2	7	20/1 SPARE	0	0.36	8	
9	20/1 SPARE	0	10	9	20/1 LIGHTING	0.8	12	20/1 LIGHTING	
11	20/1 COOLER COMPRESSOR	1.33	1.33	11	20/1 TELEPHONE	0.6	0.6	12	
13	20/3	1.33	1.33	13	20/2 C-STORE SIGN	0.6	0.6	14	
15	20/1	1.33	1.33	15	20/1 RECEPTACLE	0.72	18	20/1 RECEPTACLE	
17	20/1 RECEPTACLE	0.72	1.1	17	20/1 RECEPTACLE	0.72	18	20/1 RECEPTACLE	
19	20/1 DRINK COOLER FAN	0.72	1.1	19	20/1 RECEPTACLE	0.72	18	20/1 RECEPTACLE	
21	20/1 BEER COOLER COOLING UNIT	2.63	2.63	21	20/1 HOOD LIGHTS/CTRL	1.2	0	22	
23	20/1 DELI CASE	1.8	1.33	23	20/1 SPARE	0	0.36	20/1 RECEPTACLE	
25	20/3	1.33	1.33	25	20/1 RECEPTACLE	0.36	0.18	26	
27	20/1 COOLER COMPRESSOR	1.8	1.33	27	20/1 AIR PUMP	0.18	0.18	28	
29	20/1	1.33	1.33	29	20/1 RECEPTACLE	0.18	0.18	30	
31	20/1 COOLER	1.33	0.5	31	20/1 RECEPTACLE	0.36	0.18	32	
33	20/1 FREEZE	0.5	0.5	33	20/1 SPARE	0	0	34	
35	20/1 HOOD FIRE SYS	1	0.5	35	20/1 LIGHTING	0.36	0.36	36	
37	20/1 SMOCKER	1	0.5	37	20/1 RECEPTACLE	0.36	0.18	38	
39	20/2	1.33	1.33	39	20/1 RECEPTACLE	0.36	0.18	40	
41	20/1 COOLER COOLING UNIT	2.63	2.63	41	20/1 LIGHTING	0.6	0.6	42	
43	20/1 FRYER	5.77	5.77	43	20/1 RECEPTACLE	0.36	0.18	44	
45	50/3	5.77	5.77	45	20/1 DRINK COOLER FAN	1.1	1.1	46	
47	20/2	1.33	1.33	47	20/1 DRINK COOLER FAN	1.1	1.1	48	
49	20/2	1.33	1.33	49	20/1 DRINK COOLER FAN	1.1	1.1	50	
51	20/2	1.33	1.33	51	20/2 FCU1	0.08	0.08	52	
TOTAL CONNECTED		KVA BY PHASE			TOTAL CONNECTED		KVA BY PHASE		
CONN KVA		CALC KVA			CONN KVA		CALC KVA		
1		12.4 (125%)			9.93		12.4 (125%)		
LARGEST MOTOR		1.8 (25%)			1.8		1.8 (100%)		
OTHER MOTORS		1.6 (100%)			1.6		1.6 (100%)		
RECEPTACLES		14.1 (100%)			14.1		14.1 (100%)		
TOTAL LOAD		143			143		143		
BALANCED LOAD		392			392		392		

PA

CIRCUIT #	CIRCUIT DESCRIPTION	LOAD KVA			CIRCUIT #	CIRCUIT DESCRIPTION	LOAD KVA		
		A	B	C			A	B	C
1	20/1 LIGHTING	0.536	0	2	20/1 EIGHT LIGHTING	0.837	1.32	1.55	
3	20/1 SPARE	0	0	4	20/1 EIGHT LIGHTING	0.837	1.32	1.55	
5	20/1 RECEPTACLE	0	0.72	6	20/1 LIGHTING	0	0.5	0.75	
7	20/1 SPARE	0	0.36	8	20/1 SPARE	0	0.5	0.75	
9	20/1 RECEPTACLE	0	0.36	10	20/1 LIGHTING	0.18	1.26	0.71	
11	20/1 RECEPTACLE	0	0.36	12	20/1 RECEPTACLE	0.18	1.26	0.71	
13	20/1 TELEPHONE	0.6	0.6	14	20/1 RECEPTACLE	0.18	1.26	0.71	
15	20/1 RECEPTACLE	0.6	0.6	15	20/1 RECEPTACLE	0.18	1.26	0.71	
17	20/1 RECEPTACLE	0.6	0.6	16	20/1 RECEPTACLE	0.18	1.26	0.71	
19	20/1 RECEPTACLE	0.6	0.6	17	20/1 RECEPTACLE	0.18	1.26	0.71	
21	20/1 HOOD LIGHTS/CTRL	1.2	0	18	20/1 RECEPTACLE	0.18	1.26	0.71	
23	20/1 SPARE	0	0.36	19	20/1 RECEPTACLE	0.18	1.26	0.71	
25	20/1 RECEPTACLE	0.36	0.18	20	20/1 ICE	1.8	0.72	0.72	
27	20/1 RECEPTACLE	0.36	0.18	21	20/1 RECEPTACLE	0.18	1.26	0.71	
29	20/1 RECEPTACLE	0.36	0.18	22	20/1 RECEPTACLE	0.18	1.26	0.71	
31	20/1 RECEPTACLE	0.36	0.18	23	20/1 SPARE	0	0	0	
33	20/1 RECEPTACLE	0.36	0.18	24	20/1 SPARE	0	0	0	
35	20/1 RECEPTACLE	0.36	0.18	25	20/1 SPARE	0	0	0	
37	20/1 RECEPTACLE	0.36	0.18	26	20/1 SPARE	0	0	0	
39	20/1 RECEPTACLE	0.36	0.18	27	20/1 SPARE	0	0	0	
41	20/1 RECEPTACLE	0.36	0.18	28	20/1 SPARE	0	0	0	
43	20/1 RECEPTACLE	0.36	0.18	29	20/1 SPARE	0	0	0	
45	20/1 RECEPTACLE	0.36	0.18	30	20/1 SPARE	0	0	0	
47	20/1 RECEPTACLE	0.36	0.18	31	20/1 SPARE	0	0	0	
49	20/1 RECEPTACLE	0.36	0.18	32	20/1 SPARE	0	0	0	
51	20/1 RECEPTACLE	0.36	0.18	33	20/1 SPARE	0	0	0	
53	20/1 RECEPTACLE	0.36	0.18	34	20/1 SPARE	0	0	0	
55	20/1 RECEPTACLE	0.36	0.18	35	20/1 SPARE	0	0	0	
57	20/1 RECEPTACLE	0.36	0.18	36	20/1 SPARE	0	0	0	
59	20/1 RECEPTACLE	0.36	0.18	37	20/1 SPARE	0	0	0	
61	20/1 RECEPTACLE	0.36	0.18	38	20/1 SPARE	0	0	0	