A New Multi-Purpose Commercial Building for

ASSOCIATED CONTRACT SERVICES

Jarco Drive, Fuquay Varina, North Carolina

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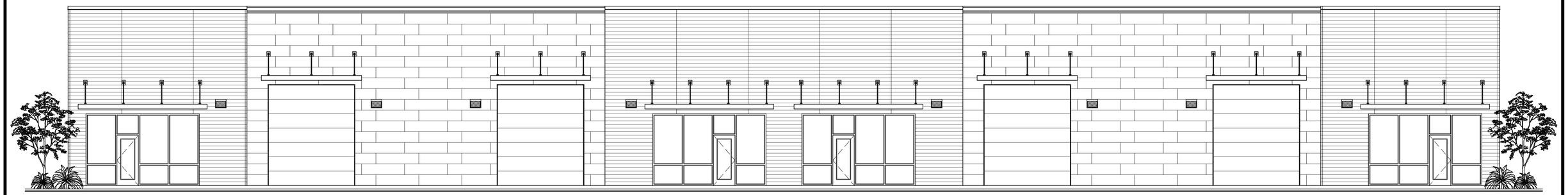

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JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

April 11, 2025

2018 North Carolina Building Code

The following is a review of and synopsis of selected portions of the 2018 North Carolina State Building Code which apply to this project. Although all portions that apply have not been reprinted, the Code, in its entirety, shall be considered printed here in full.

The General Contractor, subcontractors, and suppliers shall be responsible for meeting all requirements of the 2018 North Carolina State Building Code, 2018 North Carolina State Fire Code, 2018 North Carolina State Mechanical Code, 2018 North Carolina State Plumbing Code and 2018 North Carolina State Fuel Gas Code, 2018 North Carolina State Energy Conservation Code (or ASHRAE 90.1 Standard / 2013), 2020 National Electric Code, 2009 ICC A117.1, 2010 Americans with Disabilities Act Standards for Accessible Design, NFPA 10 and all other NFPA codes that apply to this project. Should a discrepancy between the codes and the drawings exist, the General Contractor shall immediately inform the Architect and request a solution. Should the General Contractor, subcontractor, or supplier proceed with the work without notifying the Architect, the General Contractor shall assume responsibility for the work and shall be required to correct the work.

Scope of Work: New
Occupancy Group: Mixed: B, F-1, F-2, S-1, S-2
Construction Type: II-B
Fire Protection Systems: None Required
Height: 26 feet
Stories: 1
Area: 12,000 square feet
Separation Distance: Greater than 10 feet all exterior walls
Rated Assemblies: None required
Total Occupant Load: 120

Chapter 3

1. 304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following: Professional Services.

2. 306.2 Moderate hazard factory industrial, Group F-1. Factory industrial uses that are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard.

3. 306.3 Low hazard factory industrial, Group F-2. Factory industrial uses that involve the fabrication or manufacturing of noncombustible materials which during finishing, packing, or processing do not involve a significant fire hazard shall be classified as F-2 occupancies.

4. 311.2 Moderate-hazard storage, Group S-1. Buildings occupied for storage uses that are not classified as Group S-2.

5. 311.3 Low hazard storage, Group S-2. Includes, among others, buildings used for the storage of noncombustible materials such as products on wood pallets or in paper cartons with or without single thickness divisions or in paper wrappings. Such products are permitted to have a negligible amount of plastic trim.

Chapter 5

1. 504.1 General. The height, in feet, and the number of stories of a building shall be determined based on the type of construction, occupancy classification and whether there is an automatic sprinkler system installed throughout the building.

2. 504.3 Height in feet. The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3.

3. Table 504.3: Group B, F, S, Type II-B Construction, not equipped with an automatic sprinkler system: 55 feet.

4. 504.3 Number of Stories. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4.

5. Table 504.3 Allowable building height in feet above grade plane:
Group B, Type II-B Construction, not equipped with an automatic sprinkler system: 3 stories maximum.
Group F-1, Type II-B Construction, not equipped with an automatic sprinkler system: 2 stories maximum.
Group F-2, Type II-B Construction, not equipped with an automatic sprinkler system: 3 stories maximum.
Group S-1, Type II-B Construction, not equipped with an automatic sprinkler system: 2 stories maximum.
Group S-2 Type II-B Construction, not equipped with an automatic sprinkler system: 3 stories maximum.

6. 506.1 General. The floor area of a building shall be determined based on the type of construction, occupancy classification, whether there is an automatic sprinkler system installed throughout the building and the amount of building frontage on public way or open space.

7. 506.2 Allowable area determination. The allowable area of a building shall be determined in accordance with the applicable provisions of Sections 506.2.1 through 506.2.4 and Section 506.3.

8. Table 506.2 Allowable Area Factor:
Group B, Non-sprinklered, Type II-B Construction: 23,000 square feet per story
Group F-1, Non-sprinklered, Type II-B Construction: 15,500 square feet per story
Group F-2, Non-sprinklered, Type II-B Construction: 23,000 square feet per story
Group S-1, Non-sprinklered, Type II-B Construction: 17,500 square feet per story
Group S-2, Non-sprinklered, Type II-B Construction: 26,000 square feet per story

9. The building height is 26 feet, it is 1 story and the area is 12,000 square feet, therefore, it complies with the height, stories and area requirements for all possible occupancy classifications.

10. 508.3 Nonseparated occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered nonseparated occupancies.

11. 508.3.1 Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. In addition, the most restrictive provisions of Chapter 9 that apply to the nonseparated occupancies shall apply to the total nonseparated occupancy area.

12. 508.3.2 Allowable building area and height. The allowable building area and height of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

13. 508.3.3 Separation. No separation is required between nonseparated occupancies.

14. Note: Groups B, F and S all have the same allowable building height (55 feet). The allowable stories for Groups B, F-2 and S-2 is 3 while Groups F-1 and S-1 is 2. The allowable area for Group B and F-2 is 23,000 sf, for F-1 it is 15,500 sf, for S-1 it is 17,500 sf and for S-2 it is 26,000 sf. Therefore, occupancies listed may be considered nonseparated occupancies and no separation is required.

Chapter 6

1. 602.2 Types I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials, except as permitted in Section 603 and elsewhere in this code.

2. Table 601 Using Type II-B construction, all structural elements require a 0 hour fire rating (no fire rating).

3. Table 602 Fire resistance rating requirements for exterior walls based on fire separation distance:
For Group B, F-2 and S-2, Type II-B construction, the following fire ratings must be provided:
Less than 5 feet - 1 hours
5 feet to less than 10 feet - 1 hour
10 feet to over 30 feet - 0 hours
For Group F-1 and S-1, Type II-B construction, the following fire ratings must be provided:
Less than 5 feet - 2 hours
5 feet to less than 10 feet - 1 hour
10 feet to over 30 feet - 0 hours

4. Note: All exterior walls have a fire separation of greater than 10 feet, therefore, the exterior walls are not required to be fire rated.

Chapter 8

1. Table 803.11 Interior wall and ceiling finish requirements by occupancy.
Group B, Nonsprinklered‡ Interior exit stairways, interior exit ramps and exit passageways (not applicable): Class A‡ Corridors and enclosure for exit access stairways and exit access ramps (not applicable): Class B‡ Rooms and enclosed spaces, Class C.
Group F, Nonsprinklered‡ Interior exit stairways, interior exit ramps and exit passageways (not applicable): Class B‡ Corridors and enclosure for exit access stairways and exit access ramps (not applicable): Class C‡ Rooms and enclosed spaces, Class C.
Group S, Nonsprinklered‡ Interior exit stairways, interior exit ramps and exit passageways (not applicable): Class B‡ Corridors and enclosure for exit access stairways and exit access ramps (not applicable): Class B‡ Rooms and enclosed spaces, Class C.

Chapter 9

1. 906.1 General. Portable fire extinguishers shall be provided in the following locations: 1. In Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies. 5. Where required by the International Fire Code sections indicated in Table 906.1.

2. 906.2 General requirements. Portable fire extinguishers shall be selected and installed in accordance with this section and NFPA 10.

Chapter 10

1. Table 1004.1.2 Maximum floor area allowances per occupant. Industrial areas: 100 gross.

2. Occupant load per Table 1004.1.2: 12,000 sf / 100 sf / pp (industrial areas ? worst case scenario) = 120 occupants. Or, 3,000 sf / 100 sf / pp (each tenant space) = 30 occupants per lease area (x 4 = 120 occupants)

3. Table 1005.3.2 Other egress components. The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inch per occupant. Therefore, 30 occupants (each tenant space) x 0.2 inches per person equals a total egress width required is 6 inches. The total egress width provided throughout each tenant space is 72 inches at two (2) separate exits.

4. 1006.3.1 Egress based on occupant load. Each story and occupied roof shall have the minimum number of exits, or access to exits, as specified in Table 1006.3.1.

5. Table 1006.3.1 Minimum number of exits or access to exits per story: 1 ? 500 occupants: 2 exits.

6. 1008.2 Illumination required. The means of egress serving a room or space shall be illuminated at all times that the room or space is occupied.

7. 1010.1.5 Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except at exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2 percent slope).

8. 1010.1.6 Landings at doors. Landings shall have a width not less than the width of the stairway or the door, whichever is greater. Landings shall have a length measured in the direction of travel of not less than 44 inches.

9. 1010.1.7 Thresholds. Thresholds at doorways shall not exceed 0.5 inches for doors.

10. 1010.1.9 Door operations. Except as specifically permitted by this section egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

11. 1010.1.9.1 Hardware. Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

12. 1010.1.9.5 Unlatching. The unlatching of any door leaf shall not require more than one operation.

13. Table 1017.2 Exit access travel distance. Groups B, F-1 and S-1 without a sprinkler system: 200 feet. Groups F-2 and S-2 without a sprinkler system: 300 feet.

14. 1028.5 Access to a public way. The exit discharge shall provide a direct and unobstructed access to a public way.

Chapter 11

1. 1103.1 Where required. Sites, buildings, structures, facilities, elements and spaces, temporary or permanent, shall be accessible to persons with physical disabilities.

2. 1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected to an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on an inaccessible floor. At least one of each type of fixture, element, control, or dispenser in each accessible toilet room or bathing room shall be accessible.

Chapter 12

1. 1210.1 Required fixtures. The number and type of plumbing fixtures provided in any occupancy shall comply with Chapter 29.

2. 1210.2.1 Floors and wall bases. In other than dwelling units, toilet, bathing, and shower room floor finish materials shall have a smooth, hard, nonabsorbent surface. The intersections of such floors with walls shall have a smooth, hard, nonabsorbent, vertical base that extends upward onto the walls not less than 4 inches.

3. 1210.2.2 Walls and partitions. Walls and partitions within 2 feet of service sinks, urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of 4 feet above the floor, and except for structural elements, the materials used in such walls shall be a type that is not adversely affected by moisture.

Miscellaneous

1. 1804.3 Site grading. The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-percent slope) for a minimum distance of 10 feet (3048 mm) measured perpendicular to the face of the wall or an approved alternate method of diverting water away from the foundation shall be used. The procedure used to establish the final ground level adjacent to the foundation shall account for additional settlement of the backfill.

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR, FUQUAY VARINA, NC

Drawing Title
BUILDING CODE REVIEW SUMMARY

Consultant

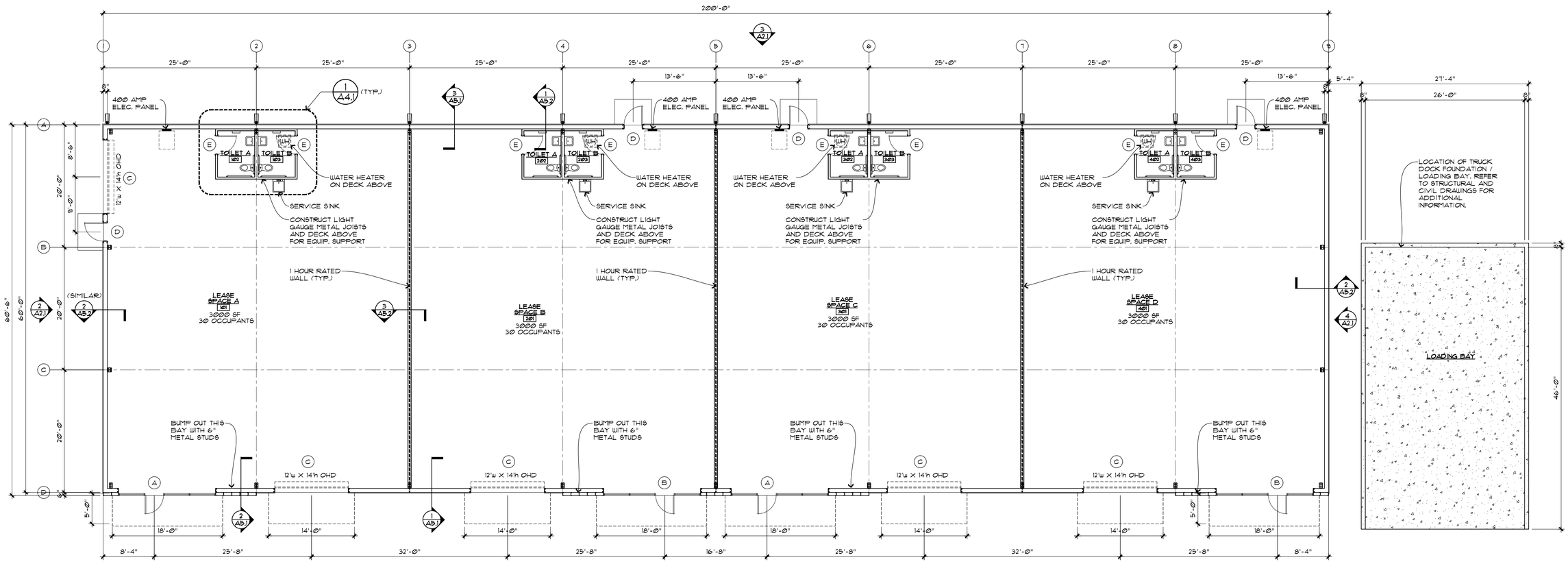
Seal

JOHN P. WATKINS REGISTERED ARCHITECT 3629 SOUTH CAROLINA COLUMBIA, S.C.

Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
LS0



DOOR NOTES:

NOTE 1: ALL DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES SHALL BE LEVER TYPE COMPLYING WITH IBC SECTION 1108.1.1 AND SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT PER IBC SECTION 1008.1.8.

NOTE 2: DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON DOORS SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE.

NOTE 3: THRESHOLDS SHALL BE A MAXIMUM OF 1/2" HIGH ABOVE THE ADJACENT FLOOR SURFACE.

NOTE 4: IN ADDITION TO THE HARDWARE NOTED ON THE DOOR SCHEDULE, ALL DOOR LEAVES SHALL RECEIVE 1 1/2 PAIR BUTTS, INCLUDING SPRING HINGES AT RATED DOORS WHRERE REQUIRED, 1 1/2 PAIR SILENCERS, AND A FLOOR OR WALL STOP. ALL HARDWARE REQUIRED FOR A COMPLETE DOOR SET SHALL BE PROVIDED FOR EACH DOOR.

NOTE 5: ALL EXTERIOR DOORS SHALL RECEIVE WEATHERSTRIPPING, BOTTOM SWEEPS, AND THRESHOLDS. ALL HARDWARE REQUIRED FOR A COMPLETE DOOR SET SHALL BE PROVIDED FOR EACH DOOR.

NOTE 6: PROVIDE TEMPERED GLASS (T) IN ALL LOCATIONS REQUIRED BY THE BUILDING CODE. PROVIDE 1/4" WIRE GLASS IN ALL LOCATIONS REQUIRED BY THE BUILDING CODE IF APPLICABLE.

NOTE 7: CAULK EXTERIOR AND INTERIOR SIDES OF ALL DOOR FRAMES.

1 / A1.1 ARCHITECTURAL FLOOR PLAN

SCALE : 1/8" - 1' - 0"

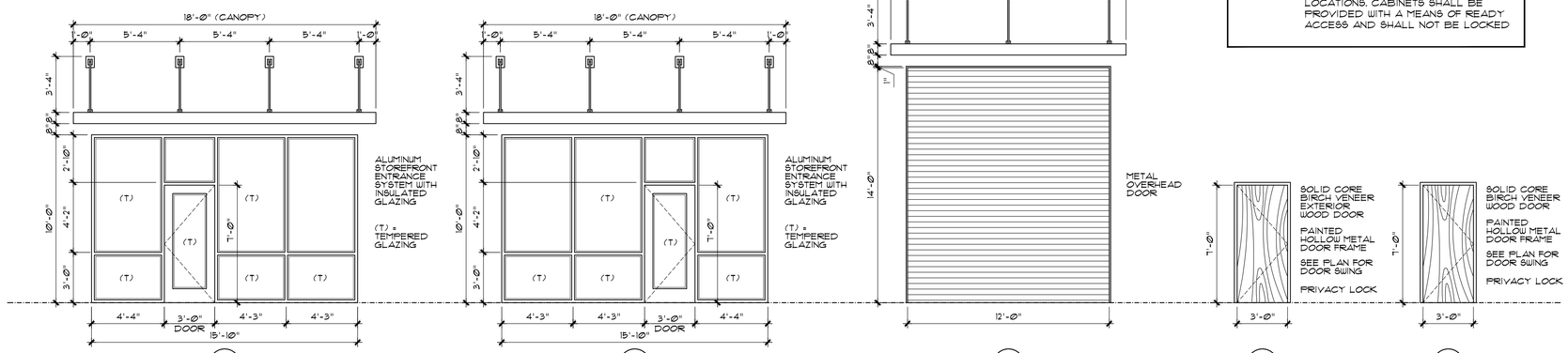
12,000 SQUARE FEET

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 / A1.1 DOOR SCHEDULE AND ELEVATIONS

SCALE : 1/4" - 1' - 0"

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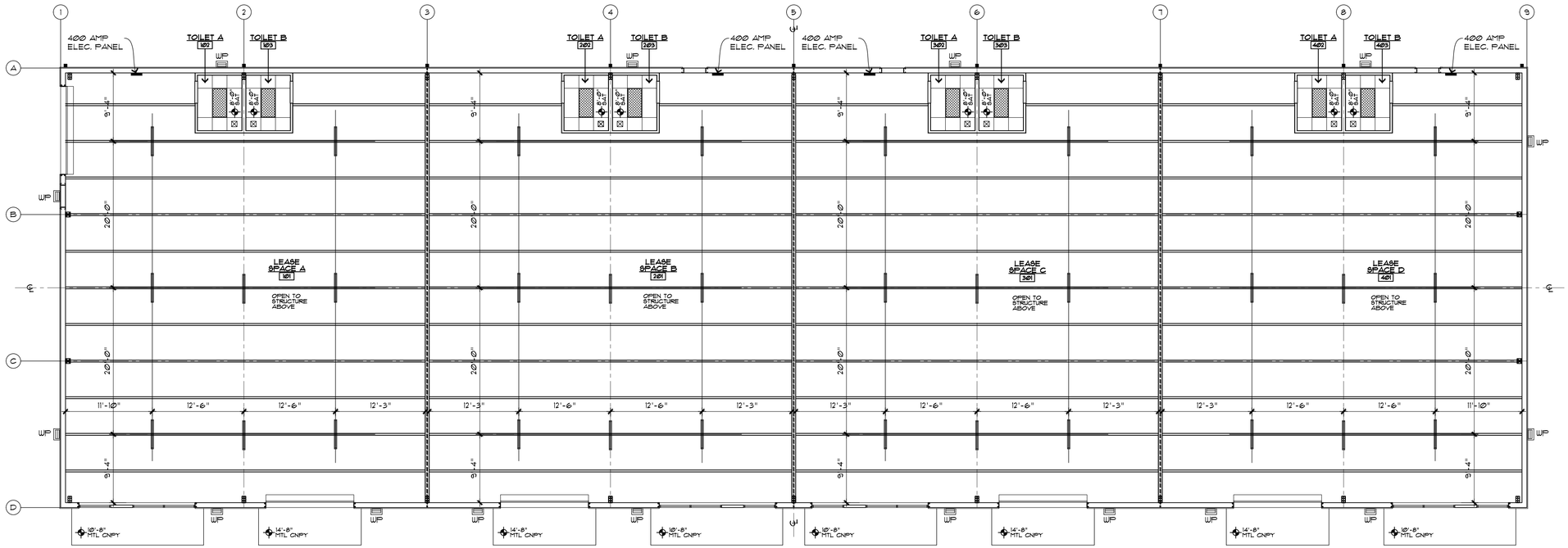
Project Title: DOLLAR GENERAL #31181
WHITE OAK ROAD, THOMSON, GA 30824

Drawing Title: FLOOR PLAN, DETAILS AND DOOR SCHEDULE

Consultant:

Seal: JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

Date: APRIL 11, 2025
Drawn By: JCO
Drawing No.: A1.1



1 A1.2 REFLECTED CEILING PLAN
SCALE: 1/8" = 1' - 0"

GENERAL NOTES:

NOTE 1: ALL BULKHEADS SHALL BE FRAMED USING 3 5/8" METAL STUDS AND SHALL BE SMOOTH PAINTED

NOTE 2: SEE FINISH SCHEDULE SHEET FOR ALL CEILING TYPES

NOTE 3: SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

NOTE 4: IF A DESCREPENCY OCCURES BETWEEN THE ARCHITECTURAL DRAWINGS AND THE ENGINEERING DRAWINGS, CONSULT THE ARCHITECT PRIOR TO PROCEEDING

SYMBOL LEGEND

- 2 X 4 RECESSED LED LIGHT
- WP EXTERIOR LED WALL PACK
- RECESSED LED CAN LIGHT
- 8' LONG SUSPENDED LED STRIP LIGHT
- WALL MOUNTED BRACKET LIGHT
- EXHAUST FAN
- HVAC SUPPLY GRILLE
- HVAC RETURN GRILLE
- CJ GYPSUM BOARD CONTROL JOINT LOCATION
- 2 X 4 SUSPENDED ACOUSTICAL TILE CEILING
- SMOOTH, PAINTED, GYPSUM BOARD CEILING

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JACRO DR, FUQUAY VARINA, NC

Drawing Title
REFLECTED CEILING PLAN

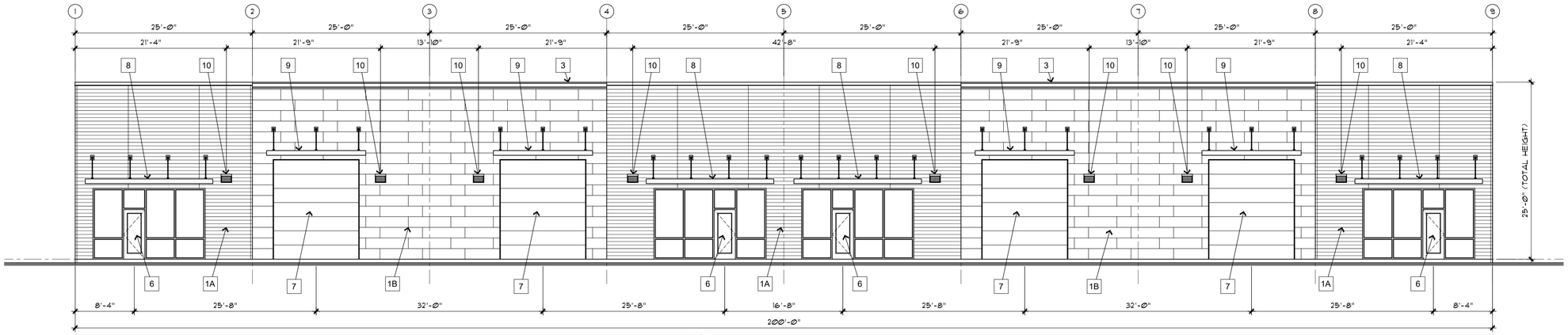
Consultant

Seal
JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA S.C.

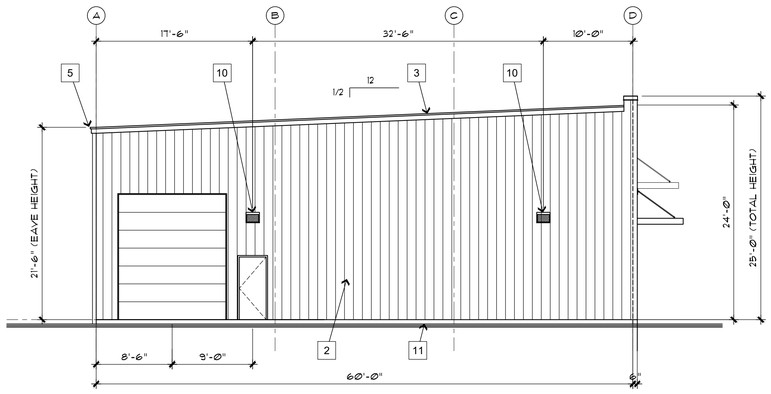
Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
A1.2



1 A2.1 FRONT ELEVATION
SCALE : 1/8" = 1' - 0"



2 A2.1 LEFT ELEVATION
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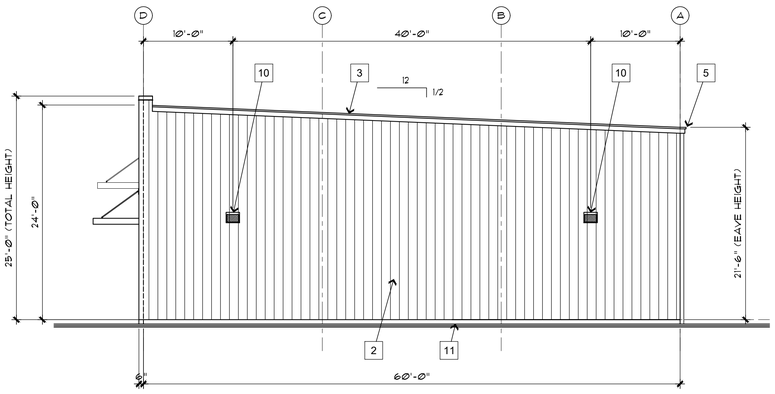

4 A2.1 RIGHT ELEVATION
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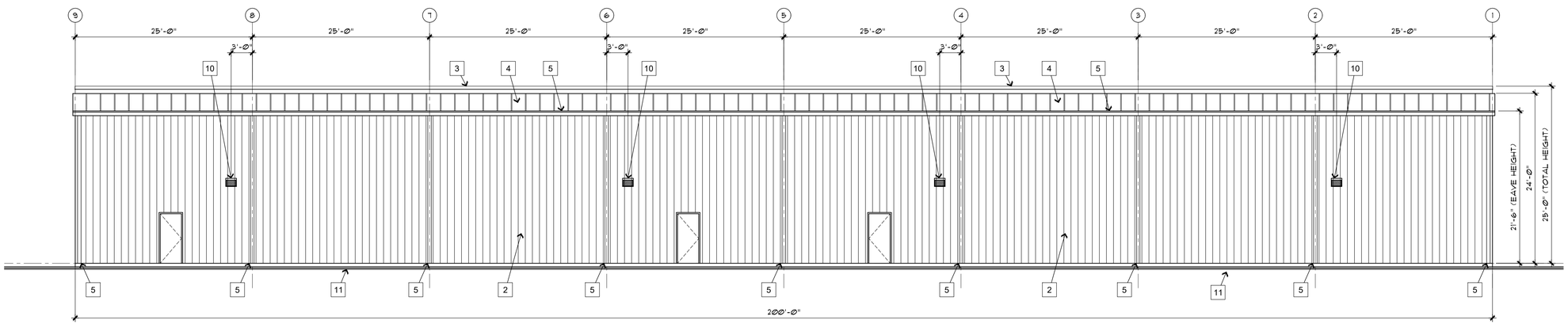

3 A2.1 REAR ELEVATION
SCALE : 1/8" = 1' - 0"

EXTERIOR FINISH LEGEND

1A *NICHIHA ROUGHSAWN WOOD SERIES*
"ESPRESSO" FINISH. SECURE TO 1/2" PLYWOOD SHEATHING ON 6" METAL STUDS TO PROVIDE BUMP-OUTS WHERE INDICATED.

1B *NICHIHA ARCHITECTURAL BLOCK MODERN SERIES*
"TUSCAN" FINISH. SECURE TO 1/2" PLYWOOD SHEATHING. CORNICE ABOVE IN "BONE" FINISH. REFER TO DETAIL SHEET A5.1. FINISH CORNICE TO SAME SIZE OF BUMP-OUT.

2 *PREFINISHED METAL WALL PANELS:*
PREFINISHED METAL WALL PANELS AS SELECTED BY THE OWNER ON METAL BUILDING WALL GIRTS WHERE REQUIRED BY THE METAL BUILDING MANUFACTURER.

3 *METAL TRIM:*
PREFINISHED METAL RAKE AND EAVE TRIM AS SELECTED BY THE OWNER AND PROVIDED BY THE METAL BUILDING MANUFACTURER.

4 *METAL ROOF PANELS:*
GALVALUME STANDING SEAM METAL ROOF PANELS WITH CLIPS AS REQUIRED FOR R-19 INSULATION PROVIDED BY THE METAL BUILDING MANUFACTURER. ROOF INSULATION SHALL BE R-19 VINYL FACED INSULATION WITH R-5 THERMAL BLOCKS.

5 *GUTTER AND DOWNSPOUTS:*
ALUMINUM GUTTER AND DOWNSPOUTS BY METAL BUILDING MANUFACTURER.

6 *STOREFRONT DOOR SYSTEM:*
ALUMINUM CENTER SET STOREFRONT SYSTEM WITH INSULATED GLAZING. INSTALL ALL WINDOWS ACCORDING TO THE METAL BUILDING MANUFACTURER'S AND WINDOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.

7 *OVERHEAD DOORS:*
METAL OVERHEAD DOORS AS SELECTED BY THE OWNER. INSTALL ALL OVERHEAD DOORS ACCORDING TO THE METAL BUILDING MANUFACTURER'S AND DOOR MANUFACTURER'S INSTALLATION INSTRUCTIONS.

8 *METAL CANOPY:*
18'-0" x 5'-0" ALUMINUM CANOPY BY METAL BUILDING MANUFACTURER.

9 *METAL CANOPY:*
14'-0" x 5'-0" ALUMINUM CANOPY BY METAL BUILDING MANUFACTURER.

10 *WALLPACK:*
LED WALLPACK AT 12'-0" AFF TO J-BOX. REFER TO ELECTRICAL PLANS.

11 *GRADE:*
SLOPE GRADE AWAY FROM THE BUILDING.

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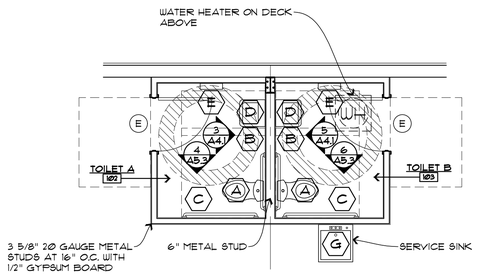
Project Title
ASSOCIATED CONTRACT SERVICES
JACRO DR, FUQUAY VARINA, NC

Drawing Title
EXTERIOR ELEVATIONS

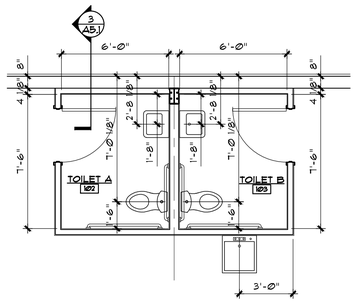
Consultant

Seal
JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA S.C.

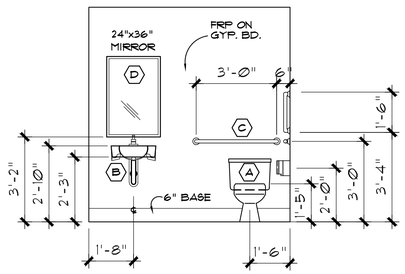
Date APRIL 11, 2025
Drawn By JCO
Drawing No. A2.1



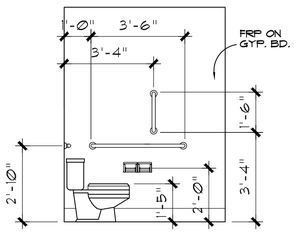
1 A4.1 TYPICAL TOILET PLAN
SCALE : 1/4" = 1' - 0"



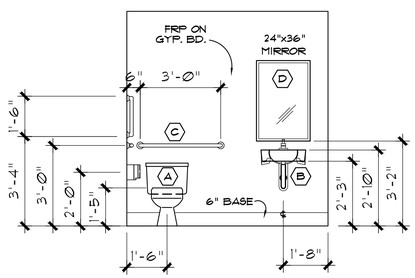
2 A4.1 TOILET DIMENSIONED PLAN
SCALE : 1/4" = 1' - 0"



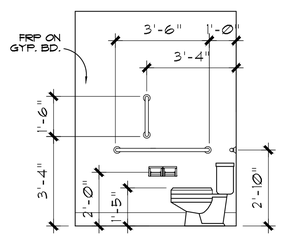
3 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET A)



4 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET A)



5 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET B)



6 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET B)

ACCESSORIES / FIXTURES LEGEND

(A) BARRIER-FREE FLOOR MOUNTED TANK TYPE WATER CLOSET. THE WATER CLOSET SHALL BE POSITIONED WITH A WALL TO THE REAR AND TO ONE SIDE. THE CENTERLINE OF THE WATER CLOSET SHALL BE 16 INCHES MINIMUM TO 18 INCHES MAXIMUM FROM THE SIDE WALL. CLEARANCE AROUND THE WATER CLOSET SHALL BE 60 INCHES MINIMUM, MEASURED PERPENDICULAR FROM THE SIDE WALL, AND 56 INCHES MINIMUM , MEASURED PERPINDICULAR FROM THE REAR WALL. NO OTHER FIXTURES OR OBSTRUCTIONS SHALL BE WITHIN THE WATER CLOSET CLEARANCE. THE TOP OF THE WATER CLOSET SEAT SHALL BE 17 INCHES MINIMUM AND 19 INCHES MAXIMUM ABOVE THE FLOOR. SEATS SHALL NOT RETURN AUTOMATICALLY TO A LIFTED POSITION. PROVIDE TISSUE DISPENSER MOUNTED AT 24" ABOVE FINISHED FLOOR ON ADJACENT WALL OR PARTITION.

(B) VITREOUS CHINA WALL MOUNTED LAVATORY WITH FAUCET AS SPECIFIED BY THE PLUMBING DRAWINGS. WRAP ALL PIPES UNDER SINK WITH INSULATION. TOP OF LAVATORY SHALL BE SET 2'-10" MAXIMUM ABOVE THE FLOOR AND PROVIDE 2'-3" CLEARANCE UNDER THE SINK. SINK SHALL BE 6 1/2 INCHES DEEP MAXIMUM.

(C) GRAB BARS SHALL HAVE A CIRCULAR CROSS SECTION WITH A DIAMETER OF 1 1/4 INCH MINIMUM AND 2 INCHES MAXIMUM. THE SPACE BETWEEN THE WALL AND THE GRAB BAR SHALL BE 1 1/2 INCHES. THE SPACE BETWEEN THE GRAB BAR AND OBJECTS BELOW AND AT THE ENDS SHALL BE 1 1/2 INCHES MINIMUM. THE SPACE BETWEEN THE GRAB BAR AND PROJECTING OBJECTS ABOVE SHALL BE 15 INCHES MINIMUM. HORIZONTAL GRAB BARS SHALL BE MOUNTED IN A POSITION 33 INCHES MINIMUM AND 36 MAXIMUM ABOVE THE FLOOR.

THE HORIZONTAL SIDE WALL GRAB BAR SHALL BE 42 INCHES LONG MINIMUM, LOCATED 12 INCHES MAXIMUM FROM THE REAR WALL AND EXTENDING 54 INCHES MINIMUM FROM THE REAR WALL.

THE VERTICAL SIDE WALL GRAB BAR SHALL BE 18 INCHES LONG MINIMUM, AND SHALL BE MOUNTED WITH THE BOTTOM OF THE BAR BETWEEN 33 INCHES AND 41 INCHES ABOVE THE FLOOR, WITH THE CENTER LINE OF THE BAR LOCATED BETWEEN 33 INCHES AND 41 INCHES FROM THE REAR WALL.

THE REAR WALL GRAB BAR SHALL BE 36 INCHES LONG MINIMUM, 6 INCHES MAXIMUM FROM THE SIDE WALL AND EXTENDING 42 INCHES FROM THE SIDE WALL.

(D) FRAMED MIRROR 24 INCHES WIDE BY 36 INCHES TALL CLIP MOUNTED AT TOP OF SPLASH. DO NOT GLUE MIRROR TO WALL.

(E) SURFACE MOUNTED PAPER TOWEL DISPENSER. MOUNT SUCH THAT PAPER TOWEL DELIVERY POINT IS 48 INCHES MAXIMUM ABOVE FINISHED FLOOR.

(F) SURFACE MOUNTED LAVATORY ON 30" WIDE VANITY WITH FAUCET AS SPECIFIED BY THE PLUMBING DRAWINGS. WRAP ALL PIPES UNDER SINK WITH INSULATION. TOP OF LAVATORY SHALL BE SET 2'-10" MAXIMUM ABOVE THE FLOOR AND PROVIDE 2'-3" CLEARANCE UNDER THE SINK. SINK SHALL BE 6 1/2 INCHES DEEP MAXIMUM.

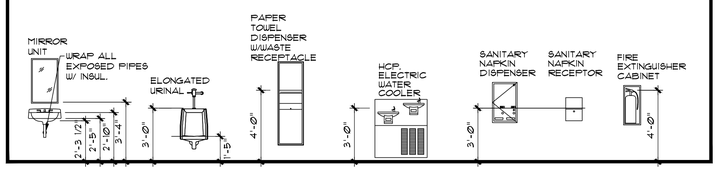
(G) MOP SINK - SEE PLUMBING DRAWINGS

PROVIDE SOLID WOOD BLOCKING FOR ALL FIXTURES AND ACCESSORIES AS REQURIED !!!

MOUNTING HEIGHTS
(ABOVE FINISHED FLOOR)

TOILET TISSUE DISPENSER :	24" TO CENTER
PAPER TOWEL DISPENSER / RECEPTICLE :	48" MAXIMUM TO PAPER DISPENSER
SOAP DISPENSER :	38" TO BOTTOM
MIRROR :	38" MAXIMUM TO BOTTOM
GRAB BARS :	34" TO CENTER
LAVATORY :	27" MIN TO BOTTOM / 34" MAX TO RIM
BARRIER-FREE WATER CLOSET :	17" MINIMUM / 19" MAXIMUM TO RIM
URINAL :	17" TO RIM
FIRE EXTINGUISHER CABINET :	48" MAXIMUM TO TOP OF EXTINGUISHER

NOTE: MOUNTING HEIGHTS SHALL MEET ALL ADA REQUIREMENTS.
SEE LEGEND FOR ACCESSORIES THAT APPLY TO THIS PROJECT



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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR, FUQUAY VARINA, NC

Drawing Title
ENLARGED FLOOR PLAN AND DETAILS

Consultant

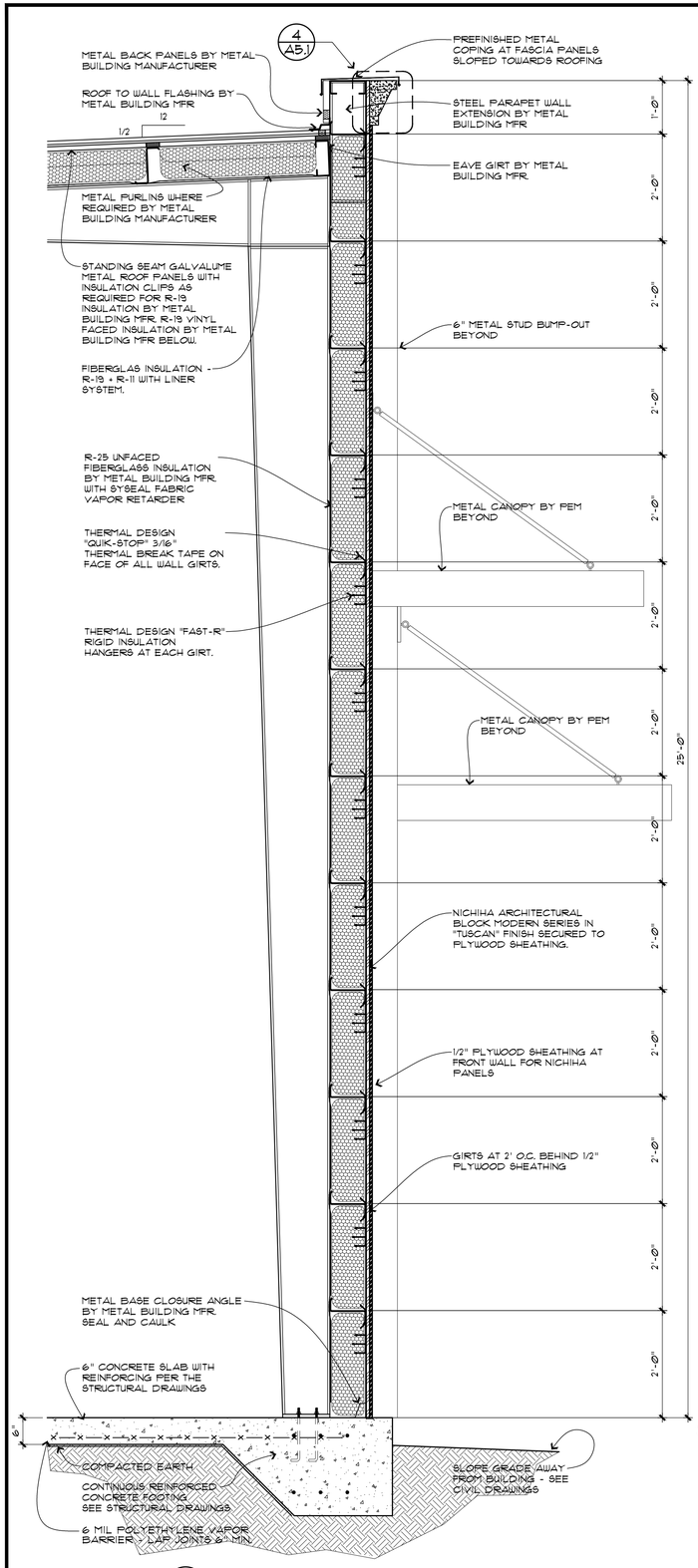
Seal

JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

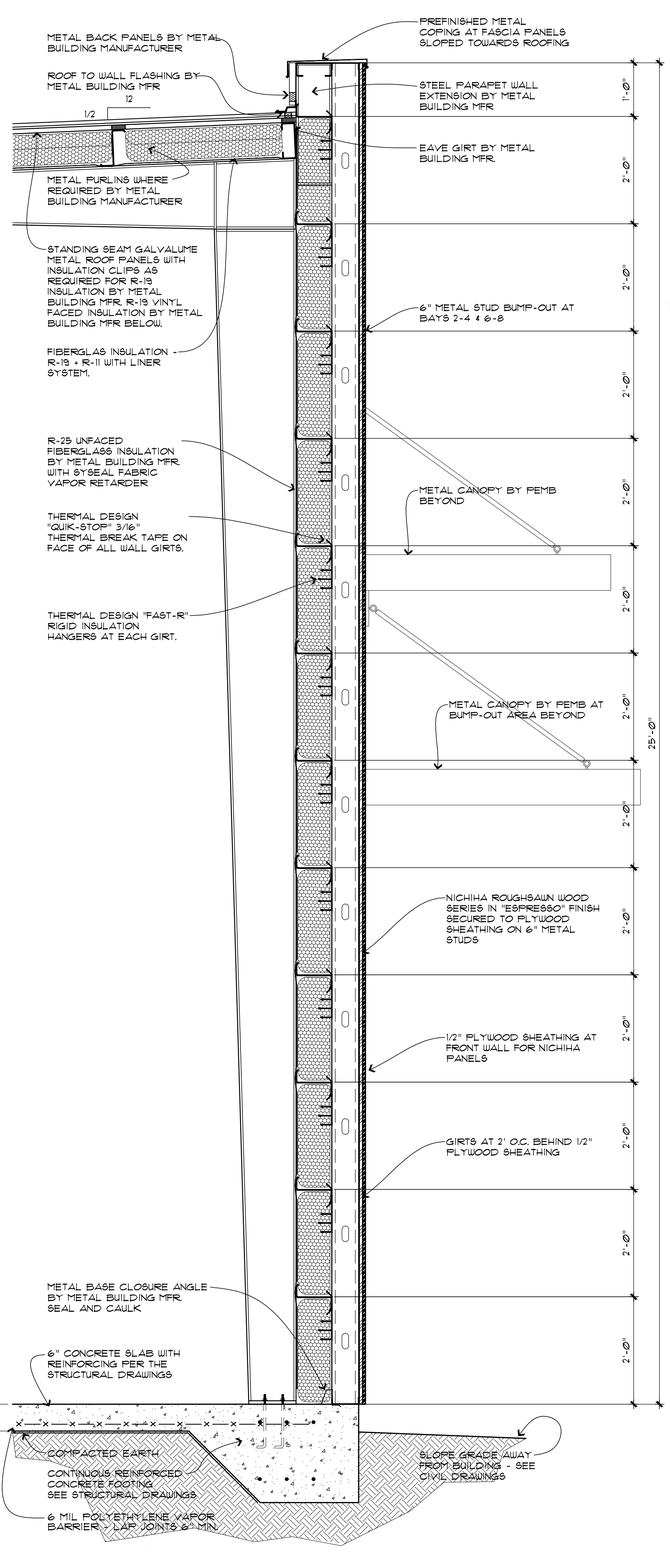
Date
APRIL 11, 2025

Drawn By
JCO

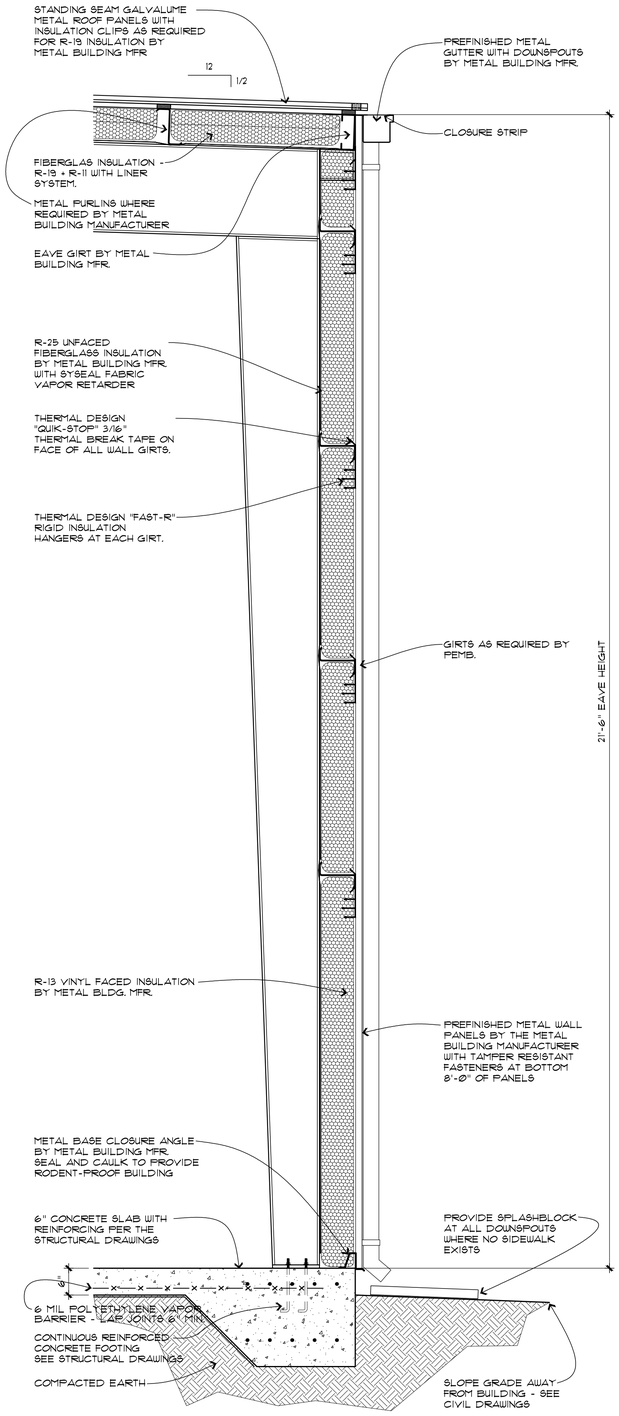
Drawing No.
A4.1



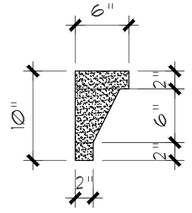
1 A5.1 SECTION AT FRONT SIDE WALL
SCALE : 3/4" = 1' - 0" (BETWEEN BAYS 1-2, 4-6, 8-9)



2 A5.1 SECTION AT FRONT SIDE WALL
SCALE : 3/4" = 1' - 0" (BETWEEN BAYS 2-4, 6-8)



3 A5.1 SECTION AT REAR SIDE WALL
SCALE : 3/4" = 1' - 0"



4 A5.1 CORNICE DETAIL
SCALE : 1-1/2" = 1' - 0"

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Project Title
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JARCO DR, FUQUAY VARINA, NC

Drawing Title
WALL SECTIONS

Consultant

Seal

JOHN P. WATKINS ARCHITECT 3529 NORTH CAROLINA COLUMBIA, S.C.

Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
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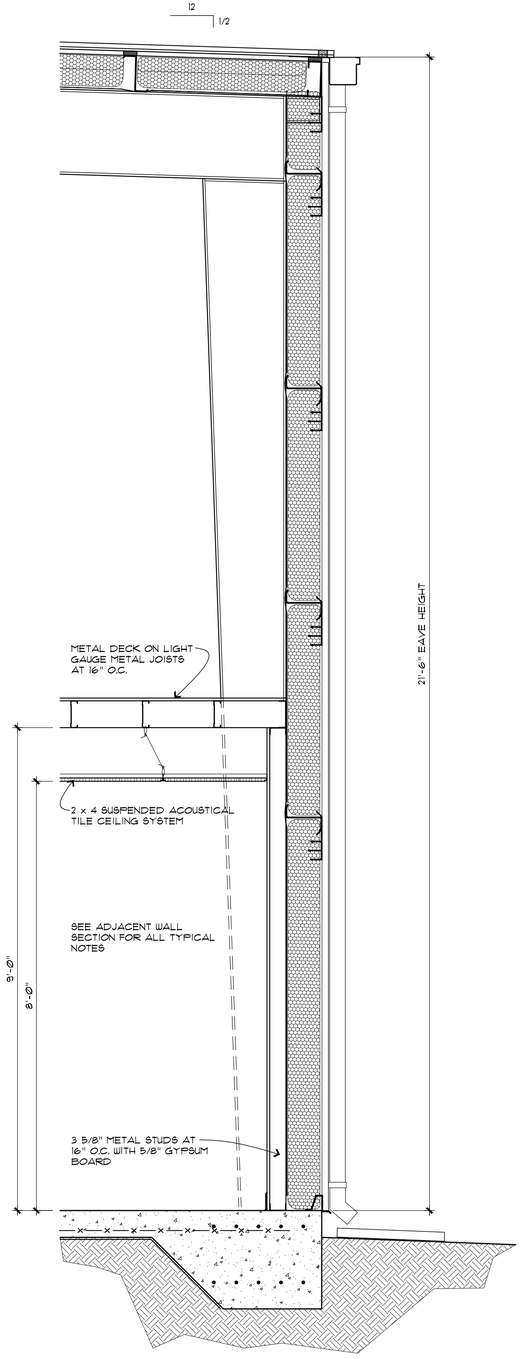
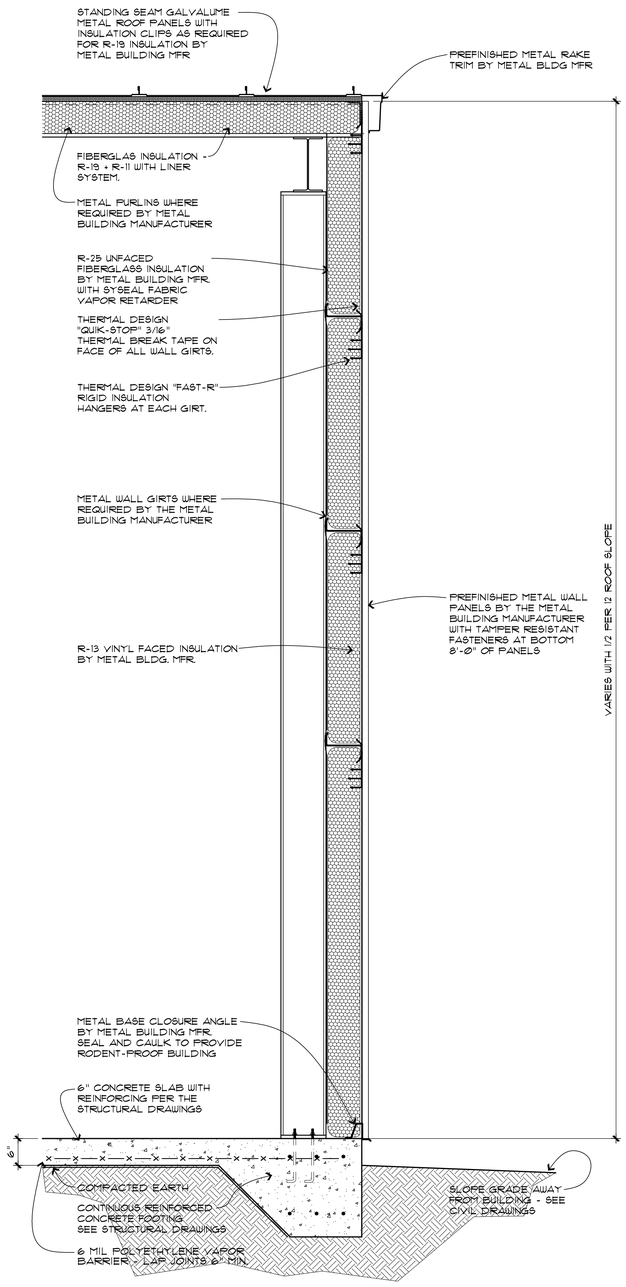
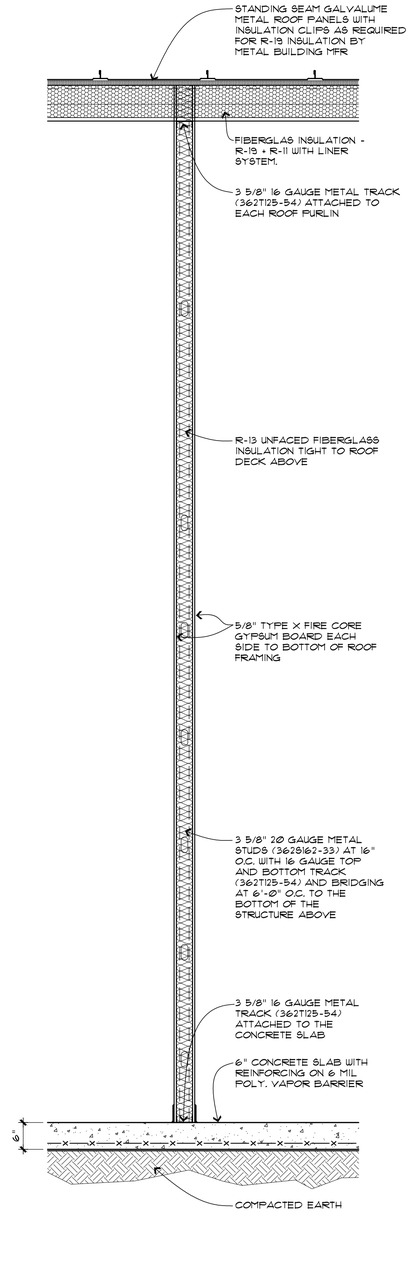


1 A5.2 SECTION AT TYPICAL TOILET
SCALE : 3/4" = 1' - 0"
(REAR SIDE WALL)



2 A5.2 SECTION AT TYPICAL END WALL
SCALE : 3/4" = 1' - 0"



3 A5.2 SECTION AT 1 HOUR RATED SEPARATION WALL
SCALE : 3/4" = 1' - 0"

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Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
A5.2

GENERAL REQUIREMENTS

1. THE STRUCTURE DESCRIBED BY THESE DOCUMENTS IS INTENDED TO WORK AS A COMPLETED STRUCTURE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION INCLUDING TEMPORARY SHORING, BRACING, AND TEMPORARY SUPPORTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR COORDINATION OF HIS OR HER WORK WITH ALL OTHER TRADES, AND FOR PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER.
2. ENGINEER/ARCHITECT'S APPROVAL MUST BE OBTAINED IN WRITING FOR ALL DEVIATIONS AND SUBSTITUTIONS. THE ENGINEER/ARCHITECT IS NOT RESPONSIBLE FOR THE FAILURE OF THE CONTRACTOR TO BUILD THE STRUCTURE ACCORDING TO THE DOCUMENTS.
3. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO DETAILING, FABRICATION AND CONSTRUCTION; AND SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DISCREPANCIES.
4. OWNER SHALL EMPLOY AND PAY A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS SPECIFIED IN OTHER SECTIONS, AND THOSE REQUIRED BY AUTHORITIES HAVING JURISDICTION, INCLUDING ALL SPECIAL INSPECTIONS. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS AND TESTS. RETESTING: OWNER SHALL PAY FOR RETESTING WHERE RESULTS OF INSPECTIONS AND TESTS PROVE UNSATISFACTORY AND INDICATE NONCOMPLIANCE WITH REQUIREMENTS. THE OWNER RESERVES THE RIGHT TO DEDUCT COSTS OF RETESTING FROM CONSTRUCTION CONTRACT COSTS.
5. SECTIONS SHOWN ON STRUCTURAL DRAWINGS PROVIDE TYPICAL DETAILING INFORMATION THAT SHALL BE APPLIED TO ALL SIMILAR AND LIKE CONDITIONS U.N.O. SHOP DRAWINGS SHALL DETAIL ALL CONDITIONS IN ACCORDANCE WITH PROJECT REQUIREMENTS.
6. COORDINATE FLOOR, ROOF, AND WALL OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

EARTHWORK

1. AN INDEPENDENT TESTING AGENCY SHALL BE RETAINED BY THE OWNER TO PERFORM TESTING OF EARTHWORK. ALL FOOTING AND SLAB SUB-GRADES SHALL BE INSPECTED, AND TESTED IF REQUIRED, BY THE TESTING AGENCY. ALL FILL PLACEMENT AND COMPACTION SHALL BE MONITORED BY THE TESTING AGENCY. ALL BACKFILL MATERIALS SHALL BE APPROVED BY TESTING AGENCY PRIOR TO PLACEMENT. THE ENGINEER IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD CONTRARY TO THOSE ASSUMED FOR DESIGN.
2. THE FOUNDATIONS ARE DESIGNED FOR 2000 PSF ALLOWABLE SOIL BEARING PRESSURE AND A SOIL SUBGRADE MODULUS (K) OF 100 PCI. CAPACITY SHALL BE APPROVED BY THE TESTING AGENCY PRIOR TO CONCRETE PLACEMENT.
3. SUBGRADE PREPARATION FOR SLAB ON GRADE SHALL BE PERFORMED IN ACCORDANCE WITH GEOTECHNICAL ENGINEERING REPORT. IN THE ABSENCE OF A GEOTECHNICAL REPORT THE INSPECTOR SHALL VERIFY THE SUBGRADE MEETS THE MINIMUM DESIGN SOIL PROPERTIES SPECIFIED ON THE CONSTRUCTION DOCUMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL SERVICE AND UTILITY LINES ON THE SITE.
5. REFER TO PROJECT GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION. IN CASE OF DISCREPANCY, THE GEOTECHNICAL REPORT SHALL GOVERN UNLESS APPROVED OTHERWISE IN WRITING BY THE ENGINEER.

CAST-IN-PLACE CONCRETE

1. ALL WORK SHALL COMPLY WITH ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ASTM C 94; AND CRSI'S "MANUAL OF STANDARD PRACTICE."
2. DESIGN OF ALL FORMWORK AND BRACING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. DEFORMED REINFORCING BARS: ASTM A615, GRADE 60.
4. WELDED STEEL WIRE FABRIC: ASTM A1064, FLAT SHEETS, NOT ROLLS. LAP A MINIMUM OF ONE CROSS WIRE SPACING PLUS 2 INCHES.
5. PORTLAND CEMENT: ASTM C 150, TYPE 1.
6. AGGREGATE: NORMAL WEIGHT CONCRETE, ASTM C33; LIGHT WEIGHT CONCRETE, ASTM C330.
7. FLY ASH: ASTM C 618, TYPE F.
8. PROPORTION MIX DESIGNS TO PROVIDE THE FOLLOWNG PROPERTIES:
   A. UNIT WEIGHT: NORMAL WEIGHT CONCRETE 145 PCF
      LIGHT WEIGHT CONCRETE 115 PCF
   B. AIR CONTENT: EXPOSURE CLASS F0 – 0% +2%
      EXPOSURE CLASS F1, F2, F3 – 6% ±1%
   C. CEMENTITIOUS MATERIAL: LIMIT FLY ASH TO 15 PERCENT OF TOTAL CEMENT CONTENT

APPLICATION	EXPOSURE CLASS	28 DAY STRENGTH	MAX W/C	MAX AGGREGATE
INTERIOR SLAB ON GRADE & FOOTINGS	F0	4000 PSI	0.53	1"

9. DO NOT ADD WATER TO CONCRETE DURING DELIVERY, AT PROJECT SITE, OR DURING PLACEMENT, UNLESS APPROVED BY ENGINEER.
10. PROTECT CONCRETE FROM PHYSICAL DAMAGE OR REDUCED STRENGTH DUE TO WEATHER EXTREMES DURING MIXING, PLACING, AND CURING. COMPLY WITH ACI 305R "GUIDE TO HOT WEATHER CONCRETING" AND ACI 306R "GUIDE TO COLD WEATHER CONCRETING".
11. OWNER SHALL ENGAGE AN INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND TO SUBMIT TEST REPORTS TO THE ENGINEER. OBTAIN ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD. PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD OR FRACTION THEREOF. WHEN FREQUENCY OF TESTING PROVIDES FEWER THAN FIVE COMPRESSIVE-STRENGTH TESTS FOR EACH CONCRETE MIXTURE, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED. A COMPOSITE SAMPLE CONSISTS OF FIVE CYLINDERS: ONE CYLINDER TO BE TESTED AT 7 DAYS, THREE CYLINDERS TO BE TESTED AT 28 DAYS AND ONE CYLINDER TO BE RESERVED FOR 56 DAYS IF NEEDED. THE TESTING AGENCY SHALL ALSO RECORD SLUMP, AIR CONTENT, AND TEMPERATURE OF EACH CYLINDER.
12. SLAB FINISHES: REFER TO THE ARCHITECT FOR FLOOR FINISHES. PROVIDE A TROWELED FINISH FOR FLOOR SURFACES TO RECEIVE FLOOR COVERINGS, PAINT, OR OTHER THIN FILM-FINISH COATINGS. SPECIFIED OVERALL VALUES OF FLATNESS, F(F) 35; AND LEVELNESS, F(L) 25; WITH MINIMUM LOCAL VALUES OF FLATNESS, F(F) 24; AND LEVELNESS, F(L) 17. NONSLIP BROOM FINISH TO EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS.
13. PROVIDE A ¾" CHAMFER ON ALL EXPOSED CONCRETE EDGES, U.N.O.
14. FOR SLAB ON GRADE, FORM ⅛" WIDE CONTRACTION JOINTS WITH POWER SAWS WHEN CUTTING ACTION WILL NOT TEAR, ABRADE OR OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION JOINTS. SEE DETAILS FOR ADDITIONAL INFO. UNLESS NOTED OTHERWISE, LOCATE CONTRACTION JOINTS AT COLUMN LINES WITH A MAX RATIO OF 1.5 LENGTH TO WIDTH AND NO FARTHER APART THAN 36 TIMES SLAB THICKNESS.
15. BEGIN CURING UNFORMED CONCRETE AFTER FINISHING. KEEP CONCRETE CONTINUOUSLY MOIST FOR AT LEAST 7 DAYS OR APPLY MEMBRANE-FORMING CURING COMPOUND TO CONCRETE. CONTRACTOR SHALL VERIFY COMPOUND IS COMPATIBLE WITH FLOOR COVERING/COATINGS.
16. PROTECT CONCRETE FROM DAMAGE. REPAIR SURFACE DEFECTS IN CONCRETE.

FOUNDATIONS

17. ALL EXCAVATIONS SHALL BE PROPERLY BACKFILLED, BUT NOT BEFORE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH. NO BACKFILL SHALL BE PLACED AGAINST CONCRETE WALLS UNTIL CONCRETE HAS ATTAINED FULL 28-DAY STRENGTH.
18. BASEMENT WALLS (NON-CANTILEVER CAST-IN-PLACE WALLS) SHALL BE BRACED AGAINST LATERAL THRUST. SUCH BRACING SHALL REMAIN IN PLACE UNTIL SLAB ON EARTH (AND SUPPORTED SLAB, IF ANY) HAS BEEN PLACED AND GAINED 75% COMPRESSIVE STRENGTH.
19. CANTILEVER WALLS SHALL BE BRACED AGAINST LATERAL THRUST DURING BACKFILLING UNLESS COMPACTION IS PERFORMED ONLY BY HAND OPERATED EQUIPMENT IN ZONE WITHIN 5 FEET OF BACK WALL. FOUNDATION WALLS, RETAINING WALLS, AND BASEMENT WALLS HAVE NOT BEEN DESIGNED TO RESIST LATERAL LOADS DUE TO CONSTRUCTION EQUIPMENT SURCHARGE.
20. SLEEVE PLUMBING OPENINGS IN SLABS BEFORE PLACING CONCRETE AND BEND REINFORCING AROUND SLEEVES. CORING NOT PERMITTED IN FLOOR SLABS, UNLESS APPROVED BY STRUCTURAL ENGINEER. DO NOT PLACE PIPES OR DUCTS EXCEEDING ONE-THIRD THE SLAB OR WALL THICKNESS WITHIN THE SLAB OR WALL UNLESS SPECIFICALLY SHOWN AND DETAILED ON STRUCTURAL DRAWINGS. SEE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION OF SLEEVES, ACCESSORIES, ETC.

REINFORCING STEEL

21. PROVIDE REINFORCING STEEL CONFORMING TO ASTM A706 FOR ALL REINFORCING STEEL REQUIRED TO BE WELDED AND WHERE NOTED ON THESE DRAWINGS.
22. PROVIDE DEFORMED REBAR EMBEDMENT, LAP SPLICES, AND HOOKS AS DETAILED ON DRAWINGS. IF NOT SPECIFIED, FOLLOW ACI 301 STANDARD DETAILING REQUIREMENTS FOR THE APPROPRIATE CONDITIONS WITH CLASS B LAPS.
23. REINFORCING STEEL MARKED "CONTINUOUS" SHALL BE LAPPED WITH CLASS "B" LAP SPLICE UNLESS SPECIFICALLY DETAILED OTHERWISE. PROVIDE CONTINUOUS REINFORCEMENT WHERE EVER POSSIBLE; SPLICE ONLY AS SHOWN OR APPROVED; STAGGER SPLICES WHERE POSSIBLE; USE TENSION SPLICE (CLASS "B") UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE WALL OR COLUMN SPECIFIED REINFORCEMENT AND SHALL BE LAPPED WITH TENSION SPLICES (CLASS "B"), UNLESS NOTED OTHERWISE.
24. HORIZONTAL REINFORCEMENT IN FOOTINGS, TURNDOWN SLABS, AND WALLS SHALL BE CONTINUOUS AROUND CORNERS. HORIZONTAL REINFORCEMENT SHALL CONTINUE AT BENDS AND CORNERS WITH BEND TO FAR FACE OF INTERSECTING ELEMENT IN EACH DIRECTION. ADDITIONAL HORIZONTAL CORNER BARS OF SAME SIZE AND SPACING MAY BE PROVIDED. PROVIDE CORNER BARS AT ALL TURNDOWN SLAB CORNERS AND C.I.P. CONCRETE WALL CORNERS. PROVIDE LAP SPLICE 48 TIMES BAR DIAMETER. WHERE PERPENDICULAR WALLS ARE NOT POURED CONTINUOUS, PROVIDE A KEYED JOINT WITH CORNER BARS.
25. PROVIDE SPACERS, CHAIRS, BOLTERS, ETC. AS REQUIRED TO ASSEMBLE, PLACE, AND SUPPORT ALL REINFORCING IN PLAN.

METAL BUILDING SYSTEMS

1. THE METAL BUILDING SYSTEM, INCLUDING FRAMES, GIRTS AND PURLINS, SHALL BE DESIGNED BY A REGISTERED ENGINEER IN THE STATE OF BUILDING JURISDICTION TO COMPLY WITH THE APPLICABLE BUILDING CODES.
2. THE METAL BUILDING MANUFACTURER SHALL PROVDE COMPLETE SHOP DRAWINGS FOR REVIEW, AND STRUCTURAL CALCULATIONS SEALED BY THE ENGINEER.
3. THE METAL BUILDING MANUFACTURER MUST BE A MEMBER COMPANY OF THE INTERNATIONAL ACCREDITATION SERVICE AC472 AND SHALL PROVIDE A CURRENT CERTIFICATE OF ACCREDITATION.
4. THE METAL BUILDING AND IT'S COMPONENTS SHALL BE DESIGNED FOR THE LOADS SHOWN IN THE STRUCTURAL DESIGN CRITERIA AND AS SPECIFIED IN THE APPLICABLE BUILDING CODES.
5. FIXED COLUMN BASES ARE NOT PERMITTED UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
6. THE METAL BUILDING SHALL BE DESIGNED FOR A MAXIMUM LATERAL DRIFT OF H/100 USING A 10 YEAR WIND LOAD OCCURRENCE.
7. GIRTS SHALL BE DESIGNED FOR A MAXIMUM HORIZONTAL WIND DEFLECTION OF L/240 BASED ON A 10 YEAR OCCURRENCE.
8. PURLINS SHALL BE DESIGNED FOR A MAXIMUM DEFLECTION OF L/240 UNDER TOTAL LOAD.
9. FABRICATION TOLERANCES SHALL COMPLY WITH THE MBMA'S "METAL BUILDING SYSTEMS MANUAL" FOR FABRICATION AND ERECTION TOLERANCES.
10. ERECT STRUCTURAL STEEL ACCORDING TO AISC SPECIFICATIONS AND WITHIN ERECTION TOLERANCES OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
11. COMPLY WITH AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS," AND AWS D1.1 "STRUCTURAL WELDING CODE--STEEL."
12. STRUCTURAL-STEEL: COMPLY WITH AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," FOR DESING REQUIREMENTS AND ALLOWABLE STRESSES.
13. COLD-FORMED STEEL: COMPLY WITH AISI's "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" FOR DESIGN REQUIREMENTS AND ALLOWABLE STRESSES.
14. ANCHOR RODS, BOLTS, NUTS: ASTM F1554, GRADE 55, UNHEADED RODS (SUPPLIED BY GENERAL CONTRACTOR PER STRUCTURAL DRAWINGS). SEE METAL BUILDING DRAWINGS FOR BOLT DIAMETER AND QUANTITIES.

SPECIAL INSPECTION NOTES

1. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS BY THE BUILDING CODE.
2. OWNER, OR OWNER'S AGENT, SHALL EMPLOY AND PAY A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS SPECIFIED IN INSPECTION TABLES ON THIS SHEET, AND THOSE REQUIRED BY AUTHORITIES HAVING JURISDICTION. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS AND TESTS.
3. THE INSPECTOR(S) SHALL HAVE THE RELEVANT TRAINING & EXPERIENCE REQUIRED TO PERFORM THE NECESSARY INSPECTIONS. THE INSPECTOR SHALL WORK UNDER THE SUPERVISION OF AN ENGINEER LICENSED IN THE STATE OF JURISDICTION.
4. THE GENERAL CONTRACTOR SHALL ENSURE THE WORK REMAINS ACCESSIBLE FOR INSPECTION UNTIL THE WORK HAS BEEN INSPECTED AND APPROVED.
5. THE INSPECTOR(S) SHALL MAINTAIN RECORDS OF INSPECTIONS. COPIES OF THE RECORDS SHALL BE PROVIDED TO THE BUILDING OFFICIAL AND OWNER. IF WORK DOES NOT PASS INITIAL INSPECTION, THE INSPECTOR SHALL PROVIDE A REPORT TO THE STRUCTURAL ENGINEER OF RECORD, ARCHITECT AND GENERAL CONTRACTOR WITHIN 24 HOURS. THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AND RE-INSPECTED PRIOR TO COVERING UP THE WORK. A REPORT INDICATING THE DISCREPANCIES HAVE BEEN CORRECTED SHALL BE FURNISHED TO ALL PARTIES BY THE INSPECTOR.
6. THE SPECIAL INSPECTOR SHALL NOTIFY THE ENGINEER OF RECORD AND GENERAL CONTRACTOR IN WRITING WHEN ALL INSPECTIONS HAVE BEEN COMPLETED AND ANY DEFICIENCIES HAVE BEEN CORRECTED AND APPROVED.

SHOP DRAWING SUBMITTALS

1. SUBMIT NEWLY PREPARED INFORMATION DRAWN TO SCALE. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION. DOCUMENTS REPRODUCED FROM FULLER GROUP, LLC DOCUMENTS WITHOUT WRITTEN PERMISSION, WILL BE REJECTED. COMPLIANCE WITH SPECIFIED REQUIREMENTS REMAINS CONTRACTOR'S RESPONSIBILITY.
2. ALLOW A MINIMUM OF 10 WORKING DAYS FOR SUBMITTAL REVIEWS.
3. ELECTRONIC COPIES WILL BE ACCEPTED BUT WILL INCUR PRINTING CHARGES BILLED TO THE CLIENT.
4. SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ENGINEER. SHOP DRAWINGS NOT REVIEWED BY THE GENERAL CONTRACTOR MAY BE SUBJECT TO REJECTION.
5. THE CONTRACT DOCUMENTS SHALL NOT BE SCALED FOR DETERMINING DIMENSIONS OR QUANTITIES. USE ONLY PRINTED DIMENSIONS. ANY SCALED DIMENSIONS SHALL ASK FOR VERIFICATION ON THE SHOP DRAWING REVIEW.
6. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN. THE DETAILER SHALL REFER TO ARCHITECTURAL DRAWINGS FOR WALL, DOOR, AND WINDOW LOCATIONS. DIMENSIONS ON THE ARCHITECTURAL DRAWINGS SUPERCEDE DIMENSIONS SHOWN ON STRUCTURAL PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
7. PROVIDE THE FOLLOWING SUBMITTALS:
   A. CONCRETE
      1. CONCRETE MIX DESIGNS WITH SAMPLE LABORATORY TEST REPORTS PER ACI 318
      2. CONCRETE ADMIXTURE PRODUCT DATA
      3. REBAR SHOP DRAWINGS
      4. CONCRETE SAMPLE CYLINDER BREAK RESULTS (7 DAYS, 28 DAYS)
   B. PRE-ENGINEERED METAL BUILDING
      1. SHOP DRAWINGS
      2. FOUNDATION REACTIONS AND CALCULATION PACKAGE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER

DESIGN LOAD CRITERIA

This analysis is made utilizing the 2018 North Carolina State Building Code, (2015 IBC).

ROOF DESIGN LOADS	
Dead Load	Per PEMB
Collateral Load	6 psf
Live Load	20 psf / Reducible
SNOW LOADS	
Ground Snow Load, P_g	15 psf
Exposure Factor, C_e	1.0
Thermal Factor, C_t	1.1
Importance Factor, I_s	1.0
Slope Factor, Cs	1.0
Drift Surcharge Load, P_d	5.5 psf
Width of Snow Drift, w	2.73 ft
Rain on Snow Surcharge	5 psf
Flat Roof Snow Load, P_f	11.55 psf + Rain on Snow
RAIN INTENSITY, I	3.38 in/hr
WIND LOADS	
Basic Design Wind Speed, V	115 mph
Allowable Stress Design Wind Speed, V_{asd}	90 mph
Wind Exposure	C
Internal Pressure Coefficient	+.18, -.18
Risk Category	II
Height & Exposure Adjustment, λ	1.0
Wind Directionality Factor, Kd	0.85
Topographic Factor, Kzt	1.0
SEISMIC LOADS	
Importance Factor, I_e	1.0
Risk Category	II
Site Class	D
S_s (Mapped)	0.173 g
S_1 (Mapped)	0.083 g
S_{DS}	0.184 g
S_{D1}	0.133 g
Design Category	B
Basic Seismic Force-Resisting System	Steel System Not Specifically Designed for Seismic
Response Coefficient, Cs	0.062
Response Modification Factor, R	3.0
Design Base Shear	9.26K
Analysis Procedure	Equivalent Lateral Force

ABBREVIATIONS

ADD'L	ADDITIONAL
ARCH	ARCHITECT
B/XXX	BOTTOM OF XXX
BOH	BOTTOM OF HEADER
BOS	BOTTOM OF STEEL
BOT.	BOTTOM
BRG	BEARING
CL	CENTER LINE
CLR	CLEAR
CJ	CONTROL JOINT
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONT.	CONTINUOUS
DIA	DIAMETER
DWG	DRAWING
(E)	EXISTING
EA.	EACH
EF	EACH FACE
ELEV.	ELEVATION
EMBED	EMBEDMENT
EOD	EDGE OF DECK
EOJ	END OF JOIST
EOR	ENGINEER OF RECORD
EOS	EDGE OF SLAB
EQ	EQUAL
E.W.	EACH WAY
(F)	FUTURE
FFE	FINISHED FLOOR ELEVATION
FLR.	FLOOR
FIN.	FINISHED
FOB	FACE OF BRICK
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FS	FAR SIDE
FTG	FOOTING
GALV.	GALVANIZED
G.C.	GENERAL CONTRACTOR
(H)	HOOK
HDG	HOT-DIP GALVANIZED
HORIZ.	HORIZONTAL
HS	HIGH STRENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LT. GA.	LIGHT GAUGE
MANUF.	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MSH	METAL STUD HEADER
NIC	NOT IN CONTRACT
NS	NEAR SIDE
O.C.	ON CENTER
O.H.	OPPOSITE HAND
P.A.F.	POWER-ACTUATED FASTENER
PL	PLATE
P.T.	PRESSURE TREATED
REINF.	REINFORCING
REF.	REFERENCE
REQ'D	REQUIRED
R.O.	ROUGH OPENING
RTU	ROOF TOP UNIT
SCHED.	SCHEDULE
SIM	SIMILAR
SJ	SLAB JOINT
SOG	SLAB-ON-GRADE
STD	STANDARD
T&B	TOP AND BOTTOM
T/XXX	TOP OF XXX
TOS	TOP OF STEEL
TRANS	TRANSVERSE
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
W/	WITH
W.P.	WORK POINT
WWF	WELDED WIRE FABRIC

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Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR, FUQUAY VARINA, NC

Drawing Title
GENERAL NOTES AND DESIGN CRITERIA

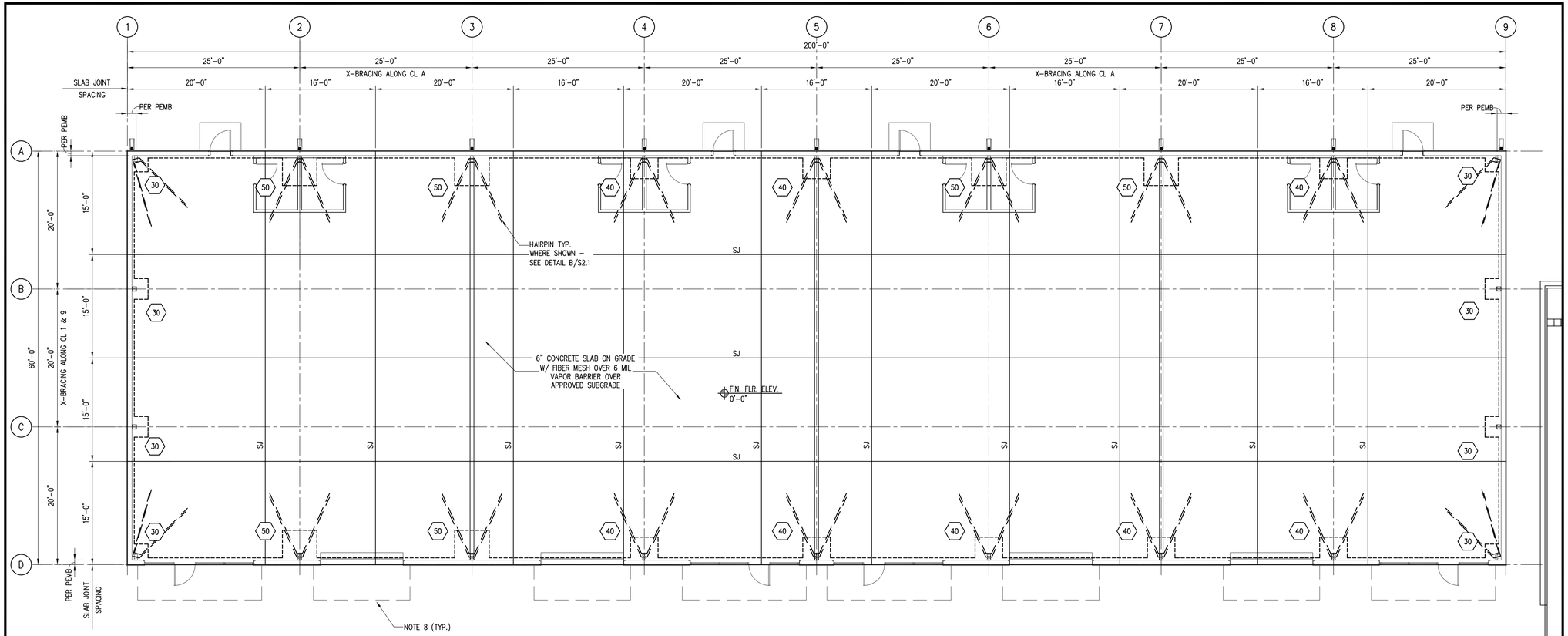
Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 044856 ENGINEER CRAIG A. YOUNG 4-825

Date
FEBRUARY 7, 2025

Drawn By
NLH

Drawing No.
S0.1



1 FOUNDATION PLAN

S1.1

SCALE : 1/8" = 1'-0"

LEGEND

EOS	EDGE OF SLAB
SJ	SAWN JOINT - SEE A/S2.1
⟨30⟩	FOOTING TYPE - SEE SCHEDULE

NOTE:
CIVIL DRAWINGS WERE NOT PROVIDED AT TIME OF DEVELOPMENT OF THESE CONSTRUCTION DOCUMENTS. DOCUMENTS HAVE BEEN DESIGNED AS IF THE SITE IS FLAT. CIVIL DRAWINGS SHALL BE SUBMITTED PRIOR TO BEGINNING CONSTRUCTION TO THE ENGINEER OF RECORD.

NOTE:
FINAL GEOTECHNICAL REPORT RECOMMENDATIONS WERE NOT PROVIDED AT TIME OF DEVELOPMENT OF THESE DOCUMENTS. ASSUMPTIONS REGARDING FROST DEPTH, BEARING CAPACITY AND SUBGRADE WILL NEED TO BE VERIFIED AND MAY IMPACT THE DESIGN SHOWN.

NOTES TO METAL BUILDING MANUFACTURER

1. METAL BUILDING DRAWINGS TO BE SEALED & SIGNED BY AN ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA.
2. ALL STEEL COLUMNS, GIRTS & ROOF FRAMING BY METAL BUILDING MANUFACTURER.
3. NO FIXED BASES ALLOWED UNLESS SPECIFIED ON DWG.
4. FOR ANCHOR BOLT & COLUMN SIZES & LOCATIONS SEE METAL BUILDING DRAWINGS. ANCHOR BOLTS SHALL BE FABRICATED AS PER DETAIL C/S2.1

FOOTING SCHEDULE			
TYPE	SIZE	THICKNESS	REINFORCING
⟨30⟩	3'-0"x3'-0"	1'-10"	(5) #5 EACH WAY
⟨40⟩	4'-0"x4'-0"	1'-10"	(7) #5 EACH WAY
⟨50⟩	5'-0"x5'-0"	1'-10"	(8) #5 EACH WAY

FOUNDATION PLAN NOTES

1. SEE SHEET S0.1 FOR GENERAL NOTES & DESIGN CRITERIA.
2. ELEVATIONS GIVEN ARE SET FROM REFERENCE ELEVATION. REFERENCE ELEVATION (+0'-0") IS SET AT FINISHED FLOOR ELEV. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
3. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND DRAWINGS OF OTHER DISCIPLINES FOR LOCATIONS AND DIMENSIONS OF OPENINGS, DEPRESSIONS, AND OTHER NON-STRUCTURAL ITEMS.
4. TYPICAL SLAB-ON-GRADE IS 6" NORMAL WEIGHT CONCRETE REINFORCED W/ 6x6 - W2.9xW2.9 WWF OVER 10 MIL VAPOR BARRIER, OVER APPROVED SUBBASE OVER APPROVED SUBGRADE PREPARED IN ACCORDANCE W/ GEOTECHNICAL REPORT. LOCATE REINFORCING 1½" CLR. FROM T/SLAB.
5. PROVIDE (2) #3x3'-0" IN TOP OF SLAB @ ALL RE-ENTRANT CORNERS NOT INTERSECTING A SLAB JOINT.
6. LOCATE SLAB JOINTS @ 20'-0" O.C. MAX. SLAB JOINTS SHALL BE LOCATED TO MAINTAIN A MAXIMUM PANEL ASPECT RATIO OF 1.5 TO 1.0. SLAB JOINTS SHALL BE CONSTRUCTED PER DETAIL A/S2.1.
7. SEE C/S2.1 FOR ANCHORAGE DETAILS.
8. U.N.O. CANOPY FRAMING & ATTACHMENT IS BY OTHERS. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.

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JARCO DR, FUQUAY VARINA, NC

Drawing Title
FOUNDATION PLAN

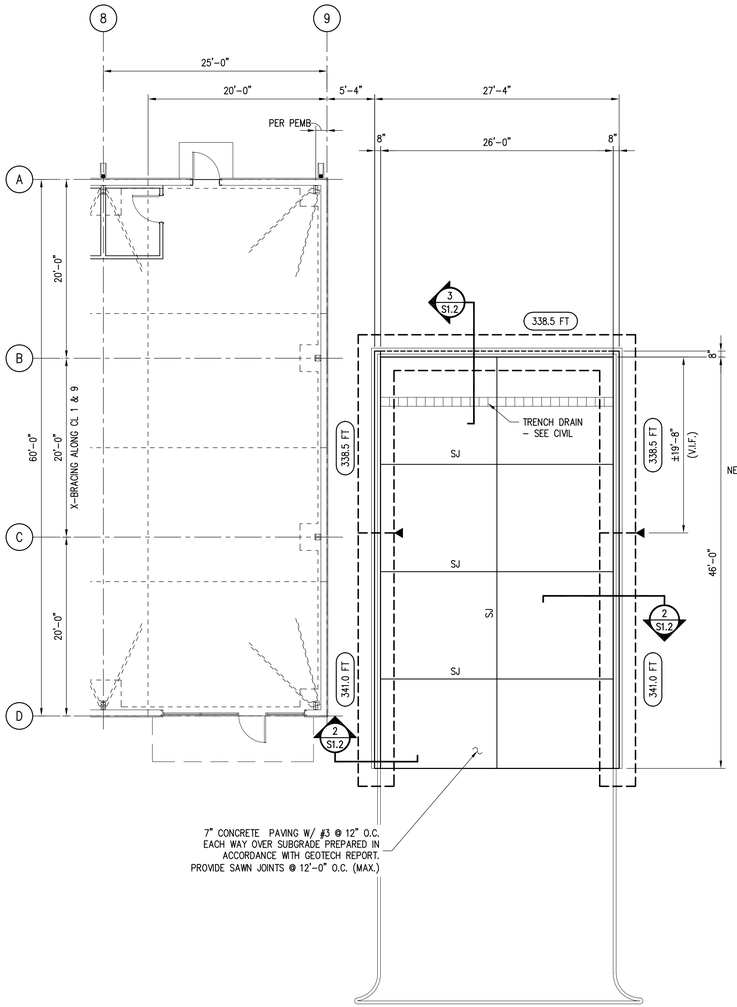
Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 044858 ENGINEER NICASIO G. YCONG 4-825

Date
FEBRUARY 7, 2025

Drawn By
NLH

Drawing No.
S1.1



1 S1.2 TRUCK DOCK FOUNDATION PLAN

SCALE : ⅛" = 1'-0"

LEGEND

SJ	SAWN JOINT - SEE A/S3.1
EOS	EDGE OF SLAB
▶— —	STEP IN FOOTING - SEE DETAIL B/S1.2
???.?? FT	T/FOOTING ELEVATION

NOTE:
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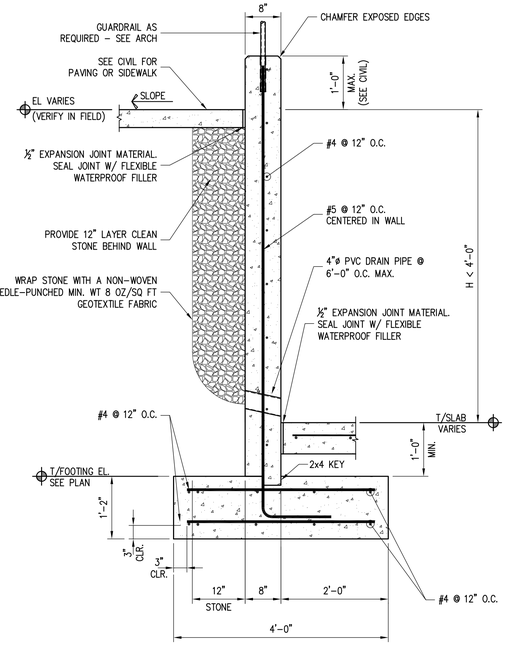
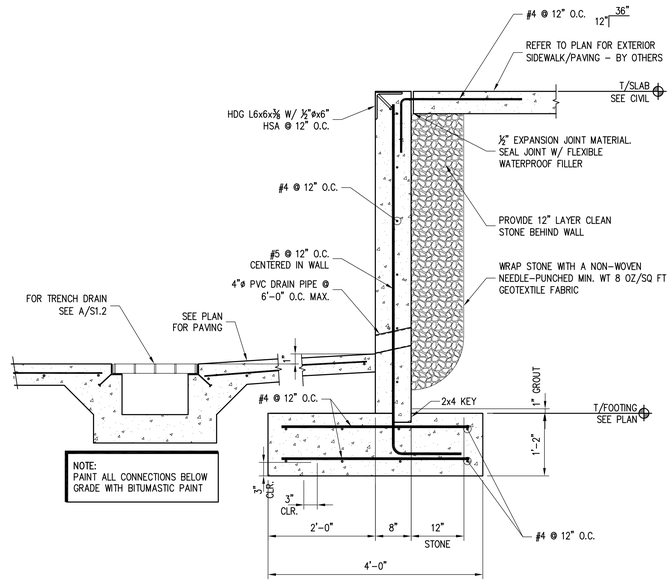


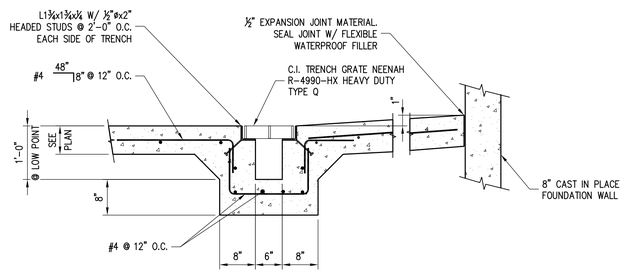
2 S1.2 SECTION

SCALE : ¾" = 1'-0"



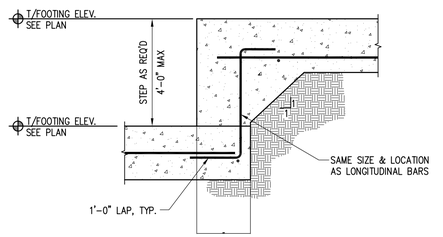
3 S1.2 SECTION

SCALE : ¾" = 1'-0"



A S1.2 DETAIL

SCALE : ¾" = 1'-0"



B S1.2 DETAIL

SCALE : ¾" = 1'-0"

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Drawing Title
TRUCK DOCK FOUNDATION PLAN
AND DETAILS

Consultant

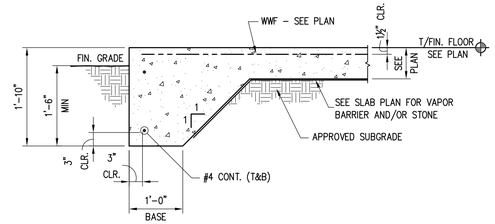
Seal

NORTH CAROLINA PROFESSIONAL SEAL 044858 ENGINEER MICAH G. YOUNG 4-825

Date
FEBRUARY 7, 2025

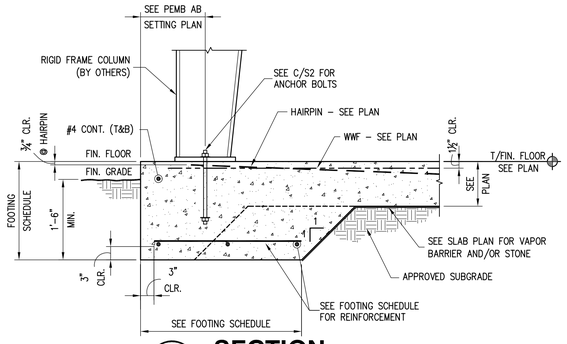
Drawn By
NLH

Drawing No.
S1.2



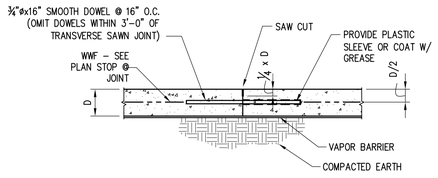
1 S2.1 **SECTION**

SCALE: ¾"=1'-0"

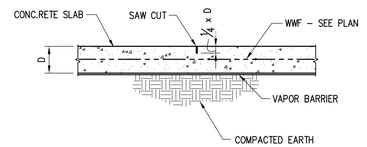


2 S2.1 **SECTION**

SCALE: ¾"=1'-0"



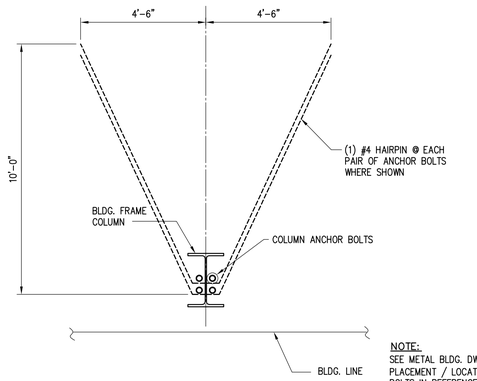
TYP. CONSTRUCTION JOINT



TYP. SAWN JOINT

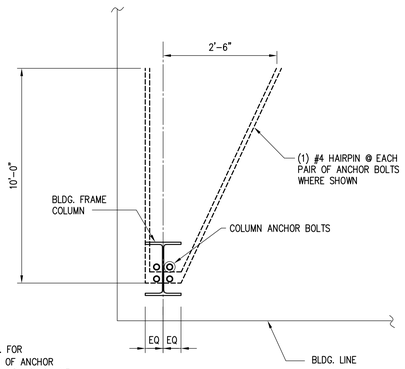
A S2.1 **TYPICAL SLAB JOINT DETAILS**

SCALE: NTS



FRAME COLUMN HAIRPIN DETAIL

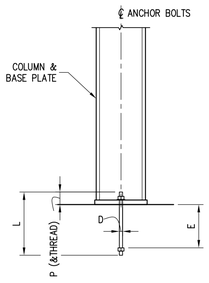
NOTE:
SEE METAL BLDG. DWGS. FOR PLACEMENT / LOCATION OF ANCHOR BOLTS IN REFERENCE TO BUILDING LINE



CORNER COLUMN HAIRPIN DETAIL

B S2.1 **DETAIL**

SCALE: NTS



TYP. ANCHOR BOLT (F1334 GR 50 STEEL)

ANCHOR BOLT SCHEDULE

D	E	P	L
½"	6"	2"	10"
⅝"	7½"	2"	11½"
¾"	9"	2¼"	13¼"
⅞"	10½"	2¾"	15¼"
1"	12"	3"	17"
1¼"	15"	3¾"	20¾"
1½"	18"	4½"	24½"
1¾"	21"	5¼"	28¼"
2"	25"	6"	33"

C S2.1 **DETAIL**

SCALE: NTS

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Consultant

Seal

NORTH CAROLINA PROFESSIONAL SEAL 044858 ENGINEER LUCAS G. YOUNG 4-825

Date
FEBRUARY 7, 2025

Drawn By
NLH

Drawing No.
S2.1

GENERAL PLUMBING NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC - PLUMBING CONTRACTOR,
   EC - ELECTRICAL CONTRACTOR,
   MC - MECHANICAL CONTRACTOR,
   GC - GENERAL CONTRACTOR,
   FASC - FIRE ALARM SYSTEM CONTRACTOR.
   SPC- CURRENT STATE PLUMBING CODE (2018 NORTH CAROLINA STATE BUILDING CODE: PLUMBING CODE)
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR.
3. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD-PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
6. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE SPC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
7. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
8. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
9. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
10. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
11. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
12. TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE SPC. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
13. THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
14. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH SPC, SECTIONS 312.2, 312.3, AND 312.5.
15. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
16. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.
17. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.
18. ALL PLUMBING SCOPE IS WITHIN FIVE (5) FEET OF EXTERIOR OF BUILDING OR AS SHOWN ON PLANS.

METHODS:

1. EXTEND DOMESTIC WATER PIPE AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2 SPC. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE SPC. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
4. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION-BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
5. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.
6. HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3.
7. INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HANDI-LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL.
8. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15 SPC. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
9. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
10. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.
11. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
12. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER AS SHOWN AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
13. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.4.1 SPC. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
14. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
15. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
16. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAINPIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
17. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
18. HORIZONTAL DRAINPIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.1 SPC. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
19. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
20. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3 OF THE SPC. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE SPC. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
21. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
22. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
23. THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT.
24. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATERTIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
25. INSTALL FULL OPEN VALVES PER SPC 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL SHUTOFF VALVES PER SPC 606.2.

MATERIALS:

1. BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62, BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO, WATTS, OR STOCKHAM.
2. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL-SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
3. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW-EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
4. FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT-HAND SIDE OF THE FIXTURE FITTING.
5. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE SPC AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME A112.1.1 AND AIR GAP FITTINGS WITH ASME A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR AWWA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS OF THE APPROVED MANUFACTURER.
6. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2" SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTEWATER TEMPERATURE EQUALS OR EXCEEDS 140°F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET.
7. FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO-HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE, EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
8. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF 0.25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PLENUMS.
   8.1 PC MAY USE PEX (ASTM F 877) WITH APPROVED FITTINGS (ASTM F 1807) WITH OWNER'S APPROVAL. CPVC PIPING (ASTM D 2846 OR ASTM F 441) WITH APPROVED FITTINGS (ASTM D 2846, ASTM F 438, OR ASTM F 439) MAY ALSO BE USED WHERE NOT LOCATED IN PLENUMS. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD-PARTY CERTIFIED AS CONFORMING TO NSF 14.
9. PC SHALL PROVIDE ALL WATER HEATERS (WATTAGE/INPUT AND CAPACITY AS NOTED IN SCHEDULE). ALL WATER HEATERS SHALL BE THIRD PARTY CERTIFIED; PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE SPC. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
10. ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.

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Drawn By REW/EMB
Drawing No. P-1

PLUMBING FIXTURE SCHEDULE						
SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE
P1H	TWO PIECE TANK TYPE ADA WATER CLOSET	TOTO CST744EL OR EQUAL BY AMERICAN STANDARD OR KOHLER	TWO-PIECE VITREOUS CHINA TOILET WITH HIGH-PROFILE TANK, ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. ASME 112. 19. 2 COMPLIANCE. TOP OF SEAT SHALL BE 17-19 INCHES AFF FOR ADA. LEVER MOUNTED ON WIDE SIDE FOR ADA.	-	1/2"	3"
P2	WALL MOUNT LAVATORY	TOTO LT307.4 OR EQUAL BY AMERICAN STANDARD OR KOHLER	VITREOUS CHINA LAVATORY WITH BACKSPLASH COMPLYING WITH ASME 112. 19. 2. TOP OF RIM SHALL BE 34 INCHES AFF FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS FOR SUPPLY AND DRAIN LINES. PROVIDE JR SMITH 0700 (CONCEALED ARMS) WITH 19" ARMS 0800 (WALL SUPPORT PLATE). USE MOEN 8430 FAUCET.	1/2"	1/2"	2"
P3	SERVICE SINK	FIAT FL-1 OR APPROVED EQUAL	FLOOR MOUNTED SERV-A-SINK LAUNDRY TUB SUPPORTED WITH STEEL PAINTED ANGLE LEGS. SUPPLY WITH FIAT A1000 LAUNDRY DECK FAUCET. CONFIRM FAUCET SELECTION WITH OWNER BEFORE ORDERING.	1/2"	1/2"	2"
P4	EXPANSION TANK	AMTROL ST-5 OR EQUAL BY WATTS OR BELL & GOSSETT	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	3/4"	-
P5	THERMOSTATIC MIXING VALVE	WATTS LFMMV OR EQUAL BY LAWLER OR LEONARD VALVE	ASSE STANDARD 1069 OR 1070 APPROVED WITH 1/2 INCH FEMALE NPT INLET AND OUTLET CONNECTIONS, BRASS BODY, AND INTEGRAL MOUNTING HOLES. TAMPER RESISTANT THERMOPLASTIC ENCLOSURE. SINGLE REPLACEABLE CARTRIDGE DESIGN.	1/2"	1/2"	-
P6	1" RPZ BACKFLOW PREVENTER	WATTS LF909 QT OR EQUAL BY CONBRACO OR WILKINS	RPZ ASSEMBLY CONSISTING OF A PRESSURE DIFFERENTIAL RELIEF VALVE LOCATED IN A ZONE BETWEEN TWO POSITIVE SEATING CHECK VALVES. THE ASSEMBLY SHALL INCLUDE TWO TIGHTLY CLOSING SHUTOFF VALVES BEFORE AND AFTER THE ASSEMBLY, TEST COCKS AND A PROTECTIVE STRAINER UPSTREAM OF THE FIRST SHUTOFF VALVE. THE ASSEMBLY SHALL MEET THE REQUIREMENTS OF ASSE 1013 AND AWWA C511	-	1"	-
P7	FREEZEPROOF HOSE BIBB	WOODFORD MODEL 68 OR EQUAL BY ZURN OR MIFAB	THE MODEL 68 IS A ASSE 1053 LISTED HYDRANT, WITH A ASSE 1052 DOUBLE CHECK BACKFLOW PREVENTER, COMES WITH A CHROME PLATED BRASS HEAD WITH STAINLESS STEEL COVER, IT DRAINS AUTOMATICALLY EVEN WITH A ATTACHED HOSE, HAS A ONE PIECE PLUNGER WHICH CONTROLS DRAIN AND FLOW FUNCTION, WORKS WITH PRESSURES UP TO 125 PSI, AND A MAX TEMPERATURE OF 120 DEGREES, TEE KEY FOR HYDRANT DOOR AND LOCK, EASIER TO INSTALL THAN STANDARD RECESSED BOX HYDRANT, WALL CLAMP IS INCLUDED, HEAD COVER FLIPS DOWN AND OUT OF THE WAY FOR UNOBSTRUCTED HYDRANT USE	-	3/4"	-
FCO	FLOOR CLEANOUT	ZURN, WATTS, JR SMITH	EPOXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.	-	-	-

ELECTRIC WATER HEATER SCHEDULE											
MARK	MFG	MODEL	TANK VOL.	INPUT	RECOVERY	SET POINT	POWER		CONNECTIONS		OPTIONS
			GALS	KW	GPH @ 60°F ΔT	°F	VOLTAGE	PHASE	HOT	COLD	
WH-1-4	RHEEM	EGSP10	10	1.5	10	110	120	1	3/4	3/4	1-5

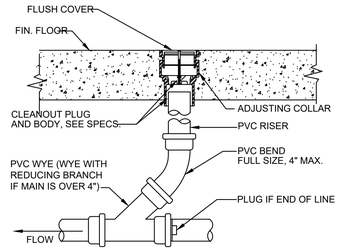
1. PROVIDE GALVANIZED STEEL SAFETY PAN
2. UL 174 LISTED
3. PROVIDE ASME LISTED TEMPERATURE AND PRESSURE RELIEF VALVE
4. MEET OR EXCEED ENERGY FACTOR REQUIREMENTS OF ASHRAE 90.1-2007
5. OR EQUAL BY A.O. SMITH, BRADFORD WHITE, OR STATE.

PLUMBING LINE SIZING PER UNIT

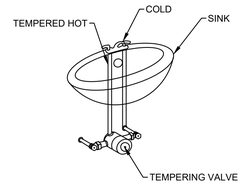
FIXTURE TYPE	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
		EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET, PUBLIC, FLUSH TANK	2	4.0	8.0	5.0	0.0	5.0	0.0	10.0
LAVATORY, PUBLIC	2	2.0	4.0	1.5	1.5	2.0	3.0	4.0
SERVICE SINK, OFFICES, ETC.	1	2.0	2.0	2.3	2.3	3.0	2.3	3.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DEMAND FIXTURE	GPM	QTY	TOTAL GPM		TOTAL DFU	14.0	
HOSE BIB	5	2	5		TOTAL WSFU	5.3	17.0
					GPM	10.0	18.4
					OTHER FIXTURES' GPM	0	5
					TOTAL GPM	10.0	23.4

MINIMUM BUILDING DRAIN SIZE	4"	ONLY HALF OF HOSE BIBS USED IN CALCUALTION
MINIMUM WATER LINE SIZE	1"	

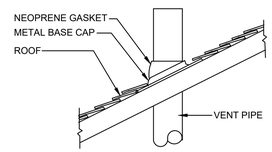


1 FLOOR CLEANOUT DETAIL
Scale: NONE

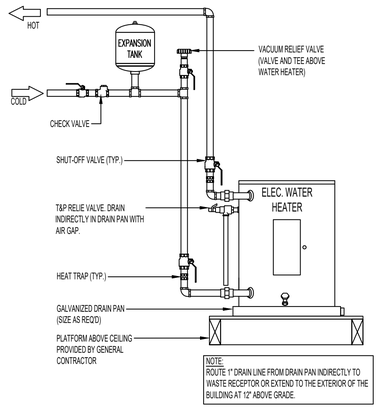


HAND SINK

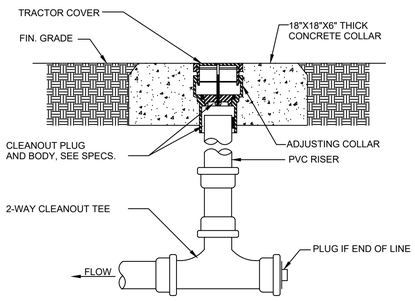
2 THERMOSTATIC MIXING VALVE DETAIL
Scale: NONE



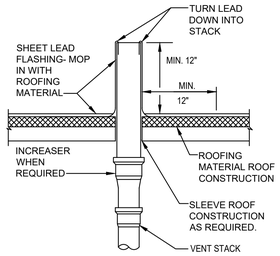
SLOPED ROOF



3 ELECTRIC WATER HEATER (ABOVE CEILING) DETAIL
Scale: NONE



4 GRADE CLEANOUT DETAIL
Scale: NONE



FLAT ROOF

5 VENT THRU ROOF DETAIL
Scale: NONE

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
PLUMBING SCHEDULES AND DETAILS

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

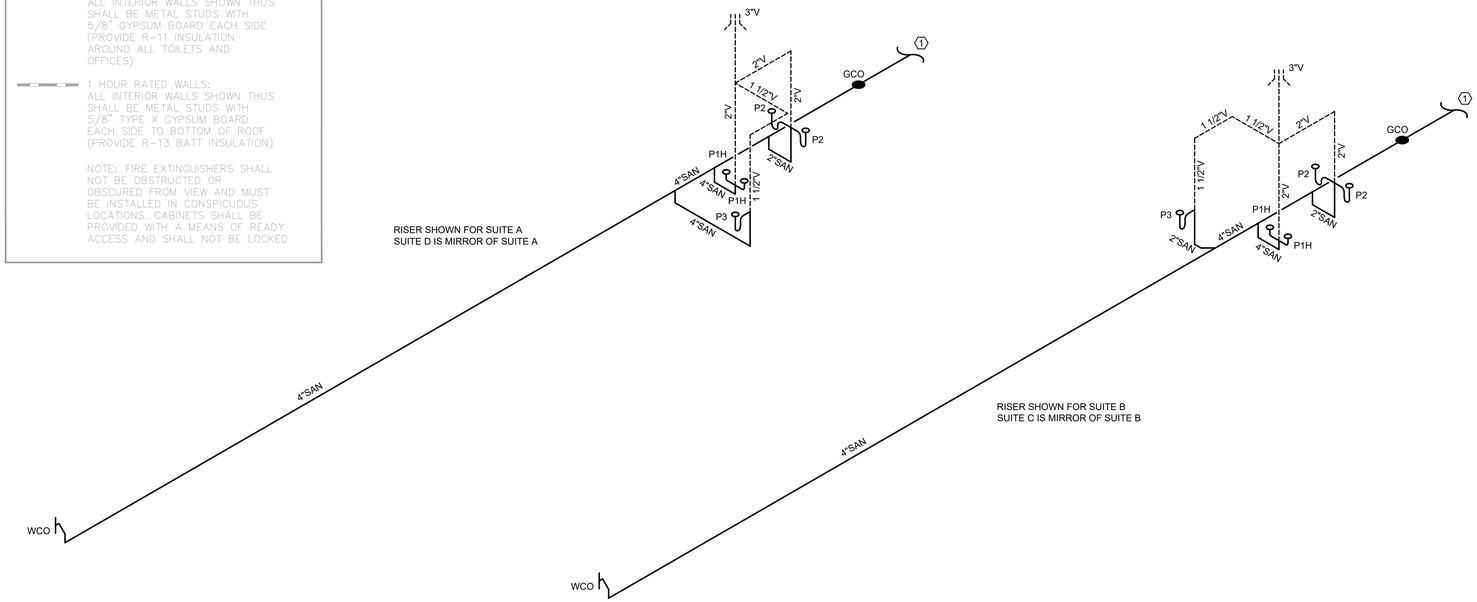
Date 03/07/2025
Drawn By REW/EMB
Drawing No. P — 2

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

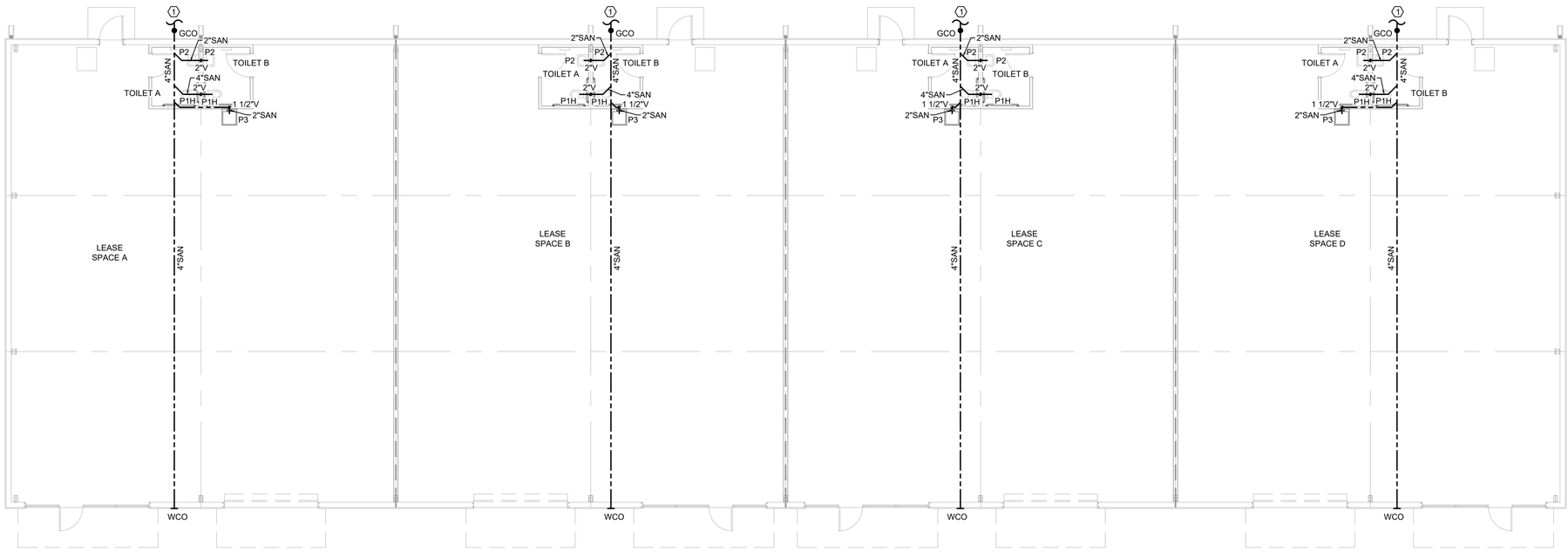
NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 SANITARY RISER
Scale: NONE

SANITARY HEX NOTES

1. CONNECT TO SEWER. COORDINATE EXACT LOCATION ON SITE.



2 SANITARY PLAN
Scale: 1/8" = 1'-0"

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
SANITARY PLAN

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By REW/EMB
Drawing No. P-3

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
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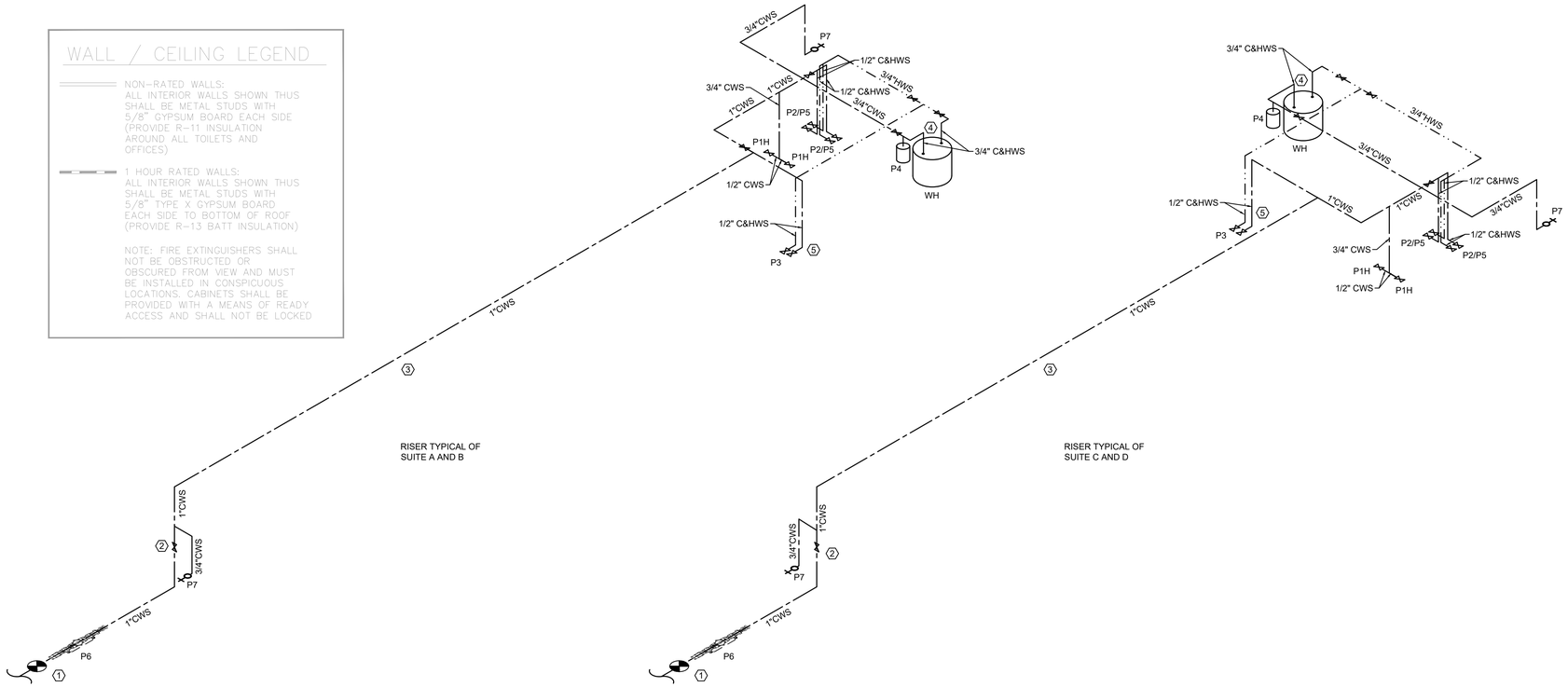
NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED

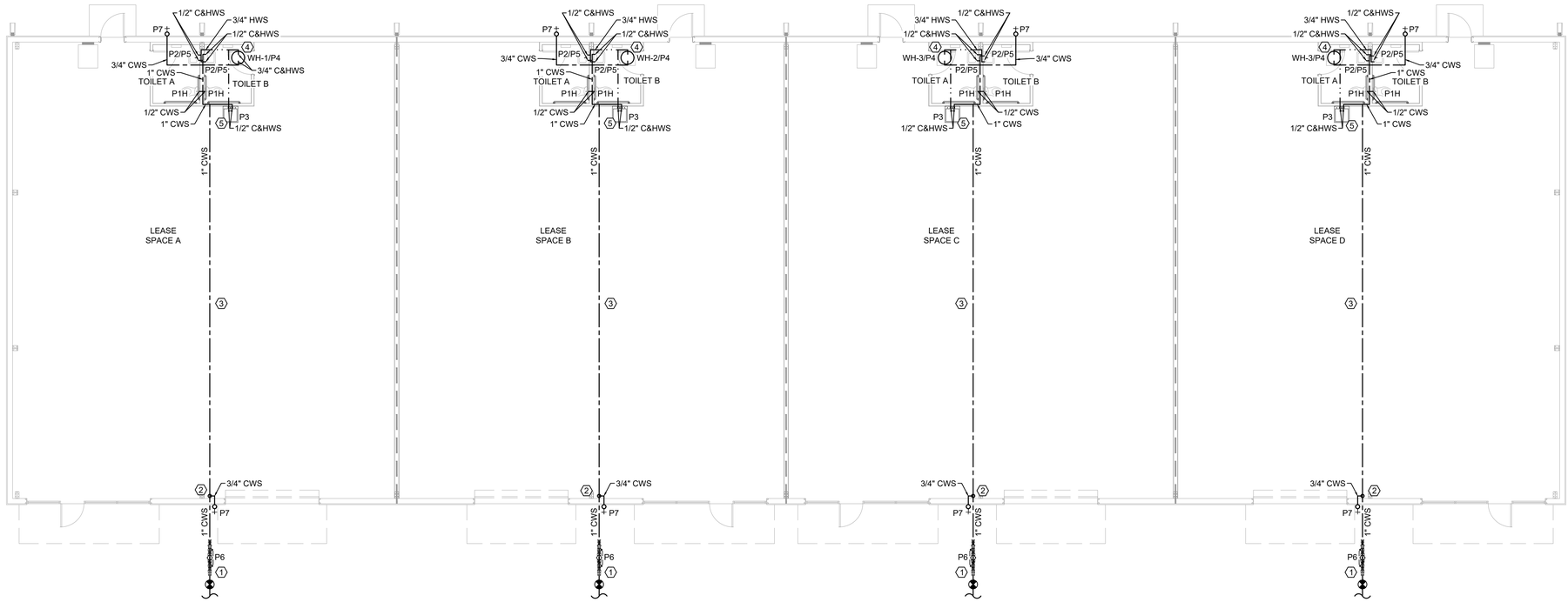


1 DOMESTIC SUPPLY RISER

Scale: NONE

DOMESTIC SUPPLY HEX NOTES

1. CONNECT TO WATER MAIN. COORDINATE EXACT LOCATION ON SITE. INSTALL RPZ IN HOT BOX AT METER.
2. ROUTE CWS UP THROUGH SLAB TO 20' A.F.F. CONFIRM HEIGHT WITH ARCHITECT. PC TO SUPPORT CWS AT HEIGHT. COORDINATE LOCATION WITH OWNER/GC. INSTALL ACCESSIBLE CUT OFF VALVE.
3. ANY WATER LINES THAT MUST BE INSTALLED IN UNCONDITIONED SPACES SHOULD BE INSULATED AND WHERE ACCESSIBLE PROTECTED BY THERMOSTATICALLY CONTROLLED HEAT TAPE.
4. WATER HEATER LOCATED ABOVE CEILING. SEE DETAIL FOR INSTALLATION. EXPANSION TANK CONNECTION AND DRAINAGE PAN TO BE INSTALLED ON WATER HEATER.
5. INSTALL INSULATION AND THERMOSTATICALLY CONTROLLED HEAT TAPE ON CONNECTIONS FOR SERVICE SINK.



2 DOMESTIC SUPPLY PLAN

Scale: 1/8" = 1'-0"

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Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
DOMESTIC SUPPLY PLAN

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
03/07/2025

Date 03/07/2025
Drawn By REW/EMB
Drawing No. P-4

GENERAL MECHANICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC - PLUMBING CONTRACTOR,
   EC - ELECTRICAL CONTRACTOR,
   MC - MECHANICAL CONTRACTOR,
   GC - GENERAL CONTRACTOR,
   FASC - FIRE ALARM SYSTEM CONTRACTOR,
   AHJ - AUTHORITY HAVING JURISDICTION.
   SMC - CURRENT STATE MECHANICAL CODE (2018 NORTH CAROLINA STATE BUILDING CODE: MECHANICAL CODE)
   SBC - CURRENT STATE BUILDING CODE (2018 NORTH CAROLINA STATE BUILDING CODE: BUILDING CODE)
   SECC- CURRENT STATE ENERGY CONSERVATION CODE (2018 NORTH CAROLINA STATE BUILDING CODE: ENERGY CONSERVATION CODE)
   NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
3. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE SMC AND SBC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
6. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
9. ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD-PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
10. THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
11. EC SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MC SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
12. IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
13. MC SHALL COORDINATE WITH THE EC REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
14. MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
15. MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
16. CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
17. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
18. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
19. ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
20. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

METHODS:

1. INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTEED CORPORATION.
2. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
3. WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE. SEAL TO LOUVER FRAME AND DUCT.
4. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
5. CONSTRUCT T's, BENDS, AND ELBOWS WITH RADII OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES.
6. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
7. IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
8. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
9. CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
10. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
11. MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
12. INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER SECC C402.5.5
13. MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE SMC. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES.

MATERIALS:

1. THE MC SHALL PROVIDE ALL HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. ALTERNATES SHALL BE FROM MANUFACTURERS LISTED IN SCHEDULES. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
2. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED OR BY EQUALS LISTED.
3. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
4. EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75ºF MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
   4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
   4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
   4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
5. COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. ADHESIVE BONDED PINS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LININGS SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SCRAPS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF REMOVAL OF SUCH MATERIAL.
6. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
7. MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAT THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
8. ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
9. FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181.
10. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
11. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE AS SCHEDULE OR ALTERNATES LISTED.

RECTANGULAR/SQUARE TO ROUND DUCT EQUIVALENT

RECTANGULAR DUCT	ROUND DUCT
30"X26"	30"Ø
20"X26"	24"Ø
18"X18"	20"Ø
18"X20"	20"Ø
20"X16"	18"Ø
16"X16"	16"Ø
10"X16"	14"Ø
10"X20"	16"Ø
16"X14"	16"Ø
16"X12"	14"Ø

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KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By REW/EMB
Drawing No. M-1

MECHANICAL PLAN HEX NOTES

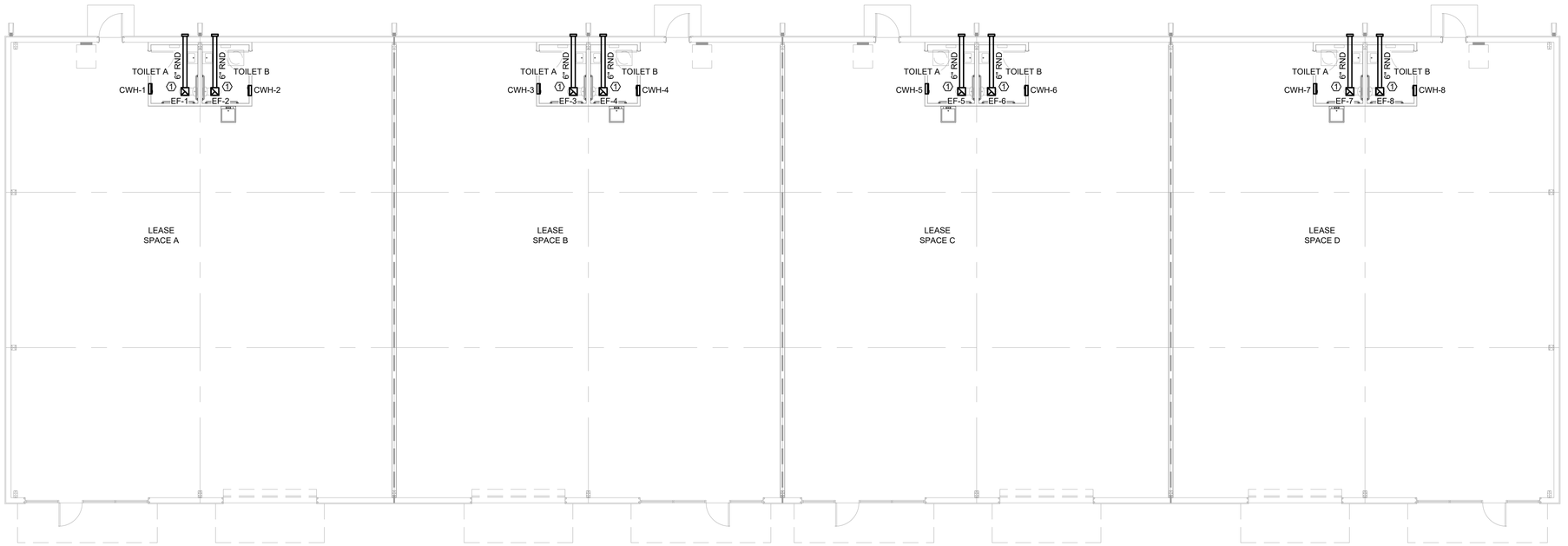
1. ROUTE 6" Ø EXHAUST DUCT TO EXTERIOR. TERMINATE WITH APPROVED WALL CAP.

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 MECHANICAL PLAN
Scale: 1/8" = 1'-0"

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
MECHANICAL PLAN

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

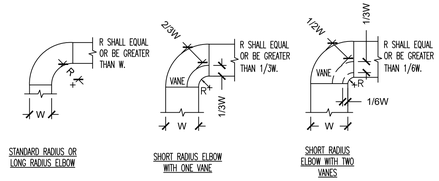
Date 03/07/2025
Drawn By REW/EMB
Drawing No. M-2

ELECTRIC FAN-FORCED WALL HEATER SCHEDULE							
MARK	MFG/Model #	AIR FLOW	HEATER	VOLT/PH	FLA	MOCP	NOTES
		CFM	KW		AMPS	AMPS	
CWH-1-8	QMARK CWH3404F	100	4	208/1	14.5	20	1-4

1. BUILT-IN THERMOSTAT
2. BUILT-IN DISCONNECT SWITCH
3. PROVIDE WITH SURFACE MOUNTING SLEEVE KIT
4. PROVIDE WITH 14-GAUGE SECURITY FRONT COVER, WHITE

EXHAUST FAN SCHEDULE								
MARK	MFG/MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES
EF-1-8	GREENHECK SP-B110	CEILING	0.40	96	120/1	1.14	2	1-3

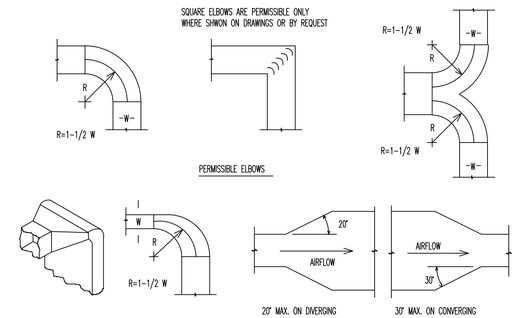
1. PROVIDE WITH PITCHED ROOF CURB & CAP FOR FLAT OR SLOPED ROOF, OR HOODED WALL WITH BACKDRAFT DAMPER CAP AS APPLICABLE
2. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
3. OR EQUAL BY LOREN COOK OR PENNBARRY OR TWIN CITY



NOTES:

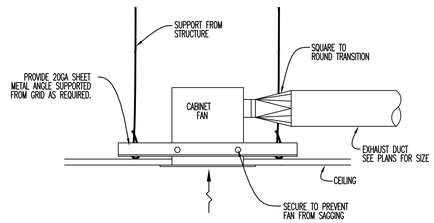
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

1 ACCEPTABLE ELBOWS



NOTE: AIRFLOW ARROWS ARE SHOWN FOR SUPPLY DUCT BY DEFAULT. AIRFLOW DIRECTION IS REVERSED FOR RETURN AND EXHAUST DUCTWORK.

2 ACCEPTABLE DUCT TRANSITIONS



NOTE: CEILING IS PART OF A RATED STRUCTURE. FAN PROVIDED MUST HAVE INTEGRAL RADIATION DAMPER COMPLYING WITH UL555C

3 EXHAUST FAN DETAIL

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Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
MECHANICAL SCHEDULES AND DETAILS

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NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By REW/EMB
Drawing No. M-3

GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC - PLUMBING CONTRACTOR,
   EC - ELECTRICAL CONTRACTOR,
   MC - MECHANICAL CONTRACTOR,
   GC - GENERAL CONTRACTOR,
   FASC - FIRE ALARM SYSTEM CONTRACTOR,
   AHJ - AUTHORITY HAVING JURISDICTION
   NECA- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
   NEC- NATIONAL ELECTRICAL CODE (2020)
   SBC- CURRENT STATE BUILDING CODE (2018 NORTH CAROLINA STATE BUILDING CODE: BUILDING CODE)
   SFC: CURRENT STATE BUILDING CODE: FIRE CODE (2018 NORTH CAROLINA STATE BUILDING CODE: FIRE PREVENTION CODE)
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE EC SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
3. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE EC.
4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE EC AT AN APPROVED LOCATION. THE EC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE EC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
6. THE EC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
9. THE EC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE EC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE EC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH NEC 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
11. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
12. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE EC SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
13. THE EC SHALL COORDINATE WITH THE GC TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
14. ALL WORK SHALL CONFORM TO NEC, SBC, AND ALL APPLICABLE LOCAL CODES.
15. THE EC SHALL ALSO COORDINATE WITH THE GC REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.

METHODS:

1. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
2. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
3. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
4. MOUNT LIGHT SWITCHES AT 48 in AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH off POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B).
5. EC SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
6. EC SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. SHOW WINDOW RECEPTACLES SHALL BE PROVIDED IN ACCORDANCE WITH 210.62 OF THE NEC. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
7. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
8. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH ARTICLES 300.5(G), 300.7(A), AND 300.50(F) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
9. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2 in MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN METAL-CORRUGATED, SHEET DECKING-TYPE ROOF. SEE NEC 300.4(E)
10. THE EC SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE EC. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH SBC 714.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE in AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.
11. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 in EMT CONDUIT MAXIMUM AND 4 in JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE SBC.
12. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 2-1/8 in DEEP BOX WITH 3/4 in KNOCK-OUTS AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
13. EC SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
14. EC SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.
15. EC SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 in MINIMUM) ETCHED INTO THE WHITE CORE. EC SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.
16. IN ACCORDANCE WITH SECTION 510 OF THE SFC, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.
17. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
18. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.10(G).
19. PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. EC SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.
20. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.

MATERIALS:

1. THE EC SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC, UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
2. EC SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. EC SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. *PRIOR TO ORDERING EQUIPMENT, THE EC SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED.* PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. EC SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. EC SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
3. ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MERSEN.
4. OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
5. CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM, COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
6. ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE EC. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
7. THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC, INDUSTRIAL WIRE & CABLE, INC, ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
8. JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS. WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
9. ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
10. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE EC. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O-Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED
11. EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
12. METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC, OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

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Drawing Title
ELECTRICAL NOTES

Project No.
250077

Consultant

Seal: NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025 — KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-1

LIGHTING DEVICE LEGEND

SYMBOL	DESCRIPTION	REMARKS
$	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1. IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A. MEET FEDERAL SPECIFICATION W-S-896.
$D	DIMMER SWITCH	COMMERCIAL GRADE, 120V, 1500W
$M	WALL MOUNTED OCCUPANCY SENSOR	WATTSTOPPER DSW-301-W LINE VOLTAGE OCCUPANCY SENSOR. ULTRA SONIC AND INFRARED.
$LV	LOW VOLTAGE SWITCH	WATTSTOPPER LVSW-101-B LOW VOLTAGE MOMENTARY CONTROL SWITCH.
$3	3 WAY SWITCH	3-WAY TYPE SWITCH WITH SAME CHARACTERISTICS AS SINGLE POLE SWITCH ABOVE.
(DT)	CEILING OCCUPANCY SENSOR	WATTSTOPPER, HBL7 LOW VOLTAGE OCCUPANCY SENSOR. 360° ULTRA SONIC AND INFRARED.
(P)	POWER PACK	WATTSTOPPER, BZ-150 LOW VOLTAGE POWER PACK FOR CEILING PACK SENSORS.
(J)	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.
⊠	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.

POWER DEVICE LEGEND

SYMBOL	DESCRIPTION	REMARKS
▶	DATA AND TELEPHONE JACK	PHONE/DATA OUTLET. EC TO INSTALL 3/4"C WITH PULL-STRING FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. JACKS AND COMMUNICATION CABLING BY OTHERS.
	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596.
	QUAD RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE.
	DEDICATED RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1 UNLESS OTHERWISE NOTED ON PLANS. VERIFY PLUG TYPE PRIOR TO PURCHASE & INSTALLATION. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596. MAY BE EITHER SIMPLEX, DUPLEX, OR QUAD.
	240V RECEPTACLE	240V RECEPTACLE WITH SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE. VERIFY NEMA PLUG CONFIGURATION.
	DUPLEX FLOOR RECEPTACLE	DUPLEX RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH BRASS COVER. MOUNT IN FLOOR. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
	QUAD FLOOR RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH BRASS COVER. MOUNT IN FLOOR. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS, FUSE ACCORDING TO NAMEPLATE DATA.
	DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS.
(J)	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.

ELECTRICAL DESIGNER'S STATEMENT			
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE			
PRESCRIPTIVE _X__ PERFORMANCE____ ENERGY COST BUDGET___			
LIGHTING SCHEDULE:			
LAMP TYPE REQUIRED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF LAMPS PER FIXTURE:		SEE LIGHTING LEGEND	
BALLAST TYPE USED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF BALLASTS IN FIXTURE:		SEE LIGHTING LEGEND	
TOTAL WATTAGE PER FIXTURE:		SEE LIGHTING LEGEND	
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:		WATTS SPECIFIED	WATTS ALLOWED
		1409.6	14685.3
OCCUPANCY	AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
RETAIL	11655	1.26	14685.3
TOTAL	11655		14685.3
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)			
MOTOR HORSEPOWER: N/A			
NUMBER OF PHASES: N/A			
MINIMUM EFFICIENCY: N/A			
MOTOR TYPE: N/A			
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.			

FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 - REDUCED LIGHTING POWER DENSITY.

1409.6W SPECIFIED	<=	13216.77W	14685.3W ALLOWED X 90%

OCCUPANCY SENSORS SEQUENCE OF OPERATION WITH LOW-VOLTAGE MOMENTARY SWITCH

1. OCCUPANCY SENSOR DETECTS MOTION AND TURNS THE LIGHTS ON. SENSOR HOLDS LIGHTS ON AS LONG AS MOTION IS DETECTED. IF AFTER THE SET TIME DELAY, NO MOTION IS DETECTED, LIGHTS TURN OFF. CONSULT OWNER FOR DESIRED TIME DELAY SETTING.
2. THE LOAD CAN BE TURNED ON USING THE MANUAL SWITCH AND IT STAYS ON ACCORDING TO THE OCCUPANCY LOGIC SETTING. THE TIME DELAY OPERATES AS PROGRAMMED. WHEN THE LOAD TURNS OFF DUE TO LACK OF OCCUPANCY DETECTION, IT CAN BE TURNED ON AGAIN BY OCCUPANCY DETECTION OR THE SWITCH.
3. ACTIVATING THE MANUAL SWITCH WHILE THE LOAD IS ON TURNS THE LOAD OFF.
   - 3.1. WHEN THE LOAD IS TURNED OFF MANUALLY, AS LONG AS THE SENSOR CONTINUES TO DETECT OCCUPANCY THE LOAD STAYS OFF. FIVE MINUTES AFTER THE LAST OCCUPANCY DETECTION, THE LIGHTS STAY OFF AND THE SENSOR REVERTS TO THE AUTOMATIC-ON MODE.
   - 3.2. WHEN THE LOAD IS TURNED OFF MANUALLY, PRESSING THE SWITCH AGAIN TURNS THE LOAD ON AND THE SENSOR REVERTS TO THE AUTOMATIC-ON MODE.
   - 3.3. ONCE RETURNING TO AUTOMATIC-ON MODE, EITHER THE SWITCH OR OCCUPANCY DETECTION CAN TURN THE LOAD ON.
4. LOW-VOLTAGE INPUT SIGNAL FROM TIME CLOCK HOLDS LIGHTS ON DURING RETAIL HOURS REGARDLESS OF OCCUPANCY DETECTION.

NOTES FOR EMERGENCY FIXTURES

1. FOR INTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE FIXTURE BALLAST AHEAD OF ALL SWITCHES, SENSORS, ETC.
2. FOR EXTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE NORMAL EXTERIOR LIGHTS OR AS SHOWN ON PLANS AHEAD OF ALL CONTACTORS, PHOTOCELLS, ETC.
3. IN BOTH CASES, EMERGENCY POWER SHOULD INITIATE ONLY IN THE EVENT OF THE LOSS OF NORMAL POWER. ALL BATTERIES SHALL BE RATED TO POWER EMERGENCY ILLUMINATION FOR 90 MINUTES MINIMUM.

LIGHTING CIRCUIT DESIGNATIONS

A | A#-# | C

- LIGHT FIXTURE
- PANEL DESIGNATION
- CIRCUIT DESIGNATION
- CONTROL DESIGNATION

* LOWER CASE LETTER INDICATES SWITCH ID
- NL - NIGHT LIGHT - 24/7 OPERATION
- P - PHOTOCELL
- D - DIMMER
- A# - OCCUPANCY SENSOR CIRCUIT (E.G. RMJ-B1)
- T - TIMER/TIME CLOCK
- $ - TOGGLE SWITCH

POWER CIRCUIT DESIGNATIONS

A - #

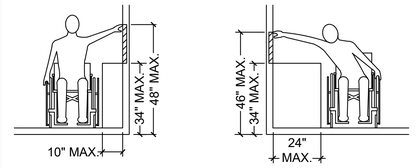
- PANEL DESIGNATION
- CIRCUIT DESIGNATION

OCCUPANCY SENSORS SEQUENCE OF OPERATIONS WITH LINE-VOLTAGE SWITCH

1. LINE VOLTAGE SWITCH MUST BE TURNED ON OR IN ON POSITION.
2. OCCUPANCY SENSOR DETECTS MOTION AND TURNS THE LIGHTS ON. SENSOR HOLDS LIGHTS ON AS LONG AS MOTION IS DETECTED. IF AFTER THE SET TIME DELAY, NO MOTION IS DETECTED, LIGHTS TURN OFF. CONSULT OWNER FOR DESIRED TIME DELAY SETTING.
3. THE LOAD CAN BE TURNED OFF USING THE MANUAL LINE VOLTAGE SWITCH AND IT STAYS OFF UNTIL THE SWITCH IS TURNED TO ON POSITION AND THE OCCUPANCY SENSOR DETECTS OCCUPANCY.

LEGEND

- [T] REFER TO TRANSFORMER SCHEDULE ABOVE
- [B] REFER TO BREAKER FEEDER SCHEDULE ABOVE
- [#] REFER TO GENERAL FEEDER SCHEDULE ABOVE



ANSI A117.1 FIG. 308.3.2 OBSTRUCTED HIGH REACH SIDE.
ALL SWITCHES AND CONTROLS MUST COMPLY FOR ALL COUNTERTOPS

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	LOUVER/LENS	LAMPS TYPE	LAMPS CCT	VOLTAGE	INPUT WATTAGE	MOUNTING	REMARKS	MFG	MODEL
A	4' LED STRIP LIGHT	VERIFY	LED	4000K	120	35.3	SUSPENDED	2	LITHONIA	CSS L48 4000LM MVOLT 40K 80CRI
B	2X4 LED PANEL	VERIFY	LED	4000K	120	35	RECESSED	2	LITHONIA	CPANL 2X4 AL06 SWW7 M2
C	EXTERIOR WALL PACK	VERIFY	LED	4000K	120	36	SURFACE	2	LITHONIA	TWR1 LED ALO SWW2 UVOLT PE DDBTXD
EXH	LED EXIT/EMERGENCY COMBO	ACRYLIC	LED	N/A	-	-	VARIES	1,2	EELP	XC-LED-2-R-W-SD
EM	DUAL HEAD EMERGENCY FIXTURE	ACRYLIC	LED	N/A	-	2	VARIES	1,2	LITHONIA	ELM2L-SDRT
OE	EXTERIOR LIGHT	ACRYLIC	LED	N/A	-	2	VARIES	1,2	LITHONIA	AFO-DB-MVOLT-N-SD

1. FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION.
2. OR EQUAL BY COOPER, MOBERN, OR CURRENT BY GE LIGHTING.

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
ELECTRICAL SCHEDULES

Project No.
250077

Consultant

Seal: NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E – 2

LIGHTING PLAN HEX NOTES

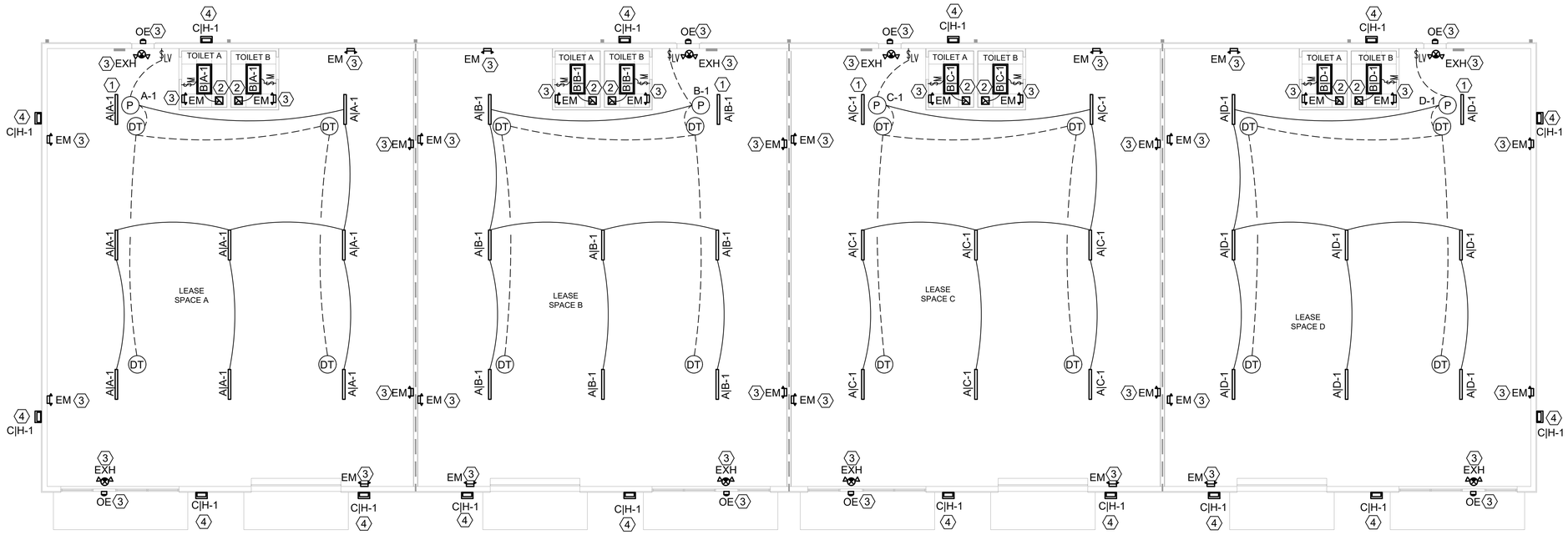
1. LIGHT TO BE 24/7
2. EXHAUST FAN TO BE POWERED THROUGH ROOM LIGHTING
3. EMERGENCY LIGHTING TO BE WIRED INTO NEAREST AREA LIGHTING CIRCUIT AHEAD OF ALL LIGHTING CONTROLS.
4. EXTERIOR LIGHTING TO BE CONTROLLED VIA PHTOTCELL

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 LIGHTING PLAN
Scale: 1/8" = 1'-0"

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Drawing Title
LIGHTING PLAN

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KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-3

WALL / CEILING LEGEND

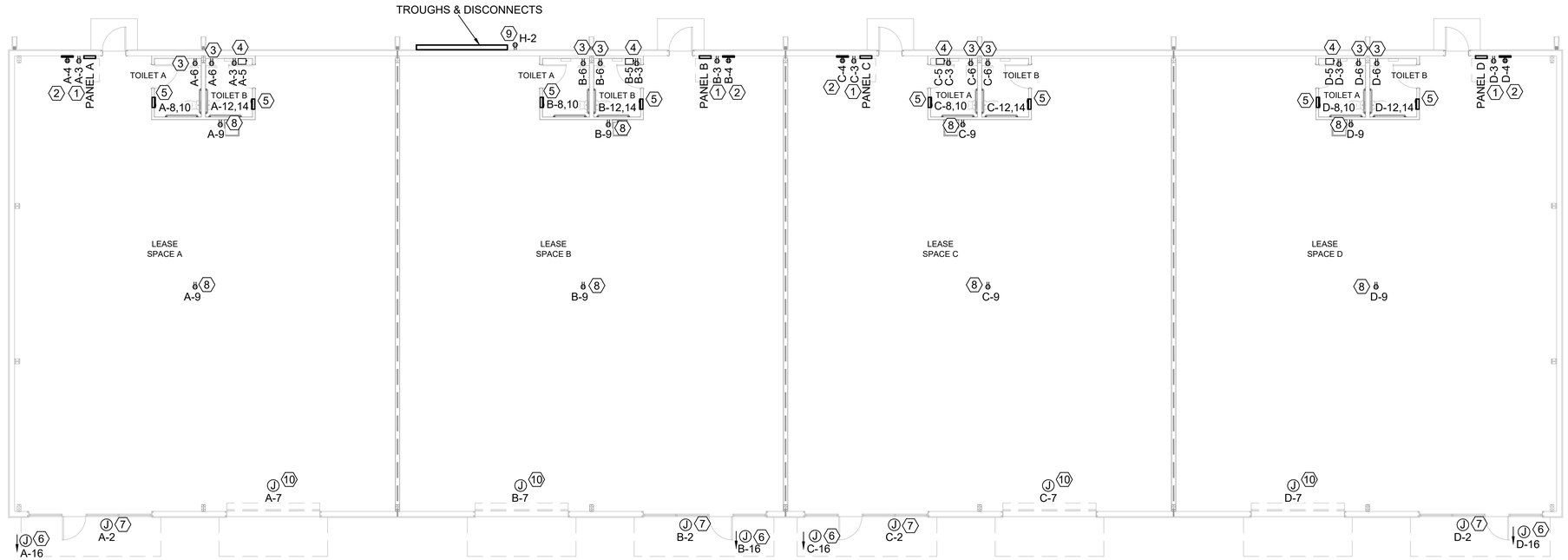
NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED

POWER PLAN HEX NOTES

1. SERVICE RECEPTACLE, GFCI RATED, MOUNTED AT 18" AFF.
2. GFCI RECEPTACLE FOR PHONE BOARD
3. GFCI RECEPTACLE, MOUNTED AT COUNTER HEIGHT
4. DISCONNECT & GFCI RECEPTACLE FOR WATER HEATER LOCATED ABOVE CEILING
5. UNIT HEATER TO HAVE BUILT IN MEANS OF DISCONNECT. EC TO VERIFY WITH MC. EC TO PROVIDE DISCONNECT IF REQUIRED.
6. POWER FOR HOTBOX, SEE SITE PLAN FOR LOCATION
7. J-BOX FOR EXTERIOR SIGN, CONFIRM LOCATION WITH OWNER PRIOR TO INSTALLATION
8. POWER FOR HEAT TAPE ON CWS NEAR CEILING, COORDINATE EXACT LOCATION AND ELECTRICAL NEEDS WITH PC.
9. GFCI-WP RECEPTACLE MOUNTED AT 18" A.F.F.
10. POWER FOR GARAGE DOOR. VERIFY LOCATION AND EXACT REQUIREMENTS WITH MANUFACTURER.



1 POWER PLAN
Scale: 1/8" = 1'-0"

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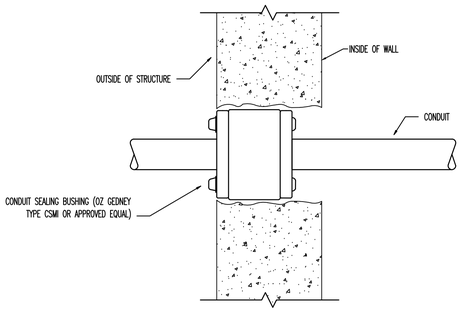
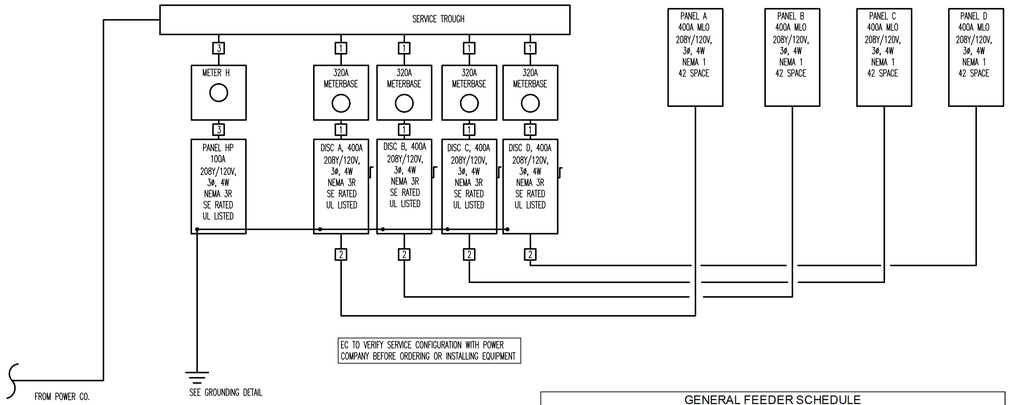


1 EXTERIOR WALL PENETRATION

BREAKER FEEDER SCHEDULE			
AMPS	Wire Size	Ground Size	Conduit Size
15A	#12	#12	1/2"
20A	#12	#12	1/2"
25A	#10	#10	3/4"
30A	#10	#10	3/4"
35A	#8	#10	1"
40A	#8	#10	1"
50A	#8	#10	1"
60A	#6	#10	1 1/4"
70A	#4	#8	1 1/4"
80A	#4	#8	1 1/4"
90A	#3	#8	1 1/2"
100A	#3	#8	1 1/2"
110A	#2	#6	2"
125A	#1	#6	2"
150A	1/0	#6	2 1/2"
175A	2/0	#6	2 1/2"
200A	3/0	#6	2 1/2"
225A	4/0	#4	2 1/2"
250A	250 MCM	#4	3"
300A	350 MCM	#4	3 1/2"
350A	500 MCM	#3	4"
400A	2 Sets- 3/0	#3	2 1/2"
500A	2 Sets - 250 MCM	#2	3"
600A	2 Sets - 350 MCM	#1	3 1/2"
700A	3 Sets - 250 MCM	1/0	3"
800A	3 Sets - 300 MCM	1/0	3 1/2"
1000A	3 Sets - 400 MCM	2/0	3 1/2"

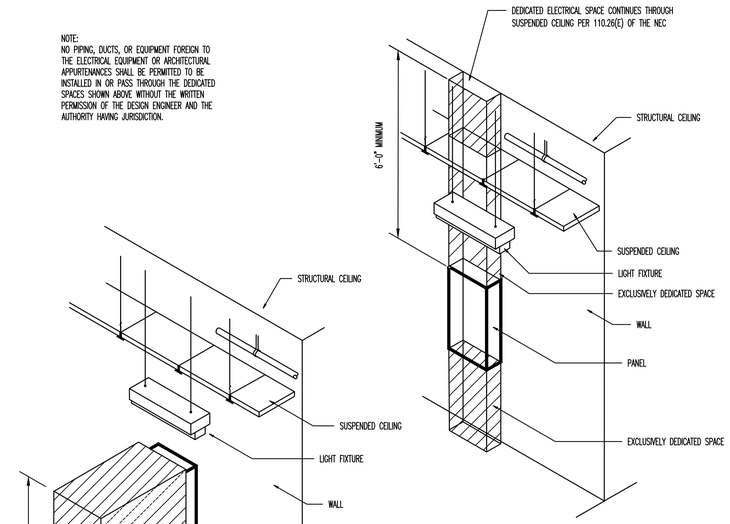
1. CONDUCTOR PER POLE PLUS NEUTRAL PER SET. E.C. TO VERIFY NECESSITY OF NEUTRAL FOR EACH CIRCUIT. NEUTRAL MAY BE DELETED IF NOT REQUIRED FOR INDIVIDUAL PIECES.



GENERAL FEEDER SCHEDULE		
MARK	WIRE AND CONDUIT	AMPS
1	2 SETS-3-3/0 CU, 1-3/0 CU NEU., 2-1/2" CO.	400A
2	2 SETS-3-3/0 CU, 1-3/0 CU NEU., 1-#3 CU GRD., 2-1/2" CO.	400A
3	3-#3 CU, 1-#3 CU NEU., 1-1/2" CO.	100A

2 ELECTRICAL RISER

NOTE:
NO PIPING, DUCTS, OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN OR PASS THROUGH THE DEDICATED SPACES SHOWN ABOVE WITHOUT THE WRITTEN PERMISSION OF THE DESIGN ENGINEER AND THE AUTHORITY HAVING JURISDICTION.



NOTE: THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER THE PANELBOARD BY 110.26(E) OF THE NATIONAL ELECTRIC CODE.

NOTE: THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF THE PANELBOARD REQUIRED BY 110.26 OF THE NATIONAL ELECTRIC CODE.

NOTE: WHERE THE CONDITIONS ARE AS FOLLOWS:

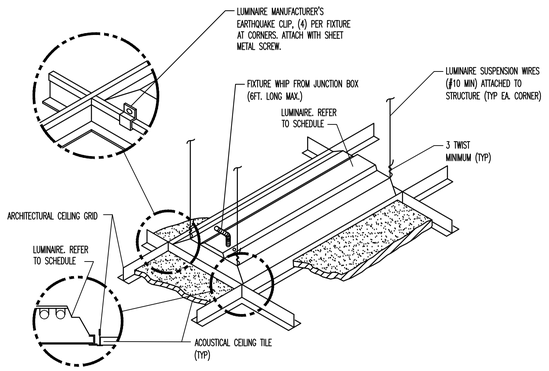
CONDITION 1 – EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.

CONDITION 2 – EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED.

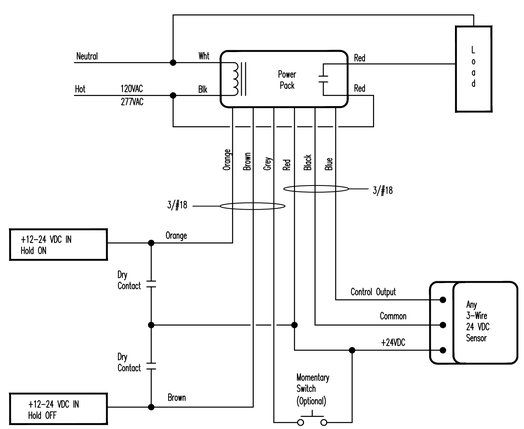
CONDITION 3 – EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

TABLE 110.26(A)(1) WORKING SPACE			
VOLTAGE TO GROUND, NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
	CONDITION 1	2	3
0-150	3	3	3
151-600	3	3-1/2	4

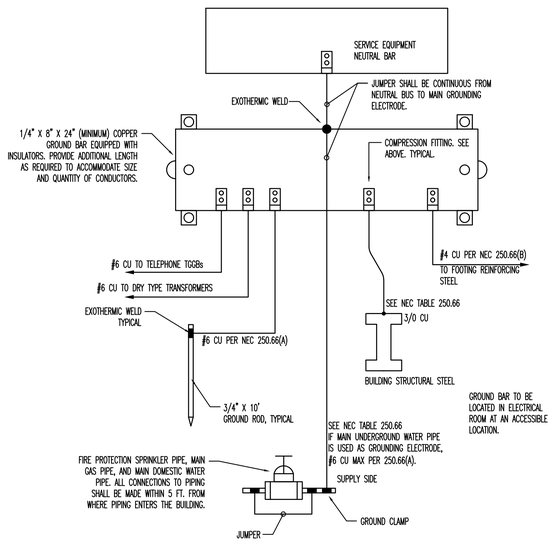
3 REQUIRED CLEARANCES



4 LAY IN FIXTURE SUPPORT



5 CEILING OCCUPANCY SENSOR WIRING



6 GROUNDING DETAIL

Kilian Engineering, Inc.
PO Box 3301, Henderson, NC 27536
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craig@craigottoarchitect.com

No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
HOUSE PANEL,POWER RISER & ELECTRICAL DETAILS

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-5

PANEL A								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPACE		0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL B								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPARE	20/1	0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL C								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPARE	20/1	0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL D								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPARE	20/1	0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL H								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	EXTERIOR LIGHTS	20/1	0.72	A	0.18	20/1	SERVICE RECEPTACLE	2
3	SPARE	20/1	0.00	B	0.00	20/1	SPARE	4
5	SPARE	20/1	0.00	C	0.00	20/1	SPARE	6
7	SPARE		0.00	A	0.00		SPACE	8
9	SPACE		0.00	B	0.00		SPACE	10
11	SPACE		0.00	C	0.00		SPACE	12
13	SPACE		0.00	A	0.00		SPACE	14
15	SPACE		0.00	B	0.00		SPACE	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
			PH	kVA	AMPS			
			A	0.90	7.5			
			B	0.00	0			
			C	0.00	0			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		100A
MAIN CIRCUIT BREAKER RATING		100A
AIC RATING		22K
SERVICE ENTRANCE RATED		YES
ENCLOSURE		NEMA 3R
MOUNTING		SURFACE

PANEL A - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL B - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL H - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
EXTERIOR LIGHTING	100%	0.72	0.00	0.00	0.72	220.12	
RECEPTACLES < 10 kVA	100%	0.18	0.00	0.00	0.18	220.44	
DEMAND kVA PER PHASE		0.90	0.00	0.00			
DEMAND AMPS PER PHASE		7.50	0.00	0.00			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL C - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL D - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

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105 West Main Street, Suite C
Lexington, South Carolina 29072
Phone (803) 957-9004
craig@craigottoarchitect.com

No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
BREAKER SCHEDULES & POWER RISER

Project No.
250077

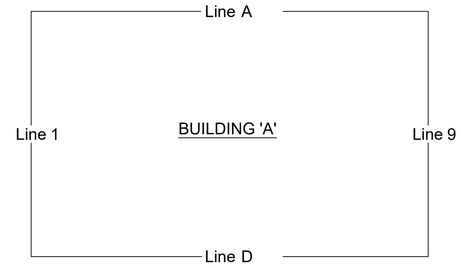
Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-6

BLDG. "A" Width	Length	Line D Height	Line A Height	Line D Roof Pitch	Line A Roof Pitch	Downspout Drops Line D	Downspout Drops Line A
60'-0"	200'-0"	24'-0"	21'-6"		0.5:12		9

TABLE OF CONTENTS



KEY PLAN

Roof Panel:

Type: MSC
Gage: 24
Color: Galvalume (GM)

Wall Panel:

Type: CS
Gage: 26
Color: Fieldstone (FS)

Line D

Type: Nichiha (Not By Chief)

Ordered Options:

Base Condition:	Base Cee- Base Trim /Drip Edge
Base Trim Color:	Fieldstone (FS)/Antique Bronze (AQ)
Wall Mastic:	No
UL Rating:	Yes, UL90
Sidewall Eave Trim Type:	Standard Profile Gutter/Height Change/Parapet Cap Trim
Eave Trim Color:	Fieldstone (FS)/ Galvalume (GM)/Antique Bronze (AQ)
Gable Trim Color:	Fieldstone (FS)
Downspout Type:	Corrugated
Downspout Color:	Fieldstone (FS)
Elbows at Bottom of Drops:	Yes
Corner Trim Color:	Fieldstone (FS)/Antique Bronze (AQ)
Framed Opening Trim Color:	Fieldstone (FS)/Antique Bronze (AQ)
Light Transmitting Panels:	Roof = None Wall = None

Framing:

Purlin Type: ZEE
Girt Type: ZEE CEE

Accessories

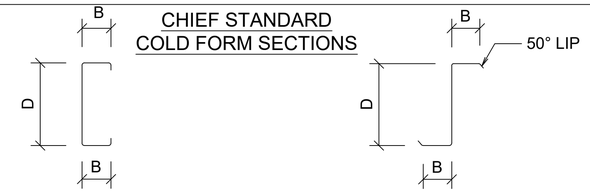
4 3070 Pre-Assembled Solid Walkdoor

Wall Openings

See drawings for additional info.

QUAN	DESCRIPTION
4	20'-0" W x 10'-0" H Other - Storefront Entrance
5	12'-0" W x 14'-0" H Overhead Door
4	3'-4" W x 7'-2" H Walkdoor

CHIEF STANDARD COLD FORM SECTIONS

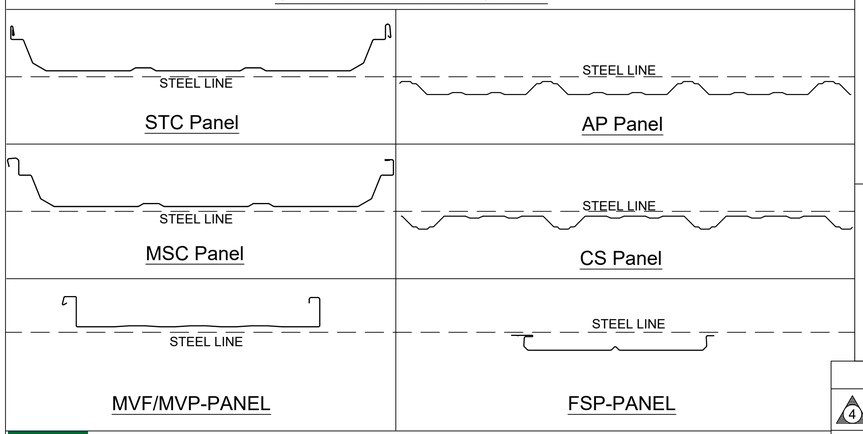


DESIGNATION	D	B
816	8.00	3.00
814	8.00	3.00
812	8.00	3.00
1014	10.00	3.50
1012	10.00	3.50

DESIGNATION	D	B
816	8.00	2.50
814	8.00	2.50
812	8.00	2.50
1014	10.00	2.75
1012	10.00	2.75

STANDING SEAM ROOF PANEL ERECTION MANUAL: MSC V7

CHIEF STANDARD PROFILES



Back-Up Panel:

Type: CS
Gage: 26
Color: Galvalume (GM)

PANELS NOT MANUFACTURED BY CHIEF BUILDINGS

This project is utilizing panels not manufactured by Chief Buildings. Erector shall refer to panel manufacturer's specific material handling requirements, film removal, and installation information for further details/direction. If information is not provided in panel packaging, contact the manufacturer directly.

TO BE USED FOR CONSTRUCTION

IAS ACCREDITED Metal Building Systems AC 472

Chief Buildings, a Division of Chief Industries, Inc., is certified as an Approved Fabricator recognized under section 1704.2.5.1 of the 2015, 2018, and 2021 IBC, section 1704.2.5.2 of the 2012 IBC and section 1704.2.2 of earlier code editions in accordance with the International Accreditation Service, Inc., Accreditation Criteria for Inspection Programs, AC472 (Certificates of Accreditation: MB-123 & MB-124).

REVISIONS

4
3
2
1

Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.

Chief Buildings
P.O. Box 2078, Grand Island, NE 68802-2078
(308) 389-7289 cs@chiefind.com

NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	COVER PAGE
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	
GDM	TDP	B3025137	C1 / C1
1/20/25	2/04/25		

Quality Assurance Policy

The following Quality Assurance Policy is comprised of a list of guidelines and procedures to expedite customer service requirements in the field. Chief's objective is to produce a first-class product and back it up with the best customer service in the industry.

The Quality Assurance Policy has been developed over the last fifty years and is based on handling customer service in the field. These guidelines will simplify the communication process and expedite any special requirements needed to make your project run as smooth as possible.

Common Industry Practices:

The correction of minor misfits by the use of drift pins to draw the components into line, shimming, moderate amounts of reaming, chipping and cutting, and the replacement of minor shortages of material are a normal part of erection and are not subject to claim.

Chief will not pay claims unless the following claim and authorization procedure is strictly followed by the Builder, or if the correction work is started prior to receipt by Builder of Chief's written "Authorization of Corrective Work". If erection is not by the Builder, the Erector is responsible for providing the Builder with the information necessary to make the claim to Chief as provided below.

Chief is not responsible for any claim resulting from the use of any drawings or literature not specifically released for the components purchased for the project.

Chief is not responsible for any claim resulting from the use by the Erector of any improper material or material containing defects that can be detected by visual inspection. Claims for disassembling such improper or defective material and costs of erecting replacement material are not allowed.

Before you contact Chief:

Please have the following information ready before you call, or provided in an e-mail.

1. Chief's order number for your project. This information is available from the drawings or the Shipping Papers.
2. Page numbers and detail callouts from the drawings.
3. Part marks.
4. Line numbers.
5. Contact Information (Name, Company, return Phone Number and e-mail address):

Questions?
Our Customer Service team is here to help!
Contact us at 308-389-7289

You can also contact us via e-mail at
cs@chiefind.com
or use the QR code to start an e-mail.

Tim Dykes
Brett Nellson
Lyle Miller
Rusti Register
Terence Flowers

Shortage and Damage Claims

Chief personnel checks off all components on the order prior to shipment. However, it is imperative that the Builder checks each shipment against the Shipment Delivery Note to ensure that the shipment is complete and no damage has occurred. A Shipment Delivery Note and Bill of Lading will be provided with each load.

A full set of Shipping Papers, Erection Drawings, Chief Buildings standing seam erection manuals, Safety Data Sheets (SDSs) and other important documents that will aid you in erecting your project are located in a Resale Box that says "DOCUMENTS ENCLOSED".

Checking the Shipment Delivery Note:

The Shipment Delivery Note will contain the contents of each load delivered to the jobsite. Each individual item or bundle should be checked against the Shipment Delivery Note. Each bundle will have a packing list or bundle tag that lists the mark numbers, quantities and weight of the bundle. The packing list should remain with each bundle to identify individual pieces.

- Columns, rafters, posts, beams and other structural members are individually marked.
- Angle flange braces are individually marked and bundled with a packing list. The part description on the Shipping Papers contains the size and length of the angle along with the bolt-up standard for that piece mark.
- Sag angles are individually marked and bundled with a packing list. If there is a bundle of the all the same mark number, only the top angles are marked and common piece marks are color coded on one end. The part description on the Shipping Papers contains the angle size and length in inches.
- Rod bracing are individually marked (CB) and bundled with a packing list. The part description on the Shipping Papers contains the cable or rod diameter and length in inches.
- Girts and purlins are individually marked and bundled with a packing list. The part description on the Shipping Papers contains the member size and length in inches.
- Panel is only identified with a packing list. The piece mark on the packing list includes the length of the panels in inches. The part description on the Shipping Papers contains the color and panel type - "CS" or "AP".
- Bolting clips are individually marked and packaged in boxes with a packing list. Standard bolting clips can also be identified with dimensioned drawings found in the Standard Parts pages of the Chief Buildings Erection Drawings. Special plates will have a part drawing included with the erection drawings.
- Trims are individually marked and packaged in boxes with a packing list. Standard Trims can also be identified with dimensioned drawings found in the Standard Parts pages of the Chief Buildings Erection Drawings. Special Trims will have a part drawing included with the erection drawings. The part description on the Shipping Papers contains the length and colors of trim pieces.
- Bolts, nuts, screws, mastics and other miscellaneous items are packaged in resale boxes. A packing list is attached to each box that describes the contents.

Shortage and Damage Claims (Continued)

Missing or Damaged Parts:

Any missing or damaged items are to be noted on the carrier's Bill of Lading. Chief is to be notified immediately.

Concealed shortages must be reported to Chief during the following period dating from receipt of the first load:

One load job = 2 weeks
Two load job = 3 weeks
Three load job = 4 weeks
Four load job = 5 weeks
Five load job = 6 weeks
Six load job = 7 weeks
Seven or more load job = 8 weeks

Chief's responsibility for shortages expires at the end of these notification periods.

Replacement Shipment:

Maximum effort will be made by Chief to ship replacement components as quickly as possible. Chief will attempt to ship standard components fabricated in its building plants within 48 hours and stock items will be ready to ship in 24 hours.

When a shortage is determined, the Builder needs to notify Chief's Customer Service Department of the issue. Chief's Order Number and complete information describing the parts required must be conveyed at this time.

Chief will act **immediately** to get the parts to the Builder and responsibility for the problem will be determined later.

After the problem has been corrected, Chief will determine where the responsibility lies. If it is Chief's error, Chief will provide the replacement material at no cost. Otherwise, Chief will invoice accordingly.

Transit Damage:

Nominal damage can occur during transit. Chief supplies touch-up paint for such cases. However, if excessive damage occurs, the following procedure will be observed:

Material damage (transit or otherwise) should be noted on the carrier's Bill Of Lading. Failure to note the damage on the Bill Of Lading will result in the Builder having to file the freight claim and Chief may charge the Builder for the replacement material.

White Rust:

All panels shipped from Chief's building plants are in good condition.

Chief bundles and/or boxes of components are only for protection during transit. This packaging is not intended for protection during storage.

Panels must be stored so air can circulate freely. Trapped moisture may cause discoloration or white rust. Refer to the "Unloading Procedures" in the General Information page of the Chief Buildings *Erection Drawings*.

Primer:

Chief's shop primer is a rust inhibiting gray modified acrylic primer. This primer is intended to protect the steel only for short periods of exposure to ordinary atmospheric conditions. In addition, shop primer does not provide the uniformity of appearance, or the durability of a field applied finish coat of paint over a shop primer.

The Builder must ensure that the primed material is stored in such a manner that water, snow, ice and other debris are not allowed to pond in the members. If primed material is to be top coated with other paint, compatibility tests must be performed by the Builder to ensure acceptable results. These compatibility tests should cover a cross-section of members (clips, angles, purlins, girts, columns, rafters, beams, flange braces, etc.) as different primers may be used on different members.

Ice and snow melt chemicals that DOTs use are extremely corrosive to the steel and should be cleaned off at the earliest convenience.

Panel Bundles:

Chief's standing seam panels will be sent at a maximum length of 52' unless otherwise directed. Any bundles over 30' in length MUST be unloaded with a spreader bar. Additional handling and storage recommendations are included in the erection manuals.

Authorization for Returning Merchandise

The authorization must be obtained from Chief's Customer Service Department before merchandise may be returned for credit. Returned merchandise shall be limited to resale type items (i.e. fasteners, closures, etc.) at Chief's sole discretion. Chief retains the prerogative to allow or disallow the return of merchandise.

Builder must contact Chief's Customer Service Department with a description of the merchandise and the reason for their request.

When authorization has been granted, an authorization form will be sent to the Builder along with a pre-numbered tag to attach to the merchandise being returned. A 15% re-stock charge may be assessed on all merchandise which is authorized to be returned.

Special Order Merchandise:

Special merchandise ordered, such as special doors, windows, vents, fasteners, etc., may not be returned for credit.

Replacement Items:

All merchandise shipped will be invoiced to the Builder. This includes parts sent to replace merchandise which has been authorized for return to Chief.

Credit will be issued to the Builder's account when the returned merchandise has been accepted by Chief. Chief may refuse to credit your account if the returned merchandise is not in good condition.

Field Modifications

Notification of Field Problems:

The initial claim must be made promptly by either written or verbal notification to Chief's Customer Service Department. Any verbal notification must be followed up in writing within 7 days. The initial claim must include:

1. Description of nature and the extent of the errors, including quantities.
2. Description of nature and the extent of proposed corrective work, including estimated man-hours and costs.
3. Material to be purchased from other than Chief, including estimated quantities and costs.
4. Maximum total cost of proposed corrective work and material to be purchased from other than Chief.

If necessary, Chief may request pictures, field measurements, or other information that will aid in helping to solve the problem.

Authorization MUST be obtained from Chief's Customer Service Department in writing before field modification is made. Authorization identifies the problem and allows Chief to participate in arriving at a solution, it does not assign fault or liability.

Chief cannot be responsible for structures which have been modified without specific authorization. **Any such action may void warranties.**

Backcharge Procedure:

All backcharges must be submitted within 14 (fourteen) days after completion of the corrective work for which prior approved authorization has been given. Failure to submit the backcharge within this time limit will negate Chief's obligation to pay said charges.

Information Required for Submitting the Final Claim:

1. Chief's Order Number.
2. Actual man-hours by date of direct labor use on corrective work and hourly rates of pay.
3. Cost of material (not minor supplies) authorized by Chief to be purchased from other than Chief, including copies of paid invoices.
4. Total actual direct cost of corrective work (sum of 2 and 3).
   The final claim shall be signed and certified true and correct by the Builder. Final claims are paid to the Builder in an amount of the lesser of:
   - Cost set forth in the initial report and subsequent "Authorization for Field Modification",
     or
   - The total actual direct cost of corrective work.
5. The cost of equipment (rental or depreciation), small tools, supervision, overhead and profit are not subject to claim. This includes crane and lift charges.

Looking For Jobsite Resources?

Erector's Toolbox

Snap QR code
or
use web address below

https://secure.chiefind.com/mychief/

Username: **information@chiefind.com**
Password: **gbr2021**

TO BE USED FOR CONSTRUCTION

Safety Data Sheets

Snap QR code
or
use web address below

https://chiefbuildings.cld.bz/Safety-Data-Sheets-SDS

Drawing	QUALITY ASSURANCE POLICY
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

FOR REFERENCE ONLY

RELEASED	03-08-24
SUPERSEDES	12-18-23

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	
GDM	TDP	B3025137	G1 / G3
1/20/25	2/04/25		

Introduction

The information on this page is intended to be for general erection information. Project-specific information is found within the Chief Buildings "To Be Used for Construction" Erection Drawings and Details. Any deviation from these erection drawings must be based on Chief approval. Also, refer to Chief Buildings standing seam erection manuals, when applicable.

Chief Buildings does not guarantee nor shall we be held liable for the quality of erection, nor assume the responsibility for building defects that may be attributed to improper erection techniques or the negligence of other parties.

Chief Buildings is not responsible for the safety of the erectors. It is the erectors responsibility to follow all OSHA regulations not limited to 29 CFR 1926R.

Unloading Procedures

Arrival at the Jobsite

Chief Buildings components are carefully bundled, crated, and inspected to prevent damage during transportation. When the shipment is received, check each item against the proper shipping documentation for shortages or damages. Damage must be noted on the Bill of Lading. Failure to note damages may result in being unable to file freight claims.

If damage or shortages are suspected, contact Chief's Customer Service team per the Quality Assurance Policy.

Unloading

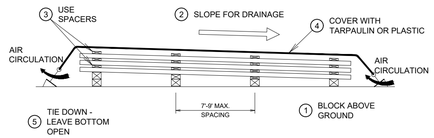
The erector shall use special care in unloading and handling to avoid distorting or damaging structural steel or bundled components. Use slings or spreader bars for long bundles, as required. Where practical, bundles should be placed near installation area to avoid later site maneuvering or undue handling to minimize damage to any shop primer or factory applied panel coatings.

Jobsite Storage

Roof and Wall Panel Bundles

It is recommended that bundles be kept dry. Moisture trapped within panel bundles can cause the finish to soften and become more susceptible to erection handling damage. Panels in bundles that are stored wet, or in humid conditions forming condensation, will form oxidation (white rust) or other moisture related problems to the panel finish or metal substrate. Moisture can wick between panels of bundles and cause deterioration if not prevented. If moisture is evident in bundles that will be stored for a prolonged period, it is recommended that bundles be broke open to air dry.

1. Block bundles above ground to keep water out of bundle and allow air circulation.
2. Slope bundles for drainage.
3. Stack panels with dunnage between bundles.
4. Cover bundles with tarp or plastic to protect from rain or snow.
5. Tie down covered ends away from stack so not to restrict air circulation during the storage period.



Trims and other items shipped in cardboard cartons are treated the same way. Cardboard packaging and contents must be kept dry.

Strippable Film

Panel bundles may have a temporary film applied to panels for protection against scratches and abrasion during shipping & handling. Chief roof products will be marked with a strippable film packaging sticker. Other non-Chief supplied panels may not be marked and should be examined if present. The strippable film is to be removed prior to final erection. However, prolonged storage or storage conditions may cause difficulty in removing strippable film.

- Avoid exposure to direct UV sunlight for more than 48-hours. Store under a temporary shelter or tarp. Avoid excessive heat where possible.
- Optimally, remove strippable film within six months.
- Remove strippable film gradually beginning from one edge with a smooth even motion.
- When temperature is less than 60F, care should be taken to avoid tearing or slivering.
- Residue left over will wear off naturally. If desired, residue can be removed using a citrus-based cleaner (e.g., Simple Green Cleaner® or Goo Gone Pro-Power®) with hot pressure washer and/or lint-free cloths. Do not use petroleum solvents, abrasive cleaners, or strong alkaline/acidic cleaners.

Primed Steel

Primed steel should be kept off the ground and positioned to minimize water holding pockets, dust, mud, and other contaminants that will deteriorate the primer. Shop applied primer is intended to protect the steel for only a short period of exposure to ordinary atmospheric conditions. Chief is not responsible for the deterioration or corrosion that may result from exposure to atmospheric and environmental conditions. If road salt or liquid deicer accumulates during winter shipment, use a mild pressure wash to minimize corrosion.

Bolting Components, Sealants and Mastics

Bolting components, sealants and mastics should be kept in protected storage.

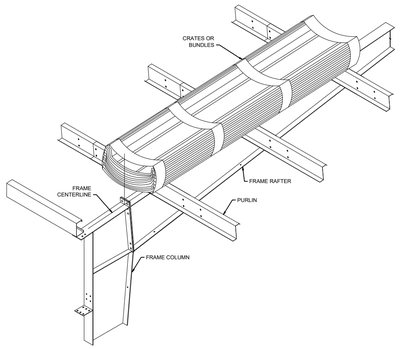
Storage of bolts, nuts, and washers in accordance with RCSC, Specification for Structural Joints using High-Strength Bolts.

- Only as many bolting components as anticipated to be installed during the work shift should be taken from protective storage.
- Bolting components that are not incorporated into work should be returned to protected storage at the end of the work shift.
- Bolting components that accumulate rust or dirt shall not be incorporated into the structure unless they are cleaned and lubricated.

Crates or Bundles on Roof

If roof panel bundles are stored on the roof prior to installation, avoid damage to bundles and roof structure.

- Before placing bundles on the roof, all structural steel must be assembled, plumb and bolts tightened. All flange bracing, X-bracing, and sag angles must be in place.
- Locate panel bundles over center line of frames. Do not locate over jack beams, trusses, or unsupported areas.
- Temporary blocking should be installed between purlins under the panel bundle.
- Storage on roof should only be temporary, and should be properly secure to structure.



Temporary Support

Bracing furnished by Chief Buildings is designed for loads on the completed, fully assembled building structure. This bracing cannot be assumed to be adequate during erection. The erector shall determine the need for, furnish, and install all temporary supports, such as temporary guys, cables, beams, falsework, blocking, erection aids, or other elements required for the erection. Chief Buildings is not responsible for evaluation of the building structure for strength and stability during construction. For additional resources for planning and developing temporary bracing requirements, refer to the Metal Buildings Institute's Temporary Bracing Guidelines.

Temporary blocking may be required between purlins and girts at mid bay prior to ensure they are in alignment until roof or wall paneling is installed.

Erection Tolerances

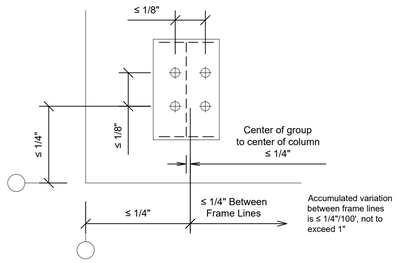
The accumulation of mill tolerances and fabrication tolerances shall not cause the erection tolerances to be exceeded.

Anchor Rods

Anchor rods are set in accordance with the Chief Buildings Erection Drawings Anchor Rod plans.

Recommended tolerances for locating dimensions for Chief Building base plates are as follows:

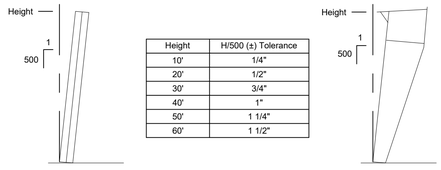
a) Projections listed in the Anchor Rod Summary are minimum values with base plate sitting at specified elevation with assembled nut and washers. For extra leveling or grouting, increase projection accordingly.
b) Recommended tolerance for Chief Buildings Anchor Rod Groups:



Plumb, Level and Aligned

Structural members are considered plumb, level and aligned if the deviation from plum does not exceed 1/500.

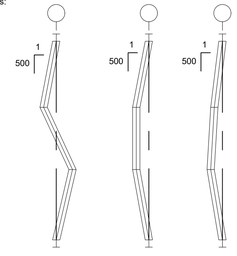
a) Column Plumbness:



Height	H/500 (±) Tolerance
10'	1/4"
20'	1/2"
30'	3/4"
40'	1"
50'	1 1/4"
60'	1 1/2"

At column splices, the variation relative to upper and lower centerlines is ¼".

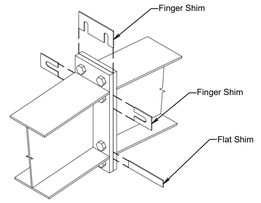
b) Frame Lines:



c) Cranes: When crane support systems or crane runway beams are part of the metal building, additional erection tolerances may be required, but not given here.

Shimming

Some shimming must be anticipated by the erector and is considered a normal part of erection by AISC. Examples of where shims may be required are to fill joint gaps, level beams, accommodate varying depth of members (Crane Runway Beams), level column base plates, or adjust for frame deflection. Shims are provided by the erector. These shims may be thin flat strips, with holes, or finger shims with slots cut through to the edge to be inserted around bolts. The shim should be full flange width.

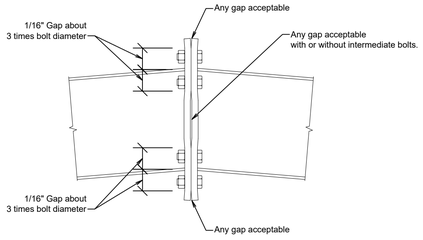


Chief may specify shims on projects to maintain critical clear height elevations, or when specified by contract documents. On these projects, Chief will furnish shims with details and installation instructions within the Chief Buildings Erection Drawings For Construction.

In the event of connection gaps greater than 1/4", contact Chief Customer Service for approval and specific recommendations for proper shimming.

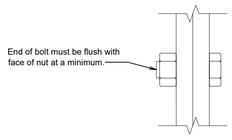
Bolted Connection Plates

Endplate connections are to be bolted and tightened to have the plates in firm contact around the bolts. There should be no spaces between them within a circle three times the nominal diameter of the bolt. Gaps in excess of 1/16" in these areas should be tightened further or shims added. Gaps outside of these areas need no corrective action. Including gaps at the outer extremities of the plates due to plate warpage caused by welding do not generally have to be filled if gap around bolt is 1/16" or less.



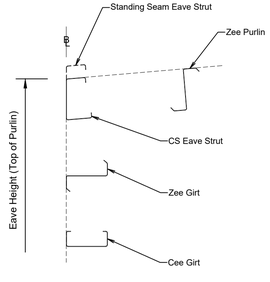
Bolts Minimum Stick-Through

When all bolts have been installed and in the snug-tight condition, the bolt threads must be at least flush with face of nut.



Secondary

Typical orientation of secondary members.



Field Located Framed Openings/Fenestrations

Field located opening require erector to cut members and drill holes. Hole size is 1/16" larger than bolt diameter (1/2" bolt = 9/16" hole). Field work allows for minor adjustment in opening location. Changes in location exceeding 12" or result in cutting other members or interfering with flange braces may only be done after contacting Chief Buildings.

Flange Bracing

Flange braces are essential for the structural strength and stability of the system. All flange braces must be installed in accordance with the erection drawings and details. Any omitting or deviation from the erection drawings must be approved by Chief Buildings.

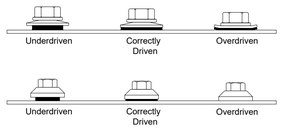
Sealant Application

Proper execution of field applied mastics is vital to the weather tightness of a finished building. Surfaces must be clean and dry before mastic can be applied, and all surfaces make good contact. Do not use tape mastics or sealants if they become dirty. Do not stretch tape mastic or cause thinning of the cross section. Carefully follow details and standing seam erection manual instructions for proper mastic location and marrying of mastics and sealants for a continuous seal. Remove protective paper of tape mastics prior to installing panels and trim. Screw placement should be through the taped mastic or on the "dry side" of the sealant, and properly tightened to fully compress the joint.

Fasteners

Screws should be installed per the Chief Buildings Erection Drawings For Construction. Screw identification, style and sizes are found on Standard Parts pages of Erection Drawings. If the screw has stripped, a #17 X 1" WT oversized screw should be used as a replacement. Screw guns with variable speed and adjustable clutch are recommended. Best drilling performance is obtained at slower drill speeds with a 2000 max rpm. Always remove metal shavings from panel and trim surfaces to avoid rust or corrosion to panel finish.

The hole created by the screw is sealed by the washer and proper tightening is crucial for weather tightness.



Additional information on fastening may be found in the MCA Technical Bulletin, *Proper Tools for Fastening Metal* Panels.

Panel Damage, Finish, and Corrosion

Care should be taken to prevent damage to panel surfaces and avoid corrosion to GALVALUME® substrate. Use the following guidelines to prevent corrosion to the coating used on panel and trim:

During Construction

- Cutting panel and trim should only be done with nibblers, snips, or by shearing action to reduce the cut edge exposure. Do not cut panels with saws, abrasive cutters, or grinders.
- Metal shavings from cutting, drilling and fastening should never be left on the roof. This ferrous debris will rust causing staining or corrosion to the roof. The roof should be cleaned and swept daily to remove debris.
- Use felt tip markers when marking panel surfaces. Avoid graphite pencil marks which corrode panels.
- Cement based mortars from masonry or stucco may severely etch the coating of panels. Panels should be protected when work is being performed in this area. Clean off any material that is in contact with panels before it is allowed to dry.
- Avoid lumber to block up or shim mechanical piping. Pressure treated lumber contains chemicals that accelerate corrosion. Other lumber is porous and retains moisture. Panels must be able to freely drain and air dry.
- HVAC condensation drains which can contain traces of copper will discolor and react to panel. Drainage should be discharged through plastic pipes off of the roof system or drained to interior locations.
- Keep copper piping, cable, or gutters from direct contact with panels.
- When fastening roof top accessories, the use of aluminum seam clamps with stainless hardware is preferred. Set screws should be stainless steel and have rounded points so not to gouge or scratch GALVALUME® coating. Locate clamps over panel clips so loads do not transfer into panel seams.

Roof Panel Foot Traffic

Keep foot traffic to a minimum. Wear soft, clean shoes to avoid scratches and marring of finish. Walk in the flat of the panel between the corrugations and, as much as possible, walk at or near the supporting roof structural members. Do not walk on the high ribs, ridge caps, end laps, roof curbs or other penetrations, trims, or gutters. Avoid stepping in close proximity to flashing or curbing joints and panel laps. Heavy foot traffic can cause ponding on low pitched roofs. This is particularly true just upslope from the eave and at end laps.

Consider restricting free-access to the roof. Allow only personnel that have been instructed in the proper walking pattern.

When heavy or frequent foot traffic is anticipated, use walk boards or fabricated metal walkways to protect the roof. This is particularly useful when regular maintenance of roof top units is required.

General Maintenance

Corrosion: If left unattended, can lead to weathertightness issues or impairment of structural capacity. It is recommended to inspect for cleaning and damage at least annually.

- Areas with exposed sealants or calking around doors and windows, roof penetrations or mechanical equipment can be susceptible to deterioration from weathering. If this should happen, remove the old caulk, and apply new caulk in its place.
- Do not use HVAC coil cleansers or other aggressive cleaning agents that are highly alkaline.
- Loose fasteners should be tightened.
- Clear all debris (leaves, dirt, etc.) from panel, gutter, and downspouts.
- Winter accumulation of snow and ice should be monitored for drifting, roof deflection, damming or clogging of gutter systems which creates ponding water. Removal of snow and ice should not be performed with metal shovels, picks, axes or other sharp tools to damage the roof coating or roof panel.
- Top coating panel with liquid applied membranes should not be applied to correct improper installation techniques to achieve weathertightness.

Insulation: Any holes or tears in the facing should be repaired with patch tape as supplied by the insulation supplier. Insulation tearing loose at various locations within the building (particularly at the eave or base) might not be the result of poor insulation, but rather a strong negative pressure inside the building resulting from an improperly balanced HVAC system or an extra exhaust fan added after the erection of the structure. This, combined with a strong wind outside the building will often result in the insulation coming loose in these areas.

Structural Bolts and Bracing: Structural bolts and bracing normally require no maintenance except in instances where the structure is exposed to vibration, such as a building with an overhead crane. Bolts, including those in crane building connections, should be inspected at least once a year and in accordance with OSHA requirements. Any loose connections should immediately be brought to the tightened condition specified in the For Construction Erection Drawings.

Roof Jack Pipe Flashing (Not by Chief)

Do not use galvanized roof jacks, lead hats or other residential grade roof jacks. These can cause galvanic corrosion of the roof panel, and do not have the required service life.

Use EPDM rubber roof jacks with an integral aluminum band that is bonded into the perimeter of the rubber base. EPDM rubber roof jack pipe flashing generally have a continuous service temperature range up to around 212o/F. For higher temperature applications, consider high temp silicone pipe flashings.

Do not use tube sealant to seal the roof jack to the panels or pipe. Use roll tape sealer between roof jack and panel and attach with long life fasteners at approximately 1½" C.C. Install stainless steel clamp around top of roof jack to pipe.

Top Coating Primed Steel

Primed steel may require field touchup as a result of damage to the primed coating caused by bundling, banding, hooks, chains, forks, foreign material, etc. Rusting may occur at such abrasions. Priming/painting over rust, surface preparations or rust removal techniques depends on the level of protection needed for end use. Clean and re-prime, as required.

Chief Buildings does not recommend or specify topcoat products. Reasons for choosing topcoat can vary. Consult paint supplier to discuss end use for specific application, desired corrosion protection, finish, required cleaning steps and if additional primers are required.

Contact Chief Customer service for availability of primed touch-up paints, Chief Buildings primer data sheets, or color matching information for Chief standard color options.

TO BE USED FOR CONSTRUCTION

RELEASED	12-18-23
SUPERSEDES	XX-XX-XX

Drawing	GENERAL INFORMATION
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

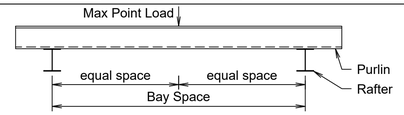
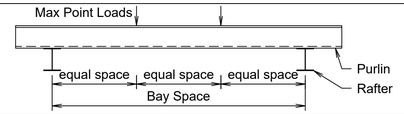
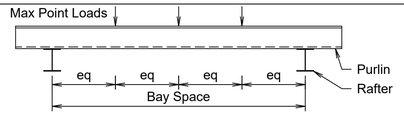
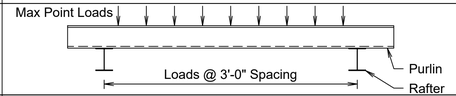
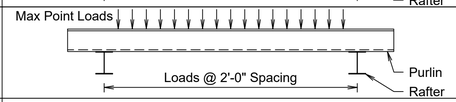
CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	G2 / G3
GDM	TDP	B3025137	
1/20/25	2/04/25		

COLLATERAL LOADS (see Building Design Criteria):
Chief Buildings neither assumes nor accepts any responsibility for the design of hangers, bracing of suspended members, transverse support members, nor connections to roof purlins to support collateral loads. It is the responsibility of the Buyer/Contractor and/or End Owner to have this design performed by a registered design professional. All loads suspended from purlins shall have the load introduced through the web and not the flange of the purlin other than what is shown on this page. Loads can not be supported from the lip at the edge of the flange.

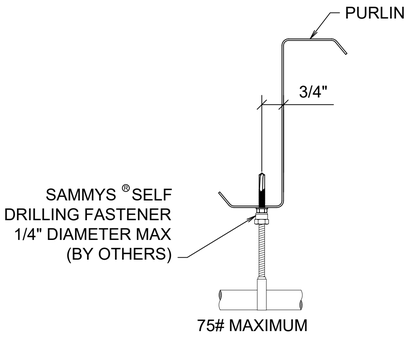
TYPE 1: Lightweight loads with individual point load not exceeding 75 pounds may be hung from bottom flange ONLY as shown on this page.
TYPE 2: Loads exceeding 75 pounds attach to web utilizing on of the methods shown on this drawing or provided by Registered Design Professional.
Guide to converting uniform collateral load (psf) to individual point loads (pounds).

Equations to calculate maximum load (weight) based on collateral load, purlin spacing, and bay spacing

Load Type	Max Point Load [pounds]	Loading Diagram
Single Load at Center of Bay	0.40 x Collateral Load [psf] x Purlin Spacing [ft] x Bay Spacing [ft]	
Two Loads at Third Points	0.30 x Collateral Load [psf] x Purlin Spacing [ft] x Bay Spacing [ft]	
Three Loads at Quarter Points	0.20 x Collateral Load [psf] x Purlin Spacing [ft] x Bay Spacing [ft]	
3'-0 Spacing	Collateral Load [psf] x Purlin Spacing [ft] x 3.0'	
2'-0 Spacing	Collateral Load [psf] x Purlin Spacing [ft] x 2.0'	

Examples
3 psf collateral load, 4'-6" [4.5'] purlin spacing, 25'-0" bay spacing

Max Point Loads:
Single Load at Center of Bay = 135 pounds at each load
Two Loads at Third Points = 101 pounds at each load
Three Loads at Quarter Points = 68 pounds at each load
3'-0" Spacing = 41 pounds at each load
2'-0" Spacing = 27 pounds at each load

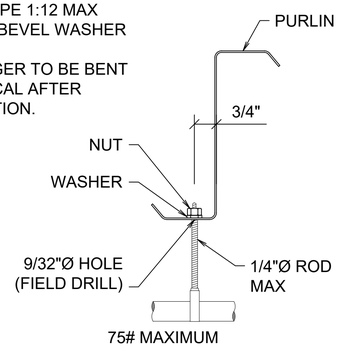


HANGER DETAIL AT PURLINS
SAMMYS® CONNECTION

TYPE I

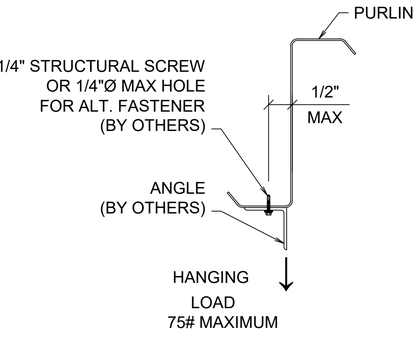
ROOF SLOPE 1:12 MAX WITHOUT BEVEL WASHER

ROD HANGER TO BE BENT TO VERTICAL AFTER INSTALLATION.



HANGER DETAIL AT PURLINS
NUT/WASHER CONNECTION

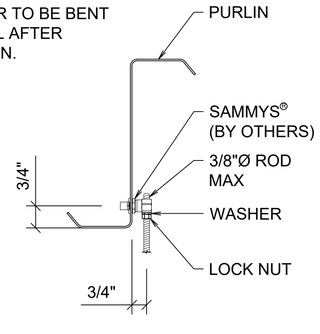
TYPE I



HANGER DETAIL AT PURLINS
CONNECTION

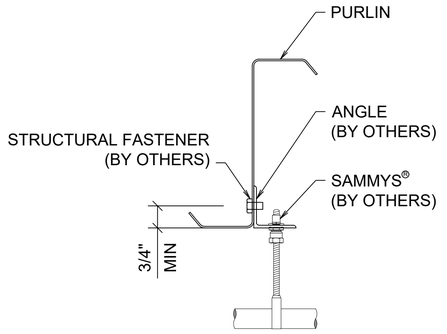
TYPE I

ROD HANGER TO BE BENT TO VERTICAL AFTER INSTALLATION.



HANGER DETAIL AT PURLINS
SAMMYS® CONNECTION

TYPE II

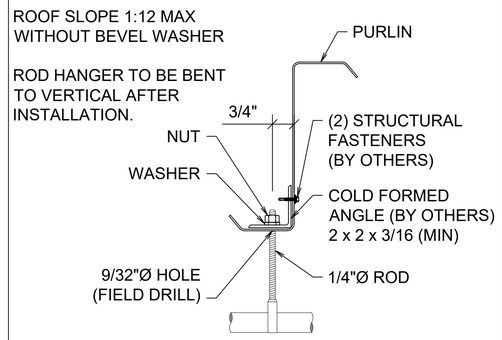


HANGER DETAIL AT PURLINS
SAMMYS® CONNECTION

TYPE II

ROOF SLOPE 1:12 MAX WITHOUT BEVEL WASHER

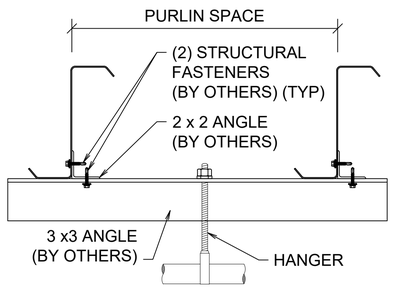
ROD HANGER TO BE BENT TO VERTICAL AFTER INSTALLATION.



HANGER DETAIL AT PURLINS
NUT/WASHER CONNECTION

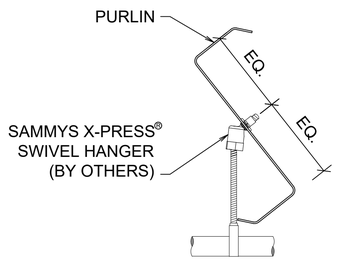
TYPE II

DO NOT ATTACH ANGLES TO PURLIN FLANGES.



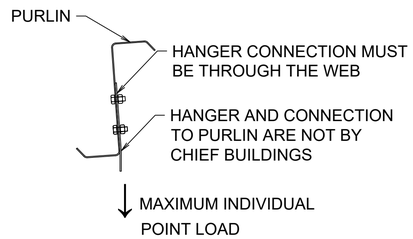
HANGER DETAIL AT PURLINS
ANGLE ATTACHMENT

TYPE II



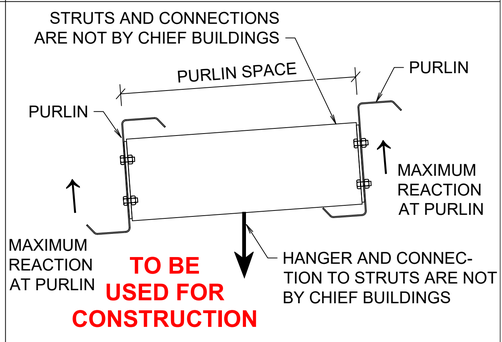
HANGER DETAIL AT PURLINS
SWIVEL CONNECTION

TYPE II



HANGER DETAIL AT
INDIVIDUAL ZEE PURLIN

TYPE II



HANGER DETAIL
BETWEEN ZEE PURLINS

TYPE II

RELEASED	12-18-23
SUPERSEDES	07-13-22

REVISIONS
4
3
2
1

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Chief Buildings
PO Box 2078, Grand Island, NE 68802-2078
(308) 389-7289 cs@chiefind.com

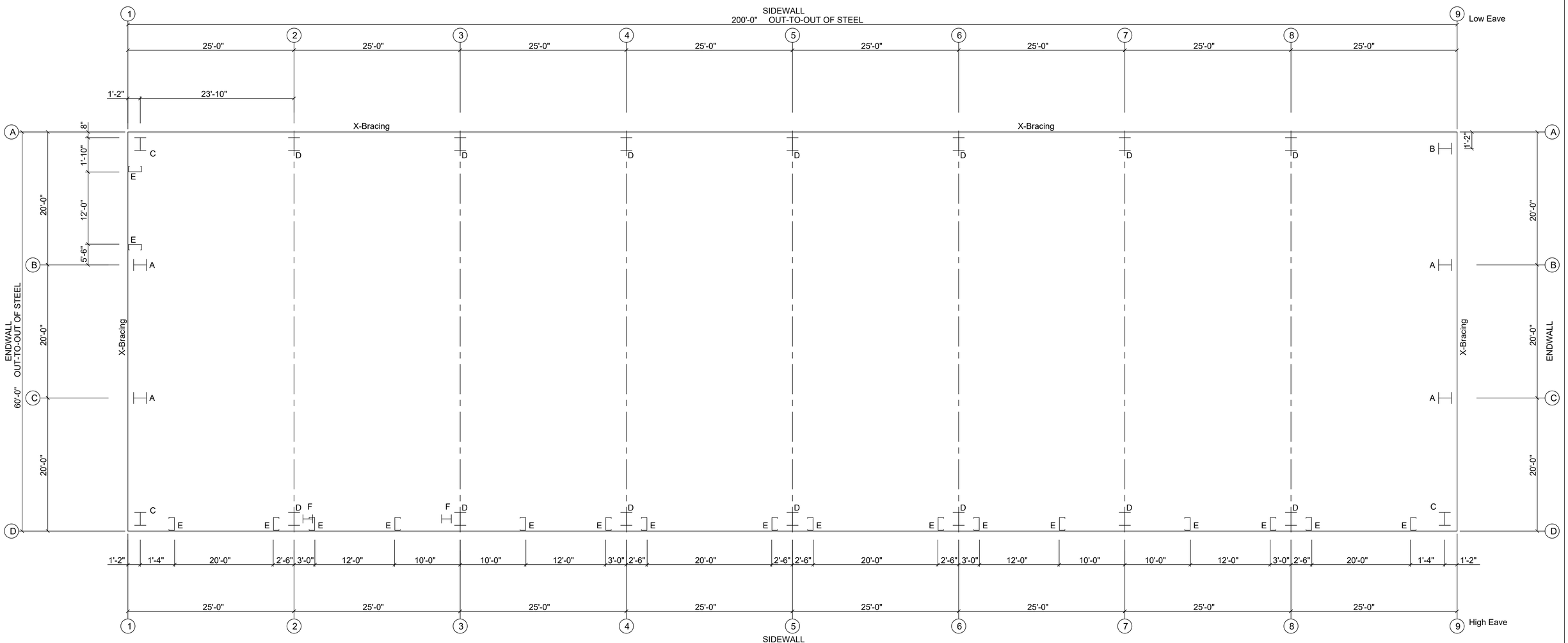
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	COLLATERAL LOADING AND ATTACHMENTS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	G3
GDM	TDP	B3025137	G3
1/20/25	2/04/25		



ANCHOR ROD PLAN

NOTE: All Base Plates @ 100'-0" (U.N.)

TO BE USED FOR CONSTRUCTION

REFERENCE NOTES:

1. All Anchor Rods including nuts and washers for same are not furnished by CHIEF BUILDINGS.
2. Anchor Rod material shall conform to ASTM F1554 having a yield of 36 KSI or greater.
3. Rod projections are recommended minimums based on the base plate bearing directly on the concrete pier. If the base plate is to bear on grout, the rod projection must be increased accordingly.
4. Concrete shall have a minimum strength of 3000 PSI.
5. ALL DRAWINGS ARE NOT TO SCALE.
6. Anchor Rod Summary Table
   - Quantity includes all buildings, all phases.
   - However anchor rods for Partitions and Smart Canopies are found on separate pages (when applicable).

NOTE: Finish Floor @ 100'-0"

ANCHOR ROD SUMMARY

Qty	Locate	Dia (in)	Type	Proj (in)
36	Jamb	1/2"	F1554	1.50
32	Endwall	3/4"	F1554	2.00
56	Frame	3/4"	F1554	2.00
12	WindCol	3/4"	F1554	2.00

REVISIONS	
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2	10:07am 12/ 6/24
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(308) 389-7289 cs@chiefind.com

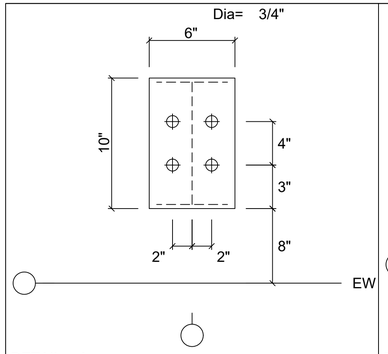
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

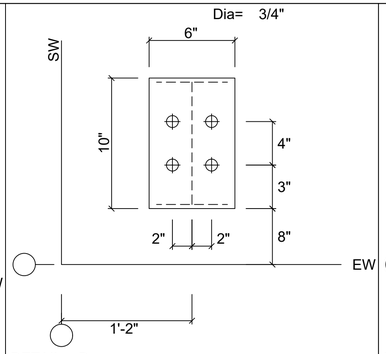
Drawing	ANCHOR ROD
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

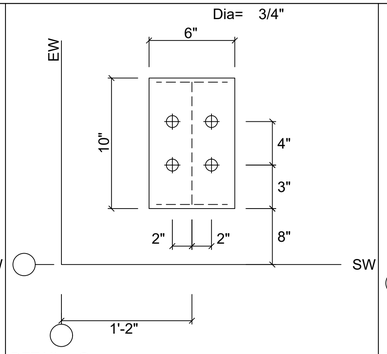
DRAWN	CHECK	ORDER NO.	A1 / A3
GDM	LML	B3025137	
12/ 6/24	12/ 6/24		



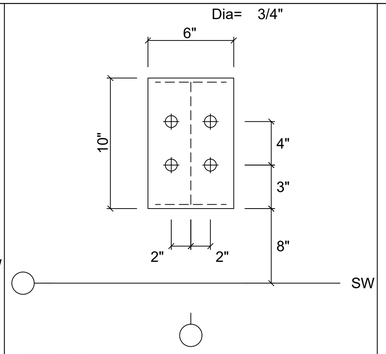
DETAIL A



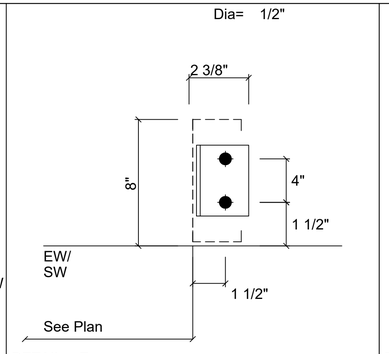
DETAIL B



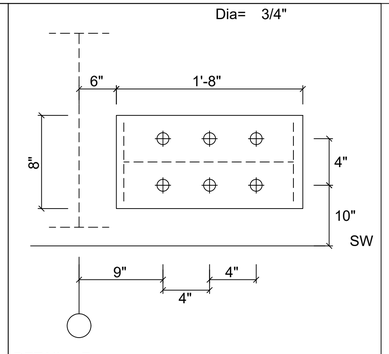
DETAIL C



DETAIL D



DETAIL E



DETAIL F

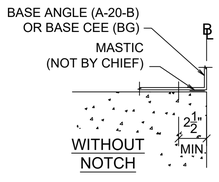
BASE ANCHORAGE SPACING FOR STANDARD BASE ANGLE, BASE CEE OR ONE PIECE BASE WITH CS OR AP WALLS			
FASTENER TYPE & DIAMETER		MINIMUM EMBEDMENT	MAXIMUM SPACING
1/4" WEDGE ANCHOR	①	1 1/4"	1 @ 3'-0"
1/4" SCREW TYPE ANCHOR	②	1 1/2"	1 @ 3'-0"
3/8" CAST-IN ANCHOR		4" WITH HOOK OR HEAD	1 @ 3'-0"
1/4" HAMMER-IN	③	1 3/8"	1 @ 2'-0"
0.14 POWDER ACTUATED	④	1 1/4"	1 @ 1'-6"

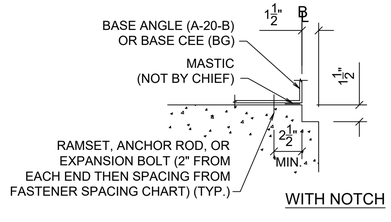
① HILTI KWIK BOLT®, RAMSET TRUBOLT®, POWERS POWERSTUD®, OR EQUAL
② CFS TAPCON®, HILTI KWIK-CON II®, POWERS WEDGE-BOLT®, OR EQUAL
③ POWERS ZAMAC HAMMER SCREW®, HILTI METAL HIT ANCHOR®, OR EQUAL
④ POWERS BALLISTIC POINT PIN, RAMSET 1500/1600 SERIES, HILTI UNIVERSAL NAIL OR EQUAL

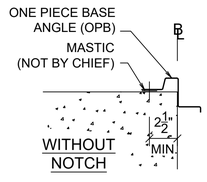
FASTENER SPACING CHART

REFERENCE NOTES:

1. ACTUAL BASE PLATE DIMENSIONS MAY BE SMALLER THAN BASE PLATE DIMENSIONS SHOWN.







BASE MEMBER DETAILS

CONTRACTOR IS RESPONSIBLE FOR ANCHORING BASE MEMBER TO CONCRETE.

TO BE USED FOR CONSTRUCTION

REVISIONS	
4	
3	
2	rb 07am 12/ 6/24
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Chief Buildings
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(308) 389-7289 cs@chiefind.com

NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

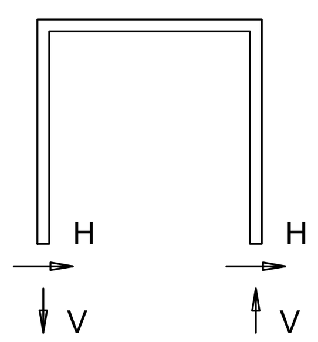
02/07/2025

Drawing	ANCHOR ROD
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	A2 / A3
GDM	LML	B3025137	
12/ 6/24	12/ 6/24		

WIND BENT REACTIONS



Wall Loc	Wall Line	Col Line	Wind(k) Horz	Wind(k) Vert	Seismic(k) Horz	Seismic(k) Vert
F_SW	D	2	3.5	7.0	2.1	4.1
F_SW	D	3	3.5	7.0	2.1	4.1

1. Column footings and piers must be designed to withstand horizontal and vertical reactions as shown on the Anchor Rod Plan. Chief Buildings is not responsible for design of concrete foundation. Chief Buildings recommends that the services of a qualified engineer be obtained by the contractor/builder to design the foundations for the indicated reactions.
2. Reactions are given in kips. (1 kip = 1000 lbs.) moments, if any, are given in kip-ft.
3. Anchor Rod design is based on shear, tension, and combined tension and shear. Chief Buildings is not responsible for anchor rod size recommendations when anchor rod configuration places the rods in a bending mode. When the column base plate bears on grout, the contractor/builder or foundation engineer shall investigate bending in the anchor rods and provide a shear key for the column base to the pier when the anchor rods are not adequate in bending about the pier.

ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Snow Drift Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert
1	A	0.7	0.7	2.1	1.3	0.0	0.0	-3.3	0.0	-2.0	0.0	-2.2	0.0	-0.9
1	B	1.4	1.7	5.4	3.3	0.0	-3.4	-12.4	0.0	0.7	-3.5	-9.8	0.0	3.3
1	C	1.4	1.7	5.4	3.3	0.0	0.0	-5.1	5.1	-10.6	0.0	-2.3	4.9	-7.7
1	D	0.8	0.7	2.1	1.3	0.2	0.0	-3.2	0.0	-2.1	0.0	-2.2	0.0	-1.1

Frm Line	Col Line	Wind Press Horz	Wind Suct Horz	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	Seis Long Vert	-MIN_SNOW-- Horz	-MIN_SNOW-- Vert
1	A	0.0	0.0	0.0	-3.4	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
1	B	-4.8	5.3	0.0	-7.9	0.0	-4.7	-0.6	-0.6	0.0	0.6	0.0	0.0	4.2
1	C	-5.0	5.5	0.7	-9.5	0.3	-5.4	0.0	0.6	0.6	-0.6	0.0	0.0	4.2
1	D	0.0	0.0	0.0	-3.2	0.0	-1.8	0.0	0.0	0.0	0.0	0.0	0.0	1.6

Frm Line	Col Line	E1PAT_SL_1- Horz	E1PAT_SL_1- Vert	E1PAT_SL_2- Horz	E1PAT_SL_2- Vert	E1PAT_SL_3- Horz	E1PAT_SL_3- Vert	E1PAT_SL_4- Horz	E1PAT_SL_4- Vert	E1PAT_LL_1- Horz	E1PAT_LL_1- Vert	E1PAT_LL_2- Horz	E1PAT_LL_2- Vert	E1PAT_LL_3- Horz	E1PAT_LL_3- Vert
1	A	0.0	0.7	0.0	0.0	0.0	0.6	0.0	-0.1	0.0	2.0	0.0	-0.2	0.0	2.3
1	B	0.0	0.9	0.0	-0.1	0.0	1.8	0.0	0.7	0.0	5.8	0.0	2.3	0.0	2.6
1	C	0.0	-0.1	0.0	0.9	0.0	0.7	0.0	1.8	0.0	2.3	0.0	5.8	0.0	2.6
1	D	0.0	0.0	0.0	0.7	0.0	-0.1	0.0	0.6	0.0	-0.2	0.0	2.0	0.0	2.3

Frm Line	Col Line	E1PAT_LL_4- Horz	E1PAT_LL_4- Vert
1	A	0.0	-0.3
1	B	0.0	2.7
1	C	0.0	2.7
1	D	0.0	-0.3

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Snow Drift Vert	Wind_Left1 Horz	Wind_Left1 Vert	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert
9	D	0.8	0.7	2.1	1.3	0.2	0.0	-2.1	0.0	-3.2	0.0	-1.1	0.0	-2.2
9	C	1.4	1.7	5.4	3.3	0.0	-5.1	-10.6	0.0	-5.1	-4.9	-7.7	0.0	-2.3
9	B	1.4	1.7	5.4	3.3	0.0	0.0	0.7	3.4	-12.4	0.0	3.3	3.5	-9.8
9	A	0.7	0.7	2.1	1.3	0.0	0.0	-2.0	0.0	-3.3	0.0	-0.9	0.0	-2.2

Frm Line	Col Line	Wind Press Horz	Wind Suct Horz	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seis_Left Horz	Seis_Left Vert	Seis_Right Horz	Seis_Right Vert	Seis Long Vert	-MIN_SNOW-- Horz	-MIN_SNOW-- Vert
9	D	0.0	0.0	0.0	-3.2	0.0	-1.8	0.0	0.0	0.0	0.0	0.0	0.0	1.6
9	C	-5.0	5.5	-0.7	-9.5	-0.3	-5.4	-0.6	-0.6	0.0	0.6	0.0	0.0	4.2
9	B	-4.8	5.3	0.0	-7.9	0.0	-4.7	0.0	0.6	0.6	-0.6	0.0	0.0	4.2
9	A	0.0	0.0	0.0	-3.4	0.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6

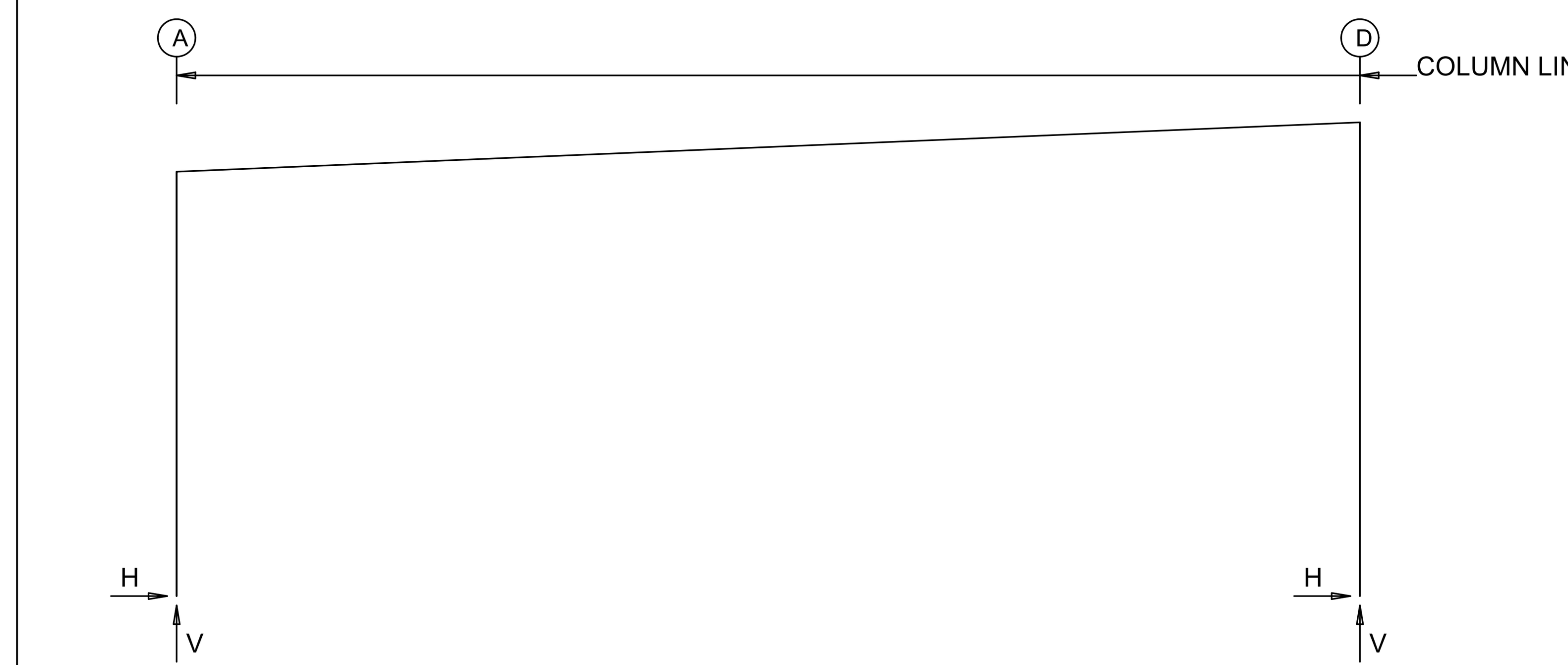
Frm Line	Col Line	E2PAT_SL_1- Horz	E2PAT_SL_1- Vert	E2PAT_SL_2- Horz	E2PAT_SL_2- Vert	E2PAT_SL_3- Horz	E2PAT_SL_3- Vert	E2PAT_SL_4- Horz	E2PAT_SL_4- Vert	E2PAT_LL_1- Horz	E2PAT_LL_1- Vert	E2PAT_LL_2- Horz	E2PAT_LL_2- Vert	E2PAT_LL_3- Horz	E2PAT_LL_3- Vert
9	D	0.0	0.7	0.0	0.0	0.0	0.6	0.0	-0.1	0.0	2.0	0.0	-0.2	0.0	2.3
9	C	0.0	0.9	0.0	-0.1	0.0	1.8	0.0	0.7	0.0	5.8	0.0	2.3	0.0	2.6
9	B	0.0	-0.1	0.0	0.9	0.0	0.7	0.0	1.8	0.0	2.3	0.0	5.8	0.0	2.6
9	A	0.0	0.0	0.0	0.7	0.0	-0.1	0.0	0.6	0.0	-0.2	0.0	2.0	0.0	2.3

Frm Line	Col Line	E2PAT_LL_4- Horz	E2PAT_LL_4- Vert
9	D	0.0	-0.3
9	C	0.0	2.7
9	B	0.0	2.7
9	A	0.0	-0.3

ENDWALL COLUMN: MAXIMUM REACTIONS

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin
1	A	3	0.0	-1.6	3	0.0	-1.6
		5	0.0	3.7			
1	B	6	3.2	-6.6	7	-2.9	-3.9
		8	0.0	8.9	6	3.2	-6.6
1	C	9	3.3	-5.5	7	-3.0	-4.8
		10	0.0	9.0	9	3.3	-5.5
1	D	3	0.0	-1.5	3	0.0	-1.5
		5	0.0	3.8			
9	D	3	0.0	-1.5	3	0.0	-1.5
		11	0.0	3.8			
9	C	6	3.3	-5.5	7	-3.0	-4.8
		12	0.0	9.0	6	3.3	-5.5
9	B	9	3.2	-6.6	7	-2.9	-3.9
		13	0.0	8.9	9	3.2	-6.6
9	A	3	0.0	-1.6	3	0.0	-1.6
		11	0.0	3.7			

FRAME LINES: 2 3 4 5 6 7 8



RIGID FRAME: MAXIMUM REACTIONS

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin
2*	A	4	9.1	19.1	1	-6.7	-9.5
					3	-1.5	-9.9
2*	D	2	5.5	-6.2	4	-9.1	19.3
		4	-9.1	19.3	3	1.8	-8.4

2* Frame lines: 2 3 4 5 6 7 8

RIGID FRAME: BASIC COLUMN REACTIONS (k)

Frame Line	Column Line	Dead Horz	Dead Vert	Collateral Horz	Collateral Vert	Live Horz	Live Vert	Snow Horz	Snow Vert	Snow_Drift Horz	Snow_Drift Vert	Wind_Left1 Horz	Wind_Left1 Vert
2*	A	1.4	3.4	2.2	4.5	4.4	9.0	4.2	8.6	0.0	0.0	-12.6	-19.3
2*	D	-1.4	3.5	-2.2	4.5	-4.4	9.0	-4.2	8.7	0.0	0.3	2.7	-15.6

Frame Line	Column Line	Wind_Right1 Horz	Wind_Right1 Vert	Wind_Left2 Horz	Wind_Left2 Vert	Wind_Right2 Horz	Wind_Right2 Vert	Wind_Long1 Horz	Wind_Long1 Vert	Wind_Long2 Horz	Wind_Long2 Vert	Seismic_Left Horz	Seismic_Left Vert
2*	A	1.6	-8.2	-11.6	-12.1	2.7	-1.0	-4.0	-19.9	-1.1	-13.7	-0.6	-0.4
2*	D	10.6	-13.8	1.7	-8.3	9.6	-6.6	4.4	-17.6	1.0	-11.0	-0.6	0.4

Frame Line	Column Line	Seismic_Right Horz	Seismic_Right Vert	Seismic_Long Horz	Seismic_Long Vert	MIN_SNOW Horz	MIN_SNOW Vert
2*	A	0.6	0.4	0.0	-1.6	5.5	11.2
2*	D	0.6	-0.4	0.0	0.0	-5.5	11.3

2* Frame lines: 2 3 4 5 6 7 8

CONTROLLING LOAD CASES

1 0.6Dead+0.6Wind_Left1
2 0.6Dead+0.6Wind_Right1
3 0.6Dead+0.6Wind_Long1L
4 Dead+Collateral+MIN_SNOW
5 Dead+Collateral+E1PAT_LL_3
6 0.6Dead+0.6Wind_Left1+0.6Wind_Suction
7 0.6Dead+0.6Wind_Pressure+0.6Wind_Long1L
8 Dead+Collateral+E1PAT_LL_1
9 0.6Dead+0.6Wind_Right1+0.6Wind_Suction
10 Dead+Collateral+E1PAT_LL_2
11 Dead+Collateral+E2PAT_LL_3
12 Dead+Collateral+E2PAT_LL_1
13 Dead+Collateral+E2PAT_LL_2

BUILDING BRACING REACTIONS

Wall Loc	Wall Line	Col Line	Wind Horz	Wind Vert	Seismic Horz	Seismic Vert	Panel_Shear (lb/ft) Wind	Panel_Shear (lb/ft) Seis	Note
L_EW	1	B,C	5.1	5.6	0.6	0.6			
F_SW	D	2,3							(a)
R_EW	9	C,B	5.1	5.6	0.6	0.6			
B_SW	A	7,6	3.4	2.7	2.1	1.6			
		3,2	3.4	2.7	2.1	1.6			

(a)Wind bent in bay

Reactions for seismic represent shear force, Eh
Reaction values shown are unfactored

TO BE USED FOR CONSTRUCTION

DESCRIPTIONS OF REACTION ABBREVIATIONS

ABBREVIATION	DESCRIPTION
DL	DEAD
CL OR COLL	COLLATERAL
LL	LIVE
SL	SNOW
DRIFT	SNOW DRIFT
SLIDE	SLIDING SNOW
WL1 OR WIND_L1	WIND 1 LEFT (WITH POSITIVE INTERNAL PRESSURE, +GCPI)
WR1 OR WIND_ R1	WIND 1 RIGHT (WITH POSITIVE INTERNAL PRESSURE, +GCPI)
WL2 OR WIND_L2	WIND 2 LEFT (WITH NEGATIVE INTERNAL PRESSURE, -GCPI)
WR2 OR WIND_R2	WIND 2 RIGHT (WITH NEGATIVE INTERNAL PRESSURE, -GCPI)
LW1 OR LNWIND1	LONGITUDINAL WIND, CASE 1
LW2 LNWIND2	LONGITUDINAL WIND, CASE 2
WP	WIND PRESSURE
WS	WIND SUCTION
SEISL OR SEIS_L	SEISMIC LEFT
SEISR OR SEIS_R	SEISMIC RIGHT
LNSEIS OR LN_SEISMIC	LONGITUDINAL SEISMIC
TEMP	TEMPERATURE CHANGE
LW1_L2E	LONGITUDINAL WIND, CASE 1, WIND LEFT EDGE ZONE 2E
LW1_R2E	LONGITUDINAL WIND, CASE 1, WIND RIGHT EDGE ZONE 2E
LW2_L3E	LONGITUDINAL WIND, CASE 2, WIND LEFT EDGE ZONE 3E
LW2_R3E	LONGITUDINAL WIND, CASE 2, WIND RIGHT EDGE ZONE 3E
E#PAT_LL_*	ENDWALL PATTERN LIVE (1 - LEFT, 2 - RIGHT ENDWALL)
E#PAT_SL_*	ENDWALL PATTERN SNOW (1 - LEFT, 2 - RIGHT ENDWALL)
F#PAT_LL_*	RIGID FRAME PATTERN LIVE
F#PAT_SL_*	RIGID FRAME PATTERN SNOW
E#UNB_SL_L	ENDWALL UNBALANCED SNOW LEFT
E#UNB_SL_R	ENDWALL UNBALANCED SNOW RIGHT
F#UNB_SL_L	RIGID FRAME UNBALANCED SNOW LEFT
F#UNB_SL_R	RIGID FRAME UNBALANCED SNOW RIGHT
F#CRANEA*	CRANE LOADING, SINGLE CRANE
F#CRNA2 $	A2 - TWO LARGEST CRANES IN ANY AISLE
F#CRNAM $$	AM - SIMPLE MAXIMUM SIZE IN ONE AISLE
F#CRNA $$	A - SINGLE CRANE IN ONE AISLE
F#CRNBM $	BM - LARGEST CRANE IN EACH AISLE FOR TWO ADJACENT AISLE
F#CRNC2 $	C2 - TWO CRANES IN ANY AISLE PLUS ONE CRANE IN ANY NON-ADJACENT AISLE. ALSO SINGLE CRANE AT C2 LOCATION AND DOUBLE CRANE AT OTHER LOCATION.
F#CRN B $$	B - SINGLE CRANE IN TWO ADJACENT AISLES
F#CRN C $$	C - SINGLE CRANE IN TWO NON-ADJACENT AISLES

THIS TABLE PROVIDES A DESCRIPTION OF ABBREVIATIONS FOR COMMONLY USED REACTIONS/LOADS.

12/ 6/24 10:07am

REVISIONS

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031908 DUSTIN L. COLE

02/07/2025

Drawing	ANCHOR ROD
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS	DRAWN	CHECK	ORDER NO.	A3
	GDM	LML	B3025137	
	12/ 6/24	12/ 6/24		A3

DESIGN CRITERIA

Building Code	North Carolina Building Code 2018
IBC Risk Category	II - Standard Buildings
Roof Live Load	20 psf
Tributary Area Reduction Allowed	Yes
Collateral Load	6 psf
Ground Snow Load (Pg)	15 psf
Exposure Factor (Ce)	1
Thermal Factor (Ct)	1.1
Importance Factor (I)	1
Flat Roof Snow Load (Pf)	11.55 psf
Minimum Roof Snow Load (Pm)	15 psf - Not used with drift, sliding, unbalanced, or partial loads.
Drift Surcharge Load, Pd and Snow Drift Width, w	w=5.5 psf, d=2.73 ft Along Line D
Building Enclosure	Enclosed
Ultimate Design Wind Speed (Vult)	116 mph (GCpi ± 0.18)
Nominal Design Wind Speed (Vasd)	90 mph
Exposure Category	C
Wind Pressure (q)	26.7 psf
Seismic	
Spectral Response Short Periods (Ss)	0.173
Spectral Response 1 s Period (S1)	0.083
Seismic Importance Factor	1
Seismic Design Category	B
Site Class	D
Seismic Resisting System	
Longitudinal Direction	Steel System (R=3.00)
Lateral Direction	Steel System (R=3.00)
Seismic Response Coefficient (Cs)	0.062
Spectral Response Parameter Short Period (SDS)	0.184
Spectral Response Parameter 1 s Period (SD1)	0.133
Analysis Procedure:	ELF
Base Shear	9.26 kips
Other Loads:	None

DEFLECTION CRITERIA

The material supplied by Chief Buildings has been designed with the following minimum deflection criteria.
The actual deflection may be less depending on actual load and specific member length.

Vertical Deflection	
Purlin under Live or Snow	L/ 240
Purlin under Wind	L/ 240
Frame Rafter under Live or Snow	L/ 240
Horizontal Deflection	
Girts supporting metal wall panel (10 year wind)	L/ 90
Spandrel supporting brittle wall material (10 year wind)	L/ 240
Frame Sidesway/Drift with 10 year wind	
Metal wall panel	EH/ 60
Brittle wall material	EH/ 100

Method of Design Used: ASD

BOLT TIGHTENING INFORMATION - SNUG TIGHT

1. Snug Tightened Joints are used. Tightening of bolts shall be in accordance with the "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS" latest edition published by Research Council on Structural Connections (RCSC).
   a. All bolt holes shall be aligned to permit insertion of the bolts without undue damage to the threads.
   b. Bolts shall be placed in all holes and nuts threaded to complete the assembly.
   c. Compacting the joint to the snug-tight condition shall progress systematically from the most rigid part of the joint. Snug tight is the condition that exists when all of the plies in a connection have been pulled into firm contact by the bolts in the joint and all of the bolts in the joint have been tightened sufficiently to prevent the removal of the nuts without the use of a wrench.
      - The snug tightened condition is typically achieved with a few impacts of an impact wrench or the full effort of a worker on an ordinary spud wrench. More than one cycle through the bolt pattern may be required to achieve the snug tightened joint.
2. Special Inspection - Inspection that installation achieved snug tightened condition is after bolt installation. Unless local authorities require otherwise, inspection before or during bolt installation/tightening is not required.
3. Fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the work shift shall be taken from protected storage. Fastener components that are not incorporated into the work shall be returned to protected storage at the end of the work shift.

MATERIAL SPECIFICATIONS

Chief Buildings designs and fabricates using the following ASTM material types and grades (minimum yield point, ksi).

- Built-up Structural Steel Members: A529, A572, and A1011 SS or HSLAS. Minimum Grade 50 (50 ksi).
- Hot-Rolled Structural Steel Shapes (W, C, S): A572 and A992. Minimum Grade 50 (50 ksi).
- HSS Round and Square Sections: A500. Minimum Grade C (46 ksi and 50 ksi, respectively).
- Hot-Rolled Angle and Rod Bracing: A36, Minimum Yield Point 36 ksi.
- Cold-formed Light Gauge Structural Members: A563 SS or HSLAS-Class 1, A1011 SS or HSLAS-Class 1. Grade 55 (55 ksi).
- Panel and Trim: A792, Minimum Grade 50 Class 1 or Class 4 (50 ksi).

TO BE USED FOR CONSTRUCTION

REVISIONS

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	PROJECT NOTES
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

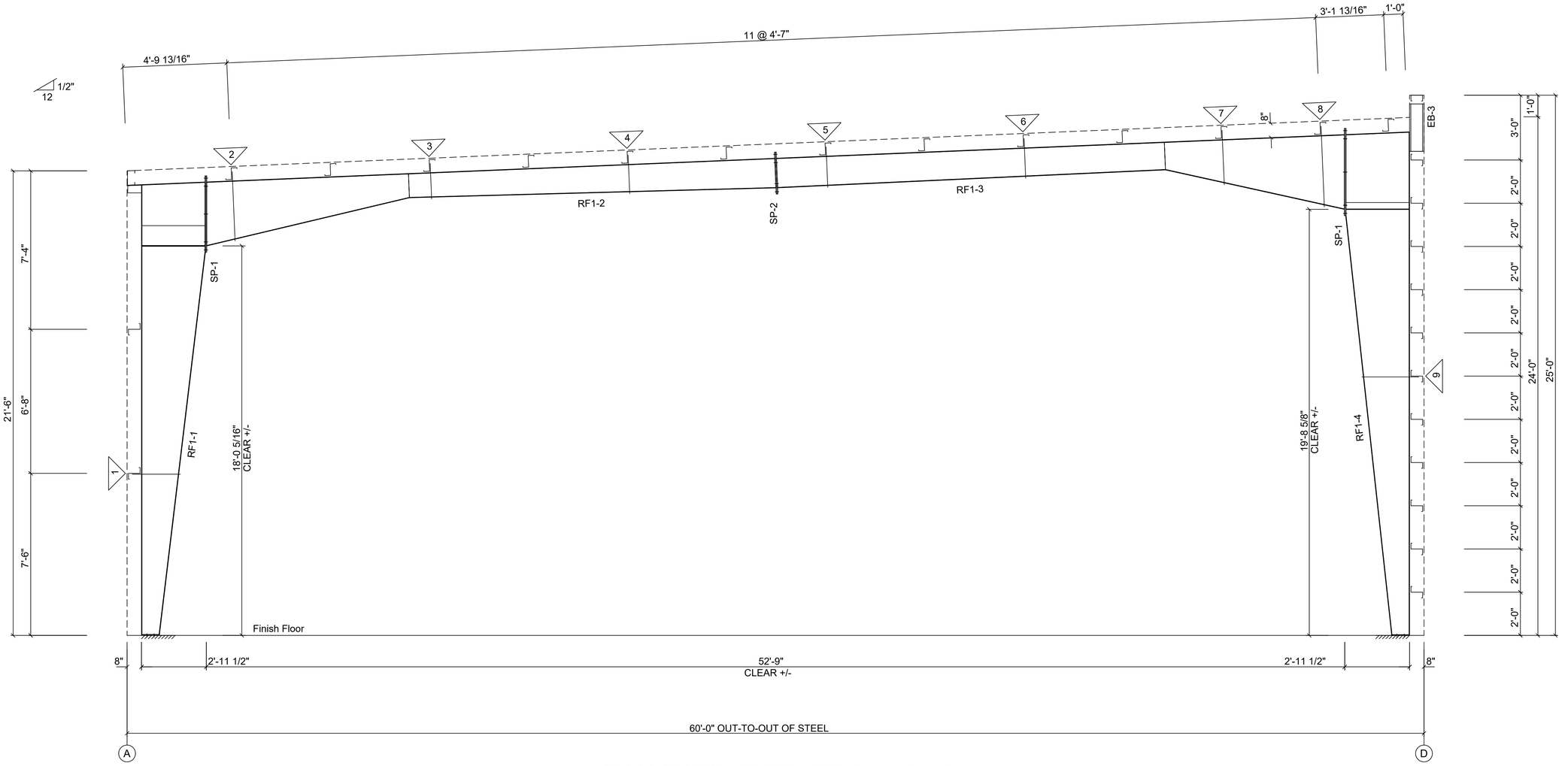
CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	
AD	PJ	B3025137	N1
11/25/2024	11/27/24		N1

SPLICE BOLT TABLE						
Mark	Qty Top	Bot	Int	Type	Dia	Length
SP-1	4	4	2	A325	5/8"	2"
SP-2	4	4	0	A325	5/8"	2"

MEMBER TABLE							
Mark	Weight	Length	Web Depth Start/End	Web Plate Thick	Web Plate Length	Outside Flange Thk x W x Length	Inside Flange Thk x W x Length
RF1-1	657	20'-10 5/16"	9.5/35.0	0.219	18'-11 1/16"	1/4" x 6 x 20'-9 9/16"	1/4" x 6 x 17'-9 13/16"
			35.0/35.0	0.219	2'-0"	1/4" x 6 x 3'-7 1/4"	
RF1-2	617	26'-4 9/16"	35.0/13.0	0.188	9'-5 1/2"	1/4" x 6 x 26'-3 9/16"	1/4" x 6 x 9'-7 5/8"
			13.0/16.0	0.156	16'-11 1/2"		1/4" x 6 x 16'-11 1/2"
RF1-3	669	26'-4 1/2"	16.0/15.0	0.156	17'-11 1/2"	1/4" x 6 x 26'-3 1/2"	1/4" x 6 x 17'-11 1/2"
			15.0/41.0	0.219	8'-4"		1/4" x 6 x 8'-5 5/8"
RF1-4	740	23'-3 11/16"	35.0/35.0	0.219	3'-3"	1/4" x 6 x 2'-11 1/4"	1/4" x 6 x 19'-6 1/8"
			35.0/ 9.5	0.219	20'-0"	1/4" x 6 x 23'-3"	
EB-3	33	2'-2 5/16"	7.5/ 7.5	0.188	2'-2 5/16"	1/4" x 6 x 2'-2 5/16"	1/4" x 6 x 2'-2 5/16"

FLANGE BRACE TABLE FRAME LINE 2 3 4 5 6 7 8						
▽ ID	# SIDES	MARK	BRACE DIST.	DETAIL	CLIP 1	CLIP 2
1	1	FB7	1'-0"	4-10	XFBP12	XFBP10
2	1	FB10	2'-0"	4-10	XFBP12	XFBP10
3	1	FB3	1'-0"	4-10	XFBP12	XFBP10
4	1	FB4	1'-0"	4-10	XFBP12	XFBP10
5	1	FB6	1'-0"	4-10	XFBP12	XFBP10
6	1	FB5	1'-0"	4-10	XFBP12	XFBP10
7	1	FB8	2'-0"	4-10	XFBP12	XFBP10
8	1	FB11	2'-0"	4-10	XFBP12	XFBP10
9	1	FB9	2'-0"	4-10	XFBP12	XFBP10



CROSS SECTION: FRAME LINE 2 3 4 5 6 7 8

TO BE USED FOR CONSTRUCTION

REFERENCE NOTES:

1. Snug Tight: Snug Tightened Joints are used. See General Information Snug Tight Sheet for bolt tightening information.
2. Storage: Fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the work shift shall be taken from protected storage. Fastener components that are not incorporated into the work shall be returned to protected storage at the end of the work shift.
3. Bolt and Nut Specifications: Bolts are high strength bolts conforming to ASTM F3125 Grade A325 or Grade A490. Nuts are high strength nuts conforming to ASTM A194 Grade 2 or 2H or ASTM A563 Grade C, D, or DH nut specifications. Substitution of mild steel bolts or nuts is not allowed and any field substitution will void the design warranty.
4. Eave Height: Eave height dimension is not always to the top of the eave strut. Due to thermal block situations, eave height dimension and top girt space dimension may be to the intersection of the top of the purlins. Refer to the eave details for more information.

REVISIONS
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10:08am 12/1/2024

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

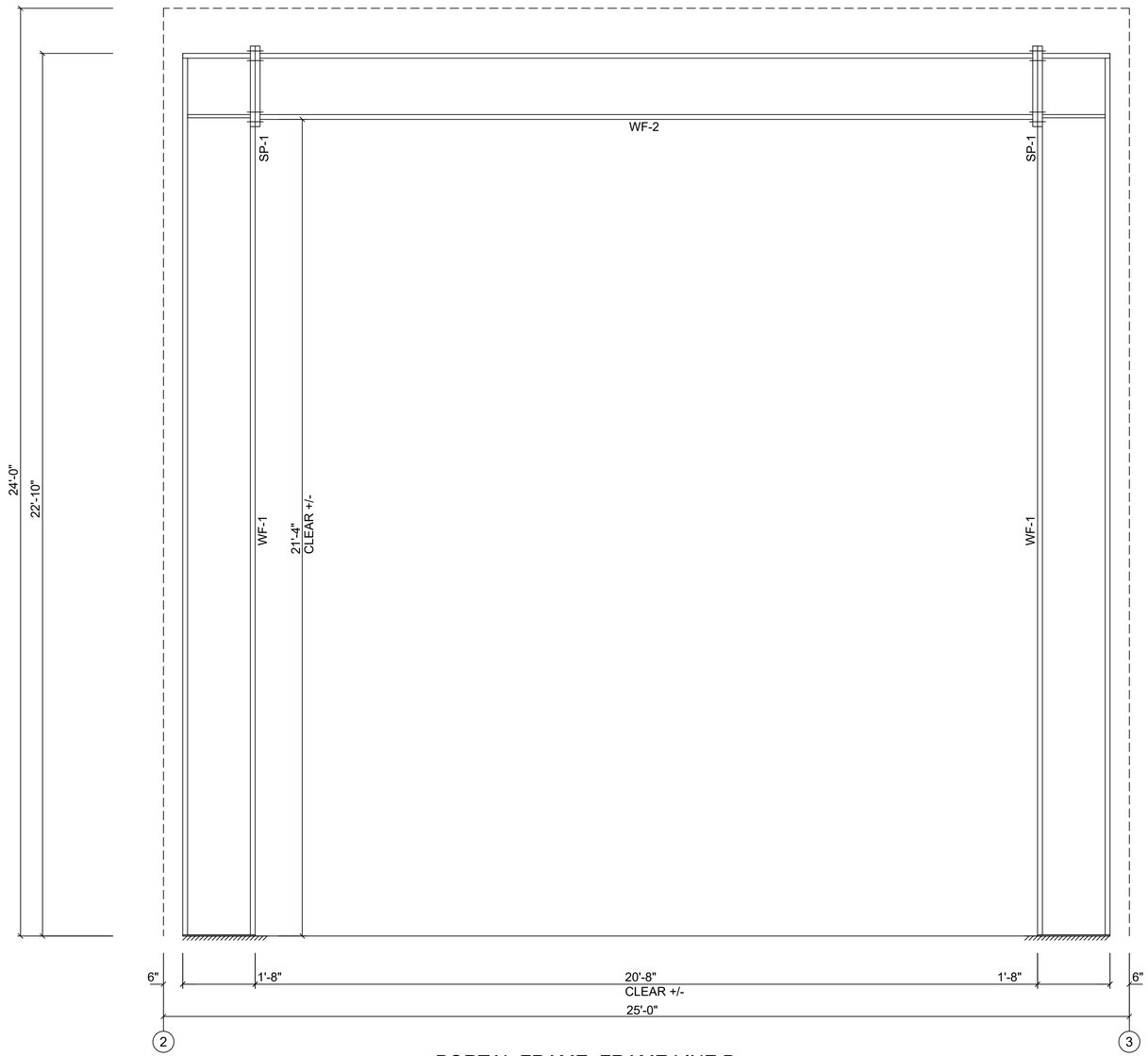
Drawing	CROSS SECTION
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	
GDM	TDP	B3025137	CS1 / CS2
1/20/25	2/04/25		

SPLICE BOLTS					
Splice Mark	Quan Top/	Bot	-----Bolt----- Type	Dia	Length
SP- 1	4	4	A325	5/8"	2"

MEMBER SIZE TABLE (in)							
MARK	WEIGHT	LENGTH	WEB DEPTH START/END	WEB PLATE THICK	WEB PLATE LENGTH	OUTSIDE FLANGE T x W x LENGTH	INSIDE FLANGE T x W x LENGTH
WF-1	547	274.0	19.5/19.5	0.125	22'-10"	1/4" x 8 x 22'-10"	1/4" x 8 x 22'-10"
WF-2	443	247.8	17.5/17.5	0.156	20'-7 3/4"	1/4" x 6 x 20'-7 3/4"	1/4" x 6 x 20'-7 3/4"



PORTAL FRAME: FRAME LINE D

TO BE USED FOR CONSTRUCTION

REFERENCE NOTES:

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2. Storage: Fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the work shift shall be taken from protected storage. Fastener components that are not incorporated into the work shall be returned to protected storage at the end of the work shift.
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REVISIONS
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10:08am 02/14/24

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

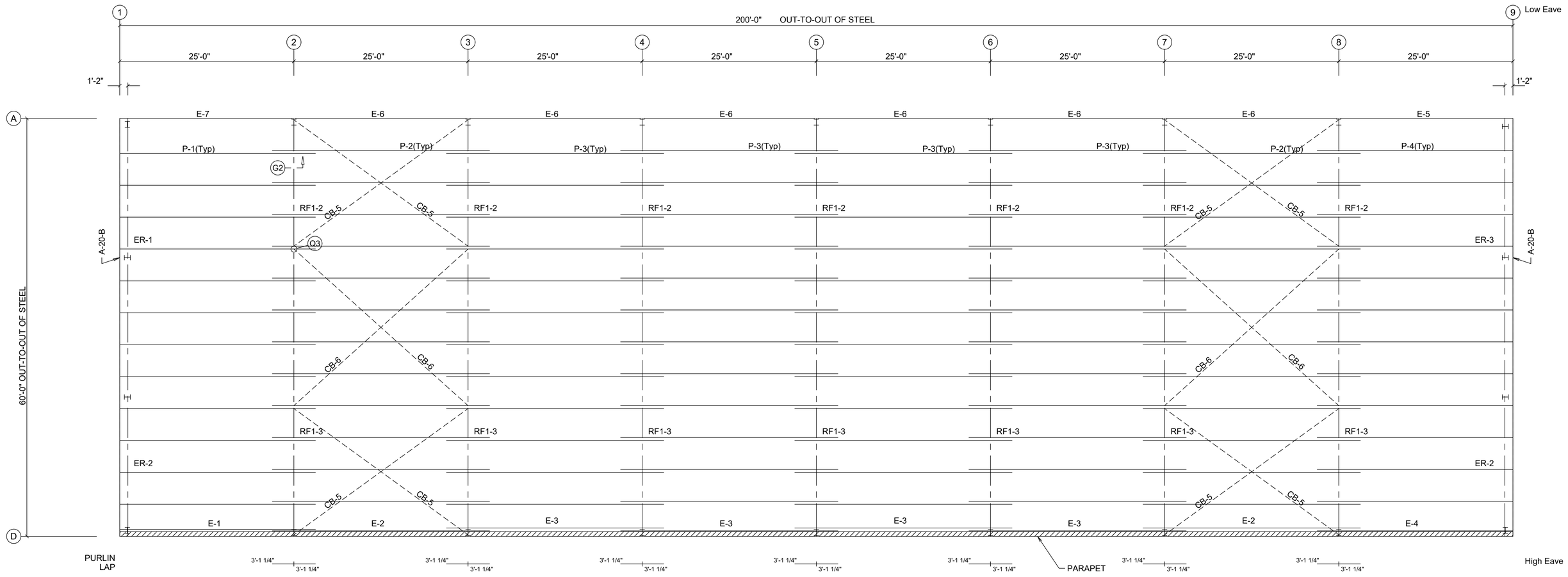
02/07/2025

Drawing	CROSS SECTION
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	CS2
GDM	TDP	B3025137	CS2
1/20/25	2/04/25		

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details



ROOF FRAMING PLAN

TO BE USED FOR CONSTRUCTION

PURLIN DEPTH: 8.00

REFERENCE NOTES:
SAG ANGLE NOMENCLATURE
- "T" = TOP SAG ANGLE ROW.
- "B" = BOTTOM SAG ANGLE ROW.

REVISIONS	
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2	1/07/Jam
1	12/16/24

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

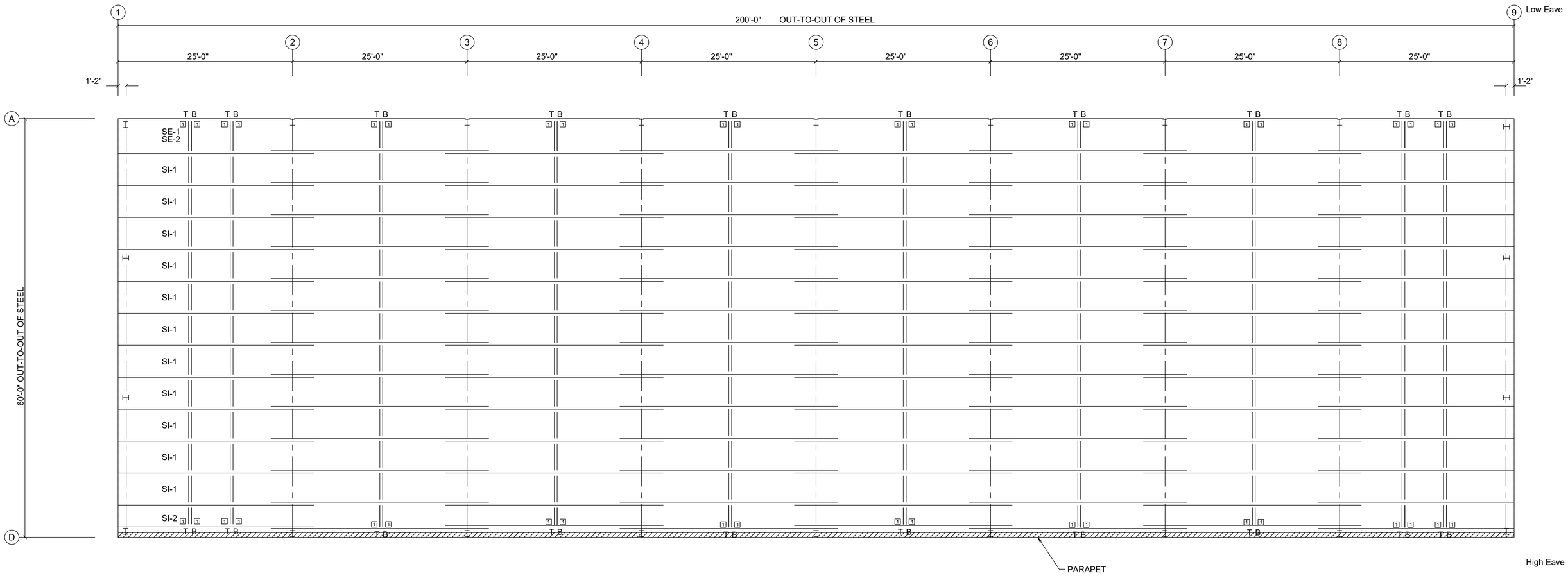
Drawing	ROOF FRAMING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	RF1 / RF2
GDM	TDP	B3025137	
1/20/25	2/04/25		

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details

CONNECTION PLATES		
☐ ID	QUAN	MARK/PART
1	40	XBC1



ROOF FRAMING PLAN

REFERENCE NOTES:
SAG ANGLE NOMENCLATURE
- "T" = TOP SAG ANGLE ROW.
- "B" = BOTTOM SAG ANGLE ROW.

TO BE USED FOR CONSTRUCTION

PURLIN DEPTH: 8.00

REVISIONS	
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2	10/7/Jam
1	12/6/24

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	ROOF FRAMING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	RF2 / RF2
GDM	TDP	B3025137	
1/20/25	2/04/25		

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details

PANEL TABLE
ROOF PLAN

QUAN	MARK	LENGTH
101	RS-1	344 5/16"
101	RS-2	371 13/16"

ROOF PANEL PLAN

PANELS: 24 Ga. MSC - Galvalume (GM)

TO BE USED FOR CONSTRUCTION

Reference Note:
Roof Panel system is based on the following

1) MSC High system (Clip offset = 1 3/8"; Bottom of roof panel to top of purlin)
2) A clip MUST be installed on ALL purlins unless noted otherwise.
3) (2) 1/4-14 x 1"fasteners per clip unless otherwise noted.
4) 1" Thermal Spacers

Roof panel modularity must be maintained during installation in order to assure coverage with the panels supplied.

REVISIONS	
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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

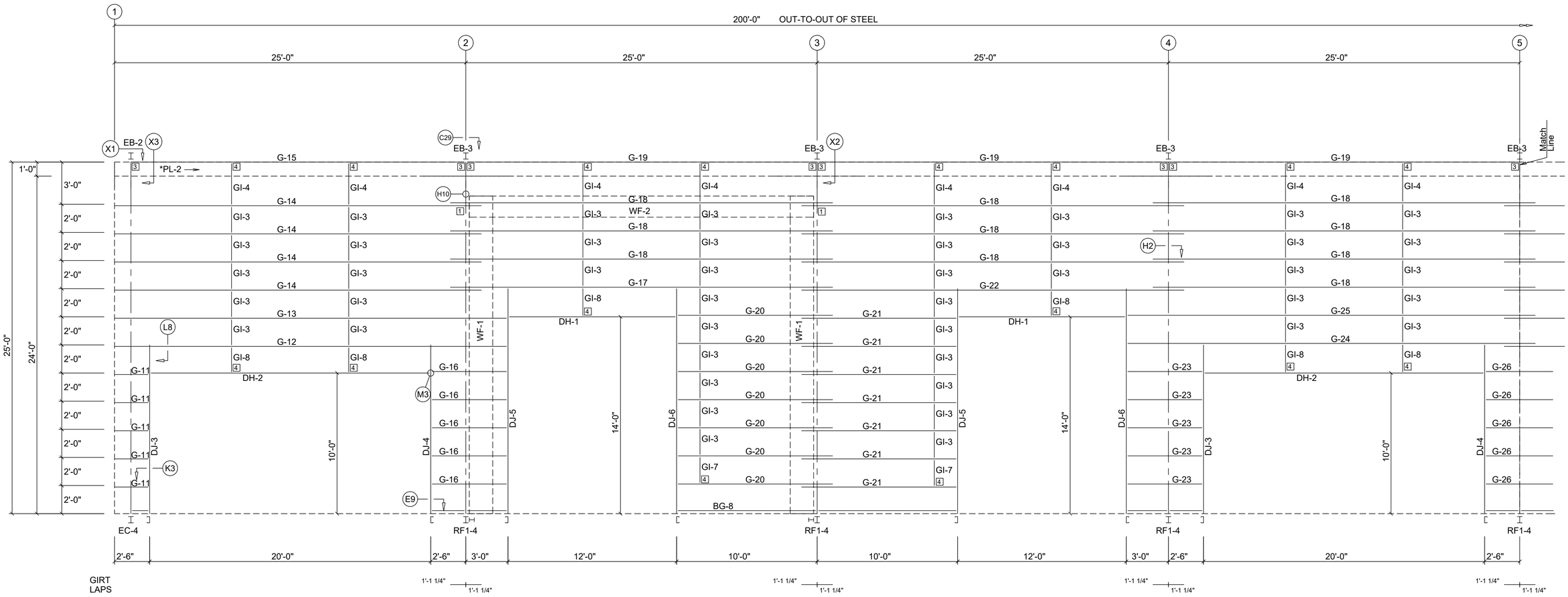
Drawing	ROOF PANEL
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS	DRAWN	CHECK	ORDER NO.	RP1
	GDM	TDP	B3025137	
	1/20/25	2/04/25		RP1

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details

CONNECTION PLATES FRAME LINE D		
☐ID	QUAN	MARK/PART
1	2	XPF1
3	8	XBC85
4	16	XBC1

*TO BE USED FOR INSULATION SUPPORT



SIDEWALL FRAMING: FRAME LINE D

TO BE USED FOR CONSTRUCTION

GIRT DEPTH: 8.00

GENERAL NOTES:
1. All trims to receive a 2" lap unless otherwise noted.

REVISIONS
4
3
2
1

Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.

Chief Buildings
PO Box 2078, Grand Island, NE 68802-2078
(308) 389-7289 cs@chiefind.com

NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	SIDEWALL DRAWING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	S1
GDM	TDP	B3025137	S4
1/20/25	2/04/25		

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details

CONNECTION PLATES
FRAME LINE D

ID	QUAN	MARK/PART
2	8	XBC85
3	16	XBC1

*TO BE USED FOR INSULATION SUPPORT

SIDEWALL FRAMING: FRAME LINE D

TO BE USED FOR CONSTRUCTION

GIRT DEPTH: 8.00

GENERAL NOTES:
1. All trims to receive a 2" lap unless otherwise noted.

REVISIONS
4
3
2
1

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	SIDEWALL DRAWING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS	DRAWN	CHECK	ORDER NO.	S2
	GDM	TDP	B3025137	
	1/20/25	2/04/25		S4

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details

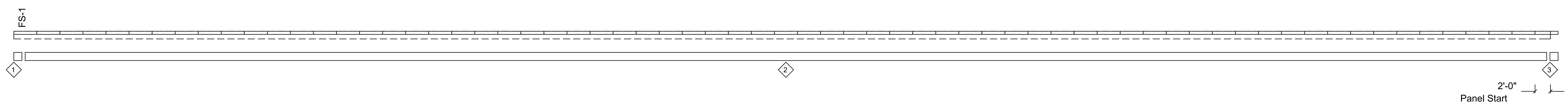
NOTE: (75) (10' X 41 9/16") (Antique Bronze)(AQ) (SPT-1)Flat sheets supplied for field formed trim(Parapet Cap Trim,Corner Trim,Base Trim, and Opening Trims).

TRIM TABLE
LINE: D

◇ID	QUAN.	MARK	COLOR	LENGTH
1	1	EEL6	FS	5 1/4"
2	12	LHET06A	GM	206"
3	1	EER6	FS	5 1/4"

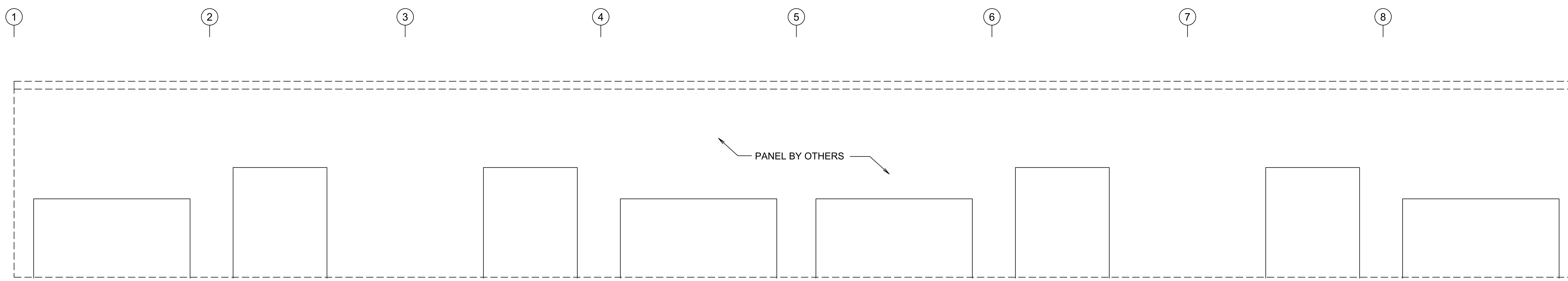
PANEL TABLE
FRAME LINE D

QUAN	MARK	LENGTH
67	FS-1	5"



PARAPET BACK PANEL & TRIM: LINE D

PANELS: 26 Ga. CS - Galvalume (GM)



SIDEWALL PANEL & TRIM: FRAME LINE D

TO BE USED FOR CONSTRUCTION

GENERAL NOTES:
1. All trims to receive a 2" lap unless otherwise noted.

REVISIONS

4	
3	
2	
1	

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	SIDEWALL DRAWING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	S3
GDM	TDP	B3025137	
1/20/25	2/04/25		S3

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details

TRIM TABLE
LINE: A

◇ID	QUAN.	MARK	COLOR	LENGTH
1	12	BTN6A	FS	206"
2	12	EGM06A	FS	206"
3	105	GSMA	GM	12 13/16"
4	12	TCM6A	FS	206"
5	1	GRS6	FS	10"
6	2	ECLM06	FS	8 3/8"
7	2	ECRM06	FS	8 3/8"
8	6	JT6C	FS	90"
9	6	COT6C	FS	90"
10	3	HTT6D	FS	52"

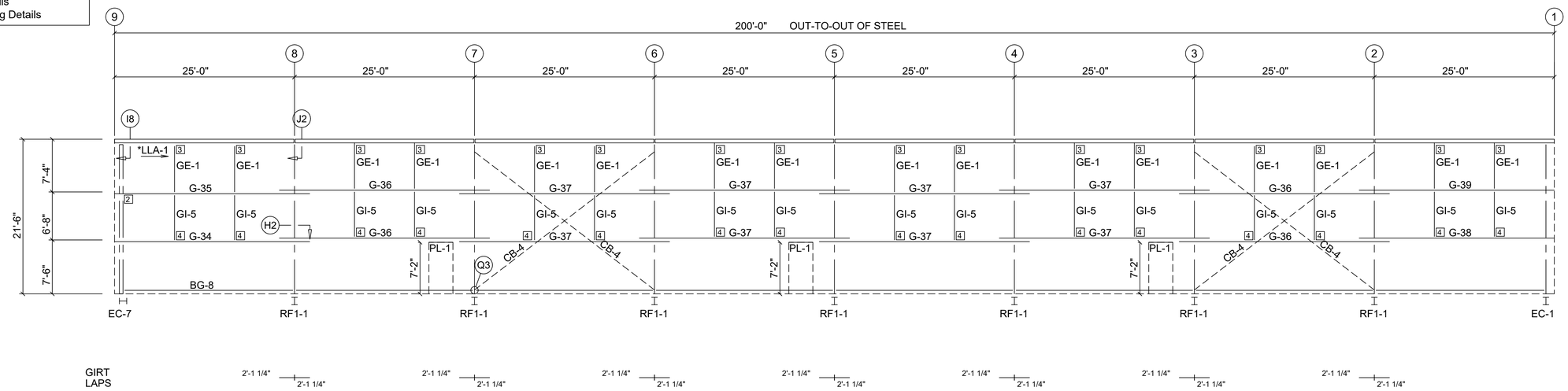
PANEL TABLE
FRAME LINE A

QUAN	MARK	LENGTH
67	SSB-1	258 1/2"

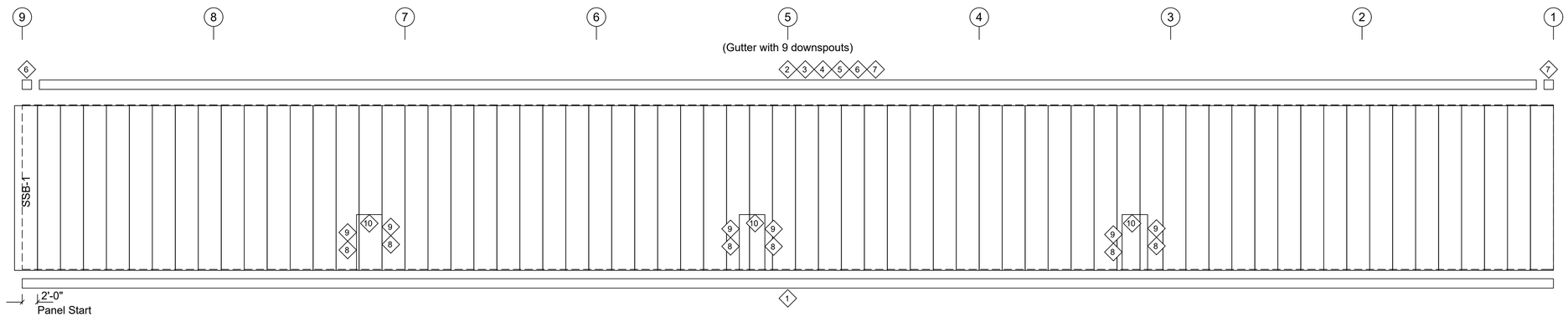
CONNECTION PLATES
FRAME LINE A

□ID	QUAN	MARK/PART
2	1	XBC87
3	16	XBC65
4	16	XBC1

*TO BE USED FOR INSULATION SUPPORT



SIDEWALL FRAMING: FRAME LINE A



SIDEWALL PANEL & TRIM: FRAME LINE A

PANELS: 26 Ga. CS - Fieldstone (FS)

TO BE USED FOR CONSTRUCTION

GIRT DEPTH: 8.00

NOTE: Building " A ", Column Line " A "
(STANDARD GUTTER) (SINGLE DOWNSPOUT DROP)
(9) Downspout drops provided for this wall
Each drop consists of:
(2) 12'-0" Downspout(s) (1) "A" Elbow(s)

NOTE: Using standard gutter and downspouts, locate downspouts at a spacing not to exceed 41.1 ft with first downspout within 20.5 ft from ends of gutter. This spacing is based on rainfall intensity of 7.1 inches per hour and MBMA Metal Building Systems Manual Appendix A4.2.

GENERAL NOTES:
1. All trims to receive a 2" lap unless otherwise noted.

REVISIONS
4
3
2 10/07/nm
1 12/16/24

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

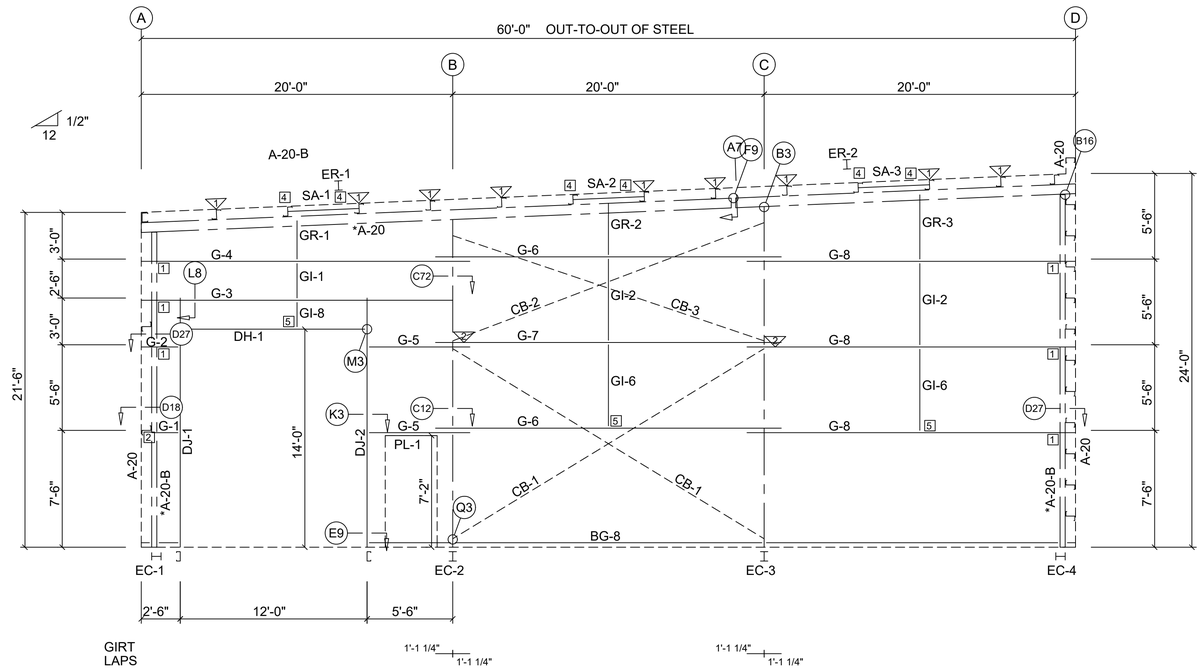
02/07/2025

Drawing	SIDEWALL DRAWING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

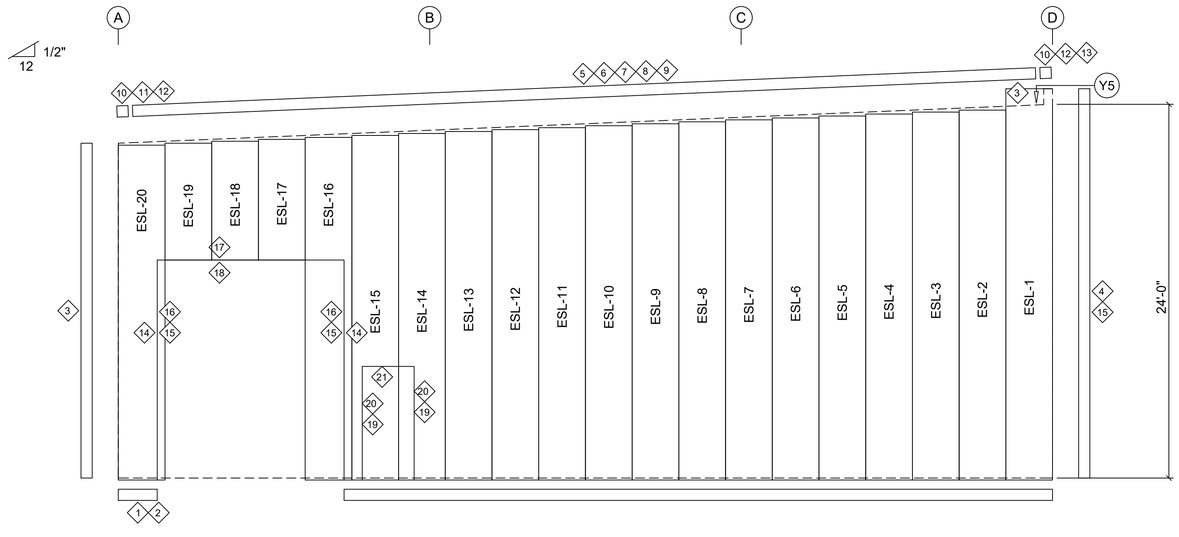
CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	S4
GDM	TDP	B3025137	S4
1/20/25	2/04/25		

Details Order (D# Pages)
- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details



ENDWALL FRAMING: FRAME LINE 1



ENDWALL PANEL & TRIM: FRAME LINE 1

PANELS: 26 Ga. CS - Fieldstone (FS)

GENERAL NOTES:
1. All trims to receive a 2" lap unless otherwise noted.

FLANGE BRACE TABLE
FRAME LINE 1

▽ ID	# SIDES	MARK	BRACE DIST.	DETAIL	CLIP 1	CLIP 2	PART
1	1	FB1	1'-0"	4-10	XFB12	XFB10	L15151/8
2	1	FB2	1'-0"	4-10	XFB12	XFB10	L15151/8

BOLT TABLE
FRAME LINE 1

LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	8	A325	5/8"	2"
Columns/Raf	4	A325	1/2"	1 1/4"

TRIM TABLE
LINE: 1

◇ID	QUAN.	MARK	COLOR	LENGTH
1	2	BTN6B	FS	146"
2	2	BTN6A	FS	206"
3	2	CT6B	FS	146"
4	1	JT6B	FS	146"
5	1	GTMC6B	FS	146"
6	3	GTMC6A	FS	206"
7	1	GET6B	FS	146"
8	3	GET6A	FS	206"
9	6	GTS6A	FS	30"
10	2	GCTMC6	FS	11 1/16"
11	1	TPLMC6	FS	11"
12	4	GTS6A	FS	30"
13	1	TPRMC6	FS	11"
14	2	DT86A	FS	206"
15	3	JT6A	FS	206"
16	2	COT6A	FS	206"
17	1	DT86B	FS	146"
18	1	HTT6A	FS	206"
19	2	JT6C	FS	90"
20	2	COT6C	FS	90"
21	1	HTT6D	FS	52"

PANEL TABLE
FRAME LINE 1

QUAN	MARK	LENGTH
1	ESL-1	301 1/2"
1	ESL-2	285"
1	ESL-3	283 1/2"
1	ESL-4	282"
1	ESL-5	280 1/2"
1	ESL-6	279"
1	ESL-7	277 1/2"
1	ESL-8	276"
1	ESL-9	274 1/2"
1	ESL-10	273"
1	ESL-11	271 1/2"
1	ESL-12	270"
1	ESL-13	268 1/2"
1	ESL-14	267"
1	ESL-15	265 1/2"
1	ESL-16	264"
1	ESL-17	93"
1	ESL-18	91 1/2"
1	ESL-19	90"
1	ESL-20	258"

CONNECTION PLATES
FRAME LINE 1

□ID	QUAN	MARK/PART
1	6	XBC87
2	1	XBC38
4	6	XBC3
5	3	XBC1

*TO BE USED FOR INSULATION SUPPORT

TO BE USED FOR CONSTRUCTION

GIRT DEPTH: 8.00

REVISIONS

4	
3	
2	10:07am
1	12/4/24

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(308) 389-7289 cs@chiefind.com

NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

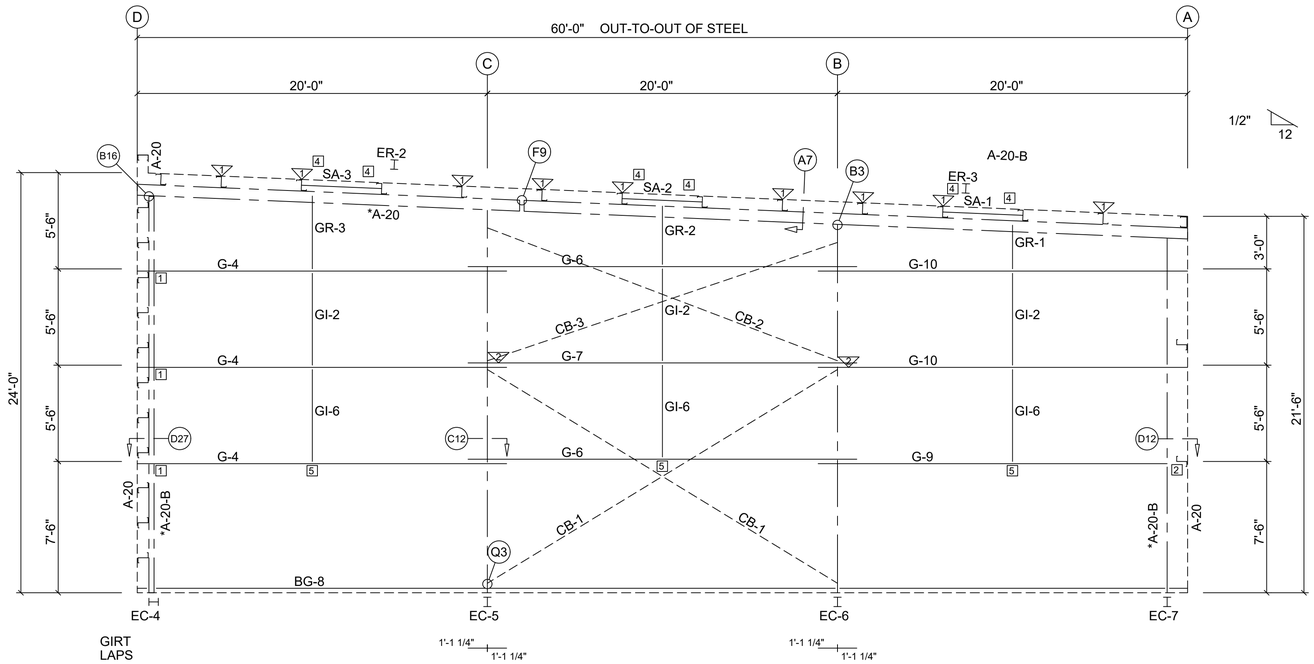
Drawing	ENDWALL DRAWING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

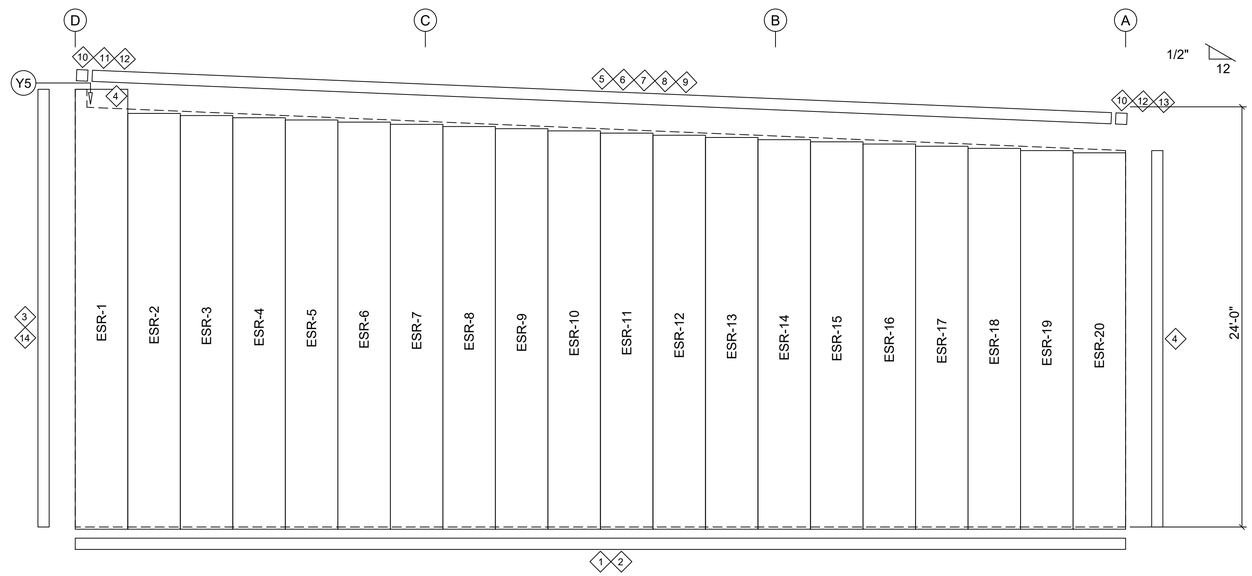
DRAWN	CHECK	ORDER NO.	
GDM	TDP	B3025137	E1 / E2
1/20/25	2/04/25		

Details Order (D# Pages)

- Flange Brace/Sag Angles Details
- Typical Project Details
- Steel Specific Info, (X#-labels)
- Panel Specific Info, (Y#-labels)
- Mezzanine Info, (Z#-labels)
- Panel/Trim Details
- Opening Flashing Details



ENDWALL FRAMING: FRAME LINE 9



ENDWALL PANEL & TRIM: FRAME LINE 9

PANELS: 26 Ga. CS - Fieldstone (FS)

FLANGE BRACE TABLE
FRAME LINE 9

▽ ID	# SIDES	MARK	BRACE DIST.	DETAIL	CLIP 1	CLIP 2	PART
1	1	FB1	1'-0"	4-10	XFB12	XFB10	L15151/8
2	1	FB2	1'-0"	4-10	XFB12	XFB10	L15151/8

BOLT TABLE
FRAME LINE 9

LOCATION	QUAN	TYPE	DIA	LENGTH
ER-2/ER-3	8	A325	5/8"	2"
Columns/Raf	4	A325	1/2"	1 1/4"

TRIM TABLE
LINE: 9

◇ID	QUAN.	MARK	COLOR	LENGTH
1	1	BTN6B	FS	146"
2	3	BTN6A	FS	206"
3	1	JT6B	FS	146"
4	2	CT6B	FS	146"
5	1	GTMC6B	FS	146"
6	3	GTMC6A	FS	206"
7	1	GET6B	FS	146"
8	3	GET6A	FS	206"
9	6	GTS6A	FS	30"
10	2	GCTMC6	FS	11 1/16"
11	1	TPLMC6	FS	11"
12	4	GTS6A	FS	30"
13	1	TPRMC6	FS	11"
14	1	JT6A	FS	206"

PANEL TABLE
FRAME LINE 9

QUAN	MARK	LENGTH
1	ESR-1	301 1/2"
1	ESR-2	285"
1	ESR-3	283 1/2"
1	ESR-4	282"
1	ESR-5	280 1/2"
1	ESR-6	279"
1	ESR-7	277 1/2"
1	ESR-8	276"
1	ESR-9	274 1/2"
1	ESR-10	273"
1	ESR-11	271 1/2"
1	ESR-12	270"
1	ESR-13	268 1/2"
1	ESR-14	267"
1	ESR-15	265 1/2"
1	ESR-16	264"
1	ESR-17	262 1/2"
1	ESR-18	261"
1	ESR-19	259 1/2"
1	ESR-20	258"

CONNECTION PLATES
FRAME LINE 9

□ID	QUAN	MARK/PART
1	3	XBC87
2	1	XBC38
4	6	XBC3
5	3	XBC1

*TO BE USED FOR INSULATION SUPPORT

TO BE USED FOR CONSTRUCTION

GIRT DEPTH: 8.00

GENERAL NOTES:
1. All trims to receive a 2" lap unless otherwise noted.

REVISIONS

4
3
2
1

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

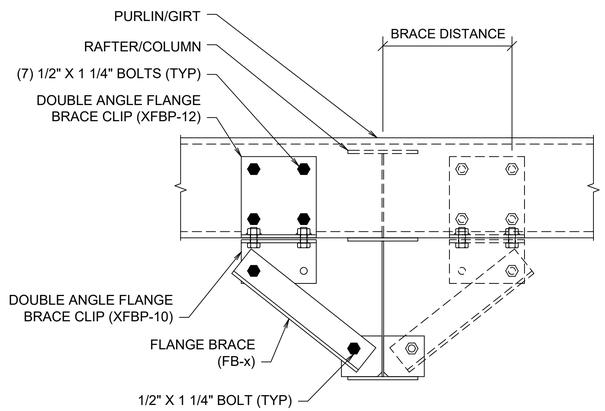
02/07/2025

Drawing	ENDWALL DRAWING
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

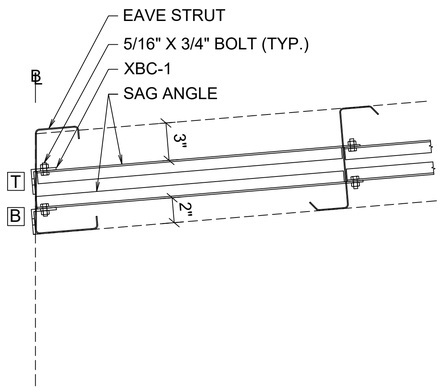
DRAWN	CHECK	ORDER NO.	
GDM	TDP	B3025137	E2
1/20/25	2/04/25		E2

NOTE:
- Fill all holes in the flange brace with bolts.
- If flange brace connection occurs within the purlin lap, install flange brace before tightening purlin bolts.
- Flange brace may be one side only. For location and number of sides refer to Cross Sections, Endwall and Sidewall drawings.



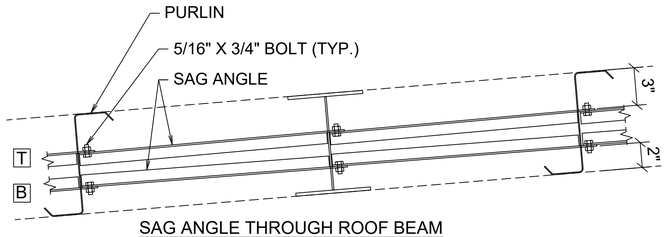
FLANGE BRACE "4-10 CONNECTION"

T = Top Row Sag Angle
B = Bottom Row Sag Angle
See Roof Framing Plans for Locations

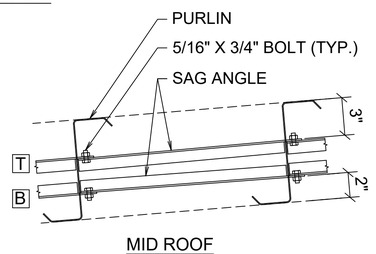


LOW SIDE EAVE STRUT SAG ANGLE STANDING SEAM ROOF

T = Top Row Sag Angle
B = Bottom Row Sag Angle
See Roof Framing Plans for Locations



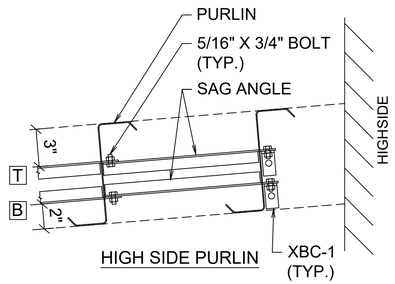
SAG ANGLE THROUGH ROOF BEAM



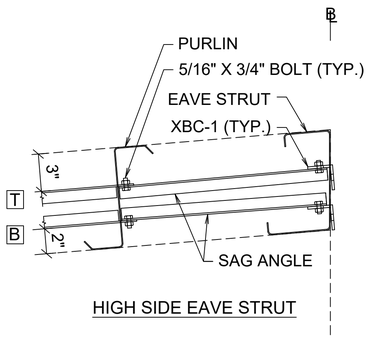
MID ROOF

INTERMEDIATE SAG ANGLE STANDING SEAM ROOF

T = Top Row Sag Angle
B = Bottom Row Sag Angle
See Roof Framing Plans for Locations



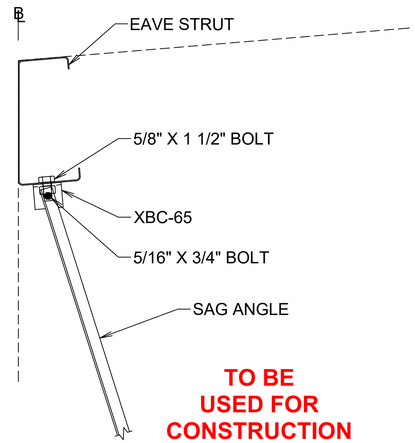
HIGH SIDE PURLIN



HIGH SIDE EAVE STRUT

HIGHSIDE SAG ANGLE STANDING SEAM ROOF

NOTE : Girt sag angles are to be located toward "INSIDE" of building.



TO BE USED FOR CONSTRUCTION

SIDEWALL SAG ANGLE AT LOW SIDE (High Side Sag Angle Connections typical)

REVISIONS
4
3
2
1

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

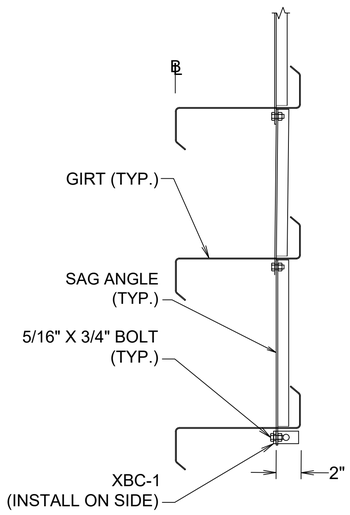
02/07/2025

Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

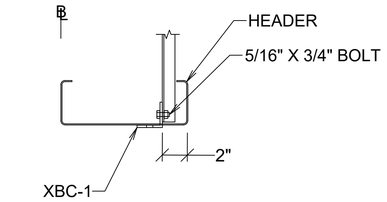
DRAWN	CHECK	ORDER NO.	
GDM	TDP	B3025137	D1 / D12
1/20/2025	2/04/25		

NOTE : Girt sag angles are to be located toward "INSIDE" of building.

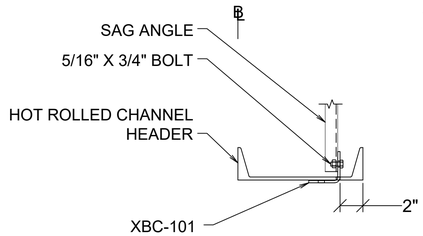


INTERMEDIATE SAG ANGLE

NOTE : Girt sag angles are to be located toward "INSIDE" of building.

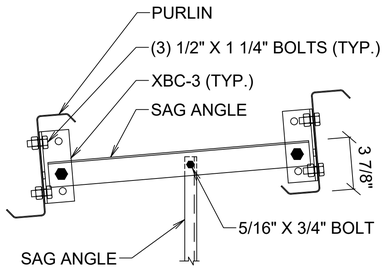


SAG ANGLE TERMINATION TO COLD FORMED HEADER

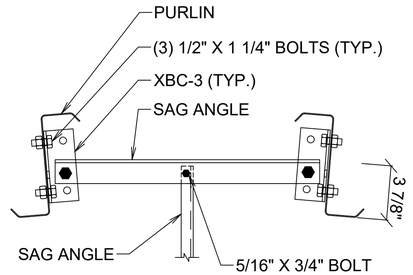


SAG ANGLE TERMINATION TO HOT ROLLED HEADER

SAG ANGLE AT HEADER



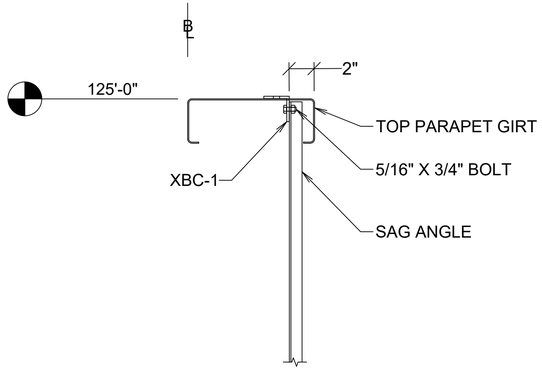
SAG ANGLE AT MID-SPAN OF ENDWALL



SAG ANGLE AT RIDGE

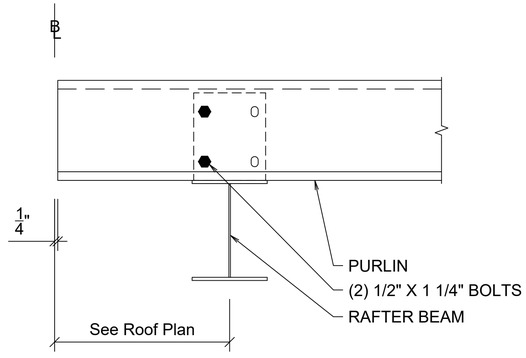
ENDWALL SAG ANGLE BYPASS / OUTSET ENDWALL

NOTE : Girt sag angles are to be located toward "INSIDE" of building.



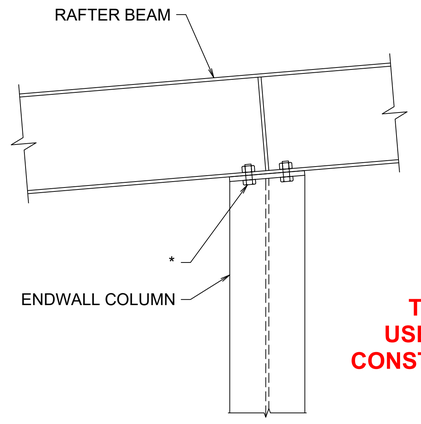
SAG ANGLE TO PARAPET TOP GIRT

NOTE: The "Standard" bolting requirements for a purlin to clip is shown below. See the Special Bolts Roof Plan table on the Roof Framing Plan for additional bolts. The (#) symbol will reference additional bolts, if required.



A7

SECTION THRU ENDWALL RAFTER



TO BE USED FOR CONSTRUCTION

* Refer to Bolt Table on Endwall drawing for bolting information.

B3

RAFTER BEAM TO COLUMN

REVISIONS
4
3
2
1

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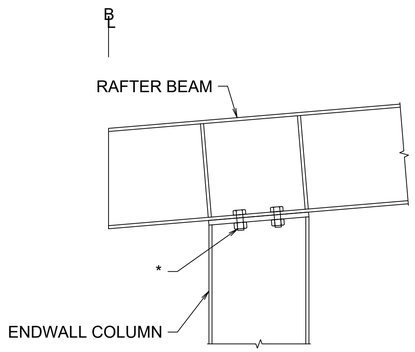
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

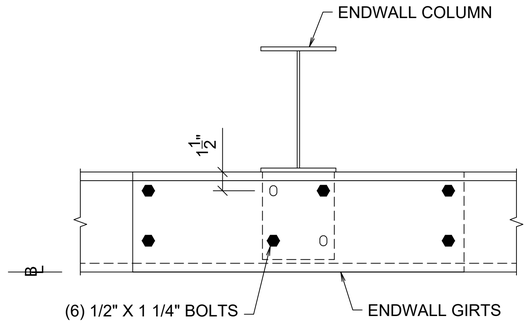
DRAWN	CHECK	ORDER NO.	D2 / D12
GDM	TDP	B3025137	
1/20/2025	2/04/25		



* Refer to Bolt Table on Endwall Drawing for bolt information.

B16

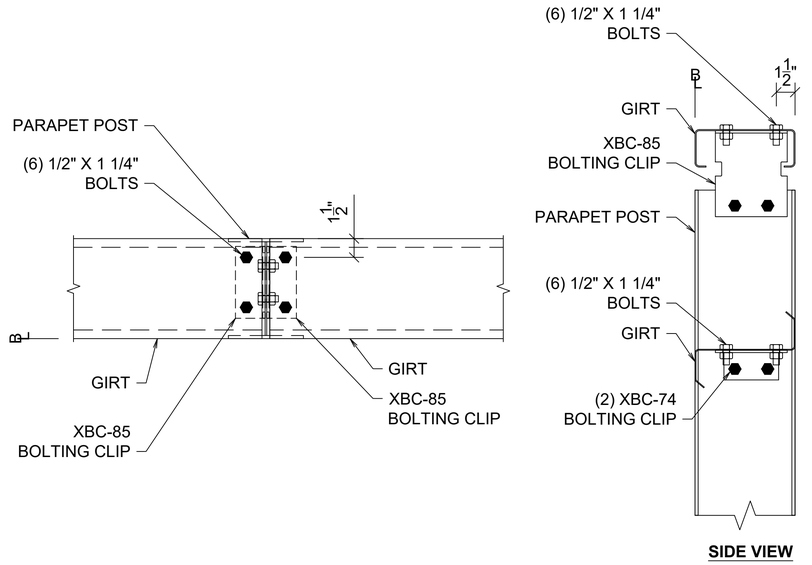
ROTATED CORNER COLUMN TO RAFTER BEAM



NOTE:
- Flange Brace are not shown. Refer to Endwall drawings for Flange Brace locations and number of sides.

C12

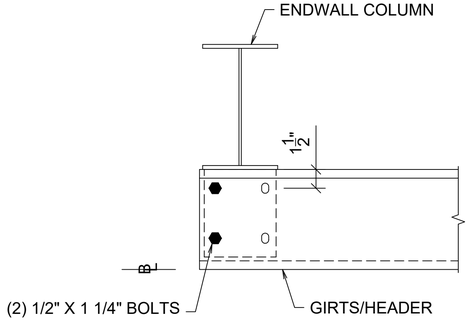
WALL GIRT TO WIDE FLANGE ENDWALL COLUMN



SIDE VIEW

C29

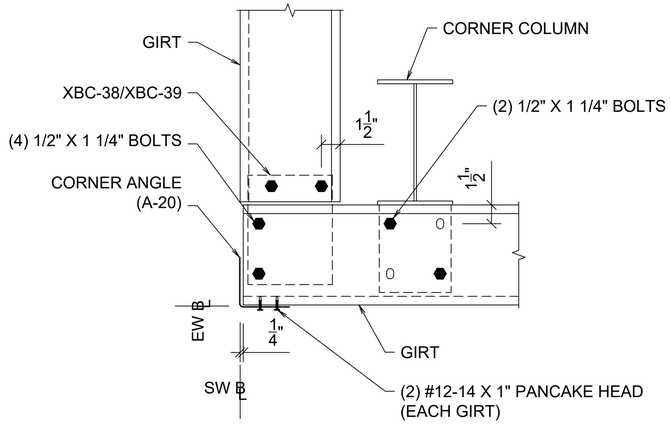
PARAPET TOP GIRT CONNECTION



NOTE: Flange Braces are not shown. Refer to Endwall drawings for Flange Brace locations and number of sides.

C72

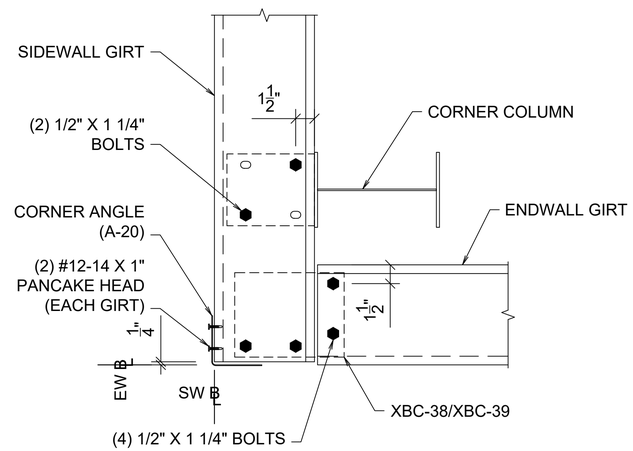
ENDWALL COLUMN TO WALL GIRT



D12

CORNER COLUMN TO WALL GIRT

TO BE USED FOR CONSTRUCTION



D18

CORNER COLUMN TO WALL GIRT

REVISIONS
4
3
2
1

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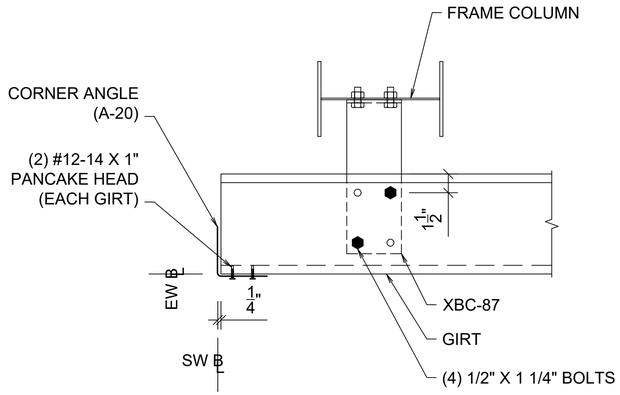
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	D3
GDM	TDP	B3025137	D12
1/20/2025	2/04/25		

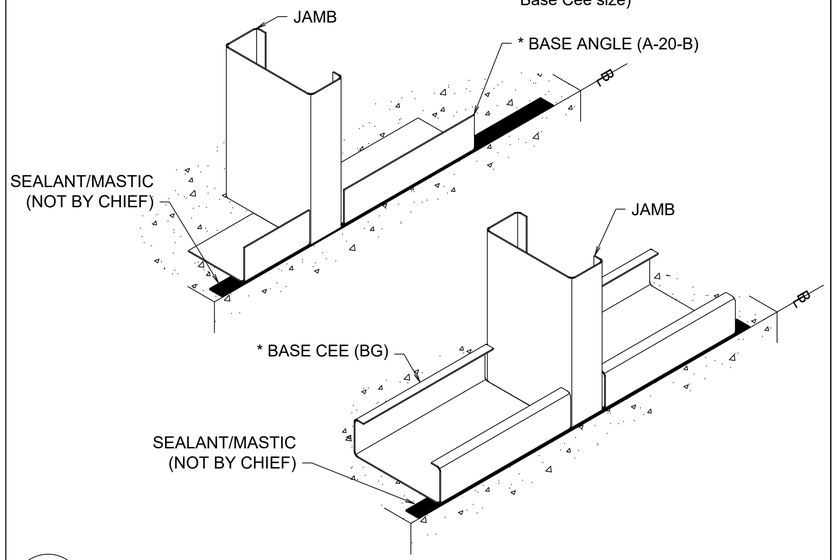


D27

FRAME COLUMN TO ENDWALL GIRT

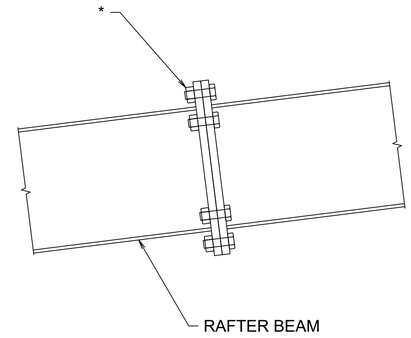
NOTE: See Anchor Rod Plan for connection of jamb and base members.

* Field cut base member at jambs. (Refer to the wall framing drawings for Base Cee size)



E9

BASE MEMBER

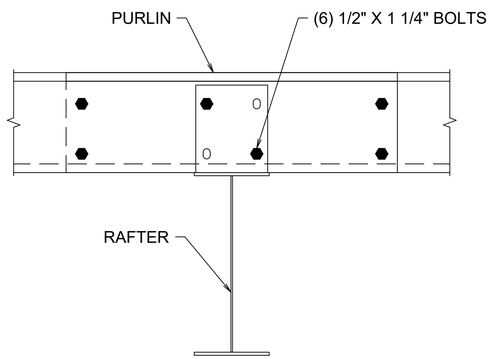


* Refer to Bolt Table on Endwall drawing for bolting information.

F9

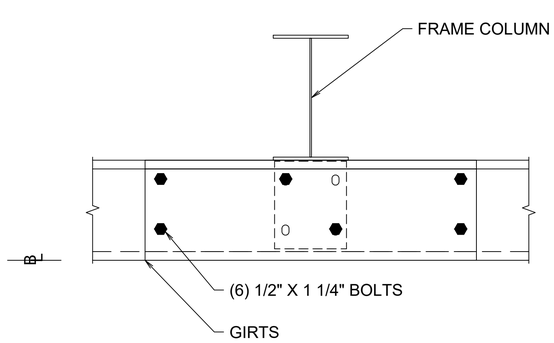
RAFTER BEAM SPLICE

NOTE: The "Standard" bolting requirements for a purlin to clip is shown below. See the Special Bolts Roof Plan table on the Roof Framing Plan for additional bolts. The (#) symbol will reference additional bolts, if required.



G2

ROOF PURLIN TO INTERIOR FRAME RAFTER

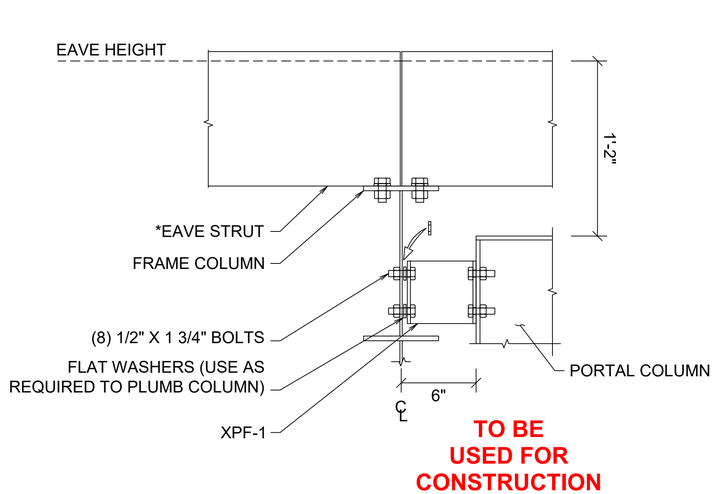


NOTE:
Flange Braces are not shown. Refer to Cross Section, Endwall, or Sidewall drawings for Flange Brace locations and number of sides.

H2

WALL GIRT TO FRAME COLUMN

* SEE ADDITIONAL DETAILS FOR EAVE STRUT CONNECTION



TO BE USED FOR CONSTRUCTION

H10

PORTAL FRAME TO FRAME COLUMN

REVISIONS
4
3
2
1

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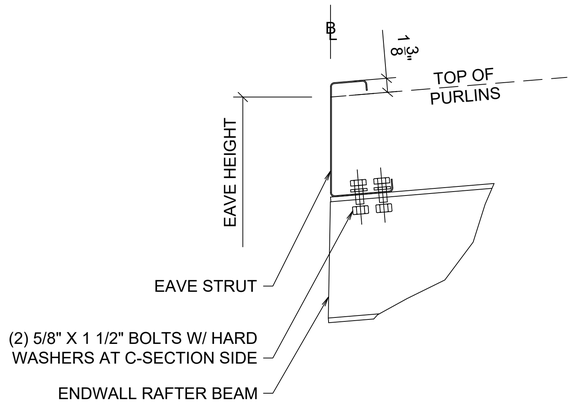
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

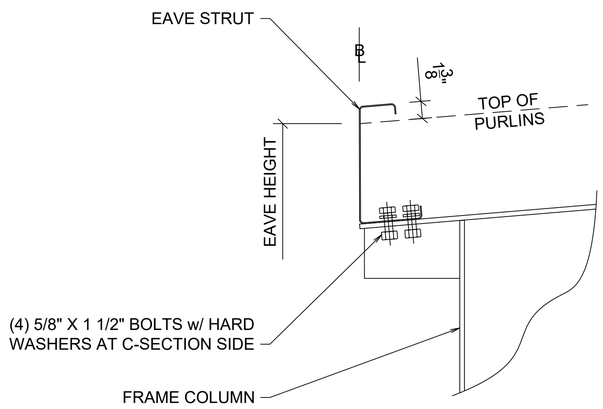
Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

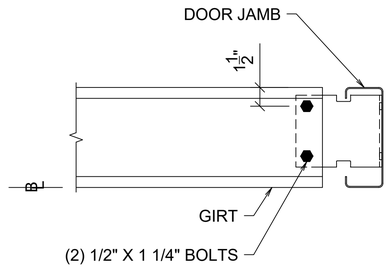
DRAWN	CHECK	ORDER NO.	D4
GDM	TDP	B3025137	D12
1/20/2025	2/04/25		



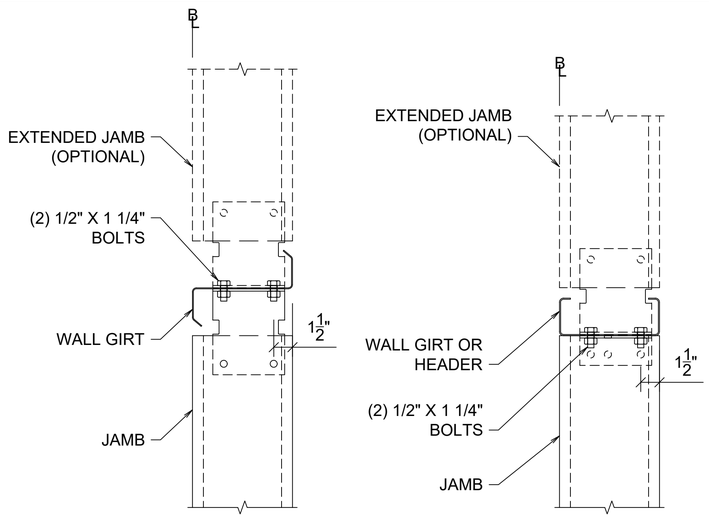
I8 EAVE STRUT TO ENDWALL RAFTER BEAM STANDING SEAM ROOF



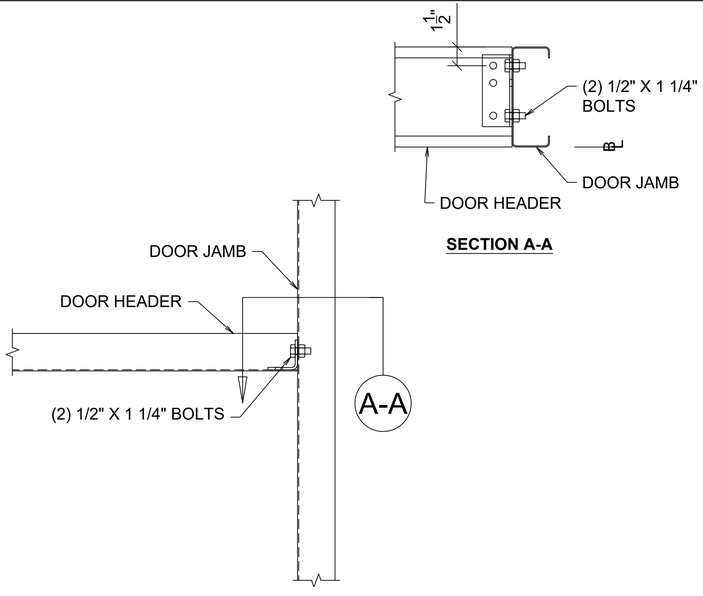
J2 EAVE STRUT TO RIGID FRAME STANDING SEAM ROOF



K3 WALL GIRT TO DOOR JAMB



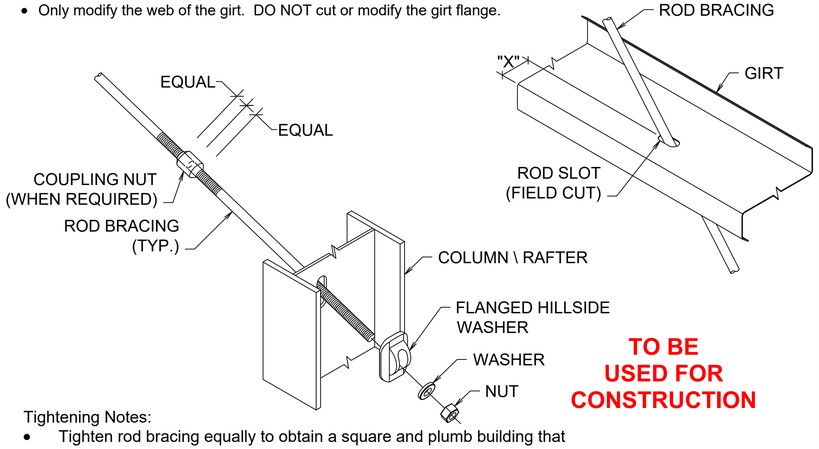
L8 JAMB TO WALL GIRT OR HEADER



M3 DOOR HEADER TO DOOR JAMB (Window Sill Typical)

Rod Braces that falls within the Girt Web, the Erector is to cut a slot for the passage of the Rod Brace. ZEE girt shown; Hot Rolled or Wide Flange typical.

- Width of Slot - Minimum = rod diameter + 1/16", Maximum = 1.5 times rod diameter.
- Length of Slot - As needed based on slope of rod and location of girts to allow rod to pass through girt.
- Location of Slot "X" - Align with rod location.
- Only modify the web of the girt. DO NOT cut or modify the girt flange.



TO BE USED FOR CONSTRUCTION

Tightening Notes:

- Tighten rod bracing equally to obtain a square and plumb building that matches corresponding erection drawing dimensions.
- To maintain rigidity of rod bracing after the final tightening, flatten threads on the back side of nut.

Q3 DIAGONAL BRACE ROD, NUT END

REVISIONS
4
3
2
1

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

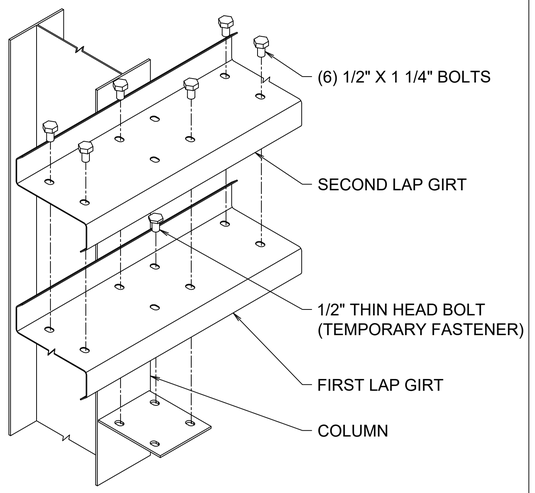
CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	D5
GDM	TDP	B3025137	D12
1/20/2025	2/04/25		

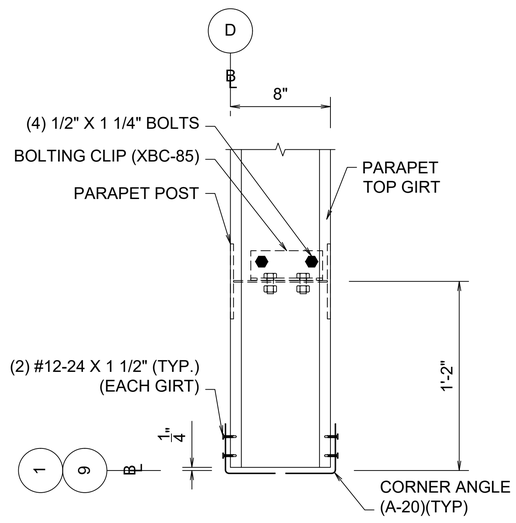
NOTE:
1. The 1/2" Thin Head Bolts are for temporary support to help comply with OSHA regulations during the assembly of girts.
2. Thin Head Bolts are identified with 307A on the head, whereas permanent structural 1/2" bolts are identified with A325 on the head.
3. Do not leave only the 1/2" Thin Head Bolt in for extended period of time as they are not intended for full structural support nor unexpected weather events. Final assembly of girt laps should be per the specific wall girt details using the permanent 1/2" X 1 1/4" bolts and nuts required for structural connection.

STEP 1:
Set the first girt into place. Complete the girt attachment at the tail end. Align the girt holes with the clip holes and place a 1/2" Thin Head Bolt down through the girt in the hole closest to building line.

STEP 2:
Lift the second bay girt into place. Install (6) 1/2" x 1 1/4" bolts and nuts in the proper lap holes and the unfilled clip hole at the tail end and wrench tighten. Install 1/2" Thin Head Bolt at the leading edge as covered in step 1.

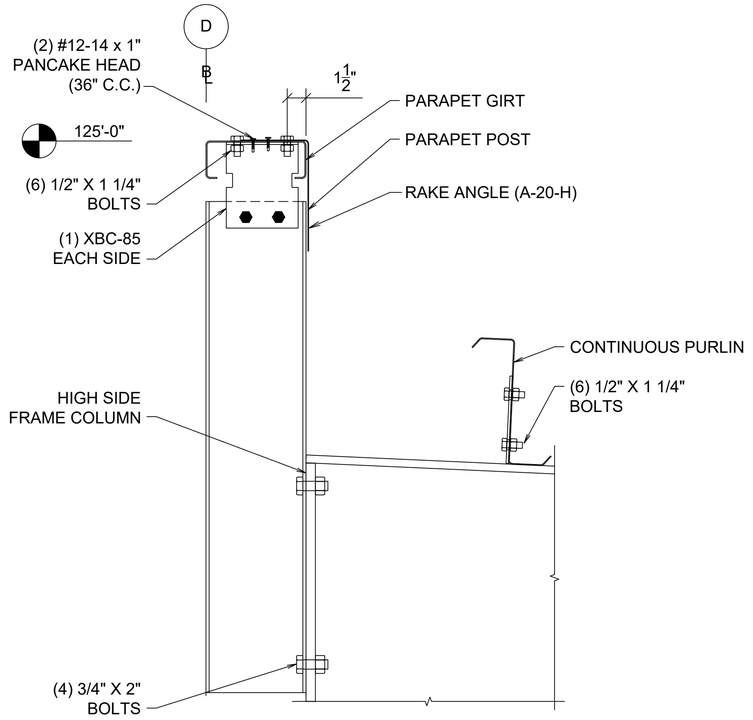


TEMPORARY FASTENER AT WALL GIRT

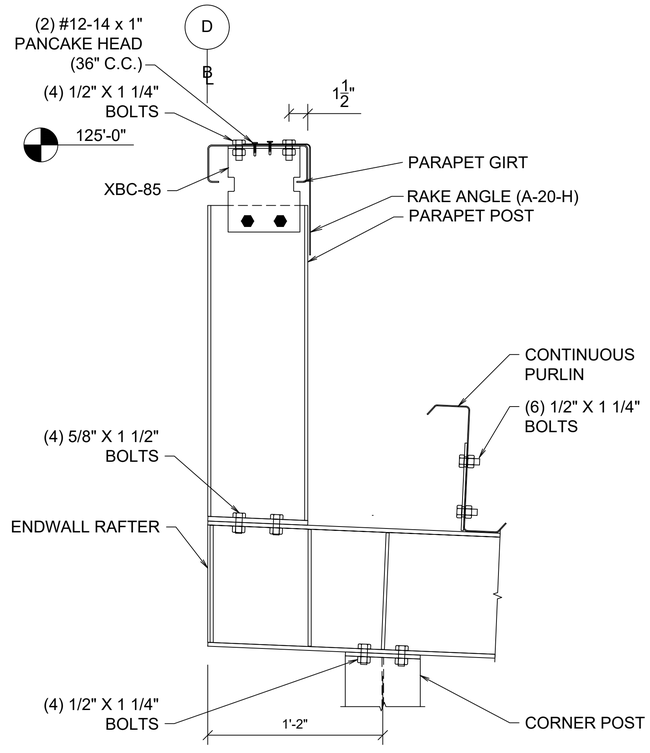


PARAPET POST / GIRT AT PARAPET END

X1



X2



X3

TO BE USED FOR CONSTRUCTION

REVISIONS
4
3
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1

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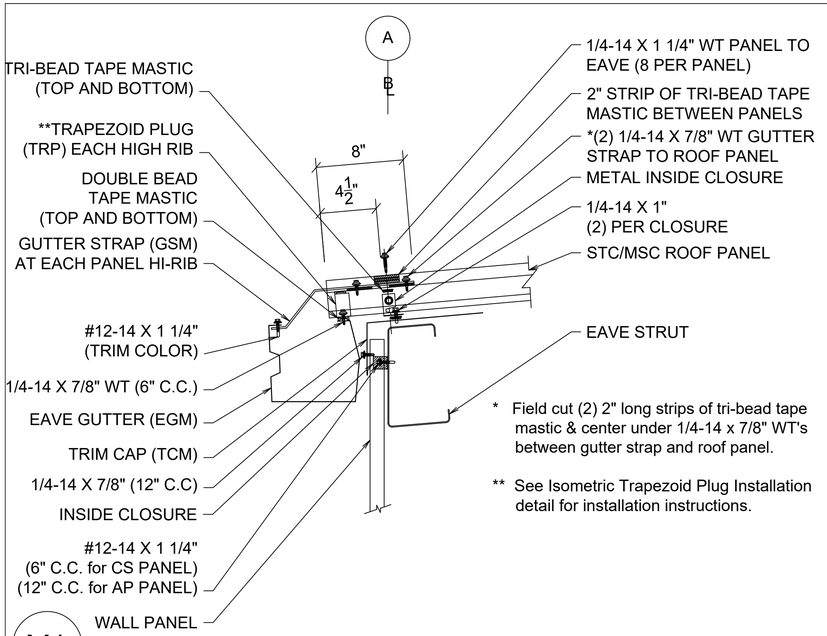
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

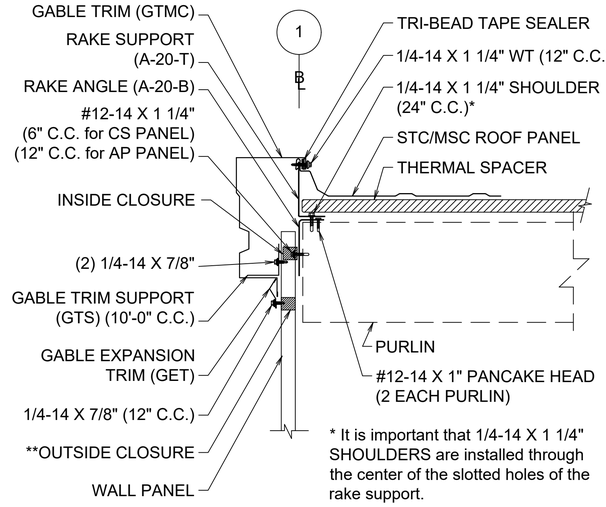
Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	D6
GDM	TDP	B3025137	D12
1/20/2025	2/04/25		

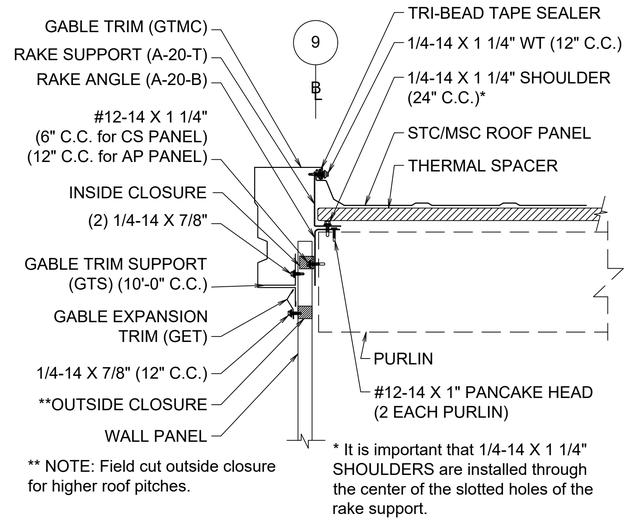


Y1



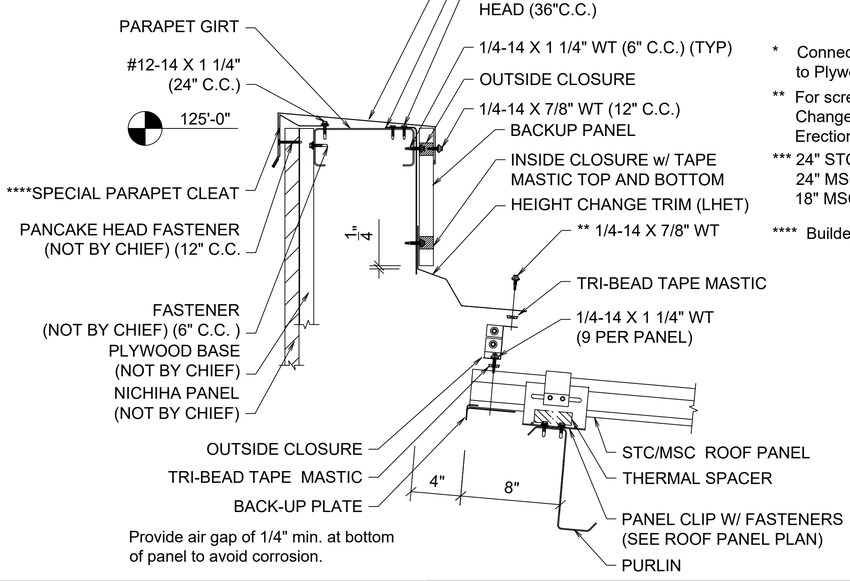
** NOTE: Field cut outside closure for higher roof pitches.

Y2



** NOTE: Field cut outside closure for higher roof pitches.

Y3



Y4

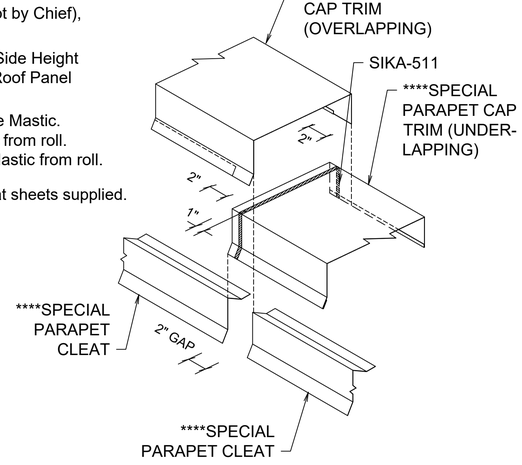
* Connection of nichiha panels (not by Chief), to Plywood Base is not by chief.

** For screw spacing refer to High Side Height Change detail in the MSC/STC Roof Panel Erection Manual.

*** 24" STC - Pre-Cut Tri-Bead Tape Mastic.
24" MSC - Tri-Bead Tape Mastic from roll.
18" MSC/STC - Tri-Bead Tape Mastic from roll.

**** Builder to field form trim from flat sheets supplied.

NOTE:
- Field notch the hems 2" to allow for the trim to lap.
- Leave a two inch space between the cleats at the connection of the parapet cap trim.
- Apply a 1/4" bead of Sikalastomer-511 and install 10 blind rivets at each joint.



ISOMETRIC PARAPET / FACADE CAP TRIM SPLICE DETAIL

TO BE USED FOR CONSTRUCTION

REVISIONS
4
3
2
1

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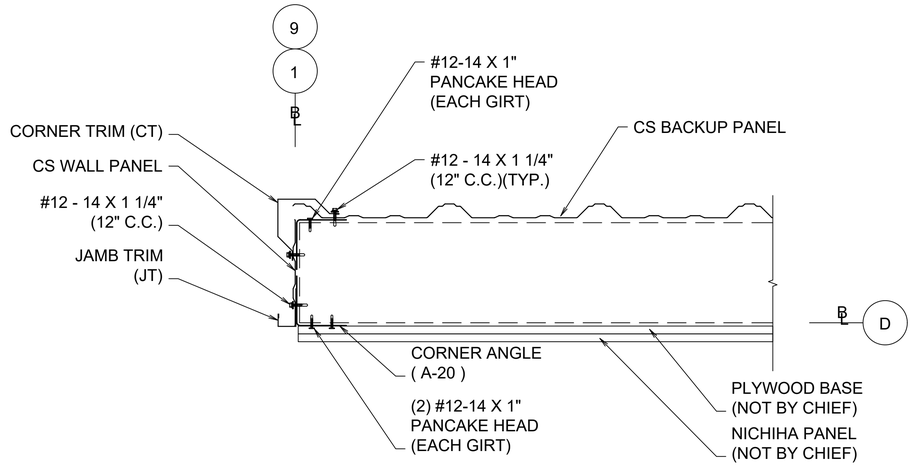
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	D7
GDM	TDP	B3025137	D12
1/20/2025	2/04/25		



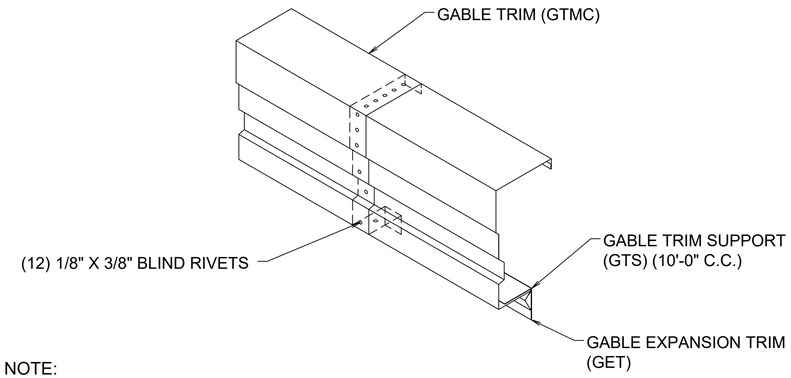
NOTE:

- Connection of nichiha panels (not by Chief), to plywood base is not by Chief.
- Flat sheets supplied for field formed corner trim
- Jamb trim is optional based on builders field formed corner trim

Y5

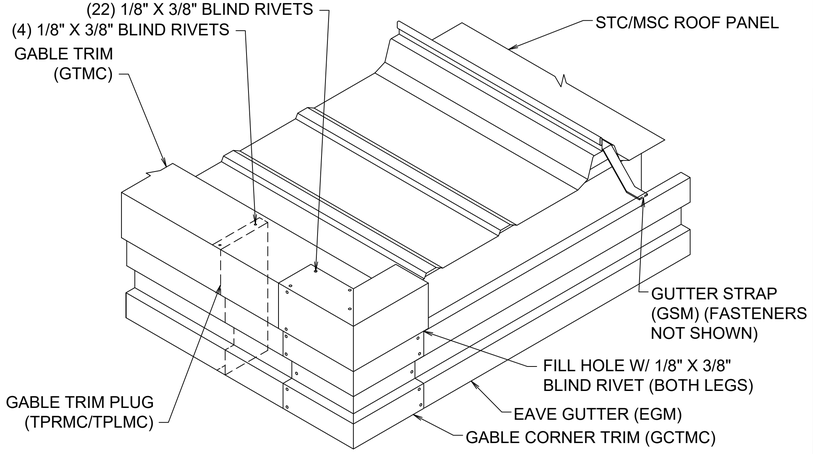
PARAPET AT END

TO BE USED FOR CONSTRUCTION



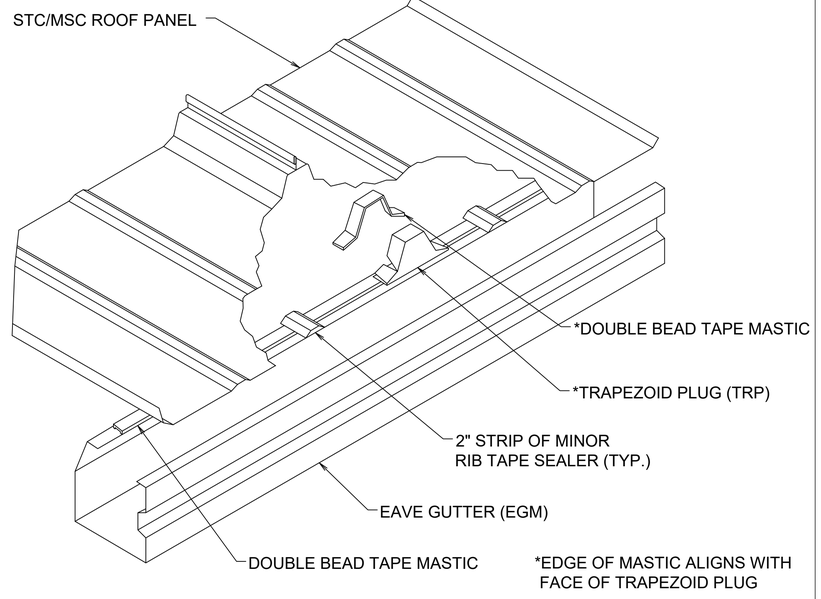
NOTE:
1. Use 2" lap at splices, and field cut 3/8" lockform at splice.
2. Fasten splice with (12) 1/8" x 3/8" blind rivets.
3. Use SIKA 511 sealant at splice.

GABLE TRIM SPLICE



NOTE:
1. Start gable trim 3" out from end of roof panel. Notch gable trim to avoid corner box rivets.
2. Start eave gutter 3" out from endwall building line.
3. Locate Gable Trim Plug as close to building line as possible. Field notch as required.
4. Use SIKA 511 sealant at plug and corner trim to gutter.

GABLE CORNER TRIM WITH GUTTER



TRAPEZOID PLUG INSTALLATION WITH GUTTER

REVISIONS

4
3
2
1

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

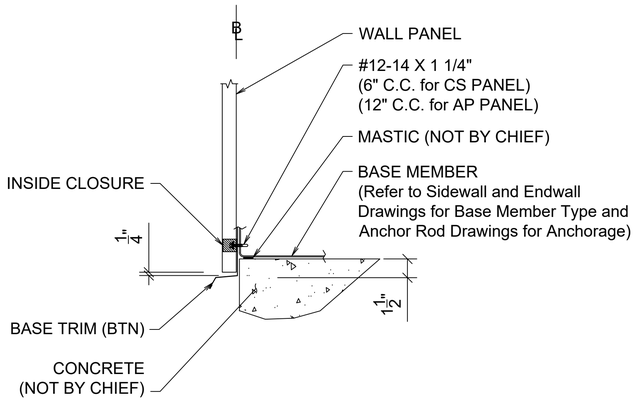
Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

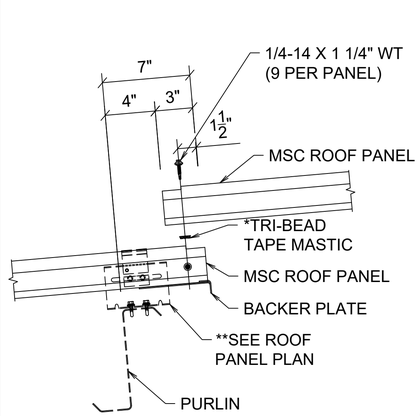
DRAWN	CHECK	ORDER NO.	D8
GDM	TDP	B3025137	
1/20/2025	2/04/25		D12

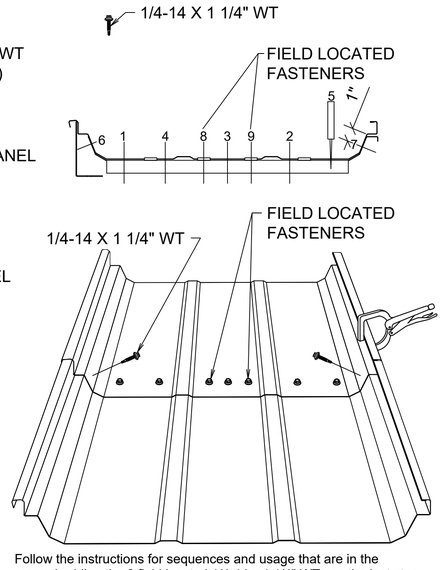
Reference notes:

- Use 1/8" x 3/8" Blind Rivets 10'-0" C.C. to attach Base Trim to Base Member.
- Drill Ø1/8" hole for 1/8" x 3/8" Blind Rivets.
- Provide air gap of 1/4" min. at bottom of panel to avoid corrosion.



BASE TRIM (BTN)
FINISH FLOOR



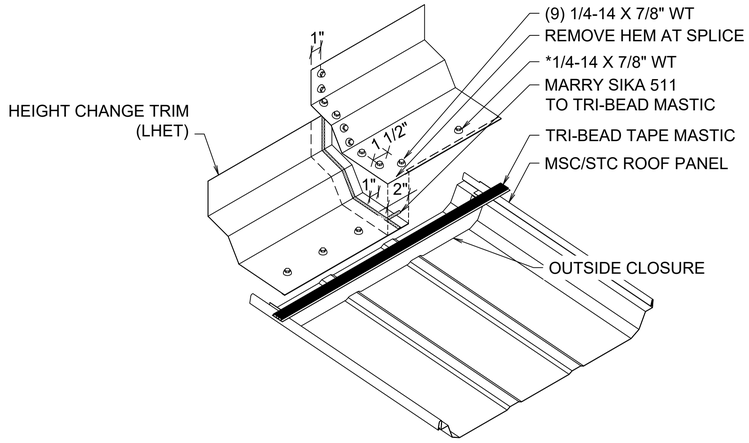


* 24" MSC - Pre-Cut Tri-Bead Tape Mastic.
18" MSC - Tri-Bead Tape Mastic from roll.

** Roof Paneling Plan for roof panel clip, panel clip fastener and thermal spacer requirements.

Follow the instructions for sequences and usage that are in the manual-adding the 2 field located 1/4-14 x 1 1/4" WTs as the last step.

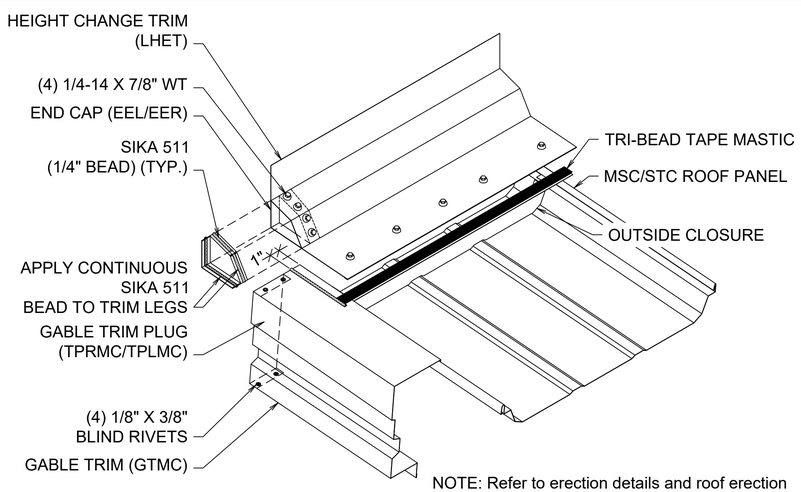
MSC ROOF PANEL SPLICE DETAIL



NOTE: Refer to erection details and roof erection manual for additional information.

*For screw spacing refer to High Eave Trim detail in the MSC/STC Roof Panel Erection Manual

HIGH SIDE HEIGHT CHANGE
TRIM AT END LAP



NOTE: Refer to erection details and roof erection manual for additional information.

*For screw spacing refer to High Eave Trim detail in the MSC/STC Roof Panel Erection Manual

HIGH SIDE HEIGHT CHANGE
TRIM AT GABLE TRIM

TO BE USED FOR CONSTRUCTION

REVISIONS
4
3
2
1

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Chief Buildings
PO Box 2078, Grand Island, NE 68802-2078
(308) 389-7289 cs@chiefind.com

NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

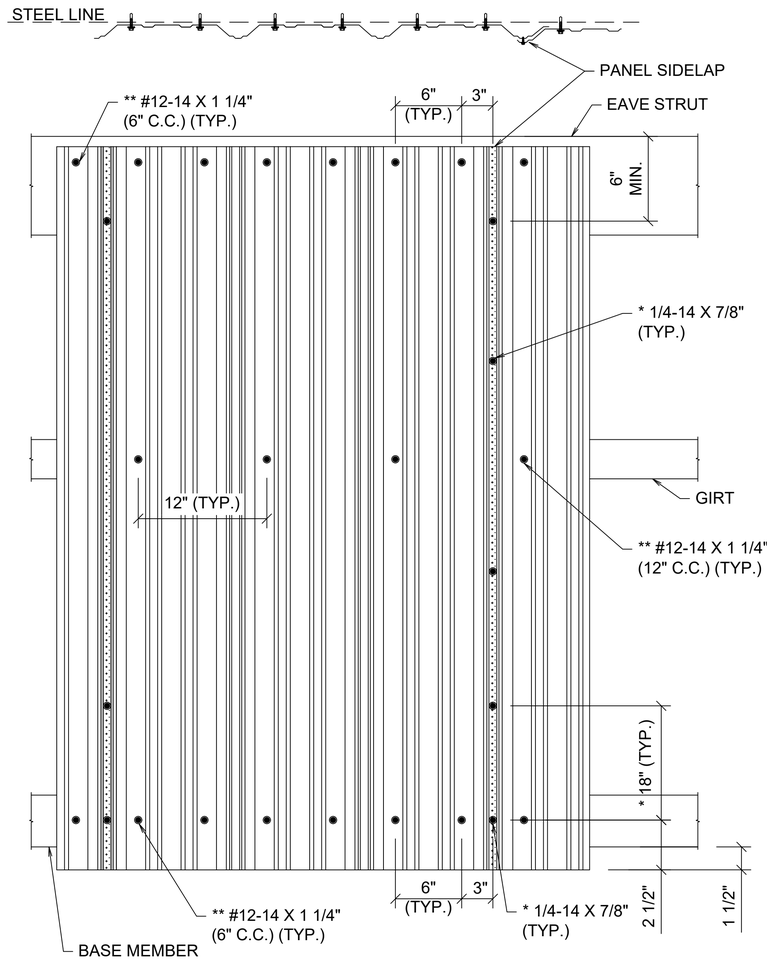
Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

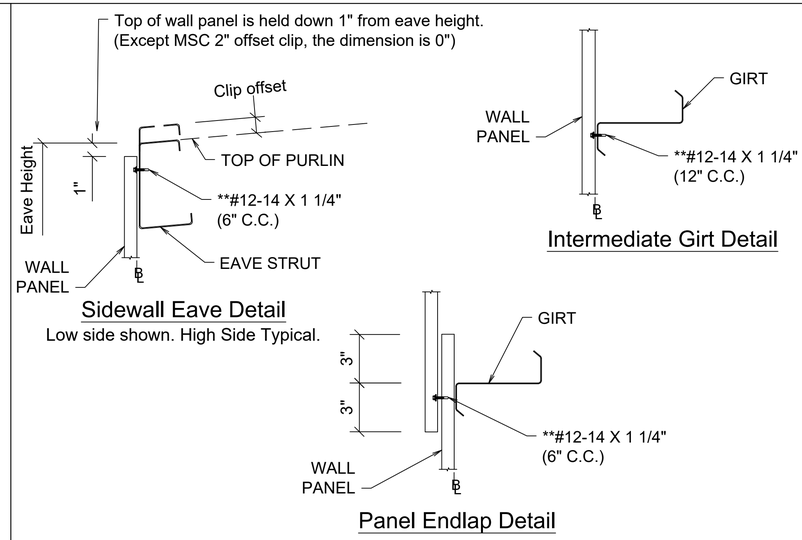
DRAWN	CHECK	ORDER NO.	D9 / D12
GDM	TDP	B3025137	
1/20/2025	2/04/25		

CS WALL PANEL - The details shown below are typical Chief metal building details. Not all details may apply. Specific details for additional features will be provided for complete installation instructions.

NOTES:
- The structural system must be plumb and square prior to panel installation.
- Care must be taken to insure panel modularity due to accessory locations and trim.
- Insulation has not been shown for clarity.
- Blanket insulation must be trimmed above the bottom of panel to prevent water from "WICKING" into the insulation.
- Provide air gap of 1/4" min. at bottom of panel to avoid corrosion.
- #12-14 X 1 1/4" Fastener spacing is (12" C.C.) unless otherwise noted.
  ** #12-14 X 1-1/4", Blanket Insulation <=4" thickness
  ** #12-14 X 2", Blanket Insulation >4" thickness
- When possible, CHIEF recommends installing panel so that panel lap is away from prevailing weather.

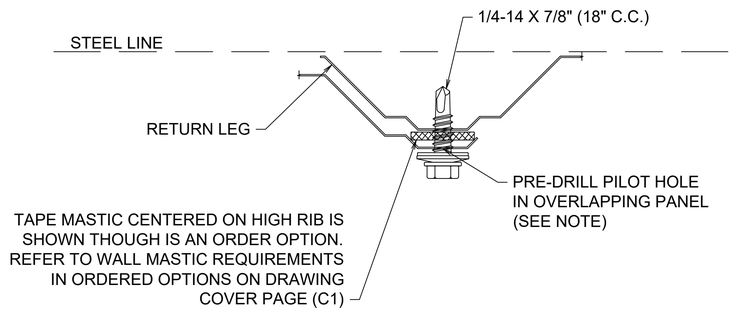


CS PANEL INSTALLATION

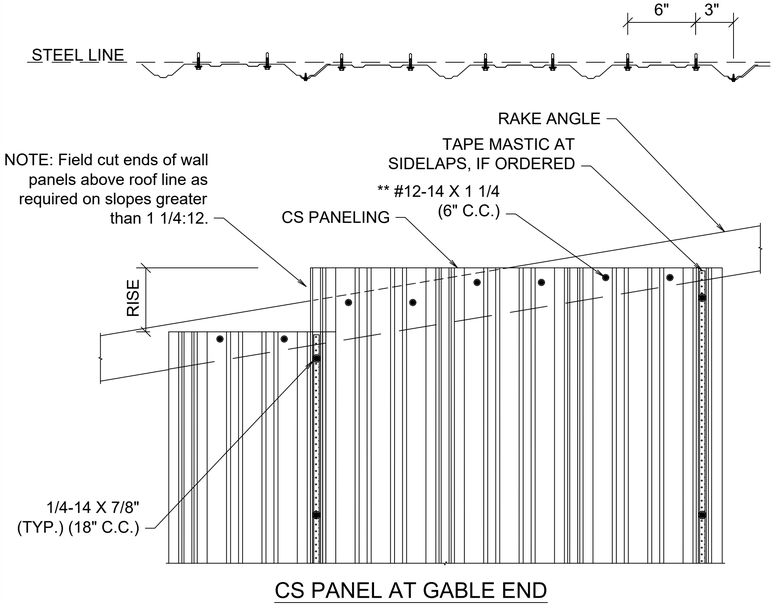


CS PANEL FASTENER INSTALLATION

NOTE:
- Sidelap holes (7/32" DIA.) must be Pre-drilled in the overlapping corrugation only.
- The overlapping corrugation does not have the return leg.

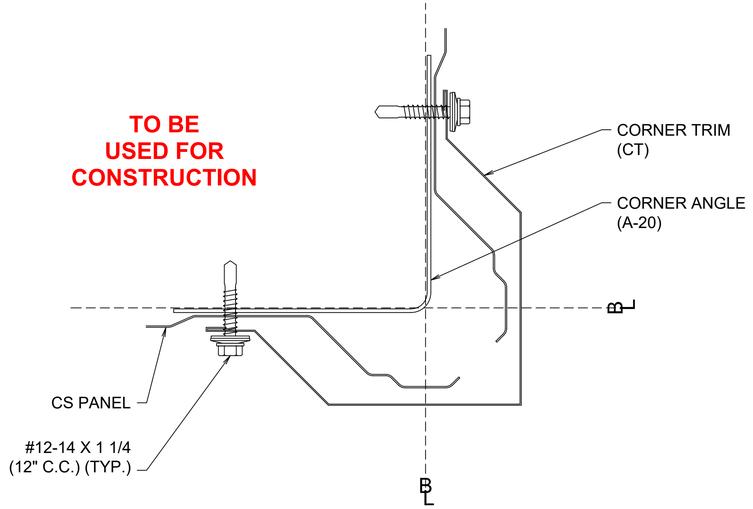


CS PANEL SIDE LAPS



CS PANEL AT GABLE END

NOTES:
- Field cut panel if required for corner trim.
- Corner Angle connection/fasteners, refer to Girt Corner Detail.
- Connection of panel to structure at corner is by the corner trim fasteners.



CS PANEL STANDARD CORNER CONDITION

REVISIONS
4
3
2
1

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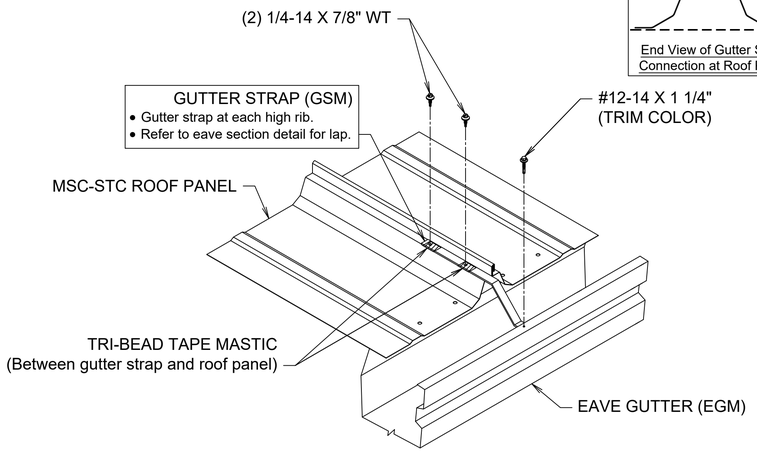
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

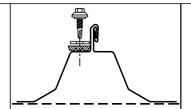
02/07/2025

Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

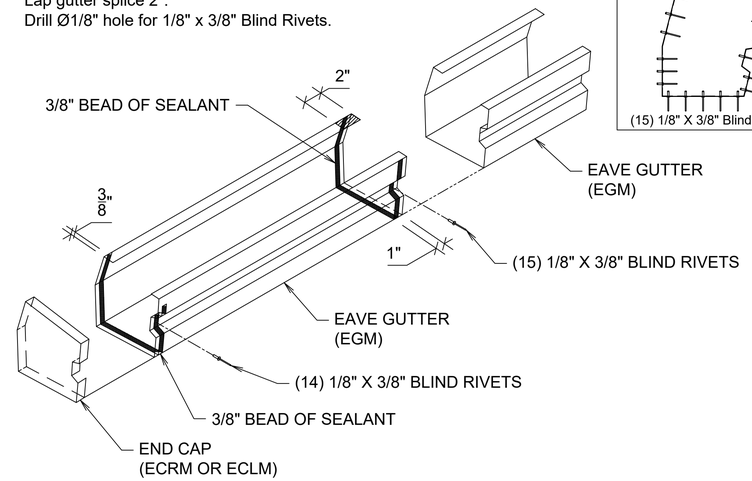
DRAWN	CHECK	ORDER NO.	D10 / D12
GDM	TDP	B3025137	
1/20/2025	2/04/25		



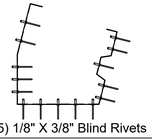


GUTTER STRAP TO ROOF PANEL WITH STANDARD GUTTER
MSC-STC Roof Panel

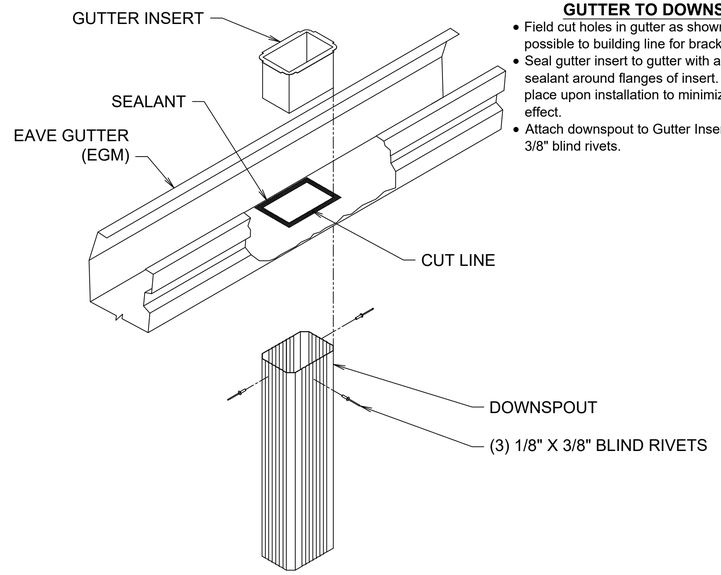
Reference notes:
- All sealant is SikaLastomer®-511.
- Lap gutter splice 2".
- Drill Ø1/8" hole for 1/8" x 3/8" Blind Rivets.



GUTTER SPLICE RIVET LAYOUT



END CAP AND GUTTER SPLICE WITH STANDARD GUTTER
Standing Seam Roof Panel

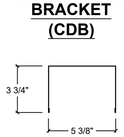


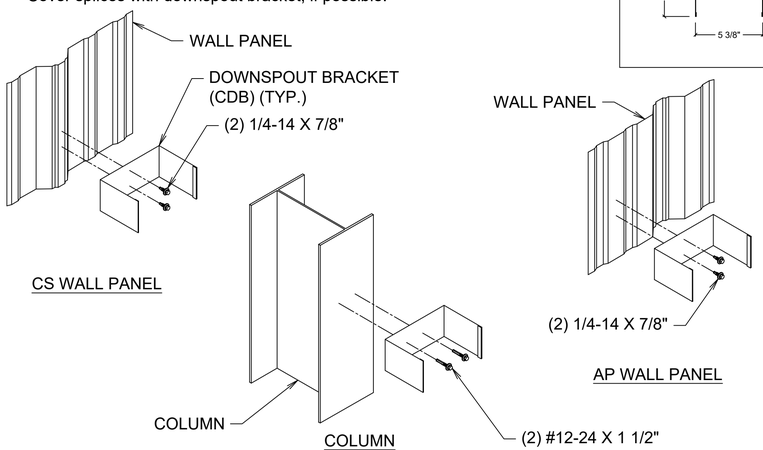
GUTTER TO DOWNSPOUT
- Field cut holes in gutter as shown close as possible to building line for bracket attachment.
- Seal gutter insert to gutter with a 3/8" bead of sealant around flanges of insert. Hand tool into place upon installation to minimize damming effect.
- Attach downspout to Gutter Insert with (3) 1/8" X 3/8" blind rivets.

GUTTER TO CORRUGATED DOWNSPOUT
Standing Seam Roof Panel

Reference notes:
- Locate brackets at 6'-0" C.C.
- Locate bracket on high ribs for CS wall panel.
- Locate bracket on flat of panel for AP wall panel.
- Locate bracket on flat of panel for AP wall panel.
- Attach bracket to downspout with (2) 1/8" x 3/8" blind rivets each leg. Cover splices with downspout bracket, if possible.

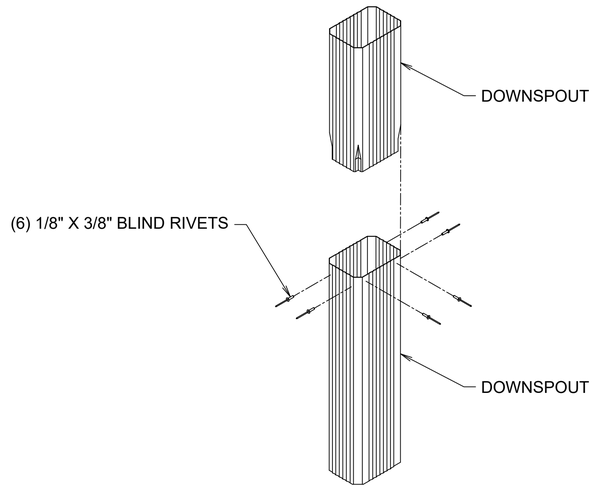
DOWNSPOUT BRACKET (CDB)



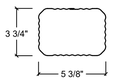


DOWNSPOUT BRACKET WITH STANDARD GUTTER

Reference notes:
- Lap downspout splice 2".
- Drill Ø1/8" hole for 1/8" x 3/8" Blind Rivets.
- Refer to Sidewall drawings for the quantity of downspout drops.

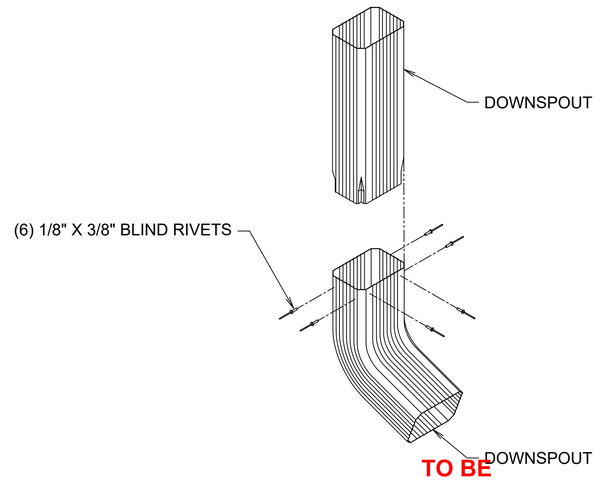


CORRUGATED DOWNSPOUT



CORRUGATED DOWNSPOUT SPLICE

Reference notes:
- Lap downspout to elbow splice 2".
- Drill Ø1/8" hole for 1/8" x 3/8" Blind Rivets.
- Refer to Sidewall drawings for the quantity of elbows.



TO BE USED FOR CONSTRUCTION

CORRUGATED DOWNSPOUT ELBOW

REVISIONS
4
3
2
1

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NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

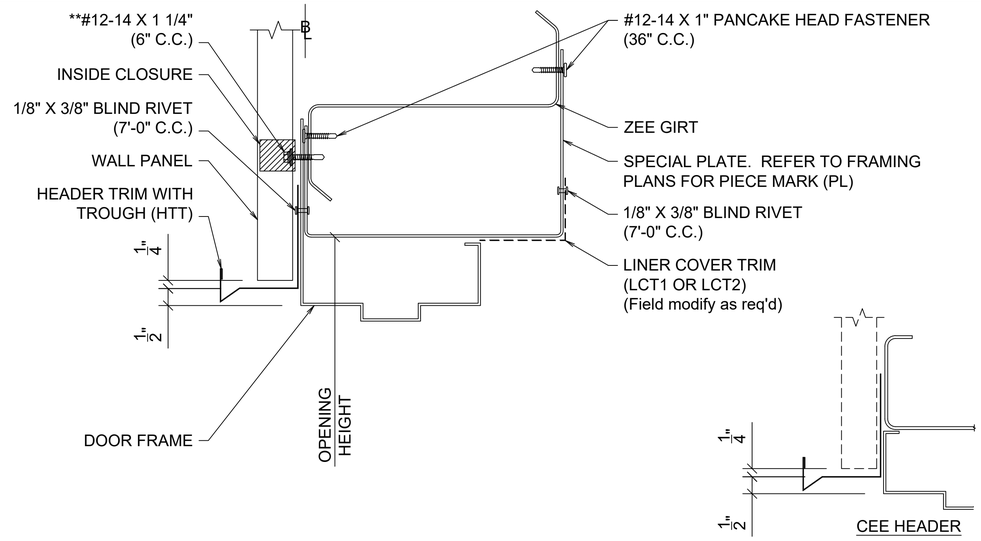
Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	
GDM	TDP	B3025137	D11 / D12
1/20/2025	2/04/25		

CS Panel- Metal Building Walkdoor - Pre-Assembled (by Chief) or Self-Framing Not by Chief

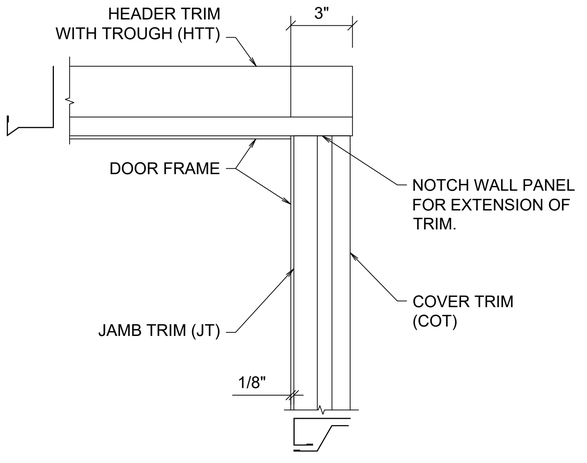
Refer to Order Documents for Doors Supplied by Chief



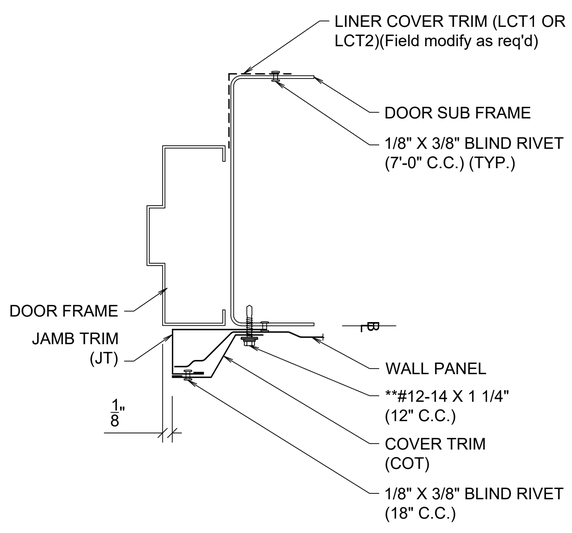
Provide air gap of 1/4" min. at bottom of panel to avoid corrosion.

PRE-ASSEMBLED OR SELF-FRAMING WALKDOOR HEADER TRIM DETAILS

Notes:
- Hold trims 1/8" back from Walk Door Frame edge (Applies only to walk doors).
- Drill Ø1/8" holes for Blind Rivets.
- Rivets spaced at 7'-0" C.C. are temporary fasteners.
- ** #12-14 X 1-1/4", Blanket Insulation <=4" thickness.
- ** #12-14 X 2", Blanket Insulation >4" thickness.
- LCT1 or LCT2 used with Liner/Backer. Refer to Liner or Partition Panel Dwg.

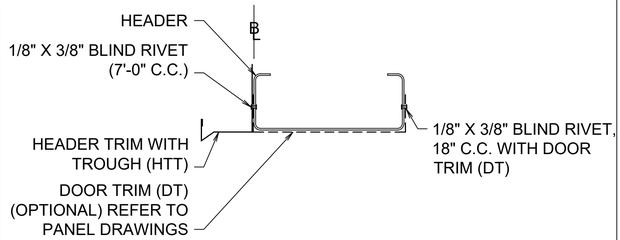


TRIM DETAIL AT CORNER

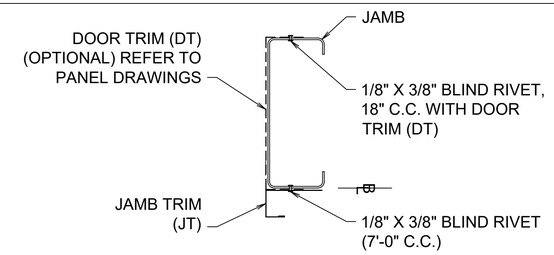


PRE-ASSEMBLED OR SELF-FRAMING WALKDOOR JAMB TRIM DETAILS

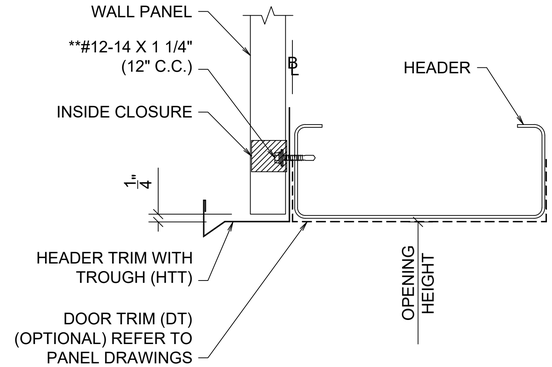
CS Panel - OHD or 3-Sided Opening



DETAILS AT HEADER



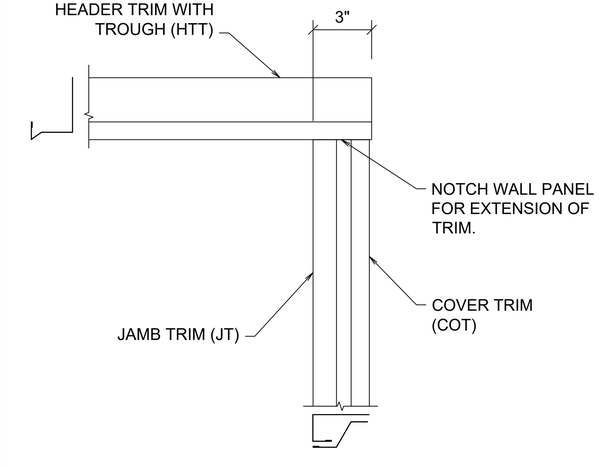
DETAILS AT JAMB



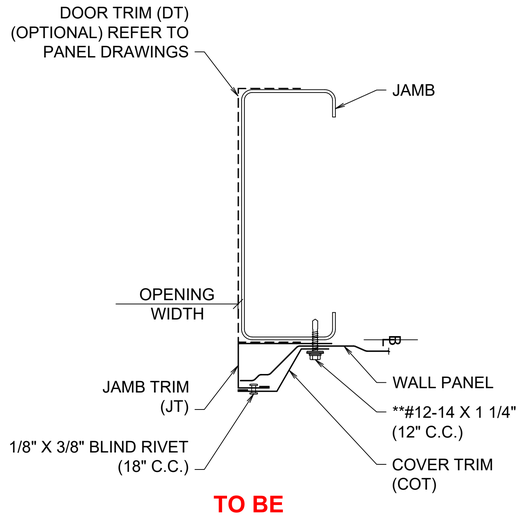
Provide air gap of 1/4" min. at bottom of panel to avoid corrosion.

TRIM DETAILS AT HEADER

Notes:
- Hold trims 1/8" back from Walk Door Frame edge (Applies only to walk doors).
- Drill Ø1/8" holes for Blind Rivets.
- Rivets spaced at 7'-0" C.C. are temporary fasteners.
- ** #12-14 X 1-1/4", Blanket Insulation <=4" thickness.
- ** #12-14 X 2", Blanket Insulation >4" thickness.



TRIM DETAIL AT CORNER



TO BE USED FOR CONSTRUCTION

TRIM DETAILS AT JAMBS

REVISIONS

4
3
2
1

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(308) 389-7289 cs@chiefind.com

NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

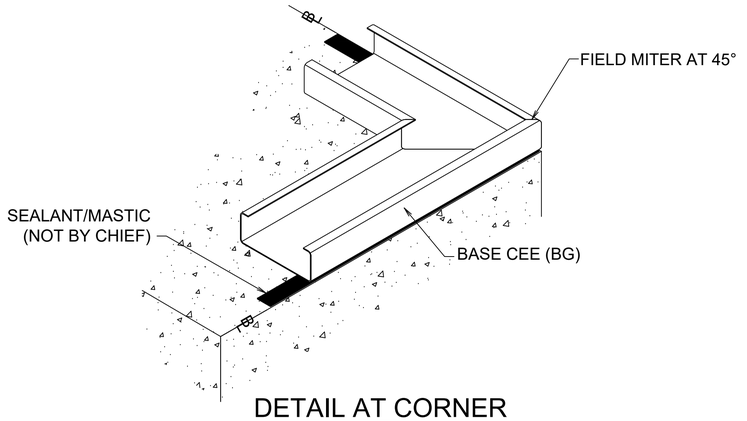
02/07/2025

Drawing	DETAILS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

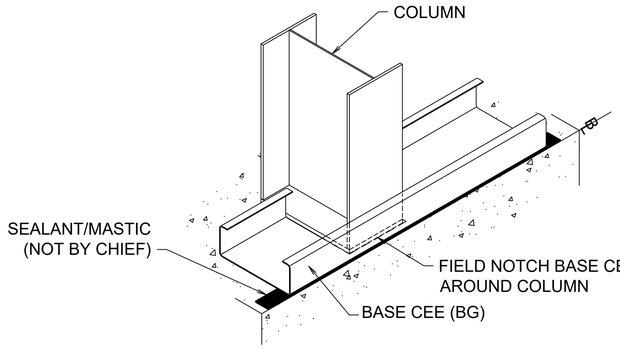
CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	D12
GDM	TDP	B3025137	D12
1/20/2025	2/04/25		

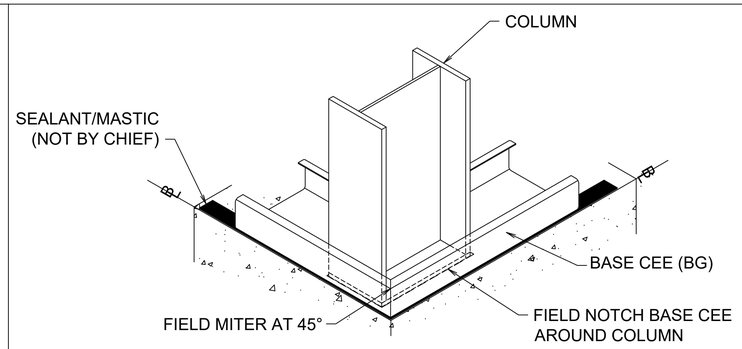
BASE CEE - The details shown below are typical Chief metal building details. Not all details may apply.



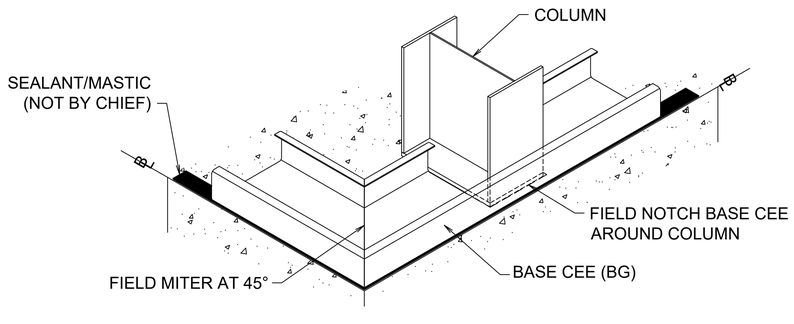
DETAIL AT CORNER



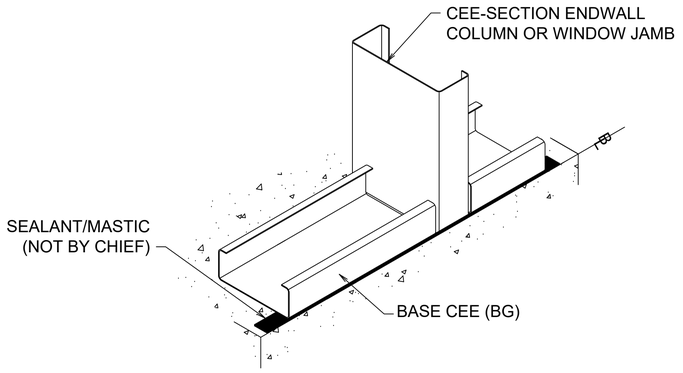
DETAIL AT COLUMN



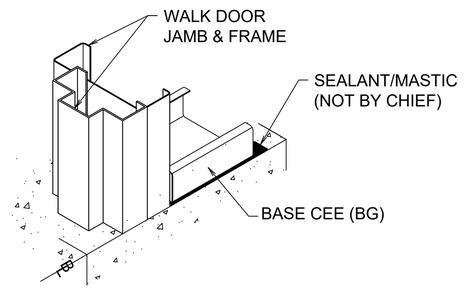
DETAIL AT CORNER COLUMN



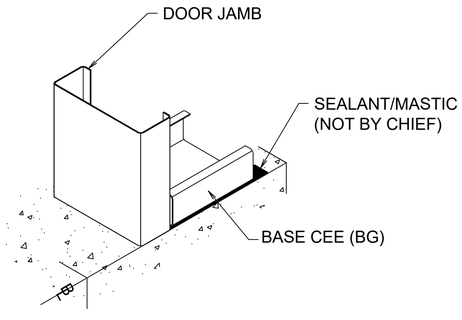
DETAIL AT CORNER COLUMN



DETAIL AT CEE-SECTION COLUMN/JAMB



DETAIL AT WALK DOOR



DETAIL AT OVERHEAD DOOR

TO BE USED FOR CONSTRUCTION

BASE MEMBER NOTES:

- Base Cees are supplied in 20' lengths. Pre-punched 5/16 x 1-1/8" slots are provided for convenience. Anchors are not required in all holes, nor must the pre-punched spacing be used.
- Refer to Anchor Rod Drawing, "Fastener Spacing Chart" for fastener types and spacing requirements.
- Refer to Wall Framing Drawings for locations of BGs.
- Apply a continuous bead of sealant or mastic (Not by Chief) between the Base Cee and concrete. Field cut, notch, and miter at corners where required.

RELEASED	10-04-23
SUPERSEDES	

REVISIONS

4
3
2
1

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(308) 389-7289 cs@chiefind.com

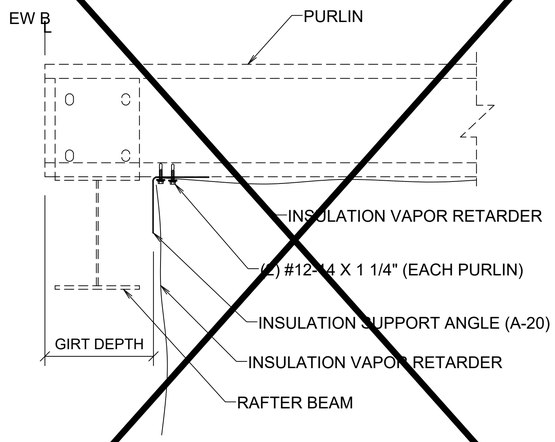
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

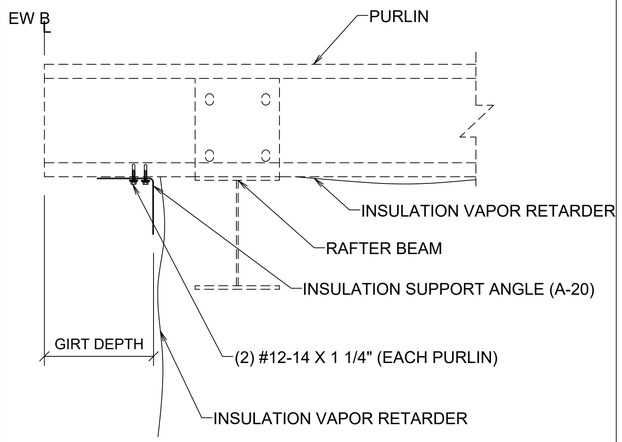
Drawing	BASE CEE DETAILS (BG-8/BG-10)
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

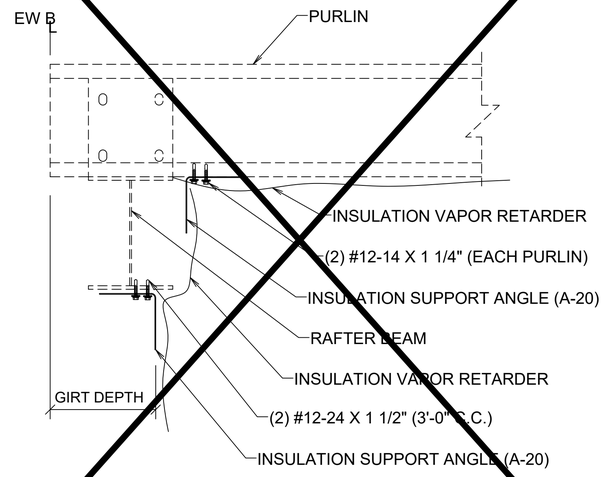
DRAWN	CHECK	ORDER NO.	GD1 / GD5
GDM	TDP	B3025137	
1/20/2025	2/04/25		



INSULATION SUPPORT ANGLE AT GABLE

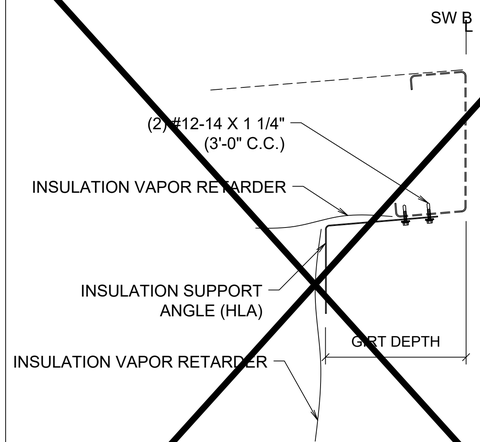


INSULATION SUPPORT ANGLE AT GABLE

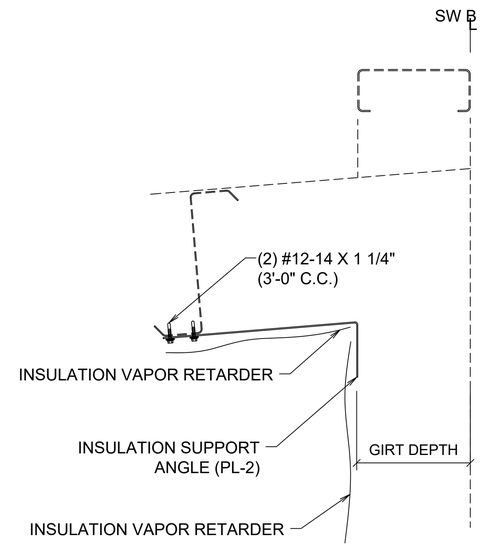


INSULATION SUPPORT ANGLE AT GABLE

INSULATION SUPPORT ANGLE AT EAVE
(WITH LLA)



INSULATION SUPPORT ANGLE AT EAVE
(WITH HLA)



INSULATION SUPPORT ANGLE AT PARAPET HIGH
SIDE EAVE (WITH PL)

TO BE USED FOR CONSTRUCTION

RELEASED	10-10-24
SUPERSEDES	04-04-23

REVISIONS

4
3
2
1

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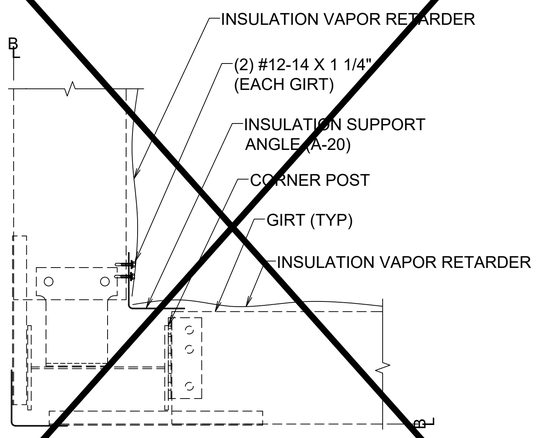
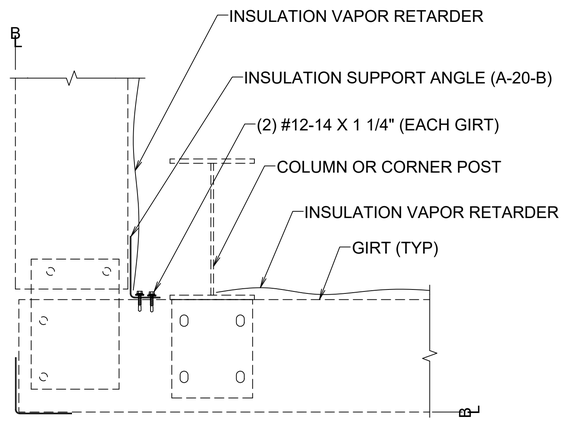
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

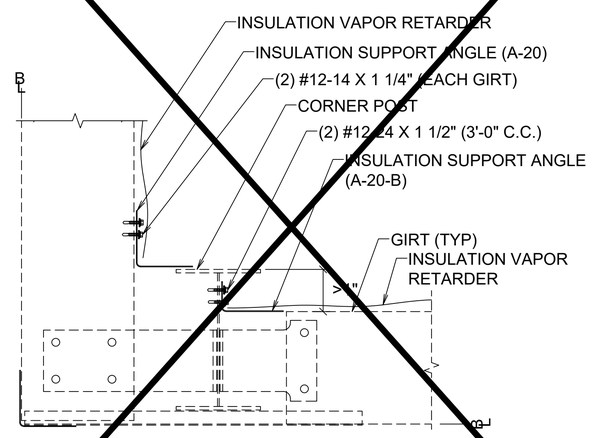
Drawing	INSULATION SUPPORT ANGLES - EAVE AND GABLES			
Buyer	Associated Contract Services, Inc.			
Customer	TFD, Inc. Fuquay Varina, NC 27526			
Project Name	Jarco Business Center - Bldg 1			
CHIEF BUILDINGS	DRAWN	CHECK	ORDER NO.	GD2 / GD5
	GDM	TDP	B3025137	
	1/20/2025	2/04/25		



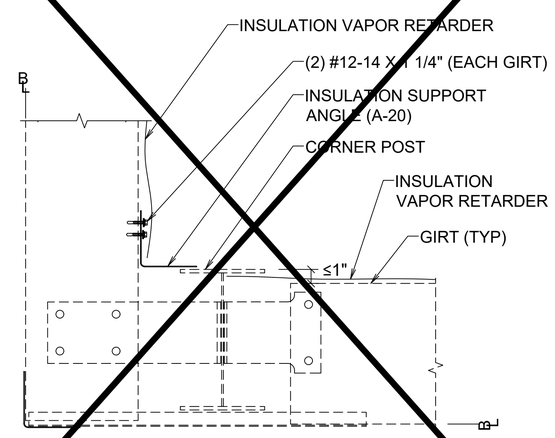
INSULATION SUPPORT ANGLE AT INSIDE OF CORNERS
(AT CORNER POST)



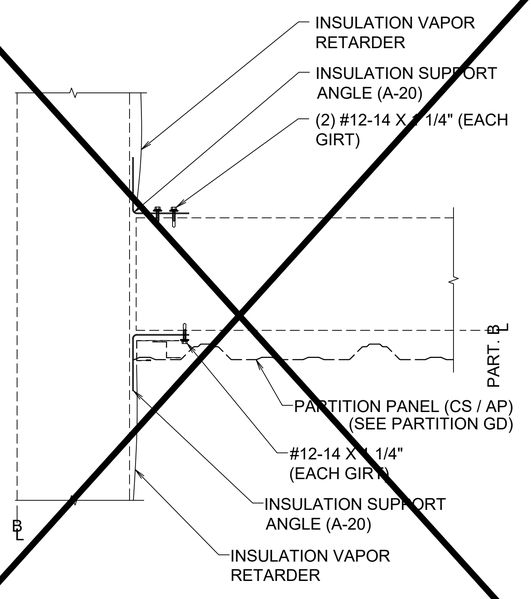
INSULATION SUPPORT ANGLE AT INSIDE OF CORNERS
(AT COLUMN OR CORNER POST)



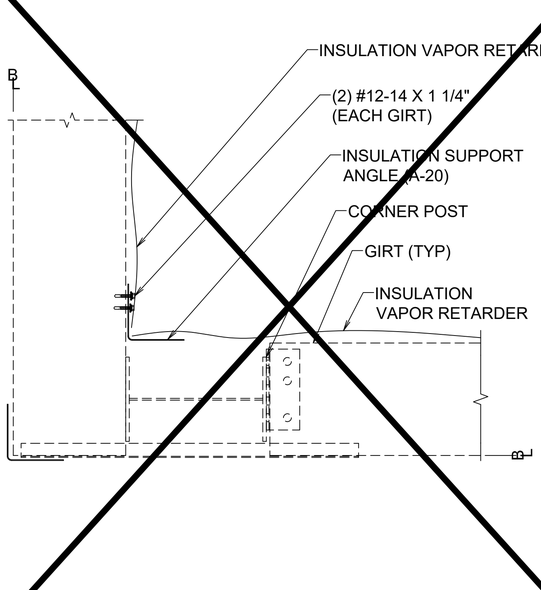
INSULATION SUPPORT ANGLE AT INSIDE OF CORNERS
(WITH ADDITIONAL SUPPORT ANGLE)



INSULATION SUPPORT ANGLE AT INSIDE OF CORNERS
(AT CORNER POST)



INSULATION SUPPORT ANGLE AT INSIDE OF CORNERS
(AT PARTITION)



INSULATION SUPPORT ANGLE AT INSIDE OF CORNERS
(AT CORNER POST)

TO BE USED FOR CONSTRUCTION

RELEASED	10-10-24
SUPERSEDES	04-04-23

REVISIONS

4
3
2
1

Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.

Chief Buildings
PO Box 2078, Grand Island, NE 68802-2078
(308) 389-7289 cs@chiefind.com

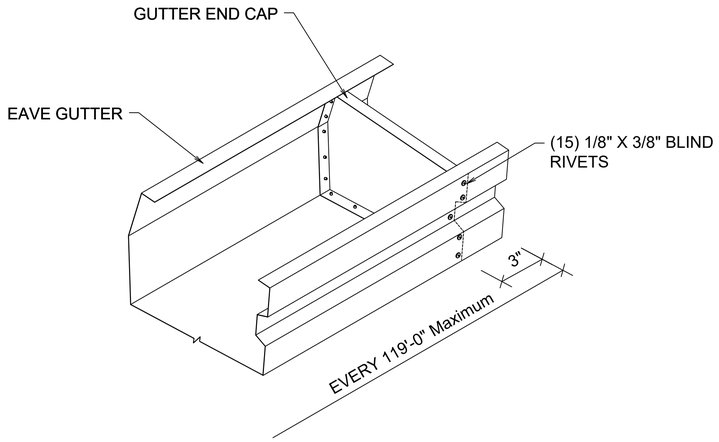
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

Drawing	INSULATION SUPPORT ANGLES - INSIDE CORNERS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

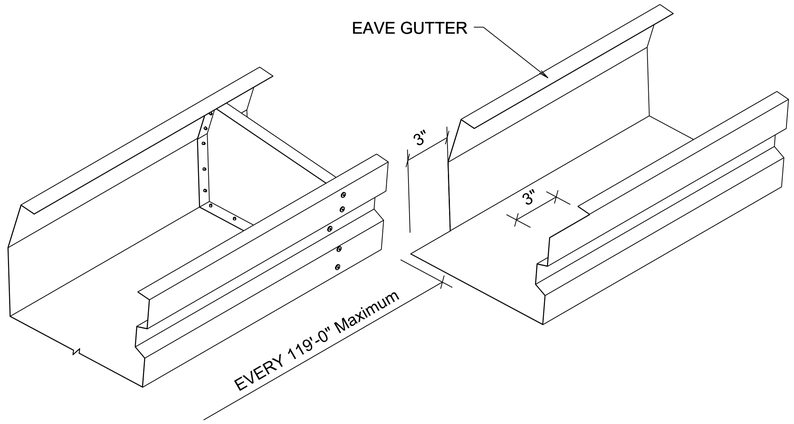
CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	GD3 / GD5
GDM	TDP	B3025137	
1/20/2025	2/04/25		



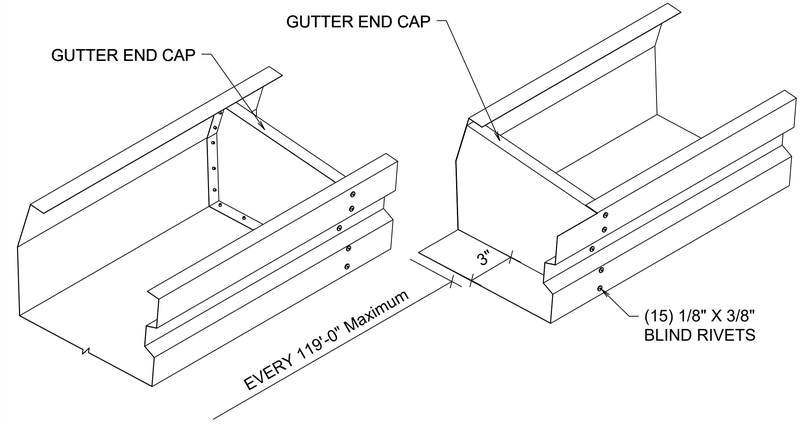
STEP 1:

- Install gutter up to point that expansion joint is to be located.
- Assemble gutter end cap into bead of sealant 3" from gutter end prior to attaching gutter to roof panel.



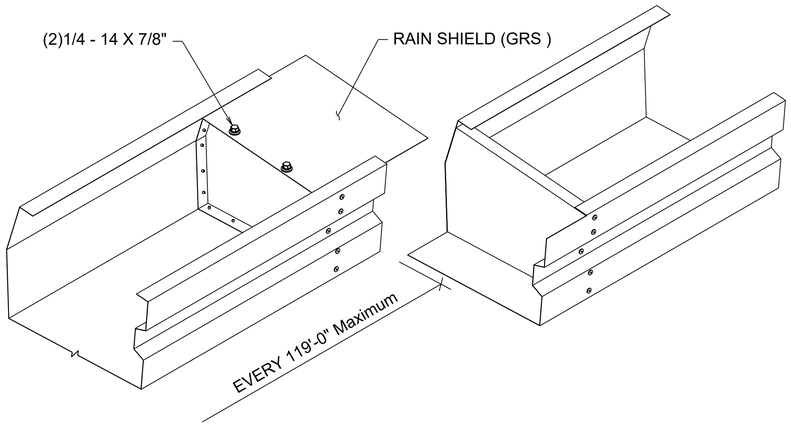
STEP 2:

- Remove 3" of material from next piece of gutter as shown.



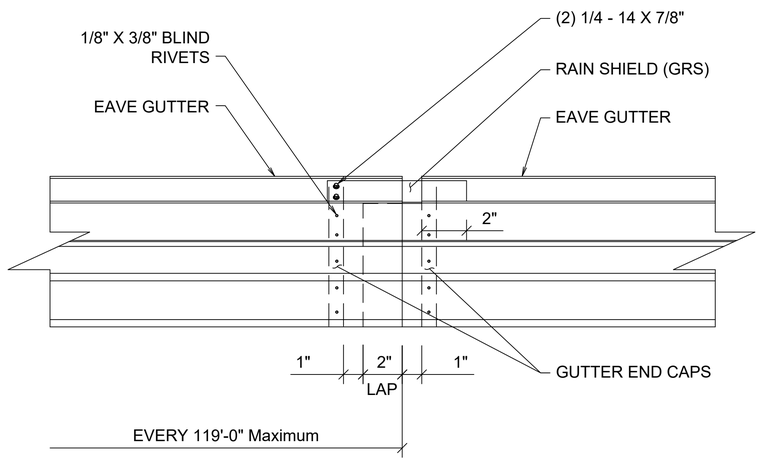
STEP 3:

- Assemble gutter end cap into bead of sealant 3" from gutter end.

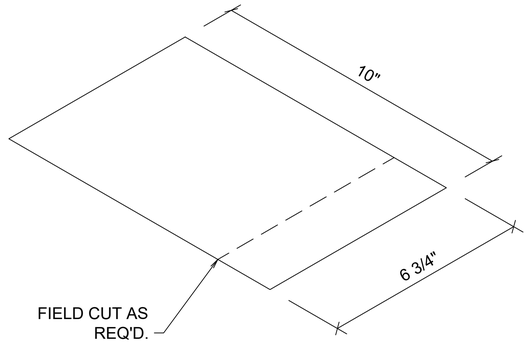


STEP 4:

- Lap the gutters 2". Do **NOT** install any fasteners in the lapped area.
- Using (2) 1/4 - 14 X 7/8" fasteners, assemble rain shield to only one gutter end cap. Do **NOT** fasten to both end caps.



FRONT VIEW



TO BE USED FOR CONSTRUCTION

RAIN SHIELD (GRS)

RELEASED	10-31-22
SUPERSEDES	06-29-11

REVISIONS

4
3
2
1

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(308) 389-7289 cs@chiefind.com

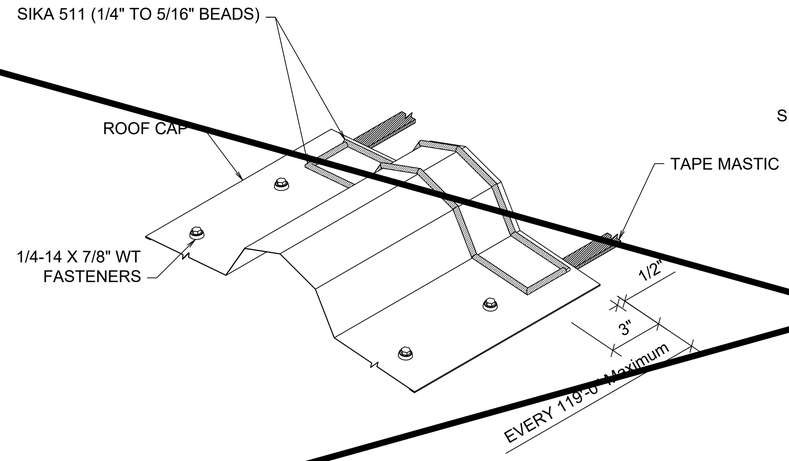
NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

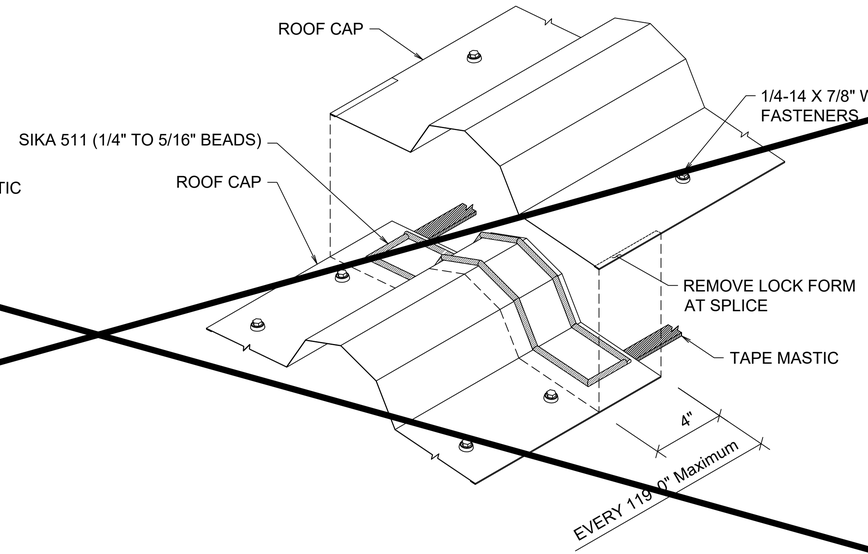
02/07/2025

Drawing	GUTTER EXPANSION JOINT
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	GD4
GDM	TDP	B3025137	GD5
1/20/2025	2/04/25		





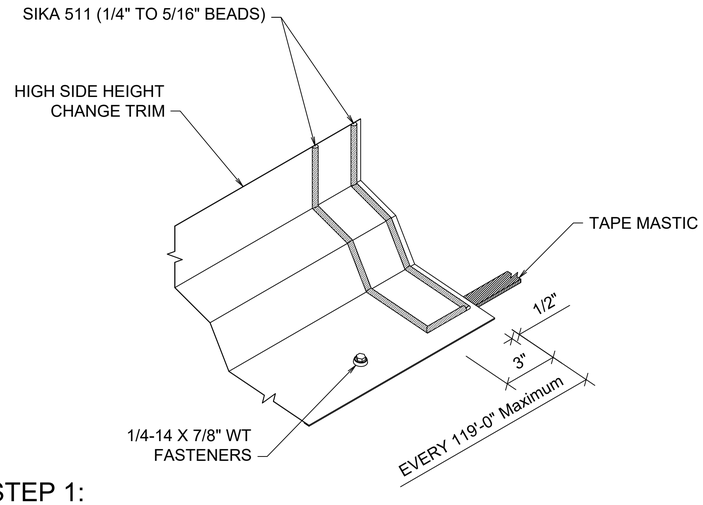
STEP 1:

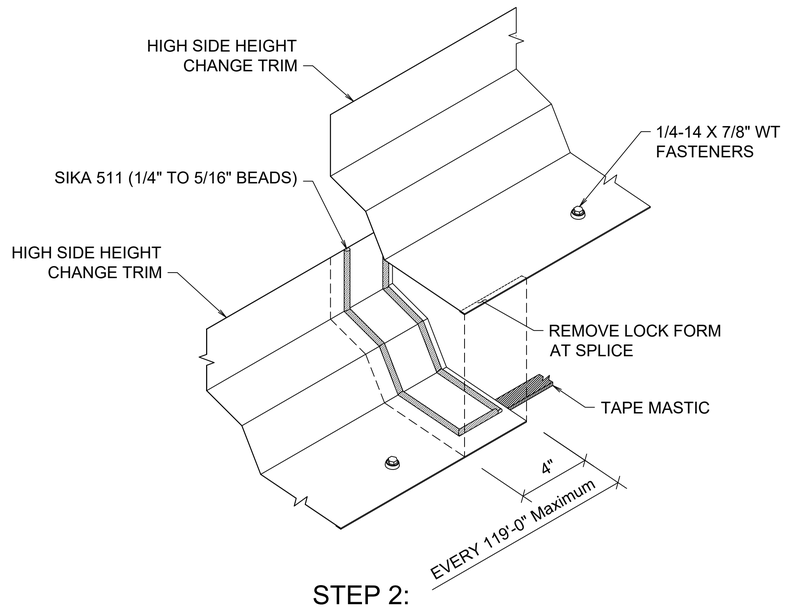
- Install roof cap up to the point that expansion joint is to be located.
- Apply (2) beads of Sikalastomer 511 sealant as shown.

ROOF CAP TRIM SPLICE AT EXPANSION JOINT

STEP 2:

- Lap next roof cap piece onto previous piece 4".
- Do **not** install fasteners in the overlap.





STEP 1:

- Install high side height change trim up to the point that expansion joint is to be located.
- Apply (2) beads of Sikalastomer 511 sealant as shown.

HIGH SIDE HEIGHT CHANGE TRIM SPLICE AT EXPANSION JOINT

STEP 2:

- Lap next high side height change trim onto previous piece 4".
- Do **not** install fasteners in the overlap.

TO BE USED FOR CONSTRUCTION

RELEASED	10-31-22
SUPERSEDES	06-29-11

REVISIONS

4
3
2
1

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Chief Buildings
PO Box 2078, Grand Island, NE 68802-2078
(308) 389-7289 cs@chiefind.com

NORTH CAROLINA PROFESSIONAL SEAL 031908 ENGINEER DUSTIN L. COLE

02/07/2025

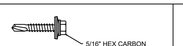
Drawing	STANDING SEAM EXPANSION TRIM JOINTS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	GD5
GDM	TDP	B3025137	GD5
1/20/2025	2/04/25		

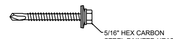
Commonly Used Parts: Not all parts shown will be required on all projects.

#12 Fasteners



- WALL PANEL TO STEEL
- CS/AP SOFFIT PANEL TO STEEL
- RAKE ANGLE TO PURLINS-MVF/MVP/CS ROOF

#12 - 14 X 1 1/4"



- FASTENER USED IN BUILDINGS WITH BLANKET INSULATION OVER WALL GIRTS GREATER THAN 4 INCHES. THIS FASTENER REPLACES THE #12-14 X 1 1/4" FASTENER SHOWN IN THE ERECTION DRAWINGS AND SECTIONS.

#12 - 14 X 2"

- WALL PANEL TO STEEL GREATER THAN 12 GAGE
- TRIM TO STEEL GREATER THAN 12 GAGE
- MSC/STC CLIP SCREW FOR BAR JOIST

#12 - 24 x 1 1/2"

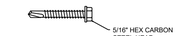
- WALL PANEL TO STEEL GREATER THAN 12 GAGE. FASTENER USED IN BUILDINGS WITH BLANKET INSULATION OVER WALL GIRTS GREATER THAN 4 INCHES. THIS FASTENER REPLACES THE #12-14 X 1 1/2" FASTENER SHOWN IN THE ERECTION DRAWINGS AND SECTIONS.

#12 - 24 X 2"

#12 W/O Fasteners

- MVF/MVP CLIP TO PURLIN WITH UP TO 4" THICK INSULATION
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS - MVF/MVP ROOF
- DECKING ATTACHMENT TO PURLINS

#12 - 14 X 1 1/4" W/O



- MVF/MVP CLIP TO PURLIN WITH OVER 4" THICK INSULATION
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS - MVF/MVP ROOF

#12 - 14 X 1 1/2" W/O

- MVF/MVP CLIP TO BAR JOIST WITH UP TO 4" THICK INSULATION.
- DECKING ATTACHMENT TO BAR JOIST AND BEAMS

#12 - 24 X 1 1/4" W/O

- MVF/MVP CLIP TO BAR JOIST WITH OVER 4" THICK INSULATION

#12 - 24 X 1 1/2" W/O

PANCAKE HEAD

- RAKE ANGLE TO PURLINS - MSC/STC ROOF
- CORNER ANGLE TO GIRTS
- SAB FLAT STRAPS TO PURLINS
- FLAT SOFFIT TO SUPPORTS
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS - CS ROOF

#12-14 X 1" PANCAKE HEAD

- RAKE ANGLE TO PURLINS > 12ga. - MSC/STC ROOF
- CORNER ANGLE TO GIRTS > 12ga.
- SAB FLAT STRAPS TO PURLINS > 12ga.
- FLAT SOFFIT TO SUPPORTS > 12ga.
- SUPPORT PLATE TO PURLINS >12ga. AT HIP OR VALLEY CONDITIONS - CS ROOF

#12-24 X 1 1/2" PANCAKE HEAD

#1/4"-14 Fasteners

- WALL OR SOFFIT PANEL: TRIM TO PANEL OR PANEL TO PANEL
- MEZZANINE DECKING AT SIDE LAPS.
- WALL OR SOFFIT PANEL: TRIM TO TRIM

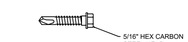
1/4 - 14 X 7/8"

- MSC/STC CLIP TO PURLIN (WITH UP TO 4" THICK INSULATION)
- EAVE PLATE TO PURLIN
- INSIDE CLOSURE TO EAVE PLATE OR EAVE STRUT
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS - MSC/STC ROOF

1/4 - 14 X 1"

- MSC/STC CLIP TO PURLIN (GREATER THAN 4" THICK INSULATION BUT LESS THAN 8")
- EAVE PLATE TO PURLIN
- INSIDE CLOSURE TO EAVE PLATE OR EAVE STRUT
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS - MSC/STC ROOF

1/4 - 14 X 1 1/2"



- MSC/STC RAKE SUPPORT TO RAKE ANGLE
- FLOATING EAVE PLATE TO EAVE STRUT
- FLOATING EAVE PLATE TO JOIST

1/4 - 14 X 1 1/4" SHOULDER

#1/4"-14 WT Fasteners

- ROOF PANEL TO ROOF PANEL
- TRIM TO ROOF PANEL, OR CLOSURE
- ROOF CAP OR FLASHING TO CLOSURES

1/4 - 14 X 7/8" WT

- ROOF PANEL TO STEEL
- BACK-UP PANEL TO STEEL
- ROOF TRIM TO STEEL

1/4 - 14 X 1 1/4" WT

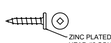
Wood Fasteners

- STANDING SEAM ROOF CLIP TO WOOD
- PANEL TO WOOD
- TRIM TO WOOD

#14 X 1 1/2" TYPE A MILLED POINT

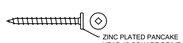
- STANDING SEAM ROOF AT EAVE TO WOOD
- CS ROOF TO WOOD
- TRIM ON ROOF TO WOOD

1/4 - 14 X 1 1/2" WT TYPE AB MILLED POINT



- MVF/MVP UTILITY CLIP TO WOOD
- MVF/MVP CLIP ALTERNATE FASTENER TO WOOD
- RAKE AND CORNER ANGLE TO WOOD
- PARAPET CAP CLEAT TO WOOD

#12 - 8 X 1" XG PANCAKE HEAD



- MVF/MVP UTILITY CLIP TO WOOD
- MVF/MVP CLIP ALTERNATE FASTENER TO WOOD
- RAKE AND CORNER ANGLE TO WOOD
- PARAPET CAP CLEAT TO WOOD

#12 - 8 X 2" XG PANCAKE HEAD

Tamperproof

- PANEL TO STEEL
- TRIM TO STEEL

#12 - 14 X 1 1/4" TAMPERPROOF

- PANEL TO STEEL
- TRIM TO STEEL

#12 - 14 X 2" TAMPERPROOF

- PANEL TO STEEL GREATER THAN 12 GAGE
- TRIM TO STEEL GREATER THAN 12 GAGE

#12 - 24 X 1 1/2" TORX DRIVE

- TRIM TO TRIM
- TRIM TO PANEL
- PANEL TO PANEL

1/4 - 14 X 7/8" TAMPERPROOF

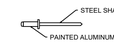
Miscellaneous Fasteners

- "STRIP OUT" REPLACEMENT FASTENER FOR ROOF, WALLS, BACK-UP PANEL AND TRIM

#17 X 1" WT

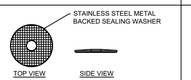
- LIP-TO-LIP MEMBER CONNECTIONS WITH 7/16" DIA. PUNCHED HOLES

1/2" X 1" SELF-TAPPING



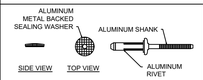
- TRIM TO TRIM
- TRIM TO STEEL
- MSC/STC & MVF/MVP OUTSIDE CLOSURE TO BACK-UP ANGLE AT HIP CONDITION

1/8" X 3/8" BLIND RIVET



- MSC/STC-LOW SIDE OF LIGHT TRANSMITTING PANELS

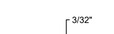
#14 X 1 1/8" BONDED WASHER



- LIGHT TRANSMITTING PANEL TO LIGHT TRANSMITTING PANEL SIDE LAP
- WINDOWS BY CHIEF TO WINDOW JAMBS

3/16" BULBTITE RIVET AND WASHER

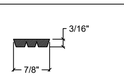
Sealant



TAPE MASTIC 50' ROLL

DOUBLE BEAD TAPE MASTIC 40' ROLL

TRIPLE BEAD TAPE MASTIC 20' ROLL



TRI-BEAD TAPE MASTIC 35' ROLL / PRE-CUT

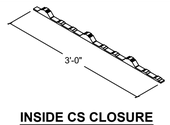
- POLYURETHANE SEALANT.
- USED AT EXPOSED AREAS OR AREAS WHERE SOME FILL IS REQUIRED.
- THIS SEALANT IS U.V. RESISTANT.
- SEALS 24.3 LINEAR FEET OF 1/4" BEAD

201 SIKAFLEX

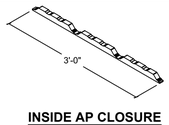
- NON-SKINNING, NON-SHRINKING SEALANT.
- USED AT TRIM CAP LAPS, HEIGHT CHANGE LAPS, GABLE TRIM LAPS, AND GUTTER LAPS.
- THIS SEALANT IS NOT U.V. RESISTANT.
- USED AT NON-EXPOSED AREAS.
- SEALS 24.3 LINEAR FEET OF 1/4" BEAD

511 SIKALASTOMER

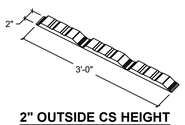
Closures



INSIDE CS CLOSURE OUTSIDE AP CLOSURE



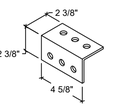
INSIDE AP CLOSURE OUTSIDE CS CLOSURE



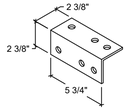
2" OUTSIDE CS HEIGHT CHANGE FOAM CLOSURE

Bolting Clips (XBC)

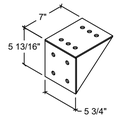
XBC-1



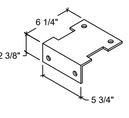
XBC-2



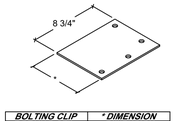
XBC-3



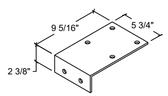
XBC-9



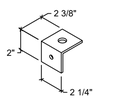
XBC-33



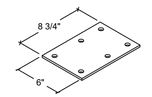
BOLTING CLIP	* DIMENSION
XBC-38	6 3/4"
XBC-39	8 3/4"



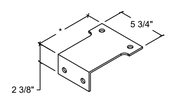
XBC-52



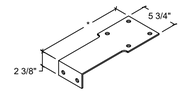
XBC-65



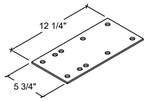
XBC-73



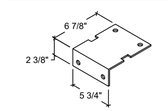
BOLTING CLIP	* DIMENSION
XBC-74	6 7/8"
XBC-75	8 7/8"



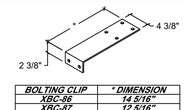
BOLTING CLIP	* DIMENSION
XBC-76	13 7/8"
XBC-100	10 7/8"



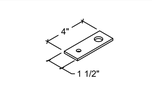
XBC-82



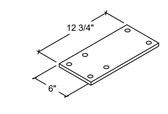
XBC-84 & -85



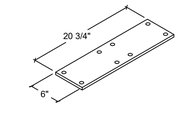
BOLTING CLIP	* DIMENSION
XBC-86	14 5/16"
XBC-87	12 5/16"
XBC-88	10 5/16"
XBC-89	24 5/16"
XBC-90	22 5/16"



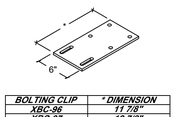
XBC-91



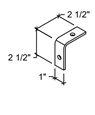
XBC-94



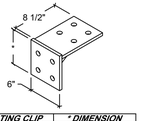
XBC-95



BOLTING CLIP	* DIMENSION
XBC-96	11 7/8"
XBC-97	12 7/8"
XBC-98	10 7/8"
XBC-99	11 7/8"

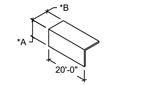


XBC-101

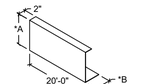


BOLTING CLIP	* DIMENSION
XBC-102	6 1/4"
XBC-103	8 1/4"

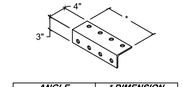
Miscellaneous



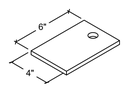
ANGLE	*A DIM.	*B DIM.
A-20	4"	4"
A-20-B	4 3/8"	2 1/8"
A-20-H	9"	5 3/8"
A-20-L	11 15/16"	2 1/2"



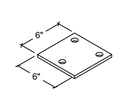
CHANNEL	*A DIM.	*B DIM.
GEC-8	8 7/16"	4 5/16"
GEC-10	10 7/16"	2 5/16"



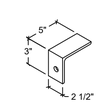
ANGLE	* DIMENSION
XBFA-2	6"
XBFA-3	9"
XBFA-4	12"
XBFA-5	15"
XBFA-6	18"



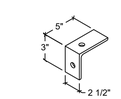
XCLT-1



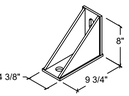
XCLT-2



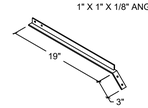
XCLTA-1



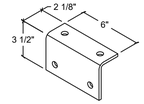
XCLTA-2



XFA-3

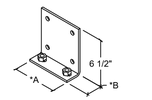


XFB-1



XFBP-10 & -11

CLIP	*A DIM.	*B DIM.
XFBP-12	6"	2 1/8"
XFBP-14	8"	2 7/16"



XFBP-13

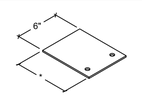
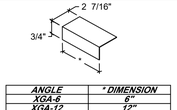
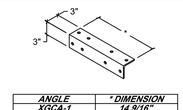


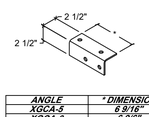
PLATE	* DIMENSION
XFP-8	7 1/2"
XFP-10	9 1/2"



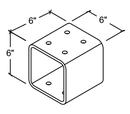
ANGLE	* DIMENSION
XGA-6	6"
XGA-12	12"
XGA-18	18"
XGA-24	24"
XGA-36	36"



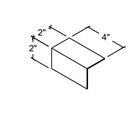
ANGLE	* DIMENSION
XGCA-1	14 9/16"
XGCA-2	12 9/16"
XGCA-3	26 9/16"
XGCA-4	24 9/16"



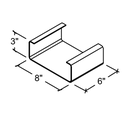
ANGLE	* DIMENSION
XGCA-5	8 9/16"
XGCA-6	6 9/16"
XGCA-7	5 3/4"
XGCA-8	5 3/4"



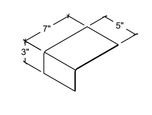
XHRS-1



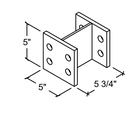
XLGA-1



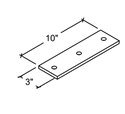
XPB-3



XPB-4



XPF-1 & -2



XSST-1

TO BE USED FOR CONSTRUCTION

Note: This drawing is not sealed/signed by engineer as it does not contain project specific information thus is not considered a "technical submission".

RELEASED	12-20-24
SUPERSEDES	08-21-24

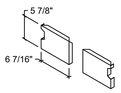
Drawing	STANDARD PARTS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

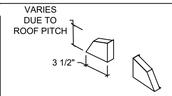
DRAWN	CHECK	ORDER NO.	SP1 / SP2
GDM	TDP	B3025137	
1/20/2025	2/04/25		

Commonly Used Parts: Not all parts shown will be required on all projects.

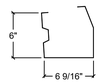
Standing Seam Roof Panel Trim



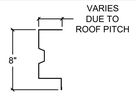
GUTTER ENDCAPS (ECLM & ECRM)



LEAN-TO HEIGHT CHANGE TRIM PLUG (EEL & EER)



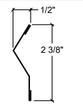
EAVE GUTTER (EGM)



EAVE TRIM (ETM)

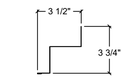
GABLE CORNER TRIM	
TRIM MARK	* DIM.
GCTVC (MVF/MVP)	8 5/8"
GCTMC (MSC/STC)	9 5/8"

GABLE EXPANSION TRIM (GET)

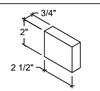


GABLE HEIGHT CHANGE TRIM BOTTOM - MSC/STC (GHMBF)

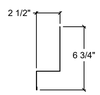
GABLE HEIGHT CHANGE TRIM TOP - MSC/STC (GHMTF)



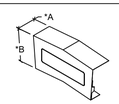
GABLE HEIGHT CHANGE TRIM BOTTOM - MVF/MVP (GHVB)



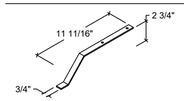
GABLE HEIGHT CHANGE PLUG - MVF/MVP (GHVE)



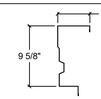
GABLE HEIGHT CHANGE TRIM TOP - MVF/MVP (GHVT)



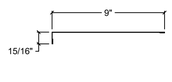
GABLE RIDGE TRIM		
TRIM MARK	*A DIM.	*B DIM.
GRTVC (MVF/MVP)	6 13/16"	8 11/16"
GRTMC (MSC/STC)	5 11/16"	9 5/8"



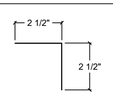
GUTTER STRAP (GSM)



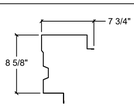
GABLE TRIM - MSC/STC (GTMC)



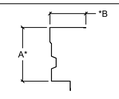
TERMINATION TRIM - MSC/STC (GTTM)



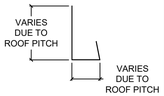
GABLE TRIM SUPPORT (GTS)



GABLE TRIM - MVF/MFP (GTVC)

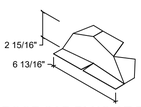


HIGH SIDE EAVE TRIM		
TRIM MARK	*A DIM.	*B DIM.
HSEVC (MVF/MVP)	9 5/8"	5 3/4"
HSEMC (MSC/STC)	9 5/8"	7 3/8"

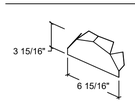


HIGH SIDE SHIM TRIM (HSST)

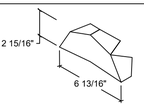
ROOF CAP (RCL)



ROOF CAP PLUG AT RIDGE VENTILATOR (RCP)



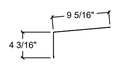
ROOF CAP PLUG (RCPM)



ROOF CAP PLUG AT RIDGE CURB OR HT CHANGE (RCPR)

GABLE INSIDE CORNER TRIM	
TRIM MARK	* DIM.
ICTVC (MVF/MVP)	8 11/16"
ICTMC (MSC/STC)	9 11/16"

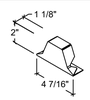
Standing Seam Roof Panel Trim Continued



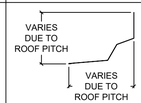
TRIM CAP (TCM & TCMB)

GABLE TRIM PLUG - MSC/STC (TPRMC & TPLMC)

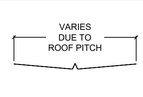
GABLE TRIM PLUG - MVF/MVP (TPRVC & TPLVC)



TRAPEZOID HI-RIB TRIM PLUG - MSC/STC (TRP)

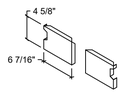


LEAN-TO HEIGHT CHANGE TRIM (LHET)



VALLEY TRIM - MVF/MVP (VTM)

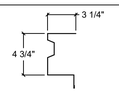
CS Roof Panel Trim



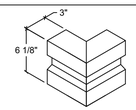
GUTTER ENDCAPS (ECLA & ECRA)

EAVE CLOSURE TRIM (ECT)

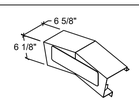
EAVE GUTTER (EGA)



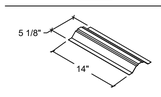
EAVE TRIM (ETA)



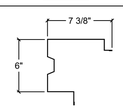
GABLE CORNER TRIM (GCTC)



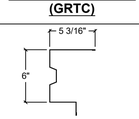
GABLE RIDGE TRIM (GRTC)



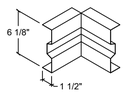
GUTTER STRAP (GS)



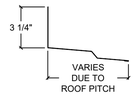
GABLE TRIM (GTC)



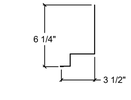
HIGH-SIDE EAVE TRIM (HSEC)



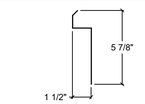
GABLE INSIDE CORNER TIRM (ICTC)



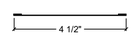
LEAN TO HEIGHT CHANGE TRIM (LHTC)



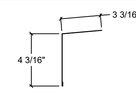
HEIGHT CHANGE TRIM AT GABLE (RHT)



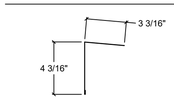
CS LIGHT TRANSMITTING PANEL SUPPORT (SLZ)



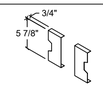
CS INSULATED LIGHT TRANSMITING PANEL COVER (SLZC)



TRIM CAP - LOW SIDE (TC)

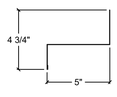


TRIM CAP - HIGH SIDE (TCH)



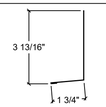
GABLE TRIM PLUG (TPRC & TPLC)

AP / CS Wall Panel Trim

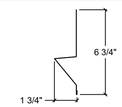


BRICK CAP WITH SHEETING (BC)

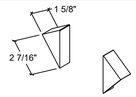
BRICK CAP WITHOUT SHEETING (BCN)



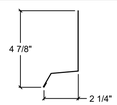
BASE TRIM (BT)



BASE TRIM WITH RETURN LEG (BTM)

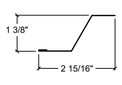


BASE TRIM PLUG FOR BTM TRIM (BTMCL & BTMCR)

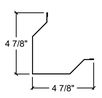


BASE TRIM WITH DRIP EDGE (BTN)

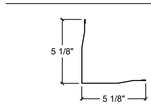
BASE TRIM - 2 PIECE (BTT)



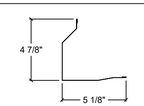
COVER TRIM (COT)



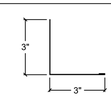
CORNER TRIM - CS (CT)



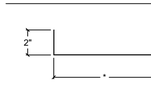
CORNER TRIM - AP (CTA)



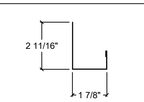
CORNER TRIM CS - AP (CTB)



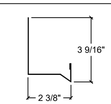
DOOR TRIM / COVER TIM (DST)



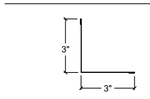
DOOR & FACADE TRIM	
TRIM MARK	* DIM.
DT8 & MT8	8 1/8"
DT10 & MT10	10 1/8"



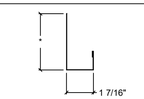
HEADER TRIM (HT)



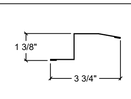
HEADER TRIM W/ TROUGH (HTT)



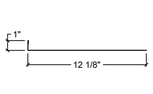
INSIDE CORNER TRIM - AP (ICT)



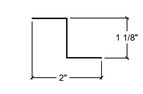
JAMB TRIM	
TRIM MARK	* DIM.
JT	3 1/8"
JTE	7 5/16"



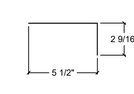
JAMB TRIM - AP (JTA)



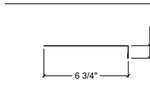
LOUVER LINER TRIM (LLT)



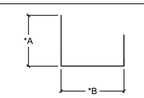
SHEETING SUPPORT TRIM (SSP)



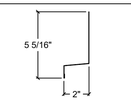
WINDOW FLASHING AT JAMB & HEADER (WFJ)



WINDOW FLASHING AT SILL (WFS)

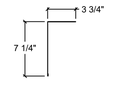


WALK DOOR TRIM		
TRIM MARK	*A DIM.	*B DIM.
WL8	6 1/2"	8 1/16"
WL10	6 3/4"	10 1/16"

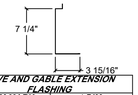


WAINSCOT TRANSITION TRIM (WTT)

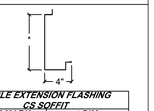
Roof Extension Trim



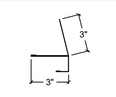
EAVE EXTENSION FLASHING (EEFA)



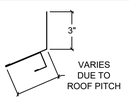
EAVE AND GABLE EXTENSION FLASHING	
TRIM MARK	* DIM.
EF	7 1/4"
EGFA	8 3/16"
EFHP	9 3/4"



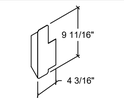
GABLE EXTENSION FLASHING CS SOFFIT	
TRIM MARK	* DIM.
EFC	6 1/4"
EFCP	8 3/16"
ECHP	9 3/4"



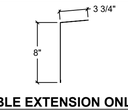
EXTENSION SOFFIT TRIM HIGH SIDE (ESTA)



EXTENSION SOFFIT TRIM LOW SIDE (ESTO)

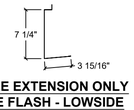


GABLE EXTENSION CLOSURE CLIP (GCC)

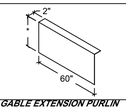


GABLE EXTENSION ONLY - EAVE FLASH - LOWSIDE TOP OF EAVE (GELA & GELB)

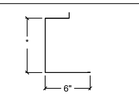
GABLE EXTENSION ONLY EAVE FLASH - HIGHSIDE BOTTOM OF EAVE (GHBA & GHBB)



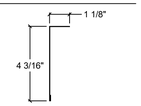
GABLE EXTENSION ONLY EAVE FLASH - LOWSIDE BOTTOM OF EAVE (GLBA & GLBB)



GABLE EXTENSION PURLIN CLOSURE	
TRIM MARK	* DIM.
GPC2	8 1/2"
GPC3	10 1/2"

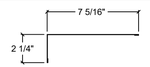


HIGH SIDE EXTENSION FLASHING	
TRIM MARK	* DIM.
HEEF	7 1/4"
HEHP	9"



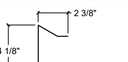
PANEL CAP TRIM (SCT)

Parapet & Facade Trim

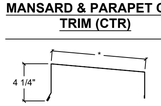


MANSARD & PARAPET CAP TRIM (CTR)

MANDARD SOFFIT EDGE TRIM (MST)



PARAPET AND FACADE CAP CLEAT (PCC)



PARAPET & FACADE CAP TRIM	
TRIM MARK	* DIM.
PCT8	10 3/4"
PCT10	12 3/4"

TO BE USED FOR CONSTRUCTION

Note: This drawing is not sealed/signed by engineer as it does not contain project specific information thus is not considered a "technical submission".

RELEASED	12-20-24
SUPERSEDES	08-21-24

Drawing	STANDARD PARTS
Buyer	Associated Contract Services, Inc.
Customer	TFD, Inc. Fuquay Varina, NC 27526
Project Name	Jarco Business Center - Bldg 1

CHIEF BUILDINGS

DRAWN	CHECK	ORDER NO.	SP2
GDM	TDP	B3025137	SP2
1/20/2025	2/04/25		