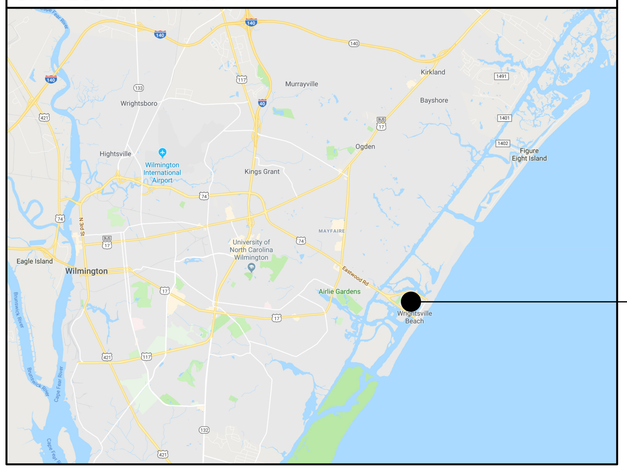
Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC 28480

Construction Drawings
February 20, 2019

SITE LOCATION MAP



WRIGHTSVILLE BEACH ELEMENTARY SCHOOL

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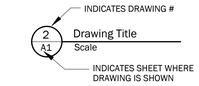
Abbreviations

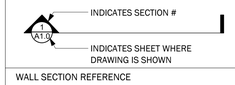
A.C.T. - ACOUSTICAL CEILING TILE
ADJ. - ADJUSTABLE
A.F.F. - ABOVE FINISHED FLOOR
ALUM. - ALUMINUM
AHU - AIR HANDLING UNIT
BLDG. - BUILDING
B.O.S.-BOTTOM OF STEEL
B.R.-BACKER ROD
C.J. - CONTROL JOINT
C.M.U. - CONCRETE MASONRY UNIT
CONC. - CONCRETE
C.O. - CLEAN OUT
CONT. - CONTINUOUS
CP - CONCRETE PIPE
C.L. - CENTER LINE
DIA. - DIAMETER
DIM. - DIMENSION
D.S. - DOWN SPOUT
E.C.- ELECTRICAL CONTRACTOR
E.J.- EXPANSION JOINT
ELEV. - ELEVATION
EQ. - EQUAL
EQUIP. - EQUIPMENT
EXIST. - EXISTING
EXP. JT. - EXPANSION JOINT
F.F.E.-FINISH FLOOR ELEVATION
GALV. - GALVANIZED
GA. - GAUGE
G.C. - GENERAL CONTRACTOR
GWB-GYPSUM WALL BOARD
HT. - HEIGHT
INSUL. - INSULATION
INV. - INVERT
JT - JOINT
MAS.-MASONRY
MAX. - MAXIMUM
MECH. - MECHANICAL
MFG. - MANUFACTURER
MIN. - MINIMUM
NOM. - NOMINAL
O.C. - ON CENTER
PERF. - PERFORATED
HPL.-HIGH PRESSURE LAMINATE
PLYWD.-PLYWOOD
P.S.I. - POUNDS PER SQUARE INCH
R - RADIUS
R/A - RETURN AIR
R.A.G. - RETURN AIR GRILL
R.C.P. - REINFORCED CONCRETE PIPE
RD. - ROOF DRAIN
REINF. - REINFORCEMENT
REQ'D. - REQUIRED
R.O. - ROUGH OPENING
S/A - SUPPLY AIR
S.S. - STAINLESS STEEL
T.O.M.-TOP OF MASONRY
STRUCT.-STRUCTURAL
T.O.S.-TOP OF STEEL
TRTD-TREATED
TYP. - TYPICAL
V.B.-VAPOR BARRIER
V.C.T.-VINYL COMPOSITE TILE
VERT. - VERTICAL
W/ - WITH
@ - AT, AROUND, REGARDING

Symbols Legend

DRAWING TITLE

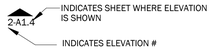


BUILDING SECTION REFERENCE



WALL SECTION REFERENCE

ELEVATION REFERENCE



PLAN DETAIL REFERENCE

100 DOOR # 100 ROOM #

A WINDOW TYPE

VERTICAL ELEVATION ABOVE REFERENCE POINT

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Cover, Index, Legend, Abbreviations

G1.0

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2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: Wrightsville Beach Elementary School – Addition & Renovation
Address: 220 Coral Drive, Wrightsville Beach, NC Zip Code: 28480
Proposed Use: Education
Owner/Authorized Agent: Sawyer Sherwood & Associate, P.C. Phone # (910) 762-0892
E-Mail john@s2a3.com
Owned By: ☒ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☒ City_Wrightsville Beach ☒ County New Hanover County ☐ Stat

LEAD DESIGN PROFESSIONAL: Sawyer Sherwood & Associate, P.C. – John R. Sawyer, AIA

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	Sawyer Sherwood & Associate, PC	John Sawyer	3428	(910) 762-0892	john@s2a3.com
Civil	Paramounte Engineering	Robert Balland	31591	(910)791-6707	rballand@paramounte-eng.com
Electrical	Cheatham & Associates, PA	Mark Ciarrocca	17593	(910)452-4210	mciarrocca@cheathampa.com
Fire Alarm	Cheatham & Associates, PA	Mark Ciarrocca	17593	(910)452-4210	mciarrocca@cheathampa.com
Plumbing	Cheatham & Associates, PA	Casey Gilman	43164	(910)452-4210	cgilman@cheathampa.com
Mechanical	Cheatham & Associates, PA	Kenneth Lynch	17655	(910)452-4210	klynch@cheathampa.com
Sprinkler	Cheatham & Associates, PA	Casey Gilman	43164	(910)452-4210	cgilman@cheathampa.com
Structural	Woods Engineering	Don Woods	19475	(910)343-8007	donwoods@woodseng.com
Ret. Walls	N/A				
Other	N/A				

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 EDITION OF NC CODE FOR: ☐ New Building ☐ Shell/Core ☐ 1st Time Interior Completions
☒ Addition ☐ Phased Construction – Shell Core
2018 NC EXISTING BUILDING CODE: ☐ Prescriptive ☐ Alteration Level I ☐ Historic Property
☒ Repair ☒ Alteration Level II ☐ Change of Use
☐ Chapter 14 ☐ Alteration Level III
CONSTRUCTED: (date) 1953 **CURRENT OCCUPANCY(S)** (Ch. 3): Education
RENOVATED: (date) **PROPOSED OCCUPANCY(S)** (Ch. 3): Education
OCCUPANCY CATEGORY (Table 1604.5): Current: III Proposed: III

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

GROSS BUILDING AREA TABLE
*Fire Area: includes ground level covered by second story

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor			
2nd Floor	0	16,800	16,800
Mezzanine			
1st Floor	13,935	12,020*	25,955
Basement			
TOTAL	13,935	28,820	42,755

ALLOWABLE AREA
Occupancy:
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☒
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4
I-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): None section 303.1.3, assembly associated with educational occupancy is not a separate occupancy.
Incidental Uses (Table 509): N/A
Special Uses (Chapter 4 – List Code Sections): N/A
Special Provisions: (Chapter 5 – List Code Sections): N/A
Mixed Occupancy: ☒ No ☐ Yes Separation: Exception:
☐ Separated Use (508.4) - See below for area calculations
For each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

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

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	**Education**	**25,955**	**28,500**		**28,500**
2	**Education**	**16,800**	**28,500**		**28,500**

[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 (maximum3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.
[5] Frontage 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)	60'-0"	38'-8"	
Building Height in Stories (Table 504.4)	2	2	

[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	SHEET # FOR RATED PENETRATION	SHEET #FOR RATED JOINTS
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North	>30'	0 hr	0 hr				
East	>30'	0 hr	0 hr				
West	>30'	0 hr	0 hr				
South	>30'	0 hr	0 hr				
Interior	>30'	0 hr	0 hr				
Nonbearing Walls and Partitions Exterior walls							
North	>30'	0 hr	0 hr				
East	>30'	0 hr	0 hr				
West	>30'	0 hr	0 hr				
South	>30'	0 hr	0 hr				
Interior walls and partitions	>30'	0 hr	0 hr				
Floor Construction Including supporting beams and joists		0 hr	0 hr				
Floor Ceiling Assembly		0 hr					
Columns Supporting Floors		0 hr					
Roof Construction, including supporting beams and joists		0 hr	0 hr				
Roof Ceiling Assembly		0 hr					
Columns Supporting Roof		0 hr					
Shaft Enclosures – Exit Stairs		1 hr	1 hr	A4.3	U902	714.3.1 – fill annular space with grout or mortar	
Shaft Enclosures – Elevator		1 hr	1 hr	A4.2	U902	714.3.1 – fill annular space with grout or mortar	
Corridor Separation		1 hr	0 hr Table 1020.1				
Occupancy/Fire Barrier Separation		N/A	N/A				
Party/Fire Wall Separation		N/A					
Smoke Barrier Separation							
Smoke Partition							
Tenant/Dwelling Unit/ Sleeping Unit Separation		N/A					
Incidental Use Separation		N/A					

* 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 (%)
>30'-0"	No Limit		

LIFE SAFETY SYSTEM REQUIREMENTS
Emergency Lighting: ☐ No ☒ Yes
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☐ No ☒ Yes
Smoke Detection Systems: ☐ No ☒ Yes
Carbon Monoxide Detection: ☒ No ☐ Yes

LIFE SAFETY PLAN REQUIREMENTS
Life Safety Plan Sheet #: G2.0, G2.1 & G2.2

☒ Fire and/or smoke rated wall locations (Chapter 7)
☒ Assumed and real property line locations
☒ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☒ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
☒ Occupant loads for each area
☒ Exit access travel distances (1017)
☒ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
☒ 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 separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☒ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ 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)

See Civil Drawings

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATERCLOSETS MALE	WATERCLOSETS FEMALE	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	SHOWERS/ TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
SPACE: STUDENTS	EXISTING	-	-	-	-	-	-	-	-
	NEW	5	9	4	5	5	-	3	3
	REQUIRED	8	8		4	4	0	4	
SPACE: STAFF	EXISTING	1	-	-	-	-	-	-	-
	NEW	1	3		1	3	-	3	3
	REQUIRED	1	3		1	1	0	1	

SPECIAL APPROVALS
Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

Department of Insurance, Department of Public Instruction, Town of Wrightsville Beach

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: ☐ No ☒ Yes

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: Standing seam metal panel, 4 ½" extruded polyisocyanuate, structural metal decking, air cavity, suspended ceiling system
U-Value of total assembly: 0.034 provided – 0.039 required
R-Value of insulation: R28.1

Exterior Walls (each assembly)
Description of assembly: Metal wall panel, air cavity, 2" mineral fiber board, 5/8" exterior sheathing, 6" batt insulation, 6" metal studs, 5/8" GWB
U-Value of total assembly: 0.035 provided – 0.064 required

R-Value of insulation: R19+R7.5=26.5

Description of assembly: Brick veneer, air cavity, 2" mineral wool insulation board, 5/8" exterior sheathing, 6" batt insulation, 6" metal studs, 5/8" GWB
U-Value of total assembly: 0.034 provided – 0.064 required
R-Value of insulation: R19+R7.5=26.5

Openings (windows or doors with glazing)
U-Value of assembly: 0.24 – 0.45 required
Solar heat gain coefficient: 0.20
projection factor: 3'-0" sunshade projection / 4'-4" window height = 0.69
solar heat gain multiplier = 0.56
effective SHGC = 0.20 x 0.56 = 0.112
Door R-Values: 0.98 – 0.77 required

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: 3 ½" concrete, structural metal decking, 4" mineral wool insulation board, metal furring, metal soffit
U-Value of total assembly: 0.054
R-Value of insulation: R15

Floors slab on grade
Description of assembly: 4" concrete, 16" of CMU to top of footing
U-Value of total assembly: 0.24
R-Value of insulation: N/A
Horizontal/vertical requirement: No requirement
slab heated: N/A

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON SHEET 1 OR 2 OF THE STRUCTURAL SHEETS)

See Structural Drawings

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

See Mechanical Drawings

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY

See Electrical Drawings

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Appendix B

G1.1
02 of 05

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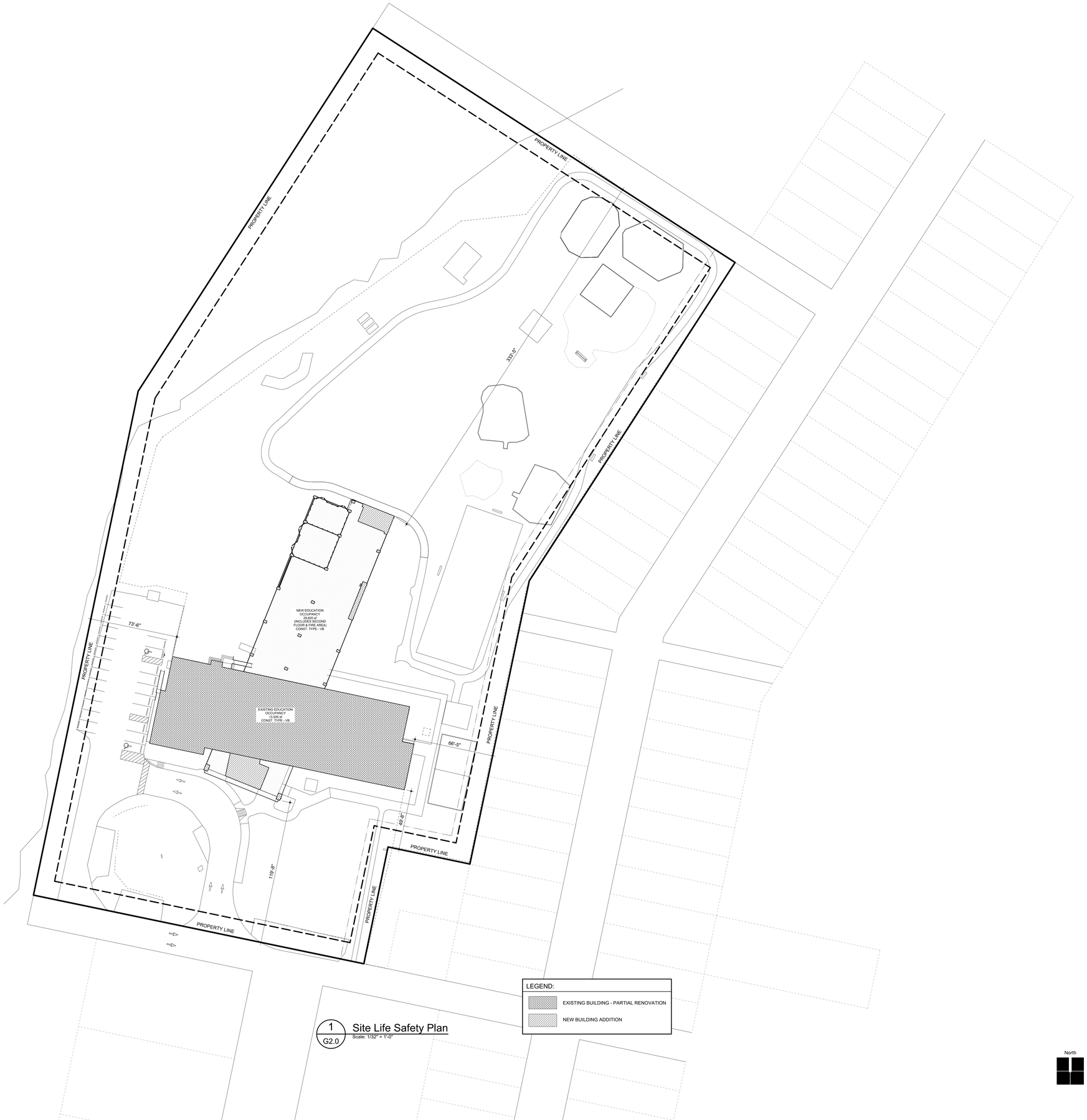

1 / G2.0 Site Life Safety Plan
Scale: 1/32" = 1'-0"

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Consulting Structural Engineers
254 North Front Street Phone: 910.343.8007
Suite 201 Fax: 910.343.8088
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CHEATHAM AND ASSOCIATES, P.A.
CONSULTING ENGINEERS
5412 ENTERPRISE DRIVE
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PHONE: (910) 452-4210
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OFFICE@CHEATHAMPA.COM
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NC LICENSE# C-1073
JOB # 18049

SKA CONSULTING ENGINEERS
300 Pomona Drive
Greensboro, NC 27407
Phone: 336-855-0993
www.skaeng.com

SAWYER, SHERWOOD & ASSOCIATE, P.A. REGISTERED ARCHITECTURAL COMPANY 52349 NORTH CAROLINA WILMINGTON, NC

JOHN R. SAWYER REGISTERED ARCHITECT 2-20-2019 NORTH CAROLINA WILMINGTON,

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Site Life Safety Plan

G2.0

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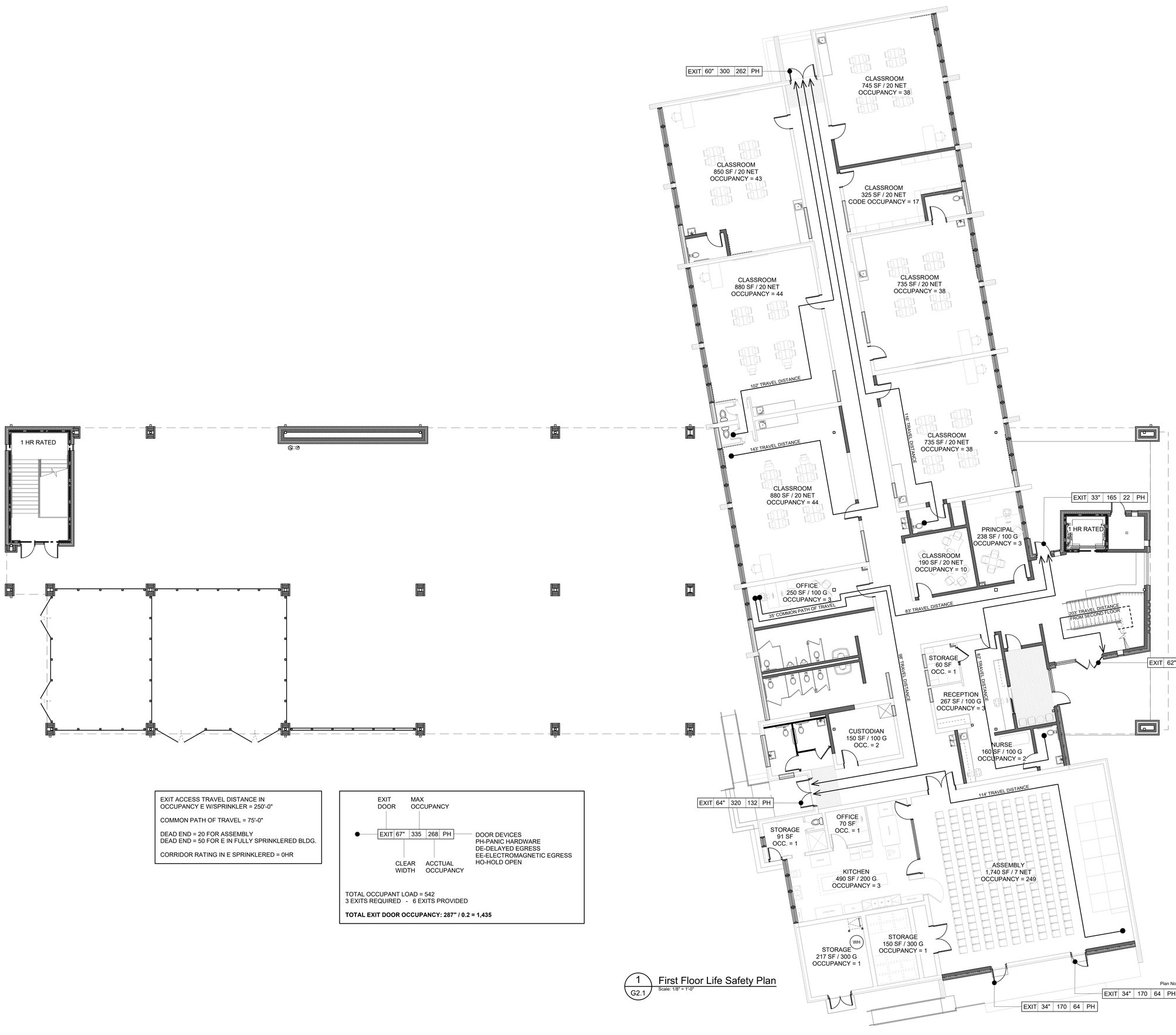

EXIT ACCESS TRAVEL DISTANCE IN
OCCUPANCY E W/SPRINKLER = 250'-0"

COMMON PATH OF TRAVEL = 75'-0"

DEAD END = 20 FOR ASSEMBLY
DEAD END = 50 FOR E IN FULLY SPRINKLERED BLDG.

CORRIDOR RATING IN E SPRINKLERED = 0HR

EXIT DOOR | MAX OCCUPANCY

EXIT | 67" | 335 | 268 | PH

CLEAR WIDTH | ACCTUAL OCCUPANCY

DOOR DEVICES
PH-PANIC HARDWARE
DE-DELAYED EGRESS
EE-ELECTROMAGNETIC EGRESS
HO-HOLD OPEN

TOTAL OCCUPANT LOAD = 542
3 EXITS REQUIRED - 6 EXITS PROVIDED

TOTAL EXIT DOOR OCCUPANCY: 287" / 0.2 = 1,435

1 / G2.1 First Floor Life Safety Plan
Scale: 1/8" = 1'-0"

SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
124 Market St, Wilmington, NC 28401
910 762-0892 s2a3.com

PARAMOUNTE ENGINEERING, INC.
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First Floor Life Safety Plan

G2.1

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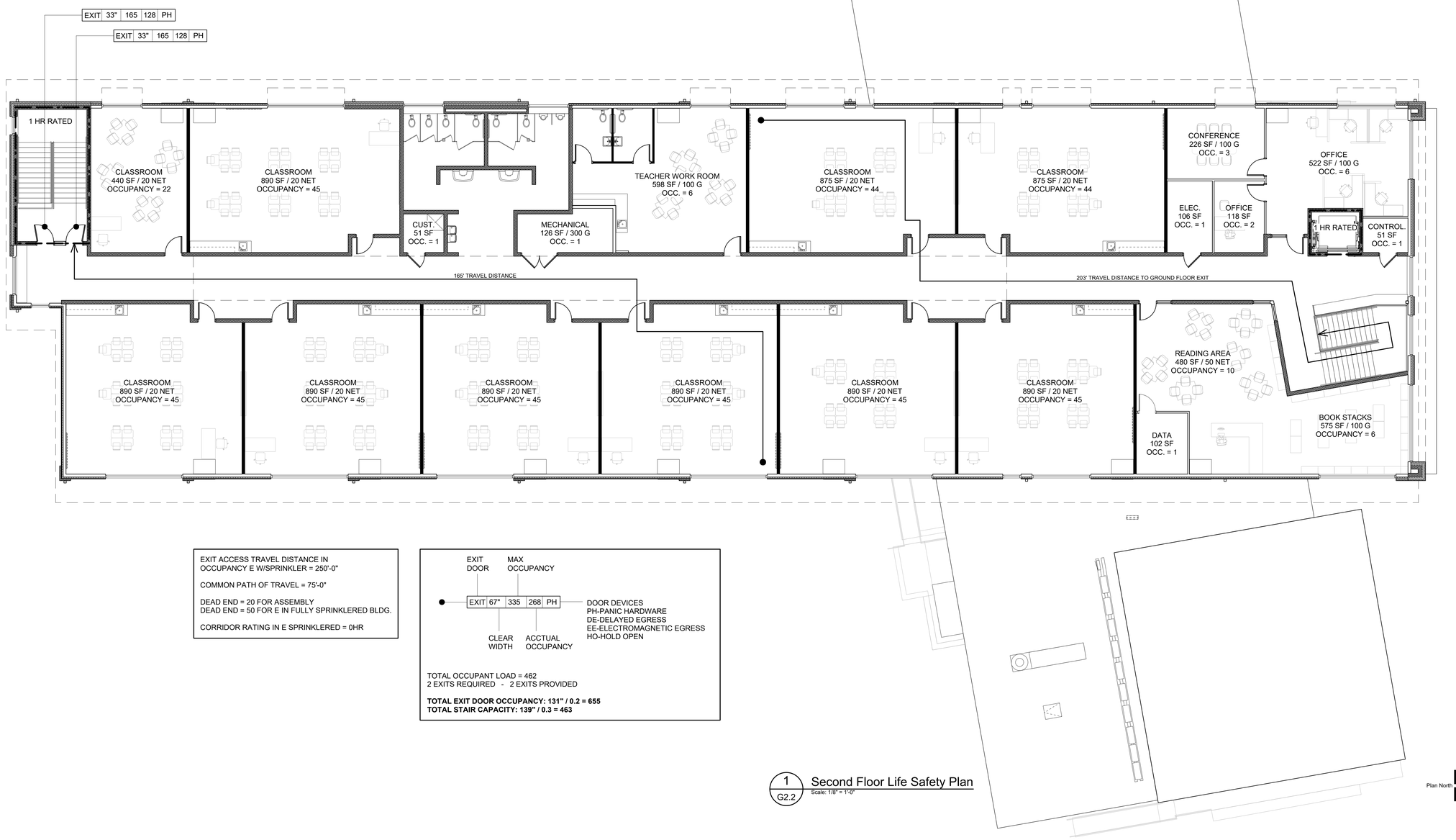

EXIT ACCESS TRAVEL DISTANCE IN
OCCUPANCY E W/SPRINKLER = 250'-0"

COMMON PATH OF TRAVEL = 75'-0"

DEAD END = 20 FOR ASSEMBLY
DEAD END = 50 FOR E IN FULLY SPRINKLERED BLDG.

CORRIDOR RATING IN E SPRINKLERED = 0HR

EXIT DOOR | MAX OCCUPANCY

EXIT | 67" | 335 | 268 | PH — DOOR DEVICES
PH-PANIC HARDWARE
DE-DELAYED EGRESS
EE-ELECTROMAGNETIC EGRESS
HO-HOLD OPEN

CLEAR WIDTH | ACCTUAL OCCUPANCY

TOTAL OCCUPANT LOAD = 462
2 EXITS REQUIRED - 2 EXITS PROVIDED

TOTAL EXIT DOOR OCCUPANCY: 131" / 0.2 = 655
TOTAL STAIR CAPACITY: 139" / 0.3 = 463

1 / G2.2 Second Floor Life Safety Plan
Scale: 1/8" = 1'-0"

Plan North

SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
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SAWYER, SHERWOOD & ASSOCIATE, P.A. ARCHITECTURAL CORPORATION 52349 NORTH CAROLINA WILMINGTON, NC

JOHN R. SAWYER III REGISTERED PROFESSIONAL ENGINEER 2-20-2019 NORTH CAROLINA WILMINGTON, NC

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Second Floor
Life Safety Plan

G2.2

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WRIGHTSVILLE BEACH ELEMENTARY SCHOOL

220 CORAL DRIVE
WRIGHTSVILLE BEACH, NORTH CAROLINA

DESIGN DOCUMENTS

FEBRUARY 2019
FOR

NEW HANOVER COUNTY SCHOOLS
6410 CAROLINA BEACH ROAD
WILMINGTON, NC 28412

NOTICE REQUIRED

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.

CONTRACTORS SHALL CONTACT OVERHEAD ELECTRIC PROVIDER TO COMPLY WITH FEDERAL OSHA 1910.333 MINIMUM APPROACH DISTANCE TO ENERGIZED POWERLINES AND OSH 29 CFR 1926.1407-1411 MUST BE FOLLOWED.

CONTRACTOR SHALL CONTACT AT&T PRIOR TO ANY DEMOLITION TO ALLOW FOR AT&T TO DISCONNECT COMMUNICATIONS CABLES COMING INTO THE SITE.

CONTACT THESE UTILITIES

TOWN OF WRIGHTSVILLE BEACH PLANNING
ATTN: TONY WILSON, PLANNING & PARKS DIRECTOR
PH: 910-256-7937

PIEDMONT NATURAL GAS
ATTN: CATHY PLEASANT
PH: 910-251-2827

EMERGENCY DIAL 911
POLICE - FIRE - RESCUE
ATTN: TOWN OF WRIGHTSVILLE BEACH FIRE DEPT.
PH: 910-256-7920

TOWN OF WRIGHTSVILLE BEACH PUBLIC WORKS (WATER & SEWER)
PUBLIC WORKS
ATTN: BILL FAYE OR RAY SLEZAK
PH: 910-256-7935

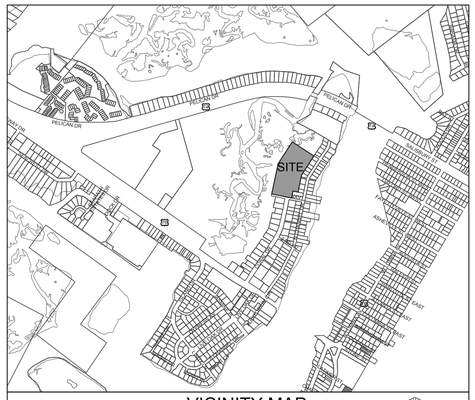
DUKE ENERGY
DISTRIBUTION CONSTRUCTION SERVICE
DEP CSC PH: 1-800-452-2777

TRANSMISSION AGENT
BILL WILDER
PH: 910-772-4903

AT&T
ATTN: STEVE DAYVAULT (BUILDING ENGINEERING)
PH: 910-341-0741

ATTN: JAMES BATSON, ENGINEERING
PH: 910-341-1621

SPECTRUM
GENERAL PH: 800-892-4357



VICINITY MAP
SCALE: 1" = 1,000'

OWNER/DEVELOPER:
NEW HANOVER COUNTY SCHOOLS
6410 CAROLINA BEACH ROAD
WILMINGTON, NORTH CAROLINA 28412
PHONE: BOBBY THOMAS (910) 254-4443

ENGINEER (CIVIL):
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE WILMINGTON, NORTH CAROLINA 28403
ATTN: ROB BALLAND, P.E. (CIVIL ENGINEER)
PHONE: (910) 791-6707

BUILDING ARCHITECT:
SAWYER SHERWOOD ASSOCIATE ARCHITECTURE
124 MARKET STREET, WILMINGTON, NORTH CAROLINA 28412
PHONE: JOHN SAWYER, AIA (910) 762-0892

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C-0.0	COVER SHEET
C-1.0	GENERAL NOTES
C-2.0	DEMOLITION PLAN
C-2.1 - C-2.3	SITE PLANS
C-3.0	GRADING-DRAINAGE-EC PLAN
C-4.0	UTILITY PLAN
C-5.0 - C-5.5	DETAILS
L-1.0	ENTRY LANDSCAPE PLAN

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PARAMOUNTE ENGINEERING, INC
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

PROJECT # 18156.PE

NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
02/20/19

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

COORDINATION NOTES:

1. THE CONTRACTOR IS REQUIRED TO OBTAIN ANY/ALL PERMITS REQUIRED FOR CONSTRUCTION OF THESE PLANS.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND WITH THE TOWN OF WRIGHTSVILLE BEACH, AND THE STATE OF NORTH CAROLINA.
3. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT. IN ADDITION, THE CONTRACTOR IS TO COMPUTE THE LAYOUT OF THE ENTIRE SITE PLAN IN ADVANCE OF BEGINNING ANY WORK ASSOCIATED WITH THE SUBJECT PLANS. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR TO PERFORM SITE IMPROVEMENT STAKEOUT(S).
4. ANYTIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT AS TO THE NATURE OF PROPOSED WORK, AND TO FOLLOW ANY GUIDELINES OR STANDARDS WHICH ARE ASSOCIATED WITH OR REFERENCED IN THE RECORDED EASEMENT.
5. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS BY OTHERS FOR ALL BUILDING DIMENSIONS AND DETAILS.

GENERAL NOTES:

1. EXISTING CONDITIONS AND TOPOGRAPHIC SURVEY COMPLETED BY W.K. DICKSON & CO. THE SURVEY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE OWNER AND ENGINEER.
2. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES. IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF TRENCHING OPERATIONS SO AS TO ELIMINATE OR MINIMIZE DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING LOSS OF UTILITY REVENUES. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES, SUCH AS POLES, CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC.
3. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
4. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAGMEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE USDOT.
5. ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
6. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.
7. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 811 AN ALLOW THE CENTER TO LOCATE EXISTING UTILITIES BEFORE DIGGING.
8. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO START OF CONSTRUCTION. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS AND DIMENSIONS SHOWN HEREON BEFORE BEGINNING CONSTRUCTION.
9. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
10. ACCESS TO UTILITIES, FIRE HYDRANTS, STREET LIGHTING, ETC., SHALL REMAIN UNDISTURBED, UNLESS COORDINATED WITH THE RESPECTIVE UTILITY.
11. DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
12. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT AND AT LEAST ONCE A WEEK DURING CONSTRUCTION.
13. THE GENERAL CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
14. ALL STREET SURFACES, DRIVEWAYS, CULVERTS, CURB AND GUTTERS, ROADSIDE DRAINAGE DITCHES AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED OR REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
15. CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT. DRAWINGS SHALL BE GIVEN TO THE OWNER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE ENGINEER.
16. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE GIVEN TO THE OWNER FOR REVIEW, NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE PERMISSION OF THE OWNER OR THE TOWN OF WRIGHTSVILLE BEACH, RESPECTIVELY.
17. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES. THE LOCATION OF ALL EXISTING UTILITIES ARE NOT NECESSARILY SHOWN ON PLANS AND WHERE SHOWN ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL ON HIS INITIATIVE AND AT NO EXTRA COST HAVE LOCATED ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY. NO CLAIMS FOR DAMAGES OR EXTRA COMPENSATION SHALL ACCRUE TO THE CONTRACTOR FROM THE PRESENCE OF SUCH PIPE OTHER OBSTRUCTIONS OR FROM DELAY DUE TO REMOVAL OR REARRANGEMENT OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND STRUCTURES. CONTACT NORTH CAROLINA ONE CALL" TOLL FREE 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL NONSUBSCRIBING UTILITIES.
18. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC., THAT MAY BE REQUIRED.
19. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
20. ALL LOT STRIPING AND DIRECTIONAL ARROWS TO BE REFLECTIVE MARKINGS AND SHALL CONFORM TO MUTCD. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
21. LANDSCAPE PLANTINGS AT ENTRANCE/ EXITS WILL BE INSTALLED AND MAINTAINED SO AS NOT TO INTERFERE WITH SIGHT DISTANCE NEEDS OF DRIVERS IN THE PARKING AREA AND AT ENTRANCE/EXIT LOCATIONS PER LOCAL STANDARDS.
22. ALL DIMENSIONS AND RADII ARE TO OUTSIDE FACE OF BUILDING OR TO FACE OF CURB UNLESS OTHERWISE NOTED.

ROOF DRAIN NOTE:

1) PROPOSED BUILDING SHALL DIVERT ROOF DRAINAGE AS INDICATED ON GRADING-DRAINAGE-EC PLAN.

EXISTING UTILITY NOTES:

1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY THE ACTUAL LOCATION AND AVAILABILITY OF ALL EXISTING AND PROPOSED UTILITIES IN THE FIELD PRIOR TO GROUND BREAKING.
2. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON A FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

WETLAND NOTES:

1) WETLANDS AND MEAN HIGH WATER LINE WERE FLAGGED BY LAND MANAGEMENT GROUP AND SURVEYED BY WK DICKSON & CO., INC.

CAMA PERMIT NOTES:

1) THIS PROJECT IS SUBMITTING FOR A CAMA MINOR PERMIT, COMPLETED BY LAND MANAGEMENT GROUP FOR THE PROPOSED DEVELOPMENT.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. THE EROSION CONTROL PLAN SHALL INCLUDE PROVISIONS FOR GROUNDCOVER ON ALL EXPOSED PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY. GROUND COVER SHALL BE PROVIDED ON ALL OTHER DISTURBED AREAS WITHIN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.
2. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK. (NO SEPARATE PAYMENT).
3. THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.
5. A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
6. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW. CONTRACTOR SHALL PAY ALL FEES REQUIRED AND SHALL INSTALL NECESSARY MEASURES AT NO SEPARATE PAYMENT.
7. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY EITHER THE REVIEWING AGENCY OR THE ENGINEER. (NO SEPARATE PAYMENT).
8. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
9. ALL AREAS DISTURBED BY CONSTRUCTION UNLESS OTHERWISE IMPROVED SHALL BE SODDED OR SEEDED AS INDICATED AND STABILIZED.
10. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OUTLET.
11. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
12. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED BY CONTRACTOR ONCE STABILIZATION OR A SUFFICIENT GROUND COVER HAS BEEN ESTABLISHED OR AS DIRECTED BY THE ENGINEER. (NO SEPARATE PAYMENT).
13. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA. (NO SEPARATE PAYMENT).
14. WHEN CROSSING CREEK OR DRAINAGE-WAY, THE DIVISION OF WATER QUALITY SHALL BE CONTACTED PRIOR TO DISTURBING A CREEK. THE CONTRACTOR SHALL INSTALL RIP-RAP WITH FABRIC ALONG DISTURBED BANKS AND CHANNEL AND RESTORE SLOPES TO ORIGINAL CONTOURS, BUT NOT STEEPER THAN 2:1 MAXIMUM. DISTURBED CREEK AREA SHALL BE STABILIZED IMMEDIATELY.

DEMOLITION NOTES:

1. CONTRACTOR TO COORDINATE WITH THE OWNER TO PROPERLY MAINTAIN OR RELOCATE EXISTING SERVICE CONNECTIONS WHEN NECESSARY.
2. CONTRACTOR IS TO WALK THE SITE AND BECOME FAMILIAR WITH THE SCOPE OF DEMOLITION REQUIRED. ALL DEMOLITION WORK REQUIRED TO CONSTRUCT NEW SITE IMPROVEMENTS WILL BE PERFORMED BY THE CONTRACTOR AND WILL BE CONSIDERED UNCLASSIFIED EXCAVATION.
3. DEMOLITION SHALL INCLUDE BUT IS NOT LIMITED TO THE EXCAVATION, HAULING AND OFFSITE DISPOSAL OF CONCRETE PADS, CONCRETE DITCHES, FOUNDATIONS, SLABS, STEPS, AND STRUCTURES; ABANDONED UTILITIES, BUILDINGS, PAVEMENTS AND ALL MATERIALS CLEARED AND STRIPPED TO THE EXTENT NECESSARY AS DIRECTED BY THE GEOTECHNICAL ENGINEER FOR THE INSTALLATION OF THE NEW IMPROVEMENTS AND WITHIN THE LIMITS OF CLEARING AND GRADING AND AS SHOWN ON THESE PLANS.
4. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY, STRUCTURES AND UTILITIES ON THE PROPERTY NOT TO BE DEMOLISHED. DAMAGE TO PROPERTIES OF OTHERS DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT NO COST TO OWNER.
5. ELECTRIC, TELEPHONE, SANITARY SEWER, WATER AND STORM SEWER UTILITIES THAT SERVICE OFF-SITE PROPERTIES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL PRODUCE A PHOTOGRAPHIC RECORD (DIGITAL) OF DEVELOPMENT COMMENCING WITH A RECORD OF THE SITE AS IT APPEARS BEFORE DEMOLITION HAS BEGUN. AFTERWARDS, A PHOTOGRAPHIC RECORD SHALL BE MAINTAINED WEEKLY DURING CONSTRUCTION AND ENDING WITH A PHOTOGRAPHIC RECORD OF THE DEVELOPMENT AS IT APPEARS AFTER DEMOLITION. THIS RECORD SHALL BE DELIVERED TO THE OWNER.
7. EXISTING CURB AND GUTTER, LIGHTS, SIDEWALK, AND UTILITIES NOT INTENDED FOR DEMOLITION SHALL BE MAINTAINED, PROTECTED AND UNDISTURBED DURING DEMOLITION.
8. ALL EXISTING IMPROVEMENTS INDICATED OR REQUIRED TO BE DEMOLISHED SHALL INCLUDE REMOVAL FROM THE PROPERTY AND PROPER DISPOSAL.
9. CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES INCLUDING CABLE, GAS, TELEPHONE AND ELECTRIC AND ANY OTHER UTILITIES THROUGH THE SITE WITH THE RESPECTIVE COMPANIES.
10. CONTRACTOR SHALL MAINTAIN REQUIRED DISTANCES FROM HIGH VOLTAGE OVERHEAD LINES AND REMOVE TREES SO THEY DO NOT FALL TOWARDS OVERHEAD ELECTRICITY.
11. PROVIDE SMOOTH SAW CUT OF EXISTING PAVEMENTS, CURBS AND GUTTERS AND SIDEWALKS TO BE DEMOLISHED.
12. ALL DEMOLITION WORK SHALL BE DONE IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS OSHA REGULATIONS.
13. EXISTING FIRE HYDRANTS ON OR NEAR THE SITE ARE TO REMAIN IN SERVICE.
14. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS.

NEW HANOVER COUNTY LAND QUALITY STABILIZATION TIME FRAME NOTE:
DENUDED AREAS MUST BE STABILIZED WITH FIFTEEN (15) WORKING DAYS OF CEASE OF ANY PHASE OF ACTIVITY. ALL SLOPES MUST BE STABILIZED WITHIN TWENTY-ONE (21) CALENDAR DAYS OF CEASE OF ANY PHASE OF ACTIVITY. THIS INCLUDES SLOPES, SWALES, CHANNELS AND STOCKPILES.

NPDES BUILDING WASTES HANDLING:
1. NO PAINT OR LIQUID WASTES IN STREAM OR STORM DRAINS.
2. DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION AND OTHER WASTES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
3. EARTHEN-MATERIALS STOCKPILES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
4. CONCRETE MATERIALS MUST BE CONTROLLED TO AVOID CONTACT WITH SURFACE WATERS, WETLANDS, OR BUFFERS.

NPDES INSPECTIONS:
1. SAME WEEKLY INSPECTION REQUIREMENTS.
2. SAME RAIN GAUGE & INSPECTIONS AFTER 0.5" RAIN EVENT.
3. INSPECTIONS ARE ONLY REQUIRED DURING "NORMAL BUSINESS HOURS".
4. INSPECTION REPORTS MUST BE AVAILABLE ON-SITE DURING BUSINESS HOURS UNLESS A SITE-SPECIFIC EXEMPTION IS APPROVED.
5. RECORDS MUST BE KEPT FOR 3 YEARS AND AVAILABLE UPON REQUEST.
6. ELECTRONICALLY AVAILABLE RECORDS MAY BE SUBSTITUTED UNDER CERTAIN CONDITIONS.

NPDES SEDIMENT BASINS:
1. OUTLET STRUCTURES MUST WITHDRAW FROM BASIN SURFACE UNLESS DRAINAGE AREA IS LESS THAN 1 ACRE.
2. USE ONLY DWQ-APPROVED FLOCULANTS.

NPDES - SPECIFIC PLAN SHEETS NOTES:
1. THIS PAGE IS SUBMITTED TO COMPLY WITH NPDES GENERAL STORMWATER PERMIT NCG010000.
2. THIS PAGE CAN BE APPROVED BY THE COUNTY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000 ONLY.
3. THIS PAGE OF THE APPROVED PLANS IS ENFORCEABLE EXCLUSIVELY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000.
4. THE COUNTY IS NOT AUTHORIZED TO ENFORCE THE NPDES PORTION OF THIS PAGE OF THE PLANS AND THEY ARE NOT A PART OF THE APPROVED PLANS FOR THE PURPOSES OF ENFORCEMENT ACTION UNDER THE COUNTY CODE.

EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES:

NOTE: THESE EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES ARE INTENDED FOR EACH "PHASE" OF CONSTRUCTION. THE ORDER AND STEPS TAKEN MUST BE IMPLEMENTED AS EACH PART OF THE PROJECT IS DEVELOPED; WHETHER AS A WHOLE OR IN PHASES. ANY EROSION CONTROL DEVICES/MEASURES MUST REMAIN IN PLACE UNTIL THE ENTIRE DISTURBANCE IS STABILIZED AND ALL IMPROVEMENTS WITHIN THE DISTURBANCE LIMITS ARE COMPLETE.

1. CONSTRUCT TEMPORARY GRAVEL CONSTRUCTION ENTRANCE(S), ESTABLISH THE LIMITS OF DISTURBANCE, TREE PROTECTION FENCING, AND TEMPORARY SILT FENCE.
2. CLEAR AND REMOVE FROM SITE TREES AS DESIGNATED, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN THE DESIGNATED CLEARING LIMITS.
3. INSTALL REMAINING EROSION CONTROL MEASURES AS SHOWN ON THE PLANS WITHIN THE AREA DISTURBED. ALL EROSION CONTROL MEASURES MUST BE INSTALLED BEFORE COMMENCING CONSTRUCTION.
4. PLANT GRASS OVER ALL GRADED AREAS WITHIN 14 WORKING DAYS OF CEASE OF ANY GRADING ACTIVITY.
5. IMMEDIATELY UPON THE INSTALLATION OF ANY STORM DRAINAGE CATCH BASIN, DROP INLET, ETC., THE CONTRACTOR SHALL INSTALL INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND RESTORING TO PRE-CONSTRUCTION CONDITIONS ANY AREAS OUTSIDE THE PROJECT LIMITS THAT MAY INADVERTENTLY BE DAMAGED DUE TO THE FAILURE OF THE EROSION CONTROL MEASURES.
7. DURING GRADING AND AFTER GRADING HAS BEEN COMPLETE, THE CONTRACTOR SHALL CONTINUE TO MAINTAIN PERMANENT AND TEMPORARY EROSION CONTROL MEASURES UNTIL FINAL APPROVAL BY ENGINEER OR EROSION CONTROL INSPECTOR.
8. UPON RECEIVING FINAL APPROVAL, THE CONTRACTOR CAN REMOVE TEMPORARY EROSION CONTROL MEASURES.
9. THE CONTRACTOR SHALL CONTINUE TO WATER, FERTILIZE, MOW AND MAINTAIN GRASS & PLANTED AREAS UNTIL ALL CONSTRUCTION IS COMPLETE.

EROSION CONTROL MAINTENANCE PLAN:

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF- PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. ALL CONSTRUCTION ENTRANCES WILL BE PERIODICALLY TOP DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. ANY SEDIMENT THAT IS TRACKED INTO THE STREET WILL BE IMMEDIATELY REMOVED.
3. SEDIMENT WILL BE REMOVED BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF-FILLED AT THE FENCE. THE SEDIMENT FENCE WILL BE BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. SILT FENCE STAKES MUST BE STEEL, AND SPACED 6 FEET MAX. WITH EXTRA STRENGTH FABRIC AND NO WIRE BACKING. STAKE SPACING WILL BE 8 FEET MAX. WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS (OR EXCELSIOR WATTLES) ARE DESIGNED AT LOW POINTS IN THE SEDIMENT FENCE THE ROCK OR WATTLE WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF FULL OF SEDIMENT, NO LONGER DRAINS AS DESIGNED OR IS DAMAGED.
4. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS ON THESE PLANS AND CONTRACT SPECIFICATIONS TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
5. INLET PROTECTION - INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (½ INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY SEDIMENT AND DEBRIS WHEN IT REACHES HALF OF THE DEPTH OF THE ROCK TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

PERMANENT SEEDING

GRASS TYPE	LBS/ ACRE	TIME OF SEEDING	FERTILIZER LIMESTONE
BERMUDA, HULLED BERMUDA, UNHULLED	10-20 35	MARCH - AUGUST SEPT. - FEB.	BY SOIL TEST
CENTIPEDE	10	MARCH - AUGUST	BY SOIL TEST (NO HIGH PH)
TALL FESCUE (COASTAL CULTIVAR RECOMMENDED)	50	MARCH - AUGUST	300 LB/AC 10-20-20 OR BY SOIL TEST
SLOPES >= 2:1 CENTIPEDE SERICEA LESPEDEZA	5 20	JAN - DEC	BY SOIL TEST

TEMPORARY SEEDING

GRASS TYPE	LBS/ ACRE	TIME OF SEEDING	FERTILIZER LIMESTONE
RYE GRAIN	50	OCT. - APR.	400 LBS/AC. 10-20-20
SWEET SUDAN GRASS	50	JUNE - AUGUST	400 LBS/AC. 10-20-20
GERMAN or BROWNTOP MILLET	50	JUNE - AUGUST	400 LBS/AC. 10-20-20
STRAW MULCH AS NEEDED	4,000		

STABILIZATION TIME FRAMES:
*IN THE EVENT THAT THE GOVERNING AGENCIES TIMEFRAME FOR STABILIZATION VARY, CONTRACTOR SHALL MEET THE MORE STRINGENT REQUIREMENT.

NPDES WATER QUALITY STABILIZATION TIME FRAMES

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

NC ACCESSIBILITY NOTES:

GENERAL NOTES:
1. SPECIAL ATTENTION SHALL BE GIVEN TO COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE/ANSI A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS.
2. IT IS ESSENTIAL THAT CONTRACTORS ARE AWARE OF THE SITE ACCESSIBILITY REQUIREMENTS. PARAMOUNTE ENGINEERING HAS DEVELOPED THESE NOTES AND DETAILS TO ASSURE THAT CONTRACTORS ARE AWARE OF THE REQUIREMENTS AT THE POINT IN TIME WHEN THEY ARE BIDDING THE PROJECT. IN ADDITION, PARAMOUNTE ENGINEERING HAS MADE A POINT IN THESE NOTES AND DETAILS, AS WELL AS IN OUR DRAWINGS, TO PROVIDE SLOPES / GRADES AND DIMENSIONS THAT COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE/ANSI A117.1 AND APPLICABLE LOCAL LAWS & REGULATIONS. IF THESE SLOPES / GRADES AND DIMENSIONS ARE NOT ACHIEVABLE, THE CONTRACTOR IS REQUIRED TO CONTACT THE OWNER IMMEDIATELY AND BEFORE MOVING FORWARD WITH THE WORK.
3. THE CONTRACTOR SHALL NOTIFY PARAMOUNTE ENGINEERING IMMEDIATELY OF ANY CONFLICT BETWEEN THESE NOTES AND DETAILS AND OTHER PROJECT DRAWINGS, WHETHER BY PARAMOUNTE ENGINEERING OR OTHERS. THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK FOR WHICH THE ALLEGED CONFLICT HAS BEEN DISCOVERED UNTIL SUCH ALLEGED CONFLICT HAS BEEN RESOLVED. NO CLAIM SHALL BE MADE BY THE CONTRACTOR FOR DELAY OR DAMAGES AS A RESULT OF RESOLUTION OF ANY SUCH CONFLICT(S).
4. THESE ACCESSIBILITY NOTES AND DETAILS ARE INTENDED TO DEPICT SLOPE AND DIMENSIONAL REQUIREMENTS ONLY. REFER TO SIDEWALK, CURBING, AND PAVEMENT DETAILS FOR ADDITIONAL INFORMATION.

ACCESSIBLE ROUTE NOTES:
1. AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE SITE FROM ACCESSIBLE PARKING SPACES AND ACCESSIBLE PASSENGER LOADING ZONES; PUBLIC STREETS OR SIDEWALKS; AND PUBLIC TRANSPORTATION STOPS TO THE ACCESSIBLE BUILDING OR FACILITY ENTRANCE THEY SERVE.
2. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, ACCESSIBLE FACILITIES, ACCESSIBLE ELEMENTS, AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.
3. WALKING SURFACES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL HAVE A MAXIMUM RUNNING SLOPE OF 5.0% AND A MAXIMUM CROSS SLOPE OF 2.0%.
4. ANY WALKING SURFACE THAT IS PART OF AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 5.0% IS A RAMP AND SHALL COMPLY WITH THE GUIDELINES FOR RAMPS OR CURB RAMPS.
5. TRANSITIONS BETWEEN RAMPS, WALKS, LANDINGS, GUTTERS OR STREETS SHALL BE FLUSHAND FREE OF ABRUPT VERTICAL CHANGES (1/4 INCH MAXIMUM VERTICAL CHANGE IN LEVEL PERMITTED).
6. FLOOR SURFACES SHALL BE STABLE, FIRM AND SLIP RESISTANT.
7. THE MINIMUM CLEAR WIDTH OF EXTERIOR ACCESSIBLE ROUTES SHALL BE FORTY-EIGHT (48) INCHES MINIMUM MEASURED BETWEEN HANDRAILS WHERE HANDRAILS ARE PROVIDED (NC BUILDING CODE 1104.1 & 1104.2).
8. WHERE AN ACCESSIBLE ROUTE MAKES A 180 DEGREE TURN AROUND AN OBJECT THAT IS LESS THAN FORTY-EIGHT (48) INCHES IN WIDTH, CLEAR WIDTH SHALL BE FORTY-TWO (42) INCHES MINIMUM APPROACHING THE TURN, FORTY-EIGHT (48) INCHES MINIMUM DURING THE TURN, AND FORTY-TWO (42) INCHES MINIMUM LEAVING THE TURN. THE CLEAR WIDTH APPROACHING AND LEAVING THE TURN MAY BE THIRTY-SIX (36) INCHES MINIMUM WHEN THE CLEAR WIDTH AT THE TURN IS SIXTY (60) INCHES MINIMUM. .* SEE NOTE 7 ABOVE FOR NC CLEAR WIDTH OF EXTERIOR ACCESSIBLE ROUTES*
9. AN ACCESSIBLE ROUTE WITH A CLEAR WIDTH LESS THAN SIXTY (60) INCHES SHALLPROVIDE PASSING SPACES AT INTERVALS OF TWO HUNDRED (200) FEET MAXIMUM. PASSING SPACES SHALL BE EITHER A SIXTY (60) INCH MINIMUM BY SIXTY (60) INCH MINIMUM SPACE; OR AN INTERSECTION OF TWO (2) WALKING SURFACES THAT PROVIDE A COMPLIANT T-SHAPED TURNING SPACE, PROVIDED THE BASE AND ARMS OF THE T-SHAPED SPACE EXTEND FORTY-EIGHT (48) INCHES MINIMUM BEYOND THE INTERSECTION.
10. DOORS, DOORWAYS AND GATES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE/ ANSI A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS.
11. DIRECTIONAL SIGNAGE INDICATING THE ROUTE TO THE NEAREST ACCESSIBLE BUILDING ENTRANCE SHALL BE PROVIDED AT INACCESSIBLE BUILDING ENTRANCES.
12. WHERE POSSIBLE, DRAINAGE INLETS SHALL NOT BE LOCATED ON AN ACCESSIBLE ROUTE. IN THE EVENT THAT A DRAINAGE INLET MUST BE LOCATED ON AN ACCESSIBLE ROUTE, THE GRATE SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), A117.1, THE NC BUILDING CODE, AND APPLICABLE LOCAL LAWS & REGULATIONS

RAMP NOTES:
1. ANY PART OF AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 5% SHALL BE CONSIDERED A RAMP.
2. THE MAXIMUM RUNNING SLOPE FOR A RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.
3. THE CLEAR WIDTH OF AN EXTERIOR RAMP RUN SHALL BE FORTY EIGHT INCHES (NC BUILDING CODE 1104.1). WHERE HANDRAILS ARE PROVIDED ON THE RAMP RUN, THE CLEAR WIDTH SHALL BE MEASURED BETWEEN THE HANDRAILS.
4. THE RISE FOR ANY RAMP RUN SHALL BE THIRTY (30) INCHES MAXIMUM.
5. LANDINGS SHALL BE PROVIDED AT THE TOP AND BOTTOM OF RAMPS. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 2.0% IN ANY DIRECTION. THE LANDING CLEAR WIDTH SHALL BE AT LEAST AS WIDE AS THE WIDEST RAMP RUN LEADING TO THE LANDING. THE LANDING CLEAR LENGTH SHALL BE SIXTY (60) INCHES LONG MINIMUM. RAMPS THAT CHANGE DIRECTION BETWEEN RUNS AT LANDINGS SHALL HAVE A CLEAR LANDING OF SIXTY (60) INCHES BY SIXTY (60) INCHES MINIMUM.
6. RAMP RUNS WITH A RISE GREATER THAN SIX (6) INCHES SHALL HAVE HANDRAILS ON BOTH SIDES COMPLYING WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NC BUILDING CODE/ANSI A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS.
7. FLOOR SURFACES OF RAMPS AND LANDINGS SHALL BE STABLE, FIRM AND SLIP RESISTANT.
8. EDGE PROTECTION COMPLYING WITH AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NC BUILDING CODE/ANSI A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS SHALL BE PROVIDED ON EACH SIDE OF RAMP RUNS AND ON EACH SIDE OF RAMP LANDINGS.
9. WHERE DOORWAYS ARE LOCATED ADJACENT TO A RAMP LANDING, MANEUVERING CLEARANCES REQUIRED BY THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NC BUILDING CODE/ANSI A117.1 SHALL BE PERMITTED TO OVERLAP THE REQUIRED LANDING AREA. WHERE DOORS THAT ARE SUBJECT TO LOCKING ARE ADJACENT TO A RAMP LANDING, LANDINGS SHALL BE SIZED TO PROVIDE A COMPLIANT TURNING SPACE.

CURB RAMP NOTES:
1. THE MAXIMUM RUNNING SLOPE OF A CURB RAMP SHALL BE 8.33% AND THE MAXIMUM CROSS SLOPE SHALL BE 2.0%.
2. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT BE STEEPER THAN 5%. THE ADJACENT SURFACES AT TRANSITIONS AT CURB RAMPS TO WALKS, GUTTERS AND STREETS SHALL BE AT THE SAME LEVEL.
3. THE CLEAR WIDTH OF A CURB RAMP SHALL BE 36 INCHES (36) MINIMUM, EXCLUSIVE OF FLARED SIDES, IF PROVIDED. *NOTE NC BUILDING CODE REQUIRES EXTERIOR ACCESSIBLE ROUTES TO BE 48 INCHES MINIMUM WIDE (1104.1 & 1104.2).*
4. LANDINGS SHALL BE PROVIDED AT THE TOP OF CURB RAMPS. THE CLEAR LENGTH OF THE LANDING SHALL BE THIRTY-SIX (36) INCHES MINIMUM. THE CLEAR WIDTH OF THE LANDING SHALL BE AT LEAST AS WIDE AS THE CURB RAMP, EXCLUDING FLARED SIDES, LEADING TO THE LANDING. LANDINGS SHALL HAVE A SLOPE NOT STEEPER THAN 2% IN ANY DIRECTION.
5. IF A CURB RAMP IS LOCATED WHERE PEDESTRIANS MUST WALK ACROSS THE RAMP, OR WHERE IT IS NOT PROTECTED BY HANDRAILS OR GUARDRAILS, IT SHALL HAVE FLARED SIDES.
6. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT EXCEED 10%.
7. CURB RAMPS AND THE FLARED SIDES OF CURB RAMPS SHALL BE LOCATED SO THAT THEY DO NOT PROJECT INTO VEHICULAR TRAFFIC LANES, PARKING SPACES OR PARKING ACCESS AISLES. CURBS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
8. CURB RAMPS SHALL BE LOCATED OR PROTECTED TO PREVENT THEIR OBSTRUCTION BY PARKED VEHICLES.
9. IT IS RECOMMENDED TO PROVIDE CURB RAMPS WITH A TWENTY-FOUR (24) INCH DEEP DETECTABLE WARNING COMPLYING WITH 406.12 A117.1, EXTENDING THE FULL WIDTH OF THE RAMP. REFERTO DETECTABLE WARNING DETAILS AND NOTES FOR PLACEMENT, ORIENTATION AND NOTES. THE NC BUILDING CODE DOES NOT CURRENTLY REQUIRE DETECTABLE WARNINGS AT CURB RAMPS, NOR DO THE 2010 ADA STANDARDS - HOWEVER US DOT ADA REGULATIONS DO REQUIRE THESE.
10. FLOOR SURFACES OF CURB RAMPS SHALL BE DEEP GROOVED, ½ INCH WIDE BY ¼ INCH DEEP, ONE (1) INCH CENTERS TRANSVERSE TO THE RAMP.
11. WHERE PROVIDED, STOP LINES SHALL BE LOCATED IN ADVANCE OF CURB RAMP.
12. WHERE PROVIDED, PEDESTRIAN ACTIVATED SIGNALS SHALL BE LOCATED ADJACENT TO THE SIDEWALK AND NOT ON THE SIDEWALK.
13. WHERE PROVIDED, DRAINAGE INLETS SHALL BE LOCATED UPSTREAM OF CURB RAMPS AND NOT IN THE RAMP AREA.
14. CURB RAMP TYPE AND LOCATION ARE PER PLAN.

NC ACCESSIBILITY NOTES CONTD.

PARKING SPACE NOTES:
1. ACCESSIBLE PARKING SPACES SHALL BE LOCATED ON THE SHORTEST ACCESSIBLE ROUTES OF TRAVEL FROM ADJACENT PARKING TO AN ACCESSIBLE BUILDING ENTRANCE.
2. ACCESSIBLE PARKING SPACES SHALL BE AT LEAST NINETY-SIX (96) INCHES WIDE. ACCESS AISLES SHALL BE 60 INCHES WIDE. ONE OF SIX ACCESSIBLE SPACES SHOULD PROVIDE A VAN ACCESSIBLE AISLE. THE AISLE SHOULD BE 96 INCHES WIDE (OR ACCESSIBLE SPACE IS 11 FEET AND ACCESS AISLE IS FIVE FEET). WHERE PARKING SPACES AND ACCESS AISLES ARE MARKED WITH LINES, THE WIDTH MEASUREMENTS SHALL BE MADE FROM CENTERLINE OF THE MARKINGS. WHERE PARKING SPACES OR ACCESS AISLES ARE NOT ADJACENT TO ANOTHER PARKING SPACE OR ACCESS AISLES, MEASUREMENTS SHALL BE PERMITTED TO INCLUDE THE FULL WIDTH OF THE LINE DEFINING THE PARKING SPACE OR ACCESS AISLE.
3. PARKING ACCESS AISLES SHALL BE PART OF AN ACCESSIBLE ROUTE TO THE BUILDING OR FACILITY ENTRANCE AND SHALL COMPLY WITH PROVISIONS FORACCESSIBLE ROUTES. MARKED CROSSINGS SHALL BE PROVIDED WHERE THE ACCESSIBLE ROUTE MUST CROSS VEHICULAR TRAFFIC LANES. WHERE POSSIBLE, IT IS PREFERABLE THAT THE ACCESSIBLE ROUTE NOT PASS BEHIND PARKED VEHICLES.
4. TWO (2) ACCESSIBLE PARKING SPACES MAY SHARE A COMMON ACCESS AISLE.
5. ACCESS AISLES SHALL EXTEND THE FULL LENGTH OF THE PARKING SPACE THEY SERVE.
6. ACCESS AISLES SHALL BE MARKED SO AS TO DISCOURAGE PARKING IN THEM.
7. ACCESS AISLES SHALL NOT OVERLAP THE VEHICULAR WAY. ACCESS AISLES SHALL BE PERMITTED TO BE PLACED ON EITHER SIDE OF THE PARKING SPACE EXCEPTFOR ANGLED VAN PARKING SPACES WHICH SHALL HAVE ACCESS AISLES LOCATED ON THE PASSENGER SIDE OF THE PARKING SPACES.
8. FLOOR SURFACES OF PARKING SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE PARKING SPACES THEY SERVE. CHANGES IN LEVEL ARE NOT PERMITTED.
9. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS.
10. PARKED VEHICLE OVERHANGS SHALL NOT REDUCE THE REQUIRED CLEAR WIDTH OF AN ACCESSIBLE ROUTE.
11. PARKING SPACES FOR VANS AND ACCESS AISLES AND VEHICULAR ROUTES SERVING THEM SHALL PROVIDE A VERTICAL CLEARANCE OF NINETY-EIGHT (98) INCHES MINIMUM. SIGNS SHALL BE PROVIDED AT ENTRANCES TO PARKING FACILITIES INFORMING DRIVERS OF CLEARANCES AND THE LOCATION OF VAN ACCESSIBLE PARKING SPACES.
12. EACH ACCESSIBLE PARKING SPACE SHALL BE PROVIDED WITH SIGNAGE DISPLAYING THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. SIGNS SHALL BE INSTALLED AT A MINIMUM CLEAR HEIGHT OF SIXTY (60) INCHES ABOVE GRADE AND SHALL NOT INTERFERE WITH AN ACCESSIBLE ROUTE FROM AN ACCESS AISLE. SIGNS LOCATED WHERE THEY MAY BE HIT BY VEHICLES BEING PARKED SHALL BE INSTALLED WITH BOLLARD PROTECTION.
13. SIGNAGE AT ACCESSIBLE PARKING SPACES REQUIRED BY THE NC BUILDING CODE SECTION 1106.1SHALL COMPLY WITH THE REQUIREMENTS OF NORTH CAROLINA GENERAL STATUTE 20-37.6 AND 136-30 AND THE NCDOT UNIFORM MANUAL ON TRAFFIC CONTROL DEVICES. A SEPARATE SIGN IS REQUIRED FOR EACH SPACE. SIGNS TO INDICATE THE MAXIMUM PENALTY MUST BE PROVIDED AT EACH ACCESSIBLE SPACE.
14. ACCESSIBLE PARKING SPACE, ACCESS AISLE STRIPING, AND INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE PAINTED BLUE (OR ANOTHER COLOR THAT CAN BE DISTINGUISHED FROM PAVEMENT).

PASSENGER LOADING ZONE NOTES:
1. PASSENGER LOADING ZONES SHALL PROVIDE VEHICULAR PULL-UP SPACE NINETY-SIX (96) INCHES WIDE MINIMUM AND TWENTY (20) FEET LONG MINIMUM.
2. PASSENGER LOADING ZONES SHALL PROVIDE A CLEARLY MARKED ACCESS AISLE THAT IS SIXTY (60) INCHES WIDE MINIMUM AND EXTENDS THE FULL LENGTH OF THE VEHICLE PULL-UP SPACE THEY SERVE.
3. ACCESS AISLE SHALL ADJOIN AN ACCESSIBLE ROUTE AND NOT OVERLAP THE VEHICULAR WAY.
4. VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2.0% IN ALL DIRECTIONS. ACCESS AISLES SHALL BE AT THE SAME LEVEL AS THE VEHICLE PULL-UP SPACE THEY SERVE. CHANGES IN LEVEL ARE NOT PERMITTED.
5. FLOOR SURFACES OF VEHICLE PULL-UP SPACES AND ACCESS AISLES SERVING THEM SHALL BE STABLE, FIRM AND SLIP RESISTANT.
6. VEHICLE PULL-UP SPACES, ACCESS AISLES SERVING THEM AND A VEHICULAR ROUTE FROM AN ENTRANCE TO THE PASSENGER LOADING ZONE, AND FROM THE PASSENGER LOADING ZONE TO A VEHICULAR EXIT SERVING THEM, SHALL PROVIDE A VERTICAL CLEARANCE OF ONE HUNDRED FOURTEEN (114) INCHES MINIMUM.

ACCESSIBLE ENTRANCE NOTES:
1. ACCESSIBLE ENTRANCES SHALL BE PROVIDED AS REQUIRED BY THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS) AND THE NORTH CAROLINA BUILDING CODE, AND APPLICABLE LOCAL LAWS & REGULATIONS.
2. ENTRANCE DOORS, DOORWAYS AND GATES SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS) THE NC BUILDING CODE/ANSI A117.1 AND SHALL BE ON AN ACCESSIBLE ROUTE.

LEGEND:

- OHE — OVERHEAD ELECTRIC
- UGT — BURIED TELEPHONE LINE
- G — BURIED GAS LINE
- UTV — BURIED TV CABLE
- FO — BURIED FIBER OPTIC
- W — WATER LINE
- FM — FORCEMAIN LINE
- SS — SANITARY SEWER LINE
- STORM DRAINAGE LINE
- x — CHAINLINK FENCE
- PROPOSED FENCE (TYPE AS INDICATED)
- 41 — PROPOSED CONTOUR
- 41 — EXISTING CONTOUR
- CENTERLINE
- RIGHT OF WAY/BOUNDARY
- BOUNDARY LINE
- BUILDING HATCH
- CONCRETE PAVEMENT
- SIDEWALK
- ASPHALT PAVEMENT
- GRAVEL PAVEMENT
- RIP-RAP
- INFILTRATION BASIN BOTTOM

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS:

CLIENT INFORMATION:
SAWYER SHERWOOD &
ASSOCIATE ARCHITECTURE
124 MARKET ST, WILMINGTON, NC28403

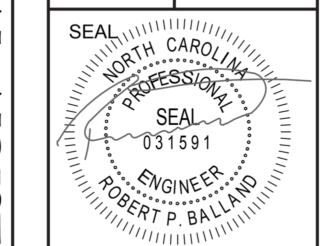
PARAMOUNTE
E N G I N E E R I N G , I N C.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

GENERAL NOTES

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

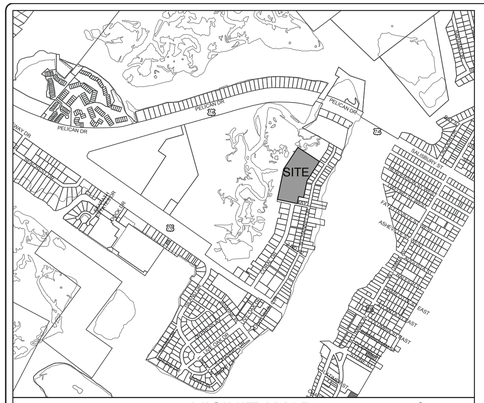
DRAWING INFORMATION
DATE: 02/20/19
SCALE: N.T.S.
DESIGNED: RPB
DRAWN: AEC
CHECKED: RPB

SEAL


02/20/19

C-1.0

PEI JOB#: 18156.PE



VICINITY MAP

SCALE: 1" = 1,000'

NORTH

DEMOLITION NOTES:

1.) CONTRACTOR SHALL REFER TO SHEET C-1.0 GENERAL NOTES FOR DEMOLITION NOTES.

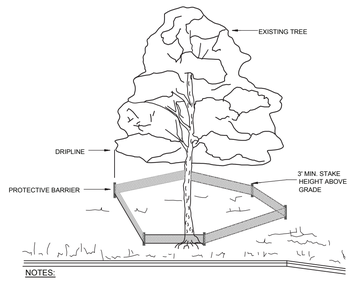
2.) CONTRACTOR SHALL MAKE NO PAVEMENT CUTS INTO FOURTH AVENUE WITHOUT THE WRITTEN PERMISSION OF TOWN OF WRIGHTSVILLE BEACH.

3.) ALL UTILITIES SHALL BE ABANDONED AND/OR DEMOLISHED AND CAPPED PROPERLY IN ACCORDANCE WITH THE UTILITY OWNERS RULES AND REGULATIONS.

4.) CONTRACTOR SHALL COORDINATE WITH ELECTRIC UTILITY OWNER/PROVIDER FOR DEMOLITION.

EX. VEGETATION NOTES:

1.) CONTRACTOR SHALL REMOVE SHRUBS AS NECESSARY ALONG THE BUILDINGS FOR CONSTRUCTION AS LONG AS THE SAME QUANTITY AND SPECIES ARE REPLACED WHEN CONSTRUCTION IS COMPLETE.



NOTES:

- TREES TO BE SAVED WILL BE CLEARLY MARKED PRIOR TO CONSTRUCTION
- INSTALLATION OF PROTECTION FENCING IS REQUIRED PRIOR TO LAND DISTURBING ACTIVITY AND IS TO BE MAINTAINED UNTIL AFTER FINAL SITE INSPECTION
- FENCING SHALL BE INSTALLED AT THE DRIPLINE OR AT THE BOUNDARY OF THE CRITICAL ROOT ZONE, WHICHEVER IS GREATER.
  DRIP LINE - THE AREA OF SOIL DIRECTLY BENEATH THE TREE EXTENDING OUT TO THE TIPS OF THE OUTERMOST BRANCHES.
  CRITICAL ROOT ZONE - 1' RADIUS FROM THE TREE TRUNK PER 1" CALIPER

(A) METHOD OF TREE PROTECTION DURING CONSTRUCTI0N

NTS

SYMBOLS LEGEND

	EXISTING CONCRETE TO BE REMOVED
	EXISTING ASPHALT TO BE REMOVED
	EXISTING UTILITY LINE TO BE REMOVED
	EXISTING STORM STRUCTURE TO BE REMOVED
	EXISTING SIGN/LIGHT/UTILITY POLE TO BE REMOVED
	EXISTING FENCE TO BE REMOVED
	TREE PROTECTION FENCING
X	EXISTING TREE/SHRUBS TO BE REMOVED
	EXISTING BUILDING/STRUCTURE TO BE REMOVED
	EXISTING CURBING TO BE REMOVED

EXISTING STORAGE SHED TO BE REMOVED IN ITS ENTIRETY

EXISTING LIGHT POLE TO BE REMOVED IN ITS ENTIRETY

ALL EXISTING MODULAR BUILDINGS (9) & STORAGE BUILDING TO BE REMOVED IN THEIR ENTIRETY

EXISTING CONCRETE WALKWAYS TO BE REMOVED IN THEIR ENTIRETY (TYP.)

RAISED METAL RAMPS/WALKWAYS TO BE REMOVED IN THEIR ENTIRETY (TYP.)

EXISTING WATER METERS TO BE REMOVED (TYP.)

PORTION OF EXISTING ASPHALT PATHWAY (AS SHOWN) TO BE REMOVED IN ITS ENTIRETY

EXISTING ELECTRICAL PANEL TO BE REMOVED IN ITS ENTIRETY

TREE PROTECTION FENCING (TYP.)

EXISTING STORAGE BUILDINGS TO BE DEMOLISHED IN THEIR ENTIRETY

EXISTING KAYAK STORAGE RACK TO REMAIN

EX. 6' CHAIN LINK FENCE TO BE REMOVED AND REPLACED

EX. DUMPSTER & CONCRETE DUMPSTER PAD TO REMAIN

EX. 6' CHAIN LINK FENCE TO BE REMOVED AND REPLACED

EXISTING STORAGE BUILDING TO BE REMOVED IN ITS ENTIRETY

EXISTING ELECTRICAL TRANSFORMERS TO BE REMOVED IN THEIR ENTIRETY

CONCRETE WALKWAY TO BE REMOVED IN ITS ENTIRETY

EXISTING TREE TO BE REMOVED (TYP.)

CONCRETE WALKWAYS TO BE REMOVED IN THEIR ENTIRETY (TYP.)

EXISTING PLANTER BOXES, AS INDICATED, TO BE REMOVED IN THEIR ENTIRETY

EXISTING ASPHALT WALK TO BE REMOVED

REMOVE & RELOCATED EX. MAILBOX. CONTRACTOR TO COORDINATE WITH OWNER.

EXISTING CONCRETE ENTRANCE & CANOPY TO BE REMOVED IN THEIR ENTIRETY

PORTION OF EXISTING ASPHALT DRIVEWAY AS INDICATED TO BE REMOVED IN ITS ENTIRETY

EXISTING BIKE RACK (2) TO REMAIN. APPROX. LOCATION SHOWN.

EXISTING TREE TO BE REMOVED (TYP.)

EXISTING SIGN TO BE REMOVED/RELOCATED OUTSIDE NEW EDGE OF PAVEMENT

EXISTING WATER METER, BOLLARDS, AND BACKFLOW PREVENTER TO BE ABANDONDED IN ACCORDANCE WITH THE TOWB STANDARDS AND SPECIFICATIONS ONCE NEW SERVICE IS APPROVED AND OPERATIONAL

EX. BUILDING
14,000 SF
HEIGHT = 16'-0"
1-STORY STRUCTURE

HEIGHT = 10'-6"
1-STORY STRUCTURE

THE BOARD OF EDUCATION OF NEW HANOVER COUNTY
PAR ID: R05720-003-001-000
DB 507, PG 373
ZONED: G-1 PUBLIC/SEMI PUBLIC
USE: 821-EDUCATIONAL

SHORE ACRES COMPANY
PAR ID: R05719-001-002-000
DB 155, PG 322
ZONED: P-1-CONSERVATION
USE: 951-MARSHES

SHORE ACRES COMPANY
DEVELOPMENT 2
MB 3, PG 1
ZONED: R-1-WB RESIDENTIAL SF
USE: 10-1 FAM RES

SHORE ACRES COMPANY
EXTENSION OF DEVELOPMENT 2
MB 7, PG 75
ZONED: R-1-WB RESIDENTIAL SF
USE: 10-1 FAM RES

ELIZBETH A. SIPPLE
PAR ID: R05720-004-002-000
DB 5768, PG 2954
ZONED: R-1-WB RESIDENTIAL SF
USE: 10-1 FAM RES

GEORGE C. LEWIS & REBECCA B. LEWIS
PAR ID: R05720-004-001-000
DB 1259, PG 849
ZONED: R-1-WB RESIDENTIAL SF
USE: 958-UNUSED LAND

TOWN OF WRIGHTSVILLE BEACH
20' GENERAL UTILITY EASEMENT
DB 2871, PG 345

TOWN OF WRIGHTSVILLE BEACH
20' GENERAL UTILITY EASEMENT
DEED BOOK 2871, PAGE 345

RIGHT OF WAY AND EASEMENT DB 507, PG 373

N. CHANNEL DRIVE
40' PUBLIC R/W

FIFTH AVENUE
15' PUBLIC R/W

FOURTH AVENUE
25' PUBLIC R/W

CORAL DRIVE
60' PUBLIC R/W

ZONE AE (BASE FLOOD ELEV. 12')

Know what's below. Call before you dig.

NC811 (811)

NC(GRID)NAD83(2011)

GRAPHIC SCALE
0 15 30 60 120
SCALE: 1" = 30'

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

NHCS
Engaging Students, Achieving Excellence

REVISIONS:

CLIENT INFORMATION:

SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
124 MARKET ST, WILMINGTON, NC28403

PARAMOUNTE ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DEMOLITION PLAN

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

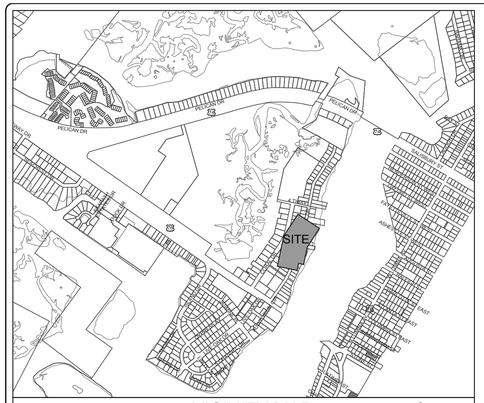
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 02/20/19
SCALE: 1" = 30'
ENGINEERED: AEC
DRAWN: RPB
CHECKED:

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
02/20/19

C-2.0

PEI JOB#: 18156.PE



VICINITY MAP

SCALE: 1" = 1,000'

NORTH

SITE DATA TABULATION

OWNER:	NEW HANOVER COUNTY BOARD OF ED. 6410 CAROLINA BEACH ROAD WILMINGTON, NC 28412
PROJECT ADDRESS:	220 CORAL DRIVE WRIGHTSVILLE BEACH, NC 28409
TAX PARCEL IDENTIFICATION #:	R05720-003-001-000
RECORDED DEED BOOK:	BK 507, PG 373
TOTAL SITE AREA:	5.79 ACRES (252,182 SF)
CURRENT ZONING:	G-1 PUBLIC/SEMI-PUBLIC DISTRICT
CAMA LAND USE CLASSIFICATION:	URBAN
EXISTING LAND USE:	ELEMENTARY SCHOOL
PROPOSED LAND USE:	ELEMENTARY SCHOOL
LAND USE CODE:	821-EDUCATIONAL

SETBACK STANDARDS

	PROVIDED	REQUIRED
MINIMUM FRONT SETBACK	119.1 FT. (SOUTH)	15 FT.
MINIMUM SIDE SETBACK	63.8 FT. (WEST)	15 FT.
MINIMUM SIDE SETBACK	66.5 FT. (EAST)	15 FT.
MINIMUM REAR SETBACK	337.3 FT. (NORTH)	15 FT.

SITE INFORMATION

LOT AREA	889,713 SF (20.43 AC)	5,000 SF
LOT WIDTH	602.47'	50' MIN.

BUILDING INFORMATION

MAXIMUM ALLOWABLE BUILDING HEIGHT:	40'
PROPOSED BUILDING HEIGH:	38'-10"
EXISTING BUILDING CONSTRUCTION TYPE:	V-B
PROPOSED BUILDING CONSTRUCTION TYPE:	V-B
EXISTING BUILDING FOOTPRINT	14,000 SF (1-STORY SLAB)
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BUILDING LOT COVERAGE	10.3%

SITE PARKING

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FLOOD NOTE

THIS TRACT IS LOCATED IN A SPECIAL FLOOD HAZARD AREA AE (BASE ELEV. 12) ACCORDING TO THE NORTH CAROLINA FLOODPLAIN MAPPING PROGRAM FLOOD RISK INFORMATION SYSTEM WEBSITE. FIRM MAP NUMBER 3720316700K BEARING AN EFFECTIVE DATE OF AUGUST 28, 2018.

IMPERVIOUS AREA:

TOTAL EXISTING IMPERVIOUS AREA	
BUILDINGS	24,453 SF
WALKWAYS/DRIVEWAYS	41,178 SF
GRAVEL	6,406 SF
	72,037 SF
EXISTING IMPERVIOUS AREA TO BE DEMOLISHED	
BUILDINGS	11,196 SF
CONCRETE	2,959 SF
ASPHALT	1,647 SF
	15,802 SF
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BUILDINGS	11,918 SF
CONCRETE	1,793 SF
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NHCS
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REVISIONS:

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NC License #: C-2846

OVERALL SITE PLAN

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

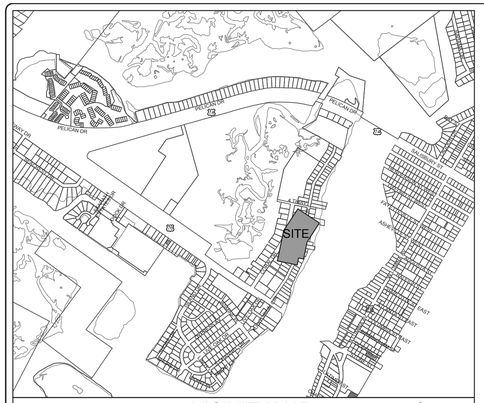
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 02/20/19
SCALE: 1" = 40'
DESIGNED: AEC
DRAWN: RPB
CHECKED:

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
02/20/19

C-2.1

PEI JOB#: 18156.PE



VICINITY MAP

SCALE: 1" = 1,000'

NORTH

KEY NOTES:

1. CONCRETE PAVING: REFER TO DETAIL C-5.0
2A. LIGHT DUTY ASPHALT PAVING: REFER TO DETAIL C-5.0
3. ASPHALT OVERLAY AREA: REFER TO DETAIL C-5.0
4. STANDARD 24" CURB & GUTTER: NOT USED
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6. TRANSITION CURB DETAIL: NOT USED
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10. STEEL BOLLARD: REFER TO DETAILS C-5.0
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17. CONCRETE BUMPER BLOCK: 8"w x 4"h x 6'-0 LONG CONCRETE. ANCHOR TO PAVING WITH (2) 1'-6" LONG #4 REBAR. REFER TO DETAIL C-5.0
18. PARKING LOT SITE LIGHTING: PROVIDED BY DUKE ENERGY
19. BICYCLE RACK (5 BIKE MIN. PER RACK): EXISTING
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21. EMERGENCY VEHICLE LANE MARKING: NOT APPLICABLE
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26. PYLON SIGN: NOT USED
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- (30) PARKING SPACE COUNT
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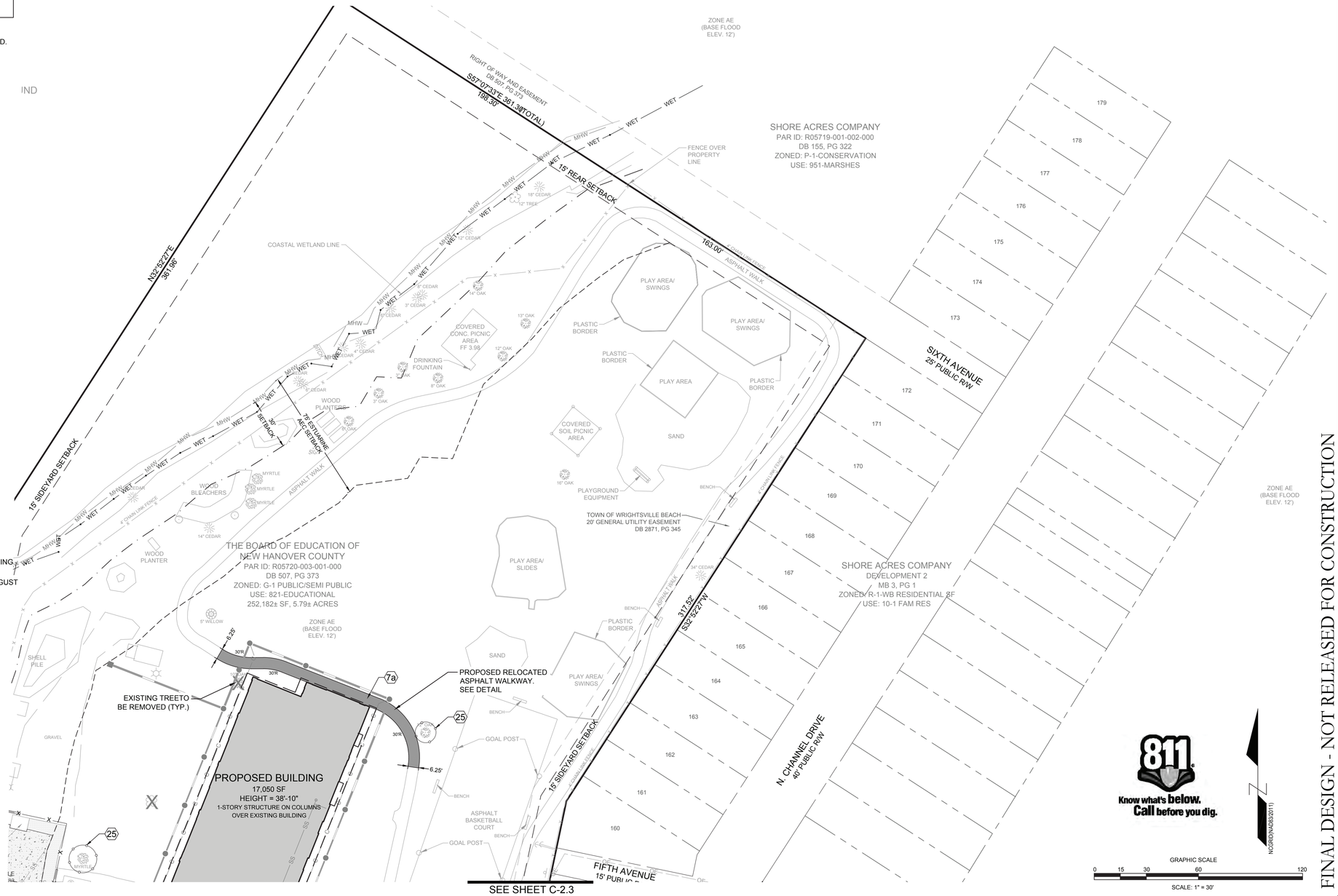

811 Know what's below. Call before you dig.

NCGRIDNAD83(2011)

GRAPHIC SCALE

0 15 30 60 120

SCALE: 1" = 30'

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

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WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

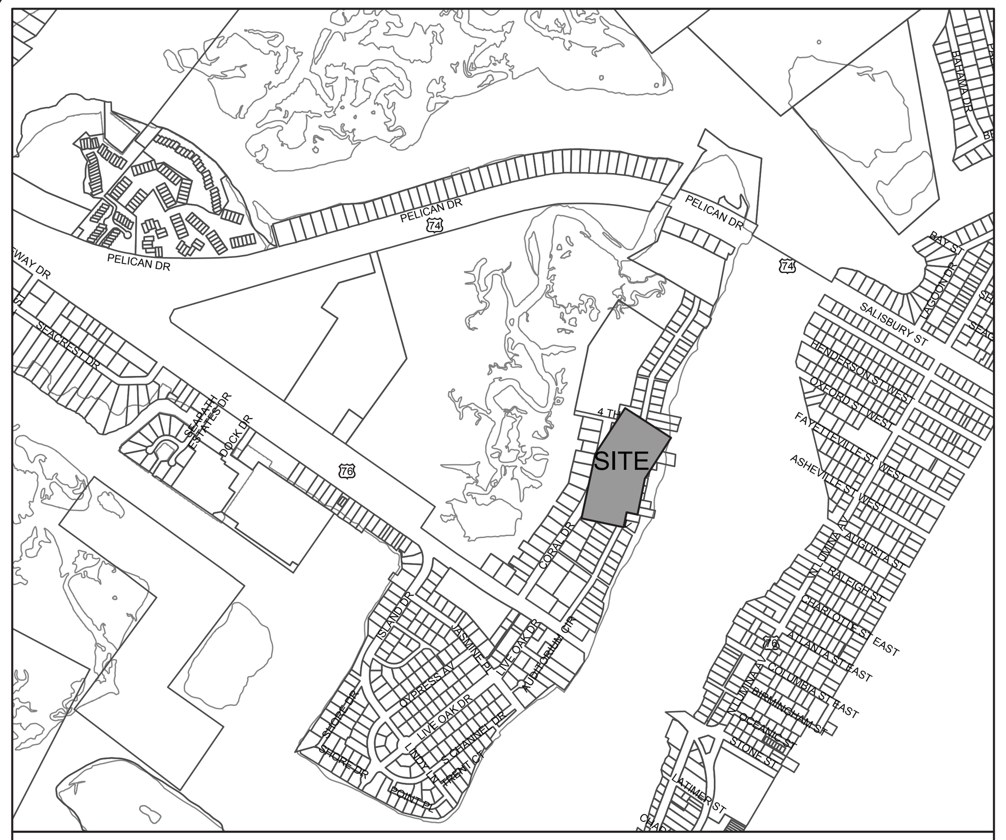
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY PLAT:
FINAL DESIGN:
RELEASED FOR CONST

DRAWING INFORMATION
DATE: 02/20/19
SCALE: 1" = 30'
DESIGNED: RPB
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
02/20/19

C-2.2

PEI JOB#: 18156.PE



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GRAPHIC SCALE 0 15 30 60 120
SCALE: 1" = 30'

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SITE PLAN

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

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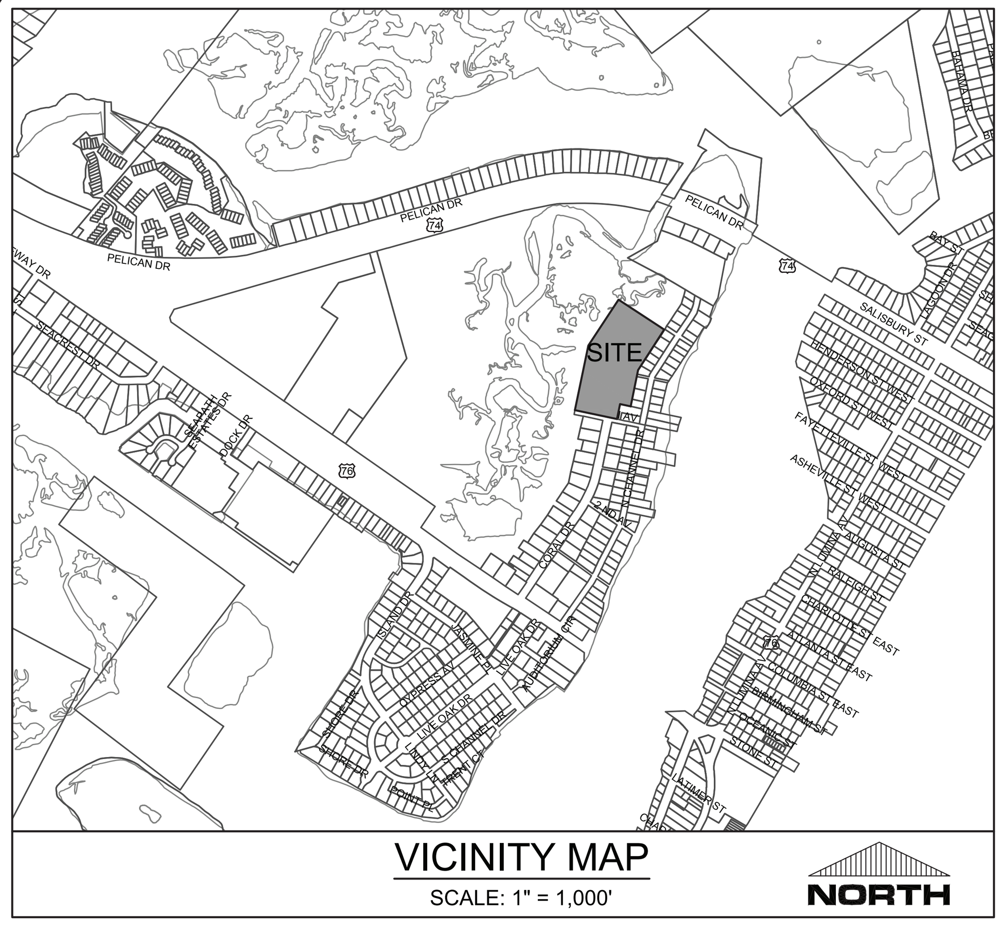
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
02/20/19

C-2.3

PEI JOB#: 18156.PE



STORM SCHEDULE:

Upstream Node	Downstream Node	Diameter (in)	Upstream Pipe Invert (ft)	Downstream Pipe Invert(ft)	Pipe Length (ft)	Slope (%)	Upstream Rim Elev (ft)	Downstream Rim Elev (ft)	Pipe Material
CO-2	YI-1	12	0.35	0.00	70	0.50	4.09	3.75	HDPE
CO-7	CO-2	12	0.47	0.35	24	0.50	4.29	4.09	HDPE
YI-2	CO-7	12	0.55	0.47	17	0.50	4.09	4.29	HDPE
CO-9	YI-2	12	0.73	0.55	35	0.50	4.28	4.09	HDPE
YI-3	CO-9	12	0.99	0.73	52	0.50	4.58	4.28	HDPE
CO-11	YI-3	12	1.18	0.99	39	0.50	4.36	4.58	HDPE
CO-12	CO-11	12	1.33	1.18	30	0.50	4.37	4.36	HDPE
CO-13	CO-12	8	1.48	1.33	30	0.50	4.07	4.37	HDPE
CO-14	CO-13	8	1.63	1.48	30	0.50	4.79	4.07	HDPE
CO-15	CO-14	8	1.78	1.63	30	0.50	4.53	4.79	HDPE
CO-3	CO-2	8	0.50	0.35	30	0.50	4.65	4.09	HDPE
CO-4	CO-3	8	0.65	0.50	30	0.50	4.29	4.65	HDPE
CO-5	CO-4	8	0.80	0.65	30	0.50	4.40	4.29	HDPE
CO-6	CO-5	8	0.92	0.80	23	0.50	4.64	4.40	HDPE

ASPHALT AREA NOTE:

1. SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITALBE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED SUBGRADE, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND TECHNICAL SPECIFICATIONS.

BUILDING PAD NOTE:

1. SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITALBE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED BUILDING PAD, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND TECHNICAL SPECIFICATIONS.

STORMWATER NOTE:

1. THIS SITE DOES NOT HAVE ANY EXISTING STORMWATER MANAGEMENT MEASURES. SINCE THE PROPOSED IMPERVIOUS AREA DOES NOT EXCEED THE AMOUNT OF IMPERVIOUS AREA BEING DEMOLISHED, NO BEST MANAGEMENT PRACTICES ARE BEING PROVIDED.
2. THIS SITE DRAINS TO AN UNNAMED TRIBUTARY TO LEES CUT.

GENERAL NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL STATE OF NC, TOWN OF WRIGHTSVILLE BEACH, AND NEW HANOVER COUNTY STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL PLACE INLET PROTECTION AROUND ALL STORM DRAIN INLETS TO PROTECT THE SYSTEM FROM COLLECTING SEDIMENTATION DURING CONSTRUCTION. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE AND THE SITE IS STABILIZED.
3. CONTRACTOR SHALL ADJUST ALL FRAMES OF EX. UTILITY INFRASTRUCTURE WITHIN ASPHALT OVERLAY AND NEW ASPHALT AREAS TO MATCH PROPOSED GRADES.
4. ALL PROPOSED SPOT ELEVATIONS SHOWN IN THE PARKING LOT ARE PROPOSED EDGE OF PAVEMENT OR FACE OF CURB @ GUTTER FOR CURB SECTIONS, UNLESS NOTED OTHERWISE.
5. ALL ROOF DRAINS SHALL BE CONNECTED TO UNDERGOUND COLLECTION SYSTEM OR SPLASH PADS AS INDICATED.
6. ALL SIDEWALK CROSS SLOPES HAVE BEEN GRADED TO MEET ADA REGULATIONS. CONTRACTOR SHALL CONFIRM GRADES BEFORE PLACING PAVEMENT OR SIDEWALKS AND REPORT ANY DISCREPANCIES TO OWNER AND/OR ENGINEER.
7. THE CONTRACTOR SHALL USE EITHER RCP (CL. III) OR HDPE PIPE FOR THE STORM DRAINAGE SYSTEM. IF THE CONTRACTOR CHOOSES TO USE HDPE PIPE, IT SHALL BE ADS N-12 WT STORM PIPE OR APPROVED EQUAL AND SHALL BE INSTALLED TO MANUFACTURER SPECIFICATIONS. IN ADDITION, THE CONTRACTOR SHALL BE SURE TO PROVIDE CONCRETE COLLARS AROUND EACH F.E.S. TO PREVENT FLOATATION IF HDPE PIPE IS CHOSEN.
8. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR WB ELEMENTARY PREPARED BY ECS SOUTHEAST, LLP [PROJECT NUMBER 22:27020] AND DATED AUGUST 27, 2018 FOR SITE CONSTRUCTION RECOMMENDATIONS WHICH IS INCLUDED IN THE TECHNICAL SPECIFICATIONS.

LEGEND:

Symbol	Description
— 16 —	EXISTING CONTOUR
— 29 —	PROPOSED CONTOUR
EG=25.05	EXISTING SPOT ELEVATION
EP=25.05	PROPOSED EDGE OF PAVEMENT
TW=25.05	PROPOSED SIDEWALK ELEVATION
SW=25.05	PROPOSED GUTTER FLOW LINE
PG=25.05	PROPOSED GRADE
	INLET PROTECTION
LOD	LIMITS OF DISTURBANCE
	SILT FENCE
	TREE PROTECTION FENCING
	DRAINAGE FLOW PATH
CB-202	DRAINAGE INLET LABEL
	SPILL GUTTER
	ROCK INLET PROTECTION
S-01 ELEV. 33.5	GEOTECH BORING LOCATION

NOTATION:

CI	=	CURB INLET
DI	=	DROP INLET
CO	=	CLEANOUT
DDI	=	DOUBLE DROP INLET
MH	=	STORM DRAIN MANHOLE
RD	=	ROOD DRAIN CLEANOUT
YI	=	YARD INLET
FFE	=	FINISHED FLOOR ELEVATION
BPE	=	BUILDING PAD ELEVATION

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

NHCS
Engaging Students, Achieving Excellence

REVISIONS:

CLIENT INFORMATION:
SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
124 MARKET ST, WILMINGTON, NC28403

PARAMOUNTE ENGINEERING INC
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

GRADING-DRAINAGE-EC PLAN

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

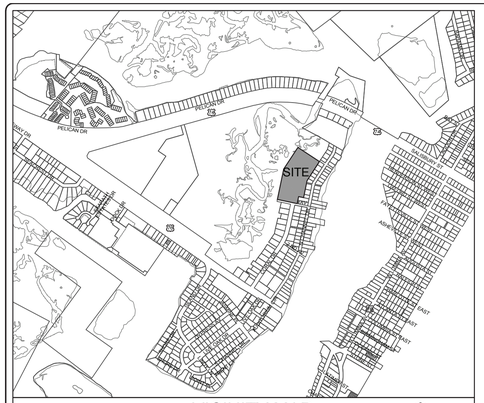
DRAWING INFORMATION
DATE: 02/20/19
SCALE: 1" = 30'
DESIGNED: RPB
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
02/20/19

C-3.0

PEI JOB#: 18156.PE

Know what's below. Call before you dig.


SITE
PELICAN DR
SEA GULL DR
SEA GULL CT
SEA GULL LN
SEA GULL PL
SEA GULL WAY
SEA GULL CIR
SEA GULL TRL
SEA GULL RUN
SEA GULL CV
SEA GULL PT
SEA GULL CRK
SEA GULL BND
SEA GULL XING
SEA GULL HOLLOW
SEA GULL RIDGE
SEA GULL VIEW
SEA GULL MEADOW
SEA GULL GLEN
SEA GULL PARK
SEA GULL POINT
SEA GULL COVE
SEA GULL BAY
SEA GULL SHORE
SEA GULL BEACH
SEA GULL ISLAND
SEA GULL LAKE
SEA GULL POND
SEA GULL RIVER
SEA GULL CREEK
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SEA GULL SWAMP
SEA GULL FOREST
SEA GULL MOUNTAIN
SEA GULL VALLEY
SEA GULL HILL
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SEA GULL TUNDRA
SEA GULL OCEAN
SEA GULL SEA
SEA GULL GULF
SEA GULL BAY
SEA GULL STRAIT
SEA GULL CHANNEL
SEA GULL INLET
SEA GULL SOUND
SEA GULL ESTUARY
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SEA GULL MOUTH
SEA GULL SOURCE
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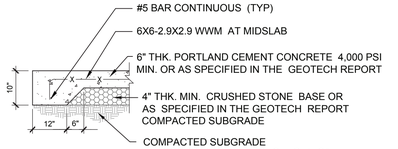
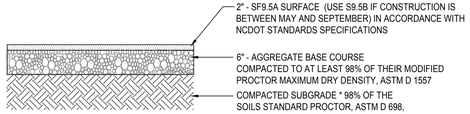
SEA GULL FEATHER



LIGHT-DUTY CONCRETE PAVEMENT SECTION
NOT TO SCALE



LIGHT DUTY ASPHALT PAVEMENT SECTION
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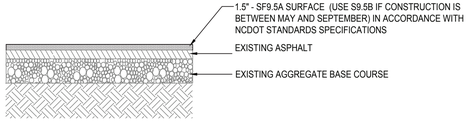
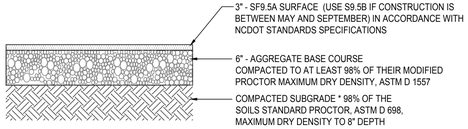


ASPHALT OVERLAY PAVEMENT SECTION
N.T.S.



HEAVY DUTY ASPHALT PAVEMENT SECTION
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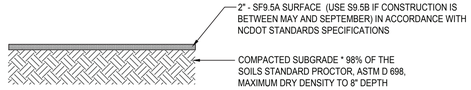
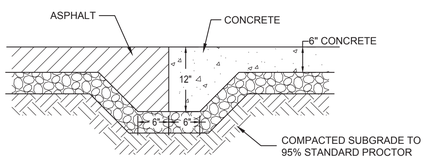
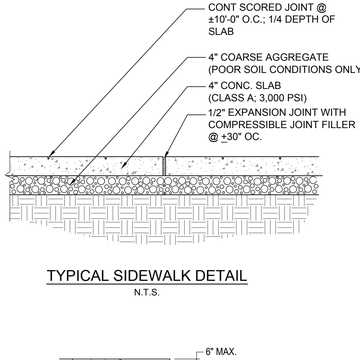


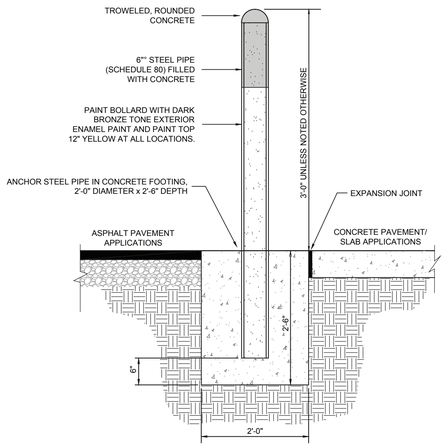
ASPHALT SIDEWALK SECTION
N.T.S.



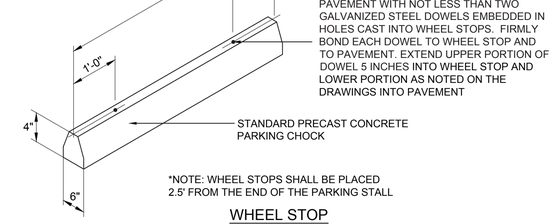
ASPHALT TO CONCRETE PAVEMENT TRANSITION
NOT TO SCALE



TYPICAL SIDEWALK DETAIL
N.T.S.



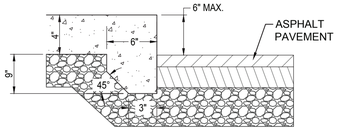
CONCRETE BOLLARD
N.T.S.



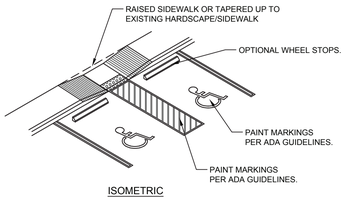
SECURELY ATTACH WHEEL STOPS INTO PAVEMENT WITH NOT LESS THAN TWO GALVANIZED STEEL DOWELS EMBEDDED IN HOLES CAST INTO WHEEL STOPS. FIRMLY BOND EACH DOWEL TO WHEEL STOP AND TO PAVEMENT. EXTEND UPPER PORTION OF DOWEL 5 INCHES INTO WHEEL STOP AND LOWER PORTION AS NOTED ON THE DRAWINGS INTO PAVEMENT

*NOTE: WHEEL STOPS SHALL BE PLACED 2.5' FROM THE END OF THE PARKING STALL

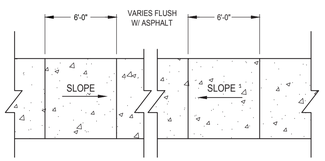
WHEEL STOP
NOT TO SCALE



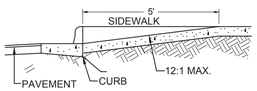
EXPOSED FACE CONCRETE WALK TO ASPHALT DETAIL
NOT TO SCALE



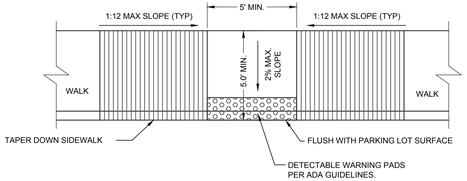
ISOMETRIC



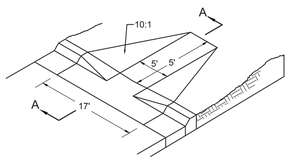
HANDICAP RAMP
NOT TO SCALE



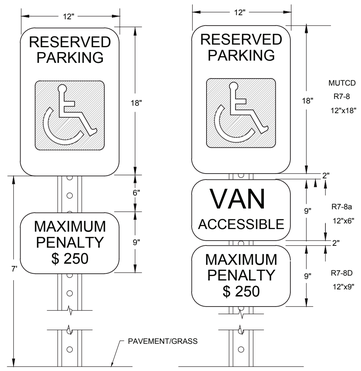
SECTION A-A



HANDICAP CURB ACCESS RAMP AND MARKINGS DETAIL
N.T.S.



WHEEL CHAIR RAMP (DROP CURB)
NOT TO SCALE

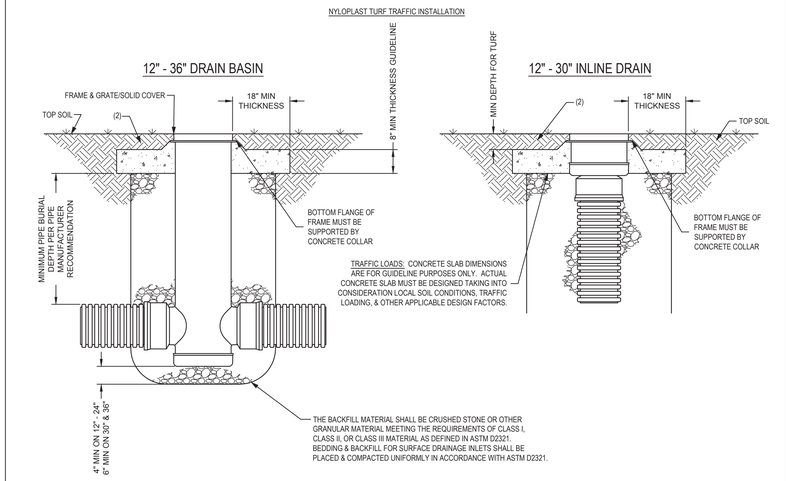


NOTES:

1. METAL POST AND ALL HARDWARE SHALL BE GALVANIZED STEEL, ASTM A307-90.
2. POST HOLES SHALL BE FILLED WITH GRANULAR BACKFILL IN 3-INCH TO 4-INCH LIFTS. THOROUGHLY HAND TAMP EACH LIFT AND CROWN BACKFILL AT TOP TO SHED WATER.
3. CONCRETE FOR FOOTING SHALL BE PORTLAND CEMENT AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.
4. SIGNS SHALL BE CONSTRUCTED OF ALUMINUM, TYPE 6061-T6 AND IN CONFORMANCE WITH ASTM STD B-209. THICKNESS SHALL BE 0.80 INCHES.
5. TOP EDGE TREATMENT FILM SHALL BE 3" WIDE, CLEAR AND TRANSPARENT WITH A SUB-RESISTANT PRESSURE SENSITIVE NON-YELLOWING ADHESIVE, "SKOTCHCAL" TRANSPARENT FILE #639.
6. REFLECTIVE FACING MATERIAL SHALL BE SCOTCHLITE HIGH INTENSITY, MANUFACTURED BY 3M COMPANY.
7. SIGN LETTERING SHALL BE NPS MODIFIED CLARENDON TYPEFACE. UPPERCASE LETTERS SHALL BE 3.75" HEIGHT AND LOWERCASE LETTERS SHALL BE 2.5" HEIGHT WITH 3.75" SPACING BETWEEN LINES.
8. CORNER RADIUS OF SIGNS SHALL BE 2.5" ARROWS SHALL BE 5.625" LONG BY 3.75" HIGH.
9. MOUNT ON BUILDING OR METAL POST AS DIRECTED.

HANDICAP SIGN DETAIL
NOT TO SCALE

NYLOPLAST TURF TRAFFIC INSTALLATION



1. GRATES/SOLID COVERS SHALL MEET H-20 LOAD RATING FOR 30" PEDESTRIAN & 12" - 30" STANDARD & SOLID
2. DESIGN SHOULD ACCOUNT FOR ROOT DEPTH TO ALLOW TURF TO GROW AND PREVENT EROSION AROUND GRATE SO THAT HAZARDS DO NOT FORM.

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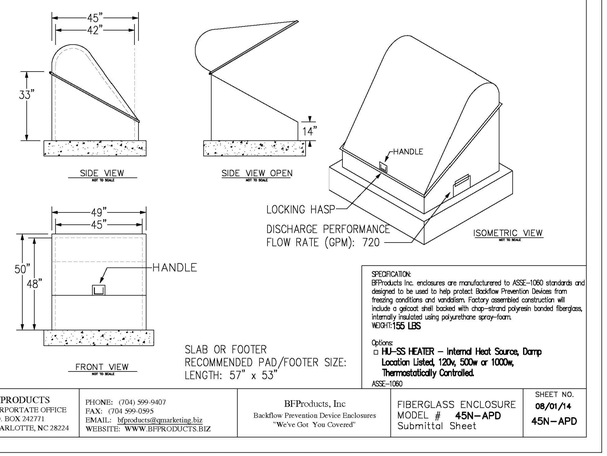
DRAWN BY EBC	MATERIAL	Nyloplast	3130 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2443 FAX (770) 932-2490 www.nyloplast-us.com
DATE 01-05-09			
REVISED BY NMH	PROJECT NO./NAME	TITLE	DRAIN BASIN & INLINE DRAIN TURF TRAFFIC INSTALLATION
DATE 06-12-18			
DWG SIZE A	SCALE 1:25 SHEET 1 OF 1	DWG NO.	7001-110-340 REV G

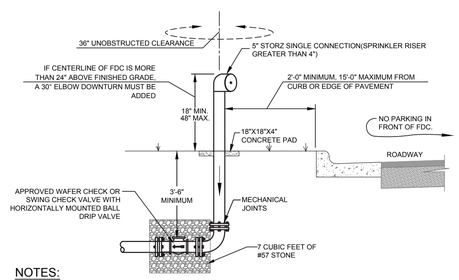
ENGINEERED TO FIT 2½" THROUGH 8" "N" PATTERN BACKFLOW PREVENTION DEVICE INSTALLATIONS



BFPRODUCTS CORPORTATE OFFICE P.O. BOX 242771 CHARLOTTE, NC 28224	PHONE: (704) 599-9407 FAX: (704 599-0369 EMAIL: bfproducts@qmarketing.biz WEBSITE: WWW.BFPRODUCTS.BIZ	BFProducts, Inc Backflow Prevention Device Enclosures "We've Got You Covered"	FIBERGLASS ENCLOSURE MODEL # 45N–APD Submittal Sheet

SHEET NO. 08/01/14 45N–APD

DOMESTIC & FIRE BACKFLOW ENCLOSURE DETAIL
NOT TO SCALE



NOTES:

1. THE VALVE PIT SHALL BE SIZED TO ACCOMMODATE ALL PROPOSED EQUIPMENT.
2. THERE SHALL BE NO SHUTOFF VALVE IN THE FIRE DEPT. CONNECTION PIPING (PER NFPA 13).
3. ALL FITTINGS SHALL BE FLANGED.
4. ALL PIPING SHALL BE STEEL OR DUCTILE IRON.
5. SEE SITE PLANS FOR SIZES OF PIPES AND FITTINGS. SIAMESE CONNECTION TO BE IN ACCORDANCE WITH NFPA 13.
6. PROVIDE DRAINAGE AWAY FROM STRUCTURE.
7. A 2" MINIMUM CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF THE VAULT LID AND THE RISING STEM OF THE OS&Y VALVE IN THE FULLY OPEN POSITION.
8. KNOX LOCKING PLUG SHALL BE PROVIDED ON THE FDC INLET
9. APPROVED WAFER CHECK OR SWING CHECK VALVE WITH HORIZONTAL MOUNTED BALL DRIP VALVE.
10. THE FDC SHALL BE CONNECTED TO THE PIPING SYSTEM LOCATED DOWNSTREAM OF THE POST INDICATOR VALVE.

FREE STANDING FIRE DEPARTMENT CONNECTION
NOT TO SCALE

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS:

CLIENT INFORMATION:

SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
124 MARKET ST, WILMINGTON, NC28403

PARAMOUNTE ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DETAILS

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

PROJECT STATUS
DEVELOPMENT PLAN
PRELIMINARY LAYOUT
FINAL DESIGN
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 02/20/19
SCALE: AS NOTED
DESIGNED: AEC
DRAWN: NPB
CHECKED:

SEAL NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
02/20/19

C-5.0

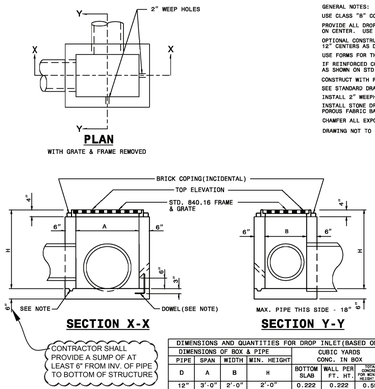
PEI JOB#: 18156.PE

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE DROP INLET
12" THRU 30" PIPE

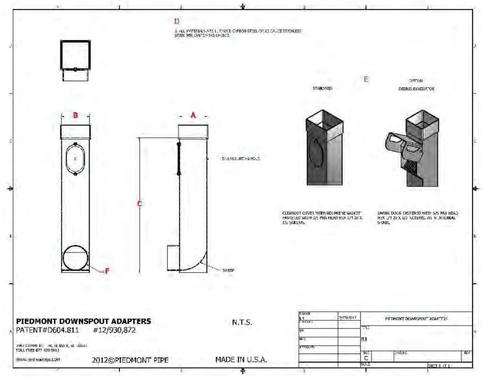
SHEET 1 OF 1
840.14



GENERAL NOTES:
USE CLASS "B" CONCRETE THROUGHOUT.
PROVIDE ALL DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
OPTIONAL CONSTRUCTION : MONOLITHIC POUR 3" KEYWAY OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
CONSTRUCT WITH PIPE CROWNS MATCHING.
SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.
INSTALL 3" WEEPHOLES AS DIRECTED BY THE ENGINEER.
INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A PONOUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.
CHAMFER ALL EXPOSED CORNERS 1".
DRAWING NOT TO SCALE.

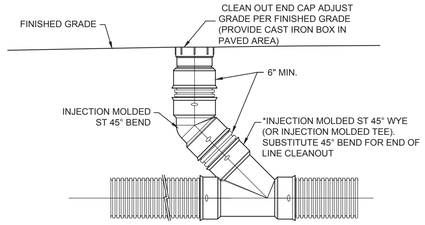
DIMENSIONS AND QUANTITIES FOR DROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX & PIPE					CUBIC YARDS CONC. IN BOX			DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	MIN. HEIGHT		BOTTOM SLAB	WALL PER FT. HT.	INCREASE PER INCH OF HEIGHT	C.Y.	R.C.
D	A	B	H						
12"	3'-0"	2'-0"	2'-0"		0.222	0.222	0.592	0.015	0.026
15"	/	/	2'-3"		/	/	0.648	0.023	0.036
18"	/	/	2'-6"		/	/	0.703	0.033	0.049
24"	/	/	3'-0"		/	/	0.814	0.059	0.085
30"	3'-0"	2'-0"	3'-6"		0.222	0.222	0.925	0.092	0.127

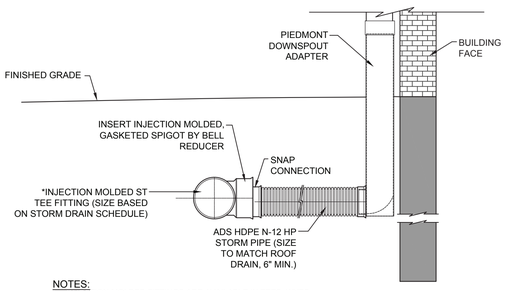


NOTES:
1. BOOTS SHALL BE STAINLESS STEEL.
2. BOOTS SHALL INCLUDE DEBRIS EVACUATOR OPTION.
3. BOOTS SHALL BE POWDER-COATED TO MATCH DOWNSPOUT - SEE ARCHITECTURAL PLANS FOR COLOR.
4. SEE ARCHITECTURAL PLANS FOR DOWNSPOUT DIMENSIONS.

DOWNSPOUT BOOT
NOT TO SCALE

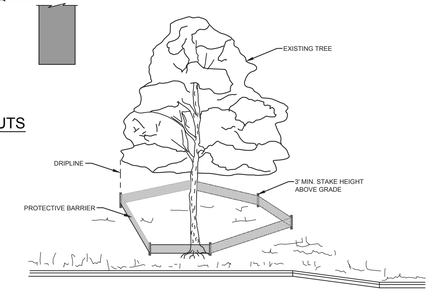


IN-LINE CLEANOUT
NOT TO SCALE



NOTES:
* INJECTION MOLDED FITTINGS ARE AVAILABLE IN TEES, WYES, REDUCERS, 45° BENDS AND BELL/BELL COUPLERS.

ROOF DRAIN DETAIL WITH CLEANOUTS
NOT TO SCALE



NOTE:
TREES TO BE SAVED WILL BE CLEARLY MARKED PRIOR TO CONSTRUCTION AND A PROTECTIVE BARRIER IS TO BE INSTALLED AT THE DRIPLINE. DRIP LINE - THE AREA OF SOIL DIRECTLY BENEATH THE TREE EXTENDING OUT TO THE TIPS OF THE OUTERMOST BRANCHES.

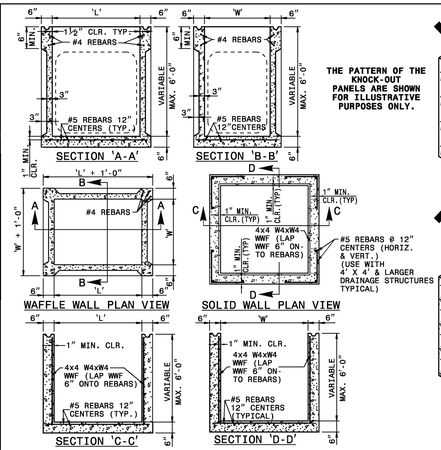
METHOD OF TREE PROTECTION DURING CONSTRUCTION
NOT TO SCALE

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

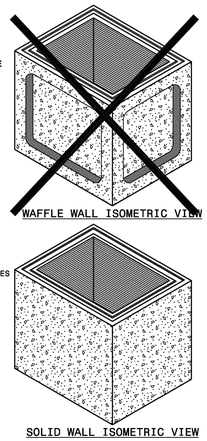
1-12

ENGLISH STANDARD DRAWING FOR
PRECAST DRAINAGE STRUCTURE
(SOLID AND WAFFLE WALL)

SHEET 1 OF 2
840.45



THE PATTERN OF THE KNOCK-OUT PANELS ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.



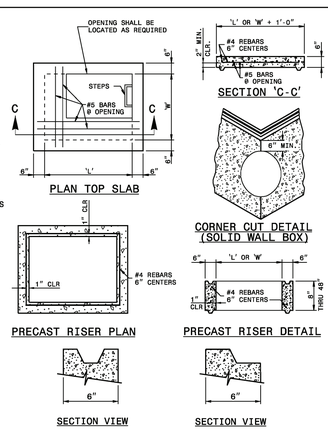
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
PRECAST DRAINAGE STRUCTURE
(GENERAL NOTES AND DETAILS)

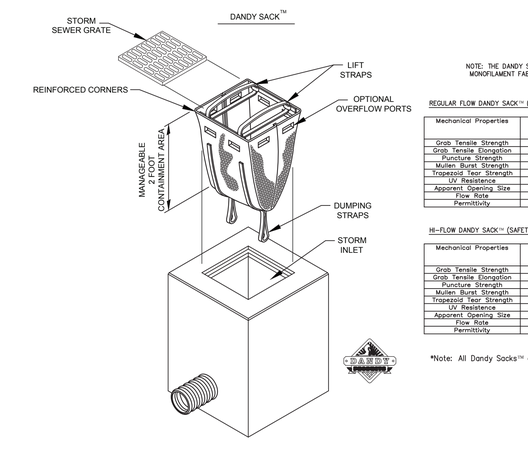
SHEET 2 OF 2
840.45

GENERAL NOTES:
* THIS PRECAST BOX MAY BE USED FOR THE FOLLOWING STANDARDS: 840.01, 840.02, 840.04, 840.05, 840.11, 840.12, 840.14, 840.15, 840.17, 840.18, 840.19, 840.26, 840.27, 840.28, 840.31, 840.32 AND 840.41.
* INSTALL PRECAST DRAINAGE STRUCTURES AND PAY FOR IN ACCORDANCE WITH SPECIFICATION SECTION 840.
* DO NOT PLACE PRECAST DRAINAGE STRUCTURES UNDER TRAFFIC OR WHERE TRAFFIC WILL BE DETOURED.
* USE 4000 PSI CONCRETE.
* PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185.
* LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 10'-0"; LIMIT SOLID WALL STRUCTURE TO 15'-0".
* PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704.
* CUT OR FORM OPENINGS FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCKOUT/WAFFLE PANELS ONLY. PIPES MAY ENTER THROUGH THE CORNERS OF SOLID WALL BOXES IF A MINIMUM OF 6" OF WALL IS PROVIDED ABOVE THE HOLE.
* ALL ELEMENTS PRECAST TO MEET ASTM C913.
* FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH CONCRETE OR BRICK IN ACCORDANCE WITH STANDARD 840.25.
* PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS AS DIRECTED BY THE ENGINEER.
* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
* SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-198, TYPE B - BUTYL RUBBER.
* LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 5'-0" X 5'-0".
* THE OUTSIDE PIPE DIAMETER PLUS 2" OR THE OPENING REQUIRED FOR FRAME AND GRATE IS THE MINIMUM STRUCTURE SIZE WHICHEVER IS GREATER.
* USE MANHOLE FRAME AND COVER AS INDICATED ON THE PLANS. REINFORCE OPENING AS SHOWN ON THIS SHEET.

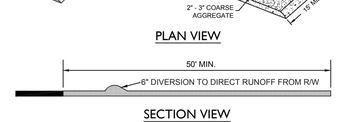


OPTIONAL JOINT DETAILS

TEMPORARY INLET PROTECTION
NOT TO SCALE



NOTES:
1. DRIVE 5-FOOT STEEL POSTS (1.25 lb/ft steel) 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
2. SURROUND THE POSTS WITH AT LEAST 19-GAUGE HARDWARE CLOTH WITH A 1/4-INCH MESH OPENING. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM FOR A MIN. 2 FEET ABOVE THE GROUND. PLACING A 2-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING AND REMOVAL IS RECOMMENDED.
3. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET. THE TOP ELEVATION OF THE STRUCTURE MUST BE AT LEAST 12-INCHES LOWER THAN THE SURROUNDING GROUND ELEVATION DOWNSLOPE FROM THE INLET TO ENSURE THAT STORM FLOWS GET INTO THE INTENDED INLET; UNLESS OTHER SEDIMENT-CONTROL DEVICES ARE INSTALLED TO PREVENT OFF-SITE SEDIMENT-RUNOFF.



TEMPORARY CONSTRUCTION ENTRANCE
NOT TO SCALE

DANDY SACK™ SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE **MANUFACTURED IN THE U.S.A.** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW DANDY SACK™ (BLACK)

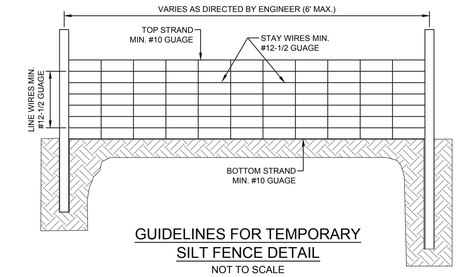
Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
Grab Tensile Elongation	ASTM D 4632	%	15 x 15
Puncture Strength	ASTM D 4833	kN (lbs)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	5506 (800)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m²(gal/min/ft²)	2852 (70)
Permittivity	ASTM D 4491	Sec⁻¹	0.90

HI-FLOW DANDY SACK™ (SAFETY ORANGE)

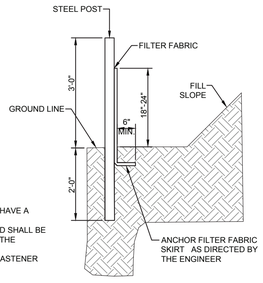
Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m²(gal/min/ft²)	5907 (145)
Permittivity	ASTM D 4491	Sec⁻¹	2.1

*Note: All Dandy Socks™ can be ordered with our optional oil absorbent pillows

TEMPORARY DANDY SACK INLET PROTECTION
NOT TO SCALE



GUIDELINES FOR TEMPORARY SILT FENCE DETAIL
NOT TO SCALE



NOTES:
1. WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES W/12" STAY SPACING
2. FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER
3. STEEL POST SHALL BE 5' 0" IN HEIGHT AND BE OF SELF FASTENER ANGLE STEEL TYPE

REVISIONS:

CLIENT INFORMATION:

SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
124 MARKET ST, WILMINGTON, NC28403

PARAMOUNTE ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DETAILS

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

PROJECT STATUS
CONCEPTUAL SKETCH:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

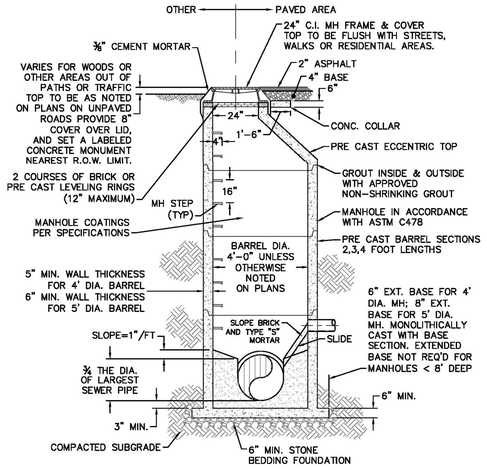
DRAWING INFORMATION
DATE: 02/20/19
DESIGNED: MTS
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
02/20/19

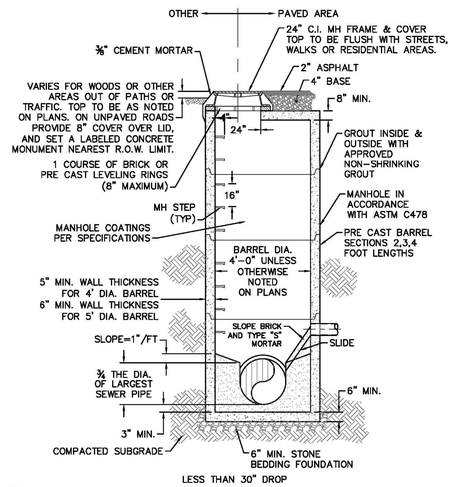
C-5.1

PEI JOB#: 18156.PE

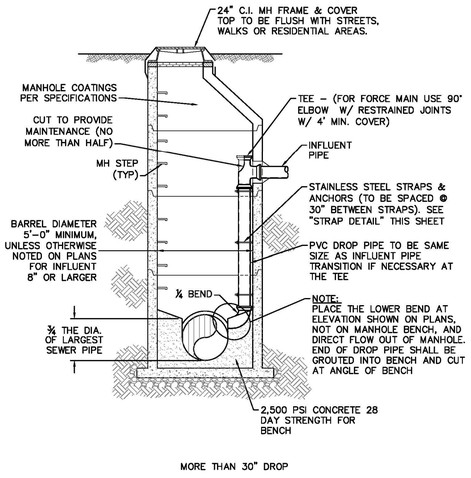
FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION



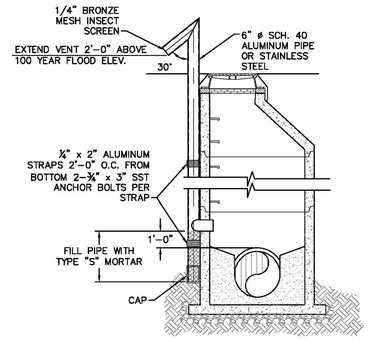
SD-1 PRECAST CONCRETE OFFSET MANHOLE TYPICAL
NOT TO SCALE



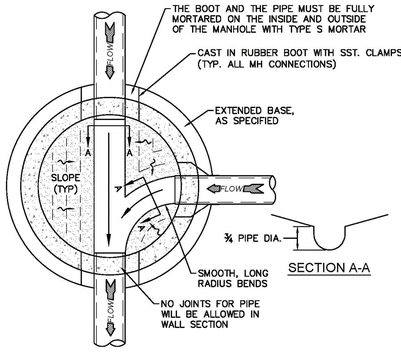
SD-2 PRECAST CONCRETE FLAT TOP MANHOLE TYPICAL
NOT TO SCALE



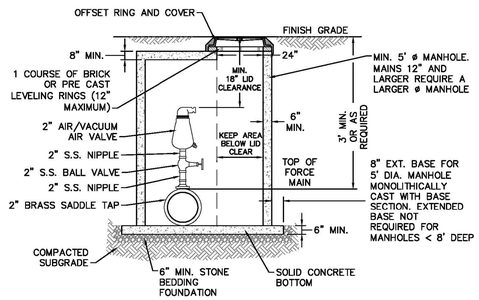
SD-3 DROP MANHOLE
NOT TO SCALE



SD-4 STANDARD VENT MANHOLE
NOT TO SCALE

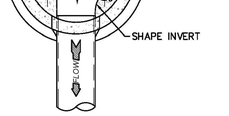


SD-5 MANHOLE FLOOR PLAN
NOT TO SCALE



NOTES:
1. CONTRACTOR TO INSTALL VALVE AND MANHOLE AT SUFFICIENT DEPTH TO ALLOW FOR ACCESS.
2. FORCE MAIN TO BE OFFSET IN MANHOLE TO KEEP AREA BELOW LID CLEAR.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
4. USE CAST IN RUBBER BOOT WITH SST. CLAMPS FOR ALL MH CONNECTIONS, INCLUDING FORCE MAIN.

SD-6 AIR/ VACUUM AND AIR RELEASE COMBINATION VALVE
NOT TO SCALE



SD-7 DROP MANHOLE FLOOR PLAN
NOT TO SCALE

NOTE: ALL PARTS TO BE 316 SST.

SD-8 STRAP DETAIL
NOT TO SCALE

STANDARD UTILITY NOTES:

1. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
2. WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL STAINLESS STEEL FASTENERS SHALL BE 316.
7. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

SD-9 STANDARD NOTES
(REQUIRED ON ALL PLAN AND PROFILE SHEETS)

GENERAL NOTES:

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS:

CLIENT INFORMATION:

SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
124 MARKET ST, WILMINGTON, NC28403

PARAMOUNTE ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
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DETAILS

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

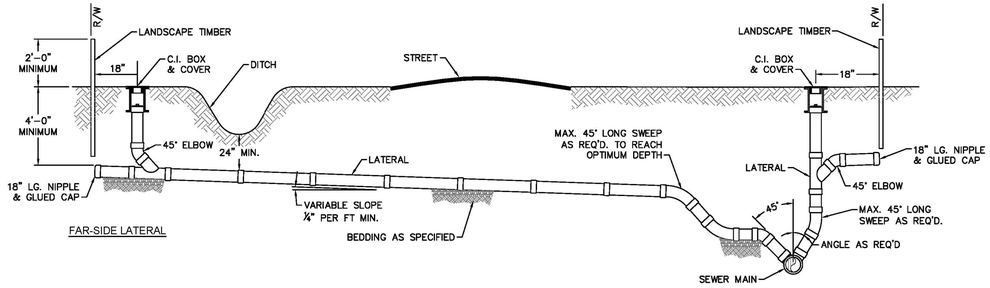
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 02/20/19
SCALE: N.T.S.
DESIGNED: RB
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
02/20/19

C-5.2

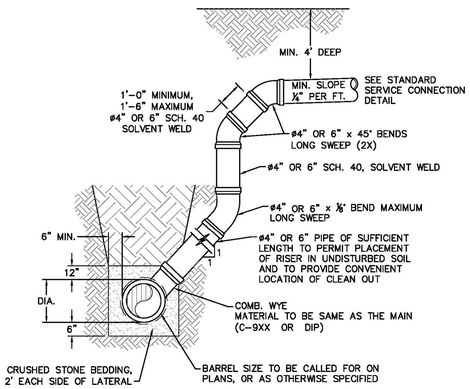
PEI JOB#: 18156.PE



NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

SD-19 STANDARD SERVICE CONNECTION TO SANITARY SEWER

NOT TO SCALE

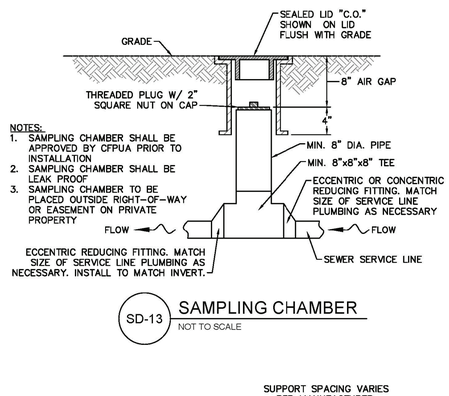


NOTES:
1. SPECIAL CARE SHALL BE TAKEN DURING BACKFILL OPERATIONS. THE RISER SHALL BE PLUMB AND TRUE AT ALL TIMES, AND REST ON FIRM, STABLE FOUNDATION.
2. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.

MAIN DEPTH GREATER THAN 8 FT

SD-12 DEEP SERVICE LATERAL

NOT TO SCALE



NOTES:
1. SAMPLING CHAMBER SHALL BE APPROVED BY CFPUA PRIOR TO INSTALLATION
2. SAMPLING CHAMBER SHALL BE LEAK PROOF
3. SAMPLING CHAMBER TO BE PLACED OUTSIDE RIGHT-OF-WAY OR EASEMENT ON PRIVATE PROPERTY

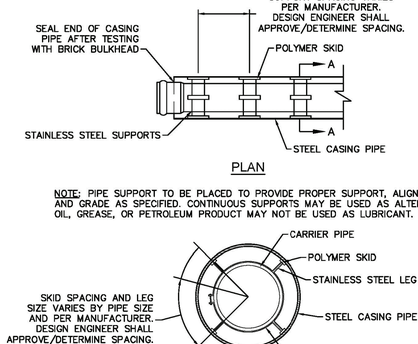
SD-13 SAMPLING CHAMBER

NOT TO SCALE

NOTES:
1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING.

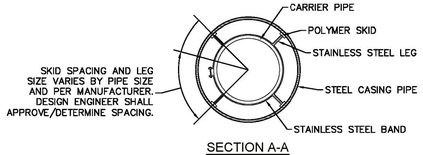
SD-16 TYPICAL BORING/ JACKING DETAIL

NOT TO SCALE



PLAN

NOTE: PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS ALTERNATIVE. OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.

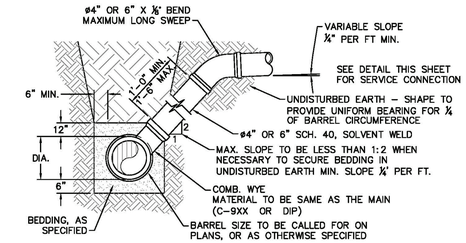


SECTION A-A

NOTE: ALL STAINLESS STEEL PARTS TO BE 316 SST.

SD-17 PIPE CASING SUPPORT DETAIL

NOT TO SCALE

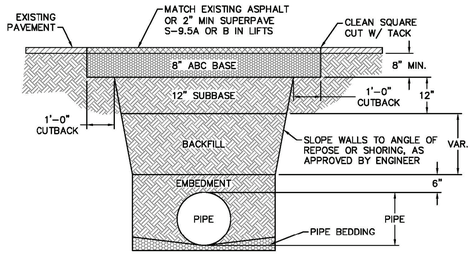


NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.

MAIN DEPTH LESS THAN 8 FT

SD-10 STANDARD SERVICE LATERAL

NOT TO SCALE

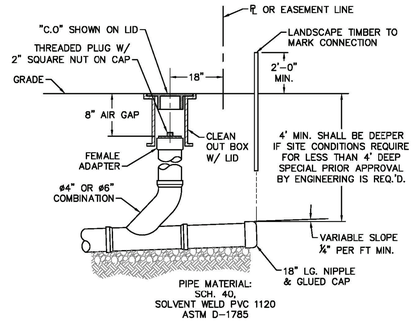


NOTES:
1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS
5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E JUMPING JACK). HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.

(FOR PRIVATE ROADS AND PAVED AREAS; CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)

SD-14 PAVEMENT REPAIR WHERE PIPE INSTALLED

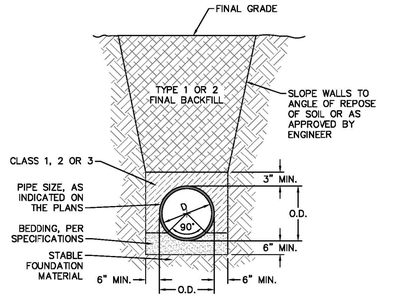
NOT TO SCALE



NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO SYSTEM AND AT THE PROPERTY LINE, WITH REQUIRED EASEMENT.

SD-11 SERVICE CONNECTION AND CLEAN-OUT

NOT TO SCALE



SD-15 TYPICAL TRENCH DETAIL

NOT TO SCALE

GENERAL NOTES:
1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

REVISIONS:

CLIENT INFORMATION:

SAWYER SHERWOOD & ASSOCIATE ARCHITECTURE
124 MARKET ST, WILMINGTON, NC28403

PARAMOUNTE ENGINEERING
122 Cinema Drive
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(910) 791-6707 (O) (910) 791-6760 (F)
N.C License #: C-2846

DETAILS

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

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DRAWING INFORMATION
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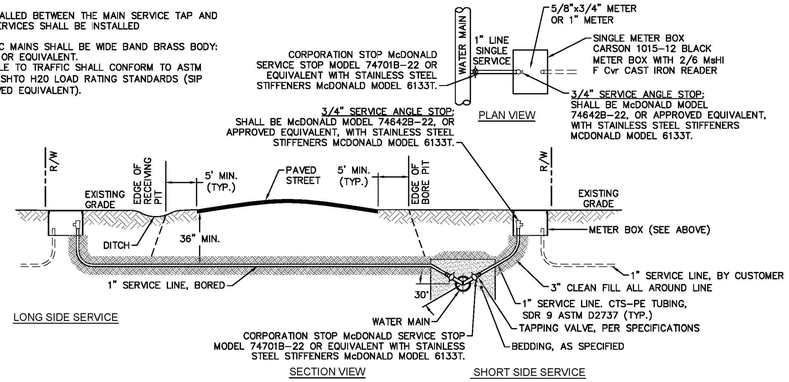
SCALE: N.T.S.
DESIGNED: RPB
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
02/20/19

C-5.3

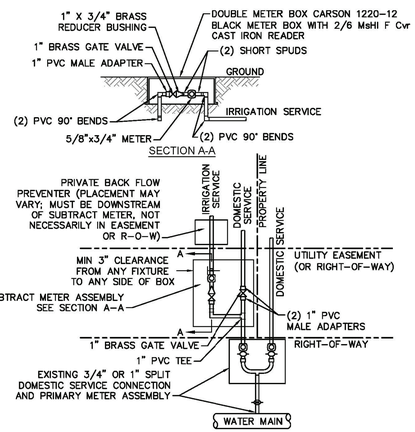
PEI JOB#: 18156.PE

NOTES:
1. NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: SADDLE McDONALD 3801 OR EQUIVALENT.
3. METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (SIP MODEL 4242, OR APPROVED EQUIVALENT).



NOTE:
TYPICAL WATER SERVICE CONNECTION FOR RESIDENTIAL SINGLE FAMILY HOME ON CFPUA WATER SYSTEM

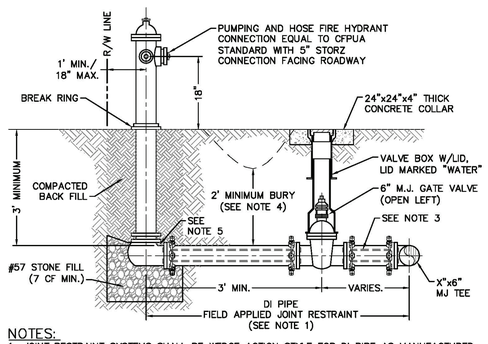
WD-18 SINGLE SERVICE CONNECTION
NOT TO SCALE



NOTES:
1. BEYOND THE PRIMARY DOMESTIC METER ASSEMBLY, CFPUA IS ONLY RESPONSIBLE FOR METER AND WASHERS OF SUBTRACT METER ASSEMBLY.
2. ALL PIPE AND FITTINGS UP TO FINAL SERVICE LINE TO BE 1" EXCLUDING METERS.

(MULTIPLE DOMESTIC SERVICES PER TAP)

WD-8 DOUBLE SERVICE CONNECTION USING SUBTRACT METER
NOT TO SCALE



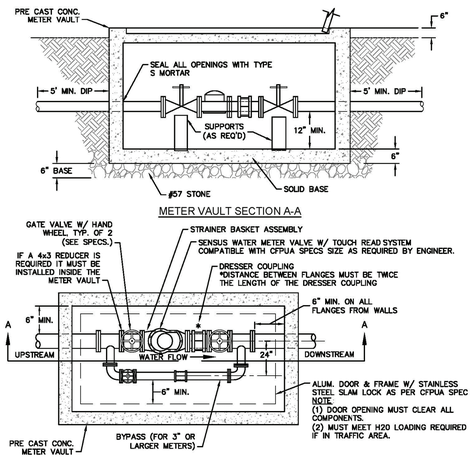
NOTES:
1. JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI PIPE AS MANUFACTURED BY EBAA IRON, SIGMA, STAR PIPE PRODUCTS OR APPROVED EQUAL.
2. WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
3. CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH COR-BLUE MJ T-BOLT AND GASKET KITS, AS AN ALTERNATIVE.
4. HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
5. WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.

WD-10 FIRE HYDRANT ASSEMBLY
NOT TO SCALE

STANDARD UTILITY NOTES:

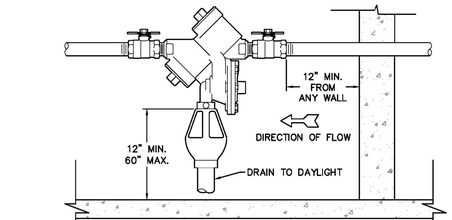
1. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
2. WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL STAINLESS STEEL FASTENERS SHALL BE 316.
7. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

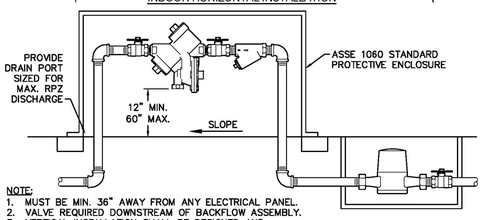
WD-19 STANDARD NOTES
(REQUIRED ON ALL PLAN AND PROFILE SHEETS)



FOR WATER METERS LARGER THAN 2"

WD-1 WATER METER VAULT
NOT TO SCALE

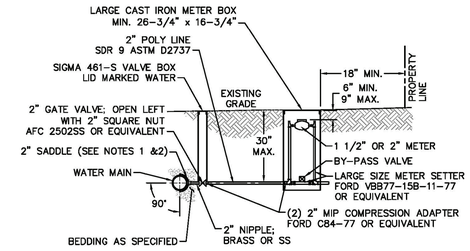




NOTE:
1. MUST BE MIN. 36" AWAY FROM ANY ELECTRICAL PANEL.
2. VALVE REQUIRED DOWNSTREAM OF BACKFLOW ASSEMBLY.
3. VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA ESMD FOR APPROVAL.

OUTDOOR HORIZONTAL INSTALLATION

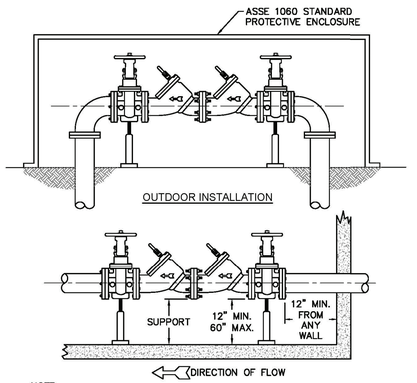
WD-12 REDUCED PRESSURE PRINCIPLE ASSEMBLY
NOT TO SCALE



NOTES:
1. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: McDONALD 3800, FORD S90 (DOUBLE STRAP) OR EQUIVALENT.
3. METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (OLDCASTLE PRECAST MODEL B1730 OR APPROVED EQUIVALENT).
4. METER BOXES SUSCEPTIBLE TO INCIDENTAL, NON-DELIBERATE TRAFFIC SHALL CONFORM TO ANSI/SCTE 77 TIER 15 LOAD RATING STANDARDS (SYNERTECH MODEL DUO 17x30 OR APPROVED EQUIVALENT).
5. NON-TRAFFIC METER BOXES SHALL BE SIGMA MB2203 OR APPROVED EQUIVALENT.
6. 3" CLEAN FILL REQUIRED ALL AROUND 2" POLY SERVICE LINE.

FOR 1-1/2" OR 2" WATER SERVICES

WD-11 LARGE METER
NOT TO SCALE



NOTE:
1. MUST BE MIN. 36" AWAY FROM ANY ELECTRICAL PANEL.
2. VALVE REQUIRED DOWNSTREAM OF BACKFLOW ASSEMBLY.
3. VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA ESMD FOR APPROVAL

INDOOR INSTALLATION

WD-7 DOUBLE CHECK VALVE ASSEMBLY
NOT TO SCALE

GENERAL NOTES:
1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
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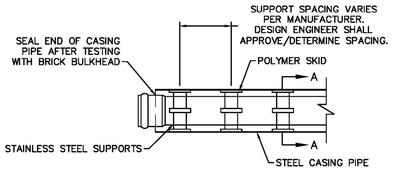
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
02/20/19

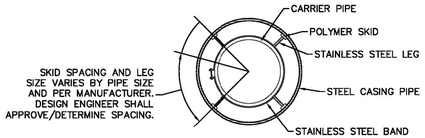
C-5.4

PEI JOB#: 18156.PE



PLAN

NOTE: PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS ALTERNATIVE. OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.

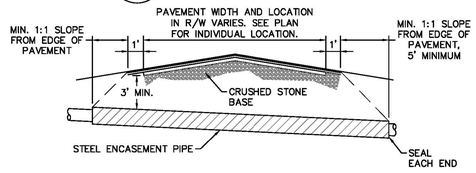


SECTION A-A

NOTE: ALL STAINLESS STEEL PARTS TO BE 316 SST.

WD-15 PIPE CASING SUPPORT DETAIL

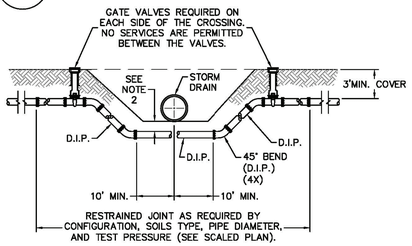
NOT TO SCALE



NOTES:
1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING.

WD-16 TYPICAL BORING/ JACKING DETAIL

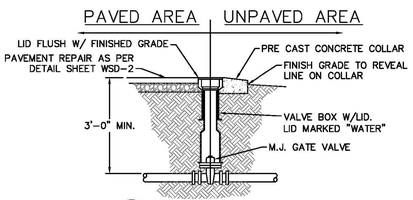
NOT TO SCALE



NOTES:
1. USE PRESSURE CLASS 350 DIP, UNLESS SPECIFIED OTHERWISE.
2. MINIMUM DEPTH REQUIRED, UNLESS SPECIFIED OTHERWISE BY CFPUA:
   a. IN DOT R/W, 36" MIN. TYPICAL, OR 24" MIN. WHEN CROSSING A DITCH LINE.
   b. ALL OTHER LOCATIONS, 30" MIN.
   c. WHEN STORM DRAIN INVERT IS BURIED AT OR BELOW ABOVE DEPTHS, 18" MIN. CLEARANCE IS REQUIRED.

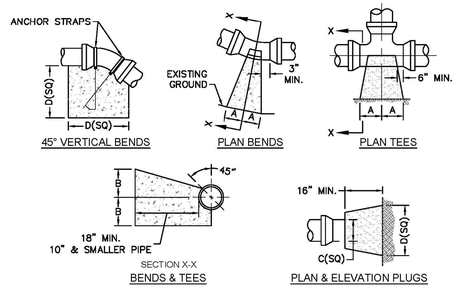
WD-2 WATER MAIN DITCH AND STORM DRAIN CROSSING

NOT TO SCALE



WD-3 VALVE DETAIL

NOT TO SCALE

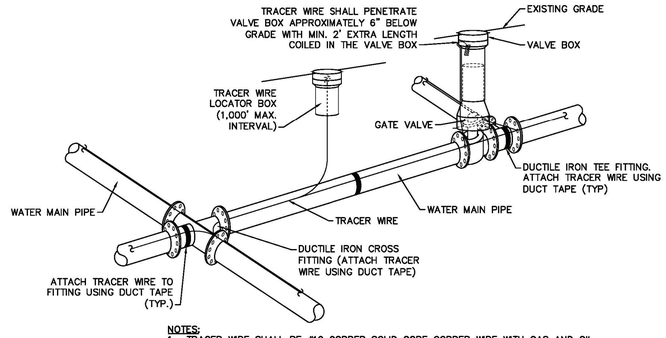


SIZE	90 BENDS A	90 BENDS B	45 BENDS A	45 BENDS B	22-1/2 BENDS A	22-1/2 BENDS B	TEES/PLUGS A	TEES/PLUGS B	45 VERT. BENDS
3"	8"	6"	5"	6"	3"	7"	6"	8"	27"
4"	8"	9"	5"	8"	3"	11"	6"	9"	28"
6"	14"	11"	9"	9"	8"	8"	12"	9"	36"
8"	16"	16"	12"	12"	10"	13"	14"	13"	42"
10"	18"	22"	15"	14"	14"	16"	18"	15"	50"
12"	20"	28"	18"	17"	16"	16"	22"	18"	62"
14"	26"	29"	21"	19"	18"	18"	26"	20"	72"
16"	33"	29"	25"	21"	20"	21"	32"	21"	83"
18"	40"	30"	28"	24"	22"	23"	36"	24"	88"

NOTES:
1. BASED ON 160 PSI TEST PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.
2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
3. USE MEG-A-LUG (PREFERRED) IN LIEU OF BLOCKING AND RODDING.

WD-4 THRUST BLOCK DETAIL

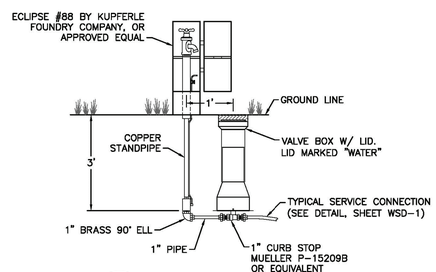
NOT TO SCALE



NOTES:
1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION.
2. WIRE SHALL BE STRAPPED TO ALL PVC WATER MAIN PIPING WITH DUCT TAPE AT 12 FOOT INTERVALS ALONG THE PIPE.
3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS WITH DUCT TAPE.
4. ALL SPLICES IN THE WIRE SHALL BE MADE WITH 3M DBR DIRECT BURY SPLICE KIT AN UNDERGROUND RATED, WATERTIGHT, AND APPROVED SPLICE CONNECTOR OR APPROVED EQUAL.

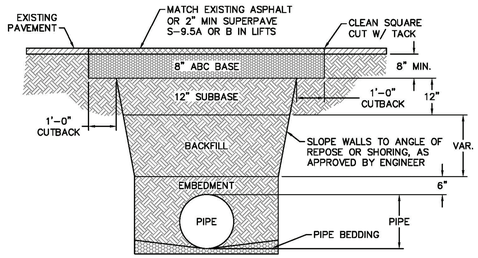
WD-17 TRACER WIRE DETAIL

NOT TO SCALE



WD-6 SAMPLING STATION

NOT TO SCALE

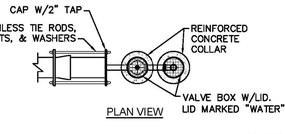


NOTES:
1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12' MINIMUM LIFTS
5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%

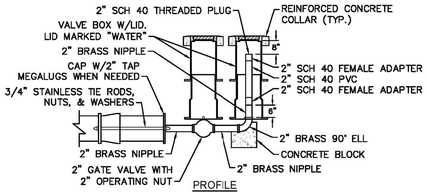
(FOR PRIVATE ROADS AND PAVED AREAS; CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)

WD-14 PAVEMENT REPAIR WHERE PIPE INSTALLED

NOT TO SCALE



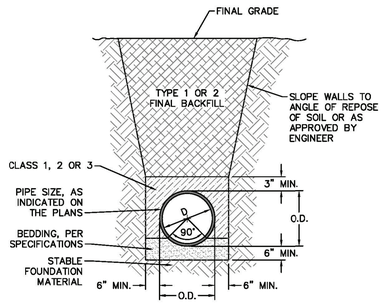
PLAN VIEW



PROFILE

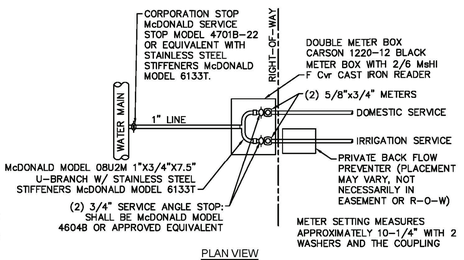
WD-5 2" BLOW-OFF

NOT TO SCALE



WD-13 TYPICAL TRENCH DETAIL

NOT TO SCALE



PLAN VIEW

ONE DOMESTIC SERVICE PER TAP

WD-9 DOUBLE SERVICE CONNECTION

NOT TO SCALE

GENERAL NOTES:
1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
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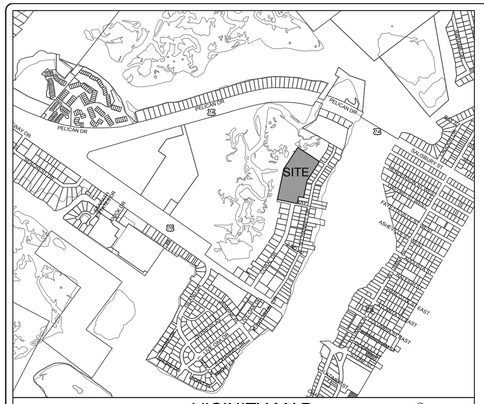
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
02/20/19

C-5.5

PEI JOB#: 18156.PE



VICINITY MAP

SCALE: 1" = 1,000'

NORTH

SITE DATA TABULATION

OWNER:	NEW HANOVER COUNTY BOARD OF ED. 6410 CAROLINA BEACH ROAD WILMINGTON, NC 28412
PROJECT ADDRESS:	220 CORAL DRIVE WRIGHTSVILLE BEACH, NC 28409
TAX PARCEL IDENTIFICATION #:	R05720-003-001-000
RECORDED DEED BOOK:	BK 507, PG 373
TOTAL SITE AREA:	5.79 ACRES (252,182 SF)
CURRENT ZONING:	G-1 PUBLIC/SEMI-PUBLIC DISTRICT
CAMA LAND USE CLASSIFICATION:	URBAN
EXISTING LAND USE:	ELEMENTARY SCHOOL
PROPOSED LAND USE:	ELEMENTARY SCHOOL
LAND USE CODE:	821-EDUCATIONAL

BUILDING INFORMATION

MAXIMUM ALLOWABLE BUILDING HEIGHT:	40'
PROPOSED BUILDING HEIGHT:	38'-10"
EXISTING BUILDING CONSTRUCTION TYPE:	V-B
PROPOSED BUILDING CONSTRUCTION TYPE:	V-B
EXISTING BUILDING FOOTPRINT	14,000 SF (1-STORY SLAB)
PROPOSED BUILDING	17,050 SF (1-STORY ON COLUMNS OVER EXISTING BUILDING)
BUILDING LOT COVERAGE	10.3%

PLANT SCHEDULE			
UNDERSTORY TREE	QTY	BOTANICAL / COMMON NAME	SIZE
MCM	3	Lagerstroemia x `Muskogee` Lavender Crape Myrtle	10` - 12` H
SHRUBS	QTY	BOTANICAL / COMMON NAME	CONTAINER
ABE	3	Abelia x grandiflora `Kaleidoscope` Glossy Abelia	7 gal
FAT	3	Fatsia japonica Japanese Fatsia	7 gal
RHL	7	Ilex x `Conaf` Oak Leaf Holly	6` H
PV	6	Pittosporum t. `Variegata` Variegated Mock Orange	7 gal
ORNAMENTAL GRASSES	QTY	BOTANICAL / COMMON NAME	CONTAINER
ADA	8	Miscanthus s. `Adagio` Adagio Eulalia Grass	7 gal
PM	23	Muhlenbergia capillaris Pink Muhly	3 gal
HAM	22	Pennisetum alopecuroides `Hameln` Hameln Dwarf Fountain Grass	1 gal
GROUND COVERS	QTY	BOTANICAL / COMMON NAME	CONT
AJ	129	Trachelospermum a. `Asiatic` Asiatic Jasmine	1 gal

LANDSCAPE NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. TREES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM SEWER/WATER CONNECTIONS OR AS OTHERWISE DICTATED BY LOCAL REGULATIONS. CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO ANY AND ALL PUBLIC OR PRIVATE UTILITIES.
3. ALL PLANT MATERIAL SHALL MEET THE CURRENT VERSION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S STANDARDS.
4. NO TREE, OTHER THAN THOSE SHOWN ON APPROVED PLANS FOR REMOVAL WITH THESE PLANS AND/ OR TREE REMOVAL PERMIT PLANS, SHALL BE REMOVED WITHOUT WRITTEN AUTHORIZATION FROM THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. ALL SHRUB BEDS AND/OR PLANTING AREAS EXCLUDING TURF AREAS SHALL BE MULCHED WITH 3 INCH MINIMUM AND 4 INCH MAXIMUM DEPTH PINE STRAW MULCH UNLESS OTHERWISE NOTED.
5. ALL PLANTS, 4 FEET OR LESS APART, WILL BE CONNECTED IN ONE PLANTING BED. ALL GROUPS OF PLANTS SHOULD BE WITHIN ONE PLANTING BED WITH THE EDGE OF MULCH EXTENDING 2 FEET BEYOND THE EDGE OF PLANT MASS. SINGLE TREES SHOULD HAVE A CIRCLE OF MULCH NOT LESS THAN 5 FEET DIAMETER.
6. PLANTING SOIL MIX: MIX EXISTING SOIL WITH THE SOIL AMENDMENTS AND FERTILIZERS IN THE QUANTITIES RECOMMENDED BY THE SOIL TESTING LABORATORY, THIRD PARTY RECOGNIZED BY THE STATE DEPARTMENT OF AGRICULTURE OR AS OTHERWISE APPROVED BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE.
7. ANY AND ALL SUBSTITUTIONS OF PLANT MATERIAL SHALL BE APPROVED BY LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. FAILURE IN OBTAINING APPROVAL MAY RESULT IN LIABILITY TO THE CONTRACTOR.
8. THE CONTRACTOR SHALL REPLACE DEAD AND/OR UNHEALTHY PLANT MATERIAL WITHIN 12 MONTHS OF ACCEPTANCE OF THE INSTALLED MATERIAL FROM THE OWNER OR OWNER'S REPRESENTATIVE.
9. THE CONTRACTOR SHALL PREPARE ALL SEEDED OR SODDED AREAS TO ASSURE THAT THE SUBGRADE HAS BEEN RAKED AND ROLLED TO ACCEPT THE SOD/SEED. ALL SOD/SEED AREAS MUST BE IRRIGATED OR HAND WATERED. ALL SOD SHALL BE PLACED WITH STAGGERED JOINTS AND NO GAPS BETWEEN SOD JOINTS. SOD SHOULD BE ROLLED AFTER INSTALLATION. ALL SEEDED AND/OR SODDED AREAS SHOULD PROVIDE A SMOOTH SURFACE FREE OF DIPS AND UNLEVELED GROUND.
10. IF REQUIRE, IRRIGATION SHALL BE DESIGNED AND INSTALLED BY A LICENSED IRRIGATION CONTRACTOR IN THE STATE OF NORTH CAROLINA.
11. THE CONTRACTOR IS RESPONSIBLE FOR HAND WATERING THE INSTALLED PLANT MATERIAL FOR A PERIOD OF 6 MONTHS FROM THE ACCEPTANCE FROM THE OWNER OR OWNER'S REPRESENTATIVE IF IRRIGATION HAS NOT BEEN INSTALLED AT THE TIME OF SUBSTANTIAL COMPLETION. ALL MATERIAL INCLUDING SOD AND SEEDED AREAS SHALL BE HAND WATERED ONCE WEEKLY OR AS NEEDED TO ENSURE SURVIVAL OF PLANTS.
12. CONTRACTOR IS RESPONSIBLE FOR REMOVING TRASH, DEBRIS AND EXCESS MATERIALS FROM THE JOB SITE ONCE THE PROJECT IS COMPLETE. SECURING ANY MATERIALS LEFT ON SITE DURING THE COURSE OF THE PROJECT IS THE CONTRACTOR'S RESPONSIBILITY.
13. ALL DISTURBED AREAS NOT DESIGNATED FOR SOD SHALL BE SEEDED.
14. ALL VEGETATION PROPOSED WITHIN SIGHT DISTANCE AREAS SHALL NOT INTERFERE WITH SIGHT DISTANCE FROM 30" TO 10'.
15. THE LANDSCAPE CONTRACTOR IS REQUIRED TO INSTALL LANDSCAPE FABRIC IN ALL PLANTING AREAS.

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

NCGRID(NAD83(2011))

GRAPHIC SCALE

0 5 10 20 40

SCALE: 1" = 10'

FINAL DESIGN - NOT RELEASED FOR CONSTRUCTION

NHCS
Engaging Students, Achieving Excellence

REVISIONS:

CLIENT INFORMATION:

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ENTRY LANDSCAPE PLAN

WRIGHTSVILLE BEACH ELEMENTARY SCHOOL
NEW HANOVER COUNTY
NORTH CAROLINA

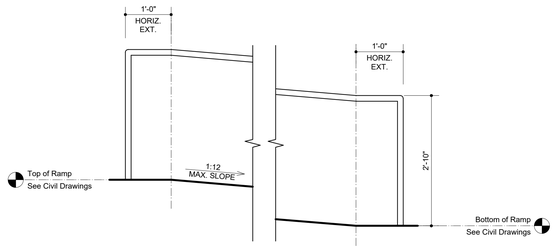
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST.

DRAWING INFORMATION
DATE: 02/20/19
SCALE: 1" = 10'
DESIGNED: AHE
DRAWN: JDM
CHECKED: AHE

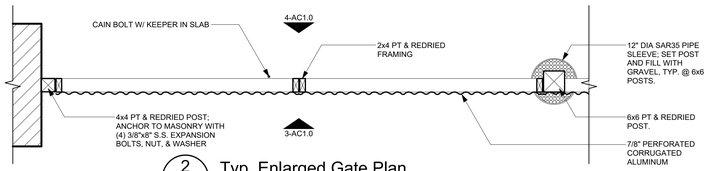
SEAL
NORTH CAROLINA
1823
REGISTERED
02/20/19
ALISON H. ENGEBRETSON

L-1.0

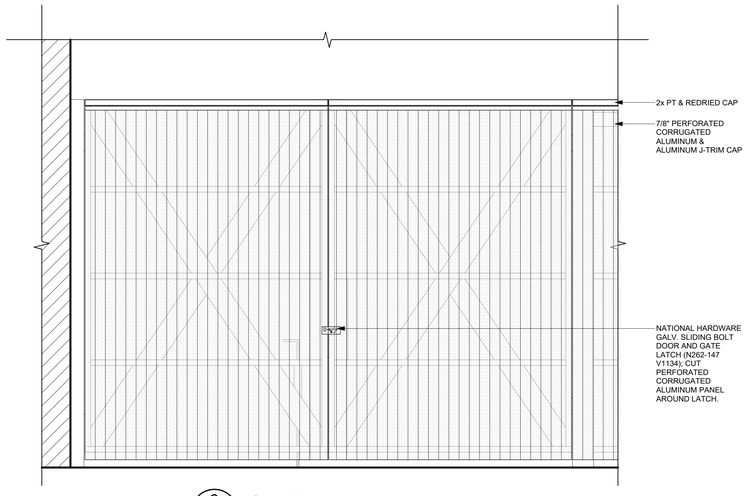
PEI JOB#: 18156.PE



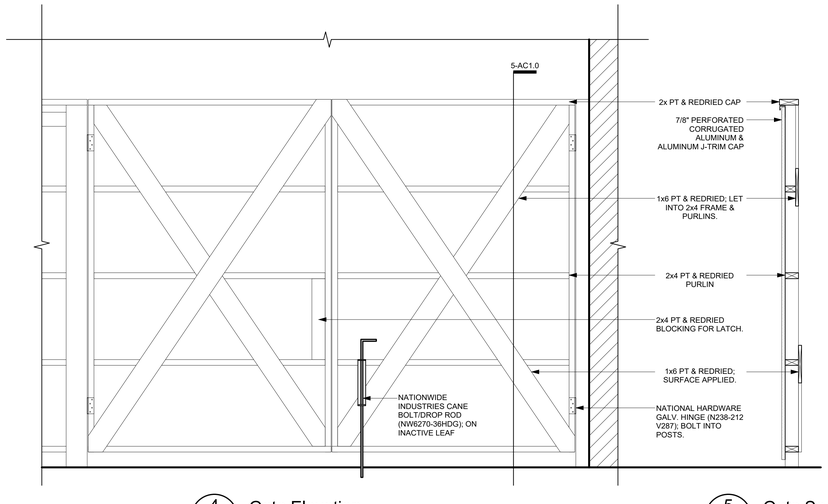
1 AC1.0 **Typ. Exterior Ramp Section**
Scale: 3/4" = 1'-0"



2 AC1.0 **Typ. Enlarged Gate Plan**
Scale: 3/4" = 1'-0"

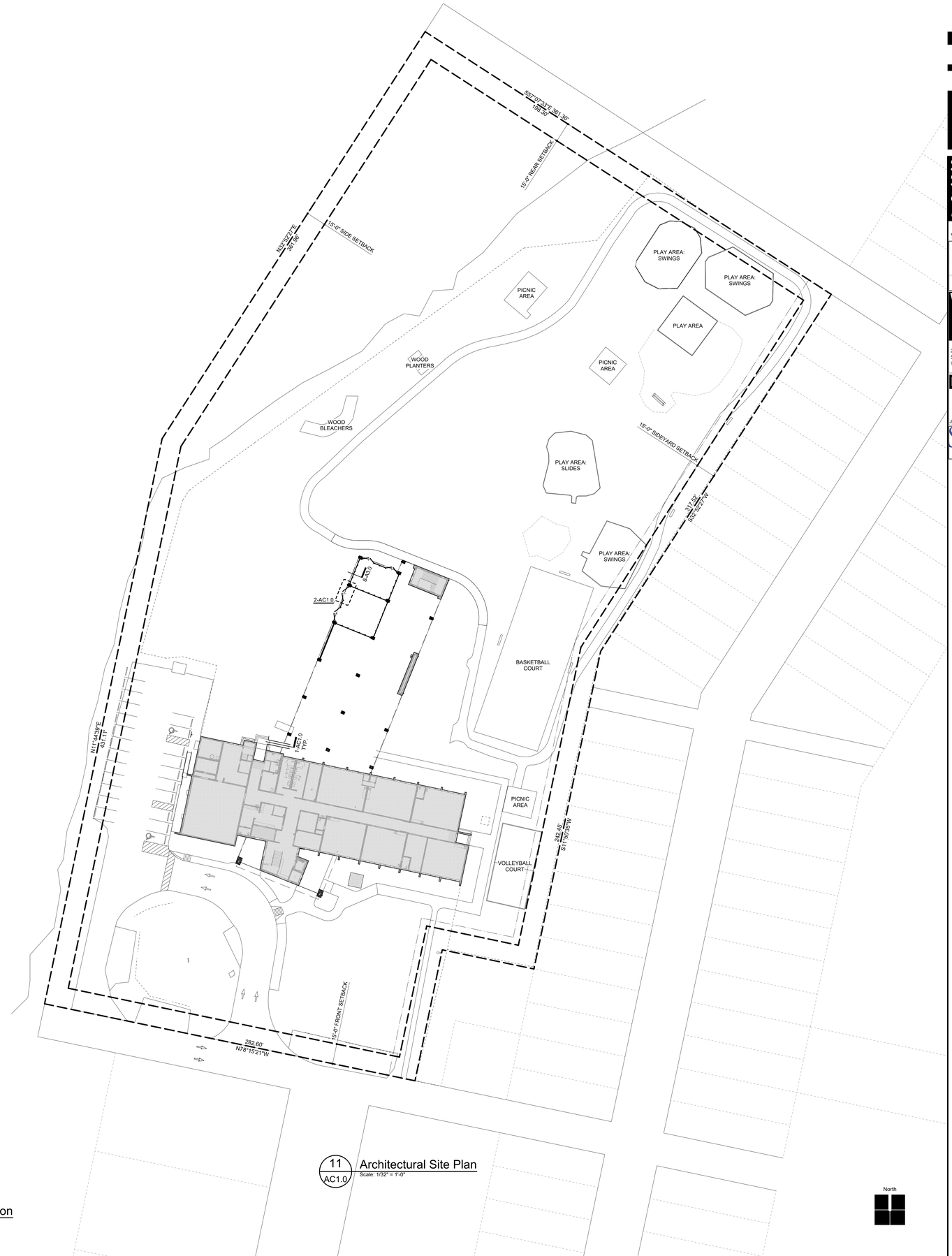


3 AC1.0 **Gate Elevation**
Scale: 3/4" = 1'-0"



4 AC1.0 **Gate Elevation**
Scale: 3/4" = 1'-0"

5 AC1.0 **Gate Section**
Scale: 3/4" = 1'-0"



11 AC1.0 **Architectural Site Plan**
Scale: 1/32" = 1'-0"

North

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JOHN R. SAWYER REGISTERED ARCHITECT 2-20-2019 NORTH CAROLINA WILMINGTON

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Architectural Site Plan

AC1.0
01 of 01

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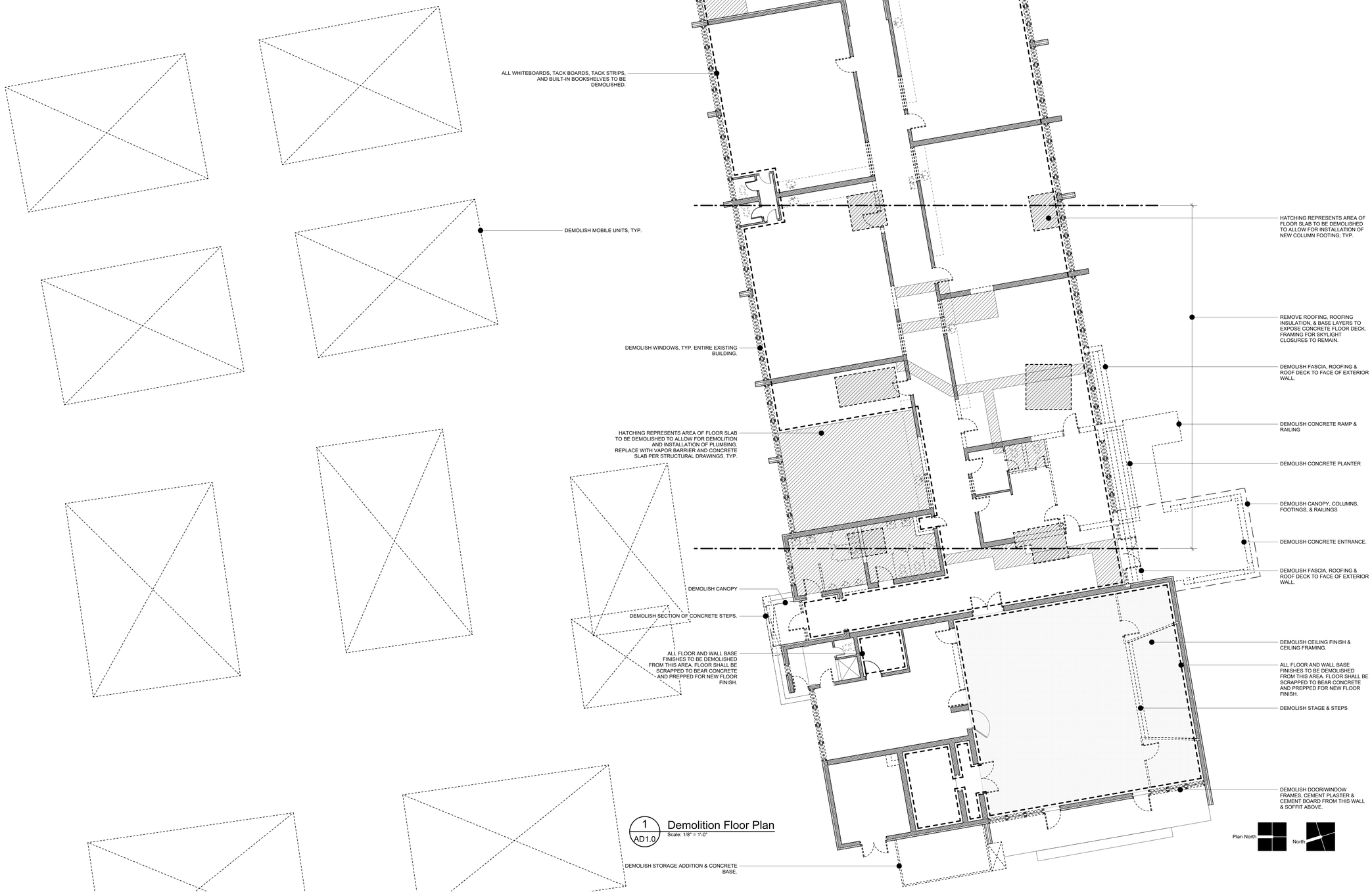

1 AD1.0 Demolition Floor Plan
Scale: 1/8" = 1'-0"

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February 20, 2019

Revisions:

Demolition Floor Plan

AD1.0

01 of 02

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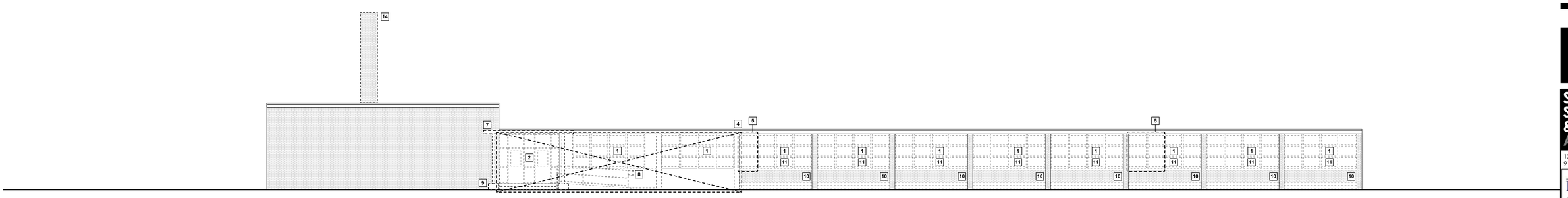
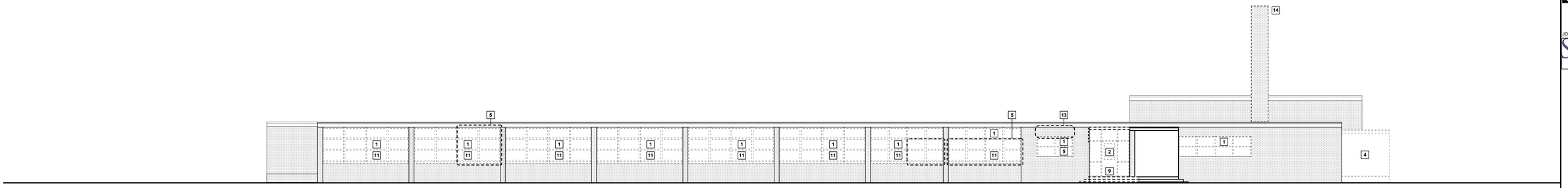
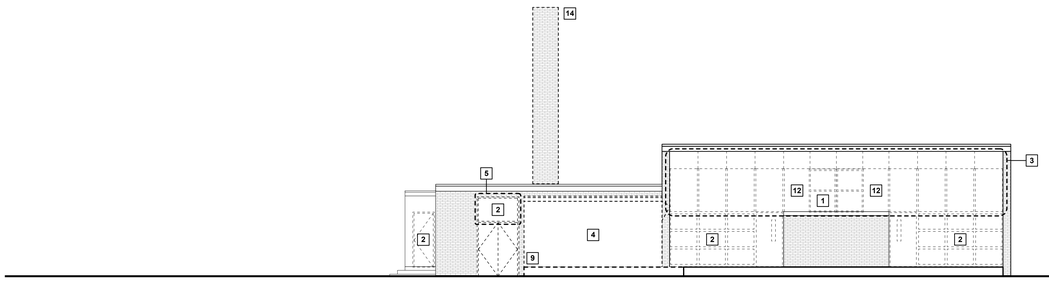


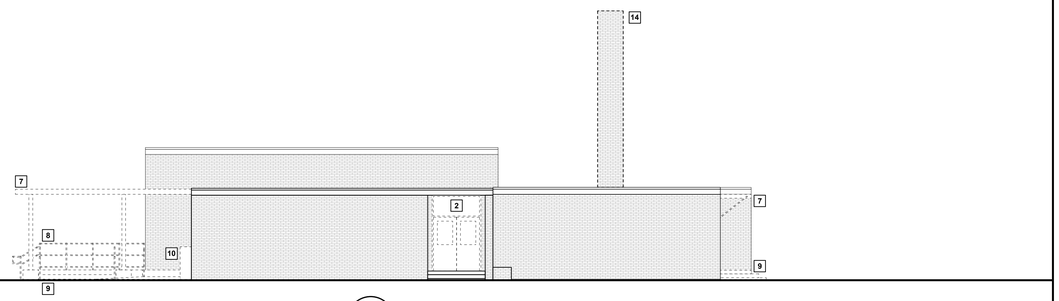
1 AD2.0 South Demolition Building Elevation
Scale: 1/8" = 1'-0"



2 AD2.0 North Demolition Building Elevation
Scale: 1/8" = 1'-0"



3 AD2.0 West Demolition Building Elevation
Scale: 1/8" = 1'-0"



4 AD2.0 East Demolition Building Elevation
Scale: 1/8" = 1'-0"

Demolition Key Notes

1. Demolish existing window & frame
2. Demolish existing entrance door & frame
3. Demolish existing exterior wall/soffit finish; Asbestos mitigation by Owner
4. Demolish existing wall construction & facade
5. Where opening will be infilled with new construction to match existing, demolish precast concrete sills, and remove/salvage slate window stools
6. Demolish existing conductor head & downspout
7. Demolish existing canopy & canopy structure
8. Demolish existing railing
9. Demolish concrete steps & base
10. Demolish planter
11. Demolish precast concrete sills and remove/salvage slate window stools
12. Cut opening for new curtain wall
13. Demolish existing brick masonry facade & lintel
14. Demolish existing brick masonry smoke stack to boiler/storage room floor

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JOHN R. SAWYER REGISTERED ARCHITECT 2-20-2019 3425 NORTH CAROLINA WILMINGTON, NC

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Demolition Building Elevations

AD2.0

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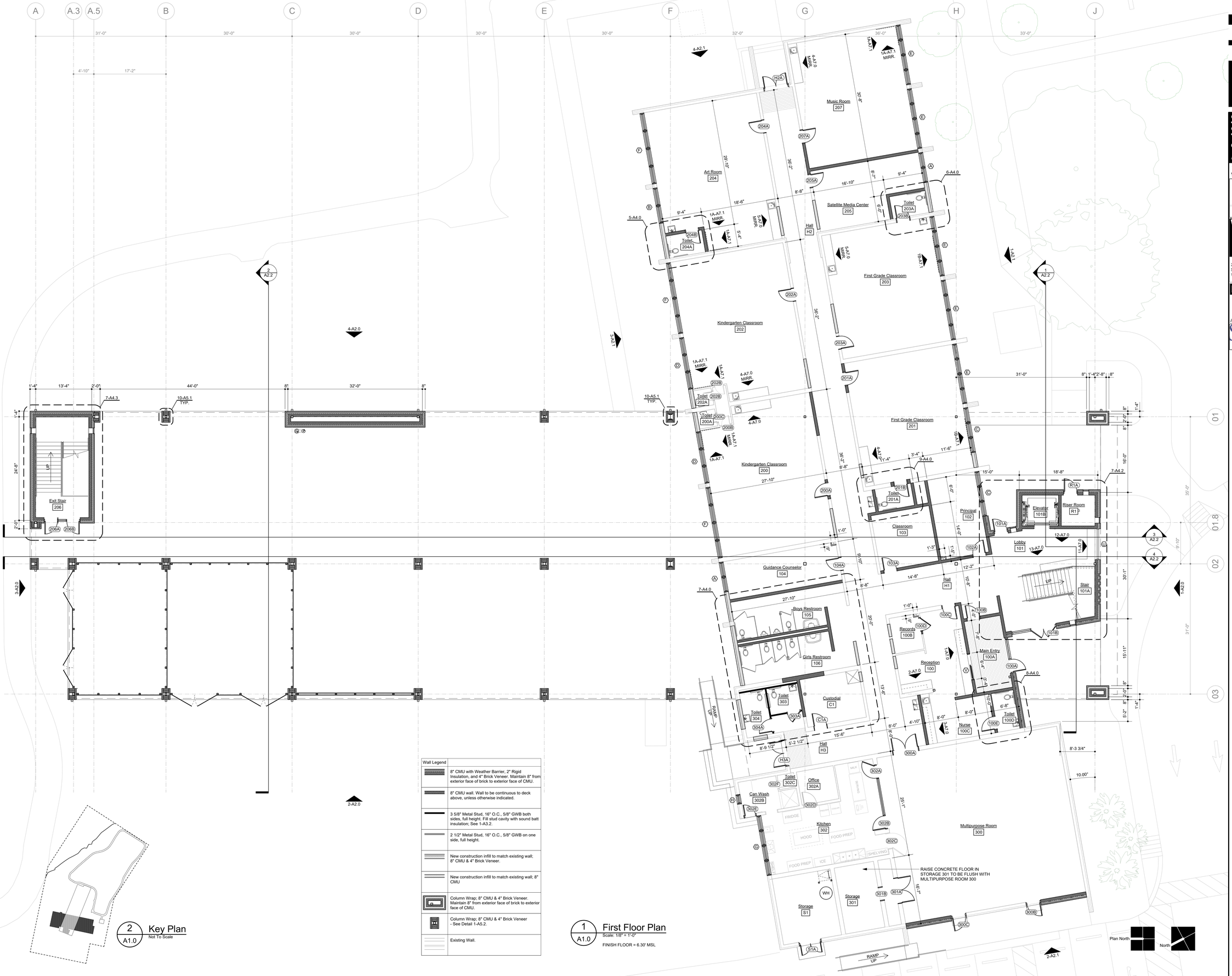

Wall Legend	
	8" CMU with Weather Barrier, 2" Rigid Insulation, and 4" Brick Veneer. Maintain 8" from exterior face of brick to exterior face of CMU.
	8" CMU wall. Wall to be continuous to deck above, unless otherwise indicated.
	3 5/8" Metal Stud, 16" O.C., 5/8" GWB both sides, full height. Fill stud cavity with sound batt insulation; See 1-A3.2.
	2 1/2" Metal Stud, 16" O.C., 5/8" GWB on one side, full height.
	New construction infill to match existing wall; 8" CMU & 4" Brick Veneer.
	New construction infill to match existing wall; 8" CMU
	Column Wrap; 8" CMU & 4" Brick Veneer. Maintain 8" from exterior face of brick to exterior face of CMU.
	Column Wrap; 8" CMU & 4" Brick Veneer - See Detail 1-A5.2.
	Existing Wall.

2 / A1.0 Key Plan
Not To Scale

1 / A1.0 First Floor Plan
Scale: 1/8" = 1'-0"
FINISH FLOOR = 6.30' MSL

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

First Floor Plan

A1.0
01 of 29

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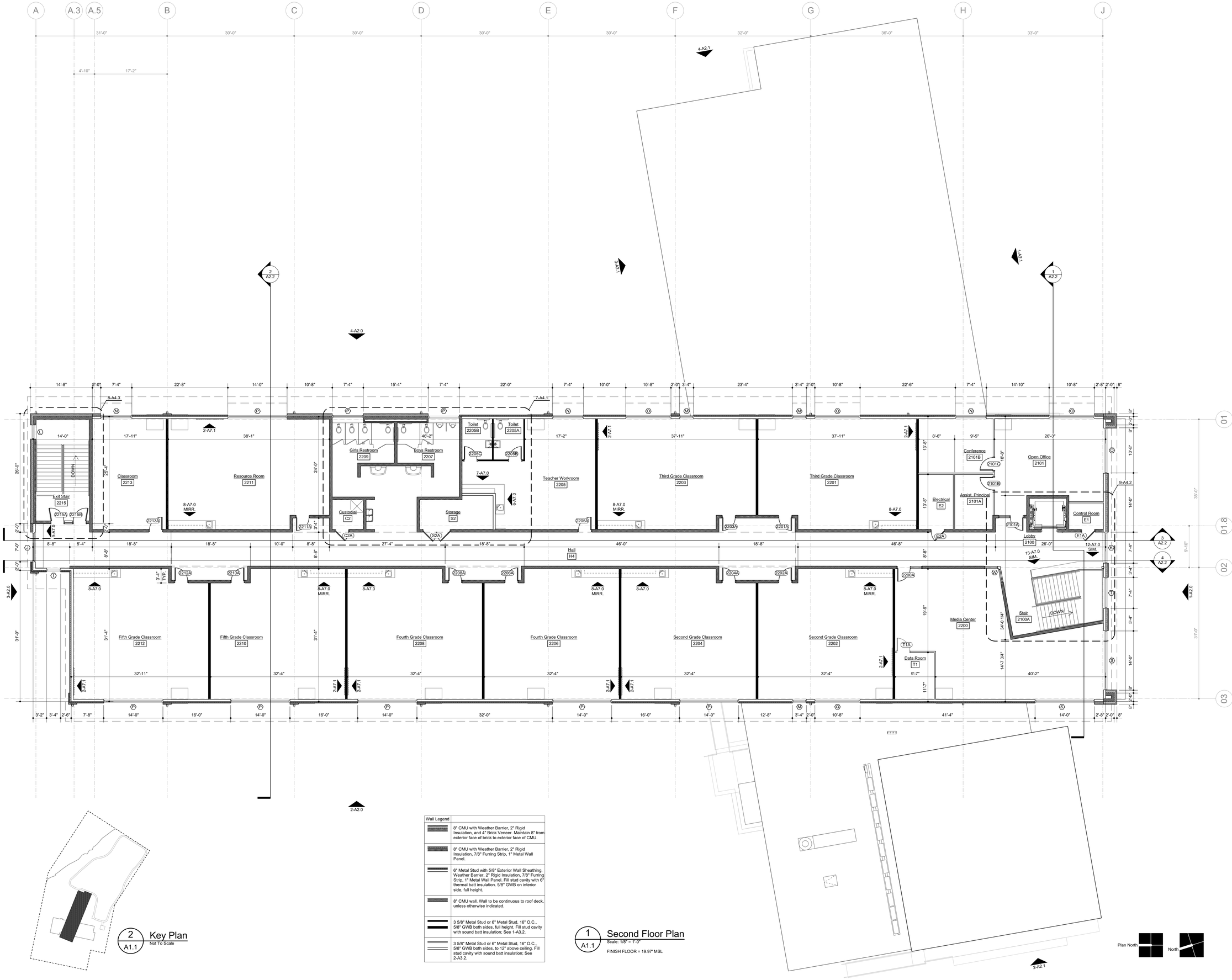

2 / A1.1 Key Plan
Not To Scale

Wall Legend	
	8" CMU with Weather Barrier, 2" Rigid Insulation, and 4" Brick Veneer. Maintain 8" from exterior face of brick to exterior face of CMU.
	8" CMU with Weather Barrier, 2" Rigid Insulation, 7/8" Furring Strip, 1" Metal Wall Panel.
	6" Metal Stud with 5/8" Exterior Wall Sheathing, Weather Barrier, 2" Rigid Insulation, 7/8" Furring Strip, 1" Metal Wall Panel. Fill stud cavity with 6" thermal batt insulation. 5/8" GWB on interior side, full height.
	8" CMU wall. Wall to be continuous to roof deck, unless otherwise indicated.
	3 5/8" Metal Stud or 6" Metal Stud, 16" O.C., 5/8" GWB both sides, full height. Fill stud cavity with sound batt insulation; See 1-A3.2.
	3 5/8" Metal Stud or 6" Metal Stud, 16" O.C., 5/8" GWB both sides, to 12" above ceiling. Fill stud cavity with sound batt insulation; See 2-A3.2.

1 / A1.1 Second Floor Plan
Scale: 1/8" = 1'-0"

FINISH FLOOR = 19.97' MSL

Plan North
North

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JOHN R. SAWYER III REGISTERED ARCHITECT 2-20-2019 NORTH CAROLINA WILMINGTON, NC

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Second Floor Plan

A1.1

02 of 29

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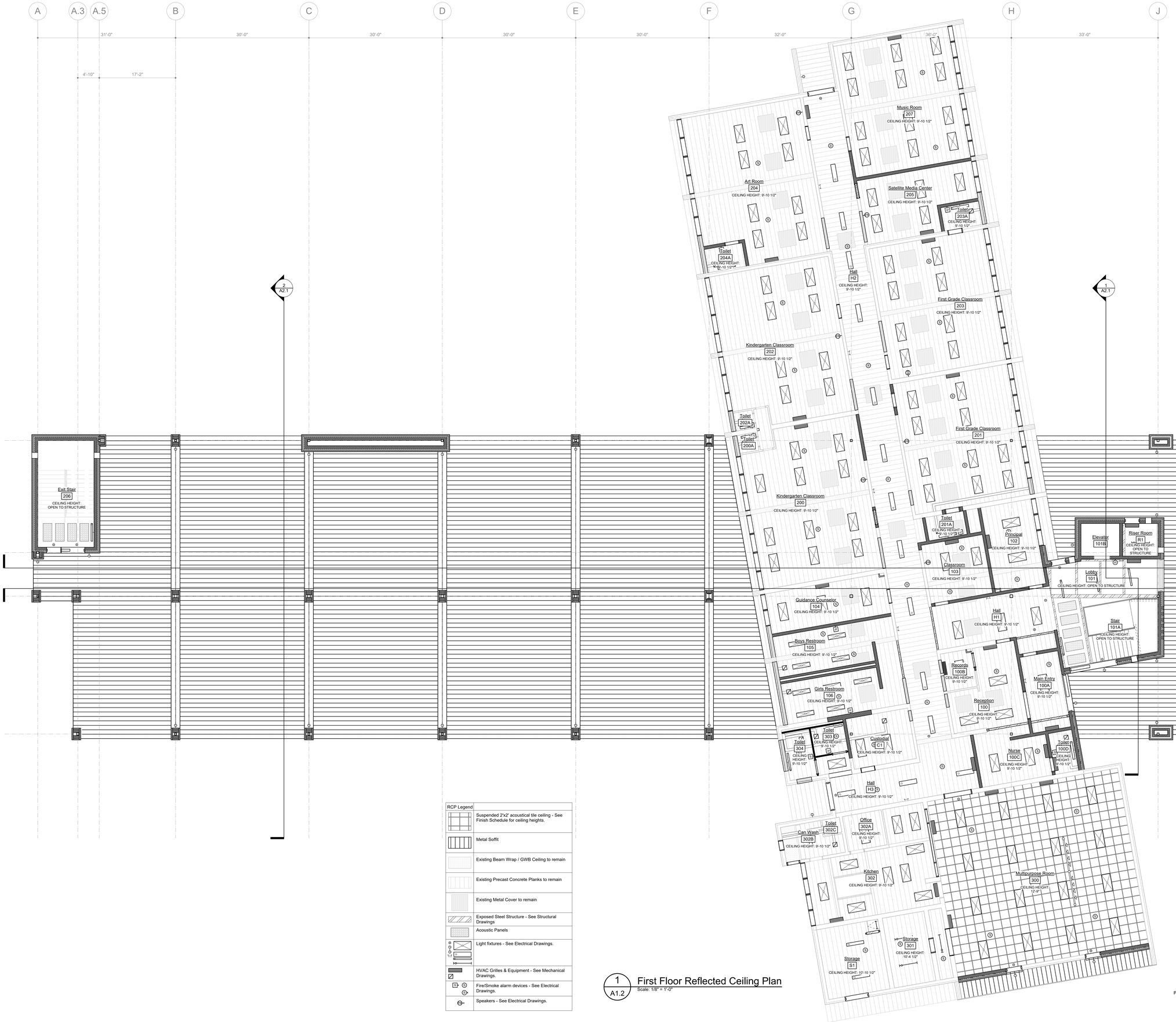

RCP Legend	
	Suspended 2'x2' acoustical tile ceiling - See Finish Schedule for ceiling heights.
	Metal Soffit
	Existing Beam Wrap / GWB Ceiling to remain
	Existing Precast Concrete Planks to remain
	Existing Metal Cover to remain
	Exposed Steel Structure - See Structural Drawings
	Acoustic Panels
	Light fixtures - See Electrical Drawings.
	HVAC Grilles & Equipment - See Mechanical Drawings.
	Fire/Smoke alarm devices - See Electrical Drawings.
	Speakers - See Electrical Drawings.

1 / A1.2 First Floor Reflected Ceiling Plan
Scale: 1/8" = 1'-0"

Plan North

North

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
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Construction Drawings
February 20, 2019

Revisions:

First Floor Reflected Ceiling Plan

A1.2

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RCP Legend	
	Suspended 2'x2' acoustical tile ceiling - See Finish Schedule for ceiling heights.
	Metal Soffit
	Gypsum Wall Board
	Exposed Steel Structure - See Structural Drawings.
	Acoustic Panels
	Light fixtures - See Electrical Drawings.
	HVAC Grilles & Equipment - See Mechanical Drawings.
	Fire/Smoke alarm devices - See Electrical Drawings.
S	Ceiling Speakers - See Electrical Drawings.

1 / A1.3 Second Floor Reflected Ceiling Plan
Scale: 1/8" = 1'-0"

Plan North

North

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Second Floor Reflected Ceiling Plan

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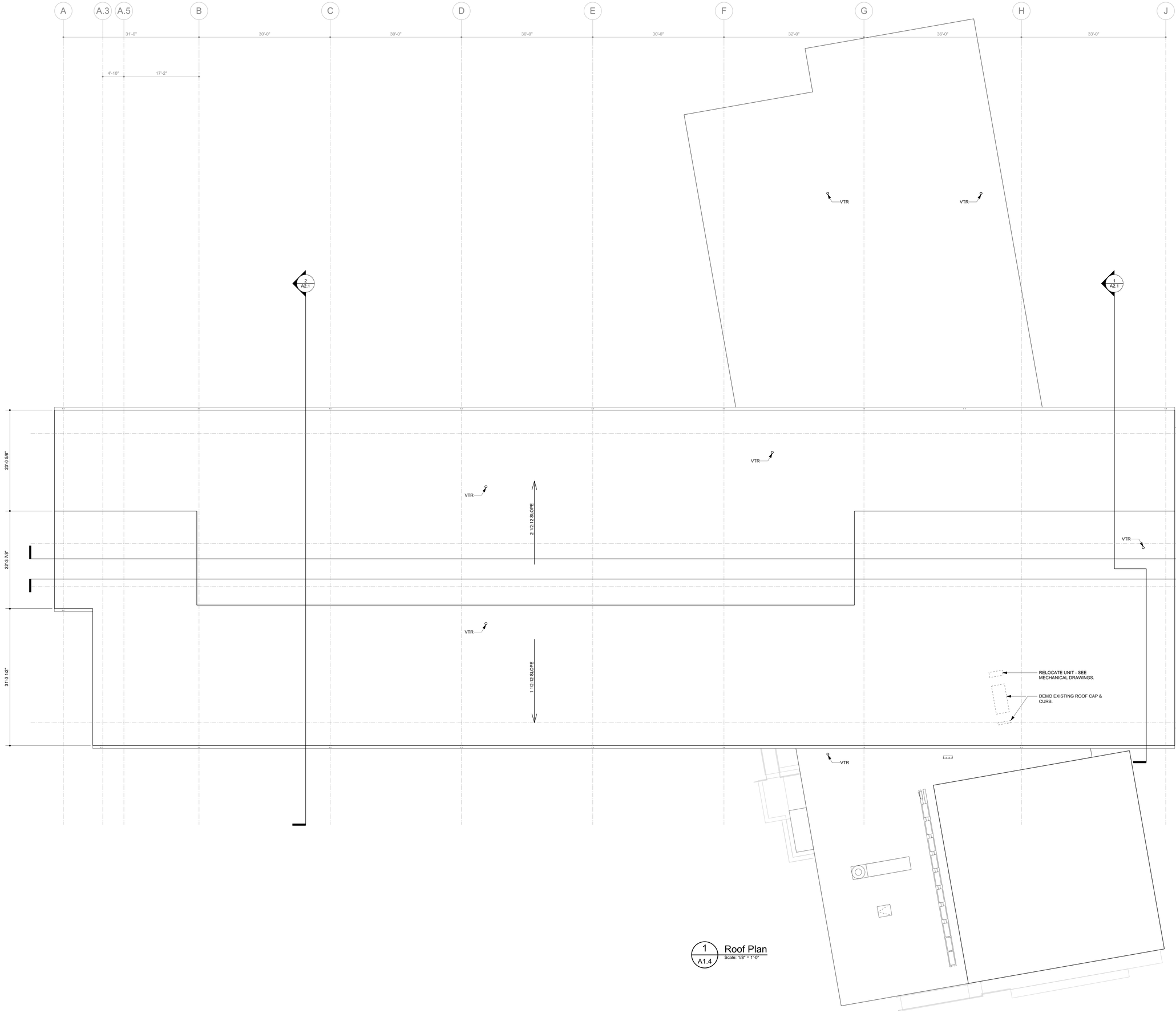

1 A1.4 Roof Plan
Scale: 1/8" = 1'-0"

Plan North

North

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Roof Plan

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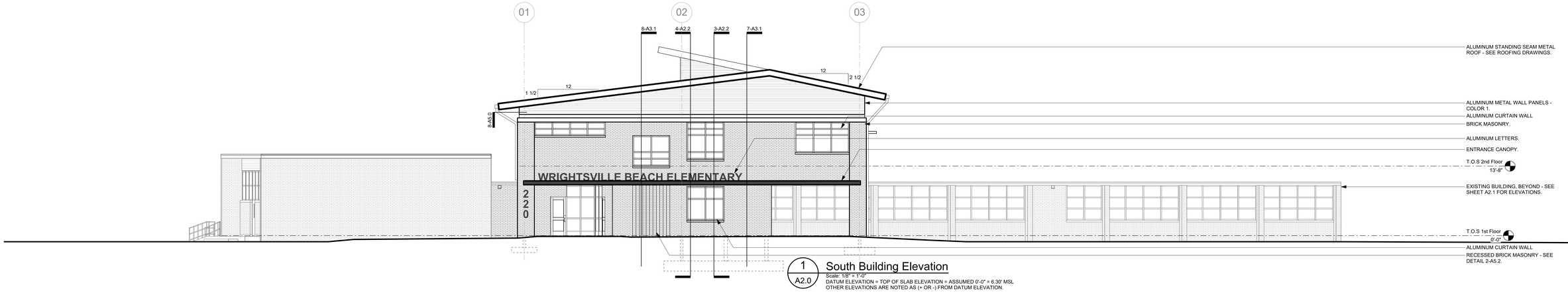
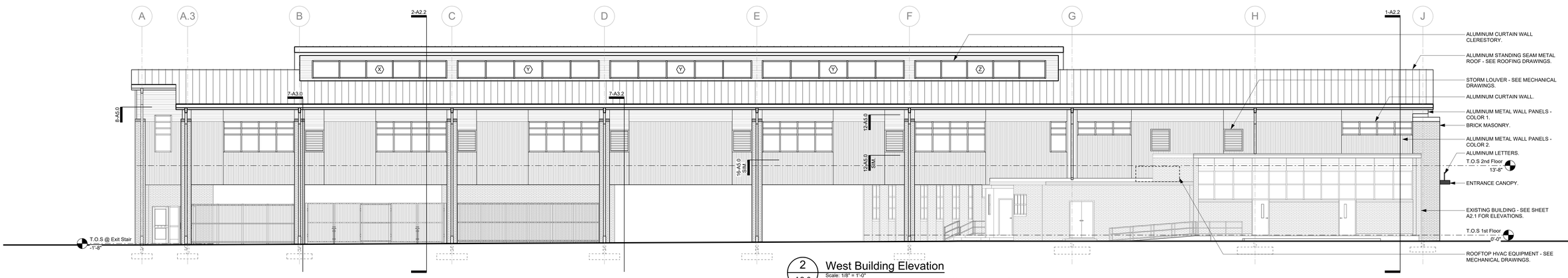
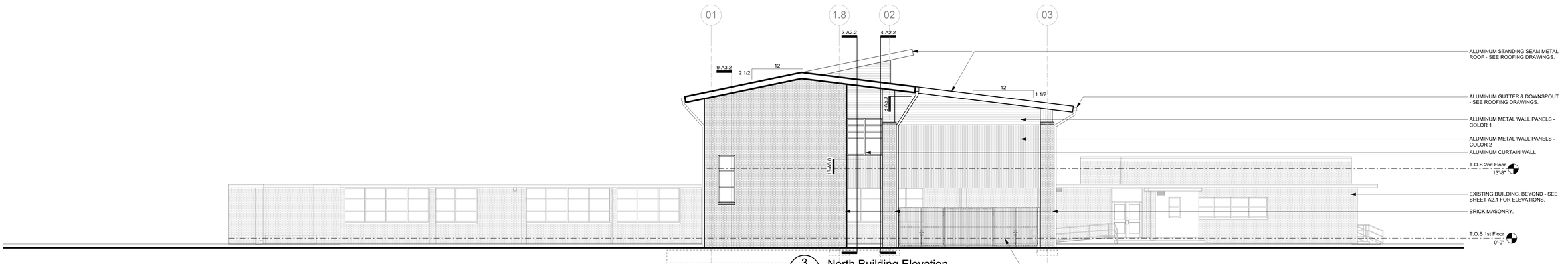


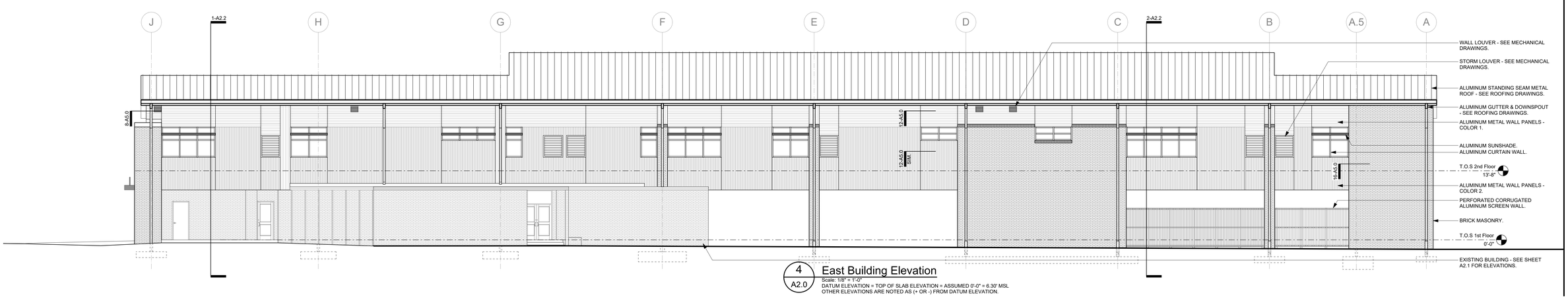
1 A2.0 **South Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.



2 A2.0 **West Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.



3 A2.0 **North Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.



4 A2.0 **East Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
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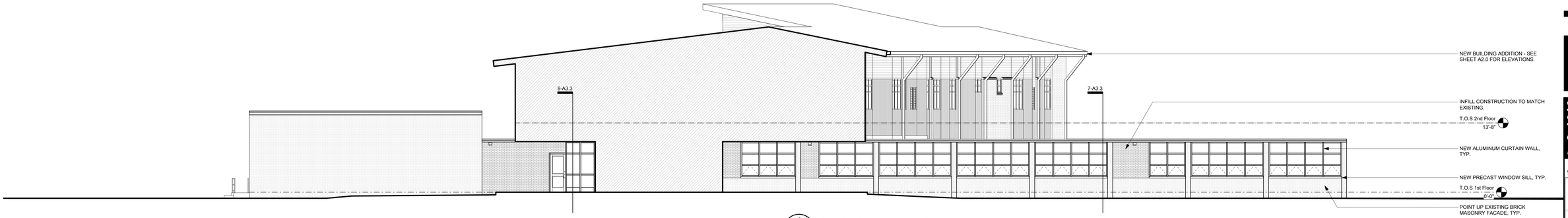
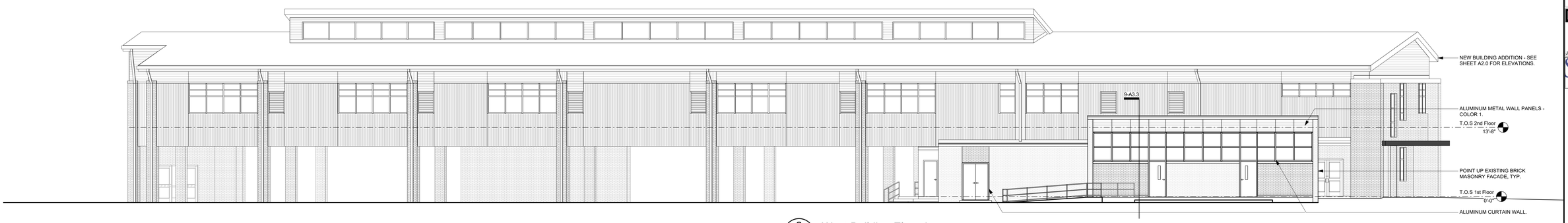


1 A2.1 **South Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.



2 A2.1 **West Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
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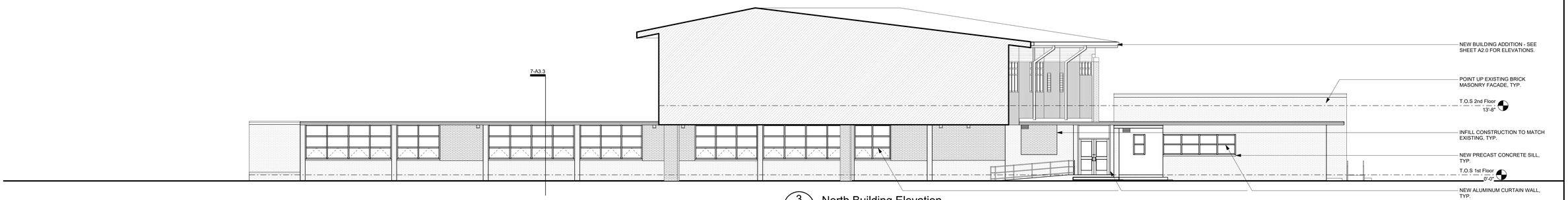
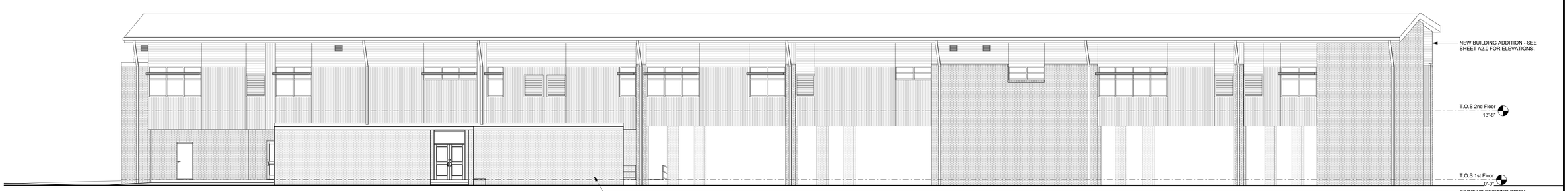


3 A2.1 **North Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.



4 A2.1 **East Building Elevation**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
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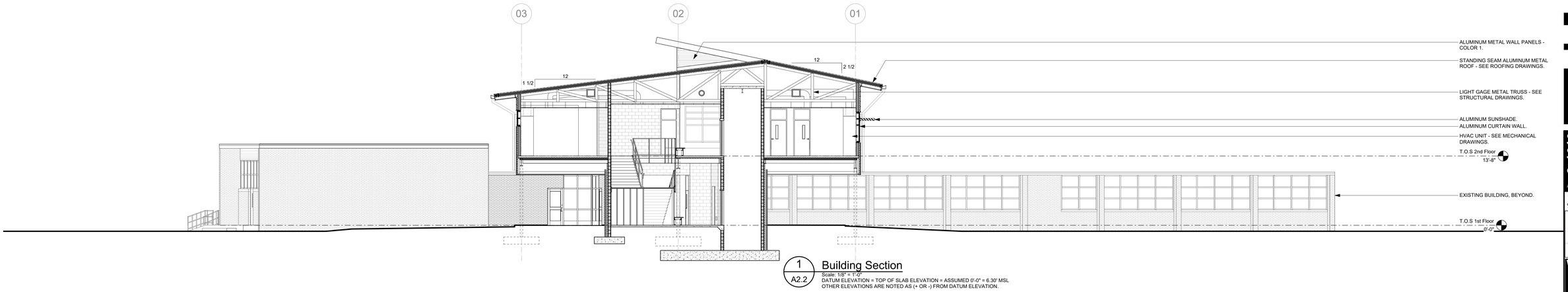

1 A2.2 **Building Section**
Scale: 1/8" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
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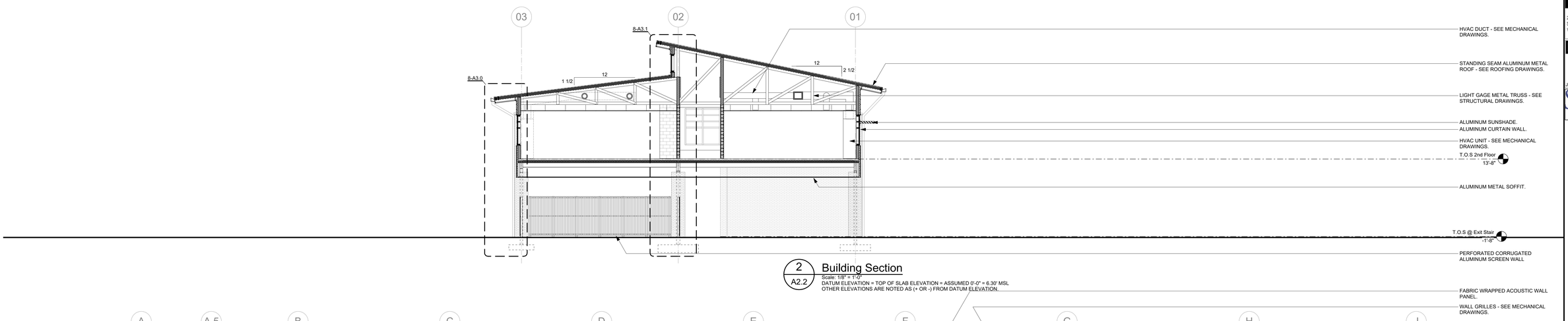

2 A2.2 **Building Section**
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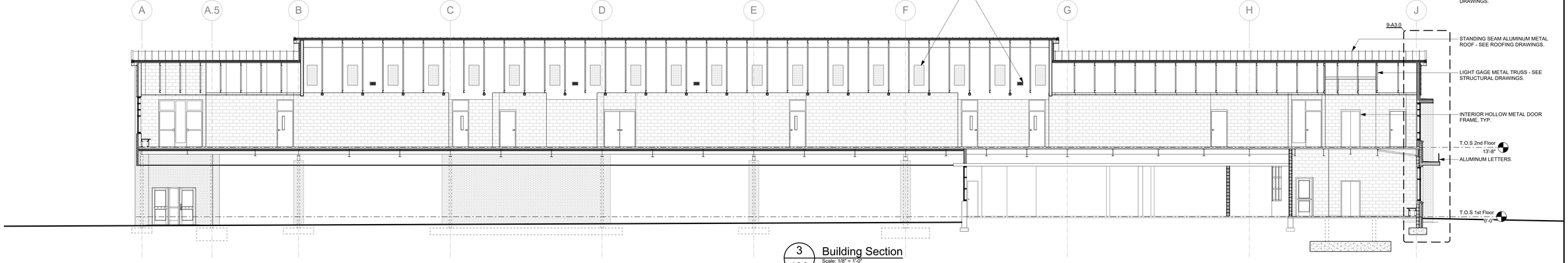

3 A2.2 **Building Section**
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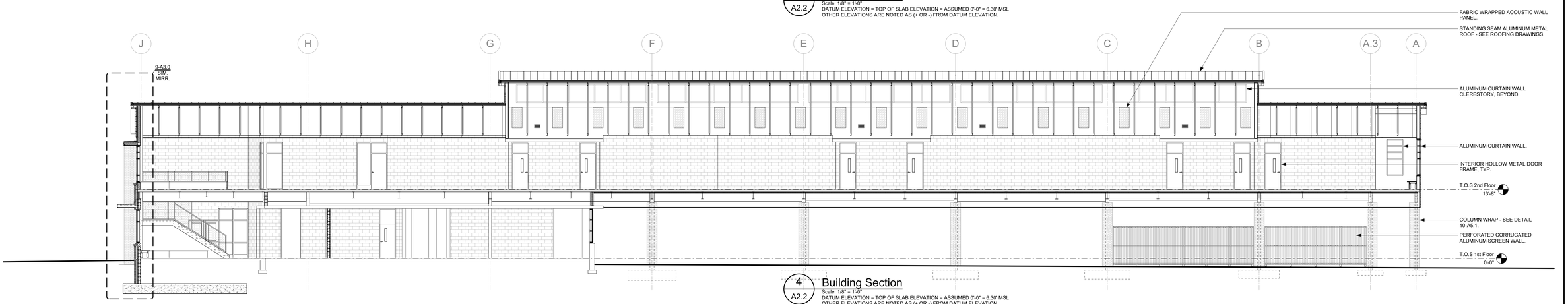

4 A2.2 **Building Section**
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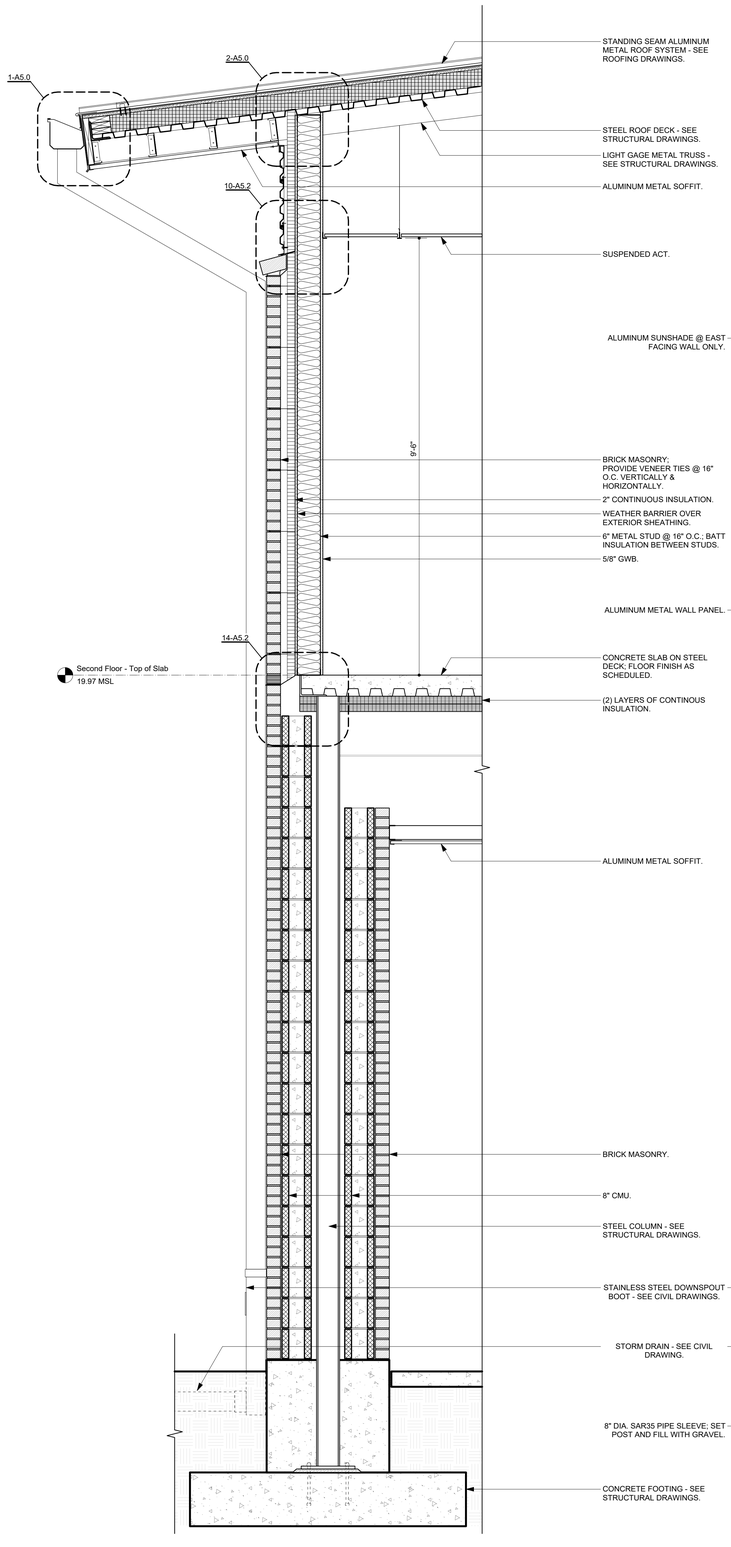
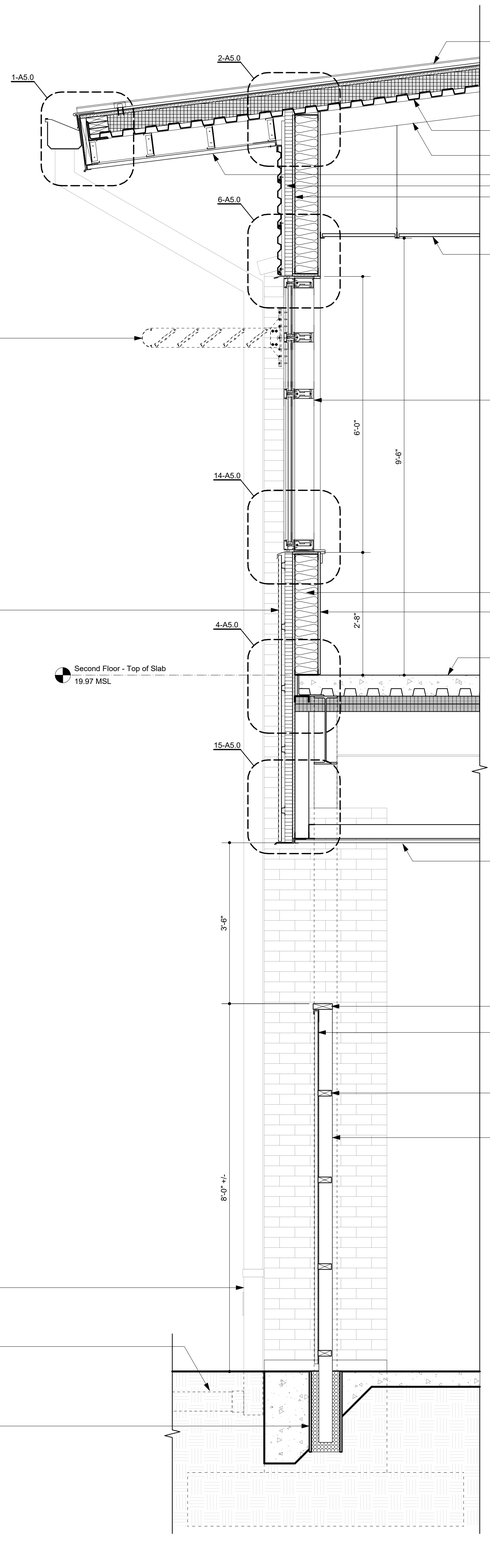
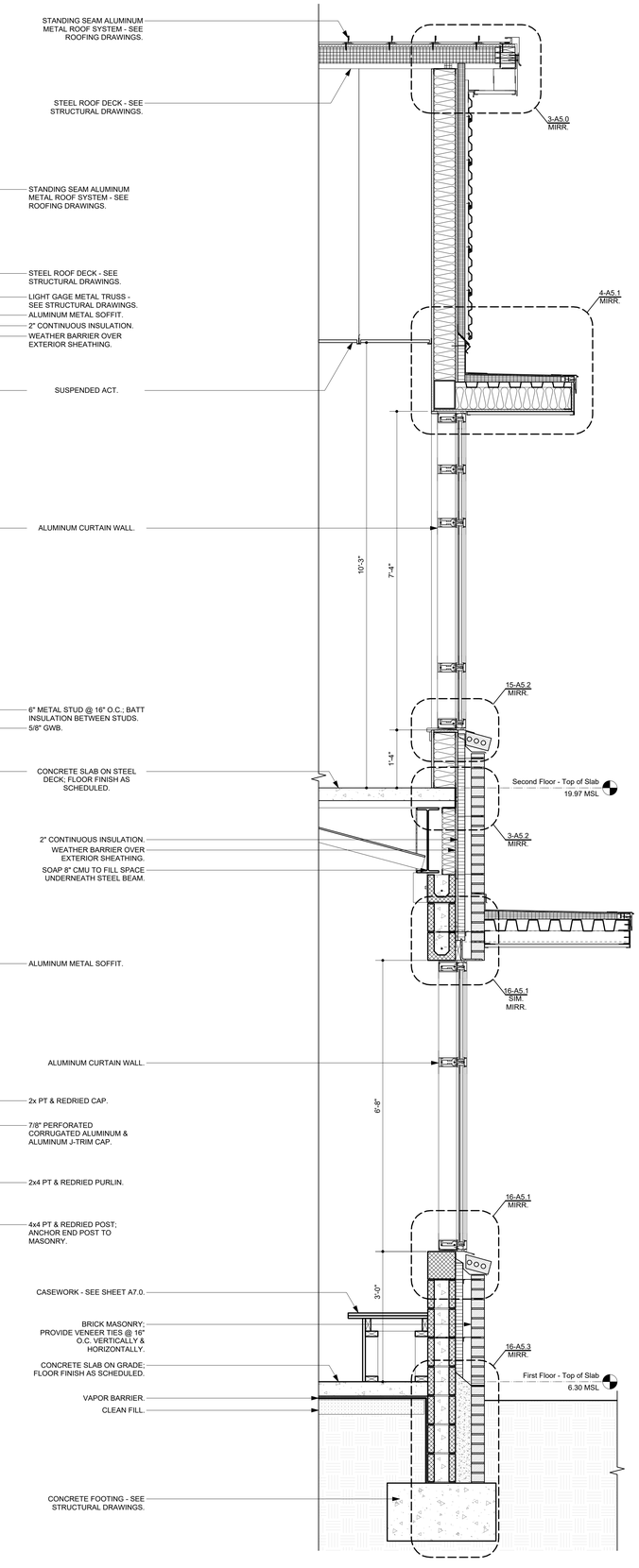


7 A3.0 Wall Section
Scale: 3/4" = 1'-0"



8 A3.0 Wall Section
Scale: 3/4" = 1'-0"



9 A3.0 Wall Section
Scale: 3/4" = 1'-0"

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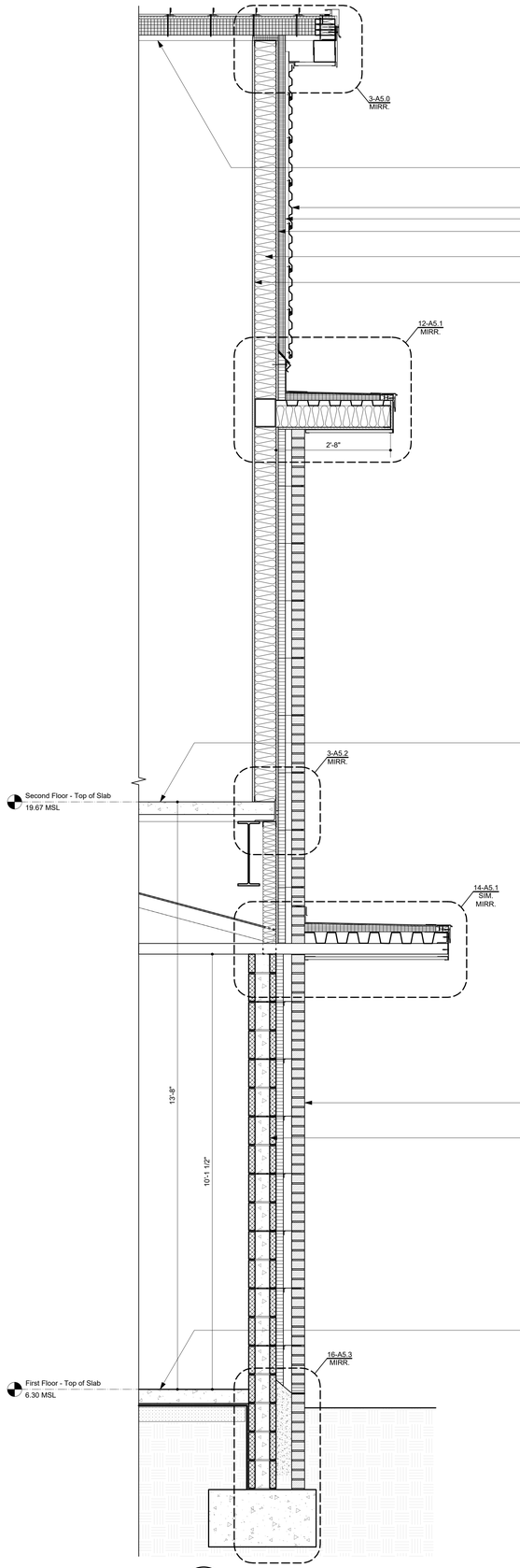
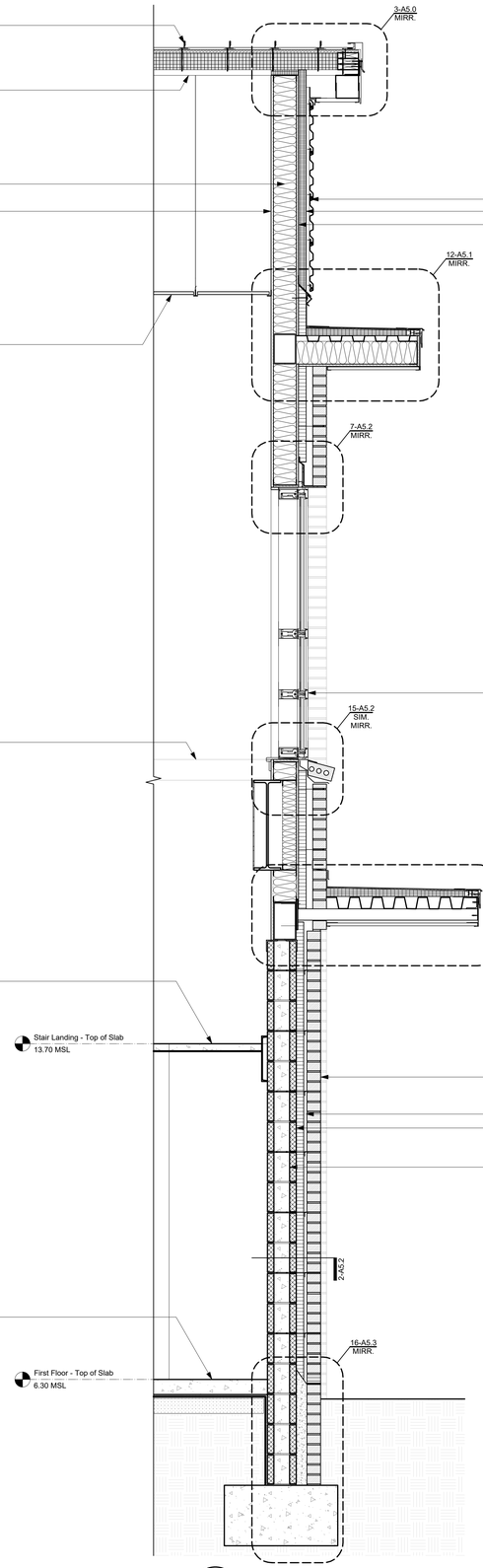
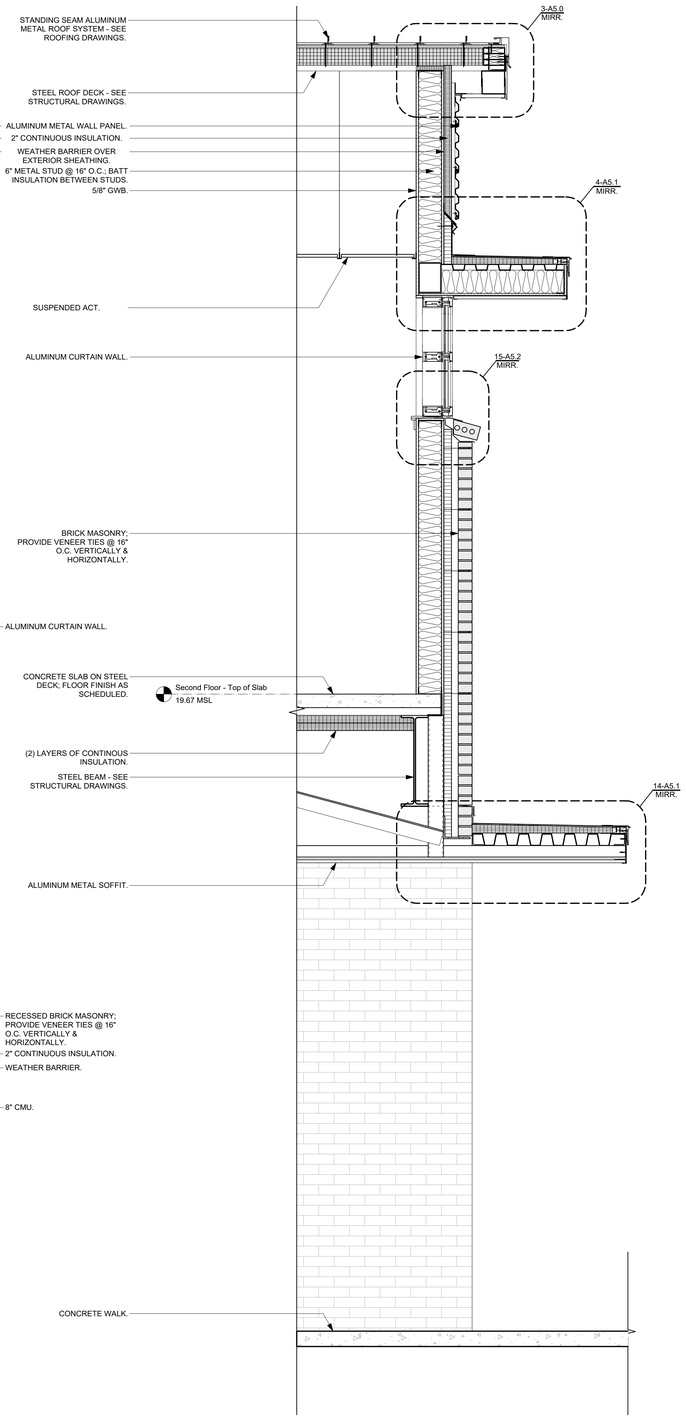


7 A3.1 **Wall Section**
Scale: 3/4" = 1'-0"



8 A3.1 **Wall Section**
Scale: 3/4" = 1'-0"



9 A3.1 **Wall Section**
Scale: 3/4" = 1'-0"

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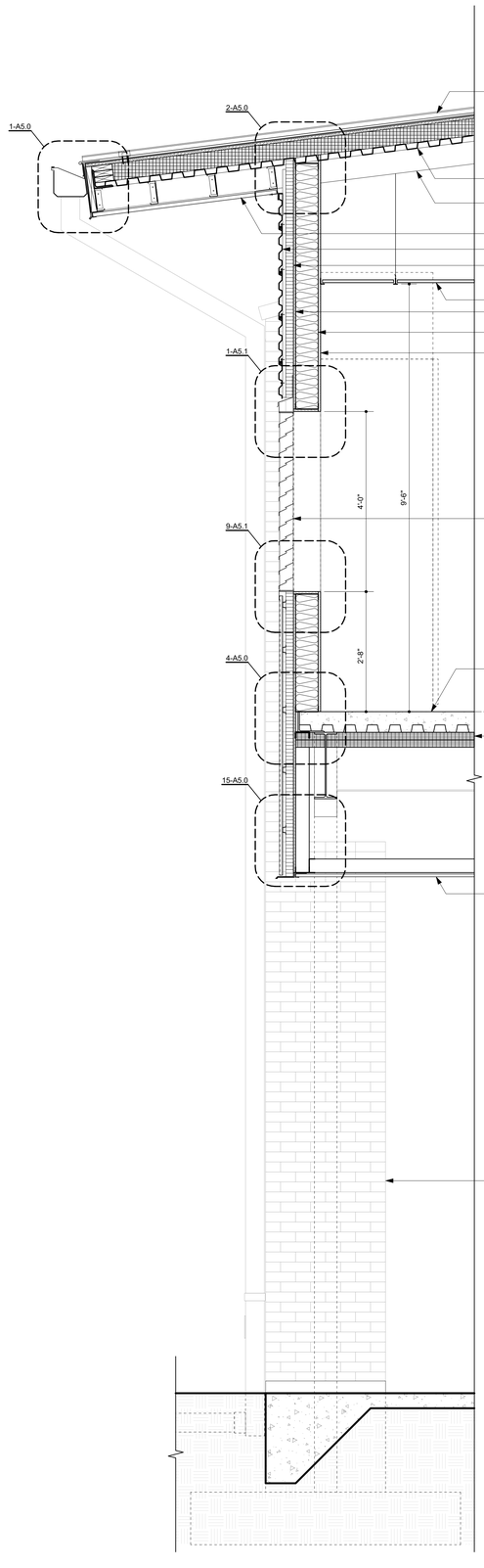
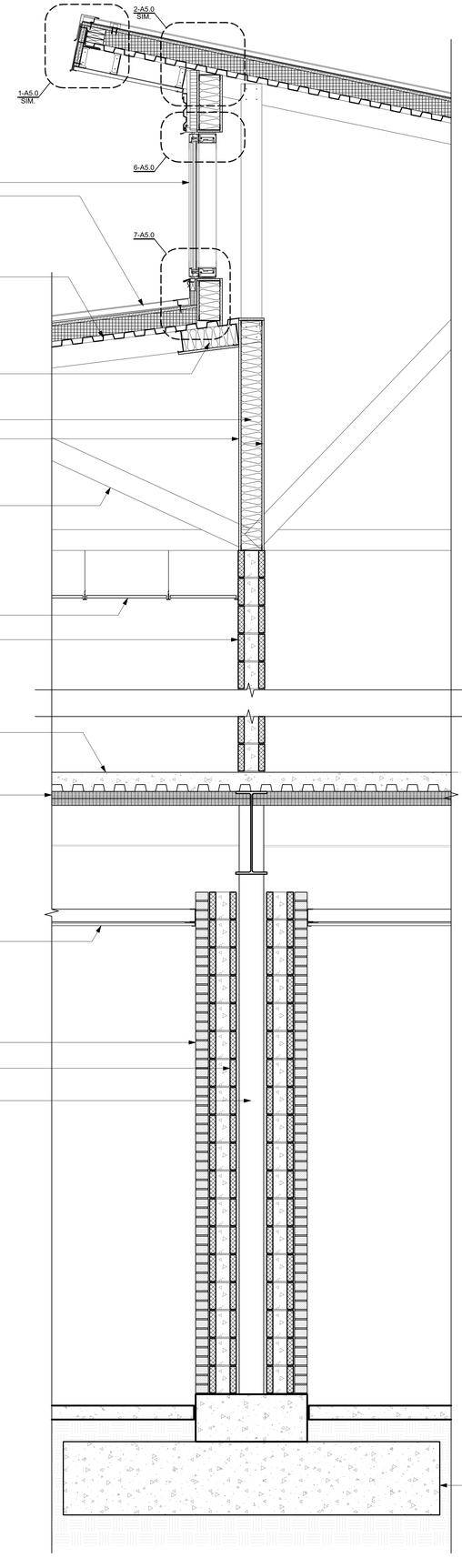
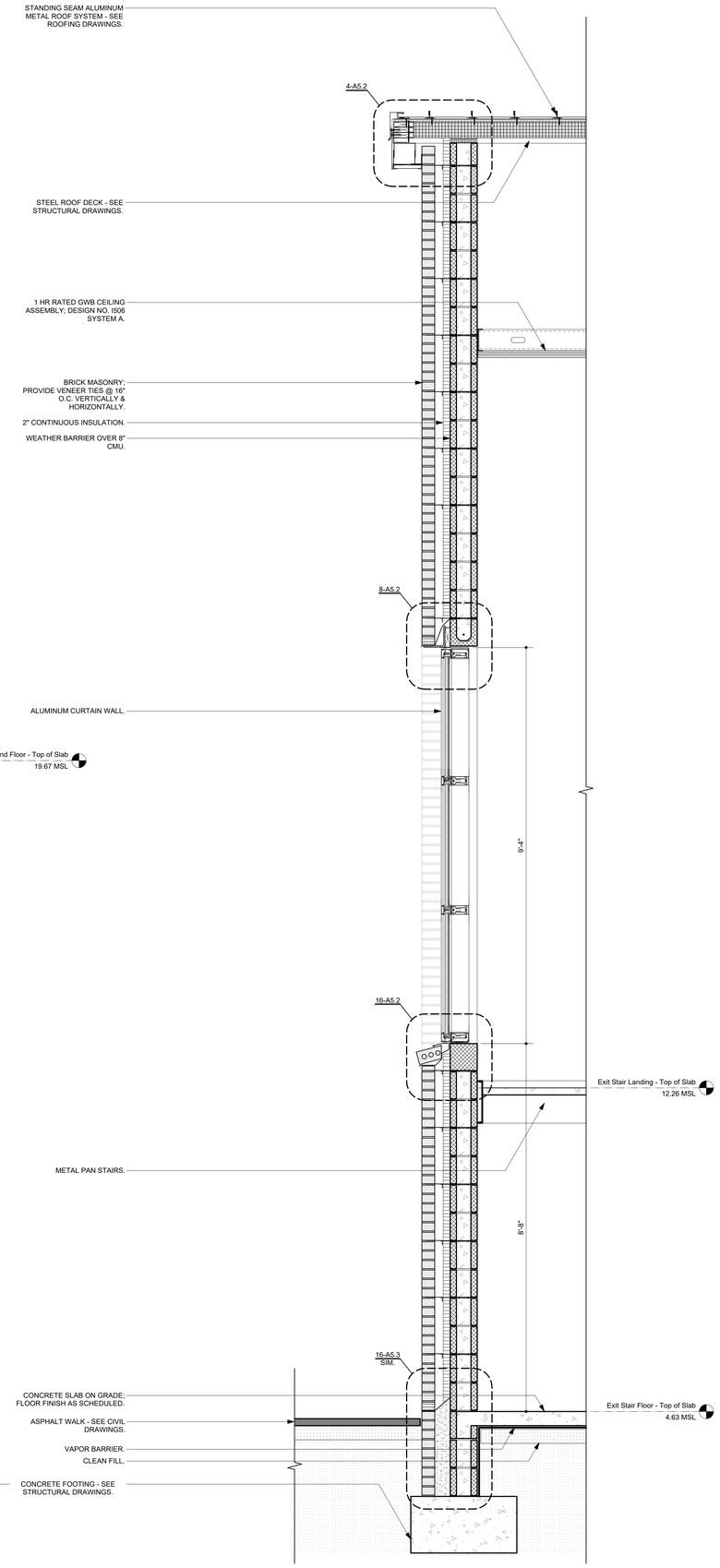


7 A3.2 Wall Section
Scale: 3/4" = 1'-0"



8 A3.2 Wall Section
Scale: 3/4" = 1'-0"



9 A3.2 Wall Section
Scale: 3/4" = 1'-0"

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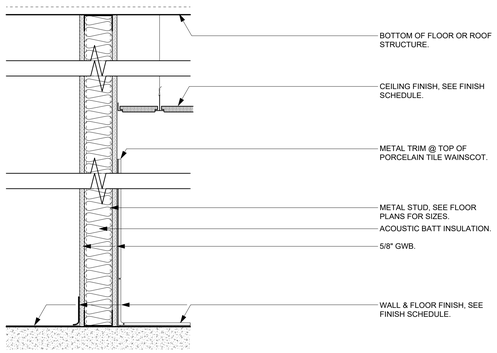
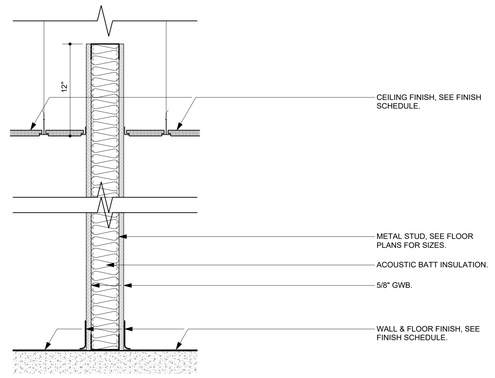
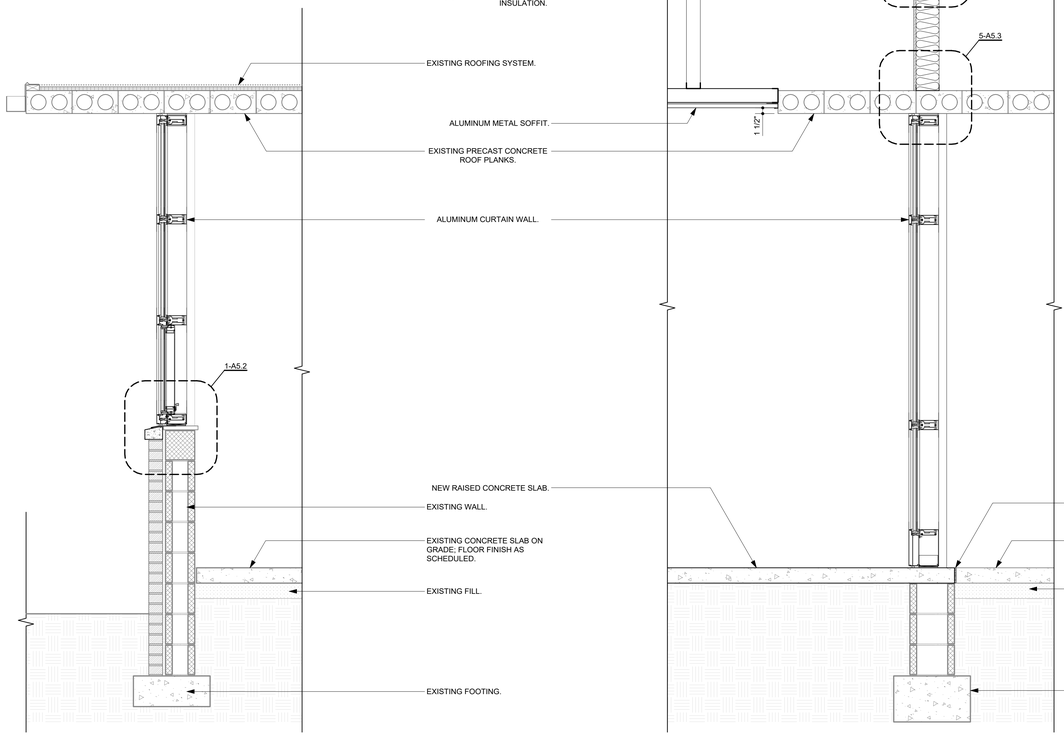


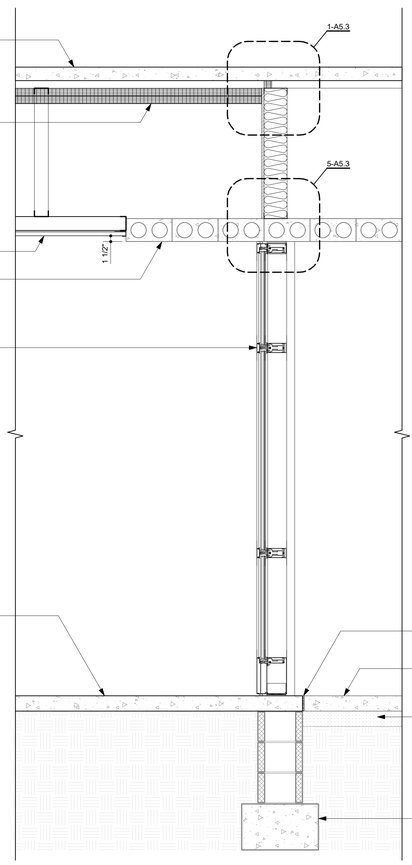
1 A3.3 **Interior Wall Section**
Scale: 1 1/2" = 1'-0"



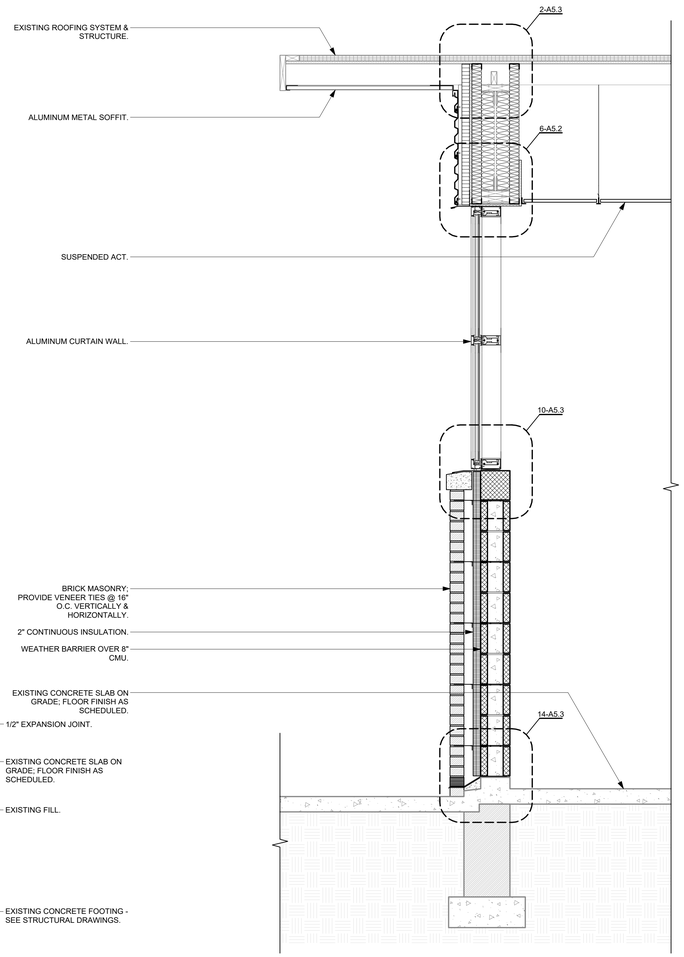
2 A3.3 **Interior Wall Section**
Scale: 1 1/2" = 1'-0"



7 A3.3 **Wall Section**
Scale: 3/4" = 1'-0"



8 A3.3 **Wall Section**
Scale: 3/4" = 1'-0"



9 A3.3 **Wall Section**
Scale: 3/4" = 1'-0"

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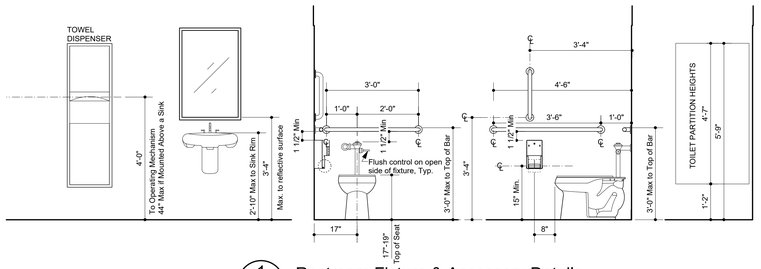
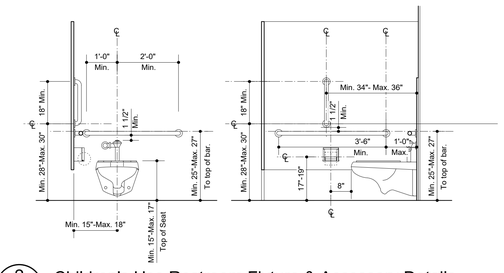


1 A4.0 **Restroom Fixture & Accessory Details**
Scale: 1/2" = 1'-0"



2 A4.0 **Children's Use Restroom Fixture & Accessory Details**
Scale: 1/2" = 1'-0"

Accessory Key Notes

1	Accessible Toilet Fixture	14	Sanitary Napkin Disposal
2	Toilet Fixture	15	Mop Sink
3	Accessible Urinal Fixture	16	Broom & Mop Holder
4	Urinal Fixture	17	Hi/Lo Water Cooler
5	Accessible Lav		
6	Accessible Sink		
7	Grab Bar 18"		
8	Grab Bar 36"		
9	Grab Bar 42"		
10	Toilet Tissue Dispenser		
11	Paper Towel Dispenser**		
12	Soap Dispenser**		
13	Mirror		

** PROVIDED BY OWNER, INSTALLED BY CONTRACTOR.

NOTES:

-See Specifications for manufacturers and model #s on all toilet accessories.

-See Plumbing Specifications for manufacturers and model #s on all fixtures.

-Grab bars shall support a 250lb load applied in any direction, along entire length.

-Grab bars shall not rotate in their fittings.

-Grab bar edges shall be min. 1/8" radius & free of sharp elements.

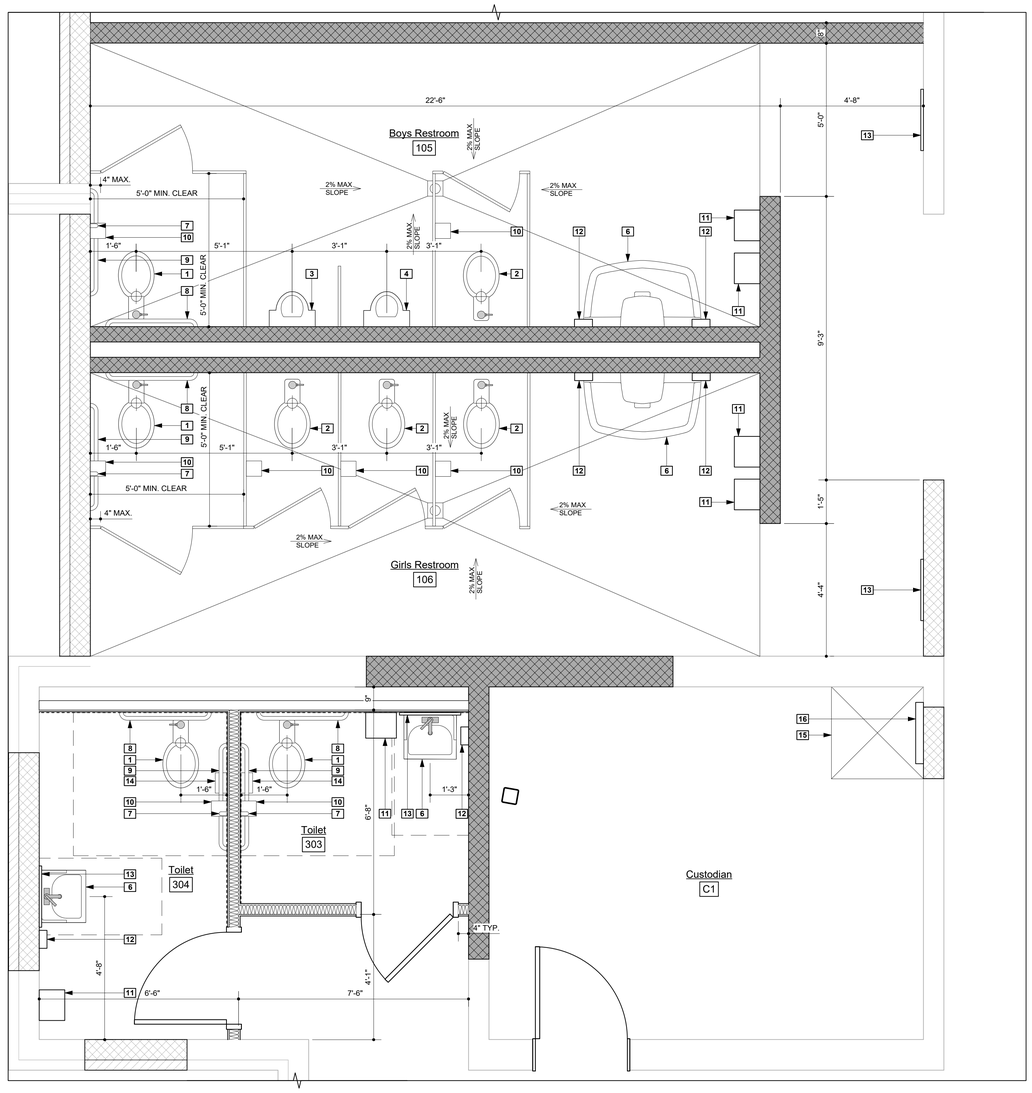
-Toilet Seat shall not spring back automatically to a lifted position.

-Flush control shall be operable w/ one hand w/out requiring tight grasping, twisting of wrist or force greater than 5 lbs.

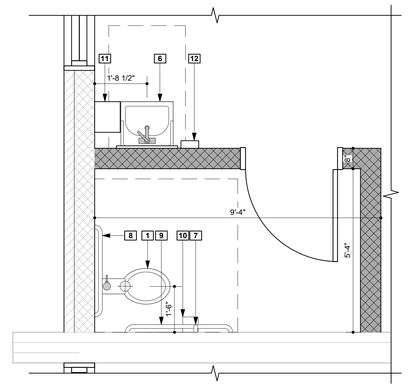
-Control shall be located on the wide side of accessible stalls.

-Toilet paper dispenser shall allow continuous paper delivery.

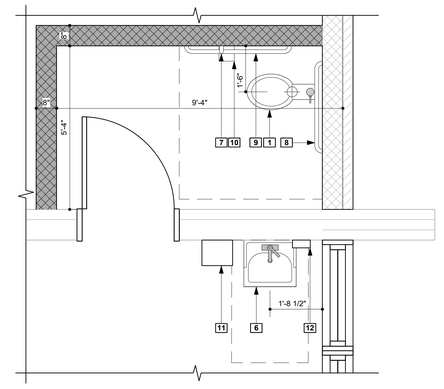
-Supply & drain lines shall be covered w/ pipe insulation or non-heat conducting baffle where exposed & shall not intrude on required knee space.



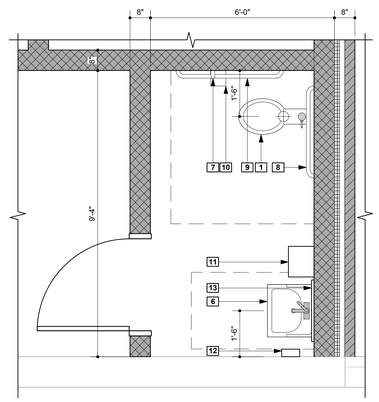
7 A4.0 **Enlarged Restroom Plan**
Scale: 1/2" = 1'-0"
------ EXTENT OF 84" WAINSCOT TILE



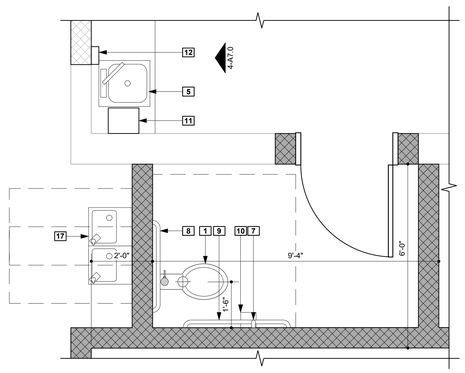
5 A4.0 **Toilet 204A Enlarged Plan**
Scale: 1/2" = 1'-0"



6 A4.0 **Toilet 203A Enlarged Plan**
Scale: 1/2" = 1'-0"



8 A4.0 **Toilet 100D Enlarged Plan**
Scale: 1/2" = 1'-0"



9 A4.0 **Toilet 201A Enlarged Plan**
Scale: 1/2" = 1'-0"

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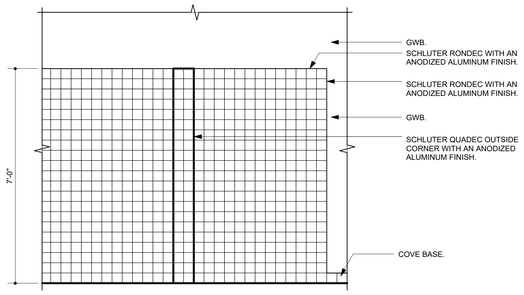

1 / A4.1 Tile Wainscot Typical Elevation & Trim
Scale: 1/2" = 1'-0"

Accessory Key Notes

1	Accessible Toilet Fixture	14	Sanitary Napkin Disposal
2	Toilet Fixture	15	Mop Sink
3	Accessible Urinal Fixture	16	Broom & Mop Holder
4	Urinal Fixture	17	Hi/Lo Water Cooler
5	Accessible Lav		
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13	Mirror		

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NOTES:
-See Specifications for manufacturers and model #s on all toilet accessories.

-See Plumbing Specifications for manufacturers and model #s on all fixtures.

-Grab bars shall support a 250lb load applied in any direction, along entire length.

-Grab bars shall not rotate in their fittings.

-Grab bar edges shall be min. 1/8" radius & free of sharp elements.

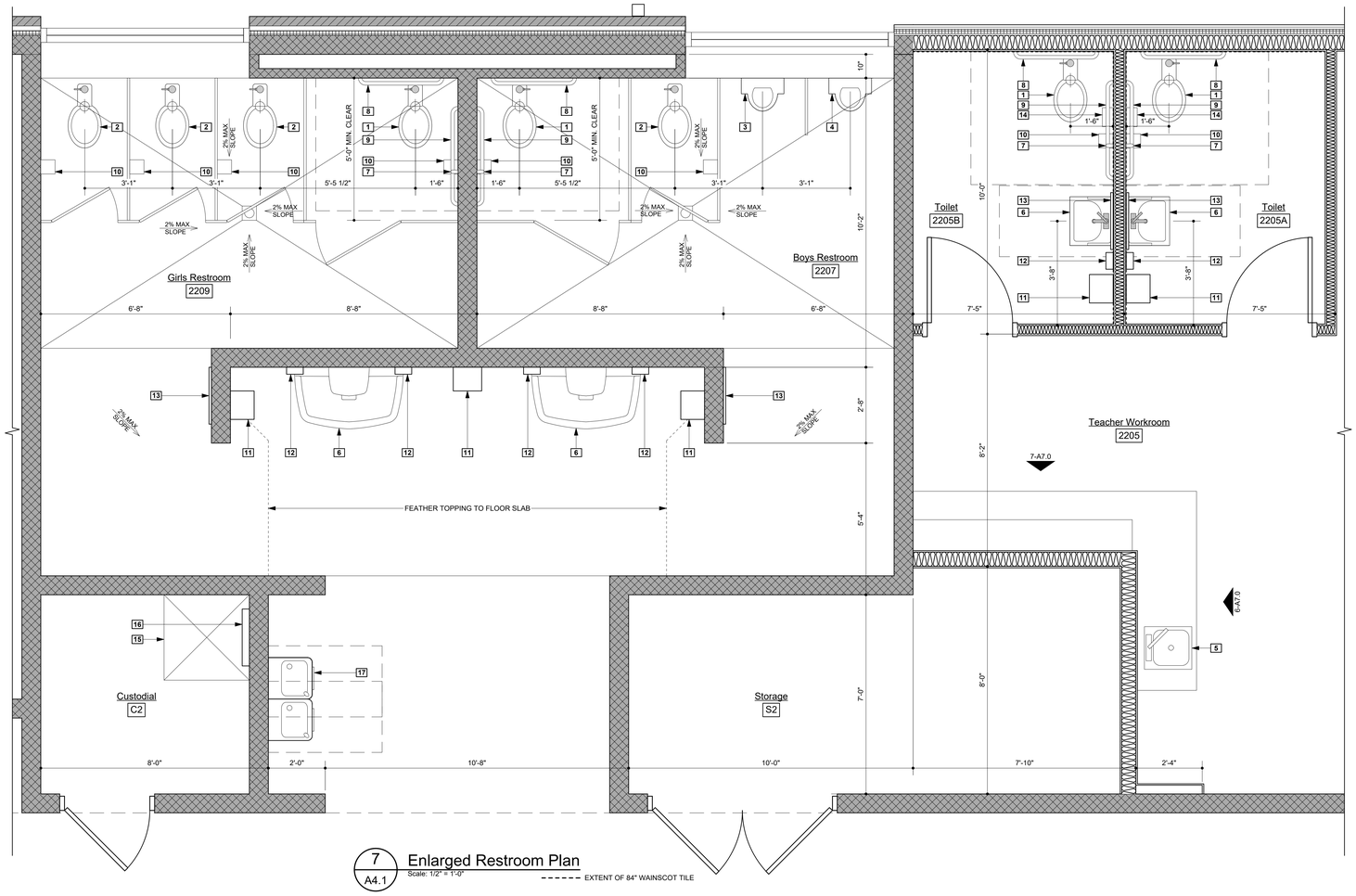
-Toilet Seat shall not spring back automatically to a lifted position.

-Flush control shall be operable w/ one hand w/out requiring tight grasping, twisting of wrist or force greater than 5 lbs.

-Control shall be located on the wide side of accessible stalls.

-Toilet paper dispenser shall allow continuous paper delivery.

-Supply & drain lines shall be covered w/ pipe insulation or non-heat conducting baffle where exposed & shall not intrude on required knee space.



7 / A4.1 Enlarged Restroom Plan
Scale: 1/2" = 1'-0"

------ EXTENT OF 84" WAINSCOT TILE

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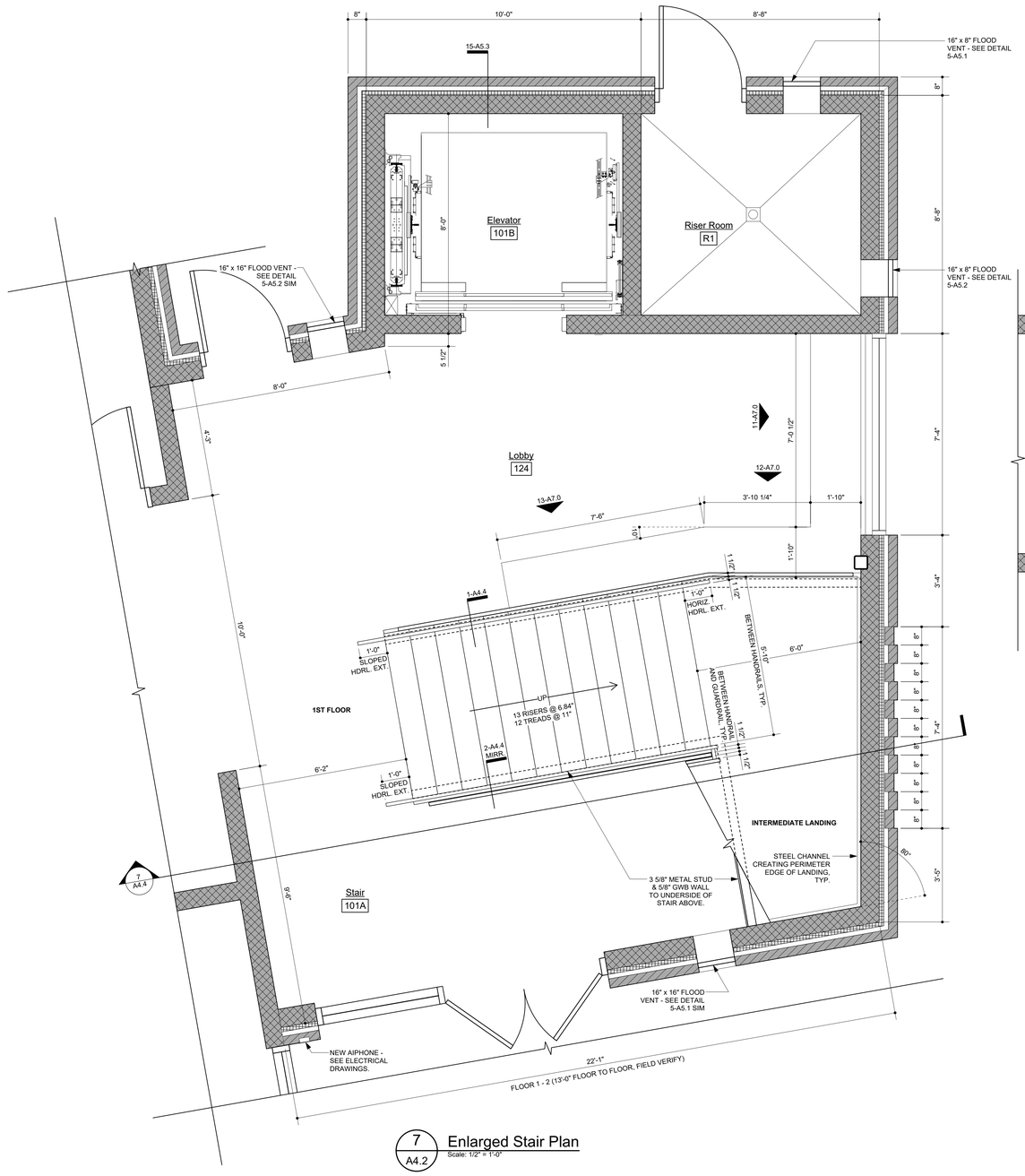
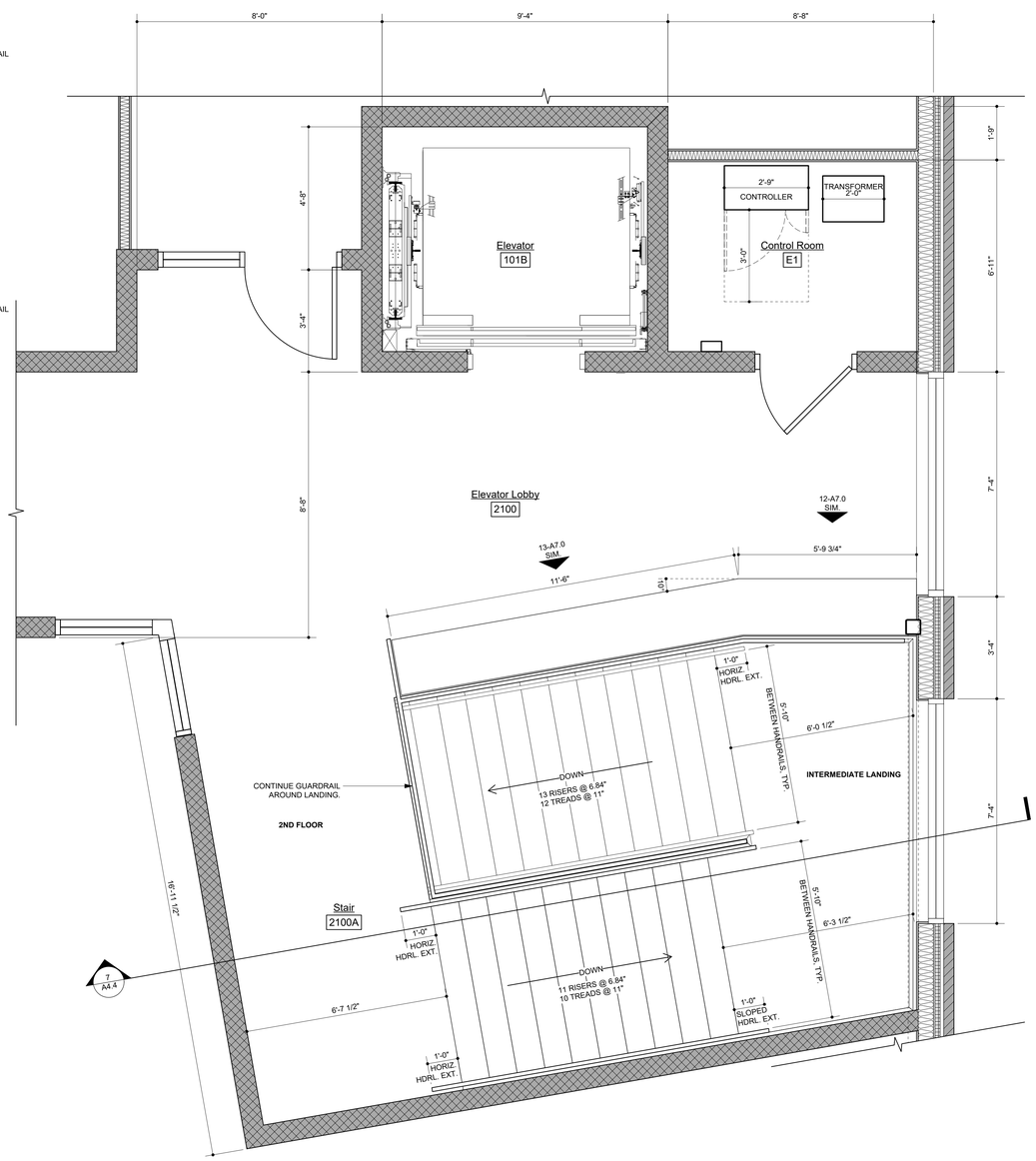


7 / A4.4

7 Enlarged Stair Plan

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



7 / A4.4

8 Enlarged Stair Plan

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

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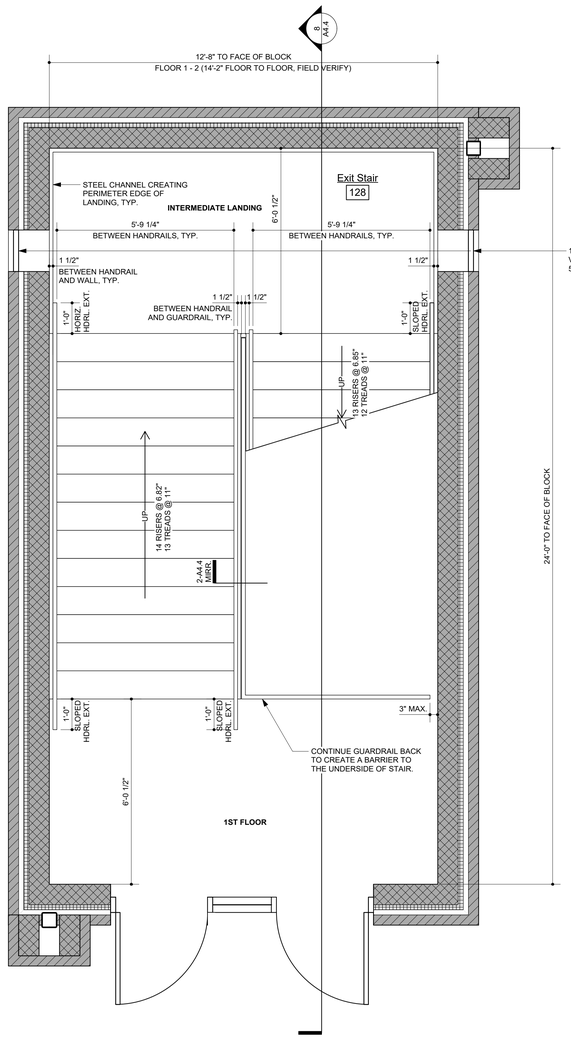
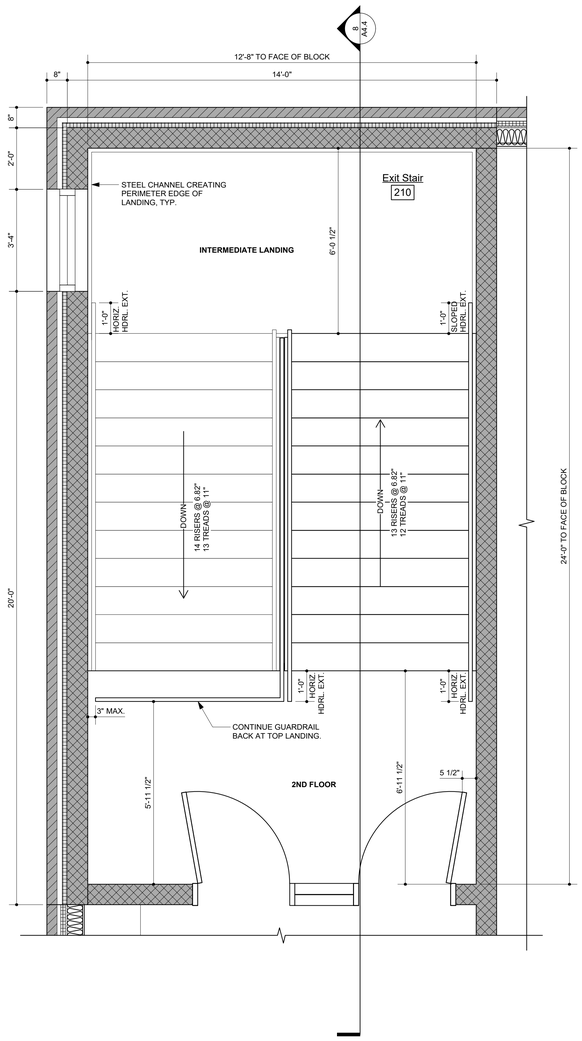


7 A4.3 Enlarged Exit Stair Plan
Scale: 1/2" = 1'-0"



9 A4.3 Enlarged Exit Stair Plan
Scale: 1/2" = 1'-0"

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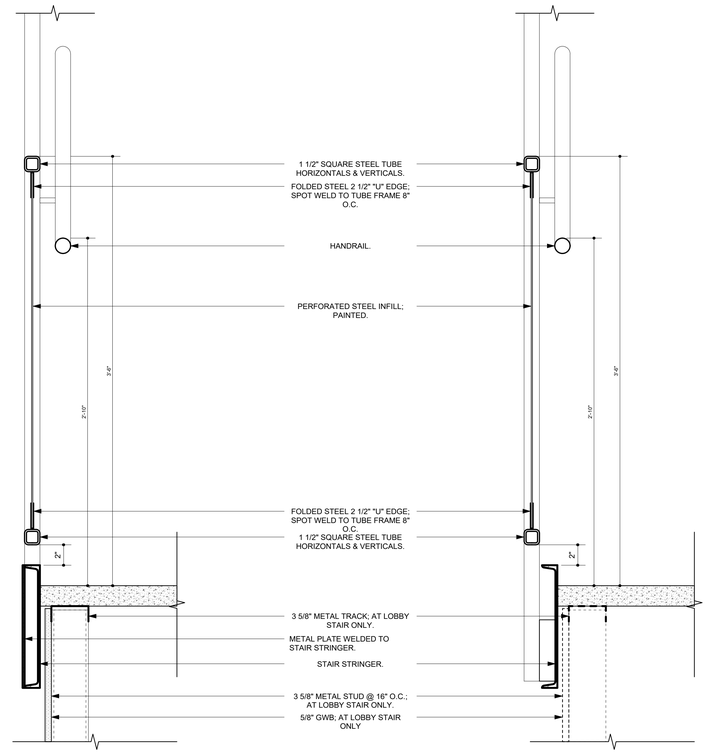
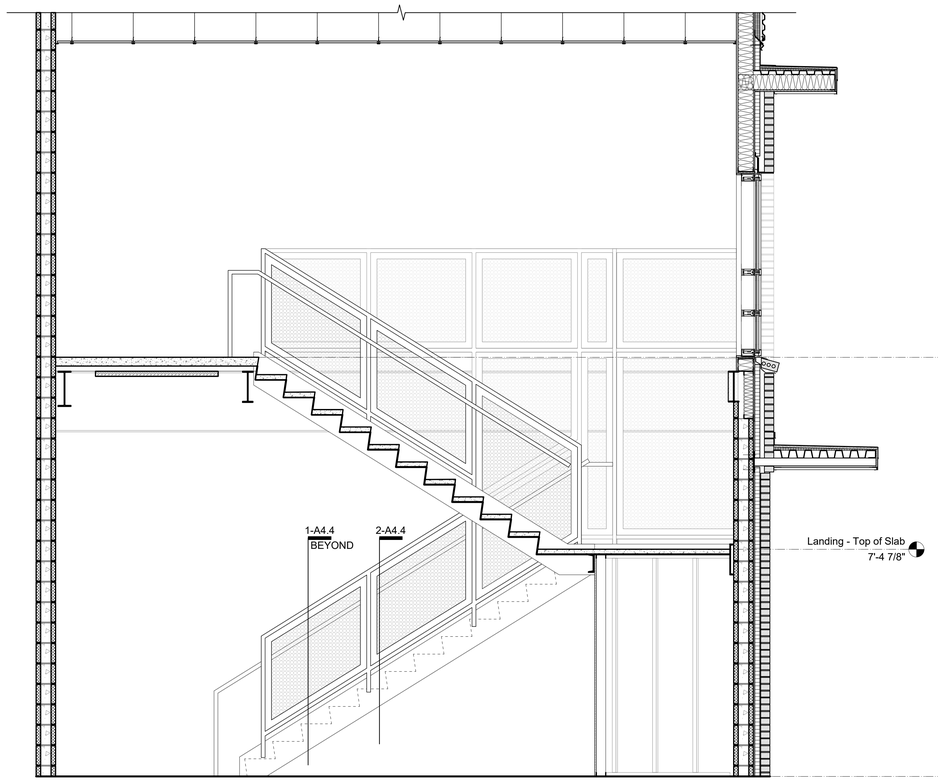
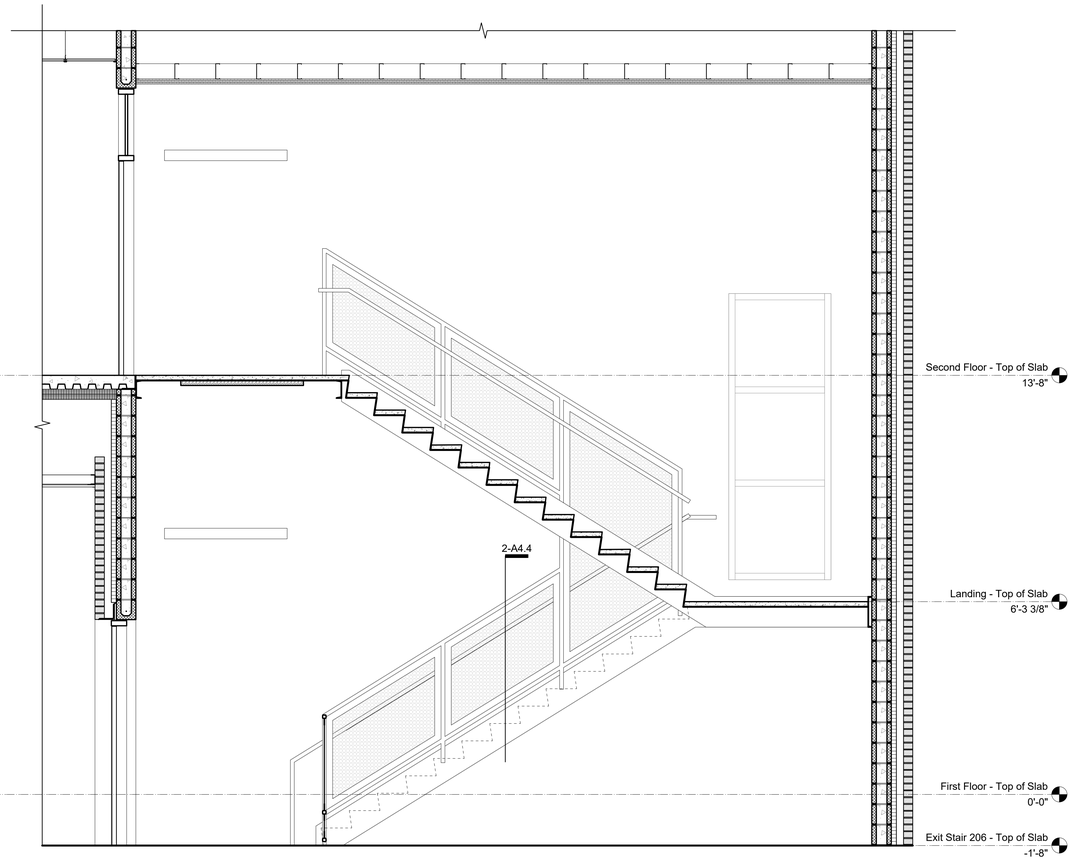


1 A4.4 **Lobby Stair Railing Detail**
Scale: 2" = 1'-0"

2 A4.4 **Typical Stair Railing Detail**
Scale: 2" = 1'-0"



7 A4.4 **Lobby Stair Section**
Scale: 1/2" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.



8 A4.4 **Exit Stair Section**
Scale: 1/2" = 1'-0"
DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0" = 6.30' MSL
OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.

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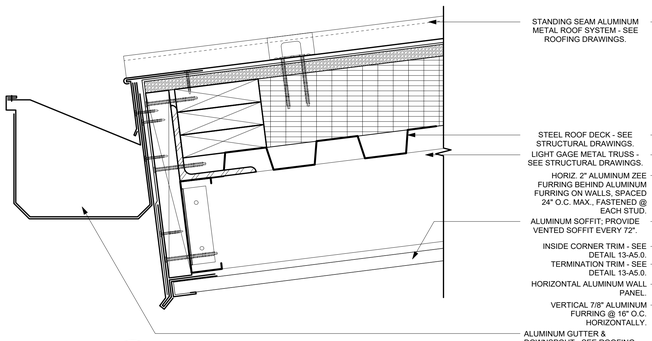
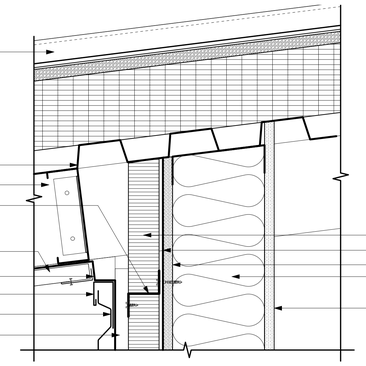
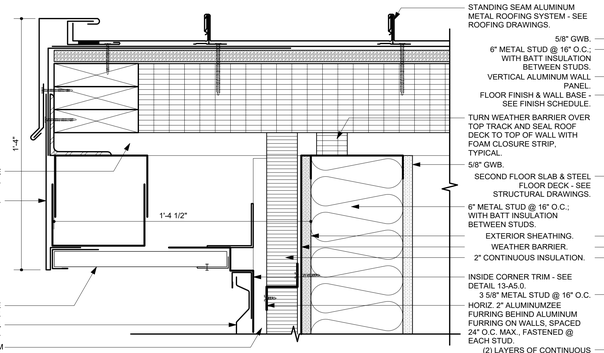


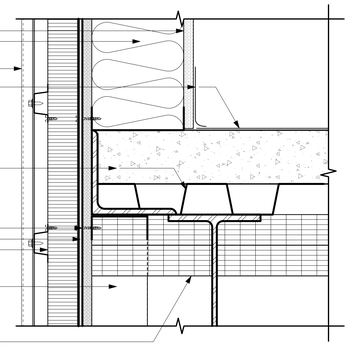
1 A5.0 **Metal Roof Eave @ Gutter Detail**
Scale: 3" = 1'-0"



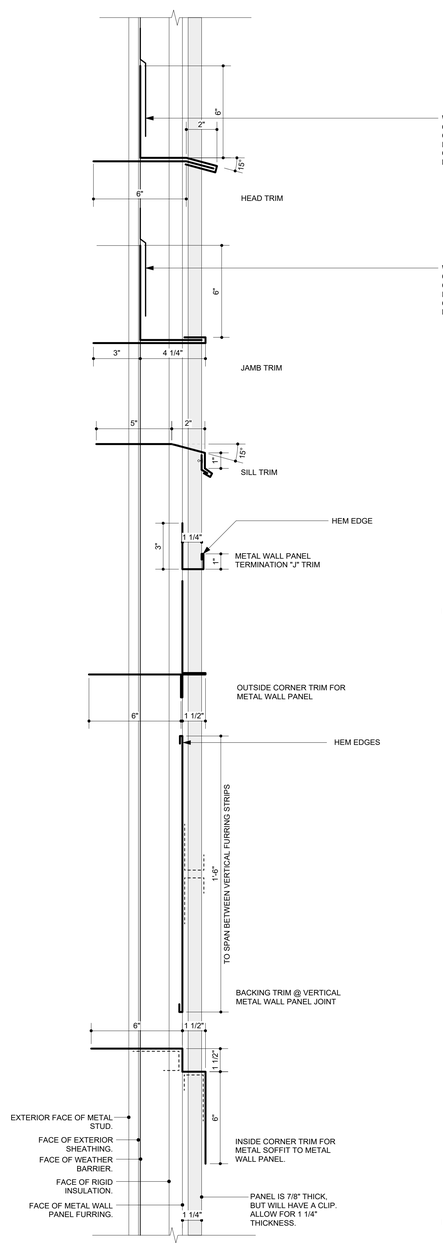
2 A5.0 **Metal Wall Panel @ Soffit Detail**
Scale: 3" = 1'-0"



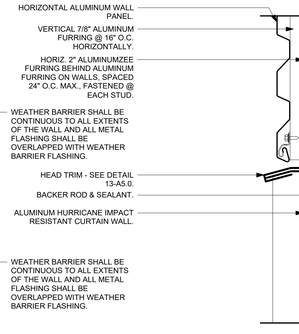
3 A5.0 **Metal Wall Panel @ Eave Detail**
Scale: 3" = 1'-0"



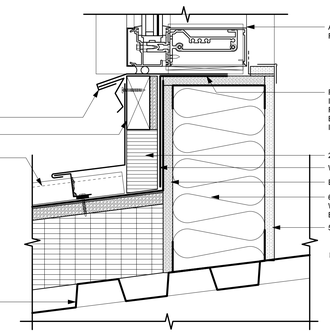
4 A5.0 **Metal Wall Panel @ Floor Line Detail**
Scale: 3" = 1'-0"



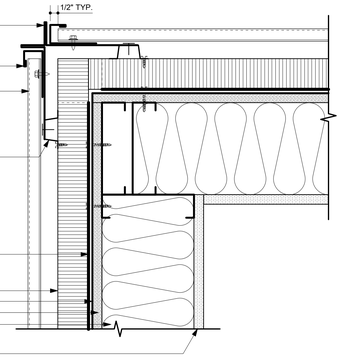
13 A5.0 **Metal Trim Details**
Scale: 3" = 1'-0"



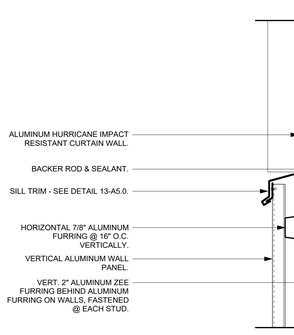
6 A5.0 **Curtain Wall Head @ Metal Wall Panel Detail**
Scale: 3" = 1'-0"



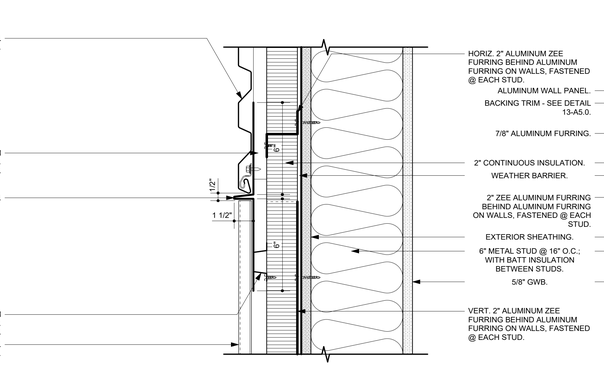
7 A5.0 **Clerestory Sill Detail**
Scale: 3" = 1'-0"



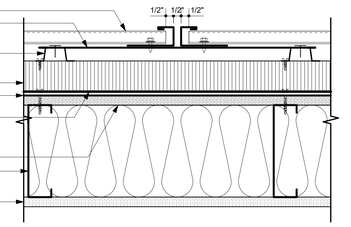
8 A5.0 **Metal Wall Panel Corner Detail**
Scale: 3" = 1'-0"



10 A5.0 **Curtain Wall Jamb @ Metal Wall Panel Detail**
Scale: 3" = 1'-0"

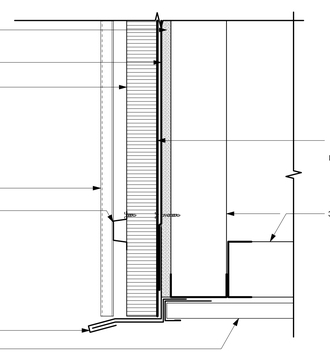


11 A5.0 **Horizontal to Vertical Metal Wall Panel Detail**
Scale: 3" = 1'-0"

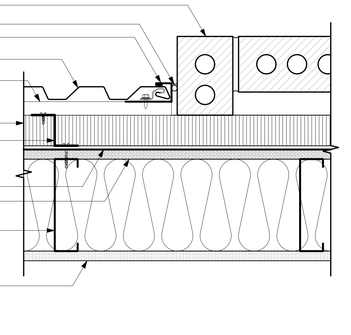


12 A5.0 **Metal Wall Panel Expansion Joint Detail**
Scale: 3" = 1'-0"

14 A5.0 **Curtain Wall Sill @ Metal Wall Panel Detail**
Scale: 3" = 1'-0"



15 A5.0 **Metal Wall Panel @ Soffit Detail**
Scale: 3" = 1'-0"



16 A5.0 **Metal Wall Panel to Brick Masonry Detail**
Scale: 3" = 1'-0"

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JOHN R. SAWYER III REGISTERED PROFESSIONAL ENGINEER SEAL 2-20-2019 NORTH CAROLINA WILMINGTON

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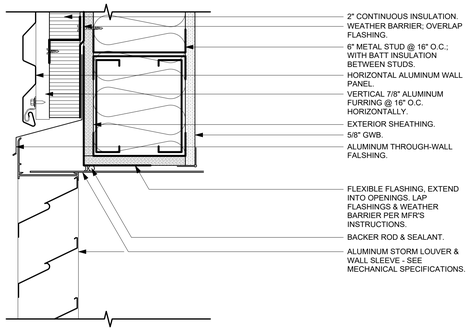
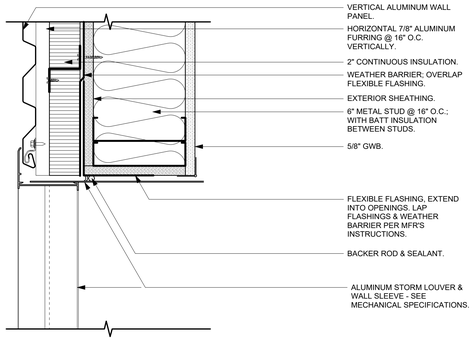
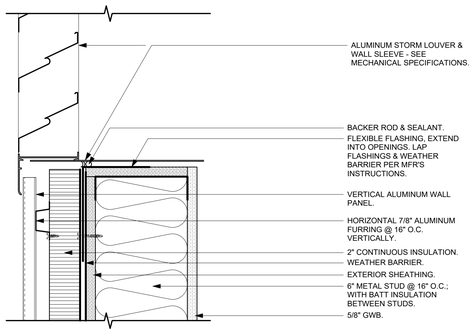


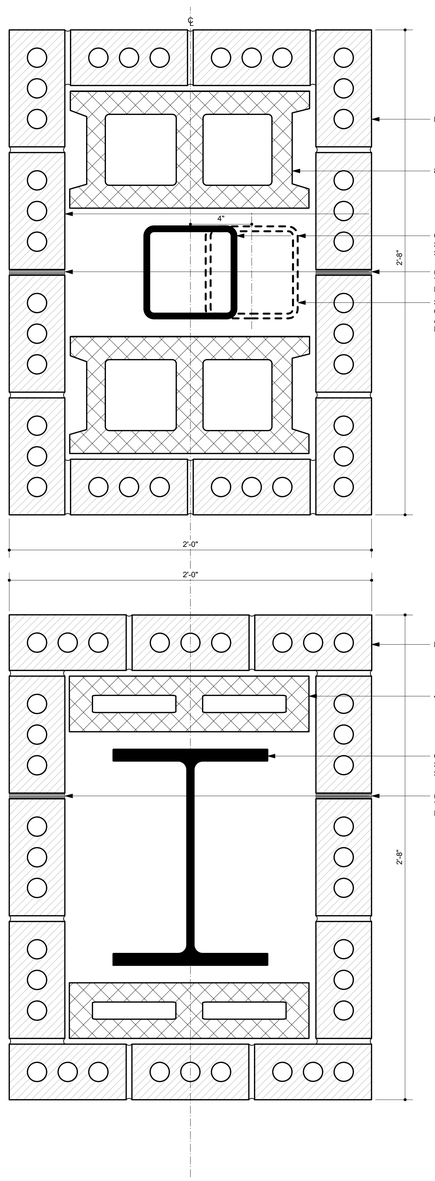
1 A5.1 HVAC Louver Head Detail
Scale: 3" = 1'-0"



5 A5.1 HVAC Louver Jamb Detail
Scale: 3" = 1'-0"



9 A5.1 HVAC Louver Sill Detail
Scale: 3" = 1'-0"



10 A5.1 Masonry Column Wrap Detail
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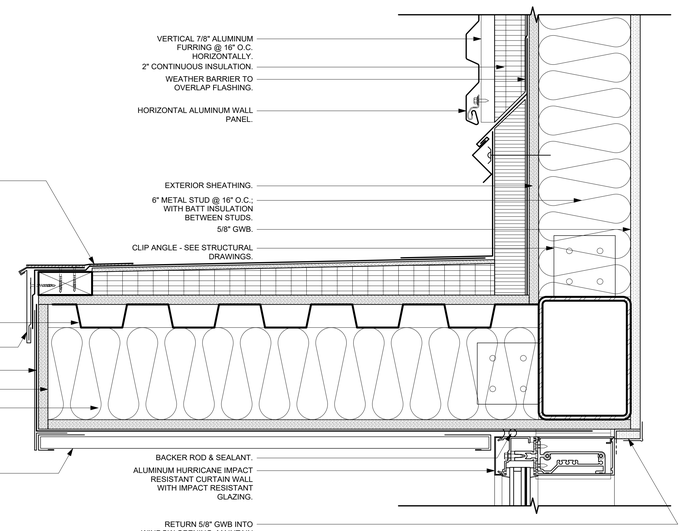
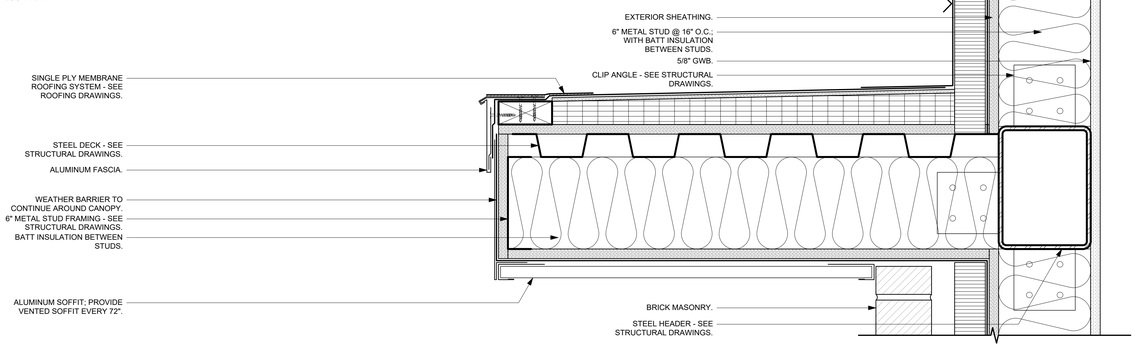
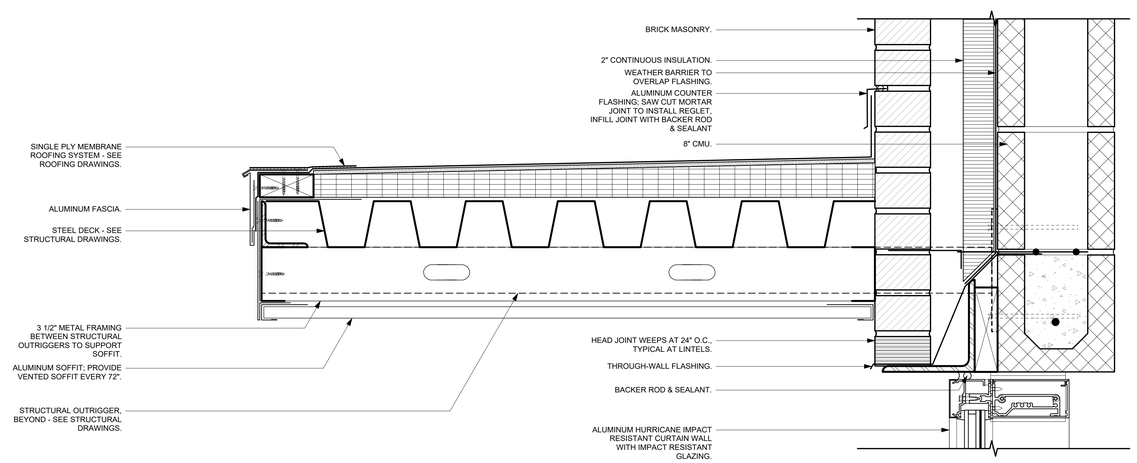


4 A5.1 Second Floor Canopy Detail
Scale: 3" = 1'-0"



12 A5.1 Second Floor Canopy Detail
Scale: 3" = 1'-0"



16 A5.1 First Floor Canopy Detail
Scale: 3" = 1'-0"

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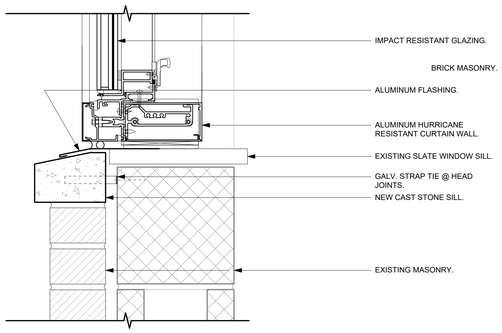
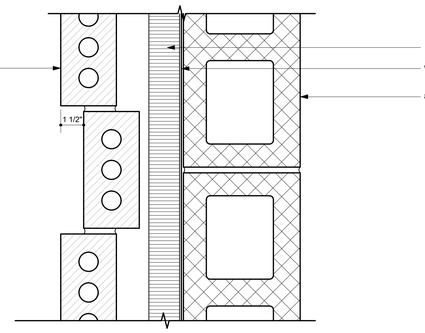
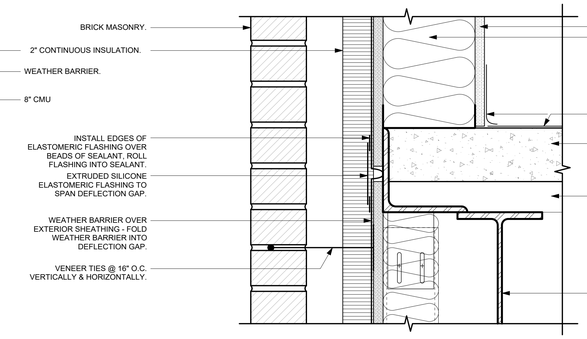


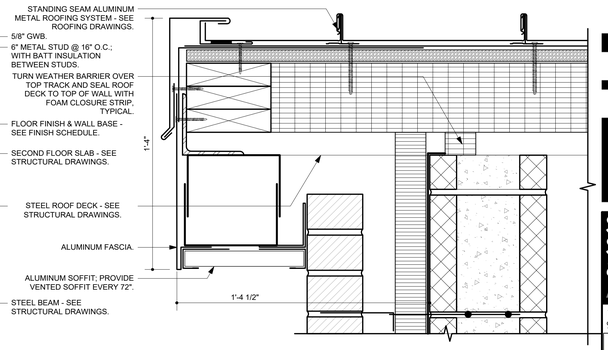
1 A5.2 **Curtain Wall Sill @ Existing Brick Masonry Detail**
Scale: 3" = 1'-0"



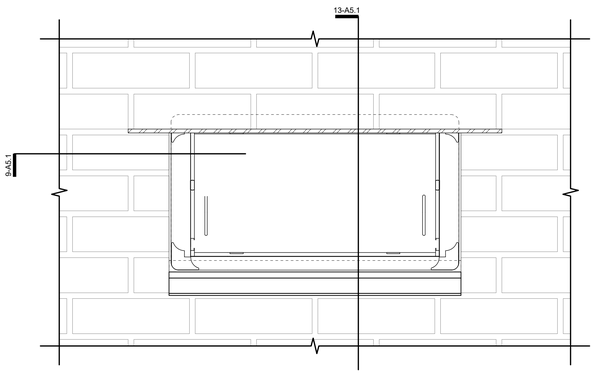
2 A5.2 **Brick Masonry Vertical Reveal Detail**
Scale: 3" = 1'-0"



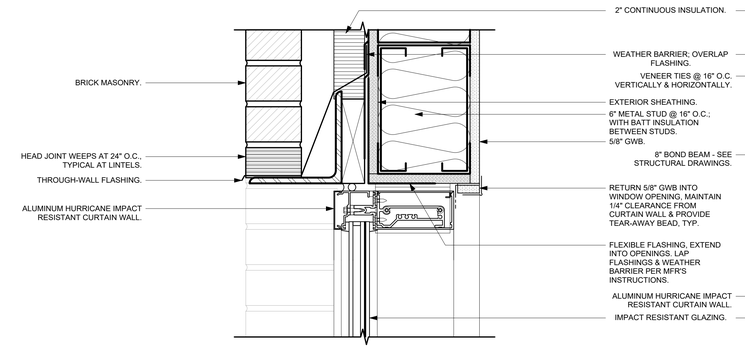
3 A5.2 **Floor Line @ Brick Masonry Detail**
Scale: 3" = 1'-0"



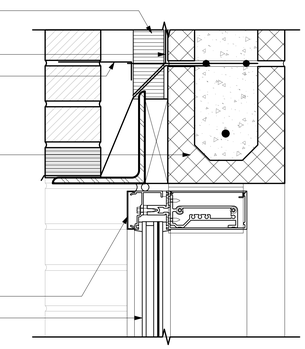
4 A5.2 **Brick Masonry @ Eave Detail**
Scale: 3" = 1'-0"



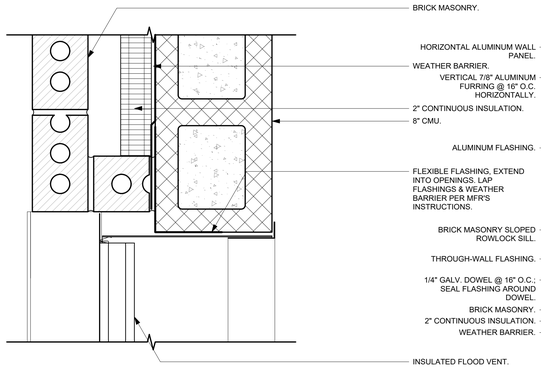
5 A5.2 **Typical Flood Vent Elevation**
Scale: 3" = 1'-0"



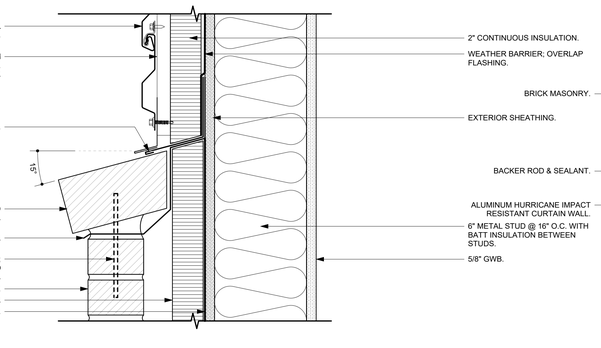
7 A5.2 **Curtain Wall Head @ Brick Masonry Detail**
Scale: 3" = 1'-0"



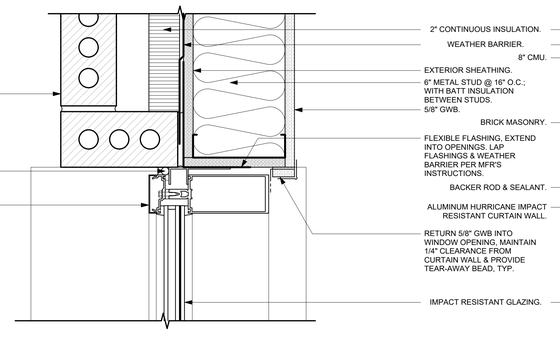
8 A5.2 **Curtain Wall Head @ Brick Masonry Detail**
Scale: 3" = 1'-0"



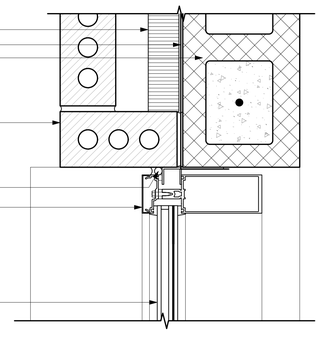
9 A5.2 **Flood Vent Detail**
Scale: 3" = 1'-0"



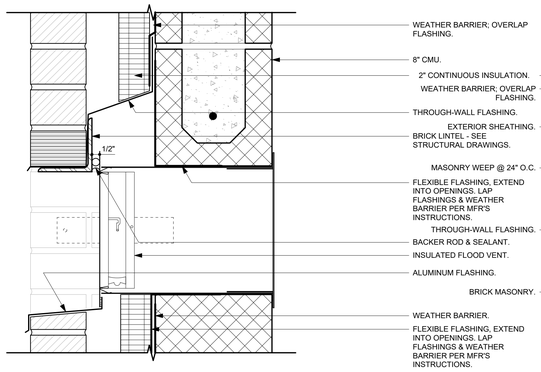
10 A5.2 **Metal Wall Panel to Brick Detail**
Scale: 3" = 1'-0"



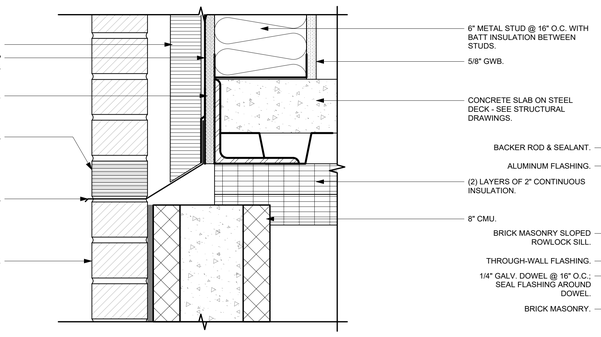
11 A5.2 **Curtain Wall Jamb @ Brick Masonry Detail**
Scale: 3" = 1'-0"



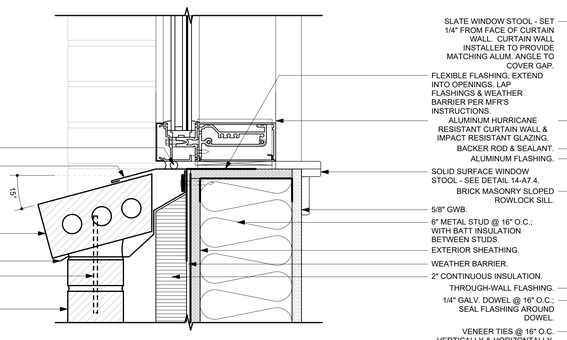
12 A5.2 **Curtain Wall Jamb @ Brick Masonry Detail**
Scale: 3" = 1'-0"



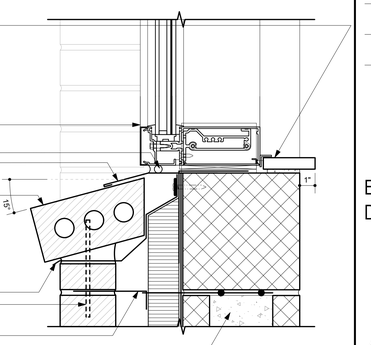
13 A5.2 **Flood Vent Detail**
Scale: 3" = 1'-0"



14 A5.2 **Flashing @ Brick Column Wrap Detail**
Scale: 3" = 1'-0"



15 A5.2 **Curtain Wall Sill @ Brick Masonry Detail**
Scale: 3" = 1'-0"



16 A5.2 **Curtain Wall Sill @ Brick Masonry Detail**
Scale: 3" = 1'-0"

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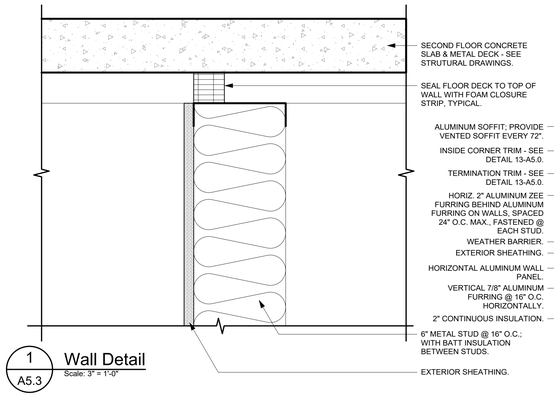
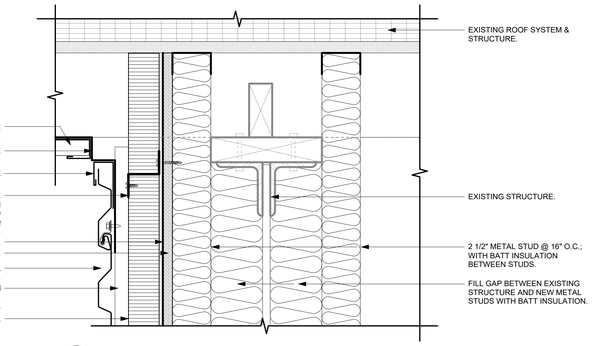
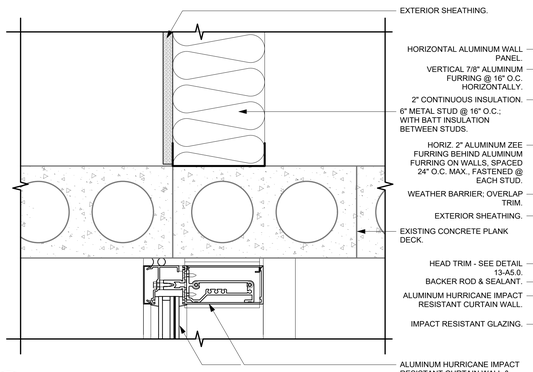


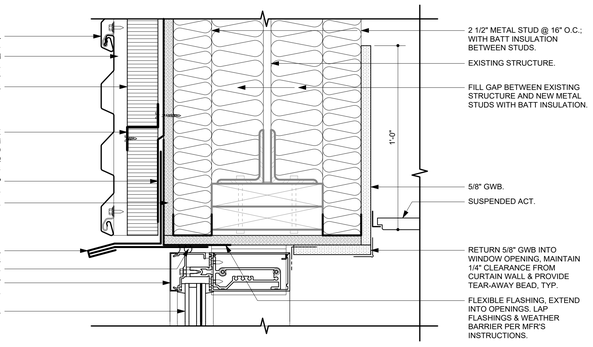
1 A5.3 **Wall Detail**
Scale: 3" = 1'-0"



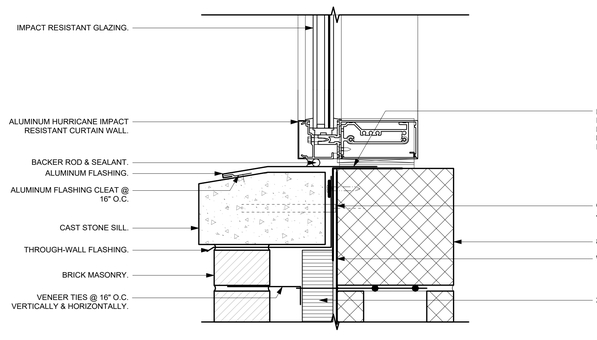
2 A5.3 **Metal Wall Panel to Soffit @ Multipurpose 300 Detail**
Scale: 3" = 1'-0"



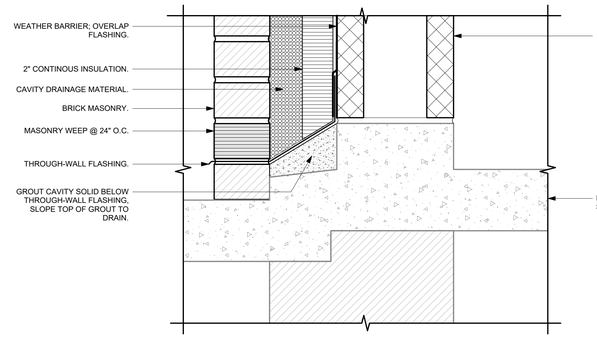
5 A5.3 **Wall Detail**
Scale: 3" = 1'-0"



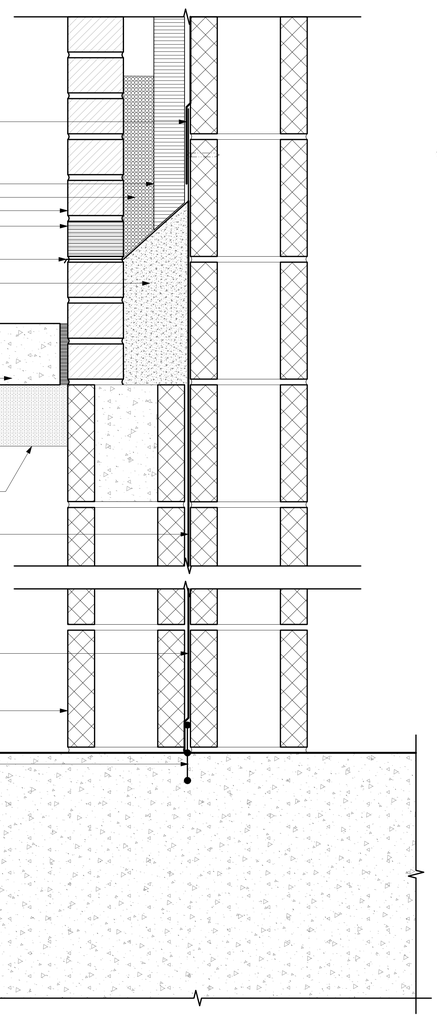
6 A5.3 **Curtain Wall Head @ Multipurpose 300 Detail**
Scale: 3" = 1'-0"



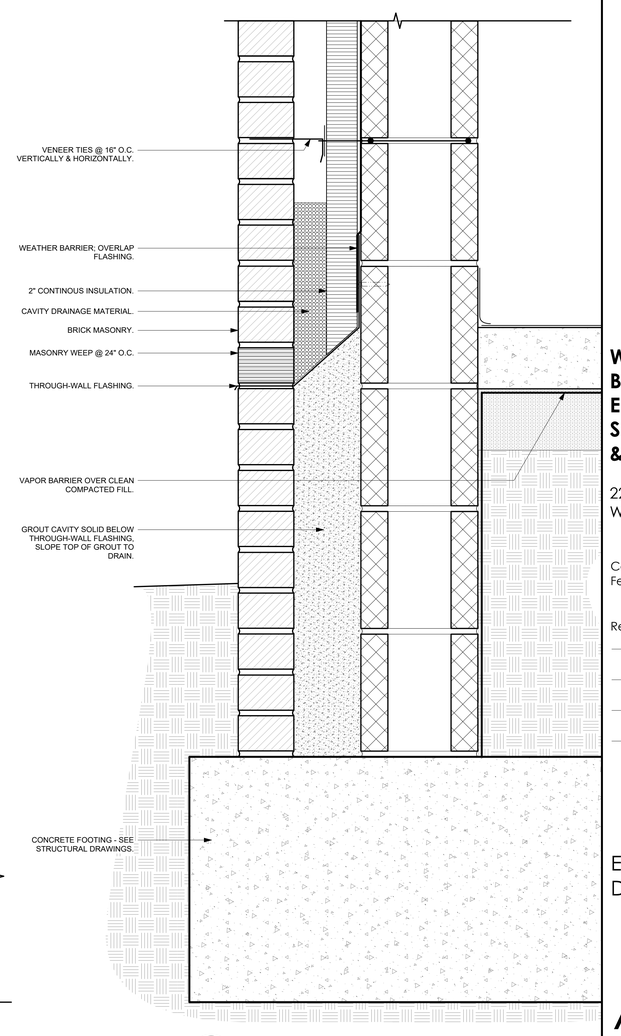
10 A5.3 **Curtain Wall Sill @ Multipurpose 300 Detail**
Scale: 3" = 1'-0"



14 A5.3 **Foundation Detail @ Multipurpose 300**
Scale: 3" = 1'-0"



15 A5.3 **Elevator Pit Wall Detail**
Scale: 3" = 1'-0"



16 A5.3 **Typical Footing Detail**
Scale: 3" = 1'-0"

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SAWYER, SHERWOOD & ASSOCIATE, P.A. REGISTERED ARCHITECTURAL CORPORATION 52349 NORTH CAROLINA WILMINGTON, NC

JOHN R. SAWYER REGISTERED ARCHITECT 2-20-2019 NORTH CAROLINA WILMINGTON, NC

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Exterior Building Details

A5.3

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Finish Schedule

ID	ROOM NAME	FLOOR FINISH	BASE MATERIAL	NORTH WALL FINISH	EAST WALL FINISH	SOUTH WALL FINISH	WEST WALL FINISH	CEILING	CEILING HT	REMARKS
100	Reception	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
100A	Main Entry	Entrance Mat	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
100B	Records	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
100C	Nurse	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
100D	Toilet	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
101	Lobby	VCT	RB	Painted CMU	Painted CMU	Painted CMU, Curtain Wall	Painted CMU	ACT	See A1.2	
101A	Stair	VCT, Resilient Treads, Risers & Landing	RB	Painted CMU	-	Painted CMU	Painted CMU, Curtain Wall	Open to Structure - Painted	See A1.2	Paint Stair Structure & Rails
101B	Elevator	VCT	-	-	-	-	-	-	-	See Specification; 1-hour rated assembly; Meet U415
102	Principal	VCT	RB	Painted CMU	Painted CMU	Painted CMU, Curtain Wall	Painted CMU	ETR	See A1.2	
103	Classroom	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
104	Guidance Counselor	VCT	RB	Painted CMU, Curtain Wall	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
105	Boys Restroom	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
106	Girls Restroom	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
200	Kindergarten Classroom	VCT	RB	Painted CMU, Curtain Wall	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
200A	Toilet	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
201	First Grade Classroom	VCT	RB	Painted CMU	Painted CMU	Painted CMU, Curtain Wall	Painted CMU	ETR	See A1.2	
201A	Toilet	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
202	Kindergarten Classroom	VCT	RB	Painted CMU, Curtain Wall	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
202A	Toilet	PT	RB	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
203	First Grade Classroom	VCT	RB	Painted CMU	Painted CMU	Painted CMU, Curtain Wall	Painted CMU	ETR	See A1.2	
203A	Toilet	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
204	Art Room	VCT	RB	Painted CMU, Curtain Wall	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
204A	Toilet	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	ETR	See A1.2	
205	Satellite Media Center	VCT	RB	Painted CMU	Painted CMU	Painted CMU, Curtain Wall	Painted CMU	ETR	See A1.2	
206	Exit Stair	VCT, Resilient Treads, Risers & Landing	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	Open to Structure - Painted	See A1.2	Paint Stair Structure & Rails
207	Music Room	VCT	RB	Painted CMU	Painted CMU	Painted CMU, Curtain Wall	Painted CMU	ETR	See A1.2	
300	Multipurpose Room	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU, Curtain Wall	ACT	See A1.2	
301	Storage	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
302	Kitchen	ETR	ETR	Painted CMU, Curtain Wall	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
302A	Office	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
302B	Can Wash	ETR	RB	Painted GWB	Painted Brick	Painted Brick	Painted Brick	ETR	See A1.2	
302C	Toilet	ETR	ETR	Painted Brick	Painted Brick	Painted Brick	Painted Brick	ETR	See A1.2	
303	Toilet	PT	PT	Epoxy Painted GWB	Epoxy Painted GWB, PT Wainscot	Epoxy Painted CMU	Epoxy Painted GWB	ETR	See A1.2	PT Wainscot - See A4.0 & A4.1
304	Toilet	PT	PT	Epoxy Painted CMU, PT Wainscot	Epoxy Painted GWB, PT Wainscot	Epoxy Painted GWB	Epoxy Painted CMU	ETR	See A1.2	PT Wainscot - See A4.0 & A4.1
2100	Elevator Lobby	VCT	RB	Painted CMU	Painted CMU	Painted GWB, Curtainwall	-	ACT	See A1.3	
2100A	Stair	VCT, Resilient Treads, Risers & Landing	RB	Painted CMU	-	Painted GWB, Curtainwall	Painted CMU	ACT	See A1.3	Paint Stair Structure & Rails
2101	Open Office	CT	RB	Painted GWB	Painted GWB	Painted GWB	Painted CMU, Painted GWB	ACT	See A1.3	
2101A	Assistant Principal	CT	RB	Painted GWB	Painted GWB	Painted CMU, Painted GWB	Painted CMU	ACT	See A1.3	
2101B	Conference	CT	RB	Painted GWB	Painted GWB	Painted GWB	Painted GWB	ACT	See A1.3	
2113	Classroom	VCT	RB	Painted CMU	Painted GWB	Painted GWB	Painted CMU	ACT	See A1.3	
2114	Resource Room	VCT	RB	Painted GWB	Painted CMU, Painted GWB	Painted CMU	Painted CMU	ACT	See A1.3	
2200	Media Center	CT	RB	Painted GWB	Painted GWB	Painted CMU, Painted GWB	Painted GWB	ACT	See A1.3	
2201	Third Grade Classroom	VCT	RB	Painted GWB	Painted GWB	Painted GWB	Painted CMU	ACT	See A1.3	
2202	Second Grade Classroom	VCT	RB	Painted GWB	Painted CMU	Painted GWB	Painted GWB	ACT	See A1.3	
2203	Third Grade Classroom	VCT	RB	Painted GWB	Painted GWB	Painted GWB	Painted CMU	ACT	See A1.3	
2204	Second Grade Classroom	VCT	RB	Painted GWB	Painted CMU	Painted GWB	Painted GWB	ACT	See A1.3	
2205	Teacher Workroom	VCT	RB	Painted CMU, Painted GWB	Painted GWB	Painted GWB	Painted CMU, Painted GWB	ACT	See A1.3	
2205A	Toilet	PT	PT	Epoxy Painted GWB, PT Wainscot	Epoxy Painted GWB, PT Wainscot	Epoxy Painted GWB	Epoxy Painted GWB	ACT	See A1.3	PT Wainscot - See A4.1
2205B	Toilet	PT	PT	Epoxy Painted CMU	Epoxy Painted GWB, PT Wainscot	Epoxy Painted GWB, PT Wainscot	Epoxy Painted GWB	ACT	See A1.3	PT Wainscot - See A4.1
2206	Fourth Grade Classroom	VCT	RB	Painted GWB	Painted CMU	Painted GWB	Painted GWB	ACT	See A1.3	
2207	Boys' Restroom	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	GWB	See A1.3	
2208	Fourth Grade Classroom	VCT	RB	Painted GWB	Painted CMU	Painted GWB	Painted GWB	ACT	See A1.3	
2209	Girls' Restroom	PT	PT	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	Epoxy Painted CMU	GWB	See A1.3	
2210	Fifth Grade Classroom	VCT	RB	Painted GWB	Painted CMU	Painted GWB	Painted GWB	ACT	See A1.3	
2212	Fifth Grade Classroom	VCT	RB	Painted GWB	Painted CMU	Painted GWB	Painted GWB	ACT	See A1.3	
2215	Exit Stair	VCT, Resilient Treads, Risers & Landing	-	Painted CMU	Painted CMU	Painted CMU	Painted CMU	GWB	See A1.3	1-hour rated ceiling and wall assembly; Meet UL263 & U415, Paint Stair Structure & Rails
C1	Custodial	PT	PT	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
C2	Custodial	PT	PT	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ACT	See A1.3	
E1	Control Room	Concrete	RB	Painted CMU	Painted CMU	Painted GWB	Painted CMU	ACT	See A1.3	
E2	Electrical	Concrete	RB	Painted GWB	Painted GWB	Painted GWB	Painted CMU	Open to Structure	See A1.3	
H1	Hall	VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
H2	Hall	Entrance Mat, VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
H3	Hall	Entrance Mat, VCT	RB	Painted CMU	Painted CMU	Painted CMU	Painted CMU	ETR	See A1.2	
H4	Hall	VCT	RB	Painted CMU, Painted GWB	Painted CMU	Painted CMU	Painted CMU, Painted GWB	ACT, Open to Structure - Painted	See A1.3	
R1	Riser Room	Concrete	RB	Painted CMU	Painted CMU	Painted GWB	Painted GWB	Open to Structure	See A1.2	
S1	Storage	ETR	RB	ETR	ETR	ETR	ETR	ETR	See A1.2	
S2	Storage	Concrete	RB	Painted CMU	Painted CMU, Painted GWB	Painted GWB	Painted CMU	Open to Structure	See A1.3	
T1	Data	VCT	RB	Painted GWB	Painted GWB	Painted GWB	Painted GWB	Open to Structure - Painted	See A1.3	

GWB - Gypsum Wall Board
CMU - Concrete Masonry Unit
ACT - Acoustical Ceiling Tile
VCT - Vinyl Composite Tile
ETR - Existing to Remain
PT - Porcelain Tile
CT - Carpet Tile
RB - Rubber Base

Door Schedule

Door				Frame			
ID #	Size WxH	Type	Material	Type	Material	Jamb Depth	Remarks
100A	3-0 x 7-5 1/2 PR	C	Alum.	AL3	Alum.	7 1/2"	
100B	3-0 x 6-10	B	Wood	HM6	HM	8 5/6"	Provide transom panel
100C *	3-0 x 6-10	B	Wood	HM6	HM	12 5/8"	Provide transom panel
100D *	3-0 x 6-10	A	Wood	HM6	HM	5 5/8"	
100E	3-0 x 6-10	A	Wood	HM2	HM	8 5/8"	
101A	3-0 x 7-5 1/2	C	Alum.	AL1	Alum.	7 1/2"	
101B	2-10 3/4 x 7-5 1/2 PR	C	Alum.	AL4	Alum.	7 1/2"	
102A *	3-0 x 6-10	B	Wood	HM6	HM	8 5/8"	Provide transom panel
103A *	3-0 x 6-10	B	Wood	HM6	HM	8 5/8"	Provide transom panel
104A *	3-0 x 6-10	B	Wood	HM7	HM7	8 3/8"	Provide transom panel
200A *	3-0 x 6-10	B	Wood	HM6	HM7	8 5/8"	Provide transom panel
200B	-	ETR	-	ETR	-	-	
200C	-	ETR	-	ETR	-	-	
201A *	3-0 x 6-10	B	Wood	HM6	HM7	8 5/8"	Provide transom panel
201B	3-0 x 6-10	A	Wood	HM2	HM	12 5/8"	
202A *	3-0 x 6-10	B	Wood	HM7	HM7	8 3/8"	Provide transom panel
202B	-	ETR	-	ETR	-	-	
202C	-	ETR	-	ETR	-	-	
203A *	3-0 x 6-10	B	Wood	HM7	HM7	8 3/8"	Provide transom panel
203B	3-0 x 6-10	A	Wood	HM2	HM	12 5/8"	
204A *	3-0 x 6-10	B	Wood	HM7	HM7	8 3/8"	Provide transom panel
204B	3-0 x 6-10	A	Wood	HM2	HM	8 5/8"	
205A *	3-0 x 6-10	B	Wood	HM6	HM7	8 5/8"	Provide transom panel
206A	3-0 x 7-2 1/2	C	Alum.	FR1	Alum.	5 3/4"	1-Hour fire rated door & frame
206B	3-0 x 7-2 1/2	C	Alum.	FR1	Alum.	5 3/4"	1-Hour fire rated door & frame
207A *	3-0 x 6-10	B	Wood	HM6	HM7	8 5/6"	Provide transom panel
300A ^	3-0 x 6-10 PR	B	Wood	HM2	HM	12 5/8"	
300B	3-5 x 6-11	B	Alum.	AL5	Alum.	7 1/2"	Striated Alum. Panel Door
300C	3-5 x 6-11	B	Alum.	AL5	Alum.	7 1/2"	Striated Alum. Panel Door
301A *	3-0 x 6-10 PR	A	Wood	HM3	HM	12 3/8"	
301B	3-0 x 6-10	-	-	HM2	HM	12 5/8"	Cased Opening
302A *	3-0 x 6-10	A	Wood	HM9	HM	6"	
302B	3-0 x 6-10	A	Wood	HM9	HM	6"	
302C	-	ETR	-	ETR	-	-	
302D *	-	ETR	-	ETR	-	-	
302E	2-6 1/2 x 7-0	A	Alum.	AL1	Alum.	7 1/2"	Striated Alum. Panel Door
302F	-	ETR	-	ETR	-	-	
303A	3-0 x 6-10	A	Wood	HM2	HM	5 7/8"	
304A	3-0 x 6-10	A	Wood	HM2	HM	5 7/8"	
2101A *	3-0 x 7-0	A	Wood	HM8	HM	8 5/8"	
2101B *	3-0 x 7-0	B	Wood	HM5	HM	5 7/8"	
2101C *	3-0 x 7-0	B	Wood	HM5	HM	5 7/8"	
2200A ^	3-0 x 7-0	A	Wood	HM8	HM	8 5/8"	
2201A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2202A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2203A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2204A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2205A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/6"	
2205B	3-0 x 7-0	A	Wood	HM1	HM	5 7/6"	
2205C	3-0 x 7-0	A	Wood	HM1	HM	5 7/8"	
2206A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2208A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2210A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2211A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2212A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2213A *	3-0 x 7-0	B	Wood	HM5	HM	8 5/8"	
2215A	3-0 x 7-0	A	Wood	FR2	HM	2 9/16"	1-Hour fire rated door & frame
2215B	3-0 x 7-0	A	Wood	FR2	HM	2 9/16"	1-Hour fire rated door & frame
C1A *	3-0 x 6-10	A	Wood	HM3	HM	12 3/8"	
C2A *	3-0 x 7-0	A	Wood	HM1	HM	8 5/6"	
E1A *	3-0 x 7-0	A	Wood	HM4	HM	8 5/8"	
E2A *	3-0 x 7-0	A	Wood	HM4	HM	8 5/8"	
H2A	2-9 1/2" x 7-5 1/2 PR	C	Alum.	AL2	Alum.	7 1/2"	
H3A	3-0 x 7-5 1/2 PR	C	Alum.	AL2	Alum.	7 1/2"	
R1A *	3-0 x 7-5 1/2	A	Alum.	AL1	Alum.	7 1/2"	Striated Alum. Panel Door
S1A *	2-5 1/2 x 7-1 1/2 PR	B	Alum.	AL1	Alum.	7 1/2"	Striated Alum. Panel Door
S2A *	3-2 x 7-0 PR	A	Wood	HM4	HM	8 5/8"	
T1A *	3-0 x 7-0	A	Wood	HM1	HM	5 7/8"	

SIGNAGE LEGEND:

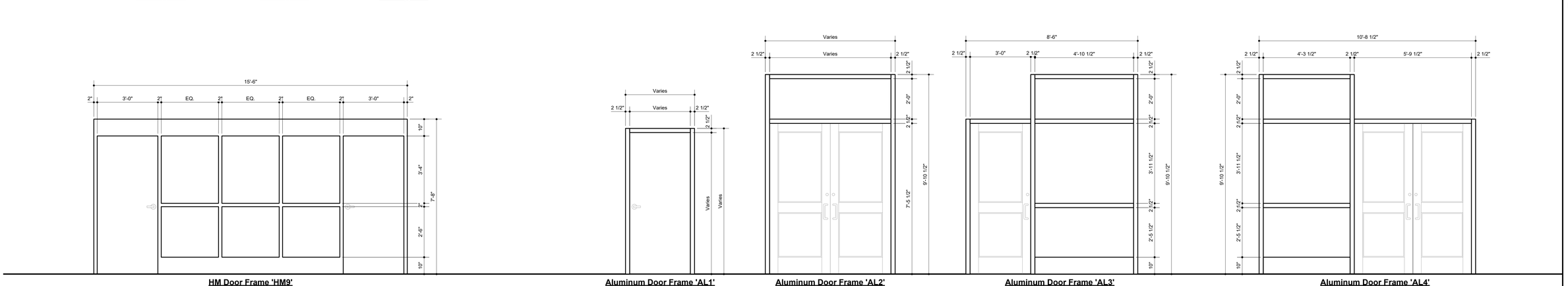
*	Room #
^	Room # & Room Name

Notes:
-See A7.5 for sign details.
-Provide ADA signage at all doors to restrooms/toilets & stairs.
-Final Room Names to be determined at a later date.

HM Frame Profiles @ Lintel Beams

HM Frame Profiles @ Existing Opening

HM Frame Profiles @ New Opening



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SAWYER SHERWOOD & ASSOCIATE, P.A. ARCHITECTURAL CORPORATE NO. 52349 NORTH CAROLINA WILMINGTON, NC

JOHN R. SAWYER III REGISTERED ARCHITECT 2-20-2019 NORTH CAROLINA WILMINGTON, NC

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Door Elevations & Schedules

A6.0

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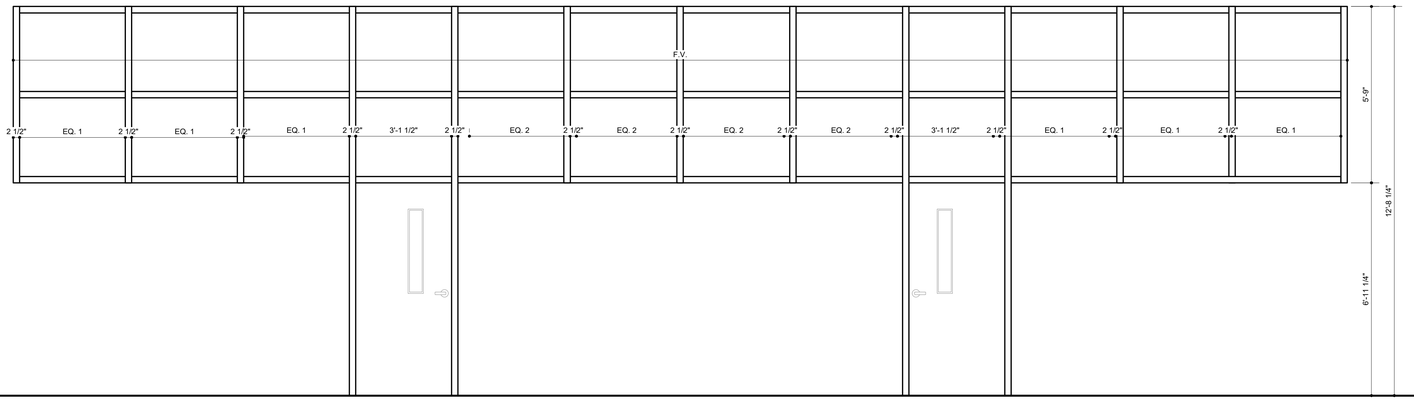
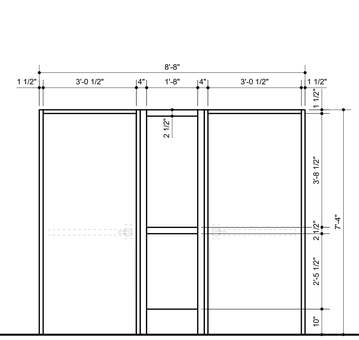
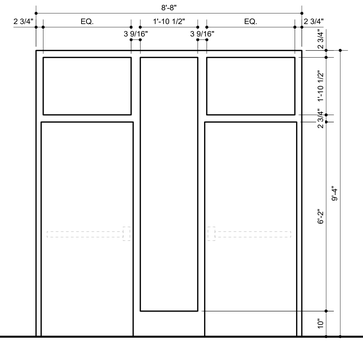


Aluminum Door Frame 'AL5'



Fire Rated Door Frame 'FR1'



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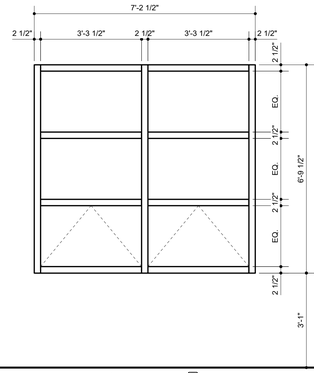
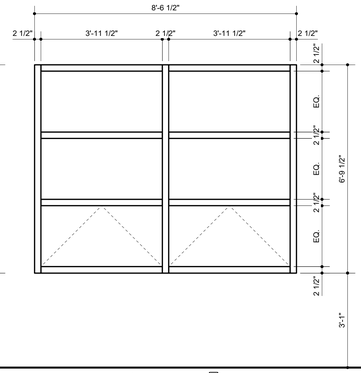


Curtain Wall Ⓐ



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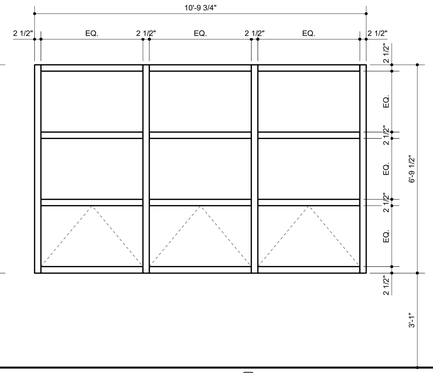
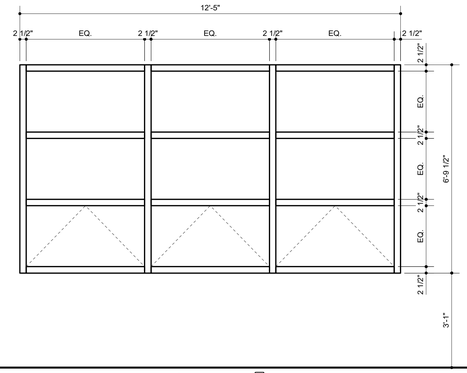
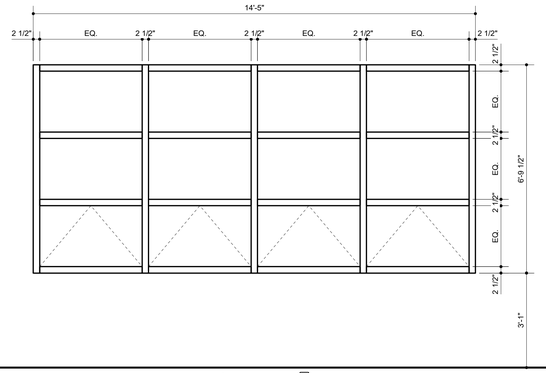


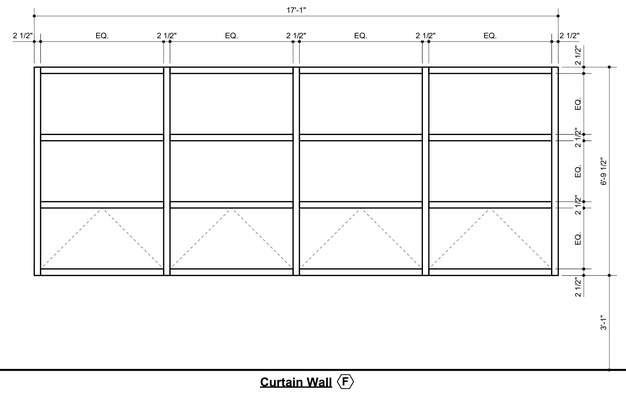
Curtain Wall Ⓒ



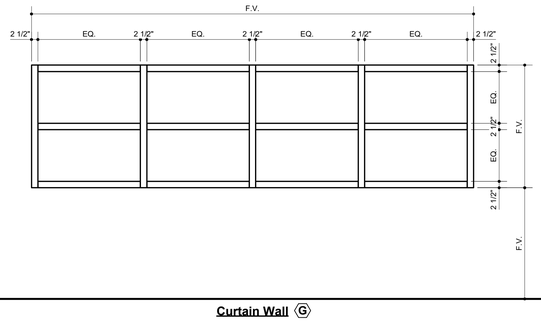
Curtain Wall Ⓓ



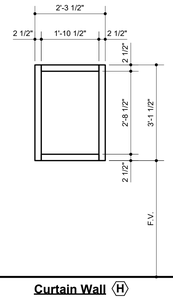
Curtain Wall Ⓔ



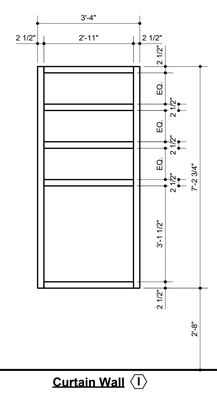
Curtain Wall Ⓕ



Curtain Wall Ⓖ



Curtain Wall Ⓗ



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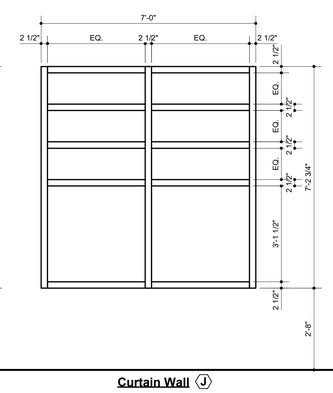

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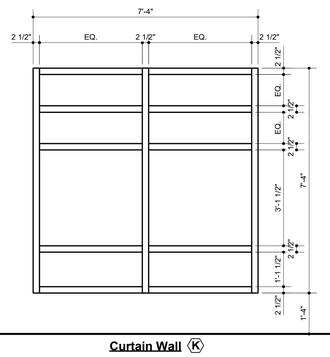

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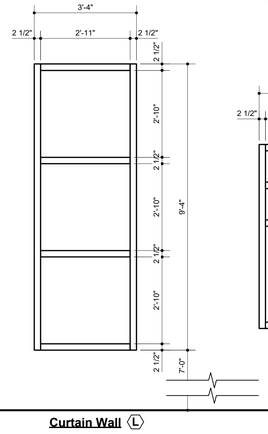

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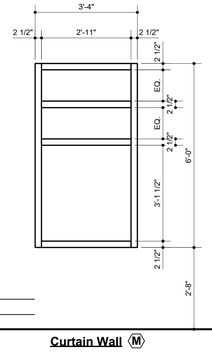

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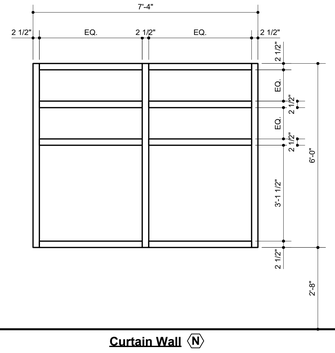

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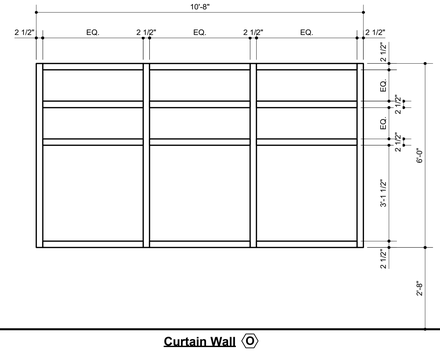

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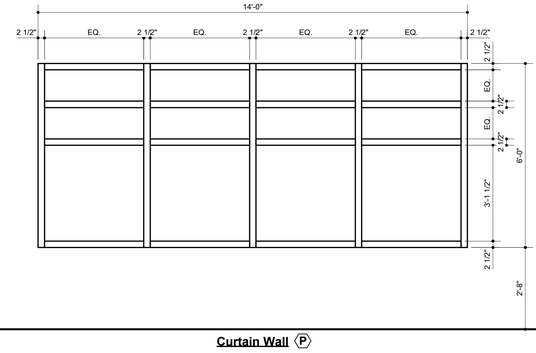

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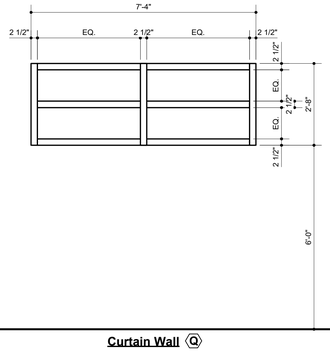

Curtain Wall Ⓠ

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JOHN R. SAWYER III REGISTERED ARCHITECT 2-20-2019 NORTH CAROLINA WILMINGTON, NC

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Revisions:

Door Frame & Window Elevations

A6.1

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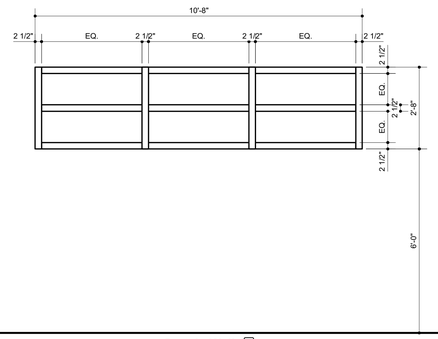

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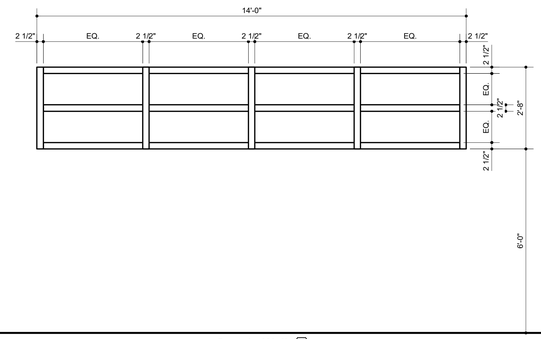

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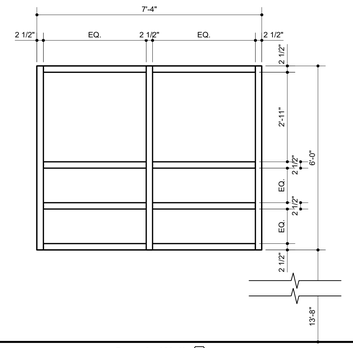

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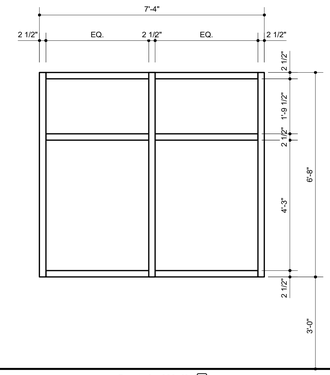

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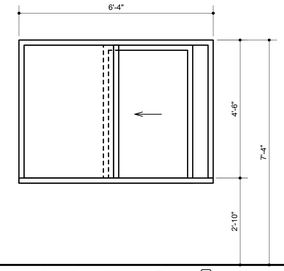

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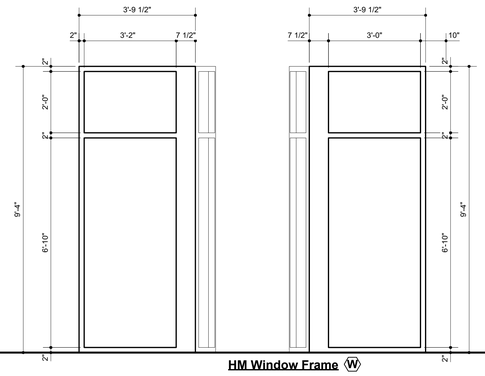
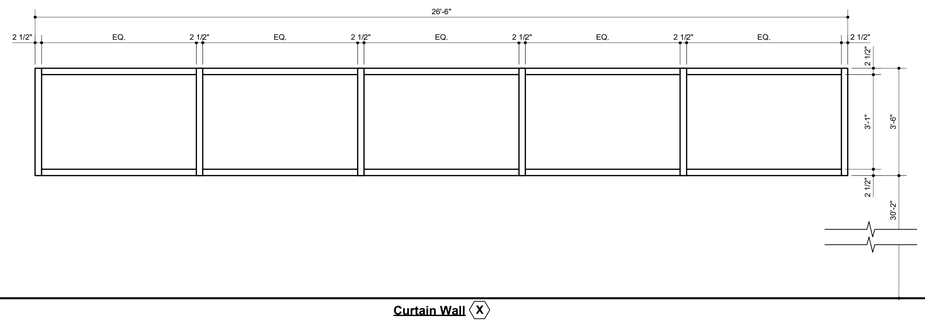


HM Window Frame (W)



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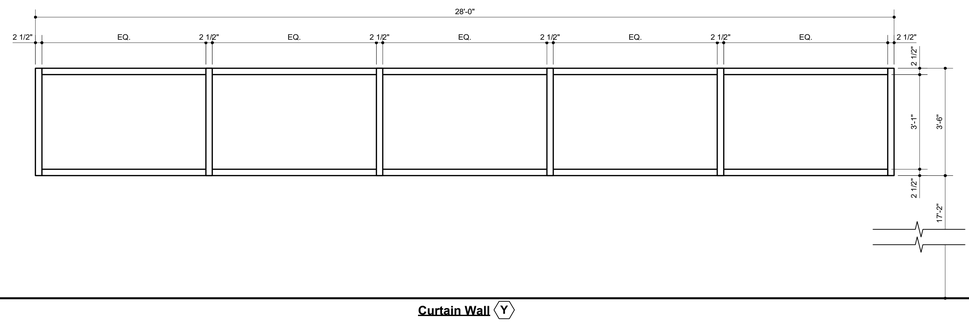

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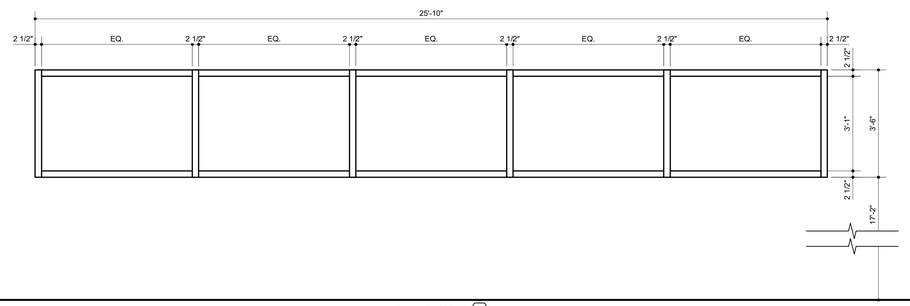

Curtain Wall (Z)

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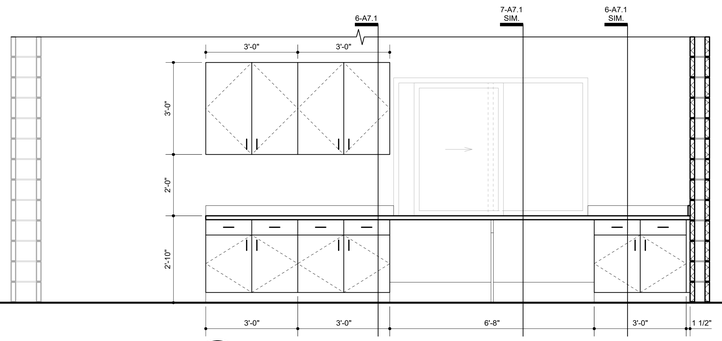
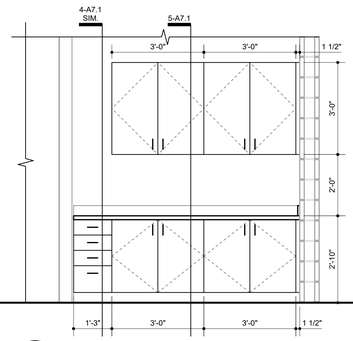


1 A7.0 Reception 100 Casework Elevation
Scale: 1/2" = 1'-0"



2 A7.0 Reception 100 Casework Elevation
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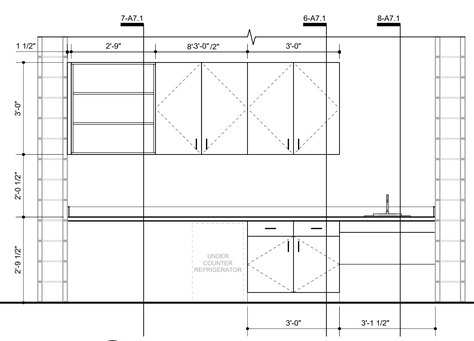
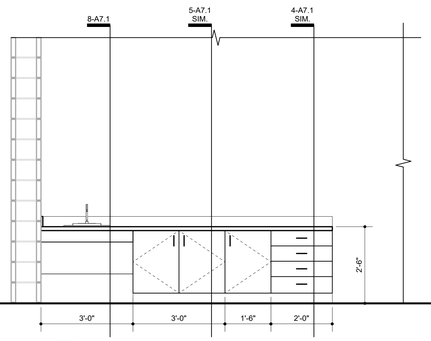
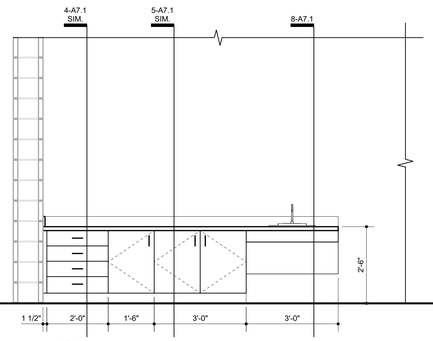


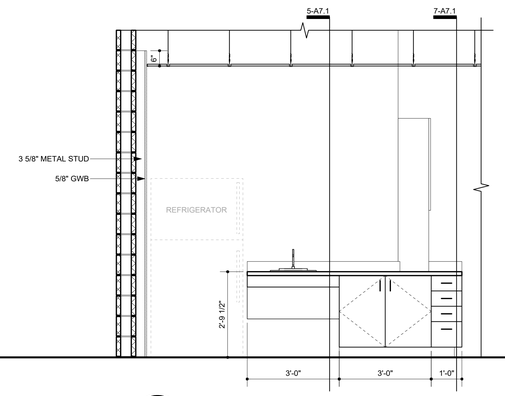
3 A7.0 Nurse 100C Casework Elevation
Scale: 1/2" = 1'-0"



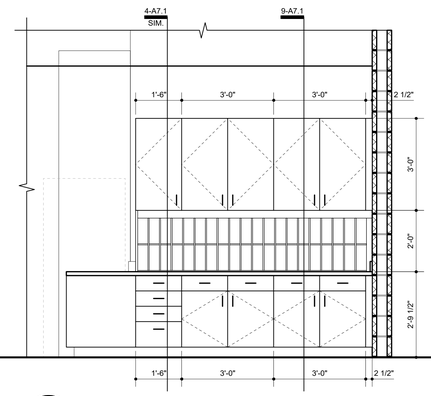
4 A7.0 Classroom Casework Elevation
Scale: 1/2" = 1'-0"



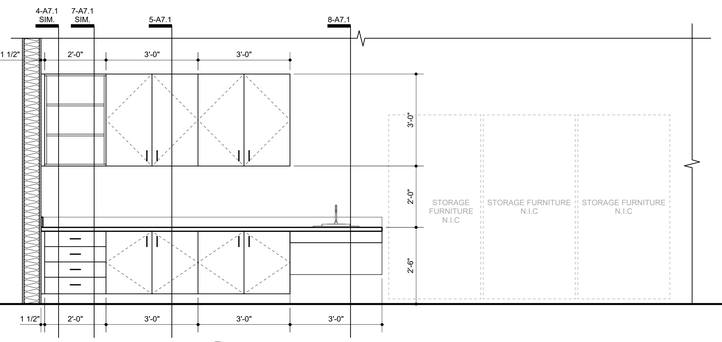
5 A7.0 Classroom Casework Elevation
Scale: 1/2" = 1'-0"



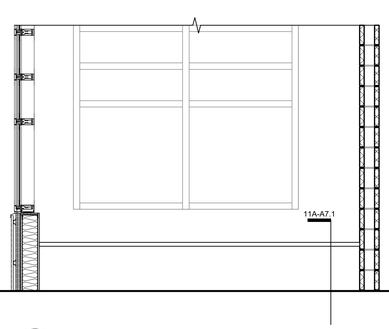
6 A7.0 Teacher Workroom Casework Elevation
Scale: 1/2" = 1'-0"



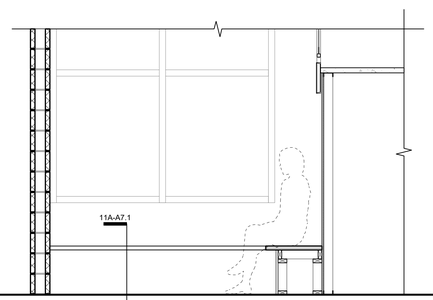
7 A7.0 Teacher Workroom Casework Elevation
Scale: 1/2" = 1'-0"



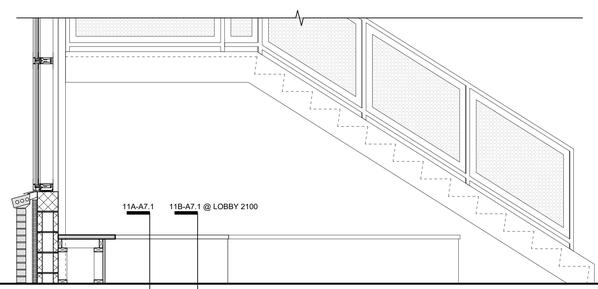
8 A7.0 Classroom Casework Elevation
Scale: 1/2" = 1'-0"



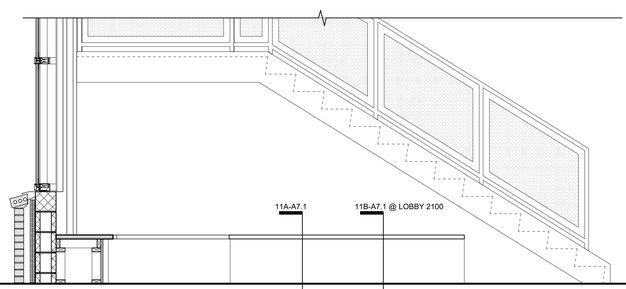
9 A7.0 Hall H4 Casework Elevation
Scale: 1/2" = 1'-0"



11 A7.0 Lobby Casework Elevation
Scale: 1/2" = 1'-0"



12 A7.0 Lobby Casework Elevation
Scale: 1/2" = 1'-0"



13 A7.0 Lobby Casework Elevation
Scale: 1/2" = 1'-0"

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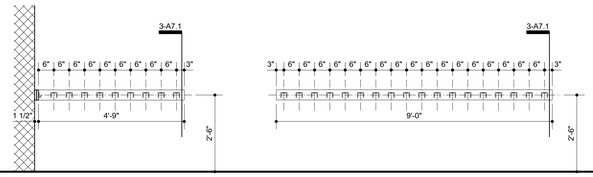
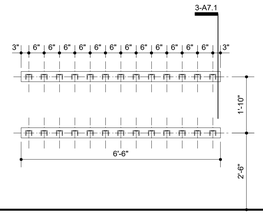


DETAIL A

DETAIL B

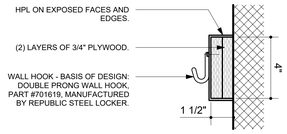
1 A7.1 First Floor Classroom Hooks Elevation

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



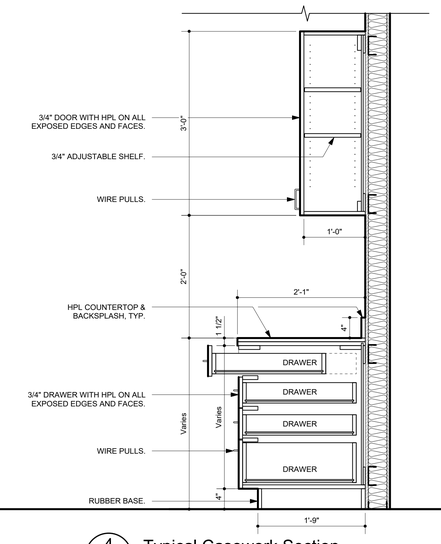
2 A7.1 Second Floor Classroom Hooks Elevation

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



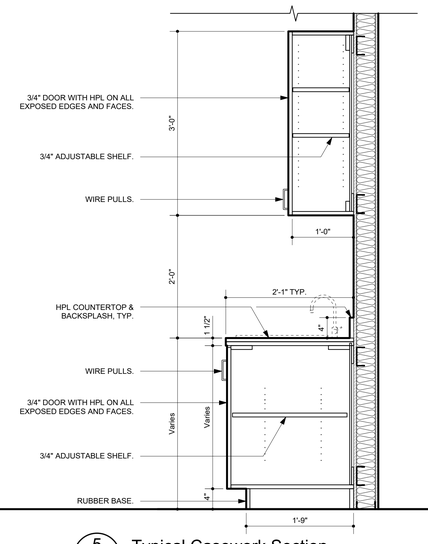
3 A7.1 Hook Detail

Scale: 3" = 1'-0"



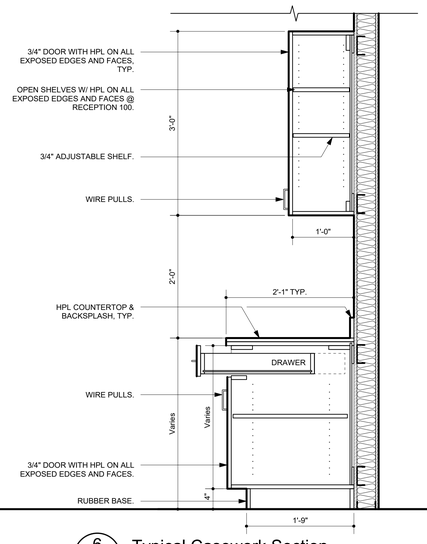
4 A7.1 Typical Casework Section

Scale: 1" = 1'-0"



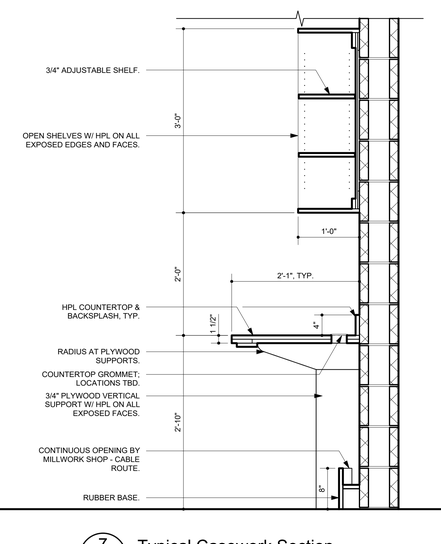
5 A7.1 Typical Casework Section

Scale: 1" = 1'-0"



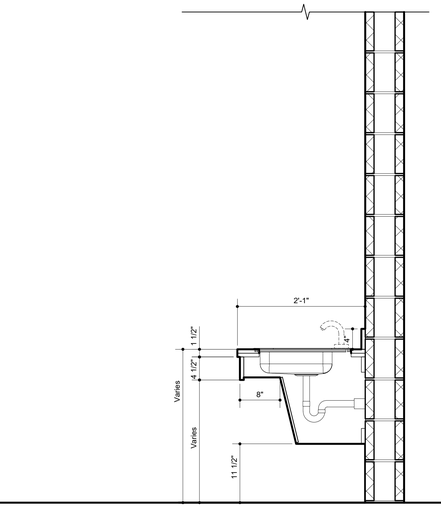
6 A7.1 Typical Casework Section

Scale: 1" = 1'-0"



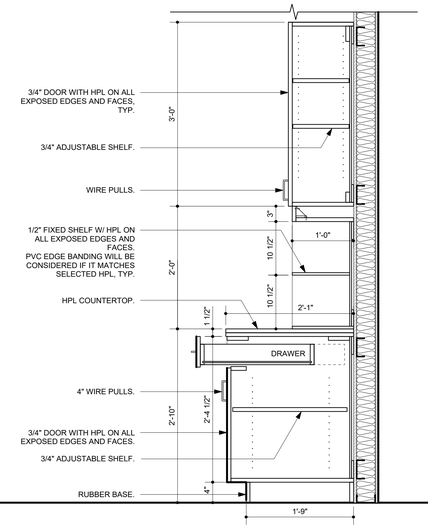
7 A7.1 Typical Casework Section

Scale: 1" = 1'-0"



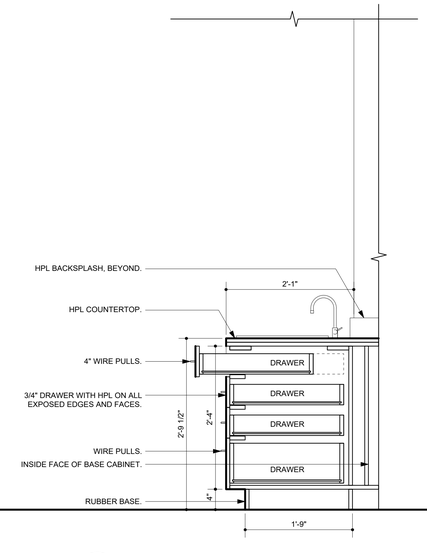
8 A7.1 Casework Section

Scale: 1" = 1'-0"



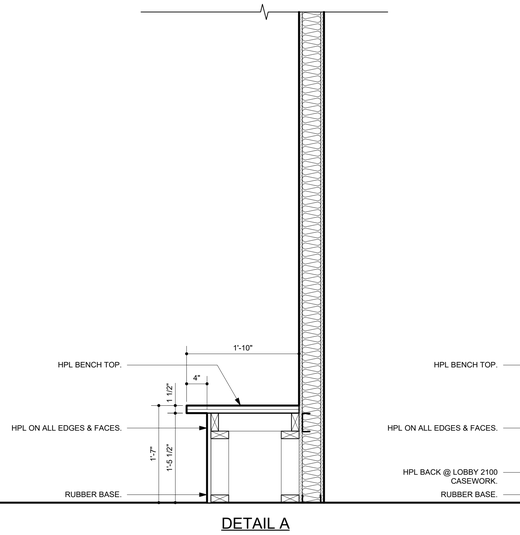
9 A7.1 Teacher Workroom Casework Section

Scale: 1" = 1'-0"



10 A7.1 Teacher Workroom Casework Section

Scale: 1" = 1'-0"



DETAIL A DETAIL B

11 A7.1 Bench Casework Section

Scale: 1" = 1'-0"

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JOHN R. SAWYER REGISTERED ARCHITECT 2-20-2019 NORTH CAROLINA WILMINGTON, NC

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Casework Elevations & Sections

A7.1

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1 A7.2 First Floor Finish Plan

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

Finish Legend
CONC - Concrete
CPT - Carpet Tile
PT - Porcelain Tile
VCT - Vinyl Composite Tile
ENT - Entrance Floor Mat
ETR - Existing to Remain
RUBB - Sheet Rubber
RST - Rubber Stair Treads
FEC - Fire Extinguisher Cabinet

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220 Coral Drive
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Construction Drawings
February 20, 2019

Revisions:

First Floor Finish Plan

A7.2

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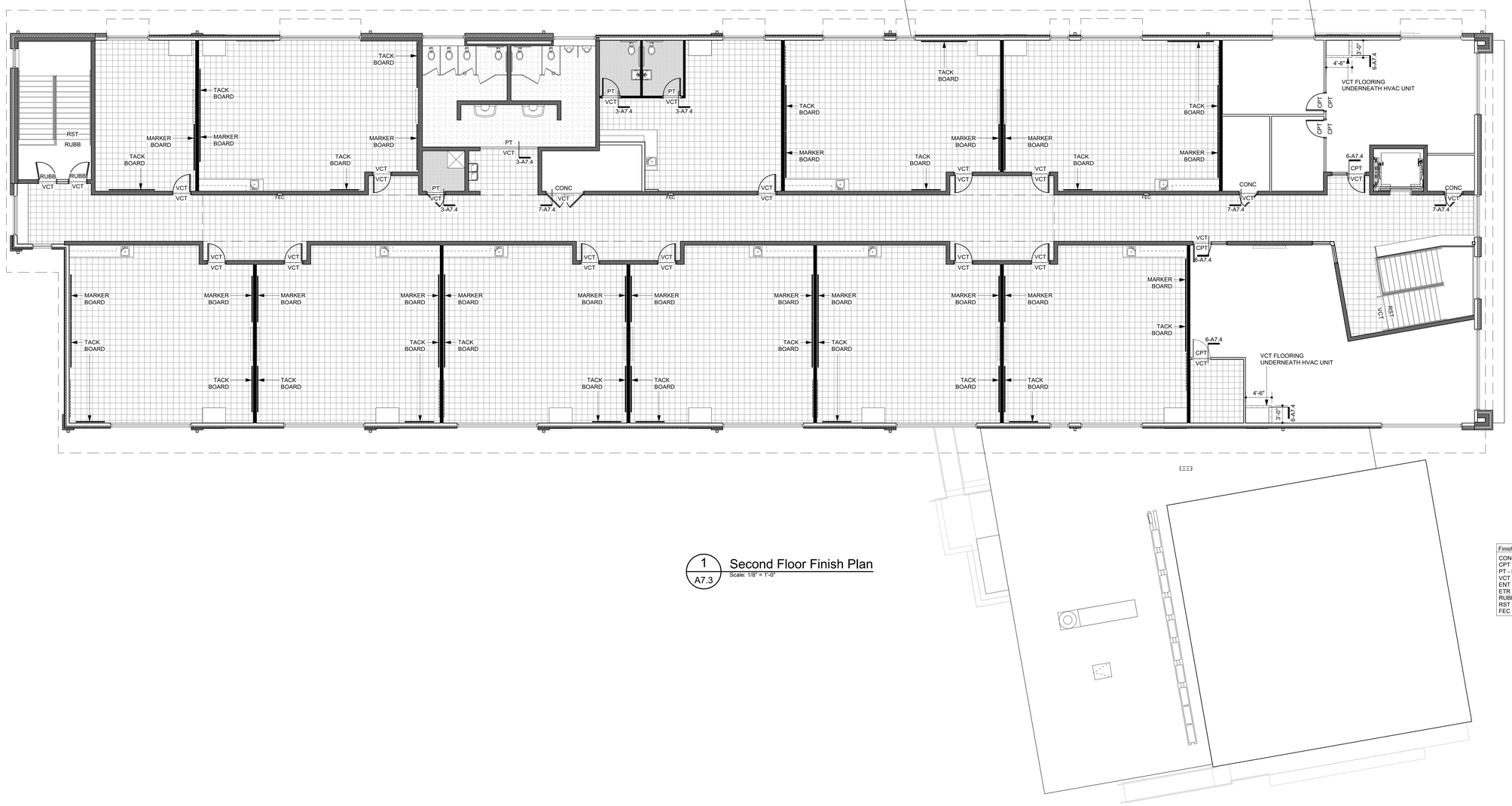

1 A7.3 Second Floor Finish Plan
Scale: 1/8" = 1'-0"

Finish Legend
CONC - Concrete
CPT - Carpet Tile
PT - Porcelain Tile
VCT - Vinyl Composite Tile
ENT - Entrance Floor Mat
ETR - Existing to Remain
RUBB - Sheet Rubber
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Construction Drawings
February 20, 2019

Revisions:

Second Floor Finish Plan

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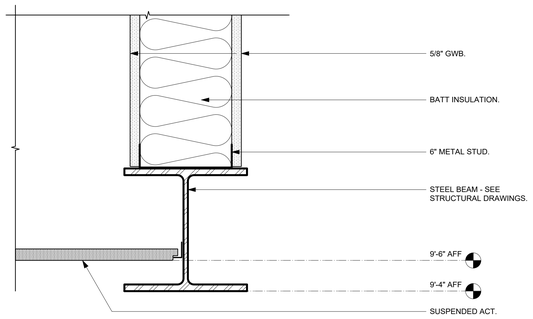
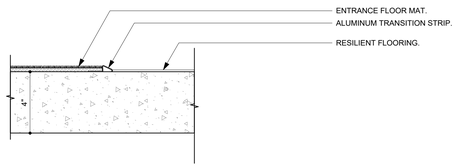
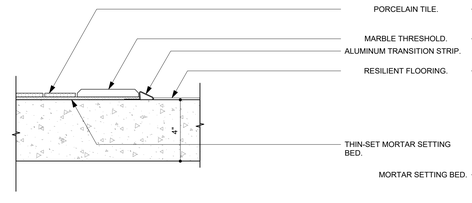


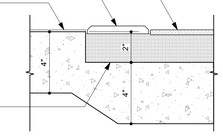
1 A7.4 ACT @ Beam Bulkhead Detail
Scale: 3" = 1'-0"



2 A7.4 Entrance Mat to Resilient Flooring Transition
Scale: 3" = 1'-0"

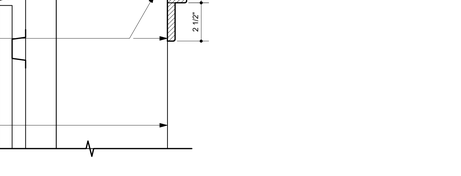


3 A7.4 Porcelain Tile to Resilient Flooring Transition
Scale: 3" = 1'-0"



4 A7.4 Resilient Flooring to Porcelain Tile Transition
Scale: 3" = 1'-0"

5 A7.4 ACT @ GWB Bulkhead Detail
Scale: 3" = 1'-0"



6 A7.4 Carpet Tile to Resilient Flooring Transition
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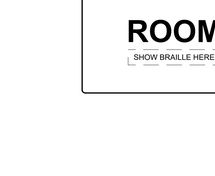
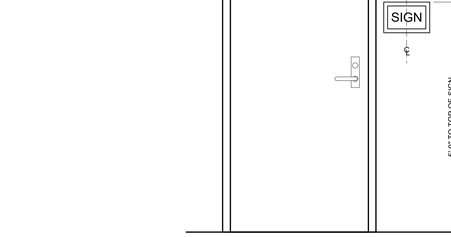


7 A7.4 Resilient Flooring to Concrete Transition
Scale: 3" = 1'-0"



8 A7.4 Concrete Slab Infill Transition
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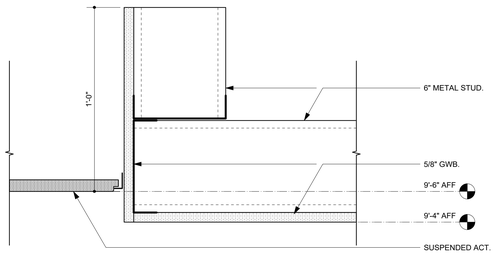
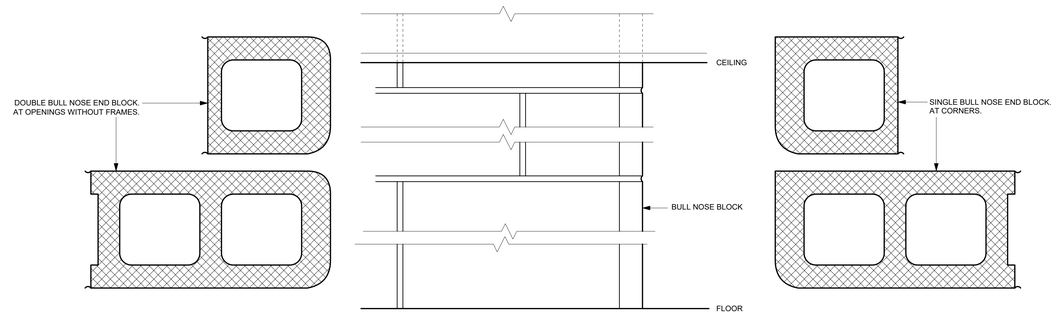
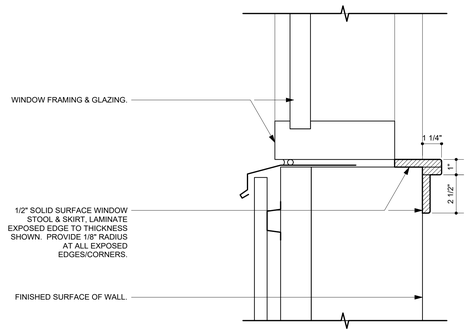


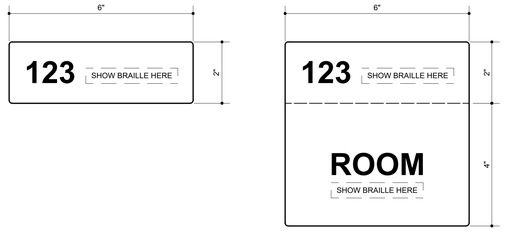
9 A7.4 ACT to GWB Ceiling Transition Detail
Scale: 3" = 1'-0"



11 A7.4 Typical Masonry Corner Details
Scale: 3" = 1'-0"



14 A7.4 Typical Window Stool Detail
Scale: 3" = 1'-0"



15 A7.4 Signage Detail
Scale: Half Actual Size

16 A7.4 Typical Signage Detail
Scale: 3/4" = 1'-0"

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Interior Details

A7.4

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GENERAL ROOFING NOTES

Dwg.# 180432-R1101.DWG

1. DIMENSIONS SHOWN ON PLAN ARE FOR ESTIMATING PURPOSES ONLY AND MAY NOT REFLECT ACTUAL CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE ORDERING ANY MATERIALS.
2. THIS PROJECT INVOLVES WORK WITH EXISTING CONSTRUCTION. REQUIREMENTS FOR NEW CONSTRUCTION ARE BASED IN MANY INSTANCES, ON MATERIALS AND CONSTRUCTION FOUND DURING FIELD INVESTIGATION AND/OR TAKEN FROM THE ORIGINAL CONSTRUCTION DOCUMENTS. INFORMATION SHOWN FOR FRAMING, DECKING AND SUPPORTS IS FOR ILLUSTRATION ONLY AND MAY NOT REFLECT ACTUAL CONDITIONS. ADJUSTMENTS IN THE WORK MAY BE NECESSARY TO COMPENSATE FOR VARIATIONS IN ACTUAL FIELD CONDITIONS.
3. THE CONTRACTOR SHALL FIELD VERIFY QUANTITIES, SIZE AND LOCATIONS OF ROOF PENETRATIONS PRIOR TO BID AND BEFORE ORDERING MATERIALS. SEE ROOF PLAN LEGEND FOR SYMBOLS IDENTIFYING VARIOUS TYPES OF PENETRATIONS ON THE ROOF, AND REFER TO DETAILS WHICH APPLY.
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING FACILITIES, FURNISHINGS, EQUIPMENT, MACHINERY, LANDSCAPE PLANTINGS, ETC... DURING ALL OPERATIONS.
5. THE CONTRACTOR SHALL CONDUCT THOROUGH CLEAN-UP OF ROOF AREAS AND GROUNDS DAILY (WORK EVENT) AND AT THE COMPLETION OF ROOF CONSTRUCTION.
6. THE CONTRACTOR SHALL INSTALL NEW ROOF SYSTEMS AS FOLLOWS:

   SEE THE ROOF SYSTEM CROSS SECTION ON SHEET AR2.1 FOR THE NEW ROOF SYSTEM COMPONENTS.

   A. INSTALLATION OF NEW TREATED WOOD BLOCKING, PLYWOOD, WOOD NAILERS, ETC... AS SHOWN ON DRAWINGS, AS SPECIFIED HEREIN AND AS REQUIRED BY THE ROOF SYSTEM MANUFACTURER.

   B. INSTALLATION OF NEW THERMAL INSULATION SYSTEM AS SHOWN ON DRAWINGS AND AS SPECIFIED HEREIN.

   C. INSTALLATION OF NEW ½" EXTERIOR GRADE PLYWOOD SHEATHING AS SHOWN ON DRAWINGS AND SPECIFIED HEREIN.

   D. INSTALLATION OF NEW HIGH TEMPERATURE SELF-ADHERING UNDERLAYMENT AT ROOF PERIMETERS, TRANSITIONS AND PENETRATIONS.

   E. INSTALLATION OF NEW BREATHABLE, SELF-ADHERING SYNTHETIC UNDERLAYMENT THROGH-OUT THE FIELD OF THE ROOF.

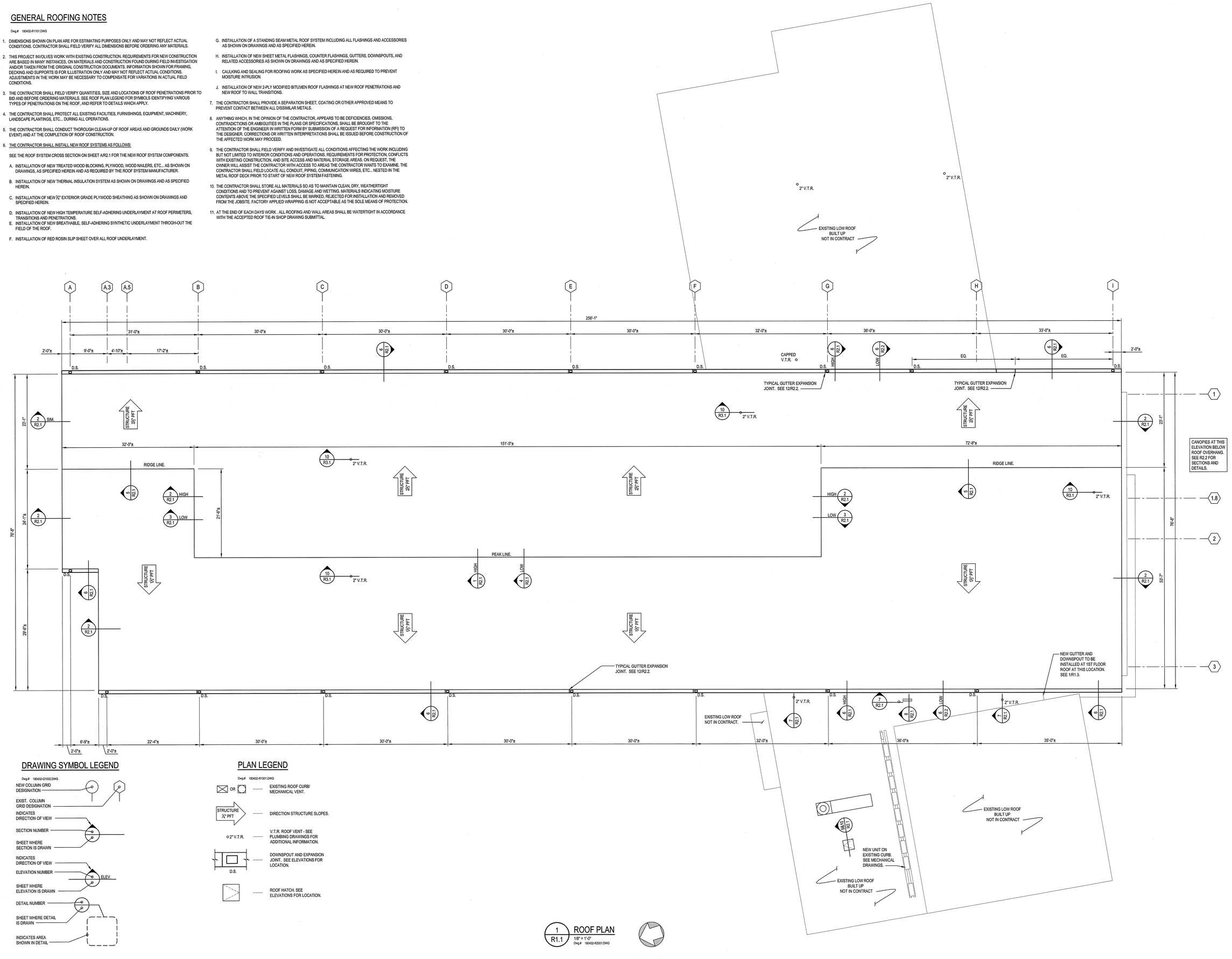
   F. INSTALLATION OF RED ROSIN SLIP SHEET OVER ALL ROOF UNDERLAYMENT.

   G. INSTALLATION OF A STANDING SEAM METAL ROOF SYSTEM INCLUDING ALL FLASHINGS AND ACCESSORIES AS SHOWN ON DRAWINGS AND AS SPECIFIED HEREIN.

   H. INSTALLATION OF NEW SHEET METAL FLASHINGS, COUNTER FLASHINGS, GUTTERS, DOWNSPOUTS, AND RELATED ACCESSORIES AS SHOWN ON DRAWINGS AND AS SPECIFIED HEREIN.

   I. CAULKING AND SEALING FOR ROOFING WORK AS SPECIFIED HEREIN AND AS REQUIRED TO PREVENT MOISTURE INTRUSION.

   J. INSTALLATION OF NEW 2-PLY MODIFIED BITUMEN ROOF FLASHINGS AT NEW ROOF PENETRATIONS AND NEW ROOF TO WALL TRANSITIONS.
7. THE CONTRACTOR SHALL PROVIDE A SEPARATION SHEET, COATING OR OTHER APPROVED MEANS TO PREVENT CONTACT BETWEEN ALL DISSIMILAR METALS.
8. ANYTHING WHICH, IN THE OPINION OF THE CONTRACTOR, APPEARS TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS OR AMBIGUITIES IN THE PLANS OR SPECIFICATIONS, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITTEN FORM BY SUBMISSION OF A REQUEST FOR INFORMATION (RFI) TO THE DESIGNER. CORRECTIONS OR WRITTEN INTERPRETATIONS SHALL BE ISSUED BEFORE CONSTRUCTION OF THE AFFECTED WORK MAY PROCEED.
9. THE CONTRACTOR SHALL FIELD VERIFY AND INVESTIGATE ALL CONDITIONS AFFECTING THE WORK INCLUDING BUT NOT LIMITED TO INTERIOR CONDITIONS AND OPERATIONS. REQUIREMENTS FOR PROTECTION, CONFLICTS WITH EXISTING CONSTRUCTION, AND SITE ACCESS AND MATERIAL STORAGE AREAS. ON REQUEST, THE OWNER WILL ASSIST THE CONTRACTOR WITH ACCESS TO AREAS THE CONTRACTOR WANTS TO EXAMINE. THE CONTRACTOR SHALL FIELD LOCATE ALL CONDUIT, PIPING, COMMUNICATION WIRES, ETC... NESTED IN THE METAL ROOF DECK PRIOR TO START OF NEW ROOF SYSTEM FASTENING.
10. THE CONTRACTOR SHALL STORE ALL MATERIALS SO AS TO MAINTAIN CLEAN, DRY, WEATHERTIGHT CONDITIONS AND TO PREVENT AGAINST LOSS, DAMAGE AND WETTING. MATERIALS INDICATING MOISTURE CONTENTS ABOVE THE SPECIFIED LEVELS SHALL BE MARKED, REJECTED FOR INSTALLATION AND REMOVED FROM THE JOBSITE. FACTORY APPLIED WRAPPING IS NOT ACCEPTABLE AS THE SOLE MEANS OF PROTECTION.
11. AT THE END OF EACH DAYS WORK , ALL ROOFING AND WALL AREAS SHALL BE WATERTIGHT IN ACCORDANCE WITH THE ACCEPTED ROOF TIE-IN SHOP DRAWING SUBMITTAL.



DRAWING SYMBOL LEGEND

Dwg.# 180432-G1002.DWG

- NEW COLUMN GRID DESIGNATION
- EXIST. COLUMN GRID DESIGNATION
- INDICATES DIRECTION OF VIEW
- SECTION NUMBER
- SHEET WHERE SECTION IS DRAWN
- INDICATES DIRECTION OF VIEW
- ELEVATION NUMBER
- SHEET WHERE ELEVATION IS DRAWN
- DETAIL NUMBER
- SHEET WHERE DETAIL IS DRAWN
- INDICATES AREA SHOWN IN DETAIL

PLAN LEGEND

Dwg.# 180432-R1001.DWG

- OR ..... EXISTING ROOF CURB/ MECHANICAL VENT.
- STRUCTURE ½" PFT ..... DIRECTION STRUCTURE SLOPES.
- 2" V.T.R. ..... V.T.R. ROOF VENT - SEE PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- D.S. ..... DOWNSPOUT AND EXPANSION JOINT. SEE ELEVATIONS FOR LOCATION.
- ..... ROOF HATCH. SEE ELEVATIONS FOR LOCATION.

1 / R1.1 ROOF PLAN
1/8" = 1'-0"
Dwg.# 180432-R2001.DWG

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Project Number: 000000
File Name: 180432-R0101
Plotted: 2/21/2019 3:01 PM

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

CONSTRUCTION DRAWINGS
02-20-2019

Revisions:

NORTH CAROLINA PROFESSIONAL SEAL 35012 ENGINEER SCOTT C. SINGLETON

ROOF PLAN

R1.1

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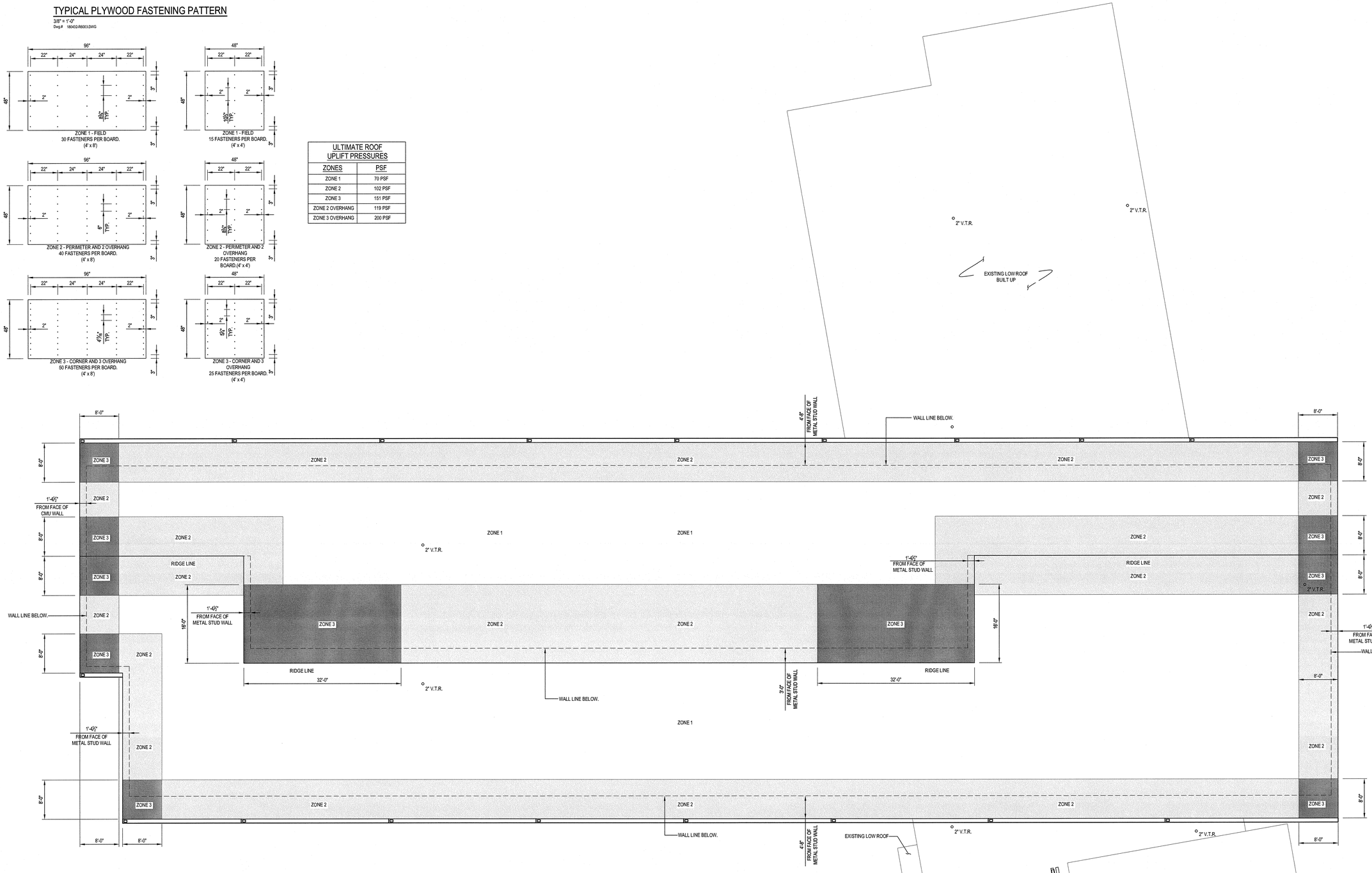
TYPICAL PLYWOOD FASTENING PATTERN

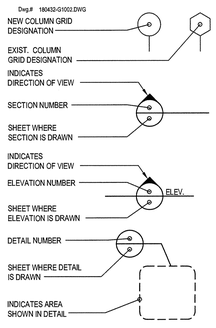
3/8" = 1'-0"
Dwg.# 180432-R6003.DWG

ULTIMATE ROOF UPLIFT PRESSURES	
ZONES	PSF
ZONE 1	70 PSF
ZONE 2	102 PSF
ZONE 3	151 PSF
ZONE 2 OVERHANG	119 PSF
ZONE 3 OVERHANG	200 PSF



DRAWING SYMBOL LEGEND

Dwg.# 180432-G1002.DWG



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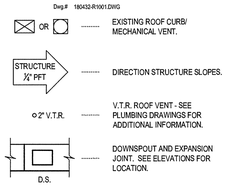

1 / R1.2 ROOF WIND ZONE PLAN
1/8" = 1'-0"
Dwg.# 180432-R2002.DWG

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Project Number: 180432
File Name: 180432-R2002
Plotted: 5/17/2019 1:18 PM

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

CONSTRUCTION DRAWINGS
JANUARY 24, 2019

Revisions:

NORTH CAROLINA REGISTERED PROFESSIONAL SEAL 35012 ENGINEER SCOTT SINGLETON

ROOF WIND ZONE PLAN

R1.2

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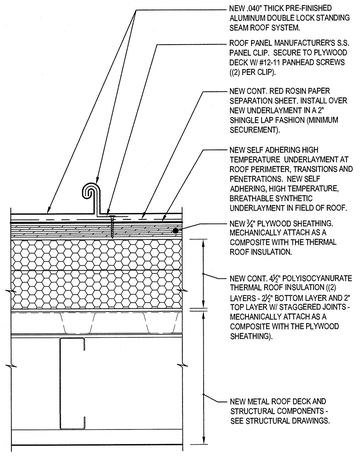

A R2.1 **TYPICAL ROOF CROSS SECTION**
3" = 1'-0"
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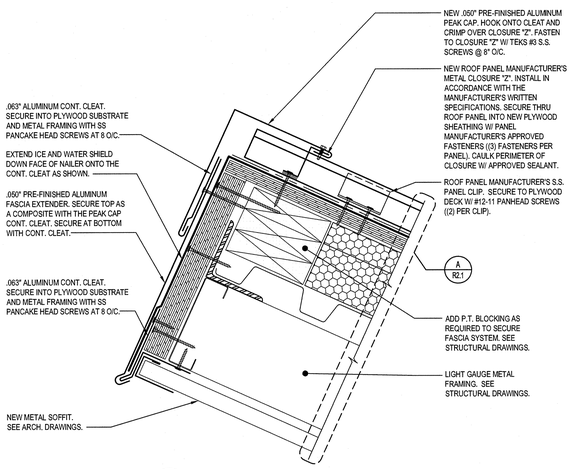

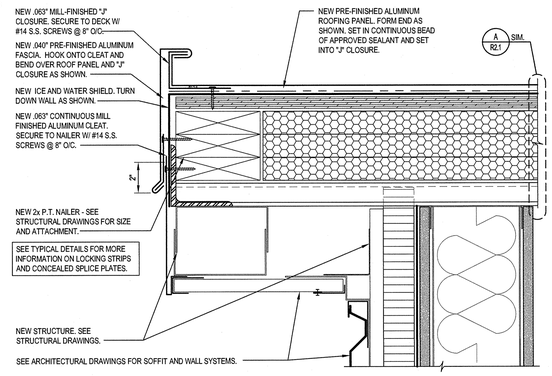

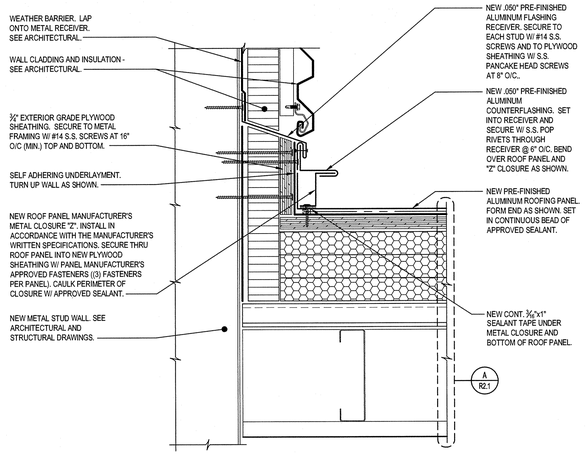

1 R2.1 **DETAIL**
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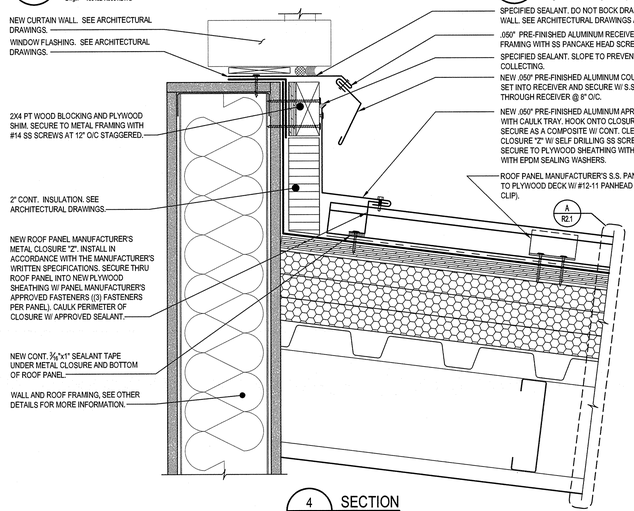
Dwg.# 180432-R6039 (VERTICAL).DWG



2 R2.1 **DETAIL**
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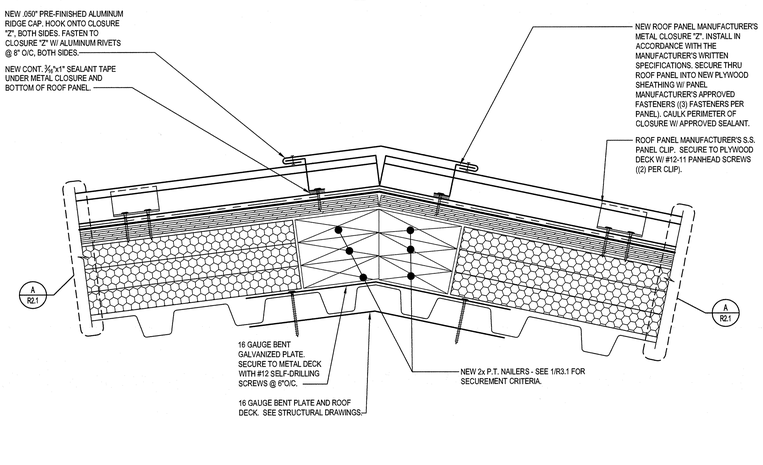

3 R2.1 **DETAIL**
3" = 1'-0"
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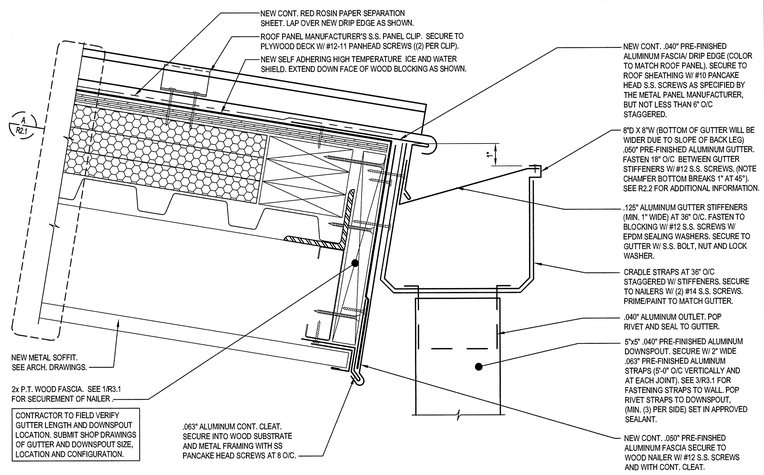
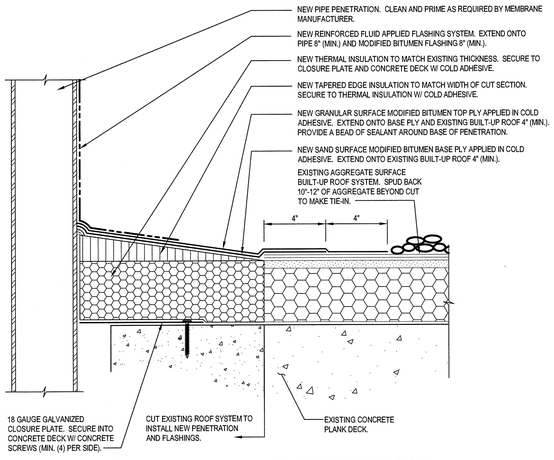
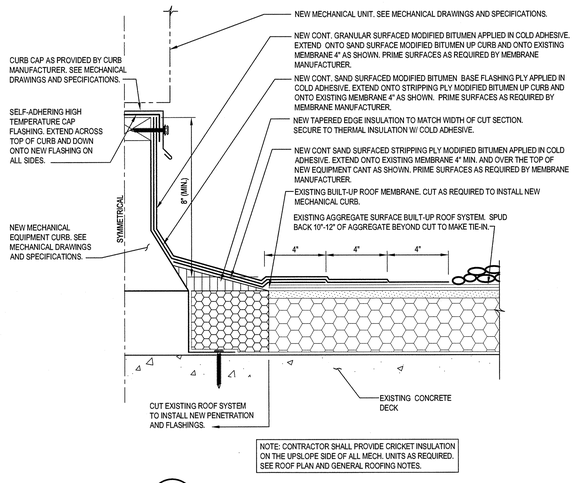


4 R2.1 **SECTION**
3" = 1'-0"
Dwg.# 180432-R6004.DWG



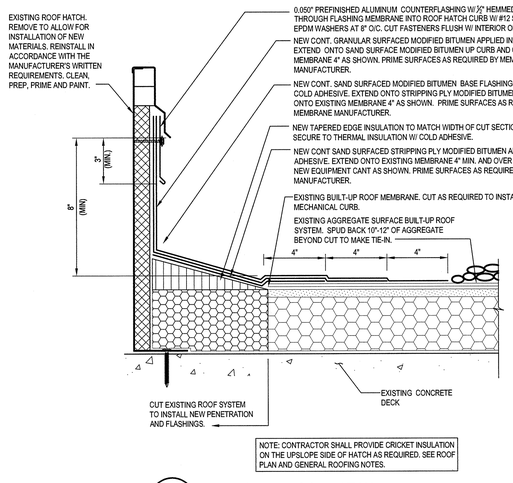
NEW PIPE/CONDUIT PENETRATION AT EXISTING LOW SLOPE ROOF
7 R2.1
3" = 1'-0"
Dwg.# 180432-R6002.DWG

5 R2.1 **SECTION**
3" = 1'-0"
Dwg.# 180432-R6008.DWG



NOTE: CONTRACTOR SHALL PROVIDE CRICKET INSULATION ON THE UPSLOPE SIDE OF ALL MECH. UNITS AS REQUIRED. SEE ROOF PLAN AND GENERAL ROOFING NOTES.

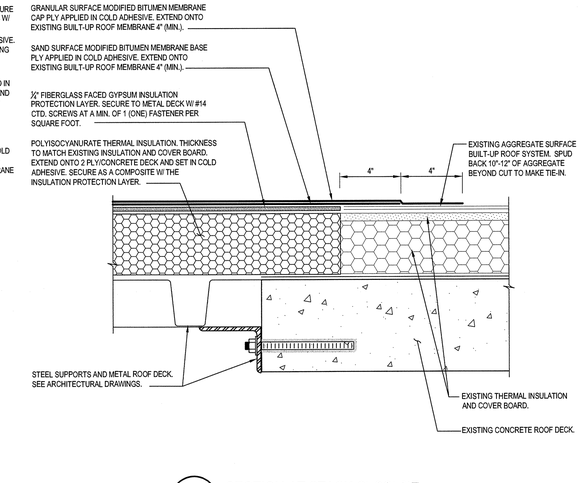
SECTION AT MECHANICAL EQUIPMENT
8 R2.1
3" = 1'-0"
Dwg.# 180432-R6005.DWG



NOTE: CONTRACTOR SHALL PROVIDE CRICKET INSULATION ON THE UPSLOPE SIDE OF HATCH AS REQUIRED. SEE ROOF PLAN AND GENERAL ROOFING NOTES.

SECTION AT ROOF HATCH
9 R2.1
3" = 1'-0"
Dwg.# 180432-R6006.DWG

6 R2.1 **DETAIL**
3" = 1'-0"
Dwg.# 180432-R6037.DWG



SECTION AT STACK CLOSURE
10 R2.1
3" = 1'-0"
Dwg.# 180432-R6012.DWG

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Project Number: 000000
File Name: 180432-R0201
Plotted: 1/17/2019 1:18 PM

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

CONSTRUCTION DRAWINGS
JANUARY 24, 2019

Revisions:

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL 35012 SCOTT C. SINGLETON

ROOF SECTIONS AND DETAILS

R2.1

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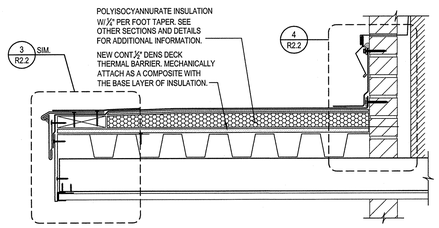
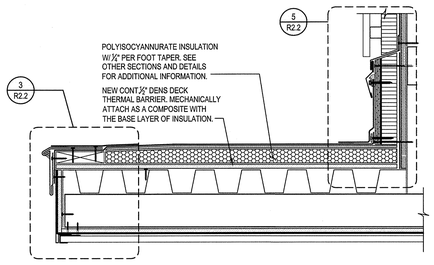


1 R2.2 **FIRST FLOOR CANOPY SECTION AT CANOPY AT MASONRY**

1 1/2" = 1'-0"
Dwg.# 180432-R6000.DWG



2 R2.2 **SECOND FLOOR CANOPY SECTION AT CANOPY AT METAL WALL PANEL**

1 1/2" = 1'-0"
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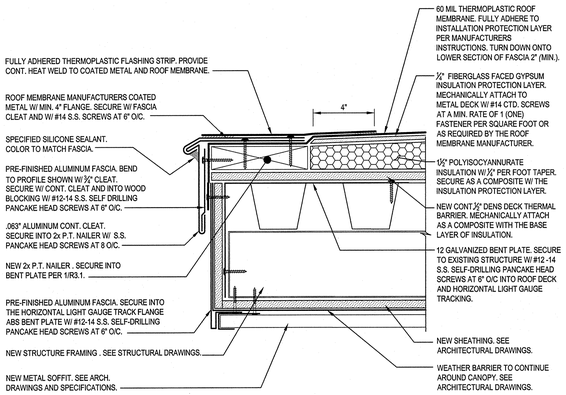
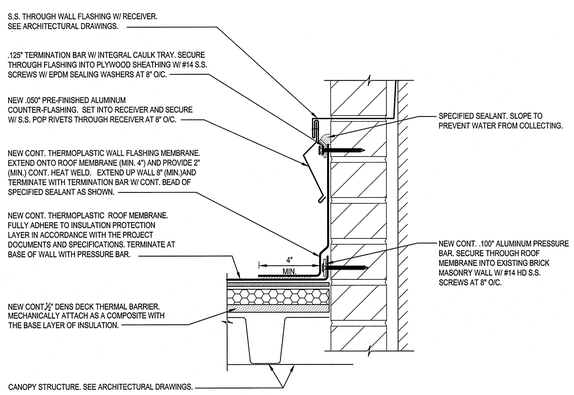


3 R2.2 **SECTION AT CANOPY**

3" = 1'-0"
Dwg.# 180432-R6009.DWG



4 R2.2 **1ST FLOOR SECTION AT CANOPY AT MASONRY**

3" = 1'-0"
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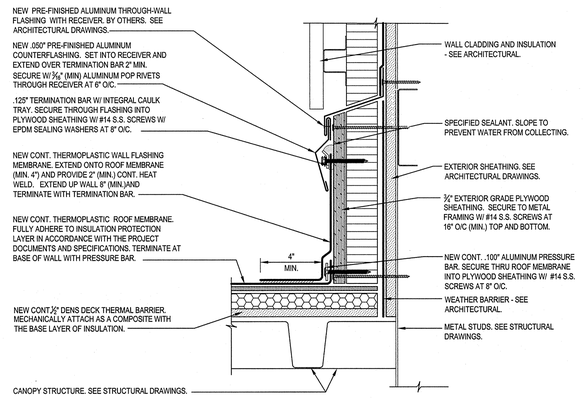

5 R2.2 **2ND FLOOR SECTION AT CANOPY AT METAL WALL PANEL**

3" = 1'-0"
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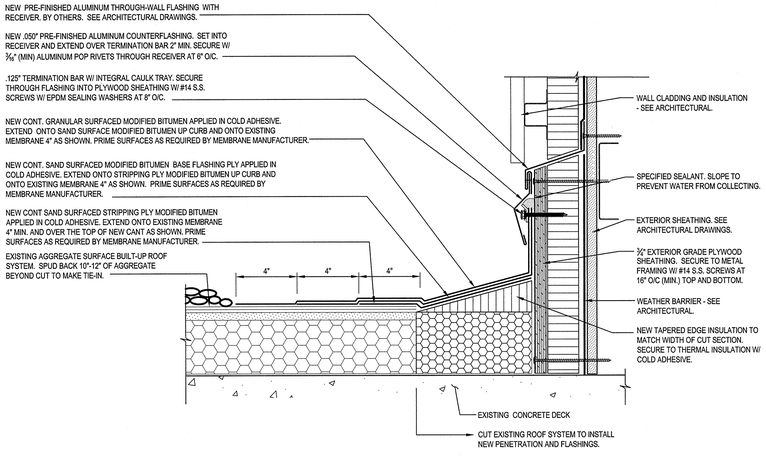

6 R2.2 **SECTION**

3" = 1'-0"
Dwg.# 180432-R6013.DWG

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Project Number: 180432
File Name: 180432-R0202
Plotted: 2/21/2019 3:11 PM

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

CONSTRUCTION DRAWINGS
02-20-2019

Revisions:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35012 ENGINEER TIMOTHY C. SINGLETON

ROOF SECTIONS AND DETAILS

R2.2

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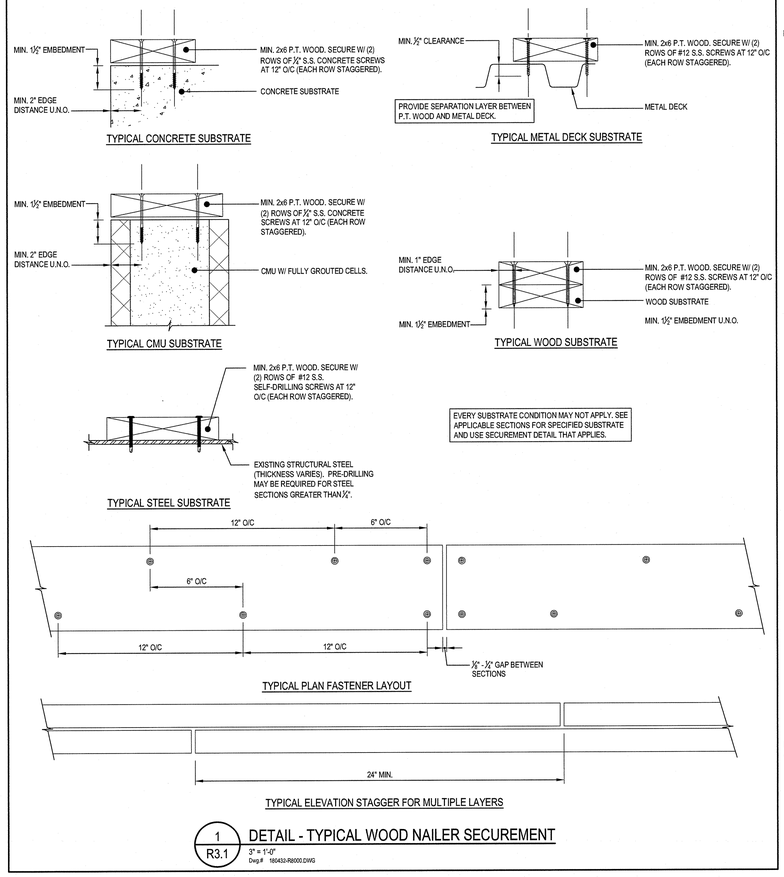

1 R3.1 DETAIL - TYPICAL WOOD NAILER SECUREMENT
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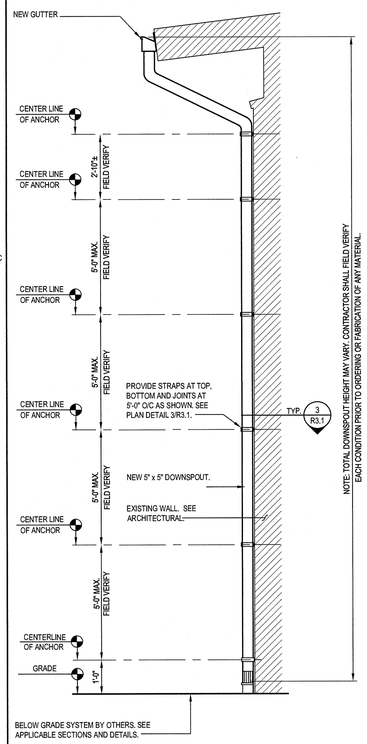
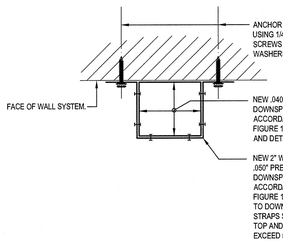


2 R3.1 TYPICAL DOWNSPOUT ELEVATION
N.T.S.
Dwg.# 180432-R8006.DWG



3 R3.1 TYPICAL DOWNSPOUT STRAP DETAIL
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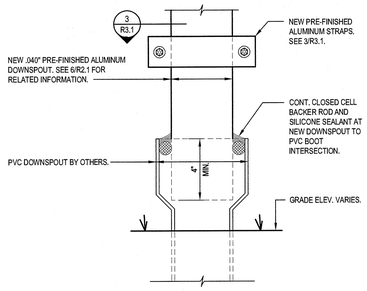
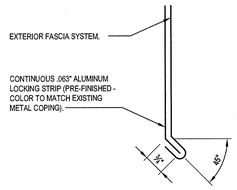
Dwg.# 180432-R8005.DWG



4 R3.1 TYPICAL DOWNSPOUT BOOT DETAIL
NO SCALE
Dwg.# 180432-R8178.DWG



5 R3.1 DETAIL - TYPICAL LOCKING STRIP
6" = 1'-0"
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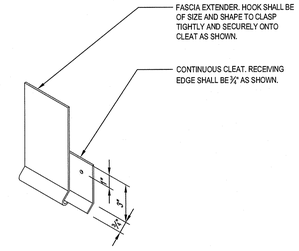

6 R3.1 DETAIL
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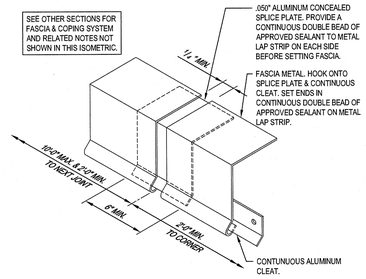
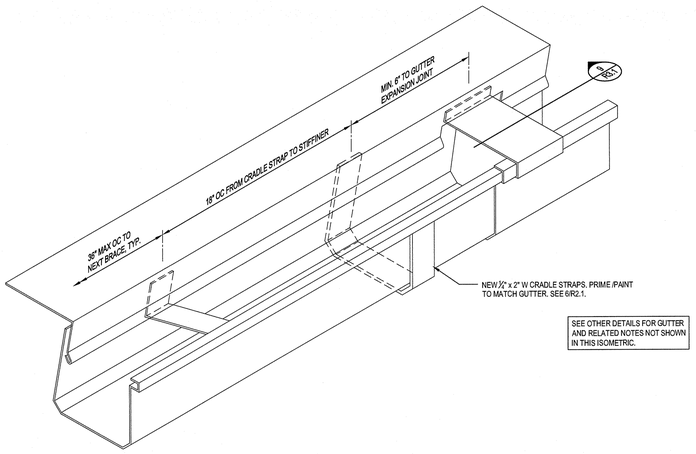
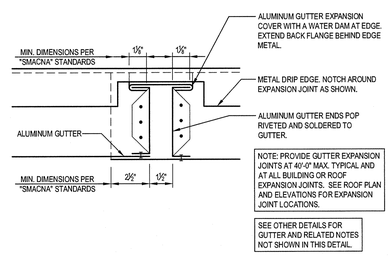


7 R3.1 DETAIL - TYPICAL CONCEALED SPLICE PLATE
3" = 1'-0"
Dwg.# 180432-R8004.DWG



8 R3.1 DETAIL - TYPICAL GUTTER EXPANSION JOINT
3" = 1'-0"
Dwg.# 180432-R8000.DWG



9 R3.1 DETAIL - GUTTER EXPANSION JOINT
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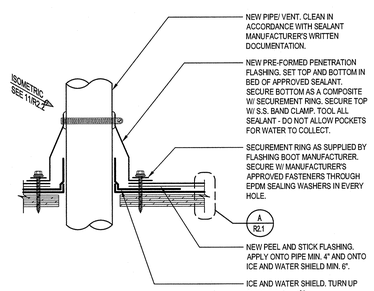

10 R3.1 SECTION
3" = 1'-0"
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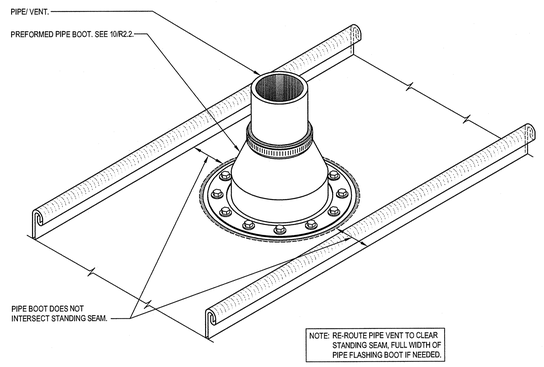

11 R3.1 PIPE PENETRATION
3" = 1'-0"
Dwg.# 180432-R7001.DWG

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Project Number: 180432
File Name: 180432-R0501
Plotted: 1/17/2019 1:18 PM

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

CONSTRUCTION DRAWINGS
JANUARY 24, 2019

Revisions:

NORTH CAROLINA PROFESSIONAL SEAL 35012 ENGINEER SCOTT C. SINGLETON

ROOF SECTIONS AND DETAILS

R3.1

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1.0 CODES AND STANDARDS:

1.1 "2018 North Carolina State Building Code" and "International Building Code", 2015.

1.2 "Minimum Design Loads for Buildings and other Structures" SEI/ASCE 7-10.

1.3 "Flood resistant design and construction" ASCE 24-14

1.4 "Building Code Requirements for Structural Concrete (ACI 318-14)" American Concrete Institute 2014.

1.5 "Manual of Standard Practice", Concrete Reinforcing Steel Institute, latest edition.

1.6 "Specification for Structural Steel Buildings (AISC 360-10)" American Institute of Steel Construction, 2011 - 14th Edition

1.7 "Structural Welding Code - Steel (AWS D1.1)" and "Structural Welding Code - Reinforcing Steel (AWS D1.4)", American Welding Society.

1.8 "Building Code Requirements for Masonry Structures", ACI 530-13, ASCE 5-13, TMS 402-13.

1.9 "Design Manual For Floor Decks and Roof Decks", Steel Deck Institute, latest edition.

2.0 DESIGN LOADS:
Project Located in: City of Wrightsville Beach, County of New Hanover, State of North Carolina.

2.1 Gravity Loads: (Reduced where allowed)

GRAVITY LOADS		
Location	Uniform (psf)	Concentrated (lbs) (Over 2.5'x2.5')
Roof Loads:		
Dead Load	20	
Live Load	20	300
Floor Loads:		
Dead Loads:	67	
Floor Live Loads:		
First Floor	100	2,000
Classrooms	40	1000
Second Floor Corridor	80	1000
Stairs	100	
Media Center	150	1000
Light Storage	125	

2.2 Drifting Snow Loads per N.C. Building Code.

Pg = 10 psf
I = 1.1
Ce = 0.9
Ct = 1.0

2.3 Risk Category = III

2.4 Wind Loads per N.C. State Building Codes, 2018 edition (IBC 2015) & ASCE 7-10 (3-second gust)

Main Wind Force Resisting System:
V= 156 mph
Exposure Category "C"

Building is enclosed & Internal Pressure coefficient (GCpi) = +0.18 & -0.18
Topographic Factor Kzt = 1.0
Wind Directionality Factor, Kd = 0.85

Calculated Wind Base Shear (For MWFRS)
Vx = 85K Vy = 405K

Components and Cladding:
V 156 mph
Exposure Category "C"

Components and Cladding Wind Pressure (psf)										
Walls	Area < $10ft^2$		< $20ft^2$		Area < $50ft^2$		Area < $100ft^2$		Area < $500ft^2$	
Zone 4	61.4	-66.7	58.7	-63.8	54.9	-60.1	52.2	-57.4	45.8	-50.9
Zone 5	61.4	-82.3	58.7	-76.6	54.9	-69.3	52.2	-63.8	45.8	-50.9
Roof	Area < $10ft^2$		Area < $20ft^2$		Area < $50ft^2$		Area < $100ft^2$		Area < $500ft^2$	
Zone 1	35.3	-56.2	32.3	-54.6	28.1	-52.5	25.0	-50.9	25.0	-50.9
Zone 2	35.3	-97.9	32.3	-89.9	28.1	-79.6	25.0	-71.8	25.0	-71.8
Zone 3	35.3	-144.6	32.3	-135.1	28.1	-122.8	25.0	-113.4	25.0	-113.4

Notes:
1. Areas noted are effective wind areas as per ASCE 7-10, 26.2 definitions.
2. See figures below for Zone locations.
3. Plus and minus signs signify pressures acting toward and away from surfaces, respectively.
4. Design pressures shown in table are strength design wind pressures. Allowable stress design wind pressures may be calculated by factoring the pressures by 0.6.
5. Design pressures for effective wind areas between those noted in schedule may be interpolated.
6. Tributary area = greater of LxW or LxL/3.
7. Deflections may be calculated based on 42% of these loads.

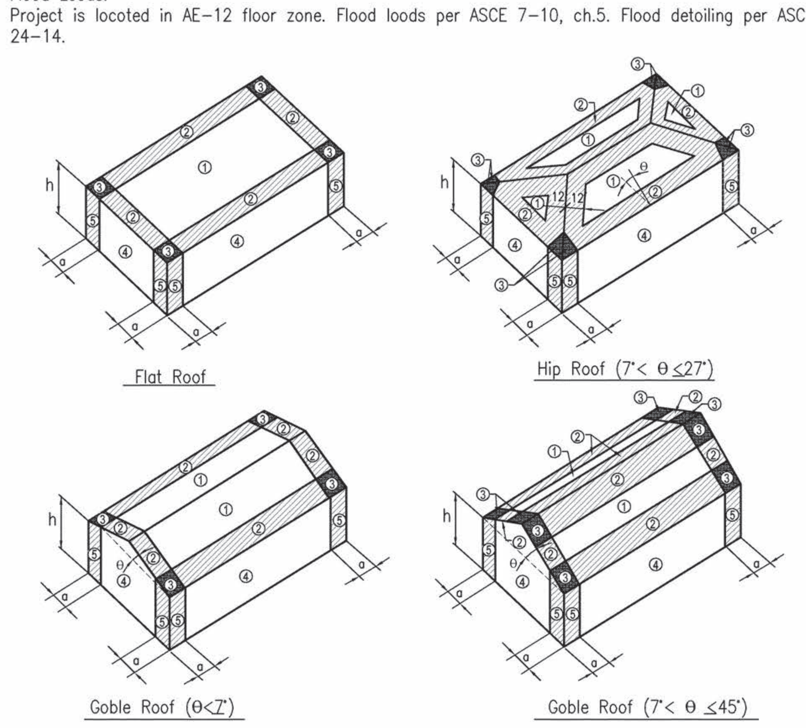
2.5 Seismic Loads per 2018 North Carolina State Building Code (IBC 2015) & ASCE 7-10

Risk Category = III
Site class = "D" (Per Geotechnical Report)
Spectral Response Coefficients:
SDS = 0.220g
SD1 = 0.141g
Csx = 0.079
Csy = 0.092

Seismic Design Category = C
Seismic Importance Factor = 1.25
Basic Seismic - Force - Resisting System
X-Dir Building Frame System - Intermediate Reinforced Masonry Shear Walls
Y-Dir - Building system not specific designed for seismic resistance
RX=4, ΩX=2.5, CDX=4
RY=3.0, ΩY=3.0, CDY=3.0
Design Base Shear Vx = 144k Vy =192k
Building Height Limit = NL
Analysis Procedure - 12.8.1 ASCE 7-10
Equivalent Lateral Force Procedure

2.6 Guardrail designed per North Carolina State Building Code, Section 1607.8
Guardrail:
Uniform load = 50 plf, any direction - per 1607.8.1
Concentrated load = 200 lbs, any direction - per 1607.8.1.1
Intermediate Rail: (all those expect handrail) per 1607.8.1.2

2.7 Flood Loads:
Project is located in AE-12 floor zone. Flood loads per ASCE 7-10, ch.5. Flood detailing per ASCE 24-14.



Flat Roof — Hip Roof (7° < θ ≤ 27°) — Gable Roof (θ < 7°) — Gable Roof (7° < θ ≤ 45°)

a = 7ft "corner zone"

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3.0 FOUNDATIONS:

3.1 Foundation design is based on geotechnical report #22:27020 by ECS Southeast, LLP, Wilmington, NC dated August 27, 2018. This report is available in the project specifications book. The recommendations contained in this report are herein made part of the requirements of these contract documents.

3.2 New footings shall bear on strata capable of sustaining a minimum bearing pressure of 2,500 psf. The bearing capacity shall be verified by a qualified Geotechnical Engineer.

3.3 Top of footing (T/FTG) elevations are shown on the drawings or are to be determined by the Contractor in the field in accordance with the guidelines set forth in the drawings.

3.4 Bottom of exterior footings, grade beams and walls shall bear at a minimum depth of 1'-6" below final grade for frost protection.

3.5 Testing and Inspection:
a. All areas to have slabs on grade shall be proof rolled in accordance with and under observation fo the Geotechnical Engineer and approved prior to preparation for concrete placement.

b. All foundation bearing strata shall be inspected and approved by the Geotechnical Engineer prior to any concrete placement.

c. Geotechnical Engineer shall be the sole judge as to suitability of all foundation and/or slab bearing strata.

d. Footing bearing elevations shall be adjusted in the field as required to meet the design bearing pressures by additional excavation or compaction and/or backfilling or by other means acceptable to the Geotechnical Engineer.

3.6 Undercutting to remove existing fill beneath footings and slab shall be performed at the direction of the Geotechnical Engineer.

3.7 Engineered Fill: All fill material shall be selected in accordance with the Geotechnical Report Material shall be a clean, low plastic soil with a plasticity index less than 30 (less than 15 is preferred), liquid limit less than 50, and unit weight of 120 pcf (+ 5 pcf)

3.8 Compaction: All fill shall be placed in loose lifts not exceeding 8 inches in thickness and compacted to a minimum of 96 percent Standard Proctor (ASTM D-698) except that the top 12 inches shall be compacted to a minimum of 98 percent Standard Proctor. Moisture shall be controlled to within 3 percent above or below optimum content.

3.9 Remove all topsoil and organic materials. The stripping should extend at least 10' beyond the proposed construction limits.

3.10 Subsurface Water: Due to the relatively shallow groundwater encountered, (2'-3' noted during boring) temporary construction dewatering may be necessary to facilitate efficient below-grade construction. Dewatering operations for the majority of the site can be handled by the use of conventional submersible pumps directly in the excavation or temporary trenches or French drains.

3.11 Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by the surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 2 to 3-inch "mud mat" of "lean" concrete should be placed on the bearing soils before the placement of reinforcing steel.

4.0 CONCRETE:

4.1 Concrete Strength:
All concrete shall be in accordance with the American Concrete Institute (ACI) 301 and 318.

4.2 Concrete shall have a 28 day compressive strength and density as follows:
a. Footings....................3,000psi, Density = ±145pcf
b. Interior Slab on Grade....................3,000psi, Density = ±145pcf
c. Slab on Deck....................3,000psi, Density = ±145pcf
d. CMU Grout Fill....................3,000psi, Density = ±145pcf, Slump 8"-11" or per structural masonry note 6.5

4.3 Concrete Mix Designs:
a. Submittals: Submit written reports of each proposed concrete mix not less than 15 days prior to the start of work.
b. Mix designs, including water, cement ratios and slumps, shall be prepared in accordance with ACI 301-05, Section 4, Cement shall conform to ASTM C 150 Type 1 or at contractor's option, ASTM C 595 Type IP where fly ash is permitted. Normal weight aggregate shall conform to ASTM C 33 and light weight aggregate shall conform to ASTM C 330. No admixtures containing calcium chloride shall be permitted in any concrete.
c. Aggregate size shall be #67 stone for supported slabs or other formed concrete elements; #57 stone for slabs on grade and footings or other concrete elements formed from and poured against earth; #89 stone for masonry grout.
d. Water reducing admixture shall be used in all concrete.
e. Air entraining admixture in accordance with ACI 301 shall be used in all concrete exposed freezing and thawing during construction or service conditions.
f. Concrete subjected to freezing/thawing shall have a maximum water/cement ratio of 0.45 and shall contain the amount of air entraining agent specified in ACI 301-05 Section 4.

4.4 Curing:
See specifications for curing method options and apply within two (2) hours after completion of finishing to all concrete flatwork and walls, U.N.O., other than footings and grade beams.

4.5 Use a non-corrosive, non-chloride accelerating admixture in concrete exposed to temperatures below 40 degrees. Uniformly heat the water and aggregates to a temperature of not less than 50 degrees. Place and cure concrete in accordance with ACI 306.

4.6 When hot weather conditions exist, place and cure concrete in accordance with ACI 301. Cool ingredients before mixing to maintain concrete temp. at time of placement below 90 degrees.

4.7 Reinforcing in all abutting concrete, including footings shall be continuous through or around all corners or intersections. Dowels or splices shall be equal in size and spacing to the reinforcing in the abutting members.

4.8 Refer to architectural drawings for door and window openings, drips, reglets, washes, masonry anchors, brick ledge elevations, slab depressions and miscellaneous embedded plates, bolts, anchors, angles, etc.

4.9 Refer to plumbing, mechanical and electrical drawings for underfloor, perimeter and other drains and for sleeves, outlet boxes, conduit, anchors, etc. The various trades are responsible for their items.

4.10 Base plates, anchor rods, support angles and other steel exposed to earth or granular fill shall be covered with a minimum of 3" of concrete.

4.11 Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values equal to 3/5 of the overall flatness and levelness values.
b. The composite F(F) and F(L) numbers shall be measured and reported within 72 hours after completion of slab concrete finishing operations and before removal of any supporting shores.

4.12 Non-shrink grout shall be pre-mixed, non-corrosive, non-metallic, non-staining containing silica sands, Portland cement, shrinkage compensating and water reducing agents. Product shall only require the addition of water. Minimum compressive strength shall be 2500 psi after one day and 7000 psi after 28 days. Grout shall be free of gas producing or air releasing and oxidizing agents and contain no corrosive iron, aluminum or gypsum.

4.13 Provide concrete grout - not mortar - for reinforced masonry lintel and bond beams where indicated on drawing or as scheduled.

4.14 Tolerance for anchor rods and other embedded items shall be per the AISC Code of Standard Practice Section 7.5.

4.15 Unless otherwise shown in the architectural drawings, provide 3/4-inch chamfers at all column, wall, slab or beam edges that are exposed to view in the finished structure.

4.16 Concrete cover for cast-in-place concrete reinforcement:
Concrete cast against & permanently exposed to earth:....................3 Inches
Concrete exposed to earth or weather:
No. 6 through No. 18 Bars:....................2 Inches
No. 5 Bar and smaller:....................1½" Inches
Concrete not exposed to weather or in contact with ground:
Slabs:
No. 11 Bar and smaller:....................¾" Inches

5.0 REINFORCING STEEL:

5.1 Reinforcing shall be domestic new billet steel conforming to ASTM A615, Grade 60 or 60S including stirrups and ties, except that reinforcing which is required to be welded shall conform to ASTM A706.

5.2 Field bending of concrete reinforcing steel is not permitted.

5.3 Welded wire mat and fabric shall conform to ASTM A184 and A185 respectively and shall be provided in flat sheets. Welded wire mat/fabric shall be lapped 0'-6" at all splices.

5.4 Bar Splices:

	f'c = 3,000psi		f'c = 4,000psi		f'c = 5,000psi	
Bar Size	Ld (in)	Class "B" Lap Splice (in)	Ld (in)	Class "B" Lap Splice (in)	Ld (in)	Class "B" Lap Splice (in)
#3	17	22	15	19	13	17
#4	22	29	19	25	17	23
#5	28	36	24	31	22	28
#6	33	43	29	37	26	34
#7	48	63	42	54	38	49
#8	55	72	48	62	43	56

1. Values are based on normal weight concrete.
2. Ld = minimum embed of rebar
3. Class "B" lap splice refers to minimum distance bars must be lapped for a full tension splice.

6.0 STRUCTURAL MASONRY:

6.1 All structural masonry shall conform to ACI 530 standards as appropriate to the material.

6.2 Concrete Masonry Units (CMU):
a. Units shall be lightweight cellular units conforming to ASTM C 90, Grade N-2. Concrete masonry net area unit strength shall be no less than 2000 psi in accordance with ASTM C 140, with a unit weight not exceeding 95 pcf.
b. Design compressive strength of CMU (fm) = 2000 psi.

6.3 Mortar shall conform to ASTM C 270. Mortar shall be type "S" and shall conform to the ASTM C270 proportion requirements.

6.4 Neither type "N" mortar nor masonry cement shall be used as part of the lateral force resisting system.

6.5 Grouting:
a. Grout shall conform to ASTM C476 as specified by proportion. Masonry grout shall conform to the ASTM proportion requirements for coarse grout with a slump of 8 to 11 inches. Contractor may substitute grout with pea gravel concrete masonry fill, see note 4.2 this sheet.
b. All bond beams shall be filled with grout and reinforced as indicated on the drawings (details or schedules). Mortar fill is not permitted.
c. All masonry wall cells or cavities indicated as reinforced shall be grouted for the full height of the wall, unless specifically noted otherwise on the drawings. Unreinforced walls indicated as grouted shall be grouted full height, unless specifically noted otherwise. Mortar fill is not permitted.
d. All masonry cells or cavities below grade shall be grouted solid unless specifically noted otherwise on the drawings. Mortar fill is not permitted.
e. Vertical grouting shall be low lift or high lift as follows:
(1) Low lift grouting shall be used for all cavity walls and may be used for all walls at the option of the Contractor. Lifts shall not exceed 4'-0" in height.
(2) High lift grouting is permissible only for filling of cellular masonry units and shall not exceed 12'-8" in height. Clean out holes shall be provided at the base of each grouted cell.
f. Grouting shall be stopped 1-1/2" below the top of a course to form a key at the joint.
g. Grouting of masonry beams or lintels shall be done in one continuous operation.

6.6 Masonry Reinforcing:
a. Foundation dowels may slope a maximum of 1:6 to align with wall cavities or vertical CMU cores. Greater slopes will require replacement of the foundation dowels.
b. Spliced reinforcing shall be lapped a length calculated per IBC 2107.5 OR 15" OR as shown on drawings, whichever is greatest. All splices shall be wired together.
c. Vertical reinforcing bars shall have a minimum clearance of ¾" from masonry and shall be held in position top and bottom and at intervals not exceeding 4'-0". Accessories for such support shall be used. Provide "AA Wire Products Company" (or approved equal) Rebar Positioner AA225 or AA239 for vertical bars and AA238 for horizontal bars or approved equal products from other suppliers.
d. Horizontal joint reinforcing shall be lapped no less than 6" all splices, including corners and tees where no control joint is used.
e. All horizontal joint reinforcing shall stop at control joints.
f. Horizontal reinforcing in bond beams shall be continuous through control joints.
g. All CMU walls shall have joint reinforcing @ 16"o.c. All joint reinforcing shall have (2) 9 gauge (0.148"ø or W1.7) side rods and cross rods @ 16"o.c.

6.7 Masonry contractor shall provide for and coordinate with other trades for placement of all items to be embedded or built into the masonry.

MINIMUM SPLICING LENGTH (L_d) FOR MASONRY	
BAR SIZE	SPLICE LENGTH
#3	16"
#4	22"
#5	26"
#6	43"
#7	60"

7.0 STRUCTURAL STEEL:

7.1 All structural steel shall be of the grades indicated below, unless noted otherwise on plans or details.
Rolled shapes ASTM A992 Gr. 50
Steel pipe ASTM A53, Type E or S, Grade B, Fy-35ksi
Structural tubing ASTM A500, Grade B, Fy-46ksi
Plates and bars ASTM A36 U.N.O.
Anchor rods ASTM F1554, Grade 36 U.N.O.
Miscellaneous ASTM A36 U.N.O.

7.2 All structural steel shall be detailed, fabricated and erected in accordance with the AISC Code of Standard Practice. The fabricator is responsible for the design of connections not shown on the structural drawings. For the purpose of the connection design, the fabricator shall retain a professional engineer registered in the state where the project is located. The engineer shall seal and sign each shop drawing containing connection design. A note shall accompany the drawings stating that the seal is for "connection Design Only".

7.3 Connection Design:
a. Generally, connections shown on the drawings are schematic and are intended to show the relationship of the members.
b. Connections shall be designed for one-half (1/2) the allowable uniform load on the member, as defined in Part 3, "Allowable Loads on Beams" tables in the AISC "Manual of Steel Construction", 13th Edition, Allowable Stress Design or for the reactions as shown on the drawings or a minimum of 10 kips, whichever is greatest.

7.4 Bolted connections:
a. Bearing type connections shall be snug tight with A325N or A490N bolts, U.N.O. Oversized and long-slotted holes are NOT permitted U.N.O. At single shear plate connections, provide bearing type fasteners with horizontal short slotted holes. All bolts shall be snug tight. DO NOT over torque bolts.
b. Protruding bolt heads, shafts or nuts shall not extend nor prohibit the application of architectural finishes or placement of steel deck at its correct location and elevation.
c. Connection designer is responsible for verifying the axial capacity after a section is reduced for bolt holes. Member size may be increased or plates added to maintain required capacity.
d. Bolted connections shall be assembled and inspected in accordance with RCSC-2009 (Specification for Structural Joints Using High-Strength Bolts).

7.5 Welded connections:
a. All welding shall be in accordance with the "Structural Welding Code - Steel" (AWS D1.1) of the American Welding Society, Latest Edition.
b. Electrodes for welding shall comply with the requirements of Table 4.1.1 of the AWS code.
c. At Moment Connections and Braced Frames Provide filler Metal that has a minimum CVN Toughness of 20 ft-lbs at minus 20 degrees F, As determined by AWS classification or Manufacturer Certification.
d. Proof of welder certification shall be available at the job site during times of inspection.

7.6 Minimum plate thickness shall be 3/8" U.N.O.; minimum bolt diameter shall be 3/4-inch U.N.O.; minimum shop weld shall be 3/16" and minimum field weld shall be 1/4-inch U.N.O.

7.7 All re-entrant corners (such as copes and blocks) shall be cut and shaped notch free with a radius of at least 1/2-inch.

7.8 All columns and base plates to be hot dipped galvanized.

8.0 COMPOSITE BEAMS:

8.1 Composite beams and girders DO NOT require temporary shoring for construction loads (wet concrete + 20 psf) U N O on the drawings. Contractor is responsible for verifying the construction load imposed on the structure. Where questions as to capacity arise, Contractor shall inform the Structural Engineer prior to proceeding with any work.

8.2 See details on S1.03 for typical stud layouts.

8.3 The number of shear connectors (studs) shown is based upon obtaining the full horizontal shear capacity indicated on the AISC "Load and Resistance Factor Design Specification for Steel Buildings" (LRFD) Chapter "I" for each stud for the strength and density of concrete where used. See composite steel deck notes also.

8.4 Studs shall be 3/4-inch diameter and shall extend not less than 1-1/2 inches above the top of the steel deck and shall not have less than 1/2-inch concrete cover above top of stud after welding and shall conform to ASTM A108.

8.5 The number of studs on a beam or between any two connections along a beam is shown on the drawings. Spacing of studs within the length shown shall be as uniform as possible.

8.6 No shop paint shall be applied to any studs nor to top flanges or surfaces of members receiving field welds.

8.7 Stud capacity varies with the type and length of the stud and with the properties of the composite deck. The deck supplier shall provide deck with a configuration that does not reduce the stud capacity per AISC requirements.

8.8 Stud type, length, shear value and detailed layout shall be submitted with the composite metal deck shop drawings.

8.9 Break ceramic ferrules (arc shields) loose and remove from deck.

8.10 A stud shear connector welded through the metal deck may take the place of a 3/4-inch puddle weld in order to secure the deck to the steel framing. Do not weld shear connectors through two layers (lapped ends) of deck units.

9.0 STEEL DECK:

9.1 Steel roof deck shall be galvanized, Type B, 1 1/2" deep, 20 gauge, U.N.O.

9.2 For steel roof deck spans, mechanically fasten side laps at mid-span using "Buildex", self-tapping TEKS No. 10 or larger machine screws or as noted on plan.
Provide additional sidelap fasteners where noted on plan.
Fasten roof deck to supporting members as noted on plan.

9.3 Do not hang pipes or ducts from steel roof deck. Fasten roof deck to supporting members as noted on plan.

9.4 COMPOSITE FLOOR DECK:

a. Deck shall be 2" - 19 gauge, galvanized, composite floor deck. Vulcraft 2VLI19 or approved equal.
b. Deck shall be galvanized per ASTM A924-94 (G60)
c. Fasten composite floor deck to supporting members by not less than 3/4-inch puddle welds or elongated welds of equal perimeter, spaced not more than 12" o.c. with a minimum 2 welds per unit of each support.

10.0 LIGHT GAUGE STEEL FRAMING (DIETRICH):

10.1 All members shall be designed in accordance with the American Iron and Steel Institute (AISI) "Specifications for the Design of Cold-formed Steel Structural Members", Latest Edition.

10.2 All framing members shall be formed from corrosion-resistant steel corresponding to the requirements of ASTM A446, with a minimum yield strength of 33 ksi for joists and studs and 33 ksi for runners. All exterior tracks, studs and roof trusses to have G90 Galvanization.

10.3 All members shown are standard designations of "Dietrich Industries, Inc."

10.4 Design of members indicated in structural drawings is based on minimum properties of products produced by "Dietrich Industries." No substitution of materials is acceptable for use without prior approval of the structural engineer. Substitutions shall meet or exceed all properties produced by "Dietrich Industries, Inc."

10.5 All shop drawing submittals shall show layout, spacing, sizes, thicknesses and types of cold-formed metal framing, fabrication, and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details and attachment to adjoining work.

10.6 Shop drawings, design calculations and other structural data shall be prepared and sealed by a qualified engineer. The Structural Engineer shall be legally qualified to practice in the jurisdiction where the project is located and shall be experienced in providing engineering services of the kind indicated.

10.7 All framing components shall be cut squarely for attachment to perpendicular members or as required for an angular fit tight against abutting members. All load bearing stud/walls shall be factory assembled into panels with studs bearing squarely and fully in top and bottom tracks.

10.8 Fastening components shall be by self-drilling screws or by welding as defined below UNO on the drawings.

10.9 Screwed connections:
a. Screws shall be type S-12 or type S-4 for all framing members per manufacturer's recommendations.
b. A minimum of three (3) exposed threads shall penetrate through at joined materials.
c. Corrosion-resistant cadmium-plated screws shall be used for screws attaching metal lath, masonry ties, and other exterior materials.

10.10 Welded connections:
a. Gas metal arc welding (GMAW) shall be used for 20 ga. Or lighter members. AWSE-705-3, E-705-E, E-705-6 wire electrodes .030"-.035" diameter shall be used with carbon dioxide, argon-oxygen or argon-carbon dioxide shielding. Welding equipment 60-100 amperes at 25 volts using 220-volt 3-phase electric service.
b. Shielded metal arc welding (SMAW) shall be used for 18 ga' and heavier members. AWS E-6012, E-6013, or E-7014 electrodes of 3/32" or 1/8" diameter shall be used. Welding equipment heat setting shall be varied dependent on material thickness.
c. All welds shall be touched up with zinc rich paint, or paint similar to that used by the framing member manufacturer.

10.11 Alignment of studs (plumbness) and walls (straightness) shall be within 1/960 of their respective heights and lengths.

10.12 Studs shall be plumbed, aligned, and securely attached to top and bottom runners. Splices in studs are not permitted.

10.13 Where manufacturer's recommendations for erection, attachment, assembly, bracing, alignment, or other installation, or assembly requirements are more stringent than indicated in these drawings, the manufacturer's recommendations shall apply.

STEEL THICKNESS						
Gauge:	Mils	Design Thickness		Minimum Thickness		Yield Strength
		Inches	mm	Inches	mm	ksi
20	33	0.0346	0.879	0.0329	0.836	33
18	43	0.0451	1.146	0.0428	1.087	33
16	54	0.0566	1.438	0.0538	1.367	50
14	68	0.0713	1.811	0.0677	1.720	50
12	97	0.1017	2.583	0.0966	2.454	50

11.0 POST-INSTALLED ANCHORS:

11.1 Except where indicated on the drawings, post-installed anchors shall consist of the following anchor types as provided by HILTI, Inc. Contact HILTI at (800) 879-8000 for product related questions.

Anchorage to Concrete
a. Adhesive anchors for cracked and uncracked concrete use:
1. HILTI HIT-HY 200 Safe Set System with HILTI HIT-Z Rod per ICC ESR-3187 (pending).
2. HILTI HIT-HY 200 Safe Set System with HILTI Hollow Drill Bit System with HAS-E threaded rod per ICC ESR-3187.
3. HILTI HIT-RE 500-SD Epoxy Adhesive Anchoring system with HAS-E threaded rod per ICC ESR-2322 for slow cure applications.

b. Medium duty mechanical anchors for cracked and uncracked concrete use:
1. HILTI KWIK HUS EZ and KWIK HUS EZ-I Screw Anchors per ICC ESR-3027
2. HILTI KWIK BOLT-TZ Expansion Anchors per ICC ESR-1917
3. HILTI KWIK Bolt 3 Expansion Anchors (uncracked concrete only) per ICC ESR-2302

c. Heavy duty mechanical anchors for cracked and uncracked concrete use:
1. HILTI HDA Undercut Anchors per ICC ESR 1546
2. HILTI HSL-3 Expansion Anchors per ICC ESR 1545

Rebar Doweling into Concrete
a. Adhesive anchors for cracked and uncracked concrete use:
1. HILTI HIT-HY 200 Safe Set System with HILTI Hollow Drill Bit System with continuously deformed rebar per ICC ESR-3187.
2. HILTI HIT-RE 500-SD Epoxy Adhesive Anchoring System with continuously deformed rebar per ICC ESR-2322.

Anchorage to Solid Grouted Masonry
a. Adhesive Anchors use:
1. HILTI HIT-HY 70 Masonry Adhesive Anchoring System (ICC pending).
2. Steel anchor element shall be HILTI HAS-E continuously threaded rod or continuously deformed steel rebar.
b. Mechanical Anchors use:
1. HILTI KWIK BOLT-3 Expansion Anchors per ICC ESR 1385.

Anchorage to Hollow/Multi-wythe Masonry
a. Adhesive Anchors use:
1. HILTI HIT-HY 70 Masonry Adhesive Anchoring System per ICC ESR-3342.
2. Steel anchor element shall be HILTI HAS-E continuously threaded rod or continuously deformed steel rebar.
3. The appropriate size screen tube shall be used per adhesive manufacturer's recommendation.

11.2 Anchor capacity used in design shall be based on the technical data published by HILTI or such other method as approved by the Structural Engineer of record. Substitution requests for alternate products must be approved in writing by the Structural Engineer of record prior to use. Contractor shall provide calculations demonstrating that the substituted product is capable of achieving the performance values of the specified product. Substitutions will be evaluated by their having and ICC ESR showing compliance with the relevant building code for seismic uses, load resistance, installation category, and availability of comprehensive installation instructions. Adhesive anchor evaluation will also consider creep, in-service temperature and installation temperature.

11.3 Install anchors per the manufacturer instructions, as included in the anchor packaging.

11.4 Overhead adhesive anchors must be installed using the HILTI PROFI System.

11.5 The contractor shall arrange an anchor manufacturer's representative to provide onsite installation training for all of their anchoring products specified. The Structural Engineer of record must receive documented confirmation that all of the contractor's personnel who install anchors are trained prior to the commencement of installing anchors.

11.6 Anchor capacity is dependant upon spacing between adjacent anchors and proximity of anchors to edge of concrete. Install anchors in accordance with spacing and edge clearances indicated on the drawings.

11.7 Existing reinforcing bars in the concrete structure may conflict with specific anchor locations. Unless noted on the drawings that the bars can be cut, the contractor shall review the existing structural drawings and shall undertake to locate the position of the reinforcing bars at the locations of the concrete anchors, by HILTI FERROSCAN, GPR, X-ray, chipping or other means.

12.0 CONSTRUCTION AND SAFETY:

12.1 Woods Engineering P.A.'s responsibility is limited to the details and information shown on these drawings. It is the responsibility of the Contractor to provide adequate safety measures required by local codes as well as OSHA Standards for the Construction Industry.
This should include, but not be limited to the following:
Shoring to protect new as well as existing structures.
Necessary Scaffolding.
Material Handling Equipment.
Trench Boxing.

13.0 SPECIAL INSPECTIONS:

13.1 Refer to Specification Section 014533 and Sheet S1.03 for all Special Inspections requirements.

14.0 SHOP DRAWING SUBMITTAL:

14.1 See Project Manual

14.2 Contractor shall submit Electronic copies (PDF format) of each shop drawing for review. Shop drawings shall be reviewed by the Contractor prior to submission to the Engineer. The Contractor shall allow 10 working days for shop drawing approval.

ABBREVIATIONS

@	AT
&	AND
AB	ANCHOR BOLTS
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT	ALTERNATE
ARCH	ARCHITECTS - ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
B, BOTT	BOTTOM
BCX	BOTTOM CHORD EXTENSION
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BM	BEAM
BOS	BOTTOM OF STEEL
BRG	BEARING
BTWN	BETWEEN
CJ	CONTRACTION JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNITS
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS
CONTR	CONTRACTOR
CSJ	COMPOSITE STEEL JOIST
CTRD	CENTERED
DBA	DEFORMED BAR ANCHOR
DD	DELEGATED DESIGN
DEFL	DEFLECTION
DEPR	DEPRESSION - DEPRESSED
DET	DETAIL
DIAG	DIAGONAL
ø	DIAMETER
DIM	DIMENSION
DIST	DISTANCE
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
EA	EACH
ELEV	ELEVATION
EMBED	EMBEDDED - EMBEDMENT
ENG	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EF	EACH FACE
EJ	EXPANSION JOINT
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EOW	EDGE OF WALL
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FS	FAR SIDE
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GT	GIRDER TRUSS
HD	HEADED
HI	HIGH
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
HT	HIP TRUSS
IFM	INSIDE FACE OF MASONRY
INT	INTERIOR
JBE	JOIST BEARING ELEVATION
JT	JOINT
K	KIP-S
KB	KICKER BRACE
KSI	KIPS PER SQUARE INCH
(L)	LONG SIDE REINFORCEMENT
LB	LONG BAR
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO	LOW
LOC	LOCATION
LWC	LIGHT WEIGHT CONCRETE
MAX	MAXIMUM
MC	MOMENT CONNECTION
MECH	MECHANICAL
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOW	MIDDLE OF WALL
MP	MASONRY PILASTER
d	NAILS - PENNY
No	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
OFB	OUTSIDE FACE OF BRICK
OFM	OUTSIDE FACE OF MASONRY
OFS	OUTSIDE FACE OF STUD
OPNG	OPENING
OPP	OPPOSITE HAND
PEBS	PRE-ENGINEERED BUILDING SUPPLIER
PED	PEDESTAL
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PLF	POUNDS PER LINEAR FOOT
PT	PRESSURE TREATED
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
(S)	SHORT SIDE REINFORCEMENT
SB	SHORT BAR
SCHD	SCHEDULE
SF	STEP FOOTING
SIM	SIMILAR
SOG	SLAB ON GRADE
SPEC(S)	SPECIFICATION(S)
SPF	SPRUCE PINE FUR
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
STIRR	STIRRUP
STL	STEEL
STR	STRUCTURAL
SW	SHEAR WALL
SYP	SOUTHERN YELLOW PINE
T	TOP
TCX	TOP CHORD EXTENSION
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VB	VEHICLE BARRIER
VERT	VERTICAL
VIF	VERIFY IN FIELD
W	WITH
WWF	WELDED WIRE FABRIC

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WOODS ENGINEERING, P.A. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 19475 ENGINEER DON R. WOODS

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Location: Wilmington, NC
Reason: I attest to the accuracy and integrity of this document
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Date: 2019.02.21 19:20:48-05'00'

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

General Notes

S1.01

##of ##

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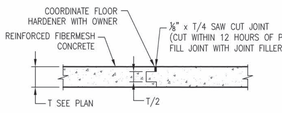
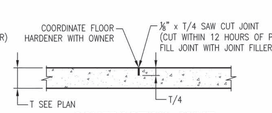
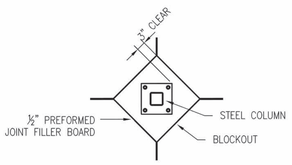


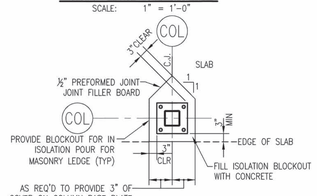
CONSTRUCTION JOINT
SCALE: 1" = 1'-0"



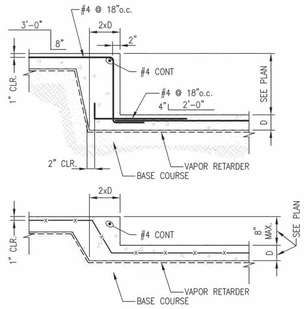
CONTRACTION JOINT
SCALE: 1" = 1'-0"



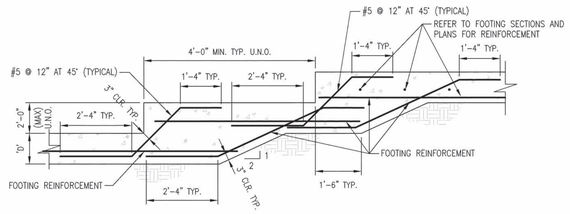
ISOLATION JOINT DETAIL
NOT TO SCALE



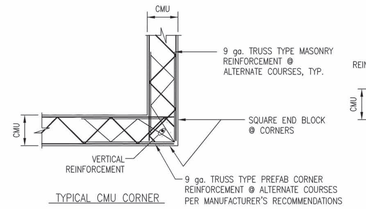
TYPICAL ISOLATION JOINT AT SLAB EDGE
NOT TO SCALE



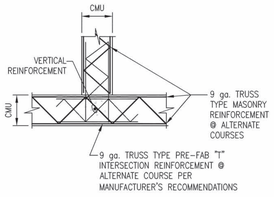
TYPICAL SLAB STEP
SCALE: 3/4" = 1'-0"



STEP FOOTING DETAIL
SCALE: 1/2" = 1'-0"



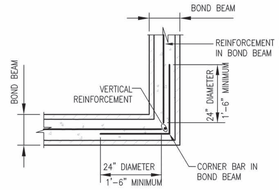
TYPICAL CMU CORNER DETAIL "B"
SCALE: 3/4" = 1'-0"



TYPICAL CMU INTERSECTION DETAIL "C"
SCALE: 3/4" = 1'-0"

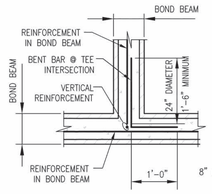
LOCATE CMU CONTROL JOINTS AS FOLLOWS:

1. AT MAXIMUM SPACING OF 25' OR 3 TIMES THE WALL HEIGHT. COORDINATE CONTROL JOINT LOCATIONS W/ ARCHITECTURAL PLANS.
2. AT ALL ABRUPT CHANGES IN WALL HEIGHT.
3. AT ALL CHANGES IN WALL THICKNESS, SUCH AS AT PIPE AND DUCT CHASES AND ADJACENT TO COLUMNS OR PILASTERS.
4. CENTERED OVER JOINTS IN FOUNDATIONS AND FLOORS.
5. CENTERED BELOW JOINTS IN ROOFS AND FLOORS THAT BEAR ON CMU WALLS.
6. AT A DISTANCE NOT OVER ONE-HALF THE REQUIRED JOINT SPACING FROM BONDED WALL INTERSECTIONS, CORNERS OR CHANGES IN WALL DIRECTION.
7. DO NOT PROVIDE CONTROL JOINTS IN CMU SHEAR WALLS.

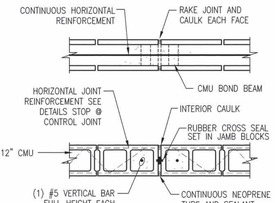


TYPICAL BOND BEAM REINFORCING DETAIL "D"
SCALE: 3/4" = 1'-0"

NOTE: TRUSS TYPE REINFORCEMENT SHOWN, HOWEVER LADDER OR TRUSS TYPES ARE ACCEPTABLE.



TYPICAL BOND BEAM INTERSECTION REINFORCING DETAIL "E"
SCALE: 3/4" = 1'-0"

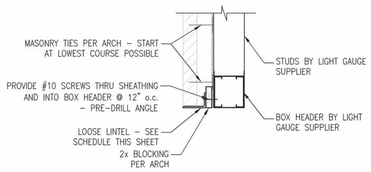


TYPICAL CONTROL JOINT DETAIL "F"
SCALE: 3/4" = 1'-0"

STEEL LINTEL SCHEDULE

CLEAR OPENING	ONE ANGLE FOR EA 4"WYTHE	MIN BRG.	MAX. HEIGHT OF BRICK
0'-8" TO 6'-0"	L6" x 4" x 5/16" LLH	8"	9'-0"
6'-0" TO 8'-0"	L6"x6"x5/16"	8"	9'-0"
8'-0" TO 12'-0"	L8"x6"x7/16" LLV	8"	9'-0"

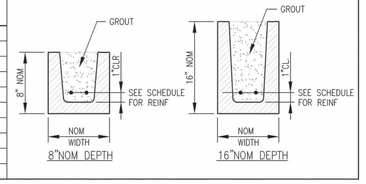
NOTES:
1. WHERE LINTELS BEAR ON HOLLOW MASONRY UNITS FILL ALL CORES UNDER BEARING WITH GROUT FROM BOTTOM OF LINTEL TO 16" MINIMUM BELOW.
2. THESE LINTELS ARE NOT DESIGNED FOR MASONRY WALLS THAT CARRY FLOOR OR ROOF LOAD.
3. LINTELS ARE DESIGNED TO CARRY THE MAXIMUM HEIGHT OF BRICK LISTED IN SCHEDULE. IF STACKED BRICK HEIGHT EXCEEDS LISTED VALUE, THEN CONTACT STRUCTURAL ENGINEER FOR ALTERNATE DESIGN.
4. ALL STEEL LINTELS SHALL BE HOT DIP GALVANIZED AND PAINTED.
5. SEE DETAIL BELOW FOR REQUIREMENTS



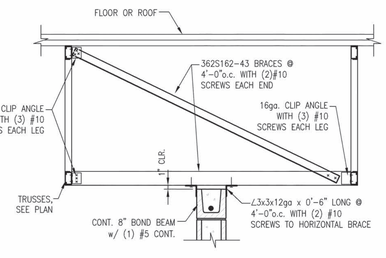
LOOSE LINTEL DETAIL
SCALE: 3/4" = 1'-0"

NON LOAD BEARING CMU LINTEL SCHEDULE

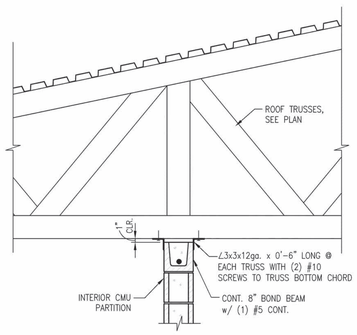
CLEAR OPENING	DEPTH	REINFORCING 6" CMU	REINFORCING 8" CMU	REINFORCING 12" CMU	MIN. BRG.
0'-8" TO 3'-4"	8"	1#4	1#4	2#5	8"
3'-4" TO 4'-8"	8"	1#4	1#4	2#5	8"
4'-8" TO 6'-0"	8"	1#4	1#5	2#5	8"
6'-0" TO 8'-0"	8"	1#4	2#5	2#5	8"
8'-0" TO 10'-0"	16"	1#4	2#5	2#5	12"
10'-0" TO 12'-0"	16"	–	–	2#5	12"



NOTES:
1. BEAR REINFORCING 4" (MIN) EACH END.
2. FILL BLOCK CORES WITH GROUT TO A DEPTH OF 48"(MIN) BELOW LINTEL BEARING.
3. SEE BEAM SCHEDULE FOR LINTELS FOR CLEAR SPANS OVER 12' AND LINTELS SUPPORTING FLOOR OR ROOF LOADS.
4. THESE LINTELS ARE NOT DESIGNED FOR MASONRY WALLS THAT CARRY FLOOR OR ROOF LOAD.

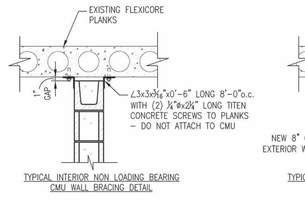


TRUSSES PARALLEL TO WALL

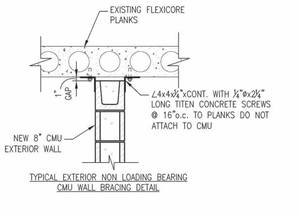


TRUSSES PERPENDICULAR TO WALL

TYPICAL CMU TO STEEL JOIST PARTITION BRACING DETAILS
SCALE: 3/4" = 1'-0"

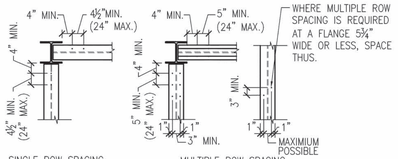


TYPICAL INTERIOR NON LOADING BEARING CMU WALL BRACING DETAIL



TYPICAL EXTERIOR NON LOADING BEARING CMU WALL BRACING DETAIL

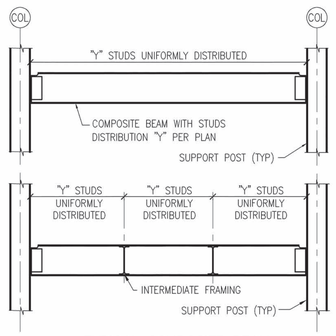
NOTES:
1. THIS DETAIL APPLIES WHERE THE DISTANCE BETWEEN INTERSECTING WALLS EXCEEDS 8'-0" FOR 8" CMU OR LARGER, 6'-0" FOR 6" CMU.
2. SPACE BRACES @ 10'-0" o.c. FOR 8" CMU AND 8'-0" o.c. FOR 6" CMU.
3. USE L2x2x3/16" FOR LENGTHS LESS THAN 6'-0", USE L3x3x3/16" FOR LENGTHS BETWEEN 6'-0" AND 9'-0" AND USE L4x4x¼" FOR LENGTHS BETWEEN 9'-0" AND 12'-0"
4. SEE ARCHITECTURAL DRAWINGS FOR TOP OF WALL ELEVATIONS.



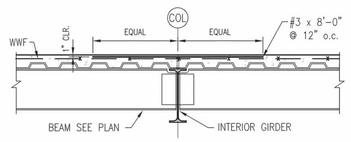
SINGLE ROW SPACING
USE SINGLE ROW SPACING EXCEPT WHEN REQUIRED BY FIELD CONDITIONS.

MULTIPLE ROW SPACING
NOTE: WHERE DECK IS CONTINUOUS OVER THE BEAMS THE DECK VALLEYS MAY CONTROL & POSSIBLY DICTATE SPACING. DECK SUPPLIER SHALL COMPLY W/ STUD CAPACITY REDUCTIONS REQUIRED TO EQUAL ORIGINAL CAPACITY.

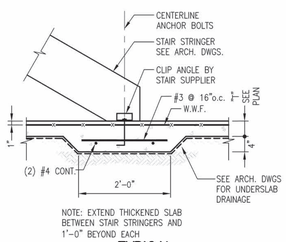
TYPICAL SHEAR STUD DETAIL
SCALE: 1/2" = 1'-0"



TYPICAL COMPOSITE BEAM STUD DISTRIBUTION
SCALE: 1/2" = 1'-0"

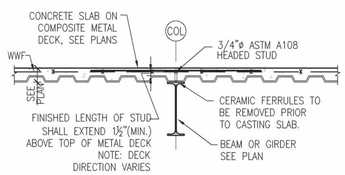


TYPICAL COMPOSITE SLAB REINFORCEMENT
SCALE: 1/2" = 1'-0"

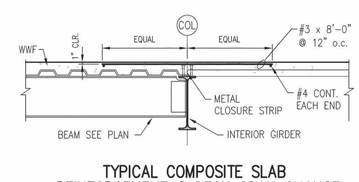


NOTE: EXTEND THICKENED SLAB BETWEEN STAIR STRINGERS AND 1'-0" BEYOND EACH

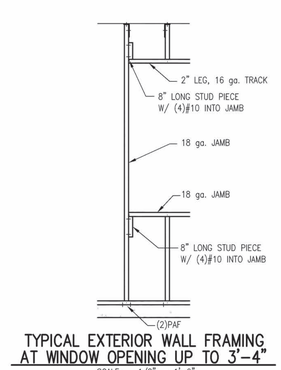
TYPICAL THICKENED SLAB
SCALE: 3/4" = 1'-0"



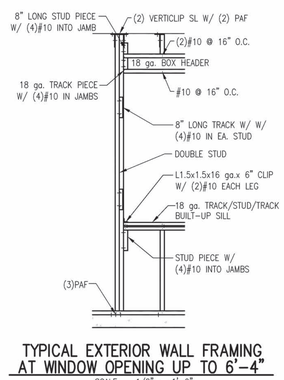
TYPICAL SHEAR STUD DETAIL
SCALE: 1/2" = 1'-0"



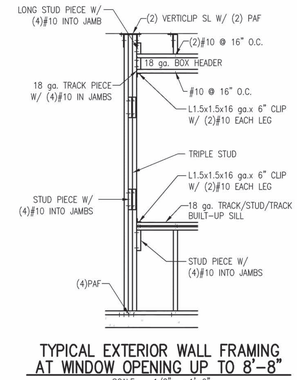
TYPICAL COMPOSITE SLAB REINFORCEMENT @ DECK SPAN CHANGE
SCALE: 1/2" = 1'-0"



TYPICAL EXTERIOR WALL FRAMING AT WINDOW OPENING UP TO 3'-4"
SCALE: 1/2" = 1'-0"



TYPICAL EXTERIOR WALL FRAMING AT WINDOW OPENING UP TO 6'-4"
SCALE: 1/2" = 1'-0"



TYPICAL EXTERIOR WALL FRAMING AT WINDOW OPENING UP TO 8'-8"
SCALE: 1/2" = 1'-0"

TYPICAL LIGHT GAUGE CONSTRUCTION DETAILS FOR NON-LOAD BEARING EXTERIOR WALLS

NOTE: THESE DETAILS ARE GENERIC AND ARE FOR GENERAL INFORMATION AND BUDGET PRICING. ACTUAL DESIGN BY LIGHT GAUGE SUPPLIER AND ENGINEER.

GENERAL NOTE:
DETAILS SHOWN ON THIS SHEET ARE GENERIC IN NATURE AND MAY NOT PORTRAY EXACT CONDITIONS. THESE DETAILS ARE INTENDED TO PROVIDE GENERAL GUIDELINES FOR TYPICAL CONSTRUCTION CONDITIONS.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19475 DON R. WOODS

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Date: 2019.02.21 19:21:46-05'00'

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Typical Details

S1.02

##of ##

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Feb 21,2019 - 7:03pm
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SCHEDULE FOR SPECIAL INSPECTIONS

BUILDING COMPONENTS OR MATERIAL	MATERIAL SUBMITTAL	INSPECTION / MONITORING	INSPECTION FREQUENCY	INSPECTOR QUALIFICATIONS	TEST REQUIREMENTS	TEST FREQUENCY	INSPECTION AGENCY
SOILS	1. REVIEW ECS, INC. GEOTECHNICAL REPORT #22-27020 – ALLOWABLE SOIL BEARING = 2500psf. 2. FILL MATERIAL SPECIFICATIONS. 3. VAPOR BARRIER	1. INSPECT SOILS PER ATTACHED 2015 IBC, TABLE 1705.6 FOR REQUIRED VERIFICATION AND INSPECTION. 2. INSPECT VAPOR BARRIER INSTALLATION. SEE PROJECT & MANUFACTURER SPECS.	ALL INSPECTIONS ARE PERIODIC EXCEPT FILL PLACEMENT AND COMPACTION WHICH IS CONTINUOUS.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. PROVIDE VISUAL AND DCP TESTS PER ASTM STP-399 2. SUBGRADE DENSITY VERIFICATION	1. EACH ISOLATED FOOTING AND AT 20' INTERVALS FOR CONTINUOUS FOOTINGS. 2. AS REQUIRED TO VERIFY ENTIRE BUILDING PAD.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
CONCRETE	1. SUBMIT CONCRETE MIX DESIGN. 2. SUBMIT MATERIAL CERTIFICATION 3. SUBMIT REBAR SHOP DRAWINGS.	INSPECT CONCRETE CONSTRUCTION PER ATTACHED 2015 IBC, TABLE 1705.3	AS OUTLINED PER TASK IN TABLE 1705.3	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. TEST CONCRETE FOR COMPRESSIVE STRENGTH, SLUMP, AIR CONTENT, TEMPERATURE AND BATCH TO PLACEMENT TIME.	1. SAMPLES FOR STRENGTH TESTS FOR EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 YD^3 OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5,000FT^2 OF SURFACE AREA FOR SLABS OR WALLS.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
STEEL	1. SUBMIT ANCHOR BOLT SETTING PLAN. 2. SUBMIT STEEL SHOP DRAWINGS. 3. SUBMIT MATERIAL CERTIFICATES. 4. FABRICATOR CERTIFICATE OF COMPLIANCE WITH 2015 IBC, 1705.2.	INSPECT STEEL PER ATTACHED TABLE BELOW	AS OUTLINED PER TASK IN TABLE BELOW	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. VISUAL INSPECTION BY A QUALIFIED STEEL INSPECTOR. 2. MOMENT CONNECTIONS FIELD WELDED. 3. ALL FIELD BOLTING SHALL BE SNUG TIGHT.	INSPECT ALL FIELD CONNECTIONS. CONTINUOUS INSPECTION OF ALL MOMENT CONNECTIONS REQUIRED.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
MASONRY	1. SUBMIT MATERIAL CERTIFICATIONS.	INSPECT MASONRY PER ATTACHED ACI 530-13, TABLE 1.19.2. LEVEL B REQUIRED VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION.	AS OUTLINED PER TASK IN TABLE BELOW.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. TEST GROUT (PEA GRAVEL CONCRETE) FOR SLUMP & COMPRESSIVE STRENGTH.	1. SAMPLES FOR STRENGTH TESTS FOR EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 YD^3 OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5,000FT^2 OF SURFACE AREA FOR SLABS OR WALLS.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
COLD FORMED STEEL	1. SUBMIT SEALED ROOF TRUSS AND WALL FRAMING SHOP DRAWINGS. 2. SUBMIT PRODUCT DATA SHEETS. 3. SUBMIT P.E. SEALED CALCULATIONS.	1. FABRICATOR SHALL BE SUBMIT SHOP CERTIFICATION IF ROOF TRUSSES ARE SHOP FABRICATED. 2. INSPECT ALL FIELD FABRICATED TRUSSES VS. APPROVED SHOP DRAWINGS. 3. INSPECT WALL FRAMING. 4. INSPECT MECHANICAL CONNECTIONS FROM TRUSS TO STEEL TUBE, STEEL TUBE TO WALL FRAMING AND ANCHORAGE OF WALL FRAMING TO CONCRETE.	1 & 2 CONTINUOUS 3. PERIODIC 4. PERIODIC	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. VISUAL INSPECTION BY A QUALIFIED INSPECTOR.	1. PERIODIC	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.
ROOF CLADDING	NONE.	1. VISUAL AND AS REQUIRED TO CERTIFY ROOF ATTACHMENT PER MANUFACTURER GUIDELINES.	1. PERIODIC.	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.	1. PER MANUFACTURER AND 2009 IBC CODE FOR A WIND SPEED OF 130 MPH.	1. PERIODIC	1. QUALIFIED INSPECTION AGENCY A) INSPECTION AGENCY TO BE APPROVED BY SPECIAL INSPECTION COORDINATOR & BUILDING OFFICIAL.

REQUIRED VERIFICATION & INSPECTION OF STEEL CONSTRUCTION

VERIFICATION & INSPECTION TASK	CONTINUOUS	PERIODIC
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:		
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	–	X
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	–	X
2. INSPECTION OF HIGH-STRENGTH BOLTING:		
a. SNUG-TIGHT JOINTS.	–	X
b. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITH MATCH-MARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	–	X
c. PRETENSIONED AND SLIP-CRITICAL JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	X	–
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:		
a. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360	–	X
b. FOR OTHER STEEL, INDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	–	X
c. MANUFACTURER'S CERTIFIED TEST REPORTS.	–	X
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:		
a. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	–	X
b. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	–	X
5. INSPECTION OF WELDING:		
a. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:		
1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.	X	–
2) MULTIPASS FILLET WELDS.	X	–
3) SINGLE-PASS FILLET WELDS > 5/16"	X	–
4) PLUG AND SLOT WELDS.	X	–
5) SINGLE-PASS FILLET WELDS ≤ 5/16"	–	X
6) FLOOR AND ROOF DECK WELDS.	–	X
b. REINFORCING STEEL:		
1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.	–	X
2) REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.	X	–
3) SHEAR REINFORCEMENT.	X	–
4) OTHER REINFORCING STEEL	–	X
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:		
a. DETAILS SUCH AS BRACING AND STIFFENING.	–	X
b. MEMBER LOCATIONS.	–	X
c. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	–	X

(a) OBSERVE ON A RANDOM BASIS, OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. PERFORM THESE TASKS FOR EACH WELDED JOINT, BOLTED CONNECTION, OR STEEL ELEMENT
(b) SEE AISC 360 QUALITY ASSURANCE INSPECTION REQUIREMENTS

REQUIRED VERIFICATION & INSPECTION OF SOILS

VERIFICATION & INSPECTION TASK	CONTINUOUS	PERIODIC
1. VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	–	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	–	X
3. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.	–	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	–
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY,	–	X

NOTE: SEE IBC-2015, TABLE 1705.6, CHAPTER 17

REQUIRED LEVEL B VERIFICATION & INSPECTION OF MASONRY CONSTRUCTION FREQUENCY CHART

VERIFICATION & INSPECTION TASK	CONTINUOUS	PERIODIC
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS SHALL BE VERIFIED.	–	X
2. VERIFICATION OF f'_m AND f'_{MC} PRIOR TO CONSTRUCTION EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE.	–	X
3. VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT.	X	–
4. AS MASONRY CONSTRUCTION BEGINS, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:		
a. PROPORTIONS OF SITE-PREPARED MORTAR.	–	X
b. CONSTRUCTION OF MORTAR JOINTS.	–	X
c. LOCATION OF REINFORCEMENT, CONNECTORS, PRESTRESSING TENDONS AND ANCHORAGES.	–	X
d. PRESTRESSING TECHNIQUE.	–	X
e. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES.	–	X
5. DURING CONSTRUCTION THE INSPECTION PROGRAM SHALL VERIFY:		
a. SIZE AND LOCATION OF STRUCTURAL ELEMENTS.	–	X
b. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES OR OTHER CONSTRUCTION.	–	X
c. SPECIFIED SIZE, GRADE AND TYPE OF REINFORCEMENT, ANCHOR BOLTS, PRESTRESSING TENDONS AND ANCHORAGES.	–	X
d. WELDING OF REINFORCING BARS.	X	–
e. PREPARATION, CONSTRUCTION AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F).	–	X
f. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE.	X	–
6. PRIOR TO GROUTING, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE:		
a. GROUT SPACE IS CLEAN.	–	X
b. PLACEMENT OF REINFORCEMENT AND CONNECTORS, AND PRESTRESSING TENDONS AND ANCHORAGES.	–	X
c. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS.	–	X
d. CONSTRUCTION OF MORTAR JOINTS.	–	X
7. GROUT PLACEMENT SHALL BE VERIFIED TO ENSURE COMPLIANCE:	X	–
a. GROUTING OF PRESTRESSING BONDED TENDONS.	X	–
8. PREPARATION OF ANY REQUIRED GROUT SPECIMENS, MORTAR SPECIMENS AND/OR PRISMS SHALL BE OBSERVED.	–	X

NOTE: SEE IBC 2015, SECTION 1705.4 FOR REFERENCE STANDARDS.
(a) FREQUENCY REFERS TO THE FREQUENCY OF INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK LISTED OF PERIODICALLY DURING THE LISTED TASK, AS DEFINED IN THE TABLE
(b) REQUIRED FOR THE FIRST 5000 ft^3 OF AAC MASONRY
(c) REQUIRED AFTER THE FIRST 5000 ft^3 OF AAC MASONRY
(d) SEE TABLE 1.19.2 OF TMS 402/ACI 530/ASCE 5-13 FOR REFERENCE STANDARDS

REQUIRED VERIFICATION & INSPECTION OF CONCRETE CONSTRUCTION FREQUENCY CHART

VERIFICATION & INSPECTION TASK	CONTINUOUS	PERIODIC
1. INSPECTION OF REINFORCING STEEL INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	–	X
2. REINFORCING BAR WELDING: a. VERIFY WEDABILITY OF REINFORCING BARS OTHER THAN ASTM A 706 b. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; and c. INSPECT ALL OTHER WELDS.	– X	X X
3. INSPECTION OF ANCHORS CAST IN CONCRETE	–	X
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS a. ADHESIVE ANCHORS INSTALLED HORIZONTALLY OR UPWARDLY INCLUDED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. b. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.a.	X	 X
5. VERIFY USE OF REQUIRED DESIGN MIX.	–	X
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	–
7. INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	–
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	–	X
9. INSPECTION OF PRESTRESSED CONCRETE: a. APPLICATION OF PRESTRESSING FORCES. b. GROUTING OF BONDED PRESTRESSING TENDONS	X X	– –
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	–	X
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	–	X
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	–	X

NOTE: SEE IBC 2015, TABLE 1705.3 FOR REFERENCE STANDARDS.

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Special Inspections Tables

S1.03

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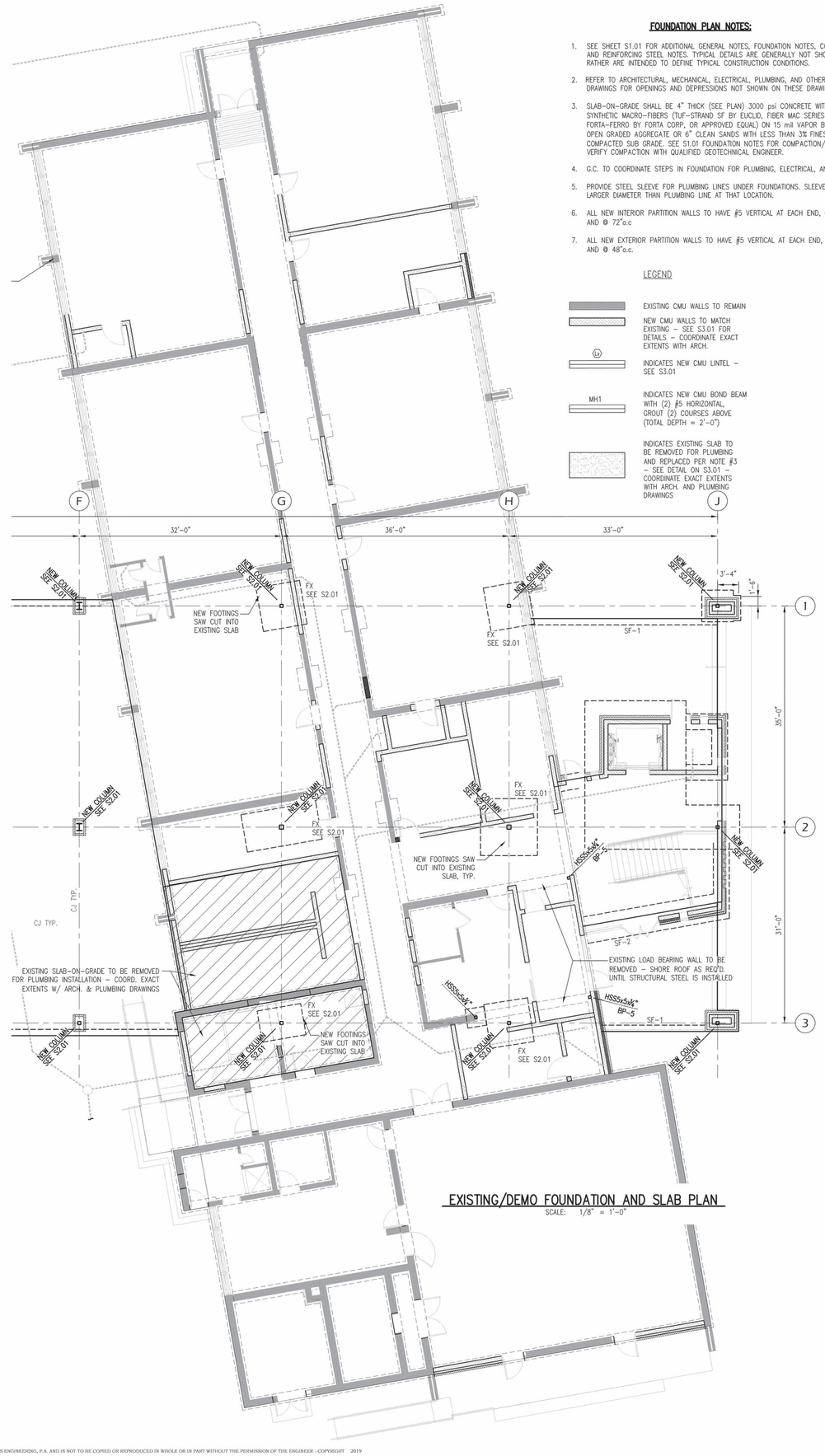
FOUNDATION PLAN NOTES:

1. SEE SHEET S1.01 FOR ADDITIONAL GENERAL NOTES, FOUNDATION NOTES, CONCRETE NOTES, AND REINFORCING STEEL NOTES. TYPICAL DETAILS ARE GENERALLY NOT SHOWN ON PLAN BUT RATHER ARE INTENDED TO DEFINE TYPICAL CONSTRUCTION CONDITIONS.
2. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DISCIPLINE DRAWINGS FOR OPENINGS AND DEPRESSIONS NOT SHOWN ON THESE DRAWINGS.
3. SLAB-ON-GRADE SHALL BE 4" THICK (SEE PLAN) 3000 psi CONCRETE WITH 3.0 lbs/yd.^{3} OF SYNTHETIC MACRO-FIBERS (TUF-STRAND SF BY EUCLID, FIBER MAC SERIES BY BASF, FORTA-FERRO BY FORTA CORP, OR APPROVED EQUAL) ON 15 mil VAPOR BARRIER, ON 6" OPEN GRADED AGGREGATE OR 6" CLEAN SANDS WITH LESS THAN 3% FINES ON WELL COMPACTED SUB GRADE. SEE S1.01 FOUNDATION NOTES FOR COMPACTION/REQUIREMENTS, VERIFY COMPACTION WITH QUALIFIED GEOTECHNICAL ENGINEER.
4. G.C. TO COORDINATE STEPS IN FOUNDATION FOR PLUMBING, ELECTRICAL, AND MECHANICAL.
5. PROVIDE STEEL SLEEVE FOR PLUMBING LINES UNDER FOUNDATIONS. SLEEVE SHALL BE 2" LARGER DIAMETER THAN PLUMBING LINE AT THAT LOCATION.
6. ALL NEW INTERIOR PARTITION WALLS TO HAVE #5 VERTICAL AT EACH END, CORNERS, JAMBS, AND @ 72"o.c
7. ALL NEW EXTERIOR PARTITION WALLS TO HAVE #5 VERTICAL AT EACH END, CORNERS, JAMBS, AND @ 48"o.c.

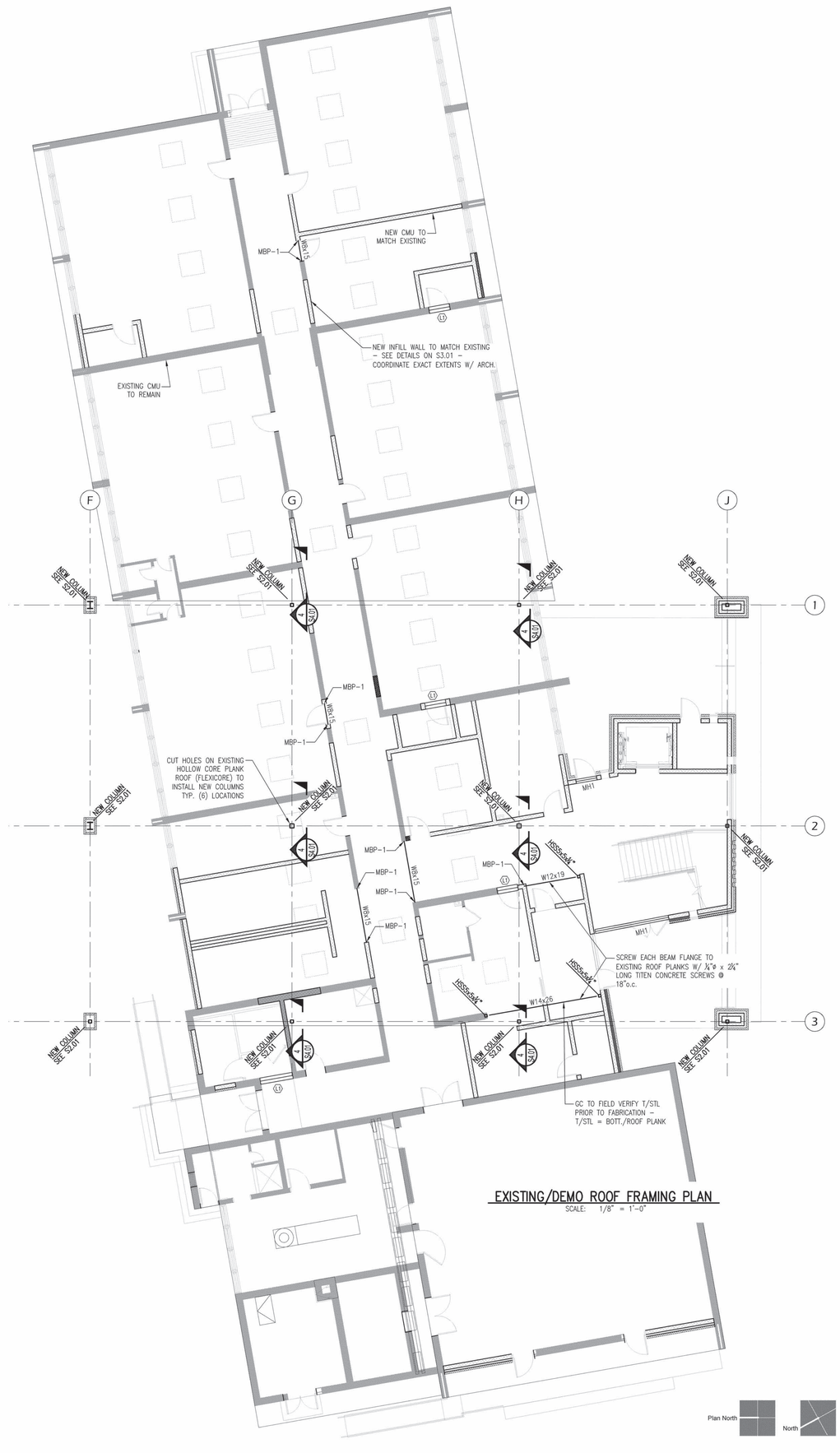
LEGEND

- EXISTING CMU WALLS TO REMAIN
- NEW CMU WALLS TO MATCH EXISTING – SEE S3.01 FOR DETAILS – COORDINATE EXACT EXTENTS WITH ARCH.
- (L) INDICATES NEW CMU LINTEL – SEE S3.01
- MH1 INDICATES NEW CMU BOND BEAM WITH (2) #5 HORIZONTAL, GROUT (2) COURSES ABOVE (TOTAL DEPTH = 2'-0")
- INDICATES EXISTING SLAB TO BE REMOVED FOR PLUMBING AND REPLACED PER NOTE #3 – SEE DETAIL ON S3.01 – COORDINATE EXACT EXTENTS WITH ARCH. AND PLUMBING DRAWINGS



EXISTING/DEMO FOUNDATION AND SLAB PLAN

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



EXISTING/DEMO ROOF FRAMING PLAN

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

Plan North

North

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

EXISTING/DEMO FOUNDATION, SLAB AND ROOF PLANS

SD2.00

##of ##

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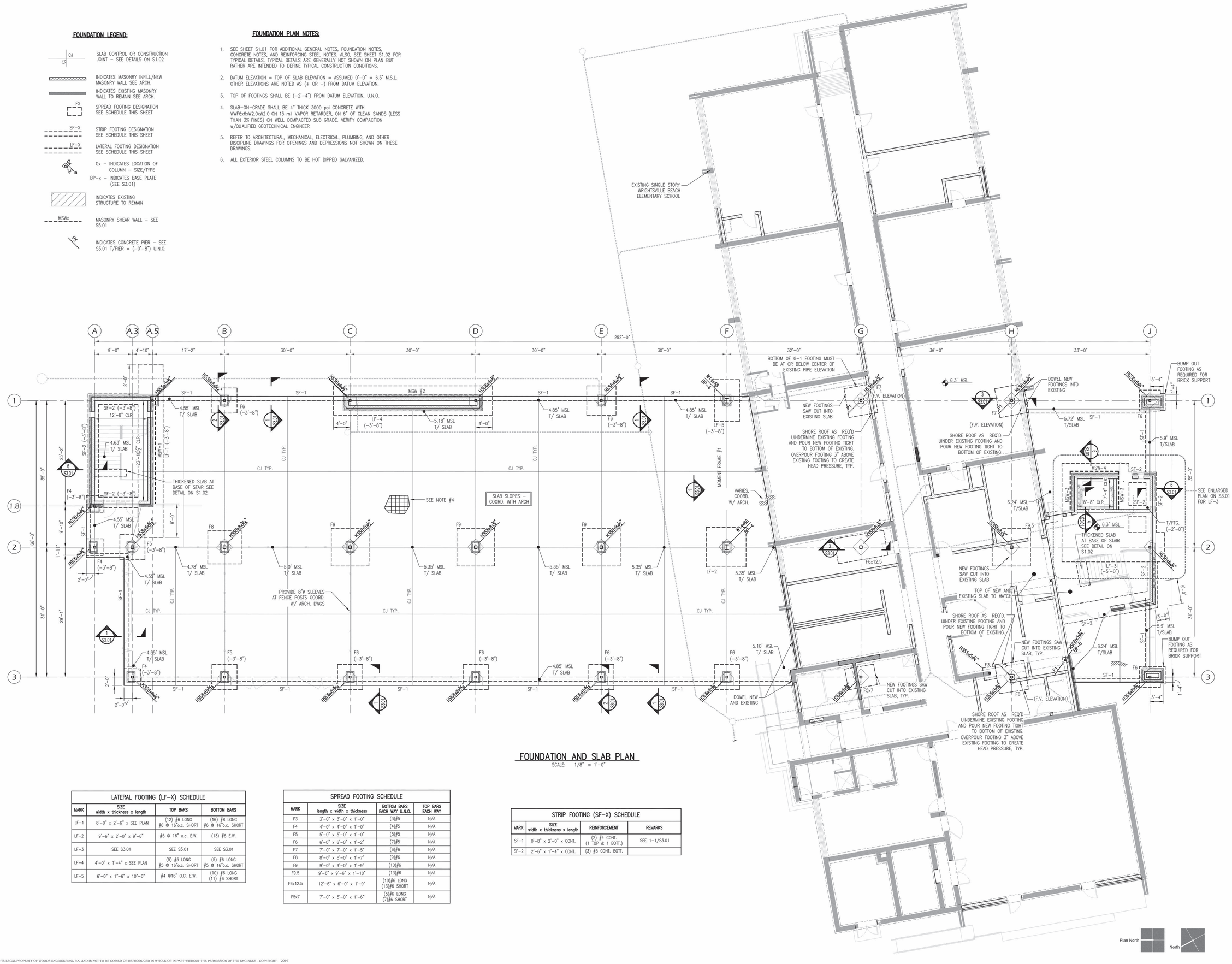
FOUNDATION LEGEND:

- CJ / CJ — SLAB CONTROL OR CONSTRUCTION JOINT – SEE DETAILS ON S1.02
- INDICATES MASONRY INFILL/NEW MASONRY WALL SEE ARCH.
- INDICATES EXISTING MASONRY WALL TO REMAIN SEE ARCH.
- FX — SPREAD FOOTING DESIGNATION SEE SCHEDULE THIS SHEET
- SF–X — STRIP FOOTING DESIGNATION SEE SCHEDULE THIS SHEET
- LF–X — LATERAL FOOTING DESIGNATION SEE SCHEDULE THIS SHEET
- C1 / BP–1 — Cx – INDICATES LOCATION OF COLUMN – SIZE/TYPE; BP–x – INDICATES BASE PLATE (SEE S3.01)
- INDICATES EXISTING STRUCTURE TO REMAIN
- MSWx — MASONRY SHEAR WALL – SEE S5.01
- PX — INDICATES CONCRETE PIER – SEE S3.01 T/PIER = (–0'–8") U.N.O.

FOUNDATION PLAN NOTES:

1. SEE SHEET S1.01 FOR ADDITIONAL GENERAL NOTES, FOUNDATION NOTES, CONCRETE NOTES, AND REINFORCING STEEL NOTES. ALSO, SEE SHEET S1.02 FOR TYPICAL DETAILS. TYPICAL DETAILS ARE GENERALLY NOT SHOWN ON PLAN BUT RATHER ARE INTENDED TO DEFINE TYPICAL CONSTRUCTION CONDITIONS.
2. DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'–0" = 6.3' M.S.L. OTHER ELEVATIONS ARE NOTED AS (+ OR –) FROM DATUM ELEVATION.
3. TOP OF FOOTINGS SHALL BE (–2'–4") FROM DATUM ELEVATION, U.N.O.
4. SLAB–ON–GRADE SHALL BE 4" THICK 3000 psi CONCRETE WITH WWF6x6xW2.0xW2.0 ON 15 mil VAPOR RETARDER, ON 6" OF CLEAN SANDS (LESS THAN 3% FINES) ON WELL COMPACTED SUB GRADE. VERIFY COMPACTION w/QUALIFIED GEOTECHNICAL ENGINEER
5. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DISCIPLINE DRAWINGS FOR OPENINGS AND DEPRESSIONS NOT SHOWN ON THESE DRAWINGS.
6. ALL EXTERIOR STEEL COLUMNS TO BE HOT DIPPED GALVANIZED.



FOUNDATION AND SLAB PLAN

SCALE: 1/8" = 1'–0"

LATERAL FOOTING (LF–X) SCHEDULE

MARK	SIZE width x thickness x length	TOP BARS	BOTTOM BARS
LF–1	8'–0" x 2'–6" x SEE PLAN	(12) #6 LONG #6 @ 16"o.c. SHORT	(16) #8 LONG #6 @ 16"o.c. SHORT
LF–2	9'–6" x 2'–0" x 9'–6"	#5 @ 16" o.c. E.W.	(13) #6 E.W.
LF–3	SEE S3.01	SEE S3.01	SEE S3.01
LF–4	4'–0" x 1'–4" x SEE PLAN	(5) #5 LONG #5 @ 16"o.c. SHORT	(5) #6 LONG #5 @ 16"o.c. SHORT
LF–5	6'–0" x 1'–6" x 10"–0"	#4 @16" O.C. E.W.	(10) #6 LONG (11) #6 SHORT

SPREAD FOOTING SCHEDULE

MARK	SIZE length x width x thickness	BOTTOM BARS EACH WAY U.N.O.	TOP BARS EACH WAY
F3	3'–0" x 3'–0" x 1'–0"	(3)#5	N/A
F4	4'–0" x 4'–0" x 1'–0"	(4)#5	N/A
F5	5'–0" x 5'–0" x 1'–0"	(5)#5	N/A
F6	6'–0" x 6'–0" x 1'–2"	(7)#5	N/A
F7	7'–0" x 7'–0" x 1'–5"	(6)#6	N/A
F8	8'–0" x 8'–0" x 1'–7"	(9)#6	N/A
F9	9'–0" x 9'–0" x 1'–9"	(10)#6	N/A
F9.5	9'–6" x 9'–6" x 1'–10"	(13)#6	N/A
F6x12.5	12'–6" x 6'–0" x 1'–9"	(10)#6 LONG (13)#6 SHORT	N/A
F5x7	7'–0" x 5'–0" x 1'–6"	(5)#6 LONG (7)#6 SHORT	N/A

STRIP FOOTING (SF–X) SCHEDULE

MARK	SIZE width x thickness x length	REINFORCEMENT	REMARKS
SF–1	0'–8" x 2'–0" x CONT.	(2) #4 CONT. (1 TOP & 1 BOTT.)	SEE 1–1/S3.01
SF–2	2'–6" x 1'–4" x CONT.	(3) #5 CONT. BOTT.	

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WOODS ENGINEERING, P.A. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19475 DON R. WOODS

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Location: Wilmington, NC
Reason: I attest to the accuracy and integrity of this document
Contact Info: donwoods@woodseng.com
Date: 2019.02.21 19:23:21-05'00'

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Foundation and Slab Plan

S2.01

##of ##

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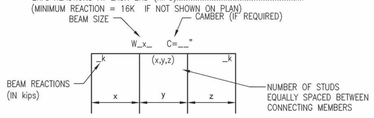
FLOOR FRAMING LEGEND

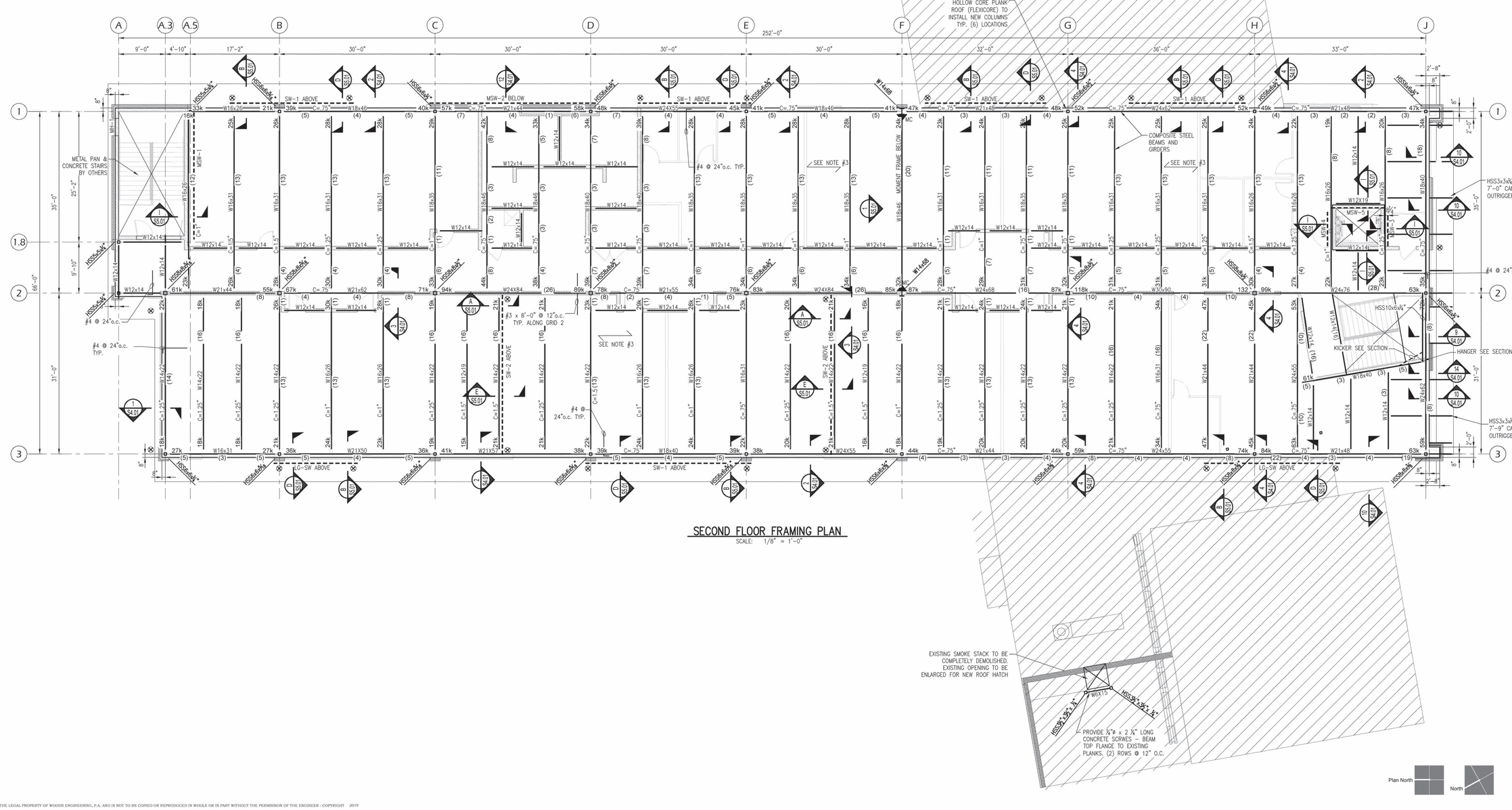
- W_x_ — STEEL BEAM, SEE PLAN FOR SIZE AND LOCATION
- MC — MOMENT CONNECTION SEE SHEET S5.01
- INDICATES EXISTING STRUCTURE TO REMAIN
- Cx — INDICATES LOCATION OF COLUMN — SIZE/TYPE
- HX — LIGHT GAUGE HEADER BY DD

FLOOR FRAMING PLAN NOTES:

1. TYPICAL SLAB ELEVATION IS +13'-8" ABOVE DATUM ELEVATION (ASSUMED 0'-0") TYPICAL T/STEEL BEAM OR GIRDER IS 5½" BELOW T/SLAB U.N.O.
2. SEE S1.0 SERIES SHEET FOR GENERAL NOTES, STEEL, DECK AND CONCRETE NOTES AND TYPICAL DETAILS.
3. TYPICAL FLOOR SLAB IS 3 1/2" – 3000 psi NORMAL WEIGHT CONCRETE TOPPING WITH 4.0 lbs/yd3 OF SYNTHETIC MACRO-FIBERS (TUF-STRAND SF BY EUCLID, FIBER MAC SERIES BY BASF, FORTA-FERRO BY FORTA CORP, OR APPROVED EQUAL) ON 2", 19 GAUGE GALVANIZED COMPOSITE METAL FLOOR DECK VULCRAFT 2VL19 OR APPROVED EQUAL. TOTAL FLOOR SLAB SYSTEM IS 5 1/2" THICK.
4. ALL BEAMS, GIRDERS AND COLUMNS BE ASTM A992, GRADE 50.
5. SEE SHEET S5.01 FOR BRACE FRAMES, MASONRY SHEAR WALL, AND LIGHT GAUGE SHEAR WALL INFORMATION.
6. STEEL, METAL PAN AND CONCRETE STAIRS BY OTHERS. PROVIDE STAIRS AND INTERMEDIATE LANDINGS. COORDINATE ALL STAIR DIMENSIONS W/ ARCHITECTURAL DRAWINGS.
7. DESIGNATIONS ON PLAN FOR BEAM REACTIONS, CAMBERS AND COMPOSITE BEAM SHEAR STUDS AS INDICATED BELOW. SEE "TYPICAL DETAILS" SHEET S1.0 SERIES SHEETS FOR STUD PLACEMENT DETAILS.

STUDS EQUALLY PLACED ALONG MEMBER.....(xx)
(MAXIMUM SPACING = 24"o.c.)
STUDS EQUALLY PLACED BETWEEN CONNECTING MEMBERS.....(xx/YY/ZZ)
(MAXIMUM SPACING = 24"o.c.)
CAMBER AT MID SPAN (UNO).....C=xx
LRFD REACTIONS AT EACH END (KIPS).....xx k
(MINIMUM REACTION = 16K IF NOT SHOWN ON PLAN)





SECOND FLOOR FRAMING PLAN

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

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
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Construction Drawings
February 20, 2019

Revisions:

Second Floor Framing Plan

S2.02

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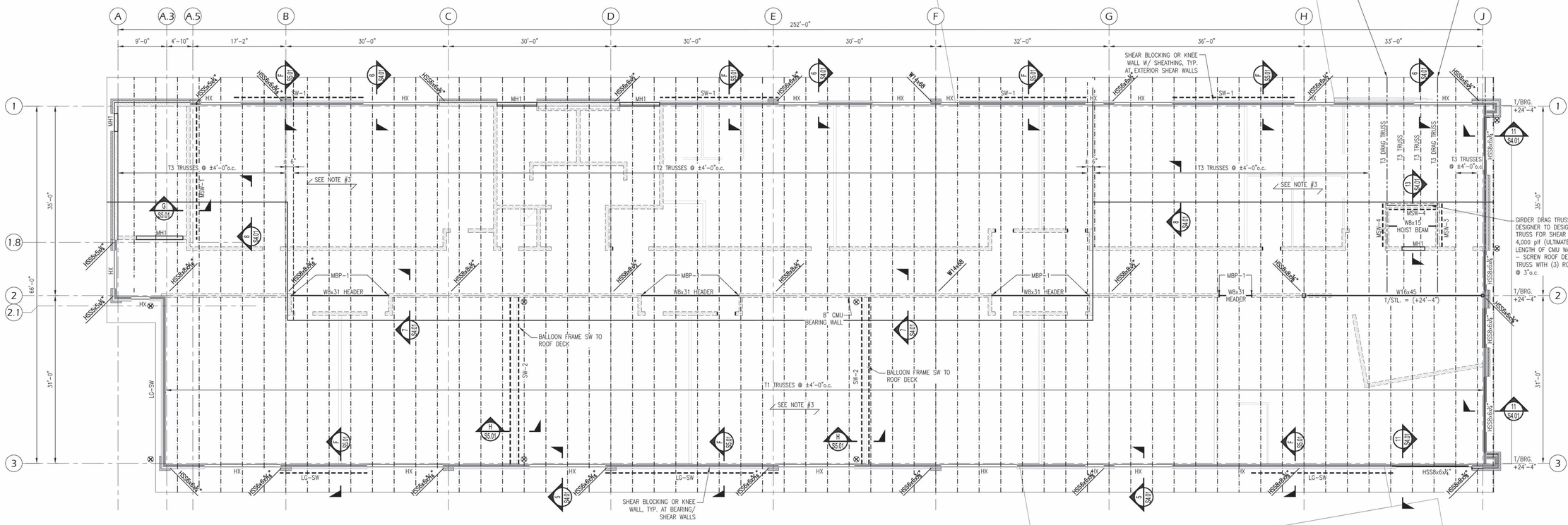
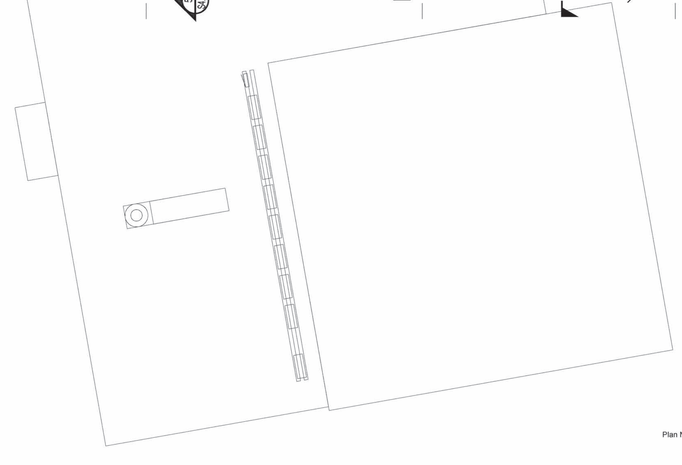




Plan North

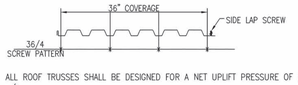
North

ROOF FRAMING LEGEND

W_x_	STEEL BEAM, SEE PLAN FOR SIZE AND LOCATION
Tx	LIGHT GAUGE METAL ROOF TRUSSES, SEE PLAN FOR SIZE AND LOCATION SEE S4.01 FOR CONFIGURATIONS
DRAG TRUSS	LIGHT GAUGE METAL DRAG TRUSSES, SEE PLAN FOR LOCATION
Cx	Cx – INDICATES LOCATION OF COLUMN – SIZE/TYPE
HX	LIGHT GAUGE HEADER BY DD
MH1	INDICATES NEW CMU BOND BEAM WITH (2) #5 HORIZONTAL, GROUT (2) COURSES ABOVE (TOTAL DEPTH = 2'-0")

ROOF FRAMING PLAN NOTES

1. ELEVATIONS SHOWN ON PLAN ARE REFERENCED TO FINISHED FIRST FLOOR DATUM – SEE S2.01.
2. SEE SHEET S1.01 FOR GENERAL STEEL, JOIST, DECK AND LIGHT GAUGE FRAMING NOTES. ALSO SEE SHEET S1.02 FOR TYPICAL DETAILS NOT SHOWN ON PLAN.
3. TYPICAL LOW ROOF DECK IS 1½" DEEP, 20 ga., GALVANIZED, TYPE 'B' METAL ROOF DECK.
4. METAL ROOF DECK SHALL BE ATTACHED TO SUPPORTING MEMBERS WITH #12 TEK SCREWS IN A 36/7 PATTERN EXCEPT IN CORNER ZONES (ZONE 3 – SEE S1.01) – PROVIDE (2)–#12 IN A36/7 PATTERN.



5. ALL ROOF TRUSSES SHALL BE DESIGNED FOR A NET UPLIFT PRESSURE OF 30 psf.
6. PROVIDE TRUSS BRIDGING AS REQUIRED – DELEGATED DESIGN.
7. SEE SHEET S5.01 FOR MOMENT FRAMES, MASONRY SHEAR WALL, AND LIGHT GAUGE SHEAR WALL INFORMATION.
8. JOIST BEARING ELEVATIONS AND TOP OF STEEL ELEVATIONS ARE REFERENCED TO DATUM ELEVATION NOTED ON S2.01

ROOF FRAMING PLAN

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

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Roof Framing Plan

S2.03

of ##

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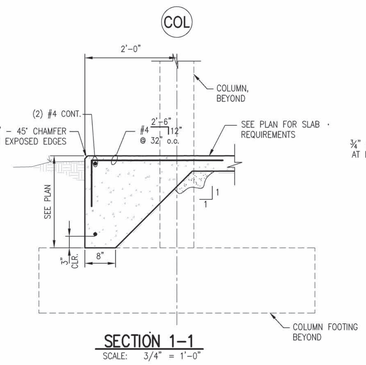
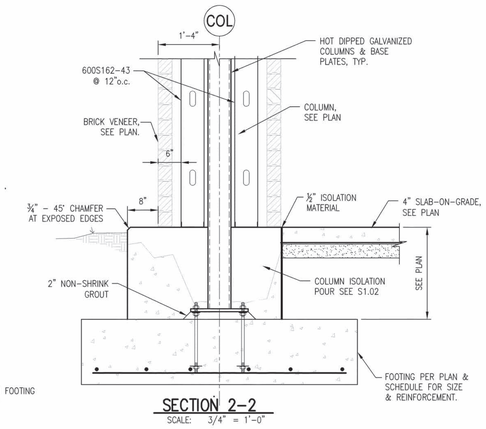


SECTION 1-1
SCALE: 3/4" = 1'-0"



SECTION 2-2
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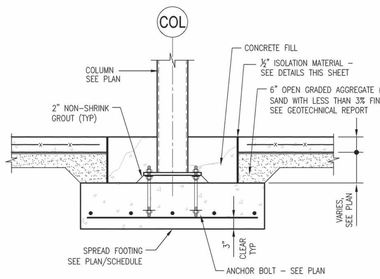

SECTION 3-3
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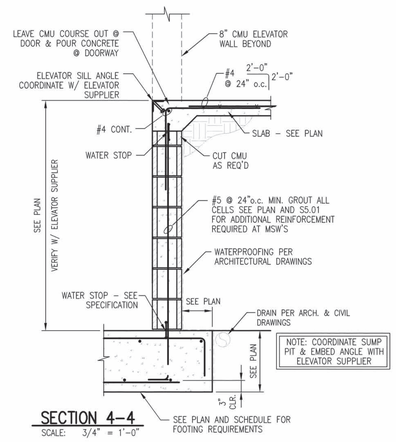

SECTION 4-4
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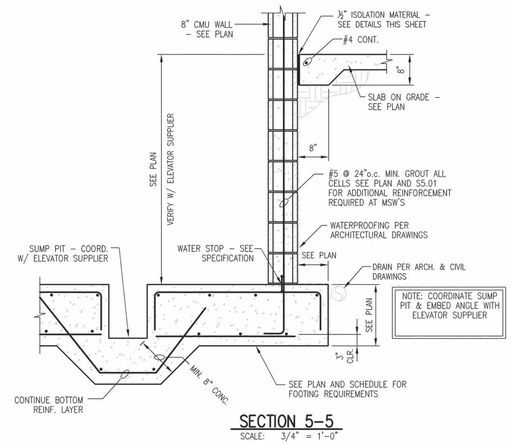
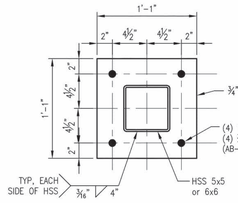
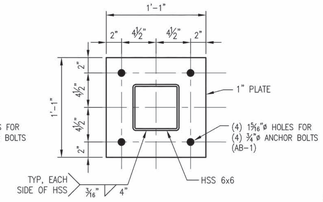


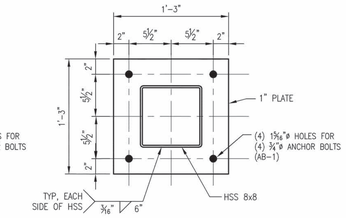
SECTION 5-5
SCALE: 3/4" = 1'-0"



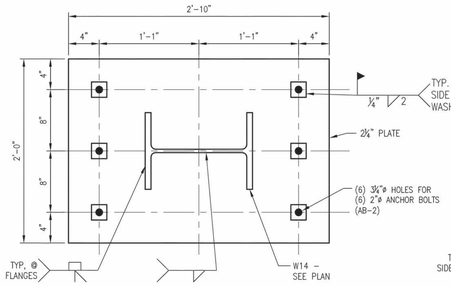
DETAIL "BP-1"
SCALE: 1 1/2" = 1'-0"
(HSS5x5 & HSS6x6x5/16" BASEPLATE)



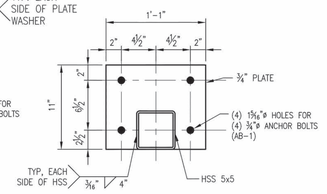
DETAIL "BP-2"
SCALE: 1 1/2" = 1'-0"
(HSS6x6x3/8" & HSS6x6x1/2" BASEPLATE)



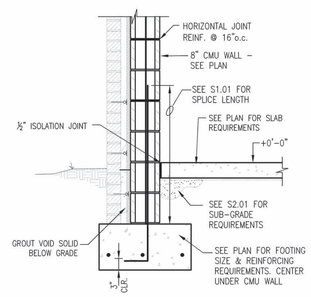
DETAIL "BP-3"
SCALE: 1 1/2" = 1'-0"
(HSS 8x8 BASEPLATE)



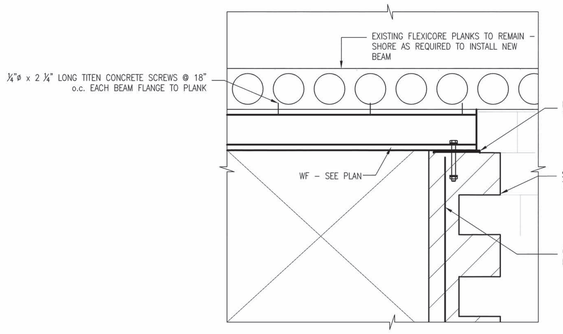
DETAIL "BP-4"
SCALE: 1 1/2" = 1'-0"
(W14 BASEPLATE AT MOMENT FRAME.)



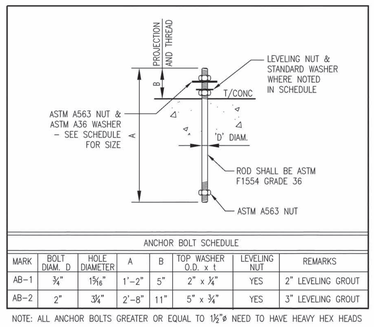
DETAIL "BP-5"
SCALE: 1 1/2" = 1'-0"



SECTION 6-6
SCALE: 3/4" = 1'-0"



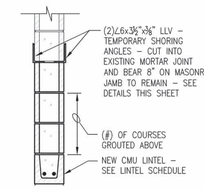
DETAIL B-B
SCALE: 1" = 1'-0"



ANCHOR BOLT SCHEDULE							
MARK	BOLT DIAM. D	HOLE DIAMETER	A	B	TOP WASHER O.D. x t	LEVELING NUT	REMARKS
AB-1	3/4"	15/16"	1'-2"	5"	2" x 1/4"	YES	2" LEVELING GROUT
AB-2	2"	3 1/16"	2'-8"	11"	5" x 3/4"	YES	3" LEVELING GROUT

NOTE: ALL ANCHOR BOLTS GREATER OR EQUAL TO 1 1/2"ø NEED TO HAVE HEAVY HEX HEADS

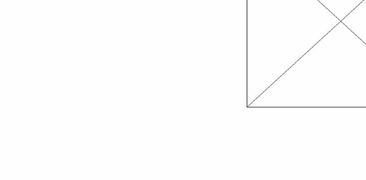
EXISTING SLAB TO NEW SLAB CONNECTION
SCALE: 1" = 1'-0"



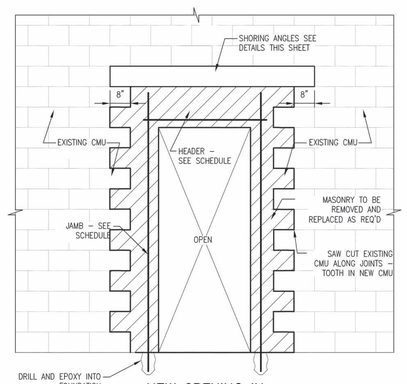
DEATIL A-A
NEW LINTEL IN EXISTING WALL
SCALE: 3/4" = 1'-0"

LINTEL SCHEDULE						
MARK	MAX OPENING WITH (FT)	WALL (4) THICKNESS	BOND BEAM REINFORCING	JAMB REINFORCING	# OF COURSES GROUTED ABOVE	REMARK
L1	3'-4"	8" CMU	(1) #5	(1) #5	(1)	DETAIL A-A

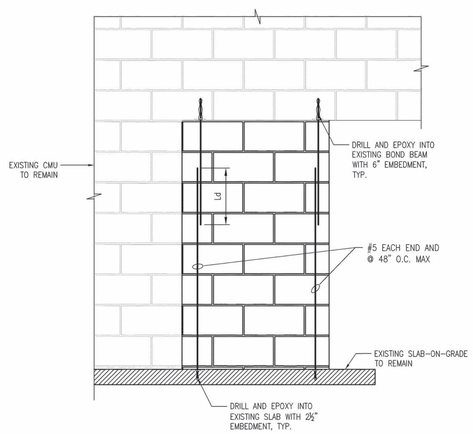
MASONRY LINTEL NOTES:
1. 8" BEARING EACH END
2. GROUT ALL JAMBS SOLID
3. INT - INTERIOR WALL
4. IF IN SITU WALL THICKNESS DIFFERS FROM SCHEDULE PLEASE NOTIFY ENGINEER OF RECORD



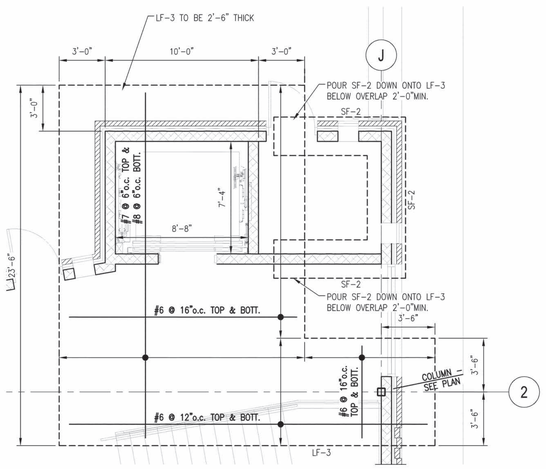
MBP-1
SCALE: 1 1/2" = 1'-0"



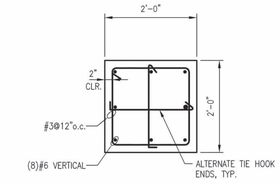
NEW OPENING IN EXISTING WALL ELEVATION
SCALE: 1/2" = 1'-0"



CMU WALL PATCH DETAIL
SCALE: 3/4" = 1'-0"



ENLARGED LATERAL FOOTING (LF-3) PLAN
SCALE: 1/4" = 1'-0"



P1

PIER DETAIL NOTES:

1. TYPICAL CLEAR CONCRETE COVER TO STIRRUP IS 2" FOR ALL PIERS.
2. CROSS TIES HAVE SAME DIA. & SPACING AS MAIN STIRRUPS U.N.O. ON SCHEDULE. ALTERNATE 90° HOOK EA. CONSECUTIVE CROSS TIE - TYP.
3. ALL STIRRUPS, TIES & VERTICAL REINFORCEMENT TO HAVE SEISMIC HOOKS - TYP.
4. TOP OF FOOTING (START OF PIER) AND TOP OF COLUMN MUST BE COORDINATED W/ THE RELEVANT PLANS.
5. ALL PIERS SHALL BE 4,000psi CONCRETE.
6. TOP OF ALL PIERS= (-0'-8").
7. PIER VERTICALS CAN BE CAST-IN TO FOOTING OR DRILLED AND EPOXED INTO FOOTING WITH 6" EMBEDMENT

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220 Coral Drive
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February 20, 2019

Revisions:

Foundation Sections & Deatils

S3.01

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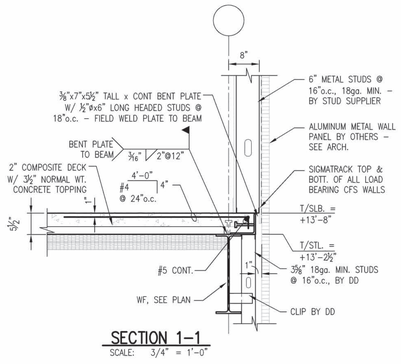

SECTION 1–1
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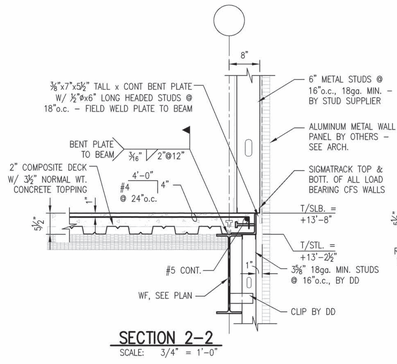

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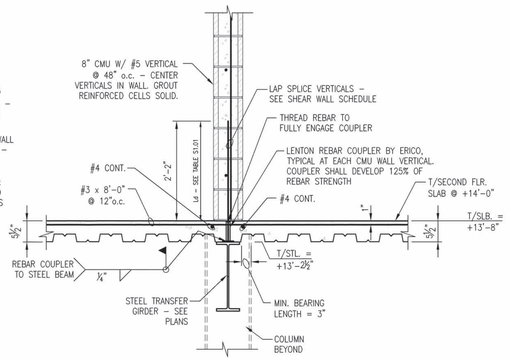

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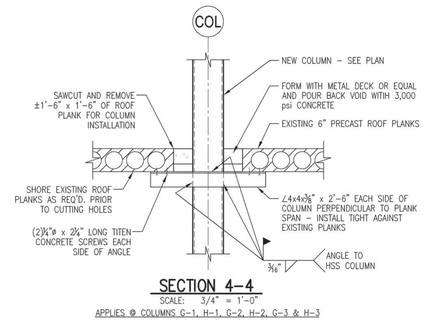

SECTION 4–4
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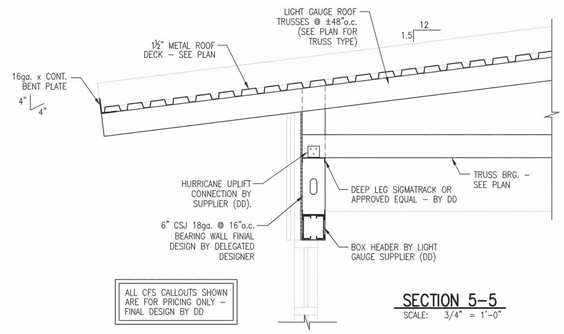
APPLIES @ COLUMNS G–1, H–1, G–2, H–2, G–3 & H–3



ALL CFS CALLOUTS SHOWN ARE FOR PRICING ONLY – FINAL DESIGN BY DD

SECTION 5–5
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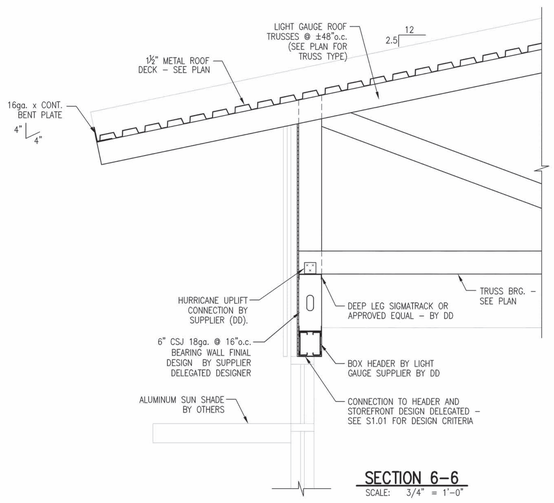

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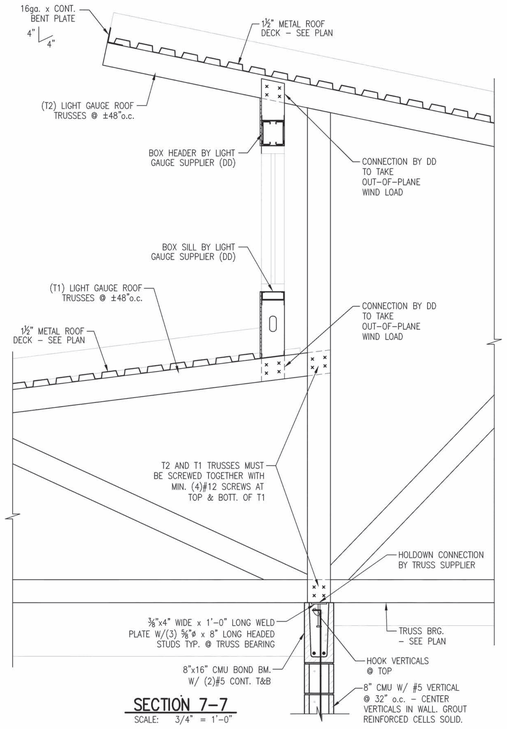

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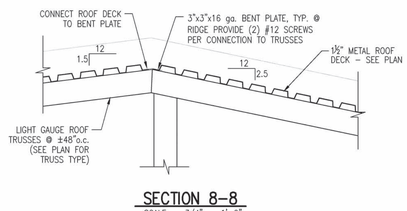

SECTION 8–8
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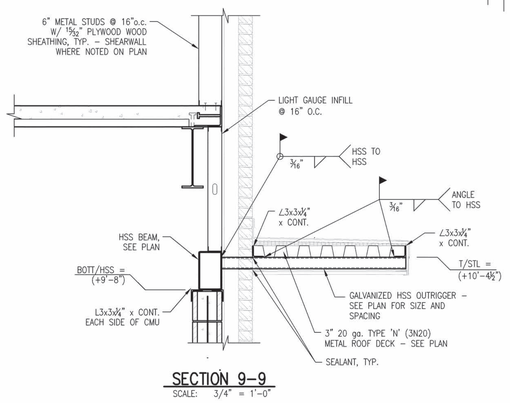
TYPICAL LIGHT GAUGE ROOF TRUSS RIDGE



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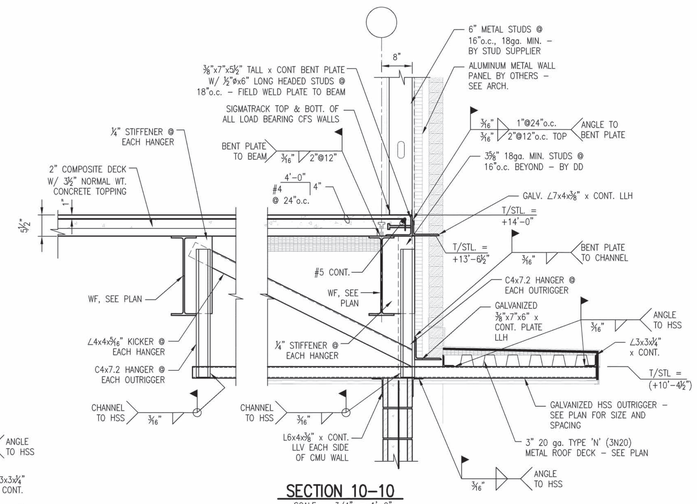

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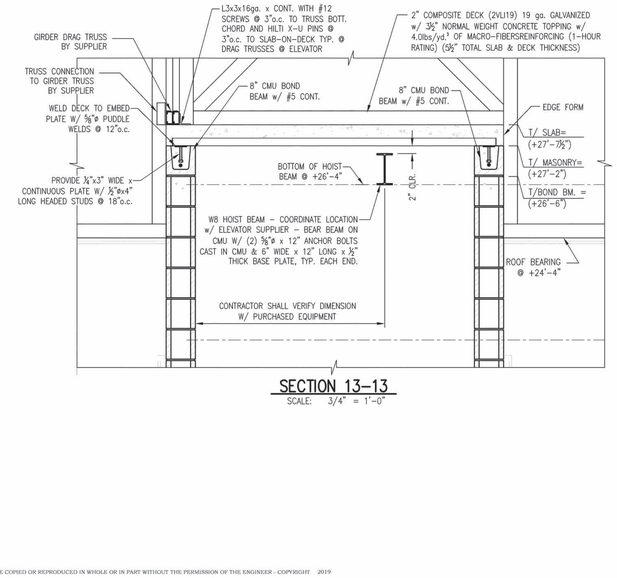

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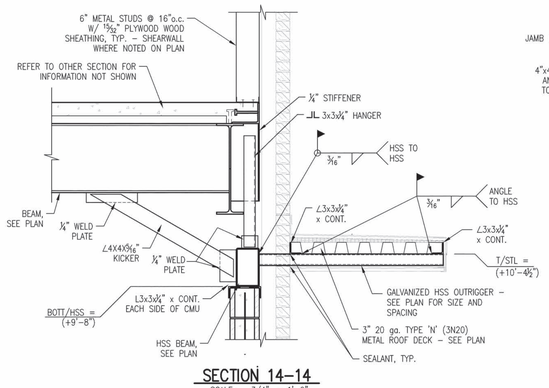

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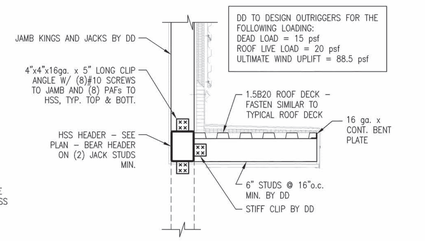

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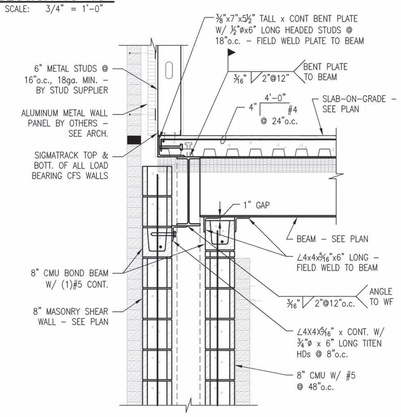

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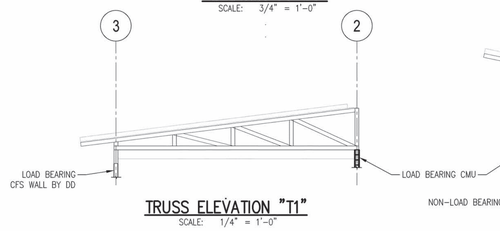

TRUSS ELEVATION "T1"
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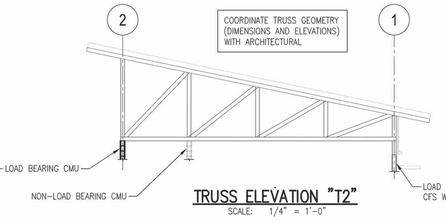

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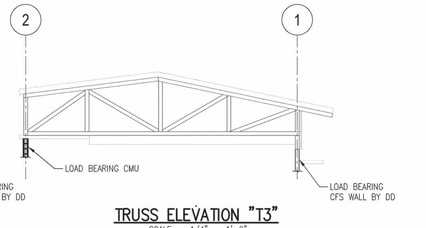

TRUSS ELEVATION "T3"
SCALE: 1/4" = 1'–0"

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NORTH CAROLINA PROFESSIONAL SEAL 19475 ENGINEER DON R. WOODS

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Reason: I attest to the accuracy and integrity of this document
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Date: 2019.02.21 19:25:12-05'00'

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Framing Sections and Details

S4.01

##of ##

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Feb 21,2019–7:00pm
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MASONRY SHEAR WALL (MSW) SCHEDULE

FLOOR	MSW–1				MSW–2				MSW–3				MSW–4			
	REINF. @ MOST OUTER CELLS EACH END OF WALL	REINF. IN REMAINING CELLS	HORIZONTAL REINFORCEMENT	GROUTING REQUIREMENTS	REINF. @ MOST OUTER CELLS EACH END OF WALL	REINF. IN REMAINING CELLS	HORIZONTAL REINFORCEMENT	GROUTING REQUIREMENTS	REINF. @ MOST OUTER CELLS EACH END OF WALL	REINF. IN REMAINING CELLS	HORIZONTAL REINFORCEMENT	GROUTING REQUIREMENTS	REINF. @ MOST OUTER CELLS EACH END OF WALL	REINF. IN REMAINING CELLS	HORIZONTAL REINFORCEMENT	GROUTING REQUIREMENTS
2nd to Roof	(4)#5's	#5 @ 48" o.c.	–	GROUT REINFORCED CELLS	–	–	–	–	(4)#5's	#5 @ 48" o.c.	#5 @ 48" o.c.	GROUT REINFORCED CELLS	(2)#5's	#5 @ 48" o.c.	–	GROUT REINFORCED CELLS
Foundation to 2nd	(12)#5's – (2) PER CELL	#5 @ 48" o.c.	–	GROUT SOLID	(3)#5's	#5 @ 48" o.c.	–	GROUT REINFORCED CELLS	(10)#5's – (2) PER CELL	#5 @ 48" o.c.	#5 @ 16"o.c.	GROUT SOLID	(4)#5's	#5 @ 48" o.c.	–	GROUT SOLID

COLD–FORMED SHEAR WALL SW–1 (1 STORY)

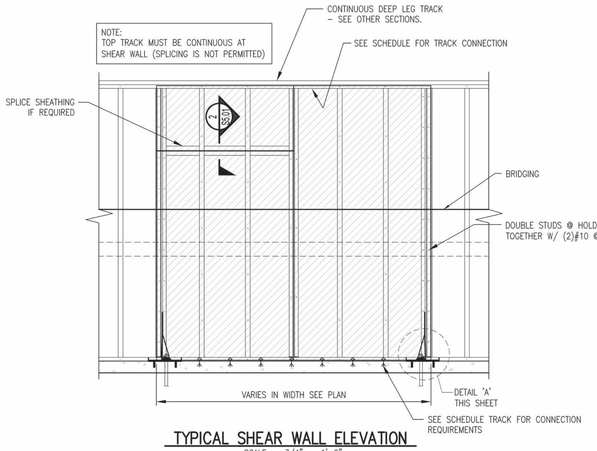
FLOOR	SHEAR WALL IS COMPRISED OF PLYWOOD OR OSB SHEATHING – SEE DETAILS THIS SHEET			
	SHEATHING REQUIREMENTS	MIN COMPRESSION STUDS AT EACH HOLDOWN	HOLDOWNS EACH END OF WALL	TOP AND BOTTOM TRACK CONNECTION
2nd to 3rd	SHEATHING ONE SIDE	(2)600S162–43	SIMPSON S/HDU4	(2) ROWS OF 1¼" LONG HILTI X–U PINS @ 16"o.c.
SLAB to 2nd	–	–	–	–

COLD–FORMED SHEAR WALL SW–2 (1 STORY)

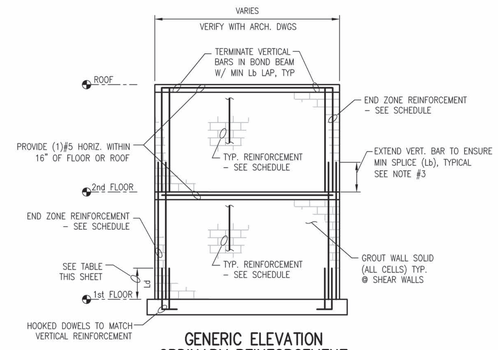
FLOOR	SHEAR WALL IS COMPRISED OF PLYWOOD OR OSB SHEATHING – SEE DETAILS THIS SHEET			
	SHEATHING REQUIREMENTS	MIN COMPRESSION STUDS AT EACH HOLDOWN	HOLDOWNS EACH END OF WALL	TOP AND BOTTOM TRACK CONNECTION
2nd to 3rd	SHEATHING BOTH SIDES	(2)600S162–54	(2) SIMPSON S/HDU9	(2) ROWS OF 1¼" LONG HILTI X–U PINS @ 4"o.c.
SLAB to 2nd	–	–	–	–

COLD FORMED SHEAR WALL NOTES:

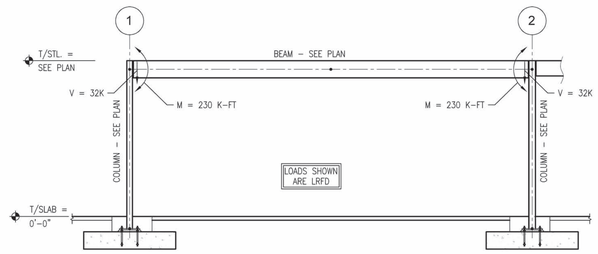
1. STUDS MUST BE A MINIMUM 600S162–43@16" O.C.
2. BOTTOM TRACKS SHALL BE A MINIMUM 600T125–54 AND MUST BE CONTINUOUS.
3. TOP TRACKS SHALL BE A MINIMUM 600T125–43 AND MUST BE CONTINUOUS
4. SHEAR WALL PANELS SHALL BE ATTATCHED TO FRAMING WITH #8 SCREWS @ 3" O.C. AT EDGES AND 12" O.C. IN FIELD.
5. SHEAR WALL SHEATHING TO BE 7/16" OSB or PLYWOOD



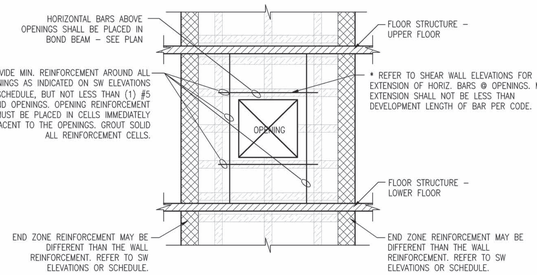
TYPICAL SHEAR WALL ELEVATION
SCALE: 3/4" = 1'–0"



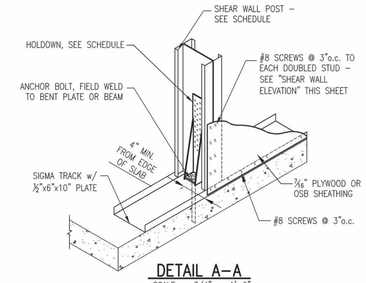
GENERIC ELEVATION ORDINARY REINFORCEMENT
SCALE: 3/16" = 1'–0"
(SEE PLAN FOR SW LOCATIONS)



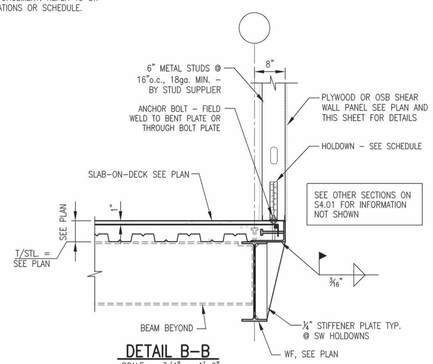
MOMENT FRAME #1 ELEVATION
SCALE: 3/16" = 1'–0"
(ON GRIDLINE F)



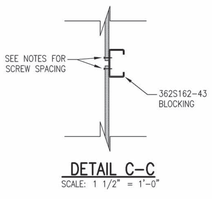
TYPICAL CMU OPENING ELEVATION
NOT TO SCALE



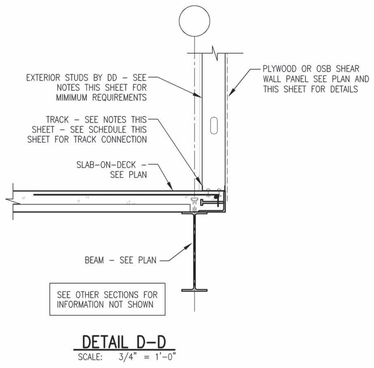
DETAIL A–A
SCALE: 3/4" = 1'–0"



DETAIL B–B
SCALE: 3/4" = 1'–0"



DETAIL C–C
SCALE: 1 1/2" = 1'–0"



DETAIL D–D
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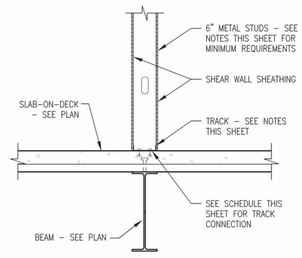

DETAIL E–E
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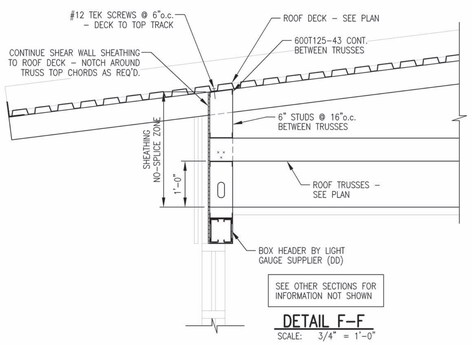

DETAIL F–F
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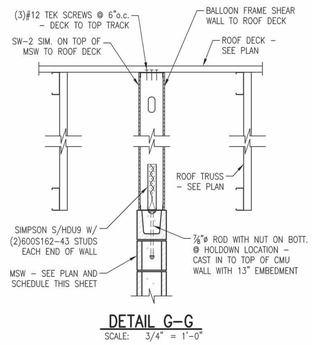

DETAIL G–G
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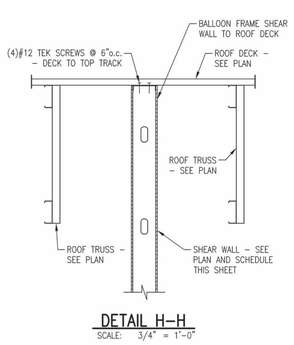

DETAIL H–H
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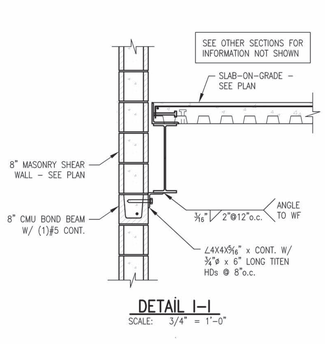

DETAIL I–I
SCALE: 3/4" = 1'–0"

CMU SHEAR WALL NOTES:

1. SHEAR WALLS 8" CMU, U.N.O. PROVIDE (1) #5 BAR AT EACH WALL CORNER, AT EACH WALL INTERSECTION AND @ 48"o.c. – U.N.O. ON WALL SCHEDULE OR ELEVATIONS.
2. SPLICING BETWEEN VERTICAL BARS SHALL BE NO LESS THAN INDICATED BY TABLE. SEE SHEET S1.01 FOR REQUIRED SPLICE LENGTH ACCORDING TO BAR SIZE
3. EXTEND HORIZONTAL REINFORCEMENT AS INDICATED ON SHEAR WALL ELEVATIONS OR SCHEDULE BUT NOT LESS THAN Ld PER CODE.
4. IN FULLY GROUTED WALLS HORIZONTAL BARS SHALL BE PLACED IN NOTCHED BLOCK. IF CMU WALL IS NOT FULLY GROUTED, HORIZONTAL REINFORCEMENT SHALL BE PLACED IN A BOND BEAM, TYP.
5. T & B = TOP & BOTTOM
6. ANY EMBED DOWELS REQUIRED THAT ARE NOT SHOWN ON PLANS OR ELEVATIONS SHALL BE SAME SIZE AND SPACING AS REINFORCEMENT FOR THE NEXT FLOOR. MATCH REINFORCED CELLS ON THE FLOOR BELOW WHERE POSSIBLE.
7. ALL WALL DIMENSIONS SHOWN ON THE ELEVATIONS AND ASSOCIATED SECTIONS ARE FOR REFERENCE ONLY. COORDINATE ALL FINAL DIMENSIONS WITH ARCHITECTURAL PLANS. IF SIGNIFICANT CONFLICT EXISTS, CONTACT STRUCTURAL ENGINEER AND ARCHITECT FOR RESOLUTION.
8. 48"o.c. MAX SPACING OF VERT. REINFORCEMENT OR AS INDICATED ON SW SCHEDULE OR ELEVATIONS. REINFORCEMENT THAT STOPS AT OPENINGS OR DOESN'T CONTINUE ON THE FLOOR ABOVE SHALL BE TERMINATED & FULLY ENGAGED IN BOND BEAM.
9. CMU WALLS NOT INDICATED AS SHEAR WALLS SHALL HAVE A VERTICAL #5 @ EACH CORNER, @ EACH OPENING, AND @ 48"o.c. MAX. GROUT REINFORCED CELLS. PROVIDE W1.7 HORIZONTAL JOINT REINFORCEMENT @ 16"o.c.
10. ALL CMU SHEAR WALLS SHALL HAVE W1.7 HORIZONTAL JOINT REINFORCEMENT @ 16"o.c. U.N.O. IN SCHEDULE OR ELEVATIONS. HORIZONTAL BARS REPLACE JOINT REINFORCEMENT.
11. GROUT SHALL BE HELD DOWN 1½" BELOW TOP OF A COURSE TO FORM A KEY AT THE JOINT. SEE STRUCTURAL MASONRY NOTES ON S1.01 FOR ADDITIONAL INFORMATION.
12. SEE TYPICAL OPENING DETAIL THIS SHEET FOR TYPICAL REINF.
13. DUCT OPENINGS SHALL NOT BE LOCATED WITHIN 3'–4" OF ANY SHEAR WALL END, U.N.O. OPENINGS SHOULD NOT INTERRUPT ANY CONTINUOUSLY REINFORCED DOOR JAMBS.

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Date: 2019.02.21 19:25:40-05'00'

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

Shear wall Elevations & Details

S5.01

##of ##

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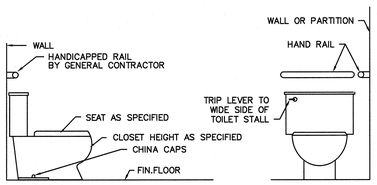
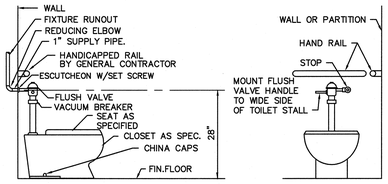
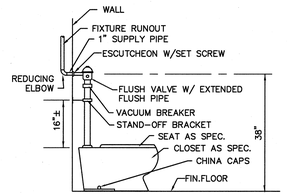


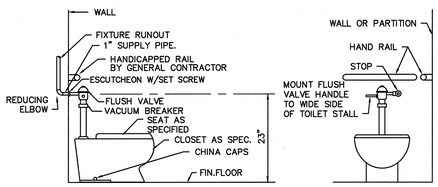
A P0.1 TANK TYPE ADA WATER CLOSET (WC–4 & 5) DETAIL
NO SCALE



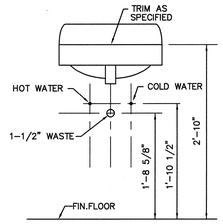
B P0.1 ADULT ADA WATER CLOSET (WC–1) DETAIL
NO SCALE



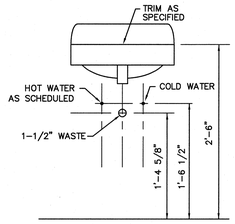
C P0.1 CHILD STANDARD WATER CLOSET (WC–3) DETAIL
NO SCALE



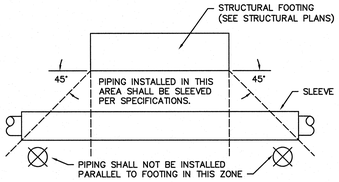
D P0.1 CHILD ADA WATER CLOSET (WC–2) DETAIL
NO SCALE



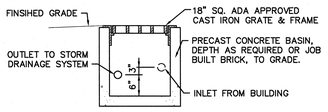
E P0.1 ADULT ADA LAVATORY (L–1) ROUGH–IN ELEVATION
NO SCALE



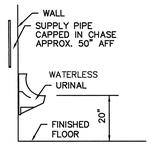
F P0.1 CHILD ADA LAVATORY (L–2, L–3) ROUGH–IN ELEVATION
NO SCALE



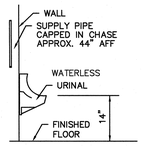
G P0.1 PIPING UNDER FOOTINGS
NO SCALE



H P0.1 CONDENSATE RELIEF BASIN
NO SCALE



J P0.1 CHILD STANDARD URINAL (U–1) ROUGH–IN DETAIL
NO SCALE



K P0.1 CHILD ADA URINAL (U–2) ROUGH–IN DETAIL
NO SCALE

PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	ROUGH–IN SIZES WASTE	C.W.	H.W.	REMARKS
WC–1	WATER CLOSET–ADA	4"*	1–1/4"	–	DETAIL B/P0.1
WC–2	WATER CLOSET–CHILD ADA	4"*	1–1/4"	–	DETAIL D/P0.1
WC–3	WATER CLOSET–CHILD	4"*	1–1/4"	–	DETAIL C/P0.1
WC–4	WATER CLOSET–ADULT ADA	4"*	1/2"	–	DETAIL A/P0.1/TANK TYPE
WC–5	WATER CLOSET–CHILD ADA	4"*	1/2"	–	DETAIL A/P0.1/TANK TYPE
U–1	URINAL–CHILD	2"	–	–	DETAIL J/P0.1
U–2	URINAL–CHILD ADA	2"	–	–	DETAIL K/P0.1
L–1	STAFF LAVATORY–ADA	1–1/2"	1/2"	1/2"	DETAIL E/P0.1
L–2	LAVATORY–CHILD ADA	1–1/2"	1/2"	1/2"	DETAIL F/P0.1
L–3	CLASSROOM LAVATORY	1–1/2"	1/2"	–	DETAIL F/P0.1
L–4	WASH FOUNTAIN–CHILD ADA	1–1/2"	1/2"	1/2"	DETAIL L/P0.1
SK–1	CLASSROOM SINK	1–1/2"	1/2"	–	ADA DEPTH
SK–2	NURSE STATION SINK	1–1/2"	1/2"	1/2"	ADA DEPTH
SK–3	WORK ROOM SINK	1–1/2"	1/2"	1/2"	ADA DEPTH
SK–4	ART ROOM SINK	1–1/2"	1/2"	1/2"	ADA DEPTH
EWC–1	ELECTRIC WATER COOLER	1–1/2"	1/2"	–	DUAL HEIGHT/DETAIL M/P0.1
DF–1	DRINKING FOUNTAIN	1–1/2"	1/2"	–	DUAL HEIGHT/DETAIL N/P0.1
MR–1	MOP RECEPTOR	3"	1/2"	1/2"	DETAIL P/P0.1
HB–1	HOSE BIBB	–	1/2"		MOUNT 12" AFF.
HB–2	HOSE BIBB IN BOX	–	1/2"		MOUNT 12" AFF.
HB–3	WALL HYDRANT	–	3/4"	–	MOUNT 24" AFG.
FD–1	FLOOR DRAIN	3"	–	–	
FD–2	FLOOR DRAIN	4"	–	–	
FD–3	HUB DRAIN	3"	–	–	DETAIL N/P0.1
CB–1	ICE MAKER CONNECTION BOX	–	1/2"	–	

1. LAVATORIES SHALL HAVE MIXING VALVES INSTALLED SUCH THAT WATER TEMPERATURE IS LIMITED TO 110F. MIXING VALVES SHALL CONFORM TO ASSE 1070 OR CSA B125.3, SEE SPECIFICATIONS.
* UNLESS OTHERWISE NOTED

WATER HEATER SCHEDULE

SYMBOL	DESCRIPTION	ROUGH–IN SIZES CW	HW	TEMP. SETTING	STORAGE CAPACITY	RECOVERY	FUEL	LOAD	ELEC.	DETAIL
WH–1	TANK TYPE ELECTRIC	3/4"	3/4"	110°F	40 GAL	42 GPH	ELECTRIC	7kW	208V, 3Ø	R/P.01
WH–2	TANK TYPE ELECTRIC	3/4"	3/4"	110°F	40 GAL	36 GPH	ELECTRIC	6kW	208V, 3Ø	R/P.01
WH–3	TANK TYPE ELECTRIC	3/4"	3/4"	140°F	119 GAL	18 GPH	ELECTRIC	4.5kW	208V, 3Ø	

CIRCULATOR PUMP SCHEDULE

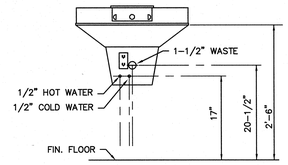
SYMBOL	GPM	THD	ELECTRICAL HP	VOLTAGE	LOCATION	SERVICE	CONTROL
CP–1	1	12	1/25	115 V., 1Ø	CUSTODIAL C1	H.W. RETURN	AQUASTAT, DDC
CP–2	1	6	1/40	115 V., 1Ø	CUSTODIAL C2	H.W. RETURN	AQUASTAT, DDC

LEGEND

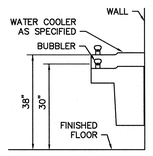
X X X	PIPING TO BE REMOVED (LINE SYMBOL INDICATES SERVICE)
E E	EXISTING WASTE PIPING TO REMAIN
EGW EGW EGW	EXISTING GREASE WASTE PIPING TO REMAIN
E E E E E	EXISTING VENT PIPING TO REMAIN
E E E E	EXISTING COLD WATER PIPING TO REMAIN
E	EXISTING HOT WATER PIPING TO REMAIN
W	WASTE PIPING BELOW FINISHED FLOOR
V	VENT PIPING
CW	COLD WATER PIPING
HW	HOT WATER PIPING
HWR	HOT WATER RETURN PIPING
C C C C C C C C	CONDENSATE
	BALL/BUTTERFLY VALVE
	BALL/BUTTERFLY VALVE IN VALVE BOX FLUSH WITH GRADE
	BALANCING VALVE
	CHECK VALVE
	SOLENOID VALVE
	VALVE IN RISE
	PIPE ELBOW TURNED DOWN
	PIPE ELBOW TURNED UP
	PIPE TEE TURNED DOWN
	PIPE TEE TURNED UP
	CAP
	UNION
	STRAINER
	DOUBLE CHECK VALVE BACKFLOW PREVENTER
	REDUCED PRESSURE BACKFLOW PREVENTER
'A'	SHOCK ARRESTER, 'A' INDICATES PLUMBING DRAINAGE INSTITUTE STANDARD SIZE
	ASME PRESSURE TEMPERATURE RELIEF VALVE
VTR	VENT THRU ROOF
CO	CLEANOUT
ECO	EXTERIOR CLEANOUT
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
EXFCO	EXISTING FLOOR CLEANOUT
EXECO	EXISTING EXTERIOR CLEANOUT
AFF	ABOVE FINISHED FLOOR
BFF	BELOW FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFG	BELOW FINISHED GRADE
INV.	INVERT ELEVATION
	TERMINATION POINT OF DEMOLITION
	POINT OF NEW CONNECTION TO EXISTING
	4 HOUR FIRE WALL
	2 HOUR FIRE WALL
	1 HOUR FIRE WALL
	UNRATED SMOKE PARTITION
	EXISTING FIXTURE TO BE REMOVED
	EXISTING FIXTURE TO REMAIN
	NEW FIXTURE
	CEILING ACCESS PANEL AS SPECIFIED
J	JUNCTION BOX FOR HEAT TRACE CONTROLLER
C	HEAT TRACE CONTROLLER
PC	HEAT TRACE POWER CONNECTION
EC	HEAT TRACE END CONNECTION
TS	HEAT TRACE THERMOSTAT

NUMBER INDICATES PLAN OR SECTION — LETTER INDICATES ELEVATION OR DETAIL

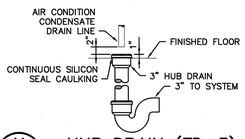
SHEET NUMBER WHERE PLAN, SECTION, ELEVATION OR DETAIL IS DRAWN



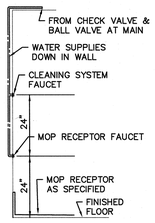
L P0.1 WASH FOUNTAIN CHILD ADA (L–4)ROUGH–IN ELEVATION
NO SCALE



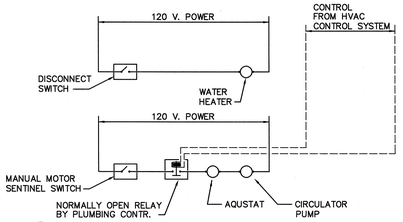
M P0.1 CHILD'S ELECTRIC WATER COOLER (EWC–1)
NO SCALE



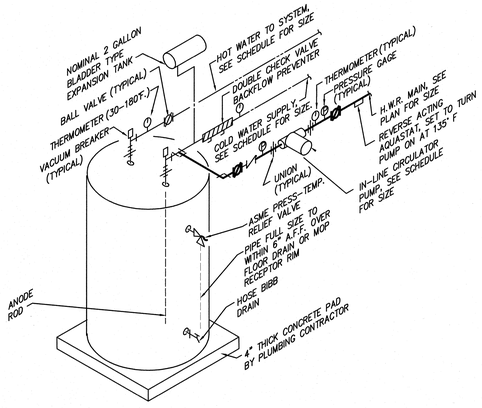
N P0.1 HUB DRAIN (FD–3) DETAIL
NO SCALE



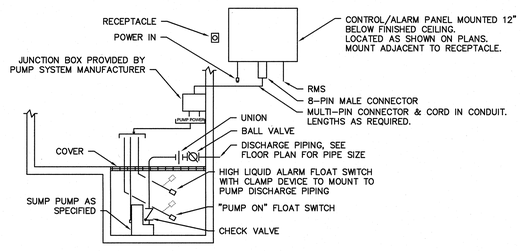
P P0.1 MOP RECEPTOR (MR–1) DETAIL
NO SCALE



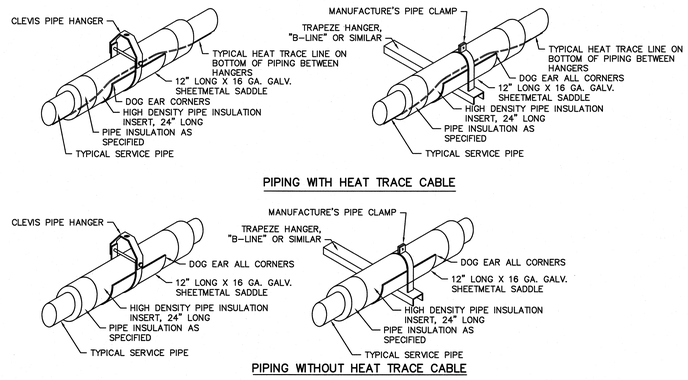
Q P0.1 WATER HEATER AND CIRCULATOR PUMP CONTROL WIRING SCHEMATIC
NO SCALE



R P0.1 WATER HEATER PIPING DETAIL (WH–1,2,3)
NO SCALE



S P0.1 ELEVATOR SUMP PUMP PIPING AND WIRING SCHEMATIC
NO SCALE



T P0.1 PIPE HANGER DETAILS
NO SCALE

TOTAL CONNECTED LOAD

WASTE FIXTURE UNITS =	169 F.U.
COLD WATER DEMAND =	143 GPM
HOT WATER DEMAND =	29.1 GPM

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2/25/19

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

PLUMBING LEGEND, SCHEDULES & DETAILS

P0.1
1 of 9

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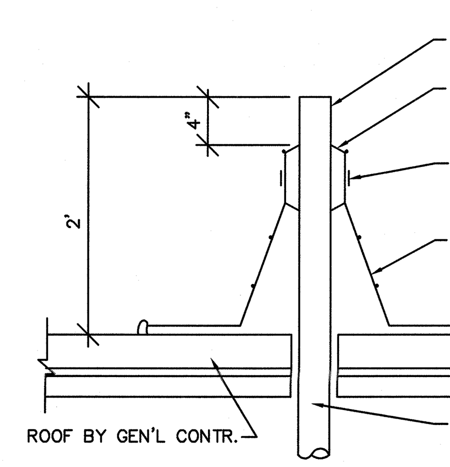
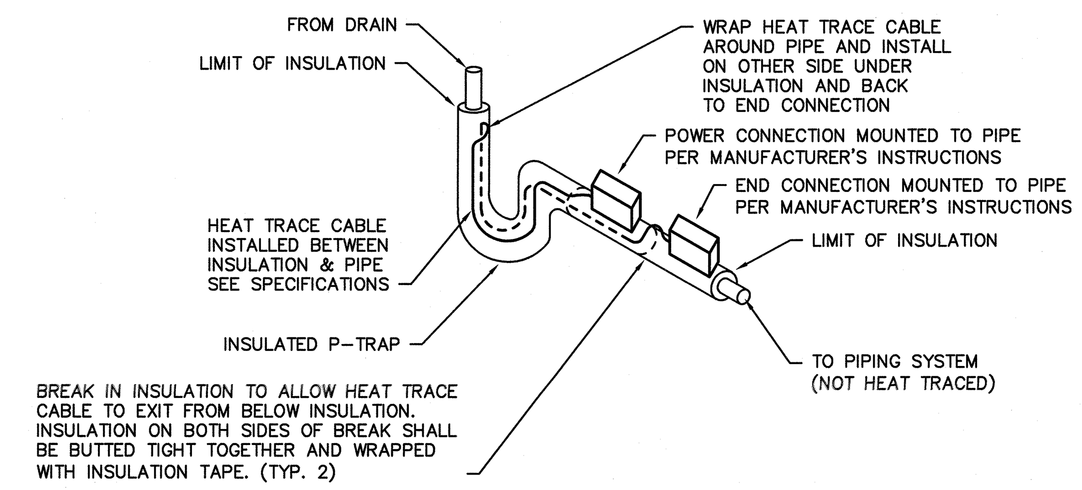
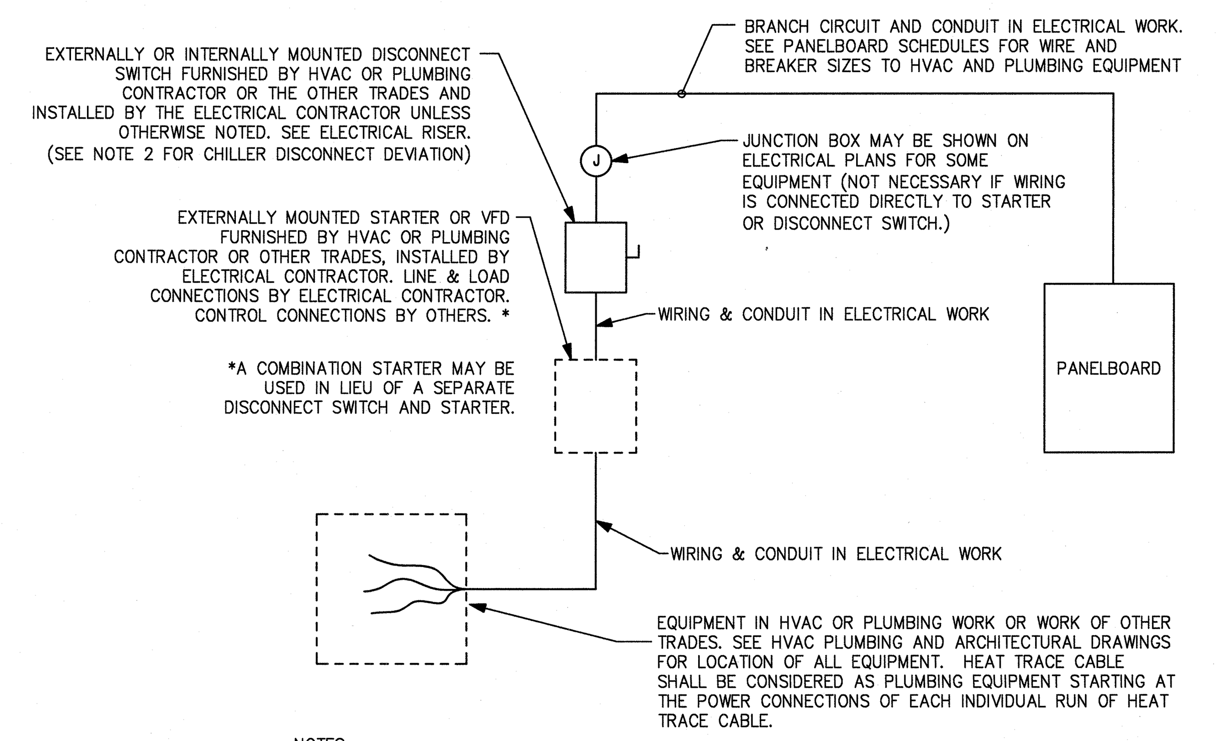


A / P0.2 — VENT THRU ROOF DETAIL (FLAT ROOF)
NO SCALE

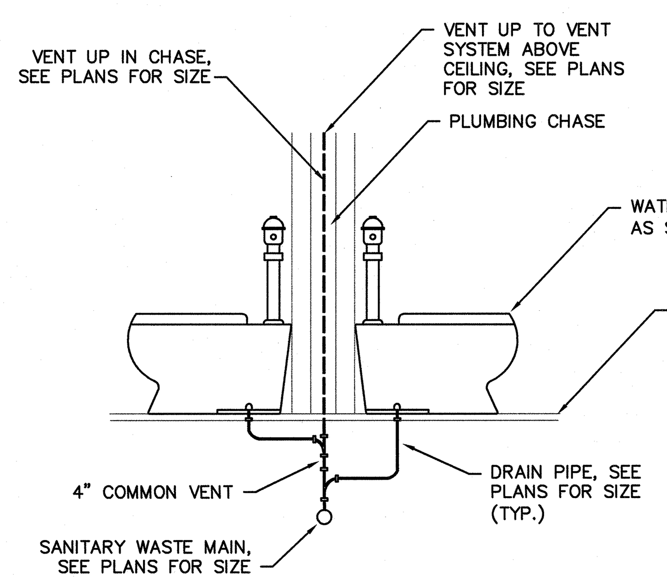


B / P.02 — P-TRAP HEAT TRACE INSTALLATION DETAIL
NO SCALE

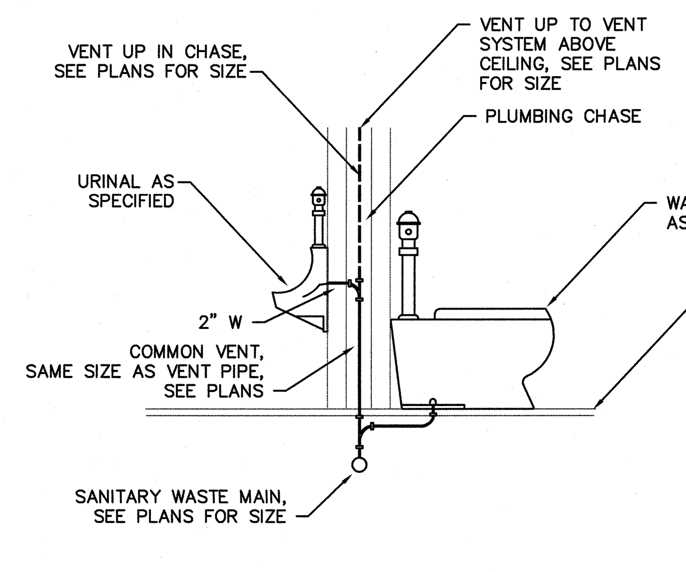


NOTES:
1. FINAL CONNECTIONS INSIDE EQUIPMENT TO BE MADE BY HVAC OR PLUMBING CONTRACTOR OR OTHER TRADES.

E / P0.2 — ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT
NO SCALE



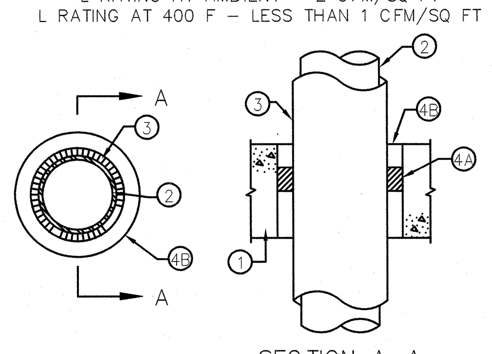
C / P0.2 — BACK TO BACK WATER CLOSET DETAIL
NO SCALE



D / P0.2 — BACK TO BACK URINAL & WATER CLOSET VENT DETAIL
NO SCALE

UL SYSTEM No. CA-J-5002
(FORMERLY SYSTEM NO 91-B)
SEPTEMBER 3, 2004

(F RATINGS – 2 AND 3 HR (SEE ITEM 1A AND 4)
T RATING – 0, 1/2 AND 1 HR (SEE ITEM 1A AND 4)
L RATING AT AMBIENT – 2 CFM/SQ FT
L RATING AT 400 F – LESS THAN 1 CFM/SQ FT



SECTION A-A

1. FLOOR OR WALL ASSEMBLY – MIN 2-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED **CONCRETE BLOCKS***. MAX DIAM OF OPENING IS 36 IN.
SEE **CONCRETE BLOCKS** (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
1A. STEEL SLEEVE (OPTIONAL, NOT SHOWN) – NOM 36 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO MIN 4-1/2 IN. THICK CONCRETE FLOOR OR WALL. SLEEVE TO BE FLUSH WITH OR PROJECT MAX 2 IN. FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL. **WHEN STEEL SLEEVE IS USED, F RATING IS 2 HR AND T RATING IS 0 HR**
2. PIPE – NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE, NOM 15 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 30 IN. DIAM (OR SMALLER) CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE OR NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE CENTERED IN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY.
3. PIPE COVERING* – NOM 1, 2 OR 3 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT.
SEE **PIPE AND EQUIPMENT COVERING - MATERIALS*** (BRGU) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.
4. FIRESTOP SYSTEM – THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
A. **FILL,VOID OR CAVITY MATERIALS* - WRAP STRIP** – NOM 1/4 IN. THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. WIDE BY 24 IN. LONG STRIPS. NOM 2 IN. WIDE STRIPS TIGHTLY-WRAPPED AROUND PIPE COVERING (FOIL SIDE EXPOSED) TO FILL ANNULAR SPACE. EACH LAYER OF WRAP STRIP IS TO BE INSTALLED WITH A BUTTED SEAM, WITH THE BUTTED SEAMS IN SUCCESSIVE LAYERS STAGGERED. WRAP STRIP LAYERS SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLIDE INTO ANNULAR SPACE SUCH THAT THE TOP EDGES ARE RECESSED MIN 1/2 IN. FORM TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, THE WRAP STRIP LAYERS SHALL BE INSTALLED IN THE SAME MANNER USED FOR FLOOR ASSEMBLIES BUT SHALL BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF THE WALL. THE MIN NUMBER OF WRAP STRIP LAYERS REQUIRED IS DEPENDENT UPON THE MAX PIPE SIZE AND THE PIPE COVERING THICKNESS, AS SHOWN IN THE FOLLOWING TABLE:

MIN. FLOOR OR WALL THKNS, IN	MAX PIPE DIAM, IN	NOM PIPE COVERING THKNS, IN	ANNULAR SPACE IN	MIN NUMBER OF WRAP STRIP LAYERS	F RATING HR	T RATING HR
2-1/2	6	1	1/4 TO 3/8	1	2	1
2-1/2	6	2	1/2 TO 5/8	2	2	1
2-1/2	12	1	1/4 TO 3/8	1	2	1/2
4-1/2	12	1	1/4 TO 3/8	1	2	1
4-1/2	12	2	1/2 TO 5/8	2	2	1
4-1/2	20	1	1/2 TO 1	2	3	1
4-1/2	30	2	3/4 TO 1-1/4	3	2	1
4-1/2	20	3	1 TO 1-1/2	4	2	1

3M COMPANY – FS-195+

B. FILL,VOID OR CAVITY MATERIALS* – CAULK OR SEALANT – APPLIED TO FILL THE ANNULAR SPACE (OVER EDGES OF WRAP STRIP LAYERS) TO A MIN DEPTH OF 1/2 IN., FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL.
3M COMPANY – CP 25WB+ CAULK OR FB-3000 WT SEALANT.
*BEARING THE UL CLASSIFICATION MARKING

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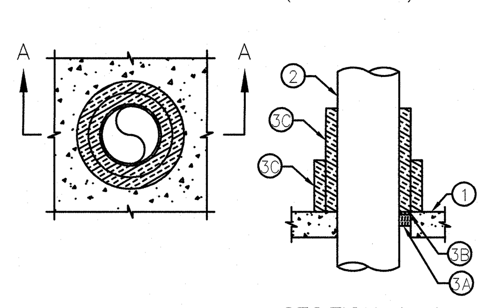
NOTE: DETAIL FOR REFERENCE ONLY. THE CONTRACTOR SHALL INSTALL FIRE PROOFING IN COMPLETE ACCORDANCE WITH IT'S UL LISTING AND PENETRATION SYSTEM INSTALLATION INSTRUCTIONS.

F / P0.2 — UL SYSTEM No. CA-J-5002
NO SCALE

UL SYSTEM No. F-A-1105
JUNE 24, 2016

F RATINGS – 2 HR
T RATING – 2 HR
L RATING AT AMBIENT – LESS THAN 1 CFM/SQ.FT.
L RATING AT 400 F – 4 CFM/SQ FT
W RATING – CLASS 1 (SEE ITEM 3B)



SECTION A-A

1. FLOOR ASSEMBLY - MIN. 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE. AS AN ALTERNATE, ANY MIN. 2 HR. FIRE RATED D700, D800 OR D900 SERIES FLOOR-CEILING DESIGN IN THE UL FIRE RESISTANCE DIRECTORY A MIN. 2-1/2 IN. THICKNESS OF LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE TOPPING OVER THE STEEL DECK MAY BE USED. MAX. DIAM. OF OPENING IS 12-3/4 IN.
2. THROUGH - PENETRANT - ONE METALLIC PIPE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN OPENING. ANNULAR SPACE BETWEEN PENETRANT AND PERIPHERY OF OPENING SHALL BE MIN. OF 0 IN. (POINT CONTACT) TO MAX 2 IN. PENETRANT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF PENETRANTS MAY BE USED:
A. **STEEL PIPE -** NOM. 10 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
B. **IRON PIPE -** NOM. 10 IN. DIAM. (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. **CONDUIT -** NOM. 4 IN. DIAM. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR NOM. 6 IN. DIAM. (OR SMALLER) RIGID STEEL CONDUIT.
3. FIRESTOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
A. **PACKING MATERIAL -** MIN. 2 IN. THICKNESS OF MIN. 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. WHEN CP 604 SEALANT IS USED (SEE ITEM 3B), MIN. THICKNESS OF PACKING MATERIAL IS 4 IN. AND MIN. THICKNESS OF FLOOR IS 4-1/2 IN. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR TO ACCOMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
B. **FILL, VOID OR CAVITY MATERIALS* - SEALANT -** MIN. 1/2 IN. THICKNESS OF SEALANT APPLIEDWITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI, INC - FS-ONE SEALANT OR CP 604 SELF-LEVELING FIRESTOP SEALANT

W RATING APPLIES ONLY WHEN CP 604 SEALANT IS USED.

C. **DUCT WRAP MATERIAL* -** NOM. 2 IN. THICK ENCAPSULATED DUCT WRAP TIGHTLY WRAPPED AROUND PENETRANT TO EXTEND 36 IN. ABOVE FLOOR. AN ADDITIONAL LAYER OF NOM. 2 IN. THICK ENCAPSULATED DUCT WRAP TIGHTLY WRAPPED AROUND FIRST LAYER OF DUCT WRAP TO EXTEND 12 IN. ABOVE FLOOR. ALL LONGITUDINAL SEAMS OF BOTH LAYERS OF DUCT WRAP AND JOINTS BETWEEN LAYERS OF DUCT WRAP ARE SEALED WITH FOIL TAPE. ONE OF THE FOLLOWING WRAP MAY BE USED:

C1. NOM. 1-1/2 IN. OF 2 IN. THICK ENCAPSULATED DUCT WRAP.

UNIFRAX I L L C - FRYEWRAP DUCT INSULATION OR FIREWRAP DUCT 1.5 INSULATION.

C2. NOM. 1-1/2 IN. THICK ENCAPSULATED DUCT WRAP.

THERMAL CERAMICS INC - FIREMASTER FASTWRAP XL DUCT INSULATION.

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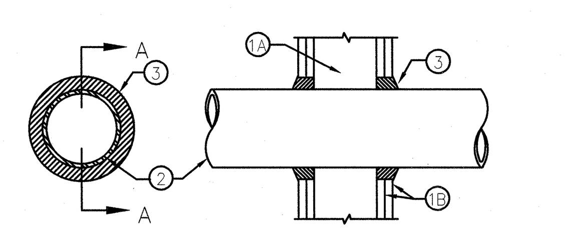
G / P0.2 — UL SYSTEM No. F-A-1105
NO SCALE

UL SYSTEM No. W-L-1001
(FORMERLY SYSTEM NO. 147)
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 RATINGS AT AMBIENT – LESS THAN 1 CFM/SQFT
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 HR 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.

TITEFLEX CORP
A BUNDY CO

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	F RATING HR	T RATING HR
1	1 OR 2	0+1 OR 2
1	3 OR 4	3 OR 4
4	1 OR 2	0
6	3 OR 4	0
12	1 OR 2	0

+WHEN COPPER PIPE IS USED, T RATING IS 0 HR.

3M COMPANY – CP 25WB+ CAULK OR FB-3000 WT SEALANT.

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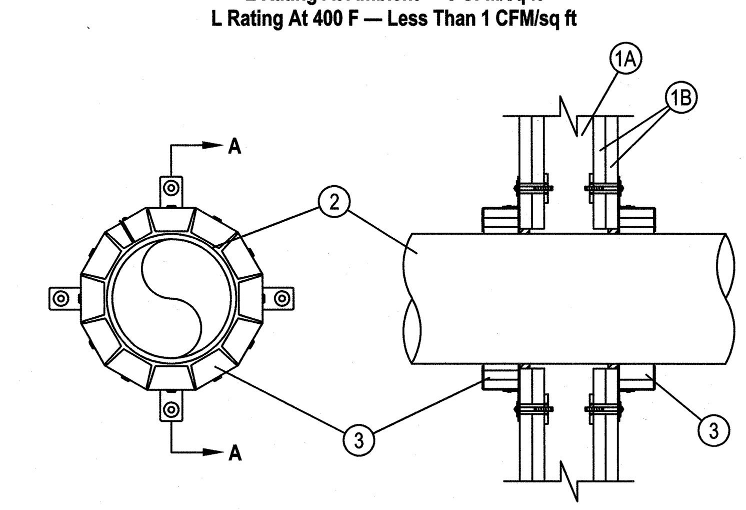
H / P0.2 — UL SYSTEM No. W-L-1001
NO SCALE

UL System No. W-L-2078
JANUARY 28, 2015

F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0, 1 and 2 Hr (See Items 2 and 3)
L Rating At Ambient — 3 CFM/sq ft
L Rating At 400 F — Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the UL fire Resistance Directory and shall include the construction features noted below:
A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced max 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC.
B. Gypsum Board* — Nom 5/8 in. thick gypsum board, as specified in the individual Wall and Partition Design. Max diam of opening is 11-1/2 in.
The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through-Penetrants — One nonmetallic pipe, conduit or tubing to be installed within the firestop system. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 1/2 in. Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes may be used:
A. Polyvinyl Chloride (PVC) Pipe — Nom 10 in. diam (or smaller) Schedule 40 solid-core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 10 in. diam (or smaller) SDR13.5 CPVC pipe for use in closed (process or supply) piping systems.
C. Acrylonitrile Butadiene Styrene (ABS) Pipe — Nom 6 in. diam (or smaller) Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems
D. Flame Retardant Polypropylene (FRPP) Pipe — Nom 6 in. diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
E. Polyvinylidene Fluoride (PVDF) Pipe — Nom 4 in. diam (or smaller) PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
When max 6 in. diam pipe is used, T Rating is equal to the hourly fire rating of the wall. When nom 8 in. or 10 in. diam pipe is used, T Rating is 0 hr.
3. Firestop Device* — Firestop Collar — Firestop collar shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to both sides of the wall using the anchor hooks provided with the collar. (Minimum two anchor hooks for 1-1/2 and 2 in. diam pipes, three anchor hooks for 3 and 4 in. diam pipes, four anchor hooks for 6 in. diam pipes, ten anchor hooks for 8 in. diam pipes and twelve anchor hooks for 10 in. diam pipes). The anchor hooks are to be secured to the surface of wall with 3/16 in. diam by 2-1/2 in. long steel toggle bolts along with washers. As an alternate for pipe sizes of nom 4 in. diam or less, min No. 10 by 1-1/2 in. long drywall or laminate screws with min 3/4 in. steel washers may be used. When the drywall or laminate screw is used, T Rating shall not exceed 1 hr.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 643 50/1.5"N, CP 643 63/2"N, CP 643 90/3"N, CP 643 110/4"N, CP 643 160/6"N, CP 644 200/8" andCP 644 250/10" Firestop Collars
4. Fill, Void or Cavity Material* — Sealant - (Not Shown) — Min 1/2 in. thickness of sealant applied within the annular space for nom 8 in. and 10 in. diam pipes, flush with each side of wall. Sealant in annular space is optional for max 6 in. diam pipes. A min 1/4 in. thickness of sealant is required within the annular space, flush with each side of wall, to attain the L Ratings for max 6 in. diam pipes.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant
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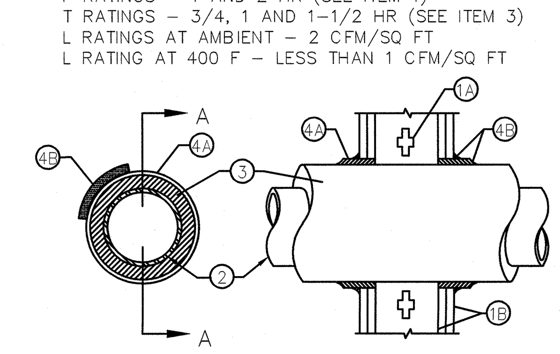
J / P0.2 — UL SYSTEM No. W-L-2078
NO SCALE

UL SYSTEM No. W-L-5001
(FORMERLY SYSTEM NO. 147)
MAY 19, 2005

F RATINGS – 1 AND 2 HR (SEE ITEM 1)
T RATINGS – 3/4, 1 AND 1-1/2 HR (SEE ITEM 3)
L RATINGS AT AMBIENT – 2 CFM/SQ FT
L RATING AT 400 F – LESS THAN 1 CFM/SQ FT



SECTION A-A

1. WALL ASSEMBLY – THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. STUDS – WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 IN. BY 4 IN. (25 MM BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC WITH NOM 2 BY 4 IN. 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 5/8 IN. (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 14-1/2 IN (368 MM) FOR WOOD STUD WALLS AND 18 IN. (457 MM) FOR STEEL STUD WALLS.
THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS 1 HR WHEN INSTALLED IN A 1 HR FIRE RATED WALL AND 2 HR WHEN INSTALLED IN A 2 HR FIRE RATED WALL.
2. THROUGH PENETRANTS – ONE METALLIC PIPE OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:
A. STEEL PIPE – NOM 12 IN. (305 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. COPPER TUBING – NOM 6 IN. (152 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
C. COPPER PIPE – NOM 6 IN. (152 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. PIPE COVERING* – NOM 1 IN. OR 2 IN. (25 MM OR 51 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SEALED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT. WHEN NOM 1 IN. (25 MM) THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL SHALL BE MIN 1/4 IN. TO MAX 3/8 IN. (6 MM TO MAX 10 MM). WHEN NOM 2 IN. (51 MM) THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL SHALL BE MIN 1/2 IN. TO MAX 3/4 IN. (13 MM TO MAX 19 MM).
SEE PIPE AND EQUIPMENT COVERING – MATERIALS (BRGU) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.
THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS 3/4 HR WHEN NOM 1 IN. (25 MM) THICK PIPE COVERING IS USED.
THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS 1 HR AND 1-1/2 HR WHEN NOM 2 IN. (51 MM) THICK PIPE COVERING IS USED WITH 1 HR AND 2 HR FIRE RATED WALLS, RESPECTIVELY.
4. FIRESTOP SYSTEM – INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
A. FILL,VOID OR CAVITY MATERIALS* - WRAP STRIP – NOM 1/4 IN. (6 MM) THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. NOM 2 IN. (51 MM) WIDE STRIP TIGHTLY WRAPPED AROUND PIPE COVERING (FOIL SIDE OUT) WITH SEAM BUTTED. WRAP STRIP LAYER SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO ANNULAR SPACE APPROX 1-1/4 IN. (32 MM) SUCH THAT APPROX 3/4 IN. (19 MM) OF THE WRAP STRIP WIDTH PROTRUDES FROM THE WALL SURFACE. ONE LAYER OF WRAP STRIP IS REQUIRED WHEN NOM 1 IN. (25 MM) THICK PIPE COVERING IS USED. TWO LAYERS OF WRAP STRIP ARE REQUIRED WHEN NOM 2 IN. (51 MM) THICK PIPE COVERING IS USED.
3M COMPANY – FS-195+
B. FILL,VOID OR CAVITY MATERIALS* - CAULK OR SEALANT – MIN 1/4 IN. (6 MM) DIAM CONTINUOUS BEAD APPLIED TO THE WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED EDGE OF THE WRAP STRIP LAYER APPROX 3/4 IN. (19 MM) FROM THE WALL SURFACE.
3M COMPANY – CP 25WB+, IC 15WB+, FIREDAM 150+ CAULK OR FB-3000 WT SEALANT

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K / P0.2 — UL SYSTEM No. W-L-5001
NO SCALE

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043164 CASEY D. GILMAN
2/25/19

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

PLUMBING DETAILS

P0.2
2 OF 9

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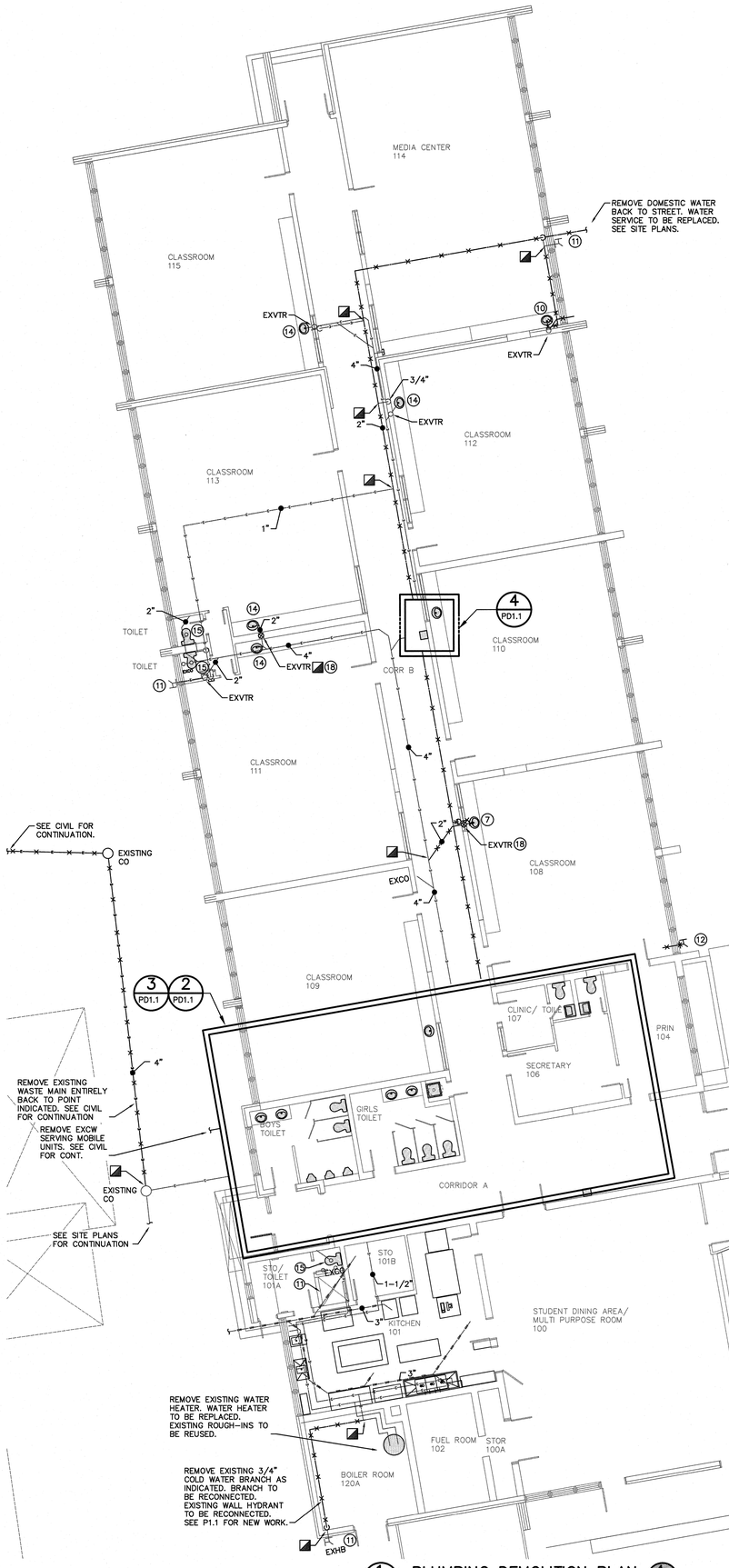
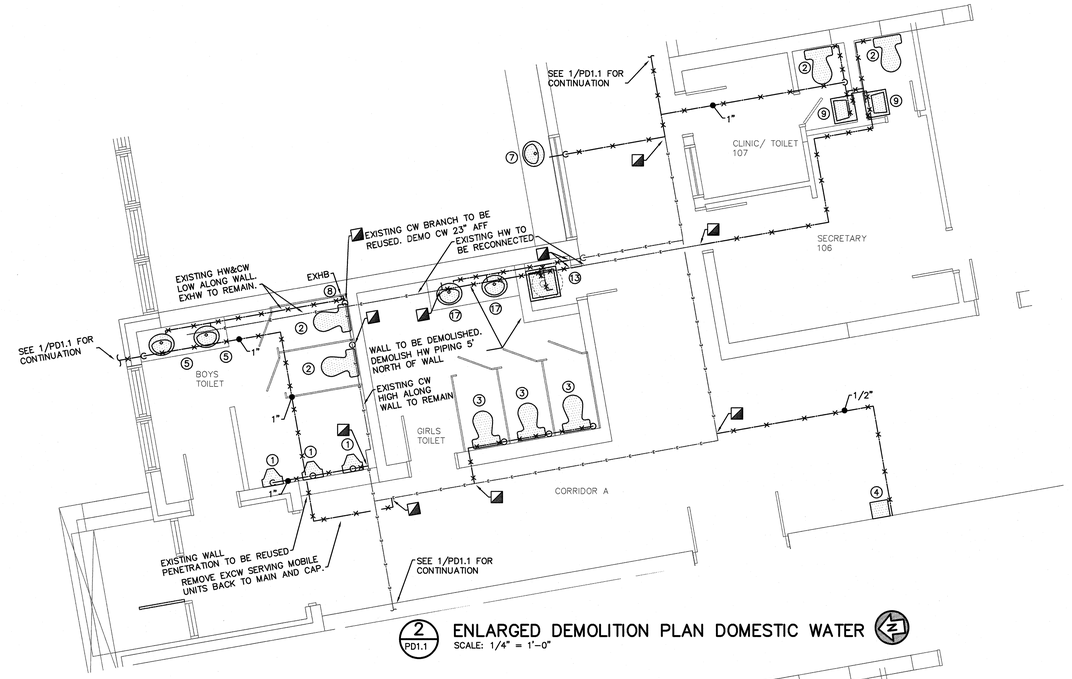
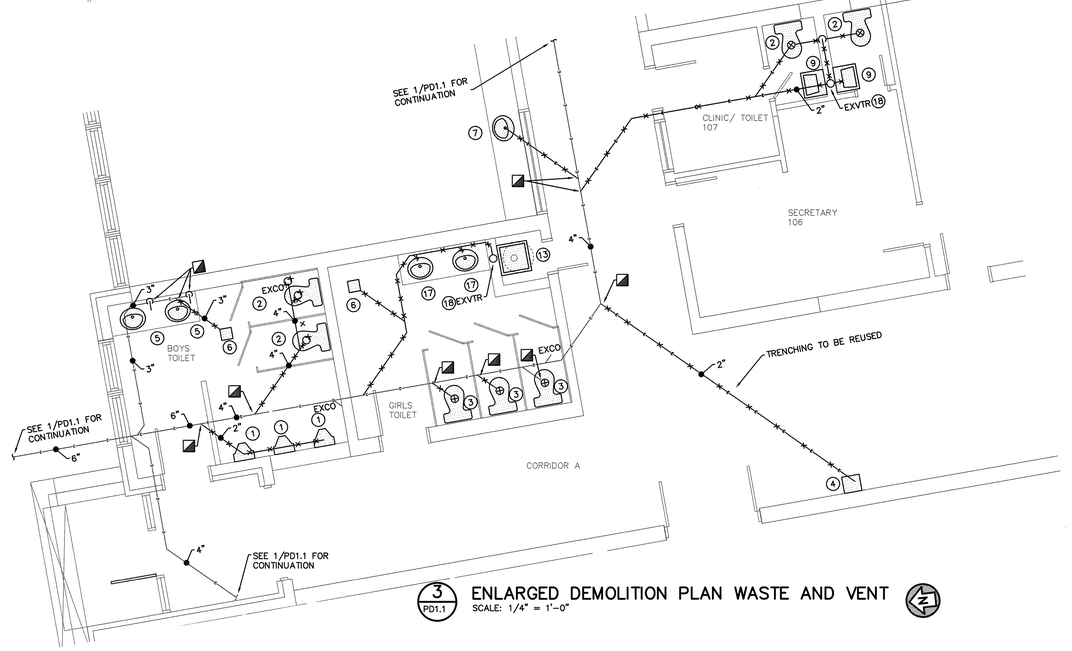


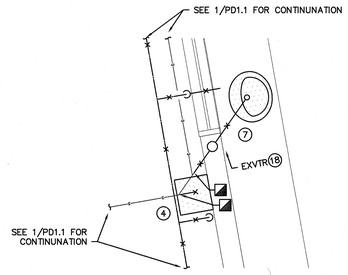
1 PD1.1 PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



2 PD1.1 ENLARGED DEMOLITION PLAN DOMESTIC WATER
SCALE: 1/4" = 1'-0"



3 PD1.1 ENLARGED DEMOLITION PLAN WASTE AND VENT
SCALE: 1/4" = 1'-0"



4 PD1.1 ENLARGED DEMOLITION PLAN PLUMBING
SCALE: 1/2" = 1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE EXISTING URINAL AND ASSOCIATED CARRIER. REMOVE ASSOCIATED EXCW AS INDICATED AND CAP. REMOVE ASSOCIATED WASTE AND VENT BACK TO MAINS AND CAP.
2. REMOVE EXISTING WATER CLOSET. REMOVE AND CAP ASSOCIATED EXCW DROP SERVING INDIVIDUAL WATER CLOSET ONLY; EXCW TO BE REUSED. REMOVE ASSOCIATED WASTE BACK TO MAIN AND CAP. REMOVE ASSOCIATED VENT BACK TO MAIN AND CAP.
3. REMOVE EXISTING WATER CLOSET. REMOVE ASSOCIATED EXCW BACK TO POINT INDICATED AND CAP. REMOVE ASSOCIATED WASTE BACK TO POINT INDICATED AND CAP. REMOVE ASSOCIATED VENT BACK TO MAIN AND CAP.
4. REMOVE EXISTING DRINKING FOUNTAIN AND ASSOCIATED CARRIER. REMOVE ASSOCIATED EXCW BACK TO POINT INDICATED AND CAP. REMOVE ASSOCIATED WASTE AND VENT BACK TO MAINS AND CAP.
5. REMOVE EXISTING LAVATORY. REMOVE ASSOCIATED EXHW AS INDICATED. REMOVE ASSOCIATED EXCW BACK TO POINT INDICATED. EXCW TO BE REUSED. REMOVE ASSOCIATED WASTE BACK TO POINT INDICATED BELOW FLOOR AND CAP. REMOVE ASSOCIATED VENT BACK TO MAIN AND CAP.
6. REMOVE EXISTING FLOOR DRAIN. REMOVE ASSOCIATED WASTE BACK TO POINT INDICATED AND CAP.
7. REMOVE EXISTING CLASSROOM SINK. REMOVE ASSOCIATED EXCW BACK TO MAIN IN CORRIDOR AND CAP. REMOVE ASSOCIATED WASTE AND VENT BACK TO MAINS AND CAP.
8. REMOVE EXISTING HOSE BIBB AND ASSOCIATED EXCW AS INDICATED.
9. REMOVE EXISTING LAVATORY AND ASSOCIATED CARRIER. REMOVE ASSOCIATED EXCW AS INDICATED. REMOVE ASSOCIATED EXHW BACK TO POINT INDICATED. REMOVE ASSOCIATED WASTE AND VENT BACK TO MAINS AND CAP.
10. REMOVE EXISTING MEDIA CENTER SINK. REMOVE ASSOCIATED EXCW BELOW WINDOW BACK TO POINT INDICATED AND CAP. ASSOCIATED WALL HYDRANT AND WALL HYDRANT EXCW TO REMAIN AND BE RECONNECTED TO NEW WATER SERVICE. REMOVE ASSOCIATED WASTE BACK TO MAIN AND CAP. WASTE TRENCH AND VENT TO BE REUSED. SEE SITE PLAN. REMOVE EXV TO CEILING. EXVTR TO BE REUSED.
11. EXISTING FIXTURE TO REMAIN. NO WORK.
12. REMOVE EXISTING WALL HYDRANT. REMOVE ALL ASSOCIATED DOMESTIC WATER BACK TO MAIN AND CAP.
13. EXISTING CLOSET TO BE DEMOLISHED. REMOVE EXISTING WATER HEATER. REMOVE EXISTING MOP SINK. REMOVE ALL DOMESTIC WATER PIPING IN CLOSET TO POINTS INDICATED. DOMESTIC WATER TO BE REUSED. REMOVE ALL WASTE PIPING BACK TO MAIN AND CAP. REMOVE ALL ASSOCIATED VENT TO BELOW ROOF DECK AND CAP ALL OPEN ENDS.
14. REMOVE EXISTING CLASSROOM SINK. ASSOCIATED WASTE, VENT AND DOMESTIC WATER ROUGH-INS TO BE REUSED.
15. REMOVE EXISTING WATER CLOSET. ASSOCIATED WASTE, VENT, AND DOMESTIC WATER ROUGH-INS TO BE REUSED.
16. REMOVE EXISTING CLASSROOM SINK. REMOVE ASSOCIATED EXCW BACK TO MAIN IN CORRIDOR AND CAP. REMOVE ASSOCIATED WASTE TO MAIN AND CAP. REMOVE ASSOCIATED EXV TO CEILING. EXVTR TO BE REUSED.
17. REMOVE EXISTING LAVATORY. REMOVE ASSOCIATED DOMESTIC WATER AS INDICATED. REMOVE ASSOCIATED WASTE BACK TO MAIN AND CAP. REMOVE ASSOCIATED VENT TO BELOW ROOF DECK AND CAP ALL OPEN ENDS.
18. REMOVE EXISTING VTR TO BELOW ROOF DECK AND CAP ALL OPEN ENDS.

** NOTE: ALL EXISTING VENT PIPING LEFT ABANDONED FROM DEMOLISHED PLUMBING FIXTURES MUST BE CAPPED ABOVE CEILING AND ON ROOF SO THAT ALL ENDS ARE CAPPED.

GENERAL NOTES:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DEMOLITION DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.

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2/25/19

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Construction Drawings
February 20, 2019

Revisions:

PLUMBING DEMOLITION FIRST FLOOR PLAN

PD1.1

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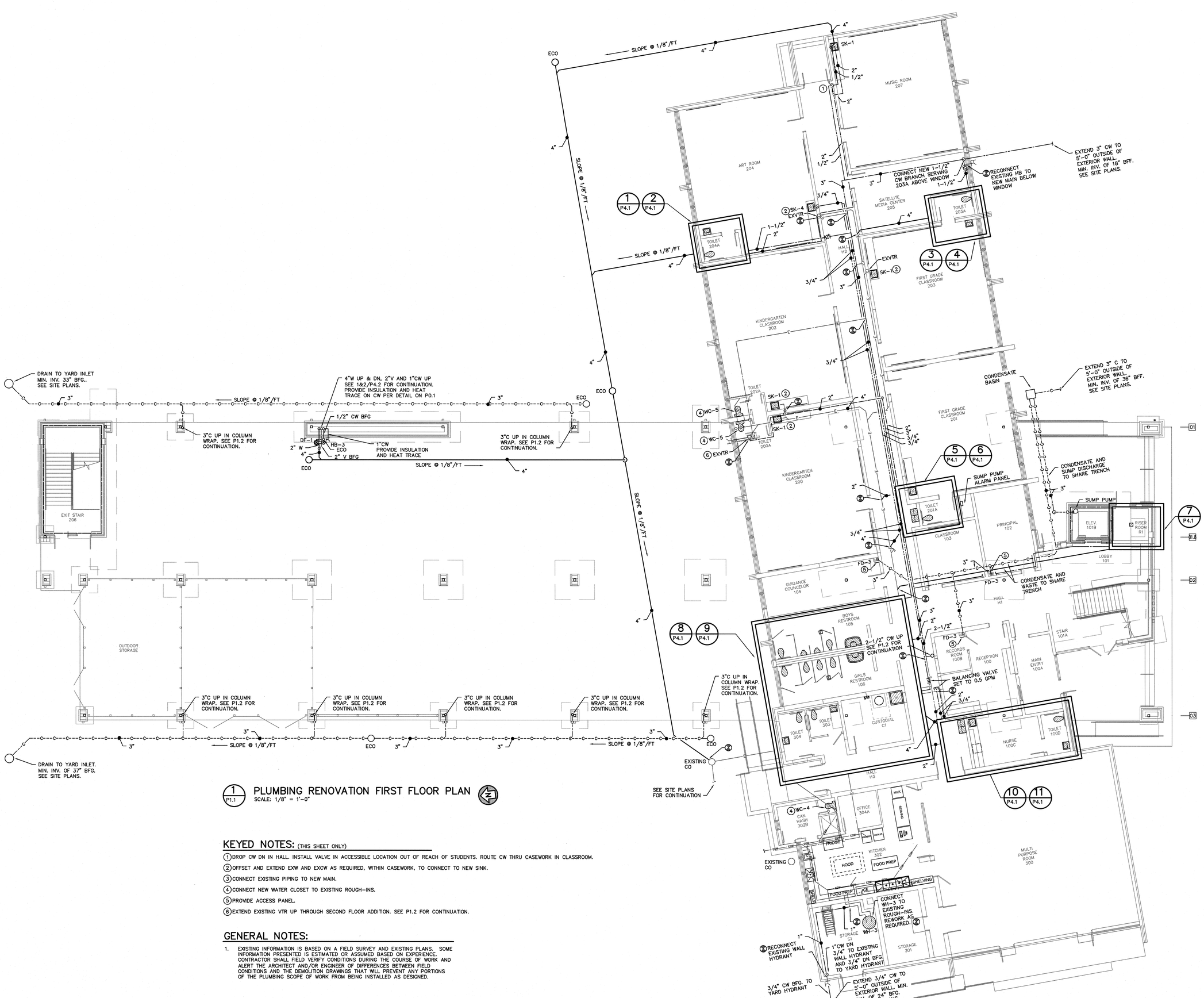

1 P1.1 PLUMBING RENOVATION FIRST FLOOR PLAN

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

KEYED NOTES: (THIS SHEET ONLY)

1. DROP CW DN IN HALL. INSTALL VALVE IN ACCESSIBLE LOCATION OUT OF REACH OF STUDENTS. ROUTE CW THRU CASEWORK IN CLASSROOM.
2. OFFSET AND EXTEND EXW AND EXCW AS REQUIRED, WITHIN CASEWORK, TO CONNECT TO NEW SINK.
3. CONNECT EXISTING PIPING TO NEW MAIN.
4. CONNECT NEW WATER CLOSET TO EXISTING ROUGH-INS.
5. PROVIDE ACCESS PANEL.
6. EXTEND EXISTING VTR UP THROUGH SECOND FLOOR ADDITION. SEE P1.2 FOR CONTINUATION.

GENERAL NOTES:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DEMOLITION DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.

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P1.1

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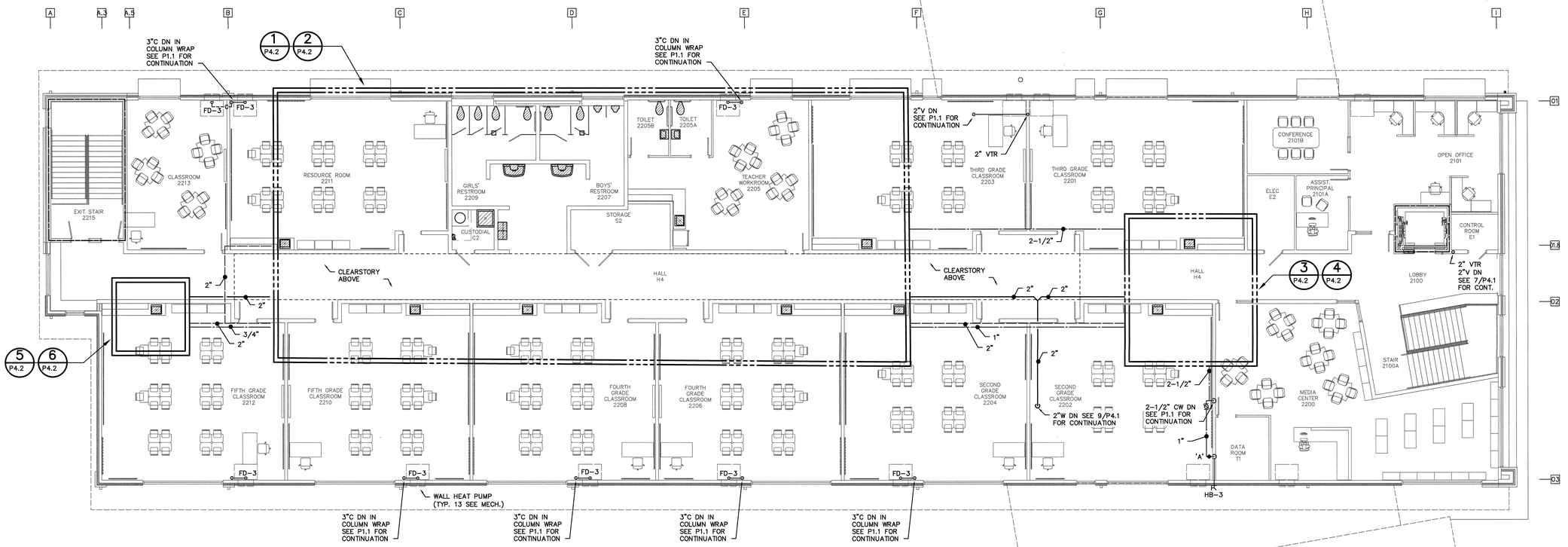

1 P1.2 **PLUMBING SECOND FLOOR PLAN**
SCALE: 1/8" = 1'-0"

NOTE:

P-TRAPS LOCATED BELOW SECOND FLOOR SHALL BE INSULATED AND SHALL HAVE FREEZE PROTECTION HEAT TRACE CABLE INSTALLED. SEE SPECIFICATIONS AND DRAWING P5.1.

GENERAL NOTES:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY AND EXISTING PLANS. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DEMOLITION DRAWINGS THAT WILL PREVENT ANY PORTIONS OF THE PLUMBING SCOPE OF WORK FROM BEING INSTALLED AS DESIGNED.
2. COORDINATE HUB DRAIN LOCATIONS WITH HVAC CONTRACTOR.

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PLUMBING SECOND FLOOR PLAN

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KEYED NOTES: (THIS SHEET ONLY)

(1) DEMOLISH AND CAP EXISTING VTR ON ALL OPEN ENDS.

(2) ALL EXISTING VENT PIPING LEFT ABANDONED FROM DEMOLISHED PLUMBING FIXTURES MUST BE CAPPED ABOVE CEILING AND ON ROOF SO THAT ALL ENDS ARE CAPPED.

1 / P1.3 PLUMBING RENOVATION ROOF PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

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PLUMBING RENOVATION ROOF PLAN

P1.3

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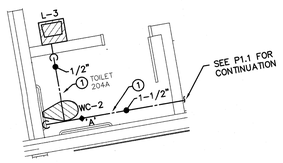
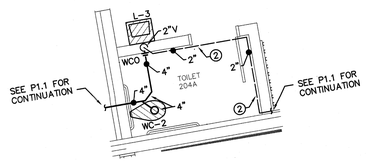
KEYED NOTES: (THIS SHEET ONLY)

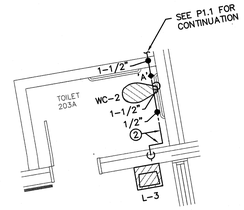
1. INSTALL PIPING AS CLOSE TO CEILING AS POSSIBLE.
2. INSTALL PIPING AS CLOSE TO WALL AND CEILING AS POSSIBLE.
3. 2" COMMON VENT. CONNECT WASTE TO EXVTR IN WALL AS INDICATED.
4. MOUNT CP-1 NO HIGHER THAN 8' AFF.



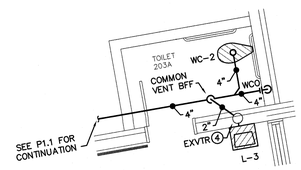
1 P4.1 TOILET 204A DOMESTIC WATER
SCALE: 1/4" = 1'-0"



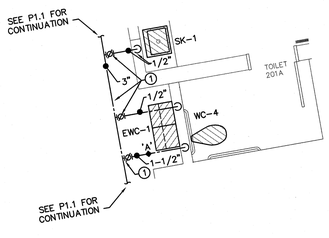
2 P4.1 TOILET 204A WASTE & VENT
SCALE: 1/4" = 1'-0"



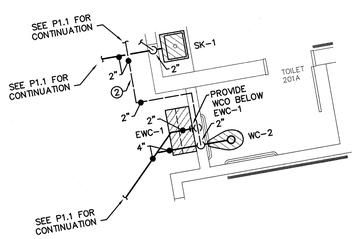
3 P4.1 TOILET 203A DOMESTIC WATER
SCALE: 1/4" = 1'-0"



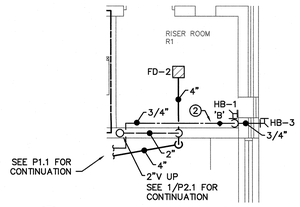
4 P4.1 TOILET 203A WASTE & VENT
SCALE: 1/4" = 1'-0"



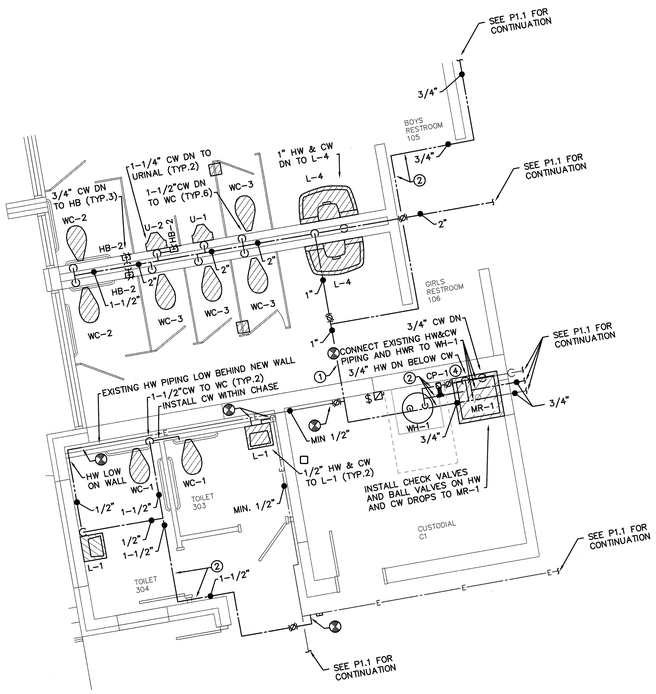
5 P4.1 TOILET 201A DOMESTIC WATER
SCALE: 1/4" = 1'-0"



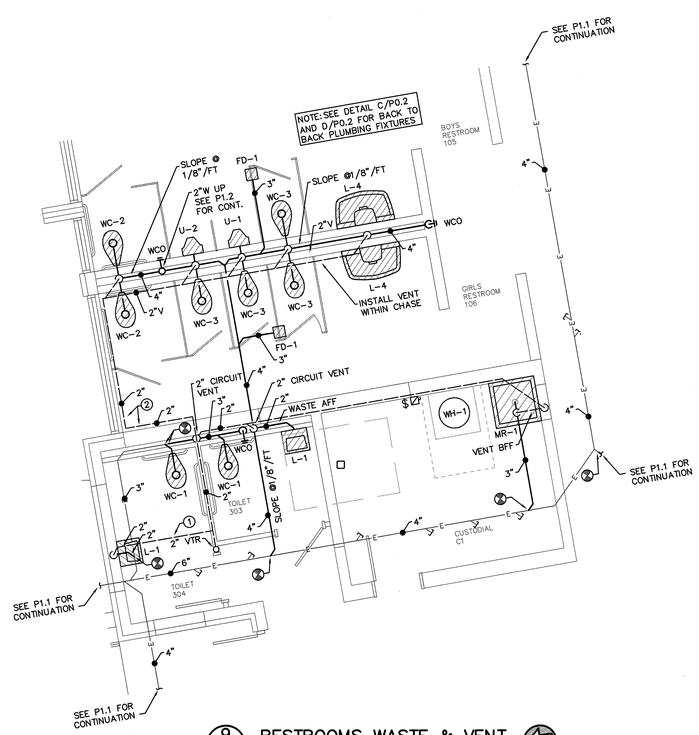
6 P4.1 TOILET 201A WASTE & VENT
SCALE: 1/4" = 1'-0"



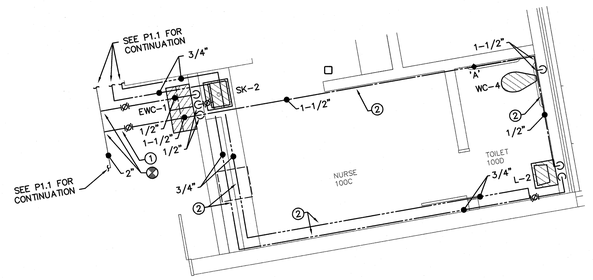
7 P4.1 RISER ROOM
SCALE: 1/4" = 1'-0"



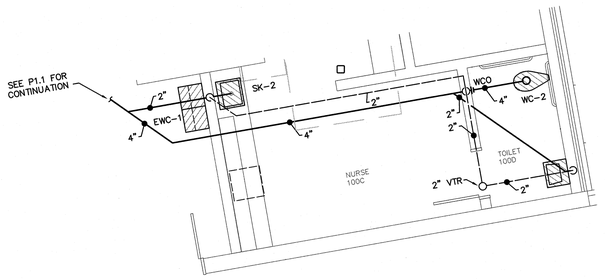
8 P4.1 RESTROOMS DOMESTIC WATER
SCALE: 1/4" = 1'-0"



9 P4.1 RESTROOMS WASTE & VENT
SCALE: 1/4" = 1'-0"



10 P4.1 NURSE DOMESTIC WATER
SCALE: 1/4" = 1'-0"



11 P4.1 NURSE WASTE & VENT
SCALE: 1/4" = 1'-0"

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PLUMBING RENOVATION FIRST FLOOR ENLARGED PLANS

P4.1

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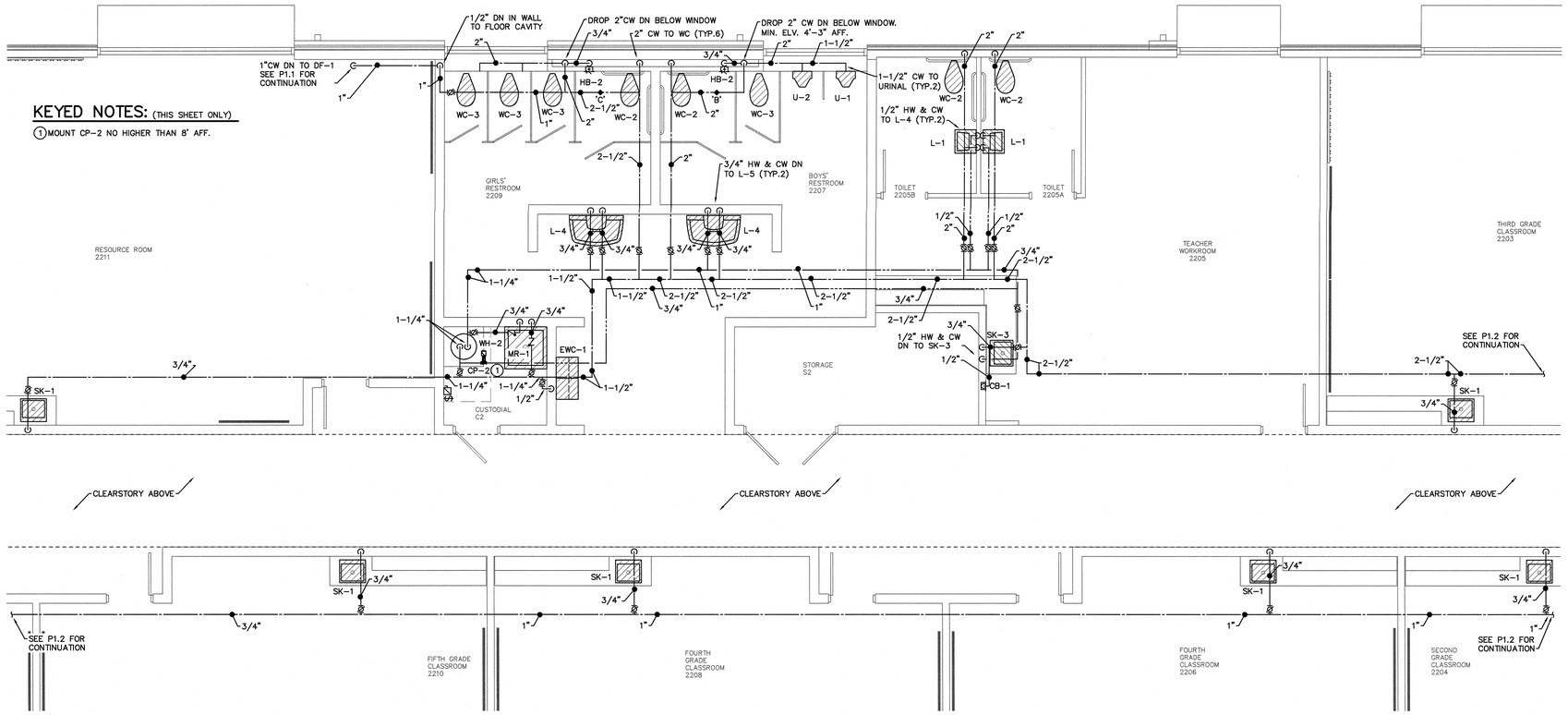
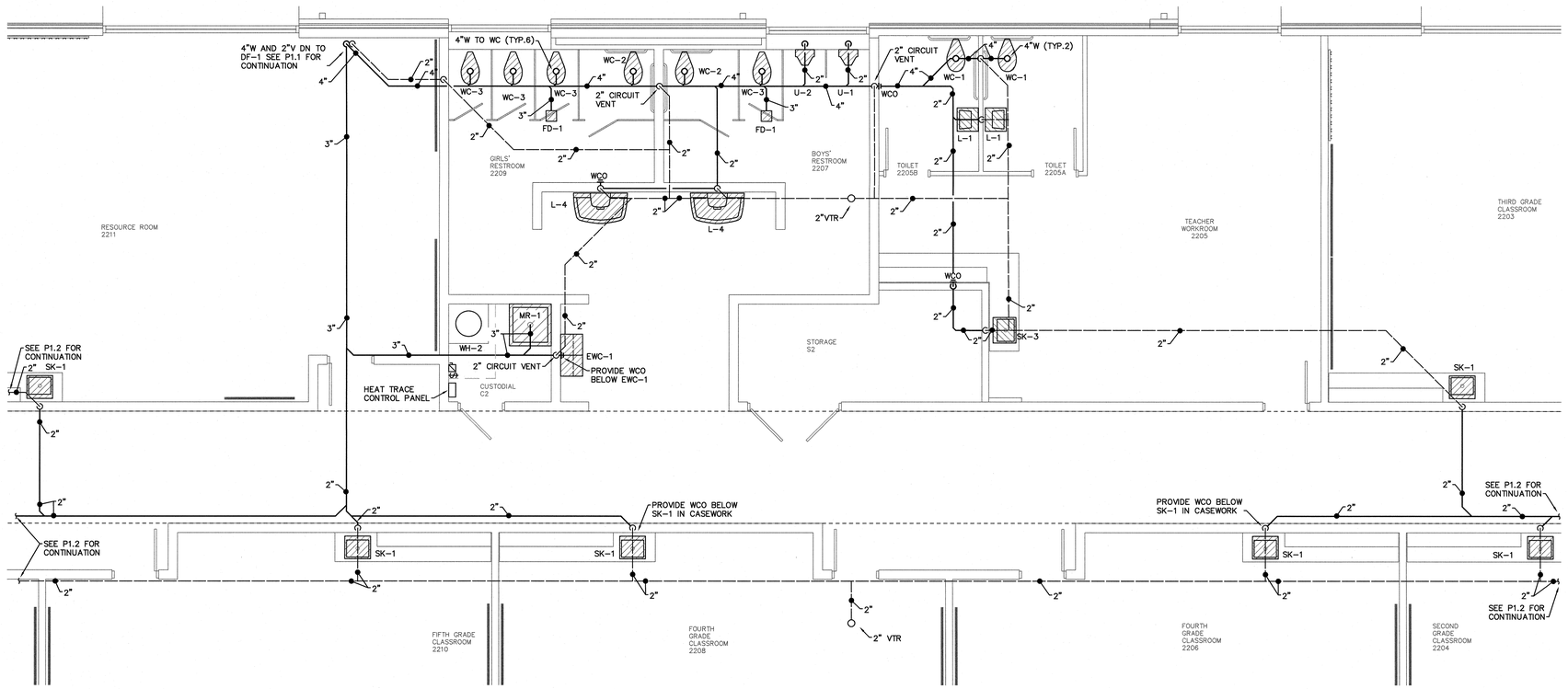
KEYED NOTES: (THIS SHEET ONLY)

1. MOUNT CP-2 NO HIGHER THAN 8' AFF.



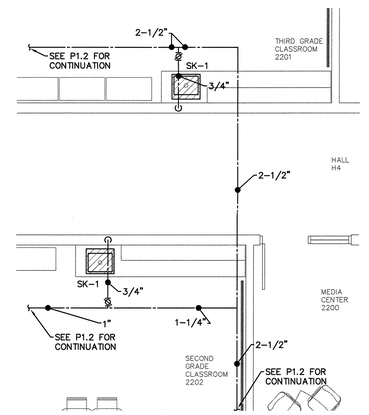
1 P4.2 ENLARGED PLAN – DOMESTIC WATER A
SCALE: 1/4" = 1'-0"



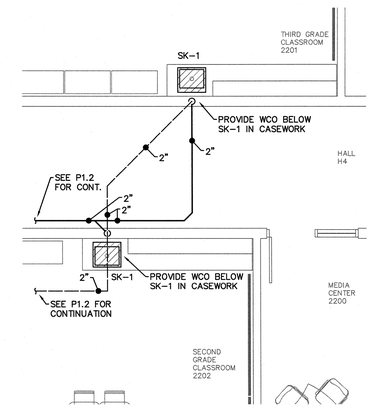
2 P4.2 ENLARGED PLAN – WASTE AND VENT A
SCALE: 1/4" = 1'-0"

NOTE:

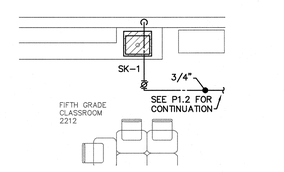
P-TRAPS LOCATED BELOW SECOND FLOOR SHALL BE INSULATED AND SHALL HAVE FREEZE PROTECTION HEAT TRACE CABLE INSTALLED. SEE SPECIFICATIONS AND DRAWING P5.1.



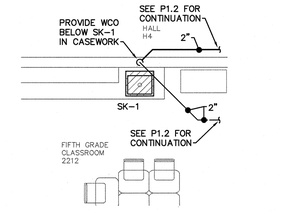
3 P4.2 ENLARGED PLAN – DOMESTIC WATER B
SCALE: 1/4" = 1'-0"



4 P4.2 ENLARGED PLAN – WASTE AND VENT B
SCALE: 1/4" = 1'-0"



5 P4.2 ENLARGED PLAN – DOMESTIC WATER – C
SCALE: 1/4" = 1'-0"



6 P4.2 ENLARGED PLAN – WASTE AND VENT – C
SCALE: 1/4" = 1'-0"

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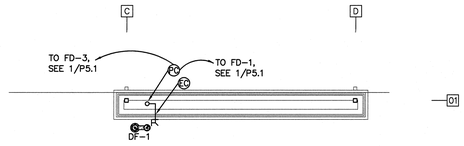
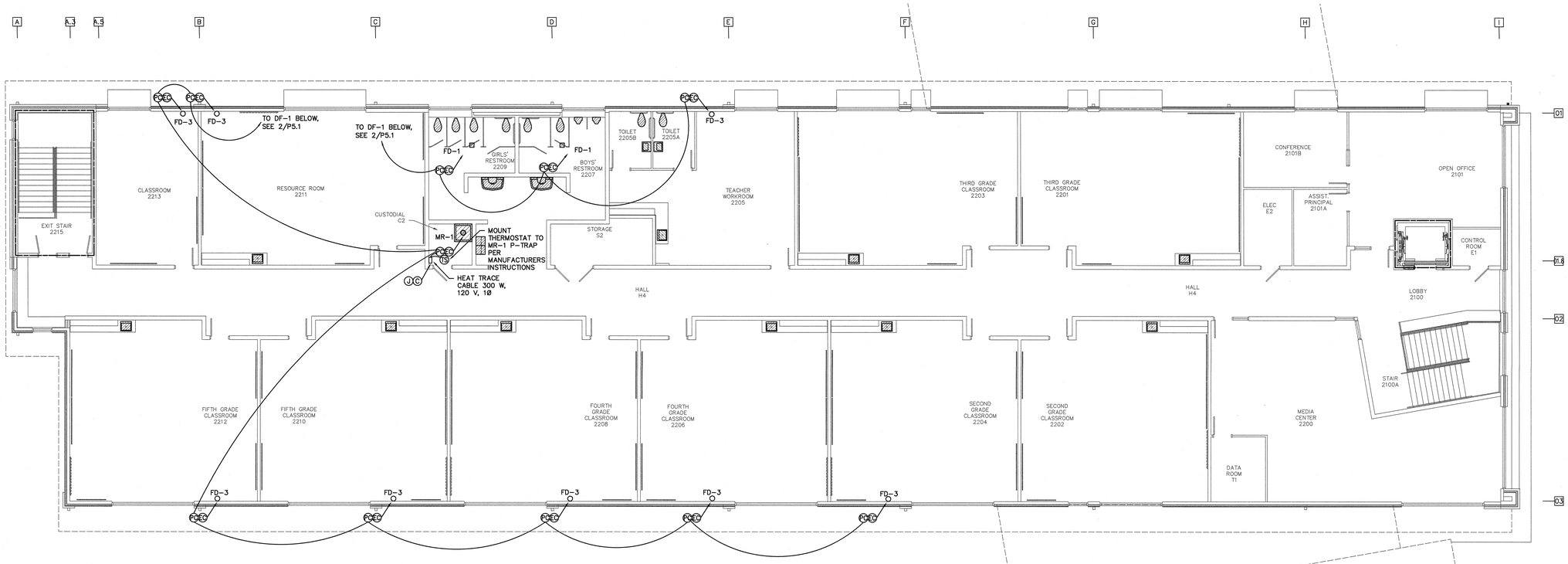


2 P5.1 PLUMBING FIRST FLOOR HEAT TRACE PART PLAN
SCALE: 1/8" = 1'-0"



1 P5.1 PLUMBING SECOND FLOOR HEAT TRACE PLAN
SCALE: 1/8" = 1'-0"

NOTES:

1. PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING HEAT TRACE CABLE. POWER CONNECTIONS TO CONTROLLER AND FROM CONTROLLER TO HEAT TRACE POWER CONNECTIONS SHALL BE BY THE ELECTRICAL CONTRACTOR. SEE SPECIFICATIONS AND DETAIL F/P0.2.
2. PROVIDE FREEZE PROTECTION HEAT TRACE CABLE ON INDICATED P-TRAPS ONLY. HEAT TRACE IS NOT REQUIRED ON PIPING RUNS INSTALLED WITHIN THE SOFFIT LOCATED BELOW THE SECOND FLOOR. SEE DETAIL E/P0.2.

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NORTH CAROLINA PROFESSIONAL SEAL 043164 ENGINEER CASEY D. GILMAN
2/25/19

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

PLUMBING HEAT TRACE PLAN

P5.1

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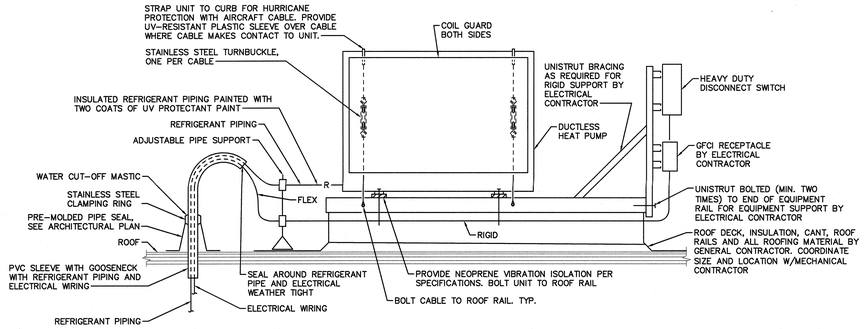
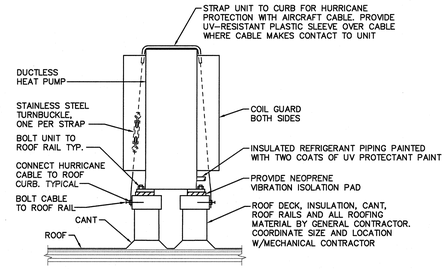
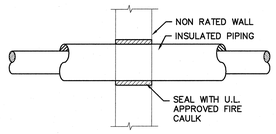
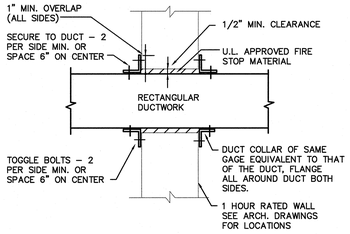


A M0.1 **DUCTLESS HEAT PUMP ON ROOF DETAIL**
SCALE: NONE



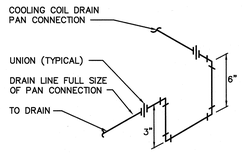


D M0.1 **NON-RATED WALLS**
WALL PENETRATION DETAIL
NO SCALE

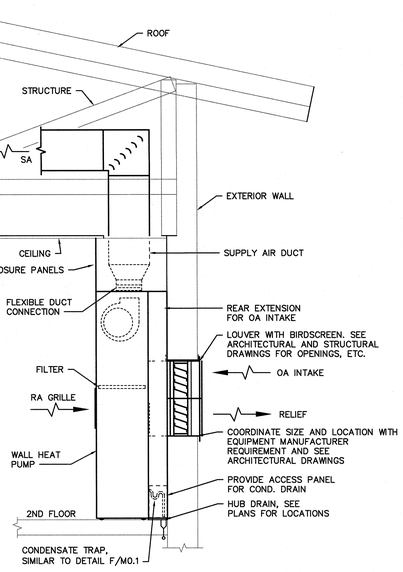


NOTE: DETAIL ONLY FOR THOSE DUCTS 100 SQ. INCHES AND LESS PENETRATING ONE HOUR WALLS THAT ARE NOT INDICATED TO HAVE FIRE DAMPERS.

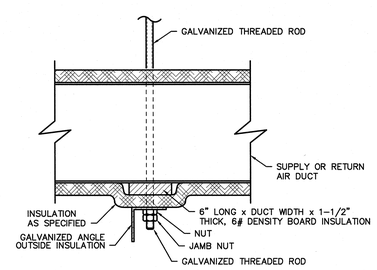
C M0.1 **1 HOUR WALL PENETRATION**
NO SCALE



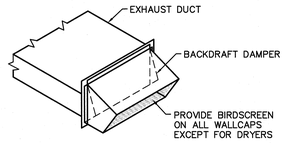
F M0.1 **CONDENSATE TRAP DETAIL**
NO SCALE



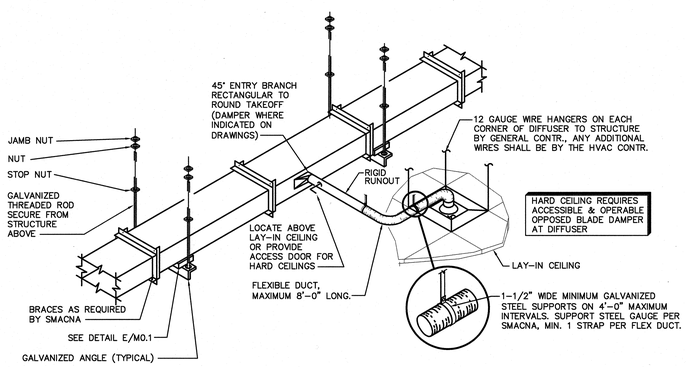
B M0.1 **TYPICAL WALL HEAT PUMP DETAIL**
SCALE: NONE



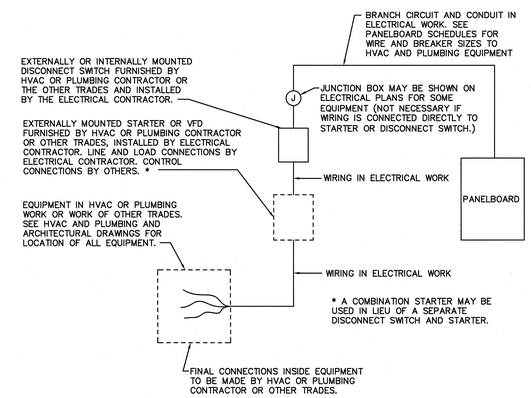
E M0.1 **TYPICAL DUCT HANGER DETAIL**
SCALE: NONE



G M0.1 **WALL CAP DETAIL**
NO SCALE



G M0.1 **TYPICAL SUPPLY DUCT DETAIL**
SCALE: NONE



H M0.1 **ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT**
NO SCALE

LEGEND

	RECTANGULAR DUCTWORK
	SUPPLY AIR DUCTWORK TURNED DOWN
	SUPPLY AIR DUCTWORK TURNED UP
	RETURN AIR/EXHAUST AIR TURNED DOWN
	RETURN AIR/EXHAUST AIR TURNED UP
	BRANCH TAKEOFF WITH TURNING VANES, SPLITTER DAMPER AND LOCKING QUADRANT
	DUCT TEE WITH TURNING VANES, SPLITTER DAMPER AND LOCKING QUADRANT
	DUCT WITH RUNOUT (SPIN-IN TAKE OFF WITH DAMPER)
	CEILING RETURN AIR/ EXHAUST AIR REGISTER
	CEILING SUPPLY AIR DIFFUSER
AD	ACCESS DOOR
	REMOVE EXISTING DUCTWORK
	REMOVE EXISTING PIPING, LINE SYMBOL INDICATES SERVICE
	EXISTING DUCTWORK TO REMAIN
ER	EXISTING REFRIGERANT PIPING
R	REFRIGERANT PIPING
C	AIR CONDITIONING CONDENSATE PIPING
A	REGISTER, GRILLE OR DIFFUSER SYMBOL
TS 2	HEATING AND COOLING THERMOSTAT WITH # INDICATING UNIT
TS C	COOLING THERMOSTAT
HT	HUMIDITY SENSOR
	HEAVY DUTY DISCONNECT SWITCH
1	KEYED NOTE SYMBOL
AD	ACCESS DOOR (10"x10" MIN.)
SA	SUPPLY AIR
RA	RETURN AIR
OA	OUTSIDE AIR
EX.A	EXHAUST AIR
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
MD	MANUAL DAMPER
MOD	MOTOR OPERATED DAMPER
AFF	ABOVE FINISHED FLOOR
FIN. FL	FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
CONC	CONCRETE
CONT	CONTINUATION
CONTR	CONTRACTOR
	TERMINATION POINT OF DEMOLITION
	POINT OF NEW CONNECTION TO EXISTING
	1 HOUR WALL DESIGNATION

GENERAL NOTES:

1. HVAC CONTRACTOR SHALL FIELD VERIFY ALL RELEVANT DIMENSIONS, CLEARANCES, LOCATIONS AND ELEVATIONS PRIOR TO ORDERING, FABRICATION, AND INSTALLATION OF HIS WORK. DISCREPANCIES OR INTERFERENCE'S SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AS SOON AS POSSIBLE. THE DRAWINGS DIAGRAMMATICALLY INDICATE THE GENERAL LOCATION OF DUCTS, PIPING AND EQUIPMENT AND DO NOT SHOW ALL SUPPORTS, OFFSETS, FITTINGS, BOLTS, CONNECTIONS, ETC. REQUIRED FOR A COMPLETE SYSTEM. WHILE THE DRAWINGS ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE, IF IT IS FOUND NECESSARY TO CHANGE THE LOCATION OF ANY WORK TO ACCOMMODATE THE CONDITIONS AT THE BUILDING, SUCH CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER, AND AS DIRECTED BY THE ENGINEER.
2. ALL SUPPLY AND RETURN CONNECTIONS TO AHU SHALL BE MADE WITH A FLEXIBLE DUCT CONNECTION.
3. PIPING, DUCTWORK, ETC., SHALL NOT BE SUPPORTED FROM BAR JOIST BRIDGING OR ROOFDECK. EQUIPMENT SUPPORTED BY BAR JOISTS SHALL HAVE SUPPORTS ATTACHED AS CLOSE AS POSSIBLE TO BAR JOIST PANEL POINTS. HVAC CONTRACTOR SHALL SUPPLY ANY AND ALL STRUCTURAL MEMBERS NECESSARY TO SUPPORT WORK BETWEEN BAR JOISTS, BEAMS, ETC.
4. ALL DUCT JOINTS SHALL BE SEALED AS SPECIFIED.
5. IN AREAS WITH GYPBOARD CEILINGS, HVAC CONTRACTOR SHALL INSTALL EQUIPMENT, DUCTWORK AND PIPE HANGERS PRIOR TO GYPBOARD INSTALLATION.
6. HVAC CONTRACTOR/ CONTROLS CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR FOR PROVISIONS OF POWER TO DDC CONTROL SYSTEM CONTROL PANELS, CONTROLLERS, ETC.. NOT SHOWN ON M OR E DRAWINGS. ELECTRICAL CONTRACTOR WILL PROVIDE POWER TO GENERAL POINTS, JUNCTION BOXES, ETC., AND POWER WIRING FROM THOSE POINTS TO EQUIPMENT SHALL BE BY THE HVAC CONTRACTOR/CONTROL CONTRACTOR.
7. ALL PIPING PENETRATIONS THROUGH RATED AND NONRATED WALLS SHALL BE FIRE STOPPED USING PIPE PENETRATIONS DETAILS SHOWN ON SHEET M.01. ALL DUCT PENETRATIONS THRU RATED AND NONRATED WALLS SHALL BE FIRE STOPPED USING DETAILS SHOWN ON SHEET M.01.
8. ALL THERMOSTATS AND SWITCHES FOR MECHANICAL SYSTEMS SHALL BE MOUNTED 44" AFF.
9. RECOVER AND REUSE REFRIGERANT FROM SYSTEMS BEING DISTURBED AND REUSED. STORE IN APPROPRIATE CONTAINERS. REUSE ONLY IF NOT CONTAMINATED.
10. CONTRACTOR TO VERIFY WITH LOCAL MITSUBISHI REPRESENTATIVE LINE LENGTHS, REFRIGERANT CHARGE AND NEW UNIT INFORMATION ADDED TO EXISTING SYSTEM TO PROVIDE A COMPLETE SYSTEM AS REQUIRED BY MANUFACTURER FOR ALL VRF SYSTEMS BEING RENOVATED OR NEW.
11. EXISTING MECHANICAL EQUIPMENT, REFRIGERANT PIPING, CONDENSATE PIPING, AND ALL ACCESSORIES TO REMAIN AND BE REUSED SHALL BE PROTECTED DURING CONSTRUCTION. ANY DAMAGED EQUIPMENT SHALL BE REPLACED OR REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
12. CONTRACTOR TO PROVIDE LAMINATED POSTER FOR EACH FIRST AND SECOND FLOOR MECHANICAL PLAN. POSTER SHALL TAG MECHANICAL EQUIPMENT NUMBER, LOCATION, MODEL NUMBER AND SERIAL NUMBER.

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

☒ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE – SECTIONS C403.2 (MANDATORY), C403.3 ECONOMIZERS (PRESCRIPTIVE) AND C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS.
- ☐ C406.2 MORE EFFICIENT HVAC PERFORMANCE
- ☒ C406.3 REDUCED LIGHTING POWER DENSITY
- ☐ C406.4 ENHANCED LIGHTING CONTROLS
- ☐ C406.5 ON-SITE RENEWABLE ENERGY
- ☐ C406.6 DOAS PROVISION FOR CERTAIN HVAC
- ☐ C406.7 HIGH ENERGY SERVICE WATER HEATING

☐ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE – SECTIONS C403.2 (MANDATORY), C403.3 ECONOMIZERS (PRESCRIPTIVE), C403.4 HYDRONIC AND MULTIPLE ZONE (PRESCRIPTIVE) AND C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS.
- ☐ C406.2 MORE EFFICIENT HVAC PERFORMANCE
- ☐ C406.3 REDUCED LIGHTING POWER DENSITY
- ☐ C406.4 ENHANCED LIGHTING CONTROLS
- ☐ C406.5 ON-SITE RENEWABLE ENERGY
- ☐ C406.6 DOAS PROVISION FOR CERTAIN HVAC
- ☐ C406.7 HIGH ENERGY SERVICE WATER HEATING

☐ COMPLIANCE PER CHAPTER 4 NORTH CAROLINA ENERGY CONSERVATION CODE – SECTIONS C402.5, C403.2, C404, C405.2, C405.3, C405.5, C405.6 AND C407 TOTAL BUILDING PERFORMANCE. THE BUILDING ENERGY COST SHALL BE EQUAL TO OR LESS THAT 85 PERCENT OF THE STANDARD REFERENCE DESIGN BUILDING.

☐ COMPLIANCE PER ANSI/ASHRAE/IESNA 90.1-2013.

☐ COMPLIANCE PER NORTH CAROLINA SPECIFIC COMCHECK OR ASHRAE 90.1-2013 COMCHECK.

CLIMATE ZONE 3A

EXTERIOR DESIGN CONDITIONS
winter dry bulb: 23°F
summer dry bulb: 93°F DB/79°F WB

INTERIOR DESIGN CONDITIONS
winter dry bulb: 70°F
summer dry bulb: 75°F
relative humidity: 50%

BUILDING HEATING LOAD: BLOCK LOAD = 4527 MBH EXISTING BUILDING; BLOCK LOAD = 3738 MBH ADDITION

BUILDING COOLING LOAD: BLOCK LOAD = 38.5 TONS EXISTING BUILDING; BLOCK LOAD = 37.2 TONS ADDITION

MECHANICAL SPACING CONDITIONING SYSTEM
Unitary:
description of unit:
heating efficiency:
cooling efficiency:
heat output of unit:
cooling output of unit:
} SEE SCHEDULES ON SHEET M2.0

Boiler: N/A
total boiler output. If oversized, state reason.

Chiller: N/A
total chiller capacity. If oversized, state reason.

LIST EQUIPMENT EFFICIENCIES: SEE SCHEDULES ON SHEET M2.0

EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS)
motor horsepower:
number of phases:
minimum efficiency:
motor type:
# of poles:
} SEE SCHEDULES ON SHEET M2.0

DESIGNER STATEMENT

To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina Energy Conservation Code.

SIGNED:
NAME: Kenneth Lynch, P.E.
TITLE: Professional Engineer

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NORTH CAROLINA PROFESSIONAL SEAL 17653 ENGINEER KENNETH LYNCH

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
January 24, 2019

Revisions:

MECHANICAL LEGEND, NOTES, ENERGY SCHEDULE AND DETAILS

M0.1

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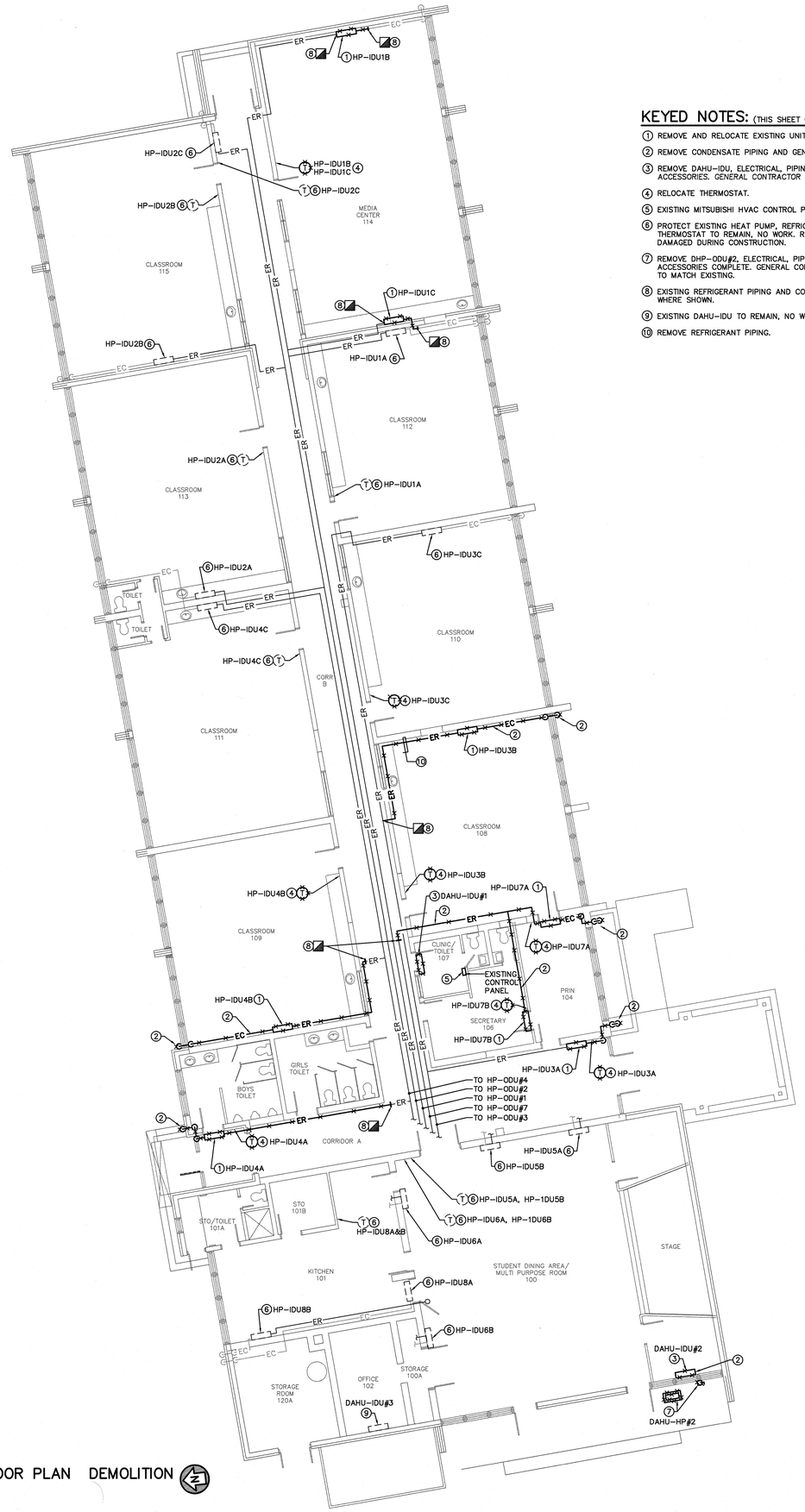

1 MD1.0 MECHANICAL FIRST FLOOR PLAN DEMOLITION
SCALE: 1/8" = 1'-0"

KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE AND RELOCATE EXISTING UNIT. SEE M1.0 FOR NEW LOCATION.
2. REMOVE CONDENSATE PIPING AND GENERAL CONTRACTOR TO PATCH WALL.
3. REMOVE DAHU-IDU, ELECTRICAL, PIPING, CONDENSATE PUMP AND ALL ACCESSORIES. GENERAL CONTRACTOR TO PATCH WALLS TO MATCH EXISTING.
4. RELOCATE THERMOSTAT.
5. EXISTING MITSUBISHI HVAC CONTROL PANEL TO REMAIN.
6. PROTECT EXISTING HEAT PUMP, REFRIGERANT PIPING, CONDENSATE AND THERMOSTAT TO REMAIN, NO WORK. REPAIR OR REPLACE ANY EQUIPMENT DAMAGED DURING CONSTRUCTION.
7. REMOVE DHP-ODU#2, ELECTRICAL, PIPING, CONCRETE PAD AND ALL ACCESSORIES COMPLETE. GENERAL CONTRACTOR TO PATCH EXTERIOR WALL TO MATCH EXISTING.
8. EXISTING REFRIGERANT PIPING AND CONDENSATE PIPING TO BE REMOVED WHERE SHOWN.
9. EXISTING DAHU-IDU TO REMAIN, NO WORK. PROTECT DURING CONSTRUCTION.
10. REMOVE REFRIGERANT PIPING.

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NORTH CAROLINA PROFESSIONAL SEAL 17559 ENGINEER KENNETH LYON

Wrightsville Beach Elementary School Addition & Renovation

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Construction Drawings
January 24, 2019

Revisions:

MECHANICAL FIRST FLOOR PLAN DEMOLITION

MD1.0

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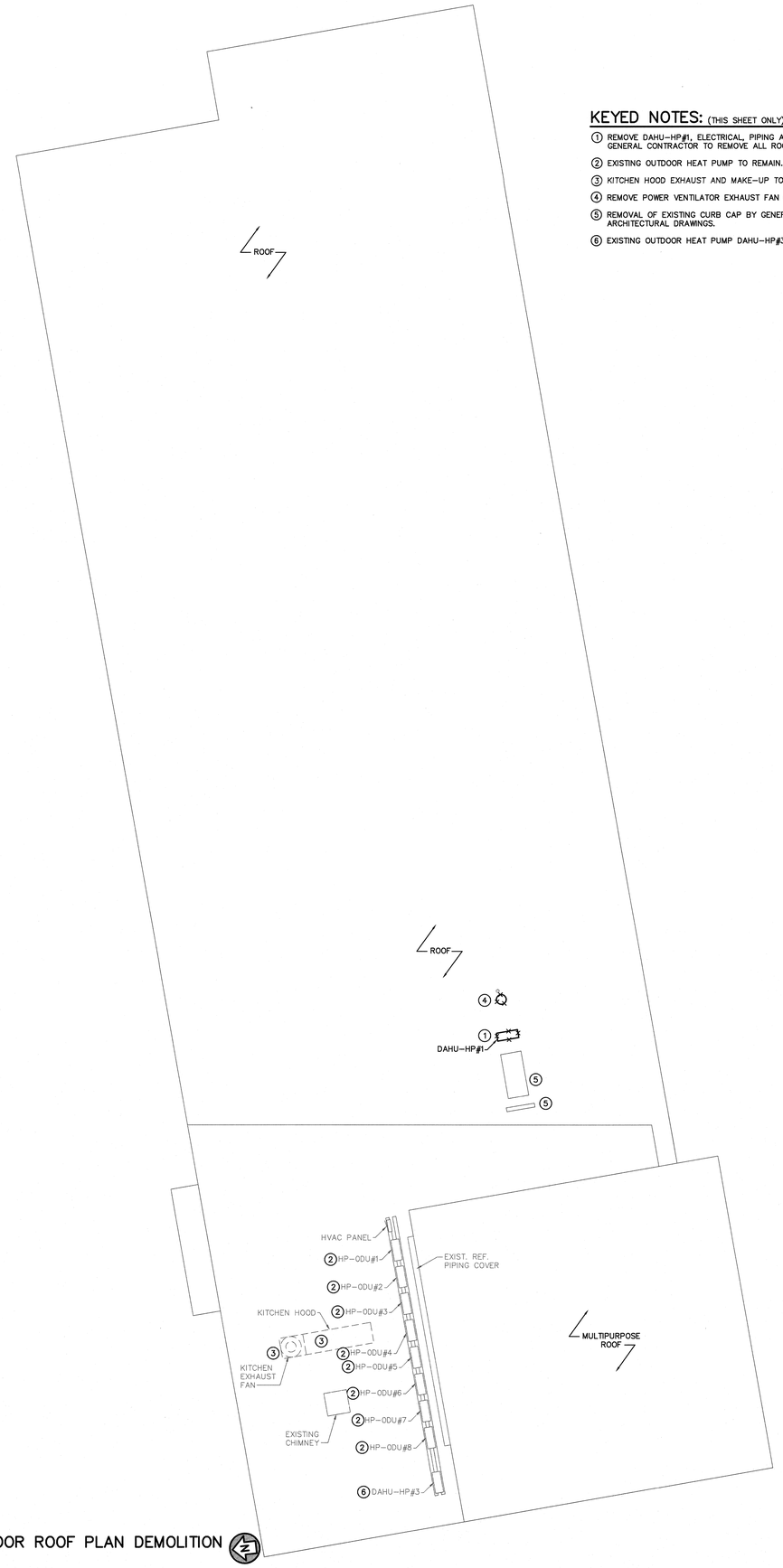
KEYED NOTES: (THIS SHEET ONLY)

1. REMOVE DAHU-HP#1, ELECTRICAL, PIPING AND ALL ACCESSORIES ON ROOF. GENERAL CONTRACTOR TO REMOVE ALL ROOF SUPPORTS.
2. EXISTING OUTDOOR HEAT PUMP TO REMAIN.
3. KITCHEN HOOD EXHAUST AND MAKE-UP TO REMAIN, NO WORK.
4. REMOVE POWER VENTILATOR EXHAUST FAN ON ROOF.
5. REMOVAL OF EXISTING CURB CAP BY GENERAL CONTRACTOR, SEE ARCHITECTURAL DRAWINGS.
6. EXISTING OUTDOOR HEAT PUMP DAHU-HP#3 TO REMAIN.



1 MD1.1 MECHANICAL FIRST FLOOR ROOF PLAN DEMOLITION
SCALE: 1/8" = 1'-0"

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Revisions:

MECHANICAL FIRST FLOOR ROOF PLAN DEMOLITION

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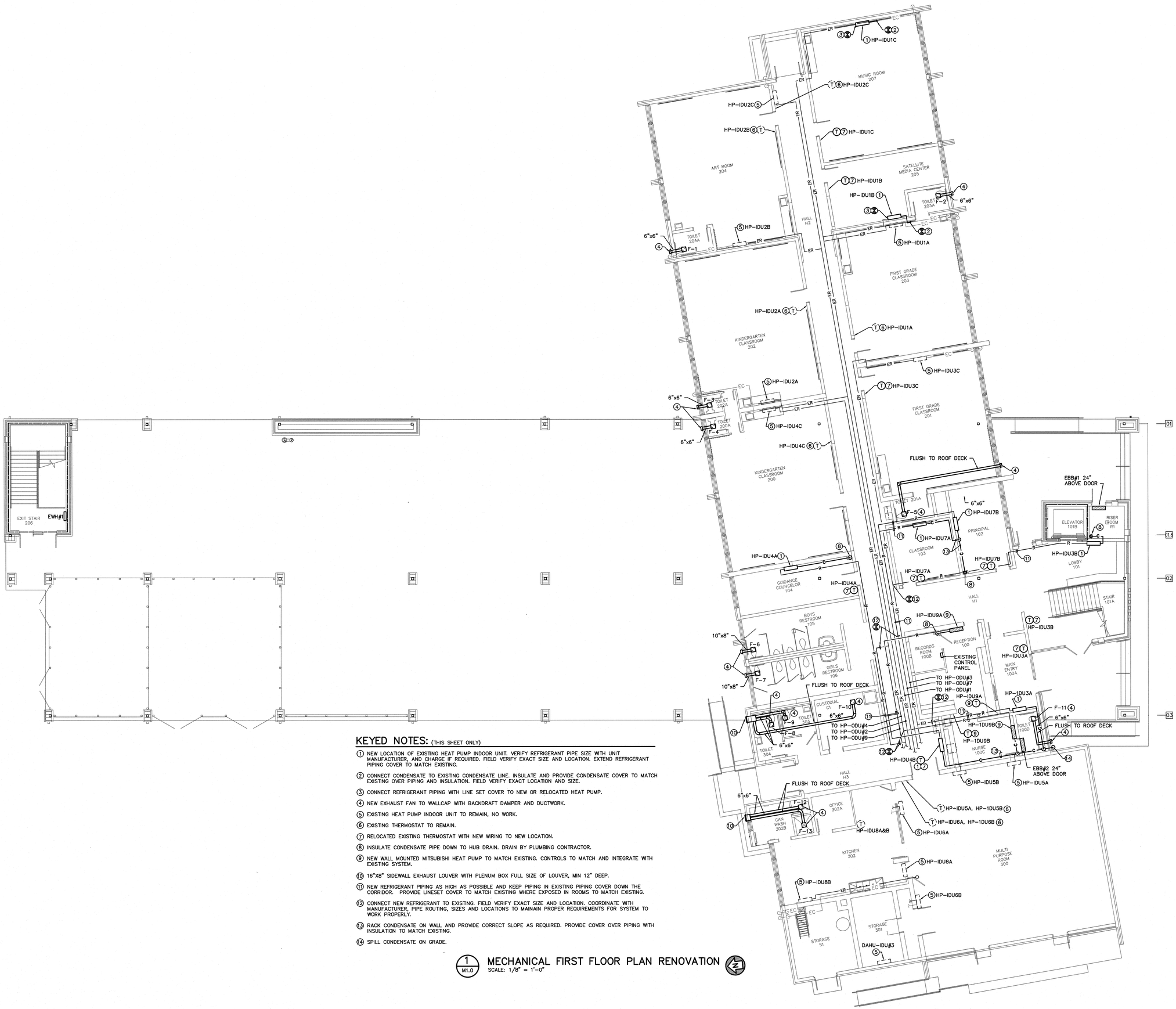

KEYED NOTES: (THIS SHEET ONLY)

1. NEW LOCATION OF EXISTING HEAT PUMP INDOOR UNIT. VERIFY REFRIGERANT PIPE SIZE WITH UNIT MANUFACTURER, AND CHARGE IF REQUIRED. FIELD VERIFY EXACT SIZE AND LOCATION. EXTEND REFRIGERANT PIPING COVER TO MATCH EXISTING.
2. CONNECT CONDENSATE TO EXISTING CONDENSATE LINE. INSULATE AND PROVIDE CONDENSATE COVER TO MATCH EXISTING OVER PIPING AND INSULATION. FIELD VERIFY EXACT LOCATION AND SIZE.
3. CONNECT REFRIGERANT PIPING WITH LINE SET COVER TO NEW OR RELOCATED HEAT PUMP.
4. NEW EXHAUST FAN TO WALLCAP WITH BACKDRAFT DAMPER AND DUCTWORK.
5. EXISTING HEAT PUMP INDOOR UNIT TO REMAIN, NO WORK.
6. EXISTING THERMOSTAT TO REMAIN.
7. RELOCATED EXISTING THERMOSTAT WITH NEW WIRING TO NEW LOCATION.
8. INSULATE CONDENSATE PIPE DOWN TO HUB DRAIN. DRAIN BY PLUMBING CONTRACTOR.
9. NEW WALL MOUNTED MITSUBISHI HEAT PUMP TO MATCH EXISTING. CONTROLS TO MATCH AND INTEGRATE WITH EXISTING SYSTEM.
10. 16"X8" SIDEWALL EXHAUST LOUVER WITH PLENUM BOX FULL SIZE OF LOUVER, MIN 12" DEEP.
11. NEW REFRIGERANT PIPING AS HIGH AS POSSIBLE AND KEEP PIPING IN EXISTING PIPING COVER DOWN THE CORRIDOR. PROVIDE LINESET COVER TO MATCH EXISTING WHERE EXPOSED IN ROOMS TO MATCH EXISTING.
12. CONNECT NEW REFRIGERANT TO EXISTING. FIELD VERIFY EXACT SIZE AND LOCATION. COORDINATE WITH MANUFACTURER, PIPE ROUTING, SIZES AND LOCATIONS TO MAINAIN PROPER REQUIREMENTS FOR SYSTEM TO WORK PROPERLY.
13. RACK CONDENSATE ON WALL AND PROVIDE CORRECT SLOPE AS REQUIRED. PROVIDE COVER OVER PIPING WITH INSULATION TO MATCH EXISTING.
14. SPILL CONDENSATE ON GRADE.

1 / M1.0 MECHANICAL FIRST FLOOR PLAN RENOVATION
SCALE: 1/8" = 1'-0"

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February 20, 2019

Revisions:

MECHANICAL FIRST FLOOR PLAN RENOVATION

M1.0

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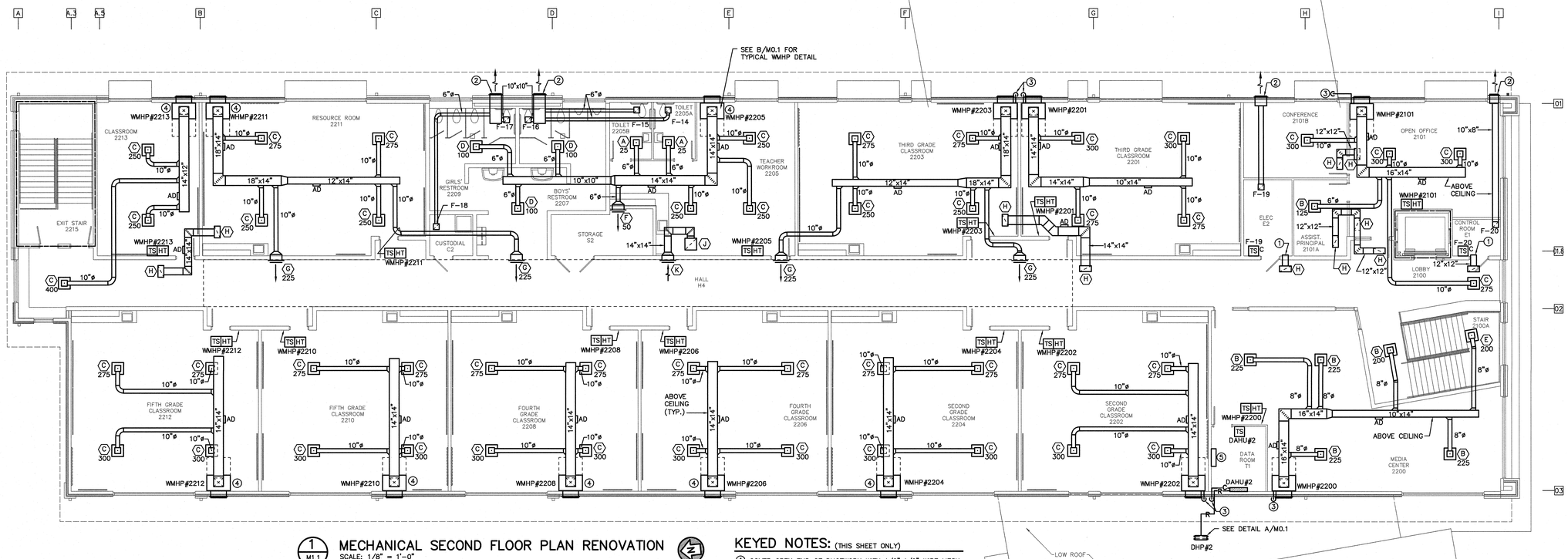
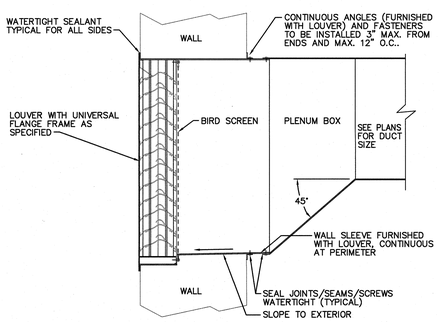


1 M1.1 MECHANICAL SECOND FLOOR PLAN RENOVATION

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

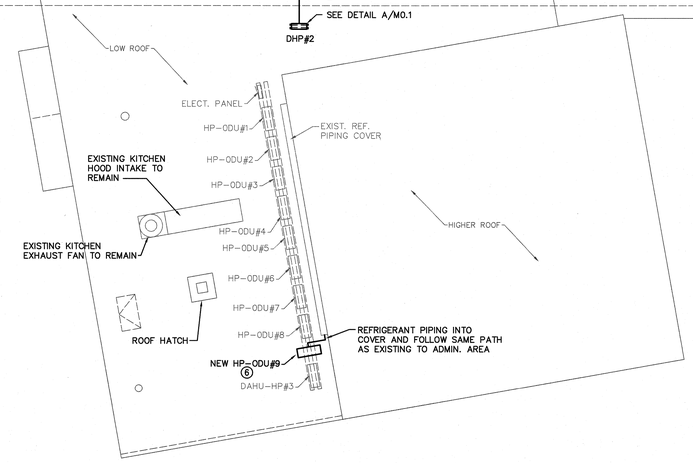
KEYED NOTES: (THIS SHEET ONLY)

1. COVER OPEN END OF DUCTWORK WITH 1/2"x1/2" WIRE MESH.
2. 16"x12" SIDEWALL EXHAUST LOUVER WITH BIRDSCREEN. PROVIDE INSULATED PLENUM BOX ON BACKSIDE AS DEEP AS NECESSARY FOR DUCT CONNECTIONS, FULL SIZE OF LOUVER.
3. SPILL CONDENSATE THROUGH WALL TO SPILL ON ROOF.
4. SPILL CONDENSATE INTO HUB DRAIN INSIDE WMHP CABINET. SEE PLUMBING DRAWINGS FOR HUB DRAIN.
5. HVAC CONTROL PANEL. COORDINATE LOCATION WITH ELECTRICAL WORK.
6. PROVIDE PRIMED AND PAINTED GALVANIZED STEEL CROSS SUPPORTS AS NECESSARY ATTACH SUPPORTS TO THE EXISTING RAILS AS NECESSARY FOR NEW HP-ODU#9.



A M1.1 TYPICAL WALL LOUVER DETAIL

NO SCALE



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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

MECHANICAL SECOND FLOOR PLAN RENOVATION

M1.1

5 of 7

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DUCTLESS SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

SYMBOL	AIR HANDLING UNIT SECTION					OUTDOOR HEAT PUMP SECTION							REMARKS
	AIR QUANTITY		EXT. S.P. "H20 (1)	ELECTRICAL			ELECTRICAL			COOLING CAPACITY BTUH (2)	HEATING CAPACITY BTUH (3)	SEER	
	TOTAL CFM	OUTSIDE CFM		FAN FLA	VOLTAGE & PHASE		MCA	MOCP	VOLTAGE & PHASE				
DAHU-IDU#3	(4)	–	–	(4)	208V-1ø	DAHU-HP#3	16	28	208V-1ø	18,000	– (4)	18	STORAGE 301 – EXISTING TO REMAIN NO WORK
DAHU#2	700	–	–	1.0	208V-1ø	DHP#2	19	25	208V-1ø	10,000-24,000	18,300	21	DATA ROOM T1

(1) EXT. S.P. INCLUDES SUPPLY & RETURN AIR DUCTWORK. FILTERS IN UNIT ARE NOT INCLUDED IN THIS FIGURE.

(2) CAPACITY WHEN MATCHED WITH INDOOR HEAT PUMP SECTION AT AHRI CONDITIONS.

(3) CAPACITY AT 17° F OUTSIDE AIR TEMPERATURE.

(4) EXISTING TO REMAIN – DATA NOT AVAILABLE

POWER VENTILATOR SCHEDULE

SYMBOL	CFM	ESP	RPM	TIP SPEED	ELECTRICAL		TYPE	DRIVE	CONTROL	REMARKS
					WATTS	VOLTAGE				
F-1	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 204A
F-2	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 203A
F-3	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 202A
F-4	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 200A
F-5	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 201A
F-6	300	0.50"	1280	2260	135	115V-1ø	CEILING EXHAUST	DIRECT	(2)	BOYS RESTROOM 105
F-7	300	0.50"	1280	2260	135	115V-1ø	CEILING EXHAUST	DIRECT	(2)	GIRLS RESTROOM 106
F-8	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 304
F-9	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 303
F-10	100	0.50"	815	1700	128	115V-1ø	CEILING EXHAUST	DIRECT	(1)	CUSTODIAL C1
F-11	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 100D
F-12	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	CAN WASH 302B TOILET
F-13	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	CAN WASH 302B
F-14	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 2205A
F-15	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(2)	TOILET 2205B
F-16	300	0.50"	1280	2260	135	115V-1ø	CEILING EXHAUST	DIRECT	(2)	BOYS RESTOOM 2207
F-17	300	0.50"	1280	2260	135	115V-1ø	CEILING EXHAUST	DIRECT	(2)	GIRLS RESTROOM 2209
F-18	75	0.50"	805	1665	80	115V-1ø	CEILING EXHAUST	DIRECT	(1)	CUSTODIAL C2
F-19	225	0.50"	1100	1940	135	115V-1ø	CEILING EXHAUST	DIRECT	COOLING TSTAT	ELECTRICAL E2
F-20	225	0.50"	1100	1940	135	115V-1ø	CEILING EXHAUST	DIRECT	COOLING TSTAT	CONTROL ROOM E1

(1) COOLING THERMOSTAT IN PARALLEL WITH TWIST TIMER.

(2) VIA LIGHTING CONTROL SYSTEMS OCCUPANCY SENSOR.

REGISTER, GRILLE & DIFFUSER SCHEDULE

SYMBOL	C.F.M.	NECK SIZE	TYPE	RUNOUT SIZE	REMARKS
⟨A⟩	50-100	6"X6"	2'X2' LAY-IN CEILING SA DIFFUSER	6"ø	
⟨B⟩	125-225	9"X9"	2'X2' LAY-IN CEILING SA DIFFUSER	8"ø	
⟨C⟩	250-400	12"X12"	2'X2' LAY-IN CEILING SA DIFFUSER	10"ø	
⟨D⟩	50-100	6"X6"	CEILING SA DIFFUSER	6"ø	
⟨E⟩	125-225	9"X9"	CEILING SA DIFFUSER	8"ø	
⟨F⟩	50-150	12"X6"	SIDEWALL SA REGISTER	8"ø	
⟨G⟩	175-225	18"X6"	SIDEWALL SA REGISTER	10"ø	
⟨H⟩	0-750	10"X22"	1'X2' LAY-IN RA REGISTER	–	
⟨J⟩	750-1600	22"X22"	2'X2' LAY-IN RA REGISTER	–	
⟨K⟩	300-600	18"X6"	SIDEWALL RA REGISTER	–	

VRF HEAT PUMP UNIT SCHEDULE

SYMBOL	INDOOR UNIT											OUTDOOR UNIT ON ROOF	OUTDOOR UNIT				
	LOCATION	MANUFACTURER (4)	COOLING		HEATING	FAN		ESP (IN H20)	ELECTRICAL		NOTES		COOLING TOTAL (MBH)	HEATING TOTAL (MBH)	ELECTRICAL			NOTES
			TOTAL (MBH)	SENS (MBH)	TOTAL (MBH)	SA (CFM)	OA (CFM)		VOLTAGE	MCA					VOLTAGE	MCA	MOCP	
HP-IDU1A	1 GR CLRM 203	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)							
HP-IDU1B	SAT MEDIA 205	MITSUBISHI	12.3	16.9	13.6	336	0	–	208V-1ø	0.3	(1)	HP-ODU1	47.8	54.6	208V-1ø	26	30	(2)
HP-IDU1C	MUSIC 207	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)							
HP-IDU2A	K CLRM 202	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)							
HP-IDU2B	ART 204	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)	HP-ODU2	47.8	54.6	208V-1ø	26	30	(2)
HP-IDU2C	HALL H2	MITSUBISHI	12.3	8.6	13.6	336	0	–	208V-1ø	0.3	(1)							
HP-IDU3A	ENTRY 100A	MITSUBISHI	12.3	8.6	13.6	336	0	–	208V-1ø	0.3	(1)							
HP-IDU3B	LOBBY 101	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)	HP-ODU3	47.8	54.6	208V-1ø	26	30	(2)
HP-IDU3C	1 GR CLRM 201	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)							
HP-IDU4A	GUIDANCE 104	MITSUBISHI	12.3	8.6	13.6	494	0	–	208V-1ø	0.3	(1)							
HP-IDU4B	HALL H3	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)	HP-ODU4	47.8	54.6	208V-1ø	26	30	(2)
HP-IDU4C	K CLRM 200	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)							
HP-IDU5A	MULTIPUR 300	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)(3)							
HP-IDU5B	MULTIPUR 300	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)(3)	HP-ODU5	47.8	54.6	208V-1ø	26	30	(2)
HP-IDU6A	MULTIPUR 300	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)(3)							
HP-IDU6B	MULTIPUR 300	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)(3)	HP-ODU6	47.8	54.6	208V-1ø	26	30	(2)
HP-IDU7A	CLRM 103	MITSUBISHI	9	–	8.5	247	0	–	208V-1ø	0.15	(1)							
HP-IDU7B	PRINCIPAL 102	MITSUBISHI	9	–	8.5	247	0	–	208V-1ø	0.15	(1)	HP-ODU7	15.6	17.0	208V-1ø	15	20	(2)
HP-IDU8A	KITCHEN 302	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)							
HP-IDU8B	KITCHEN 302	MITSUBISHI	24.2	16.9	27.3	494	0	–	208V-1ø	0.3	(1)	HP-ODU8	47.6	54.6	208V-1ø	26	30	(2)
HP-IDU9A	RECEPTION 100	MITSUBISHI (5)	9	–	8.5	247	0	–	208V-1ø	0.15	(5)							
HP-IDU9B	NURSE 100C	MITSUBISHI (5)	9	–	8.5	247	0	–	208V-1ø	0.15	(5)	HP-ODU9	15.6	17.0	208V-1ø	11	15	(5)

(1) EXISTING HEAT PUMP UNITS INDOOR AND OUTDOOR SECTIONS TO BE REUSED, REFER TO PLANS FOR SOME UNITS BEING RELOCATED. REWORK ELECTRICAL, REFRIGERANT PIPING AND CONDENSTE TO NEW UNIT LOCATIONS.

(2) EXISTING DUCTLESS SPLIT SYSTEM TO REMAIN.

(3) INSTALLED WITH CONDENSATE PUMP.

(4) DESIGN BASIS.

(5) PROVIDE NEW MITSUBISHI UNITS AND VERIFY THE NEW CONTROLS WILL INTEGRATE AND MATCH THE EXISTING SYSTEM.

WALL MOUNT HEAT PUMP SCHEDULE

SYMBOL	AIR FLOW		EXT. S.P. "H20 (1)	ELECTRICAL				COOLING CAPACITY MBH (2)(4)	HEATING CAPACITY MBH (3)	EER	BASIS OF DESIGN
	SUPPLY CFM	OUTSIDE CFM		STRIP HEAT KW	MCA	MOCP	VOLTAGE & PHASE				
WMHP#2200	1300	225	0.60"	6.75	52	60	208V-3ø	41,500	38,500	12.0	BARD 142H1DB (5)(6)(7)
WMHP#2202	1150	225	0.55"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2204	1150	225	0.55"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2206	1150	225	0.55"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2208	1150	225	0.55"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2210	1150	225	0.55"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2212	1150	225	0.55"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2213	900	135	0.60"	6.75	44	45	208V-3ø	27,800	26,600	11.7	BARD 130H1DB (5)(6)(7)
WMHP#2211	1500	265	0.70"	6.75	53	60	208V-3ø	47,000	44,500	12.0	BARD 148H1DB (5)(6)(7)
WMHP#2205	1150	170	0.70"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2203	1500	270	0.70"	6.75	53	60	208V-3ø	47,000	44,500	12.0	BARD 148H1DB (5)(6)(7)
WMHP#2201	1150	225	0.60"	6.75	49	50	208V-3ø	35,000	32,800	12.0	BARD 136H1DB (5)(6)(7)
WMHP#2101	1300	160	0.70"	6.75	52	60	208V-3ø	41,500	38,500	12.0	BARD 142H1DB (5)(6)(7)

(1) EXT. S.P. INCLUDES SUPPLY & RETURN AIR DUCTWORK. FILTERS IN UNIT ARE NOT INCLUDED IN THIS FIGURE.

(2) CAPACITY AT AHRI CONDITIONS AND CERTIFIED IN ACCORDANCE WITH ANSI/AHRI STANDARD 390-2003.

(3) CAPACITY AT 47° F OUTSIDE AIR TEMPERATURE AND CERTIFIED IN ACCORDANCE WITH ANSI/AHRI STANDARD 390-2003.

(4) TWO STAGE COOLING MINIMUM.

(5) WITH HOT GAS REHEAT COIL.

(6) WITH ADJUSTABLE WALL SLEEVE AND 4" DEEP STORM LOUVER.

(7) UNITS SHALL EITHER FIT THROUGH 34"X83" DOOR OPENINGS OR BE DE-CONSTRUCTED ENOUGH TO FIT THROUGH THE OPENING AND THEN BE RECONSTRUCTED ACCORDINGLY, WITHOUT VOIDING UNIT'S WARRANTEES AND LABELING.

ELECTRIC BASEBOARD SCHEDULE

SYMBOL	BTU/HR	ELECTRICAL		MAXIMUM LENGTH	MAXIMUM HEIGHT	REMARKS
		WATTS	VOLTAGE & PHASE			
EBB#1	1275	375	120V-1ø	24"	8'-0" AFF	RISER ROOM R1
EBB#2	1275	375	120V-1ø	24"	8'-0" AFF	NURSES TOILET 100D

ELECTRIC WALL HEATER SCHEDULE

SYMBOL	BTU/HR	ELECTRICAL		REMARKS
		WATTS	VOLTAGE & PHASE	
EWH#1	7510	2250	208V-3ø	EXIT STAIR 206 (1)

(1) SURFACE MOUNTED WITH BOTTOM MIN. 80" AFF.

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NORTH CAROLINA PROFESSIONAL SEAL 17855 ENGINEER KENNETH LYON

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
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Construction Drawings
January 24, 2019

Revisions:

MECHANICAL SCHEDULES

M2.0

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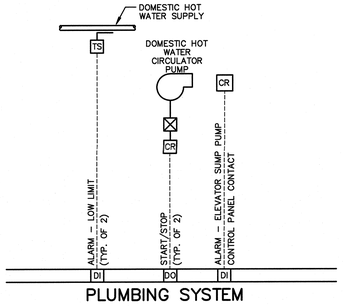
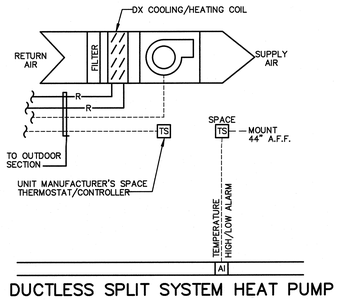
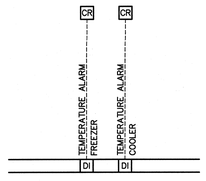


PLUMBING SYSTEM



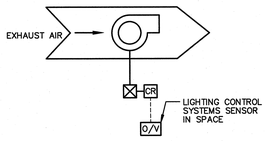
DUCTLESS SPLIT SYSTEM HEAT PUMP



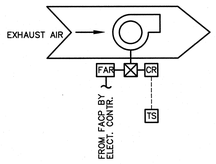
FREEZER/COOLER

CONTROL SYMBOL LEGEND

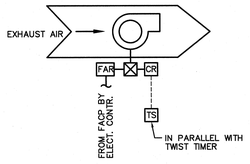
TS	TEMPERATURE SENSOR
HT	HUMIDITY SENSOR
VSD	VARIABLE SPEED DRIVE
CR	CONTROL RELAY
ES	EMERGENCY SWITCH
EVS	EVENT SWITCH
M2E	MOTOR OPERATED TWO POSITION ELECTRIC
MPE	MOTOR OPERATED PROPORTIONAL ELECTRIC
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
FAR	FIRE ALARM RELAY
CLS	CONDENSATE LEVEL SENSOR
EN	ENTHALPY
O/V	OCCUPANCY/VACANCY SENSOR
SA	SUPPLY AIR
RA	RETURN AIR
OA	OUTSIDE AIR
	CURRENT SENSOR
	STARTER



EXHAUST FAN



EXHAUST FAN



EXHAUST FAN

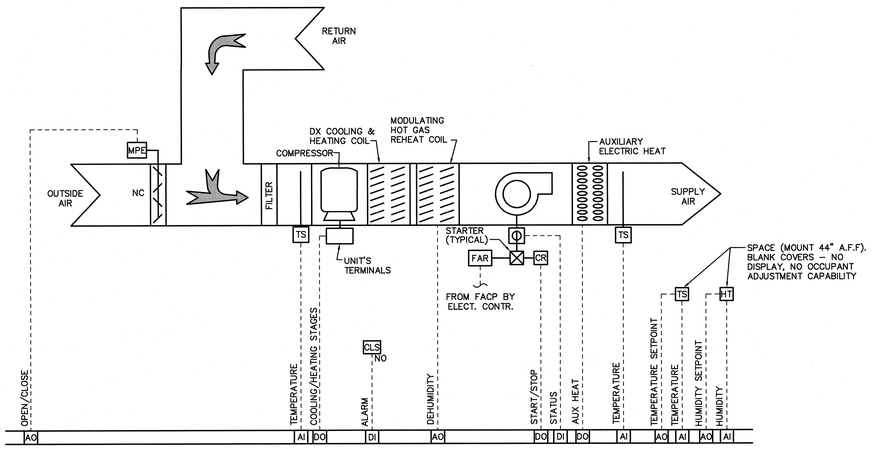
ALTERNATE BID – PREFERRED DDC CONTROLS BY JOHNSON CONTROLS

SEQUENCE OF OPERATION

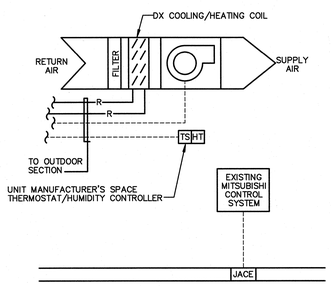
DC20 EMERGENCY MOTOR STOP CONTROL SEQUENCE

CONTROL SEQUENCES SHALL INCORPORATE MOTOR EMERGENCY STOP ELEMENTS IN ACCORDANCE WITH THE FOLLOWING WHETHER SPECIFICALLY DEFINED IN INDIVIDUAL SYSTEM OR COMPONENT SEQUENCES OF OPERATION OR NOT. ANY EMERGENCY STOP EVENT SHALL INITIATE AN ALARM.

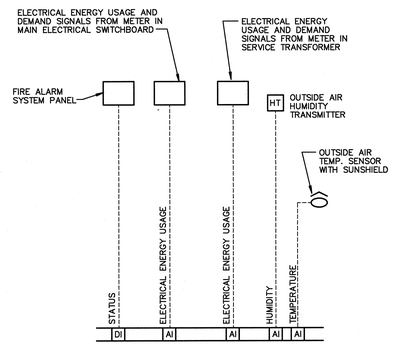
APPLICATION	CONFIGURATION	EMERGENCY MOTOR STOP REQUIREMENTS	
AHU/DOAS SUPPLY AIR FAN.	UNIT SERVES MULTIPLE SPACES AND IS CAPABLE OF SPREADING SMOKE BEYOND THE SPACE IN WHICH SMOKE IS GENERATED.	UNIT AIRFLOW ≤ 2,000 CFM	NO DUCT SMOKE DETECTORS REQUIRED. MOTOR EMERGENCY STOP BY FIRE ALARM SYSTEM SHUTDOWN RELAY NOT REQUIRED.
		UNIT AIRFLOW > 2,000 CFM	DUCT SMOKE DETECTORS REQUIRED WHERE INDICATED IN UNIT RETURN AIR. MOTOR EMERGENCY STOP OF ALL UNIT FANS SHALL BE INITIATED BY FIRE ALARM SYSTEM SHUTDOWN RELAY.



WALL MOUNT HEAT PUMP



EXISTING/RELOCATED/NEW MITSUBISHI VRF



UTILITIES AND GENERAL

HEAT PUMPS

EXISTING MITSUBISHI VRF UNITS AND MITSUBISHI CONTROL SYSTEM SHALL REMAIN SEPARATE FROM NEW DDC BAS SYSTEM.

1. PROVIDE TWO MITSUBISHI PAC-SK52ST DIAGNOSTIC MODULE SERVICE TOOLS FOR THE VRF UNITS. TURN OVER TO NHCS.
2. RELOCATED VRF SYSTEMS SHALL BE RECONNECTED TO EXISTING MITSUBISHI CONTROL SYSTEM WITH ALL EXISTING SEQUENCES OF OPERATION INCORPORATED ACCORDINGLY.
3. NEW VRF SYSTEMS SHALL BE CONNECTED TO EXISTING MITSUBISHI CONTROL SYSTEM WITH SEQUENCES OF OPERATION TO MATCH EXISTING.
4. COORDINATE CONNECTION AND INTEGRATION WITH EXISTING MITSUBISHI SYSTEM PROVIDER – BRADY TRANE SERVICES.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17655 JOHN C. LYNCH KENNETH

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

MECHANICAL CONTROL DIAGRAMS

M3.0

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ELECTRICAL NOTES

1. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. PERMITS FOR ELECTRICAL WORK SHALL BE OBTAINED BY AND PAID BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ANY ADDITIONAL FEES FOR INSPECTIONS, TESTS, AND OTHER SERVICES AS REQUIRED FOR THE COMPLETION OF THE WORK.
3. THE ELECTRICAL CONTRACTOR AND ANY OF HIS SUBCONTRACTORS SHALL VISIT THE PROJECT SITE TO WITNESS EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE SCOPE OF THE WORK REQUIRED PRIOR TO SUBMITTING PROPOSALS. WORK REQUIRED BY EXISTING JOB CONDITIONS NOT INDICATED ON DRAWINGS SHALL BE INCLUDED IN THE BID.
4. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO RESULT IN THE PRODUCTION OF A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT, AND OTHER SERVICES AS NECESSARY TO COMPLETE THE WORK.
5. DISCREPANCIES IN THE DRAWINGS AND SPECIFICATIONS THAT WILL AFFECT THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT, ENGINEER, AND/OR OWNER PRIOR TO SUBMITTING PROPOSALS.
6. UNLESS NOTED OTHERWISE, ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND INCLUDE A 3RD PARTY LABEL (I.E.: UL, CSA, ETL, ETC.) LISTING APPROVAL FOR ITS INSTALLED APPLICATION.
7. REVIEW PLANS OF OTHER TRADES FOR COORDINATION OF WORK AND FOR RELATED AND ADJOINING WORK.
8. REVIEW COMPLETE PLAN SET FOR CONSTRUCTION TYPE, FINISHES, HEADROOM, ROOF FINISHES, CEILINGS, ETC. REVIEW COMPLETE PLAN SET FOR PROJECT PHASING AND STAGING. REVIEW COMPLETE PLAN SET FOR WORK COVERED BY ALTERNATE BID ITEMS.
9. COORDINATE DEVICE AND EQUIPMENT MOUNTING HEIGHTS WITH OTHER DISCIPLINE DRAWINGS, CASEWORK DETAILS & SUBMITTALS, EQUIPMENT DETAILS & SUBMITTALS, ETC.
10. PENETRATIONS OF FIRE-RATED WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE FIRE STOPPED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT FIRE STOPPING IS COMPLETED.
11. PENETRATIONS OF SMOKE PARTITIONS SHALL BE SEALED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT SMOKE PARTITION SEALING IS COMPLETED.
12. PENETRATIONS OF EXTERIOR BUILDING WALLS, FLOORS, OR ROOFS SHALL BE SEALED WATERTIGHT. INTERIORS OF RACEWAY PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SEALED WITH NON-HARDENING ELECTRICAL PUTTY.
13. CUTTING AND PATCHING TO INSTALL DEVICES AND EQUIPMENT SHALL BE PERFORMED WITH FINISHES RESTORED TO THEIR ORIGINAL CONDITION. SUCH WORK SHALL BE COMPLETED TO A DEGREE THAT IS ACCEPTABLE TO THE ARCHITECT, ENGINEER, AND/OR OWNER.
14. SEE SPECIFICATIONS FOR DIVISION OF RESPONSIBILITY FOR PROVIDING DISCONNECTS, STARTERS, DRIVES, ETC. FOR EQUIPMENT SUPPLIED BY OTHER SUBCONTRACTORS.
15. COORDINATE PRECISE LOCATION OF HVAC EQUIPMENT WITH THE MECHANICAL CONTRACTOR.
16. FOR HVAC EQUIPMENT, VERIFY CIRCUIT BREAKER RATINGS, FUSE RATINGS, AND WIRE SIZES. IF RATINGS DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR DIRECTION. PROVIDE OVERCURRENT PROTECTION IN ACCORDANCE WITH EQUIPMENT MANUFACTURER NAMEPLATE DATA. IF THE EQUIPMENT LISTING LABEL REQUIRES FUSED PROTECTION, ENSURE THAT FUSES IN A FUSED DISCONNECT SWITCH AT THE EQUIPMENT ARE SIZED AS INDICATED ON THE EQUIPMENT LABEL.
17. VERIFY PROPER SIZING OF OVERLOAD DEVICES IN STARTERS BASED ON EQUIPMENT NAMEPLATE DATA.
18. IF HORSEPOWER OR LOAD RATINGS OF EQUIPMENT DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR DIRECTION.
19. PROVIDE NATIONAL ELECTRICAL CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES.
20. RECEPTACLE, SWITCH, DATA/TELEPHONE OUTLETS SHALL BE FLUSH MOUNTED IN FINISHED SPACES UNLESS OTHERWISE NOTED.
21. WHERE INSTALLED IN PLENUM SPACES, CABLES SHALL BE PLENUM-RATED OR INSTALLED IN METAL RACEWAY.
22. PRIOR TO ORDERING LIGHT FIXTURES, CONTRACTOR SHALL VERIFY TYPE OF CEILING OR WALL BY REVIEW OF ARCHITECTURAL FINISH SCHEDULES AND PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT FIXTURES IN TYPE OF CEILING OR WALL INDICATED.
23. RECESSED LIGHT FIXTURES INSTALLED IN CEILINGS HAVING INSULATION INSTALLED OVER CEILING AND FIXTURES (AS INDICATED IN ARCHITECTURAL PLANS, OR FOUND AS EXISTING CONDITIONS) SHALL BE U.L. RATED FOR DIRECT CONTACT WITH INSULATION.
24. RECESSED LIGHT FIXTURES INSTALLED IN FIRE RATED CEILING SHALL BE U.L. RATED FOR USE IN FIRE RATED CEILINGS OR SHALL BE INSTALLED WITH "TENTING' IN ACCORDANCE WITH RATING REQUIREMENTS OF THE CEILING ASSEMBLY.
25. EXIT AND EMERGENCY LIGHTS SHALL BE CONNECTED TO THE NEAREST UNSWITCHED CIRCUIT THAT SERVES LIGHT FIXTURES WITHIN THE SAME SPACE.
26. NO MOUNTING HARDWARE SHALL BE ATTACHED TO ROOF DECKS. ATTACHMENTS SHALL BE MADE TO THE ROOF SUPPORTING STRUCTURE.
27. ABANDONED CIRCUITRY (RACEWAY & CONDUCTORS) SHALL BE REMOVED IN ITS ENTIRETY FROM ITS SOURCE. ABANDONED LOW VOLTAGE CABLING SHALL BE REMOVED IN ITS ENTIRETY UNLESS OTHERWISE NOTED.
28. PANEL BUS MATERIAL: COPPER.
29. SHARED NEUTRAL CONDUCTORS SHALL NOT BE USED UNLESS SPECIFICALLY INDICATED SO ON HOMERUN CIRCUITRY DESIGNATIONS.
30. PANEL BREAKER CONFIGURATIONS SHALL BE INSTALLED AS INDICATED ON THE PANEL SCHEDULES OR AS NOTED. BREAKER POSITION REVISIONS WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.
31. LOAD CIRCUITS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS. CIRCUITRY REVISIONS WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.
32. INCREASE 120V, 20A RECEPTACLE BRANCH CIRCUIT HOMERUNS OVER 50' LENGTH FROM #12 TO #10.
33. CONTRACTOR TO TURN OVER FIRE ALARM SYSTEM DEMO EQUIPMENT, DEVICES, AND APPLIANCES TO NHCS MAINTENANCE DEPARTMENT.

ABBREVIATIONS

ADA	AMERICAN DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLER UNIT
AIC	AMPS INTERRUPTING CAPABILITY
BKR	BREAKER
C	CONDUIT
C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CLG	CEILING
CKT	CIRCUIT
COMP	COMPRESSOR
CU	COPPER
DIA	DIAMETER
DDC	DIRECT DIGITAL CONTROL
DWG	DRAWING
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSED
EXSTG	EXISTING
FACP	FIRE ALARM CONTROL PANEL
FACU	FIRE ALARM CONTROL UNIT
G	EQUIPMENT GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HP	HEAT PUMP
HP	HORSEPOWER
IMC	INTERMEDIATE METAL CONDUIT
K	KILO (THOUSAND)
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LTS	LIGHTS
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MLO	MAIN LUG ONLY
MTG	MOUNTING
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NHCS	NEW HANOVER COUNTY SCHOOLS
NTS	NOT TO SCALE
P	PHASE OR POLE
PH	PHASE
PNL	PANEL
PROJ	PROJECTOR
PVC	POLYVINYL CHLORIDE
REC	RECEPTACLE
RECPT	RECEPTACLE
REQ.	REQUIRED
S.S.	STAINLESS STEEL
SYS	SYSTEM
S/N	SOLID NEUTRAL
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPS
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
W	WIRE
W/	WITH
WP	WEATHERPROOF
XFMR	TRANSFORMER

MISC. ELECTRICAL SYMBOL LEGEND

ENCLOSED CIRCUIT BREAKER, NEMA 1 INSIDE, NEMA 4X OUTSIDE (UNO); AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT RATING.

EQUIPMENT CONNECTION

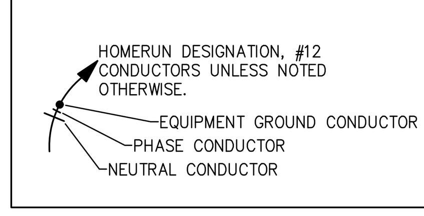
SAFETY SWITCH DISCONNECT, HEAVY-DUTY, NON-FUSED, NEMA 1 INSIDE, NEMA 4X OUTSIDE (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.

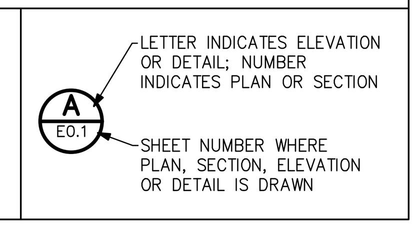
SAFETY SWITCH DISCONNECT, HEAVY-DUTY, FUSED AT NAMEPLATE RATING OF EQUIPMENT SERVED, NEMA 1 INSIDE, NEMA 4X OUTSIDE (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.

PANELBOARD, SEE PANEL SCHEDULE

TRANSFORMER, DRY TYPE, RATINGS INDICATED, NEMA 1 ENCLOSURE (UNO). PROVIDE 4" CONCRETE HOUSE KEEPING PAD IF A FLOOR MOUNTED UNIT IS PROVIDED.

GROUND ROD, 3/4" X 10' COPPER CLAD. WHERE TWO RODS ARE INDICATED, SPACE A MINIMUM OF 20' APART.





APPENDIX B, BUILDING CODE SUMMARY
ELECTRICAL SUMMARY

METHOD OF COMPLIANCE
- -ENERGY CODE: ☒ PRESCRIPTIVE ☐ PERFORMANCE
- -ASHRAE 90.1: ☐ PRESCRIPTIVE ☐ PERFORMANCE

LIGHTING SCHEDULE
- Lamp Type Required in Fixtures
- Number of Lamps in Fixtures
- Ballast Types Used in Fixtures
- Number of Ballasts Used in Fixtures
- Total Wattage per Fixture

SEE LIGHT FIXTURE / LUMINAIRE SCHEDULE

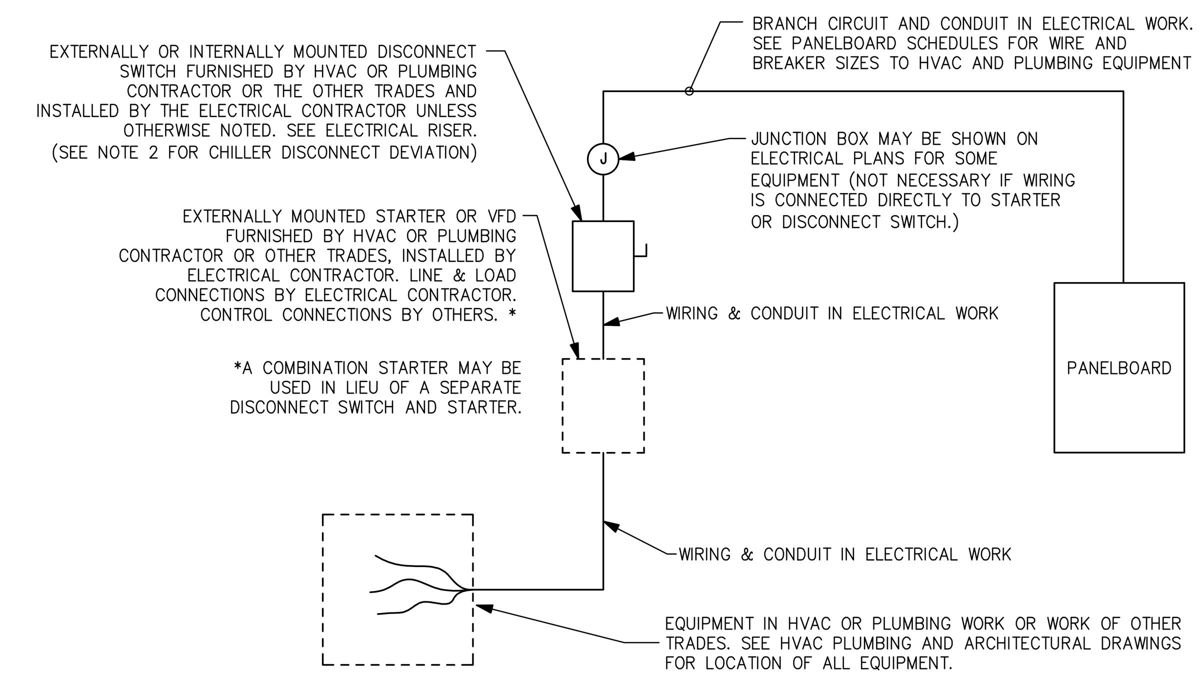
TOTAL WATTAGE SPECIFIED VERSUS ALLOWED
- Interior Specified: **18,533 Watts** Exterior Specified: **472 Watts**
- Interior Allowed: **28,505 Watts** Exterior Allowed: **1001 Watts**

ADDITIONAL METHOD OF COMPLIANCE:
- ☐ 506.2.1 More Efficient Mechanical Equipment
- ☒ 506.2.2 Reduced Lighting Power Density
- ☐ 506.2.3 Energy Recovery Ventilation System
- ☐ 506.2.4 Higher Efficiency Service Water Heating
- ☐ 506.2.5 On-Site Supply of Renewable Energy
- ☐ 506.2.6 Automatic Daylighting Control Systems

DESIGNER STATEMENT

To the best of my knowledge and belief, the design of this building complies with the electrical systems and equipment requirements of the North Carolina State Building Code, Section 505 of the North Carolina Energy Conservation Code.

SIGNED: Mark A. Ciarrocca
NAME: Mark A. Ciarrocca, P.E.
TITLE: Engineer



NOTES:
1. FINAL CONNECTIONS INSIDE EQUIPMENT TO BE MADE BY HVAC OR PLUMBING CONTRACTOR OR OTHER TRADES.

A/E0.1 ELECTRICAL CONNECTION TO MECHANICAL EQUIPMENT
NO SCALE

WARNING

Maximum Available Fault Current:
22,598 Symmetrical RMS Amperes
Date: 01/17/2019
Based on :
- Utility Transformer: 300 kVA (Maxiumum)
- Utility Transformer: 3.5% Impedance (Minimum)
- Service Feeder: #400kCMIL (5 SETS)(Maximum) Copper
- Service Feeder Length: 88' (Minimum)
- Motor Load: 150 kVA (Maximum)

NOTE
THE CONTRACTOR SHALL OBTAIN INSTALLED SERVICE TRANSFORMER DATA AND AVAILABLE FAULT CURRENT DATA FROM THE UTILITY COMPANY. FORWARD INFORMATION TO THE ENGINEER FOR ASSESSMENT OF REVISIONS TO THE LABEL DATA.

A/E0.1 FAULT CURRENT LABEL FOR SERVICE EQUIPMENT
NO SCALE

LOAD SUMMARY

	CONN KVA	CALC KVA			CONN KVA	CALC KVA	
LIGHTING	22	27.5	(125%)	CONTINUOUS	3.5	4.38	(125%)
LARGEST MOTOR	11.3	14.2	(125%)	HEATING	142	142	(100%)
OTHER MOTORS	136	136	(100%)	COOLING	53.1	0	(0%)
RECEPTACLES	52	31	(50%>10)	NONCONTINUOUS	50.2	50.2	(100%)
KITCHEN EQUIP	0	0	(N/A)	DIVERSE	38.4	38.4	(100%)
				METERED DEMAND	0	0	(125%)
				TOTAL KVA	457	443	
				BALANCED 3-PHASE AMPS		1,230	

LOAD SUMMARY
OPTIONAL CALCULATION METHOD FOR SCHOOLS

CONNECTED LOAD (KVA)	456	
SQUARE FOOTAGE (SF)	30,735	
VA / SF	14.84	
NEC 220.86-->	DEMAND FACTOR	LOAD (VA/SF)
FIRST 3 VA/SF	100%	3
OVER 3 TO 20 VA/SF	75%	8.88
OVER 20 VA/SF	25%	0.00
	TOTAL VA/SF	11.88
	TOTAL DEMAND (KVA)	365
	SERVICE VOLTAGE	208
	AMPS @ 208V =	1013

SHEET LIST

E0.1	ELECTRICAL LEGEND, NOTES, SCHEDULE, DETAIL
E0.2	ELECTRICAL LEGENDS
ED1.1	ELECTRICAL DEMOLITION AND FIELD INVESTIGATION PLAN
E1.1	ELECTRICAL POWER PLAN FIRST FLOOR RENOVATION
E1.2	ELECTRICAL LIGHTING PLAN FIRST FLOOR RENOVATION
E1.3	ELECTRICAL AUXILIARY SYSTEMS PLAN FIRST FLOOR RENOVATION
E2.1	ELECTRICAL POWER PLAN SECOND FLOOR
E2.2	ELECTRICAL LIGHTING PLAN SECOND FLOOR
E2.3	ELECTRICAL AUXILIARY SYSTEMS PLAN SECOND FLOOR
E3.1	ELECTRICAL SITE PLAN
E5.1	ELECTRICAL DETAILS
E5.2	ELECTRICAL DETAILS
E5.3	ELECTRICAL DETAILS
E5.4	ELECTRICAL DETAILS
E6.1	ELECTRICAL LUMINAIRE SCHEDULE
E6.2	ELECTRICAL PANEL SCHEDULES
E7.1	ELECTRICAL RISERS
E7.2	ELECTRICAL RISERS

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NORTH CAROLINA PROFESSIONAL SEAL 17593 ENGINEER MARK A. CIARROCCA 25 FEB 2019

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Revisions:

ELECTRICAL LEGEND, NOTES, SCHEDULE, DETAIL

E0.1

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SWITCH LEGEND

SYMBOL	DESCRIPTION	NOTES
$ D	DIMMER SWITCH	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
$ OD	OCCUPANCY SENSOR WALL SWITCH, DIMMER	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
$ 02	OCCUPANCY SENSOR WALL SWITCH, DUAL CKT, DUAL TECHNOLOGY	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO; CONFIGURE OUTPUT FOR DUAL LEVEL SWITCHING
$ 01	OCCUPANCY SENSOR WALL SWITCH, SINGLE CKT, DUAL TECHNOLOGY	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
OS	OCCUPANCY SENSOR, DUAL TECHNOLOGY; CEILING MTD	INCORPORATE POWER PACK FOR CIRCUITRY SWITCHING, SEE WIRING DIAGRAMS
PC	PHOTOCELL, EXTERIOR; MOUNT ON NORTH FACE OF BLDG, FACING NORTH	
$ ST	STACKED SWITCHES TO BE REMOVED	
$	TOGGLE SWITCH, SINGLE POLE	120/277V, 20A; MTD 42" AFF UNO

DATA & TELEPHONE OUTLET LEGEND

SYMBOL	DESCRIPTION	MOUNTING	NOTES
AP	DATA OUTLET FOR WIRELESS ACCESS POINT	FIRST FLOOR: SURFACE MOUNT WHERE NO GRID. 3/4"C TO EXISTING CABLE TRAY. SECOND FLOOR: 4" SQUARE BOX MOUNTED 24" ABOVE CEILING WHERE GRID INSTALLED.	INSTALL (1) CAT 6A CABLE TO IT ROOM. MOUNT OWNER PROVIDED EQUIPMENT AT CEILING OR WALL MOUNTED IF INDICATED. PROVIDE PATCH CORD FROM OUTLET TO EQUIPMENT.
©	EXISTING CABLE TV OUTLET TO BE REMOVED		
C	DATA / TELEPHONE OUTLET	WALL, MTD 6" ABOVE COUNTER HEIGHT AFF UNO; 4" SQUARE, DEEP BOX	STUB 1"C TO 6" ABOVE CEILING
	DATA / TELEPHONE OUTLET	WALL, 18" AFF UNO; 5" SQUARE, 2.875" DEEP BOX, 64 CUBIC INCHES, WITH CABLE MANAGEMENT POSTS. DESIGN BASIS: STEEL CITY #82181T SERIES	AREAS WITH LAY-IN CEILING: STUB 1"C TO 6" ABOVE CEILING INSTALL (2) CAT 6 CABLES TO IT ROOM AREAS WITHOUT LAY-IN CEILING: STUB 1"C TO CABLE TRAY INSTALL (2) CAT 6 CABLES TO IT ROOM.
	EQUIPMENT RACK, 19" X 7'	FLOOR	
	DATA / TELEPHONE OUTLET	FLOOR POKE-THRU, INTEGRAL TO POWER FLOOR BOX WITH DIVIDER SEPARATING POWER & COMMUNICATIONS	ROUTE (2) 1" C UNDERSLAB, TURN UP INTO WALL CAVITY, & STUB UP TO 6" ABOVE CEILING INSTALL (2) CAT 6 CABLES TO IT ROOM
AD	TELEPHONE OUTLET FOR PANIC ALARM SYSTEM AUTO DIALER	WALL, 18" AFF UNO; 4" SQUARE, DEEP BOX	STUB 1"C TO CABLE TRAY IN ROOM INSTALL TELEPHONE CABLE TO TELEPHONE SYSTEM DEMARC
PIM	IT OUTLET FOR WIRELESS ACCESS CONTROL DEVICE	4" SQUARE BOX	CONTRACTOR SHALL PROVIDE AND INSTALL SCHLAGE/ALLEGION #PIM400-1501 CONTROLLER. INSTALL (1) CAT 6 CABLE TO IT ROOM. PROVIDE PATCH CORD FROM OUTLET TO EQUIPMENT.
T	DATA / TELEPHONE OUTLET FOR TEACHER	WALL, 18" AFF UNO; 3-GANG EXTRA DEEP BOX	SEE DETAILS A/E5.4 AND B/E5.4. PROVIDE (2) HDMI PATCH CABLES AND (1) USB-B PATCH CABLE IN EACH CLASSROOM.
VE	VIDEO EQUIPMENT OUTLET	WALL; COORDINATE EXACT LOCATION AND MTG HEIGHT WITH ARCHITECT.	VIDEO EQUIPMENT PROVIDED BY OWNER. INSTALLED BY CONTRACTOR. PROVIDE (2) HDMI PATCH CABLES AND (1) USB-A PATCH CABLE IN EACH CLASSROOM. SEE DETAILS A/E5.4 AND B/E5.4.
ELEV	TELEPHONE OUTLET FOR ELEVATOR COMMUNICATION	COORDINATE INSTALLATION LOCATION WITH ELEVATOR VENDOR/INSTALLER	STUB 1"C TO 6" ABOVE CEILING INSTALL CAT 6 TELEPHONE CABLE TO IT ROOM
FA	COMMUNICATIONS OUTLET FOR FIRE ALARM SYSTEM	3/4"C FOR (1) TELEPHONE CABLE 3/4"C FOR (1) TELEPHONE CABLE AND (1) DATA CABLE	ROUTE CONDUITS DIRECTLY INTO FIRE ALARM SYSTEM ENCLOSURE.
SEC	COMMUNICATIONS OUTLET FOR SECURITY SYSTEM	(1) TELEPHONE CABLE IN 3/4" CONDUIT FOR SECURITY COMMUNICATION. (1) DATA DROP IN 3/4" CONDUIT FOR FUTURE USE.	ROUTE CONDUITS DIRECTELY INTO SECURITY PANEL

RECEPTACLE LEGEND

SYMBOL	NEMA	VOLTS	DESCRIPTION
	5-20R	120V 1P 2W	DUPLEX, MTD 18" AFF UNO
CPR	5-20R	120V 1P 2W	DUPLEX FOR COPIER, MTD 18" AFF UNO
	5-20R	120V 1P 2W	DUPLEX, MTD 6" ABOVE COUNTER HEIGHT UNO
G	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 6" ABOVE COUNTER HEIGHT UNO
EWC	5-20R	120V 1P 2W	DUPLEX ELECTRIC WATER COOLER OUTLET; SUPPLY FROM GROUND FAULT TYPE C/B; COORDINATE MTG LOCATION TO CONCEAL OUTLET WHEN COOLER IS INSTALLED
W/G	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 18" AFG UNO; LISTED WEATHER-RESISTANT TYPE; PROVIDE CAST ALUMINUM WEATHERPROOF IN-USE COVER WITH CAST ALUMINUM FD WEATHERPROOF BOX
	5-20R	120V 1P 2W	DUPLEX; MTD IN POKE-THRU; SEE AUX SYS PLANS FOR SHARED BOX; PROVIDE DIVIDER FOR POWER SEPARATION FROM VOICE/DATA
G	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 18" AFF UNO
HB	5-20R	120V 1P 2W	DUPLEX FOR HOT BOX HEATER; SUPPLY FROM GFEP C/B (30mA); LISTED WEATHER-RESISTANT TYPE; PROVIDE CAST ALUMINUM WEATHERPROOF IN-USE COVER WITH CAST ALUMINUM FD WEATHERPROOF BOX. COORDINATE MTG HEIGHT WITH ENCLOSURE PROVIDED.
PROJ	5-20R	120V 1P 2W	EXISTING PROJECTOR TO BE REMOVED.
R	5-20R	120V 1P 2W	DUPLEX FOR REFRIGERATOR; MOUNT 48" AFF UNO. SUPPLY FROM GFCI TYPE C/B.
SPA	5-20R	120V 1P 2W	DUPLEX POWER FOR SUMP PUMP ALARM PANEL. COORDINATE EXACT LOCATION WITH OWNER.
UCR	5-20R	120V 1P 2W	DUPLEX FOR REFRIGERATOR; SUPPLY FROM GFCI TYPE C/B; COORDINATE MOUNTING HEIGHT WITH CASEWORK DRAWINGS.
J 2WY		120V 1P 2W	POWER FOR 2-WAY COMMUNICATION MASTER CONSOLE
J DDC		120V 1P 2W	J-BOX ABOVE CLG LEVEL FOR DDC OR MECHANICAL CONTROL POWER SOURCE
J FAP		120V 1P 2W	POWER FOR FIRE ALARM CONTROL PANEL
J HT		120V 1P 2W	HEAT TRACE CONNECTION POINT. COORDINATE EXACT LOCATION WITH PLUMBING CONTRACTOR.
J HTC		120V 1P 2W	POWER FOR HEAT TRACE CONTROLLER. SUPPLY FROM 30mA GFEP C/B.
J SEC		120V 1P 2W	POWER FOR SECURITY SYSTEM COMPONENT; TYPICALLY INSTALLED 12" ABOVE CLG
J SHUNT		120V 1P 2W	POWER FOR SHUNT TRIP CIRCUITRY
	5-20R	120V 1P 2W	QUAD, MTD 18" AFF UNO
VE	5-20R	120V 1P 2W	QUAD FOR VIDEO EQUIPMENT LOCATED IN RECESSED OUTLET BOX (COORDINATE SPECIFIC LOCATION WITH OWNER/ARCHITECT). SEE AUXILIARY SYSTEMS PLANS FOR SHARED BOX WITH DATA OUTLET. DESIGN BASIS ARLINGTON #TVBS613 WITH COVER. SEE DETAIL A/E5.4.
SUMP	5-20R	120V 1P 2W	SIMPLEX OUTLET FOR SUMP PUMP; SUPPLIED FROM GFCI C/B; MOUNT 24" AFF/AFG.
L6-20R	L6-20R	208V 2P 2W	DATA ROOM RECEPTACLE. MOUNT TO TOP OF RACK.
L14-30R	L14-30R	208V 2P 2W	DATA ROOM RECEPTACLE. MOUNT TO TOP OF RACK.
EF		120V 1P 2W	EXHAUST FAN; SEE MECHANICAL SCHEDULE.

NOTE: PROVIDE TAMPER RESISTANT RECEPTACLES WHERE REQUIRED BY NEC 406.12

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION	MOUNTING
B	BEAM DETECTOR, TRANSMITTER WITH ASSOCIATED REFLECTOR	WALL
S 15	SPEAKER/STROBE, 15 CANDELA	CEILING
S 30	SPEAKER/STROBE, 30 CANDELA	CEILING
S 75	SPEAKER/STROBE, 75 CANDELA	CEILING
S 185	SPEAKER/STROBE, 185 CANDELA	CEILING
CM	CONTROL / RELAY MODULE	
CM ST	CONTROL / RELAY MODULE FOR SHUNT TRIP ACTIVATION; SEE DETAIL S/E5.2	
CM S	CONTROL / RELAY MODULE FOR SPEAKER BYPASS SEE DETAIL Q/E5.2	
DH	DOOR HOLDER, MAGNETIC	
FACP	FIRE ALARM CONTROL PANEL	
FS	FLOW SWITCH	
H	HEAT DETECTOR	CEILING
H E	HEAT DETECTOR; FOR ELEVATOR SHUNT TRIP ACTIVATION	CEILING/WALL
H	HEAT DETECTOR	WALL
F 15	HORN/STROBE, 15 CANDELA	WALL
LOC	LOCAL OPERATOR CONSOLE	
MM SS	MONITOR MODULE FOR COOKING EXHAUST HOOD FIRE SUPPRESSION SYSTEM	
MM SS	MONITOR MODULE WITH SURGE SUPPRESSOR FOR CONNECTION OF EXTERNAL CIRCUITRY	
MM	MONITOR MODULE FOR MONITORING A DRY CONTACT CLOSURE DEVICE	
PIV	POST INDICATOR VALVE TAMPER SWITCH	
PS	PRESSURE SWITCH	
F	PULL STATION	WALL
RA	REMOTE ANNUNCIATOR	WALL
S	SMOKE DETECTOR	CEILING
S	SMOKE DETECTOR	WALL
S	SPEAKER ONLY	WALL
S 15	SPEAKER/STROBE, 15 CANDELA	WALL
S 30	SPEAKER/STROBE, 30 CANDELA	WALL
S 75	SPEAKER/STROBE, 75 CANDELA	WALL
S 115	SPEAKER/STROBE, 115 CANDELA	WALL
S 185	SPEAKER/STROBE, 185 CANDELA	WALL
S 15	STROBE, 15 CANDELA	WALL
TS	TAMPER SWITCH	

PA & SECURITY LEGEND

SYMBOL	DESCRIPTION	MOUNTING	NOTES
S CASE	CLASSROOM AUDIO SOUND ENHANCEMENT SPEAKER	CEILING	CONNECTED TO TEACHER WORKSTATION. DESIGN BASIS: BOGEN ACD2X2 CIRCUIT 24V DC WIRES ABOVE CEILING TO 120/24V TRANSFORMER LOCATED AT VIDEO EQUIPMENT OUTLET.
S	PA/INTERCOM SPEAKER	CEILING	
PA	PA SPEAKER	WALL	
2W-M	ELEVATOR EMERGENCY 2-WAY COMMUNICATION MASTER STATION	WALL	PROVIDE MANUFACTURER'S REQUIRED CABLING / CIRCUITRY BETWEEN MASTER & REMOTE STATIONS TWO-WAY COMMUNICATIONS SYSTEM REQUIRED BY 2018 NCSBC 1009.8
2W-R	ELEVATOR EMERGENCY 2-WAY COMMUNICATION REMOTE STATION	WALL	TWO-WAY COMMUNICATIONS SYSTEM REQUIRED BY 2018 NCSBC 1009.8
C	SECURITY CAMERA		4" SQUARE BOX RECESSED; STUB 3/4"C TO INDICATED LOCATION OR NEAREST ACCESSIBLE CEILING SPACE. CAMERA PROVIDE AND INSTALLED BY NHCS. WHERE SURFACE MOUNTED ON 1ST FLOOR, 3/4"C TO EXISTING CABLE TRAY.
360 C	360 DEGREE SECURITY CAMERA		4" SQUARE BOX RECESSED; STUB 3/4"C TO INDICATED LOCATION OR NEAREST ACCESSIBLE CEILING SPACE. CAMERA PROVIDE AND INSTALLED BY NHCS. WHERE SURFACE MOUNTED ON 1ST FLOOR, 3/4"C TO EXISTING CABLE TRAY.
	DOOR SWITCH / CONTACT	RECESSED	1/2" FLEXIBLE METALLIC CONDUIT CONCEALED IN DOOR FRAME HEADER TO JUNCTION BOX MTD ABOVE DOOR. 1/2"C FROM JUNCTION BOX TO EXISTING CABLE TRAY. CONFIGURE A DEDICATED ZONE PER CONTACT LOCATION.
ES	ELECTRIC STRIKE		1/2" FLEXIBLE METALLIC CONDUIT CONCEALED IN DOOR FRAME HEADER TO JUNCTION BOX MTD ABOVE DOOR. 1/2"C FROM JUNCTION BOX TO EXISTING CABLE TRAY.
IC	AIPHONE STATION FOR 2-WAY COMMUNICATION BETWEEN FRONT DOOR AND RECEPTION DESK	OUTDOOR UNIT: WALL; INDOOR UNITS: DESK	OUTDOOR UNIT: MTD 54" AFF TO TOP OF DEVICE; 4" SQUARE DEEP BOX WITH SINGLE GANG RING. PROVIDE (1) 1"C TO JUNCTION BOX LOCATED ABOVE ACCESSIBLE CEILING. MASTER INDOOR UNIT: DESK MOUNTED. ROUTE 1" RMC THROUGH FURNITURE CASEWORK, STUB UP NEAREST WALL TO FLUSH MTD 4" SQUARE BOX WITH SURFACE MTD. EXTENSION RING, ABOVE ACCESSIBLE CEILING. PROVIDE CABLE PLATE UNDER DESK. SEE DETAIL C/E5.3. SUB-MASTER INDOOR UNIT: PROVIDE RECESSED 4" SQUARE BOX WITH SINGLE GANG RING AND CABLE PLATE UNDER DESK. ROUTE (1) 1"C TO JUNCTION BOX ABOVE ACCESSIBLE CEILING. COORDINATE FINAL LOCATIONS WITH OWNER. SEE SPECIFICATIONS. CABLE PLATE DESIGN BASIS: ARLINGTON CED135
K	KEYPAD	WALL	SURFACE MOUNTED BOX MTD 42" AFF AT KEYPAD LOCATION WITH 3/4"C ABOVE CEILING TO EXISTING CABLE TRAY.
360 M	MOTION DETECTOR, 360 DEGREE COVERAGE	CEILING	PROVIDED AND INSTALLED BY CONTRACTOR. 3/4" TO EXISTING CABLE TRAY. CONFIGURE A DEDICATED ZONE PER DETECTOR.
M	MOTION DETECTOR, CORRIDOR COVERAGE	SURFACE - CEILING / WALL	3/4" TO EXISTING CABLE TRAY. CONFIGURE A DEDICATED ZONE PER DETECTOR.
SEC	SECURITY SYSTEM CONTROLLER / CONTROL PANEL		PROVIDED AND INSTALLED BY CONTRACTOR.
P	PANIC ALARM PUSHBUTTON	UNDER DESK	LISTED PANIC ALARM BUTTON WITH FALSE ALARM PREVENTION FEATURES. NEATLY ROUTE EXPOSED WIRING UNDER DESK TO SHARED DATA OUTLET BOX & CONDUIT AND CONTINUE TO JUNCTION BOX ABOVE CEILING. 3/4"C FROM JUNCTION BOX BACK TO AUTODIALER IN DATA ROOM LOCATED IN 2ND FLOOR DATA ROOM. PUSHBUTTON DESIGN BASIS: HONEYWELL 270R
DR	PUSHBUTTON FOR REMOTE DOOR RELEASE	UNDER DESK	SURFACE MTD, MOMENTARY PUSHBUTTON. CONTACTS RATED FOR REQUIRED LOAD. NEATLY ROUTE EXPOSED WIRING UNDER DESK TO SHARED DATA OUTLET BOX & CONDUIT AND CONTINUE TO JUNCTION BOX ABOVE CEILING.
S	PA SPEAKER TO BE REMOVED	CEILING	
S	PA SPEAKER	WALL	WET LOCATION LISTED WHEN SHOWN OUTSIDE

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL LEGENDS

E0.2

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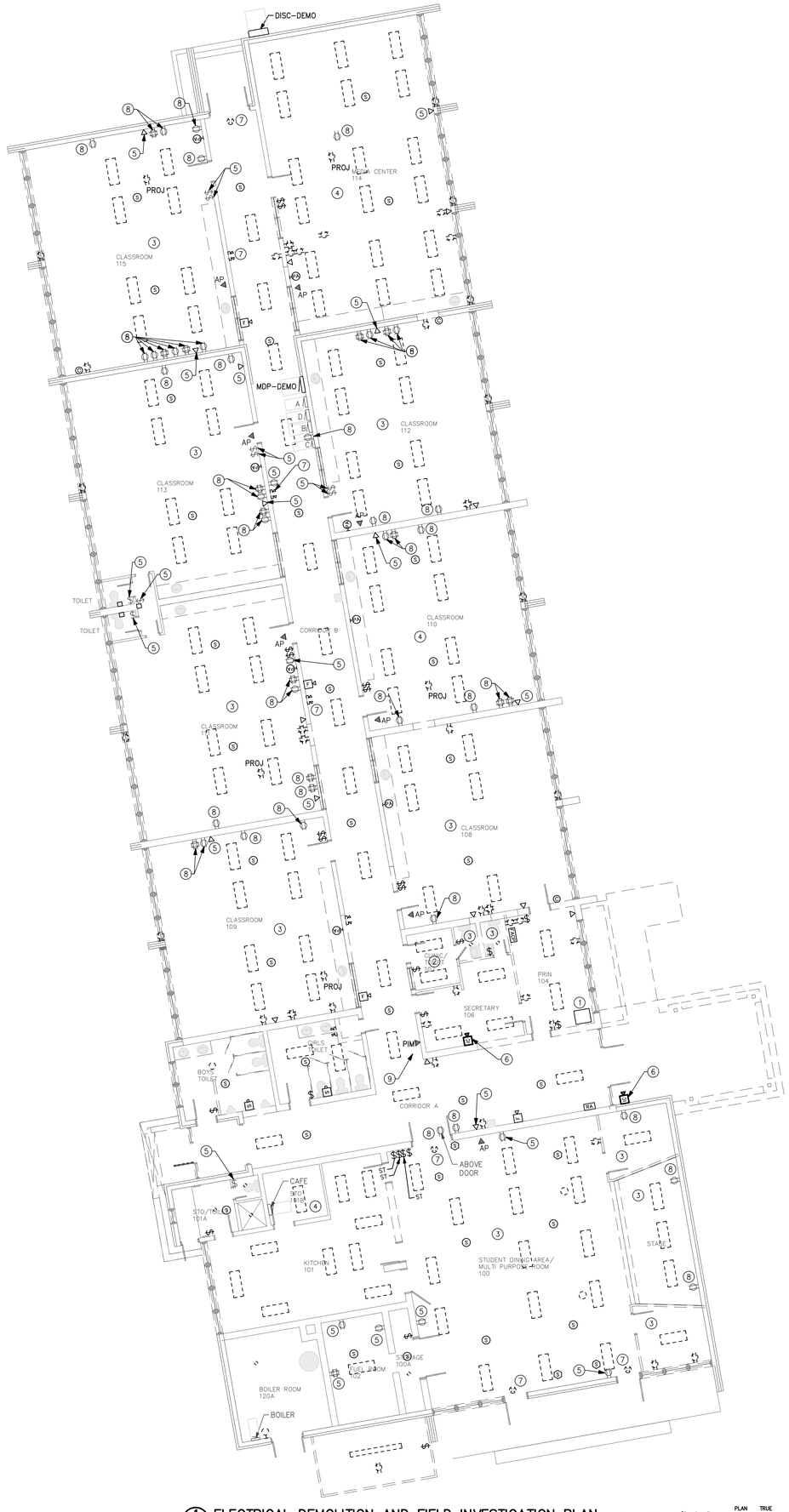

1 ED1.1 ELECTRICAL DEMOLITION AND FIELD INVESTIGATION PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

PLAN NORTH / TRUE NORTH

DEMOLITION NOTES:

1. ALL LIGHT FIXTURES AND ELECTRICAL DEVICES SHOWN ARE TO BE REMOVED UNLESS NOTED OTHERWISE.
2. FIELD INVESTIGATE THE EXTENT OF ELECTRICAL WORK REQUIRED TO SUPPORT THE DEMOLITION ACTIVITIES.
3. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE EXISTING DEVICES, FIXTURES, CIRCUITRY, ETC. TO ACCOMMODATE THE DEMOLITION ACTIVITIES.
4. ABANDONED CIRCUITRY SHALL BE REMOVED BACK TO ITS SOURCE.
5. EXISTING CIRCUITRY THAT SUPPLIES DEVICES, FIXTURES, ETC. TO REMAIN SHALL BE REWORKED AND EXTENDED AS REQUIRED TO MAINTAIN OPERATION OF THOSE DEVICES AND FIXTURES.
6. ABANDONED AUXILIARY SYSTEMS CABLING SHALL BE REMOVED BACK TO ITS SOURCE.
7. FIELD INVESTIGATE EXISTING HOMERUN CIRCUITRY SUPPLYING LIGHT FIXTURES WITH THE INTENT OF REUSING HOMERUNS FOR NEW LIGHTING.
8. ALL DATA CABLES AND FACEPLATES SHALL BE REMOVED FROM EXISTING OUTLET LOCATIONS TO REMAIN. NEW DATA CABLES TO BE INSTALLED.
9. ALL FIRE ALARM DEVICES SHALL BE REMOVED AND REPLACED WITH NEW. TURN EQUIPMENT OVER TO OWNER.
10. ALL WIRELESS ACCESS POINTS AND CABLING SHALL BE REMOVED. TURN EQUIPMENT OVER TO OWNER.

KEYED NOTES:

1. EXISTING PA SYSTEM EQUIPMENT TO BE REMOVED.
2. EXISTING IT HEADEND EQUIPMENT LOCATED IN THIS ROOM TO BE REMOVED. SEE NEW WORK PLAN FOR NEW LOCATION OF HEADEND EQUIPMENT.
3. LIGHT FIXTURES IN THIS ROOM TO BE REMOVED. CIRCUITRY TO REMAIN AND SWITCHES TO REMAIN.
4. LIGHT FIXTURES IN THIS ROOM TO BE REMOVED. CIRCUITRY TO REMAIN.
5. EXISTING DEVICE TO REMAIN.
6. REMOVE EXISTING AIPHONE AND ASSOCIATED CIRCUITRY.
7. LIGHT FIXTURE TO BE REMOVED. CIRCUITRY TO REMAIN.
8. REMOVE EXISTING RECEPTACLE. REPLACE WITH NEW TAMPER RESISTANT RECEPTACLE AS REQUIRED BY NEC 406.12.
9. EXISTING PIM LOCATION. REMOVE EXISTING DATA CABLE. INSTALL CAT 6 CABLE TO NEW IT ROOM LOCATED ON 2ND FLOOR. SEE NEW WORK PLAN.

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NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 17593 MARK A. CIARROCCA

Wrightsville Beach Elementary School Addition & Renovation

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Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL DEMOLITION AND FIELD INVESTIGATION PLAN

ED1.1

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GENERAL NOTES:

1. NEW DEVICES IN EXISTING BLOCK WALLS SHALL BE SURFACE MOUNTED WITH WIREMOLD.

KEYED NOTES:

(1) EXISTING DEVICE

(2) REPLACE EXISTING QUAD WITH QUAD USB.

(3) UTILIZE SPARE CIRCUIT BREAKER IN PANEL A.
PANEL A IS A 120/240V,1PH,3W GE A-SERIES II PANELBOARD.
CONTRACTOR TO INDICATE ON AS-BUILTS CIRCUIT BREAKER NUMBER.

(4) UTILIZE SPARE CIRCUIT BREAKER IN PANEL B.
PANEL A IS A 120/240V,1PH,3W SQUARE-D LOAD CENTER PANELBOARD.
CONTRACTOR TO INDICATE ON AS-BUILTS CIRCUIT BREAKER NUMBER.

(5) UTILIZE SPARE CIRCUIT BREAKER IN PANEL D.
PANEL A IS A 120/240V,1PH,3W GE A-SERIES II PANELBOARD.
CONTRACTOR TO INDICATE ON AS-BUILTS CIRCUIT BREAKER NUMBER.

(6) DISCONNECT HVAC EQUIPMENT TO ACCOMMODATE REMOVAL. RECONNECT TO EXISTING CIRCUIT.

(7) DISCONNECT EXISTING HEAT PUMP. REWORK AND EXTEND CIRCUITRY AS NECESSARY TO NEW HEAT PUMP LOCATION. NOTE PANEL CIRCUIT INFORMATION ON AS/BUILTS.

(8) UP TO HEAT TRACE CONNECTION POINT LOCATED ON SECOND FLOOR. SEE E2.1 FOR LOCATION.

(9) PROVIDE GFCI CIRCUIT BREAKER IN PANEL D.
PANEL A IS A 120/240V,1PH,3W GE A-SERIES II PANELBOARD.
CONTRACTOR TO INDICATE ON AS-BUILTS CIRCUIT BREAKER NUMBER.

(10) MSB FEEDER. TURN UP VERTICALLY IN NEW WALL WITH 2" OF CONCRETE ENCASEMENT UP TO MSB LOCATED IN ELECTRICAL ROOM ON SECOND FLOOR. SEE DETAIL H/E5.3.

1 E1.1 ELECTRICAL FIRST FLOOR POWER PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

PLAN NORTH / TRUE NORTH

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Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL POWER PLAN FIRST FLOOR RENOVATION

E1.1

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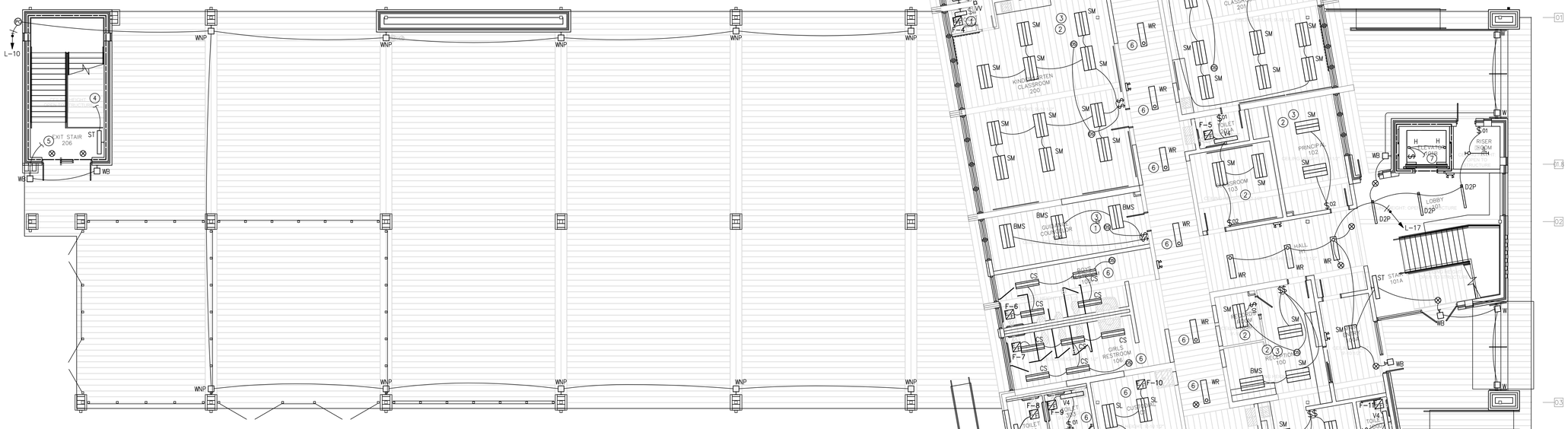
KEYED NOTES:

1. NEW LIGHT FIXTURES IN THIS ROOM SHALL BE INSTALLED USING EXISTING CIRCUITRY AND SWITCHING LEFT IN PLACE FROM DEMOLITION PHASE.
2. NEW LIGHT FIXTURES IN THIS ROOM SHALL BE INSTALLED USING EXISTING CIRCUITRY LEFT IN PLACE FROM DEMOLITION PHASE, WITH NEW SWITCHES INSTALLED. SEE PLAN FOR NEW SWITCH LOCATION.
3. FIELD INVESTIGATE LOCATION OF LIGHTING CIRCUIT HOMERUN. INTEGRATE NEW OCCUPANCY SENSOR AND POWER PACK TO BE UPSTREAM OF SWITCHES.
4. DOWN FROM LIGHT FIXTURE LOCATED ON STAIR LANDING.
5. FROM UNSWITCHED LIGHT FIXTURE LOCATED IN 2ND FLOOR CORRIDOR.
6. RECONNECT TO EXISTING CIRCUITRY PREVIOUSLY SERVING SPACE.
7. FED FROM RECEPTACLE CIRCUIT IN THE ELEVATOR SHAFT. SEE E1.1.
8. MOUNT LIGHT FIXTURE OVER CURTAIN WALL. 14'-0" AFG TO TOP OF FIXTURE.
9. LOW VOLTAGE CIRCUITRY FOR OCCUPANCY SENSORS SHALL BE RUN TIGHT TO WALLS, CEILING, AND BEAM TO MINIMIZE APPEARANCE. TYPICAL FOR ALL ROOMS WITH CEILING MOUNTED OCCUPANCY SENSORS.



1 E1.2 ELECTRICAL FIRST FLOOR LIGHTING PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

PLAN NORTH TRUE NORTH

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15 FEB 2019

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February 20, 2019

Revisions:

ELECTRICAL
LIGHTING PLAN
FIRST FLOOR
RENOVATION

E1.2

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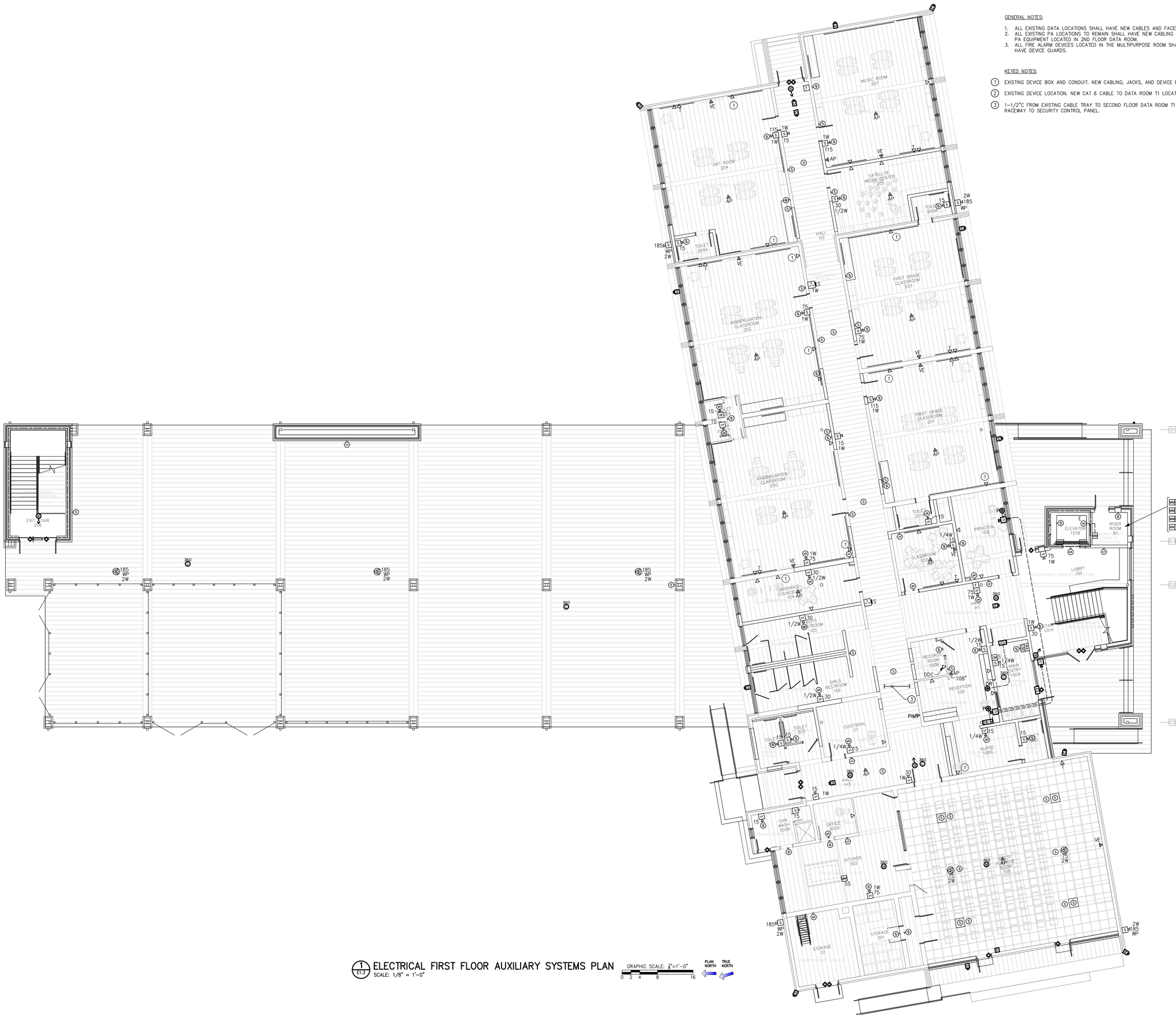

1 E1.3 ELECTRICAL FIRST FLOOR AUXILIARY SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

PLAN NORTH TRUE NORTH

GENERAL NOTES:

1. ALL EXISTING DATA LOCATIONS SHALL HAVE NEW CABLES AND FACEPLATES.
2. ALL EXISTING PA LOCATIONS TO REMAIN SHALL HAVE NEW CABLING TO NEW PA EQUIPMENT LOCATED IN 2ND FLOOR DATA ROOM.
3. ALL FIRE ALARM DEVICES LOCATED IN THE MULTIPURPOSE ROOM SHALL HAVE DEVICE GUARDS.

KEYED NOTES:

1. EXISTING DEVICE BOX AND CONDUIT. NEW CABLING, JACKS, AND DEVICE PLATES
2. EXISTING DEVICE LOCATION. NEW CAT 6 CABLE TO DATA ROOM T1 LOCATED ON 2ND FLOOR.
3. 1-1/2"C FROM EXISTING CABLE TRAY TO SECOND FLOOR DATA ROOM T1 FOR CABLING RACEWAY TO SECURITY CONTROL PANEL.

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25 FEB 2019

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Revisions:

ELECTRICAL AUXILIARY SYSTEMS PLAN
FIRST FLOOR RENOVATION

E1.3

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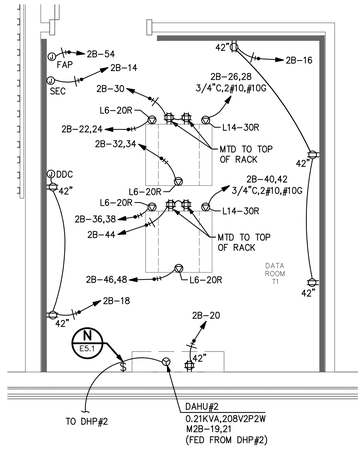
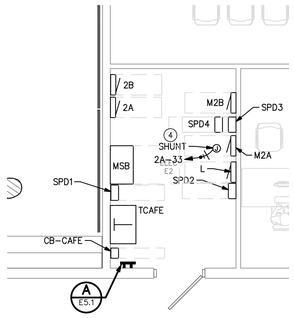


3 E2.1 ELECTRICAL ENLARGED PLAN – DATA ROOM T1
SCALE: 1/2" = 1'-0"
GRAPHIC SCALE: 1/2"=1'-0" (0 1 2 4)



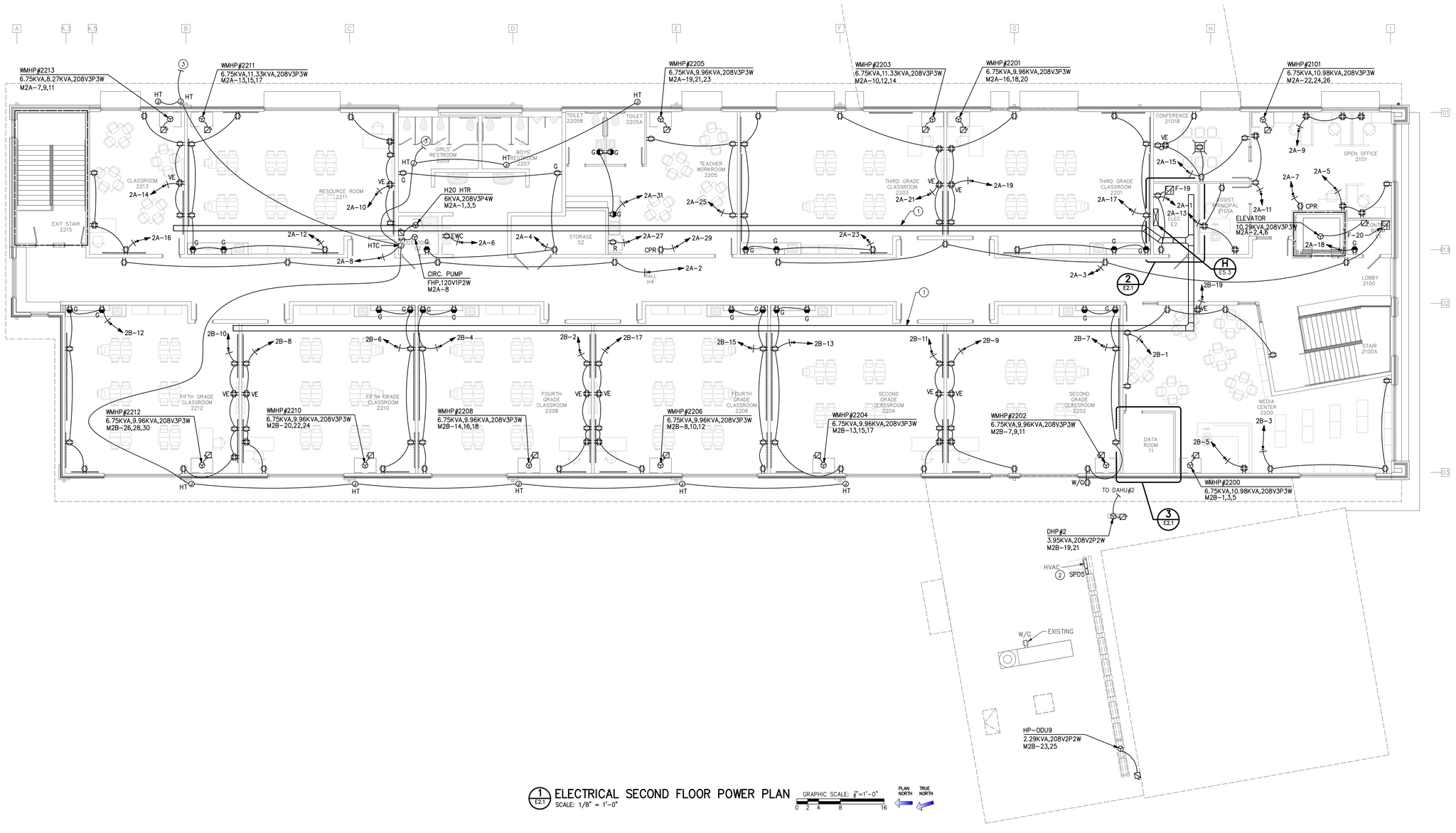
2 E2.1 ELECTRICAL ENLARGED PLAN – ELEC E2
SCALE: 1/4" = 1'-0"
GRAPHIC SCALE: 1/4"=1'-0" (0 1 2 4 8)

2ND FLOOR EQUIPMENT SCHEDULE

CALLOUT	VOLTS	KVA	CIRCUIT	WIRE CALLOUT
CIRC. PUMP	120V 1P 2W	0.1	M2A-8	3/4"C,1#12,#12N,#12G
DAHU#2	208V 2P 2W	0.21	M2B-19,21	3/4"C,2#12,#12G
DHP#2	208V 2P 2W	3.95	M2B-19,21	3/4"C,2#12,#12G
ELEVATOR	208V 3P 3W	10.29	M2A-2,4,6	3/4"C,3#8,#10G
H20 HTR	208V 3P 4W	6	M2A-1,3,5	3/4"C,3#12,#12N,#12G
HP-ODU9	208V 2P 2W	2.29	M2B-23,25	3/4"C,2#12,#12G
WMHP#2101	208V 3P 3W	17.73	M2A-22,24,26	1"C,3#6,#10G
WMHP#2200	208V 3P 3W	17.73	M2B-1,3,5	1"C,3#6,#10G
WMHP#2201	208V 3P 3W	16.71	M2A-16,18,20	1"C,3#6,#10G
WMHP#2202	208V 3P 3W	16.71	M2B-7,9,11	1"C,3#6,#10G
WMHP#2203	208V 3P 3W	18.08	M2A-10,12,14	1"C,3#6,#10G
WMHP#2204	208V 3P 3W	16.71	M2B-13,15,17	1"C,3#6,#10G
WMHP#2205	208V 3P 3W	16.71	M2A-19,21,23	1"C,3#6,#10G
WMHP#2206	208V 3P 3W	16.71	M2B-8,10,12	1"C,3#6,#10G
WMHP#2208	208V 3P 3W	16.71	M2B-14,16,18	1"C,3#6,#10G
WMHP#2210	208V 3P 3W	16.71	M2B-20,22,24	1"C,3#6,#10G
WMHP#2211	208V 3P 3W	18.08	M2A-13,15,17	1"C,3#6,#10G
WMHP#2212	208V 3P 3W	16.71	M2B-26,28,30	1"C,3#6,#10G
WMHP#2213	208V 3P 3W	15.02	M2A-7,9,11	1"C,3#6,#10G

KEYED NOTES:

1. 12"x4" WIRE MESH TYPE CABLE TRAY FOR POWER MC CABLES; ABOVE CEILING.
2. PROVIDE (1) 2P/30A CIRCUIT BREAKER IN SPACES #22,24 FOR SPD5. EXISTING PANEL IS MANUFACTURED BY SQ-D (TYPE NQ). CONNECT SPD5 WITH 3/4"C,2#10,#10N,#10G.
3. DOWN TO DRINKING FOUNTAIN FREEZE PROTECTION LOCATED ON FIRST FLOOR. SEE E1.1 FOR LOCATION.
4. SHUNT TRIP CIRCUIT FOR ELEVATOR EQUIPMENT.



1 E2.1 ELECTRICAL SECOND FLOOR POWER PLAN
SCALE: 1/8" = 1'-0"
GRAPHIC SCALE: 1/8"=1'-0" (0 2 4 8 16)
PLAN NORTH / TRUE NORTH

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17593 25 FEB 2019 MARK A. CIARROCCA

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL
POWER PLAN
SECOND FLOOR

E2.1

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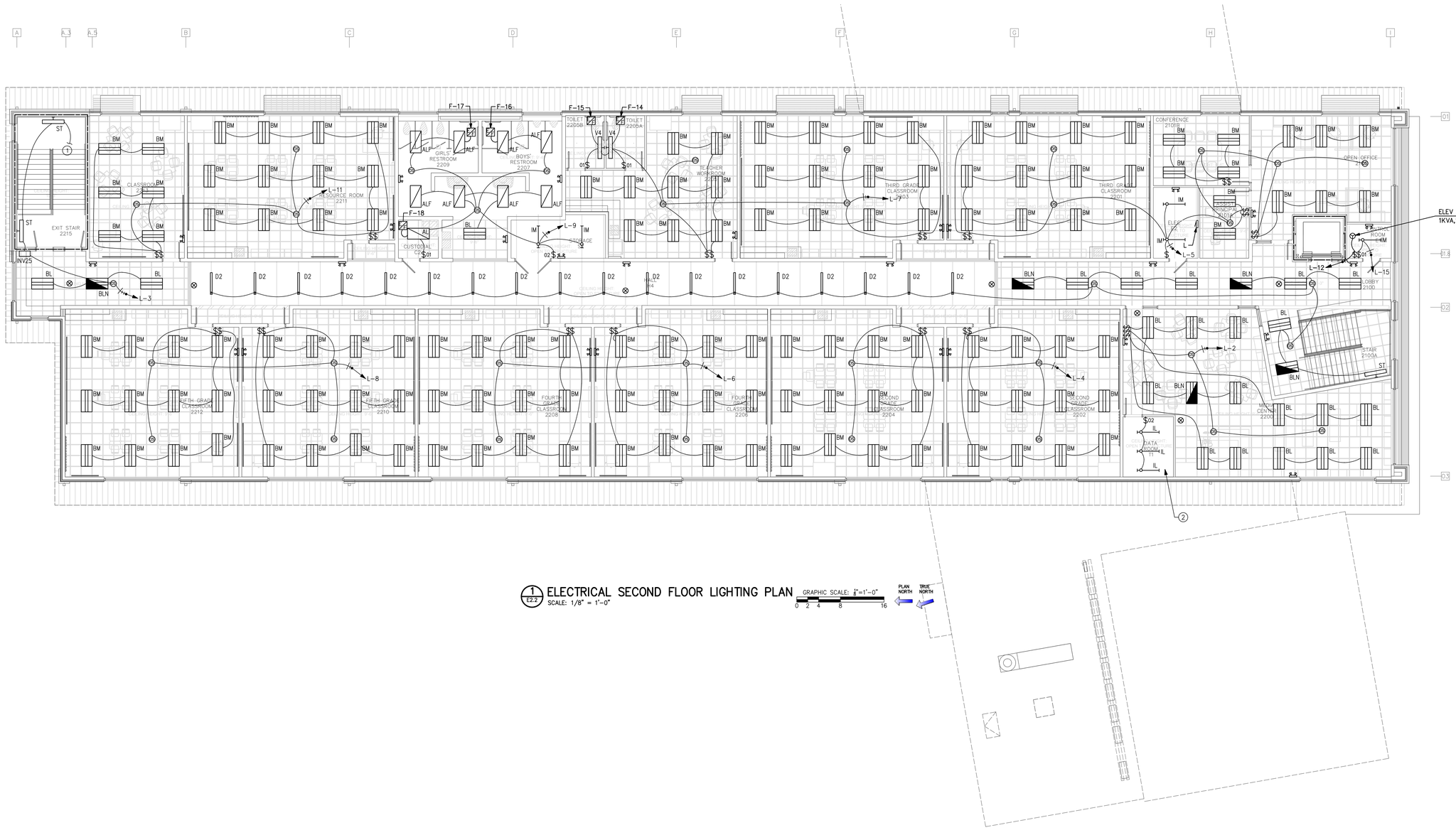
KEYED NOTES:

1. DOWN TO EXTERIOR EGRESS FIXTURES LOCATED OUTSIDE OF STAIR LANDING.



1 E2.2 ELECTRICAL SECOND FLOOR LIGHTING PLAN

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

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

PLAN NORTH / TRUE NORTH

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
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Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL LIGHTING PLAN SECOND FLOOR

E2.2

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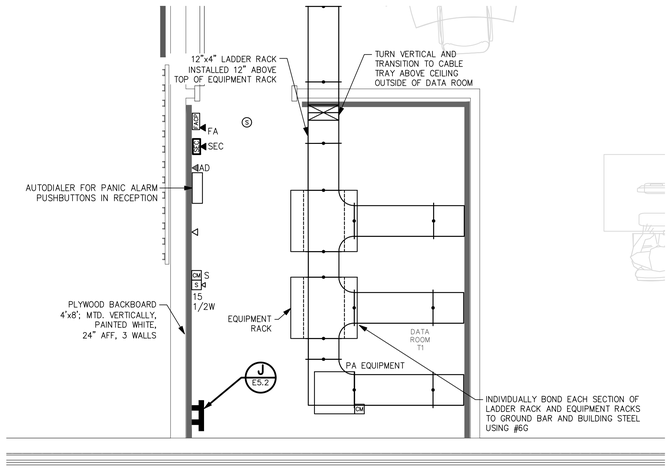
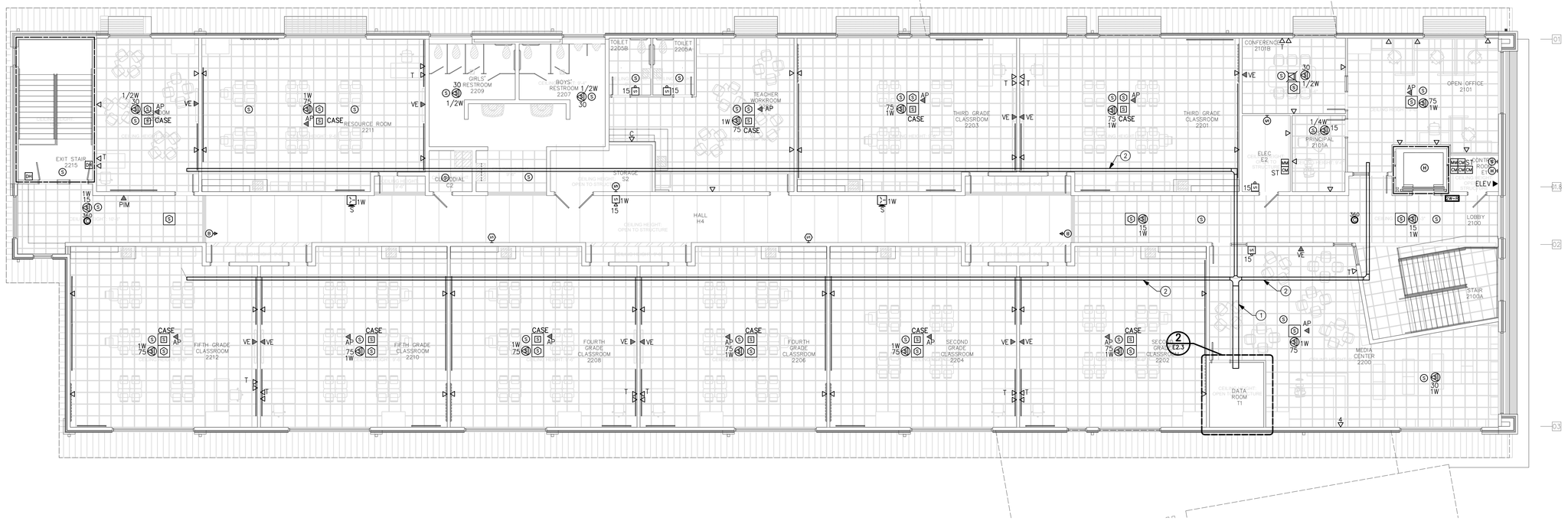
KEYED NOTES:

1. 12"x4" WIRE MESH TYPE CABLE TRAY ABOVE CEILING FOR AUXILIARY SYSTEMS CABLES. PROVIDE DIVIDER TO SEPARATE DATA FROM FIRE ALARM CIRCUITRY.
2. 6"x4" WIRE MESH TYPE CABLE TRAY ABOVE CEILING FOR AUXILIARY SYSTEMS CABLES. PROVIDE DIVIDER TO SEPARATE DATA FROM FIRE ALARM CIRCUITRY.



2 E2.3 ELECTRICAL ENLARGED AUXILIARY SYSTEMS PLAN – DATA ROOM T1
SCALE: 1/2" = 1'-0"

GRAPHIC SCALE: 1/2"=1'-0"
0 1 2 4



1 E2.3 ELECTRICAL SECOND FLOOR AUXILIARY SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1/8"=1'-0"
0 2 4 8 16

PLAN NORTH / TRUE NORTH

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17593
MARK A. CIARROCCA

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL AUXILIARY SYSTEMS PLAN SECOND FLOOR

E2.3

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GENERAL NOTES:

1. BUILDING SERVICE FEEDER SHALL BE CONCRETE ENCASED TO MDP WITH NOT LESS THAN 2" THICK CONCRETE PER NEC 230.6(2) ONCE IT ENTERS BUILDING.

KEYED NOTES:

1. REMOVE EXISTING PANEL AND REPLACE WITH NEW. BRANCH CIRCUITRY TO REMAIN AND BE RECONNECTED TO NEW PANEL. COORDINATE REMOVAL OF UTILITY METER AND SERVICE WITH DUKE. RE-FEED FROM NEW MSB LOCATED ON 2ND FLOOR.
2. TRANSITION FROM PVC CONDUIT TO RIGID METAL CONDUIT ONCE ENTERING BUILDING FOOTPRINT.
3. REMOVE EXISTING PANEL. COORDINATE REMOVAL OF UTILITY METER AND SERVICE WITH DUKE.

1 E3.1 ELECTRICAL SITE PLAN
SCALE: 1/16" = 1'-0"

GRAPHIC SCALE: 1/16"=1'-0"
0 4 8 16 32

PLAN NORTH / TRUE NORTH

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
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February 20, 2019

Revisions:

ELECTRICAL SITE PLAN

E3.1

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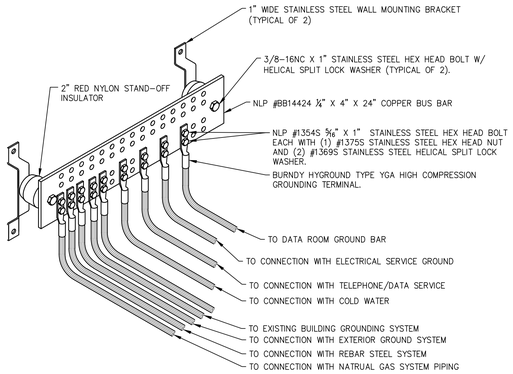
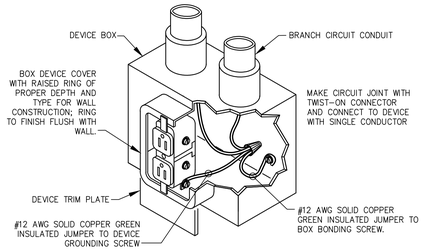
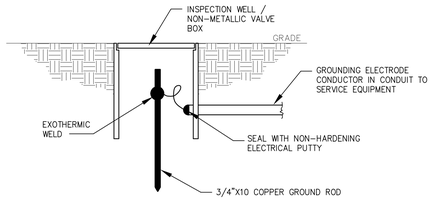


A E5.1 **MAIN GROUND BAR**
NO SCALE

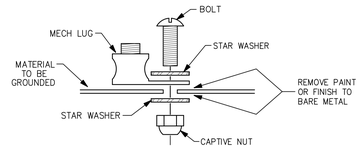
NOTE: PROVIDE LABELS FOR EACH INDIVIDUAL GROUND SYSTEM CONDUCTOR



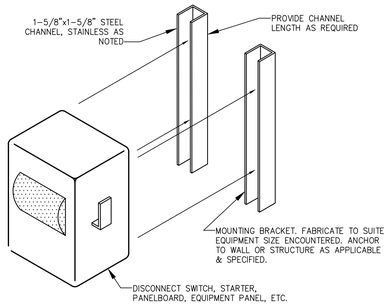
B E5.1 **OUTLET GROUNDING DETAIL**
SCALE: N/A



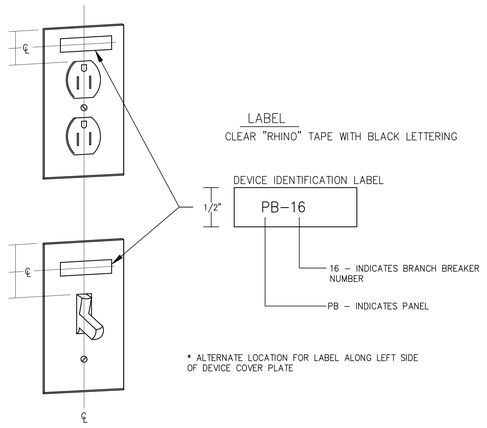
C E5.1 **GROUND ROD & INSPECTION WELL**
NO SCALE



E E5.1 **GROUNDING LUG DETAIL**
NO SCALE



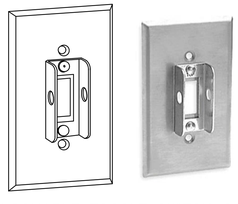
F E5.1 **EQUIPMENT MOUNTING DETAIL**
NO SCALE



G E5.1 **WIRING DEVICE IDENTIFICATION LABEL**

J E5.1 **CHANNEL SUPPORT DETAIL**
NO SCALE

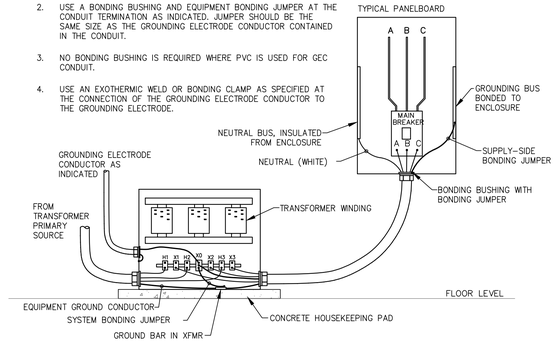
K E5.1 **CHANNEL MOUNTING DETAILS**
NO SCALE



N E5.1 **LOCKABLE TOGGLE SWITCH COVER**
NO SCALE

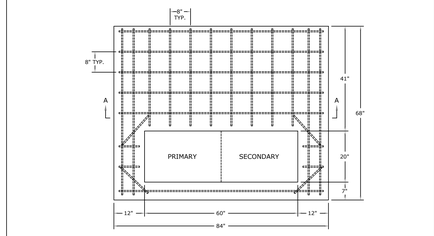
NOTES

1. IF A TRANSFORMER BONDING STRAP IS NOT PROVIDED BY THE TRANSFORMER MANUFACTURER, IT SHALL BE THE SAME SIZE AS THE SYSTEM BONDING JUMPER. SEE NEC 250.30.
2. USE A BONDING BUSHING AND EQUIPMENT BONDING JUMPER AT THE CONDUIT TERMINATION AS INDICATED. JUMPER SHOULD BE THE SAME SIZE AS THE GROUNDING ELECTRODE CONDUCTOR CONTAINED IN THE CONDUIT.
3. NO BONDING BUSHING IS REQUIRED WHERE PVC IS USED FOR GEC CONDUIT.
4. USE AN EXOTHERMIC WELD OR BONDING CLAMP AS SPECIFIED AT THE CONNECTION OF THE GROUNDING ELECTRODE CONDUCTOR TO THE GROUNDING ELECTRODE.



L E5.1 **DRY-TYPE TRANSFORMER GROUNDING DETAIL**
NO SCALE

APPENDIX C - PAGE 1 (DEP ONLY)



NOTES:

1. TRANSFORMER PADS SHALL BE INSTALLED IN A LOCATION TO REMAIN READILY ACCESSIBLE FOR CRANES, LINE TRUCKS OR OTHER NECESSARY LIFTING AND HAULING EQUIPMENT. PADS SHALL HAVE A MINIMUM CLEARANCE FROM OBSTRUCTIONS AND BUILDINGS AS GIVEN IN FIGURE 52.
2. SOIL UNDERNEATH PADS SHALL BE FREE OF ROOTS AND OTHER ORGANIC MATERIALS AND BE THOROUGHLY TAMPED TO PREVENT WASHING. EXERCISE CARE IN BACKFILLING AND GRADING AROUND PAD.
3. SERVICE CONDUIT SHALL BE LOCATED IN THE EXTREME RIGHT SIDE OF THE SECONDARY COMPARTMENT.
4. OTHER UTILITIES ARE NOT TO BE INSTALLED UNDER TRANSFORMER PAD.

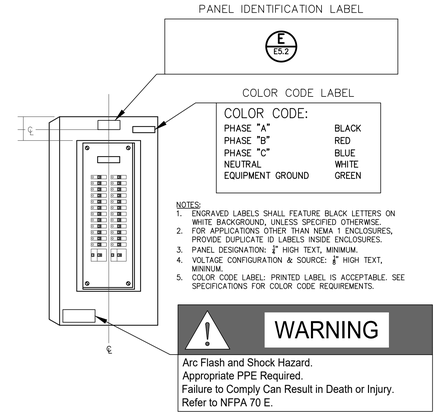
3					
2					
1	3/31/17	SAMS SERIES ACCOL			
0	10/30/17	ISSUED FOR PERMITTING			
REVISED BY	DATE	APPR.			

DUKE ENERGY.

DEC DEM	DEP DEF
	X

PRECAST PADS FOR THREE-PHASE, 75KVA - 300KVA

D E5.1 **UTILITY TRANSFORMER PAD DETAIL**
NO SCALE



NOTES:
1. ENGRAVED LABELS SHALL FEATURE BLACK LETTERS ON WHITE BACKGROUND, UNLESS SPECIFIED OTHERWISE.
2. FOR APPLICATIONS OTHER THAN NEMA 1 ENCLOSURES, PROVIDE DUPLICATE ID LABELS INSIDE ENCLOSURES.
3. PANEL DESIGNATION: ½" HIGH TEXT, MINIMUM.
4. VOLTAGE CONFIGURATION & SOURCE: ¼" HIGH TEXT, MINIMUM.
5. COLOR CODE LABEL: PRINTED LABEL IS ACCEPTABLE. SEE SPECIFICATIONS FOR COLOR CODE REQUIREMENTS.

H E5.1 **TYPICAL PANELBOARD IDENTIFICATION**
NO SCALE

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Wrightsville Beach Elementary School Addition & Renovation

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Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL DETAILS

E5.1

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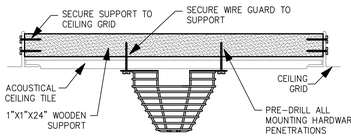
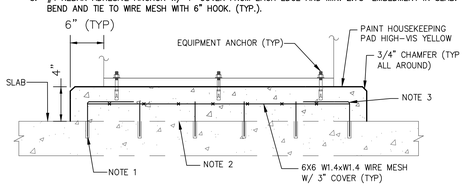


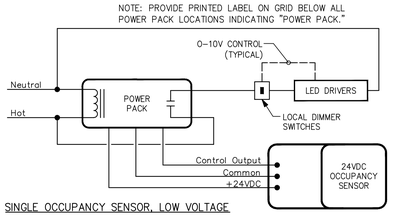
A E5.2 CEILING MOUNTED GUARD DETAIL
NO SCALE

NOTES:

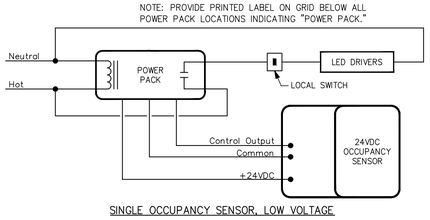
1. PLACE CORNER ANCHORS WITH SPECIFIED 4" COVER, THEN EQUALLY SPACE ANCHORS ALONG SIDES APPROXIMATELY 8" O.C. VERIFY SPACING WITH SEISMIC SUBMITTAL.
2. ROUGHEN AND CLEAN BEFORE COATING WITH BONDING AGENT PRIOR TO POURING PAD.
3. #4 REBAR ADHESIVE ANCHOR W/ 4" COVER FROM EACH EDGE AND MIN. 2.75" EMBEDMENT IN SLAB. BEND AND TIE TO WIRE MESH WITH 6" HOOK. (TYP.).



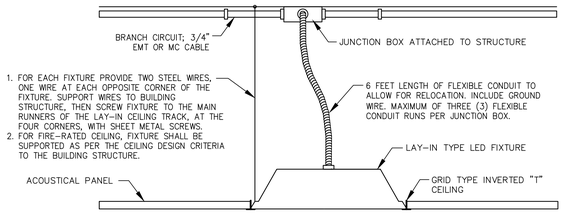
B E5.2 TYPICAL HOUSEKEEPING PAD DETAIL
NO SCALE



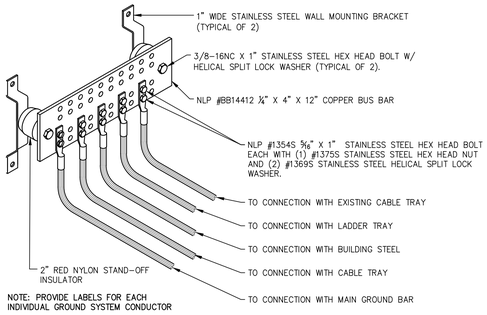
C E5.2 OCCUPANCY SENSOR WIRING FOR DIMMING LEVEL LIGHTING CONTROL
NO SCALE



D E5.2 OCCUPANCY SENSOR WIRING LIGHTING CONTROL
NO SCALE

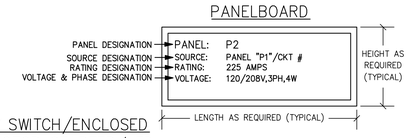


G E5.2 LIGHT FIXTURE MOUNTING DETAIL
SCALE: N/A

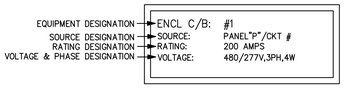


H E5.2 DATA ROOM GROUND BAR
NO SCALE

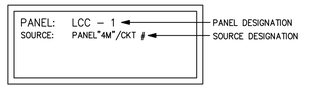
PANELBOARD



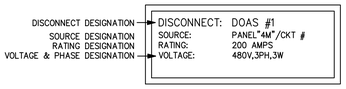
EQUIPMENT SAFETY SWITCH/ENCLOSED CIRCUIT BREAKER/MOTOR STARTER/VFD



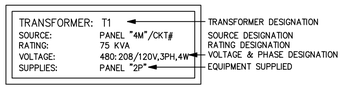
LIGHTING CONTROL PANEL



DISCONNECT

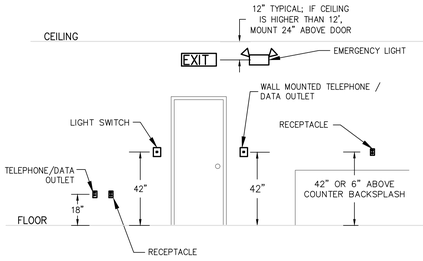


TRANSFORMER

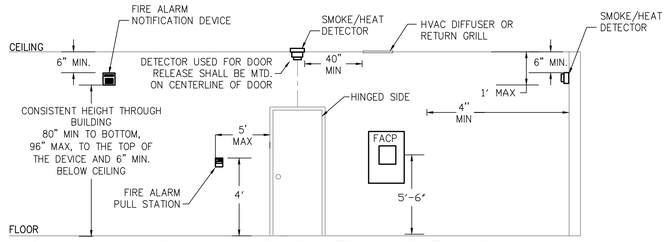


NOTES:
1. ENGRAVED PLASTIC FOR NAMEPLATE.
2. HIGH PERFORMANCE, DOUBLE COATED TAPE WITH ADHESIVE TO ATTACH LABELS. DESIGN BASIS: 3M #06383 OR APPROVED EQUIVALENT.
3. 3/8" ENGRAVED LETTERS EQUIPMENT NAME DESIGNATION AND 1/4" ENGRAVED LETTERS ON ALL OTHER DESIGNATIONS.

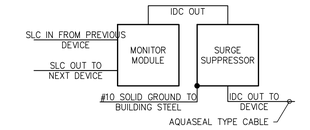
E E5.2 TYPICAL NAMEPLATE DETAILS
NO SCALE



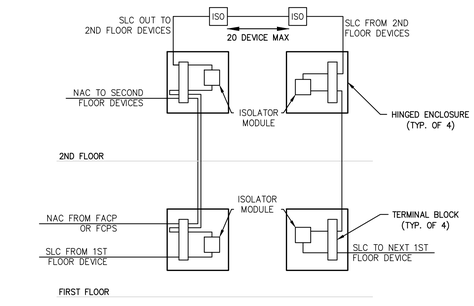
F E5.2 MOUNTING HEIGHTS OF DEVICES
NO SCALE



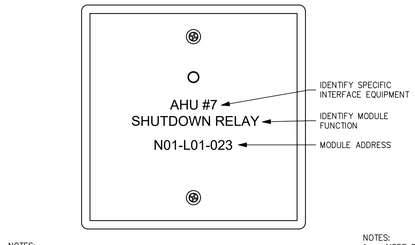
J E5.2 MOUNTING HEIGHTS OF DEVICES DETAIL – FIRE ALARM
NO SCALE



K E5.2 FIRE ALARM IDC SURGE SUPPRESSION DETAIL
NO SCALE

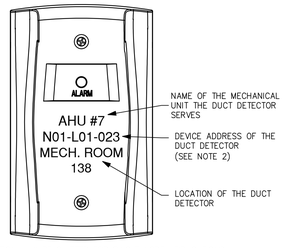


L E5.2 SLC ISOLATION BETWEEN FLOORS DETAIL
NO SCALE



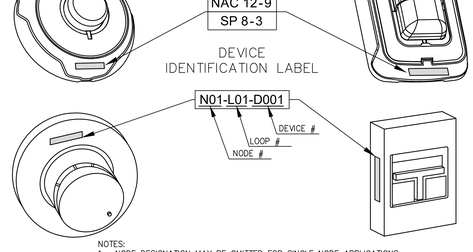
NOTES:
1. NODE DESIGNATION MAY BE OMITTED FOR SINGLE NODE APPLICATIONS
2. NAMING CONVENTION SHALL EMULATE FACP DISPLAY
3. 3/8" HIGH BLACK ON CLEAR, BOLD FONT, P-TOUCH TYPE LABELS
4. LABELS SHALL BE APPLIED STRAIGHT & LEVEL TO DEVICE ORIENTATION
5. EXCESS LABEL MATERIAL SHALL BE TRIMMED

M E5.2 CONTROL/RELAY MODULE LABELING DETAIL
NO SCALE



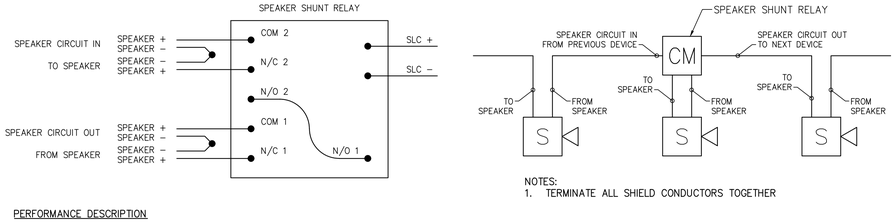
NOTES:
1. NODE DESIGNATION MAY BE OMITTED FOR SINGLE NODE APPLICATIONS
2. NAMING CONVENTION SHALL EMULATE FACP DISPLAY
3. PROVIDE PHENOLIC LABELS MOUNTED ON, ABOVE, OR BELOW EACH RAIL
4. LABELS SHALL BE APPLIED STRAIGHT & LEVEL TO DEVICE ORIENTATION
5. LABELS SHALL NOT BE MOUNTED TO CEILING TILES
6. SEE SPECIFICATION 260553 ELECTRICAL IDENTIFICATION

N E5.2 REMOTE ALARM INDICATING LAMP LABELING DETAIL
NO SCALE



NOTES:
1. NODE DESIGNATION MAY BE OMITTED FOR SINGLE NODE APPLICATIONS.
2. ADDRESSABLE DEVICE ADDRESS NAMING CONVENTION SHALL EMULATE FACP DISPLAY.
3. NOTIFICATION DEVICE LABEL SHALL MATCH AS-BUILT DRAWING CIRCUITRY LABELS.
4. LABEL TEXT SHALL BE A SIZE WHERE EASILY READ FROM FLOOR LEVEL. (3/8" MIN)
5. BLACK ON CLEAR, BOLD FONT, P-TOUCH TYPE LABELS.
6. LABELS SHALL BE APPLIED STRAIGHT & LEVEL TO DEVICE ORIENTATION.
7. EXCESS LABEL MATERIAL SHALL BE TRIMMED.
8. MOUNT LABEL ON FLAT DEVICE BASE SURFACE.

O E5.2 TYPICAL FIRE ALARM DEVICE IDENTIFICATION
NO SCALE

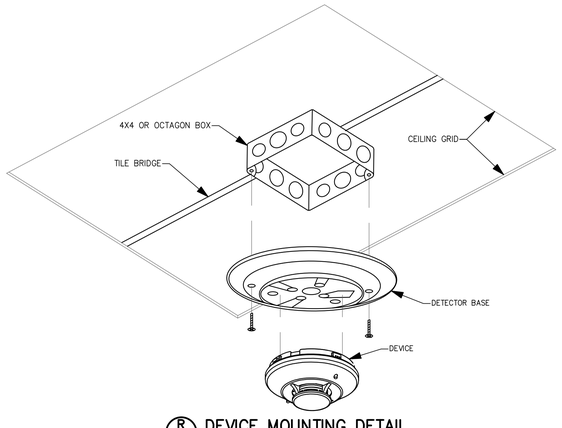


NOTES:
1. TERMINATE ALL SHIELD CONDUCTORS TOGETHER

PERFORMANCE DESCRIPTION

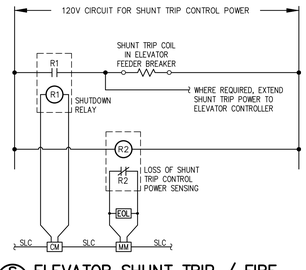
THE INTENT OF THE SPEAKER SHUNT CIRCUITRY IS TO PREVENT AUDIO FEEDBACK ON THE VOICE SYSTEM WHEN THE LOCAL OPERATORS CONSOLE (LOC) REMOTE MICROPHONE IS UTILIZED. THIS IS ACCOMPLISHED BY REMOVING (SHUNTING) SELECT SPEAKERS IN THE VICINITY OF THE LOC FROM THE CIRCUIT.

Q E5.2 SPEAKER SHUNT TRIP RELAY DETAIL
NO SCALE



R E5.2 DEVICE MOUNTING DETAIL
NO SCALE

R1 R2 CONTROL RELAY, 2-POLE, DOUBLE THROW, 120V COIL, 10 AMP CONTACTS . MOUNT RELAY IN SOCKET.
NORMALL OPEN DRY CONTACT
NORMALLY CLOSED DRY CONTACT
CM FIRE ALARM SYSTEM RELAY / CONTROL MODULE
MM FIRE ALARM SYSTEM MONITOR MODULE



S E5.2 ELEVATOR SHUNT TRIP / FIRE ALARM SYSTEM INTERFACE
SCALE: N/A

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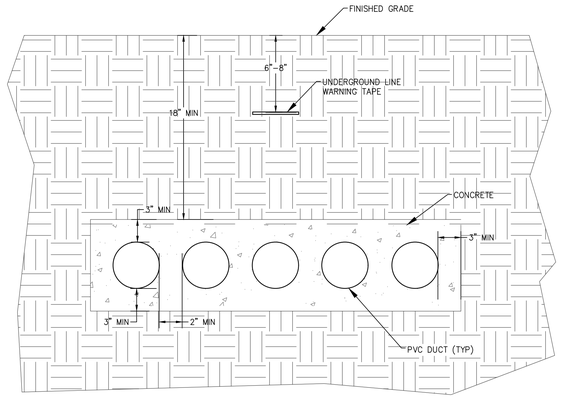
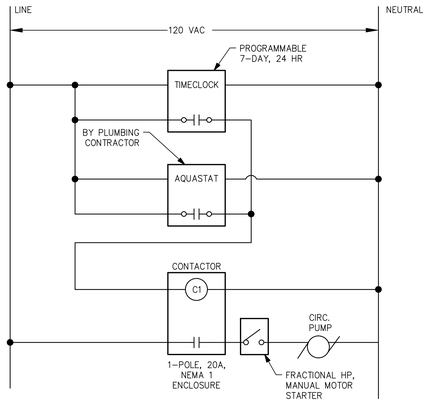
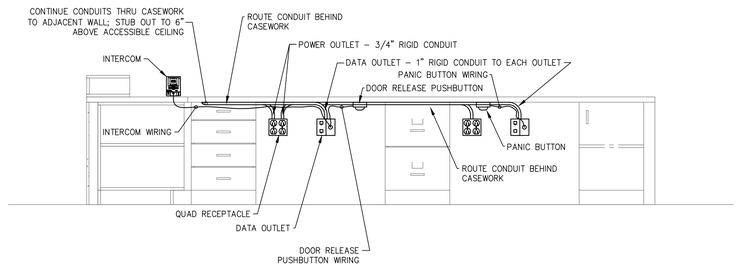


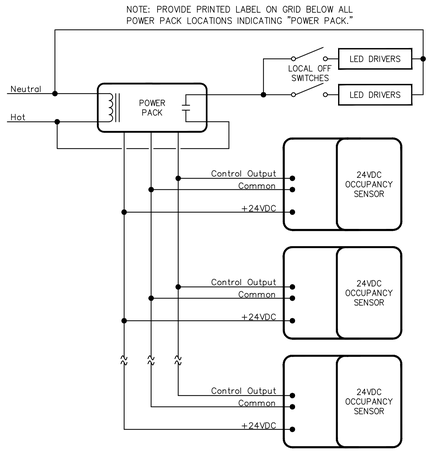
A E5.3 MSB DUCTBANK, CONCRETE ENCASED
NO SCALE



B E5.3 CIRCULATION PUMP CONTROL SCHEMATIC
NO SCALE

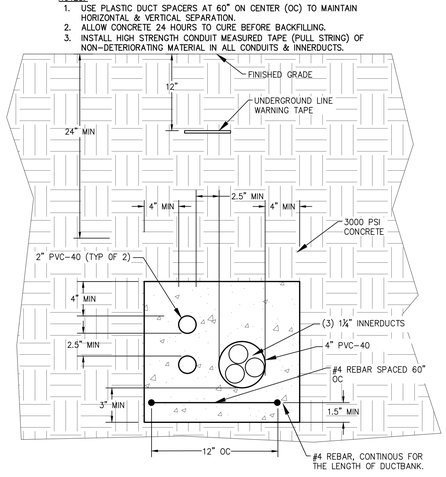


C E5.3 RECEPTION DESK ELECTRICAL DETAIL
NO SCALE

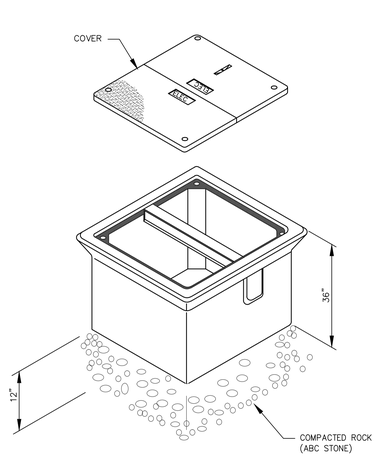


MULTIPLE OCCUPANCY SENSORS, SINGLE CIRCUIT CONTROL

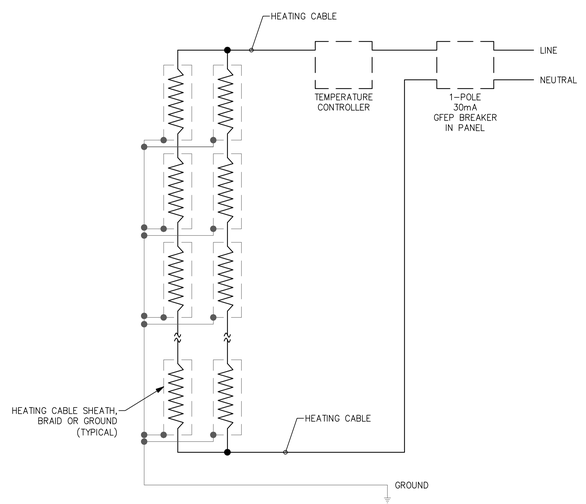
G E5.3 OCCUPANCY SENSOR WIRING FOR DUAL LEVEL LIGHTING CONTROL
NO SCALE



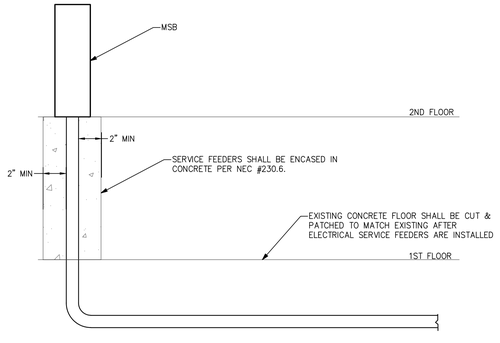
F E5.3 COMMUNICATIONS DUCTBANK, CONCRETE ENCASED
NO SCALE



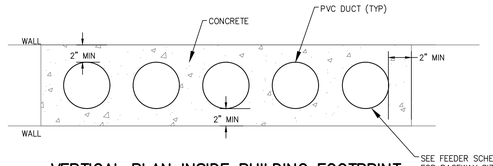
E E5.3 TYPICAL HANDHOLE DETAIL
NO SCALE
DESIGN BASIS: QUAZITE #PG3636HH00-PG3636BA36 (36"X36")



F E5.3 HEAT TRACE TEMPERATURE SENSOR CONTROL SCHEMATIC
NO SCALE

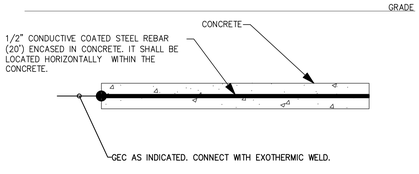


ELEVATION



VERTICAL PLAN INSIDE BUILDING FOOTPRINT

H E5.3 MSB FEEDER, CONCRETE ENCASED
NO SCALE



J E5.3 UFER GROUND SYSTEM DETAIL
NO SCALE

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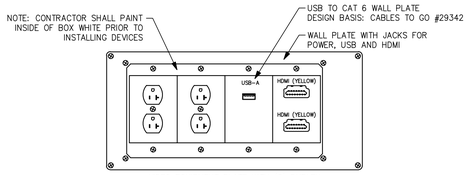
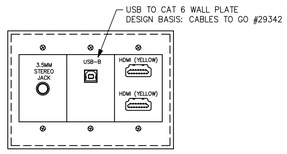


VIDEO EQUIPMENT PLATE WITH (2) DUPLEX RECEPTACLES, (1) USB-A WALL PLATE AND (1) DUAL HDMI WALL PLATE

RECORDEX



TEACHERS PLATE: 3-GANG FLUSH MOUNTED EXTRA DEEP BOX WITH (1) USB-B FACEPLATE, STEREO WALL PLATE, AND (1) HDMI WALL PLATE

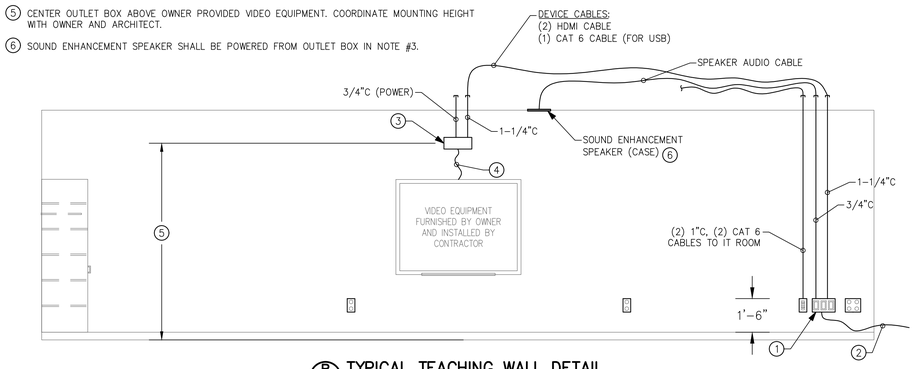
TEACHER

NOTE:
1. FIRST FLOOR LOCATIONS THAT ARE IN EXISTING WALLS SHALL BE SURFACE MOUNT WITH WIREMOLD SIZED TO ACCOMMODATE CABLES.
2. WIREMOLD SHALL BE DUAL CHANNEL TO SEPARATE POWER AND DATA/AV.
3. FIRST FLOOR SYSTEMS WILL NOT BE CONFIGURED WITH STEREO JACK AND SOUND ENHANCEMENT SPEAKERS.

(A) E5.4 TYPICAL VIDEO EQUIPMENT WALL PLATE DETAILS
NO SCALE

KEYED NOTES:

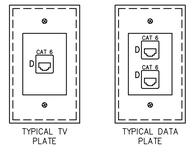
1. OUTLET BOX, 3-GANG EXTRA DEEP BOX, WALL PLATE WITH (2) HDMI FEMALE-FEMALE JACKS; USB-B TO CAT 6 WALL PLATE, AND STEREO CABLE CONNECTORS.
2. PATCH CABLES FROM TEACHER WORKSTATION SHALL BE CONTRACTOR PROVIDED.
3. OUTLET BOX FOR OWNER FURNISHED AND CONTRACTOR INSTALLED VIDEO EQUIPMENT. SEE DETAIL A/E5.4, BOX DESIGN BASIS: ARLINGTON TVBS613. WALL PLATE WITH (2) HDMI FEMALE JACKS, (2) DUPLEX RECEPTACLES, AND (1) USB-A TO CAT 6 WALL PLATE.
4. PATCH CABLES TO DEVICE SHALL BE CONTRACTOR PROVIDED.
5. CENTER OUTLET BOX ABOVE OWNER PROVIDED VIDEO EQUIPMENT. COORDINATE MOUNTING HEIGHT WITH OWNER AND ARCHITECT.
6. SOUND ENHANCEMENT SPEAKER SHALL BE POWERED FROM OUTLET BOX IN NOTE #3.



(B) E5.4 TYPICAL TEACHING WALL DETAIL
NO SCALE

LEGEND
D = DATA RJ45 JACK (GREEN)

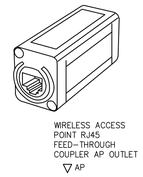
NOTE:
1. ALL OUTLET BOXES FOR STANDARD DATA OUTLETS SHALL BE 2-GANG WITH SINGLE GANG FACEPLATES TO FIX 2 GANG BOX.
2. REFER TO DIVISION 27 SPECIFICATIONS.



TYPICAL TV PLATE

TYPICAL DATA PLATE

(D) E5.4 TYPICAL DATA WALL PLATE DETAILS
NO SCALE



WIRELESS ACCESS POINT RJ45 FEED-THROUGH COUPLER AP OUTLET

(C) E5.4 WIRELESS ACCESS POINT COUPLER DETAIL
NO SCALE

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LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	DESCRIPTION	LAMP	BALLAST	VOLTS	MOUNTING	MANUFACTURER / MODEL	NOTES	CALLOUT
AH		2x4, PRISMATIC LENS	(1) 60W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	COLUMBIA #LJT SERIES DAYBRITE #2T LED SERIES METALUX #2GR LED SERIES	7200 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. 0.156" NOMINAL LENS.	AH
AL		2x4, PRISMATIC LENS	(1) 33W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	COLUMBIA #LJT SERIES DAYBRITE #2T LED SERIES METALUX #2GR LED SERIES	4000 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. 0.156" NOMINAL LENS.	AL
ALF		2x4, PRISMATIC LENS, FLANGED TRIM	(1) 33W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	COLUMBIA #LJT SERIES DAYBRITE #2T LED SERIES METALUX #2GR LED SERIES	4000 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. 0.156" NOMINAL LENS. FLANGED TRIM FOR RECESSED MOUNTING IN GYPBOARD CEILING.	ALF
BH		2x4, ARCHITECTURAL LENSED, INDIRECT	(1) 67W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	COLUMBIA #LCAT SERIES DAYBRITE #2EV SERIES METALUX #24CZ SERIES	6800 NOMINAL LUMENS. 3500K COLOR TEMPERATURE.	BH
BL		2x4, ARCHITECTURAL LENSED, INDIRECT	(1) 40W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	COLUMBIA #LCAT SERIES DAYBRITE #2EV SERIES METALUX #24CZ SERIES	4300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE.	BL
BLN		2x4, ARCHITECTURAL LENSED, INDIRECT, NIGHT LIGHT	(1) 40W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	COLUMBIA #LCAT SERIES DAYBRITE #2EV SERIES METALUX #24CZ SERIES	4300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. CONNECT TO UNSWITCHED CIRCUIT.	BLN
BM		2x4, ARCHITECTURAL LENSED, INDIRECT	(1) 47W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	COLUMBIA #LCAT SERIES DAYBRITE #2EV SERIES METALUX #24CZ SERIES	5300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE.	BM
BMS		2x4, ARCHITECTURAL LENSED, INDIRECT, SURFACE MOUNT	(1) 47W LED	LED DIMMABLE DRIVER	120V 1P 2W	SURFACE	COLUMBIA #LCAT SERIES DAYBRITE #2EV SERIES METALUX #24CZ SERIES	5300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. PROVIDE SURFACE MOUNT KIT.	BMS
CS		1x4, ARCHITECTURAL LENSED, INDIRECT, SURFACE MOUNT	(1) 33W LED	LED DIMMABLE DRIVER	120V 1P 2W	SURFACE	COLUMBIA #LZPT SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	3300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. PROVIDE SURFACE MOUNT KIT.	CS
D2		4' DIRECT/INDIRECT, INTEGRAL OCCUPANCY SENSOR	(1) 44W LED	LED DIMMABLE DRIVER	120V 1P 2W	SURFACE; MTD TO BOTTOM OF BEAM	FINELITE #HP-4ID SERIES LEDALITE #TRUGROOVE SERIES NEO-RAY #DEFINE 4 SERIES	4600 NOMINAL LUMENS. 60/40 DIRECT/INDIRECT RATIO PER 4 FOOT. 3500K COLOR TEMPERATURE.	D2
D2P		4' DIRECT/INDIRECT PENDANT, INTEGRAL OCCUPANCY SENSOR	(1) 44W LED	LED DIMMABLE DRIVER	120V 1P 2W	PENDANT; MTD 9'-0" AFF	FINELITE #HP-4ID SERIES LEDALITE #TRUGROOVE SERIES NEO-RAY #DEFINE 4 SERIES	4600 NOMINAL LUMENS. 60/40 DIRECT/INDIRECT RATIO PER 4 FOOT. 3500K COLOR TEMPERATURE. COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECT.	D2P
EG		EMERGENCY EGRESS, BATTERY	(2) 6W MR16 LED	BATTERY	120V 1P 2W	SURFACE	EMERGILITE #PREMIER SERIES CHLORIDE #CM-23200 SERIES LIGHTALARMS #2GRA1 SERIES	NICAD BATTERY; CONNECT TO NEAREST UNSWITCHED LIGHT CIRCUIT IN SAME SPACE. THESE FIXTURES ARE NOT TAGGED WITH "EG" ON THE DRAWINGS; ONLY THE SYMBOL IS USED.	EG
GM		4' GASKETED	(1) 45W LED	LED DRIVER	120V 1P 2W	SURFACE	WILLIAMS #96 SERIES DAYBRITE #V2 SERIES METALUX #4VT SERIES	5300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. STAINLESS STEEL MOUNTING HARDWARE & LENS CLAMPS.	GM
H		4' GASKETED LED, VERTICALLY MOUNTED	(1) 40W LED	LED DRIVER	120V 1P 2W	WALL; 8'-0" AFF	PARAMOUNT #CO SERIES PHILIPS EQUIVALENT FAILSAFE #HVSL2 SERIES	4000 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. STAINLESS STEEL MOUNTING HARDWARE & LENS CLAMPS. VERTICALLY MOUNTED. COORDINATE LOCATION WITH ELEVATOR INSTALLER / VENDOR.	H
IL		4' INDUSTRIAL	(1) 30W LED	LED DRIVER	120V 1P 2W	PENDANT/SURFACE	COLUMBIA #LCR SERIES DAYBRITE #FSS SERIES METALUX #SNLED SERIES	3700 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. WIRE GUARD.	IL
IM		4' INDUSTRIAL	(1) 40W LED	LED DIMMABLE DRIVER	120V 1P 2W	PENDANT/SURFACE	COLUMBIA #LCR SERIES DAYBRITE #FSS SERIES METALUX #SNLED SERIES	5300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. WIRE GUARD.	IM
INV25		INVERTER, EGRESS LIGHTING	N/A	BATTERY	120V 1P 2W	SURFACE	EMERGI-LITE #EMIU SERIES HIGH-LITES #PCF SERIES IOTA #IIS SERIES	INVERTER FOR BATTERY BACKUP OF EGRESS LIGHTING; 250W FOR 90 MINUTES (MINIMUM). INCLUDE SELF-DIAGNOSTIC OPTION. LOCATE ABOVE CEILING – PROVIDE LABEL ON CEILING GRID BELOW INSTALLED LOCATION "LIGHTING INVERTER".	INV25
SL		2x4, ARCHITECTURAL LENSED, INDIRECT, SURFACE MOUNT	(1) 43W LED	LED DIMMABLE DRIVER	120V 1P 2W	SURFACE	COLUMBIA #LZPT SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	4400 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. PROVIDE SURFACE MOUNT KIT.	SL
SM		2x4, ARCHITECTURAL LENSED, INDIRECT, SURFACE MOUNT	(1) 48W LED	LED DIMMABLE DRIVER	120V 1P 2W	SURFACE	COLUMBIA #LZPT SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	5300 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. PROVIDE SURFACE MOUNT KIT.	SM
ST		STAIR LIGHT, ANGLED CURVED LENS, INTEGRAL BATTERY BACKUP	(1) 43W LED	BATTERY	120V 1P 2W	WALL; 8'-6" ABOVE LANDING	FINELITE #HP-WM-D SERIES LEDALITE #TRUGROOVE SERIES NEO-RAY #DEFINE 4 SERIES	4000 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. INTEGRAL OCCUPANCY SENSOR FOR 100% OUTPUT, USER SELECTABLE STANDBY OUTPUT.	ST
TL		TRACK FIXTURE	30W LED	DIMMING	120V 1P 2W	TRACK	WAC LIGHTING #WTK SERIES LIGHTOLIER #LAV SERIES HALO #L808 SERIES	1500 NOMINAL LUMENS. PROVIDE 4 SPOTS & 4 FLOODS, 3500K COLOR TEMPERATURE.	TL
TR		TRACK		DIMMING	120V 1P 2W	CEILING	WAC LIGHTING #WT SERIES LIGHTOLIER # ADVENT LYTESPAN SERIES HALO #L64 POWERTRAC SERIES	2-CIRCUIT TRACK; LENGTH AS SHOWN ON PLANS. SEE PLANS FOR MOUNTING HEIGHT. WHERE INDICATED MOUNTED TO GRID, SUPPORT WITH MANUFACTURER GRID ATTACHMENT HARDWARE. FINISH SELECTION BY ARCHITECT.	TR
V		2' VANITY FIXTURE	(1) 30W LED	LED DRIVER	120V 1P 2W	WALL	COLUMBIA #CWM-2 SERIES DAY-BRITE #FSW-2 SERIES TERON #DD24 SERIES	3200 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. FROSTED LENS. COORINATE EXACT LOCATION AND HEIGHT WITH ARCHITECT.	V
V4		4' VANITY FIXTURE	(1) 38W LED	LED DRIVER	120V 1P 2W	WAL	COLUMBIA #CWM-4 SERIES DAY-BRITE #FSW-4 SERIES TERON #DD48 SERIES	4100 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. FROSTED LENS. COORINATE EXACT LOCATION AND HEIGHT WITH ARCHITECT.	V4
VV		2' VANITY FIXTURE, VERTICALLY MOUNTED	(1) 30W LED	LED DRIVER	120V 1P 2W	WALL; OVER EXISTING J-BOX	COLUMBIA #CWM-2 SERIES DAY-BRITE #FSW-2 SERIES TERON #DD24 SERIES	3200 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. FROSTED LENS. COORDINATE EXACT LOCATION WITH ARCHITECT.	VV
W		HALF CYLINDER WALL PACK	(1) 28W LED	LED DRIVER	120V 1P 2W	WALL; 7'-0" TO BOTTOM OF FIXTURE	DECO LIGHTING #D440 SERIES GARDCO #104L SERIES RAYON #T650L SERIES	2000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. TYPE IV DISTRIBUTION. INTEGRAL PHOTOCELL. DOWNLIGHT ONLY. FINISH SELECTION BY ARCHITECT. COORDINATE MOUNTING HEIGHT WITH ARCHITECT. CONNECT TO UNSWITCHED LIGHT CIRCUIT FROM SPACE THAT IS EXITED.	W
WB		HALF CYLINDER WALL PACK, INTEGRAL BATTERY BACKUP	(1) 20W LED (1) 20W LED	LED DRIVER LED DRIVER	120V 1P 2W	6" ABOVE DOOR HEIGHT	DECO LIGHTING #D440 SERIES GARDCO #104L SERIES RAYON #T650L SERIES	3800 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. TYPE IV DISTRIBUTION. INTEGRAL BATTERY BACKUP. INTEGRAL PHOTOCELL. DUAL LED DRIVERS. DUAL LED ARRAYS. DOWNLIGHT ONLY. FINISH SELECTION BY ARCHITECT. CONNECT TO UNSWITCHED LIGHT CIRCUIT FROM SPACE THAT IS EXITED.	WB
WNP		HALF CYLINDER WALL PACK	(1) 28W LED	LED DRIVER	120V 1P 2W	WALL; 7'-0" TO BOTTOM OF FIXTURE	DECO LIGHTING #D440 SERIES GARDCO #104L SERIES RAYON #T650L SERIES	2000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. TYPE IV DISTRIBUTION. FINISH SELECTION BY ARCHITECT. COORDINATE MOUNTING HEIGHT WITH ARCHITECT. DOWNLIGHT ONLY.	WNP
WR		1x4 SURFACE WRAP, INTEGRAL OCCUPANCY SENSOR	(1) 46W LED	LED DRIVER	120V 1P 2W	SURFACE	DECO LIGHTING #DACH-LED-R DAY-BRITE #FSS SERIES METALUX #SRL LED SERIES	5200 NOMINAL LUMENS. 3500K COLOR TEMPERATURE. KNOCK OUTS ON ENDS OF FIXTURE AS WELL AS ABILITY TO MOUNT TO RECESSED JUNCTION BOX.	WR
X	⊗	EXIT SIGN, BATTERY BACKUP	(2) 1W LED	BATTERY	120V 1P 2W	UNIVERSAL	DUAL-LITE #SE SERIES LIGHTALARMS #QLXN500R SURE-LITES #LPX SERIES	NICAD BATTERY; CONNECT TO NEAREST UNSWITCHED LIGHT CIRCUIT IN SAME SPACE. THESE FIXTURES ARE NOT TAGGED WITH "X" ON THE DRAWINGS; ONLY THE SYMBOL IS USED.	X

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Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL
LUMINAIRE
SCHEDULE

E6.1

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MSB

ROOM: ELEC E2 | VOLTS: 208Y/120V 3P 4W | AIC: 25,000
MOUNTING: SURFACE | BUS AMPS: 1600 | MAIN BKR: 1600
FED FROM: UTILITY | NEUTRAL: 100% | LUGS: STANDARD
NOTE: ULSE LISTED AND LABELED. PROVIDE MULTIFUNCTION DIGITAL METER

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	70/3	SPD1	0			2	225/3	PANEL 2A	6.77		
3	|			0		4	|			8.21	
5	|				0	6	|				6.46
7	100/3	PANEL L	4.74			8	225/3	PANEL 2B	12.7		
9	|			2.87		10	|			15	
11	|				5.37	12	|				14
13	300/2	XFMR TCAFE	19.2			14	100/2	PANEL EXT	2.22		
15	|			19.2		16	|			2.04	
17	450/3	PANEL M2A			41.3	18	200/2	PANEL C			0
19	|		41.2			20	|		0		
21	|			41.2		22	225/2	PANEL D		9.86	
23	450/3	PANEL M2B			44.9	24	|				7.98
25	|		43.8			26	250/2	PANEL HVAC	19.6		
27	|			42.8		28	|			19.6	
29	225/2	PANEL A			8.56	30	60/2	PANEL BOILER			0
31	|		4.53			32	|		0		
33	200/2	PANEL B		7.41		34	−/3	SPACE ONLY		0	
35	|				5.47	36	|				0
37	−/3	SPACE ONLY	0			38	|		0		
39	|			0		40	−/1	SPACE ONLY		0	
41	|				0	42	−/1	SPACE ONLY			0
								TOTAL CONNECTED KVA BY PHASE	155	168	134
								TOTAL CONNECTED AMPS BY PHASE	1,290	1,400	1,120

	CONN KVA	CALC KVA	
LIGHTING	22	27.5	(125%)
LARGEST MOTOR	11.3	14.2	(125%)
OTHER MOTORS	1.36	136	(100%)
RECEPTACLES	52	31	(50%>10)
KITCHEN EQUIP	0	0	(N/A)

	CONN KVA	CALC KVA	
CONTINUOUS	3.5	4.38	(125%)
HEATING	142	142	(100%)
COOLING	53.1	0	(0%)
NONCONTINUOUS	50.2	50.2	(100%)
DIVERSE	38.4	38.4	(100%)
METERED DEMAND	0	0	(125%)
TOTAL KVA	457	443	
BALANCED 3−PHASE AMPS		1,230	

2A

ROOM: ELEC E2 | VOLTS: 208Y/120V 3P 4W | AIC: 18,000
MOUNTING: SURFACE | BUS AMPS: 225 | MAIN BKR: MLO
FED FROM: MSB | NEUTRAL: 100% | LUGS: STANDARD
NOTE:

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/1	FAN F−19, REC	0.51			2	20/1	REC	0.72		
3	20/1	FAN F−20, REC		0.87		4	20/1	REC, REC−GFCI		0.72	
5	20/1	REC			0.9	6	20/1	(*) REC−EWC			0.6
7	20/1	REC−COPIER	1			8	20/1	(**) HEAT TRACE CONTROLLER	0.5		
9	20/1	REC		1.08		10	20/1	REC, VIDEO EQUIP		1.3	
11	20/1	REC			0.54	12	20/1	REC			1.08
13	20/1	REC	0.9			14	20/1	REC, VIDEO EQUIP	0.94		
15	20/1	REC, REC−FLOOR, VIDEO EQUIP		1.3		16	20/1	REC		0.72	
17	20/1	REC			1.08	18	20/1	REC			0.18
19	20/1	REC, VIDEO EQUIP	1.12			20	20/1	SPARE	0		
21	20/1	REC, VIDEO EQUIP		1.12		22	20/1	SPARE		0	
23	20/1	REC			1.08	24	20/1	SPARE			0
25	20/1	REC	0.54			26	20/1	SPARE	0		
27	20/1	(*) REC−REFRIGERATOR		1		28	20/1	SPARE		0	
29	20/1	REC−COPIER			1	30	20/1	SPARE			0
31	20/1	REC	0.54			32	20/1	SPARE	0		
33	20/1	SHUNT TRIP		0.1		34	20/1	SPARE		0	
35	20/1	SPARE			0	36	20/1	SPARE			0
37	20/1	SPARE	0			38	20/1	SPARE	0		
39	20/1	SPARE		0		40	20/1	SPARE		0	
41	20/1	SPARE			0	42	20/1	SPARE			0
43	20/1	SPARE	0			44	20/1	SPARE	0		
45	20/1	SPARE		0		46	20/1	SPARE		0	
47	20/1	SPARE			0	48	20/1	SPARE			0
49	20/1	SPARE	0			50	20/1	SPARE	0		
51	20/1	SPARE		0		52	20/1	SPARE		0	
53	20/1	SPARE			0	54	20/1	SPARE			0
								TOTAL CONNECTED KVA BY PHASE	6.77	8.21	6.46
								TOTAL CONNECTED AMPS BY PHASE	56.4	68.4	53.8

	CONN KVA	CALC KVA	
LIGHTING	0	0	(125%)
LARGEST MOTOR	0.15	0.188	(125%)
OTHER MOTORS	0.15	0.15	(100%)
RECEPTACLES	14.9	12.5	(50%>10)
KITCHEN EQUIP	0	0	(N/A)

	CONN KVA	CALC KVA	
CONTINUOUS	0.5	0.625	(125%)
HEATING	0	0	(N/A)
COOLING	0	0	(N/A)
NONCONTINUOUS	5.7	5.7	(100%)
DIVERSE	0	0	(N/A)
METERED DEMAND	0	0	(125%)
TOTAL KVA	21.4	19.1	
BALANCED 3−PHASE AMPS		53.1	

(*) PROVIDE GFCI C/B (5mA) (**) PROVIDE GFEP C/B (30mA)

2B

ROOM: ELEC E2 | VOLTS: 208Y/120V 3P 4W | AIC: 18,000
MOUNTING: SURFACE | BUS AMPS: 225 | MAIN BKR: MLO
FED FROM: MSB | NEUTRAL: 100% | LUGS: STANDARD
NOTE:

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/1	REC	0.9			2	20/1	REC, VIDEO EQUIP	1.3		
3	20/1	REC		0.54		4	20/1	REC		0.9	
5	20/1	REC			0.36	6	20/1	REC			0.9
7	20/1	REC, REC−EXT GFCI	1.08			8	20/1	REC, VIDEO EQUIP	1.3		
9	20/1	REC, VIDEO EQUIP		1.3		10	20/1	REC, VIDEO EQUIP		1.3	
11	20/1	REC, VIDEO EQUIP			1.3	12	20/1	REC			0.9
13	20/1	REC	0.9			14	20/1	SECURITY SYSTEM	0.2		
15	20/1	REC		0.9		16	20/1	REC		0.54	
17	20/1	REC, VIDEO EQUIP			1.3	18	20/1	DDC J−BOX, REC			0.51
19	20/1	VIDEO EQUIP	0.4			20	20/1	PA SYSTEM	0.36		
21	20/1	SPARE		0		22	20/2	REC−DATA		1.5	
23	20/1	SPARE			0	24	|				1.5
25	20/1	SPARE	0			26	25/2	REC−DATA	2.5		
27	20/1	SPARE		0		28	|			2.5	
29	20/1	SPARE			0	30	20/1	REC			0.72
31	20/1	SPARE	0			32	20/2	REC−DATA	1.5		
33	20/1	SPARE		0		34	|			1.5	
35	20/1	SPARE			0	36	20/2	REC−DATA			1.5
37	20/1	SPARE	0			38	|		1.5		
39	20/1	SPARE		0		40	25/2	REC−DATA		2.5	
41	20/1	SPARE			0	42	|				2.5
43	20/1	SPARE	0			44	20/1	REC	0.72		
45	20/1	SPARE		0		46	20/2	REC−DATA		1.5	
47	20/1	SPARE			0	48	|				1.5
49	20/1	SPARE	0			50	20/1	SPARE	0		
51	20/1	SPARE		0		52	20/1	SPARE		0	
53	20/1	SPARE			0	54	20/1	(#) FIRE ALARM PANEL			1
								TOTAL CONNECTED KVA BY PHASE	12.7	15	14
								TOTAL CONNECTED AMPS BY PHASE	106	125	118

	CONN KVA	CALC KVA	
LIGHTING	0	0	(125%)
LARGEST MOTOR	0	0	(N/A)
OTHER MOTORS	0	0	(100%)
RECEPTACLES	15.5	12.7	(50%>10)
KITCHEN EQUIP	0	0	(N/A)

	CONN KVA	CALC KVA	
CONTINUOUS	0	0	(125%)
HEATING	0	0	(N/A)
COOLING	0	0	(N/A)
NONCONTINUOUS	26.2	26.2	(100%)
DIVERSE	0	0	(N/A)
METERED DEMAND	0	0	(125%)
TOTAL KVA	41.6	38.9	
BALANCED 3−PHASE AMPS		108	

(#) BREAKER LOCK

L

ROOM: ELEC E2 | VOLTS: 208Y/120V 3P 4W | AIC: 18,000
MOUNTING: SURFACE | BUS AMPS: 100 | MAIN BKR: MLO
FED FROM: MSB | NEUTRAL: 100% | LUGS: STANDARD
NOTE:

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/1	EGRESS, EXIT, LTG, LTG−NL	1.36			2	20/1	EGRESS, EXIT, LTG, LTG−NL	0.704		
3	20/1	EGRESS, EXIT, INVERTER, LTG, LTG−NL, LTG−WALLPACK		0.339		4	20/1	EGRESS, LTG		1.22	
5	20/1	EGRESS, LTG			1.31	6	20/1	EGRESS, LTG			1.22
7	20/1	EGRESS, FAN F−14, FAN F−15, LIGHTING, LTG	1.45			8	20/1	EGRESS, LTG	1.22		
9	20/1	EGRESS, FAN F−16, FAN F−17, FAN F−18, LTG		0.959		10	20/1	EXTERIOR LTG		0.3	
11	20/1	EGRESS, LTG			0.92	12	20/1	ELEV CAB LTS			1
13	20/1	SPARE	0			14	20/1	SPARE	0		
15	20/1	LTG		0.047		16	20/1	SPARE		0	
17	20/1	EGRESS, ELEV SHAFT LTG, EXIT, EXTERIOR LTG, LIGHTING, LTG, LTG−WALLPACK			0.811	18	20/1	SPARE			0
19	20/1	SPARE	0			20	20/1	SPARE	0		
21	20/1	SPARE		0		22	20/1	SPARE		0	
23	20/1	SPARE			0	24	20/1	LTG CONTROL			0.1
25	20/1	SPARE	0			26	30/3	SPD2	0		
27	20/1	SPARE		0		28	|			0	
29	20/1	SPARE			0	30	|				0
								TOTAL CONNECTED KVA BY PHASE	4.74	2.87	5.37
								TOTAL CONNECTED AMPS BY PHASE	39.5	23.9	44.7

	CONN KVA	CALC KVA	
LIGHTING	12.2	15.3	(125%)
LARGEST MOTOR	0.15	0.188	(125%)
OTHER MOTORS	0.6	0.6	(100%)
RECEPTACLES	0	0	(50%>10)
KITCHEN EQUIP	0	0	(N/A)

	CONN KVA	CALC KVA	
CONTINUOUS	0	0	(125%)
HEATING	0	0	(N/A)
COOLING	0	0	(N/A)
NONCONTINUOUS	0	0	(100%)
DIVERSE	0	0	(N/A)
METERED DEMAND	0	0	(125%)
TOTAL KVA	13	16.1	
BALANCED 3−PHASE AMPS		44.6	

M2A

ROOM: ELEC E2 | VOLTS: 208Y/120V 3P 4W | AIC: 25,000
MOUNTING: SURFACE | BUS AMPS: 600 | MAIN BKR: MLO
FED FROM: MSB | NEUTRAL: 100% | LUGS: STANDARD
NOTE:

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	20/3	H20 HTR	2			2	40/3	(*) ELEVATOR	3.43		
3	|			2		4	|			3.43	
5	|				2	6	|				3.43
7	50/3	WMHP#2213	5.01			8	20/1	CIRC. PUMP	0.1		
9	|			5.01		10	60/3	WMHP#2203		6.03	
11	|				5.01	12	|				6.03
13	60/3	WMHP#2211	6.03			14	|		6.03		
15	|			6.03		16	50/3	WMHP#2201		5.57	
17	|				6.03	18	|				5.57
19	50/3	WMHP#2205	5.57			20	|		5.57		
21	|			5.57		22	60/3	WMHP#2101		5.91	
23	|				5.57	24	|				5.91
25	20/3	AIR COMPRESSOR	0.942			26	|		5.91		
27	|			0.942		28	20/3	EWH#1		0.75	
29	|				0.942	30	|				0.75
31	−/3	SPACE ONLY	0			32	|		0.75		
33	|			0		34	−/3	SPACE ONLY		0	
35	|				0	36	|				0
37	−/3	SPACE ONLY	0			38	|		0		
39	|			0		40	−/3	SPACE ONLY		0	
41	|				0	42	|				0
43	−/3	SPACE ONLY	0			44	|		0		
45	|			0		46	−/3	SPACE ONLY		0	
47	|				0	48	|				0
49	30/3	SPD3	0			50	|		0		
51	|			0		52	−/1	SPACE ONLY		0	
53	|				0	54	−/1	SPACE ONLY			0
								TOTAL CONNECTED KVA BY PHASE	41.3	41.2	41.2
								TOTAL CONNECTED AMPS BY PHASE	344	343	343

	CONN KVA	CALC KVA	
LIGHTING	0	0	(125%)
LARGEST MOTOR	11.3	14.2	(125%)
OTHER MOTORS	63.6	63.6	(100%)
RECEPTACLES	0	0	(50%>10)
KITCHEN EQUIP	0	0	(N/A)

	CONN KVA	CALC KVA	
CONTINUOUS	0	0	(125%)
HEATING	42.8	42.8	(100%)
COOLING	0	0	(N/A)
NONCONTINUOUS	6.1	6.1	(100%)
DIVERSE	0	0	(N/A)
METERED DEMAND	0	0	(125%)
TOTAL KVA	124	127	
BALANCED 3−PHASE AMPS		351	

(*) PROVIDE SHUNT TRIP C/B

M2B

ROOM: ELEC E2 | VOLTS: 208Y/120V 3P 4W | AIC: 25,000
MOUNTING: SURFACE | BUS AMPS: 600 | MAIN BKR: MLO
FED FROM: MSB | NEUTRAL: 100% | LUGS: STANDARD
NOTE:

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	60/3	WMHP#2200	5.91			2	30/3	SPD4	0		
3	|			5.91		4	|		0		
5	|				5.91	6	|			0	
7	50/3	WMHP#2202	5.57			8	50/3	WMHP#2206	5.57		
9	|			5.57		10	|			5.57	
11	|				5.57	12	|				5.57
13	50/3	WMHP#2204	5.57			14	50/3	WMHP#2208	5.57		
15	|			5.57		16	|			5.57	
17	|				5.57	18	|				5.57
19	25/2	DAHU#2, DHP#2	2.08			20	50/3	WMHP#2210	5.57		
21	|			2.08		22	|			5.57	
23	15/2	HP−ODU9			1.14	24	|				5.57
25	|		1.14			26	50/3	WMHP#2212	5.57		
27	20/3	H20 HTR		2.33		28	|			5.57	
29	|				2.33	30	|				5.57
31	|		2.33			32	−/3	SPACE ONLY	0		
33	20/2	HP−IDU9B		0.016		34	|			0	
35	|				0.016	36	|				0
37	20/2	HP−IDU9A	0.016			38	−/3	SPACE ONLY	0		
39	|			0.016		40	|			0	
41	−/3	SPACE ONLY			0	42	|				0
43	|		0			44	−/3	SPACE ONLY	0		
45	|			0		46	|			0	
47	−/3	SPACE ONLY			0	48	|				0
49	|		0			50	−/3	SPACE ONLY	0		
51	|			0		52	|			0	
53	−/1	SPACE ONLY			0	54	|				0
								TOTAL CONNECTED KVA BY PHASE	44.9	43.8	42.8
								TOTAL CONNECTED AMPS BY PHASE	374	365	357

	CONN KVA	CALC KVA	
LIGHTING	0	0	(125%)
LARGEST MOTOR	11	13.7	(125%)
OTHER MOTORS	60	60	(100%)
RECEPTACLES	0	0	(50%>10)
KITCHEN EQUIP	0	0	(N/A)

	CONN KVA	CALC KVA	
CONTINUOUS	0	0	(125%)
HEATING	53.6	53.6	(100%)
COOLING	6.3	0	(0%)
NONCONTINUOUS	7	7	(100%)
DIVERSE	0	0	(N/A)
METERED DEMAND	0	0	(125%)
TOTAL KVA	132	134	
BALANCED 3−PHASE AMPS		373	

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 17593 25 FEB 2019 ENGINEERING MARK A. CIARAMITARO

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

ELECTRICAL
PANEL SCHEDULES

E6.2

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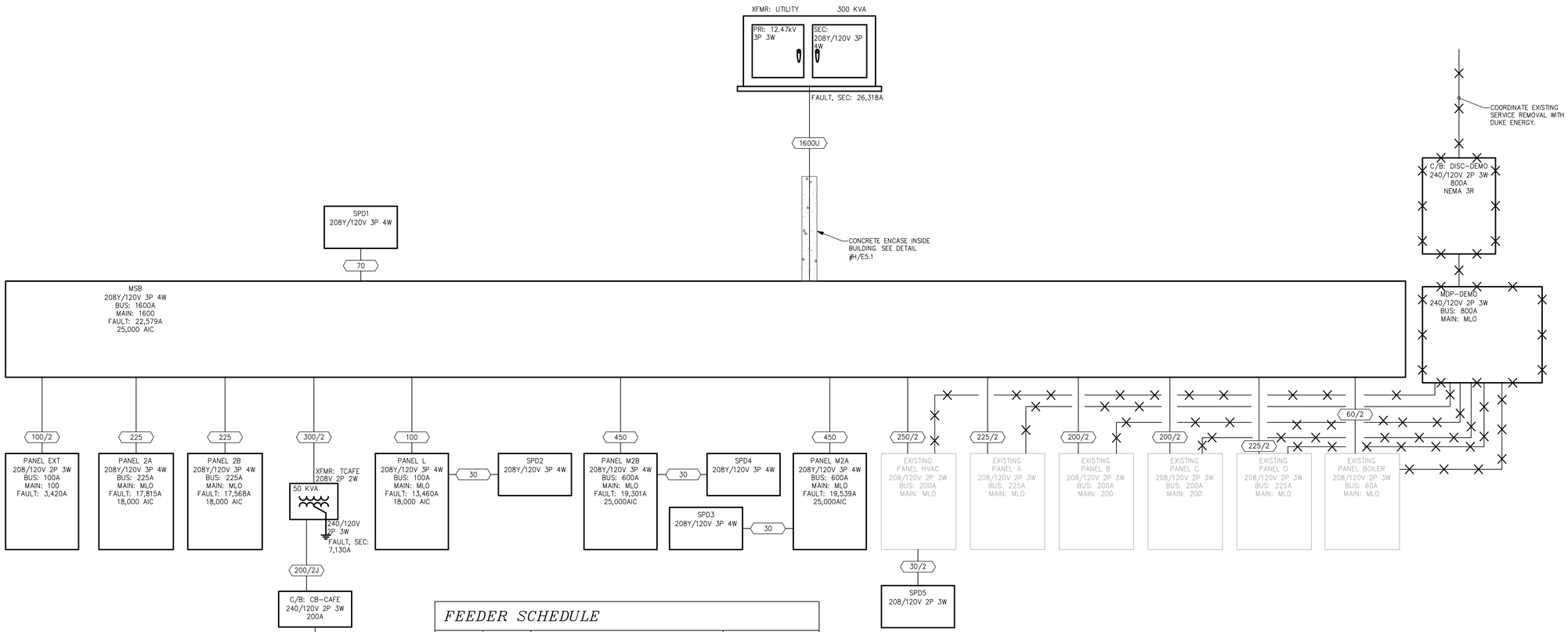
GENERAL NOTES:
1. LIGHT LINE WORK INDICATES EXISTING EQUIPMENT TO REMAIN.
2. DARK SOLID LINE WORK INDICATES NEW EQUIPMENT.
3. DARK HATCHED LINE WORK INDICATES EQUIPMENT OR CIRCUITRY TO BE REMOVED.

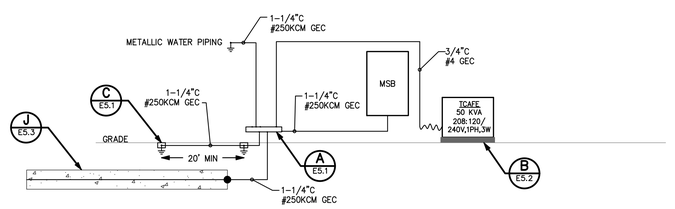


FEEDER SCHEDULE

ID	*FEEDER AMPS*	*CONDUIT AND FEEDER*	*FEEDING THESE DEVICES*
30	30	3/4"C,3#10,#10N,#10G	SPD2, SPD3, SPD4
30/2	30	3/4"C,2#10,#10N,#10G	SPD5
60/2	60	1"C,2#6,#6N,#10G	BOILER
70	70	1-1/4"C,3#4,#4N,#4G	SPD1
100	100	1-1/2"C,3#2,#2N,#8G	L
100/2	100	1-1/4"C,2#2,#2N,#8G	EXT
200/2	200	2"C,2#3/0,#3/0N,#6G	B, C, CAFE
200/2J	200	2"C,2#3/0,#3/0N,#4G	CB-CAFE
225	225	2-1/2"C,3#4/0,#4/0N,#4G	2A, 2B
225/2	225	2"C,2#4/0,#4/0N,#4G	A, D
250/2	250	2-1/2"C,2#250kcmil,#250kcmil N,#4G	HVAC
300/2	300	2"C,2#300kcmil,#4G	TCAFE
450	450	(2)2-1/2"C,3#4/0,#4/0N,#2G	M2A, M2B
1600U	1600	(5)3"C,3#400kcmil,#400kcmil N	MSB

SIZING METHOD: COPPER, 60°C #12 THROUGH #2, 75°C #1 AND ABOVE

A E7.1 ELECTRICAL RISER DIAGRAM
SCALE: NO SCALE



B E7.1 ELECTRICAL GROUNDING SYSTEM RISER DIAGRAM
SCALE: N/A

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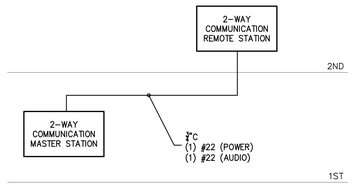
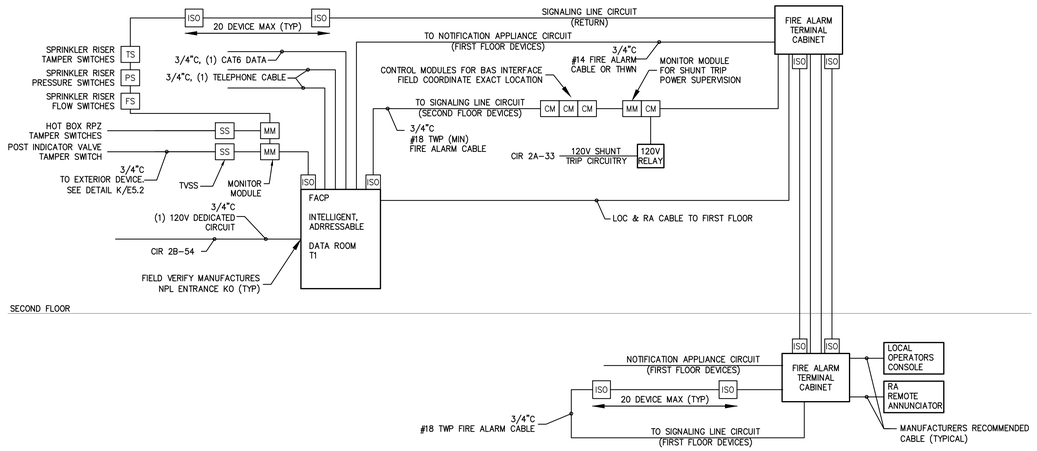


A E7.2 TWO-WAY COMMUNICATIONS RISER
SCALE: NO SCALE

NOTES:
1. COORDINATE EXACT CABLING REQUIREMENTS WITH THE MANUFACTURER AND VENDOR.
2. TWO-WAY COMMUNICATIONS SYSTEM REQUIRED BY 2018 NCSBC 1009.8



NOTE: ALL CIRCUIT BREAKERS FEEDING LIFE SAFETY SYSTEMS SHALL REQUIRE A BREAKER LOCK.

B E7.2 FIRE ALARM SYSTEM RISER DIAGRAM
NO SCALE

FIRE ALARM OPERATION MATRIX

SYSTEM INPUTS	CONTROL UNIT ANNUNCIATION: ACTIVATE COMMON ALARM SIGNAL INDICATOR (A)	ACTIVATE AUDIBLE ALARM SIGNAL (B)	ACTIVATE COMMON SUPERVISORY SIGNAL INDICATOR (C)	ACTIVATE AUDIBLE SUPERVISORY SIGNAL (D)	ACTIVATE COMMON TROUBLE SIGNAL INDICATOR (m)	ACTIVATE AUDIBLE COMMON TROUBLE SIGNAL (F)	NOTIFICATION: ACTIVATE BUILDING FIRE EVACUATION SIGNALS (H)	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION (L)	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION (K)	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION (L)	SEND GENERAL FIRE ALARM SIGNAL TO BAS (M)	SEND GENERAL FIRE SUPERVISORY SIGNAL TO BAS (N)	SEND GENERAL TROUBLE SIGNAL TO BAS (O)	DISPLAY / PRINT CHANGE OF STATUS (P)	CONTROL: RELEASE MAGNETICALLY HELD FIRE DOORS (Q)	RECALL ELEVATOR TO 2ND FLOOR LOBBY (R)	RECALL ELEVATOR TO 1ST FLOOR LOBBY (S)	ACTIVATE ELEVATOR FLASHING HAT INDICATOR (T)	SHUT DOWN ALL BUILDING AIR HANDLERS (U)	ACTIVATE EXTERIOR SPEAKERS & STROBES (V)	ACTIVATE ELEVATOR POWER SHUNT (W)	ACTIVATE ELEVATOR CONTROLLER SHUNT (X)	PA AUDIO SYSTEM AMPLIFIER POWER SHUNT (Y)	SHUNT ADJACENT AREA SPEAKERS (Z)
1 MANUAL PULL STATION	X	X					X	X			X			X											
2 SMOKE/HEAT DETECTORS	X	X					X	X			X			X							X	X			X	
3 SMOKE DETECTOR - ELEVATOR MACHINE ROOM	X	X					X	X			X			X			X	X			X	X		X	X	
4 HEAT DETECTOR - ELEVATOR MACHINE ROOM	X	X					X	X			X			X			X	X	X	X	X	X			X	
5 SMOKE DETECTOR - 1ST FLOOR ELEVATOR LOBBY	X	X					X	X			X			X			X	X			X	X			X	
6 SMOKE DETECTOR - 2ND FLOOR ELEVATOR LOBBY	X	X					X	X			X			X			X		X		X	X			X	
7 HEAT DETECTOR - ELEVATOR PIT	X	X					X	X			X			X			X	X			X	X	X		X	
8 HOOD SUPPRESSION SYS. RELEASE	X	X					X	X			X			X			X				X	X			X	
9 SPRINKLER PRESSURE SWITCH	X	X					X	X			X			X			X				X	X			X	
10 SPRINKLER CONTROL VALVE			X	X					X			X		X												
11 SHUNT TRIP BREAKER PWR. SUPERVISORY			X	X					X					X												
12 FIRE ALARM SYSTEM POWER FAILURE (8 HRS)					X	X					X'			X			X	X								
13 FIRE ALARM SYSTEM LOW BATTERY					X	X					X			X			X	X								
14 OPEN CIRCUIT					X	X					X			X			X	X								
15 GROUND FAULT					X	X					X			X			X	X								
16 NOTIFICATION APPLIANCE CIRCUIT SHORT					X	X					X			X			X	X								
17 AHU SHUTDOWN DEFEAT SWITCH					X	X					X			X			X	X								
18 LOC OR RPU MIC ACTIVATION											X			X			X	X								X

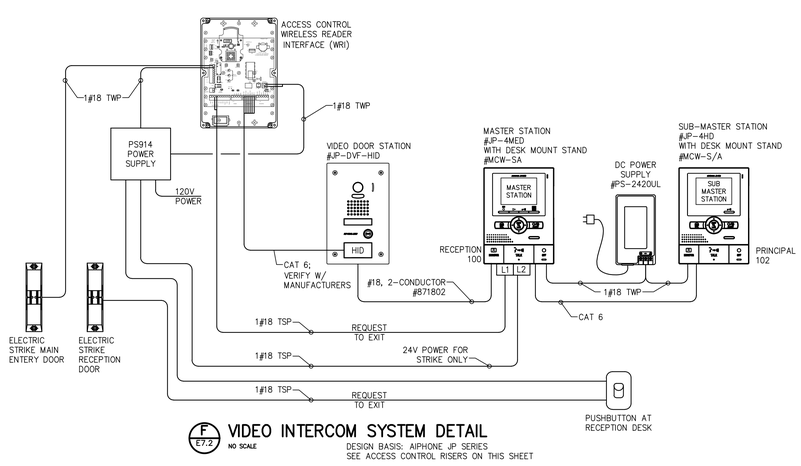
C E7.2 PA SYSTEM RISER DIAGRAM
SCALE: N/A

D E7.2 DATA/TELEPHONE SYSTEMS RISER DIAGRAM
NO SCALE

NOTES:

1. SEE ACCESS CONTROL RISER FOR DOOR CONTROL INTERFACE
2. PROVIDE ZONE EXPANDERS AS REQUIRED TO ACCOMMODATE EACH INTERFACE POINT ON A SEPARATE AND DISTINCT ZONE.
   2.1. EACH DOOR CONTACT SHALL BE A SEPARATE ZONE INTERFACE POINT, EVEN ON DOUBLE DOORS. COMBINING INTERFACE POINTS SHALL NOT BE ACCEPTED
   2.2. EACH MOTION DETECTOR SHALL BE A SEPARATE ZONE INTERFACE POINT. COMBINING INTERFACE POINTS SHALL NOT BE ACCEPTED
   2.3. ZONE EXPANDERS MOUNTED REMOTELY FROM THE SECURITY CONTROL PANEL SHALL BE IN A LOCKABLE ENCLOSURE; LOCK TO MATCH SECURITY CONTROL PANEL
      2.3.1. ENCLOSURES SHALL BE LABELED AS "SECURITY ZONE EXPANDER" "ZONES XX-XX"
      2.3.2. 1/2" HIGH BLACK ON WHITE, BOLD FONT, P-TOUCH TYPE LABEL, APPLIED STRAIGHT & LEVEL

E E7.2 SECURITY SYSTEMS RISER DIAGRAM
NO SCALE



F E7.2 VIDEO INTERCOM SYSTEM DETAIL
NO SCALE

DESIGN BASIS: AIPHONE JP SERIES
SEE ACCESS CONTROL RISERS ON THIS SHEET

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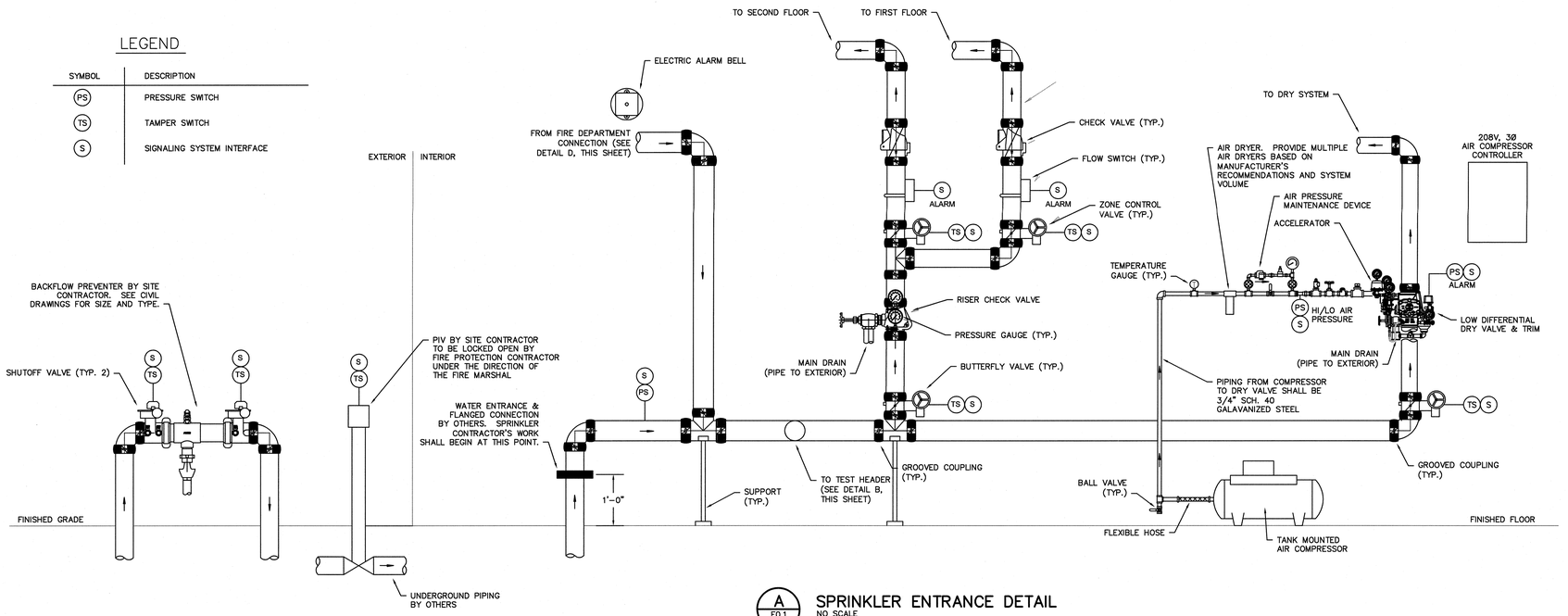
LEGEND

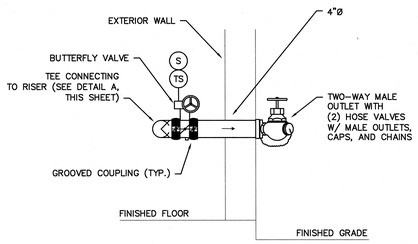
SYMBOL	DESCRIPTION
(PS)	PRESSURE SWITCH
(TS)	TAMPER SWITCH
(S)	SIGNALING SYSTEM INTERFACE



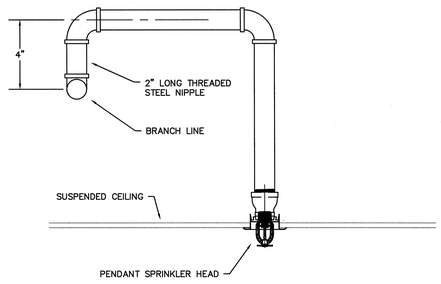
A F0.1 SPRINKLER ENTRANCE DETAIL
NO SCALE

GENERAL NOTES: (APPLIES TO ALL FIRE PROTECTION DRAWINGS)

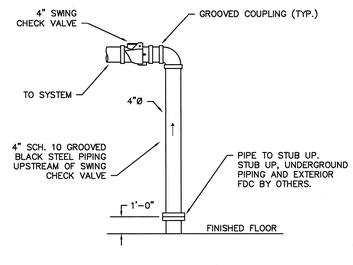
1. SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH BUILDING STRUCTURE AND SYSTEMS, AS WELL AS THE WORK OF OTHER TRADES IN ORDER TO ELIMINATE CONFLICTS.
2. SPRINKLER CONTRACTOR'S DESIGN SHALL BE PER NFPA 13 AND THE NC STATE FIRE CODE (LATEST EDITION APPROVED BY THE NC BUILDING CODE COUNCIL WITH NC AMENDMENTS).
3. PROVIDE AUXILIARY DRAINS WHEREVER WET SYSTEM PIPING IS ROUTED SUCH THAT WATER IS TRAPPED IN EXCESS OF 5 GALLONS, OR WHEREVER DRY SYSTEM PIPING IS ROUTED SUCH THAT ANY AMOUNT OF WATER IS TRAPPED.
4. SLOPE DRY SYSTEM BACK TO RISER OR AUXILIARY DRAINS. MAINS SHALL BE SLOPED AT 1/4" PER 10 FT. AND BRANCHES SHALL BE SLOPED AT 1/2" PER 10 FT. PER NFPA 13.
5. LIGHT HAZARD OCCUPANCIES: PER NFPA 13, DESIGN DENSITY SHALL BE 0.1 GPM PER SQUARE FOOT OVER THE MOST REMOTE 1,500 SQUARE FEET (WET SYSTEM) OR MOST REMOTE 1,950 SQUARE FEET (DRY SYSTEM) WITH REDUCTIONS TO SQUARE FOOTAGE DUE TO USE OF QUICK RESPONSE HEADS PER NFPA 13 AS APPLICABLE. REMOTE AREA SHALL BE INCREASED BY 30% WHERE SPRINKLER ARE LOCATED BELOW SLOPED CEILINGS OR ROOFS WITH SLOPE GREATER THAN 2:12 PER NFPA 13. HOSE ALLOWANCE FOR LIGHT HAZARD SHALL BE 100 GPM PER NFPA 13.
6. ORDINARY HAZARD I OCCUPANCIES: PER NFPA 13, DESIGN DENSITY SHALL BE 0.15 GPM PER SQUARE FOOT OVER THE MOST REMOTE 1,500 SQUARE FEET (WET SYSTEM) OR MOST REMOTE 1,950 SQUARE FEET (DRY SYSTEM) WITH REDUCTIONS TO SQUARE FOOTAGE DUE TO USE OF QUICK RESPONSE HEADS PER NFPA 13 AS APPLICABLE. REMOTE AREA SHALL BE INCREASED BY 30% WHERE SPRINKLER ARE LOCATED BELOW SLOPED CEILINGS OR ROOFS WITH SLOPE GREATER THAN 2:12 PER NFPA 13. HOSE ALLOWANCE FOR ORDINARY HAZARD I SHALL BE 250 GPM PER NFPA 13.
7. SPRINKLER CONTRACTOR SHALL PROVIDE SEISMIC BRACING. DESIGN OF SEISMIC BRACING SHALL BE BY THE SPRINKLER CONTRACTOR OR A LICENSED STRUCTURAL ENGINEER WHOM THE SPRINKLER CONTRACTOR HAS RETAINED THE SERVICES OF. DESIGN SHALL BE PER NFPA 13 AND ASCE-07 FOR SEISMIC DESIGN CATEGORY 'C'.
8. LOCATE SPRINKLER HEADS IN THE CENTER OF CEILING TILES AND IN-LINE WITH LIGHTS AND OTHER CEILING MOUNTED ITEMS.



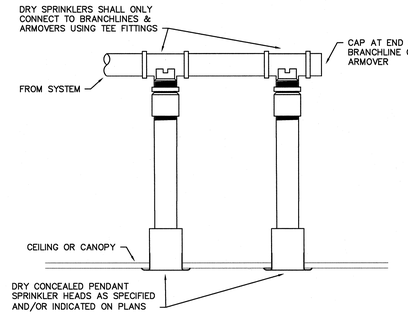
B F0.1 BACKFLOW PREVENTER TEST HEADER DETAIL
NO SCALE



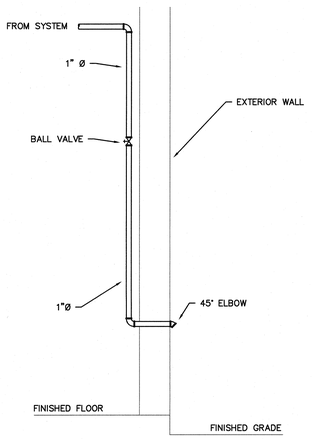
C F0.1 ARMOVER DETAIL
NO SCALE



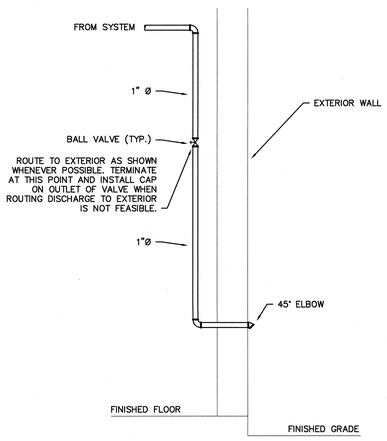
D F0.1 FIRE DEPT. CONNECTION
NO SCALE



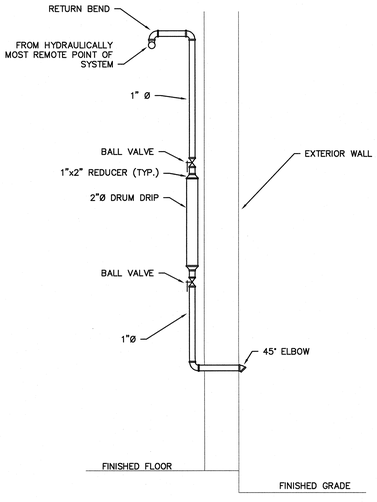
E F0.1 DRY SPRINKLER CONNECTION DETAIL
NO SCALE



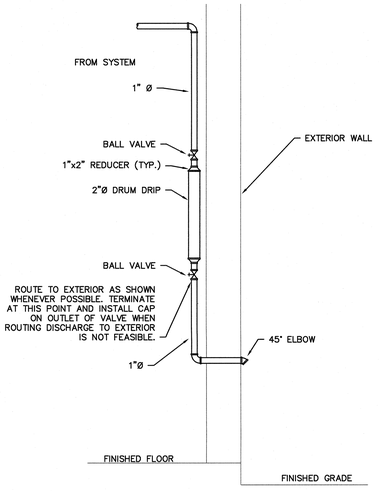
F F0.1 INSPECTOR'S TEST CONNECTION (WET)
NO SCALE



G F0.1 AUXILIARY DRAIN DETAIL (WET)
NO SCALE



H F0.1 INSPECTOR'S TEST CONNECTION (DRY)
NO SCALE



J F0.1 AUXILIARY DRAIN DETAIL (DRY)
NO SCALE

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2/25/19

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Revisions:

FIRE PROTECTION GENERAL NOTES AND DETAILS

F0.1
1 of 4

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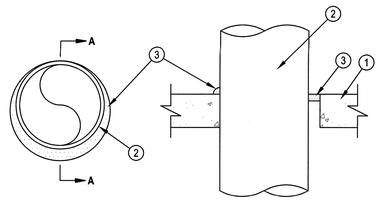
Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

System No. C-AJ-1291

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 2 Hr
	FTH Rating — 0 Hr



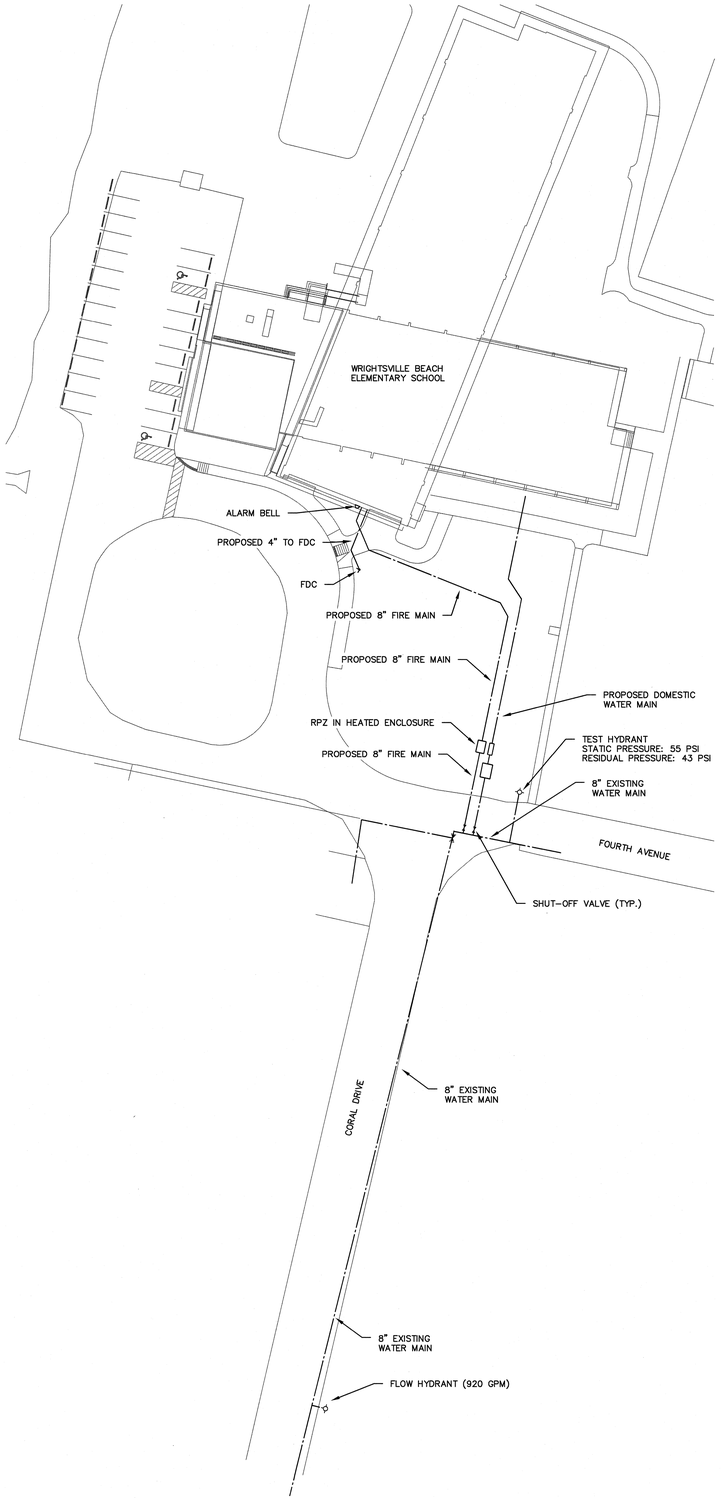
SECTION A-A

1. Floor or Wall Assembly — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 30-7/8 in. (784 mm). See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Through-Penetrant — One metallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe or conduit and periphery of opening shall be min 0 in. to max 7/8 in. (22 mm). Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit.
   F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).
3. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. At the point contact location between pipe and concrete, a min 1/4 in. (6 mm) diam bead of fill material shall be applied at the concrete/pipe interface on the top surface of floor and on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

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

NOTE: DETAIL FOR REFERENCE ONLY. THE CONTRACTOR SHALL INSTALL FIRE PROOFING IN COMPLETE ACCORDANCE WITH ITS UL LISTING AND PENETRATION SYSTEM INSTALLATION INSTRUCTIONS.

B / F0.2 U.L. DETAIL C–AJ–1291
NO SCALE



A / F0.2 FIRE PROTECTION SITE PLAN
1" = 30'–0"
30' 15' 0 30' 60'
SCALE: 1"=30'

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2/25/19

Wrightsville Beach Elementary School Addition & Renovation

220 Coral Drive
Wrightsville Beach, NC

Construction Drawings
February 20, 2019

Revisions:

FIRE PROTECTION SITE PLAN & U.L. DETAILS

F0.2

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PIPING LEGEND

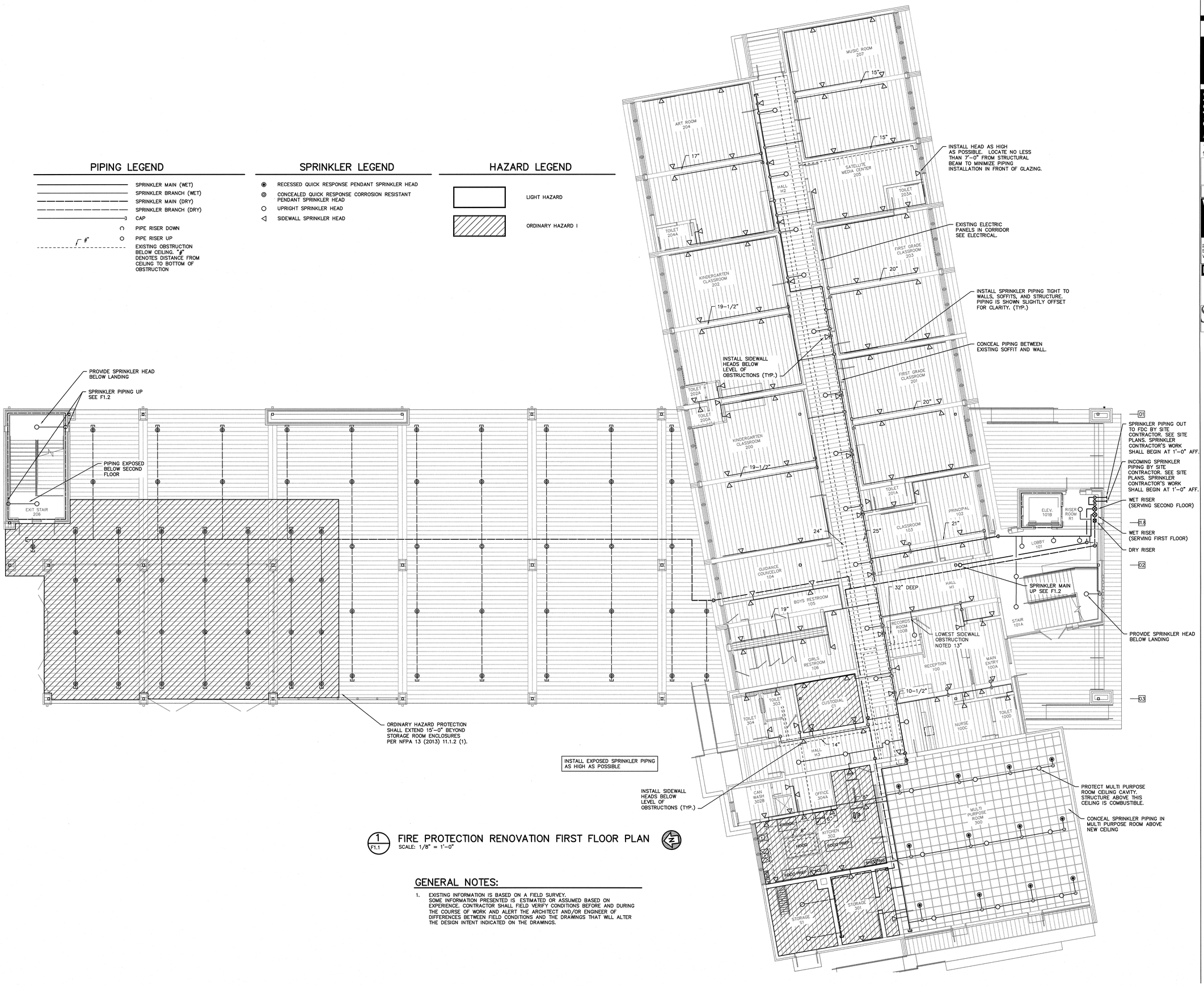
- SPRINKLER MAIN (WET)
- SPRINKLER BRANCH (WET)
- SPRINKLER MAIN (DRY)
- SPRINKLER BRANCH (DRY)
- CAP
- PIPE RISER DOWN
- PIPE RISER UP
- EXISTING OBSTRUCTION BELOW CEILING. "#" DENOTES DISTANCE FROM CEILING TO BOTTOM OF OBSTRUCTION

SPRINKLER LEGEND

- RECESSED QUICK RESPONSE PENDANT SPRINKLER HEAD
- CONCEALED QUICK RESPONSE CORROSION RESISTANT PENDANT SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD

HAZARD LEGEND

- LIGHT HAZARD
- ORDINARY HAZARD I



1 / F1.1 FIRE PROTECTION RENOVATION FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS BEFORE AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL ALTER THE DESIGN INTENT INDICATED ON THE DRAWINGS.

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F1.1

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PIPING LEGEND

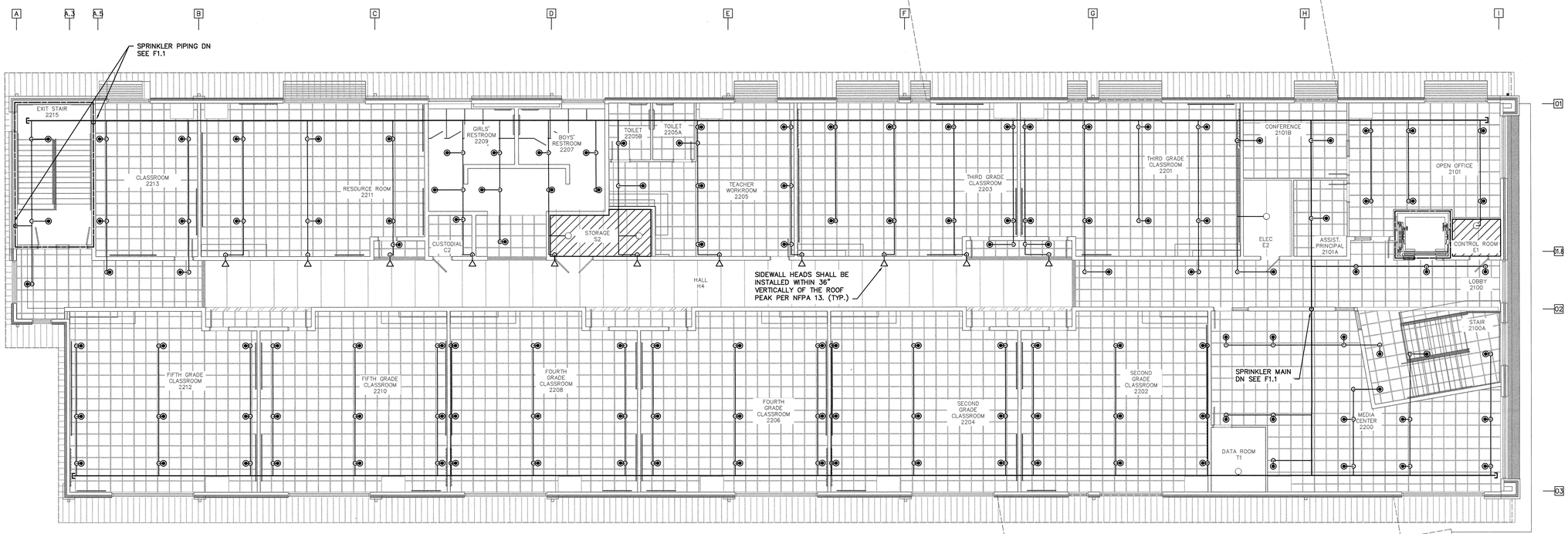
- SPRINKLER MAIN
- SPRINKLER BRANCH
- CAP
- PIPE RISER DOWN
- PIPE RISER UP

SPRINKLER LEGEND

- RECESSED QUICK RESPONSE PENDANT SPRINKLER HEAD
- CONCEALED QUICK RESPONSE CORROSION RESISTANT PENDANT SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD

HAZARD LEGEND

- LIGHT HAZARD
- ORDINARY HAZARD I



1 / F1.2 FIRE PROTECTION SECOND FLOOR PLAN

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

GENERAL NOTES:

1. EXISTING INFORMATION IS BASED ON A FIELD SURVEY. SOME INFORMATION PRESENTED IS ESTIMATED OR ASSUMED BASED ON EXPERIENCE. CONTRACTOR SHALL FIELD VERIFY CONDITIONS BEFORE AND DURING THE COURSE OF WORK AND ALERT THE ARCHITECT AND/OR ENGINEER OF DIFFERENCES BETWEEN FIELD CONDITIONS AND THE DRAWINGS THAT WILL ALTER THE DESIGN INTENT INDICATED ON THE DRAWINGS.

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FIRE PROTECTION SECOND FLOOR PLAN

F1.2

4 of 4

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