2012 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS

Name of Project: DOLLAR GENERAL STORE # 20165

Address: NC HWY 401, FUQUAY VARINA, NORTH CAROLINA Zip _____

Proposed Use: MERCANTILE (DOLLAR GENERAL RETAIL STORE)

Owner/Authorized Agent: JOHN C. HOOD Phone 252-399-2700 E-mail olajay@aol.com

Owned By: ☐ City/County ☒ Private ☐ State

Code Enforcement Jurisdiction: ☒ City FUQUAY VARINA ☐ County WAKE

LEAD DESIGN PROFESSIONAL: JOHN C. HOOD

DESIGNER	FIRM	NAME	LICENSE#	TELEPHONE#	E-MAIL
Architectural	Hood Herring Archit.	John C. Hood	31684	252-399-2700	olajay@aol.com
Civil	Summit Design Eng.	Matt Hastings	38098	434-578-4604	matt.hastings@summitde.net
Electrical	Killian Engineering, Inc.	Michael Killian	17304	252-438-8778	mkillian@killianengineering.com
Fire Alarm					
Plumbing	Killian Engineering, Inc.	Michael Killian	17304	252-438-8778	mkillian@killianengineering.com
Mechanical	Killian Engineering, Inc.	Michael Killian	17304	252-438-8778	mkillian@killianengineering.com
Sprinkler–Standpipe					
Structural	William A. Person, PE	William Person	13253	919-496-5228	personengineer@embarqmail.com
Retaining Walls >5'High					
Other					

☒ New Construction ☐ Addition ☐ Upfit

EXISTING: ☐ Reconstruction ☐ Alteration ☐ Repair ☐ Renovation

CONSTRUCTED: _____ ORIGINAL USE(S): _____

RENOVATED: _____ CURRENT USE(S): _____

PROPOSED USE(S): _____

BUILDING DATA

Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A ☐ I-B ☒ II-B ☐ III-B ☐ V-B

Mixed construction ☒ No ☐ Yes Types_____

Sprinklers: ☒ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D

Standpipes: ☒ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry

Fire District: ☒ No ☐ Yes Flood Hazard Area: ☒ No ☐ Yes

Building Height: 16 Feet

GROSS BUILDING AREA:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
6th Floor			
5th Floor			
4th Floor			
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor		9208	
Basement			
TOTAL		9208	

ALLOWABLE AREA

Occupancy:

Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5

Business ☐

Educational ☐

Factory ☐ F-1 Moderate ☐ F-2 Low

Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM

Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4 I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Mercantile ☒

Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4

Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled ☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair

Utility and Miscellaneous ☐

Incidental Uses: ☐ Furnace Rm ☐ Boiler Rm ☐ Refrigerant Machine Rm ☐ Hydrogen Cutoff ☐ Incinerator ☐ Paint Shop ☐ Laboratory & Vocational ☐ Laundry Rm ☐ Group I-3 Cells ☐ Group I-2 Waste/Linen Collection ☐ Waste/Linen Collection >100 s.f. ☐ Stationary Storage Battery Systems ☐ Fire Pump ☐ Group I-2 Storage ☐ Group I-2 Comm. Kitchen ☐ Group I-2 Laundry ☐ Group I-2 Fuel-fired Heat

Special Uses: ☐ 402 ☐ 403 ☐ 404 ☐ 405 ☐ 406 ☐ 407 ☐ 408 ☐ 409 ☐ 410 ☐ 411 ☐ 412 ☐ 413 ☐ 414 ☐ 415 ☐ 416 ☐ 417 ☐ 418 ☐ 419 ☐ 420 ☐ 421 ☐ 422 ☐ 423 ☐ 424 ☐ 425 ☐ 426 ☐ 427

Special Provisions: ☐ 509.2 ☐ 509.3 ☐ 509.4 ☐ 509.5 ☐ 509.6 ☐ 509.7 ☐ 509.8 ☐ 509.9

Mixed Occupancy: ☐ No ☒ Yes Separation: 0 Hr. Exception: 508.3.3

☐ Incidental Use Separation (508.2.5)
This separation is not exempt as a Non-Separated Use (see exceptions)

☒ Non-Separated Use (508.3)
The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

☐ Separated Use (508.4) – See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

$$\frac{64}{} + \frac{.06}{} + \ldots\ldots = \frac{.70}{} \leq 1.00$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG. AREA PER STORY (ACTUAL)	(B) TABLE 503 AREA [1]	(C) AREA FOR OPEN SPACE INCREASE [1]	(D) AREA FOR SPRINKLER INCREASE [2]	(E) ALLOWABLE AREA OR UNLIMITED [3]	(F) MAXIMUM BUILDING AREA [4]
1	M	8228	12500	NA	NA	12500	
1	S-1	980	17500	NA	NA	17500	

[1] Open space area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width= _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase I_f = 100 [F/P–0.25] x W/30 = _____ (%)

[2] The sprinkler increase per Section 506.3 is as follows:
a. Multi-story building I_s = 200 percent
b. Single story building I_s = 300 percent

[3] Unlimited area applicable under conditions of Section 507.

[4] Maximum Building Area = total number of stories in the building x E (506.4).

[5] The maximum area of parking garages must comply with 406.3.5. The Maximum area of air traffic control towers must comply with 412.1.2.

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS		SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type II B			Type II B	
Building Height in Feet	55	Feet = H + 20' =		18	
Building Height in Stories	2	Stories + 1 =		1	

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W)_____ * REDUCTION	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural frame, including colums, girders, trusses							
Bearing Walls							
Exterior							
North	>30'	0					
East	>30'	0					
West	>30'	0					
South	>30'	0					
Interior							
Nonbearing walls and partitions							
Exterior	NA						
North							
East							
West							
South							
Interior							
Floor construction including supporting beams and joists	NA						
Roof construction including supporting beams and joists	NA						
Shafts–Exit	NA						
Shafts–Other	NA						
Corridor Separation	NA						
Occupancy Separation	NA						
Party/Fire Wall Separation	NA						
Smoke Barrier Separation	NA						
Tenant Separation	NA						
Incidental Use Separation	NA						

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting:	☐ No	☒ Yes
Exit Signs:	☐ No	☒ Yes
Fire Alarm:	☒ No	☐ Yes
Smoke Detection Systems:	☐ No	☒ Yes ☐ Partial
Panic Hardware:	☐ No	☒ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet # COVER

☐ Fire and/or smoke rated wall locations (Chapter 7)
☒ Assumed and real property line locations SEE SITE PLAN
☒ Exterior wall opening area with respect to distance to assumed property lines (705.8) < 30'
☐ Existing structures within 30' of the proposed building
☒ Occupancy types for each area as it relates to occupancy load calculations (Table 1004.1.1)
☒ Occupancy loads for each area
☒ Exit access travel distances (1016) < 200'
☒ Common path of travel distances (1014.3 & 1028.8) < 75'
☒ Dead end lengths (1018.4) < 20'
☒ Clear exit widths for each door
☒ Max calculated occupant load capacity each exit door can accommodate based on exit width (1005.1)
☒ Actual occupant load for each door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☒ Location of doors with panic hardware (1008.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
☐ Location of doors with electromagnetic egress locks (1008.1.9.8)
☐ Location of doors equipped with hold open devices
☐ Location of emergency escape windows (1029)
☒ The square footage of each fire area (902) 9014 SQ. FT.
☐ The square footage of each smoke compartment (407.4)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED
NA							

ACCESSIBLE PARKING (SEE SITE SHEET)
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
TOTAL						

PLUMBING FIXTURE REQUIREMENTS
(SECTION 2902.1)

OCCUPANCY	WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
	MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
MERCANTILE	1	1	–	1	1	NA	1	1

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, SBCCI, ICC, etc., describe below)

STRUCTURAL DESIGN (SEE METAL BLDG. DESIGN)

DESIGN LOADS

Importance Factors: Wind (I_w) 1; Snow (I_s) 1; Seismic (I_E) 1

Live Loads: Roof 20 psf; Mezzanine _____ psf; Floor 100 psf

Ground Snow Loads: 15 psf

Wind Loads: Basic Wind Speed 100 mph (ASCE-7); Exposure Category C

Wind Base Shears (for MWFRS) Vx=_____ Vy=_____

SEISMIC DESIGN CATEGORY ☐ A ☒ B ☐ C ☐ D

Provide the following Seismic Design Partners:

Occupancy Category (Table 1604.5) ☐ I ☒ II ☐ III ☐ IV

Spectral Response Accelertion S_{ds} _____%g S_{d1} _____%g

Site Classification (Table 1613.5.2) ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F

Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data

Basic structural system (check one)
☐ Bearing Wall ☐ Dual w/Special Moment Steel
☒ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum

Seismic base shear Vx= _____ Vy= _____

Analysis Procedure ☐ Simplified ☒ Equivalent Lateral Force ☐ Dynamic

Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: ☐ Earthquake ☒ Wind

SOIL BEARING CAPACITIES:

Field Test (provide copy of test report) _____ psf

Presumptive Bearing capacity 2000 psf

Pile size, type, and capacity _____

ENERGY SUMMARY

ENERGY REQUIREMENTS:

The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Climate Zone: ☐ 3 ☒ 4 ☐ 5

Method of Compliance: Energy Code ☐ Prescriptive ☐ Performance; ASHRAE 90.1 ☒ Prescriptive ☐ Performance

THERMAL ENVELOPE

Roof/Ceiling Assembly (each assembly)
Description of assembly SS MTL. DECK, R5 THERMAL SPACERS, INSUL R19 + R11 LS
U-Value of total assembly .035
R-Value of insulation 32
Skylights in each assembly NA
U-Value of skylight
total sq. ft. of skylights in each assembly NA

Exterior Walls (each assembly)
Description of assembly METAL PANELS, R19 INSUL., MTL STUDS, GYP BD
U-Value of total assembly .070
R-Value of insulation R-19
Openings (windows or doors with glazing)
U-Value of assembly 1.030
Solar heat gain coefficient .82
projection factor 2
Door R-Values 1.72

Walls below grade (each assembly)
Description of assembly NA
U-Value of total assembly
R-Value of insulation

Floors over uncoonditioned space (each assembly)
Description of assembly NA
U-Value of total assembly
R-Value of insulation

Floors slab on grade (each assembly)
Description of assembly 4" CONC. VAPOR BARRIER, COMPACTED EARTH
U-Value of total assembly .73
R-Value of insulation R-10
Horizontal/vertical requirement 2'VERTICAL
slab heated NO

MECHANICAL SUMMARY (SEE MECHANICAL SHEET)

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT:

Thermal Zone: winter dry bulb _____; summer dry bulb _____

Interior design conditions: winter dry bulb _____; summer dry bulb _____; relative humidity _____

Building heating load _____

Building cooling load _____

Mechanical Spacing Conditioning System

Unitary: description of unit _____; heating efficiency _____; cooling efficiency _____; size category of unit _____

Boiler: size category _____ If oversized, state reason.

Chiller: size category _____ If oversized, state reason.

List equipment efficiencies _____

ELECTRICAL SUMMARY (SEE ELECTRICAL SHEET)

ELECTRICAL SYSTEM AND EQUIPMENT:

Method of Compliance: ENERGY CODE: ☐ Prescriptive ☐ Performance; ASHRAE 90.1: ☐ Prescriptive ☐ Performance

Lighting schedule
lamp type required in fixture _____
number of lamps in fixture _____
ballast type used in the fixture _____
number of ballasts in fixture _____
total wattage per fixture _____
total interior wattage specified vs allowed _____
total exterior wattage specified vs allowed _____

Additional Prescriptive Compliance
☐ 506.2.1 More Efficient Mechanical Equipment
☐ 506.2.2 Reduced Lighting Power Density
☐ 506.2.3 Energy Recovery Ventilation Systems
☐ 506.2.4 Higher Efficiency Service Water heating
☐ 506.2.5 On-Site Supply of Renewable Energy
☐ 506.2.6 Automatic Daylighting Control Systems

DOLLAR GENERAL

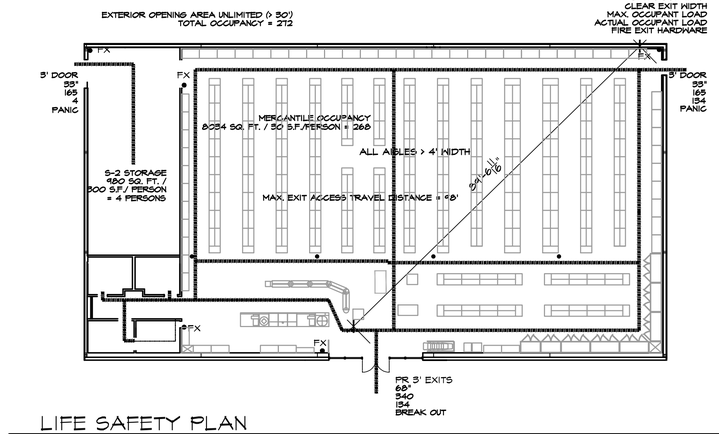
STORE # 20165

8938 NC HWY 401

FUQUAY VARINA, NORTH CAROLINA

SCHEDULE OF DRAWINGS

SEE SEPARATE SUBMITTAL FOR SITE



LIFE SAFETY PLAN

SCALE: 1/16" = 1'-0"

NOTE: ALL CONTRACTORS SHALL REVIEW & MAINTAIN 11 X 17 DOLLAR GENERAL PROTOTYPE PLAN "C" BUILD-TO-SUIT PACKAGE ON JOB SITE

JOHN C. HOOD III
REGISTERED ARCHITECT
NORTH CAROLINA
WILSON, NC

ISSUED FROM:
☐ WILMINGTON OFFICE
805 North Fourth Street
Wilmington, NC 28401
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■ WILSON OFFICE
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HOOD • HERRING
ARCHITECTURE PLLP

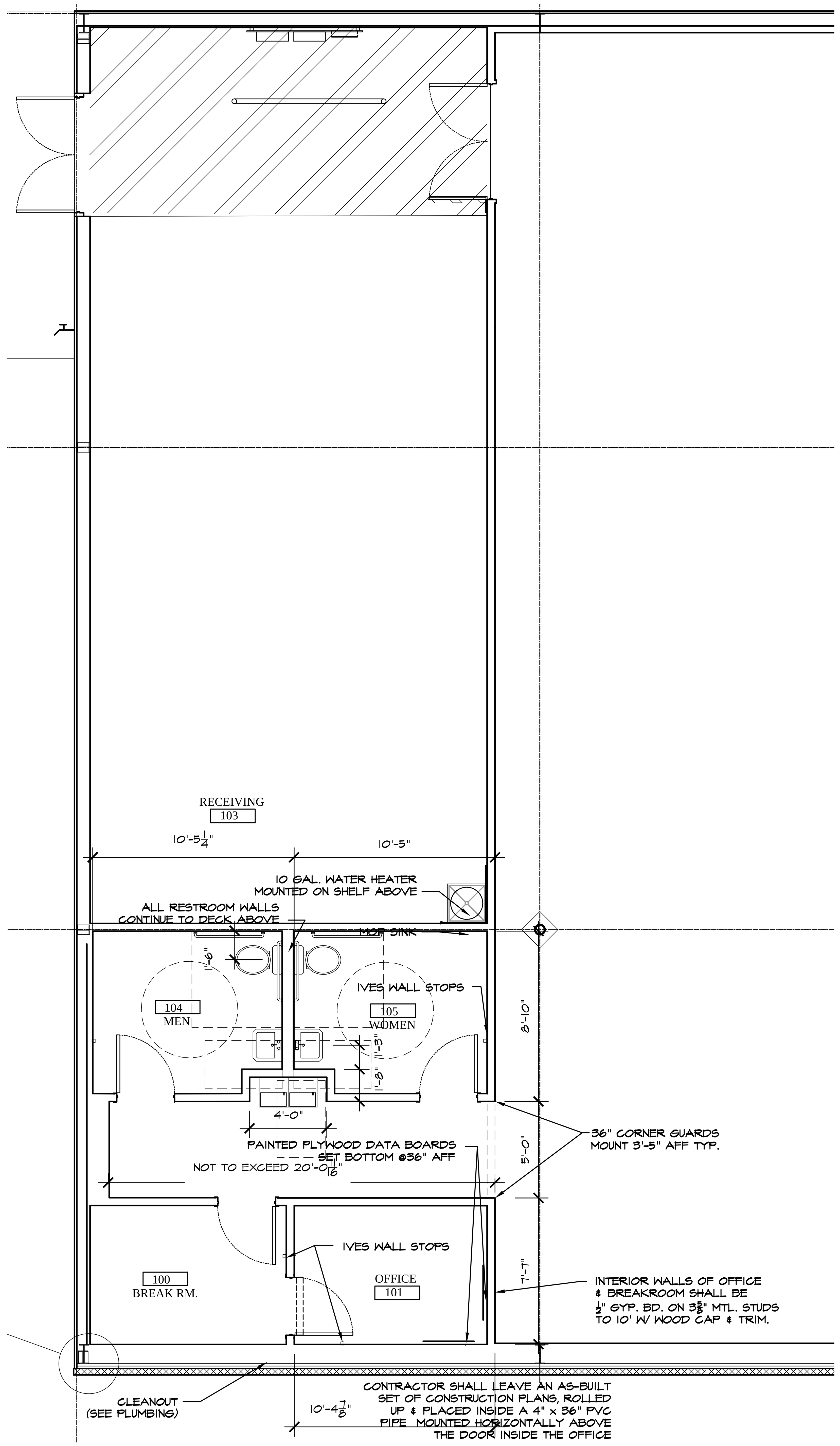
DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER

DRAWN BY MWH
DATE 10/10/18
REVISIONS

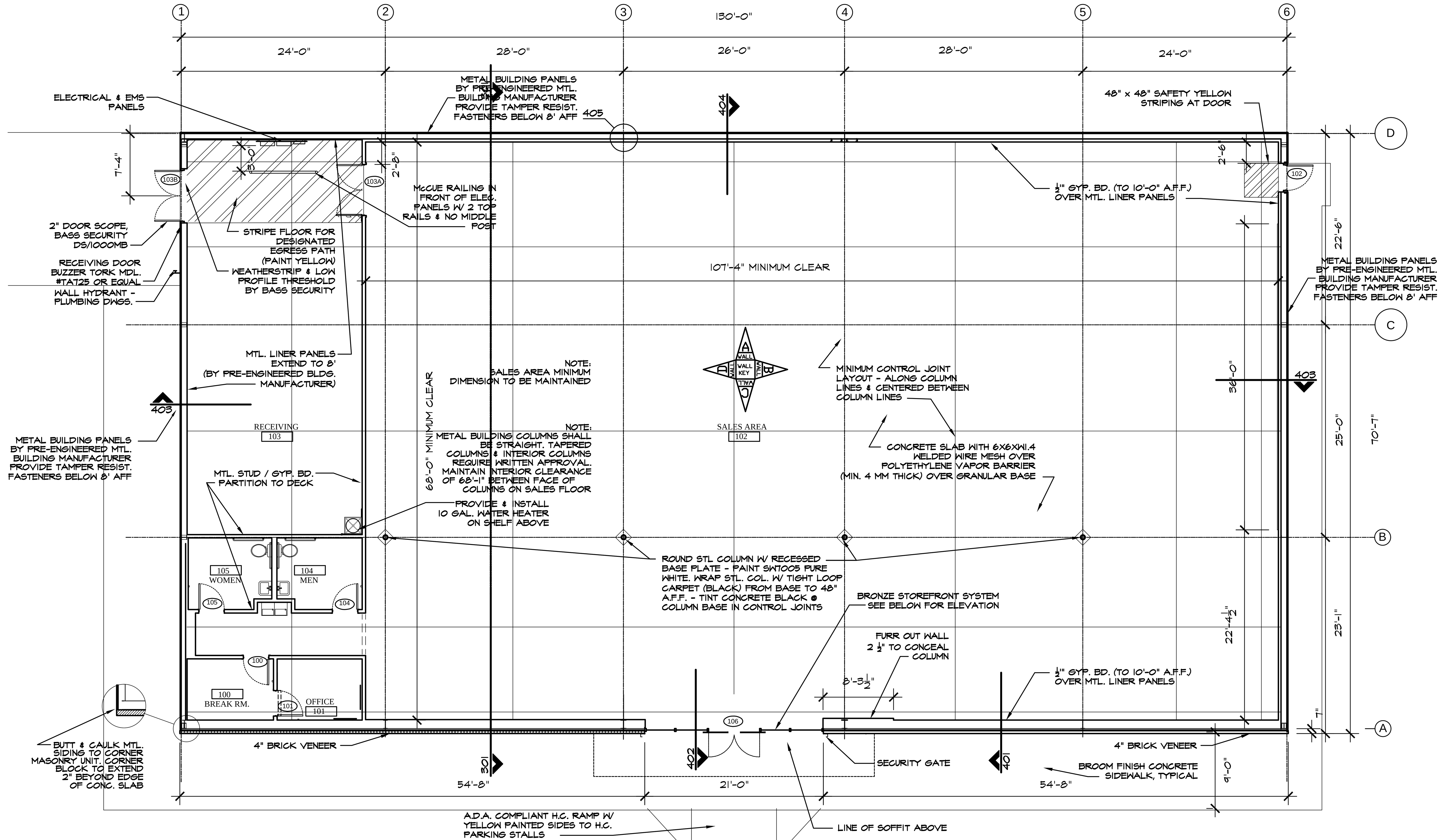
SHEET NUMBER
Cover

OF



LARGE SCALE TOILET / ENTRY / OFFICE

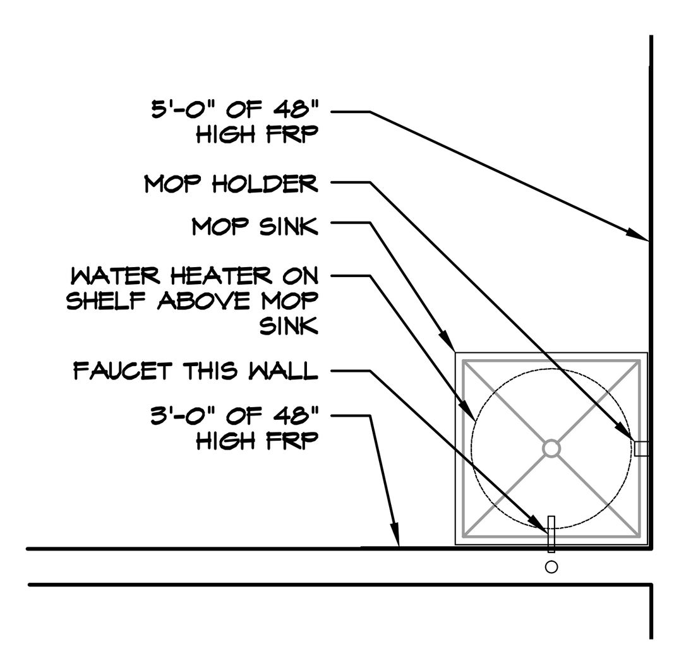
SCALE: 1/4" = 1'-0"



FLOOR PLAN

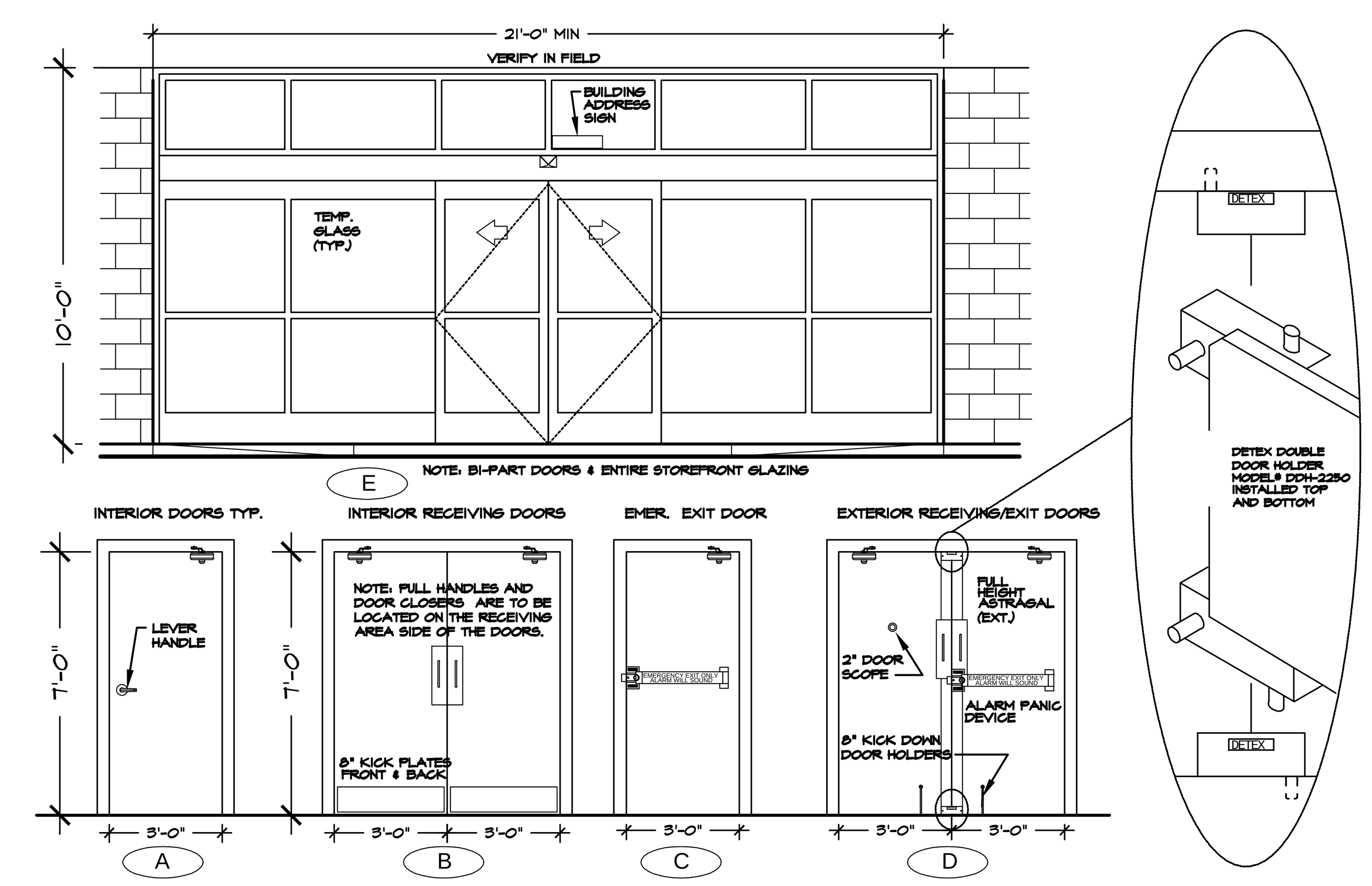
NOTE: ALL CONTRACTORS SHALL REVIEW & MAINTAIN 11 X 17 DOLLAR GENERAL CURRENT PROTOTYPE PLAN "C" BUILD-TO-SUIT PACKAGE ON JOB SITE

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



MOP SINK DETAIL

SCALE: 1/2" = 1'-0"



DOOR ELEVATIONS

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

ROOM FINISH SCHEDULE

NO	ROOM NAME	FLOOR MATERIAL	FLOOR FINISH	BASE MATERIAL	BASE FINISH	A WALL MATERIAL	A WALL FINISH	B WALL MATERIAL	B WALL FINISH	C WALL MATERIAL	C WALL FINISH	D WALL MATERIAL	D WALL FINISH	CEILING MATERIAL	CEILING FINISH	REMARKS
100	BREAK RM.	CONCRETE FLOOR SEALED	CONCRETE SEALER	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 10'-0"	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD ON MTL. STUDS TO BOT. OF ROOF DECK	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 10'-0" A.F.F.	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 10'-0" A.F.F.	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	EXPOSED TO STRUCTURE ABOVE	N/A	
101	OFFICE	CONCRETE FLOOR SEALED	CONCRETE SEALER	4" RUBBER / VINYL BASE	BLACK	GYP. BOARD TO ROOF DECK @ EXT. WALLS, & TO 10'-0" AFF OTHERS	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD ON MTL. STUDS TO BOT. OF ROOF DECK	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 10'-0" A.F.F.	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 10'-0" A.F.F.	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	EXPOSED TO STRUCTURE ABOVE	N/A	
102	SALES AREA	CONCRETE FLOOR POLISHED	8 STEP RETROPLATE POLISHED	4" RUBBER / VINYL BASE	BLACK	GYPSUM BD. ON WHITE METAL LINER PANELS, SEE ELEV - SHT A-5	SHERWIN WILLIAMS PRO-MAR LATEX SATIN - SEE ELEVS SHEET A-5	GYPSUM BD. TO HEIGHT NOTED ON WALL SECTIONS	SHERWIN WILLIAMS PRO-MAR LATEX SATIN - SEE ELEVS SHEET A-5	GYPSUM BD. ON WHITE METAL LINER PANELS, SEE ELEV - SHT A-5	SHERWIN WILLIAMS PRO-MAR LATEX SATIN - SEE ELEVS SHEET A-5	GYPSUM BD. TO ROOF DECK	SHERWIN WILLIAMS PRO-MAR LATEX SATIN - SEE ELEVS SHEET A-5	EXPOSED TO STRUCTURE ABOVE	N/A	
103	RECIEVING AREA	CONCRETE FLOOR SEALED	CONCRETE SEALER	N/A	N/A	METAL LINER PANELS TO 8' AFF	WHITE	GYPSUM BOARD TO BOT. OF ROOF DECK	TAPED, PAINTED AS REQ'D. BY CODE OR MTL. LINER PANEL TO DECK AS ALT.	METAL LINER PANEL TO 8'	WHITE	METAL LINER PANEL TO 8'	WHITE	EXPOSED TO STRUCTURE ABOVE	N/A	
104	MENS	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE SILK CHOCOLATE HC-117	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYP. BD. OR ACT CEILING @ 8'-0" A.F.F.	WHITE	
105	WOMEN	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE SILK CHOCOLATE HC-117	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO 8'-0" A.F.F.	8' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYP. BD. OR ACT CEILING @ 8'-0" A.F.F.	WHITE	
107	HALL	CONCRETE FLOOR POLISHED	8 STEP RETROPLATE POLISHED	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 8'-0" A.F.F.	SHERWIN WILLIAMS PRO-MAR LATEX SEMI-GLOSS - SW6991 -BLACK MAGIC TO 4' AFF SW7005-WHITE ABOVE 4'	GYPSUM BOARD TO 8'-0" A.F.F.	SHERWIN WILLIAMS PRO-MAR LATEX SEMI-GLOSS - SW6991 -BLACK MAGIC TO 4' AFF SW7005-WHITE ABOVE 4'	GYPSUM BOARD TO 8'-0" A.F.F.	SHERWIN WILLIAMS PRO-MAR LATEX SEMI-GLOSS - SW6991 -BLACK MAGIC TO 4' AFF SW7005-WHITE ABOVE 4'	GYPSUM BOARD TO 8'-0" A.F.F.	SHERWIN WILLIAMS PRO-MAR LATEX SEMI-GLOSS - SW7005-WHITE ABOVE 4' AFF	GYP. BD. OR ACT CEILING @ 8'-0" A.F.F.	WHITE	

DOOR SCHEDULE

NO.	DOOR TYPE	DOOR WIDTH	DOOR HEIGHT	DOOR THICK.	HARDWARE	REMARKS
100 (BREAK ROOM)	A	3'-0"	7'-0"	1-3/4"	(1) STANLEY PASSAGE LOCKSET QCL230-E-626-S4 - NO KEY REQ'D., (1) STANLEY DOOR CLOSER QDC311-689 (1) IVES WALLSTOP #402-½B-26D, (1-1/2) PAIR HINGES	SOLID CORE WOOD DOOR OR HOLLOW CORE METAL DOOR & FRAME PAINTED SW-"BLACK MAGIC", 6991 SEMI-GLOSS
101 (OFFICE)	A	3'-0"	7'-0"	1-3/4"	(1) STANLEY STOREROOM LOCKSET QCL270-E-626-S4-SC-KD - KEY #1, (1) STANLEY DOOR CLOSER QDC311-689, (1) IVES WALL STOP #402-1/2B-26D, (1) TACO DOOR VIEWER #TA3310PC, (1-1/2) PAIR HINGES	SOLID CORE WOOD DOOR OR HOLLOW CORE METAL DOOR & FRAME PAINTED SW-"BLACK MAGIC", 6991 SEMI-GLOSS
102 (EMERGENCY EXIT)	C	3'-0"	7'-0"	1-3/4"	(1) VON DUPRIN GUARD-X EXIT ALARM LOCK #2670-28, (1) STANLEY DOOR CLOSER QDC311-689, (1) DOOR PULL 8N US28, (1) DOOR SWEEP, WEATHERSTRIPPING, (1) 7015SC8-26D-RIM CYLINDER, (1-1/2) PAIR HINGES	HOLLOW CORE METAL DOOR & FRAME PAINT EXTERIOR SW7041, "VAN DYKE BROWN" SEMI-GLOSS, INTERIOR SW-"BLACK MAGIC", 6991 SEMI-GLOSS
103A (RECEIVING INTERIOR)	B	6'-0"	7'-0"	1-3/4"	(2) BURNS PULL PLATES #5410-32D-26D-GRIP, (2) BURNS PUSH PLATES #54-US32D, (4) IVES KICK PLATES #8400-S32D-8X34, (2) STANLEY DOOR CLOSERS QDC311-689, (2) IVES 4" DOOR HOLDERS #452B26D-4 IF NOT FIRE RATED WALL, (3) PAIR HINGES	FIRE RATED DOORS, SOLID CORE WOOD DOORS OR HOLLOW CORE METAL DOORS PAINTED SW-"BLACK MAGIC", 6991 SEMI-GL
103B (RECEIVING EXTERIOR)	D	6'-0"	7'-0"	1-3/4"	(1)VON DUPRIN GUARD-X EXIT ALARM LOCK #2670-28, (1) VON DUPRIN GUARD-X DOUBLE DOOR STRIKE #2609, (1) DETEX DOUBLE DOOR HOLDER #DDH-2250 TOP & BOTTOM, (2) STANLEY DOOR CLOSER QFC311-689, (2) BURNS PULL PLATE #5410-32D-26D-GRIP, (1) 2" DOOR SCOPE #DS/1000MB, (2) 8" DOOR HOLDER #608Z, (1) NATIONAL GUARD HD THRESHOLD #425 HD-6 FT., (2) DOOR SWEEPS, WEATHERSTRIPPING, (1) 7015SC8-26D RIM CYLINDER, (3) PAIR HINGES	HOLLOW CORE METAL DOORS & FRAME INTERIOR PAINTED SW-"BLACK MAGIC", 6991 SEMI-GLOSS EXTERIOR PAINTED SW7041-"VAN DYKE BROWN" SEMI-GLOSS
104 (MEN'S R.R.)	A	3'-0"	7'-0"	1-3/4"	(1) STANLEY STOREROOM LOCKSET QCL270-E-626-S4-SC-KD - KEY #2, (1) STANLEY DOOR CLOSER QDC311-689, (1) IVES WALL STOP #402-1/2B-26D, (1) RESTROOM DOOR SIGNAGE (PER DETAIL ON SHEET A3), (1-1/2) PAIR HINGES	SOLID CORE WOOD DOORS OR HOLLOW CORE METAL DOORS & FRAME PAINTED SW-"BLACK MAGIC", 6991 SEMI-GLOSS
105 (WOMEN'S R.R.)	A	3'-0"	7'-0"	1-3/4"	(1) STANLEY STOREROOM LOCKSET QCL270-E-626-S4-SC-KD - KEY #2, (1) STANLEY DOOR CLOSER QDC311-689, (1) IVES WALL STOP #402-1/2B-26D, (1) RESTROOM DOOR SIGNAGE (PER DETAIL ON SHEET A3), (1-1/2) PAIR HINGES	SOLID CORE WOOD DOORS OR HOLLOW CORE METAL DOORS & FRAME PAINTED SW-"BLACK MAGIC", 6991 SEMI-GLOSS
106 (STOREFRONT)	E	6'-0"	7'-0"	NS	BY DOOR MANUFACTURER TO BE RE-KEYED BY DOLLAR GENERAL AREA MANAGER WITH (1) ILCO RIM CYLINDER #7015SC8-26D.	21'-0" BI-PART WITH TRANSOM AND WINDOWS. BRONZE FINISH

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Wilmington, NC 28401
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Facsimile: 910.251.9989

WILSON OFFICE
213 East Nash Street
Wilson, NC 27893
Phone: 252.399.2700
Facsimile: 252.399.2701

DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER

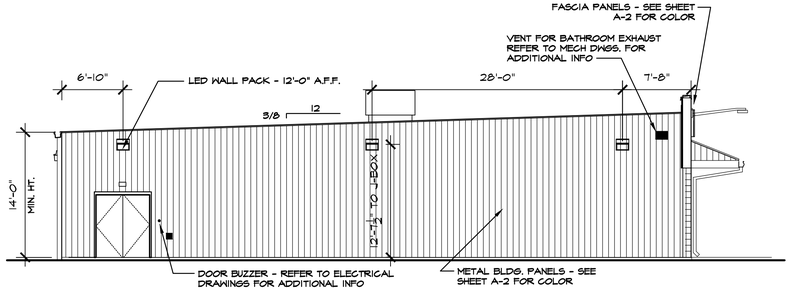
DRAWN BY
JCH

DATE
10/10/18

REVISIONS

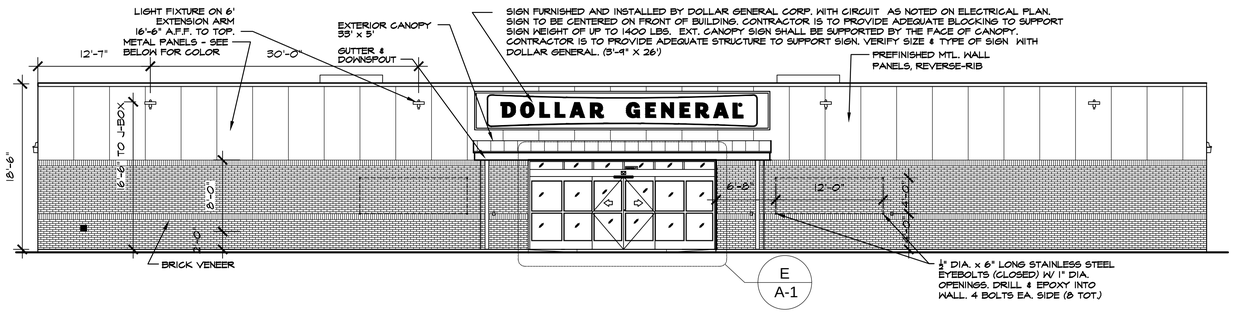
SHEET NUMBER
A-1

OF



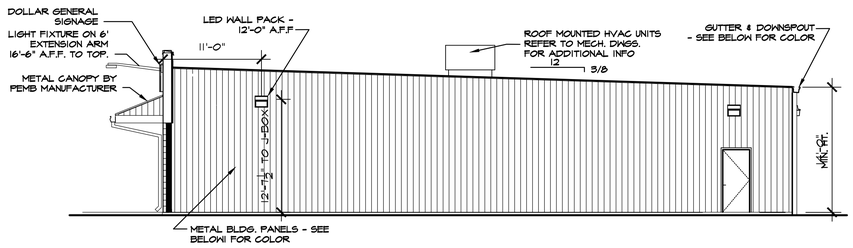
LEFT SIDE ELEVATION

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



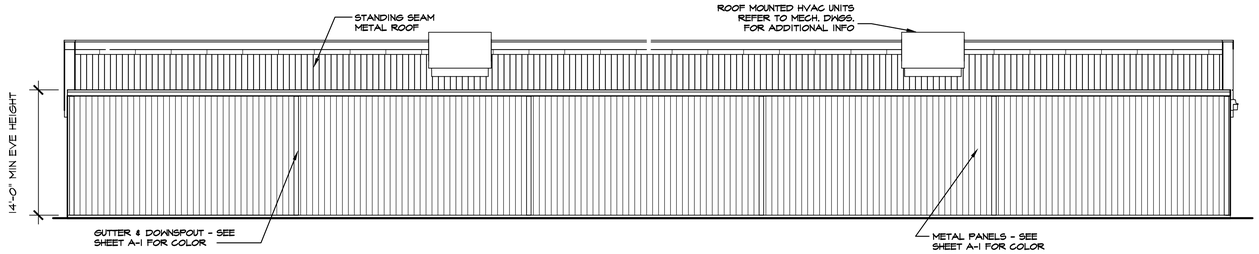
FRONT ELEVATION

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



RIGHT SIDE ELEVATION

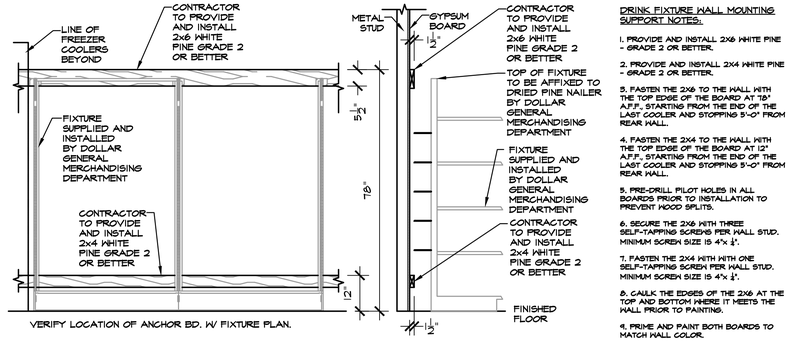
SCALE: 1/8" = 1'-0"



REAR ELEVATION

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

PRE-ENGINEERED METAL BUILDING VENDOR	VP BUILDINGS ATTN: DAVID ENGLISH (901) 748-6103					STAR BUILDING SYSTEMS ATTN: JEFF HORN (866) 664-8899					NUCOR BUILDING SYSTEMS ATTN: BOB BARRY (315) 622-4440 (260) 837-7891					BIG BEE STEEL BUILDINGS, INC. ATTN: KEVIN BUSLER (800) 633-3378					CHIEF BUILDINGS ATTN: ERIN SULLIVAN (309) 385-4628 (308) 390-8199				
EXTERIOR FINISHES																									
EXTERIOR FINISHES ARE TO MATCH OR BE EQUAL TO VP METAL BUILDING SYSTEM'S FINISH SELECTION.	COOL EGYPTIAN WHITE	PATRICIAN BRONZE KYNAR 500	BRONZE	COOL COTTON WHITE	GALVALUME	LIGHTSTONE	MEDIUM BRONZE KYNAR 500	BRONZE	POLAR WHITE	GALVALUME	LIGHTSTONE	MEDIUM BRONZE KYNAR 500	BRONZE	POLAR WHITE	GALVALUME	SANDSTONE	BURNISHED SLATE	BRONZE	POLAR WHITE	GALVALUME	PARCHMENT	ANTIQUE BRONZE	BRONZE	POLAR WHITE	GALVALUME
GUTTERS	●					●					●					●					●				
DOWN SPOUTS	●					●					●					●					●				
SIDE AND REAR METAL WALL PANELS & TRIM, RECEIVING & EMERGENCY EXIT DOORS	●					●					●					●					●				
BRICK VENEER																									
FLAT METAL SOFFIT AT STOREFRONT VESTIBULE AREA				●					●					●					●					●	
BUILDING PARAPET WALL AND CANOPY		●					●					●					●					●			
STOREFRONT SYSTEM			●					●					●					●					●		
STANDING SEAM METAL ROOF PANELS					●					●					●					●					●
LINER PANELS (INTERIOR SALES FLOOR)				●					●					●					●					●	

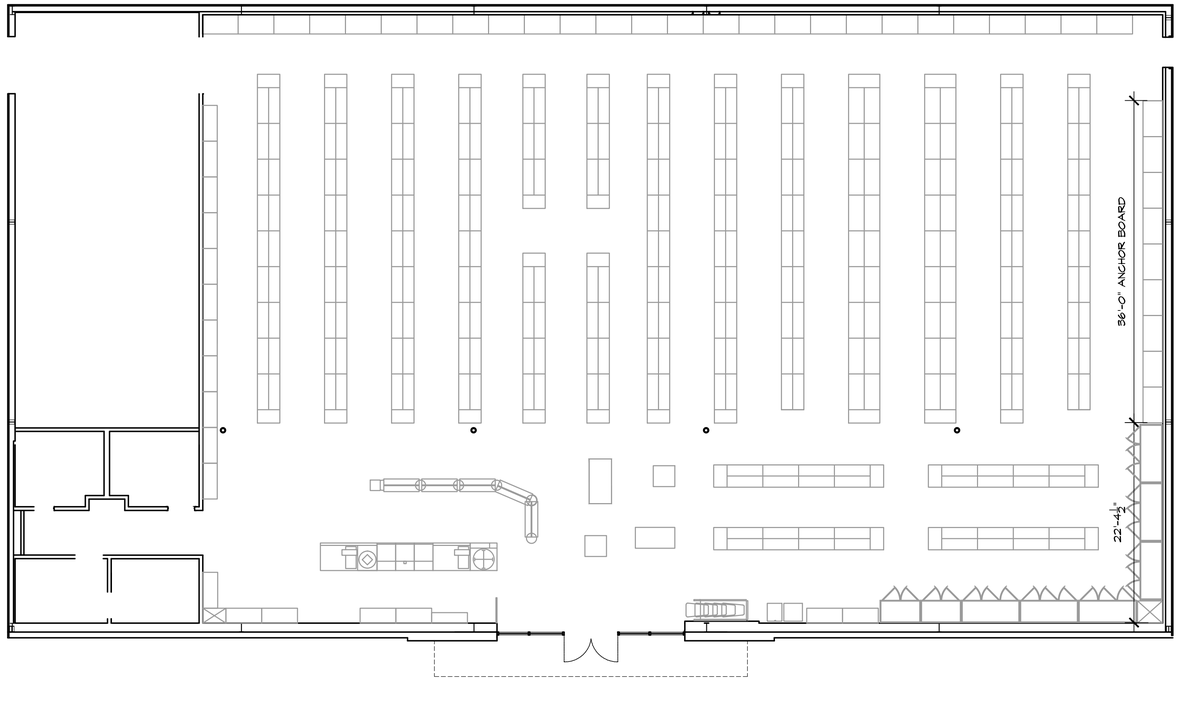


DRINK FIXTURE SUPPORT DETAIL

SCALE: 1/2" = 1'-0"

DRINK FIXTURE WALL MOUNTING SUPPORT NOTES:

1. PROVIDE AND INSTALL 2x6 WHITE PINE - GRADE 2 OR BETTER.
2. PROVIDE AND INSTALL 2x4 WHITE PINE - GRADE 2 OR BETTER.
3. FASTEN THE 2x6 TO THE WALL WITH THE TOP EDGE OF THE BOARD AT 78" A.F.F., STARTING FROM THE END OF THE LAST COOLER AND STOPPING 5'-0" FROM REAR WALL.
4. FASTEN THE 2x4 TO THE WALL WITH THE TOP EDGE OF THE BOARD AT 12" A.F.F., STARTING FROM THE END OF THE LAST COOLER AND STOPPING 5'-0" FROM REAR WALL.
5. PRE-DRILL PILOT HOLES IN ALL BOARDS PRIOR TO INSTALLATION TO PREVENT WOOD SPLITS.
6. SECURE THE 2x6 WITH THREE SELF-TAPPING SCREWS PER WALL STUD. MINIMUM SCREW SIZE IS 4"x ¼".
7. FASTEN THE 2x4 WITH WITH ONE SELF-TAPPING SCREW PER WALL STUD. MINIMUM SCREW SIZE IS 4"x ¼".
8. CAULK THE EDGES OF THE 2x6 AT THE TOP AND BOTTOM WHERE IT MEETS THE WALL PRIOR TO PAINTING.
9. PRIME AND PAINT BOTH BOARDS TO MATCH WALL COLOR.



FIXTURE LAYOUT (CONFIRM W/ DOLLAR GENERAL PLANS)

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

JOHN C. HOOD III
REGISTERED ARCHITECT
NORTH CAROLINA
WILSON, NC
2008

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215 East Nash Street
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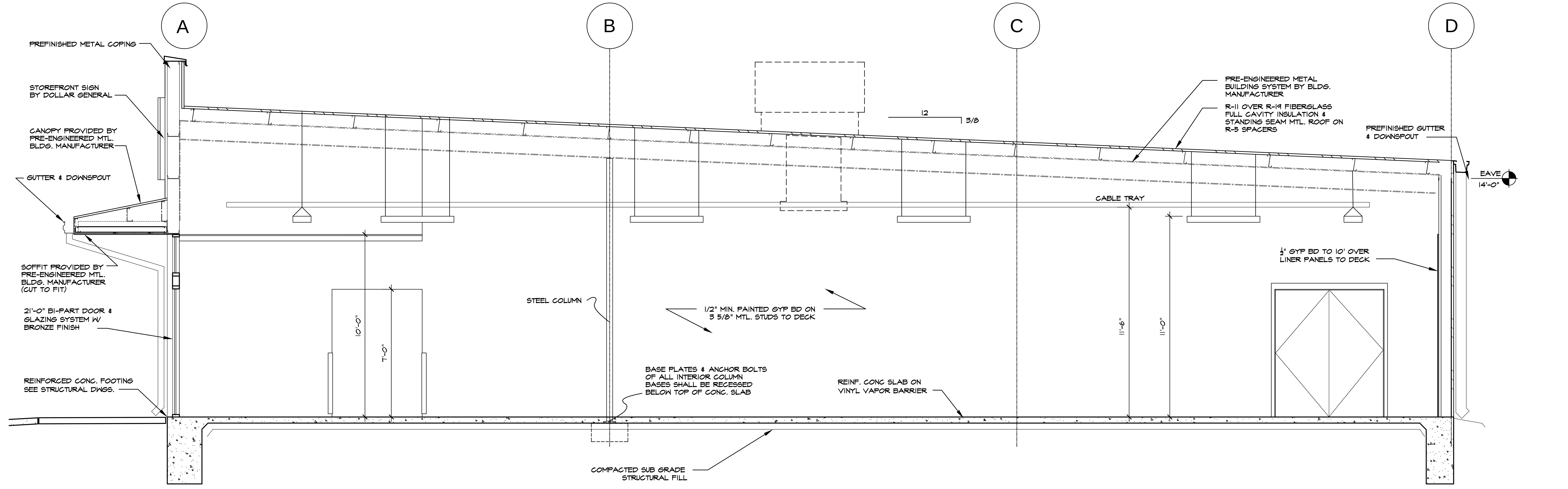
DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER

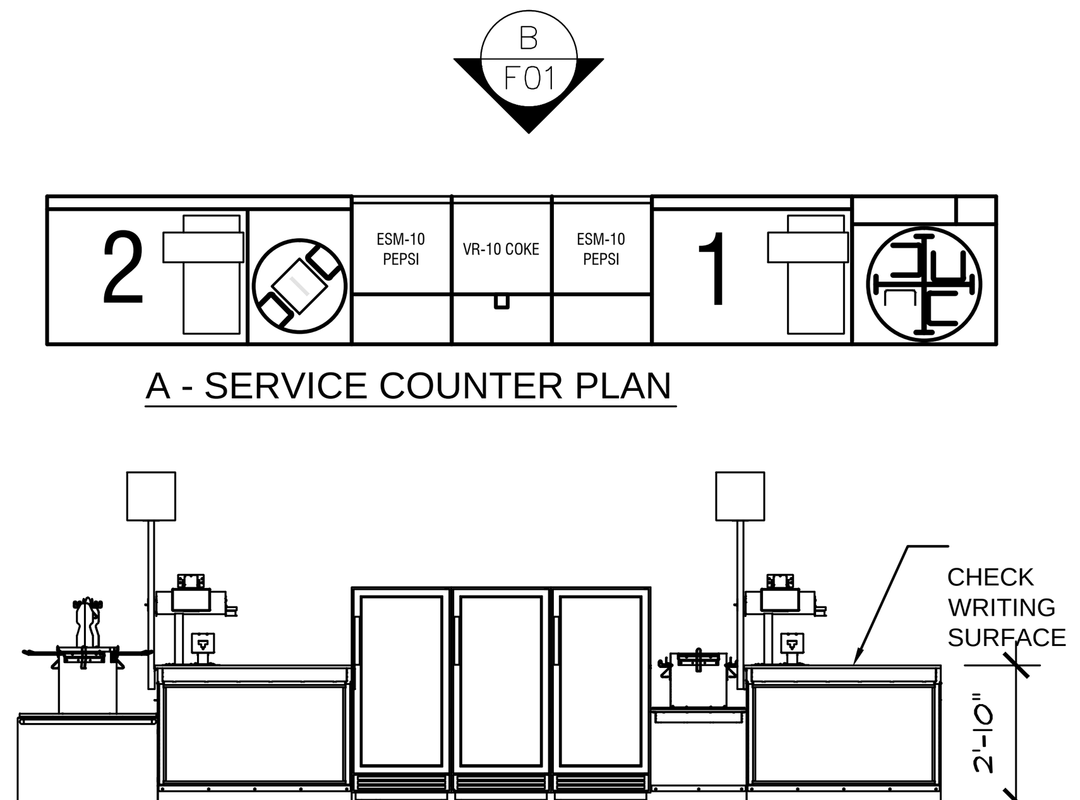
DRAWN BY
MWH
DATE
10/10/18
REVISIONS
3/13/18 - SIGNAGE

SHEET NUMBER
A-2
OF



301 BUILDING SECTION

SCALE: 3/8" = 1'-0"

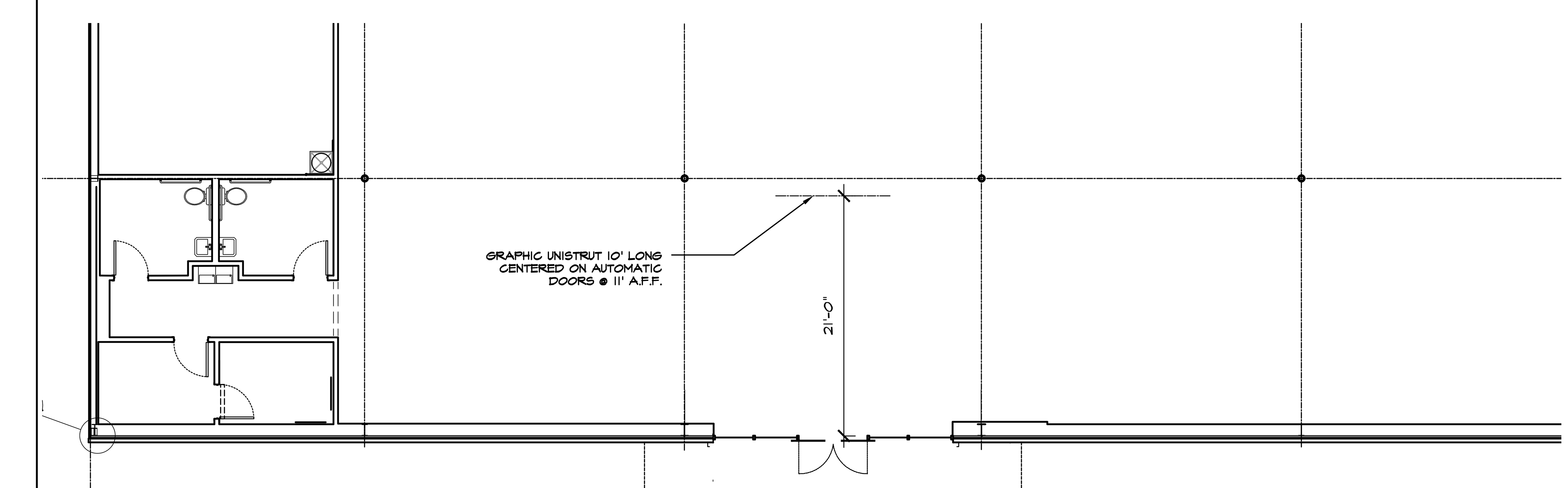


A - SERVICE COUNTER PLAN

B - ELEVATION

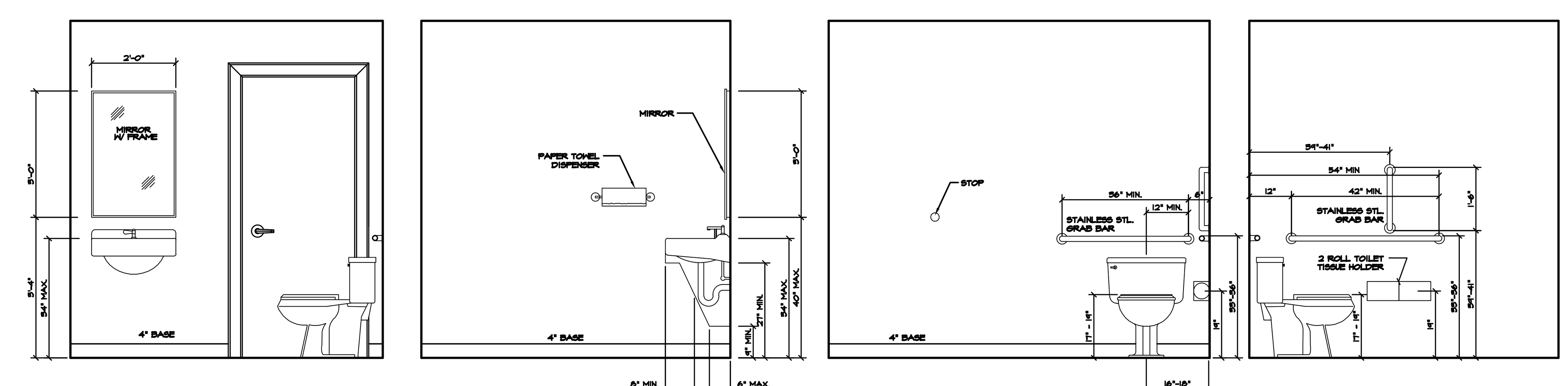
SERVICE COUNTER DETAILS

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



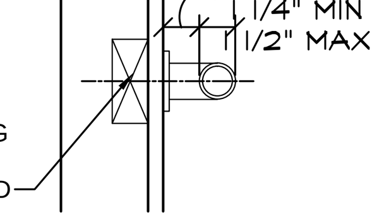
UNI-STRUT LAYOUT FOR SIGNAGE

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



RESTROOM ELEVATIONS

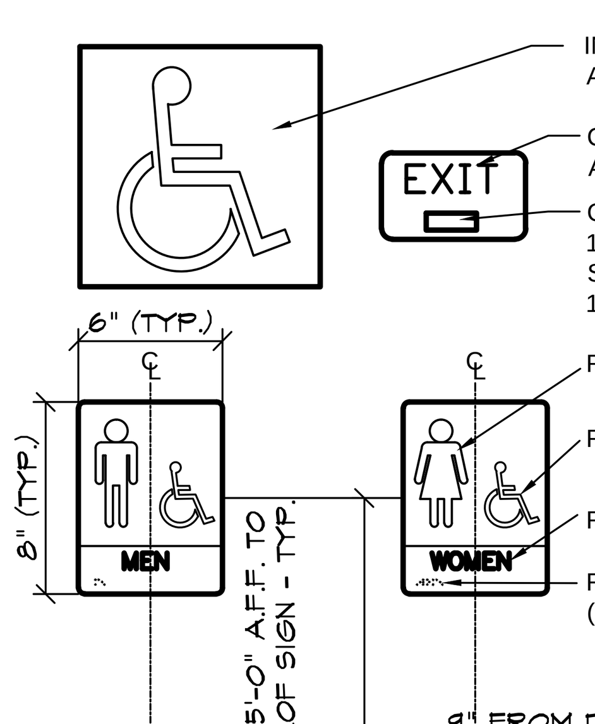
SCALE: 3/8" = 1'-0"



GRAB BAR SUPPORT BAR FASTENER & MOUNTING SUPPORT SHALL BE ABLE TO WITHSTAND 250#/FT. IN BENDING, SHEAR & TENSION. SEE ELEVATIONS FOR MOUNTING HEIGHTS

GRAB BAR DETAIL

SCALE: 1/2" = 1'-0"



NOTES:
1. SIGNS SHALL CONFORM TO ANSI OR LOCAL ACCESSIBILITY GUIDELINES WHICHEVER IS MORE STRINGENT.
2. ALL BUILDINGS AND ENTRANCES THAT ARE ACCESSIBLE AND USABLE BY PERSONS WITH DISABILITIES SHALL BE IDENTIFIED WITH A MINIMUM OF ONE INTERNATIONAL SYMBOL OF ACCESSIBILITY.
3. G.C. TO PROVIDE TACTILE "EXIT" SIGNS AT ALL GRADE LEVEL EXIT DOORS

ACCESSIBLE SIGNAGE

SCALE: 1/2" = 1'-0"

TOILET ROOM ACCESSORIES

B2740	BOBRICK DOUBLE TOILET TISSUE DISPENSER
B253	BOBRICK PAPER TOWEL DISPENSER
A-24x36	GAMCO 24" x 36" ANGLE FRAME MIRROR
150Sx36	GAMCO 1 1/2" X 36" GRAB BAR
150Sx42	GAMCO 1 1/2" X 42" GRAB BAR
150Sx18	GAMCO 1 1/2" X 18" GRAB BAR
MS-1	GAMCO MOP HOLDER

TOILET ROOM NOTES:

1. ALL TOILET ROOM ACCESSORIES PROVIDED BY BASS SECURITY. REFER TO T01 FOR VENDOR CONTACT.
2. ALL STORES MUST INCLUDE 2 REST ROOMS, EVEN WHEN NOT REQUIRED BY CODE. ANY VARIATION MUST BE APPROVED, IN WRITING, BY THE DOLLAR GENERAL CONSTRUCTION DEPARTMENT.
3. RESTROOMS MUST COMPLY WITH ALL BUILDING (FEDERAL, STATE, AND LOCAL) FIRE, AND HEALTH DEPARTMENT CODES. ADA REQUIREMENTS MUST ALSO BE MET IN BOTH RESTROOMS. SOME CODES MAY REQUIRE ADDITIONAL TOILETS OR LAVATORIES. PLEASE CONTACT DOLLAR GENERAL CONSTRUCTION DEPARTMENT FOR ALTERNATE PLANS FOR THESE SITUATIONS.
4. PROVIDE AND INSTALL 2'x3' MIRROR (OR LARGER IF REQUIRED BY CODE).
5. CONTRACTOR TO INSTALL SOAP DISPENSERS, TOILET PAPER HOLDERS, DOOR CLOSER, EXHAUST FANS, AND ALL BASS SECURITY PARTS IN BOTH RESTROOMS. PROVIDE SOLID BLOCKING IN WALL FOR SUPPORT.

DOOR HARDWARE

54-US32D	BURNS PUSH PLATE
5410-32D-26D-GRIP	BURNS PULL PLATE
B2DDH-2250 **	DETEX DOUBLE DOOR
DS1000/MB	DOOR SCOPE (FORE RECEIVING EXIT DOOR)
608Z	8" DOOR HOLDER
770SAV-3FT	3 FT DOOR SWEEP
770SAV-4FT	4 FT DOOR SWEEP
W101S-DANE-626	FALCON PASSAGE LOCK SET
W581PD-DANE-626	FALCON STOREROOM LOCKSET
5400	HAGER DOOR CLOSER
7015SC8-26D*	ILCO RIM CYLINDER
402-1/2B-26D	3IVES WALL STOP
425B26D-4	IVES 4" DOOR HOLDER
8400-S32D-8X34	FALCON PASSAGE LOCK SET
425 HD - 6FT	NATIONAL GUARD HD THRESHOLD (FOR RECEIVNG EXIT DOOR)
TA3310PC	TACO DOOR VIEWER
2670-28	VON DUPRIN GUARD-X EXIT ALARM LOCK
2609 **	VON DUPRIN GUARD-XDOUBLE DOOR STRIKE
892SAV-84INCH	WEATHERSTRIPPING

DOOR HARDWARE NOTES:

1. ALL DOOR HARDWARE PROVIDED BY BASS SECURITY. REFER TO T01 FOR VENDOR CONTACT.

JOHN C. HOOD, III
REGISTERED ARCHITECT
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NORTH CAROLINA
WILSON, NC
10/10/18

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DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

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JCH
DATE
10/10/18
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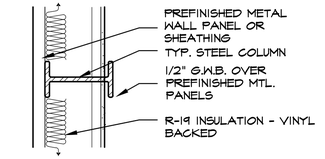
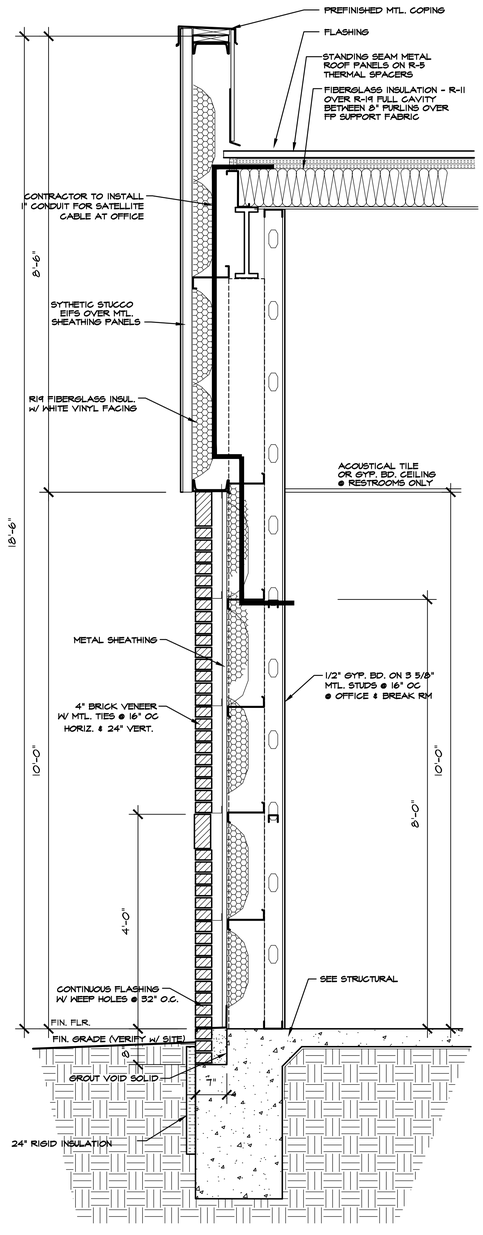
SHEET NUMBER
A-3
OF



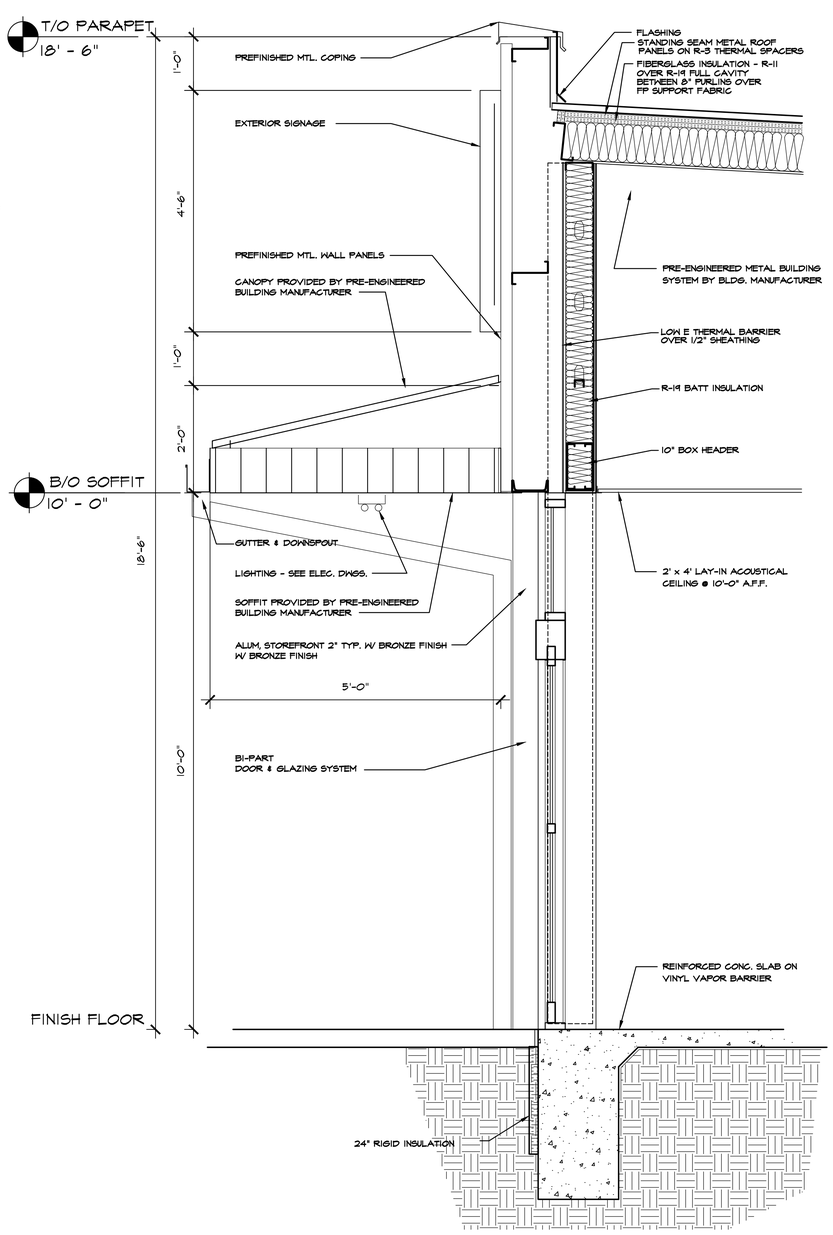
405 DETAIL @ COLUMN

SCALE: 1" = 1'-0"



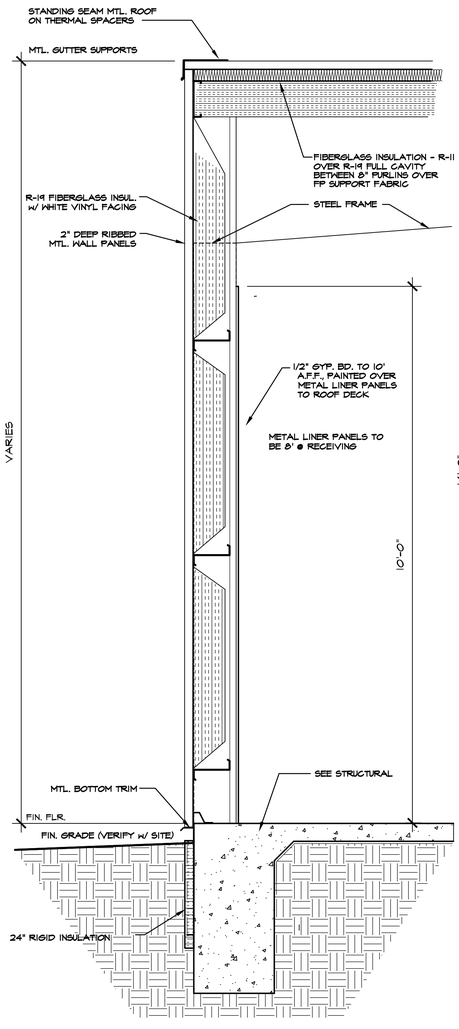
401 WALL SECTION @ FRONT WALL

SCALE: 3/4" = 1'-0"



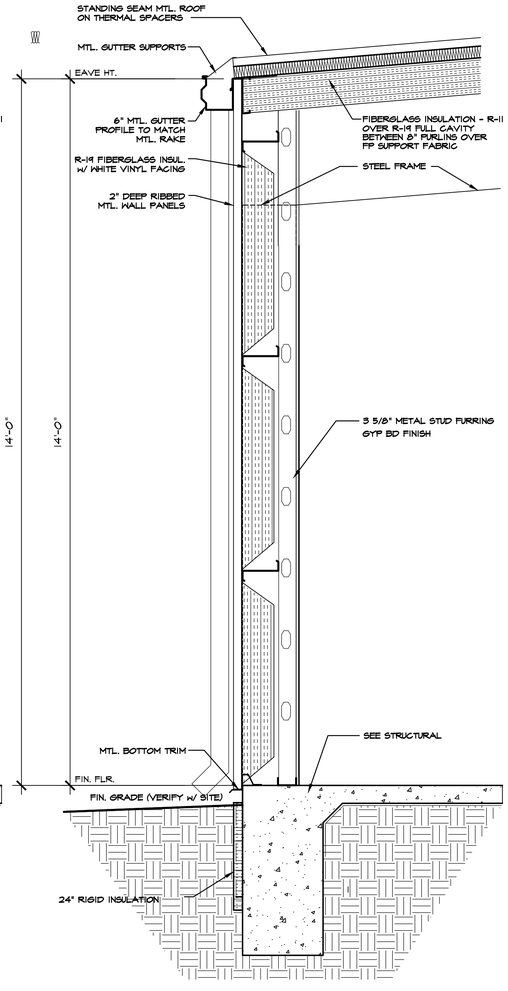
402 WALL SECTION @ ENTRY

SCALE: 3/4" = 1'-0"



403 WALL SECTION @ SIDE WALL

SCALE: 3/4" = 1'-0"



405 WALL SECTION @ REAR WALL

SCALE: 3/4" = 1'-0"

JOHN C. HOOD, III
REGISTERED ARCHITECT
NORTH CAROLINA
WILSON, NC
2008

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OF

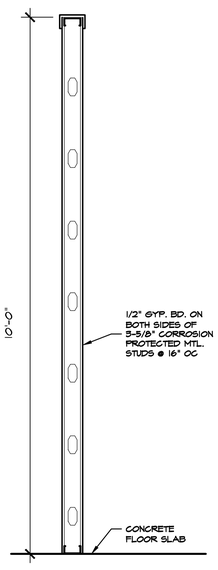
REQUIRED NATIONAL ACCOUNT VENDORS:

COMPANY	CONTACTS	PHONE #	REQUIRED ITEMS
RAINBIRD IRRIGATION	LOCAL RAINBIRD DISTRIBUTOR	www.rainbird.com	IRRIGATION SYSTEMS
EUCLID CHEMICAL COMPANY	PHIL BRANDT	877-438-3826 PBrandt@euclidchemical.com	CONCRETE POLISHING SYSTEMS
RETROPLATE SYSTEMS	SCOTT MAXFIELD	888-641-6796 scott.maxfield@retroplatesystem.com	CONCRETE POLISHING SYSTEMS
ASSA ABLOY ENTRANCE SYSTEMS	ROSS MERKLING	609-528-2580 dollargeneral.besam.us@assaabloy.com	AUTOMATIC DOORS AND STORE FRONT GLAZING SYSTEM
COOK & BOARDMAN GROUP	JOE HARRELL	336-857-0673 nationalsales@cookandboardman.com	INTERIOR DOORS & FRAMES & RESTROOM ACCESSORIES
SHERWIN WILLIAMS	LOCAL SHERWIN WILLIAMS STORE		PAINT, PRIMER, CONCRETE SEALER AND BLOCK FILLER
MC CUE CORPORATION	KEVIN ONEAL	678-442-4026 koneill@mccuecorp.com	TRIM KIT, BUMPER GUARDS, CART STOP
LENOX	SCOTT MACDONALD	972-497-6781 dollargeneral@lenoxind.com	HVAC UNITS
ROOF CURB SYSTEMS	CLIFTON REASOR	800-635-5848 gsmythii@rootcurb.com	RTU CURB
CURBS PLUS INC.	ALLAN THRAILKILL	888-634-2872 alan.thrailkill@curbs-plus.com	RTU CURB
KCC INTERNATIONAL INC.	GREG CONRAD	800-382-2872 gconrad@kcccurbs.com	RTU CURB
NESCO	CHRIS TRACY	800-244-6480 dollargeneral@nesdhamelectric.com	ELECTRICAL SWITCH GEAR
LEDS	MICHAEL STRINGER KYLE KNAPP	920-915-4010 dgorders@leds-llc.com	ELECTRICAL LIGHTING SUPPLIES
D&P CUSTOM LIGHTING	NATIONAL ACCOUNT SALES	800-251-2200	CUSTOM POWER POLES
ASD	CHRIS RUDNITSKI	828-624-1046 crudinski@asd-usa.com	LOW VOLTAGE & VOICE/DATA
GRAYBAR	JEROME BANNISTER	615-743-3202 off, 615-424-2135 cell dollargeneral@graybar.com	CABLE TRAY
EMERSON CLIMATE TECHNOLOGIES	http://dollargeneralbld.ectsolutions.net	USER NAME: dollargeneralbld PASSWORD: dollargeneralbld	EMS SUPPLIER NOTE: CUSTOMIZED DOLLAR GENERAL EMS PANEL REQUIRES STORE #, CITY, STATE, ZIP CODE & QTY. OF HVAC UNITS OF THE INSTALL SITE WHEN ORDERING.
STANLEY CONVERGENT SECURITY SOLUTIONS	DAN GOLDSMITH	740-862-2051	INTERIOR FIRE ALARM PANELS

REQUIRED NATIONAL ACCOUNTS FOR ENGINEERING & CONSTRUCTION MATERIAL TESTING

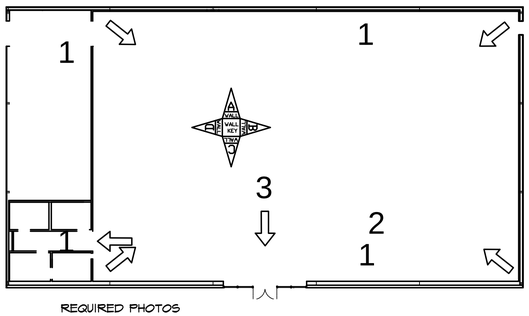
COMPANY	CONTACTS	PHONE #	REQUIRED ITEMS
ATC ASSOCIATES, INC.	LESLIE GREENWOOD	205-733-8775 dollargeneral@atcassociates.com	www.atcassociates.com
BUILDING AND EARTH SCIENCES, INC.	MATT ADAMS	205-856-6300 dollargeneral@buildingandearth.com	www.buildingandearth.com
EAS PROFESSIONALS, INC.	JERRY MARRONE	864-284-7568 dollargeneral@eas-pro.com	www.eas-pro.com
PROFESSIONAL SERVICE INDUSTRIES, INC. (PSI)	TERESA HEBNER	770-424-6200 #3030 teresa.hebner@psiusa.com	www.psiusa.com
TERRACON	JOHN MEADOW	770-625-0755 #353 dollargeneral@terracon.com	www.terracon.com

NATIONAL ACCOUNT & CONTACT INFORMATION SUBJECT TO CHANGE



502 SECTION @ OFFICE/BREAKROOM

SCALE: 3/4" = 1'-0"

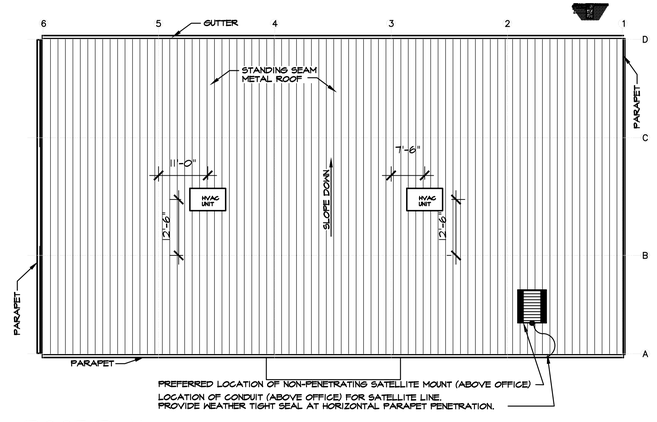


REQUIRED PHOTOS

The following layout shows the required photos to be taken at completion. (make sure the overhead lights are on for your photos)

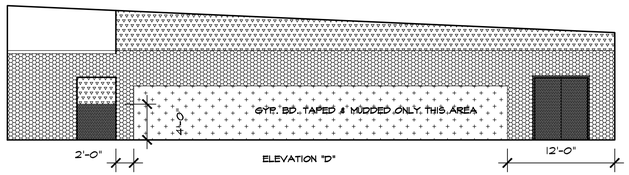
1. From each corner of the stockroom, facing the opposite corner.
2. Hall (in side entrance stores, one picture from each end of the hall)
3. Standing 10' from the entrance facing the entrance.

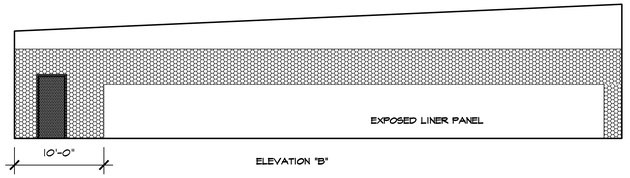
ELEVATION/PHOTO KEY PLAN

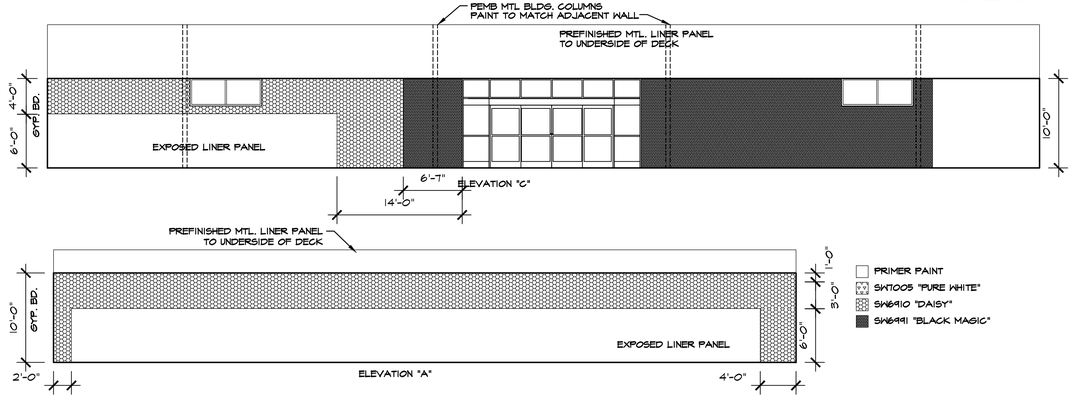


ROOF PLAN

SCALE: 1/16" = 1'-0"







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JOB NUMBER

DRAWN BY
JCH
DATE
10/10/18
REVISIONS

SHEET NUMBER
A-5
OF

1) GENERAL

A. The building shall be designed such that there is maintained an absolute minimum of 68'-1" from face-of-column to face-of-column on the sales floor.

2) FOUNDATIONS

A. The concrete foundations shall be designed, detailed and constructed to provide for the safe, serviceable support of the pre-manufactured metal building structure and all prescribed loads applied thereto. The foundations shall conform to the latest editions of all applicable standards of the American Concrete Institute (ACI), the Building Code(s) enforced by the Authority Having Jurisdiction and these requirements.

B. The soils supporting the foundation shall be prepared and compacted in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located.

C. The slab on grade shall not be utilized to resist horizontal thrust forces at the base of the pre-engineered building frames. Tie beams below and separate from the building slab may be utilized.

D. The bearing materials shall be free of organic, expansive or corrosive material, and shall support the foundation in accordance with the following twenty five year criteria:

1. Maximum differential movement due to either settlement or heave shall not exceed 1/2" over a distance of 50 feet.

2. Maximum total movement due to either settlement or heave shall not exceed 1".

E. The foundations shall be of sufficient depth to bear below local frost depth where exposed, attain minimum design bearing pressure, achieve sufficient protection from settlement or heave, and where adjacent to existing construction, avoid application of lateral earth pressure to adjacent construction.

3) SLAB ON GRADE

A. The subgrade for the slab on grade shall be compacted and prepared in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located. The subgrade shall provide a minimum of 100 pounds per cubic inch (pci) modulus of sub-grade reaction and shall be proof-rolled to ensure that there are no pumping or soft zones greater than ½" (ACI 302, "Guide for Concrete Floor Slab Construction").

B. The slab on grade shall conform to the latest editions of all applicable standards of the American Concrete Institute (ACI), the Building Code(s) enforced by the Authority Having Jurisdiction and these requirements. The slab on grade shall be a minimum of 4" thick and reinforced with a minimum 6" x 6" x W1.4 x W1.4 welded wire fabric located in the center of the slab.

C. Except at doors at the perimeter of the facility, the slab on grade shall be isolated from the building columns and any perimeter grade beams or walls. The slab on grade shall receive a hard steel trowel finish. Saw-cut contraction joints a minimum of ¼ the depth of the slab shall be provided in both principal directions across the entire floor slab, spaced no further than 13 feet on center and providing panels with an aspect ratio no greater that 1.5:1. Refer to Control Joint Spacing Plan on Sheet S3. The slab shall be protected from the effects of heat or wind as necessary to avoid any curling of the slab segments.

4) CONCRETE SALES FLOOR PRE-INSTALLATION CONFERENCE:

A. At least **30** days prior to the start of the concrete slab construction, the general contractor shall conduct a meeting to review the proposed concrete mix designs and to discuss the required methods and procedures to achieve the requirements of this specification. The general contractor shall send a pre-concrete conference agenda to all attendees **20** days prior to the scheduled date of the conference.

B. The general contractor shall require responsible representatives of every party concerned with the concrete work to attend the conference, including, but not limited to, the following:
General contractor's superintendent

1. Laboratory responsible for concrete mixes, field quality control and floor tolerance testing
2. Ready-mix concrete producer
3. Concrete contractor
4. Chemical admixture manufacturer
5. Liquid densifier and sealer manufacturer
6. Liquid densifier and sealer applicator
7. Joint filling manufacturer
8. Joint filling applicator

C. Minutes of the meeting shall be recorded, typed and printed by the general contractor and distributed to all concerned parties, including the owner's representative, the architect and the structural engineer, within five days of the meeting.

D. The minutes shall include a statement by the concrete supplier stating that the proposed concrete mix design will produce the concrete quality required by these specifications.

E. The minutes shall include a statement by the concrete contractor that the proposed concrete mix design will provide appropriate workability and setting times, to ensure that the concrete contractor can achieve the requirements of this specification.

5) CONCRETE CONTRACTOR QUALIFICATION:

A. The concrete contractor shall include in their bid package to the general contractor, sufficient data, including a minimum of three similar and successful projects that clearly indicates the concrete contractor's ability to successfully perform the work and to achieve the interior sales floor slab tolerances required in this specification. The concrete contractor's team shall have participated in the majority of these projects, and that team shall remain the same through the duration of this project.

6) CONCRETE MATERIALS:

A. Portland Cement: ASTM C 150, Type 1. Use one brand of cement throughout the project.

B. Coarse and fine aggregates: ASTM C 33. Combined aggregate gradation for slabs on grade and other designated concrete shall be 8% - 18% for large top size aggregates (1½") or 8% - 22% for smaller top size aggregates (1" or ¾") retained on each sieve below the top size and above the no. 100 sieve. Slabs on grade shall have a maximum aggregate size of 1½" footings and piers 1" and beams ¾".

C. Water: complying with ASTM C 94.

D. Air-entraining admixtures: Shall conform to ASTM C-260. Admixture manufacturer shall provide written certification that the air-entraining admixture is compatible with other required admixtures. All exterior slabs shall be air-entrained (4% - 6%). Acceptable products: Euclid Chemical AEA-92 or Air 40; BASF Micro Air; W.R. Grace Daravair 1000 or Darex-II. 1. **Note: Air-entraining admixture shall not be used on interior concrete.**

E. Water-reducing admixture: Shall conform to ASTM C494, Type A and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Eucon series; BASF Pozzolith series; W.R. Grace WRDA or Daracem series.

F. Water-reducing, retarding admixture: Shall conform to ASTM C494, Type D, and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Retarder 75; BASF Pozzolith series; W.R. Grace Daratard 17.

G. High range water-reducing admixture (superplasticizer): Shall conform to ASTM C494, Type F or Type G and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Eucon 37; BASF Rheobuild 1000; W.R. Grace daracem-100.

H. Water-reducing, non-corrosive accelerating admixture: Shall conform to ASTM C494, Type C or E, and contain no more chloride ions than are present in municipal drinking water. The admixture manufacturer must have long-term, non-corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures. Acceptable products: Euclid Chemical Accelguard 80/90 or Accelguard NCA; BASF NC534 or Pozzutec 20; W.R. Grace Polarset.

I. Prohibited admixtures:
1. Calcium chloride or admixtures containing more than 0.05% chloride ions are not permitted.
2. Flyash is not permitted.

7) EVAPORATION RETARDER:

A. Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
1. Acceptable products:
a. "Eucobar" by Euclid Chemical - Phil Brandt 877-438-3826

8) CURING MATERIALS:

A. Exterior curing: **All exterior concrete slabs** shall be cured using a liquid membrane-forming curing compound. The liquid membrane-forming curing compound shall meet the requirements of ASTM C1315 with a maximum V.O.C. Content of 700 g/l.
1. Acceptable products:
a. "Super Rez Seal" or "Super Aqua Cure" by Euclid Chemical - Phil Brandt 877-438- 3826

B. Interior curing (building not enclosed/sales floor slab is placed first): The interior sales floor slab shall be cured using a reduced odor, dissipating liquid membrane forming curing compound that is formulated from hydrocarbon resins. The dissipating liquid membrane forming curing compound shall meet the requirements of ASTM C309 and V.O.C. contents in accordance to EPA 40 CFR, part 59, table 1, subpart D for concrete curing compounds with a maximum V.O.C. content of 350g/l.
1. Acceptable product:
a. "Kurez DR VOX" by Euclid Chemical - Phil Brandt 877-438-3826

C. Interior curing (building enclosed/sales floor slab is placed last): **The interior sales floor slab** shall be cured using a removable, low odor, fast drying liquid membrane forming curing compound. The removable liquid membrane forming curing compound shall meet the requirements of ASTM C309, AASHTO M 148, USDA compliancy and V.O.C. contents in accordance to EPA 40 CFR, part 59, Table 1, subpart D for concrete curing compounds with a maximum V.O.C. Content of 350g/l.
1. Acceptable product:
a. "Kurez RC" by Euclid Chemical - Phil Brandt 877-438-3826

9) LIQUID DENSIFIER / SEALER FOR INTERIOR SALES FLOOR:

A. Liquid densifier / sealer shall be a sodium silicate / siliconate blend. Manufacturer of liquid densifier and sealer must be contacted prior to bidding for pricing and application requirements.
1. Acceptable liquid densifier and sealer manufacturer:
a. "Euco Diamond Hard" by Euclid Chemical - Phil Brandt 877-438-3826
b. "RetroPlate 99" by RetroPlate Systems - Curtis Turnbull 888-942-3144

B. Approval: All general contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. **The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer and polishing process.** Within ten days after completion of work, the approved applicator shall furnish Euclid Chemical or RetroPlate a copy of the invoice, as well as square footage and coverage rate data confirming that the specified application rates were achieved.

C. Project service: at least **10** days prior to application of liquid densifier and sealer, the general contractor shall notify the Euclid Chemical or RetroPlate representative for jobsite service. The representative will be on the project site during the first application of liquid densifier / sealer and will follow the project through to completion.

10) SEMI-RIGID POLYUREA JOINT FILLER:

A. UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with minimum Shore "A" hardness of 80. Joint filler color shall match the adjacent concrete surface.
1. Acceptable semi-rigid polyurea joint filler manufacturer:
a. "Euco QWIKJoint UVR" by Euclid Chemical - Phil Brandt 877-438-3826

B. Non-UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with a minimum Shore "A" hardness of 75. Joint filler color shall match the adjacent concrete surface.
1. Acceptable semi-rigid polyurea joint filler:
a. "CreteFill Pro 75" by CureCrete - Curtis Turnbull 888-942-3144

C. Approval: All general contractors bidding or negotiating a Dollar General project shall contact the Euclid Chemical company or Retroplate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. **The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer and polishing process.**

11) CONCRETE MIXES:

A. Comply with ACI 301 requirements for concrete mixtures.

B. Concrete mix design(s) shall be proportioned according to ACI 301, for normal-weight concrete determined by either laboratory trial mix or field test data as follows:
1. Compressive strength (28 days): 4000psi (27.6mpa), with a maximum water/cement ratio of .53, unless otherwise indicated on the drawings. Concrete materials included in the mix design shall be the same materials provided to the project, and shall be prepared by an independent testing laboratory approved by the owner. If sufficient backup data is not available, the laboratory mix design shall exceed the desired job strength of concrete by 1,200psi. Four copies of the mix design shall be submitted to the owner before concrete work begins.

2. Slump: Concrete containing mid or high range water reducer shall have a maximum slump of 5½" for the interior sales floor slab and 8" (200 mm) for other areas. All other concrete shall not exceed 4 inches (100 mm) unless otherwise indicated on the drawings.

3. Adjustment to concrete mixes: Mix design adjustments may be requested by General Contractor when characteristics of materials, job conditions, weather, test results or other circumstances warrant; at no additional cost to owner and as accepted by owner. Laboratory test data for revised mix design and strength results must be submitted to and accepted by owner before using in work. Both the concrete testing and inspection agency and the concrete contractor shall satisfy themselves that the concrete mix design will produce a concrete which will meet the specifications for this project. In addition, the General Contractor and Concrete Contractor shall verify that the workability, finishability and setting times are appropriate for slab installations. Placement shall be made directly from concrete trucks by chute. If pumping of the concrete is contemplated for any special locations, the proportions established above shall not be altered to suit the capabilities of the pumping equipment. For concrete containing macro-synthetic fibers, adjustments required to provide required placement conditions may warrant use of additional water reducer. No additional water is permitted into concrete mixture after addition of macro-synthetic fibers.

4 Interior concrete sales floor: Concrete shall be designed to meet 4000 psi compressive strength @ 28 days and exhibit ≤0.04% shrinkage @ 28 days. The mix shall contain approximately 12 cubic feet of #467 aggregate (1-1/2" top size), the specified water reducing admixture and achieve a w/cm ratio of 0.53 (max.). Concrete shall be non air-entrained and in no case shall the concrete be designed for less than 4000 psi (27.6mpa) @ 28 days. Proposed mix design shall be similar to the following

Prototype mix:

Materials	**Prototype mix**
Cement	**517-564lbs.**
Fly ash/slag	**Prohibited**
Coarse aggregate	**12 cubic feet +/- .50 (#467 stone)**
Fine aggregate	**7 cubic feet +/- (adjust as necessary)**
Water content	**250 - 300lbs.**
Air content (Entrapped Air Only)	**3.0% (max.)**
Water Reducer (type a/f)	**3oz.-10oz./100wt +/- (mid range preferred)**
W/cm	**0.53 (max.)**
Initial slump (water)	**3"**
Final Slump (with water reducer)	**5.5" (max)**
Shrinkage	**≤0.04% @ 28 days**

12) FLOOR SLAB FINISH AND TOLERANCES:

A. General: Unless otherwise noted by owner, concrete sales floor slab shall be cast in one continuous placement. Concrete shall be placed, screeded, re-straightened, and finished as necessary to meet the FF and FL tolerance requirements. Do not wet concrete surfaces during finishing operations.

B. Trowel finish (sales floor): Apply a hard trowel finish to surfaces as follows:

1. Laser screeds, vibratory screeds, highway straightedges and wood bull floats shall be used to initiate screeding and floating process to form a uniform and open-textured surface plane before excess moisture or bleed water appears on the surface. A back-up laser screed is required during concrete placement of the interior sales floor slab, Remove excess water before starting floating operations. Do not further disturb surfaces before starting finishing operations

2. Highway straightedge operations shall continue before, during and after troweling operation, until specified floor tolerances are achieved.

3. Trowel finish with gas operated troweling machine with adjustable blades on all finishing equipment. Use steel-reinforced blades on ride-on power trowels. Trowel the surface sufficiently to produce a smooth, tight, abrasion resistant surface. Care shall be taken not to overwork or burn the surface. Use 6" wide finish style steel-reinforced blades on final passes. Finishing blades shall be in new condition and completely clean of any deleterious materials. Interior machine trowel finish shall be achieved within a 3" tolerance of all walls, columns and partitions.

4. Protection: Care shall be taken to protect the interior sales floor. Entrances shall include clean floor mats to prevent mud stains and all equipment on the floor shall be diapered to prevent spills. Cutting oils, etc, are not allowed on the sales floor slab at any time during the construction process.

C. Comply with ACI 117, "Specifications For Tolerances For Concrete Construction and Materials." Interior sales floor slab shall meet the requirements of a type 5, single course, hard steel-troweled finish as described in ACI 302.

1.All perimeter areas and edges of the concrete floor shall exhibit the same finish as the sales floor, including but not limited to, hallways, offices, restrooms, etc.
2.The general contractor is responsible for contracting with the testing laboratory for all costs associated with floor tolerance testing. A copy of the final floor tolerance report shall be provided by the general contractor to the owner within 24 hours of receiving the report from the testing laboratory. The sales floor slab shall conform to the following flatness and levelness criteria:

Flatness	Overall Floor Flatness rating of at least 35
Levelness	Overall Floor Levelness rating of at least 30
Tolerance Band for Entire Floor	+/- 0.375 inch

D. Failure to achieve the above criteria shall be cause for replacement of the offending segments or grinding/polishing at no cost to the Owner or Tenant.
E. Trowel finish (other than sales floor): Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

F. Heavy broom finish: As noted on drawings.

13) CONCRETE PROTECTION AND CURING:

A. General: Normalize concrete set time and protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 305 for hot-weather protection and ACI 306 for cold-weather protection during curing. During concrete placement operations, ventilate and exhaust all fumes from construction equipment and heaters to avoid potential early concrete carbonation. Apply the specified curing compound as quickly as possible for maximum protection. For concrete placement during hot, dry and windy conditions, concrete contractor shall use evaporation retarder as per manufacturer's instructions to maintain a moist condition and to minimize plastic drying shrinkage cracking at the surface of the freshly placed concrete.

1. Curing - Exterior Slabs:
All exterior concrete slabs shall be cured using the specified liquid membrane-forming curing compound. Per manufacturer's instructions, application shall be applied evenly and uniformly as soon as possible after final finishing. Surface shall be clean and damp, but not wet and can no longer be marred by walking workmen. All applications shall be made by an approved applicator of the manufacturer, and when surface and air temperature is above 50° f. Apply "Super Rez Seal" or "Super Aqua Cure" at an application rate of 400sf/gallon. Begin curing immediately after finishing concrete, but not before free water has disappeared from concrete surface.

2. Curing - Interior slabs:
The interior sales floor slab shall be cured using the specified dissipating or removable liquid membrane-forming curing compound. Per manufacturer's instructions, application shall be applied evenly and uniformly as soon as possible after final finishing. Surface shall be damp, but not wet and can no longer be marred by walking workmen. All applications shall be made by an approved applicator of the manufacturer, and when surface and air temperature is above 50° f. Apply "Kurez DR VOX" (slab first) or "Kurez RC" (slab last) at an application rate of 350sf/gallon. Begin curing immediately after finishing concrete, but not before free water has disappeared from concrete surface.

14) CONTRACTION JOINTS IN SLABS-ON-GRADE:

A. Form weakened-plane contraction joints, sectioning concrete into areas as indicated on drawings. Contraction joints shall be sawn to a depth equal to at least one-fourth of the concrete thickness, as follows:

B. Sawed joints: All saw cutting shall be accomplished with a "Soff-Cut" saw and vacuum system equipped with a new blade and plate, as soon as the slab will support the weight of the saw and operator. Note: Concrete dust shall be removed completely and immediately. If chalk lines are used for sawcuts, all chalk remaining on the slab shall be removed completely and immediately after sawing.

15) INTERIOR SALES FLOOR SLAB PROTECTION:

A. Take the following measures to protect the interior sales floor slab:
1. Wrap or "diaper" all motorized and hydraulic equipment to prevent fluid leaks
2. Provide non-marking tires on rubber tired vehicles or equip rubber tires with tire boots made of nylon fabric
3. Provide mats at all entrances to prevent mud stains

16) TIMING OF JOINT FILLER, LIQUID DENSIFER AND POLISHING PROCESS:

A. Do not commence installation of semi-rigid polyurea joint filler, liquid densifier and sealer or polishing processes until the building is completely enclosed, permanent power and lighting is operating and the building is thermostatically controlled. Installation of these materials shall commence approximately two weeks prior to "fixture date."

17) INSTALLATION OF SEMI-RIGID POLYUREA JOINT FILLER:

A. All General Contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer.

B. Joint filler installation: Comply with recommendations in ACI 302 for use of joint filler as applicable to materials, applications, and conditions indicated.

C. Surface cleaning of joints: Clean out joints immediately before installing joint filler. Remove foreign material from joint substrates that could interfere with adhesion of joint filler by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint filler. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Also remove all laitance and form-release agents from concrete surface. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues could interfere with adhesion of joint sealants. All surfaces to be filled shall be clean and dry.

D. For proper load transfer, joints must be filled full depth, but in no case should the joint filler be any less than 1" deep in the joint.

E. Mixing: Joint filler is a two part product requiring machine mixing and placing. Premix part b separately before using. Follow pump manufacturer's equipment instructions.

F. Placement: Joint filler shall be filled full depth. No backer rod is allowed. Joints should be overfilled and shaved even with the surrounding joint edge giving the floor joints a flat, smooth appearance. Shaving of excess joint filler can be approximately 30 minutes after placement, and up to 24 hours later, depending on jobsite conditions such as concrete and ambient temperatures.

G. Joint filler separation: The approved joint filling applicator shall include in their bid a cost per linear foot to make one return trip to refill joints if joint filler sidewall separation or splitting exceeds 1/16," or if surface profile is concave, chattered or if voids occur. This shall take place one week prior to grand opening.

18) INITIAL CLEANING FOR LIQUID DENSIFIER AND SEALER APPLICATION:

A. Interior sales floor slab: Thoroughly clean the interior sales floor slab prior to initial application of liquid densifier and sealer by completely removing the specified dissipating or removable curing compound from the floor surface. The following floor stripper or removal solution shall be applied to the floor to thoroughly strip, clean and remove all curing compound residue:

1. If Kurez DR VOX (slab first) was used to cure the slab, use "Euco Clean & Strip" by Euclid Chemical, applied at the proper water to floor stripper ratio and coverage rate that will completely remove the Kurez DR VOX. Contact: Phil Brandt (877) 438-3826

2. If Kurez RC (slab last) was used to cure the slab, use "Kurez OFF" by Euclid Chemical, applied at the proper water to floor cleaner ratio and coverage rate that will completely remove the Kurez RC. Contact: Phil Brandt (877) 438-3826

19) POLISHING PROCESS AND APPLICATION OF LIQUID DENSIFIER / SEALER:

A. All Applicators must be certified by Euclid Chemical or Retro-Plate.

B. The revised process can be used in both "Wet" and "Dry" applications.

C. This process assumes a quality concrete finish (meets and/or exceeds the specified floor tolerances) by the floor finisher. Failure to achieve the above criteria shall be cause for replacement of the offending segments or grinding/polishing at no cost to the Owner or Tenant.

D. Only the Sales Floor will receive the full 8 step process outlined below under item K.

E. All other areas will only receive steps 1 through 3, no additional work is necessary. The yellow safety striping will remain.

F. The Black painted border will not be required in areas behind fixtures, etc….it will only be installed at the main entry door, office doors, egress doors and doorways into the receiving area and transitions that can be seen by the customers.

G. Steps 2 & 4 are combo steps using different grits of resin bond diamonds on each pass.

H. This is a "Resin" only grind that does not tear away as much of the surface area. The Resin grind will remove a minimal top layer of the concrete surface and should greatly reduce the amount of Waste Product created when compared to the old Metal grind process.

I. If a Cure-n-Seal product is required at the time of slab placement only Water Based Dissipating Sealers are allowed. NO Acrylic Cure-N-Seals are allowed.

J. Prior to application, inspect interior sales floor slab to ensure that slab is clean and free of dust, grease, oils, or other contaminants that might prohibit the proper application and penetration of the liquid densifier and sealer.

K. Process Steps
1. Cut, clean out, prep and fill the concrete floor joints with the Euclid QWIKjoint UVR polyurea joint filler or "CreteFill Pro 75 by CureCrete.

2. Grind concrete floor with a combo set of 40/50 grit resin bond diamonds.

3. Depending on the final finish of the floor, this step may or may not be required. Grind concrete floor with a combo set of SASE metal bond gold series 80 and 150 grit segments or HTC EZ BB brown 4 series (60 grit diamonds) and HTC EZ BB Black 5 series (100 Grit Diamonds).

4. Thoroughly clean the concrete floor and apply Euclid Diamond Hard liquid densifier and sealer at 225 square feet per gallon or ("RetroPlate 99 liquid densifier at 200 square feet per gallon").

5. Polish concrete floor with a combo set of SASE Triton 100 grit black resin diamonds, SASE Triton 200 grit blue resin diamonds or HTC EZ MR black series (100 Grit Diamonds) and HTC EZ MR blue series (200 Grit Diamonds).

6. Polish concrete floor with SASE Triton 400 grit red resin diamonds or HTC EZ SR red series (400 grit diamonds).

7. Thoroughly clean concrete floor and then apply Euclid Diamond Hard liquid densifier and sealer at 700 square feet per gallon (spiff coat). Or ("RetroPlate 99 liquid densifier at 700 square feet per gallon as a spiff coat").

8. Burnish / Polish concrete floor with SASE Sure Shine white 800 grit diamond impregnated pads or HTC White Twister pads (800 grit diamond impregnated pads).

9. Burnish / Polish concrete floor with 1500 Grit Diamond Impregnated twister pads (H.T.C. Yellow TWISTERS or equivalent)

L. All edges must be polished to match concrete floor with coinciding SASE 5" resin Polishing pads or HTC EZ Grind polishing 5" diamond tools.

M. Polish results: Perform polishing process to attain an overall gloss reading of ≥35 specified overall gloss value (SOGV) as measured using a Horiba IG-320, and a specified minimum gloss reading of ≥30 minimum local gloss value (MGLV). A minimum of 75 readings shall be taken throughout the interior sales floor. The approved applicator shall take four gloss measurement readings at 90° from each other, and then averaged for one reading at each location. The overall measurement shall be reported to Dollar General within 24 hours of the polishing process. Gloss shall be considered as a quantitative value that expresses the degree of reflection when light hits the concrete floor surface. Gloss measurements will be taken independent of ambient lighting and will be taken within a sealed measurement window located beneath the test unit.

GENERAL NOTES

1. BUILDING MUST COMPLY WITH ALL BUILDING (FEDERAL, STATE, AND LOCAL), FIRE, ADA, AND HEALTH DEPARTMENT CODES.

2. WALLS: FINISHED GYPSUM BOARD WITH ALL JOINTS TAPED, MUDDED, SANDED, AND PAINTED.

3. PROVIDE DOUBLE STUDS AND BLOCKING TO SUPPORT EQUIPMENT AND/OR MISCELLANEOUS ITEMS WHERE INSTALLED. I.e.-TYPICAL CASEWORK, TOILET PAPER HOLDERS, GRAB BARS, ETC.

4. CAULK AND SEAL EXTERIOR JOINT BETWEEN METAL PANELS AND CONCRETE SLAB, AND ALL UNLIKE MATERIALS.

5. TRIM - DOORS, DOOR FRAMES, WINDOW FRAMES, COLUMNS: PAINTED TO MATCH ADJACENT WALLS.

6. ALL PENETRATIONS THROUGH ROOF MUST COMPLY WITH ROOF WARRANTY REQUIREMENTS.

7. DOORS: ALL EXTERIOR DOORS HAVE WEATHER STRIPPING AND A SNUG SEAL AROUND DOOR. ALL EXTERIOR DOORS WILL HAVE CYLINDER REPLACED BY DOLLAR GENERAL AREA MANAGER WITH INSTAKEY SYSTEM.

8. THE SALES FLOOR SHALL CONTAIN NO INTERIOR COLUMNS. 12" MAXIMUM THICKNESS ON ALL EXTERIOR COLUMNS. THE USE OF INTERIOR COLUMNS, LARGER EXTERIOR COLUMNS, OR TAPERED COLUMNS REQUIRE WRITTEN APPROVAL FROM DOLLAR GENERAL CONSTRUCTION DEPARTMENT.

9. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE ALL TRADES.

10. CONTRACTOR SHALL VERIFY ALL EQUIPMENT LOCATIONS AND DIMENSIONS OF EQUIPMENT. ANY EQUIPMENT FURNISHED BY THE OWNER OR TENANT SHALL BE RECEIVED, STORED, AND INSTALLED BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE WITH OWNER FOR INSTALLATION.

11. IF DIMENSIONS ARE IN QUESTION - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE DOLLAR GENERAL CONSTRUCTION DEPARTMENT BEFORE CONTINUING WITH CONSTRUCTION.

12. MAINTAIN CLEAN WORK SITE ON A DAILY BASIS.

JOHN C. HOOD, III
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DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

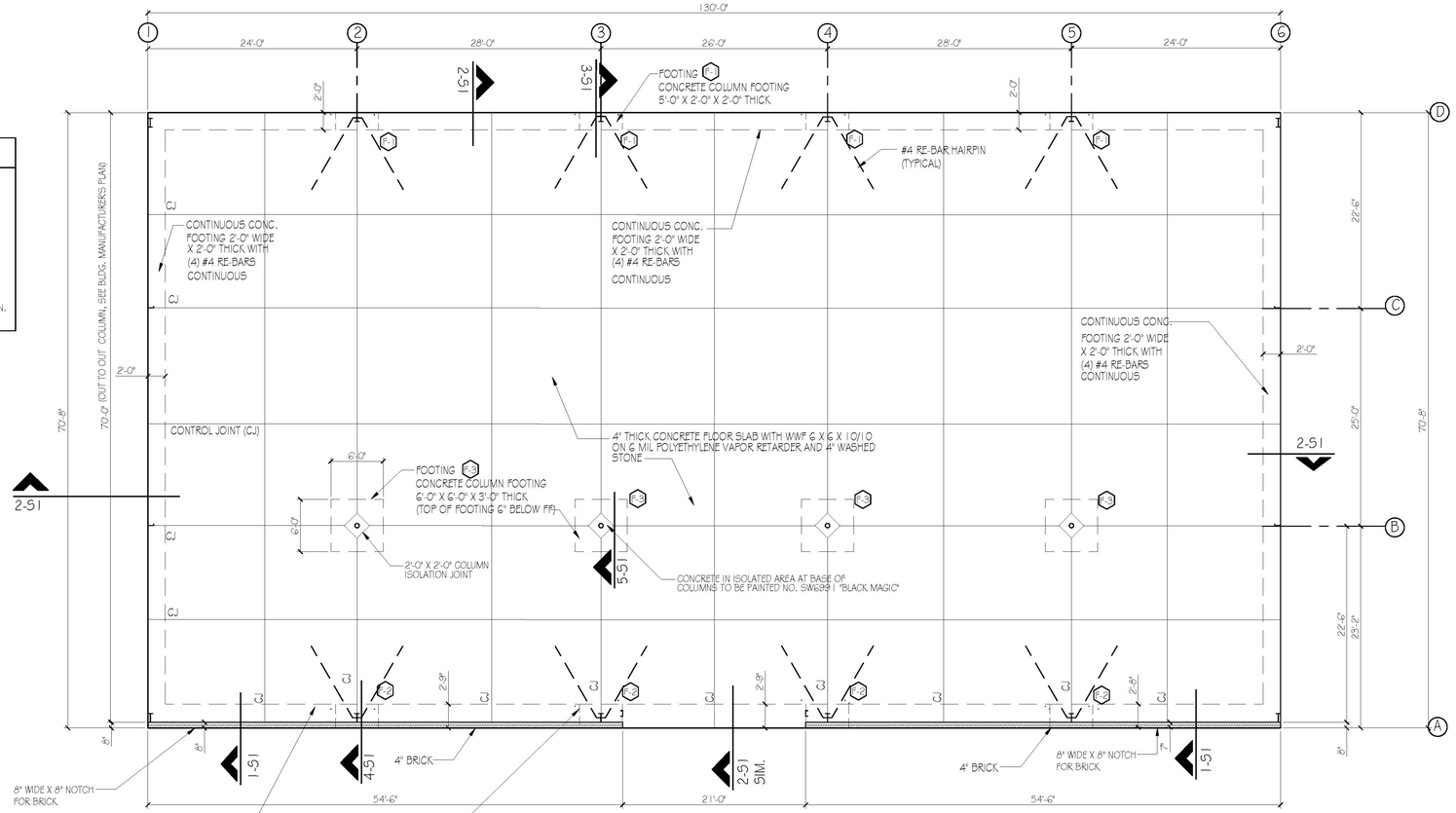
JOB NUMBER

DRAWN BY JCH
DATE 10/10/18
REVISIONS

SHEET NUMBER
A-6
OF

FOUNDATION NOTES

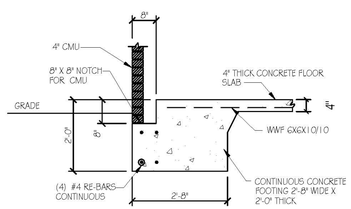
1. FOUNDATION DESIGN BASED ON ASSUMED SOIL BEARING PRESSURE OF 2000 PSF.
2. MINIMUM COMPRESSIVE STRENGTH F'c OF CONCRETE TO BE 4000 PSI.
3. STEEL REINFORCEMENT BARS TO BE A615, GRADE 60.
4. ANCHOR BOLTS SHALL BE 20" LONG WITH HEAVY HEX NUTS AND WASHERS (SEE DETAIL). SEE MANUFACTURERS DRAWING FOR ANCHOR BOLT SIZE AND LOCATION.
5. PERIMETER INSULATION, WHEN REQUIRED SHALL BE INSTALLED IN ACCORDANCE WITH STATE AND LOCAL CODES.
6. A 6 MIL POLYETHYLENE VAPOR RETARDER SHALL BE INSTALLED BELOW SLAB.
7. BOTTOM OF FOOTING SHALL BE 12" BELOW FINISHED GRADE MINIMUM.
8. ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE NORTH CAROLINA BUILDING CODE, 2012 EDITION.
9. CONTRACTOR SHALL PROVIDE ANCHOR BOLT REACTIONS FOR REVIEW PRIOR TO CONSTRUCTION OF BUILDING FOUNDATION.



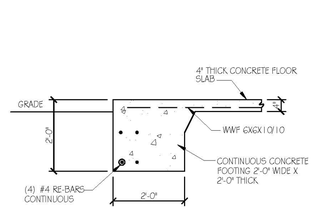
FOUNDATION PLAN

NOTE: COORDINATE COLUMN LOCATIONS WITH BUILDING MANUFACTURER'S PLAN

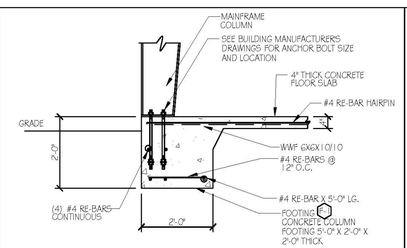
SCALE: 1/8" = 1'-0"



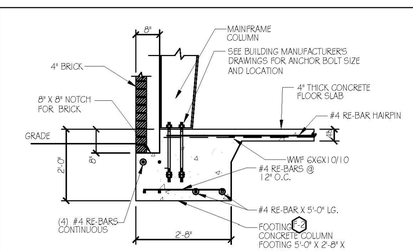
1 S1 FOOTING SECTION AT FRONT WALL
SCALE: 1/2" = 1'-0"



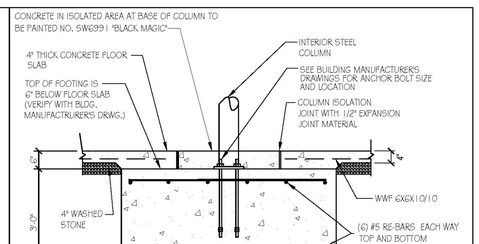
2 S1 FOOTING SECTION
SCALE: 1/2" = 1'-0"



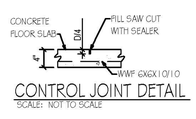
3 S1 FOOTING SECTION AT MAINFRAME COLUMN REAR WALL
SCALE: 1/2" = 1'-0"



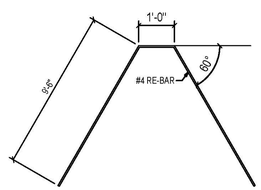
4 S1 FOOTING SECTION AT MAINFRAME COLUMN FRONT WALL
SCALE: 1/2" = 1'-0"



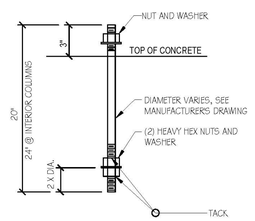
5 S1 INTERIOR COLUMN FOOTING SECTION
NOTE: 24" LONG ANCHOR BOLTS @ INTERIOR COLS
SCALE: 1/2" = 1'-0"



CONTROL JOINT DETAIL
SCALE: NOT TO SCALE



RE-BAR HAIRPIN DETAIL
NOT TO SCALE



ANCHOR BOLT DETAIL
NOT TO SCALE

NORTH CAROLINA REGISTERED 13253 ENGINEER WILLIAM A. PERSON OCT. 15, 2018

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JOB NUMBER
DG.FUQUAY.10.18

DRAWN BY
WTC

DATE
OCT. 9, 2018

REVISIONS

SHEET NUMBER
S-1

OF ONE

GENERAL PLUMBING NOTES:

1. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR (PC) SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND/OR THE GENERAL CONTRACTOR.
2. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
3. 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.
4. 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/OR 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.
5. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE 2012 NORTH CAROLINA PLUMBING CODE, 2012 NC BUILDING CODE, AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
6. THE PC 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. 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. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO FAMILIARIZE HIMSELF/HERSELF WITH EXISTING CONDITIONS AND RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS WITH THE ENGINEER. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
9. EXTEND DOMESTIC WATER PIPE FROM FIVE (5) FEET OUTSIDE THE BUILDING INTO THE BUILDING AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. 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. PIPING TO BE INSTALLED AS FLUSH AS POSSIBLE TO WALLS AND/OR CEILINGS. 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 ½-INCH AND LARGER. PC MAY SUBSTITUTE CPVC, WITH APPROVED FITTINGS WITH OWNER'S APPROVAL. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD PARTY CERTIFIED AS CONFORMING TO NSF 14. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF 8-PERCENT AND SHALL CONFORM TO NSF 61. ALL WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. DO NOT INSTALL CPVC IN RETURN AIR PLENUMS.
10. 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 VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION. ALL BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS AND 150 PSI WSP. INSTALL 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.
11. IT SHALL BE THE RESPONSIBILITY OF THE PC TO ADEQUATELY 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 ADEQUATELY SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CORD OF THE ROOF JOISTS, GIRDERS, AND/OR BEAMS. THE BOTTOM CORD IS NOT TO BE USED FOR EQUIPMENT AND/OR 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 AGAINST 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 NC PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
12. 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 ¾-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.
13. 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.
14. COLD WATER LINES SHALL BE INSULATED WITH ½-INCH THICK CLOSED CELL RUBBER 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 ½-INCH THICK INSULATION. FIBROUS GLASS INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR CLOSED-CELL RUBBER IF SO DESIRED. 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 ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
15. 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.
16. 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.
17. IF THE WATER SUPPLY PRESSURE EXCEEDS 80 PSI, THE PC SHALL PROVIDE AND INSTALL A PRESSURE REDUCING VALVE.
18. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE NC PLUMBING CODE 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.
19. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15. 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.
20. THE PC SHALL INSTALL WATER HAMMER ARRESTORS (FOR COPPER PIPES) ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
21. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND ENSURE 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 PIPING TO 5 FEET OUTSIDE THE BUILDING AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
22. TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE NC PLUMBING CODE. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
23. 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 ADEQUATE PROTECTION AGAINST FREEZING PER 305.6.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
24. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2-INCH 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 WASTE WATER TEMPERATURE EQUALS OR EXCEEDS 140°F.
25. 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. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. SLOPE VENT LINES UPWARD TO EACH VTR PER NC PLUMBING CODE. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
26. SOIL AND WASTE LINES 2 ½-INCHES AND SMALLER SHALL BE SLOPED AT ¼-INCH PER FOOT MINIMUM; SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT ⅛-INCH PER FOOT MINIMUM.
27. HORIZONTAL DRAIN PIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.10. 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.
28. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 917 OF THE NC PLUMBING CODE. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
29. 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.
30. 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. PC SHALL 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.
31. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
32. 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 NC PLUMBING CODE. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
33. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH NORTH CAROLINA PLUMBING CODE, SECTIONS 312.2, 312.3, AND 312.5.
34. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. MAINTAIN MINIMUM 10' FROM ALL OUTSIDE AIR INTAKES.
35. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
36. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.

DO NOT TAP WATER LINE AHEAD OF RPZ.

GENERAL PLUMBING NOTES | 1

PLUMBING FIXTURE SCHEDULE						
SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE
P-1H	TANK TYPE WATER CLOSET	AMERICAN STANDARD CHAMPION 4 'RIGHT HEIGHT' #2002.014 OR EQUAL.	FLOOR MOUNTED ADA VITREOUS CHINA ELONGATED FLUSH TANK, 1.6 GPF CLOSED COUPLED TWO PIECE SIPHON JET WATER CLOSET, FLUSH TANK WITH 12" ROUGH IN. PROVIDE AMERICAN STANDARD #5901.100 OR EQUAL. WITH OPEN FRONT, NO LID. ADA REQUIREMENT MOUNT SO SEAT IS 17"-19" AFF. PROVIDE WITH STOP AND SUPPLY. ORDER WITH FLUSH LEVER ON OPEN SIDE OF TOILET.	-	½"	3"
P-2	WALL MOUNT LAVATORY	AMERICAN STANDARD 0355.012 OR EQUAL BY TOTO	FAUCET HOLES ON 4" CENTERS - FAUCET SHALL CHROME PLATED CAST BRASS BODY WITH 4" SPOUT, 4" BRASS WRIST BLADE, 0.5 GPM SPRAY AND GRID STRAINER DRAIN. USE AMERICAN STANDARD MONTERREY #5502.175 WITH WATTS MODEL USG-B-MA TEMPERING VALVE OR EQUAL. ADA REQUIREMENT, MOUNT RIM 34" AFF - INSULATE EXPOSED DRAIN AND WATER PIPES WITH TRUEBRO LAV GUARD KIT #102 E-Z. PROVIDE SUPPLY LINES, STOP VALVES & P-TRAP.	½"	½"	2"
P-3	DRINKING FOUNTAIN	ELKAY #EZTLRDDC OR EQUAL	TWO-STATION, WALL MOUNTED ELECTRIC DRINKING FOUNTAIN, ADA, FRONT ONLY EASY TOUCH CONTROL, HIGH UNIT ON RIGHT. PROVIDE SUPPLY, STOP VALVE & TRAP. PROVIDE CANE APRON AS REQUIRED.	-	⅜"	2"
P-4	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.	-	-	4"
P-5	2-WAY YARD CLEAN OUT	TYLER PIPE #003519 OR EQUAL	TRAFFIC RATED	-	-	4"
P-6	WATER HAMMER ARRESTOR	ZURN Z1700 SHOCKTROL 100	INSTALL ON BRANCH LINES PER MFG'S INSTRUCTIONS	-	VARIES	-
P-7	FREEZEPROOF WALL HYDRANT	ZURN #Z1320C ECOLOTROL WALL HYDRANT	FREEZE PROOF WALL HYDRANT WITH BRONZE BODY, ANTI-SIPHON VACUUM BREAKER, HOSE CONNECTION, BOX AND LOCKING COVER. MOUNT AT 24" ABOVE FINISHED GRADE. FLUSH MOUNT AND TAMPER RESISTANT. CONTRACTOR TO SUBMIT SPEC. FOR OWNER APPROVAL FOR ALL STORES.	-	¾"	-
P-8	ELECTRIC WATER HEATER	AO SMITH DEL-10	10 GALLON, 1.65KW, 120V	¾"	¾"	-
P-9	EXPANSION TANK	AMTROL ST-5	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	¾"	-
P-10	MOP SINK	FIAT MSB2424	USE 830AA SERVICE FAUCET, PROVIDE WITH HOSE BEACKET AND HANGER	½"	½"	3"

PLUMBING FIXTURE SCHEDULE | 2

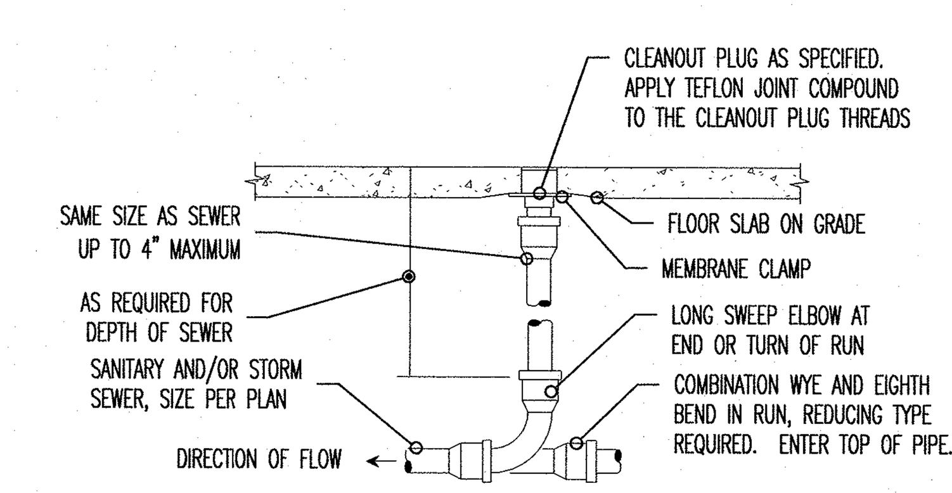
PLUMBING LINES SIZING TABLE									
FIXTURE TYPE	OCCUPANCY	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
			EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET (FLUSH TANK)	PUBLIC	2	4	8	5	0	5	0	10
LAVATORY	PUBLIC	2	1	2	1.5	1.5	2	3.0	4
DRINKING FOUNTAIN	PUBLIC	1	0.5	0.5	0.25	0	0.25	0	0.3
MOP SINK	PUBLIC	1	2	2	2.25	2.25	3	2.25	3

DEMAND FIXTURE	GPM	QTY	TOTAL GPM			
HOSE BIBBS *	5	2	10	TOTAL DFU	12.5	
				TOTAL WFSUs	5.3	17.3
				GPM	9.8	18.5
				OTHER FIXTURES' GPM	0	5
				TOTAL GPM	9.8	23.5

MINIMUM BUILDING DRAIN SIZE	4"	* ASSUMES ONLY 1 HOSE BIBB RUNNING.
MINIMUM WATER LINE SIZE	1"	

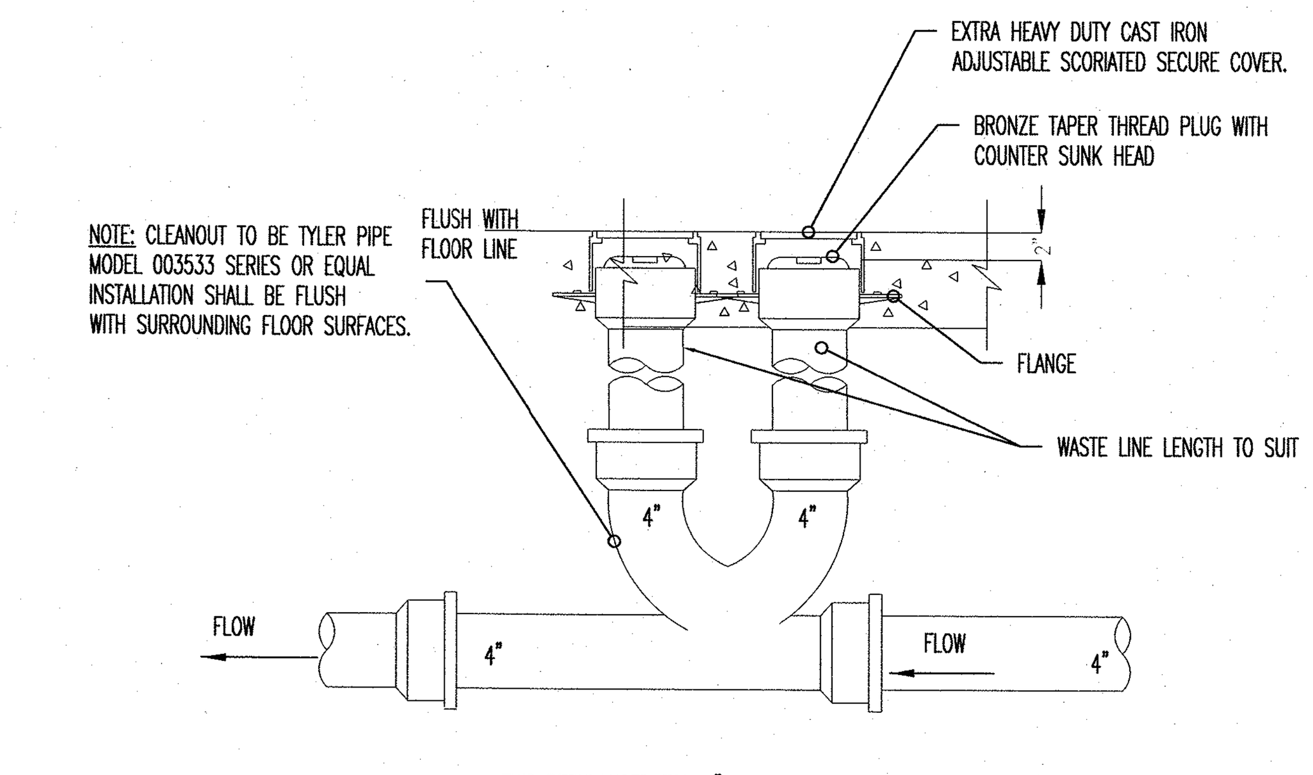
WATER LINE SIZING TABLE | 3

PROVIDE CLEANOUT WITH ADJUSTABLE CLEANOUT TOP WITH VARIATIONS SUITABLE FOR FLOOR COVERING (CARPET MARKER, RECESSED FOR TILE, SCORIATED FOR UNFINISHED FLOORS). CLEAN THE TOP OF EXPOSED FCO AFTER INSTALLATION.



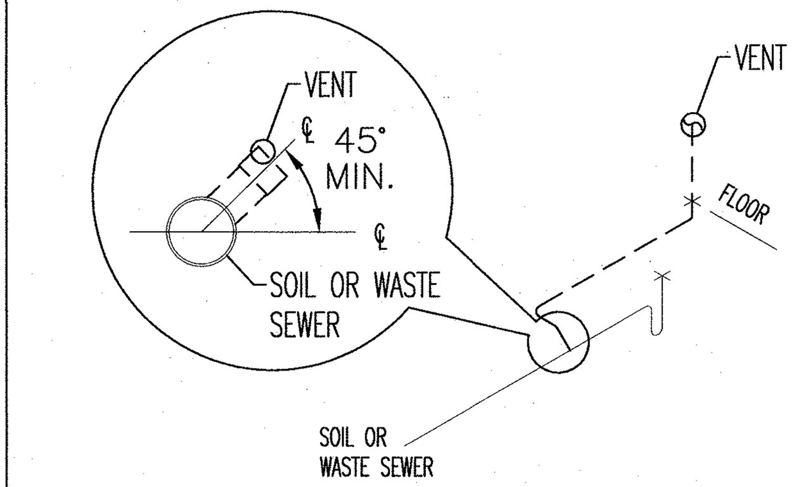
REFER TO SPECIFICATIONS AND SCHEDULES FOR MORE INFORMATION. LOCATE AT BUILDING EXIT, AT ENDS OF RUNS, AT TURNS OF PIPE GREATER THAN 45°, AT 50' INTERVALS ON STRAIGHT RUNS, AND/OR WHERE SHOWN ON PLANS AND RISERS. PROVIDE BACKFILL PER ARCHITECTURAL SPECIFICATIONS. LOCATE CLEANOUT WHERE THERE IS 18" CLEAR AROUND, FOR ACCESSIBILITY. CONSULT LOCAL CODES AND OFFICIALS FOR OTHER REQUIREMENTS.

NOTE: CLEANOUT TO BE TYLER PIPE MODEL 003533 SERIES OR EQUAL INSTALLATION SHALL BE FLUSH WITH SURROUNDING FLOOR SURFACES.



THIS DETAIL USED FOR 4" SANITARY LINE RUN BELOW FIXTURE RACKING. SEE PLANS

CLEAN OUT DETAILS-NO SCALE | 4



NOTE:
CONNECT VENT TO SOIL OR WASTE PIPING ABOVE CENTERLINE. UNDER SLAB HORIZONTAL CONNECTIONS OF VENT PIPING TO WASTE SEWER SYSTEM PIPELINE SHALL NOT BE ALLOWED.

VENT PIPE INSTALLATION DETAIL-NO SCALE | 5

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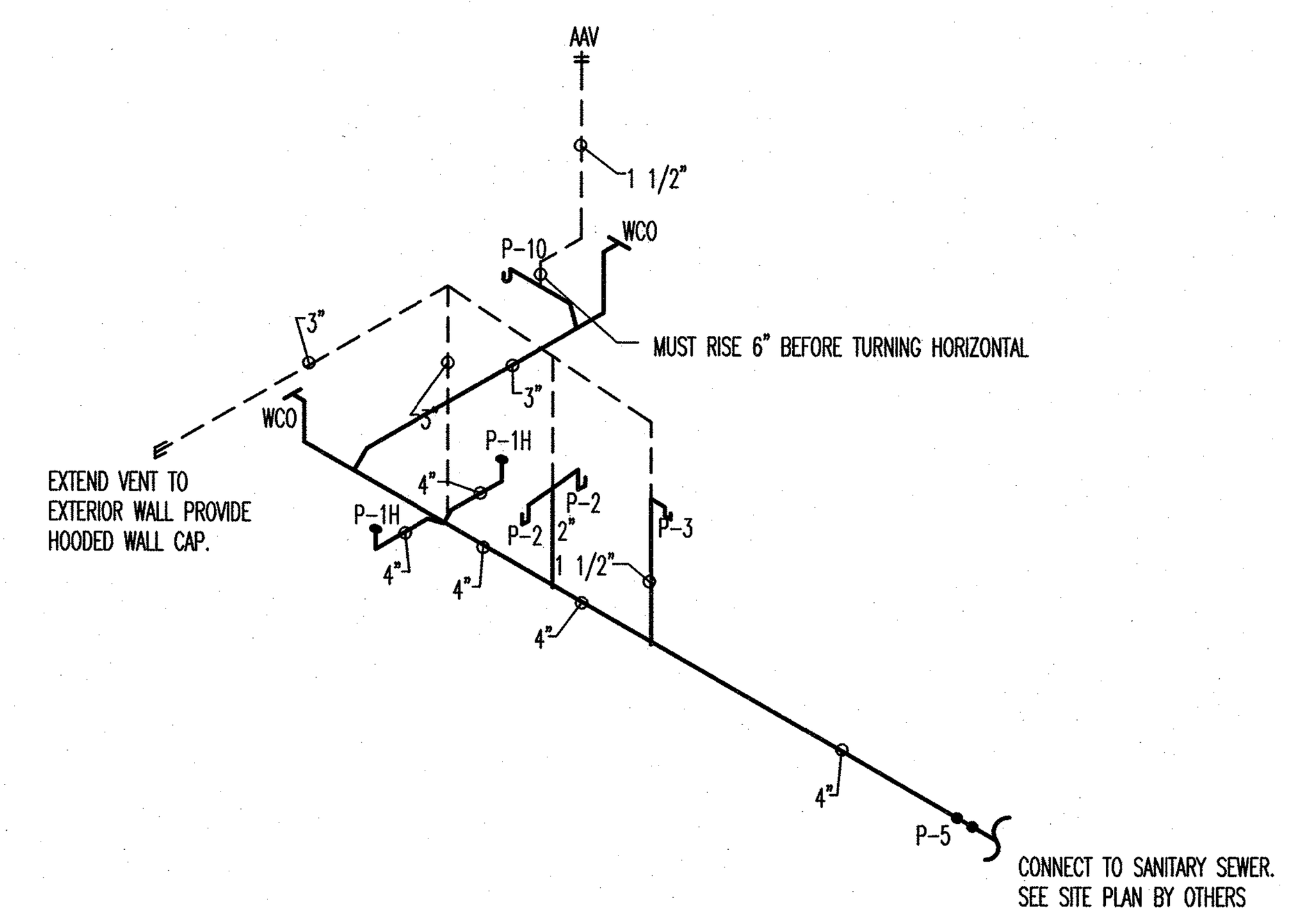
Plumbing ■ Mechanical Electrical ■ Fire Alarm

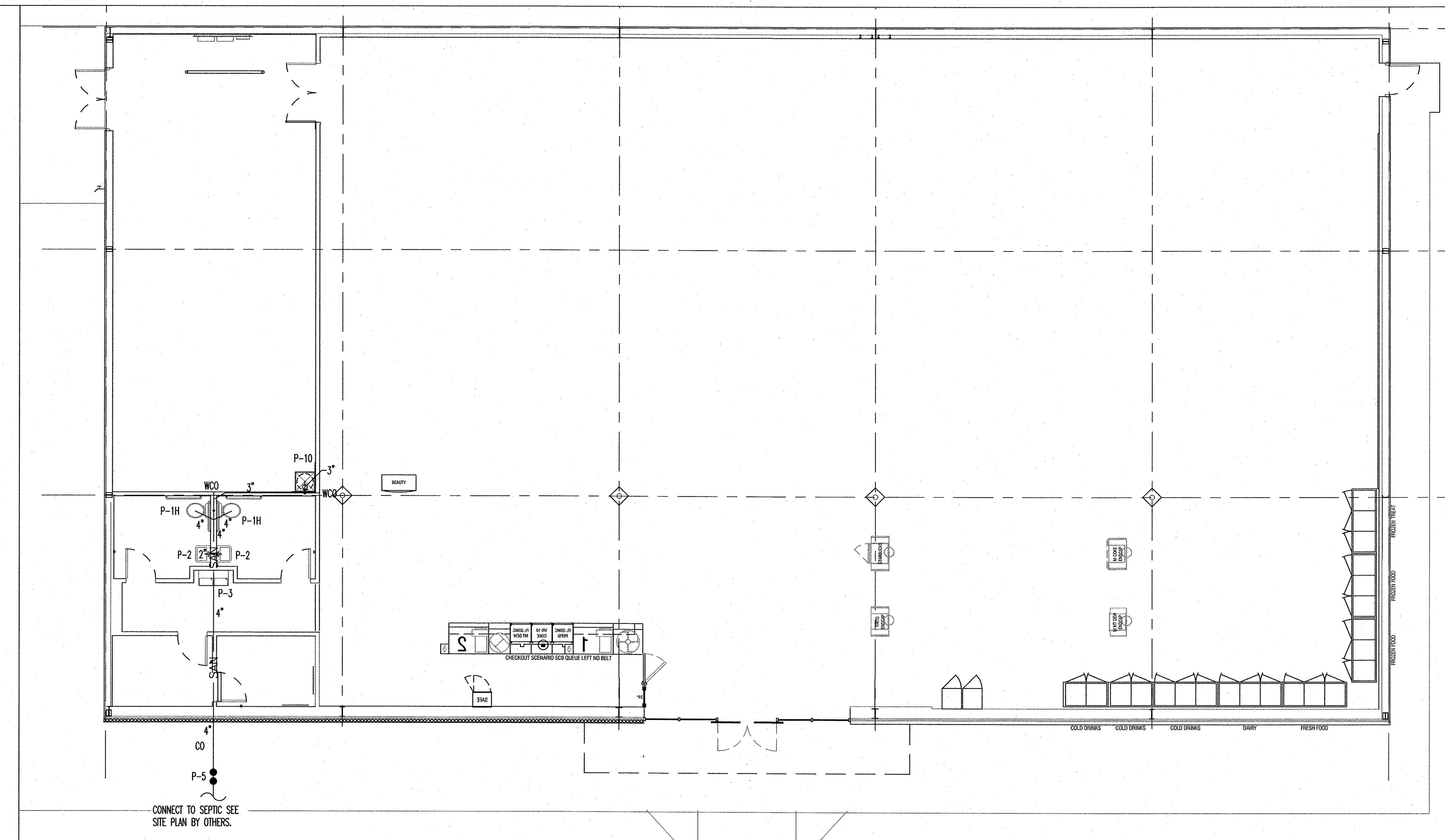
DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER 18359
DRAWN BY REW
DATE 10/15/18
REVISIONS

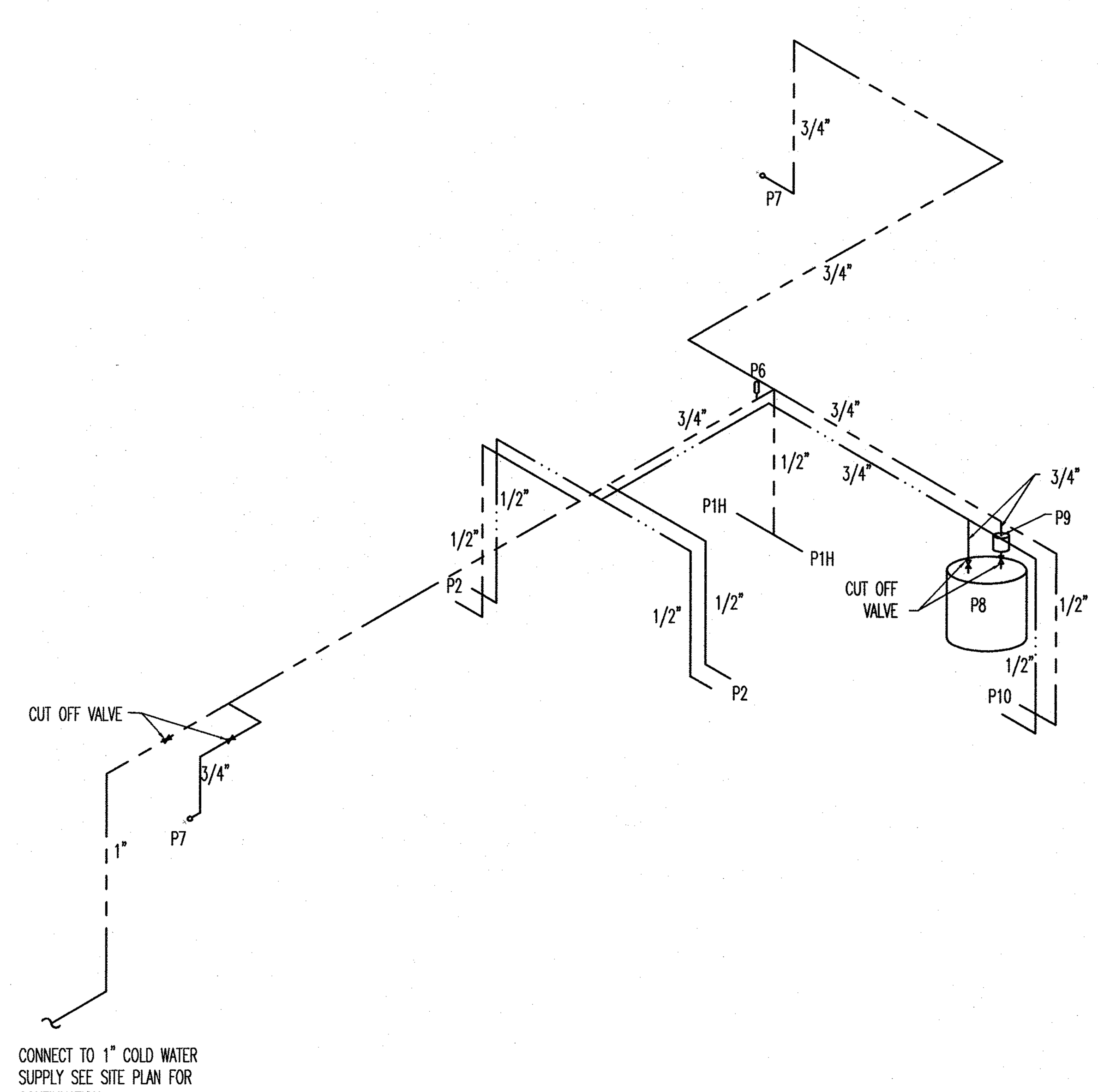
SHEET NUMBER
P-1



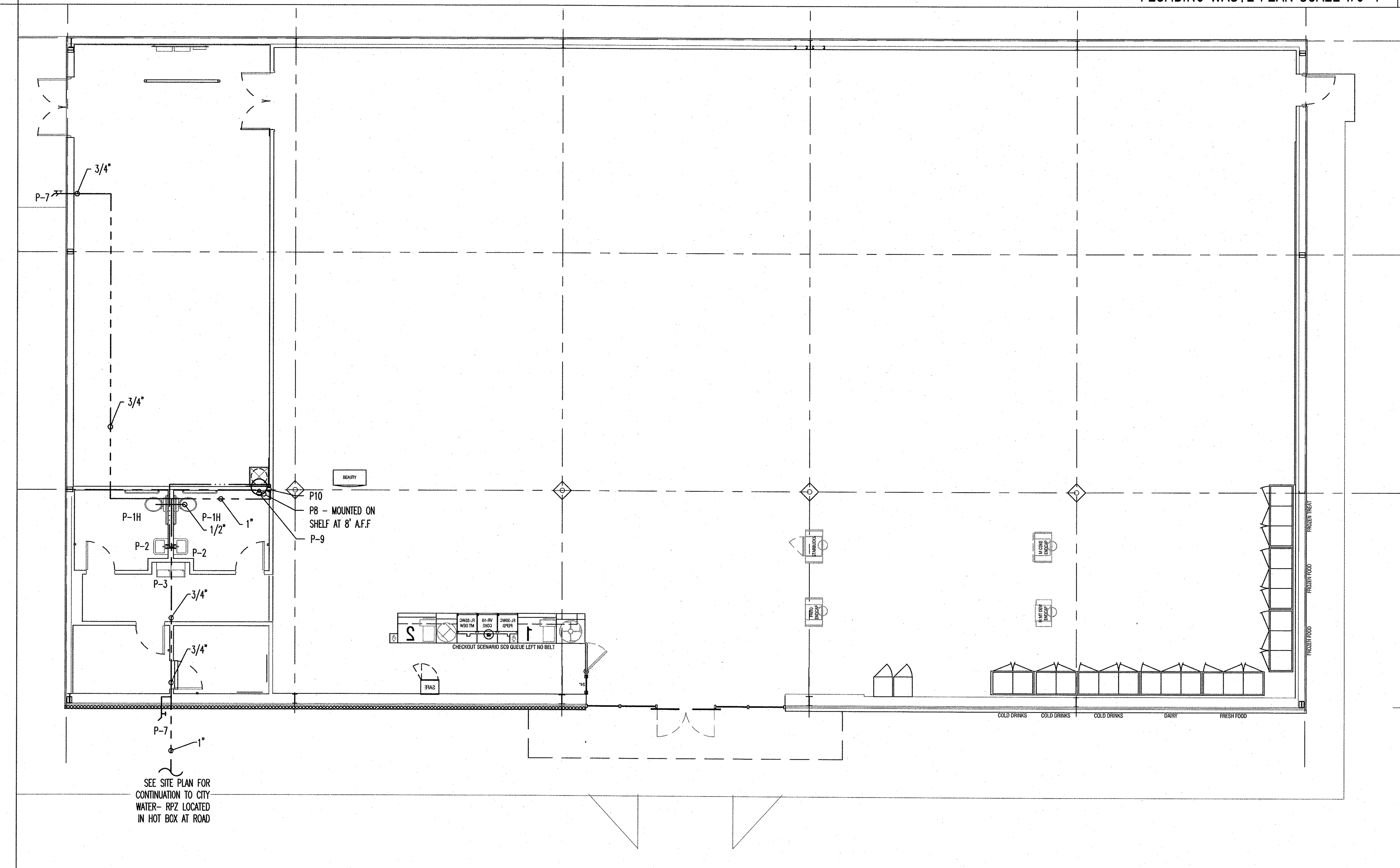
PLUMBING WASTE RISER-NO SCALE | 1



PLUMBING WASTE PLAN-SCALE 1/8"=1' | 3



PLUMBING SUPPLY RISER-NO SCALE | 2



PLUMBING SUPPLY PLAN-SCALE 1/8"=1' | 4

ISSUED FROM:
☐ WILMINGTON OFFICE
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Wilmington, NC 28401
Phone: 910.251.8899
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NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN
10-15-18

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

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SHEET NUMBER
P-2

REGISTER & GRILLE SCHEDULE						
MARK	MFG	MODEL #	SIZE	MOUNTING	DESCRIPTION	NOTES
A	HART & COOLEY	HVS	24X24	LAY-IN	4-WAY DIFFUSER, BRIGHT WHITE	1
B	HART & COOLEY	92VOH	10X6	SIDEWALL	STEEL, 4 WAY DIFFUSER, BRIGHT WHITE	1
R	HART & COOLEY	RH45	24"X8"	SIDEWALL	STEEL RETURN TRANSFER GRILL	2

1. OR EQUAL BY PRICE, METAL-AIRE, CARNES, TITUS OR NAILOR
2. PROVIDE ONE ON EACH SIDE OF WALL.

EXHAUST FAN SCHEDULE								
MARK	MFG / MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES
EF-1-2	GREENHECK SP-A125	CEILING	0.25	105	120/1	1	1.8	1-3

1. PROVIDE WITH PITCHED ROOF CAP OR HOODED WALL CAP AS APPLICABLE.
2. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
3. OR EQUAL BY LOREN COOK OR PENNBARRY

ROOFTOP PACKAGE AC WITH ELECTRIC STRIP SCHEDULE

MARK	MFG / MODEL #	NOMINAL CAPACITY	AIR FLOW		COMPRESSORS	FAN MOTORS					COOLING CAPACITY			FILTER			ELECTRICAL			WEIGHT	REMARKS
			SUPPLY	MIN. OA		SUPPLY	ESP	CONDENSER	AUX ELEC HEAT		EAT WB/DB	TOTAL	SENSIBLE	INCHES	MERV	EER	V/PH	MCA	MOCP		
		TONS	CFM	CFM	NO	NO-HP	in wg	NO-HP	kW	STAGES	°F	MBH	MBH							LBS	
RTU-1-2	LENNOX # ZCA120S4BJ1P	10.0	4000	484	2	2-2	.25	2-1/3	30	2	67/80	130.6	94.03	2"	8	11.2	208/3	92	100	1251	1-12

1. PROVIDE WITH ROOF CURB.
2. THRU THE BASE CONNECTIONS
3. PROVIDE WITH VARIABLE FREQUENCY DRIVE
4. ELECTRIC HEAT WITH SINGLE POINT CONNECTION KIT, AS SPECIFIED IN SCHEDULE
5. PROVIDE WITH SINGLE INPUT ELECTRONIC ENTHALPY ECONOMIZERS WITH BAROMETRIC RELIEF DAMPERS
6. ENTHALPY ACCESSORY CONTROL KIT TO CONVERT SINGLE ENTHALPY ECONOMIZER TO DUAL ENTHALPY FOR ECONOMIZERS.
7. TWO (2) ADDITIONAL SETS OF FILTERS (POST CONSTRUCTION/PRE TEST AND BALANCE, AND ONE SET TO OWNER FOR FUTURE USE
8. ANY EQUIPMENT SUBSTITUTIONS MUST EQUAL OR EXCEED EFFICIENCIES LISTED (RATINGS PER ARI)
9. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES
10. PROVIDE DUCT DETECTOR IN RETURN DUCT. PROVIDE RELAY FOR KILLING POWER TO UNIT'S FAN
11. PROVIDE HAIL GUARDS
12. 4 WAY DIFFUSER

MECHANICAL SCHEDULES | 1

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE — PRESCRIPTIVE
THERMAL ZONE — ZONE 4A

EXTERIOR DESIGN CONDITIONS
- WINTER DRY BULB — 27.7°F
- SUMMER DRY BULB — 90.2°F
- SUMMER WET BULB — 76.3°F

INTERIOR DESIGN CONDITIONS
- WINTER DRY BULB — 70°F
- SUMMER DRY BULB — 75°F
- RELATIVE HUMIDITY — 60%

HEATING LOAD: — 147,205 BTU/H

SENSIBLE COOLING LOAD: — 142,110 BTU/H
LATENT COOLING LOAD: — 67,610 BTU/H

MECHANICAL SPACING CONDITIONING SYSTEM:
- UNITARY — AIR COOLED DX
- DESCRIPTION OF UNIT(S) — 2-10 TON PACKAGED AC/ELECTRIC HEAT
- BOILER — N/A
- TOTAL BOILER OUTPUT — N/A
- CHILLER — N/A
- TOTAL CHILLER CAPACITY — N/A

EQUIPMENT EFFICIENCIES: — SEE EQUIPMENT SCHEDULES

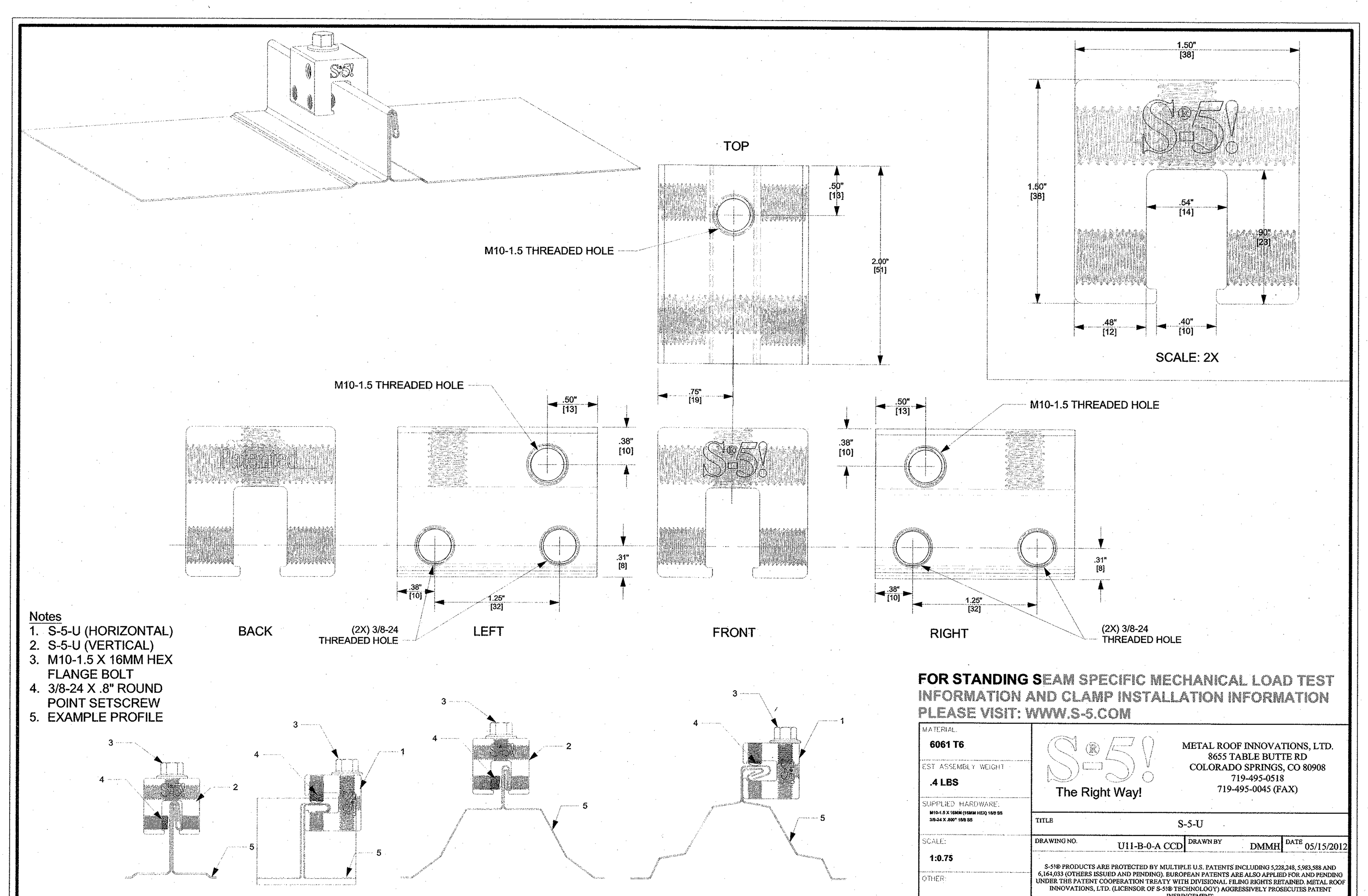
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS): — SEE ADJACENT

ZONE	AREA (ft^2)	APPLIED COOLING (TONS)	APPLIED HEAT @ 17°F
RETAIL	9100	20 TONS	60 KW

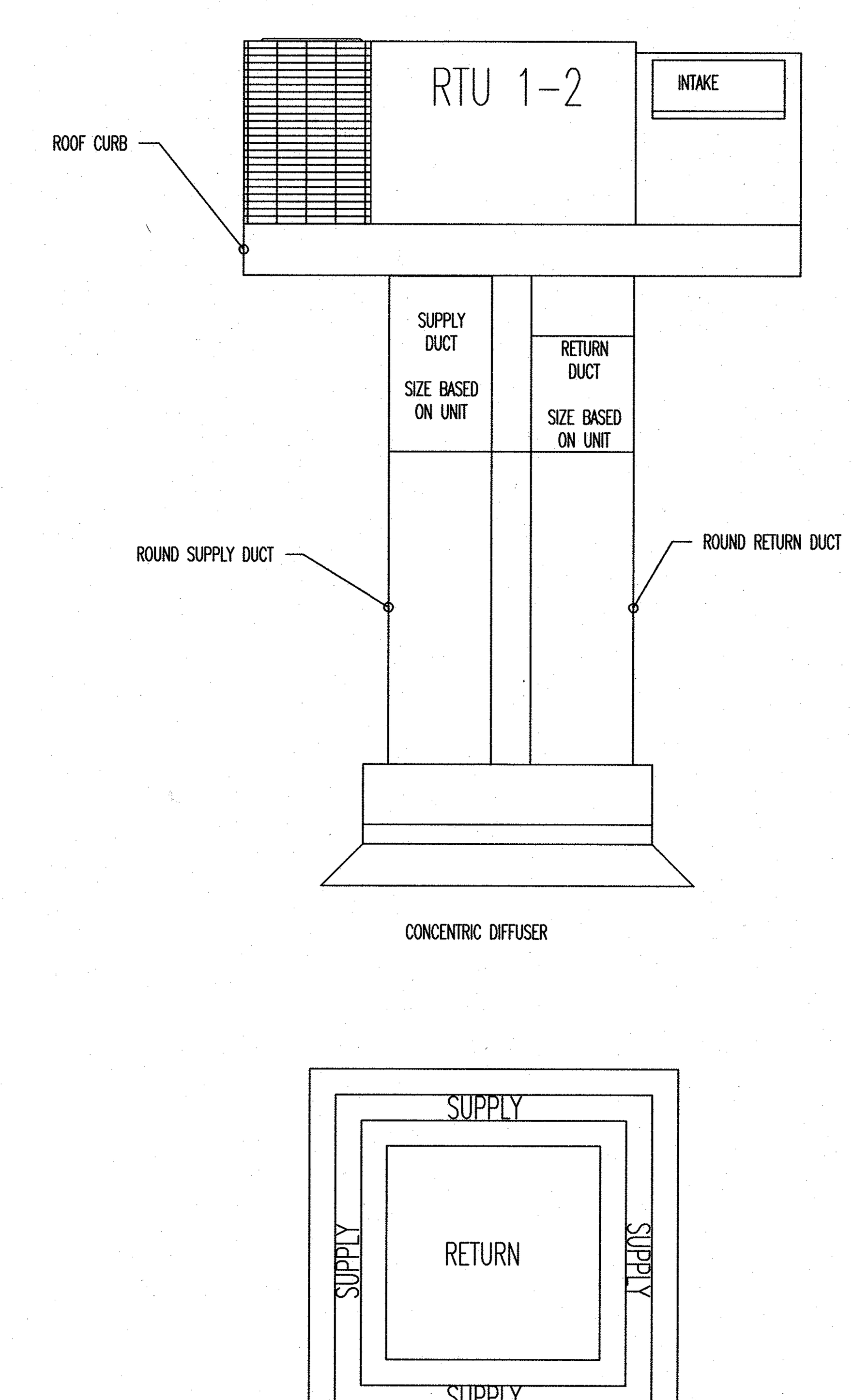
DESIGNER STATEMENT:

TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE LATEST EDITION OF THE VIRGINIA STATE BUILDING CODE.

MECHANICAL DESIGNER'S STATEMENT | 4



PIPE SUPPORT DETAIL NO SCALE | 2



RTU-I-4 CONCENTRIC DIFFUSER DETAIL NO SCALE | 3

GENERAL MECHANICAL NOTES:

1. "PROVIDE" MEANS TO FURNISH AND INSTALL. MECHANICAL CONTRACTOR (MC) SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
2. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
3. 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.
4. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE LATEST NORTH CAROLINA MECHANICAL AND BUILDING CODES AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MORE STRINGENT SHALL BE USED. THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
5. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
6. DO NOT SCALE THESE DRAWINGS–REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
7. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS WITH THE ENGINEER. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
8. 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.
9. THE MC SHALL PROVIDE ALL DX UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR–COOLED ROOFTOP PACKAGE HEAT PUMPS, GAS–ELECTRIC UNITS, AND AIR–CONDITIONERS SHALL BE BY YORK. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED OPTIONS AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
10. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, OR PENNBARRY.
11. 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.
12. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
13. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH STATIC PRESSURE CLASS.
14. 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.
15. 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 75°F 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:
   - 15.1. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25–PERCENT COMPRESSION) OF NOMINAL THICKNESS.
   - 15.2. 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.
16. INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R–VALUE SHALL BE A MINIMUM NECESSARY TO COMPLY WITH NC ENERGY CONSERVATION CODE. 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 84–04. 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.
17. 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.
18. 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.
19. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS, AND ELSEWHERE AS INDICATED.
20. 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.
21. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
22. MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A–95 OR UL 181B–98. 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.
23. ALL ADHESIVES AND SEALANTS SHALL BE THOSE WITH THE LOWEST POSSIBLE 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.
24. FACTORY–MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181–96.
25. 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.
26. DUCT INSULATION R–VALUES SHALL COMPLY WITH THE LATEST EDITION OF THE NC ENERGY CODE.
27. IT SHALL BE THE RESPONSIBILITY OF THE MC TO ADEQUATELY 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 ADEQUATELY SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
28. 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.
29. 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.
30. 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 BY HART & COOLEY, PRICE, METAL–AIRE, OR CARNES.
31. AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH THE NC MECHANICAL CODE.
32. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY, RETURN, AND EXHAUST SYSTEMS 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, GRILLES, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, GRILLE, OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE REQUIRED OR DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
33. MC SHALL INSTALL ONE (1) PROGRAMMABLE THERMOSTAT PER HVAC UNIT AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48" AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF THE NORTH CAROLINA ENERGY CODE.
38. MC SHALL INSTALL A SMOKE DETECTOR–UL LISTED FOR DUCT INSTALLATION (UL 268A–98)–IN EACH UNIT'S RETURN UPSTREAM OF ANY FILTERS, OUTSIDE AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. DUCT SMOKE DETECTOR SUPERVISION SHALL COMPLY WITH 606.4.1 OF THE NC MECHANICAL CODE. IF THE BUILDING IS (TO BE) EQUIPPED WITH A FIRE ALARM SYSTEM, THE FIRE ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM, THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A/V DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DUCT DETECTORS PER NFPA AND MFG'S INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES.
39. MC SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
40. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL VENT THRU ROOFS.
41. MAINTAIN CLEARANCES FOR ALL UNITS ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 6 FEET FROM ROOF EDGE.
42. MC SHALL INSTALL ONE (1) CEILING MOUNTED EXHAUST FAN FOR EACH RESTROOM AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
43. P–TRAPS MUST BE INSTALLED ON ALL UNITS. P–TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P–TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER.
44. 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.
45. 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.
46. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
47. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
48. 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.
49. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

GENERAL MECHANICAL NOTES | 5

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Plumbing ■ Mechanical
Electrical ■ Fire Alarm

NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN
10-15-18

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER 18359
DRAWN BY REW
DATE 10/15/18
REVISIONS

SHEET NUMBER
M-1

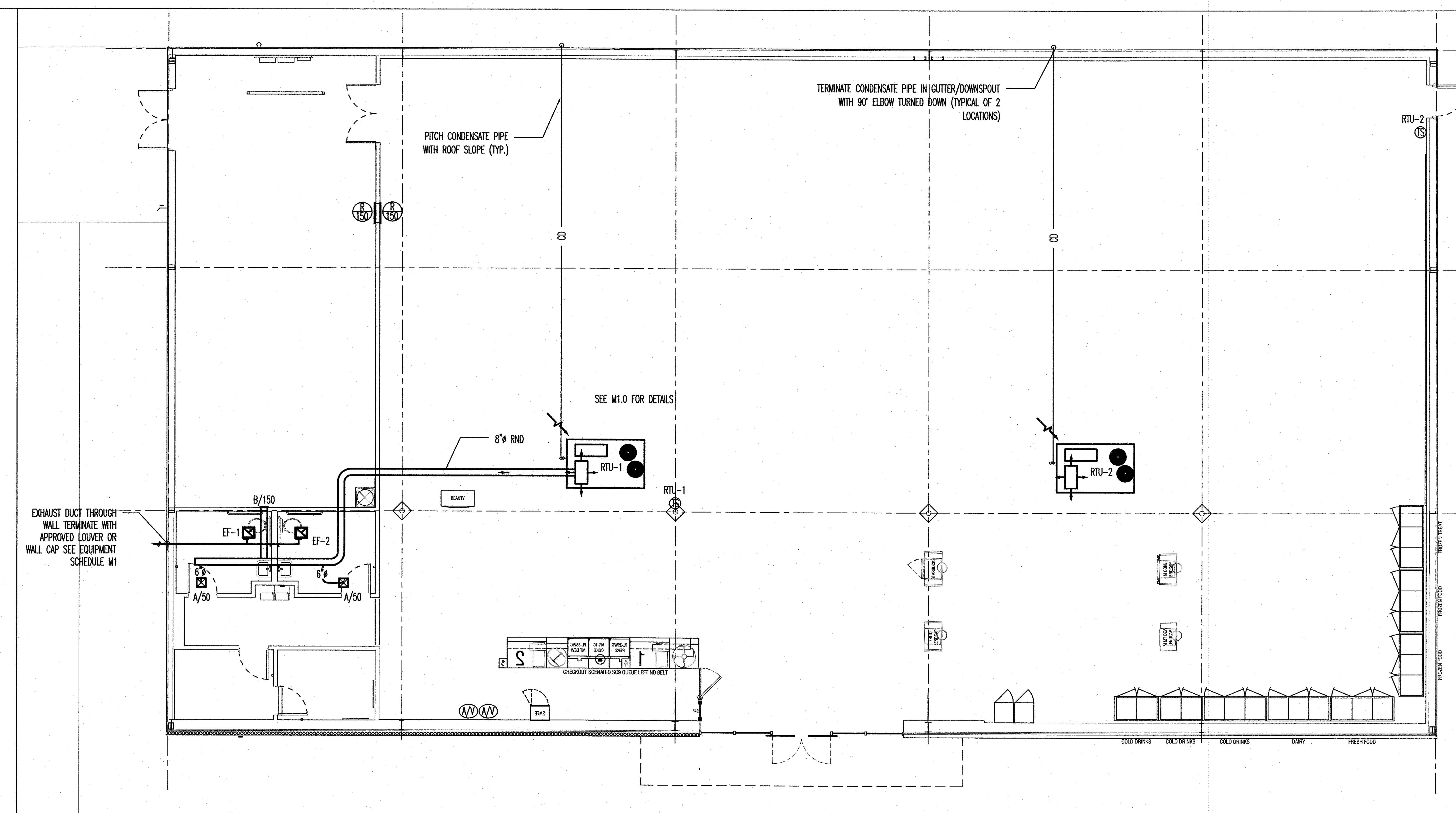
Ventilation Calculation (For Unit MS)								
Room Name(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)
Retail	Retail Sales	7350	7.5	0.12	15	110.25	0.8	6000
Receiving	Shipping/Receiving	1400	0	0.12	0	0.00	0.8	2000
	N/A		0	0	0	0.00	0.8	
	N/A		0	0	0	0.00	0.8	
	N/A		0	0	0	0.00	0.8	

K-12 School?	No
Maximum Zp:	0.356016
Ev:	0.7
Actual System Population:	25
Uncorrected Intake	1238 cfm
Outdoor Air Intake	*1768 cfm*
Percent of Unit Air	22%

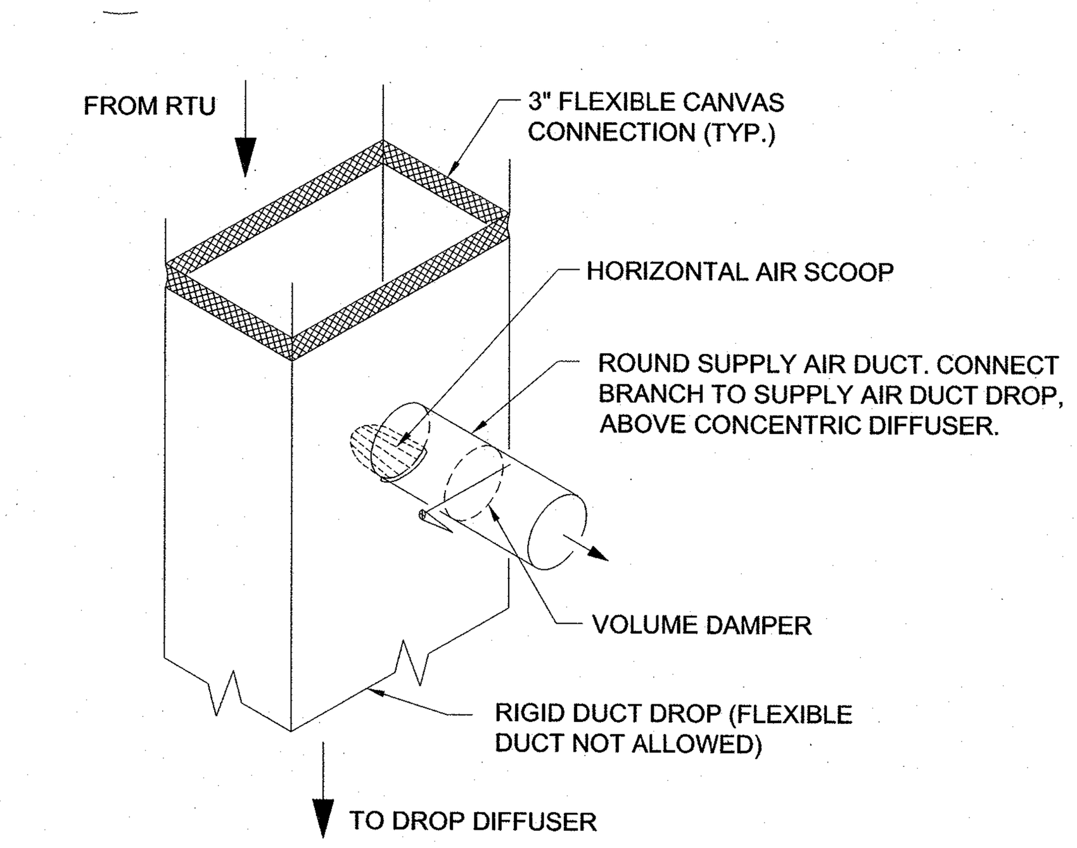
DOLLAR GENERAL MECHANICAL NOTES:

1. PROVIDE CONCENTRIC DIFFUSER KIT AS SPECIFIED BY DOLLAR GENERAL (AVAILABLE THRU YORK, AN BE USED ON ALL VENDOR'S EQUIPMENT, CONTACT YORK NATIONAL PRICING. LOCATE BOTTOM OF DIFFUSER AT 12' A.F.F. CONCENTRIC DIFFUSER KIT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS. CONCENTRIC DIFFUSER SHALL BE HARD DUCTED FROM HVAC UNIT. THE USE OF FLEXIBLE DUCT DROPS ARE NOT ALLOWED, NO EXCEPTIONS.
2. ALL HVAC UNITS REQUIRE AN ECONOMIZER AND BAROMETRIC RELIEF.
3. ALL SUPPLY AND EXHAUST AIR DUCTWORK SHALL BE CONSTRUCTED OF ROUND GALVANIZED SHEET METAL AND BE FABRICATED ACCORDING TO THE LATEST EDITION OF THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS FOR METAL AND FLEXIBLE DUCTWORK. SUPPLY, RETURN AND POSITIVE PRESSURE EXHAUST DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA SEAL CLASS C.
4. TESTING OF HVAC UNITS THRU EMS PANEL IS ACCOMPLISHED BY WARMING UP OR COOLING DOWN A SPACE TEMPERATURE SENSOR AND WATCH THE FAN, HEAT AND COOL STAGES CYCLE ON AND OFF. THIS REQUIRES TWO PEOPLE AT ALL TIMES...ONE TO WATCH THE SCREEN AND THE OTHER TO WATCH OPERATION OF THE HVAC UNIT. WHEN COMPLETE, PRESS THE HOME BUTTON TO RETURN TO THE MAIN SCREEN.
5. PROVIDE CEILING MOUNTED EXHAUST FANS FOR RESTROOMS, INTERLOCK WITH RESTROOM LIGHTS. EXHAUST FAN SHALL BE VENTED THRU SIDE WALL, NOT THRU THE ROOF.
6. ROOF CURB INFORMATION SEE DETAILS M2-2

VENTILATION CALCULATION TABLES | 1



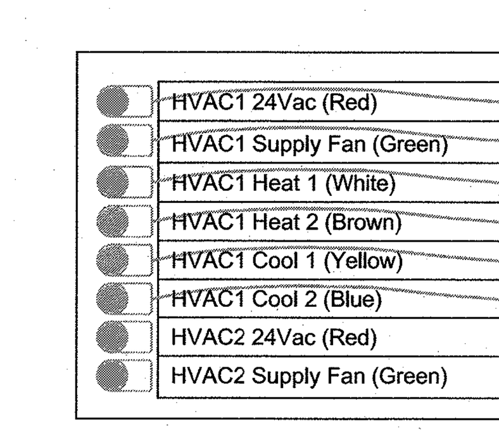
MECHANICAL PLAN-SCALE 1/8"=1' | 2



NOTE:
INSTALL HORIZONTAL AIR SCOOP HAVING A CONTINUOUSLY CURVED CROSS SECTION AND BALANCING DAMPER AT DUCT CONNECTION TO DIVERT SUPPLY AIR INTO THE CONNECTED DUCTWORK. LENGTH OF SCOOP SHALL BE LIMITED TO THE WIDTH OF THE SUPPLY AIR ANNULAR SPACE.

SYMBOL LEGEND

- EXHAUST FAN
- SUPPLY AIR DIFFUSER
- TEMPERATURE SENSOR
- RETURN/EXHAUST AIRFLOW
- SUPPLY AIRFLOW
- VOLUME DAMPER
- CONDENSATE PIPE
- TRANSFER GRILLE



HVAC DUCT DETAIL, WIRING DETAIL AND SYMBOL LEGEND | 3

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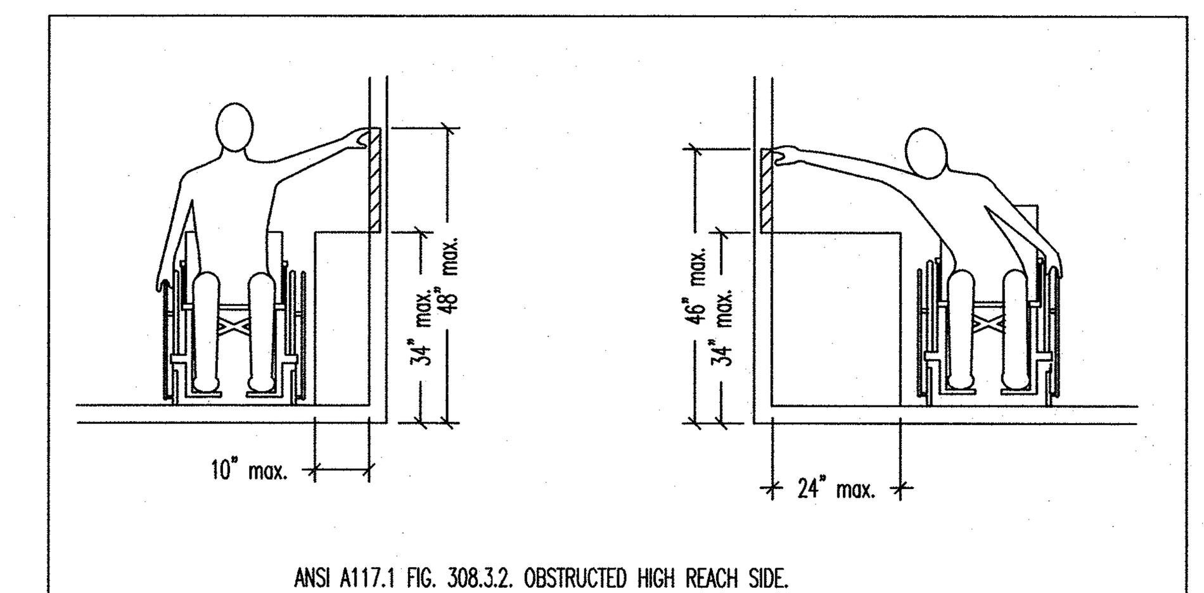
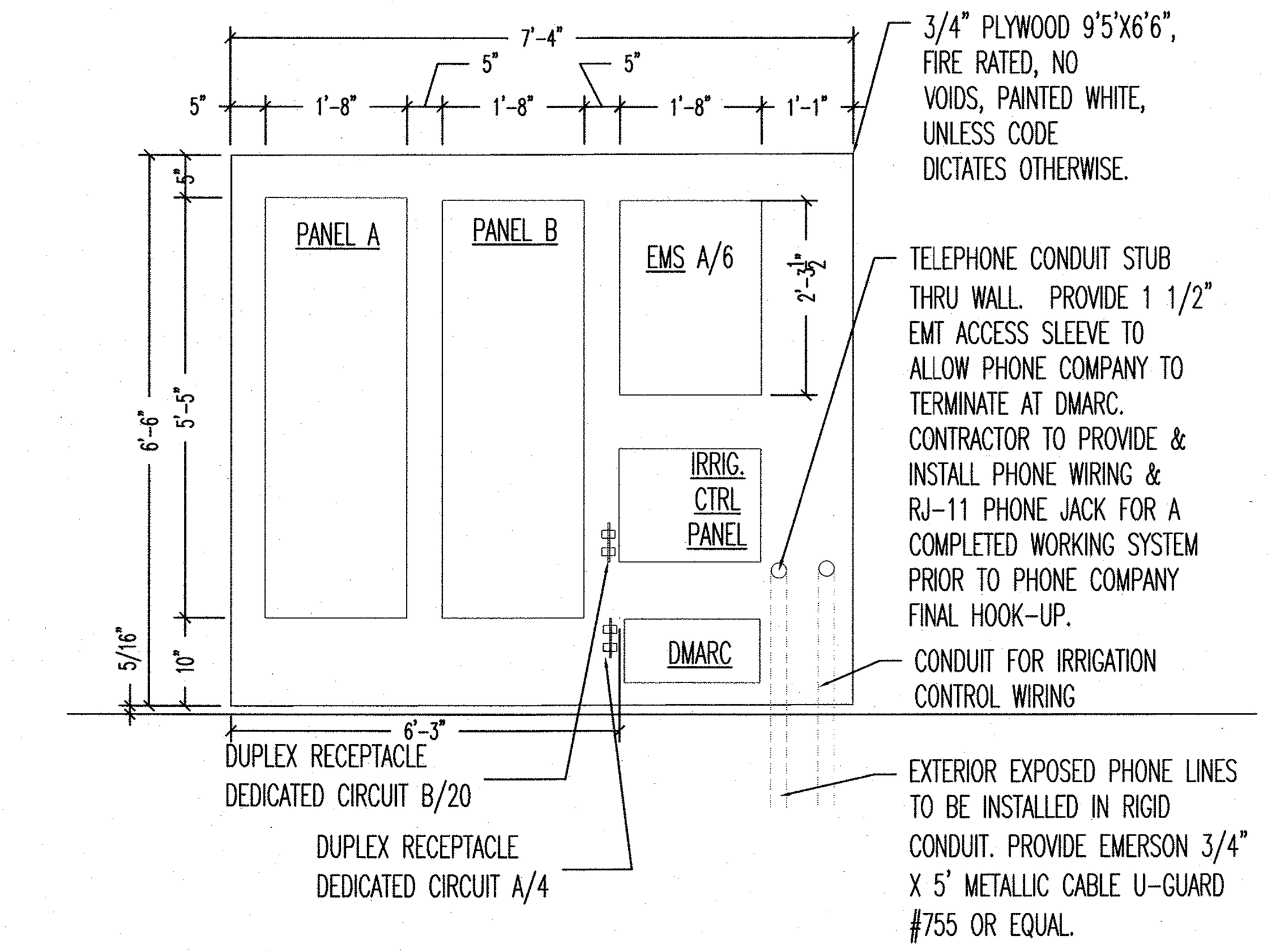
ELECTRICAL DEVICE LEGEND		
SYMBOL	DESCRIPTION	REMARKS
$M	WALL MOUNTED OCCUPANCY SENSOR	LEVITON ODS10-IDW LINE VOLTAGE CONTROL SWITCH
(J)	JUNCTION BOX	
EF-1	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.
▷	DATA AND TELEPHONE JACK	TELEPHONE OUTLET - 1 RJ11, 1 RJ45 OUTLET FOR VOICE AND DATA. EC TO INSTALL 1"C. FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. PROVIDE CAT 5 CABLING AS NOTED ON PLANS.
▶	TELEPHONE JACK	TELEPHONE OUTLET - 1 DUAL RJ45 OUTLET FOR VOICE AND DATA. EC TO INSTALL 1"C. FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. COMMUNICATION WIRING BY OTHERS.
GFCI	DUPLEX GFCI RECEPTACLE	COMMERCIAL GRADE, 120V, 20A
	DUPLEX RECEPTACLE	COMMERCIAL GRADE, 120V, 20A
Q	QUAD RECEPTACLE	COMMERCIAL GRADE, 120V, 20A
CH	DUPLEX RECEPTACLE.	COMMERCIAL GRADE, 120V, 20A, MOUNT AT COUNTER HEIGHT
WP-GFCI	DUPLEX GFCI RECEPTACLE	COMMERCIAL GRADE, 120V, 20A, WITH WEATHER PROOF COVER
	4 PRONG TWIST LOCK RECPT	COMMERCIAL GRADE, 125/250V NEMA L14-20R
	DISCONNECT SWITCH	NEMA1 IN INTERIOR APPLICATIONS, NEMA 3R IN EXTERIOR APPLICATIONS, FUSIBLE AS NOTED
	BUZZER	TORK MDL # TA725 W/ TRANSFORMER MDL # TA592
●	POWER POLE	SEE DETAIL

ELECTRICAL DEVICE LEGEND | 1



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

ANSI A117.1 ADA REACH DETAIL - NO SCALE | 2



ELECTRICAL PANEL ELEVATION-NO SCALE | 3

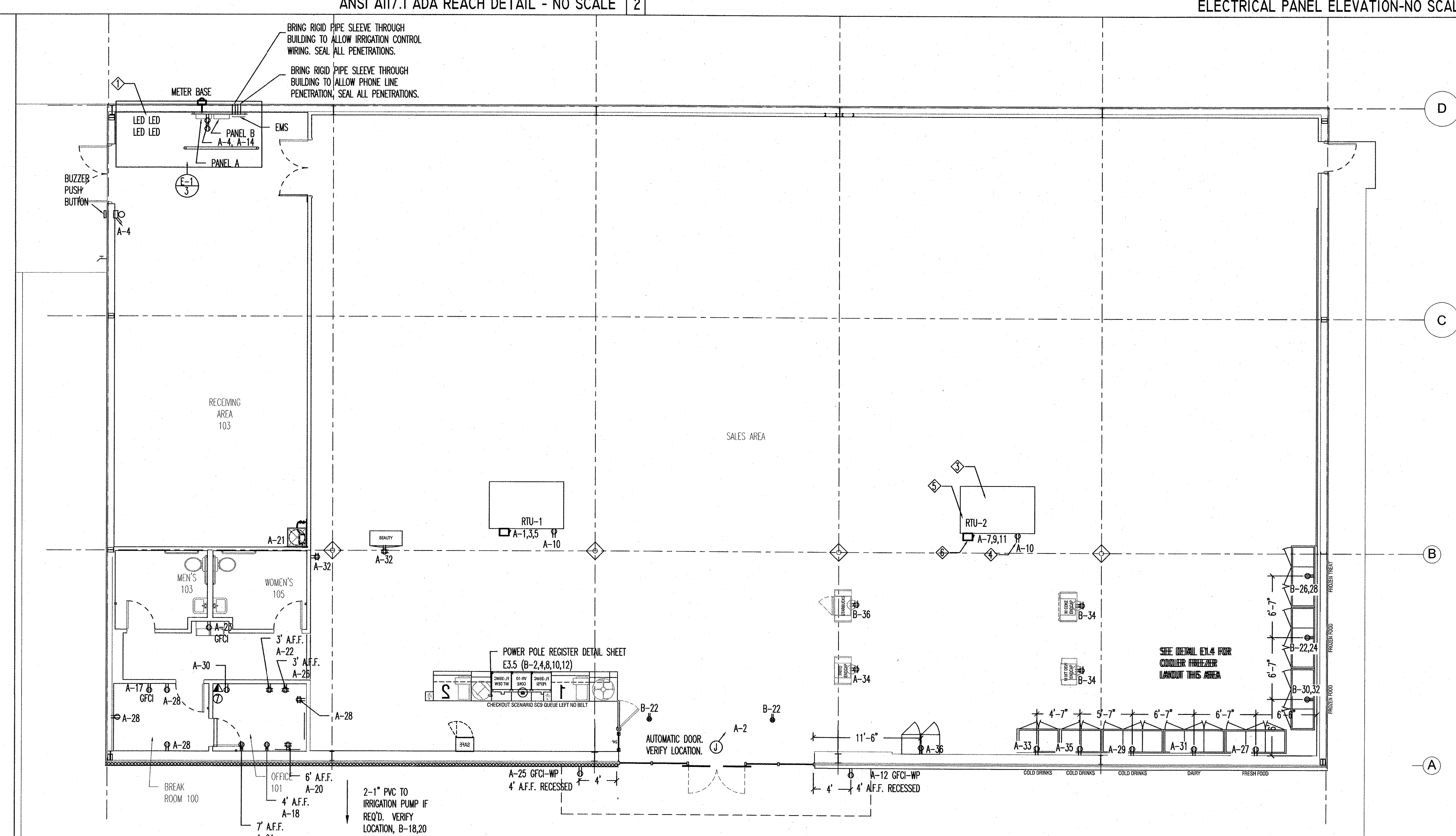
ELECTRICAL KEYED NOTES

1. TEST/RESET STATION FOR STAND ALONE DUCT DETECTOR. ONE FOR EACH DEVICE, SEE KEY NOTE 5 ON THIS SHEET. SIMPLEX #4098-9842 IS SPECIFIED. WITH PIEZO AND LED INDICATOR
2. MECHANICAL THERMOSTAT AT 8'-0" A.F.F.
3. LOCATIONS SHOWN FOR MECHANICAL UNITS ARE ONLY APPROXIMATE, CONTRACTOR MUST CONSULT MECHANICAL OR STRUCTURAL DRAWINGS TO DETERMINE ACTUAL UNIT LOCATIONS. PROVIDE 1/2"C. PENETRATION THRU ROOF WITHIN FOOTPRINT OF UNIT FOR USE WITH CONTROL WIRING TO UNIT BY OTHERS. PROVIDE PROPER WATERSEAL. (TYPICAL)
4. FACTORY MOUNTED CONVENIENCE OUTLET (ELECTRICAL CONTRACTOR TO PROVIDE IF NOT FACTORY INSTALLED). PROVIDE CIRCUIT AS SHOWN, WIRE ALL WITH THIS NOTE TO A SPARE BREAKER IN PANEL "A" IF THEY ARE NOT POWERED.
5. PHOTOELECTRIC DUCT DETECTOR WITH HOUSING. TIE TO LED READOUT RECESSED IN DUCT. STAND ALONE DEVICE, 120V. SIMPLEX #4098-9687 IS SPECIFIED WITH 4098-9842 CONTROL STATION. PROVIDE ONE DEVICE PER UNIT. MOUNT DEVICE IN SUPPLY AIR DUCTWORK. DEVICE SHALL BE PROVIDED AND WIRED TO THE CONTROL STATION BY THE ELECTRICAL CONTRACTOR. HIRE THE MECHANICAL CONTRACTOR FOR INSTALLATION IN DUCTWORK & CONNECTION TO SHUTDOWN CONTROLS. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED RELAYS AND 120V POWER, DO NOT POWER DUCT DETECTORS FROM HVAC UNIT LOW VOLTAGE. SUBMIT SHOP DRAWINGS FOR APPROVAL. PLACE ANY REQUIRED LABELING ON CEILING TILE DIRECTLY BELOW UNIT. RUN CONDUIT & WIRE UNDERGROUND FROM UNIT TO INSIDE OF SPACE.
6. MOUNT DISCONNECT SWITCH AT UNIT. ALL DISCONNECTS TO BE HEAVY DUTY. FUSES TO BE RK-5 TYPE, BUSSMANN FRN-R-(AMP) IS SPECIFIED. SEE EQUIPMENT SCHEDULE ON E3.1. EC TO PROVIDE IF NOT FACTORY INSTALLED.
7. ENDCAP COOLER/FREEZER AND DISPLAY LIGHTING AS NEEDED TO BE HARDWIRED THROUGH WHITE SO CORD. GC TO LEAVE BOTTOM HANGING AT 80" A.F.F. CORD ANCHORED TO PURLINS ABOVE COORDINATE LOCATION WITH DOLLAR GENERAL FIXTURE PLAN.
8. CONFIRM THE FINAL NUMBER AND LOCATION OF OUTLETS IN SALES AREA WITH THE FINAL DG FIXTURE PLAN.
9. IF STORE IS LABELED AS RELO, ADDITIONAL COOLER OUTLETS MAY BE NECESSARY - VERIFY WITH FINAL FIXTURE PLAN.

ELECTRICAL SPECIFICATIONS

A. ALL WIRING SHALL SHALL BE CONTAINED IN CONDUIT OF PROPER SIZE.
B. ALL WIRING SHALL CONFORM TO LOCAL, STATE AND FEDERAL CODES.
C. SERVICE IS TO BE A MINIMUM 400 AMP, 3 PHASE (PREFERRED), 600 AMP, 1 PHASE OR LARGER IF REQUIRED BY CODE OR ELECTRICAL LOAD.
D. REQUIRED CUSTOM BUILT POWER POLE ASSEMBLIES AVAILABLE FROM D&P CUSTOM LIGHTS & PRODUCTS INC., PHONE: (800) 251-2200 OR (615) 350-7800, 7111 COCKRILL BEND INDUSTRIAL ROAD, NASHVILLE, TN 37209. SEE E3.1.
E. EXTERIOR EXPOSED PHONE LINES TO BE INSTALLED IN RIGID CONDUIT. PROVIDE EMERSON 3/4" X 5-FT. METALLIC CABLE U-GUARD #755, OR EQUAL..
F. ELECTRICAL PANEL TO BE LABELED CORRECTLY WITH LEGIBLE PRINT.
G. LOW VOLTAGE VENDOR TO PROVIDE AND INSTALL ONE (1) 24 GA., 4 TWISTED-PAIR, CATEGORY-FIVE (CAT5) DATA CABLE WITH MODULAR COMBO RJ-11/RJ-45 JACK AT MANAGER'S OFFICE. CABLE TO BE RUN FROM JACK TO DATA HUB LOCATION WITH 6'-0" LEFT COILED FOR INSTALLATION TO DATA HUB. A RJ-45 MALE FITTING SHOULD BE CRIMPED ON THIS END. DOLLAR GENERAL STORE OPENING TEAM WILL MAKE FINAL CONNECTION INTO THE DATA HUB.
H. PROVIDE 1 1/2" EMT CONDUIT TO ACT AS ACCESS SLEEVE TO ALLOW PHONE COMPANY TO TERMINATE AT DMARC. CONTRACTOR TO PROVIDE AND INSTALL PHONE WIRING & RJ-11 PHONE JACK FOR COMPLETED WORKING SYSTEM PRIOR TO PHONE COMPANY FINAL HOOK UP.
I. ALL 120 VOLT OUTDOOR RECEPTACLES TO HAVE "WET LOCATION - IN USE" COVERS.
J. ALL CONDUCTORS TO BE COPPER, #12 AWG MINIMUM SIZE, OR AS REQUIRED BY LOAD AND OVER CURRENT PROTECTION.
K. SEE EMS SHEETS EMS1 AND EMS2 FOR ENERGY MANAGEMENT SYMBOLS AND INFORMATION.
L. ELECTRICIAN TO PROVIDE 1 1/2" CONDUIT WITH PULL STRINGS FOR SATELLITE LOCATION.
M. ALL POWER AND DATA TO BE ROUTED OVERHEAD. UNDER SLAB NOT ALLOWED.
N. WIRE SIZE TO BE #8 OR #10 FOR ALL COOLERS/FREEZERS.
O. MOUNT ALL REFRIGERATOR OUTLETS AT 12" AFF.

ELECTRICAL NOTES | 4



ELECTRICAL POWER PLAN - SCALE: 1/8"=1' | 5

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GENERAL ELECTRICAL NOTES:

1. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR (EC) SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
2. 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.
3. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR 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.
5. THE EC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
6. DO NOT SCALE THESE DRAWINGS--REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
7. 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.
8. 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.
9. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC, UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS TO AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
10. 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 PROPER CLEARANCES PER NEC 110.26.
11. 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.
12. OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
13. 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.
14. WHERE CIRCUIT BREAKERS OR FUSES ARE APPLIED IN COMPLIANCE WITH THE SERIES COMBINATION RATINGS MARKED ON THE EQUIPMENT BY THE MANUFACTURER, THE EQUIPMENT ENCLOSURE(S) SHALL BE LEGIBLY MARKED IN THE FIELD TO INDICATE THE EQUIPMENT HAS BEEN APPLIED WITH A SERIES COMBINATION RATING.
15. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN HIS CONTRACT. 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 MULTIWIRE 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 MULTIWIRE 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.
16. 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.
17. 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, OR SOUTHWIRE COMPANY.
18. 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.
19. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH 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. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. 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.
20. 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.
21. 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).
22. 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).
23. 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.
24. EC SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AT WATER COOLERS, & AS REQUIRED BY NEC. 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 & WD 1.
25. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
26. 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, PROPERLY 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 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
27. 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.
28. 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
29. 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 INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. DO NOT USE TYPE MC CABLE OR TYPE AC CABLE ALL THE WAY BACK TO THE PANEL. 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 300.5(G), 300.7(A), AND 300.50(E) 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.
30. 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).
31. 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.
32. 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.
33. 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 NC BUILDING CODE 712.3.2 (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.
34. 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 NORTH CAROLINA GENERAL CONSTRUCTION BUILDING CODE.
35. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.4.
36. ISOLATED-GROUND TYPE RECEPTACLES SHALL BE INSTALLED IN ACCORDANCE WITH 250.146(D). ISOLATED GROUND RECEPTACLES SHALL BE ORANGE IN COLOR.
37. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 1-1/2 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.
38. 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.
39. 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.
40. 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 422.32 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 PROPERLY SUPPORT THE DEVICE.
41. EC SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC. TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARCH FLASH HAZARDS PER 110.16 OF NEC.
42. 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. PLACE TYPED, SELF ADHESIVE LABEL ON EACH RECEPTACLE FACEPLATE. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.
43. ELECTRICAL CONTRACTOR SHALL VERIFY THE MAXIMUM AVAILABLE FAULT CURRENT WITH THE POWER COMPANY AT TIME OF UTILITY TRANSFORMER INSTALLATION AND CONTACT ENGINEER FOR CALCULATION OF VALUE AT SERVICE EQUIPMENT. ELECTRICIAN SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
44. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR 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.
45. ALL WORK SHALL CONFORM TO 2011 NATIONAL ELECTRIC CODE, 2012 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

GENERAL ELECTRICAL NOTES 3

REQUIRED NATIONAL ACCOUNT VENDORS			
ORION ENGINEERED SYSTEMS	BRENDAN HARTT bhartt@oesx.com	904-380-5033 off. 904-294-0126 cell	ELECTRICAL LIGHTING SUPPLIES
CED-CONSOLIDATED ELECTRICAL DISTRIBUTORS	ROBERT DECKER robertd@cedbgky.com	270-781-2229	ELECTRICAL SWITCH GEAR

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
	3735	13650

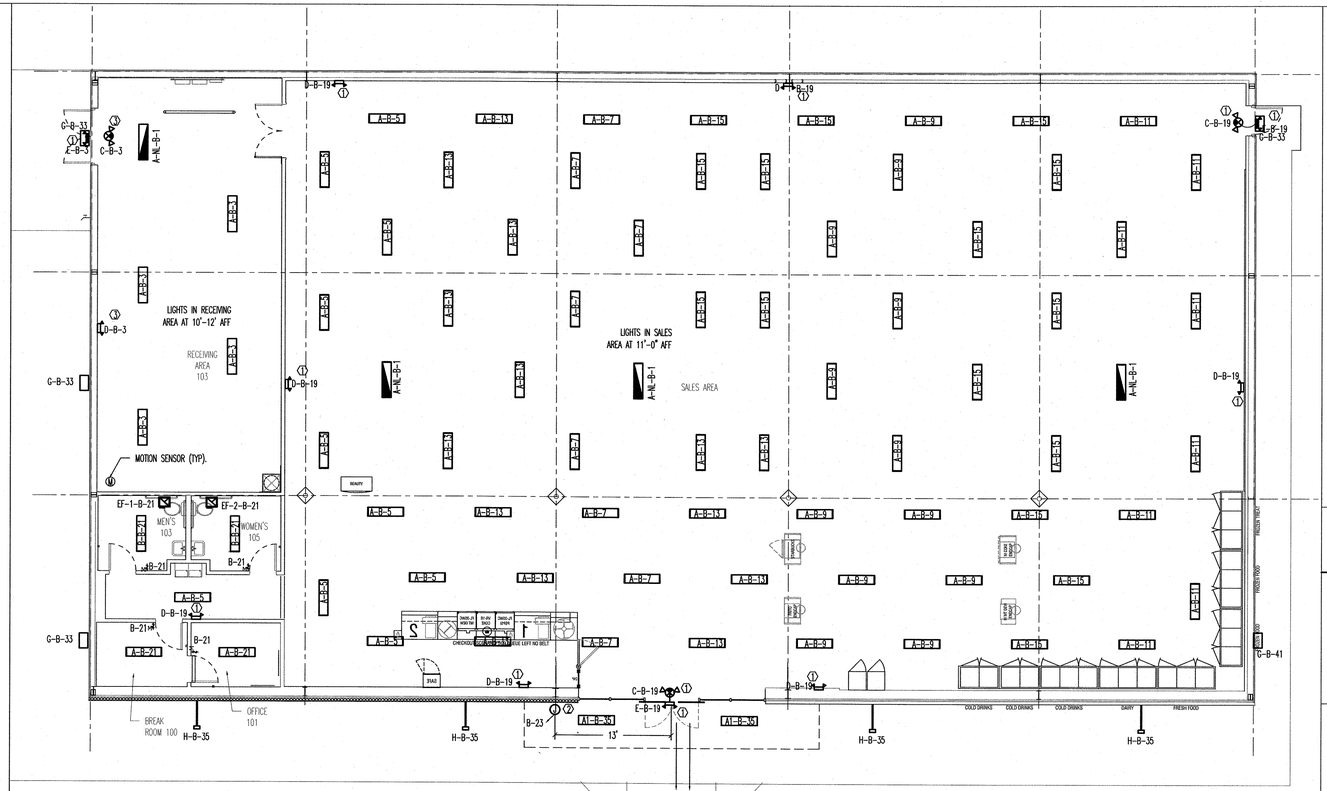
ALL EXTERIOR LUMINAIRES > 100W MUST HAVE A MINIMUM EFFICACY OF 60 LUMENS/WATT

OCCUPANCY	AREA (FT²)	ALLOWANCE (W/FT²)	MAX WATTAGE ALLOWED
RETAIL	9100	1.50	13650
TOTAL	9100		13650

EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)
MOTOR HORSEPOWER: N/A
NUMBER OF PHASES: BUILDING IS 208Y/120V, 3Ø, 4W
MINIMUM EFFICIENCY: N/A
MOTOR TYPE: N/A
NUMBER OF POLES: N/A

DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE STATE ENERGY CODE, 2012 EDITION.

ELECTRICAL DESIGNER'S STATEMENT 4



⬡ HEX PLAN NOTES

1. EMERGENCY/EXIT SIGNS AND LIGHTS: INSTALL EMERGENCY LIGHTS AND EXIT SIGNS (CENTERED AT 10'-6" A.F.F. TO BE ABOVE FIXTURES AND MERCHANDISE) THROUGHOUT THE BUILDING.
2. COORDINATE BUILDING SIGN SIZE WITH DOLLAR GENERAL SIGN DEPARTMENT BY EMAILING TO SIGNAGE@DOLLARGENERAL.COM. LOCATE JBOX ON INTERIOR OF PARAPET 13'-0" TO THE LEFT OF CENTER OF BUILDING.
3. EMERGENCY/EXIT SIGNS AND LIGHTS: INSTALL EMERGENCY LIGHTS AND EXIT SIGNS (CENTERED AT 8'-0" A.F.F. TO BE ABOVE FIXTURES AND MERCHANDISE) IN RECEIVING AREA

LIGHTING PLAN-SCALE 1/8"=1' 1

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	LAMPS - SYLVANIA				VOLTAGE	INPUT WATTAGE	MOUNTING	QTY.	REMARKS	MFG	MODEL
		TYPE	WATTAGE	QTY.	CCT							
A	4' LED STRIP (INC (2) - 10 FEET CABLES)	LED	30	1	5000K	120	30	SUSPENDED	70		ETI	54573161
A1	4' LED STRIP SURFACE MOUNT	LED	30	1	5000K	120	30	SURFACE	3		ETI	54573161
B	2' LED STRIP	LED	15	1	5000K	120	15	SURFACE	4		ETI	54260161
C	EMERGENCY LIGHT/EXIT COMBO 2 HEADS	LED	20	1	-	120	20	SUSPENDED	3	1	ETI	55502201
D	EMERGENCY LIGHT 2 HEADS	LED	20	1	-	120	20	SUSPENDED	10	1	ETI	55501101
E	EMERGENCY EGRESS LIGHT 2 HEADS	LED	20	1	-	120	20	SUSPENDED	3	1,2	ETI	55503101
G	WALL PACK	LED	38	1	5000K	120	38	WALL	4	1-4	TECHLIGHT	LHSWP-1-C-4-T3-F1-BZ
H	HILUMZ FLOOD WITH TECHLIGHT ARM	LED	147	1	5000K	120	147	SUSPENDED	4	1-5	TECHLIGHT	LSBT-1-C-X-T3-F1-BZ ON WMUPS42

1. FIXTURES LABELED FOR EMERGENCY USE SHALL HAVE BATTERY FOR 90 MINUTE ILLUMINATION OF TWO (2) LAMPS
2. WET LOCATION LISTED
3. PHOTOCELL CONTROLLED
4. FULL CUT OFF
5. WITH EXTARM AND RM (EXTENSION ARM AND ROOF MOUNTING KIT)

ELECTRICAL DEVICE LEGEND

SYMBOL	DESCRIPTION	REMARKS
$M	WALL MOUNTED OCCUPANCY SENSOR	LEVITON ODS10-IDW LINE VOLTAGE CONTROL SWITCH
Ⓙ	JUNCTION BOX	
☒EF-1	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.

LIGHTING FIXTURE SCHEDULE AND LEGEND 2

ISSUED FROM:
☐ WILMINGTON OFFICE
805 North Fourth Street
Wilmington, NC 28401
Phone: 910.251.8899
Facsimile: 910.251.9989
■ WILSON OFFICE
213 East Nash Street
Wilson, NC 27893
Phone: 252.399.2700
Facsimile: 252.399.2701

HOOD • HERRING
ARCHITECTURE
PLLP

Kilian Engineering Inc.

Michael W. Kilian, PE
mkilian@kilianengineering.com
P.O. Box 3301, 115-C Young Street
Henderson North Carolina 27536
P 252-438.8778 F 252-438.6741
Corporate License C-2277

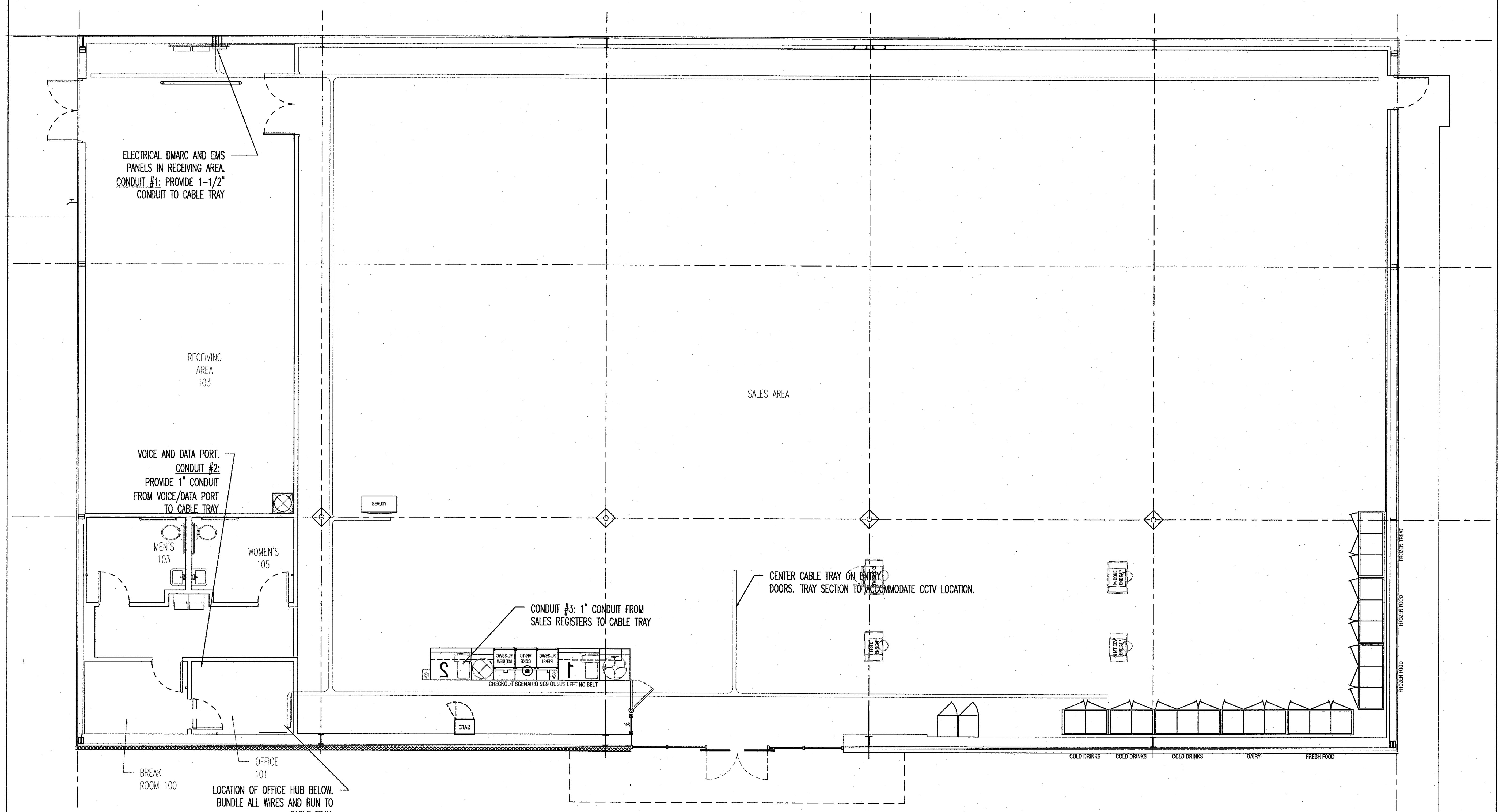
Plumbing ■ Mechanical
Electrical ■ Fire Alarm

SEAL 17304
MICHAEL W. KILIAN
10-15-18

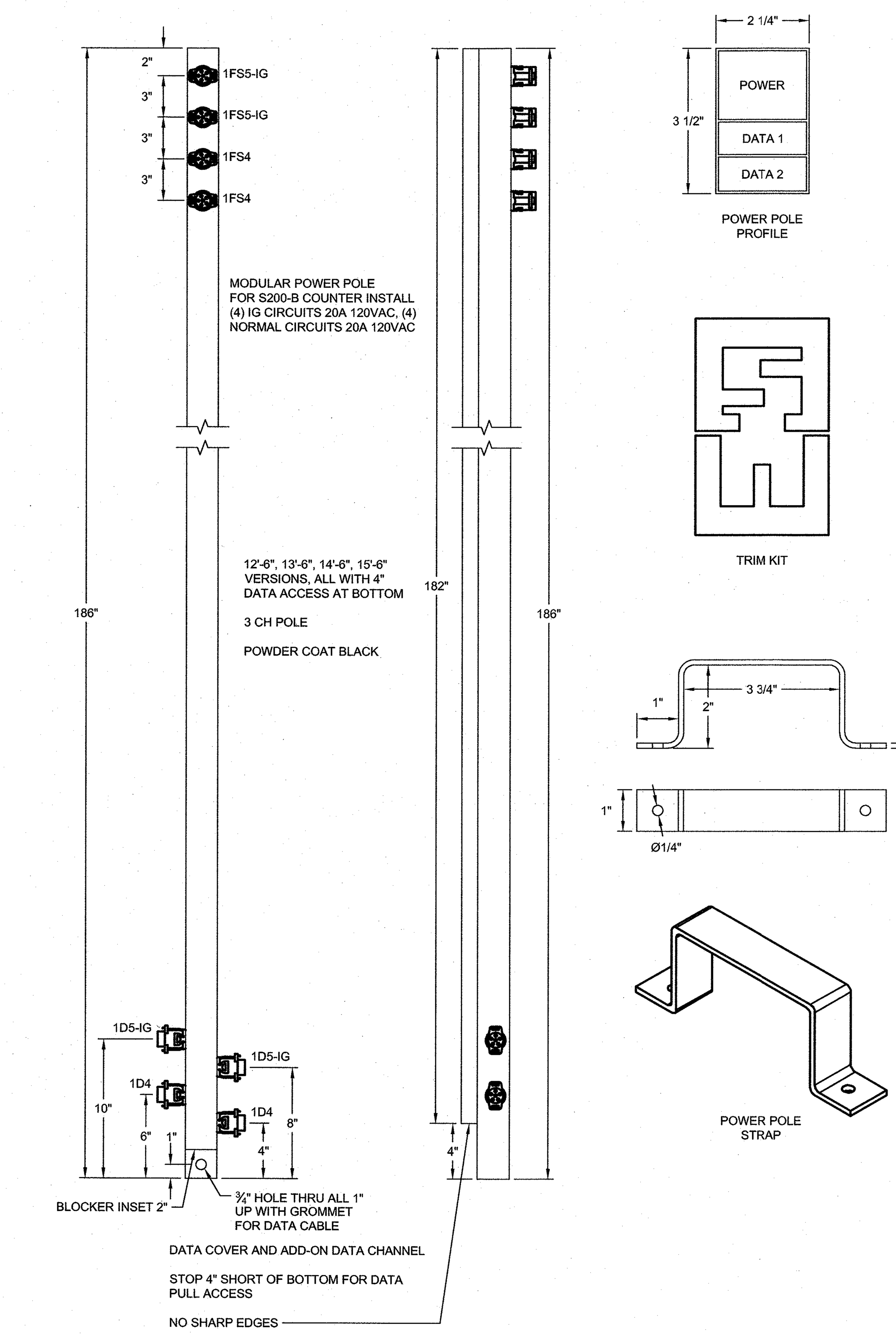
DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER
18359
DRAWN BY
REW
DATE
10/15/18
REVISIONS

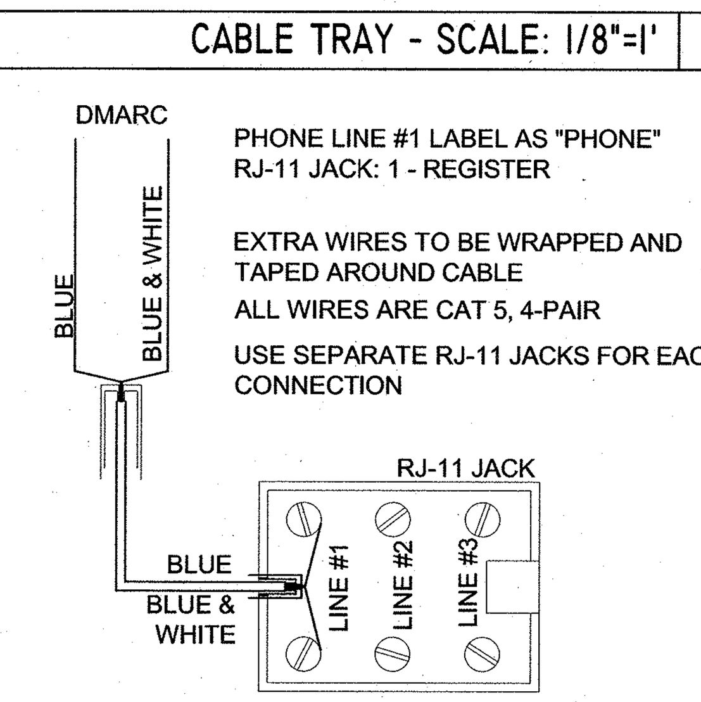
SHEET NUMBER
E-2



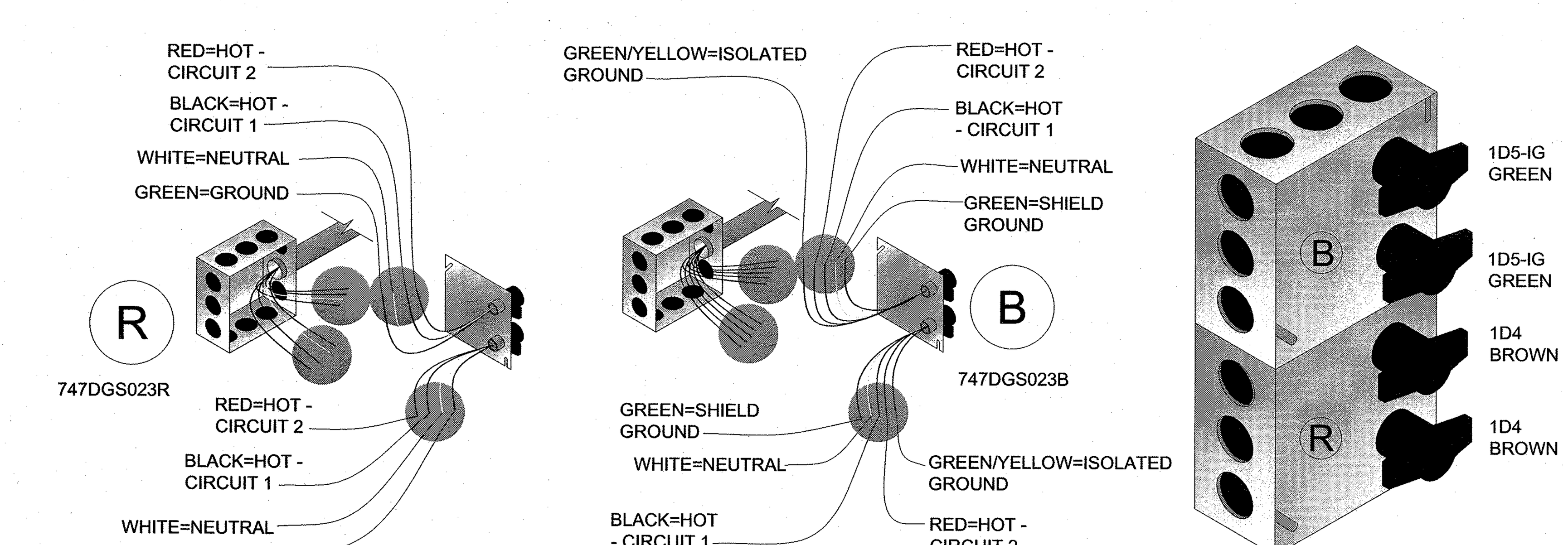
CABLE TRAY - SCALE: 1/8"=1' | 1



POWER POLE FOR REGISTER DETAIL - NO SCALE | 5



PHONE WIRING FOR REGISTER DETAIL - NO SCALE | 3



REGISTER ELECTRICAL COMPONENTS

QTY	PART NUMBER	DESCRIPTION	VENDOR
1	747DGS023B	DUAL CIRCUIT POWER KIT WITH ISOLATED GROUND	D & P
1	747DGS023R	DUAL CIRCUIT POWER KIT	D & P
1	747DGS044-12BK	12' 2CH REGULAR POLE W/2-C & 1-D CONNECTOR DRW #2004-12	
1	747DGS032A	10' CABLE KIT (SET OF 4 WHIPS)	

*NOTE: BEFORE ORDERING AND INSTALLATION OF ELECTRICAL COMPONENTS FOR REGISTERS, CONSULT FINAL FIXTURE PLAN FOR NUMBER AND LOCATION.

MAXIMUM CIRCUITS FOR REGISTERS:
- CIRCUITS AT MAIN REGISTER - (9) 110V
- CIRCUITS AT ISLAND REGISTER - (3) 110V

PHONE WIRING FOR REGISTER DETAIL - NO SCALE | 4

ISSUED FROM:
☐ WILMINGTON OFFICE
805 North Fourth Street
Wilmington, NC 28401
Phone: 910.251.8899
Facsimile: 910.251.9989
■ WILSON OFFICE
213 East Nash Street
Wilson, NC 27893
Phone: 252.399.2700
Facsimile: 252.399.2701

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Kilian Engineering Inc.
Michael W. Kilian, PE
Plumbing • Mechanical
Electrical • Fire Alarm

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 MICHAEL W. KILIAN 10-15-18

KILIAN ENGINEERING CORPORATE SEAL NORTH CAROLINA INC.

DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER 18359
DRAWN BY REW
DATE 10/15/18
REVISIONS

SHEET NUMBER
E-3

PANEL A									
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVa	BKR	LOAD	CKT
1	RTU-1	100/3	11.03	A	0.10	20/1	AUTOMATIC DOOR	(2)
3			11.03	B	0.36	20/1	TELEPHONE BOARD/BUZZER	(4)
5			11.03	C	0.18	20/1	ENERGY MANAGEMENT	(6)
7	RTU-2	100/3	11.03	A	0.18	20/1	RECEPT FOR IRRIGATION PANEL	8
9			11.03	B	0.72	20/1	OD HVAC RECEPT (ON ROOF)	10
11			11.03	C	0.18	20/1	OD DRINK VEND	12
13	SPARE	20/1	0.00	A	0.00	20/1	SPARE	14
15	SPARE	20/1	0.00	B	1.00	20/1	IRRIGATION PUMP	16
17	SPARE	20/1	0.00	C	0.50	20/1	INTERFACE EQUIPMENT	18
(19)	WATER HEATER	20/1	1.70	A	0.50	20/1	VSAT SATA HUB EQUIPMENT	20
(21)	WATER HEATER	20/1	1.70	B	0.50	20/1	CCTV EQUIP	22
23	DRINKING FOUNTAIN	20/1	0.18	C	0.18	20/1	SECURITY RECEPT.	(24)
(25)	OUTDOOR ICE RECEPT.	20/1	0.18	A	0.36	20/1	OFFICE RECEPT.	(26)
(27)	COOLER #1	20/1	1.20	B	0.54	20/1	BREAK ROOM RECEPT.	28
(29)	COOLER #2	20/1	1.20	C	0.54	20/1	OFFICE RECEPT.	30
(31)	COOLER #3	20/1	1.20	A	0.72	20/1	BEAUTY RECEPT	32
(33)	COOLER #4	20/1	1.20	B	0.18	20/1	ICE CREAM FREEZER	(34)
(35)	COOLER #5	20/1	1.60	C	0.80	20/1	GATORADE	(36)
37	SPARE	20/1	0.00	A	8.80	200/3	PANEL B	38
39	SPARE	20/1	0.00	B	9.90			40
41	SPARE	20/1	0.00	C	10.80			42
			kVA	PH	AMPS			
			35.8	A	298			
			39.4	B	328			
			38.2	C	319			

VOLTAGE/PHASE	208Y/120V, 3P, 4W
BUS RATING	600A
NEUTRAL BUS RATING	600A
MAIN CIRCUIT BREAKER RATING	600A
AIC RATING	22K
SERVICE ENTRANCE RATED	YES
ENCLOSURE	NEMA 1
MOUNTING	SURFACE
ISOLATED GROUND BUS	N/A

NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS

PANEL B									
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVa	BKR	LOAD	CKT
(1)	NIGHT LTS	20/1	0.30	A	1.20	20/1	POWER TERMINAL BRN	(2)
(3)	RECEIVING LTS	20/1	0.24	B	1.20	20/1	POWER TERMINAL BRN	(4)
5	SALES LIGHTS	20/1	0.50	C	1.20	20/1	POWER TERMINAL GRN	(6)
7	SALES LIGHTS	20/1	0.78	A	1.20	20/1	POWER TERMINAL GRN	(8)
9	SALES LIGHTS	20/1	0.56	B	1.20	20/1	POWER TERMINAL GRN	(10)
11	SALES LIGHTS	20/1	0.45	C	1.20	20/1	POWER TERMINAL BRN	(12)
13	SALES LIGHTS	20/1	0.90	A	0.00	20/1	SPARE	14
15	SALES LIGHTS	20/1	0.90	B	0.00	20/1	SPARE	16
17	SPARE	20/1	0.00	C	0.00	20/1	SPARE	18
(19)	EMERGENCY/EXIT LIGHTS	20/1	0.40	A	0.00	20/1	SPARE	20
(21)	BREAK RM/OFFICE/RR LTS & RR EF'S	20/1	0.50	B	1.50	20/2	FREEZER #1	(22)
23	BUILDING SIGN	20/1	1.20	C	1.50			(24)
25	PYLON SIGN	20/1	0.90	A	1.50	20/2	FREEZER #2	(26)
27	SPARE	20/1	0.00	B	1.50			(28)
29	SITE LIGHTING	20/1	1.20	C	1.50	20/2	FREEZER #3	(30)
31	SPARE	20/1	0.00	A	1.50			(32)
33	EXTERIOR LTS	20/1	0.56	B	1.60	20/1	SODA COOLERS	34
35	FRONT EXTERIOR/CANOPY LTS	20/1	0.28	C	1.60	20/1	DRINK COOLERS	36
37	EXTERIOR LTS	20/1	0.15	A	0.00	20/1	SPARE	38
39	EXTERIOR LTS	20/1	0.15	B	0.00	20/1	SPARE	40
41	EXTERIOR DUSK/DAWN	20/1	0.13	C	0.00	20/1	SPARE	42
			kVA	PH	AMPS			
			8.8	A	74			
			9.9	B	83			
			10.8	C	90			

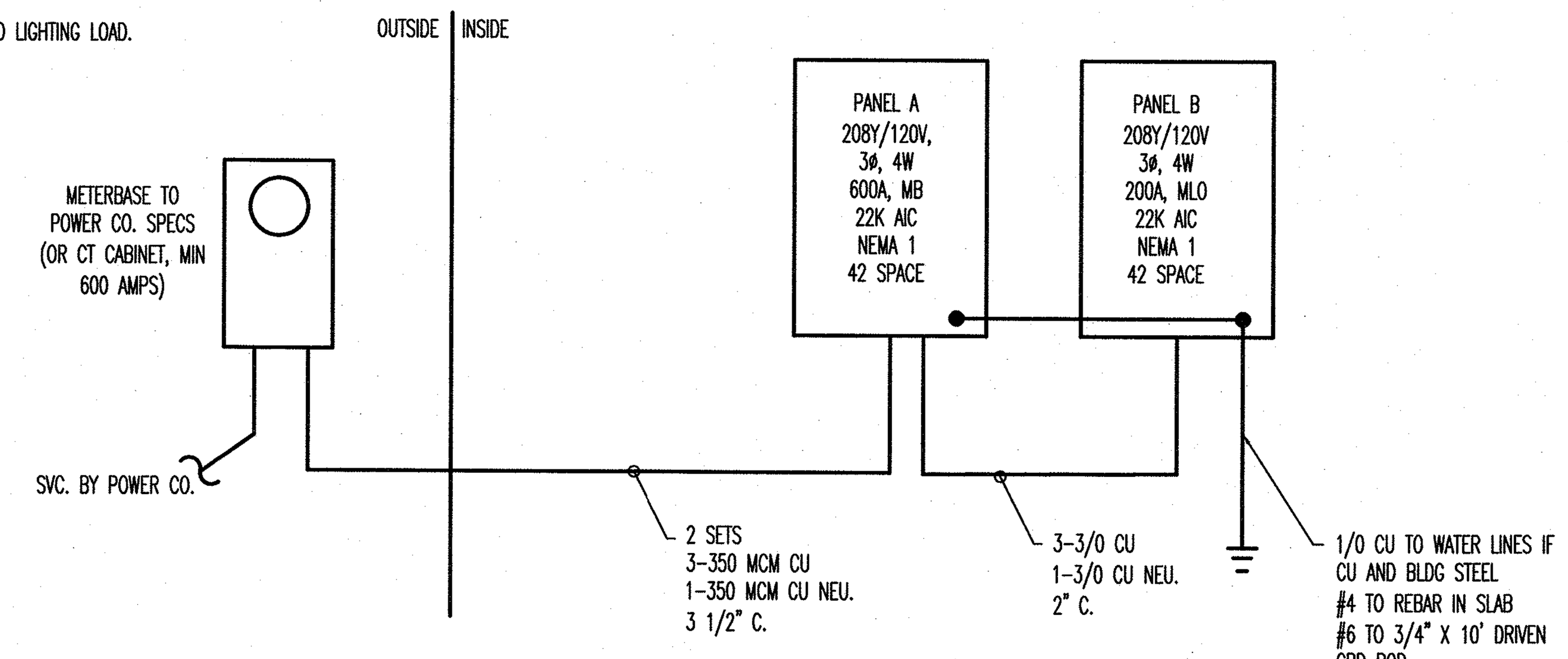
VOLTAGE/PHASE	208Y/120V, 3P, 4W
BUS RATING	200A
NEUTRAL BUS RATING	200A
MAIN CIRCUIT BREAKER RATING	MLO
AIC RATING	22K
SERVICE ENTRANCE RATED	YES
ENCLOSURE	NEMA 1
MOUNTING	SURFACE
ISOLATED GROUND BUS	N/A

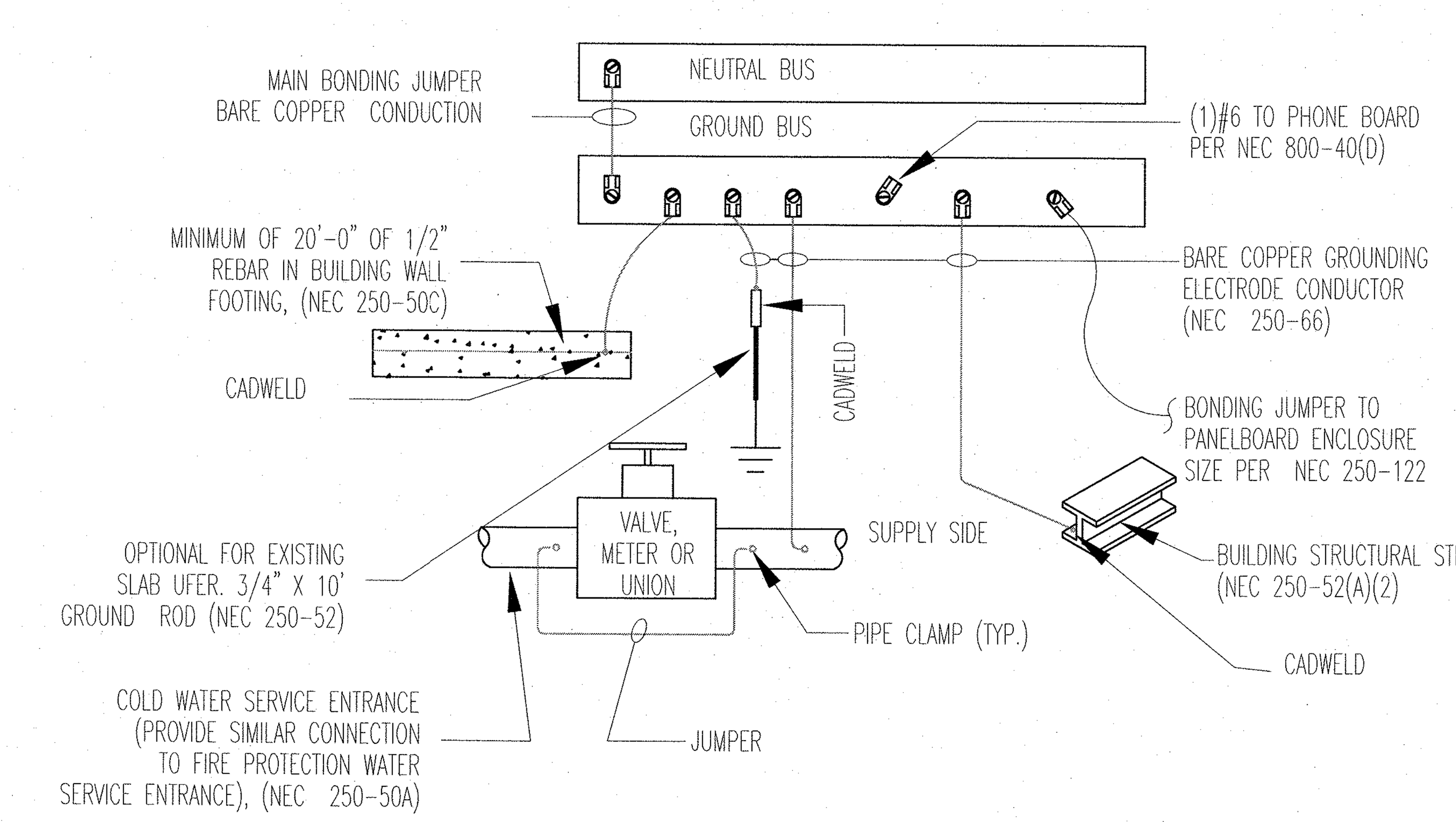
NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS
NOTE: SHADED CIRCUITS RUN THROUGH EMS PANEL
PANEL B HAS BOTH ISOLATED GROUND BUS AND A STANDARD BONDED GROUND BUS.

NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W					
EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA
LIGHTING 1	125%	10.88	10.88	10.88	32.64
RECEPTACLES < 10 kVA 5	100%	1.80	1.80	1.80	5.40
RECEPTACLES > 10 kVA 5	50%	0.00	0.00	0.00	0.00
HVAC 2	100%	22.07	22.07	22.07	66.21
WATER HEATER	100%	1.70	1.70	0.00	3.40
SHOW WINDOW 3	125%	1.53	1.53	1.53	4.59
SIGN 6	125%	1.20	0.90	0.00	2.10
FREEZERS/COOLERS	100%	4.40	7.38	8.40	20.18
IRRIGATION PUMP AND WELL	100%	2.88	1.00	2.88	6.76
DEMAND kVA PER PHASE		46.46	47.26	47.56	
DEMAND AMPS PER PHASE		387	394	396	

1. 8709 SF X 3VA/SF X 1.25 PER NEC 220.12. THIS EXCEEDS THE CONNECTED LIGHTING LOAD.
2. ALL HVAC EQUIPMENT IS BASED ON MCA.
3. NOT USED
4. 23 FT X 150 VA/2FT PER NEC 220.43(B)
5. NOT USED
6. PER NEC 220.14(F)
7. NOT USED

EQUIPMENT CONNECTION SCHEDULE												
SYMBOL	DESCRIPTION	FURN. BY	kVA	HP	VOLT/PH	MCA	MOCP	DISC	AWG	EGC	COND	NOTES
RTU-1,2	RTU'S	M.C.	-	-	208/3	92.0	100	100	#3	#8	1 1/4"	
P-11	WATER HEATERS	P.C.	1.65	-	120/1	13	20	30	#12	#12	3/4"	





NOTE: ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE.

POWER RISER DIAGRAM - NO SCALE 2

GROUNDING DETAIL - NO SCALE 3

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Plumbing ■ Mechanical
Electrical ■ Fire Alarm

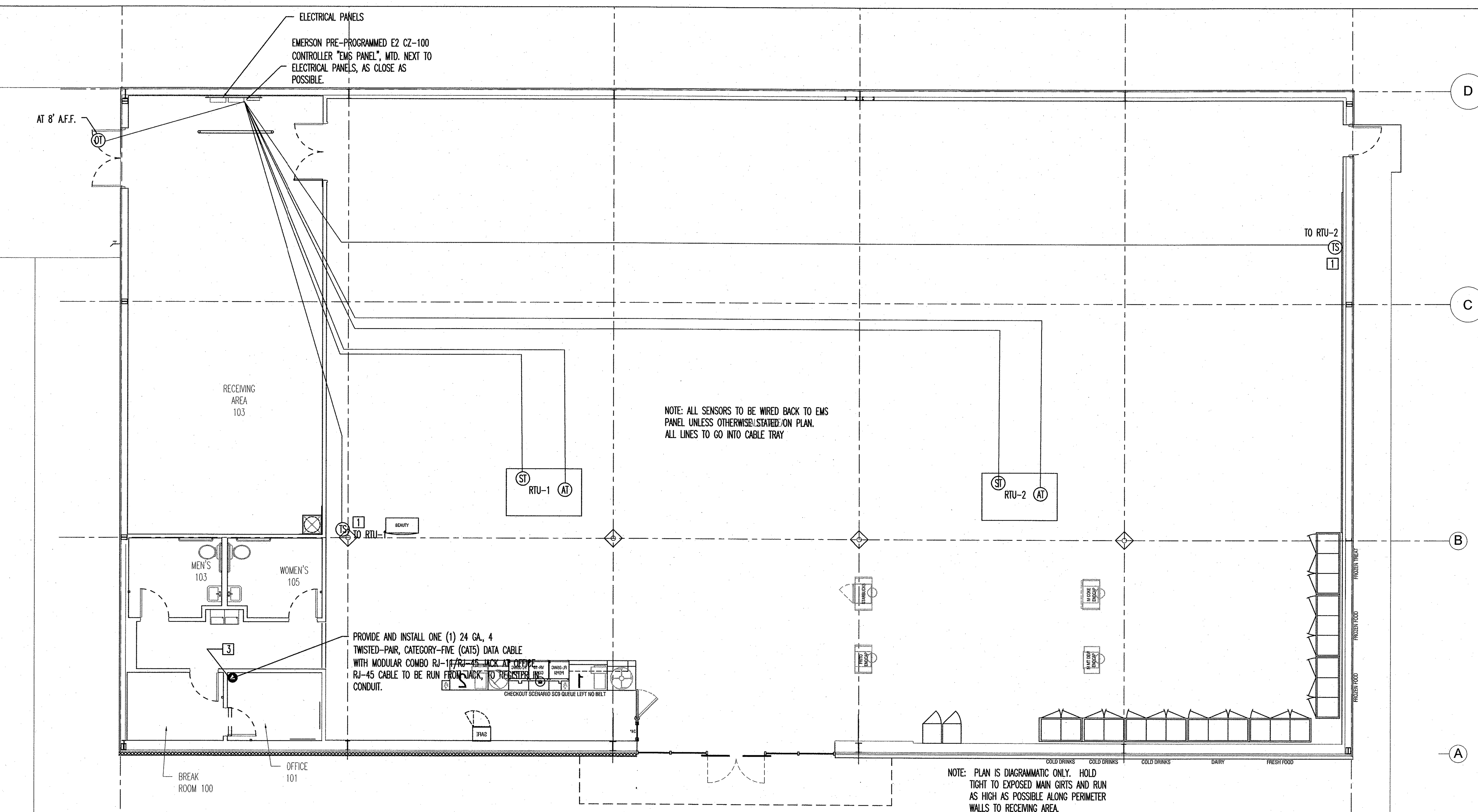
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 10-15-18

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

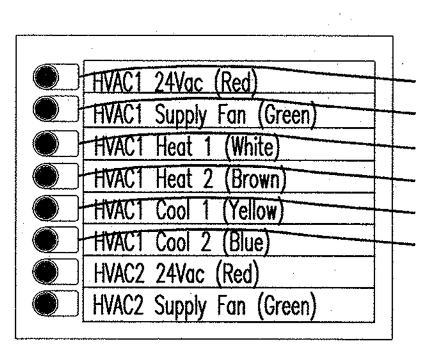
DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER 18359
DRAWN BY REW
DATE 10/15/18
REVISIONS

SHEET NUMBER
E-4



LOW VOLTAGE WIRING PLAN-SCALE 1/8"=1' | 1



EMS HVAC CONTROL WIRING DETAIL

QTY.	SYMBOL	DESCRIPTION	CABLE TYPE	SUPPLIED BY:	INSTALLED BY:	NOTES
VERIFY	(AT)	AHU TERMINAL STRIP	8C T-STAT CABLE	EMS SUPPLIER	GENERAL CONTRACTOR	QTY. ONE (1) PER HVAC UNIT.
1	(N)	NETWORK CABLE MTD. AT REGISTER AREA	CAT5/RJ-45 CONNECTOR ON BOTH ENDS. LEAVE 20' COILED AT REGISTER. CONNECT AT EMS PANEL.	GENERAL CONTRACTOR	GENERAL CONTRACTOR	QTY. ONE (1) PER REGISTER
1	(OT)	OUTDOOR AIR TEMP MTD. @ 8'-0" A.F.F.	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	QTY. ONE (1) PER RECEIVING ENTRY.
VERIFY	(ST)	SUPPLY TEMP (501-1121) MTD. IN SUPPLY DUCT	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	QTY. ONE (1) PER HVAC UNIT.
VERIFY	(TS)	TEMPERATURE SPACE SENSOR (809-6590) MTD. @ 8'-0" A.F.F.	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	QTY. ONE (1) PER HVAC UNIT ZONE.
4	$M	MOTION SENSOR SWITCH.	LEVITON EZ-FIND ODS-10-IDW	GENERAL CONTRACTOR	GENERAL CONTRACTOR	QTY. ONE (1) PER BREAK ROOM. QTY. ONE (1) PER OFFICE. QTY ONE (1) PER MEN'S RESTROOM. QTY ONE (1) PER WOMEN'S RESTROOM.
1	▲	RJ-11/RJ-45 DATA JACK, PHONE COMBO.	24 GA., 4 TWISTED-PAIR, CATEGORY-FIVE (CAT 5) DATA CABLE .	GENERAL CONTRACTOR	GENERAL CONTRACTOR	QTY. ONE (1) AT OFFICE COMPUTER CART.

REQUIRED NATIONAL ACCOUNT VENDORS

COMPANY	CONTACTS	PHONE #	REQUIRED ITEMS
EMERSON CLIMATE TECHNOLOGIES	WEBSITE http://dollargeneralbid.ectsolutions.net	USER NAME: dollargeneralbid PASSWORD: dollargeneralbid	EMS SUPPLIER NOTE: CUSTOMIZED DOLLAR GENERAL EMS PANEL REQUIRES STORE #, CITY, STATE, ZIP CODE & QTY. FOR HVAC UNITS OF THE INSTALL SITE WHEN ORDERING. EMS SYSTEMS INSTALLATION GUIDE WITH PHOTOS IS AVAILABLE ON NATIONAL ACCOUNT WEBSITE. ALL QUESTIONS PERTAINING TO THE EMS PANEL, SYSTEM INSTALLATION & SETUP SHOULD BE DIRECTED TO EMERSON'S DOLLAR GENERAL SUPPORT TEAM AT 770-425-2724.

NATIONAL ACCOUNT & CONTACT INFORMATION SUBJECT TO CHANGE

SENSOR PLAN KEYED NOTES	
1	ALWAYS INSTALL THESE SENSORS AT 8'-0" A.F.F. THE EXACT MOUNTING LOCATION OF THE HVAC SENSORS "TS" MAY VARY DEPENDING ON THE STORE LAYOUT & DUCT CONFIGURATION. REFER TO SITE SPECIFIC MECHANICAL DRAWINGS FOR HVAC ZONED SENSOR MOUNTING LOCATIONS. IF SENSORS ARE MOUNTED ON EXTERIOR WALLS DUE TO DUCT CONFIGURATION, THEY ARE THEN TO BE INSULATED TO PREVENT AIR INFILTRATION. IF ADDITIONAL HVAC UNITS ARE USED, ADD ADDITIONAL TEMPERATURE SENSORS "TS".
2	ADD ADDITIONAL FIFTH & SIXTH HVAC UNIT WHEN REQUIRED.
3	PHONE LINE #1 - TWO RJ-11 PORTS. ONE (1) LOCATED IN OFFICE W/RJ-45 DATA JACK COMBO AND ONE (1) AT REGISTER. 24 GA. CAT 5, 4-PAIR TWISTED WIRE ONLY. USE BLUE AND BLUE & WHITE WIRES. HOOK TO LINE #1 TERMINAL IN RJ-11 JACK EACH PHONE JACK TO HAVE DEDICATED, SEPARATE HOME RUN TO DMARC. LABEL AS "PHONE" AT THE DESTINATION AND AT DMARC. PHONE COMPANY PROVIDES FINAL HOOK UP TO DMARC ONLY.PHONE LINE #2 - RJ-11 PHONE JACK SUPPLIED AND WIRED BY CONTRACTOR.

LOW VOLTAGE WIRING SCHEDULES AND NOTES | 2

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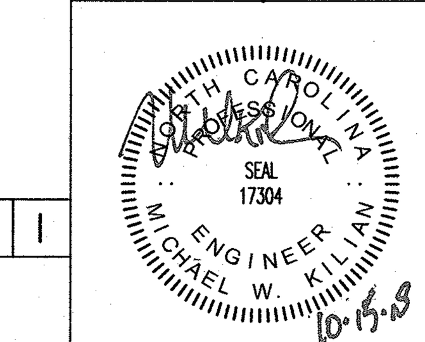
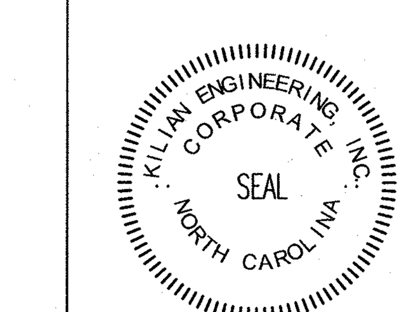
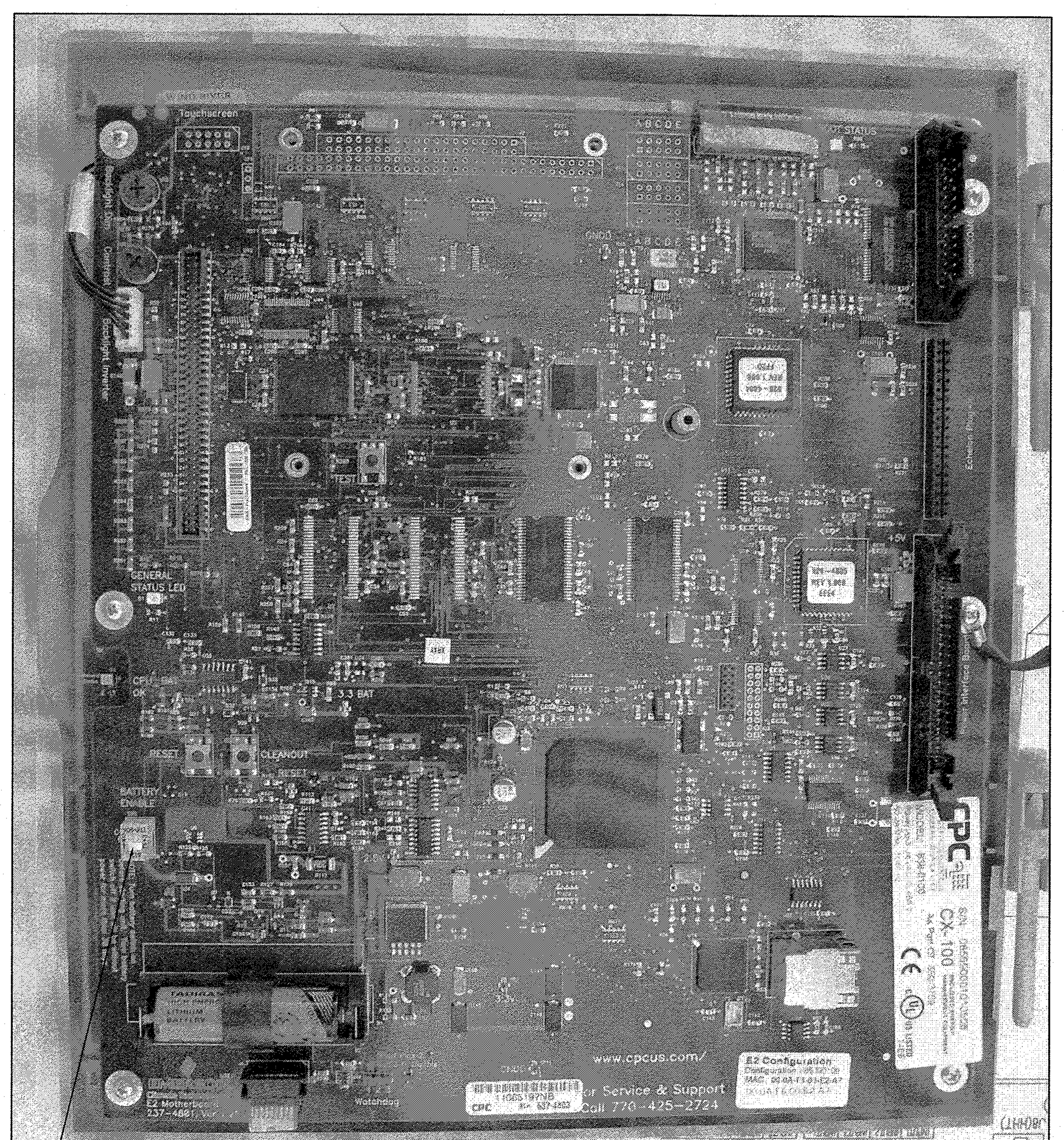




DOLLAR GENERAL
STORE # 20165
8938 NC HWY 401
FUQUAY VARINA, NORTH CAROLINA

JOB NUMBER
18359
DRAWN BY
REW
DATE
10/15/18
REVISIONS

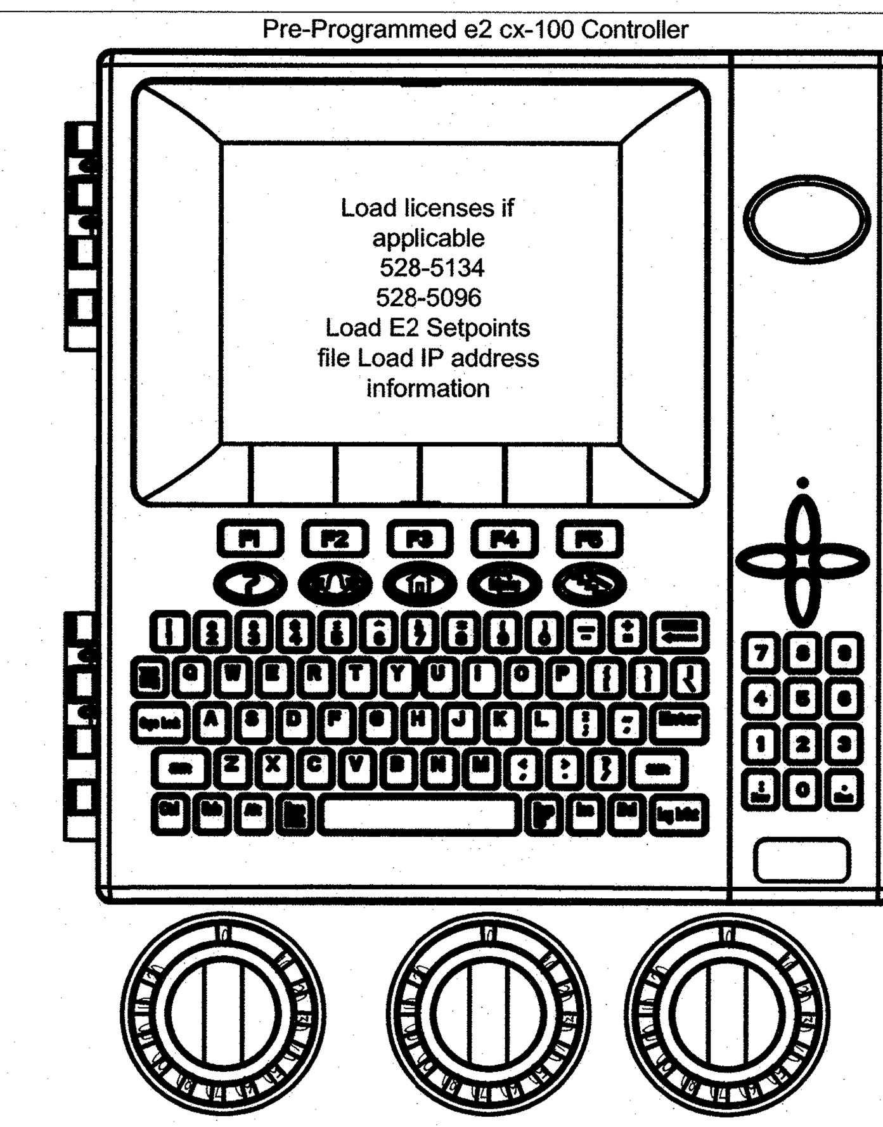
SHEET NUMBER
EMS-1



GENERAL CONTRACTOR TO ENSURE THAT THE BATTERY ENABLE IS SWITCHED TO THE "ON" POSITION

NOTE:
EMS SYSTEM SHOULD BE TESTED FOR HVAC OPERATION, INTERIOR LIGHTING, EXTERIOR LIGHTING AND SIGN LIGHTING PRIOR TO CONTRACTOR'S ELECTRICAL POSSESSION DATE. USE OUTSIDE LIGHT AND SIGN LIGHT OVERRIDE FOR EXTERIOR TESTING.

Pre-Programmed e2 cx-100 Controller



Escalation Contact List

If you need HVAC Maintenance, call 866-300-0004, option 1.
If you have Temperature Set Point concerns, contact your District Manager.
If you are having problems with your Lights, call 866-300-0004, option 6.
If you are having problems with your Coolers, call 866-300-0004, option 2.
If you are having problems with your Sign, call 866-300-0004, option 1.
If your store hours change, call 866-300-0004, option 6.

⚠ CAUTION! ⚠
All power must be shut off prior to wiring, installation, or service. More than one disconnect may be required to de-energize this panel.

Verifying the Time and Date

From the Home screen.
1. The Date is in the upper left corner of the Home screen.
2. The Time is in the upper right corner of the Home screen.

HVAC Control Status

* Press the Home screen button.
* Select F1 AHU.
* Using the arrow keys, highlight the appropriated HVAC Unit, select enter.
* From the screen you can view:
  - i. Ctzl Temp (Control Temp - The sales floor temp).
  - ii. Values in [ ] represent the set point we are trying to maintain.
  - iii. Space Temp (Temperature at problem on Sales Floor).
  - iv. Supply Temp (Air Temp leaving AHU).
  - v. Status of Fan/Heat/Cools

* When complete, select the Home button.

Lighting Status

* The status of Store Lights can be viewed in the bottom left corner of the Home page, or by the following:
  * Press the Home screen button.
  * Select F2 Lighting.
  * Highlight the appropriate Lighting Control, then select enter.
  * When complete, select the Home button.

Refrigerated Case Status

* Case Temperature can be viewed from the Home screen.

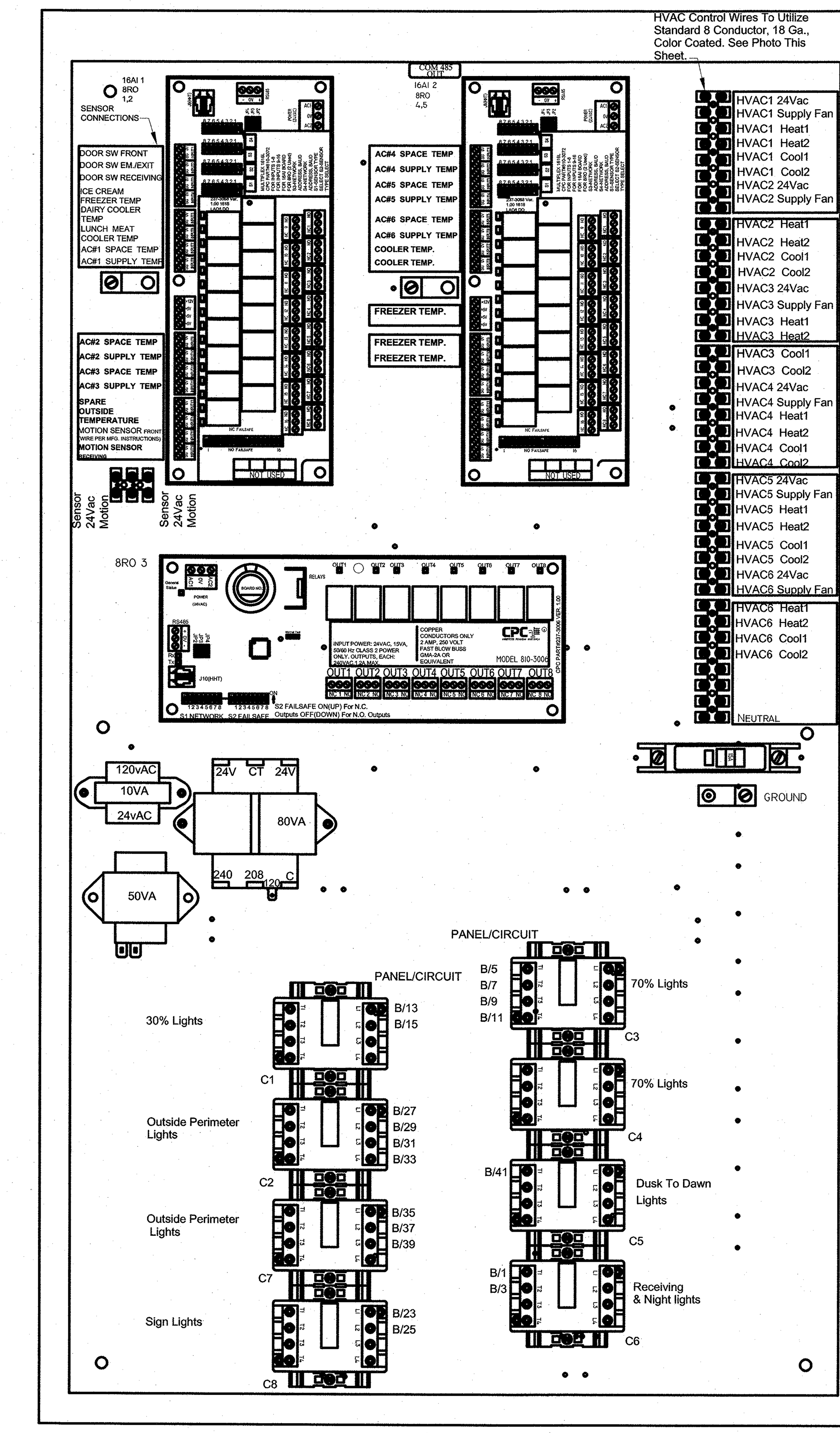
To view a graph of the case temperature:
- i. Highlight the Temp value and select enter.
- ii. Select 1 for graph.

To zoom select F5 Zoom-In.
(Press F5 Zoom-In as many times as necessary, get to the desired scale/range).
(Use the left and right arrow keys to move to the time/date range desired).
* When complete, select the Home button.

Alarm Status

From the Home screen, select Alarm button.
1. Date: The date the alarm occured.
2. Time: The time the alarm occured.
3. State: Notice, Alarm or Fail.
   * Notices are general warnings that notify a user of minor errors.
   * Alarms are warnings about important system conditions that need immediate attention.
   * Fails are high priority conditions, warning the user of a controller or device failure.
4. Property on Board and Point: The item that has generated the alarm.
5. Message: The description of the notice, alarm or fail.
   a. Using the up or down arrow keys, highlight the appropriate alarm and select F4 Expd. Info.
      i. Expd. Info: Expanded Information will give the unit & detailed status on the alarm.
      ii. When finished viewing detailed status, select enter.

* When complete, select the Home button.



NOTES:

1. EMS SUPPLIER NOTE: CUSTOMIZED DOLLAR GENERAL EMS PANEL REQUIRES STORE #, CITY, STATE, ZIP CODE & QTY. OF HVAC UNITS OF THE INSTALL SITE WHEN ORDERING. EMS SYSTEMS INSTALLATION GUIDE WITH PHOTOS IS AVAILABLE ON NATIONAL ACCOUNT WEBSITE. ALL QUESTIONS PERTAINING TO THE EMS PANEL, SYSTEM INSTALLATION & SETUP SHOULD BE DIRECTED TO EMERSON'S DOLLAR GENERAL SUPPORT TEAM AT 770-425-2724.

2. ALL SIGN & LIGHTING CIRCUITS MUST BE FED THROUGH THE DESIGNATED CONTACTORS AS NOTED ON THIS PAGE.

3. ALL LOW VOLTAGE HVAC & DOOR SENSORS MUST BE CONNECTED TO THE PROPER TERMINAL. 24 GA. SHIELDED (SHIELD MUST BE GROUNDED) CABLE, BELDEN #8641, 2 CONDUCTOR WIRE OR IT'S EQUIVALENT IS REQUIRED.

4. COOLER & FREEZER HOME RUNS WILL BE TERMINATED AT ALL POINTS BY DOLLAR GENERAL REFRIGERATION DEPARTMENT.

TESTING NOTE:

TESTING OF HVAC UNITS THRU EMS PANEL IS ACCOMPLISHED BY SIMPLY WARMING UP OR COOLING DOWN A SPACE TEMPERATURE SENSOR (USING A BLOW DRYER OR ELECTRONIC EQUIPMENT DUSTER AEROSOL) AND WATCH THE FAN, HEAT AND COOL STAGES CYCLE ON AND OFF. THIS REQUIRES TWO PEOPLE AT ALL TIMES....ONE TO WATCH THE SCREEN AND THE OTHER TO WATCH OPERATION OF THE AHU. WHEN COMPLETE, PRESS THE HOME BUTTON TO RETURN TO THE MAIN SCREEN.

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REVISIONS

SHEET NUMBER
EMS-2

EMS PANEL AND CONTROLS-NO SCALE | 1