PLANNING REVIEW APPLICATION FORM



Alamance County Planning Department

201 W. Elm Street Graham, NC 27244

planning@alamance-nc.com

(336) 570-4053

Submit one (1) p	rinted copy and an electronic set of plans to the Planning Office for review.
PROJECT SUMMARY	Y: Level 1 Alteration: Replace and add mechanical equipment. Replace selective storefront elevations.
	amahaw-Ossipee Elementary School
B. Type of Plan:	☐ Minor Subdivision (≤ 14 lots) ☐ Major Subdivision (> 14 lots) ☐ Exempt Subdivision
	X Heavy Industrial Development* □ Solar Farm □ Manufactured Home Park □ RV Park
	□Wireless Communication Facility* □Floodplain Development* □Watershed Site Plan
	□Stream Determination □Sexually Oriented Business □Use Verification Letter □Ordinance Variance*
	*Note: these projects have additional required application forms. Please refer to the Planning Department website
	(https://www.alamance-nc.com/planningdept/) or contact the Planning Department for further information.
C. Review Stage:	☐ Preliminary Plat ☐ Technical Review Committee ☐ Construction Plan Review ☐ Final Plat
D. Property Street A	ddress: 2832 N NC Hwy 87, Elon, NC 27244
Property Description	n: AO Elementary School - Existing
E. Owner/ Applicant	Alamance-Burlington School Systems/Samet Corporation
F. Report Comments	s to: Eric Magyar
	(336) 509 - 6976 Fax Number: N/A
E-Mail: Emegyar	@ Sometcorp.com
Report Comments to	o (additional contact): Erin Snyder
Telephone Number:	(336) 944-1794 Fax Number: N/A
E-Mail: Esnyder@sam	etcorp.com
G. Tax Map / Block /	Parcel # (s): 8848943602
H. Total Tract Acreas	ge: 14.79 Acres
I. Watershed: \Box y	
If yes, which waters	ned:
J. Floodplain: yes	
	opment Permit may also be required if the property is in the Floodplain)
K. Proposed Use (use	e separate page if necessary): Educational
L. Number and Type	of Lots: N/A
PLAN SUBMISSION	GUIDELINES
	ions must submit a preliminary plat for review and undergo a TRC meeting before submitting a final plat. Minor
	empt Subdivisions may submit preliminary plats to be reviewed digitally before submitting final plats. r TRC Review must be submitted ten (10) days prior to the desired TRC meeting (TRC meetings may be scheduled
	2 nd & 4 th Thursdays of each month). Submittals must be complete in order to be scheduled for review.
7.50	ood and completed the attached plan to the best of my knowledge and ability.
Applicant Clauster	Eric Magyar Bush of the Major o
Applicant Signature:	Eric Magyar Phone: Date: 5/8/2023

Alamance County

Alamance County Planning Fee Schedule FY 2022-2023

Subdivision Review	
Preliminary Plat Review	\$160.00
Technical Review Committee Submittal	\$310.00
Final Plat Review	\$160.00 + \$40 per lot
Exempt Plat Review	\$60.00
Review Office Signature	\$25.00
Subdivision Ordinance Waiver (per item)	\$310.00
Existing Non-Conforming Private Road Determination	\$60.00
	V is
Wireless Communication Facilities	PRO /\
Cell Tower Application Fee	\$2,550.00
Collocation Permit	\$60.00
Floodulain Watershad and Salaama	PUBI
Floodplain, Watershed and Streams	
Floodplain Development Permit	\$110.00
Floodplain Variance	\$310.00
Watershed Site Plan Review	\$110.00
Floodplain Waiver Review	\$310.00
Watershed Ordinance Variance	\$310.00
Sexually Oriented Businesses	
Sexually Oriented Business Owner's License	\$510.00
SOB Owner's License-Renewal (yearly)	\$260.00
Sexually Oriented Business Manager's License	\$110.00
SOB Manager's License-Renewal (yearly)	\$60.00

Heavy Industrial Development Ordinance	
Heavy Industrial Intent to Construct Permit	\$510.00
Heavy Industrial Operations Permit	\$60.00
Heavy Industrial Development Variance	\$310.00
Maps	
GIS Maps (8.5x11, black and white)	\$0.15 per pag
GIS Maps (8.5x11, color)	\$0.50 per pag
GIS Maps (11x17, color)	\$1.00 per pag
GIS Maps (18x24, color)	\$5.00 per pag
GIS Maps (24x36, color)	\$7.50 per pag
GIS Maps (36x48, color)	\$12.50 pe pag
Custom GIS Maps	\$25.00 pe
Carlos	
Copies	Ć4 00
Map Copies- 18x24-small (black & white)	\$1.00 eac
Map Copies - 18x24-small (color)	\$2.50 eac
Map Copies- Larger than 18x24 (color)	\$5.00 eac
Any Ordinance (8 ½ x 11)	\$5.0
Misc. Items	
Appeal of Administrative Decision	\$160.0
Road Signs	\$350.0
Use Verification Letter	\$35.0



Altamahaw-Ossipee Elementary HVAC & WINDOW RENOVATION

2832 N NC Hwy 87 Elon, NC 27244

> 05.03.23 *22-043*

LIST OF DRAWINGS

COVER SHEET BUILDING CODE SUMMARY

ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES

SPECIFICATIONS

ARCHITECTURAL COORDINATION PLANS STOREFRONT ELEVATIONS STOREFRONT DETAILS

MECHANICAL HVAC PARTIAL PLAN

MECHANICAL HVAC PARTIAL PLAN MECHANICAL HVAC PARTIAL PLAN

MECHANICAL HVAC PARTIAL PLAN MECHANICAL HVAC DETAILS

ELECTRICAL

ELECTRICAL LEGEND AND NOTES ELECTRICAL SPECIFICATIONS

POWER FLOOR PLAN

ELECTRICAL DETAILS ELECTRICAL DIAGRAMS











Owner or Authorized Agent Address: 1712 Vaughn Roa Owned By: Code Enforcement Jurisdic LEAD DESIGN PRO Designer Architectural Civil Electrical Fire Alarm Plumbing Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other 2018 NC BUILDING	ity / County tion: City:	□ Private	County:	□ State	Email: <u>j</u> i	#: <u>336-438-400</u> immy.russell@a		c.us	
Address: 1712 Vaughn Roa Owned By: Code Enforcement Jurisdic LEAD DESIGN PRO Designer Architectural Civil Electrical Fire Alarm Plumbing Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other	ity / County tion: City: FESSIONAL Firm Lindsey Architecture	□ Private	County:		Email: <u>j</u> i	•		C.US	
Code Enforcement Jurisdic LEAD DESIGN PRO Designer Architectural Civil Electrical Fire Alarm Plumbing Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other	tion: City: FESSIONAL Firm Lindsey Architectur	<u>Na</u>	County:						
LEAD DESIGN PRO Designer Architectural Civil Electrical Fire Alarm Plumbing Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other	FESSIONAL Firm Lindsey Architectur	<u>Na</u>	County:			0			
Designer Architectural Civil Electrical Fire Alarm Plumbing Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other	Firm Lindsey Architectur			Alamance	<u>}</u>	State:			
Civil Electrical Fire Alarm Plumbing Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other			<u>me</u>	<u>L</u>	icense#	Telephone#	<u>Email</u>		
Electrical Fire Alarm Plumbing Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other	Optima Engineerin	re Em	ily Hinton	1	3412	336-617-4402	2 emily@	glindseyarch.	com_
Mechanical Sprinkler-Standpipe Structural Retaining Walls >5' High Other		g Zar	ne Kuseybi	1	7308	919-926-220	O zkusyb	oi@optimaeno	gineering.con
Structural Retaining Walls >5' High Other	Systems Contracto	ors Roi	nald Pitts		32727	336-763-896	 9rpitts@	systemscont	<u>ractors.com</u>
2018 NC BUILDING									
2018 NC EXISTING	BUILDING COI		ion ☐ Prescript ☐ Repair ☐ Chapter	□ I tive ■ /	Alteration Alteration Alteration	Construction (Shan Level I Description Construction Const		perty	npletions novation
Constructed: Renovated:			3):						
Risk Category (Table 1604.									
BASIC BUILDING D	ATA (EXISTIN	G TO RE	MAIN)						
, ,		□ II-A □ II-B	□ III-/		□IV		□ V-A □ V-B		
		□ NFPA 13		PA 13R	□ N	FPA 13D	-		
· Standpipes: ■ No Cla	ss 🗆 I	□ II			□W	et i	□ Dry		
Primary Fire District:	■ No	☐ Yes	Flood	l Hazard A	rea:	■ No	□ Ye	es	
Special Inspections Require	ed: ■ No [☐ Yes							
Gross Building Area Table:									
Floor	Existing (sq. fl	<u>i.)</u>	<u>Ne</u>	ew (sq. ft.)		<u>s</u>	Sub-Total		
5th Floor									
4th Floor 3rd Floor									
2nd Floor Mezzanine 1st Floor									
Basement Total									
ALLOWABLE AREA	(EXISTING T	O REMA	IN)						
Primary Occupancy:	(27.101.1101	O 1 (211), (,						
☐ Assembly ☐ Business	□ A-1 □ A-2	2 □ A	-3 □ A	<u>-</u> 4] A-5				
■ Educational □ Factory	☐ F-1 Moderate	□ F-2							
☐ Hazardous ☐ Institutional	□ I-1	□ I-2	lagrate □ H □ I-:		st □ H □ I-		□ H-5 HPM	1	
I-2 Use	Condition	□ 2							
I-4		□2 □3	□ 4 □ 5						
Mercantile Residential Storage	☐ R-1 ☐ R-: ☐ S-1 Moderate	2	□ R □ S	R-3 3-2 Low	□ R	R-4 ligh Piled			
Utility and Miso	☐ Parking Garage	· □ O		inclosed		Repair Garage			
Accessory Occupancy Clas									
Incidental Uses (Table 509)		Non-Separa	ated Use (see	e exception	ns).				
☐ Furnace room	where any piece of e	equipment is	s over 400,00	00 Btu per	hour inpu				
☐ Refrigerant ma	_			- [-	-	·			
☐ Incinerator roo	•		•	cies other t	:han Groι	лр F			
☐ Ambulatory ca	pancies, laboratories re facilities, laborator	ries not clas	•		d as Groบ	Ib H			
☐ Group I-2, laur	s over 100 square feather rooms over 100	square feet							
☐ Group I-2, com									
☐ Group I-3 cells☐ Group I-2, phy	ms or spaces that co and Group I-2 patie sical plant maintenar	nt rooms eq nce shops	uipped with p	oadded sur					
that have an a	care facilities or Grou ggregate volume of	10 cubic fee	t or greater						
over 100 squa									
flooded lead-a	age battery systems cid, nickel cadmium	or VRLA, or	more than 1,	,000 pound	ds for lithi	ium-ion and lithi	ium		
☐ Fuel storage ro	used for facility stan coms in public schoo underneath grandst	ls and boile	r rooms in pu	ıblic schoo	ols				

 \square 510.2 \square 510.3 \square 510.4 \square 510.6 \square 510.7 \square 510.8 \square 510.9

Special Provisions:

•	ncy: \square No	■ Yes	Separation:	Hr.	Exception:	
☐ Non-Se _l	parated Use (508.3)					
□ Separat	ed Use (508.4) - See b	elow for area calcu	lations for each story,	the area of the	occupancy shall	
be such	that the sum of the rati	os of the actual flo	or area of each use di	vided by the allo	wable floor	
area for	each use shall not exc	eed 1.				
	Area of Occupancy A	+	al Area of Occupancy			
Allowable	Area of Occupancy A	Allowa	able Area of Occupand	y B		
		+		_ +	=	<1.
Story No.	Description	(A)	(B)	(C)	(D)	
Story No.	Description and use	(A) Bldg Area	Table 506.2 ⁴	(C) Area for	Allowable Area	
Story No.	· ·	Bldg Area Per Story	Table 506.2 ⁴	Area for Frontage	Allowable Area Per Story	
Story No.	· ·	Bldg Area	Table 506.2 ⁴	Area for	Allowable Area	
Story No.	· ·	Bldg Area Per Story	Table 506.2 ⁴	Area for Frontage	Allowable Area Per Story	
Story No.	· ·	Bldg Area Per Story	Table 506.2 ⁴	Area for Frontage	Allowable Area Per Story	
Story No.	· ·	Bldg Area Per Story	Table 506.2 ⁴	Area for Frontage	Allowable Area Per Story	

a. Perimeter which fronts a public way or open space having 20 feet minimum width = _____(F)

b. Total Building Perimeter = _____ c. Ratio (F/P) = _____(F/P)

d. W = Minimum width of public way = ____(W)

e. Percent of frontage increase I/f = 100[F/P-0.25]x W/30 = _____(%) 2. Unlimited area applicable under conditions of Section 507.

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

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

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

ALLOWABLE HEIGHT (EXISTING TO REMAIN)

Allowable	Shown on Plans	Code Reference
	1	

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

² The maximum height of air traffic control towers must comply with Table 412.3.1

³ The maximum height of open parking garages must comply with Table 406.5.4.

FIRE PROTECTION REQUIREMENTS (EXISTING TO REMAIN - EXISTING RATINGS SHALL BE MAINTAINED)

		R	ating				
Building Elements	Fire Separation Distance (Feet)	Req'd	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	1						
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions Exterior Walls							
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction including supporting beams and joists							
Floor Ceiling Assembly							
Columns Supporting Floors							
Roof Construction, including supporting beams and joists							
Roof Ceiling Assembly							
Columns Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation							
Occupancy/Fire Barrier Separation							
Party/Fire Wall Separation							
Smoke Barrier Separation							
Smoke Partition							
Tenant Dwelling Unit/Sleeping Unit Separation							
Incidental Use Separation							

* Indicates section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS (EXISTING TO REMAIN)

Fire Separation Distance (Feet) From Property Lines	Degree of Openings Protection (Table 705.8)	Allowable Area (%)	Actual Shown on Plans (%)

LIFE SAFETY SYSTEMS REQUIREMENTS (EXISTING TO REMAIN)

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

LIFE SAFETY PLAN REQUIREMENTS (NO CHANGE TO LIFE SAFETY/EGRESS)

Life Safety Plan Sheet #: _____

☐ Fire and/or smoke rated wall locations (Chapter 7)

☐ Assumed and real property line locations (if not on the site plan) ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)

☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)

☐ Occupant loads for each area ☐ Exit sign locations

☐ Exit access travel distances (1017)

☐ Common path of travel distances (Table 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 doors with 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 DWELLING UNITS (SECTION 1107) (NOT APPLICABLE)

Total Units	Accessible Units Required	Accessible Units Provided	Type A Units Required	Type A Units Provided	Type B Units Required	Type B Units Provided	Total Accessible Units Provided
			-	-		-	

ACCESSIBLE PARKING (SECTION 1106) (EXISTING TO REMAIN)

Lot or Parking Area	Total # of Pa	rking Spaces	# of Ac	Total # Accessible		
Alea	Required	Provided	Regular with 5' Access Aisle			Provided
	Access	Access Aisie	132" Access Aisle	8' Access Aisle		
TOTAL						

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1) (EXISTING TO REMAIN)

1.1	Use Water Closets		Urinals	Lavatories			Showers /	Drinking I	Fountains		
USE		Male	Female	Unisex	Ullilais	Male	Female	Unisex	Tubs	Regular	Accessible
Space	Existing										
	New										
	Required										
					ļ.		!				

SPECIAL APPROVALS

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

ENERGY SUMMARY

ENERGY REQUIREMENTS

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

Existing building envelope complies with code: (If checked, the remainder of this section is not applicable.)

Exempt Building:

Provide code or statutory reference: ______

Climate Zone: ☐ 3A ■ 4A ☐ 5A

Method of Compliance: Energy Code:

Performance

☐ Prescriptive (SECTION C503) ASHRAE 90.1: ☐ Performance ☐ Prescriptive

Other:

Performance (specify source) ___

THERMAL ENVELOPE: (Prescriptive method only)

Roof/ceiling Assembly (each Assembly) Description of assembly: U-Value of total assembly: R-Value of insulation: Skylights in each assembly: U-Value of skylight:

Total square footage of skylights in each assembly: _____

Exterior Walls (each assembly) Description of assembly:

U-Value of total assembly: R-Value of insulation: Openings (windows or doors with glazing) U-Value of assembly: Solar heat gain coefficient

Projection factor:

Door R-Values: Walls below grade (each assembly) Description of assembly:

U-Value of total assembly: R-Value of insulation: Floors over unconditioned space (each assembly)

Description of assembly: U-Value of total assembly: R-Value of insulation:

Floors slab on grade

<u>MECHANICAL</u>

Description of assembly: U-Value of total assembly: R-Value of insulation: Horizontal/vertical requirement: Slab heated:

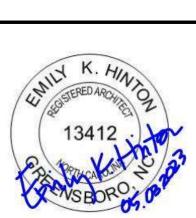
STRUCTURAL DESIGN (NOT APPLICABLE)

ELECTRICAL (REFER TO ELECTRICAL DRAWINGS)

(REFER TO MECHANICAL DRAWINGS)







Elementary NOIT RENOVA 00

4Itamahaw-0s

MK DATE DESCRIPTION REVISIONS

CODE

05.03.2023 DATE DRAWN BY ERH CHECK BY EKH JOB NO. 22-043 SHEET

RISER

RF.H.

RFG.

R.O.

SCHED.

SHTHG.

SHELV.

SKYLT.

SIM.

S.C.

SPK.

S.F.

S.S.

STD.

STA.

S.D.

STR.

STRL.

S.C.T.

SUSP.

SYM.

SYN.

SYS.

TK.BD.

TKS.

TEL.

T.V.

T.C.

THK.

THR.

T.PTN.

T.O.F.

T.O.M.

T.O.SL.

T.O.S.

TPO

T.B.

TYP.

UNF.

U.S.

VER.

VERT.

V.G.

VIN.

V.T.

V.I.F.

W.C.

W.R.

W.S.

WT.

W/

W/O

WDW.

W.G. WD.

W.B.

W.PT.

W.W.F

V.W.C.

V.C.T.

U.N.O.

T.O.W.

SP.

SECT.

ROOF DRAIN

ROOF HATCH

ROUGH OPENING

SAFETY GLASS

SCHEDULE

SHEATHING

SECTION

SHEET

SIMILAR

SHELVING

SKYLIGHT

SLEEVE

SPEAKER

SQUARE

STATION

STORAGE

SYSTEM

TYPICAL

UNDERCUT

UNFINISHED

UNDERSIDE

VERIFY

VERTICAL

VINYL BASE

VINYL TILE

WAINSCOT

VAPOR BARRIER

VERTICAL GRAIN

VERIFY IN FIELD

WATER CLOSET

WATER STOP

WEIGHT

WITHOUT

WINDOW WIRED GLASS

WOOD

WOOD BASE

WORKING POINT

WITH

WATERPROOFING

WATER RESISTANT

WELDED WIRE FABRIC

UNLESS NOTED OTHERWISE

VINYL COMPOSITION TILE

VINYL WALL COVERING

ROOFING

ROOM

FACE BRICK

FIBERGLASS

FINISH FLOOR

FIRE ALARM

FIRE CODE

FIREPLACE

FIREPROOF

FLASHING

FLOOR(ING

FLOOR DRAIN

FLUORESCEN'

FLUSH JOINT

FOOT (FEET)

FOUNDATION

FRESH AIR

FURRED(ING)

GALVANIZED

GLASS BLOCK

GRAB BAR

GRANITE

GROUND

GYPSUM

GROUND FACE

HANDICAPPED

HARDWARE

HARDWOOD

HEAVY DUTY

HOLLOW CORE

HORIZONTAL

HOSE BIB

HOLLOW METAL

HOT WATER HEATER

INCLUDE(D), (ING)

INSIDE DIAMETER

INSULATE(D), (ING)

INSIDE FACE

INTERIOR

INVERT

JANITOR

KICK PLATE

KNOCKOUT

LAMINATE(D)

LAVATORY

LEFT HAND

LIGHTING

LIVE LOAD

LOUVER

MANHOLE

MARBLE

MASONRY

MATERIAL

MAXIMUM

MEDIUM

MEMBER

METAL

MEMBRANE

MILLWORK

MISCELLANEOUS

MOP RECEPTOR

MOUNT(ED), (ING)

NOISE REDUCTION

NOT IN CONTRACT

COEFFICIENT

NOT TO SCALE

ON CENTER(S)

OUTSIDE DIAMETER

MINIMUM

MOLDING

MOVABLE

MULLION

NATURAL

NOMINAL

NUMBER

OBSCURE

OPAQUE

OPENING

OVERALL

OUNCE

OVERHEAD

OPPOSITE

MIRROR

MECHANIC(AL)

MANUFACTURE(ER)

MASONRY OPENING

LINTEL

LIGHTWEIGHT

JOINT

HEADER

HEATING

GYPSUM WALL BOARD

HEATING/VENTILATING/

AIR CONDITIONING

FULL SIZE

FUTURE

GAUGE

FRAME(D), (ING)

FOOTING

FLEXIBLE

FINISH(ED)

FACE OF FINISH

F.O.C.

F.O.F.

F.O.M.

F.O.S.

F.E.C.

F.H.C.

FLOUR.

FT.

FTG.

F.S.

GALV.

G.C.M.U.

G.S.T.

GD.

G.F.

GWB.

HWD.

HTG.

HR.

LBL.

LW.

LTL.

L.L.

LVR.

MFR.

MRB.

MAT'L.

MECH.

MED.

MBR.

MMB.

MWK.

MTL.

M.R.

MTD.

MOV.

MULL.

N.R.C.

N.T.S.

NO.

O.C.

O.A.

O.H.

OZ.

MAX.

H.V.A.C.

G.C.

FOUND.

A.F.F.

ACT.

AC.PL

ADD.

ADH.

ADJ.

ADJT

A/C

ALUM.

ANOD.

APPX

ARCH.

ASB.

ASPH

AUTO.

BSMT.

BRG.

BET.

BLK.

BLKG.

BOT.

BRK.

BRZ.

BLDG.

B.U.R.

C.O.

CSMT.

CLKG.

CLG.

CEM.

CTR.

CER. C.T.

CHBD.

CIRC.

CLR.

CLS.

C.W.

COL.

COMB.

COMP.

CONC.

C.M.U.

CONST

CONT.

CONV.

CPR.

C.G.

CORR

CTR.

CFL.

CRS.

CR.G.

C.FT.

C.YD.

DPR.

DEMO.

DEP.

DET.

DTL.

DIAG.

DIA.

DPR.

D.H.

D.T.

DWG.

D.F.

DW.

ELEC.

E.P.

E.W.C

ELEV.

EMER.

ENC.

EQ.

EQUIP

EST.

EXH.

E.B.

EXP.

EXT.

E.I.F.S.

EXIST.

CONTR.

COMPO.

A.B.

ABOVE FINISHED FLOOR

ACOUSTICAL PLASTER

ADDENDUM

ADHESIVE

ADJACENT

ADJUSTABLE

AGGREGATE

ALTERNATE

ANCHOR BOLT

APPROXIMATELY

ARCHITECT(URAL)

ALUMINUM

ANODIZED

AREA DRAIN

ASPHALT TILE

AUTOMATIC

BASEMENT

BED JOINT

BETWEEN

BLOCK

BOARD

BOTTOM

BRICK

BRONZE

BUILDING

CABINET

BUILT UP ROOFING

CABINET HEATER

CASED OPENING

CARPET(ED)

CASEMENT

CAST IRON

CAULKING

CEILING

CEMENT

CENTER

CERAMIC

CLOSET

CLOSURE

COLUMN

CONCRETE

CONNECTION

CONSTRUCTION

CONTRACT(OR)

CONTROL JOINT

CONTROL PANEL

CORNER GUARD

COUNTER FLASHING

CORRUGATED

COUNTERSINK

CROSS GRAIN

DAMPROOFING

DEMOLISH, DEMOLITION

DEAD LOAD

DEPRESSED

DETERMINE

DIAGONAL

DIAMETER

DIMENSION

DISPENSER

DOUBLE HUNG

DOWN SPOUT

DUMBWAITER

EACH FACE

ELEVATION

EMERGENCY

EQUIPMENT

ESTIMATE

EXHAUST

EXISTING

EXPOSED

EXTERIOR

EQUAL

ENCLOSE(URE)

EXPANSION BOLT

EXPANSION JOINT

FINISH SYSTEM

EXTERIOR INSULATION

ELECTRIC(AL)

DRINKING FOUNTAIN

ELECTRICAL PANEL BOARD

ELECTRIC WATER COOLER

DRAIN TILE

DRAWING

DIVISION

DOOR

DRAIN

DETAIL

CUBIC FOOT

CUBIC YARD

DAMPER

COUNTER

COURSE(S)

CONVECTOR

CONTRACT LIMIT LINE

CERAMIC TILE

CHALKBOARD

CLEAR(ANCE)

COLD ROLLED

COMBINATION

COMPOSITION (COMPOSITE) H.W.H.

CONCRETE MASONRY UNIT INCL.

CONTINUOUS OR CONTINUE INSUL.

COMPRESS(ED)(ION)(IBLE)

COLD WATER

CIRCUMFERENCE

CATCH BASIN

BITUMINOUS

BLOCKING

BOTH SIDES

BOTH WAYS

BEARING

ASBESTOS

ASPHALT

AIR CONDITIONING

ACOUSTICAL CEILING TILE

ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH CURRENT APPLICABLE BUILDING CODE WITH LOCAL AMENDMENTS AND WITH ALL OTHER CODES, ORDINANCES AND REQUIREMENTS. IF THERE IS CONFLICT THE MORE STRINGENT SHALL BE USED.

ALL WORK RELATING TO THIS CONSTRUCTION SHALL COMPLY WITH U.S. DEPARTMENT OF LABOR, THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS.

) DO NOT SCALE DRAWINGS IN THE DOCUMENTS

DIMENSIONS UNLESS NOTED OTHERWISE.

THAT WOULD BE HELPFUL TO THE OWNER.

GENERAL NOTES

-ROOM NAME

II) DIMENSIONS (I) INTERIOR DIMENSIONS ARE FROM FACE OF FINISH TO FACE OF FINISH UNLESS NOTED OTHERWISE. (II) DOOR AND WINDOW DIMENSIONS ARE ROUGH OPENING/NOMINAL

III) THE DESIGN PROFESSIONAL WHOSE SEAL APPEARS ON THESE DOCUMENTS IS THE ARCHITECT OF RECORD FOR THIS PROJECT. NO OTHER PARTY MAY REVISE, ALTER OR DELETE THESE CONSTRUCTION DOCUMENTS. FOR THE PURPOSES OF THESE CONSTRUCTION DOCUMENTS THE ARCHITECT OF RECORD AND LINDSEY ARCHITECTURE SHALL BE CONSIDERED THE SAME ENTITY.

THE CONTRACTOR SHALL PREPARE AND MAINTAIN A COMPLETE SET OF RECORD CONSTRUCTION DRAWINGS INDICATING ALL ACTUAL WORK, MODIFICATIONS AND REVISIONS TO THE WORK DELINEATED ON THE CONSTRUCTION DOCUMENTS AS WELL AS ANY CONCEALED CONSTRUCTION WORK, INCLUDE ANY INFORMATION

5. <u>DEMOLITION AND EXISTING NOTES:</u>

ELEVATION IDENTIFICATION

-ELEVATION IDENTIFICATION

—ELEVATION IDENTIFICATION

INTERIOR IDENTIFICATION

-DIRECTION ELEVATION IS VIEWED

-DRAWING WHERE ELEVATION IS SHOWN

I) REFER TO OTHER DEMOLITION DRAWINGS INCLUDED IN THE DRAWING SET FOR DEMOLITION WORK TO BE PERFORMED BY ALL TRADES AS INDICATED. OTHER ASSOCIATED WORK MAY INCLUDE, BUT IS NOT LIMITED TO, PLUMBING, HVAC AND ELECTRICAL REMOVAL. WORK PERFORMED BY SEPARATE TRADES SHALL BE COORDINATED AND ADMINISTERED BY THE GENERAL CONTRACTOR.

II) THE CONTRACTOR SHALL REMOVE ALL ANCHORS, FASTENERS, ADHESIVES, HANGERS, REINFORCING AND OTHER ASSOCIATED WORK RELATED TO REFERENCED DEMOLITION NOTES. IF ITEMS PROTRUDING FROM WORK TO REMAIN ARE IN SURFACES TO BE COVERED, ITEMS MAY BE CUT OFF FLUSH WITH EXISTING SURFACE. OTHERWISE, ITEM MUST BE COMPLETELY REMOVED AND SURFACE REPAIRED TO MATCH ADJACENT WORK.

III) IF DAMAGE OCCURS TO EXISTING WORK, CONTRACTOR SHALL REPAIR AND REPLACE EXISTING WORK TO MATCH IN-PLACE WORK. EXTENT OF REPAIR WILL BE DETERMINED BY ARCHITECT AND/OR OWNER.

IV) DEMOLITION SHALL BE KEPT TO A MINIMUM DISRUPTION OF EXISTING BUILDING OPERATIONS. PROVIDE DUST PARTITIONS AND SAFETY BARRIERS TO PROTECT EXISTING FINISHED AREAS IN BUILDING FROM CONSTRUCTION DUST AND NOISE.

V) THE DEMOLITION WORK INCLUDES ALL THE WORK REQUIRED TO PREPARE SURFACES TO RECEIVE NEW FINISHES.

VI) CONTRACTORS SHALL TAKE ALL POSSIBLE PRECAUTIONS AGAINST DAMAGING ANY EXISTING CONSTRUCTION AND EQUIPMENT THAT IS TO REMAIN. ALL DAMAGES CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE AND AT NO COST TO THE OWNER. ALL REPAIR WORK SHALL BE TO THE COMPLETE SATISFACTION OF THE OWNER.

VII) REFER TO THE CONTRACT DOCUMENTS FOR LOCATIONS OF FIRE RATED ASSEMBLIES. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND CONFIRM LOCATION OF ALL FIRE RATED ASSEMBLIES. ALL FIRE RATED ASSEMBLIES REQUIRED TO BE DISTURBED TO DO THE WORK UNDER THIS CONTRACT SHALL BE REPLACED OR PATCHED WITH UL APPROVED ASSEMBLIES TO MATCH EXISTING AND TO MAINTAIN EXISTING ASSEMBLY FIRE RATING.

\ A101 🚣

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Sip

4Itamahaw-0

SAME' CORPORATION

CRUSHED STONE / AGGREGATE

EARTH / CONCRETE / GROUT COMPACTED FILL

CONCRETE MASONRY

STEEL GRATING (PLAN)

DETAIL IDENTIFICATION

-SECTION IDENTIFICATION

-SECTION IDENTIFICATION -DRAWING WHERE DETAIL IS SHOWN

-DIRECTION SECTION IS VIEWED

SECTION IDENTIFICATION

1 HOUR RATED WALL DESIGNATION

、A101/−

FIRE EXTINGUISHER FEC FIRE EXTINGUISHER CABINET

—DRAWING WHERE

DETAIL IS SHOWN

UNIT

CONCRETE

 $\boldsymbol{\varphi}$ 00 NC MIND

MK DATE DESCRIPTION REVISIONS

SYMBOL

ABBREVIATIONS, 05.03.2023 DRAWN BY ERH

SHEET

CHECK BY EKH JOB NO. 22-043

ABBREVIATIONS

SOLID CORE SOUNDPROOF SPECIFICATION(S) SQUARE FOOT (FEET) STAINLESS STEEL STANDARD STORM DRAIN STRUCTURE STRUCTURAL STRUCTURAL CLAY TILE SUSPENDED SYMMETRY (ICAL) SYNTHETIC **TACK BOARD** TACK STRIP **TELEPHONE TELEVISION** TEMPORARY, TEMPERED TERRA COTTA TERRAZZO THICK(NESS) THRESHOLD **TOILET PARTITION TONGUE AND GROOVE** TOP OF FOUNDATION TOP OF MASONRY TOP OF SLAB TOP OF STEEL TOP OF WALL THERMOPLASTIC POLYOLEFIN TOWEL BAR

DOOR IDENTIFICATION

WALL AND PARTITION TYPE

ROOM IDENTIFICATION

INDICATES FLOOR LEVEL)

-ROOM NUMBER (FIRST DIGIT USUALLY

WINDOW IDENTIFICATION **SYMBOLS**

G0.3 SCALE: 1/8" = 1'-0"

LOBBY -

B. Comply with manufacturer's written instructions for temperature and relative humidity.

Restore permanent facilities used during construction to their specified condition.

. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly

Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

3.7 CORRECTION OF THE WORK

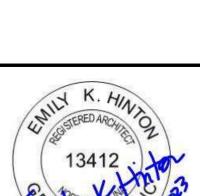
END OF SECTION 017300

adjusting operating equipment.

Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same c. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment: 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of 4. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a







MOL Elementai 9 sipee 9 MIND Itamahaw-0s

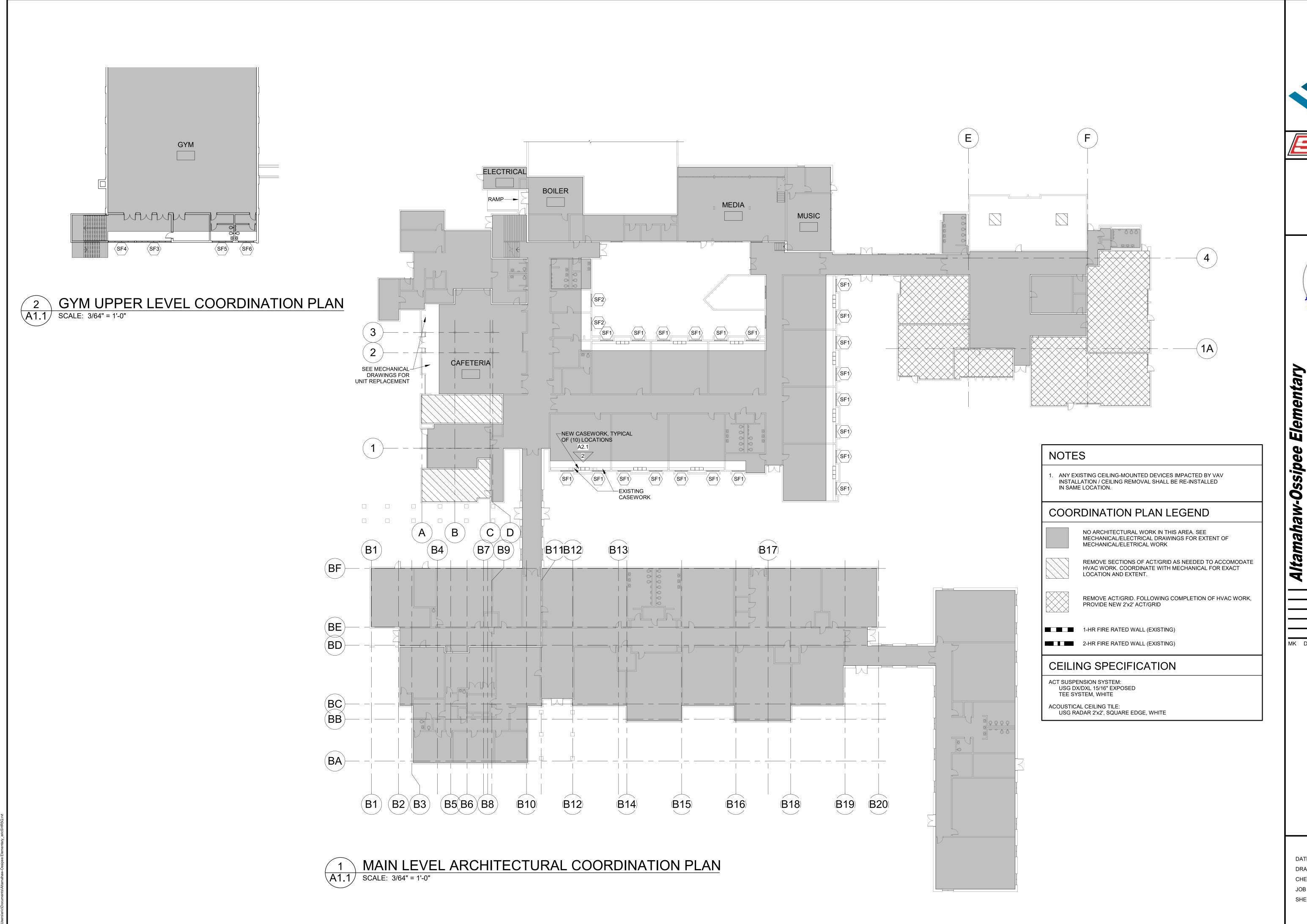
MK DATE DESCRIPTION

REVISIONS

TIONS SPECIFICA

05.03.2023 DRAWN BY EKH CHECK BY EKH JOB NO.

SHEET









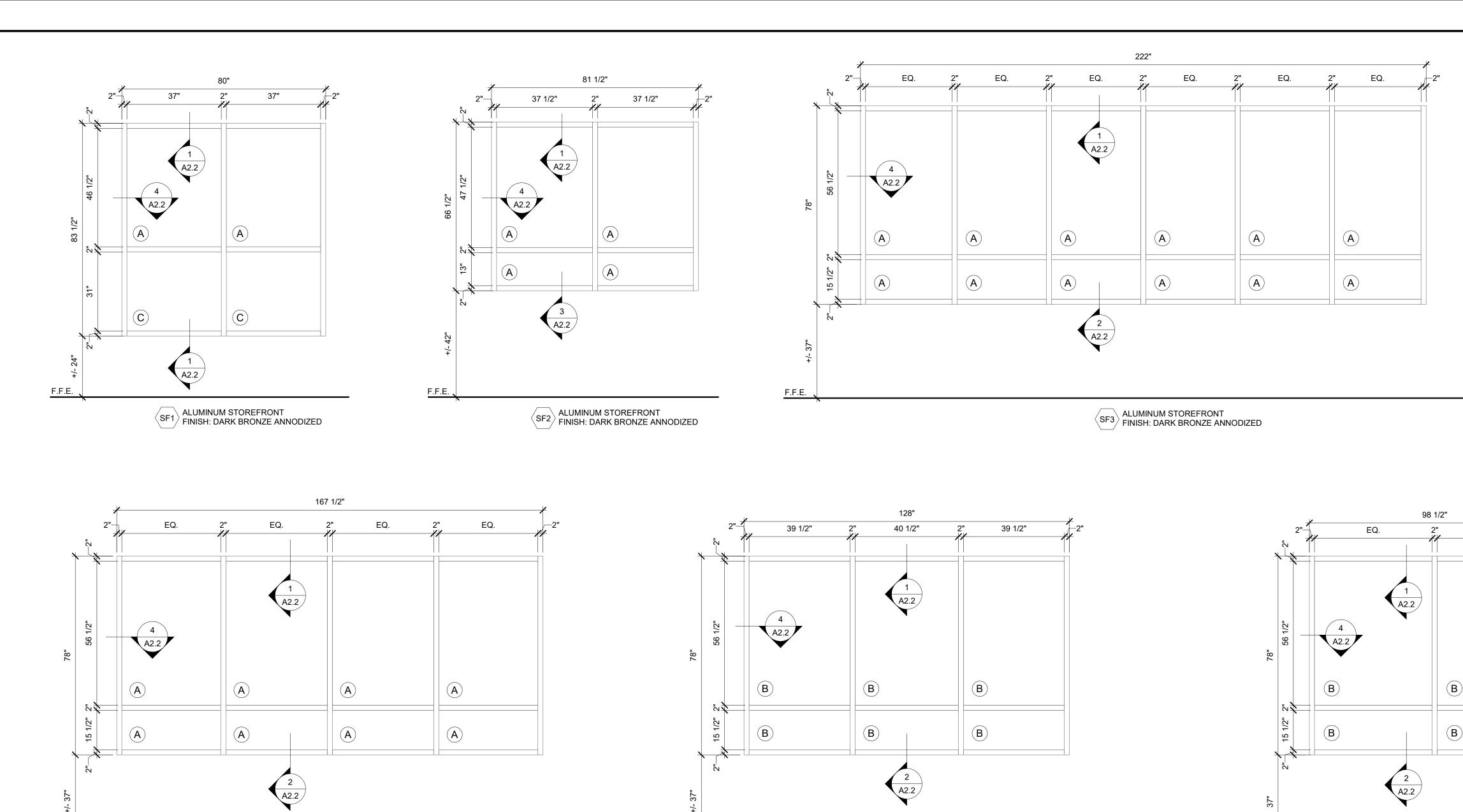
OW RENOVATION MIND 2832 N

MK DATE DESCRIPTION

REVISIONS

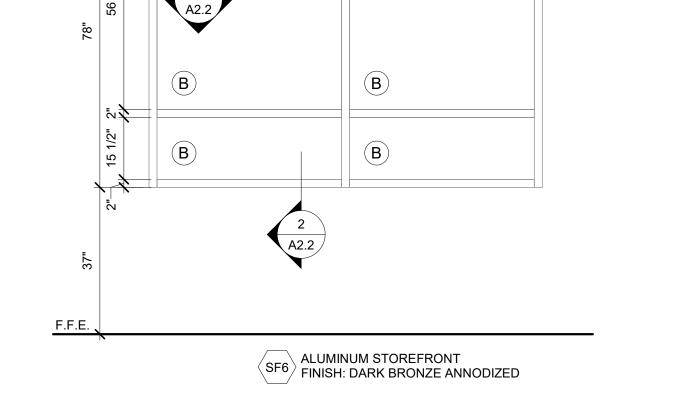
COORDINATION PLANS ARCHITECTURAL

05.03.2023 DATE DRAWN BY ERH CHECK BY EKH JOB NO. 22-043 SHEET



F.F.E.

SF5 ALUMINUM STOREFRONT FINISH: DARK BRONZE ANNODIZED

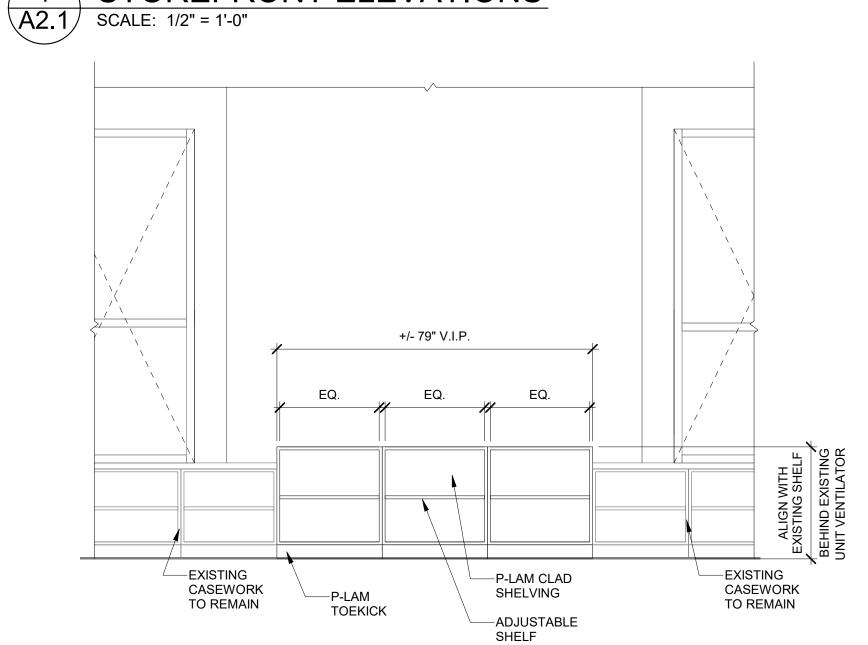


EQ.



CASEWORK ELEVATION

A2.1 SCALE: 1/2" = 1'-0"



SF4 ALUMINUM STOREFRONT FINISH: DARK BRONZE ANNODIZED

GLAZING SCHEDULE

1" INSULATED GLASS UNIT
EXTERIOR LITE - 1/4" CLEAR SB70XL - 1/2" SPACE INTERIOR LITE - 1/4" CLEAR ANNEALED

1" INSULATED GLASS UNIT EXTERIOR LITE - 1/4" CLEAR SB70XL - 1/2" SPACE INTERIOR LITE - 1/4" PATTERN 62 OBSCURE

.024 CLEAR ANODIZED ALUMINUM SHEET FACE

1" INSULATED PANEL .024 CLEAR ANODIZED ALUMINUM SHEET -C 1/4" CPA BACKER - POLYSTYRENE CORE - 1/2" CPA BACKER

WINDOW NOTES AND SPECIFICATIONS

1. STOREFRONT SYSTEM KAWNEER 451T 2"x4-1/2" ALUMINUM STOREFRONT FINISH: AS NOTED ON ELEVATION

> 05.03.2023 DATE DRAWN BY ERH CHECK BY EKH JOB NO. 22-043 SHEET

Altamahaw-Ossipee Elementary

OW RENOVATION

MIND

MK DATE DESCRIPTION

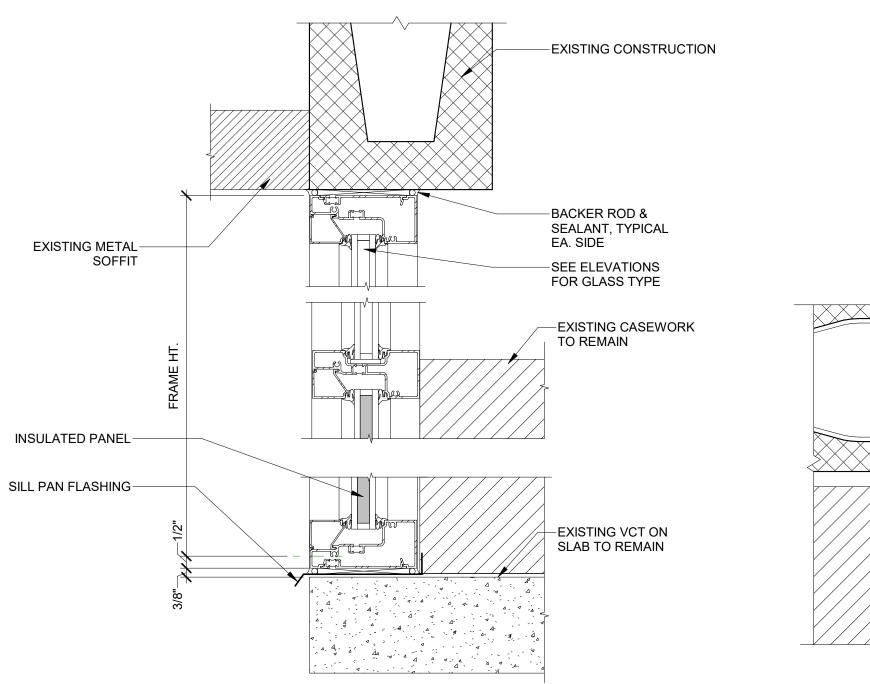
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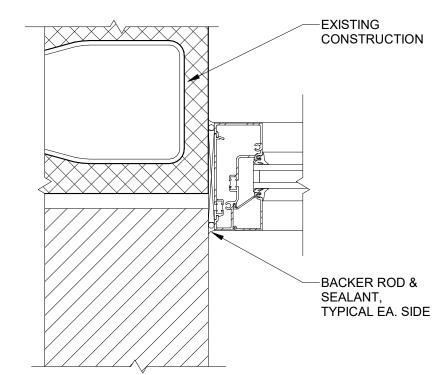
STOREFRONT

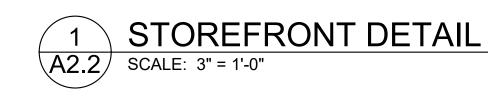
I NC Hwy 87 NC 27244

2832 N Elon,

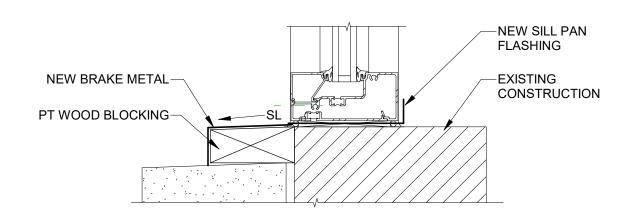
SAMET CORPORATION



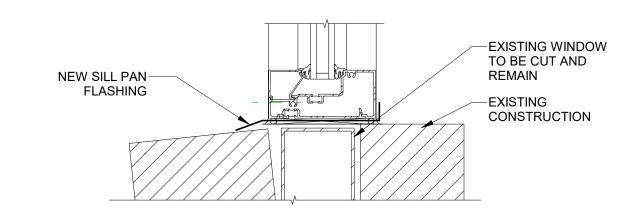


















Altamahaw-Ossipee Elementary RENOVATION

OW MIND 2832 N Elon,

MK DATE DESCRIPTION

REVISIONS

STOREFRONT

DRAWN BY ERH SHEET

<u>MECHAN</u>	NICAL ABBREVIATIONS
ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
BTUH	BRITUSH THERMAL UNIT PER HOUR
CFM	CUBIC FEET PER MINUTE
CONC.	CONCRETE
DB	DRY BULB
DIA.	DIAMETER
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EL	ELEVATION
ELEC.	ELECTRICAL
ENT	ENTERING
EWT	ENTERING WATER TEMPERATURE
EX., EXIST.	EXISTING
F	FAHRENHEIT
FD	FLOOR DRAIN
FL	FLOOR
FPM	FEET PER MINUTE
FSK	FOIL SCRIM KRAFT
FT	FOOT OR FEET
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HZ	FREQUENCY HERTZ
HS	HEATING WATER SUPPLY
HR	HEATING WATER RETURN
LAT	LEAVING AIR TEMPERATURE
	\neg

<u>ABBREVIATION</u>	<u>DESCRIPTION</u>
LWT	LEAVING WATER TEMPERATUR
MBH	THOUSAND BTUH
MIN.	MINIMUM
NG	NATURAL GAS
No	NUMBER
OA	OUTDOOR AIR
OAD	OUTDOOR AIR DUCT
PD	PRESSURE DROP
PH, ø	PHASE (ELECTRICAL)
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIG	PSI GAUGE
P/T	PRESSURE/TEMPERATURE
RA	RETURN AIR
RAD	RETURN AIR DUCT
RH	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SAD	SUPPLY AIR DUCT
SP	STATIC PRESSURE
TEMP	TEMPERATURE
TYP.	TYPICAL
U/G	UNDERGROUND
v	VOLTS OR VENT
VFD	VARIABLE FREQUENCY DRIVE
VEL	VELOCITY
WB	WETBULB

MECHANICAL GENERAL NOTES

1. WORK AS A MINIMUM SHALL CONFORM TO AND MEET THE REQUIREMENTS OF:

NORTH CAROLINA STATE BUILDING CODE: MECHANICAL 2018
NORTH CAROLINA STATE BUILDING CODE: FUEL GAS CODE 2018.
NORTH CAROLINA STATE BUILDING CODE: ENERGY CONSERVATION CODE 2018.

NFPA 70 (NATIONAL ELECTRIC CODE), CURRENT EDITION

ASHRAE STANDARD 55-2013 ASHRAE STANDARD 62-2013 ASHRAE STANDARD 90.1-2013

SMACNA; HVAC AIRDUCT LEAKAGE TEST MANUAL, 1985, 1ST EDITION SMACNA; HVAC DUCT CONSTRUCTION STANDARDS METAL & FLEXIBLE, 1985, 1ST EDITION

2. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE SCALED FOR

DIMENSIONS, UNLESS DIMENSIONED.

3. ALL MATERIALS, EQUIPMENT AND DEVICES SHALL, AS A MINIMUM, MEET THE REQUIREMENTS OF UL WHERE UL STANDARDS ARE ESTABLISHED FOR THOSE ITEMS. ALL ITEMS SHALL BE CLASSIFIED BY UL AS SUITABLE FOR THE PURPOSE USED.

ITEMS SHALL BE CLASSIFIED BY UL AS SUITABLE FOR THE PURPOSE USED.

4. ALL ITEMS SHALL BE NEW, UNLESS NOTED OTHERWISE.

5. ALL MATERIALS, EQUIPMENT AND DEVICES SHALL BE CURRENT PRODUCTS BY MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH PRODUCTS.

6. ALL MECHANICAL EQUIPMENT SHALL HAVE A FACTORY APPLIED PAINTING.

7. COORDINATE LOCATION OF MECHANICAL WORK WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES.

8. COORDINATE THE EXACT LOCATION OF AIR DEVICES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS.

9. INSTALL ALL EQUIPMENT AND MATERIAL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN PRINTED INSTRUCTIONS AND RECOMMENDATIONS.

10. COORDINATE WITH AND OBTAIN PERMITS AND INSPECTIONS FROM AUTHORITY HAVING

11. PROVIDE OWNER WITH CERTIFICATES OF FINAL INSPECTION AND ACCEPTANCE FROM AUTHORITY HAVING JURISDICTION.

12. MAKE CONNECTIONS FROM MECHANICAL EQUIPMENT TO DUCTWORK USING FLEXIBLE

DUCT CONNECTIONS.

13. ALL EQUIPMENT, DUCTWORK ABOVE CEILING SHALL BE SUPPORTED FROM BUILDING STRUCTURE ABOVE, UNO.

14. WHERE DUCTWORK PENETRATES FIRE RATED BARRIERS (WALLS, FLOORS AND CEILINGS) SEAL OPENING AROUND DUCTWORK WITH U.L. LISTED FIRE STOPPING MATERIAL TO MAINTAIN THE FIRE RATING OF THE BARRIER.

STOPPING MATERIAL TO MAINTAIN THE FIRE RATING OF THE BARRIER.

15. DUCT SIZES INDICATED ARE NET FREE INSIDE DIMENSIONS.

16. ALL DUCTWORK SHALL HAVE TRANSVERSE JOINTS AND LONGITUDINAL SEAMS SEALED IAW SMACNA; HVAC AIRDUCT LEAKAGE TEST MANUAL, 1985, 1ST EDITION.

17. SMOKE DETECTORS SHALL BE FURNISHED AND INSTALLED AS SHOWN ON THE PLANS. THE SMOKE DETECTOR SHALL BE WIRED TO DE—ENRGIZE THE FAN UPON DETECTION OF THE PRODUCTS OF COMBUSTION. ANOTHER SET OF CONTACTS SHALL BE PROVIDED FOR WIRING THE SMOKE DETECTOR TO THE FIRE ALARM SYSTEM (AS APPLICABLE) BY THE ELECTRICAL CONTRACTOR. PROVIDE AN ANNUNCIATOR TO INCLUDE BOTH A VISIBLE AND AN AUDIBLE SIGNAL

THE ANNUNCIATOR SHALL BE IDENTIFIED AS "AIR DUCT DETECTOR TROUBLE".

18. ALL MEDIUM PRESSURE DUCT TO BE GALVANIZED STEEL RECTANGULAR, SPIRAL OR FLAT OVAL.

19. ALL CONTROL WIRING SHALL BE PLENUM CABLE.

20. CONCEALED SUPPLY, RETURN AND OUTSIDE AIR TO BE WRAPPED WITH R-6 FIBERGLASS DUCT WRAP.

WRAP SUPPLY DIFFUSER BACKS IN CONCEALED SPACES WITH FULLY DUCTED RETURN.

IN AN APPROVED LOCATION WHEN THE DETECTOR IS NOT TIED INTO A BUILDING FIRE ALARM SYSTEM.

PROJECT: ALAMANCE/BURLINGTON SCHOOL SYSTEMS, ALTAMAHAW-OSSIPEE MS, ELON, NC MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

PRESCRIPTIVE X ENERGY COST BUDGET

THERMAL ZONE 4A

EXTERIOR DESIGN CONDITIONS WINTER DRY BULB 18.0 °F SUMMER DRY BULB N/A SUMMER WET BULB N/A INTERIOR DESIGN CONDITIONS

SUMMER DRY BULB

HEAT LOAD: EXISTING LOAD PLUS 341 MBH (GYM HEATING LOAD)

COOLING LOAD: EXISTING LOAD PLUS 404.2 MBH (GYM COOLING LOAD)

DESCRIPTION: HEATING PROVIDED BY EXISTING BOILER. ADMINISTRATION AREA SERVED BY SPLIT SYSTEMS. CLASSROOMS SERVED BY A COMBINATION OF SPLIT SYSTEMS AND UNIT VENTILATORS. NEW SERVED BY GROUND MOUNTED PACKAGED UNIT.

EXHAUST FANS: EXISTING

LIST OF EQUIPMENT EFFICIENCIES: SEE SCHEDULE.

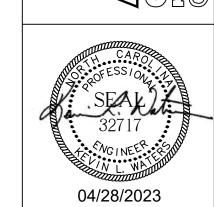
EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS): SEE SCHEDULE

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 STATE BUILDING CODE, ENERGY CODE — 2018 EDITION.

SIGNED: NAME: KEVIN L. WATERS, PE TITLE: MECHANICAL ENGINEER DATE: 04/28/2023

Contractors,

te





NO		NS
INGT	SYSTEMS	/-OSSIPEE MS
ANCE/BUTI		HAW
LAMAN	SCHOOL	ALTAMA
~		

BY: M.HARR	
VED BY: K.WATE	RS
04/28/	/2023
SCALE: 1:1	
A-4216_M0.	1.DWG
NUMBER:	

									A ir l	Handliı	ng Uni	t Sche	dule																
	Base	Unit		Fai	n						Со	oling Coi	il								Re-Heatir	ng Coil				E	lectrical		
Area erved	Unit Airflow CFM	Installed Weight LB	Horsepower hp	External Staic Pressure IN H2O	Total Brake HP (All Fans) HP	Total Staic Pressure IN H2O	Entering Dry Bulb °F	Entering Wet Bulb °F	Leaving Dry Bulb °F	Leaving Wet Bult °F	Sensible Capacity MBH	Total Capacity MBH	Entering Water Temp °F	Leaving Water Temp °F	Flow Rate GPM	Coil Rows	Fluid Pressure Drop FT H2O	Entering Dry Bulb °F	Leaving Dry Bulb °F	Total Capacity MBH	Entering Water Temp °F	Leaving Water Temp °F	Flow Rate GPM	Coil Rows	Fluid Pressure Drop FT H2O	Voltage	MCA	MOP	Notes
feteria	2,000	300	1.5	0.5	1.0	1.2	80	67	58.9	56.8	47.8	65.4	44	54	15.6	4	14.0	60	99	84.9	180	160.0	12.3	2	2.6	115V/1ph	25	45	1,2
feteria	2,000	300	1.5	0.5	1.0	1.2	80	67	58.9	56.8	47.8	65.4	44	54	15.6	4	14.0	60	99	84.9	180	160.0	12.3	2	2.6	115V/1ph	25	45	1,2
ssroom	1,339	350	0.4	0	0.30	0.4	80	67	61.6	58.5	26.9	36.0	44	54	7.0	4	7.0	60	90	44.6	180	160.0	1.3	2	0.2	208V/1ph	5	15	1,2
seroom	738	250	0.3	0	0.25	0.4	80	67	58.4	55.3	15.6	24.0	44	54	4.8	4	3.4	60	90	21.5	180	160.0	1.0	2	0.5	208V/1ph	3	15	1,2
ffices	400	125	0.2	0	0.1	0.4	80	67	55.5	54.4	10.7	15.4	44	54	3.0	4	17.0	60	89	12.5	180	162.0	1.4	1	0.4	115V/1ph	3	15	1,2
																*													

 Provide MERV 8 filters. Provide Outside Air connection.

Tags

AHU-1

UV-1 thru 8, 10-12

UV-9

FCU-1, 2, 3

- V∆HU = Vertical Air Handler

Vertical Unit Ventilator = Vertical Exposed Fan Coil

						Ro	oftop l	Jnit Sch	nedule								·			
side low M	Design ESP in H2O	Cooling EDB °F	Cooling EWB °F	Cooling LDB °F	Cooling LWB °F	Gross Total Capacity MBh	Heat Type	Input Heating Capacity MBH	Output Heating Capacity MBH	Heating EAT °F	Heating LAT °F	Electric Heat KW	EER Rating & ARI Conditions	SEER Rating & ARI Conditions	Supply Fan Motor HP	Power Supply V/hz/ø	MCA A	MOP A	Max Unit Operating Weight Ib	Notes
00	1.25	79.1	65.3	53.1	52.2	230.4	Gas	320.0	260.0	50.0	89.2	n/a	10.8	16.8	3.1	460/60/3	54	70	2200	1,2,3,4,5,6,7
00	1.25	79.1	65.3	53.1	52.2	230.4	Gas	320.0	260.0	50.0	89.2	n/a	10.8	16.8	3.1	460/60/3	54	70	2200	1,2,3,4,5,6,7
0	1.0	80.0	67.0	59.1	57.6	50.0	Heat Pump	n/a	n/a	60.0	100.0	12.0	12.2	14.3	1.0	208/60/3	59	60	820	2,3,4,5,6

Tag

RTU-1

RTU-2

RTU-3

Provide with Hot Gas Reheat for Humidity Control

2. Provide unit with 2" filter frame, crankcase heater and evapora

YHJ240A

YHJ240A

WSC048

AIR FLOW MEASURING STATION

MagicAire

MagicAire

Trane

Trane

2-WAY MAIN SPLIT-SUM OF AREA. "B"+C"= AREA "A" (PROPORTIONATELY).

Model

BVE20B

BVE20B

VUVE125

VUVE075

FCJB040

Unit Ty

Capacity

Tons

3. Provide unit with 0-100% economizer

Manufacturer

Trane

Trane

Trane

4. Provide unit with programable thermostat

5. Provide with five year compressor warranty (parts only) 6. Provide unit with condensate float switch

Manufacturer

Price

Model

530

7. Provide unit with Single Zone VAV Controls

				Split	System A	AHU Sche	dule						
Tags	Manufacturer	Model		Airflow CFM	OSA CFM	Cooling Capacity BTUH	Heating Capacity BTUH	Electric Heat KW	Weight lb	MCA A	MOP A	Electrical V/hz/ø	Notes
SSU-1	Trane	TEM4A0C43M41		1400	200	40,728	39,000	10	150	58	60	208-230/60/1	1,2,3
SSU-2	Trane	TWE1204		4000	300	124,150	117,070	25	442	44	45	460/60/3	1,2,3
SSU-3 thru 10	Trane	GAM5B0B36M31	Classroom	1200	150	35,794	31,400	15	150	48	50	208-230/60/1	1,2,3

Return

60x48

Surface

1. Indoor unit power fed separate from outdoor unit. Wiring by Electrical Contractor.

2. Provide with wired wall mounted thermostat.

3. Verify Voltage before installation

		S	plit Syste	m Conde	nsing Uni	it Schedu	le				
Tags	Manufacturer	Model	Area Served	Cooling Capacity BTUH	Heating Capacity BTUH	SEER/EER	Weight lb	Electrical V/hz/ø	MCA A	MOP A	Notes
SSCU-1	Trane	4TWR4042N1	Office	40,728	39,000	14.3	160	208/1/60	24	40	1,2,3,4
SSCU-2	Trane	TWA1204	Office	124,150	117,070	11.2	433	460/60/3	18	25	1,2,3,4
SSCU-3 thru 10	Trane	4TWA4036	Office	35,794	31,400	15.0	250	460/60/3	6	15	1,2,3,4

1. Provide with low ambient control and crankcase heater.

2. Provide with coil guards. Heat Pump

4. Verify Voltage before installation

		D	uctless S	plit Syste	m AHU S	chedule				
Tags	Manufacturer	Model	Room Served	Airflow CFM	OSA CFM	Cooling Capacity BTUH	Heating Capacity BTUH	Weight Ib	Electrical V/hz/ø	Notes
DSSU-1	Mitsubishi	MSZ-FS18NA	Hallway	225-437	0	17,200	19,000	29	208/60/1	1,2
DSSU-2	Mitsubishi	MSZ-FS18NA	Hallway	225-437	0	17,200	19,000	29	208/60/1	1,2
DSSU-5	Mitsubishi	MSZ-GL24NA	Hallway	388-738	0	22,400	27,600	40	208/60/1	1,2

1. Indoor unit power fed from outdoor unit. Wiring by Electrical Contractor.

2. Provide with wired controller.

			Ductless	Split Sys	tem Cond	ensing U	nit Sche	dule			
Tags	Manufacturer	Model	Room Served	Cooling Capacity BTUH	Min. Cooling Capacity BTUH	Heating Capacity BTUH	SEER	Weight lb	Electrical V/hz/ø	MCA	Α
DSSCU-1/2	Mitsubishi	MXZ-4C36NA3	Hallway	36,400	11,300	43,000	19.2	140	208/1/60	23	
DSSCU-5	Mitsubishi	MUZ-GL24NA	Hallway	22,400	8,200	27,600	20.5	120	208/1/60	17	

1. Provide with wind baffle for low ambient operation. 2. Provide with Inverter compressor and remote thermostat.

3. 1/4" Liquid line and 1/2" Gas line.

4. 3/8" Liquid line and 5/8" Gas line.



PART 1 - GENERAL

1.01 SUBMITTALS

- A. No equipment shall be fabricated or delivered until the receipt of approved shop drawings from the Owner or Owner's approved representative. B. AHU manufacturer shall provide the following information with each shop
- drawing/product data submission: 1. Dimensioned arrangement drawings for each AHU including a plan and elevation view of the assembled unit with overall dimensions, lift points, unit
- shipping split locations and dimensions, installation and operating weights, and installation, operation and service clearances. 2. All electrical, piping, and ductwork requirements, including sizes, connection
- locations, and connection method recommendations. 3. Each component of the unit shall be identified and mechanical specifications shall be provided for unit and accessories describing construction, components, and options.
- 4. All performance data, including capacities and airside and waterside pressure drops, for components.
- 5. Fan curves shall be provided for fans with the design operating points indicated. Data shall be corrected to actual operating conditions, temperatures, and altitudes.
- C. The AHU manufacturer shall provide appropriate sets of submittals as referenced in the General Conditions and shall submit to the Owner electronic copies of the

D. The AHU manufacturer shall list any exceptions to the specification.

1.02 DELIVERY, STORAGE, AND HANDLING A. Comply with manufacturer's installation instructions for rigging, unloading, and

- transporting units. B. Units shall ship fully assembled up to practical shipping and rigging limitations. Shipping splits shall be clearly defined on submittal drawings. Cost associated with non-conformance to shop drawings shall be the responsibility of the manufacturer.
- maneuverability on the jobsite. C. Deliver units to iobsite with fan motor(s), sheave(s), and belt(s) completely assembled and mounted in units.

AHU's less than 100-inches wide shall allow for forklift transport and

- D. Indoor units shall be shipped in a clear shrink-wrap or stretch-wrap to protect unit
- from in-transit rain and debris per ASHRAE 62.1 recommendations. E. Installing contractor shall be responsible for storing AHU in a clean, dry place and protect from weather and construction traffic. Handle carefully to avoid damage to

components, enclosures, and finish. 1.03 WARRANTY

A. AHU manufacturer shall provide, at no additional cost, a standard parts warranty that covers a period of one year from unit start-up or 18 months from shipment, whichever occurs first. This warrants that all products are free from defects in material and workmanship and shall meet the capacities and ratings set forth in the equipment manufacturer's catalog and bulletins.

PART 2 - PRODUCTS 2.01 GENERAL

A. Unit layout and configuration shall be as defined in project plans and schedule.

- 2.02 UNIT CASING A. The entire air handler shall be constructed of galvanized steel. All doors shall have gasketing around full perimeter to prevent air leakage. Contractor shall be responsible to provide connection flanges and all other framework that is needed
- to properly support the unit. B. All panels shall be 2-inch double wall construction to facilitate cleaning of unit
- C. Unit floor shall be of sufficient strength to support 300-lb load during maintenance activities, and shall deflect no more than .005-inches when sitting on a support
- D. Panel insulation shall provide a minimum thermal resistance (R) value of 13 ft^2*h*F/Btu throughout the entire unit. Insulation shall completely fill the panel cavities in all directions so that no voids exist and settling of insulation is
- prevented. Panel assembly shall comply with NFPA 90A. E. Access panels and/or access doors shall be provided in all sections to allow easy access to drain pan, coil(s), motor, drive components and bearings for cleaning,
- inspection, and maintenance. F. Access panels and doors shall be fully removable without the use of specialized tools to allow complete access of interior surfaces.
- 2.03 ACCESS DOORS A. Access doors shall be 2-inch double-wall construction. Interior and exterior shall
- be of the same construction as the interior and exterior wall panels. 2.04 PRIMARY DRAIN PANS A. The drain pan shall be designed in accordance with ASHRAE 62.1 being of
- sufficient size to collect all condensation produced from the coil and sloped in two planes, pitched toward drain connections, promoting positive drainage to eliminate stagnant water conditions when unit is installed level and trapped per manufacturer's requirements. The outlet shall be located at the lowest point of the pan and shall be sufficient diameter to preclude drain pan overflow under any normally expected operating condition. Drainpan shall be polymer 2.05 SUPPLY FAN
- A. Fan sections shall have a minimum of one hinged and latched access door located on the drive side of the unit to allow inspection and maintenance of the fan, motor, and drive components. Construct door(s) per Section 2.04.
 - B. Provide fans of type specified on the schedule. Belt drive fan shafts shall be solid steel, coated with a rust-inhibiting coating, and properly designed so that fan shaft does not pass through first critical speed as unit comes up to rated RPM.
 - Belt drive fans with integral frame motors shall be internally isolated to inhibit noise and vibration through the ductwork and building structure. A flexible connection shall be installed between the fan and unit casing to ensure complete isolation. Fan and motor shall be internally isolated with spring isolators. If fans and motors are not internally isolated, then the entire unit shall be externally isolated from the building, including supply and return duct work, piping, and electrical connections. External isolation shall be furnished by the installing contractor in order to avoid transmission of noise and vibration through the ductwork and building structure.
- D. Belt-driven fans shall be provided with self-aligning, anti-friction bearings selected for L-50 200,000-hour average life per ANSI/AFBMA Standard 9
- 2.06 MOTORS AND DRIVES A. All motors, and drives for belt drive fans, shall be factory-installed and run tested. Motors for belt driven fans shall be installed on a slide base to permit adjustment of belt tension. Slide base shall be designed to accept all motor sizes offered by the air-handler manufacturer for that fan size to allow a motor change in the future, should airflow requirements change. Fan sections without factory-installed motors shall have motors field installed by the contractor. The contractor shall be responsible for all costs associated with installation of motor and drive, alignment
 - of sheaves and belts, run testing of the motor, and balancing of the assembly. B. Integral horsepower motors shall meet or exceed all NEMA Standards Publication MG 1 - 2006 requirements and comply with NEMA Premium efficiency levels when applicable. Motors shall comply with applicable requirements of NEC and shall be
 - UL Listed. C. All fan types utilizing integral horsepower motors, shall use 4-pole, 1800 rpm, motors, NEMA B design, with Class B insulation, capable to operate continuously
 - at 104 deg F (40 deg C) without tripping overloads. D. Motors shall have a +/- 10 percent voltage utilization range to protect against voltage variation.
 - E. V-Belt drives for housed fans shall be 1100 rpm (1050 1150 variable) pitch rated at 1.5 times the motor nameplate. Drives 20 hp and larger or any drives on units
 - equipped with VFDs and housed fans shall be fixed pitch. F. All housed fans with motors 15 hp and larger shall be equipped with multiple belt
 - G. Manufacturer shall provide for each unit with a housed fan a nameplate with the following information to assist air balance contractor in start up and service

personnel in maintenance: 2.07 COILS

- A. Coils section header end panel shall be removable to allow for removal and replacement of coils without impacting the structural integrity of the unit. B. Install coils such that headers and return bends are enclosed by unit casing to
- C. Coils shall be manufactured with plate fins to minimize water carryover and maximize airside thermal efficiency. Fin tube holes shall have drawn and belled collars to maintain consistent fin spacing to ensure performance and air pressure drop across the coil as scheduled. Tubes shall be mechanically expanded and bonded to fin collars for maximum thermal conductivity. Use of soldering or tinning during the fin-to-tube bonding process is not acceptable due to the inherent
- D. Hydronic Coils

drain pan under the coil.

1. Supply and return header connections shall be such that direction of coil water-flow is counter to direction of unit air-flow.

ensure that if condensate forms on the header or return bends, it is captured by the

- 2. Coils shall be proof-tested to 300 psig and leak-tested to 200 psig air pressure under water.
- 3. Headers shall be constructed of round copper pipe.

thermal stress and possible loss of bonding at that joint.

PART 3 - EXECUTION 3.01 SHIPPING

- A. After loading the equipment for shipment, the AHU manufacturer shall contact the shipping contact on the order and provide the name of the carrier, description of equipment, order number, shipping point, and date of shipment.
- 3.02 FIELD EXAMINATION A. The Mechanical Contractor shall verify that the mechanical room is ready to receive work and the opening dimensions are as indicated on the shop drawings and contract documents.
 - A. The Mechanical Contractor shall be responsible to coordinate ALL of his installation requirements with the Owner and the Owner's selected Mechanical Contractor to ensure that a complete installation for each unit is being provided. Coordination efforts shall include such items as unloading and hoisting requirements, field wiring requirements, field piping requirements, field ductwork requirements, requirements for assembly of field-bolted or welded joints, and all other installation and assembly requirements.

Fan Coil Units

PART 1 - GENERAL

3.03 INSTALLATION

1.01 WARRANTY

A. The equipment manufacturer shall provide, at no additional cost, a STANDARD PARTS WARRANTY that covers a period of one year from unit start-up or 18 months from shipment, whichever occurs first. This warrants that all products are free from defects in material and workmanship and shall meet the capacities and ratings set forth in the equipment manufacturer's catalog and bulletins.

PART 2 - PRODUCTS

maintenance.

drain pan under the coil.

- 2.01 GENERAL UNIT DESCRIPTION A. Manufacturer shall provide unit arranged for draw-through application. Unit layout and configuration shall be as defined in project plans and schedule. Blow-through is only acceptable when consideration is given to capturing downstream moisture carryover. Considerations include downstream moisture eliminators and/or
- 2.02 UNIT CASING A. The entire air handler shall be constructed of galvanized steel. The removal of access panels shall not affect the structural integrity of the unit once the unit is

extended blank modules with condensate drain pans.

- installed. Contractor shall be responsible to provide connection flanges and all other framework that is needed to properly support the unit. B. Access panels shall be on side of the unit in all sections to allow easy access to drain pan, filter, coil(s), and motor components for cleaning, inspection, and
- C. Access Panels: Removable access panels shall be provided on side of the unit to facilitate service access to drain pans, motors, coil(s). Access panel for filter removal shall be provided on side of the unit. D. Cabinet: Casing shall be manufactured of heavy gauge galvanized steel.

2.03 COILS

- A. Install coils such that headers and return bends are enclosed by unit casing to ensure that if condensate forms on the header or return bends, it is captured by the
- B. Coils shall be manufactured with plate fins to minimize water carryover and maximize airside thermal efficiency. Fin tube holes shall have drawn and belled collars to maintain consistent fin spacing to ensure performance and air pressure drop across the coil are as scheduled. Tubes shall be mechanically expanded and bonded to fin collars for maximum thermal conductivity. Use of soldering or tinning during the fin-to-tube bonding process is not acceptable due to the inherent thermal stress and possible loss of bonding at that joint.
- C. Construct coil casings of galvanized steel. End supports shall have belled tube holes to minimize wear of the tube wall during thermal expansion and contraction of the tube.
- - Supply and return header connections shall be clearly labeled on outside of units, such that direction of coil water-flow is counter to direction of unit air-
 - 2. Coils shall be proof tested to 450 psig and leak tested to 300 psig air pressure under water.
 - Headers shall be constructed of round copper pipe. 4. Unit shall be provided with minimum 3/8 inch O.D. copper coils. All fins shall
- 5. All coil connections shall be on same side of unit.

2.04 DRAIN PAN

- A. Drain Pan(s) shall be constructed of corrosion resistant material. Acceptable materials include polymer or stainless steel. Units with cooling coils shall have drain pans under complete cooling coil section that extend beyond the air-leaving side of the coil to ensure capture of all condensate in section.
- B. Drain pan manufacturer shall either insulate bottom of drain pan with closed cell foam or provide double wall internally insulated construction to eliminate bottom
- C. Drain pan shall be sloped in two planes, pitched toward drain connections to ensure complete condensate drainage when unit is installed level and trapped per manufacturer's installation instructions. Units without drain pans sloped in two
- planes shall coat drain pans with anti-microbial treatment. D. Drain pan(s) shall have main and auxiliary drain connections with auxiliary outlet higher than the main connection.
- E. Coil(s) shall be mounted above the drain pan to facilitate easy and complete inspection, cleaning, and removal. Coil(s) may not sit in drain pan.

2.05 FANS

A. Provide single-wheel, dual-width, dual-inlet, forward curved centrifugal fans as specified on the schedule. All fans shall be dynamically balanced.

- 2.06 MOTORS A. All motors shall be factory-installed and run tested. To facilitate field replacement
- of motors, a removable fan inlet cone shall be provided on the drive side of the fan/motor assembly.
- B. Motor shall be ECM programmable type. The motor shall be preprogrammed in the factory to meet the specified airflow requirements
- C. Fan motor shall have permanently lubricated and sealed bearings, protected by an internal thermal overload.
- D. Single phase motors shall be selected to operate continuously at 104 F (40 C) ambient without tripping on overloads. Motors shall have a +/- 10 percent voltage utilization range to protect against voltage variation.

2.07 FILTERS A. Provide removable one- or two-inch thick filters easily removable from side of the

unit. All units shall use standard filter sizes.

D. Control Interface - Unit shall be factory run tested and end devices shall be factory

2.08 CONTROLS

- A. Fan motor and end devices shall be wired back to a control box enclosure. A junction box shall be provided for single point power connection.
- The control package shall include the following at a minimum:
- 24 VAC transformer
- Disconnect switch
- C. The control package shall include the following options

wired to terminal strip in an external junction box and tested for wiring continuity. **PART 3 - EXECUTION**

3.01 SHIPPING

- Paper copies of the IOM shall also be shipped with each unit. B. The manufacturer shall identify all shipments with the order number. Enough information shall be provided with each shipment to enable the Mechanical Contractor to confirm the receipt of units when they are received. For parts too
- small to mark individually, the manufacturer shall place them in containers. C. To protect equipment during shipment and delivery, unit air inlet and outlet openings shall ship from manufacturer with removable sealed covering. Covering
- shall not constrain the unit installation process. D. After loading the equipment for shipment, the manufacturer shall contact the shipping contact on the order and provide the name of the carrier, description of equipment, order number, shipping point, and date of shipment.

Ductless Split Systems

1. System Description

The heat pump air conditioning system shall be a Mitsubishi Electric MXZ split system with Variable Compressor Speed Inverter Technology (VCSI), charged with R410A refrigerant. The system shall consist of one, two, three or four slim silhouette, compact wall mounted evaporator section(s) with wireless controller. The outdoor unit shall be a horizontal discharge single phase unit.

2. Quality Assurance

a) The units shall be listed by Electrical Testing Laboratories (ETL) and bear the ETL b) All wiring shall be in accordance with the Canadian Electrical Code.

c) The units shall be rated in accordance with ARI Standard 210 and bear the ARI d) The units shall be manufactured in a facility registered to ISO 9001 and ISO14001 which are a set of standards applying to environmental protection set by the

3. Warranty

The units shall have a manufacturer's warranty for a period of five (5) years from date of installation. The compressor shall have a warranty of seven (7) years from date of installation. If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of the manufacturer.

4. General Information

1.0) Indoor Unit General

International Standard Organization (ISO).

The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, internal piping, control circuit board and fan motor. The unit shall have a self-diagnostic function, 3-minute time delay mechanism an auto restart function, an emergency operation function and a test run switch. Indoor unit and refrigerant pipes shall be charged with dry air before shipment from the factory.

The casing shall have a white finish. Multi directional drain and refrigerant piping offering four (4) directions for refrigerant piping and two (2) directions for draining shall be standard. There shall be a separate back plate which secures the unit firmly to the

1.2) Fan

The indoor unit fan shall be an assembly with a line-flow fan direct driven by a single motor. The fan shall be statically and dynamically balanced and run on a motor with permanently lubricated bearings. A manual adjustable guide vane shall be provided with the ability to change the airflow from side to side (left to right). A motorized air sweep flow louver shall provide an automatic change in airflow by directing the air up and down to provide for uniform air distribution. The indoor unit fan shall consist of three (3) speeds, High, Medium and Low.

1.3) Filter

1.4) Coil

Return air shall be filtered by means of easily removed catechin and enzyme filters.

The evaporator coil shall be of nonferrous construction with pre-coated aluminum strake fins on copper tubing. The coil shall be pressure tested at the factory. A condensate pan and drain shall be provided under the coil.

1.5) Electrical

The electrical power of the unit, supplied from the outdoor unit shall be 208 volts or 230 volts, 1 phase, 60 hertz. The system shall be capable of satisfactory operation within voltage limits of 198 volts to 253 volts. The indoor unit shall not have any supplemental electrical heat elements.

1.6) Control

This unit shall have a wireless controller to perform input functions necessary to operate the system. The controller shall consist of a Power On/Off switch. Mode Selector, Temperature Setting, Timer Control, Fan Speed Select and Auto Vane Selector. Temperature changes shall be by 2°F increments with a range of 65°F to 87°F. There shall be a 24 hour On/Off timer. The microprocessor located in the indoor unit shall have the capability of sensing return air temperature and evaporator coil temperature, receiving and processing commands from the wireless controller, providing emergency operation and controlling the outdoor unit. The control voltage between the indoor unit and the outdoor unit shall be 208 volts or 230 volts AC. The system shall be capable of automatic restart when power is restored after power interruption. The system shall have auto change over between heating and cooling. Control system shall control the continued operation of the air sweep louvers, as well as provide on/off and system/mode function switching.

2.0) Outdoor Unit General

The unit shall be able to provide cooling operation at -10°C (14°F) and heating operation at -15°C (5°F). The outdoor unit shall be completely factory assembled, internally piped and wired.

2.1) Unit Cabinet

The casing shall be zinc coated steel with acrylic or polyester coating for corrosion

2.2) Fan

2.3) Coil

The unit shall be furnished with a direct drive propeller type fan. The fan motor shall have inherent protection, be permanently lubricated bearings. The fan motor shall be mounted for quiet operation. The fan shall be provided with a raised guard to prevent contact with moving parts. The outdoor unit shall have horizontal discharge airflow.

The condenser coil shall be of nonferrous construction with pre-coated aluminum

strake fins on copper tubing. The coil shall be protected with an integral metal guard. Refrigerant flow from the condenser shall be controlled by means of a linear expansion valve (LEV) metering orifice. The linear expansion valve shall be controlled by a microprocessor controlled step motor.

2.4) Electrical

pressure.

The electrical power of the unit shall be 208 volts or 230 volts, 1 phase, 60 hertz. The unit shall be capable of satisfactory operation within voltage limits of 198 volts to 253 volts. Pulse Amplitude Modulation shall be incorporated into electrical circuit The outdoor unit shall be controlled by the microprocessor located in the indoor unit. The control voltage between the indoor unit and the outdoor unit shall be 208 volts or 230 volts AC.

Pump Suction Diffusers

- 1. The suction diffuser body shall be made of either cast iron or ductile iron.
- 2. The suction diffuser shall include a Flow Cone to eliminate recirculation and direct flow

completely out of the body and into the pump suction.

- 3. The suction diffuser shall include a full-length, 4-plane, removable straightening vane.
- 4. The straightening vane shall be made of either carbon steel or 304 stainless steel.
- perforations and 51% open area.

6. The orifice cylinder shall be made of either carbon steel or 304 stainless steel.

5. The suction diffuser shall include a full-length removable orifice cylinder with 3/16"

7. The suction diffuser shall have a full-length removable start-up strainer.

8. The start-up strainer shall be made of 16 mesh bronze wire.

- 9. The suction diffuser shall be available with either flanged end connections or grooved end connections.
- 10. Flange end connections should be designed according to ANSI Class 150 Standards. 11. Suction diffuser models with either flange x flange or groove x flange end connections

should be rated for 175 psi (1,207 kPa) maximum working pressure. Models with groove x groove end connections should be rated for 300 psi (2,068 kPa) working

12. The suction diffuser shall have a maximum temperature rating of 250°F (121°C).

Base-Mounted, Centrifugal Hydronic Pumps

- 1. The pumps shall be long coupled, base mounted, single stage, end suction, vertical split case design, in cast iron stainless steel fitted, specifically designed for quiet operation. Suitable standard operations at 225°F and 175 PSIG working pressure or optional operations at up to 250°F and 250 PSIG working pressures. Working pressures shall not be de-rated at temperatures up to 250F. The pump internals shall be capable of being services without disturbing piping connections, electrical motor connections or pump to motor alignment.
- 2. The pumps shall be composed of three separable components a motor, bearing assembly, and pump end (wet end). The motor shaft shall be connected to the pump shaft via a replaceable flexible coupling.
- 3. A bearing assembly shall support the shaft via two heavy-duty re-greaseable ball bearings. Bearing assembly shall be replaceable without disturbing the system piping and shall have foot support at the coupling end. Pump bearings shall be re-greaseable without removal of the bearings from the bearing assembly. Thermal expansion of the shaft toward the impeller shall be prevented via an inboard thrust bearing.
- 4. The bearing assembly shall have a solid SAE1144 steel shaft. A stainless steel shaft sleeve shall be employed to completely cover the wetted area under the seal.
- 5. Pump shall be equipped with an internally-flushed mechanical seal assembly installed in an enlarged tapered seal chamber. Application of an internally flushed mechanical seal shall be adequate for seal flushing without requiring external flushing lines. Seal assembly shall have Buna bellows and seat gasket, stainless steel spring, and be of a carbon ceramic design with the carbon face rotating against a stationary ceramic
- 6. Bearing assembly shaft shall connect to a stainless steel impeller. Impeller shall be both hydraulically and dynamically balanced to ANSI/HI 9.6.4-2016, balance grade G6.3 and secured by a stainless steel locking cap screw or nut.
- 7. Pump should be designed to allow for true back pull-out allowing access to the pump's working components, without disturbing motor or piping, for ease of maintenance.
- 8. A center drop-out type coupling, capable of absorbing torsional vibration, shall be employed between the pump and motor. Pumps for variable speed application shall be provided with a suitable coupling sleeve. Coupling shall allow for removal of pump's wetted end without disturbing pump volute or movement of the pump's motor and electrical connections. On variable speed applications the coupling sleeve should be constructed of an neoprene material to maximize performance life.
- 9. An ANSI and OSHA rated coupling guard shall shield the coupling during operation. Coupling guard shall be dual rated ANSI B15.1 and OSHA 1910.219 compliant coupling guard and contain viewing windows for inspection of the coupling. No more than .25 inches of either rotating assembly shall be visible beyond the coupling guard.
- 10. Pump volute shall be of a cast iron design for heating systems with integrally cast pedestal volute support, rated for 175 PSIG with integral cast iron flanges drilled for 125# ANSI companion flanges. (Optional 250 PSIG working pressures are available and are 250# flange drilled.) Volute shall include gauge ports at nozzles, and vent and drain ports.
- 11. Motors shall meet scheduled horsepower, speed, voltage, and enclosure design. Pump and motors shall be factory aligned, and shall be realigned after installation by the manufacturer's representative. Motors shall be non-overloading at any point on the pump curve and shall meet NEMA specifications and conform to standards outlined in EISA 2007.

12. Base plate shall be of structural steel or fabricated steel channel configuration fully

grouting area (for field grouting). The minimum base plate stiffness shall conform to ANSI/HI 1.3.8.2.1-2019 for grouted Horizontal Baseplate Design standards. 13. Pump shall be of a maintainable design and, for ease of maintenance, should use

enclosed at sides and ends, with securely welded cross members and fully open

14. The pump(s) vibration limits shall conform to Hydraulic Institute ANSI/HI 9.6.4-2016 for recommended acceptable unfiltered field vibration limits (as measured per ANSI/HI

9.6.4-2016 Figure 9.6.4.2.3.1) for pumps with rolling contact bearings.

15. Pump manufacturer shall be ISO-9001 certified.

machine fit parts and not press fit components.

- 16. Each pump shall be hydrostatically tested 1.5 times the maximum rated working pressure and name-plated before shipment.
- 17. Pump shall conform to ANSI/HI 9.6.3.1-2012 standard for Preferred Operating Region (POR) unless otherwise approved by the engineer.

1. The suction diffuser body shall be made of either cast iron or ductile iron.

2. The suction diffuser shall include a Flow Cone to eliminate recirculation and direct flow

Pump Suction Diffusers

- completely out of the body and into the pump suction. 3. The suction diffuser shall include a full-length, 4-plane, removable straightening vane.
- 4. The straightening vane shall be made of either carbon steel or 304 stainless steel.
- 5. The suction diffuser shall include a full-length removable orifice cylinder with 3/16" perforations and 51% open area.

6. The orifice cylinder shall be made of either carbon steel or 304 stainless steel.

- 7. The suction diffuser shall have a full-length removable start-up strainer
- 8. The start-up strainer shall be made of 16 mesh bronze wire.

9. The suction diffuser shall be available with either flanged end connections or grooved

11. Suction diffuser models with either flange x flange or groove x flange end connections

10. Flange end connections should be designed according to ANSI Class 150 Standards.

should be rated for 175 psi (1,207 kPa) maximum working pressure. Models with

groove x groove end connections should be rated for 300 psi (2,068 kPa) working pressure.

12. The suction diffuser shall have a maximum temperature rating of 250°F (121°C).

Classroom Unit Ventilators

5. CABINET

isolation grommets.

. CABINET The unit cabinet shall be 14ga corrosion resistant steel, braced and reinforced for rigidity. The finish shall be textured powder coat, color as per the Architect's instruction. The cabinet shall be

fully lined with 1" coated glass fiber insulation. The return air grille shall be heavy duty steel.

- . HOT WATER HEATING COIL
- The coil shall have ½" copper tube of minimum wall thickness 0.016" and shall have aluminum fins. The coil supply and return headers shall be copper pipe, stubbed out for sweat connection. The coil shall be factory pressure tested at not less than 350 p.s.i. A manual air vent shall be factory installed and ball valves fitted. The coil capacity shall be as shown in the schedule.

The coil shall have ½" copper tube of minimum wall thickness 0.016" and shall have aluminum fins.

The coil supply and return headers shall be copper pipe, stubbed out for sweat connection. The coil shall be factory pressure tested at not less than 350 p.s.i.

3. CHILLED WATER COOLING COIL

4. DIRECT EXPANSION EVAPORATOR COIL The coil shall have 3/8" copper tube and aluminum fins. The coil capacities shall be as shown in the schedule. A galvanized steel pitched drain pan shall be provided. The pan shall have a 'P' trap.

The unit cabinet shall be 18ga corrosion resistant steel, braced and reinforced for rigidity. The

finish shall be textured powder coat, color as per the Architect's instruction. The cabinet shall be fully lined with ½" coated glass fiber insulation. The return air grille shall be heavy duty steel.

- 6. SUPPLY AIR FAN/MOTOR The fan shall be a direct centrifugal type with a three speed PSC motor mounted on rubber
- 7. OUTDOOR/RETURN AIR MIXING DAMPERS The outdoor and return air dampers shall have airfoil section aluminum extruded blades. The dampers shall have neoprene blade tip and jamb seals. Leakage shall not exceed 4 c.f.m. per sq. ft. at 3" W.G. differential pressure, as determined by a recognized testing laboratory.
- The filters shall be of the manufacturer's standard disposable type.
- EXTERIOR WALL LOUVER The louver shall be aluminum extruded 45 degree blades. The louver shall have ½" birdscreen
- attached to the inner face. The finish on the louver shall be mill finish or a color as per the Architect's instruction. The contractor shall provide a wall sleeve to suit the wall thickness.

- 10. LINE VOLTAGE WIRING
- All internal line voltage wiring shall be by the unit manufacturer. A suitably rated remote circuit breaker shall be provided and installed by the electrical contractor.
- 11. INSTALLATION The unit ventilator shall be installed plumb. Foam sealing tape shall be installed around the perimeter of the opening in the back of the unit before moving the unit into position against the wall. The exterior louver shall be caulked.
- 12. DDC CONTROLS
- Control items shall be furnished as described in the Controls Specification.

Packaged Rooftop HVAC Equipment

PACKAGED ROOFTOP UNITS

PRODUCTS

- Cabinet:
- a. Heavy gauge steel panels
- b. Pre-painted steel panels c. Full perimeter heavy gauge galvanized steel base rail
- d. Forklift slots on base rail
- e. Raised or flanged edges around duct and power entry openings f. Insulation:
 - 1. All panels adjacent to conditioned air are fully insulated with non-

g. Access Panels are provided for compressor/controls/heating areas,

- hygroscopic fiberglass insulation

2. Unit base is fully insulated

- 3. Unit base insulation also serves as air seal to the roof curb
- blower access and air filter/economizer access: h. Exterior panels constructed of heavy-gauge galvanized steel with two
- layer enamel paint finish
- Cooling System:

Coil Guards

- a. Refrigerant type: R-410A b. Compressors:
- 1. Scroll Type
- 2. Resiliently mounted on rubber grommets for quiet operation 3. Overload Protected
- 4. Internal excessive current and temperature protection 5. Isolated from condenser and evaporator fan air streams

6. Refrigerant cooled

- c. Thermal Expansion Valve
- d. High capacity filter/driers e. High pressure switches

f. Freezestats

b. Evaporator Coils:

- g. Crankcase heaters
- 3. Coil Construction: a. Tube and fin condensing/evaporator coil general construction:
- 1. Copper tube construction 2. Rippled-edge aluminum fins

5. Factory leak tested at manufacturing facility

- 3. Flared shoulder tubing connections 4. Silver soldered construction for improved heat transfer
- 1. With balanced port thermal expansion valves, freeze protection on each compressor circuit, pressure and leak
- 2. Each compressor circuit on coil divided across face of coil and active through full depth of coil
- c. Condensate Drain Pan: Plastic pan, sloped to meet drainage requirements of ASHRAE

tested to 500 psi

2. Side or bottom drain connections d. Outdoor coil fan motors:

1. Thermal overload protected

- 2. Shaft up, wire basket mount e. Outdoor coil fans: PVC coated fan guard furnished
- 4. Gas Heating System:
- a. Induced draft
- c. Electronic flame sensors d. Flame rollout switches

b. Natural gas fired system with direct spark ignition

- e. High heat limit switches
- Induced draft failure switch and capable of operating to altitude of 2000 feet (610m) with no derate to manifold pressure Service access for controls, burners and heat exchanger

Gas Burners: Aluminized steel inshot-type gas burners

- Gas piping system tight and free of leaks when pressurized to maximum supply pressure
- Gas piping system tight and free of leaks when
- 5. Supply Air Fan (Blower)
- a. Motor 1. Overload protected
- b. Supply Air Blower
- 1. Forward curved blades Wheel is statically and dynamically balanced

Gas Valve: Two-stage, redundant type gas heat valve with manual shutoff

- 3. Equipped with ball bearings and/or adjustable pulley for speed change 4. Blower assembly slides out of unit for servicing
- a. 2" MERV 8 Filters 7. Controls:
- 1. 24V transformer (secondary) with built in circuit breaker protection b. Heat/Cool Staging 1. 2 heat/2 cool staging with a third party DDC control system or thermostat

EXECUTION

c. Low voltage terminal block

6. Supply Air Filters:

a. Unit Control

1. MANUFACTURER'S INSTRUCTIONS a. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions and manufacturer's spec data

a. Site Verification of Conditions: Verify substrate conditions, which have

2. EXAMINATION

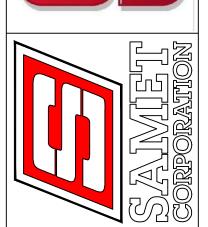
sheets.

been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

ontractors,

ste







LINGTON MS TAMAHAW-0

M.HARRISON SY:K.WATERS 04/28/2023

1:1 A-4216_M0.1.DWG

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A

Split System Condensing Units

General - R410A

All air-cooled condensing units shall have scroll compressors and are factory assembled and wired. Each unit shall ship from the factory with a nitrogen holding charge. Units shall have factory mounted, louvered, full-length steel grilles to protect the condenser coils and piping. Unit surface shall be phosphatized and finished with an air-dry paint. This air-dry paint finish shall be durable enough to withstand a minimum of 672-consecutive-hour salt spray application in accordance with standard ASTM B117.

Compressors - R-410A

Scroll compressors have simple mechanical design with only three (3) major moving parts. Scroll type compression provides inherently low vibration. 3-D compressors provide a completely enclosed compression chamber with no leakage paths. The compressor is suction gas cooled, direct drive, 3600 RPM hermetic motors. The Scroll compressor includes a centrifugal oil pump, oil level sight glass, and an oil charging valve.

Refrigerant Management - R-410A

Each compressor shall have crankcase heaters installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Unit Control - R410A

Factory provided 115-volt control circuit includes fusing and control power transformer. The unit is wired with magnetic contactors for compressor and condenser motors, three-leg solid-state compressor overload protection, and high/low pressure cutouts. Charge isolation, reset relay and anti- recycle compressor timer is provided. Across-the-line start is standard.

Single Circuited, Condenser Coils

Condenser coils are single circuit having an all Aluminum Microchannel design. The coils are burst tested and leak tested. Factory installed liquid line service valves are standard.

Condenser Fans - R-410A Condenser fans are direct driven with motors having thermal overload protection

and permanently lubricated ball bearings.

Low Ambient Control R-410A

Low ambient option extends unit operation from 40 F to 0 F [4.5 to -17.8 C] by utilizing an external damper assembly for head pressure control.

Split System Air Handlers

- Completely factory assembled

- Convertible for horizontal or vertical configuration - Convertible for cooling only or heat pump application

- Convertible for left or right external connections (refrigerant and/or electrical) - Convertible for front or bottom air return

- Nitrogen holding charge

Casing
- Zinc coated, heavy gauge, galvanized steel
- Weather resistant baked enamel finish

- Access panels with captive screws

- Completely insulated with foil faced, cleanable, fire retardant, permanent, odorless glass fiber material

Refrigeration System - Distributor(s)

- Thermal expansion valves (TXVs)

Evaporator Coil

- Draw-through airflow - Dual circuits are interlaced/intertwined

- Double sloped, removable, cleanable, composite drain pan - Four drain pan positions

Indoor Fan

- Double inlet, double width, forward curved, centrifugal type fan - Permanently lubricated bearings

Indoor Motor

- Thermal overload protection

- Permanently lubricated bearings

- Meet energy policy of 1992 (EPACT) - Optional oversized motors for high static applications

Controls - (TWE)
- Completely internally wired

- Colored and keyed connectors, colored wires - Magnetic indoor fan contactor

- Detachable low voltage connectors Single point power entryEvaporator defrost control

- MERV 8 high efficiency filters

- Terminal strip connections

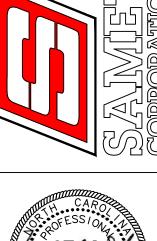
Electric Heaters

- Heavy duty nickel chromium elements - Single point power entry

Contractors,







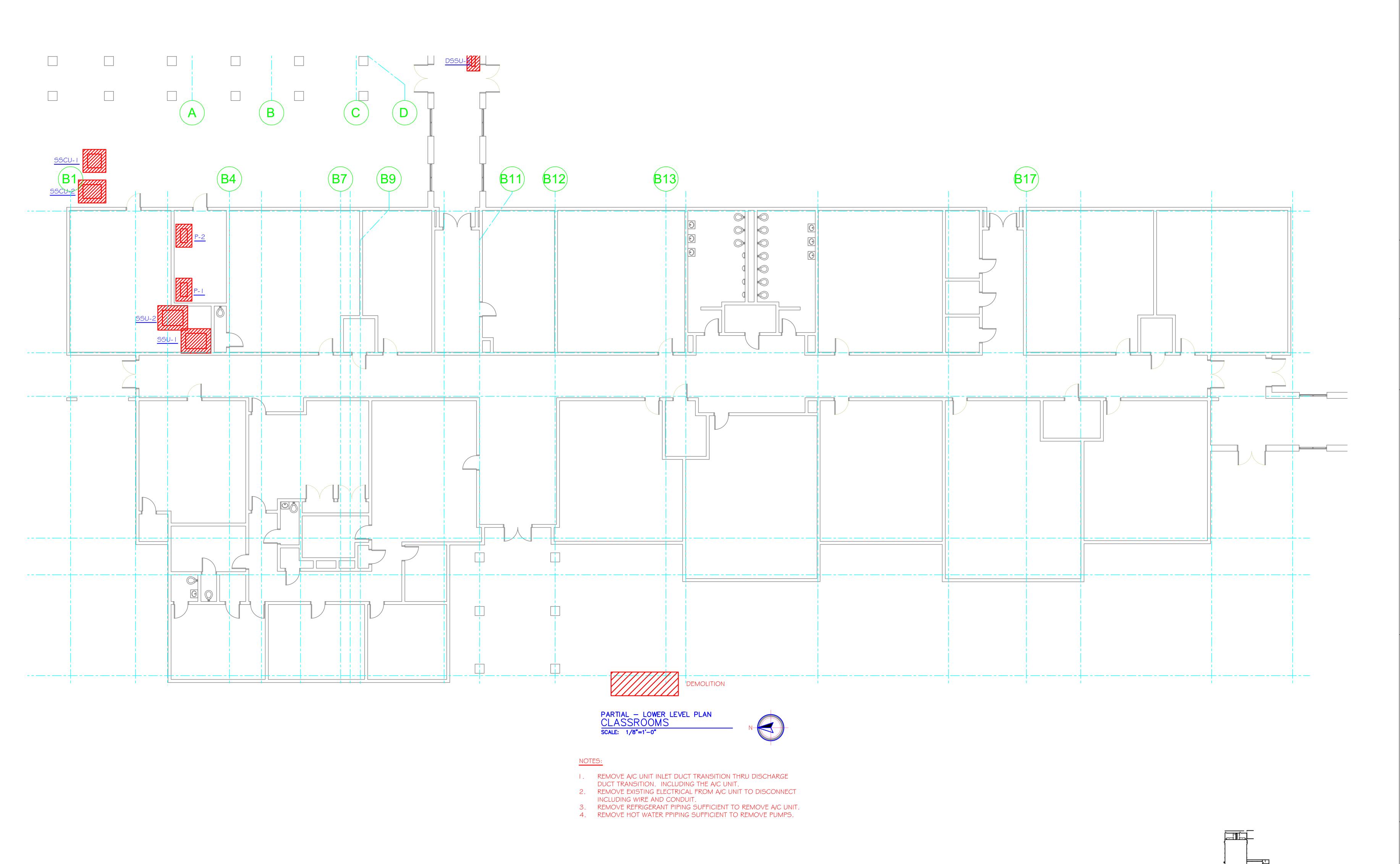


ALAMANCE/BUTLINGTON
SCHOOL SYSTEMS
ALTAMAHAW-OSSIPEE MS
32 N. North Carolina Highway 87, Elon, NC 27

MECHANICAL SPECIFICATIONS

M.HARRISON BY:K.WATERS

04/28/2023 LOT SCALE: 1:1 A-4216_M0.1.DWG

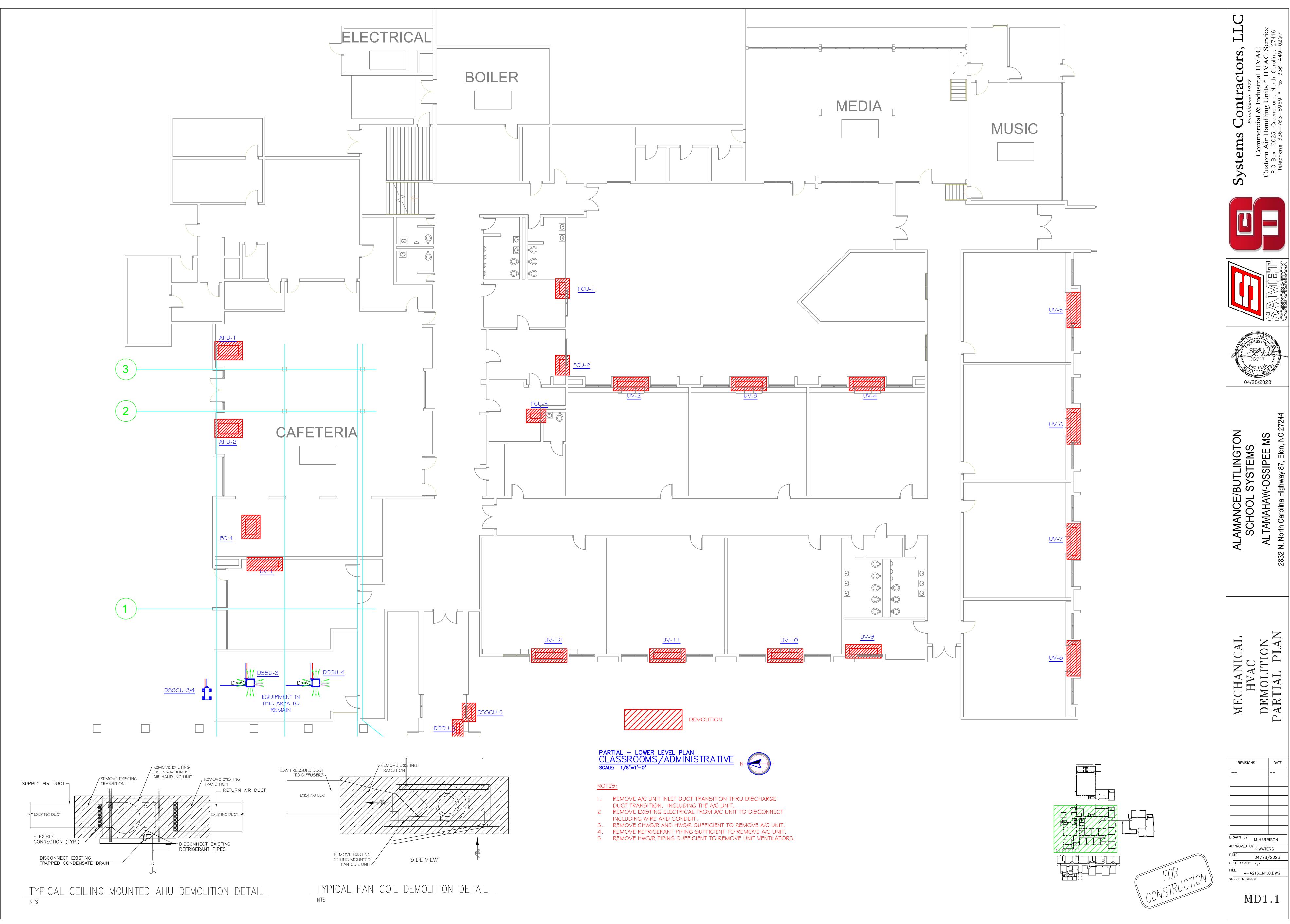


ALAMANCE/BUTLINGTON
SCHOOL SYSTEMS
ALTAMAHAW-OSSIPEE MS
2832 N. North Carolina Highway 87, Elon, NC 272

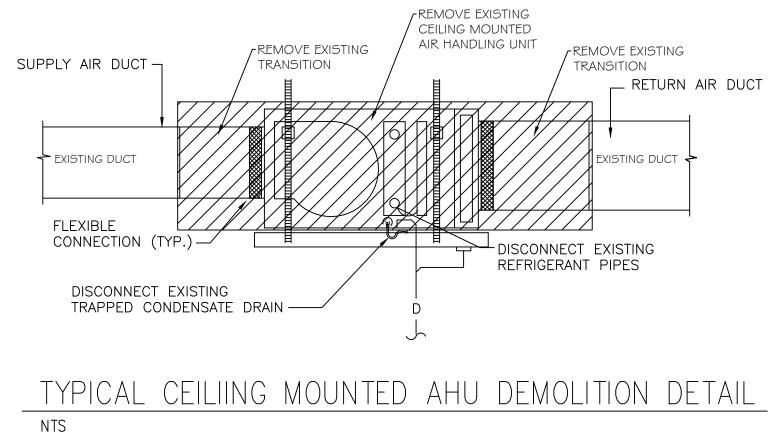
MECHANICAL HVAC DEMOLITION PARTIAL PLAN

REVISIONS DRAWN BY: M.HARRISON APPROVED BY:
K.WATERS DATE: 04/28/2023
PLOT SCALE: 1:1 A-4216_M1.0.DWG SHEET NUMBER:

MD1.0



04/28/2023



TYPICAL CEILING MOUNTED AHU DEMOLITION DETAIL

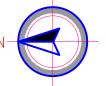
MECHANICAL HVAC DEMOLITION PARTIAL PLAN

REVISIONS DRAWN BY: M.HARRISON APPROVED BY: DATE: 04/28/2023
PLOT SCALE: 1:1 A-4216_M1.0.DWG SHEET NUMBER:

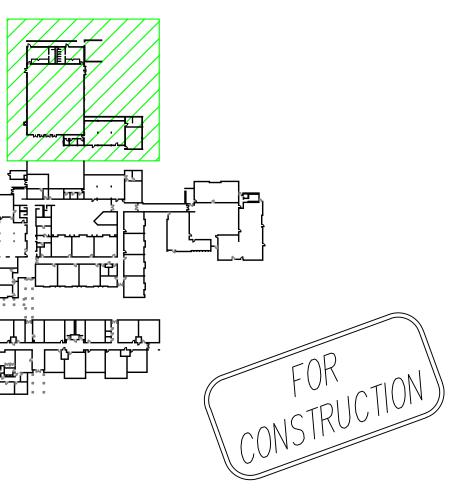
MD1.2



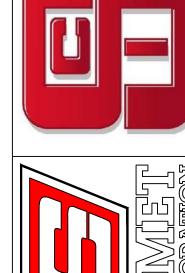




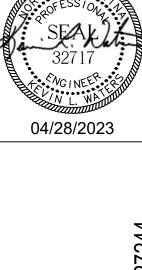
REMOVE A/C UNIT INLET DUCT TRANSITION THRU DISCHARGE DUCT TRANSITION. INCLUDING THE A/C UNIT BELOW GYM FLOOR.
 REMOVE EXISTING ELECTRICAL FROM A/C UNIT TO DISCONNECT INCLUDING WIRE AND CONDUIT.









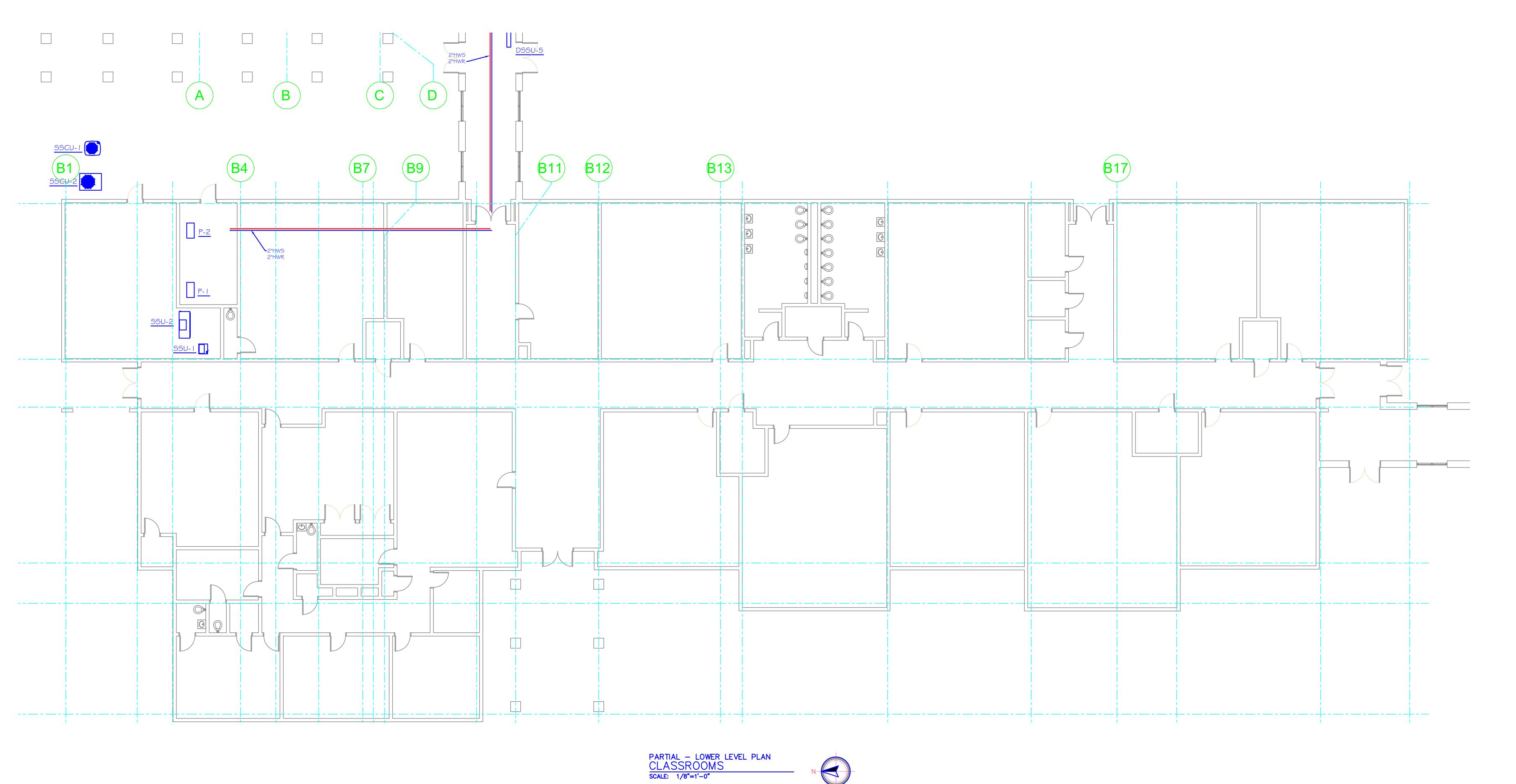


ALAMANCE/BUTLINGTON
SCHOOL SYSTEMS
ALTAMAHAW-OSSIPEE MS
2832 N. North Carolina Highway 87, Elon, NC 27244

MECHANICAL HVAC DEMOLITION PARTIAL PLAN

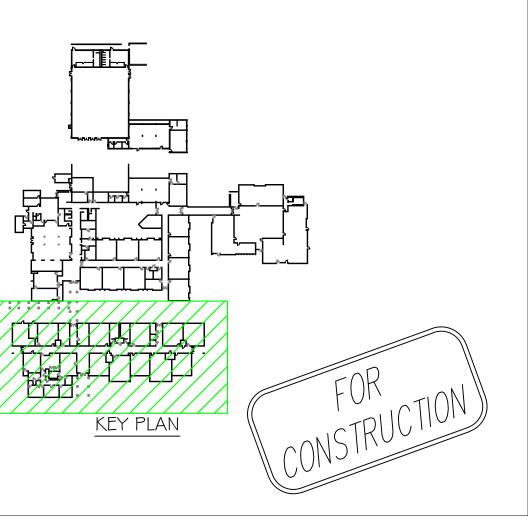
REVISIONS DRAWN BY: M.HARRISON APPROVED BY: 04/28/2023 PLOT SCALE: 1:1 A-4216_M1.0.DWG SHEET NUMBER:

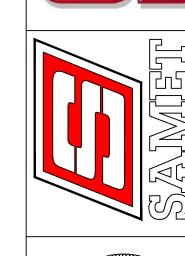
MD1.3

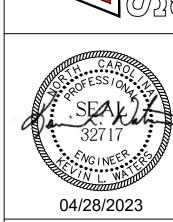


- I. PROVIDE NEW A/C UNIT (PER SCHEDULE), TRANSITIONS AND FLEXIBLE DUCTWORK PER DETAIL.
- 2. PROVIDE NEW CONDUIT AND CONDUCTORS FROM DISCONNECT TO A/C UNIT. VERIFY EXISTING CIRCUIT SIZE MATCHES ORIGINAL DRAWING/NEW EQUIPMENT.
- 3. PROVIDE NEW PUMPS AND ACCESSORIES PER SCHEDULE # DETAIL.
- 4. PROVIDE NEW CONDUIT AND CONDUCTORS FROM DISCONNECT TO PUMP. VERIFY EXISTING CIRCUIT SIZE MATCHES ORIGINAL DRAWING/NEW EQUIPMENT.

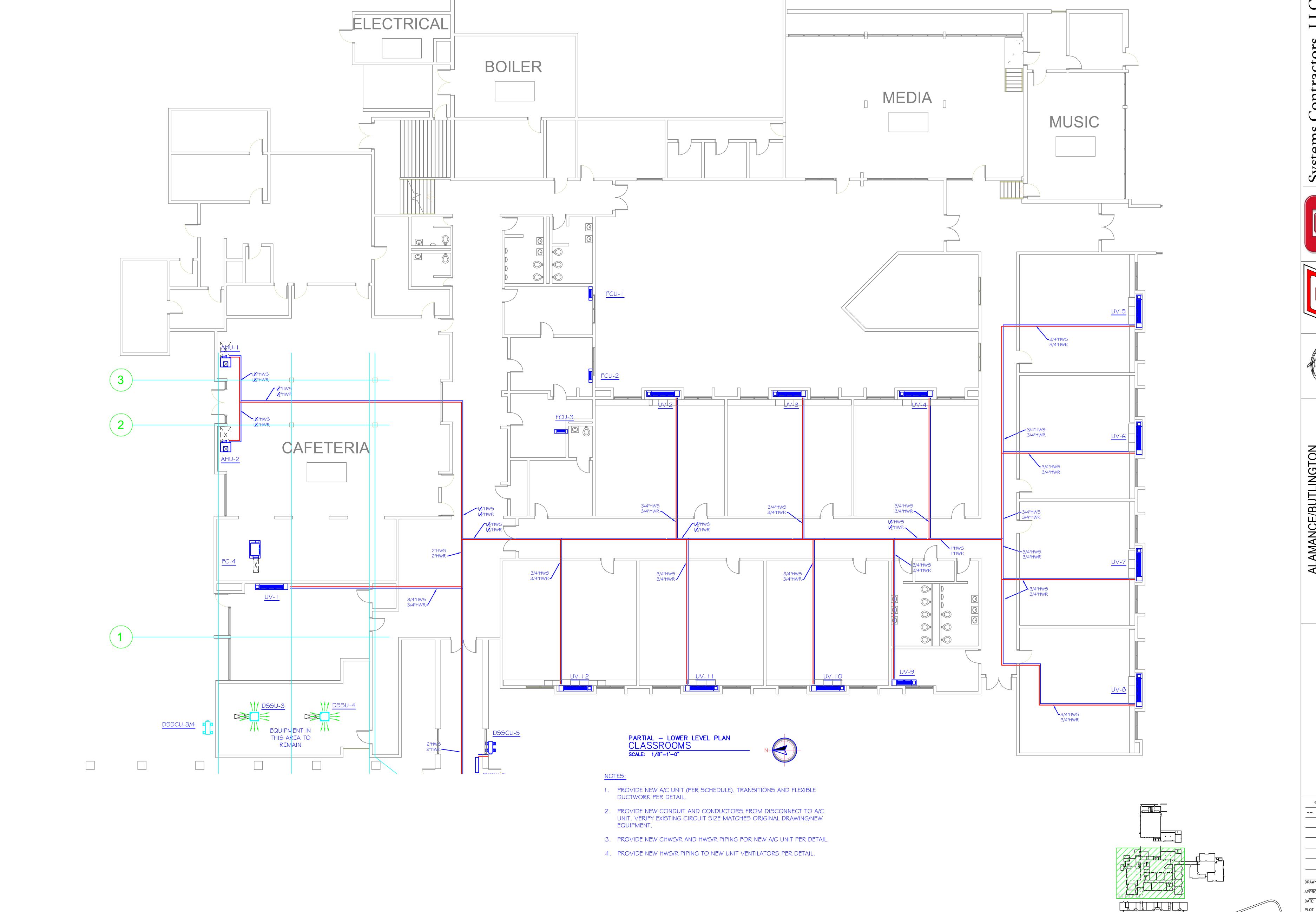
5. CONNECT REFRIGERANT LINES TO NEW A/C UNIT. VERIFY SIZES MATCH NEW EQUIPMENT REQUIREMENTS.







REVISIONS DRAWN BY: M.HARRISON APPROVED BY:
K.WATERS 04/28/2023 PLOT SCALE: 1:1 A-4216_M1.0.DWG SHEET NUMBER: M1.0



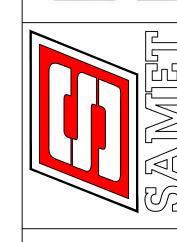
Systems Contractors, L

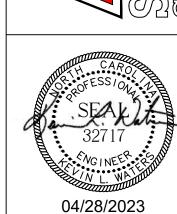
Established 1977

Commercial & Industrial HVAC

Custom Air Handling Units * HVAC Servi
P.O Box 16023, Greensboro, North Caroling, 2741







04/28/2023 NOL

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2832 N. North Carolina Highway 87, Elon, NC 27244

MECHANICAL HVAC PARTIAL PLAN

REVISIONS DATE

-- -
DRAWN BY: M.HARRISON

APPROVED BY: K.WATERS

DATE: 04/28/2023

PLOT SCALE: 1:1

M1.1

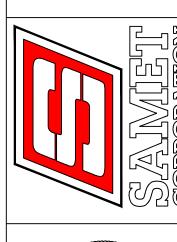
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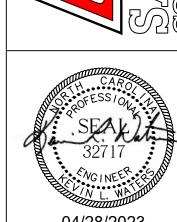
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Systems Contractors, LLC

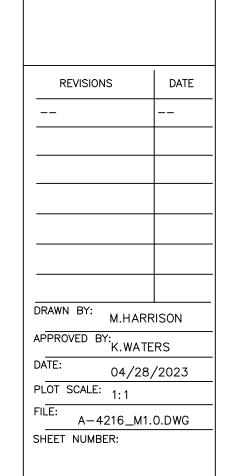




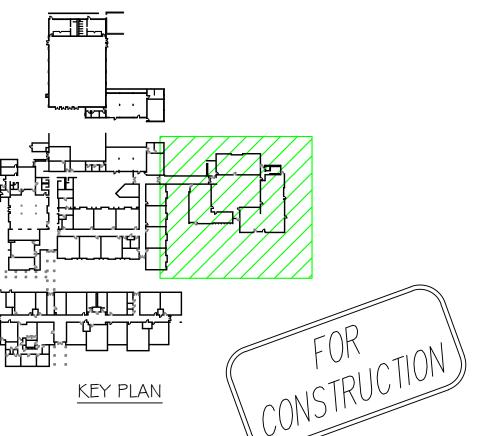




MECHANICAL HVAC PARTIAL PLAN

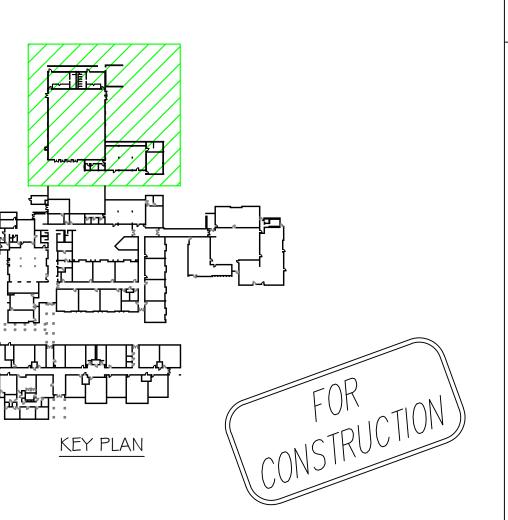


M1.2





- I. PROVIDE NEW A/C UNIT (PER SCHEDULE).
- 2. PROVIDE DUCTSOX HANGER PER DETAILS.
- 3. PROVIDE NEW CONDUIT AND CONDUCTORS FROM DISCONNECT TO A/C UNIT. VERIFY EXISTING CIRCUIT SIZE MATCHES ORIGINAL DRAWING/NEW EQUIPMENT.





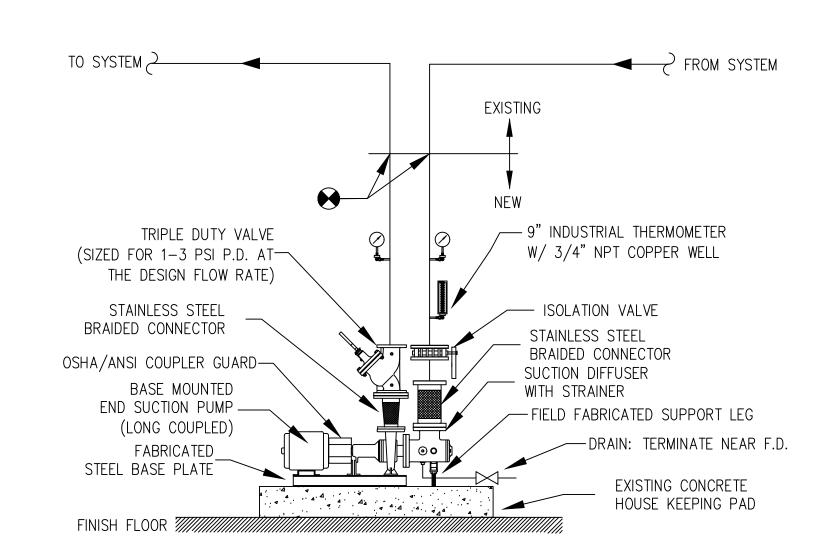


MECHANICAL HVAC PARTIAL PLAN REVISIONS DRAWN BY: M.HARRISON APPROVED BY: K.WATERS DATE: 04/28/2023 PLOT SCALE: 1:1 A-4216_M1.0.DWG SHEET NUMBER:

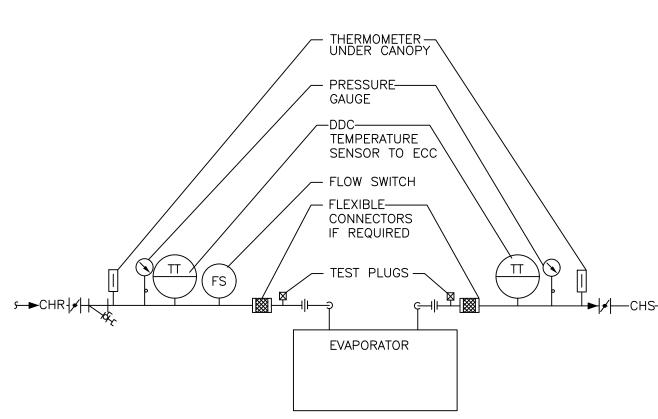
M1.3

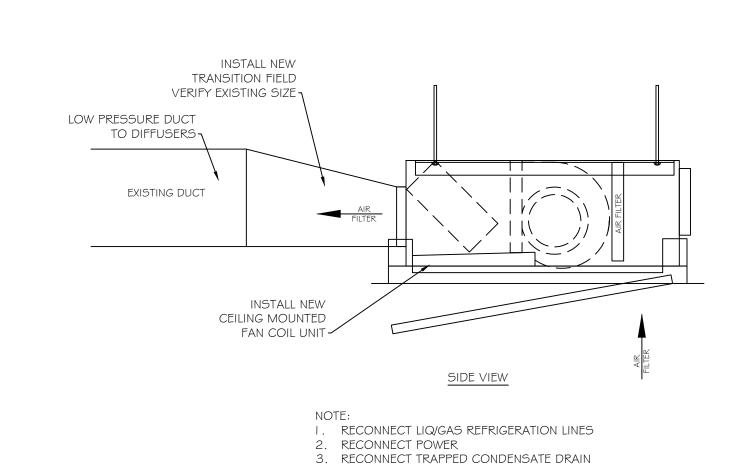
ALAMANCE/BUTLINGTON
SCHOOL SYSTEMS
ALTAMAHAW-OSSIPEE MS
32 N. North Carolina Highway 87, Elon, NC 273

1 TYPICAL CEILING MOUNTED AHU DETAIL NTS



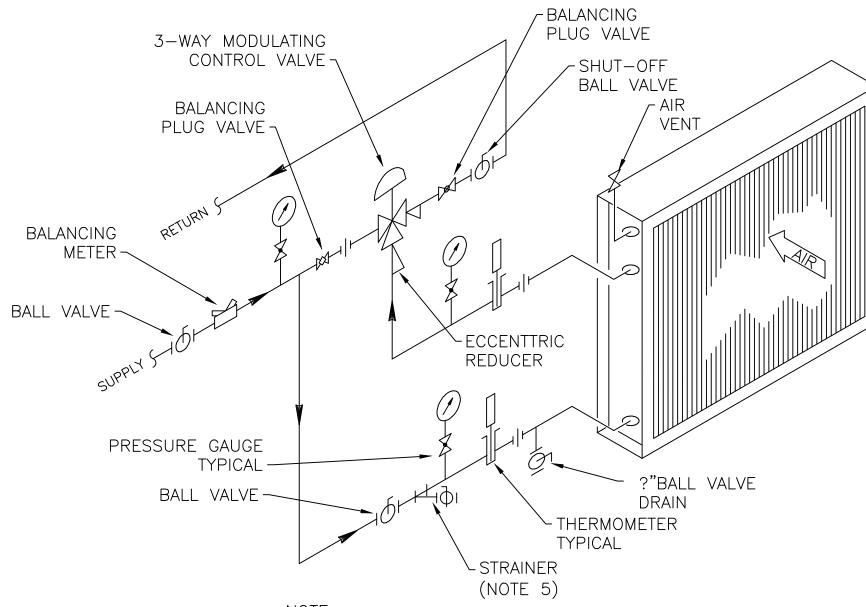
END SUCTION PUMP DETAIL -(BASE MOUNTED ON A HOUSEKEEPING PAD)





6 TYPICAL FAN COIL DETAIL

NTS



1. WHERE PIPE SIZE IS 2 1/2 " OR SMALLER, PROVIDE BALL VALVE IN LIEU OF BUTTERFLY VALVE. 2. PROVIDE THERMOMETERS AND PRESSURE GAUGES, PER SPECS.

- 3. INSTALL UNIONS IN PIPE LOCATION OUT OF WAY TO PULL COIL OUT
- 4. PROVIDE BALANCE METER IN THE SUPPLY PIPE FOR AHU COIL WITH 50 GPM OR MORE 5. PROVIDE BALL VALVE DRAIN VALVE AND
- DRAIN LINE TO FLOOR DRAIN.

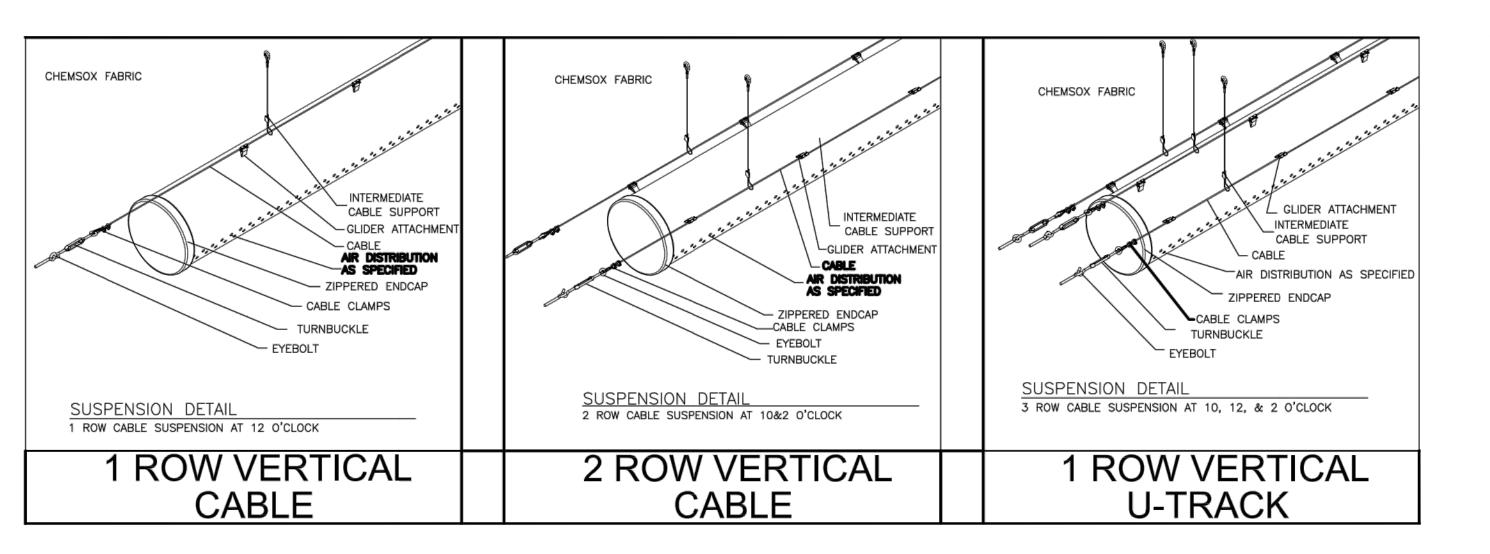
[/] WASHER — SHEET METAL AS / — FLANGED CONNECTION ON FAN SIDE SPECIFIED FOR DUCTWORK. RECTANGULAR FLEXIBLE CONNECTION ____ 5/16" [8mm] FLANGE / BOLT ON 4" [100mm] CENTERS _____1"x1/8" [25x3mm] BAND IRON 7 1"x1/8" [25x3mm] DRAW BAND → FLEXIBLE MATERIAL AS CENTERS-1-1/2" [40mm] MIN. TO 3" [75mm] MAX. INSTALLED. 6" [150mm] NOMINAL WITH MATERIAL TAUT FLANGED CONNECTION ON FAN SIDE ROUND FLEXIBLE CONNECTION

ALTERNATE POSITION

OF BOLT-

FLEXIBLE CANVAS CONNECTIONS

TYPICAL WATER COIL PIPING W/ 3-WAY CONTROL VALVE DETAIL



7 TYPICAL DUCTSOX CABLE HANGER DETAIL

NTS

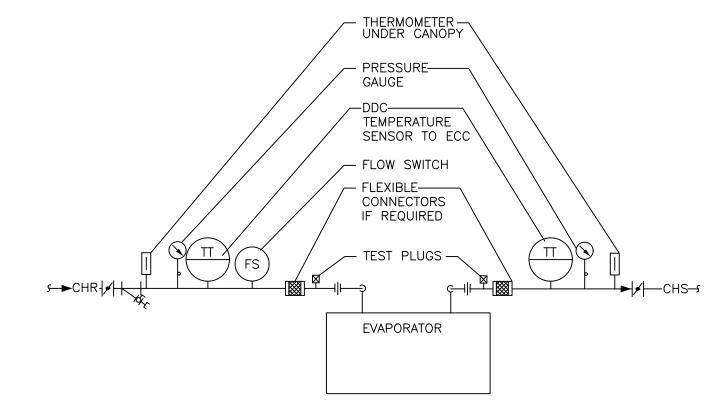


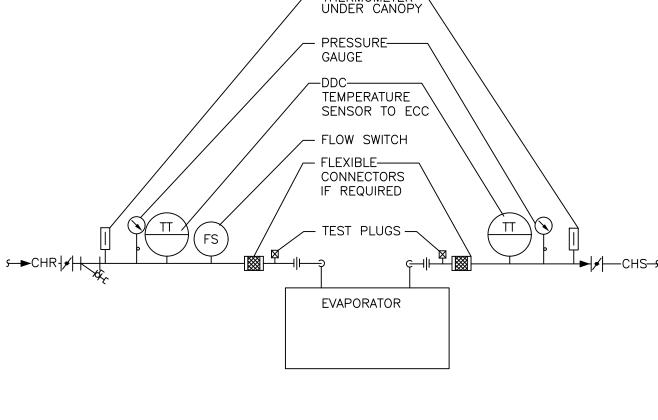
04/28/2023

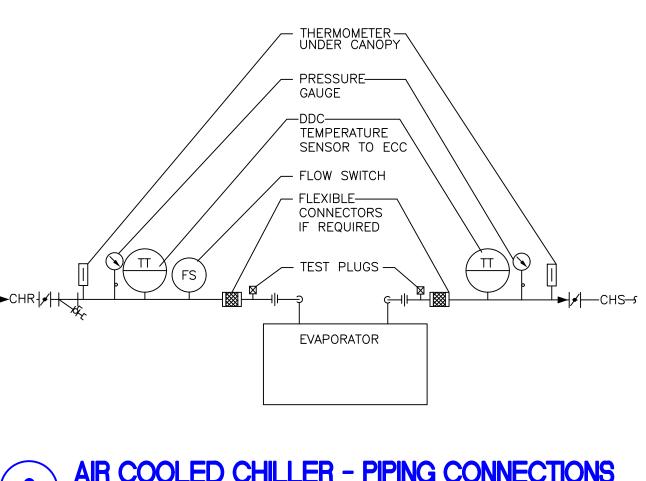
MECHANICAL HVAC DETAILS

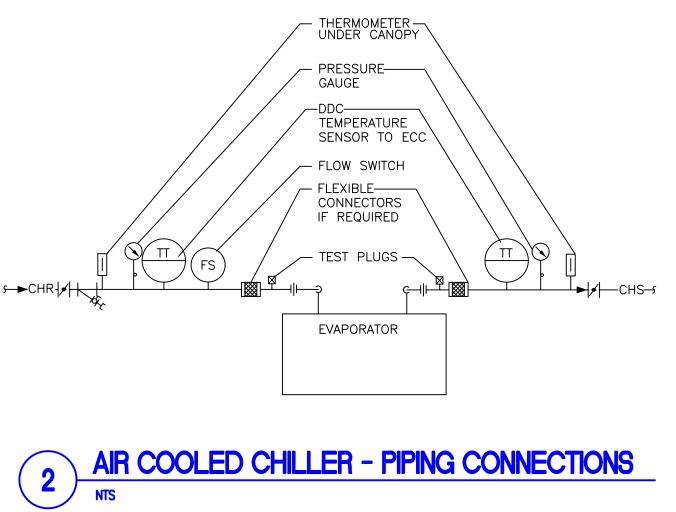
REVISIONS

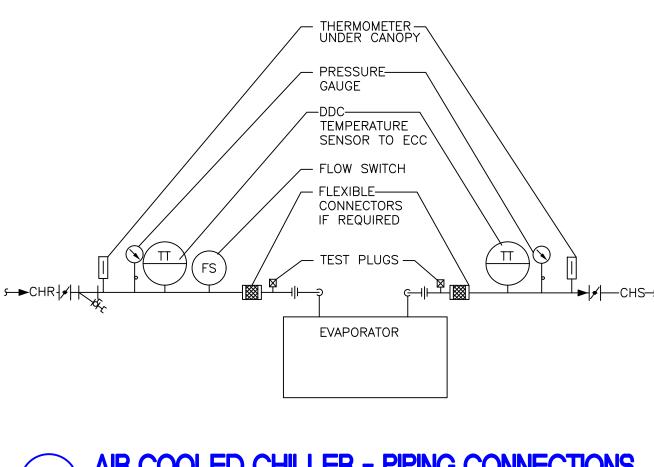
APPROVED BY: K.WATERS A-4216_M1.0.DWG

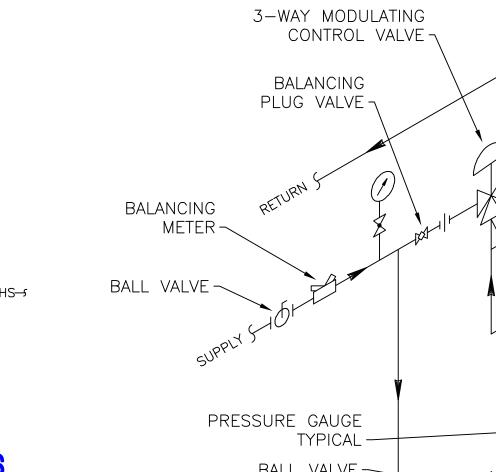


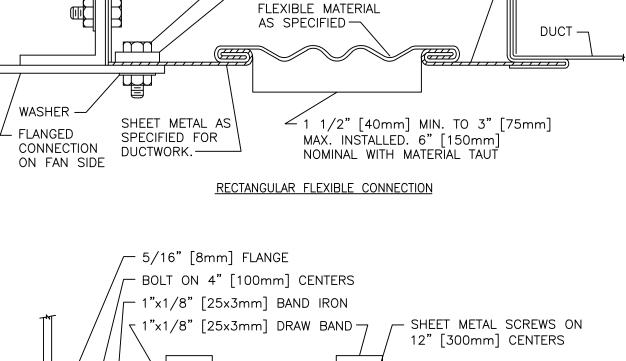












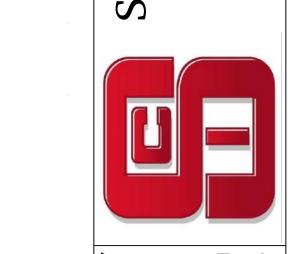
– 1" [25mm] FLANGE & HEM

BOLT ON 4" [100mm] CENTERS

— 1"x1/8" [25x3mm] BAND IRON

— SHEET METAL AS SPECIFIED FOR DUCTWORK.

- 1 1/2" [40mm] POCKET SLIP



Contractors,

2018 NORTH CAROLINA **ENERGY CONSERVATION CODE**

<u> </u>	AUSTLIAN OF COMPLIANCE
	METHOD OF COMPLIANCE
	018 NCECC CHAPTER 4 NC SPECIFIC COMCHECK PROVIDED
N	/A BASED ON PROJECT SCOPE ASHRAE 90.1-2013
C406	ADDITIONAL EFFICIENCY PACKAGE OPTIONS
	406.2 EFFICIENT MECH EQUIPMENT C406.5 ON-SITE RENEWABLE ENERGY
	406.3 REDUCED LTG DENSITY C406.6 DEDICATED OA SYSTEM
	406.4 ENHANCED DIGITAL LTG CNTLS C406.7 HI-EFF SERVICE WTR HTG
N	OT APPLICABLE BASED ON PROJECT SCOPE C406.7.1 WTR HTG LOAD FRACTION
C405.	2 - LIGHTING CONTROLS (MANDATORY REQUIREMENTS):
	LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER
	SECTION C405.2, EXCEPT WHERE EXEMPT.
	NOT APPLICABLE
C405.	3 - EXIT SIGNS (MANDATORY REQUIREMENTS):
	INTERNALLY ILLUMINATED EXIT SIGNS DO NOT EXCEED 5 WATTS PER SIDE.
	NOT APPLICABLE
C405.	4 - INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON-EXEMPT):
	NOT APPLICABLE PER 2018 NCECC C503.1, EXCEPTION 2.G.
	C405.4.1 - TOTAL CONNECTED INTERIOR LIGHTING POWER:
	WATTS SPECIFIED
	— % REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF C406.1.2 IS SELECTED)
	C405.4.2 - TOTAL ALLOWABLE INTERIOR LIGHTING POWER:
	METHOD OF COMPLIANCE:
	☐ BUILDING AREA METHOD ☐ SPACE-BY-SPACE METHOD
	WATTS ALLOWED
C405.	5.1 - EXTERIOR BUILDING LIGHTING POWER (NON-EXEMPT):
	NOT APPLICABLE
	TOTAL CONNECTED EXTERIOR LIGHTING POWER:
	WATTS SPECIFIED
	TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:
	WATTS ALLOWED
C405.	6 - ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):
	SEPARATE ELECTRICAL METERING HAS BEEN PROVIDED FOR EACH DWELLING UNIT IN GROUP R-2 BUILDINGS.
	NOT APPLICABLE
C405.	7 - ELECTRICAL TRANSFORMERS (MANDATORY REQUIREMENTS):
	ELECTRICAL TRANSFORMERS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.7, EXCEPT WHERE EXEMPT.
	NOT APPLICABLE
C405.	8 - ELECTRICAL MOTORS (MANDATORY REQUIREMENTS):
	ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
	NOT APPLICABLE
C408	- SYSTEM COMMISSIONING:
	PROJECT AREA IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
	PROJECT AREA IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM

	SYMBOL SCHEDULE POWER
SYMBOL	DESCRIPTION
	WIRING SYSTEM CONCEALED IN WALL OR CEILING. WHEN SHOWN, CROSS LINES INDICATE NUMBER OF WIRES. (GROUND WIRES ARE NOT SHOWN)
/ \	WIRING SYSTEM CONCEALED IN OR UNDER SLAB OR UNDERGROUND.
/-\	WIRING SYSTEM EXPOSED.
	CONDUIT TURNED DOWN TO FLOOR BELOW.
-	CONDUIT TURNED UP TO FLOOR ABOVE.
	BRANCH CIRCUIT HOMERUN TO PANEL.

	EXISTING/DEMOLITION LEGEND
SYMBOL	DESCRIPTION
\Rightarrow	HALFTONE SYMBOL INDICATES EXISTING
=	DASHED SYMBOL INDICATES REMOVED

ELECTRICAL SHEET INDEX							
SHEET NUMBER	SHEET NAME						
E0.1	ELECTRICAL LEGEND AND NOTES						
E0.2	ELECTRICAL SPECIFICATIONS						
E2.1	POWER FLOOR PLAN						
E6.1	ELECTRICAL DETAILS						
E7.1	ELECTRICAL DIAGRAMS						

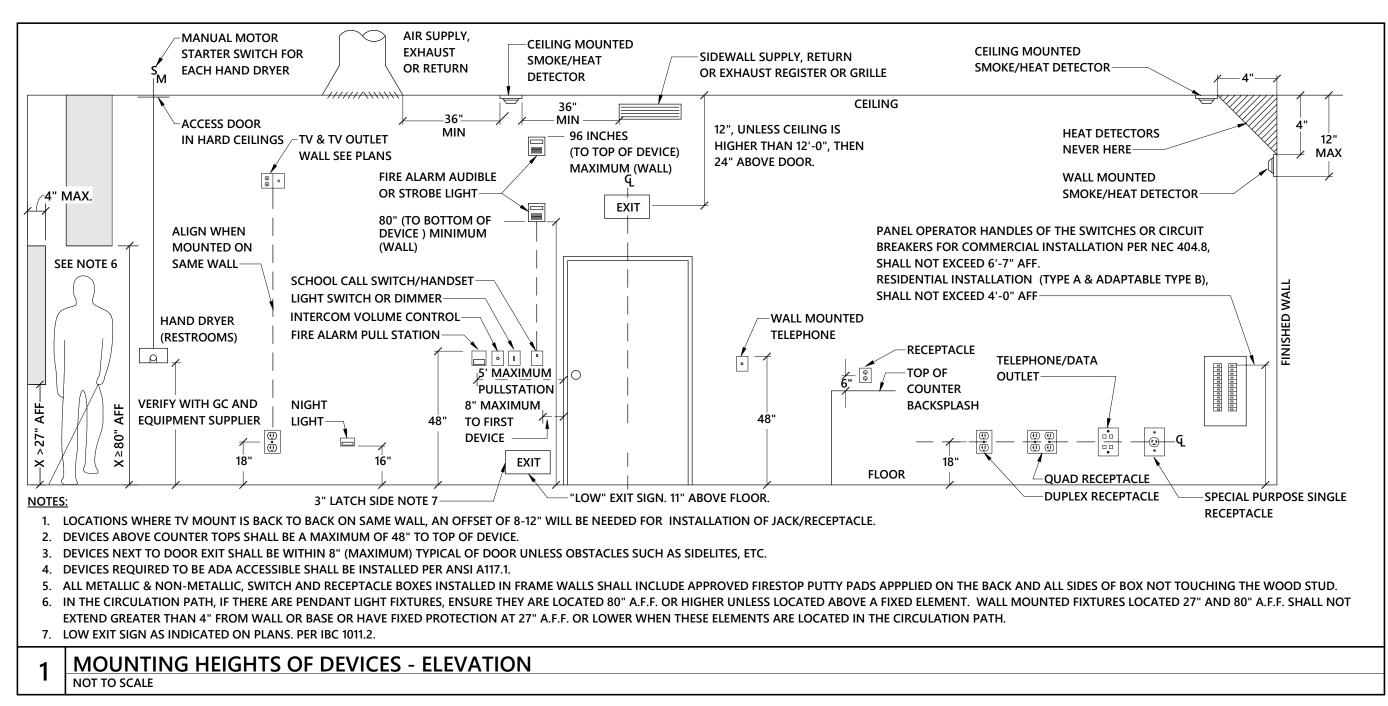
SHEET NUMBER	SHEET NAME	
E0.1	ELECTRICAL LEGEND AND NOTES	
E0.2	ELECTRICAL SPECIFICATIONS	
E2.1	POWER FLOOR PLAN	
E6.1	ELECTRICAL DETAILS	
E7.1	ELECTRICAL DIAGRAMS	

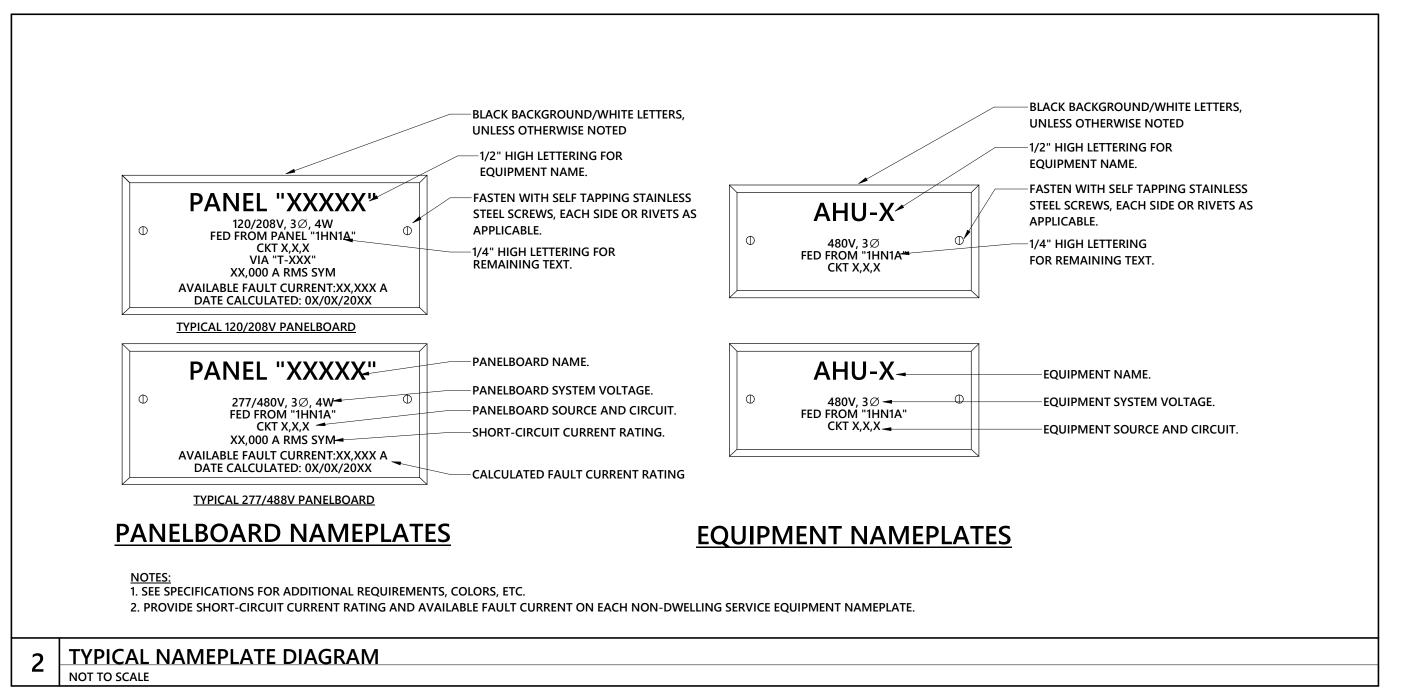
	SYMBOL SCHEDULE POWER LEGEND
SYMBOL	DESCRIPTION
Ю	JUNCTION BOX WITH CONNECTION TO EQUIPMENT SERVED. 4" SQUARE BOX WITH A SINGLE-GANG OPENING AND PLASTER RING.
	208/120V SINGLE PHASE PANELBOARD. PANEL IS EXISTING.
	480Y/277V THREE PHASE PANELBOARD. PANEL IS EXISTING.
	480-208Y/120V TRANSFORMER.TRANSFORMER IS EXISTING.
Ø	FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING. NEMA 3R ENCLOSURE, UNLESS OTHERWISE NOTED. UNSHADED INDICATES NON-FUSED.

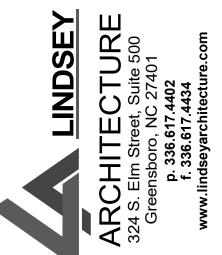
SYMBOL	DESCRIPTION
→ 器	WEATHERPROOF GROUND FAULT RECEPTACLE. NEMA 5-20R DUPLEX, CORROSION RESISTANT, WITH IN-USE COVER.
	NFPA FIRE ALARM LEGEND

ELECTRICAL FIXTURES LEGEND - COMMERCIAL

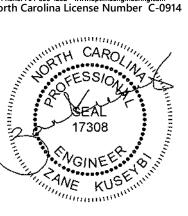
	NFPA FIRE ALARM LEGEND
SYMBOL	DESCRIPTION
	DUCT SMOKE DETECTOR (NFPA 72, SECTION 17.7.5.5). COORDINATE EXACT LOCATION WITH MECHANICAL EQUIPMENT.
	BLE DEVICES WITHIN SLEEPING ROOMS SHALL BE SUBJECT TO LOW FREQUENCY REQUIREMENTS.
A SQUARE WA	AVE 520HZ TONE COMPATIBLE WITH NFPA 72 18.4.5.3. COORDINATE WITH LOCAL CODES AND
REQUIREMEN	TS.











04/06/2023

ELON, OSSIPE HIGHWAY A

WC

MK DATE DESCRIPTION REVISIONS

ELECTRICAL LEGEND

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01/01/2020 DATE DRAWN BY Author CHECK BY Checker JOB NO. 22-0419 SHEET

- A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, AND SUPPLIES AS NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS AS SHOWN ON THE PLANS.
- B. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE 2020 NATIONAL ELECTRICAL CODE, NFPA, NC STATE BUILDING CODE, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
- C. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES. D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. OR BY A STATE APPROVED THIRD PARTY TESTING AGENCY FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER.
- E. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CATALOG DATA IN ELECTRONIC FORMAT (PDF) FOR ALL ELECTRICAL ITEMS IN THE SCOPE OF WORK, INCLUDING, BUT NOT LIMITED TO, RACEWAYS, BOXES, FITTINGS, CONDUCTORS, DISCONNECTS, FIRE ALARM, ETC. FOR APPROVAL AS APPLICABLE FOR THE PROJECT. ONE COMPLETE SET OF APPROVED SUBMITTALS SHALL BE MAINTAINED AT THE JOB
- F. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH THE BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRING, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, METHODS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COSTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED AFTER BIDS HAVE BEEN ACCEPTED AND ALL COSTS WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CREDITS SHALL BE GIVEN TO THE OWNER WHERE SUCH EQUIPMENT AND METHODS RESULT IN LESS EXPENSE TO THE CONTRACTOR.
- G. ONE COMPLETE SET OF THE LATEST CONSTRUCTION PLANS OF ALL TRADES SHALL BE MAINTAINED AT THE JOB SITE. IN ADDITION, ALL ADDENDUMS, BULLETINS, AND/OR SKETCHES SHALL BE
- INCORPORATED INTO THE ON-SITE CONSTRUCTION PLANS AS THE JOB PROGRESSES. H. COMPLETELY ADEQUATE HOUSING SHALL BE PROVIDED FOR ALL MATERIALS STORED ON JOB SITE.
- ONLY CONDUIT MAY BE STORED OUTSIDE, BUT NOT IN CONTACT WITH THE GROUND. I. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUNDED AT THE MAIN SERVICE EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER NEC 250.
- J. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- K. PROVIDE ALL CUTTING AND PATCHING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE
- L. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (UNLESS OTHERWISE NOTED), EXCEPT FOR CONTROL WIRING FOR EQUIPMENT NOT PROVIDED BY THE ELECTRICAL CONTRACTOR. CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE.
- M. ALL ELECTRICAL JUNCTION BOXES, SWITCHGEAR, ETC. SHALL BE LABELED ACCORDING TO PANEL AND
- N. UPON COMPLETION OF WORK, CONTRACTOR SHALL PRESENT ENGINEER WITH CERTIFICATE OF APPROVAL FROM LOCAL INSPECTOR AND/OR AUTHORITY HAVING JURISDICTION BEFORE WORK WILL
- O. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR EFFECTIVE THE DATE THE PROJECT IS ACCEPTED BY THE OWNER. ANY IMPERFECT MATERIALS OR WORKMANSHIP SHALL BE REPLACED WITHOUT ADDED COST TO THE PROJECT.
- P. IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM.
- Q. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT, AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS
- PART OF THIS WORK TO COMPLETE THE INSTALLATION. R. THE WORD "CONNECT" MEANS THAT THIS CONTRACTOR SHALL PROVIDE (SEE DEFINITION ABOVE) ALL DISCONNECTING MEANS, OVERCURRENT PROTECTION AND WIRING REQUIRED TO PLACE THE EQUIPMENT AND SYSTEMS IN PROPER OPERATING CONDITION AND TO COMPLY WITH CODE
- S. CONTRACTOR SHALL COORDINATE THE ROUGH-IN OF ALL OUTLET LOCATIONS WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS, AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGH-IN.
- T. ELECTRICAL CONTRACTOR SHALL NOT SCALE PLANS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, UNLESS OTHERWISE NOTED.
- U. IF DURING THE COURSE OF WORK, THE CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NEC, OR OTHER CODES OR REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION
- V. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL BRING THE ISSUE TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK OR ORDERING ANY MATERIALS. NO ADDITIONAL COSTS SHALL BE WARRANTED WITHOUT A CHANGE TO THE PROJECT SCOPE.
- W. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING TEMPORARY POWER AND LIGHTING FOR ALL TRADES. AT NO TIME SHALL EXISTING BUILDING POWER SYSTEMS BE UTILIZED WITHOUT WRITTEN PERMISSION FROM THE OWNER.
- X. THE CONTRACTOR SHALL PROVIDE A MINIMUM TWO WEEK NOTICE FOR ANY PLANNED UTILITY OUTAGES. WRITTEN AUTHORIZATION FROM THE OWNER SHALL BE PROVIDED PRIOR TO ANY OUTAGE. ALL PLANNED UTILITY OUTAGES SHALL BE COORDINATED WITH THE OWNER TO OCCUR DURING NON-OPERATING TIMES, INCLUDING NIGHTS, WEEKENDS AND HOLIDAYS. ALL PLANNED UTILITY OUTAGES SHALL INCLUDE PROVISIONS FOR PROPER BACK-UP OF ALL LIFE-SAFETY SYSTEMS AND INCLUDE AN APPROVED FIRE-WATCH PROGRAM AS REQUIRED BY THE LOCAL FIRE MARSHALL.
- Y. EACH BIDDER SHALL VISIT THE JOB SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND TO ASCERTAIN THE EXTENT OF WORK REQUIRED. FAILURE TO VISIT SITE SHALL NOT EXCUSE CONTRACTOR FROM PERFORMING REQUIRED WORK NOR SHALL IT BE AN ACCEPTABLE REASON FOR REQUESTING ADDITIONS TO THE CONTRACT.

2. RACEWAY:

- A. CONDUIT SHALL BE MANUFACTURED BY ALLIED, WHEATLAND, REPUBLIC CONDUIT, WESTERN TUBE, OR APPROVED EQUIVALENT.
- B. FOR INTERIOR WORK, CONDUIT SHALL BE ZINC COATED EMT EXCEPT WHERE NOT PERMITTED BY CODE. USE SCHEDULE 40 PVC BELOW CONCRETE SLAB, IN DUCTBANKS, AND FOR EXTERIOR WORK WHERE NOT SUBJECT TO DAMAGE. USE IMC WHERE SUBJECT TO PHYSICAL DAMAGE.
- C. EMT FITTINGS SHALL BE COMPRESSION GLAND TYPE, OF MALLEABLE STEEL. CONNECTORS SHALL HAVE INSULATED THROATS. CAST, SET SCREW, OR INDENTER TYPE FITTINGS ARE NOT ACCEPTABLE.
- ALL FITTINGS FOR EMT SHALL BE MADE OF STEEL. D. ALL RACEWAY SHALL BE RUN CONCEALED, UNLESS OTHERWISE NOTED. FISH ALL NEW OUTLETS IN EXISTING WALLS, WHERE POSSIBLE. ALL RUNS SHALL BE NEAT AND SQUARE.
- E. LOW VOLTAGE CABLING NOT SPECIFIED TO BE INSTALLED IN CONDUIT, SHALL BE INSTALLED IN A J-HOOK SYSTEM CONSISTING OF MINIMUM 2" DIAMETER HOOKS LOCATED ON 3'-0" CENTERS IN ALL ACCESSIBLE CEILINGS. WHERE THERE ARE INACCESSIBLE CEILINGS, PROVIDE CONDUIT FOR ENTIRE
- F. RACEWAYS USED FOR LOW VOLTAGE SYSTEMS SUCH AS FIRE ALARM, SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AT EACH CONDUIT TERMINATION. THESE BUSHINGS SHALL BE INSTALLED PRIOR TO PULLING LOW-VOLTAGE CABLES.
- G. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE-RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON-SHRINK GROUT SUFFICIENTLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT ROOF CURB. H. SUPPORT ALL CONDUIT WITH STRAPS AND CLAMPS.
- I. ALL CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES, WHETHER EXPOSED OR NOT AND SUPPORTED FROM STRUCTURE AND PROPERLY SECURED.
- J. WHERE CONDUITS PASS THROUGH A BUILDING EXPANSION JOINT, PROVIDE GALVANIZED EXPANSION FITTINGS WITH BONDING JUMPERS.
- K. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS. L. LIQUID-TIGHT METAL CONDUIT SHALL ONLY BE USED FOR FINAL CONNECTIONS TO EQUIPMENT AND ALL OTHER ROTATING AND VIBRATING EQUIPMENT, MAXIMUM LENGTH OF 3'-0".
- M. FLEXIBLE METAL CONDUIT, MINIMUM SIZE 3/8", SHALL ONLY BE USED FOR FINAL CONNECTION TO LIGHTING FIXTURES, MAXIMUM LENGTH OF 6'-0".
- N. PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360°. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDER PAVED AREAS. THEY SHALL BE RGS.
- O. ALL CONDUIT BENDS/ELBOWS EMERGING FROM UNDERGROUND SHALL BE IMC AND SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.
- P. ALL CONDUITS INSTALLED UNDERGROUND OR IN CONCRETE SHALL HAVE JOINTS MADE WATERTIGHT BY USE OF POLYETRA-FLUOROETHYLENE TAPE.
- Q. THE USE OF AC OR NM CABLE IS NOT PERMITTED.
- R. MC CABLE MAY ONLY BE UTILIZED WHERE PERMITTED BY CODE AND IT SHALL ONLY BE ALLOWED WHERE CONCEALED BEHIND HARD WALLS AND HARD CEILINGS. MC CABLE SHALL NOT BE EXPOSED.

OUTLET BOXES:

- A. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL. ACCEPTED MANUFACTURERS SHALL BE STEEL CITY (THOMAS & BETTS), RACO, CROUSE-HINDS, APPLETON (EMERSON), OR APPROVED
- B. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS.
- C. ATTACH EMT WITH CONNECTORS HAVING INSULATED THROAT.
- D. ATTACH BOXES TO STUD WORK USING CADDY BAR STRAPS THAT CONNECT TO TWO ADJACENT METAL STUDS TO PREVENT TWISTING OF BOX IN WALL.
- E. ALL OUTLET BOXES (INCLUDING TELEPHONE, CABLE TV, AND COMPUTER) SHALL HAVE COVER PLATES,
- F. ALL EXTERIOR BOXES SHALL BE WATER-TIGHT.

4. CONDUCTORS:

- A. CONDUCTORS SHALL BE MANUFACTURED BY SOUTHWIRE (SIMPULL), ENCORE (SUPERSLICK), UNITED COPPER (SLK), CERRO (SLP), OR APPROVED EQUAL, "PRE-LUBRICATED" BY THE MANUFACTURER.
- B. ALL CONDUCTORS SHALL BE COPPER, RATED 75° C WET/DRY EXCEPT WHERE OTHERWISE NOTED OR REQUIRED BY U.L. OR OTHER CODES.
- C. ALL CONDUCTORS SHALL BE SINGLE INSULATED CONDUCTOR, THHN/THWN-2. SIZES #10 AWG AND SMALLER SHALL BE SOLID, SIZES #8 AWG AND LARGER SHALL BE STRANDED.
- D. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG. E. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS AND BROWN/ORANGE/YELLOW FOR 277/480 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY. NEUTRAL SHALL BE WHITE FOR 120/208 VOLT SYSTEMS AND NATURAL GRAY FOR 277/480 VOLT SYSTEMS. GROUND CONDUCTOR SHALL BE GREEN ON ALL SYSTEMS. ALL CONDUCTOR SIZES SHALL HAVE COLOR-CODED INSULATION. THE USE OF COLORED TAPE ON LARGER WIRE SIZES SHALL NOT BE
- INSULATION SHALL BE DUAL RATED TYPE THHN/THWN-2 FOR FEEDERS AND BRANCH CIRCUITS.
- FIXTURE TAPS SHALL BE #12 THHN/THWN-2 IN FLEX WITH GREEN #12 AWG GROUNDING CONDUCTOR.
- G. ALL CONDUCTORS SHALL BE IN CONDUIT.
- H. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.
- I. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED. J. JOINTS IN #10 AWG AND SMALLER SHALL BE MADE UP WITH CRIMPED CONNECTORS WITH INSULATING CAPS (NO TAPE) OR WIRENUTS (MAXIMUM OF 3 CONDUCTORS UNDER ANY CONNECTOR OR WIRENUT). LARGER WIRE SHALL USE SPLIT BOLTS OR BOLTED CLAMPS.
- K. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, MOTOR STARTER LUGS, TRANSFORMERS LUGS, WIRING DEVICE TERMINALS, AND ALL EQUIPMENT LUGS/TERMINALS SHALL BE RATED FOR USE WITH 75 DEGREE INSULATED CONDUCTORS AT THEIR 75 DEGREE AMPACITY AND SHALL BE SIZED AND SELECTED TO MATCH THE CONDUCTOR SIZE AND MATERIAL.
- CIRCUIT JOINTS SHALL NOT BE MADE ON DEVICE TERMINALS.
- M. WIRE WITHIN PANELBOARDS SHALL BE NEATLY TRAINED, SQUARED, BUNCHED, AND TAGGED.
- N. GROUND ALL EQUIPMENT PER NEC ARTICLE 250. BOND WHERE CONDUITS ENTER ENCLOSURES THROUGH CONCENTRIC KNOCKOUTS. ALL FLEX, INCLUDING FIXTURE TAPS, SHALL INCLUDE GREEN GROUNDING CONDUCTOR, #12 AWG MINIMUM. PROVIDE GREEN INSULATED EQUIPMENT
- GROUNDING CONDUCTOR IN EACH CONDUIT AND FOR EACH CIRCUIT, SIZED PER NEC 250-122. O. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS
- P. THE ELECTRICAL CONTRACTOR SHALL FOLLOW AND APPLY THE TABLE BELOW, REGARDLESS WHAT THE PANEL SCHEDULE INDICATES, FOR SIZING ALL 120V & 277V, 20 AMP BRANCH CIRCUITS (COPPER CONDUCTORS) TO ALLOW A MAXIMUM OF 3% VOLTAGE DROP FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE ON THE BRANCH CIRCUIT AND ACHIEVE A MAXIMUM OF 5% VOLTAGE DROP ACROSS THE ENTIRE BRANCH CIRCUIT:

<u>VOLTAGE</u> <u>CONDUCTOR LENGTH *</u> <u>BRANCH CIRCUIT</u>

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120	0' - 50'	#12
120	51' - 90'	#10
120	91' - 140'	#8
120	141' - 255'	#6
277	0' - 125'	#12
277	126' - 200'	#10
277	201' - 330'	#8
277	331' - 525'	#6

* - THE LENGTH IS MEASURED FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE WHICH THE BRANCH CIRCUIT SERVES. WHERE THE DISTANCE EXCEEDS ABOVE, CONSULT WITH THE ENGINEER.

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE, MINIMUM, EQUAL TO COOPER QUALITY INDICATED BELOW OR AS MANUFACTURED BY HUBBELL, LEGRAND-PASS & SEYMOUR, LEVITON, OR APPROVED **EQUAL, UNLESS OTHERWISE NOTED:**

SWITCHES (120/277V) SHALL BE AS FOLLOWS:

SINGLE-POLE 20 AMP COOPER AH1221

DUPLEX RECEPTACLES SHALL HAVE A NYLON FACE AND SHALL BE AS FOLLOWS:

20 AMP DUPLEX	COOPER 5352
20 AMP DUPLEX GFCI	COOPER SGF20F
20 AMP DUPLEX TAMPER	COOPER TR5362
20 AMP DUPLEX GFCI-TAMPER	COOPER TRSGF20F

THE PART NUMBERS ABOVE ARE FOR WIRING DEVICE TYPE ONLY. SEE BELOW FOR WIRING DEVICE COLOR AND PLATE MATERIAL/COLOR.

- SEE MOUNTING HEIGHT ELEVATION DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
- C. ALL WIRING DEVICES (SWITCHES AND RECEPTACLES) AND PLATES SHALL MATCH EXISTING IN MATERIAL AND COLOR, UNLESS OTHERWISE NOTED. COVER PLATES IN MASONRY WALLS SHALL BE
- D. EACH DUPLEX RECEPTACLE INDICATED TO BE ON A DEDICATED CIRCUIT SHALL BE 20 AMP TYPE.
- ADJACENT DEVICES SHALL HAVE A COMMON WALL PLATE. WEATHERPROOF COVERS SHALL BE "WHILE-IN-USE" SO PLUGS MAY BE INSTALLED WITHOUT
- COMPROMISING THE WP FUNCTION. COOPER #WIU-2 DOUBLE-GANG WITH CLEAR COVER OR APPROVED EQUAL. G. A MAXIMUM OF 10 GENERAL PURPOSE RECEPTACLES SHALL BE ON EACH BRANCH CIRCUIT. H. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED FOR
- LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE. ALL GFCI RECEPTACLES SHALL HAVE AUTO-MONITORING / SELF-TEST FUNCTION AND REVERSE LINE-

ALL LOCATIONS PER NEC 210.8, INSTALLED IN A READILY ACCESSIBLE LOCATION. WHERE A DEVICE

- LOAD MISFIRE FUNCTION AND MEET ALL REQUIREMENTS OF UL 943 (LATEST EDITION).
- TAMPER-RESISTANT RECEPTACLES SHALL BE PROVIDED FOR ALL AREAS PER NEC 406.12, INCLUDING CHILD-CARE FACILITIES, PRESCHOOL AND EDUCATION FACILITIES, BUSINESS OFFICES/CORRIDORS,

SUPPORTS: A. ALL EQUIPMENT SHALL BE ADEQUATELY SUPPORTED FROM STRUCTURE.

ASSEMBLY OCCUPANCIES INCLUDING PLACES OF AWAITING

TRANSPORTATION/GYMNASIUMS/AUDITORIUMS.

- B. INSERTS IN MASONRY SHALL BE LEAD OR FIBER IN DRILLED HOLES, OR CAST IN PLACE.
- C. NAILS OR POWDER ACTUATED FASTENERS SHALL NOT BE USED. D. EMT/IMC/RGS SUPPORTS SHALL BE A MAXIMUM OF 8'-0" APART AND A MAXIMUM OF 3'-0" FROM

PAINTING:

- A. SUITABLE FINISH COAT SHALL BE PROVIDED FOR ALL EQUIPMENT. PANEL TUBS, COVERS, ETC. SHALL BE PRIMED AND ENAMELED TO BLEND WITH ADJACENT SURFACES, OR SHALL BE MANUFACTURER'S STANDARD COLOR BAKED ENAMEL FINISH, OR AS DIRECTED BY THE ARCHITECT.
- B. CONTRACTOR TO PAINT WHERE EXISTING EXPOSED PANELBOARDS, SURFACE RACEWAY, SURFACE BOXES, ETC. HAVE BEEN REMOVED DURING THE DEMOLITION PHASE, EITHER FOR TEMPORARY WORK OR PERMANENTLY.

8. <u>EQUIPMENT IDENTIFICATION:</u>

- A. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT SUPPLIED FOR THE PROJECT, INCLUDING BUT NOT LIMITED TO, WIRING TROUGHS, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, MOTOR CONTROL CENTERS (MCC), BUSWAYS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), ETC. NAMEPLATE SHALL INDICATE THE DEVICE NAME, SYSTEM VOLTAGE (VOLTAGE/PHASE/WIRE), AND UPSTREAM DEVICE AND CIRCUIT. PROVIDE NAMEPLATES FOR CIRCUIT BREAKERS IN SWITCHGEARS, SWITCHBOARDS AND DISTRIBUTION PANELS.
- . NAMEPLATE COLORS SHALL BE AS FOLLOWS: 120/208V EQUIPMENT BLUE SURFACE WITH WHITE CORE 277/480V EQUIPMENT BLACK SURFACE WITH WHITE CORE FIRE ALARM SYSTEMS BRIGHT RED SURFACE WITH WHITE CORE
- NAMEPLATES UP TO 8 SQUARE INCHES SHALL NOT BE LESS THAN 1/16" THICK. NAMEPLATES LARGER THAN 8 SQUARE INCHES SHALL NOT LESS THAN 1/8" THICK. C. LETTERING HEIGHT SHALL BE 1/2" MINIMUM.
- D. NAMEPLATES SHALL BE ATTACHED WITH SELF-DRILLING/SELF-TAPPING SCREWS, EXCEPT RIVETS SHALL BE USED WHERE END OF SCREW IS NOT PROTECTED. QUANTITY AS FOLLOWS: UP TO 5 SQUARE INCHES: 2 SCREWS 5 TO 12 SQUARE INCHES: 4 SCREWS

ABOVE 12 SQUARE INCHES: 6 SCREWS

- A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE IN NEMA 1 ENCLOSURES, UNLESS OTHERWISE NOTED, FUSED OR NON-FUSED AS INDICATED. SWITCHES SHALL HAVE REJECTION-TYPE FUSE CLIPS. SWITCHES SHALL BE BY EATON, SQUARE-D, GENERAL ELECTRIC, OR APPROVED EQUAL.
- B. FUSES LESS THAN 60A SHALL BE CLASS RK5, DUAL-ELEMENT, TIME-DELAY WITH INDICATION C. FUSES GREATER THAN 60A SHALL BE CLASS J, DUAL-ELEMENT, TIME-DELAY WITH INDICATION. D. A SET OF 3 SPARE FUSES OF EACH SIZE AND TYPE SHALL BE FURNISHED TO THE OWNER.

- A. NEW DEVICES SHALL BE CONNECTED TO THE EXISTING FIRE ALARM SYSTEM IN COMPLIANCE WITH ALL APPLICABLE NFPA 72 AND OTHER STANDARDS AS WELL AS THE AMERICAN'S WITH DISABILITIES ACT (ADA). ALL FINAL CONNECTIONS, TESTING AND ADJUSTMENTS SHALL BE PERFORMED BY OR UNDER DIRECT SUPERVISION OF AN AUTHORIZED FACTORY REPRESENTATIVE. NEW DEVICES SHALL BE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM. THE CONTRACTOR SHALL FIELD VERIFY EXACT SYSTEM MANUFACTURER AND TYPE AND CAPABILITY TO MEET THE INTENT INDICATED ON THE
- B. INITIATING DEVICE ACTIVATION SHALL CAUSE OPERATION OF THE PROPER ALARM CIRCUIT IN THE CONTROL PANEL, AND OPERATE ALL AUDIBLE AND VISUAL INDICATING ALARMS. ALL AIR HANDLING UNITS SHALL BE STOPPED UPON ANY ALARM INPUT. EACH AIR HANDLER UNIT SHALL BE PROVIDED WITH A SYSTEM CONTROLLED RELAY TO EFFECT SHUTDOWN. ALL ALARM DEVICES AND LAMPS SHALL CONTINUE TO OPERATE UNTIL THE INITIATING DEVICE IS RESET. SUBSEQUENT ALARMS SHALL RESOUND THE SYSTEM. AN AUDIBLE AND VISUAL SIGNAL SHALL INDICATE SYSTEM TROUBLE. THE CONTROL PANEL SHALL PROVIDE FOR ACTIVATING A UL LISTED CENTRAL STATION SIGNAL FOR NOTIFYING THE FIRE DEPARTMENT
- MANUAL STATIONS SHALL BE NON-CODED, WITH PULL LEVER AND GLASS ROD, SEMI-FLUSH MOUNTED. COMBINATION LIGHT AND HORN SIGNALS SHALL BE FLUSH MOUNTED. WIRING SHALL BE IN CONDUIT AS PREVIOUSLY SPECIFIED, #14 AWG MINIMUM, THHN. ALL J-BOXES USED FOR THE FIRE ALARM SYSTEM SHALL BE PAINTED RED.
- D. SPRINKLER SYSTEM TAMPER SWITCHES SHALL BE CONNECTED INTO A COMMON ZONE WHICH SHALL DISTINGUISH BETWEEN A CONDUIT FAULT AND A CLOSED VALVE. A CLOSED VALVE SHALL BE INDICATED AS AN ALARM CONDITION, BUT WILL NOT ACTIVATE THE AUDIO-VISUAL DEVICES AND SHALL CAUSE A SUPERVISORY SIGNAL TO BE TRANSMITTED TO THE CENTRAL STATION.
- E. CONDUCTORS SHALL BE PLENUM-RATED AND INSTALLED IN CONDUIT AND INSTALLED IN COMPLIANCE WITH NFPA 70, ARTICLE 760; IN ADDITION TO WIRING METHODS 300.4.
- F. ALL FIRE ALARM WIRING SHALL BE CLASS B. G. PROVIDE ALL REQUIRED MODULES, POWER EXTENDERS, PROGRAMMING, ETC. FOR A COMPLETE AND
- H. SUBMIT FIRE ALARM SHOP DRAWINGS CONSISTING OF PRODUCT DATA, TO THE ENGINEER AND FOR
- APPROVAL I. FILL OUT NFPA 72 CERTIFICATION REPORT AND SUBMIT TO ENGINEER AND AUTHORITY HAVING
- WARRANTY ALL WORK PERFORMED AND ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS AND SHALL REMAIN SO FOR A PERIOD OF AT LEAST TWO (2) YEARS FROM THE DATE OF ACCEPTANCE BY THE PROFESSIONAL ENGINEER AND/OR OWNER. THE FULL COST OF MAINTENANCE, LABOR, AND MATERIALS REQUIRED TO CORRECT ANY DEFECT DURING THIS TWO YEAR PERIOD SHALL BE IMMEDIATELY CORRECTED AT NO ADDITIONAL COST TO THE OWNER. ANY DEFECTS THAT RENDER THE SYSTEM INOPERATIVE SHALL BE REPAIRED WITHIN 24 HOURS OF THE OWNER NOTIFYING THE CONTRACTOR. OTHER DEFECTS SHALL BE REPAIRED WITHIN 48 HOURS OF
- THE OWNER NOTIFYING THE CONTRACTOR. PROVIDE ALL REPROGRAMMING AND/OR REWORK AND/OR REPLACEMENT OF EXISTING FIRE ALARM

. FIRE STOPPING:

- A. ALL PENETRATIONS OF RATED ASSEMBLIES SHALL BE SEALED WITH RATED MATERIALS MEETING ASTM E-814. B. PROVIDE FIRESTOPPING DEVICE(S) OR SYSTEM(S) WHICH HAVE BEEN TESTED AND LISTED AS COMPLYING WITH ASTM E-814. INSTALL THE DEVICE(S) OR SYSTEM(S) IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE THE APPROPRIATE DEVICE(S) OR SYSTEM(S) WITH AN 'F' RATING EQUAL TO THE
- RATING OF THE ASSEMBLY BEING PENETRATED. C. DEVICE(S) AND/OR SYSTEM(S) SHALL BE BY HILTI, 3M OR EQUIVALENT.

- **ELECTRICAL COORDINATION WITH OTHER TRADES:** A. THE ELECTRICAL CONTRACTOR SHALL CONNECT AND/OR PROVIDE FINAL CONNECTIONS TO ALL EQUIPMENT SUPPLIED BY OTHERS APPLICABLE TO THE PROJECT, INCLUDING BUT NOT LIMITED TO, MECHANICAL, PLUMBING, FIRE PROTECTION AND SUPPRESSION, OWNER FURNISHED, KITCHEN, LABORATORY, ETC. UNLESS OTHERWISE NOTED.
- B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONNECTIONS PRIOR TO ROUGH-IN USING APPROVED CATALOG SHEETS AND SHOP DRAWINGS.
- C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANUAL MOTOR STARTER SWITCHES, DISCONNECT SWITCHES, RECEPTACLES, ETC. TO MECHANICAL AND PLUMBING EQUIPMENT. ALL STARTERS, OTHER THAN MANUAL STARTER SWITCHES, SHALL BE PROVIDED BY OTHERS, BUT INSTALLED BY THE ELECTRICAL CONTRACTOR.
- D. ALL DISCONNECT SWITCHES AND FUSE SIZES SHALL BE COORDINATED WITH SHOP DRAWINGS PRIOR TO ORDERING OR INSTALLING. ANY EQUIPMENT INSTALLED INCORRECTLY BECAUSE OF LACK OF COORDINATION WILL BE REMOVED AND INSTALLED CORRECTLY AT THE EXPENSE OF THE ELECTRICAL
- E. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT RUNS AND LIGHT FIXTURE LOCATIONS ABOVE THE CEILING WITH OTHER TRADES PRIOR TO INSTALLATION.
- F. ALL DUCT SMOKE DETECTORS SHALL BE PROVIDED AND CONNECTED BY THE ELECTRICAL CONTRACTOR,
- BUT INSTALLED BY THE MECHANICAL CONTRACTOR. G. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY OUTLETS FOR HEAT TAPE CONNECTIONS FOR MECHANICAL SYSTEMS. PROVIDE CLASS B (30mA) GFCI PROTECTION ON THE BREAKER SUPPLYING THE
- H. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 120V POWER AT EACH HVAC UNIT HAVING A CONTROLS POWER SUPPLY. CIRCUIT(S) SHALL BE DEDICATED 20A SERVING A MAXIMUM OF 10 HVAC UNITS PER CIRCUIT. COORDINATE ALL LOCATIONS WITH THE MECHANICAL CONTRACTOR.

- A. PARTIAL AND TOTAL DEMOLITION OF PORTIONS SHALL BE PERFORMED ALONG WITH ALL NECESSARY MODIFICATIONS TO THAT PORTION OF THE EXISTING BUILDING WHICH SHALL REMAIN SO THAT IT
- CONTINUES TO FUNCTION UNAFFECTED BY THE DEMOLITION AND ASSOCIATED NEW CONSTRUCTION. B. WHERE INCLUDED AS PART OF THE CONTRACT DOCUMENTS, THE DRAWINGS INDICATE THE GENERAL AREAS OF WORK INVOLVED. HOWEVER, THE ELECTRICAL CONTRACTOR SHALL PERFORM WORK OUTSIDE
- THOSE AREAS SHOWN AS IS NECESSARY TO COMPLY WITH THE INTENT OF THIS SECTION. C. THE ELECTRICAL CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE EXISTING BUILDING AND WITH THE WORK OF ALL OTHER TRADES AND INCLUDE ALL WORK NECESSARY TO COMPLY WITH THE INTENT OF
- D. IT SHALL BE UNDERSTOOD THAT FIELD CONDITIONS MAY BE ENCOUNTERED DURING THE EXECUTION OF THIS CONTRACT WHICH WILL REQUIRE EXTENSION OR RELOCATION OF EXISTING SYSTEMS OR EQUIPMENT WHICH ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS, BUT WHICH ARE REQUIRED TO MEET THE STATED INTENT THAT THE BUILDING CONTINUE TO FUNCTION UNAFFECTED BY THE DEMOLITION AND ASSOCIATED NEW CONSTRUCTION. THE ELECTRICAL CONTRACTOR SHALL INCLUDE SUCH WORK AS WOULD
- NORMALLY BE EXPECTED IN AN EXISTING BUILDING OF THIS AGE AND TYPE. E. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL TOOLS, EQUIPMENT, LABOR, ETC. IN ORDER TO
- ACCOMPLISH THE DEMOLITION PORTION OF THE PROJECT. F. THE DEMOLITION OF CERTAIN AREAS OF THE EXISTING BUILDING SHALL BE PERFORMED BY THE GENERAL CONTRACTOR. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE
- GENERAL CONTRACTOR TO DIFFERENTIATE THE SCOPE OF WORK BETWEEN SEPARATE TRADES. G. THE ELECTRICAL CONTRACTOR SHALL INCLUDE COORDINATION WITH THE GENERAL CONTRACTOR AND SUCH DEMOLITION OF THE EXISTING ELECTRICAL SYSTEMS AS IS NECESSARY SO THAT THE DEMOLITION WORK OF THE GENERAL CONTRACTOR SHALL NOT DAMAGE THOSE PORTIONS OF THE ELECTRICAL SYSTEMS
- WHICH ARE TO REMAIN IN SERVICE, ARE TO BE REUSED, OR ARE TO BECOME THE PROPERTY OF THE OWNER. H. TURN OVER TO OWNER, UPON REQUEST OR AS NOTED, ITEMS SHOWN AS BEING REMOVED AND NOT REINSTALLED. ITEMS NOT DIRECTED OR REQUESTED TO BE TURNED OVER TO THE OWNER SHALL BE
- DISPOSED OF BY THE ELECTRICAL CONTRACTOR. I. EQUIPMENT OR MATERIALS WHICH ARE TO BE REUSED OR TURNED OVER TO THE OWNER SHALL BE CAREFULLY REMOVED, CLEANED, AND STORED IN A CLEAN AND DRY AREA. SHOULD THE ELECTRICAL CONTRACTOR ENCOUNTER SUCH EQUIPMENT WHICH IS NOT IN SATISFACTORY CONDITION FOR REUSE AND NOT IN WORKING ORDER, THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER
- DISCONNECT ELECTRICAL SERVICES TO ALL EQUIPMENT REQUIRING REMOVAL. CONDUIT SHALL BE REMOVED BACK TO THE POINT WHERE IT WILL BE CONCEALED AT THE COMPLETION OF THIS CONTRACT. WIRE AND CABLE SHALL BE REMOVED BACK TO THE FIRST OUTLET BOX, CABINET, OR TERMINATION POINT WHICH IS TO REMAIN. CIRCUITS WHICH ARE NOT REUSED SHALL BE REMOVED BACK TO THE SOURCE IN
- THEIR ENTIRETY. REMOVE AND REINSTALL CEILINGS IN THE EXISTING BUILDING AS REQUIRED FOR THE WORK. COORDINATE WITH THE GENERAL CONTRACTOR. IN SUCH AREAS, REMOVE AND REINSTALL ALL ELECTRICAL DEVICES
- WHICH ARE TO REMAIN IN OR ON THE CEILING. WHERE NEW CEILINGS CONFLICT WITH EXISTING ELECTRICAL WORK WHICH IS TO REMAIN, RELOCATE THE
- ELECTRICAL WORK INVOLVED TO CLEAR THE NEW CONSTRUCTION. M. WHERE NEW WALL OR FLOOR FINISHES CONFLICT WITH EXISTING ELECTRICAL WORK WHICH IS TO REMAIN, RELOCATE THE ELECTRICAL WORK INVOLVED OR PROVIDE BOX EXTENSIONS OR SIMILAR DEVICES AND REINSTALL ON THE NEW FINISH.

N. WHERE EXISTING BRANCH CIRCUITS AND SYSTEMS ARE INTERRUPTED BY NEW WORK OR SYSTEMS

(ELECTRICAL, MECHANICAL, PLUMBING, FIRE PROTECTION, ETC.), EXTEND AND RECONNECT THOSE

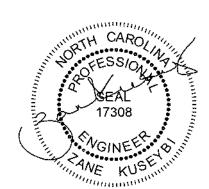
EXECUTION OF THIS CONTRACT, PROVIDE TEMPORARY CONNECTIONS UNTIL FINAL CONNECTIONS ARE

MK DATE DESCRIPTION

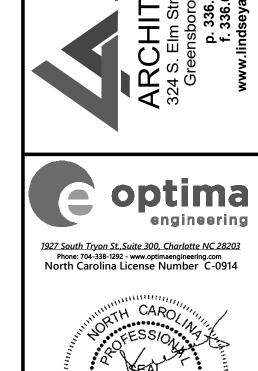
REVISIONS

01/01/2020 DRAWN BY Author CHECK BY Checker JOB NO. 22-0419





04/06/2023



04/06/2023

ELON, NC 27244

ELEMENTARY

W OSSIPEE

2832 N NC HIGHWAY 87, ALTAMAHAV

MK DATE DESCRIPTION REVISIONS

POWER FLOOR PL

DATE 01/01/2020 DRAWN BY Author CHECK BY Checker JOB NO. 22-0419 SHEET

Reproduced by HILTI, Inc. Courtesy of

Underwriters Laboratories, Inc.

March 15, 2012

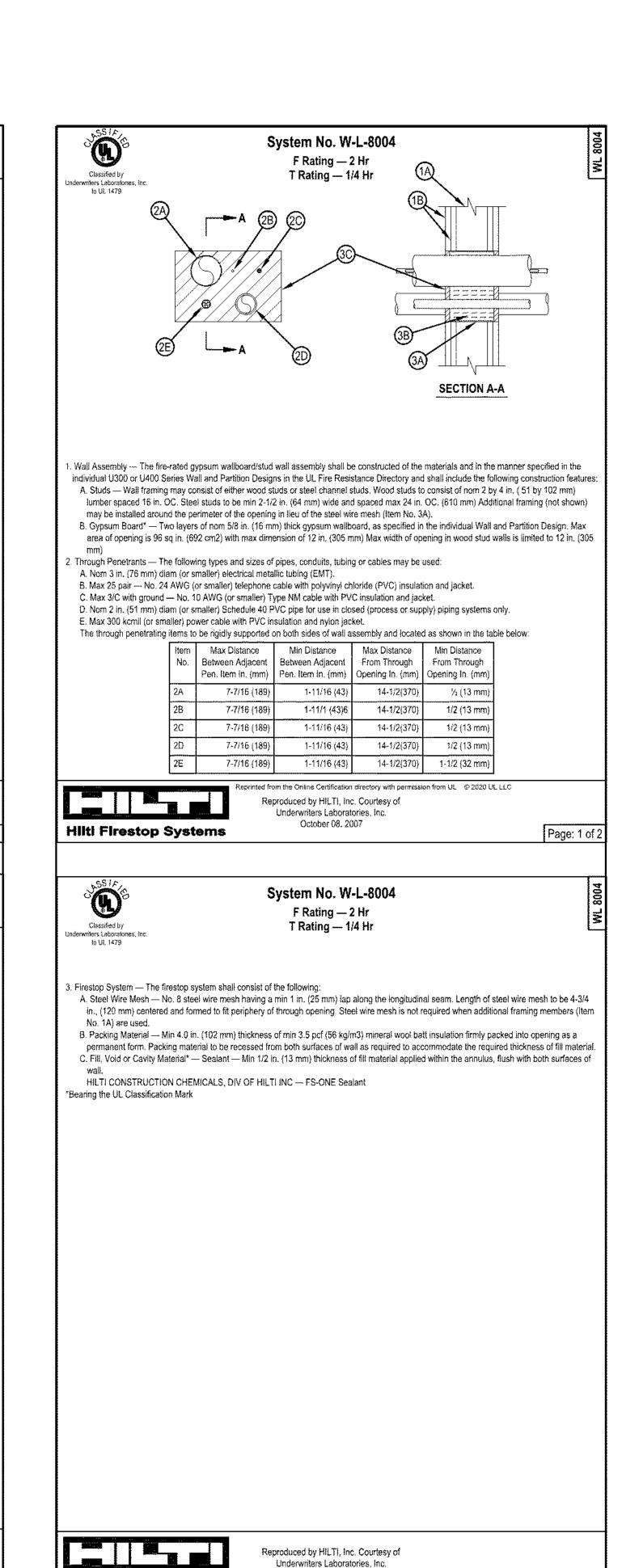
Page: 2 of 2

Hilti Firestop Systems

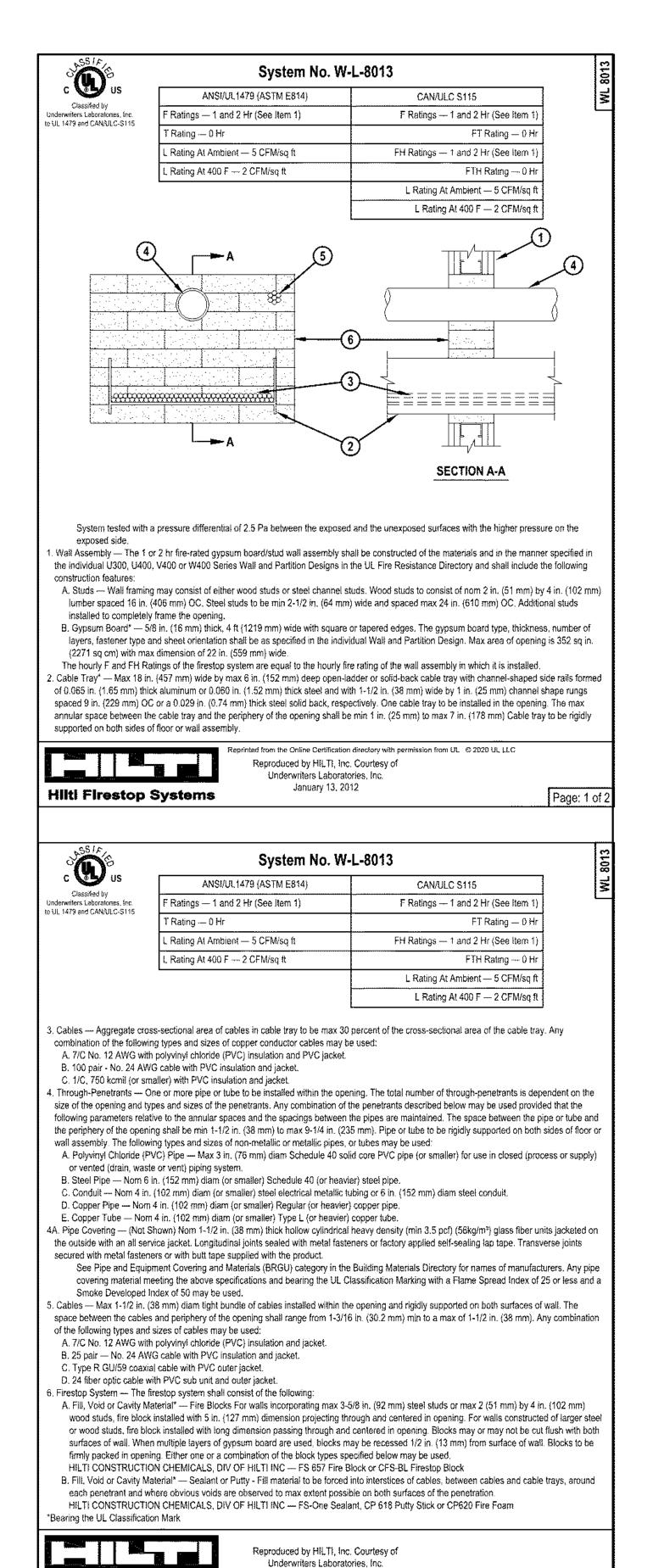
SYSTEM NO. W-L-8004

Hilti Firestop Systems

SYSTEM NO. W-L-3065



October 08, 2007



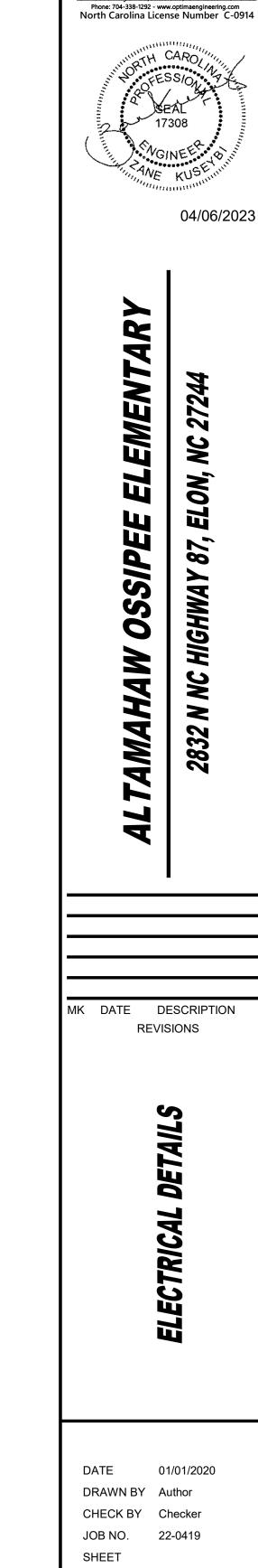
January 13, 2012

Page: 2 of 2

Hilti Firestop Systems

SYSTEM NO. W-L-8013

Page: 2 of 2



1927 South Tryon St., Suite 300, Charlotte NC 28203

04/06/2023

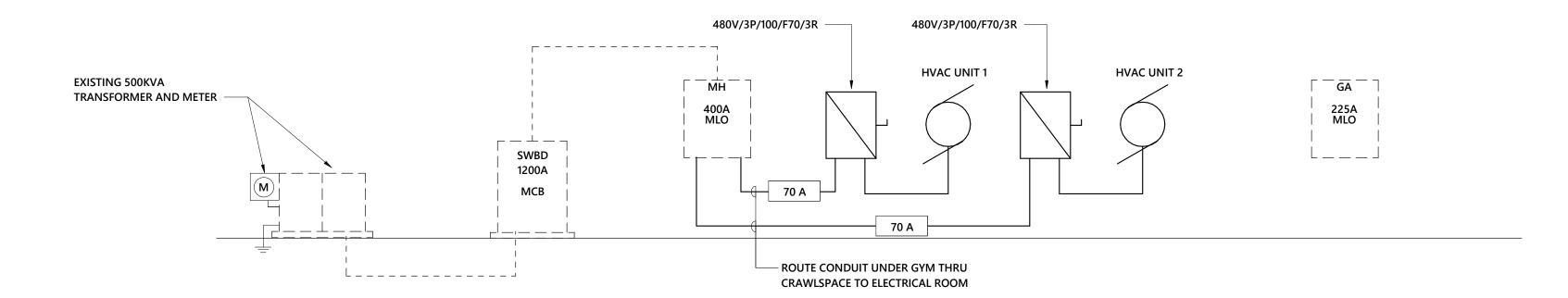
S

REVISIONS

22-0419

01/01/2020

FEEDER SC	HEDULE FOR COPPER CONDUCTORS TO SPECIFIC BREAKER SIZE
FEEDER AMPS	WIRE SIZE TEMP 75°C (CU)
70 A	3#6, 1#8G, 1"C



---- ALL DASHED ITEMS ARE EXISTING TO REMAIN

ALL SOLID LINE ITEMS TO BE ADDED AS NEW EQUIPMENT

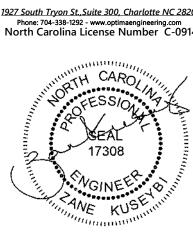
POWER RISER DIAGRAM

1/8" = 1'-0"

	VOLTAGE: 480)Y/277 3Ø					PAN	IEL:	MH						FEI FR	OM: SWBD	
	MOUNTING: SU	RFACE					MAIN	I TYPE:	MLO							MFR: EXTG	
	ENCLOSURE: NE						F	PHASE:								TYPE: EXTG	
	MAIN: 400) A	1					WIRE:	4	1			1			AIC: 35 KAIC	
LC Abbr	Load Served	Wire	Trip	Ckt No	Pole	ļ	١	E	3		C	Pole	Ckt No	Trip	Wire	Load Served	LC Abbr
				1		6.67	6.67						2				
F	PANEL H5 & H6	3/0	200 A	3	3			6.67	6.67			3	4	175 A	2/0	PANEL H3 & H4	F
				5						6.67	6.67		6				
СО				7	1 L	14.90	14.90						8				СО
	HVAC UNIT 1	6	70 A	9	3			14.90	14.90			3	10	70 A	6	HVAC UNIT 2	OLI
NG				11						14.90	14.90		12				NG
	SPACE ONLY	-		13	1							1	14		-	SPACE ONLY	
	SPACE ONLY	-		15	1							1	16		-	SPACE ONLY	
	SPACE ONLY	-		17	1							1	18		-	SPACE ONLY	
LE	LIGHTS LIGHTING - EXTERIOR	0.00			0.00		_	0.00 kVA	•	I. EXIS				REMAIN / WOR			
C V M K R WH MS S	HEATING COOLING VENTILATION MOTORS KITCHEN RECEPTACLES WATER HEATER MISC. Spare ELEVATOR	0.00 89.40 0.00 0.00 0.00 0.00 40.00 0.00	kVA kVA kVA kVA kVA kVA kVA		0.00 100.0 0.00 0.00 0.00 0.00 100.0 0.00 0.00	00% 00% 0% 0% 0% 0% 00%	() () () () () () () () () () () () () (0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA		. BOLL	INDICA	ATLC:	, INC. VV	, work			
V M K R WH MS S E LD	COOLING VENTILATION MOTORS KITCHEN RECEPTACLES WATER HEATER MISC. Spare ELEVATOR LAUNDRY	0.00 89.40 0.00 0.00 0.00 40.00 0.00 0.00	kVA kVA kVA kVA kVA kVA kVA kVA		0.00 100.0 0.00 0.00 0.00 0.00 100.0 0.00 0.00	00% 00% 00% 00% 00% 00%	() () () () () () () () ()	0.00 kVA 9.40 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA		. BOLL	INDICA	ATL C	, INC. VV	, work			
C V M K R WH MS S E	COOLING VENTILATION MOTORS KITCHEN RECEPTACLES WATER HEATER MISC. Spare ELEVATOR	0.00 89.40 0.00 0.00 0.00 0.00 40.00 0.00	kVA kVA kVA kVA kVA kVA kVA kVA		0.00 100.00 0.00 0.00 0.00 0.00 100.0 0.00	00% 00% 00% 00% 00% 00%	() () () () () () () () ()	0.00 kVA 9.40 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA		. BOLL	INDICA	ATEC	, INC. VV	, work			
C V M K R WH MS S E LD EV	COOLING VENTILATION MOTORS KITCHEN RECEPTACLES WATER HEATER MISC. Spare ELEVATOR LAUNDRY	0.00 89.40 0.00 0.00 0.00 40.00 0.00 0.00 0.00	kVA kVA kVA kVA kVA kVA kVA kVA kVA	PEF	0.00 100.0 0.00 0.00 0.00 0.00 100.0 0.00 0.00 0.00	00% 00% 0% 0% 0% 00% 00% 00%	() () () () () () () () ()	0.00 kVA 9.40 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA		OAD CLA						NT.)	
C V M K R WH MS S E LD EV	COOLING VENTILATION MOTORS KITCHEN RECEPTACLES WATER HEATER MISC. Spare ELEVATOR LAUNDRY EV CHARGING	0.00 89.40 0.00 0.00 0.00 40.00 0.00 0.00 0.00	kVA kVA kVA kVA kVA kVA kVA kVA kVA	PEF	0.00 100.0 0.00 0.00 0.00 0.00 100.0 0.00 0.00 0.00	00% 00% 0% 0% 0% 00% 00% 00% 00%	8 () () () () () () () () () () () () ()	0.00 kVA 9.40 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA		OAD CLA	SSIFICA	TION	ABBRE	EVIATIO	NS (CO	NT.) NDS ARE INCLUDED IN THE PANEL LOAD	SUMMARY.
C V M K R WH MS S E LD EV	COOLING VENTILATION MOTORS KITCHEN RECEPTACLES WATER HEATER MISC. Spare ELEVATOR LAUNDRY EV CHARGING TAL KVA 129.40 kVA	0.00 89.40 0.00 0.00 0.00 40.00 0.00 0.00 0.00	kVA kVA kVA kVA kVA kVA kVA kVA kVA	. PEF	0.00 100.0 0.00 0.00 0.00 0.00 0.00 0.0	00% 00% 0% 0% 0% 00% 00% 00% 00%	8 () () () () () () () () () () () () ()	0.00 kVA 9.40 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA 0.00 kVA		OAD CLA	SSIFICA	TION	ABBRE	EVIATIO	NS (CO		SUMMARY.

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04/06/2023

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MK DATE DESCRIPTION REVISIONS

ELECTRICAL DIAGRAMS

DATE 04/06/2023
DRAWN BY SAS
CHECK BY ZFK
JOB NO. 22-0419

E7.1