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ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR:
DAISY ELEMENTARY SCHOOL
LORIS, HORRY COUNTY SOUTH CAROLINA

CONSTRUCTION DOCUMENT SUBMITTAL: 2021-78VS

HORRY COUNTY BOARD OF EDUCATION

DR. RICK MAXEY, SUPERINTENDENT

NEAL JAMES - W. RUSSELL FREEMAN - SHERRIE TODD - TRACY WINTERS - DAVID COX

HOWARD BARNARD - HELEN SMITH - JANET GRAHAM - MELANIE WELLONS - JAMES EDWARDS - SHANDA ALLEN

KEN RICHARDSON, BOARD CHAIRMAN



CODE REVIEW

GENERAL NOTES:

1. WORK UNDER THIS CONTRACT SHALL ONLY REQUIRE ROOFING SYSTEM REPLACEMENT AND MECHANICAL EQUIPMENT REPLACEMENT ALONG WITH ASSOCIATED WORK NECESSARY FOR THE SYSTEMS REPLACEMENT AS INDICATED ON THESE CONTRACT DOCUMENTS. NO OTHER WORK INVOLVING CIVIL, ARCHITECTURAL, FOOD SERVICE, STRUCTURAL, PLUMBING, OR FIRE SUPPRESSION WILL BE REQUIRED.
2. ARCHITECTURAL RE-DESIGN OF THE FACILITY OR SITE WILL NOT BE REQUIRED UNDER THIS CONTRACT.
3. REFER TO COVER SHEET 2 FOR CODE ANALYSIS PROVIDED FOR THE LAST RENOVATIONS AND ADDITIONS INCORPORATED INTO THIS SCHOOL.
4. ALL WORK UNDER THIS CONTRACT TO BE PERFORMED DURING THE SUMMER SESSION.
5. ALL NEW WORK TO BE INSTALLED PER THE LATEST CURRENT ADOPTED EDITION OF THE INTERNATIONAL BUILDING CODE(S) AND ALL OTHER CODES REFERENCED THROUGHOUT THESE CONTRACT DOCUMENTS.
6. ALL EXISTING EMERGENCY EGRESS PATHWAYS AND EXITS SHALL BE MAINTAINED DURING THE RENOVATION WORK WHILE THE BUILDING IS OCCUPIED.
7. ALL ROOF MOUNTED HVAC EQUIPMENT REPLACEMENT WILL UTILIZE EXISTING ROOF MOUNTED STRUCTURAL CURBS WITH NEW FLASHING DURING RE-ROOFING OF THE EXISTING FACILITY.

INDEX OF DRAWINGS

PIKE MCFARLAND HALL ASSOC, INC.

ARCHITECTURAL - GENERAL
COV 1 - DRAWINGS INDEX / VICINITY MAP
COV 2 - CODE ANALYSIS

SHEPPARD & ASSOCIATES, LLC

ROOFING CONSULTING SERVICES
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R-3 - PARTIAL ROOF PLAN AREAS, 2 / 3 / 4
R-4 - PARTIAL ROOF PLAN AREA, 7
R-5 - PARTIAL ROOF PLAN AREAS, 8 / 9
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R-7 - ROOF DETAILS
R-8 - ROOF DETAILS
R-9 - ROOF DETAILS
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OWENS AND ASSOCIATES, INC.

MECHANICAL ENGINEERING SERVICES
ME-1 - MECHANICAL AND ELECTRICAL FLOOR PLAN - ME-1 AREA
ME-2 - MECHANICAL AND ELECTRICAL FLOOR PLAN - THEATER
ME-3 - MECHANICAL AND ELECTRICAL FLOOR PLAN - ME-3 AREA
ME-4 - MECHANICAL AND ELECTRICAL FLOOR PLAN - ME-4 AREA
ME-5 - MECHANICAL AND ELECTRICAL SCHEDULES AND DETAILS
ME-6 - MECHANICAL DETAILS

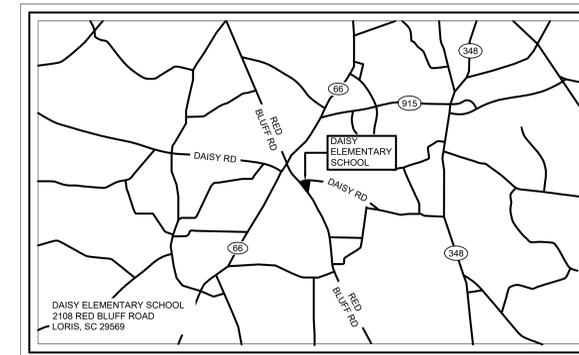
Reviewed For Code Compliance

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 1/20/2022
Reviewed By Scott Parkhurst Date

VICINITY MAP



DESIGN DOCUMENTS FOR CONSTRUCTION



PIKE ■ MCFARLAND ■ HALL ASSOCIATES, INC. ARCHITECTS & PLANNERS



OWNER



PROJECT

ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR:
DAISY ELEMENTARY SCHOOL
LORIS, SOUTH CAROLINA

COVER, INDEX

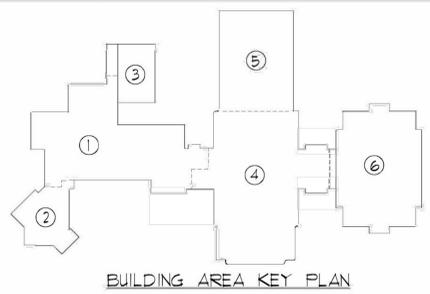
CHECKED BY: _____
COMM: 21043
FILE: COVER SHEET
DRAWN BY: xxx
PLOT: 1
DATE: 12-20-2021
REV: 01-14-2022

SHEET

COV 1

PIKE ■ MCFARLAND ■ HALL ASSOCIATES, INC. 1300 PROFESSIONAL DRIVE, SUITE 201, MYRTLE BEACH, SOUTH CAROLINA 29577 PHONE: (843) 497-0272 FAX: (843) 497-0271 PMH@PMHARCHITECTS.COM

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AREA	Basic Area Allowed	Open L.F. Perimeter	Total L.F. Perimeter	Percentage Open Perimeter	Percentage Area Increase	Sq. Ft. Area Increase	Total Area Allowed	Total Actual Area
①	12,000 SF.	673 L.F.	846 L.F.	80 %	73 %	8,160 SF.	20,160 SF.	22,320 SF.
②	8,000 SF.	N/A	N/A	N/A	N/A	N/A	8,000 SF.	5,920 SF.
③	12,000 SF.	N/A	N/A	N/A	N/A	N/A	12,000 SF.	5,070 SF.
④	36,000 SF.	669 L.F.	936 L.F.	72 %	63 %	7,840 SF.	43,840 SF.	27,747 SF.
⑤	12,000 SF.	481 L.F.	571 L.F.	80 %	73 %	8,760 SF.	20,760 SF.	14,572 SF.
⑥	12,000 SF.	634 L.F.	690 L.F.	92 %	89 %	10,680 SF.	22,680 SF.	19,000 SF.

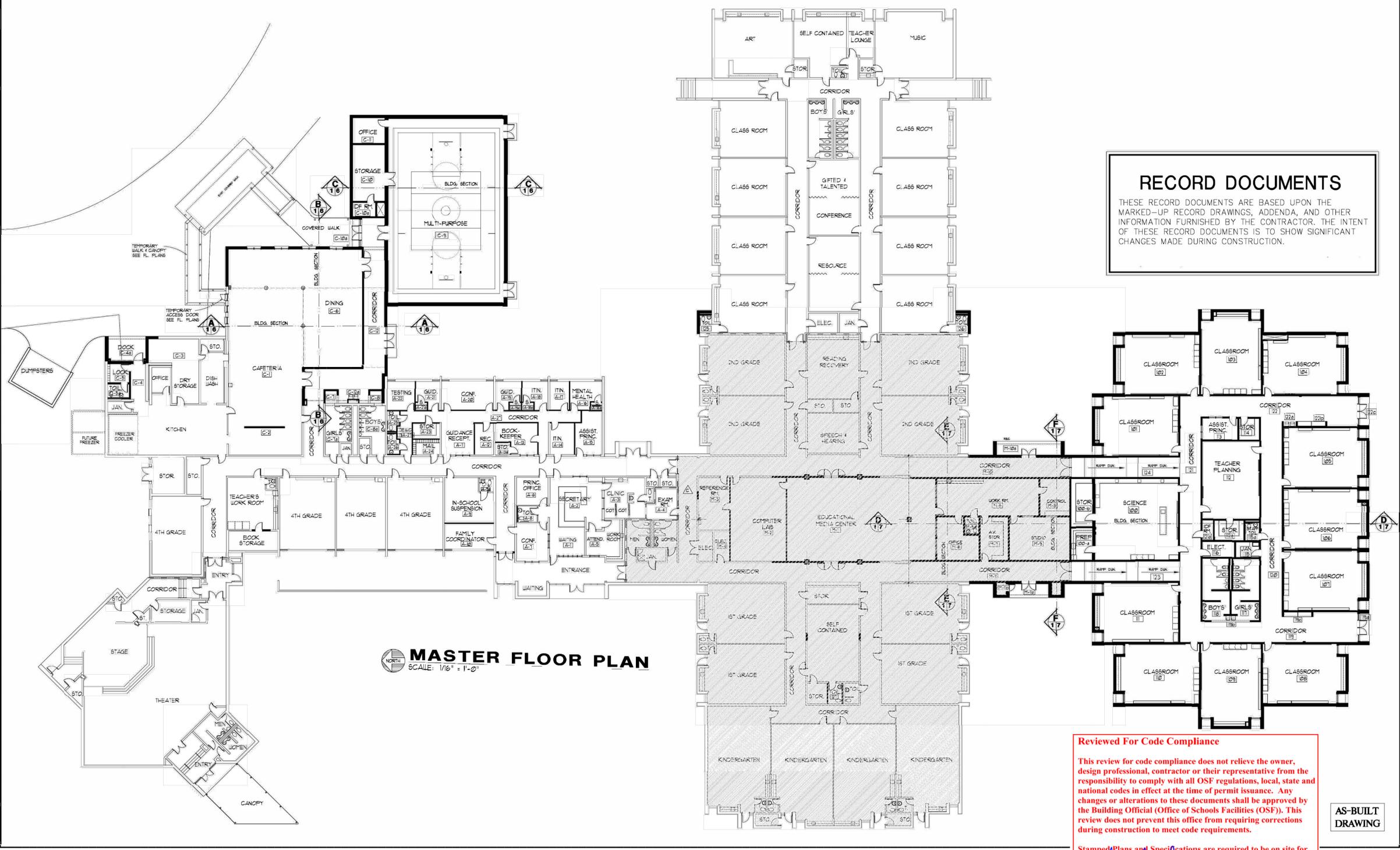
NOTE: BUILDING AREAS SHOWN ABOVE ARE FOR FIRE SEPARATION CALCULATION PURPOSES ONLY AND ARE NOT TO BE USED IN ANY OTHER CONTEXT.

SPRINKLERED AREAS SEE PLUMBING DWG'S.

BUILDING CODE ANALYSIS: 1997 STANDARD BUILDING CODE

- OCCUPANCY CLASSIFICATION:
 - GROUP A (LARGE ASSEMBLY) - AUDITORIUM AND STAGE AREAS
 - GROUP E (EDUCATIONAL) - ALL OTHER AREAS
- CONSTRUCTION CLASSIFICATION: TYPE IV (UNPROTECTED) - ALL AREAS
- PARTY AND FIRE WALLS: 4 HOURS (TABLE 6007)
- INTERIOR BEARING WALLS: TYPE IV - NC (TABLE 6007)
- INTERIOR NON-BEARING WALLS: AS REQUIRED BY CODE (SECTION 1041, 1042, 11053)
- COLUMNS: TYPE IV - NC (TABLE 6007)

- BEAMS: TYPE IV - NC (TABLE 6007)
- FLOOR / CEILING ASSEMBLY: TYPE IV - NC (TABLE 6007)
- ROOF / CEILING ASSEMBLY: TYPE IV - NC (TABLE 6007)
- EXTERIOR BEARING WALLS: TYPE IV - NC (TABLE 6007)
- EXTERIOR NON-BEARING WALLS: TYPE IV - NC (TABLE 6007)



RECORD DOCUMENTS
 THESE RECORD DOCUMENTS ARE BASED UPON THE MARKED-UP RECORD DRAWINGS, ADDENDA, AND OTHER INFORMATION FURNISHED BY THE CONTRACTOR. THE INTENT OF THESE RECORD DOCUMENTS IS TO SHOW SIGNIFICANT CHANGES MADE DURING CONSTRUCTION.

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 Reviewed By *Scott Parkhurst* Date 1/20/2022

AS-BUILT DRAWING

THIS DRAWING WAS PROVIDED BY HORRY COUNTY SCHOOLS AND IS BEING INCLUDED FOR REVIEW OF THE CODE ANALYSIS BASED ON THE LAST RENOVATIONS AND ADDITIONS PROVIDED FOR THIS SCHOOL IN 2003. THIS CONTRACT WILL ONLY REQUIRE ROOFING SYSTEM REPLACEMENT AND MECHANICAL EQUIPMENT REPLACEMENT AND THEREFORE ARCHITECTURAL REDESIGN OF THE EXISTING FACILITY IS NOT REQUIRED.

DESIGN DOCUMENTS FOR CONSTRUCTION

PMH
 PIKE ■ MCFARLAND ■ HALL ASSOCIATES, INC. ARCHITECTS & PLANNERS



OWNER
HCS
 Horry County Schools

PROJECT
DAISY ELEMENTARY SCHOOL
 SOUTH CAROLINA
 LORIS,

CODE ANALYSIS

CHECKED BY:
 COMM: 21043
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SHEET

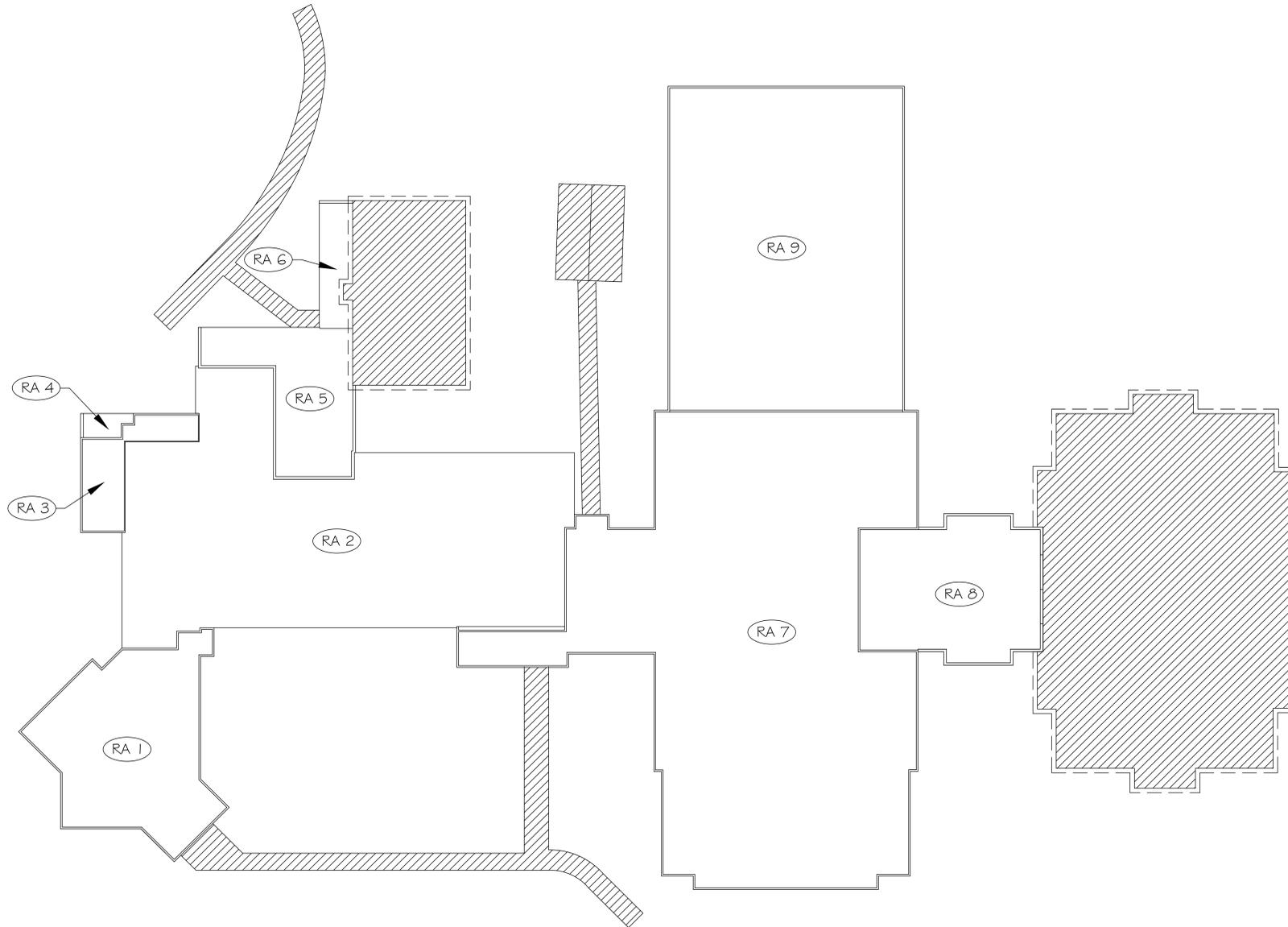
COV 2

PIKE ■ MCFARLAND ■ HALL ASSOCIATES, INC. 1300 PROFESSIONAL DRIVE, SUITE 201, MYRTLE BEACH, SOUTH CAROLINA 29577 PHONE: (843) 497-0272 FAX: (843) 497-0271 PMH@PMHARCHITECTS.COM

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BUILDING CODE ANALYSIS (FORM F3)				
PROJECT: Reroofing Construction Project at Daisy Elementary School DISTRICT: Horry County School District				
SUBMITTAL: <input type="checkbox"/> SCHEMATIC <input checked="" type="checkbox"/> DESIGN DEVELOPMENT <input type="checkbox"/> CONSTRUCTION DOCUMENT				
DATE: 1/21/2021 CODE & EDITION: 2018 IBC & 2009 IECC				
GUIDE EDITION: 2020 PLANNING & CONSTRUCTION GUIDE				
BASIC BUILDING CODE INFORMATION				
	ROOF AREAS 1, 3, 4, 5, 6 & 7	ROOF AREA 2	ROOF AREAS 8 & 9	
CONSTRUCTION CLASSIFICATION TYPE (IBC 602)	TYPE II-A	TYPE II-A	TYPE II-A	
OCCUPANCY GROUP (indicate all) (IBC 302) (Note IBC 506.5)	E	E	E	
OCCUPANCY GROUP (indicate most restrictive) (IBC Table 503)	E	E	E	
Does building require Incidental Use Area Separation? (IBC 506.2.5)	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	
Does building have Accessory Occupancy (ies)? What percent of story is accessory occupancy? (IBC 508.2)	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes SF %	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes SF %	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes SF %	
Mixed Occupancy (IBC 508)	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	
Non separated (IBC 508.3)	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	
Separated (IBC 508.4) (IBC 506.5)	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	<input checked="" type="checkbox"/> no <input type="checkbox"/> yes	
OTHER FIRE PROTECTION SYSTEMS, DEVICES or FEATURES If the building has any special or notable fire protection or safety feature or hazard the designers should list them here, describe the performance characteristics and refer to locations in construction documents. (e.g. fire extinguishers, smoke-evacuation/control/compartments. Note IBC 414.1.3.)	N/A	N/A	N/A	
FIRE RESISTANCE RATING OF BUILDING ELEMENTS				
	ROOF AREAS 1, 3, 4, 5, 6 & 7	ROOF AREA 2	ROOF AREAS 8 & 9	
As Required, Hrs	1 HR	1 HR	1 HR	
As Designed, Hrs	1 HR	1 HR	1 HR	
Testing Agency & Design No. (UL, FM, etc)	UL	UL	UL	
Wall/Partition Key Code	P253	P259	P259	
STRUCTURAL DESIGN INFORMATION, BUILDING				
	ASCE 7-16	ASCE 7-16	ASCE 7-16	
Analysis Procedure (ASCE 7 or IBC 1609.6)	ASCE 7-16	ASCE 7-16	ASCE 7-16	
Basic Wind Speed, MP9 (3 sec gust IBC Fig 1.6-3)	V ₁₀ = 15G	V ₁₀ = 15G	V ₁₀ = 15G	
Exposure Category	CAT. B	CAT. B	CAT. B	
Risk Category	III	III	III	
Internal Pressure Coefficient (ASCE 7)	GC _w =±0.18	GC _w =±0.18	GC _w =±0.18	
External Pressure Coefficient (ASCE 7)	FIELD)=-0.9 FIELD=-1.7 PERIMETER=-2.3 CORNER=-3.2	FIELD)=-0.9 FIELD=-1.7 PERIMETER=-2.3 CORNER=-3.2	FIELD)=-0.9 FIELD=-1.7 PERIMETER=-2.3 CORNER=-3.2	
ENERGY INFORMATION				
	INSULATION	INSULATION	INSULATION	
Roof	Continuous	23 R	21 R	

PROJECT DATA	
A. PROJECT DESIGNED IN ACCORDANCE WITH:	
1. INTERNATIONAL BUILDING CODE - 2018 EDITION	
2. INTERNATIONAL PLUMBING CODE - 2018 EDITION	
3. INTERNATIONAL FIRE CODE - 2018 EDITION	
4. INTERNATIONAL EXISTING BUILDING CODE - 2018 EDITION	
5. INTERNATIONAL ENERGY CONSERVATION CODE - 2009 EDITION	
6. NATIONAL FIRE PROTECTION ASSOCIATION 10 - 2018 EDITION	
B. BASIC REVIEW INFORMATION:	
1. EXISTING BUILDING IS A 1 STORY REINFORCED CONCRETE MASONRY UNIT (CMU) AND BRICK LOAD BEARING WALL CONSTRUCTION WITH STEEL BAR JOISTS SUPPORTING A CEMENTITIOUS WOOD FIBER ROOF DECK (RA 1, 3, 4, 5, 6 & 7), LIGHTWEIGHT GYPSUM CONCRETE ROOF DECK (RA 2) OR A METAL ROOF DECK (RA 8 & 9).	
2. AREA OF AFFECTED ROOF (RA): 74,697 SF	
a. RA 1: 5,709 SF	
b. RA 2: 16,897 SF	
c. RA 3: 1,261 SF	
d. RA 4: 220 SF	
e. RA 5: 3,059 SF	
f. RA 6: 820 SF	
g. RA 7: 26,529 SF	
h. RA 8: 4,889 SF	
i. RA 9: 15,314 SF	
3. ROOF HEIGHT ABOVE GRADE:	
a. RA 1: 15'	
b. RA 2: 12'	
c. RA 3: 10'	
d. RA 4: 15'	
e. RA 5: 10'	
f. RA 6: 17'	
g. RA 7: 15'	
h. RA 8: 14'	
i. RA 9: 15'	
4. PRIMARY OCCUPANCY CLASS: GROUP "E" EDUCATIONAL OCCUPATION	
5. CLASS "A" ROOF COVERING	
C. PROJECT IN FIRE DISTRICT: YES	
D. STRUCTURAL INFORMATION:	
1. ROOF AREAS 1, 3, 4, 5, 6 & 7 DESIGN LOADS:	
a. ORIGINAL DEAD LOAD INCLUDES AGGREGATED SURFACED BUILT-UP ROOF, RIGID INSULATION & CEMENTITIOUS WOOD FIBER ROOF DECK.	
ESTIMATED WEIGHT: 17lb/sf	
b. PROPOSED DEAD LOAD INCLUDING 2 PLY MODIFIED BITUMEN & RIGID INSULATION ADHERED TO THE EXISTING CEMENTITIOUS WOOD FIBER ROOF DECK.	
DESIGN WEIGHT: 12lb/sf	
c. NET DEAD LOAD REDUCTION OF 5lb/sf	
2. ROOF AREA 2 DESIGN LOADS:	
a. ORIGINAL DEAD LOAD INCLUDES AGGREGATED SURFACED BUILT-UP ROOF, RIGID INSULATION & LIGHTWEIGHT GYPSUM ROOF DECK.	
ESTIMATED WEIGHT: 17lb/sf	
b. PROPOSED DEAD LOAD INCLUDING 2 PLY MODIFIED BITUMEN & RIGID INSULATION MECHANICALLY ATTACHED TO THE EXISTING METAL ROOF DECK.	
DESIGN WEIGHT: 12lb/sf	
c. NET DEAD LOAD REDUCTION OF 5lb/sf	
3. ROOF AREAS 8 & 9 DESIGN LOADS:	
a. ORIGINAL DEAD LOAD INCLUDES AGGREGATED SURFACED BUILT-UP ROOF, RIGID INSULATION & METAL ROOF DECK.	
ESTIMATED WEIGHT: 14lb/sf	
b. PROPOSED DEAD LOAD INCLUDING 2 PLY MODIFIED BITUMEN & RIGID INSULATION MECHANICALLY ATTACHED TO THE EXISTING METAL ROOF DECK.	
DESIGN WEIGHT: 9lb/sf	
c. NET DEAD LOAD REDUCTION OF 5lb/sf	



1 ROOF KEY PLAN

LEGEND	
	= AREAS IN CONTRACT
	= AREAS NOT IN CONTRACT
	= ROOF AREA DESIGNATIONS

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DESIGN DOCUMENTS FOR CONSTRUCTION



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OWNER
 Horry County Schools

PROJECT
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DAISY ELEMENTARY SCHOOL
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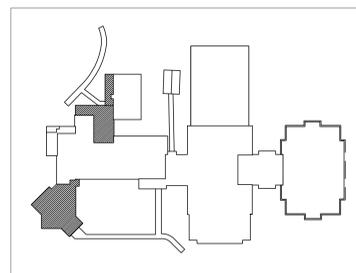
ROOF KEY PLAN

CHECKED BY:
 COMM: 21043
 FILE: ROOF KEY PLAN
 DRAWN BY: RCP
 PLOT: 1
 DATE: 12-20-2021
 REV: 1-14-2022

SHEET
R-1

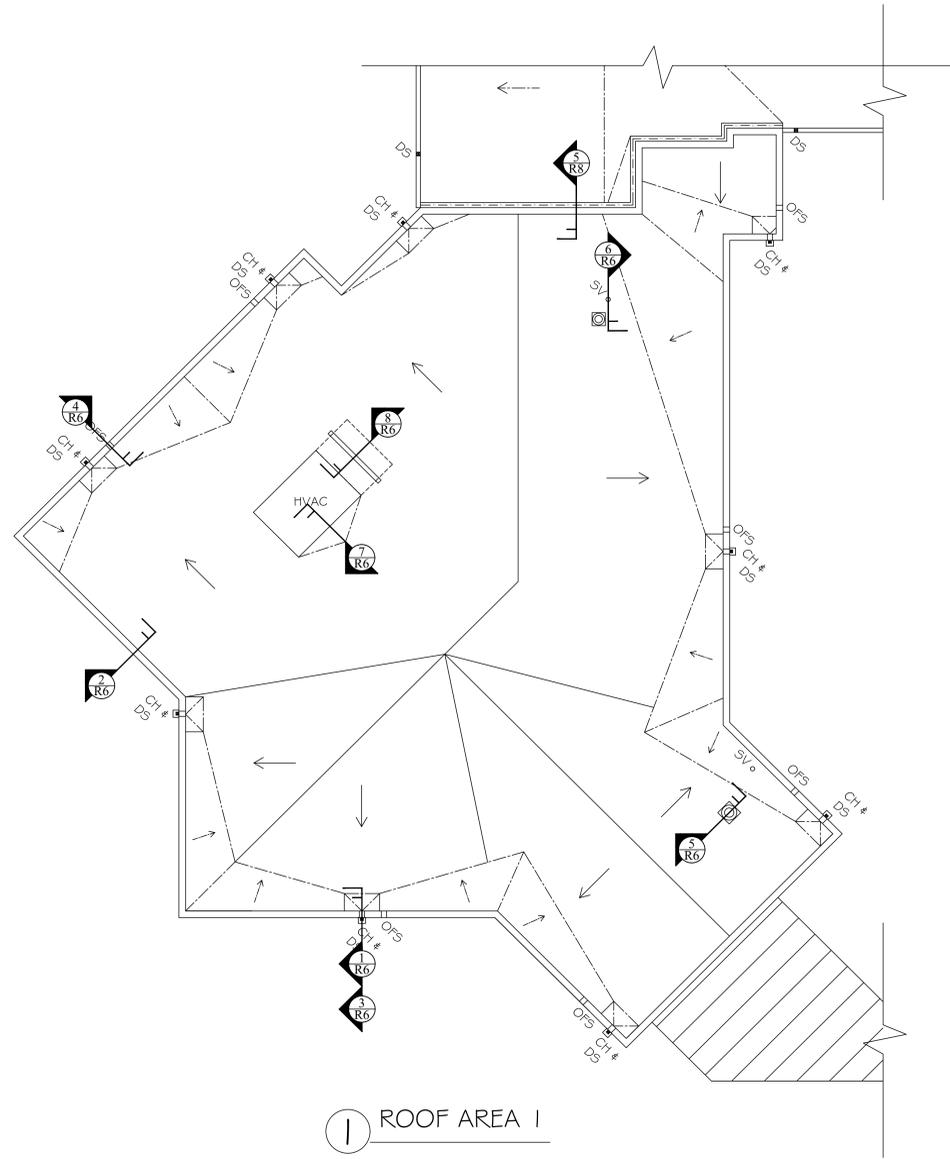
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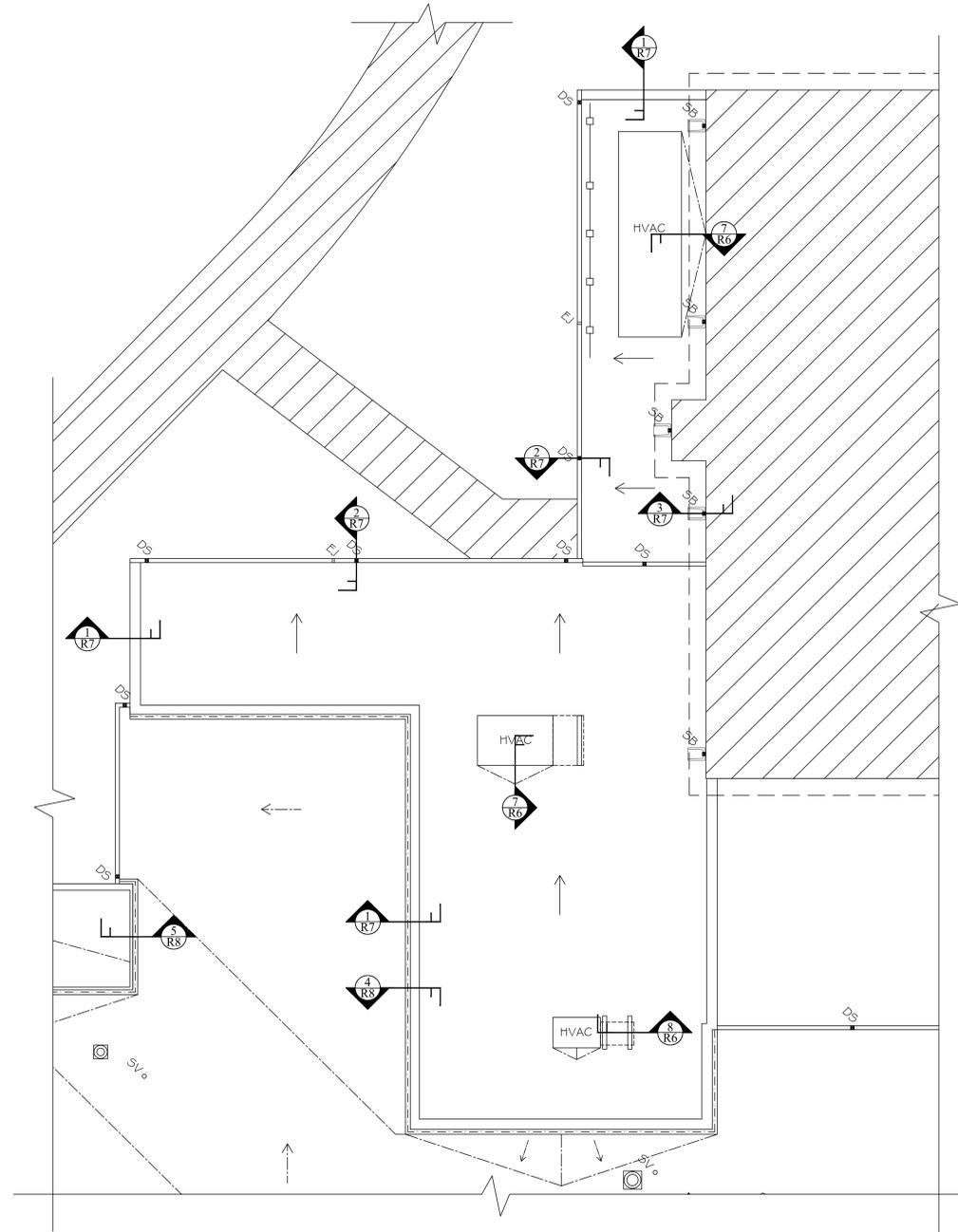
KEY PLAN

1 ROOF AREA 1



LEGEND	
	= AREAS IN CONTRACT
	= ROOF AREA DESIGNATION
	= SLOPE IN THE STRUCTURE
	= SLOPE IN TAPERED INSULATION
	= TAPERED CRICKETS & SADDLES
	= THROUGH WALL SCUPPER, CONDUCTOR HEAD & DOWNSPOUT
	= NEW OVERFLOW SCUPPER
	= GUTTER & DOWNSPOUT
	= GUTTER EXPANSION JOINT
	= EXPANSION JOINT
	= CURB MOUNTED HVAC UNIT
	= BALLASTED GUARD RAIL
	= SANITARY VENT
	= POWER VENTILATOR
	= NEW SPLASH BLOCK AT EXISTING DOWNSPOUT

2 ROOF AREAS 5 & 6



Reviewed For Code Compliance

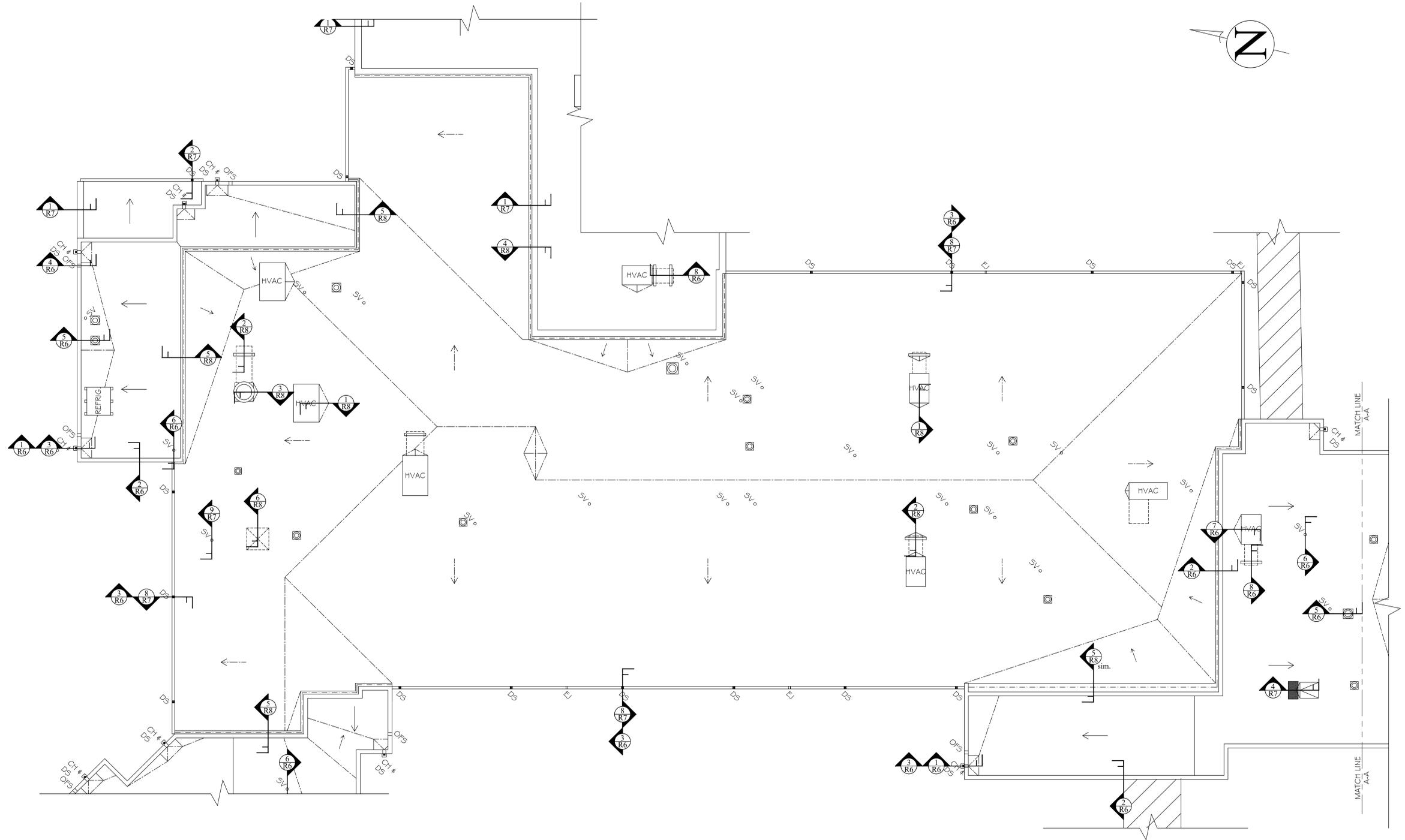
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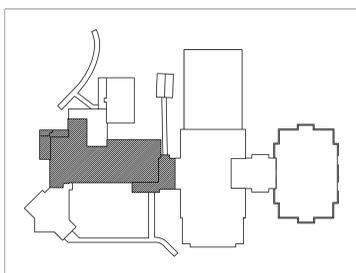
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1 ROOF AREAS 2, 3 & 4



KEY PLAN

LEGEND			
○	= AREAS IN CONTRACT	—	= EXPANSION JOINT
RA #	= ROOF AREA DESIGNATION	HVAC	= CURB MOUNTED HVAC UNIT
→	= SLOPE IN THE STRUCTURE	SV	= SANITARY VENT
--->	= SLOPE IN TAPERED INSULATION	⊠	= POWER VENTILATOR
---	= TAPERED CRICKETS & SADDLES	⊠	= ROOF HATCH
CH #	= THROUGH WALL SCUPPER, CONDUCTOR HEAD & DOWNSPOUT	■	= WALKPAD
OP	= NEW OVERFLOW SCUPPER	⊠	= FRESH AIR INTAKE
DS	= GUTTER & DOWNSPOUT	⊠	= ABANDONED EQUIPMENT CURB (TO BE REMOVED)
EJ	= GUTTER EXPANSION JOINT		

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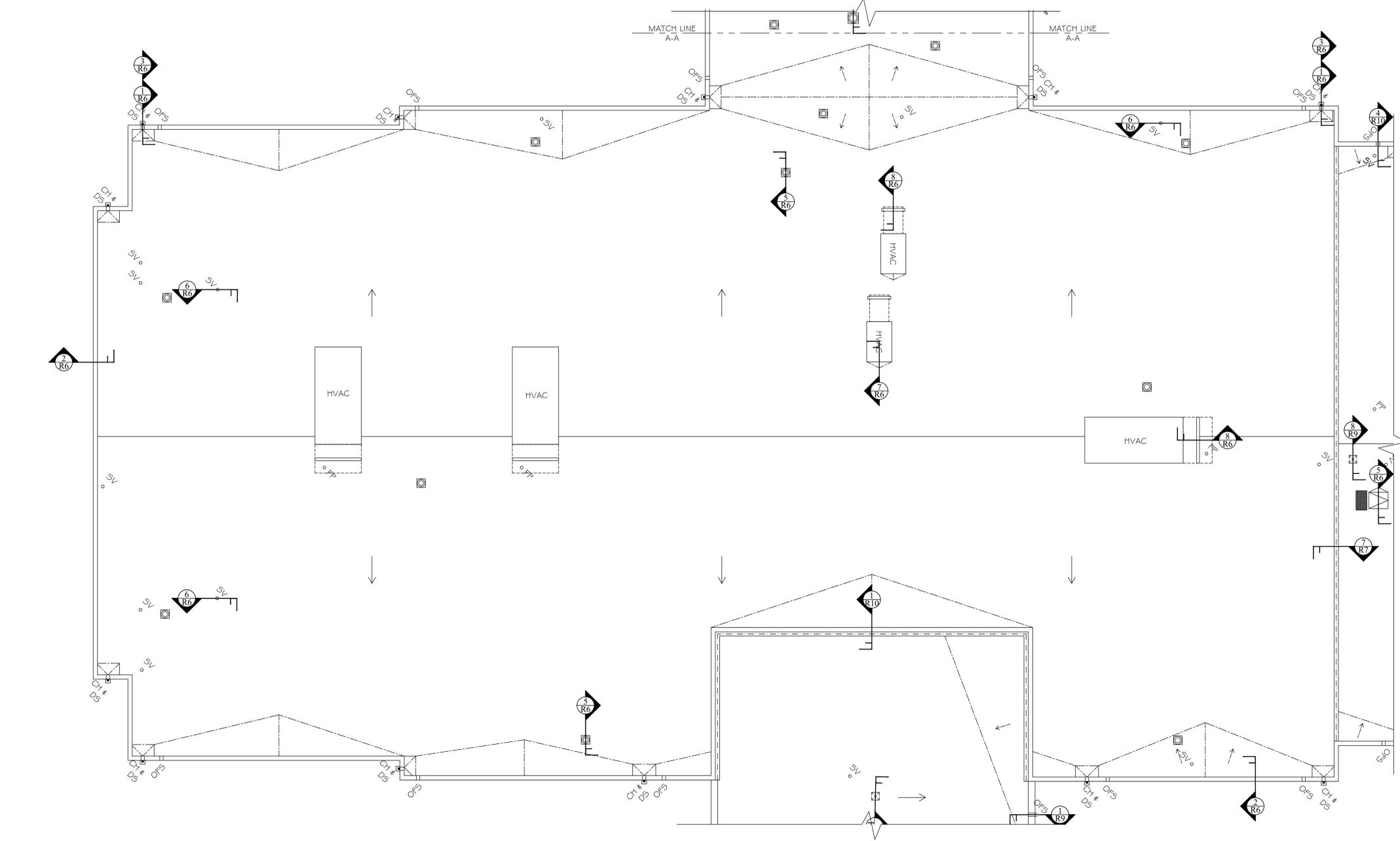
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Scott Parkhurst 1/20/2022
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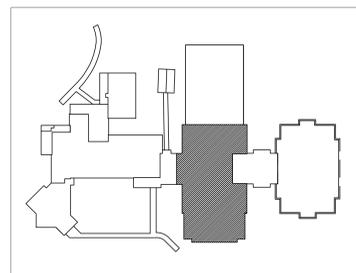


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② ROOF AREA 7



KEY PLAN

LEGEND			
○	= AREAS IN CONTRACT	HVAC	= CURB MOUNTED HVAC UNIT
RA #	= ROOF AREA DESIGNATION	SV	= SANITARY VENT
→	= SLOPE IN THE STRUCTURE	⊙	= POWER VENTILATOR
---→	= SLOPE IN TAPERED INSULATION	▽	= ROOF HATCH
---	= TAPERED CRICKETS & SADDLES	■	= WALKPAD
CH # DS	= THROUGH WALL SCUPPER, CONDUCTOR HEAD & DOWNSPOUT	⊠	= ABANDONED EQUIPMENT CURB (TO BE REMOVED)
OS	= NEW OVERFLOW SCUPPER		
	= EXPANSION JOINT		

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PROJECT

ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR:
DAISY ELEMENTARY SCHOOL
 LORIS, SOUTH CAROLINA

PARTIAL ROOF PLAN

CHECKED BY:

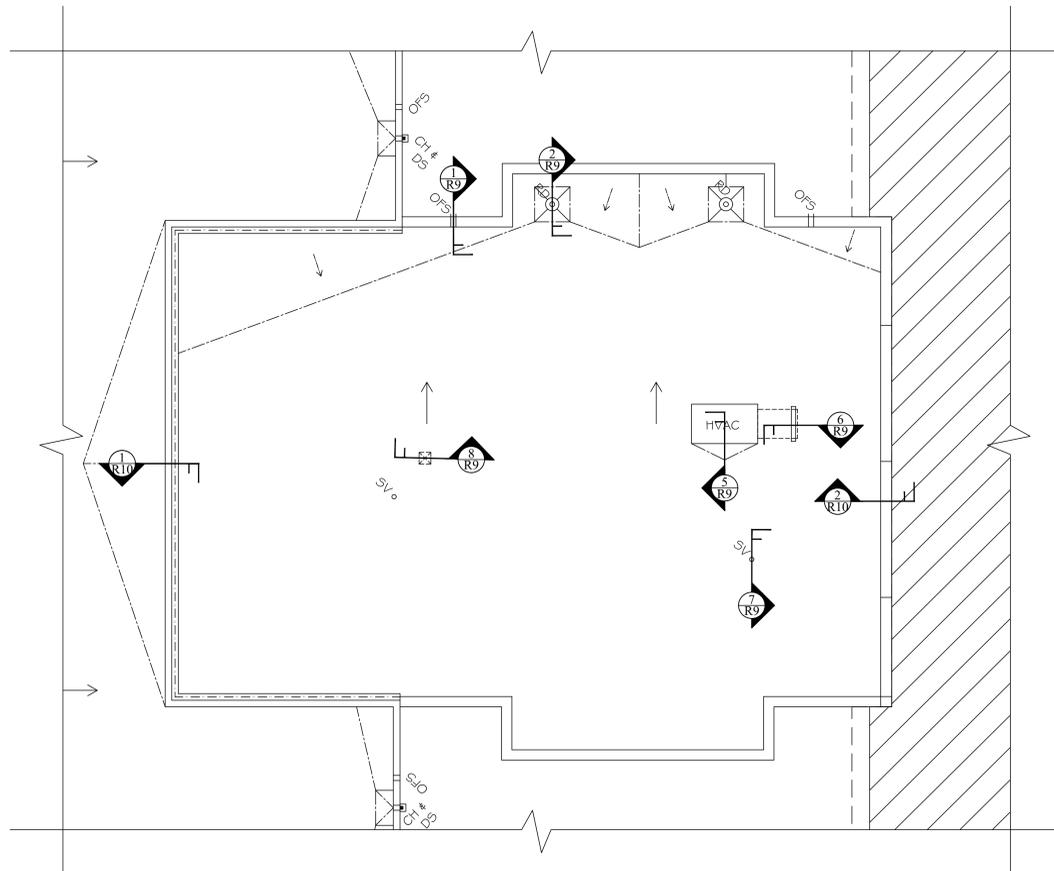
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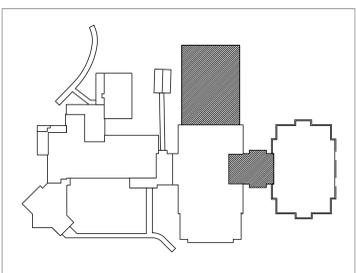
R-4

PIKE ■ McFARLAND ■ HALL ASSOCIATES, INC. 1300 PROFESSIONAL DRIVE, SUITE 201, MYRTLE BEACH, SOUTH CAROLINA 29577 PHONE: (843) 497-0272 FAX: (843) 497-0271 PMH@PMHARCHITECTS.COM

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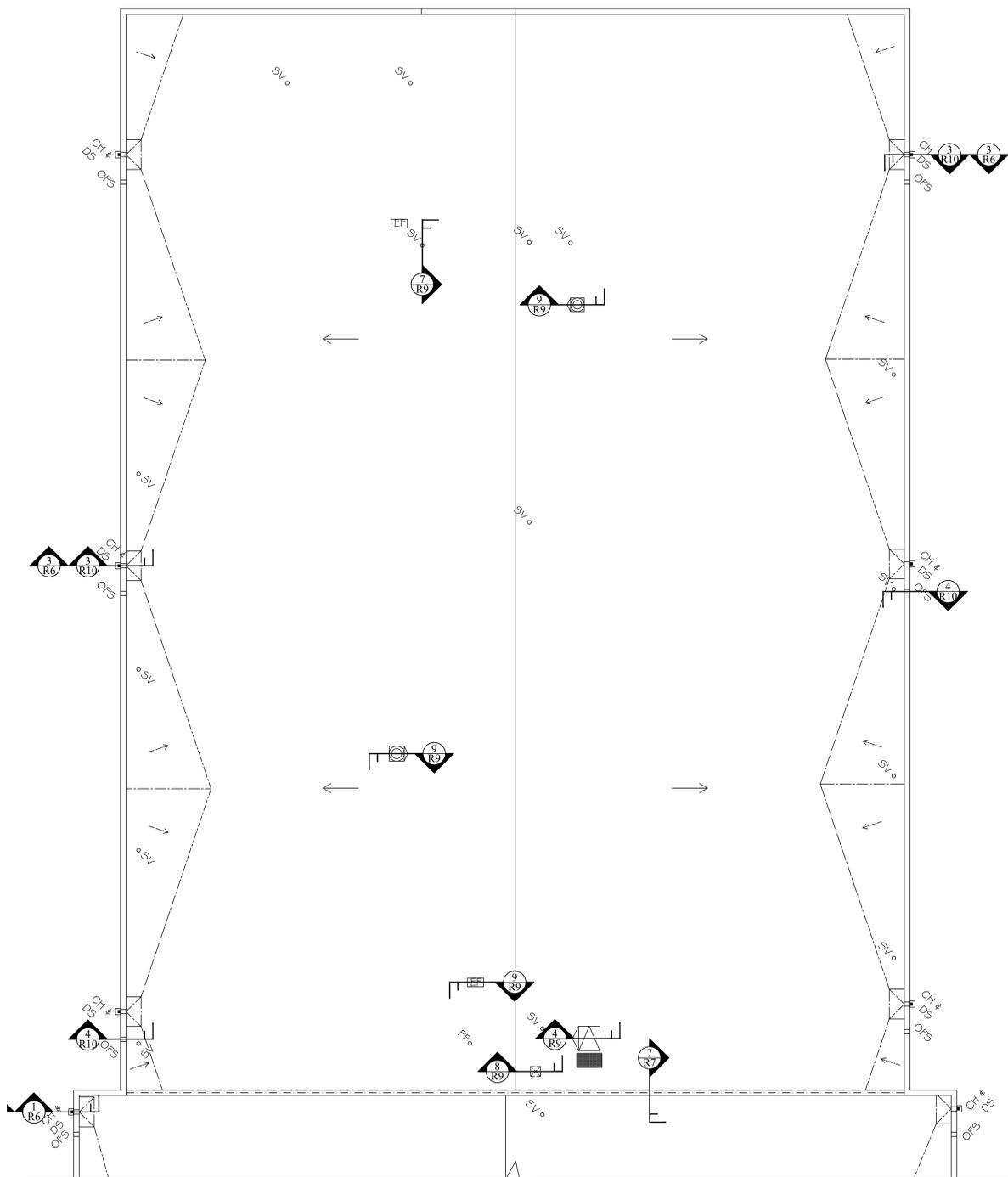
1 ROOF AREA 8



KEY PLAN

LEGEND

= AREAS IN CONTRACT	= EXPANSION JOINT
= ROOF AREA DESIGNATION	= CURB MOUNTED HVAC UNIT
= SLOPE IN THE STRUCTURE	= SANITARY VENT
= SLOPE IN TAPERED INSULATION	= POWER VENTILATOR
= TAPERED CRICKETS & SADDLES	= ROOF HATCH
= THROUGH WALL SCUPPER, CONDUCTOR HEAD & DOWNSPOUT	= WALKPAD
= MAIN ROOF DRAIN	= ABANDONED EQUIPMENT CURB (TO BE REMOVED)
= NEW OVERFLOW SCUPPER	= EXHAUST FAN



2 ROOF AREA 9

Reviewed For Code Compliance

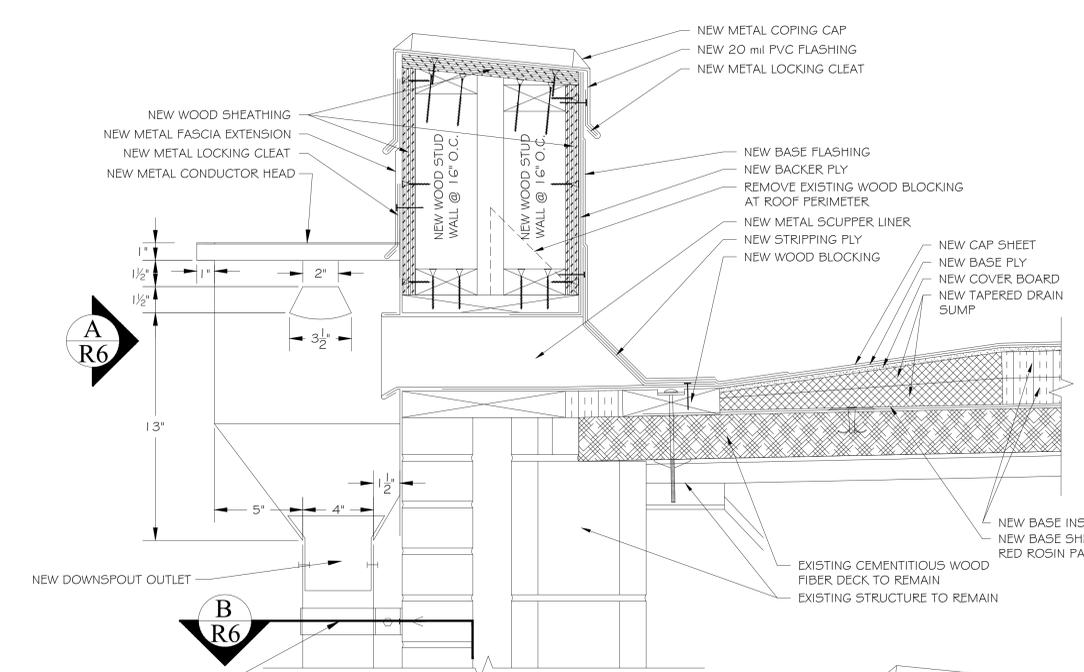
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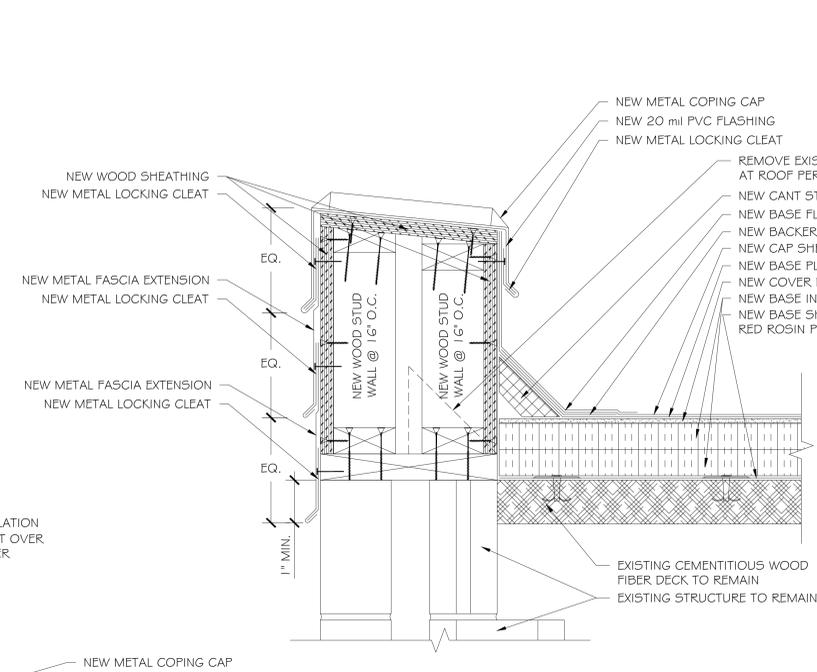
1/20/2022
Reviewed By Scott Parkhurst Date

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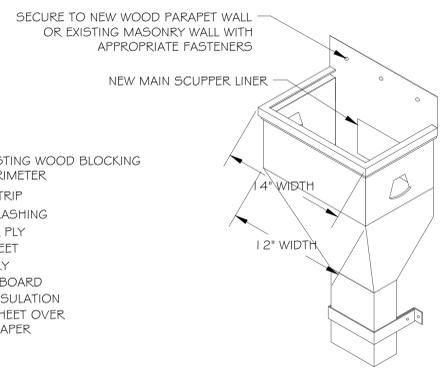
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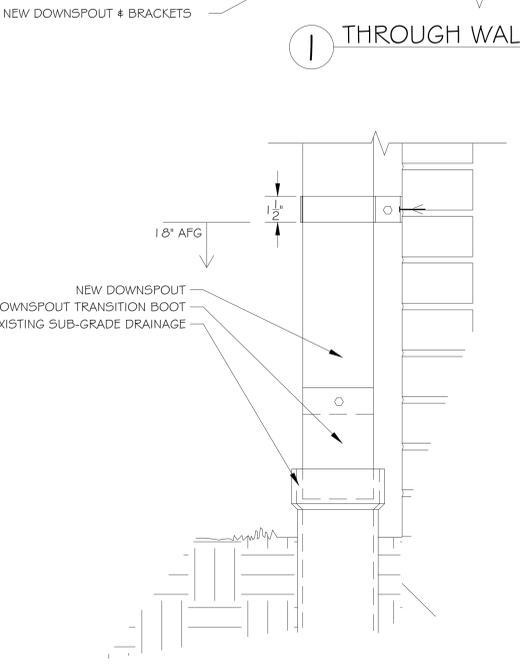
1 THROUGH WALL SCUPPER DETAIL



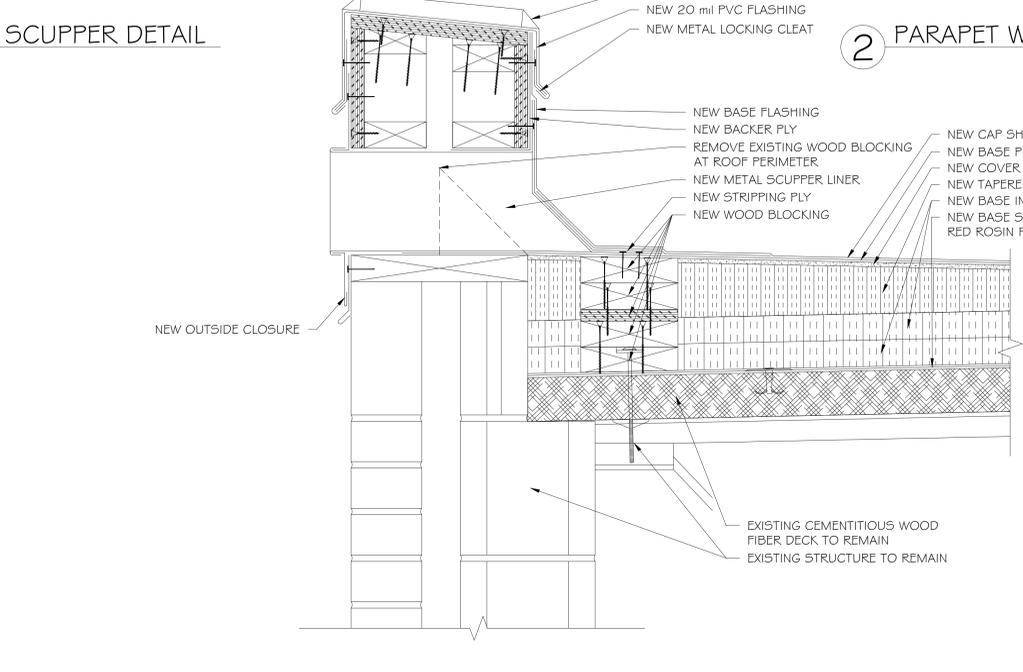
2 PARAPET WALL DETAIL



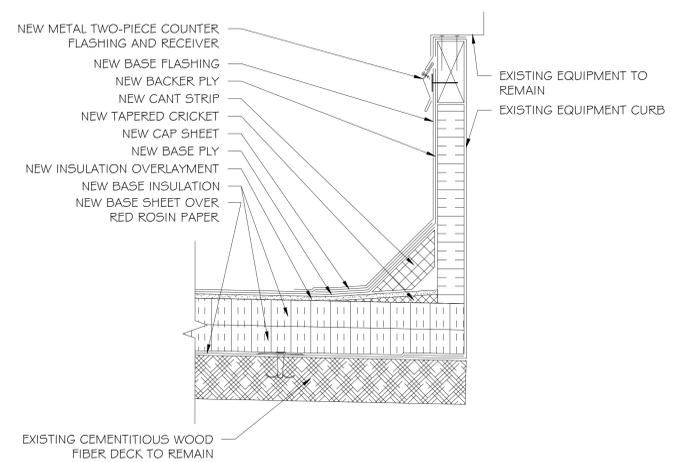
A ISOMETRIC OF SCUPPER OUTLET, DOWNSPOUT & CONDUCTOR HEAD



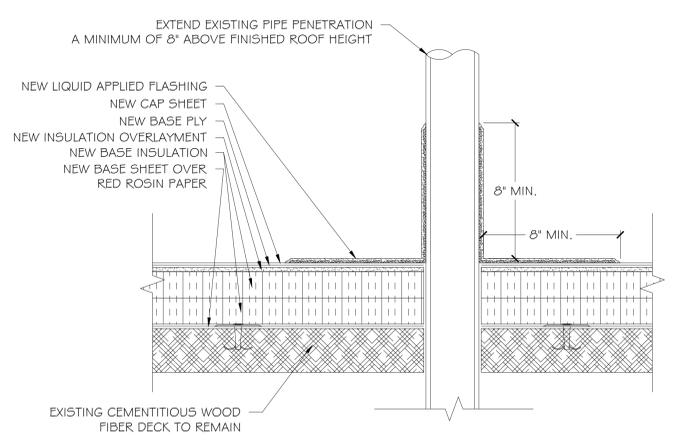
3 DOWNSPOUT TERMINATION DETAIL



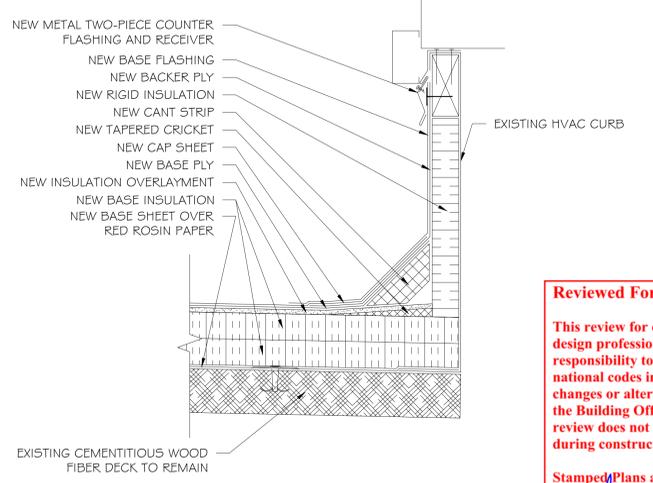
4 NEW OVERFLOW SCUPPER DETAIL



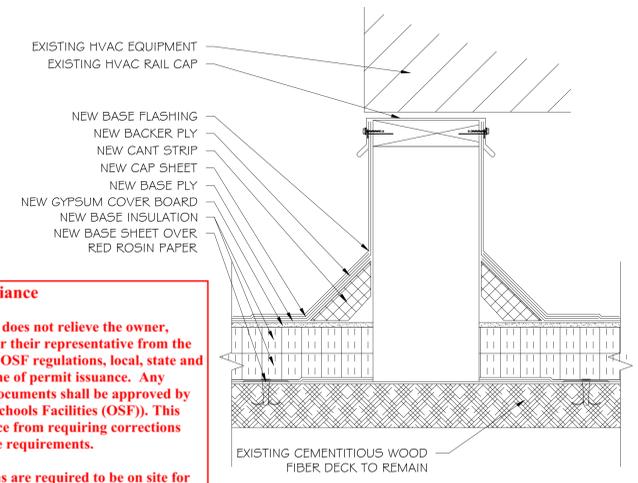
5 EQUIPMENT CURB DETAIL



6 PIPE PENETRATION DETAIL
TO BE USED AT SANITARY VENTS, EQUIPMENT AND PIPING SUPPORTS



7 HVAC CURB DETAIL



8 HVAC RAIL DETAIL

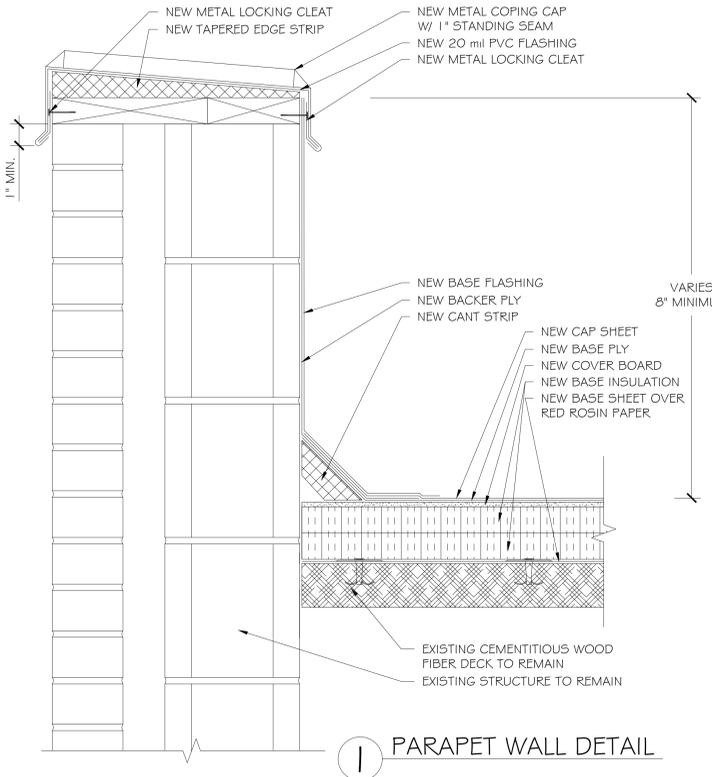
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Scott Parkhurst 1/20/2022
Reviewed By Scott Parkhurst Date

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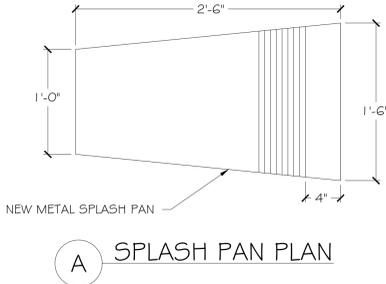
1 PARAPET WALL DETAIL

Reviewed For Code Compliance

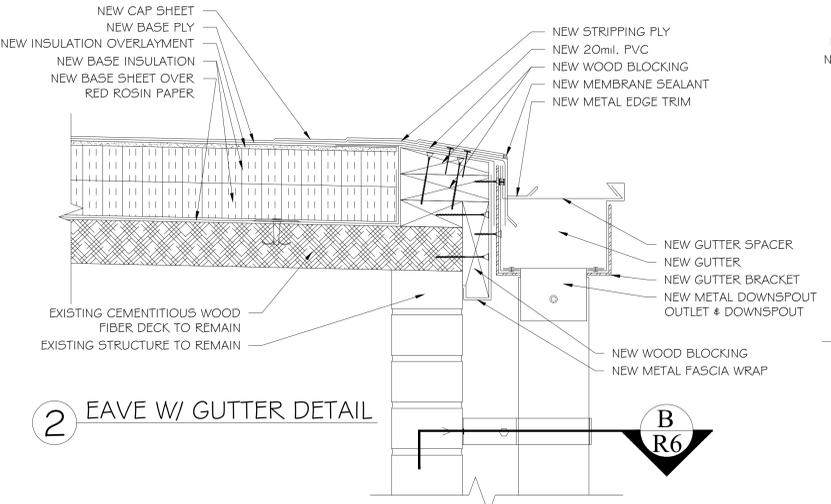
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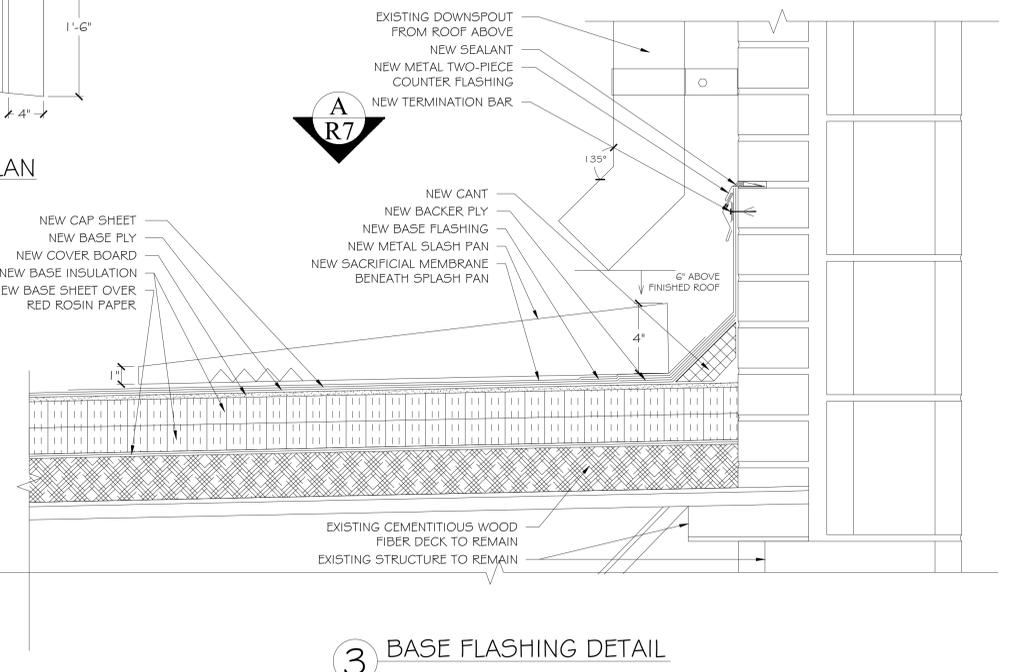
Scott Parkhurst 1/20/2022
 Reviewed By Scott Parkhurst Date



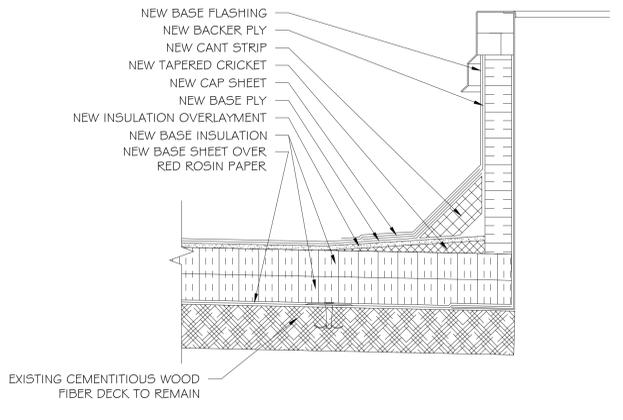
A SPLASH PAN PLAN



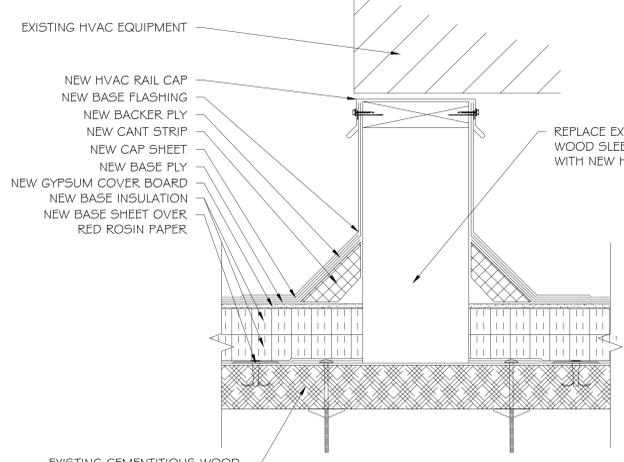
2 EAVE W/ GUTTER DETAIL



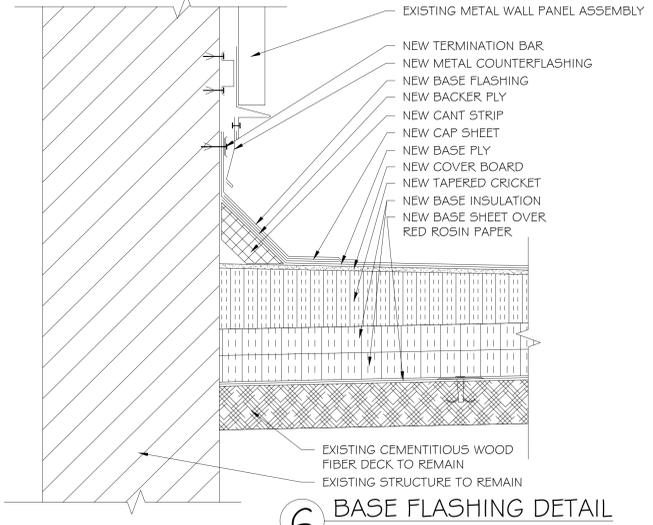
3 BASE FLASHING DETAIL



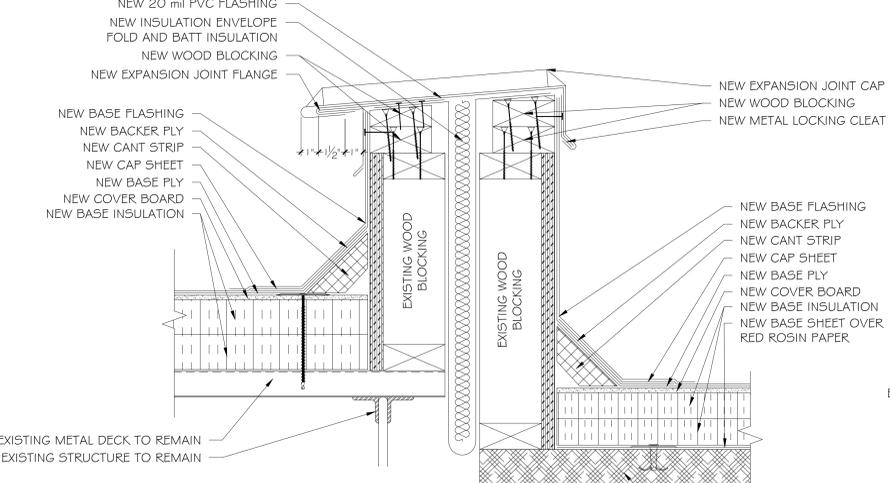
4 ROOF HATCH DETAIL



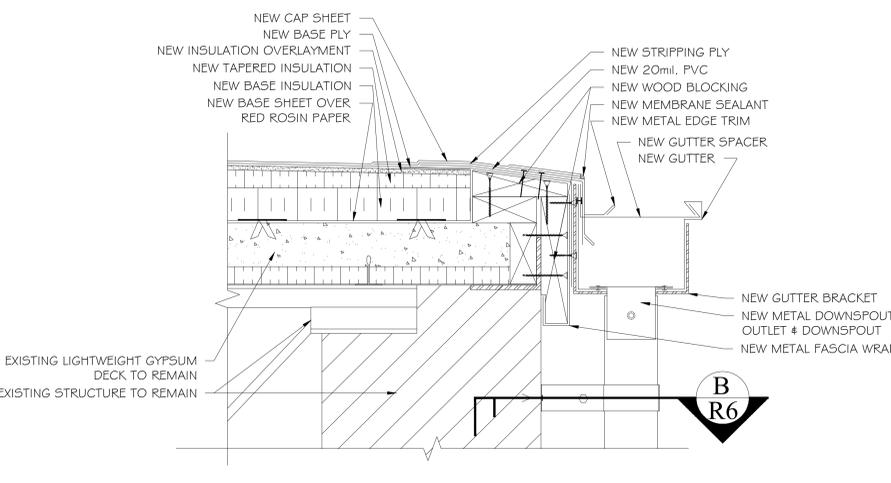
5 NEW HVAC RAIL DETAIL



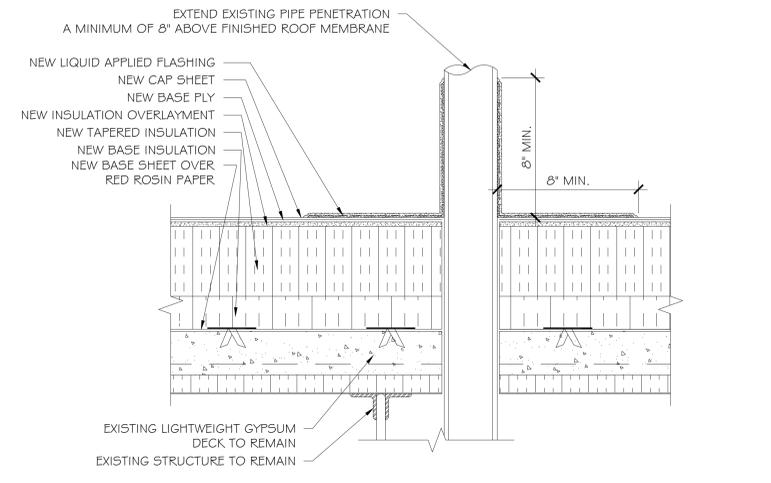
6 BASE FLASHING DETAIL



7 EXPANSION JOINT DETAIL



8 EAVE W/ GUTTER DETAIL



9 PIPE PENETRATION DETAIL

TO BE USED AT SANITARY VENTS, EQUIPMENT AND PIPING SUPPORTS

DESIGN DOCUMENTS FOR CONSTRUCTION



PIKE ■ McFARLAND ■ HALL ASSOCIATES, INC. ARCHITECTS & PLANNERS



PROJECT

ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR:
DAISY ELEMENTARY SCHOOL
 LORIS, SOUTH CAROLINA

ROOF DETAILS

CHECKED BY:

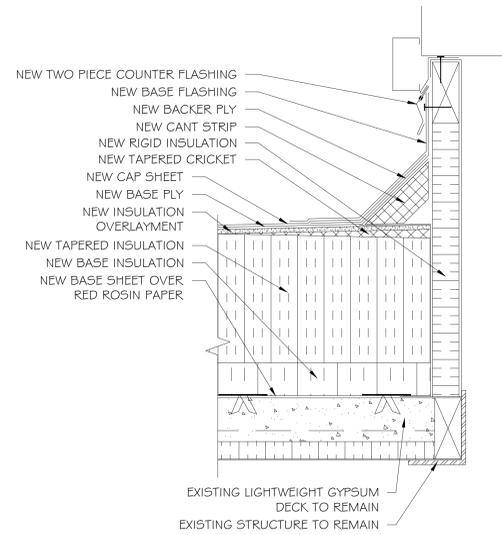
COMM: 21043
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 DRAWN BY: RCP
 PLOT: 1
 DATE: 12-20-2021
 REV: 1-14-2022

SHEET

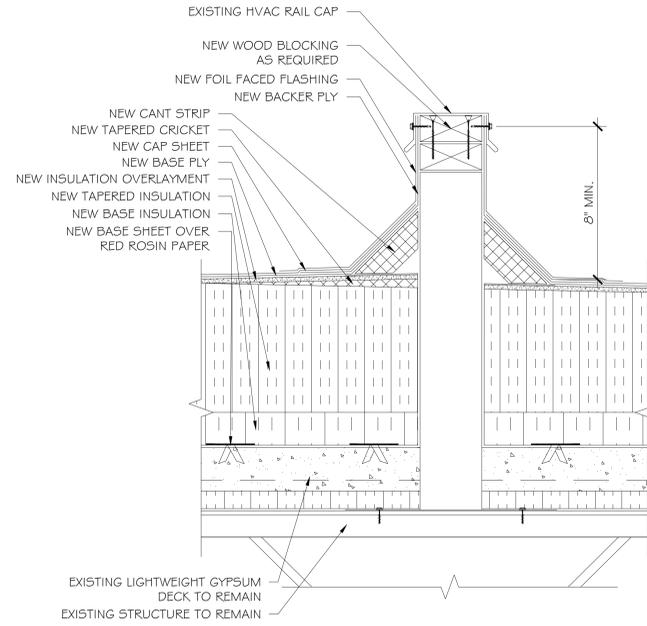
R-7

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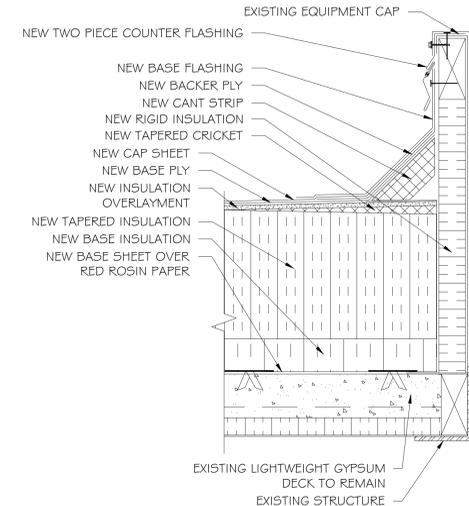
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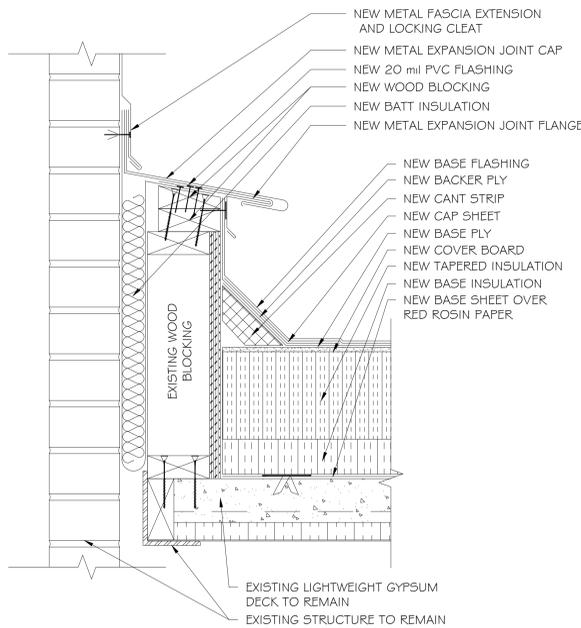
1 HVAC CURB DETAIL



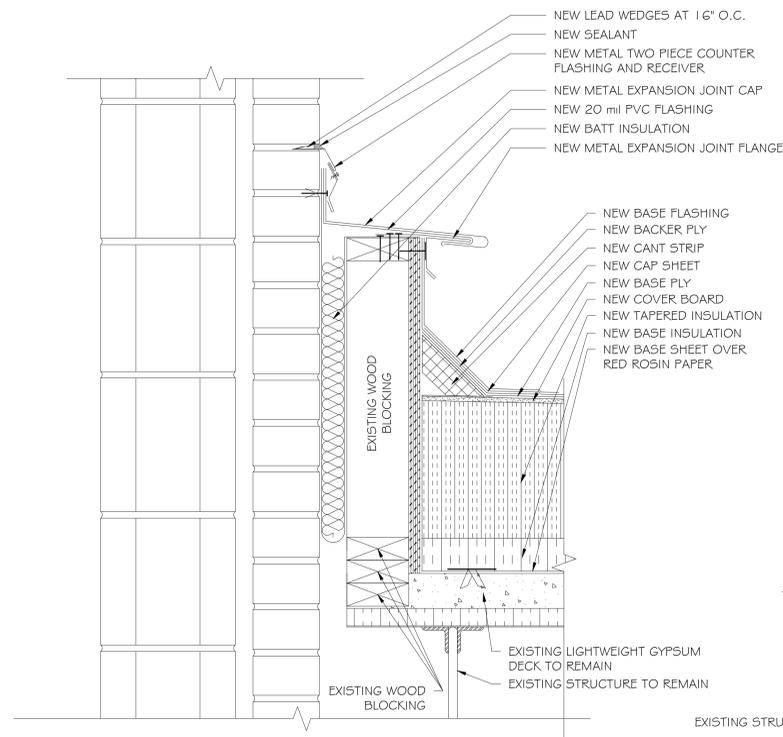
2 HVAC RAIL DETAIL



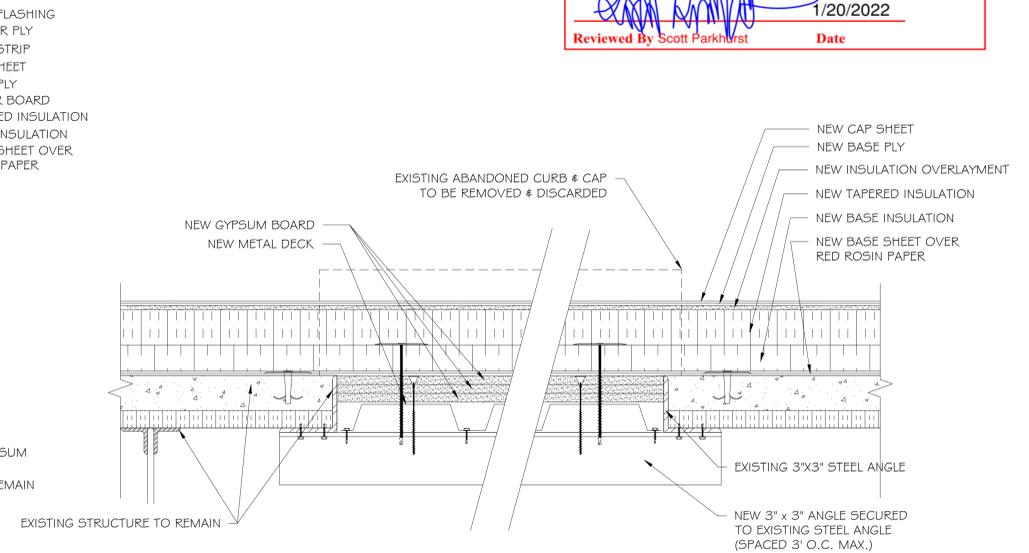
3 EQUIPMENT CURB DETAIL



4 EXPANSION JOINT DETAIL



5 EXPANSION JOINT DETAIL



6 ABANDONED EQUIPMENT CURB DETAIL

Reviewed For Code Compliance

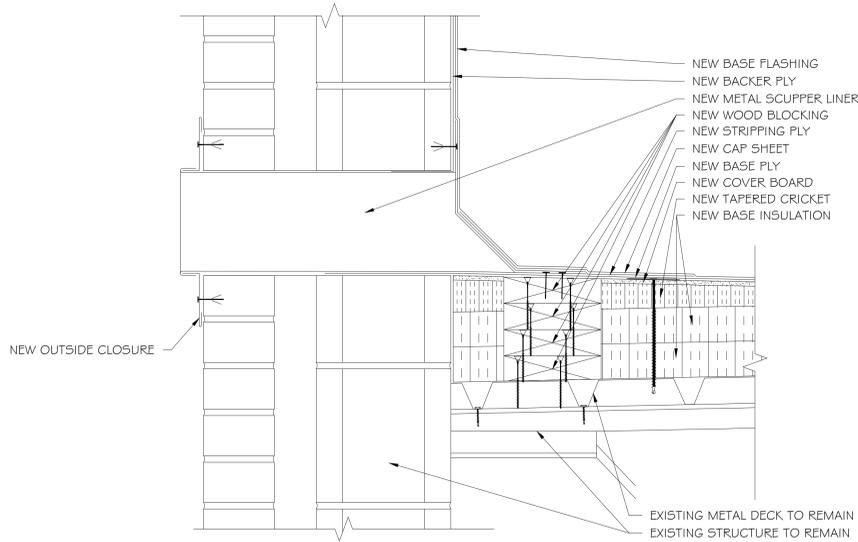
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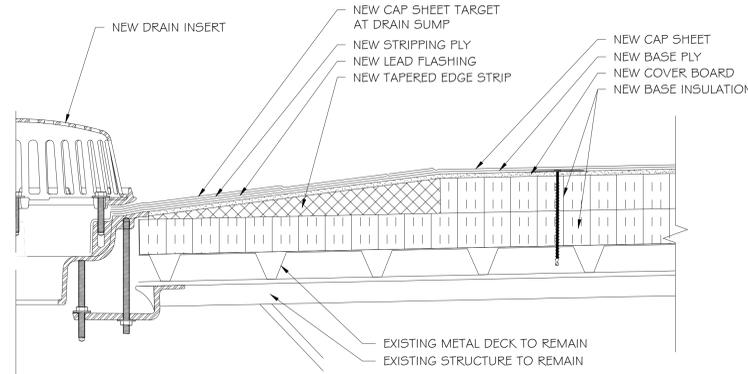
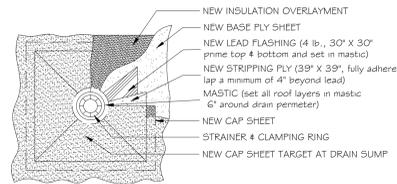
[Signature] 1/20/2022
 Reviewed By Scott Parkhurst Date

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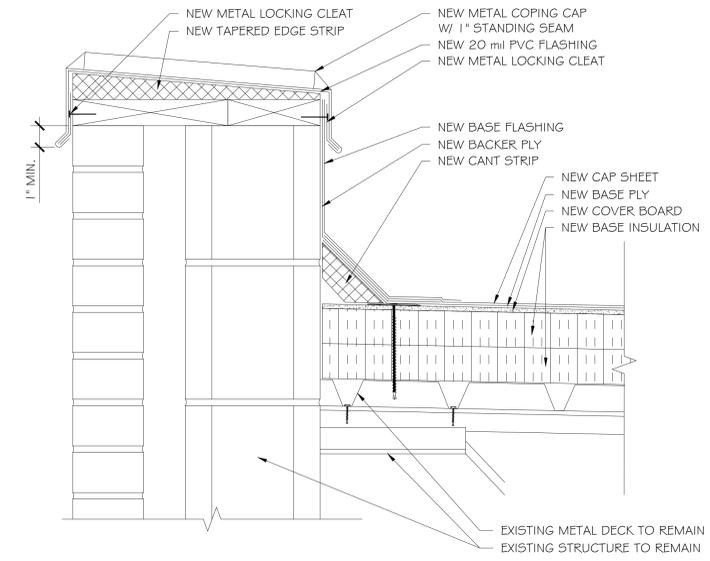
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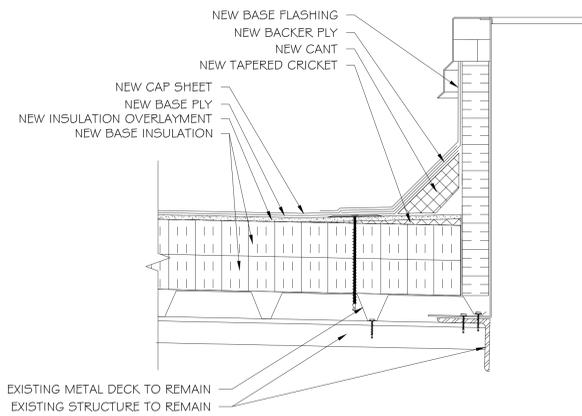
1 OVERFLOW SCUPPER DETAIL



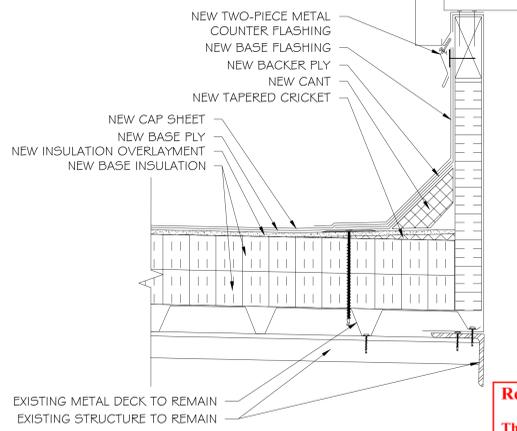
2 ROOF DRAIN DETAIL



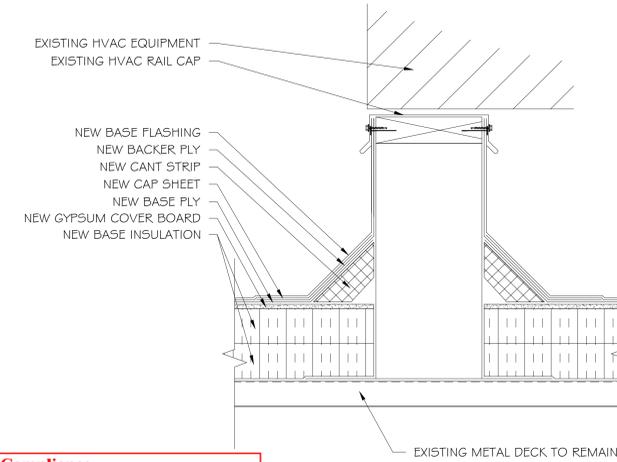
3 PARAPET WALL DETAIL



4 ROOF HATCH DETAIL



5 HVAC CURB DETAIL



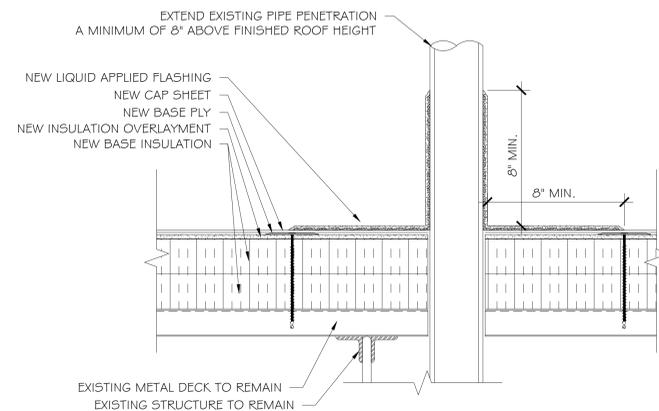
6 HVAC RAIL DETAIL

Reviewed For Code Compliance

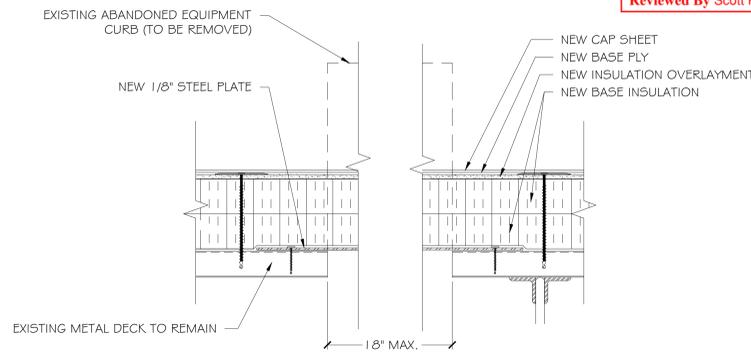
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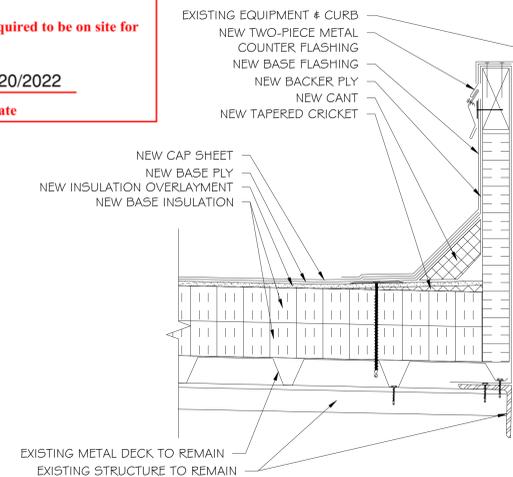
Scott Parkhurst 1/20/2022
 Reviewed By Scott Parkhurst Date



7 PIPE PENETRATION DETAIL
 TO BE USED AT SANITARY VENTS, EQUIPMENT AND PIPING SUPPORTS



8 ABANDONED EQUIPMENT CURB DETAIL
 AND DECK OPENINGS LESS THAN 18" WIDE



9 EQUIPMENT CURB DETAIL



PIKE ■ McFARLAND ■ HALL ASSOCIATES, INC. ARCHITECTS & PLANNERS



OWNER
HCS
 Horry County Schools

PROJECT

ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR:

DAISY ELEMENTARY SCHOOL
 LORIS, SOUTH CAROLINA

ROOF DETAILS

CHECKED BY:

COMM: 21043
 FILE: ROOF DETAILS
 DRAWN BY: RCP
 PLOT: 1
 DATE: 12-20-2021
 REV: 1-14-2022

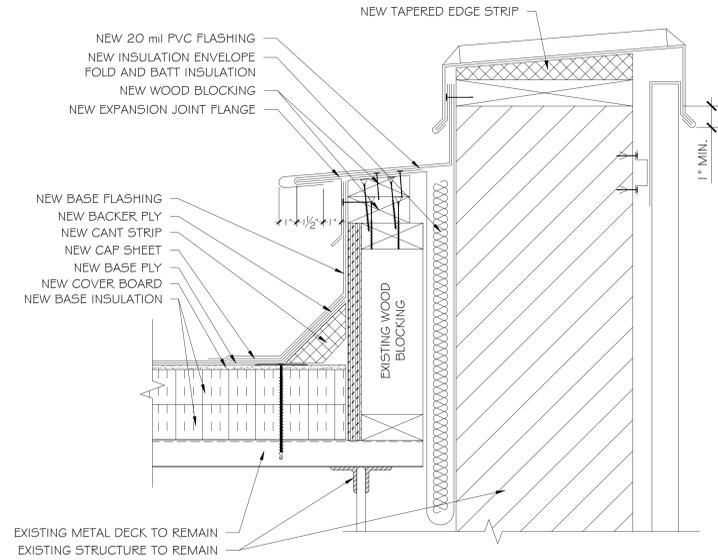
SHEET

R-9

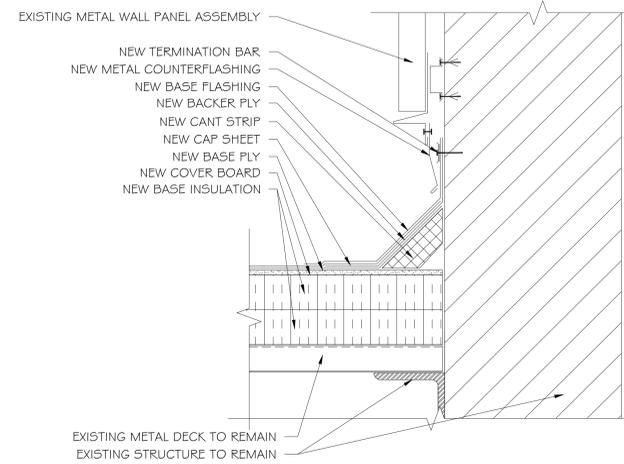
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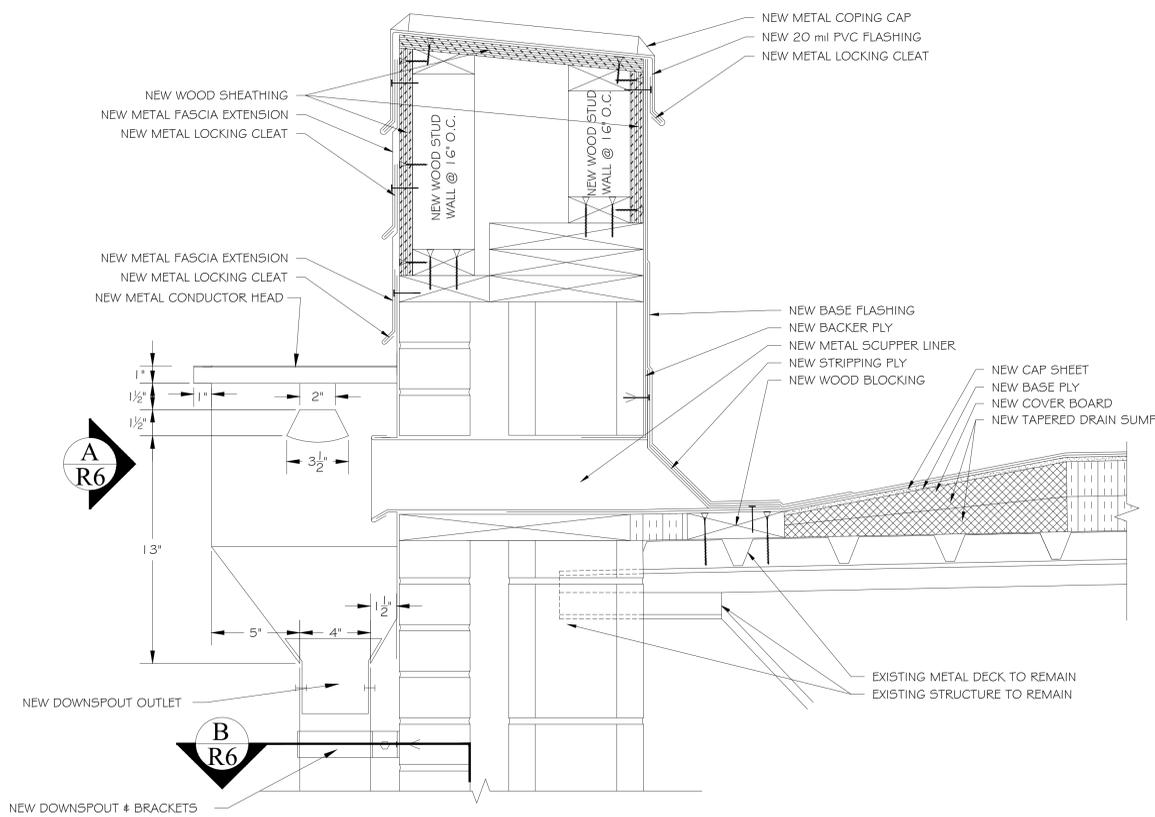
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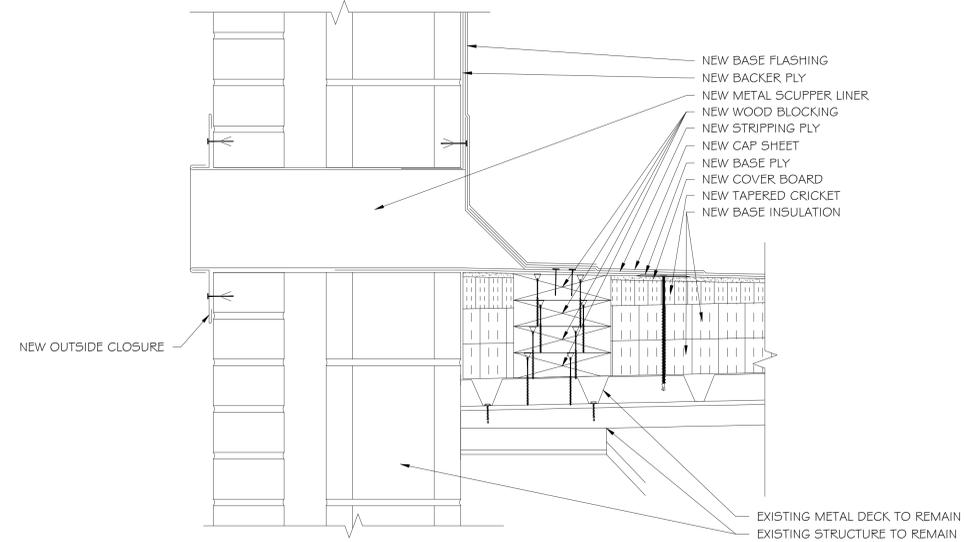
1 EXPANSION JOINT DETAIL



2 BASE FLASHING DETAIL



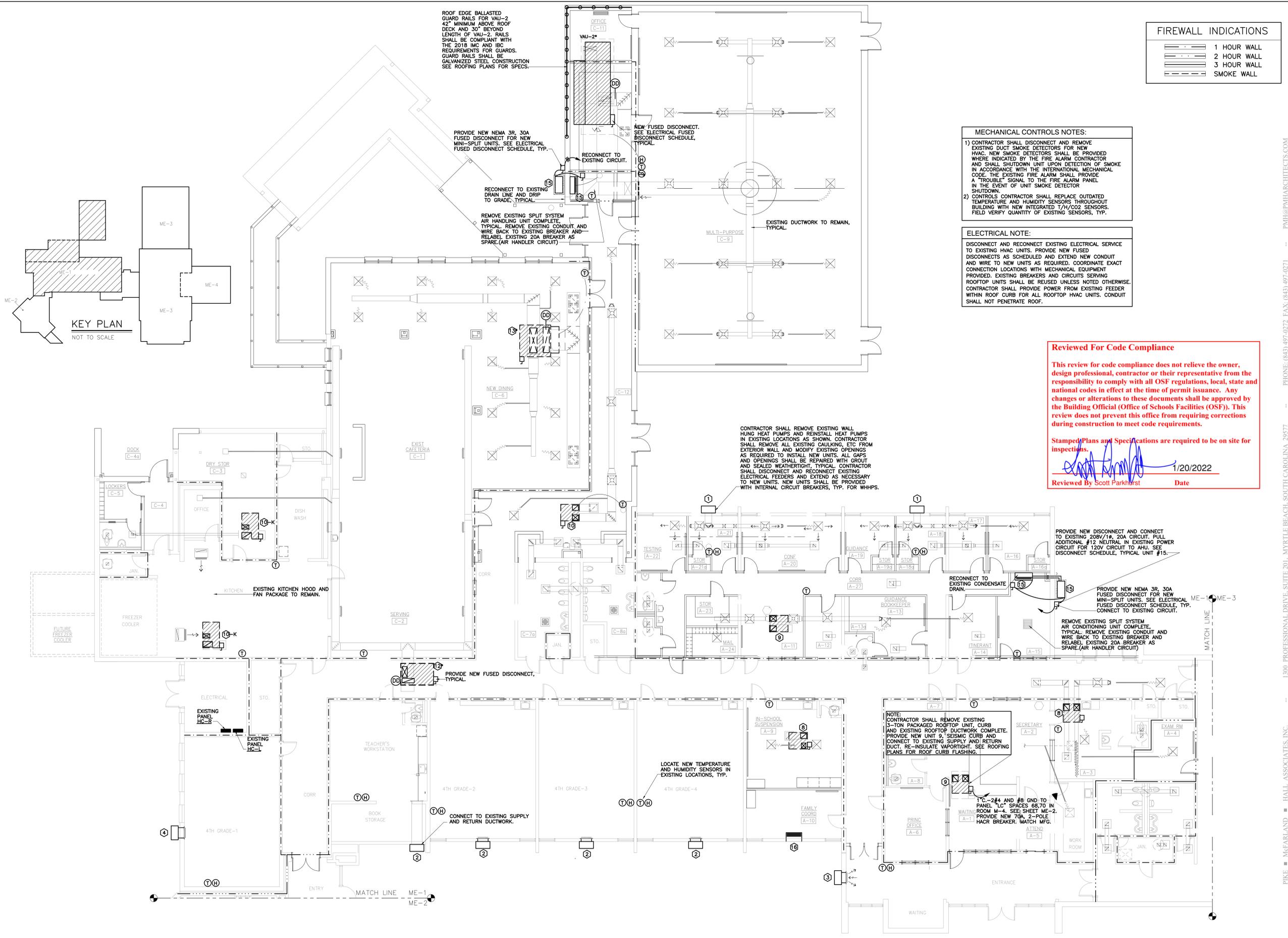
3 THROUGH WALL SCUPPER DETAIL



4 NEW OVERFLOW SCUPPER DETAIL

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ROOF EDGE BALLASTED GUARD RAILS FOR VAU-2 42" MINIMUM ABOVE ROOF DECK AND 30" BEYOND LENGTH OF VAU-2. RAILS SHALL BE COMPLIANT WITH THE 2015 IBC AND IRC REQUIREMENTS FOR GUARDS. GUARD RAILS SHALL BE GALVANIZED STEEL CONSTRUCTION SEE ROOFING PLANS FOR SPECS.

PROVIDE NEW NEMA 3R, 30A FUSED DISCONNECT FOR NEW MINI-SPLIT UNITS. SEE ELECTRICAL FUSED DISCONNECT SCHEDULE, TYP.

REMOVE EXISTING SPLIT SYSTEM AIR HANDLING UNIT COMPLETE. TYPICAL. REMOVE EXISTING CONDUIT AND WIRE BACK TO EXISTING BREAKER AND RELABEL EXISTING 20A BREAKER AS SPARE (AIR HANDLER CIRCUIT)

EXIST. CAFETERIA [C-1]

EXISTING KITCHEN HOOD AND FAN PACKAGE TO REMAIN.

PROVIDE NEW FUSED DISCONNECT, TYPICAL.

CONNECT TO EXISTING SUPPLY AND RETURN DUCTWORK.

LOCATE NEW TEMPERATURE AND HUMIDITY SENSORS IN EXISTING LOCATIONS, TYP.

NOTE: CONTRACTOR SHALL REMOVE EXISTING 3-TON PACKAGED ROOFTOP UNIT, CURB AND EXISTING ROOFTOP DUCTWORK COMPLETE. PROVIDE NEW UNIT 9" SEISMIC CURB AND CONNECT TO EXISTING SUPPLY AND RETURN DUCT. RE-INSULATE VAPORTIGHT. SEE ROOFING PLANS FOR ROOF CURB FLASHING.

PROVIDE NEW DISCONNECT AND CONNECT TO EXISTING 208V/1PH, 20A CIRCUIT. PULL ADDITIONAL #12 NEUTRAL IN EXISTING POWER CIRCUIT FOR 120V CIRCUIT TO AHU. SEE DISCONNECT SCHEDULE, TYPICAL UNIT #15.

REMOVE EXISTING SPLIT SYSTEM AIR CONDITIONING UNIT COMPLETE. TYPICAL. REMOVE EXISTING CONDUIT AND WIRE BACK TO EXISTING BREAKER AND RELABEL EXISTING 20A BREAKER AS SPARE (AIR HANDLER CIRCUIT)

CONTRACTOR SHALL REMOVE EXISTING WALL HUNG HEAT PUMPS AND REINSTALL HEAT PUMPS IN EXISTING LOCATIONS AS SHOWN. CONTRACTOR SHALL REMOVE ALL EXISTING CAULKING, ETC FROM EXTERIOR WALL AND MODIFY EXISTING OPENINGS AS REQUIRED TO INSTALL NEW UNITS. ALL GAPS AND OPENINGS SHALL BE REPAIRED WITH GROUT AND SEALED WEATHERTIGHT. TYPICAL. CONTRACTOR SHALL DISCONNECT AND RECONNECT EXISTING ELECTRICAL FEEDERS AND EXTEND AS NECESSARY TO NEW UNITS. NEW UNITS SHALL BE PROVIDED WITH INTERNAL CIRCUIT BREAKERS, TYP. FOR WHHPS.

FIREWALL INDICATIONS	
	1 HOUR WALL
	2 HOUR WALL
	3 HOUR WALL
	SMOKE WALL

MECHANICAL CONTROLS NOTES:

- CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING DUCT SMOKE DETECTORS FOR NEW HVAC. NEW SMOKE DETECTORS SHALL BE PROVIDED WHERE INDICATED BY THE FIRE ALARM CONTRACTOR AND SHALL SHUTDOWN UNIT UPON DETECTION OF SMOKE IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE. THE EXISTING FIRE ALARM SHALL PROVIDE A "TROUBLE" SIGNAL TO THE FIRE ALARM PANEL IN THE EVENT OF UNIT SMOKE DETECTOR SHUTDOWN.
- CONTROLS CONTRACTOR SHALL REPLACE OUTDATED TEMPERATURE AND HUMIDITY SENSORS THROUGHOUT BUILDING WITH NEW INTEGRATED T/H/CO2 SENSORS. FIELD VERIFY QUANTITY OF EXISTING SENSORS, TYP.

ELECTRICAL NOTE:

DISCONNECT AND RECONNECT EXISTING ELECTRICAL SERVICE TO EXISTING HVAC UNITS. PROVIDE NEW FUSED DISCONNECTS AS SCHEDULED AND EXTEND NEW CONDUIT AND WIRE TO NEW UNITS AS REQUIRED. COORDINATE EXACT CONNECTION LOCATIONS WITH MECHANICAL EQUIPMENT PROVIDED. EXISTING BREAKERS AND CIRCUITS SERVING ROOFTOP UNITS SHALL BE REUSED UNLESS NOTED OTHERWISE. CONTRACTOR SHALL PROVIDE POWER FROM EXISTING FEEDER WITHIN ROOF CURB FOR ALL ROOFTOP HVAC UNITS. CONDUIT SHALL NOT PENETRATE ROOF.

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Reviewed By Scott Parkhurst Date

MECHANICAL AND ELECTRICAL FLOOR PLAN
SCALE: 1/8"=1'-0"

OWENS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
1007 LAKE HUNTER CIRCLE
MT. PLEASANT, SC 29524



PMH
PIKE & McFARLAND • HALL
ASSOCIATES, INC.
ARCHITECTS & PLANNERS

OWNER
HCS
Horry County Schools

PROJECT
ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR:
DAISY ELEMENTARY SCHOOL
LORIS, SOUTH CAROLINA

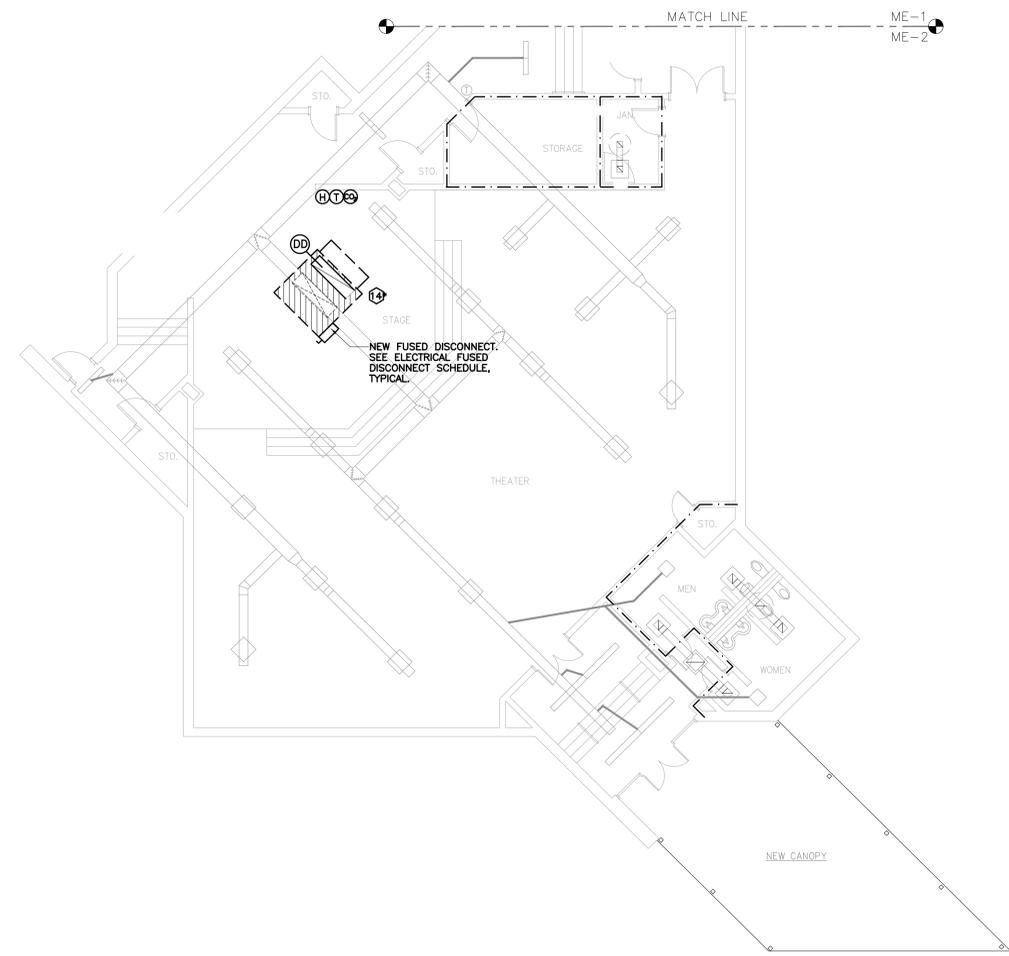
ME
PARTIAL
BUILDING
PLAN
CHECKED BY: CCOIII
COMM: 21043
FILE:
DRAWN BY: CCOIII
PLOT: 1
DATE: 1-14-2022
REV:

SHEET
ME-1

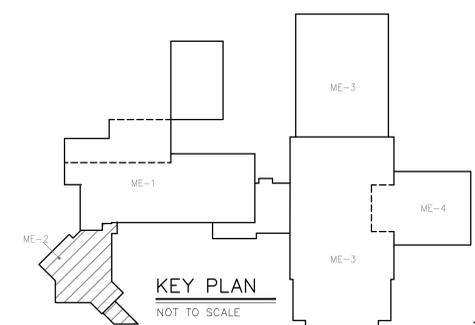
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PHONE: (843) 497-0272 FAX: (843) 497-0271
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FIREWALL INDICATIONS	
	1 HOUR WALL
	2 HOUR WALL
	3 HOUR WALL
	SMOKE WALL



MECHANICAL AND ELECTRICAL FLOOR PLAN THEATER
SCALE: 1/8"=1'-0"



Reviewed For Code Compliance

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Stamped Plans and Specifications are required to be on site for inspections.

Scott Parkhurst 1/20/2022
Reviewed By Scott Parkhurst Date

OWENS AND ASSOCIATES, INC.
CONSULTING ENGINEERS

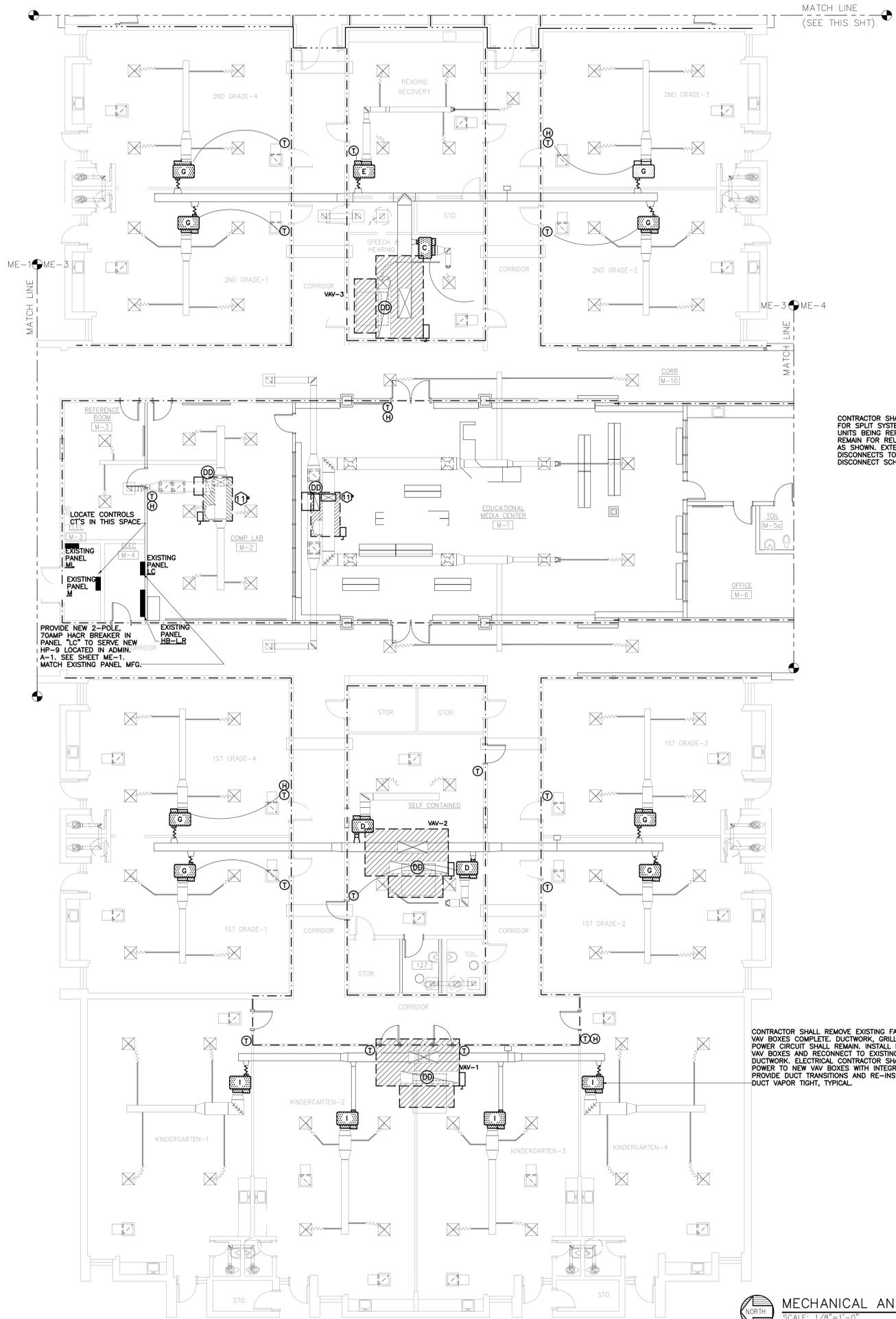
1007 LAKE HUNTER CIRCLE
MT. PLEASANT, SC 29524

Professional Engineer Seal: OWENS AND ASSOCIATES, INC. NO. 19097, 1-14-2022

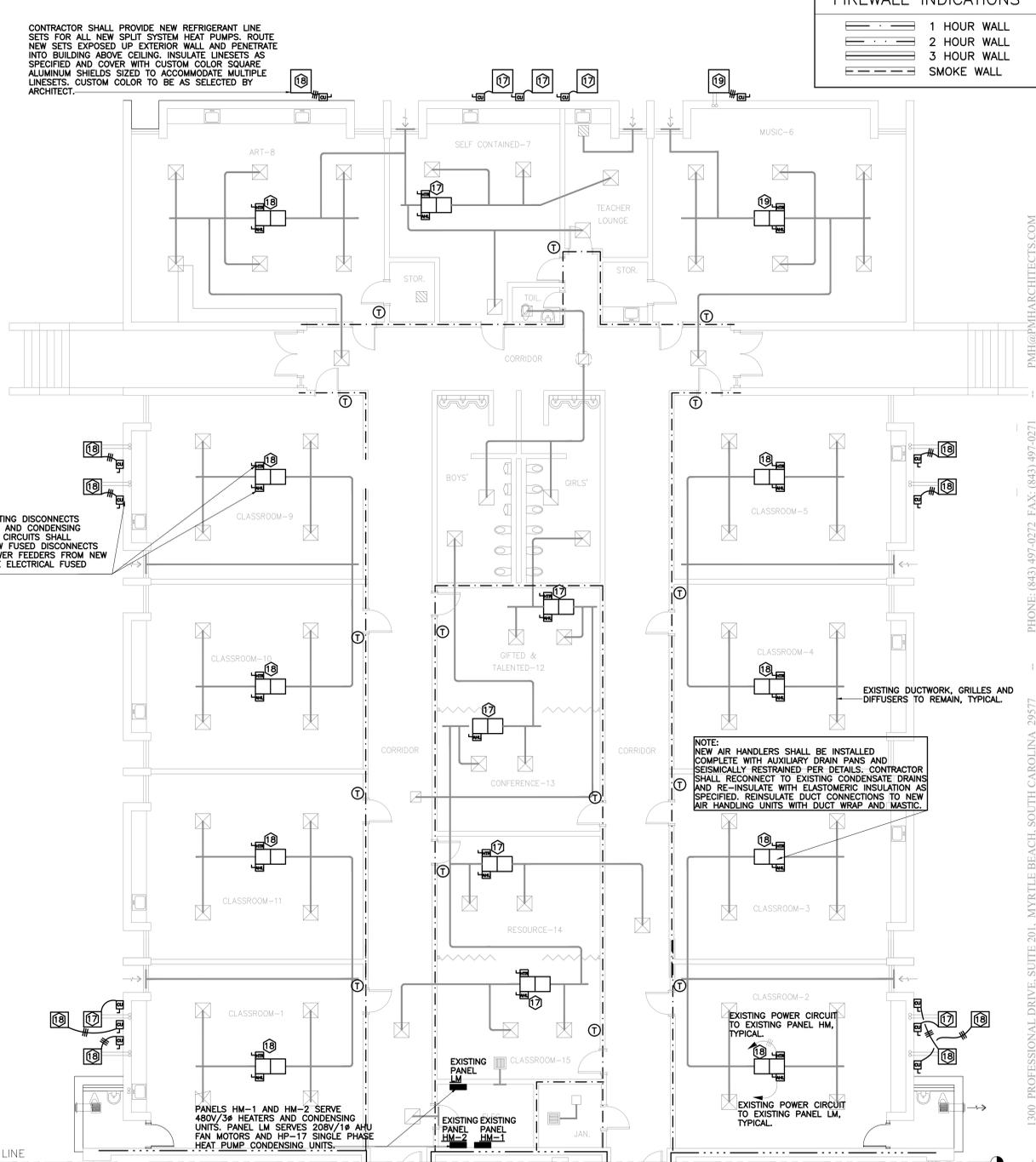
DESIGN DOCUMENTS FOR CONSTRUCTION

PIKE ■ McFARLAND ■ HALL ■ ASSOCIATES, INC. 1300 PROFESSIONAL DRIVE, SUITE 201, MYRTLE BEACH, SOUTH CAROLINA 29577 PHONE: (843) 497-0272 FAX: (843) 497-0271 PMH@PMHARCHITECTS.COM

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MECHANICAL AND ELECTRICAL FLOOR PLAN
SCALE: 1/8"=1'-0"



FIREWALL INDICATIONS

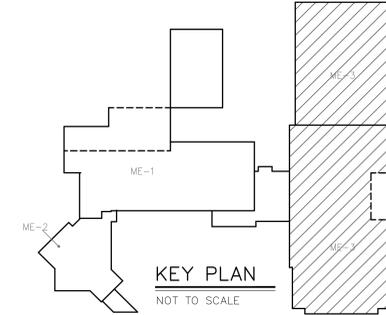
	1 HOUR WALL
	2 HOUR WALL
	3 HOUR WALL
	SMOKE WALL

CONTRACTOR SHALL PROVIDE NEW REFRIGERANT LINE SETS FOR ALL NEW SPLIT SYSTEM HEAT PUMPS. ROUTE NEW SETS EXPOSED UP EXTERIOR WALL AND PENETRATE INTO BUILDING ABOVE CEILING. INSULATE LINESETS AS SPECIFIED AND COVER WITH CUSTOM COLOR SQUARE ALUMINUM SHIELDS SIZED TO ACCOMMODATE MULTIPLE LINESETS. CUSTOM COLOR TO BE AS SELECTED BY ARCHITECT.

CONTRACTOR SHALL REMOVE EXISTING DISCONNECTS FOR SPLIT SYSTEM AIR HANDLERS AND CONDENSING UNITS BEING REPLACED. EXISTING CIRCUITS SHALL REMAIN FOR REUSE. PROVIDE NEW FUSED DISCONNECTS AS SHOWN. EXTEND EXISTING POWER FEEDERS FROM NEW DISCONNECTS TO NEW UNITS. SEE ELECTRICAL FUSED DISCONNECT SCHEDULE, TYPICAL.

CONTRACTOR SHALL REMOVE EXISTING FAN POWERED VAV BOXES COMPLETE. DUCTWORK, GRILLES AND ELECTRICAL POWER CIRCUIT SHALL REMAIN. INSTALL NEW SERIES FAN POWERED VAV BOXES AND RECONNECT TO EXISTING MEDIUM AND LOW PRESSURE DUCTWORK. ELECTRICAL CONTRACTOR SHALL RECONNECT EXISTING POWER TO NEW VAV BOXES WITH INTEGRAL FUSED DISCONNECT. PROVIDE DUCT TRANSITIONS AND RE-INSULATE NEW AND EXISTING DUCT VAPOR TIGHT, TYPICAL.

NOTE: NEW AIR HANDLERS SHALL BE INSTALLED COMPLETE WITH AUXILIARY DRAIN PANS AND SEISMICALLY RESTRAINED PER DETAILS. CONTRACTOR SHALL RECONNECT TO EXISTING CONDENSATE DRAINS AND RE-INSULATE WITH ELASTOMERIC INSULATION AS SPECIFIED. REINSULATE DUCT CONNECTIONS TO NEW AIR HANDLING UNITS WITH DUCT WRAP AND MASTIC.



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PIKE ■ McFARLAND ■ HALL ASSOCIATES, INC. ARCHITECTS & PLANNERS



PROJECT

ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR:
DAISY ELEMENTARY SCHOOL
LORIS, SOUTH CAROLINA

ME PARTIAL BUILDING PLAN
CHECKED BY: CCOIII

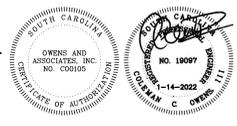
COMM: 21043
FILE: COVER SHEET
DRAWN BY: CCOIII
PLOT: 1
DATE: 1-14-2022
REV:

SHEET

ME-3

OWENS AND ASSOCIATES, INC.
CONSULTING ENGINEERS

1007 LAKE HUNTER CIRCLE
MT. PLEASANT, SC 29524



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FIREWALL INDICATIONS	
	1 HOUR WALL
	2 HOUR WALL
	3 HOUR WALL
	SMOKE WALL

ROUTE NEW SUPPLY AND RETURN DUCT FROM NEW VENTILATION AIR UNIT AND CONNECT TO EXISTING SUPPLY AND RETURN DUCT ENTERING BUILDING. TRANSITION TO EXISTING SIZES. ALL EXTERIOR DUCTWORK SHALL BE INSULATED WITH 2" ARMAFLEX TYPE SA ELASTOMERIC INSULATION SECURED AND COVERED WITH 26 GAUGE STAINLESS STEEL JACKETING. TYPICAL. PROVIDE SUPPLEMENTAL SUPPORT WITH HOT DIPPED GALVANIZED 2"x2"x1/4" ANGLE IRON SUPPORTS. SUPPORT RETURN DUCT CROSSING ABOVE VAV WITH ANGLE IRON WITH CORK AND RUBBER PADS BETWEEN UNIT AND SUPPORT STANDS, TYP.

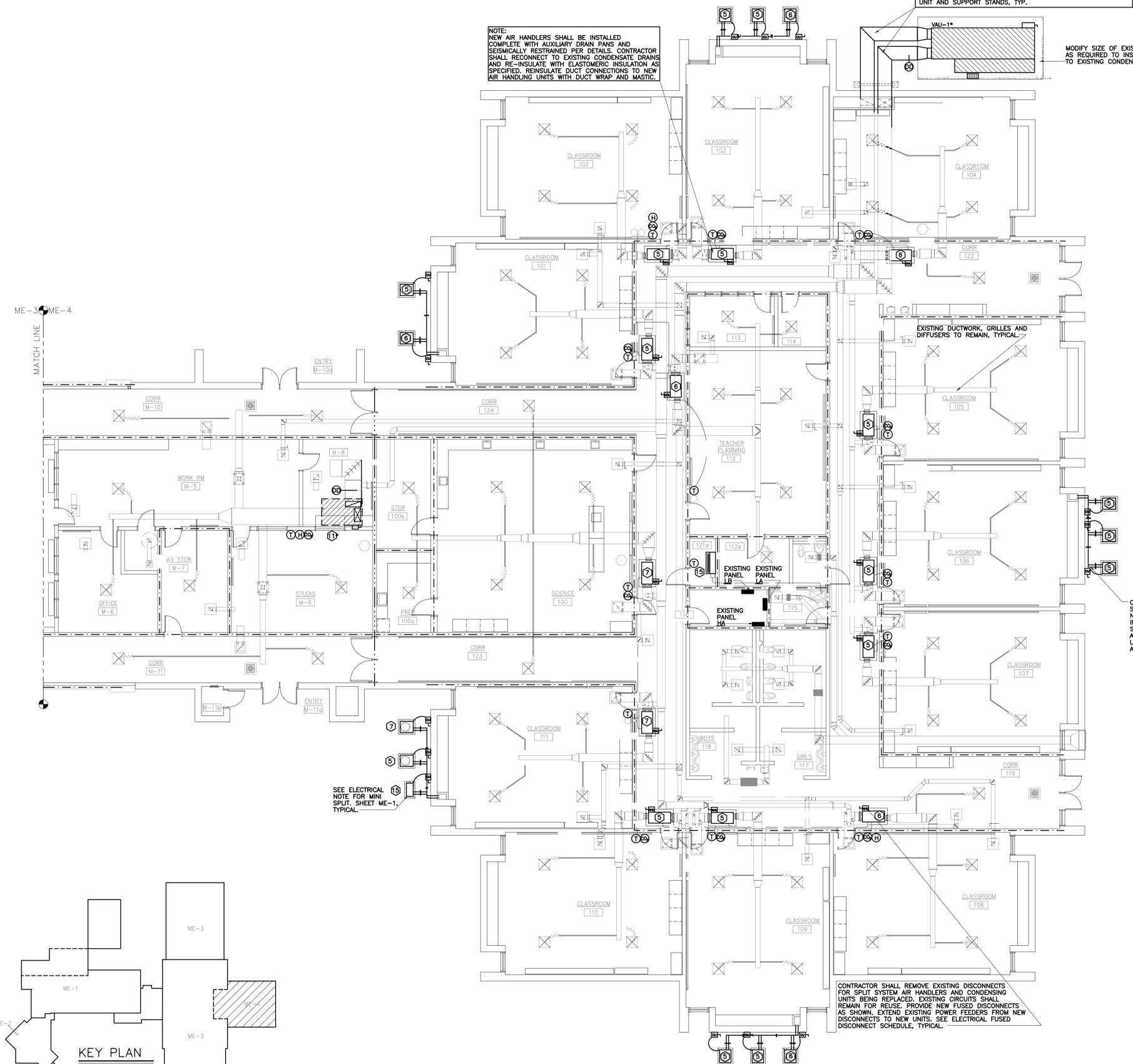
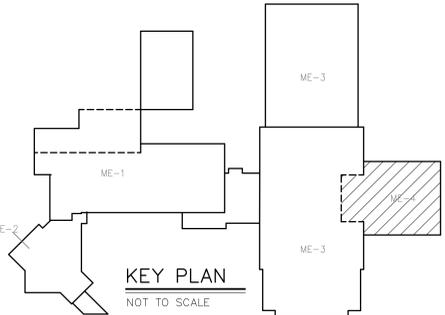
NOTE: NEW AIR HANDLERS SHALL BE INSTALLED COMPLETE WITH AUXILIARY DRAIN PANS AND SEISMICALLY RESTRAINED PER DETAILS. CONTRACTOR SHALL RECONNECT TO EXISTING CONDENSATE DRAINS AND RE-INSULATE WITH ELASTOMERIC INSULATION AS SPECIFIED. REINSULATE DUCT CONNECTIONS TO NEW AIR HANDLING UNITS WITH DUCT WRAP AND MASTIC.

MODIFY SIZE OF EXISTING CONCRETE SLAB AS REQUIRED TO INSTALL NEW UNIT. RECONNECT TO EXISTING CONDENSATE DRAIN.

CONTRACTOR SHALL PROVIDE NEW REFRIGERANT LINE SETS FOR ALL NEW SPLIT SYSTEM HEAT PUMPS. ROUTE NEW SETS EXPOSED UP EXTERIOR WALL AND PENETRATE INTO BUILDING ABOVE CEILING. INSULATE LINESETS AS SPECIFIED AND COVER WITH CUSTOM COLOR SQUARE ALUMINUM SHIELDS SIZED TO ACCOMMODATE MULTIPLE LINESETS. CUSTOM COLOR TO BE AS SELECTED BY ARCHITECT.

CONTRACTOR SHALL REMOVE EXISTING DISCONNECTS FOR SPLIT SYSTEM AIR HANDLERS AND CONDENSING UNITS BEING REPLACED. EXISTING CIRCUITS SHALL REMAIN FOR REUSE. PROVIDE NEW FUSED DISCONNECTS AS SHOWN. EXTEND EXISTING POWER FEEDERS FROM NEW DISCONNECTS TO NEW UNITS. SEE ELECTRICAL FUSED DISCONNECT SCHEDULE, TYPICAL.

SEE ELECTRICAL NOTE FOR MINI SPLIT, SHEET ME-1, TYPICAL.



MECHANICAL AND ELECTRICAL FLOOR PLAN
SCALE: 1/8"=1'-0"

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CONSULTING ENGINEERS

1007 LAKE HUNTER CIRCLE
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STATE OF SOUTH CAROLINA
DIVISION OF PROFESSIONAL REGULATION
REGISTERED PROFESSIONAL ENGINEER
NO. 19097
1-14-2022

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GENERAL MECHANICAL NOTES

- 1. CONTRACTOR SHALL VERIFY EXACT DIMENSIONS OF EXISTING ROOFTOP UNITS TO BE REPLACED. NEW CURB ADAPTORS SHALL BE SEISMICALLY RATED AND FIT EXISTING DUCT CONFIGURATIONS OF EXISTING DOWNFLOW ROOFTOP GAS PACKS/VAV RTUS. ADAPTORS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION AND POSITIVELY SLOPED FOR DRAINAGE.

DESIGN CONDITIONS table with columns for COOLING and HEATING, and rows for OUTSIDE and INSIDE conditions.

SYMBOL SCHEDULE table listing symbols for thermostat, humidistat, CO2 sensor, carbon monoxide sensor, air purifier, exhaust fan, transfer grille, air turning vane, and fire damper.

HEAT PUMP SCHEDULE table with columns for SYMBOL, COOLING CAP, HEATING CAP, SUP. HTR, CFM, EXT. SP. IN. H2O, FAN HP, VOLTS, PHASE, HERTZ, M.O.C.P., REMARKS, and MANUFACTURER.

* UNITS SO DESIGNATED SHALL BE PROVIDED WITH DUCT MOUNTED RETURN AIR SMOKE DETECTORS TO COMPLY WITH THE IMC. DUCT SMOKE DETECTORS SHALL HAVE ADDRESSABLE MODULES. DETECTORS AND MODULES ARE PROVIDED BY THE FIRE ALARM CONTRACTOR.

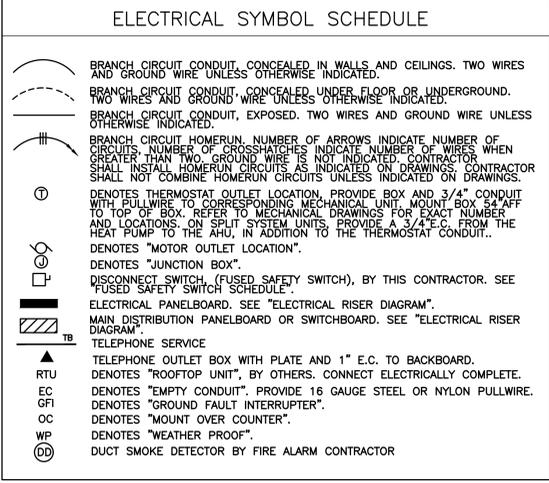
GENERAL ELECTRICAL NOTES:

- 1. DUE TO THE NATURE OF WORK COVERED UNDER THESE PLANS AND SPECIFICATIONS, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING VISITED THE SITE TO FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID.

ROOFTOP VAV UNIT SCHEDULE table with columns for SYMBOL, VAV-1, VAV-2, VAV-3, and rows for SUPPLY AIR, OUTSIDE AIR, CAPACITY, SENSIBLE CAP., T. EDB, T. EWB, T. LDB, T. LWB, EER, IEER, COMPRESSOR QUANTITY, EVAP. AREA, FACE VELO., POWER EXHAUST CFM, EXT. SP. IN., EXHAUST HP, FAN MTR HP, H.Z., and M.O.C.P.

MINI SPLIT SCHEDULE table with columns for SYMBOL, COOLING CAP, HEATING CAP, SUP. HTR, CFM, EXT. SP. IN. H2O, FAN HP, VOLTS, PHASE, HERTZ, M.O.C.P., REMARKS, MANUFACTURER, and MODEL.

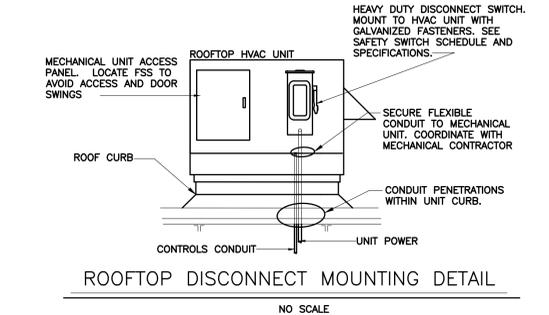
THRU WALL HEAT PUMP SCHEDULE table with columns for SYMBOL, COOLING CAP, HEATING CAP, SUP. HTR, CFM, EXT. SP. IN. H2O, FAN HP, VOLTS, PHASE, HERTZ, M.O.C.P., REMARKS, MANUFACTURER, and MODEL.



MECHANICAL UNIT ELECTRICAL DISCONNECT SCHEDULE table with columns for SYM., DISCONNECT (AMPS), FUSE (AMPS), VOLTAGE, PHASE, REQUIREMENTS, and ENCL. W/MECH UNIT.

- 1. TRANE INTELLIPAK ROOFTOP VAV UNIT WITH VFD AND LOW AMBIENT CONTROLS AND POWER EXHAUST, SEE SPECIFICATIONS.

HEAT PUMP SCHEDULE table with columns for SYMBOL, COOLING CAP, HEATING CAP, SUP. HTR, CFM, EXT. SP. IN. H2O, FAN HP, VOLTS, PHASE, HERTZ, M.O.C.P., REMARKS, MANUFACTURER, and MODEL.



SERIES FAN POWERED VAV UNIT SCHEDULE table with columns for SYMBOL, CFM, INLET DUCT, RUNOUTS, MAX. PRESS., MIN. CFM, FAN, HEATER, VOLTS, PH, AIR VALVE, and SIZE#.

* UNITS SO DESIGNATED SHALL BE PROVIDED WITH DUCT MOUNTED RETURN AIR SMOKE DETECTORS TO COMPLY WITH THE IMC. DUCT SMOKE DETECTORS SHALL HAVE ADDRESSABLE MODULES. DETECTORS AND MODULES ARE PROVIDED BY THE FIRE ALARM CONTRACTOR.

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VENTILATION AIR UNIT SCHEDULE table with columns for VENTILATION AIR, EXHAUST AIR, T.E. WHEEL SUMMER, T.E. WHEEL WINTER, WHEEL EFF., COOLING COIL, BUILDING SUPPLY, M.R.E., ELECTRIC HEAT, ELECTRICAL, and M.O.P.

- NOTE 1-BASIS OF DESIGN IS GREENCHECK RVE. ANY ADDITIONAL REQUIREMENTS ELECTRICALLY, STRUCTURALLY, DIMENSIONALLY OR OTHERWISE TO USE OTHER PRIOR APPROVED MANUFACTURERS ARE THE RESPONSIBILITY OF THIS CONTRACTOR.

NOTES: FUSE NEW DISCONNECTS TO THE M.O.C.P. OF EQUIPMENT PROVIDED. DISCONNECT ENCLOSURES SHALL BE PROVIDED WITH APPROVED EQUAL AS SCHEDULED.



PROJECT: ROOFING SYSTEM AND HVAC EQUIPMENT REPLACEMENT FOR: DAISY ELEMENTARY SCHOOL, LORIS, SOUTH CAROLINA

ME SCHEDULES AND DETAILS CHECKED BY: CCOIH

COMM: 21043 FILE: COVER SHEET DRAWN BY: CCOIH PLOT: DATE: 1-14-2022 REV:



DESIGN DOCUMENTS FOR CONSTRUCTION

SEQUENCE OF OPERATION

The HVAC system is controlled by a SIEMENS automation system. The system is integrated into the existing district wide SIEMENS automation system. All interface with the system is accomplished from the existing Apogee insight color graphics workstation. The SIEMENS automation system is provided, engineered, installed, programmed, and commissioned by Control Management, Inc.

Heat Pumps:
Each heat pump is controlled by its own Terminal Equipment Controller (TEC). The TEC is indexed to a day or night mode on a schedule provided by the HCS. When in the day mode, the TEC will energize the heat pump fan to operate continuously. On a rise in room temperature above the cooling setpoint, the TEC will energize the reversing valve and the compressor. On a drop in room temperature below the cooling setpoint, the TEC will de-energize the compressor. On a drop in room temperature below the heating setpoint, the TEC will de-energize the reversing valve and energize the compressor. On a further drop in room temperature, the TEC will energize the electric heat. On a rise in room temperature, the reverse sequence will occur. All split system heat pumps are equipped with an auxiliary drain pan float switch. When excessive condensate is detected by the drain pan float switch, the TEC and heat pump will be de-energized. If the heat pump is equipped with a duct smoke detector (provided by Division 16000), the TEC and heat pump will be de-energized upon the presence of smoke being present. If the heat pump is equipped with a motorized outdoor air damper, the damper will open only during the occupied mode. For heat pumps equipped with energy recovery ventilators, the ERV's shall operate only during occupied hours and after morning cooldown/warmup is complete.

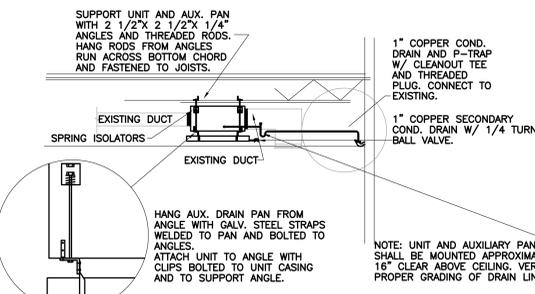
Makeup Air Units:
Each Makeup Air Unit (MAU) is controlled by its own Mechanical Equipment Controller (MEC). The MEC is factory mounted and wired by the MAU manufacturer. The MEC is programmed to maintain the manufacturers required sequence of operation as follows. When indexed to operate, the MEC will start the supply and exhaust fans. After flow has been proven by the fan current switches, the MEC will stage the cooling if outdoor air temperature is above 55°F and any of the following conditions are present: 1) average room temperature is greater than 75°F, 2) The room dew point is greater than 58°F, or 3) The return relative humidity is greater than 55%RH. When cooling is required, the coil leaving air setpoint is calculated by subtracting the return air RH from 98 (i.e. CSP = 98 - XX%RH). The four stages of cooling are staged on based on a 0-100% cooling load loop as follows; Stage 1 on @ 70% and off @ 5% - Stage 2 on @ 80% and off @ 15% - Stage 3 on @ 90% and off @ 25% - Stage 4 on @ 100% and off @ 35%. In addition there is an on delay and off delay for each stage of 2 minutes. When stage 1 is energized, all condenser fans are energized. When the MAU is indexed to the occupied mode, the MEC will modulate the outdoor/return/relief air dampers to maintain the CO2 levels of the return air to an adjustable setpoint. When the MAU is in the unoccupied mode, the dampers will spring return to the normal (closed) position. In the unoccupied mode, the MAU will be disabled unless the room RH rises above an adjustable setpoint. The energy recovery wheel shall be operational whenever outside air is introduced into the building. The electric heating section will be enabled during heating season to temper the supply air (VAU-1) or provide heat to the space (VAU-2). Each VAU shall operate in bypass (100% recirculation) until the most demanding CO2 sensor located in the spaces served reaches a CO2 level of 1000 PPM.

Packaged VAV Units:
Each packaged VAV unit (VAV-X) is controlled by its own factory mounted MEC with BACNET interface to be controlled by the Siemens Control system. During occupied hours, the BAS shall enable each VAV unit to deliver cooled air with coil air discharge setpoint as scheduled. The duct static pressure sensor shall control the supply fan VFD to maintain duct static setpoint as determined by the BAS. During cooling season, supply air temp shall be as scheduled. When outside air conditions are favorable (45° F or less) the BAS shall reset the supply temperature to avoid excessive cooling and reheating by the VAV boxes. If the space RH exceeds 55%(adj.) the unit shall revert back to scheduled supply air temperature to dehumidify the building. During morning cooldown/warmup, the outside air dampers shall remain closed until space temperature setpoints have been satisfied. Outside air shall be delivered by modulating the OA damper to maintain a maximum CO2 level of 1000 PPM(adj) at the most demanding room CO2 sensor.

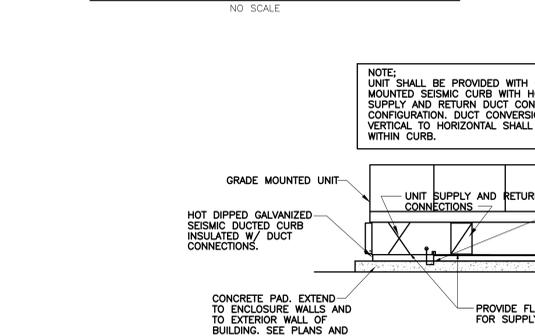
Exhaust Fans:
Exhaust fans are controlled by the local control panels, manual switches, or thermostats as indicated on the mechanical drawings.

Electric Water Heaters:
Each electric water heater and its associated circulating pump will be energized based on a schedule provided by the owner.

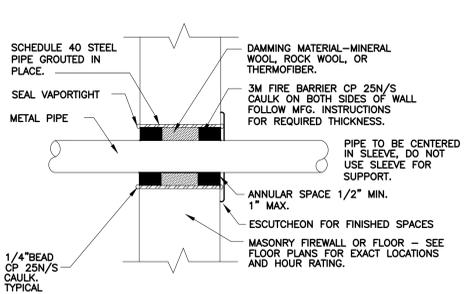
Kitchen Water Heater:
The two temp hot water system is controlled by its factory provided controls integrated into a custom fabricated control panel. The water heater is energized based on a schedule provided by the owner. Refer to the Kitchen Water Heater control panel diagram for more detailed information.



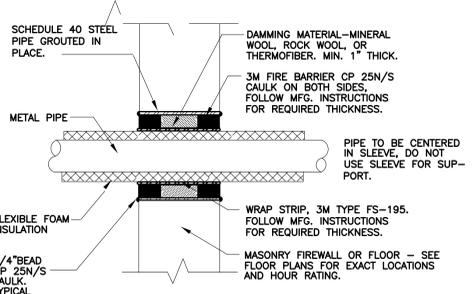
HEAT PUMP INDOOR UNIT DETAIL



SLAB MOUNTED VENTILATION AIR UNIT INSTALLATION DETAIL (VAU-1)

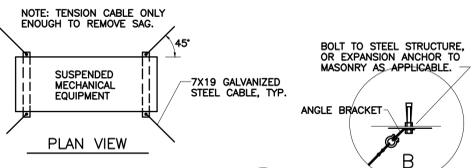


UL SYSTEM #CAJ1001

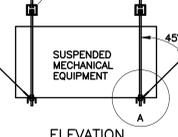


UL SYSTEM #CAJ5017

FIRE RATED PIPE PENETRATION DETAIL

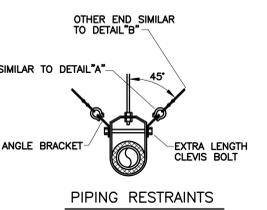


PLAN VIEW

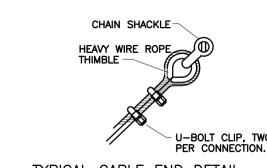


ELEVATION

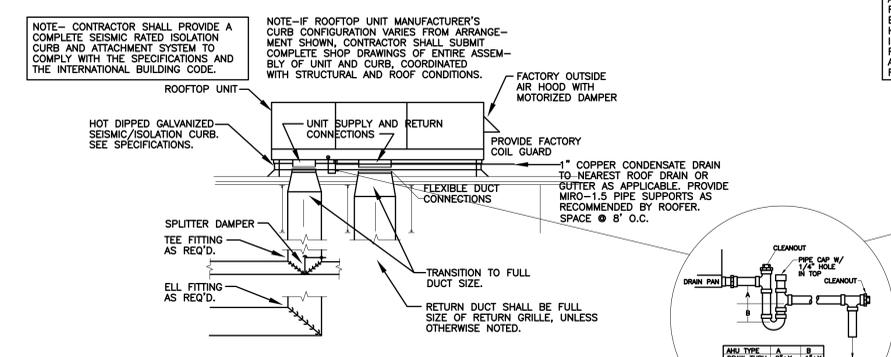
MECHANICAL SYSTEM SEISMIC RESTRAINTS



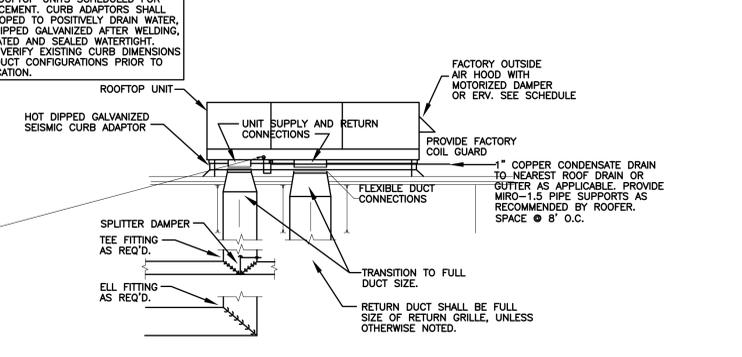
PIPING RESTRAINTS



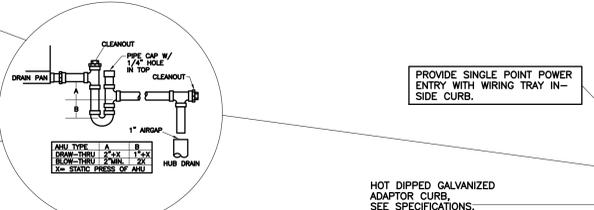
TYPICAL CABLE END DETAIL



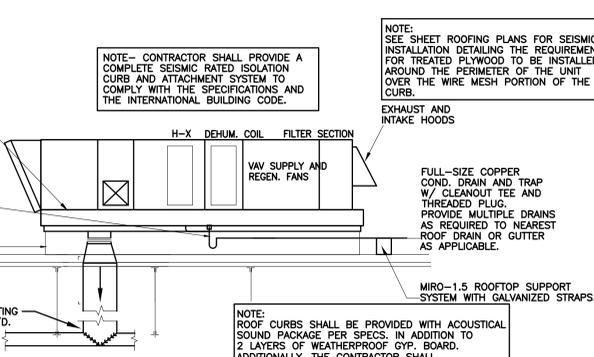
ROOFTOP UNIT INSTALLATION DETAIL (ADMIN. UNIT #9)



ROOFTOP UNIT INSTALLATION DETAIL WITH CURB ADAPTORS



MECHANICAL DETAILS



ROOFTOP VAV INSTALLATION DETAIL (VAU-2)

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