APPENDIX B
2018 BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS

Name of Project: DOLLAR GENERAL STORE # 23680

Address: MAMERS ROAD, LILLINGTON, NORTH CAROLINA Zip _____

Proposed Use: MERCANTILE (DOLLAR GENERAL RETAIL STORE)

Owner/Authorized Agent: TIM O'CONNELL Phone 910-944-0881 E-mail timo@rhotson.com

Owned By: ☐ City/County ☒ Private ☐ State

Code Enforcement Jurisdiction: ☐ City LILLINGTON ☒ County HARNETT

LEAD DESIGN PROFESSIONAL: Mark W. Hargett

DESIGNER	FIRM	NAME	LICENSE#	TELEPHONE#	E-MAIL
Architectural	Hood Herring Archit.	Mark Hargett	4872	252-399-2700	mark@archtth.com
Civil	Bowman North Carolina	Matt Lowder	24434	919-553-6570	mlowder@bowman.com
Electrical	Killan Engineering, Inc.	Michael Killan	17804	252-458-8778	mkillan@killanengineering.com
Fire Alarm					
Plumbing	Killan Engineering, Inc.	Michael Killan	17804	252-458-8778	mkillan@killanengineering.com
Mechanical	Killan Engineering, Inc.	Michael Killan	17804	252-458-8778	mkillan@killanengineering.com
Sprinkler-Standpipe					
Structural	Killan Engineering, Inc.	Jeff Lanniceiii	047232	252-458-8778	jlanniceiii@killanengineering.com
Retaining Walls >5'High					
Other					

2018 NCBC: ☒New Construction ☐Shell/Core ☐1st Time Interior Completions
☐Addition ☐Phased Construction - Shell Core

2018 EXISTING: ☐Prescriptive ☐Alteration level I ☐Historic Property
☐Repair ☐Alteration level II ☐Change of Use
☐Chapter 14 ☐Alteration level III

CONSTRUCTED: _____ ORIGINAL USE(S): _____

RENOVATED: _____ PROPOSED USE(S): _____

OCCUPANCY CATEGORY (TABLE 1604.5): Current:_____ Proposed:_____

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

Special Inspections Required: ☐ No ☐ Yes

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		10640	
Basement			
TOTAL		10640	

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

☒ 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.

Actual Area of Occupancy A / Allowable Area of Occupancy A + Actual Area of Occupancy B / Allowable Area of Occupancy B ≤1

.64 + .06 + ... = .70 ≤1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG. AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE[1,2] INCREASE	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	M	9280	12500	NA	12500
1	S-1	1360	17500	NA	17500

[1] Frontage 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)

[2] Unlimited area applicable under conditions of section 507.

[3] Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2)

[4] The maximum area of open parking garages must comply with table 406.5.4.
The maximum area of air traffic control towers must comply with table 412.3.1

[5] frontage increast is based on the unsprikled area calue in table 506.2

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	55	18	
Building Height in Stories (Table 504.4)	2	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 columns, 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						

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (feet) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☒ No ☐ Yes
Smoke Detection Systems: ☐ No ☒ Yes ☐ Partial
Carbon Monoxide Detection: ☐ 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 (if not on site plan) SEE SITE PLAN
☒ Exterior wall opening area with respect to distance to assumed property lines (705.8) < 30'
☒ Occupancy types for each area as it relates to occupancy load calculations (Table 1004.1.2)
☒ Occupancy loads for each area
☒ Exit access travel distances (1017) < 200'
☒ Common path of travel distances [Tables 1006.2.1 & 1006.3.2(1)] < 75'
☒ Dead end lengths (1020.4) < 20'
☒ Clear exit widths for each door
☒ Max calculated occupant load capacity each exit door can accommodate based on exit width (1005.3)
☒ 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 (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold open devices
☐ Location of emergency escape windows (1030)
☒ The square footage of each fire area (202) 9014 SQ. FT.
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ 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
(SECTION 1106) (SEE SITE SHEET)

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)

USE		WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS/ TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
	EXIST'G										
M	NEW			2	-			2	NA	1	1
	REQ'D										

SPECIAL APPROVALS

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

STRUCTURAL DESIGN SEE STRUCTURAL PLAN

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: 10 psf

Wind Loads: Basic Wind Speed 115 mph (ASCE-7)

Exposure Category C

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} 20.0 %g S_{D1} 7.3 %g

Site Classification (ASCE 7) ☐ 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

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 3000 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.

Existing building envelope complies with code: ☐ (If checked, the remained of this section in N/A)

Exempt Building: ☐ Provide code or statutory reference: _____

Climate Zone: ☐ 3A ☒ 4A ☐ 5A

Method of Compliance: Energy Code ☐ Prescriptive ☒ Performance
ASHRAE 90.1 ☐ Prescriptive ☐ Performance
Other: ☐ Performance (specify source) _____

THERMAL ENVELOPE (Prescriptive method only)

Roof/Ceiling Assembly (each assembly)
Description of assembly STANDING SEAM MTL/R5 THERMAL BLOCK, INSUL R11 + R30
U-Value of total assembly .029
R-Value of insulation R-41
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 1.92

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 R15
Horizontal/vertical requirement 24" VERT
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 # 23680

MAMERS ROAD

LILLINGTON, NORTH CAROLINA

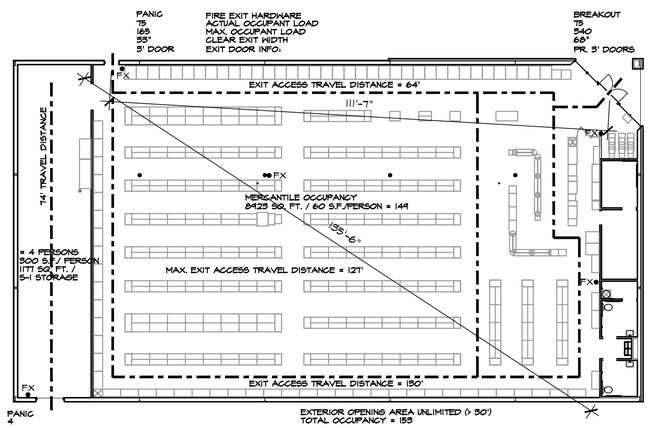
SCHEDULE OF DRAWINGS

NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.
Reviewed for Code Compliance
05/03/2022
Harnett COUNTY NORTH CAROLINA

SEE SEPARATE SUBMITTAL FOR SITE

SQUARE FOOTAGE LEGEND	
TOTAL SQUARE FOOTAGE	10,640 S.F.
TOTAL LEASABLE FOOTAGE	10,640 S.F.
OVERALL BUILDING DIMENSIONS	76'-0" X 140'-0"
SALES FLOOR DIMENSIONS	74'-0" X 114'-7"
SALES AREA	8,526 S.F.
RECEIVING AREA	1,359 S.F.
BREAK RM. & OFFICE AREA	186 S.F.
REST ROOM, & HALL AREA	205 S.F.
MISCELLANEOUS	364 S.F.

NOTES:
1. BUILDING MUST COMPLY WITH ALL BUILDING (FEDERAL, STATE AND LOCAL), FIRE, ADA AND HEALTH DEPARTMENT CODES.
2. NO TAPERED COLUMNS ALLOWED.
3. MAINTAIN INTERIOR CLEAR SALES SPACE AS REQUIRED ON PLANS.



LIFE SAFETY PLAN

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

MARK W. HARGETT REGISTERED ARCHITECT 4872 NORTH CAROLINA WILSON, NC 04/04/2022

ISSUED FROM:
☐ WILMINGTON OFFICE
803 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

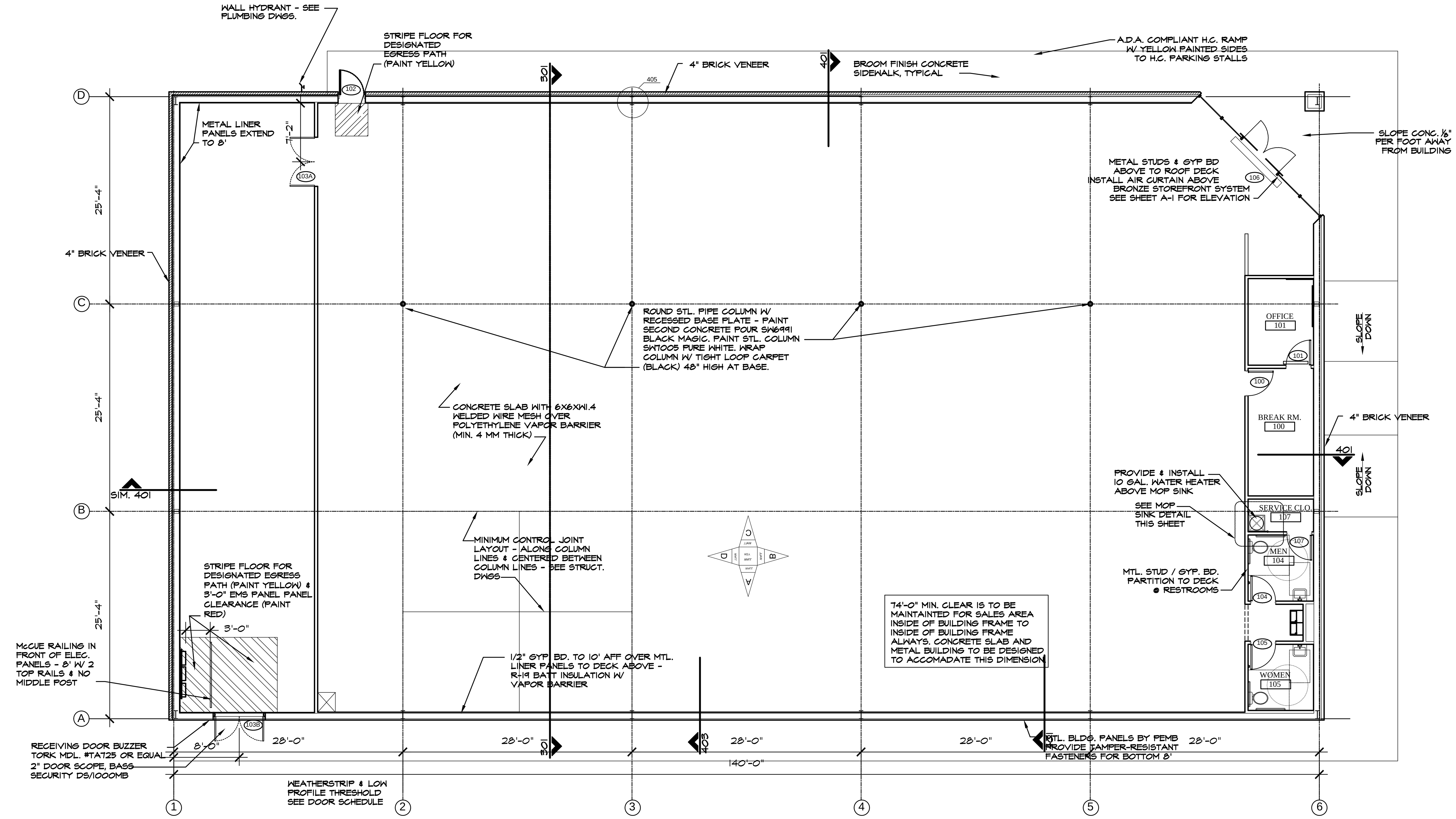
NOTE: ALL CONTRACTORS SHALL REVIEW & MAINTAIN 11 X 17 DOLLAR GENERAL PROTOTYPE PLAN "F" DGP BUILD-TO-SUIT PACKAGE ON JOB SITE

DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NORTH CAROLINA

JOB NUMBER

DRAWN BY MWH
DATE 04/04/22
REVISIONS 042722 - BEARING CAP.

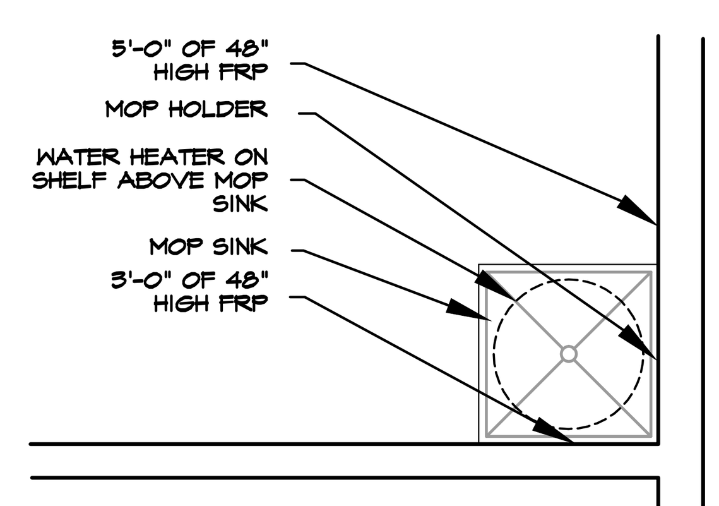
SHEET NUMBER
Cover
OF



FLOOR PLAN

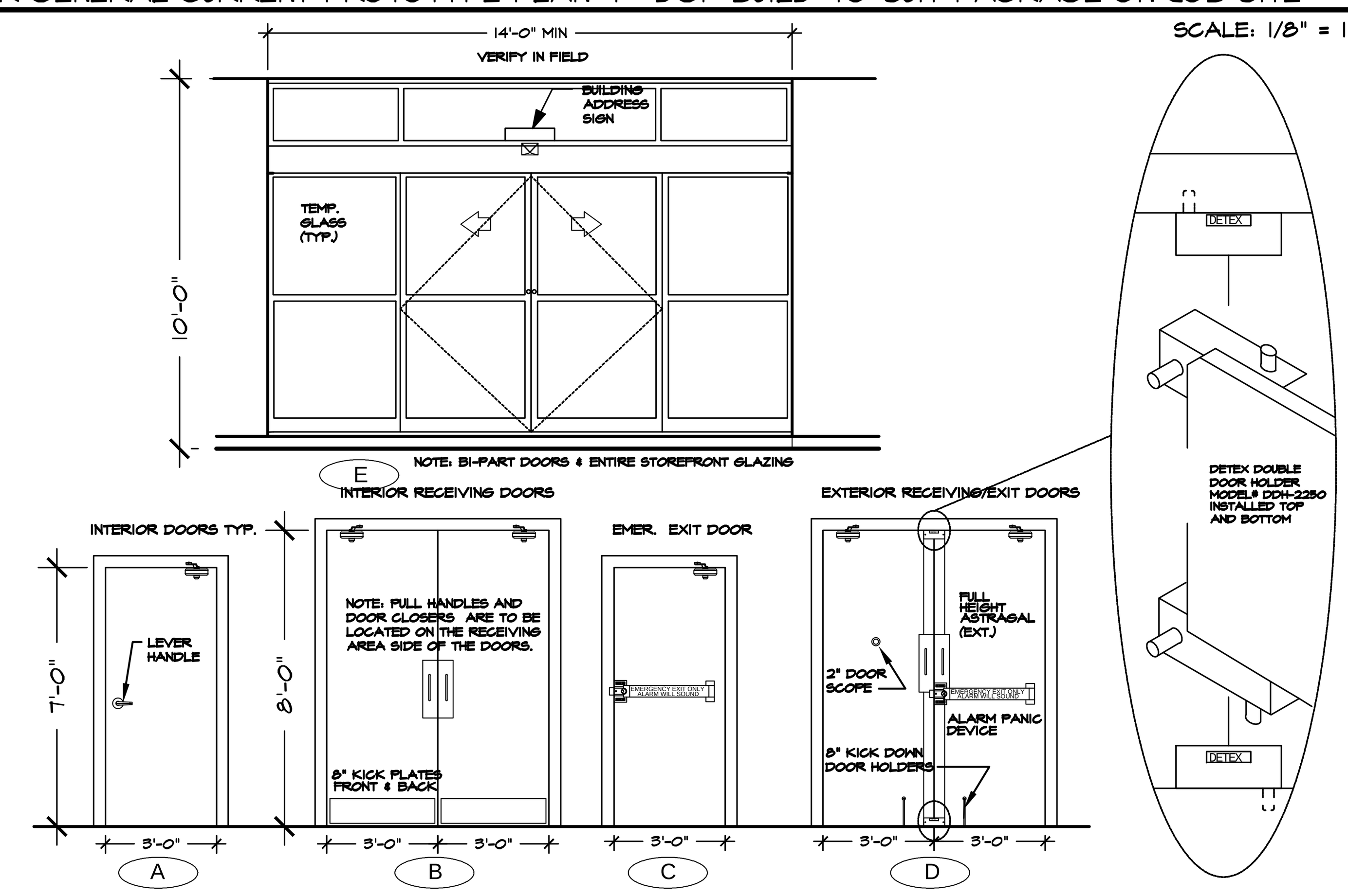
NOTE: ALL CONTRACTORS SHALL REVIEW & MAINTAIN 11 X 17 DOLLAR GENERAL CURRENT PROTOTYPE PLAN "F" DGP BUILD-TO-SUIT PACKAGE ON JOB SITE

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



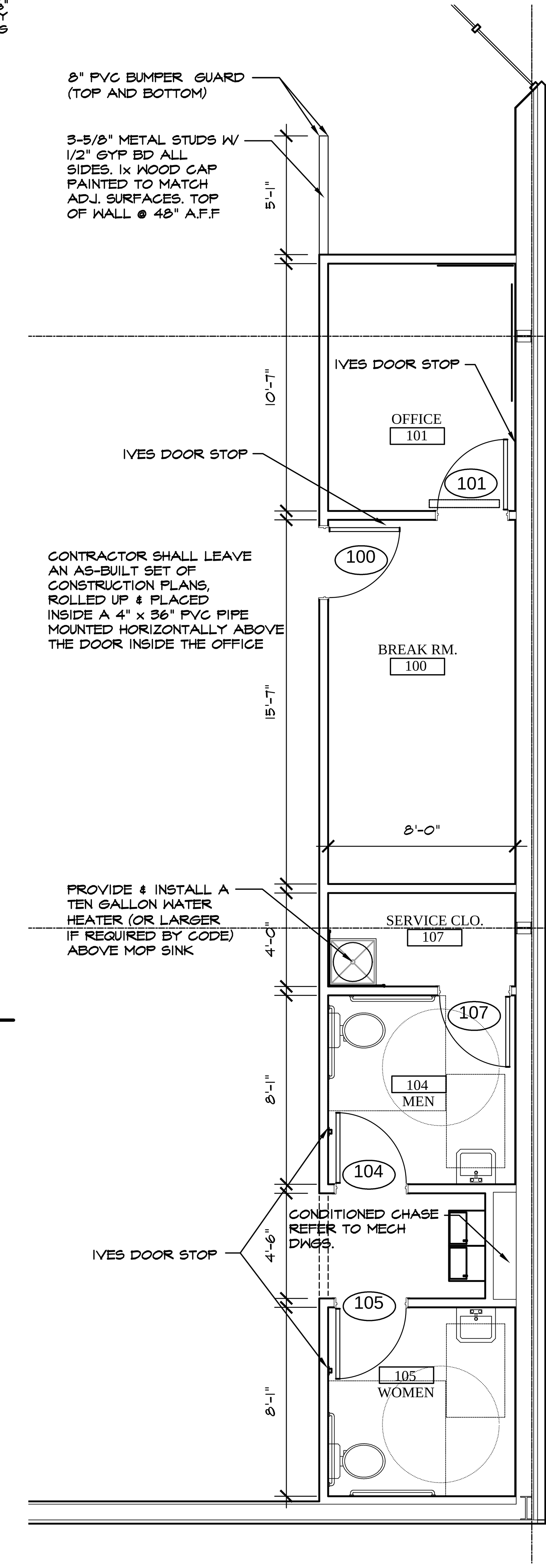
MOP SINK DETAIL

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



DOOR ELEVATIONS

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



LARGE SCALE TOILET / ENTRY / OFFICE

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 W/ SEALER	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 10'-0", WHITE METAL LINER PANELS ABOVE	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 10'-0" AFF	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", WHITE METAL LINER PANELS ABOVE	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	EXPOSED TO STRUCTURE ABOVE	N/A	
101	OFFICE	CONCRETE FLOOR SEALED	CONCRETE W/ SEALER	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 10'-0" AFF	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 10'-0" AFF	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYP. BOARD @ ENTRY TO ROOF DECK. REST TO 10'-0" A.F.F.	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 10'-0", WHITE METAL LINER PANELS ABOVE	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	EXPOSED TO STRUCTURE ABOVE	N/A	
102	SALES AREA	CONC. FLOOR POLISHED (STEPS 1-9)	CONCRETE W/ SEALER 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 ROOF DECK	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. ON WHITE METAL LINER PANELS, SEE ELEV - SHT A-5	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 PANEL FROM FLOOR TO 8' AFF	WHITE	METAL LINER PANEL FROM FLOOR TO 8' AFF	TAPED, PAINTED AS REQ'D. BY CODE OR MTL. LINER PANEL TO DECK AS ALT.	METAL LINER PANEL FROM FLOOR TO 8' AFF	WHITE	GYPSUM BOARD TO ROOF DECK	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 ROOF DECK	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 BD. 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 ROOF DECK	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 BD. CEILING @ 8'-0" A.F.F.	WHITE	
107	SERVICE CLOSET	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE SILK CHOCOLATE HC-117	4" RUBBER / VINYL BASE	BLACK	GYPSUM BOARD TO 8'-0" A.F.F.	4' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO ROOF DECK	4' HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BOARD TO 8'-0" A.F.F.	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BOARD TO 8'-0" A.F.F.	SHERWIN WILLIAMS SW7005-WHITE, PRO-MAR LATEX SEMI-GLOSS	GYPSUM BD. CEILING @ 8'-0" A.F.F.	WHITE	
108	HALL	CONC. FLOOR POLISHED (STEPS 1-9)	CONCRETE W/ SEALER 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	"PURE WHITE" @ BULKHEAD	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 BD. 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"	8'-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"	8'-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.	14'-0" BI-PART WITH TRANSOM AND WINDOWS. BRONZE FINISH

MARK W. HARGETT
REGISTERED ARCHITECT
4872
NORTH CAROLINA
WILSON, NC
04/04/22

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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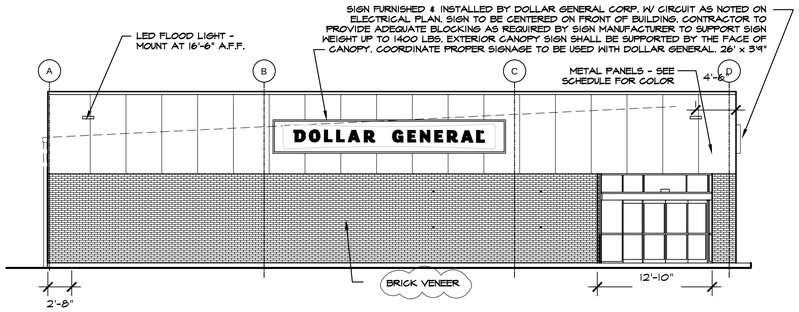
DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NORTH CAROLINA

JOB NUMBER

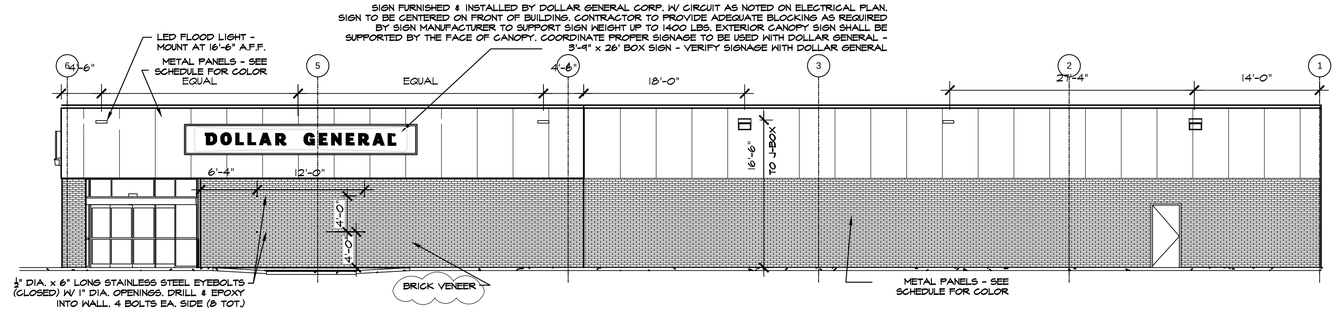
DRAWN BY
MWH
DATE
04/04/22
REVISIONS

SHEET NUMBER
A-1
OF



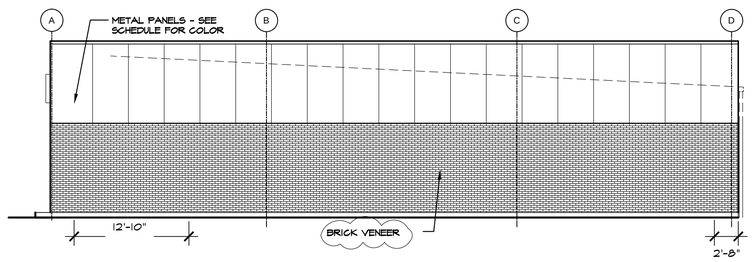
FRONT ELEVATION (MAMERS ROAD)

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



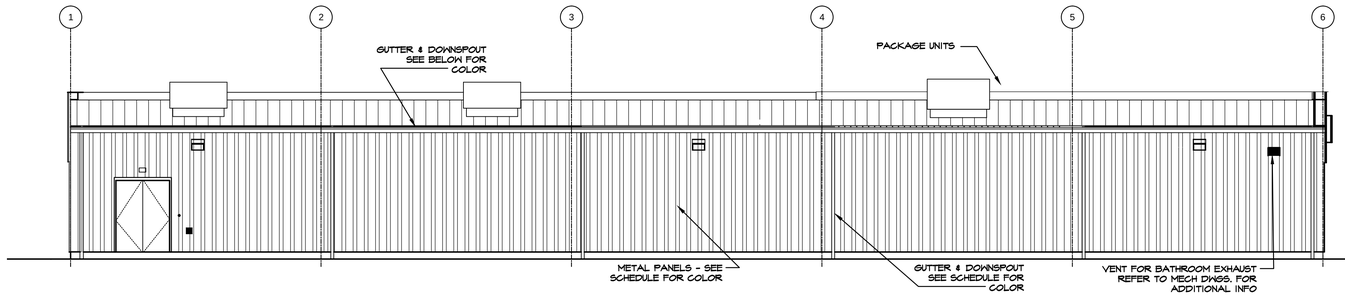
RIGHT SIDE ELEVATION (US HWY 421 N)

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



REAR ELEVATION

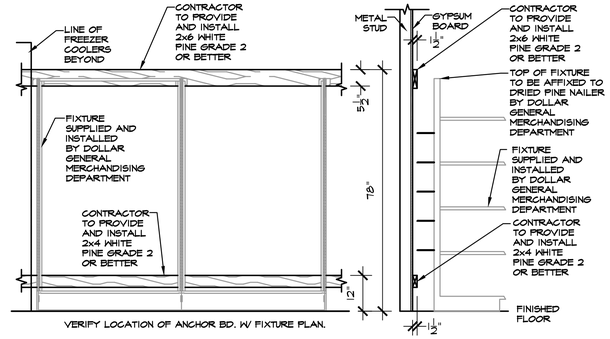
SCALE: 1/8" = 1'-0"

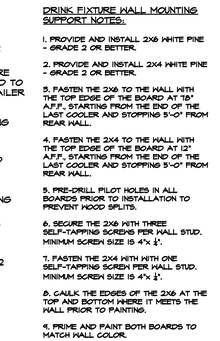


LEFT SIDE ELEVATION

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 (308) 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 LEE BRICK 206 SEVILLE																									
FLAT METAL SOFFIT AT STOREFRONT VESTIBULE AREA				●					●					●					●					●	
BUILDING PARAPET WALL AND CANOPY		●					●					●					●					●			
STOREFRONT SYSTEM			●					●					●					●					●		
STANDING SEAM METAL ROOF PANELS					●					●					●					●					●
LINER PANELS (INTERIOR SALES FLOOR)				●					●					●					●					●	



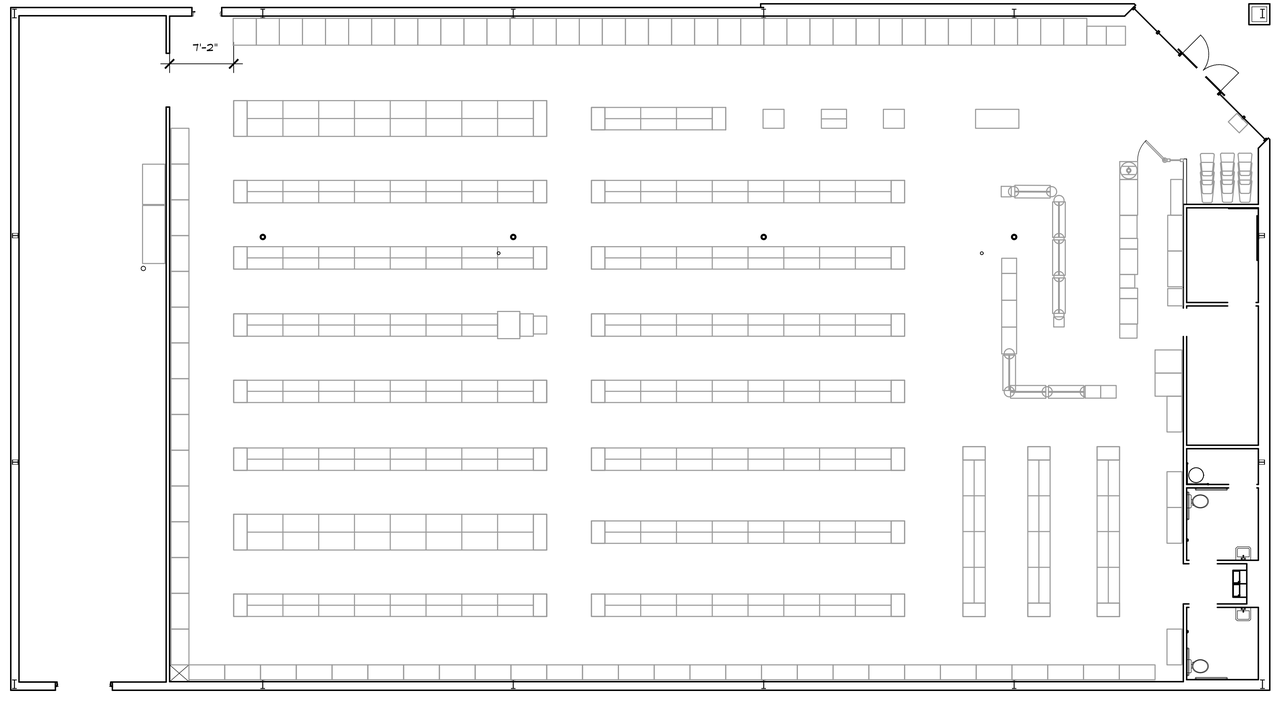


DRINK FIXTURE WALL MOUNTING SUPPORT NOTES:

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.

DRINK FIXTURE SUPPORT DETAIL

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



FIXTURE LAYOUT (CONFIRM W/ DOLLAR GENERAL PLANS) DGP

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

MARK W. HARGETT
REGISTERED ARCHITECT
NORTH CAROLINA
4872
WILSON, NC
04-2014

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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DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NORTH CAROLINA

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MWH
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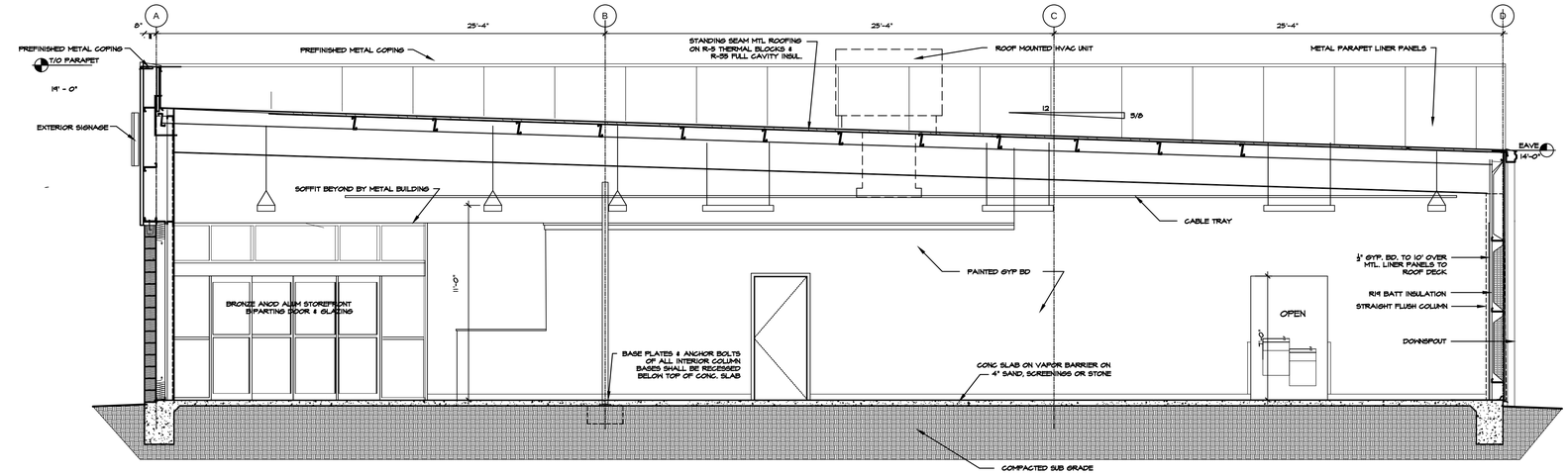
REVISIONS
042822-BRICK VENEER

SHEET NUMBER
A-2
OF

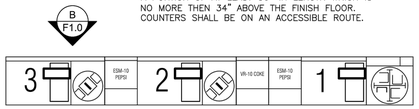


301 BUILDING SECTION

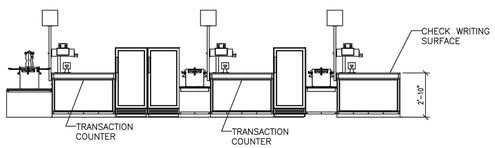
SCALE: 1/4" = 1'-0"

NOTE: FRONT CHECKOUT COUNTER TO BE PROVIDED BY DOLLAR GENERAL AND INSTALLED AT DOLLAR GENERAL'S DIRECTION. COUNTERS SHALL INCLUDE A PORTION OF AT LEAST 36" IN LENGTH WHICH IS NO MORE THEN 34" ABOVE THE FINISH FLOOR. COUNTERS SHALL BE ON AN ACCESSIBLE ROUTE.

B F1.0



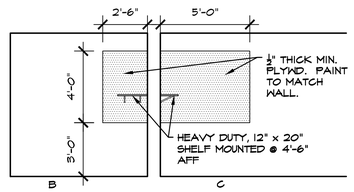
A - SERVICE COUNTER PLAN



B - ELEVATION

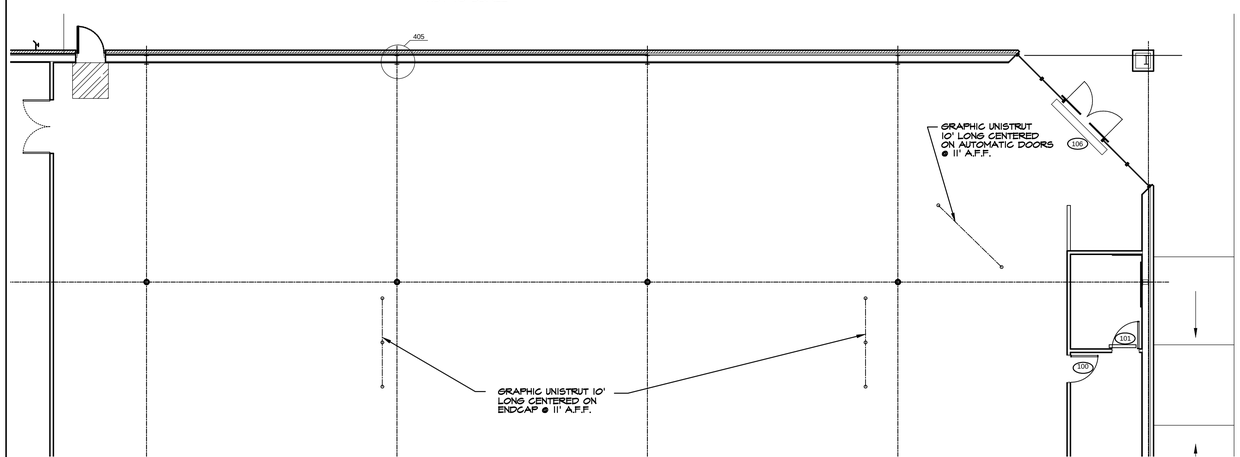
SERVICE COUNTER DETAILS

NOT TO SCALE



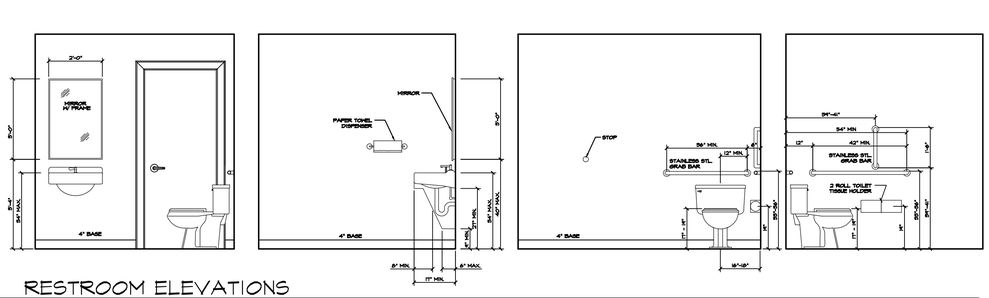
OFFICE WALL EQUIPMENT PANELS

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



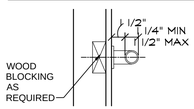
UNI-STRUT LAYOUT FOR SIGNAGE

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



RESTROOM ELEVATIONS

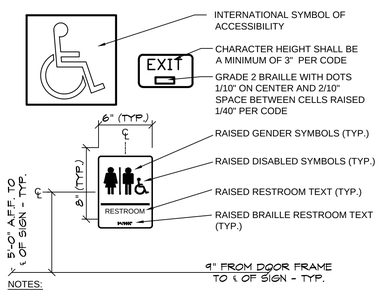
SCALE: 3/8" = 1'-0"



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.

MARK W. HARGETT
REGISTERED ARCHITECT
4872
NORTH CAROLINA
WILSON, NC
2014

ISSUED FROM:
□ WILMINGTON OFFICE
805 North Fourth Street
Wilmington, NC 28401
Phone: 910.251.8899
Facsimile: 910.251.9989
■ WILSON OFFICE
215 East Nash Street
Wilson, NC 27893
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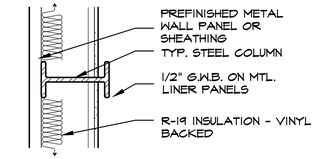
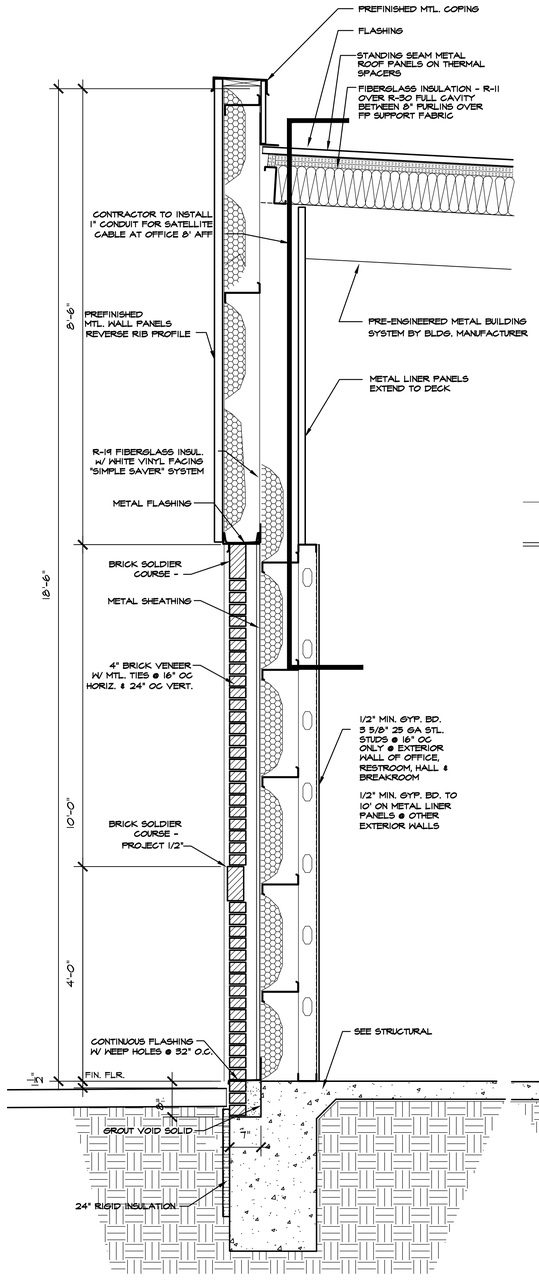


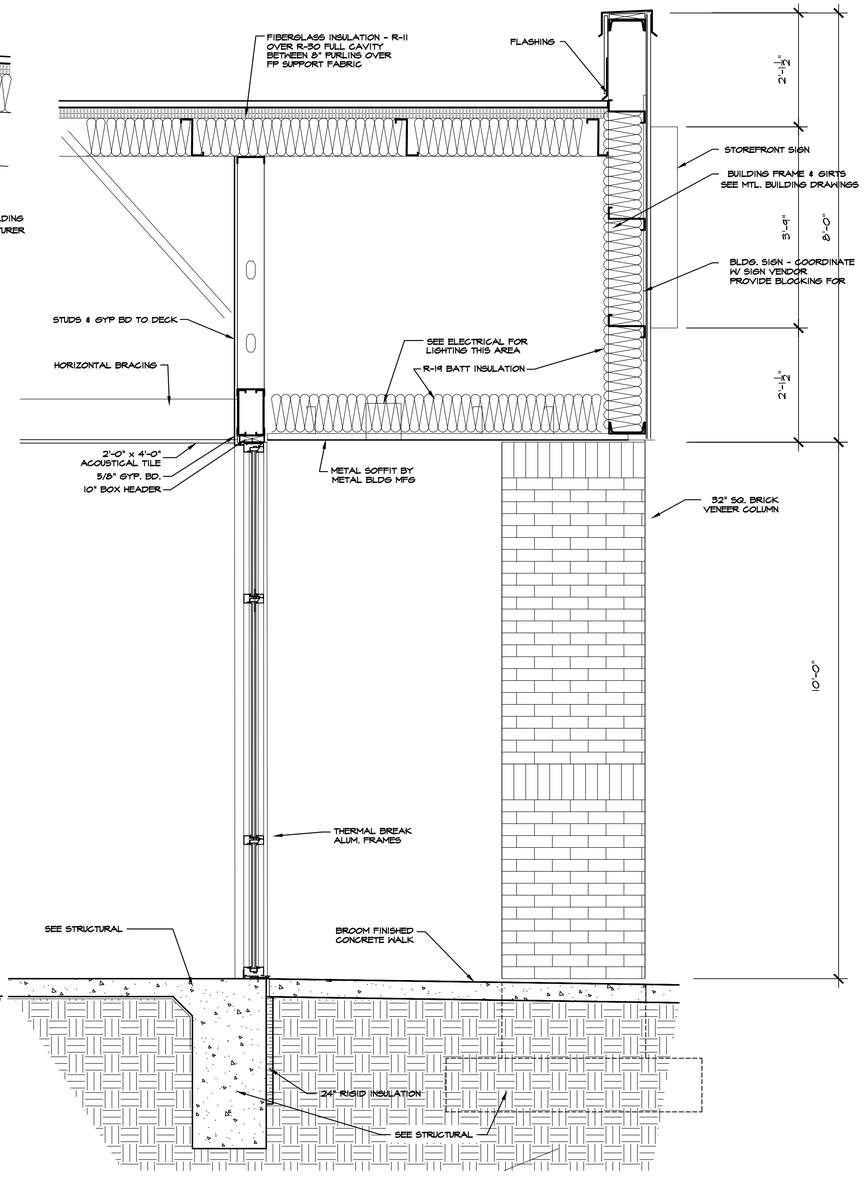
405 DETAIL @ COLUMN

SCALE: 1" = 1'-0"



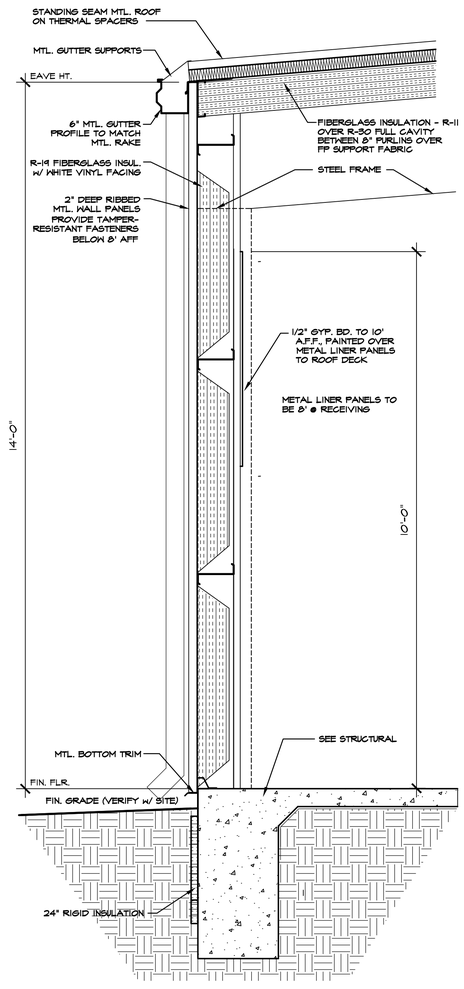
401 WALL SECTION @ FRONT WALL

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



402 WALL SECTION @ ENTRY

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



403 WALL SECTION REAR WALL

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

MARK W. HARGETT
REGISTERED ARCHITECT
4872
NORTH CAROLINA
WILSON, NC
04
NO.14

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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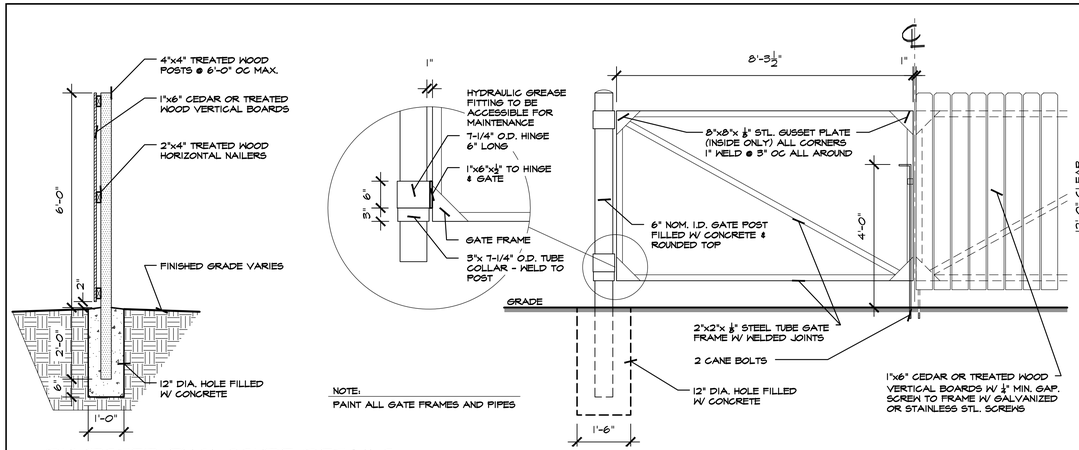
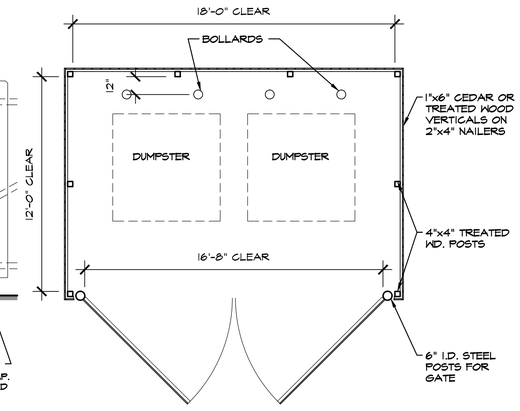


NOTE:
PAINT ALL GATE FRAMES AND PIPES

DUMPSTER ENCLOSURE DETAILS

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



DUMPSTER ENCLOSURE

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

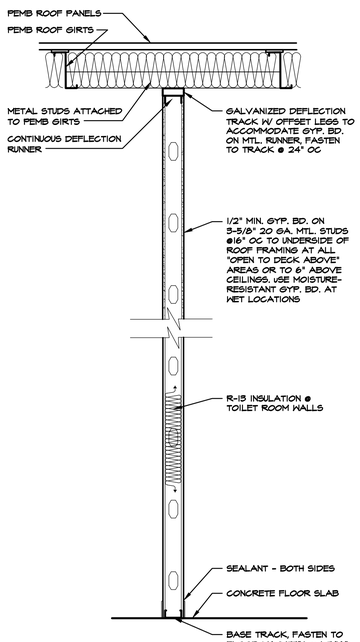
REQUIRED NATIONAL ACCOUNT VENDORS:

COMPANY	CONTACTS	PHONE #	REQUIRED ITEMS
RAINBIRD IRRIGATION	LOCAL RAINBIRD DISTRIBUTOR	www.rainbird.com	IRRIGATION SYSTEMS
EUCLID CHEMICAL COMPANY	PHIL BRANDT	877-458-5826 PBrandt@euclidchemical.com	CONCRETE POLISHING SYSTEMS
RETROPLATE SYSTEMS	SCOTT MAXFIELD	888-641-6746 scott.maxfield@retroplatesystem.com	CONCRETE POLISHING SYSTEMS
ASSA ABLOY ENTRANCE SYSTEMS	ROSS MERKLING	604-528-2580 dollargeneral.besam.us@assaabloy.com	AUTOMATIC DOORS AND STORE FRONT GLAZING SYSTEM
COOK & BOARDMAN GROUP	JOE HARRELL	336-857-0615 nationalsales@cookandboardman.com	INTERIOR DOORS & FRAMES & RESTROOM ACCESSORIES
SHERWIN WILLIAMS	LOCAL SHERWIN WILLIAMS STORE		PAINT, PRIMER, CONCRETE SEALER AND BLOCK FILLER
MC GUE CORPORATION	KEVIN ONEAL	678-492-4026 koneil@mcguecorp.com	TRIM KIT, BUMPER GUARDS, CART STOP
LENOX	SCOTT MACDONALD	972-497-6781 dollargeneral@lenoxind.com	HVAC UNITS
ROOF CURB SYSTEMS	CLIFTON REASOR	800-685-5848 gemphl@rootcurb.com	RTU CURB
CURBS PLUS INC.	ALLAN THRAILKILL	888-634-2872 alan.thrailkill@curbs-plus.com	RTU CURB
KCC INTERNATIONAL INC.	GREG CONRAD	800-362-2872 gconrad@kccurbs.com	RTU CURB
NESCO	CHRIS TRACY	800-244-6280 dollargeneral@needhamelectric.com	ELECTRICAL SWITCH GEAR
LEDS	MICHAEL STRINGER KYLE KNAPP	920-415-4010 dgordon@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 crudnitski@asd-usa.com	LOW VOLTAGE & VOICE/DATA
GRAYBAR	JEROME BANNISTER	615-745-3202 ofc, 615-424-2155 cell dollargeneral@graybar.com	CABLE TRAY
EMERSON CLIMATE TECHNOLOGIES	http://dollargeneralbid.ectsolutions.net	USER NAME: dollargeneralbid PASSWORD: dollargeneralbid	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

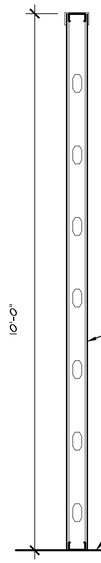
COMPANY	CONTACTS	PHONE #	REQUIRED ITEMS
ATC ASSOCIATES, INC.	LESLIE GREENWOOD	205-733-8775 dollargeneral@atcassociates.com	www.atcassociates.com
BUILDING AND EARTH SCIENCES, INC.	MATT ADAMS	205-856-6300 dollargeneral@buildingandearth.com	www.buildingandearth.com
EAS PROFESSIONALS, INC.	JERRY MARRONE	864-254-1368 dollargeneral@eas-pro.com	www.eas-pro.com
PROFESSIONAL SERVICE INDUSTRIES, INC. (PSI)	TERESA HEBNER	770-424-6200 #5030 teresa.hebner@psiusa.com	www.psiusa.com
TERRACON	JOHN MEADOW	770-623-0755 #553 dollargeneral@terracon.com	www.terracon.com

NATIONAL ACCOUNT & CONTACT INFORMATION SUBJECT TO CHANGE



501 TYPICAL PARTITION

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



502 SECTION @ OFFICE/BREAKROOM

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

502 SECTION @ 503 LIGHT POLE FOOTING

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

REQUIRED PHOTOS

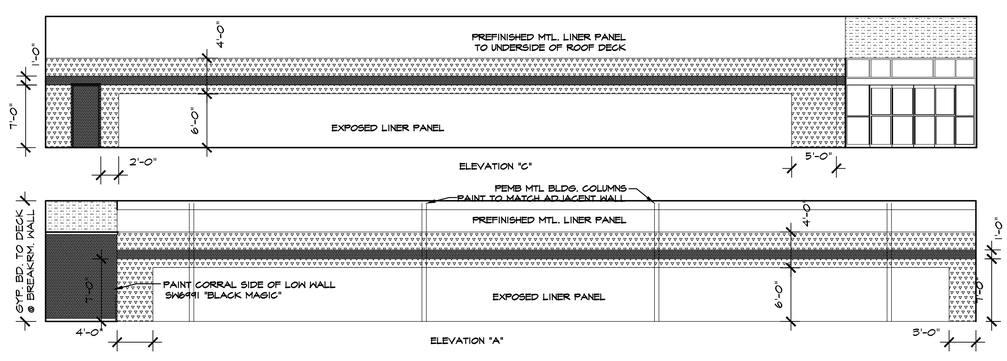
The following layout shows the required photos to be taken at completion. (make sure the overhead lights are on for your photos)

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"



EXPOSED MTL. LINER PANEL
SW7065 "ARGOS" - SALES FLOOR
SW6910 "DAISY" YELLOW
SW6991 "BLACK MAGIC" - OPEN CART CORRAL
SW7005 "PURE WHITE"

PAINTING DIAGRAM

MARK W. HARGETT
REGISTERED ARCHITECT
4872
NORTH CAROLINA
WILSON, NC
04
2022

ISSUED FROM:
☐ WILMINGTON OFFICE
803 North Fourth Street
Wilmington, NC 28401
Phone: 910.251.9889
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

DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NORTH CAROLINA

JOB NUMBER

DRAWN BY
MWH
DATE
04/04/22
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- 1. 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.

MARK W. HARGETT
REGISTERED ARCHITECT
4872
NORTH CAROLINA
WILSON, NC
04
2024

ISSUED FROM:
☐ WILMINGTON OFFICE
803 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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ARCHITECTURE
PLLP

DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NORTH CAROLINA

JOB NUMBER

DRAWN BY
MWH
DATE
04/04/22
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. REINFORCEMENT BARS TO BE SUPPORTED BY CHAIRS OR SPACERS. CONCRETE BLOCK OR BRICKS SHALL NOT BE USED AS SPACERS. WELDED WIRE FABRIC (MESH) SHALL CONFORM TO ASTM A185 AND BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED). SUPPORT WIRE FABRIC WITH CHAIRS OR LIFTS DURING CONCRETE PLACEMENT TO INSURE PROPER POSITION IN SLAB. CONCRETE BLOCK OR BRICKS SHALL NOT BE USED AS SPACERS. MINIMUM SHALL BE AS FOLLOWS:
   A. SLABS.....3/4"
   B. ALL CONCRETE CAST AGAINST EARTH.....3"
4. ANCHOR RODS SHALL HAVE WITH HEAVY HEX NUTS AND WASHERS (SEE DETAIL). ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36, UNLESS OTHERWISE NOTED. SEE MANUFACTURER'S 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, 2018 EDITION.
9. CONTRACTOR SHALL PROVIDE ANCHOR ROD REACTIONS FOR REVIEW PRIOR TO CONSTRUCTION OF BUILDING FOUNDATION.

STRUCTURAL 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

Snow Loads: 10 psf

Wind Loads: Basic Wind Speed 115 mph ASCE-7); Exposure Category C

SEISMIC DESIGN CATEGORY: ☐A ☑B ☐C ☐D

Provide the following Seismic Design Parameters:

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

Seismic Use Group I

Spectral Response Acceleration S_s 20.0 %g S_1 7.3 %g

Site Classification (ASCE 7) ☐A ☐B ☐C ☑D ☐E ☐F

Data Source: ☐ Field Test ☑ Presumptive ☐ Historical Data

Basic structural system (check one)

- ☐ Bearing Wall
- ☑ Building Frame
- ☐ Moment Frame
- ☐ Dual w/Special Moment Steel
- ☐ Dual w/Intermediate R/C or Special Steel
- ☐ Inverted Pendulum

Analysis Procedure ☐ Simplified ☑ Equivalent Lateral Force ☐ Dynamic

Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

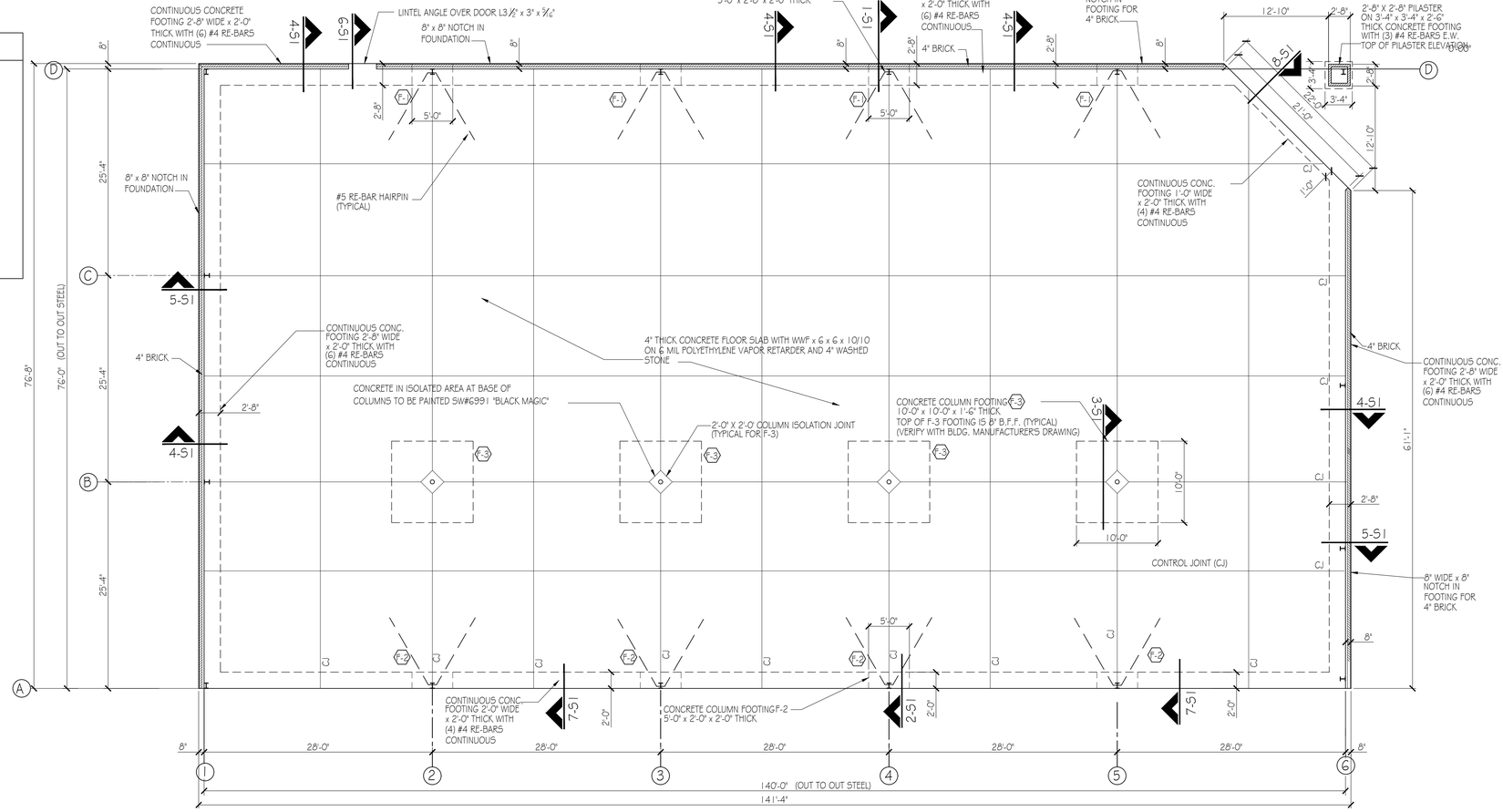
LATERAL DESIGN CONTROL: ☐Earthquake ☑Wind

SOIL BEARING CAPACITIES:

Field Test (provide copy of test report) _____ psf

Presumptive Bearing capacity 3000 psf

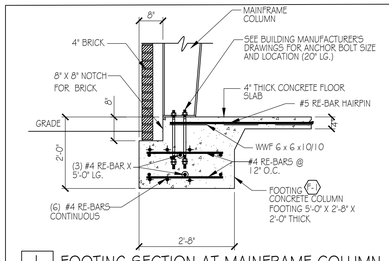
Pile size, type, and capacity _____



FOUNDATION PLAN

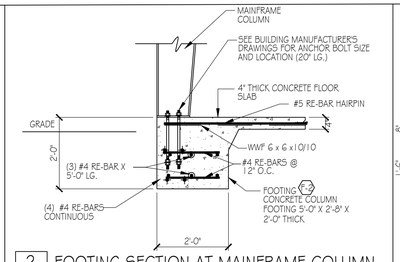
NOTE: COORDINATE COLUMN LOCATIONS WITH BUILDING MANUFACTURER'S PLAN

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



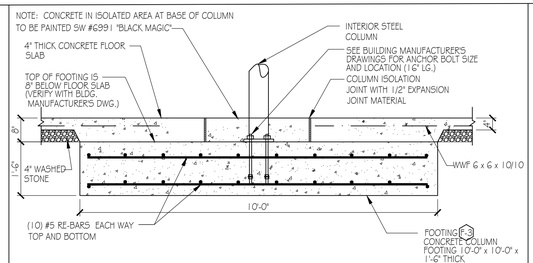
1 S1 FOOTING SECTION AT MAINFRAME COLUMN

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



2 S1 FOOTING SECTION AT MAINFRAME COLUMN

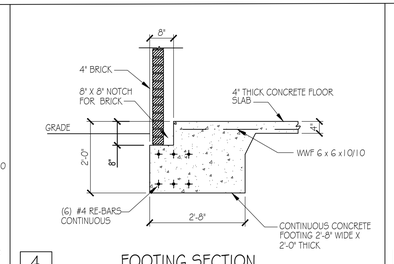
SCALE: 1/2" = 1'-0"



3 S1 INTERIOR COLUMN FOOTING SECTION

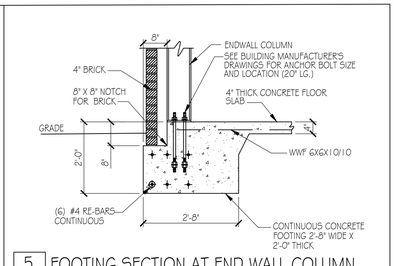
NOTE: ANCHOR BOLTS TO BE 16" LG. AT INTERIOR COLUMNS

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



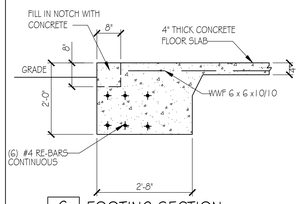
4 S1 FOOTING SECTION

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



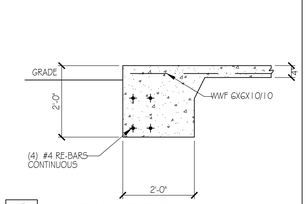
5 S1 FOOTING SECTION AT END WALL COLUMN

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



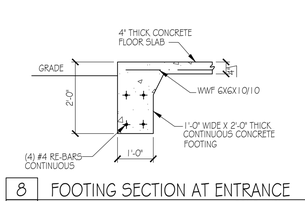
6 S1 FOOTING SECTION

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



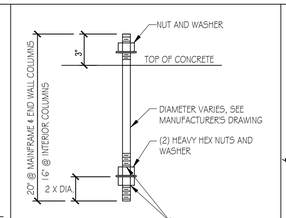
7 S1 FOOTING SECTION

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



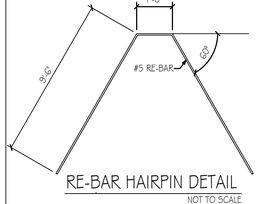
8 S1 FOOTING SECTION AT ENTRANCE

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



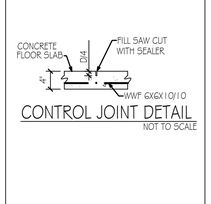
COLUMN ANCHOR ROD DETAIL

NOT TO SCALE



RE-BAR HAIRPIN DETAIL

NOT TO SCALE



CONTROL JOINT DETAIL

NOT TO SCALE

ISSUED FROM:
□ WILMINGTON OFFICE
805 North Fourth Street
Wilmington, NC 28401
Phone: 910.251.8899
Facsimile: 910.251.9989

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

HOOD • HERRING
ARCHITECTURE
PLLP

HINTON OAKS
— ENGINEERING —
903 VIDEWATERS PARKWAY
KNIGHTDALE, NC 27545
Phone: 540.273.7390

NORTH CAROLINA PROFESSIONAL SEAL 047232 ENGINEER JEFFREY IANNICELLI

4/27/2022

DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NORTH CAROLINA

JOB NUMBER 22084
DRAWN BY WTG
DATE APR. 14, 2022
REVISIONS Rev 1

SHEET NUMBER S-1
OF ONE

GENERAL PLUMBING NOTES:

ADMINISTRATIVE:

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

MATERIALS:

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

METHODS:

1. 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. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER–PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE–AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE NC PLUMBING CODE. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
4. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR–EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS–AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION–BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
5. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.
6. HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3.
7. INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HANDI-LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL.
8. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
9. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
10. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.
11. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
12. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER PIPING TO 5 FEET OUTSIDE THE BUILDING AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
13. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.6.1. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
14. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
15. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
16. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAIN PIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
17. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
18. HORIZONTAL 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.
19. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
20. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3. 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.
21. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
22. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
23. THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT.
24. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES, SHALL BE MADE WATER TIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.

DO NOT TAP WATER LINE AHEAD OF RPZ.

PLUMBING NOTES AND SCHEDULES | 1

PLUMBING FIXTURE SCHEDULE

SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE	VENT
P1H	TANK TYPE WATER CLOSET	AMERICAN STANDARD CHAMPION 4 'RIGHT HEIGHT' #211AA.104 OR EQUAL	FLOOR MOUNTED ADA VITREOUS CHINA ELONGATED FLUSH TANK, 1.28 GPF CLOSED COUPLED TWO PIECE SIPHON JET WATER CLOSET, FLUSH TANK WITH 12" ROUGH IN. PROVIDE AMERICAN STANDARD #211AA.104 OR EQUAL. PROVIDE STOP VALVE, FLEXIBLE SUPPLY LINE AND OPEN FRONT SEAT, NO LID. ADA REQUIREMENT MOUNT SO SEAT IS 17"-19" AFF. ORDER WITH FLUSH LEVER ON OPEN SIDE OF TOILET.	-	½"	3"	2"
P2	WALL MOUNT LAVATORY	AMERICAN STANDARD 0355.0120 OR EQUAL	20"X18" WALL HUNG ADA LAVATORY WITH FRONT OVERFLOW. CONCEALED HANGERS AND 4" CENTERS. AMERICAN STANDARD LUCERNE #0355.012 OR EQUAL. 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-M1 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"	2"
P3	DRINKING FOUNTAIN	ELKAY #EZTLDDLC OR EQUAL	ELKAY 'WATERSENTRY' 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. CANE FINISH	-	⅜"	2"	2"
P4	FLOOR DRAIN	ZURN Z415-6B-P	6" ZURN FLOOR DRAIN WITH 'TYPE B' ROUND STRAINER AND 1/2" TRAP PRIMER CONNECTION	-	-	2" P-TRAP	2"
P4A	TRAP PRIMER	M2-500, MIGAP, MI-DU-500	PROVIDE PRESSURE DROP ACTIVATED BRASS TRAP SEAL PRIMER, WITH REMOVABLE FILTER SCREEN. MIFAB #M2-500. NO SUBSTITUTIONS. PROVIDE AIR GAP FITTING. MIFAB #MIGAP, NO SUBSTITUTIONS. PROVIDE DISTRIBUTION UNIT, WHERE TRAP PRIMER SERVERS MULTIPLE FLOOR DRAINS, MIFAB, #M1-DU-500, NO SUBSTITUTIONS.	1/2"	-	2"	2"
WCO	WALL CLEANOUT	ZURN Z-1441	ZURN WALL CLEANOUT WITH ACCESS COVER.	-	-	4"	
CO	CLEAN OUT	ZURN LEVEL-TROL	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"	
YCO	2-WAY YARD CLEAN OUT	TYLER PIPE #003519 OR EQUAL	TRAFFIC RATED	-	-	4"	
P5	WATER HAMMER ARRESTOR	ZURN Z1700 SHOCKTROL 100	INSTALL ON BRANCH LINES PER MFG'S INSTRUCTIONS	-	VARIES	-	
P6	FREEZEPROOF WALL HYDRANT	ZURN #Z-1320 ECOLOTROL WALL HYDRANT	FREEZE PROOF WALL HYDRANT, ENCASED 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"	-	
P7	ELECTRIC WATER HEATER	AO SMITH DEL-10 OR EQUAL	10 GALLON, 1.65KW, 120V. PROVIDE DRAIN PAN UNDER SHELF-MOUNTED WATER HEATER. TERMINATE DRAIN LINE IN MOP SINK. PROVIDE FULL T&P RELIEF LINE, TERMINATE 2" ABOVE RIM LEVEL OF MOP SINK. INSTALL PER MANUFACTURER'S INSTRUCTIONS.	¾"	¾"	-	
P8	EXPANSION TANK	AMTROL ST-5	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	¾"	-	
P9	MOP SINK	FIAT MSB2424	USE 830 AA, 889 CC, 1453 BB, AND 832 AA SERVICE FAUCET, PROVIDE WITH WALL GUARD AND MOP HANGER 2" P-TRAP	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			
				TOTAL DFU	12.5	
HOSE BIBBS *	5	2	10	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

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

2-WAY YARD CLEAN OUT DETAILS-NO SCALE | 4

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 SCHEDULE 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.

FLOOR CLEAN OUT DETAILS-NO SCALE | 5

LARGE SCALE MOP SINK DETAIL-NO SCALE | 6

MOP SINK WATER HEATER DETAIL - NO SCALE | 7

NOTES:
1. DISTRIBUTION UNIT SHALL BE USED WHERE TRAP PRIMER VALVE SERVES MULTIPLE FLOOR DRAINS (UP TO 3 FLOOR DRAINS MAXIMUM).
2. ALL PIPING SHALL BE SECURELY ATTACHED TO WALL.

TYPICAL TRAP PRIMER DETAIL - NO SCALE | 8

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.

6 / P2 VENT PIPE INSTALLATION DETAIL
SCALE: NOT TO SCALE

VENT PIPE INSTALLATION DETAIL-NO SCALE | 9

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☐ 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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PO Box 3301, Henderson, NC 27536 | www.kilianengineering.com
(P) 252.438.8778 | CORPORATE LICENSE C-2277

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MAMERS ROAD
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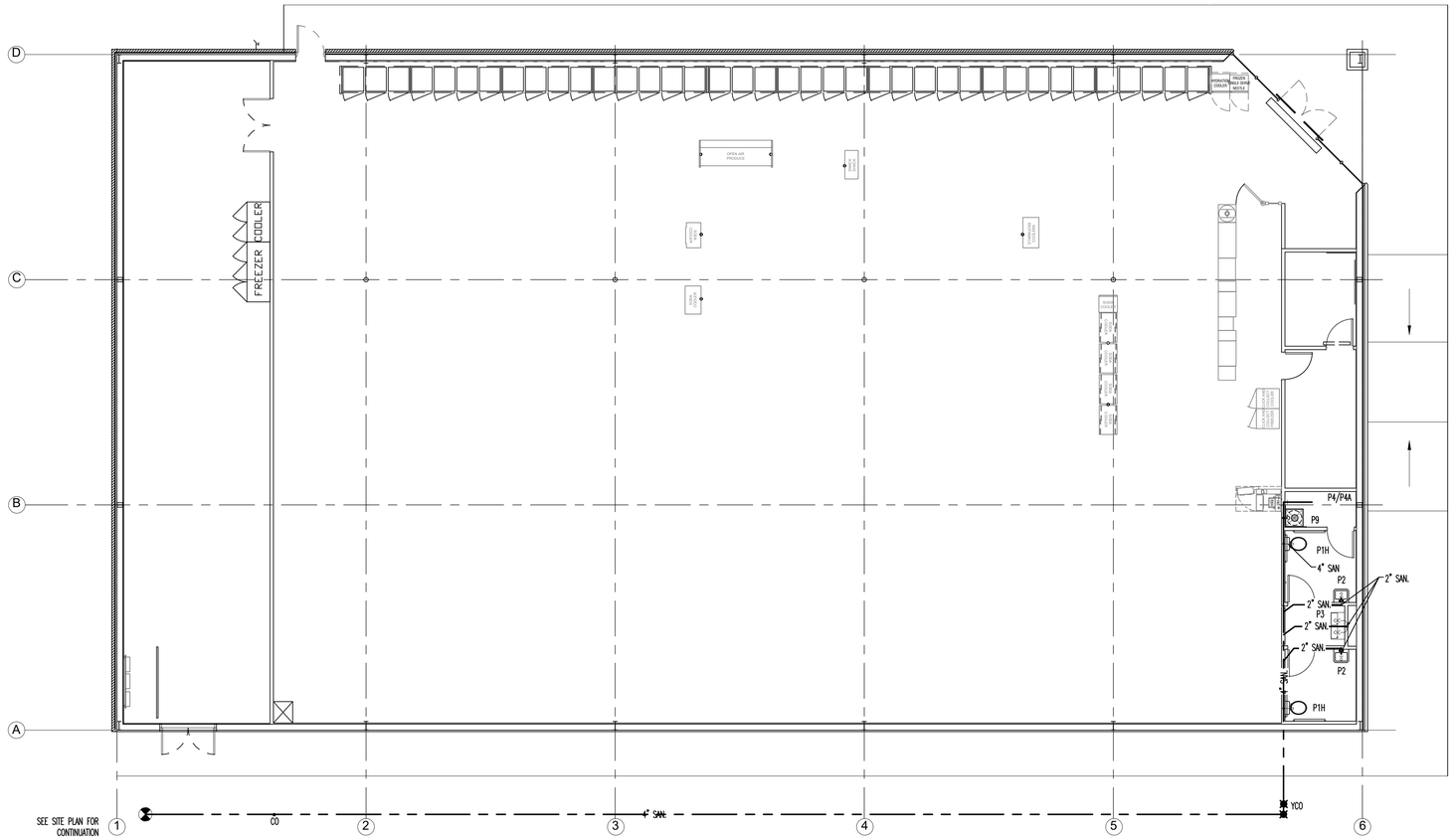

PLUMBING PLAN - SCALE: 1/8"=1' | 1

PLUMBING KEYED NOTES

① WATER HEATER MOUNTED ABOVE MOP SINK. ROUTE DRAIN PAN DRAIN AND T&P RELIEF VALVE DRAIN FROM WATER HEATER DOWN WALL TO MOP SINK BASIN AND SPILL INTO.

② ROUTE RTU CONDENSATE LINE TO SPILL INDIRECTLY TO MOP SINK. PITCH PIPE WITH ROOF SLOPE (TYP.).

DWV RISER - NO SCALE | 2

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Facsimile: 910.251.9989
■ WILSON OFFICE
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Phone: 252.399.2700
Facsimile: 252.399.2701

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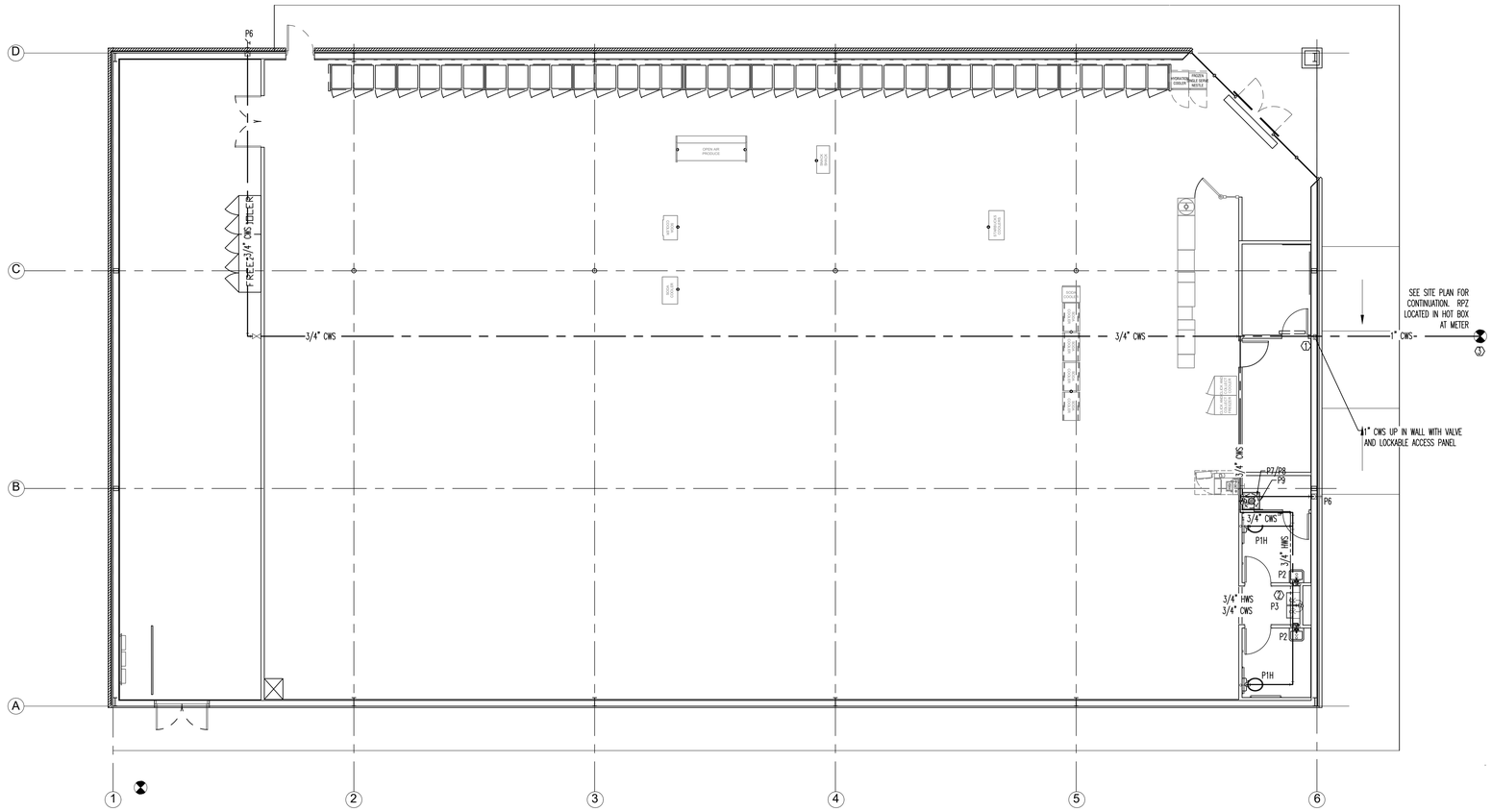

DOMESTIC WATER DELIVERY PLAN - SCALE: 1/8"=1' 1

PLUMBING KEYED NOTES

1. 1"CW UP IN WALL WITH VALVE AND LOCKABLE ACCESS PANEL.
2. PLUMBING CONTRACTOR TO RUN WATER LINE IN SALES AREA AS HIGH AS POSSIBLE OVERHEAD.
3. CONTRACTOR TO COORDINATE WATER METER SIZES WITH LOCAL WATER COMPANY AND CIVIL.

DOMESTIC WATER DELIVERY RISER - NO SCALE 2

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☐ 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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PO Box 3301, Henderson, NC 27536 | www.kilianengineering.com
(P) 252.438.8778 | CORPORATE LICENSE C-2277

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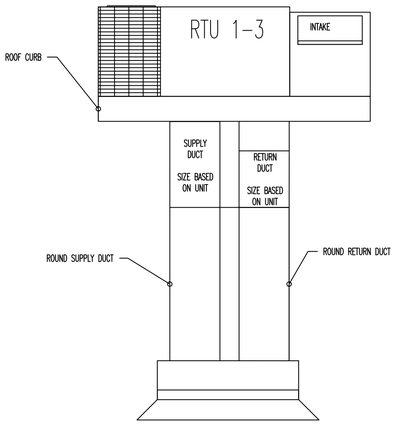

GENERAL MECHANICAL NOTES:

ADMINISTRATIVE:

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

MATERIALS:

1. THE MC SHALL PROVIDE ALL DX UNITARY HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. AIR-COOLED ROOFTOP AIR CONDITIONER UNITS, SHALL BE BY CARRIER, NO SUBSTITUTIONS. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
2. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED. FANS SHALL BE BY GREENHECK, LOREN COOK, TWIN CITY, OR PENNBARRY.
3. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
4. EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 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:
   - 4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
   - 4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
   - 4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
5. DUCT LINER MAY BE SUBSTITUTED FOR EXTERIOR DUCT WRAP. DUCT LINER INSULATION MATERIALS SHALL MEET THE REQUIREMENTS OF ASTM C 1071, AND ASTM G 21. EXTERIOR DUCT R-VALUE SHALL BE R-8 AND INTERIOR R-VALUE SHALL BE R-6 IN ACCORDANCE WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE. NOMINAL DUCT SIZES SHALL BE ADJUSTED AS NECESSARY SO THAT FREE AREA DIMENSIONS ARE PRESERVED AS SHOWN ON THE PLANS. FABRICATION AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND TO THE REQUIREMENTS OF THE LATEST EDITION OF THE NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION FIBROUS GLASS DUCT LINER STANDARDS AND/OR SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCT LINER SHALL HAVE A BLACK PIGMENTED MAT ON THE AIRSTREAM SIDE TO RESIST DAMAGE DURING INSTALLATION AND SERVICE. EDGES SHALL BE FACTORY COATED WITH BLACK PIGMENTED COATING TO COMPLY WITH SMACNA DCS REQUIREMENTS. ALL PORTIONS OF DUCT DESIGNATED TO RECEIVE DUCT LINER SHALL BE COMPLETELY COVERED WITH DUCT LINER. TRANSVERSE JOINTS SHALL BE NEATLY BUTTED AND THERE SHALL BE NO INTERRUPTIONS OR GAPS. THE BLACK PIGMENTED OR MAT FACED SURFACES SHALL FACE THE AIRSTREAM. DUCT LINER SHALL BE ADHERED TO THE SHEET METAL WITH 90 PERCENT COVERAGE OF ADHESIVE COMPLYING WITH REQUIREMENTS OF ASTM C 916. ALL EXPOSED LEADING EDGES AND TRANSVERSE JOINTS SHALL BE FACTORY COATED OR COATED WITH ADHESIVE DURING FABRICATION. DUCT LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS, EITHER WELD-SECURED OR IMPACT DRIVEN, WHICH SHALL COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. ADHESIVE BONDED PINS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LININGS SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SCRAPS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF REMOVAL OF SUCH MATERIAL.
6. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
7. MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A-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.
8. ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
9. FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181-96.
10. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
11. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE BY HART & COOLEY, PRICE, METAL-AIRE, NAILOR, OR CARNES.
12. AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE 2018 NC MECHANICAL CODE.
13. THE MC SHALL PROVIDE ALL REFRIGERATION PIPING. ALL PIPE AND FITTINGS SHALL BE TYPE ACR HARD COPPER TUBING WITH SWEAT FITTINGS. REFRIGERATION LINES SHALL BE RUN NEATLY. WHERE A GROUP OF LINES ARE RUN, TRAPEZE HANGERS MAY BE USED. DO NOT USE CHAIN OR WIRE HANGERS. WRAP TUBING WITH RUBBER TAPE AT EACH CLAMP OR HANGER. FOR COVERED PIPES, HANGERS SHALL FIT AROUND THE OUTSIDE OF THE COVERING WITH 12 GAUGE GALVANIZED STEEL SHIELDS OF A LENGTH EQUAL TO THE OUTSIDE DIAMETER OF THE INSULATION AND COVERING 3/4 OF THE CIRCUMFERENCE OF THE INSULATION. SAGS SHALL NOT BE PERMISSIBLE. HORIZONTAL LINES SHALL PITCH DOWN NOT LESS THAN 1 INCH IN 40 FEET. INSULATE WITH 1 INCH CLOSED CELL ARMAFLEX TYPE INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50. ALL JOINTS AND SPLICES IN INSULATION SHALL BE TAPED AND AIR TIGHT. SOLDER REFRIGERATION LINES USING 15 PERCENT SILVER SOLDER AND EVACUATE LINES TO 300 MICRONS. PROVIDE MOISTURE INDICATING SIGHT GLASS AND FILTER DRYER IN LIQUID LINE. PROVIDE OIL TRAPS AND DOUBLE RISERS IN REFRIGERANT SUCTION AND HOT GAS LINES WHERE REQUIRED TO PREVENT OIL SLUGGING AT THE COMPRESSOR AND INSURE PROPER LUBRICATION. MC SHALL BE RESPONSIBLE FOR SEALING LINE SET PENETRATIONS OF ANY RATED ASSEMBLIES IN ACCORDANCE WITH A SYSTEM LISTED IN THE UL DIRECTORY FOR THE SPECIFIC ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR A LIST OF ALL UL FIRE RATED ASSEMBLIES.

METHODS:

1. INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTEED CORPORATION.
2. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
3. WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE; SEAL TO LOUVER FRAME AND DUCT.
4. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
5. CONSTRUCT T's, BENDS, AND ELBOWS WITH RADII OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES.
6. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
7. IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
8. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
9. CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
10. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS, AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
11. MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE 2018 NC MECHANICAL CODE. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES.
12. MC SHALL INSTALL A SMOKE DETECTOR-UL LISTED FOR DUCT INSTALLATION (UL 268A) 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 2018 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.
13. MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS OF SECTION C403.2.4 OF THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.
14. FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS.
15. UNITS PROVIDED WITH ECONOMIZERS SHALL ALSO BE PROVIDED WITH POWERED EXHAUST AND COMPARATIVE ENTHALPY CONTROLS.
16. MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
17. P-TRAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. 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.
18. INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER NORTH CAROLINA ENERGY CONSERVATION CODE C402.5.5

MECHANICAL NOTES AND SCHEDULES | 1

MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE	PRESCRIPTIVE
THERMAL ZONE	ZONE 4A
EXTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	25. 2°F
COOLING DESIGN DRY BULB	94. 3. 7°F
COOLING DESIGN WET BULB	74. 7°F
INTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	70°F
COOLING DESIGN DRY BULB	75°F
COOLING RELATIVE HUMIDITY	50%
HEATING LOAD:	165,330 BTU/H
SENSIBLE COOLING LOAD:	138,235 BTU/H
LATENT COOLING LOAD:	68,030 BTU/H
MECHANICAL SPACING CONDITIONING SYSTEM:	
UNITARY	AIR COOLED DX
DESCRIPTION OF UNIT(S)	2-10 TON AC WITH 30 KW ELEC. HEAT EACH 1-5 TON AC WITH 10 KW ELEC. HEAT
BOILER	N/A
TOTAL BOILER OUTPUT	N/A
CHILLER	N/A
TOTAL CHILLER CAPACITY	N/A
EQUIPMENT EFFICIENCIES:	SEE SCHEDULES
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS):	SEE SCHEDULES

DESIGNER STATEMENT:

TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE 2018 NORTH CAROLINA STATE BUILDING CODE AND 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.

MECHANICAL DESIGNER'S STATEMENT | 2

ROOFTOP PACKAGE AC WITH ELECTRIC STRIP SCHEDULE

MARK	MFG / MODEL #	NOMINAL CAPACITY	AIR FLOW		COMPRESSORS			COOLING CAPACITY				FILTER			ELECTRICAL			WEIGHT	REMARKS
			SUPPLY	MIN. OA		AUX ELEC HEAT		EAT WB/DB	TOTAL	SENSIBLE	LATENT	INCHES	MERV	EER	V/PH	MCA	MOCP		
		TONS	CFM	CFM	NO	kW	STAGES	°F	MBH	MBH	MBH							LBS	
RTU-1&2	CARRIER 50TC-D12A2A5-A0AG0	10.0	4000	945 EACH	2	30	2	67/80	124.10	96.2	27.9000	2"	8	11.2	208/3	124	125	1294	1-11
RTU-3	CARRIER # 50FC-A06A2A3-0A0A0	5.0	2000	155	2	13.1	1	67/80	59.31	44.73	14.5800	2"	8	14.0	208/3	53	60	531	1-11

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

(TS)	THERMOSTAT LOCATION MOUNT AT 48" A.F.F.
(A/V)	AUDIO VISUAL ANNUNCIATOR WITH RESET FOR DUCT DETECTOR, WALL MOUNT.

EXHAUST FAN SCHEDULE

MARK	MFG / MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES
EF-1-3	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

MECHANICAL SCHEDULES | 3

Ventilation Calculation (For Unit RTU-1,2)

Room Name(s)		Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)
		Retail Sales	8812	7.5	0.12	15	132.18	0.8	8000
		N/A	0	0	0	0	0.00	0.8	0
		N/A		0	0	0	0.00	0.8	0
		N/A		0	0	0	0.00	0.8	0
		N/A		0	0	0	0.00	0.8	0
			Maximum Zp:	0.320123					
K-12 School?	No		Ev:	0.8					
			Actual System Population:	60					
Uncorrected Intake	1507	cfm							
Outdoor Air Intake	*1884*	*cfm*							
Percent of Unit Air	24%								

Ventilation Calculation (For Unit RTU-3)

Room Name(s)		Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)
		Shipping/Receiving	1299	0	0.12	0	0.00	0.8	2000
		N/A		0	0	0	0.00	0.8	0
		N/A		0	0	0	0.00	0.8	0
		N/A		0	0	0	0.00	0.8	0
		N/A		0	0	0	0.00	0.8	0
			Maximum Zp:	0.097425					
K-12 School?	No		Ev:	1					
			Actual System Population:	2					
Uncorrected Intake	156	cfm							
Outdoor Air Intake	*156*	*cfm*							
Percent of Unit Air	8%								

VENTILATION CALCULATION- NO SCALE | 4

MECHANICAL UNIT DETAIL - NO SCALE | 5

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.
PO Box 3301, Henderson, NC 27536 | www.kilianengineering.com
(P) 252.438.8778 | CORPORATE LICENSE C-2277

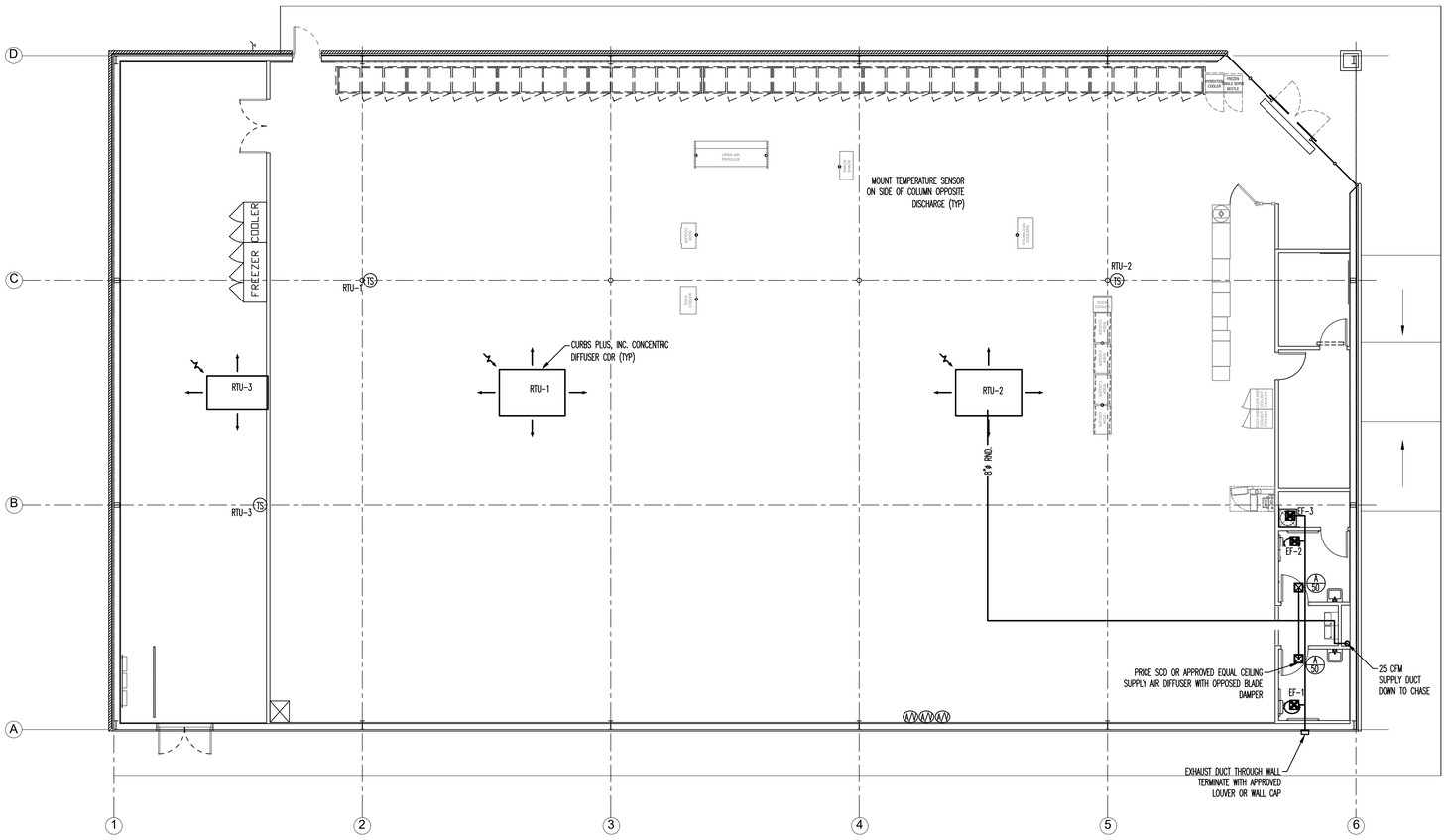
SEAL
17304
4/18/2022

SEAL

DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NC

JOB NUMBER
22223
DRAWN BY
REW
DATE
04/18/2022
REVISIONS

SHEET NUMBER
M0



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

HVAC PROJECT NOTES

1. ALL MECHANICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS AND ORDINANCES AND IN A MANNER SATISFACTORY TO THE AUTHORITY HAVING JURISDICTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL APPLICABLE FEES.
2. DUCTWORK AND HVAC SYSTEMS ARE NOT DIMENSIONED. DO NOT SCALE FROM DRAWING(S.) MECHANICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND ENSURE THERE IS AVAILABLE SPACE FOR DUCTWORK BEFORE FABRICATION.
3. UNLESS OTHERWISE NOTED ON DRAWINGS, ANY REQUIRED DUCTWORK SHALL BE INSTALLED TIGHT TO STRUCTURE.
4. DESIGN ENGINEER TO INDICATE FIRE DAMPERS IN ALL RATED CONSTRUCTION ASSEMBLIES. COORDINATE PLACEMENT OF ALL FIRE DAMPERS WITH RATED ASSEMBLIES ON ARCHITECTURAL DRAWINGS.
5. COORDINATE ALL DIFFUSER, GRILLE & REGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
6. NECK SIZE OF LAY-IN DIFFUSERS SHALL BE EQUAL IN DIAMETER TO DUCT RUNOUT.
7. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES AND INCIDENTALS TO THE WORK INVOLVED FOR A COMPLETE AND OPERATING FACILITY.
8. ALL EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ELECTRICAL STARTER, PROTECTIVE DEVICES AND INTERLOCKS, ETC. REQUIRED FOR COMPLETE OPERABLE SYSTEM.
9. ALL HVAC EQUIPMENT LOCATIONS SHALL BE COORDINATED TO ENSURE CLEAR ACCESS TO ALL AREAS. EQUIPMENT SHALL BE ORIENTED IN SUCH A MANNER AS TO ALLOW FOR FULL SERVICE/MAINTENANCE.
10. COLOR AND FINISH FOR ALL EXTERIOR LOUVER/WALL CAP SHALL BE COORDINATED WITH THE ARCHITECT/OWNER.
11. THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR TEST, ADJUST AND BALANCE OF THE AIR DISTRIBUTION SYSTEM.
12. ALL SUPPLY AND RETURN DUCT SHALL BE CONNECTED TO THE HVAC UNIT WITH FLEXIBLE UL LISTED CANVAS.
13. DUCTWORK DIMENSIONS SHOWN ON MECHANICAL PLANS ARE NET CLEAR INSIDE DIMENSIONS.
14. OUTDOOR AIR INTAKE OPENINGS SHALL BE LOCATED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE, SECTION 401.4.
15. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ASSEMBLING ANY EQUIPMENT SHIPPED IN SECTIONS, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
16. UNITS GREATER THAN 2,000 CFM REQUIRE A DUCT MOUNTED SMOKE DETECTOR IN THE RETURN DUCT. UNITS BELOW 2,000 CFM ARE TO BE EQUIPPED WITH A FIRESTAT. LOCAL ORDINANCES MAY HAVE MORE STRINGENT REQUIREMENTS. COORDINATE WITH ELECTRICAL CONTRACTOR.
17. SEE ARCHITECTURAL PLANS FOR TYPE OF CONSTRUCTION, OCCUPANCY, AND THE INTENDED USE OF EACH SPACE.
18. SEE ARCHITECTURAL PLANS FOR 'R' VALUES OF CONSTRUCTION COMPONENTS (SUCH AS WALLS, FLOORS, CEILING & PERIMETER INSULATION.)
19. INSULATING MATERIALS SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT EXCEEDING 450 IN ACCORDANCE WITH ASTM E 84.
20. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY AS TO REDUCE VIBRATION TRANSMISSION TO STRUCTURAL MEMBERS.

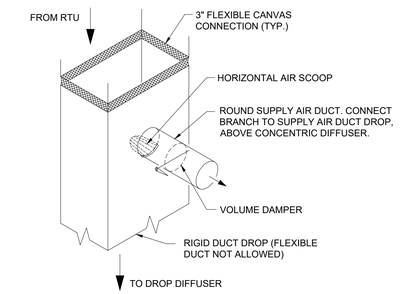
MECHANICAL PROJECT NOTES | 2

SYMBOL LEGEND	
	EXHAUST FAN
	SUPPLY AIR DIFFUSER
TS	TEMPERATURE SENSOR
	RETURN/EXHAUST AIRFLOW
	SUPPLY AIRFLOW
	VOLUME DAMPER
CD	CONDENSATE PIPE

HVAC SPECIFICATIONS:

1. SEE SHEET M0 FOR GENERAL MECHANICAL PROJECT NOTES
2. ROOF MOUNTED SYSTEM WITH ANY REQUIRED DUCTWORK, CONFORMING TO ASHRAE SPECIFICATIONS IN SALES FLOOR, OFFICES, REST ROOM, AND RECEIVING AREAS.
3. ANY DUCTWORK MUST BE INSTALLED ABOVE 11'-6" A.F.F. NO HVAC DUCT TRUNKLINE TO BE INSTALLED WITHIN 48" RADIUS OF REGISTER/ICE CREAM POWER POLES. REFER TO SHEET E1.1 FOR EXACT LOCATION OF POWER POLES.
4. FOR HVAC SENSOR LOCATIONS SEE EMS1 SHEET.
5. LENNOX, CARRIER OR YORK PACKAGED HVAC SYSTEMS ARE REQUIRED. SEE HEATING SOURCE REQUIREMENT BY REGION ON M0.
6. PROVIDE CEILING EXHAUST FANS FOR RESTROOMS, INTERLOCK WITH RESTROOM LIGHTS. VENT EXHAUST FANS THRU SIDE WALL, NOT THRU THE ROOF. INSTALL BACKDRAFT DAMPERS AT EACH FAN.
7. REFER TO S3 FOR ROOF CURB INFORMATION AND DESIGN INTENT.
8. CONCENTRIC DIFFUSERS, AVAILABLE THROUGH YORK, CAN BE USED ON ALL VENDOR'S EQUIPMENT. CONTACT YORK NATIONAL PRICING FOR INFORMATION. LOCATE THE BOTTOM OF DIFFUSER AT 12'-0" AFF.

MECHANICAL SPECIFICATIONS AND SCHEDULE | 3



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.

HVAC DUCT DETAIL - NO SCALE | 4

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4/18/2022
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

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STORE # 23680
MAMERS ROAD
LILLINGTON, NC

JOB NUMBER 22223
DRAWN BY REW
DATE 04/18/2022
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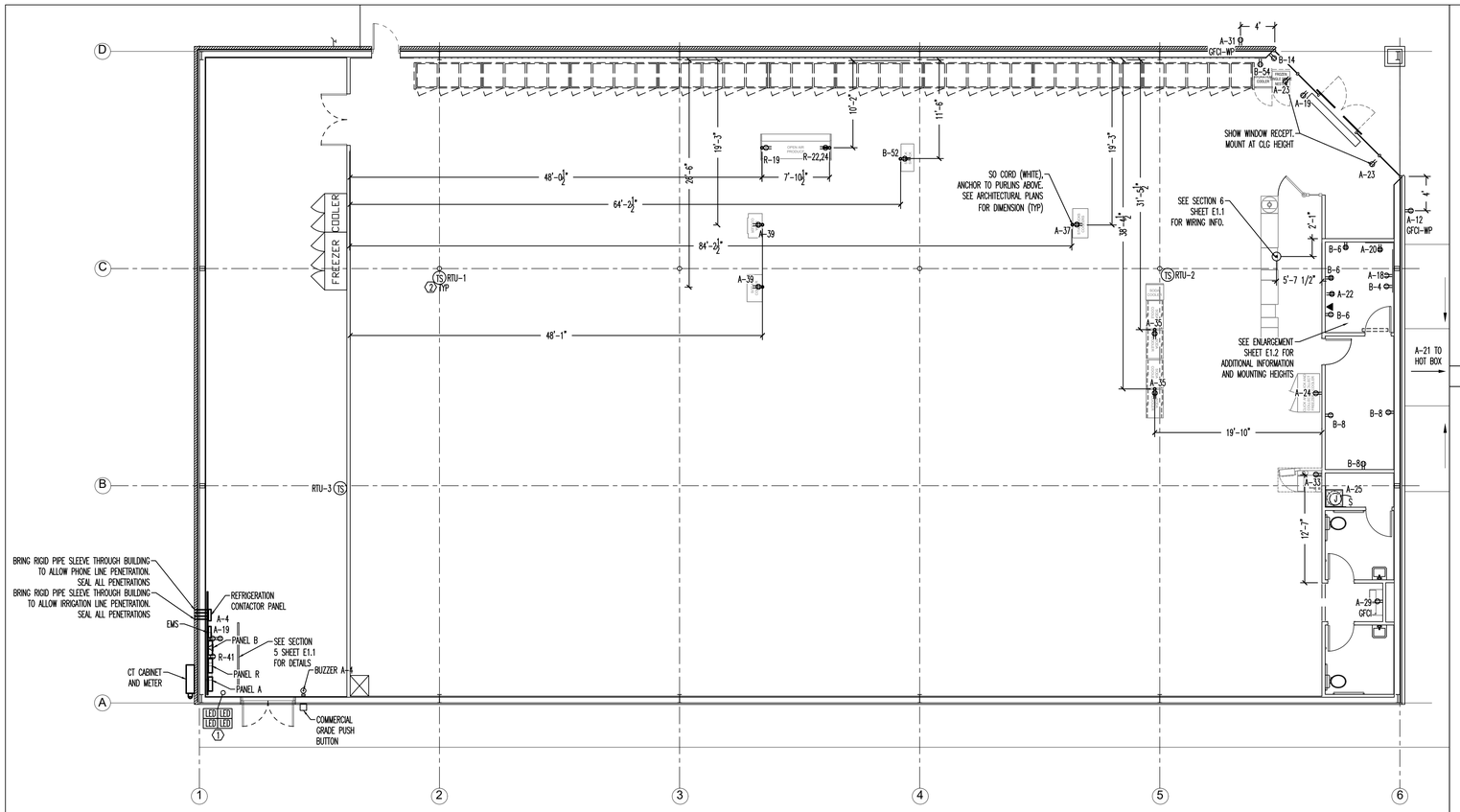
SHEET NUMBER
M1

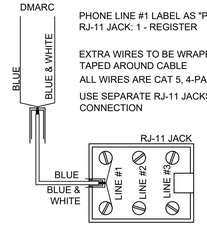


POWER PLAN - SCALE: 1/8"=1' | 1

LEGEND

SYMB	DESCRIPTION
	BUZZER - TORK MDL #TA725 W/ TRANSFORMER MDL#TA592
	COMMERCIAL GRADE PUSH BUTTON
A-23	125V NEMA 5-20R DUPLEX. PANEL/CIRCUIT IN PANEL
	125/250V NEMA L14-20-R 4 PRONG TWIST LOCK
	125V NEMA 5-20R QUAD
	DISCONNECT
	BLACK MAGIC POWER POLE
	PHONE JACK
	RJ-11, RJ-45 DATA JACK, PHONE COMBO
A-23	PANEL/CIRCUIT IN PANEL
$m	PROVIDE OCCUPANCY LIGHT SENSOR- LEVITON ODS10-IDW
$	20 AMP TOGGLE SWITCH
NL	NIGHT LIGHT CIRCUIT

ELECTRICAL LEGEND-NO SCALE | 2



PHONE LINE #1 LABEL AS "PHONE"
RJ-11 JACK: 1 - REGISTER

EXTRA WIRES TO BE WRAPPED AND TAPED AROUND CABLE

ALL WIRES ARE CAT 5, 4-PAIR

USE SEPARATE RJ-11 JACKS FOR EACH CONNECTION

PHONE WIRING SCHEMATIC-NO SCALE | 3

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 #7755, 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 GFCI 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 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.

ELECTRICAL KEYED NOTES

1. TEST/RESET STATION FOR STAND ALONE DUCT DETECTOR. ONE FOR EACH DEVICE, SEE KEY NOTE 3 ON SHEET E1.3. SIMPLEX #4098-9842 IS SPECIFIED. WITH PIEZO AND LED INDICATOR LIGHT.
2. MECHANICAL THERMOSTAT MOUNTED ON COLUMN AT 8'-0" AFF. SURFACE MOUNT BOX AND CONDUIT. STUB CONDUIT AT STRUCTURE.

ELECTRICAL KEY NOTES AND SPECIFICATIONS-NO SCALE | 4

SEISMIC RESTRAINT NOTES

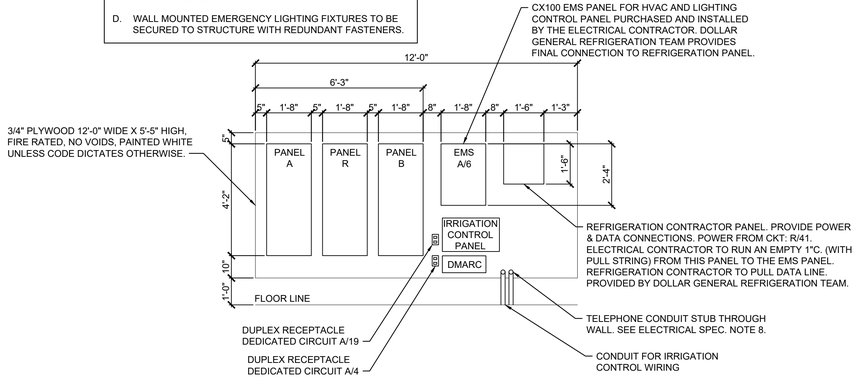
A. OVERHEAD CONDUITS 2.5 INCHES AND GREATER REQUIRE SEISMIC RESTRAINT.

B. LIGHTING FIXTURE SUPPORTS SHOULD CONFORM TO UL 1570 OR 1571, IN ADDITION TO THE REQUIREMENTS OF FEMA 302 AND 303.

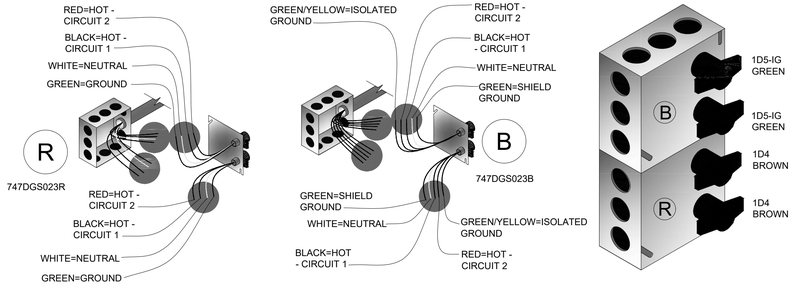
C. SUSPENDED TRANSFORMERS TO BE PROVIDED WITH SWAY BRACING.

D. WALL MOUNTED EMERGENCY LIGHTING FIXTURES TO BE SECURED TO STRUCTURE WITH REDUNDANT FASTENERS.

DESIGNER NOTE:
WHEN A VESTIBULE IS REQUIRED BY CODES, PROVIDE A CIRCUIT FOR AN AIR CURTAIN OVER FRONT DOORS PER THE MECHANICAL DESIGNER. IF AIR CURTAIN IS NOT PERMITTED AS AN ALTERNATIVE, NOTIFY DOLLAR GENERAL.



ELECTRICAL PANEL ELEVATION- NO SCALE | 5



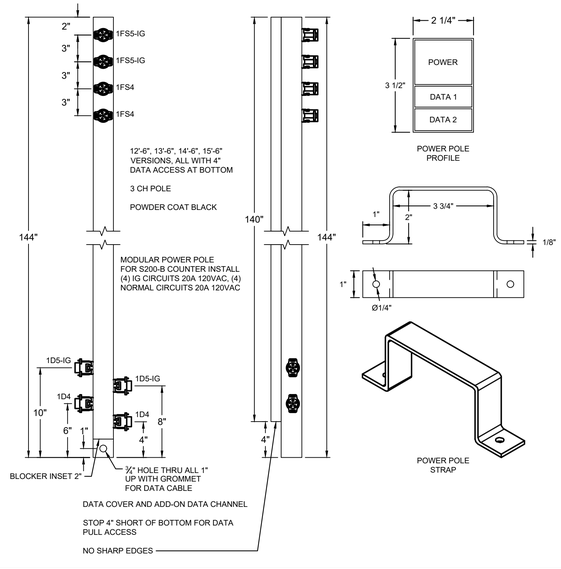
REGISTER ELECTRICAL COMPONENTS

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

REGISTER ELECTRICAL DETAIL - NO SCALE | 6



REGISTER POWER POLE - NO SCALE | 7

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 MATTHEW E. KILIAN
4/18/2022

KILIAN ENGINEERING CORPORATE SEAL NORTH CAROLINA

DOLLAR GENERAL
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REW
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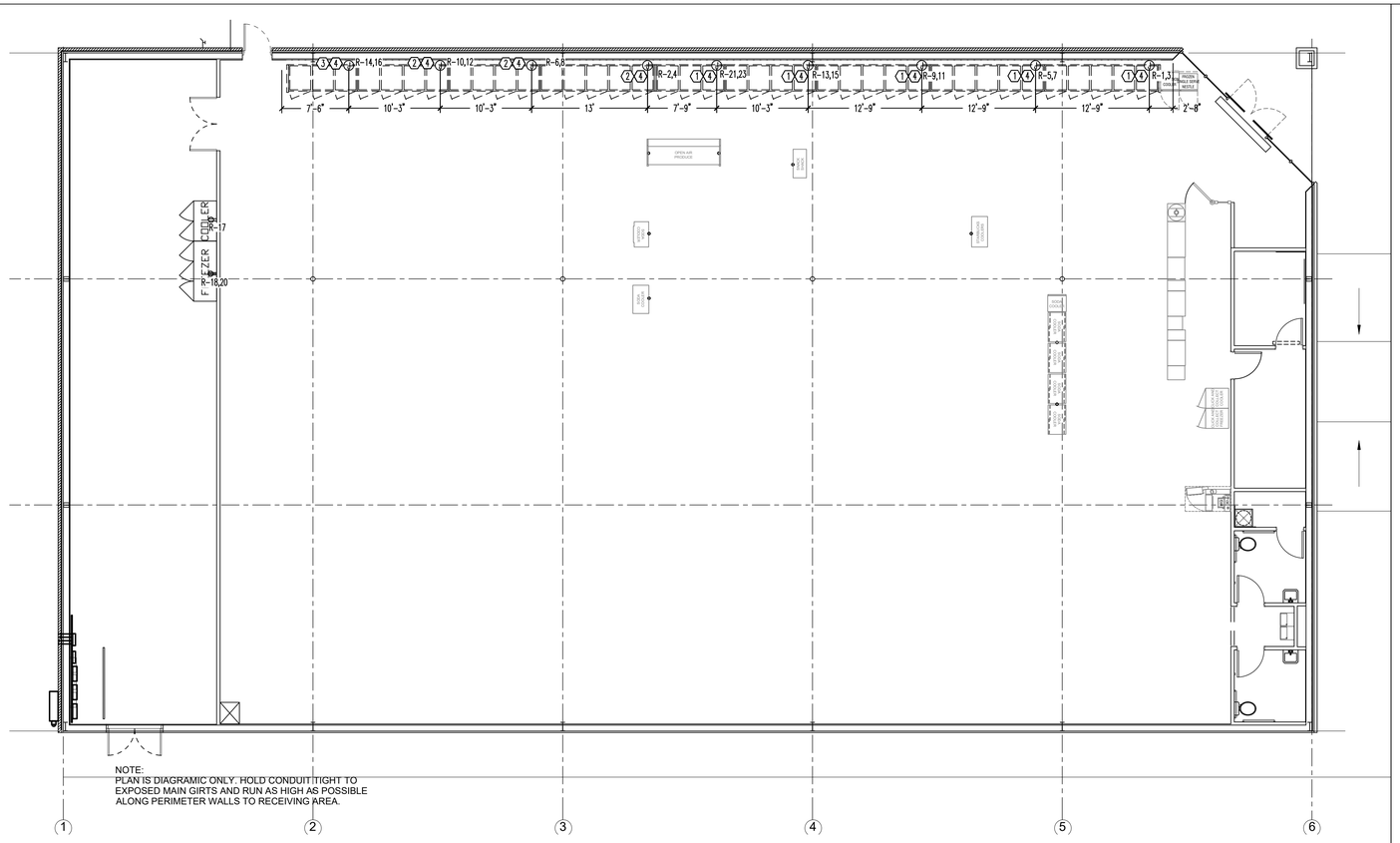

NOTE:
PLAN IS DIAGRAMIC ONLY. HOLD CONDUIT TIGHT TO EXPOSED MAIN GIRTS AND RUN AS HIGH AS POSSIBLE ALONG PERIMETER WALLS TO RECEIVING AREA.

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

LEGEND

SYMB	DESCRIPTION
⊙	BUZZER - TORK MDL #TA725 W/ TRANSFORMER MDL#TA592
■	COMMERCIAL GRADE PUSH BUTTON
⦶ A-23	125V NEMA 5-20R DUPLEX. PANEL/CIRCUIT IN PANEL
⦶	125/250V NEMA L14-20-R 4 PRONG TWIST LOCK
⊕	125V NEMA 5-20R QUAD
□	DISCONNECT
⬓	BLACK MAGIC POWER POLE
▲	PHONE JACK
●	RJ-11, RJ-45 DATA JACK, PHONE COMBO
A-23	PANEL/CIRCUIT IN PANEL
$ m	PROVIDE OCCUPANCY LIGHT SENSOR- LEVITON ODS10-IDW
$	20 AMP TOGGLE SWITCH
NL	NIGHT LIGHT CIRCUIT

ELECTRICAL LEGEND-NO SCALE | 2

GENERAL NOTES

A. MOUNT ALL REFRIGERATOR OUTLETS AT 12" AFF.

ELECTRICAL KEYED NOTES

1. PROVIDE 208V, 1 PHASE CONNECTION TO A J-BOX AT 90" AFF WITH (3)#12 CU. & #12 GROUND IN 3/4"C. R.C. TO PROVIDE AND INSTALL 30A/2NF DISCONNECT SWITCH AND WIRE FROM DISCONNECT SWITCH TO EQUIPMENT CONNECTIONS.
2. PROVIDE 208V, 1 PHASE CONNECTION TO A J-BOX AT 90" AFF WITH (3)#8 CU. & #10 GROUND IN 1"C. R.C. TO PROVIDE AND INSTALL 60A/2NF DISCONNECT SWITCH AND WIRE FROM DISCONNECT SWITCH TO EQUIPMENT CONNECTIONS.
3. PROVIDE 208V, 1 PHASE CONNECTION TO A J-BOX AT 90" AFF WITH (3)#10 CU. & #10 GROUND IN 3/4"C. R.C. TO PROVIDE AND INSTALL 30A/2NF DISCONNECT SWITCH AND WIRE FROM DISCONNECT SWITCH TO EQUIPMENT CONNECTIONS.
4. MOUNT J-BOX 11" FROM THE RIGHT SIDE OF EACH UNIT. CONFIRM EXACT LOCATION WITH REFRIGERATION VENDOR PRIOR TO WORK (TYP).

ELECTRICAL KEY NOTES AND SPECIFICATIONS-NO SCALE | 3

#BW-106 VIDEO CONVERTER ENCLOSURE.

HEAVY DUTY, 12" X 20" SHELF (BY GC) FOR VSAT & DATA HUB EQUIPMENT.

DESK BY DG.

A/20
DEDICATED QUAD RECPTACLE MOUNTED AT 7'-0" FOR VSAT, DATA HUB EQUIPMENT.

#P3AC24-16-8L, 16 CAMERA, 24 VAC, 8 AMP, POWER SUPPLY CABINET.

INTERFACE EQUIPMENT REQUIRES 48" WIDE CLEAR WALL SPACE.

A/22
DEDICATED QUAD RECPTACLE MOUNTED AT 3'-0" FOR CCTV EQUIPMENT.

A/18
DEDICATED DUPLEX RECPTACLE MOUNTED AT 48" FOR INTERFACE.

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' LEFT COILED ABOVE CEILING FOR INSTALLATION TO DATA HUB. AN RJ-45 MALE FITTING SHOULD BE CRIMPED ON THIS END. DOLLAR GENERAL STORE OPENING TEAM WILL MAKE FINAL CONNECTION INTO THE DATA HUB.

COMPUTER CART BY DG.

B/4
SECURITY OUTLET MOUNTED AT 7'-0".

OFFICE LAYOUT WILL VARY PER PROTOTYPE. ADJUST ACCORDINGLY.

OFFICE ENLARGEMENT PLAN - SCALE: 1/4"=1' | 4

NOTE:
PLAN IS DIAGRAMIC ONLY. HOLD CONDUIT TIGHT TO EXPOSED MAIN GIRTS AND RUN AS HIGH AS POSSIBLE ALONG PERIMETER WALLS TO RECEIVING AREA.

CABLE TRAY PLAN AND CONDUIT DIAGRAM- SCALE: 1/16"=1' | 5

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SEAL

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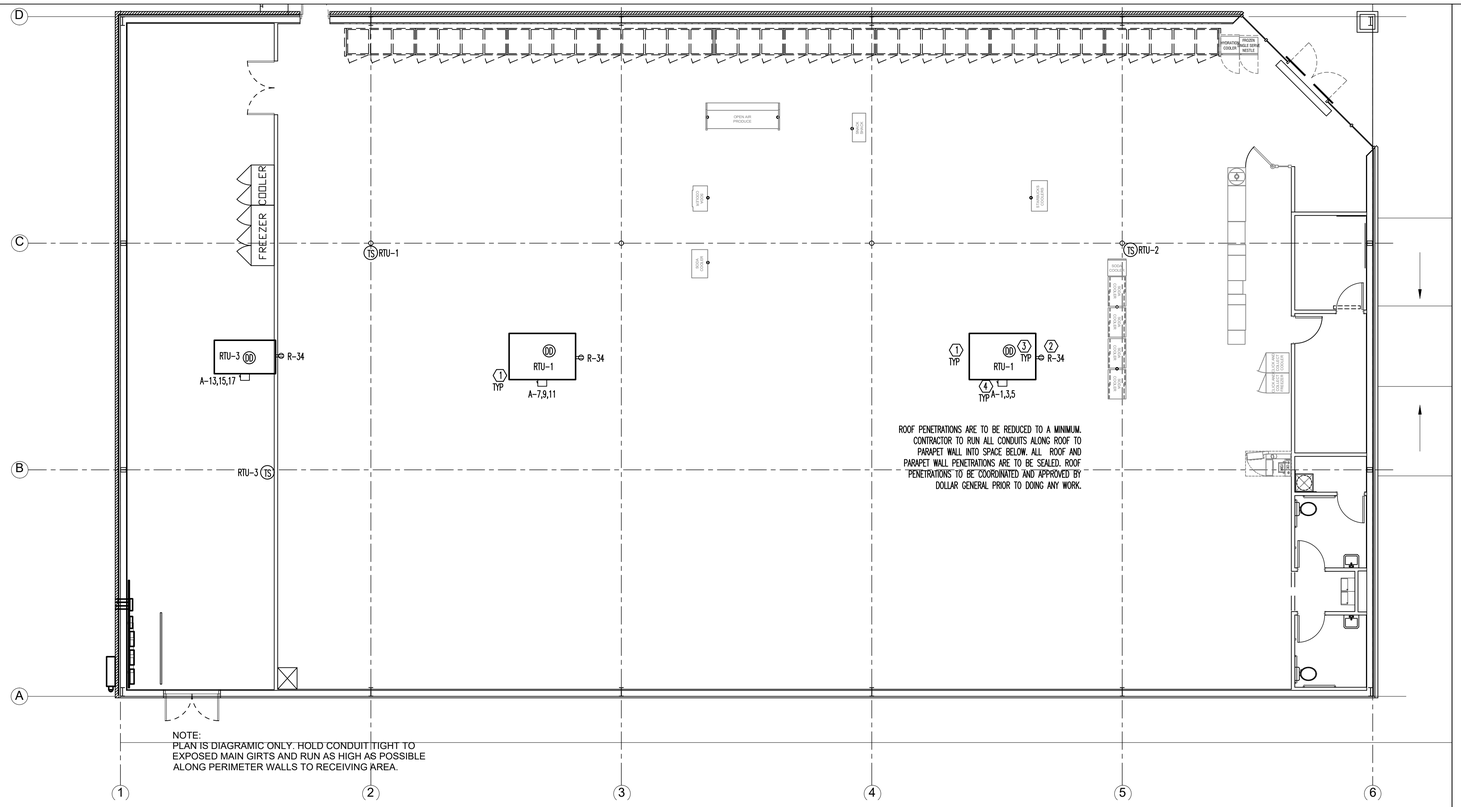

ROOF POWER PLAN - SCALE: 1/8"=1' | 1

LEGEND

SYMB	DESCRIPTION
	BUZZER - TORK MDL #TA725 W/ TRANSFORMER MDL#TA592
	COMMERCIAL GRADE PUSH BUTTON
A-23	125V NEMA 5-20R DUPLEX. PANEL/CIRCUIT IN PANEL
	125/250V NEMA L14-20-R 4 PRONG TWIST LOCK
	125V NEMA 5-20R QUAD
	DISCONNECT
	BLACK MAGIC POWER POLE
	PHONE JACK
	RJ-11, RJ-45 DATA JACK, PHONE COMBO
A-23	PANEL/CIRCUIT IN PANEL
$m	PROVIDE OCCUPANCY LIGHT SENSOR- LEVITON ODS10-IDW
$	20 AMP TOGGLE SWITCH
NL	NIGHT LIGHT CIRCUIT

ELECTRICAL LEGEND-NO SCALE | 2

ELECTRICAL KEYED NOTES

1. 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)
2. FACTORY MOUNTED POWERED CONVENIENCE OUTLET. FIELD VERIFY THAT OUTLET IS POWERED, WIRE ALL WITH THIS NOTE TO CIRCUIT R-34 IF THEY ARE NOT POWERED.
3. PHOTOELECTRIC DUCT DETECTOR WITH HOUSING. TIE TO LED READOUT. 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 VOLATGE. PLACE ANY REQUIRED LABELING ON CEILING TILE DIRECTLY BELOW UNIT. RUN CONDUIT & WIRE UNDERGROUND FROM UNIT TO INSIDE OF SPACE.
4. MOUNT DISCONNECT SWITCH AT UNIT AS DESCRIBED IN GENERAL NOTE 1 ON THIS SHEET.

ELECTRICAL KEY NOTES -NO SCALE | 3

HVAC UNIT WIRING TABLE

UNIT	WIRE	COND	DISC	FUSE	ENCL	PH	VOLT	GND	BRKR	LOAD	CFM	TONS
RTU-1	#1	2"	200A-3P	125A	NEMA 3R	3ϕ	208	#6	125A-3P	44,610	4,000	10.0
RTU-2	#1	2"	200A-3P	125A	NEMA 3R	3ϕ	208	#6	125A-3P	44,610	4,000	10.0
RTU-3	#8	1 1/4"	60A-3P	60A	NEMA 3R	3ϕ	208	#10	60A-3P	19050	2,000	5.0
EF-1	#12	3/4"	MOTOR RATED SWITCH		NEMA 1	1ϕ	120	#12	W/ LIGHTS	50	75	--
EF-2	#12	3/4"	MOTOR RATED SWITCH		NEMA 1	1ϕ	120	#12	20A-1P	50	75	--

TABLE NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FIELD COORDINATE WITH THE MECHANICAL CONTRACTOR CONCERNING THE ELECTRICAL INFO OF ALL MECHANICAL DEVICES REQUIRING AN ELECTRICAL CONNECTION PRIOR TO DOING ANY WORK. ANY DISCREPANCIES BETWEEN THE FIELD OBTAINED INFORMATION AND THE INFORMATION SHOWN ON THE ELECTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DOING ANY WORK.
2. PROVIDE NEUTRALS ON AS REQUIRED BASIS, FIELD VERIFY.
3. ALL DISCONNECTS TO BE HEAVY DUTY. FUSES TO BE RK-5 TYPE, SUBMIT SHOP DRAWINGS. BUSSMAN FRN-R-(AMP) IS SPECIFIED.

HVAC UNIT WIRING TABLE - NO SCALE | 4

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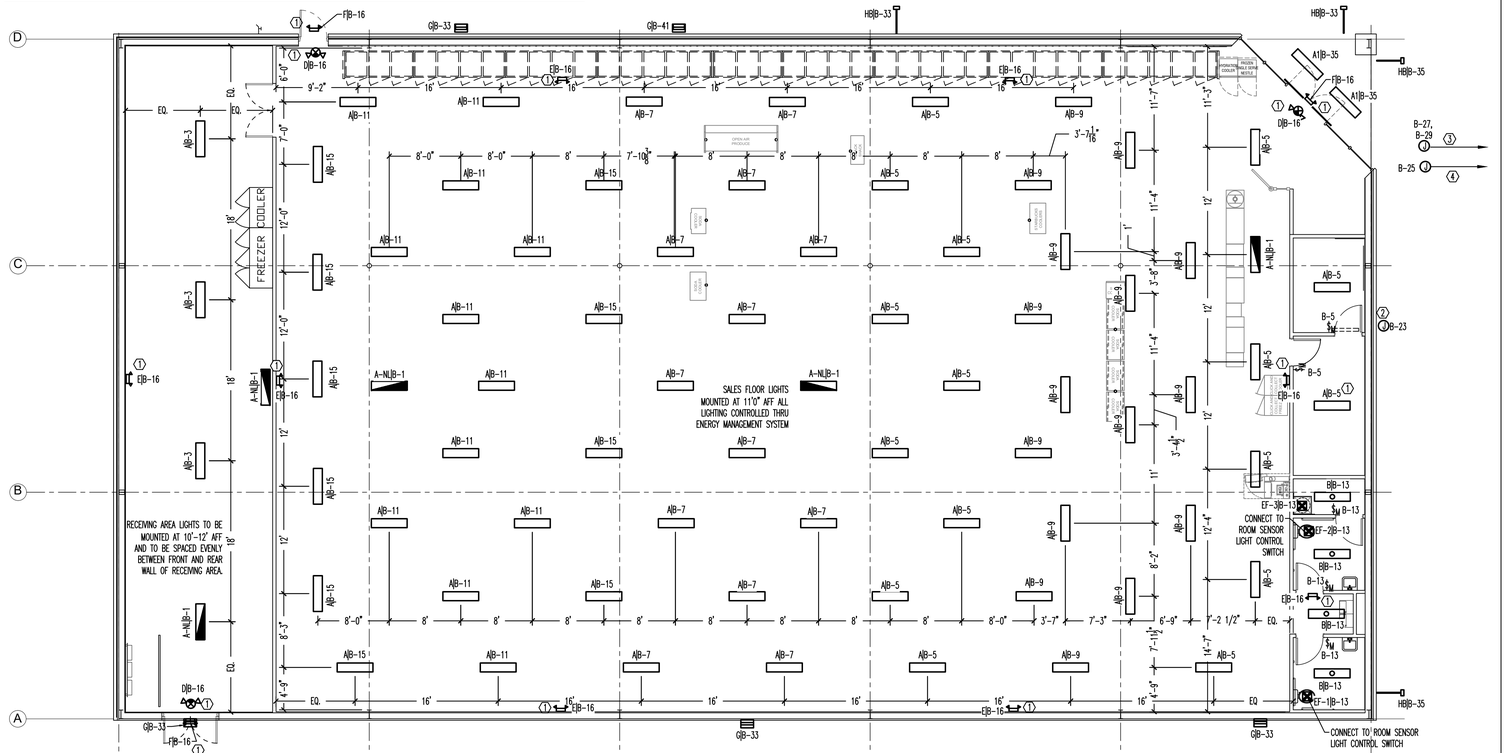

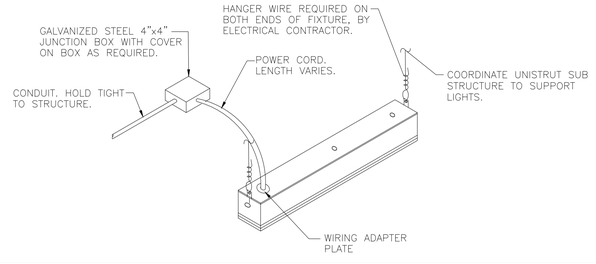

LIGHTING PLAN HEX NOTES

1. EMERGENCY/EXIT SIGNS AND LIGHT: INSTALL EMERGENCY LIGHTS AND EXIT SIGNS (CENTERED AT 10'6" AFF TO BE ABOVE FIXTURES AND MERCHANDISE)
2. COORDINATE BUILDING SIGN SIZE WITH DOLLAR GENERAL SIGN DEPARTMENT BY EMAILING TO SIGNAGE@DOLLARGENERAL.COM WIRE ON CIRCUIT B-23. LOCATE BOX HIGH ON WALL 12' LEFT FROM CENTER OF BUILDING FOR 26' SIGNS AND 16' LEFT FROM CENTER OF BUILDING FOR 33' SIGNS. SEE ELEVATIONS.
3. 1" PVC SCH. 40 UNDERGROUND CIRCUITS TO SITE LIGHTING B-27,B-29.
4. PYLON SIGN, 1" PVC SCH 40 UNDERGROUND TO SIGN. B-25.

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

TYPICAL LED FIXTURE MOUNTING DETAIL - NO SCALE | 2

LIGHT FIXTURE SCHEDULE

SYMBOL	MARK	DESCRIPTION	LAMPS				VOLTAGE	INPUT WATTAGE	MOUNTING	QTY.	REMARKS	MFG	MODEL
			TYPE	WATTAGE	QTY.	CCT							
▭	A	4' LED STRIP INCLUDES (2) - 8 FT CABLES	LED	33	1	5000K	120	33	SUSPENDED	70		LEDS	ST5000
▭	A1	4' BBU COMPATIBLE LED FIXTURE	LED	33	1	5000K	120	33	SUSPENDED	7	1	ETI	54573161
▭	B	2' LED STRIP SURFACE MOUNT	LED	20	1	5000K	120	20	SURFACE	6		LEDS	ST2000
⊗	D	EMERGENCY LIGHT/EXIT COMBO 2 HEADS	LED	20	1	-	120	20	SUSPENDED	4	1	LEDS	EM2505
⊓	E	LED EMERGENCY LIGHT 2 HEADS	LED	20	1	-	120	20	SUSPENDED	7	1	LEDS	EL2500
⊓	F	EMERGENCY EGRESS LIGHT 2 HEADS	LED	20	1	-	120	20	SUSPENDED	3	1,2	LEDS	EL2502
▤	G	WALL PACK	LED	46	1	5000K	120	46	WALL	4	2-4	LEDS	WP4250
▭	HB	LED AREA LIGHT MOUNTED ON WALL	LED	150	1	5000K	120	150	WALL	4	2-4	LEDS	AL1210

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

LIGHTING SCHEDULE - NO SCALE | 3

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
		2680	11814
ALL EXTERIOR LUMINAIRES > 100W MUST HAVE A MINIMUM EFFICACY OF 60 LUMENS/WATT			
OCCUPANCY	AREA (FT²)	ALLOWANCE (W/FT²)	MAX WATTAGE ALLOWED
RETAIL	10740	1.10	11814
TOTAL	10740		11814
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, 2018 EDITION.			

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

2680 W SPECIFIED <= 10624 W (11814 W ALLOWED X 90%)

ELECTRICAL DESIGNER'S STATEMENT | 4

GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC – PLUMBING CONTRACTOR, EC – ELECTRICAL CONTRACTOR,
   MC – MECHANICAL CONTRACTOR, GC – GENERAL CONTRACTOR,
   FASC – FIRE ALARM SYSTEM CONTRACTOR.
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE ELECTRICAL CONTRACTOR SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
3. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE ELECTRICAL CONTRACTOR AT AN APPROVED LOCATION. THE ELECTRICAL CONTRACTOR SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE ELECTRICAL CONTRACTOR UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
6. THE ELECTRICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
9. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH 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.
11. THE ELECTRICAL CONTRACTOR SHALL ALSO COORDINATE WITH THE GENERAL CONTRACTOR REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.
12. 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.
13. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
14. 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.
15. ALL WORK SHALL CONFORM TO 2020 NATIONAL ELECTRIC CODE, 2018 STATE BUILDING CODE, AND ALL APPLICABLE LOCAL CODES.

MATERIALS:

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

METHODS:

1. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
2. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
3. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
4. 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).
5. 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).
6. ELECTRICAL CONTRACTOR 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.
7. ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. SHOW WINDOW RECEPTACLES SHALL BE PROVIDED IN ACCORDANCE WITH 210.62 OF THE NEC. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
8. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
9. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH 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.
10. 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).
11. THE ELECTRICAL CONTRACTOR 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 ELECTRICAL CONTRACTOR. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH NORTH CAROLINA 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.
12. 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.
13. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.4.
14. PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.
15. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.
16. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 2-1/8 in DEEP BOX WITH 3/4 in KNOCK-OUTS AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
17. ELECTRICAL CONTRACTOR SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
18. ELECTRICAL CONTRACTOR SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.
19. ELECTRICAL CONTRACTOR 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. ELECTRICAL CONTRACTOR SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.

GENERAL ELECTRICAL NOTES - NO SCALE | 5

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

ANSI A117.1 HIGH SIDE REACH DETAIL-NO SCALE | 6

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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SEAL 17304
4/18/2022

DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NC

JOB NUMBER 22223
DRAWN BY REW
DATE 04/18/2022
REVISIONS

SHEET NUMBER
E2

PANEL A								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	RTU-1	125/3	14.87	A	0.10	20/1	AUTOMATIC DOOR	2
3			14.87	B	0.36	20/1	TELEPHONE BOARD/BUZZER	4
5			14.87	C	0.18	20/1	EMERGENCY MANAGEMENT	6
7	RTU-2	125/3	14.87	A	0.18	20/1	OUTDOOR HVAC RECEPT.	8
9			14.87	B	0.00	20/1	SPARE	10
11			14.87	C	0.00	20/1	SPARE	12
13	RTU-3	60/3	6.35	A	0.10	20/1	EXHAUST FAN	14
15			6.35	B	0.10	20/1	EXHAUST FAN	16
17			6.35	C	0.50	20/1	INTERFACE EQUIP.	18
19	IRRIGATION CONTROL PANEL RECEPT.	20/1	0.18	A	0.50	20/1	VSAT. DATA HUB EQUIPMENT	20
21	HOT BOX CIRCUIT*	20/1	0.50	B	0.96	20/1	CCTV EQUIP.	22
23	SHOW WINDOW	20/1	0.36	C	0.92	20/1	CLICK AND COLLECT FREEZER/COOLER	24
25	WATER HEATER	20/1	1.65	A	0.00	20/1	SPARE	26
27	SPARE	20/1	0.00	B	0.00	20/1	SPARE	28
29	DRINKING FOUNTAIN	20/1	0.50	C	0.00	20/1	SPARE	30
(31)	OUTDOOR ICE MERCHANDISER	20/1	1.20	A	0.00	20/1	SPARE	32
33	HIGH KIOSK	20/1	1.20	B	0.00	20/1	SPARE	34
(35)	SODA COOLERS	20/1	0.96	C	0.00	20/1	SPARE	36
(37)	DRINK COOLERS	20/1	1.60	A	0.00	20/1	SPARE	38
(39)	SODA COOLERS	20/1	1.60	B	0.00	20/1	SPARE	40
41	SPARE	20/1	0.00	C	0.00	20/1	SPARE	42
			kVA	PH	AMPS			
			41.6	A	347			
			40.8	B	340			
			39.5	C	329			

VOLTAGE/PHASE	208Y/120V, 3P, 4W
BUS RATING	400A
MAIN CIRCUIT BREAKER RATING	400A
AIC RATING	22K
SERVICE ENTRANCE RATED	YES
ENCLOSURE	NEMA 1
MOUNTING	SURFACE

* VERIFY BREAKER SIZE PRIOR TO INSTALLATION

NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS

PANEL R								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
(1)	A-1-A REACH IN DAIRY CASE	15/2	1.30	A	3.90	40/2	A-2-A REACH IN FROZEN CASE	(2)
(3)			1.30	B	3.90			(4)
(5)	A-1-B REACH IN DAIRY CASE	15/2	1.30	C	3.20	40/2	A-2-B REACH IN FROZEN CASE	(6)
(7)			1.30	A	3.20			(8)
(9)	A-1-C REACH IN DAIRY CASE	15/2	1.30	B	3.20	40/2	A-2-C REACH IN FROZEN CASE	(10)
(11)			1.30	C	3.20			(12)
(13)	A-1-D REACH IN DAIRY CASE	15/2	1.30	A	2.60	25/2	A-3 REACH IN FROZEN CASE	(14)
(15)			1.30	B	2.60			(16)
(17)	72" COOLER	20/1	1.15	C	0.92	20/2	72" FREEZER	(18)
(19)	PRODUCE COOLER	20/1	1.15	A	0.92			(20)
(21)	COOLER	15/2	1.30	B	1.66	20/2	PRODUCE COOLER	(22)
(23)			1.30	C	1.66			(24)
25	SPARE	20/1	0.00	A	0.00	20/1	SPARE	26
27	SPARE	20/1	0.00	B	0.00	20/1	SPARE	28
29	SPARE	20/1	0.00	C	0.00	20/1	SPARE	30
31	SPARE	20/1	0.00	A	0.00	20/1	SPARE	32
33	SPARE	20/1	0.00	B	0.36	20/1	SERVICE RECEPT. ON ROOF	34
35	SPARE	20/1	0.00	C	0.00	20/1	SPARE	36
37	SPARE	20/1	0.00	A	0.00	20/1	SPARE	38
39	SPARE	20/1	0.00	B	0.00	20/1	SPARE	40
41	SPARE	20/1	0.00	C	0.00	20/1	SPARE	42
			kVA	PH	AMPS			
			15.7	A	131			
			16.9	B	141			
			14.0	C	117			

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

NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS

PANEL B								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
(1)	NIGHT LIGHTS	20/1	0.18	A	0.00	20/1	A-2-A REACH IN FROZEN CASE	(2)
(3)	RECEIVING LIGHTS	20/1	0.14	B	0.50	20/1	SECURITY RECEPT.	(4)
5	70% SALES LIGHTS ROWS 2&3	20/1	0.63	C	0.54	20/1	OFFICE RECEPT.	(6)
7	70% SALES LIGHTS ROWS 5&6	20/1	0.27	A	0.54	20/1	BREAK ROOM RECEPT.	(8)
9	70% SALES LIGHTS ROWS 1&4	20/1	0.54	B	0.00	20/1	SPARE	10
11	70% SALES LIGHTS ROWS 8&9	20/1	0.45	C	0.00	20/1	SPARE	12
13	BREAK ROOM/OFFICE/RR LIGHTS	20/1	0.15	A	1.08	20/1	BULKHEAD RECEPT.	(14)
15	30% SALES LIGHTS ROWS 7&10	20/1	0.45	B	0.05	20/1	EMERGENCY EXIT LIGHTS	(16)
17	70% SALES LIGHTS ROWS 12&15	20/1	0.59	C	0.00	20/1	SPARE	18
19	SPARE	20/1	0.00	A	0.00	20/1	SPARE	20
21	SPARE	20/1	0.00	B	0.00	20/1	SPARE	22
23	BUILDING SIGN	20/1	0.90	C	0.00	20/1	SPARE	24
25	PYLON SIGN	20/1	0.90	A	0.00	20/1	SPARE	26
27	SITE LIGHTING	20/1	0.30	B	0.00	20/1	SPARE	28
29	SITE LIGHTING	20/1	1.40	C	1.20	20/1	POWER TERMINAL BROWN	(30)
31	SPARE	20/1	0.00	A	1.20	20/1	POWER TERMINAL BROWN	(32)
33	LEFT SIDE EXT. WALL LIGHTS	20/1	0.14	B	1.20	20/1	POWER TERMINAL GREEN	(34)
35	FRONT EXT.WALL/CANOPY LIGHTS	20/1	0.58	C	1.20	20/1	POWER TERMINAL GREEN	(36)
37	SPARE	20/1	0.00	A	1.20	20/1	POWER TERMINAL GREEN	(38)
39	SPARE	20/1	0.00	B	1.20	20/1	POWER TERMINAL GREEN	(40)
41	EXTERIOR DUSK/DAWN	20/1	0.05	C	1.20	20/1	POWER TERMINAL BROWN	(42)
43	SPARE	20/1	0.00	A	0.00	20/1	SPARE	44
45	SPARE	20/1	0.00	B	0.00	20/1	SPARE	46
47	SPARE	20/1	0.00	C	0.00	20/1	SPARE	48
49	SPARE	20/1	0.00	A	0.00	20/1	SPARE	50
51	SPARE	20/1	0.00	B	0.18	20/1	DISPLAY LIGHT	52
53	SPARE	20/1	0.00	C	0.85	20/1	GATORADE	(54)
			kVA	PH	AMPS			
			5.5	A	46			
			4.7	B	39			
			9.6	C	80			

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

NOTE: CIRCLED CIRCUITS REPRESENT BREAKER LOCKS

EQUIPMENT CONNECTION SCHEDULE (SEE SHEET E1.2 FOR COOLERS/FREEZERS)												
SYMBOL	DESCRIPTION	FURN. BY	kVA	VOLT/PH	MCA	MOCP	DISC	AWG	EGC	COND	NOTES
RTU 1-2	10 TON ROOF TOP UNITS	M.C.	44.98	208/3	124.0	125	200	#1	#6	2"	1, 2, 3
RTU-3	3 TON ROOF TOP UNITS	M.C.	17.63	208/3	49.0	50	60	#8	#10	1"	1, 2, 3
P-11	WATER HEATERS	P.C.	1.65	115/1	13	20	30	#12	#12	3/4"	1, 2, 3

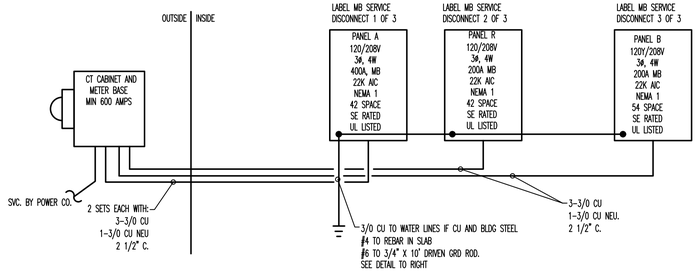
TABLE NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FIELD COORDINATE WITH THE MECHANICAL CONTRACTOR CONCERNING THE ELECTRICAL INFO OF ALL MECHANICAL DEVICES REQUIRING AN ELECTRICAL CONNECTION PRIOR TO DOING ANY WORK. ANY DISCREPANCIES BETWEEN THE FIELD OBTAINED INFORMATION AND THE INFORMATION SHOWN ON THE ELECTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DOING ANY WORK.
2. PROVIDE NEUTRALS ON AS REQUIRED BASIS, FIELD VERIFY.
3. ALL DISCONNECTS TO BE HEAVY DUTY. FUSES TO BE RK-5 TYPE, SUBMIT SHOP DRAWINGS. BUSSMAN FRN-R-(AMP) IS SPECIFIED.

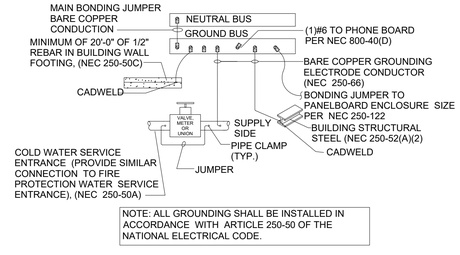
NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W							
EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	125%	11.01	11.01	11.01	33.03	220.12	88125SF X 3VA/SF X 1.25
LIGHTING	125%	0.14	0.14	0.14	0.42	220.12	1300SF X 25VA/SF X 1.25
RECEPTACLES < 10 kVA	100%	0.78	0.78	0.78	2.34	220.44	
RECEPTACLES > 10 kVA	50%	0.00	0.00	0.00	0.00	220.44	
HVAC	100%	36.09	36.09	36.09	108.27	--	BASED ON MCA
WATER HEATER	125%	1.65	0.00	0.00	1.65	422.13	STORAGE TANK (120 GAL @ 125%
SHOW WINDOW	100%	1.40	1.40	1.40	4.20	220.43(A) 220.14(G)	21 FT X 200 VA/SF
SIGN	100%	0.00	0.90	0.90	1.80	220.14(F)	
REFRIGERATION	100%	17.30	18.50	15.60	51.40	--	
DEMAND kVA PER PHASE		68.37	68.82	65.92			
DEMAND AMPS PER PHASE		570	573	549			

THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL SCHEDULES AND NEC LOAD SUMMARY | 1



POWER RISER DIAGRAM - NO SCALE | 2



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

GROUNDING DETAIL - NO SCALE | 3

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☐ WILMINGTON OFFICE
805 North Fourth Street
Wilmington, NC 28401
Phone: 910.251.8899
Facsimile: 910.251.9989

■ WILSON OFFICE
211 Nash Street West
Wilson, NC 27893
Phone: 252.399.2700
Facsimile: 252.399.2701

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Kilian Engineering, Inc.
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(P) 252.438.8778 | CORPORATE LICENSE C-2277

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304 REW
4/18/2022

KILIAN ENGINEERING, CORPORATE NO. SEAL NORTH CAROLINA

DOLLAR GENERAL
STORE # 23680
MAMERS ROAD
LILLINGTON, NC

JOB NUMBER 22223
DRAWN BY REW
DATE 04/18/2022
REVISIONS

SHEET NUMBER
E3

GENERAL NOTES

A. REFER TO E1 FOR GENERAL CONTRACTOR RESPONSIBILITIES. E.C. MAY USE CABLE TRAY FOR LOW VOLTAGE CABLES, SEE 2/E2.

B. RUN CONDUIT FROM SENSORS TO BOTTOM OF STRUCTURE.

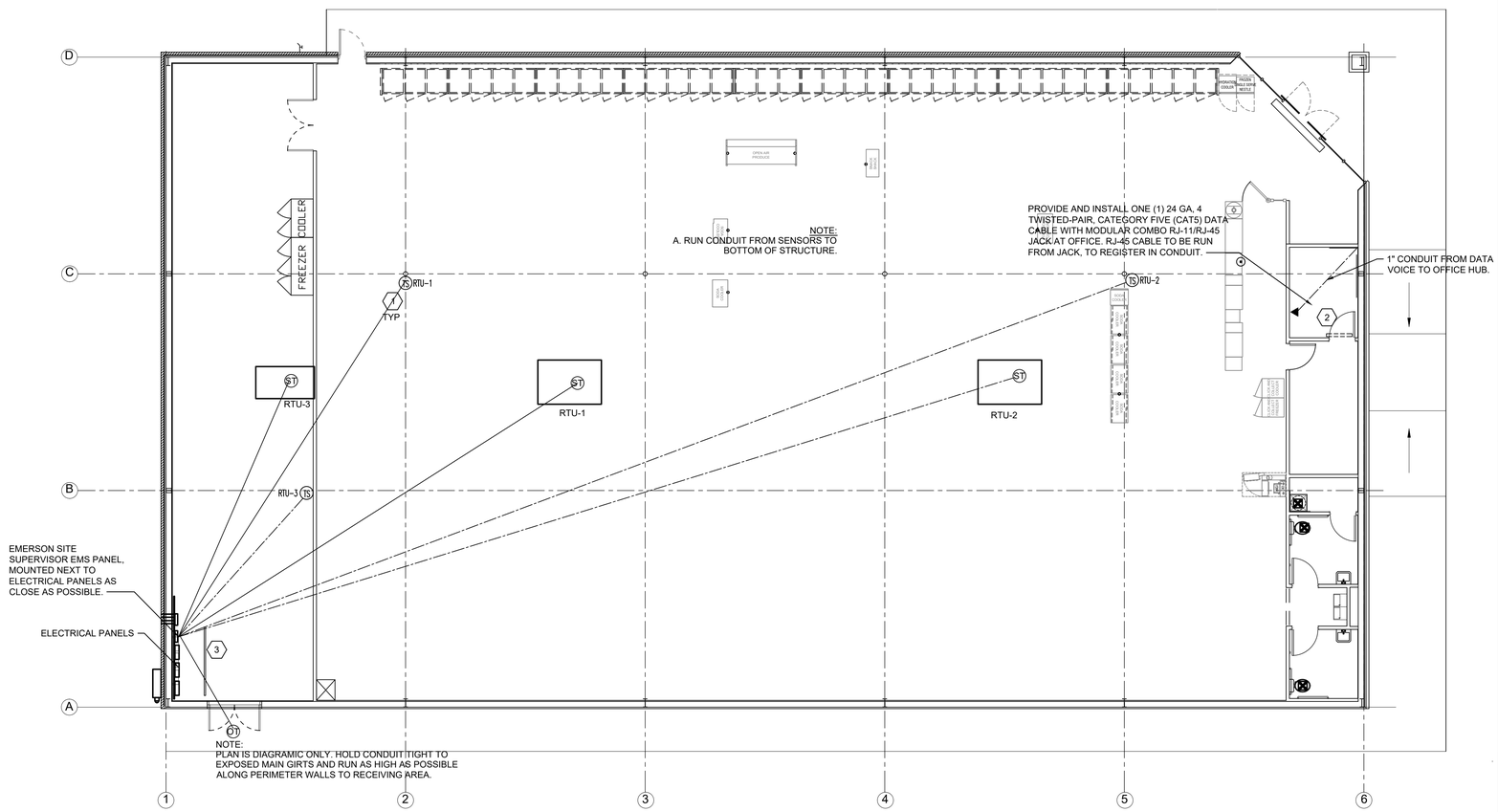
C. REFRIGERATION UNITS TO BE CONNECTED TO EMS PANEL BY DOLLAR GENERAL REFRIGERATION CONTRACTOR.

SENSOR PLAN KEYED NOTES

1. ALWAYS INSTALL THESE SENSORS AT 8'-0" AFF IF ADDITIONAL HVAC UNITS ARE USED, ADD ADDITIONAL TEMPERATURE SENSORS "TS".

2. 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.

3. EMS REFRIGERATION PANEL CX E2 400. PANEL BY OTHERS. CONNECTION FROM THIS PANEL TO HVAC AND LIGHTING PANEL BY OTHERS. ELECTRICAL CONTRACTOR TO RUN AN EMPTY 1-1/2"C. WITH PULL ROPE BETWEEN THE TWO PANELS.



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

EMERSON CONTACT

A. PLEASE CONTACT EMERSON FOR FULL DETAILS.

B. CONTACT TONY VERTUCA - NATIONAL ACCOUNT EXECUTIVE (404)824-9389. Tony.Vertuca@Emerson.com

EMS GENERAL 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 NOTES

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.

CONTROL PANEL NOTES

1. 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.

DEVICE SCHEDULE

SYMB	DESCRIPTION	CABLE TYPE	SUPPLIER	INSTALLER	NOTES
OT	OUTDOOR AIR TEMP MOUNTED 8'-0" A.F.F.	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	(1) PER RECEIVING ENTRY
ST	SUPPLY TEMP (501-1121) IN SUPPLY DUCT	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	(1) PER HVAC UNIT
TS	TEMP SPACE SENSOR (809-6590) 8'-0" A.F.F.	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	(1) PER HVAC UNIT ZONE
♻	RJ-11/RJ-45 DATA JACK PHONE COMBO	CAT-5 DATA CABLE (24AWG, 4 TWISTED PAIR)	GENERAL CONTRACTOR	GENERAL CONTRACTOR	(1) AT OFFICE COMPUTER CART
$m	MOTION SENSOR SWITCH	LEVITON EZ-FIND ODS-10-IDW	GENERAL CONTRACTOR	GENERAL CONTRACTOR	(1) PER RESTROOM (1) PER BREAK ROOM (1) PER OFFICE

LOW VOLTAGE NOTES | 2

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

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Kilian Engineering, Inc.
PO Box 3301, Henderson, NC 27536 | www.kilianengineering.com
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17304
4/18/2022

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EMS1