JOHN C. HART LIBRARY

LIST OF DRAWINGS: COVER PAGE A-1 STUDY ROOMS NEW EGRESS / CODE PLAN MAIN LEVEL A-2 STUDY ROOMS FLOOR PLANS, SCHEDULES & NOTES A-3 STUDY ROOMS FLOOR PLANS & ELEVATIONS

NEW STUDY ROOMS FOR THE

1130 EAST MAIN STREET SHRUB OAK, NY 10588

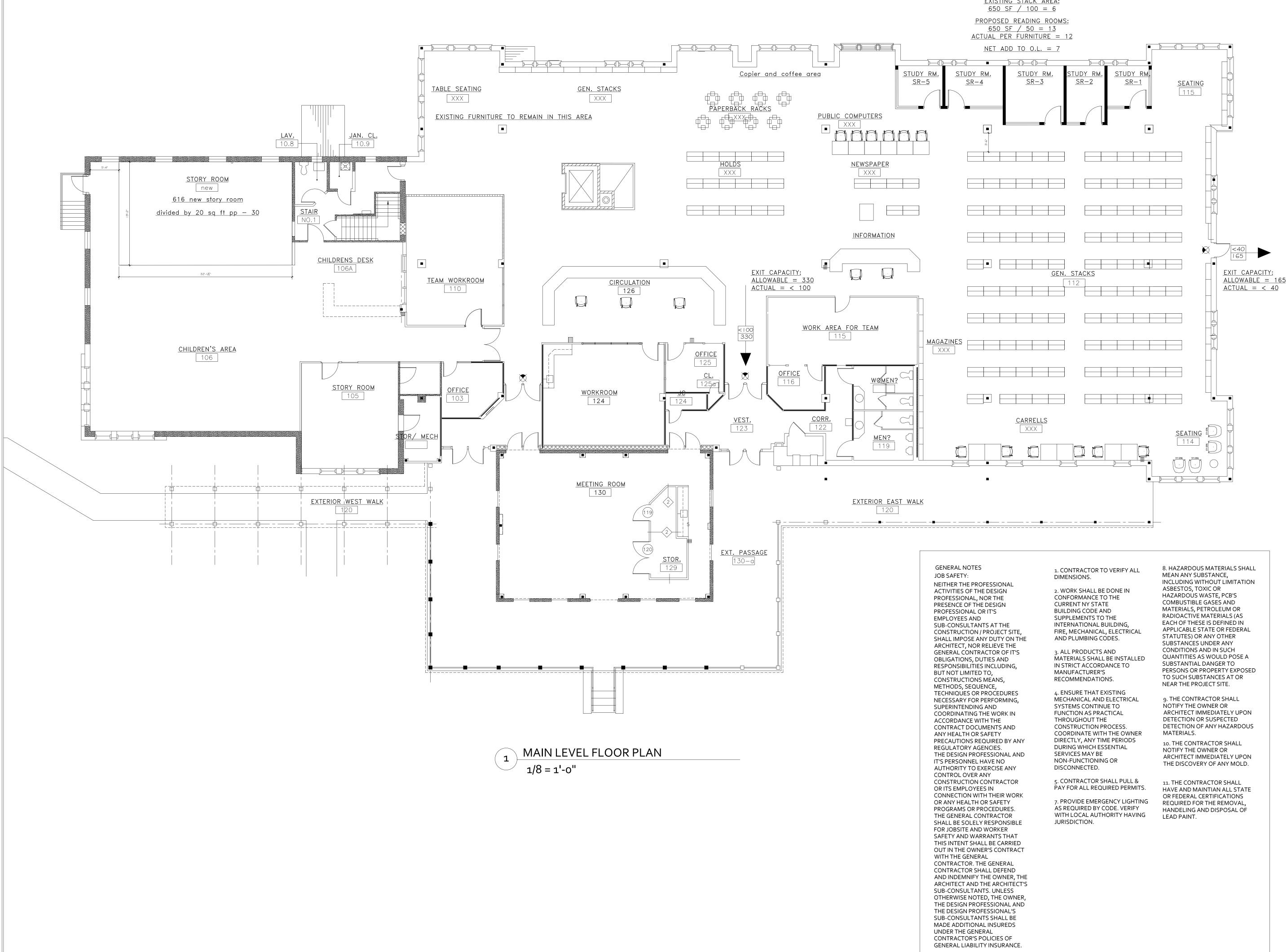
April 5, 2023



26 STUART DRIVE, BLOOMFIELD, CT 06002



JHN C HART LIBRARY



EXISTING STACK AREA:



 \succ

R

く

IBR

4

R

O

MEX

R

4

T

NHO

eet NY

ain 8 0/

UB UB

1130 SHRI

 \checkmark

4

ţ

S

2

Ο

LL

S

 \geq

Ο

Ο

2

 \square

 \supset

 \vdash

Ś

 \geq

Ш Z

4D Design & Decorating

DEANNA DEWEY, NCIDQ Owner, Interior Designer

26 Stuart Drive Bloomfield , CT 06002 email: 4Ddesign@comcast.net



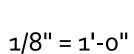
STUDY ROOMS NEW EGRESS / CODE PLAN MAIN LEVEL

DATE:

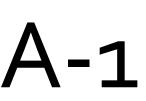
04/05/23

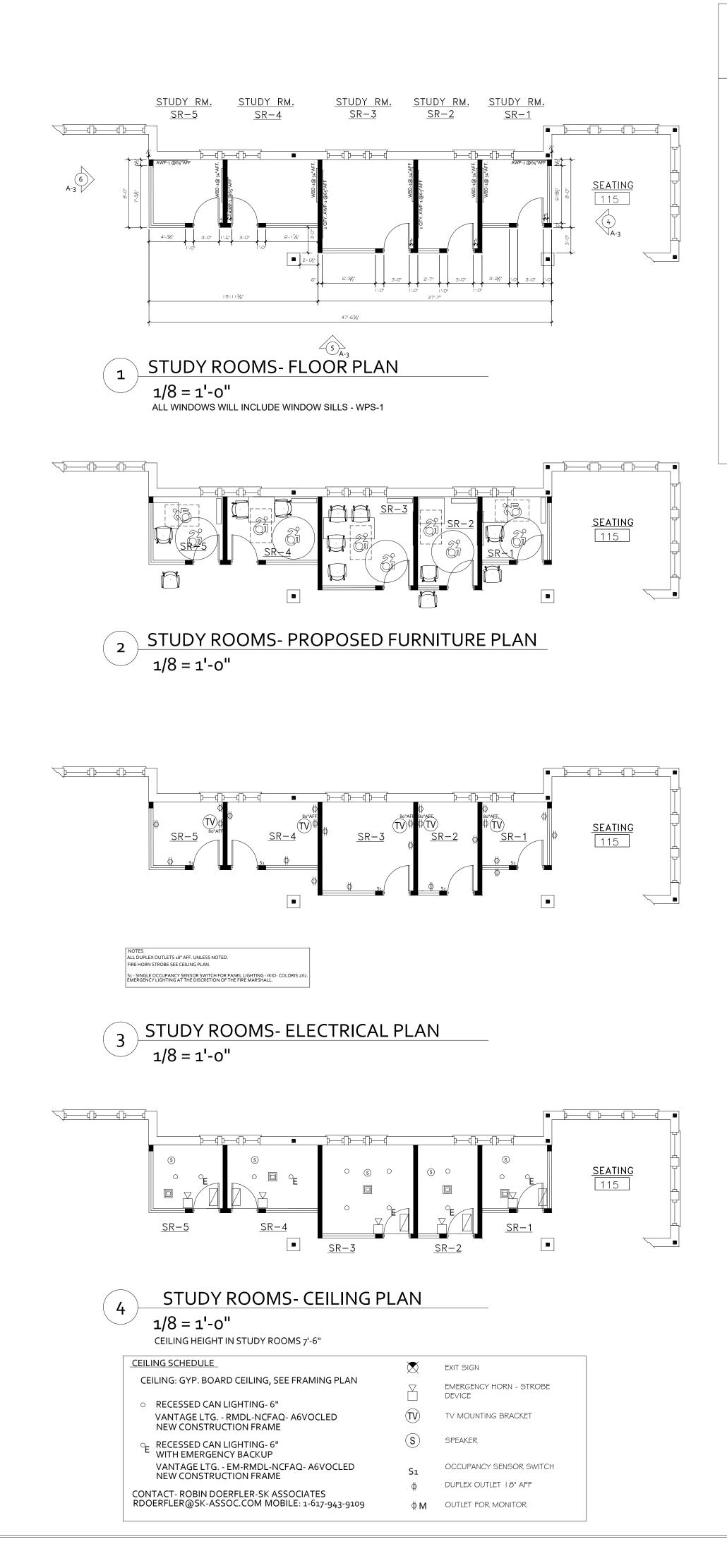
SCALE: **PROJECT No:**

DRAWING NUMBER:



NY122





ALTERNATE # 1 DELETE VINYL WALL-COVERING VWC-1 AND ADD WCD-1 WALL CLADDING TO ELEVATION 2 AND 3. ALTERNATE # 1 WCD-1 EXTEND TO THE FLOOR. NO BASE. EXTERIOR OF STUDY ROOMS TO RECEIVE RB-1 EXCEPT WHEN THE ALTERNATE IS ACCEPTED. ALTERNATE # 2 ADD MORDERNFOLD DEMOUNTABLE PARTITION. PRODUCTS AND FINISH NOTES: EXISTING COLUMNS TO RECEIVE PAINT - PATCH AND PRIME, TWO COATS OF P-1 TYPICAL OF TWO. TWO COLUMNS NOTED ABOVE MUST RECEIVE RB-1. NEW VINYL TRANSITION STRIPS AT ALL STUDY ROOM DOORS. ALL NEW DOORS AND WINDOWS TO RECEIVE 2-1/2" PRIMED FINGER JOINTED CASING - PINE, PAINTED WHITE SEMI GLOSS. <u>P-1</u>SR-5 ALL MATERIALS MUST ARRIVE TO THE SITE AND FOLLOW ALL THE MANUFACTURER'S WRITTEN INSTRUCTIONS FOR INSTALLATION, CLEANING AND THE PROTECTION OF SAID PRODUCT. ALL MATERIALS REQUIRE "EXTRA MATERIALS" TO 5%. ALL INTERIOR PRODUCTS MUST HAVE A FORMAL SUBMITTAL AS PART OF THIS PROJECT. THIS WILL INCLUDE INFORMATION ON THE PRODUCT INCLUDING FIRE / SMOKE RATINGS, INSTALLATION MATERIALS AND MAINTENANCE OF SAID PRODUCT. INTERIOR DESIGNER MUST APPROVE ANY SUBSTITUTIONS. C-1, OR EQUAL- CARPET TILE INSTALLATION: TESTING IS REQUIRED PRIOR TO CARPET INSTALLATION. TESTS INCLUDE THE RH TEST, CLC TEST AND BOND TEST CARPET TILE REQUIRES A PRIMER, APPROVED BY THE MANUFACTURER. CARPET TILE REQUIRES ADHESIVE, LOW VOC, ENPRESS. CARPET MUST PASS THE FLAMMABILITY: ASTM E 648 - FLOORING RADIANT PANEL, ASTM E-662 SMOKE DENSITY LESS THAN 450. ALL MATERIALS MUST ARRIVE TO THE SITE AND FOLLOW ALL THE MANUFACTURER'S WRITTEN INSTRUCTIONS FOR INSTALLATION, CLEANING AND THE PROTECTION OF SAID PRODUCT. RB-1 OR EQUAL, JOHNSONITE RUBBER BASE, REQUIRED JOHNSONITE ADHESIVE- # 960, APPLY WITH 1/8" SQUARE KNOTTED TROWEL.

STUDY ROOMS- FINISH SCHEDULE

ALL MATERIALS MUST ARRIVE TO THE SITE AND FOLLOW ALL THE MANUFACTURER'S WRITTEN INSTRUCTIONS FOR INSTALLATION, CLEANING AND THE PROTECTION OF SAID PRODUCT. VWC-1, VINYL WALLCOVERING TYPE II. TESTED TO ASTM E-84-TUNNEL TEST, CLASS A FIRE RATED.

FLAME SPREAD 15, SMOKE DEVELOPED 10.

ALL MATERIALS MUST BE DELIVERED TO THE SITE, STORED, INSTALLED AND CLEANED WHEN REQUIRED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

	CB-1 WC-1,2 P-1 CP-1 WC-1 P-1	R-1 P-1 vc-1,2 P-1 vc-1 P-1 P-1	P-1 VWC-2	R C
		P-1 colu	CG-1 Umn	
5	STUD 1/8 = 1	OMS-	FIN	11

SEE ELEVATIONS.

CODE	MANUFACTURER	<u>MATERIAL</u> / <u>STYLE</u>	PATTERN	COLOR	REMARKS / SPECIFICATIONS	
Flooring						
C-1	MOHAWK COMMERCIAL FLOOR	LIVE & LEARN / SIDE STRIPE	566	CENTRAL	BRICK ASHLAR , ADHESIVE - ENPRESS	
	rep: JOHN TALIO, John_talio@moh	awkind.com				
Primer	SHERWIN WILLIAMS	PRIMER: SW PRO MAR 200 LOW VOC INTERIOR LATEX PRIMER/ SEALERB28W2600				
P-1	SHERWIN WILLIAMS	DRYWALL PAINT: SW PRO MAR 200 LOW VOC LATEX EGG-SHELL B20-1950 TWO COATS	SW6106	KILIM BEIGE	PRIMER AND TWO COATS OF FINISH- 2 coats	
P-2	SHERWIN WILLIAMS	DRYWALL PAINT: SW PRO MAR 200 LOW VOC LATEX EGG-SHELL B20-1950 TWO COATS	SW9062	BLUEBIRD FEATHER	PRIMER AND TWO COATS OF FINISH- 2 coats	
rep:Heather Bou	irgeois - Heather.R.Bourgeois@sherv	vin.com ALL PAINT PRODUCTS AND INSTAI	LLATION MUST FOLLO	W THE MANUFACTURER	S RECOMMENDED METHODS FOR EACH SUBSTRATE.	
VWC-1	DE NOVO	SHIMA TEXTURE	DN2-SMT-02	PONGEE	ZINSSER SHIELD SIZING AND ZINSSER SURE GRIP VP ADHESIVE.	
VWC-2	KOROSEAL	SILKEN ONE	5522-75	OPULENT	ZINSSER SHIELD SIZING AND ZINSSER SURE GRIP VP ADHESIVE.	
VWC-1 rep: Nancy Royer - Nancyr@surfacematerials.com ALL WALLCOVERING PRODUCTS AND INSTALLATION MUST FOLLOW THE MANUFACTURERS RECOMMENDED METHODS FOR EACH SUBSTRATE.						
RB-1	JOHNSONITE	RUBBER BASE	#18	NAVY BLUE	4" BASE HEIGHT WITH JOHNSONITE 950 ADHESIVE	
rep: (Carrie Bartucca - cbartucca@michaell	nalebian.com				
CP-1	SHERWIN WILLIAMS	DRYWALL PAINT: SW PRO MAR 200 LOW VOC LATEX FLAT B30-12600- TWO COATS	XXXXXX	CEILING WHITE	PRIMER AND TWO COATS OF FINISH- 2 coats GYP. BOARD CEILING PRIMER IS THE SAME AS LISTED ABOVE.	
Primer for Wood	SW MULTI-PURPOSE INTERIOR	PRIMER / SEALER- B51-450				
TR-1 / TRIM	WOOD DOOR TRIM AND CROWN	2 1/2" PROFILE & PAINT SW PRO INDUSTRIAL ACRYLIC SEMI-GLOSS B66-650	SW 7005	PURE WHITE	POPLAR PAINTED WHITE -SEMI-GLOSS - 2 COATS	
TR-1 / TRIM	WOOD CROWN MOLDING	2 1/2" PROFILE & PAINT SW PRO INDUSTRIAL ACRYLIC SEMI-GLOSS B66-650	SW 7005	PURE WHITE	POPLAR PAINTED WHITE -SEMI-GLOSS - 2 COATS	
WPS-1	WOOD TRIM- SILLS	WOOD SILL & PAINT SW PRO INDUSTRIAL ACRYLIC SEMI-GLOSS B66-650	SW 7005	PURE WHITE	POPLAR PAINTED WHITE -SEMI-GLOSS - 2 COATS	
TS-1	JOHNSONITE - CTA-XX-M	TRANSITION FROM CARPET TO EXIS	TING	TBD	VINYL	
CG-1	KOROSEAL	CORNER GUARD 4'H	4'h x 1-1/2"x1-1/2"	CLEAR	MECHANICALLY FASTENED rep: Cal Raymond- craymond@koroseal.com	
AWP-1	ARMSTRONG CEILINGS	WALL PANELS BY FELTWORKS	48"W X 24"H X 1"	TBD	Installed with Z-clips and Z-bars. www.armstrongceilings.com	
WBD-1	CLARIDGE PRODUCTS	LCS porcelain whiteboard EE4X4LCS	48"W X 48"H	WHITE	MECHANICALLY FASTENED www.claridgeproducts.com	

SECURE ATTACHMENT OF FF&E

TO ENSURE PROPER ATTACHMENT OF FIXTURES, FURNISHINGS & EQUIPMENT ITEMS INCLUDING TECHNOLOGY ITEMS, WHERE "ITEMS" ARE ATTACHED TO WALL, CEILING, OVERHEAD STRUCTURE, AND / OR FLOOR. CONTRACTOR SHALL PROVIDE INFORMATION ADEQUATE FOR ARCHITECT TO VERIFY ITEMS ATTACHED TO WALL, CEILING AND / OR FLOOR ARE ATTACHED SECURELY AND PER MANUFACTURER'S RECOMMENDATIONS.

ARCHITECT'S REVIEW MAY BE IMPLEMENTED DURING SUBMITTAL PROCESS. CONTRACTOR SHALL PROVIDE STRUTS, HANGERS, FASTENERS, SAFETY HARNESSES, CHANNELS, BOLTS, SCREWS, RODS, ETC. TO SECURELY ATTACHED ITEMS TO EXISTING STRUCTURE AS REQUIRED TO MEET FIELD CONDITIONS AND MEET APPLICABLE CODES.

CODE COMPLIANCE NOTES

TO MEET THE NEEDS OF PERSONS WITH DISABILITIES, WHEN APPLICABLE, ALL FIXTURES, FURNISHINGS AND EQUIPMENT ITEMS SHALL COMPLY WITH:

CURRENT NEW YORK STATE BUILDING & FIRE CODES INCLUDING 2009 ICC/ANSI A117.1

SECTION 504 OF THE REHABILITATION ACT OF 1973 INCLUDING CURRENT ADA STANDARDS FOR ACCESSIBLE DESIGN AND ADA REGULATIONS

AMERICAN WITH DISABILITIES ACT TITLE II INCLUDING CURRENT ADA STANDARDS AND ADA REGULATIONS

ACCESSIBLE KNEE AND TOE CLEARANCE SHALL COMPLY WITH CURRENT ADA STANDARDS FOR ACCESSIBLE DESIGN, SECTION 306

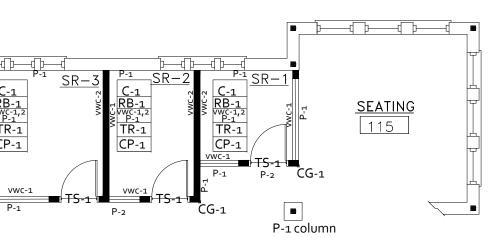
COMPLIANCE WITH THE CURRENT STATE FIRE CODE AND CURRENT O.S.H.A. – TITLE 29 / LABOR IS ALSO REQUIRED. THE ITEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO FIXTURES, FURNISHINGS, EQUIPMENT, WORKSTATIONS (INCLUDING BUILT-INS) & ALL FINISHES

ELECTRICAL NOTES

- ELECTRICAL CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
- ELECTRICAL CONTRACTOR SHALL DESIGN, PURCHASE AND INSTALL ALL NEW COMPONENTS AS REQUIRED TO PROPERLY SERVICE THE SPACE(S) AFFECTED BY THIS CONSTRUCTION PROJECT. IF THE MODIFICATION OF EXISTING ELECTRICAL SYSTEMS IS NECESSARY, SUCH MODIFICATIONS SHALL NOT ADVERSELY AFFECT THE OPERATION OF THESE SYSTEMS.
- COORDINATE ELECTRICAL WORK WITH THE WORK OF OTHER TRADES. DO NOT ALTER THE WORK OF PREVIOUS TRADES WITHOUT PRIOR APPROVAL.
- 4. PERFORM ALL NEW ELECTRICAL WORK IN ACCORDANCE WITH STATE AND LOCAL CODES AND ACCEPTED STANDARDS OF PRACTICE.
- COORDINATE THE FINAL LOCATION OF ALL ELECTRICAL DEVICES AND THEIR INTENDED OPERATION WITH THE OWNER. SEE 'ELECTRICAL MOUNTING HEIGHTS', THIS SHEET, FOR GENERAL REQUIREMENTS.
- 6. PROVIDE ALL NEW SWITCH AND OUTLET COVERS IN LAVATORIES IN WHITE.
- PROVIDE NEW OUTLET AND SWITCH COVERS FOR ALL OUTLETS IN MAIN LIBRARY PROJECT IN IVORY.

ELECTRICAL MOUNTING HEIGHTS

- ALL DIMENSIONS ARE TO THE CENTER OF THE DEVICE UNLESS OTHERWISE NOTED. SEE ELECTRICAL DRAWINGS FOR TYPES AND LOCATIONS.
- 2. RECEPTACLES: 18" A.F.F. (AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF RECEPTACLE AT 2" ABOVE COUNTERTOP, AT LOCATIONS BELOW CASEWORK, MOUNT AT 24" A.F.F.
- 3. SWITCHES: 48" A.F.F.
- 4. DATA / PHONE OUTLETS: 18" A.F.F.



IISH PLAN

FOR FURTHER CLARIFICATION ON THE PAINT COLORS ON EXTERIOR OF STUDY ROOMS

Abbreviations SOME NOT USED

CP

CP

СТ

DF

GR

NIS

PL

PJS

PR

RB

S/C

TH

TR

VP

- ACP ACOUSTICAL CEILING PANELS CEILING PAINT CARPET TILE **CEILING PANELS / PADS** CERAMIC TILE CERAMIC WALL TILE CWT DOOR FRAME GROUT GTE GRANITE M. TH MARBLE THRESHOLD NOT IN CONTRACT NIC NOT IN SCOPE PAINT PLASTIC LAMINATE PROJECTION SCREEN PROJECTOR RRS RESILIENT REDUCING STRIP RUBBER WALL BASE SEALED CONCRETE THRESHOLD TRIM (PAINTED) VCT VINYL COMPOSITION TILE VINYL PLANK FLOORING VWC VINYL WALL-COVERING-TYPE 2 WCD WALL CLADDING WOOD PAINTED WINDOW SILLS WPS NIS - NOT IN SCOPE ETR= EXISTING TO REMAIN EXT= EXISTING TO REMAIN
 - FINISH LEGEND] Floor Base Walls Trim ---- Ceiling

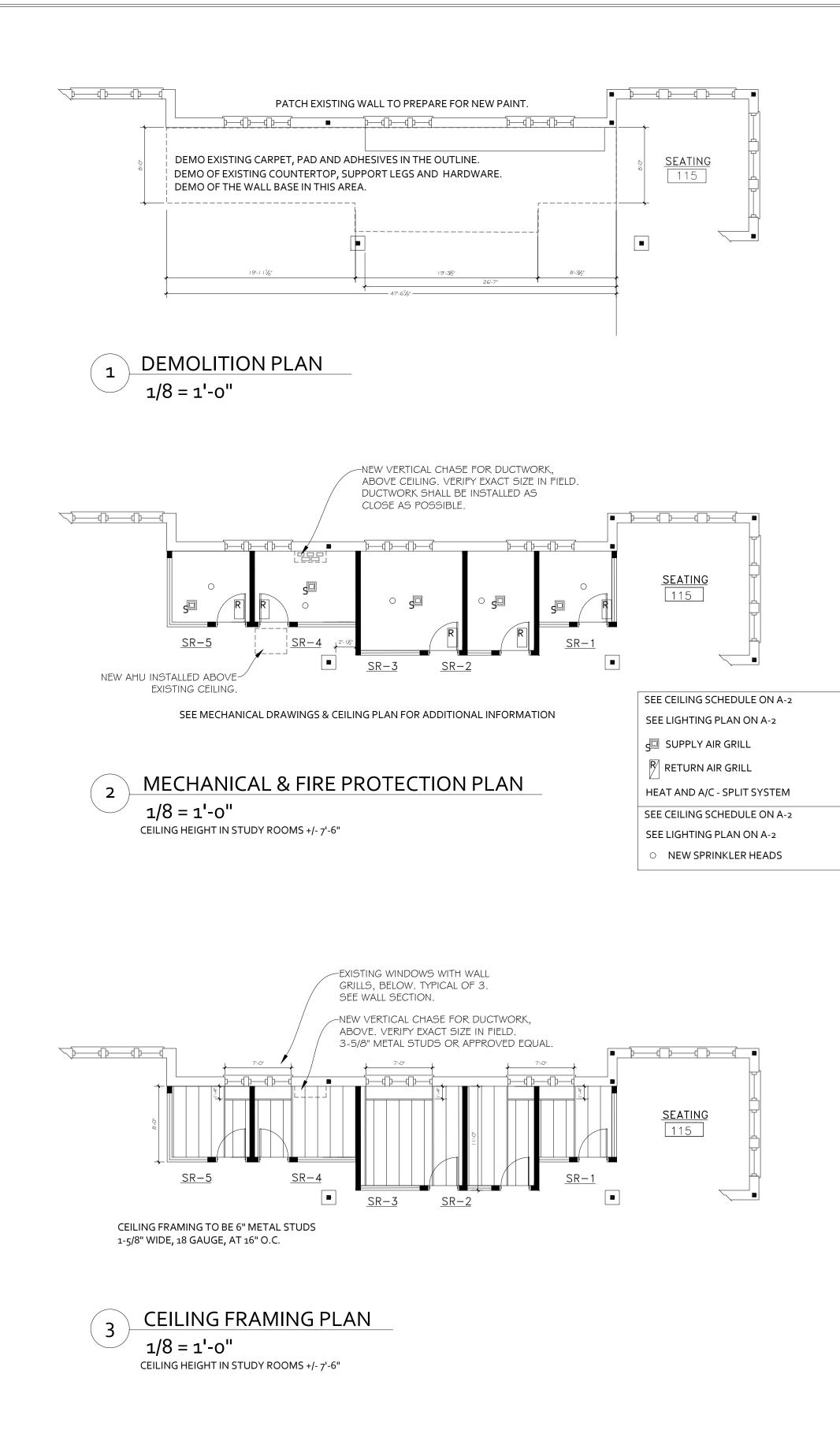


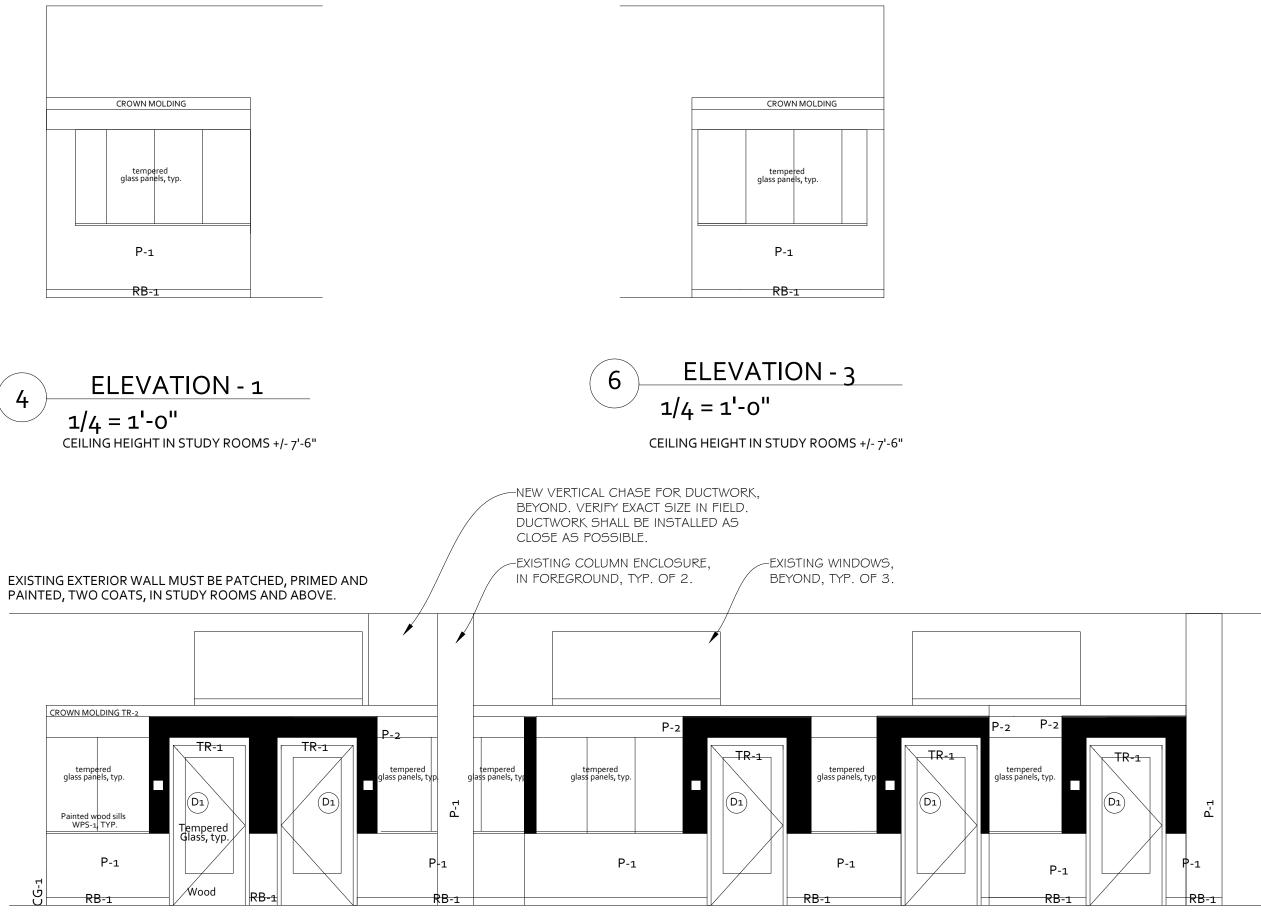
4D Design & Decorating

DEANNA DEWEY, NCIDQ Owner, Interior Designer

26 Stuart Drive Bloomfield , CT 06002 email: 4Ddesign@comcast.net







DOORS - MASONITE ARCHITECTURAL, 1-3/8" ROTARY CUT, WHITE BIRCH, ASPIRO SERIES, STAIN COLOR CLEAR, GLASS: FULL WITH TEMPERED GLASS. WINDOW GLASS PANELS - tempered

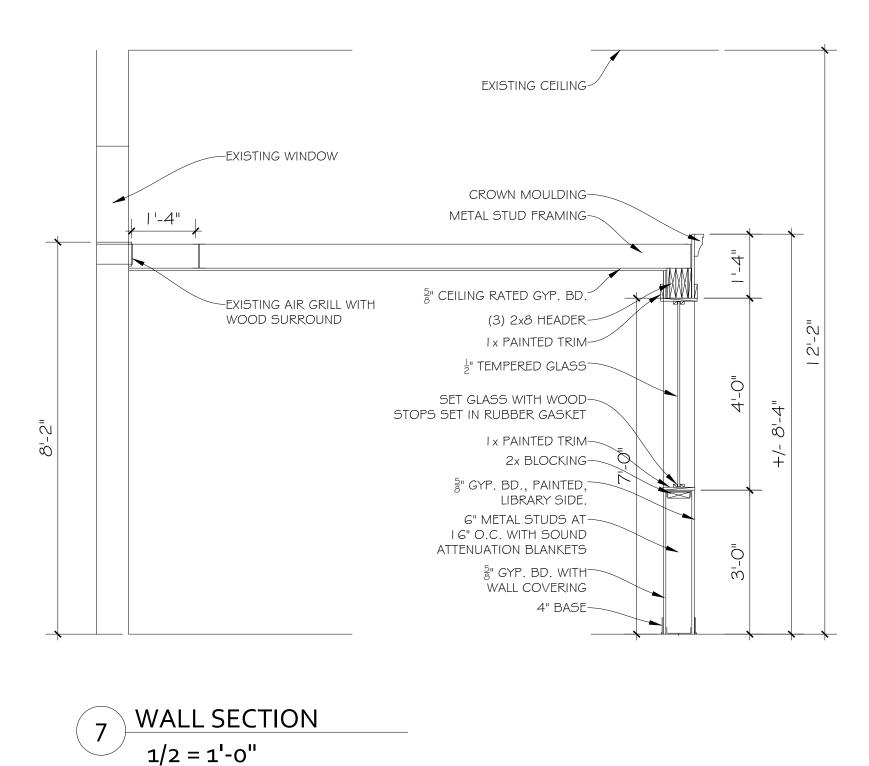
DOOR TRIM 2.5" XXX PRIMED AND PAINTED WHITE.

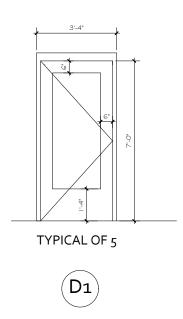
HARDWARE- ADA LEVER STYLE, LOCKING FROM EXTERIOR ONLY WHEN UNOCCUPIED. KEY'D ALIKE WITH A MASTER KEY, BRUSHED STAINLESS STEEL, FIVE (5) QTY. TYP. SIGNAGE- ASI SIGNAGE, ADA READY SIGNAGE, HIGH IMPACT ACRYLIC / PVC THERMOPLASIC ALLOY USING UNIBOND CO-MOLDING PROCESS. TACTILE COPY AND GRADE 2 BRAILLE RAISED 1/32" MIN. COMPLY WITH ADA REGULATIONS AND REQUIREMENTS. TYPICAL OF 5 SIGNS, STIPPLE TEXTURE, COBALT PANEL BEIGE LETTERING. CEILING HEIGHT IN STUDY ROOMS +/- 7'-6"

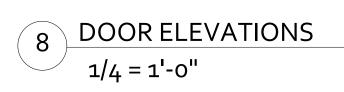
5 1/4 = 1'-0"

ELEVATION - 2

ALL WINDOWS WILL INCLUDE WINDOW SILLS - WPS-1











STUDY ROOMS **FLOOR PLANS & ELEVATIONS**

DATE:

04/05/23

SCALE: **PROJECT No:**

AS NOTED NY122

DRAWING NUMBER:



MBOL & A				NERAL NOTES
SYMBOL	ABBREVIATION	DESCRIPTION		
_	AFF	ABOVE FINISHED FLOOR	1.	CONTRACTOR TO FIELD VERIFY WORK AND COORDINATE NEW W
_	AHC	ABOVE HUNG CEILING	2.	CONTRACT DRAWINGS, AS FAR
_	AHU-	AIR HANDLING UNIT		LOCATION OF EQUIPMENT, SH DIAGRAMMATIC. ANY CHANGES
_	AP	ACCESS PANEL		NECESSARY TO AVOID INTERF EXTRA COST, AND MUST BE APP
_	BDD	BACKDRAFT DAMPER	3.	THE MECHANICAL CONTRACTO
_	BHP	BRAKE HORSEPOWER		DUCTWORK AS REQUIRED TO BA
_	BTU	BRITISH THERMAL UNIT		OR NOT.
_	CFM	CUBIC FEET PER MINUTE	4.	PROVIDE ALL PIPE OPENINGS T PENETRATING FIRE RATED PART
_	<u> </u>	CENTERLINE		SHALL BE SEALED WITH FIRE ST MADE BY CORE DRILLING WHEN
_	CD-	CONDENSATE DRAIN	5.	ALL MOTOR STARTERS AND DI
_	DB	DRY BULB TEMPERATURE		FURNISHED BY THE MECHANIC CONTRACTOR, UNLESS OTHERW
_	DIA. OR Ø	DIAMETER		MECHANICAL CONTRACTOR FOR
_	EL	ELEVATION	6.	THE MECHANICAL CONTRACTOR TO THE BEGINNING OF WORK, AI
_	ESP	EXTERNAL STATIC PRESSURE	7.	DUCT DIMENSIONS SHOWN ON
_	FC	FLEXIBLE CONNECTION		DIMENSIONS. WHERE DUCTW INCREASE THE SIZE OF DUCT TO
_	FPM	FEET PER MINUTE	8.	LOCATE THERMOSTATS AND T
_	FTR	FINNED TUBE RADIATION		UNLESS OTHERWISE NOTED. C FURNISH LOCKING TAMPERPRO
_	GPM	GALLONS PER MINUTE	9.	COORDINATE DUCTWORK, GRIL
_	HP	HORSE POWER	10	SPRINKLER HEADS, SMOKE DET
_	HVAC-	HEATING, VENTILATING AND AIR CONDITIONING UNIT	10.	THE MECHANICAL CONTRACTOR AND DETAILS GIVEN IN THESE P
—	МВН	1000 BRITISH THERMAL UNITS PER HOUR		AND SUPPORTS SHALL BE DES SEISMIC CODES.
_	NIC	NOT IN CONTRACT	11.	THE MECHANICAL CONTRACTO DRAWING, FULLY COORDINATE
_	OAI	OUTSIDE AIR INTAKE		PLUMBING, SPRINKLER PIPING, DIFFUSERS, GRILLES, ETC.
_	PSI	POUNDS PER SQUARE INCH	12	ALL WORK SHALL COMPLY WIT
_	RA	RETURN AIR		BUILDING CODE, AND ENERGY THE CONTRACT DOCUMENTS
_	RL	REFRIGERANT PIPING - LIQUID LINE		STRINGENT STANDARD SHALL A
_	RPM	REVOLUTIONS PER MINUTE	13.	DURING CONSTRUCTION, ALL AIRTIGHT WITH WITH HEAVY F
_	RS	REFRIGERANT PIPING - SUCTION LINE		DUCTWORK, REGISTERS, GRILLI ALL REGISTERS, GRILLES, AND
_	SA	SUPPLY AIR		TAPE AIR TIGHT, IN AREAS THA IN THOSE AREAS. FLOOR REGI
_	SP	STATIC PRESSURE		MASONITE.
_	TSP	TOTAL STATIC PRESSURE	14.	WHEN GENERAL CONSTRUCT REGISTERS, GRILLES, AND HVA
_	TYP.	TYPICAL		PROJECT AREA. REMOVE ANY NEW.
_	U.O.N.	UNLESS OTHERWISE NOTED	15.	THE OWNER'S PERMANENT HVA
_	WB	WET BULB TEMPERATURE		DURING CONSTRUCTION FOR TEMPORARY HEATING, COOLIN
_	WG	INCHES OF WATER GAUGE		CONSTRUCTION, THE CONTRACT VENTILATION EQUIPMENT, DUC
_	WMS	WIRE MESH SCREEN	16.	THE CONTRACTOR SHALL BE F
	NEW	NEW WORK		AND EXHAUST AIR WHEN WELL REQUIRED BY OSHA.
– D ——	-	DRAIN	17.	WHERE BUILDING STRUCTURA
T	-	THERMOSTAT		THAT IS DISTURBED OR DAMAGINSTALLATION OF HANGERS
\boxtimes	-	CEILING DIFFUSER		PATCHED WITH UL AND FM APP
	-	CEILING RETURN	18.	THE MECHANICAL CONTRACTO
Μ	-	MOTORIZED DAMPER	19.	COORDINATE DUCTWORK AND
~ /	-	AIRFLOW DIRECTION		ROOF WITH ARCHITECTURAL DR
	VD	VOLUME DAMPER	20.	AHU'S: PROVIDE CONDENSATE AND TERMINATE WITH INDIREC ETC.
			21.	CONTRACT DRAWINGS AS FAR

- EXTRA COST.
- 22. ALL RETURN DUCTWORK ENDING ABOVE HUNG CEILING TO HAVE 1/2" WMS.
- CONSTRUCTION.

EQUIPMENT NOTES

ALL EXISTING CONDITIONS PRIOR TO THE BEGINNING OF DRK.

AS THEY RELATE TO THE GENERAL ARRANGEMENT AND EET METAL, AND PIPING, SHALL BE UNDERSTOOD AS TO EQUIPMENT, SHEET METAL, AND PIPING LOCATIONS RENCE WITH OTHER TRADES SHALL BE MADE AT NO OVED BY THE ENGINEER.

SHALL FURNISH AND INSTALL VOLUME DAMPERS I LANCE THE AIRFLOW AT ALL REGISTERS AND DIFFUSERS AN, WHETHER SPECIFICALLY SHOWN ON THE DRAWINGS

HROUGH PARTITIONS WITH PIPE SLEEVES. FOR PIPES TIONS. THE SPACE BETWEEN THE PIPE AND THE SLEEVE PPING MATERIAL. PENETRATIONS FOR PIPING SHALL BE VER POSSIBLE.

CONNECT SWITCHES FOR HVAC EQUIPMENT SHALL BE AL CONTRACTOR AND INSTALLED BY THE ELECTRICAL SE NOTED. DISCONNECT SWITCHES FURNISHED BY THE HVAC EQUIPMENT SHALL BE HEAVY DUTY TYPE.

SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR D SHALL COORDINATE ALL WORK WITH OTHER TRADES.

IECHANICAL DRAWINGS REFER TO INSIDE CLEAR DUCT RK IS LINED, THE MECHANICAL CONTRACTOR SHALL COMPENSATE FOR LINING.

EMPERATURE SENSORS 5'-6" ABOVE FINISHED FLOOR ORDINATE LOCATION WITH FURNITURE, CABINETS, ET(F COVER FOR ALL NEW THERMOSTATS IN PUBLIC AREAS.

E, DIFFUSER AND REGISTER LOCATIONS WITH LIGHTS, CTORS, AND THE ARCHITECTURAL PLANS.

SHALL NOTE THAT, IN ADDITION TO THE SPECIFICATIONS ANS FOR PIPE HANGERS AND SUPPORTS, ALL HANGERS SNED AND INSTALLED IN COMPLIANCE WITH APPLICABLE

OR SHALL SUBMIT FOR REVIEW A COMPOSITE SHOP WITH ALL OTHER TRADES, INDICATING DUCTWORK, STRUCTURAL, LIGHTS, CONDUITS, SMOKE DETECTORS,

THE 2020 NEW YORK STATE BUILDING CODE, LOCAL ODE REQUIREMENTS. IN CASE OF CONFLICT BETWEEN ND A GOVERNING CODE OR ORDINANCE, THE MORE PLY.

PEN OR INCOMPLETE DUCTWORK SHALL BE CAPPED DLYETHYLENE PLASTIC. AFTER THE INSTALLATION OF S, AND DIFFUSERS, THE CONTRACTOR SHALL BLANK OFF DIFFUSERS WITH HEAVY POLYETHYLENE PLASTIC AND ARE UNDER CONSTRUCTION, UNTIL WORK IS COMPLETE TERS AND GRILLES SHALL ALSO BE COVERED WITH 1/8"

ON IS COMPLETE, VACUUM CLEAN ALL DIFFUSERS, EQUIPMENT IN THE PROJECT AREA OR SERVING THE ONSTRUCTION DEBRIS. REPLACE ALL AIR FILTERS WITH

EQUIPMENT SHALL NOT BE USED BY ANY CONTRACTOR EMPORARY HEATING, COOLING, OR VENTILATION. IF , OR VENTILATION IS REQUIRED AT ANY POINT DURING OR SHALL PROVIDE TEMPORARY HEATING, COOLING, OR VORK, CONTROLS, AND POWER AT HIS OWN EXPENSE.

ESPONSIBLE FOR PROVIDING TEMPORARY VENTILATION NG OR SOLDERING OPERATIONS ARE PERFORMED, AS

COMPONENTS HAVE FIREPROOF MATERIAL. ANY AREA D AS A RESULT OF MECHANICAL WORK, INCLUDING THE OR PIPING, DUCTWORK, OR EQUIPMENT, SHALL BE OVED FIREPROOFING TO MATCH EXISTING.

SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING ND FOR PAYING RELATED FEES.

PING PENETRATIONS THRU FLOORS/SLABS, WALLS, AND WINGS.

RAIN FROM EACH AHU. ROUTE DOWN WITHIN BUILDING CONNECTION AT NEAREST JANITOR SINK, FLOOR DRAIN,

AS THEY RELATE TO THE GENERAL ARRANGEMENT AND LOCATION OF EQUIPMENT, PIPING AND SHEETMETAL, SHALL BE UNDERSTOOD AS DIAGRAMMATIC. ANY CHANGES TO SHEETMETAL AND EQUIPMENT LOCATIONS NECESSARY TO AVOID INTERFERENCE WITH OTHER TRADES SHALL BE MADE AT NO

23. SEE ARCHITECTURAL DRAWINGS FOR EXACT PHASING AND TIME SCHEDULE FOR

1.) EQUIPMENT NAMEPLATES: ALL HVAC EQUIPMENT SHALL HAVE 3" HIGH BLACK LAMACOID NAME PLATES WITH WHITE ENGRAVED LETTERS PERMANENTLY FASTENED TO EQUIPMENT.

2.) VIBRATION ISOLATORS: ALL INDOOR AND OUTDOOR HVAC EQUIPMENT SHALL BE MOUNTED ON SPRING VIBRATION ISOLATORS, WITH A RATED STATIC DEFLECTION OF AT LEAST 1". USE MASON TYPE "SLF" OR "SLFH" FOR FLOOR MOUNTED EQUIPMENT, RATED FOR MACHINE LOAD. USE MASON TYPE "30" OR "W30" FOR EQUIPMENT SUSPENDED FROM CEILING. ASSUMING THE EQUIPMENT IS MOUNTED TO PROVIDE FOR EQUAL LOAD DISTRIBUTION, EACH SPRING SHALL BE RATED FOR 1/4 THE UNIT'S TOTAL WEIGHT. SYSTEMS MUST BE ENGINEERED FOR 95% ISOLATION EFFICIENCY AT THE LOWEST ROTATIONAL SPEED OF THE UNIT.

3.) EQUIPMENT ROOF CURBS (VRF SYSTEM HEAT PUMP UNITS): SHALL BE CURB MOUNTED. MOUNT EQUIPMENT ON MASON TYPE "SLF" OR "SLFH" VIBRATION ISOLATORS. CURBS SHALL BE CUSTOM FABRICATED, SUCH THAT EACH OUTDOOR UNIT IS MOUNTED LEVEL.

4.) LEAK DETECTOR: SPOT TYPE LEAK DETECTOR IN DRIP PAN BELOW AC UNITS SHALL BE BASED ON LIEBERT MODEL LT-410. PROVIDE TRANSFORMER.

5.) SPACE/ZONE KIT: SHALL BE DAIKIN ZONING KIT MODEL DZK030E5-3 WITH PRE-ASSEMBLED PLENUM BOX, FLOW CONTROL SYSTEM, AND FIVE (5) SEPARATE DAMPERS.

6.) SPACE/ZONE TEMPERATURE SENSORS: SHALL BE DAIKIN WIRED THERMOSTAT MODEL DZK-MTS-3-W (SR-3) AND WIRELESS THERMOSTAT MODEL DZK-ZTS-3-W (SR1,2,4,5) WITH LCD TOUCHSCREEN DISPLAY FOR SET POINT ADJUSTMENT, 7-DAY PROGRAMMABLE SCHEDULING AND FUNCTION SELECTION.

7.) THERMOSTAT GUARDS: SHALL BE SHAW-PERKINS PROTECTION SERIES 16 STEEL THERMOSTAT GUARD. CONSTRUCTED OF HEAVY GAUGE DIE-FORMED 16 GAUGE PERFORATED STEEL, $\frac{1}{8}$ " PERFORATIONS ON $\frac{3}{16}$ " CENTERS. SIDE AND MOUNTING FRAME CONSTRUCTED OF 14-GAUGE SOLID STEEL. COORDINATE FINAL COLOR AND FINISH WITH OWNER.

8.) REFRIGERANT PIPE INSULATION: SHALL BE AP ARMAFLEX PIPE INSULATION. 1" THICK UNSLIT. TO BE INSTALLED BEFORE FINAL CONNECTION. FIELD FABRICATE FITTING INSULATION WITH MITER-CUTS. ALL BUTT JOINTS AND SEAMS ARE TO BE SEALED WITH ARMSTRONG 520 ADHESIVE. ALL INSULATION INSTALLED OUTDOORS SHALL BE COATED WITH ARMSTRONG ARMAFLEX FINISH, AS PER THE MANUFACTURERS RECOMMENDATIONS.

9.) SQUARE CEILING DIFFUSERS: SHALL BE TITUS MODEL OMNI, STEEL CONSTRUCTION, WITH ROUND NECK, OPPOSED BLADE VOLUME DAMPER IN NECK, MODULE SIZE, NECK SIZE, AND CFM AS NOTED ON PLANS. FINISH SHALL BE BAKED ON ENAMEL. SUBMIT COLOR CHART FOR APPROVAL. FRAME SHALL BE SUITABLE FOR LAY-IN OR SURFACE MOUNTING AS REQUIRED. COORDINATE WITH ARCH PLANS.

10.) CEILING RETURN AIR GRILLES: SHALL BE TITUS MODEL 50F. RL-HD 1/2"X1/2"X1/2" FIXED CORE, ALUMINUM CONSTRUCTION. FINISH SHALL BE BAKED ON ENAMEL. COLOR SHALL BE WHITE. FRAME SHALL BE SUITABLE FOR LAY IN AS REQUIRED. COORDINATE WITH ARCH PLANS.

11.) MOTORIZED DAMPERS: SHALL BE RUSKIN MODEL CD40, 4" DEEP EXTRUDED ALUMINUM AIRFOIL DAMPER. DAMPER SHALL HAVE OPPOSED BLADES, MOTOR AND LINKAGE. DAMPERS SHALL BE 120V/1¢/60HZ, 3 AMPS MAX. FURNISH DISCONNECT SWITCH.

12.) VOLUME CONTROL DAMPERS: FOR ALL ROUND & RECTANGULAR VOLUME CONTROL DAMPERS THAT ARE LOCATED ABOVE INACCESSIBLE CEILINGS, PROVIDE CABLE OPERATED DAMPERS. ROUND DAMPERS SHALL BE YOUNG BOWDEN MODEL 5020-CC. RECTANGULAR DAMPERS SHALL BE MODEL 830-CC2. CABLE CONTROLS SHALL BE MODEL 270-275 FOR CONCEALED LOCATIONS & MODEL 270-896C FOR LOCATIONS WHERE CABLES TERMINATE IN FINISHED SPACES. COORDINATE LOCATIONS IN THE FIELD.

13.) LOUVERS: SHALL BE RUSKIN MODEL ELF6375DX, 6" DEEP, WITH 30% FREE AREA, 6063T6 EXTRUDED ALUMINUM DRAINABLE BLADES AT 37.5° AND 5-3/32" SPACING, 4" DEEP 6063T5 EXTRUDED ALUMINUM FRAME. AND 1/2" GALVANIZED STEEL BIRD SCREEN. MINIMUM LOUVER SIZE 12"X12". ANODIZED CUSTOM COLOR TO BE SELECTED BY ARCHITECT. COORDINATE WITH ARCHITECTURAL PLANS.

CEILING DIFFUSER				
SCHEDULE				
DESIGNATION	CI	D-1		
MODEL	ON	INI		
MAX CORE VEL (FT/MIN)	55	50		
MAX NC	2	5		
CONSTRUCTION	STE	EEL		
FRAME	SURFACE	MOUNTED		
DEFLECTION	4 W	/AY		
FACE SIZE	12:	x12		
CFM NECK SIZE RANGE Ø				
0-150 6"				
	150-300	8"		
 NOTES: 1. CEILING SUPPLY DIFFUSERS ARE BASED ON TITUS. 2. ALL DIFFUSERS SHALL BE EQUIPPED WITH AN OPPOSED BLADE VOLUME DAMPER. 3. COORDINATE COLOR SELECTION WITH ARCH PLANS. 4. SUPPLY DIFFUSERS SHALL HAVE FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE. 5. ALL LAY-IN DIFFUSERS SHALL HAVE A MODULE SIZE OF 12x12. FACE SIZES SHOWN IN SCHEDULE ARE FOR SURFACE MOUNT DIFFUSERS. NECK SIZES VARY ACCORDING TO THE SCHEDULE. 				

6. DIFFUSER BLOW PATTERN IS AS SHOWN ON DRAWINGS.

HEAT PUMP UNIT SCHEDULE

INDOOR UNIT DESIGNATION	HP-1
MANUFACTURER	DAIKIN
MODEL	RXSQ24TZVJUA
INDOOR (DB/WB °F)	80 / 67
AMBIENT (DB °F)	95
EER	11.0
HSPF	9.0
QUANTITY	1
DIMENSIONS (HxWxD)	39"x37"x12-5/8"
WEIGHT (LBS)	172
FAN:	
MCA/MOCP (A)	16.5 / 20
RLA (A)	15.3
CFM	2682
VOLTS/Ø/Hz	208/1/60
SOUND (dBA)	58
COOLING:	
TOTAL CAP. (MBH)	24,000
SENSIBLE CAP. (MBH)	18,800
HEATING:	
WINTER DISCHARGE TEMPERATURE (°F)	47
TOTAL CAP. (MBH)	25,800
NOTES:	

1. UNITS BASED ON DAIKIN.

2. UNITS SHALL BE INSTALLED ON MINIMUM 4" HIGH

CONCRETE PAD WITH VIBRATION ISOLATORS. MAINTAIN ALL REQUIRED MINIMUM CLEARANCES.

AIR HANDLING UNIT SCHEDULE			
DESIGNATION	AHU-1		
LOCATION	1ST FLOOR CEILING		
AREA SERVED	STUDY ROOMS (1-5)		
MANUFACTURER	DAIKIN		
MODEL	FXQ24PBVJU		
WEIGHT OF UNIT (LBS.)	80		
FAN:			
CFM (HH/H/L)	688 / 618 / 565		
RATED INPUT POWER (KW)	0.23		
ESP/TSP (FT. H ₂ O)	0.8		
COOLING COIL:			
E.A.T. (DB/WB °F)	80 / 67		
TOTAL CAP. (MBH)	24,000		
SENSIBLE CAP. (MBH)	18,800		
ELECTRICAL DATA:			
VOLTS/Ø/Hz	208/1/60		
MCA / MOCP (A)	1.8 /15		
NOTES: 1. UNITS BASED ON DAIKIN.			

2. FURNISH THE FOLLOWING EQUIPMENT FOR EACH: · MERV 13 FILTERS

· ZONING KIT · PROVIDE ONE WIRED THERMOSTAT CONTROLLER AND FOUR

WIRELESS THERMOSTAT 2. PROVIDE OVERFLOW SWITCH.

3. PROVIDE DRAIN PAN UNDERNEATH UNIT WITH LEAK DETECTOR.

LOUVER SCHEDULE			
DESIGNATION LV-1			
LOCATION	1ST FLOOR EXTERIOR WALL		
AREA SERVED	STUDY ROOMS (1-5)		
FLOW DIRECTION	INTAKE		
MODEL	ELF6375DX		
FREE AREA (FT ²)	0.3		
DIMENSIONS (WxH)	12x12		
NOTES:	*		

1. LOUVERS BASED ON RUSKIN.

2. COORDINATE EXACT LOUVER SIZE WITH ARCHITECTURAL PLANS AND WITH WALL OPENINGS IN THE FIELD. 3. ALL LOUVERS SHALL BE STATIONARY, DRAINABLE BLADE WITH

37.5° BLADE ANGLE. 4. CUSTOM COLORED LOUVERS SHALL BE SELECTED BY

ARCHITECT. SUBMIT COLOR CHART FOR REVIEW.

5. FURNISH 1/2" GALVANIZED BIRD SCREEN FOR ALL LOUVERS. 6. BLANK OFF UNUSED SECTIONS OF LOUVERS WITH SHEET METAL PANELS. PAINT PANELS TO MATCH LOUVER AND INSULATE WITH 1" RIDGED BOARD INSULATION.

CONSULTING ENGINEERS	50 Broadway, Hawthorne, NY 1053 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110 olace.com			
CLIENT				
	FOR CLIENT REVIEW	03/20/2023		
No use, reproduction or diss forth without the prior written ⓒ 2023	emination may be made of this drawing an I consent of OLA Consulting Engineers, PC	d the concepts set . Copyright		
PROJECT TITLE JOHN C. HART MEMORIAL LIBRARY 1130 MAIN STREET SHRUB OAK, NY				
DRAWING TITLE MECHANICAL SYMBOLS AND ABBREVIATIONS				
SEAL	AS NOTED NY DRAWN BY AE	CT NO. PL0001.00 NG NO.		

DATE

03/03/2023

OLA Consulting Engineers

M-1 <u>SCOPE OF WORK</u>	M-10 SHOP DRAWINGS AND SUBMITTALS REQUIRE
A.) THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPERVISION AND OVERHEAD FOR THE FURNISHING AND INSTALLING OF ALL THE HEATING, VENTILATING AND AIR CONDITIONING AND RELATED WORK COMPLETE, IN ACCORDANCE WITH THE DRAWINGS, SCHEDULES AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:	A.) MANUFACTURER'S DATA OR SHOP DRAWIN FULL INFORMATION AS TO CATALOG NUM INFORMATION PERTINENT TO THE ADEQUACY SUBMITTED FOR REVIEW:
 INSTALLATION OF NEW HVAC HEAT PUMP SYSTEM, NEW DUCTWORK, DIFFUSERS, REGISTERS, AND ASSOCIATED ACCESSORIES. DUCTWORK INSULATION. LOUVER INSTALLATION. TESTING AND BALANCING. 	 1.) SHEET METAL CONSTRUCTION DETAILS 2.) DUCTWORK LAYOUTS. 3.) AUTOMATIC TEMPERATURE CONTROLS 4.) HVAC EQUIPMENT 5.) BALANCING REPORTS.
 M-2 <u>WORK EXCLUDED</u> A.) THE FOLLOWING ITEMS ARE EXCLUDED FROM THIS SECTION OF WORK: 1.) MOUNTING AND POWER WIRING FOR ALL MOTOR STARTERS. 2.) ALL ELECTRIC POWER WIRING EXCEPT WHERE FURNISHED AS AN INTEGRAL PART OF FACTORY ASSEMBLED EQUIPMENT OR AS OTHERWISE REQUIRED FOR AUTOMATIC TEMPERATURE CONTROLS, VARIOUS SAFETY CONTROLS AND MOTOR INTERLOCKS. 	 6.) LOUVERS 7.) AIR OUTLETS AND REGISTERS. 8.) HANGERS AND INSERTS. 9.) INSULATION. M-11 TESTING AND BALANCING
M-3 <u>GENERAL REQUIREMENTS</u> A.) CONSTRUCT ALL APPARATUS OF MATERIALS AND PRESSURE RATINGS SUITABLE FOR THE CONDITIONS ENCOUNTERED DURING CONTINUOUS OPERATION.	A.) THE CONTRACTOR SHALL ENGAGE TH BALANCING FIRM THAT SHALL BE SUBJECT BALANCING FIRM SHALL HAVE AT LEAST ONE LICENSED PROFESSIONAL ENGINEER WHO SH
B.) WHERE CORROSION CAN OCCUR, APPROPRIATE CORROSION-RESISTANT MATERIALS AND ASSEMBLY METHODS SHALL BE USED, INCLUDING ISOLATION OF DISSIMILAR METALS AGAINST GALVANIC INTERACTION. RESISTANCE TO CORROSION SHALL BE ACHIEVED BY THE USE OF THE APPROPRIATE BASE MATERIALS COATINGS SHALL BE RESORTED TO ONLY WHEN SPECIFICALLY PERMITTED BY THE SPECIFICATIONS.	B.) THE TESTING AGENCY SHALL BE FULLY COUNCIL OR AN EQUIVALENT ORGANIZATION OF THE AGENCY QUALIFIED AS A CERTIFIED BEEN ISSUED THIS CERTIFICATION. ALL FII CERTIFIED TEST AND BALANCE ENGINEER A SUBMIT FOUR (4) COPIES OF REPORT FOR
C.) CONSTRUCT ALL EQUIPMENT IN ACCORDANCE WITH REQUIREMENTS OF ALL APPLICABLE CODES. ALL PRESSURE VESSELS AND SAFETY DEVICES THAT FALL WITHIN THE SCOPE OF THE ASME CODE SHALL CONFORM TO THE CODE AND BEAR THE ASME LABEL OR STAMP.	BALANCING REPORT SHALL BE SUBMITTED. C.) SUPPLY ALL LABOR, MATERIALS, INSTR REPAIR ALL DAMAGE TO PIPING OR EQUIF TESTING. PLUG ALL HOLES IN DUCTS
D.) MATCH AND BALANCE ALL SYSTEM COMPONENTS TO ACHIEVE COMPATIBILITY OF EQUIPMENT FOR SATISFACTORY OPERATION AND PERFORMANCE THROUGHOUT THE ENTIRE OPERATING TEMPERATURE AND CONTROL RANGES. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.	APPROPRIATE SNAP-IN PLUGS. DUCT TAPE IS D.) AIR BALANCE: 1.) ALL FANS AND DUCT SYSTEMS SERVI
E.) UPON COMPLETION OF WORK, THE ENTIRE MECHANICAL SYSTEM SHALL BE OPERATED IN THE PRESENCE OF THE OWNER TO DEMONSTRATE THAT ALL COMPONENTS ARE INSTALLED AND OPERATING PROPERLY.	BALANCED BY THE ADJUSTMENT OF SHEADIVERTING CONTROL DEVICES, TO OBTAIN 2.) THE CONTRACTOR SHALL IMMEDIATELY WHICH PREVENTS THE ADJUSTMENT OF T
F.) PROVIDE ALL CONTROLS, WIRING (EXCEPT POWER WIRING FOR MOTORS), PIPING, VALVES, ACCESSORIES AND OTHER COMPONENTS NECESSARY TO MAKE ALL SYSTEMS COMPLETE AND OPERABLE.	3.) SUBMIT SINGLE LINE DIAGRAMS OF AI
M-4 <u>REMOVALS</u> - NOT USED. M-5 <u>DUST PROTECTION</u> A.) IT IS IMPERATIVE THAT DURING DEMOLITION, AND ALSO DURING NORMAL CONSTRUCTION, WHERE THERE IS ANY POSSIBILITY OF DUST DUE TO CONSTRUCTION WORK CONTAMINATING THE OWNER'S EQUIPMENT OR CAUSING A NUISANCE TO	4.) RECORD THE FOLLOWING TEST DATA F AT THE PROJECT AT FINAL BALANCED CON a. FAN SPEED (RPM). b. FAN STATIC PRESSURE (EXTERNAL A
B.) WHEREVER POLYETHYLENE IS USED AS PROTECTIVE TARPAULINS OR DROPCLOTH, IT SHALL BE FIRE-RETARDANT POLYETHYLENE SHEETING, .004" THICK.	c. MOTOR OPERATING AMPS. d. ACTUAL VOLTAGE. e. FAN CFM. F.) PIPE TESTS:
M-6 <u>TIME AND MANNER</u> A.) ALL WORK SHALL BE PERFORMED DURING NORMAL WORKING HOURS UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE.	1.) ALL PIPING SHALL BE TESTED AS HEREI AFTER ERECTION AND BEFORE COVER CONCEALED AND AS SECTIONS OF MAINS WHERE CONTROLS AND ACCESSORIES AR PRESSURES, THEY SHALL BE PROPERLY P
B.) PRIOR TO THE BEGINNING OF WORK THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF WORK TO THE OWNER. ANY SHUTDOWNS OF EXISTING EQUIPMENT AND/OR SYSTEMS SHALL BE VERIFIED IN WRITING WITH THE OWNER'S REPRESENTATIVE.	TESTS. M-12 <u>DUCTWORK - GENERAL REQUIREMENTS</u>
C.) ANY SHUT-DOWN OF EXISTING SYSTEMS WHERE SUCH SHUT-DOWN IS REQUIRED FOR THE PERFORMANCE OF THE WORK UNDER THE CONTRACT SHALL BE AT SUCH TIMES AS DESIGNATED BY OWNER'S REPRESENTATIVE. RESTORE SYSTEMS TO ORIGINAL CONDITION AFTER PERFORMANCE WORK. THE INTENT IS TO INSURE MINIMUM INTERFERENCE WITH OPERATION OF EXISTING FACILITIES. REPAIR ANY DAMAGE DONE TO BUILDING RESULTING FROM INSTALLATION OF NEW WORK.	 A.) ALL LABOR, MATERIALS, EQUIPMENT AND OPERATIONS REQUIRED FOR COMPLETE INS AND ALL AUXILIARY WORK OF ANY KIND, NEC AND READY FOR SATISFACTORY OPERATION \$ B.) CONSTRUCT ALL EQUIPMENT IN ACCOMPLETE AND ADD ADD ADD ADD ADD ADD ADD ADD ADD
M-7 <u>SITE INSPECTION</u> A.) VISIT SITE BEFORE SUBMITTING BID. INSPECT AND VERIFY ALL CONDITIONS WHICH MAY AFFECT COST OF INSTALLATION. VERIFY EXACT LOCATION OF ALL EXISTING PIPES,	APPLICABLE CODES. C.) ALL INSTALLATIONS SHALL BE IN RECOMMENDATIONS AND REQUIREMENTS OF
DUCTS, BEAMS, ETC., WHETHER SHOWN ON THE DRAWINGS OR NOT, SO FAR AS THESE LOCATIONS RELATE TO THE NEW WORK. PROVIDE ANY OFFSETS IN NEW PIPING OR DUCTS AS MAY BE REQUIRED FOR PROPER CLEARANCES TO AVOID EXISTING DUCTS, CABLES OR OTHER OBSTRUCTION.	D.) INSTALL DUCTS AND HANGERS PLUMB AND OF SHARP EDGES. ROUTE DUCTWORK TO MIN TRANSITIONS. PROVIDE ADEQUATE SPAC SUPPORT AND TO ALLOW THE INSTALLATION VOLUME DAMPERS AT BRANCHES CONNECTED
M-8 <u>RUBBISH REMOVAL</u> A.) EQUIPMENT, DUCTWORK, ETC., SPECIFIED TO BE REMOVED AND RUBBISH CAUSED BY CONSTRUCTION SHALL BE REMOVED FROM THE CONSTRUCTION SITE.	M-13 DUCT CONSTRUCTION REQUIREMENTS
M-9 <u>CUTTING AND PATCHING</u> A.) THE CONTRACTOR SHALL PROVIDE ALL CUTTING REQUIRED FOR DUCTS, PIPING AND CONTROL CONDUITS PASSING THROUGH WALLS, FLOORS, ETC.	A.) CONSTRUCT AND SUPPORT ALL DUCTW STANDARDS OF ASHRAE AND THE SHEET ME NATIONAL ASSOCIATION. ALL WORK, MATERI THE LATEST REQUIREMENTS OF NFPA 90, JURISDICTION.
B.) PENETRATIONS FOR PIPING SHALL BE MADE BY CORE DRILLING WHENEVER POSSIBLE.	B.) ALL LOW PRESSURE DUCTWORK SHALL B
C.) PATCHING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR EXCEPT WHERE DAMAGE AND/OR REPAIRS ARE NECESSITATED DUE TO ERROR OR NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS SUB-CONTRACTORS.	OF THE FOLLOWING U.S. STANDARD GAUGES: NO. 24 UP TO 30 INCHES MAXIMUM E NO. 22 30 INCHES TO 54 INCHES NO. 20 55 INCHES TO 84 INCHES NO. 18 85 INCHES AND OVER
	C.) NO DUCT SHALL BE LESS THAN 24 GAUGE.
	D.) BRACING, GAUGES AND SUPPORTS INI MINIMUM ACCEPTABLE. ADDITIONAL BRACIN ELIMINATE ANY DISTORTION OR VIBRATION UNDER TESTS.

RED

INGS OF THE FOLLOWING APPARATUS GIVING MBERS. DIMENSIONS. MATERIALS AND ALL CY OF THE SUBMITTED EQUIPMENT SHALL BE

S INCLUDING WIRING DIAGRAMS.

THE SERVICES OF AN INDEPENDENT AIR TO THE REVIEW OF THE ENGINEER. THE MEMBER OF ITS FULL TIME STAFF WHO IS A SHALL SUPERVISE THE BALANCING WORK.

CERTIFIED BY THE ASSOCIATED BALANCE ON AND SHALL HAVE AT LEAST ONE MEMBER ED TEST AND BALANCE ENGINEER THAT HAS FINAL REPORTS SHALL BE SIGNED BY THIS AND SHALL INCLUDE HIS OFFICIAL STAMP. REVIEW. BOTH A PRELIMINARY AND FINAL

TRUMENTS, ETC., REQUIRED FOR TESTING. JIPMENT WHICH OCCURS AS A RESULT OF MADE FOR RAVERSE PURPOSES WITH IS NOT ACCEPTABLE.

VING THE BUILDING SHALL BE COMPLETELY EAVES, DAMPERS, AND OTHER VOLUME AND IN THE AIR QUANTITIES REQUIRED.

LY NOTIFY THE ENGINEER OF ANY CONDITION THE EQUIPMENT TO DELIVER THE INDICATED

ALL FAN SYSTEMS INDICATING OUTSIDE AIR ED BY UNIT NUMBER.

FOR ALL FANS AND FAN MOTORS INSTALLED ONDITIONS:

AND TOTAL).

EINAFTER SPECIFIED. TESTS SHALL BE MADE RING IS APPLIED OR PIPING PAINTED OR IS AND GROUPS OR RISERS ARE COMPLETED. ARE NOT DESIGNED TO WITHSTAND PIPE TEST PROTECTED AGAINST DAMAGE DURING SUCH

ND SERVICES SHALL BE PROVIDED AND ALL NSTALLATION OF THE DUCTWORK, DAMPERS ECESSARY TO MAKE THE SYSTEM COMPLETE SHALL BE PERFORMED.

CORDANCE WITH REQUIREMENTS OF ALL

ACCORDANCE WITH MANUFACTURERS OF APPLICABLE CODES.

ND LEVEL WITH JOINTS SQUARE AND DEVOID INIMIZE DIRECTIONAL CHANGES AND ABRUPT ACE AROUND DUCTS TO ASSURE PROPER ON OF THE INSULATION SPECIFIED. INSTALL ED INTO THE MAIN DUCT.

WORK IN ACCORDANCE WITH THE LATEST IETAL AND AIR CONDITIONING CONTRACTORS RIALS AND EQUIPMENT SHALL COMPLY WITH 00A AND THE LOCAL AUTHORITIES HAVING

BE MADE OF BEST BLOOM GALVANIZED IRON 1 DIMENSION

NDICATED IN SMACNA MANUALS ARE THE ING OR SUPPORTS SHALL BE INSTALLED TO WHEN THE SYSTEMS ARE OPERATING OR

E.) ALL LONGITUDINAL SEAMS SHALL BE PITTSBURGH TYPE SEAMS LOCATED AT THE CORNERS.

F.) DUCT SEALANT SHALL BE 3M CO. TYPE EC-800 SEALING COMPOUND OR EQUIVALENT.

M-14 HANGERS AND SUPPORTS A.) GENERAL:

1.) PROVIDE HANGERS AND SUPPORTS TO SUPPORT THE WEIGHT OF DUCTS AND ASSOCIATED EQUIPMENT WITHIN THE DUCT RUN. FASTEN HANGERS AND SUPPORTS TO CONCRETE STRUCTURE BY INSERTS OR EXPANSION ANCHORS.

B.) HORIZONTAL DUCTWORK:

1.) FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 2 FT² OR LESS, HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY $\frac{1}{16}$ " STEEL STRAP. FOR DUCTS WITH A CROSS-SECTIONAL AREA OF OVER 2 FT² HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY ¹/₈" STEEL STRAP.

2.) FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 4 FT² OR LESS, HANGERS SHALL BE NO MORE THAN 8 FT APART; FOR DUCTS WITH A CROSS-SECTIONAL AREA OF MORE THAN 4 FT² BUT NOT OVER 10 FT² HANGERS SHALL BE NO MORE THAN 6 FT APART, AND FOR DUCT WITH A CROSS-SECTIONAL AREA OF MORE THAN 10 FT² HANGERS SHALL BE NO MORE THAN 4 FT. APART. THE DISTANCES BETWEEN HANGERS SHALL BE MEASURED LINEARLY ALONG THE DUCT.

3.) STRAP HANGERS SHALL BE FASTENED TO DUCT WITH SHEET METAL SCREWS ON 2" CENTERS WITH NOT LESS THAN 2 PER VERTICAL SIDE. FOR DUCTS OVER 48" WIDE, STRAP HANGERS SHALL BE EXTENDED AROUND BOTTOM DUCT NOT LESS THAN 2" FROM EACH EDGE WITH AT LEAST ONE SHEET METAL SCREW PER LEG.

M-15 TURNING VANES

A.) PROVIDE APPROVED TURNING VANES IN ALL 90 DEGREE SQUARE ELBOWS OF DOUBLE VANE CONSTRUCTION. OF THE SAME MATERIAL AS THE DUCTS IN WHICH THEY ARE INSTALLED.

M-16 ACCESS DOORS IN SHEET METAL

A.) DOORS IN DUCTWORK SHALL BE PROVIDED FOR ACCESS TO ALL APPARATUS, ACCESSORIES, AUTOMATIC CONTROLS, VALVES, AUTOMATIC DAMPERS AND DAMPER MOTORS, SMOKE DETECTORS, AND ALL OTHER AREAS AND EQUIPMENT REQUIRING PERIODIC INSPECTION OR SERVICE.

B.) UNLESS OTHERWISE INDICATED, ACCESS DOORS IN DUCTS SHALL BE 20"x20". FOR DUCTS LESS THAN 24", THE DOOR SHALL BE A MINIMUM OF 12" LONG AND 2" SMALLER THAN THE DUCT WIDTH/HEIGHT DIMENSION, DEPENDING ON LOCATION.

C.) ACCESS DOORS SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND INSTALLED TO WITHSTAND THE SAME TEST PRESSURES WITHOUT DEFORMATION, VIBRATION OR LEAKAGE AS THE DUCTWORK IN WHICH THEY ARE PROVIDED. DOORS INSTALLED IN INSULATED DUCTWORK SHALL BE OF THE DOUBLE INSULATED, REINFORCED PANEL TYPE WITH MINIMUM 18 GAUGE SHEET METAL. ACCESS DOORS IN UN-INSULATED DUCTWORK MAY BE SINGLE PANEL CONSTRUCTION OF NOT LESS THAN 18 GAUGE SHEET METAL. ALL ACCESS DOORS SHALL HAVE HINGES, LOCKING DEVICES, AND RUBBER GASKETS AROUND THE PERIMETER.

D.) DOORS SHALL BE FIT CLOSELY. ROUND SOFT RUBBER GASKETING SHALL BE SECURELY ATTACHED TO THE DOORS BY CEMENT AND RIVETS SHALL BE COUNTERSUNK FOR A CONTINUOUS AIRTIGHT SEAL.

M-17 DAMPERS

A.) PROVIDE VOLUME DAMPERS FOR NEW DUCT SYSTEMS IN EACH BRANCH DUCT, WHERE INDICATED. AND WHERE REQUIRED TO ACCOMPLISH AIR BALANCE. VOLUME DAMPERS TO BE FABRICATED WITH 16 GAUGE GALVANIZED STEEL WITH INTERLOCKING BLADES AND HEMMED EDGES SET IN A GALVANIZED STEEL FRAME. PROVIDE SINGLE BLADE BUTTERFLY TYPE DAMPERS WITH MAXIMUM ASSEMBLY LENGTH OF 48 INCHES. FOR LONGER LENGTHS USE MULTIPLE ASSEMBLIES INSTALLED SIDE BY SIDE.

B.) U.L. APPROVED FIRE DAMPERS SHALL BE INSTALLED IN ALL DUCTS PIERCING FIRE RATED WALLS, FLOORS OR CEILINGS WHETHER SPECIFICALLY INDICATED ON DRAWINGS OR NOT; EXCEPT FOR KITCHEN EXHAUST DUCTS. DAMPERS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA-90A AND LOCAL CODES. FIRE DAMPERS SHALL BE SHUTTER TYPE WITH MINIMUM 1¹/₂ HOUR RATING IN ACCORDANCE WITH NFPA 252. DAMPER SHALL BE RUSKIN OR AS APPROVED. FIRE DAMPER SHALL COMPLY WITH REQUIREMENTS OF UL 555.

M-18 FLEXIBLE CONNECTIONS

A.) FOR AIR OUTLETS PROVIDE INLET CONNECTIONS OF NEOPRENE COATED AND IMPREGNATED FIBERGLASS CLOTH REINFORCED WITH CONTINUOUS GALVANIZED WIRE HELIX AND PREINSULATED WITH 1¹/₄" THICK FIBERGLASS COVERED WITH REINFORCED ALUMINUM FOIL, FLEXIBLE TUBING CORP., "THERMALFLEX" TYPE M-KN (TEMPERATURE RANGE 0-250°F). CUT BACK INSULATION 4" FROM EACH END. SEAL ALL INSULATION ENDS AND JOINTS VAPORTIGHT. LIMIT THE FLEXIBLE CONNECTION LENGTH TO FOUR FEET MAXIMUM. SECURELY FASTEN THE FLEXIBLE RUNOUTS TO THE DUCTWORK. SLIP THE FLEXIBLE CONNECTION OVER A 4" LONG MATCHING SHEET METAL SLEEVE OR FITTING IN THE DUCT PREPARED WITH SEALING COMPOUND. CLAMP THE FLEXIBLE RUNOUT SECURELY TO THE DUCT WITH A 1" WIDE, 18 GAUGE GALVANIZED STEEL, BOLTED CLAMPING COLLAR. REINFORCE THE JOINT WITH SHEET METAL SCREWS AND SEALING COMPOUND.

B.) FAN, CV AND VAV BOX INLET AND DISCHARGE CONNECTIONS SHALL BE MADE WITH FLEXIBLE MATERIAL SO AS TO PROHIBIT THE TRANSFER OF VIBRATION FROM FANS TO DUCTWORK. CONNECTIONS SHALL BE MADE OF HEAVY VINYL AND NEOPRENE CLOTH.

C.) THE FLEXIBLE CONNECTIONS SHALL BE APPROXIMATELY 6" LONG AND HELD IN PLACE WITH HEAVY METAL BANDS OR DOUBLE HEMLOCK SECURELY ATTACHED TO PREVENT ANY LEAKAGE AT THE CONNECTION POINTS.

M-19 INSULATION - GENERAL REQUIREMENTS

A.) ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES, SHALL BE PROVIDED. ALL OPERATIONS REQUIRED FOR COMPLETE INSTALLATION OF INSULATION AND RELATED WORK AS INDICATED ON THE DRAWING, OR SPECIFIED HEREIN, SHALL BE PERFORMED. THE EXECUTION OF THE WORK SHALL BE IN STRICT ACCORDANCE WITH THE INSULATION MANUFACTURER'S RECOMMENDATIONS AND THE BEST PRACTICE OF THE TRADE.

B.) NO INSULATION SHALL BE APPLIED UNTIL ALL TESTS HAVE BEEN COMPLETED. ONLY INSULATION AND FINISH MATERIALS INCLUDING ADHESIVES, CEMENTS AND MASTICS WHICH CONFORM TO THE REQUIREMENTS OF ALL GOVERNING CODES AND ORDINANCES SHALL BE USED.

C.) ANY EXISTING INSULATION AND SURFACE FINISH DISTURBED OR DAMAGED BY THE INSTALLATION OF NEW EQUIPMENT OR OTHER ALTERATIONS TO THE SYSTEM SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

M-20 DUCT A.) THE NOT ALF

M-24 ELECT A.) THE UNDER WIRED NECESS SECTION THE MO

M-25 ELECT M-26 AIR OL

	OLA Consulting Engineers
M-20 <u>DUCT INSULATION</u> A.) THE CONTRACTOR SHALL NOTE THAT ALL NEW AND EXISTING DUCTWORK THAT IS NOT ALREADY INSULATED SHALL BE INSULATED AS PART OF THIS PROJECT.	50 Broadway, Hawthorne, NY 10532 914.747.2800 8 West 38th Street,
B.) COVERINGS AND LININGS INCLUDING ADHESIVES WHERE USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX NOT MORE THAN 50, WHEN TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723, USING THE SPECIMEN PREPARATION AND MOUNTING PROCEDURES OF ASTM E2231.	CONSULTING ENGINEERS Suite 501 New York, NY 10018 646.849.4110 olace.com
C.) ALL CONCEALED AIR CONDITIONING SUPPLY AND RETURN DUCTWORK, INCLUDING SUPPLY AND RETURN DUCTWORK RUNNING THROUGH RETURN AIR PLENUM ABOVE HUNG CEILING, SHALL BE COVERED WITH WITH 2" THICK R-6 FLEXIBLE FIBROUS GLASS BLANKET, MINIMUM DENSITY 1½ POUNDS PER CUBIC FOOT, MAXIMUM K-FACTOR: 0.27 AT 75°F MEAN TEMPERATURE, TEMPERATURE RANGE: 40°F TO 250°F FACTORY APPLIED VAPOR BARRIER FACING OF MINIMUM 0.7 MIL ALUMINUM FOIL LAMINATED TO FIRE RESISTANT KRAFT PAPER AND REINFORCED WITH GLASS FIBERS: 0.02 PERMEABILITY.	CLIENT
D.) ALL DUCTWORK EXPOSED TO VIEW IN MECHANICAL ROOMS, WHICH IS NOT INTERNALLY INSULATED, SHALL BE COVERED WITH 1½" THICK RIGID BOARD TYPE MINERAL FIBER OR GLASS WITH A RESIN BINDER, MINIMUM DENSITY: 3 POUNDS PER CUBIC FOOT, MAXIMUM K-FACTOR: 0.27 AT 75°F MEAN TEMPERATURE, TEMPERATURE RANGE: 35°F TO 350°F, FACTORY APPLIED VAPOR BARRIER JACKET OF ALUMINUM FOIL LAMINATED TO FIRE RESISTANT KRAFT PAPER AND REINFORCED WITH GLASS FIBERS: 0.02 PERMEABILITY.	
E.) ALL INSULATION SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS WITH ADHESIVE AND COPPER CLAD WIRE FOR FLEXIBLE TYPE AND MECHANICAL FASTENERS FOR RIGID TYPE. SEAL ALL SEAMS AND JOINTS VAPOR-TIGHT WITH FIRE RETARDANT, VAPOR BARRIER SEALANT.	
F.) INTERNAL INSULATION EXPOSED TO AIRSTREAM SHALL PROVIDE DURABILITY IN ACCORDANCE WITH UL 181.	
G.) ALTERNATE MANUFACTURERS: 1.) CERTAIN TEED 2.) OWENS-CORNING	
M-21 <u>ACOUSTIC TREATMENT</u> A.) ALL SUPPLY AND RETURN DUCTWORK WITHIN 20' OF FANS OR WITHIN 5' OF VAV AND CV BOX DISCHARGE, AND ALL TRANSFER AIR DUCTWORK SHALL BE INSTALLED WITH 1" ACOUSTIC LINING. SUCH ACOUSTIC LINING SHALL BE FLEXIBLE GLASS FIBER DUCT LINER; ANSI/ASTM C553 WITH "K" VALUE OF 0.24 AT 75°F; 1.5 LBS./CU. FT. MINIMUM DENSITY; COATED ON AIR SIDE FOR MAXIMUM VELOCITY OF 4000 FEET PER MINUTE; APPROVED BY THE NFPA.	
B.) STAPLING METHOD OF ATTACHMENT SHALL NOT BE PERMITTED. MAT-FACED DUCT LINER SHALL BE ADHERED BY A FIRE RETARDANT ADHESIVE SUCH AS BENJAMIN FOSTER 81-99 OR EQUIVALENT. MECHANICAL FASTENERS WHICH DO NOT PIERCE THE SHEET METAL SHALL BE INSTALLED ON 16" CENTERS ON TOP SECTIONS (WHEN WIDTH EXCEEDS 12").	
C.) ALL EXPOSED EDGES OF ACOUSTIC LINING SHALL BE INSTALLED WITH SHEET METAL NOSING AND CAULKED.	
M-22 VAV AND CV BOXES - NOT USED.	
M-23 <u>VIBRATION ISOLATION</u> A.) ALL SUSPENDED AHUS SHALL BE SUPPORTED WITH STEEL COMPRESSION SPRING AND NEOPRENE OR RUBBER ISOLATED UNIT WITHIN A STEEL HOUSING OR RETAINER LOCATED IN HANGER RODS. MINIMUM COMBINED STATIC DEFLECTION $1\frac{1}{2}$ ". MINIMUM SPRING RUNOUT - $\frac{1}{2}$ ". MASON INDUSTRIES, INC TYPE DNH.	
M-24 <u>ELECTRIC WIRING</u> A.) THE ELECTRICAL CONTRACTOR WILL ERECT ALL STARTING EQUIPMENT FURNISHED UNDER THIS SECTION, EXCEPT STARTERS SPECIFIED TO BE FACTORY MOUNTED AND WIRED AS ALL INTEGRAL PART OF THE EQUIPMENT, AND WILL DO ALL WIRING NECESSARY TO SUPPLY POWER TO THE ELECTRIC MOTOR PROVIDED UNDER THIS SECTION, INCLUDING POWER TO THE STARTERS AND CONNECTIONS FROM STARTERS TO THE MOTORS.	
B.) THIS CONTRACTOR SHALL INSTALL ALL MOTOR CONTROL, TEMPERATURE CONTROL WIRING AND INTERLOCK WIRING EXCLUSIVE OF MOTOR POWER WIRING.	
M-25 ELECTRIC MOTOR CONTROLS - NOT USED.	
M-26 <u>AIR OUTLETS</u> A.) ALL OUTLET TYPES SHALL BE TESTED IN ACCORDANCE WITH ADC STANDARDS AND SHALL BEAR AN ADC LABEL. PROVIDE NEW AIR OUTLETS OF SIZE AND TYPE AS INDICATED ON THE DRAWING. CEILING DIFFUSERS SHALL BE ALUMINUM AND COMPLETE WITH GASKETS, OPPOSED BLADE DAMPERS AND CONTROL GRIDS. RETURN REGISTERS SHALL BE SINGLE DEFLECTION GRILLES WITH OPPOSED BLADE DAMPERS.	1 ISSUED FOR CLIENT REVIEW 03/20/2023 No. ISSUE OR REVISION DATE
B.) CEILING OUTLETS SHALL BE FACTORY FINISHED WITH OFF-WHITE ENAMEL, OR AS OTHERWISE NOTED/APPROVED BY ARCHITECT/OWNER.	No use, reproduction or dissemination may be made of this drawing and the concepts set forth without the prior written consent of OLA Consulting Engineers, PC. Copyright © 2023
C.) ACCEPTABLE MANUFACTURERS: 1.) TITUS 2.) NAILOR 3.) PRICE	PROJECT TITLE JOHN C. HART MEMORIAL LIBRARY 1130 MAIN STREET SHRUB OAK, NY
	DRAWING TITLE MECHANICAL SPECIFICATIONS 1 OF 3
	SEAL SEAL SEAL SEAL SCALE AS NOTED DRAWN BY DRAWING NO. AE CHECKED BY RJ DATE DATE

03/03/2023

SPECIFICATIONS CONTINUED

M-27 PIPE INSULATION

A.) INSULATE ALL NEW PIPING WITH PRE-FORMED PIPE INSULATION. INSULATION SHALL HAVE A MAXIMUM FLAME SPREAD INDEX OF 25 AND A SMOKE-DEVELOPED INDEX NOT EXCEEDING 450. PIPE INSULATION INSTALLED WITHIN AIR PLENUMS SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723. REFER TO PIPE INSULATION SCHEDULE FOR INSULATION THICKNESS.

B.) PIPING VALVES AND FITTINGS ON ALL INSULATED PIPES SHALL BE PROVIDED WITH FABRICATED SECTIONS OF INSULATION OR PRE MOLDED FITTING COVERS EQUAL IN THICKNESS AND MATERIAL TO ADJOINING PIPE INSULATION.

C.) ALL INSULATION SHALL BE APPLIED AS PER MANUFACTURER'S RECOMMENDATIONS WITH USE OF 2" STRIPS AT ALL SEAMS SECURED WITH ADHESIVE. ALL SEAMS AND JOINTS SHALL BE VAPOR SEALED USING VAPOR BARRIER TAPE AND VAPOR SEAL ADHESIVE. STAPLES ARE NOT PERMITTED. ALL INSULATION AND VAPOR BARRIERS SHALL BE CONTINUOUS THROUGH SLEEVES, HANGERS, ETC. INSULATION FOR STRAINERS AND OTHER FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.

D.) ALTERNATE MANUFACTURERS:

1.) ARMSTRONG, MANVILLE OR OWENS-CORNING

E.) PIPE INSULATION JACKETING: SHALL BE WHITE ZESTON 2000 PVC COVERS FOR PIPING AND FITTINGS. JACKET ALL PIPING AND FITTING THAT ARE EXPOSED IN ANY ROOM.

F.) REFRIGERANT PIPING: EXPANDED CLOSE CELL FLEXIBLE ELASTOMERIC INSULATION; ASTM E 84-91A, 'K' VALUE OF 0.27 AT 75°F; FLAME SPREAD RATING OF 25 OR LESS, SMOKE DEVELOPED RATING OF 50 OR LESS. PERMEABILITY OF 0.1, ONE-PIECE OR SELF-SEALING. THICKNESS AS PER SCHEDULE. OUTDOOR APPLICATION SHALL BE FINISHED AS PER MANUFACTURERS RECOMMENDATIONS. FIELD FABRICATE FITTING AND VALVE INSULATION WITH MITER CUTS, SEAL ALL JOINTS AND SEAMS WITH ADHESIVE. ARMSTRONG AP ARMAFLEX OR EQUAL.

G.) PIPE LABELS: SHALL BE SETON ULTRA-MARK WEATHER RESISTANT FOR OUTDOOR APPLICATION AND OPTI-CODE FOR INDOOR APPLICATION. LETTERS AND ARROWS SHALL BE 2¹/₂" HIGH AND SHALL BE WHITE ON A GREEN BACKGROUND AND SHALL CONFORM TO ANSI AND OSHA STANDARDS. APPLY OVER INSULATION ONLY.

M-28 PIPING INSTALLATION - GENERAL REQUIREMENTS

A.) REFER TO DRAWINGS FOR REQUIRED PIPING LAYOUTS. CONNECTION DETAILS INDICATE REQUIRED PIPING AT VARIOUS PIECES OF EQUIPMENT. FLOOR PLANS INDICATE GENERAL ROUTING OF PIPING. SPECIFICATIONS DEFINE MATERIALS, INSTALLATION REQUIREMENTS AND SUPPLEMENTARY REQUIREMENTS TO THOSE SHOWN ON DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE SYSTEM BASED ON ALL DOCUMENTATION PROVIDED. TO EQUIPMENT SCHEDULES FOR NOMINAL FLOW RATES. FINAL SIZING SHALL BE BASED ON FLOW RATE OF CONTRACTOR PURCHASED EQUIPMENT.

B.) PIPING SHALL BE INSTALLED IN STRAIGHT PARALLEL RUNS, PARALLEL TO PIPING OF OTHER TRADES. ROUTING SHALL BE COORDINATED WITH PIPING AND CONDUIT RUNS OF OTHER TRADES.

C.) ALL PIPE SHALL BE NEW, CLEAN, OF DOMESTIC MANUFACTURE, AND MARKED WITH APPROPRIATE STANDARD.

D.) PIPING SHALL BE INSTALLED TO MINIMIZE TURBULENCE AND PREVENT NOISE AND WATER HAMMER. WATER PIPING SHALL PITCH 1" IN 40 FEET, UPWARD IN DIRECTION OF FLOW. PROPER PROVISION SHALL BE MADE FOR EXPANSION AND CONTRACTION IN ALL PORTIONS OF PIPEWORK, TO PREVENT UNDUE STRAINS ON PIPING OR EQUIPMENT. ALL PIPE SHALL BE SUITABLY REINFORCED AT ALL ANCHOR POINTS.

E.) PIPE SUPPORTS SHALL BE SPACED, REDUCERS ARRANGED AND PIPING PITCHED TO ALLOW AIR TO BE VENTED TO SYSTEM HIGH POINTS AND TO ALLOW THE SYSTEM TO BE DRAINED AT THE LOW POINTS. DRAIN VALVES WITH HOSE CONNECTIONS SHALL BE PROVIDED AT THE BASE OF EACH RISER, AT ALL LOW POINTS AND WHEREVER REQUIRED TO PERMIT COMPLETE DRAINING OF ALL LINES.

F.) RUN OUTS, AND CONNECTIONS TO EQUIPMENT, SHALL BE PROVIDED WITH A SWING JOINT OR FLEXIBLE CONNECTION TO WITHSTAND EXPANSION AND CONTRACTION. RISERS SHALL HAVE SWING JOINTS COMPOSED OF AT LEAST 4 ELBOWS.

G.) ALL CHANGES IN SIZE AND DIRECTION OF PIPING SHALL BE MADE WITH FITTINGS. DO NOT USE MITER FITTINGS. FACE OR FLUSH BUSHINGS. CLOSE NIPPLES OR STREET ELBOWS. ALL NIPPLES (PIPE LESS THAN 3" LONG) SHALL BE EXTRA HEAVY.

H.) ALL BRANCH CONNECTIONS SHALL BE MADE WITH TEES, EXCEPT THAT ON STEEL PIPING FORGED STEEL "WELDOLETS" AND "LATROLETS" AS MANUFACTURED BY BONNEY FORGE MAY BE USED WHERE THE BRANCH PIPE IS AT LEAST TWO NOMINAL PIPE SIZES LESS THAN THE MAIN PIPE.

I.) ECCENTRIC REDUCING FITTINGS OR ECCENTRIC REDUCING COUPLINGS SHALL BE USED WHERE REQUIRED BY THE CONTRACT DOCUMENTS OR WHERE REQUIRED TO PREVENT POCKETING OF LIQUID OR NON- CONDENSIBLES.

J.) FITTINGS SHALL BE FACTORY MANUFACTURED. SHOP OR FIELD FABRICATED FITTINGS ARE NOT ACCEPTABLE. WELDING FITTINGS SHALL BE "TUBE-TURNS" OR EQUIVALENT. FITTINGS SHALL HAVE THE SAME PRESSURE RATING AS THE SYSTEM IN WHICH THEY ARE INSTALLED.

K.) ELECTROLYTIC COUPLINGS OR UNIONS SHALL BE INSTALLED BETWEEN COPPER AND STEEL PIPE.

L.) ALL JOINTS SHALL BE MADE IN A WORKMANLIKE MANNER USING CLEAN THREADS, DEBURRED PIPE AND PROPER MATERIALS. ALL JOINTS SHALL CONFORM TO THE APPLICABLE ANSI AND ASTM STANDARDS. QUALIFY WELDERS TO THE CODE FOR PRESSURE PIPING ANSI SPECIFICATIONS B31.1, WITH CERTIFICATION BY THE WELDING BUREAU OF HEATING, PIPING AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. ASME STAMP SHALL BE PROVIDED AS REQUIRED.

M.) RUN OUTS, AND CONNECTIONS TO EQUIPMENT, SHALL BE PROVIDED WITH A SWING JOINT OR FLEXIBLE CONNECTION TO WITHSTAND EXPANSION AND CONTRACTION. RISERS SHALL HAVE SWING JOINTS COMPOSED OF AT LEAST 4 ELBOWS.

N.) PIPING MATERIALS: REFER TO PIPING MATERIAL SCHEDULE.

SERVICE	SIZE	MATERIAL	TYPE/ STANDARD/WEIGHT
REFRIGERANT	ALL	COPPER	HARD/ASTM B88/TYPE K

O.) PIPE FITTINGS: REFER TO PIPING MATERIAL SCHEDULE.

SERVICE	SIZE	MATERIAL	TYPE/ STANDARD/WEIGHT
REFRIGERANT	ALL	COPPER	SILVER SOLDER/300 PSI ANSI B16.22

P.) PIPE 1.) A SHA LAR THE THE

Q.) CLE 1.) A WH AND

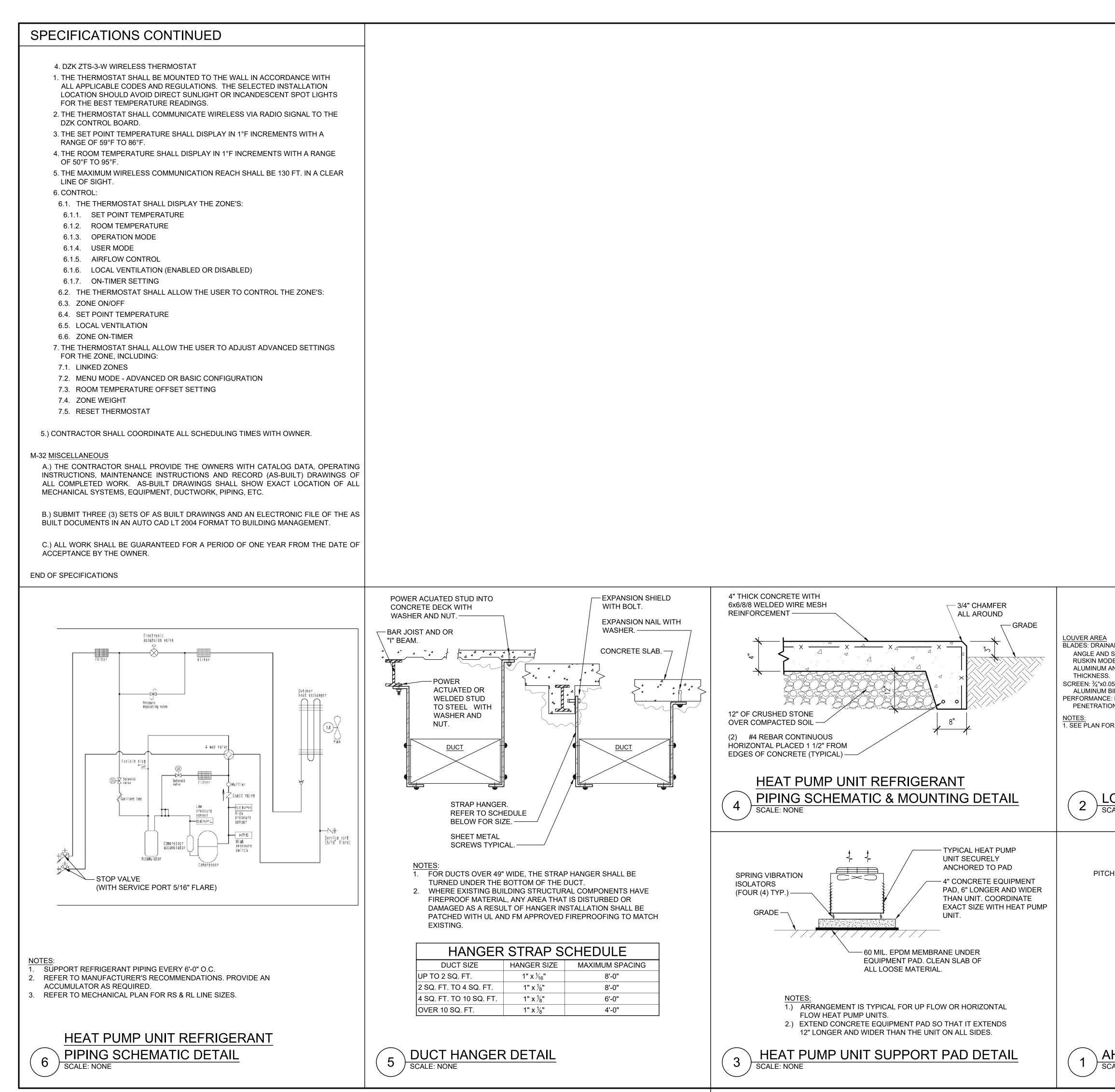
R.) HAN 1.) PRE SUF FOR SPE SPE

PME ELECTION OF SUPERVISE USA VALET RESERVENCE - OF USED USA VALET RESERVENCE - OF USED PME ELECTION OF THE ALL TOTS REPORT THE ALL TOTS REPORT THE ALL TOTS REPORT ALL TOTS REPORT THE ALL TOTS REPORT ALL TOTS REPORT THE ALL TOTS REPORT ALL T			
 Bell LI, MOLTON DY HE BELLES AND LE DE LE HER LE HE		M-29 <u>WATER TREATMENT</u> - NOT USED.	C.) OP1 1. MER
 A BENDER BALL BE REAL DE TRADECIONER CONCELLAR DE ALTRADECIÓN DE LA DEL CONTRE LA DE LA DEL CONTRE L	SHALL BE PROVIDED WITH SLEEVES HAVING AN INTERNAL DIAMETER AT LEAST 2" LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR UNINSULATED LINES OR OF THE INSULATION FOR INSULATED SERVICES. SLEEVES SHALL BE LOCATED SO THAT	A.) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES, AND PERFORM ALL	FILTI D.) SEC 1. THE 1.1.
 Hall And An and The Marger of the Barry on Proper formation of the Control of the C	WITH FINISHED SURFACE; SLEEVES THROUGH OUTSIDE WALLS SHALL PROJECT 1/2" ON EACH SIDE OF THE FINISHED WALL; FLOOR SLEEVES SHALL PROJECT 1" ABOVE	DEVICES, THERMOSTATS, VALVES, SWITCHES, PANELS AND CONTROL WIRING TO PROVIDE THE DESCRIBED FUNCTIONS. PROVIDE INFORMATION TO THE ELECTRICAL CONTRACTOR REQUIRED TO PERMIT INSTALLATION OF POWER WIRING TO ANY CONTROL	1.2. 1.2. 1.2.2 2. DZK
 L. BOLCHENN BALL, BE PORVINC IN EACH ADDRESS AND BALL STATE ADDRESS AND ADDRE	INSULATION AND THE INSIDE OF THE SLEEVE OR FRAMED OPENING SHALL BE FILLED	WHICH SHALL HOUSE ALL RELAYS, DEVICES, SWITCHES, TRANSFORMERS, TERMINAL STRIPS, ETC., AS REQUIRED FOR THE COMPLETE TEMPERATURE CONTROL OF THE	GENER 1. EACI 2. THE
CAULEDOCTIONED WILL BE LENDOR AND LINES PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL CAUNA SCHURDSY MILLIONNE CONTRUM MARKEN SCHURDSY MILLIONNE CONTRUM PARENDAL MARKEN SCHURDSY MILLION	THROUGH THE STRUCTURE FOR ALL PIPES EXPOSED TO VIEW PASSING THROUGH FURRING, WALLS, FLOORS, CEILING AND PARTITIONS, WHETHER INSULATED OR NOT. FOR PIPES PASSING THROUGH FLOORS, AND EXTERIOR WALLS, ESCUTCHEONS SHALL	D.) ALL CONTROLS SHALL BE THE PRODUCT OF ONE (1) MANUFACTURER AND ALL COMPONENTS SHALL BE U.L. APPROVED WHERE APPLICABLE. SYSTEM SHALL BE THE LATEST TOP QUALITY EQUIPMENT AND SHALL BE INSTALLED COMPLETE IN ALL RESPECTS BY COMPETENT MECHANICS, REGULARLY EMPLOYED BY THE MANUFACTURER OF THE	INSU 3. THE DIRE 4. THE CAP, RES
C SAUGUS LINE PERKUNDANA SELEMENT BALLE RUNCES SELEMENT Maximum Selement Selement Baller RUNCES SELEMENT Maximum Selement Selement Selement Baller RUNCES SELEMENT Maximum Selement Selement Selement Baller RUNCES SELEMENT Maximum Selement Selemen	,	MANUFACTURED BY THE CONTROL MANUFACTURER.	DAM 5. THE ENC
 a Jarter Bartau Annuelle Commerter Tremposate grapher Bask. Ber Auffahren Jarter Bartau Hannes Bartau	1.) ALL OPEN ENDS OF PIPING, VALVES AND EQUIPMENT SHALL BE PLUGGED EXCEPT WHEN ACTUAL WORK IS BEING PERFORMED, TO MINIMIZE ACCUMULATION OF DIRT	MANUFACTURER SHALL REGULATE AND ADJUST ALL THERMOSTATS, CONTROL VALVES, ETC., AND PLACE THEM IN COMPLETE OPERATING CONDITION SUBJECT TO THE REVIEW OF THE ENGINEERS. COMPLETE INSTRUCTIONS SHALL BE GIVEN TO THE OPERATING	6. THE BOA CON
 A DE MAS INSTALLES SAULTES LEADING D'UN ON L'ELADING LINE PERSON aux DE MAS INSTALES E BLORING D'UN OFFICE COMPARIES IN DE L'AUXIES EN LE REALIZE D'UN D'UN D'UN D'UN D'UN D'UN D'UN D'UN	CONNECTIONS TO ALL EQUIPMENT AND AT AUTOMATIC CONTROL VALVES WHERE PERMANENT STRAINERS ARE NOT PROVIDED.	WORKMANSHIP AND MATERIAL UNDER NORMAL USE AND SERVICE. IF, WITHIN ONE (1) YEAR FROM DATE OF ACCEPTANCE BY THE OWNER, ANY EQUIPMENT HEREIN DESCRIBED IS PROVED TO BE DEFECTIVE IN WORKMANSHIP OR MATERIAL, IT SHALL BE ADJUSTED,	1. THE CON 2. AMB
1) The product profile Market State 1) The product profile Market Market State 1) The product profile Market Market State 1) The product profile Market Market Market Market State 1) The profile Market Mark	HYDROSTATIC TEST SHALL BE FLUSHED OUT WITH CLEAN WATER. PIPING THAT IS TO BE AIR OR GAS PRESSURE TESTED SHALL BE BLOWN OUT WITH COMPRESSED AIR. DIRT AND DEBRIS COLLECTED AT SCREENS STRAINERS, AND OTHER POINTS FROM	LAMINATED IN CLEAR PLASTIC. PROVIDE IDENTIFYING TAGS ON ALL CONTROLS TO	CONTR 1. THE INDC
1) Subject 1) Subj	SHIPMENT. THE PIPE AND FITTINGS SHALL BE DIPPED INTO A SOLUTION OF SULPHURIC ACID TO REMOVE THE MILL SCALE AND THEN INTO A SOLUTION TO STOP THE CHEMICAL ACTION ON THE METAL AND REMOVE GREASE.	CONDUIT AND/OR PIPING SHALL BE CONCEALED IN ALL SPACES EXCEPT IN MECHANICAL EQUIPMENT ROOMS AND UNFINISHED SPACES, AND SHALL BE INSTALLED IN PARALLEL BANKS WITH ALL CHANGES IN DIRECTIONS MADE AT 90 DEGREE ANGLES. CONTROL AND INSTRUMENT WIRING SHALL NOT BE INSTALLED ON DUCTWORK. WIRING AND PIPING SHALL BE SECURED TO THE BUILDING STRUCTURE, SUCH AS WALLS, COLUMNS,	BOX ZON (HEA 2. THE RESI WIRE
2) PPRN SHALL BE SEQUEELY FASTENED TO THE STRUCTURE WITHOUT AND STRUCTURE WITH STRUCTURE WITH AND STRUCTURE WITH STRUCT	PRECLUDE FAILURE OR DEFORMATION. CONSTRUCT AND INSTALL HANGERS, SUPPORTS, ANCHORS, GUIDES AND ACCESSORIES IN CONFORMANCE WITH THE CODE FOR PRESSURE PIPING ANSI B-31.1 AS A MINIMUM REQUIREMENT. WHERE SPECIFICATION REQUIREMENTS ARE MORE STRINGENT THAN THE CODE, THE	I.) ALL CONTROLLERS SHALL BE OF THE FULLY PROPORTIONING TYPE AND SHALL BE PROVIDED WITH AN ADJUSTABLE THROTTLING RANGE, MINIMUM RANGE SHALL BE 1°F. ALL ROOM THERMOSTATS SHALL BE LOCATED AS SHOWN ON THE PLANS. ALL	DAM 4. THE MAT INCL 4.1.
OF INSERTS, OR IF GREATER LOAD CAREFUNG CAPACITY IS REQUIRED, BY MERANGE 622 STEEL, ISPAN, THE CONCENTS, AND CALED TO PERAIT FREE EXPANSION AND CONTRACTION. 53 31 UNITES OTHERWISE NUMCED TO ALL PORZOTTAL PINKS SMALL BE LOAD THE LOAD T	OVERSTRESSING ANY PORTION OF THE SUPPORTS OF THE STRUCTURE ITSELF. SUFFICIENT INTERMEDIATE STEEL SHALL BE PROVIDED TO TRANSFER LOADS TO AREAS WHERE THEY CAN SAFELY BE ACCOMMODATED. PIPE SUPPORTS, ANCHORS AND GUIDES SHALL BE SECURED TO STEEL BY WELDED BRACKETS, BEAM CLAMPS,	FÚTURE RELOCATION OF THERMOSTATS. EXCESS CONTROL WIRING SHALL BE NEATLY BUNDLED AND SECURED.	4.2. 4.3. 5. OPE 5.1.
3.) UNLESS OTHERWISE INDICATED, ALL HORIZOTTAL PPING SHALL BE HUNG TIGHT 5.4. 10 COLLING BERMS AND LOCATED MORE THAN SIX FEET ASON THE FLOOR. PPING SHALL BE SUPPORTED ON FABRICATED LOCATED WITHIN SIX FEET OF THE FLOOR SHALL BE SUPPORTED ON FABRICATED CONTROL SYSTEM COMPONENTS. LABELED WITH SETTINGS, AND ADJUSTABLE FANGE STADD OR PRESS. WHERE PINON RUNS. LOOK WALLS. SUITABLE WALL TYPE AND GANG-TYPE HANGERS SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFLECTION SHALL BE SUPPORTED AT ALL CHANGES INDUCED AND THE AND DUBLE SOLAR STATE SHALL BE COOPER TUBING SHALL DE NOT TO C. 5.1 HIE MAXED ROD DUBLE ROD HANGERS SHALL CONFORM THE MINING SUPPORTED AT ALL CONFORMERS SHALL FURNISH THE MINING SUPPORTS SHALL BE SUPPORTS SHALL FURNISH THE MINING SUPPORTS SHALL BE SUPPORTS SHALL FURNISH SHALL BE SUPPORTS CONFERENCES STATES AND ALL	OF INSERTS, OR IF GREATER LOAD CARRYING CAPACITY IS REQUIRED, BY MEANS OF STEEL FISHPLATES EMBEDDED IN THE CONCRETE ABOVE THE REINFORCEMENT RODS. ALL HANGERS SHALL BE LOCATED TO PERMIT FREE EXPANSION AND	NÉCESSARY WIRING, VALVES, INTERLOCKS, PANELS, ETC. FOR SYSTEM TO OPERATE AS SPECIFIED IN THE SEQUENCE OF OPERATION.	5.2. 5.3.
LOCATED WITHIN SIX FEET OF THE FLOOR SHALL BE SUPPORTED ON FABRICATED STANDS OR PIERS. WHERE PIER OF THE FLOOR SHALL BE WALL TYPE AND GANG-TYPE HANGERS SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFECTION SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFECTION SHALL DE SUPPORTED AT ALL CHANGES IN DIRECTION MAXIMUM DEFECTION SHALL DE SUPPORTED AT ALL CHANGES SHALL CONFORM SHALL BE: 5.1.00000 (MITS) INCLUDE TARET COPIES OF GRAPHIC DISPLAYS INDICATING CONTROL SOUCE INCLUDE DRAFT COPIES OF GRAPHIC DISPLAYS INDICATING CONTROL LOTON STATUS AND VALUE. 6.1.00000 (MITS) INCLUDE TARET COPIES OF GRAPHIC DISPLAYS INDICATING CONTROL SOUCE INCLUDE DRAFT COPIES OF GRAPHIC DISPLAYS INDICATING CONTROL SOUCE INCLUDE TRAFT COPIES OF GRAPHIC DISPLAYS INDICATING CONTROL SOUCE INCLUDE DRAFT COPIES OF GRAPHIC DISPLAYS INDICATING CONTROL SOUCE INCLUDE TRAFT COPIES OF GRAPHIC DISPLAYS INDICATING CONTROL SOUCE INCLUDE TARET COPIES OF GRAPHICE INCLUDENT STALL BE CONTROL OF DIMETERS. 6.1.00000000000000000000000000000000000			5.4.
4.) PING AND TUBING SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION. B.) INCLUDE FLOW DIRAGEMAS FOR EACH CONTROL SYSTEM. GRAPHICALLY DEPICTING MAXIMUM SPACING BETWEEN SUPPORTS. US SHALL BE: MATERIAL 1/2'-1'1/2' 1/1/2'-2' B.) INCLUDE DRAMS FOR EACH CONTROL. SYSTEM. CONTROL SYSTEM. COMPONENTS, AND CONTROL LOGIC. INCLUDE DRAMS FOR EACH CONTROL SYSTEM. COMPONENTS, AND CONTROLLED FUNCTIONS TATUS AND VALUE. 6.1 COPPER TUBING 6 FT 0.C. 10 FT 0.C. 3.) DESIGN BASIS 3.) DESIGN BASIS 6.1 STEEL PIPE COPPER TUBING PIPE SIZE HANGER ROD OPEN TUBING 9.1 9.1 PIPE SIZE HANGER ROD 0 PIPE SIZE HANGER ROD 0 PIPE SIZE HANGER ROD 0 9.1 9.	LOCATED WITHIN SIX FEET OF THE FLOOR SHALL BE SUPPORTED ON FABRICATED STANDS OR PIERS. WHERE PIPING RUNS ALONG WALLS, SUITABLE WALL TYPE AND	CONTROL SYSTEM COMPONENTS. LABELED WITH SETTINGS, AND ADJUSTABLE RANGE	5.5. 6. USEI TEM
COPPER TUBING 6 FT O.C. 10 FT O.C.	MAXIMUM DEFLECTION SHALL BE 1/8". MAXIMUM SPACING BETWEEN SUPPORTS SHALL BE:	CONTROL LOGIC. INCLUDE DRAFT COPIES OF GRAPHIC DISPLAYS INDICATING MECHANICAL SYSTEM COMPONENTS, CONTROL SYSTEM COMPONENTS, AND	USEI INCL 6.1. 7. THE
5.) HANGER RODS FOR BOTH SINGLE AND DOUBLE ROD HANGERS SHALL CONFORM THE MINIMUM SYSTEM STANDARDS AS DEFINED BY THE BASE BID MODEL NUMBERS. TH TO THE FOLLOWING SCHEDULE OF DIAMETERS: COPPER TUBING MODEL FAMILES OR SA OTHERWISE SPECIFIED ITEMS AND INTENTS OF THIS DOCUMENT 3.02 TI/2" - 1" -3/8" 1/2" - 2" -3/8" -3/8" -3/8" 3.02 1.1/4" - 2" 1/2" -3/8" -3/8" -3/8" 1.02 -3/8" 1.02 2.1/2" - 4" -1/2" 5" - 6" -3/4" -3/8" 1.00 -3/8" 1.00 -3/8" 1.00 -3/8" 1.00 -3/8" 1.00 -3/8" 1.00 -3/8" 1.00 -3/8" 1.00 -3/8" 1.00 -3/8" -3/8" 1.00 -3/8" 1.00 -3/8"	COPPER TUBING 6 FT O.C. 10 FT O.C.	,	CON 8. THE SUPI
HANGER KOUD U PIPE SLZE HANGER KOUD U 1/2"-1" -3/8" 1/2"-2" -3/8" ALL 1-1/4"-2" -1/2" 5"-5" -5/8" -5/8" -0/0" 2-1/2"-4" -1/2" 5"-5" -3/4" -0/0" -0/0" 2.1/2"-4" -1/2" 5"-5" -3/4" -0/0" -0/0" 6.) COPPER PLATED PIPE HANGERS AND SUPPORTS SHALL BE USED FOR VERTICAL ALL BLOOR UNIT -0.1 INDOOR UNIT -0.1 IND	TO THE FOLLOWING SCHEDULE OF DIAMETERS: STEEL PIPE COPPER TUBING	MODEL FAMILIES OR AS OTHERWISE SPECIFIED HEREIN (SEE KEY GENERAL SPECIFICATIONS ALTERNATE SUPPLIER CHECKLIST). IN ANY EVENT THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SPECIFIED ITEMS AND INTENTS OF THIS DOCUMENT	THE 3. DZK
1. THE DAIKIN INDOOR UNIT FXMQ24PB SHALL BE COMPLETELY FACTORY 2. TH 6.) COPPER PLATED PIPE HANGERS AND SUPPORTS SHALL BE USED FOR VERTICAL AND HORIZONTAL EXPLANS OF COPPER OR BRASS PIPE AND TUBING WHERE THE ASSEMBLED AND TESTED. INCLUDED IN THE UNIT IS FACTORY WIRING, PIPING, 3. TH AND HORIZONTAL EXPLANS OF COPPER OR BRASS PIPE AND TUBING WHERE THE FAM MOTOR THERMAL PROTECTOR, FLARE CONNECTIONS, CONDENSATE DRAIN 8. TH SUPPORTS SHALL BE USED. OF FAM MOTOR THERMAL PROTECTOR, FLARE CONNECTIONS, CONDENSATE DRAIN 8. TH 7.) PIPE HANGERS AND SUPPORTS COMPLETE WITH RODS, BOLTS, LOCKNUTS, SUEL-DIAGNOSTICS, AUTO-RESTART FUNCTION, SIMULTE EVESOT TIME DELAY, 4. TH SWIVELS, COUPLINGS, BRACKETS AND ALL OTHER COMPONENTS AND ACCESSORIES GOMMISSIONINUS, THE AIRFLOW BASED ON THE UNIT SHALL BE EQUIPMENT WITH AUTOMATICALLY 5. TH YHANGER TYPES 1. IN GENERAL, HANGERS SHALL BE OF CLEVIS TYPE OR ROLL TYPE WITH VERTICAL AND USTING EXTERNAL STATIC PRESSURE 0. PO 1. IN GENERAL, HANGERS SHALL BE OF CLEVIS TYPE OR ROLL TYPE WITH VERTICAL SOULD WITH AND REFRIGERANT PIPES WILL BE CHARGED WITH DEHYDRATED 6. TH 1. IN GENERAL, HANGERS SHALL BE AS FOLLOWS: COMMON GROUP, THEY 8. THE INDOOR UNITS SHALL BE INSULATED FROM THE OUTDOOR UNIT. 6.1. TH 1. IN GENERAL, HANGERS SHALL BE AS FOLLOWS: COMMON GROUP, THEY 8. DOTH REFRIGERANT LINES SHALL BE INSULATED FROM THE OUTDOOR UNIT. <td>1/2" - 1" - 3/8" 1/2" - 2" - 3/8"</td> <td></td> <td>ALL LOC FOR</td>	1/2" - 1" - 3/8" 1/2" - 2" - 3/8"		ALL LOC FOR
7.) PIPE HANGERS AND SUPPORTS COMPLETE WITH RODS, BOLTS, LOCKNUTS, SWIVELS, COUPLINGS, BRACKETS AND ALL OTHER COMPONENTS AND ACCESSORIES AND TEST RUN SWITCH. THE UNIT SHALL BE EQUIPMENT WITH AUTOMATICALLY ADJUSTING EXTERNAL STATIC PRESSURE LOGIC THAT IS SELECTABLE DURING COMMISSIONING. THIS ADJUSTS THE AIRFLOW BASED ON THE INSTALLED EXTERNAL STATIC PRESSURE. 5. TH ADJUSTING EXTERNAL STATIC PRESSURE LOGIC THAT IS SELECTABLE DURING COMMISSIONING. THIS ADJUSTS THE AIRFLOW BASED ON THE INSTALLED EXTERNAL STATIC PRESSURE. 6. TH 1.) IN GENERAL, HANGERS SHALL BE OF CLEVIS TYPE OR ROLL TYPE WITH VERTICAL ADJUSTMENT. WHERE SEVERAL LINES OF PIPING RUN AS A COMMON GROUP, THEY SHALL BE SUPPORTED ON A COMMON HANGER BAR OF GALVANIZED CHANNEL OR BACK TO BACK ANGLE SECTIONS OR "UNISTRUT" TYPE SUPPORTS. 3. BOTH REFRIGERANT LINES SHALL BE INSULATED FROM THE OUTDOOR UNIT. 6.1. 2.) HANGERS SHALL BE AS FOLLOWS: APPLICATION CENTRAL IRON FIG. NO. CLEVIS HANGER 10 RISER CLAMP - THRU 3" 261 261 5. THE INDOOR UNIT WILL BE SEPARATELY POWERED WITH A RETURN AIR THERMISTOR. 6.5.	6.) COPPER PLATED PIPE HANGERS AND SUPPORTS SHALL BE USED FOR VERTICAL AND HORIZONTAL RUNS OF COPPER OR BRASS PIPE AND TUBING WHERE THE HANGER IS IN DIRECT CONTACT WITH THE PIPE, OTHERWISE STEEL HANGERS AND	1. THE DAIKIN INDOOR UNIT FXMQ24PB SHALL BE COMPLETELY FACTORY ASSEMBLED AND TESTED. INCLUDED IN THE UNIT IS FACTORY WIRING, PIPING, ELECTRONIC PROPORTIONAL EXPANSION VALVE, CONTROL CIRCUIT BOARD, FAN MOTOR THERMAL PROTECTOR, FLARE CONNECTIONS, CONDENSATE DRAIN PAN, CONDENSATE DRAIN PUMP, CONDENSATE SAFETY SHUTOFF AND ALARM,	2. THE ACC 3. THE RAN 4. THE
AIR PRIOR TO SHIPMENT FROM THE FACTORY.AIR PRIOR TO SHIPMENT FROM THE FACTORY.INC1.) IN GENERAL, HANGERS SHALL BE OF CLEVIS TYPE OR ROLL TYPE WITH VERTICAL ADJUSTMENT. WHERE SEVERAL LINES OF PIPING RUN AS A COMMON GROUP, THEY SHALL BE SUPPORTED ON A COMMON HANGER BAR OF GALVANIZED CHANNEL OR BACK TO BACK ANGLE SECTIONS OR "UNISTRUT" TYPE SUPPORTS.AIR PRIOR TO SHIPMENT FROM THE FACTORY.6.1.2.) HANGERS SHALL BE AS FOLLOWS: CLEVIS HANGER 10 RISER CLAMP - THRU 3" 2612.1 HANGER 10 2.3 HANGER 10 RISER CLAMP - THRU 3" 2615. THE INDOOR UNITS SHALL BE EQUIPPED WITH A RETURN AIR THERMISTOR. 2.3 HANGER 10 2.3 HANGER 10 RISER CLAMP - THRU 3" 2616. THE INDOOR UNIT WILL BE SEPARATELY POWERED WITH 208~230V/1-PHASE/60HZ.6. THE INDOOR UNIT WILL BE SEPARATELY POWERED WITH 208~230V/1-PHASE/60HZ.6. THE INDOOR UNIT WILL BE SEPARATELY POWERED WITH 208~230V/1-PHASE/60HZ.	SWIVELS, COUPLINGS, BRACKETS AND ALL OTHER COMPONENTS AND ACCESSORIES	AND TEST RUN SWITCH. THE UNIT SHALL BE EQUIPMENT WITH AUTOMATICALLY ADJUSTING EXTERNAL STATIC PRESSURE LOGIC THAT IS SELECTABLE DURING COMMISSIONING. THIS ADJUSTS THE AIRFLOW BASED ON THE INSTALLED	5. THE POIN FRO OPE
2.) HANGERS SHALL BE AS FOLLOWS: 6.5. <u>APPLICATION</u> CENTRAL IRON FIG. NO. CLEVIS HANGER 10 RISER CLAMP - THRU 3" 261	1.) IN GENERAL, HANGERS SHALL BE OF CLEVIS TYPE OR ROLL TYPE WITH VERTICAL ADJUSTMENT. WHERE SEVERAL LINES OF PIPING RUN AS A COMMON GROUP, THEY SHALL BE SUPPORTED ON A COMMON HANGER BAR OF GALVANIZED CHANNEL OR BACK TO BACK ANGLE SECTIONS OR "UNISTRUT" TYPE SUPPORTS.	AIR PRIOR TO SHIPMENT FROM THE FACTORY. 3. BOTH REFRIGERANT LINES SHALL BE INSULATED FROM THE OUTDOOR UNIT. 4. THE INDOOR UNITS SHALL BE EQUIPPED WITH A CONDENSATE PAN AND CONDENSATE PUMP. THE CONDENSATE PUMP PROVIDES UP TO 18-3/8" OF LIFT FROM THE CENTER OF THE DRAIN OUTLET AND HAS A BUILT IN SAFETY	6. THE INCL 6.1. 6.2. 6.3. 6.4.
RISER CLAMP - OVER 3" 262 B.)CONTROL:	APPLICATION CENTRAL IRON FIG. NO. CLEVIS HANGER 10 RISER CLAMP - THRU 3" 261	 5. THE INDOOR UNITS SHALL BE EQUIPPED WITH A RETURN AIR THERMISTOR. 6. THE INDOOR UNIT WILL BE SEPARATELY POWERED WITH 208~230V/1-PHASE/60HZ. 	6.5. 6.6.
ROLL HANGER THRO 6 272 1. THE UNIT SHALL HAVE CONTROLS PROVIDED BY DAIKIN TO PERFORM INPUT	ROLL HANGER THRU 6" 272	1. THE UNIT SHALL HAVE CONTROLS PROVIDED BY DAIKIN TO PERFORM INPUT	6.7. 7. THE
2. THE UNIT SHALL BE COMPATIBLE WITH A DAIKIN INTELLIGENT TOUCH MANAGER 8. WA 3.) ALTERNATE MANUFACTURERS: GRINELL, GRABLER, CRANE 8. WA	3.) ALTERNATE MANUFACTURERS: GRINELL, GRABLER, CRANE		8. WAK

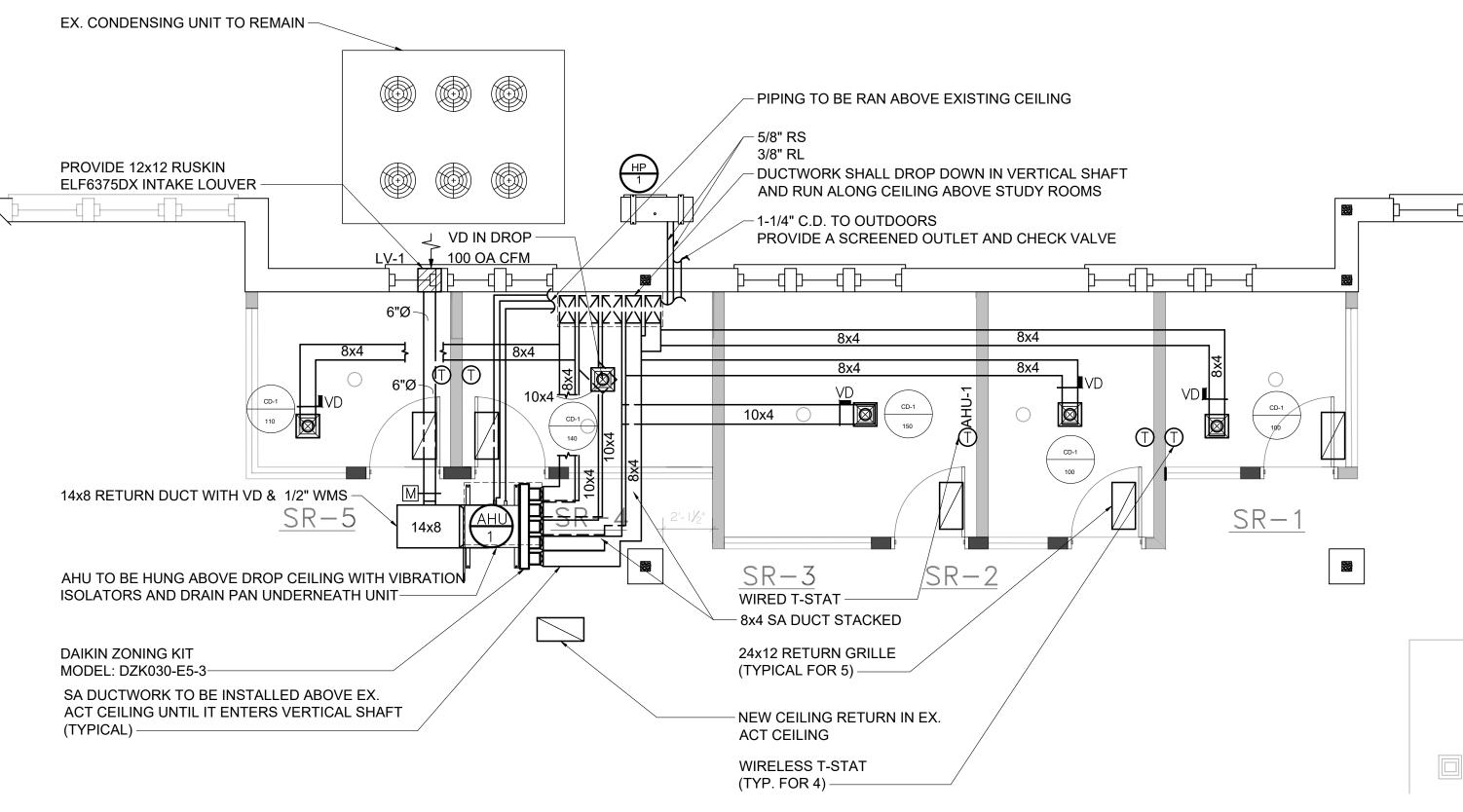
S.) HAN

E SLEEVES AND ESCUTCHEONS ALL PIPE OPENINGS THROUGH WALLS, CEILINGS, FURRING, PARTITIONS AND SLABS	M-29 WATER TREATMENT - NOT USED.	C.)OP ⁻ 1. MER FILT
ALL PIPE OPENINGS THROUGH WALLS, CEILINGS, FORRING, PARTITIONS AND SLABS ALL BE PROVIDED WITH SLEEVES HAVING AN INTERNAL DIAMETER AT LEAST 2" RGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR UNINSULATED LINES OR OF E INSULATION FOR INSULATED SERVICES. SLEEVES SHALL BE LOCATED SO THAT E PIPE PASSES THROUGH CENTER OF SLEEVE.	M-30 <u>AUTOMATIC TEMPERATURE CONTROLS</u> A.) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES, AND PERFORM ALL OPERATIONS REQUIRED FOR THE AUTOMATIC TEMPERATURE CONTROL SYSTEM.	D.) SEC 1. THE 1.1.
SLEEVES SHALL BE INSTALLED THROUGH INTERIOR WALLS AND PARTITIONS FLUSH TH FINISHED SURFACE; SLEEVES THROUGH OUTSIDE WALLS SHALL PROJECT 1/2" EACH SIDE OF THE FINISHED WALL; FLOOR SLEEVES SHALL PROJECT 1" ABOVE IISHED FLOORS.	B.) THE CONTROL SYSTEM SHALL BE COMPLETE WITH ALL NECESSARY CONTROL DEVICES, THERMOSTATS, VALVES, SWITCHES, PANELS AND CONTROL WIRING TO PROVIDE THE DESCRIBED FUNCTIONS. PROVIDE INFORMATION TO THE ELECTRICAL CONTRACTOR REQUIRED TO PERMIT INSTALLATION OF POWER WIRING TO ANY CONTROL COMPONENTS.	1.2. 1.2. 1.2.2 2. DZK
INTERIOR WALLS AND FLOORS - THE SPACE BETWEEN OUTSIDE OF PIPE OR SULATION AND THE INSIDE OF THE SLEEVE OR FRAMED OPENING SHALL BE FILLED TH FIBROUS GLASS AND FIRE STOPPED WITH 3-M FIRE BARRIER.	C.) THE CONTROLS MANUFACTURER SHALL FURNISH FACTORY WIRED CONTROL PANELS WHICH SHALL HOUSE ALL RELAYS, DEVICES, SWITCHES, TRANSFORMERS, TERMINAL STRIPS, ETC., AS REQUIRED FOR THE COMPLETE TEMPERATURE CONTROL OF THE SYSTEM.	GENER 1. EAC 2. THE
ESCUTCHEONS SHALL BE PROVIDED ON BOTH SIDES OF THE PENETRATION ROUGH THE STRUCTURE FOR ALL PIPES EXPOSED TO VIEW PASSING THROUGH RRING, WALLS, FLOORS, CEILING AND PARTITIONS, WHETHER INSULATED OR NOT. R PIPES PASSING THROUGH FLOORS, AND EXTERIOR WALLS, ESCUTCHEONS SHALL OVER THE SLEEVE.	D.) ALL CONTROLS SHALL BE THE PRODUCT OF ONE (1) MANUFACTURER AND ALL COMPONENTS SHALL BE U.L. APPROVED WHERE APPLICABLE. SYSTEM SHALL BE THE LATEST TOP QUALITY EQUIPMENT AND SHALL BE INSTALLED COMPLETE IN ALL RESPECTS BY COMPETENT MECHANICS, REGULARLY EMPLOYED BY THE MANUFACTURER OF THE	INSU 3. THE DIRE 4. THE CAP RES
ALL ESCUTCHEONS SHALL BE CHROME PLATED BRASS, SPLIT HINGED TYPE WITH T SCREWS.	CONTROL SYSTEM. ALL AUTOMATIC CONTROL VALVES AND DAMPERS SHALL BE MANUFACTURED BY THE CONTROL MANUFACTURER.	DAM 5. THE ENC
EANING - ALL PIPING SYSTEMS ALL OPEN ENDS OF PIPING, VALVES AND EQUIPMENT SHALL BE PLUGGED EXCEPT IEN ACTUAL WORK IS BEING PERFORMED, TO MINIMIZE ACCUMULATION OF DIRT D DEBRIS.	E.) AFTER COMPLETION OF THE CONTROL SYSTEM WORK, THE CONTROL MANUFACTURER SHALL REGULATE AND ADJUST ALL THERMOSTATS, CONTROL VALVES, ETC., AND PLACE THEM IN COMPLETE OPERATING CONDITION SUBJECT TO THE REVIEW OF THE ENGINEERS. COMPLETE INSTRUCTIONS SHALL BE GIVEN TO THE OPERATING PERSONNEL AND/OR OWNER.	6. THE BOA CON
AFTER INSTALLATION IS COMPLETE TEMPORARY SCREENS SHALL BE PLACED AT NNECTIONS TO ALL EQUIPMENT AND AT AUTOMATIC CONTROL VALVES WHERE RMANENT STRAINERS ARE NOT PROVIDED.	F.) THE CONTROL SYSTEM HEREIN SPECIFIED SHALL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL UNDER NORMAL USE AND SERVICE. IF, WITHIN ONE (1) YEAR FROM DATE OF ACCEPTANCE BY THE OWNER, ANY EQUIPMENT HEREIN DESCRIBED IS PROVED TO BE DEFECTIVE IN WORKMANSHIP OR MATERIAL, IT SHALL BE ADJUSTED, REPAIRED OR REPLACED FREE OF CHARGE.	PERFOI 1. THE CON 2. AMB 3. AMB
PRIOR TO THE PERFORMANCE OF TESTS, ALL PIPING THAT IS TO RECEIVE A DROSTATIC TEST SHALL BE FLUSHED OUT WITH CLEAN WATER. PIPING THAT IS TO AIR OR GAS PRESSURE TESTED SHALL BE BLOWN OUT WITH COMPRESSED AIR. AT AND DEBRIS COLLECTED AT SCREENS STRAINERS, AND OTHER POINTS FROM E SYSTEM, SHALL BE REMOVED BOTH BEFORE AND AFTER TESTING.	G.) DELIVER TO THE OWNER TWO (2) COPIES OF THE AS-INSTALLED CONTROL SYSTEM, LAMINATED IN CLEAR PLASTIC. PROVIDE IDENTIFYING TAGS ON ALL CONTROLS TO CONFORM TO THE DESIGNATIONS ON THE CONTROL DIAGRAMS.	CONTR 1. THE INDC
THE MANUFACTURER SHALL CLEAN ALL STEEL PIPE AND FITTINGS BEFORE IPMENT. THE PIPE AND FITTINGS SHALL BE DIPPED INTO A SOLUTION OF LPHURIC ACID TO REMOVE THE MILL SCALE AND THEN INTO A SOLUTION TO STOP E CHEMICAL ACTION ON THE METAL AND REMOVE GREASE.	H.) ALL CONTROL WIRING SHALL BE RUN IN EMT OR GALVANIZED CONDUIT. CONTROL CONDUIT AND/OR PIPING SHALL BE CONCEALED IN ALL SPACES EXCEPT IN MECHANICAL EQUIPMENT ROOMS AND UNFINISHED SPACES, AND SHALL BE INSTALLED IN PARALLEL BANKS WITH ALL CHANGES IN DIRECTIONS MADE AT 90 DEGREE ANGLES. CONTROL AND INSTRUMENT WIRING SHALL NOT BE INSTALLED ON DUCTWORK. WIRING AND PIPING SHALL BE SECURED TO THE BUILDING STRUCTURE, SUCH AS WALLS, COLUMNS,	BOX ZON (HEA 2. THE RES WIR
SUPPORT, ANCHOR AND GUIDE ALL PIPING AND CONNECTED EQUIPMENT TO ECLUDE FAILURE OR DEFORMATION. CONSTRUCT AND INSTALL HANGERS, PPORTS, ANCHORS, GUIDES AND ACCESSORIES IN CONFORMANCE WITH THE CODE R PRESSURE PIPING ANSI B-31.1 AS A MINIMUM REQUIREMENT. WHERE ECIFICATION REQUIREMENTS ARE MORE STRINGENT THAN THE CODE, THE ECIFICATION SHALL APPLY. WIRE, TAPE OR METAL BANDS SHALL NOT BE USED.	UNDERSIDE OF SLABS, ETC. I.) ALL CONTROLLERS SHALL BE OF THE FULLY PROPORTIONING TYPE AND SHALL BE PROVIDED WITH AN ADJUSTABLE THROTTLING RANGE, MINIMUM RANGE SHALL BE 1°F. ALL ROOM THERMOSTATS SHALL BE LOCATED AS SHOWN ON THE PLANS. ALL THERMOSTATS AND OTHER CONTROLLERS SHALL HAVE ADJUSTABLE SET POINTS.	3. EAC DAM 4. THE MAT INCL 4.1.
PIPING SHALL BE SECURELY FASTENED TO THE STRUCTURE WITHOUT ERSTRESSING ANY PORTION OF THE SUPPORTS OF THE STRUCTURE ITSELF. FFICIENT INTERMEDIATE STEEL SHALL BE PROVIDED TO TRANSFER LOADS TO EAS WHERE THEY CAN SAFELY BE ACCOMMODATED. PIPE SUPPORTS, ANCHORS	J.) PROVIDE A MINIMUM OF 5 FEET EXCESS CONTROL WIRING TO EACH THERMOSTAT FOR FUTURE RELOCATION OF THERMOSTATS. EXCESS CONTROL WIRING SHALL BE NEATLY BUNDLED AND SECURED.	4.2. 4.3. 5. OPE
D GUIDES SHALL BE SECURED TO STEEL BY WELDED BRACKETS, BEAM CLAMPS, BY FASTENING RODS OVER THE BEAM TOP FLANGE, AND TO CONCRETE BY MEANS INSERTS, OR IF GREATER LOAD CARRYING CAPACITY IS REQUIRED, BY MEANS OF EEL FISHPLATES EMBEDDED IN THE CONCRETE ABOVE THE REINFORCEMENT DS. ALL HANGERS SHALL BE LOCATED TO PERMIT FREE EXPANSION AND NTRACTION.	M-31 SEQUENCE OF OPERATIONS 1.) THIS CONTRACTOR SHALL PROVIDE A CONTROL SYSTEM COMPLETE WITH ALL NECESSARY WIRING, VALVES, INTERLOCKS, PANELS, ETC. FOR SYSTEM TO OPERATE AS SPECIFIED IN THE SEQUENCE OF OPERATION.	5.1. 5.2. 5.3.
	2.) SUBMITTALS FOR REVIEW	5.4.
UNLESS OTHERWISE INDICATED, ALL HORIZONTAL PIPING SHALL BE HUNG TIGHT CEILING BEAMS AND LOCATED MORE THAN SIX FEET ABOVE THE FLOOR. PIPING CATED WITHIN SIX FEET OF THE FLOOR SHALL BE SUPPORTED ON FABRICATED ANDS OR PIERS. WHERE PIPING RUNS ALONG WALLS, SUITABLE WALL TYPE AND NG-TYPE HANGERS SHALL BE PROVIDED.	A.) SHOP DRAWINGS: INDICATE ALL MECHANICAL CONTROLLED COMPONENTS AND CONTROL SYSTEM COMPONENTS. LABELED WITH SETTINGS, AND ADJUSTABLE RANGE OF CONTROLS AND LIMITS. INCLUDE WRITTEN DESCRIPTION OF CONTROL SEQUENCE.	5.5. 6. USE
PIPING AND TUBING SHALL BE SUPPORTED AT ALL CHANGES IN DIRECTION. XIMUM DEFLECTION SHALL BE 1/8". MAXIMUM SPACING BETWEEN SUPPORTS ALL BE: TERIAL <u>1/2" - 1-1/4"</u> <u>1-1/2" - 2"</u>	B.) INCLUDE FLOW DIAGRAMS FOR EACH CONTROL SYSTEM, GRAPHICALLY DEPICTING CONTROL LOGIC. INCLUDE DRAFT COPIES OF GRAPHIC DISPLAYS INDICATING MECHANICAL SYSTEM COMPONENTS, CONTROL SYSTEM COMPONENTS, AND CONTROLLED FUNCTION STATUS AND VALUE.	TEM USE INCL 6.1. 7. THE
PPER TUBING 6 FT O.C. 10 FT O.C.	3.) DESIGN BASIS	CON 8. THE
HANGER RODS FOR BOTH SINGLE AND DOUBLE ROD HANGERS SHALL CONFORM THE FOLLOWING SCHEDULE OF DIAMETERS: STEEL PIPE COPPER TUBING	A.) THE HVAC EQUIPMENT BASIS OF DESIGN IS DAIKIN. ALL BIDDERS SHALL FURNISH THE MINIMUM SYSTEM STANDARDS AS DEFINED BY THE BASE BID MODEL NUMBERS, MODEL FAMILIES OR AS OTHERWISE SPECIFIED HEREIN (SEE KEY GENERAL SPECIFICATIONS ALTERNATE SUPPLIER CHECKLIST). IN ANY EVENT THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SPECIFIED ITEMS AND INTENTS OF THIS DOCUMENT	SUP THE 3. DZK
PIPE SIZE HANGER ROD Ø PIPE SIZE HANGER ROD Ø 1/2" - 1" - 3/8" 1/2" - 2" - 3/8" 1-1/4" - 2" - 1/2" 2-1/2" - 5" - 5/8"	WITHOUT FURTHER COMPENSATION. 4.) AHU - MODEL #: FXMQ24PB - CONCEALED CEILING DUCTED UNIT (MED. STATIC)	1. THE ALL LOC FOR
2-1/2" - 4" - 1/2" 5" - 6" - 3/4" COPPER PLATED PIPE HANGERS AND SUPPORTS SHALL BE USED FOR VERTICAL D HORIZONTAL RUNS OF COPPER OR BRASS PIPE AND TUBING WHERE THE	A.) INDOOR UNIT: 1. THE DAIKIN INDOOR UNIT FXMQ24PB SHALL BE COMPLETELY FACTORY ASSEMBLED AND TESTED. INCLUDED IN THE UNIT IS FACTORY WIRING, PIPING, ELECTRONIC PROPORTIONAL EXPANSION VALVE, CONTROL CIRCUIT BOARD,	2. THE ACC 3. THE
NGER IS IN DIRECT CONTACT WITH THE PIPE, OTHERWISE STEEL HANGERS AND PPORTS SHALL BE USED. PIPE HANGERS AND SUPPORTS COMPLETE WITH RODS, BOLTS, LOCKNUTS, VIVELS, COUPLINGS, BRACKETS AND ALL OTHER COMPONENTS AND ACCESSORIES	FAN MOTOR THERMAL PROTECTOR, FLARE CONNECTIONS, CONDENSATE DRAIN PAN, CONDENSATE DRAIN PUMP, CONDENSATE SAFETY SHUTOFF AND ALARM, SELF-DIAGNOSTICS, AUTO-RESTART FUNCTION, 3-MINUTE FUSED TIME DELAY, AND TEST RUN SWITCH. THE UNIT SHALL BE EQUIPMENT WITH AUTOMATICALLY ADJUSTING EXTERNAL STATIC PRESSURE LOGIC THAT IS SELECTABLE DURING	RAN 4. THE OF 5 5. THE POIN
ALL BE PROVIDED.	COMMISSIONING. THIS ADJUSTS THE AIRFLOW BASED ON THE INSTALLED EXTERNAL STATIC PRESSURE. 2. INDOOR UNIT AND REFRIGERANT PIPES WILL BE CHARGED WITH DEHYDRATED AIR PRIOR TO SHIPMENT FROM THE FACTORY.	FRO OPE 6. THE
IN GENERAL, HANGERS SHALL BE OF CLEVIS TYPE OR ROLL TYPE WITH VERTICAL JUSTMENT. WHERE SEVERAL LINES OF PIPING RUN AS A COMMON GROUP, THEY ALL BE SUPPORTED ON A COMMON HANGER BAR OF GALVANIZED CHANNEL OR CK TO BACK ANGLE SECTIONS OR "UNISTRUT" TYPE SUPPORTS.	 BOTH REFRIGERANT LINES SHALL BE INSULATED FROM THE OUTDOOR UNIT. THE INDOOR UNITS SHALL BE EQUIPPED WITH A CONDENSATE PAN AND CONDENSATE PUMP. THE CONDENSATE PUMP PROVIDES UP TO 18-3/8" OF LIFT FROM THE CENTER OF THE DRAIN OUTLET AND HAS A BUILT IN SAFETY 	INCL 6.1. 6.2. 6.3.
HANGERS SHALL BE AS FOLLOWS: <u>APPLICATION CENTRAL IRON FIG. NO.</u> CLEVIS HANGER 10	SHUTOFF AND ALARM. 5. THE INDOOR UNITS SHALL BE EQUIPPED WITH A RETURN AIR THERMISTOR. 6. THE INDOOR UNIT WILL BE SEPARATELY POWERED WITH	6.4. 6.5. 6.6.
RISER CLAMP - THRU 3" 261 RISER CLAMP - OVER 3" 262 ROLL HANGER THRU 6" 272 ROLL HANGER OVER 6" 171	208~230V/1-PHASE/60HZ. B.)CONTROL: 1. THE UNIT SHALL HAVE CONTROLS PROVIDED BY DAIKIN TO PERFORM INPUT FUNCTIONS NECESSARY TO OPERATE THE SYSTEM.	6.7. 7. THE
ALTERNATE MANUFACTURERS: GRINELL, GRABLER, CRANE	2. THE UNIT SHALL BE COMPATIBLE WITH A DAIKIN INTELLIGENT TOUCH MANAGER ADVANCED MULTI-ZONE CONTROLLER.	8. WAK

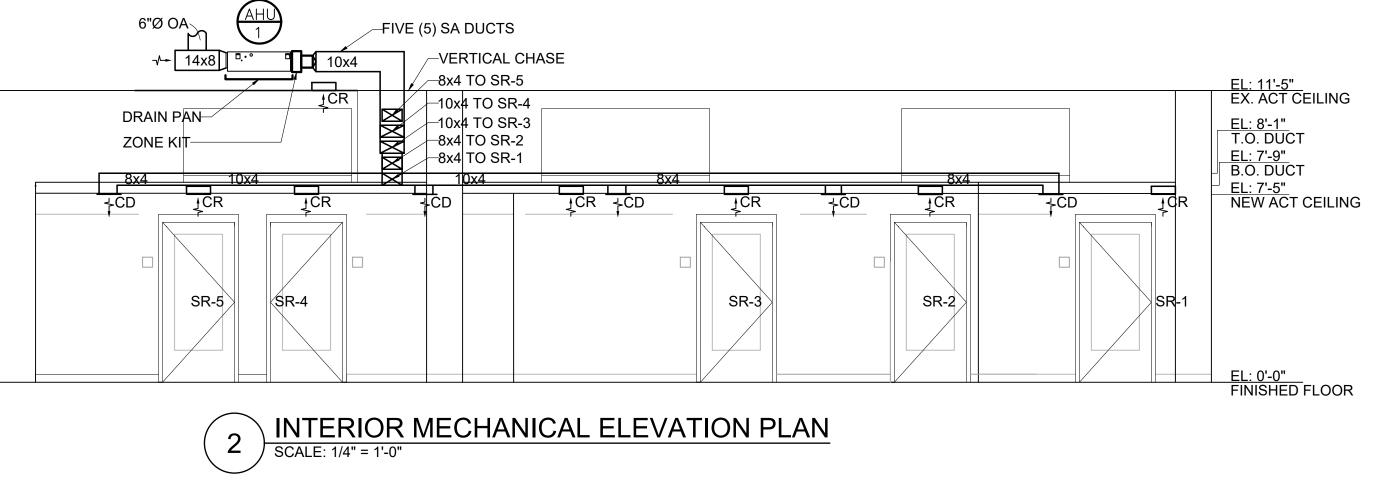
	OLA Consulting Engineers
OPTIONAL ACCESSORIES AVAILABLE: ERV 13 FILTER KIT. CAN BE CONFIGURED FOR RIGHT OR LEFT ACCESS. LTERS REPLACEABLE WITHOUT TOOLS. SECTION INCLUDES HE DZK ZONING SOLUTION FOR VRV INDOOR UNITS INCLUDE: . DZK ZONING KITS - DZK030E5-3	50 Broadway, Hawthorne, NY 10532 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018
DZK ZONE THERMOSTATS	CONSULTING ENGINEERS 646.849.4110
.2.1. DZK-MTS-3-W WIRED THERMOSTAT	olace.com
.2.2. DZK-ZTS-3-W WIRELESS THERMOSTAT ZK ZONING KIT	CLIENT
ERAL REQUIREMENTS: ACH UNIT SHALL BE COMPLETELY FACTORY ASSEMBLED AND TESTED. HE FACTORY ASSEMBLED PLENUM AND ZONE OUTLETS SHALL BE FULLY SULATED WITH CLOSED-CELL, R4 FOIL FACED INSULATION. HE PLENUM DIMENSIONS SHALL BE SUITABLE FOR FIELD ATTACHMENT RECTLY TO THE COMPATIBLE VRV FAN COIL UNIT. HE UNIT SHALL INCLUDE MULTIPLE MOTORIZED ZONE DAMPER OUTLETS APABLE OF MODULATING THE AIRFLOW VOLUME TO THE ZONE OUTLET IN ESPONSE TO THE DEMAND IN EACH ZONE. THE QUANTITY OF MOTORIZED AMPER OUTLETS SHALL BE FIVE. HE UNIT SHALL INCLUDE A FACTORY MOUNTED CONTROL PCB MOUNTED IN AN NCLOSURE MEETING IP20 PROTECTION CLASS REQUIREMENTS. HE UNIT SHALL INCLUDE A FACTORY MOUNTED DAIKIN D-III NET INTERFACE DARD TO ALLOW THE DZK ZONING BOX TO DIRECTLY CONNECT TO AND DNTROL THE DAIKIN VRV FAN COIL UNIT.	
FORMANCE HE UNIT'S NOMINAL CAPACITY IS BASED ON THE NOMINAL CAPACITY OF THE ONNECTED VRV INDOOR UNIT. MBIENT TEMPERATURE OPERATION RANGE: 32°F-122°F MBIENT HUMIDITY OPERATION RANGE: 5-90%RH (NON-CONDENSING).	
 TROL HE UNIT SHALL BE CAPABLE OF DIRECT CONTROL INTEGRATION TO THE VRV DOOR UNIT VIA THE P1/P2 CONTROL PROTOCOL, ALLOWING THE DZK ZONING DX TO TURN THE VRV INDOOR UNIT ON AND OFF, AND ALLOWING THE DZK DNING BOX TO CONTROL THE VRV INDOOR UNIT'S MODE OF OPERATION IEATING/COOLING/FAN), FAN SPEED, AND TEMPERATURE SET POINT. HE UNIT SHALL AUTOMATICALLY ADJUST EACH DAMPER POSITION IN ESPONSE TO INFORMATION FROM THE DAMPER'S ASSOCIATED DZK-MTS-3-W IRED THERMOSTAT OR DZK-ZTS-3-W WIRELESS THERMOSTAT, ACH DAMPER SHALL BE CAPABLE OF MODULATING THROUGH UP TO FIVE (5) AMPER POSITIONS, INCLUDING FULLY CLOSED. HE UNIT SHALL ALLOW FOR FLEXIBLE ZONE SET UP AND CONFIGURATION TO ATCH THE ZONING INTENT INDICATED ON THE MECHANICAL PLANS, CLUDING: ADJUSTABLE MINIMUM/MAXIMUM DAMPER OPENING POSITIONS. ZONE CLOSURE / NON-USE OF ZONE. LINKAGE OF ONE OR MORE ZONES FOR SIMULTANEOUS CONTROL BY A SINGLE THERMOSTAT. 	
PERATION MODES . COOL: THE VRV INDOOR SHALL OPERATE IN COOLING MODE ANY TIME THERE IS A COOLING DEMAND FROM ANY ZONE.	
 HEAT: THE VRV INDOOR UNIT SHALL OPERATE IN HEATING MODE ANY TIME THERE IS A HEATING DEMAND FROM ANY ZONE. AUTO: THE VRV INDOOR UNIT SHALL SWITCH BETWEEN HEATING AND COOLING OPERATION DEPENDING ON THE GLOBAL DEMAND OF ALL ZONES. 	
. DRY: THE VRV INDOOR UNIT WILL OPERATE IN THE DRY MODE ANY TIME THERE	
IS A COOLING DEMAND FROM ANY ZONE. 6. EMERGENCY HEAT: THE UNIT WILL ACTIVATE THE FIELD INSTALLED AUXILIARY	
HEAT SOURCE ANY TIME THERE IS A HEATING DEMAND FROM ANY ZONE. SER MODE SETTINGS FOR ADJUSTMENT OF PRE-CONFIGURED SET POINT EMPERATURES AND SET POINT RANGE LIMITS ACCORDING TO THE SER-SELECTED USER MODE. THE AVAILABLE USER MODE SETTINGS SHALL CLUDE:	
. COMFORT, ECO, NIGHT TIME, UNOCCUPIED, VACATION, STOP HE UNIT'S CONTROL BOARD SHALL INCLUDE A NORMALLY-CLOSED DRY	
ONTACT INPUT THAT WILL CLOSE ALL DAMPERS IF ACTIVATED (OPEN CIRCUIT).	
HE UNIT'S CONTROL BOARD SHALL BE CAPABLE OF CONNECTING A FIELD JPPLIED THERMISTOR FOR MEASURING SUPPLY AIR TEMPERATURE. THE	
HERMISTOR SPECIFICATION SHALL BE NTC 10K - B ₂₅₋₈₅ 3977.	1 ISSUED FOR CLIENT REVIEW 03/20/2023
ZK MTS-3-W WIRED THERMOSTAT HE THERMOSTAT SHALL BE MOUNTED TO THE WALL IN ACCORDANCE WITH	No. ISSUE OR REVISION DATE
L APPLICABLE CODES AND REGULATIONS. THE SELECTED INSTALLATION DCATION SHOULD AVOID DIRECT SUNLIGHT OR INCANDESCENT SPOT LIGHTS	No use, reproduction or dissemination may be made of this drawing and the concepts set
OR THE BEST TEMPERATURE READINGS.	forth without the prior written consent of OLA Consulting Engineers, PC. Copyright © 2023
HE THERMOSTAT SHALL BE WIRED TO THE DZK ZONING BOX CONTROL BOARD CCORDING TO THE WIRING REQUIREMENTS HE SET POINT TEMPERATURE SHALL DISPLAY IN 1°F INCREMENTS WITH A ANGE OF 59°F TO 86°F.	JOHN C. HART MEMORIAL LIBRARY
HE ROOM TEMPERATURE SHALL DISPLAY IN 1°F INCREMENTS WITH A RANGE F 50°F TO 95°F.	MEMORIAL LIBRARY 1130 MAIN STREET
HE THERMOSTAT SHALL SUPPORT INDEPENDENT COOLING AND HEATING SET DINT TEMPERATURES. THE SET POINT DIFFERENTIAL SHALL BE ADJUSTABLE ROM 0-7°F. THE THERMOSTAT SHALL ALSO SUPPORT SINGLE SET POINT PERATION IF DESIRED BY USER.	SHRUB OAK, NY
HE THERMOSTAT SHALL ALLOW FOR SYSTEM SETTING AND CONFIGURATION, CLUDING:	DRAWING TITLE
 MINIMUM COOLING SET POINT TEMPERATURE (64-78°F ADJUSTABLE) MAXIMUM HEATING SET POINT TEMPERATURE RANGE (66-86°F ADJUSTABLE) DAMPER TYPE-OF-OPENING CONFIGURATION HEATING SUPPLY TEMPERATURE LIMIT PROTECTION SETTING AWAY-MODE HYSTERESIS SETTINGS FOR UNOCCUPIED AND VACATION USER 	MECHANICAL SPECIFICATIONS 2 OF 3
MODES	
B. ROOM TEMPERATURE DISPLAY - SHOW OR HIDE THE ROOM TEMPERATURE AND/OR RELATIVE HUMIDITY	SEAL SCALE PROJECT NO. AS NOTED NYPL0001.00
2. SYSTEM RESET HE THERMOSTAT SHALL SUPPORT 6 CONFIGURABLE PERIODS: PAKE, DAY, EVENING, SLEEP, OCCUPIED, AND UNOCCUPIED.	DRAWN BY AE CHECKED BY RJ DATE 03/03/2023 DRAWING NO.



	OLA Consulting Engineers	
	50 Broadway, Hawthorne, NY 10532	
	914.747.2800	
	8 West 38th Street, Suite 501 New York, NY 10018	
	CONSULTING ENGINEERS	
	olace.com	
	CLIENT	
ABLE POSITIONED AT 37.5°		
SPACED AT 5^{29}_{32} "± ON CENTER, FRAME, TYP.		
DEL: 6063T6 EXTRUDED Image: Construction of the second		
IRD SCREEN. BEGINNING POINT OF WATER		
N AT 1023 FPM. R SIZE OF LOUVER AREAS.		
MASONRY WALL CAULK, TYP.		
DRIP EDGE		
	1 ISSUED FOR CLIENT REVIEW 03/20/ No. ISSUE OR REVISION DAT	
OUVER DETAIL ALE: NONE	No use, reproduction or dissemination may be made of this drawing and the concept	pts set
	forth without the prior written consent of OLA Consulting Engineers, PC. Copyright © 2023	
DRAIN LINE SHALL BE AT LEAST THE SAME SIZE AS THE NIPPLE ON THE	PROJECT TITLE	
DRAIN PAN, OR 3/4".	JOHN C. HART MEMORIAL LIBRARY	
	1130 MAIN STREET SHRUB OAK, NY	
	DRAWING TITLE	
	MECHANICAL SPECIFICATIONS	
OPEN DRAIN.	3 OF 3	
	AND DETAILS	
	SEAL SCALE PROJECT NO. AS NOTED NYPL0001.0	00
	TRAVING NO.	
HU CONDENSATE DRAIN DETAIL	CHECKED BY RJ DATE	Δ
ALE: NONE	DATE 03/03/2023	T







9 NORTH

MECHANICAL FIRST FLOOR PLAN SCALE: 1/4" = 1'-0"

NOTES:

MAINTAIN ALL REQUIRED CLEARANCES AS PER MANUFACTURER'S INSTALLATION MANUAL.

PROVIDE INSULATION ON REFRIGERANT PIPING. 2. 3.

PROVIDE ZONE KIT CONNECTED TO INDOOR UNIT AS SHOWN. REFER TO MANUFACTURER'S INSTALLATION MANUAL.

4. PROVIDE ONE (1) WIRED ZONE THERMOSTAT AND FOUR (4) WIRELESS ZONE THERMOSTATS.

			Image: Clear of the stress o
<pre></pre>	SEATING 115		
			Image:
		<u>EL: 11'-5</u> " EX. ACT CEILING <u>EL: 8'-2"</u> B.O. WINDOW <u>EL: 7'-5"</u> NEW ACT CEILING	No use, reproduction or dissemination may be made of this drawing and the concepts set forth without the prior written consent of OLA Consulting Engineers, PC. Copyright © 2023 PROJECT TITLE JOHN C. HART JOHN C. HART I 130 MAIN STREET SHRUB OAK, NY DRAWING TITLE
EXTERIOR MECH SCALE: 1/8" = 1'-0"	EX. CONDENSING UNIT-	EL: 0'-0" EX. FINISHED FLOOR EL: -3'-10" GRADE	MECHANICAL SIRST FLOOR DORK PLAD DAD DETAILSSENTING NO.SENTING NO.SENTING NO.COLS NOTEDPROJECT NO.DATE DATE DATE DATEDATE DATE DATE<