PERMIT SET

Issue Date: 09.05.24

NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.
Reviewed for Code Compliance
02/21/2025
Harnett COUNTY NORTH CAROLINA

ARCHITECT:
MCGAHEY DESIGN
123 RALEIGH STREET
FUQUAY-VARINA, NC 27526
919.321.0123 work
919.422.0265 direct

CIVIL ENGINEER:
RED LINE ENGINEERING
123 RALEIGH STREET
FUQUAY-VARINA, NC 27526
919.779.6851 work

STRUCTURAL ENGINEER:
HARRIS STRUCTURAL DESIGN
3206 HERITAGE TRADE DRIVE
SUITE 116
WAKE FOREST, NC 27587
919.556.6032 work
919.946.0798 direct

PM&E ENGINEER:
KAIROS PROJECT GROUP
404 EAST CHATHAM STREET
SUITE D
CARY, NC 27511
919.719.3475 work
919.741.8223 direct

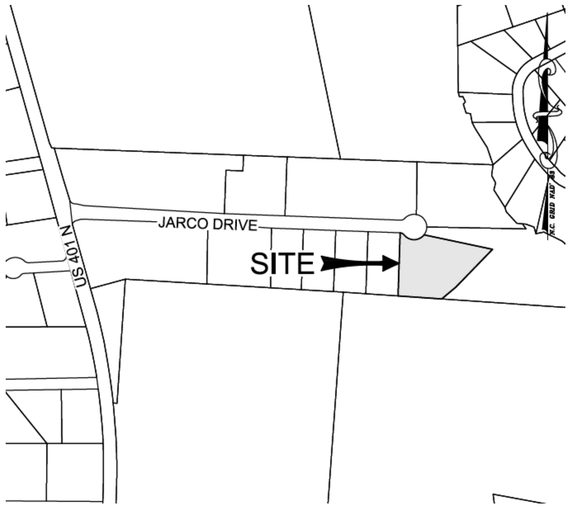
IMPORTANT NOTICE TO USER

By Accepting or using these Drawings and/or the Information contained herein, the User Agrees to the following Terms and Conditions:

1. Any use, reuse, copying, modification or alteration of the information contained herein shall be at the Sole Risk of the User.
2. This information may not be sold or transferred to any third party, used on other projects or additions to the project for which it was prepared, or used for completion of this project by any third party.
3. McGahey Design, PA disclaims all liability for the use or reuse of altered files by the User or any Third Party and such use will be the User's Sole Risk.
4. User shall, to the fullest extent permitted by Law, Defend, Indemnify, and hold McGahey Design, PA harmless from any and all claims for loss, damage or injury arising directly or indirectly therefrom.
5. Any Electronic Information shared with the User or share by the User or to any third party hired by the User may be subject to intentional or unintentional alteration.

© 2023 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

Vicinity Map



Drawing Index

	Architectural		Civil		Architectural				Plumbing		Mechanical
A 0.01	Cover Sheet	C 1	Cover Sheet	A 1.01	Overall Floor Plan			P 000	Plumbing Title Sheet	M 000	HVAC Title Sheet
A 0.02	Code Sheet	C 2	Existing Conditions & Demolition Plan	A 1.02	Enlarged Floor Plan			P 101	Plumbing Plan	M 101	HVAC Floor Plan
A 0.04	Life Safety	C 3	Proposed Site Plan	A 1.03	Reflected Ceiling Plan			P 301	Plumbing Isometric Plan Domestic Water	M 201	HVAC Reflected Ceiling Plan
A 0.05	Fixture Count	C 4	Proposed Utility Plan	A 1.10	Schedules			P 302	Plumbing Isometric Plan Sanitary	M 301	HVAC Schedules
A 0.09	General Notes	C 5	Erosion Control Plan Phase I	A 2.01	Elevations			P 401	Natural Gas Plan	M 302	HVAC Schedules
A 0.10	Accessibility Requirements	C 6	Erosion Control Plan Phase II	A 2.02	Elevations			P 403	Natural Gas Isometric Plan	M 401	HVAC Details
A 0.11	Accessibility Enlarged Plans	C 7	Proposed Grading Plan	A 3.00	Detail Keynote Legend			P 501	Plumbing Schedules & Details		
A 0.12	Interior Elevations	C 8	Site Details	A 3.01	Wall Sections						Electrical
A 0.13	ADA Sink and Millwork	C 9	Erosion Control Details	A 3.02	Wall Sections					E 000	Electrical Title Sheet
A 0.20	Specifications	L1	Required Landscape Improvements	A 3.03	Wall Sections					E 101	Electrical Power Plan
A 0.21	Specifications			A 4.01	Details					E 102	Electrical Power Plan
A 0.22	Specifications			A 4.02	Details					E 201	Electrical Lighting Plan
A 0.23	Specifications			A 4.03	Details					E 202	Electrical Lighting Calcs
A 0.24	Specifications									E 301	Electrical Schedules
A 0.25	Specifications				Structural					E 401	Electrical Details
A 0.26	Specifications			S 0.01	General Notes					E 402	Electrical Details
A 0.27	Specifications			S 1.01	Foundation Plan					E 501	Electrical Systems Plan
A 0.30	Shop Drawing			S 2.01	Exterior Wall Plan						

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS McGAHEY JR. REGISTERED ARCHITECT 9603 NORTH CAROLINA FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Cover Sheet

A0.01

Building Code Summary for all Commercial Projects 2018 North Carolina Building Code

(Except 1 and 2-Family Dwellings and Townhouses)

Name of Project: **E&M Concrete**
Address: 308 Jarco Drive; Fuquay-Varina, North Carolina
Proposed Use: Business
Owner or Authorized Agent: John M. McGahey, AIA, NCARB
Telephone: 919.422.0265 Email: john@mcgaheydesign.com
Owned By: ☒ Private ☐ City/County ☐ State
Code Enforcement Jurisdiction: ☐ City ☒ County ☐ City/County ☐ State
Name of Jurisdiction: Harnett County

PROJECT SUMMARY:

Building Description: 11,468 square foot Type II-B Building with Brick veneer and Cast-in-Place Concrete Front Entrance.

Scope of Work: Complete project includes building and site work.

Code Compliance Summary: New construction will comply with 2018 NC Building Code.

Alternative Means of Compliance: N/A

LEAD DESIGN PROFESSIONAL: John M. McGahey, AIA, NCARB

DESIGNER	FIRM NAME	CONTACT NAME	LICENSE
Architectural:	McGahey Design, PA	John M. McGahey, AIA, NCARB	9603
	Telephone: 919.321.0123	Email: john@mcgaheydesign.com	
Civil:	Red Line Engineering	Gary McCabe, PE	032614
	Telephone: 919.606.4560	Email: gary.mccabe@rlenc.com	
Electrical:	Kairos Project Group, Inc.	Benjamin Lewis, PE	33293
	Telephone: 919.719.3475	Email: blewis@kpgnc.com	
Fire Alarm:	Not Applicable		
	Telephone:	Email:	
Plumbing:	Kairos Project Group, Inc.	Benjamin Lewis, PE	33293
	Telephone: 919.719.3475	Email: blewis@kpgnc.com	
Mechanical:	Kairos Project Group, Inc.	Benjamin Lewis, PE	33293
	Telephone: 919.719.3475	Email: blewis@kpgnc.com	
Sprinkler-Standpipe:	Not Applicable		
	Telephone:	Email:	
Structural:	Harris Structural Design, PA	Thomas B. Harris, PE	029465
	Telephone: 919.556.6032	Email: thomas-hsd@nc.rr.com	
Retaining Walls > 5'-0":	Not Applicable		
	Telephone:	Email:	
Other:	Not Applicable		
	Telephone:	Email:	

YEAR EDITION OF CODE USED:

Building Code:
- ☒ **2018 North Carolina State Building Code (NCSBC)**
- ☐ 2018 North Carolina State Building Code - Existing Building Code (NCSBC)
- ☐ 2015 North Carolina State Building Code - Existing Building Code (NCSBC)
- ☐ 2012 North Carolina State Building Code (NCSBC)
- ☐ 2012 North Carolina Rehabilitation Code (NC Rehab)
- ☐ 2009 North Carolina State Building Code (NCSBC)
- ☐ 2009 North Carolina Rehabilitation Code (NC Rehab)
- ☐ 2006 North Carolina State Building Code (NCSBC)
- ☐ 2006 North Carolina Rehabilitation Code (NC Rehab)
- ☐ 2009 Chapter 34 (Attach Summary) ☐ 1995 Existing Building Code Volume 9
- ☐ 2006 Chapter 34 (Attach Summary)

New Building: ☒ **New Building** ☐ Shell Building ☐ First Time Interior Completion ☐ Addition ☐ Alteration to Shell

Existing Building: ☐ Renovation ☐ Interior Completion ☐ Tenant Alteration ☐ Reconstruction ☐ Repair ☐ Alteration to Shell ☐ Change of Use Tenant Space ☐ Change of Occupancy

Note: Zoning Review may be required for Change of Use or Occupancy

Original Occupancy: _____ Date of Original Construction: N/A
Proposed Occupancy: **B / S-1** Date of Latest Alteration: N/A

BUILDING DATA

Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV-HT ☐ V-A ☐ I-B ☒ **II-B** ☐ III-B ☐ V-B
Mixed Construction: ☒ No ☐ Yes Types
Sprinklers: ☒ **No** ☐ Yes ☐ NFPA-13 ☐ NFPA-13R ☐ NFPA-13D

Standpipes: ☒ No ☐ Yes Class: ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☒ No ☐ Yes (Appendix D) Flood Hazard: ☒ No ☐ Yes (Appendix G)
Building Height: ± 26'-9" 1 Stories ☐ Unlimited per Section
Basement: ☒ No ☐ Yes Mezzanine: ☐ No ☒ Yes
High Rise: ☒ No ☐ Yes Life Safety Plan Sheet # (if provided): **Sheet A0.04**

Gross Building Area: *(add or delete rows as needed)*

FLOOR	Existing (sq ft)	Sub-Total
Basement		
First Floor		11,468 sq ft
Second Floor		
Third Floor		
Fourth Floor		
Totals:		11,468 sq ft

Area of Project Tenant / Alteration / **Renovation**
Area of Construction (square footage and location): Entire Site + 11,468 sq ft Building

OCCUPANCY INFORMATION

Primary Occupancies:
Assembly: ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business: ☒ **B**
Educational: ☐ E
Factory-Industrial: ☐ F-1 ☐ F-2
Institutional: ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Use Condition: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile: ☐ M
Residential: ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage: ☒ **S-1** ☐ S-2 ☐ High-piled
S-1 Special Condition: ☐ Repair Garage (406.6)
S-2 Special Condition - Parking Garage: ☐ Open (406.3) ☐ Enclosed (406.4)
Utility & Miscellaneous: ☐

Accessory Occupancies: ASSEMBLY GROUP A: 303.1 Exception 1
Assembly: ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business: ☐ B
Educational: ☐ E
Factory-Industrial: ☐ F-1 ☐ F-2
Institutional: ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Use Condition: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile: ☐ M
Residential: ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage: ☐ S-1 ☐ S-2 ☐ High-piled
S-1 Special Condition: ☐ Repair Garage (406.6)
S-2 Special Condition - Parking Garage: ☐ Open (406.3) ☐ Enclosed (406.4)
Utility & Miscellaneous: ☐

Incidental Uses: (Table 508.2.5)
- ☐ Furnace room where any piece of equipment is over 400,000 BTU's per hour input
- ☐ Rooms with boilers where the largest piece of equipment is over 15psi and 10 horsepower
- ☐ Refrigerant machine room
- ☐ Hydrogen cutoff rooms, not classified as Group H
- ☐ Incinerator rooms
- ☐ Paint shops, not classified as Group H, located in occupancies other than Group F
- ☐ Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
- ☐ Laundry rooms over 100 square feet
- ☐ Group I-3 cells equipped with padded surfaces
- ☐ Group I-2 waste and linen collection rooms
- ☐ Waste and linen collection rooms over 100 square feet
- ☐ Stationary Storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
- ☐ Rooms containing fire pumps
- ☐ Group I-2 storage rooms over 100 square feet
- ☐ Group I-2 commercial kitchens
- ☐ Group I-2 laundries equal to or less than 100 square feet
- ☐ Group I-2 rooms or spaces that contain fuel-fired heating equipment

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

Special Occupancies: ☐ 508.2 ☐ 508.3 ☐ 508.4 ☐ 508.5 ☐ 508.6 ☐ 508.7 ☐ 508.8

Mixed Occupancy: ☐ No ☒ **Yes** Separation: **2 HR** Exception:

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

☐ Non-Separated Mixed Occupancy (508.3.2)
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 Mixed Occupancy (508.3.3) - See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

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

ALLOWABLE AREA AND HEIGHT CALCULATIONS

Story Number	Occupancy	(A) Bldg Area per Story (Actual)	(B) Table 503 Area [5]	(C) % Open Space Increase [1]	(D) % Sprinkler Increase [2]	(E) Allowable Area or Unlimited [3]	Ratio of Actual / Allowable	(F) Maximum Building Area [4]	(G) Separation Rating Required
B	B	7,119	23,000	---	---	---	---	23,000	2
S-1	S-1	4,349	17,500	---	---	---	---	17,500	2

1 Open space area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = ---ft (F)
b. Total Building Perimeter = ---ft (P)
c. Ratio (F/P) = 1.0 (F/P)
d. W = Minimum width of public way = 30' (W)
e. Percent of frontage increase If = 100 [F/P - 0.25] x W/30 = ---(%)

2 The sprinkler increase per Section 506.3 is as follows:
a. Multistory building Is = 200 percent
b. Single story building Is = 300 percent

$$Aa = \{At + [At \times If] + [At \times Is]\}$$

where:
Aa = Allowable *building area per story* (square feet).
At = Tabular *building area per story* in accordance with Table 503 (square feet).
If = Area increase due to frontage as calculated in accordance with Section 506.2.
Is = Area increase factor due to sprinkler protection as calculated in accordance with Section 506.3.

3 Unlimited area applicable under conditions of Sections Group B, F, M, S, A-4 (507.1, 507.2, 507.3, 507.4, 507.7); Group A motion picture (507.10); Malls (507.11); and H-2 aircraft paint hangers (507.8).
4 Maximum Building Area = total number of stories in the building x E but not greater than 3 x E (506.4).
5 The maximum area of parking garages must comply with 406.3.5. The maximum area of air traffic control towers must comply with 412.1.2.

ALLOWABLE HEIGHT

Most Restrictive Use (Group A-3)	Allowable HEIGHT (Table 503)	Increase for Sprinklers	Shown on Plans	Code Reference
Type of Construction	Type II-B		**Type II-B**	Table 601
Building Height in Feet	H = 55 Ft	H + 20 Ft = N/A Ft	**H = 26'-9" Ft**	Table 503
Building Height in Stories	S = 2	S +1 = N/A	**S = 1**	Table 503

FIRE PROTECTION REQUIREMENTS

Life Safety Plan Sheet Number, if provided A0.04 **Table 602:**

Building Element	Fire Separation Distance (feet)	Rating Required [*]	Rating Provided (W _____ * Reduction)	Detail No. Sheet No.	UL Number for Rated Assembly	UL Number for Rated Penetration	UL Number for Rated Joints
Structutral Frame,including columns, girders, trusses, supporting non-fire-rated construction		N/A					
Structutral Frame supporting fire-rated floor construction including occupancy separation		N/A					
Bearing Walls							
Exterior							
North	> 30'	N/A					
East	> 30'	N/A					
West	> 30'	N/A					
South	> 30'	N/A					
Interior	> 30'	N/A					
Non-bearing Walls and Partitions							
Exterior							
North	> 30'	N/A					
East	> 30'	N/A					
West	> 30'	N/A					
South	> 30'	N/A					
Interior	N/A	N/A					
Structural frame, including columns, girders, trusses		0					
Floor Construction, including supporting beams and joists. List construction type		N/A					
Floor Ceiling Assembly		N/A					
Columns Supporting Floors		N/A					
Roof Construction, including supporting beams and joists*		0					
Roof Ceiling Assembly		N/A					
Columns Supporting Roof		N/A					
Shafts - Exit Enclosures		N/A					
Shafts - Other (Roof Top Units - HVAC)		N/A					
Shafts - Other (describe)		N/A					
Corridor Separation		N/A					
Occupancy Separation		2 HR		A0.02	UL U425		
Party/Fire Wall Separation		N/A					
Incidental Use Separation (Sprinkler Rm)		N/A					
Dwelling / Sleeping Unit Separation		N/A					
Smoke Barrier Separation		N/A					
Tenant Separation		N/A					

FootNotes: (*) Indicate section number permitting reduction; (**) Indicated if using Table 601 Note C exception

EXIT REQUIREMENTS

NUMBER AND ARRANGEMENT OF EXITS

Floor, Room or Space Designation	Minimum Number of Exists [2] Required	Minimum Number of Exists [2] Shown on Plans	Travel Distance Allowable Travel Distance (Table 1015.1)	Travel Distance Actual Travel Distance Shown on Plans	Arrangement Means of Egress (section 1015.2) [1,3] Required Distance Between Exit Doors	Arrangement Means of Egress (section 1015.2) [1,3] Actual Distance Shown on Plans
B						
S-1			REFER TO LIFE SAFETY PLAN			

1 = Corridor Dead Ends (Section 1017.3): N/A
2 = Single Exits (Section 1015.1; Section 1019.2): N/A
3 = Common Path of Egress Travel (Section 1014.3): *< 50'-0"*

OCCUPANT LOAD AND EXIT WIDTH

REFER TO LIFE SAFETY PLAN

Use Group or Space Description	(a) Area [1] sq ft	(b) [1] Area per Occupant (Table 1004.1.2)	(a/b) Number of Occupants	(c) Egress with per Occupant (Table 1005.1) Stair	(c) Egress with per Occupant (Table 1005.1) Level	Exit Width (in) 2,3,4,5 Required Width (Section 1005.3) (a/b) x c Stair	Exit Width (in) 2,3,4,5 Required Width (Section 1005.3) (a/b) x c Level	Exit Width (in) 2,3,4,5 Actual Width Shown on Plans Stair	Exit Width (in) 2,3,4,5 Actual Width Shown on Plans Level
B	7,119	1:100	72	N/A	0.2"	N/A	14.4"	N/A	136"
S-1	4,349	1:500	9	N/A	0.2"	N/A	1.8"	N/A	68"

1. See Table 1004.1.1 to determine whether net or gross area is applicable.
See definition "Area, Gross" and "Area, Net"
2. Minimum stairway width (Section 1009.1); min. corridor width (Section 1017.2); min. door width (Section 1008.1.1)
3. Minimum width of exit passageway (Section 1021.2)
4. The loss of 1 means of egress shall not reduce the available capacity to less than 50% of the total required (Section 1005.1)
5. Assembly occupancies (Section 1025)

PERCENTAGE OF WALL OPENING CALCULATIONS

Allowable openings per Table 705.8

WALL LEGENDS

THIS SECTION REQUIRED FOR ALL PROJECTS

Check if the following are present and indicate by a Wall Legend on all Plans
☒ Fire Partitions 708 ☐ Fire Walls 705 ☐ Fire Barriers 706 ☐ Smoke Partitions 710
☐ Smoke Barriers 709 ☐ Shaft Enclosure 707

PLUMBING FIXTURE REQUIREMENTS

Occupancy	Water/closets Male	Water/closets Female	Urinals	Lavatories Male	Lavatories Female	Showers Tubs	Drinking Fountains Regular	Drinking Fountains Accessible	Notes
Bldg-1: Business: required									
Bldg-1: Storage: required	2 men's water closets and 2 women's water closets on the group B side Occ = 7 /1.00 =2.36 fixtures (403.3.1) rounded to 3/50%= 1.5 rounded to 2. 403.2 Ex5 allows exception for unisex only when 1 is required for each sex. - A single unisex for the S-1 side is sufficient if there is 2hr separation.								
	REFER TO FIXTURE COUNT ON A0.05								

Plumbing Count Per TABLE 2902.1

	Building Drain Size	Number of Building Drains	Total Fixture Unit Load Waste	Water Service Size	Number of Water Service	Total Fixture Unit Load Water	Notes
Building Shell:							
Tenant Fit-up:	REFER TO PLUMBING DRAWINGS						

LIFE SAFETY SYSTEM REQUIREMENTS

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

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet: (A0.04)
- ☒ Fire and/or smoke rated wall locations (Chapter 7)
- ☐ Assumed and real property line locations
- ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
- ☐ Existing structures within 30' of the proposed building
- ☒ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
- ☒ Occupant loads for each area
- ☒ Exit access travel distance (1016)
- ☐ Common path of travel distances (1014.3 & 1028.8)
- ☐ Dead end lengths (1018.4)
- ☒ Clear exit widths for each exit door
- ☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
- ☒ Actual occupant load for each exit door
- ☐ A separate shematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- ☐ Location of doors with panic hardware (1008.1.10)
- ☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
- ☐ Location of doors with electromagnetic egress locks (1008.1.9.8)
- ☐ Location of doors equipped with hold-open devices
- ☐ Location of emergency escape windows (1029)
- ☐ The square footage of each fire area (902)
- ☐ The square footage of smoke compartment (407.4)
- ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESIBLE PARKING

(Based on NCAC and local zoning requirements)

Lot or Parking Area	Total Number of Parking Spaces Required	Total Number of Parking Spaces Provided	Number of Accessible Provided 9'-0" Access Aisle	Number of Accessible Provided 8'-0" Access Aisle (Van)	Total Number Accessible Provided
		REFER TO CIVIL PLANS			

COMcheck Software Version COMcheckWeb
Envelope Compliance Certificate

Project Information

Energy Code:	90.1 (2010) Standard
Project Title:	EandM Concrete
Location:	Fuquay-Varina, North Carolina
Climate Zone:	4a
Project Type:	New Construction
Vertical Glazing / Wall Area:	8%

Construction Site: North Carolina
Owner/Agent: North Carolina
Designer/Contractor: John McGahey, McGahey Design, PA, 123 Raleigh Street, Fuquay Varina, North Carolina 27526, 9194220265, john@mcgaheydesign.com

Building Area	Floor Area
1-Office : Nonresidential	11468

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Floor: Unheated Slab-On-Grade, [Bldg. Use 1 - Office] (c)	446	---	---	0.730	0.730
Ext. Wall-Front: Steel-Framed, 16in. o.c., [Bldg. Use 1 - Office]	1927	19.0	0.0	0.109	0.064
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID Kawneer, SHGC 0.30, PF 0.40, [Bldg. Use 1 - Office] (b)	90	---	---	0.500	0.850
Window: Metal Frame, Thermal Break, Perf. Specs.: Product ID Kawneer, SHGC 0.30, PF 0.40, [Bldg. Use 1 - Office] (b)	111	---	---	0.500	0.550
Window: Metal Frame, Thermal Break, Perf. Specs.: Product ID Kawneer, SHGC 0.30, [Bldg. Use 1 - Office] (b)	171	---	---	0.500	0.550
Ext. Wall-Rear: Steel-Framed, 16in. o.c., [Bldg. Use 1 - Office]	1927	19.0	0.0	0.109	0.064
Door: Insulated Metal, Swinging, [Bldg. Use 1 - Office]	21	---	---	0.500	0.700
Door: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Office]	100	---	---	0.500	1.500
Ext. Wall-Side-1: Steel-Framed, 16in. o.c., [Bldg. Use 1 - Office]	2826	19.0	0.0	0.109	0.064
Door: Insulated Metal, Swinging, [Bldg. Use 1 - Office]	21	---	---	0.500	0.700
Door: Insulated Metal, Non-Swinging, [Bldg. Use 1 - Office]	392	---	---	0.500	1.500
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID Kawneer, SHGC 0.30, PF 0.40, [Bldg. Use 1 - Office] (b)	21	---	---	0.500	0.850
Window: Metal Frame, Thermal Break, Perf. Specs.: Product ID Kawneer, SHGC 0.30, [Bldg. Use 1 - Office] (b)	114	---	---	0.500	0.550
Ext. Wall-Side-2: Steel-Framed, 16in. o.c., [Bldg. Use 1 - Office]	2826	19.0	0.0	0.109	0.064
Door: Glass (over 50% glazing): Metal Frame, Entrance Door, Perf. Specs.: Product ID Kawneer, SHGC 0.30, PF 0.40, [Bldg. Use 1 - Office] (b)	42	---	---	0.500	0.850
Window: Metal Frame, Thermal Break, Perf. Specs.: Product ID Kawneer, SHGC 0.30, [Bldg. Use 1 - Office] (b)	228	---	---	0.500	0.550
Roof: Metal Building, Screw Down, Liner System without Thermal Blocks, [Bldg. Use 1 - Office]	11468	30.0	0.0	0.044	0.055

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
(c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 8% better than code

JOHN MORRIS MCGAHEY REGISTERED ARCHITECT 9603 NORTH CAROLINA AQUAY-VARNINA NC

DESIGNER STATEMENT

To the best of my knowledge and belief, the design of this building complies with the thermal envelope requirements of the North Carolina State Building Code, Volume X-Energy.

Signed: Date: 9.5.24

101.5 Compliance. Residential buildings shall meet the provisions of Chapter 4. Commercial buildings shall meet the provisions of Chapter 5.

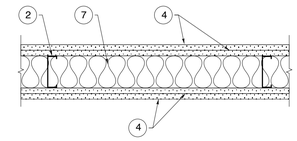
101.5.2 Low energy buildings. The following buildings, or portions thereof, separated from the remainder of the building by building thermal envelope assemblies complying with this code shall be exempt from the building thermal envelope provisions of this code:

2. Those that do not contain conditioned space.

Design No. U425

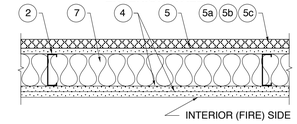
For Exterior Walls, Ratings Applicable
For Exposure to Fire on Interior Face Only
(See Items 4 and 5)
Bearing Wall Rating-45 Min,1 1-1/2, or 2 HR.
(See Items 2 and 4)

INTERIOR WALL



HORIZONTAL SECTION

EXTERIOR WALL



HORIZONTAL SECTION

1. **Steel Floor and Ceiling Tracks**-(Not Shown)-Top and bottom tracks of wall assemblies shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 GSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs and to adjacent assemblies such as floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C.
2. **Steel Studs**-Corrosion-protected steel studs,min No. 20 MSG (0.0329 in., min bare metal thickness thick) steel or min 3-1/2 in. wide, min No. 20 GSG (0.036 in. thick) galvanized steel or No. 20 GSG (0.033 in.thick) primed steel, cold-formed, shall be designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max. stud spacing of wall assemblies shall not exceed 24 in OC (or 16 in. OC - See Item 5c). Studs attached to floor and ceiling tracks with 1/2 in. Long or bolted connection designed in accordance with the AISI specifications.
3. **Lateral Support Members**-(Not shown)-Where required for lateral support of studs, support may be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.
4. **Wallboard, Gypsum***-Gypsum wallboard bearing the ULI Classification Marking as to Fire Resistance. Applied vertically with joints between layers staggered Outer layer of 3 layer construction may be applied horizontally. The thickness and number of layers and percent of design load for the 45 min., 1 hr, 1-1/2 hr,and 2 hr ratings are as follows:

Interior Walls

Rating	Wallboard Protection Both Sides of Wall Number of Layers and Thickness of Boards In Each Layer	Percent of Design Load
45 min	*1 layer, 1/2" thick	100
1 hr	*1 layer, 5/8" thick	100
1-1/2 hr	*2 layers, 1/2" thick	100
2 hr	*3 layers, 5/8" thick, or	80
	*2 layers, 5/8" thick, or	100
	*2 layers, 3/4" thick	100

* Ratings applicable to assemblies serving as exterior walls where Classified fire resistive gypsum sheathing type wallboard is substituted on the exterior face.

Exterior Walls

Rating	Wallboard Protection Both Sides of Wall Number of Layers and Thickness of Boards In Each Layer	Percent of Design Load
45 min	*1 layer, 5/8" thick	100
1 hr	*2 layers, 1/2" thick	100
1-1/2 hr	*2 layers, 5/8" thick,	100
2 hr	*3 layers, 1/2" thick, or	100
	*2 layers, 3/4" thick	100

See Wallboard Gypsum (CKNX) Category for names of Classified Companies of 1/2 in. or 5/8 in. thick wallboard. See below for Classified Company of 3/4 in. thick wall board.
Canadian Gypsum Co - ULTRACODE or Type IP- X3
United States Gypsum Co. - ULTRACODE or Type IP-X3
Yeso Panamericano SA deCV- ULTRACODE or Type IP-X3.

4A. **Wallboard, Gypsum*** - (As an alternate to 5/8 in. thick wallboards in Item 4) Nom 3/4 in. thick.
Canadian Gypsum Co - ULTRACODE or Type AR
United States Gypsum Co. - ULTRACODE or Type AR
Yeso Panamericano SA deCV- ULTRACODE or Type AR

4B. **Wallboard, Gypsum*** - (As an alternate to Items 4 and 4A) - 5/8 in. thick installed as described in Item 4. Joint covering (Item 8) not required for single layer system.
Canadian Gypsum Co - ULTRACODE or Type WSX
United States Gypsum Co. - ULTRACODE or Type WSX
Yeso Panamericano SA deCV- ULTRACODE or Type WSX

5. **Gysum Sheathing and Exterior Facings**-For exterior walls, 1/2 or 5/8 in. thick exterior regular gypsum sheathing applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws, spaced 12 in. O.C. along studs and tracks. One of the following exterior facings are to be applied over the gypsum sheathing.
A. **Siding, Brick, or Stucco** - Aluminum siding, steel siding, brick veneer, or stucco attached to studs over gypsum sheathing and meeting the requirements of local code agencies. When a min 3-3/4 in. thick brick veneer facing is used, the Exterior Wall Rating is applicable with exposure on either face. Brick vennер wall attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.
B. **Mineral and Fiber Boards***- Exterior hardboard paneling, chemically treated over gypsum sheathing with primed or finished face, 7/16 in. thick by 48 in. wide. Attached to studs over gypsum sheathing with 1-7/8 in. long buglehead TEK fasteners 16 in. OC at the intermediate supports. Or, exterior lap siding, chemically treated, 7/16 in. thick by 8 in. or 12 in. wide. Attached to studs with 1-7/8 in. long, bugle head TEK fasteners at each lap. Panels lapped minimum 1 in.
Masonite Corp. - Type FT.
C. **Cementitous Backer Units***-1/2 or 5/8 in. thick, square edge boards, attached to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer head steel screws, spaced 8 in. OC. Studs spaced a max of 16 in. OC. Joints covered with glass fiber mesh tape.
United States Gypsum Co. - Durok Exterior Cement Board or Durock Brand Cement Board.
D. **Wallboard, Gypsum*** - (Not Shown, As an alternate to Item 5C) - 5/8 in. thick installed vertically with 1 5/8 in. long Type S-12 steel screws spaced 12 in. OC along the edges and in the field. Joint covering (Item 8) not required.
Canadian Gypsum Co - ULTRACODE or Type WSX
United States Gypsum Co. - ULTRACODE or Type WSX
Yeso Panamericano SA deCV- ULTRACODE or Type WSX
E. **Molded Plastic*** - Solid Vinyl siding mechanically secured to framing members in accordance with manufacture's recommended installation details.
Associated Materials, Inc. Alside, Div. of Heartland Building Products

6. **Fasteners** - (Not Shown) - Screws used to attach wall board to studs: self-tapping bugle head sheet steel type, spaced 12 in. OC. First layer Type S-12 by 1 in. long for 1/2 and 5/8 in. thick wallboard and 1-1/4 in. long for 3/4 in. thick wallboard. Second layer Type S-12 by 1-5/8 in. long for 1/2 and 5/8 in. thick wallboards and 2-1/4 in. long for 3/4 in. thick wallboard. Third layer Type S-12 by 1-7/8 in. long.
7. **Batts and Blankets***- Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.
See Batts and Blankets (BZJZ) Category for names of Classified Companies.
8. **Joint Tape and Compound** - (Not Shown) - Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layer. Perforated paper tape, 2 in. wide, embedded in first layer of compound over all joints of outer layer.

*Bearing the UL Classification Marketing

© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS MCGAHEY REGISTERED ARCHITECT 9603 NORTH CAROLINA AQUAY-VARNINA NC
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

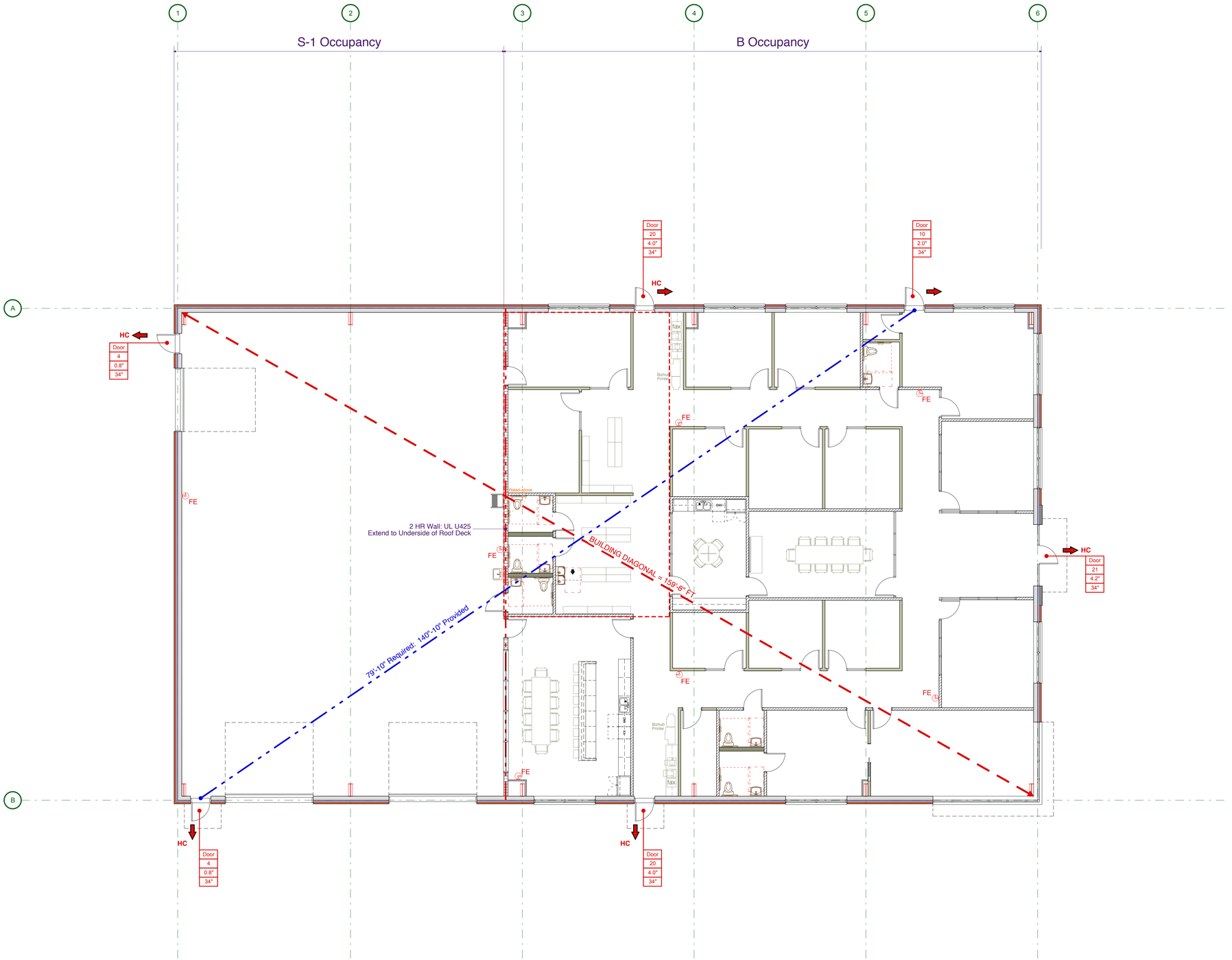
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Code Sheet

A0.02



Door
857
128.6
134

Egress Element
Total Number of Occupants
Required Egress Width
Actual Egress Width

HC — Accessible Entrance

Exit

2 Hour Rated Separation

FE — Fire Extingusher - verify location with local on-site Fire Marshal

General Contractor shall provide required Fire Extinguishers per the local Fire Marshall:

Assume: 5 qty for Office Area
Assume: 2 qty for Shop

Overall SF: 11,468 Sq ft
Office Area SF: 7,119 Sq ft ÷ 100 = 71 Occupants
Work Shop / Storage SF: 4,349 Sq ft ÷ 500 = 8 Occupants

Each exit door @ 34 inch = 170 occ
7 exits shown @ 170 = 1,190 occ exit capacity
Exits governed by 250 foot travel distance

1 **Overall Floor Plan**
Scale: 1/8" = 1'-0"

10' 0 2' 4' 6' 8' 10'

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN GAHEY DESIGN, PA
53338
NORTH CAROLINA
FUQUAY-VARINA, NC

JOHN MORRIS MCGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

© 2022 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

E&M CONCRETE

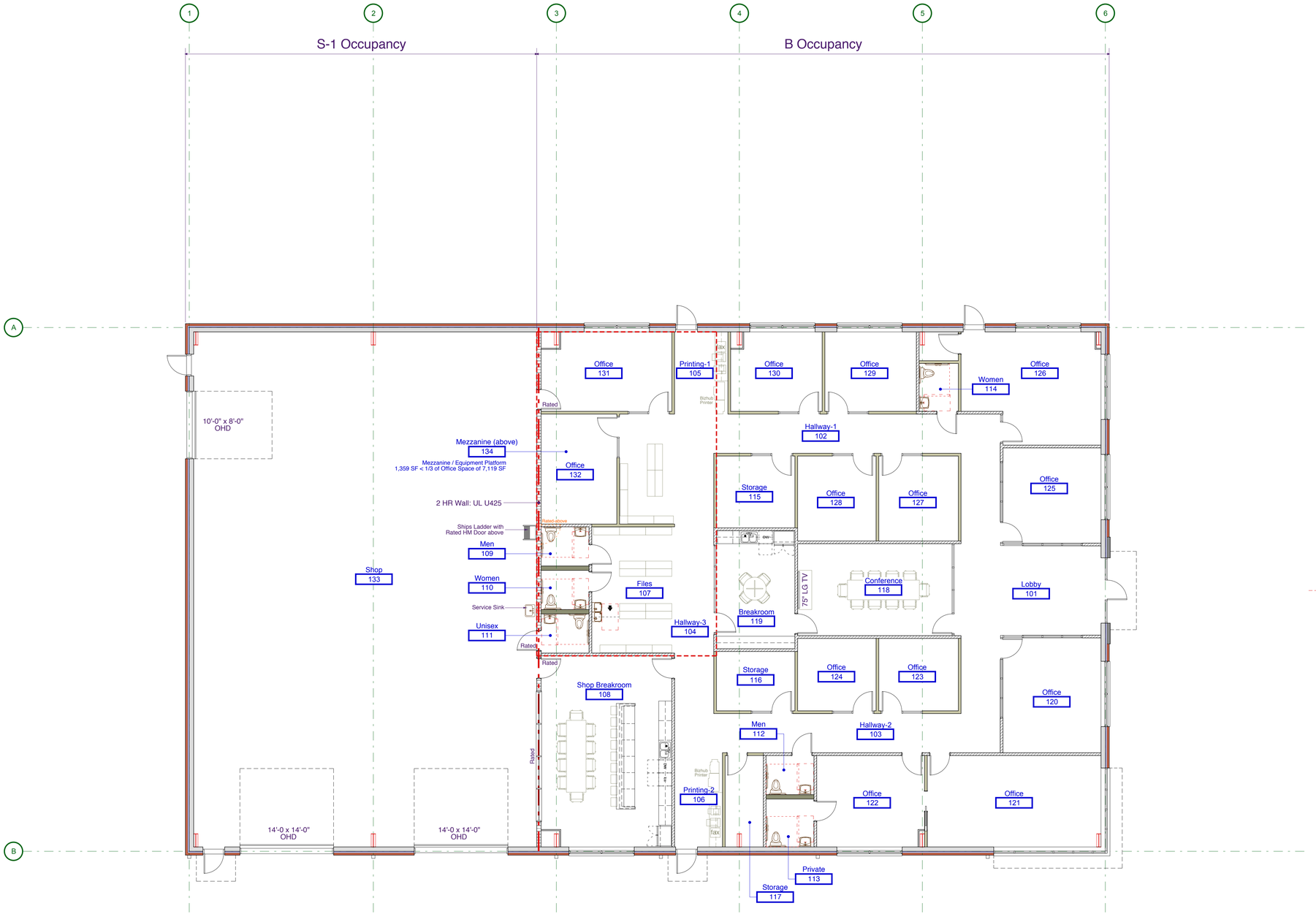
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Life Safety Plan

A0.04



Plumbing Count

[P] TABLE 2902.1—(continued)
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a, g]
(See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*) Male	WATER CLOSETS Female	LAVATORIES Male	LAVATORIES Female	BATHTUBS/ SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE*)	OTHER
1	Assembly (See Sections 2902.2, 2902.3 and 2902.3.2.2)	A-3[d]	Gymnasiums in K-12 Schools[f]	1 per 125	1 per 100	1 per 200		—	1 per 500	1 service sink
			Passenger terminals and transportation facilities	1 per 500	1 per 500	1 per 750		—	1 per 1,000	1 service sink
			Places of worship and other religious services. Churches without assembly halls[d]	1 per 150	1 per 75	1 per 200		—	1 per 1,000	1 service sink
		A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities[e]	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
			K-12 Stadiums, bleachers and grandstands for outdoor sporting events and activities[m]	1 per 125	1 per 100	1 per 250	1 per 200	—	1 per 1000	—
2	Business (See Sections 2902.2, 2902.3 and 2902.3.2.2)	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	1 service sink[k]
3	Educational	E[b]	K-8 9-12 Teacher/Staff	1 per 25 1 per 30 1 per 30		1 per 25 1 per 25 1 per 25	1 per 60 1 per 100 1 per 100	—		1 per 100

[P] TABLE 2902.1—continued
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 2902.1.1 and 2902.2)

No.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2 OF THE *INTERNATIONAL PLUMBING CODE*) Male	WATER CLOSETS Female	LAVATORIES Male	LAVATORIES Female	BATHTUBS OR SHOWERS	DRINKING FOUNTAINS (SEE SECTION 410 OF THE *INTERNATIONAL PLUMBING CODE*)	OTHER
7	Residential *(continued)*	R-3[j]	One- and two-family dwellings and lodging houses with five or fewer guest rooms	1 per dwelling unit		1 per 10		1 per dwelling unit	—	1 kitchen sink per dwelling unit; 1 automatic clothes washer connection per dwelling unit[f]
		R-3	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
		R-4	Congregate living facilities with 16 or fewer persons	1 per 10		1 per 10		1 per 8	1 per 100	1 service sink
8	Storage	S-1 S-2	Structures for the storage of goods, warehouses, storehouses and freight depots, low and moderate hazard[m,n]	1 per 100		1 per 100		See Section 411 of the *International Plumbing Code*	1 per 1,000	1 service sink

a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by this code.
b. Toilet facilities for employees shall be separate from facilities for inmates or care recipients.
c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient *sleeping units* shall be permitted, provided that each patient *sleeping unit* has direct access to the toilet room and provisions for privacy for the toilet room user are provided.
d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
e. The number of fixtures provided shall be based on either the capacity of the church sanctuary or the church educational building (including fellowship halls and multiple purpose rooms), whichever is larger and within 500 feet (91.44 m).
f. For attached one- and two- family dwellings, one automatic clothes washer connection shall be required per 20 dwelling units.
g. A mop receptacle with a water supply, or a hose bib and floor drain, may be used in lieu of a service sink.
h. A can wash may be used in lieu of a service sink.
i. See Section 2902.9 for additional information on plumbing fixtures for schools.
j. When the rearrangement of an area or space increases the occupant content, the plumbing facilities shall be increased in accordance with this code.
k. For baseball stadiums, the number of fixtures shall be reduced by 50 percent.
l. Service sink may be omitted when located within a single-family dwelling.
m. Self-service mini-service facilities without an office area are exempt.
n. Unheated storage buildings that are used periodically are not required to have toilet rooms.
o. For business and mercantile occupant loads of 25 or fewer, service sinks shall not be required.
p. See Section 2902.7 for adjustments in occupant count.

NORTH CAROLINA PLUMBING CODE Plumbing Fixture Requirements

Edition: 2018

Occupancy	Description	Occupant Load / Number of Units or Rooms	Male Water Closets Ratio	Male Water Closets Required	Female Water Closets Ratio	Female Water Closets Required	Male Lavatories Ratio	Male Lavatories Required	Female Lavatories Ratio	Female Lavatories Required	Drinking Fountains Ratio	Drinking Fountains Required
Business	Buildings for the transaction of business, professional services, other services involving	71	1 per 25 for the first 50 then 1 per 50	1.42	1 per 25 for the first 50 then 1 per 50	1.42	1 per 40 for the first 80 then 1 per 80	0.89	1 per 40 for the first 80 then 1 per 80	0.89	1 per 100	0.71
Storage	Structures for the storage of											
				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Totals		79	Exact	1.46		1.46		0.93		0.93		0.72
			Rounded	2		2		1		1		1

2 men's water closets and 2 women's water closets on the group B side
Occ = 71/30 =2.36 fixtures (403.1.1) rounded to 3/50%= 1.5 rounded to 2.
403.2 Ex5 allows exception for unisex only when 1 is required for each sex.
A single unisex for the S-1 side is sufficient if there is 2hr separation.

Overall SF: 11,468 Sq ft
Office Area SF: 7,119 Sq ft ÷ 100 = 71 Occupants
Work Shop / Storage SF: 4,349 Sq ft ÷ 500 = 8 Occupants

1 **Plumbing Fixture Count**
Scale: 1/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

NORTH CAROLINA REGISTERED ARCHITECTURAL CORPORATION 53338 McGAHEY DESIGN, PA FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY REGISTERED ARCHITECT 9603 NORTH CAROLINA FUQUAY-VARINA, NC 9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2022 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

PROJECT: 2022-12
DATE ISSUED: 09.05.24

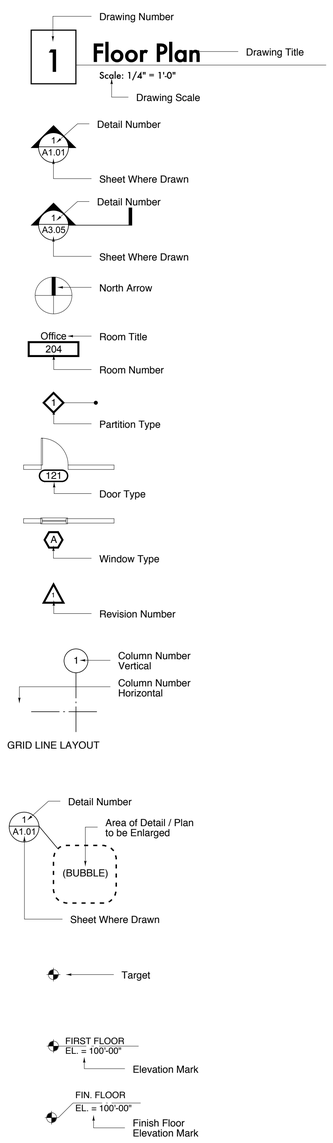
REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Plumbing Code Fixture Count

A0.05

Graphic Standards and Abbreviations



Alum	Aluminum
AB	Anchor Bolt
AFF	Above Finish Floor
AUFF	Above Upper Finish Floor
AFS	Above Finish Slab
APPROX	Approximate
ARCH	Architectural
@	At
AVG	Average
BB	Back To Back
BSMT	Basement
BRG	Bearing
BM	Benchmark
BLKG	Blocking
BLDG	Building
CH	Ceiling Height
CL	Centerline
CC	Center To Center
COL	Column
CONC	Concrete
CMU	Concrete Masonry Unit
CONT	Continuous
CJ	Ceiling Joist
CRS	Courses
DET	Detail
DIA	Diameter
DBL	Double
DS	Down Spout
EA	Each
EIFS	Ext Insulated Finish Sys.
EW	Each Way
ELEC	Electrical
ELEV	Elevation
EXIST	Existing
EJ	Expansion Joint
ETS	Expose To Structure
EXT	Exterior
FIN FL	Finish Floor
FE	Fire Extinguisher
FFE	Finish Floor Elevation
FD	Floor Drain
FTG	Footing
GALV	Galvanized
GA	Gauge
GL	Glass
GYP	Gypsum
HM	Hollow Metal
HOR	Horizontal
HB	Hose Bb
INSUL	Insulation
INT	Interior
JST	Joist
LAV	Lavatory
MH	Manhole
MO	Masonry Opening
MAT	Material
MAX	Maximum
MIN	Minimum
MTD	Mounted
MLDG	Moulding
NIC	Not In Contract
NTS	Not To Scale
NO	Number
OC	On Center
OH	Opposite Hand
OPNG	Opening
PNL	Panel
PL LAM	Plastic Laminate
PL	Plate
PLMB	Plumbing
PLWD	Plywood
LB (#)	Pound
PREFAB	Prefabricated
PSI	Pounds Per Square Inch
PT	Pressure Treated
REQUD	Required
R	Riser
RD	Roof Drain
SAN	Sanitary
SECT	Sections
SHT	Sheet
SHTG	Sheathing
SIM	Similar
SPEC	Specification
SQ	Square
STD	Standard
STL	Steel
STOR	Storage
T&G	Tongue And Groove
TOF	Top Of Footing
TOJ	Top Of Joist
TOS	Top Of Steel
TOW	Top Of Wall
T	Tread
TYP	Typical
UNFIN	Unfinish
UON	Unless Otherwise Noted
VERT	Vertical
WWM	Woven Wire Mesh
W /	With
W / O	Without
WD	Wood

Partition Notes

1. Do Not Scale Drawings, written dimensions shall establish location of all Partitions. Larger Scale Drawings have priority over smaller Scale Drawings. Contractor to Notify Architect of any Discrepancies in the Drawings before proceeding with Construction.

2. Partitions are dimensioned from Face of Gypsum Board, Face of Masonry and to Face of Existing Construction. (Where Applicable)

3. Partitions are Perpendicular and/or Parallel to Column Grid or existing construction. Unless Otherwise Noted.

4. Notes to "Align" shall mean to Align Finished Face of Partition and shall have priority over a dimensioned locations. (UON)

5. Perimeter Dimensions are to Face of Wall below Sill. (UON)

6. Provide Fire Retardant Treated Wood Blocking as required for attachment of Wall Mounted Hardware, Toilet Assecories, Casework, Millwork, Finish Carpentry and to secure attachments of adjoining work.

General Notes

1. Conform to State, Local and National Codes and Ordinances as are applicable to the Work and including but not limited to The North Carolina State Building Code, The Americans With Disabilities Act (ADA), National Electric Codes, ASTM Specifications, And OSHA Safety Regulations.

2. Comply with all Laws, Ordinances, Codes, Rules and Regulations pertaining to the Environmental Protection Agency (EPA). The cost of all required Inspections and Permits shall be the responsibility of the Contractor.

3. All work shall be performed in accordance or compliance with all applicable local, state, and federal codes and ordinances. In the event of conflict between these plans and codes, the governing code shall prevail.

4. Supply and Pay for all Labor, Transportation, Materials, Tools, Apparatus, Lights, Power, Heat, Sanitary Facilities, Water, Scaffolding, and incidentals necessary for the completion of Contracted Work.

5. Install, Maintain and Remove all Equipment, other utensils or things used for the Construction of the Project prior to Substantial Completion. If such items are left after Completion of the Project, they shall become Property of the Owner. The Owner may promptly dispose of such items, and will not be subject to claims for the Contractor resulting from such disposition.

6. Construct all work in a Professional Manner, a complete job and everything incidental thereto, as shown or reasonably implied from the Plans, all Work shall be completed in accordance with the Contract Documents.

7. Verify all dimensions and conditions prior to proceeding with the Work and notify the Architect in writing of any discrepancies discovered to request clarification. If the General Contractor observes the Contract Documents to be contrary to Governing Laws, Ordinances, Codes, Rules and Regulations or otherwise questionable conditions, He shall promptly notify the Architect in writing for instructions prior to proceeding with the Work.

8. Keep the Building and surrounding area reasonably free from rubbish at all times. At a minimum, debris shall be removed from the site on a weekly basis or as directed by the Project Expeditor.

9. Locate all existing utilities. The General Contractor may not interfere with adjacent utilities unless prior notice and permission is received from those who may as a result of this interference be affected.

10. Prior to any work, Call "NC One Call Center" @ 800.632.5050 and other locating services as to confirm location of utilities.

11. Prior to Final Inspection and acceptance of the Building, each Subcontractor shall clean his portion of the Work, including Glass, Hardware, Fixtures, Masonry, Tile and Marble (using No Acid), Clean and Wax all floors as specified and completely prepare the Building for use by the Owner.

12. File with the Owner, Current Insurance Certifications in the amounts requested by the Owner for Builder's Risk, Workmen's Compensation, Comprehensive General Liability, Bodily Injury and Property Damage. This Insurance shall indemnify the Owner and the Architect of any and all costs, claims, suits and judgements for Property Damage and Personal Injury (including General) arising out of the General Contractor's Actions.

13. Provide all necessary Safety Measures for the Protection of all Persons working on stated project, including the requirements of the A.G.C. Accident Prevention Manual in Construction as amended, and shall fully comply with all state laws or regulations and North Carolina State Building Code requirements to prevent accident or injury to persons on or about the location of stated project.

14. Clearly mark or post signs warning of hazards existing, and barricade excavations, elevator shafts, stairwells and similar hazards. Protect against damage or injury resulting from falling materials and maintain all protective devices and signs throughout the progress of the Project.

15. These plans have been prepared to limit, convey, explain, and define specific work. The General Contractor is solely responsible for methods and means. The mechanical, electrical, and plumbing aspects of this design are built by the General Contractor, therefore it is a mandatory requirement for this project that the plumbing, mechanical, electrical subcontractors visit the site prior to bidding, to thoroughly familiarize themselves with the existing conditions and the proposed improvements. No request for change in contract price will be considered for work required that could have been determined by a thorough inspection of the work area and review of the proposed improvements.

16. Coordinate work with other contractors to provide working systems and the best appearance as determined by the Owner.

17. Omissions from the drawings of the work, which are customarily performed, shall not relieve the contractor from performing such omitted details of the work. All work shall be performed as fully and correctly as set forth and describe in the drawings.

18. All drawings and specifications are interdependent on one another and cannot be separated by discipline since information important to all trades can be found throughout the documents.

19. Notes appear on various drawings for different trades, systems and materials. Review all drawings and apply notes to related building components. Refer to mechanical, electrical and plumbing drawings for additional general notes, abbreviations, and symbols.

20. These construction documents are the exclusive property of McGahey Design, PA (MD). Any reproduction, modification, disclosure and or use of these materials (or any portion of them) without MD's prior written consent is strictly prohibited.

21. The Architect is the sole Interpreter of the contract documents including any apparent conflicts or omissions. The General Contractor shall report any conflicts to the Architect prior to Bid and Construction, otherwise it shall be assumed the General Contractor fully understands the requirements of the contract documents.

22. Refer to Engineering specifications and shop drawings by others for additional coordination requirements.

23. The General Contractor shall check all drawings furnished to him immediately upon their receipt, and shall promptly notify Architect or Engineer of any discrepancies. The General Contractor shall compare all drawings and verify the Dimensions before laying out the work, and will be responsible for any errors which might have been avoided thereby.

24. Subcontractors bidding this project should carefully review all pages of the plans. General Contractor should insure that subcontractors review complete sets of drawings.

25. The General Contractor shall coordinate all portions of the work as described in the construction documents.

26. The General Contractor shall provide transition strips where all dissimilar floor finishes meet and blocking for all items to be anchored or secured to walls, floor, and ceilings. The contractor shall conceal all piping and conduit in walls, floors, above ceiling ceilings, etc. (Unless Otherwise Noted)

27. All sections, details, materials, etc. that are shown and or noted on any plan, section, detail or schedule shall apply to all other similar locations unless noted otherwise.

28. This project must be supervised by the General Contractor's personnel at all times.

29. The General Contractor shall bear the full responsibility and cost for temporary power and utilities, refuse removal, and liability and workman's compensation insurance.

General Notes

30. General Contractor shall provide painted lettering using stencil on each Fire Rated Wall stating the hourly rating of said partition and giving instructions that all penetrations must be protected - paint above ceiling for new construction, not for existing construction.

31. General Contractor shall clean space of all construction debris, and sweep broom clean, prior to turn over to the Owner.

32. General Contractor to provide fire extinguishers and cabinets shown on the plan and to be verified by local fire Marshall.

33. General Contractor is responsible for becoming familiar with the requirements of all construction documents, which include drawings, and specifications the contract of construction. General conditions of the contract and all addendums.

34. General Contractor shall consult and coordinate with the Owner regarding limitations for the site access, mobilization, construction work hours, and if additional work is being done by the Owner with or without separate contracts.

35. General Contractor shall consult and coordinate with the owner for items if any, purchased directly by the owner but installed by the General Contractor.

36. General Contractor to coordinate installation of manufactured items, products, and systems to fit in space shown. Minor adjustments to construction to allow for installation are included in the contractor's scope of work since the dimensions of the items actually purchased may vary from the construction documents. Notify Architect of any Discrepancies before installation.

37. The General Contractor shall be responsible for the entire site and the building or construction of the same and provide all the necessary protections as required by laws or ordinances governing such conditions and as required by the Owner or Architect. The General Contractor shall be responsible for any damage to the Owner's property, or that of others on the job, by himself, his personnel or his subcontractors, and shall make good such damages. The General Contractor shall be responsible for and pay for any claims against the Owner arising from such damages.

38. Submit shop drawings and other drawings (as may be requested) for review by the Owner to confirm that the Contractor's work meets the Design Intent.

39. Do not place work on top of defective work without Written Approval of the Owner. Notify the Owner in writing of defective work prior to proceeding. Where materials are applied to, or are in direct contact with work installed by another subcontractor, commencement of work implies acceptance of the substrate as suitable for the application intended.

40. Not Used.

41. Effectively isolate dissimilar metals to avoid molecular breakdown.

42. Provide special attention to expansion and contraction of materials and joints to avoid failure. Notify the Owner of additional Control Joints recommended by Trade Organizations or Manufacturer's Literature.

43. Not Used.

44. Protect all Work upon installation including that installed by other Trades.

45. Use only materials specified.

46. Provide a quality assurance plan to the Owner for Approval.

47. Partition types and fire resistance ratings indicated on a wall are to be continuous for the length and height of a partition. Unless otherwise designated, walls shall be constructed as Wall Type #1.

48. Openings in Rated Wall, Floor, Ceiling and Roof assemblies shall be sealed with penetration sealant systems meeting or exceeding the required Fire Resistive Ratings. Holes less than 2" in diameter may be firestopped. Holes 2" to 8" shall be patched with concrete over a 1/4" steel decking patch. (If Required)

49. Where located in Fire Rated Construction, provide cabinets, panels, boxes, etc. that are designed for installation in rated work. Maintain the Fire Rating of construction around cabinets, panels, and boxes recessed in Fire Rated Wall, Floor, and Ceiling Assemblies.

50. Do Not Scale the Drawings. Contact Architect for clarifications of dimensions.

51. Fully layout grid, wall, and opening placement in an area prior to start of partition construction. Verify that dimensions are consistent with requirements indicated in the documents. Refer any dimensional inconsistencies to the Architect / Owner for resolution prior to the start of partition construction.

52. Partitions located by a dimension string are dimensioned to the face of the finished wall surface unless noted otherwise.

53. Partitions not dimensioned are generally located by one of the following criteria:

A. Centerline - center of partition aligns with the center of gridline or object centerline (such as a column or window mullion) center the overall partition width, rather than stud width on the line.

B. Align - locate partition flush with face of gypsum board, or other surface indicated. partitions that meet existing construction in the same plane are to be flush with no visible joint.

C. Maintain dimensions noted as 'minimum' or 'clear'.

54. Door Openings, if not dimensioned, are from the hinge side of door jamb and shall be spaced 4" from the adjacent wall.

55. Field Measure and Guarantee dimensions for Owner provided equipment and furnishings.

56. Provide stiffeners, bracing, backing plates and blocking required for secure installation of doors and door hardware including wall-mounted door stops, handrails, miscellaneous equipment, and suspended mechanical and electrical equipment.

57. Coordinate all work with mechanical and electrical contractors. Ceiling heights and duct layouts require field verification and careful preplanning. Coordinate installation of diffusers, speakers, sprinkler heads, and access panels with lighting layout and report any conflicts to the Architect prior to installation.

58. Provide access panels in gypsum board ceilings, if not shown, as required to access all mechanical equipment in the ceiling cavity requiring normal maintenance or operation, including but not limited to constant air, or variable air volume boxes, reheat coils, valves, exhaust fans, balancing dampers, fire dampers, smoke dampers, fire/smoke detectors, clean outs, or if not shown, as required to access all mechanical equipment and electrical equipment including but not limited to panels, cut-offs and junction boxes. Submit layouts of all required ceiling elements, including access panels, for Owners' review prior to installation. Locate equipment and valves to minimize the need for access panels.

59. Gang multiple switches together into one box with a single cover plate whenever possible. Multiple switches, which cannot be ganged together in the same box, shall be located as close together as possible and mounted at the same height.

General Notes

60. Do not install outlet or J-boxes back-to-back on opposite sides of the wall boxes must be separated by a stud.

61. Caulk exterior wall outlets and other wall penetrations to eliminate air infiltration.

62. Prepare all existing surfaces to be refinished fill and/or sand all surface irregularities. Contractor shall verify compatibility of new finishes with existing substrates. Upon investigation, existing substrate is not compatible, Contractor is responsible for preparation of existing substrate to make compatible with new finishes.

63. New structural steel shall be fireproofed to meet requirements shown on code sheet.

64. Existing Fireproofing shall be maintained to meet existing requirements. Where the Contractor removes Existing Fireproofing for the installation of new work or damages Existing Fireproofing, the Contractor shall patch the Fireproofing to meet existing requirements. Prior to the beginning of new work, the Contractor shall perform a survey of the existing exposed sprayed Fireproofing and verify that it meets the existing requirements. Where the existing sprayed Fireproofing does not meet requirements, the Contractor shall increase the Fire Protection to meet the existing requirements.

65. All concrete slabs to be demolished shall be cut with a concrete saw.

66. Provide slip jointed partition tracks and 'soft joint' between partitions and structure deck above as required in order to provide struct isolation & intentional load bearing situations.

67. Not Used

68. Not Used

69. Not Used

70. The General Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the General Contractor may be returned by the Architect without action.

71. The General Contractor Reviews and Approves Submittals. Submittals represent that the General Contractor has selected and coordinated appropriate products, has reviewed the submittals, and has determined and confirmed the finite details and dimensions required to complete the work. By approving and submitting submittals, the General Contractor represents that the General Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information within such submittals with the requirements of the Work and of the Contract Documents. This describes this routine procedure throughout the industry. The purpose for the General Contractor's check is to coordinate and verify that the work, as the General Contractor has divided it among the trades, will comply with the requirements of the contract documents.

APWA UNIFORM COLOR CODE

FOR MARKING
UNDERGROUND UTILITY LINES

	PROPOSED EXCAVATION
	TEMPORARY SURVEY MARKINGS
	ELECTRIC POWER LINES, CABLES, CONDUIT AND LIGHTING CABLES
	GAS, OIL, STEAM, PETROLEUM OR GASEOUS MATERIALS
	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES OR CONDUIT
	POTABLE WATER
	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
	SEWERS AND DRAIN LINES

Dial 811 before you dig.

Need the status of a locate? 1-877-632-5050

North Carolina 811 www.nc811.org

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN PA
53338
NORTH CAROLINA
FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

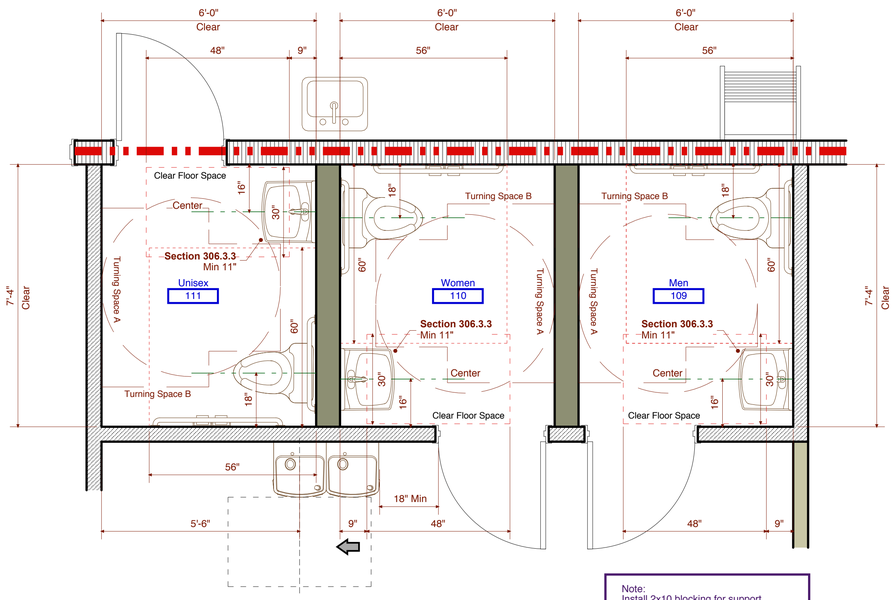
PROJECT:	2022-12
DATE ISSUED:	09.05.24

REVISIONS:	DATE

DRAWN BY:	JMM
CHECK BY:	JMM

General Notes

A0.09



Note:
Install 2x10 blocking for support
of all restroom fixtures and/or hardware.
Typical for All

Note:
All Concealed Wood Blocking shall be
Fire Retardant Treated Wood - Typical

603.2.1 Turning Space. A turning space complying with Section 304 shall be provided within the room.

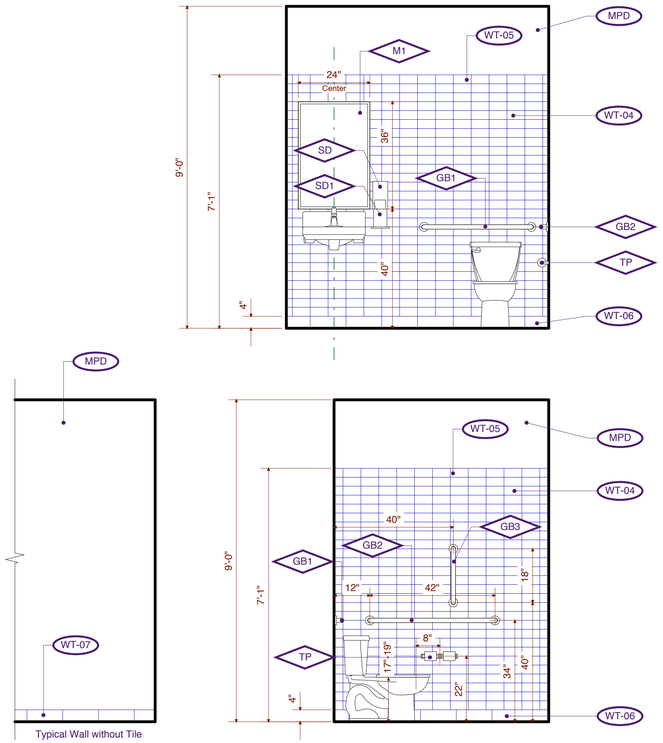
603.2.2 Overlap. Clear floor spaces, clearances at fixtures and turning spaces shall be permitted to overlap.

603.2.3 Door Swing. Doors shall not swing into the clear floor space or clearance for any fixture.

1 Enlarged Plan

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

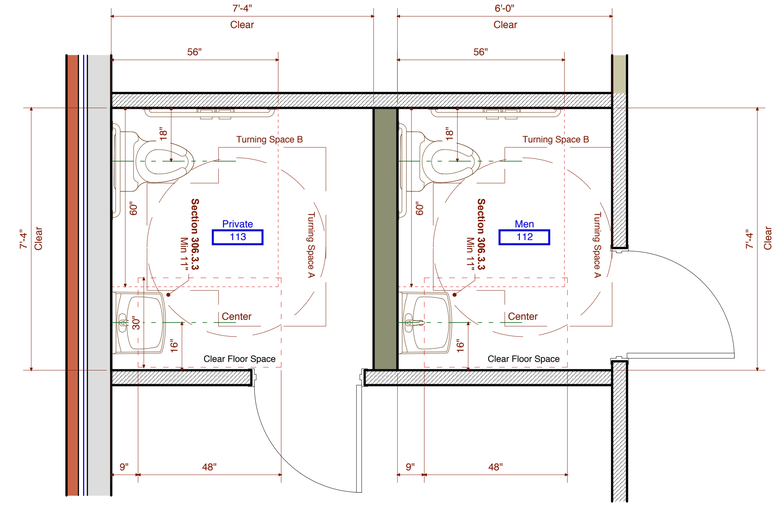
2' 0 6" 12" 18" 24"



4 Restroom Interior Elevations

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

2' 0 6" 12" 18" 24"



Note:
Install 2x10 blocking for support
of all restroom fixtures and/or hardware.
Typical for All

Note:
All Concealed Wood Blocking shall be
Fire Retardant Treated Wood - Typical

603.2.1 Turning Space. A turning space complying with Section 304 shall be provided within the room.

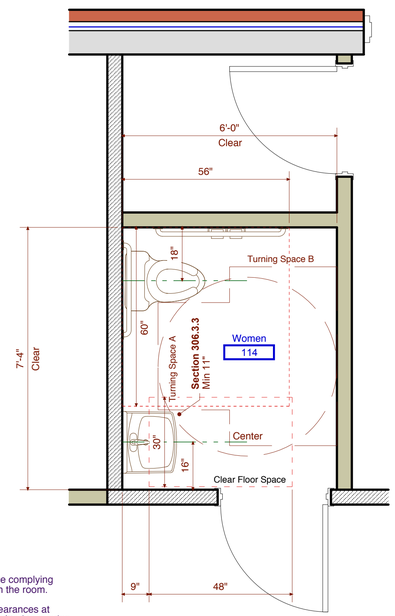
603.2.2 Overlap. Clear floor spaces, clearances at fixtures and turning spaces shall be permitted to overlap.

603.2.3 Door Swing. Doors shall not swing into the clear floor space or clearance for any fixture.

2 Enlarged Plan

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

2' 0 6" 12" 18" 24"



Note:
Install 2x10 blocking for support
of all restroom fixtures and/or hardware.
Typical for All

Note:
All Concealed Wood Blocking shall be
Fire Retardant Treated Wood - Typical

Refer to 4/A0.11 for Restroom Walls
that have Wall Tile - Typical

603.2.1 Turning Space. A turning space complying with Section 304 shall be provided within the room.

603.2.2 Overlap. Clear floor spaces, clearances at fixtures and turning spaces shall be permitted to overlap.

603.2.3 Door Swing. Doors shall not swing into the clear floor space or clearance for any fixture.

3 Enlarged Plan

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

2' 0 6" 12" 18" 24"

Restroom Equipment

Washroom Equipment, Inc.

Bobrick (B) if listed or approve equal

M1	B-165 2436 Welded-Frame Mirror - satin finish
TP	B-2740 Toilet Tissue Dispenser for Two Rolls - satin finish
GB1	B-6806x36 36" GrabBar - satin finish
GB2	B-6806x42 42" GrabBar - satin finish
GB3	B-6806x18 18" GrabBar - satin finish
H1	B-682 Coat Hook - satin finish
SD	B-2111 Soap Dispenser - Wall Mounted
SD1	Georgia Pacific Drip Soap Tray Commercial-Strength White GP enMotion Soap Dispenser Drip Tray ADA Compliant Version - Wall Mounted

Interior Finishes

1	Granite Countertop (Granite Backsplash where shown) - Owner and Architect to select Color
2	Fabricated Stainless Steel Sink to meet ADA Requirements
3	Laminated Wall Cabinet - Wilsonart 15512 Designer White Velvet
4	Laminated Base Cabinet - Wilsonart 8239 Cenizo Cherry
VB	Vinyl Base
WTE	1/4" Aluminum Trim Edge - at all outside corners (If Required)
MPD	Moisture Resistant Painted Drywall
PD	Painted Drywall

General Notes:

A. Provide Flooring Transitions at the Centerline of Closed Door - Typical for All
B. Feather Floor where Flooring Material Heights are uneven. Use Ardex or Equal Feathering Material
C. Finishes to continue into Closets, Including Floor, Base, Wall and Ceiling Finishes - Typical for All
D. Floor Transition Strips to Match Adjacent Floor Surfaces. Use Minimum Width Transition Required for Application. Use Schluter Transitions or Equal
   Note 1: Include all transition strips, edge strips, etc for complete installation within Floor Area and Transition from Floor Materials
   Note 2: Verify Sealer will withstand Client's requirements per Area Shown
   Note 3: ADA Marble Threshold at Door Opening
E. All Items to be Painted to Receive (3) Coat System, (1) Coat Of Primer and (2) Coats of Finish Paint In Finish Specified. Tint Primer if Finish Color is Not White Typical
F. Install All Finishes per Manufacturer Recommendations
G. Finish All Cover Base Corners and Edges per Factory Recommendations
H. Vinyl Cove Base, Not to be Installed at Glass Storefront Systems - Typical for All
I. Carpet Pattern to be reviewed and selected by Owner and Architect
J. Solid Wood Doors to Be Mohawk or Equal: Plain slice book matched birch with honey finish Sample required for Final Approval - Verify with Owner and Architect
K. Hollow Metal Doors and Frames to be Painted, Owner and Architect to select
L. Granite Sill used for "All Window Sills" (Round Edge) match Work Counters and Cabinet Counters
M. Submit Product Samples of All Finishes for Review. Typical
N. When referencing North, South, etc. This refers to Plan North, Plan South, etc.

WT-04	Manufacturer: Daltile or Equal Pattern: 3x6 Stack Tile - Wall Color: White Subway Tile - matte	Subway Wall Tiles Restrooms, Backsplash at Countertops
WT-05	Manufacturer: Daltile or Equal Pattern: 3x6 Stack Tile - Bullnose Color: White Subway Tile - matte	Subway Wall Tiles Restrooms, Backsplash at Countertops
WT-06	Manufacturer: Daltile or Equal Pattern: 4x12 Stack Tile - Wall Color: Charcoal	Base around Restrooms on Tile Walls
WT-07	Manufacturer: Daltile or Equal Pattern: 4x12 Stack Tile - Bullnose Color: Charcoal	Base around Restrooms where Drywall is shown

Note: Install 5/8" Cement Board where Wall Tile is shown
Verify Locations prior to installation

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

NCGAHEY DESIGN PA 53338 NORTH CAROLINA REGISTERED ARCHITECTURAL FIRM FUQUAY-VARINA N.C.

JOHN MORRIS McGAHEY 9603 REGISTERED ARCHITECT NORTH CAROLINA FUQUAY-VARINA N.C. 9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA

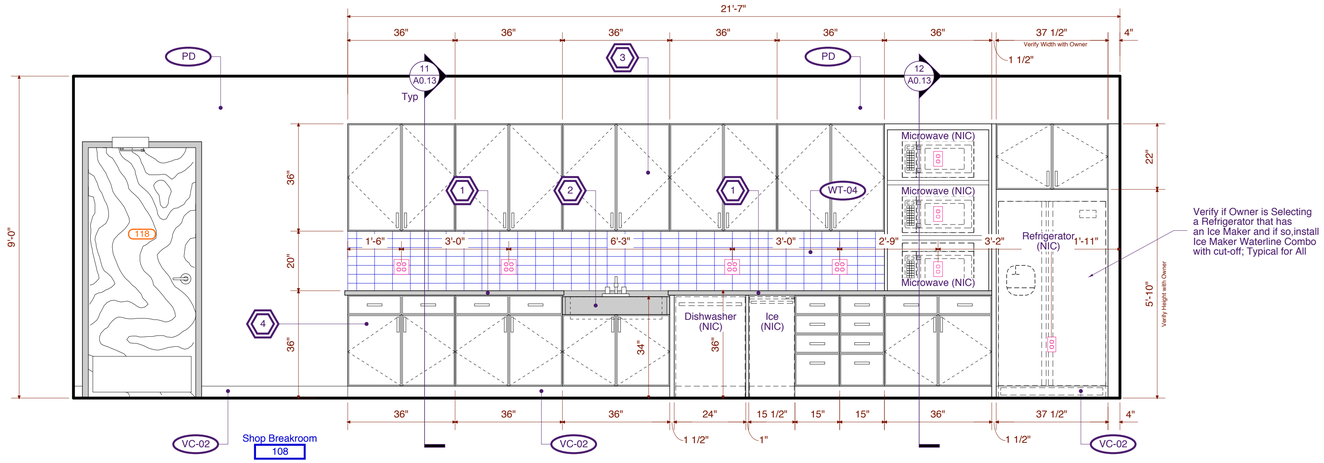
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

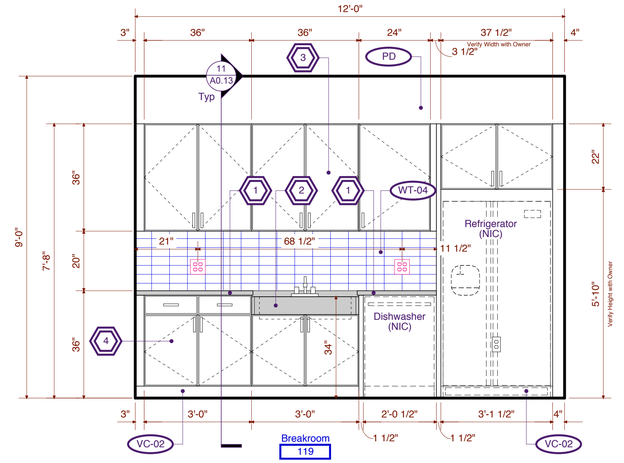
Accessibility Code Requirements with ICC/ANSI A117.1 Enlarged Plans

A0.11



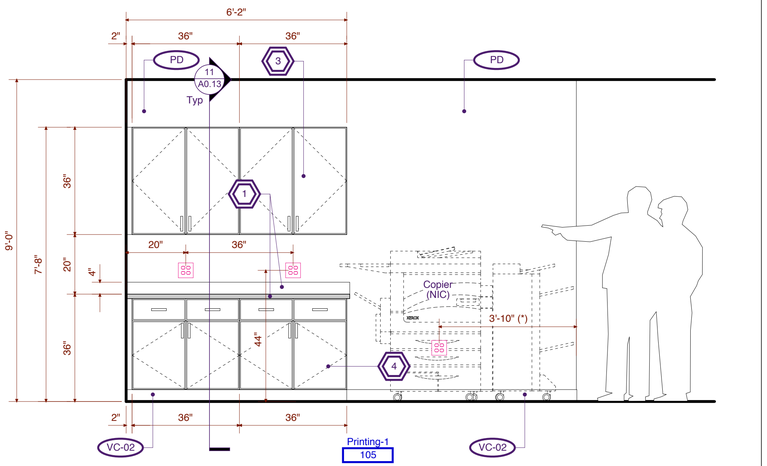
1 Interior Elevation

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



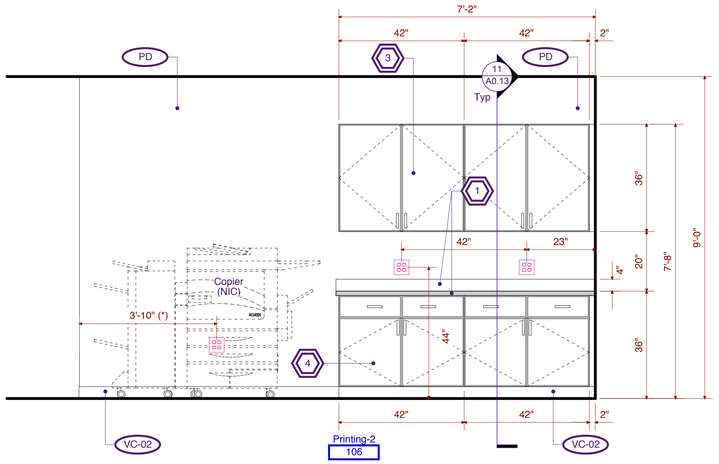
3 Interior Elevation

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



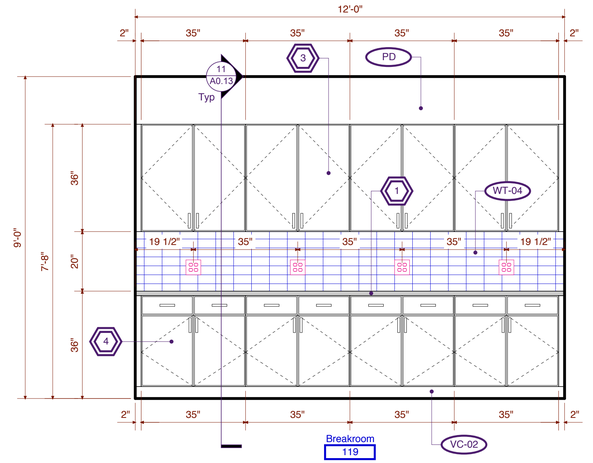
4 Interior Elevation

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



5 Interior Elevation

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

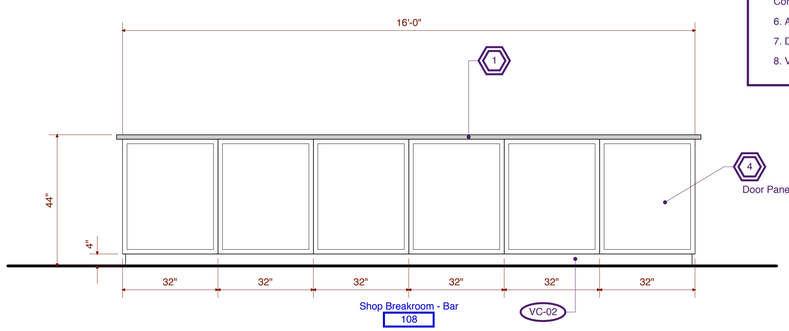


6 Interior Elevation

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

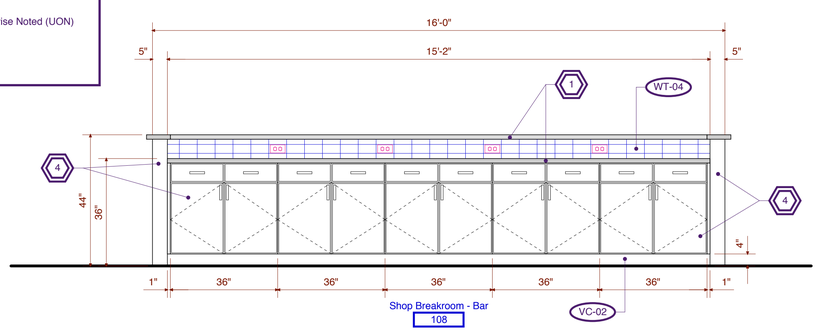
Millwork General Notes

1. General Contractor to coordinate with Plumbing Subcontractor on Exact Locations of Plumbing Fixtures
2. Exposed Hot Water Supply and Drain Lines to be covered with Pipe Insulation
3. All Millwork to Comply with AWI's "Architectural Wood Work Quality Standards" for Grades of Interior Architectural Woodwork Indicated for Construction, Finishes, Installation and other Requirements
4. General Contractor to Field verify All Conditions and verify Equipment Sizes prior to Millwork Fabrication
5. All Wall and Base Cabinets are Constructed of Pressed Particle Board Covered in Plastic Laminate with Concealed Hinges
6. All Base Cabinets shall be 24" Deep, All Wall Cabinets shall be 12" Deep Unless Otherwise Noted (UON)
7. Door and Drawer Pulls to be Richeieu Contemporary Metal 8160, Chrome (UON)
8. Verify with Owner and Architect All Finish Specifications



7 Interior Elevation

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



8 Interior Elevation

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

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN, PA
53338
NORTH CAROLINA REGISTERED
FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY
9603
NORTH CAROLINA REGISTERED ARCHITECT
FUQUAY-VARINA, NC
9.5.24

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

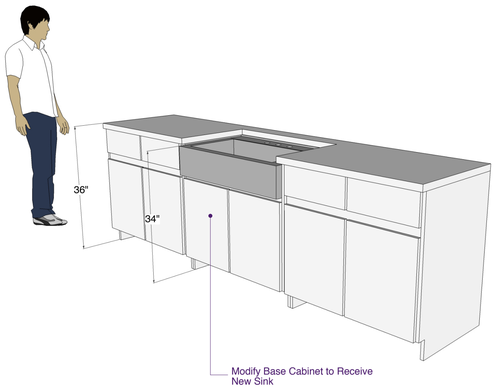
E&M CONCRETE INC.

E&M CONCRETE

PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

Accessibility Code Requirements with ICC/ANSI A117.1 Interior Elevations

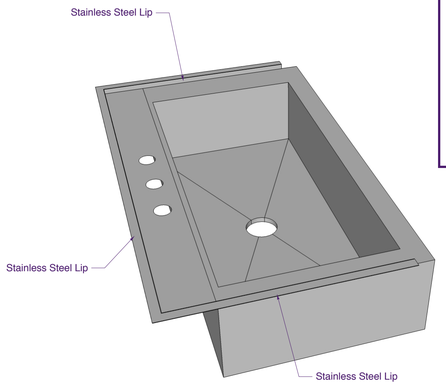
A0.12



1 ADA Breakroom Sink Model

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

2' 0 6" 12" 18" 24"



2 ADA Breakroom Sink Model

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

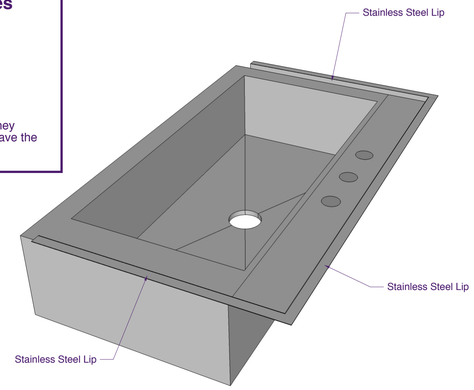
2' 0 6" 12" 18" 24"

Stainles Steel Specialties

Contact: Steve
email: steve@ssspec.com
919.779.4290

Address:
2025 Carr-Pur Drive
Raleigh, NC 27603

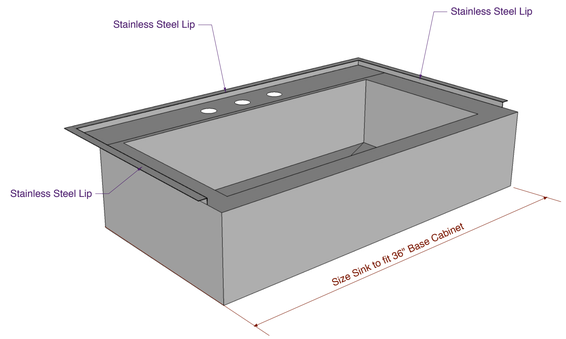
Ask for Sink Designed by John McGahey that meets ADA Requirements, they have the design on file.



3 ADA Breakroom Sink Model

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

2' 0 6" 12" 18" 24"

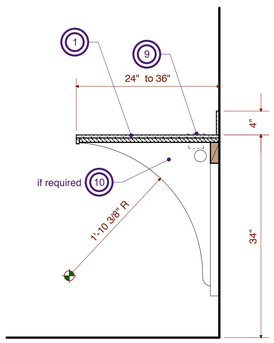


4 ADA Breakroom Sink Model

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

2' 0 6" 12" 18" 24"

Note: General Contractor shall supply all blocking required to support all cabinetry and furniture as shown. Typical



IF REQUIRED

5 Millwork Section

Scale: 1" = 1'-0"

1' 0 3" 6" 9" 12"

Note: General Contractor shall supply all blocking required to support all cabinetry and furniture as shown. Typical

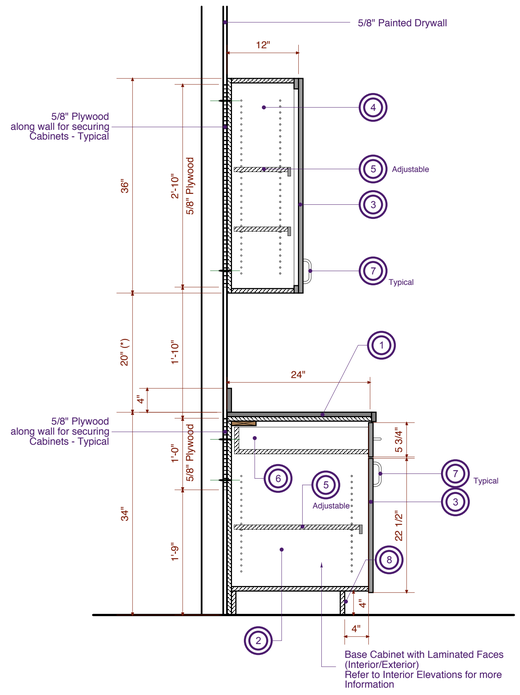
Note: Frameless Cabinetry with Soft Close European Hinges

1. 3/4" Solid Surface Countertop - Backsplash (where shown) with Eased Edge (1 1/4" Profile)
2. Laminated Base Cabinet Frameless Cabinetry with European Hinges
3. 3/4" Laminated Door with European Hinges
4. Laminated Wall Cabinet Frameless Cabinetry with European Hinges
5. 3/4" Laminated Shelf
6. Laminated Drawer
7. Drawer Handle
8. 3/4" Kickplate with Cove Base
9. Grommet
10. Countertop Support Bracket

Note:
All Cabinet Hardware to meet ANSI 117.1 Requirements and additional Federal Requirements DOL - Americans with Disabilities Act

6 Mill Work Legend

Not to Scale

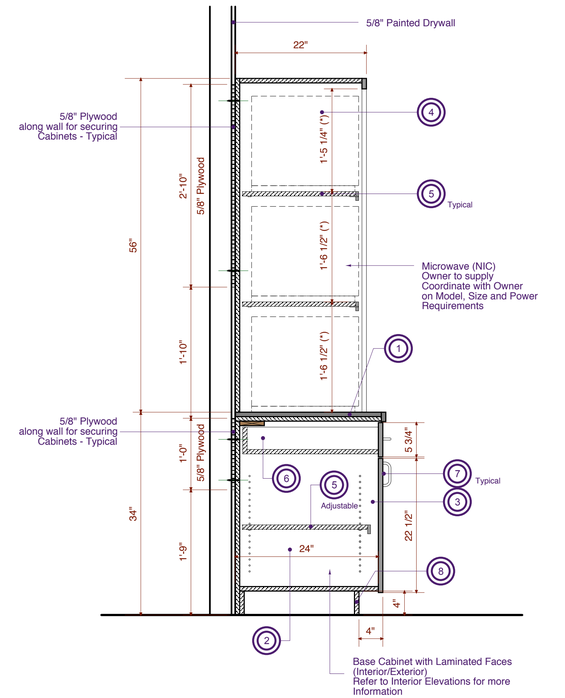


(*) Verify with Owner prior to fabrication

11 Millwork Section

Scale: 1" = 1'-0"

1' 0 3" 6" 9" 12"



(*) Verify with Owner prior to fabrication

12 Millwork Section

Scale: 1" = 1'-0"

1' 0 3" 6" 9" 12"

9 Not Used

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

2' 0 6" 12" 18" 24"

10 Not Used

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

2' 0 6" 12" 18" 24"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS McGAHEY
53338
REGISTERED ARCHITECT
NORTH CAROLINA
FUQUAY-VARINA, N.C.
9.5.24

JOHN MORRIS McGAHEY
9603
REGISTERED ARCHITECT
NORTH CAROLINA
FUQUAY-VARINA, N.C.
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

Accessibility Code Requirements with ICC/ANSI A117.1 Sink Design

A0.13

SECTION 076200-SHEET METAL FLASHING AND TRIM

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data and color Samples.
Coordinate installation of sheet metal flashing and trim with adjoining roofing and wall materials, joints, and seams to provide a leakproof, secure, and noncorrosive installation.
Fabricator Qualifications: For copings and low-slope roof edge flashings that are SPRIES-1 tested, shop shall be listed as able to fabricate required details as tested and approved.
Warranty on Finishes: Manufacturer agrees to repair or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within 10 years.

PRODUCTS

PERFORMANCE REQUIREMENTS

Standard: Comply with NRCA's "The NRCA Roofing Manuall and SMACNA's "Architectural Sheet Metal Manuall unless otherwise indicated. Conform to dimensions and profiles shown unless more stringent requirements are indicated.
FM Approvals' Listing: Manufacture and install copings and roof edge flashings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification of building location. Identify materials with name of fabricator and design approved by FM Approvals.
SPRI Wind Design Standard: Manufacture and install copings and low-slope roof edge flashings tested according to SPRI ES-1 and capable of resisting the following design pressure:

SHEET METAL

Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required, not less than 0.032 inch (0.8 mm) thick; finished as follows:
Finish: Manufacturer's standard three-coat fluoropolymer system with color coat and clear coat containing not less than 70 percent PVDF resin by weight.
Concealed Finish: Manufacturer's standard white or light-colored acrylic or polyester backer finish.

ACCESSORIES

Felt Underlayment: ASTM D 226, asphalt-saturated organic felts.
Self-Adhering, High-Temperature Sheet Underlayment: Butyl or SBS-modified asphalt; slip-resisting-polyethylene surfaced; with release paper backing; cold applied. Stable after testing at 240 deg F (116 deg C) and passes after testing at minus 20 deg F (29 deg C); ASTM d 1970.
Slip Sheet: Rosin-sized building paper, 3-lb/100 sq. ft. (0.16-kg/sq. m) minimum.
Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners.
Exposed Fasteners: Heads matching color of sheet metal roofing using plastic caps or factory-applied coating.
Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
Butyl Sealant: ASTM C 1311, solvent-release butyl rubber sealant.
Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.
FABRICATION
Fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to the design, dimensions, geometry, metal thickness, and other characteristics of item indicated.
Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl sealant concealed within joints.
Fabrication Tolerances: Fabricate sheet metal flashing and trim that are capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

EXECUTION

INSTALLATION

Comply with cited sheet metal standards. Allow for thermal expansion; set true to line and level. Install Work with laps, joints, and seams permanently watertight and weatherproof; conceal fasteners where possible.
Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
Seams: Fabricate nonmoving seams with flat-lock seams. For aluminum, form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
Metal Protection: Where dissimilar metals contact each other, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating.
Coat concealed side of aluminum with bituminous coating where it contacts wood, ferrous metal, or cementitious construction.

SECTION 077100-ROOF SPECIALTIES

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data, Shop Drawings, color Samples.
Warranties: Provide manufacturer's standard written warranty, without monetary limitation, signed by manufacturer agreeing to promptly repair or replace roof specialties that show evidence of deterioration of factory-applied finishes for the period of 15 years.

PRODUCTS

PERFORMANCE REQUIREMENTS

SPRI Wind Design Standard: Manufacture and install copings, roof-edge specialties tested according to SPRI ES-1.
ROOF SPECIALTIES
Copings: Manufactured coping system consisting of formed-metal coping cap, concealed anchorage, comer units, end cap units, and concealed splice plates.
Gutters and Downspouts:
Gutters: Manufactured in uniform section lengths, with matching comer units, ends, outlet tubes, and other accessories. Elevate back edge at least 1 inch (25 mm) above front edge. Furnish expansion joints and expansion-joint covers.
Gutter Style: Rectangular.
Aluminum
Gutter Supports: Gutter brackets, Straps with finish matching the gutters.
Downspouts: Plain rectangular with mitered elbows. Furnish wall brackets of same material and finish as downspouts, with anchors.
Extruded Aluminum: 0.125 inch (3.18 mm) thick.
Reglets: Manufactured units formed to provide secure interlocking of separate reglet and counterflashing piece. Provide reglets with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
Formed Aluminum:.
Counterflashings: Manufactured units of heights to overlap top edges of base flashings by 4 inches (100 mm) designed to snap into reglets or through-wall-flashing receiver and compress against base flashings with joints lapped.
Formed Aluminum.

MATERIALS

Aluminum Sheet: ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer for finish required.
Aluminum Extrusions: ASTM B 221 (ASTM B 221M), alloy and temper as recommended by manufacturer for use and finish indicated.
Aluminum Finish: Three-coat fluoropolymer system with color coat and clear coat containing not less than 70 percent PVDF resin by weight.
Easteners: Manufacturer's recommended fasteners suitable for application and designed

SECTION 077100-ROOF SPECIALTIES (continued)

EXECUTION

INSTALLATION

General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement.
Coat back side of aluminum roof specialties with bituminous coating where they will contact wood, ferrous metal, or cementitious construction.
Separate dissimilar metals with a bituminous coating or polymer-modified, bituminous sheet underlayment.
Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.
Space movement joints at a maximum of 12 feet (3.6 m) with no joints within 18 inches (450 mm) of comers or intersections unless indicated.
Fastener Sizes: Use fasteners of sizes that will penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance

Gutters: Join and seal gutter lengths. Allow for thermal expansion. Attach gutters to firmly anchored gutter supports. Attach ends with rivets and seal with sealant to make watertight. Slope to downspouts.

Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c.
Reglets: Install reglets to receive flashings where flashing without embedded reglets is indicated on Drawings. Install at height so that inserted counterflashings overlap 4 inches (100 mm) over top edge of base flashings.

SECTION 079200-JOINT SEALANTS

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data and color Samples.
Environmental Limitations: Do not proceed with installation of joint sealants when ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (4.4 deg C).

PRODUCTS

JOINT SEALANTS

Low-Emitting Materials: Sealants shall comply with the following limits for VOC content:
Architectural Sealants: 250 g/L.
Nonmembrane Roof Sealants: 300 g/L.
Single-Ply Roof Membrane Sealants: 450 g/L.
Other Sealants: 420 g/L.
Sealant Primers for Nonporous Substrates: 250 g/L.
Sealant Primers for Porous Substrates: 775 g/L.
Modified Bituminous Sealant Primers: 500 g/L.
Other Sealant Primers: 750 g/L.
Low-Emitting Materials:
Exterior reactive sealants shall have a VOC content of not more than 50 g/L or 4 percent by weight, whichever is greater.
Other exterior caulks and sealants shall have a VOC content of not more than 30 g/L or 2 percent by weight, whichever is greater.
Interior sealants shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under service and application conditions.
Sealant for Use in Building Expansion Joints:
Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 50; for Use NT.
Sealant for General Exterior Use Where Another Type Is Not Specified:
Single-component, neutral-curing silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT.
Sealant for Exterior Traffic-Bearing Joints, Where Slope Precludes Use of Pourable Sealant:
Single-component, nonsag urethane sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use T.
Sealant for Exterior Traffic-Bearing Joints, Where Slope Allows Use of Pourable Sealant:
Single-component, pourable urethane sealant, ASTM C 920, Type S; Grade P; Class 25; for Use T.
Sealant for Use in Interior Joints in Ceramic Tile and Other Hard Surfaces in Kitchens and Toilet Rooms and around Plumbing Fixtures:
Single-component, mildew-resistant silicone sealant, ASTM C 920, Type S; Grade NS; Class 25; for Use NT; formulated with fungicide.
Sealant for Interior Use at Perimeters of Door and Window Frames:
Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
Acoustical Sealant:
Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 that effectively reduces airborne sound transmission as demonstrated by testing according to ASTM E 90.

MISCELLANEOUS MATERIALS

Provide sealant backings of materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
Cylindrical Sealant Backings: ASTM C 1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.
Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

EXECUTION

INSTALLATION

Comply with ASTM C 1193.
Install sealant backings to support sealants during application and to produce cross-sectional shapes and depths of installed sealants that allow optimum sealant movement capability.
Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal perimeters, control joints, openings, and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions. Comply with ASTM C 919.

SECTION 081113-HOLLOW METAL DOORS AND FRAMES

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data and Shop Drawings.

PRODUCTS

HOLLOW METAL DOORS AND FRAMES

Fire-Rated Doors and Frames: Labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, based on testing at positive pressure according to NFPA252 or UL 10C.
Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784 and installed in compliance with NFPA 105.
Doors: Complying with SDI A250.8 for level and model and SDI A250.4 for physical-endurance level indicated, 1-3/4 inches (44 mm) thick unless otherwise indicated.

SECTION 081113-HOLLOW METAL DOORS AND FRAMES (continued)

Exterior Doors: Level 2 and Physical Performance Level B (Heavy Duty), Model 1 (Full Flush), metallic-coated steel sheet faces.
Thermal-Rated (Insulated) Doors: Where indicated, provide doors with thermal-resistance value (R-value) of not less than 2.1 deg F x h x sq. ft./Btu (0.370 K x sq. m/W) when tested according to ASTM C 1363.
Hardware Reinforcement: Fabricate according to SDI A250.6 with reinforcement plates from same material as door face sheets.
Frames: ANSI A250.8; conceal fastenings unless otherwise indicated.
Steel Sheet for Interior Frames: 0.042-inch- (1.0-mm-) minimum thickness.
Steel Sheet for Exterior Frames: 0.053-inch- (1.3-mm-)minimum thickness, metallic coated.
Interior Frame Construction: Full profile welded.
Exterior Frame Construction: Full profile welded.
Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.
Frame Anchors: Not less than 0.042 inch (1.0 mm) thick.
Door Silencers: Three on strike jambs of single-door frames and two on heads of double-door frames.
Grout Guards: Provide where mortar might obstruct hardware operation.
Prepare doors and frames to receive mortised and concealed hardware according to SDI A250.6 and BHMAA156.115.
Reinforce doors and frames to receive surface-applied hardware.
Prime Finish: Manufacturer's standard, factory-applied coat of lead- and chromate-free primer complying with SDI A250.10 acceptance criteria.
MATERIALS
Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, suitable for exposed applications.
Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, free of scale, pitting, or surface defects.
Metallic-Coated Steel Sheet: ASTM A 653/A 653M, G60 (Z180) or A60 (ZF180).
Frame Anchors: ASTM A 879/A 879M, 4Z (12G) coating designation; mill phosphatized.
For anchors built into exterior walls, sheet steel complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.
EXECUTION
INSTALLATION
Install hollow metal frames to comply with SDI A250.11.
Fire-Rated Frames: Install according to NFPA 80.
Install doors to provide clearances between doors and frames as indicated in SDIA250.11.
Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying rust-inhibitive primer. Use galvanizing repair paint for metallic coated surfaces.

SECTION 081416-FLUSH WOOD DOORS

GENERAL

SECTION REQUIREMENTS

Submittals: Samples for factory-finished doors.

PRODUCTS

FLUSH WOOD DOORS

Manufacturers: One of the following:
Algoma Hardwoods, Inc.
Ampco.
Chappell Door Co.
Eggers Industries.
General Veneer Manufacturing Co.
Graham Wood Doors; an Assa Abloy Group Company.
Haley Brothers, Inc.
Ipik Door Company.
Lambton Doors.
Marlite.
Marshfield Door Systems, Inc.
Mohawk Doors; a Masonite Company.
Oshkosh Door Company.
Poncraft Door Company.
Vancouver Door Company.
VT Industries, Inc.

DOOR CONSTRUCTION

GENERAL

Quality Standard: WDMA I.S.1-A.
Certified Wood: Wood doors shall be certified as "FSC Pure" or "FSC Mixed Credit" according to FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship," and to FSC STD-40-004, "FSC Standard for Chain of Custody Certification."
Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.

WDMA I.S.1-A Performance Grade:

Heavy duty unless otherwise indicated.

Extra Heavy Duty: Janitor's closets, Public Toilets, Assembly spaces, Exits, and where indicated.
Standard Duty: Closets (not including janitor's closets), Private toilets, and where indicated.

Fire-Rated Wood Doors: Labeled by a testing and inspecting agency acceptable to authorities having jurisdiction based on testing at positive pressure according to NFPA 252 or UL 10C.
Where indicated, provide doors that have a temperature rise rating of 450 deg F (250 deg C).
Provide core specified or mineral core as needed to provide fire-protection rating indicated.
Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

FLUSH WOOD DOORS

Veneer-Faced Doors for Transparent Finish:
Interior Solid-Core Doors: Premium grade, five-ply, structural composite lumber cores.
Faces: Grade A.
Pair matching and set matching.
Continuous matching for doors with transoms.

FABRICATION AND FINISHING

Factory-fit doors to suit frame-opening sizes indicated and to comply with clearances specified.
Factory-machine doors for hardware that is not surface applied. Locate hardware to comply with DH1-WDHS-3.
Cut and trim openings to comply with referenced standards.
Trim light openings with moldings indicated.
Factory-install glazing in doors indicated to be factory finished.
Factory-install louvers in prepared openings.
Factory-finish doors indicated for transparent finish with manufacturer's standard finish complying with WDMA TR-6, catalyzed polyurethane for grade specified for doors.
Sheen: Satin.
Factory-finish doors indicated for opaque finish with manufacturer's standard finish complying with WDMA OP-6, catalyzed polyurethane for grade specified for doors.
Sheen: Satin.

EXECUTION

INSTALLATION

Install doors to comply with manufacturer's written instructions and WDMA I.S.I-A, and as indicated.
Install fire-rated doors to comply with NFPA 80.
Install smoke- and draft-control doors according to NFPA 105.
Align and fit doors in frames with uniform clearances and bevels.
Clearances: As follows unless otherwise indicated:
1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors.
1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering.
1/4 inch (6.4 mm) from bottom of door to top of threshold.
Comply with NFPA 80 for fire-rated doors.

SECTION 084113-ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data, Shop Drawings, and color Samples.
For entrance doors, include hardware schedule.

PRODUCTS

PERFORMANCE REQUIREMENTS

Structural Performance: Design, engineer, fabricate, and install aluminum-framed storefronts to withstand structural loads indicated.
Limit deflection of framing members normal to wall plane to 1/175 of clear span or an amount that restricts edge deflection of individual glazing lites to 3/4 inch (19 mm), whichever is less.
Limit deflection of framing members parallel to glazing plane to L/360 of clear span or 1/8 inch (3.2 mm), whichever is smaller.
Structural Testing: Systems tested according to ASTM E330 at 150 percent of inward and outward wind-load design pressures do not evidence material failures, structural distress, deflection failures, or permanent deformation of main framing members exceeding 0.2 percent of clear span.
Windbome-Debris Resistance: Framing system and doors pass basic-protection testing requirements in ASTM E 1996 for Wind Zone of project location when tested according to ASTM E 1886.
Air Infiltration: Limited to 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of fixed framing and glass area when tested according to ASTM E 283 at a static-air-pressure difference of .57 lbf/sq. ft. (75 Pa).
Water Penetration: Systems do not evidence water leakage when tested according to ASTM E 331 at minimum differential pressure of 20 percent of positive wind-load design pressure but not less than 6.24 lbf/sq. ft. (300 Pa).
Thermal Transmittance (U-factor): Fixed glazing and framing areas shall have U-factor of not more than 0.45 Btu/sq. ft. x h x deg F (2.55 W/sq. m x K) as determined according to NFRC 100.

ALUMINUM-FRAMED STOREFRONTS

Manufacturers: [One of the following:]
Basis-of-Design Product: Product indicated on Drawings
Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated; ASTM B 209 (ASTM B 209M) sheet; ASTM B 221 (ASTM B 221M) extrusions.
Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
Construction: Thermally broken.
Doors: 1-3/4-inch- (44.5-mm-) thick glazed doors with minimum 0.125-inch- (3.2-mm-) thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and filler welded or that incorporate concealed tie rods. Provide snap-on, extruded-aluminum glazing stops and preformed gaskets.
Door Design: Medium stile; 3-1/2-inch (88.9-mm) nominal width; unless noted otherwise.
Accessible Doors: Smooth surfaced for width of door in area within 10 inches (255 mm) above floor or ground plane.
Interior Doors: Provide BHMA A156.16 silencers, three on strike jamb of single-door frames and two on head of double-door frames.
Exterior Doors: Provide compression weather stripping at fixed stops. At other locations, provide sliding weather stripping retained in adjustable strip mortised into door edge.
Hardware: As specified on Drawings.
Glazing: Comply with Section 088000 "Glazing."
Glazing Gaskets: Manufacturer's standard sealed-comer pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.
Fasteners and Accessories: Compatible with adjacent materials, corrosion resistant, nonstaining, and nonbleeding. Use concealed fasteners except for application of door hardware.
Fabrication: Fabricate framing in profiles indicated for flush glazing (without projecting stops). Provide subframes and reinforcing of types indicated or, if not indicated, as required for a complete system. Factory-assemble components to greatest extent possible. Disassemble components only as necessary for shipment and installation.
Door Framing: Reinforce to support imposed loads. Factory-assemble door and frame units and factory-install hardware to greatest extent possible. Reinforce door and frame units for hardware indicated. Cut, drill, and tap for factory-installed hardware before finishing components.
Aluminum Finish: Class I, clear anodic finish; complying with AAMA 611] [Class II, color anodic finish or High-performance organic; three-coat fluoropolymer system complying with AAMA 2605, with finish coats containing at least 70 percent polyvinylidene fluoride resin by weight. (Class I for anodized finishes and Three-coat fuoropolymer for Kynar finishes per Drawings).

EXECUTION

INSTALLATION
Isolate metal surfaces in contact with incompatible materials, including wood, by painting contact surfaces with bituminous coating or primer or by applying sealant or tape recommended by manufacturer.
Install components to drain water passing joints, condensation occurring within framing members, and moisture migrating within the system to exterior.
Set continuous sill members and flashing in full sealant bed as specified in Section 079200 "Joint Sealants" to produce weathertight installation.
Install framing components true in alignment with established lines and grades to the following tolerances:
Variation from Plane: Limit to 1/8 inch in 12 feet (3 mm in 3.7 m); 1/4 inch (6 mm) over total length.
Alignment: For surfaces abutting in line, limit offset to 1/16 inch (1.5 mm). For surfaces meeting at comers, limit offset to 1/32 inch (0.8 mm).
Diagonal Measurements: Limit difference between diagonal measurements to 1/8 inch (3 mm).
Install doors without warp or rack. Adjust doors and hardware to provide tight fit at contact points and smooth operation.

SECTION 087100-DOOR HARDWARE

GENERAL

SECTION REQUIREMENTS

Submittals: Hardware schedule and keying schedule.

PRODUCTS

HARDWARE

Fire-Resistance-Rated Assemblies: Provide products that comply with NFPA 80 and are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for applications indicated. On exit devices provide label indicating "Fire Exit Hardware."

See Drawings for required hardware.

EXECUTION

INSTALLATION

Mount hardware in locations required to comply with governing regulations and according to SDI A250.8 and DHI WDHS.3.
Key Control System: Tag keys and place them on markers and hooks in key control system cabinet.
Deliver keys to Owner.

SECTION 088000-GLAZING

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data and Samples.

PRODUCTS

GLASS, GENERAL
Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.

SECTION 088000-GLAZING (continued)

AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR A7, "Sloped Glazing Guidelines."
IGMA Publication for Sloped Glazing: IGMATB-3001, "Guidelines for Sloped Glazing."
IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
Windbome-Debris-Impact Resistance: Exterior glazing shall comply with basic-protection testing requirements in ASTM E 1996 for Wind Zone of the project location when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on Project and shall be installed in same manner as glazing indicated for use on Project.
Large-Missile Test: For glazing located within 30 feet (9.1 m) of grade.
Small-Missile Test: For glazing located more than 30 feet (9.1 m) above grade.

GLASS PRODUCTS

Annealed Float Glass: ASTM C 1036, Type I, Quality-Q3.
Fully Tempered Float Glass: ASTM C 1048, Kind FT; Type I; Quality-Q3.
Heat-Strengthened Float Glass: ASTM C 1048, Kind HS; Type I; Quality-Q3.
Reflective-Coated Glass: ASTM C 1376.
Patterned Glass: ASTM C 1036, Type n, Form 3; Quality-Q6.
Tempered Patterned Glass: ASTM C 1048, Kind FT, Type II, Form 3; Quality-Q6.
Laminated Glass: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials.
Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.
FIRE-PROTECTION-RATED GLAZING
Fire-Protection-Rated Glazing: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on positive-pressure testing according to NFPA 257 or UL 9 and complying with NFPA 80.
Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name; test standard; whether glazing is permitted to be used in doors or openings; if permitted in openings, whether or not glazing has passed the hose-stream test; whether or not glazing meets 450 deg F (250 deg C) temperature-rise limitation; and the fire-resistance rating in minutes.
GLAZING SEALANTS
Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use NT.
Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.
Low-Emitting Materials: Sealants shall have a VOC content of not more than 250 g/L.
Low-Emitting Materials: Sealants shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
EXECUTION
INSTALLATION
Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are contained in GANA's "Glazing Manual."
For fire-protection-rated glazing, use methods approved by testing agencies that listed and labeled products.
Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
Remove nonpermanent labels, and clean surfaces immediately after installation.

MONOLITHIC-GLASS TYPES
Glass Type as shown on Drawings.

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data.

PRODUCTS

PERFORMANCE REQUIREMENTS

Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.
METAL FRAMING AND SUPPORTS
Steel Framing Members, General: ASTM C 754.
Steel Sheet Components: ASTM C 645. Thickness specified is minimum uncoated base-metal thickness.
Protective Coating: ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized zinc coating.
Framing Systems:
Studs and Runners: In depth indicated and 0.018 inch (0.45 mm) thick unless otherwise indicated.
Flat Strap and Backing: 0.027 inch (0.68 mm) thick.
Hat-Shaped, Rigid Furring Channels: In depth indicated and 0.033 inch (0.84 mm) thick.
Resilient Furring Channels: 1/2 inch (13 mm) deep, with single- or double-leg configuration.
Cold-Rolled Furring Channels: 0.053 inch (1.34 mm) thick, 3/4 inch (19 mm) deep.
Z-Furring: In depth required by insulation, 1-1/4-inch (32-mm) face flange, 7/8-inch (22-mm) wall-attachment flange, and 0.018 inch (0.45 mm) thick.
Suspension Systems:
Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch (1.59-mm) diameter, or double strand of 0.048-inch- (1.21-mm-) diameter wire.
Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, and 0.162-inch (4.12-mm) diameter.
Carrying Channels: Cold-rolled steel
Furring Channels
Grid Suspension System for Gypsum Board Ceilings: Interlocking, direct-hung system.
Products:One of the following:
Armstrong World Industries, Inc.; Drywall Grid Systems.
Chicago Metallic Corporation; Drywall Grid System.
USG Corporation; Drywall Suspension System.
ACCESSORIES
General: Comply with referenced installation standards.
Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
Isolation Strip at Exterior Walls: foam gasket.

EXECUTION

INSTALLATION

Install steel framing to comply with ASTM C 754."
Gypsum Plaster Assemblies: Also comply with ASTM C 841.
Portland Cement Plaster Assemblies: Also comply with ASTM C 1063.
Gypsum Veneer Plaster Assemblies: Also comply with ASTM C 844.
Gypsum Board Assemblies: Also comply with ASTM C 840.
Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
Isolate steel framing from building structure, except at floor, to prevent transfer of loading imposed by structural movement.
Where studs are installed directly against exterior walls, install isolation strip between studs and wall.
Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.
Install suspension systems level to within 1/8 inch in 12 feet (3 mm in 3.6 m).

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 3603 JOHN MORRIS MCGAHEY FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Specifications

A0.21

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Sliding doors.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Cylinders specified for doors in other sections.

C. Related Sections:

1. Division 08 Section "Hollow Metal Doors and Frames".
2. Division 08 Section "Interior Aluminum Doors and Frames".
3. Division 08 Section "Flush Wood Doors".
4. Division 08 Section "Aluminum-Framed Entrances and Storefronts".

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.

4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing, fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
   a. Type, style, function, size, label, hand, and finish of each door hardware item.
   b. Manufacturer of each item.
   c. Fastenings and other pertinent information.
   d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
   e. Explanation of abbreviations, symbols, and codes contained in schedule.
   f. Mounting locations for door hardware.
   g. Door and frame sizes and materials.
   h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.4 CLOSEOUT SUBMITTALS

A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

B. Project Record Documents: Provide record documentation of as-built door hardware sets in digital format (.pdf, .docx, .xlsx, .csv) and as required in Division 01, Project Record Documents.

1.5 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.6 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.7 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.8 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:
   a. Two Hinges: For doors with heights up to 60 inches.
   b. Three Hinges: For doors with heights 61 to 90 inches.
   c. Four Hinges: For doors with heights 91 to 120 inches.
   d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
   a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
   b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
   a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
   b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
4. Hinge Options: Comply with the following:
   a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
5. Manufacturers:
   a. McKinney (MK) - TA/T4A Series, 5-knuckle.

2.2 CONTINUOUS HINGES

A. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:.
   a. Pemko (PE).

2.3 SLIDING AND FOLDING HARDWARE

A. Sliding and Folding Door Hardware: Hardware is to be of type and design as specified and should conform with ANSI/BHMA A156.14.

1. Sliding Bi-Passing Pocket Door Hardware: Provide complete sets consisting of track, hangers, stops, bumpers, floor channel, guides, and accessories indicated.
2. Cascading: Provide a bi-parting or single direction telescoping system as required with a minimum 200 lb. per door capacity.
3. Bi-folding Door Hardware: Rated for door panels weighing up to 125 lb.
4. Pocket Sliding Door Hardware: Rated for doors weighing up to 200 lb.
5. Manufacturers:

   a. Pemko (PE).

2.4 DOOR OPERATING TRIM

A. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, shall be provided with a 10" clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets. When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.
6. Manufacturers:
   a. Rockwood (RO).

2.5 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

1. Manufacturers:
   a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA).

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Manufacturer's Standard.

C. Keying System: Each type of lock and cylinders to be factory keyed.

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. New System: Key locks to a new key system as directed by the Owner.

D. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).

E. Construction Keying: Provide construction master keyed cylinders.

F. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:
   a. Lund Equipment (LU).
   b. MMF Industries (MM).
   c. Telkee (TK).

2.7 CYLINDRICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Manufacturers:
   a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - 5400LN Series.

B. Cylindrical Indicator Locksets, Grade 1 (Commercial Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide locksets with functions and features as follows:

   a. Visual status indicators in rose, displaying bold visuals for vacant or occupied lock status.
   b. Meets ANSI/BHMA A156.41 for single motion egress.
   c. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
   d. Three-year limited warranty.
2. Manufacturers:
   a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - YPL Series.

2.8 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.9 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
   a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
   b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Commercial Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices. Listed manufacturers shall meet all functions and features as specified herein. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide locksets with functions and features as follows:
   a. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
   b. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
   c. Five-year limited warranty for mechanical features.
2. Manufacturers:
   a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - 2100 Series.

2.10 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Standard Duty): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.

1. Manufacturers:
   a. ASSA ABLOY ACCENTRA, formerly known as Yale (YA) - 2700 Series.

2.11 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
   a. Stainless Steel: 300 grade, 050-inch thick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
   a. Rockwood (RO).

2.12 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:
   a. Rockwood (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:
   a. Norton Rixson (RF).

2.13 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Pemko (PE).

2.14 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.15 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices, locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.

E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections "Closeout Procedures". Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer's Abbreviations:

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
9.5.24

E&M CONCRETE INC.

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

E&M CONCRETE

PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Door Specifications Hardware

A0.22

1. MK - McKinney
2. PE - Pemko
3. YA - ASSA ABLOY ACCENTRA
4. RO - Rockwood
5. RF - Rixson
6. OT - Other

Hardware Sets

Set: 1.0

Doors: 101, 102, 105, 106

1 Continuous Hinge	CFM SLF-HD1		PE
1 Rim Exit Device, Exit Only	2100 EO	689	YA
1 Nightlatch	421F	689	YA
1 Rim Cylinder	As required	626	YA
1 Core	As required	626	YA
1 Door Pull	BF157	US32D	RO
1 Surface Closer	2731	689	YA
1 Rain Guard	346C		PE
1 Gasketing/Silencers	By Alum Frame Manu.		OT
1 Sweep	345AV		PE
1 Threshold	171A		PE

Set: 2.0

Doors: 103, 104

3 Hinge, Full Mortise, Hvy Wt	T4A3386	US32D	MK
1 Rim Exit Device, Exit Only	2100 EO	689	YA
1 Nightlatch	421F	689	YA
1 Rim Cylinder	As required	626	YA
1 Core	As required	626	YA
1 Door Pull	BF157	US32D	RO
1 Surface Closer	2731	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Rain Guard	346C		PE
1 Gasketing	303AS		PE
1 Sweep	345AV		PE
1 Threshold	171A		PE

E&M CONCRETE
FUQUAY-VARINA, NC 2022-12

Set: 3.0

Doors: 132, 135

1 Continuous Hinge	CFM SLF-HD1		PE
1 Storeroom or Closet Lock	MO 5405LN	626	YA
1 Core	As required	626	YA
1 Surface Closer	2701	689	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
1 Gasketing/Silencers	By Alum Frame Manu.		OT

Set: 4.0

Doors: 111, 126, 128, 129, 130, 131, 133, 134, 136, 137, 138

1 Continuous Hinge	CFM SLF-HD1		PE
1 Office Lock	MO 5404LN	626	YA
1 Core	As required	626	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
1 Gasketing/Silencers	By Alum Frame Manu.		OT

Set: 5.0

Doors: 110

1 Continuous Hinge	CFM SLF-HD1		PE
1 Passage Latch	MO 5401LN	626	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
1 Gasketing/Silencers	By Alum Frame Manu.		OT

Set: 6.0

Doors: 139

1 Continuous Hinge	CFM SLF-HD1		PE
1 Passage Latch	MO 5401LN	626	YA
1 Conc Overhead Stop	6 Series	689	RF
1 Surface Closer	2701	689	YA
1 Gasketing/Silencers	By Alum Frame Manu.		OT

Set: 7.0

Doors: 127

E&M CONCRETE
FUQUAY-VARINA, NC 2022-12

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Storeroom or Closet Lock	MO 5405LN	626	YA
1 Core	As required	626	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
3 Silencer	608		RO

Set: 8.0

Doors: 117

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Storeroom or Closet Lock	MO 5405LN	626	YA
1 Core	As required	626	YA
1 Surface Closer	2701	689	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
3 Silencer	608		RO

Set: 9.0

Doors: 112, 114

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Office Lock	MO 5404LN	626	YA
1 Core	As required	626	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
3 Silencer	608		RO

Set: 10.0

Doors: 123

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Office Lock	MO 5404LN	626	YA
1 Core	As required	626	YA
1 Surface Closer	2701	689	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
1 Gasketing	S88BL		PE

Set: 11.0

Doors: 115

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Privacy Lock	MO 5402LN	626	YA

E&M CONCRETE
FUQUAY-VARINA, NC 2022-12

1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
1 Gasketing	S88BL		PE

Set: 12.0

Doors: 116

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Privacy Lock	MO 5402LN	626	YA
1 Surface Closer	2721	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Gasketing	S88BL		PE

Set: 13.0

Doors: 120a

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Privacy Lock	MO 5402LN	626	YA
1 Surface Closer	2701	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
1 Gasketing	S88BL		PE

Set: 14.0

Doors: 120, 121, 122, 125

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Privacy Lock	MO 5402LN	626	YA
1 Surface Closer	2721	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Gasketing	S88BL		PE

Set: 15.0

Doors: 124

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Passage Latch	MO 5401LN	626	YA
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
3 Silencer	608		RO

Set: 16.0

E&M CONCRETE
FUQUAY-VARINA, NC 2022-12

Doors: 118, 119

3 Hinge, Full Mortise	TA2714	US26D	MK
1 Passage Latch	MO 5401LN	626	YA
1 Surface Closer	2701	689	YA
1 Kick Plate	K1050 10" high CSK BEV	US32D	RO
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO
1 Gasketing	S88BL		PE

Set: 17.0

Doors: 113

1 Sliding Door Hdwe	PF28200A x Length Required		PE
2 Door Pull	BF 110 Mtg-Type 5	US32D	RO

Set: 18.0

Doors: 107, 108, 109

1 All Hardware	By Door Manufacturer		OT

END OF SECTION 087100

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN, PA
JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
53338
NORTH CAROLINA
FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

E&M CONCRETE

PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Door Specifications
Hardware Sets

A0.23

SECTION 092900-GYPSUM BOARD

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data.
PRODUCTS
PERFORMANCE REQUIREMENTS
Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
STC-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 90 and classified per ASTM E 413 by a qualified independent testing and inspecting agency.

PANEL PRODUCTS

Provide in maximum lengths available to minimize end-to-end butt joints.
Interior Gypsum Board: ASTM C 1396/C 1396M, in thickness indicated, with manufacturer's standard edges. Type X where indicated and as required for specific fire-resistance-rated assemblies, Sag-resistant type for ceiling surfaces.
Manufacturers:One of the following:
American Gypsum.
CertainTeed Corp.
Georgia-Pacific Gypsum LLC.
National Gypsum Company.
USG Corporation.
Exterior Gypsum Soffit Board: ASTM C 1396/C 1396M, in thickness indicated, with manufacturer's standard edges. Regular type unless otherwise indicated.
Manufacturers:One of the following:
American Gypsum.
CertainTeed Corp.
Georgia-Pacific Gypsum LLC.
National Gypsum Company.
USG Corporation.
Water-Resistant Gypsum Backing Board: ASTM C 1396/C 1396M, in thickness indicated. Regular type unless otherwise indicated, Type X where required for fire-resistance-rated assemblies and where indicated.
Manufacturers:One of the following:
American Gypsum.
CertainTeed Corp.
Georgia-Pacific Gypsum LLC.
USG Corporation.
Glass-Mat, Water-Resistant Gypsum Backing Board: ASTM C 1178/C 1178M, of thickness indicated. Regular type unless otherwise indicated, Type X where required for fire-resistance-rated assemblies and where indicated.
Products:One of the following:
CertainTeed Corp.; GlasRoc Tile Backer.
Georgia-Pacific Gypsum LLC; DensShield Tile Backer.
Cementitious Backer Units: ANSI A118.9, ASTM C 1288, or ASTM C1325.
Products:One of the following:
CertainTeed Corp.; FiberCement BackerBoard.
National Gypsum Company, Permabase Cement Board.
USG Corporation; DUROCK Cement Board.
ACCESSORIES
Trim Accessories: ASTM C 1047, formed from galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet For exterior trim, use accessories formed from hot-dip galvanized-steel sheet, plastic, or rolled zinc.
Provide cornerbead at outside corners unless otherwise indicated.
Provide LC-bead (J-bead) at exposed panel edges.
Provide control joints where indicated.
Aluminum Accessories: Extruded-aluminum accessories indicated with manufacturer's standard corrosion-resistant primer.
Manufacturers:One of the following:
Fry Reglet Corp.
Gordon, Inc.
Pittcon Industries.
Joint-Treatment Materials: ASTM C 475/C 475M.
Joint Tape: Paper unless otherwise recommended by panel manufacturer.
Joint Compounds: Setting-type taping compound and drying-type, ready-mixed, compounds for topping.Use setting-type compounds at exterior soffits.
Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.
Cementitious Backer Unit Joint-Treatment Materials: Products recommended by Cementitious backer unit manufacturer.
Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
Adhesive shall have a VOC content of 50 g/L or less.
Adhesive shall comply with Green Seal's GS-36 and with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining latex sealant complying with ASTM C 834.
Sealants shall have a VOC content of250 g/L or less.
Sealants shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers.
Sound-Attenuation Blankets: ASTM C 665, Type I (unfaced).

EXECUTION

INSTALLATION

Install gypsum board to comply with ASTM C 840.
Isolate gypsum board assemblies from abutting structural and masonry work. Provide edge trim and acoustical sealant
Single-Layer Fastening Methods: Fasten gypsum panels to supports with screws.
Install cementitious backer units to comply with ANSI A108.11.
Fire-Resistance-Rated Assemblies: Comply with requirements of listed assemblies.
Finishing Gypsum Board: ASTM C 840.
At concealed areas, unless a higher level of finish is required for fire-resistance-rated assemblies, provide Level 1 finish: Embed tape at joints.
At substrates for tile, provide Level 2 finish: Embed tape and apply separate first coat of joint compound to tape, fasteners, and trim flanges.
Unless otherwise indicated, provide Level 4 finish: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges.
Where indicated, provide Level 5 finish: Embed tape and apply separate first fill, and finish coats of joint compound to tape, fasteners, and trim flanges. Apply skim coat to entire surface.
Glass-Mat Water-Resistant Backing Panels: Finish according to manufacturer's written instructions.
Cementitious Backer Units: Finish according to manufacturer¿9s written instructions.
Texture Finish Application: Mix and apply finish using powered spray equipment to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data and Samples.

PRODUCTS

PERFORMANCE REQUIREMENTS

Seismic Standard: Acoustical panel ceiling shall withstand the effects of earthquake motions determined according to ASCE/SEI7.
Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assemblies per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

ACOUSTICAL PANELS
Manufacturers: One of the following:
Basis-of-Design Product: Product indicated on Drawings
CEILING SUSPENSION SYSTEM
Manufacturers: One of the following:
Basis-of-Design Product: Product indicated on Drawings

EXECUTION

INSTALLATION

Install acoustical ceilings to comply with ASTM C 636/C 636M and seismic design requirements indicated, according to manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
Fire-Rated Assembly: Install fire-rated ceiling systems according to tested fire-rated design.
Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit
Arrange directionally patterned acoustical units as indicated on Drawings.

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

GENERAL

SECTION REQUIREMENTS

Submittals: Product Data and Samples.

PRODUCTS

RESILIENT BASE

Thermoset Rubber Base: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
Manufacturers: One of the following unless shown on Drawings:
Burke Mercer Flooring Products, Division of Burke Industries Inc.
Flexco.
Roppe Corporation, USA.
Thermoplastic Rubber Base: ASTM F 1861, Type TP (rubber, thermoplastic).
Manufacturers: One of the following unless shown on Drawings:
AB; American Biltrite.
Allstate Rubber Corp.
Armstrong World Industries, Inc.
Burke Mercer Flooring Products, Division of Burke Industries Inc.
Flexco.
Johnsonite; A Tarkett Company.
Mondo Rubber International, Inc.
Nora Systems, Inc.
Roppe Corporation, USA.
VPI, LLC, Floor Products Division,
Vinyl Base: ASTM F 1861, Type TV (vinyl, thermoplastic)
Manufacturers: One of the following unless shown on Drawings:
Armstrong World Industries, Inc.
Burke Mercer Flooring Products, Division of Burke Industries Inc.
Flexco.
Johnsonite; A Tarkett Company.
Roppe Corporation, USA.
VPI, LLC, Floor Products Division.
Style: Cove (base with toe).
Minimum Thickness: 0.125 inch (3.2 mm).
Height: 4 inches (102 mm).
INSTALLATION ACCESSORIES
Adhesives: Water-resistant type recommended by manufacturer to suit floor covering and substrate conditions indicated.
Low-Emitting Materials: Adhesives shall have a VOC content of 50 g/L or less.
Low-Emitting Materials: Adhesives shall comply with Green Seal's GS-36 and with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

EXECUTION

INSTALLATION

Prepare horizontal surfaces according to ASTM F 710. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
Adhesively install resilient wall base and accessories.
Install wall base in maximum lengths possible. Apply to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where base is required.
Install stair-tread-nose filler to nosing substrates that do not conform to tread contours.
Install reducer strips at edges of floor coverings that would otherwise be exposed.

SECTION 099113 - EXTERIOR PAINTING

GENERAL

SECTION REQUIREMENTS

Submittals:
Product Data: Include printout of MPI's "MPI Approved Products List" with product highlighted
Samples.
Extra Materials: Deliver to Owner 1 gal. (3.8 L) of each color and type of finish-coat paint used on Project, in containers, properly labeled and sealed.

PRODUCTS

PAINT

Manufacturers: One of the following:
Benjamin Moore & Co.
Duron, Inc.
Envirocoatings Canada Inc.
ICI Paints.
Sherwin-Williams Company (The).

MPI Standards: Provide materials that comply with MPI standards indicated and listed in its "MPI Approved Products List"
Block Filler, Latex: MPI #4.
Primer, Alkali Resistant Water Based: MPI #3.
Primer, Bonding, Water Based: MPI #17.
Primer, Bonding, Solvent Based: MPI #69.
Primer, Alkyd Anticorrosive: MPI #79.
Primer, Galvanized, Water Based: MPI #134.
Primer, Quick Dry, for Aluminum: MPI #95.
Primer, Latex: MPI #6.
Primer, Alkyd: MPI #5.
Latex, Exterior Flat (Gloss Level 1): MPI #10.
Latex, Exterior Low Sheen (Gloss Level 3-4): MPI #15.
Latex, Exterior Semigloss (Gloss Level 5): MPI #11.
Latex, Exterior, Gloss (Gloss Level 6): MPI #119.
Light Industrial Coating, Exterior, Water Based (Gloss Level 3): MPI #161.
Light Industrial Coating, Exterior, Water Based, Semigloss (Gloss Level 5): MPI #163.
Light Industrial Coating, Exterior, Water Based, Gloss (Gloss Level 6): MPI #164.
Alkyd, Exterior Flat (Gloss Level 1): MPI #8.
Alkyd, Exterior, Semigloss (Gloss Level 5): MPI #94.
Alkyd, Exterior Gloss (Gloss Level 6): MPI #9.
Alkyd, Quick Dry, Semigloss (Gloss Level 5): MPI #81.
Alkyd, Quick Dry, Gloss (Gloss Level 7): MPI #96.
Floor Paint Latex, Low Gloss (Maximum Gloss Level 3): MPI #60.
Floor Enamel, Alkyd, Gloss (Gloss Level 6): MPI #27.
Material Compatibility: Provide materials that are compatible with one another and with substrates.
For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
Colors: As scheduled.

EXECUTION

Comply with recommendations in MPI's "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
Remove hardware, lighting fixtures, and similar items that are not to be painted Mask items that cannot be removed. Reinstall items in each area after painting is complete.
Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

Comply with recommendations in MPI-9s "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
Paint exposed surfaces, new and existing, unless otherwise indicated.
Do not paint prefinished items, items with an integral finish, operating parts, and labels unless otherwise indicated
Apply paints according to manufacturer's written instructions.
Use brushes only where the use of other applicators is not practical.
Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
If undercoats or other conditions show through topcoat apply additional coats until cured film has a uniform paint finish, color, and appearance.

PREPARATION

A. Remove hardware, lighting fixtures, and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.

B. Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

APPLICATION

A. Apply paints according to manufacturer's written instructions.
1. Use brushes only for exterior painting and where the use of other applicators is not practical.
2. Use rollers for finish coat on interior walls and ceilings.

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply stains and transparent finishes to produce surface films without color irregularity, cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other imperfections. Use multiple coats to produce a smooth surface film of even luster.

EXTERIOR PAINT APPLICATION SCHEDULE

A. Concrete:
1. Flat Latex: Two coats over primer: MPI EXT 3.1A.
2. Flat Latex: Two coats over alkali-resistant primer: MPI EXT 3.1K.

B. Steel:
1. Semigloss Quick-Dry Enamel: Two coats over rust-inhibitive primer: MPI EXT 5.1A.
2. Semigloss, Alkyd Enamel: Two coats over rust-inhibitive primer: MPI EXT 5.1D.

C. Galvanized Metal:
1. Semigloss Latex: Two coats over cementitious galvanized-metal primer: MPI EXT 5.3A.
2. Semigloss Latex: Two coats over waterborne galvanized-metal primer: MPI EXT 5.3H.
3. Semigloss, Alkyd Enamel: Two coats over cementitious galvanized-metal primer: MPI EXT 5.3B.

D. Aluminum: (if required)
1. Semigloss Latex: Two coats over quick-drying primer for aluminum: MPI EXT 5.4H.
2. Semigloss, Alkyd Enamel: Two coats over quick-drying primer for aluminum: MPI EXT 5.4F.

SECTION 099123 - INTERIOR PAINTING

GENERAL

SECTION REQUIREMENTS

Submittals:
Product Data: Include printout of MPI's "MPI Approved Products List" with product highlighted
Samples.
Mockups: Full-coat finish Sample of each type of coating, color, and substrate, applied where directed.
Extra Materials: Deliver to Owner 1 gal. (3.8 L) of each color and type of finish-coat paint used on Project, in containers, properly labeled and sealed.

PRODUCTS

PAINT

Manufacturers: One of the following:
Behr Process Corporation.
Benjamin Moore & Co.
Duron, Inc.
Dulux (formerly ICI Paints); a brand of AkzoNobel.
Sherwin-Williams Company (The).

MPI Standards: Provide materials that comply with MPI standards indicated and listed in its "MPI Approved Products List"
Block Filler, Latex: MPI #4.
Primer Sealer, Latex: MPI #50.
Primer, Alkali Resistant Water Based: MPI #3.
Primer Sealer, Institutional Low Odor/VOC: MPI #149.
Primer, Latex, for Interior Wood: MPI #39.
Primer Sealer, Alkyd Interior: MPI #45.
Primer, Bonding, Water Based: MPI #17.
Primer, Bonding, Solvent Based: MPI #69.
Primer, Alkyd Anticorrosive: MPI #79.
Primer, Galvanized Water Based: MPI #134.
Primer, Quick Dry, for Aluminum: MPI #95.
Latex, Interior, Flat, (Gloss Level 1): MPI #53.
Latex, Interior, (Gloss Level 2): MPI #44.
Latex, Interior, (Gloss Level 4): MPI #43.
Latex, Interior, Semigloss, (Gloss Level 5): MPI #54.
Latex, Interior, Gloss, (Gloss Level 6, except Minimum Gloss of 65 Units at 60 Degrees): MPI #114.
Latex, Institutional Low Odor/VOC, Flat (Gloss Level 1): MPI #143.
Latex, Institutional Low Odor/VOC, (Gloss Level 2): MPI #144.
Latex, Institutional Low Odor/VOC, Semigloss (Gloss Level 5): MPI #147.
Latex, High-Performance Architectural, (Gloss Level 2): MPI #138.
Latex, High-Performance Architectural, Semigloss (Gloss Level 5): MPI #141.
Alkyd, Interior, Flat (Gloss Level 1): MPI #49.
Alkyd Interior, Semigloss (Gloss Level 5): MPI #47.
Alkyd Interior, Gloss (Gloss Level 6): MPI #48.
Alkyd Quick Dry, Semigloss (Gloss Level 5): MPI #81.
Alkyd Quick Dry, Gloss (Gloss Level 7): MPI #96.
Floor Paint Latex, Low Gloss (Maximum Gloss Level 3): MPI #60.
Floor Enamel, Alkyd Gloss (Gloss Level 6): MPI #27.
Material Compatibility: Provide materials that are compatible with one another and with substrates.

EXECUTION

Comply with recommendations in MPI's "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
Remove hardware, lighting fixtures, and similar items that are not to be painted Mask items that cannot be removed. Reinstall items in each area after painting is complete.
Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

Comply with recommendations in MPI-9s "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
Paint exposed surfaces, new and existing, unless otherwise indicated.
Do not paint prefinished items, items with an integral finish, operating parts, and labels unless otherwise indicated
Apply paints according to manufacturer's written instructions.
Use brushes only where the use of other applicators is not practical.
Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
If undercoats or other conditions show through topcoat apply additional coats until cured film has a uniform paint finish, color, and appearance.

PREPARATION

A. Remove hardware, lighting fixtures, and similar items that are not to be painted. Mask items that cannot be removed. Reinstall items in each area after painting is complete.

B. Clean and prepare surfaces in an area before beginning painting in that area. Schedule painting so cleaning operations will not damage newly painted surfaces.

APPLICATION

A. Apply paints according to manufacturer's written instructions.
1. Use brushes only for exterior painting and where the use of other applicators is not practical.
2. Use rollers for finish coat on interior walls and ceilings.

B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
1. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

C. Apply stains and transparent finishes to produce surface films without color irregularity, cloudiness, holidays, lap marks, brush marks, runs, ropiness, or other imperfections. Use multiple coats to produce a smooth surface film of even luster.

INTERIOR PAINT APPLICATION SCHEDULE

A. Steel:
1. Semigloss, Quick-Dry Enamel: Two coats over quick-drying alkyd metal primer: MPI INT 5.1A.
2. Semigloss Latex: Two coats over alkyd anticorrosive primer: MPI INT 5.1Q.
3. Semigloss, Alkyd Enamel: Two coats] over alkyd anticorrosive primer: MPI INT 5.1E.

B. Galvanized Metal: (if required)
1. Semigloss Latex: Two coats over cementitious galvanized-metal primer: MPI INT 5.3A.
2. Semigloss Latex: Two coats over waterborne galvanized-metal primer: MPI INT 5.3J.
3. Semigloss, Alkyd Enamel: Two coats over cementitious galvanized-metal primer: MPI INT 5.3C.

C. Aluminum: (if required)
1. Semigloss Latex: Two coats over quick-drying primer for aluminum: MPI INT 5.4H.
2. Semigloss, Alkyd Enamel: Two coats over quick-drying primer for aluminum: MPI INT 5.4J.

D. Dressed Lumber: Including Architectural Woodwork, Reclaimed Wood Siding, Solid Core Wood Doors if required.
1. Semigloss Latex: Two coats over primer: MPI INT 6.3T.
2. Semigloss Latex: Two coats over alkyd primer: MPI INT 6.3U.
3. Semigloss Alkyd: Two coats over alkyd primer: MPI INT 6.3B.
4. Semigloss, Alkyd Varnish: Two coats over stain and alkyd sanding sealer: MPI INT 6.3D.
5. Semigloss, Alkyd Varnish: Two coats over [alkyd sanding sealer: MPI INT 6.3J.
6. Satin Polyurethane: Two coats over stain: MPI INT 6.3E.
7. Satin Polyurethane: Two coats: MPI INT 6.3K.
8. Satin, Waterborne Acrylic: Two coats over stain: MPI INT 6.3W.
9. Satin, Waterborne Acrylic: Two coats: MPI INT 6.3Q.

E. Gypsum Board:
1. Eggshell Latex: Two coats over primer/sealer: MPI INT 9.2A.
2. Eggshell Alkyd: Two coats over latex primer/sealer: MPI INT 9.2C.

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 53338 JOHN MORRIS MCGAHEY FUQUAY-VARINA, NC

JOHN MORRIS MCGAHEY 2003 REGISTERED ARCHITECT NORTH CAROLINA FUQUAY-VARINA, NC

9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

PROJECT:	2022-12
DATE ISSUED:	09.05.24

REVISIONS:	DATE

DRAWN BY:	JMM
CHECK BY:	JMM

Specifications

A0.24

COMMERCIAL
RIBBED STEEL

2" Thick Optional Insulation

C2011 / C2011L / C2011S / C2015 / C2015L / C2015S / C2411 / C2411L / C2411S / C2415 / C2415L / C2415S / C2460 / C2460L / C2461 / C2461L / C2470 / C2470L / C2471 / C2471L / C2472 / C2472L / C2480 / C2480L / C2480S / C2481 / C2481L / C2482 / C2482L / C2511 / C2511L / C2511S

Ribbed Steel / 2" thick / optional insulation

Strength and Value

The Haas Commercial Ribbed Steel Series doors are a value-based product that offers the strength of steel in four panel styles and five color choices. All models offer the upgrade of adding energy-efficient insulation panels. Ribbed steel doors are the ideal choice when economy is the prime consideration but a high quality, beautifully crafted product is still a necessity.

COLOR OPTIONS

Note: Not all colors are available on all models. Consult page 33.

OPTIONS

Ribbed Steel Available Options

2" or 3" Track
Double Steel End Stiles
Exhaust Port
Cam Safety Device
Spring Bumpers
Chain Hoist
Operators
High Cycle Springs
Glazing (lites)
High Cycle Rollers
Aluminum Full View Section
Keyed Lock
Wind Load Rating

Wind Load

Non-Insulated - inside view

Insulated Laminate Back (L) - inside view

Optional Exhaust Port (interior view)

Insulated Steel Back (S) - inside view

DOOR PANELS

Smooth Ribbed Steel
Polar White Only
Models C2011, C2011L, C2011S, C2015, C2015L, C2015S, C2511, C2511L, C2511S
Window Options: p 41

Ribbed Short Woodgrain Panel
Polar White, Almond, Sandstone, Brown, Charcoal & English Oak
(not available in 18" sections)
Models C2460, C2460L
Window Options: p 39
Models C2472, C2472L
Window Options: p 40
Models C2482, C2482L
Window Options: p 38

Recessed Short Woodgrain Panel
Polar White, Almond, Sandstone, Brown, Charcoal & English Oak
(not available in 18" sections)
Models C2461, C2461L
Window Options: p 39
Models C2471, C2471L
Window Options: p 40
Models C2481, C2481L
Window Options: p 38

Raised Ranch Woodgrain Panel
Polar White, Almond, Sandstone, Brown, Charcoal & English Oak
Models C2470, C2470L
Window Options: p 40

Raised Standard Woodgrain Panel
Polar White, Almond, Sandstone, Brown, Charcoal & English Oak
Models C2480, C2480L, C2480S
Window Options: p 38

RIBBED STEEL QUICK GUIDE

Model	Door Thickness	R-Value*	Max. Door Size		End Stile Type	Section Sizes		Insulation Type	Stile GA.
			Width	Height		Inside	Outside		
C2011	2"	N/A	30'-2"	20'-0"	C-Shaped Steel	N/A	20 GA Ribbed Steel	None	18
C2011L	2"	7.45	30'-2"	20'-0"	C-Shaped Steel	Laminate Backer	20 GA Ribbed Steel	Inserted Polystyrene Panels	18
C2011S	2"	7.45	24'-2"	20'-0"	C-Shaped Steel	Steel Backer	20 GA Ribbed Steel	Inserted Polystyrene Panels	18
C2015	2"	N/A	30'-2"	20'-0"	C-Shaped Steel	N/A	20 GA Ribbed Steel	None	16
C2015L	2"	7.45	30'-2"	20'-0"	C-Shaped Steel	Laminate Backer	20 GA Ribbed Steel	Inserted Polystyrene Panels	16
C2015S	2"	7.45	24'-2"	20'-0"	C-Shaped Steel	Steel Backer	20 GA Ribbed Steel	Inserted Polystyrene Panels	16
C2411**	2"	N/A	30'-2"	20'-0"	C-Shaped Steel	N/A	24 GA Ribbed Steel	None	18
C2411L**	2"	7.45	30'-2"	20'-0"	C-Shaped Steel	Laminate Backer	24 GA Ribbed Steel	Inserted Polystyrene Panels	18
C2411S	2"	7.45	24'-2"	20'-0"	C-Shaped Steel	Steel Backer	24 GA Ribbed Steel	Inserted Polystyrene Panels	18
C2415**	2"	N/A	30'-2"	20'-0"	C-Shaped Steel	N/A	24 GA Ribbed Steel	None	16
C2415L**	2"	7.45	30'-2"	20'-0"	C-Shaped Steel	Laminate Backer	24 GA Ribbed Steel	Inserted Polystyrene Panels	16
C2415S	2"	7.45	24'-2"	20'-0"	C-Shaped Steel	Steel Backer	24 GA Ribbed Steel	Inserted Polystyrene Panels	16
C2470	2"	N/A	24'-2"	16'-0"	C-Shaped Steel	N/A	24 GA Ranch Panel Woodgrain Steel	None	18
C2470L	2"	7.45	24'-2"	16'-0"	C-Shaped Steel	Laminate Backer	24 GA Ranch Panel Woodgrain Steel	Inserted Polystyrene Panels	18
C2480	2"	N/A	24'-2"	16'-0"	C-Shaped Steel	N/A	24 GA Standard Panel Woodgrain Steel	None	18
C2480L	2"	7.45	24'-2"	16'-0"	C-Shaped Steel	Laminate Backer	24 GA Standard Panel Woodgrain Steel	Inserted Polystyrene Panels	18
C2480S	2"	7.45	24'-2"	16'-0"	C-Shaped Steel	Steel Backer	24 GA Standard Panel Woodgrain Steel	Inserted Polystyrene Panels	18
C2460, C2472, C2482	2"	N/A	24'-2"	16'-0"	C-Shaped Steel	N/A	24 GA Ribbed Short Panel Woodgrain Steel	None	18
C2460L, C2472L, C2482L	2"	7.45	24'-2"	16'-0"	C-Shaped Steel	Laminate Backer	24 GA Ribbed Short Panel Woodgrain Steel	Inserted Polystyrene Panels	18
C2461, C2471, C2481	2"	N/A	24'-2"	16'-0"	C-Shaped Steel	N/A	24 GA Recessed Short Steel	None	18
C2461L, C2471L, C2481L	2"	7.45	24'-2"	16'-0"	C-Shaped Steel	Laminate Backer	24 GA Recessed Short Steel	Inserted Polystyrene Panels	18
C2511	2"	N/A	16'-2"	16'-0"	C-Shaped Steel	N/A	24 GA Nominal Ribbed Steel	None	18
C2511L	2"	7.45	16'-2"	16'-0"	C-Shaped Steel	Laminate Backer	24 GA Nominal Ribbed Steel	Inserted Polystyrene Panels	18
C2511S	2"	7.45	16'-2"	16'-0"	C-Shaped Steel	Steel Backer	24 GA Nominal Ribbed Steel	Inserted Polystyrene Panels	18

*calculated R-Value **widths over 24'-2" are only available in polar white

Ribbed Steel / 2" thick / optional insulation

John Watson
Industrial Sales, Door Systems

Door Systems
1200 Corporation Parkway Suite 115
Raleigh, NC 27610

Mobile: 1 919-812-1101
Email: john.watson@doorsystems.com
Website: www.doorsystems.com

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN, P.A. 53338 REGISTERED ARCHITECTURAL FIRM NORTH CAROLINA FUQUAY-VARINA, N.C.

JOHN NORRIS McGAHEY 9603 REGISTERED ARCHITECT NORTH CAROLINA FUQUAY-VARINA, N.C. 9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2022 These Design and Construction Documents are Instruments of Service as are Given in Confidence and Remain The Property of McGahey Design, PA. The Use of this Design and these Documents for Purposes other than the Specific Project Named Herein, is Strictly Prohibited without the Expressed Written Consent of McGahey Design, PA.

PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Specifications

A0.25

SECTION 061623

SUBFLOORING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

A. Work of this Section, as shown or specified, shall be in accordance with the requirements of the Contract Documents.

1.2 SECTION INCLUDES

A. The Work of this Section includes all labor, materials, equipment, and services necessary to complete the subflooring as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

1. Magnesium oxide (MGO) structural panel subflooring.

1.3 RELATED SECTIONS

A. Cold-Formed Metal Framing - Section 054000.

1.4 REFERENCES

A. ASTM International (ASTM)

1. ASTM C1280 Standard Specification for Application of Gypsum Sheathing.
2. ASTM D6109 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products.
3. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
4. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
5. ASTM E136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750° C
6. ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

1.5 QUALITY ASSURANCE

A. Fire Performance Requirements

1. Fire-Rated Assemblies: Provide panels suitable for use in fire-rated assemblies in accordance with ASTM E119.
2. Surface Burning Characteristics: When tested in accordance with ASTM E84:
   a. Flame Spread: 0, maximum.
   b. Smoke Developed: 0, maximum.

1.6 SUBMITTALS

A. Product Data: Submit manufacturer's specifications and other data needed to prove compliance with the specified requirements

B. Manufacturer's recommended installation procedures.

C. Manufacturer's warranty.

1.7 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver materials in manufacturer's original undamaged containers with identification labels intact.

B. Storage and Protection

1. Store subflooring panels in a cool, dry place. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.
2. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect subflooring from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

C. Handling: Boards shall be carried on their side and care shall be taken to avoid damaging corners and shiplap edges.

1.8 WARRANTY

A. Manufacturer's Warranty: Standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.

1. Warranty Period: Two (2) years commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.1 SUBFLOORING

A. Manufacturer: Dragon Board USA, 2960 Woodbridge Avenue, Edison, NJ 08837; 732-662-6275; info@dragonboard.com

B. Magnesium Oxide (MGO) Subflooring: Magnesium oxide with fibrous reinforcement single-floor panels.

1. Size: 4 feet by 8 feet (1.2m x 2.4m).
2. Nominal Thickness: 3/4 inch (18mm).
3. Edges: Shiplap, ends: square or as indicated.
4. Physical Characteristics
   a. Flexural Modulus: Not less than 106 psi (0.73 MPa) when tested in accordance with ASTM D6109.
   b. Flexural Strength: Not less than 1295 psi (8.93 MPa) when tested in accordance with ASTM D6109.
   c. Shear Strength: Not less than 390 psi (2.69 MPa) when tested in accordance with ASTM D6109.
   d. Fungus/Mold: Classified as non-nutrient when tested in accordance with ASTM G21.

C. Fasteners

1. Fasteners for Cold-Formed Steel (CFS): #8, #9 or #10 fine thread self-drilling flat head screw with ribs on the underside of the head, such as Simpson CBSDQ (winged), Grabber CGH815SLG (winged), Grabber BGCBS158SD, Buildex S-12 Rock-On 2156500, or equivalent. The drill wings on the tip prevent board uplift (for use into steel 43 mils or thicker only) while the ribs on the underside of the head allow for a flush finish. Screws must penetrate steel with at least 3 exposed threads.
2. Fasteners for Wood: High/low thread, flat head screw with ribs on the underside of the head, such as Simpson CB3BLGHL, Grabber GCB8125HL, Buildex hi-lo Rock-On 2151500, or equivalent.

PART 3 EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where subflooring is to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.2 INSTALLATION

A. General: Install in conformance with ASTM C1280.

B. Placement: Place all panels in a running bond pattern with all butt joints over joists. All panels should be staggered with a 1/16" (1.6 mm) gap between boards to accommodate movement when attached to CFS and 1/8" (3.2 mm) gap when attached to wood.

C. Board Orientation: DragonBoard is smooth on one side and rough on the other. Both surfaces are working surfaces: board may be oriented with either side up.

D. Seams: When laying resilient flooring such as vinyl composition tile, vinyl plank or linoleum over DragonBoard, all subfloor seams shall be filled with a polyurea or modified epoxy seam filler and shaved or sanded flush to create a uniformly smooth surface to avoid telegraphing uneven joints to the wear surface.

E. Underlayment: In certain circumstances underlayment, isolation membranes and seam bridging membranes may be "needed" or "required". Follow manufacturer's installation instructions.

F. Fastener Spacing: Fasteners shall be placed 5/8" - 3/4" (15 mm – 18 mm) from board edge and never closer than 1/2" (12 mm). A joist flange size of 2" (50 mm) minimum is recommended to accommodate fastener edge distances. Fasteners should be placed every 8" (200 mm) on center on the perimeter and 12" (300 mm) on center in the field.

G. Edge Support: All edges shall be supported by framing.

H. Cutting: DragonBoard can be cut with either hand or power saws. Use blades specifically made for cement board such as Irwin 6T or Diablo PCD blades. Support both ends while cutting.

I. Adhesives: DragonBoard shiplap seams shall have a 1/4" bead of adhesive applied before placement of the next sheet. Do not allow adhesive to skin over. Use ASTM D 3498 compliant adhesives such as:

1. PEMCO 5100 non-flammable, solvent free, zero V.O.C., polyurethane adhesive.
2. BOSTICH Heavy Duty Construction Adhesive.
3. OSI SF450 Heavy Duty Subfloor & Construction Adhesive.
4. LOCTITE PL 400 Subfloor Adhesive/ Loctite PL Premium Polyurethane Adhesive.

3.3 CLEANING

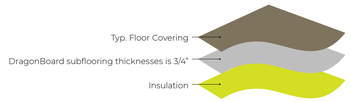
A. Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

DRAGONBOARD MGO SUBFLOOR
PANEL APPLICATIONS

SUB-FLOORING APPLICATIONS
DragonBoard Magnesium Oxide (MgO) board is an excellent choice for various building applications requiring strong and durable structural and fire-resistant subflooring for both wood and metal joists.

When utilizing DragonBoard for both ceiling and subfloor assemblies, fire resistant properties are improved beyond the already impressive fire-ratings, protecting the floor structure from a flammable event.

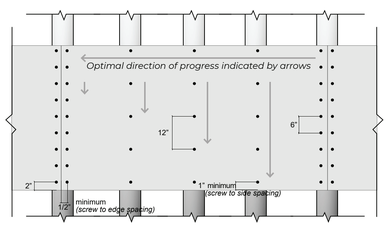


Subfloor over wood joists

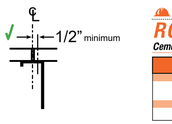
Subfloor over steel joists

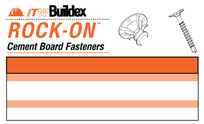
DRAGONBOARD MGO SUBFLOOR
FASTENING THE PANEL

The center of fasteners should be no less than 1/2" from any panel edge.



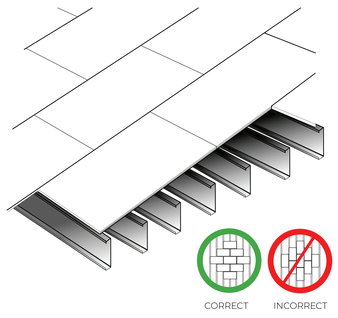
- For Optimal Results when Utilizing DragonBoard, the Suggested Fastener is the Rock-On 1-1/4 in. Cement Board Screws *(Pictured Below)*





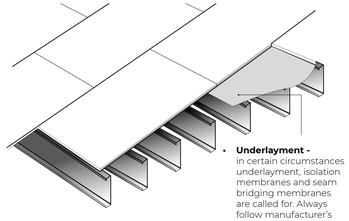
DRAGONBOARD MGO SUBFLOOR
FRAMING DIRECTION

DragonBoard Panels should always lay perpendicular to supporting joists.



DRAGONBOARD MGO SUBFLOOR
ORIENTATION, SEALING & UNDERLAYMENT

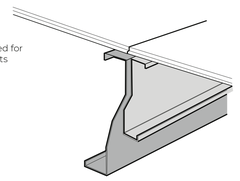
- All panels should be staggered with a 1/16" (1.5mm) gap – the thickness of a penny- between boards to accommodate movement when attached to cold-formed steel framing and 1/8" when attached to wood.
- **Board Orientation -** DragonBoard is extremely smooth on one side and rough on the other. Both surfaces are working surfaces. The smooth side is ideal for the application of finished flooring such as carpet or resilient flooring. The rough side provides excellent adhesion when applying ceramic tiles, stone, concrete toppings or other decorative materials.
- **Seams -** When laying resilient flooring such as VCT, Vinyl plank or Linoleum over DragonBoard, all seams should be filled with a polyurea or modified epoxy seam filler and shaved or sanded flush to create a uniformly smooth surface to avoid "telegraphing" uneven joints to the wear surface.



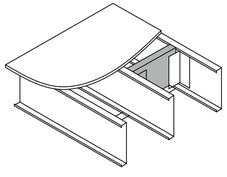
- **Underlayment -** in certain circumstances underlayment, isolation membranes and seam bridging membranes are called for. Always follow manufacturer's installation instructions.

DRAGONBOARD MGO SUBFLOOR
PANEL BLOCKING

Edge distance modified for improperly placed joists requiring blocking.



Block edges that are less than 24" wide before DragonBoard panel application.



UL Product iQ™

BXUV.G575 -

UL RATING NOT REQUIRED - PROVIDED TO SHOW PRODUCT IS FIRE RATED AND IS NOT COMBUSTIBLE

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

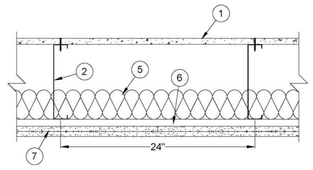
Design No. G575

November 21, 2019

Unrestrained Assembly Rating — 2 Hr

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Flooring System - Building Units* —** Nom 3/4 in. thick. Long dimension of panels to be perpendicular to joists with end joints staggered a min of 4 ft and centered over the joists. Panels secured to steel joists with 1-1/4 in. long self-drilling, self-countersinking, bugle head steel screws spaced a max of 12 in. OC in the field with a screw located 1/2 in. from each edge, and 8 in. OC along the end joints and around the perimeter with a screw located 1/2 in. from each joint and the side edges of the panel.
DRAGONBOARD USA L L C — DragonBoard Flooring

Options with Item 1:
1a. **Steel Deck —** As an option below Item 1. Min 9/16 in. deep, 22 MSG galv corrugated fluted steel deck. Overlapped one corrugation at each side and attached to each joist with 3/4 in. long #10-16 TEK screws 10 in OC max.

1b. **Floor Mat Materials* —** (Optional) **—** Floor mat material nom 5/64 in. (2 mm) thick adhered to Item 1 with Floor Primer.

ECORE INTERNATIONAL INC — Type QTscu 4002, QTrbm3006-3

HACKER INDUSTRIES INC — Type Hacker Sound-Mat

2. **Structural Steel Members* —** The proprietary joists are channel-shaped, min 10 in. deep. Joists are fabricated from min No. 16 MSG galv steel. Joists spaced max 24 in. OC. At joist rim splices bearing on supports, joists rims are connected using an overlapping section of a 12 in. long splice plate (a joist piece), with four 3/4 in. long No. 10 self-drilling steel TEK screws to each rim piece.
SUPER STUD BUILDING PRODUCTS — Type 1055/16

Alternates to Item 2:
2a. **Structural Steel Members — Joists —** C-shaped, galvanized steel section, min 10 in. deep with min 1-5/8 in. flanges and min 1/2 in. returns. Joists fabricated from min 16 MSG galv steel with Yield Strength of 50,000 psi. Joists spaced max 24 in. OC with center joists located 12 in. OC on either side of centerline.

2b. **Structural Steel Members —** Cold-formed, Min 16 MSG galvanized steel truss chord and web sections manufactured from steel conforming to ASTM A653 Grade 33 or higher yield strength. Steel thickness of truss chord and web sections as required by design to meet governing code requirements. Truss members connected together with No. 10-16 (min size) self-drilling screws or equivalent. Truss chord and web members to be designed in accordance with the American Iron and Steel Institute's Specification for the Design of Cold-Formed Steel Structural Members, 1996 Edition. Truss spaced a max of 24 in. OC. Where the truss intersects with the interior face of the exterior walls, the min truss depth shall be 12 in.

2c. **Structural Steel Members* —** Pre-fabricated steel truss system consisting of chord and web sections fabricated from min 16 MSG cold-formed, galvanized steel. Min. depth 12 in. Trusses spaced a max of 24 in. OC.
KEYMARK ENTERPRISES L L C — KeyTruss system

2d. **Structural Steel Members* —** Pre-fabricated light gauge steel truss system consisting of cold-formed, galv steel chord and web sections. Minimum truss depth 12. Min 16 MSG. Trusses spaced a maximum of 24 in. OC.
AEGIS METAL FRAMING, DIV OF MITEK — Ultra-Span, Pre-fabricated Light Gauge Steel Truss System

TRUSSTEEL, DIV OF ITW BUILDING COMPONENTS INC — TrusSteel

2e. **Structural Steel Members* —** Pre-fabricated light gauge steel truss system consisting of cold-formed, galvanized steel cord and web sections. Trusses fabricated from min 16 MSG steel. Trusses minimum 12 in. deep, spaced a max of 24 in. OC.
DOUGLAS COLONY GROUP INC — Type FRAMECAD

3. **Joist Bridging - (Not Shown) —** Installed at the center of the joist span immediately after joists are erected and before construction loads are applied. The bridging consists of No. 18 MSG galv steel channels, 2-1/2 in. wide by 22-3/8 in. long with 1-5/8 in. long web extensions at each end for screw-attachment to the bottom flange of the steel joists with a 3/4 in. long No. 10 self-drilling steel TEK screws. Solid bridging consisting of cut-to-length joist sections with a max spacing of 8 ft OC.

3A. **Joist Bridging —** As an alternate to Item 3 **-** Installed at the center of the joist span immediately after joists are erected and before construction loads are applied. The bridging consists of No. 18 MSG galv steel channels, 2-1/2 in. wide by 22-3/8 in. long with 1-5/8 in. long web extensions at each end for screw-attachment to the bottom flange of the steel joists with a 3/4 in. long No. 10 self-drilling steel TEK screws. Gerrard bridging consists of No. 18 MSG galv steel with 1 1/4" flanges having the same depth as the joists, attached to the top and bottom joist flanges with two #10 by 3/4" long self-drilling screws with a max spacing of 8 ft OC.

4. **Angle Clips —** Not shown **-** Nominal 2 x 4 x 9-7/8 in., No 16 ga clips used to fasten joists to joist rim track. 4 in. side of clip placed against inside web of joists and 2 in. side placed against joist rim track. Each side secured with three #10-3/4 in. TEK screws. Nominal 1-1/2 x 4 x 8 in., No. 16 ga clips used to fasten joist bridging with clip located on the web/flange side of the joist. Clip fastened with two #10x3/4 in. TEK screws per leg per clip. Nominal 1-1/2 x 1-1/2 x 8 in, No 16 ga clips used to fasten joist bridging with clip located on the web/non-flange side of the joist. Clip fastened with two #10-3/4 in. TEK screws per leg per clip.

5. **Batts and Blankets* —** 3-1/2 in. thick glass fiber batt insulation draped over the resilient channels (Item 5) or suspension system grid (Item 5A). Any glass fiber batt insulation bearing the UL Classification Marking for Surface Burning Characteristics having a flame spread index of 25 or less and a smoke developed index of 50 or less may be used. See **Batts and Blankets** (BKNV) category in the Building Materials Directory for names of manufacturers.

6. **Resilient Channels —** Formed of No. 25 MSG galv steel, 1/2 in. deep, spaced max 12 in. OC, perpendicular to joists. Channel splices located beneath joists and overlapped 4 in.. Channels secured to each joist with one 1/2 in. long Type S-12 low profile steel screw. Two channels, spaced 6 in. OC, oriented opposite each gypsum board end joint. Additional channels shall extend min 6 in. beyond each side edge of board.

6A. **Steel Framing Members* —** (Optional, Not Shown) **—** As an alternate to Resilient Channels, Item 6, furring channels and Steel Framing Members as described below.

a. **Furring channels —** Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 12 in. OC, perpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to the steel joists (Item 2). Clips spaced a max of 48 in. OC. RSIC-1 and RSIC-1 (2.75) clips secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the gypsum board butt joints, as described in Item 7.
PAC INTERNATIONAL L L C — Types RSIC-1 or RSIC-1 (2.75)

7. **Gypsum Board* —** Any 5/8 in., thick, 4 ft. wide Gypsum Board UL Classified for Fire Resistance (CKNX) eligible for use in Design No. G512. Nom 5/8 in. thick, 48 in. wide gypsum panels. Base layer installed with long dimension perpendicular to resilient channels, secured with 1 in. long Type S bugle-head screws spaced 12 in. OC, with screws located 6 in. from and on each side of the gypsum panel, in both the field and the perimeter, and 1-1/2 in. from side edges of the panels. Face layer installed with long dimension perpendicular to resilient channels or cross tees with joints offset 24 in. from base layer, secured with 1-5/8 in. long Type S bugle-head screws spaced 8 in.OC with screws located 4 in. from and on each side of the gypsum panel midspan, in both the field and the perimeter, and 1-1/2 in. from side edges of the panel. Butt joints of face layer panels secured to base layer with 1-1/2 in. long Type G screws spaced 8 in. OC and 1-1/2 in. from side edges of the panels, with butt joints located between resilient channels. Butt joints of face panels staggered a minimum of 12 in. from butt joints of base layer. When **Steel Framing Members** (Item 6A) are used, the butt joints in the gypsum board layers shall be supported by two furring channels. The two furring channels shall be spaced approximately 3-1/2 in. OC, and be attached to underside of the joist with one RSIC-1, RSIC-1 (2.75) at each end of the channel.

8. **Finishing System - (Not Shown) —** Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum board.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2019-11-21

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2020 UL LLC"

INSTALLATION INSTRUCTIONS REV 12.12.2019

DragonBoard® ¾" Sub-flooring

Handling & Storage - *DragonBoard* should be stored in a cool dry place as with any other sheet goods. Boards should be carried on their side and care taken to avoid abusing corners and shiplap edges.

Placement - All panels should be staggered with a 1/16" (1.5mm) gap – the thickness of a penny-, between boards to accommodate movement when attached to CFS and 1/8" when attached to wood. Use dunnage plywood on top of the installed DragonBoard to protect it during the construction phase.

Board Orientation - *DragonBoard* is smooth on one side and rough on the other. Both surfaces are working surfaces. It is recommended that once you begin installing DragonBoard on a particular side, that you maintain surface consistency of the surface side.

Seams - When laying resilient flooring such as VCT, Vinyl plank or Linoleum over *DragonBoard*, all seams should be filled with a polyurea or modified epoxy seam filler and shaved or sanded flush to create a uniformly smooth surface to avoid "telegraphing" uneven joints to the wear surface.

Underlayment- in certain circumstances underlayment**,** isolation membranes and seam bridging membranes are called for. *Always follow manufacturer's installation instructions.*

Fasteners -
Cold-Formed Steel CFS - #8,#9 or #10 fine thread self-tapping flat head screw with 'nibs' such as Simpson CBSDQ, GrabberCGH815BLG or equivalent. The drill wings on the tip prevent board uplift (for use into steel 18ga or thicker only) while the 'nibs' countersink the head resulting in a tighter, smoother finish .

Grabber CGH815BLG sheathing to CFS

Simpson CBSDQ sheathing to CFS

WOOD- High/low thread, flat head screw with 'nibs' such as Simpson CB3BLGHL collated screw

Simpson CB3BLGHL sheathing to wood

Fastener spacing - Fasteners should be placed 3/4" -5/8" (15-18mm) from board edge and never closer than ½" (12mm) A flange size of 2" (50mm) is highly recommended. Fasteners should be placed every 8" inches on the perimeter and 12" in the field

Edge support - all edges should be supported by framing

Cutting - *DragonBoard* can be cut with either hand or power saws. We suggest the use of blades specifically made for cement board such as Irwin 6Tor Diablo PCD blades.
Always support both ends while cutting. Always wear safety glasses and a dust mask.

Adhesives - *DragonBoard* shiplap seams should have a ¼" bead of adhesive applied before placement of the next sheet. Do not allow adhesive to skin over.

Use **ASTM D3498** compliant adhesives such as:
- PEMCO 5100 non-flammable, solvent free, zero V.O.C., polyurethane adhesive
- BOSTICH Heavy Duty Construction Adhesive
- OSI SF450 Heavy Duty Subfloor & Construction Adhesive
- LOCTITE PL 400 Subfloor Adhesive/ Loctite PL Premium Polyurethane Adhesive

Rev.2.01 This replaces all previous versions. Please contact your rep with any questions.

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN PA
PROFESSIONAL CORPORATION
53338
NORTH CAROLINA
FUQUAY-VARINA, NC

JOHN MORRIS MCGAHEY
BUSINESS ASSOCIATE
9603
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

© 2020 These Design and Construction Documents are Instruments of Service as are Given in Confidence and Remain The Property of McGahey Design, PA. The Use of this Design and these Documents for Purposes other than the Specific Project Named Herein, is Strictly Prohibited without the Expressed Written Consent of McGahey Design, PA.

E&M CONCRETE

PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

Specifications
Mezzanine Subfloor

A0.26

Polished Concrete Specification

Blair Duron Restoration, LLC
Contact info: Adam Blalock
2001 W Garner Road
Garner, North Carolina 27529
919.745.8211 office
919.757.4430 mobile

If Selected by Owner

Vacuum diamond grind with metal bonded diamonds, hone with ceramic bonded diamonds and polished with resin bonded diamonds then burnish with 1500 grit finish. Use Prosoco Densifier and Prosoco Stain Guard Sealer in between the polishing steps.

03 30 00 Cast-In-Place Concrete
03 35 00 Concrete Finishing
09 60 00 Flooring
09 61 00 Flooring Treatments

PRODUCT DATA SHEET
PROSOCO
SINCE 1939

CONSOLIDECK®
HIGH-PERFORMANCE-CONCRETE

LS/CS®

economical lithium-silicate sealer, hardener & densifier for concrete

SCS CERTIFIED INDOOR ADVANTAGE GOLD
SCIENTIFIC CERTIFICATION SYSTEMS EC14455-01/06

NSF Nonfood Compounds Program Listed H2 Registration #142260

OVERVIEW

Consolideck® LS/CS® provides a safe, economical alternative to conventional sodium or potassium silicate surface hardeners. This penetrating lithium silicate treatment reacts with concrete to produce insoluble calcium silicate hydrate within the concrete pores.

Unlike conventional hardeners which deposit high concentrations of sodium or potassium salts, Consolideck® LS/CS® contains lithium. LS/CS® will not trigger or contribute to surface ASR (Alkali Silicate Reaction).

SPECIFICATIONS

For all PROSOCO product specifications visit www.prosoco.com and click on "SpecBuilder" or "Solution Finder."

ADVANTAGES

- Easy, one step application. No scrubbing. No flushing. No caustic wastewater.
- Penetrates and reacts quickly to produce better initial hardness.
- Provides excellent abrasion resistance
- Tested and conforms to California Collaborative for High Performance School Indoor Air Quality standards. Use can contribute to LEED® for Schools points (EQ Credit 4).
- Produces a fast surface gloss which improves with traffic and maintenance.
- Improves performance, appearance and light reflectance of new or old concrete.
- Reduces application time and cost of burnishing and diamond polishing operations.
- Will not contribute to surface crazing. High lithium content combats surface ASR.
- Lithium will not absorb water or contribute to floor sweating.
- Gloss and hardness do not reduce slip resistance.
- Breathable and UV stable. Will not yellow, discolor, peel or flake.
- VOC compliant. Non-flammable. Non-toxic. Low odor.
- Cures quickly. Most floors can be opened to traffic within one hour of treatment.
- Treated surfaces are easy to maintain and require no waxing.

REGULATORY COMPLIANCE

VOC Compliance

Consolideck® LS/CS® is compliant with the following national, state and district AIM VOC regulations

- [X] US Environmental Protection Agency
- [X] California Air Resources Board SCM Districts
- [X] South Coast Air Quality Management District
- [X] Maricopa County, AZ
- [X] Northeast Ozone Transport Commission

TYPICAL TECHNICAL DATA

FORM	clear, water-like liquid
SPECIFIC GRAVITY	1.05
pH	11.0
WT/GAL	8.6 lbs
ACTIVE CONTENT	6%
TOTAL SOLIDS	6%
VOC CONTENT	0 g/L
FLASH POINT	Not applicable
FREEZE POINT	32°F (0°C)
SHELF LIFE	2 years in tightly-sealed, unopened container

CONSOLIDECK®
HIGH-PERFORMANCE-CONCRETE

LS/CS®

PRODUCT DATA SHEET
PROSOCO
SINCE 1939

PREPARATION

Protect people, vehicles, property, plants and all surfaces not designated to receive LS/CS® from the product, splash and wind drift. Use polyethylene or other proven protective material.

Do not apply to surfaces which are frozen, dirty or have standing water. Surfaces must be clean, dry and absorbent. Confirm surface absorbency with a light water spray – surfaces designated for treatment should wet uniformly. If the surface does not wet uniformly, use the appropriate Consolideck® surface prep cleaner or mechanical process to remove remaining surface contaminants.

New Concrete

Consolideck® LS/CS® may be applied to freshly placed concrete after final finishing and installation of the control joints. Remove soft cut saw debris before applying Consolideck® LS/CS®.

Existing Concrete

Though Consolideck® LS/CS® may be applied to existing, cured concrete of any age, Consolideck® LS® may be a better choice. Contact your PROSOCO representative or PROSOCO Customer Care (1-800-255-4255) for recommendations.

Surfaces must be clean and structurally sound. Remove all foreign materials including bond breakers, curing agents, surface grease and oil, and construction debris using the appropriate Consolideck® surface prep cleaner listed below:

Consolideck® SurStrip
- cure & seals;
- paint and high strength coatings

*Consolideck® SurEtch® **
- concrete laitance
- construction soiling

*Not for use on concrete previously treated with Consolideck® LS®, LS/CS® or !2Guard®.

Consolideck® Wax & Cure Remover
- waxes, sealers & coatings
- low-solids cure & seals

Consolideck® Cure & Seal Remover
- high-solids cure & seals

Consolideck® Concrete Floor Restorer
- general soiling and light wax coatings
- rust and other metallic staining

Consolideck® Cleaner/Degreaser
- general soiling
- grease and oil

Consolideck® Oil & Grease Stain Remover
- deep-seated oil & grease staining

Follow the appropriate cleaner with thorough water rinsing. If a d-limonene based cleaner/stripper is used, clean treated surfaces with Consolideck® Cleaner/Degreaser and rinse thoroughly.

Acid-stained concrete must be thoroughly neutralized and rinsed prior to application.

Application may begin as soon as prepared surfaces are dry and free of ponded water.

Surface & Air Temperatures

Temperatures for application should be 40–100°F (4–38°C).

Equipment

Apply with low pressure sprayer, mop or a soft-bristled push broom.

Storage & Handling

Store in a cool, dry place. Always seal container after dispensing. Do not alter or mix with other chemicals. Published shelf life assumes upright storage of factory-sealed containers in a dry place. Maintain temperatures of 40–100°F (4–38°C). Keep from freezing. Do not double stack pallets. Dispose of in accordance with local, state and federal regulations.

APPLICATION

Before application, read "Preparation" and "Safety Information." ALWAYS TEST using equipment and procedures selected for general application. Follow the application instructions to pre-test each slab. Pre-testing will confirm suitability of surface preparation and application procedures proposed for general application. Pre-testing will also determine the average coverage rates to be maintained over the entire project. Let surfaces dry thoroughly before inspection and approval.

ALWAYS TEST

ALWAYS TEST a small area of each surface to confirm suitability and desired results before starting overall application. Test with the same equipment, recommended surface preparation and application procedures planned for general application.

Dilution

Do not dilute or alter. Apply as packaged.

Coverage Rates

Variations in concrete quality, porosity, job site conditions, temperature and relative humidity will affect coverage rates and drying times. Calculate the Target Coverage Rate by testing a representative section of the prepared surface using the following instructions.

Estimated Coverage Rates

The following coverage rates are offered for estimating only. See below for instructions on calculating project-specific target coverage rates.

Freshly Placed, Uncured, Steel Troweled Concrete
• 500–800 sq.ft. (46–74 sq.m.) per US gal

Cured, Steel Troweled Concrete
• 400–700 sq.ft. (37–65 sq.m.) per US gal

Cured, Ground/Honed Concrete
• 400–600 sq.ft. (37–56 sq.m.) per US gal

Calculating Project-Specific Target Coverage Rate

1. Prepare the test section in accordance with "Preparation" information above. Surfaces must be clean, dry and absorbent. Confirm surface absorbency with a light water spray – surfaces designated for treatment should wet uniformly.
2. Add 1-gallon of LS/CS® to a clean, pump-up sprayer fitted with a 0.5 gpm spray tip. Lightly apply according to Application Instructions steps #1–4 for the appropriate floor type. Repeat as necessary to determine correct rate of application.
3. Measure the test area to establish the Target Coverage Rate per gallon.

CONSOLIDECK®
HIGH-PERFORMANCE-CONCRETE

LS/CS®

PRODUCT DATA SHEET
PROSOCO
SINCE 1939

Application Instructions

Freshly Placed, Uncured Steel Troweled Concrete

1. After final finishing, soft cut control joints.
2. Clean concrete of any dirt, residue or soft cut saw debris.
3. Using a low pressure sprayer fitted with a 0.5 gpm spray tip, apply a single coat of LS/CS®. Apply sufficient material to wet the surface without producing puddles. Use a clean, soft-bristle push broom or microfiber pad to spread product evenly and ensure uniform wetting. Avoid spreading once drying begins. Scrubbing is not necessary. If surfaces dry immediately, apply more product. Surface should remain wet for 5–10 minutes. Adjust rate of application to eliminate puddles.

NOTE: Allowing excess material to puddle on the floor will extend dry times and create white residues which must be removed immediately. Call the Consolideck® Hotline at 866-363-4567 for removal instructions.

4. Allow treated surfaces to dry.
5. Immediately apply the specified curing compound or initiate the specified curing procedure.
6. When the curing process is complete, use an automatic floor scrubber equipped with cleaning pads or brushes appropriate for removal of accumulated construction soiling and surface residues. Avoid pads or brushes which may damage the finished floor. This procedure will further enhance the surface sheen produced by Consolideck® LS/CS®.

For additional shine and protection, apply Consolideck® !2Guard® according to label instructions.

Application Instructions

Cured, Steel Troweled Concrete

1. Remove all dirt, debris, or curing compounds using the appropriate Consolideck® surface preparation cleaner listed above. Allow cleaning waters used in surface preparation to dry.
2. The prepared surface must wet uniformly. Confirm surface absorbency with a light water spray. In hot, dry weather, pre-wet the concrete with fresh water. Allow any standing water to evaporate.
3. Apply a single coat of LS/CS® using a low pressure sprayer fitted with a 0.5 gpm spray tip. Apply sufficient material to wet the surface without producing puddles. Use a clean, soft-bristle push broom or microfiber pad to spread product evenly and ensure uniform wetting. Avoid spreading once drying begins. Scrubbing is not necessary. If surfaces dry immediately, apply more product. Surface should remain wet for 5–10 minutes. Adjust rate of application to eliminate puddles.

NOTE: Allowing excess material to puddle on the floor will extend dry times and create white residues which must be removed immediately. Call the Consolideck® Hotline at 866-363-4567 for removal instructions.

4. Allow treated surfaces to dry.
5. Remove any dried powder residue using stiff broom, power sweeper or floor scrubbing machine.
6. For immediate, enhanced shine, buff or burnish the dry concrete surface in both directions using an orbital floor machine or burnisher equipped with an appropriate polishing pad. This is a dry buffing operation.

For additional shine and protection, apply Consolideck® !2Guard® according to label instructions.

Application Instructions

Cured, Ground/Honed Concrete

1. Sand, level or grind the concrete surface with a floor sander, orbital floor machine or diamond grinding machine as needed to achieve the desired exposure.
2. Remove all sanding dust and debris using a floor scrubbing machine and fresh water. Remove any remaining surface contaminants using the appropriate Consolideck® surface prep cleaner. Allow wet surfaces to dry.
3. Apply a single coat of LS/CS® using a low pressure sprayer fitted with a 0.5 gpm spray tip. Apply sufficient material to wet the surface without producing puddles. Use a clean, soft-bristle push broom or microfiber pad to spread product evenly and ensure uniform wetting.

BEST PRACTICES

Surfaces to be treated must be clean, dry and absorbent. Confirm surface absorbency with a light water spray. If surfaces designated for treatment do not wet uniformly, use the appropriate Consolideck® surface prep cleaner or mechanical process to remove remaining surface contaminants.

Spray applicators equipped with 0.5 gpm (gallon per minute) fan spray tip have proven effective for application of this product.

If the desired surface finish requires mechanical removal of the top layer of cement paste, best results are achieved by sanding or grinding the cured concrete surface to achieve a 50–200 grit finish before applying Consolideck® LS/CS®. The increased surface density which Consolideck® LS/CS® provides will make further sanding, grinding or diamond polishing proceed faster.

Consolideck® LS/CS® is suitable for use with wet or dry grinding and polishing procedures. Wastewater generated by wet grinding or polishing procedures should be collected and disposed of properly.

Maintain Consolideck® hardened floors with Consolideck® !Clean Super Concentrate – a daily maintenance cleaner developed to further enhance the long-term performance of finished concrete floors.

Never go it alone. If you have problems or questions, contact your local PROSOCO distributor or field representative. Or call PROSOCO technical Customer Care, toll-free, at 800-255-4255.

CONSOLIDECK®
HIGH-PERFORMANCE-CONCRETE

LS/CS®

PRODUCT DATA SHEET
PROSOCO
SINCE 1939

Avoid spreading once drying begins. Scrubbing is not necessary. If surfaces dry immediately, apply more product. Surface should remain wet for 5–10 minutes. Adjust rate of application to eliminate puddles.

NOTE: Allowing excess material to puddle on the floor will extend dry times and create white residues which must be removed immediately. Call the Consolideck® Hotline at 866-363-4567 for removal instructions.

4. Allow treated surfaces to dry.
5. Remove any dried powder residue using stiff broom, power sweeper or floor-scrubbing machine.
6. If additional surface sheen is desired, buff or burnish the concrete surface in both directions with an orbital floor machine or burnisher equipped with an appropriate polishing pad. This is a dry buffing operation.

For additional shine and protection, apply Consolideck® !2Guard® according to label instructions.

Application Instructions

Cured and Polished Concrete

Follow steps 1–5 listed above for Honed Concrete. Use progressively finer abrasives, continue diamond polishing in consecutive steps to achieve the desired finish. Remove all polishing dust and debris.

For additional shine and protection, apply Consolideck® !2Guard® according to label instructions.

Cleanup

Before product dries, clean tools and equipment with fresh water. Immediately wash off over spray from glass, aluminum, polished or other surfaces with fresh water.

Final Results

The floor is ready to use when dry. Smooth and hardened concrete surfaces will exhibit reduced water absorption and increased surface sheen upon drying. Maximum water resistance will develop over 7 days. Surface sheen and hardness will increase with time and maintenance.

Maintenance

Remove surface dust and debris daily using a micro fiber pad or dry dust mop. Dry buff with a high-speed burnisher to refresh gloss.

Regular maintenance cleaning will improve surface shine. Maintain the floor with Consolideck® !Clean Super Concentrate.

Do not use acidic cleaners. Though Consolideck® LS/CS® will improve the resistance of concrete surfaces to staining, some acid concentrates and acidic foods may etch the floor and leave a residual stain. Clean up such spills quickly to minimize any potential for damage.

Though protective treatments simplify maintenance of concrete floors, all spills must be cleaned up in a timely manner.

For improved resistance to water or oily stains, apply Consolideck® SLX100® Water & Oil Repellent according to label instructions. Apply SLX100® directly to the hardened concrete surface. Do not apply SLX100® over Consolideck® !2Guard®.

If additional protective treatments or surface coatings are desired, consult Customer Care for recommendations by calling 1-800-255-4255.

SAFETY INFORMATION

Consolideck® LS/CS® is a water carried product. Use appropriate safety and job site controls during application and handling. Read the full label for precautionary instructions before use.

First Aid

Ingestion: Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately. ***Eye Contact:*** Remove contact lenses. Immediately flush eyes for 15 minutes in clear running water while holding eyelids open. Seek medical attention immediately. ***Skin Contact:*** Wash contacted area with soap and water. DO NOT attempt to neutralize with chemical agents. If irritation persists, seek medical attention.

Inhalation: Remove affected person to fresh air. Wash mouth and nasal passages with water repeatedly. If breathing difficulties persist, seek medical attention.

24-Hour Emergency Information: INFOTRAC at 800-535-5053

WARRANTY

The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, nor anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.

PROSOCO, Inc. warrants this product to be free from defects. **Where permitted by law, PROSOCO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose.** The purchaser shall be responsible to make his own tests to determine the suitability of this product for his particular purpose. PROSOCO's liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product has been applied. Acceptance and use of this product absolves PROSOCO from any other liability, from whatever source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of PROSOCO, its distributors or dealers.

CUSTOMER CARE

Factory personnel are available for product, environment and job-safety assistance with no obligation. Call 800-255-4255 and ask for Customer Care - technical support.

Factory-trained representatives are established in principal cities throughout the continental United States. Call Customer Care at 800-255-4255, or visit our web site at www.prosoco.com, for the name of the Consolideck® representative in your area.

PROSOCO
SINCE 1939

CONSOLIDECK
HIGH-PERFORMANCE-CONCRETE

LS Guard

glossy sealer, hardener & densifier for concrete

DESCRIPTION AND USE

Consolideck® LS Guard combines high-gloss beauty with the penetrating toughness of Consolideck® LS – PROSOCO's premium sealer, hardener and densifier for horizontal concrete. The easy-application lithium silicate treatment penetrates and reacts with the concrete. The concrete, new or old, dramatically increases in hardness, denseness and durability. Meanwhile, LS Guard's polymeric component seals the concrete with a rich, shiny finish that makes concrete easy to clean and maintain. Treated surfaces resist damage from water, chemical attack and abrasion.

LS Guard is perfect for field application of standard or decorative concrete, as well as in-plant treatment of cured cementitious tiles. Safer and easier than conventional sodium or potassium silicate hardeners, LS Guard will not trigger or contribute to surface ASR (Alkali Silicate Reaction).

ADVANTAGES
- Easy application. Low odor and no scrubbing or flush required.
- Penetrating, permanent protection. Will not peel or flake off.
- Glossy finish holds its beauty – no other coating needed
- Does not contain sodium or potassium salts which can contribute to surface crazing/surface ASR.
- Non-expansive gel doesn't absorb water or cause floor to sweat.
- Protects treated surfaces from water and chemical attack, including grout stains.
- Hardens concrete against abrasion and reduces dusting.
- Ideal for all concrete floors, new or old, standard or decorative.
- Makes maintenance cleaning faster, easier and more economical.
- Ideal for stamped, colored and stained concrete.
- Complies with all known national, state and district AIM VOC regulations.

TYPICAL TECHNICAL DATA

FORM: Milky white liquid
SPECIFIC GRAVITY: 1.11
TOTAL SOLIDS: 23% (ASTM D 2369)
pH: 11.5
WT/GAL: 9.2 lbs
FLASH POINT: NA
FREEZE POINT: 32°F (0°C)
SHELF LIFE: 1 year in factory sealed container

VOC Information
US EPA: maximum VOC content 600 g/L
CARB SCM Districts: maximum VOC content 400 g/L
SCAQMD: maximum VOC content 100 g/L
Maricopa County, AZ: maximum VOC content 400 g/L
NEOTC: maximum VOC content 400 g/L

PREPARATION

Protect people, vehicles, property, plants, and all surfaces not meant for treatment from product, residue, splash, fumes and wind drift. Use polyethylene or other proven protective material.

Ensure fresh air entry and cross ventilation during application and drying. Extinguish all flames, pilot lights and other potential sources of ignition during use and until all vapors are gone.

Surface to be treated must be clean, dry and well-cured. Remove dirt, oil, grease, paint, waxes, efflorescence and surface sealers with Enviro Klean® 2010 All Surface Cleaner or Sure Klean® Light Duty Concrete Cleaner. For embedded efflorescence, Sure Klean® Heavy Duty Concrete Cleaner may be needed. Rinse thoroughly after using either product. For best results, let surface dry 24 hours before applying LS Guard. Let new concrete cure 28 days before treating.

Specifier's Note: A waterproof barrier should be included in the construction of the floor to prevent penetration of moisture from underneath the concrete or masonry flatwork.

Surface and Air Temperature
Temperatures should be 40-90°F (10-32°C). Avoid using in direct sunlight. Use only in well-ventilated areas.

Equipment
Apply with airless tank sprayer, airless air assist, sponge or synthetic lint-free mop. Do not atomize.

Storage and Handling
Store in a cool, dry place. Always seal container after dispensing. Do not alter or mix with other chemicals. Published shelf life assumes upright storage of factory-sealed containers in a dry place. Maintain temperature of 45-100°F (7-38°C). Keep from freezing. Do not double stack pallets. Dispose of unused product and container in accordance with local, state and federal regulations.

APPLICATION

Before use, read "Preparation" and "Safety Information."

ALWAYS TEST each surface for suitability and desired results before overall application. Use the following application instructions. Let surface dry thoroughly before inspection and approval.

Dilution
Do not dilute or alter. Apply as packaged. Mix well before use.

LS Guard

Application Instructions
Apply to dense, smooth concrete surfaces in a very thin, even coat as indicated below. Actual coverage will depend on concrete quality and finish. Apply additional coats to increase the gloss. Each successive coat will achieve a higher coverage rate.

First Coat: Using micro-fiber applicator, apply at coverage rate of 1500–2000 sq.ft. per gallon. Allow to dry tack free (20-60 minutes).

Second Coat: Using micro-fiber applicator, apply second coat at coverage rate of 2000-2500 sq.ft. per gallon. Allow to dry tack free (20-60 minutes).

Third Coat: If additional sheen is desired, apply a third coat at coverage rate of 2500-3000 sq.ft. per gallon. Allow to dry tack free (20-60 minutes).

Three coats applied in this manner will achieve a combined coverage rate of 650-850 sq.ft. per gallon. Application to concrete surfaces previously treated with Consolideck® LS, Consolideck® LS/CS or liquid hardeners based on sodium silicates will achieve a higher coverage rate.

Surface is ready for traffic within 12 hours under typical interior conditions. Protect from water for 24 hours.

Cleanup
Clean tools and equipment with soap and warm water.

Maintenance
Do not use acidic cleaners to maintain treated floors. Though LS Guard dramatically improves the resistance of concrete surfaces to staining, some acid concentrates and acidic foods may etch the surface and leave a residual stain if left for extended times. Clean within one hour for best results. Clean and degrease the floor with Enviro Klean® 2010 All Surface Cleaner or other high quality, neutral or mildly alkaline (pH 10–11) hard surface cleaners. Dry buff with a high-speed hog's hair pad to enhance gloss.

SAFETY INFORMATION

Consolideck® LS Guard is an alkaline solution. Use appropriate safety equipment and job site controls during application and handling. Read full label and MSDS for precautionary instructions before use.

First Aid
Eye Contact: Remove contact lenses. Immediately flush eyes for 15 minutes in clear running water while holding eyelids open. Seek medical attention immediately.

Skin Contact: Wash contacted area with soap and water. Do not attempt to neutralize with chemical agents. If irritation persists, seek medical attention.

Ingestion: Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately.

Inhalation: Remove affected person to fresh air. Wash mouth and nasal passages with water repeatedly. If breathing difficulties persist, seek medical attention.

24-Hour Emergency Information: INFOTRAC at 800-535-5053

WARRANTY

The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, nor anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.

PROSOCO, Inc. warrants this product to be free from defects. **Where permitted by law, PROSOCO makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose.** The purchaser shall be responsible to make his own tests to determine the suitability of this product for his particular purpose. PROSOCO's liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product has been applied. Acceptance and use of this product absolves PROSOCO from any other liability, from whatever source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of PROSOCO, its distributors or dealers.

CUSTOMER CARE

Factory personnel are available for product, environment and job-safety assistance with no obligation. Call 800-255-4255 and ask for Customer Care - technical support.

Factory-trained representatives are established in principal cities throughout the continental United States. Call Customer Care at 800-255-4255, or visit our web site at www.prosoco.com, for the name of the Consolideck® representative in your area.

LS Guard

PROSOCO R-Guard® VB Fluid-Applied Membrane Air & Water-Resistive Barrier and Water Vapor (IMPERMEABLE) Barrier Specification

Specifier Note: The information provided below is intended to guide the Architect in developing specifications for products manufactured by PROSOCO, Inc. and should not be viewed as a complete source of information about the product(s). The Architect should always refer to the Product Data Sheet and MSDS for additional recommendations and for safety information

Specifier Note: Paragraph below is for PART 1 GENERAL, Quality Assurance.

Mock-Ups:
Apply fluid applied air barrier system to field-constructed mock-up assemblies illustrating material interfaces and seals. Use the manufacturer's application instructions. Keep mock-ups available for inspection throughout the project.

Specifier Note: Paragraphs below are for PART 2 PRODUCTS, Manufacturers and Products.

Manufacturer: PROSOCO, Inc., 3741 Greenway Circle, Lawrence, KS 66046. Phone: (800) 255-4255; Fax: (785) 830-9797. E-mail: CustomerCare@prosoco.com

Product Description
PROSOCO R-Guard® VB is a fluid-applied air and water-resistive barrier that stops air and water leakage in cavity wall, masonry veneer construction, as well as in stucco, EIFS and most other building wall assemblies. The easily applied liquid quickly dries into a rubberized, highly-durable, water-resistant membrane. R-Guard VB performs the function of both a vapor barrier and an air/water resistive barrier and is ideal for special construction types that require protection from the passage of air, liquid water and water vapor. R-Guard VB reduces heating and cooling costs and lowers the risk of mold and mildew.

Use PROSOCO R-Guard® VB as a high-performing water resistive barrier, vapor barrier or as part of a continuous building-wide air barrier system. The durable membrane conforms and adheres to common building surfaces and is compatible with most paints, sealants and self-adhered waterproofing or air barrier components. R-Guard VB is appropriate for vertical, above-grade applications to structural sheathing, CMU, cast concrete and most other common building materials.

TYPICAL TECHNICAL DATA

FORM: Viscous liquid, mild odor, light green color
SPECIFIC GRAVITY: 1.34
pH: 7.5 to 10.0
WEIGHT/GALLON: 11.12 pounds per gallon
ACTIVE CONTENT: no data
TOTAL SOLIDS: 62.5 percent ASTM D 2369
FLASH POINT: not applicable
FREEZE POINT: 32 degrees Fahrenheit (0 degrees Celsius)
SHELF LIFE: 1 year in tightly sealed, unopened container.
VOC CONTENT: 45 grams per Liter. Complies with all known national, state and district AIM VOC regulations.

Limitations
Do not apply when surface or air temperatures are below 40 degrees Fahrenheit (4 degrees Celsius) or above 110 degrees Fahrenheit (43 degrees Celsius).
Not for use below-grade or in locations designed to be continuously immersed in water.
Not for use as an exterior finish.

Specifier Note: Paragraphs below are for PART 3 EXECUTION, Installation.

SPECIFIER NOTE: Prepare all joints, seams cracks, fastener penetrations and rough openings prior to application of the primary air barrier. See PROSOCO R-Guard® VB Data Sheet for more information. See appropriate product data sheets and R-Guard Installation Guidelines for more information.

Installation
Before applying, read "Preparation" and "Safety Information" sections in the Manufacturer's Product Data Sheet for PROSOCO R-Guard® VB. Refer to the Product Data Sheet for additional information about application.

Do not dilute or alter R-Guard VB, except for use in sprayers. Mix well before use with a low-speed drill and clean mixing paddle. Avoid mixing air into the membrane. The product may be thinned with up to 5 percent fresh water, based on surface, drying conditions and equipment.

Application
SPECIFIER NOTE: Typical application requires two coats at 15 wet mils each. Some sheathing may require additional material to achieve a continuous coating.
SPECIFIER NOTE: For CMU applications, take special care to achieve full coverage around wall ties or surface irregularities.

1. Apply one coat at 15 wet mils. Allow to dry.
2. Apply second coat to uniform thickness of 15 wet mils. When spray applying, back rolling is necessary to maximize coverage for a void- and pinhole-free surface.
3. Inspect membrane before covering. Repair any deep gouges, punctures or damaged areas with FastFlash or Joint & Seam Filler. If the surface of the primary air barrier or liquid flashing membrane is damaged during construction, remove all loose surface contaminants before selective recoating with additional FastFlash, Joint & Seam Filler or VB. Overlap repairs, penetration treatments, transitions, SS ThruWall, rigid flashing and other air barrier components to ensure positive drainage and continuity of the air and water-resistive barrier.

Curing and Drying
Complete drying times vary with temperature, humidity and surface conditions. Protect from rain or freezing until completely dry. At 70 degrees Fahrenheit (21 degrees Celsius) and 50 percent relative humidity, R-Guard VB dries to touch and can be over coated in 2 to 4 hours.

Coverage
Coverage varies depending on surface porosity, moisture uptake and other factors. Actual rates must be determined through mock-up applications. R-Guard VB is packaged in 5-gallon containers:
Exterior Gypsum Board and Plywood: 40 to 50 square feet per gallon per coat
OSB and CMU: 30 to 50 square feet per gallon per coat. Two coat minimum required to achieve a pinhole-free surface.

SPECIFIER NOTE: Some gypsum sheathing products, OSB and CMU may require additional material to achieve hide and the desired mil thickness for a pinhole-free coating. In those cases, more than two coats may be required.

Cleanup
Clean tools and equipment with water immediately after use. Dried material must be removed mechanically.

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

© 2007 These Design and Construction Documents are Instruments of Service as are Given in Confidence and Remain The Property of McGahey Design, PA. The Use of this Design and These Construction Documents for Purposes other than the Specific Project Named Herein, is Strictly Prohibited without the Expressed Written Consent of McGahey Design, PA.

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 53338 PROFESSIONAL SEAL
JOHN MORRIS MCGAHEY
NORTH CAROLINA REGISTERED ARCHITECT 9603
NORTH CAROLINA
AUGUAY-VARINA NC
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

Specifications

A0.27

AIArchitect

Article Included for Reference on Responsibility for Submittals

Responsibility for submittals

The purpose and use of submittals in the design and construction process are not always well understood. To understand fully what submittals are and what they do, we should first review the basics.

Who Prepares Submittals? Submittals are prepared or furnished by the contractor. The architect does not prepare, seal, or issue submittals, and it is not responsible for their accuracy or completeness. AIA Document A201™-1997, General Conditions of the Contract for Construction, (A201) states:

3.12.1: "Shop drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor, or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work."

The Purpose of Submittals. The purpose of submittals such as shop drawings and the conceptual nature of construction documents prepared by design professionals are addressed in A201:

3.12.4: "The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required . . . the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents." (bold added)

Submittals are not contract documents. The contractor prepares submittals, and the architect prepares contract documents. A201 states:

3.12.4: "Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents."

The Contractor Reviews and Approves Submittals. Submittals represent that the contractor has selected and coordinated appropriate products, has reviewed the submittals, and has determined and confirmed the finite details and dimensions required to complete the work. From A201:

3.12.6: "By approving and submitting . . . submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information within such submittals with the requirements of the Work and of the Contract Documents."

This common language describes routine procedure throughout the industry. The purpose for the contractor's check is to coordinate and verify that the work, as the contractor has divided it among the trades, will comply with the requirements of the contract documents.

Submittals are required to do the work. Submittals are the confirmation of the contractor's intent to comply with the design concept. The importance of this compliance process is emphasized by the prerequisite condition stated in A201:

3.12.7: " The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect."

Submittals are not intended to be an opportunity to alter the design concept by either the designer or the contractor. Their purpose is to express how the finished building will be constructed. The contractor reviews submittals to determine if they represent the work as they have purchased and will place it. The architect does not review submittals to determine if the finite details and dimensions are correct because only the contractor has control of or responsibility for the work, the required dimensions, and how all the pieces fit together to form the completed project.

The Architect's Role

The architect's role in reviewing submittals is addressed in A201 as follows:

4.2.7: "The Architect will review and approve or take other appropriate action upon the Contractor's submittals . . . but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents . . . "

Although the architect's limited review is clearly stated, section 4.2.7 continues to clarify what the review is not intended to accomplish.

4.2.7: " . . . Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities . . . all of which remain the responsibility of the Contractor . . . "

The limitations of the architect's review as stated in the general conditions are straightforward. However, for many years some owners and contractors have alleged the architect's review serves as "the architect's guarantee" that the submittal is precisely correct, coordinated with other submittals, and includes everything required to complete the project. Afterwards, should the submittal prove to be incomplete, incorrect, or result in missing or nonconforming work, they allege that it is the architect's fault that the contractor did not fulfill its contractual responsibility to prepare the submittal appropriately. Such allegations fail to acknowledge the contractor's sole responsibility for the work as addressed in A201:

3.12.8: "The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals . . . " (bold added)

This alleged responsibility of the architect for failing to "catch" the contractor's errors flies in the face of AIA general conditions.

Types of submittals

There are numerous types of submittals, including shop drawings, product data, and samples as defined in A201:

3.12.1: "Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor…"

3.12.2: "Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor…"

3.12.3: "Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged."
Items and information that fall within these categories can include, but are not limited to:

- Physical mock-ups
- Product, material, or system performance calculations
- Physical product and finish samples
- Coordination drawings
- Key schedules
- Warranties and guarantees
- Record drawings
- Operations manuals.

Submittal requirements

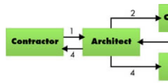
Submittals are an integral part of the contractor's obligation to schedule and coordinate the work and illustrate to the architect that their finished project will be in accordance with the requirements of the contract documents. A201 states:

3.12.5: "The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work … Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action."

Similar language is included in AIA Document, A107™-1997, Abbreviated Standard Form of Agreement Between Owner and Contractor for Construction Projects of Limited Scope, and AIA Document, A141™-2004, Standard Form of Agreement Between Owner and Design-Builder.

MASTERSPEC

Project specifications customarily address submittals and the submittal review process. For example, MASTERSPEC® division 1330 tracks A201 and offers specifics for submittal procedures, including time for review, the number of copies of submittals, contractor's review stamp wording, and transmittal and tracking documents. For review purposes, MASTERSPEC identifies submittals in two categories: action submittals, which require the architect's responsive action, and informational submittals, which do not require the architect's approval.



Submittal routing
Submittal Review Flow Diagram
COURTESY HKS ARCHITECTS

As indicated in the flow chart above, the contractor submits to the architect (1), who routes appropriate submittals through consultants (2), who returns the reviewed copy to the architect (3), who checks for architectural issues and returns copies to the contractor and owner (4).

The submittal game
To manage submittals effectively, it is important that the steps in the submittal process be clearly defined to all participants. The following sequence describes the activities and actions that may be used for processing submittals. Project requirements vary, and these steps may not apply to all projects.

Subcontractor/supplier prepares submittal. The contractor, subcontractors, and product vendors are usually most informed about the specified product or system. They should prepare, in collaboration with the manufacturer, the detailed drawings that describe precisely how their product will be coordinated with adjacent building products and systems and incorporated into the work. A wise subcontractor will have the manufacturer confirm in writing that the application of the product or system is appropriate.

Unfortunately, perhaps in response to the potential for litigation and the pressures of risk management, there is often a propensity to indicate surrounding materials vaguely and designated as "by others." Although this may provide a vendor or subcontractor with plausible deniability as to the requirements of coordination with surrounding systems, it provides the contractor with little opportunity for effective coordination of the trades. Submittals that do not adequately address the specifics for installation into the project should be rejected by both the contractor and the architect.

Subcontractor and/or supplier submits to general contractor. The subcontractor, after a careful review of the submittal, submits the information to the general contractor, with an attached transmittal, in accordance with the accepted submittal schedule.

General contractor affixes control number. The general contractor stamps the submittal "received" and affixes a permanent control number in accordance with the project specifications. The submittal is logged into the approved tracking system.

Contractor reviews and marks-up submittal. The general contractor performs a detailed review of the submittal, coordinating it with adjacent materials and systems, and marks up the submittal to indicate dimensional corrections and specific detail configurations. If the contractor finds the submittal to be inadequately prepared, the contractor should return the submittal to the subcontractor for revision or correction. The submittal should be forwarded to the architect only after it thoroughly and accurately represents how the contractor intends to comply with the contract documents. The contractor remains responsible for compliance with the contract documents without regard of the architect's interaction with the submittals.

Contractor stamps submittal approved. When the marked-up submittal is found to be acceptable, the contractor affixes a review stamp with a signature and date. Contractor submits to architect. Only after the contractor's approval is the submittal sent to the architect with an attached transmittal. The action is logged into the approved tracking system.

Architect receives submittal and distributes. The architect stamps the submittal "received" and logs it into the submittal log. If the submittal requires review by a consultant, the submittal is routed to the consultant with an attached transmittal. Architect reviews and marks-up submittal. The architect reviews the submittal, but with the limitation stated in A201.

4.2.7: " . . . only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents,"

The Architect marks up the submittal if deemed necessary. If the submittal has been reviewed by a consultant, the architect reviews it for impact on the architectural scope and marks it up accordingly, noting that its review is for architectural scope only.

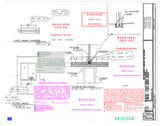
Architect stamps submittal. The architect affixes the review stamp, indicating the action taken. Options can include: approved, approved as noted, revise and resubmit, no action taken, or submittal not required by contract documents.

Architect returns submittal to contractor. The architect returns the submittal to the contractor with an attached transmittal, logging submittal description, submittal date, and actions taken.

Contractor coordinates submittal with work plan and other trades. The contractor stamps the submittal received and reviews the marked-up submittal, coordinating it with other submittals, adjacent work and the contractor's Work Plan. The issue of the contractor's Work Plan is discussed in the September 2005 article Drawing the Line.

Contractor returns submittal to subcontractor. The contractor returns the submittal, with attached transmittal, to the subcontractor to allow fabrication or installation as appropriate.

This process involves a lot of stamping. After all the received stamps and review stamps have been affixed, the document can get quite cluttered. This image depicts what a submittal could resemble after traversing the review process.
PHOTO BY JIM ATKINS AND GRANT SIMPSON



Submittal review recommendations
Some steps to take that could improve your experiences with the submittal process are:

- Allow adequate review time in the owner-architect agreement and specifications
- Require a valid submittal schedule from the contractor so you can plan your commitments
- Review the submittal process in the pre-construction conference
- Use a unique control number on each submittal
- Log and track each submittal
- Have multiple reviewers use different color markers for tracking
- Do not review submittals not required by the contract documents.

The key to implementing and managing submittals is to address the issue up front in your contracts and specifications and thoroughly review the process in the pre-construction conference. You should bring your general conditions and specifications to the pre-construction conference and each job meeting and discuss openly the requirements for submittal scheduling, contractor review, submission, and processing.

Tough cards to play
Regardless of how well a submittal process is planned, issues can arise that challenge efforts and test resolve. Since the same issues are prone to arise on any project, actions can be taken to help reduce the challenges or possibly prevent them from occurring altogether.

The following challenges may be encountered by the architect on a project during the submittal process.

Inadequate submittal time in contract. The architect has agreed to an abbreviated submittal review time in the owner-architect agreement. This often results in confrontational tracking of "aged" submittals by the contractor. These aged submittals are often cited by the owner and contractor when they allege delays caused by the "poor performance" of the architect.

Possible solution. The best way to allow sufficient time for submittal review is to insist on an adequate duration during contract negotiation. A popular period is a minimum of 10 business days on average. The average time will allow you to bank review time from quickly reviewed submittals to use on those that take longer. This may require an explanation to the owner as to why this average duration is needed, so be ready to make your case. Many contract negotiation issues can be resolved with adequate client enlightenment.

No submittal schedule. The absence of a submittal schedule usually indicates that the contractor has not planned and scheduled the sequence of submittals. This often represents a serious flaw in the contractor's work plan. A201 section 3.10.2 and MASTERSPEC sections 1320 and 1330 require that the schedule be prepared and submitted to the architect. The submittal schedule is required to be coordinated with the overall project construction schedule.

Possible solution. If the contractor refuses to provide a submittal schedule, it is advisable to document the event by sending correspondence to the owner noting the issue and advising that all previously agreed-upon review times are suspended until an acceptable submittal schedule is provided. Remember that you have a right to determine if the submittal schedule is acceptable to your administrative schedule. To provide an incentive to the contractor to provide the schedule, you may elect to send AIA document, G716™ Request for Information, requesting that the contractor provide the schedule. You may wish to track the RFI in a log to document the delay caused by the contractor's failure to submit, as well as insist that the tardy schedule be tracked in the contractor's submittal log.

Late submittals. When submittals do not conform to the submittal schedule, it is usually an indication that the schedule is inaccurate or the contractor is behind in project buy-out. This sometimes results in pressure applied to the architect to accelerate reviews to make up for the contractor's poor planning.
Possible solution. If the contractor is not adhering to the submittal schedule, it is advisable to notify the contractor that they are not in compliance with the requirements of the contract documents. Make an effort to assist them in correcting the problem, but if it persists, you should advise the owner in writing that, until the contractor adheres to the accepted submittal schedule, you cannot comply with your previously agreed-upon review time, and additional costs may be incurred as a result. It is also another opportunity to send and track an RFI requesting the information.
Forced substitutions in submittals. A tactic sometimes used by the contractor to force a substitution involves waiting until a submittal is due or past due and the construction schedule is being threatened. A substituted product or system is proposed with the premise that there is insufficient time to prepare and submit the specified item, alleging that the project will be delayed unless the substitution is accepted. Owners and architects are often forced to acquiesce to the substitution because of these time constraints.

Possible solution. Should the contractor attempt to wait until the last minute and submit a substituted product or system in the form of shop drawings, it is recommended that the submittal be rejected as nonconforming work and the contractor be reminded of the substitution requirements in the specifications. MASTERSPEC requires that substitutions be requested within a specified time after the notice to proceed. If the owner elects to accept the substitution, unless you feel that it is equal to or better than the originally specified product or system, you should advise the owner that it will be considered owner-approved nonconforming work and will likely be listed as an exception in the certificate of substantial completion.

The issue of forced substitutions in submittals was addressed in *The Architect's Handbook of Professional Practice, 2004 Update, in an article entitled, "Maintaining Design Quality." The article will be included in The Architect's Handbook of Professional Practice, 14th Ed., scheduled for publication in 2008.*

Work performed without an approved submittal. Some contractors elect to put the work in place before the submittal has been approved, possibly to accelerate the work, or because there was no submittal or the contractor neglected to resubmit a previously rejected submittal. Regardless of the cause, placing work without an approved submittal is strictly prohibited by A201:

3.12.7: "The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect."

Possible Solution. If the contractor refuses to resubmit a submittal that has been noted for this action, you may wish to remind the contractor in writing of the requirements of A201, section 3.12.7, which prohibits the contractor from performing work without a required submittal. You may choose to copy the owner on the notice. This is also an appropriate opportunity to submit an RFI to the contractor requesting resubmittal.

When claims are levied against architects, it is often argued that the architect has a responsibility to be aware of and prevent the contractor from installing work without approved shop drawings. A201, section 3.12.7, and the fact that submittals are part of the "Work" make it clear that the contractor is solely responsible for work performed in the absence of approved submittals.

Submittals are a part of the work
The contractor is paid to produce shop drawings and submittals because they are a part of the Work as defined in A201:

1.1.3: "The term "Work" means the construction and services required by the Contract Documents, . . . and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations . . . "

As a part of the Work, we believe they come under the terms of the contractor's warranty as reflected in A201:

3.5.1: "The Contractor warrants to the Owner and Architect that . . . the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents."

Many contractors diligently administer the submittal process, and when they do there are usually few problems that result. However, it is advisable to decide your alternative courses of action and be prepared to respond to challenging submittal issues should they arise.

Blind nello
The contractor's responsibilities for submittals notwithstanding, the architect should diligently manage its portion of the submittal review process. The architect is expected to review the submittals in the context of the requirements of the contract documents and review them so as to cause no unreasonable delay in the work. An architect could fail to meet these responsibilities if he or she started redesigning the project or changing the scope of the work through review redlines and comments made on the submittals.

The architect could also incur risk if he or she marks through the contractor's submittal information and provides alternate information that is inaccurate. For example, a contractor provides a window submittal with exact dimensional information given; the architect, believing the dimensions are inaccurate, marks through the contractor's dimensions and provides alternate dimensions. As the work is installed, it becomes apparent that the architect's dimensions are incorrect. In this instance, the architect could be held responsible for the architect's erroneous dimension markups. A better form of communication in this instance would be to provide a notation requesting the contractor to confirm the dimensions shown on the submittal.

Copyright 2006 The American Institute of Architects. All rights reserved.

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

A. General Contractor to coordinate construction to ensure efficient and orderly installation of each part of the Work.

B. General Contractor to schedule and conduct progress meetings at Project site at bi-weekly intervals. Notify Owner and Architect of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current progress or involved with planning or coordination of future activities.

1. Contractor shall record minutes and distribute to everyone concerned, including Owner and Architect.

1.2 SUBMITTAL PROCEDURES

A. General Contractor to coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
2. Submit PDF copies of each submittal for Color Samples send (3) Three Actual Samples for Review. Architect will return one copy.
3. Architect will discard submittals received from sources other than Contractor.

B. General Contractor shall place a permanent label or title block on each submittal for identification. Provide a space approximately 6 by 8 inches on label or beside title block to record **General Contractor's review and approval markings** and action taken by Architect. Include the following information on the label:

1. Project name.
2. Date.
3. Name and address of Contractor.
4. Name and address of subcontractor or supplier.
5. Number and title of appropriate Specification Section.

C. **General Contractor and/or Sub-Contractor shall identify deviations from the Contract Documents on submittals**.

D. General Contractor's Construction Schedule Submittal Procedure: Submit two copies of schedule within 10 ten working days after date established for Commencement of the Work.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. Product Data: General Contractor shall Mark each copy to show applicable products and options. Include the following:

1. Manufacturer's written recommendations, product specifications, and installation instructions.
2. Wiring diagrams showing factory-installed wiring.
3. Printed performance curves and operational range diagrams.
4. Testing by recognized testing agency.
5. Compliance with specified standards and requirements.
6. Identify deviations from the Contract Documents on submittals.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches. Include the following:

1. Dimensions and identification of products.
2. Fabrication and installation drawings and roughing-in and setting diagrams.
3. Wiring diagrams showing field-installed wiring.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Identify deviations from the Contract Documents on submittals.

C. Samples: Submit Samples for review of kind, color, pattern, and texture and for a comparison of these characteristics between submittal and actual component as delivered and installed. Include name of manufacturer and product name on label.

1. If variation is inherent in material or product, submit at least three sets of paired units that show variations.

D. The General Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work. **Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action**.

2.2 INFORMATION SUBMITTALS

A. Qualification Data: Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

B. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

2.3 GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type schedule within 10 ten working days of date established for Commencement of the Work.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 3 - EXECUTION

3.1 SUBMITTAL REVIEW

A. General Contractor to Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp by Contractor before submitting to Architect.

B. Architect will review each action submittal, make marks to indicate corrections or modifications required, stamp and mark as appropriate to indicate action taken, and return copies less those retained.

3.2 GENERAL CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Distribute copies of approved schedule to Owner, Architect, subcontractors, testing and inspecting agencies, and parties identified by Contractor with a need-to-know schedule responsibility. When revisions are made, distribute updated schedules to the same parties.

B. Updating: At bi-weekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule at each bi-weekly scheduled progress meeting.

1. As the Work progresses, indicate Actual Completion percentage for each activity.

END OF SECTION 013000

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN PA
JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
53338
NORTH CAROLINA
FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Article on Responsibility fo Submittals Administrative Requirement

A0.30

MARTINEZ COMMERCIAL PROPERTIES
PROPOSED SITE PLAN

308 JARCO DRIVE P.I.N. 0654-77-4691.000
FUQUAY-VARINA NORTH CAROLINA 27526

OWNER
MARTINEZ COMMERCIAL PROPERTIES, LLC
7505 TROY STONE DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

CIVIL ENGINEER

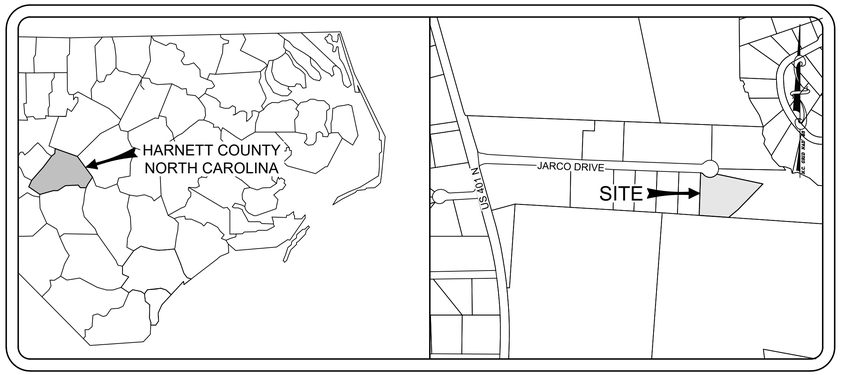
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-6851

SURVEYOR
RWK, P.A (C-1771)
P.O. BOX 444
GARNER, NORTH CAROLINA 27529

SHEET INDEX

C1	COVER SHEET
C2	EXISTING CONDITIONS & DEMOLITION PLAN
C3	PROPOSED SITE PLAN
C4	PROPOSED UTILITY PLAN
C5	EROSION CONTROL PLAN PHASE I
C6	EROSION CONTROL PLAN PHASE II
C7	PROPOSED GRADING PLAN
C8	SITE DETAILS & NPDES NCG01 COMPLIANCE GUIDANCE
C9	EROSION CONTROL DETAILS
L1	REQUIRED LANDSCAPE IMPROVEMENTS

NOTE: ALL WORK MUST COMPLY WITH APPLICABLE NORTH CAROLINA BUILDING CODES, HANDICAPPED ACCESSIBILITY CODE VOL. 1C., AND WITH THE HARNETT COUNTY, NCDEQ AND NCDOT STANDARDS, DETAILS AND SPECIFICATIONS.



VICINITY MAP
SCALE: 1"=500'

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE/EASEMENT	
	SEDIMENT FENCE/ TREE PROTECTION FENCE	SF
	PROPERTY EASEMENT/SETBACK	
ss	SANITARY SEWER	SS
Ⓢ	SANITARY SEWER MANHOLE	Ⓢ
CO	CLEAN OUT	SSCO
wtr	WATER LINE	W
	CENTERLINE OF ROAD	
LP	LIGHT POLES	
EIP	PROPERTY CORNER	NIP
	RIGHT OF WAY	
	STORM PIPE/CULVERT	
	DROP INLET	
98 / 95	CONTOURS	98 / 95
	FIRE HYDRANT	
	WATER VALVE	
	RIP RAP APRON	
	TEMP. CONSTRUCTION ENTRANCE	

HARNETT COUNTY SITE PLAN NOTES:

1. ALL SIGNS SHALL BE LOCATED AT LEAST 10 FT FROM PUBLIC RIGHT OF WAY AND REQUIRE A SEPARATE PERMIT AND REVIEW. ANY SIGNAGE SHOWN ON THESE PLANS IS FOR REFERENCE ONLY.
2. SITE AND BUILDING MOUNTED LIGHTING SHALL BE LOCATED IN SUCH A MANNER AS TO PREVENT DIRECT GLARE AND LIGHTING ONTO ADJACENT PROPERTY OR INTO PUBLIC RIGHTS OF WAY. ALL FLOOD LIGHTS SHALL BE INSTALLED SUCH THAT THE FIXTURE SHALL BE AIMED DOWNWARD AT LEAST 45 DEGREES FROM VERTICAL.
3. ALL MECHANICAL UNITS LOCATED ON, BESIDE OR ADJACENT TO ANY BUILDING OR DEVELOPMENTS SHALL BE SCREENED FROM VIEWS FROM PUBLIC STREETS AND ADJACENT PROPERTIES IN ACCORDANCE WITH THE HARNETT COUNTY UDO.
4. THIS DEVELOPMENT IS LOCATED WITHIN ONE MILE OF A VOLUNTARY AGRICULTURAL DISTRICT.
5. WATER SUPPLY WATERSHED SPECIAL INTENSITY ALLOCATION PERMIT (SNIA2103-0003) APPROVED MAY 10, 2021, FOR 65% MAX. IMPERVIOUS AREA.
6. AN APPROVED SEDIMENTATION AND EROSION CONTROL PERMIT SHALL BE OBTAINED FROM NCDEQ-DEMLR PRIOR TO COMMENCING CONSTRUCTION. A COPY OF THIS PERMIT TO SHALL BE PROVIDED TO HARNETT COUNTY PRIOR TO CONSTRUCTION.
7. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL PARKING, GRAVEL AREAS, AND LANDSCAPE AREAS OUTSIDE OF THE PUBLIC RIGHT OF WAY.

AS THE OWNER OF RECORD, I HEREBY FORMALLY CONSENT TO THE PROPOSED DEVELOPMENT SHOWN ON THIS SITE PLAN AND ALL REGULATIONS AND REQUIREMENTS OF THE HARNETT COUNTY ORDINANCES.

Mitch Douglas-Martz 11-15-21
DATE OWNER SIGNATURE

NORTH CAROLINA PROFESSIONAL SEAL 032614 ENGINEER GARY J. MCCABE

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

11/18/21

FINAL DRAWING
RELEASED FOR
CONSTRUCTION

DATE: AUGUST 19, 2021 PROJ. NO.: 21-002 SHEET C1

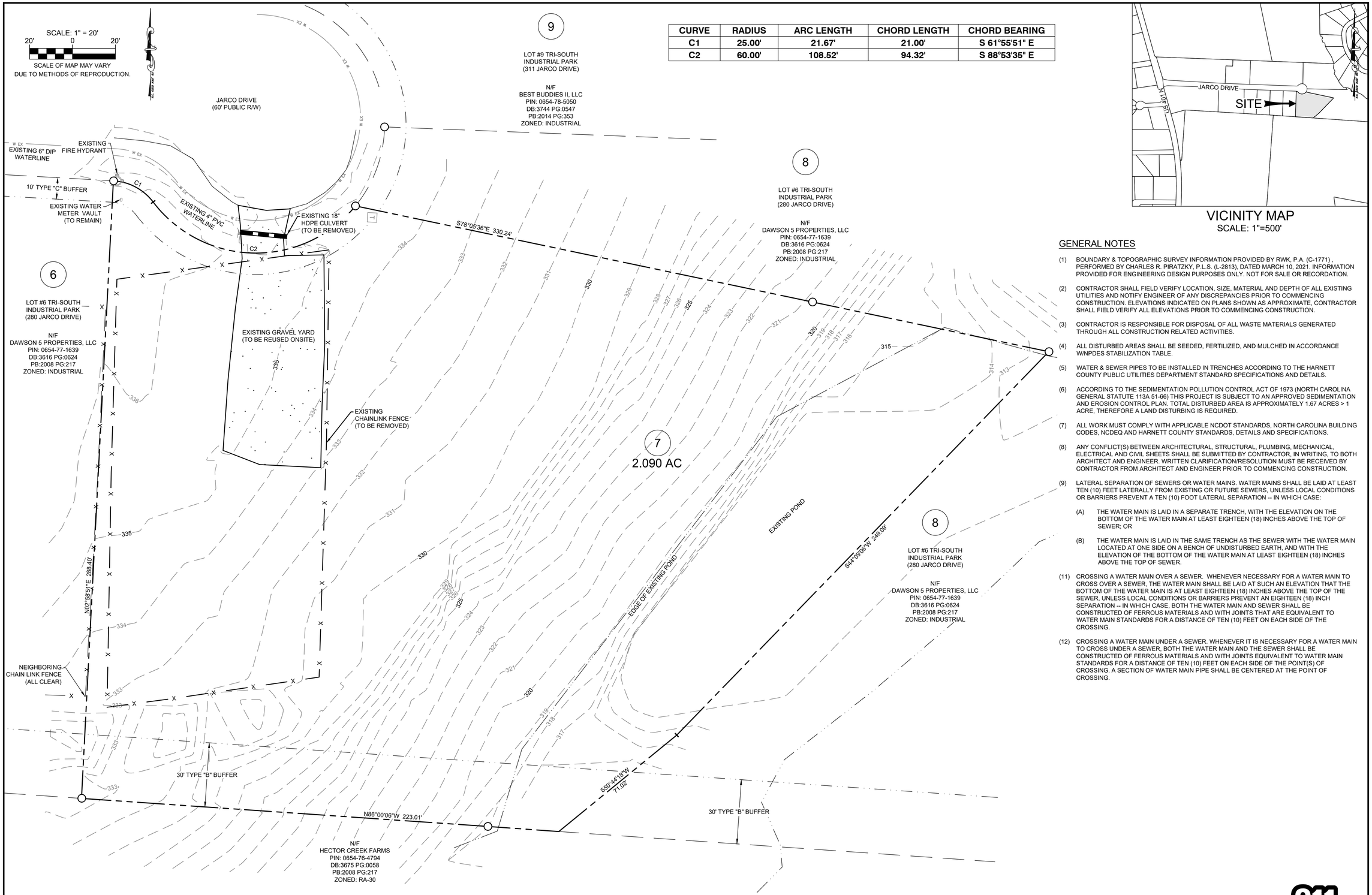
811 Know what's below. Call before you dig.

SCALE: 1" = 20'

20' 0 20'

SCALE OF MAP MAY VARY
DUE TO METHODS OF REPRODUCTION.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	25.00'	21.67'	21.00'	S 61°55'51" E
C2	60.00'	108.52'	94.32'	S 88°53'35" E



VICINITY MAP
SCALE: 1"=500'

GENERAL NOTES

(1) BOUNDARY & TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY RWK, P.A. (C-1771) , PERFORMED BY CHARLES R. PIRATZKY, P.L.S. (L-2813), DATED MARCH 10, 2021. INFORMATION PROVIDED FOR ENGINEERING DESIGN PURPOSES ONLY. NOT FOR SALE OR RECORDATION.

(2) CONTRACTOR SHALL FIELD VERIFY LOCATION, SIZE, MATERIAL AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION. ELEVATIONS INDICATED ON PLANS SHOWN AS APPROXIMATE, CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS PRIOR TO COMMENCING CONSTRUCTION.

(3) CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL WASTE MATERIALS GENERATED THROUGH ALL CONSTRUCTION RELATED ACTIVITIES.

(4) ALL DISTURBED AREAS SHALL BE SEEDED, FERTILIZED, AND MULCHED IN ACCORDANCE W/NPDES STABILIZATION TABLE.

(5) WATER & SEWER PIPES TO BE INSTALLED IN TRENCHES ACCORDING TO THE HARNETT COUNTY PUBLIC UTILITIES DEPARTMENT STANDARD SPECIFICATIONS AND DETAILS.

(6) ACCORDING TO THE SEDIMENTATION POLLUTION CONTROL ACT OF 1973 (NORTH CAROLINA GENERAL STATUTE 113A 51-66) THIS PROJECT IS SUBJECT TO AN APPROVED SEDIMENTATION AND EROSION CONTROL PLAN. TOTAL DISTURBED AREA IS APPROXIMATELY 1.67 ACRES > 1 ACRE, THEREFORE A LAND DISTURBING IS REQUIRED.

(7) ALL WORK MUST COMPLY WITH APPLICABLE NCDOT STANDARDS, NORTH CAROLINA BUILDING CODES, NCDEQ AND HARNETT COUNTY STANDARDS, DETAILS AND SPECIFICATIONS.

(8) ANY CONFLICT(S) BETWEEN ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL, ELECTRICAL AND CIVIL SHEETS SHALL BE SUBMITTED BY CONTRACTOR, IN WRITING, TO BOTH ARCHITECT AND ENGINEER. WRITTEN CLARIFICATION/RESOLUTION MUST BE RECEIVED BY CONTRACTOR FROM ARCHITECT AND ENGINEER PRIOR TO COMMENCING CONSTRUCTION.

(9) LATERAL SEPARATION OF SEWERS OR WATER MAINS. WATER MAINS SHALL BE LAID AT LEAST TEN (10) FEET LATERALLY FROM EXISTING OR FUTURE SEWERS, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A TEN (10) FOOT LATERAL SEPARATION -- IN WHICH CASE:

(A) THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION ON THE BOTTOM OF THE WATER MAIN AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF SEWER; OR

(B) THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF SEWER.

(11) CROSSING A WATER MAIN OVER A SEWER. WHENEVER NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER, THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST EIGHTEEN (18) INCHES ABOVE THE TOP OF THE SEWER, UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN EIGHTEEN (18) INCH SEPARATION -- IN WHICH CASE, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF TEN (10) FEET ON EACH SIDE OF THE CROSSING.

(12) CROSSING A WATER MAIN UNDER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF TEN (10) FEET ON EACH SIDE OF THE POINT(S) OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.

Know what's **below.**
Call before you dig.

NORTH CAROLINA PROFESSIONAL SEAL 032614 ENGINEER CARY J. MCCABE
11/18/2021

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING
RELEASED FOR
CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW, THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9681

MARTINEZ COMMERCIAL PROPERTIES

308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

EXISTING CONDITIONS & DEMOLITION PLAN

REVISIONS:	DATE:
1 PER NCDEQ	9/20/21

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

SHEET NUMBER:

C2

OF 10 SHEETS

SCALE: 1" = 20'

20' 0 20'

SCALE OF MAP MAY VARY DUE TO METHODS OF REPRODUCTION.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	25.00'	21.67'	21.00'	S 61°55'51" E
C2	60.00'	108.52'	94.32'	S 88°53'35" E

JARCO DRIVE
(60' PUBLIC R/W)

9

LOT #9 TRI-SOUTH INDUSTRIAL PARK
(311 JARCO DRIVE)

N/F
BEST BUDDIES II, LLC
PIN: 0654-78-5050
DB:3744 PG:0547
PB:2014 PG:353
ZONED: INDUSTRIAL

EXISTING 6" DIP WATERLINE

EXISTING FIRE HYDRANT

10' TYPE "C" BUFFER

EXISTING WATER METER VAULT (TO REMAIN)

EXISTING 4" PVC WATERLINE

SLOPE AREA TO PROPOSED SWALE #1

SLOPE EXISTING SWALE TO DRAIN TO EXISTING DOWNSTREAM DRIVEWAY CULVERT.

PROPOSED 20.00' DRAINAGE EASEMENT

8

LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

S78°05'36"E 330.24'

50' FRONT YARD SETBACK

HEAVY DUTY ASPHALT PARKING

INSTALL CONCRETE WHEELSTOP 30" FROM FACE OF SIDEWALK (TYP)

6

LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

PROPOSED SEPTIC SYSTEM DESIGN (ADAMS SOIL CONSULTING #1130)

5' CONCRETE SIDEWALK

INSTALL (2) 6" CONCRETE FILLED PIPE BOLLARDS (PAINTED YELLOW) AT 6' O.C.

PROPOSED 81'-4" X 141'-4" BUILDING (11,495 SF)
FFE: 336.00

141.33'

81.33'

5' CONCRETE SIDEWALK

10.00' CONCRETE APRON

10.00' CONCRETE APRON

2,500 SF REPAIR AREA (ADAMS SOIL CONSULTING #1130)

N0°25'51"E 288.40'

GRAVEL YARD
(0.68 AC.)

7
2.090 AC

EXISTING POND

S44°09'06"W 249.09'

INSTALL APPROX. 481 LF OF MASONRY RETAINING WALL (SEE SHEET C7 FOR ELEVATIONS)

0' SIDE BUILDING SETBACK

8

LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

PROPOSED 20.00' DRAINAGE EASEMENT

30' TYPE "B" BUFFER

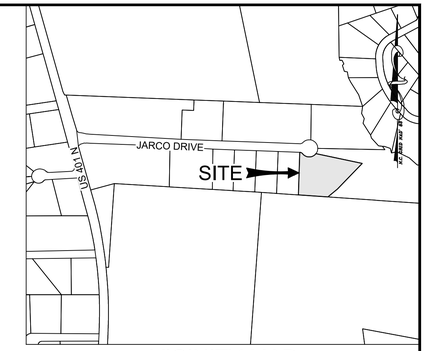
50' REAR BUILDING SETBACK

S00°44'18"W 71.02'

30' TYPE "B" BUFFER

N86°00'06"W 223.01'

N/F
HECTOR CREEK FARMS
PIN: 0654-76-4794
DB:3675 PG:0058
PB:2008 PG:217
ZONED: RA-30



VICINITY MAP
SCALE: 1"=500'

SITE PLAN INFORMATION:

1.	NAME:	MARTINEZ COMMERCIAL PROPERTIES
2.	STREET ADDRESS:	308 JARCO DRIVE FUQUAY-VARINA, NORTH CAROLINA 27526
3.	P.I.N.:	0654-77-4691.000
4.	LAND USE CLASSIFICATION:	EMPLOYMENT MIXED USE
5.	SPECIFIC USE:	CONSTRUCTION
6.	TOTAL NUMBER OF LOTS (EXISTING/PROPOSED):	1
7.	TOTAL AREA:	91,063 SF / 2.09 ACRES
8.	DISTURBED AREA:	1.66 ACRES
9.	CURRENT/PROPOSED ZONING:	INDUSTRIAL
10.	PROPOSED BUILDING SQUARE FOOTAGE:	11,495 SF
11.	PROPOSED BUILDING LOT COVERAGE:	12.6% (2)
11.	BUILDING SETBACKS: (PER UDO SECTION 14.4)	FRONT YARD - 50 FT. SIDE YARD - 0 FT. REAR YARD - 50 FT. (ADJACENT RESIDENTIAL ZONING)
12.	PARKING REQUIREMENTS:	1 PER 200 SF OF OFFICE X 2,400 SF = 12 SPACES 0 PER WAREHOUSE/STORAGE = 0 SPACES TOTAL REQUIRED PARKING = 12 SPACES
	TOTAL PARKING PROVIDED:	13 SPACES (INCLUDES 1 ACCESSIBLE SPACE)
13.	HOURS OF OPERATION:	MONDAY - FRIDAY 9AM - 4:30 PM SATURDAY 9AM - 1PM
14.	PROPOSED WATER DEMAND:	10 EMPLOYEES x 25 GPD = 250 GPD
15.	INSIDE CITY LIMITS:	NO / HARNETT COUNTY
16.	INSIDE FLOOD HAZARD BOUNDARY:	NO (PER FEMA MAP #3720065400J) EFFECTIVE DATE: OCTOBER, 6 2006
17.	IMPERVIOUS SURFACE AREA: (MAX ALLOWED 60%) EXISTING PROPOSED TOTAL SNIA APPROVED (2103-0003)	4,184.22 SF / 0.1 ACRES (4%) 47,417.89 SF / 1.1 ACRES (52%) 51,602.11 SF / 1.2 ACRES (56%) 65% MAX.
18.	WATERSHED:	CAPE FEAR (WS-IV-P)
19.	OWNER:	MARTINEZ COMMERCIAL PROPERTIES, LLC 7505 TROY STONE DRIVE FUQUAY-VARINA, NORTH CAROLINA 27526

RETAINING WALL NOTE: RETAINING WALL EXCEEDS 48" IN HEIGHT. THEREFORE A STRUCTURAL DESIGN AND BUILDING PERMIT IS REQUIRED. RETAINING WALL DESIGN BY OTHERS.

WATER SUPPLY WATERSHED SPECIAL INTENSITY ALLOCATION PERMIT (SNIA2103-0003) APPROVED MAY 10, 2021, FOR 65% MAX. IMPERVIOUS AREA.

811 Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032614 CARY J. MCCABE
12/12/2024

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW. THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9051

MARTINEZ COMMERCIAL PROPERTIES
308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

PROPOSED SITE PLAN

REVISIONS:	DATE:
1 PER NCDEQ	9/20/21
2 PER OWNER	12/12/24

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

SHEET NUMBER:
C3
OF 10 SHEETS

SCALE: 1" = 20'

20' 0 20'

SCALE OF MAP MAY VARY DUE TO METHODS OF REPRODUCTION.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	25.00'	21.67'	21.00'	S 61°55'51" E
C2	60.00'	108.52'	94.32'	S 88°53'35" E

JARCO DRIVE
(60' PUBLIC R/W)

9
LOT #9 TRI-SOUTH INDUSTRIAL PARK
(311 JARCO DRIVE)

N/F
BEST BUDDIES II, LLC
PIN: 0654-78-5050
DB:3744 PG:0547
PB:2014 PG:353
ZONED: INDUSTRIAL

EXISTING 6" DIP WATERLINE

EXISTING FIRE HYDRANT

1" WATER METER TO BE INSTALLED BY HARNETT COUNTY PUBLIC UTILIT

SLOPE AREA TO PROPOSED SWALE #1

SLOPE EXISTING SWALE TO DRAIN TO EXISTING DOWNSTREAM DRIVEWAY CULVERT.

PROPOSED 20.00' DRAINAGE EASEMENT

10' TYPE "C" BUFFER

EXISTING WATER METER VAULT (TO REMAIN)

EXISTING 4" PVC WATERLINE

S78°05'36"E, 330.24'

PROPOSED 1" RPZ (AMES LF4000BM2 OR HCPU APPROVED EQUAL) TO BE INSTALLED BY UTILITY CONTRACTOR OUTSIDE PUBLIC R/W INSIDE HEATED ABOVE GROUND ENCLOSURE. PROVIDE ELECTRICAL SERVICE TO ENCLOSURE

50' FRONT YARD SETBACK

8
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

6
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

INSTALL APPROX. 99 LF OF 1" WATER SERVICE (TYPE K COPPER OR SCH 80 PVC) TO BUILDING. CONTRACTOR TO CONFIRM MATERIAL WITH INSPECTOR PRIOR TO INSTALLATION.

PROPOSED 20.00' DRAINAGE EASEMENT

PROPOSED TRANSFORMER LOCATION (BY OTHERS) TRANSFORMER SHALL BE ON CONCRETE SLAB PER DUKE ENERGY REQUIREMENTS, DETAILS & SPECIFICATIONS

PROPOSED 1,000 GAL SEPTIC TANK & DISTRIBUTION BOX LOCATION

2,400 SF OFFICE

INSTALL PROPOSED SEPTIC SYSTEM (DESIGN BY ADAMS SOIL CONSULTING #1130). CONTRACTOR SHALL INSTALL CONSTRUCTION FENCING TO PROTECT SEPTIC AND REPAIR AREAS FROM ANY CONSTRUCTION TRAFFIC, MATERIALS AND LAY-DOWN ACTIVITIES THROUGHOUT CONSTRUCTION.

7
2.090 AC

PROPOSED 80' X 120' BUILDING (9,600 SF)

FFE: 336.00

INSTALL APPROX. 7 LF OF 4" PVC (SCH 40) SEWER SERVICE TO SEPTIC TANK.

7,200 SF WAREHOUSE

N02°58'51"E 288.40'

27' X 80' SEPTIC REPAIR AREA (2,160 SF)

EXISTING POND

8
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

S44°09'06"W 249.09'

0' SIDE BUILDING SETBACK

30' TYPE "B" BUFFER

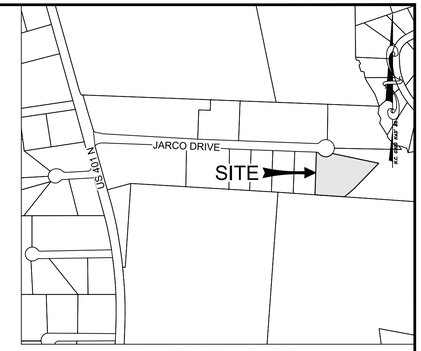
50' REAR BUILDING SETBACK

S60°44'18"W 71.02'

30' TYPE "B" BUFFER

N86°00'06"W 223.01'

N/F
HECTOR CREEK FARMS
PIN: 0654-76-4794
DB:3675 PG:0058
PB:2008 PG:217
ZONED: RA-30



VICINITY MAP
SCALE: 1"=500'

308 Jarco Drive
Martinez Commercial Properties
Commercial Facility - (250 gallons/day)

LINE #	COLOR	BS	HI	FS	ELEVATION	LINE LENGTH in field	Design Length installation
TBM		5.6		100.0			
INST. 1			105.6				
1	*Red*			5.5	100.1	85	80
2	Orange			5.7	99.9	85	80

	System	Repair
System Type	Lines 1-2 Accepted Status System 25% Reduction	~2500 SF available T&J Panel, Drip, or LPP
Suggested Soil LTAR	0.40	0.40
Total Line Length	160	
Square Footage	480	
Proposed Trench Bottom	Maximum 24"	
Septic Tank	900 Gallon	
Distribution Method	Gravity to D-Box	

SITE LIGHTING NOTE: SITE LIGHTING TO BE PROVIDED BY DUKE ENERGY TO MEET HARNETT COUNTY ORDINANCES. CONTRACTOR SHALL PROVIDE CONDUIT TO SITE LIGHTING LOCATIONS AND COORDINATE LIGHTING POLES WITH OWNER AND DUKE ENERGY.

UTILITY NOTE: UTILITY CONTRACTOR SHALL INSTALL WATER SERVICE FROM EXISTING WATER METER ON SITE TO THE BUILDING AND FIRE SERVICE FROM MAIN TO BUILDING. THE OWNER SHALL INSTALL AN APPROVED RPZ IN HOTBOX ENCLOSURE. ALL BACKFLOW DEVICES MUST BE APPROVED BY HCPU.

SEPTIC SYSTEM NOTE: THE SEPTIC SYSTEM HAS BEEN PROPOSED FOR 10 EMPLOYEES x 25 GALLONS PER DAY = 250 GAL/DAY. SEPTIC SYSTEM DESIGN AND PERMIT BY OTHERS.

FINAL SIZE AND LOCATION OF TRANSFORMER SHALL BE SUBJECT TO CHANGE PER UTILITY PROVIDERS REQUIREMENTS AND STANDARDS.

811 Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL SEAL 032614 ENGINEER CARY J. MCCABE
11/18/2021

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW, THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9681

MARTINEZ COMMERCIAL PROPERTIES

308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

PROPOSED UTILITY PLAN

REVISIONS:	DATE:
⚠ PER NCDEQ	9/20/21

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

SHEET NUMBER:
C4
OF 10 SHEETS

SCALE: 1" = 20'

20' 0 20'

SCALE OF MAP MAY VARY DUE TO METHODS OF REPRODUCTION.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	25.00'	21.67'	21.00'	S 61°55'51" E
C2	60.00'	108.52'	94.32'	S 88°53'35" E

JARCO DRIVE
(60' PUBLIC R/W)

9
LOT #9 TRI-SOUTH INDUSTRIAL PARK
(311 JARCO DRIVE)

N/F
BEST BUDDIES II, LLC
PIN: 0654-78-5050
DB:3744 PG:0547
PB:2014 PG:353
ZONED: INDUSTRIAL

10' TYPE "C" BUFFER

PROPOSED LIMITS OF DISTURBANCE

INSTALL APPROX. 34 LF OF PROPOSED TEMPORARY DIVERSION DITCH #1 LINED WITH NORTH AMERICAN GREEN SC150 LINER TO SEDIMENT BASIN.

S78°05'36"E 330.24'

8
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

6
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

INSTALL 50'X20' TEMPORARY CONSTRUCTION ENTRANCE

TEMPORARY STOCKPILE AREA

INSTALL 2' FAIRCLOTH SKIMMER WITH 0.9" ORIFICE RADIUS IN TEMPORARY SEDIMENT BASIN

INSTALL 10' WIDE EMERGENCY SPILLWAY WITH GEOTEXTILE FABRIC

7
2.090 AC

INSTALL 30'X90'X3' DEEP SEDIMENT BASIN WITH SKIMMER

INSTALL APPROX. 166 LF OF PROPOSED TEMPORARY DIVERSION DITCH #1 LINED WITH NORTH AMERICAN GREEN SC150 LINER TO SEDIMENT BASIN.

EXISTING POND

S44°09'06"W 249.09'

8
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

N02°49'51"E 288.40'

30' TYPE "B" BUFFER

PROPOSED LIMITS OF DISTURBANCE

N86°00'06"W 223.01'

S50°44'18"W 77.02'

30' TYPE "B" BUFFER

N/F
HECTOR CREEK FARMS
PIN: 0654-76-4794
DB:3675 PG:0058
PB:2008 PG:217
ZONED: RA-30

EROSION CONTROL LEGEND

	PROPOSED
LIMITS OF DISTURBANCE	
SEDIMENT FENCE	SF
TEMP. SEDIMENT FENCE OUTLET	
TEMP. INLET PROTECTION	
TEMP. CONSTRUCTION ENTRANCE	
TEMP. ROCK CHECK DAM	
SEDIMENT BASIN BAFFLE	
RIPRAP APRON	
SEDIMENT BASIN SKIMMER	
TEMPORARY DIVERSION DITCH	

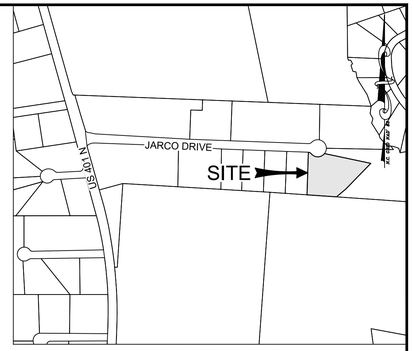
SEDIMENT FENCE CALCULATION

100 LF / 0.25 AC AC X 0.33 AC = 132 LF REQUIRED
313 LF PROVIDED

NOTE:
SEED AND MULCH TEMPORARY SEDIMENT AND ALL DIVERSIONS IMMEDIATELY AFTER CONSTRUCTION.

NPDES STABILIZATION TIME FRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	IMMEDIATE	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1 - 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE EXCEPT FOR PERIMETERS AND HQW ZONES

WATER SUPPLY WATERSHED SPECIAL INTENSITY ALLOCATION PERMIT (SNIA2103-0003) APPROVED MAY 10, 2021, FOR 65% MAX. IMPERVIOUS AREA.



VICINITY MAP
SCALE: 1"=500'

CONSTRUCTION SEQUENCE

1. SCHEDULE PRE-CONSTRUCTION MEETING WITH NCDEQ-DEMLR, FAYETTEVILLE REGIONAL OFFICE AT (910) 433-3300, ENGINEER AND OWNER / DEVELOPER.
2. PERFORM CONSTRUCTION STAKEOUT.
3. INSTALL CONSTRUCTION ENTRANCE, SEDIMENT FENCE WITH OUTLETS, AND TEMPORARY SEDIMENT BASIN WITH SKIMMER. SEED AND MULCH IMMEDIATELY AFTER CONSTRUCTION.
4. UPON APPROVAL BY INSPECTOR, COMMENCE CLEARING AND CONSTRUCTION OF RETAINING WALL. NO GRADING SHALL BEGIN UNTIL THE COMPLETION OF THE RETAINING WALL.
5. AFTER THE CONSTRUCTION OF RETAINING WALL, BEGIN ROUGH GRADING OF THE SITE NECESSARY TO BALANCE SITE CUT/FILL.
6. OWNER SHALL PROVIDE A PERMIT BOX WITH APPROVED SET OF PLANS ON-SITE AND MAINTAIN SELF-INSPECTION REPORTS IN ACCORDANCE WITH NPDES. INSPECTION REPORTS MUST BE DONE WEEKLY AND/OR AFTER A RAINFALL OF HALF AN INCH OR MORE.

EROSION CONTROL MAINTENANCE

SKIMMER SEDIMENT BASIN (NCDEQ ESC MANUAL 6.64)

1. INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN,NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.
2. REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF THE WATER IS FLOWING UNDERNEATH OR AROUND THEM.
3. IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO REMOVE THE DEBRIS.
4. IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.
5. CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.
6. FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

BAFFLES (NCDEQ ESC MANUAL 6.65)

1. INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL, TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING THE CLEANOUT, AND REPLACE IF DAMAGED DURING CLEANOUT OPERATIONS. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THEDESIGNED STORAGE DEPTH.
4. AFTER CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.

DIVERSION DITCH (NCDEQ ESC MANUAL 6.20)

1. INSPECT TEMPORARY DIVERSION AFTER EVERY RAINFALL DURING THE CONSTRUCTION OPERATION. IMMEDIATELY REMOVE ANY OBSTRUCTIONS FROM THE FLOW AREA, AND REPAIR THE DIVERSION RIDGE. CHECK OUTLETS, AND MAKE TIMELY REPAIRS AS NEEDED.

SITE GRADING & EROSION CONTROL NOTES:

(1) SEE GENERAL NOTES, SHEET C2.
(2) DISTURBED/DENUDED AREA: 71,572 SF (1.66 ACRES)
(3) EXISTING IMPERVIOUS AREA: 4,184 SF / 0.10 ACRES (4%)
(4) PROPOSED IMPERVIOUS AREA: 47,417 SF / 1.02 ACRES (52%)
(5) MAXIMUM IMPERVIOUS (%): 65% (SNIA 2103-0003)
(6) TOTAL TRACT AREA: 91,063 SF (2.09 ACRES)
(7) ALL DISTURBED AREAS SHALL BE SEEDED, MULCHED OR OTHERWISE STABILIZED WITHIN IN ACCORDANCE WITH THE NPDES TIME FRAMES LOCATED ON THIS SHEET AND WITH THE TEMPORARY SEEDING SCHEDULE. SEE DETAIL 4/C9.
(8) ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
(9) CONTRACTOR TO SWEEP AND KEEP CLEAN OF SEDIMENT THE ROADWAY ADJACENT TO THE PROJECT SITE AT ALL TIMES OR WASH STATION WILL BE REQUIRED.
(10) ALL DISTURBED AREAS SHALL BE SEEDED WITH NATIVE GRASSES (i.e. BERMUDA, FESCUE, CENTIPEDE, ETC.) TO MATCH EXISTING VEGETATION ON SITE.

811 Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL SEAL 032614 ENGINEER CARY J. MCCABE
11/18/2021

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW, THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9851

MARTINEZ COMMERCIAL PROPERTIES

308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

EROSION CONTROL PLAN PHASE I

REVISIONS:	DATE:
1 PER NCDEQ	9/20/21

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

SHEET NUMBER:
C5
OF 10 SHEETS

SCALE: 1" = 20'

20' 0 20'

SCALE OF MAP MAY VARY DUE TO METHODS OF REPRODUCTION.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	25.00'	21.67'	21.00'	S 61°55'51" E
C2	60.00'	108.52'	94.32'	S 88°53'35" E

JARCO DRIVE
(60' PUBLIC R/W)

9
LOT #9 TRI-SOUTH INDUSTRIAL PARK
(311 JARCO DRIVE)

N/F
BEST BUDDIES II, LLC
PIN: 0654-78-5050
DB:3744 PG:0547
PB:2014 PG:353
ZONED: INDUSTRIAL

10' TYPE "C" BUFFER

PROPOSED 20.00' DRAINAGE EASEMENT

PROPOSED LIMITS OF DISTURBANCE

PERMANENT GRASSED SWALE MUST BE MATTED IMMEDIATELY UPON CONSTRUCTION.

IMMEDIATE STABILIZATION

50' FRONT YARD SETBACK

INSTALL CONCRETE WASHOUT PIT

6
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

14 DAY STABILIZATION

TEMPORARY STOCKPILE AREA

PERMANENT GRAVEL SWALE

7
2.090 AC

N00°58'51"E 288.40'

8
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

SOD PROPOSED SWALE #1 OR LINE WITH NORTH AMERICAN GREEN P300 PERMANENT LINING.

VARIED SLOPE TO GRADE (2:1 MAX)

VARIED SLOPE TO GRADE (2:1 MAX)

SLOPE = 7%
Q10 = 8.94 CFS
V10 = 15.62 F/S

3' BOTTOM WIDTH

PROPOSED SWALE DETAIL

SCALE: NOT TO SCALE

PROPOSED 20.00' DRAINAGE EASEMENT

EXISTING POND

S44°03'06"W 249.09'

0' SIDE BUILDING SETBACK

30' TYPE "B" BUFFER

50' REAR BUILDING SETBACK

S50°44'18"W 71.02'

N86°00'06"W 223.01'

14 DAY STABILIZATION

30' TYPE "B" BUFFER

N/F
HECTOR CREEK FARMS
PIN: 0654-76-4794
DB:3675 PG:0058
PB:2008 PG:217
ZONED: RA-30

JARCO DRIVE

SITE

US 401 N

VICINITY MAP

SCALE: 1"=500'

CONSTRUCTION SEQUENCE

1. AFTER CONSTRUCTION OF RETAINING WALL, INSTALL THE PERMANENT GRASSED SWALE. PERMANENT GRASSED SWALE MUST BE MATTED IMMEDIATELY UPON CONSTRUCTION.
2. AFTER CONSTRUCTION AND STABILIZATION OF THE GRASSED SWALE. CONTRACTOR SHALL SCHEDULE INSPECTION. UPON APPROVAL BY INSPECTOR, THE CONTRACTOR SHALL BEGIN REMOVAL OF THE SEDIMENT BASIN INCLUDING MUCK, BAFFLES AND SKIMMER.
3. INSTALL BUILDING PAD AND UTILITIES.
4. INSTALL THE PROPOSED PARKING AREAS, DRIVEWAYS & SIDEWALKS.
5. INSTALL LANDSCAPING.
6. REMOVE ALL DEBRIS AND CONSTRUCTION MATERIALS FROM SITE.
7. AFTER ALL DISTURBED AREAS ARE STABILIZED WITH VEGETATION, THE CONTRACTOR SHALL RETURN TO THE SITE AND REMOVE ALL TEMPORARY EROSION CONTROL MEASURES, INCLUDING SEDIMENT BASIN AND SEDIMENT FENCE.
8. OWNER MAY INSTALL NATIVE GRASS SEED OR SOD TO STABILIZE SITE AT HIS/HER DISCRETION, HOWEVER, THE SITE MUST BE FULLY STABILIZED WITH AN 85% STAND OF GRASS IN ORDER TO CLOSE EROSION CONTROL PERMIT.
9. CONTRACTOR SHALL INSPECT & MAINTAIN ALL EROSION CONTROL DEVICES AFTER EACH RAIN EVENT AND/OR A MIN. OF ONCE PER WEEK UNTIL EROSION CONTROL PERMIT IS CLOSED/COMPLETED.
10. SCARIFY, SEED, FERTILIZE, & MULCH ALL DISTURBED AREAS WITHIN 14 CALENDAR DAYS OF ANY PHASE OF LAND DISTURBING ACTIVITIES OR SITE INACTIVITY.
11. OWNER SHALL PROVIDE A PERMIT BOX WITH APPROVED SET OF PLANS ON-SITE AND MAINTAIN SELF-INSPECTION REPORTS IN ACCORDANCE WITH NPDES. INSPECTION REPORTS MUST BE DONE WEEKLY AND/OR AFTER A RAINFALL OF HALF AN INCH OR MORE.

EROSION CONTROL MAINTENANCE

SEDIMENT FENCE INCDEQ ESC MANUAL 6.62)

1. INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
2. SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE TEAR DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
3. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE DURING CLEAN OUT.
4. REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

ROLLED EROSION CONTROL PRODUCTS (MATTING) (NCDEQ ESC MANUAL 6.17)

1. INSPECT ROLLED EROSION CONTROL PRODUCTS ATLEAST WEEKLYAND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAIN FALL EVENT AND REPAIR IMMEDIATELY.
2. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE RECP.
3. ANY AREAS OF THE RECP THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
4. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED.
5. MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

SITE GRADING & EROSION CONTROL NOTES:

(1) SEE GENERAL NOTES, SHEET C2.

(2) DISTURBED/DENUDED AREA: 71,572 SF (1.66 ACRES)

(3) EXISTING IMPERVIOUS AREA: 4,184 SF / 0.10 ACRES (4%)

(4) PROPOSED IMPERVIOUS AREA: 47,417 SF / 1.02 ACRES (52%)

(5) MAXIMUM IMPERVIOUS (%): 65% (SNIA 2103-0003)

(6) TOTAL TRACT AREA: 91,063 SF (2.09 ACRES)

(7) ALL DISTURBED AREAS SHALL BE SEEDED, MULCHED OR OTHERWISE STABILIZED WITHIN IN ACCORDANCE WITH THE NPDES TIME FRAMES LOCATED ON THIS SHEET AND WITH THE TEMPORARY SEEDING SCHEDULE. SEE DETAIL 4/C9.

(8) ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

(9) CONTRACTOR TO SWEEP AND KEEP CLEAN OF SEDIMENT THE ROADWAY ADJACENT TO THE PROJECT SITE AT ALL TIMES OR WASH STATION WILL BE REQUIRED.

(10) ALL DISTURBED AREAS SHALL BE SEEDED WITH NATIVE GRASSES (i.e. BERMUDA, FESCUE, CENTIPEDE, ETC.) TO MATCH EXISTING VEGETATION ON SITE.

EROSION CONTROL LEGEND

PROPOSED

- LIMITS OF DISTURBANCE
- SEDIMENT FENCE (SF)
- TEMP. SEDIMENT FENCE OUTLET
- TEMP. INLET PROTECTION
- TEMP. CONSTRUCTION ENTRANCE
- TEMP. ROCK CHECK DAM
- SEDIMENT BASIN BAFFLE
- RIPRAP APRON
- SEDIMENT BASIN SKIMMER
- TEMPORARY DIVERSION DITCH

NPDES STABILIZATION TIME FRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	IMMEDIATE⚠	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1 - 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE EXCEPT FOR PERIMETERS AND HQW ZONES

NPDES CONSTRUCTION STORMWATER GENERAL PERMIT NCG010000 NOTE:
PERMANENT GROUND COVER FOR SHALL BE ESTABLISHED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.

WATER SUPPLY WATERSHED SPECIAL INTENSITY ALLOCATION PERMIT (SNIA2103-0003) APPROVED MAY 10, 2021, FOR 65% MAX. IMPERVIOUS AREA.

811 Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032614 CARY J. MCCABE
11/18/2021

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW, THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9051

MARTINEZ COMMERCIAL PROPERTIES
308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

EROSION CONTROL PLAN
PHASE II

REVISIONS:	DATE:
⚠1 PER NCDEQ	9/20/21

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

SHEET NUMBER:
C6
OF 10 SHEETS

SCALE: 1" = 20'

20' 0 20'

SCALE OF MAP MAY VARY DUE TO METHODS OF REPRODUCTION.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	25.00'	21.67'	21.00'	S 61°55'51" E
C2	60.00'	108.52'	94.32'	S 88°53'35" E

JARCO DRIVE
(60' PUBLIC R/W)

9
LOT #9 TRI-SOUTH INDUSTRIAL PARK
(311 JARCO DRIVE)

N/F
BEST BUDDIES II, LLC
PIN: 0654-78-5050
DB:3744 PG:0547
PB:2014 PG:353
ZONED: INDUSTRIAL

SLOPE AREA TO PROPOSED SWALE #1

SLOPE EXISTING SWALE TO DRAIN TO EXISTING DOWNSTREAM DRIVEWAY CULVERT.

PROPOSED 20.00' DRAINAGE EASEMENT

PROPOSED LIMITS OF DISTURBANCE

10' TYPE "C" BUFFER

8
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

S78°05'36"E 330.24'

PROPOSED 20.00' DRAINAGE EASEMENT

6
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

7
2.090 AC

PROPOSED 81'-4" X 141'-4" BUILDING (11,495 SF)
FFE: 336.00

EXISTING POND

S44°09'06"W 249.09'

8
LOT #6 TRI-SOUTH INDUSTRIAL PARK
(280 JARCO DRIVE)

N/F
DAWSON 5 PROPERTIES, LLC
PIN: 0654-77-1639
DB:3616 PG:0624
PB:2008 PG:217
ZONED: INDUSTRIAL

N02°59'51"E 288.40'

30' TYPE "B" BUFFER

PROPOSED LIMITS OF DISTURBANCE

N86°00'06"W 223.01'

S50°44'18"W 71.02'

30' TYPE "B" BUFFER

N/F
HECTOR CREEK FARMS
PIN: 0654-76-4794
DB:3675 PG:0058
PB:2008 PG:217
ZONED: RA-30

FG: 336.10 FG: 335.47 FG: 335.81 FG: 335.66 FG: 335.42 FG: 335.44 FG: 335.44 FG: 335.80 FG: 335.80 FG: 335.90 FG: 335.90 FG: 335.80 FG: 335.90 FG: 333.94 FG: 332.72 FG: 330.34 FG: 333.39 FG: 334.90 FG: 335.10 FG: 335.90 FG: 335.90 FG: 334.96 FG: 335.85 FG: 335.80 FG: 335.90 FG: 335.80 FG: 335.80 FG: 332.00 FG: 326.00 FG: 320.93 FG: 320.00 FG: 320.00 FG: 320.00

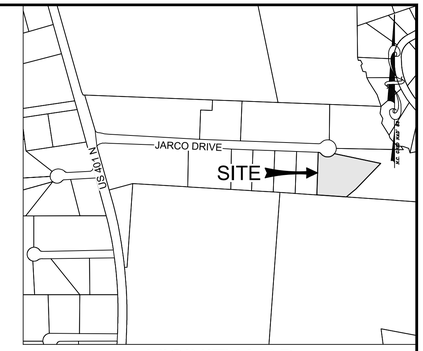
TOW: 332.34 TOW: 333.18 TOW: 334.25 TOW: 335.00 TOW: 335.00 TOW: 335.00 TOW: 334.00 TOW: 335.00

GRASSED SWALE NOTE: PERMANENT GRASSED SWALE MUST BE MATTED IMMEDIATELY UPON CONSTRUCTION.

NPDES STABILIZATION TIME FRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1 - 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE EXCEPT FOR PERIMETERS AND HQW ZONES

WATER SUPPLY WATERSHED SPECIAL INTENSITY ALLOCATION PERMIT (SNIA2103-0003) APPROVED MAY 10, 2021, FOR 65% MAX. IMPERVIOUS AREA.

Know what's below. Call before you dig.



VICINITY MAP
SCALE: 1"=500'

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032614 CARY J. MCCABE
12/12/2024

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW, THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9051

MARTINEZ COMMERCIAL PROPERTIES, LLC
308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

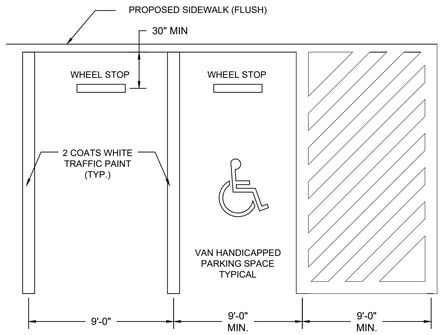
PROPOSED GRADING PLAN

REVISIONS:	DATE:
1 PER NCDEQ	9/20/21
2 PER OWNER	12/12/24

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

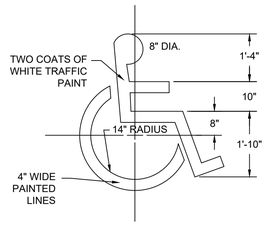
SHEET NUMBER:
C7
OF 10 SHEETS



NOTES:
1. SEE SITE DEVELOPMENT PLAN FOR DIMENSIONS AND LAYOUT DIMENSIONS SHOWN ARE MINIMUMS.
2. WHEEL STOPS 30" OFF OF BACK OF CURB

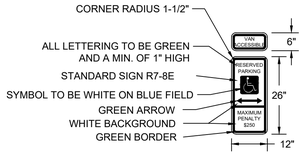
HANDICAP PAVEMENT STRIPING DETAIL 1 / C8

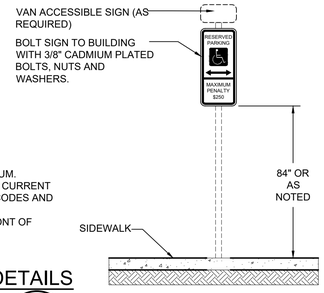
SCALE: NOT TO SCALE



HANDICAP PAVEMENT SYMBOL DETAIL 2 / C8

SCALE: NOT TO SCALE

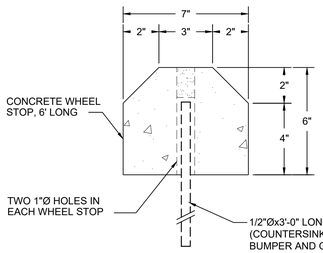




SIGN NOTES:
1. ALL SIGNS TO BE 0.080" THICK ALUMINUM.
2. ALL SIGNS SHALL CONFORM WITH ALL CURRENT A.D.A. FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS.
3. PLACE "VAN ACCESSIBLE" SIGN IN FRONT OF VAN ACCESSIBLE SPACES ONLY.

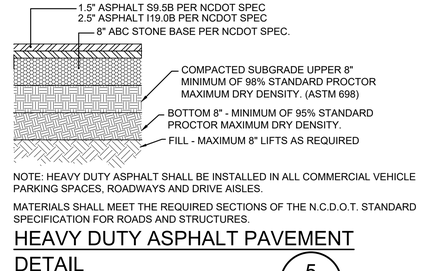
ACCESSIBILITY PARKING DETAILS DETAIL 3 / C8

SCALE: NOT TO SCALE



TYPICAL WHEEL STOP SECTION DETAIL 4 / C8

SCALE: NOT TO SCALE

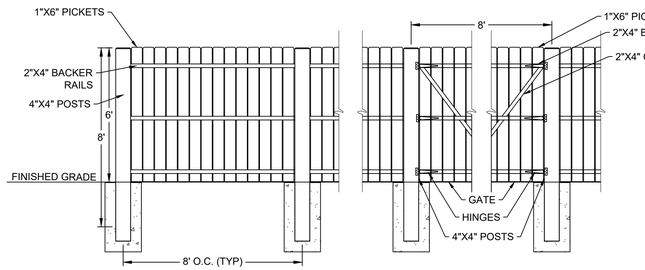


NOTE: HEAVY DUTY ASPHALT SHALL BE INSTALLED IN ALL COMMERCIAL VEHICLE PARKING SPACES, ROADWAYS AND DRIVE AISLES.

MATERIALS SHALL MEET THE REQUIRED SECTIONS OF THE N.C.D.O.T. STANDARD SPECIFICATION FOR ROADS AND STRUCTURES.

HEAVY DUTY ASPHALT PAVEMENT DETAIL 5 / C8

SCALE: NOT TO SCALE



TYPICAL WOODEN FENCE DETAIL 6 / C8

SCALE: NOT TO SCALE

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	**Stabilize within this many calendar days after ceasing land disturbance**	**Timeframe variations**
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

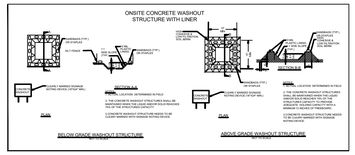
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING — EFFECTIVE: 04/01/19

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of all required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This General Permit as well as the Certificate of Coverage, after it is received.

(b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(d) Anticipated bypasses and unanticipated bypasses.

(e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(c) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING — EFFECTIVE: 04/01/19

Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032614 CARY J. MCCABE
11/18/2021

RED LINE ENGINEERING CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW, THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9681

MARTINEZ COMMERCIAL PROPERTIES, LLC
308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

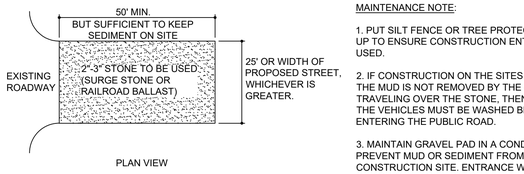
SITE DETAILS & NPDES NCG01 COMPLIANCE GUIDANCE

REVISIONS:	DATE:
⚠1 PER NCDEQ	9/20/21

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

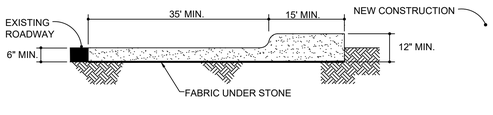
PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

SHEET NUMBER:
C8
OF 10 SHEETS

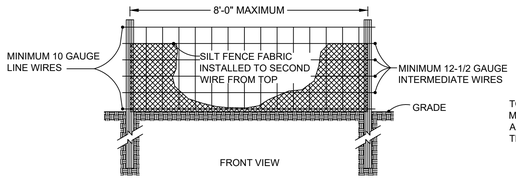


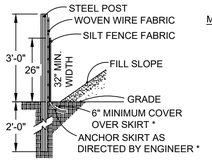
MAINTENANCE NOTE:

1. PUT SILT FENCE OR TREE PROTECTION FENCE UP TO ENSURE CONSTRUCTION ENTRANCE IS USED.
2. IF CONSTRUCTION ON THE SITES ARE SUCH THAT THE MUD IS NOT REMOVED BY THE VEHICLE TRAVELING OVER THE STONE, THEN THE TIRES OF THE VEHICLES MUST BE WASHED BEFORE ENTERING THE PUBLIC ROAD.
3. MAINTAIN GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING CONSTRUCTION SITE. ENTRANCE WILL REQUIRE PERIODIC REMOVAL OF SEDIMENT-LADEN STONE AND REPLACEMENT WITH FRESH STONE.



STANDARD CONSTRUCTION ENTRANCE DETAIL
SCALE: NOT TO SCALE — 1 / C9

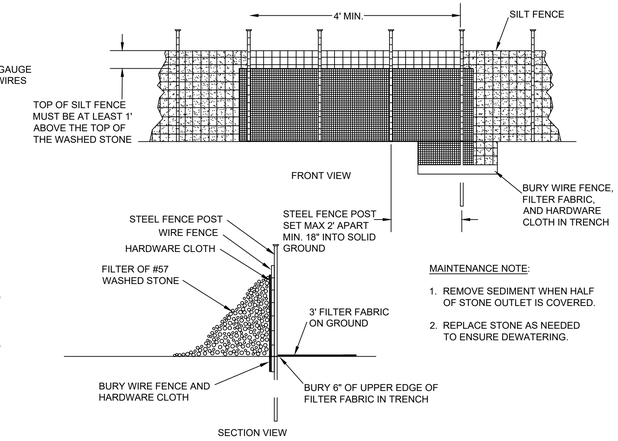




MAINTENANCE NOTE:

1. USE SILT FENCE ONLY WHEN DRAINAGE AREA DOES NOT EXCEED 1/4 ACRE AND NEVER IN AREAS OF CONCENTRATED FLOW.
2. REMOVE SEDIMENT DEPOSITED AS NEEDED TO PROVIDE STORAGE VOLUME FOR THE NEXT RAIN AND TO REMOVE PRESSURE ON THE SILT FENCE.

STANDARD TEMPORARY SILT FENCE DETAIL
SCALE: NOT TO SCALE — 2 / C9



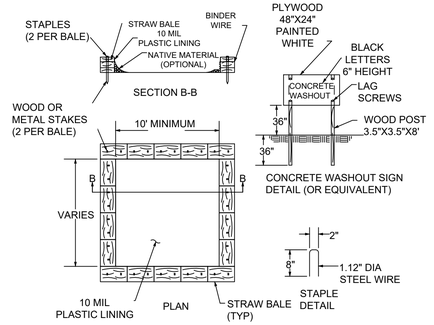
MAINTENANCE NOTE:

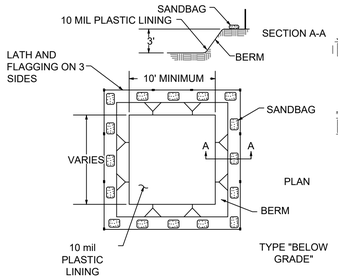
1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

STANDARD SILT FENCE OUTLET DETAIL
SCALE: NOT TO SCALE — 3 / C9

TEMPORARY SEEDING		
SPECIES	RATE (LB/AC)	DATES
RYE (GRAIN)	120	DEC 1-APR. 15
KOBE LESPEDEZA	50	DEC. 1 - APR. 15
GERMAN MILLET	40	APR. 15 - AUG. 15
RYE (GRAIN)	120	AUG. 15 - DEC. 30
SOIL AMENDMENTS		
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRIGULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER		
MULCH		
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.		
MAINTENANCE		
IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE IN THE SECOND YEAR ACCORDING TO SOIL TESTS OR TOPDRESS WITH 500 LB/ACRE 10-10-10 FERTILIZER. RESEED, REFERTILIZE, AND MULCH AREA IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE. IF SEEDING IN FALL, TOPDRESS WITH 50 LB/ACRE OF NITROGEN IN MARCH. IF IT NECESSARY TO EXTEND TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 LB/ACRE KOBE LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.		

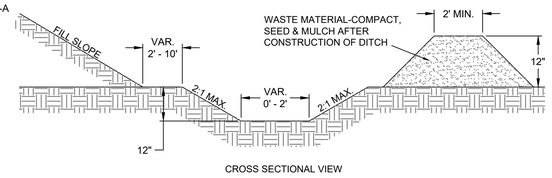
TEMPORARY SEEDING SCHEDULE DETAIL
SCALE: NOT TO SCALE — 4 / C9





MAINTENANCE NOTE:

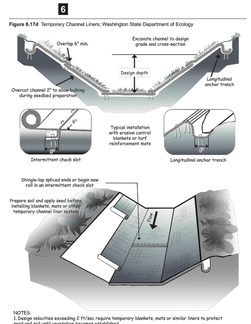
1. ACTUAL LAYOUT TO BE DETERMINED IN THE FIELD.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF OR RECYCLED.
4. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE BACKFILLED, REPAIRED, AND STABILIZED TO PREVENT EROSION.

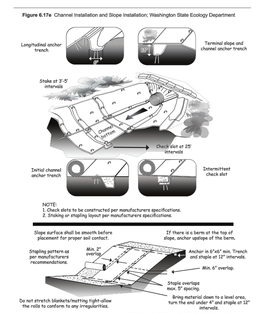


MAINTENANCE NOTE:

1. TEMPORARY DIVERSION DITCH TO BE USED TO INTERCEPT FLOW AND/OR DIVERT TO A SEDIMENT CONTROL MEASURE OR BMP.
2. SILT SHALL BE REMOVED WHEN DITCH IS ONE-HALF FULL.
3. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL.
4. STABILIZE DIVERSION DITCH BERM WITH TEMPORARY SEEDING, MULCH WITH TAC, AND/OR EROSION CONTROL NETTING.

STANDARD TEMPORARY DIVERSION DITCH DETAIL
SCALE: NOT TO SCALE — 6 / C9





TYPICAL ROLLED EROSION CONTROL PRODUCT DETAIL
SCALE: NOT TO SCALE — 7 / C9

SHOULDERS, SIDE DITCHES, SLOPES (MAX 3:1)

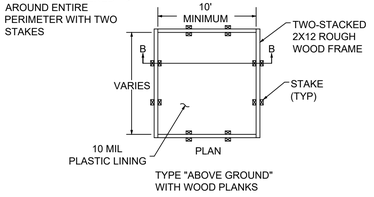
DATE	TYPE	PLANTING RATE
AUG 15 - NOV 1	TALL FESCUE	300 LBS/ACRE
NOV 1 - MAR 1	TALL FESCUE & ABRUZZI RYE	300 LBS/ACRE 25 LBS/ACRE
MAR 1 - APR 15	TALL FESCUE	300 LBS/ACRE
APR 15 - JUN 30	HULLED COMMON BERMUDA GRASS	25 LBS/ACRE
JUL 1 - AUG 15	TALL FESCUE AND ***BROWNTOP MILLET ***OR SORGHUM-SUDAN HYBRID	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
	SLOPES (3:1 TO 2:1)	
MAR 1 - JUN 1	SERICEA LESPEDEZA (SCARIFIED) &	50 LBS/ACRE
(MAR 1 - APR 15) (MAR 1 - JUN 30)	ADD TALL FESCUE OR ADD HULLED COMMON BERMUDA GRASS	120 LBS/ACRE 25 LBS/ACRE
JUN 1 - SEP 1	***TALL FESCUE AND ***BROWNTOP MILLET ***OR SORGHUM-SUDAN HYBRIDS	120 LBS/ACRE 35 LBS/ACRE 30 LBS/ACRE
SEP 1 - MAR 1	SERICEA LESPEDEZA (UNHULLED-UNSCARIFIED) AND TALL FESCUE	70 LBS/ACRE 120 LBS/ACRE
(NOV 1 - MAR 1)	ADD ABRUZZI RYE	25 LBS/ACRE

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS.

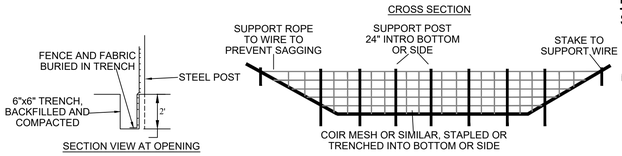
THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.

***TEMPORARY - RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT.

PERMANENT SEEDING SCHEDULE DETAIL
SCALE: NOT TO SCALE — 8 / C9

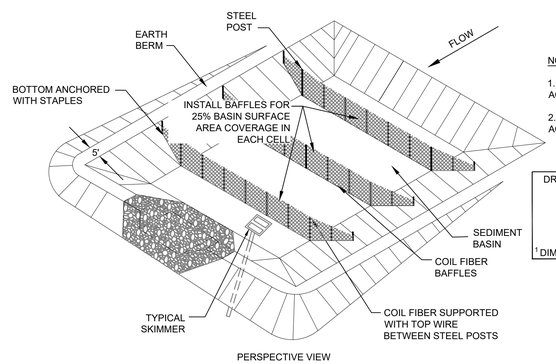


CONCRETE WASH OUT DETAIL
SCALE: NOT TO SCALE — 5 / C9



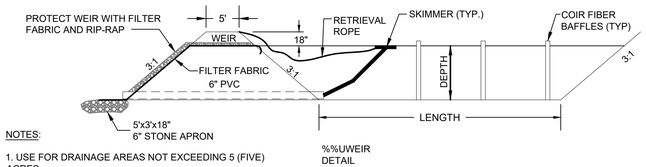
NOTES:

1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS
4. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL



NOTES:

1. DRIVE STEEL FENCE POST AT LEAST 18" INTO SOLID GROUND.
2. WOOD POST ARE NOT ACCEPTABLE.



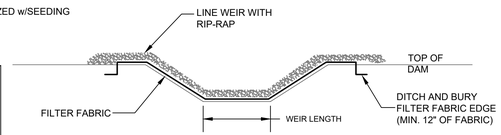
NOTES:

1. USE FOR DRAINAGE AREAS NOT EXCEEDING 5 (FIVE) ACRES.
2. EARTH BERM SHALL BE STABILIZED w/SEEDING ACCORDING TO TOWN SPECIFICATIONS.

DESIGN OF SPILLWAYS

DRAINAGE AREA (ACRES)	WEIR LENGTH (FT)[1]
1	4.0
2	6.0
3	8.0
4	10.0
5	12.0

[1] DIMENSIONS SHOWN ARE MINIMUM



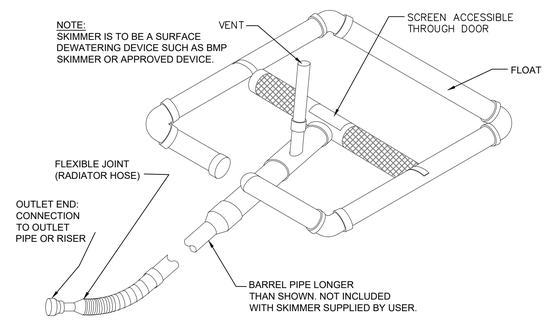
MAINTENANCE NOTE:

INSPECT TEMPORARY SEDIMENT BASIN AND EMPTY SKIMMER OF ALL DEBRIS AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE BASIN TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE BASIN. PLACE THE SEDIMENT THAT IS REMOVED IN A DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.

CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FT BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.

STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND DOWNSTREAM FROM THE BASIN IMMEDIATELY AFTER CONSTRUCTION WITH SEEDING.

SEDIMENT BASIN DETAIL DETAIL
SCALE: NOT TO SCALE — 9 / C9



STANDARD SKIMMER DETAIL DETAIL
SCALE: NOT TO SCALE — 10 / C9

Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032614 GARY J. MCCABE
11/18/2021

RED LINE ENGINEERING CORPORATION OF NORTH CAROLINA SEAL C-3075

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW, THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-9051

MARTINEZ COMMERCIAL PROPERTIES, LLC
308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

EROSION CONTROL DETAILS

REVISIONS:	DATE:
⚠1 PER NCDEQ	9/20/21
ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

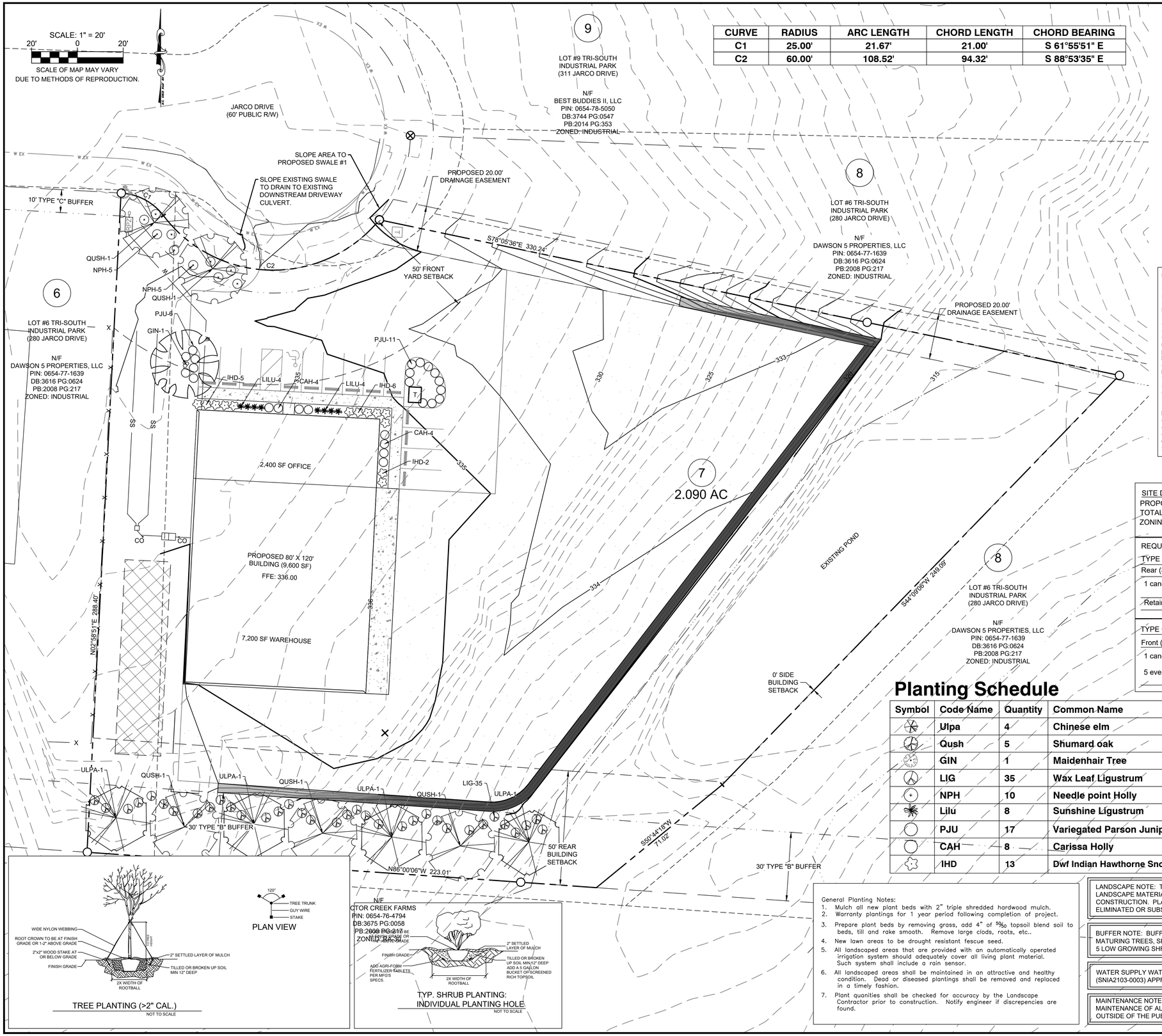
SHEET NUMBER:
C9
OF 10 SHEETS

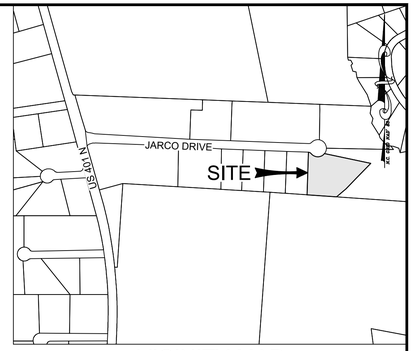
SCALE: 1" = 20'

20' 0 20'

SCALE OF MAP MAY VARY DUE TO METHODS OF REPRODUCTION.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
C1	25.00'	21.67'	21.00'	S 61°55'51" E
C2	60.00'	108.52'	94.32'	S 88°53'35" E





VICINITY MAP
SCALE: 1"=500'

LAWN PREPARATION AND SEEDING NOTES:
A. Before fertilizing and seeding, the topsoil surfaces shall be trimmed and worked to true line from unsightly variation, bumps, ridges and depressions and all detrimental material, roots and stones larger than 3–inches in any diameter shall be removed from the soil.
B. Not earlier than 24 hours before seed is to be sown, the soil surface to be seeded shall be thoroughly cultivated to a depth of not less than 4–inches with a weighted disc, tiller, pulvimixer or other equipment, until the surface is smooth and in an acceptable condition.
C. If the prepared surface becomes eroded as a result of rain or for any other reason, or becomes crusted before the seed is sown, the surface shall again be placed in a condition suitable for seeding.
D. Ground preparation operations shall be performed only when the ground is in a tillable and workable condition.
E. All seeded areas shall be uniformly mulched in a continuous blanket immediately after seeding. The mulch shall be applied evenly so as to permit sunlight to penetrate and the air to circulate and at the same time shade the ground, reduce erosion and conserve soil moisture. Approximately 45 percent of the ground shall be visible through the mulch blanket.
F. The Contractor shall be responsible for maintaining the proper moisture content of the soil to insure adequate plant growth until a satisfactory stand is obtained. If necessary, watering shall be performed to maintain adequate water content in the soil.
G. Seeding rate: Elite Fescue seed, 5 lbs/1000sf, 10 lbs. (5–10–15) plus 3% iron fertilizer/1000sf, 45 lbs. limestone/1000sf.

LANDSCAPE SUMMARY

SITE DATA

PROPOSED USE:	MANUFACTURING GENERAL
TOTAL LOT ACREAGE:	2.09 Ac.
ZONING DISTRICT:	INDUSTRIAL

REQUIRED BUFFERS

TYPE B BUFFER, 30 FT. WIDTH ALONG REAR (SOUTHERN) PROPERTY LINE:

Rear (Southern) PL Type B 30' Buffer OPTION 2	223 LF - 28 LF (POND) = 195 LF
1 canopy tree req./30 linear feet = 6.5 trees	7 canopy trees provided 35 evergreen shrubs provided
Retaining wall proposed to satisfy Option 1 of the Type B Buffer along Rear PL.	

TYPE C BUFFER, 10 FT. WIDTH ALONG FRONT (NORTHERN) PROPERTY LINE:

Front (Northern) PL Type C 10' Buffer	80 LF - 50 LF (DRIVEWAY) = 35 LF
1 canopy tree req./30 linear feet = 1 trees	2 canopy trees provided
5 evergreen shrubs/1 canopy tree = 5 shrubs	10 evergreen shrubs provided

Planting Schedule

Symbol	Code Name	Quantity	Common Name	Scientific Name	Planting Size
	Ulpa	4	Chinese elm	Ulmus parvifolia	2"-Cal / 6 ft. min. ht.
	Qush	5	Shumard oak	Quercus shumardii	2"-Cal / 6 ft. min. ht.
	GIN	1	Maidenhair Tree	Ginkgo biloba (Male)	2"-Cal / 6 ft. min. ht.
	LIG	35	Wax Leaf Ligustrum	Ligustrum japonicum 'Wax Leaf'	24" min. ht.
	NPH	10	Needle point Holly	Ilex cornuta 'Needle Point'	24" min. ht.
	Lilu	8	Sunshine Ligustrum	Ligustrum sinense 'Sunshine'	3-Gal
	PJU	17	Variegated Parson Juniper	Juniperis d. 'Parsoni variegata'	3-Gal
	CAH	8	Carissa Holly	Ilex cornuta 'Carissa'	3-Gal
	IHD	13	Dwf Indian Hawthorne Snow White	Rhaphiolepis indica 'Snow White'	3-Gal

TREE PLANTING (>2" CAL.)
NOT TO SCALE

TYP. SHRUB PLANTING: INDIVIDUAL PLANTING HOLE
NOT TO SCALE

General Planting Notes:
1. Mulch all new plant beds with 2" triple shredded hardwood mulch.
2. Warranty plantings for 1 year period following completion of project.
3. Prepare plant beds by removing grass, add 4" of 50/50 topsoil blend soil to beds, till and rake smooth. Remove large clods, roots, etc..
4. New lawn areas to be drought resistant fescue seed.
5. All landscaped areas that are provided with an automatically operated irrigation system should adequately cover all living plant material. Such system shall include a rain sensor.
6. All landscaped areas shall be maintained in an attractive and healthy condition. Dead or diseased plantings shall be removed and replaced in a timely fashion.
7. Plant quanities shall be checked for accuracy by the Landscape Contractor prior to construction. Notify engineer if discrepencies are found.

LANDSCAPE NOTE: THE OWNER RESERVES THE RIGHT TO SUBSTITUTE LANDSCAPE MATERIALS BASED ON PREFERENCE AND AVAILABILITY DURING CONSTRUCTION. PLANTINGS IN EXCESS OF UDO REQUIREMENTS MAY BE ELIMINATED OR SUBSTITUTED AT THE OWNER'S DISCRETION.

BUFFER NOTE: BUFFER SHALL INCLUDE: 1. A STAGGERED ROW OF LARGE MATURING TREES, SPACED NOT MORE THAN 30' APART; AND TYPE C BUFFER: 5 LOW GROWING SHRUBS FOR EVERY REQUIRED LARGE MATURING TREE.

WATER SUPPLY WATERSHED SPECIAL INTENSITY ALLOCATION PERMIT (SNIA2103-0003) APPROVED MAY 10, 2021, FOR 65% MAX. IMPERVIOUS AREA.

MAINTENANCE NOTE: PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL PARKING, GRAVEL AREAS, AND LANDSCAPE AREAS OUTSIDE OF THE PUBLIC RIGHT OF WAY.

811 Know what's below. Call before you dig.

NORTH CAROLINA PROFESSIONAL SEAL 032614 ENGINEER CARY J. MCCABE
11/18/2021

RED LINE ENGINEERING, P.C. CORPORATE SEAL C-3075 NORTH CAROLINA

FINAL DRAWING RELEASED FOR CONSTRUCTION

THIS ORIGINAL SHEET IS 24"X36". OTHER DIMENSIONS INDICATE IT HAS BEEN ALTERED. ALL INFORMATION REPRESENTED ON THIS SHEET IS THE PROPERTY OF **RED LINE ENGINEERING, P.C.** UNDER PENALTY OF LAW. THIS INFORMATION SHALL NOT BE DUPLICATED IN PART OR WHOLE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM **RED LINE ENGINEERING, P.C.** 2021 ©

RED LINE ENGINEERING
RED LINE ENGINEERING, P.C. (C-3075)
123 RALEIGH STREET
FUQUAY-VARINA, NORTH CAROLINA 27526
PHONE - (919) 779-0851

MARTINEZ COMMERCIAL PROPERTIES, LLC

308 JARCO DRIVE
FUQUAY-VARINA, NORTH CAROLINA 27526

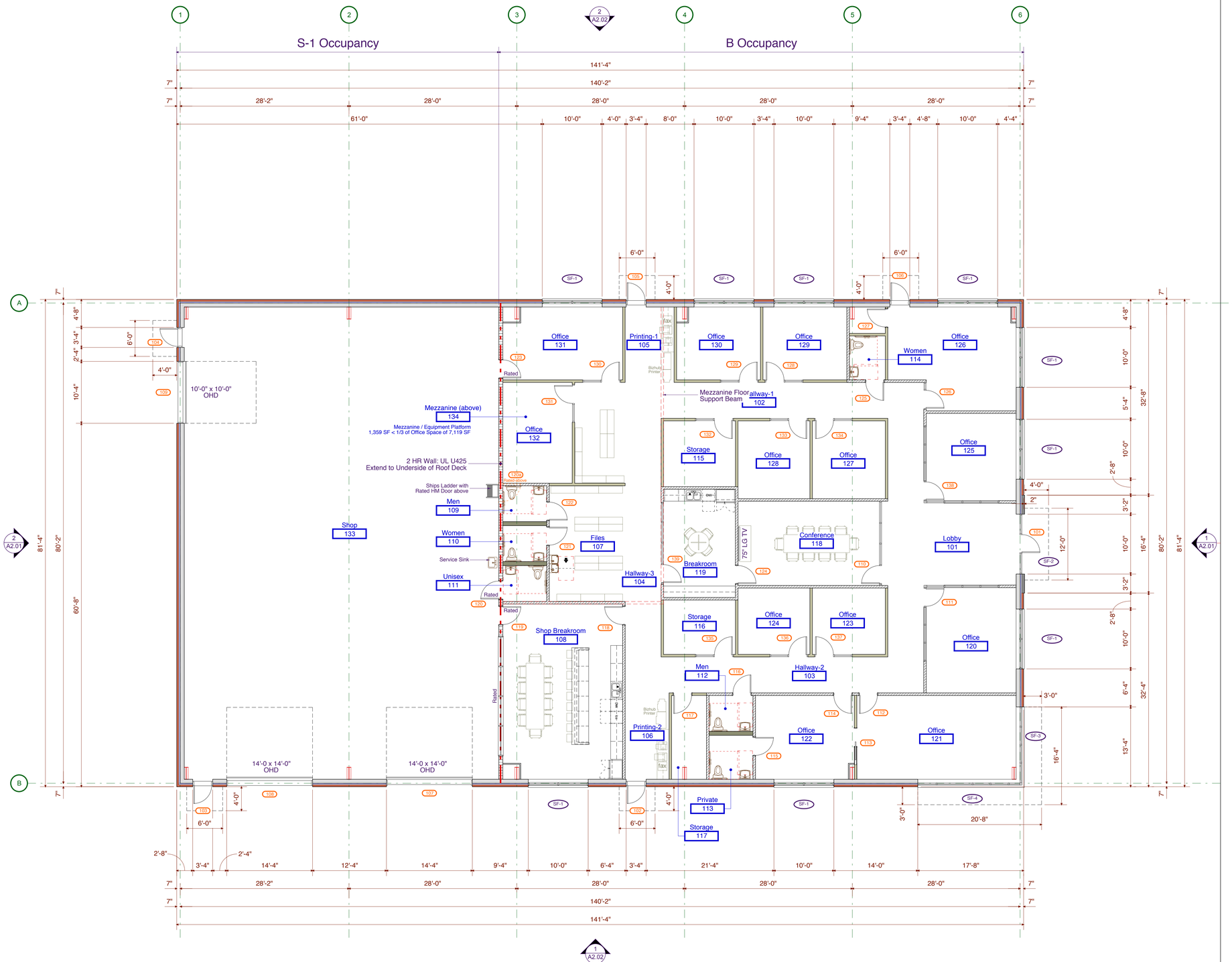
REQUIRED LANDSCAPE IMPROVEMENTS

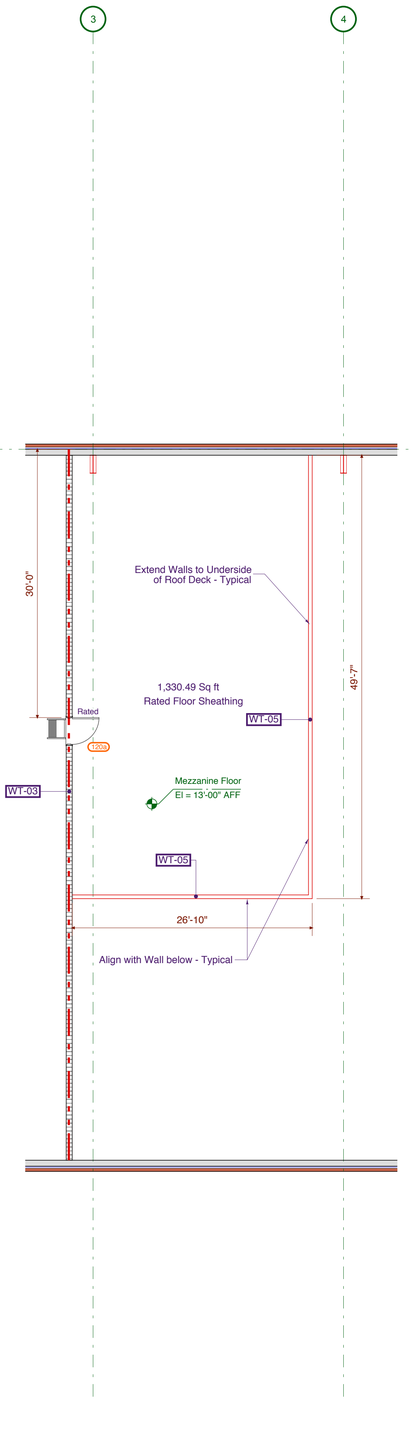
REVISIONS:	DATE:
⚠ PER NCDEQ	9/20/21

ISSUED FOR:	DATE:
REVIEW/PERMIT	08/19/21
CONSTRUCTION	11/17/21

PROJECT NO.: 21-002
DRAWN BY: TAL
REVIEWED BY: GJM

SHEET NUMBER:
L1
OF 10 SHEETS





Overall SF: 11,468 Sq ft
Office Area SF: 7,119 Sq ft ÷ 100 = 71 Occupants
Work Shop / Storage SF: 4,349 Sq ft ÷ 500 = 8 Occupants

1 **Overall Floor Plan**
Scale: 1/8" = 1'-0"

2 **Mezzanine Floor Plan**
Scale: 1/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS McGAHEY 53338 REGISTERED ARCHITECT NORTH CAROLINA FUQUAY-VARINA, NC
9.5.24

JOHN MORRIS McGAHEY 9603 REGISTERED ARCHITECT NORTH CAROLINA FUQUAY-VARINA, NC

E&M CONCRETE INC.

E&M CONCRETE

© 2022 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

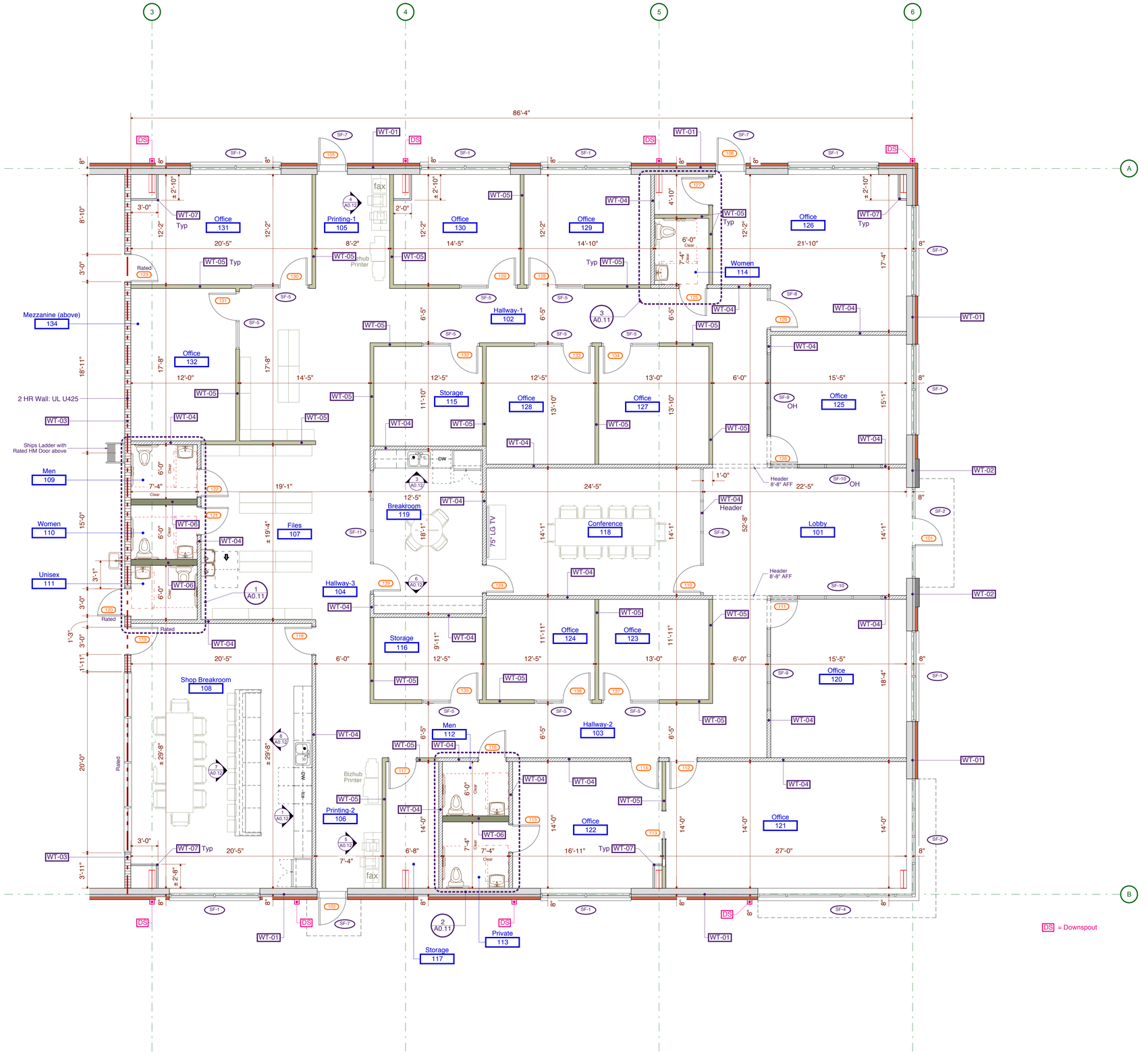
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Floor Plan

A1.01



1 **Enlarged Floor Plan**
Scale: 3/16" = 1'-0"

Wall Types

WT-01 Exterior Wall

Exterior Wall: PEMB Wall Girt with Metal Wall Panel, Brick veneer and 2 pc Masonry Ties per NCSBC with 40 mil Textroflash Thru-wall Flashing with Weeps per NCSBC. Interior Side: 3 5/8", 20 ga Metal Stud Framing @ 16"oc with (1) Layer of 5/8" Painted Drywall on interior face with R-19 batt insulation with vapor barrier. Extend Drywall to underside of Roof Decking in Exposed Areas and 12" above ACT.

WT-02 Exterior Wall

Exterior Wall: PEMB Wall Girt with Metal Wall Panel with 6" Thick Cast-in-Place Concrete Veneer as shown on front elevation. (1) Layer of 5/8" Painted Drywall on interior face with R-19 batt insulation with vapor barrier. Extend Drywall to underside of Roof Decking in Exposed Areas and 12" above ACT.

WT-03 Interior Wall

Interior Wall: (2 HR Wall) 18 ga, 6" Metal Stud @ 16" oc with track to underside of roof deck with (2) Layers of 5/8" Type-X Painted Drywall both sides per UL U425 (add batt insulation R-19 for sound attenuation)

WT-04 Interior Wall

Interior Wall: 22ga, 3-5/8" Metal Stud @ 16" oc with track to underside of roof deck with (1) Layer of 5/8" Painted Drywall both sides (add batt insulation R-19 for sound attenuation)

WT-05 Interior Wall

Interior Wall: 22ga, 3-5/8" Metal Stud @ 16" oc with track extend wall 24" ACT with (1) Layer of 5/8" Painted Drywall both sides (add batt insulation R-19 for sound)

WT-06 Plumbing Wall

Interior Wall: (Plumbing Wall) 22ga, 6" Metal Stud @ 16" oc with track extend wall 24" ACT with (1) Layer of 5/8" Painted Drywall both sides (add batt insulation R-19 for sound attenuation)

WT-07 Column Wrap

Interior Wall: 25ga, 1-5/8" Metal Stud @ 16" oc with track extend wall 24" ACT with (1) Layer of 5/8" Painted Drywall on exposed side

Note 1: All Restrooms to have Moisture Resistant Epoxy Painted Drywall

DS Prefinished Aluminum Downspout with Concrete Splash Block

2018 NORTH CAROLINA BUILDING CODE

1011.14 Alternating tread devices. Alternating tread devices are limited to an element of a means of egress in buildings of Groups F, H and S from a mezzanine not more than 250 square feet (23 m2) in area and that serves not more than five occupants; in buildings of Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m2) in area and for access to unoccupied roofs. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.

1011.14.1 Handrails of alternating tread devices. Handrails shall be provided on both sides of alternating tread devices and shall comply with Section 1014.

1011.14.2 Treads of alternating tread devices. Alternating tread devices shall have a minimum tread depth of 5 inches (127 mm), a minimum projected tread depth of 81/2 inches (216 mm), a minimum tread width of 7 inches (178 mm) and a maximum riser height of 91/2 inches (241 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projections of adjacent treads. The riser height shall be measured vertically between the leading edges of adjacent treads. The riser height and tread depth provided shall result in an angle of ascent from the horizontal of between 50 and 70 degrees (0.87 and 1.22 rad). The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface.

Exception: Alternating tread devices used as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet (23 m2) in area that serves not more than five occupants shall have a minimum tread depth of 3 inches (76 mm) with a minimum projected tread depth of 101/2 inches (267 mm). The rise to the next alternating tread surface shall not exceed 8 inches (203 mm).

1011.15 Ships ladders. Ships ladders are permitted to be used in Group I-3 as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 square feet (23 m2) with not more than three occupants and for access to unoccupied roofs. The minimum clear width at and below the handrails shall be 20 inches (508 mm). The maximum width to the outside of the handrails shall be 30 inches (762 mm). The vertical rise between floor levels or landings shall not exceed 20 feet (6096 mm).

1011.15.1 Handrails of ships ladders. 11/4-inch (31.75 mm) pipe handrails shall be provided on both sides of ships ladders.

1011.15.2 Treads of ships ladders. Ships ladders shall have a:

1. Pitch of 60 to 75 degrees;
2. Minimum tread depth of 5 inches (127 mm); and
3. Riser height of 91/2 inches (241 mm) to 12 inches (204,8 mm).

Ship's Ladder: alternating tread ladder to be compliant

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

NORTH CAROLINA REGISTERED ARCHITECT 9603 JOHN MORRIS McGAHEY FUQUAY-VARINA, NC
9.5.24

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER 53338 McGAHEY DESIGN, PA FUQUAY-VARINA, NC

E&M CONCRETE INC.

© 2022 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

E&M CONCRETE

PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

Enlarged Floor Plan

A1.02

1 **Reflected Ceiling Plan** 10' 0 2' 4' 6' 8' 10'
Scale: 3/16" = 1'-0"

Reflected Ceiling Legend

Refer to A1.02

X'-X" | GYP	Painted Drywall Ceiling Moisture Resistant where required
X'-X" | ACT-1	Acoustic Ceiling Tile 24"x24"
Exposed	Exposed Ceiling
	Chandlier Light Fixture - owner to select
	Light Fixture: 24"x48"
	Light Fixture: 24"x48" - Utility
	Light Fixture: 24"x24" - Utility
	Light Fixture: Recessed Can
	Mini Split Diffuser for Conference Room
	Supply Diffuser
	Return Diffuser
	Exhaust Fan
EXIT	Exit Sign (Ceiling Mounted)(UON)
EXIT	Exit Sign with Emergency Lights (Ceiling Mounted)
	Emergency Lights (Ceiling Mounted)
EXIT	Exit Sign (Wall Mounted)
EXIT	Exit Sign with Emergency Lights (Wall Mounted)
	Emergency Lights (Wall Mounted)
	Emergency Light (Wall Mounted)
	Emergency Light: Exterior (Wall Mounted)

Notes:

1. General Contractor to verify location of Ceiling Grid, Duct Work, Light Fixtures and to notify Architect of any discrepancies prior to installation.
2. Coordinate with PM&E Documents for Lighting, HVAC Fixtures and Equipment when preparing layout Coordination Drawing Submittals
3. Gang Multiple Switches in a switch bank. Refer to Electrical Drawings
4. Refer to Mechanical Documents for Mini Split Diffuser Information
5. Refer to Electrical Documents for Lighting Schedule
6. Refer to Material Schedule
7. Light Fixtures and Ceiling Grid to be centered within space, each way (UNO)
8. All Acoustical Ceiling Tile and Grid are to be as stated per plan
9. All Drywall Headers are to be 8'-8" AFF (UNO)
10. Provide Drywall Expansion Joints as required and control joints per manufacturer's recommendations
11. Refer to PM&E Drawings for additional fixture info, legends and equipment information

Ceiling Finishes

Mark	Material	Notes
ACT-01	Manufacturer: Armstrong Pattern: 2x2, Dune (Item# 1775), Beveled Tegular 9/16" Color: White	General Areas Ceiling Tile
ACT-02	Manufacturer: Armstrong Pattern: 2x2 Fine Fissured, Square Lay-in 5/16" Color: White	Inexpensive ACT for closets, utility / mop rooms
ACT-03	Manufacturer: Armstrong Pattern: 2x2, Dune (Item# 1775), Beveled Tegular 9/16" Color: White	Restroom / Breakroom Verify Moisture Resistant Tile - Dune Tile is Humidity Resistant or Submit Equal in Look but Moisture Resistant

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

MCGAHEY DESIGN PA 53338 FUQUAY-VARINA NC

JOHN MORRIS MCGAHEY 9603 REGISTERED ARCHITECT NORTH CAROLINA FUQUAY-VARINA NC 9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2022 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

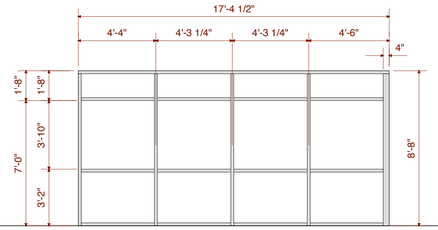
PROJECT:	2022-12
DATE ISSUED:	09.05.24

REVISIONS:	DATE

DRAWN BY:	JMM
CHECK BY:	JMM

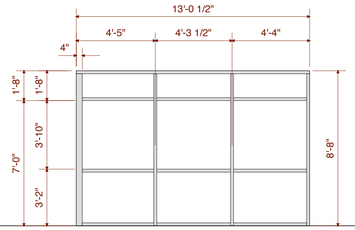
Enlarged Reflected Ceiling Plan

A1.03



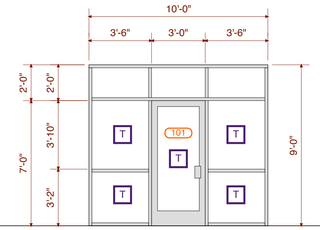
Exterior

SF-4 Aluminum Storefront
Field Verify



Exterior

SF-3 Aluminum Storefront
Field Verify

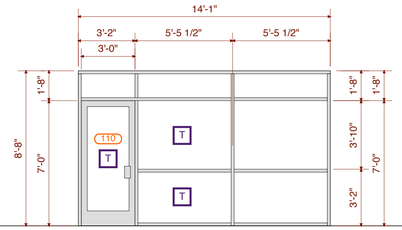


Exterior - Entrance

SF-2 Aluminum Storefront
Field Verify

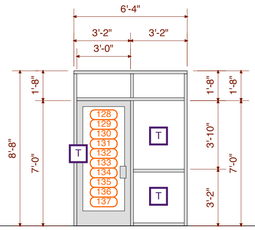
T = Tempered Glass

Kawneer: 500T Standard Entrance
Medium Stile with Sealair Weather
System or Equal - Typical



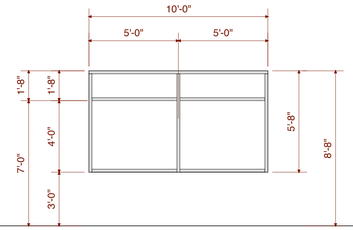
Interior

SF-6 Aluminum Storefront
Field Verify



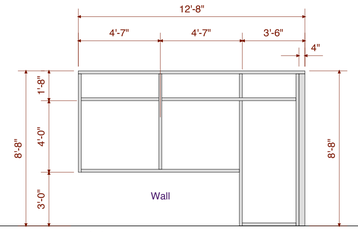
Interior

SF-5 Aluminum Storefront
Field Verify



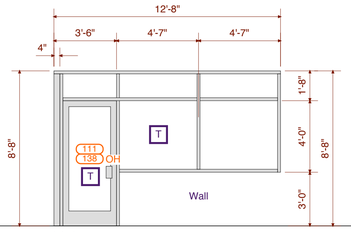
Exterior

SF-1 Aluminum Storefront
Field Verify



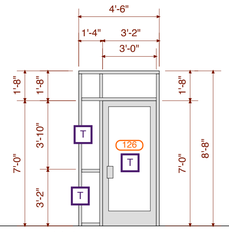
Interior

SF-10 Aluminum Storefront
Field Verify



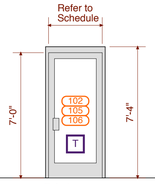
Interior

SF-9 Aluminum Storefront
Field Verify



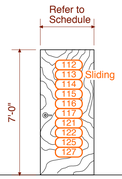
Interior

SF-8 Aluminum Storefront
Field Verify

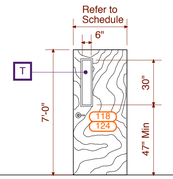


Exterior

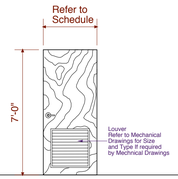
SF-7 Aluminum Storefront
Field Verify



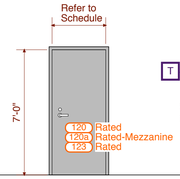
1 Solid Core Wood
Interior



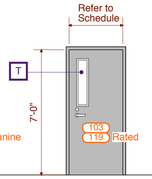
2 Solid Core Wood
Interior



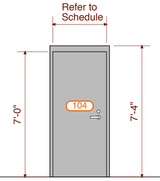
3 Solid Core Wood
Interior (if required)



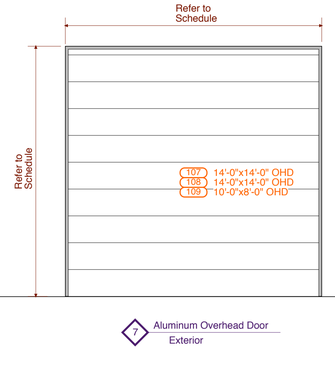
4 Hollow Metal
Interior



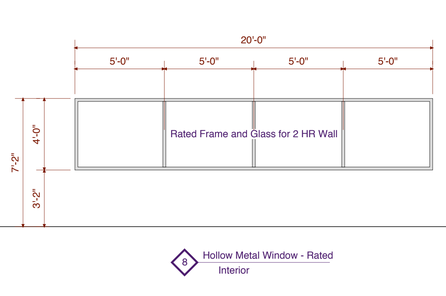
5 Hollow Metal
Interior



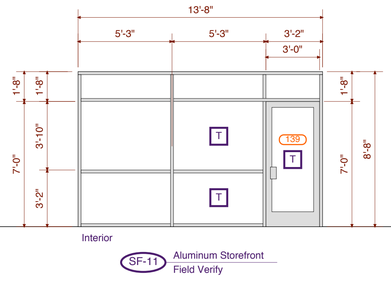
6 Hollow Metal
Exterior



7 Aluminum Overhead Door
Exterior



8 Hollow Metal Window - Rated
Interior



Interior

SF-11 Aluminum Storefront
Field Verify

Door Schedule

	Door			Frame			
Mark	Size	Mat'l	Type	Mat'l	Hardware Set	Remarks
101	3'-0" X 7'-0"	Alum	SF-2	Alum	1.0	Exterior Door
102	3'-0" X 7'-0"	Alum	SF-7	Alum	1.0	Exterior Door
103	3'-0" X 7'-0"	HM	5	HM	2.0	Exterior Door
104	3'-0" X 7'-0"	HM	6	HM	2.0	Exterior Door
105	3'-0" X 7'-0"	Alum	SF-7	Alum	1.0	Exterior Door
106	3'-0" X 7'-0"	Alum	SF-7	Alum	1.0	Exterior Door
107	14'-0" X 14'-0"	Alum	7	Alum	18.0	Exterior Door
108	14'-0" X 14'-0"	Alum	7	HM	18.0	Exterior Door
109	10'-0" X 10'-0"	Alum	7	HM	18.0	Exterior Door
110	3'-0" X 7'-0"	Alum	SF-6	Alum	5.0	Interior Door
111	3'-0" X 7'-0"	Alum	SF-9	Alum	4.0	Interior Door
112	3'-0" X 7'-0"	SC	1	HM	9.0	Interior Door
113	3'-0" X 7'-0"	SC	1	HM	17.0	Interior Door - Sliding Door
114	3'-0" X 7'-0"	SC	1	HM	9.0	Interior Door
115	3'-0" X 7'-0"	SC	1	HM	11.0	Interior Door - Restroom Closure
116	3'-0" X 7'-0"	SC	1	HM	12.0	Interior Door - Restroom Closure
117	3'-0" X 7'-0"	SC	1	HM	8.0	Interior Door
118	3'-0" X 7'-0"	SC	2	HM	16.0	Interior Door
119	3'-0" X 7'-0"	HM	5	HM	16.0	Interior Door - Rated
120	3'-0" X 7'-0"	HM	1	HM	14.0	Interior Door - Rated
120a	3'-0" X 7'-0"	HM	4	HM	13.0	Interior Door - Rated Mezzanine Door
121	3'-0" X 7'-0"	SC	1	HM	14.0	Interior Door - Restroom Closure
122	3'-0" X 7'-0"	SC	1	HM	14.0	Interior Door - Restroom Closure
123	3'-0" X 7'-0"	HM	4	HM	10.0	Interior Door - Rated
124	3'-0" X 7'-0"	SC	2	HM	15.0	Interior Door
125	3'-0" X 7'-0"	SC	1	HM	14.0	Interior Door - Restroom Closure
126	3'-0" X 7'-0"	Alum	SF-8	Alum	4.0	Interior Door
127	3'-0" X 7'-0"	SC	1	HM	7.0	Interior Door
128	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
129	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
130	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
131	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
132	3'-0" X 7'-0"	Alum	SF-5	Alum	3.0	Interior Door
133	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
134	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
135	3'-0" X 7'-0"	Alum	SF-5	Alum	3.0	Interior Door
136	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
137	3'-0" X 7'-0"	Alum	SF-5	Alum	4.0	Interior Door
138	3'-0" X 7'-0"	Alum	SF-9	Alum	4.0	Interior Door
139	3'-0" X 7'-0"	Alum	SF-11	Alum	6.0	Interior Door

Room Finish Schedule

Mark	Room Name	Floor	Base	Wall	Ceiling	Clg. Hgt.	Remarks
101	Lobby	LVT (**)	Rubber	Painted Drywall	AC Tile	10'-0"	---
102	Hallway-1	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
103	Hallway-2	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
104	Hallway-3	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
105	Printing-1	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
106	Printing-2	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
107	Files	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
108	Shop Breakroom	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
109	Men's Restroom	Ceramic Tile	Ceramic Tile	Painted Drywall	AC Tile	8'-0"	---
110	Women's Restroom	Ceramic Tile	Ceramic Tile	Painted Drywall	AC Tile	8'-0"	---
111	Unisex	Ceramic Tile	Ceramic Tile	Painted Drywall	AC Tile	8'-0"	---
112	Men's Restroom	Ceramic Tile	Ceramic Tile	Painted Drywall	AC Tile	8'-0"	---
113	Private Restroom	Ceramic Tile	Ceramic Tile	Painted Drywall	AC Tile	8'-0"	---
114	Women's Restroom	Ceramic Tile	Ceramic Tile	Painted Drywall	AC Tile	8'-0"	---
115	Storage	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
116	Storage	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
117	Storage	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
118	Conference Room	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
119	Breakroom	LVT (**)	Rubber	Painted Drywall	AC Tile	9'-0"	---
120	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
121	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
122	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
123	Office	Carpet	Rubber	Painted Drywall	AC Tile	9'-0"	---
124	Office	Carpet	Rubber	Painted Drywall	AC Tile	9'-0"	---
125	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
126	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
127	Office	Carpet	Rubber	Painted Drywall	AC Tile	9'-0"	---
128	Office	Carpet	Rubber	Painted Drywall	AC Tile	9'-0"	---
129	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
130	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
131	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
132	Office	Carpet	Rubber	Painted Drywall	AC Tile	10'-0"	---
133	Shop Area	Sealed Concrete	---	Painted Plywd(*)	Exposed	---	---

Note:
(*) Painted Plywood 8'-0" AFF
LVT (**) = LVT Flooring or Polished Concrete - Owner to Select

Storefront Schedule

Mark	W Size H	Type	Material	Glass	Remarks
SF-1	10'-0" x 5'-8"	SF-1	Alum	1" Insul. Glass	Exterior
SF-2	10'-0" x 9'-0"	SF-2	Alum	1" Insul. Glass	Exterior
SF-3	13'-1/2" x 8'-8"	SF-3	Alum	1" Insul. Glass	Exterior
SF-4	17'-4 1/2" x 8'-8"	SF-4	Alum	1" Insul. Glass	Exterior
SF-5	6'-4" x 8'-8"	SF-5	Alum	1/4" Insul. Glass	Interior
SF-6	14'-1" x 8'-8"	SF-6	Alum	1/4" Insul. Glass	Interior
SF-7	3'-4" x 7'-4"	SF-7	Alum	1" Insul. Glass	Exterior
SF-8	4'-0" x 8'-8"	SF-8	Alum	1/4" Insul. Glass	Interior
SF-9	12'-8" x 8'-8"	SF-9	Alum	1/4" Insul. Glass	Interior
SF-10	12'-8" x 8'-8"	SF-10	Alum	1/4" Insul. Glass	Interior
SF-11	13'-8" x 8'-8"	SF-11	Alum	1/4" Insul. Glass	Interior
Window					
8	20'-0" x 4'-0"	8	HM	1" Insul. Glass	Interior Rated System

Note: Field Verify All Dimensions.

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN P.A. 53338 NORTH CAROLINA FUQUAY-VARINA, N.C.

JOHN MORRIS McGAHEY REGISTERED ARCHITECT 9603 NORTH CAROLINA FUQUAY-VARINA, N.C. 9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2022 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

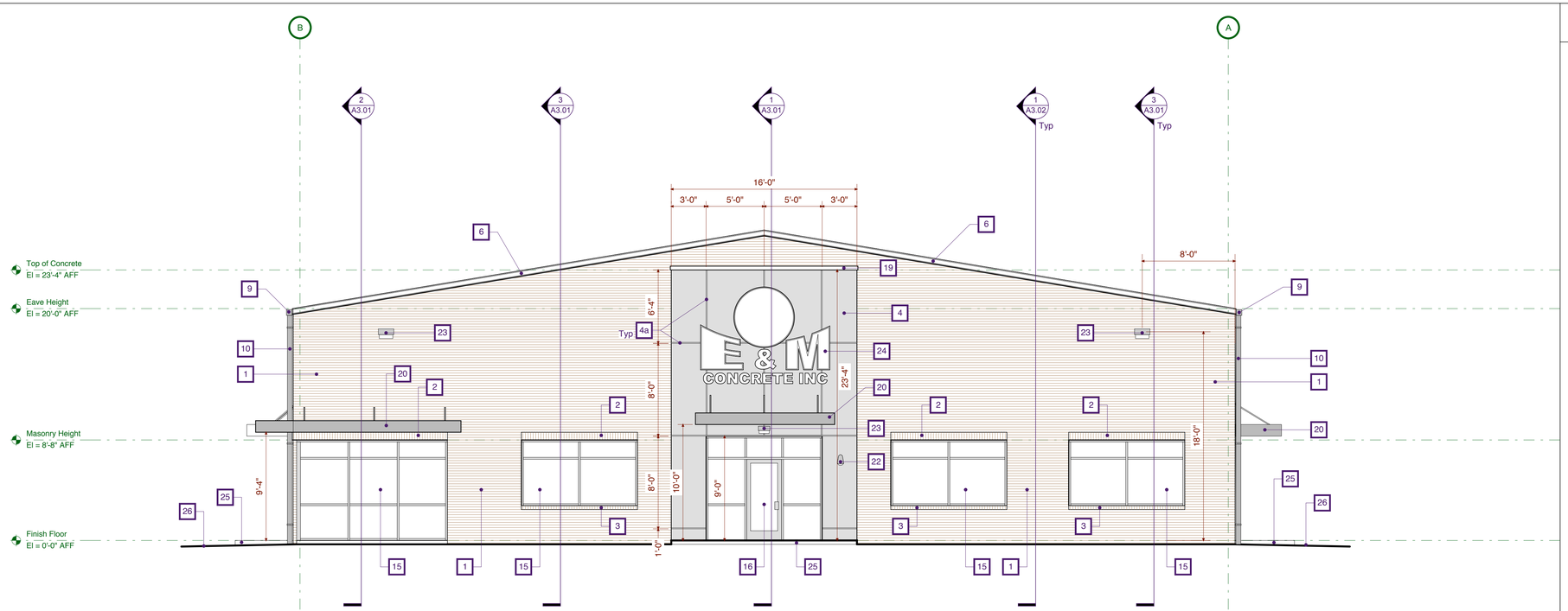
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

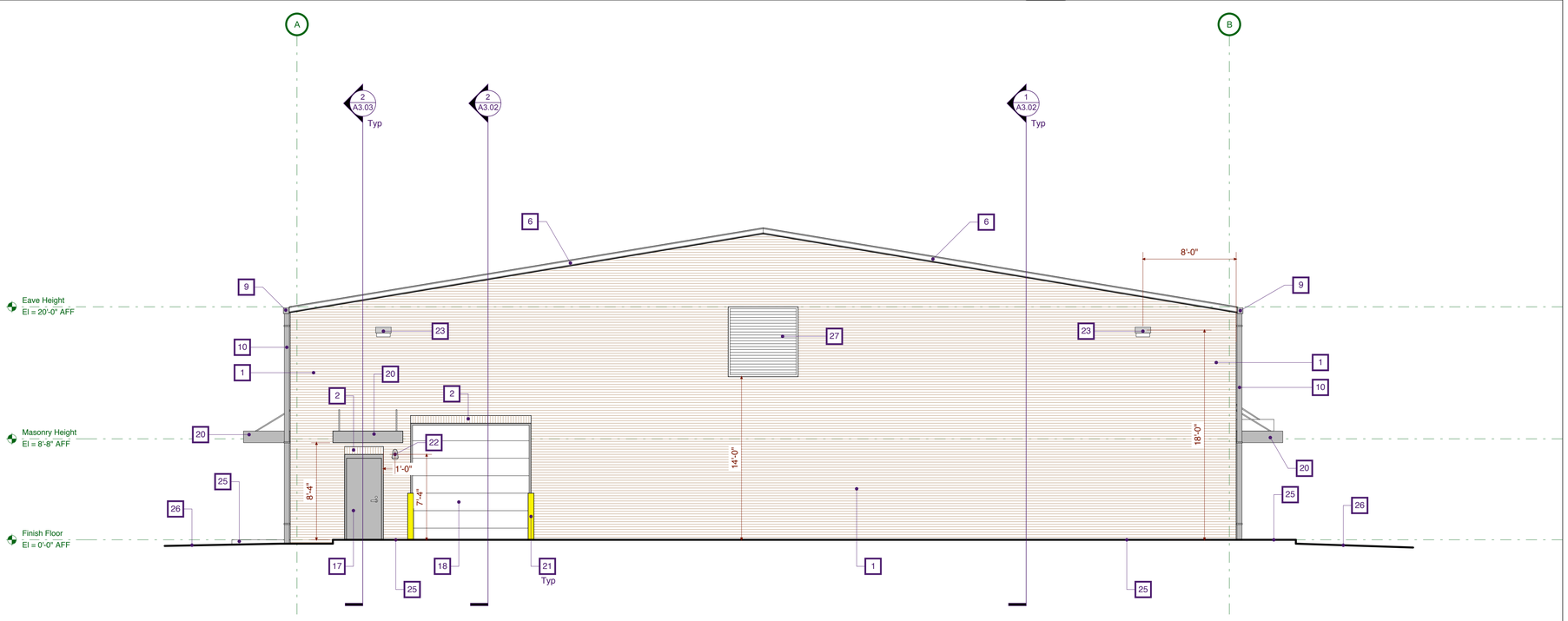
DRAWN BY: JMM
CHECK BY: JMM

Schedules

A1.10



1 **Elevation**
Scale: 3/16" = 1'-0"



2 **Elevation**
Scale: 3/16" = 1'-0"

Elevation Legend

1	Brick Veneer (Running Bond) with Thru-wall Flashing and Weep Holes per NCSBC
2	Brick Veneer (Solider) with Thru-wall Flashing and Weep Holes per NCSBC
3	Brick Veneer (Rowlock) with Thru-wall Flashing and Weep Holes per NCSBC
4	Cast-in-Place Concrete Wall with Rebar
4a	Cast-in-Place Concrete Revel - 1"
5	Pre-engineered Metal Building: Prefinished Metal Building Wall Panel
6	Pre-engineered Metal Building: Prefinished Metal Building Eave Trim
7	Pre-engineered Metal Building: Prefinished Metal Building Trim
8	Pre-engineered Metal Building: Prefinished Metal Building SS Roof Panel
9	Pre-engineered Metal Building: Prefinished Metal Building Aluminum Gutter
10	Pre-engineered Metal Building: Prefinished Metal Building Aluminum Downspout
11	Not Used
12	Not Used
13	Not Used
14	Not Used
15	Prefinished Aluminum Storefront Window
16	Prefinished Aluminum Storefront - Entrance
17	Painted HM Man Door and Frame with Drip Cap
18	Prefinished Aluminum OH Door - Refer to Schedule for Sizes
19	Prefinished Aluminum Flashing
20	Prefinished Aluminum Canopy
21	Painted Steel Bollard filled with Concrete
22	Emergency Egress Light Fixture - Refer to Electrical
23	Exterior Wall Pack Light Fixture - Refer to Electrical
24	Exterior Signage with Lite Letters - Refer to Owner for Design and Approval
25	Exterior Sidewalk or Landing - Refer to Civil Drawings for more Information
26	Finished Grade - Refer to Civil Drawings for more Information
27	Prefinished Aluminum Louver - Refer to Mechanical Drawings for more Information

Note: PEMB to verify Roof Gutter and Downspout sizes are Caculated to handle a 10 Year Storm Event in Project Location

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

NCLICENSED McGAHEY DESIGN PA 53338 NORTH CAROLINA FUQUAY-VARINA NC

JOHN MORRIS McGAHEY 9603 REGISTERED ARCHITECT NORTH CAROLINA FUQUAY-VARINA NC
9.5.24

E&M CONCRETE INC.

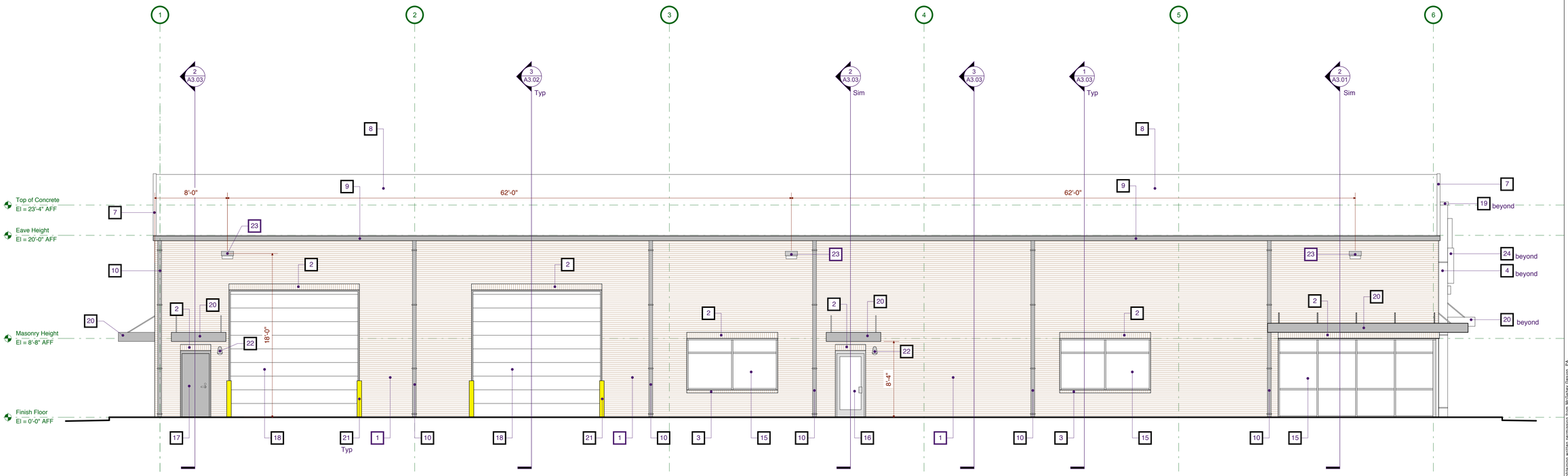
© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

E&M CONCRETE

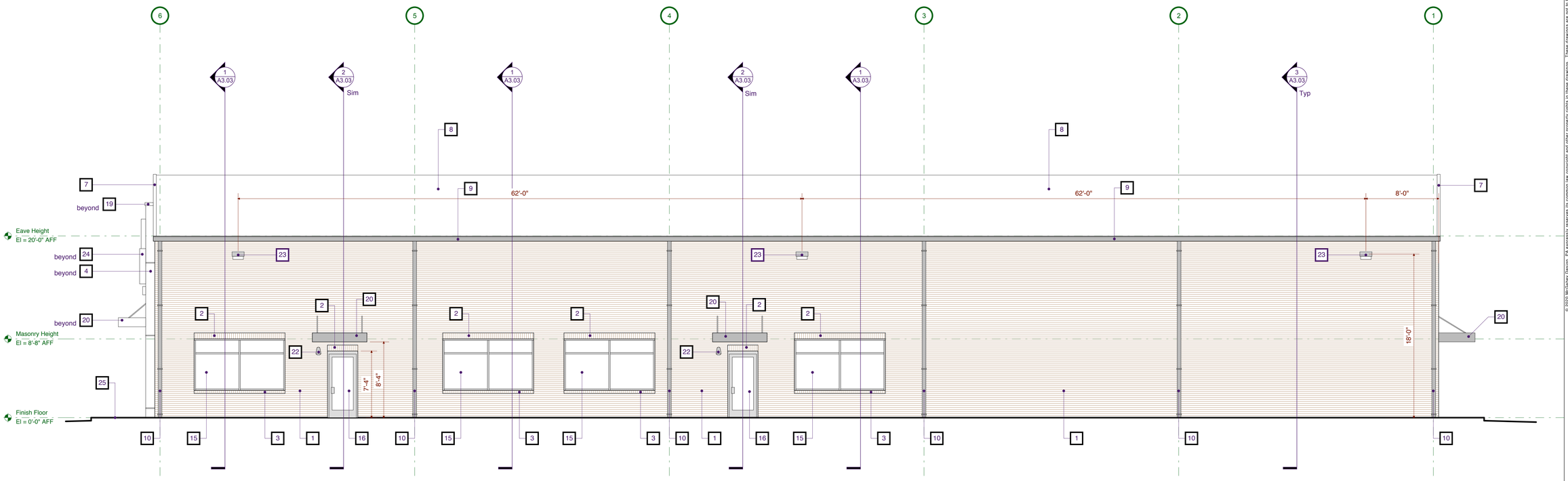
PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

Elevations

A2.01



1 **Elevation**
Scale: 3/16" = 1'-0"



2 **Elevation**
Scale: 3/16" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN P.A. 53338 NORTH CAROLINA REGISTERED ARCHITECTURAL CORPORATION FUQUAY-VARINA, N.C.

JOHN MORRIS McGAHEY 9603 NORTH CAROLINA REGISTERED ARCHITECT FUQUAY-VARINA, N.C.
9.5.24

E&M CONCRETE INC.

© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

E&M CONCRETE

PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

Elevations

A2.02

Wall Section Detail Keynotes

Section 02 - Site Work

- 02-01 Finished Grade
- 02-02 Compacted Fill - Refer to Structural Drawings and GeoTech Report for more information
- 02-03 Gravel Stone - Refer to Structural Drawings
- 02-04 NOT USED
- 02-05 HDPE Downspout Adapter - size to accommodate PEMB Downspout
- 02-06 Drainage Pipe Connections
- 02-07 Drainage Pipe - Refer to Civil Drawings for more information
- 02-08 Concrete Sidewalk or Drive Landing - Refer to Civil Drawings for more information
- 02-09 Asphalt Parking Lot - Refer to Civil Drawings for more information
- 02-10 NOT USED
- 02-11 Painted 6" Steel Bollard filled with Concrete - Refer to Structural Drawings for more information

Section 03 - Concrete

- 03-01 Concrete Slab with thicken edge with 10 mils Vapor Barrier with Rebar as shown - Refer to Structural Drawings for more information
- 03-02 NOT USED
- 03-03 Sloped Slab Area to receive OH Door - slope to exterior, adjust deep per OH Door Manufacturer's requirements - coordinate with Owner
- 03-04 Cast-in-Place Concrete Wall with Rebar as shown - Refer to Structural Drawings for more information - Entrance
- 03-05 Cast-in-Place Concrete Revel - 1" - Refer to Elevations for Layout
  Refer to Structural Drawings for more information
- 03-06 Cast-in-Place Concrete Wall - beyond

Section 04 - Masonry

- 04-01 Brick Veneer - modular - running bond with 2 pc Masonry Ties per NCSBC - with weeps per NCSBC
- 04-02 Brick Veneer - modular - Solider
- 04-03 Brick Veneer - modular - Rowlock
- 04-04 Brick Veneer beyond
- 04-05 Grout - fill Air Gap

Section 05 - Metals

- 05-01 Painted (DTM) Brick Lintel - with Flashing and weeps per NCSBC - Refer to Structural Drawings for more information
- 05-02 3 5/8", 20 ga Metal Stud Framing @ 16"oc, verify per Wall Types
- 05-03 NOT USED
- 05-04 NOT USED
- 05-05 NOT USED
- 05-06 NOT USED
- 05-07 NOT USED

Section 06 - Wood, Plastic & Composites

- 06-01 PT Blocking as required - 2x
- 06-02 NOT USED
- 06-03 NOT USED
- 06-04 NOT USED

Wall Section Detail Keynotes

Section 07 - Thermal & Moisture Protection

- 07-01 24 ga Thru-wall Flashing with weep holes @ 24" oc, (peel-n-stick flashing where applicable)
- 07-02 NOT USED
- 07-03 Window Sill Base Flashing with NP-1 Sealant - allow for weeps per Manufacturer's Requirements
- 07-04 R-19 Batt Insulation with Vapor Barrier
- 07-05 NP-1 Sealant with Back Rod - Seal all Joints, Typical
- 07-06 NOT USED
- 07-07 NOT USED
- 07-08 24 ga Thru-wall Flashing with weep holes @ 24" oc, (peel-n-stick flashing where applicable)
- 07-09 Prefinished Aluminum Fascia Trim
- 07-10 Prefinished Aluminum Cap Flashing (Coping)
- 07-11 Perimeter Expansion Material
- 07-12 NOT USED
- 07-13 NOT USED
- 07-14 NOT USED
- 07-15 NOT USED

Section 08 - Openings

- 08-01 Aluminum Storefront Entrance- Kawneer 451 (Basis of Design) - Refer to schedules for size and mullion locations
- 08-02 Aluminum Storefront Window- Kawneer 451 (Basis of Design) - Refer to schedules for size and mullion locations
- 08-03 Aluminum Storefront Base Flashing with NP-1 Sealant with Back Rod - Seal all Joints
  Typical - Match Storefront Color
- 08-04 Aluminum Threshold
- 08-05 HM Door and Frame - Painted (DTM)
- 08-06 Aluminum OH Door - Insulated
- 08-07 Aluminum OH Door Track
- 08-08 Prefinished Aluminum OH Door Jamb / Head Trim
- 08-09 Prefinished Aluminum Jamb / Head Trim
- 08-10 Aluminum Storefront Window Flashing with NP-1 Sealant - allow for window weeps
  Extend flashing to cover brick veneer with drip edge - Match Storefront Color
- 08-11 OH Door sweep

Section 09 - Finishes

- 09-01 5/8" Painted Drywall
- 09-02 Painted Drywall beyond
- 09-03 4" Vinyl Cove Base - Typical
- 09-04 Vinyl Cove Base beyond
- 09-05 NOT USED
- 09-06 Acoustical Ceiling Tile with Prefinished Aluminum Grid - refer RCP for Layout and Schedules for Style and Type
- 09-07 Granite Window Sill
- 09-08 NOT USED

Section 10 - Specialities

- 10-01 Prefinished Aluminum Canopy - Scupper Drains to be on each side, not Front Edge
- 10-02 Prefinished Aluminum Canopy Support
- 10-03 Prefinished Aluminum Canopy Flashing with NP-1 Sealant with Back Rod - Seal all Joints
- 10-04 NOT USED
- 10-05 NOT USED

Section 12 - Furnishing

- 12-01 NOT USED
- 12-02 NOT USED
- 12-03 NOT USED
- 12-04 NOT USED

Wall Section Detail Keynotes

Section 13 - Pre-engineered Metal Building

- 13-01 Pre-engineered Metal Building - Mainframe Beam
- 13-02 Pre-engineered Metal Building - Mainframe Column
- 13-03 Pre-engineered Metal Building - Mainframe Spandrel Beam
- 13-04 Pre-engineered Metal Building - Wall Girt
- 13-05 Pre-engineered Metal Building - Roof Purlin
- 13-06 Prefinished Attachment Base Angle or Trim Flashing with NP-1 Sealant
- 13-07 Pre-engineered Metal Building - Prefinished Aluminum Gutter - PEMB Company to size the Gutter for a 10 Year Storm
- 13-08 Pre-engineered Metal Building - Prefinished Aluminum Downspout - PEMB Company to size Downspout to handle a 10 Year Storm
- 13-09 Pre-engineered Metal Building - Base Flashing
- 13-10 Prefinished Metal Wall Panel
- 13-11 Prefinished Standing Seam Roof Panel
- 13-12 Prefinished Eave Trim
- 13-13 Prefinished Eave Girt
- 13-14 Prefinished Eave Flashing - extend Flashing over and down Brick Veneer - 4" min
  Seal to Brick Veneer with NP-1 Sealant - Typical
- 13-15 Pre-engineered Metal Building Closure
- 13-16 NOT USED
- 13-17 NOT USED
- 13-18 OptiLiner® Banded Liner System R-30
- 13-19 NOT USED
- 13-20 NOT USED
- 13-21 NOT USED
- 13-22 NOT USED

Section 26 - Electrical

- 26-01 NOT USED
- 26-02 NOT USED
- 26-03 NOT USED

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

E&M CONCRETE INC.

E&M CONCRETE

© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

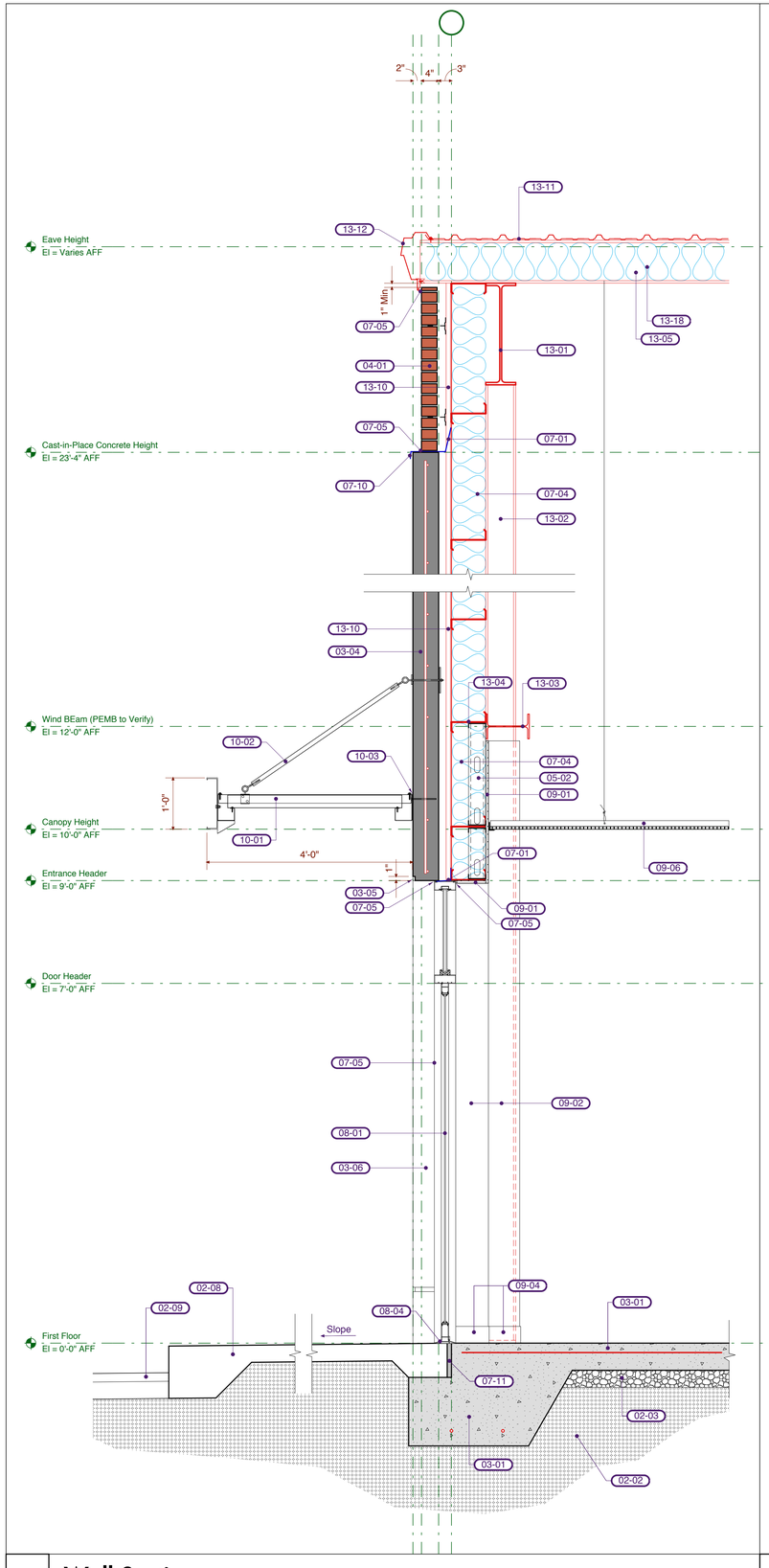
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

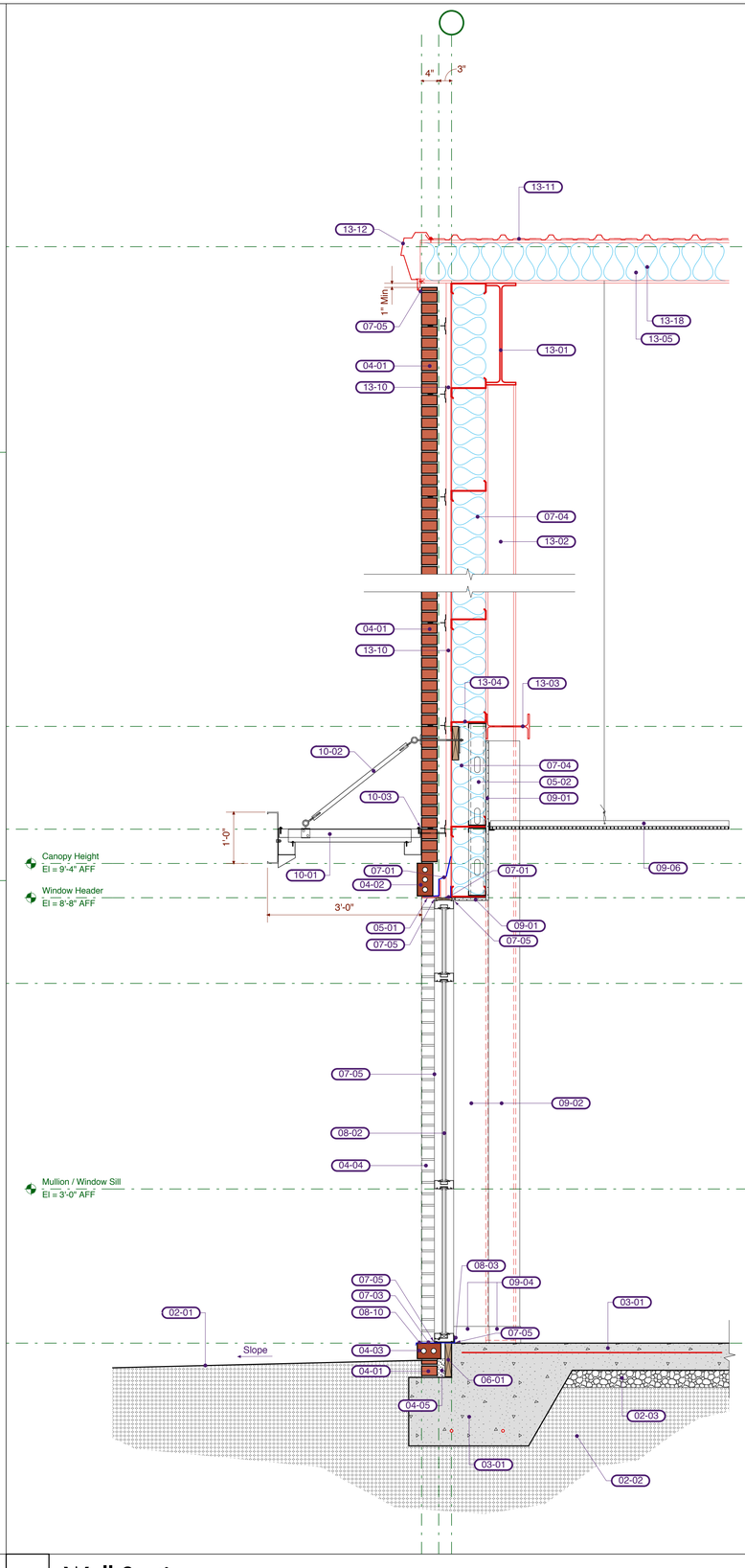
DRAWN BY: JMM
CHECK BY: JMM

Wall Section Legend

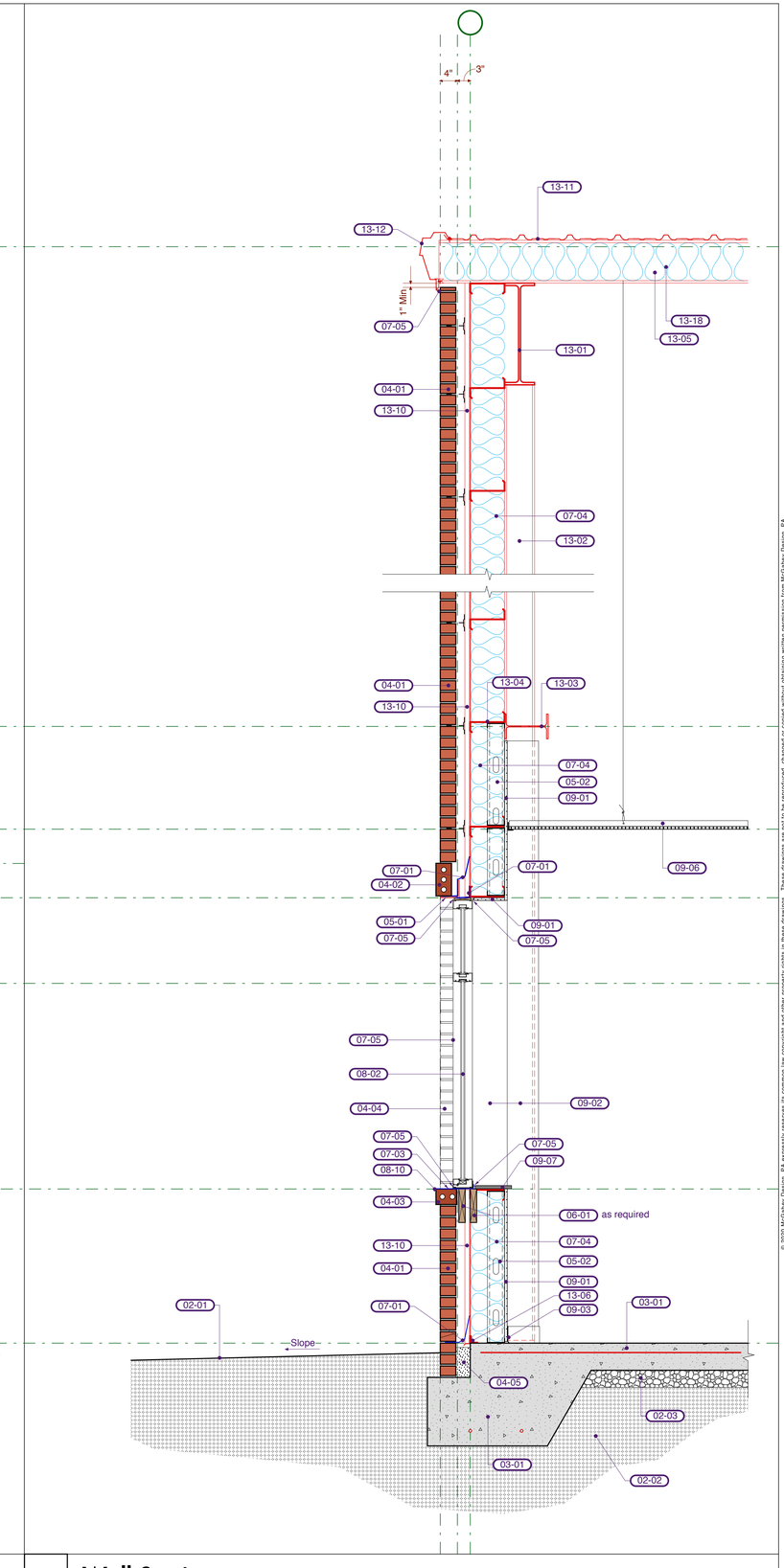
A3.00



1 **Wall Section**
Scale: 3/4" = 1'-0"



2 **Wall Section**
Scale: 3/4" = 1'-0"



3 **Wall Section**
Scale: 3/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
53338
NORTH CAROLINA
FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

E&M CONCRETE

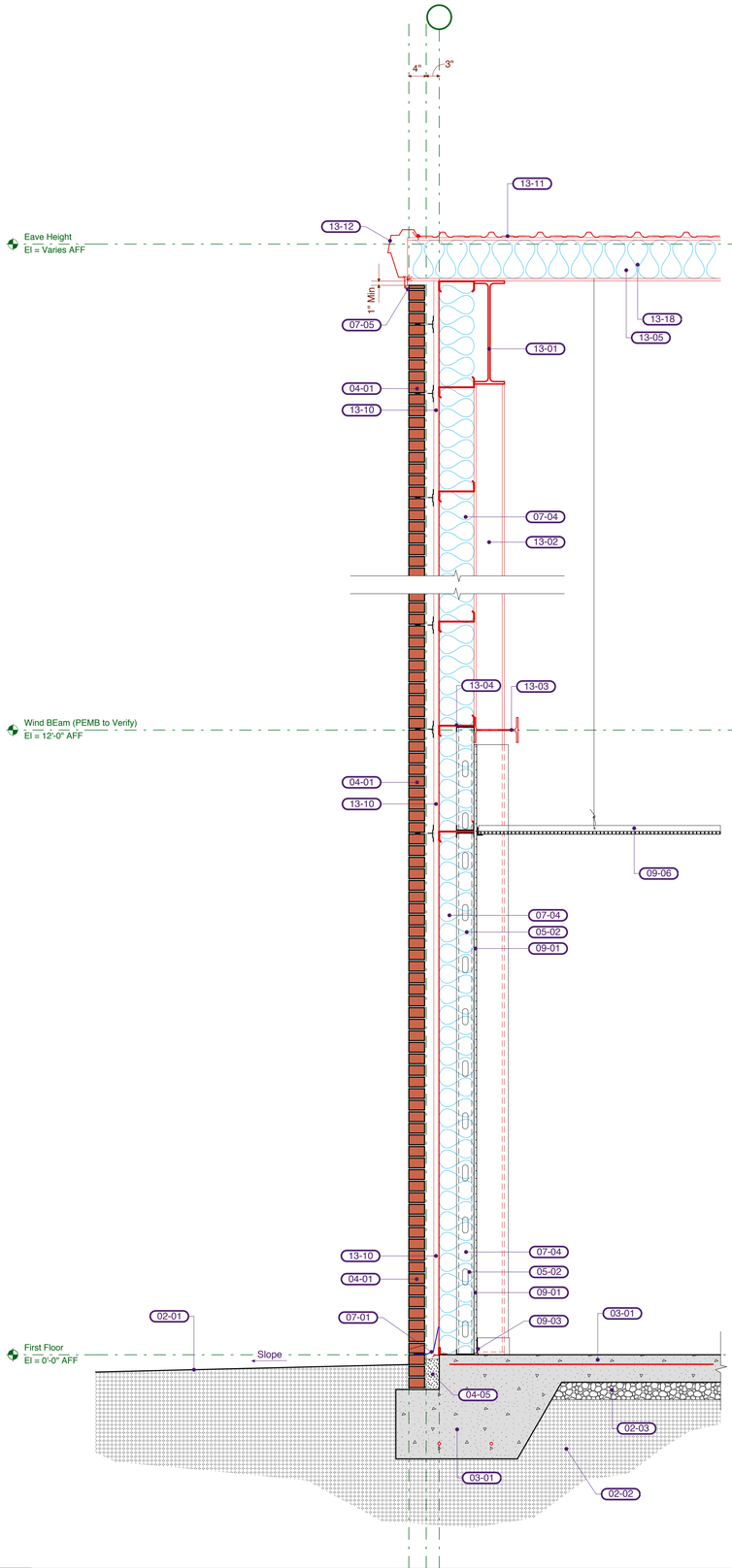
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

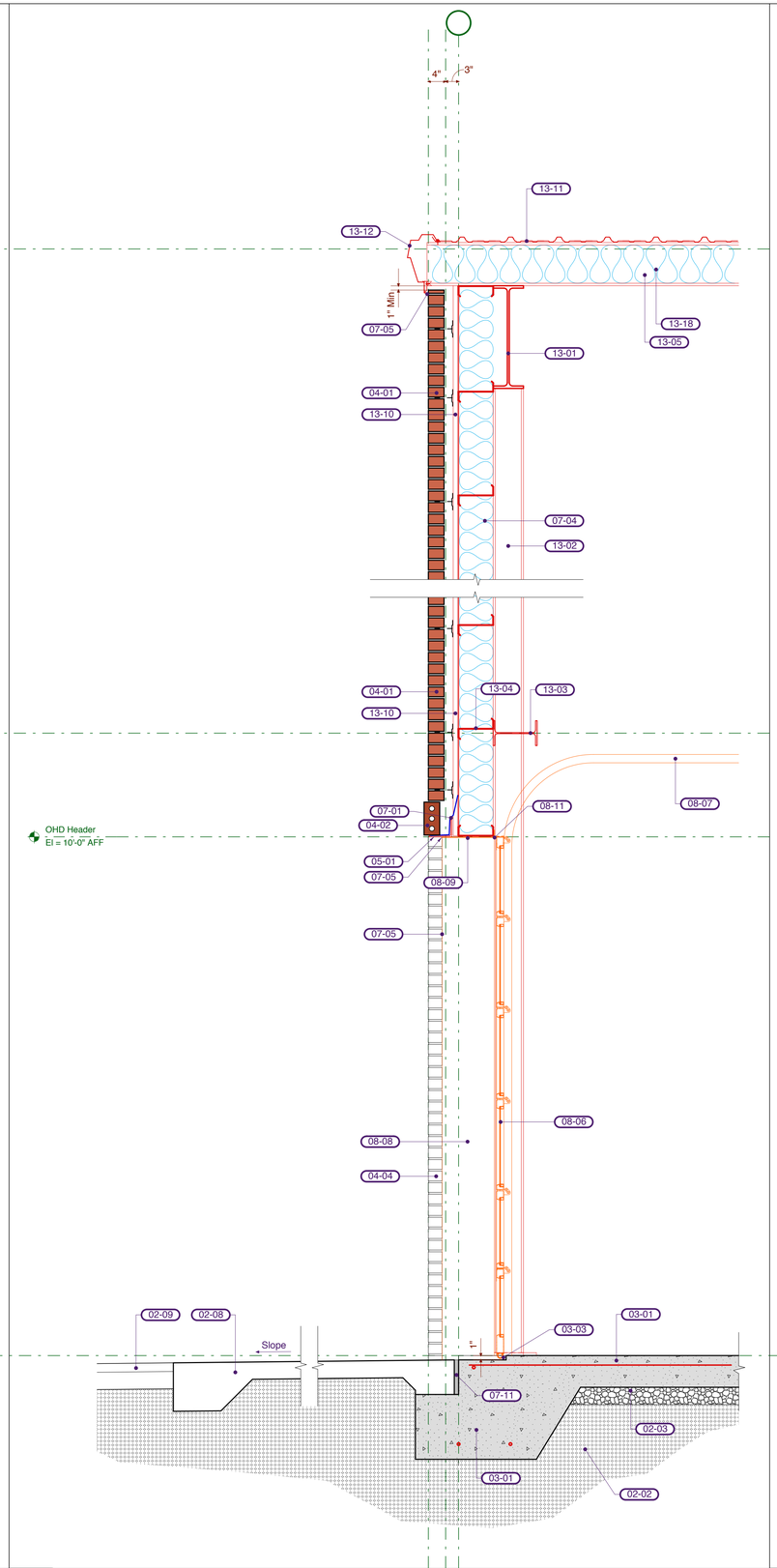
DRAWN BY: JMM
CHECK BY: JMM

Wall Sections

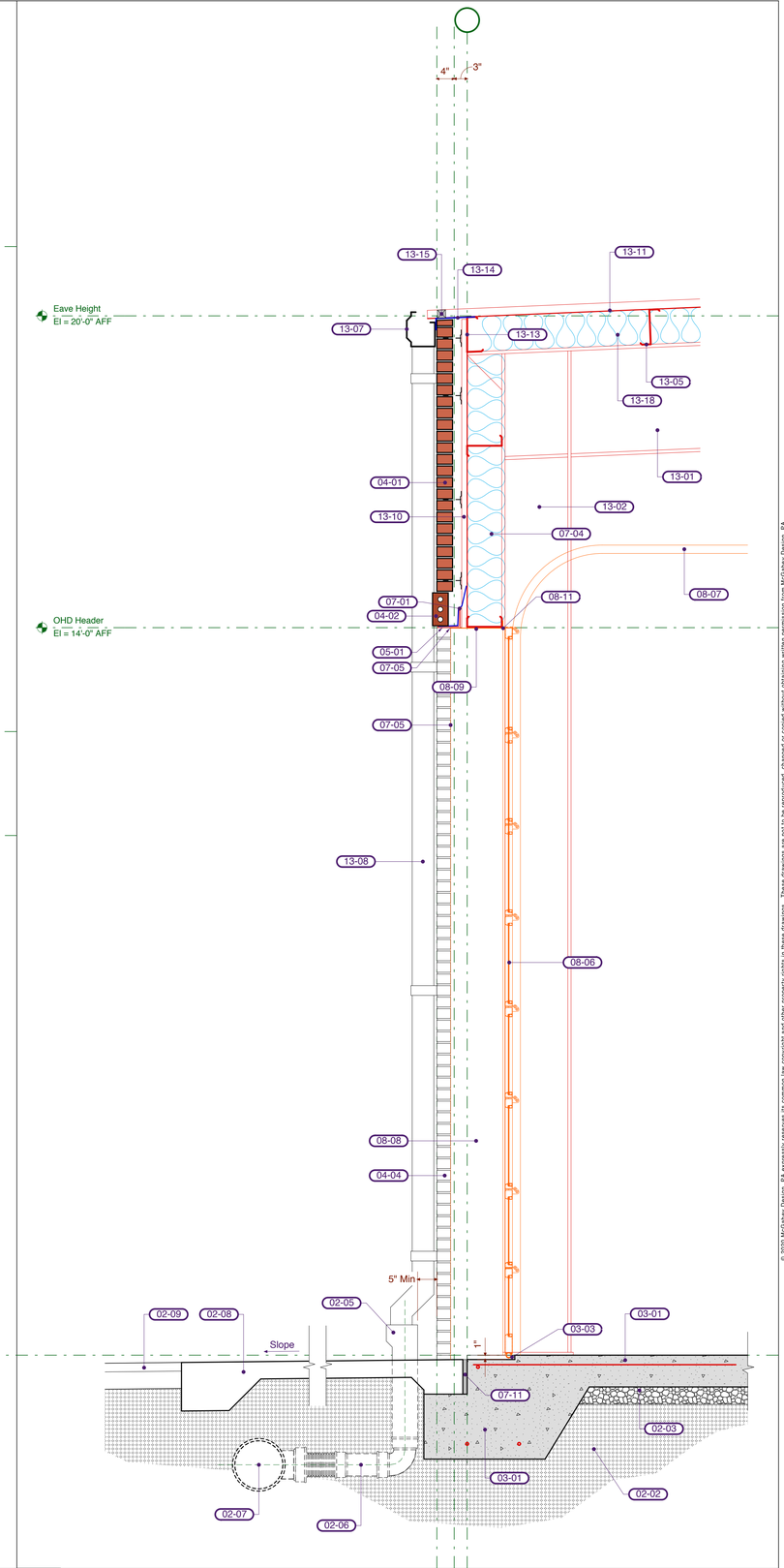
A3.01



1 **Wall Section**
Scale: 3/4" = 1'-0"



2 **Wall Section**
Scale: 3/4" = 1'-0"



3 **Wall Section**
Scale: 3/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
NORTH CAROLINA
FUQUAY-VARINA, N.C.
53338

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
NORTH CAROLINA
FUQUAY-VARINA, N.C.
9603
9.5.24

E&M CONCRETE INC.

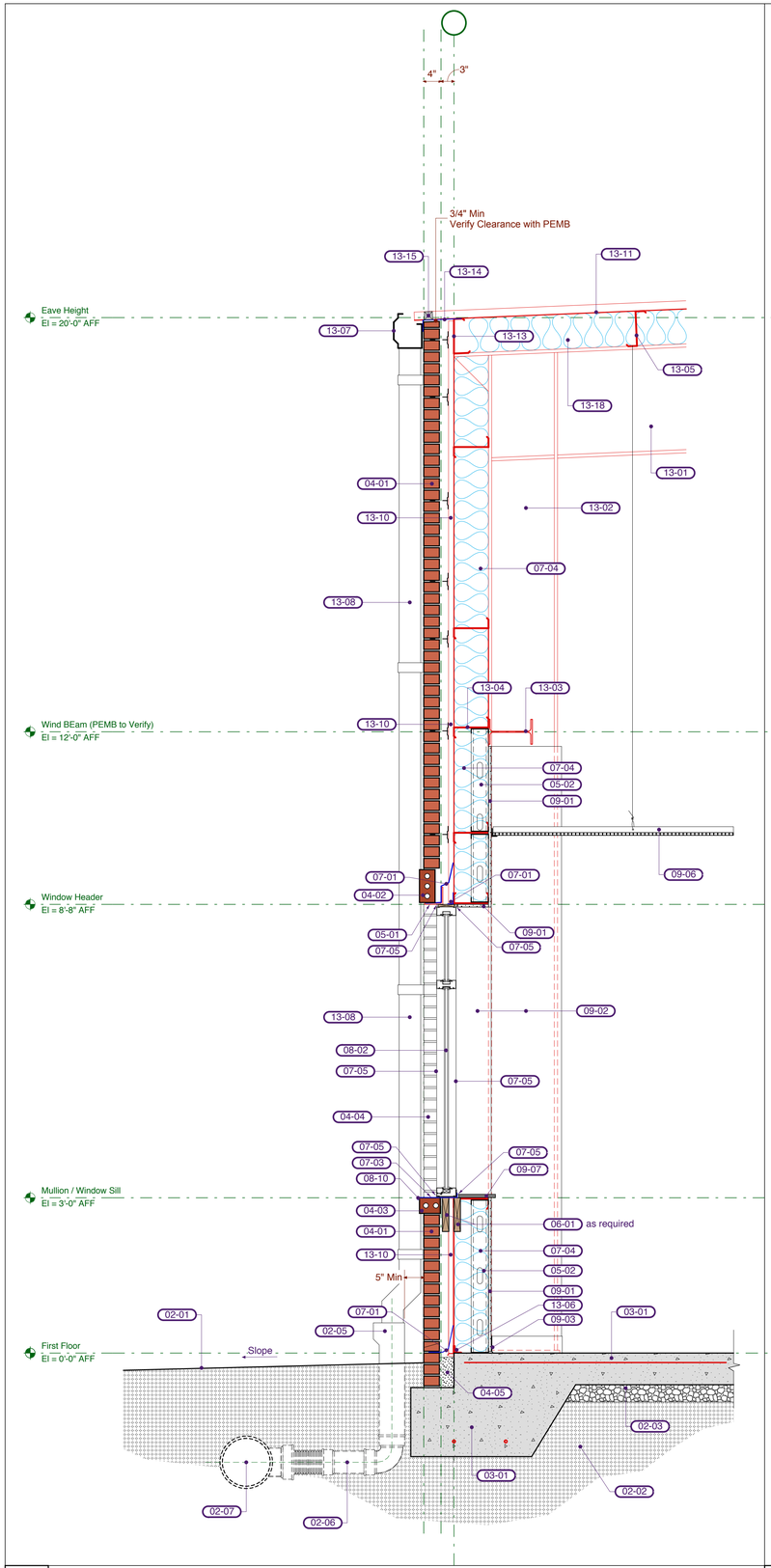
© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, P.A.

E&M CONCRETE

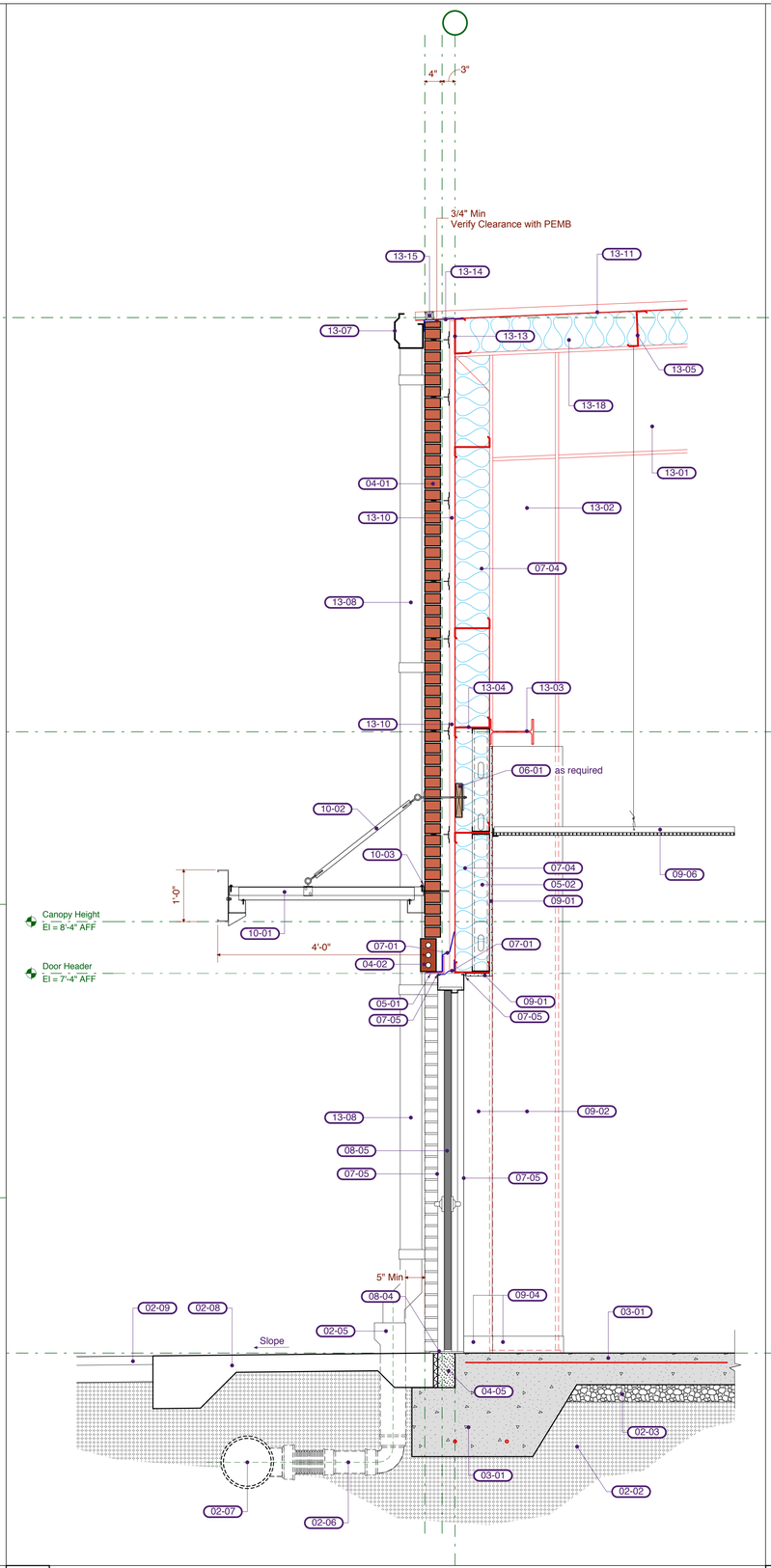
PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

Wall Sections

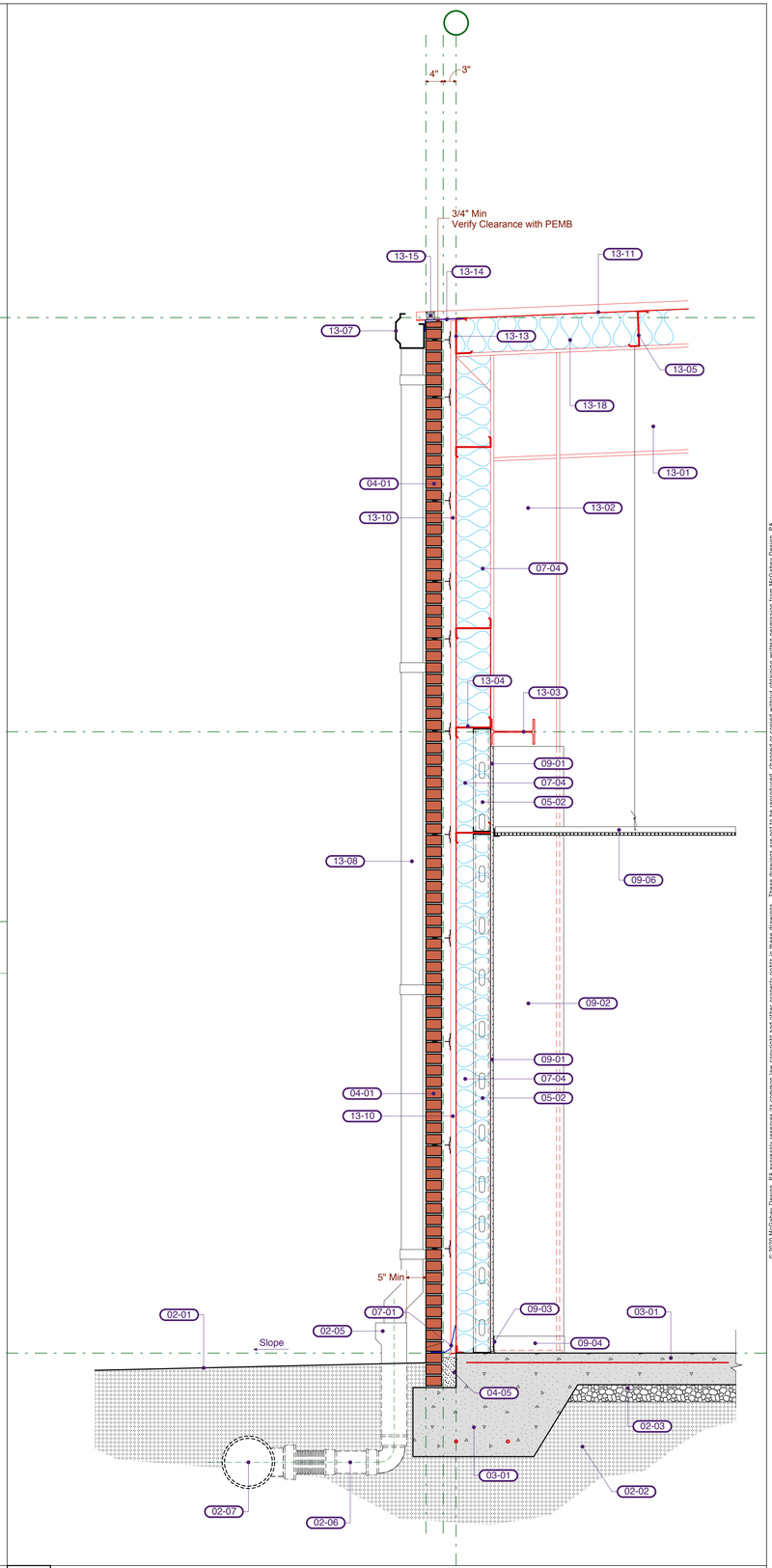
A3.02



1 **Wall Section**
Scale: 3/4" = 1'-0"



2 **Wall Section**
Scale: 3/4" = 1'-0"



3 **Wall Section**
Scale: 3/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
53338
NORTH CAROLINA
McGAHEY DESIGN, P.A.
FUQUAY-VARINA, N.C.

JOHN MORRIS McGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
McGAHEY DESIGN, P.A.
FUQUAY-VARINA, N.C.
9.5.24

E&M CONCRETE INC.

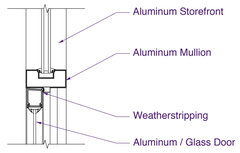
© 2020 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, P.A.

E&M CONCRETE

PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

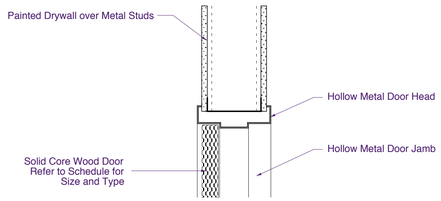
Wall Sections

A3.03



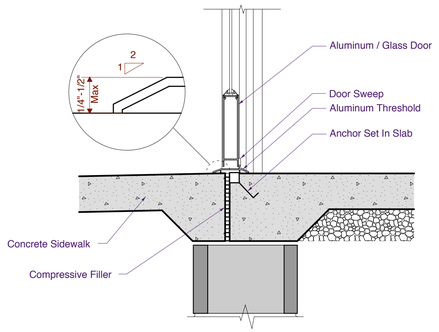
1 Storefront Jamb

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



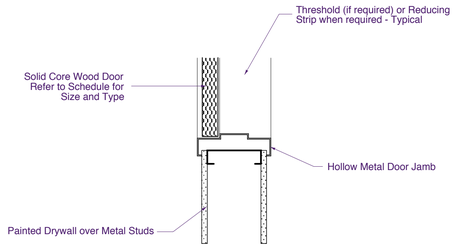
2 Interior Door Head

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



3 Storefront Threshold

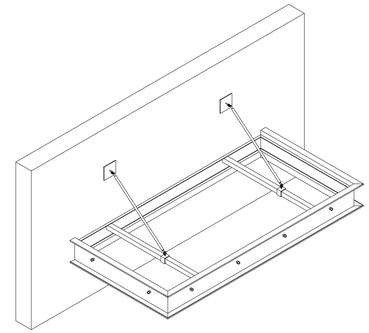
Scale: 1 1/2" = 1'-0"

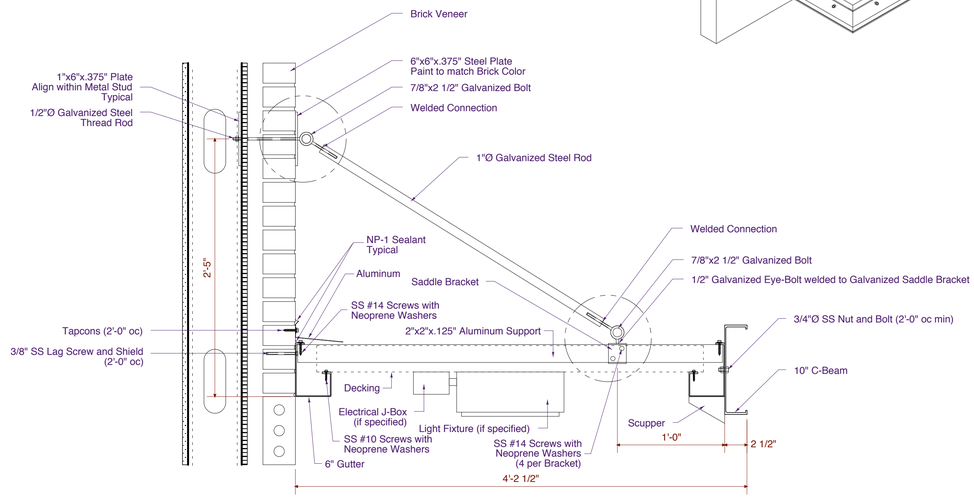


4 Interior Door Jamb

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

Sign & Awning Systems, Inc.
Contact: Jason Honeycutt
2785 US Hwy 301 N.
Dunn, North Carolina 28334
910.892.5900 voice
email: signs@signandawning.net



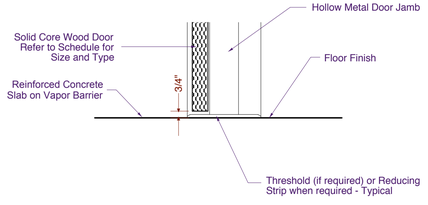


5 Canopy Section

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

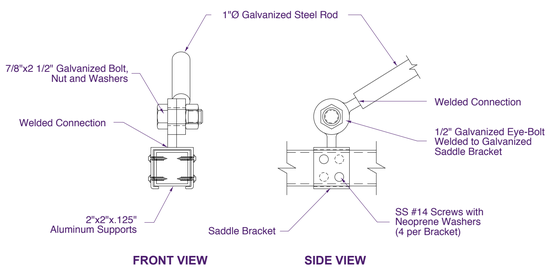
C - BEAM
OHS DOOR CANOPY

IF REQUIRED



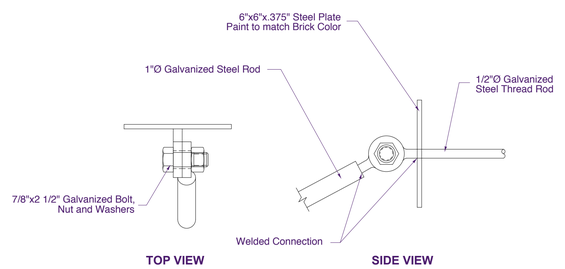
7 Interior Door Threshold

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



8 Canopy Detail

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



9 Canopy Detail

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

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN, PA
53338
NORTH CAROLINA
FUQUAY-VARINA, NC

JASON MORRIS McGAHEY
REGISTERED ARCHITECT
9603
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E & M CONCRETE INC.

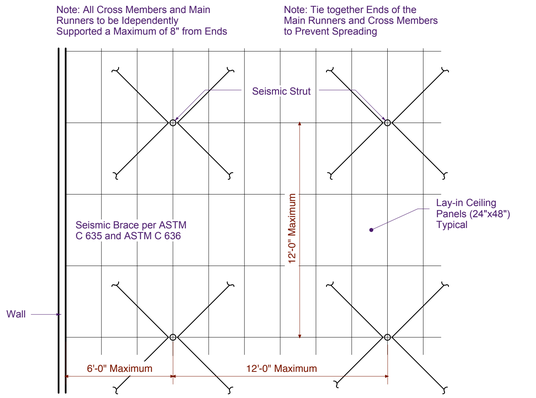
E&M CONCRETE

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

PROJECT:	2022-12
DATE ISSUED:	09.05.24
REVISIONS:	DATE
DRAWN BY:	JMM
CHECK BY:	JMM

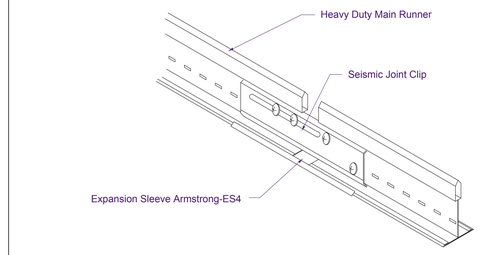
Details

A4.01



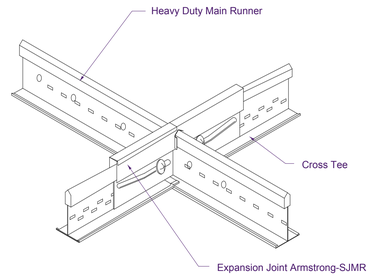
1 ACT Ceiling Plan

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



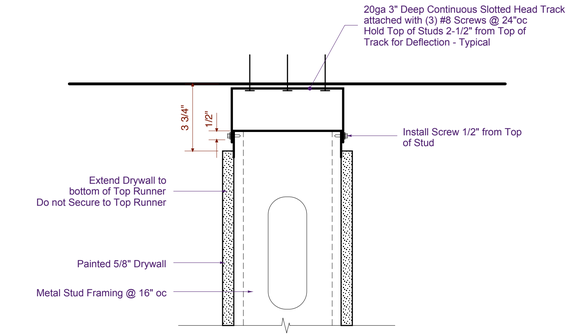
2 ACT Seismic Joint

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



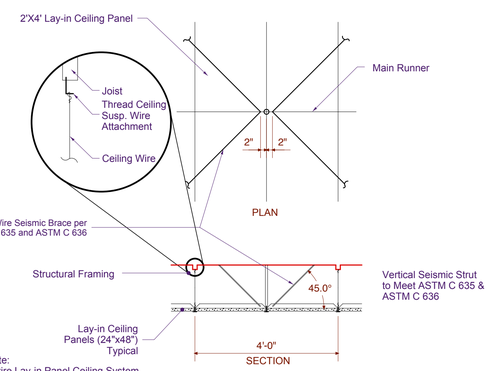
3 ACT Seismic Tee Joint

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



4 Deflection Track

Scale: 3" = 1'-0"

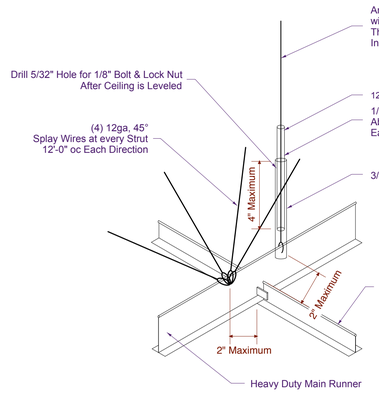


Note:
Entire Lay-in Panel Ceiling System shall be installd per IBC 2013 SECTUIBS 808.1 and 1613.1

Seismic Separation Joints not required for Ceilings Under 2500 Sq/Ft in area

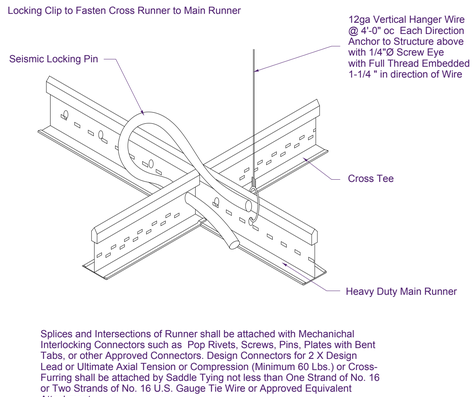
5 ACT Ceiling Detail

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



6 ACT Strut

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

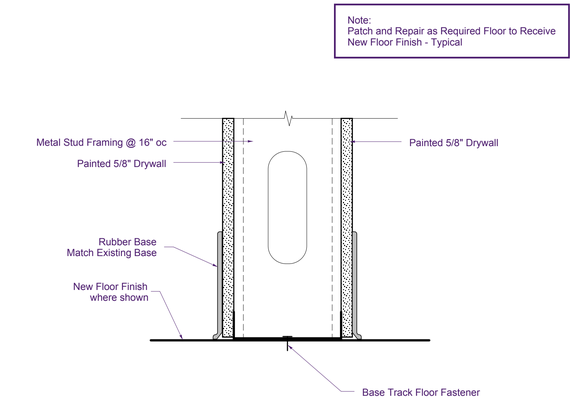


Splices and Intersections of Runner shall be attached with Mechanichal Interlocking Connectors such as Pop Rivets, Screws, Pins, Plates with Bent Tabs, or other Approved Connectors. Design Connectors for 2 X Design Lead or Ultimate Axial Tension or Compression (Minimum 60 Lbs.) or Cross-Furring shall be attached by Saddle Tying not less than One Strand of No. 16 or Two Strands of No. 16 U.S. Gauge Tie Wire or Approved Equivalent Attachment

Runners and Furring: The Main Runner and Cross-Furring shall be of Size, Thickness and Section Properties shown on Tables 1-1, 1-2 and 1-3 of the Aisi Manual, Cold-Formed Steel Design, 2008 Edition

7 ACT Wire Hanger

Scale: 3" = 1'-0"



8 Wall Base Detail

Scale: 3" = 1'-0"

NOTES

1. Dryvit Recommends that Ground Floor Applications and all Facades Exposed to Abnormal Stress, High Traffic, or Deliberate Impact have the Base Coat Reinforced with Panzer Mesh Prior to Standard or Standard Plus Mesh. Location of High Impact Zones should be indicated on Contract Drawings.

2. For Continuous Windows, use Closure Blocks to Terminate System at Sill.

3. Entire Perimeter of Pipe Sleeve is Sealed to Prevent Water Entry into Wall.

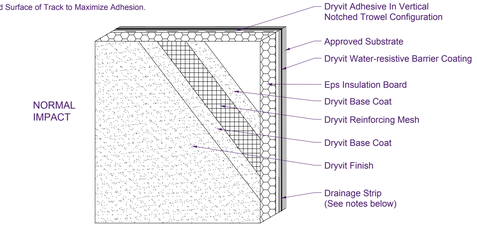
4. Bottom Edges of Reveals shall be sloped for Positive Drainage.

5. Slot in Vent Track must be positioned over Vent Assembly.

6. Dryvit Flashing Tape Surface Conditioner and Dryvit Flashing Tape may be used in Lieu of Aquaflash System or Backstop NT-texture over Grid Tape.

7. Sealant shall not be in Direct Contact with Asphaltic Adhesive on Dryvit Flashing Tape. Cover Dryvit Flashing Tape Laps with Polyethylene Tape or Backer Rod.

8. Lightly Sand Surface of Track to Maximize Adhesion.



9 EIFS Detail

Not to Scale

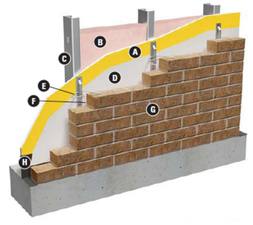
Wall Applications

Installing Cladding over DensGlass® Sheathing

Most conventional exterior sidings and wall coverings—including vinyl, composition, metal, stone, brick, wood—may be applied over DensGlass Sheathing.

A. DensGlass Sheathing
B. Insulation
C. Framing
D. Water-Resistive/Air Barrier
E. Masonry Tie
F. 2" (50 mm) Max. Air Space
G. Brick Masonry
H. Flashing and Weeps
I. Wood Siding
J. Plywood Siding
K. Vinyl Siding
L. Fiber Cement Siding
M. Metal Siding

Important: Illustrations not intended for design or specification purposes.

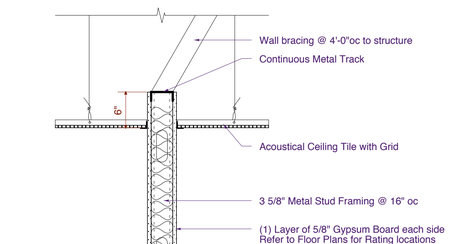


Brick Cavity Wall

Masonry or stone veneer can be applied over DensGlass Sheathing just as it would be over any other type of sheathing. Attach the masonry ties securely through the panels and into the steel or wood framing. Space the ties as required by masonry courses. Apply water-resistive/air barrier and continuous insulation as required by building code or design authority.*

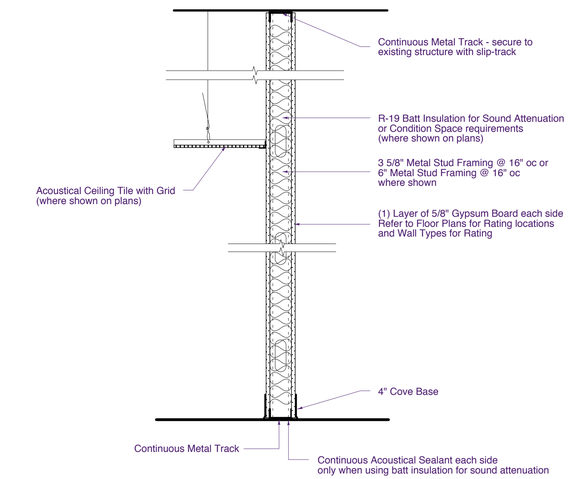
10 DensGlass Sheathing

Not to Scale



11 Interior Wall Detail

Scale: 1" = 1'-0"



12 Interior Wall Detail

Scale: 1" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

McGAHEY DESIGN, PA — 53338 — NORTH CAROLINA — FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY — 9603 — NORTH CAROLINA — FUQUAY-VARINA, NC — 9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2024 McGahey Design, PA expressly reserves its common law copyright and other property rights in these drawings. These drawings are not to be reproduced, changed or copied without obtaining written permission from McGahey Design, PA.

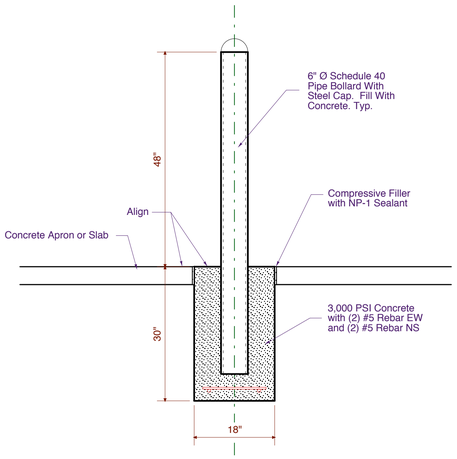
PROJECT: 2022-12
DATE ISSUED: 09.05.24

REVISIONS:	DATE

DRAWN BY: JMM
CHECK BY: JMM

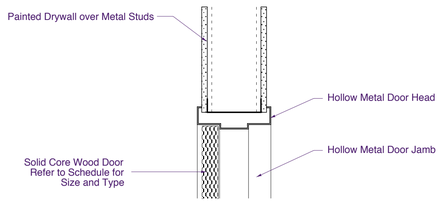
Details

A4.02



1 Bollard Detail

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



2 Interior Door Head

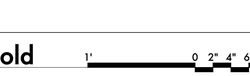
Scale: 1 1/2" = 1'-0"

3 Not Used

Scale: 1" = 1'-0"

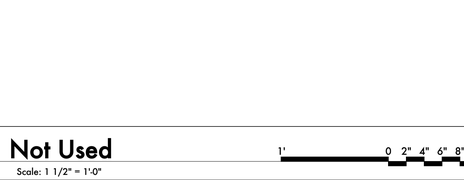
4 Not Used

Scale: 1" = 1'-0"



5 Storefront Jamb

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



6 Interior Door Jamb

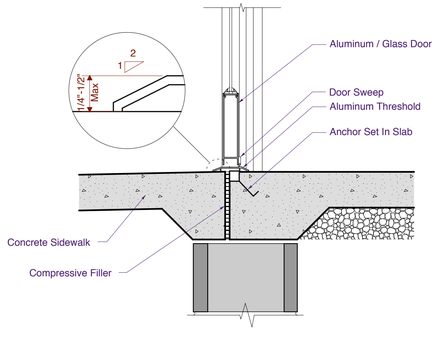
Scale: 1 1/2" = 1'-0"

7 Interior Door Threshold

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

8 Not Used

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



9 Storefront Threshold

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

10 Not Used

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

11 Not Used

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

12 Not Used

Scale: 1" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street; Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

MCGAHEY DESIGN, PA
53338
NORTH CAROLINA
REGISTERED ARCHITECTURAL CORPORATION
FUQUAY-VARINA, NC

JOHN MORRIS McGAHEY
9603
REGISTERED ARCHITECT
NORTH CAROLINA
FUQUAY-VARINA, NC
9.5.24

E&M CONCRETE INC.

E&M CONCRETE

© 2021 These Design and Construction Documents are Instruments of Service as are Given in Confidence and Remain The Property of McGahey Design, PA. The Use of this Design and these Construction Documents for Purposes other than the Specific Project Named Herein, is Strictly Prohibited without the Expressed Written Consent of McGahey Design, Pa.

PROJECT:	2022-12
DATE ISSUED:	09.05.24

REVISIONS:	DATE

DRAWN BY:	JMM
CHECK BY:	JMM

Details

A4.03

GENERAL NOTES

1. THE GENERAL CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT AND THE ENGINEER OF ANY DISCREPANCIES WITHIN THE CONSTRUCTION DOCUMENTS.

2. DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE.

3. DESIGN LOADS:
   1. THE GENERAL CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT AND THE ENGINEER OF ANY DISCREPANCIES WITHIN THE CONSTRUCTION DOCUMENTS.

   2. DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2018 NORTH CAROLINA BUILDING CODE.

   3. DESIGN LOADS:

Importance Factor: Wind (Iw) 1.0
Snow (Is) 1.0
Seismic (Ie) 1.0

Live Loads: Roof 20 psf
Office 125 psf
Mezzanine 125 psf
Warehouse 500 psf

Ground Snow Load: 15 psf

Wind Load: Basic Wind Speed 115 mph (ASCE-7-10)
Exposure Category B
Wind Base Shears (for MWFRS)Vx =26.7K Vy = 46.5K

SEISMIC DESIGN CATEGORY B
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) II
Spectral Response Acceleration Ss 17.0% g S1 8.2% g
Site Classification D (Assumed)
Basic structural system (check one)
_____ Bearing Wall _____ Dual w/ Special Moment Frame
__X__ Building Frame _____ Dual w/ Intermediate R/C or Special Steel
_____ Moment Frame _____ Inverted Pendulum
Seismic base shear Vx = 27.0K Vy = 27.0K
Analysis Procedure ___ Simplified _X_ Equivalent Laterial Force ___ Modal
Architectural, Mechanical, Components anchored? No.

LATERAL DEISGN CONTROL: Earthquake _____ Wind _X____

SOIL BEARING CAPABILITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing Capacity _____2000_____ psf
Pile size, type and capacity _____

4. ALL SAFETY REGULATIONS, METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. IT SHALL BE THE GENERAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE SHORING, BRACING AND FORMWORK, ETC. AS REQUIRED.

5. THE GENERAL CONTRACTOR PRIOR TO CONSTRUCTION SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, THE SIZE AND LOCATION OF ALL SLEEVES, PADS, DEPRESSIONS, OPENINGS, ETC.

6. DIMENSIONS ARE NOT TO BE DERIVED BY SCALING THESE DRAWINGS. IF THERE IS ANY QUESTION ABOUT DETAILS OR DIMENSIONS, CONTACT THE ARCHITECT AND ENGINEER FOR CLARIFICATION.

7. IF ANY BIDDER IS IN DOUBT AS TO THE TRUE MEANING OF ANY PART OF THE DOCUMENTS, THEY SHALL REQUEST AN INTERPRETATION FROM THE ARCHITECT IN WRITING.

SUBMITTALS

1. THE CONTRACT DOCUMENTS ARE THE STRUCTURAL ENGINEER'S INSTRUMENTS OF SERVICE TO CONVEY DESIGN INTENT. THEY ARE NOT TO BE CONSIDERED FABRICATION OR LAYOUT DRAWINGS.

2. THE FOLLOWING ARE REQUIRED SUBMITTALS:
   A. CONCRETE MIX DESIGNS
   B. REINFORCING BAR DRAWINGS
   C. ~~STRUCTURAL STEEL~~
   D. ~~METAL DECK~~
   E. ~~STEEL JOISTS~~
   F. OTHER SUBMITTALS AS NOTED ON THE DRAWINGS AND SPECIFICATIONS

3. FOR REVIEW OF EACH SUBMITTAL, THE SCHEDULE SHALL ALLOW FOR TEN BUSINESS DAYS FOLLOWING ENGINEER'S RECEIPT.

4. SUBMITTALS TO BE REVIEWED BY THE ENGINEER SHALL BE SUBMITTED TO THE ARCHITECT. THE STRUCTURAL ENGINEER WILL NOT ACCEPT SUBMITTALS DIRECTLY FROM CONTRACTORS WITHOUT THE ENGINEER'S PRIOR APPROVAL.

5. UPON COMPLETION OF THE ENGINEER'S REVIEW, SUBMITTALS WILL BE RETURNED TO THE ARCHITECT FOR THEIR REVIEW.

6. ANY DEVIATION IN DESIGN, DETAILS, DIMENSIONS, ETC. FROM THE CONSTRUCTION DOCUMENTS SHALL BE CLOUDED ON THE SUBMITTAL AND VERIFICATION OF THE CHANGE SHALL BE REQUESTED. "VERIFY" MARKS NOT ADDRESSED SHALL NOT BE ASSUMED CORRECT AND SHALL BE RESUBMITTED TO THE ENGINEER OR CLARIFIED BY A REQUEST FOR INFORMATION. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ANY DEVIATIONS UNLESS ENGINEER REVIEWS AND ACKNOLEDGES THE CHANGES IN WRITING.

7. THE ENGINEER WILL NOT REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.

FOUNDATIONS

1. ALLOWABLE SOIL BEARING IS STATED ON THE FOUNDATION PLANS.

2. BACKFILLING SHALL BE PERFORMED IN EQUAL LIFTS AROUND THE BUILDING PERIMETER TO BALANCE LATERAL EARTH PRESSURE ON THE BUILDING. WALK BEHIND COMPACTION EQUIPMENT IS REQUIRED WITHIN A DISTANCE OF TWO TIMES THE WALL HEIGHT.

3. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT THE STRUCTURAL ENGINEER'S APPROVAL IN WRITING. THE CONTRACTOR SHALL LOCATE ANY EXISTING UNDERGROUND UTILITIES PRIOR TO ANY CONSTRUCTION.

CONCRETE

1. ALL CONCRETE WORK TO BE DONE IN ACCORDANCE WITH THE CODE REFERENCED EDITION OF ACI-318: "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"

2. CONCRETE MIX DESIGN REQUIREMENTS AND COMPRESSIVE STRENGTH AT 28 DAYS:

DESCRIPTION	28 DAY STENGTH (PSI)	WEIGHT PER CUBIC FOOT (PCF)	SLUMP AT POINT OF PLACEMENT	AGGREGATE	% AIR
FOOTING AND FOUNDATION WALLS	3000	145	4" ±1"	ASTM C33	3
SLAB ON GRADE	SEE PLAN	145	4" ±1"	ASTM C33	3
~~COMPOSITE FLOOR TOPPING~~ (LIGHT WEIGHT)	~~3500~~	~~110~~	~~5" ±1"~~	~~ASTM C330~~	~~3~~

FLY ASH SHALL BE LIMITED TO 20% OF THE TOTAL CEMENTITIOUS MATERIAL WEIGHT. WATER REDUCING ADMIXTURES MAY BE USED TO ACHIEVE SLUMP REQUIREMENTS.

3. SEE ARCHITECTURAL DOCUMENTS FOR JOINT SIZES AND FILLER MATERIALS.

4. LOCATION OF ALL CONSTRUCTION JOINTS, EXCLUDING SLABS ON GRADE, SHALL BE COORDINATED WITH STRUCTURAL ENGINEER.

5. ALL EXPOSED CONCRETE CORNERS SHALL HAVE A ¾" CHAMFER, UNLESS NOTED OTHERWISE BY THE ARCHITECT.

6. SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER SHOWING PROPOSED LOCATIONS OF ANY MATERIAL SUCH AS BUT NOT LIMITED TO CONDUITS, EMBEDMENTS, OR FIXTURES TO BE PLACED INSIDE ANY STRUCTURAL CONCRETE MEMBER SUCH AS BEAMS, WALLS, SLABS, COLUMNS OR FOOTINGS.

7. UNLESS SPECIFIED OTHERWISE IN THE SPECIFCATION, TESTING OF CONCRETE SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF ACI 318 SECTION 5.6 "EVALUATION AND ACCEPTANCE OF CONCRETE."

8. THE FOLLOWING PROCEDURES SHALL MEET THE REQUIREMENTS OF THE REFERENCED CODE SECTIONS

PROCEDURE	REFERENCE SECTION
PREPARATION	ACI 304 - "GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE"
CONVEYING	ACI 318 SECTION 5.9 - "CONVEYING"
DEPOSITING	ACI 318 SECTION 5.10 - "DEPOSITING"
CONSOLIDATION	ACI 309 - "GUIDE FOR CONSOLIDATION OF CONCRETE"
CURING	ACI 308 - "STANDARD PRACTICE FOR CURING CONCRETE"
HOT WEATHER CONCRETING	ACI 305 - "HOT WEATHER CONCRETING"
COLD WEATHER CONCRETING	ACI 306 - "COLD WEATHER CONCRETING"

REINFORCING STEEL

1. REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.

2. WELDED WIRE FABRIC SHALL BE SHEETS OF NEW BILLET STEEL COLD DRAWN, CONFORMING TO ASTM SPECIFICATION A82, GRADE 60.

3. BAR SUPPORTS, DESIGN, DETAILING, FABRICATION AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 318 AND "THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES." ACI 315.

4. SPLICES FOR CONTINUOUS BARS SHALL BE CLASS B, UNLESS NOTED OTHERWISE, WELDED WIRE FABRIC SHALL BE LAPPED 12" MINIMUM.

5. MINIMUM CONCRETE COVERAGE SHALL BE AS FOLLOWS. IF STIRRUPS, TIES OR SPIRALS ARE USED, COVERAGE SHALL BE THE OUTERMOST FACE OF THE ELEMENTS.
   A. FOOTINGS, CAISSONS, AND OTHER MEMBERS WHERE CONCRETE IS DEPOSITED AGAINST SOIL (EXCEPT SLABS ON GRADE.) — 3"
   B. CONCRETE EXPOSED TO WEATHER OR SOIL
      #6 BAR AND LARGER: — 2"
      #5 BAR AND SMALLER: — 1½"
   C. CONCRETE NOT EXPOSED TO WEATHER OR SOIL (SLABS, WALLS, JOISTS)
      #14 BAR AND LARGER — 1½"
      #11 BAR AND SMALLER — ¾"
      BEAMS AND COLUMNS — 1½"

6. WALL FOOTING REINFORCEMENT SHALL BE CONTINUOUS THROUGH COLUMN FOOTING.

7. PROVIDE DOWELS IN WALL FOOTING TO MATCH WALL VERTICALS UNLESS NOTED OTHERWISE ON DRAWINGS. PROVIDE CLASS B SPLICE. USE STANDARD ACI 90° HOOK WITH 3" CLEAR TO BOTTOM OF FOOTING UNLESS NOTED OTHERWISE.

COLD-FORMED STEEL STUD FRAMING

1. ALL STRUCTURAL MEMBERS SHALL BE FORMED FROM CORRISION-RESISTANT STEEL CORRESPONDING TO THE REQUIREMENTS OF ASTM-A653, WELDS SHALL BE TOUCHED UP WITH A ZINC RICH PROTECTIVE PAINT FOR CORROSION RESISTANCE. STRUCTURAL STEEL STUDS SHALL HAVE A MINIMUM THICKNESS OF 33 MILS AND SHALL HAVE A MINIMUM YIELD STRENGTH 33 KSI

COLD-FORMED STEEL STRUCTURAL MEMBERS	
THICKNESS (MILS)	GAUGE
33	20
43	18
54	16
68	14
97	12
118	10

2. PROVIDE VERTICAL DEFLECTION CONNECTION WITH MECHANICAL ATTACHMENT TO THE WEB OF ALL STUDS WHICH PASS BY THE STRUCTURE (FLOOR AND ROOF) OR ATTACH TO THE BOTTOM OF THE STRUCTURE.

3. UNLESS SUPERSEDED BY FINISH OR GLAZING SYSTEM MANUFACTURER'S MORE STRINGENT REQUIREMENTS (GENERAL CONTRACTOR TO COORDINATE), STUDS HAVE BEEN DESIGNED TO THE FOLLOWING MINIMUM REQUIREMENTS:
   A. BRICK VENEER — L/600
   B. EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) — L/240
   C. STUCCO — L/240

4. "C" SHAPED STUDS AND JOISTS SHALL HAVE A MINIMUM FLANGE WIDTH OF 1⅝" WITH A MINIMUM RETURN LIP OF ¾". TRACKS SHALL HAVE A MINIMUM OUTSTANDING LEG OF 1¼".

5. ALL STRUCTURAL MEMBERS SHALL BE CONTINUOUS FULL LENGTH, SPLICING OF MEMBERS IS NOT PERMITTED UNLESS SPECIFICALLY DETAILED BY ENGINEER.

6. SCREWS SHALL BE SELF DRILLING WITH A LENGTH THAT ENSURES THREE EXPOSED THREADS BEYOND PENETRATION OF THE JOINED MATERIAL. MINIMUM SCREW SPACING SHALL BE ⅞", MINIMUM EDGE DISTANCE SHALL BE ½".

7. METAL STUD BRIDGING IS REQUIRED @ 48" O.C. MAXIMUM UNLESS WALLS ARE SHEATHED ON BOTH SIDES.

HARRIS STRUCTURAL DESIGN, PA
3206 Heritage Trade Dr. Ste 116
Wake Forest, NC 27587
PH: (919) 556-6032
CELL: (919) 946-0798
EMAIL: thomas-hsd@nc.rr.com
Corp. License Number C-2550

Copyright © 2024 by Harris Structural Design, PA.
All rights reserved.
All drawings and copies thereof are instruments of service and as such remain the property of Harris Structural Design, PA. They are produced for one-time use only with respect to this project. Harris Structural Design, PA reserves the right to use these plans at its own discretion. Approval from a licensed building inspector will be the responsibility of the consumer if required. Nominal dimensions may be used. Do not scale drawings.

NORTH CAROLINA PROFESSIONAL SEAL 029465 ENGINEER THOMAS B. HARRIS
SEAL DATE: 9-10-2024

E & M CONCRETE
FUQUAY VARINA, NC

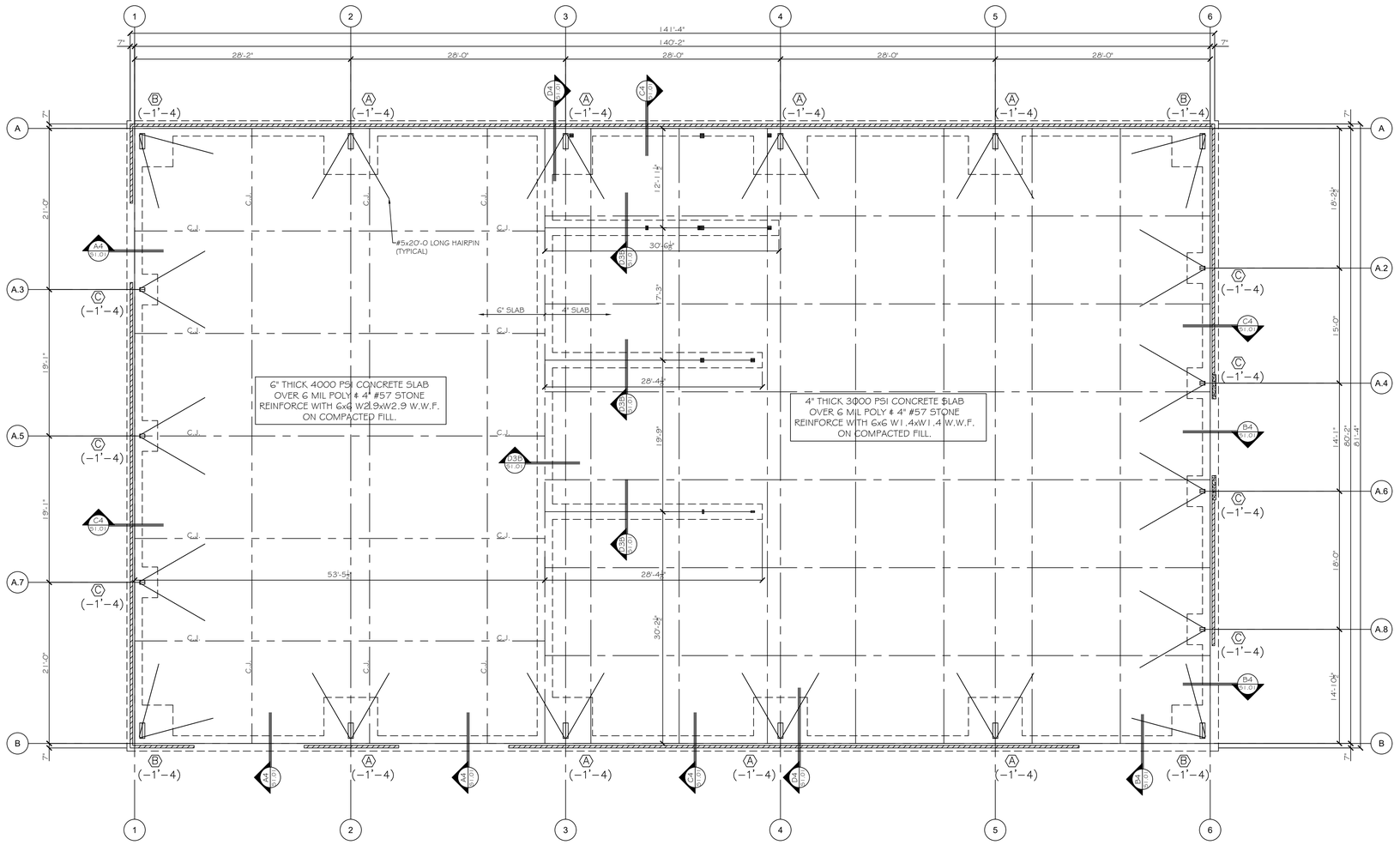
PROJECT:
DATE ISSUED: 4.23.23

REVISIONS:	DATE

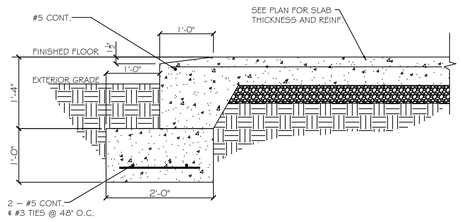
DRAWN BY: TBH
CHECK BY:

General Notes

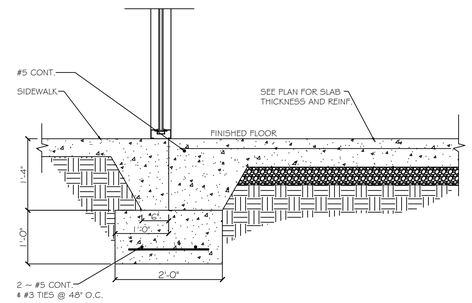
S0.01



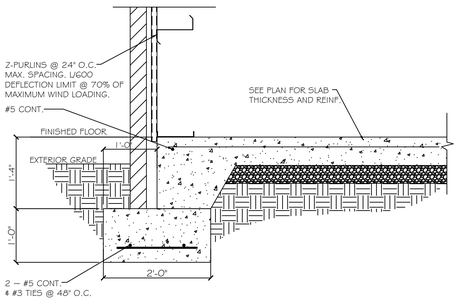
C1 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



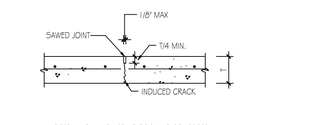
A4 EXTERIOR COLUMN FOOTING DETAIL
SCALE: 3/4" = 1'-0"



B4 EXTERIOR COLUMN FOOTING DETAIL
SCALE: 3/4" = 1'-0"

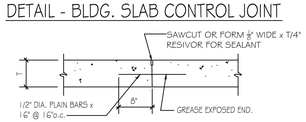


C4 EXTERIOR BRICK WALL FOUNDATION DETAIL
SCALE: 3/4" = 1'-0"



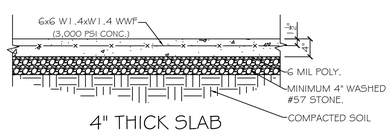
NOTES: 1) SAW JOINTS AS SOON AS CONCRETE WILL NOT RAVEL UNDER SAW BLADE.
ALLOW SLAB TO CURE FOR 30 DAYS (MIN.) BEFORE FILLING JOINTS W/ SEALANT.

DETAIL - BLDG. SLAB CONTROL JOINT

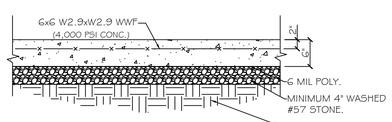


DETAIL - BLDG. SLAB CONST. JOINT

D1 SLAB JOINT DETAILS

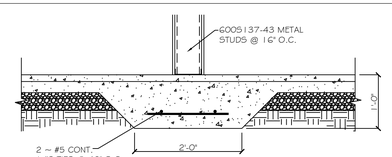


4" THICK SLAB



6" THICK SLAB

D2 SLAB REINFORCEMENT DETAILS
SCALE: 3/4" = 1'-0"



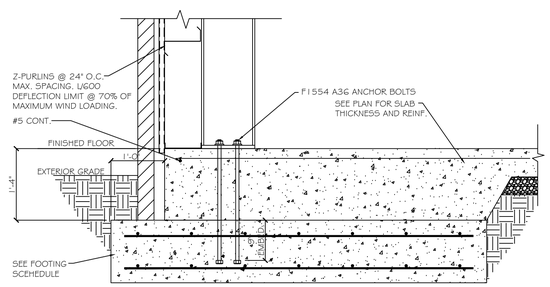
D3B THICKENED SLAB DETAIL
SCALE: 3/4" = 1'-0"

FOOTING SCHEDULE 2000 PSF		
MARK	SIZE	REINFORCING
Ⓐ	7'-0 x 7'-0 x 14"	7 ~ #5 E.W. TOP & BOTT.
Ⓑ	6'-0 x 6'-0 x 12"	8 ~ #4 E.W. TOP & BOTT.
Ⓒ	4'-0 x 4'-0 x 12"	4 ~ #5 E.W. TOP & BOTT.

FOUNDATION PLAN

1.) FOOTING DESIGN BASED ON ASSUMED SOIL BRG. CAPACITY OF 2000 PSF. NOTIFY ENGINEER IF TESTS SHOW OTHERWISE.
2.) ELEV. NOTED (-) ARE BELOW F.F. (0.00) TO TOP OF FOOTING.
3.) FOUNDATION DESIGNED PER METAL BUILDING MANUFACTURER REACTIONS.

D3A FOUNDATION NOTES
SCALE: 3/4" = 1'-0"



D4 EXTERIOR COLUMN FOOTING DETAIL
SCALE: 3/4" = 1'-0"

HARRIS STRUCTURAL DESIGN, PA
3206 Heritage Trade Dr. Ste 116
Wake Forest, NC 27587
PH: (919) 556-6032
CELL: (919) 946-0798
EMAIL: thomas-hsd@nc.rr.com
Corp. License Number C-2550

Copyright © 2024 by Harris Structural Design, PA.
All rights reserved.
All drawings and copies thereof are instruments of service and as such remain the property of Harris Structural Design, PA. They are produced for one-time use only with respect to this project. Harris Structural Design, PA reserves the right to use these plans at its own discretion. Approval from a licensed building inspector will be the responsibility of the consumer if required. Nominal dimensions may be used. Do not scale drawings.

NORTH CAROLINA PROFESSIONAL SEAL 029465 ENGINEER THOMAS B. HARRIS
SEAL DATE: 9-10-2024

E & M CONCRETE
FUQUAY VARINA, NC

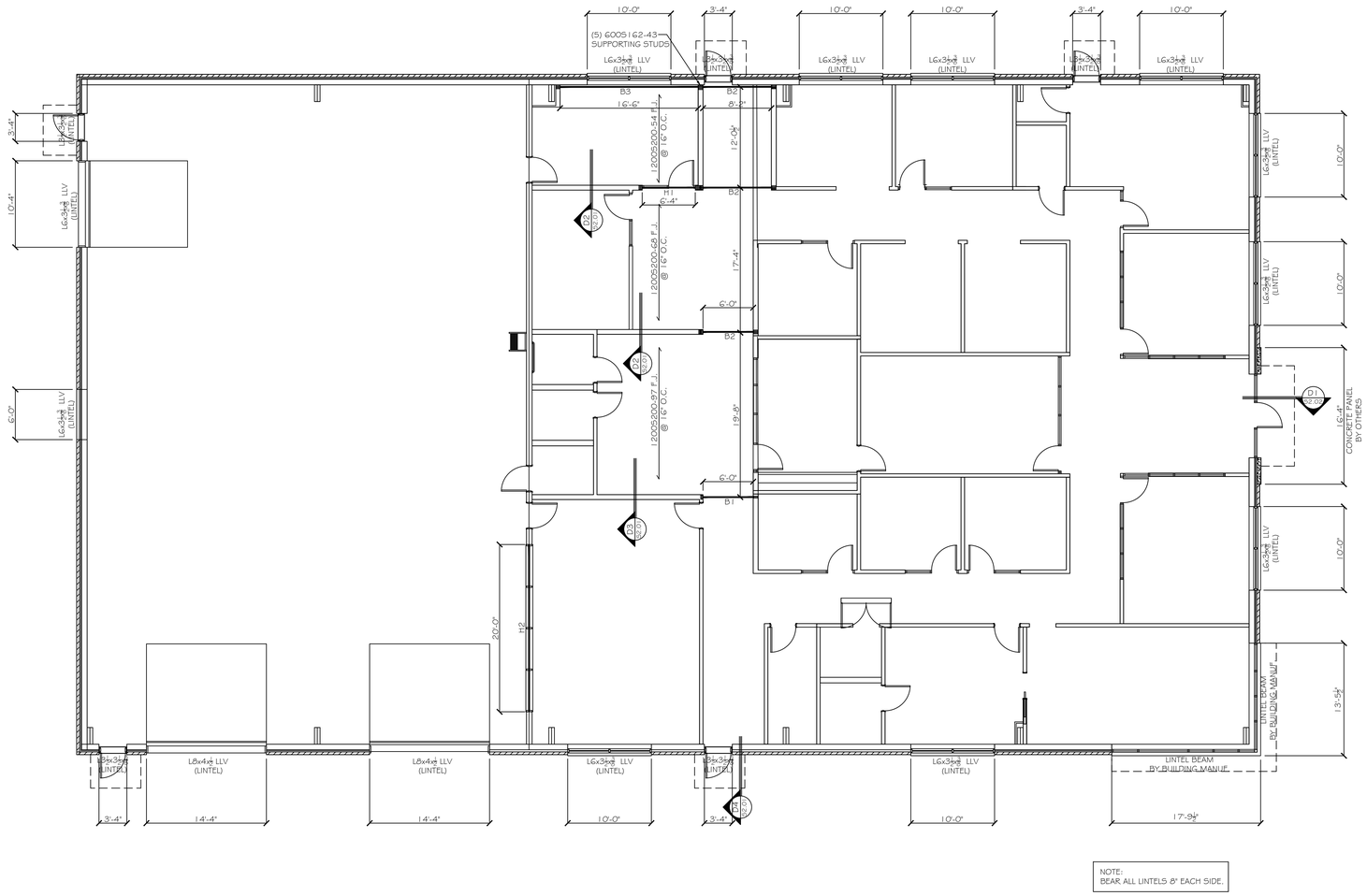
PROJECT:
DATE ISSUED: 4.23.23

REVISIONS:	DATE

DRAWN BY: TBH
CHECK BY:

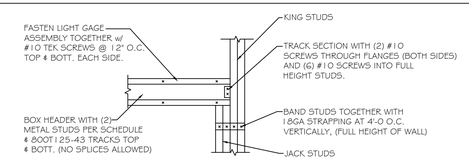
Foundation Plan

S1.01



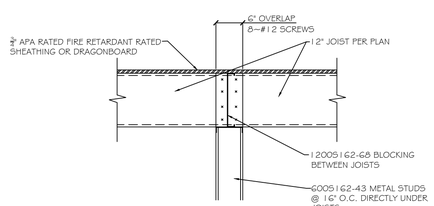
D1 EXTERIOR WALL & MEZZANINE PLAN
SCALE: 1/8" = 1'-0"

DESIGNATION	BEAM/HEADER SIZE	SUPPORT
B1	L3x3x14 GA x 0'-9 @ 7-#12 SCREWS INTO JOIST AND BEAM 2-1200S162-68 METAL STUDS WITH 600T125-43 TRACK TOP & BOTT.	(3) 600S162-43 JACKS
B2	L3x3x14 GA x 0'-9 @ 7-#12 SCREWS INTO JOIST AND BEAM 2-1200S162-97 METAL STUDS WITH 600T125-43 TRACK TOP & BOTT.	(4) 600S162-43 JACKS
B3	L3x3x14 GA x 0'-9 @ 7-#12 SCREWS INTO JOIST AND 5-0.1570 PAF TS 12x6x¼	(4) 600S162-43 JACKS
H1	2-1200S162-97 METAL STUDS WITH 600T125-43 TRACK TOP & BOTT.	(3) 600S162-43 JACKS (1) 600S162-43 KINGS
H2	2-1200S162-97 METAL STUDS WITH 600T125-43 TRACK TOP & BOTT.	(3) 600S162-43 JACKS (3) 600S162-43 KINGS

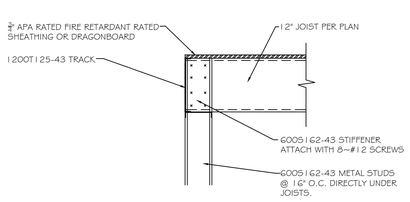


HEADER CONNECTION TO KING STUDS

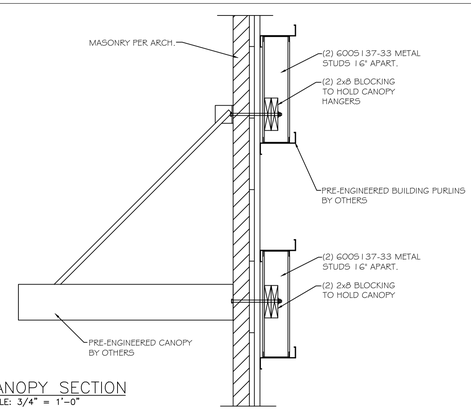
C4 BEAM/HEADER SCHEDULE
SCALE: 3/4" = 1'-0"



D2 MEZZANINE SECTION
SCALE: 3/4" = 1'-0"



D3 MEZZANINE SECTION
SCALE: 3/4" = 1'-0"



D4 CANOPY SECTION
SCALE: 3/4" = 1'-0"

HARRIS STRUCTURAL DESIGN, PA
PH: (919) 556-6032
CELL: (919) 946-0798
3206 Heritage Trade Dr. Ste 116
Wake Forest, NC 27587
EMAIL: thomas-hsd@nc.rr.com
Corp. License Number C-2550

Copyright © 2024 by Harris Structural Design, PA.
All rights reserved.
All drawings and copies thereof are instruments of service and as such remain the property of Harris Structural Design, PA. They are produced for one-time use only with respect to this project. Harris Structural Design, PA reserves the right to use these plans at its own discretion. Approval from a licensed building inspector will be the responsibility of the consumer if required. Nominal dimensions may be used. Do not scale drawings.

NORTH CAROLINA PROFESSIONAL SEAL 029465 ENGINEER THOMAS B. HARRIS
SEAL DATE: 9-10-2024

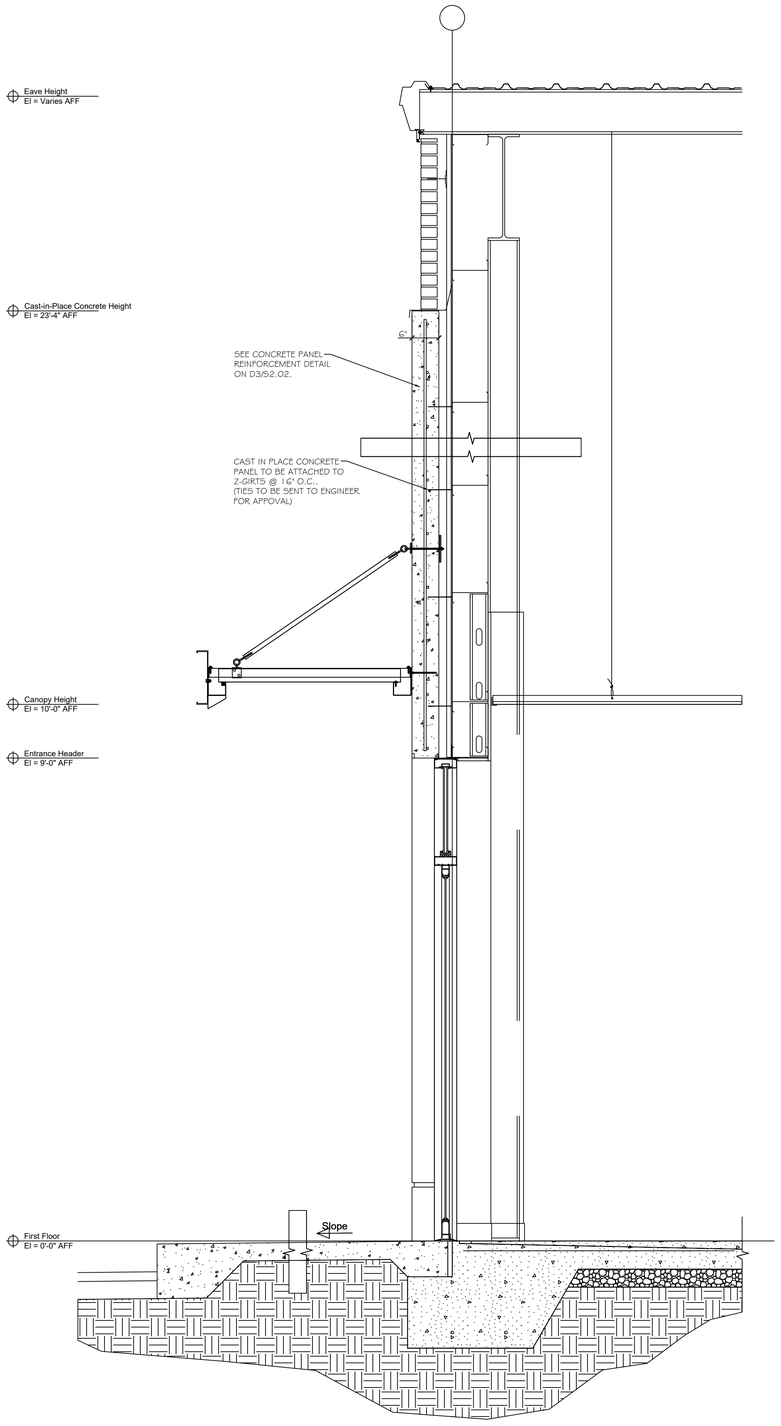
E & M CONCRETE
FUQUAY VARINA, NC

PROJECT:
DATE ISSUED: 4.23.23

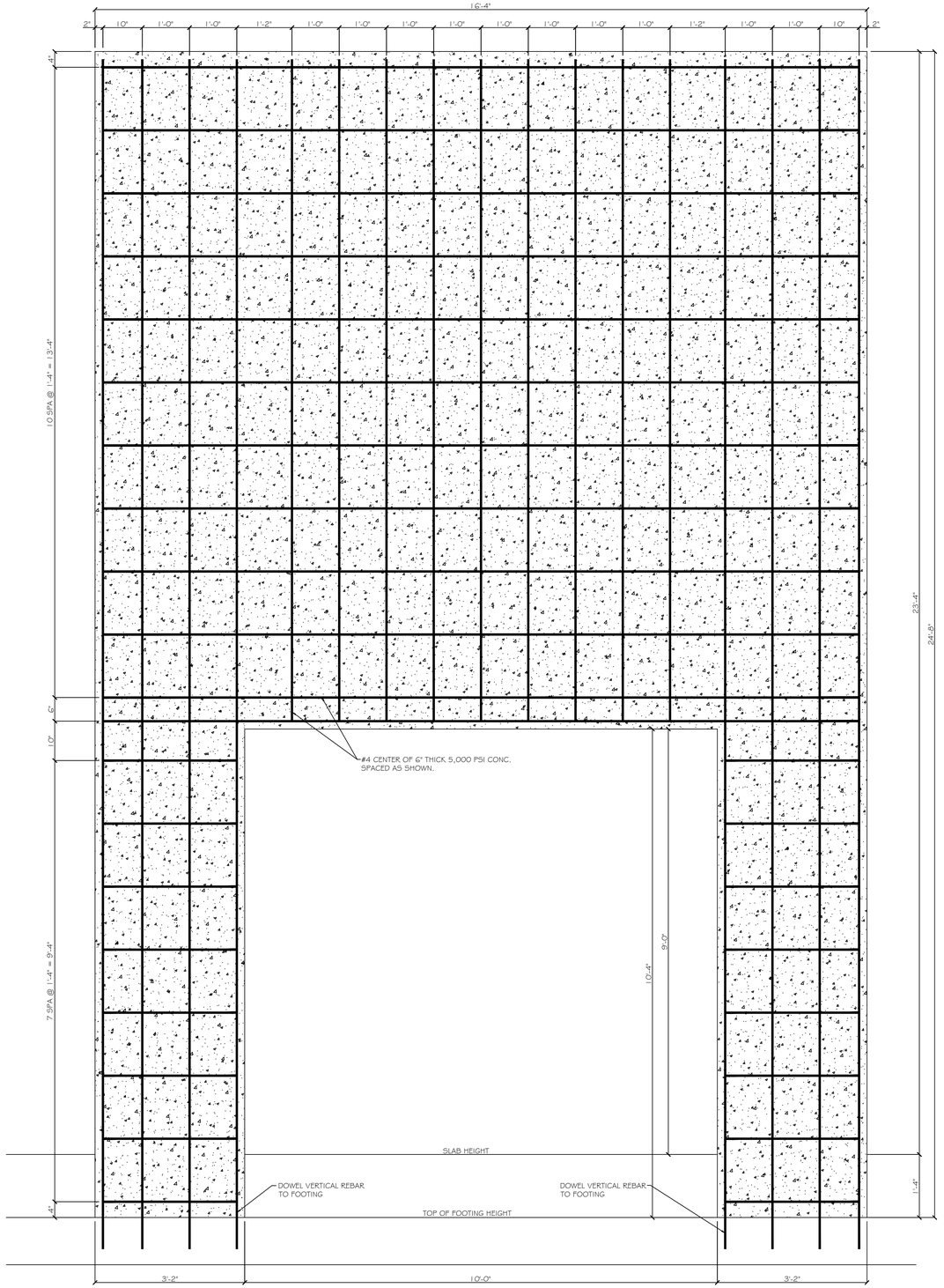
REVISIONS:	DATE

DRAWN BY: TBH
CHECK BY:
Exterior Wall Plan

S2.01



D1 ENTRY SECTION
SCALE: 3/4" = 1'-0"



D3 ENTRY CONCRETE CAST IN PLACE PANEL DETAIL
SCALE: 3/4" = 1'-0"

HARRIS STRUCTURAL DESIGN, PA
3206 Heritage Trade Dr. Ste 116
Wake Forest, NC 27587
PH: (919) 556-6032
CELL: (919) 946-0798
EMAIL: thomas-hsd@nc.rr.com
Corp. License Number C-2550

Copyright © 2024 by Harris Structural Design, PA.
All rights reserved.
All drawings and copies thereof are instruments of service and as such remain the property of Harris Structural Design, PA. They are produced for one-time use only with respect to this project. Harris Structural Design, PA reserves the right to use these plans at its own discretion. Approval from a licensed building inspector will be the responsibility of the consumer if required. Nominal dimensions may be used. Do not scale drawings.

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 029465 THOMAS B. HARRIS
SEAL DATE: 9-10-2024

E & M CONCRETE
FUQUAY VARINA, NC

PROJECT:
DATE ISSUED: 4.23.23

REVISIONS:	DATE

DRAWN BY: TBH
CHECK BY:

Entry Sections

S2.02

GENERAL MECHANICAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 4 — ROOM NAME AND NUMBER
- ITEM TO BE DEMOLISHED
- AREA NOT IN CONTRACT
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -105' - 1" — PIPE INVERT ELEVATION TAG
- (E) — EXISTING PIPE TAG
- PIPING BEING DEMOLISHED

ABBREVIATIONS

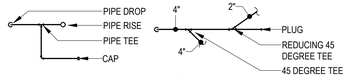
Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FDC	FIRE DEPARTMENT CONNECTION	RH	RELATIVE HUMIDITY
FL	FLOOR	RL/A	RELIEF AIR
FO	FUEL OIL	RM	ROOM
FOV	FUEL OIL VENT	RPM	REVOLUTIONS PER MINUTE
FOR	FUEL OIL RETURN	RW	RAIN WATER
FOS	FUEL OIL SUPPLY	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FS	FLOOR SINK	SAN	SANITARY
FT	FOOT/FEET	SF	SQUARE FOOT
FTR	FIN TUBE RADIATION	SD	SMOKE DAMPER
GAL	GALLON	SM	SURFACE MOUNT
GF	GAS-FIRED	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

EQUIPMENT ABBREVIATIONS

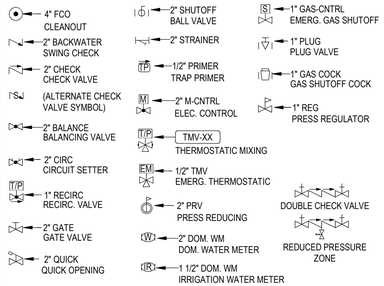
AC	AIR CONDITIONING UNIT	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	FCU	FAN COIL UNIT
AS	AIR SEPARATOR	FP	FIRE PUMP
B	BOILER	GI	GREASE INTERCEPTOR
CH	CHILLER	GRV	GRAVITY ROOF VENTILATOR
CT	COOLING TOWER	HWP	HEATING WATER PUMP
CUH	CABINET UNIT HEATER	HRU	HEAT RECOVERY UNIT
CHWP	CHILLED WATER PUMP	PRV	POWER ROOF VENTILATOR
DBP	DOMESTIC WATER BOOSTER PUMP	RE	RETURN/EXHAUST FAN
DC	DUCT MOUNTED COIL	RTU	ROOFTOP UNIT
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	WH	WATER HEATER

PLUMBING AND PIPING SYMBOLS

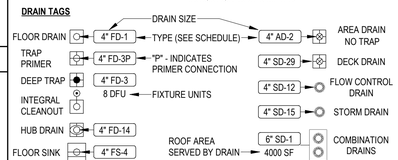
- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CD — CONDENSATE DRAINAGE
- CWR — CONDENSER WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- GWR — GEOTHERMAL WATER RETURN
- GWS — GEOTHERMAL WATER SUPPLY
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- G — NATURAL GAS
- PG — PROPANE GAS
- REF-L — REFRIGERANT-LIQUID
- REF-S — REFRIGERANT-SUCTION
- REF-HG — REFRIGERANT-HOT GAS
- STM — STEAM
- CDR — CONDENSATE RETURN
- CWV — COMBINATION WASTE & VENT
- CA — COMPRESSED AIR
- CW — DOMESTIC COLD WATER
- H-CW — HARD COLD WATER
- S-CW — SOFT COLD WATER
- F-CW — FILTERED COLD WATER
- RO — REVERSE OSMOSIS WATER
- HW — HOT WATER
- HW 140° — HOT WATER 140°
- HW-R — HOT WATER RECIRCULATION
- HW-R 140° — HOT WATER RECIRCULATION 140°
- GV — GREASE VENT
- GW — GREASE WASTE
- IW — INDIRECT WASTE
- OV — OIL VENT
- OW — OIL WASTE
- PD — PUMP DISCHARGE
- V — SANITARY VENT
- SS — SANITARY SEWER
- SHWR — SOLAR HOT WATER RETURN
- SHWS — SOLAR HOT WATER SUPPLY
- SD — STORM DRAINAGE
- OSD — OVERFLOW STORM DRAINAGE



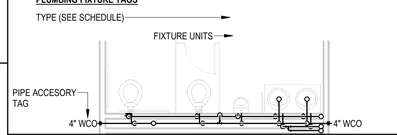
PIPE ACCESSORY TAGS



DRAIN TAGS



PLUMBING FIXTURE TAGS



* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET.THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

PLUMBING NOTES

A. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE AS WELL AS ALL LOCAL AND OTHER APPLICABLE CODES.

B. ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN.

C. FIELD VERIFY ALL NEW WATER, WASTE, AND VENT PIPING CONNECTIONS AND PROVIDE NEW CONNECTIONS AS REQUIRED FOR PROPERLY OPERATING SYSTEMS.

D. FIELD VERIFY LOCATION AND INVERTS OF SITE UTILITIES PRIOR TO INSTALLATION.

E. ROUTE DOMESTIC WATER, FIRE PROTECTION, SANITARY SEWER, AND STORM SEWER SERVICES TO SITE UTILITIES 5'-0" FROM BUILDING UNLESS NOTED OTHERWISE. REFER TO CIVIL PLANS.

F. WASTE AND VENT PIPING BELOW FLOOR AND THROUGH FLOOR SHALL BE 2" MINIMUM.

G. PROVIDE CLEANOUT IN ACCESSIBLE LOCATION AT THE BASE OF ALL PLUMBING RISERS.

H. WATER LINES BELOW GRADE SHALL BE TYPE "K" COPPER (NO MECHANICAL JOINTS BELOW GRADE) AND ABOVE GRADE TYPE "L". CROSS-LINKED POLYETHYLENE PIPING IS ACCEPTABLE, SO LONG AS ALL LOCAL BUILTING CODES ARE ADHERED TO. SUPPORT AS REQUIRED AND SHALL BE HYDROSTATICALLY TESTED FOR TWO HOURS AT 100 PSIG. ALL WATER PIPING AT WATER FIXTURES SHALL BE PROVIDED WITH 18" AIR CHAMBERS OR SHOCK ARRESTORS. STOPS SHALL BE PROVIDED ON HOT AND COLD-WATER LINES. WATER PIPING SHALL BE INSULATED WITH 1" CLOSED CELL RUBBER. THE ENTIRE WATER SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING INTO SERVICE.

I. SANITARY SEWER LINES SHALL BE PVC AND SLOPED TOWARD DRAINAGE DIRECTION AT A MINIMUM OF 1/4" PER FOOT FOR 2-1/2" AND SMALLER PIPING. SLOPE SHALL BE 1/8" PER FOOT FOR PIPING SIZES 3" - 6".

J. WHERE APPLICABLE, ANY DEVICE THAT SHALL SERVE A SPECIAL FUNCTION SUCH AS PROCESSING OR ICE STORAGE, AND CONNECTS TO WATER SUPPLY AND DRAIN, SHALL BE PROTECTED AGAINST BACKFLOW WITH APPROVED BACKFLOW PREVENTION DEVICE.

K. PROVIDE PRESSURE REDUCING VALVE IF STREET PRESSURE EXCEEDS 80 PSIG.

L. SHOULD WATER PRESSURE BE TOO LOW TO PROPERLY CYCLE FLUSH VALVE FIXTURES, A BOOSTER PUMP SHALL BE REQUIRED. SUFFICIENT WATER PRESSURE IS ASSUMED FOR PROPER PLUMBING OPERATION.

M. THE PLUMBING CONTRACTOR SHALL PROVIDE ALL OPENINGS REQUIRED FOR THE PLUMBING WORK AND SHALL INSTALL FIRE RATED SLEEVES WHEREVER PENETRATIONS OF RATED WALLS OR FLOORS ARE MADE. THE PATCHING SHALL BE BY THE PLUMBING CONTRACTOR. THE PLUMBING CONTRACTOR SHALL REVIEW ALL UTILITY SITE PLANS AND ARCHITECTURAL SITE PLANS FOR WORK BY OTHERS.

N. LOCATION OF UTILITIES (WASTE AND WATER LINES, MANHOLES, ETC...) THAT ARE TO BE CONNECTED TO ARE ASSUMED. IT SHALL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO VERIFY THESE LOCATIONS AND MAKE THE FINAL CONNECTION AS REQUIRED.

O. ALL FLOOR DRAINS AND TRENCH DRAINS, IF APPLICABLE, SHALL BE PROVIDED WITH TRAP PRIMERS.

PLUMBING SHEET INDEX

P000	PLUMBING TITLE SHEET
P101	PLUMBING PLAN
P301	PLUMBING ISOMETRIC PLAN - DOMESTIC WATER
P302	PLUMBING ISOMETRIC PLAN - SANITARY
P401	NATURAL GAS PLAN
P403	NATURAL GAS ISOMETRIC PLAN
P501	PLUMBING SCHEDULES/DETAILS

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. # SIGNATURE ON COVER SHEET DOES NOT APPEAR. THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

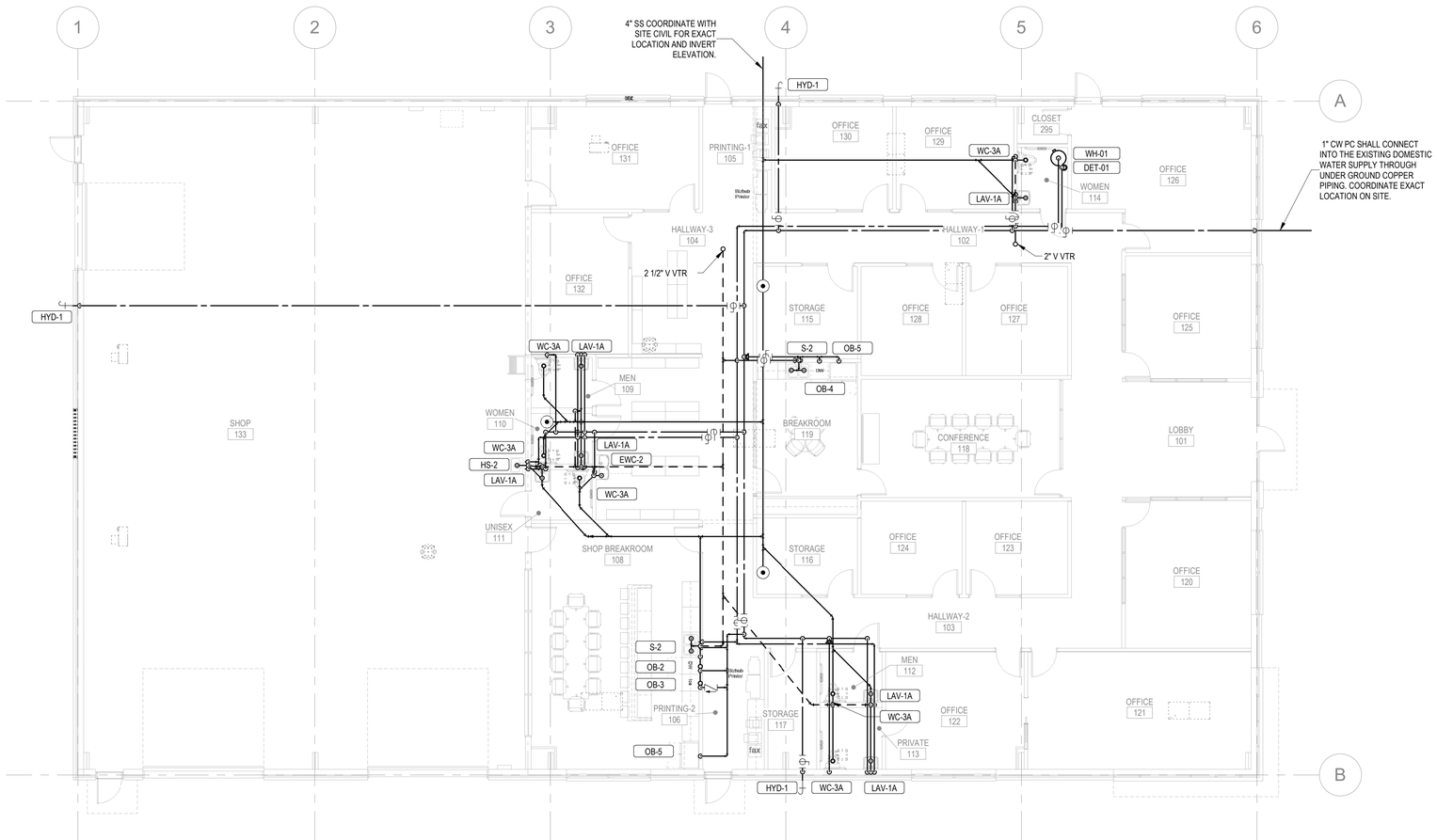
PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: KLB
CHECK BY: BDL

PLUMBING TITLE SHEET

P000



1 P101 PLUMBING FLOOR PLAN
1/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: KLB
CHECK BY: BDL

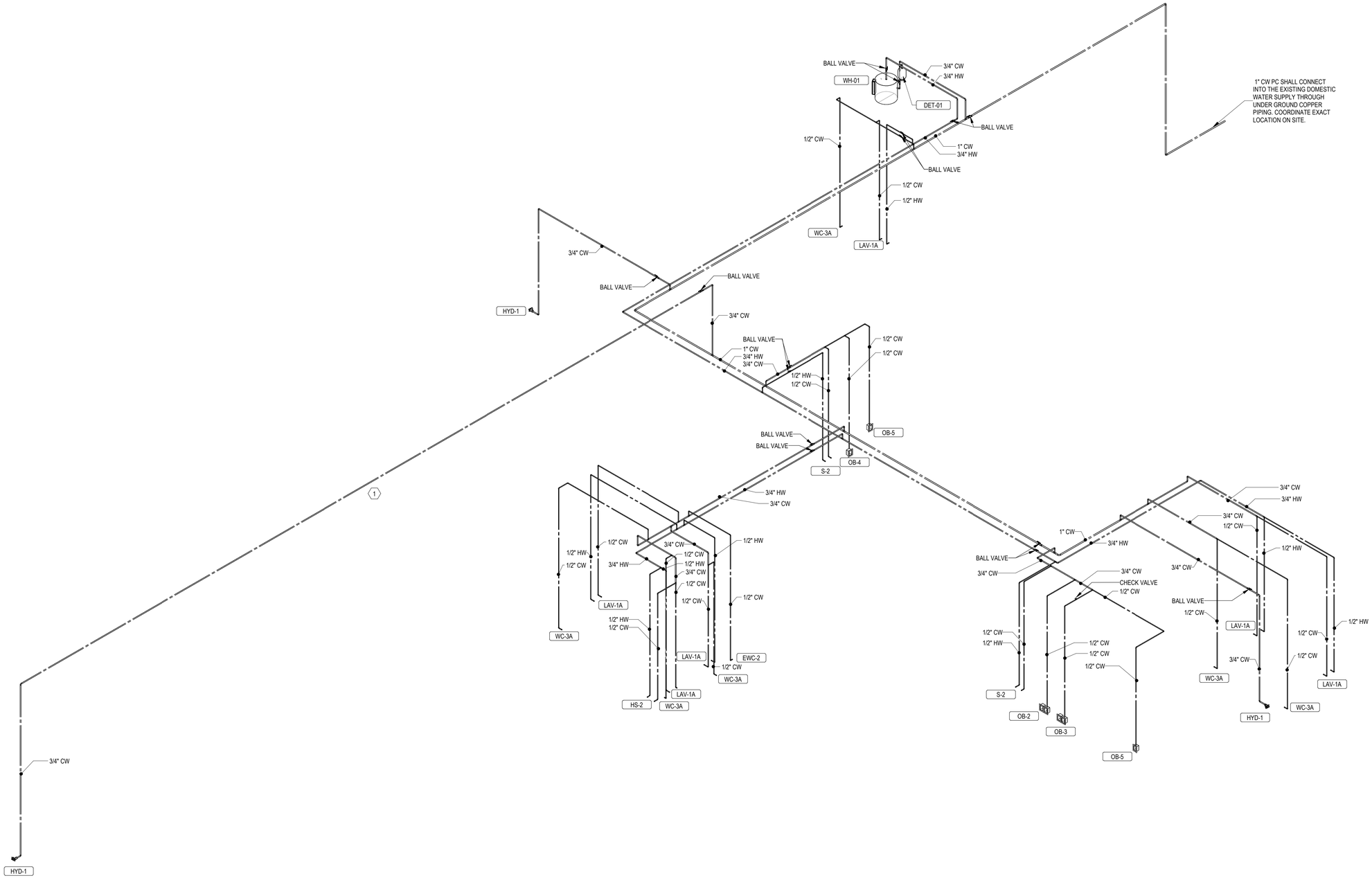
PLUMBING PLAN

P101

THESE DRAWINGS ARE THE COPYRIGHT OF McGAHEY PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

KEYNOTES

1 PC SHALL ROUTE PIPE OVERHEAD, KEEPING PIPING TIGHT TO ROOF.



1 P301 DOMESTIC WATER RISER DIAGRAM

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

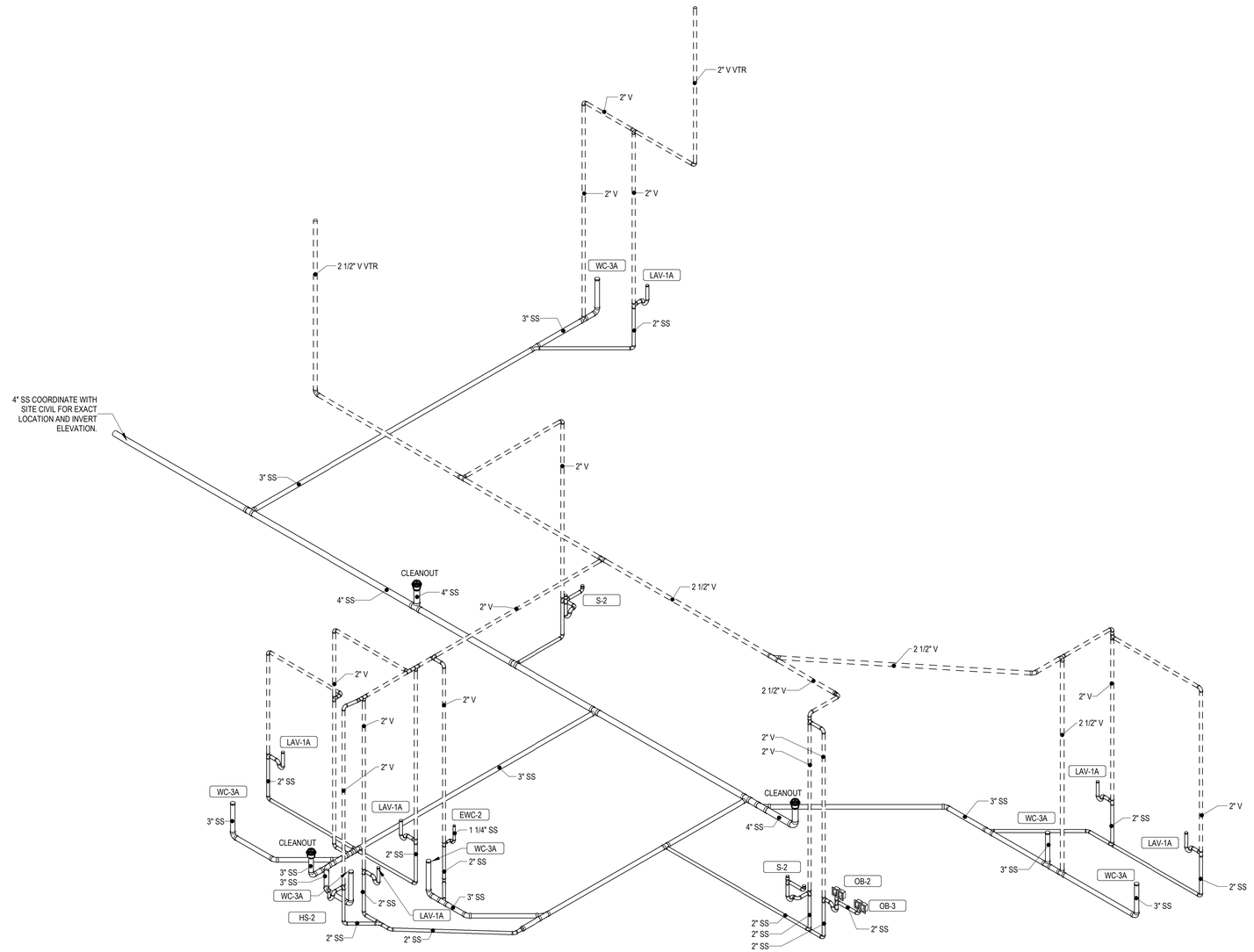
REV	DATE	DESCRIPTION

DRAWN BY: KLB
CHECK BY: BDL

PLUMBING ISOMETRIC PLAN - DOMESTIC WATER

P301

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS ANYWHOST WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY



1 P302 WASTE & VENT RISER DIAGRAM

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: KLB
CHECK BY: BDL

PLUMBING ISOMETRIC PLAN - SANITARY

P302

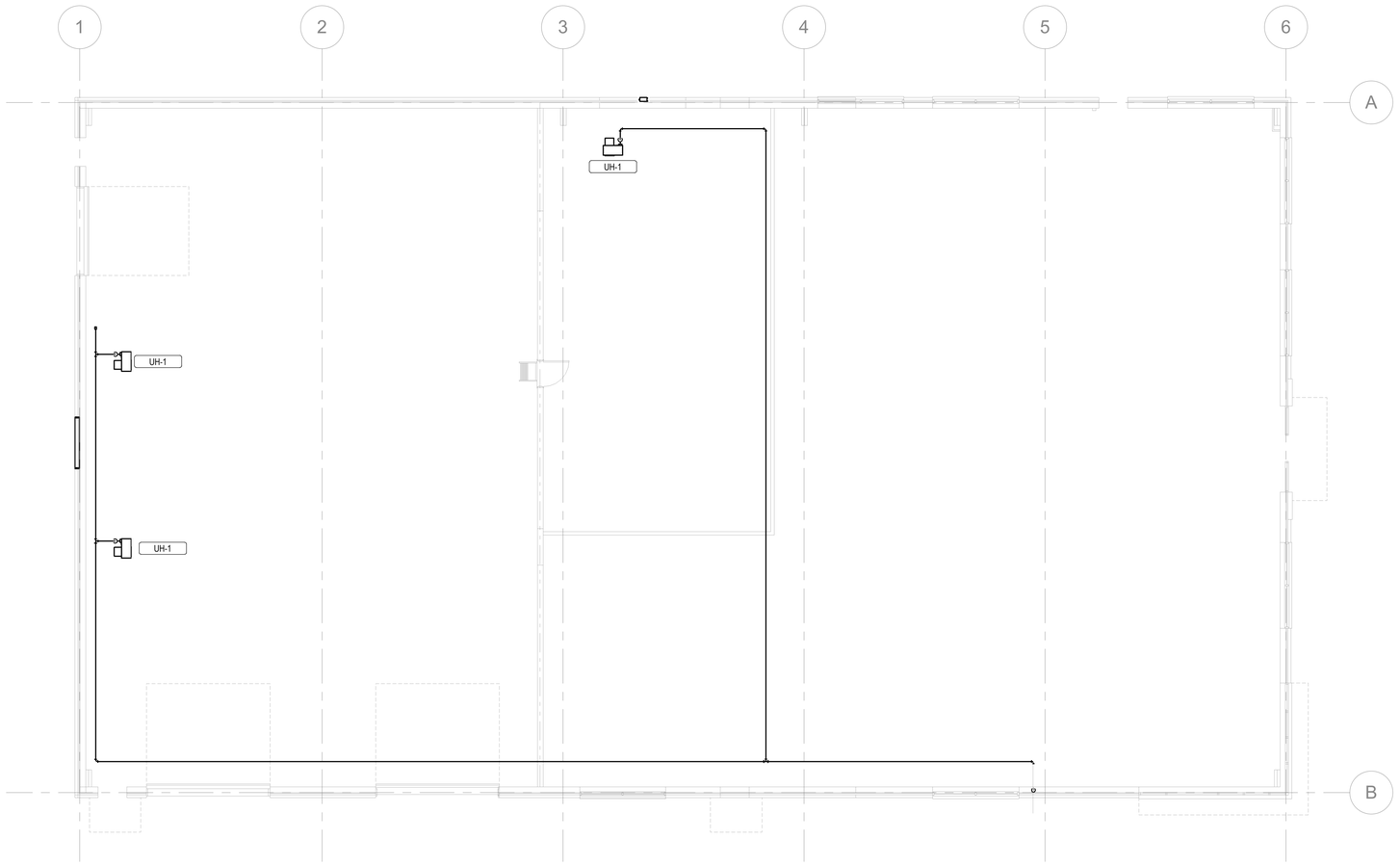
NOTE:
1. PROVIDE AGA APPROVED SHUTOFF VALVE.
2. PROVIDE DIRT LEG AT EACH APPLIANCE.
3. ALL PIPING SHALL BE SCHEDULE 40 CARBON STEEL.
4. GAS PIPING INLET PRESSURE 2.0 PSI WITH A PRESSURE DROP OF 1.0 PSI
5. GAS PIPING SIZED PER 2018 NC FUEL GAS CODE TABLE 402.4(5)

NATURAL GAS PIPE LENGTH

System Type	Length
MP_Natural Gas	293' - 0 7/8"

NATURAL GAS DEMAND

Family	Identity Mark	Fuel Load
Gas-Fired Unit Heater	UH-1	30000 Btu/h
Gas-Fired Unit Heater	UH-1	30000 Btu/h
Gas-Fired Unit Heater	UH-1	30000 Btu/h
Grand total: 3		90000 Btu/h



1 / P401 NATURAL GAS FLOOR PLAN
1/8" = 1'-0"

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

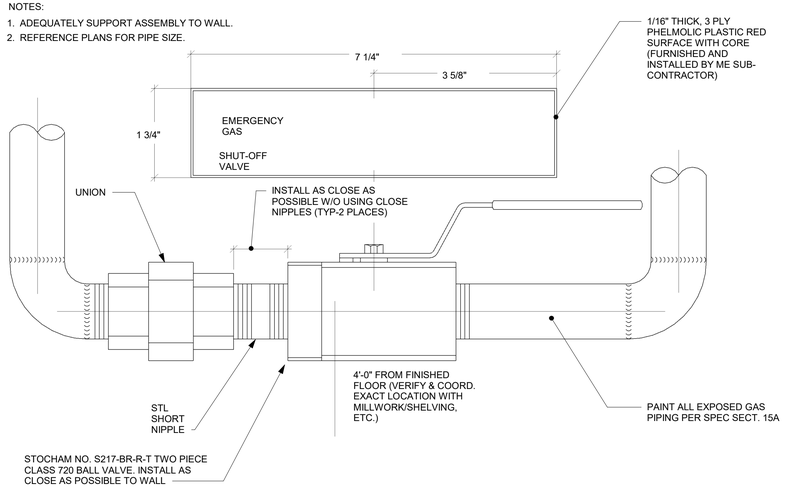
DRAWN BY: KLB
CHECK BY: BDL

NATURAL GAS PLAN

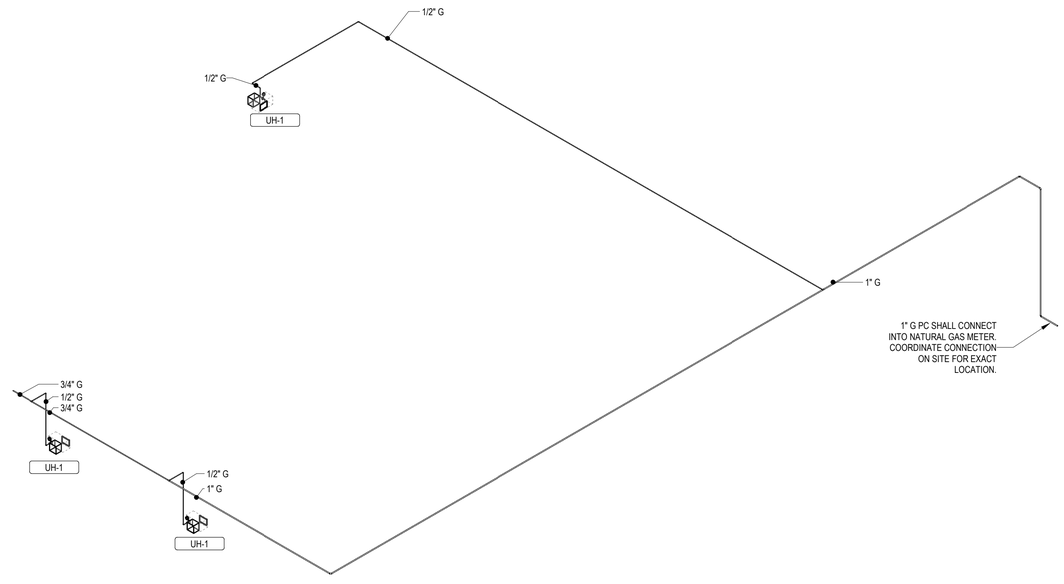
P401

NOTES:

1. ADEQUATELY SUPPORT ASSEMBLY TO WALL.
2. REFERENCE PLANS FOR PIPE SIZE.



2 / P403 GAS SHUT-OFF VALVE DETAIL
NOT TO SCALE



1 / P403 GAS RISER DIAGRAM

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT:	224S91
DATE ISSUED:	8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: KLB
CHECK BY: BDL

NATURAL GAS ISOMETRIC PLAN

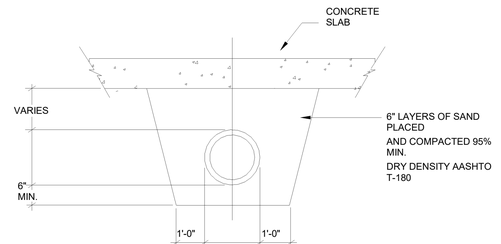
P403

DOMESTIC FIXTURE SCHEDULE

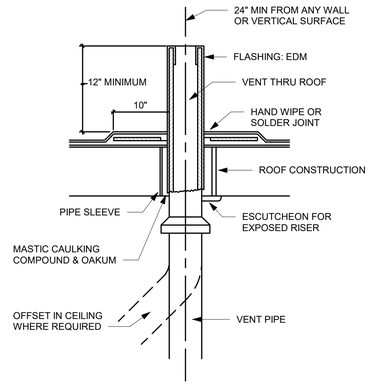
ID	DESCRIPTION	MANUFACTURER	MODEL	QTY	MATERIAL DESCRIPTION	FINISH	TRIM				FLOW FIXTURE					FLUSH FIXTURE		WASTE ROUGH-IN PIPE SIZE	INDIRECT WASTE PIPE SIZE	VENT PIPE SIZE	COLD WATER ROUGH-IN PIPE SIZE	HOT WATER ROUGH-IN PIPE SIZE	SPECIFICATION	REMARKS
							MANUFACTURER	MODEL	TYPE	MOTION SENSOR CONTROL	WATER FLOW	TIMER DURATION (SEC)	CWT	HWT	MAX. MWT	VOL. PER FLUSH	MIN. VOL. PER FLUSH							
EWC-2	WATER COOLER - DUAL HEIGHT	ELKAY	EZSTL8WSSK	1	GALVANIZED STEEL	STAINLESS STEEL CABINET				No	0.1 GPM	15	40 °F		40 °F			2"		2"	1/2"		TWO LEVEL WALL HUNG WATER COOLER WITH BOTTLE FILLING STATION. THE UNIT SHALL BE COMPLETE WITH CABINET, MOUNTING FRAME, SELF CLOSING EASY TOUCH SIDE AND FRONT PUSHBAR CONTROLS, FLEXIGUARD SAFETY BUBBLER, REFRIGERATING SYSTEM, AIR COOLED, 120 VOLT, 60 CYCLE, SINGLE PHASE POWER CONNECTION, FULLY AUTOMATIC, COMPLETE AND READY TO OPERATE.	
HS-2	SERVICE SINK	ELKAY	ESS23192	1	STAINLESS STEEL	STAINLESS STEEL	ELKAY	ELKAY	MANUAL	No	0.5 GPM	0	40 °F	120 °F	105 °F			2"		2"	1/2"	1/2"	ELKAY STAINLESS STEEL 23" X 18-1/2" WALL MOUNT SERVICE SINK WITH 12" DEPTH	
HYD-1	EXTERIOR WALL HYDRANT	WOODFORD	67	3					MANUAL	No	2.5 GPM	0	40 °F		40 °F						3/4"		NON-FREEZE TYPE WALL HYDRANT, WITH DOUBLE CHECK BACKFLOW PREVENTER, VALVE ON THE INSIDE OF THE WALL, SPOUT WITH BACKFLOW PREVENTER, AND LOOSE KEY SOCKET ON THE OUTSIDE OF THE WALL. MAKE ARRANGEMENTS WITH THE GENERAL CONTRACTOR TO PROVIDE THE NECESSARY RECESS IN THE WALL. WHERE A RISER TO A WALL HYDRANT OCCURS IN AN OUTSIDE WALL THE CONTRACTOR SHALL INSULATE THE CHASE WITH 2" STYROFOAM INSULATION ON ALL SIDES OF THE CHASE, EXCEPT THE INSIDE WALL OF THE CHASE. PROVIDE SHUTOFF VALVE IN ACCESSIBLE LOCATION.	
LAV-1A	LAVATORY - WALL HUNG - ADA	AMERICAN STANDARD	LUCERNE	6	WHITE VITREOUS CHINA	WHITE	CHICAGO FAUCET CO	116.976.AB.1	ELECTRONIC	Yes	0.5 GPM	12	40 °F	120 °F	105 °F			2"		2"	1/2"	1/2"	WALL HUNG LAVATORY WITH BACKSPLASH, FAUCET HOLES ON 4" CENTERS. DECK-MOUNTED FAUCET WITH SENSOR, WATER TURBINE POWER WITH VANDAL RESISTANT SPRAY, EXTERNAL ASSE 1070 COMPLIANT THERMOSTATIC MIXING VALVE, GRID DRAIN, LOOSE KEY ANGLE STOPS AND SUPPLIES. INSULATE WATER AND WASTE WITH ADA INSULATION KIT. MOUNT AT ADA COMPLIANT HEIGHT.	
OB-2	DRAINAGE OUTLET BOX	SIOUX CHIEF	696-CF	1	ABS PLASTIC	WHITE				No	0.5 GPM	0	40 °F	120 °F	105 °F			2"		2"	1/2"	1/2"	FULLY RECESSED FIRE RATED BOX WITH COVER. PROVIDE SECONDARY DRAINAGE FUNNEL FOR 1" AIR GAP. PROVIDE A 2" TRAPPED STANDPIPE IN CONCEALED WALL SPACE.	
OB-3	ICE MAKER BOX	SIOUX CHIEF	696	1	ABS PLASTIC	WHITE				No	0.5 GPM	0	40 °F	120 °F	105 °F			2"		2"	1/2"		FULLY RECESSED FIRE RATED BOX WITH COVER. PROVIDE SECONDARY DRAINAGE FUNNEL FOR 1" AIR GAP. PROVIDE A 2" TRAPPED STANDPIPE IN CONCEALED WALL SPACE.	
OB-4	DISHWASHER OUTLET BOX	SIOUX CHIEF	696-RG1001MF	1	ABS PLASTIC	WHITE				No	0.5 GPM	0	40 °F	120 °F	105 °F						1/2"		FULLY RECESSED FIRE RATED DISHWASHER SUPPLY BOX WITH COVER. PROVIDE 1/4 TURN BALL VALVES AND WATER HAMMER ARRESTORS IN BOX.	
OB-5	ICE MAKER OUTLET BOX	SIOUX CHIEF	696-RG1010MF	2	ABS PLASTIC	WHITE				No	0.5 GPM	0	40 °F	120 °F	105 °F						1/2"		FULLY RECESSED FIRE RATED ICE MAKER SUPPLY BOX WITH COVER. PROVIDE 1/4 TURN BALL VALVES AND WATER HAMMER ARRESTORS IN BOX.	
S-2	DUAL BOWL SINK	ELKAY	LRAD291855	2	STAINLESS STEEL	STAINLESS STEEL	ELKAY	LK1000	MANUAL	No	1.0 GPM	240	40 °F	120 °F	105 °F			2"		2"	1/2"	1/2"	TWO COMPARTMENT, 16 GAUGE. DUAL LEVER SWIVEL FAUCET WITH 14" SPOUT. TWO AERO MODEL NO. S-17 BASKET ASSEMBLY, P-TRAP, TAILPIECES, SUPPLIES AND STOPS.	
WC-3A	WATER CLOSET - FLOOR - PRESSURE ASSISTED TANK TYPE - ADA	AMERICAN STANDARD	CADET RIGHT HEIGHT	6	WHITE VITREOUS CHINA	WHITE	AMERICAN STANDARD	2467.016	MANUAL	No			40 °F		40 °F	1.6 gal	1.6 gal	3"		2"	1/2"		ELONGATED FLOOR MOUNTED PRESSURE ASSISTED TANK TYPE WATER CLOSET, WITH CHURCH 295CT ELONGATED OPEN FRONT SEAT. PROVIDE A 1/4" BRASS BALL VALVE AT WALL CONNECTION. INSTALL AT ADA COMPLIANT HEIGHT.	

Grand total: 24

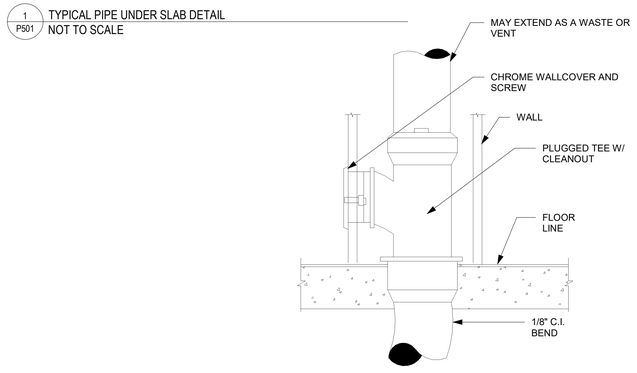
NOTES:
APPROVED EQUAL ACCEPTED



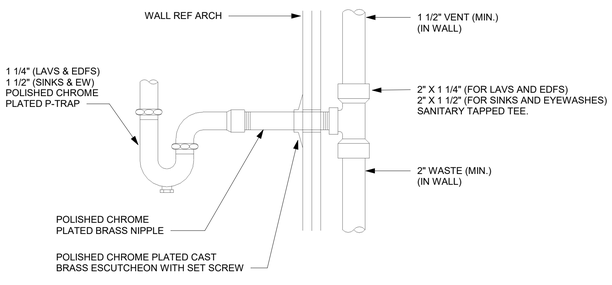
1 P501 TYPICAL PIPE UNDER SLAB DETAIL
NOT TO SCALE



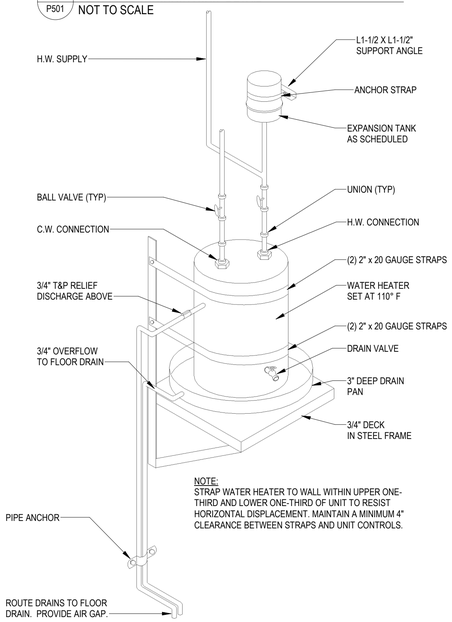
2 P501 VENT PIPIE THROUGH ROOF DETAIL
NOT TO SCALE



3 P501 WALL CLEANOUT DETAIL
NOT TO SCALE



4 P501 TYPICAL DRAIN PIPING DETAIL
NOT TO SCALE



5 P501 WATER HEATER DETAIL - PLATFORM MOUNTED
NOT TO SCALE

ELECTRIC WATER HEATER SCHEDULE

ID	MANUFACTURER	MODEL NO.	TYPE	ELECTRIC HEAT EXCHANGER		HEATING ELEMENT			EF	FLA	MCA	MOCP	VOLT	PH	REMARKS
				HEATING CAP	MAX TEMP RISE	QTY	POWER	SCR							
WH-01	AO SMITH	DEL-20	STORAGE	6.0 kW	80 °F	1	6.0 kW	Yes	0.9	50.0 A	62.5 A	70.0 A	120 V	1	PROVIDE ASSE 1017 COMPLIANT MIXING VALVE; POWERS SERIES LFSH OR EQUAL

NOTES:
APPROVED EQUAL ACCEPTED

DOMESTIC EXPANSION TANK SCHEDULE

ID	MANUFACTURER	MODEL NO.	SYSTEM	TYPE	ARRANGEMENT	VOL	MAX. ACCEPTANCE FACTOR	ACCEPTANCE VOL	PRESS RELIEF	PRECHARGE PRESS	UNIT DIMENSIONS		ASME	UNIT WEIGHT
											DIAMETER	HEIGHT		
DET-01	AMTROL	ST-5C	DOM. WATER	FIXED DIAPHRAM	INLINE	2.0 gal	0.45	0.9 gal	100 psi	55 psi	8"	14"	Yes	27 lb

NOTES:
APPROVED EQUAL ACCEPTED

DRAINAGE FIXTURE UNIT SUMMARY

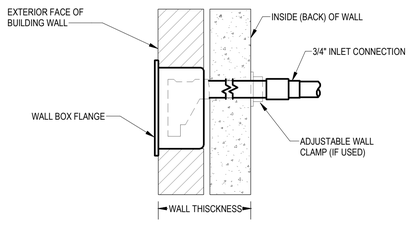
ID	FIXTURE DESCRIPTION	QTY	WASTE SIZE	DFU DEMAND	
				UNIT	TOTAL
EWC-2	WATER COOLER - DUAL HEIGHT	1	1 1/4"	0.5	0.5
HS-2	SERVICE SINK	1	2"	2	2
LAV-1A	LAVATORY - WALL HUNG - ADA	6	2"	1	6
OB-2	DRAINAGE OUTLET BOX	1	2"	2	2
OB-3	ICE MAKER BOX	1	2"	2	2
S-2	DUAL BOWL SINK	2	2"	2	4
WC-3A	WATER CLOSET - FLOOR - PRESSURE ASSISTED TANK TYPE - ADA	6	3"	4	24
Grand total: 18					40.5

PIPE ACCESSORY SCHEDULE

TYPE ID	DESCRIPTION	MANUFACTURER	MODEL	COUNT
FCO	CLEANOUT	WATTS	CO-1203-R	1
FCO	CLEANOUT	WATTS	CO-1204-R	2
CHECK	CHECK VALVE	WATTS	LF601-1/2	1
SHUTOFF	BALL VALVE	WATTS	LFFBV	3
SHUTOFF	BALL VALVE	WATTS	LFFBV	10
SHUTOFF	BALL VALVE	WATTS	LFFBV	2

Grand total: 19

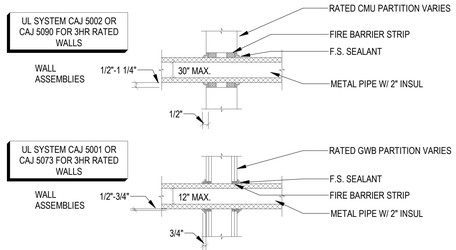
NOTES:
APPROVED EQUAL ACCEPTED



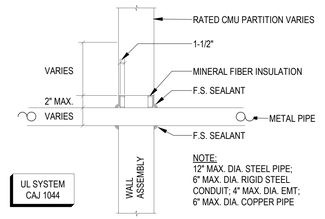
6 P501 WALL MOUNTED HOSE BIB DETAIL
NOT TO SCALE

WATER SUPPLY FIXTURE UNIT SUMMARY

ID	FIXTURE DESCRIPTION	QTY	PIPE SIZE		DFU DEMAND		CWFU DEMAND		HWFU DEMAND		WSFU DEMAND	
			CW	HW	UNIT	TOTAL	UNIT	TOTAL	UNIT	TOTAL	UNIT	TOTAL
EWC-2	WATER COOLER - DUAL HEIGHT	1	1/2"		0.5	0.5	0.5	0.5	0	0	0.5	0.5
HS-2	SERVICE SINK	1	1/2"	1/2"	2	2	1.125	1.125	1.125	1.125	1.5	1.5
HYD-1	EXTERIOR WALL HYDRANT	3	3/4"		0	0	2.5	7.5	0	0	2.5	7.5
LAV-1A	LAVATORY - WALL HUNG - ADA	6	1/2"	1/2"	1	6	0.75	4.5	0.75	4.5	1	6
OB-2	DRAINAGE OUTLET BOX	1	0"	1/2"	2	2	0	0	1.5	1.5	1.5	1.5
OB-3	ICE MAKER BOX	1	0"	1/2"	2	2	0	0	0	0	1.5	1.5
OB-4	DISHWASHER OUTLET BOX	1	0"	1/2"	0	0	0	0	0	0	1.5	1.5
OB-5	ICE MAKER OUTLET BOX	2	1/2"	1/2"	0	0	0.5	1	0	0	0.5	1
S-2	DUAL BOWL SINK	2	1/2"	1/2"	2	4	1.125	2.25	1.125	2.25	1.5	3
WC-3A	WATER CLOSET - FLOOR - PRESSURE ASSISTED TANK TYPE - ADA	6	1/2"		4	24	2.5	15	0	0	2.5	15
Grand total: 24						40.5		31.875		9.375		39



7 P501 FIRESTOP DETAILS AT SINGLE INSULATED METAL PIPE
NOT TO SCALE



8 P501 FIRESTOP DETAIL AT SINGLE METAL PIPE
NOT TO SCALE

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. # SIGNATURE ON COVER SHEET DOES NOT APPEAR. THIS IS NOT AN AUTHORIZED COPY

McGAHEY DESIGN
123 Raleigh Street, Fuquay Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: KLB
CHECK BY: JDJ

PLUMBING SCHEDULES/DETAILS

P501

GENERAL MECHANICAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE NEW CONNECTS TO EXISTING
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- ROOM NAME AND NUMBER (Room 5)
- ITEM TO BE DEMOLISHED
- AREA NOT IN CONTRACT
- PIPE SIZE TAG (DIAMETER) (2")
- ABOVE GROUND PIPING
- PIPE SLOPE TAG (1/8" / 12" SLOPE)
- BELOW GROUND PIPING
- PIPE INVERT ELEVATION TAG (INVERT: -105' - 1")
- EXISTING PIPE TAG ((E))
- PIPING BEING DEMOLISHED

ABBREVIATIONS

Ø	ROUND	LVR	LOUVER
ABV	ABOVE	LWT	LEAVING WATER TEMPERATURE
AC	AIR CONDITIONING	M/A	MIXED AIR
AD	AREA DRAIN	MAX	MAXIMUM
ADD	ADDENDUM	MBH	ONE THOUSAND BTU PER HOUR
AFF	ABOVE FINISHED FLOOR	MCF	ONE THOUSAND CUBIC FEET
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MD	MOTORIZED DAMPER
ALT	ALTERNATE	MECH	MECHANICAL
AP	ACCESS PANEL	MFR	MANUFACTURER
ARCH	ARCHITECT/ARCHITECTURAL	MIN	MINIMUM
BFF	BELOW FINISHED FLOOR	MISC	MISCELLANEOUS
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CW	COLD WATER	O	OXYGEN
D	DEGREE	O/A	OUTSIDE AIR
DB	DRY BULB	ORD	OVERFLOW ROOF DRAIN
DIA	DIAMETER	PD	PRESSURE DROP
DN	DOWN	PIV	POST INDICATOR VALVE
DW	DISTILLED WATER	PLBG	PLUMBING
EA	EACH	PRESS	PRESSURE
EAT	ENTERING AIR TEMPERATURE	PRV	PRESSURE REDUCING VALVE
ELEC	ELECTRICAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PSIG	POUNDS PER SQUARE INCH GAUGE
EWC	ELECTRIC WATER COOLER	PWR	POWER
EWT	ENTERING WATER TEMPERATURE	R	DUCT RISER
E/A	EXHAUST AIR	R/A	RETURN AIR
EXIST	EXISTING	RCP	RADIANT CEILING PANEL
F	DEGREES FAHRENHEIT	RD	ROOF DRAIN
FCO	FLOOR CLEAN OUT	REC	RECESSED
FD	FLOOR DRAIN	RED	REDUCER
FDC	FIRE DEPARTMENT CONNECTION	RH	RELATIVE HUMIDITY
FL	FLOOR	RL/A	RELIEF AIR
FO	FUEL OIL	RM	ROOM
FOV	FUEL OIL VENT	RPM	REVOLUTIONS PER MINUTE
FOR	FUEL OIL RETURN	RW	RAIN WATER
FOS	FUEL OIL SUPPLY	SF	SQUARE FOOT
FPM	FEET PER MINUTE	S/A	SUPPLY AIR
FS	FLOOR SINK	SAN	SANITARY
FT	FOOT/FEET	SF	SQUARE FOOT
FTR	FIN TUBE RADIATION	SD	SMOKE DAMPER
GAL	GALLON	SM	SURFACE MOUNT
GF	GAS-FIRED	SP	STANDPIPE
GC	GENERAL CONTRACTOR	SP	STATIC PRESSURE
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	VAC	VACUUM
ID	INDIRECT	V	VENT
IN	INCH	VAV	VARIABLE AIR VOLUME
INV	INVERT	VENT	VENTILATION
LB	POUND	VTR	VENT THROUGH ROOF
LB/HR	POUNDS PER HOUR	W	WASTE
LAT	LEAVING AIR TEMPERATURE	WB	WET BULB
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LPG	LIQUEFIED PETROLEUM GAS	WH	WALL HYDRANT

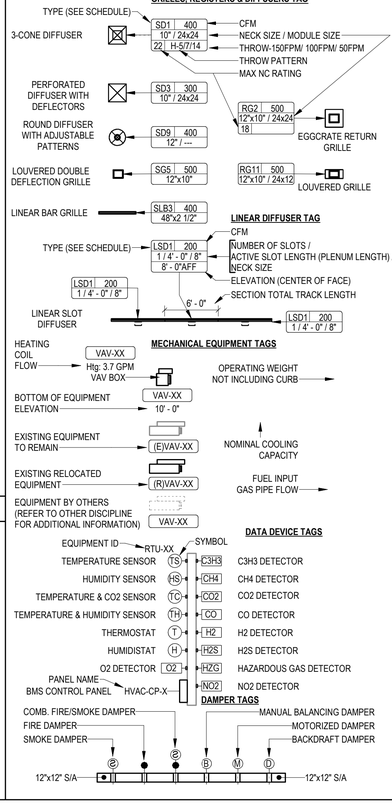
EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EWH	ELECTRIC WATER HEATER
ACCU	AIR COOLING CONDENSING UNIT	FCU	FAN COIL UNIT
AHU	AIR HANDLING UNIT	FP	FIRE PUMP
AS	AIR SEPARATOR	GI	GREASE INTERCEPTOR
B	BOILER	GRV	GRAVITY ROOF VENTILATOR
CAS	CASSETTE DUCTLESS	HP	HEAT PUMP
CH	CHILLER	HWU	HIGH WALL UNIT
CT	COOLING TOWER	HWP	HEATING WATER PUMP
CU	CONDENSING UNIT	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	IDU	INDOOR DUCTED MINISPLIT
CHWP	CHILLED WATER PUMP	KHD	KITCHEN HOOD
DBP	DOMESTIC WATER BOOSTER PUMP	L	LOUVER
DC	DUCT MOUNTED COIL	PU	PACKAGED UNIT
DCP	DOMESTIC WATER CIRCULATING PUMP	PRV	POWER ROOF VENTILATOR
DEH	DEHUMIDIFIER	RE	RETURN/EXHAUST FAN
DOAS	DEDICATED OUTDOOR AIR SYSTEM	RTU	ROOFTOP UNIT
EF	EXHAUST FAN	SP	SUMP PUMP
EDC	ELECTRIC DUCT COIL	UH	UNIT HEATER
ET	EXPANSION TANK	WH	WATER HEATER

HVAC SYMBOLS

- 18"x12" — SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
- 18"/12" — OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
- 18"Ø — ROUND DUCT SIZE TAG (DIAMETER)
- (E) — EXISTING DUCT TAG
- DUCT BEING DEMOLISHED
- 18"x18" S/A — SUPPLY AIR
- 18"x18" S-O/A — CONDITIONED OUTSIDE AIR
- 18"x18" O/A — OUTSIDE AIR
- 18"x18" R/A — RETURN AIR
- 18"x18" T/A — TRANSFER AIR
- 18"x18" E/A — EXHAUST AIR
- 18"x18" S/A - FD — SUPPLY AIR - FABIRC DUCT
- 18"x18" GE/A — GREASE EXHAUST AIR
- 18"x18" CE/A — CONDENSATE EXHAUST AIR
- 18"x18" SE/A — SMOKE EXHAUST AIR
- 6"Ø FLUE — EXHAUST GAS FLUE
- 6"Ø C/A — COMBUSTION AIR
- DROP — RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — ROUND SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
- DROP — ROUND RETURN/TRANSFER AIR DUCT RISE
- DROP — RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
- DROP — ROUND EXHAUST/RELIEF AIR DUCT RISE

GRILLES, REGISTERS & DIFFUSERS TAG



MECHANICAL EQUIPMENT TAGS

DATA DEVICE TAGS

DAMPER TAGS

PIPING SYMBOLS

- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CD — CONDENSATE DRAINAGE
- CWR — CONDENSER WATER RETURN
- CWS — CONDENSER WATER SUPPLY
- GWR — GEOTHERMAL WATER RETURN
- GWS — GEOTHERMAL WATER SUPPLY
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- G — NATURAL GAS
- PG — PROPANE GAS
- REF-L — REFRIGERANT-LIQUID
- REF-S — REFRIGERANT-SUCTION
- REF-HG — REFRIGERANT-HOT GAS
- STM — STEAM
- CDR — CONDENSATE RETURN

PIPE ACCESSORY TAGS

- 2" SHUTOFF BALL VALVE
- 2" BALANCING BALANCING VALVE
- 2" BUTTERFLY BUTTERFLY VALVE
- 2" CHECK CHECK VALVE
- (ALTERNATE CHECK VALVE SYMBOL)
- 2" CIRC CIRCUIT SETTER
- 2" GATE GATE VALVE
- 2" GLOBE GLOBE VALVE
- 2" LOCKED LOCK SHIELD VALVE
- 2" PRV PRESS REDUCING
- 2" QUICK QUICK OPENING
- 2" STRAINER
- 1" GAS-CNTRL EMERG. GAS SHUTOFF
- 1" PLUG PLUG VALVE
- 1" GAS COCK GAS SHUTOFF COCK
- 1" REG PRESS REGULATOR
- 2" M-CNTRL ELEC. CONTROL
- 4" 3-WAY CNTRL 3-WAY ELEC. CONTROL

* NOTE *

ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET.THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

MECHANICAL NOTES

A. MECHANICAL PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE OPERATING MECHANICAL SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS AND DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT.

B. CONTRACTOR SHALL REVIEW AND BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF HVAC INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.

C. ALL WORK SHALL COMPLY WITH LOCAL, STATE, AND NATIONAL CODES. WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.

D. FABRICATE AND INSTALL DUCT PER SMACNA STANDARDS FOR 2-INCH WC WITH GALVANIZED METAL (26 GUAGE MINIMUM). ALL RADIUS ELBOWS AND TEES SHALL HAVE CENTERLINE RADIUS OF 1.5 X DUCT WIDTH. ALL SQUARE ELBOWS AND TEES SHALL HAVE TURNING VANES. PRIOR TO FABRICATION, MECHANICAL CONTRACTOR SHALL FIELD VERIFY STRUCTURAL OBSTRUCTIONS AND CEILING SPACE LIMITATIONS AND MAKE NECESSARY DUCT MODIFICATIONS INCLUDING CHANGING OF ASPECT RATIOS, ADDING OFFSETS, AND SHIFTING LOCATIONS. PROTECT DUCT BY STORING IN A CLEAN AND DRY ENVIRONMENT PRIOR TO INSTALLATION. COVER ENDS OF EXPOSED WORK AT THE END OF EVERY SHIFT.

E. ALL DUCT JOINTS, SEAMS AND BRANCH TAKEOFFS SHALL BE SEALED AIR-TIGHT WITH DUCT SEALANT EQUAL TO HARDCAST IRON-GRIP OR FOIL-GRIP TAPE EQUAL TO HARDCAST AFG-1402.

F. ROUND RUNOUTS SHALL HAVE SPIN-INS WITH DAMPERS, RECTANGULAR BRANCH DUCTS SHALL HAVE 45 DEGREE TAPS WITH AIR EXTRACTORS AND ALL TEES SHALL HAVE SPLITTER DAMPERS. PROVIDE ANY OTHER DEVICES REQUIRED TO BALANCE AIR SYSTEM.

G. FLEX DUCT SHALL HAVE METALIZED VAPOR BARRIER WITH MIN. R-VALUE OF 5.0. BOTH ENDS SHALL BE SECURED WITH NYLON BANDS AND METALIZED DUCT TAPE PER MFG'S RECOMMENDATIONS AND IN ACCORDANCE WITH U.L. 181B.

H. RIGID ROUND AND RECTANGULAR DUCT SHALL BE EXTERNALLY INSULATED WITH 2-INCH THICK 3/4 LB. DENSITY FIBERGLASS BLANKET WITH FSK VAPOR BARRIER AND A MIN. R-VALUE OF 6.5. STAPLE AND SEAL ALL JOINTS WITH 4-INCH-WIDE METALIZED DUCT TAPE EQUAL TO SHURFLEX SF-683.

I. COORDINATE THE EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES WITH NEW AND EXISTING LIGHTING. PROVIDE DIFFUSERS AND REGISTERS WITH 4-WAY BLOW PATTERN UNLESS OTHERWISE NOTED. INSULATE AND SEAL ALL GRILLE AND DIFFUSER NECKS TO MAINTAIN VAPOR BARRIER AND ELIMINATE CONDENSATION.

J. CONDENSATE DRAINS SHALL BE SUPPLIED FOR ALL COOLING EQUIPMENT. CONTRACTOR SHALL ENSURE PROPER INSTALLATION AND DRAINAGE AS REQUIRED BY FEDERAL, STATE, AND LOCAL CODES. CONDENSATE TRAPS FOR ALL AC UNITS SHALL BE SIZED AS RECOMMENDED BY UNIT MFG. CONDENSATE PIPING AND TRAPS SHALL BE SCHEDULE 40 PVC ROUTED TO EXTERIOR OR STORM DRAIN. INSULATE INTERIOR PIPING WITH 1/2-INCH-THICK UNICELLULAR INSULATION.

K. REFRIGERANT PIPING SHALL BE TYPE ACR COPPER WITH SILVER SOLDERED JOINTS. INSTALL PER EQUIPMENT INSTALLATION INSTRUCTIONS. INSULATION SHALL BE 1-INCH-THICK MINIMUM.

L. GAS PIPING SHALL BE A-53 SCHEDULE 40 BLACK STEEL WITH MALLEABLE FITTINGS. PIPING BELOW GRADE SHALL HAVE FRP COATING AND ABOVE GRADE SHALL BE PRIMED AND PAINTED. BOND ALL GAS PIPING ABOVE GRADE AND WITHIN BUILDING. PROVIDE MAGNETIC MARKER TAPE 12-INCHES ABOVE ALL BELOW GRADE PIPING.

M. ALL PIPING SHALL BE SUPPORTED AND SECURED WITH SUITABLE HANGERS, STRAPS OR PIPE STANDS. SUPPORT WITH NO DROOPS OR SAGS. ALL HANGERS AND ATTACHMENTS SHALL BE PLATED, GALVANIZED OR PAINTED. PROVIDE ISOLATION ON PIPING OF DISSIMILAR MATERIALS.

N. POWER WIRING, DISCONNECTS AND STARTERS NOT FURNISHED WITH HVAC EQUIPMENT AND FINAL CONNECTIONS SHALL BE BY THE E.C.

O. CONTROL WIRING, RELAYS AND INTERLOCKING DEVICES SHALL BE PROVIDED BY THE M.C.

P. UL LISTED DUCT SMOKE DETECTORS SHALL BE FURNISHED, INSTALLED AND TESTED BY THE M.C. THE E.C. SHALL PROVIDE 120V POWER TO EACH DUCT SMOKE DETECTOR WHERE REQUIRED. THE M.C. SHALL PROVIDE REMOTE ALARM/TEST STATIONS FOR EACH DUCT SMOKE DETECTOR.

Q. TEMPERATURE CONTROLS FOR EACH HEATING-COOLING SYSTEM SHALL CONSIST OF AN ELECTRONIC PROGRAMMABLE HEATING-COOLING THERMOSTAT WITH HEAT-OFF-COOL-AUTO SYSTEM SWITCH AND AUTO-ON FAN SWITCH. MOUNT THERMOSTATS 48-INCHES ABOVE FINISHED FLOOR AND A MINIMUM 8" FROM ANY OTHER SWITCHING DEVICES.

R. INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE AND REPAIR IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS, AS WELL AS SPECIFIC INSTRUCTIONS ON PLANS. PROVIDE A 4" HOUSEKEEPING PAD FOR EACH PIECE OF MECHANICAL EQUIPMENT. COORDINATE SIZES WITH MECHANICAL EQUIPMENT SELECTED.

S. PROVIDE FLEX CONNECTORS AT ALL DUCT TO EQUIPMENT CONNECTIONS NOT HAVING INTERNALLY ISOLATED FANS.

T. CONTRACTOR SHALL BALANCE AIR SYSTEM TO QUANTITIES INDICATED ON PLANS AND PROVIDE TYPE WRITTEN REPORT WITH O AND M MANUALS.

U. ALL EQUIPMENT AND SYSTEMS SHALL BE WASHED, MECHANICAL AREAS CLEANED AND PAINTED SURFACES TOUCHED UP TO MATCH FACTORY APPLIED FINISHES. ALL DUCT SYSTEMS AND AIR HANDLERS SHALL BE VACUUMED AND WIPED CLEAN ON THE INSIDE PRIOR TO TURNING THE PROJECT OVER TO THE OWNER. SYSTEMS THAT HAVE NOT BEEN ADEQUATELY PROTECTED DURING INSTALLATION WILL REQUIRE CLEANING AGAIN AT THE END OF THE PROJECT.

V. CONTRACTOR SHALL INSTALL A NEW SET OF PLEATED FILTERS BEFORE TURNING BUILDING OVER TO OWNER.

W. CONTRACTOR SHALL PROVIDE BUILDING OWNER WITH A COMPLETE OPERATING AND MAINTENANCE MANUAL INCLUDING EQUIPMENT BASIC DATA, CONTROL INFORMATION, ROUTINE MAINTENANCE ACTIONS AND SERVICE AGENCIES' NAME, PHONE NUMBER, AND ADDRESS.

HVAC SHEET INDEX

M000	HVAC TITLE SHEET
M101	HVAC FLOOR PLAN
M201	HVAC REFLECTED CEILING PLAN
M301	HVAC SCHEDULES
M302	HVAC SCHEDULES
M401	HVAC DETAILS

THESE DRAWINGS ARE THE COPYRIGHT OF McGAHEY'S PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY

McGAHEY DESIGN
123 Raleigh Street, Fuquay Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

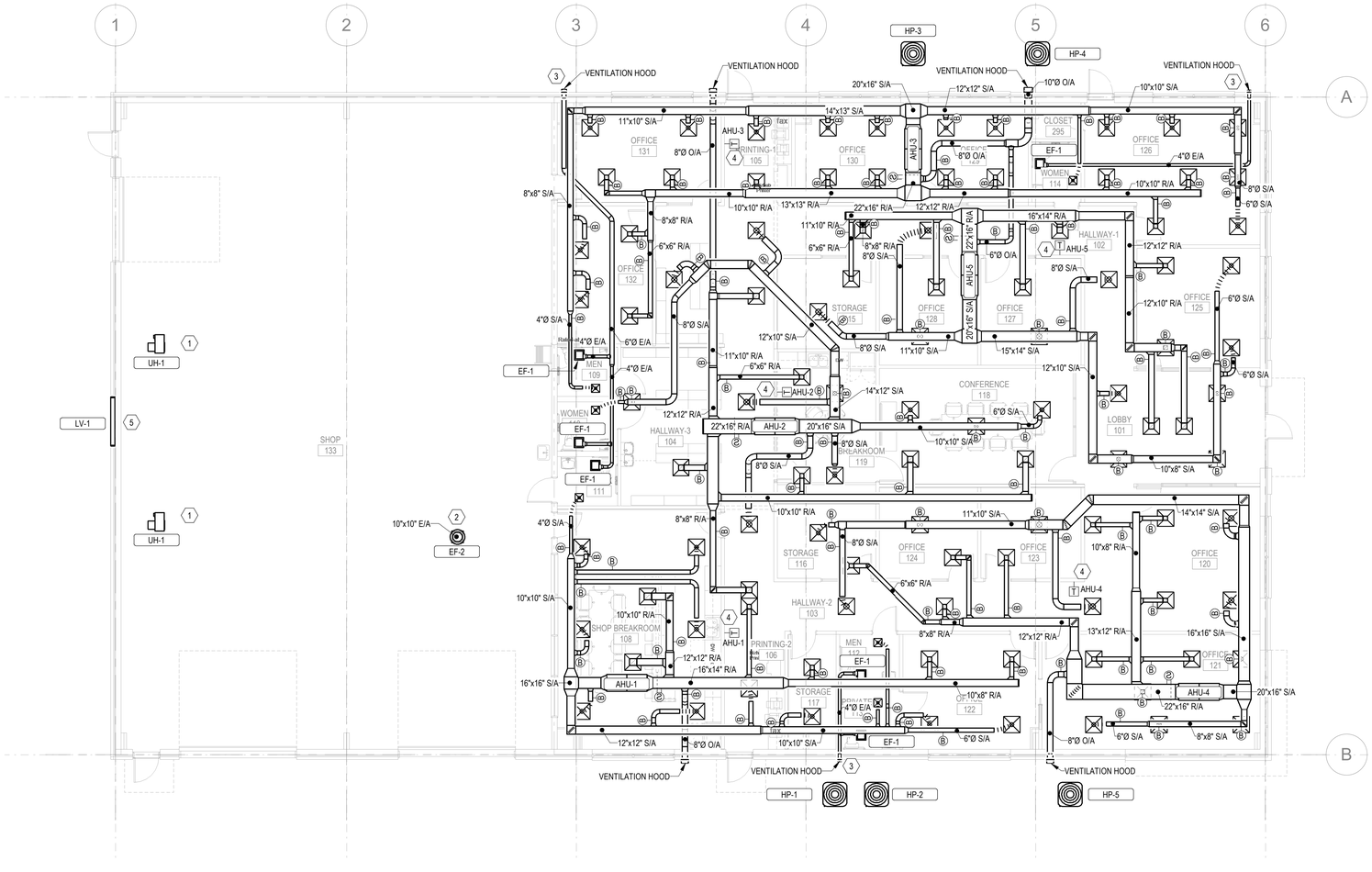
DRAWN BY: CAR
CHECK BY: BDL

HVAC TITLE SHEET

M000

KEYNOTES

1. MOUNT GAS HEATER 12' A.F.F. REFER TO DETAIL #8 ON SHEET M401.
2. CONTRACTOR SHALL INSTALL BIRDSCREEN AT END OF DUCT FROM ROOF MOUNTED EXHAUST FAN. REFER TO DETAIL #7 ON SHEET M401.
3. ALL EXHAUST OUTLETS SHALL MAINTAIN A MINIMUM DISTANCE OF AT LEAST 10' FROM ANY AND ALL AIR INLET INTAKES.
4. CONTRACTOR TO INSTALL VISIBLE/AUDIBLE ALARM NEXT TO THERMOSTAT WITH KEY SWITCH AND TESTING FUNCTION FOR EACH DUCT MOUNTED SMOKE DETECTOR.
5. CONTRACTOR TO INSTALL LOUVER TO MATCH LOCATION INDICATED ON ARCHITECTS ELEVATION.



1 M101 HVAC FLOOR PLAN
1/8" = 1'-0"

2 M101 HVAC MEZZANINE FLOOR PLAN
1/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

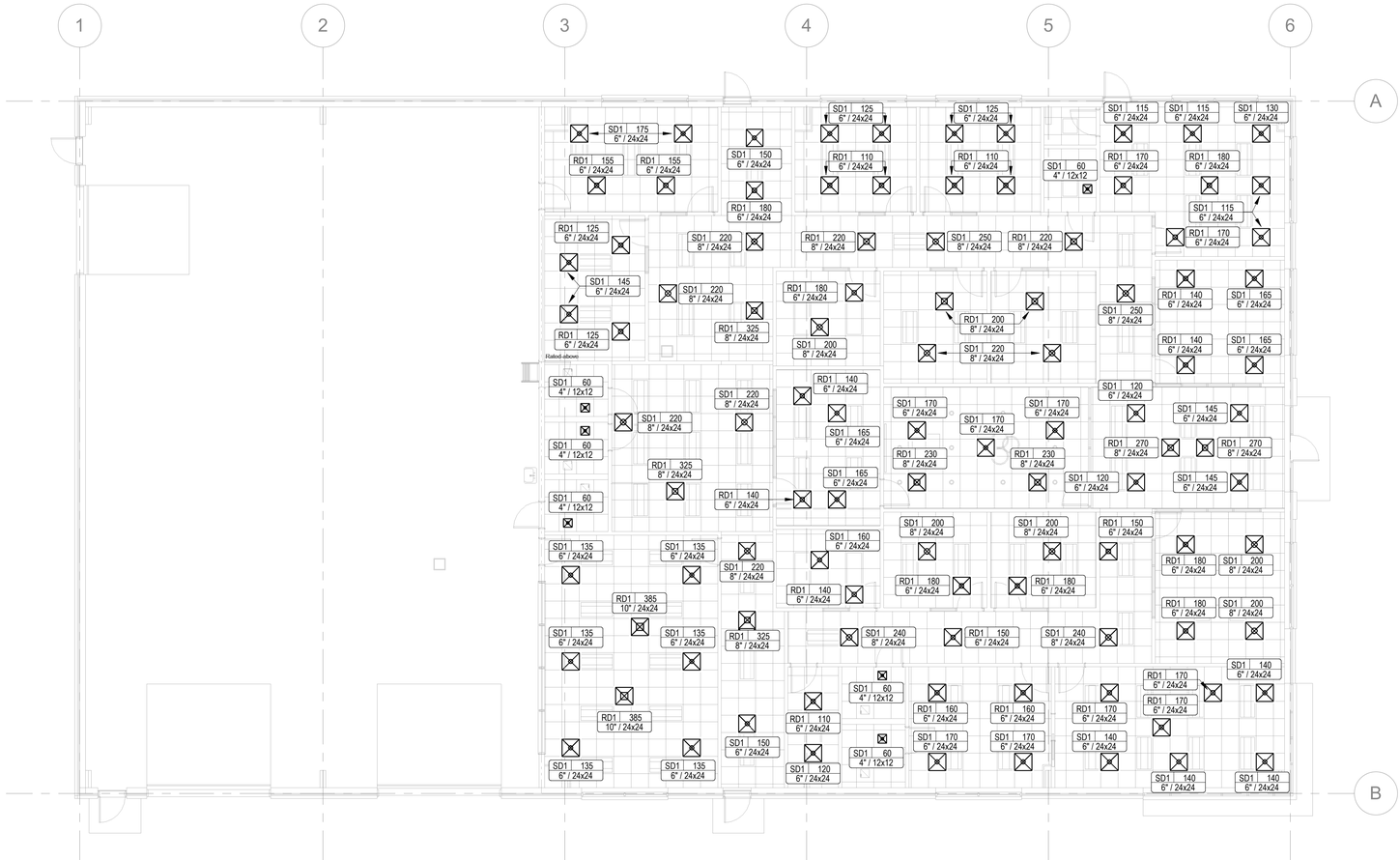
REV	DATE	DESCRIPTION

DRAWN BY: CAR
CHECK BY: BDL

HVAC FLOOR PLAN

M101

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. A SIGNATURE ON A COVER SHEET DOES NOT APPEAR. THIS IS NOT AN AUTHORIZED COPY!



1 / M201 HVAC REFLECTED CEILING PLAN
1/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: CAR
CHECK BY: BDL

HVAC REFLECTED CEILING PLAN

M201

THESE DRAWINGS ARE THE COPYRIGHT OF McGAHEY PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

2018 ICC NC MECHANICAL VENTILATION CALCULATIONS - AHU-1

Room Name	Occupancy Category	Area (Az)	Ocupancy Density (PEOPLE / 1000 SF)	Occupancy (Pz)	Occupancy Based		Area Based		Breathing Zone Outdoor Airflow (Vb = Rp * Pz + Ra *Az)	ASHRAE Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Airflow (Voz = Vb / Ez)	Exhaust Rate
					CFM / Person (Rp)	CFM (Ra * Az)	CFM / SF (Ra)	CFM (Ra * Az)				
UNISEX	Toilets - public	44.0 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	2.64 CFM	2.64 CFM	0.8	3 CFM	50 CFM
OFFICE	Office space	231.0 SF	5	2	5 CFM	10 CFM	0.06 CFM/SF	13.86 CFM	23.86 CFM	0.8	30 CFM	0 CFM
SHOP BREAKROOM	Breakrooms	585.1 SF	50	30	5 CFM	150 CFM	0.06 CFM/SF	35.11 CFM	185.11 CFM	0.8	231 CFM	0 CFM
MEN	Toilets - public	44.0 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	2.64 CFM	2.64 CFM	0.8	3 CFM	50 CFM
PRIVATE	Toilets - private	53.8 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	3.23 CFM	3.23 CFM	0.8	4 CFM	50 CFM
STORAGE	Storage rooms	81.8 SF	0	0	0 CFM	0 CFM	0.12 CFM/SF	9.81 CFM	9.81 CFM	0.8	12 CFM	0 CFM
PRINTING-2	Corridors	105.7 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	6.34 CFM	6.34 CFM	0.8	8 CFM	0 CFM
		1145.4 SF		32							292 CFM	150 CFM

OUTDOOR AIR INTAKE FLOW RATE (CFM):	292
EXHAUST FLOW RATE PLUS 8% FOR PRESSURIZATION (CFM):	162
FINAL VENT. AIR REQUIREMENT (GREATER OF THE ABOVE CFM):	292

AHU-1 TO PROVIDE 300 CFM OF OUTSIDE AIR.

2018 ICC NC MECHANICAL VENTILATION CALCULATIONS - AHU-2

Room Name	Occupancy Category	Area (Az)	Ocupancy Density (PEOPLE / 1000 SF)	Occupancy (Pz)	Occupancy Based		Area Based		Breathing Zone Outdoor Airflow (Vb = Rp * Pz + Ra *Az)	ASHRAE Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Airflow (Voz = Vb / Ez)	Exhaust Rate
					CFM / Person (Rp)	CFM (Ra * Az)	CFM / SF (Ra)	CFM (Ra * Az)				
WOMEN	Toilets - public	44.0 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	2.64 CFM	2.64 CFM	0.8	3 CFM	50 CFM
HALLWAY-3	Corridors	718.6 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	43.12 CFM	43.12 CFM	0.8	54 CFM	0 CFM
CONFERENCE	Conference/meeting	332.7 SF	50	17	5 CFM	85 CFM	0.06 CFM/SF	19.96 CFM	104.96 CFM	0.8	131 CFM	0 CFM
BREAKROOM	Breakrooms	217.2 SF	50	11	5 CFM	55 CFM	0.06 CFM/SF	13.03 CFM	68.03 CFM	0.8	85 CFM	0 CFM
		1312.6 SF		28							273 CFM	50 CFM

OUTDOOR AIR INTAKE FLOW RATE (CFM):	273
EXHAUST FLOW RATE PLUS 8% FOR PRESSURIZATION (CFM):	54
FINAL VENT. AIR REQUIREMENT (GREATER OF THE ABOVE CFM):	273

AHU-2 TO PROVIDE 285 CFM OF OUTSIDE AIR.

2018 ICC NC MECHANICAL VENTILATION CALCULATIONS - AHU-3

Room Name	Occupancy Category	Area (Az)	Ocupancy Density (PEOPLE / 1000 SF)	Occupancy (Pz)	Occupancy Based		Area Based		Breathing Zone Outdoor Airflow (Vb = Rp * Pz + Ra *Az)	ASHRAE Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Airflow (Voz = Vb / Ez)	Exhaust Rate
					CFM / Person (Rp)	CFM (Ra * Az)	CFM / SF (Ra)	CFM (Ra * Az)				
OFFICE	Office space	235.3 SF	5	2	5 CFM	10 CFM	0.06 CFM/SF	14.12 CFM	24.12 CFM	0.8	30 CFM	0 CFM
OFFICE	Office space	195.0 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	11.70 CFM	16.70 CFM	0.8	21 CFM	0 CFM
MEN	Toilets - public	44.0 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	2.64 CFM	2.64 CFM	0.8	3 CFM	50 CFM
OFFICE	Office space	164.9 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	9.90 CFM	14.90 CFM	0.8	19 CFM	0 CFM
OFFICE	Office space	170.3 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	10.22 CFM	15.22 CFM	0.8	19 CFM	0 CFM
WOMEN	Toilets - public	44.1 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	2.64 CFM	2.64 CFM	0.8	3 CFM	50 CFM
CLOSET	Storage rooms	26.4 SF	0	0	0 CFM	0 CFM	0.12 CFM/SF	3.17 CFM	3.17 CFM	0.8	4 CFM	0 CFM
OFFICE	Office space	338.0 SF	5	2	5 CFM	10 CFM	0.06 CFM/SF	20.28 CFM	30.28 CFM	0.8	38 CFM	0 CFM
PRINTING-1	Corridors	102.7 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	6.16 CFM	6.16 CFM	0.8	8 CFM	0 CFM
		1320.7 SF		7							145 CFM	100 CFM

OUTDOOR AIR INTAKE FLOW RATE (CFM):	145
EXHAUST FLOW RATE PLUS 8% FOR PRESSURIZATION (CFM):	108
FINAL VENT. AIR REQUIREMENT (GREATER OF THE ABOVE CFM):	145

AHU-3 TO PROVIDE 300 CFM OF OUTSIDE AIR.

2018 ICC NC MECHANICAL VENTILATION CALCULATIONS - AHU-4

Room Name	Occupancy Category	Area (Az)	Ocupancy Density (PEOPLE / 1000 SF)	Occupancy (Pz)	Occupancy Based		Area Based		Breathing Zone Outdoor Airflow (Vb = Rp * Pz + Ra *Az)	ASHRAE Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Airflow (Voz = Vb / Ez)	Exhaust Rate
					CFM / Person (Rp)	CFM (Ra * Az)	CFM / SF (Ra)	CFM (Ra * Az)				
STORAGE	Storage rooms	108.9 SF	0	0	0 CFM	0 CFM	0.12 CFM/SF	13.07 CFM	13.07 CFM	0.8	16 CFM	0 CFM
OFFICE	Office space	133.0 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	7.98 CFM	12.98 CFM	0.8	16 CFM	0 CFM
OFFICE	Office space	134.8 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	8.09 CFM	13.09 CFM	0.8	16 CFM	0 CFM
OFFICE	Office space	265.1 SF	5	2	5 CFM	10 CFM	0.06 CFM/SF	15.91 CFM	25.91 CFM	0.8	32 CFM	0 CFM
OFFICE	Office space	372.2 SF	5	2	5 CFM	10 CFM	0.06 CFM/SF	22.33 CFM	32.33 CFM	0.8	40 CFM	0 CFM
HALLWAY-2	Corridors	326.5 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	19.59 CFM	19.59 CFM	0.8	24 CFM	0 CFM
		1340.5 SF		6							146 CFM	0 CFM

OUTDOOR AIR INTAKE FLOW RATE (CFM):	146
EXHAUST FLOW RATE PLUS 8% FOR PRESSURIZATION (CFM):	0
FINAL VENT. AIR REQUIREMENT (GREATER OF THE ABOVE CFM):	146

AHU-4 TO PROVIDE 330 CFM OF OUTSIDE AIR.

2018 ICC NC MECHANICAL VENTILATION CALCULATIONS - AHU-5

Room Name	Occupancy Category	Area (Az)	Ocupancy Density (PEOPLE / 1000 SF)	Occupancy (Pz)	Occupancy Based		Area Based		Breathing Zone Outdoor Airflow (Vb = Rp * Pz + Ra *Az)	ASHRAE Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Airflow (Voz = Vb / Ez)	Exhaust Rate
					CFM / Person (Rp)	CFM (Ra * Az)	CFM / SF (Ra)	CFM (Ra * Az)				
OFFICE	Office space	220.0 SF	5	2	5 CFM	10 CFM	0.06 CFM/SF	13.20 CFM	23.20 CFM	0.8	29 CFM	0 CFM
OFFICE	Office space	158.1 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	9.49 CFM	14.49 CFM	0.8	18 CFM	0 CFM
OFFICE	Office space	155.9 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	9.36 CFM	14.36 CFM	0.8	18 CFM	0 CFM
STORAGE	Office space	131.9 SF	5	1	5 CFM	5 CFM	0.06 CFM/SF	7.92 CFM	12.92 CFM	0.8	16 CFM	0 CFM
LOBBY	Main entry lobbies	311.2 SF	10	4	5 CFM	20 CFM	0.06 CFM/SF	18.67 CFM	38.67 CFM	0.8	48 CFM	0 CFM
HALLWAY-1	Corridors	333.8 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	20.03 CFM	20.03 CFM	0.8	25 CFM	0 CFM
		1311.0 SF		9							155 CFM	0 CFM

OUTDOOR AIR INTAKE FLOW RATE (CFM):	155
EXHAUST FLOW RATE PLUS 8% FOR PRESSURIZATION (CFM):	0
FINAL VENT. AIR REQUIREMENT (GREATER OF THE ABOVE CFM):	155

AHU-5 TO PROVIDE 160 CFM OF OUTSIDE AIR.

THESE DRAWINGS ARE THE COPYRIGHT OF McGAHEY PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: CAR
CHECK BY: BDL

HVAC SCHEDULES

M301

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

MECHANICAL DESIGN
(PROVIDE ON THE MECHANICL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone 4A
winter dry bulb: 17 °F
summer dry bulb: 97 °F

Interior design conditions
winter dry bulb: 68 °F
summer dry bulb: 75 °F
relative humidity: 50%

Building heating load: 247,680 BTU

Building cooling load: 64,800 BTU

Mechanical Spacing Conditioning System
Unitary
description of unit: SEE PLAN
heating efficiency: SEE PLAN
cooling efficiency: SEE PLAN
size category of unit: SEE PLAN
Boiler
Size category. If oversized, state reason.: N/A
Chiller
Size category. If oversized, state reason.: N/A

List equipment efficiencies: N/A

2018 ICC NC MECHANICAL VENTILATION CALCULATIONS - SHOP & MEZZANINE

Room Name	Occupancy Category	Area (Az)	Ocupancy Density (PEOPLE / 1000 SF)	Occupancy (Pz)	Occupancy Based		Area Based		Breathing Zone Outdoor Airflow (Vb = Rp * Pz + Ra *Az)	ASHRAE Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Airflow (Voz = Vb / Ez)	Exhaust Rate
					CFM / Person (Rp)	CFM (Ra * Az)	CFM / SF (Ra)	CFM (Ra * Az)				
SHOP	Warehouses	4138.8 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	248.33 CFM	248.33 CFM	0.8	310 CFM	0 CFM
MEZZANINE	Warehouses	1298.8 SF	0	0	0 CFM	0 CFM	0.06 CFM/SF	77.93 CFM	77.93 CFM	0.8	97 CFM	0 CFM
		5437.6 SF		0							408 CFM	0 CFM

OUTDOOR AIR INTAKE FLOW RATE (CFM): 408
EXHAUST FLOW RATE PLUS 8% FOR PRESSURIZATION (CFM): 0
FINAL VENT. AIR REQUIREMENT (GREATER OF THE ABOVE CFM): 408

LV-1 TO PROVIDE 160 CFM OF OUTSIDE AIR EACH.
LV-2 TO PROVIDE 100 CFM OF OUTSIDE AIR.

AIR HANDLING UNIT SUMMARY SCHEDULE

ID	MANUFACTURER	MODEL NO.	QTY	VENTILATION	SUPPLY FAN	RETURN/EXHAUST FAN	NET COOLING CAP	UNIT DIMENSIONS			UNIT WEIGHT	FLA	MCA	MOCP	VOLT	PH	FREQ	INTERLOCK	REMARKS
				DESIGN AIRFLOW	DESIGN AIRFLOW	AIRFLOW DESIGN		LENGTH	WIDTH	HEIGHT								CONDENSING UNIT ID	
AHU-1	CARRIER	FV4CNB005L00	1	300 CFM	1600 CFM	1300 CFM	48000 Btu/h	1' - 10 1/16"	1' - 9 1/8"	4' - 5 7/16"	172 lb	4.3 A	5.4 A	15.0 A	208 V	1	60 Hz	HP-1	PROVIDE 8 KW OF AUXILIARY HEAT.
AHU-2	CARRIER	FV4CNB006L00	1	285 CFM	2000 CFM	1715 CFM	60000 Btu/h	1' - 10 1/16"	2' - 0 11/16"	4' - 11 3/16"	207 lb	6.8 A	8.5 A	15.0 A	208 V	1	60 Hz	HP-2	PROVIDE 8 KW OF AUXILIARY HEAT.
AHU-3	CARRIER	FV4CNB006L00	1	300 CFM	2000 CFM	1700 CFM	60000 Btu/h	1' - 10 1/16"	2' - 0 11/16"	4' - 11 3/16"	207 lb	6.8 A	8.5 A	15.0 A	208 V	1	60 Hz	HP-3	PROVIDE 8 KW OF AUXILIARY HEAT.
AHU-4	CARRIER	FV4CNB006L00	1	330 CFM	2000 CFM	1670 CFM	60000 Btu/h	1' - 10 1/16"	2' - 0 11/16"	4' - 11 3/16"	207 lb	6.8 A	8.5 A	15.0 A	208 V	1	60 Hz	HP-4	PROVIDE 8 KW OF AUXILIARY HEAT.
AHU-5	CARRIER	FV4CNB006L00	1	160 CFM	2000 CFM	1840 CFM	60000 Btu/h	1' - 10 1/16"	2' - 0 11/16"	4' - 11 3/16"	207 lb	6.8 A	8.5 A	15.0 A	208 V	1	60 Hz	HP-5	PROVIDE 8 KW OF AUXILIARY HEAT.

NOTES:
1. APPROVED EQUAL ACCEPTED.

SPLIT SYSTEM AIR SOURCE HEAT PUMP

ID	MANUFACTURER	MODEL NO.	QTY	NOMINAL COOLING CAP	COMPRESSOR		SEER	EER	UNIT DIMENSIONS			UNIT WEIGHT	MCA	MOCP	VOLT	PH	FREQ	INTERLOCK
					MOTOR RLA	REFRIGERANT TYPE			LENGTH	WIDTH	HEIGHT							ID
HP-1	CARRIER	25TPA748A003	1	4.0 ton	25.80 A	R-410A	17	12	2' - 11"	2' - 11"	3' - 9 11/16"	294 lb	33.5 A	60.0 A	208 V	1	60 Hz	AHU-1
HP-2	CARRIER	25TPA760A003	1	5.0 ton	26.90 A	R-410A	17	12	2' - 11"	2' - 11"	3' - 9 11/16"	295 lb	35.1 A	60.0 A	208 V	1	60 Hz	AHU-2
HP-3	CARRIER	25TPA760A003	1	5.0 ton	26.90 A	R-410A	17	12	2' - 11"	2' - 11"	3' - 9 11/16"	295 lb	35.1 A	60.0 A	208 V	1	60 Hz	AHU-3
HP-4	CARRIER	25TPA760A003	1	5.0 ton	26.90 A	R-410A	17	12	2' - 11"	2' - 11"	3' - 9 11/16"	295 lb	35.1 A	60.0 A	208 V	1	60 Hz	AHU-4
HP-5	CARRIER	25TPA760A003	1	5.0 ton	26.90 A	R-410A	17	12	2' - 11"	2' - 11"	3' - 9 11/16"	295 lb	35.1 A	60.0 A	208 V	1	60 Hz	AHU-5

NOTES:
1. APPROVED EQUAL ACCEPTED.

GAS-FIRED UNIT HEATER SCHEDULE

ID	MANUFACTURER	MODEL NO.	QTY	TYPE	ARRANGEMENT	FAN							GAS-FIRED HEAT EXCHANGER									
						DESIGN AIRFLOW	OUTLET VELOCITY	DRIVE TYPE	MOTOR QTY	MOTOR POWER	MOTOR RPM	MOTOR ECM	GAS BURNER INPUT	GAS BURNER CAP	FUEL TYPE	FUEL PRESS AVAIL	AFUE	SOUND PRESS LEVEL	FLA	MOCP	VOLT	PH	REMARKS
UH-1	REZNOR	UDXC-30	3	POWER VENTED	HORIZONTAL	456 CFM	475 FPM	DIRECT	1	0.02 hp	1550	No	30000 Btu/h	24600 Btu/h	NG	2.0 psi	82%	40	1.9 A	15.0 A	120 V	1	1,2,3,4,5,6

NOTES:
1. ALL FLUES SHALL BE INSTALLED PER THE MANUFACTURES INSTALLATION MANUAL.
2. ALL CONTROLS SHALL BE ENCLOSED IN THE SEALED CONTROL COMPARTMENT.
3. PROVIDE WITH FACTORY INSTALLED TOTALLY ENCLOSED FAN MOTOR.
4. PROVIDE WITH FACTORY SEPARATED COMBUSTION CHAMBER.
5. PROVIDE FIELD INSTALLED THERMOSTAT GUARD WITH LOCKING COVER.
6. FOLLOW ALL MANUFACTURE INSTALLATION REQUIREMENTS.
7. THE MINIMUM TOP CLEARANCE FROM COMBUSTIBLES SHALL BE 4 INCHES FOR UDXC-250 AND THE UDXC-300.
8. INLUDE OPTION CG4: 480V -115V STEP DOWN TRANSFORMER.

EXHAUST FAN SCHEDULE

ID	DESCRIPTION	MANUFACTURER	MODEL NO.	QTY	TYPE	FAN		MOTOR		UNIT DIMENSIONS			UNIT WEIGHT	FLA	MCA	MOCP	VOLT	PH	FREQ	REMARKS
						DESIGN AIRFLOW	DRIVE TYPE	POWER	RPM	LENGTH	WIDTH	HEIGHT								
EF-1	CEILING FAN	GREENHECK	SP-110-VG	6	CEILING	70 CFM	DIRECT	0.010 hp	940	10 1/2"	11 3/8"	7 5/8"	12 lb	0.2 A	0.3 A	15.0 A	120 V	1	60 Hz	SHALL OPERATE CONTINUOSLY WHILE OCCUPIED.
EF-2	ROOFTOP FAN	GREENHECK	G-090-VG	1	PRV	320 CFM	DIRECT	0.020 hp	1013	1' - 5"	1' - 5"	1' - 10"	28 lb	1.5 A	1.9 A	15.0 A	208 V	1	60 Hz	SHALL OPERATE CONTINUOSLY WHILE OCCUPIED.
EF-3	ROOFTOP FAN	GREENHECK	G-080-VG	1	PRV	100 CFM	DIRECT	0.010 hp	920	1' - 5"	1' - 5"	1' - 10"	27 lb	1.5 A	1.9 A	15.0 A	208 V	1	60 Hz	SHALL OPERATE CONTINUOSLY WHILE OCCUPIED.

NOTES:
1. APPROVED EQUAL ACCEPTED.

GRILLES, REGISTERS AND DIFFUSERS SCHEDULE

ID	MODEL	MATERIAL	FINISH	QTY	INSTALLATION TYPE	SPECIFICATION	NOTES
RD1	PAR-AA	ALUMINUM	WHITE ENAMEL	44	LAY-IN INSTALLATION	PERFORATED DIFFUSER WITH FACE MOUNTED DEFLECTORS	COORDINATE WITH ARCHITECT FOR STYLE & COLOR.
SD1	TMS-AA	ALUMINUM	WHITE ENAMEL	62	LAY-IN INSTALLATION	HIGH PERFORMANCE 3-CONE DIFFUSER	COORDINATE WITH ARCHITECT FOR STYLE & COLOR.

NOTES:
1. APPROVED EQUAL ACCEPTED.

LOUVER SCHEDULE

ID	MANUFACTURER	MODEL NO.	QTY	MATERIAL	TYPE	DESIGN AIRFLOW	FREE AREA	FREE AREA VELOCITY	DIMENSIONS		UNIT WEIGHT	REMARKS
									WIDTH	HEIGHT		
LV-2	GREENHECK	EHH-601	1	ALUMINUM	WIND RAIN DRIVEN	100 CFM	0.2 SF	633 FPM	1' - 0"	10"	6 lb	COORDINATE WITH ARCHITECT FOR STYLE & COLOR.
LV-1	GREENHECK	EHH-601	1	ALUMINUM	WIND RAIN DRIVEN	0 CFM	17.6 SF	0 FPM	6' - 0"	6' - 0"	276 lb	COORDINATE WITH ARCHITECT FOR STYLE & COLOR.

NOTES:
1. APPROVED EQUAL ACCEPTED.

McGAHEY DESIGN
123 Raleigh Street, Fuquay Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

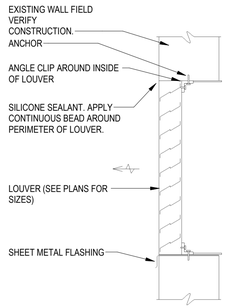
REV	DATE	DESCRIPTION

DRAWN BY: CAR
CHECK BY: BDL

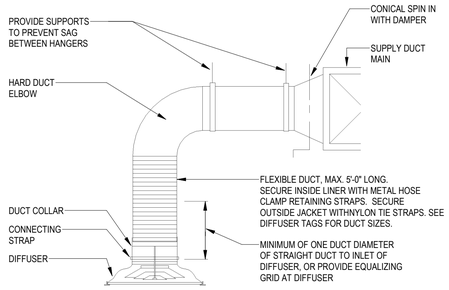
HVAC SCHEDULES

M302

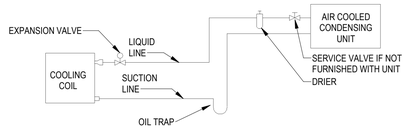
THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!



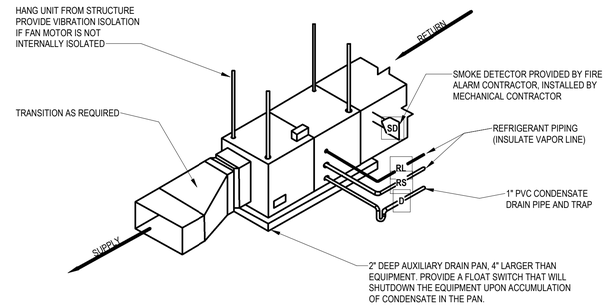
4 / M401 LOUVER ASSEMBLY DETAIL
NOT TO SCALE



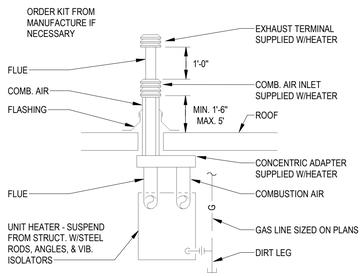
3 / M401 DIFFUSER FLEXIBLE DUCT CONNECTION
NOT TO SCALE



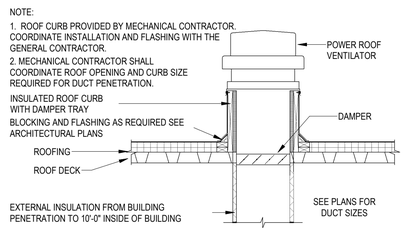
2 / M401 SPLIT SYSTEM FAN COIL UNIT PIPING SCHEMATIC
NOT TO SCALE



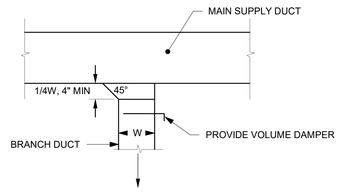
1 / M401 AHU HORIZTONTAL MOUNTING DETAIL
NOT TO SCALE



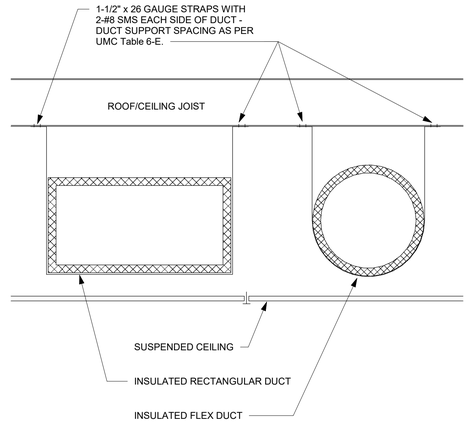
8 / M401 GAS FIRED UNIT HEATER DETAIL
NOT TO SCALE



7 / M401 POWER ROOF VENTILATOR DETAIL
NOT TO SCALE



6 / M401 DUCT TAKE-OFF DETAIL
NOT TO SCALE



5 / M401 DUCT SUPPORT DETAIL
NOT TO SCALE

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: CAR
CHECK BY: BDL

HVAC DETAILS

M401

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)	MCB	MAIN CIRCUIT BREAKER
A	AMPERE	MCC	MOTOR CONTROL CENTER
AC	ABOVE COUNTER	MDC	MAIN DISTRIBUTION CENTER
ACLG	ABOVE CEILING	MDP	MAIN DISTRIBUTION PANEL
ADO	AUTOMATIC DOOR OPENER	MFR	MANUFACTURER
AF	AMP FRAME	MFS	MAIN FUSED DISCONNECT SW
AFF	ABOVE FINISHED FLOOR	MH	MANHOLE
AFG	ABOVE FINISHED GRADE	MIC	MICROPHONE
AFI	ARC FAULT CIRCUIT INTERRUPTER	MIN	MINIMUM
		MISC	MISCELLANEOUS
AHU	AIR HANDLING UNIT	MLO	MAIN LUGS ONLY
AL	ALUMINUM	MMS	MANUAL MOTOR STARTER
ALT	ALTERNATE	MOA	MULTIOUTLET ASSEMBLY
AMP	AMPERE	MSP	MOTOR STARTER PANELBOARD
AMPL	AMPLIFIER	MSBD	MAIN SWITCHBOARD
ANNUN	ANNUNCIATOR	MT	MOUNT
APPROX	APPROXIMATELY	MT.C	EMPTY CONDUIT
AQ-STAT	AQUASTAT	MTS	MANUAL TRANSFER SWITCH
ARCH	ARCHITECT, ARCHITECTURAL	MTR	MOTOR, MOTORIZED
AS	AMP SWITCH	N.C.	NORMALLY CLOSED
AT	AMP TRIP	NEC	NATIONAL ELECTRICAL CODE
ATS	AUTOMATIC TRANSFER SWITCH	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
AUTO	AUTOMATIC		
AUX	AUXILIARY	NFDS	NON-FUSED SAFETY DISCONNECT SWITCH
AV	AUDIO VISUAL		
AWG	AMERICAN WIRE GAUGE	NIC	NOT IN CONTRACT
BATT	BATTERY	NL	NIGHT LIGHT
BD	BOARD	N.O.	NORMALLY OPEN
BLDG	BUILDING	NPF	NORMAL POWER FACTOR
BMS	BUILDING MANAGEMENT SYSTEM	NTS	NOT TO SCALE
C	CONDUIT	OH	OVERHEAD
CAB	CABINET	OL	OVERLOADS
CAT	CATALOG	PA	PUBLIC ADDRESS
CATV	CABLE TELEVISION	PB	PULL BOX OR PUSHBUTTON
CB	CIRCUIT BREAKER	PE	PNEUMATIC ELECTRIC
CCTV	CLOSED CIRCUIT TELEVISION	PED	PEDESTAL
CKT	CIRCUIT	PF	POWER FACTOR
CLG	CEILING	PH	PHASE
COMB	COMBINATION	PIV	POST INDICATING VALVE
CMPR	COMPRESSOR	PNL	PANEL
CONN	CONNECTION	PP	POWER POLE
CONST	CONSTRUCTION	PR	PAIR
CONT	CONTINUATION OR CONTINUOUS	PRI	PRIMARY
CONTR	CONTRACTOR	PROJ	PROJECTION
CONV	CONVECTOR	PRV	POWER ROOF VENTILATOR
CP	CIRCULATING PUMP	PT	POTENTIAL TRANSFORMER
CRT	CATHODE-RAY TUBE	PVC	POLYVINYL CHLORIDE (CONDUIT)
CT	CURRENT TRANSFORMER	PWR	POWER
CTR	CENTER	QUAN	QUANTITY
CU	COPPER	RCPT	RECEPTACLE
DCP	DOMESTIC WATER CIRCULATING PUMP	REQD	REQUIRED
DEPT	DEPARTMENT	RM	ROOM
DET	DETAIL	RSC	RIGID STEEL CONDUIT
DIA	DIAMETER	RTU	ROOF TOP UNIT
DISC	DISCONNECT	SC	SURFACE CONDUIT
DIST	DISTRIBUTION	SEC	SECONDARY
DN	DOWN	SHT	SHEET
DPR	DAMPER	SIM	SIMILAR
DS	SAFETY DISCONNECT SWITCH	S/N	SOLID NEUTRAL
DT	DOUBLE THROW	SPEC	SPECIFICATION
DWG	DRAWING	SPKR	SPEAKER
EC	ELECTRICAL CONTRACTOR	SP	SPARE
ELEC	ELECTRIC, ELECTRICAL	SR	SURFACE RACEWAY
ELEV	ELEVATOR	SS	STAINLESS STEEL
ELU	EMERGENCY LIGHTING UNIT	SSW	SELECTOR SWITCH
EM	EMERGENCY	S/S	STOP/START PUSHBUTTONS
EMS	ENERGY MANAGEMENT SYSTEM	STA	STATION
EMT	ELECTRICAL METALLIC TUBING	STD	STANDARD
EP	ELECTRIC PNEUMATIC	SURF	SURFACE MOUNTED
EQUIP	EQUIPMENT	SW	SWITCH
EWC	ELECTRIC WATER COOLER	SWBD	SWITCHBOARD
EXIST	EXISTING	SYM	SYMMETRICAL
EXH	EXHAUST	SYS	SYSTEM
EXP	EXPLOSION PROOF	TEL	TELEPHONE
FA	FIRE ALARM	TEL/DATA	TELEPHONE/DATA
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL	TERM	TERMINAL
		TL	TWIST LOCK
FACP	FIRE ALARM CONTROL PANEL	TR	TAMPER RESISTANT
FCU	FAN COIL UNIT	T-STAT	THERMOSTAT
FIXT	FIXTURE	TTC	TELEPHONE TERMINAL CABINET
FLR	FLOOR	TV	TELEVISION
FLUOR	FLUORESCENT	TVTC	TELEVISION TERMINAL CABINET
FU	FUSE	TYP	TYPICAL
FUDS	FUSED SAFETY DISCONNECT SWITCH	UC	UNDER COUNTER
GA	GAUGE	UE	UNDERGROUND ELECTRICAL
GAL	GALLON	UG	UNDERGROUND
GALV	GALVANIZED	UH	UNIT HEATER
GC	GENERAL CONTRACTOR	UT	UNDERGROUND TELEPHONE
GEN	GENERATOR	UTIL	UTILITY
GFI	GROUND FAULT CIRCUIT INTERRUPTER	UV	ULTRAVIOLET
GFP	GROUND FAULT PROTECTOR	V	VOLT
GND	GROUND	VA	VOLT-AMPERES
GRS	GALVANIZED RIGID STEEL (CONDUIT)	VDT	VIDEO DISPLAY TERMINAL
GYP BD	GYPSUM BOARD	VERT	VERTICAL
HOA	HANDS-OFF-AUTOMATIC SWITCH	VFD	VARIABLE FREQUENCY DRIVE
HORIZ	HORIZONTAL	VOL	VOLUME
HP	HORSEPOWER	W	WATT
HPF	HIGH POWER FACTOR	W/	WITH
HT	HEIGHT	WG	WIRE GUARD
HTG	HEATING	WH	WATER HEATER
HTR	HEATER	W/O	WITHOUT
HV	HIGH VOLTAGE	WP	WEATHERPROOF
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	XFMR	TRANSFORMER
		XFR	TRANSFER
IC	INTERRUPTING CAPACITY		
IG	ISOLATED GROUND		
IMC	INTERMEDIATE METAL CONDUIT		
INCAND	INCANDESCENT	∠	ANGLE
IR	INFRARED	@	AT
I/W	INTERLOCK WITH	▲	DELTA
J-BOX	JUNCTION BOX	'	FEET
KV	KILOVOLT	"	INCHES
KVA	KILOVOLT-AMPERE	#	NUMBER
KVAR	KILOVOLT-AMPERE REACTIVE	Ø	PHASE
KW	KILOWATT	C	CENTER LINE
KWH	KILOWATT HOUR	P	PLATE
LOC	LOCATE OR LOCATION		
LT	LIGHT		
LTG	LIGHTING		
LTNG	LIGHTNING		
LV	LOW VOLTAGE		
MAX	MAXIMUM		
MAG.S	MAGNETIC STARTER		
M/C	MOMENTARY CONTACT		
MC	MECHANICAL CONTRACTOR		

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
	LIGHTING FIXTURES, TYPICAL, RECTANGULAR FILLED CIRCLES INDICATE RECESSED, OPEN CIRCLES INDICATE SURFACE DIAGONAL LINE INDICATES LENSED OUTER DOTS INDICATE SUSPENDED
	LIGHTING FIXTURES, TYPICAL, ROUND CENTER DOT INDICATES PENDANT DIAGONAL LINE INDICATES LENSED CHEVRON INDICATES WALL WASH
	WALL-MOUNTED FIXTURES, TYPICAL
	STRIP FIXTURE
	DIRECTIONAL LIGHT, TRACK, FLOOD
	LINEAR LIGHT, TAPE LIGHT
EM	EMERGENCY LIGHTING UNIT, CEILING-MOUNTED, INTEGRAL BATTERY
	EMERGENCY LIGHTING UNIT, CEILING-MOUNTED, REMOTE BATTERY
	EMERGENCY LIGHTING UNIT, WALL-MOUNTED, INTEGRAL BATTERY
	EMERGENCY LIGHTING UNIT, WALL-MOUNTED, REMOTE BATTERY
	EXIT LIGHT, CEILING-MOUNTED, SHADING AND ARROWS INDICATE FACES AND DIRECTION
	EXIT LIGHT, WALL-MOUNTED, SHADING AND ARROWS INDICATE FACES AND DIRECTION
	EXIT/ELU COMBO
	POLE/AREA LIGHTS
	POST-TOP AREA LIGHT
	BOLLARD LIGHT
	DIAGONAL HATCH INDICATES LIGHT ON A CRITICAL CIRCUIT
	SOLID HATCH INDICATES LIGHT ON AN EMERGENCY OR LIFE SAFETY CIRCUIT
	SINGLE POLE SWITCH
3	3-WAY SWITCH
4	4-WAY SWITCH
K	KEYED SWITCH
	SWITCH W/PILOT
D	DIMMER SWITCH
OS	OCCUPANCY SENSOR W/ MANUAL SWITCH
EF	EXHAUST FAN SWITCH
T	TIMER SWITCH
TD	TIME DELAY SWITCH
TC	TIME CONTROL SWITCH
F P	FIRE ALARM PULL STATION
F B	FIRE ALARM BELL
F H	FIRE ALARM HORN W/STROBE
F H S	FIRE ALARM SPEAKER W/STROBE
F B	FIRE ALARM BELL W/STROBE
F C	FIRE ALARM CHIME W/STROBE
F DH	FIRE ALARM DOOR HOLDER
F DC	FIRE ALARM DOOR CLOSER
FS	FIRE ALARM SHUT DOWN RELAY
	SPRINKLER FLOW SWITCH
TS	SPRINKLER VALVE TAMPER SWITCH
	THERMAL DETECTOR
S	DUCT SMOKE DETECTOR
2	CEILING SMOKE DETECTOR

SYMBOL	DESCRIPTION
	SINGLE RECEPT.
	DUPLEX RECEPT.
48"	(DESIGNATES SPECIFIC MOUNTING HEIGHT) DUPLEX RECEPT.
GFI	GFI DUPLEX RECEPT. (FEED THROUGH)
GFI WP	GFI WEATHERPROOF RECEPT.
	SPLIT DUPLEX RECEPT.
	DUPLEX ISOLATED GROUND RECEPT.
	DUPLEX RECEPT. ON EMERG. CIRCUIT
	FLOOR DUPLEX RECEPT.
CLNG	CEILING DUPLEX RECEPT.
	FOURPLEX RECEPT.
	FOURPLEX RECEPT. ON EMERG. CIRCUIT
	240V RECEPTACLE
	RECEPT. ON CORD REEL
	SPECIAL RECEPT.
	JUNCTION BOX
	FLOOR JUNCTION BOX
CLNG	CEILING JUNCTION BOX
PS - D2	MULTIOUTLET ASSEMBLY
	COMB. MOTOR STARTER (FUSED)
	SAFETY DISC. SW. (NON-FUSED)
	SAFETY DISC. SW. (FUSED)
R	RELAY
	PUSH BUTTON
P	POWER POLE (OPEN OFFICE STYLE)
	SURGERY SERVICE COLUMN
	STATIC GROUND RECEPTACLE
P	UTILITY SERVICE POWER POLE
XX-1 / XX-1	MOTOR IDENTITY (SEE SCHEDULE)
EXISTING TO REMAIN: XX-1	RELOCATED: XX-1	DEMOLISHED: XX-1
XF-1	TRANSFORMER
	BUS DUCT W/ PLUG IN DISCONNECT CABLE TAP BOX

SYMBOL	DESCRIPTION
	TELEPHONE OUTLET
	FLOOR TELEPHONE OUTLET
1V2D	VOICE/DATA OUTLET # OF VOICE AND # OF DATA OUTLETS. FOR EXAMPLE 1V2D = 1 VOICE, 2 DATA
	FLOOR DATA OUTLET
CLNG	CEILING DATA OUTLET
M	MICROPHONE OUTLET
	CATV OUTLET
TV	TV OUTLET
V	VOLUME CONTROL
	DOOR BELL
	DOOR BUZZER
	DOOR CHIME
D	DOOR SIGNAL
	AUTO DOOR PUSH PAD
ES	ELECTRIC STRIKE
ML	MAGNETIC LOCK
K	COMBINATION LOCK
DC	DOOR CONTACT
CR	CARD READER
	SECURITY KEYPAD
MD	MOTION DETECTOR
	NURSE CALL EMERG. STATION
	NURSE CALL CODE BLUE STATION
	NURSE CALL DUTY STATION
	NURSE CALL STAFF STATION
	NURSE CALL PATIENT STATION
1	NURSE CALL DOME LIGHT (1-COLOR)
2	NURSE CALL DOME LIGHT (2-COLORS)

ELECTRICAL SHEET INDEX

SHEET	DESCRIPTION
E000	ELECTRICAL TITLE SHEET
E101	ELECTRICAL POWER PLAN
E102	ELECTRICAL POWER PLAN
E201	ELECTRICAL LIGHTING PLAN
E202	ELECTRICAL LIGHTING CALCS
E301	ELECTRICAL SCHEDULES
E401	ELECTRICAL DETAILS
E402	ELECTRICAL DETAILS
E501	ELECTRICAL SYSTEMS PLAN

SHEET COUNT: 9

ELECTRICAL SYMBOL NOTES

LIGHTING FIXTURE TAG DESCRIPTORS:
SYMBOL: 1-1 TOP VALUE: FIXTURE TYPE ID.
S3 BOTTOM VALUE, NUMBER: CIRCUIT NUMBER. REFER TO DRAWINGS FOR PANEL.
BOTTOM VALUE, LOWERCASE LETTER: SWITCH DESIGNATION.
ABSENCE OF A SWITCH ID INDICATES FIXTURE IS CONTROLLED BY THE ONLY SWITCH IN THE SPACE.
"x" IN PLACE OF THE SWITCH ID INDICATES NIGHT LIGHT, UNSWITCHED.

EXIT LIGHTS. STEM INDICATES WALL MOUNTING. NO STEM INDICATES CEILING MOUNTING. SHADED AREA INDICATES ILLUMINATED FACE(S). ARROW INDICATES DIRECTIONAL ARROW ON ILLUMINATED FACE(S). THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. EXAMPLE: THE WALL MOUNTED EXIT LIGHT TYPE "E1" WITH SINGLE FACE AND DIRECTIONAL ARROW IS CONNECTED TO CIRCUIT 1.

DEVICES. THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. THE SWITCH DESIGNATION IS INDICATED BY A LOWER CASE LETTER. EXAMPLE: SPLIT DUPLEX RECEPTACLE IS CONNECTED TO CIRCUIT 1 AND ONE RECEPTACLE OUTLET IS CONTROLLED BY SWITCH "d".

THE CONTROL DEVICE DESIGNATION IS INDICATED BY A LOWER CASE LETTER. EXAMPLE: SINGLE POLE SWITCH "d" TO CONTROL LIGHTING FIXTURES INDICATED BY "d".

WALL BOX DIMMER WITH SIZE AS INDICATED AT DEVICE. EXAMPLE: 600 WATT WALL BOX DIMMER TO CONTROL LIGHTING FIXTURES INDICATED BY "e". SEE SPECIFICATIONS FOR WATTAGE IF NOT INDICATED.

SPECIAL CONNECTIONS. THE EQUIPMENT IS INDICATED BY A NUMBER IN A CIRCLE. SEE THE MOTOR AND EQUIPMENT SCHEDULE FOR THE LOAD DESCRIPTION AND TYPE OF CONNECTION. THE CIRCUIT DESIGNATION IS INDICATED BY NUMBER(S) ADJACENT TO THE SYMBOL. EXAMPLE: EQUIPMENT NO. ELEC-1; 1 PHASE CONNECTION TO CIRCUITS 2, 4.

PANELBOARDS. PANELBOARD DOORS MAY BE SHOWN TO INDICATE OPENING SIDE OF RECESSED PANELBOARDS. SEE PANELBOARD IDENTIFICATION FOR DESIGNATION CODES.

FLOOR CLEARANCE AREA

MOTOR CONNECTIONS. THE MOTOR IS INDICATED BY A NUMBER WITHIN OR CHARACTERS ADJACENT TO THE MOTOR SYMBOL. SEE THE MOTOR AND EQUIPMENT SCHEDULE FOR THE MOTOR DESCRIPTION AND ELECTRICAL REQUIREMENTS.

TRANSFORMERS. THE TRANSFORMER TYPE IS INDICATED BY A NUMBER FOLLOWING THE UPPER CASE LETTERS "XF". SEE THE TRANSFORMER SCHEDULE OR THE SINGLE LINE DIAGRAM FOR THE TRANSFORMER DESCRIPTION AND REQUIREMENTS. EXAMPLE: TRANSFORMER TYPE "XF1".

CONDUIT IN CEILING, FLOOR OR WALL AS REQUIRED BY FIELD CONDITIONS

CONDUIT IN FLOOR

#12 CONDUIT SHOWN WITHOUT SLASH MARKS SHALL CONTAIN 1 # 12 CONDUCTOR PER PHASE, NEUTRAL, AND GROUND IN 1/2" CONDUIT UNLESS SPECIFIC EQUIPMENT REQUIRES A DIFFERENT SIZE.

#10 CONDUIT SHOWN SHALL CONTAIN 1 # 10 CONDUCTOR PER PHASE IN ELECTRICAL CODE SIZED MINIMUM CONDUIT UNLESS A CONDUCTOR AND CONDUIT SIZE IS SHOWN ADJACENT.

P4N-102 1, 3, 5 HOME RUN TO BRANCH CIRCUIT PANELBOARD. THE PANELBOARD DESIGNATION IS SHOWN ADJACENT TO THE HOME RUN ARROW AS A NUMERATOR AND THE CIRCUIT DESIGNATION IS SHOWN AS THE DENOMINATOR. CIRCUIT BREAKER SIZES (AMPS/NUMBER OF POLES) ARE SHOWN IN THE PANELBOARD SCHEDULE WITH THE CORRESPONDING PANELBOARD AND CIRCUIT DESIGNATION. EXAMPLE: HOME RUN TO PANELBOARD P4N-102; CIRCUITS 1, 3, 5.

GRAPHICAL REPRESENTATION OF PHASING, TYPICAL FOR ALL SYMBOLS.

EXISTING TO REMAIN
EXISTING TO BE REMOVED
NEW
ITEM TO BE REMOVED
AREA NOT IN CONTRACT

REVISION NUMBER - SHOWN ON PLANS

NUMBER OF DETAIL ON SHEET
NUMBER OF SHEET WHERE DETAIL APPEARS

KEYED NOTE (SEE SCHEDULE)

Room 6 ROOM NAME AND NUMBER

PANELBOARD IDENTIFICATION

P4N-102

1. EQUIPMENT DESIGNATION:
L = LIGHTING
P = POWER
D = DISTRIBUTION
S = SWITCHBOARD
M = MOTOR CONTROL CENTER
R = RELAY PANEL

2. VOLTAGE DESIGNATION:
1 = 120/240V - 1PH
2 = 240V - 3PH
3 = 208Y/120V - 3PH
4 = 480Y/277V - 3PH
5 = 120/208 - 1PH
6 = SPECIAL

3. SYSTEM DESIGNATION:
N = NORMAL
E = EMERGENCY
C = POWER CONDITIONED
U = UNINTERRUPTIBLE POWER SOURCE

5. PANEL NO. DESIGNATION:
01 = PANELBOARD #1
02 = PANELBOARD #2
03 = PANELBOARD #3
ETC.

4. FLOOR DESIGNATION:
B = BASEMENT
G = GROUND
1 = FIRST FLOOR
2 = SECOND FLOOR
ETC.

ELECTRICAL NOTES

A. ELECTRICAL PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE ELECTRICAL SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT.

B. CONTRACTOR SHALL REVIEW & BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF ELECTRICAL INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.

C. ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC). WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.

D. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL DISCONNECTS, STARTERS, DEVICES AND ELECTRICAL COMPONENTS UNLESS SPECIFICALLY NOTED AS PROVIDED BY OTHERS.

E. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LINE AND LOAD SIDE WIRING INCLUDING ALL TERMINATIONS TO EQUIPMENT PROVIDED UNDER OTHER TRADES. POWER WIRING TO CONTROL DEVICES SHALL BE PROVIDED BY E.C.. INTERLOCK WIRING SHALL BE PROVIDED BY THE CONTRACTOR INSTALLING THE CONTROL DEVICE.

F. ALL WIRING, PANELBOARDS, DEVICES AND OTHER LIKE MATERIALS SHALL BE UL LISTED & LABELED. ALL MATERIALS SHALL MEET THE NEC FOR THE INTENDED USE AND INSTALLED IN ACCORDANCE WITH THE NEC.

G. PROVIDE THHN/THWN COPPER WIRE. PROVIDE A MINIMUM WIRE SIZE OF #12 ALL WIRE #8 AND LARGER SHALL BE STRANDED. CONDUCTORS AND CONDUIT ON PLANS AND SCHEDULES REFLECT AMPACITIES PER NEC 310-16 75C RATING. CONTRACTOR SHALL VERIFY ALL TERMINATIONS, LUGS, ETC. ARE RATED FOR USE PER NEC 110-4C. OTHERWISE, PROVIDE CONDUCTOR AND CONDUIT SIZED PER LOWEST TEMPERATURE RATING OF ANY TERMINATION WITHIN A CIRCUIT. PROVIDE CABLE OR CONDUIT AND WIRE AS REQUIRED TO ACHIEVE DERATING SHOWN. SIZE CONDUCTORS PER NEC AMPACITY AND WIRE FILL CRITERIA. PROVIDE DEDICATED NEUTRAL AND GROUND CONDUCTORS FOR CIRCUITING, UNLESS NOTED OTHERWISE. INCREASE BRANCH CIRCUIT AND/OR FEEDER CONDUCTORS INCLUDING EQUIPMENT GROUNDING CONDUCTORS PROPORTIONALLY FOR NO MORE THAN 3% VOLTAGE DROP ON BRANCH CIRCUITS AND 2% ON FEEDERS PER ENERGY CODE.

H. PROVIDE M.C. CABLE FOR ALL SINGLE PHASE BRANCH CIRCUITS 30 AMPS AND SMALLER. PROVIDE CONDUIT FOR ALL OTHER WIRING. EMT OR RIGID SHALL BE USED WHERE EXPOSED TO PHYSICAL DAMAGE. CONDUIT ABOVE GRADE SHALL BE STEEL. CONDUIT BELOW GRADE MAY BE PVC CHANGING TO STEEL IN THE ELBOW TURNING UP. EMT SHALL NOT BE USED IN DIRECT CONTACT WITH THE EARTH OR WHERE EXPOSED TO SEVERE PHYSICAL DAMAGE. FITTINGS ON STEEL CONDUIT SHALL BE COMPRESSION TYPE.

I. NONMETALLIC-SHEATHED CABLE MAY BE UTILZED WHERE COMPLIANT WITH LATEST EDITION OF THE NATIONAL ELECTRIC CODE SECTION 334. E.C. SHALL VERIFY WITH LOCAL AHJ'S THAT NONMETALLIC-SHEATHED CABLE SHALL BE ACCEPTABLE FOR USE PRIOR TO CONSTRUCTION.

J. CONDUCTORS OPERATING AT 50 VOLTS OR GREATER SHALL BE IN RACEWAY. RACEWAY WITHIN THE STRUCTURE ABOVE THE FLOOR SLAB SHALL BE METAL. RACEWAY BELOW THE FLOOR SLAB AND UNDERGROUND RACEWAY OUTSIDE THE STRUCTURE SHALL BE PVC. LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN METAL RACEWAY WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES. LOW VOLTAGE CABLES MAY BE RUN IN CABLE TRAY WHERE NOTED. LOW VOLTAGE CABLES MAY BE RUN IN CABLE SUPPORT HOOKS ABOVE ACCESSIBLE CEILINGS WHERE NOTED. LOW VOLTAGE CABLE SHALL BE PLENUM RATED IN PLENUM SPACES.

K. PROVIDE ONE-INCH EMPTY CONDUITS EXTENDING ABOVE CEILING FOR ALL TELEPHONE AND DATA OUTLETS SHOWN ON PLANS. PROVIDE PROTECTIVE BUSHINGS ON ENDS OF CONDUIT. ALL CABLING IS PROVIDED BY OTHERS.

L. PROVIDE 3/4-INCH EMPTY CONDUITS TERMINATING ABOVE THE CEILING FOR ALL HVAC THERMOSTATS. JUNCTION BOXES SHALL MATCH ORIENTATION OF THERMOSTATS PROVIDED BY M.C.. MOUNT JUNCTION BOXES 48-INCHES A.F.F. UNLESS NOTED OTHERWISE. PROVIDE PROTECTIVE BUSHINGS ON ENDS OF CONDUIT. ALSO, PROVIDE DOUBLE GANG BOX AT 84" AFF OVER THERMOSTATS OR WHERE SHOWN ON PLANS FOR REMOTE ALARM/TEST STATIONS OF HVAC DUCT SMOKE DETECTORS (NOT REQUIRED IF CENTRAL FIRE ALARM SYSTEM EXISTS).

M. PANELBOARDS FOR SERVICE ENTRANCE SHALL BE SERVICE ENTRANCE RATED. PROVIDE NEMA 3R PANELBOARDS WHERE LOCATED OUTSIDE. PROVIDE NEUTRAL AND GROUNDING BARS IN ALL PANELBOARDS UNLESS NOTED OTHERWISE. GROUND ALL SERVICE ENTRANCE PANELS IN ACCORDANCE WITH THE NEC.

N. PROVIDE TYPEWRITTEN PANEL SCHEDULES IN EACH PANEL INDICATING THE LOAD DESCRIPTION FOR EACH BREAKER. LABEL PANELS ON PANEL FACE WITH PHENOLIC LABELS INDICATING PANEL NUMBER OR LETTER DESIGNATION, VOLTAGE AND PHASE.

O. PROVIDE FUSED AND NON-FUSED DISCONNECT SWITCHES AS INDICATED ON PLANS. DISCONNECTS LOCATED OUTSIDE SHALL BE NEMA-3R. PROVIDE REJECTION CLIPS IN FUSED DISCONNECTS.

P. PROVIDE HORSEPOWER RATED STARTERS AND DISCONNECTS WHEN CONNECTED TO MOTORS. STARTERS SHALL BE PROVIDED WITH OVERLOAD SIZED-TO-MATCH MOTOR RATINGS.

Q. PROVIDE LIGHTING AS SCHEDULED IN THE FIXTURE SCHEDULE OR OTHERWISE NOTED ON PLANS. LIGHTING INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED INDEPENDENTLYOF THE CEILING GRID SYSTEM.

R. PROVIDE EMERGENCY AND EXIT LIGHTS AS SHOWN ON PLANS. POWER SHALL BE PROVIDED FROM LIGHTING CIRCUITS ON THE UNSWITCHED LEG OF THE CIRCUIT SUCH THAT POWER TO THE EMERGENCY AND EXIT LIGHTS IS NOT DISCONNECTED WHEN NORMAL LIGHTING IS OFF. EXTERIOR EMERGENCY LIGHTS SHALL BE WIRED SUCH THAT PHOTOCELL AND/OR TIME CLOCK OPERATION DOES NOT DISCONNECT POWER TO BATTERIES.

S. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.

T. RECEPTACLES SHALL BE 20 AMP, 120V UNLESS NOTED OTHERWISE.

U. RECEPTACLES ABOVE COUNTERTOPS AND ADJACENT TO SINKS & LAVATORIES SHALL BE GROUND FAULT.

V. RECEPTACLES INSTALLED OUTSIDE SHALL BE GROUND FAULT WITH "IN USE" WEATHERPROOF COVERS.

W. WALL SWITCHES SHALL BE SINGLE POLE, 20 AMP, 120/277V.

X. PROVIDE STANDARD SIZE WALL PLATES FOR ALL DEVICES AND BLANK WALL PLATES FOR JUNCTION BOXES. WALL PLATES SHALL BE HIGH IMPACT, SMOOTH NYLON, COLOR TO MATCH DEVICE.

Y. UL LISTED DUCT SMOKE DETECTORS SHALL BE FURNISHED, INSTALLED & TESTED BY THE M.C.. THE E.C. SHALL PROVIDE 120V POWER TO EACH DUCT SMOKE DETECTOR WHERE REQUIRED. THE M.C. SHALL PROVIDE REMOTE ALARM/TEST STATIONS FOR EACH DUCT SMOKE DETECTOR.

Z. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE INSTALLATION OF ELECTRICAL SYSTEMS AND THOSE REQUIRING ELECTRICAL CONNECTIONS TO MAINTAIN NEC REQUIRED CLEARANCES, INCLUDED BUT NOT LIMITED TO AREAS ABOVE ACCESSIBLE CEILINGS.

AA. FIELD COORDINATE FINAL MECHANICAL AND EQUIPMENT LOCATIONS ALONG WITH CONNECTION REQUIREMENTS AND CONTROL WIRING PRIOR TO ROUGH-IN. ADJUST CORRESPONDING CIRCUIT BREAKER RATINGS AND BRANCH CIRCUITING ACCORDINGLY.

BB. THE CONTRACTOR IS RESPONSIBLE FOR MAKING FINAL WIRING TERMINATIONS TO PRE-INSTALLED RECEPTACLES IN OFFICE FURNITURE. CONTRACTOR IS RESPONSIBLE FOR WIRING AND INSTALLING VOICE/DATA DEVICES IN OFFICE FURNITURE. COORDINATE PLACEMENT OF DEVICES WITH FURNITURE LAY-OUT.

CC. SECURITY SYSTEM TO BE PROVIDED UNDER SEPARATE CONTRACT. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO PROVIDE CONDUIT PROVISIONS, BACK BOXES, ROUGH-INS, SLEEVES AND POWER TO HEAD END EQUIPMENT FOR EXACT REQUIREMENTS PRIOR TO START OF WORK.

DD. TV OUTLETS, VOLUME CONTROLS, NURSE CALL DOME LIGHTS, NURSE CALL DEVICES, TELEPHONE OUTLETS, DATA OUTLETS, AND FIRE ALARM DEVICES SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING. SEE STUB UP DETAIL.VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.

EE. VERIFY ALL UTILITYREQUIREMENTS FOR ELECTRICAL SERVICE (PRIOR TO STARTING ANY WORK) SUCH AS VOLTAGE, PAHSES, FAULT CURRENT, ETC.. AND COORDINATED EXACT LOCATION OF INCOMING ELECTRICAL SERVICE WITH LOCAL POWER COMPANY PRIOR TO PROJECT START. NOTIFY ENGINEER OF ANY DIFFERENCES FROM WHAT IS SHOWN ON PLANS.

FF. THE ELECTRICAL CONTRACTOR SHALL REQUEST A SELECTIVE BREAKER COORDINATION STUDY FROM THE ELECTRICAL GEAR MANUFACTURER PER NEC 700 REQUIREMENTS.

GG. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL PANELBOARDS AND DISCONNECT SWITCHES, WHITE LETTERS ON BLACK BACKGROUND. NAMEPLATE SHALL CONTAIN EQUIPMENT DESIGNATION, VOLTAGE, FEEDER COURSE, AIC RATING, & DATE INSTALLED.

HH. PROVIDE "FLASH HAZARD" LABELS FOR ALL PANELBOARDS IN ACCORDANCE WITH NEC REQUIREMENTS.

II. ALL TERMINALS/LUGS SHALL BE 60 DEGREE/75 DEGREE RATED.

JJ. ALL WATER HEATERS SHALL HAVE DISCONNECT SIZED PER 422.11(E)(3).

KK. IN REQUIRED FIRE RATED WALLS AND PARTITIONS, OPENINGS FOR INSTALLATION OF BOXES THAT ARE GREATER THAN 16 SUARE INCHES SHALL BE PROTECTED AS REQD BY U.L. COORDINATE CLOSELY WITH THE GENERAL CONTRACTOR TO ENSURE THAT THE INTEGRITY OF THE U.L. RATING IS MAINTAINED.

LL. OUTLET BOXES FOR DEVICES MOUNTED ON OPPOSITE SIDES OF FIRE RATED PARTITIONS SHALL NOT BE MOUNTED IN THE SAME WALL CAVITY. SPERATE WALL PENETRATIONS BY MOUNTING ON OPPOSITE SIDES OF WALL STUDS OR OTHER VERTICAL STRUCTURAL MEMBER IN THE WALL.

MM. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING RESTRAINTS TO RESIST THE EARTHUQUAKE EFFECTS ON THE ELECTRICAL SYSTEM. THE REQUIREMENTS FOR THOSE RESTRAINTS ARE FOUND IN THE IBC, THE ANCHORING OF THE EQUIPMENT SHALL COMPLY WITH IBC 1621.1.7.

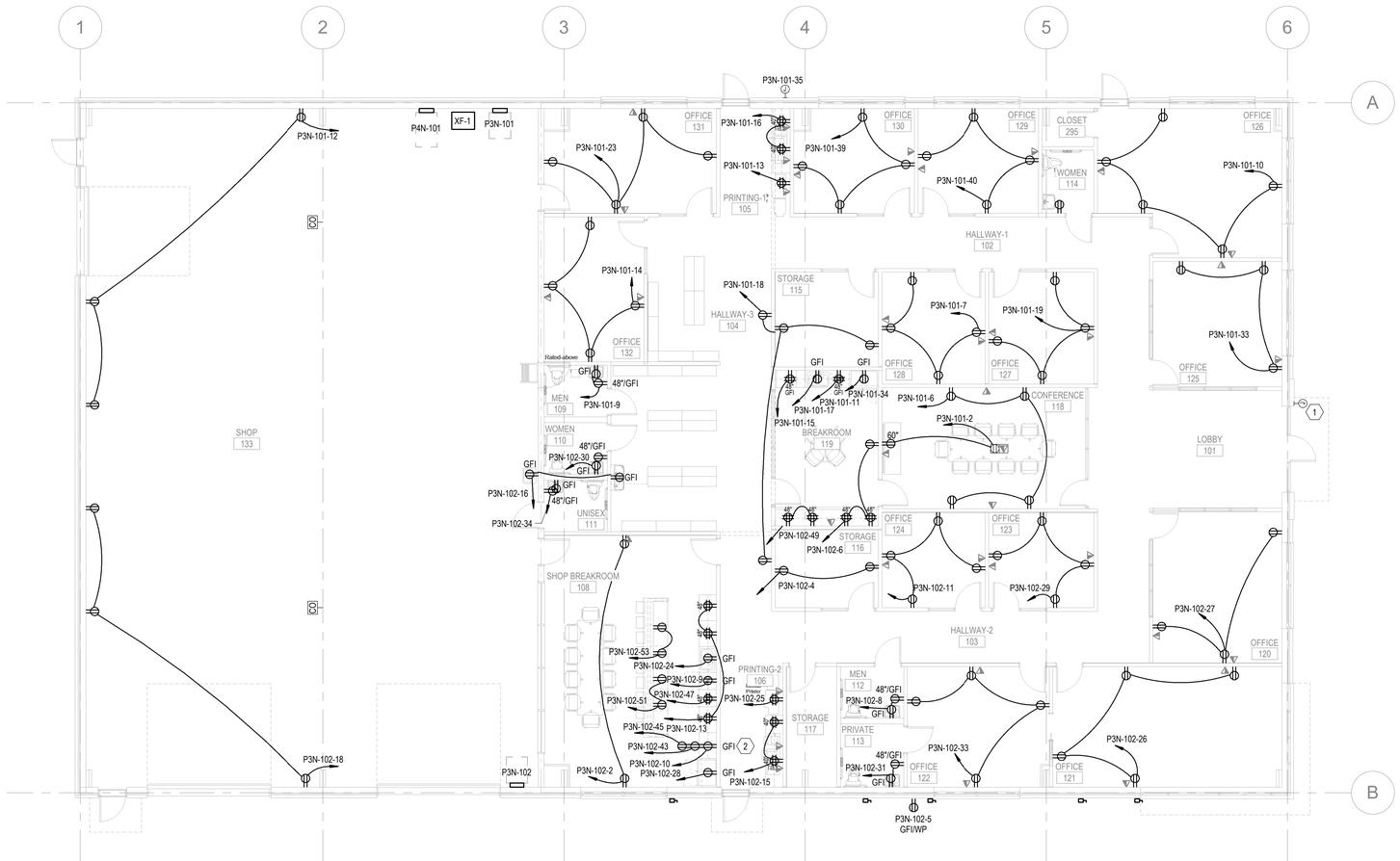
NN. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE-RESISTIVE WALL, FLOOR, OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL, TELEPHONE, TELEVISION, OR LOCAL COMMUNICATION AND/OR SIGNALING CIRCUITS, THE OPENING AREOUND THE RACEWAY SHALL BE FIRE STOPPED PER THE STATE BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO ENSURE THAT THIS FIRE STOPPING IS ACCOMPLISHED. USE APPROVED ASSEMBLES SUCH AS THE FOLLOWING:

a. CONDUIT PENETRATIONS O

KEYNOTES

1 JUNCTION BOX FOR SIGN POWER. COORDINATE EXACT SIGN REQUIREMENTS WITH OWNER OR SIGN PROVIDER.

2 ELECTRICAL CONTRACTOR TO COORDINATE MOUNTING HEIGHTS FOR MICROWAVES WITH ARCHITECT.



1 E101 ELECTRICAL POWER PLAN
1/8" = 1'-0"

2 E101 ELECTRICAL MEZZANINE POWER PLAN
1/8" = 1'-0"

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: JCD
CHECK BY: BDL

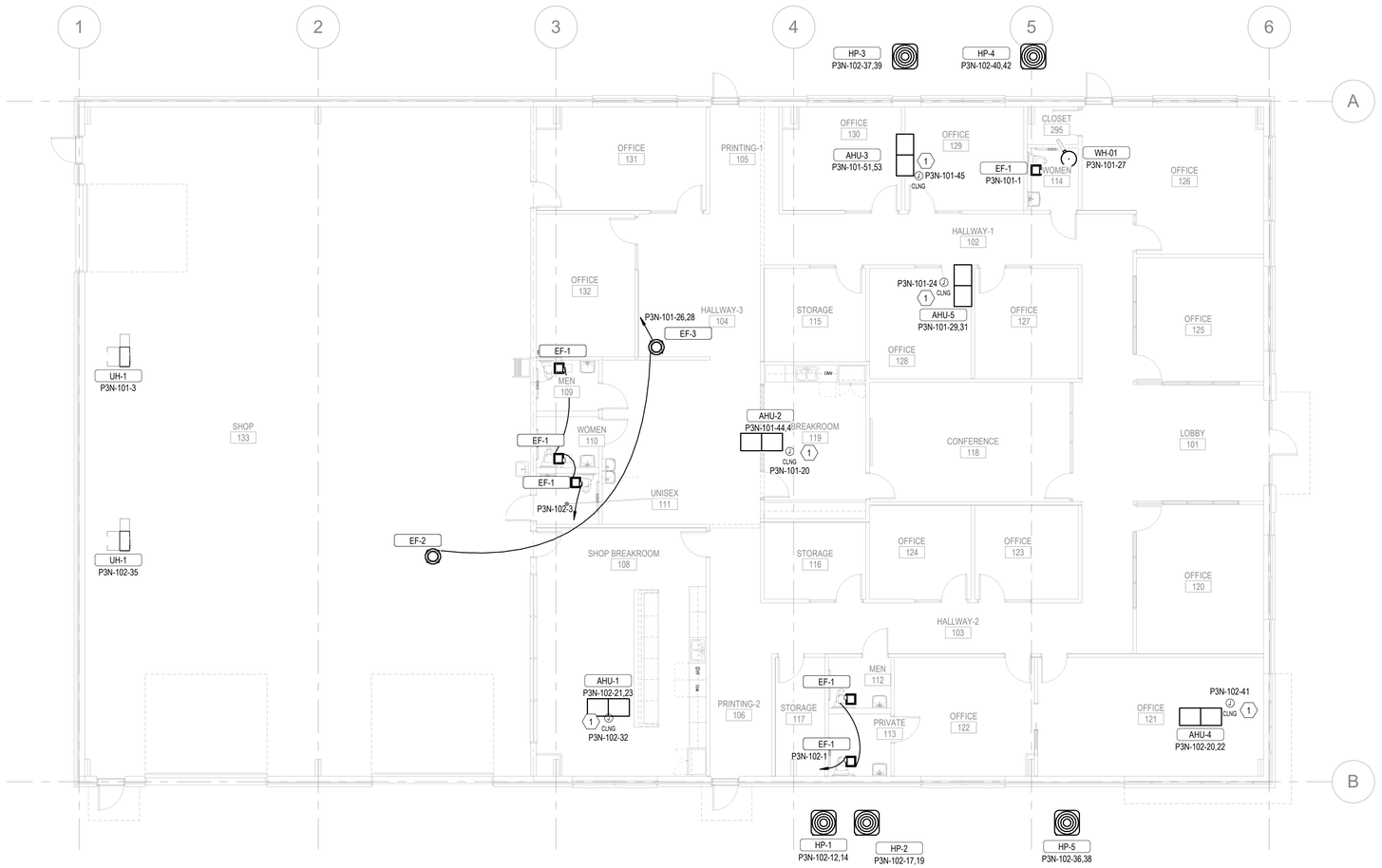
ELECTRICAL POWER PLAN

E101

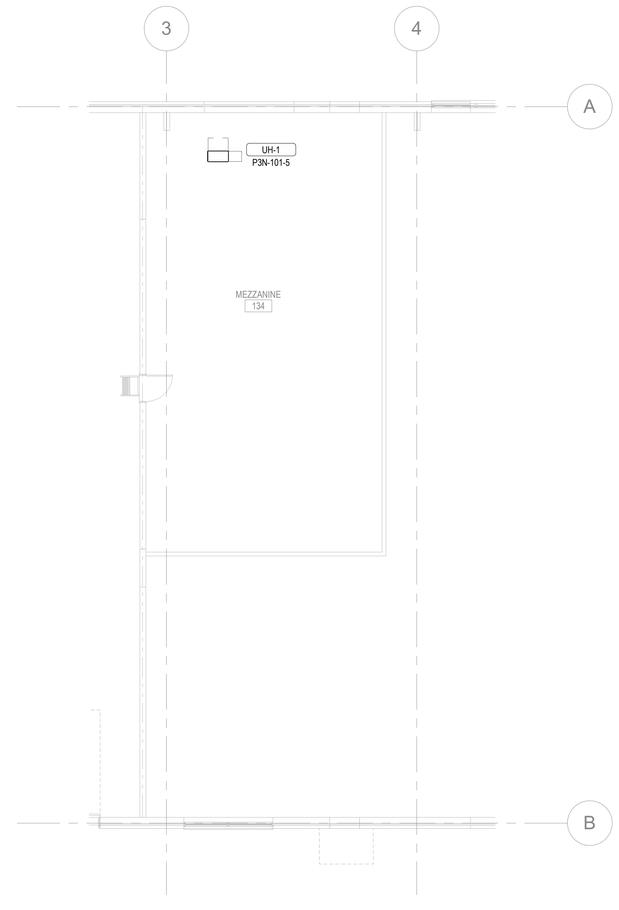
THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

MECHANICAL POWER NOTES

A. ELECTRICAL CONTRACTOR TO COORDINATE MOUNTING HEIGHT WITH MECHANICAL CONTRACTOR.



1 E102 MECHANICAL POWER PLAN
1/8" = 1'-0"



3 E102 ELECTRICAL MEZZANINE POWER PLAN
1/8" = 1'-0"

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. # SIGNATURE ON COVER SHEET DOES NOT APPEAR. THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: JCD
CHECK BY: BDL

ELECTRICAL POWER PLAN

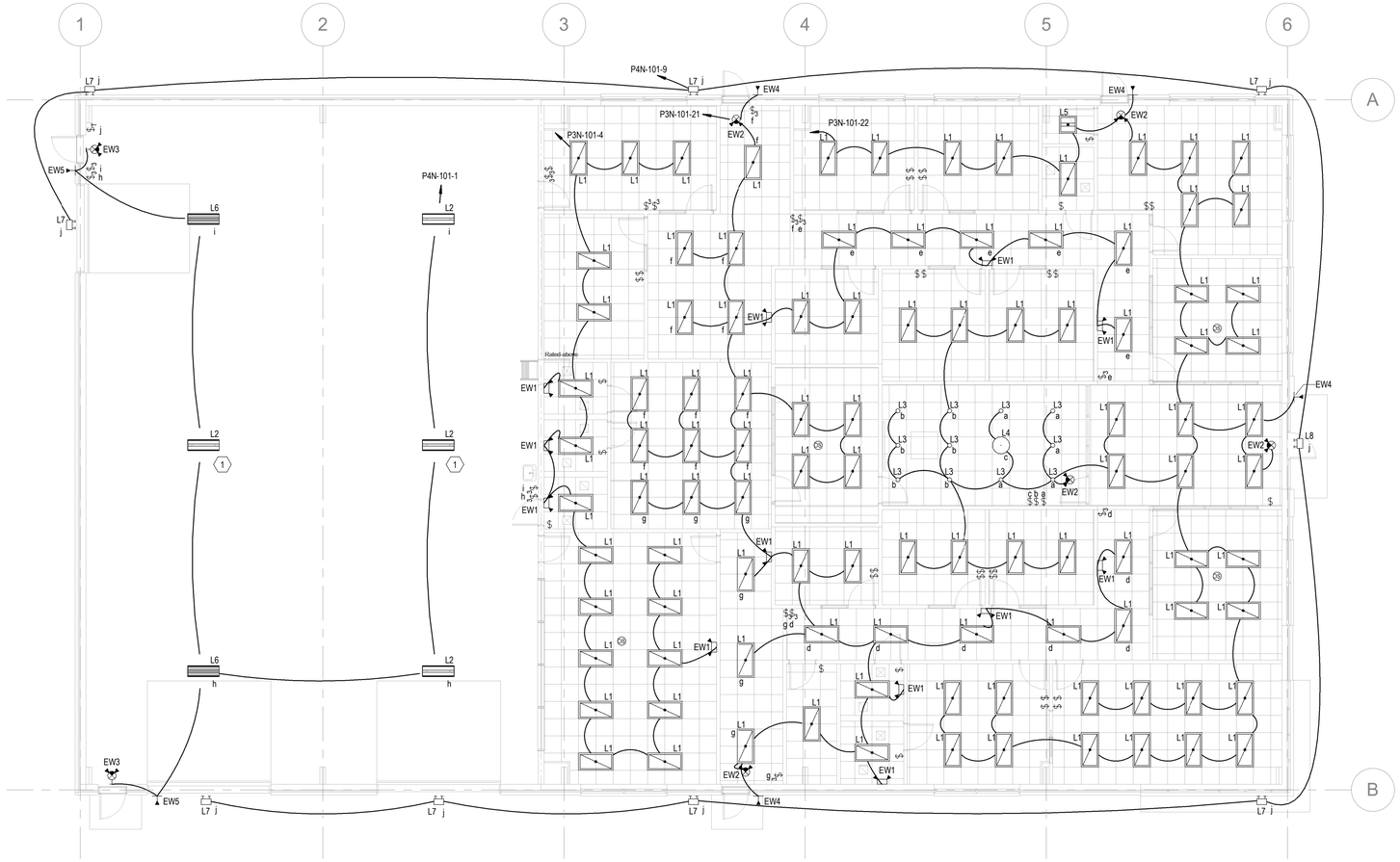
E102

KEYNOTES

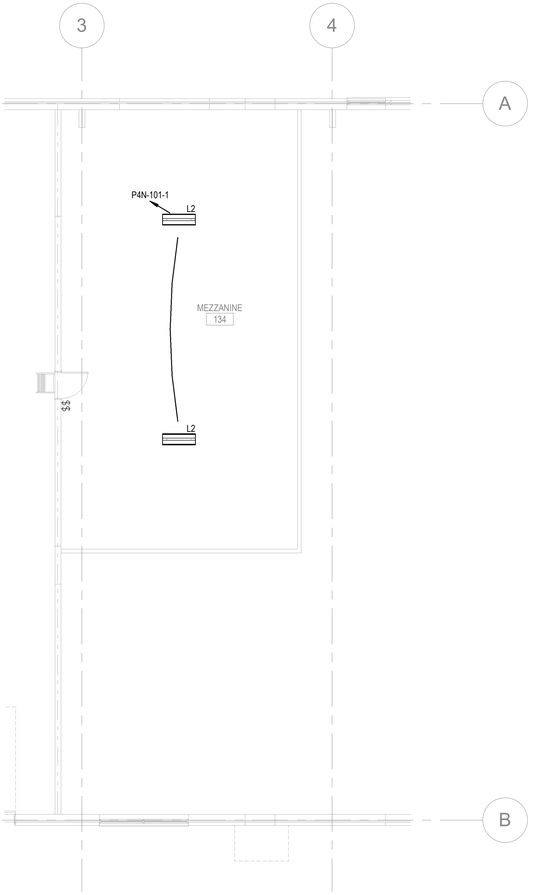
1 LIGHTS TO BE SWITCHED FROM BREAKER.

LIGHTING NOTES

A. ELECTRICAL CONTRACTOR TO COORDIANTE EXACT FIXTURE COUNT, POSITION, AND MOUNTING HEIGHT OF WALL PACKS WITH ARCHITECT.



1 E201 ELECTRICAL LIGHTING PLAN
1/8" = 1'-0"



2 E201 ELECTRICAL LIGHTING MEZZANINE PLAN
1/8" = 1'-0"

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED ON THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

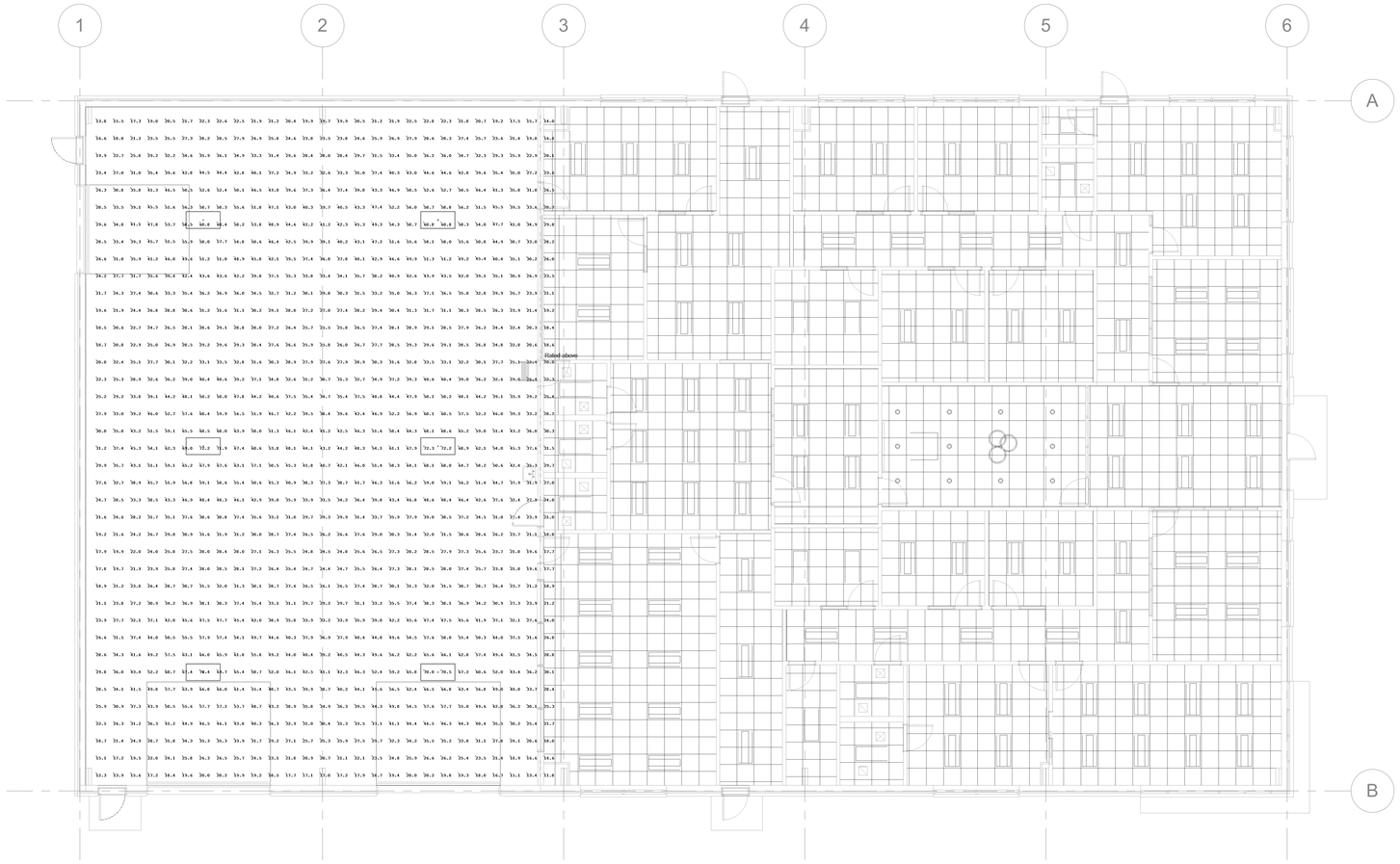
PROJECT:	224S91
DATE ISSUED:	8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY:	JCD
CHECK BY:	BDL

ELECTRICAL LIGHTING PLAN

E201



2 / E202 ELECTRICAL LIGHTING PLAN
1/8" = 1'-0"

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Warehouse_Workplane	Illuminance	Fc	38.22	74.0	12.7	3.01	5.83

FOOTCANDLE LIGHT GUIDE		
AREA	AVERAGE (FC)	RANGE (FC)
WAREHOUSE & STORAGE		
OPEN WAREHOUSE	20	10 - 30
COMMERCIAL OFFICE		
OPEN OFFICE	40	30 - 50
PRIVATE OFFICE	40	30 - 50
CONFERENCE ROOM	30	
RESTROOM	18	7.5 - 30
BREAK ROOM	15	5 - 20
INDUSTRIAL/MANUFACTURING		
SIMPLE ASSEMBLY	30	15 - 60
LARGE COMPONENT	30	15 - 60
MEDIUM COMPONENT	50	25 - 100
RETAIL		
GENERAL	50	
DEPARTMENT STORE	40	20 - 80

ILLUMINATION ENGINEERING SOCIETY https://www.lightingprogram.com/sites/default/files/pdf/recards_Lighting%20Guide_Rev2020.pdf

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LENNON
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: JCD
CHECK BY: BDL

ELECTRICAL LIGHTING CALCS

E202

THESE DRAWINGS ARE THE COPYRIGHT OF McGAHEY PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

Branch Panel: P4N-101

Location: SHOP 133
Supply From:
Mounting: SURFACE
Enclosure: NEMA 1

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: 24,000 AMPS SYMMETRICAL
Mains Type: MAIN CB
Mains Rating: 400.0 A
MCB Rating: 400.0 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	WAREHOUSE/MEZZ LIGHTS	20.0 A	1	2522 VA						2
3					44960 VA					4
5	XF-1	175.0 A	3			44827 VA				6
7				45050 VA						8
9	EXTERIOR LIGHTS	20.0 A	1		363 VA					10
11										12
13										14
15										16
17										18
19										20
21										22
23										24
25										26
27										28
29										30
31										32
33										34
35										36
37										38
39										40
41										42
		Total Load:		47572 VA	45323 VA	44827 VA				
		Total Amps:		172.0 A	163.9 A	161.8 A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	49523 VA	100.00%	49523 VA		
Other	40660 VA	100.00%	40660 VA	**Total Conn. Load:**	137722 VA
Spare	480 VA	100.00%	480 VA	**Total Est. Demand:**	127600 VA
LITES	6755 VA	125.00%	8443 VA	**Total Conn.:**	165.7 A
HEAT	6684 VA	100.00%	6684 VA	**Total Est. Demand:**	153.5 A
RCPT	33620 VA	64.87%	21810 VA		

Notes:
AIC IS ASSUMED. EC TO VERIFY BEFORE PURCHASE AND INSTALLATION.

Branch Panel: P3N-102

Location: SHOP 133
Supply From: P3N-101
Mounting: SURFACE
Enclosure: NEMA 1

Volts: 208Y/120
Phases: 3
Wires: 4

A.I.C. Rating: 10,000 AMPS SYMMETRICAL
Mains Type: MAIN CB
Mains Rating: 300.0 A
MCB Rating: 300.0 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	(2) EF-1	20.0 A	1	48 VA	360 VA		1	20.0 A	BREAKROOM RCPTS	2
3	(3) EF-1	20.0 A	1		72 VA	360 VA	1	20.0 A	STORAGE RCPTS	4
5	CONVENIENCE RCPT (GFI)	20.0 A	1			180 VA	720 VA	1	20.0 A	BREAKROOM RCPTS	6
7	MEZZANINE RCPTS	20.0 A	1	540 VA	780 VA			1	20.0 A	MEN RCPTS (GFI)_	8
9	DISHWASHER (GFI)	20.0 A	1		800 VA	1000 VA		1	20.0 A	MICROWAVE (GFI)	10
11	OFFICE RCPTS	20.0 A	1			720 VA	4056 VA	2	60.0 A	HP-1	12
13	MISC BREAKRM. KITCHENETTE RCPTS...	20.0 A	1	540 VA	4056 VA						14
15	PRINTING-2 RCPTS	20.0 A	1		1200 VA	1200 VA	1	20.0 A	WATER FOUNTAINS (GFI)	16
17	HP-2	60.0 A	2			4056 VA	540 VA	1	20.0 A	WAREHOUSE RCPTS	18
19				4056 VA	884 VA			2	20.0 A	AHU-4	20
21	HVAC SHOP BREAKROOM 108	60.0 A	2		562 VA	884 VA					22
23						562 VA	600 VA	1	20.0 A	SINK (GFI)	24
25	PRINTING-2 RCPT	20.0 A	1	600 VA	720 VA			1	20.0 A	OFFICE RCPTS	26
27	OFFICE RCPTS	20.0 A	1		540 VA	600 VA		1	20.0 A	REFRIGERATOR (GFI)	28
29	OFFICE RCPTS	20.0 A	1			720 VA	780 VA	1	20.0 A	WOMEN RCPTS (GFI)	30
31	PRIVATE RCPTS (GFI)	20.0 A	1	780 VA	8000 VA			1	85.0 A	AHU-1 AUX HEAT	32
33	OFFICE RCPTS	20.0 A	1		720 VA	780 VA		1	20.0 A	UNISEX RCPTS (GFI)	34
35	UH-1	20.0 A	1			228 VA	4056 VA	2	60.0 A	HP-5	36
37	HP-3	60.0 A	2	4056 VA	4056 VA						38
39					4056 VA	4056 VA		2	60.0 A	HP-4	40
41	AHU-4 AUX HEAT	85.0 A	1			8000 VA	4056 VA				42
43	MICROWAVE (GFI)	20.0 A	1	1000 VA							44
45	MICROWAVE (GFI)	20.0 A	1		1000 VA						46
47	MISC BREAKRM. KITCHENETTE RCPTS...	20.0 A	1			360 VA					48
49	BREAKROOM RCPTS	20.0 A	1	540 VA							50
51	BREAKROOM RCPTS	20.0 A	1		360 VA						52
53	BREAKROOM RCPTS	20.0 A	1			360 VA					54
55											56
57											58
59											60
		Total Load:		31016 VA	18190 VA	29994 VA				
		Total Amps:		273.6 A	151.6 A	265.1 A				

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	43571 VA	100.00%	43571 VA		
Other	16000 VA	100.00%	16000 VA	**Total Conn. Load:**	79199 VA
HEAT	228 VA	100.00%	228 VA	**Total Est. Demand:**	74499 VA
RCPT	19400 VA	75.77%	14700 VA	**Total Conn.:**	219.8 A
				Total Est. Demand:	206.8 A

Notes:
AIC IS ASSUMED. EC TO VERIFY BEFORE PURCHASE AND INSTALLATION.

Branch Panel: P3N-101

Location: SHOP 133
Supply From: XF-1
Mounting: SURFACE
Enclosure: NEMA 1

Volts: 208Y/120
Phases: 3
Wires: 4

A.I.C. Rating: 10,000 AMPS SYMMETRICAL
Mains Type: MAIN CB
Mains Rating: 400.0 A
MCB Rating: 400.0 A

Notes:

CKT	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	CKT
1	EF-1	20.0 A	1	24 VA	360 VA		1	20.0 A	CONFERENCE RCPTS	2
3	UH-1	20.0 A	1		228 VA	659 VA	1	20.0 A	LITES OFFICE 131	4
5	UH-1	20.0 A	1			228 VA	720 VA	1	20.0 A	CONFERENCE RCPTS	6
7	OFFICE RCPTS	20.0 A	1	720 VA	540 VA			1	20.0 A	MEZZANINE RCPTS	8
9	MEN RCPTS (GFI)	20.0 A	1		780 VA	900 VA		1	20.0 A	OFFICE RCPTS	10
11	DISHWASHER (GFI)	20.0 A	1				800 VA	540 VA	1	20.0 A	WAREHOUSE RCPTS	12
13	PRINTING-1 RCPT	20.0 A	1	600 VA	720 VA				1	20.0 A	OFFICE RCPTS	14
15	MICROWAVE (GFI)	20.0 A	1		1000 VA	1200 VA			1	20.0 A	PRINTING-1 RCPTS	16
17	SINK (GFI)	20.0 A	1				600 VA	720 VA	1	20.0 A	STORAGE/CORRIDOR RCPTS	18
19	OFFICE RCPTS	20.0 A	1	720 VA	8000 VA				1	85.0 A	AHU-2 AUX HEAT	20
21	LITES HALLWAY-1 102	20.0 A	1			1484 VA	1726 VA		1	20.0 A	LITES OFFICE 126	22
23	OFFICE RCPTS	20.0 A	1					720 VA	8000 VA	1	85.0 A	AHU-5 AUX HEAT	24
25	SIGN POWER	20.0 A	1	180 VA	312 VA						26
27	WH-01	65.0 A	1			6000 VA	312 VA	2	20.0 A	EF-2, 3	28
29	AHU-5	20.0 A	2					884 VA	480 VA	1	20.0 A	RPZ HEATER	30
31				884 VA									32
33	OFFICE RCPTS	20.0 A	1			540 VA	600 VA			1	20.0 A	REFRIGERATOR (GFI)	34
35	SEPTIC TANK	20.0 A	1					480 VA					36
37													38
39	OFFICE RCPTS	20.0 A	1			720 VA	720 VA			1	20.0 A	OFFICE RCPTS	40
41													42
43					884 VA					2	20.0 A	AHU-2	44
45	AHU-3 AUX HEAT	85.0 A	1			8000 VA	884 VA						46
47													48
49													50
51	AHU-3	20.0 A	2			884 VA							52
53							884 VA						54
		Total Load:		44960 VA		44827 VA		45050 VA					
		Total Amps:		374.8 A		373.6 A		375.6 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	49523 VA	100.00%	49523 VA		
Other	40660 VA	100.00%	40660 VA	**Total Conn. Load:**	134836 VA
Spare	480 VA	100.00%	480 VA	**Total Est. Demand:**	123994 VA
LITES	3869 VA	125.00%	4837 VA	**Total Conn.:**	374.3 A
HEAT	6684 VA	100.00%	6684 VA	**Total Est. Demand:**	344.2 A
RCPT	33620 VA	64.87%	21810 VA		

Notes:
AIC IS ASSUMED. EC TO VERIFY BEFORE PURCHASE AND INSTALLATION.

KEYNOTES

1 REFER TO SITE CIVIL PLANS FOR LOCATION OF RPZ HEATER.

LIGHTING FIXTURE SCHEDULE

TYPE	CONSTRUCTION DESCRIPTION	CONSTRUCTION LENS/LOUVER	CONSTRUCTION MOUNTING	LIGHT SOURCE LAMP	LIGHT SOURCE LUMENS DOWN	LIGHT SOURCE LUMENS UP	LIGHT SOURCE CCT	LIGHT SOURCE CRI	LIGHT SOURCE PROJECTED LIFE	ELECTRICAL BALLAST/DRIVER	ELECTRICAL VOLT	ELECTRICAL WATTS	ELECTRICAL EMERGENCY COMPONENT	PRODUCT MFR	PRODUCT Model
EW1	TWO HEAD EMERGENCY	--	SURFACE WALL	LED	1100 lm	0 lm	5000 K	80	--	--	120 V	11 W	BATTERY	LITHONIA	ELM6L UVOLT LTP
EW2	EXIT/ELU COMBO	--	CEILING	LED	104 lm	0 lm	4000 K	70	--	--	120 V	3 W	BATTERY	EXITLIGHT CO.	COMBO2 R W
EW3	EXIT/ELU COMBO, RED LETTERING	--	WALL	LED	1045 lm	0 lm	4000 K	0	--	--	277 V	4 W	BATTERY	LITHONIA	LHQM LED R HO
EW4	ELU SINGLE REMOTE HEAD	--	SURFACE WALL	LED	220 lm	0 lm	6500 K	80	--	--	120 V	11 W	REMOTE BATTERY	LITHONIA	ELMRE LP220L SGL
EW5	ELU SINGLE REMOTE HEAD	--	SURFACE WALL	LED	220 lm	0 lm	6500 K	80	--	--	277 V	11 W	REMOTE BATTERY	LITHONIA	ELMRE LP220L SGL
L1	2X4 RECESSED	CURVED RIBBED	LAY-IN	LED	4000 lm	0 lm	3500 K	82	60,000 HOURS	LED DRIVER, 0-10V DIMMING, 1%	120 V	31 W	--	LITHONIA	2BLT4 40L ADP EZ1 LP835
L2	HIGH BAY	SEMI-DIFFUSE ACRYLIC	SUSPENDED	LED	28484 lm	0 lm	5000 K	80	--	OSRAM, 0-10V DIMMING	277 V	280 W	--	LITHONIA	IBH 30000LM MVOLT OZ10 50K 80CRI
L3	6" DOWNLIGHT	--	RECESSED	LED	1404 lm	0 lm	3500 K	80	60,000 HOURS	LED DRIVER, 0-10V DIMMING, 1%	120 V	12 W	--	INDY	L6 13LM 35K MVOLT 80CRI EZ1 w/ HM CS PF
L4	DECORATIVE PENDANT	--	SUSPENDED	LED	1013 lm	0 lm	3500 K	80	50,000 HOURS	LED DRIVER, 0-10V DIMMING, 1%	120 V	19 W	--	SPI	L19W 120-277V CAC 3500K DF_MA01 No DL
L5	2X2 RECESSED	CURVED RIBBED	LAY-IN	LED	4000 lm	0 lm	3500 K	82	60,000 HOURS	LED DRIVER, 0-10V DIMMING, 1%	120 V	32 W	--	LITHONIA	2BLT2 40L ADP EZ1 LP835
L6	HIGH BAY	SEMI-DIFFUSE ACRYLIC	SUSPENDED	LED	28484 lm	0 lm	5000 K	80	--	OSRAM, 0-10V DIMMING	277 V	280 W	BATTERY	LITHONIA	IBH 30000LM MVOLT OZ10 50K 80CRI BSL20HV
L7	EXTERIOR WALL PACK	--	WALL	LED	3215 lm	0 lm	3000 K	70	100,000 HOURS	LED DRIVER	277 V	39 W	--	LITHONIA	DSXW1 LED 10C 1000 30K T2M MVOLT HS
L8	UNDER CANOPY LIGHT	--	WALL	LED	12000 lm	0 lm	4000 K	70	100,000 HOURS	LED DRIVER	277 V	15 W	--	LITHONIA	WDGE1 LED P1 40K 80CRI VF MVOLT SRM

NOTES:
1. APPROVED EQUAL ACCEPTED.
2. LIGHTING SPECIFIED FOR PERFORMANCE AND ELECTRICAL CONNECTIVITY. STYLE NOT CONSIDERED.
3. 90-MINUTE BATTERY BACK UP FOR EMERGENCY EGRESS LIGHTS.

LIGHTING FIXTURE SCHEDULE NOTES

1. LIGHTING FIXTURE CATALOG NUMBERS ARE INDICATIVE OF THE STYLE OF THE FIXTURE REQUIRED. CONTRACTOR SHALL COORDINATE WITH FIELD CONDITIONS & ARCHITECT'S FINISH SCHEDULE TO PROVIDE FIXTURES WITH THE PROPER TRIM, VOLTAGE, AND OPTIONS NECESSARY FOR A COMPLETE INSTALLATION.
2. DOUBLE-FACED EXIT FIXTURES SHALL BE OF THE SAME MANUFACTURER AND SERIES AS THE CORRESPONDING SINGLE FACED FIXTURES SCHEDULED.
3. THE BATTERY PACKS FOR ALL EXIT AND EMERGENCY LIGHT FIXTURES SHALL BE CAPABLE OF POVIDING EMERGENCY POWER TO THE FIXTURES FOR A MINIMUM OF 90 MINUTES.
4. SUBMITTALS FOR ALL LIGHT FIXTURES SHALL BE REQUIRED. SUBMITTAL DATA SHALL INCLUDE COMPLATE PHOTOMETRIC DATA AS WELL AS DATA ON MATERIAL, FINISHES, SUPPORTS, REFLECTORS, LENSES, ETC.
5. FIXTURES SHALL BE INDEPENDANTLY SUPPORTED DIRECTLY FROM THE STRUCTURE WITH CODE GAUGE WIRE AT A MINIMUM OF FOUR CORNERS.
6. ALL FIXTURES RECESSED IN FIRE RATED CEILINGS, SHALL BE INSTALLED WITH AND APPROVED TENT ENCLOSURE BY G.C. OR BE U.L. RATED FOR SUE IN RATED CEILINGS. VERIFY WITH ARCHITECTURAL PLANS.
7. ALL RECESSED FIXTURES INSTALLED IN CEILINGS, INDICATED BY ARCHITECT AS HAVING INSLUATION INSTALLED OVER CEILING AND FIXTURES, SHALL BE U.I. RATED FOR DIRECT CONTACT WITH INSULATION OR INSTALLED INSIDE AN APPROPRIATE AIR-TIGHT ASSEMBLY WITH A 0.5" CLEARANCE FROM COMBUSTIBLE MATERIALS AND WITH 3" CLEARANCE FROM INSTALLATION MATERIAL. VERIFY WITH ARCHITECTURAL PLANS.
8. VERIFY ALL FIXTURE VOLTAGES PRIOR TO ORDERING.
9. ADA MOUNTING: IN COMMON USE AREA, PENDANT LIGHTS SHALL BE MOUNTED A MINIMUM OF 80" A.F.F. UNLESS LOCATED ABOVE A FIXED ELEMENT. WALL MOUNTED FIXTURES BETWEEN 27" AND 80" A.F.F. SHALL NOTE XTEND MORE THAT 4" FROM THE WALL OR BASE OR HAVE FIXED PROTECTION AT 27" A.F.F. OR LOWER WHEN THESE ELEMENTS ARE LOCATED ALONG A CIRCULATION ROUTE.
10. **THE ELECTRICAL CONTRACTOR SHALL VERIFY WITH HIS SUPPLIER THAT LIGHTING FIXTURES AND LIGHTING CONTROLS, INCLUDING DIMMERS, ARE COMPATIBLE.**

ABBREVIATIONS/DEFINITIONS:

RCPT	RECEPTACLE
PWR	POWER
HEAT	HEATING ELEMENT
HVAC	HVAC EQUIPMENT
LITES	LIGHTING
MN/MTR	MOTOR
FA	FIRE ALARM

Electrical Circuit Schedule

Panel	Count	Rating/Poles	Connection Type
P3N-101	28	20.0 A / 1P	Breaker
P3N-101	4	20.0 A / 2P	Breaker
P3N-101	1	20.0 A / 3P	Feed Through Lugs
P3N-101	1	65.0 A / 1P	Breaker
P3N-101	3	85.0 A / 1P	Breaker
P3N-102	32	20.0 A / 1P	Breaker
P3N-102	1	20.0 A / 2P	Breaker
P3N-102	6	60.0 A / 2P	Breaker
P3N-102	2	85.0 A / 1P	Breaker
P4N-101	2	20.0 A / 1P	Breaker
P4N-101	1	175.0 A / 3P	Breaker

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. # SIGNATURE ON COVER SHEET DOES NOT APPEAR. THIS IS NOT AN AUTHORIZED COPY!

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: JCD
CHECK BY: BDL

ELECTRICAL SCHEDULES

E301

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS

ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

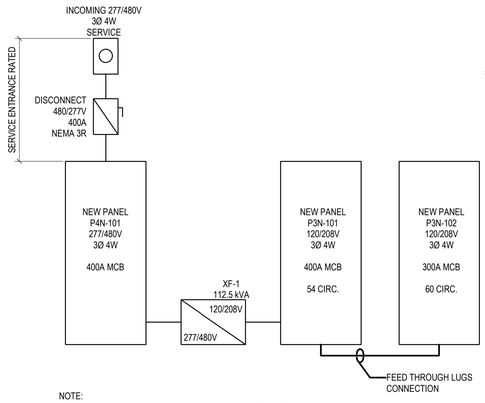
ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code: ■ Prescriptive ☐ Performance
ASHRAE 90.1: ☐ Prescriptive ☐ Performance

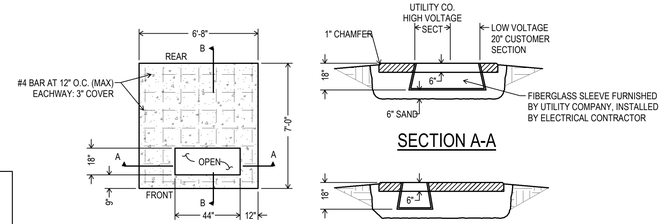
Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture ⟨1⟩
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient Mechanical Equipment
☐ C406.3 Reduced Lighting Power Density
☐ C406.4 Enhanced Digital Lighting Controls
☐ C406.5 On-Site Renewable Energy
☐ C406.6 Dedicated Outdoor Air System
☐ C406.7 Reduced Energy Use in Service Water Heating



NOTE:
1. PROVIDE ALL GROUNDING AND BONDING PER LATEST EDITION OF NEC.
2. SEE WIRE AND CONDUIT SCHEDULE FOR CONNECTION RATINGS.
3. ALL PANELS DEFAULT TO 42 CIRC, UNLESS OTHERWISE STATED.

1 E401 POWER RISER
NOT TO SCALE



PLAN VIEW

SECTION A-A

SECTION B-B

NOTES:
1. AIR ENTRAINED CONCRETE-4000 PSI AFTER 28 DAYS, MAX AGGREGATE 3/4".
2. STEEL FLOAT FINISH.
3. REINFORCEMENT: TYPE A-305 NEW BILLET STOCK A.S.T.M. GRADE 60.
4. ALL REINFORCING SHALL BE #4 BAR 12" O.C. EACHWAY. WIRE TIE ALL CROSSINGS.
5. IF THE ANTICIPATED FORECAST TEMPERATURE IS 35° OR LESS, THE PAD SHALL BE INSULATED WITH EITHER BLANKETS OR POLY AND STRAW FOR A MINIMUM OF 3 DAYS.
6. APPLY MEMBRANCE CURING COMPOUND, MEETING A.S.T.M. C-309, AT MANUFACTURERS PRESCRIBED RATE AFTER REMOVAL OF FORMS.
7. CHAMFERED EDGE ALONG OUTSIDE EDGES SHALL BE 1".
8. A SAFE OPERATING CLEARANCE OF A MINIMUM OF 6'-0" IS NEEDED IN FRONT OF THE TRANSFORMER.
9. IF NECESSARY, ELECTRICAL CONTRACTOR MAY REMOVE TOP LIP OF FIBERGLASS SLEEVE IN THE LOW VOLTAGE SECTION.
10. FIBERGLASS SLEEVE SHALL BE FURNISHED BY UTILITY COMPANY, INSTALLED BY ELECTRICAL CONTRACTOR.

2 E401 3 PHASE 30 TO 300 KVA TRANSFORMER PAD
NOT TO SCALE

KEYNOTES

1 SEE LIGHTING FIXTURE SCHEDULE FOR MORE INFORMATION.

CONDUIT AND WIRE SCHEDULE

FEEDER TYPE	COPPER CONDUCTORS		CONDUIT SIZE			
	Ø & N	GND	2Ø+N+GND	3Ø+GND	3Ø+N+GND	3Ø+2N+2GND
20	#12	#12	16 (1/2")	16 (1/2")	16 (1/2")	21 (3/4")
30	#10	#10	16 (1/2")	16 (1/2")	21 (3/4")	21 (3/4")
40	#8	#10	21 (3/4")	21 (3/4")	27 (1")	27 (1")
55	#6	#10	27 (1")	27 (1")	27 (1")	27 (1")
70	#4	#8	35 (1 1/4")	35 (1 1/4")	35 (1 1/4")	35 (1 1/4")
85	#3	#8	35 (1 1/4")	35 (1 1/4")	35 (1 1/4")	41 (1 1/2")
95	#2	#8	35 (1 1/4")	35 (1 1/4")	41 (1 1/2")	41 (1 1/2")
110	#1	#6	41 (1 1/2")	41 (1 1/2")	41 (1 1/2")	53 (2")
150	#1/0	#6	41 (1 1/2")	41 (1 1/2")	53 (2")	53 (2")
175	#2/0	#6	53 (2")	53 (2")	53 (2")	63 (2 1/2")
200	#3/0	#6	53 (2")	53 (2")	53 (2")	63 (2 1/2")
230	#4/0	#4	53 (2")	53 (2")	63 (2 1/2")	63 (2 1/2")
255	250 kCM	#4	63 (2 1/2")	63 (2 1/2")	63 (2 1/2")	78 (3")
285	300 kCM	#4	63 (2 1/2")	78 (3")	78 (3")	78 (3")
310	350 kCM	#3	78 (3")	78 (3")	78 (3")	91 (3 1/2")
335	400 kCM	#3	78 (3")	78 (3")	78 (3")	91 (3 1/2")
380	500 kCM	#3	78 (3")	78 (3")	91 (3 1/2")	103 (4")
510	(2) 250 kCM	(2) #1	(2) 63 (2 1/2")	(2) 63 (2 1/2")	(2) 78 (3")	(2) 78 (3")
570	(2) 300 kCM	(2) #1	(2) 63 (2 1/2")	(2) 63 (2 1/2")	(2) 78 (3")	(2) 91 (3 1/2")
620	(2) 350 kCM	(2) #1	(2) 78 (3")	(2) 78 (3")	(2) 78 (3")	(2) 91 (3 1/2")
760	(2) 500 kCM	(2) #1/0	(2) 78 (3")	(2) 78 (3")	(2) 91 (3 1/2")	(2) 103 (4")
1005	(3) 400 kCM	(3) #2/0	(3) 78 (3")	(3) 78 (3")	(3) 78 (3")	(3) 91 (3 1/2")
1240	(4) 350 kCM	(4) #3/0	(4) 78 (3")	(4) 78 (3")	(4) 78 (3")	(4) 91 (3 1/2")
1260	(3) 600 kCM	(3) #3/0	(3) 91 (3 1/2")	(3) 91 (3 1/2")	(3) 103 (4")	(3) 129 (5")
1675	(5) 400 kCM	(5) #4/0	(5) 78 (3")	(5) 78 (3")	(5) 91 (3 1/2")	(5) 103 (4")
1680	(4) 600 kCM	(4) #4/0	(4) 91 (3 1/2")	(4) 91 (3 1/2")	(4) 103 (4")	(4) 129 (5")
2010	(6) 400 kCM	(6) 250 kCM	(6) 78 (3")	(6) 78 (3")	(6) 91 (3 1/2")	(6) 103 (4")
2100	(5) 600 kCM	(5) 250 kCM	(5) 91 (3 1/2")	(5) 91 (3 1/2")	(5) 103 (4")	(5) 129 (5")
2520	(6) 600 kCM	(6) 350 kCM	(6) 91 (3 1/2")	(6) 91 (3 1/2")	(6) 103 (4")	(6) 129 (5")
2660	(7) 500 kCM	(7) 350 kCM	(7) 91 (3 1/2")	(7) 91 (3 1/2")	(7) 91 (3 1/2")	(7) 129 (5")
3040	(8) 500 kCM	(8) 400 kCM	(8) 91 (3 1/2")	(8) 91 (3 1/2")	(8) 91 (3 1/2")	(8) 129 (5")
4275	(8) 750 kCM	(8) 500 kCM	(8) 103 (4")	(8) 103 (4")	(8) 129 (5")	(8) 129 (5")
EQ	EQUIPMENT FEEDER - REFER TO ELECTRICAL EQUIPMENT SCHEDULE					

200 - 4 - 1G FEEDER DESIGNATION

GROUND CONDUCTORS:
(0) - NO GROUND
(1G) - EQUIPMENT GND OR ISOLATED GND
(2G) - EQUIPMENT GND AND ISOLATED GND
SYSTEM DESCRIPTION:
(3) - 1Ø, 3W OR 3Ø, 3W
(4) - 3Ø, 4W
(5) - 3Ø, 5W (2 NEUTRALS)
CONDUCTOR AMPACITY:
(SEE FEEDER SCHEDULE)

GENERAL NOTES:

A. THE ABOVE FEEDER SCHEDULE IS A SCHEDULE OF TYPICAL FEEDERS AND SOME SIZES MAY NOT BE UTILIZED.

B. ALL CONDUCTOR AMPACITIES ARE BASED ON TABLE 310-15(b)(16) OF THE NEC FOR COPPER CONDUCTOR TYPE THW/THWN.

C. FEEDER SIZES SHOWN ON THE RISER DIAGRAM INDICATE FEEDER AMPACITIES AND DO NOT NECESSARILY CORRESPOND TO CIRCUIT BREAKER AMPACITIES. CERTAIN FEEDERS MAY BE SIZED FOR THE DURATION FACTORS REQUIRED BY CODE AND/OR ARE OVERSIZED FOR VOLTAGE DROP.

D. WHERE MULTIPLE CONDUITS AND CONDUCTORS ARE INDICATED FOR A SINGLE FEEDER, EACH CONDUIT SHALL CONTAIN 1 PARALLEL PHASE, NEUTRAL, AND GROUND CONDUCTORS INDICATED.

E. CONDUIT ABOVE GRADE INDOORS SHALL BE EMT. CONDUIT ABOVE GRADE OUTDOORS SHALL BE GALVANIZED IMC OR RMC. CONDUIT BELOW GRADE SHALL BE PVC WITH GALVANIZED RMC ELBOWS. CONDUIT SIZE INDICATED IS MINIMUM SIZE REGARDLESS OF CONDUIT TYPE.

F. CONDUITS SIZED LARGER THAN INDICATED SHALL BE PERMITTED FOR RUNS WITH UP TO (4) 90° ELBOWS, OR FOR PULLING LONGER RUNS.

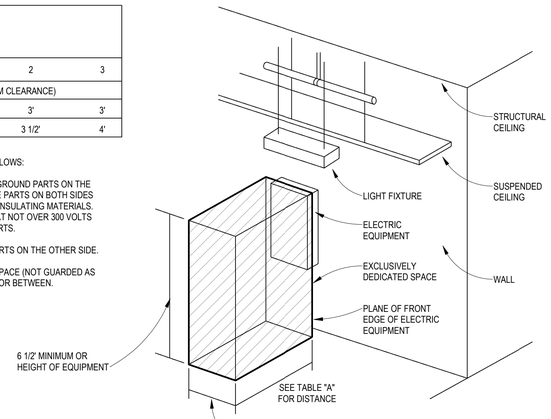
TABLE "A" WORKING CLEARANCES			
VOLTAGE TO GROUND	CONDITION: 1	2	3
NOMINAL	(MINIMUM CLEARANCE)		
0-150	3'	3'	3'
151-600	3'	3 1/2'	4'

WHERE THE "CONDITIONS" ARE AS FOLLOWS:

1. EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUND PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR OTHER INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUSBARS OPERATING AT NOT OVER 300 VOLTS SHALL NOT BE CONSIDERED LIVE PARTS.

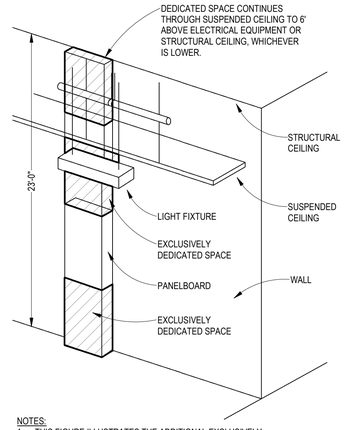
2. EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE.

3. EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.



NOTES:
1. THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT REQUIRED BY NEC SECTION 110.26.
2. THIS INCLUDES BUT IS NOT LIMITED TO PANELBOARDS, SAFETY SWITCHES, MOTOR STARTERS, JUNCTION BOXES, AND OTHER ELECTRICAL EQUIPMENT.

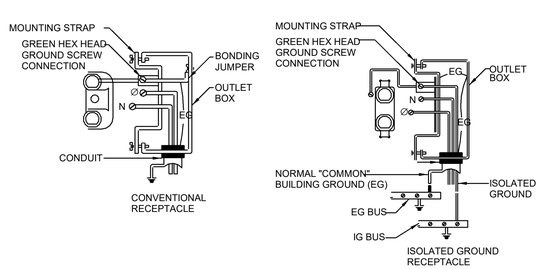
ALL ELECTRIC EQUIPMENT



NOTES:
1. THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRES OVER AND UNDER PANELBOARDS FOR CABLES, RACEWAYS, ETC, TO AND FROM PANELBAORDS REQUIRED BY NEC SECTION 100.26.
2. NO PIPING, DUCTWORK, OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH THE DEDICATED SPACES SHOWN. FOR EXCEPTIONS SEE NEC SECTION 110.26F.

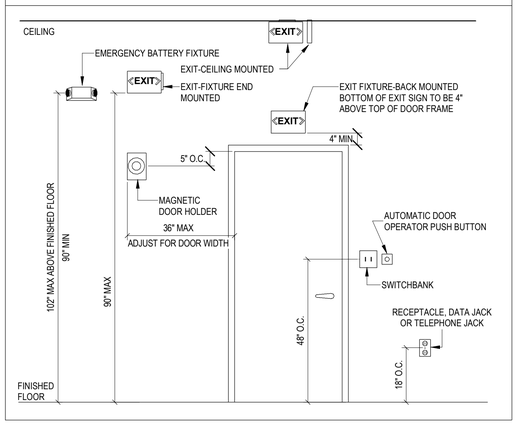
PANELBOARDS

3 E401 DEDICATED WORKING SPACE
NOT TO SCALE



4 E401 RECEPTACLE WIRING DETAIL
NOT TO SCALE

TYPICAL MOUNTING HEIGHTS



5 E401 TYPICAL MOUNTING HEIGHTS
NOT TO SCALE

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. # SIGNATURE ON COVER SHEET DOES NOT APPEAR. THIS IS NOT AN AUTHORIZED COPY!

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

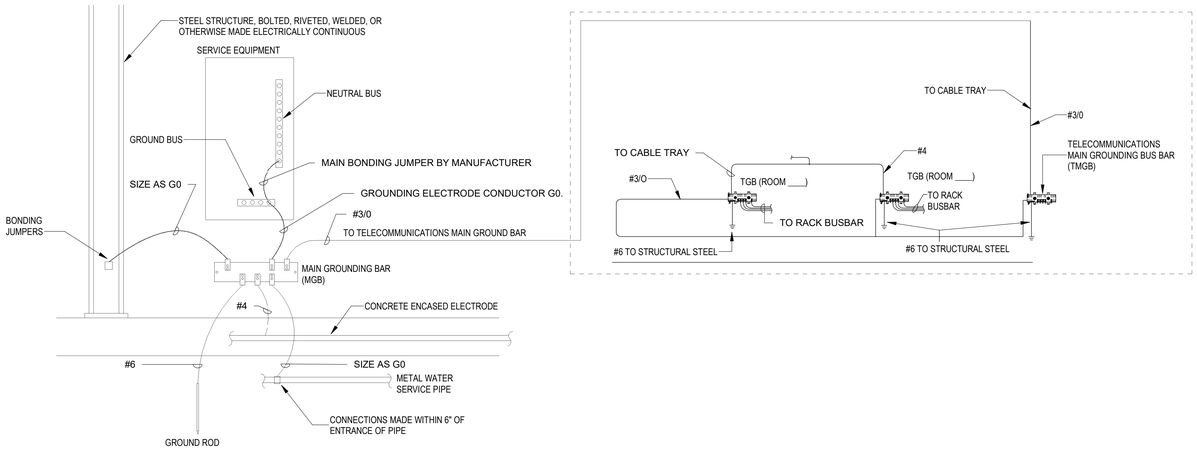
PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

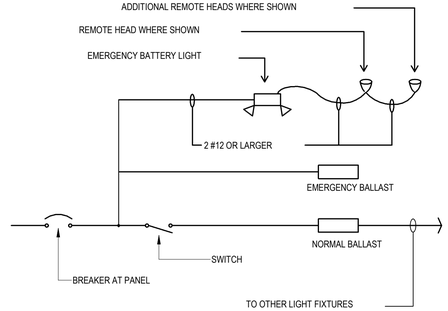
DRAWN BY: JCD
CHECK BY: BDL

ELECTRICAL DETAILS

E401



1 E402 SERVICE GROUND DETAIL
NOT TO SCALE



2 E402 EMERGENCY LIGHTING WIRING DIAGRAM
NOT TO SCALE

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY!

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS
08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

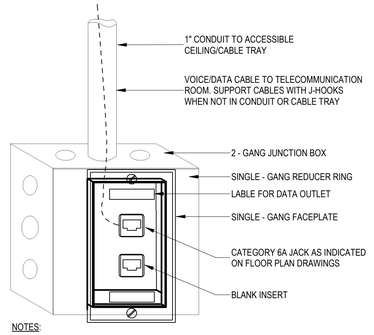
REV	DATE	DESCRIPTION

DRAWN BY: JCD
CHECK BY: BDL

ELETRICAL DETAILS

E402

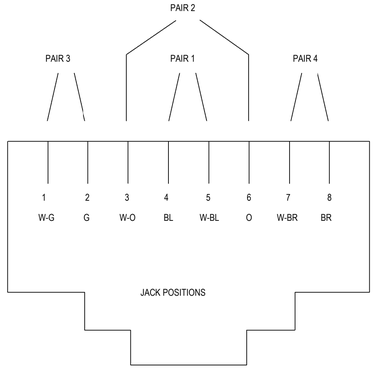
1 E501 ELECTRICAL SYSTEMS PLAN
1/8" = 1'-0"



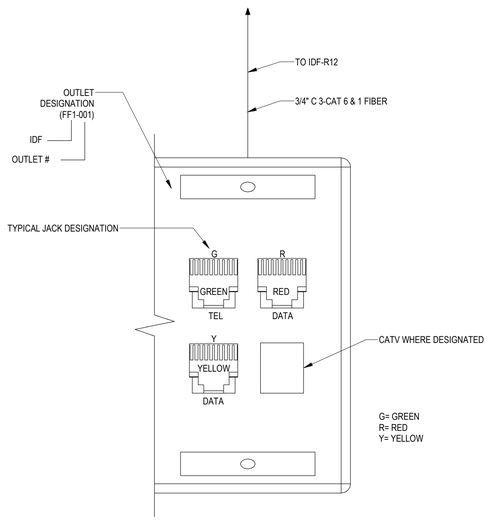
NOTES:

1. TERMINATE VOICE AND DATA OUTLETS WITH T568B/T568A PIN-OUT SEQUENCE.
2. ROUTE CABLES TO TELECOMMUNICATION ROOMS AND TERMINATE ON RACK-MOUNTED CATEGORY 6A PATCH PANELS.
3. LABEL VOICE AND DATA JACK WITH THE TELECOMMUNICATION ROOM NUMBER, PATCH PANEL NUMBER AND JACK POSITION NUMBER (EX. 005-A-18)
4. INSTALL BLANK INSERT ON OPEN PORTS WHEN JACKS ARE NOT INSTALLED.
5. WHEN VOICE/DATA OUTLETS ARE INSTALLED AT MODULAR FURNITURE OR FLOOR BOX LOCATIONS, PROVIDED COMPATIBLE ADAPTER PLATES.

4 E501 2-PORT SINGLE DROP VOICE/DATA OUTLET DETAIL
NOT TO SCALE



3 E501 T568A JACK PINOUT DETAIL
NOT TO SCALE



2 E501 TYPICAL TELEPHONE/DATA DEVICE DETAIL 4 PORT
NOT TO SCALE

McGAHEY DESIGN
123 Raleigh Street, Fuquay-Varina, North Carolina 27526
919.321.0123 + 919.422.0265 info@mcgaheydesign.com

KAIROS PROJECT GROUP, INC.
120 SOMMERVILLE PARK ROAD
RALEIGH, NC 27603
NC FIRM # C-3824

E&M CONCRETE INC.

NORTH CAROLINA PROFESSIONAL SEAL 33293 ENGINEER BENJAMIN D. LEWIS

08/20/2024

ISSUED FOR CONSTRUCTION

E&M CONCRETE
308 JARCO DRIVE
FUQUAY-VARINA, NC 27526

PROJECT: 224S91
DATE ISSUED: 8/20/2024

REV	DATE	DESCRIPTION

DRAWN BY: JCD
CHECK BY: BDL

ELECTRICAL SYSTEMS PLAN

E501

THESE DRAWINGS ARE THE COPYRIGHT OF KAIROS PROJECT GROUP. THESE DOCUMENTS HAVE BEEN PREPARED SPECIFICALLY FOR THE PROJECT DESCRIBED IN THE ADDRESS BAR. THEY ARE NOT SUITABLE FOR USE ON OTHER PROJECTS OR IN OTHER LOCATIONS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER. REPRODUCTION IS PROHIBITED. IF SIGNATURE ON COVER SHEET DOES NOT APPEAR, THIS IS NOT AN AUTHORIZED COPY