CATAWBA COUNTY
CATTLEMEN'S ASSOCIATION
EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

SCHEDULE OF DRAWINGS

BUILDING CODE DATA

COVER SHEET
BC 1.0 BUILDING CODE SUMMARY
BC 1.0 BUILDING CODE SUMMARY
BC 1.2 LIFE SAFETY PLAN
BC 1.3 UL DETAIL SHEET

CIVIL

COV101 COVER SHEET
VFE101 EXISTING CONDITIONS
CSN101 CIVIL SITE PLAN
CSN501 SITE DETAILS
CGN101 GRADING AND DRAINAGE PLAN
CGN501 DRAINAGE DETAILS
CCN101 PRE-CONSTRUCTION EROSION CONTROL PLAN
CCN102 POST-CONSTRUCTION EROSION CONTROL PLAN
CCN501 EROSION CONTROL DETAILS
CCN502 EROSION CONTROL DETAILS
CCN503 EROSION CONTROL NOTES
CUN101 UTILITY PLAN
CUN501 UTILITY DETAILS
LSN101 LANDSCAPE PLAN
SPC101 SPECIFICATIONS
SPC102 SPECIFICATIONS
SPC103 SPECIFICATIONS
SPC104 SPECIFICATIONS

ARCHITECTURAL

AS 1.0 ARCHITECTURAL SITE PLAN
AS 1.1 FENCE DETAILS
A 1.0 OVERALL FLOOR PLAN
A 1.1 FLOOR PLAN
A 1.2 STORAGE BUILDING
A 2.0 SCHEDULES
A 3.0 BUILDING ELEVATIONS
A 5.0 CROSS SECTIONS
A 5.1 CROSS SECTIONS
A 6.0 WALL DETAILS
A 6.1 WALL DETAILS
A 9.0 REFLECTED CEILING PLAN

STRUCTURAL

S1 FOUNDATION PLAN
S2 SECTIONS & DETAILS
S3 STORAGE BUILDING STRUCTURAL PLANS

PLUMBING

P1 FLOOR PLAN - WASTE
P2 FLOOR PLAN - WATER
P3 SITE PLAN - WATER
P4 SCHEDULES - PLUMBING

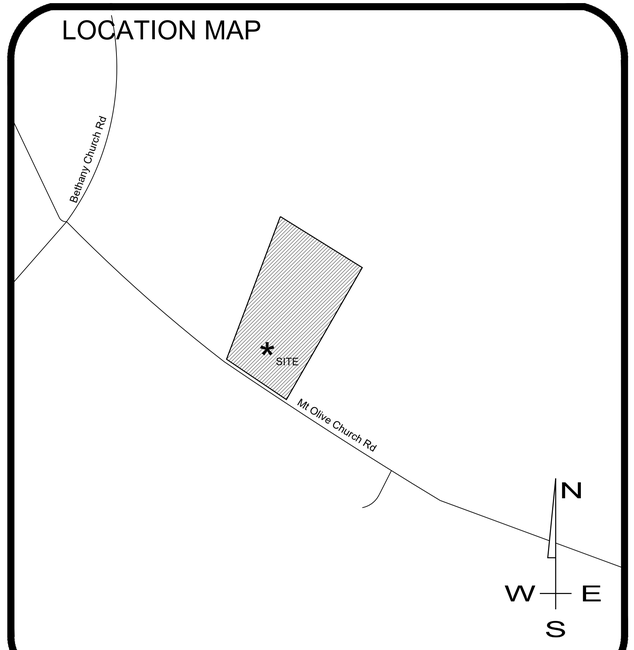
MECHANICAL

M1 FLOOR PLAN - HVAC
M2 SCHEDULES - HVAC
M3 SPECIFICATIONS - HVAC

ELECTRICAL

E1 SPECIFICATIONS & SCHEDULES
E2 FLOOR PLAN - POWER
E3 FLOOR PLAN - LIGHTING
E4 SITE PLAN - ELECTRICAL
E5 DETAILS

LOCATION MAP



CBSA architects

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HICKORY, NORTH CAROLINA 28603

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C.B.S.A. DESIGNS, INC. REGISTERED ARCHITECTURAL CORPORATION 51590 HICKORY, NC.

MARTY ALLEN BEAL REGISTERED ARCHITECT 5400 NORTH CAROLINA NEWTON, N.C.

06/18/2025

MARTY ALLEN BEAL, AIA, LEED AP BD+C
PROJECT ARCHITECT
HICKORY , N.C.

PROJECT NUMBER: 2024.008

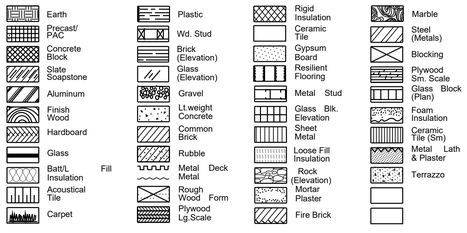
JUNE, 18 2025

CIVIL ENGINEERS
CLAYTON ENGINEERING & DESIGN
(864) 455-3456 HICKORY, N.C.

PLUMB./MECH./ELEC. ENGINEERS
BRITTAIN ENGINEERING, INC.
(828) 328-1813 HICKORY, N.C.

STRUCTURAL ENGINEERS
SWARTZ DESIGN & ENGINEERING
(828) 632-0499 TAYLORSVILLE, N.C.

ARCHITECTURAL SYMBOLS



ABBREVIATIONS

ACOUSTICAL CEILING TILE	ACT-(TYPE)	CONTRACTOR-GENERAL	GC	WALL COVERNING	WC	PORCELAIN TILE	PORCT
ANCHOR BOLTS	AB	CONTRACTOR-MECHAN.	MC	FIRE EXTINGUISHER	FE	QUARRY TILE	QT
ANGLE	L ∠ -(SYM.)	CONTRACTOR-MECHAN.	MC	FLOOR	FLR	REINFORCED	REINF
ARCHITECT	ARCH	CONTRACTOR-ELECT.	EC	FLOOR DRAIN	FD	RUBBER	RBR
ABOVE FINISH FLOOR	AFF	CONTRACTOR-PLUMBING	PC	FLOOR	FLR	SOLID CORE	SC
BENCH MARK	BM	CENTER, ON	OC	FLOOR DRAIN	FD	STANDARD	STD
BLOCKING	BLK	CONTINUOUS	CONT	FOOTING	FTG	STRUCTURE	STRUCT
BOARD	BD	DRAWING	DWG	GALVANIZED IRON	GI	SUPPLY	SPLY
BRICK	BRICK	DRINKING FOUNTAIN	DF	GYPSUM BOARD	GYP BD	TEMPERATURE	TEMP
BUILDING	BLDG	EACH	EA	HOLLOW CORE	HC	TERRAZZO	TER
BULLETIN BOARD	BB	EACH WAY	EW	HOLLOW METAL	HM	THICKNESS, THICK	THK
CABINET	CAB	ELECTRIC	ELEC	JUNCTION BOX	J-BOX	TOILET	TLT
CARPET	CPT- (TYPE)	ELEC WATER COOLER	EWC	MAN HOLE	MH	TONGUE & GROOVE	T&G
CAST IRON	CI	ENGINEER	ENGR	MARBLE FLOOR	MRF	TYPICAL	TYP
CATCH BASIN	CB	EXISTING	EXIST	MARKER BOARD	MKRBD	UNDERWRITERS LAB	UL
CONCRETE	CONC	EXPOSED	EXP	MASONRY OPENING	MO	VACUUM	VAC
CONCRETE MASONRY	CMU- (FINISH)	EXTERIOR INSULATION FINISH SYSTEM	EIFS	MECHANICAL	MECH	VENTILATE	VENT
CEILING	CLG	FINISH	FIN	PAIR	PR	VINYL TILE	VT
CENTER LINE	℄	FINISHES:		PLASTER	PLAS	WATER CLOSET	WC
CHALK BOARD	CH BD	PAINT	P	PLASTIC LAMINATE	PLAM	WATERPROOF	WP
CLEANOUT	CO	EPOXY PAINT	EP	POLISHED	POL	WITH	W/
CLEANOUT TO GRADE	COTG			PRESSURE TREATED	PT	WOOD	WD

2018 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(Except 1 and 2 - Family Dwellings and Townhouses)

Name of Project: CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER
Address: 2894 MT. OLIVE CHURCH ROAD NEWTON, NC Zip Code 28658
Proposed Use: EDUCATION CENTER
Owner or Authorized Agent: MARTY BEAL Phone: 828-322-3403 Email mbeal@cbsa-architects.com
Owned By: ☐ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☐ City _____ ■ County CATAWBA ☐ State

CONTACT MARTY A. BEAL / CBSA ARCHITECTS

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	EMAIL
Architectural	CBSA ARCHITECTS	MARTY BEAL	5409	828 322-3403	cbsa@cbsa-architects.com
Civil	CLAYTON ENGINEERING & DESIGN	WILL CLAYTON	P-1463	864 455-3456	wclayton@clayton-engineering.net
Electrical	BRITTAIN ENGINEERING	DON BRITTAIN	7883	828 328-1813	dbrittain@brittainengineering.com
Fire Alarm					
Plumbing	BRITTAIN ENGINEERING	DON BRITTAIN	7883	828 328-1813	dbrittain@brittainengineering.com
Mechanical	BRITTAIN ENGINEERING	DON BRITTAIN	7883	828 328-1813	dbrittain@brittainengineering.com
Sprinkler-Standpipe					
Structural	SWARTZ ENGINEERING	JEFFERY SWARTZ	033411	828-632-0499	jjspe@bellsouth.net
Retaining Wall >5' High					
Pool Design					

2018 NC BUILDING CODE: ■ New Building ☐ Shell / Core ☐ 1st Time Interior Completions
☐ Addition ☐ Phased Construction - Shell Core

2018 NC EXISTING BUILDING CODE: (check all that apply)
☐ Prescriptive ☐ Alteration Level I ☐ Historic Property
☐ Repair ☐ Alteration Level II ☐ Change of Use
☐ Chapter 14 ☐ Alteration Level III

CONSTRUCTED: (Date) _____ CURRENT OCCUPANCY(S) (CH. 3) _____
RENOVATED: (Date) _____ PROPOSED OCCUPANCY(S) (CH. 3) _____
OCCUPANCY CATEGORY (Table 1604.5): Current: _____ Proposed: _____

BASIC BUILDING DATA:
Construction Type: (check all that apply) ☐ I-A ☐ I-B ☐ II-A ■ II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B
Sprinklers ■ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ■ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Primary Fire District: ■ No ☐ Yes Flood Hazard Area: ■ No ☐ Yes
Special Inspections Required: ■ No ☐ Yes

GROSS BUILDING AREA TABLE

Floor	Existing (SQ FT)	New (SQ FT)	Sub-Total
1st FLR (ENCLOSED)	–	2612	2612
1st FLR (COVERED)	–	2475	2475
TOTAL	–	5087	5087

ALLOWABLE AREA

Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ■ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-1 Condition ☐ 1 ☐ 2
I-2 Condition ☐ 1 ☐ 2
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High Piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancy Classification(s): --
Incidental Tables (Table 509): --
This separation is not exempt as a Non-Separated Use (see exceptions).
Special Uses (Chapter 4 - List Code Sections): –
Special Provisions (Chapter 5 - List Code Sections): –
Mixed Occupancy: ■ No ☐ Yes Separation: ____ Hr. Exception: –

$$\frac{\text{Actual Area of Occupancy - A2}}{\text{Allowable Area of Occupancy - A2}} + \frac{\text{Actual Area of Occupancy - R1}}{\text{Allowable Area of Occupancy - R1}} + \frac{\text{Actual Area of Occupancy - A3}}{\text{Allowable Area of Occupancy - A3}} \leq 1$$

_____ + _____ + _____ = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2 AREA	(C) AREA FOR FRONTAGE INCREASE [1]	(D) ALLOWABLE AREA OR UNLIMITED [2]
1	ASSEMBLY A3	5087	9500	NA	9500

[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)

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

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

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

[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	55'-0"	21'-0"	--
Building Height in Stories (Table 504,4)	2	1	--

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504,3 or 504,4

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/_____" * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural frame, including columns, girders, trusses							
Bearing walls							
Exterior							
North	N/A	--	--	--	--	--	--
East	N/A	--	--	--	--	--	--
West	N/A	--	--			--	--
South	N/A	--	--	--	--	--	--
Interior		N/A	--				
Nonbearing walls and partitions							
Exterior							
North	>30'-0"	0	0	--	--	--	--
East	>30'-0"	0	0	--	--	--	--
West	>30'-0"	0	0	--	--	--	--
South	>30'-0"	0	0	--	--	--	--
Interior walls and partitions		0	0				
Floor construction Including supporting beams and joists		0	0				
Floor Ceiling Assembly		0	0				
Columns Supporting Floors		N/A	--				
Roof construction Including supporting beams and joists		0	0				
Roof Ceiling Assembly		0	0				
Columns Supporting Roof		0	0				
Shaft Enclosures- Exit		NA	--				
Shaft Enclosures- Other		NA	--				
Corridor Separation		1	1		UL #U425		
Occupancy / Fire Barrier Separation		NA	--				
Party / Fire Wall Separation		NA	--				
Smoke Barrier Separation		NA	--				
Tenant / Dwelling Unit / Sleeping Unit Separation		NA	--				
Incidental Use Separation		NA	--				

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

Fire Separation Distance (Feet) From Property Lines	Degree of Openings Protection (Table 705.8)	Allowable Area (%)	Actual Shown on Plans (%)
NORTH / >30'-0"	UP,NS	NO LIMIT	29.0%
EAST / >30'-0"	UP,NS	NO LIMIT	2.0%
SOUTH / >30'-0"	UP,NS	NO LIMIT	26.0%
WEST / >30'-0"	UP,NS	NO LIMIT	3.0%

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ■ Yes ☐ No
Exit Signs: ■ Yes ☐ No
Fire Alarm: ■ Yes ☐ No
Smoke Detection Systems: ☐ Yes ■ No
Carbon Monoxide Protection: ☐ Yes ■ No

LIFE SAFETY PLAN REQUIREMENTS

Life safety Plan Sheet # BC1.1

☐ Fire and / or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (if not on site plan)
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
■ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
■ Occupants loads for each area
■ Exit access travel distances (1017)
■ Common path of travel distances (Tables 1006.2.1 & 1006.3.2)
☐ Dead end lengths (1020.4)
■ Clear exit widths for each exit door
■ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
■ Actual occupant load for each exit door
☐ A seperate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
■ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED REGULAR WITH 5' ACCESS AISLE	# OF ACCESSIBLE SPACES PROVIDED VAN SPACES WITH 132" ACCESS AISLE	# OF ACCESSIBLE SPACES PROVIDED VAN SPACES WITH 8' ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
FRONT	--	56	0	0	3	3
REAR	--	4	0	0	1	1
TOTAL	--	60	0	0	4	4

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS/ TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
EXSTG		0	0	0	0	0	0	0	0	0	0
NEW		1	2	0	0	2	2	0	0	1	1
TOTAL		1	2	0	0	2	2	0	0	1	1
REQ'D		1	2	0	1	1	1	0	0	1	1

ENERGY SUMMARY

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

Existing building envelope complies with code: N/A

Climate Zone: ☐ 3 ■ 4 ☐ 5

Method of Compliance:
■ Prescriptive (Energy Code)
☐ Performance (Energy Code)
☐ Prescriptive (ASHRAE 90.1)
☐ Performance (ASHRAE 90.1)

THERMAL ENVELOPE
Roof/ceiling Assembly (each assembly)
Description of assembly: SEE DRAWING DETAIL
U-Value of total assembly: U-0.02
R-Value of insulation: R-30.0
Skylights in each assembly: N/A
U-Value of skylight: N/A
total square footage of skylights in each assembly: N/A

Exterior Walls (each assembly)
Description of assembly: SEE DRAWING DETAIL
U-Value of total assembly: U-0.04
R-Value of insulation: R-19.0
Openings (windows or doors with glazing)
U-Value of assembly: _____
Solar heat gain coefficient: _____
projection factor: _____
Door R-Values: _____

Walls below grade (each assembly)
Description of assembly: N/A
U-Value of total assembly: N/A
R-Value of insulation: N/A

Floors over unconditioned space (each assembly)
Description of assembly: SEE DRAWING DETAIL
U-Value of total assembly: N/A
R-Value of insulation: N/A

Floors slab on grade
Description of assembly: SEE DRAWING DETAIL
U-Value of total assembly: U-0.06
R-Value of insulation: R-15.0
Horizontal/vertical requirement: 2'-0"
Slab heated: N/A

STRUCTURAL DESIGN

SEE STRUCTURAL DRAWING

DESIGN LOADS:

Importance Factors: Wind (I_W) --
Snow (I_S) --
Seismic (I_E) --

Live Loads: Roof -- psf
Mezzanine -- psf
Floor -- psf

Ground Snow Loads: -- psf

Wind Loads: Basic Wind Speed -- mph (ASCE-7)
Exposure Category --
Wind Base Shear (For MWRFS) Vx -- Vy --

SEISMIC DESIGN CATEGORY ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S --%g S_1 --%g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data

Basic structural system (check one)
☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Siesmic bBase Shear Vx -- Vy --

Analysis Procedure ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic

Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☐

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity -- psf
Pile size, type, and capacity _____

SEE MECHANICAL DRAWINGS

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

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

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

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____

Boiler
Size category. If oversized, state reason: _____

Chiller
Size category. If oversized, state reason: _____

List equipment efficiencies: _____

SEE ELECTRICAL DRAWINGS

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
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 Prescriptive Compliance
☐ 506.2.1 More Efficient Mechanical equipment
☐ 506.2.2 Reduced Lighting Power Density
☐ 506.2.3 Energy recovery Ventilation systems
☐ 506.2.4 Higher efficiency Service water Heating
☐ 506.2.5 On-Site Supply of Renewable energy
☐ 506.2.6 Automatic Daylighting Control Systems

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CONSULTANT

SEAL

06/18/2025

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-18-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

PROJECT NUMBER: 2024.008
CAD DWG FILE:
DRAWN BY: AOD
CHECKED BY: MAB

SHEET TITLE
APPENDIX B

BC1.0

2018 APPENDIX B
BUILDING CODE SUMMARY
FOR ALL COMMERCIAL PROJECTS
(Except 1 and 2 - Family Dwellings and Townhouses)

Name of Project: CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER
Address: 2894 MT. OLIVE CHURCH ROAD NEWTON, NC Zip Code 28658
Proposed Use: STORAGE BUILDING
Owner or Authorized Agent: MARTY A. BEAL Phone: 828-322-3403 Email mbeal@cbsa-architects.com
Owned By: ☐ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☐ City _____ ■ County CATAWBA ☐ State

CONTACT MARTY BEAL / CBSA ARCHITECTS

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	EMAIL
Architectural	CBSA ARCHITECTS	MARTY BEAL	5409	828 322-3403	cbsa@cbsa-architects.com
Civil	CLAYTON ENGINEERING & DESIGN	WILL CLAYTON	P-1463	864 455-3456	wclayton@clayton-engineering.net
Electrical	BRITTAIN ENGINEERING	DON BRITTAIN	7883	828 328-1813	dbrittain@brittainengineering.com
Fire Alarm					
Plumbing	BRITTAIN ENGINEERING	DON BRITTAIN	7883	828 328-1813	dbrittain@brittainengineering.com
Mechanical	BRITTAIN ENGINEERING	DON BRITTAIN	7883	828 328-1813	dbrittain@brittainengineering.com
Sprinkler-Standpipe					
Structural	SWARTZ ENGINEERING	JEFFERY SWARTZ	033411	828-632-0499	jjspe@bellsouth.net
Retaining Wall >5' High					
Pool Design					

2018 NC BUILDING CODE: ■ New Building ☐ Shell / Core ☐ 1st Time Interior Completions
☐ Addition ☐ Phased Construction - Shell Core

2018 NC EXISTING BUILDING CODE: ☐ Prescriptive ☐ Alteration Level I ☐ Historic Property
(check all that apply) ☐ Repair ☐ Alteration Level II ☐ Change of Use
☐ Chapter 14 ☐ Alteration Level III

CONSTRUCTED: (Date) _____ CURRENT OCCUPANCY(S) (CH. 3) _____
RENOVATED: (Date) _____ PROPOSED OCCUPANCY(S) (CH. 3) _____

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

BASIC BUILDING DATA:
Construction Type: (check all that apply) ☐ I-A ☐ I-B ☐ II-A ☐ II-B ☐ III-A ■ III-B ☐ IV ☐ V-A ☐ V-B
Sprinklers ■ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ■ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Primary Fire District: ■ No ☐ Yes Flood Hazard Area: ■ No ☐ Yes
Special Inspections Required: ■ No ☐ Yes

GROSS BUILDING AREA TABLE

Floor	Existing (SQ FT)	New (SQ FT)	Sub-Total
1st FLOOR	0	335	335
TOTAL	0	335	335

ALLOWABLE AREA

Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-1 Condition ☐ 1 ☐ 2
I-2 Condition ☐ 1 ☐ 2
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ■ S-1 Moderate ☐ S-2 Low ☐ High Piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☐

Accessory Occupancy Classification(s): --
Incidental Uses (Table 509): --
This separation is not exempt as a Non-Separated Use (see exceptions).
Special Uses (Chapter 4 - List Code Sections): --
Special Provisions (Chapter 5 - List Code Sections): --
Mixed Occupancy: ■ No ☐ Yes Separation: ____ Hr. Exception: --

$$\frac{\text{Actual Area of Occupancy - A2}}{\text{Allowable Area of Occupancy - A2}} + \frac{\text{Actual Area of Occupancy - R1}}{\text{Allowable Area of Occupancy - R1}} + \frac{\text{Actual Area of Occupancy - A3}}{\text{Allowable Area of Occupancy - A3}} \leq 1$$

_____ + _____ + _____ = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[2] AREA	(C) AREA FOR FRONTAGE INCREASE[1]	(D) ALLOWABLE AREA OR UNLIMITED[3,4,5]
1	STORAGE S1	335	17,500	NA	17,500

[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)

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

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

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

[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	55'-0"	12'-0"	--
Building Height in Stories (Table 504.4)	2	1	--

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ _____" REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural frame, including columns, girders, trusses							
Bearing walls							
Exterior							
North	NA	--	--	--	--	--	--
East	>30'	0	--	--	--	--	--
West	>30'	0	--			--	--
South	NA	--	--	--	--	--	--
Interior	NA	--	--				
Nonbearing walls and partitions							
Exterior							
North	>30'	0	--	--	--	--	--
East	N/A	--	--	--	--	--	--
West	N/A	--	--	--	--	--	--
South	>30'	0	--	--	--	--	--
Interior walls and partitions		0	0				
Floor construction Including supporting beams and joists		0	0				
Floor Ceiling Assembly		NA	--				
Columns Supporting Floors		NA	--				
Roof construction Including supporting beams and joists		0	0				
Roof Ceiling Assembly		0	0				
Columns Supporting Roof		NA	--				
Shaft Enclosures- Exit		NA	--				
Shaft Enclosures- Other		NA	--				
Corridor Separation		NA	--				
Occupancy / Fire Barrier Separation		NA	--				
Party / Fire Wall Separation		NA	--				
Smoke Barrier Separation		NA	--				
Tenant / Dwelling Unit / Sleeping Unit Separation		NA	--				
Incidental Use Separation		NA	--				

[*] Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

Fire Separation Distance (Feet) From Property Lines	Degree of Openings Protection (Table 705.8)	Allowable Area (%)	Actual Shown on Plans (%)
NORTH / 10'-0" - 15'-0"	UP,NS	NO LIMIT	0%
EAST / >30'-0"	UP,NS	NO LIMIT	22%
SOUTH / >30'-0"	UP,NS	NO LIMIT	0%
WEST / >30'-0"	UP,NS	NO LIMIT	0%

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting:	■ Yes	☐ No
Exit Signs:	■ Yes	☐ No
Fire Alarm:	☐ Yes	■ No
Smoke Detection Systems:	☐ Yes	■ No
Carbon Monoxide Protection:	☐ Yes	■ No

LIFE SAFETY PLAN REQUIREMENTS

Life safety Plan Sheet # BC1.1

☐ Fire and / or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (if not on site plan)
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
■ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
■ Occupants loads for each area
■ Exit access travel distances (1017)
■ Common path of travel distances (Tables 1006.2.1 & 1006.3.2)
☐ Dead end lenghs (1020.4)
■ Clear exit widths for each exit door
■ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
■ Actual occupant load for each exit door
☐ A seperate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☐ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED: VAN SPACES WITH REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	8' ACCESS AISLE	TOTAL # ACCESSIBLE PROVIDED
FRONT	--	56	0	0	3	3
REAR	--	4	0	0	1	1
TOTAL	--	60	0	0	4	4

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATER CLOSETS MALE	WATER CLOSETS FEMALE	WATER CLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS/ TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
EXSTG		0	0	0	0	0	0	0	0	0	0
NEW		0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0
REQ'D		0	0	0	0	0	0	0	0	0	0

UNCONDITIONED BUILDING

ENERGY SUMMARY

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

Existing building envelope complies with code: _____

Climate Zone: ☐ 3 ■ 4 ☐ 5

Method of Compliance:
■ Prescriptive (Energy Code)
☐ Performance (Energy Code)
☐ Prescriptive (ASHRAE 90.1)
☐ Performance (ASHRAE 90.1)

THERMAL ENVELOPE
Roof/ceiling Assembly (each assembly)
Description of assembly: SEE DRAWING DETAIL
U-Value of total assembly: U-0.00
R-Value of insulation: R-0.00
Skylights in each assembly: N/A
U-Value of skylight: N/A
total square footage of skylights in each assembly: N/A

Exterior Walls (each assembly)
Description of assembly: SEE DRAWING DETAIL
U-Value of total assembly: U-0.00
R-Value of insulation: R-0.00
Openings (windows or doors with glazing)
U-Value of assembly: N/A
Solar heat gain coefficient: N/A
projection factor: N/A
Door R-Values: _____

Walls below grade (each assembly)
Description of assembly: N/A
U-Value of total assembly: N/A
R-Value of insulation: N/A

Floors over unconditioned space (each assembly)
Description of assembly: SEE DRAWING DETAIL
U-Value of total assembly: U-0.00
R-Value of insulation: R-0.00

Floors slab on grade
Description of assembly: N/A
U-Value of total assembly: U-0.00
R-Value of insulation: R-0.00
Horizontal/vertical requirement: 0
Slab heated: N/A

STRUCTURAL DESIGN

SEE STRUCTURAL DRAWINGS

DESIGN LOADS:

Importance Factors: Wind (I_W) --
Snow (I_S) --
Seismic (I_E) --

Live Loads: Roof -- psf
Mezzanine -- psf
Floor -- psf

Ground Snow Loads: -- psf

Wind Loads: Basic Wind Speed -- mph (ASCE-7)
Exposure Category --
Wind Base Shear (For MWRFS) Vx -- Vy --

SEISMIC DESIGN CATEGORY ☐ A ☐ B ☐ C ☐ D
Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S --%g S_1 --%g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data

Basic structural system (check one)
☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Siesmic bBase Shear Vx -- Vy --

Analysis Procedure ☐ Simplified ☐ Equivalent Lateral Force ☐ Dynamic

Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☐

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) _____ psf
Presumptive Bearing capacity -- psf
Pile size, type, and capacity _____

UNCONDITIONED BUILDING

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

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

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

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____

Boiler
Size category. If oversized, state reason: _____

Chiller
Size category. If oversized, state reason: _____

List equipment efficiencies: _____

SEE ELECTRICAL DRAWINGS

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
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 Prescriptive Compliance
☐ 506.2.1 More Efficient Mechanical equipment
☐ 506.2.2 Reduced Lighting Power Density
☐ 506.2.3 Energy recovery Ventilation systems
☐ 506.2.4 Higher efficiency Service water Heating
☐ 506.2.5 On-Site Supply of Renewable energy
☐ 506.2.6 Automatic Daylighting Control Systems

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Tel: 828.322.3403
Fax: 828.322.1802
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CONSULTANT

SEAL
MARTY ALLEN BEAL
REGISTERED ARCHITECT
5409
NORTH CAROLINA
NEWTON, N.C.
06/18/2025

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-18-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

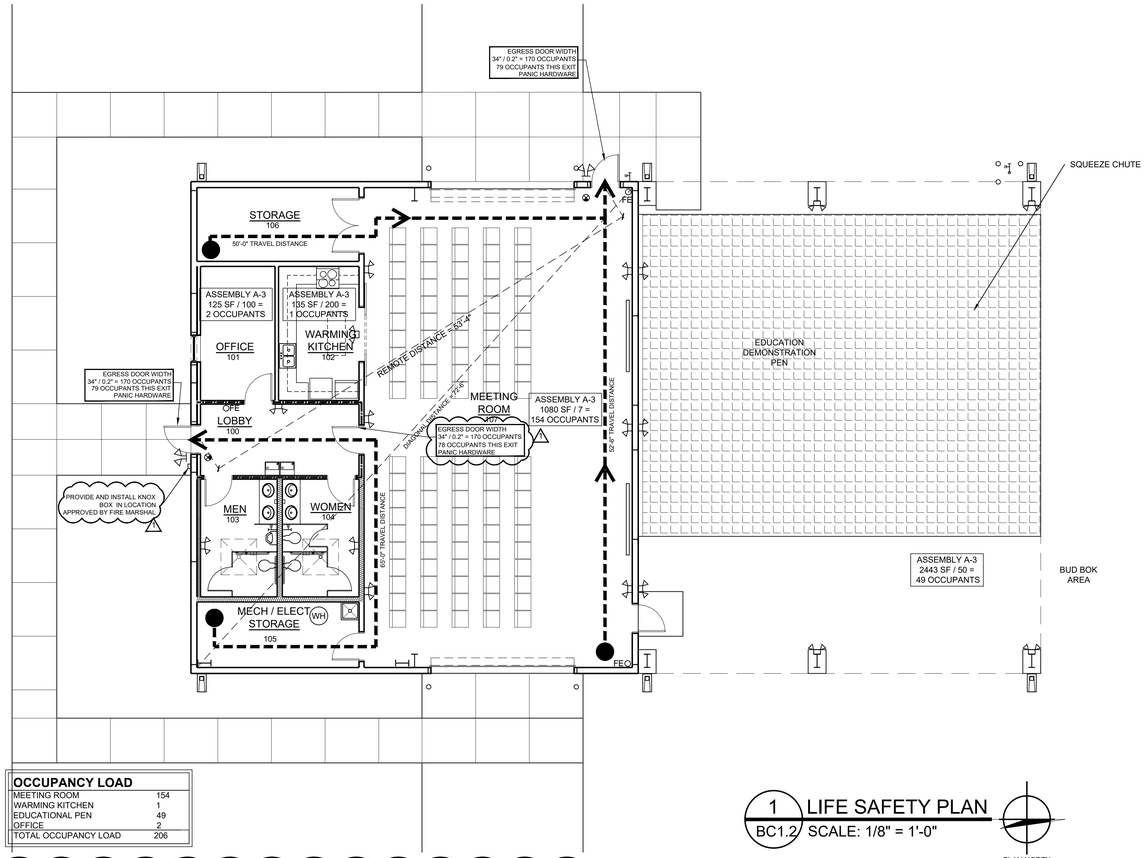
PROJECT NUMBER: 2024.008
CAD DWG FILE:
DRAWN BY: AOD
CHECKED BY: MAB

SHEET TITLE
APPENDIX B

BC1.1

LIFE SAFETY PLAN LEGEND	
FE	NEW FIRE EXTINGUISHER (10 LB "ABC" TYPE)
	NEW EMERGENCY LIGHT W/ 90-MINUTE BATTERY BACK-UP (SEE ELECTRICAL DRWINGS)
	NEW EXIT LIGHT & EMERGENCY LIGHT W/ 90-MINUTE BATTERY BACK-UP (SEE ELECTRICAL DRAWINGS)
	REMOTE EXTERIOR EGRESS LIGHT CONNECTED TO EXIT LIGHT W/ 90-MINUTE BATTERY BACK-UP (SEE ELECTRICAL DRAWINGS)
	PATH OF TRAVEL
	DIRECTION OF TRAVEL
	ORIGIN OF TRAVEL

PORTABLE FIRE EXTINGUISHERS SHALL BE SELECTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH 2018 NC FIRE PREVENTION CODE AND NFPA10



OCCUPANCY LOAD	
MEETING ROOM	154
WARMING KITCHEN	1
EDUCATIONAL PEN	49
OFFICE	2
TOTAL OCCUPANCY LOAD	206

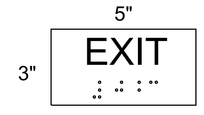
1 LIFE SAFETY PLAN
BC1.2 SCALE: 1/8" = 1'-0"

PLAN NORTH

1

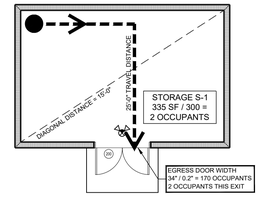
FIRE DEPARTMENT NOTES

1. A TACTILE SIGN STATING "EXIT" AND COMPLYING WITH NCBC 1013.2 SHALL BE PROVIDED EXIT DOOR.
2. PREMISES IDENTIFICATION THAT MEETS THE REQUIREMENTS OF NCFC 505.1 SHALL BE PRESENT. NUMERALS SHALL BE MINIMUM 6" HIGH AND MINIMUM ¾" STROKE WIDTH. THIS WILL BE VERIFIED AT THE TIME OF THE FINAL INSPECTION BY THE FIRE MARSHALL.
3. KNOX BOX SHALL BE INSTALLED. CONTACT CITY OF NEWTON FIRE MARSHALL FOR ORDERING DETAILS. ORDER KNOXBOX BY TELEPHONE: 1-800-552-5669 OR WEBSITE: knoxbox.com.
4. FIRE DEPARTMENT ACCESS MUST BE WITHIN 150FT OF ALL PORTIONS OF THE BUILDINGS. BOLLARDS SHALL NOT BE LOCATED AS TO RESTRICT FIRE APPARATUS ACCESS AROUND THE BUILDING.



NOTES
1. RAISED CHARACTERS & BRAILLE.
2. BOTTOM OF RAISED CHARACTERS 48" MIN A.F.F.
3. TOP OF RAISED CHARACTERS 60" MAX A.F.F.
4. CENTER SIGN 9" FROM EDGE OF DOOR SWING.

3 TACTILE EXIT SIGN DETAIL
BC1.2 NOT TO SCALE



2 LIFE SAFETY PLAN - STORAGE BUILDING
BC1.2 SCALE: 1/8" = 1'-0"

PLAN NORTH

CBSA architects
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Fax: 828.322.1802
Email: cbsa@cbsa-architects.com

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NEWTON, N.C.
06/18/2025

PROJECT

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1	06-18-2025	PLAN REVIEW

PROJECT NUMBER:	2024.008
CAD DWG FILE:	
DRAWN BY:	AOD
CHECKED BY:	MAB

SHEET TITLE

LIFE SAFETY PLAN

BC1.2

Design No. U425
BXUV.U425
Fire Resistance Ratings - ANSI/UL 263

Page Bottom

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

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design No. U425

May 27, 2016

(For Exterior Walls, Ratings Applicable

For Exposure To Fire On Interior Face Only,

(See Items 4 and 5)

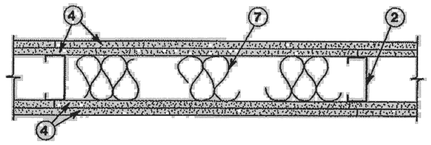
Bearing Wall Rating — 45 Min, 1, 1-1/2 or 2 HR.

(See Items 2 and 4)

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.

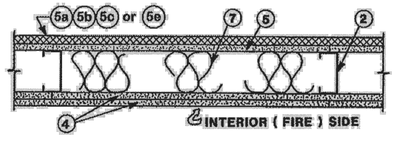
*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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 MSG (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 a 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 — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs 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 as 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 when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. Framing Members* — Steel Studs — In lieu of Item 2 — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs 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 as 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 when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

EB METAL INC — EB Stud

2B. Framing Members* — Steel Studs — In lieu of Item 2 — Min 3-5/8 in. wide, No. 20 MSG (0.036 in. min. thickness) corrosion protected cold formed steel studs 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 as 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 when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

BAILEY METAL PRODUCTS LTD

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. Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515; Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. LS01, GS12 or U305. Gypsum board bearing the UL Classification Marking as to Fire Resistance. Applied vertically with joints between layers staggered. Outer layer of 3 layer construction may be applied horizontally unless specified below. 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 - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	*1 layer, 1/2 in. thick	100
1 hr	*1 layer, 5/8 in. thick	100
1-1/2 hr	*2 layers, 1/2 in. thick	100
2 hr	*2 layers, 5/8 in. thick or	80
	*3 layers, 1/2 in. thick	100
	*2 layers, 3/4 in. 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 on Interior Side of Wall - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	1 layer, 5/8 in. thick	100
1 hr	2 layers, 1/2 in. thick	100
1-1/2 hr	2 layers, 5/8 in. thick	100
2 hr	3 layers, 1/2 in. thick	100
	2 layers, 3/4 in. thick	100

ACADIA DRYWALL SUPPLIES LTD (View Classification) — CKNX.R25370

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R4319

USG BORAL ZAWAWI DRYWALL L L C SPZ (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

4A. **Gypsum Board** — Nom. 3/4 in. gypsum board applied vertically with joints between layers staggered. The thickness and number of layers and percent of design load for the 2 hr ratings are shown in the table above.

CGC INC — Types AR, IP-AR, IP-X3, or ULTRACODE

UNITED STATES GYPSUM CO — Types AR, IP-AR, IP-X3, or ULTRACODE

USG MEXICO S A DE C V — Types AR, IP-AR, IP-X3, or ULTRACODE

4B. **Gypsum Board*** — (As an alternate to Items 4 and 4A) — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge or board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers on interior walls (multilayer systems) staggered a min of 12 in.

GEORGIA-PACIFIC GYPSUM L L C — GreenGlass Type X, Type GGG

NATIONAL GYPSUM CO — Type FSW-G.

4C. **Gypsum Board*** — (As an alternate to Items 4 through 4B) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 6.

CERTAINTEED GYPSUM INC — Type SilentFX

GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

NATIONAL GYPSUM CO — SoundBreak XP Type X Gypsum Board

4D. **Wall and Partition Facings and Accessories*** — (As an alternate to Items 4 through 4C) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

4E. **Wall and Partition Facings and Accessories*** — (As an alternate to Items 4 through 4D) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

4F. **Gypsum Board*** — (As an alternate to 5/8 in. Type FSW in Item 4) — Nom. 5/16 in. thick gypsum panels applied vertically. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in Item 4, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 4.

NATIONAL GYPSUM CO — Type FSW.

5. **Gypsum Sheathing** — For exterior walls, 1/2 or 5/8 in. thick classified or unclassified exterior gypsum sheathing applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws spaced 12 in. OC 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 veneer wall attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick. When a min 3-3/4 in. thick brick veneer facing is used, Foamed Plastic (Item 10) may be used.

b. **Cementitious 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 — Type DCB

c. **Fiber-Cement Siding** — Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

d. **Molded Plastic†** — Solid vinyl siding mechanically secured to framing members in accordance with manufacturer's recommended installation details.

ALSIDE, DIV OF ASSOCIATED MATERIALS INC

e. **Wood Structural Panel or Lap Siding** — APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

f. **Building Units*†** — (Not Shown) — 3 in. thick 19 x 24 in. cellular glass blocks, applied to the gypsum sheathing (Item 5) with PC 88 adhesive or fastened with F anchors spaced a maximum 24 in. OC. F anchors fastened to framing members with 1-1/4 in. long #6 drywall screws.

PITTSBURGH CORNING CORP — Type FoamGlas

6. **Fasteners** — (Not Shown) — Screws used to attach wallboard to studs: self-tapping bugle head sheet steel type, spaced 12 in. O.C. First layer Type S-12 by 1 in. long for 1/2 and 5/8 in. thick wallboards 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.

7A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — INS735A INS745 for use with wet or dry application. INS765LD and INS770LD are to be used for dry application only.

7B. **Fiber, Sprayed*** — As an alternate to Item 7 and 7A — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft^3.

NU-WOOL CO INC — Cellulose Insulation

7C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 7) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lb/ft^3.

INTERNATIONAL CELLULOSE CORP — Cellar-RL.

7D. **Fiber, Sprayed*** — (Optional) — As an alternate to Batts and Blankets (Item 7) — Spray applied mineral wool insulation. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See Fiber, Sprayed (CCAZ).

AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool

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.

9. **Furring Channels** — (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws.

10. **Foamed Plastic†** — Not Shown - For use with brick veneer as outlined in Item 5A – Maximum 2 in. thick rigid polystyrene insulation attached to studs with fasteners of sufficient length to penetrate the foam and 3/16 in. into the stud. A minimum 1 in. air space is to be maintained between the outer surface of the foamed plastic and the inner surface of the brick veneer.

ATLAS EPS, DIV OF ATLAS ROOFING CORP — Type ThermoStar

OWENS CORNING FOAM INSULATION L L C

10A. **Mortar Drop Protection** — (Optional, Not shown) — Foamed plastic with mortar control device attached, continuous, by drainage holes at bottom of air space behind brick veneer.

OWENS CORNING FOAM INSULATION L L C — WeepGuard

10B. **Foamed Plastic*** — Polyisocyanurate foamed plastic insulation boards, any thickness, Classified in accordance with BRYX and / or CCVW. May be used with any exterior facing shown under Items 5a, 5c, 5d and 5e.

ATLAS ROOFING CORP — "EnergyShield Pro Wall Insulation" and "EnergyShield Pro 2 Wall Insulation"

CARLISLE COATINGS & WATERPROOFING INC — Type R24 Sheath

FIRESTONE BUILDING PRODUCTS CO L L C — "Enverge™ CI Foil Exterior Wall Insulation" and "Enverge™ CI Glass Exterior Wall Insulation"

HUNTER PANELS — Type Xci-Class A, Xci 285, "Xci CG", "Xci Foil"

RHAX OPERATING L L C — Types TSX-8500, TSX-8510, Thermasheath-XP, ECOMAXCI®, "Thermasheath-3" and "Durasheath-3"

THE DOW CHEMICAL CO — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), and TUFF-R™ CI Insulation

10C. **Building Unit*** — Polyisocyanurate foamed plastic composite insulation boards, any thickness, Classified in accordance with BZXX. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.

HUNTER PANELS — Type "Xci NB" and "Xci Ply"

RHAX OPERATING L L C — Types Thermasheath-5II, ECOBASECI, and ThermaBase CI

11. **Cementitious Backer Units†** — (Optional, Item Not Shown - For Use On Face Of 1 Hr Or 2 Hr Systems With All Standard Items Required) – 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide. Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing. 2-Hr System – Applied vertically with vertical joints centered over studs. Face layer fastened over gypsum board to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members, and a minimum of 3/4 in. for wood framing members spaced a max of 8 in. OC.

NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

12. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) — For use with Item 1, Items 2 and 2A, Item 3, Item 4 to 4B, Item 6, Item 7, Item 8 and Item 9. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 4 to 4B), install ReflexXor membrane with the gold side facing outwards. Membrane installed with TSO staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When ReflexXor membrane is used an additional layer of Gypsum Board that is identical to the one used in the first layer and as specified in Item 4 to 4B shall be installed over the membrane. The additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 4 to 4B except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 7. On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels , 25 MSG galv steel, spaced vertically 24 in. OC. Flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. Over the Resilient Channels install ½ inch thick SONOpan panel secured to the Resilient Channels with drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 4 to 4B with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

HSL — ReflexXor membrane, SONOpan panel.

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

CBSA architects

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Hickory, North Carolina 28603

Tel: 828.322.3403
Fax: 828.322.1802
Email: cbsa@cbsa-architects.com

CONSULTANT

SEAL

06/18/2025

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

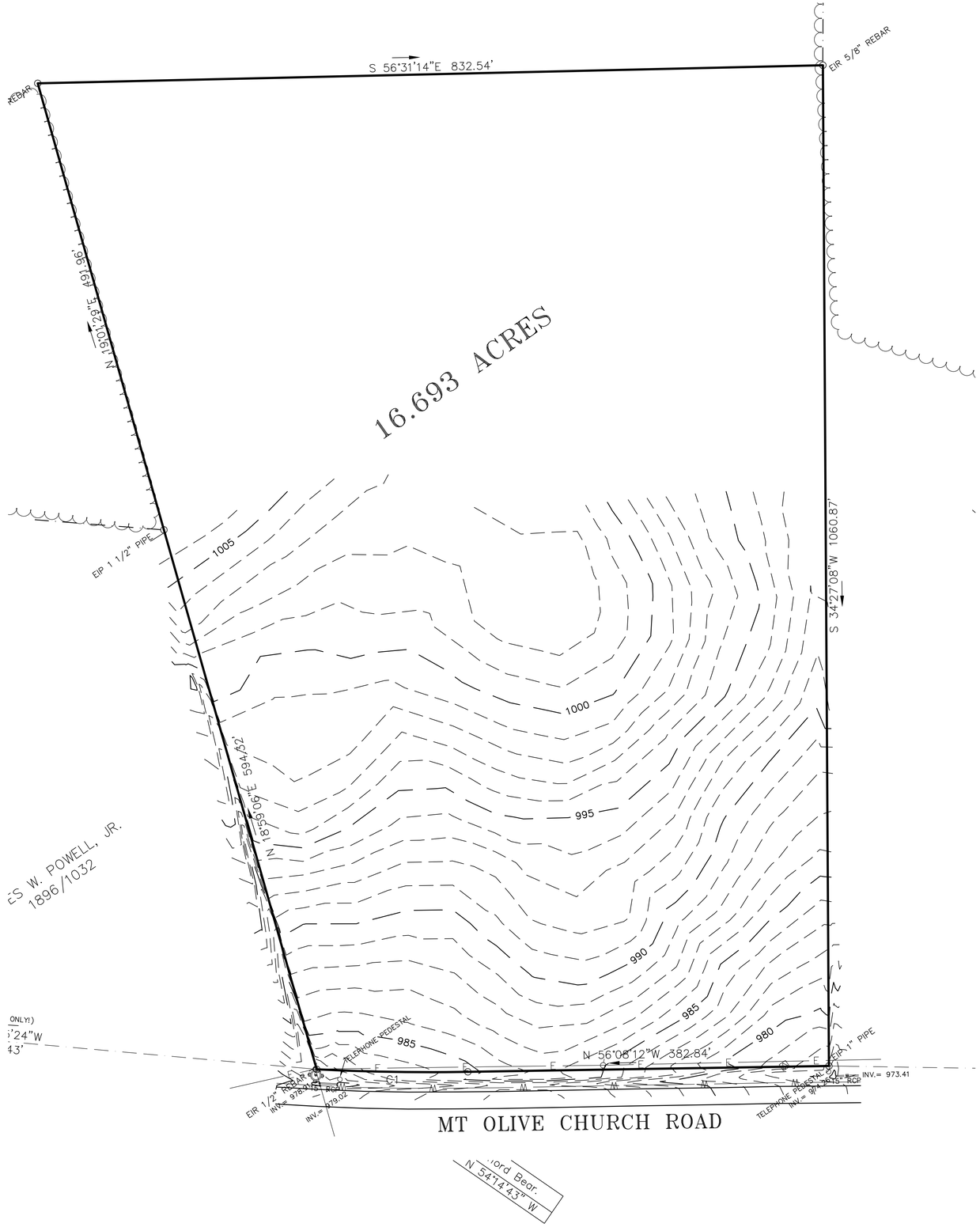
MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-18-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

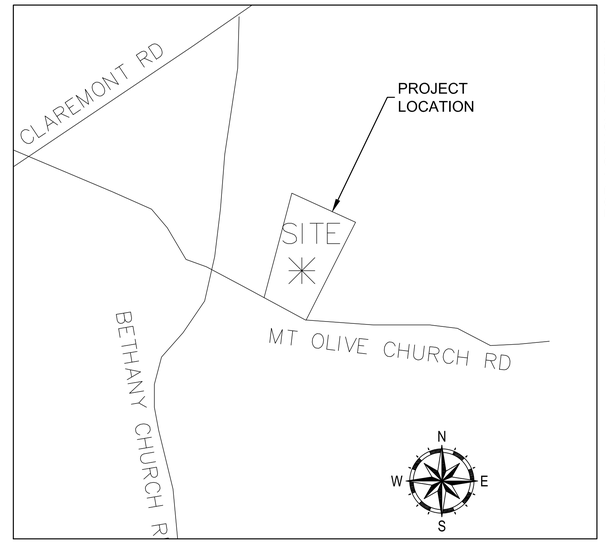
PROJECT NUMBER:	2024.008
CAD DWG FILE:	
DRAWN BY:	AOD
CHECKED BY:	MAB

SHEET TITLE

UL DETAILS

BC1.3





LOCATION MAP

SCALE: N.T.S.

NOTES THIS SHEET:

1. SURVEY PERFORMED BY:
   BUNTON SURVEYING AND MAPPING PA
   231 13TH AVE PL NW, SUITE 5
   HICKORY, NC 28601
2. CONTRACTOR RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS SURVEY.
3. PARCEL ID NO. = 3659-0287-1934
4. SITE ZONING = R-30
5. PROJECT SITE ACREAGE = 16.68 ACRES
6. SUBJECT PROPERTY IS IN DESIGNATED FLOOD ZONE "X"
   (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN)
   (FIRM PANEL 3710365900J)

EXISTING CONDITIONS

SCALE: 1" = 60'

0 60' 120'

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL
SEAL 40756
ENGINEER
WILLIAM S. CLAYTON
05/14/25

CLAYTON
ENGINEERING & DESIGN
1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

CATAWBA COUNTY CATTLEMAN ASSOCIATION
OWNER
NEWTON, NORTH CAROLINA

NEW BUILDING
PROJECT TITLE

CIVIL

EXISTING CONDITIONS
DRAWING TITLE

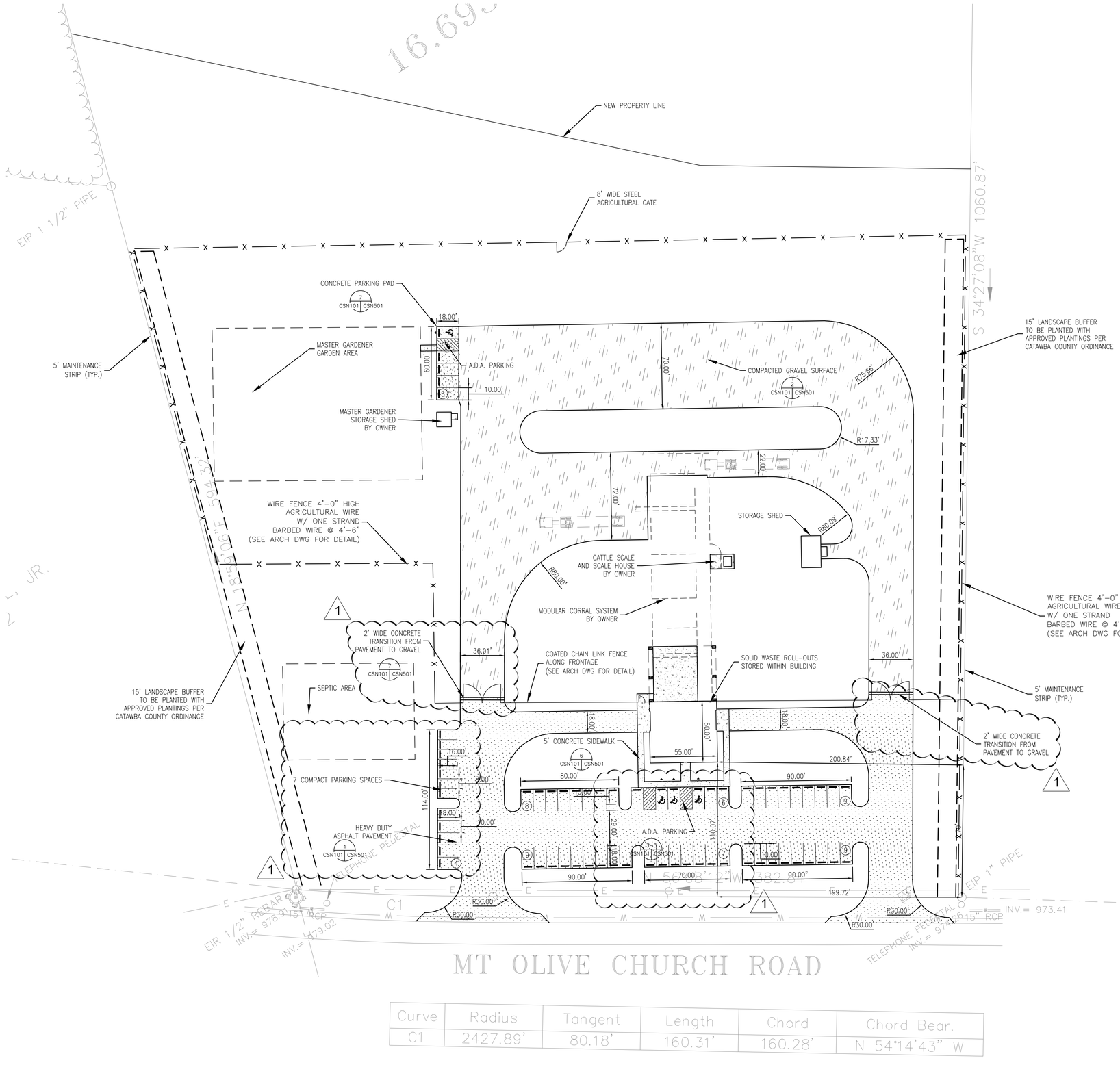
JOB NUMBER: 24105
DATE: 05/14/25
DRAWN BY: TLC
CHECKED BY: WSC

REVISIONS

NO.	DESCRIPTION	DATE

VFE101

SHEET 1 OF -



Curve	Radius	Tangent	Length	Chord	Chord Bear.
C1	2427.89'	80.18'	160.31'	160.28'	N 54°14'43" W

PROJECT DETAILS

1. OWNER
   CATAWBA COUNTY
   PO BOX 389
   NEWTON, NC 28658
2. PARCEL I.D. NO. = 365902871934
3. SITE ZONING = R-30
4. TOTAL SITE ACREAGE =
   16.680 ACRES (9.14 ACRES IN FRONT)
5. BUILDING SIZE: 12,533 SQ FT TOTAL
6. PARKING PROVIDED: 65 VEHICLE SPACES
   (7 COMPACT SPACES 10% OF TOTAL)
7. WATERSHED DISTRICT: NONE
8. IMPERVIOUS AREA
   BUILDING: 12,533 SQFT
   PARKING: 118,256 SQFT
   TOTAL: 130,789 SQFT
   BUILT UPON: 32.84%
9. SUBJECT PROPERTY IS IN DESIGNATED FLOOD ZONE "X" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) FIRM PANEL #3710365900J

NOTES THIS SHEET:

1. THE OWNER SHALL SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH THE CATAWBA COUNTY ENGINEERING DIVISION BEFORE ANY WORK BEGINS. THE OWNER SHALL NOTIFY THE CATAWBA COUNTY ENGINEERING DIVISION AT LEAST 7 CALENDAR DAYS PRIOR TO COMMENCING ANY WORK ON THE SITE. FAILURE TO PROVIDE REQUIRED NOTICE SHALL RESULT IN THE OWNERS RESPONSIBILITY TO UNCOVER ANY PRIOR BELOW-GRADE WORK FOR VISUAL INSPECTION BY THE ENGINEERING DIVISION.
2. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTION WITH INSPECTOR.
3. ALL ROAD IMPROVEMENTS ARE TO BE COORDINATED WITH CATAWBA COUNTY AND NCDOT ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION.
4. IN ROLLING AND HILLY TERRAINS, SWEEPING OF THE STONE BASE AND/OR APPLICATION OF A TACK COAT MAY BE REQUIRED NEAR INTERSECTIONS. THESE REQUIREMENTS SHALL BE ESTABLISHED BY THE INSPECTOR BASED ON FIELD CONDITIONS.
5. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED IN WRITING FROM PROPERTY OWNERS.
6. IN ORDER TO ENSURE PROPER DRAINAGE, KEEP A MINIMUM OF 0.5% SLOPE ON THE CURB.
7. POLE BASES AND ELECTRICAL DESIGN FOR PARKING LOT LIGHT POLES SHALL BE SUBMITTED PRIOR TO BEGINNING INSTALLATION.
8. UNSUITABLE SUBBASE MATERIAL NOT IDENTIFIED BY THE SOIL TESTS, BUT LOCATED DURING CONSTRUCTION, MUST BE REMOVED FROM THE RIGHT-OF-WAY AND REPLACED WITH BACKFILL.
9. WHERE VERTICAL CURB AND GUTTER EXIST, ALL DRIVEWAY RAMPS SHALL BE CONSTRUCTED OF PORTLAND CEMENT A MINIMUM OF 6-INCHES DEEP. THE RAMP MUST RISE 4-INCHES ABOVE THE FLOW LINE OF THE GUTTER AT A POINT NO CLOSER THAN 2-FEET FROM THE GUTTER.
10. ALL WORK TO BE COMPLETED IN NCDOT R/W TO BE COORDINATED WITH NCDOT.

ASPHALT PAVEMENT

COMPACTED GRAVEL SURFACE

NORTH

0 40' 80'

SITE PLAN
SCALE: 1" = 40'

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL
SEAL 49758
ENGINEER
WILLIAM S. CLAYTON
06/18/25

CLAYTON
ENGINEERING & DESIGN
1209 9TH AVE NE, PO BOX 2351 HICKORY, NC 28601

CATAWBA COUNTY CATTLEMAN ASSOCIATION
OWNER
NEWTON, NORTH CAROLINA

NEW BUILDING
PROJECT TITLE

CIVIL

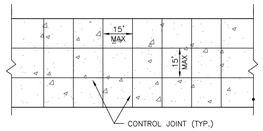
CIVIL SITE PLAN
DRAWING TITLE

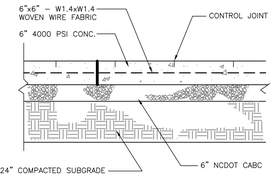
JOB NUMBER:	24105
DATE:	05/14/25
DRAWN BY:	EMB
CHECKED BY:	WSC

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISIONS	06/18/25

CSN101
SHEET - OF -



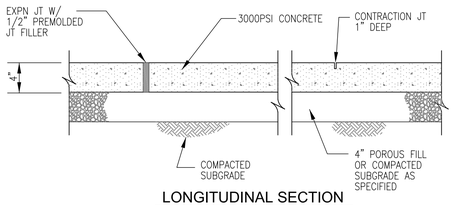


CONCRETE PAVEMENT

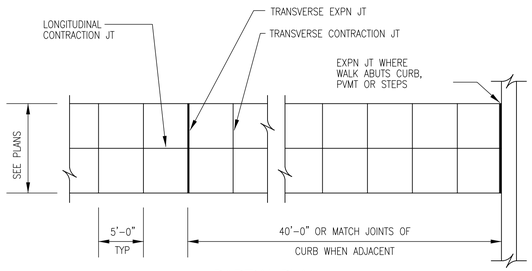
NOTES:

1. LONGITUDINAL AND TRANSVERSE JOINTS SHALL BE SAWED AS INDICATED.
2. THE JOINT SEAL MANUFACTURER'S SPECIFICATIONS SHALL BE COMPATIBLE WITH THE JOINT CONFIGURATION. PROVIDE TYPICAL DETAILS FOR CONSTRUCTION & EXP. JTS.
3. FOR ALL JOINTS THE BACKER ROD MATERIAL SHALL BE COMPATIBLE WITH THE COLD POURED SEALANT AND SLIGHTLY OVERSIZED TO PREVENT MOVEMENT DURING THE JOINT SEALANT OPERATION.
4. THE WIDTH OF ALL JOINTS SHALL BE CORRECTED FOR 68 DEGREE F.
5. EXPANSION JOINTS SHALL BE USED AT ALL LOCATIONS WHERE PAVMENT ABUTS A PERMANENT STRUCTURE.
6. DOWELS AND TIE BARS FOR CONSTRUCTION JOINTS SHALL BE CAST IN PLACE.

CONCRETE PAD
NO SCALE — 7 | CSN101 | CSN501



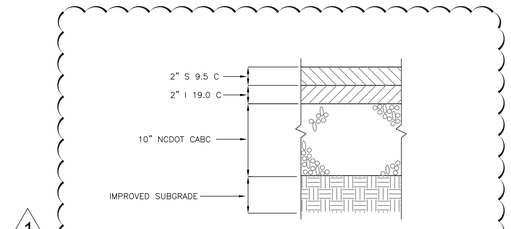
LONGITUDINAL SECTION



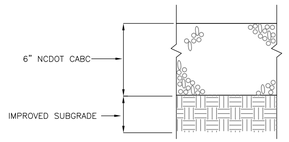
PARTIAL PLAN

WALK WIDTH	LONGITUDINAL CONTRACTION JOINT
– 5'–11"	NONE
6'–0" – 7'–11"	ONE ALONG WALK AT CENTERLINE
8'–0" – 12'–0"	TWO ALONG WALK AT THIRD POINTS

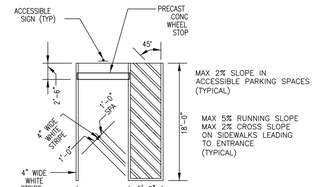
STANDARD SIDEWALK DETAILS
NO SCALE — 6 | CSN101 | CSN501



HEAVY DUTY PAVING SECTION
NO SCALE — 1 | CSN101 | CSN501

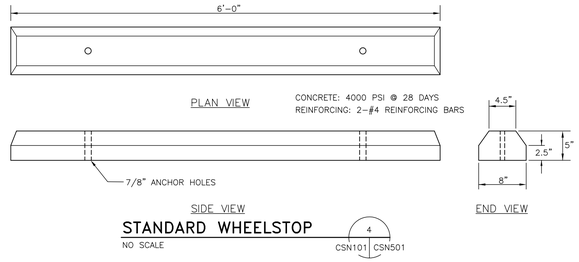


GRAVEL SURFACE
NO SCALE — 2 | CSN101 | CSN501

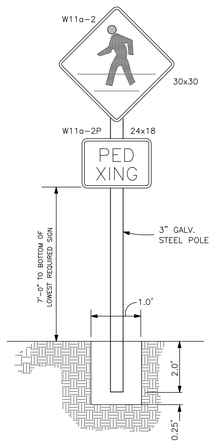


TYPICAL ACCESSIBLE PARKING SPACES

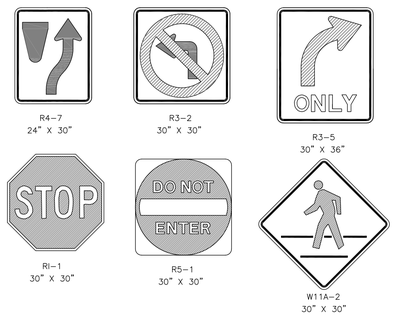
A.D.A.
HANDICAP PARKING SPACE DETAIL
NO SCALE — 3 | CSN101 | CSN501



STANDARD WHEELSTOP
NO SCALE — 4 | CSN101 | CSN501

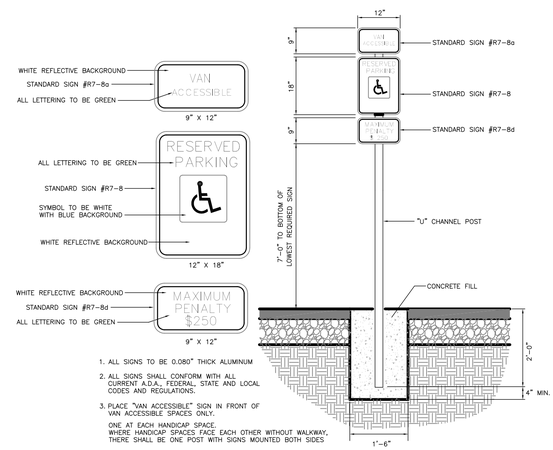


PEDESTRIAN CROSSING SIGN



1. ALL SIGNS SHALL CONFORM WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND LOCAL CODE FOR COLOR, SIZE, REFLECTIVITY, AND HEIGHT.
2. SIGNS TO PLACED AS SHOWN ON THE PLANS.
3. FOR SIGNS NOT PROTECTED BY A STANDARD PARKING BUMPER OR BEHIND THE CURB PLACE STEEL POLE IN BOLLARD PER THE HANDICAP PARKING SIGN DETAIL.

TYPICAL SIGN DETAILS
NO SCALE



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.
   ONE AT EACH HANDICAP SPACE. WHERE HANDICAP SPACES FACE EACH OTHER WITHOUT WALKWAY, THERE SHALL BE ONE POST WITH SIGNS MOUNTED BOTH SIDES

A.D.A.
HANDICAP PARKING SIGN
NO SCALE — 5 | CSN101 | CSN501

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P–1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL ENGINEER
SEAL 49758
WILLIAM S. CLAYTON
06/18/25

CLAYTON
ENGINEERING & DESIGN
1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

CATAWBA COUNTY CATTLEMAN ASSOCIATION
NEWTON, NORTH CAROLINA
OWNER

NEW BUILDING
PROJECT TITLE

CIVIL

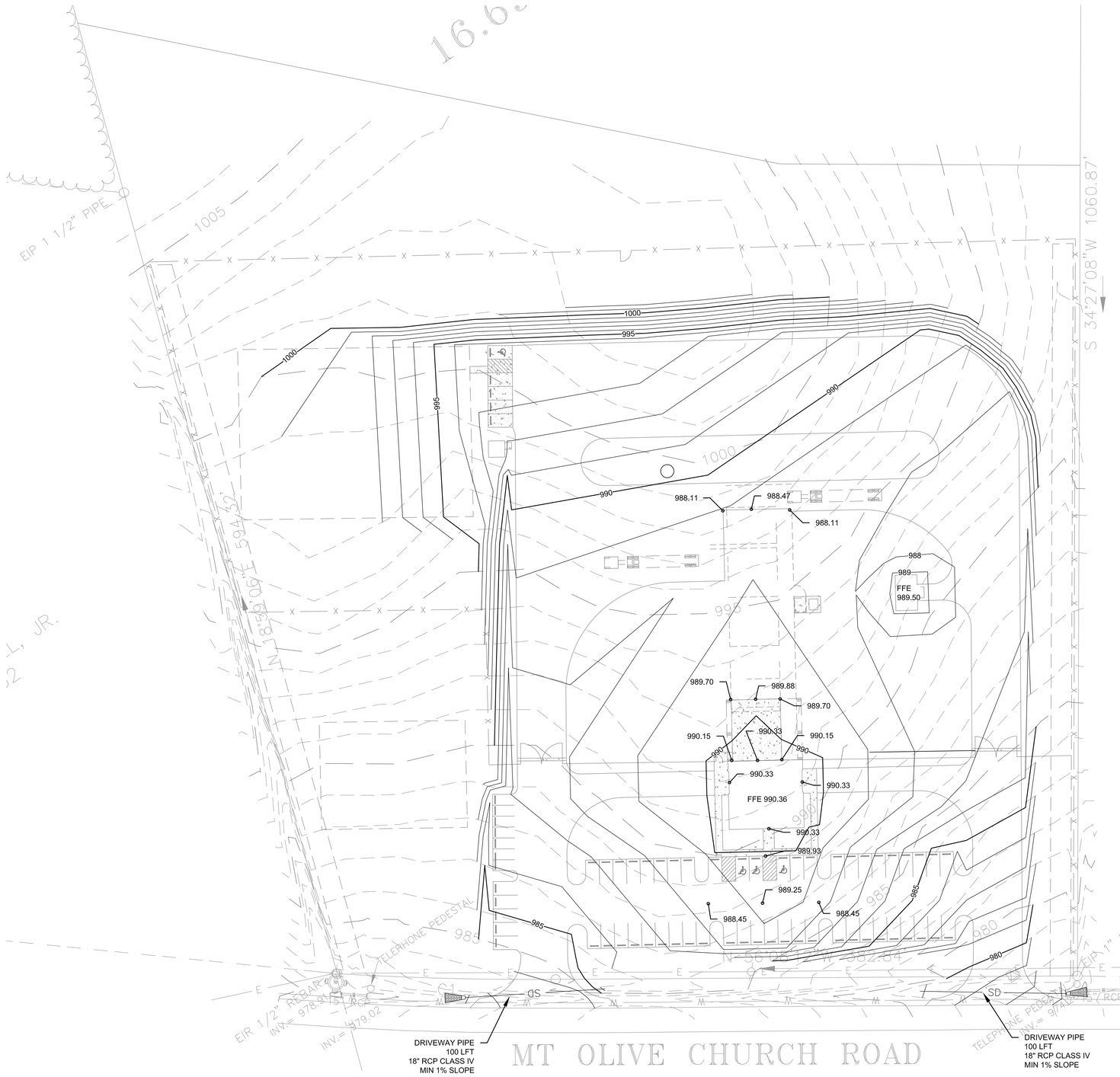
SITE DETAILS
DRAWING TITLE

JOB NUMBER: 24105
DATE: 05/14/25
DRAWN BY: EMB
CHECKED BY: WSC

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISIONS	06/18/25

CSN501
SHEET - OF -



Curve	Radius	Tangent	Length	Chord	Chord Bear.
C1	2427.89'	80.18'	160.31'	160.28'	N 54°14'43" W

NOTES THIS SHEET:

1. ALL PRECAST DRAINAGE STRUCTURES SHALL MEET MATERIAL REQUIREMENTS OF ASTM C789 AND C850, LATEST REVISIONS.
2. ALL PRECAST DRAINAGE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH AASHTO DIVISION 11 SECTION 27, AND MANUFACTURERS SPECIFICATIONS.
3. THE PRECAST SUPPLIER/MANUFACTURER SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN OF THE STRUCTURE. GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHOP DRAWINGS AND DESIGN CALCULATIONS, (SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER) FROM THE SUPPLIER TO THE ENGINEER.
4. DRAINAGE STRUCTURES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT NORTH CAROLINA DEPARTMENT OF HIGHWAYS AND TRANSPORTATION DESIGN STANDARDS.
5. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES AT HIS OWN INITIATIVE AND EXPENSE.
6. THE CONTRACTOR SHALL COORDINATE FINISHED PAVEMENT GRADES WITH ELEVATIONS AND LOCATIONS OF EXISTING ROADS AND STREETS.
7. NO WORK SHALL COMMENCE ON SITE UNTIL A LAND DISTURBING PERMIT IS ISSUED BY THE APPROPRIATE AGENCY.
8. LENGTHS OF LINES INDICATED ON THE DRAWING FOR UTILITY SYSTEMS ARE APPROXIMATE ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR DETERMINING THE EXACT AMOUNT OF PIPING REQUIRED TO FURNISH A COMPLETE WORKING SYSTEM IN ACCORDANCE WITH THE INTENT OF THE DRAWINGS.
9. DIMENSIONS AND COORDINATES SHOWN AT CURB ARE TO FACE OF CURB. COORDINATES SHOWN AT CURB INLETS ARE AT CENTER OF CURB INLET. SPOT ELEVATIONS SHOWN AT CURB INLETS ARE AT TOP OF CURB. SPOT ELEVATIONS SHOWN ON DROP INLETS ARE AT TOP OF INLETS.
10. FINISH CONTOURS SHOWN ARE TO TOP OF TOPSOIL, TOP OF PAVEMENT, TOP OF SIDEWALK, ETC. CONTRACTOR SHALL PROVIDE GRADE TO SUBGRADE ELEVATION REQUIRED. PAVEMENT SECTIONS AND SIDEWALK SECTIONS ARE PROVIDED FOR REFERENCE ONLY.
11. PROVIDE POSITIVE DRAINAGE AT ALL GRADED AREAS. PROVIDE UNIFORM (STRAIGHT) GRADE BETWEEN SPOT ELEVATIONS, FINISH CONTOURS, TOP OF INLETS, ETC.

ESTIMATED EARTHWORK CALCULATIONS: (2025-05-15)

CUT: ~30,297 CUYD
FILL: ~ 1,577 CUYD
NET: ~28,720 CUYD (SURPLUS)

(NOTE)
SHRINKAGE, SWELL, AND POSSIBLE UNSUITABLE SOIL CONDITIONS HAVE NOT BEEN TAKEN INTO CONSIDERATION IN CALCULATING THE EARTHWORK VOLUMES. CONTRACTOR TO VERIFY.

GRADING & DRAINAGE PLAN
SCALE: 1" = 40'

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL
SEAL
40756
ENGINEER
WILLIAM S. CLAYTON
05/14/25

CLAYTON
ENGINEERING & DESIGN
1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

CATAWBA COUNTY CATTLEMAN ASSOCIATION
OWNER
NEWTON, NORTH CAROLINA
PROJECT TITLE
NEW BUILDING

CIVIL

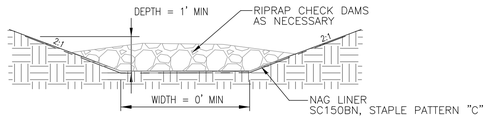
GRADING & DRAINAGE PLAN
DRAWING TITLE

JOB NUMBER: 24105
DATE: 05/14/25
DRAWN BY: EMB
CHECKED BY: WSC

REVISIONS

NO.	DESCRIPTION	DATE
-	-	-

CGN101
SHEET - OF -



CONSTRUCTION SPECIFICATIONS:

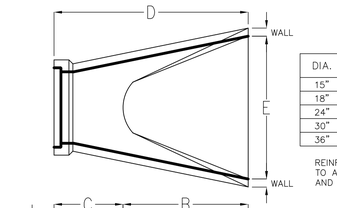
1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. VEGETATE THE SWALE IMMEDIATELY AFTER CONSTRUCTION.

MAINTENANCE:

INSPECT DRAINAGE SWALE ONCE A MONTH AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED.

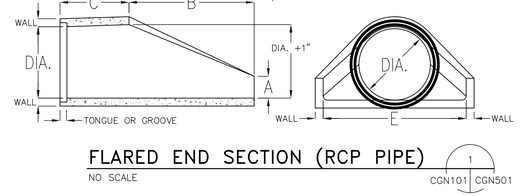
DRAINAGE DITCH

NO SCALE



DIA.	WALL	TONGUE OR GROOVE	WEIGHT	A	B	C	D	E
15"	2-1/4"	1-3/4"	970	6"	27"	46"	73"	30"
18"	2-1/2"	1-3/4"	1340	9"	27"	46"	73"	36"
24"	3"	1-3/4"	1820	9-1/2"	43-1/2"	30"	73-1/2"	48"
30"	4-1/4"	3-7/8"	2400	12"	54"	19-3/4"	73-3/4"	60"
36"	4-3/4"	3-7/8"	5500	15"	63"	34-3/4"	97-3/4"	72"

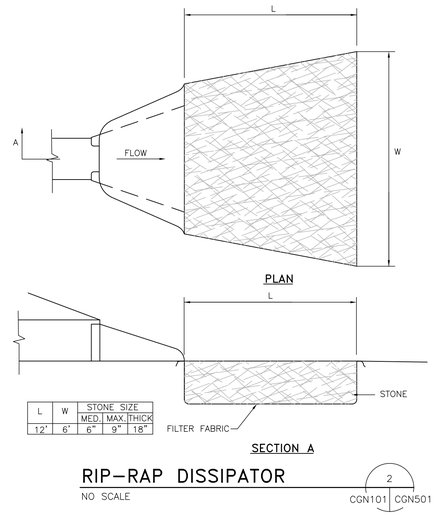
REINFORCED CONCRETE PIPE CONFORMS TO ASTM C-76, ASTM-C-443, AASHTO M-170, AND AASHTO M-198.



FLARED END SECTION (RCP PIPE)

NO SCALE

1 | CGN101 | CGN501

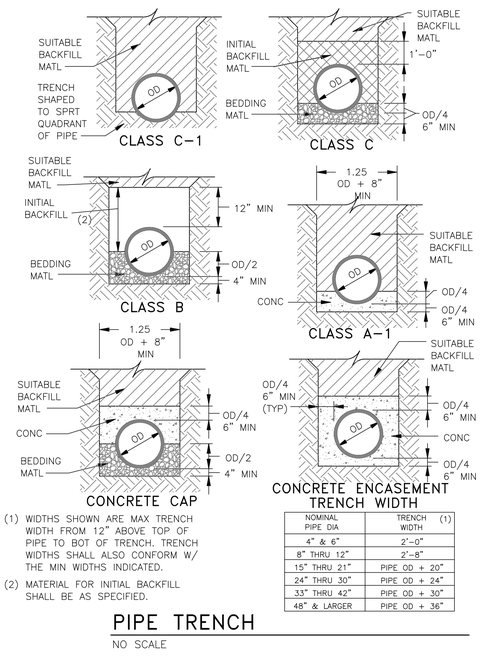


L	W	STONE SIZE MED.	MAX.	THICK
12'	6'	6"	9"	18"

RIP-RAP DISSIPATOR

NO SCALE

2 | CGN101 | CGN501



TRENCH WIDTH

NOMINAL PIPE DIA	TRENCH WIDTH (1)
4" & 6"	2'-0"
8" THRU 12"	2'-8"
15" THRU 21"	PIPE OD + 20"
24" THRU 30"	PIPE OD + 24"
33" THRU 42"	PIPE OD + 30"
48" & LARGER	PIPE OD + 36"

(1) WIDTHS SHOWN ARE MAX TRENCH WIDTH FROM 12" ABOVE TOP OF PIPE TO BOT OF TRENCH. TRENCH WIDTHS SHALL ALSO CONFORM W/ THE MIN WIDTHS INDICATED.

(2) MATERIAL FOR INITIAL BACKFILL SHALL BE AS SPECIFIED.

PIPE TRENCH

NO SCALE

FOR AGENCY REVIEW

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463

NORTH CAROLINA PROFESSIONAL SEAL 40756 ENGINEER WILLIAM S. CLAYTON
05/14/25

CLAYTON
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1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

CATAWBA COUNTY CATTLEMAN ASSOCIATION
NEWTON, NORTH CAROLINA
OWNER

NEW BUILDING
PROJECT TITLE

CIVIL

GRADING & STORMWATER DETAILS
DRAWING TITLE

JOB NUMBER: 24105
DATE: 05/14/25
DRAWN BY: EMB
CHECKED BY: WSC

REVISIONS

NO.	DESCRIPTION	DATE

CGN501

SHEET - OF -

TEMPORARY SKIMMER BASIN #1	
MIN. DIMENSIONS:	124' L x 63' W
MIN. STORAGE:	11,520 CU. FT.
MIN. SURFACE AREA:	7,725 SQ. FT.
TOP ELEV:	984.00
BOT. ELEV:	980.00
SPILLWAY ELEV.:	982.50
SPILLWAY WIDTH:	14'
MAX DRAINAGE AREA:	7.61 AC
SKIMMER SIZE:	3.00"
ORIFICE SIZE:	2.00"

TEMPORARY SKIMMER BASIN NOTES:

1. DIMENSIONS MEASURED AT SPILLWAY ELEVATION. ALL TRAPS SHALL HAVE AN ADDITIONAL 1.5' OF FREEBOARD ABOVE THE SPILLWAY ELEVATION.
2. SIDE SLOPES SHALL BE NO STEEPER THAN 2:1 (H:V)

EROSION CONTROL NOTE:

PER NCDEQ AND NPDES REQUIREMENTS, GROUND STABILIZATION MUST OCCUR WITHIN 7 DAYS ON PERIMETER AREAS AND SLOPES STEEPER THAN 3:1, AND GROUND STABILIZATION MUST OCCUR WITHIN 14 DAYS ON OTHER AREAS.

THE PURPOSE OF THE EROSION CONTROL MEASURES, SHOWN ON THESE PLANS, SHALL BE TO PRECLUDE THE TRANSPORT OF ALL WATERBORNE SEDIMENTS, RESULTING FROM CONSTRUCTION ACTIVITIES, FROM ENTERING ONTO ADJACENT PROPERTIES OR STATE WATERS. IF FIELD INSPECTION REVEALS THE INADEQUACY OF THE PLAN TO CONFINE SEDIMENT TO THE PROJECT SITE, APPROPRIATE MODIFICATIONS WILL BE MADE TO CORRECT ANY PLAN DEFICIENCIES.

GROUND COVER: WHENEVER LAND-DISTURBING ACTIVITY IS UNDERTAKEN ON A TRACT COMPRISING MORE THAN ONE ACRE, IF MORE THAN ONE CONTIGUOUS ACRE IS UNCOVERED,

GRADE SLOPES & FILLS: THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER, OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES.

APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNER(S).

GRADING AND EROSION CONTROL LEGEND

- EXIST. MINOR CONTOUR
- EXIST. MAJOR CONTOUR
- 100 PROP. MINOR CONTOUR
- 100 PROP. MAJOR CONTOUR
- 100 PROP. SPOT ELEVATION
- SF SILT FENCE
- LIMITS OF DIST.
- TEMP. INLET PROTECTION
- TEMP. INLET PROTECTION (SILT SACK)
- TEMP. DIVERSION DITCH

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PROCEDURES APPROVED BY NCDEQ AND CATAWBA COUNTY. THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH ALL APPROVED PROCEDURES WHICH MAY BE PERTINENT TO THE PROJECT.
2. ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED BY A TEMPORARY CONSTRUCTION ENTRANCE TO PREVENT TRACKING OF MUD ONTO PUBLIC RIGHT-OF-WAYS. AN ENTRANCE PERMIT FROM NCDOT IS REQUIRED PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN STATE RIGHT-OF-WAYS.
3. SEDIMENT CONTROL DEVICES, SUCH AS SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, CHECK DAMS OR OTHER MEASURES NOT LOCATED IN PROPOSED FILL OR EXCAVATION AREAS, SHALL BE CONSTRUCTED PRIOR TO ALL OTHER LAND DISTURBANCE. AN ON-SITE PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE ENGINEER AND THE CONTRACTOR TO IDENTIFY THOSE MEASURES TO BE INITIALLY INSTALLED.
4. MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH PROCEDURES APPROVED BY NCDEQ & CATAWBA COUNTY. MAINTENANCE WILL INCLUDE THE REPAIR OF MEASURES DAMAGED BY ANY SUBCONTRACTOR INCLUDING THOSE OF THE PUBLIC UTILITY COMPANIES. AT THE PRECONSTRUCTION MEETING, THE CONTRACTOR WILL SUPPLY THE OWNER WITH THE NAME OF THE INDIVIDUAL WHO WILL BE RESPONSIBLE FOR ENSURING MAINTENANCE OF INSTALLED MEASURES ON A DAILY BASIS.
5. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRANSVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY LOWER WATER DOWNSLOPE WITHOUT CAUSING EROSION.
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7. THE CONTRACTOR SHALL STRIP AND PILE TOPSOIL AT THE LOCATIONS SHOWN ON THIS PLAN OR AS DIRECTED BY THE ENGINEER. SILT FENCE SHALL BE PLACED AT THE TOE OF THE STOCKPILE AFTER STRIPPING OF TOPSOIL IS COMPLETE.
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9. TEMPORARY VEGETATIVE COVER SHALL BE PROVIDED IN ALL AREAS, WHICH ARE NOT DESIGNATED FOR PAVING, UNDERGROUND UTILITIES OR STRUCTURAL USES. SUCH AREAS SHALL NOT BE EXPOSED FOR PERIODS EXCEEDING 10 DAYS. TEMPORARY VEGETATIVE COVER MAY BE ELIMINATED IN FAVOR OF FINAL VEGETATIVE COVER IF CONSTRUCTION AND SEASONAL CONDITIONS PERMIT.
10. ALL AREAS DESIGNATED FOR PAVING, UNDERGROUND UTILITIES, AND STRUCTURAL USE SHALL BE STABILIZED AS SOON AS POSSIBLE, BUT NOT EXCEEDING 10 DAYS FOLLOWING INSTALLATION. NO MORE THAN 300' OF SANITARY SEWER, STORM SEWER, OR WATER LINES ARE TO BE OPEN AT ONE TIME.
11. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION, ON THIS PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDBED CONTAINING THE SPECIFIED AMOUNTS OF SEED, LIME, AND FERTILIZER. IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.
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14. BASE COURSE MATERIAL SHALL BE PLACED IN ALL STREET & PARKING AREAS WITHIN 30 DAYS OF FINAL GRADING.
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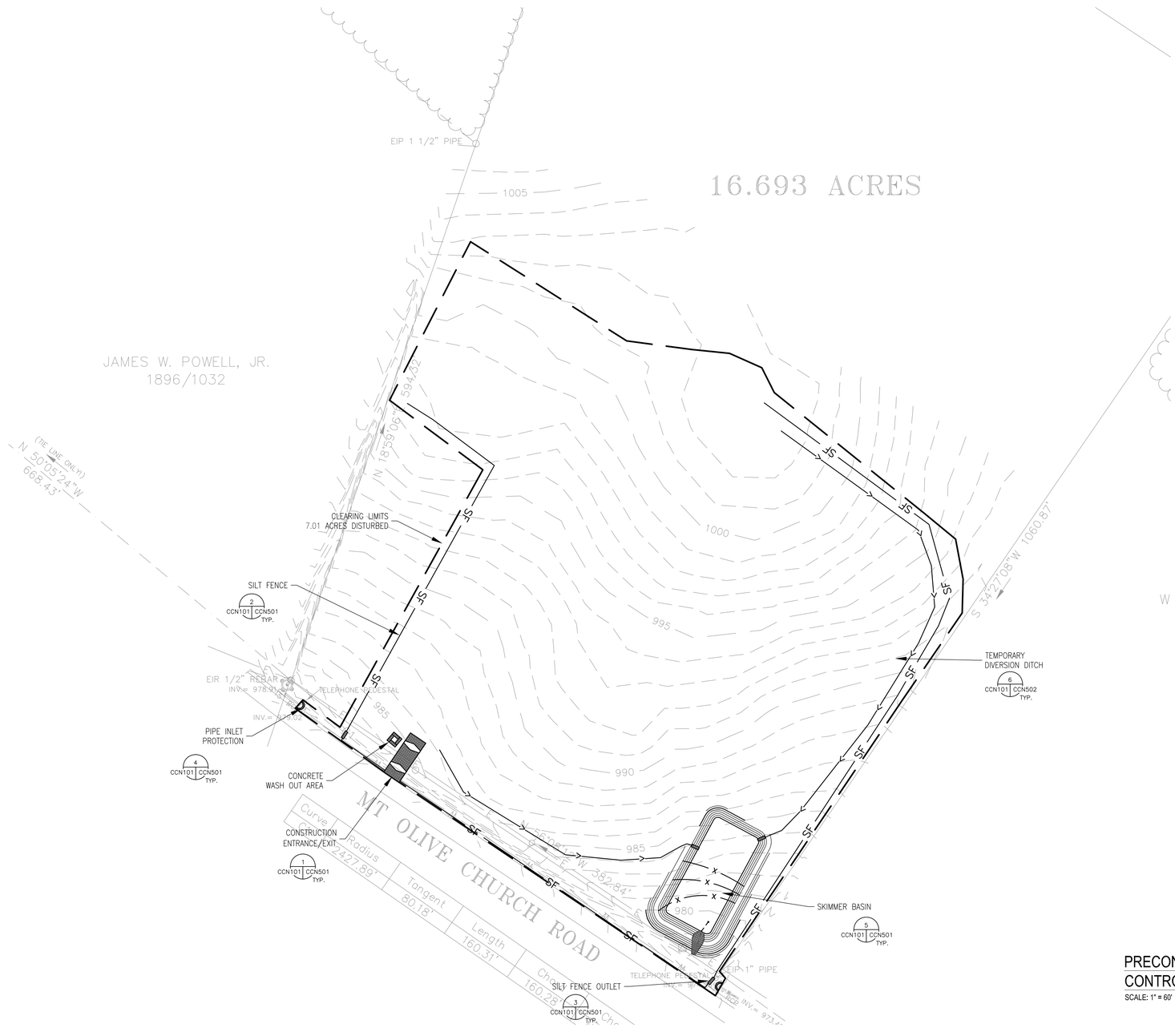
16. SEE CCN502 FOR SEEDING, SEED BED PREPARATION AND MAINTENANCE SCHEDULE
17. SEE CCN101 FOR STORM DRAINAGE SCHEDULE.
18. TOTAL DISTURBED AREA = 6.69 ACRES.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING EROSION CONTROL PLAN APPROVAL IF NECESSARY FOR ANY RELATED BORROW AREA.
20. OFF-SITE WASTE OR BORROW AREAS SHALL BE APPROVED BY CATAWBA COUNTY PRIOR TO THE IMPORT OF ANY BORROW OR EXPORT OF ANY WASTE TO OR FROM THE PROJECT SITE.

CONTRACTOR WILL REFRAIN FROM TRACKING ANY SITE MATERIAL ONTO PARKING LOT OR STREET. ANY SUCH TRACKING SHOULD BE CORRECTED IMMEDIATELY.



PRECONSTRUCTION EROSION CONTROL PLAN

SCALE: 1" = 60'

NORTH

0 60' 120'

811

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL
SEAL 49758
ENGINEER
WILLIAM S. CLAYTON
05/14/25

CLAYTON ENGINEERING & DESIGN
1209 9TH AVE NE, PO BOX 2351 HICKORY, NC 28601

CATAWBA COUNTY CATTLEMAN ASSOCIATION
NEWTON, NORTH CAROLINA
OWNER

NEW BUILDING
PROJECT TITLE

CIVIL

PRE-CONSTRUCTION EROSION CONTROL PLAN
DRAWING TITLE

JOB NUMBER:	24105
DATE:	05/14/25
DRAWN BY:	TLC
CHECKED BY:	WSC

REVISIONS

NO.	DESCRIPTION	DATE
-	-	-

CCN101

SHEET - OF -

EROSION CONTROL NOTE:

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- EXIST. MAJOR CONTOUR
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- 100 PROP. SPOT ELEVATION
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- LIMITS OF DIST.
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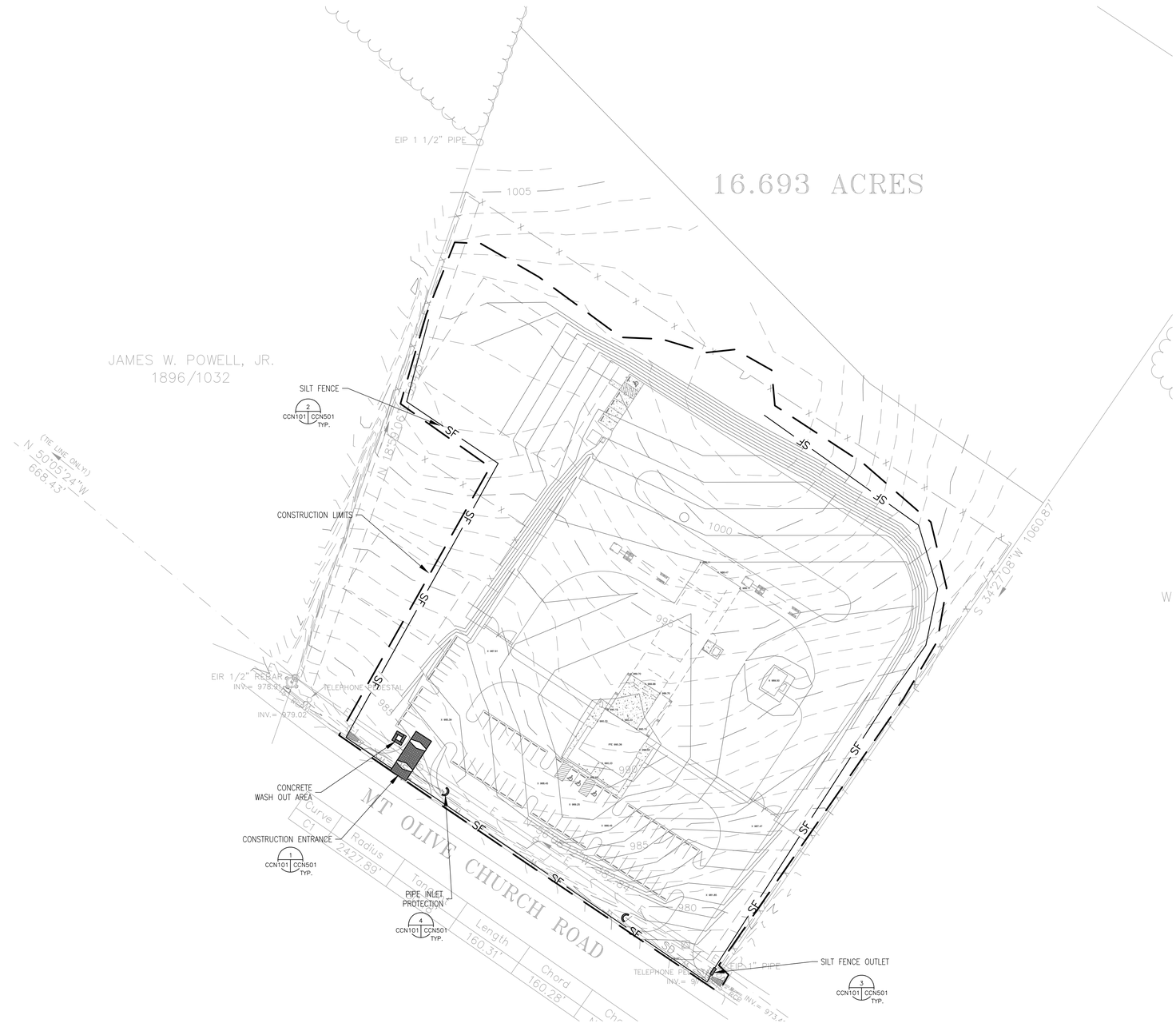

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16. SEE CCN502 FOR SEEDING, SEED BED PREPARATION AND MAINTENANCE SCHEDULE
17. SEE CGN101 FOR STORM DRAINAGE SCHEDULE.
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CONTRACTOR WILL REFRAIN FROM TRACKING ANY SITE MATERIAL ONTO PARKING LOT OR STREET. ANY SUCH TRACKING SHOULD BE CORRECTED IMMEDIATELY.

N

NADS

0 60' 120'

POST-CONSTRUCTION EROSION CONTROL PLAN

SCALE: 1"=60'

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL
SEAL
49758
ENGINEER
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05/14/25

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CATAWBA COUNTY
CATTLEMAN ASSOCIATION
NEWTON, NORTH CAROLINA
OWNER

NEW BUILDING
PROJECT TITLE

CIVIL

POST-CONSTRUCTION
EROSION CONTROL PLAN
DRAWING TITLE

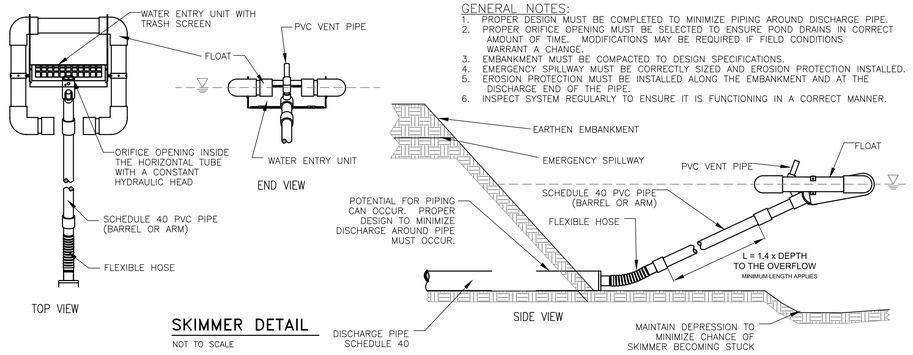
JOB NUMBER: 24105
DATE: 05/14/25
DRAWN BY: TLC
CHECKED BY: WSC

REVISIONS

NO.	DESCRIPTION	DATE
-	-	-

CCN102

SHEET - OF -

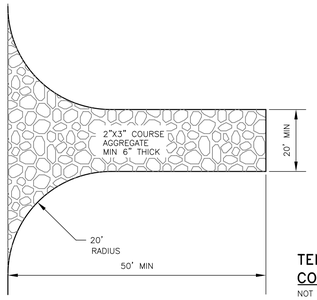


SKIMMER DETAIL

NOT TO SCALE

GENERAL NOTES:

1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
3. EMBANKMENT MUST BE COMPACTED TO DESIGN SPECIFICATIONS.
4. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
5. EROSION PROTECTION MUST BE INSTALLED ALONG THE EMBANKMENT AND AT THE DISCHARGE END OF THE PIPE.
6. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.



CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON PLANS, AND SMOOTH IT.
3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE:

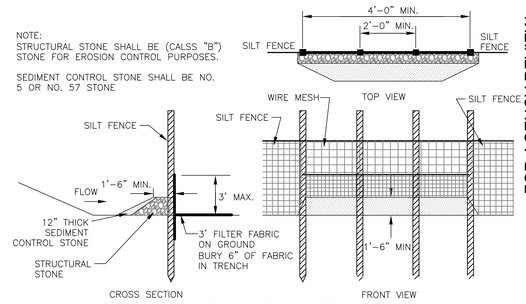
MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2" STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

NOT TO SCALE — CCN101–102 CCN501

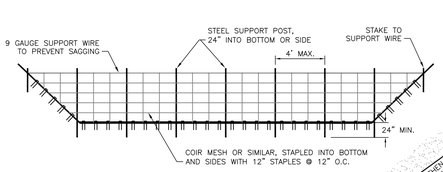
NOTE:
STRUCTURAL STONE SHALL BE (CALSS "B") STONE FOR EROSION CONTROL PURPOSES.

SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57 STONE



SILT FENCE STONE OUTLET

NO SCALE — 3 CCN101–102 CCN501



CROSS–SECTION

CONSTRUCTION SPECIFICATIONS:

1. GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.
2. INSTALL POSTS OR SAW HORSES ACROSS THE WIDTH OF THE SEDIMENT TRAP.
3. STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24 INCHES, SPACED A MAXIMUM OF 4 FEET APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE 6 INCHES HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.
4. INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND THE OUTLET DISCHARGE POINT. BASINS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES.
5. WHEN USING POSTS, ADD A 9 GAUGE SUPPORT WIRE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.
6. WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER A SAWHORSE OR THE TOP WIRE. HAMMER REBAR INTO THE SAWHORSE LEGS FOR ANCHORING. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A SUPPORT WIRE AND A SUPPORT STRUCTURE WITH ZIP TIES, WIRES, OR STAPLES.
7. THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 12–INCH EROSION CONTROL MATTING STAPLES AT 12" SPACING.
8. DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.

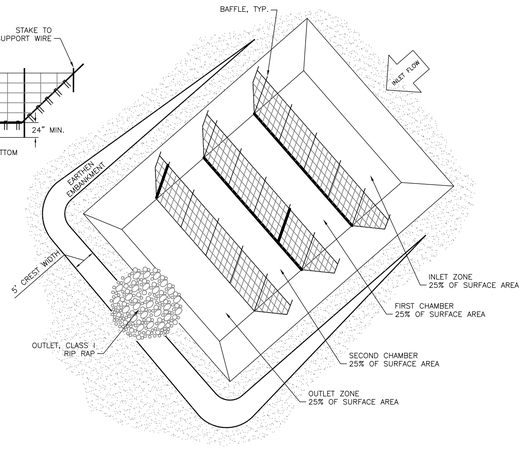
MAINTENANCE:

INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

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 CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.

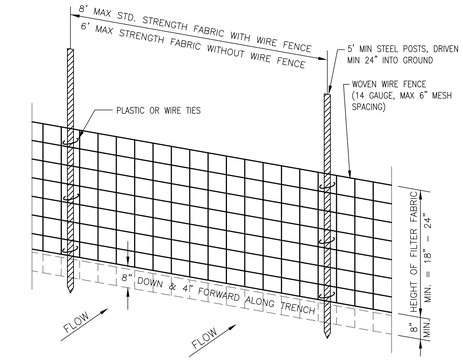
AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.



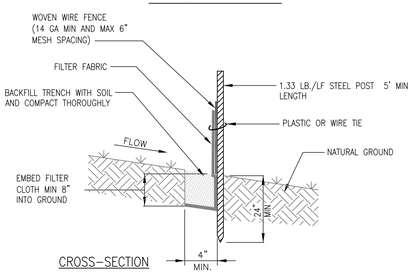
BAFFLES IN SEDIMENT TRAP

BAFFLES

NOT TO SCALE



PERSPECTIVE VIEW



CROSS–SECTION

CONSTRUCTION SPECIFICATIONS:

1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE THE GROUND SURFACE.
3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
4. SUPPORT STANDARD STRENGTH FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UP–SLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH FASTENED SECURELY TO THE UP–SLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UP–SLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UP–SLOPE FROM THE BARRIER.
8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
9. BACKFILL THE TRENCH WITH SOIL PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTION OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MAINTENANCE:

INSPECT SEDIMENT FENCES ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

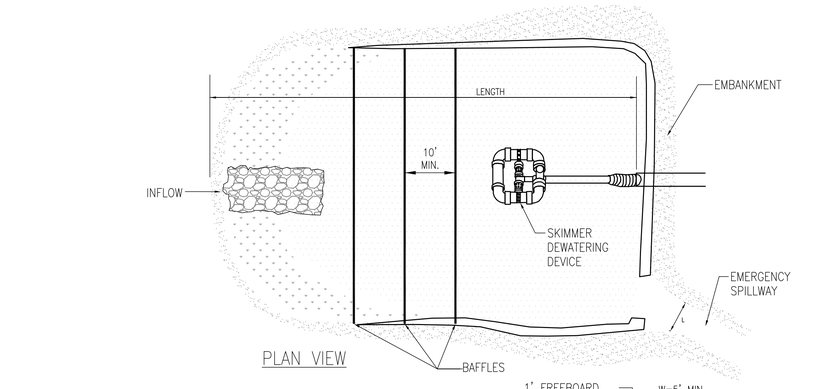
SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.

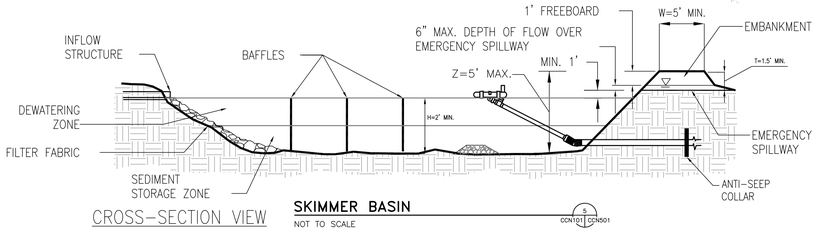
REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SILT FENCE

NOT TO SCALE — 2 CCN101–102 CCN501



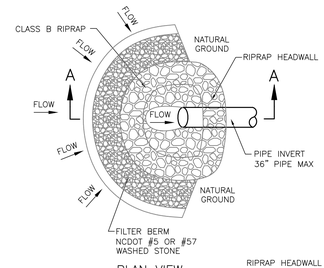
PLAN VIEW



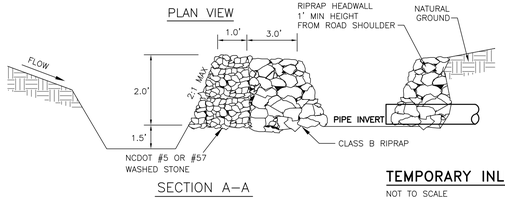
CROSS–SECTION VIEW

SKIMMER BASIN

NOT TO SCALE — 5 CCN101 CCN501



PLAN VIEW



SECTION A–A

CONSTRUCTION SPECIFICATIONS:

1. CLEAR THE AREA OF ALL DEBRIS THAT MIGHT HINDER EXCAVATION AND DISPOSAL OF SOIL.
2. INSTALL THE CLASS B OR CLASS I RIRAP IN A SEMICIRCLE AROUND THE PIPE INLET. THE STONE SHOULD BE BUILT UP HIGHER ON EACH END WHERE IT TIES INTO THE EMBANKMENT. THE MINIMUM CREST WIDTH OF THE RIPRAP SHOULD BE 3 FEET, WITH A MINIMUM BOTTOM WIDTH OF 11 FEET. THE MINIMUM HEIGHT SHOULD BE 2 FEET, BUT ALSO 1 FOOT LOWER THAN SHOULDER OF THE EMBANKMENT OR DIVERSIONS.
3. A 1 FOOT THICK LAYER OF NC DOT #5 OR #57 STONE SHOULD BE PLACED ON OUTSIDE SLOPE OF RIPRAP.
4. THE SEDIMENT STORAGE AREA SHOULD BE EXCAVATED AROUND THE OUTSIDE OF THE STONE HORSESHOE 18 INCHES BELOW NATURAL GRADE.
5. WHEN THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, FILL DEPRESSION AND ESTABLISH FINAL GRADING ELEVATIONS, COMPACT AREA PROPERLY, AND STABILIZE WITH GROUND COVER.

MAINTENANCE:

INSPECT RIP–RAP PIPE INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½ INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE SEDIMENT STORAGE AREA TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE–HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.

CHECK THE STRUCTURE FOR DAMAGE. ANY RIPRAP DISPLACED FROM STONE HORSESHOE MUST BE REPLACED IMMEDIATELY.

AFTER ALL THE SEDIMENT–PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND PROVIDE PERMANENT GROUND COVER.

TEMPORARY INLET PROTECTION

NOT TO SCALE — 4 CCN101–102 CCN501

FOR AGENCY REVIEW

NORTH CAROLINA — CLAYTON ENGINEERING & DESIGN, PLLC. — No. P–1463 — CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA — PROFESSIONAL ENGINEER — SEAL 49758 — WILLIAM S. CLAYTON — 05/14/25

CLAYTON ENGINEERING & DESIGN
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CATAWBA COUNTY CATTLEMAN ASSOCIATION
OWNER
NEWTON, NORTH CAROLINA

NEW BUILDING
PROJECT TITLE

EROSION CONTROL DETAILS
DRAWING TITLE

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REVISIONS

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CCN501

SHEET - OF -

SEEDBED PREPARATION (SP)

SP–1 FILL SLOPES 3:1 OR STEEPER TO BE SEEDED WITH A HYDRAULIC SEEDER (PERMANENT SEEDINGS). GRASS LINED CHANNELS.
1. LEAVE THE LAST 4–6 INCHES OF FILL LOOSE AND UNCOMPACTED, ALLOWING ROCKS, ROOTS, LARGE CLODS AND OTHER DEBRIS TO REMAIN ON THE SLOPE.
2. ROUGHEN SLOPE FACES BY MAKING GROOVES 2–3 INCHES DEEP, PERPENDICULAR TO THE SLOPE.
3. SPREAD LIME EVENLY OVER SLOPES AT RATES RECOMMENDED BY SEEDING METHODS (SM–1).

SP–2 FILL SLOPES 3:1 OR STEEPER (TEMPORARY SEEDINGS)
1. LEAVE A LOOSE, UNCOMPACTED SURFACE. REMOVE LARGE CLODS, ROCKS, AND DEBRIS WHICH MIGHT HOLD NETTING ABOVE THE SURFACE.
2. SPREAD LIME AND FERTILIZER EVENLY AT RATES RECOMMENDED BY SEEDING METHODS (SM–3)
3. INCORPORATE AMENDMENTS BY ROUGHENING OR GROOVING SOIL SURFACE ON THE CONTOUR.

SP–3 GENTLE AND FLAT SLOPES
1. REMOVE ROCKS, AND DEBRIS.
2. APPLY LIME AND FERTILIZER AT RATES RECOMMENDED BY SEEDING METHODS (SM–2); SPREAD EVENLY AND INCORPORATE INTO THE TOP 6" WITH A DISK, CHISEL PLOW, OR ROTARY TILLER.
3. BREAK UP LARGE CLODS AND RAKE INTO LOOSE, UNIFORM SEEDBED.
4. RAKE TO LOOSEN SURFACE JUST PRIOR TO APPLYING SEED.

14 DAY STABILIZATION CLAUSE

ALL DISTURBED AREAS WHICH ARE TO BE LEFT IDLE FOR PERIOD OF 14 DAYS OR LONGER ARE TO RECEIVE TEMPORARY VEGETATION AND /OR MULCH.

SEEDING METHODS (SM)

SM–1 FILL SLOPES STEEPER THAN 3:1 (PERMANENT SEEDINGS) USE HYDRAULIC SEEDING EQUIPMENT TO APPLY SEED AND FERTILIZER. APPLY 4000lb/acre GROUND AGRICULTURAL LIMESTONE AND 1000lb/acre 10–10–10 FERTILIZER. AFTER AUG 15, USE UNSCARIFIED SEED FOR ONE OF THE FOLLOWING NATIVE SPECIES: SWITCHGRASS, SPLITBEARD BLUESTEM, BEGGARLICE, OR PATRIDGE PEA. FOR NEATER APPEARANCES, OMIT NATIVE SPECIES AND SUBSTITUTE 40lb/acre BAHIAGRASS OR 15lb/acre BERMUDA GRASS (USE UNHULLED BERMUDA IN THE FALL).

SM–2 GENTLE TO FLAT SLOPES OR TEMPORARY SEEDINGS
1. BROADCAST SEED AT THE RECOMMENDED RATE WITH A CYCLONE SEEDER, DROP SPREADER, OR CULTIPACKER SEEDER.
2. RAKE SEED INTO THE SOIL AND LIGHTLY PACK TO ESTABLISH GOOD CONTACT.
3. APPLY 4000lb/acre GROUND AGRICULTURAL LIMESTONE AND 1000 lb/acre 10–10–10 FERTILIZER.
4. BETWEEN MAR 31–AUG 20, APPLY 50lb/acre ONE OF THE FOLLOWING NATIVE SPECIES: SWITCHGRASS, SPLITBEARD BLUESTEM, BEGGARLICE, OR PATRIDGE PEA, KEEP MOWED; SEED PERMANENT MIXTURE IN EARLY FALL.

SM–3 TEMPORARY SEDDING
1. APPLY 2000lb/acre GROUND AGRICULTURAL LIMESTONE AND 750lb/acre 10–10–10 FERTILIZER.

SM–4 GRASS LINED CHANNELS; APPLY 4000lb/acre GROUND AGRICULTURE LIMESTONE AND 1000lb/acre 10–10–10 FERTILIZER. PLACE LININGS AS NOTED ON PLANS.

MULCH (MU)

MU–1 STEEP SLOPES (3:1 OR GREATER)
APPLY 100lb/1,000 sq. ft. GRAIN STRAW. COVER WITH NETTING AND STAPLE TO THE SLOPE.

MU–2 GENTLE SLOPES (LESS THAN 3:1)
APPLY 100lb/1,000 sq. ft. GRAIN STRAW. COVER WITH ASPHALT OR WITH NETTING AND STAPLE TO THE SLOPE.

MU–3 APPLY 100lb/1000 sq. ft. AND ANCHOR STRAW BY STAPLING NETTING OVER THE TOP.

MAINTENANCE (MA)

MA–1 REFERTILIZE IN LATE WINTER OR EARLY SPRING THE FOLLOWING YEAR. MOW AS DESIRED. RESEED, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

EROSION CONTROL MAINTENANCE SCHEDULE

ALL SEDIMENT AND EROSION CONTROLS ARE TO BE INSPECTED AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND AFTER ANY STORM EVENT OF 0.5 INCHES OR GREATER OF PRECIPITATION DURING AND 24–HOUR PERIOD.

AREA NO.	DESCRIPTION	SEASON	SEEDING MIXTURE PERMANENT lb/ac	SEEDING MIXTURE TEMPORARY lb/ac	SEEDBED PREPARATION	SEEDING METHOD	MULCH	MAINTENANCE	NOTES
1	STEEP SLOPES; LOW MAINTENANCE (GREATER THAN 3:1)	AUG 20 – OCT 30 FEB 1 – APR 15	TALL FESCUE 100 SWITCHGRAS 30 BEGGARLICE 10		SP–1	SM–1	MU–1	MA–1	BETWEEN MAY 1 – AUG 15, ADD 10lb/acre GERMAN MILLET OR 15lb/acre SUNDAN GRASS. PRIOR TO MAY 1 OR AFTER AUG 15 ADD 40lb/acre RYE GRAIN
2	LOW MAINTENANCE AREAS (3:1 SLOPES OR LESS)	AUG 20 – OCT 25 FEB 1 – MAR 31	BLEND OF TWO TURF–TYPE FESCUES 225 BLEND OF TWO KENTUCKY BLUEGRASS VARIETIES. 25		SP–3	SM–2	MU–2	MA–1	APPLY 40lb/acre OF NITROGEN AFTER A STAND OF GRASS HAS BEEN ESTABLISHED. AVOID APPLYING NITROGEN DURING THE SUMMER MONTHS. SEE SM–2 (NOTE 4)
3	TEMPORARY SEEDING	JAN 1 – MAY 1		RYE GRAIN 120 PARTRIDGE PEA 50	SP–2	SM–3	MU–1	MA–1	TREAT TEMPORARY DIVERSION AS LOW–MAINTENANCE, PERMANENT (AREA 2) INCLUDE TOPSOIL STOCK–PILES HERE
		MAY 1 – AUG 15		GERMAN MILLET 40					
		AUG 15 – DEC 30		RYE GRAIN 120					
4	GRASS LINED CHANNELS	FEB 1 – APR 15	TALL FESCUE 200		SP–1	SM–4	MU–3	MA–1	BETWEEN APR 15 – AUG 20, PLACE GERMAN MILLET AT 40lb/acre. BETWEEN NOV 1 – FEB 1, PLACE RYE GRAIN 120lb/acre, & KOBE LESPEDEZA 50lb/acre
		AUG 20 – OCT 30	TALL FESCUE 200						

PER NCDEQ AND NPDES REQUIREMENTS, GROUND STABILIZATION MUST OCCUR WITHIN 7 DAYS ON PERIMETER AREAS AND SLOPES STEEPER THAN 3:1, AND GROUND STABILIZATION MUST OCCUR WITHIN 14 DAYS ON OTHER AREAS.

NPDES STORMWATER DISCHARGE PERMIT FOR CONSTRUCTION ACTIVITIES (NCG01)
NCDENR/DIVISION OF ENERGY, MINERAL AND LAND RESOURCES

STABILIZATION TIMEFRAMES (EFFECTIVE AUG. 3, 2011)			
SITE AREA DESCRIPTION		STABILIZATION	TIMEFRAME EXCEPTIONS
	PERIMETER DIKES, SWALES, DITCHES, 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

FERTILIZER NOTE:

FERTILIZER SHOULD BE APPLIED IN ACCORDANCE WITH SOIL TEST RESULTS. IF SOIL TEST CANNOT BE PERFORMED, GENERIC FERTILIZER APPLICATION RATES MAYBE USED.

NATIVE SPECIES:

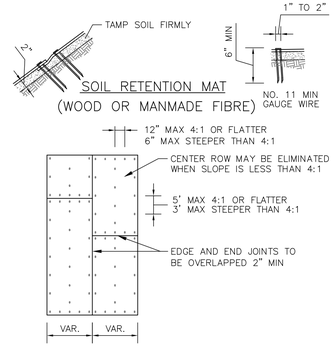
SWITCHGRASS (PANICUM VIRGATUM)
SPLITBEARD BLUESTEM (SNDROPOGON TERNARIUS)
BEGGARLICE (DESMODIUM SPP.)
PARTRIDGE PEA (CHAMAECRISTA FASCICULATA)

INSPECTION NOTES:

1. A RAIN GAUGE SHALL BE MAINTAINED IN GOOD WORKING ORDER ON THE SITE, UNLESS ANOTHER RAIN MONITORING DEVICE HAS BEEN APPROVED BY THE DIVISION OF WATER QUALITY.
2. A WRITTEN RECORD OF THE DAILY RAINFALL AMOUNTS SHALL BE RETAINED AND ALL RECORDS SHALL BE MADE AVAILABLE TO DWQ OR AUTHORIZED AGENT UPON REQUEST. (NOTE: IF NO RAINFALL OCCURRED, THE REPORT MUST RECORD "ZERO")
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. INSPECTION RECORDS MUST BE MAINTAINED FOR EACH MEASURE. AT A MINIMUM, INSPECTION OF MEASURES MUST OCCUR AT THE FREQUENCY INDICATED BELOW:
   (a) ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS, AND
   (b) ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.50 INCHES OF RAIN PER 24 HOUR PERIOD.
4. ONCE LAND DISTURBANCE HAS BEGUN ON THE SITE, STORMWATER RUNOFF DISCHARGE OUTFALLS SHALL BE INSPECTED BY OBSERVATION FOR EROSION, SEDIMENTATION, AND OTHER STORMWATER DISCHARGE CHARACTERISTICS. INSPECTIONS OF THE OUTFALLS SHALL BE MADE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.50 INCHES OF RAIN PER 24 HOUR PERIOD.
5. INSPECTIONS ARE ONLY REQUIRED TO BE MADE DURING NORMAL BUSINESS HOURS.
6. THE PERMITTEE SHALL REPORT TO THE DWQ CENTRAL OFFICE OR APPROPRIATE REGIONAL OFFICE ANY VISIBLE SEDIMENT BEING DEPOSITED IN ANY STREAM etc., ORALLY OR ELECTRONICALLY WITHIN 24 HOURS FROM THE TIME THE PERMITTEE BECAME AWARE OF THE CIRCUMSTANCES.
7. A WRITTEN SUBMISSION OF THE REPORT SHALL BE PROVIDED WITHIN 5 DAYS OF THE INCIDENT. WRITTEN REPORT SHALL CONTAIN DESCRIPTION OF THE SEDIMENT DEPOSITION, AND ACTIONS TAKEN TO ADDRESS THE CAUSE OF THE DEPOSITION.
8. RECORDS OF INSPECTIONS MADE DURING THE PREVIOUS 30 DAYS SHALL REMAIN ON THE SITE AND AVAILABLE DURING NORMAL WORKING HOURS. OLDER RECORDS MUST BE MAINTAINED FOR THREE YEARS AFTER THE PROJECT IS COMPLETED. ELECTRONIC RECORDS MAY BE USED, IF PROVIDING EQUAL ACCESS AND UTILITY AS THE HARD COPIES.
9. SEE NCG01 PERMIT FOR REQUIRED INFORMATION TO BE INCLUDED IN THE INSPECTION RECORDS.

SEQUENCE OF CONSTRUCTION ACTIVITIES:

1. DETERMINE AND MARK LIMITS OF DISTURBANCE.
2. NOTIFY THE EROSION INSPECTOR BEFORE ANY LAND DISTURBING ACTIVITY IS STARTED.
3. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
4. PLACE PERIMETER SEDIMENT FENCE, CONSTRUCT DIVERSION DITCHES, AND SKIMMER BASIN.
5. REMOVE TOPSOIL AND STOCKPILE FOR USE ON SLOPES.
6. STOCKPILE AREA IS DESIGNATED ON PLANS OR AS DIRECTED BY ENGINEER.
7. ROUGH GRADE SITE, CONSTRUCT CHANNELS, INSTALL CHANNEL LININGS.
8. CONSTRUCT STORM DRAINAGE, INLET AND OUTLET PROTECTION TO BE CONSTRUCTED CONCURRENTLY WITH STORM DRAINS.
9. PLACE TEMPORARY SEEDING ON ALL DISTURBED AREAS.
10. CONSTRUCT BUILDINGS, COMPLETE FINAL GRADING, GRAVEL VEHICLE SURFACES.
11. PLACE PERMANENT SEEDING AND DO FINAL LANDSCAPING.
12. NOTIFY THE EROSION INSPECTOR AFTER SITE IS STABILIZED.
13. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SITE IS STABILIZED.
14. NO EROSION CONTROL DEVICES CAN BE REMOVED WITHOUT PRIOR APPROVAL FROM THE INSPECTOR.

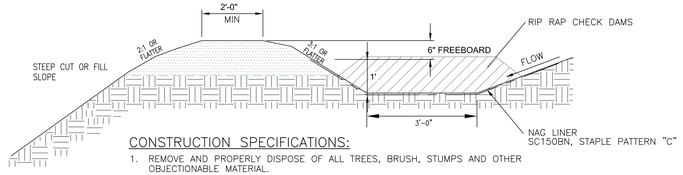


SOIL RETENTION MAT
(WOOD OR MANMADE FIBRE)

NOTE:
SOIL STABILIZATION MATS SHALL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS.

SOIL STABILIZATION MATS SHALL BE PLACED ON ANY DISTURBED SLOPES GREATER THAN 3:1.

SOIL STABILIZATION MAT–INSTALLATION
NO SCALE



CONSTRUCTION SPECIFICATIONS:

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS SPECIFIED SETTLEMENT.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS.

MAINTENANCE:

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND.

TEMPORARY DIVERSION DITCH
NOT TO SCALE

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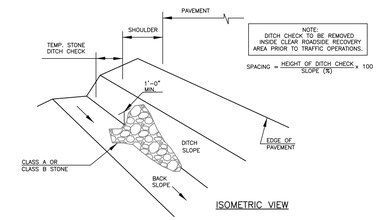
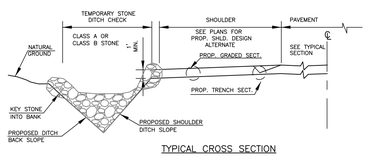
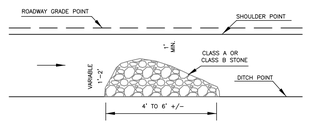


ISOMETRIC VIEW



TYPICAL CROSS SECTION



TYPICAL LONGITUDINAL SECTION

RIP–RAP CHECK DAM
NOT TO SCALE

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P–1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 40758 WILLIAM S. CLAYTON
05/14/25

CLAYTON
ENGINEERING & DESIGN
1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

CATAWBA COUNTY CATTLEMAN ASSOCIATION
NEWTON, NORTH CAROLINA
OWNER

NEW BUILDING
PROJECT TITLE

EROSION CONTROL DETAILS
DRAWING TITLE

JOB NUMBER:	24105
DATE:	05/14/25
DRAWN BY:	EMB
CHECKED BY:	WSC

REVISIONS

NO.	DESCRIPTION	DATE

CCN502
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NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

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 rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site visit 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 calender days and within 24 hours of a rain event >/= 1.0" in 24 hours	1. Identification of the measures inspected, 2. Date & Time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of the maintenance needs for the measure, 6.Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDO's)	At least once per 7 calender days and within 24 hours of a rain event >/= 1.0" in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date & Time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of stormwater pollution indicators such as oil sheen, floating or suspended solids or discoloration, 5. Visible indication of sediment leaving the site, 6.Description, evidence, and date of corrective actions taken.
(4) Perimeter of the site	At least once per 7 calender days and within 24 hours of a rain event >/= 1.0" 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 calender days and within 24 hours of a rain event >/= 1.0" 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 the 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 explanation 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 documented in the manner described:

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

In addition to the E&SC Plan documents above, the following items shall be kept on the site
and available for agency 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 30 days. 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.

(c) All data used to complete the Notice of Intent and older 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).

(a) 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.

(b) Anticipated bypasses and unanticipated bypasses.

(c) 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 Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

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 the 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 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 [40CFR 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.
(d) 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 [40CFR 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. [40CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

PART III, 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 withdrawals 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.

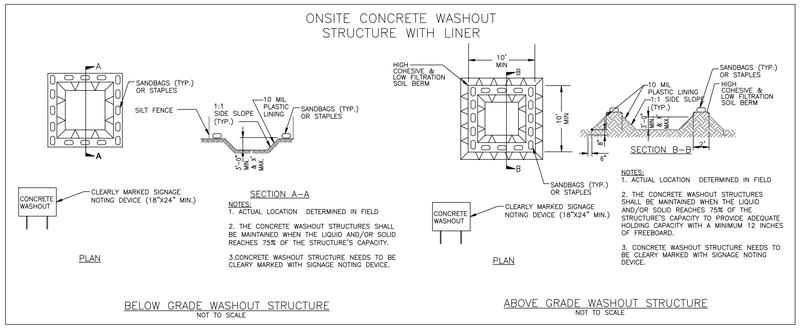
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin.
Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems.

(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.

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE

ABOVE GRADE WASHOUT STRUCTURE
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 grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches or 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

FOR AGENCY REVIEW

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 40738 WILLIAM S. CLAYTON
05/14/25

CLAYTON
ENGINEERING & DESIGN
1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

PROJECT TITLE
CATAWBA COUNTY CATTLEMAN ASSOCIATION
OWNER
NEWTON, NORTH CAROLINA
NEW BUILDING

DRAWING TITLE
EROSION CONTROL NOTES

JOB NUMBER: 24105
DATE: 05/14/25
DRAWN BY: EMB
CHECKED BY: WSC

REVISIONS

NO.	DESCRIPTION	DATE

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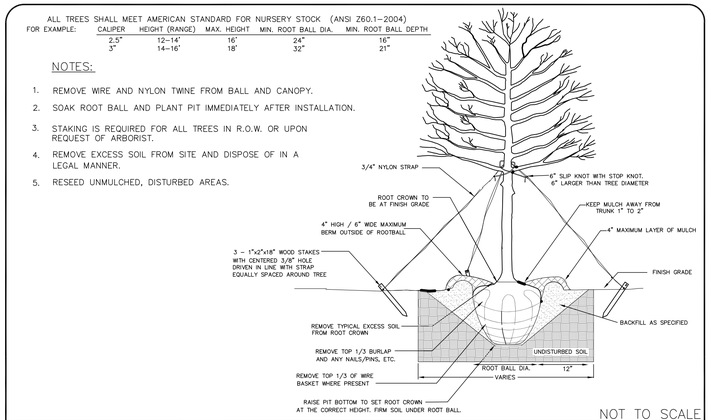
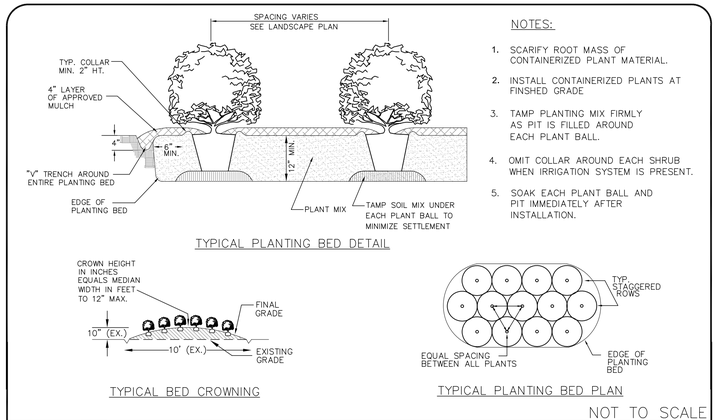
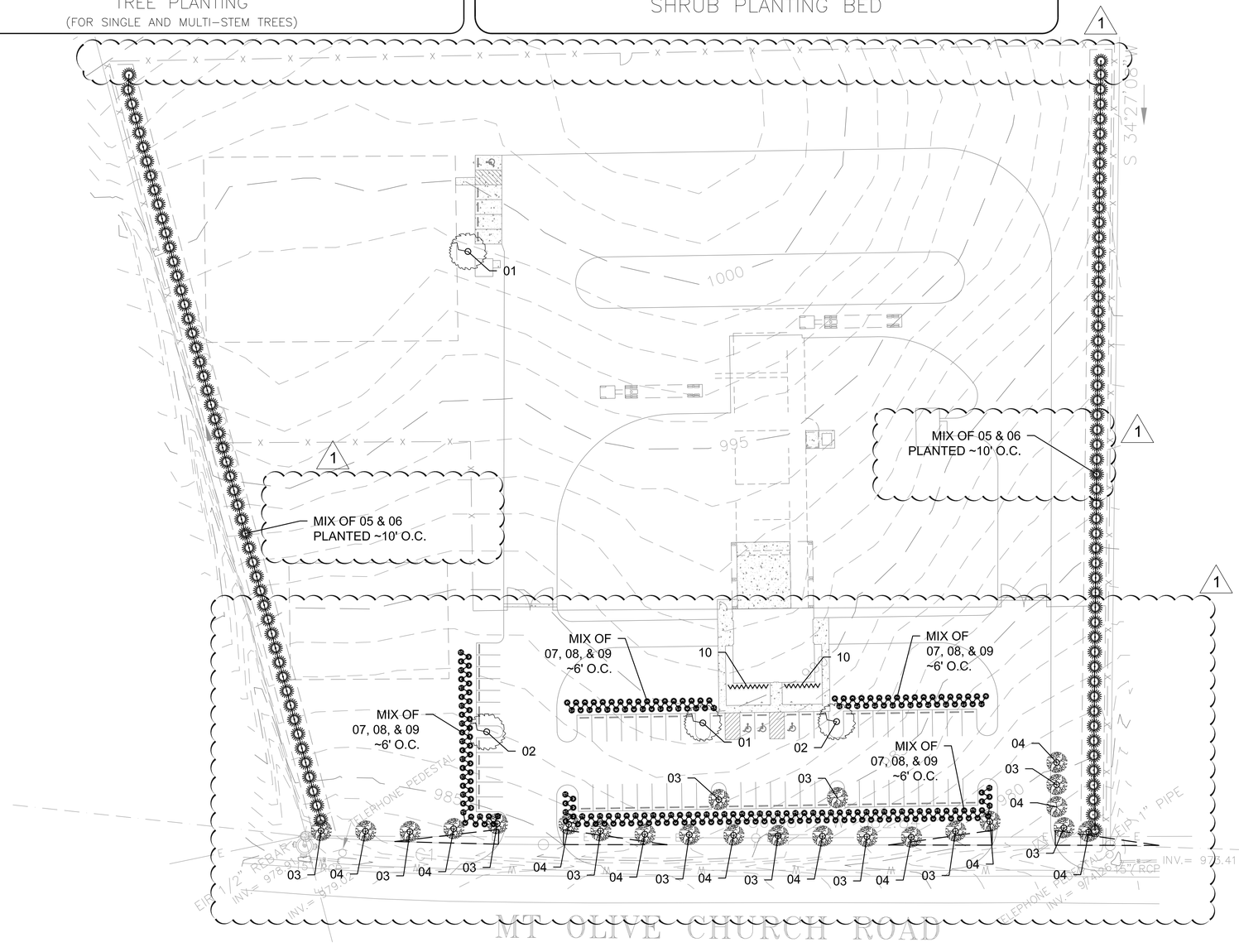


TREE PLANTING
(FOR SINGLE AND MULTI-STEM TREES)



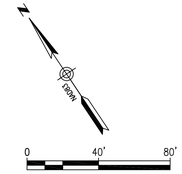
SHRUB PLANTING BED



LANDSCAPE LEGEND		
KEY	QUANTITY	COMMON NAME (BOTANICAL NAME)
		LARGE CANOPY TREES
01	2	'PALISADE' AMERICAN HORNBEAM (CARPINUS CAROLINIANA – CCSQU)
02	2	'STEWART SELECT' LIVE OAK (QUERCUS VIRGINIANA)
		UNDERSTORY TREES
03	12	'BENI FUJI' KOUSA DOGWOOD (COMUS KOUSA)
04	11	'CHERRY RUFFLES' CAROLINA CHERRY LAUREL (PRUNUS CAROLINIANA)
		SHRUBS
05	53	'EMERALD GREEN' AMERICAN ARBORVITAE (THUJA OCCIDENTALIS)
06	53	'FOSTER' HOLLY (ILEX X ATTENUATE 'FOSTERI')
07	55	'COMMON' SWEETSHRUB (CALYCANTHUS FLORIDUS)
08	82	'KOREAN' BOXWOOD (BUXUS SINICA)
09	82	'ANNABELLE' SMOOTH HYDRANGEA (HYDRANGEA ARBORESCENS)
10	36	'MERLOT' SQEETSPIRE (ITEA VIRGINICA)

LANDSCAPE NOTES:

(1) NEW PLANTING STANDARDS
NEW PLANTINGS SHALL COMPLY WITH THE FOLLOWING STANDARDS:
(A) MINIMUM SIZE
(1) DECIDUOUS CANOPY OR SHADE TREES SHALL HAVE A MINIMUM HEIGHT OF 8' AND BE A MINIMUM OF 2.5" IN CALIPER AT THE TIME OF PLANTING, AS DETERMINED IN THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-2004, AS AMENDED.
(2) UNDERSTORY, SMALL MATURING, OR ORNAMENTAL TREES SHALL HAVE A MINIMUM HEIGHT OF 6' AND BE A MINIMUM OF 1 1/4" IN CALIPER AT TIME OF PLANTING, AS DETERMINED IN THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1-2004, AS AMENDED.
(3) EVERGREEN TREES SHALL HAVE A MINIMUM HEIGHT OF 6' AND BE A MINIMUM OF 2" IN CALIPER AT THE TIME OF PLANTING.
(4) MULTI-STEM TREES, WHETHER CANOPY OR UNDERSTORY, SHALL HAVE AT LEAST THREE STALKS AND BE A MINIMUM OF EIGHT FEET IN HEIGHT ABOVE GROUND LEVEL AT THE TIME OF PLANTING.
(5) LARGE SHRUBS SHALL BE AT LEAST 3' IN HEIGHT AT THE TIME OF PLANTING, AND SHALL REACH THE REQUIRED MINIMUM PERFORMANCE HEIGHT WITHIN FOUR YEARS OF INSTALLATION.
(6) SMALL SHRUBS SHALL BE AT LEAST 24" IN HEIGHT, AND 3 GALLON CONTAINER AT THE TIME OF PLANTING, AND SHALL REACH THE REQUIRED MINIMUM PERFORMANCE HEIGHT WITHIN FIVE YEARS OF INSTALLATION.
(7) IN CASES WHERE AN AGGREGGATE CALIPER INCH (ACI) REQUIREMENT IS UTILIZED TO DERIVE A REQUIRED AMOUNT OF VEGETATION, AND THE ACI FIGURE INCLUDES A FRACTION, AND APPLICANT MAY:
(A) UTILIZE A TREE OR TREES WITH A CALIPER INCH MEASUREMENT EXCEEDING THE MINIMUM SIZE AT TIME OF PLANTING STANDARD OF THIS SUBSECTION IN ORDER TO MEET THE REQUIRED ACI; OR
(B) ROUND THE ACI FIGURE UPWARDS UNTIL THE FIGURE CORRESPONDS WITH A WHOLE NUMBER OF TREES MEETING THE MINIMUM SIZE AT TIME OF PLANTING STANDARD.
(8) IN CASES WHERE APPLICATION OF THE REQUIREMENTS IN THE SUBSECTION RESULT IN A FRACTION IN THE NUMBER OF SHRUBS TO BE PROVIDED, THE MINIMUM NUMBER OF SHRUBS TO BE PROVIDED SHALL BE ROUNDED UPWARDS TO THE NEXT HIGHEST WHOLE NUMBER.



LANDSCAPE PLAN
SCALE: 1" = 40'

FOR AGENCY REVIEW

NORTH CAROLINA CLAYTON ENGINEERING & DESIGN, PLLC. No. P-1463 CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA PROFESSIONAL SEAL 40758 ENGINEER WILLIAM S. CLAYTON 06/18/25

CLAYTON ENGINEERING & DESIGN
1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

OWNER: CATAWBA COUNTY CATTLEMAN ASSOCIATION, NEWTON, NORTH CAROLINA
PROJECT TITLE: NEW BUILDING

CIVIL

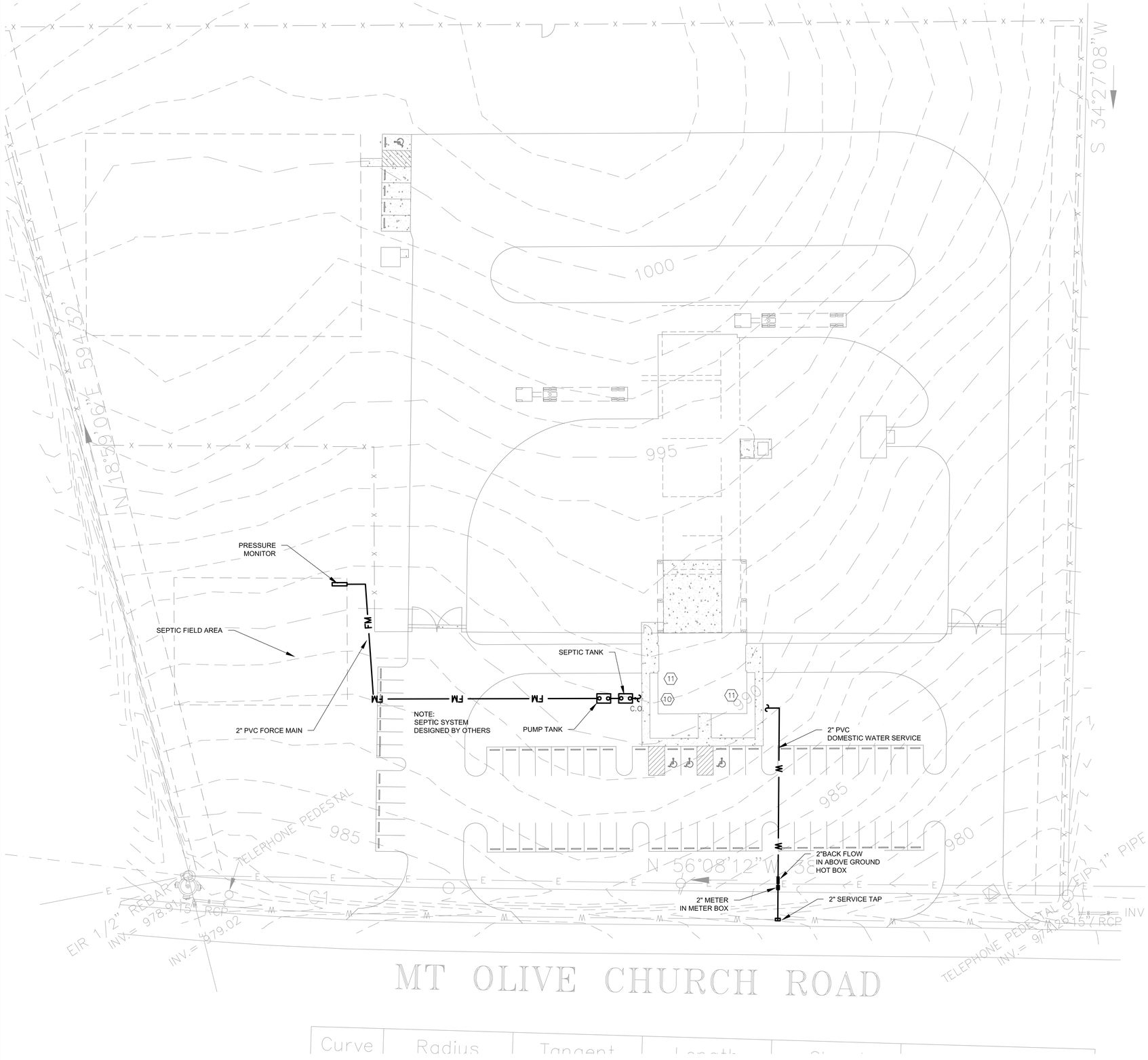
DRAWING TITLE: LANDSCAPE PLAN

JOB NUMBER:	24105
DATE:	05/14/25
DRAWN BY:	TLC
CHECKED BY:	WSC

REVISIONS

NO.	DESCRIPTION	DATE
1	REVISIONS	06/18/25

SHEET LSN101 - OF -

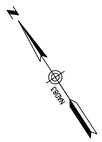


UTILITY NOTES

1. CONCRETE BLOCKING (3000 PSI) TO BE PLACED AT ALL BENDS OR AS REQUIRED UNLESS MEGA LUGS OR RESTRAINED JOINTS ARE USED.
2. STANDARD DEPTH OF COVER TO BE 3 FEET EXCEPT AT VALVE OR HYDRANT LOCATIONS OR OTHER SPECIAL SITUATIONS. COVER IS BASED ON ELEVATION BELOW EDGE OF PAVEMENT OR AS INDICATED ON THE PLANS.
3. PROVIDE POURED IN PLACE CONCRETE PADS (18"X18"X6")(OR CONCRETE DONUTS MAY BE USED AS AN ALTERNATIVE AT THE DISCRETION OF THE UTILITIES INSPECTOR) AT ALL VALVE BOXES.
4. EXTENSIONS FOR VALVE BOXES, WHEN REQUIRED, ARE TO BE VALVE BOXES OR DIP (NO PVC OR C-900).
5. ALL PAVEMENT CUTS, CONCRETE OR ASPHALT, ARE TO BE REPLACED ACCORDING TO THE STANDARD DETAILS OR AS REQUIRED BY THE NCDOT.
6. PAVEMENT CUTS ARE TO BE REPLACED IMMEDIATELY AFTER BACKFILLING OF INITIAL CUT EITHER WITH PERMANENT REPLACEMENT OR A TEMPORARY REPLACEMENT OF 10" OF BASE IF APPROVED BY THE CITY OR NCDOT.
7. REPAIRS TO MAIN BREAKS
   A. SOLID SLEEVES TO BE USED FOR CONNECTING SPIGOT ENDS SHALL BE OF THE LONG BODY TYPE
   B. ALL REPAIRS SHALL BE INSPECTED BY CITY BEFORE BACKFILLING
8. IN ANY INSTANCE WHERE IT WILL BE NECESSARY TO HAVE THE WATER SHUT OFF ON EXISTING MAINS IN ORDER TO MAKE A TIE-IN, THE WORK MUST BE DONE BY CITY FORCES OR A CONTRACTOR WORKING FOR THE CITY, SCHEDULED 48 HOURS TO 7 DAYS IN ADVANCE DEPENDING ON THE LOCATION AND TYPES OF BUSINESSES THAT WILL BE AFFECTED.
9. WHEN A WATER MAIN CROSSES AN EXISTING SEWER MAIN, THE CONTRACTOR IS TO REPLACE THE SEWER PIPE SPANNING THE DITCH WITH DUCTILE PIPE WHEN THE FOLLOWING CONDITIONS OCCUR:
   A. ANYTIME WATER MAIN IS INSTALLED UNDER A SEWER MAIN
   B. WHEN A WATER MAIN IS OVER A SEWER MAIN AND THE VERTICAL DISTANCE BETWEEN THE TWO MAINS IS 18-INCHES OR LESS (MINIMUM 12" CLEARANCE BETWEEN WATER AND SEWER MAINS).
10. WATER MAINS SHALL BE INSTALLED WITH A MINIMUM OF 10' HORIZONTAL SEPARATION FROM SEWER LINES. WHERE THIS IS NOT POSSIBLE, BOTH WATER LINE AND SEWER LINE SHALL BE DUCTILE IRON PIPE.
11. WATER LINES SHALL BE DISINFECTED AND HYDROSTATICALLY TESTED IN ACCORDANCE WITH ALL STATE AND LOCAL REQUIREMENTS.
12. ALL PLANS SHALL MEET ALL FEDERAL, STATE, AND LOCAL UTILITY PROVIDER REGULATIONS, DESIGN CRITERIA, AND CONSTRUCTION STANDARDS.

NOTES THIS SHEET:

1. BELOW GRADE WATERLINE PIPING SHALL BE AS NOTED ON PLANS. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH 15A NCAC CHAPTER 18C
2. THE CONTRACTOR SHALL GUARANTEE THE COMPLETE PLUMBING SYSTEM AGAINST DEFECTS DUE TO FAULTY MATERIALS, FAULTY WORKMANSHIP OR FAILURE DUE TO NEGLIGENCE OF THE CONTRACTOR. THE GUARANTEE PERIOD SHALL BEGIN ON THE DATE OF THE FINAL ACCEPTANCE AND SHALL CONTINUE FOR A PERIOD OF 12 MONTHS FROM ACCEPTANCE DURING WHICH TIME THE CONTRACTOR SHALL MAKE GOOD SUCH DEFECTIVE WORKMANSHIP AND MATERIALS AND ANY DAMAGE RESULTING THEREFROM, WITHIN A REASONABLE TIME OF NOTICE GIVEN BY THE OWNER.
3. BELOW GRADE SANITARY SEWER PIPING SHALL BE AS SHOWN ON PLANS. ALL PIPE JOINTS SHALL BE OF AN INTEGRAL BELL AND SPIGOT OF THE SAME MATERIAL AS THE PIPE WITH A SOLID CROSS-SECTION RUBBER "O" RING SECURELY LOCKED IN PLACE AT THE POINT OF MANUFACTURE. SERVICE SADDLES AND OTHER FITTINGS SHALL BE SUPPLIED BY THE PIPE MANUFACTURER AND SHALL BE OF THE SAME MATERIAL AND TYPE OF CONSTRUCTION AS THE PIPE MATERIAL.
4. AT COMPLETION OF WORK, CONTRACTOR SHALL PROVIDE A COMPLETE SET OF OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT TO THE OWNER.
5. CONTRACTOR SHALL COORDINATE PROPOSED UNDERGROUND UTILITIES W/ THE UTILITIES AS SHOWN ON THE PLUMBING AND MECHANICAL SITE PLANS
6. CONTRACTOR SHALL INSTALL NEW SANITARY SEWER LINE IN ACCORDANCE WITH 15A NCAC 2T. 0305.
7. CONTRACTOR SHALL MAINTAIN 10 FT MINIMUM HORIZONTAL SEPARATION BETWEEN NEW WATERLINE AND EXISTING SEWER LINES, AND AT CROSSINGS, WATERLINE MUST CROSS ABOVE THE EXISTING SEWER LINE WITH A MINIMUM CLEARANCE OF 18 INCHES.
8. NEW WATERLINE TO HAVE A MINIMUM COVER OF 3 FT.
9. CONTRACTOR SHALL OBTAIN PERMITS REQUIRED FOR WATER MAIN EXTENSION AND FOR CONSTRUCTION OF SANITARY SEWER LINES.
10. SEE PLUMBING PLANS FOR SEWER CONTINUATION.
11. SEE PLUMBING PLANS FOR WATER CONTINUATION.



0 30' 60'

UTILITY PLAN
SCALE: 1" = 30'

FOR AGENCY REVIEW

NORTH CAROLINA
CLAYTON ENGINEERING & DESIGN, PLLC.
No. P-1463
CERTIFICATE OF AUTHORIZATION

NORTH CAROLINA
PROFESSIONAL
SEAL
40795
ENGINEER
WILLIAM S. CLAYTON
05/14/25

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CATAWBA COUNTY CATTLEMAN ASSOCIATION
NEWETON, NORTH CAROLINA
OWNER

NEW BUILDING
PROJECT TITLE

CIVIL

UTILITY PLAN
DRAWING TITLE

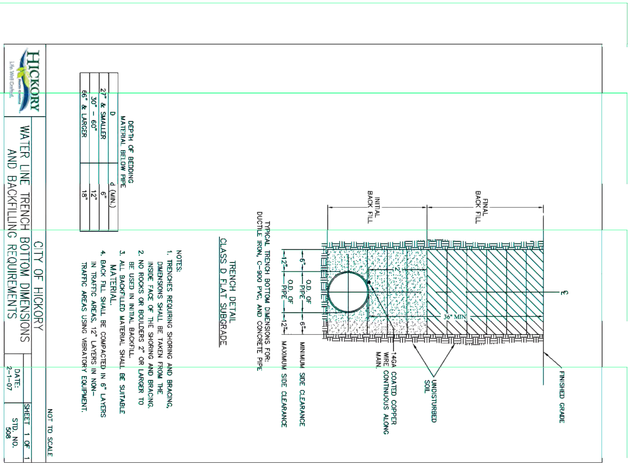
JOB NUMBER:	24105
DATE:	05/14/25
DRAWN BY:	EMB
CHECKED BY:	WSC

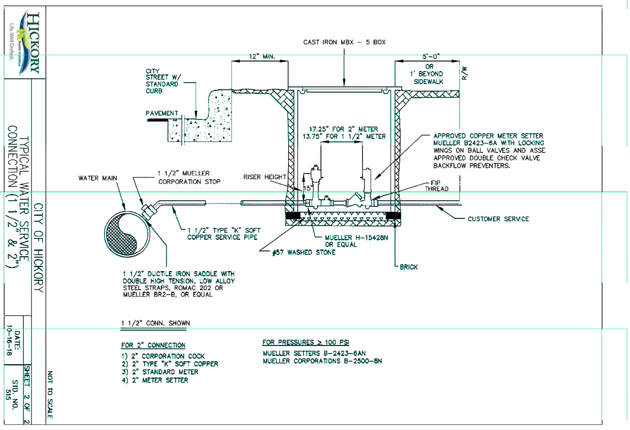
REVISIONS

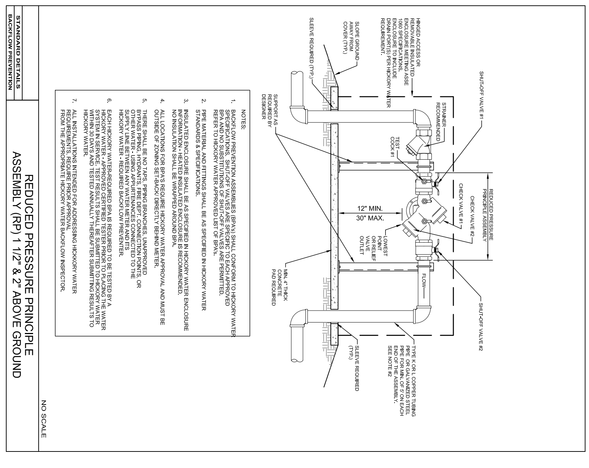
NO.	DESCRIPTION	DATE
-	-	-

CUN101

SHEET - OF -







FOR AGENCY REVIEW

SHEET	CUN501				
OF	-				
NO.	DESCRIPTION	DATE	REVISIONS		
			DESIGNED BY:	WSC	
			DRAWN BY:	EMB	
			DATE:	05/14/25	
			PROJ NUMBER:	24105	

UTILITY DETAILS
DRAWING TITLE

CIVIL

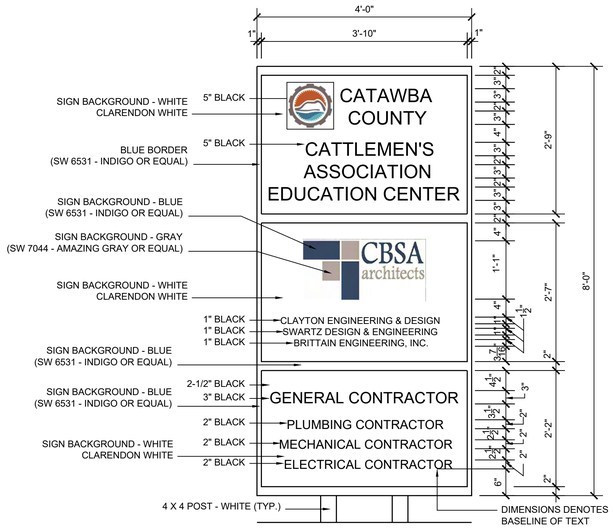
CATAWBA COUNTY
CATTLEMAN ASSOCIATION
NEWTON, NORTH CAROLINA
OWNER

NEW BUILDING
PROJECT TITLE

CLAYTON
ENGINEERING & DESIGN
1209 9TH AVE NE; PO BOX 2351 HICKORY, NC 28601

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049142 JAMES S. CLAYTON 05/14/25

NORTH CAROLINA CERTIFICATE OF AUTHORIZATION CLAYTON ENGINEERING & DESIGN, PLLC. No. P-1463

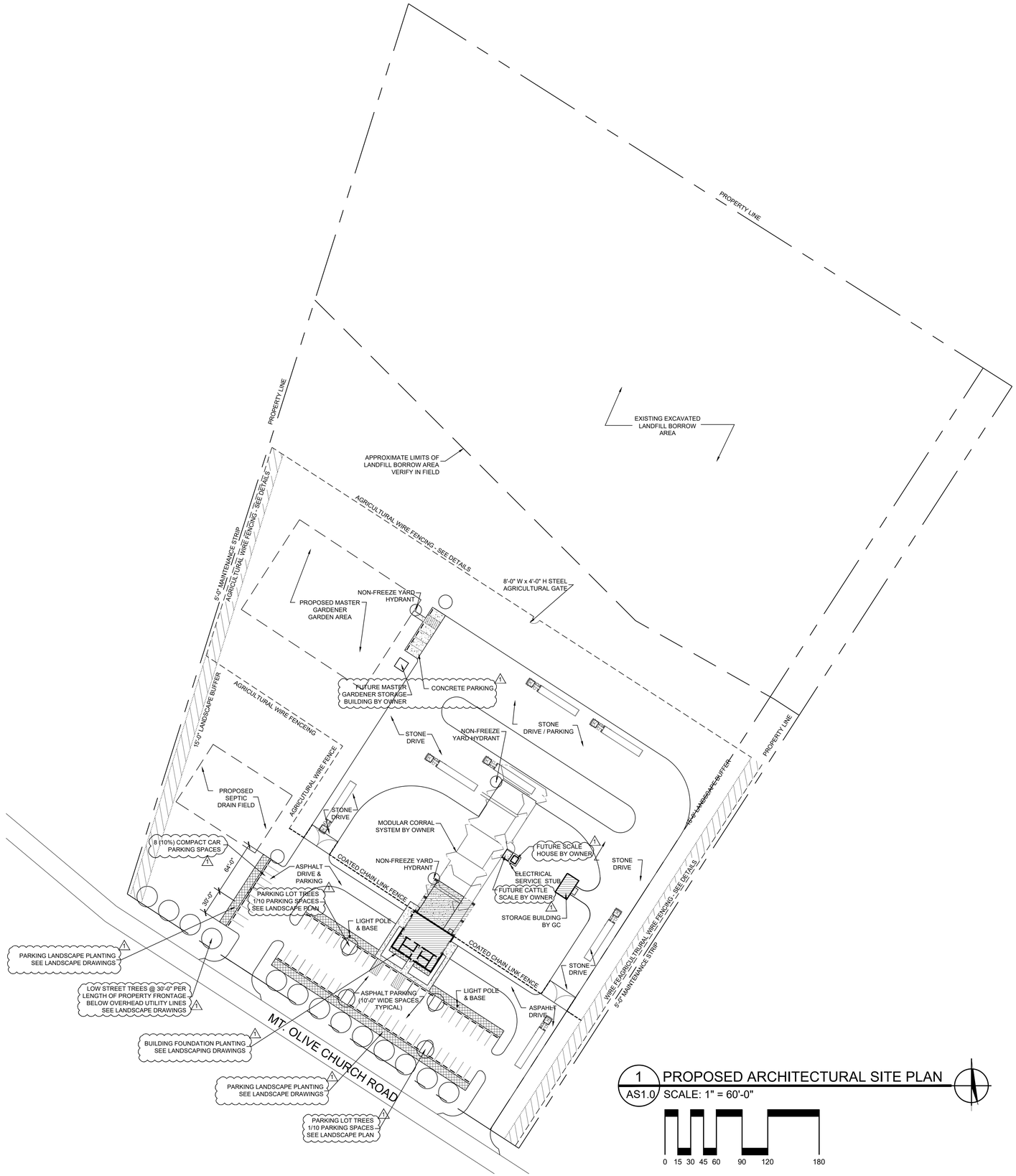


*NOTE:
ALL LETTERS ARE TO BE "ARIAL" FONT UNLESS OTHERWISE NOTED.
UPPER CASE UNLESS NOTED OTHERWISE.

ONE SIGN THUS TO BE FURNISHED AND INSTALLED BY G.C.

PLACE SIGN AS INDICATED BY OWNER OR ARCHITECT.

2 PROJECT SIGN DETAIL
AS1.0 SCALE: 3/4" = 1"



1 PROPOSED ARCHITECTURAL SITE PLAN
AS1.0 SCALE: 1" = 60'-0"

0 15 30 45 60 90 120 180

CBSA architects
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06/18/2025

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

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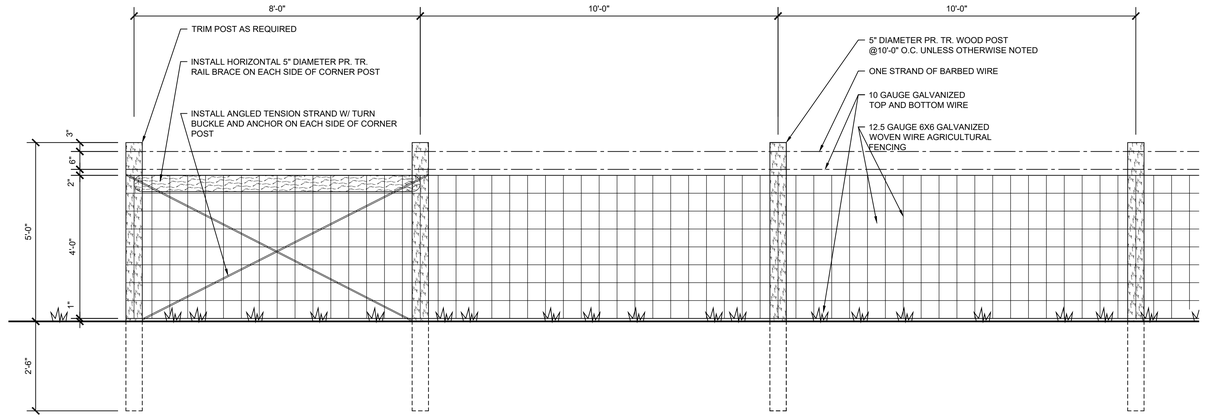
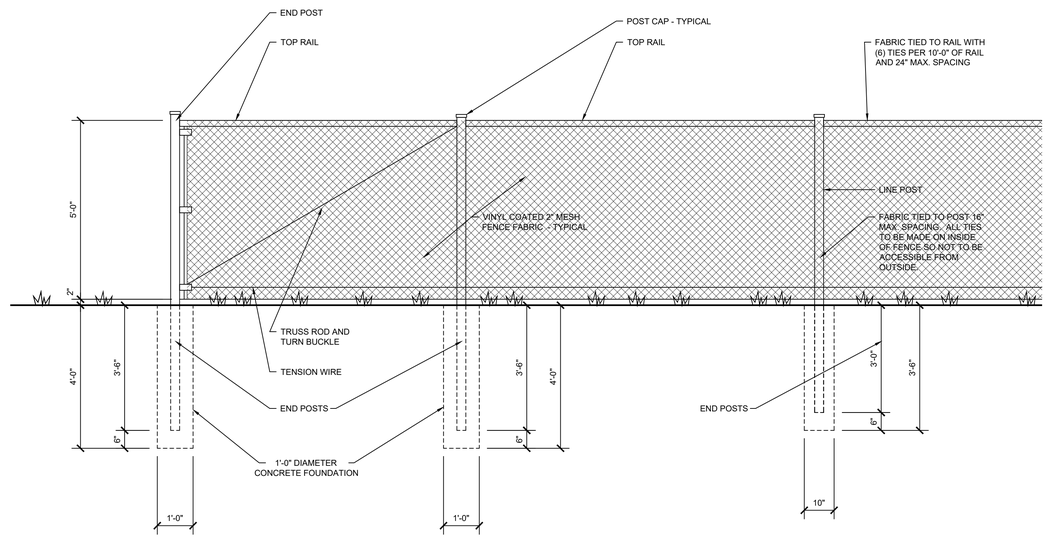
CAD DWG FILE	
DRAWN BY:	AOD
CHECKED BY:	MAB

SHEET TITLE
ARCHITECTURAL SITE PLAN

AS1.0



1 CORNER AGRICULTURAL FENCE BRACE DETAIL
AS1.1 SCALE: 1/2" = 1'-0"



4 CHAIN LINK FENCE DETAIL
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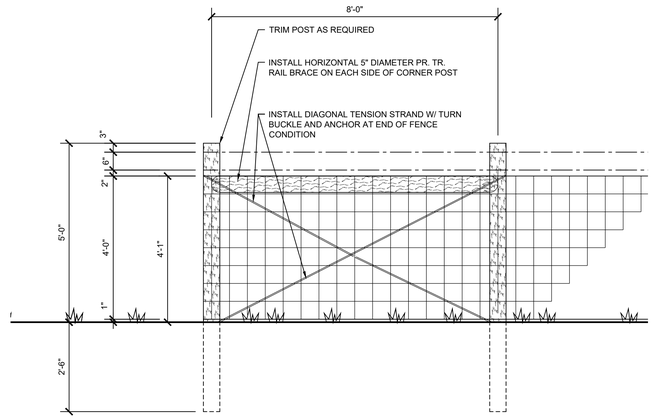
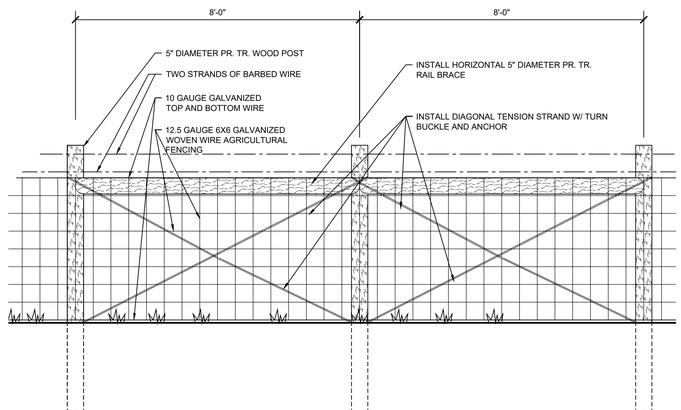


2 END OF AGRICULTURAL FENCE BRACE DETAIL
AS1.1 SCALE: 1/2" = 1'-0"



3 INTERMEDIATE AGRICULTURAL FENCE BRACING DETAIL
AS1.1 SCALE: 1/2" = 1'-0"

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06/18/2025

PROJECT

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CAD DWG FILE:	
DRAWN BY:	AOD
CHECKED BY:	MAB
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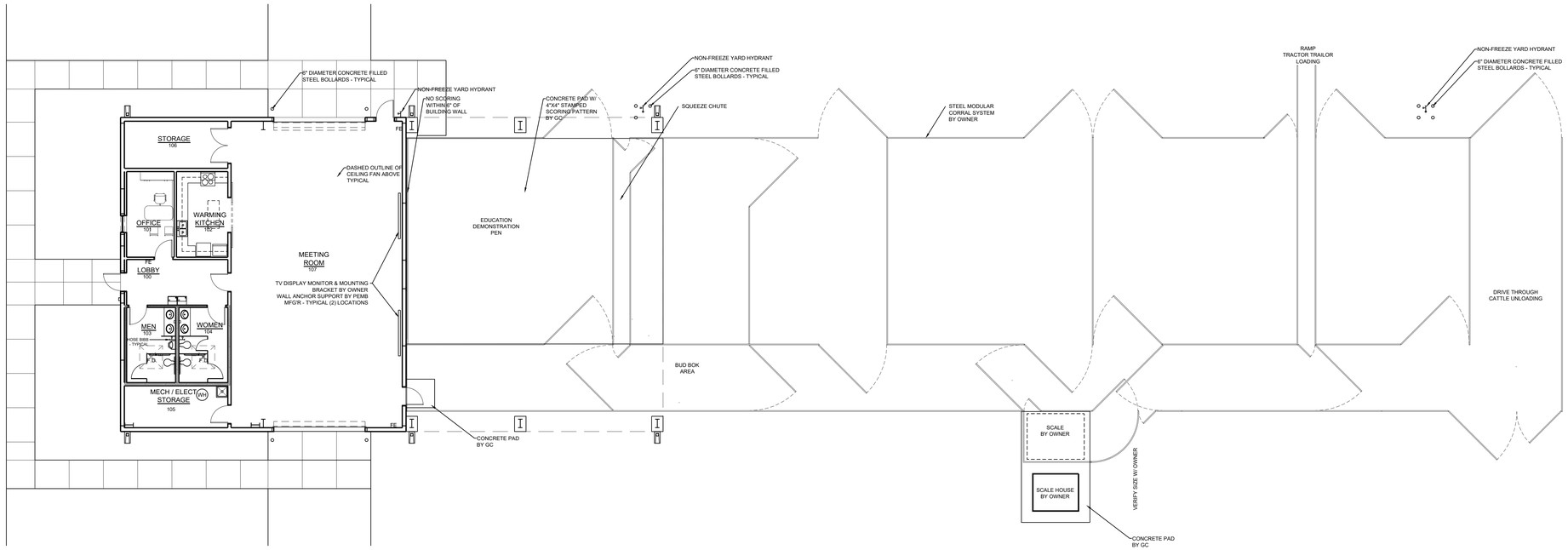
SHEET TITLE
FENCING DETAILS

AS1.1



1 A1.0 OVERALL FLOOR PLAN
SCALE: 3/32" = 1'-0"

PLAN NORTH

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PROJECT

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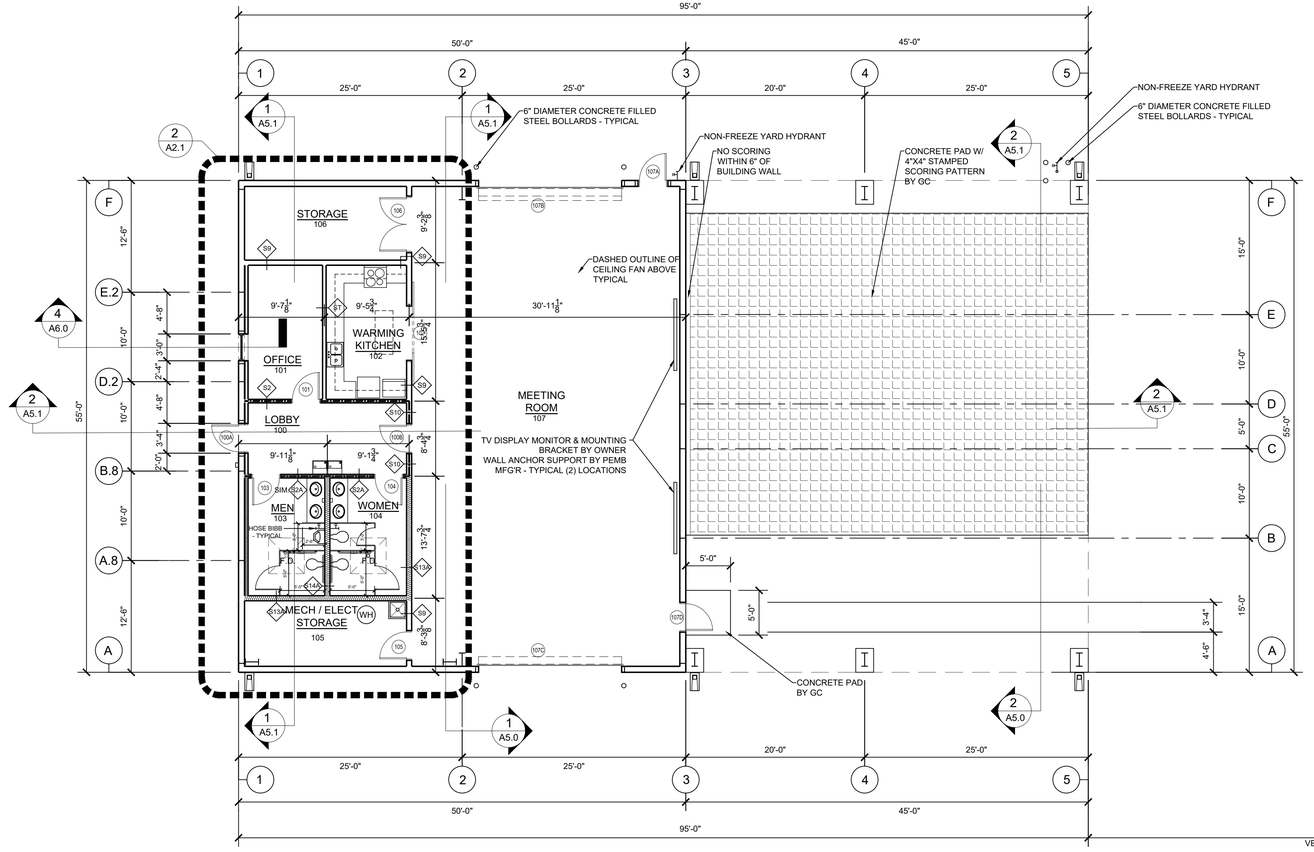
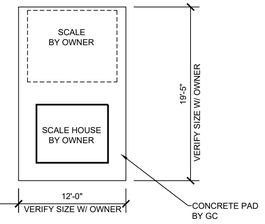
CAD DWG FILE:	
DRAWN BY:	AOD
CHECKED BY:	MAB

SHEET TITLE
OVERALL FLOOR PLAN

A1.0



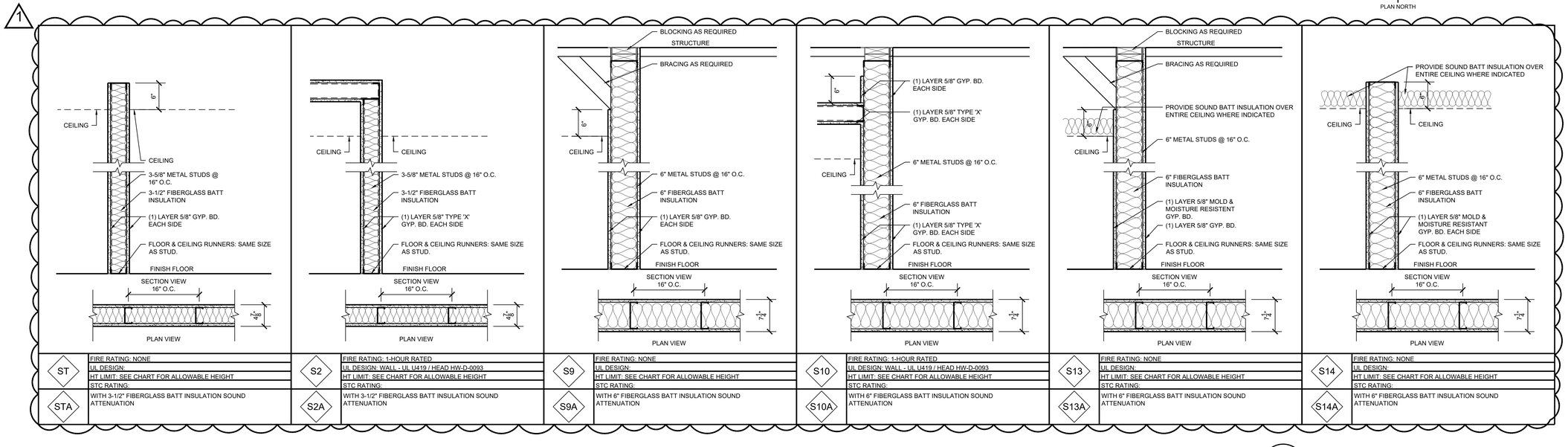


1 A1.1 FLOOR PLAN
SCALE: 1/8" = 1'-0"

PLAN NORTH

PLUMBING FIXTURE REQUIREMENTS

TOTAL OCCUPANCY	206 OCCUPANTS	EXISTING	NEW	PROVIDED
103 MALE				
1 WC PER 125	2 REQUIRED	0	2	2
1 LAV PER 200	1 REQUIRED	0	2	2
103 FEMALE				
1 WC PER 65	2 REQUIRED	0	2	2
1 LAV PER 200	1 REQUIRED	0	2	2
1 WATER FOUNTAIN PER 500	1 HIGH & 1 LOW REQUIRED	0	1/1	1/1
1 SERVICE SINK	1 REQUIRED	0	1	1



2 A1.1 WALL TYPES
NOT TO SCALE

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06/18/2025

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

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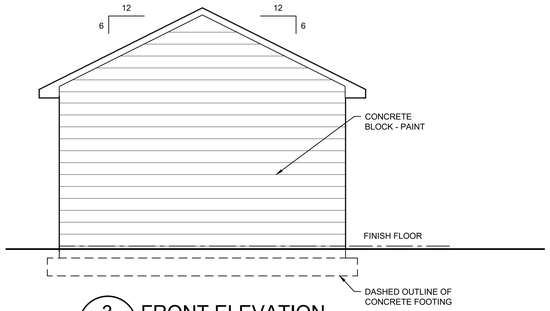
1	06-18-2025	PLAN REVIEW

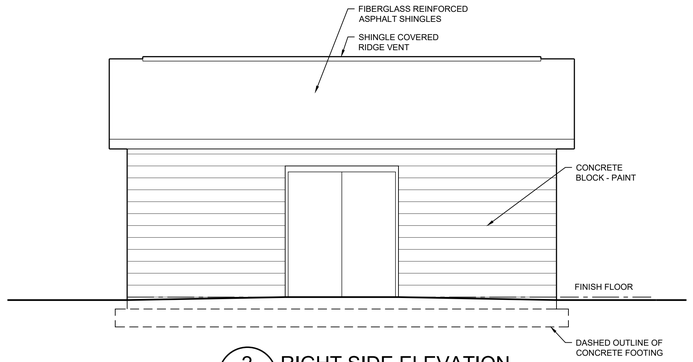
PROJECT NUMBER: 2024.008
CAD DWG FILE:
DRAWN BY: AOD
CHECKED BY: MAB

SHEET TITLE
FLOOR PLAN

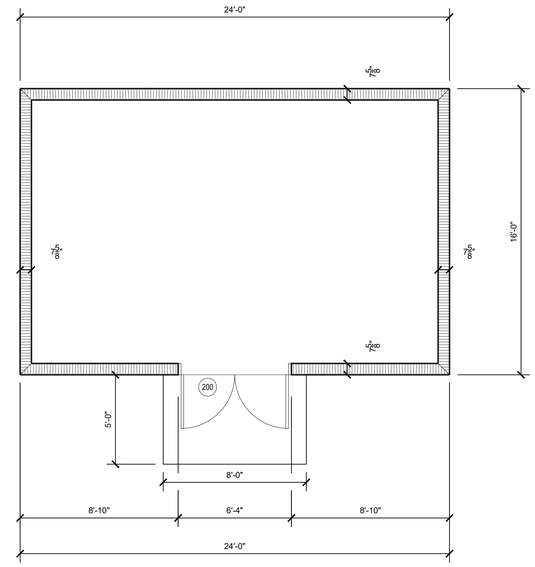
A1.1



3 A1.2 FRONT ELEVATION
SCALE: 1/4" = 1'-0"

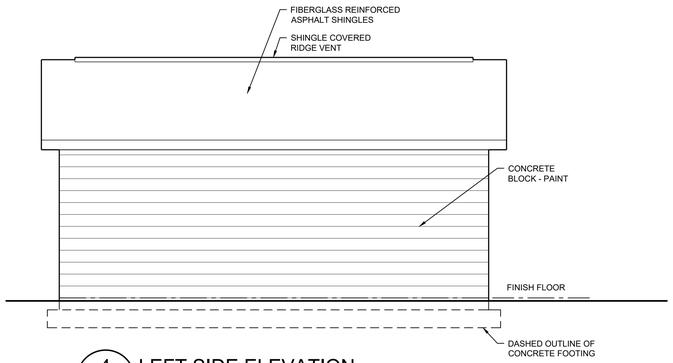


2 A1.2 RIGHT SIDE ELEVATION
SCALE: 1/4" = 1'-0"

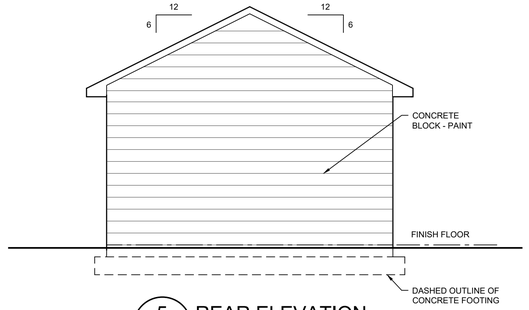


1 A1.2 FLOOR PLAN
SCALE: 1/4" = 1'-0"

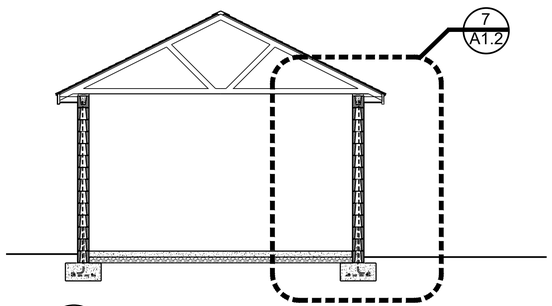
PLAN NORTH



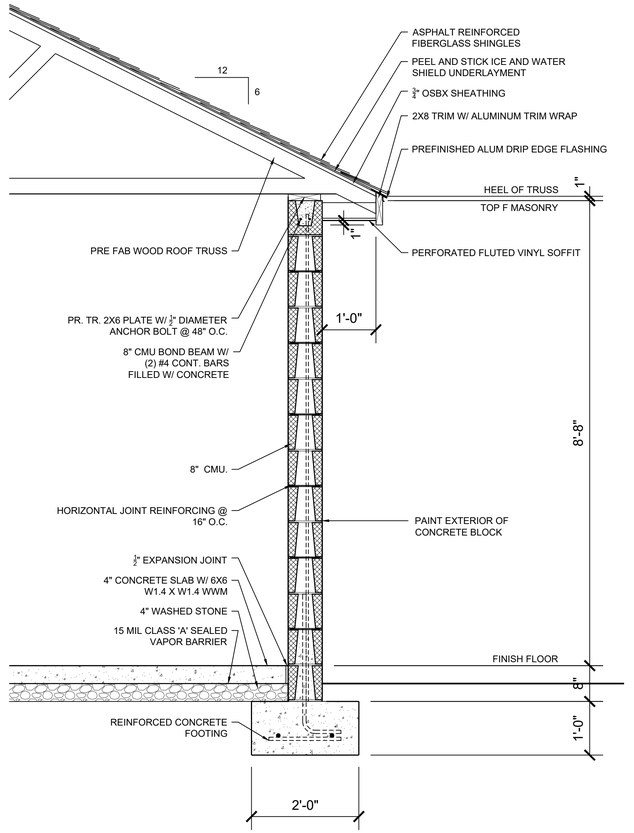
4 A1.2 LEFT SIDE ELEVATION
SCALE: 1/4" = 1'-0"



5 A1.2 REAR ELEVATION
SCALE: 1/4" = 1'-0"



6 A1.2 BUILDIONG CROSS SECTION
SCALE: 1/4" = 1'-0"



7 A1.2 TYPICAL WALL DETAIL
SCALE: 3/4" = 1'-0"

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CONSULTANT

SEAL

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REGISTERED ARCHITECT
NORTH CAROLINA
NEWTON, N.C.
06/18/2025

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-18-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

PROJECT NUMBER:	2024.008
CAD DWG FILE:	
DRAWN BY:	AOD
CHECKED BY:	MAB

SHEET TITLE

STORAGE BUILDING

A1.2

FINISH ROOM SCHEDULE

ABBREVIATIONS

ACT 1	2' X 2' ACOUSTICAL TILE	CLR CONC	COLORED CONCRETE	MRGB	MOIST. & MOLD RESIST. GYP. BD.	RUBB	RUBBER - 4" COVED BASE	WD	WOOD
ACT 2	2' X 2' ACOUSTICAL TILE	EP	EPOXY PAINT	MAT	WALK - OFF MAT	S	SEALED	MLP	METAL LINER PANEL
BB	BEAD BOARD	EPF	EPOXY FLOOR	MT	MARBLE TILE	ST	STAINED		
CPT #1	CARPET - ROLL	EXT	EXISTING	P	PAINT	STL STRUC	STEEL STRUCTURE		
CPT #2	CARPET - MODULAR TILE	EXP	EXPOSED	PL LAM	PLASTIC LAMINATE	TERR	TERRAZZO		
CT	CERAMIC TILE	EXT - BRK	EXISTING BRICK	PLST	PLASTER	TP	TEXTURED PAINT		
CT - S	CERAMIC TILE (SPECIAL SHAPE)	EXT - MAS	EXISTING MASONRY WALLS	POR T	PORCELAIN TILE	VWC	VINYL WALL COVERING		
CONC	CONCRETE	GB	GYPSUM BOARD	PLWD	PLYWOOD	VCT	VINYL COMPOSITION TILE		
CMU	CONCRETE MASONRY	LVP	LUXURY VINYL PLANK	RSV	RESILIENT SHEET VINYL	WC - (type)	WALL COVERING		

		FLOORS		WALLS				CEILING		NOTES	
NO.	SPACE	FLOOR	BASE	NORTH	SOUTH	EAST	WEST	MATERIAL	HEIGHT		NO.
100	LOBBY	CONC	RUBB	GB - P	GB - P	GB - P	GB - P	ACT-1	9'-0"		100
101	OFFICE	LVP	RUBB	GB - P	GB - P	GB - P	GB - P	ACT-1	9'-0"		101
102	WARMING KITCHEN	LVP	RUBB	MRGB - P	MRGB - P	MRGB - P	MRGB - P	ACT-1	9'-0"		102
103	MEN	CONC	RUBB	MRGB - P	MRGB - P	MRGB - P	MRGB - P	ACT-1	9'-0"		103
104	WOMEN	CONC	RUBB	MRGB - P	MRGB - P	MRGB - P	MRGB - P	ACT-1	9'-0"		104
105	MECH. ELECT. STORAGE	CONC	MLP/RUBB	MRGB - P	MLP	MLP	MRGB - P	EXP - P	VARIES	①②③	105
106	STORAGE	CONC	MLP/RUBB	GB - P	MLP	GB - P	MLP	EXP - P	VARIES	①②③	106
107	MEETING ROOM	CONC	MLP	GB - P	GB - P	GB - P	GB - P	EXP - P	VARIES	①②③	107
200	STORAGE BUILDING	CONC	--	CMU - EXP	CMU - EXP	CMU - EXP	CMU - EXP	EXP	8'-9 1/2"		200

GENERAL NOTES:

① PAINT EXPOSED PEMB STEEL, MISC. METAL WORK, CONDUIT, DUCTWORK, ETC.
② 8'-0" HIGH PEMB METAL BUILDING METAL LINER PANELS W/ METAL TRIM AROUND EXPOSED HORIZONTAL EDGE OF PANEL
② INSTALL RUBBER BASE ALONG GYP. BD. WALLS. NO BASE ON WALLS W/ METAL LINER PANELS.

DOOR, FRAME AND HARDWARE SCHEDULE

DOOR LEGEND:

TIG	TEMPERED INSULATED GLASS
TG	TEMPERED GLASS
PR	PAIR
HM	HOLLOW METAL - INSULATED
SCWD	SOLID CORE WOOD DOOR
DE	DOUBLE EGRESS
CG	CERAMIC FIRE RATED GLASS
EX	EXISTING
CO	CASED OPENING
HCWD	HOLLOW CORE WOOD DOOR
HCMD	HOLLOW CORE MOLDED DOOR

HARDWARE LEGEND:

ET	ENTRANCE
OFF	OFFICE
ST	STORAGE
PV	PRIVACY
CR	CLASSROOM
PA	PASSAGE
ED	RIM TYPE EXIT DEVICE
WD	WOOD DOOR

DOOR NOTES:

① SEE GENERAL NOTE 1
② --

FRAME NOTES:

① --
② --

HARDWARE NOTES:

① SEE GENERAL NOTE 1
② KICK PLATE BOTH SIDES

Lock type: M = MORTISE, C = CYLINDRICAL, ∗ = CYLINDER BY HARDWARE MFG
Stop: BC = BY CLOSER, W = WALL, OH = OVERHEAD

OPENING		DOORS					FRAMES					HARDWARE																				
NUMBER	LABEL	TYPE	MATERIAL	SIZE	GLASS	NOTES	TYPE	MATERIAL	JAMB	HEAD	NOTES	LOCK TYPE	RIM EXIT DEVICE / EXTERIOR LEVER LOCKSET	EXIT DEVICE - RIM & EXTERIOR PULL	EXIT DEVICE RIM - EXIT ONLY	LOCK FUNCTION	PUSH / PULL	ELECTRONIC DOOR LOCK EXTERIOR KEY PAD & INTERIOR CONTROL	CLOSE W/ HOLD OPEN	CLOSER	KICKPLATE	FLUSHBOLTS - MANUAL	RECESSED DUST PROOF STRIKE	STOP	ASTRAGAL	WEATHER SEAL - ALL SIDES	THRESHOLD	RAIN DRIP EDGE	SMOKE & DRAFT CONTROL SEAL IN ACCORDANCE W/ NCBC 716.5.3.1	ACCESSIBILITY SIGNAGE	NOTES	NUMBER
100A	--	D1	HM	3'-0" X 7'-0"	--	--	F2	HM	--	--	--	M	●							●	●			BC		●	●	●				100A
100B	20 MIN	D4	SCWD	3'-0" X 7'-0"	CG	--	F1	HM	--	--	--	C	●							●	●			BC					●		②	100B
101	20 MIN	D2	SCWD	3'-0" X 7'-0"	--	--	F1	HM	--	--	--	C				OFF				●	●			W					●			101
102	--	D7	WD	(2) 3'-6" X 7'-6"	--	①	--	--	--	--	--	--												--							①	102
103	20 MIN	D2	SCWD	3'-0" X 7'-0"	--	--	F1	HM	--	--	--	--				PV				●	●			W					●	●	②	103
104	20 MIN	D2	SCWD	3'-0" X 7'-0"	--	--	F1	HM	--	--	--	--				PV				●	●			W					●	●	②	104
105	--	D2	SCWD	3'-0" X 7'-0"	--	--	F1	HM	--	--	--	C				ST								W								105
106	--	D3	SCWD	(2) 3'-0" X 7'-0"	--	--	F3	HM	--	--	--	C				ST						●	●	W								106
107A	--	D1	HM	3'-0" X 7'-0"	--	--	F2	HM	--	--	--	M	●							●	●			BC		●	●	●				107A
107B	--	D5	--	16'-0" W X 14'-0" H	--	--	--	--	--	--	--	--												--		●						107B
107C	--	D5	--	16'-0" W X 14'-0" H	--	--	--	--	--	--	--	--												--		●						107C
107D	--	D1	HM	3'-0" X 7'-0"	--	--	F2	HM	--	--	--	M				ET				●	●			BC		●	●	●				107D
200	--	D6	HM	(2) 3'-0" X 7'-0"	--	--	F4	HM	--	--	--	M				ET						●	●	W	●	●	●	●				200

GENERAL NOTES:

① BARNSTYLE SLIDE DOOR W/ HEAVY DUTY HARDWARE
② KICKPLATE BOTH SIDES
③
④

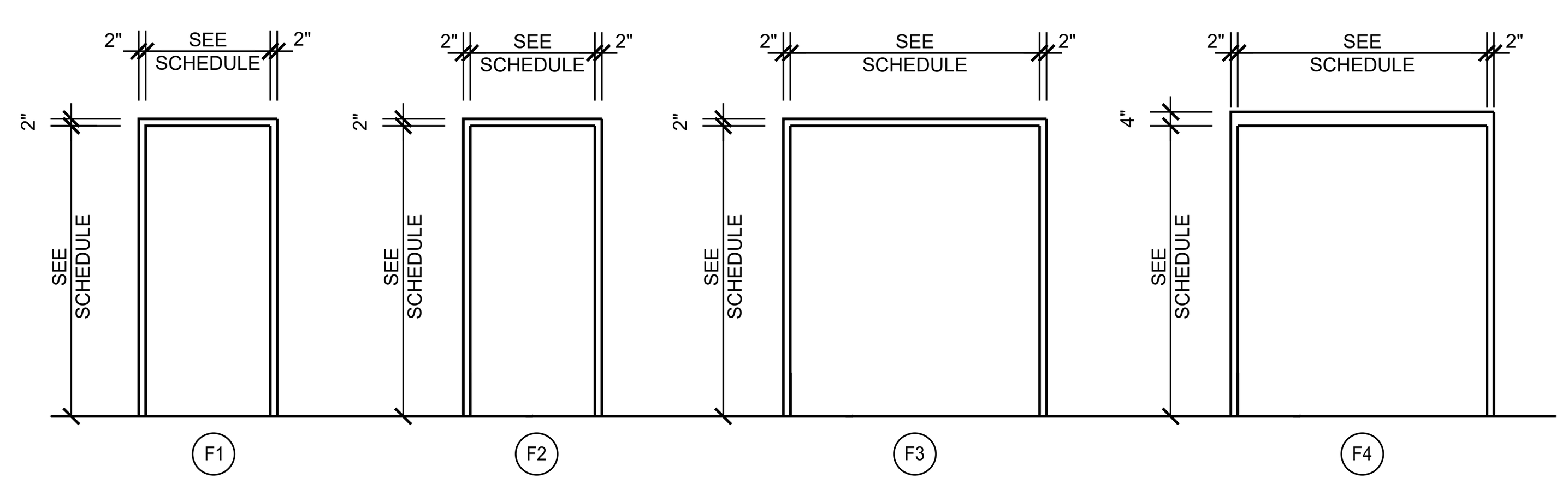
GLAZING SCHEDULE

EXTERIOR GLASS SHALL BE MANUFACTURED TO MEET THE REQUIREMENTS OF THE 2018 NC ENERGY CODE.

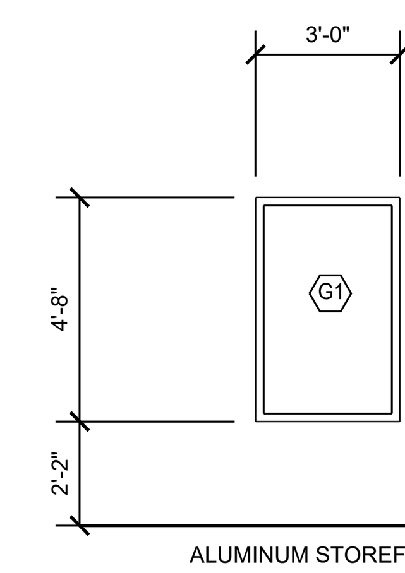
G1 1" TINTED COATED INSULATING GLASS
1" THICK PANEL w/ 1/4" SOLARBRONZE TINTED FLOAT GLASS TO EXTERIOR, 1/4" CLEAR FLOAT GLASS w/ SOLARBAN 70 LOW-E COATING (#3 SURFACE) TO INTERIOR & 1/2" PARTIAL VACUUM BETWEEN SPACER & SEALANT DEVICE.

G2 1" TINTED COATED TEMPERED INSULATING GLASS
1" THICK PANEL w/ 3/16" SOLARBRONZE TINTED TEMPERED GLASS TO EXTERIOR, 3/16" CLEAR TEMPERED GLASS w/ SOLARBAN 70 LOW-E COATING (#3 SURFACE) TO INTERIOR & 5/8" PARTIAL VACUUM BETWEEN SPACER & SEALANT DEVICE.

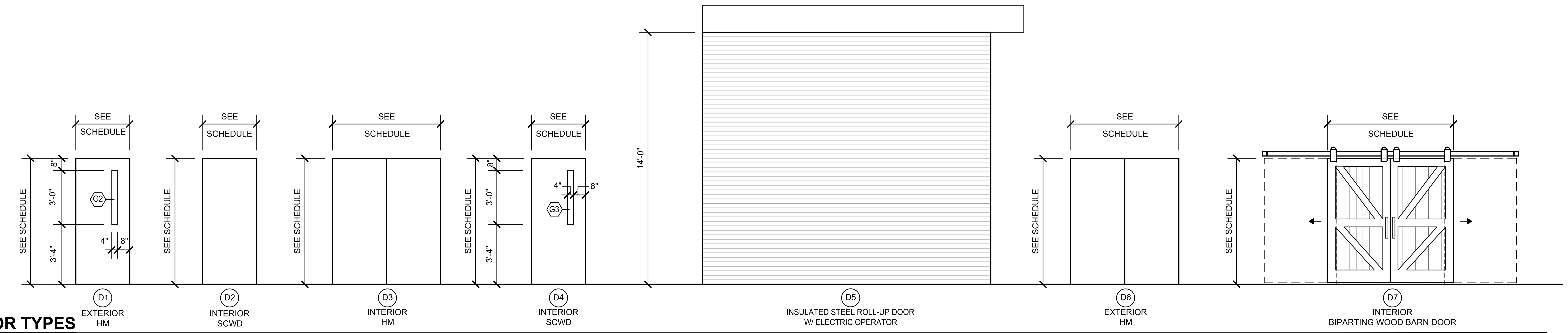
G3 FIRE RATED GLASS
1/4" CLEAR CERAMIC FIRE RATED GLASS.



FRAME TYPES
NOT TO SCALE



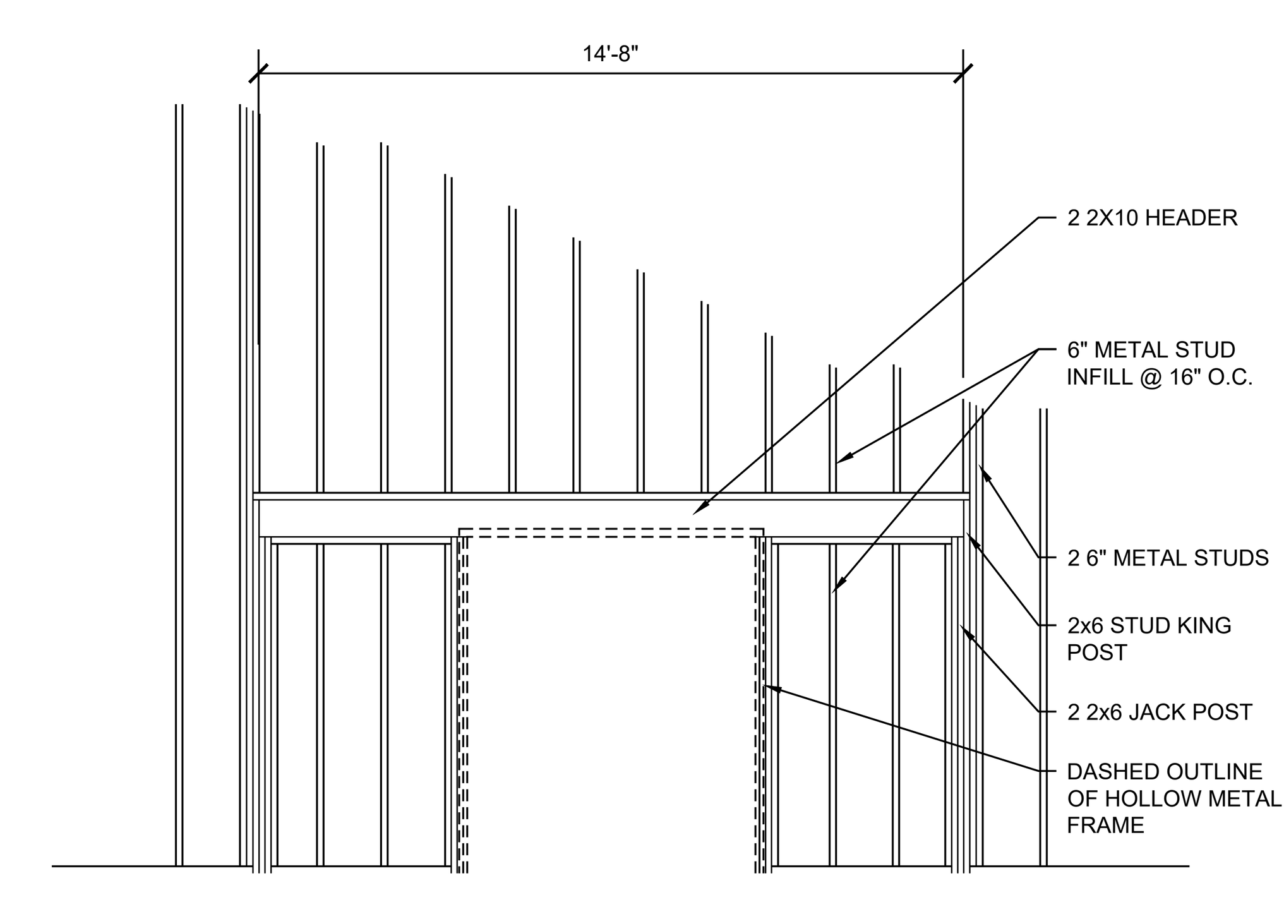
WINDOW TYPES



DOOR TYPES
NOT TO SCALE

APPLIANCE SCHEDULE

SPACE	DESCRIPTION	PROVIDED BY INSTALLED BY	CONNECTIONS BY	MANUFACTURER	MODEL	REMARKS
WARMING KITCHEN 102	REFRIGERATOR	OWNER GC	EC	BY OWNER	--	--
WARMING KITCHEN 102	ELECTRIC RANGE	OWNER GC	EC	BY OWNER	--	--
WARMING KITCHEN 102	MICROWAVE / HOOD	OWNER GC	MC, EC	BY OWNER	--	--
WARMING KITCHEN 102	ICE MAKER	OWNER GC	PC, EC	HOSHIZAKI	KM-301B_J	SELF CONTAINED CUBER W/ BUILT-IN STORAGE BIN



1 / A2.0 FRAMING FOR KITCHEN DOOR OPENING
SCALE: 1/4" = 1'-0"

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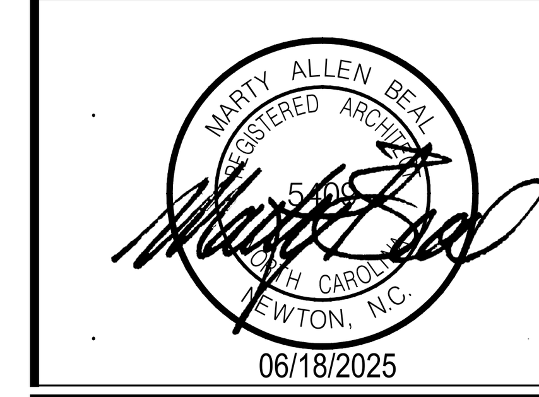

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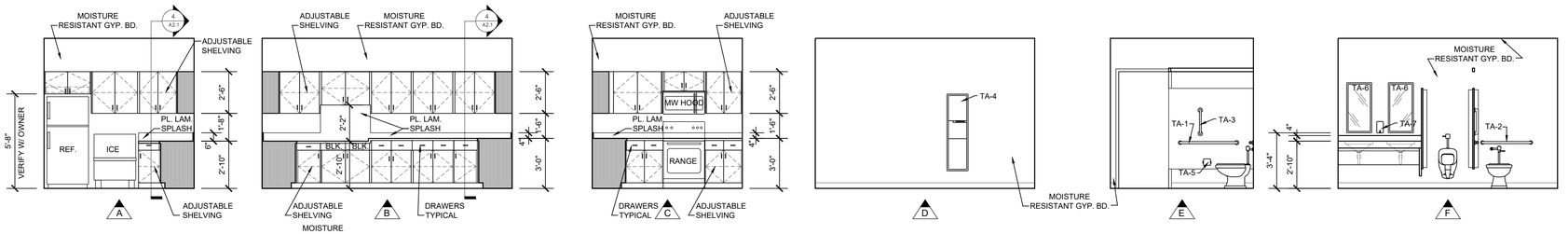

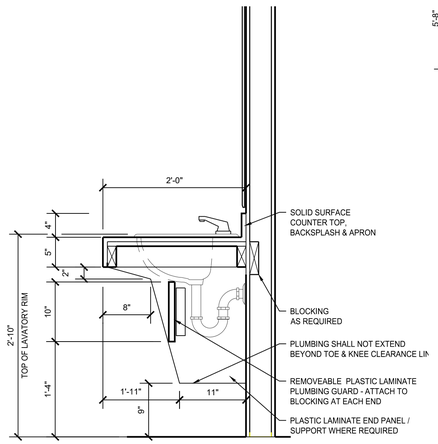

3 A2.1 VANITY DETAIL
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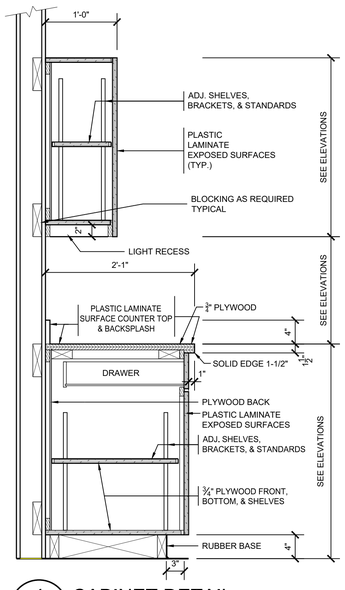

4 A2.1 CABINET DETAIL
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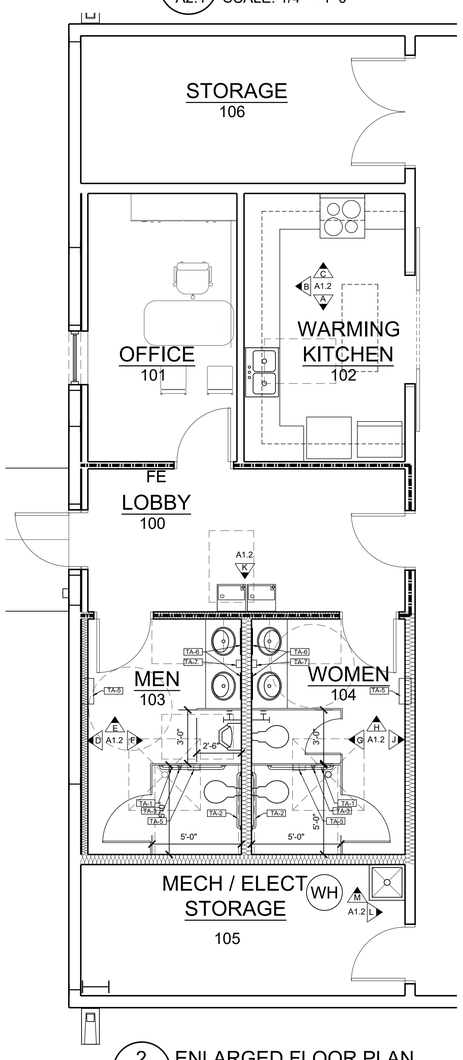
1 A2.1 INTERIOR ELEVATIONS
SCALE: 1/4" = 1'-0"



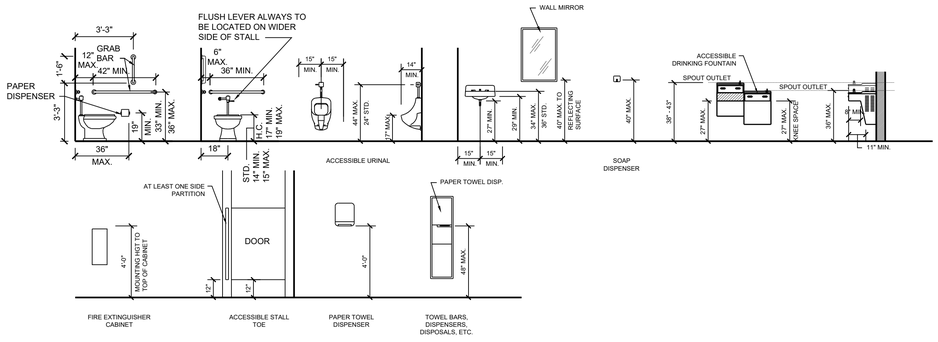
2 A2.1 ENLARGED FLOOR PLAN
SCALE: 1/4" = 1'-0"

TOILET ACCESSORY LIST

MARK	BOBRICK #	DESCRIPTION
TA-1	B-6806x42	HORIZONTAL GRAB BAR
TA-2	B-6806x36	HORIZONTAL GRAB BAR
TA-3	B-6206 x 18	VERTICAL GRAB BAR
TA-4	B-3944	RECESSED PAPER TOWEL DISPENSER / WASTE RECEPTACLE
TA-5	B-7685	TOILET PAPER DISPENSER
TA-6	B-290 1836	18x36 MIRROR
TA-7	B-2111	SURFACE MOUNTED SOAP DISPENSER

NOTES: BRAND NAMES OF ACCESSORIES ARE TO SET STANDARD ONLY.

1. SEE PLANS FOR ADDITIONAL ACCESSORIES.
2. SEE ELEVATIONS FOR TYPICAL MOUNTING HEIGHTS.
3. INSTALL BLOCKING AS REQUIRED FOR MOUNTING TOILET PARTITIONS, ACCESSORIES & CABINET INSTALLATION.



ACCESSIBLITY CODE REQUIREMENTS

MOUNTING HEIGHTS FOR NC AND ADA COMPLIANCE NOT TO SCALE
AGES 13 - ADULTS

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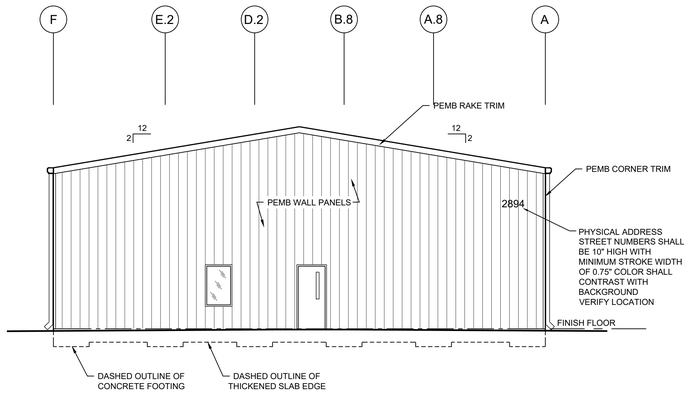

1 A3.0 FRONT ELEVATION
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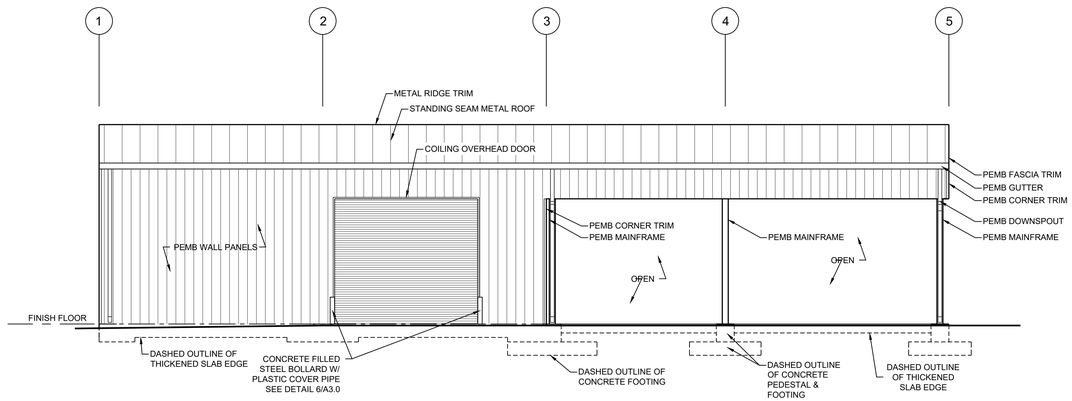

2 A3.0 RIGHT SIDE ELEVATION
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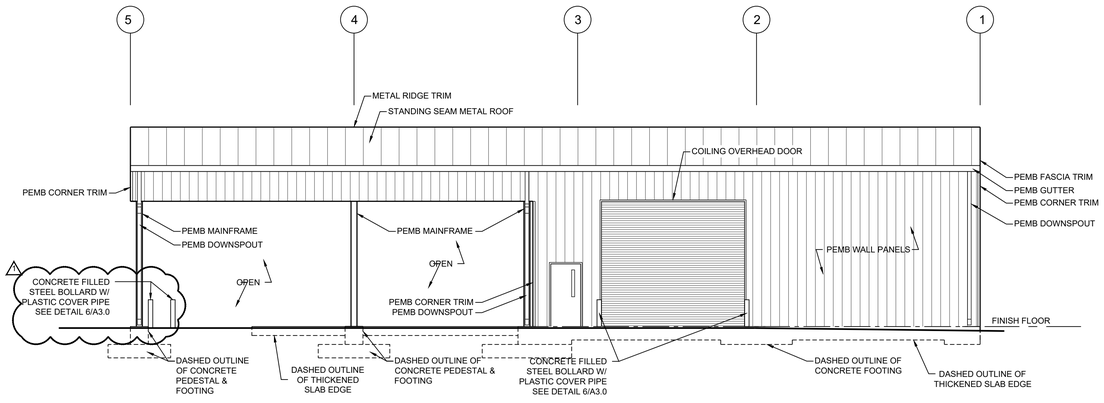

3 A3.0 LEFT SIDE ELEVATION
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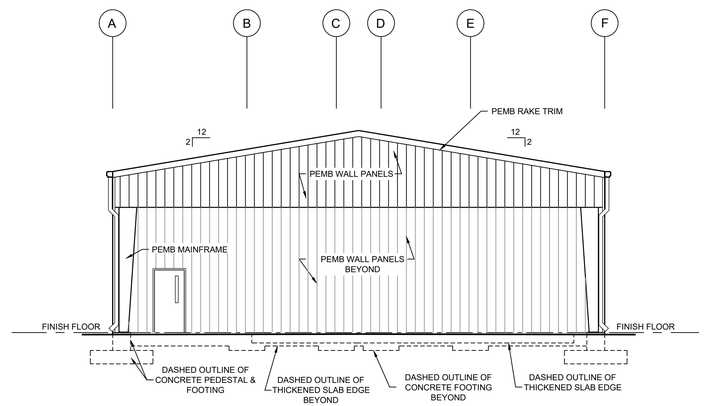

4 A3.0 REAR ELEVATION
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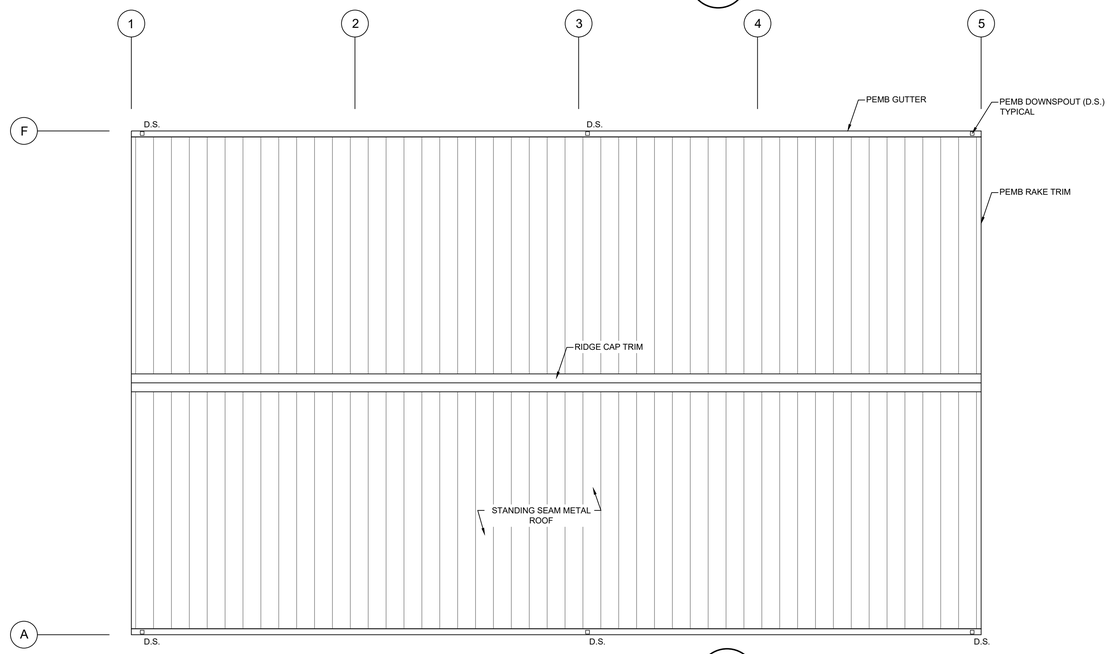
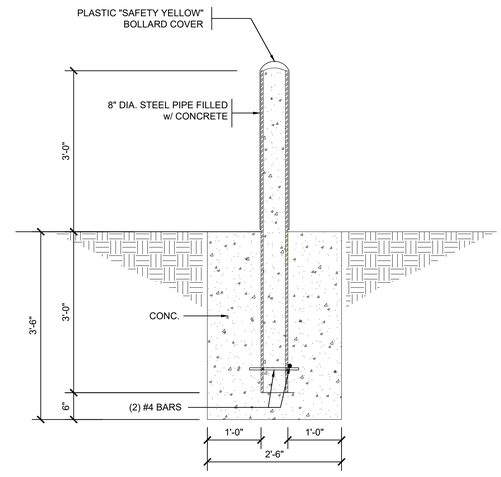


5 A3.0 ROOF PLAN
SCALE: 1/8" = 1'-0"



6 A3.0 BOLLARD DETAIL
SCALE: 3/4" = 1'-0"

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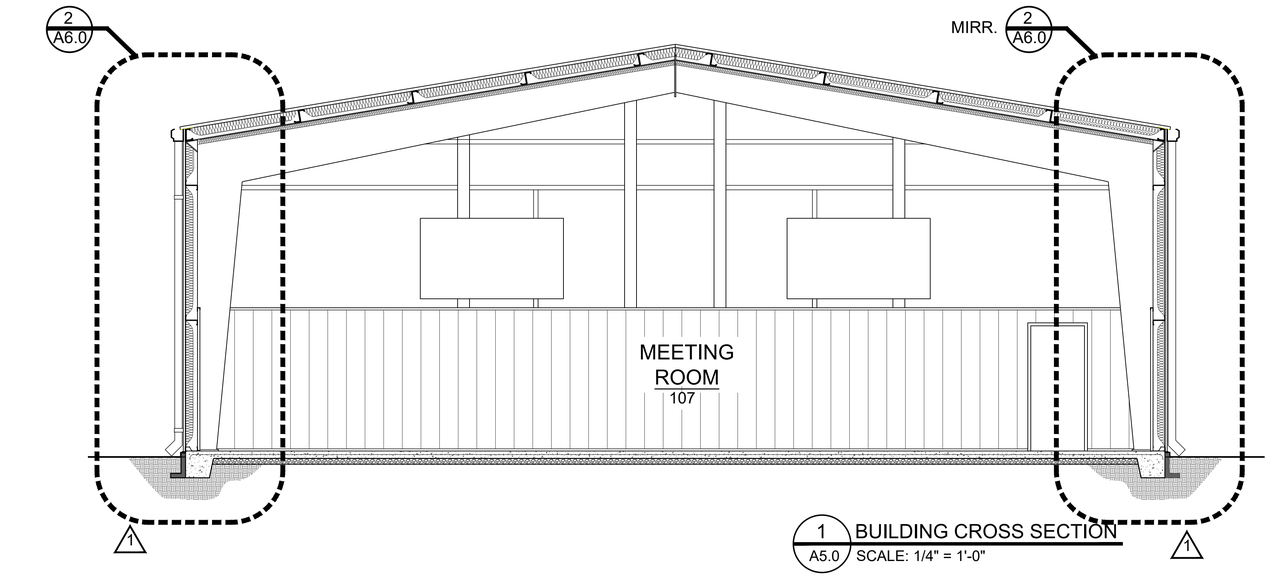
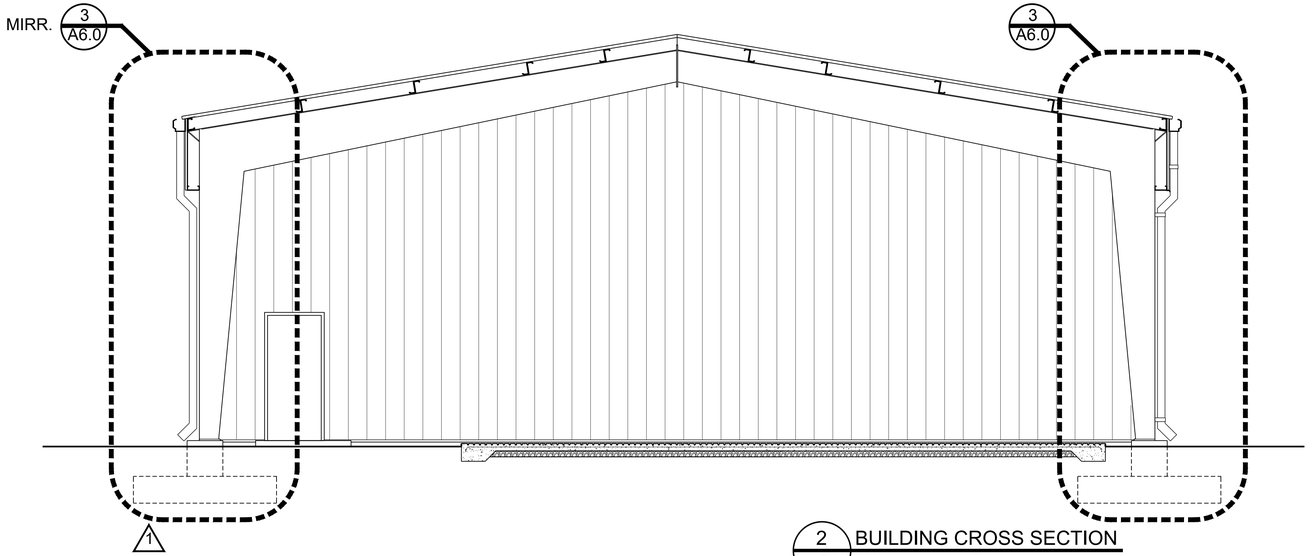
ELEVATIONS
ROOF PLAN

A3.0



1 BUILDING CROSS SECTION
A5.0 SCALE: 1/4" = 1'-0"



2 BUILDING CROSS SECTION
A5.0 SCALE: 1/4" = 1'-0"

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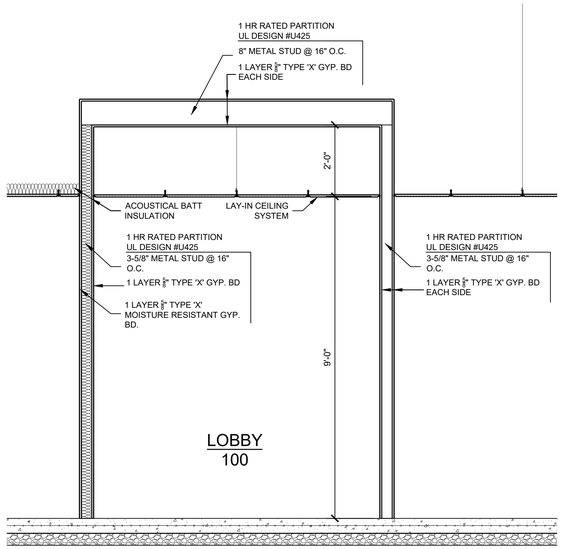
SHEET TITLE
BUILDING CROSS SECTION

A5.0



3 A5.1 RATED CORRIDOR DETAIL
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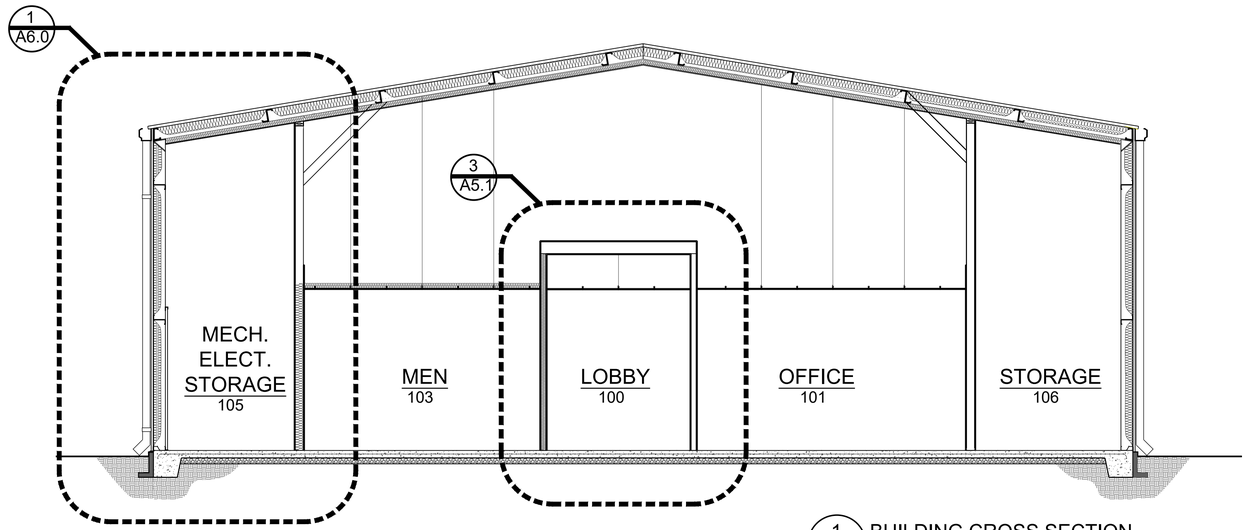

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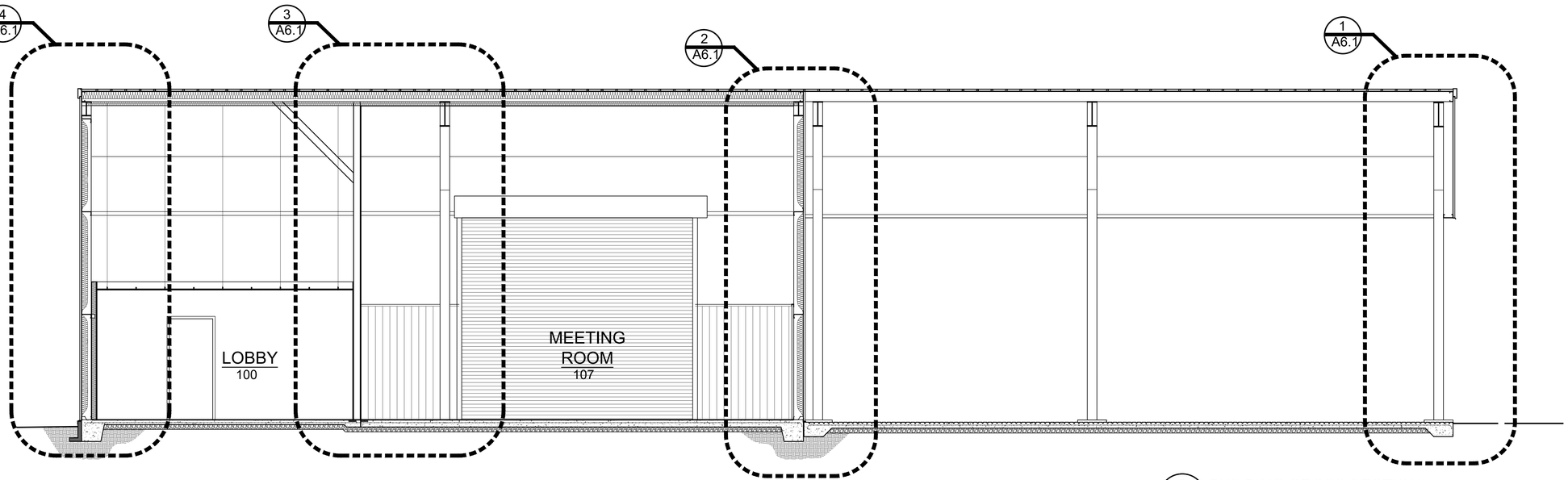

2 A5.1 BUILDING CROSS SECTION
SCALE: 1/4" = 1'-0"

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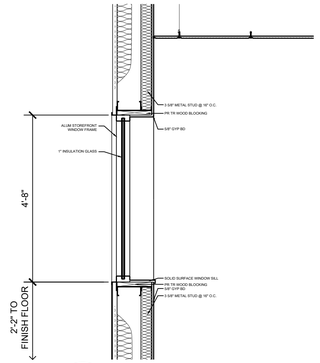
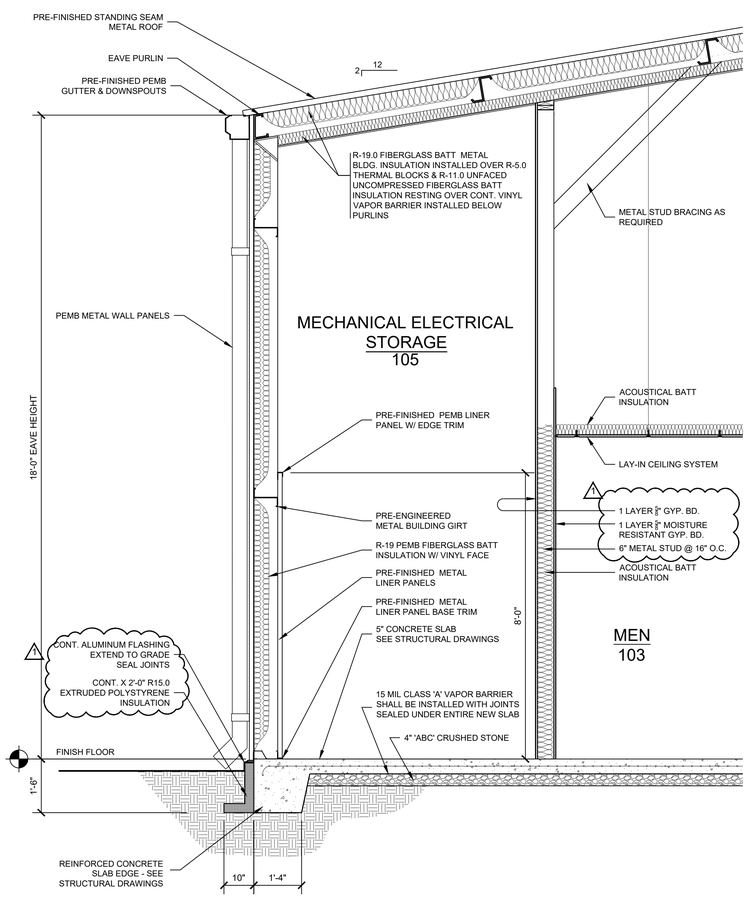
SHEET TITLE
BUILDING CROSS SECTION

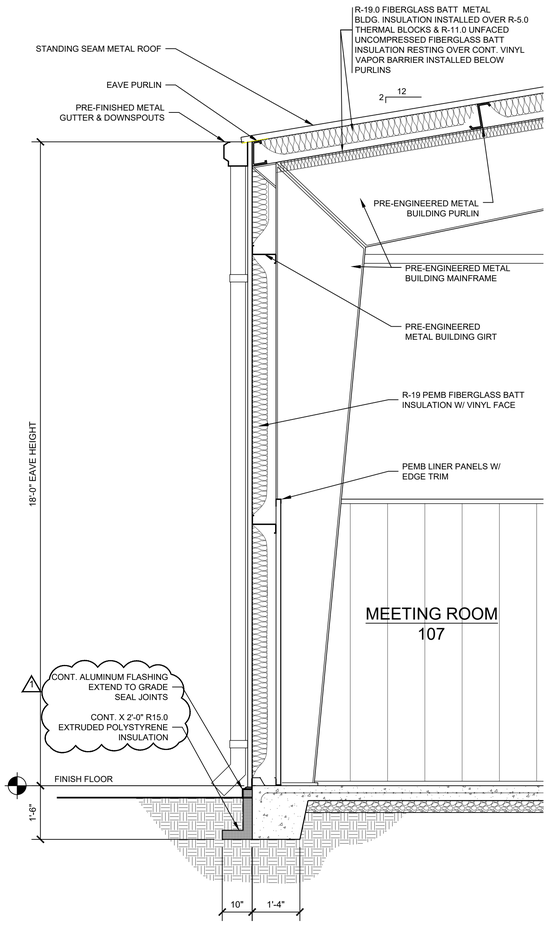
A5.1



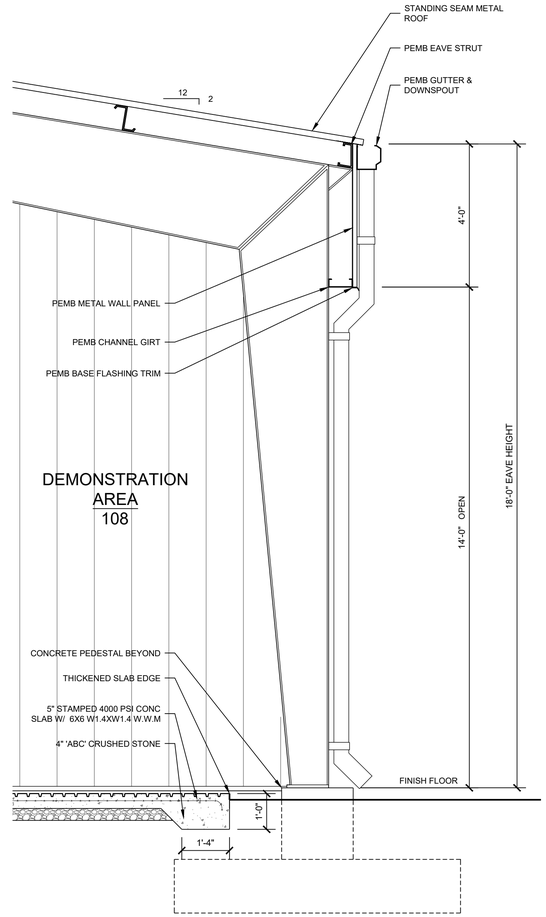
4 A6.0 WINDOW DETAIL
SCALE: 1/2" = 1'-0"



1 A6.0 WALL DETAIL
SCALE: 1/2" = 1'-0"



2 A6.0 WALL DETAIL
SCALE: 1/2" = 1'-0"



3 A6.0 WALL DETAIL
SCALE: 1/2" = 1'-0"

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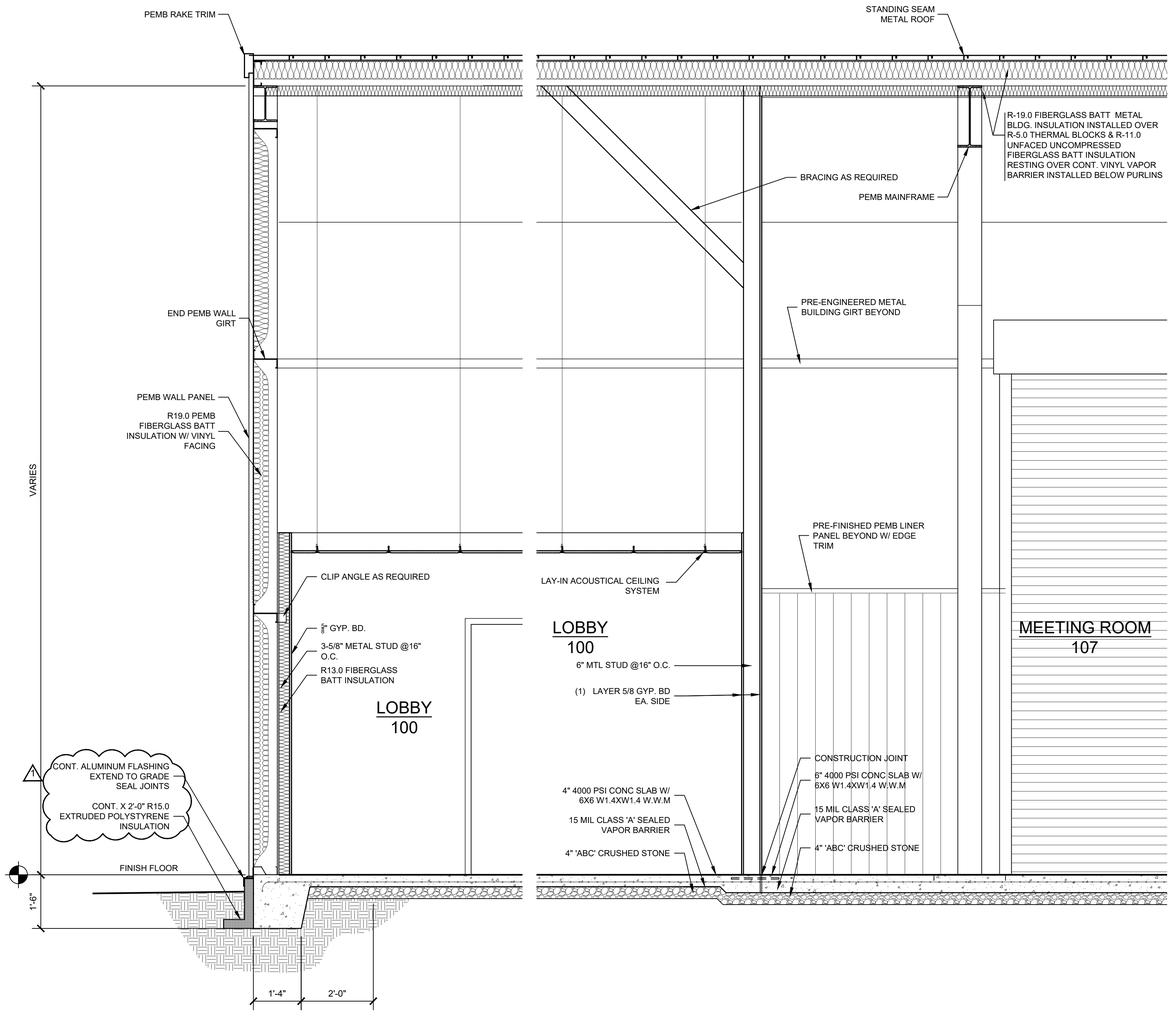
WALL DETAIL

A6.0



4 WALL DETAIL
A6.1 SCALE: 1/2" = 1'-0"

3 WALL DETAIL
A6.1 SCALE: 1/2" = 1'-0"

2 WALL DETAIL
A6.1 SCALE: 1/2" = 1'-0"

1 WALL DETAIL
A6.1 SCALE: 1/2" = 1'-0"

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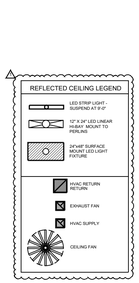
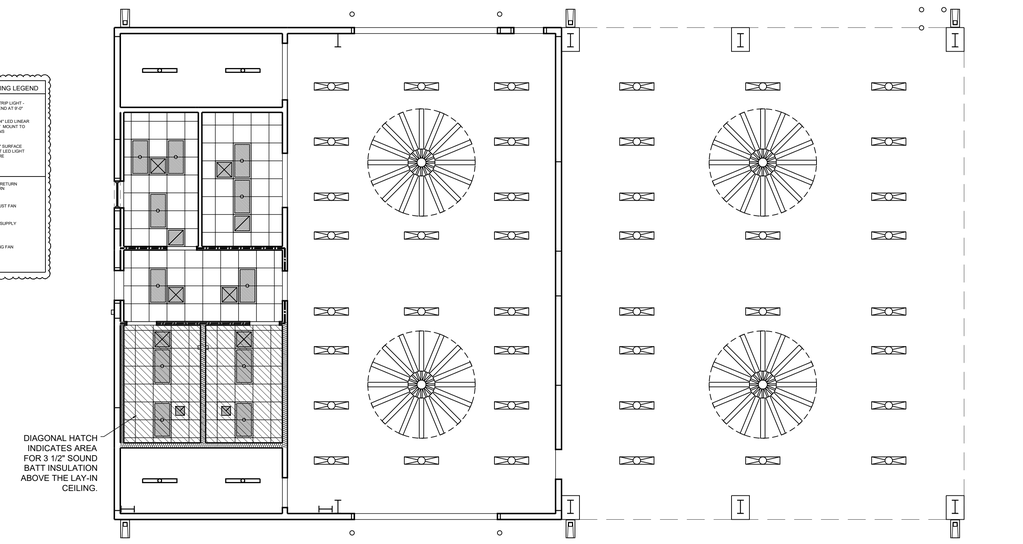
SHEET TITLE
WALL DETAIL

A6.1





1 / A9.0 REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

PLAN NORTH

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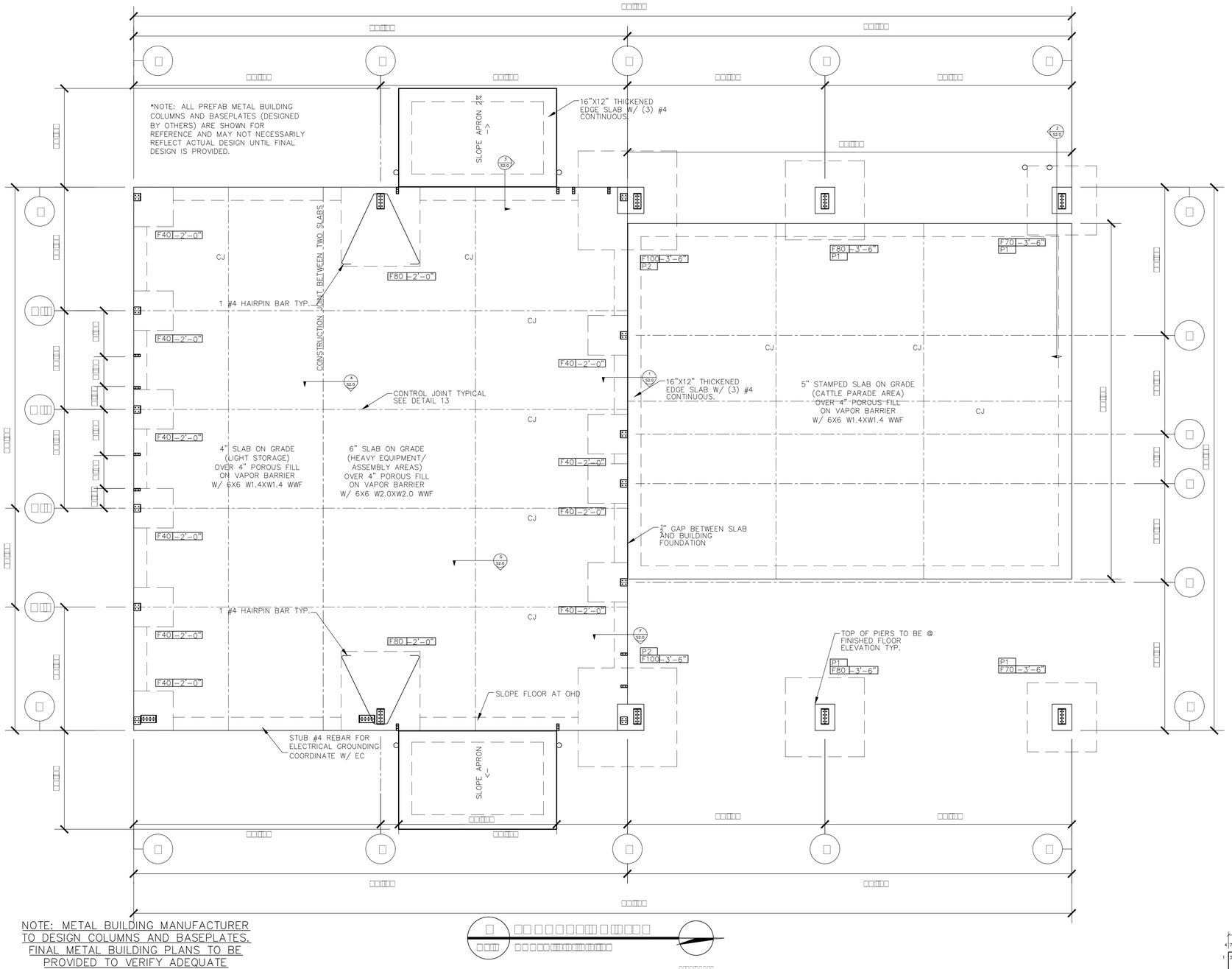
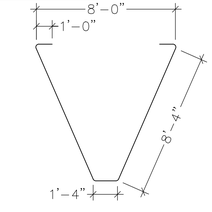
REFLECTED CEILING

A9.0



NOTE: METAL BUILDING MANUFACTURER TO DESIGN COLUMNS AND BASEPLATES. FINAL METAL BUILDING PLANS TO BE PROVIDED TO VERIFY ADEQUATE FOUNDATION AND PIER DESIGNS



HAIRPIN BAR BEND DIAGRAM

LEGEND:

XX
Fxx T/FTG.

XX = PIER MARK PER SCHEDULE
Fxx = FOOTING MARK PER SCHEDULE
T/FTG. = BOTTOM OF FOOTING FROM DATUM
T/SL = TOP OF SLAB (DATUM)

FOOTING SCHEDULE

Fp = 2000 psf

FOOTING ID	FOOTING L x W x D	FOOTING REINFORCEMENT	REMARKS
F40	4'-0"x4'-0"x1'-6"	5- #5 E.W.	SEE DETAIL FOOTING & BASE PLATE DETAILS
F56	5'-6"x5'-6"x1'-6"	7- #5 E.W.	SEE DETAIL FOOTING & BASE PLATE DETAILS
F70	7'-0"x7'-0"x1'-6"	9- #5 E.W.	SEE DETAIL FOOTING & BASE PLATE DETAILS
F80	8'-0"x8'-0"x1'-6"	10- #5 E.W.	SEE DETAIL FOOTING & BASE PLATE DETAILS
F100	10'-0"x10'-0"x2'-0"	17- #5 E.W.	SEE DETAIL FOOTING & BASE PLATE DETAILS

GENERAL NOTES

DESIGN LOADS:

CLASSIFICATION OF BUILDING: CATEGORY / USE GROUP _I_
ROOF LIVE LOAD: 20 PSF
FLOOR: 100 PSF OFFICE, 250 PSF WAREHOUSE
WIND: 115 MPH ULTIMATE (89 MPH ASD)
IMPORTANCE FACTOR: WIND 1.0; SEISMIC 1.0; SNOW 1.0
EXPOSURE: B
GROUND SNOW: 15 PSF
LATERAL DESIGN CONTROL:
EARTHQUAKE: ____
WIND: _X_

CALCULATED WIND BASE SHEARS (FOR MWFRS):
Vx = 14.2 KIPS
Vy = 9.3 KIPS

SEISMIC DESIGN PARAMETERS:

SPECTRAL RESPONSE ACCELERATION: Ss = 0.26
S1 = 0.086 SEISMIC USE GROUP: I
SITE CLASSIFICATION: D
SEISMIC DESIGN CATEGORY: C

BASIC STRUCTURAL SYSTEM:

_X_ MOMENT FRAME
RESPONSE MODIFICATION FACTOR: R=3.0
SEISMIC RESPONSE COEFFICIENT: Cs=0.10
BUILDING HEIGHT LIMIT, FEET: H=SEE SHEET B1.0
SEISMIC BASE SHEAR: V=2.8 KIPS

FOUNDATIONS

1. PRESUMED SOIL BEARING CAPACITY IS 2000 PSF ON FIRM VIRGIN SOIL OR COMPACTED FILL. IT IS THE RESPONSIBILITY OF THE OWNER / CONTRACTOR TO VERIFY AND OR OBTAIN SOIL BEARING CAPACITY FROM A GEOTECHNICAL ENGINEER PRIOR TO PLACING FOOTING CONCRETE.

2. FILL MATERIAL SHALL BE FREE OF ROOTS, WOOD OR OTHER ORGANIC MATERIAL. IT IS THE RESPONSIBILITY OF THE OWNER / CONTRACTOR TO VERIFY AND OR OBTAIN TESTING IF FILL MATERIALS USED FOR FILL UNDER FOOTINGS AND WITHIN BUILDING LIMITS BY AN APPROVED TESTING AGENCY.

3. FILL SHALL BE PLACED IN 6 INCH LIFTS AND COMPACTED TO 95 PERCENT OF THE OPTIMUM DENSITY AS DEFINED BY ASTM D-698.

4. PROOF ROLLING SHALL BE CONDUCTED FOR BUILDING SUBGRADE USING A FULLY LOADED DUMP TRUCK OR OTHER EQUIPMENT. PROOF ROLLING SHALL BE DONE AFTER A SUITABLE PERIOD OF DRY WEATHER TO AVOID DEGRADING AN OTHERWISE ACCEPTABLE SUBGRADE.

5. UTILITY LINES SHALL NOT BE PLACED THROUGH FOUNDATIONS WITHOUT STRUCTURAL ENGINEERS APPROVAL.

CONCRETE

1. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-08).

2. ALL CONCRETE SHALL HAVE ASTM C-33 AGGREGATE WITH MAXIMUM UNIT WEIGHT OF 150 PCF. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI AT 28 DAYS, MINIMUM.

3. ALL EXTERIOR PAVING SHALL BE NORMAL WEIGHT CONCRETE WITH COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, MINIMUM. PROVIDED 4.5 TO 7.5 PERCENT AIR ENTRAINMENT FOR ALL CONCRETE EXPOSED TO THE WEATHER.

REINFORCING STEEL

1. REINFORCING STEEL SHALL BE NEW BILLET STEEL, DEFORMED BARS CONFORMING TO ASTM A-615, GRADE 60.

2. CONCRETE COVERAGE OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE UNLESS NOTED OTHERWISE.
A. FOOTINGS AND GRADE BEAMS: 3 INCHES
B. SLABS ON GRADE: 1 1/2 INCHES

3. PROVIDE LAP SPLICE IN ALL BARS AS NOTED HEREIN
#4 1'-8" LAP
#5 2'-6" LAP
BOTTOM BARS SHALL BE SPLICED AT CENTER LINE OF COLUMNS.
TOP BARS SHALL BE SPLICED AT MIDSPAN BETWEEN COLUMNS.

NOTES

1. FINISHED FLOOR ELEV. IS AT 0'-0" UNLESS OTHERWISE NOTED.

2. SLAB ON GRADE IS AS SHOWN ON THE PLAN ON 4 INCHES OF POROUS GRAVEL AND 15 MIL. VAPOR BARRIER. OWNER / CONTRACTOR MAY INSTALL THICKER SLAB AS DESIRED.

3. CONTROL JOINTS IN SLABS ON GRADE SHALL BE SAW CUT. CONSTRUCTION JOINTS SHALL BE FORMED WITH KEYED METAL EDGE FORM MATERIAL OR EQUIVALENT, SEE TYPICAL DETAILS.

4. CONCRETE STRENGTH FOR SLABS AND FOOTINGS SHALL BE 4000 PSI MINIMUM AT 28 DAYS.

5. ANCHOR BOLTS SIZE ARE SHOWN ON PREFAB METAL BUILDING PLANS. ANCHOR BOLT LENGTH AND EMBEDMENT IS SHOWN ON THE PREFAB METAL BUILDING PLANS. ALL ANCHOR BOLTS SHALL MEET OR EXCEED ASTM F1554 GRADE 36. NO J-BOLT OR L-BOLT ANCHOR BOLTS ARE PERMITTED.

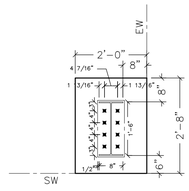
6. THIS DRAWING SHOWS MAIN BUILDING COLUMNS AS PLACEHOLDERS, SEE ANCHOR BOLT PLAN FROM PREFAB METAL BUILDING PLANS FOR ADDITIONAL DETAILS AT DOOR FRAMES.

7. ANY VARIATIONS FROM THESE PLANS SHALL BE SUBMITTED TO SWARTZ DESIGN & ENGINEERING, PLLC, IN WRITING AND APPROVED BY THE OWNER BEFORE IMPLEMENTING IN THE FIELD. FAILURE TO REPORT VARIATIONS SHALL RELIEVE SWARTZ DESIGN & ENGINEERING, PLLC, OF ANY AND ALL LIABILITY THEREFROM.

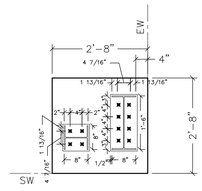
8. THESE FOUNDATION DRAWINGS WERE PREPARED BY SWARTZ DESIGN & ENGINEERING, PLLC WITH THE ASSUMPTION THAT PREENGINEERED METAL BUILDING PLANS WILL BE PROVIDED FOR REVIEW TO ENSURE THE FOUNDATION SYSTEM IS SUITABLE FOR THE WORK. SWARTZ DESIGN & ENGINEERING, PLLC, ASSUMES RESPONSIBILITY FOR THE FOUNDATION DESIGN ONLY AND IS NOT THE ENGINEER OF RECORD FOR THE ACTUAL STEEL BUILDING SYSTEM.

NOTE: METAL BUILDING MANUFACTURER TO DESIGN COLUMNS AND BASEPLATES. FINAL METAL BUILDING PLANS TO BE PROVIDED TO VERIFY ADEQUATE FOUNDATION AND PIER DESIGNS

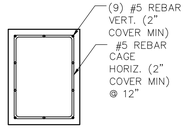
LEGEND:
PIER (COLUMN LINE)(COLUMN ROW)



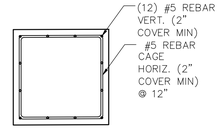
TYPICAL PIER (P1) LAYOUT



TYPICAL PIER (P2) LAYOUT



TYPICAL PIER (P1) REINFORCMENT LAYOUT



TYPICAL PIER (P2) REINFORCMENT LAYOUT

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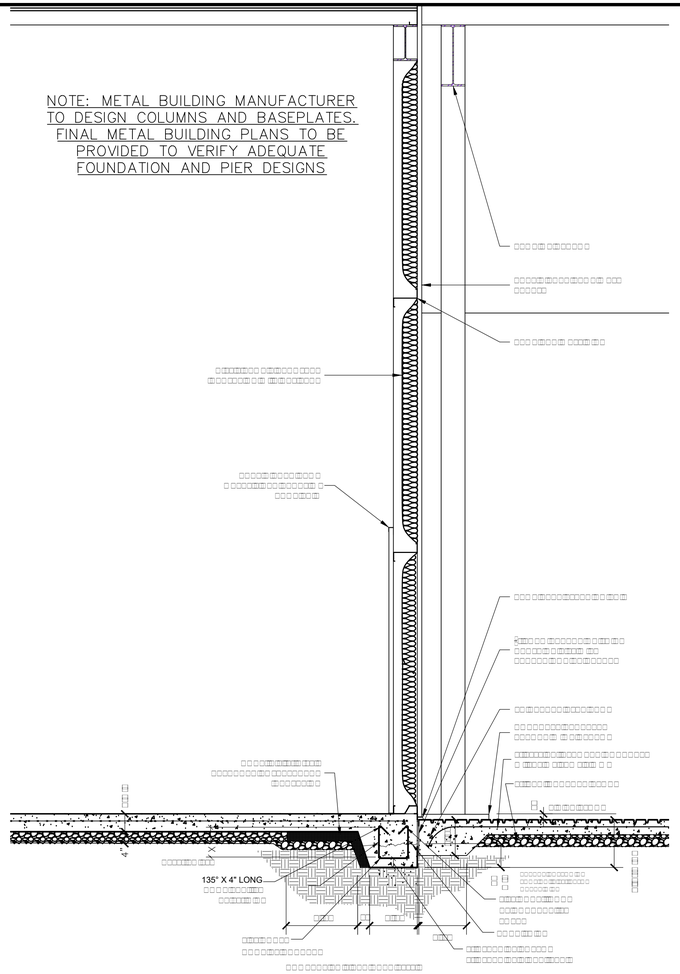
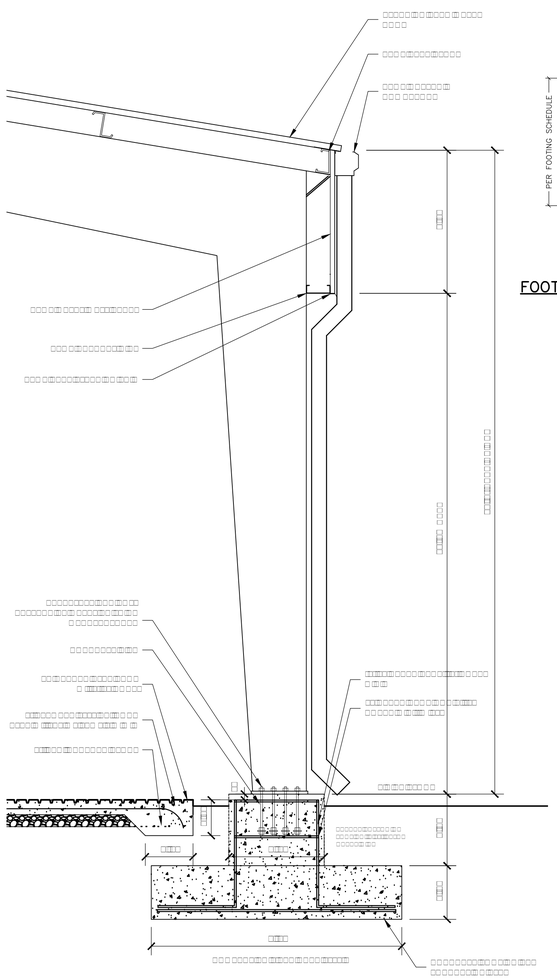
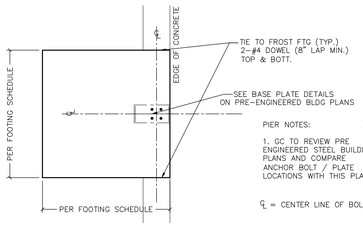
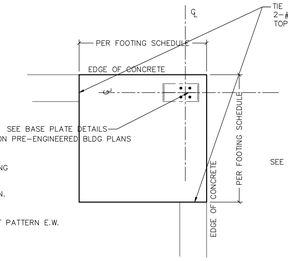


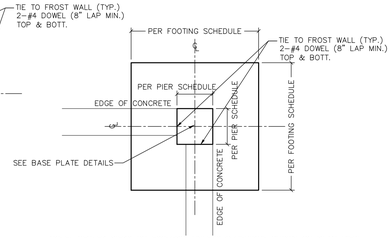




FOOTING PLAN DETAIL SIDE A S2
3/8" = 1'-0"

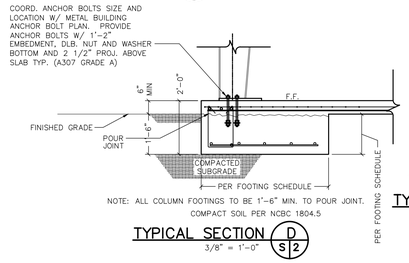


FOOTING PLAN DETAIL CORNER B S2
3/8" = 1'-0"



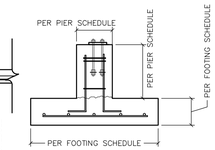
NOTE: CENTER PIERS ON FOOTERS, UNLESS OTHERWISE SHOWN ON PLAN VIEW.

FOOTING PLAN DETAIL CORNER C S2
3/8" = 1'-0"



NOTE: ALL COLUMN FOOTINGS TO BE 1'-6" MIN. TO POUR JOINT.
COMPACT SOIL PER NCBC 1804.5

TYPICAL SECTION D S2
3/8" = 1'-0"

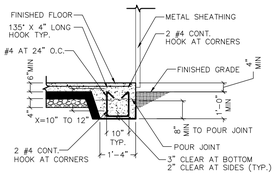


TYPICAL SECTION E S2
3/8" = 1'-0"

NCBC 1804.5 COMPACTED FILL MATERIAL. WHERE SHALLOW FOUNDATIONS WILL BEAR ON COMPACTED FILL MATERIAL, THE COMPACTED FILL SHALL COMPLY WITH THE PROVISIONS OF AN APPROVED GEOTECHNICAL REPORT, AS SET FORTH IN SECTION 1803.

EXCEPTION: COMPACTED FILL MATERIAL 12 INCHES (305 MM) IN DEPTH OR LESS NEED NOT COMPLY WITH AN APPROVED REPORT, PROVIDED THE IN-PLACE DRY DENSITY IS NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT DETERMINED IN ACCORDANCE WITH ASTM D 1557. THE COMPACTION SHALL BE VERIFIED BY SPECIAL INSPECTION IN ACCORDANCE WITH SECTION 1704.7.

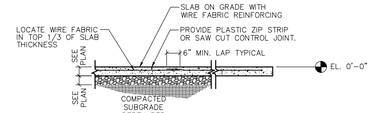
SLAB DEPTH	JOINT DOWELS
5 TO 6"	#6 X 14" @ 12" O.C.
7 TO 8"	#8 X 16" @ 12" O.C.
9 TO 11"	#10 X 18" @ 12" O.C.



COMPACT SOIL PER NCBC 1804.5

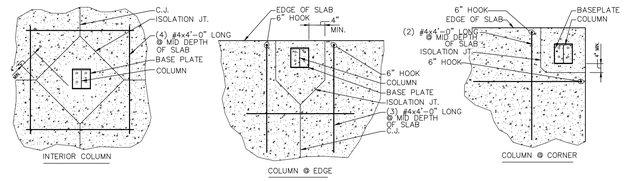
PERIMETER WALL SLAB EDGE F S2
3/8" = 1'-0"

SLAB DEPTH	CONTROL JOINT SPACING	
	10'-20'	20'-30'
	ALTERNATE SLAB REINFORCEMENT	
6"	#4 @ 11" E.W.	#4 @ 8" E.W.
7"	#4 @ 9" E.W.	#5 @ 11" E.W.
8"	#4 @ 8" E.W.	#5 @ 9" E.W.
10"	#5 @ 10" E.W.	#6 @ 11" E.W.
12"	#5 @ 8" E.W.	#6 @ 9" E.W.

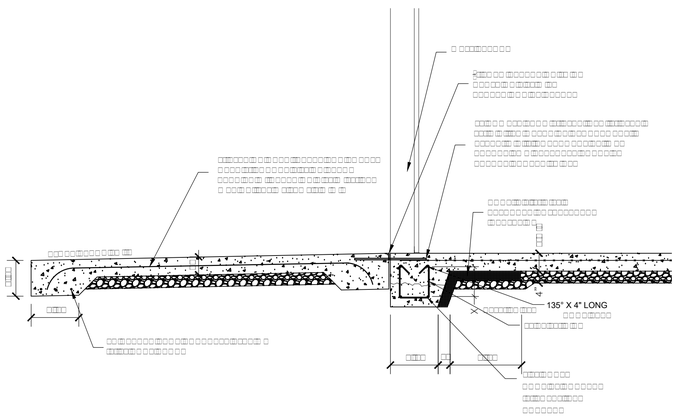


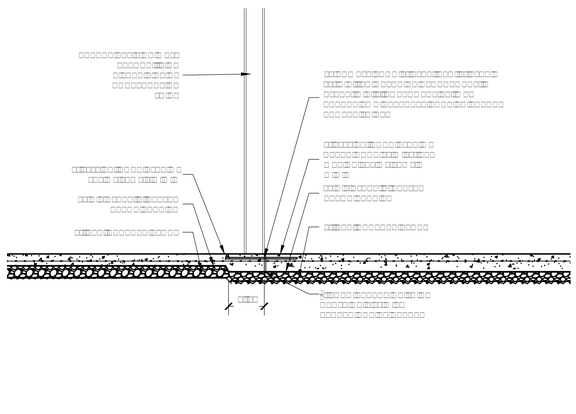
COMPACT SOIL PER NCBC 1804.5

JOINT CONTROL G S2
3/8" = 1'-0"



TYPICAL COLUMN ISOLATION JOINTS
NO SCALE





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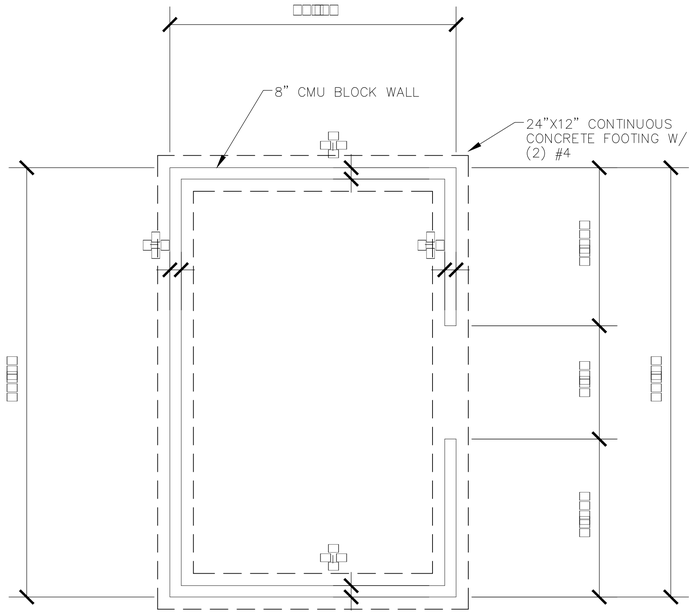

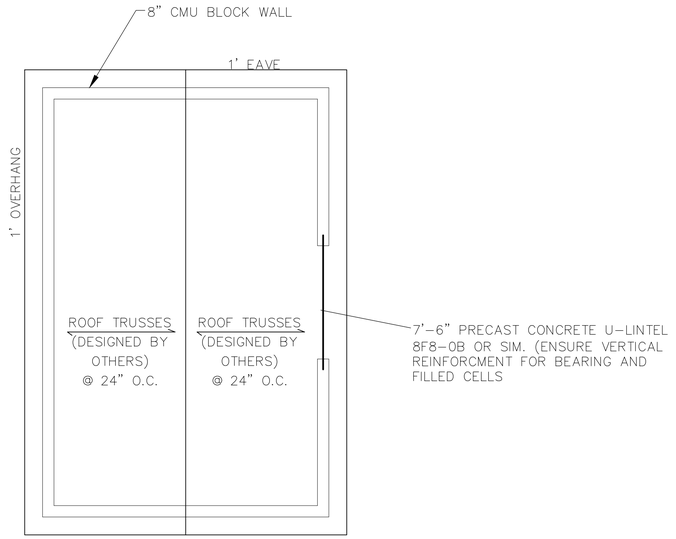

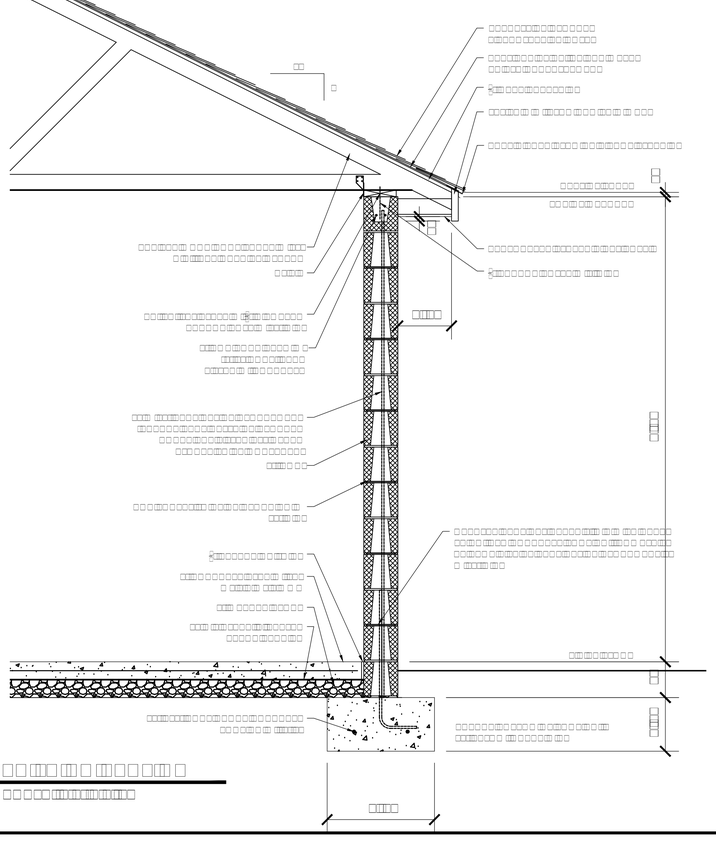

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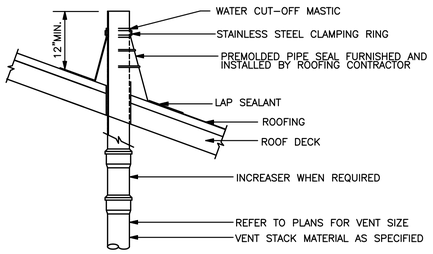
MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-13-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS
REV	06-18-2025	REVISION

PROJECT NUMBER:	2024.008
CAD DWG FILE:	
DRAWN BY:	AOD
CHECKED BY:	MAB

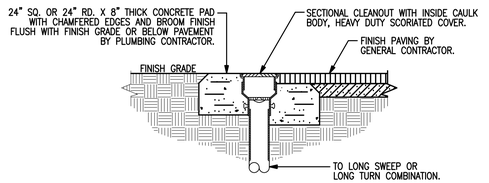
SHEET TITLE



PLUMBING VENT PENETRATION SHALL COMPLY WITH SECTION 904.1 OF THE NCPC. PROVIDE SUPPORTS PER NCPC.

A VENT THRU THE ROOF

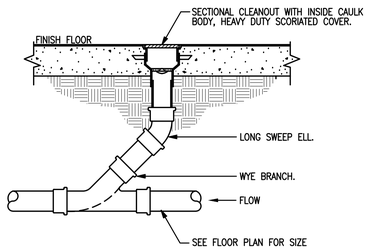
SCALE: NONE



NOTE:
OMIT CONCRETE PAD IF C.O. IS SET IN CONC. SURFACE PROVIDED BY GENERAL CONTRACTOR.

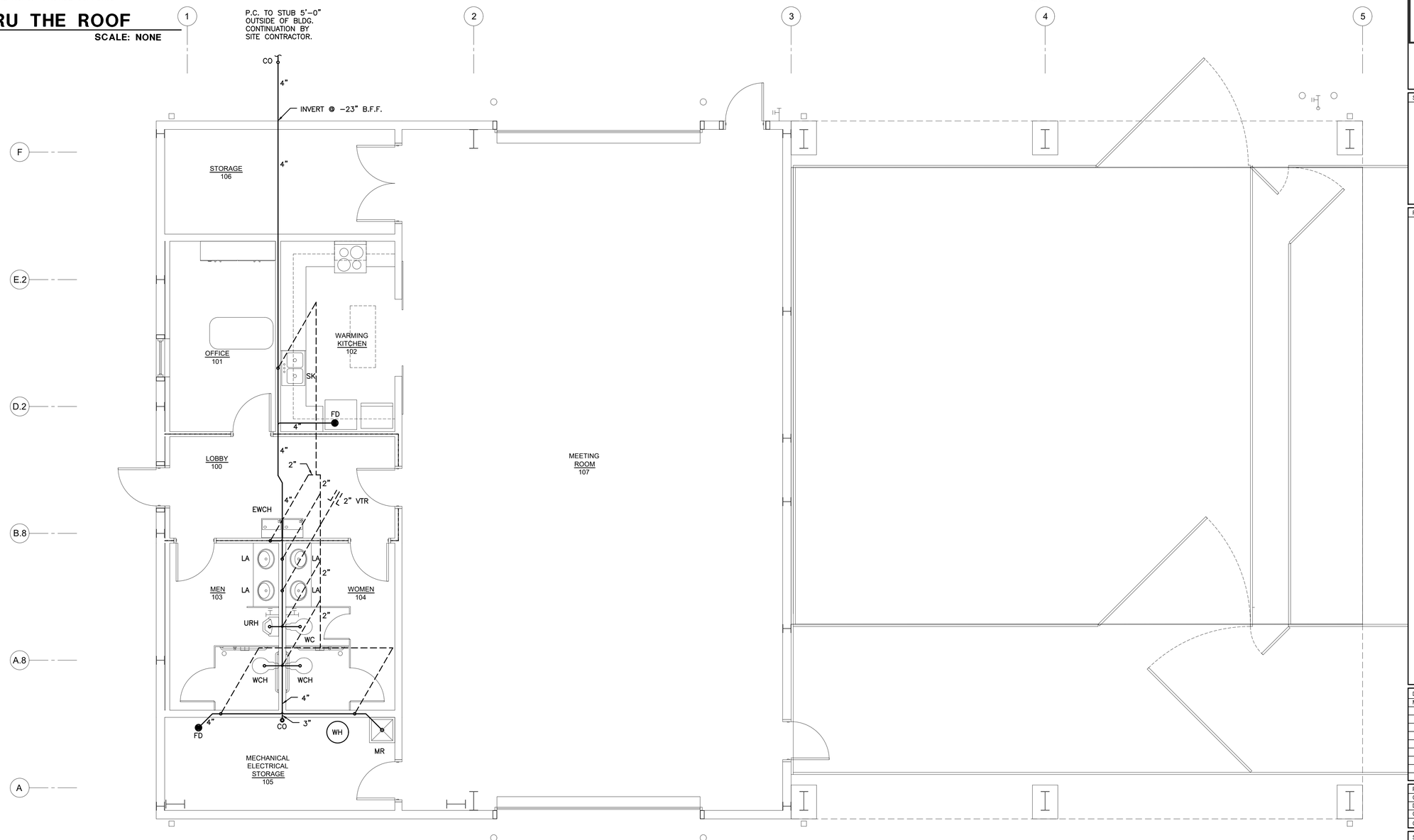
B CLEANOUT AT FINISH GRADE

SCALE: NONE



C CLEANOUT AT FINISH FLOOR

SCALE: NONE



FLOOR PLAN - WASTE

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

CBSA architects
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Hickory, North Carolina 28603
Tel: 828.322.3403
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CONSULTANTS

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SEAL

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

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CAD DWG FILE:	
DRAWN BY:	DGR
CHECKED BY:	DRB

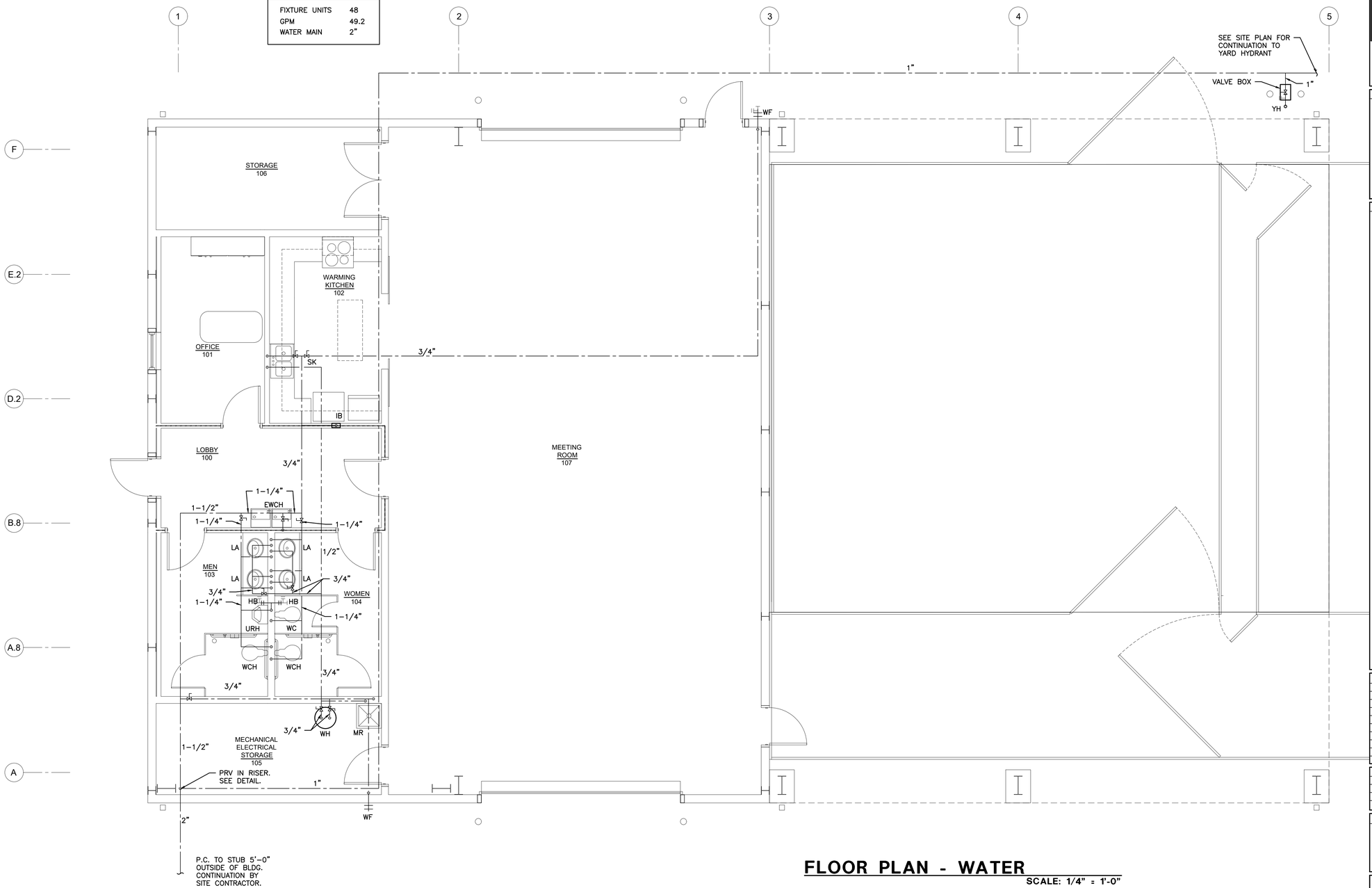
SHEET TITLE

Floor Plan
Waste

P1

050925EHC217100

WATER DEMAND	
FIXTURE UNITS	48
GPM	49.2
WATER MAIN	2"



FLOOR PLAN - WATER

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

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 7883 ENGINEER DONALD R BRITTAIN
9/25/25

PROJECT

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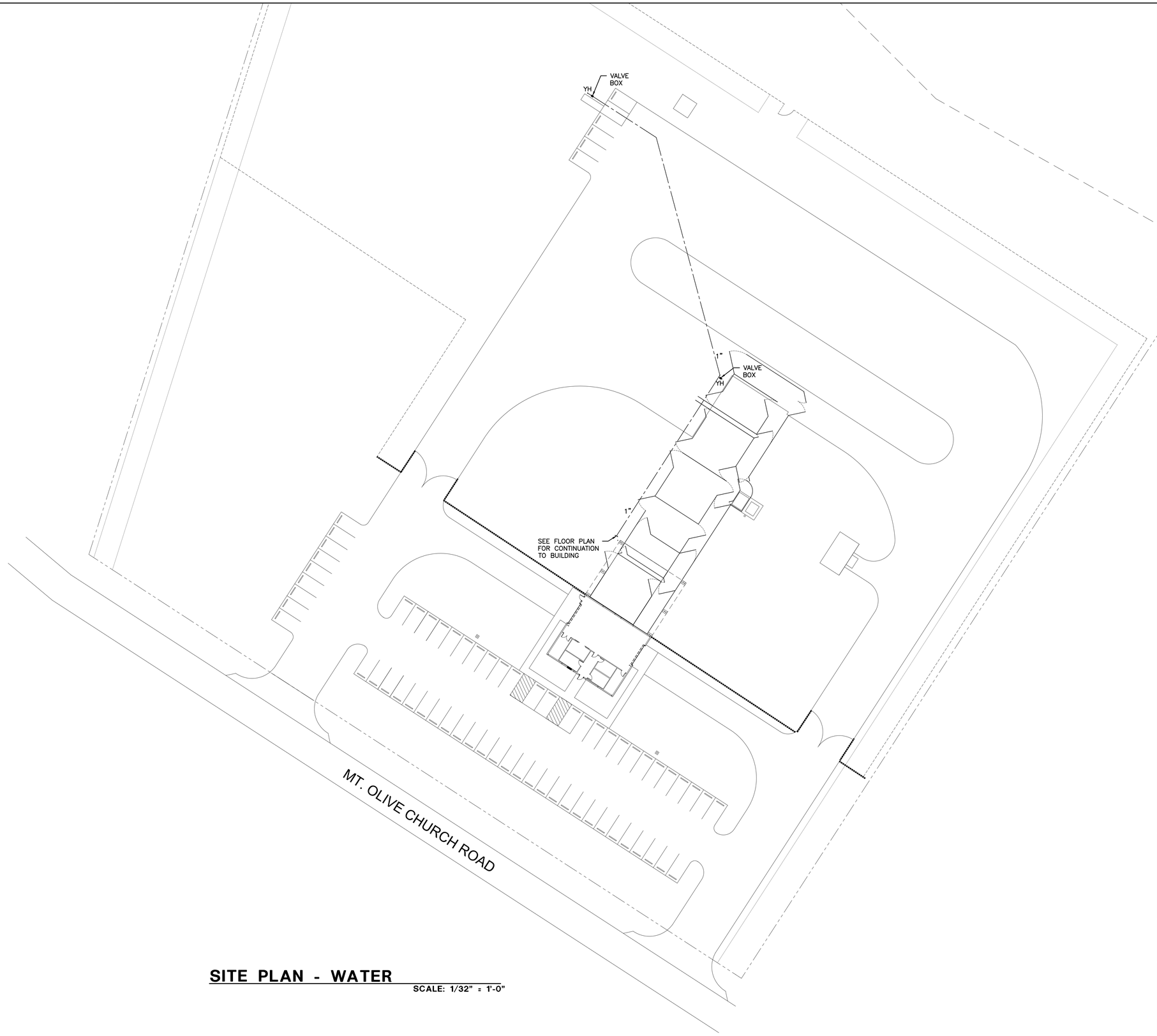
SHEET TITLE

Floor Plan
Water

P2

050925EHC217100



SITE PLAN - WATER

SCALE: 1/32" = 1'-0"

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26/11/25

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

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CHECKED BY:	DRB

SHEET TITLE

Site Plan
Water

P3

050925EHC217100

System No. W-L-1001

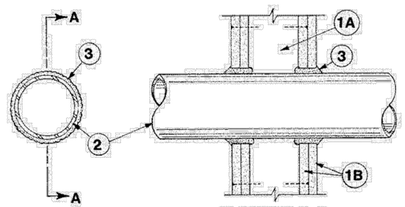
June 15, 2005

F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient — less than 1 CFM/sq ft

L Rating At 400 F — less than 1 CFM/sq ft



SECTION A-A

1. **Wall Assembly** — The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** — Wall framing may consist of either wood studs (nax 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced nax 24 in. (610 mm) OC.
   B. **Gypsum Board*** — Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. **Through-Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in / (0 mm). (point contact) to max 2 in. (51 mm) Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** — Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** — Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in (102 mm) diam (or smaller) steel electrical metallic tubing
   D. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing
   E. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   F. **Through Penetrating Product*** — Flexible Metal Piping The following types of steel flexible metal gas piping may be used:
   1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   OMEGA FLEX INC

   2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   GASTITE, DIV OF TITEFLEX

   3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   WARD MFG INC

3. **Fill, Void or Cavity Material*** — **Caulk or Sealant** — Min 5/8 , 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 h.

3M COMPANY — CP 25WB+ or FB-3000 WT.

*Bearing the UL Classification Mark

GENERAL PLUMBING SPECIFICATIONS

CAST IRON SOIL, WASTE AND VENT PIPING: WASTE PIPING 2 INCH AND LARGER AND VENT PIPING 3 INCH AND LARGER SHALL BE STANDARD WEIGHT GASKETED CAST IRON, SMALLER SHALL BE HOT DIPPED GALVANIZED STEEL. WASTE AND VENT PIPING BELOW GRADE OR EMBEDDED IN CONCRETE SHALL BE CAST IRON. THE CONTRACTOR MAY AT HIS DISCRETION USE P.V.C. – D.W.V. SCHEDULE 40 SOLID CORE PIPE IF APPROVED BY LOCAL AUTHORITY/OWNER.

GASKETED AND/OR "NO HUB" JOINTS: THE CONTRACTOR MAY, AT HIS DISCRETION, USE ABOVE GRADE POSITIVE DOUBLE SEAL ELASTOMERIC COMPRESSION TYPE GASKETS WITH BELL AND SPIGOT PIPE ENDS, "NO–HUB" PIPE ENDS WITH RESILIENT SLEEVES AND METAL CLAMPS EQUAL TO TYLER'S "TY–SEAL" AND TYLER'S "NO–HUB" MAY BE USED ABOVE FLOOR. GASKETS AND RESILIENT SLEEVES SHALL BE VIRGIN RUBBER OR NEOPRENE. OUTSIDE METAL CLAMPS ON "NO–HUB" JOINTS SHALL BE STAINLESS STEEL.

GRADE WASTE PIPING 1/4 INCH PER FOOT (MIN) FOR PIPIE SIZES 2–1/2" OR LESS. FOR PIPE SIZES 3" TO 6", GRADE 1/8 INCH PER FOOT (MIN), 8" OR LARGER PIPE, GRADE MIN 1/16 INCH PER FOOT. ALL VENT PIPING SHALL BE GRADED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. REFER TO TABLE 704.1 OF THE NC PLUMBING FOR MINIMUM SLOPE REQUIRED.

WATER PIPING: ALL WATER PIPING 3" AND SMALLER SHALL BE TYPE "K" (UNDER GROUND) OR TYPE "L" (ABOVE GROUND) COPPER TUBING WITH FORGED FITTINGS AND SWEAT CONNECTIONS. DIELECTRIC UNIONS, EPCO SALES, INC., SERIES FX SHALL BE INSTALLED BETWEEN COPPER PIPE AND WATER HEATER. ALL FITTINGS SHALL BE SWEAT TYPE WROUGHT COPPER WITH WALL THICKNESS EQUAL TO PIPE WALL THICKNESS. ALL JOINTS SHALL BE MADE WITH 95–5 SOLDER OR SILVABRITE 100. NO SOLDER W/LEAD SHALL BE PERMITTED.

ALL ROUGHING–IN PIPING SHALL BE RUN CONCEALED. ALL EXPOSED WATER LINES, STOPS, TRAP AND WASTE PIPE AT THE FIXTURES SHALL BE CHROME PLATED BRASS, WHICH FOR THE MOST PART WILL BE FURNISHED WITH THE FIXTURES. CHROME PLATED ESCUTCHEON RINGS SHALL BE USED AT EACH POINT OF ENTRANCE OF CHROME PIPING INTO WALLS, FLOORS, OR CEILINGS. EXPOSED WORK SHALL BE UNIFORM IN HEIGHT AND LOCATION FOR EACH TYPE FIXTURE.

WATER PIPING UNDER GROUND OUTSIDE OF BUILDING SHALL BE AT LEAST 36 INCHES BELOW THE FINISHED GRADE SURFACE.

THERMAL INSULATION: ALL HOT AND COLD WATER PIPING INSIDE BUILDING AND IN CRAWL SPACE, ALL HOT WATER PIPING BELOW GRADE, AND COLD WATER PIPING BELOW GRADE WITHIN 3'–0" OF OUTSIDE SHALL BE INSULATED WITH 1" THICK "ARMAFLEX" OR IMCOA WITH SEALED JOINTS OR PREMOLDED FIBERGLASS WITH VAPOR BARRIER JACKET.

SUBMITTAL: THE CONTRACTOR SHALL WITHIN (15) DAYS OF RECEIPT OF PROPERLY SIGNED CONTRACT SUBMIT TO THE ARCHITECT/ENGINEER FOR APPROVAL (5) COPIES OF A LIST OF SUPPLIES AND MANUFACTURER'S MATERIAL AND EQUIPMENT TO BE USED ON THIS PROJECT.

SUBSTITUTION OF MATERIALS AND/OR EQUIPMENT FOR THAT SPECIFIED WILL NOT BE ACCEPTED WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT/ENGINEER PRIOR TO RECEIPT OF BIDS.

GENERAL: THE ENTIRE PLUMBING SYSTEM SHALL BE IN ACCORDANCE WITH THE 2018 N.C. STATE PLUMBING CODE. SUBMIT THREE (3) COPIES OF PLUMBING INSPECTION CERTIFICATES TO OWNER. PLUMBING CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY GOVERNING AUTHORITIES FOR WORK DONE UNDER THIS CONTRACT. PROVIDE AND INSTALL ALL SUPPORTS, BRACKETS, MATERIALS AND LABOR AS REQUIRED FOR A COMPLETE AND ACCEPTABLE PLUMBING SYSTEM. PLUMBING CONTRACTOR SHALL CLEAN ALL PLUMBING FIXTURES AFTER ALL CONSTRUCTION IS COMPLETE.

GUARANTEE: THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER STATING THE DAY THE GUARANTEE BEGINS AND ENDS.

WATER HAMMER CONTROL: ARRESTORS SHALL BE SIZED AND APPLIED IN ACCORDANCE WITH THE PLUMBING AND DRAINAGE INSTITUTE STANDARD PDI–WH–201.
EQUIPMENT EQUAL TO JOSAM #75000 OR EQUAL BY AMTROL, WADE, SIOUX CHIEF OR SMITH IS ACCEPTABLE.
PROVIDE "KARP" ACCESS COVER IN WALL TO SERVICE WATER HAMMER ARRESTORS.

FIXTURE SCHEDULE:

SEE DRAWINGS.

CLEANOUTS: <S>

CLEANOUTS SHALL BE AS FOLLOWS:

FLOOR CLEANOUTS – IN FINISHED AREAS – JOSAM #5500–1–SQ WITH SQARE NICKEL BRONZE TOP
– IN TILE FLOORS –JOSAM #5500–1–SQ
– IN CARPETED FLOORS –JOSAM #5#5500–1–SQ

WALL CLEANOUTS – JOSAM #58710 WITH STAINLESS STEEL COVERPLATE

CLEANOUTS IN EXPOSED PIPING – JOSAM #58900

EXTERIOR CLEANOUTS – JOAM # 56050 W/ROUND NICKEL BRONZE TOP

CLEANOUTS IN WATERPROOF FLOOR SHALL HAVE FLASHING FLANGE AND CLAMPING DEVICE.

CLEANOUTS IN CARPETED AREAS SHALL BE PROVIDED WITH CARPET MARKERS.

DOMESTIC WATER HEATERS: <S>

ELECTRIC WATER HEATERS SHALL BE UL LISTED AND COMPLETE WITH ALL STANDARD FEATURES, FIVE (5) YEAR TANK WARRANTY, GLASS–LINED TANK, FOAM INSULATION ON THE TANK, ANODE ROD, AUTOMATIC TEMPERATURE CONTROL, AND AUTOMATIC HIGH–LIMIT SAFETY CUTOFF.

EACH WATER HEATER SHALL BE PROVIDED WITH AN ASME AND NORTH CAROLINA APPROVED PRESSURE AND TEMPERATURE RELIEF VALVE. UNITS NOT INSTALLED WITH VACUUM BREAKER ON COLD WATER SUPPLY LINE SHALL BE PROVIDED WITH AGA CERTIFIED VACUUM RELIEF VALVE PER ANSI Z21.22. A GATE VALVE SHALL BE INSTALLED ON SAME FLOOR AS UNIT AND NO FURTHER THAN 3 FEET ON THE COLD WATER SUPPLY.

EACH WATER HEATER AND ITS INSTALLATION SHALL COMPLY WITH THE LATEST ISSUE AND ALL ADDENDA THERETO OF THE N. C. STATE BOILER INSPECTION LAWS AND REGULATIONS. ALL WIRING AND CONTROLS ASSOCIATED WITH THE HEATERS SHALL BE U.L. APPROVED AND IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.

EACH HEATER TANK SHALL BE FITTED WITH NORTH CAROLINA APPROVED "DIP" TUBE AND LABELED TO SHOW APPROVAL FOR INSTALLATION IN THE STATE OF NORTH CAROLINA.

FLOOR OVER A FLOOR DRAIN, DRIP PAN OR OTHER SAFE LOCATION. DISCHARGE PIPE SHALL BE SUPPORTED AND ANCHORED SO THAT IT WILL NOT PUT UNDUE STRAIN ON THE RELIEF VALVE BODY OR MOUNTING COUPLING.

PLUMBING FIXTURE SCHEDULE

NOTE: ALL FIXTURE APPURTENANCES SHALL BE SUPPLIED BY FIXTURE MANUFACTURER.

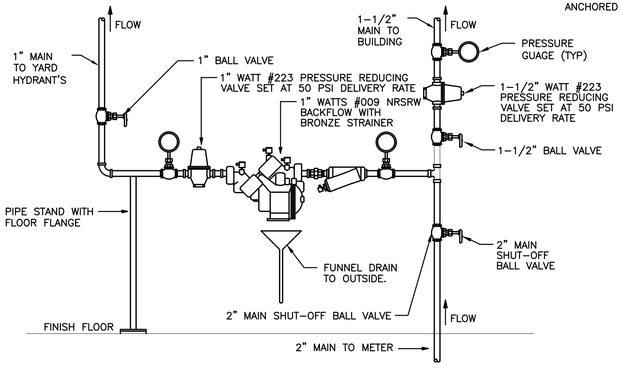
FIXTURE SYMBOL	FIXTURE TYPE	FIXTURE DESCRIPTION	CONNECTION SIZES W	V	CW	HW
WC	WATER CLOSET	KOHLER WELLCOMME K–96053–0 VITREOUS CHINA, FLUSH VALVE, FLOOR MOUNTED, SIPHON JET, ELONGATED BOWL. PROVIDE BEMIS #1655–C OPEN FRONT WHITE SEAT, LESS COVER. WATER CLOSET SHALL BE FURNISHED WITH SLOAN REGAL #113–1.6–XL–YO FLUSH VALVE.	4"	2"	1"	–
WCH	WATER CLOSET (HANDICAPPED)	KOHLER HIGHCLIFF K–96057–0 VITREOUS CHINA, FLUSH VALVE, FLOOR MOUNTED, SIPHON JET, ELONGATED BOWL. PROVIDE BEMIS #1655–C OPEN FRONT WHITE SEAT, LESS COVER. WATER CLOSET SHALL BE FURNISHED WITH SLOAN REGAL #111–1.6–XL–YO FLUSH VALVE.	4"	2"	1"	
LA	COUNTER LAVATORY	KOHLER #K–2196, SLOAN OPTIMA EBF–650–BAT–BDT–CP–0.5GPM–MLM–IR–FCT SENSOR FAUCET AND PERFORATED DRAIN. KOHLER #K–7601 3/8" WITH WHEEL OPERATED VALVE, MCGUIRE #8872–C–F "P" TRAP WATTS MODEL LFMMV THERMOSTATIC MIXING VALVE TO MEET 2018 NCPC 416.5.	2"	1 1/2"	1/2"	1/2"
URH	URINAL HANDICAP	KOHLER #K–4991–ET "BARDON" WITH 3/4" TOP SPUD/SLOAN REGAL 186–0.5–XL–YO FLUSH VALVE/SCREWDRIVER OPERATED ANGLE STOP/ VACUUM BREAKER AND CAST BRASS WALL ESCUTCHEON WITH SET SCREW/ZURN MATCHING CONCEALED FLOOR–MOUNTED CARRIER, MOUNT RIM 17" A.F.F. MAX	2"	1 1/2"	3/4"	
MR	MOP RECEPTOR	FIAT #MSB–2424 "MOLDED STONE" 24" X 24" X 10" MOP SERVICE SINK WITH INTEGRAL CAST BRASS DRAIN/ DELTA 28T9 FAUCET/BUCKET HOOK 3/4" HOSE THREAD END/VACUUM BREAKER AND ADJUSTABLE TOP BRACE, DELTA 28T910 MOP HANGER AND DELTA 28T911 HOSE AND WALL HOOK, MODEL E–88–AA BUMPERGUARD, MSG2424 WALL GUARDS.	3"	2"	1/2"	1/2"
IB	ICEMAKER VALVE BOX	OATEY 39118 FIRE–RATED ICE MAKER BOX WITH 1/4 TURN BRASS VALVE IN WALL FOR ICEMAKER IN REFRIGERATOR OR IN WALL WATER CONNECTION.			1/2"	
YH	YARD HYDRANT	WOODFORD MODEL S3 FREEZELESS SANITARY YARD HYDRANT/ 34HF VACUUM BREAKER BACKFLOW PREVENTER.			1"	
WF	WALL FAUCET	WOODFORD MODEL 67 FREEZELESS WALL HYDRANT/VACUUM BREAKER BACKFLOW PREVENTER, MOUNT 24" A.F. GRADE.			3/4"	
HB	HOSE BIBB	WOODFORD MODEL 24P–1/2 WALL FAUCET WITH WHEEL HANDLE AND VACUUM BREAKER BACKFLOW PREVENTER, MOUNT 18" A.F.F.			1/2"	
WH	WATER HEATER	LOCHINVAR MODEL #LDT–40T, 40 GALLON ELECTRIC WATER HEATER WITH TWO (2) 4500 WATT ELEMENTS, 208 VOLT, SINGLE PHASE, NON–SIMULTANEOUS WIRING WITH 3 YEAR WARRANTY. FURNISH WITH A.S.M.E. APPROVED RELIEF VALVE & PROPER SIZED EXPANSION TANK.			3/4"	3/4"
EWCH	ELECTRIC WATER COOLER HANDICAP	OASIS PG8FEBFSL WALL HUNG BI–LEVEL ELECTRIC WATER COOLER, 8.0 GPH, 1/4 HP., 115V., 460W., ROUGH STOP SUPPLY, STANDARD FINISH CABINET, C.P.B. "P" TRAP, MOUNT RIM 40" A.F.F., PROVIDE CANE APRON AS REQUIRED. VERSAFILTER & VERSAFILLER BOTTLE FILLER.	2"	1 1/2"	1/2"	
FD	FLOOR DRAIN	SIOUX CHIEF MODEL# 832–4PNR FINISHLINE PVC ADJUSTABLE FLOOR DRAIN WITH ROUND NICKEL BRONZE RING AND STRAINER AS REQUIRED.	4"	2"	1/2"	
SK	2– COMP. SINK HANDI–CAPPED	JUST LTC–ADA–2133–AGR–3–R–MOD, 21" X 33" LEDGE TYPE, 18 GAUGE 304 STAINLESS STEEL SINK WITH LEFT BOWL 4 1/2" DEEP AND RIGHT BOWL 7 1/2" DEEP. DELTA 26C3124 FAUCET WITH WRIST BLADES AND AERATOR. JUST #J35 STAINLESS CRUMB STRAINER WITH REMOVEABLE BASKET WITH RUBBER SEAT STOPPER AND 1 1/2" STAINLESS TAILPIECE WITH CENTER REAR WASTE OUTLET. KOHLER #7607 3/8" FLEXIBLE LAVATORY SUPPLY UNIT WITH WHEEL OPERATED ANGLE VALVE AND CAST BRASS WALL ESCUTCHEON AND SET SCREW. MCGUIRE #113C21G17 1–1/2" CENTER OUTLET 21" CENTERS 17 GA. CONTINUOUS WASTE CAST BRASS. MCGUIRE #8912C–F, 1 1/2" ADJUSTABLE SEMI–CAST BRASS "P" TRAP WITH INTEGRAL THREAD CLEANOUT PLUG, OUTLET TO WALL AND CAST BRASS ESCUTCHEON.	2"	1 1/2"	1/2"	1/2"

ACCEPTABLE MANUFACTURERS:

WATER CLOSETS, URINALS, LAVATORIES – SLOAN, KOHLER, AMERICAN STANDARD, TOTO, ZURN, GERBER,
CARRIERS – WADE, SMITH, ZURN, MIFAB.
SINKS – KOHLER, AMERICAN STANDARD, JUST, ELKAY, AMERICAN STANDARD, ZURN, CECO, SLOAN.
WATER HEATERS – STATE, BOCK, LOCHINVAR, BRADFORD WHITE, A.O. SMITH, RHEEM.
HOSE BIBBS – ZURN, WOODFORD, NIBCO, PRIER.
WALL FAUCETS – WOODFORD, ZURN, WADE, SMITH, MIFAB, PRIER.
FLOOR DRAINS, ROOF DRAINS, FLOOR SINKS – WADE, SMITH, ZURN, JOSAM, SIOUX CHIEF, WATTS DRAINAGE, MIFAB.
FLUSH VALVES – SLOAN, ZURN, HYDROTEK, TOTO.
MOP RECEPTOR – FIAT, FLORSTONE, WILLIAMS, AMERICAN STANDARD.
FAUCETS – DELTA, SLOAN, SYMMONS, T&S, AMERICAN STANDARD, MOEN, CHICAGO FAUCETS, ZURN.
MIXING VALVES – SYMMONS, LAWLER, WATTS, BRADLEY, POWERS.
WATER COOLERS – ELKAY, OASIS, HALSEY TAYLOR, ACORN AQUA, MURDOCK MFG.

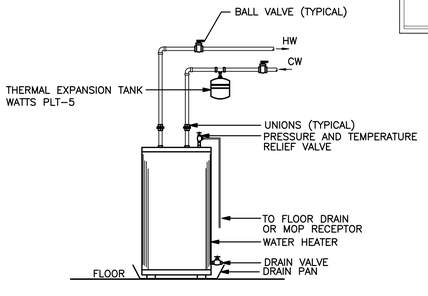
PLUMBING LEGEND

SYMBOL	DESCRIPTION
———	SANITARY WASTE
– – – –	SANITARY VENT
———	DOMESTIC COLD WATER
———	DOMESTIC HOT WATER
———	DOMESTIC HOT WATER RECIRC.
———	SHUT–OFF VALVE
———	COMBINATION FLOW CONTROL/ BALL VALVE
———	CUT–OFF VALVE IN RISER
———	RISER UP AND RISER DOWN
———	CLEANOUT (CO)
———	HOSE BIBB (HB) OR WALL HYDRANT (WF)
VTR	VENT THRU ROOF
SA	SHOCK ABSORBER "WATER HAMMER"
E.C.	ELECTRICAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR



A WATER PRESSURE REDUCING VALVE AND BACKFLOW PREVENTER STATION

SCALE: NONE



B ELECTRIC WATER HEATER

SCALE: NONE

1 REVIEW COMMENTS 06/17/25

061725EHC217100

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 7883 ENGINEER DONALD R BRITTAIN
26/9/25

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION		
MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-13-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

PROJECT NUMBER:	2024.008
CAD DWG FILE:	
DRAWN BY:	DGR
CHECKED BY:	DRB

SHEET TITLE

Schedules

P4

MECHANICAL LEGEND

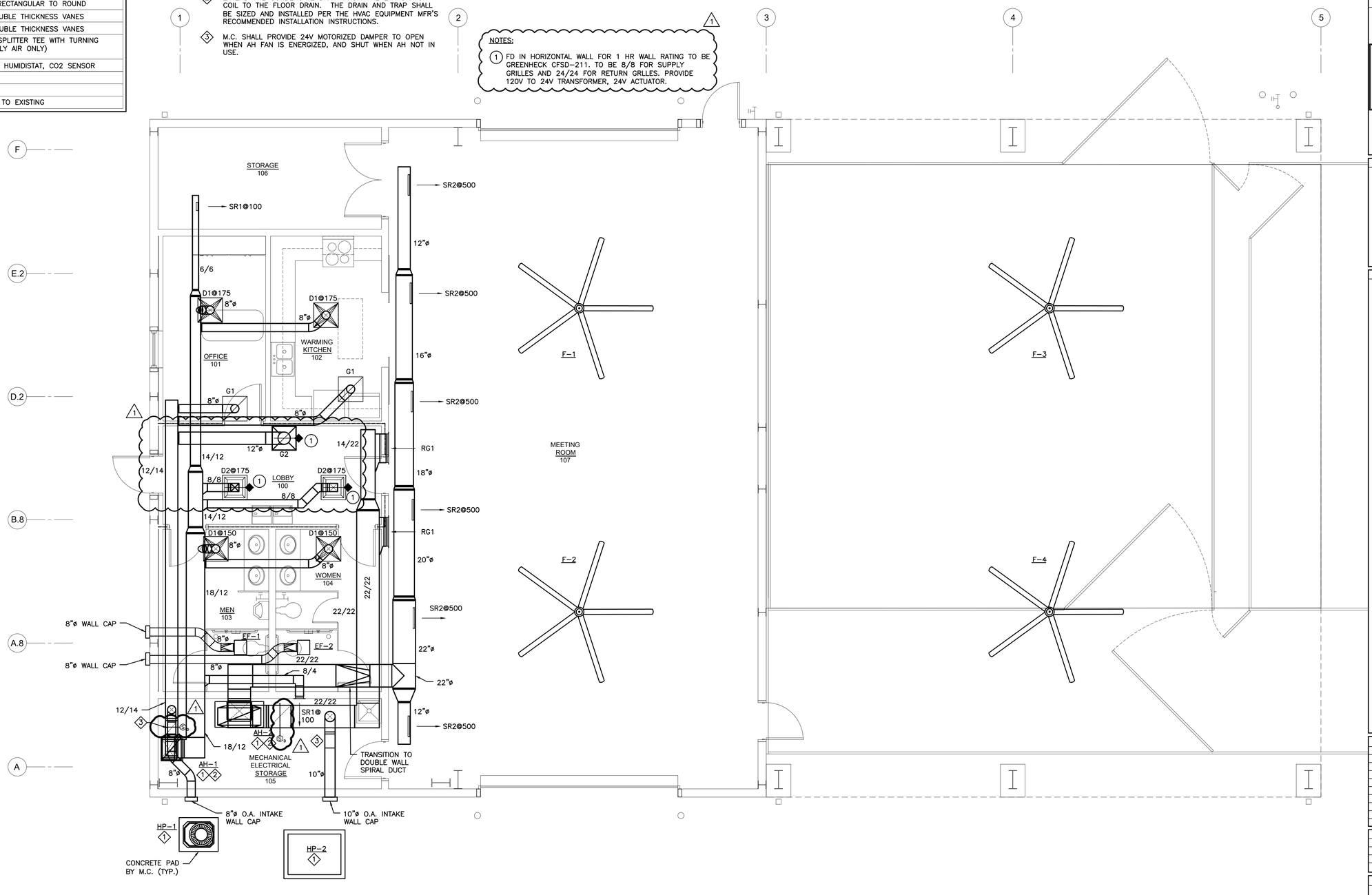
SYMBOL	DESCRIPTION
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE OR REGISTER
	EXHAUST AIR GRILLE OR REGISTER
	DUCTWORK
	LINED DUCT
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER
	TRANSITION RECTANGULAR TO RECTANGULAR
	TRANSITION RECTANGULAR TO ROUND
	ELBOW W/DOUBLE THICKNESS VANES
	ELBOW W/DOUBLE THICKNESS VANES
	ADJUSTABLE SPLITTER TEE WITH TURNING VANES (SUPPLY AIR ONLY)
T	THERMOSTAT, HUMIDISTAT, CO2 SENSOR
	PIPE RISER
	PIPE DROP
	CONNECTION TO EXISTING

GENERAL NOTES:

1. EXTEND THE REFRIGERANT PIPING FROM THE EVAPORATOR COIL TO THE CONDENSER. THE PIPING AND TRAPS SHALL BE SIZED AND INSTALLED PER THE HVAC EQUIPMENT MFR'S RECOMMENDED INSTALLATION INSTRUCTIONS.
2. EXTEND THE CONDENSATE DRAIN FROM THE EVAPORATOR COIL TO THE FLOOR DRAIN. THE DRAIN AND TRAP SHALL BE SIZED AND INSTALLED PER THE HVAC EQUIPMENT MFR'S RECOMMENDED INSTALLATION INSTRUCTIONS.
3. M.C. SHALL PROVIDE 24V MOTORIZED DAMPER TO OPEN WHEN AH FAN IS ENERGIZED, AND SHUT WHEN AH NOT IN USE.

NOTES:

1. FD IN HORIZONTAL WALL FOR 1 HR WALL RATING TO BE GREENHECK CFSD-211. TO BE 8/8 FOR SUPPLY GRILLES AND 24/24 FOR RETURN GRILLES. PROVIDE 120V TO 24V TRANSFORMER, 24V ACTUATOR.



FLOOR PLAN - HVAC

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

1 REVIEW COMMENTS 06/17/25

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SHEET TITLE

Floor Plan
HVAC

M1

OUTSIDE AIR CALCULATIONS:

PER 2018 NORTH CAROLINA MECHANICAL CODE:

Vbz = Rp*Pz +Ra*Az
Vbz = OUTDOOR AIR RATE IN BREATHING ZONE
Az = FLOOR AREA OF SPACE
Pz = # PEOPLE IN SPACE
Rp = PEOPLE OUTDOOR AIR RATE
Ra = AREA OUTDOOR AIR RATE

AH-1

OFFICE SPACE
Vbz = 5 CFM/PERSON*(125 S.F.*5 PEOPLE/1000 S.F.) + 0.06 CFM/S.F.*125 S.F.
Vbz = 10.6 CFM OUTSIDE AIR

LOBBY
Vbz = 7.5 CFM/PERSON*(143 S.F.*30 PEOPLE/1000 S.F.) + 0.06 CFM/S.F.*143 S.F.
Vbz = 40.8 CFM OUTSIDE AIR

STORAGE = 0.12 CFM/S.F.
200 S.F. X 0.12 CFM/S.F. = 24.0 CFM

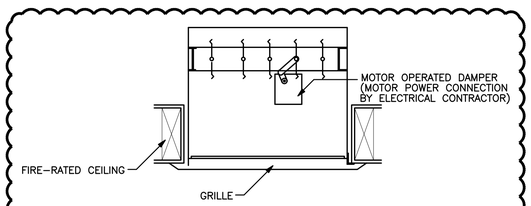
75.4 CFM OUTSIDE AIR REQUIRED.
140 CFM OUTSIDE AIR SUPPLIED VIA AH-1.

AH-2 (50% INTERMITTENT OCCUPANCY)

MEETING ROOM (ASSEMBLY)
Vbz = 5 CFM/PERSON*(1080 S.F.*120 PEOPLE/1000 S.F.) + 0.06 CFM/S.F.*1080 S.F.
Vbz = 712.8 CFM OUTSIDE AIR

712.8 CFM OUTSIDE * 50% INTERMITTENT OCCUPANCY

356.4 CFM OUTSIDE AIR REQUIRED.
375 CFM OUTSIDE AIR SUPPLIED VIA AH-2.



A FIRE / SMOKE CEILING DAMPER
SCALE: NTS

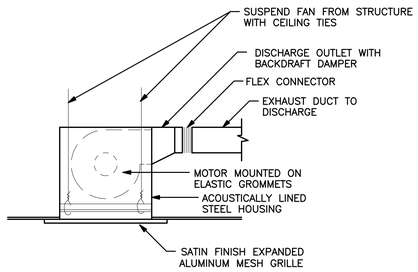
FAN SCHEDULE

DESIG.	SERVES MOUNT	CFM	EXT. S.P.	RPM	WATTS H.P.	VOLTS PHASE	MFG./PART NO. GREENHECK	SONES	DRIVE	REMARKS
EF-1	MEN 103	140	0.25	1281	113 W	120V/1ø	SP-A190	2.0	DIRECT	WC-8 WALL CAP, BACKDRAFT DAMPER, DISCONNECT SWITCH, BIRDSCREEN, FACTORY MTD FSC
EF-2	WOMEN 104	140	0.25	1281	113 W	120V/1ø	SP-A190	2.0	DIRECT	WC-8 WALL CAP, BACKDRAFT DAMPER, DISCONNECT SWITCH, BIRDSCREEN, FACTORY MTD FSC
F-1	MEETING RM 107	–	–	76	10 AMP	120V/1ø	BIG ASS FANS ESSENCE 12' DIA.	–	DIRECT	WALL MTD WIRED CONTROL, COLOR BY ARCH., BRACKET FOR STRUCTURE TYPE W/ STEEL SUPPORT FOR MOUNTING BETWEEN PURLINS, GUY SAFETY WIRES
F-2	MEETING RM 107	–	–	76	10 AMP	120V/1ø	BIG ASS FANS ESSENCE 12' DIA.	–	DIRECT	WALL MTD WIRED CONTROL, COLOR BY ARCH., BRACKET FOR STRUCTURE TYPE W/ STEEL SUPPORT FOR MOUNTING BETWEEN PURLINS, GUY SAFETY WIRES
F-3*	CORRAL AREA	–	–	76	10 AMP	120V/1ø	BIG ASS FANS ESSENCE 12' DIA.	–	DIRECT	WALL MTD WIRED CONTROL, COLOR BY ARCH., BRACKET FOR STRUCTURE TYPE W/ STEEL SUPPORT FOR MOUNTING BETWEEN PURLINS, GUY SAFETY WIRES
F-4*	CORRAL AREA	–	–	76	10 AMP	120V/1ø	BIG ASS FANS ESSENCE 12' DIA.	–	DIRECT	WALL MTD WIRED CONTROL, COLOR BY ARCH., BRACKET FOR STRUCTURE TYPE W/ STEEL SUPPORT FOR MOUNTING BETWEEN PURLINS, GUY SAFETY WIRES

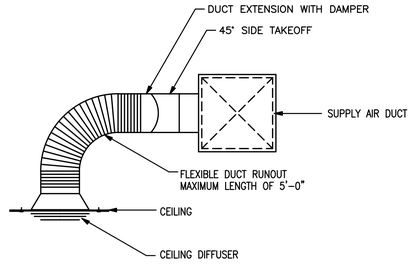
APPROVED MANUFACTURER'S: GREENHECK, LOREN COOK, AMERICAN COOLAIR, BIG ASS FANS.

NOTE: FAN SPEED SHALL NOT EXCEED RPM ON SCHEDULE.

* PER NEC 549.9 – MOTORS AND OTHER ROTATING ELECTRICAL MACHINERY SHALL BE TOTALLY ENCLOSED OR DESIGNED SO AS TO MINIMIZE ENTRANCE OF DUST, MOISTURE, OR CORROSIVE PARTICLES.

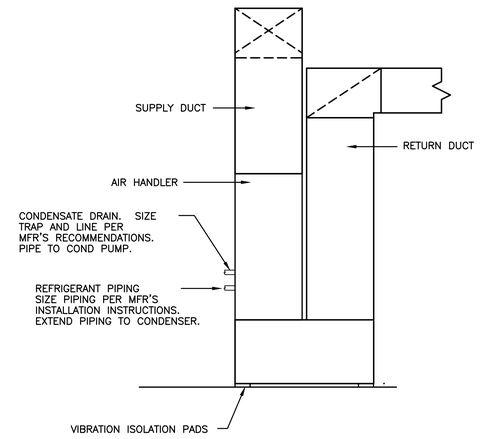


B CEILING MOUNTED EXHAUST FAN
SCALE: NTS



NOTE:
ALL FLEXIBLE DUCT CONNECTIONS SHALL BE IN ACCORDANCE WITH UL 181 AND SMACNA INSTALLATION GUIDELINES.

C DIFFUSER CONNECTIONS
SCALE: NTS



D TYPICAL AIR HANDLING UNIT
SCALE: NTS

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

Prescriptive ● Energy Cost Budget ____

Climate Zone 4A
Exterior design conditions
winter dry bulb 22.9° F
summer dry bulb 90.3° F DB/75.2° F WB
Interior design conditions
winter dry bulb 72° F
summer dry bulb 75° F
relative humidity 50%
Building heating load 101,462 BTUH
Building cooling load 118,271 BTUH
Mechanical Spacing Conditioning System
Unitary
description of unit SPLIT SYSTEM HEAT PUMP
heating efficiency SEE SCHEDULES
cooling efficiency SEE SCHEDULES
heat output of unit SEE SCHEDULES
cooling output of unit SEE SCHEDULES
boiler
total boiler output. If oversized, state reason. N/A
chiller
total chiller capacity. If oversized, state reason. N/A
List equipment efficiencies SEE SCHEDULES

PACKAGED SPLIT SYSTEM HEAT PUMP SCHEDULE

		AH-1	AH-2	
UNIT NUMBER		AH-1	AH-2	
AREA SERVED		OFFICE AREA	MEETING ROOM 107	
MANUFACTURER		TRANE	TRANE	
MODEL NUMBER		5TEM6D06AV41	TWE090K3DAA	
UNIT WEIGHT		174 LBS	373 LBS	
FAN	TOTAL AIR CFM	1,200	3,000	
	OUTSIDE AIR CFM	140	375	
	FAN H.P.	0.75	2.0	
	EXT. S.P. (IN. H2O)	0.60	0.60	
	POWER SUPPLY	208V/1ø/60	208V/1ø/60	
COOLING COIL	FACE VELOCITY FPM	–	–	
	COIL AIR CFM	1,200	3,000	
	TOTAL CAPACITY COOLING	36,268 BTUH	103.74 BTUH	
	SENSIBLE CAPACITY COOLING	27,034 BTUH	78.31 BTUH	
	EER/SEER	12.2/14.5	11.2/14.1	
	ENTERING AIR TEMP.	80.0 DB/67.0 WB	80.0 DB/67.0 WB	
FILTER	TYPE	1" THROWAWAY	1" THROWAWAY	
	QUANTITY AND SIZE	REMOTE	(3) 16" X 25"	
HEATING CAPACITY	ENTERING AIR TEMP.	75 °F	75 °F	
	HIGH TEMPERATURE 47°F DB/43°F WB	32.0 MBH	87.0 MBH	
	LOW TEMPERATURE 17°F DB/15°F WB	20.2 MBH	44.0 MBH	
	COP	3.0	3.0	
	AUXILIARY COIL CAPACITY	7.21 KW @ 208V	18.72 KW @ 208V	
	POWER SUPPLY	208V/1ø/60	208V/3ø/60	
	MCA AMPS	51.0	74.0	
	MOP AMPS	60.0	80.0	
AIR COOLED CONDENSING UNIT	UNIT NUMBER	HP-1	HP-2	
	MODEL NUMBER	5TWA4036A300A	TWA090K3D	
	UNIT WEIGHT	222 LBS	445 LBS	
	ENTERING AIR TEMP.	95'F	95'F	
	FAN TYPE	PROPELLER	PROPELLER	
	FAN H.P.	1/8	1/2	
	COMPRESSOR	CLIMATUFF – SCROLL	CLIMATUFF	
	POWER SUPPLY	208V/3ø/60	208V/3ø/60	
	MCA AMPS	16.6	35.0	
	MOP AMPS	25.0	45.0	
ACCESSORIES		BAYHTR1510BRK ELECT. HEAT, SINGLE PT. POWER	BAYHTRP325 ELECT. HEAT, SINGLE PT. POWER, SZVAV AIR HANDLER	

ACCEPTABLE MANUFACTURERS: CARRIER, YORK, LENNOX, MCQUAY.

(1) PROGRAMMABLE SETBACK THERMOSTAT, ANTI-SHORT CYCLE TIMER, AND CONDENSER COIL GUARD.

AIR DISTRIBUTION DEVICE SCHEDULE

TYPE	DESCRIPTION NECK SIZE	MOUNTING	MANUFACTURER CATALOG NO. PRICE	MATERIAL	FINISH	ACCESSORIES/ REMARKS
D1	SUPPLY DIFFUSER 12" X 12" X 8"ø	CEILING LAY-IN	SMD	STEEL	WHITE	BORDER TYPE 3P, SR ADAPTER
D2	SUPPLY DIFFUSER 8" X 8"	CEILING LAY-IN	SMD	STEEL	WHITE	BORDER TYPE 3P
SR1	SUPPLY GRILLE 8" X 4"	SIDEWALL	520D	STEEL	WHITE	OBD, BORDER TYPE F
SR2	SUPPLY GRILLE 20" X 6"	SIDEWALL SPIRAL	SDGE	STEEL	WHITE	FASTENING TYPE A, AIR SCOOP
G1	RETURN GRILLE 22" X 22" X 8"ø	CEILING LAY-IN	535	STEEL	WHITE	BORDER TYPE TB, SR ADAPTER
G2	RETURN GRILLE 22" X 22"	CEILING LAY-IN	535	STEEL	WHITE	BORDER TYPE TB
RG1	RETURN GRILLE 28" X 20"	SIDEWALL	535	STEEL	WHITE	BORDER TYPE F

APPROVED MANUFACTURER'S: PRICE, TITUS, NAILOR & METALAIRE, GREENHECK.

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26 6/17/25

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SHEET TITLE
Schedules
HVAC

1 REVIEW COMMENTS 06/17/25

061725EHC217100

M2

MECHANICAL SPECIFICATIONS

ALL MECHANICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH 2018 NORTH CAROLINA MECHANICAL CODE.

GENERAL CONDITIONS: THE GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT AND SUPPLEMENTAL GENERAL CONDITIONS BOUND WITH THE ADVERTISEMENT FOR BIDS, INSTRUCTIONS TO BIDDERS AND BID FORMS APPLY TO ALL CONTRACTS AND ARE HEREBY MADE A PART OF THE MECHANICAL CONTRACT SPECIFICATIONS.

DESCRIPTION OF WORK: FURNISH ALL LABOR, SUPERVISION, MATERIALS, EQUIPMENT AND TOOLS NECESSARY TO INSTALL COMPLETE AIR CONDITIONING SYSTEMS IN THE BUILDING.

DRAWINGS: THE CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS SHOWN IN THESE DRAWINGS AND DESCRIBED IN THESE SPECIFICATIONS. ALL MISCELLANEOUS MATERIAL AND HARDWARE NECESSARY FOR COMPLETE OPERATING SYSTEMS IN ACCORDANCE WITH GOOD TRADE PRACTICE AS IS OBVIOUSLY INTENDED SHALL BE FURNISHED AND INSTALLED AS THOUGH IT WERE SPECIFICALLY LISTED.

ELECTRICAL WORK: THE ELECTRICAL CONTRACTOR SHALL TAKE POWER FROM THE SOURCE AS CALLED FOR ON THE ACCOMPANYING DRAWINGS AND EXTEND THROUGH ELECTRICAL AND NECESSARY CONTROLS TO THE EQUIPMENT FURNISHED AND INSTALLED UNDER THIS CONTRACT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRING FROM THE LOAD SIDE OF THE DISCONNECT THROUGH THE STARTER TO THE EQUIPMENT.

SEE ELECTRICAL PLANS FOR DEFINITION OF WIRING AND ELECTRICAL FACILITIES TO BE INSTALLED UNDER THE ELECTRICAL CONTRACT.

ALL ELECTRICAL WORK SHALL BE DONE BY OR UNDER THE DIRECT SUPERVISION OF A LICENSED ELECTRICIAN, LICENSED IN THE STATE WHERE THE WORK WILL BE PERFORMED. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL ADDENDA THERETO.

ALL CONTROL VOLTAGE SHALL BE SINGLE PHASE, 120 VOLTS OR LESS AND SHALL FEED FROM ONE (1) THERMAL OVERLOAD TYPE TOGGLE BREAKER.

ALL CONTROL WIRING SHALL BE RUN IN CONDUIT.

ALL STARTERS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL AND INTERLOCK WIRING 120 VOLTS AND LESS.

SHEET METAL WORK: THIS CONTRACTOR SHALL FURNISH ALL DUCTWORK AND ASSOCIATED SHEET METAL WORK AS CALLED FOR ON THE DRAWINGS AND REQUIRED FOR A COMPLETE DUCTED AIR DISTRIBUTION SYSTEM.

DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH BEST PRACTICES OF SHEET METAL WORK AND SMACNA STANDARDS.

ALL DUCTWORK SHALL BE GALVANIZED SHEET IRON THROUGHOUT EXCEPT WHERE OTHERWISE SHOWN AND FABRICATED IN ACCORDANCE WITH THE FOLLOWING TABLE (ALL DUCT SIZES ON CONTRACT DRAWINGS ARE SHEET METAL FABRICATION SIZES EXCEPT WHERE LINER IS REQUIRED):

THE FOLLOWING CHART IS BASED ON 1" W.G. (MAXIMUM) STATIC, POSITIVE OR NEGATIVE PRESSURE. SEE SMACNA MANUAL FOR DUCT CONSTRUCTION FOR HIGHER STATIC PRESSURES.

MAXIMUM DIMENSION OF DUCT	GAUGE U.S. STD.	TRANSVERSE JOINT	BRACING
UP TO 12"	26	DRIVE SLIPS 7'–10" CENTERS	NONE
13" TO 30"	24	DRIVE SLIPS 7'–10" CENTERS	1"X1"X1/8" ANGLES 4 FEET FROM JOINT

DUCTMATE INDUSTRIES, INC. SYSTEMS MAY BE USED FOR TRANSVERSE JOINTS WITH THE FOLLOWING LIMITATIONS:
SYSTEM "25" – SHEETMETAL GAUGES 22 THROUGH 26
SYSTEM "35" – SHEETMETAL GAUGES 18 THROUGH 24
SYSTEM "45" – SHEETMETAL GAUGES 14 THROUGH 20
MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED WITHOUT EXCEPTION.

ALL DUCTS SHALL HAVE FLAT LOCK TYPE LONGITUDINAL SEAMS CONFORMING TO SMACNA STANDARDS.
ALL DUCTS SHALL HAVE SECTIONS "CROSS–BROKEN" AND SHALL BE INSTALLED WITH NECESSARY STIFFENERS TO INSURE DUCTS AGAINST VIBRATING OR BREATHING.

ROOF CURBS:
ANY AND ALL REQUIRED ROOF CURBS SHALL BE INSTALLED WITH EQUIPMENT MATING SURFACE LEVEL. M.C. SHALL PROVIDE SLOPED ROOF CURBS WHERE REQUIRED FOR SLOPED ROOF INSTALLATIONS. M.C. SHALL INSTALL AND LEVEL CURBS PRIOR TO FINAL ROOF INSTALLATION TO ALLOW ROOFING CONTRACTOR TO FLASH AND SEAL CURB TO ROOF.

DUCT SUPPORTS
ROUND DUCTS – DUCTS UP TO 26" IN DIAMETER – ONE (1) STRAP AND BAND 1" WIDE BY 18 GAUGE, MAXIMUM SPACING 8'–0". DUCTS OVER 26" IN DIAMETER– A 1 ½ " WIDE BY 16 GAUGE BAND AND TWO 3/8" HANGER RODS, MAXIMUM SPACING 8'–0".
RECTANGULAR DUCTS – DUCTS UP TO 24" WIDE – TWO (2) STRAPS, 1" WIDE BY 18 GAUGE, MAXIMUM SPACING 8'–0". DUCTS OVER 24" WIDE – TRAPEZE TYPE HANGER WITH ANGLE IRON AND TWO (2) RODS PER SMACNA MANUAL. DO NOT USE ANGLE LESS THAN 1 ½"x 1 ½"x 1/8" OR RODS LESS THAN 3/8", EVEN THOUGH SMALLER SIZES MAY BE ALLOWED IN THE SMACNA TABLES. SIZES GIVEN ABOVE DO NOT ALLOW FOR EXTERNAL LOADS OTHER THAN INSULATION, NORMAL REINFORCEMENT & TRAPEZE WEIGHT. SMACNA TABLES SHALL BE USED WHEREVER SMACNA REQUIREMENTS ARE MORE STRINGENT THAN LISTED ABOVE. ALL STRAP AND ROD FASTENERS SHALL BE LOAD RATED. ALL HANGERS SHALL BE PROPERLY SECURED TO THE BUILDING STRUCTURE AS DETAILED IN THE SMACNA MANUAL.

UNLESS OTHERWISE SPECIFIED, FURNISH AND INSTALL ALL NECESSARY LINTELS, PROPERLY SIZED, SHEET METAL SLEEVES AND ESCUTCHEON COLLARS WHERE DUCTWORK RISES THROUGH FLOORS OR PASSES THROUGH WALLS OR CEILINGS.

MANUAL VOLUME CONTROL DAMPERS IN ROUND BRANCH DUCTS TO DIFFUSERS OR GRILLES SHALL BE FACTORY FABRICATED AND EQUAL TO YOUNG REGULATOR CO. SERIES 5020 WITH MODEL 403 LOCKING LEVER REGULATOR FOR UN–INSULATED DUCT, AND MODEL 443B FOR INSULATED DUCT.

MANUAL VOLUME CONTROL DAMPERS IN RECTANGULAR BRANCH DUCTS SHALL BE FACTORY FABRICATED AND EQUAL TO YOUNG REGULATOR CO. SERIES 820 WITH MODEL 403 LOCKING LEVER REGULATOR FOR UN–INSULATED DUCT, AND MODEL 443B FOR INSULATED DUCT.

VOLUME EXTRACTORS EQUAL TO TUTTLE & BAILEY, MODEL AVLR, SHALL BE USED AT BRANCH DUCTS WHERE RADIUS TAKEOFFS AND SPLITTER DAMPERS ARE NOT USED.

FURNISH AND INSTALL FLEXIBLE COLLARS IN THE DUCTWORK CONNECTIONS TO AIR HANDLING FANS TO PREVENT NOISE TRANSMISSION BETWEEN SECTIONS. FABRIC SHALL BE VENTGLAS AS MANUFACTURED BY VENTFABRICS.

CHANGES IN DUCT DIRECTION SHALL BE ACCOMPLISHED BY LONG RADIUS ELBOWS. MITERED ELBOWS SHALL HAVE AIRFOIL TURNING VANES EQUAL TO TUTTLE & BAILEY "DUCTURNS".

ALL JOINTS SHALL BE SEALED PER 603.9 (NORTH CAROLINA 2018 MECHANICAL CODE) AND 803.2.8 (NORTH CAROLINA ENERGY CODE). HOWEVER, PRESSURE SENSITIVE TAPE SHALL NOT BE THE ONLY METHOD OF SEALANT.

DUCT INSULATION:

DUCT WRAP – WRAP SHALL BE APPLIED TO ALL OVAL, ROUND, SQUARE AND RECTANGULAR SUPPLY, RETURN AND OUTSIDE AIR SHEET METAL DUCTWORK, INCLUDING LINED DUCT, UNLESS OTHERWISE NOTED.

WRAP SHALL BE MANUFACTURED BY CERTAINTEED, KNAUF FIBER GLASS OR JOHNS MANVILLE, HAVE AN ALUMINUM FOIL–SCRIM VAPOR BARRIER JACKET, AND BE THE FOLLOWING THICKNESSES AND INSTALLED "R" FACTORS AT 25% COMPRESSION:

DUCTS LOCATED IN CEILING RETURN PLENUMS: 1 ½" THICK, 0.75 PCF, MIN. 4.2 "R" IF AMBIENT AND DUCT TEMPERATURE DIFFERENCE DOES NOT EXCEED 15 DEGREES F. OTHERWISE 2" THICK, 0.75 PCF, MIN. 5.0 "R".

DUCTS LOCATED IN UNCONDITIONED SPACES BUT WITHIN THE INSULATED THERMAL ENVELOPE OF THE BUILDING: 2" THICK, 0.75 PCF, MIN. 5.0 "R".

DUCTS LOCATED OUTSIDE THE INSULATED THERMAL ENVELOPE OF THE BUILDING: 3" THICK, 0.75 PCF, MIN. 8.0 "R".

EDGES OF INSULATION SHALL BE CUT STRAIGHT AND TRUE AND SHALL BE TIGHTLY BUTTED. THE VAPOR BARRIER JACKET SHALL OVERLAP THE BLANKET JOINT A MINIMUM OF THREE INCHES (3"). THE JACKET LAP SHALL BE FASTENED WITH MOISTURE RESISTANT ADHESIVE AND ALSO OUTWARD CLINCHING STAPLES SPACED TEN INCHES (10") C/C. THE VAPOR BARRIER EDGE AND STAPLES SHALL THEN BE COVERED WITH A THREE INCH (3") WIDE TAPE OF THE SAME MATERIAL AS THE JACKET AND SHALL BE FASTENED WITH MOISTURE RESISTANT ADHESIVE.

ALL CUTS, TEARS AND PENETRATIONS IN THE VAPOR BARRIER JACKET SHALL BE SEALED WITH JOINT TAPE. ALL EDGES OF INSULATING BLANKET SHALL BE SEALED FROM THE JACKET TO DUCT SURFACE WITH TAPE.

INSULATING BLANKET ON THE BOTTOM OF SURFACES IN EXCESS OF 24 INCHES WIDE SHALL BE SECURED AGAINST THE DUCT WITH ADHESIVE OVER THE ENTIRE AREA, MECHANICAL CLIPS ON 24 INCH CENTER OR BY WIRE TIES AROUND THE DUCT SPACED 24 INCHES C/C.

CONTRACTOR MAY USE FLEXIBLE DUCTWORK (MAXIMUM LENGTHS 5'–0") AT CONNECTIONS TO DIFFUSERS/GRILLES. FLEXIBLE DUCTWORK SHALL BE CERTAFLEX 25 AS MANUFACTURED BY THE CERTAINTEED CORPORATION.

PIPING:

CONDENSATE DRAIN PIPING: CONDENSATE DRAIN PIPING SHALL BE TYPE "L" HARD DRAWN COPPER PIPING WITH CAST AND/OR WROUGHT COPPER FITTINGS PER ASTM B–88, 95/5 SOLDER.

REFRIGERATION PIPING: ALL REFRIGERATION PIPING FROM THE AIR COOLED CONDENSERS TO THE REFRIGERANT COIL SHALL BE TYPE "L" HARD DRAWN COPPER PER ASTM B–88. ALL FITTINGS AND JOINTS SHALL BE MADE WITH SILVER–FOS SOLDER. PROVIDE STRAINER–DRYER COMBINATION AND LIQUID SOLENOID VALVES AT REFRIGERANT COIL. THERMOSTATIC EXPANSION VALVES AND ALL ACCESSORIES SHALL BE EQUAL TO ALCO, INC., OR APPROVED EQUAL. PROVIDE AND INSTALL DISTRIBUTORS EQUAL TO ALCO, INC., SUITABLE FOR MODULATING FLOW RATES.

PROVIDE SPECIALTIES SUCH AS SERVICE VALVES, SOLENOID VALVES, SIGHT GLASSES, AND FILTER/DRYERS AS INDICATED AND REQUIRED FOR PROPER SYSTEM OPERATION. COMPONENTS SHALL BE SPECIFICALLY DESIGNED FOR REFRIGERATION SERVICE.

REFRIGERANT PIPING SHALL BE TESTED ACCORDING TO SECTION 1108 OF THE NORTH CAROLINA MECHANICAL CODE, 2018 EDITION.

PIPING JOINTS: SCREWED JOINTS SHALL HAVE FULL CUT PIPE THREADS. JOINTS SHALL BE ASSEMBLED WITH AN APPROVED COMPOUND APPLIED TO ONLY THE MALE THREADS. A MINIMUM OF THREE PIPE THREADS SHALL REMAIN EXPOSED WHEN THE JOINT IS ASSEMBLED.

WELDED PIPE JOINTS SHALL BE FUSION WELDED BY A METALLIC ARC WELDING PROCESS THE WELDING OPERATIONS SHALL CONFORM TO THE CURRENT RECOMMENDATIONS OF THE AMERICAN WELDING SOCIETY. THIS CONTRACTOR'S WELDER, EMPLOYED ON THIS PROJECT, SHALL HAVE PASSED QUALIFICATION TESTS AS PRESCRIBED BY THE NATIONAL PIPE WELDING BUREAU OR OTHER REPUTABLE TESTING LABORATORY USING QUALIFICATION PROCEDURES AS RECOMMENDED BY THE ASME BOILER CONSTRUCTION CODE OR AMERICAN WELDING STANDARDS.

PIPING ACCESSORIES GENERAL: FLANGES SHALL BE SLIP–ON OR BUTT WELDING STANDARD WEIGHT 1/16" RAISED FACE TYPE WITH GASKETS.

UNIONS SHALL BE ALL BRONZE FOR COPPER SYSTEMS AND MALLEABLE IRON WITH GROUND JOINT FOR STEEL PIPING SYSTEMS. PROVIDE DIELECTRIC UNIONS FOR JOINING DISSIMILAR METALLIC PIPING SYSTEMS.

WELDOLETS AND THREADOLETS SHALL BE STEEL PER ANSI B16.9.

ESCUTCHEONS SHALL BE SINGLE PIECE, SET SCREW TYPE, CHROME PLATED AND SHALL COVER THE OPENING AND SLEEVE.

FERROUS (SCHEDULE 40) PIPING

NOMINAL PIPE SIZE (MAXIMUM)	HANGER SPACE
1/2"	5'–0"
3/4"	6'–0"
1"	7'–0"
1–1/2"	8'–0"
2" TO 2–1/2"	10'–0"
3" TO 3–1/3"	12'–0"
4" TO 6"	12'–0"

MAXIMUM VERTICAL SPACING 15'–0"

COPPER PIPING

NOMINAL PIPE SIZE (MAXIMUM)	HANGER SPACE
UP TO 1 1/4"	6'–0"
1–1/2" TO 2"	10'–0"
LARGER THAN 2"	12'–0"

MAXIMUM VERTICAL SPACING 10'–0"

VERTICAL LINES SHALL BE ADEQUATELY SUPPORTED AT THEIR BASES, EITHER BY A SUITABLE HANGER PLACED IN THE HORIZONTAL LINE NEAR THE RISER, OR BY A BASE FITTING SET ON A PEDESTAL OR FOUNDATION AND FROM EACH FLOOR SLAB BY MEANS OF APPROVED CLAMP TYPE SUPPORT BEARING OR THE SLAB OR BEAM.

HANGERS FOR PIPING 2" AND SMALLER SHALL BE OF THE SPLIT CAST RING TYPE WITH FASTENING DEVICE. HANGERS FOR PIPING LARGER THAN 2" SHALL BE OF THE ADJUSTABLE CLEVIS HANGER TYPE. HANGER RODS SHALL BE MINIMUM 3/8" DIAMETER AND SHALL HAVE MACHINE THREADS. BRACKETS OF APPROVED TYPE MAY BE USED ALONG WALLS. HANGER RODS FOR INDIVIDUALLY SUSPENDED HORIZONTAL PIPES SHALL BE STEEL RODS OF SIZE INDICATED ON THE FOLLOWING TABLE:

NOMINAL PIPE SIZE (MAXIMUM)	ROD SIZE
1/2" TO 2"	3/8"
2–1/2" TO 3"	1/2"
4"	5/8"
5" TO 6"	3/4"
8" TO 12"	7/8"

HANGERS FOR USE WITH COPPER PIPING SHALL BE COPPER PLATED FERROUS SIZES FOR COPPER TUBING.

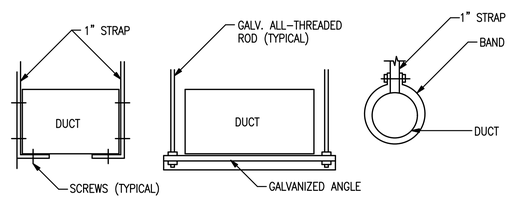
HANGERS SHALL BE INSTALLED WITHIN 2'–0" OF EACH CHANGE IN DIRECTION, EITHER VERTICAL OR HORIZONTAL, OR PIPE TEE AND ON EACH SIDE OF VALVES, STRAINERS, ETC.

MULTIPLE HORIZONTAL PIPES, SMALLER THAN 12" DIAMETER PIPE, MAY BE SUPPORTED ON TRAPEZE HANGERS. TRAPEZE SPACING SHALL BE IN ACCORDANCE WITH THE SCHEDULE FOR PIPE SPACING BASED UPON THE SMALLEST PIPE. THE TRAPEZE MEMBERS SHALL BE PROPERLY SIZED FOR THE PIPING LOAD THEY ARE TO SUPPORT.

PIPE SUPPORTS SHALL BE AS MANUFACTURED BY MICHIGAN, GRINNELL OR F&S MANUFACTURING.

PIPING INSULATION:

THE CONTRACTOR SHALL COVER ALL PIPING AND APPARATUSES, AS SPECIFIED BELOW, WITH INSULATION AS MANUFACTURED BY KNAUF FIBER GLASS, JOHNS–MANVILLE, OWENS–CORNING OR EQUAL. ALL INSULATION, JACKET, FACING AND ADHESIVE SHALL HAVE COMPOSITE RATINGS NOT EXCEEDING FLAME SPREAD OF 25 AND SMOKE DEVELOPMENT OF 50.



DUCTS UP TO 24" WIDTH | DUCTS ABOVE 25" WIDTH | ROUND

LOW PRESSURE DUCTWORK

A DUCTWORK HANGERS

OR PROVIDE SUPPORTS PER SMACNA TABLES 4–1 AND 7–2, HVAC DUCT CONSTRUCTION STANDARDS

SCALE: NTS

PIPING INSULATION CONDUCTIVITY:
FIBERGLASS INSULATION THICKNESS FOR BOTH HEATING AND CHILLED WATER PIPING IS BASED ON INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/H / SQUARE FOOT / DEGREE F.

PIPE INSULATION FITTINGS:
PIPE INSULATION FITTINGS SHALL BE EQUAL TO SPEEDLINE SMOKE SAFE PVC INSULATED FITTING COVERING SYSTEM. PVC JACKET AND FIBERGLASS INSULATION SHALL HAVE A FLAME SPREAD VALUE OF 25 OR LESS AND SMOKE DEVELOPED VALUE OF 50 OR LESS.

CONDENSATE DRAIN PIPING:
CONDENSATE DRAIN PIPING FROM AIR CONDITIONING UNITS THAT RUNS OUTSIDE OF FAN HOUSING SHALL BE INSULATED WITH 3/4" THICK ARMAFLEX INSULATION WITH ALL JOINTS GLUED AND TAPED. AUXILIARY CONDENSATE DRAIN PANS SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 307.2.3 OF THE NORTH CAROLINA MECHANICAL CODE.

REFRIGERANT PIPING:
INSULATE REFRIGERATION SUCTION LINE PIPING WITH 3/4" THICK ARMAFLEX INSULATION WITH ALL JOINTS SEALED AND TAPED.

ALUMINUM METAL JACKET:
ALL INSULATION EXPOSED TO THE WEATHER SHALL BE COVERED WITH 0.016 ALUMINUM JACKET. JACKET SHALL BE SEALED WATER TIGHT.

APPLICATION:
ENGAGE THE SERVICES OF A QUALIFIED INSULATION APPLICATOR TO FURNISH AND INSTALL ALL THE INSULATION REQUIRED FOR THE MECHANICAL EQUIPMENT, PIPING, ETC., SPECIFIED HEREIN.

NAME PLATES AND IDENTIFICATION: THIS CONTRACTOR SHALL FURNISH AND INSTALL NAME PLATES WITH ENGRAVED LETTERING TO IDENTIFY EACH ITEM OF EQUIPMENT, SWITCHES AND CONTROLS INSTALLED UNDER THIS CONTRACT.

NAME PLATE IDENTIFICATION SHALL CORRESPOND WITH IDENTIFICATION OF EACH PIECE OF EQUIPMENT ON THE CONTRACT DRAWINGS UNLESS OTHERWISE DIRECTED. NAME PLATES AND/OR IDENTIFICATION SHALL BE MADE AS MANUFACTURED BY SETON NAME PLATE COMPANY OR APPROVED EQUAL. NAME PLATES SHALL BE ENGRAVED RIGID PHENOLIC PLASTIC OR NONFERROUS METAL WITH 1/4 INCH HIGH LETTERING – "TAPEWRITER" LABELS WILL NOT BE ACCEPTED.

EACH AIR HANDLING UNIT SHALL BE IDENTIFIED WITH ITS CONTRACT DRAWING DESIGNATION AND THE AREA SERVED.

GAS PIPING SHALL BE IDENTIFIED BY A YELLOW LABEL WITH BLACK LETTERS INDICATING GAS AND THE PIPING SYSTEM PRESSURE. THE SYSTEM SHALL BE MARKED AT THE BEGINNING, ALL ENDS AND AT INTERVALS NOT EXCEEDING 5 FEET ALONG ITS EXPOSED LENGTH.

PIPING SYSTEMS SHALL HAVE DESIGNATION ON TWENTY (20) FOOT CENTERS, AND CLOSER WHERE REQUIRED, TO PROVIDE ADEQUATE IDENTIFICATION. MARKERS SHALL HAVE DIRECTION OF FLOW AND SERVICE INDICATION. MARKERS SHALL MEET ANSI COLOR CODE RECOMMENDATIONS.

STOP VALVES SHALL BE IDENTIFIED WHERE THEIR INTENDED PURPOSE IS NOT OBVIOUS. NUMBERS SHALL NOT BE USED TO IDENTIFY VALVES UNLESS A KEY TO THE NUMBERS IS LOCATED NEAR THE VALVES. BRASS VALVE TAGS AND CHAIN BY SETON OR EQUAL SHALL BE USED.

REGISTERS AND GRILLES: ALL REGISTERS AND GRILLES SHALL BE OF SIZE, STYLE AND CAPACITY CALLED FOR ON PLANS AND IN THE GRILLE SCHEDULE. PROVIDE RUBBER OR EXPANDED FOAM GASKETS COMPLETELY AROUND ALL REGISTER AND GRILLE FRAMES TO PREVENT AIR LEAKAGE BETWEEN GRILLE FRAME AND DUCT OR BETWEEN GRILLE FRAME AND SURROUNDING FINISHED SURFACE.

ALL REGISTERS AND GRILLES LOCATED IN CEILINGS SHALL HAVE A FACTORY APPLIED FLAT "OFF" WHITE FINISH. ALL OTHERS SHALL HAVE FACTORY APPLIED PRIMER SUITABLE FOR FIELD FINISH PAINTING UNLESS OTHERWISE SHOWN IN THE AIR DISTRIBUTION DEVICE SCHEDULE.

EACH AIR DISTRIBUTION DEVICE LOCATED BELOW AN UNCONDITIONED SPACE SHALL BE PROVIDED WITH A 3" THICK, 3/4 POUND DENSITY INSULATION BLANKET FOR CONDENSATION CONTROL. ALL CEILING DEVICES SHALL BE FURNISHED TO BE COMPATIBLE WITH THE TYPE CEILING IN WHICH THE ARE INSTALLED.

TEST & BALANCING: TEST & BALANCING COVERS THE TESTING, BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS INCLUDING BUT NOT LIMITED TO: HEATING, COOLING AND VENTILATION DISTRIBUTION SYSTEMS, HYDRONIC SYSTEMS, AND THE EQUIPMENT AND APPARATUS CONNECTED THERETO. THE WORK REQUIRED HEREIN SHALL CONSIST OF SETTING VOLUME (FLOW) AND SPEED ADJUSTING FACILITIES PROVIDED OR SPECIFIED FOR THE SYSTEM, RECORDING DATA, MAKING TESTS AND PREPARING REPORTS. APPARATUS AND DISTRIBUTION SYSTEMS SHALL BE TESTED AND BALANCED IN ACCORDANCE WITH THE LATEST EDITION OF NEBB PROCEDURAL STANDARDS FOR TESTING – BALANCING AND ADJUSTING OF ENVIRONMENTAL SYSTEMS PUBLISHED BY NEBB. TESTING AND BALANCING SHALL BE DONE BY AN INDEPENDENT TESTING AND BALANCING FIRM WITH AT LEAST TWO (2) YEARS VERIFIABLE EXPERIENCE. THE TESTING AND BALANCING FIRM SHALL BE CERTIFIED BY THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). CONTRACTOR SHALL FURNISH TO THE ENGINEER A COPY OF ALL DATA OBTAINED ON THE PROJECT.

OPERATING INSTRUCTIONS, CERTIFICATES AND WARRANTIES: THE ORIGINAL OF ALL INSPECTION CERTIFICATES SHALL BE DELIVERED TO THE OWNER AND ONE (1) COPY EACH TO THE ENGINEER PRIOR TO REQUEST FOR FINAL PAYMENT.

THREE (3) COPIES OF OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUFACTURER'S WARRANTIES FOR ALL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE PROVIDED TO THE OWNER PRIOR TO SUBMITTING REQUEST FOR FINAL PAYMENT.

PRIOR TO FINAL PAYMENT TO THE CONTRACT, THE CONTRACTOR SHALL BE RESPONSIBLE TO TRAIN THE AUTHORIZED PERSONNEL ON HOW TO SERVICE, START–UP AND SHUT–DOWN THE VARIOUS SECTIONS OF THE SYSTEM. UPON COMPLETION OF THIS PHASE OF THE CONTRACT, THE CONTRACTOR SHALL SECURE A LETTER OF ACCEPTANCE FROM THE OWNER THAT HE IS SATISFIED WITH THE CONDITIONS STIPULATED HEREIN. UPON ACCEPTANCE OF THIS LETTER AND AT THE DISCRETION OF THE ENGINEER, THE FINAL PAYMENT WILL BE MADE.

THE CONTRACTOR SHALL PROVIDE A WRITTEN GUARANTEE OF ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF SYSTEM ACCEPTANCE.

THE WORK UNDER THIS CONTRACT WILL BE ACCEPTED ONLY AS AN ENTIRE SYSTEM UPON SATISFACTORY COMPLETION OF THE REQUIRED TESTS. NO PARTIAL ACCEPTANCE OF ANY PART OR PORTION OF APPARATUS WILL BE MADE.

INSTALL AND CONNECT ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND DO ALL WORK IN A NEAT AND WORKMANLIKE MANNER AND IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE AS JUDGED BY THE ENGINEER.

ALL EQUIPMENT AND PIPING SHALL BE SO INSTALLED THAT NO OBJECTIONABLE NOISES FROM EQUIPMENT, PIPING OR AIR DISTRIBUTION ARE AUDIBLE IN THE FINISHED AREAS.

GUARANTEE: THIS CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FOR ONE (1) YEAR FOLLOWING FINAL INSPECTION AND ACCEPTANCE OF THE BUILDING BY THE ENGINEER AND OWNER. THIS APPLIES TO ALL MATERIALS AND EQUIPMENT INSTALLED UNDER THIS CONTRACT, REGARDLESS OF SOURCE.

THE ONE (1) YEAR GUARANTEE PERIOD WILL START ON THE DAY OF FINAL INSPECTION AND ACCEPTANCE BY THE OWNER. THE CONTRACTOR SHALL PROVIDE THE ENGINEER A LETTER WITH TWO (2) COPIES STATING THE BEGINNING AND ENDING DATES OF THE GUARANTEE BASED ON THE AFOREMENTIONED STARTING DATES.

EXTENDED GUARANTEE: PROVIDE AN ADDITIONAL FOUR (4) YEAR GUARANTEE ON ALL COMPRESSORS BEYOND THE ABOVE MENTIONED ONE (1) YEAR GUARANTEE PERIOD.

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 7883 ENGINEER DONALD R BRITTAIN
26/4/25

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-13-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

PROJECT NUMBER:	2024.008
CAD DWG FILE:	
DRAWN BY:	DGR
CHECKED BY:	DRB

SHEET TITLE
Specifications
HVAC

M3

042425EHC217100

DETAILED ELECTRICAL SPECIFICATIONS

SCOPE: FURNISH ALL MATERIALS, LABOR, TOOLS, EQUIPMENT AND SUPERVISION NECESSARY TO INSTALL COMPLETE ELECTRICAL POWER AND LIGHTING SYSTEM IN THE BUILDING AS FURTHER DESCRIBED ON THE ELECTRICAL CONTRACT DRAWINGS.
SUPPLY ALL MATERIALS, FITTINGS AND HARDWARE NECESSARY FOR COMPLETE OPERATING SYSTEMS WITHIN THE OBVIOUS INTENT OF THE DRAWINGS. NO ATTEMPT HAS BEEN MADE TO DETAIL OR LIST EACH AND EVERY ITEM OF MATERIAL. THE ELECTRICAL CONTRACTOR IS CAUTIONED TO READ THE ENTIRE PROJECT DRAWINGS AND SPECIFICATIONS TO ASSURE HIMSELF OF A THOROUGH KNOWLEDGE OF BUILDING CONSTRUCTION, STRUCTURAL RESTRICTIONS TO ELECTRICAL CONTRACT WORK AND TO ASSURE THAT NO REFERENCE ANYWHERE IN THE PROJECT DRAWINGS AND SPECIFICATIONS TO WORK BY THE ELECTRICAL CONTRACTOR IS OVERLOOKED.

CODES, PERMITS AND INSPECTIONS: THE LATEST EDITION OF THE STATE OF NORTH CAROLINA BUILDING CODE WHICH INCLUDES THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE IS HEREBY MADE A PART OF THIS SPECIFICATION. CODE REQUIREMENTS SHALL TAKE PRECEDENCE OVER THESE SPECIFICATIONS WHERE THE CODE REQUIREMENTS EXCEED THAT OF THE SPECIFICATIONS. HOWEVER, THE SPECIFICATIONS SHALL BE FOLLOWED WHERE THEY EXCEED CODE REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, OBTAIN THE SERVICES OF THE LOCAL ELECTRICAL INSPECTOR TO MAKE ALL REQUIRED DURING CONSTRUCTION AND COMPLETED ELECTRICAL SYSTEM INSPECTIONS.

MATERIALS AND WORKMANSHIP: ALL MATERIAL BUILT INTO THIS PROJECT SHALL BE NEW OF EQUIVALENT OR BETTER QUALITY THAN THAT SPECIFIED. SPECIFIC NAMES AND CATALOG NUMBERS USED HEREIN ARE TO ESTABLISH THE ITEM FUNCTION, ARRANGEMENT AND QUALITY REQUIRED AND IS IN NO WAY TO RESTRICT COMPETITION. ALL MATERIALS SHALL BE UL APPROVED/LABELED AND/OR BE APPROVED BY A THIRD PARTY TESTING AGENCY IN THE STATE OF NORTH CAROLINA FOR THE PARTICULAR APPLICATION AS USED ON THIS PROJECT.

CONDUCTORS: ALL CONDUCTORS SHALL BE COPPER (#10 AWG AND SMALLER SHALL BE SOLID, AND #8 AWG AND LARGER STRANDED) WITH THHN/THWN INSULATION, INSTALLED IN CONDUIT. CONDUCTORS SHALL BE #12 AWG MINIMUM EXCEPT WITHIN LIGHT FIXTURES, LOW VOLTAGE CONTROLS OR COMMUNICATION/FIRE ALARM EQUIPMENT. CONDUCTOR COLOR CODE SHALL CONFORM TO THE NEC. CONDUCTORS SHALL BE CONTINUOUS FROM TERMINAL TO TERMINAL OR PULL BOX TO PULL BOX. JOINTS SHALL BE MADE WITH IDEAL "WIRENUTS." WIRING TERMINATIONS FOR ALL ELECTRICAL EQUIPMENT SHALL BE TESTED AND APPROVED FOR USE WITH 75°C RATED CONDUCTORS.

RACEWAYS: RACEWAYS SHALL BE UL APPROVED RIGID GALVANIZED STEEL WITH THREADED JOINTS OR METALLIC TUBING (EMT) WITH THREADED STEEL HEXAGONAL COMPRESSION FITTINGS – NEITHER INDENTOR TYPE OR DIE METAL FITTING WILL BE ACCEPTED. CONDUIT UNDER THE FLOOR SLAB AND UNDER GROUND OUTSIDE THE BUILDING MAY BE PVC. FITTINGS IN EMT SHALL BE WEATHER TIGHT (THOMAS AND BETTS SERIES #5123 WITH NYLON INSULATED THROATS), BENDS SHALL BE FACTORY FABRICATED OR MADE "COLD" WITH BENDING TOOL, FREE OF KINKS OR RESTRICTIONS. NO SINGLE BEND SHALL BE IN EXCESS OF 90 DEGREES. THERE SHALL BE NO MORE THAN THE EQUIVALENT OF THREE (3) 90 DEGREE BENDS IN A GIVEN RACEWAY FROM PULL BOX TO PULL BOX. RIGID RACEWAY THREADS SHALL BE CUT STRAIGHT AND TRUE – PIPE ENDS SHALL BE REAMED AND SMOOTHED INSIDE AND OUT. SUPPORT 1–1/2 INCH AND LARGER CONDUIT 10 FEET O/C OR LESS, AND 1 INCH AND SMALLER 6 FEET O/C MAXIMUM. RACEWAYS SHALL BE SUPPORTED DIRECTLY FROM BUILDING STRUCTURE WITH BOLTS, SCREWS, STRAPS, HANGER RODS AND BRACKETS. ALL METALLIC HARDWARE SHALL BE GALVANIZED OR CADMIUM PLATED. NAILS, WIRE AND/OR PERFORATED STRAPS WILL NOT BE ACCEPTED. USE THREADED LOCKNUTS OUTSIDE AND THREADED LOCKNUT AND BUSHING INSIDE ALL RACEWAY CONNECTIONS TO BOXES, DEVICES, PANELS AND GUTTERS. USE NON–METALLIC BUSHINGS ON ALL 1–1/4 INCH AND LARGER CONDUIT. EXPOSED CONDUIT SHALL BE RUN STRAIGHT AND TRUE PARALLEL AND PERPENDICULAR TO PRIMARY BUILDING LINES.

BOXES AND DEVICES: ALL BOXES, PANELS AND EQUIPMENT SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE AND SHALL NOT DEPEND ON THE FEEDER RACEWAYS FOR SUPPORT. ALL ITEMS SHALL BE CAREFULLY ALIGNED SO THAT COVERS WILL FINISH FLUSH AND STRAIGHT. ALL UNUSED KNOCKOUTS SHALL BE CLOSED WITH BLANKING DEVICES. BOXES IN CONCRETE OR MASONRY SHALL BE 3–1/2 INCH DEEP (MINIMUM) SQUARE 16 GAUGE GALVANIZED STEEL – STEEL CITY SERIES GW. BOXES INSTALLED IN WOOD PARTITIONS SHALL BE STEEL CITY 3–1/2 INCH DEEP GANGABLE SQUARE CORNER TYPE. SURFACE MOUNTED BOXES SHALL BE STEEL CITY #52151 AND/OR #52171 OR EQUAL. RECEPTACLES SHALL BE PASS & SEYMOUR 5362 SERIES OR EQUAL. SWITCHES SHALL BE PASS & SEYMOUR CBS20AC SERIES OR EQUAL. COVER PLATES SHALL BE STAINLESS STEEL (COORDINATE W/ OWNER). PULL BOXES SHALL BE 14 GAUGE GALVANIZED STEEL WITH BLANK COVER SIZED AS REQUIRED BY NATIONAL ELECTRICAL CODE. LOCATE DEVICES AND EQUIPMENT ABOVE FINISHED FLOOR AS FOLLOWS UNLESS OTHERWISE SPECIFICALLY NOTED ON PLANS:

WALL SWITCHES – 4'–0" OR TO NEAREST MASONRY COURSE JOINT.
RECEPTACLES – 1'–6" OR TO NEAREST MASONRY COURSE JOINT.
LIGHT FIXTURES – AS NOTED ON FIXTURE SCHEDULE.

GROUNDING: THE ELECTRICAL SYSTEM AND ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. GREEN EQUIPMENT GROUND WIRE SHALL BE INSTALLED WITH ALL FEEDERS AND BRANCH CIRCUITS AND IT SHALL BE SIZED PER NEC 250.122. WHERE ONLY ONE GROUND ROD IS DRIVEN AS ALLOWED BY THE EXCEPTION IN NEC ARTICLE 250.53(A)(2), THE CONTRACTOR SHALL SUBMIT A TESTING REPORT SHOWING THE ROD PROVIDED A RESISTANCE OF 25 OHMS OR LESS TO THE ENGINEER.

LIGHTING FIXTURES: LIGHTING FIXTURES AND LAMPS SHALL BE PROVIDED AND INSTALLED AS PER SCHEDULE. CATALOG NUMBERS GIVEN IN THE FIXTURE SCHEDULE INDICATE THE MINIMUM QUALITY AND PERFORMANCE REQUIRED. EQUAL FIXTURES WILL BE ALLOWED ONLY UPON APPROVAL BY ENGINEER; EQUAL FIXTURES SHALL MEET THE MINIMUM QUALITY AND PERFORMANCE OF THE SPECIFIED FIXTURE. EQUAL FIXTURES BY HUBBELL, COOPER, PHILIPS OR ACUITY SHALL BE ALLOWED. ALL FIXTURES SHALL BE CLEANED ON COMPLETION OF INSTALLATION. BALLASTS AND/OR THE FIXTURE UNIT IN WHICH THEY ARE INSTALLED SHALL HAVE UL APPROVAL FOR DIRECT CONTACT MOUNTING TO COMBUSTIBLE CEILING MATERIAL. ALL FLUORESCENT FIXTURES SHALL BE SUPPLIED WITH ELECTRONIC BALLASTS AND LED FIXTURES SHALL BE SUPPLIED WITH DIMMABLE LED DRIVERS. THE FIXTURES SHALL BE COMPLETE IN ALL RESPECTS INCLUDING PLASTER RINGS WHERE REQUIRED, END PLATES AND OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION. ALL LIGHTING FIXTURES SHALL BE SECURED TO THE CEILING STRUCTURE PER THE NEC. ADDITIONAL SUPPORT WIRES (TIE WIRES) SHALL BE INSTALLED FOR EACH LAY–IN TYPE FIXTURE. THERE SHALL BE TWO STEEL WIRES OF THE SAME TYPE AS USED TO SUPPORT THE LAY–IN CEILING TRACK. ONE WIRE AT EACH OPPOSITE CORNER OF THE FIXTURE. THE WIRES SHALL BE FASTENED TO THE BUILDING STRUCTURE. FOR FIRE RATED CEILING, FIXTURE SHALL BE SUPPORTED ON ALL FOUR CORNERS AND AS PER THE CEILING DESIGN CRITERIA, TO THE BUILDING STRUCTURE.

TESTING: CABLE INSULATION TESTING: THE CONTRACTOR SHALL MEGGER ALL BUSWAYS, CABLES AND CONTROL CONNECTIONS TO PROVE INSULATION RESISTANCE IS OF ACCEPTABLE VALUE.
EMERGENCY LIGHT TESTING: CONTRACTOR SHALL PERFORM A TEST ON EACH UNIT AFTER IT IS PERMANENTLY INSTALLED AND CHARGED FOR A MINIMUM OF 24 HOURS. BATTERY SHALL BE TESTED FOR 90 MINUTES AND IT SHALL MEET THE REQUIREMENTS OF NEC 700.12 (A). ANY UNIT WHICH FAILS THE TEST MUST BE REPAIRED OR REPLACED, AND TESTED AGAIN. A COPY OF THE TEST REPORT SHALL BE PRESENTED TO THE ENGINEER PRIOR TO FINAL INSPECTION.
TESTING DOCUMENTATION: ALL TESTS SPECIFIED SHALL BE COMPLETELY DOCUMENTED AND TURNED OVER TO THE ENGINEER WHERE REQUIRED IN THESE SPECIFICATIONS. THE TEST CERTIFICATIONS SHALL IDENTIFY THE TEST VALUES, EQUIPMENT TESTED, TIME OF DAY AND DATE OF TESTING, TEMPERATURE AT TIME OF TESTING, THE NAME OF THE ELECTRICIAN THAT CONDUCTED THE TEST, AND SIGNATURE OF PERSON RESPONSIBLE FOR THE TEST.

PANELBOARDS: PROVIDE PANELBOARDS RATED AND SIZED AS INDICATED IN THE SCHEDULE AND SHOWN ON THE PLANS EQUAL TO SQUARE D COMPANY MODEL NQ FOR SERVICES UP TO 240 VOLTS; MODEL NF FOR SERVICES UP TO 480 VOLTS; AND "I–LINE" FOR POWER DISTRIBUTION PANELS. ALL PANELBOARDS SHALL BE SUPPLIED WITH A COPPER EQUIPMENT GROUNDING BUS. CONSTRUCTION FEATURES SHALL INCLUDE MINIMUM 5" WIDE GUTTERS, DEAD FRONT CONSTRUCTION, ELECTROPLATED COPPER CURRENT CARRYING PARTS; UL LISTED TERMINALS SUITABLE FOR CONDUCTORS SPECIFIED; FLUSH FRONT HINGED "DOOR IN DOOR" WITH CYLINDER TUMBLER TYPE LOCKS (ALL KEYS ALIKE); CIRCUIT DIRECTORY AND FRAME, CODE GAUGE STEEL, GALVANIZED AND BAKED ENAMEL FINISHED. CIRCUIT BREAKERS SHALL BE BOLT–ON TYPE QOB (NQ PANELBOARDS), TYPE EDB (NF PANELBOARDS), AND TYPE FA AND FH (I–LINE PANELBOARDS). BREAKERS SHALL BE TOGGLE ACTION WITH QUICK–MAKE, QUICK–BREAK MECHANISM. TRIP INDICATION SHALL BE BY BREAKER HANDLE TAKING A POSITION BETWEEN ON AND OFF. ALL MULTI–POLE BREAKERS SHALL BE COMMON TRIP WITH A SINGLE HANDLE. ACCEPTABLE MANUFACTURERS: SQUARE D, GENERAL ELECTRIC, SIEMENS, CUTLER–HAMMER

SAFETY SWITCHES: SWITCHES SHALL BE EQUAL TO SQUARE D TYPE HD WITH RATINGS AND FUSING PROVISIONS AS INDICATED.

IDENTIFICATION AND NAMEPLATES: PROVIDE ENGRAVED, LAMINATED BAKELITE (WHITE LETTERS ON BLACK SURFACE) NAMEPLATES SCREWED TO EACH PIECE OF ELECTRICAL DISTRIBUTION EQUIPMENT AS FOLLOWS:
A. PANELBOARDS, SWITCHBOARDS – DESIGNATION L1, P1, ETC.,VOLTAGE, PHASE NUMBER OF WIRES, ETC.; WORDING EXAMPLE: PANEL L1–208V–3 PHASE, 4 WIRE.
B. MOTOR STARTERS, DISCONNECT SWITCHES – UNLESS MOUNTED DIRECTLY ON OR ADJACENT TO IDENTIFY EQUIPMENT: WORDING EXAMPLE: EXHAUST FAN 1, MAKE–UP AIR UNIT.
PROVIDE TYPED DIRECTORIES FOR PANELBOARD BRANCH CIRCUIT IDENTIFICATION. IDENTIFY EACH CIRCUIT BREAKER AS TO THE EXACT ROOM NUMBERS OR AREA SERVED AND THE TYPE OF CIRCUIT, I.E. "ROOMS 101–104 LIGHTS" OR "CAFETERIA EXHAUST FAN". PROVIDE ALL ADDITIONAL LABELING AS REQUIRED BY NEC ARTICLES 110.16 (ARC FLASH HAZARD) & 110.24 (AVAILABLE FAULT CURRENT).

EQUIPMENT CONNECTIONS: THIS CONTRACTOR SHALL BRING ALL REQUIRED ELECTRICAL SERVICE TO ALL EQUIPMENT ITEMS FURNISHED UNDER OTHER SECTIONS OF THESE SPECIFICATIONS OR BY THE OWNER, MAKE FINAL CONNECTIONS, AND LEAVE EQUIPMENT READY FOR OPERATION. THIS CONTRACTOR SHALL COORDINATE WITH ANY AFFECTED TRADE TO ASSURE CORRECT OPERATION OF THE EQUIPMENT ITEM.

CONTROL AND INTERLOCK WIRING: EXCEPT AS OTHERWISE INDICATED ON THE DRAWINGS, ALL CONTROL AND INTERLOCK WIRING SHALL BE PERFORMED BY THE RESPECTIVE CONTRACTORS. THE ELECTRICAL SUBCONTRACTOR SHALL INSTALL ALL STARTERS, PILOT SWITCHES, CONTROL DEVICES AND MISCELLANEOUS ITEMS OF ELECTRICAL EQUIPMENT FURNISHED UNDER OTHER SECTIONS OF THESE SPECIFICATIONS THAT ARE NOT INTEGRALLY MOUNTED WITH THEIR ASSOCIATED EQUIPMENT.

SERVICE: THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING SERVICE WITH THE UTILITY COMPANY. ALL CHARGES ASSOCIATED WITH SERVICE SHALL BE PAID BY THE E.C. PROVIDE UTILITY REQUIRED METERING PROVISIONS. PROVIDE CT CAN OR CONCRETE PAD FOR TRANSFORMER AS REQUIRED. PROVIDE CONDUIT FOR UTILITY PRIMARY IF REQUIRED. EC SHALL WORK DIRECTLY WITH THE UTILITY AND SHALL COMPLETE AND SUBMIT ALL LOAD DATA SHEETS REQUIRED FOR SERVICE APPLICATION. WHERE A NEW SERVICE IS NOT REQUIRED, BUT LOADS ARE ADDED TO AN EXISTING SERVICE, E.C. SHALL NOTIFY UTILITY OF ADDITIONAL LOADS E.C. SHALL PROVIDE THIS INFORMATION AT BEGINNING OF PROJECT TO ALLOW TIME FOR A TRANSFORMER CHANGE OUT IF NECESSARY.

VIBRATION ISOLATION AND SEISMIC RESTRAINT: ALL EQUIPMENT AND CONDUIT FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE SEISMICALLY RESTRAINED BY CHAPTER 16 OF THE INTERNATIONAL BUILDING CODE, VOL. 1 – GENERAL CONSTRUCTION.

SUBMITTALS: SHOP DRAWING SUBMITTALS WILL BE REQUIRED FOR THIS PROJECT. SUBMIT ELECTRONIC COPIES OF ALL LIGHT FIXTURES AND MAJOR SPECIFIED EQUIPMENT TO THE ENGINEER FOR APPROVAL. THE ELECTRICAL CONTRACTOR SHALL REVIEW ALL SUBMITTALS AND MAKE CORRECTIONS AS REQUIRED PRIOR TO SUBMITTING TO ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL ALSO AFFIX HIS STAMP TO THE SUBMITTALS INDICATING THAT HIS REVIEW HAS BEEN COMPLETED. IT IS UNDERSTOOD THAT PROOF OF EQUALITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR SUPPLIER AND THAT IT IS NOT THE RESPONSIBILITY OF THE ENGINEER TO PROVE THE INEQUALITY OF THE PROPOSED SUBSTITUTIONS. FURTHERMORE THE DECISION OF THE ENGINEER IS FINAL. SHOULD ANY SUBSTITUTE ITEMS BE SUBMITTED AND DISAPPROVED, THEN THOSE ITEMS MUST BE FURNISHED EXACTLY AS DESCRIBED HEREIN. THE ENGINEER'S REVIEW OF SHOP DRAWINGS AND/OR SUBMITTAL DATA SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DEVIATIONS FROM THE CONTRACT DRAWINGS OR SPECIFICATIONS.

PROJECT CLOSE–OUT: DEMONSTRATION OF COMPLETE ELECTRICAL SYSTEMS: AFTER INSTALLATION HAS BEEN COMPLETED, EQUIPMENT HAS BEEN TESTED, SYSTEMS PLACED IN PERMANENT OPERATION, AND ALL ADJUSTMENTS MADE, THIS CONTRACTOR SHALL DEMONSTRATE THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT HE HAS INSTALLED TO THE OWNER'S REPRESENTATIVE.

OPERATING AND MAINTENANCE MANUALS: THIS CONTRACTOR SHALL PROVIDE THE OWNER WITH A SET OF OPERATION AND MAINTENANCE MANUALS FOR THE EQUIPMENT HE HAS PROVIDED AND INSTALLED ON THE PROJECT. THE FIRST PAGE OF THE MANUALS SHALL IDENTIFY PROJECT AND GIVE NAME, ADDRESS AND PHONE NUMBER OF ARCHITECT, ENGINEER, MECHANICAL AND ELECTRICAL SUB–CONTRACTORS AND ANY SERVICE COMPANIES INVOLVED AND GIVE NAME AND NIGHT PHONE NUMBERS OF EACH PARTY REPRESENTING THE ELECTRICAL CONTRACTOR RESPONSIBLE FOR SERVICE DURING WARRANTY PERIOD.

WARRANTIES – GUARANTEE: THIS CONTRACTOR SHALL DELIVER TO THE OWNER ALL WARRANTIES FOR EQUIPMENT HE HAS PURCHASED AND INSTALLED. THIS CONTRACTOR SHALL ALSO GUARANTEE THAT ALL WORK PERFORMED AND/OR MATERIALS INSTALLED UNDER HIS CONTRACT IS OF THE QUALITY THAT COMPLIES WITH ALL SPECIFIC REQUIREMENTS OF THE PROJECT DOCUMENTS AND INSURES THE OWNER AGAINST ALL DEFECTS OF MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE.

FINAL CLEAN UP: DURING CONSTRUCTION THIS CONTRACTOR SHALL KEEP THE SITE CLEAR OF DEBRIS AND UPON COMPLETION OF CONSTRUCTION HE SHALL CLEAN UP THE PREMISES AND REMOVE ALL EVIDENCE OF HIS WORK.

RECORD DRAWINGS: AT THE END OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT ONE SET OF THE ELECTRICAL DRAWINGS, UPDATED TO REFLECT CHANGES THAT HAVE TAKEN PLACE DURING THE CONSTRUCTION PERIOD, TO THE OWNER FOR THEIR USE. THE CORRECTED PLANS SHALL INDICATE ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL CONTRACT DOCUMENTS.

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE:

Energy Code: Prescriptive ● Performance ____
ASHRAE 90.1: Prescriptive ____ Performance ____

Lighting schedule

lamp type required in fixture	See Fixture Schedule
number of lamps in fixture	See Fixture Schedule
ballast type used in the fixture	See Fixture Schedule
number of ballasts in fixture	See Fixture Schedule
total wattage per fixture	See Fixture Schedule
total interior wattage specified vs allowed	2,848/5,048
total exterior wattage specified vs allowed	282/750

Additional Prescriptive Compliance

C406.2 More Efficient Mechanical Equipment ____
C406.3 Reduced Lighting Power Density ____●
C406.4 Enhanced Lighting Controls ____
C406.5 On–Site Supply of Renewable Energy ____
C406.6 Dedicated Outdoor Air System ____
C406.7 High–Efficiency Service Water Heating ____

LIGHTING FIXTURE SCHEDULE

MARK	TYPE	MOUNTING	MANUFACTURER CATALOG NO.	LAMPS QTY/TYPE	TOTAL WATTS	VOLTAGE	REMARKS
A1	2' x 4' LED FLAT PANEL	LAY–IN	LITHONIA CPX 2X4 7200LM 80CRI 40K SWL MIN10 ZT MVOLT	LED 7807 LM 4000K	57W	MVOLT	CAPABLE OF DIMMING
A2	2' x 4' LED FLAT PANEL	LAY–IN	LITHONIA CPX 2X4 6000LM 80CRI 40K SWL MIN10 ZT MVOLT	LED 6091 LM 4000K	42W	MVOLT	CAPABLE OF DIMMING
A3	2' x 4' LED FLAT PANEL	LAY–IN	LITHONIA CPX 2X4 4000LM 80CRI 40K SWL MIN10 ZT MVOLT	LED 4936 LM 4000K	37W	MVOLT	CAPABLE OF DIMMING
B1	1' X 2' LED LINEAR HI BAY	MT TO PURLINS	LITHONIA IBC 8000LM SEF ACL GND MVOLT GZ10 40K 80CRI DWH	LED 7845 LM 4000K	49W	MVOLT	CAPABLE OF DIMMING, DAMP LOCATION LISTED, WHITE FINISH
B2	1' X 2' LED LINEAR HI BAY	MT TO PURLINS	LITHONIA IBG 12000LM SEF ACL GND MVOLT GZ10 40K 80CRI DWH	LED 11,856 LM 4000K	77W	MVOLT	CAPABLE OF DIMMING, DAMP LOCATION LISTED, WHITE FINISH
D	6" x 4' LED WALL BRACKET	ABOVE MIRROR	LITHONIA WL4 20L GZ10 LP840 WH PAF	LED 2250 LM 4000K	19W	MVOLT	DIMMABLE DOWN TO 10%, WHITE FINISH, PAINT AFTER FABRICATION
E	EMERGENCY	WALL MOUNT	LITHONIA ELM 4L	LED 640 LM 5000K	2W	UVOLT	PROVIDE 90 MINUTE BATTERY BACKUP
EH	HIGH OUTPUT EMERGENCY	WALL MOUNT	LITHONIA ELM 6L	LED 1100 LM 5000K	3W	UVOLT	PROVIDE 90 MINUTE BATTERY BACKUP, DAMP LOCATION
G	6" X 2' SURFACE WET LOCATION	SURFACE	LITHONIA DMW2 L24 4000LM PFL MD MVOLT GZ1 40K 80CRI DMW2WLF DMW2QMB	LED 4855 LM 4000K	40W	MVOLT	UL WET LOCATION, NEMA 4X, IP65&IP66 RATED, FIBERGLASS, STAINLESS STL MTG BRACKTS,RATED 1500 PSI HOSE–DOWN & NSF SPLASH ZONE II
L	EXTERIOR LED WALL SCONCE	SURFACE	LUMINIS SYP600 L1L35 FLD 40K MVOLT SL SP BZT	LED 3732 LM 4000 K	39W	MVOLT	WET LOCATION, IP65, THERMAL CUT OFF, SURGE PROTECTION,, BRONZE FINISH
S	LED STRIP LIGHT	SURFACE OR SUSPEND AT 9'	LITHONIA UCES 24IN SWW5 90CRI WH	LED 934 LM 4000K	17W	120V	DIMMING, DAMP LOCATION
T2	3" X 2' LED TASK LIGHT	UNDER COUNTER	LITHONIA UCES 24IN SWWS 90CRI WH (WITH DIMMING)	LED 881 LM 4000K	17W	MVOLT	10% DIMMING, DAMP LOCATION RATED
X	EXIT SIGN	WALL MOUNT ABOVE DOOR	LITHONIA LQM S W 3 R 120/277 EL N	LED	2W	MVOLT	PROVIDE 90 MINUTE BATTERY BACKUP, NO LAMPS
XE	EXIT/EGRESS COMBINATION	WALL MOUNT ABOVE DOOR	LITHONIA LHQM LP06VS S W 3 R HO M (W/TWIN GRAY EGRESS LIGHTS) ELA T SD QWP LO309	EXIT) LED EGRESS) 2–3W LED LAMPS	4W	MVOLT	PROVIDE 90 MINUTE BATTERY BACKUP
SP1	SITE POLE LIGHT	POLE MOUNT (HEIGHT & OTHER CHARACTERISTICS TO MATCH EXISTING)	LED AREA LIGHT, DIE–CAST ALUMINUM HOUSING, TYPE IV DISTRIBUTION W/ HOUSE SIDE SHIELD, FULL CUT–OFF, UL LISTED FOR WET LOCATIONS, PROVIDE 9" SQUARE POLE ARM AND ALL NECESSARY MOUNTING HARDWARE, 25' SQUARE STEEL POLE. POLE SHALL BE RATED FOR 90 MPH WINDS W/ 30% GUST FACTOR FOR LUMINAIRE PROVIDED, BLACK FINISH. FIXTURE SHALL MATCH MATCH EXISTING LIGHT POLE USED IN ADJACENT PARKING DECK. PROVIDE JUNCTION BOX W/ BLANK COVER IN POLE AT 15' AFF FOR FUTURE SECURITY CAMERA.	LED	UNK	208V/1	CONTROLLED BY PHOTOCELL, VERIFY W/OWNER EXACT REQ'MNTS.

NOTES: ACCEPTABLE MANUFACTURERS OF COMPARABLE LIGHTING FIXTURES EQUAL TO FIXTURES SPECIFIED IN THIS LIGHTING FIXTURE SCHEDULE ARE ACUITY, EATON, HLI CURRENT, SIGNIFY AND WILLIAMS. ACUITY MODEL NUMBERS ARE USED ONLY AS A BASIS FOR DESIGN WHICH IS NOT RESTRICTIVE TO ANY PARTICULAR BRAND OF PRODUCT AS LONG AS THE PRODUCTS USED ARE EQUAL IN FORM, FIT AND FUNCTION TO THOSE SPECIFIED.

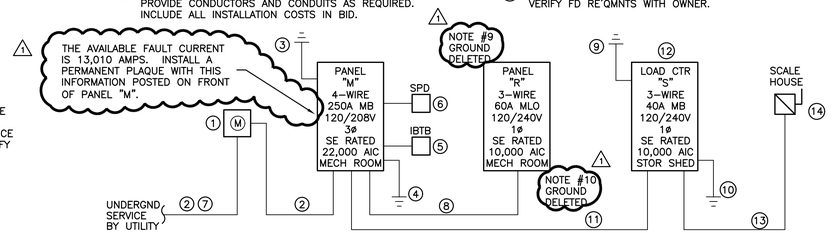
ESTIMATED LOAD TABULATION FOR POWER CO.

LOADS IN KVA	EXISTING DEMAND		NEW CONNECTED		DIVERSITY FACTOR	NEW DEMAND		TOTAL KVA EXISTING & NEW DEMAND
	SINGLE PHASE	THREE PHASE	SINGLE PHASE	THREE PHASE		SINGLE PHASE	THREE PHASE	
LIGHTING	–	–	5.6	–	100%	5.6	–	5.6
RECEPTACLES	–	–	16.9	–	70%	11.8	–	11.8
WATER HEATER	–	–	4.5	–	100%	4.5	–	4.5
HVAC / FANS	–	–	14.0	39.5	80%	11.2	31.6	42.8
ELECTRIC RANGE	–	–	8.0	–	100%	8.0	–	8.0
TOTAL	–	–	49.0	39.5		41.1	31.6	72.7

TOTAL ESTIMATED PEAK LOAD OF 72.7 KW = 201.9 AMPS AT 208V/3ø, WITHIN THE CAPACITY OF PANEL "M" AT 250A AT 208V/3ø.

POWER RISER NOTES:

1. 250A, 120/208V, 3ø, 4–WIRE K–METER BASE.
2. 4 #250 KCMIL, 3"C UNDERGROUND.
3. #2 GND, 1¼"C PER NEC 250.50 & 250.52. REFER ALSO TO "SERVICE EQUIPMENT GROUNDING DETAIL".
4. #6 GND, ¾"C TO GND RODS (MIN OF 2).
5. INTERSYSTEM BONDING TERMINAL BOX, REFER TO DTL.
6. SURGE PROTECTION DEVICE (SPD) RATED FOR 80KA PHASE TO PHASE. REFER TO SPD DETAIL.
7. COORDINATE ELECTRIC SERVICE INSTALLATION W/ UTILITY. PROVIDE CONDUCTORS AND CONDUITS AS REQUIRED. INCLUDE ALL INSTALLATION COSTS IN BID.
8. 3 #6, #10 GND, ¾"C.
9. #8, ½"C TO BLDG STEEL.
10. #6 GND, ½"C TO GND RODS (2–MIN).
11. 3 #6, #10 GND, 1"C.
12. DO NOT BOND NEUTRAL TO GROUND.
13. 2 #12, #12 GND, ½"C.
14. 250/30/1/SN/3R W/ 20A FUSE VERIFY FD RE'QMNTS WITH OWNER.



POWER RISER

NTS

PANEL M

22,000 AMPS RMS. SYM. I.C.
INTEGRATED EQUIPMENT RATING

SURFACE MOUNTED
SE LABEL, 54 SPACES

120/208 VOLTS, 3 PHASE, 4 WIRE, 250 AMP 1 MAIN BREAKER

SERVES	CIR LOAD	CIR NO.	A B C	CIR NO.	CIR LOAD	SERVES
LIGHTING OFFICE, RR, KIT	0.65	1		2	1.30	RECEPTACLES MICROWAVE
MEETING ROOM	1.00	3		4	0.36	COUNTER TOP
CORRAL AREA	1.54	5		6	0.36	COUNTER TOP
MTD OUTSIDE	0.57	7		8	0.36	COUNTER TOP
RECEPTACLES	0.54	9		10	0.45	ICE 1
	0.36	11		12	0.65	REFRIGERATOR
	0.50	13		14	0.54	MEETING RM
	0.36	15		16	0.46	WTR FOUNTAIN 2
	0.36	17		18	0.54	LOBBY
	0.50	19		20	0.90	OFFICE
ROLL–UP DOOR	1.25	21		22	0.36	RESTROOMS
	1.25	23		24	0.36	MEETING RM
ROLL–UP DOOR	1.25	25		26	0.36	MECHANICAL RM
	1.25	27		28	4.00	ELECTRIC RANGE
WATER HEATER	2.25	29		30	4.00	
	2.25	31		32	1.75	HP–1
AHU–1	4.60	33		34	1.75	
	4.60	35		36	1.75	
AHU–2	7.75	37		38	3.65	HP–2
	7.75	39		40	3.65	
	7.75	41		42	3.65	
SPARE		43		44		SPARE
		45		46		
PANEL "R" IN MECH/ELEC ROOM	4.50	47		48		
	4.50	49		50		SPD
SUP–PANEL "S" AT STORAGE SHED	0.30	51		52		
	0.30	53		54		

TOTAL CONNECTED LOAD: 87 KVA (240A) ALL BREAKERS ARE 1P–20A UNLESS OTHERWISE NOTED

PANEL NOTES: 1 HACR BREAKER
2 GFI BREAKER

1 REVIEW COMMENTS 06/17/25

051425JFH217100

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 7883 ENGINEER DONALD BRITTAIN
26/9/25

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

MARK	DATE	DESCRIPTION
SD	11-22-2024	SCHEMATIC DESIGN
DD	12-13-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

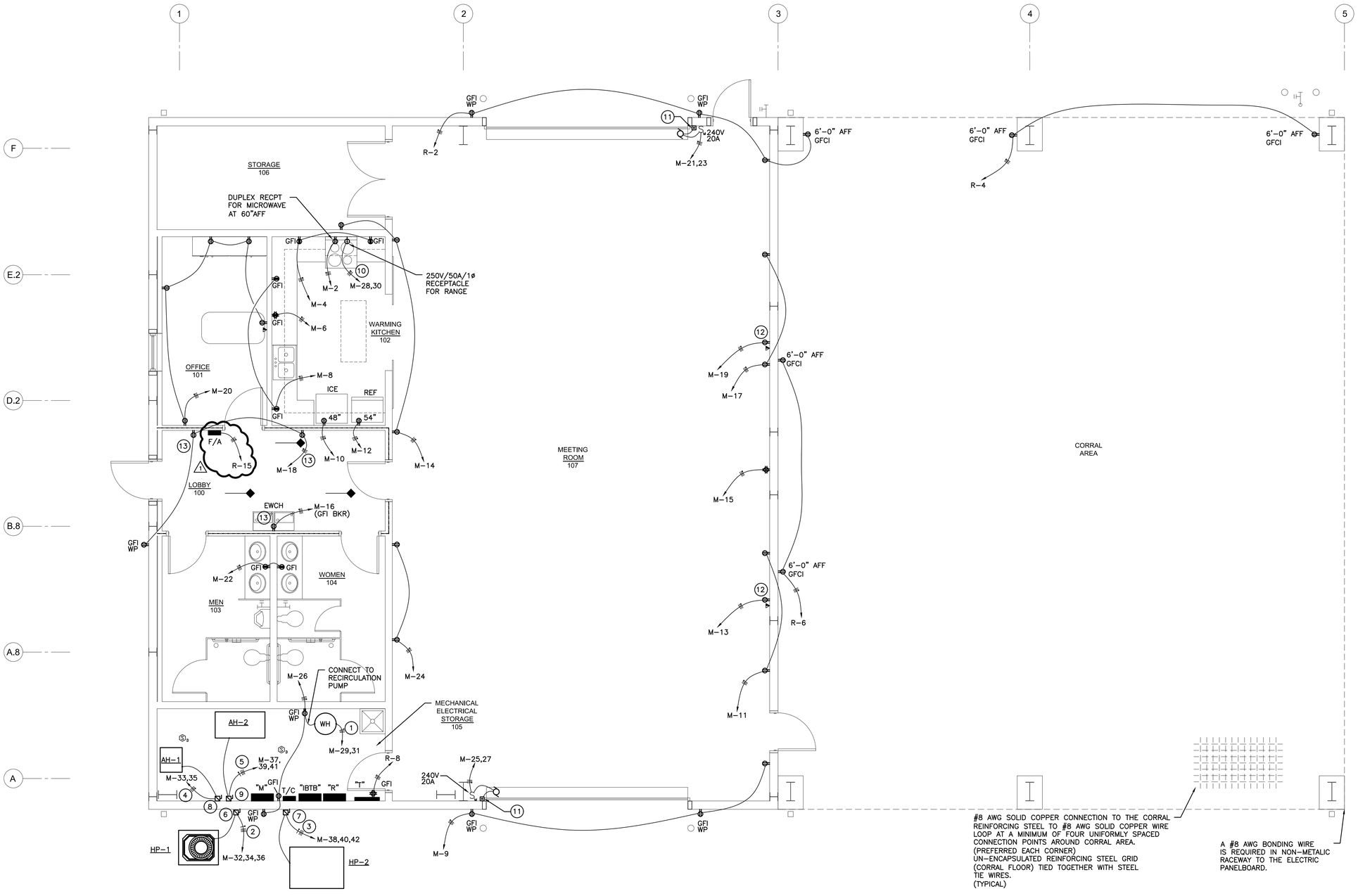
PROJECT NUMBER: 2024.008
CAD DWG FILE:
DRAWN BY: DGR
CHECKED BY: DRB

SHEET TITLE
Specifications
Schedules
Appendix B

E1

POWER FLOOR PLAN NOTES:

1. 2 #10, #10 GND, ½"C.
2. 3 #10, #10 GND, ½"C.
3. 3 #8, #10 GND, ¾"C.
4. 2 #6, #10 GND, ¾"C.
5. 3 #4, #8 GND, 1"C.
6. 250/30/3/3R FUSE FOR UNIT.
7. 250/60/3/3R FUSE FOR UNIT.
8. 250/60/2 FUSE FOR UNIT.
9. 250/100/3 FUSE FOR UNIT.
10. 2 #8, #10 GND, ¾"C.
11. PUSHBUTTON BY DOOR MANUFACTURER. EC TO INSTALL WIRING AND CONDUIT.
12. MOUNT RECEPTACLE AND DATA OUTLET FOR LARGE SCREEN TV AT 84" AFF. COORDINATE W/ OWNER.
13. RECEPTACLE TO BE INSTALLED IN ONE-HOUR RATED WALL. USE A "FIRE BARRIER PUDDY PAD" BEHIND EACH RECESSED RECEPTACLE BOX TO MAINTAIN A ONE HOUR RATING. ADHERENCE TO PENETRATION DETAIL ON SHEET E4 IS REQUIRED.



FLOOR PLAN - POWER

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

1 REVIEW COMMENTS 06/17/25

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CAD DWG FILE:	
DRAWN BY:	DGR
CHECKED BY:	DRB

SHEET TITLE

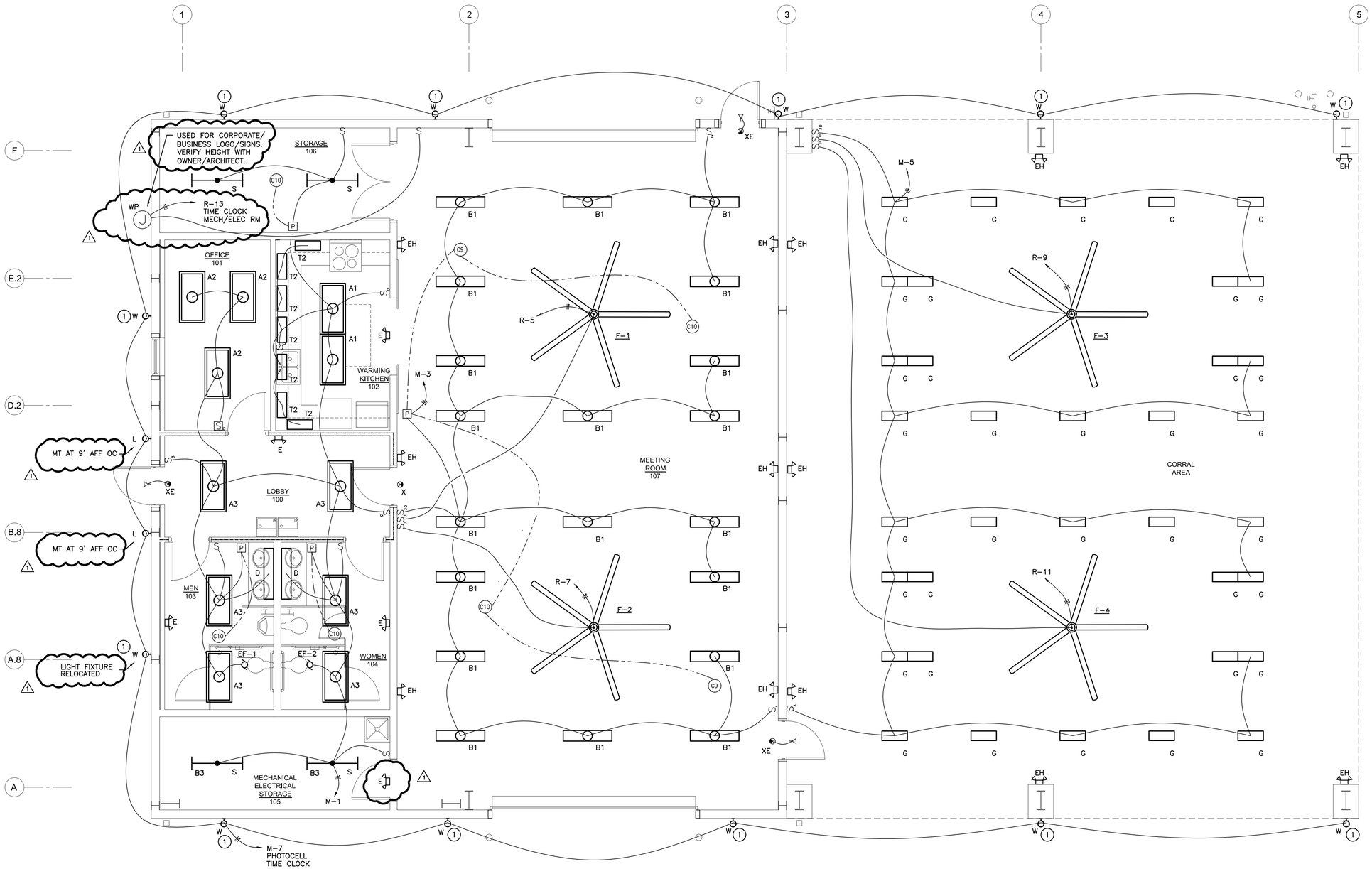
Floor Plan
Power

E2

LIGHTING NOTE:
EXIT SIGNS AND EMERGENCY LIGHTS ARE TO BE CONNECTED TO THE LIGHTING CIRCUIT IN THE AREA EACH LIGHT SERVES AND MUST BE NON-SWITCHED SO POWER IS NOT TURNED OFF BY THE TIME CLOCK. (1)

LIGHTING FLOOR PLAN NOTES:

(1) TO BE MOUNTED AT 12'-0" AFF.



FLOOR PLAN - LIGHTING

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

1 REVIEW COMMENTS 06/17/25

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CAD DWG FILE:	
DRAWN BY:	DGR
CHECKED BY:	DRB

SHEET TITLE

Floor Plan
Lighting

E3

System No. W-L-1001

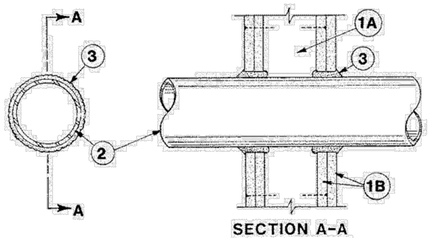
June 15, 2005

F Ratings — 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings — 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient — less than 1 CFM/sq ft

L Rating At 400 F — less than 1 CFM/sq ft



SECTION A-A

1. **Wall Assembly** — The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs** — Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board*** — Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. **Through-Penetrant** — One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in / (0 mm). (point contact) to max 2 in. (51 mm) Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe** — Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. **Iron Pipe** — Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. **Conduit** — Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in (102 mm) diam (or smaller) steel electrical metallic tubing
   D. **Copper Tubing** — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing
   E. **Copper Pipe** — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   F. **Through Penetrating Product*** — Flexible Metal Piping The following types of steel flexible metal gas piping may be used:
   1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   OMEGA FLEX INC

   2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   GASTITE, DIV OF TITEFLEX

   3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   WARD MFG INC

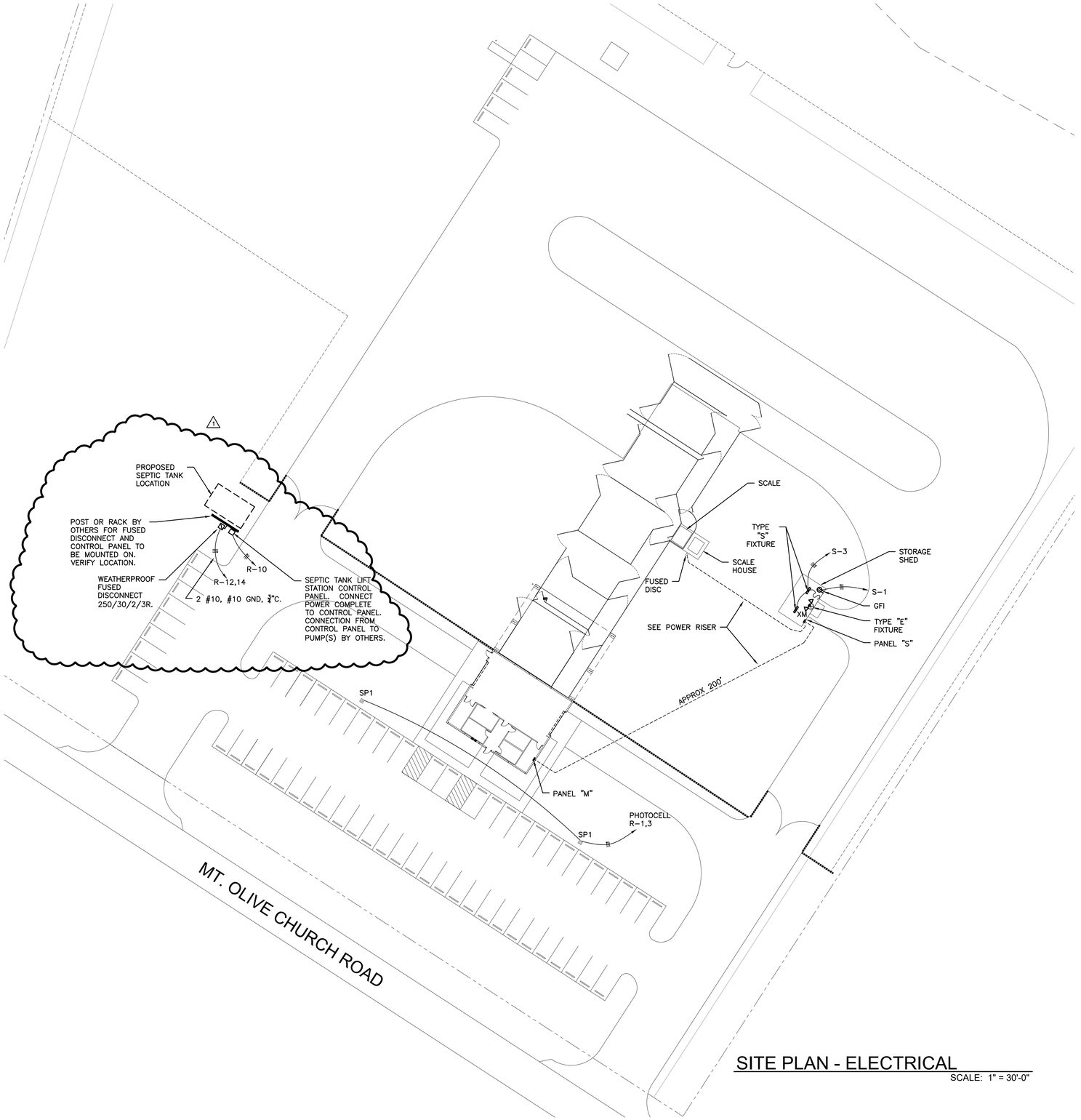
3. **Fill, Void or Cavity Material*** — **Caulk or Sealant** — Min 5/8. , 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 h.

3M COMPANY — CP 25WB+ or FB-3000 WT.

*Bearing the UL Classification Mark



SITE PLAN - ELECTRICAL

SCALE: 1" = 30'-0"

1 REVIEW COMMENTS 06/17/25

051425JFH217100

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 7883 ENGINEER DONALD R BRITTAIN 6/17/25

PROJECT

CATAWBA COUNTY CATTLEMEN'S ASSOCIATION EDUCATION CENTER

2894 MT. OLIVE CHURCH ROAD
NEWTON, NORTH CAROLINA 28658

DISTRIBUTION

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DD	12-13-2024	DESIGN DEVELOPMENT
CD	05-14-2025	CONSTRUCTION DOCUMENTS

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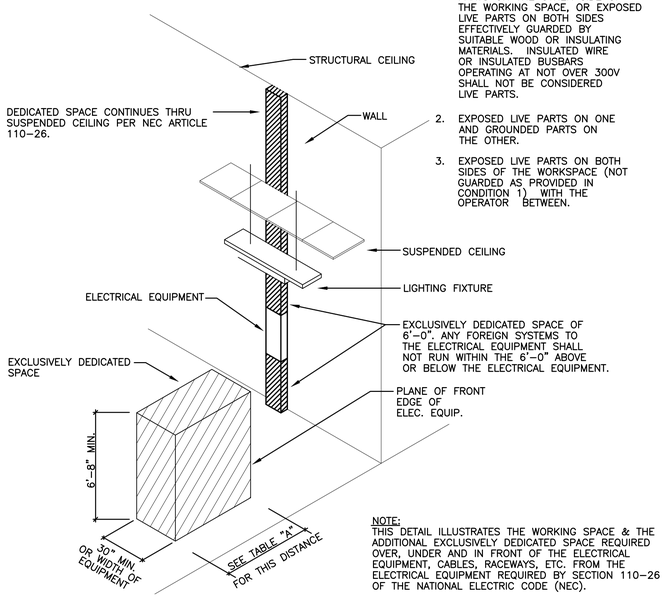
Site Plan
Electrical

E4



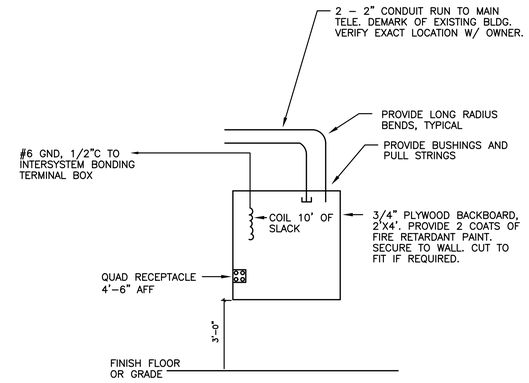
WHERE THE "CONDITIONS" ARE AS FOLLOWS

1. EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR INSULATING MATERIALS. INSULATED WIRE OR INSULATED BUSBARS OPERATING AT NOT OVER 300V SHALL NOT BE CONSIDERED LIVE PARTS.
2. EXPOSED LIVE PARTS ON ONE AND GROUNDED PARTS ON THE OTHER.
3. EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKSPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.

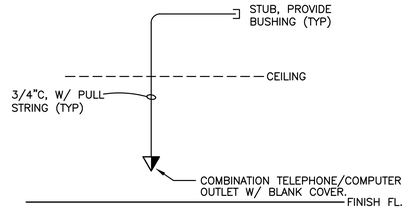
NOTE:
THIS DETAIL ILLUSTRATES THE WORKING SPACE & THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER, UNDER AND IN FRONT OF THE ELECTRICAL EQUIPMENT, CABLES, RACEWAYS, ETC. FROM THE ELECTRICAL EQUIPMENT REQUIRED BY SECTION 110-26 OF THE NATIONAL ELECTRIC CODE (NEC).

TABLE A – CLEARANCES			
VOLTAGE TO GROUNDED NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
CONDITION:	1	2	3
0 – 150	3	3	3
151 – 600	3	3.5	4

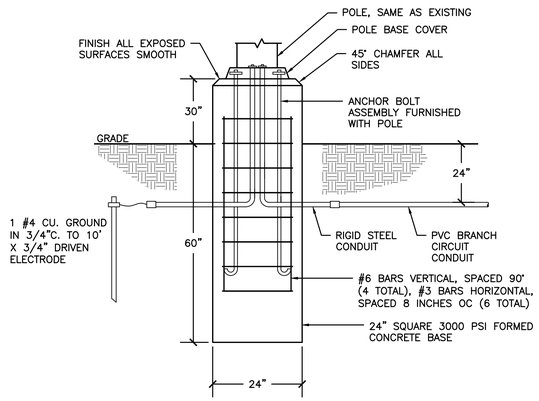
CLEARANCES FOR ELEC. EQUIPMENT
NTS



TELEPHONE BOARD SERVICE DETAIL
NTS

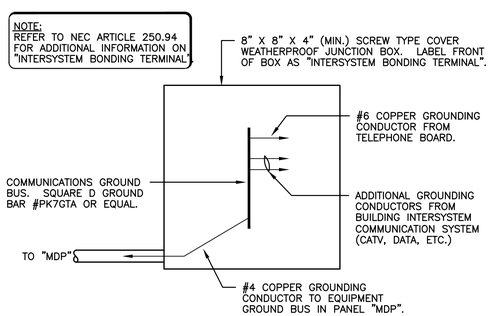


TYPICAL COMBINATION TELEPHONE / DATA OUTLET
NTS

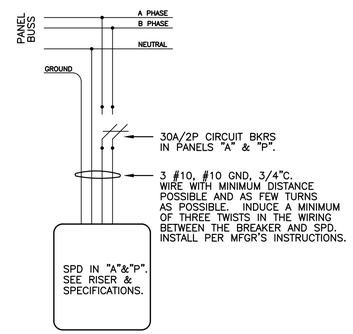


POLE BASE DETAIL
NOT TO SCALE

CONSTRUCTION OF POLE BASE MUST COMPLY WITH ALL REQUIREMENTS OF ACI 318.



INTERSYSTEM BONDING TERMINAL DETAIL
NTS



SURGE PROTECTION DEVICE (SPD) CONNECTION
NTS

PANEL R — 10,000 AMPS RMS. SYM. I.C. INTEGRATED EQUIPMENT RATING — SURFACE MOUNTED

120/240 VOLTS, 1 PHASE, 3 WIRE, 60 AMP MAIN LUGS ONLY

SERVES	CIR LOAD	CIR NO.	CIR NO.	CIR LOAD	SERVES
LIGHTING PARKING	1.25	1	2	0.54	RECEPTACLES
	1.25	3	4	0.36	
FAN F1	1.20	5	6	0.36	
F2	1.20	7	8	0.36	TELEPHONE BOARD
F3	1.20	9	10	1.20	SEPTIC TANK CONTROL PANEL
F4	1.20	11	12	1.35	SEWER LIFT PUMP
BUILDING SIGN	1.20	13	14	1.35	
SPARE		15	16		SPARE
		17	18		
		19	20		
		21	22		
		23	24		

A, B, 20, 30, 1

TOTAL CONNECTED LOAD: 14 KVA (50A) ALL BREAKERS ARE 1P-20A UNLESS OTHERWISE NOTED

PANEL NOTES:

LOAD CENTER PANEL S — 10,000 AMPS RMS. SYM. I.C. INTEGRATED EQUIPMENT RATING — SURFACE MOUNTED

120/240 VOLTS, 1 PHASE, 3 WIRE, 40 AMP MAIN BREAKER

SERVES	CIR LOAD	CIR NO.	CIR NO.	CIR LOAD	SERVES
RECEPTACLE STORAGE SHED	0.18	1	2	0.27	DISCONNECT AT SCALE HOUSE
LIGHTING STORAGE SHED	0.09	3	4		SPARE
SPARE		5	6		
		7	8		
		9	10		
		11	12		

A, B

TOTAL CONNECTED LOAD: 0.6 KVA (3A) ALL BREAKERS ARE 1P-20A UNLESS OTHERWISE NOTED

PANEL NOTES:

OCCUPANCY SENSOR LEGEND

SYMBOL	DESCRIPTION
S	SENSORSWITCH CAT #WSD WH WALL SWITCH SENSOR – PASSIVE INFRARED (PIR)
S_D	SENSORSWITCH CAT #WSX D WH WALL SWITCH SENSOR – PASSIVE INFRARED (PIR) WITH DIMMING
C9	SENSORSWITCH CAT #CM 9 CEILING MOUNTED SENSOR, STANDARD RANGE 360', LOW VOLTAGE, PASSIVE INFRARED (PIR)
C10	SENSORSWITCH CAT #CM 10 CEILING MOUNTED SENSOR, EXTENDED RANGE 360', LOW VOLTAGE, PASSIVE INFRARED (PIR)
P	SENSORSWITCH CAT #PP20, 20A RATED, 120/277V, POWER PACK

GENERAL NOTES:
- CEILING MOUNTED SENSORS SHALL BE INSTALLED A MINIMUM OF 6'-0" FROM ALL HVAC SUPPLY, RETURN & EXHAUST GRILLES.
- FINAL PLACEMENT OF POWER PACKS SHALL BE BY THE EC.
- CEILING MOUNTED EXTENDED RANGE 360° SENSORS: FOR MAXIMUM DISTANCE ROTATE SENSOR CLOCKWISE SO THAT THE SCREW AXIS IS POSITIONED APPROX 7.5° OFF THE ENTRANCE AXIS.
- CONTRACTOR SHALL INSTALL ALL DEVICES AS PER THE MANUFACTURER'S RECOMMENDATIONS.
- IF AN ALTERNATE DEVICE MANUFACTURER IS USED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A LAYOUT FROM THE MANUFACTURER AND SUBMITTING IT TO THE ENGINEER FOR APPROVAL. IF ADDITIONAL DEVICES ARE REQUIRED IT SHALL BE AT THE EXPENSE OF THE CONTRACTOR. AUTOCAD DRAWINGS MAY BE OBTAINED FROM THE ENGINEER.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
———	CONDUIT
– – – – –	CONDUIT UNDERFLOOR OR UNDERGROUND
	ARROW INDICATES HOMERUN, TICKMARKS: NEUTRAL,PHASE,GND.
	POWER PANEL
J	JUNCTION BOX
	DISCONNECT SWITCH; FUSED; NONFUSED
FPN	FUSE PER NAMEPLATE
S_m	MOTOR TOGGLE SWITCH
M	MOTOR
	EXISTING OR BY OTHERS
	LIGHT FIXTURE
S, S_3, S_4	SINGLE POLE SWITCH , 3 WAY, 4 WAY
S_P , S_D	PILOT LIGHT , DIMMER
AFF	ABOVE FINISHED FLOOR
,	DUPLEX RECEPT , ABOVE COUNTER
WP , GFI	WEATHERPROOF , GROUND FAULT
	QUAD–PLEX RECEPTACLE
	TELEPHONE/COMPUTER COMBINATION OUTLET

1 REVIEW COMMENTS 06/17/25

042825MW217100

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Details

E5

2020 NEC SECTION 547 "AGRICULTURAL BUILDINGS IS APPLICABLE TO THIS PROJECT. ATTENTION TO THESE SPECIFIC SECTIONS IS CRITICAL AND REQUIRED.

547.2 DEFINITIONS
EQUIPOTENTIAL PLANE (AS APPLIED TO AGRICULTURAL BUILDINGS). AN AREA WHERE WIRE MESH OR OTHER CONDUCTIVE ELEMENTS ARE EMBEDDED IN OR PLACED UNDER CONCRETE, BONDED TO ALL METAL STRUCTURES AND FIXED NON-ELECTRICAL EQUIPMENT THAT COULD BECOME ENERGIZED, AND CONNECTED TO THE ELECTRICAL GROUNDING SYSTEM TO MINIMIZE VOLTAGE DIFFERENCES WITHIN THE PLANE AND BETWEEN THE PLANES, THE THE GROUNDED EQUIPMENT, AND THE EARTH.

547.5 WIRING METHODS
(A) WIRING SYSTEMS. TYPES UF, NMC, COPPER SE CABLES, JACKETED TYPE MC CABLE, RIGID NONMETALLIC CONDUIT, LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT, OR OTHER CABLES OR RACEWAYS SUITABLE FOR THE LOCATION, WITH APPROVED TERMINATION FITTINGS, SHALL BE THE WIRING METHODS EMPLOYED.
(B) MOUNTING. ALL CABLES SHALL BE SECURED WITHIN 200 MM (8 IN.) OF EACH CABINET, BOX, OR FITTING. NONMETALLIC BOXES, FITTINGS, CONDUIT, AND CABLES SHALL BE PERMITTED TO BE MOUNTED DIRECTLY TO ANY BUILDING SURFACE COVERED BY THIS ARTICLE WITHOUT MAINTAINING THE 6 MM (¼ IN.) AIRSPACE IN ACCORDANCE WITH 300.6(D).
(C) EQUIPMENT ENCLOSURES, BOXES, CONDUIT BODIES, AND FITTINGS.
  (1) EXCESSIVE DUST.
  (2) DAMP OR WET LOCATIONS.
  (3) CORROSIVE ATMOSPHERE.
(G) RECEPTACLES.

547.6 SWITCHES, RECEPTACLES, CIRCUIT BREAKERS, CONTROLLERS, AND FUSES.

547.7 MOTORS.

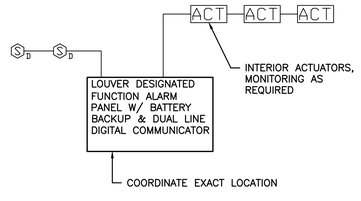
547.8 LUMINAIRES.
(A) MINIMIZE THE ENTRANCE OF DUST.
(B) EXPOSED TO PHYSICAL DAMAGE.
(C) EXPOSED TO WATER.

547.10 EQUIPOTENTIAL PLANES AND BONDING OF EQUIPOTENTIAL PLANES.
(A) WHERE REQUIRED.
  (1) INDOORS.
  (2) OUTDOORS.

DEDICATED FUNCTION SYSTEM LEGEND

SYMBOL	DESCRIPTION
ACT	ACTUATORS FOR FIRE OPERATED LOUVERS
SD	DUCT MOUNTED SMOKE DETECTOR
S/A	SPRINKLER ALARM DESIGNATED FUNCTION CONTROL PANEL

NOTES:
1. WIRING SHALL BE IN CONDUIT.
2. REFER TO FIRE ALARM DRAWINGS FOR DEVICES COUNTS.
3. CONTRACTOR SHALL SUPPLY & INSTALL FIRE ALARM DEVICES MONITORING AS REQUIRED.
4. SYSTEM SHALL BE MONITORED BY A UL APPROVED CENTRAL STATION.



DEDICATED FUNCTION SYSTEM FOR ACTUATED LOUVERS

NTS

1 REVIEW COMMENTS 06/17/25

042825MW217100

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Details and Etc.

E6