

Owner:

Aldrich Free Public Library 299 Main Street Moosup, CT 06354

REHABILITATION of

Aldrich Free Public Library

299 Main Street Moosup, CT 06354

100% Construction Documents December 15, 2022



Mech / Elec / Plumbing Engineer:



Acorn Consulting Engineers INC 244 Farms Village Road West Simsbury, CT 06092 860-651-1949



NOT FOR CONSTRUCTION



James K. Grant Associates Structural Engineers

PO Box 235 Collinsville, CT 06022 860-680-0553

	PROJECT DESCRIPTI	ON		
THE PRO	OJECT CONSISTS OF THE REHABILITATION OF PORTIONS OF THE EXTERIOR AND INTERIOR OF THE	E EXISTING LIBRARY BUILDING.		<u>2022 CON</u>
<u>GENERA</u> Exterio	AL BUILDING EXTERIOR REHABILITATION OR SCOPE OF WORK INCLUDES SANDING, SCRAPING, OF EXTERIOR WOODWORK; REPAIR AND/ OF INTERIOR WOODWORK; REPAIR AND SERVICE OF THE ENTERIOR OF THE PUBLIC OF THE	R REPLACEMENT OF EXTERIOR WOOI	SIDING, SOFFITS, AND	- 20
INTEGRA	IERE DETERIORATED AND PRIMING AND REPAINTING OF THE EXTERIOR OF THE BUILDING. REPA AL GUTTERS, CORRECTION OF EXTERIOR DRAINAGE ALONG THE FOUNDATION AT THE NORTH SIDE S HIGTORIC HINDON'S AS NECESSARY EXISTING BRICK CHIMNEYS SHALL BE EXAMINED AND RE	AIR AND/ OR REPLACEMENT OF EXTE E, AND REPAIR, RECONSTRUCTION, OI EDOINTED, AS NECESSARY	RIOR OF EXISTING R REPLACEMENT OF THE	- 24 - 24
GENERA	L INTERIOR REHABILITATION	FORTED AS NECESSART.		- 24
PRIMAR ARE EXI	ILLY, THE INTERIOR SCOPE OF WORK RELATES TO STRUCTURAL REPAIR AND REHABILITATION OF HIBITING SIGNIFICANT DETERIORATION OF THE MORTAR JOINTS, AND AND REMOVAL AND REPLA	THE EXISTING BRICK MASONRY FOU CEMENT OF THE EXISTING FURNACE &	NDATION WALLS, WHICH ND OIL TANK.	- 20 - 20
THE SCO	OPE OF THE STRUCTURAL REPAIR WORK IS TO REMOVE EXISTING EXTREMELY DEGRADED MORT	AR, TREATMENT OF THE BRICK WALL	S AND JOINTS TO	REHABILI
PREVEN PORTION	IT OR MINIMIZE RISING DAMP CURRENTLY AFFECTING THE WALLS, AND REPOINTING OF THE WALLS NS OF THE INTERIOR WALLS TO GAIN ACCESS TO THE BRICK, AND TO CHECK OTHER LOCATIONS	3. THIS WORK WILL ALSO NECESSITA' FOR SIMILAR CONDITIONS.	TE THE REMOVAL OF	CLASSIFIC
MECHAN	NICAL WORK CONSISTS OF THE REMOVAL AND REPLACEMENT OF THE EXISTING FURNACE WITH A 1	NEW, HIGHER-EFFICIENCY UNIT, AND F	EMOVAL AND NEW 275 GAL TANK	USE GROL
PLUMBIN	NG AND ELECTRICAL WORK FOR THE BASE BID IS LIMITED TO WORK NECESSARY FOR THE CONN	LECTION TO THE NEW EQUIPMENT.		1EBC 702
IN ADDI OF THE I	TION TO THE WORK NOTED ABOVE, INTERIOR WORK INCLUDES REHABILITATION OF THE THREGHC MEETING ROOM FIREPLACE.	OLD OF THE FRONT INTERIOR ENTRAM	ICE DOOR, AND HEART	1EBC 703
				IEBC 704
				1EBC 705
	INDEX OF DRAWING	S		
		DATE OF PREPARATION	DATE OF LATEST REVISION	<u>∆</u> ≰ ≠
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G-1	GENERAL INFORMATION & DRAWING LIST	12/15/2Ø22		ACOUST A
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-200	ELECTRICAL DETAILS ELECTRICAL SPECIFICATIONS			BSMNT E
				CAT C
				CB C
				CEM C
				COND C
				CONST C
				CONTR C
				CORR C
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				DBL DEG DEG
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				DF DIA I
				DIMS [DISP r
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BUILI	DING CODES			DEFINITION	5		DRAWING SYMBOLS (NO	TE: NOT ALL SYMBOLS ARE USED IN THIS PROJECT)	
CTICUT STATE BUILDING CO	ODE	R	ESTORE Renc	ovate to original "like new" cond	lition. If portions			Namo	
I INTERNATIONAL BUILDING	CODE with AMENDMENTS		of wa	ork are damaged beyond repair replace w/ new to replicate orig	, consult 'architect jinal.		ROOM NAME	Elevation Elevation INDICATOR	
INTERNATIONAL EXISTING	BUILDING CODE with AMENDMENTS	C	LEAN Remo	ove dirt, soil, debris and any for	eign elements	DETAIL AREA 6HEET LOCATION	(100) - ROOM NUMBER		
I INTERNATIONAL PLUMBING I INTERNATIONAL MECHANIG	G CODE with AMENDMENTS CAL CODE with AMENDMENTS		a ane of cl	ered to the surface. Consult arc leaning.	hitect for method				
NTERNATIONAL ENERGY	CONSERVATION CODE with AMENDMENT		EPLACE Remo	ove existing and provide \$ insta will architect on material to repla	all new material.				
i ICC A117.1 ACCESSIBLE AN	ID USABLE BUILDINGS AND FACILITIES	R	EFINISH Rena	ovate existing finish to original "	'like new"		X SIGNAGE TYPE / LOCATIO REFER TO DWGS.		
TION OF EXISTING BUILDING	3		conc	dition.			VII WALL TYPE		
TION OF WORK:	LEVEL 1 ALTERATION	Ŕ	EFURBISH Clear conc	n, restore, refinish to match origi dition.	nal "like new"		\checkmark		Architects
CLASSIFICATION:	A-3 ASSEMBLY (LIBRARY)			of work chall roblicate in over	record cimilar				
ATERIALS:	NEW MATERIALS COMPLY W/ IBC	E	XISTING elema	ents, finishes, etc., which are exist is to be improved items noted	ting. If existing	D AIDI B INTERIOR ELEVATION			Architecture Preservation Plann
RE PROTECTION:	NONE EXISTING / NO CHANGE		shall	match the improved condition.					T: (860)724-3000 F: (860)724-3
EANS OF EGRESS:	NO CHANGE	*	NOTE: In all of	the above, consult w/ architect	and refer to				
			plans.						
							STOREFRONT TYPE		
						DRAWING NUMBER			
						SIM BUILDING SECTION	CLNG		
						A101 DRAWING NUMBER	9'-Ø"- HEIGHT		
			ATIANIC				GENERAL NATES		
		ADDREVIA					GENERAL NUIEJ		
>	D6 DOUNSPOUT	HRC HOSE REEL C	CABINET	PSF POUNDS PER SQUARE FOOT	TYP TYPICAL				
CHOR BOLT	DTL DETAIL DW DISHWASHER	HTG HEATING HVAC HEATING VEN	TILATION AND	PT POINT PT PRESSURE TREATED	<u>u</u> Unfin unfinished	1. G.C. TO PROVIDE ALL DEMOLITION AND DUM	IPSTERS AS IS NECESSARY TO COMPLETE THE WORK.		
CONDITIONING			ONING	PTD PAINTED		2. ALL MATERIALS ARE TO BE NEW UNLESS NOT	TED OTHERWISE.		
		HW HOT WATER		PVC POLYVINYL CHLORIDE		3. IF PLANS AND SPECIFICATIONS PROVIDE CON	NFLICTING INFORMATION, THEN THE STRICTEST, MOST E>	PENSIVE INTERPRETATION SHALL APPLY.	
EA DRAIN DITIONAL	E EAST EA EACH	ID INSIDE DIAME IN INCH/INCHES	ETER	<u>Q</u> QTY QUANTITY	VAC VENTILATION AND AIR CONDITIONING	4. CONTRACTOR SHALL REVIEW ALL SUPPLIED NOTED IN AND ANY SIMIL AR ITEMS ENCOUNTE	PROJECT CAPITAL NEEDS ASSESSMENT REPORTS AND ERED SHALL BE CORRECTED BY THE CONTRACTOR II	D THIRD PARTY REPORTS, ALL DEFICIENT ITEMS IHETHER OR NOT SPECIFICALLY SHOUN ON	
JACENT OVE FINISHED FLOOR	EB EXPANSION BOLT EJ EXPANSION JOINT	INCAND INCANDESCEN		R RIGER	VAR VARIEG Vert vertical	DRAWINGS.			p [
OVE FINISHED GRADE		INFO INFORMATION		RA RETURN AIR	VIF VERIFY IN FIELD	5. ALL INTERIOR DIMENSIONS SHOWN FOR EXIST	TING CONSTRUCTION IS TO THE FACE OF FINISHED SURF,	ACE. INTERIOR DIMENSIONS FOR NEW WORK SHOWN	,
ERNATE	ELEC ELECTRICAL ELEV ELEVATOR	INGUL INGULATION INT INTERIOR		RAD RADIUS RD ROOF DRAIN	VR VAPOR RETARDER	ARE GIVEN FROM FACE OF STUD FOR STUD W. DIMENSIONS TO BE FIELD VERIFIED. G.C. TO N	JALLS, FACE OF MASONRY FOR MASONRY WALLS, OR C NOTIFY THE ARCHITECT WITH DISCREPANCIES, IF ANY.	ENTERLINE OF BEAMS/ COLUMNS (UNO), ALL	
IMINUM DDIZED	EMER EMERGENCY ENCL ENCLOGURE	INTERM INTERMEDIATI	E	REC RECESSED RECPT RECEPTACLE	<u>w</u> W WIDE/WEST	6. CONTRACTOR SHALL FAMILIARIZE HIMSELF W	JITH THE PROJECT THROUGH THE INSPECTION OF THE SI	TE, DRAWINGS AND SPECIFICATIONS, THE	
PROXIMATE CHITECTURAL	ENG ENGINEER EP ELECTRICAL PANEL	<u>j</u> Jst joist		REF REFERENCE	W/ WITH W/O WITHOUT	EXISTING CONSTRUCTION SHOWN ON DRAWING	36 REPRESENTS THE OBSERVABLE CONDITIONS BY TH	E ARCHITECT AT THE TIME OF THE FIELD SURVEY.	
	EPDM ETHYLENE PROPYLENE	JT JOINT K		REG REGISTER		DISCREPANCIES BETWEEN EXISTING CONDITION	ONS AND NEW WORK. ANY WORK PERFORMED PRIOR TO	1 ENCEMENT OF WORK, NOTIFY ARCHITECT OF ANY D PROPER FIELD VERIFICATION AND FOUND TO	
OMATIC		KO KNOCK OUT L		REINF REINFORCED REL RELOCATE		BE NONCONFORMING TO THE CONTRACT DOC	CUMENTS IS SUBJECT TO CORRECTION AT NO COST TO	THE OWNER.	nsso
DIOVIGUAL	EQUIP EQUIPMENT EXH EXHAUST	LAV LAVATORY		REM REMOVABLE RECOM RECOMMENDED	WP WATERPROOF/ WATERPROOFING WATERPROOF MEMORY AND	1. ALL LUMBER IN CONTACT WITH CONCRETE OF	R MASONRY SHALL BE PRESSURE TREATED.		
CK ARD	EXIST EXISTING EXP EXPANSION	LLH LONG LEG HO	DRIZONTAL	REQ REQUIRE/REQUIRED	WG WEATHER-STRIPPING	8. REPAIR/ INFILL ALL ABANDONED PENETRATI AS PLENIM SPACES REPAIR/ INFILL CONSTR	IONS, OR MISSING CONSTRUCTION IN WALL/ CEILING ASS RECTION TO MATCH ADJACENT EXISTING CONSTRUCTION	SEMBLIES THAT ARE EXPOSED TO VIEW OR ACT	
	EXT EXTERIOR	LLV LONG LEG VE LT LIGHT		RM ROOM	WSCT WAINSCOT WT WEIGHT			T THE ENTIRE RHILDING ALL ELOOR	in st
DCK	E FA FIRE ALARM	<u>M</u> Mas Masonry		RTD RATED	WY WATER VALVE WUF WELDED WIRE FABRIC	PENETRATIONS SHALL BE FIRESTOPPED AS I	REQUIRED. THIS SHALL NOT APPLY AT SHAFTS.		oma
DCKING: AM	FB FACE BRICK FD FL <i>OO</i> R DRAIN	MAX MAXIMUM Mech Mechanicai		RTG RATING <u>6</u>	WWM WELDED WIRE MESH	10. PROVIDE FIRESTOPPING AT ALL DUCT PIPE ,	AND OTHER PENETRATIONS THROUGH RATED FIREWALL	S AND PARTITIONS. USE UL RATED SEALANTS	
TTOM OF	FDC FIRE DEPARTMENT CONNECTION			S SOUTH SA SUPPLY AIR	UNIT ROOM ABBREVIATIONS B BATHROOM	AND CAULKING AS MANUFACTURED BY HILTI, MECHANICAL DRAWINGS FOR LOCATION OF A	. DOW, 3M OR APPROVED EQUAL. FOLLOW MANUFACTUR ANY FIRE DAMPERS.	ER'S INSTALLATION INSTRUCTIONS. REFER TO	" L
ARING	FE FIRE EXTINGUIGHER	MFR MANUFACTURE	ER	SAF SELF ADHERED FLASHING	BR BEDROOM	11, ALL ELECTICAL, PLUMBING AND HEATING PIF	PING TO BE CONCEALED IN WALLS AND FLOORS, UNLES	S NOTED OTHERWISE.	
ACKET BEMENT	HEE FURNITURE, FIXTURES AND	-' MH MAN HOLE MHO MAGNETIC		SCHED SCHEDULE	DR DINING ROOM	12. PROVIDE METAL UL FIRE RATED PLUMBING A	ACCESS PANELS AS INDICATED ON THE PLANG. PANEL	6 ARE TO BE 18"X 18" WITH KEYED LOCKS.	L1
ANNEL	FFB FLUSH FLOOR BOX	MIN HARHAHOPEN MISC MISCELLANEC	DUS	SD STORM DRAIN SECT SECTION	<u>K</u> KITCHEN LLLINEN CL <i>OS</i> ET	PROVIDE PANELS TO ACCESS BATHROOM PL	LUMBING TRAPS. FIELD VERIFY LOCATIONS. PROVIDE	BUBMITTAL ARCHITECT'S REVIEW.	d d
BINET TEGORY	FFE FINISH FLOOR ELEVATION	MO MASONRY OF	PENING SIGTANT	SF SQUARE FEET/FOOT	LNDY LAUNDRY ROOM	13. PROVIDE ALL NECESSARY CHASES AND "BO	OX OUTS" FOR PLUMBING AND HEATING PIPING AS REG	UIRED TO COMPLETE THE WORK, REVIEW	
		MTD MOUNTED		SHR SHOWER	<u>U</u> UTILITY ROOM	LOCATIONS WITH ARCHITECT PRIOR TO INSTA	ALLATION.		
1ENT BOARD 1ENTITIOUS BACKER UNIT	FIN FINISH FIXT FIXTURE	MTL METAL		SIM SIMILAR		14. ANT GLAZING WITHIN 18" OF FINISH FLOORING	JHALL DE IEMPERED GLASS		
NTER TO CENTER DGED CIRCUIT TELEVISION	FLASH FLASHING; FLR FL <i>OO</i> R	MULL MULLION N		SM SHEET METAL SM SURFACE MOUNTED		15. ALL WIRING SHALL BE RUN CONCEALED. NO ACCEPTABLE.	THET ARCHITECT OF PROBLEM AREAS FOR DIRECTION	TRIOR IO BEGINNING WORK, WIRE MOLD IS NOT	
1ENT	FLUOR FLUORESCENT	N NORTH		SP STANDPIPE		16. ALL FINISH FLOORING SHALL BE NEW UNLESS	NOTED OTHERWISE. REMOVE EXISTING FLOORING AND	PREPARE SURFACES AS REQUIRED TO RECEIVE	
BT IRON	FO FACE OF	NC NOISE CRITER		SPEC SPECIFICATION SPEC SPECIFIED OR		NEW FLOORING.			
DI-IN-PLACE NTROL JOINT	FT FIRE PROTECTION FPG FIREPROOFING	NIC NOT IN CONTR NO NUMBER	KACT	SPECIFICATION SPK SPRINKLER OR SPEAKER		17. THESE NOTES SHALL APPLY TO ALL BUILDIN	IGS. FOR MORE BUILDING SPECIFIC NOTES, REFER TO T	HE SCOPE OF WORK NOTES WITH EACH	
ITERLINE LING:	FR FIRE REGISTANT FRC FIBER REINFORCED	NOM NOMINAL NON COMBINON COMBILA	TIBLE	SPKR SPEAKER SQ SQUARE					
EAR Norete Magoney unit	CONCRETE FRT FIRE RETARDANT TREATED	NTS NOT TO SCAL	.E	SS STAINLESS STEEL		REFERENCED FOR A SPECIFIC CONDITION, SA	AME OR SIMILAR DETAIL SHALL APPLY TO IDENTICAL	OR SIMILAR CONDITIONS ELSEWHERE IN THE	
	FT FEET/FOOT FTG FOOTING			STA STATION		PROJECT.			
EANOUT LUMN	FURN FURNITURE	OC ON CENTER OD OUTSIDE DIAT	METER	STC SOUND TRANSMISSION COEFFICIENT		19. REFASTEN LOOSE FLOOR BOARDS AND TAKE	E OUT HIGH SPOTS. REMOVE SQUEAKS.		Drawn: JC, NC, DT
NCRETE	FURR FURRING: <u>G</u>		RAIN	STL STEEL		20. CONTRACTOR SHALL PROVIDE ALL NECESSA	ARY DEMOLITION OF EXISTING WALLS, CEILINGS, FIXTU TED ON THESE DRAWINGS	RES AND OTHER COMPONENTS AS REQUIRED TO	Date: Dec. 15, 2022 Revisions
NECTION	GA GAUGE GALV GALVANIZED		RINGTALLED	STRG STRINGER			DE MIGT RE TAVEN TO ENGLIDE THAT AD LACENT SUCH		
NTINUOUS	GB GRAB BAR		UNER	STRUCT STRUCTURAL STRUCT STRUCTURE OR		DAMAGE WHICH MIGHT OCCUR PREPARE FO	RE HUST DE TARENTO ENDURE THAT ADJACENT SURFA DR NEW FINISHES OR LAYOUT.	JEU TU REFIAIN ARE NUT DAHAGED. MATCH ANT	
NTRACTOR ORDINATE	GL GENERAL CONTRACT(OR) GEN GENERAL	OPNG OPENING		STRUCTURAL SUBCAT SUBCATEGORY		22. WHEN A WALL IS INDICATED TO BE REMOVED	D, ALL EXISTING COMPONENTS OR SERVICES IN OR ON	THE WALL SHALL BE REMOVED AND/OR	
RRIDOR	GFRC GLASS FIBER REINFORCED CONCRETE	OPP OPPOSITE	ROOF DRAIN	SUSP SUSPENDED		RELOCATED (LIGHTS, PLUMBING, ETC.)			
INTERSUNK	GL GLASS GLAZ GLAZING			SYS SYSTEM		23. CONTRACTOR SHALL PATCH AND REPAIR AN	NY DAMAGES TO EXISTING COMPONENTS WHICH ARE TO	D REMAIN.	
_D WATER	GRAN GRANULAR	PBD PARTICLE BC	DARD	I T TREAD		24. IF REQUESTED, RETURN ALL REUSABLE ITEMS	3 TO OWNER.		
EP, DEPTH UBLE	GRU GROUND GSM GALVANIZED SHEET METAL	PTC PRECAST PDF POWER DRIVI	EN FASTENER	TEB TOP AND BOTTOM TEG TONGLE AND GROOVE		25. REFER TO CIVIL, STRUCTURAL, MECHANICAL, F	PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITION	AL INFORMATION.	
GREE	GV GAS VALVE GWB GYP9UM WALL BOARD	PERF PERFORATED PERIM PERIMETER		TEL TELEPHONE/TELECOM					
PARTMENT	GYP GYPSUM	PERP PERPENDICU	LAR	IELE TELEPHONE TEMP TEMPERATURE					General Informatio
INKING FOUNTAIN IMETER		PLAM PLASTIC LAM	1INATE	TEMP TEMPORARY THK THICKNE33					
	HB HOGE BIB HC HANDICAPPED	PLAS PLASTER PLBG PLUMBING							
IENGIONS	HDWD HARDWOOD HDWR HARDWARE		LINEAR FOOT	TLT TOILET					
menser 1510n		PNL PANEL		IMPU TEMPERED TO TOP OF					(– –
MP PROOFING WN	HNDRL HANDRAIL	POL POLISHED		TOBTOP OF BEAMTOCTOP OF CONCRETE					
OR OPENING	HO HOLD OPEN HORIZ HORIZONTAL	PR PAIR PREFAB PREFABRICA	TED	TOS TOP OF STEEL					
AIN	HR HOUR	PROJ PROJECT		TV TELEVISION					Convright © 2022

ey ects on Planning ord, CT 06103 (860)724-3013 CTION RUCTION C, NC, DT 15, 2022 _____ _____ _____ _____ _____

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DEMOLITION PLAN LEGEND	DEMOLITION PLAN GENERAL NOTES	
Existing Wall Construction to remain ——— Building Component to be Demolished	 These drawings are intended to provide a diagramatic representation of demolition. Information shown shall not limit the scope of demolition work. Contractor shall be responsible for providing all necessary demolition as required to complete scope of work as indicated by the Contract Documents. Coordinate all demolition work with proposed work. Contractor shall verify existing conditions prior to commencement of demolition work. Notify Architect of any discrepancies between demolition and new work. 	(1)
	3. When removing existing components, care must be taken to ensure that adjacent surfaces to remain are not damaged. Patch and repair any damage to existing to remain components that may occur. Prepare for new finishes.	3 f (4) f
	4. Legally dispose of all construction debris off site in accordance with all Federal regulations. State and Local Ordinances	U e t
	5. All components shown as dashed shall be removed. Components that are not dashed shall remain unless noted otherwise.	(5) f
	6. If requested, return items to be removed such as doors, hardware, etc. to Owner.	
	7. Contractor to inform Owner upon discovery of any suspected hazardous materials.	(6) i
	8. Refer to elevations for additional notes regarding demolition scope.	



DEMOLITION PLAN KEYED NOTES

Remove and dispose of existing deteriorated mortar between bricks, as well as any bricks spalled for more that 25% of their overall depth. Refer to Interior Brick Rehabilitation Notes on drawing A-1 for additional information.

- Remove existing HVAC unit entirely. Existing piping, electrical, and ductwork may remain for reinstallation.
- Remove and dispose of existing rigid insulation board on walls and ceilings.
- Remove and properly dispose of existing steel oil tank. Existing piping \$ connections to remain for installation of new tank.
- Remove existing loose brick at abandoned flue inlet, and prepare opening for installation of new brick infill.
- Entirely remove existing bituminous paving swale.

Along this wall, remove existing finished wall covering to expose masonry wall behind. Remove existing studs if deteriorated, or blocking access to masonry wall.

J

Crosskey

Architects

LLC

Architecture Preservation Planning 750 Main Street, Hartford, CT 06103 T: (860)724-3000 F: (860)724-3013

library

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ublic

Fre

Aldrich

JC, NC, DT

Dec. 15, 2022

Plans

- 8 Remove existing faux brick flooring at existing hearth. Inspect original hearth finish, and report condition to Architect. Remove any remaining adhesives on substrate using gentlest means possible.
- (9) Remove existing EXIT sign above door.
- Remove and dispose of existing exterior storm window.
- Saw cut and remove a 2' wide by 3' long section of concrete floor slab to expose wall condition below slab.

INTERIOR BRICK WALL STABILIZATION NOTES

I. Existing brick walls and piers in a depth of 2"±. This will confine the Basement are compromised by the dry mortar that remains within rising damp action of the bottom the wall and restore the mortar 5 feett of each wall. This is resulting in loss of mortar and weakening of brick. The walls and https://irlsika.com/en/diy-markets/ piers are to be stabilized by treating the bottom (2) courses of brick with SikaMur

InjectoCream-100 that is injected 2. Prior to starting the work, remove into the first mortar bed joint to create an impervious barrier to the moisture that is absorbed into the porous brick. This will be followed by repointing the bed \$ head joints on both faces of the stone footing. If the wall within the rising damp zone to compromised brick continues

bearing joints. See details on drawing A-5. waterproofing/

sikamur-injectocream-100.html

a portion of the floor slab in the oil tank storage area to assess the conditions below the slab and determine what kind of footing exists. It is presumed there is a

below the slab, Bid alternate No. 6 (Replacement of (2) courses of Belden Chemical Resistant brick) will apply if directed by the Owner. https://www.beldenbrick.com/ brick/chemicalresistant

- 3. Take samples of the existing sound mortar (i.e. mortar not affected by rising damp) for testing for composition and color. original. The repointing mortar must match the existing mortar.
- 4. Most existing mortar affected by rising damp has dried out but is



still able to support the load imposed on the wall. Rake joints out to a depth of 2" Do not blow out with compressed air as that will remove more mortar than

necessary and could destabilize

the wall.

5. Pack new mortar into the joints making sure it completely fills the joint. Tool the joint to match the

6. Apply rising damp treatment to the base of the walls and piers in accordance with the manufacturer's instructions.

(USA

(USE

(16) (USC)

PLAN GENERAL NOTES

1. ALL MATERIALS ARE TO BE NEW UNLESS NOTED OTHERWISE. 2. IF PLANS AND SPECIFICATIONS PROVIDE CONFLICTING INFORMATION, THEN

- THE STRICTEST, MOST EXPENSIVE INTERPRETATION SHALL APPLY. 3. ALL DIMENSIONS TO BE FIELD VERIFIED, G.C. TO NOTIFY THE ARCHITECT WITH DISCREPANCIES, IF ANY.
- 4. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

Keyed Plan Notes:

- Existing brick masonry wall to be rehabilitated by removal of existing deteriorated mortar joints, removal and replacement of severely damaged brick, treatment of wall and joints to stop rising damp, and repointing of joints. Refer to structural notes for specific treatment and procedure.
- New furnace to be installed and connected to existing ductwork and utilities. Refer to MEP drawings for additional information.
- (3) Install new brick at existing flue inlet where loose brick was removed. New brick to be mortared in place to match existing coursing and be flush with adjacent wall.
- 4 After rehabilitation of existing brick wall, construct new wall in same location as original framed wall. Wall to consist of 2" x 4" wood studs @ 16" o.c. with 5/8" gwb over. Install new paneling to match existing, and paint to match existing.

- failure of the support.





PLAN GENERAL NOTES

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- If existing stone hearth remains under flooring removed during demolition, clean and refurbish hearth according to directions provided by Architect.
- Construct new concrete swale to channel runoff away from building. Swale to consist of 4" concrete slab w/ 6x6 10/10 WWF set in slab and shaped to match slab profile. Provide construction joints evenly spaced at 5' o.c. max. along length of swale. Refer to detail.
- Reset existing stone rubble underneath existing cut stone stair shoulder to stabilize stone and prevent failure of the support.











- (3) Existing metal downspout to remain. Inspect all joints, and reseal as necessary to prevent leakage.
- Existing PVC downspout to remain. Clean, prime & paint to match existing.
- (I) Remove and replace existing Porch floorboards with new XXXXXXXXXX
- (12) Scrape, sand \$ prime existing metal handrail and brackets, and prime \$ paint.
- (13) Remove and replace existing door with new door.







Uindow No.	Size (Approx.)	Function	Storm Window	Screen	Remarks
BASEMENT					
WØA	2'-7"± × 4'-4"±	DH			Existing replacement window to remain- scrape, sand, and repaint exterior, repair sill
WØB	2'-7"± × 4'-4"±	DH			Existing replacement window to remain- scrape, sand, and repaint exterior, repair sill, replace latch
wøc	2'-7"± × 4'-4"±	DH			Existing replacement window to remain- scrape, sand, and repaint exterior, repair sill
FIRST FLOO	R				
WIA	2'-7"± × 6'-1"±	DH	•		Restore window. Reputty glazing
WIB	2'-7"±×6'-1"±	DH	٠		Restore window. Reputty glazing
WIC	2'-7"±×6'-1"±	DH	٠		Restore window. Reputty glazing
WID	2'-7"±×6'-1"±	DH	٠		Restore window. Reputty glazing
WIE	2'-7"±×6'-1"±	DH	•		Restore window. Reputty glazing
WIF	2'-7"±×6'-1"±	DH	•		Restore window. Reputty glazing
WIG	2'-7"±×6'-1"±	DH	•		Restore window. Reputty glazing
W2	4'-1"± × 7'-Ø"±	F/AT	٠		Restore window. Replace sash cords, reputty glazing, repair sill
W3	2'-4"± × 6'-1"±	DH	•		Restore window. Reputty top sash, restore correct operation
W4	4'-2"± × 3'-2"±	Ŧ	•		Clean window
W5	2'-6"± × 4'-3"±	DH	•		Restore window. Replace sash cords, repair latch
W6A	4'-2"± × 3'-2"±	Ŧ	•		Restore window. Reputty glazing
W6B	4'-2"± × 3'-2"±	Ŧ			Restore window. Replace cracked pane, reputty glazing, fix head stop
WEC	4'-2"± × 3'-2"±	Ŧ	•		Restore window. Reputty glazing
ΨīΑ	4'-2"± × 3'-2"±	Ŧ	•		Clean window. Reputty glazing as necessary
WTB	4'-2"± × 3'-2"±	А	•		Clean window. Fix hinge, restore operation, reputty glazing as necessary
ΨīC	4'-2"± × 3'-2"±	Ŧ			Restore window. Fix screws at window stop
WTD	4'-2"± × 3'-2"±	Ŧ	•		Clean window. Reputty glazing as necessary
W8A	2'-7"±×6'-1"±	DH	•		Clean window. Reputty glazing as necessary
WSB	2'-7"±×6'-1"±	DH			Clean window. Reputty glazing as necessary
WBC	2'-7"±×6'-1"±	DH			Clean window. Reputty glazing as necessary
WSD	2'-7"±×6'-1"±	DH			Clean window. Reputty glazing as necessary
WSE	2'-7"±×6'-1"±	DH	٠		Clean window. Reputty glazing as necessary
ШÐ	3'-Ø"±×6'-4"±	DH	۲		Restore window. Repair interior side of sash, reputty glazing
W1Ø	3'-Ø"±×6'-4"±	DH	۲	•	Restore window. Repair latch, reputty glazing
 SECOND FI	. <i>00</i> R				
W21	$4'-1'' \pm \times 4' - \mathscr{O}'' \pm$	DH-3/AT	•		Replace window sashes with new to match, replace sash cords, restore proper operation
W22	4'-2"± × 3'-2"±	ŧ	•		Restore window. Replace cracked pane, reputty glazing
W23	$4'-1'' \pm \times 4' - \mathscr{O}'' \pm$	DH-3/AT	•		Replace window sashes/ frame with new to match, replace sash cords, restore proper operation
W24	$4'-1'' \pm \times 4' - \mathscr{O}'' \pm$	DH-3/AT	•		Restore window. Repair as necessary, reputty glazing
W25	$4' - 1'' \pm \times 4' - 0'' +$				Restore window. Replace sash cords, replace cracked pane, reputty glazing

Crosskey Architects LLC Architecture Preservation Planning 750 Main Street, Hartford, CT 0610 T: (860)724-3000 F: (860)724-3013 library H ublic re F Aldrich 100% CONSTRUCTION DOCUMENTS NOT FOR CONSTRUCTION JC, NC, DT Drawn: Dec. 15, 2022 Date: Revisions Window Schedule & Details

A-4



6 FIRST FLOOR PLAN/ BID ALTERNATE *4

BID ALTERNATE #4 DESCRIPTION:

l. Within shaded areas, lightly and carefully sand existing woodwork. Clean, and finish with varnish according to specifications.

HVAC KEY NOTES:

- EXISTING AIR HANDLER AF-1 TO BE REMOVED AND REPLACED WITH NEW. MODIFY NEW DUCTWORK TO CONNECT TO EXISTING AS REQUIRED.
- (2) EXISTING AIR HANDLER AF-1 FLU VENT TO BE REMOVED AND REPLACED WITH NEW.
- 3 EXISTING DUCTWORK TO REMAIN PATCH AND REPAIR LEAKS AND REINSULATE AS NECESSARY.
- (4) EXISTING OIL TANK TO BE INTERNALLY CHEMICALLY CLEANED AND INSPECTED FOR OVERALL CONDITION. REPAIR OR REPLACE ANY DAMAGE.
- (5) EXISTING CEILING DIFFUSERS TO REMAIN.
- (6) EXISTING FLOOR REGISTERS TO REMAIN.
- (7) EXISTING CONDENSING UNIT CU-1 TO BE REMOVED AND REPLACED WITH NEW.

- ALL EQUIPMENT IS NEW AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.
- ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE CODE.
- Crosskey Architects LLC Architecture Preservation Planning 750 Main Street, Hartford, CT 06103 T: (860)724-3000 F: (860)724-3013 ary F ibi \mathbf{C} ublid **À** (\mathbf{D}) Fre(Aldrich NOT FOR CONSTRUCTION MRP Drawn: 12/15/2022 Date: Revisions BASEMENT & FIRST FLOOR PLAN -MECHANICAL M-110

GENERAL MECHANICAL NOTES:

- 1. ALL WORK IS NEW UNLESS NOTED OTHERWISE.
- 2. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE CODE.
- ALL PIPING & DUCT SYSTEMS SHALL BE CONCEALED ABOVE CEILINGS OR WITHIN WALLS UNLESS SPECIFICALLY NOTED OTHERWISE.
- 4. DUCTWORK DIMENSIONS INDICATED ON PLANS ARE CLEAR INSIDE DIMENSIONS. PROVIDE TURNING VANES IN MITERED FITTINGS.
- COORDINATE DUCTWORK & PIPE ROUTING WITH ALL TRADES. PROVIDE OFFSETS & FITTINGS AS REQUIRED FOR INSTALLATION.
- 6. REFER THE ARCHITECTURAL REFLECTED CEILING PLANS FOR THE EXACT PLACEMENT OF DIFFUSERS, GRILLES & REGISTERS.
- 7. SOUND LINE RETURN PLENUMS & FIRST 10 FEET OF SUPPLY DUCT.
- 8. REFER TO PLUMBING PLANS FOR CONDENSATE PIPING & TERMINATION
- 9. REFRIGERANT PIPING SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
- 10. PROVIDE ALL SERVICE/ACCESS CLEARANCES FOR MECHANICAL EQUIPMENT PER MANUFACTURERS' INSTRUCTIONS AND RECOMMENDATIONS. COORDINATE PRIOR TO INSTALLATION OF EQUIPMENT, PIPING, AND DUCTWORK
- 11. PROVIDE ACCESS DOORS FOR DAMPERS LOCATED IN NON ACCESSIBLE SPACES, INCLUDING INACCESSIBLE CEILINGS. ACCESS DOORS SHALL MATCH SURROUNDINGS (COLOR BY ARCHITECT) AND SHALL HAVE FIRE RATING TO MATCH WALL OR CEILING SERVING.
- 12. COORDINATE THE WORK OF THIS PROJECT WITH EXISTING BUILDING ELEMENTS AND EQUIPMENT. ALL WORK SHALL BE CONCEALED UNLESS NOTED OTHERWISE.
- 13. COORDINATE THE INSTALLATION OF GRILLES WITH EXISTING CEILING DEVICES.
- 14. VERIFY ALL THERMOSTAT TYPES & LOCATIONS WITH OWNER PRIOR TO ORDERING.
- 15. ALL BATHROOM, KITCHEN & DRYER EXHAUST OUTLETS MUST BE 3' MINIMUM FROM OPERABLE WINDOW OPENINGS.

HVAC KEY NOTES:

1) EXISTING ELECTRIC BASEBOARD RADIATORS TO REMAIN ..

								Cooling Desig	Heating Design	n		Corrected Capacit	ty							Max Fan ESP	Sound Pressure	•			
								Entering Tem	Entering Temp	Cooling Diversity	У		Heating Diversity	y	Estimated	Estimated	Refrig Pipe Dim		Peak Fan Airflow	Setting	Per Fan Speed				
· · · · · ·	Description	Top	Martal	Tura	Nominal (Cooling Capacity	Nominal Heatin	ng DB/WB (°F) /	DB/WB (°F) /	Full/Partial (See	e Cooling Total	Cooling Sensible	Full/Partial (See	Heating Capacit	y Cooling Coil LAT	Heating Coil LAT	Liquid/Suction	Fan Speed	(cfm) / [Design	208V/230V (IN	208V/230V		Power Cooling P	ower Heating Electrical	
ystem Tag	Room Name	lag Reference		Iype		(BTU/n)		(n) [vvater in temp	Uvater in temp	oj Note 5, 6)	Capacity (BTU/I	n) Capacity (BTU/n) NOTE 5, 6)	(BTU/n)		(°F)/ [LVVI]	(INCN)	Setting	gpm G(US)/minj	VVG)	(dBA)	Voltage / Phase	e 208V/230V (KVV) 20	BV/230V (KVV) MCA/MFS	NO.
tem 1		IDU-A	70B	Nav)	24,000.0		26.000.0	80.0/67.0	70.0	FULL DEMAND	23.391.8	20.479.1	FULL DEMAND	25.463.8	56.1	99.1	5/8 / 3/8	HIGH	810		28 - 30 - 33 - 36	phase		Outdoor	1. 2.
				,																					
	Notes & Options:																								
	1 Nominal cooling of	capacities are bas	ed on indoor coil EA	F of 80/67°F (DB/WF	3), outdoor of 95°F	(DB)																			
	3 See outdoor unit	schedule for outdo	or ambient condition	is connected canac	vity and other facto	ors associated with	corrected capac	ities																	
	4 See schematic pi	iping/control diagra	m for indication of r	equired indoor unit r	emote controllers, s	system controllers.	, and integration (devices.																	
	5 Full demand corre	ected capacity inc	udes de-rate associ	ated with indoor vs.	outdoor connected	d capacity indicated	I on outdoor unit	schedule for																	
	associated syste	m.																							
	Partial corrected	capacity assumes	sufficient diversity e	xists such that the	connected capacity	y de-rate does not :	apply.																		
	It is the designer	s responsibility to	ensure "Diamond Sy	stem Builder" is set	. In the appropriate	output capacity se	tting (full demand	d/partial demand)																	
	6 It is recommende	d to always base	eating corrected ca	apacity on full demar	ld																				
		a to aways base	leading concerca ed	pacity of fail definan	<u>u.</u>																				
SUBIS			AC US: CIT			UNIT SCHE																			
ODIC							DULL				ĺ														
						1	Cooling		Nom System				Refrig Pipe Dim					Preliminary		Electrical-	Per Module				
						1	Efficiency		Connected	Design Cooling	Design Heating	Max Pipe Length	High/Low	Corrected	Corrected		Inverter Driven	Added Field		208/230	or [460V]				
					Nominal Cooling	Nominal Heating	IEER/EER	Heating COP @	Capacity (% of	Outdoor Temp	Outdoor Temp	from BC or 1st	Pressure (inch)	Cooling Total	Heating Capacity	Sound Pressure	Compressor	Charge (See		MCA 208/230 or					
tem Tag	Tag Reference	M-NET Address	Model Number	Modules	Capacity (BTU/h)	Capacity (BTU/h)	[SEER]	47°F [HSPF]	NOM)	DB (°F)	WB (°F)	Joint (feet)	(See Note 4)	Capacity (BTU/h)	(BTU/h)	(dBA)	Type / Quantity	Note 5)	Voltage / Phase	[460V]	RFS	MOCP	Notes / Options		
n 1				4	24 000 0	26,000,0	0 [24 20]	0 [11 20]	100.0%	95.0	13.0	0.0	3/8 / 5/8	23 301 8	25 463 8	17/18		0.0	208/230V / 1-	10	25	26	12315		
<u>.</u>	0004		7		24,000.0	20,000.0	7 [24.20]	0[11.20]	100.070	55.0	40.0	0.0	0101 010	20,001.0	20,400.0	-111-0		0.0	phase	15	20	20	1, 2, 0, 4, 0		
	Notes & Options					<u>.</u>																			
	1 Nominal cooling	capacities are bas	ed on indoor coil EA	T of 80/67°F (DB/W	/B), outdoor of 95°F	F (DB)																			
	2 Nominal heating	annesities are been	ed on indoor coil EA	AT of 70°E (DB) out	door of 43°F (WB)	í l																			
	2 Norman Treating	capacities are bas					2 12 22																		
	3 Efficiency values	for EER, IEER, C	OP are based on Al	IRI 1230 test metho	d for mixture of due	icted & non-ducted	indoor units.	1																	
	3 Efficiency values 4 For systems with 5 Added field charry	for EER, IEER, C multiple modules	OP are based on Al , refrigerant pipe din	HRI 1230 test metho tensions indicate to	nd for mixture of due tal system combine ted based upon fin	icted & non-ducted red piping downstre	indoor units. am of module tw	inning.																	
	3 Efficiency values 4 For systems with 5 Added field charg	for EER, IEER, C multiple modules ge listed is in addit	DP are based on Al , refrigerant pipe din ion to factory charge	HRI 1230 test metho rensions indicate to , this must be upda	od for mixture of du tal system combin- ited based upon fin	icted & non-ducted ned piping downstre nal as-built piping la	indoor units. am of module tw ayout.	inning.																	
	 3 Efficiency values 4 For systems with 5 Added field charge 	for EER, IEER, C n multiple modules ge listed is in addit	DP are based on Al , refrigerant pipe din ion to factory chargo	HI 1230 test metho rensions indicate to a, this must be upda	nd for mixture of du tal system combin ated based upon fin	icted & non-ducted ned piping downstre nal as-built piping la	indoor units. am of module tw ayout.	inning.																	
	3 Efficiency values 4 For systems with 5 Added field charg	for EER, IEER, C n multiple modules ge listed is in addit	DP are based on Al , refrigerant pipe din ion to factory charge	HI 1230 test metho rensions indicate to a, this must be upda	od for mixture of du tal system combin ated based upon fin	icted & non-ducted ned piping downstre nal as-built piping Ιε	indoor units. eam of module tw ayout.	inning.																	
	 3 Efficiency values 4 For systems with 5 Added field charge 	for EER, IEER, C n multiple modules ge listed is in addit	DP are based on AI , refrigerant pipe din ion to factory charge	HRI 1230 test metho nensions indicate to a, this must be upda	od for mixture of du ital system combin ated based upon fin	icted & non-ducted ned piping downstre nal as-built piping Ιε	indoor units. ∍am of module tw ayout.	inning.																	
	 3 Efficiency values 4 For systems with 5 Added field charge 	for EER, IEER, C n multiple modules ge listed is in addit	DP are based on AI , refrigerant pipe din ion to factory charge	HRI 1230 test metho nensions indicate to e, this must be upda	od for mixture of du ital system combin ated based upon fin	Jucted & non-ducted ned piping downstre nal as-built piping la	indoor units. ∍am of module tw ayout.	inning.																	
	3 Efficiency values 4 For systems with 5 Added field charg	for EER, IEER, C n multiple modules ge listed is in addit	DP are based on Al , refrigerant pipe din ion to factory charge	HRI 1230 test metho nensions indicate to e, this must be upda	od for mixture of du ital system combin ated based upon fin	icted & non-ducted ned piping downstre nal as-built piping اه	indoor units. eam of module tw ayout.	inning.																	
	3 Efficiency values 4 For systems with 5 Added field charg	for EER, IEER, C n multiple modules je listed is in addit	DP are based on AI , refrigerant pipe din ion to factory charge	HRI 1230 test metho nensions indicate to e, this must be upda	od for mixture of du ital system combin ated based upon fin	icted & non-ducted ned piping downstre nal as-built piping اه	indoor units. eam of module tw ayout.	inning.			RNACE	SCHEDI	IIF												
	 3 Efficiency values 4 For systems with 5 Added field charge 	for EER, IEER, C n multiple modules je listed is in addit	DP are based on AI , refrigerant pipe din ion to factory charge	HRI 1230 test methc nensions indicate to e, this must be upda	od for mixture of du ital system combin ated based upon fin	Jucted & non-ducted ned piping downstre nal as-built piping la	indoor units. eam of module tw ayout.	inning.		AIR FU	RNACE	SCHEDU	JLE												
	3 Efficiency values 4 For systems with 5 Added field charg	for EER, IEER, C n multiple modules je listed is in addit	DP are based on AI , refrigerant pipe din ion to factory charge	HRI 1230 test methc nensions indicate to e, this must be upda	od for mixture of du ital system combin ated based upon fin	Jucted & non-ducted ned piping downstre nal as-built piping la	indoor units. eam of module tw ayout.	inning.		AIR FU	RNACE	SCHEDI	JLE												
	3 Efficiency values 4 For systems with 5 Added field charg	for EER, IEER, C n multiple modules ge listed is in addit	DP are based on AI , refrigerant pipe din ion to factory charge	FAN	od for mixture of du ital system combin ated based upon fin SECTION	Jucted & non-ducted ned piping downstre nal as-built piping la	indoor units. eam of module tw ayout.	inning. - ELECTF	RICAL	AIR FU	RNACE DX	SCHEDI	JLE COIL SEC	 		NATUR	AL GAS HE	ATING SI	ECTION						
JNIT N	 a Efficiency values 4 For systems with 5 Added field charg a Added field charg 	The second secon	DP are based on Al	FAN	od for mixture of du ital system combin ated based upon fin SECTION	Jacted & non-ducted ned piping downstre nal as-built piping la	indoor units. sam of module tw ayout.	ELECT	RICAL	AIR FU	RNACE DX	SCHEDU COOLING	JLE COIL SEC SENS. CAP. EDB	CTION /EWB			AL GAS HE	ATING SE		SHT O.A.					
JNIT N	 a. MANUF b. MANUF 	T. /MODEL	DP are based on AH, refrigerant pipe din ion to factory charge	FAN	od for mixture of du ital system combin ated based upon fir SECTION S.P. SF	PEED	indoor units. eam of module tw ayout. HP VOL	inning. ELECTF _TAGE AMI	RICAL PS MOCP	AIR FU	RNACE DX 10DEL	SCHEDU COOLING TOT. CAP. S	JLE COIL SEC SENS. CAP. EDB	CTION /EWB -		NATUR, INPUT MBH	AL GAS HE OUTPUT MBH % AFI	ATING SI	ECTION LAT F	SHT O.A. S. CFM					
	 a. MANUF b. MANUF 	Capacities are bas for EER, IEER, C n multiple modules je listed is in addit	DP are based on AH , refrigerant pipe din ion to factory charge CFM	FAN	od for mixture of du ital system combin ated based upon fir SECTION S.P. SF	PEED	indoor units. eam of module tw ayout. HP VOL	ELECTF	RICAL PS MOCP	AIR FU	RNACE DX 10DEL	SCHEDU COOLING	JLE COIL SEC SENS. CAP. EDB	CTION F -		NATUR/ INPUT MBH	AL GAS HE OUTPUT MBH % AFT	ATING SE	ECTION LAT F	SHT O.A. S. CFM					
NIT N AF-1	o. MANUF	Capacities are bas for EER, IEER, C n multiple modules je listed is in addit	DP are based on AH , refrigerant pipe din ion to factory charge CFM 4 1600	FAN E.S.P. T.S. 0.50" 0.	od for mixture of du ital system combin ated based upon fir SECTION S.P. SF 80"	PEED	indoor units. eam of module tw ayout. HP VOL 1/2 115	INNING. ELECTF TAGE AMI 5V/1ø 16.	RICAL PS MOCP 9 20	AIR FU N CNPHP482	RNACE DX 10DEL	SCHEDU COOLING TOT. CAP. S MBH 60.0	JLE COIL SEC SENS. CAP. EDB MBH 48.0 80,	CTION /EWB - /67		NATUR/ INPUT MBH 154	AL GAS HE OUTPUT MBH % AFI 129 85	ATING SE JE EAT F 50	ECTION LAT F 95 -	SHT O.A. S. CFM					

	CONDENSING UNIT SCHEDULE															
	MANUE /MODEL	COOLING		COND.	COND. FAN		COMPRESSOR					MOCD	WEIGHT	SEED	REMARKS	
		T.MBH	S.MBH	HP	RPM	QTY.	RLA	LR	A VOLTAGE	PHASE		MOCF	LBS.	SEER		
CU-1	CARRIER 24APB648A003	45.6	34.3	1/5	800	1	16.7	82.0	208/230V	1	25.9	40	274	16.0	PROVIDE ALL REQUIRED REFRIGERATION SPECIALTIES. REFRIGERANT PIPING SHALL BE SIZED TO MANUFACTURER'S RECOMMENDATIONS.	

	EXHAUST FAN SCHEDULE												
TYP	TYPE MANUF. & MODEL CFM ESP HP WATTS RPM VOLTS/Ø SOUND WEIGHT (Ibs.) CONTROL BY REMARKS												
CEF-	A PANA	SONIC FV-	-0511VKS2	30/80	0.250"	_	10	1113	120/60/1	0.5 SONES	11	MOTION SENSOR	BATH WITH CONTINUOUS LOW SETTING WHEN NOT OCCUPIED

Piping Diagram Image (Design View)

TRUZAC241HA70NA 3.0 ft

	SYMBOLS LIST					
AF	AIR FURNACE					
S.	SUPPLY					
Ε.	EXHAUST					
EF	EXHAUST FAN					
TE	TOILET EXHAUST					
OA	OUTSIDE AIR					
CU	CONDENSING UNIT					
	SUPPLY OR FRESH AIR DUCT (UP/DOWN)					
	RETURN OR EXHAUST AIR DUCT (UP/DOWN)					
	ACCOUSTICALLY LINED DUCTWORK					
	FLEXIBLE DUCTWORK					
D MD	MOTORIZED DAMPER					
VD	VOLUME DAMPER					
FD	FIRE DAMPER					
(T)	THERMOSTAT, ELECTRIC, MOUNT AT 4'-0"					
	EXHAUST DUCT					
	SUPPLY/RETURN DUCT					

23,392 BTU/h (20,479 BTU/h) Est. Cooling Discharge Air Temp: 56.1 25,464 BTU/h Est. Heating Discharge Air Temp: 99.1

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DETAIL PLAN -MECHANICAL

M-200

1.01 GENERAL

1.05 DEFINITION:

ARCHITECT'S GENERAL CONDITIONS ARE A PART OF THIS DIVISION. ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND REGULATIONS OF LOCAL AND STATE AGENCIES AND UTILITY COMPANIES. THIS CONTRACTOR SHALL BEAR THE COST OF ALL FEES, PERMITS, LICENSES AND TAXES AND ANY UTILITY COMPANY CHARGES IN CONNECTION WITH THE WORK. 1.02 SCOPE

1.25 ACCESS:

LOCATED

1.26 TESTS:

1.27 SEISMIC REQUIREMENTS:

THE CONNECTICUT, THAT

PART 2 - PRODUCTS

SILVER BRAZING ALLOY.

(1") INCH CLASSIFICATION.

INSULATION SYSTEMS:

DUCT SYSTEM INSULATION:

MOISTUR

PIPING:

DUCTWORK:

DUCTWORK.

2.01 MATERIALS AND METHODS

PROVIDE ADEQUATELY SIZED ACCESS DOORS, FOR ACCESS TO CONCEALED

EQUIPMENT AND COMPONENTS REQUIRING SERVICING OR INSPECTION. DOORS SHALL HAVE FIRE RATINGS EQUAL TO CONSTRUCTION IN WHICH THEY ARE

PERFORM TESTS REQUIRED BY THE OWNER. LEGAL AUTHORITIES AND AGENCIES.

SUBMIT FOUR (4) COPIES OF A FINAL INSPECTION REPORT WHICH INCLUDES: SEALED CERTIFICATION BY A STRUCTURAL ENGINEER WITH P.E. REGISTRATION IN

THE DEVICES SATISFY SPECIFICATION- AND CODE-MANDATED SEISMIC

ALL PIPING SHALL BE SUPPORTED IN A MANNER TO PREVENT VIBRATION OR

SAGGING. IN NO CASE SHALL THE HANGER SPACING EXCEED THE DISTANCES LISTED IN THE BOCA NATIONAL MECHANICAL CODE.

REFRIGERANT PIPING SHALL BE TYPE L REFRIGERANT SERVICE COPPER. 3/4" OUTSIDE DIMENSIONS OR SMALLER MAY BE SOFT DRAWN MEETING ASTM BS280.

MEETING ANSI B16.26.SAE. JOINTS ON ALL LINES SHALL BE BRAZED 3001TH 45

ALL DUCTWORK AND ACCESSORIES SHALL BE CONSTRUCTED, FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS MANUALS

FOR LOW PRESSURE DUCTS, FIRE DAMPER INSTALLATIONS AND FLEXIBLE

FLEXIBLE DUCTS TO AIR OUTLETS SHALL BE UL CLASS 1 CONNECTORS WITH

TYPE IX. FLEXIBLE DUCTS CAN BE UTILIZED FOR THE FINAL CONNECTION TO SUPPLY DIFFUSERS ONLY, WITH A MAXIMUM LENGTH OF 4 FEET PERMITTED. ALL AIR CONDITIONING, SUPPLY AND EXHAUST, OUTSIDE AIR AND VENTILATION

AIRTIGHT CORE, GALVANIZED WIRE HELIX AND PRE-INSULATED WITH ONE (1") INCH, 3/4 PCF FIBERGLASS WITH A FLAME RETARDANT VAPOR BARRIER. FLEXMASTER

SYSTEMS DUCTWORK SHALL BE GALVANIZED SHEET METAL, TWO (2") INCH STATIC PRESSURE CLASSIFICATION, SEAL CLASS "C". RETURN AIR DUCTWORK TO BE ONE

INSTALL ADEQUATE BALANCING; E.G., VOLUME DAMPERS, EXTRACTORS, ETC., AS REQUIRED TO BALANCE EACH SYSTEM TO ITS DESIGN AIRFLOWS.

SHALL BE CONSTRUCTED AND INSTALLED IN CONFORMANCE T

DUCTWORK SHALL BE THERMALLY INSULATED AS WELL.

2.02 SEALED COMBUSTION GAS FIRED AIR FURNACES

POSSIBLE ON EITHER SIDE OF CABINET.

1750 REV/MIN MULTI-SPEED MOTOR.

UNIT CABINET FOR EASY CONNECTION.

FASY REPLACEMENT

MANUFACTURER'S INSTRUCTIONS, NFPA 90A AND THE BUILDING OFFICIAL

SCHEDULE (ALL CONFORMING TO ASHRAE STANDARD 90.1 - 1989):

PIPING SYSTEMS SHALL BE INSULATED IN ACCORDANCE WITH THE FOLLOWING

INSULATE REFRIGERATION PIPING WITH GLASS FIBER INSULATION WITH MINIMUM

INSULATION SHALL RUN CONTINUOUS THROUGH ALL PIPE HANGERS. PROTECT INSULATION WITH 12" LONG SHEET METAL INSULATION PROTECTION SADDLES.

MAINTAIN THE INTEGRITY OF ALL PIPING VAPOR BARRIERS. SHOULD CONDENSATION DEVELOP ON ANY PIPE, FITTING, ETC., THE CONTRACTOR SHALL

CONCEALED AIR CONDITIONING SUPPLY AND RETURN DUCT SYSTEMS SHALL BE

FURNACE SHALL BE SELF-CONTAINED, PACKAGED, FACTORY ASSEMBLED, PRE-

DUTDOOR PACKAGE CONTAINING COMPRESSOR, CONDENSER COIL AND

COMPARTMENT ACCESS PANELS. BLOWER ASSEMBLY AND FILTER MAY BE

HEAT EXCHANGER: ALUMINIZED STEEL WELDED CONSTRUCTION.

COMBUSTION CHAMBER: WELDED STAINLESS STEEL.

WIRED UNIT CONSISTING OF CABINET, SUPPLY FAN, HEAT EXCHANGER, BURNER, CONTROLS WITH THERMOSTAT, AIR FILTER, REFRIGERANT COOLING COIL AND

CABINET: CONSTRUCTED OF HEAVY GAUGE COLD ROLLED STEEL. CABINET SHALI

ESTIBULE PANEL, SIDE PANELS AND ON BACK PANEL. BLOWER COMPARTMENT

COMPLETELY LINED WITH BLACK MATT FACED FIBERGLASS INSULATION. COMPLET

ERVICE ACCESS IS ACCOMPLISHED BY REMOVING HEATING SECTION AND BLOWE

COMPLETELY REMOVED FROM UNIT FOR SERVICE. BLOWER DECK HAS RAILS THAT

ANGLE DOWN FOR EASY BLOWER REMOVAL. SAFETY INTERLOCK SWITCH LOCATED IN THE CONTROL BOX AUTOMATICALLY SHUTS OFF POWER TO THE UNIT WHEN

BLOWER COMPARTMENT ACCESS DOOR IS REMOVED. INTAKE AND EXHAUST AIR OPENINGS ARE FURNISHED ON TOP OF FURNACE. GAS PIPING AND ELECTRICAL

NLETS ARE PROVIDED IN BOTH SIDES OF THE CABINET. RETURN AIR ENTRY IN

SUPPLY FAN: CENTRIFUGAL TYPE, RUBBER MOUNTED WITH DIRECT OR BELT DRIVE, (ADJUSTABLE VARIABLE PITCH MOTOR PULLEY), RUBBER ISOLATED HINGE MOUNTED

AIR FILTERS: ONE INCH THICK GLASS FIBER, DISPOSABLE TYPE ARRANGED FOR

FLUE CONDENSATE TRAP ASSEMBLY: FLUE ASSEMBLY CONNECTS TO FLUE PIPE

WITH CONNECTOR AND HOSE CLAMPS AND TO INDUCED DRAFT BLOWER. VENTS COMBUSTION PRODUCTS AND COLLECTS CONDENSATE. ASSEMBLY CONTAINS A

BUILT-IN INTERNAL TRAP AND A REMOVABLE BOOT ON THE BOTTOM FOR EAS

CLEANING AND SERVICING. FLUE TRAP DRAIN HOSE RUNS FROM ASSEMBLY TO HEADER BOX CONDENSATE TRAP.

HEADER BOX CONDENSATE TRAP: HEADER BOX ON END OF CONDENSER COIL

CONTAINS A BUILT-IN INTERNAL TRAP AND A REMOVABLE BOOT ON BOTTOM FOR COLLECTS FLUE CONDENSATE FROM FLUE TRAP FOR DISPOSAL THROUGH ONE

ADAPTOR AND NIPPLE THAT EXTENDS CONDENSATE DRAIN OUT EITHER SIDE OF

GAS BURNER: ALUMINIZED STEEL INSHOT BURNERS. BURNER VENTURI MIXES AIR

ASSEMBLY IS REMOVABLE FROM THE UNIT AS A SINGLE COMPONENT FOR EASE OF SERVICE. ELECTRONIC PILOT IGNITION: SOLID-STATE ELECTRONIC SPARK IGNITOR

PROVIDES POSITIVE IGNITION OF PILOT BURNER ON EACH OPERATING CYCLE. PILOT

GAS IS IGNITED AND BURNS DURING EACH RUNNING CYCLE (INTERMITTENT PILOT) OF THE FURNACE. MAIN BURNERS AND PILOT GAS ARE EXTINGUISHED DURING THE

DEMAND FOR HEAT, SHOULD A LOSS OF FLAME OCCUR. THE MAIN VALVE CLOSES.

AUTOMATICALLY RESETS IGNITION CONTROLS AFTER ONE HOUR OF CONTINUOUS

FHERMOSTAT DEMAND AFTER UNIT LOCKOUT. ELIMINATING NUISANCE CALLS FOR

COMBINES AUTOMATIC SAFETY PILOT, MANUAL SHUT OFF OPTION (ON-OFF), PILOT

FILTRATION, AUTOMATIC ELECTRIC VALVE (DUAL) AND GAS PRESSURE REGULATION

SERVICE. IGNITION CONTROL IS FACTORY INSTALLED ON THE VESTIBULE PANEL.

AUTOMATIC GAS CONTROL: SILENT OPERATING GAS CONTROLS PROVIDE 100

SAFETY SHUT OFF. 24 V REDUNDANT COMBINATION GAS CONTROL VALVE

UTTING DOWN THE UNIT. IGNITION MODULE HAS LED TO INDICATE STATUS AND

OFF CYCLE. SYSTEM PERMITS MAIN GAS VALVE TO OPEN ONLY WHEN THE PILOT

BURNER IS PROVEN TO BE LIT. PILOT IS A FULLY AUTOMATIC OPERATION ON

AS AN AID IN TROUBLESHOOTING. WATCHGUARD CIRCUIT ON MODULE

AND GAS IN CORRECT PROPORTION FOR PROPER COMBUSTION. BURNERS ARE

COMPLETELY ENCLOSED IN HEAVY GAUGE STELL BURNER BOX. BURNER SIGHT GLASS IS FURNISHED ON BURNER BOX FOR FLAME OBSERVATION. BURNER

GLE DRAIN PIPE. ALSO FURNISHED FOR FIELD INSTALLATION IS A « INCH MPT

HAVE BAKED ENAMEL FINISH. PROVIDE FOIL FACED FIBERGLASS INSULATION ON

INSULATED WITH 1-1/2" THICK FIBERGLASS DUCT WRAP WITH CONTINUOUS VAPOR BARRIER. INSULATE ALL OUTSIDE AIR DUCTWORK AND EXHAUST DUCTWORK ON COLD SIDE OF DAMPERS WITH 2" THICK, RIGID FOIL-FACED FIBERGLASS DUCT INSULATION. ACOUSTICAL LINING, WHERE SHOWN, SHALL BE NOMINAL 1" THICK FIBERGLASS DUCT LINER, UNLESS OTHERWISE INDICATED. ACOUSTICAL LINED

DENSITY OF 3-1/2 PCF AND MAXIMUM K VALUE OF 0.25 @ 75 DEGREE F: PIPING

CORRECT THE VAPOR BARRIER BREAK AND REPLACE ANY INSULATION DAMAGED BY

FURNISH AND INSTALL UL LISTED FIRE DAMPERS AND ACCESS DOORS AT ALL DUCT PENETRATIONS OF WALLS, FLOORS, PARTITIONS, ETC., THAT ARE REQUIRED TO HAVE A FIRE RESISTANCE RATING. FIRE DAMPERS, SLEEVES, ACCESS DOORS, ETC.,

LARGER SIZES SHALL BE HARD DRAWN MEETING ASTM B88.62 ACR. FITTING SHALL BE WROUGHT OR FORGED COPPER SOLDER PATTERN FOR HARD DRAWN TUBE

FINAL TESTS SHALL BE MADE IN THE OWNER'S PRESENCE.

ENGINEER HAS REVIEWED THE PROJECT.

PPLICATIONS.

EACH PIECE OF EQUIPMENT, INCLUDING MOTORS AND CONTROLS, SHALL BE OPERATED CONTINUOUSLY FOR MINIMUM ONE-HOUR TEST. CORRECT ALL DEFECTS

APPEARING DURING TESTS, AND REPEAT TESTS UNTIL NO DEFECTS ARE DISCLOSED.

ENGINEER HAS APPROVED THE USE OF THE DEVICES FOR THE PARTICULAR

PROVIDE A COMPLETE HVAC SYSTEM AND ALL OTHER EQUIPMENT AS SHOWN ON THE DRAWINGS AND HEREIN SPECIFIED. INCLUDING BUT NOT LIMITED TO:

SEALED COMBUSTION GAS FIRED AIR FURNACES. DX COOLING COILS CONDENSING UNITS, COMBUSTION VENTING SYSTEMS, EXHAUST FANS, REFRIGERANT PIPING, REFRIGERANT ACCESSORIES, DUCTWORK, DUCT ACCESSORIES, AIR TERMINALS AND TEMPERATURE/VENTILATION OPERATING & SAFETY CONTROLS.

SYSTEM SHALL BE COMPLETE IN ALL RESPECTS, TESTED, ACCEPTED AND READY TO 1.03 SUBMITTALS

SUBMIT EIGHT (8) COPIES OF MANUFACTURER'S DRAWINGS OF THE FOLLOWING TO THE ARCHITECT FOR APPROVAL:

SEALED COMBUSTION GAS FIRED AIR FURNACES WITH DX COILS SEALED COMBUSTION VENTING SYSTEMS CONDENSING UNITS

TEMPERATURE, VENTILATION & SAFETY CONTROLS DUCTWORK, DUCTWORK ACCESSORIES & AIR TERMINALS

SUBMIT EIGHT (8) COPIES OF DUCTWORK ERECTION COORDINATION SHOP DRAWINGS SHOWING CLEARANCES WITH STRUCTURAL MEMBERS AND COORDINATION WITH EQUIPMENT OF OTHER TRADES. 1.04 GUARANTEE

MATERIALS, EQUIPMENT AND WORKMANSHIP SHALL HAVE STANDARD WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP. ANY FAILURE DUE TO EFECTIVE OR IMPROPER MATERIAL, EQUIPMENT, WORKMANSHIP OR DESIGN SHALL BE MADE GOOD, FORTHWITH, BY AND AT THE EXPENSE OF THE CONTRACTOR, LUDING ANY DAMAGE DONE TO AREAS, MATERIALS AND OTHER SYSTEMS RESULTING FROM THIS FAILURE. GUARANTEE PERIOD SHALL EXTEND FOR ONE YEAR FROM THE DATE OF ACCEPTANCE.

THE HVAC CONTRACTOR SHALL PROVIDE A GUARANTEE COVERING ALL MATERIAL AND WORKMANSHIP FOR 1 YEAR FOLLOWING THE DATE OF ACCEPTANCE. PROVIDE MANUFACTURER'S 4 YEAR EXTENDED LABOR AND PARTS WARRANTEE FOR CONDENSING UNIT COMPRESSORS.

AS USED ON CONTRACT DOCUMENTS, THE TERM "TO PROVIDE" SHALL MEAN "TO FURNISH, INSTALL AND CONNECT COMPLETELY IN THE SPECIFIED OR APPROVED MANNER THE ITEM OR MATERIAL DESCRIBED

1.06 OPERATING AND MAINTENANCE INSTRUCTIONS LIPON COMPLETION OF THE PROJECT THE HVAC CONTRACTOR SHALL FULLY INSTRUCT THE OWNER IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT AND SYSTEMS FURNISHED

THE HVAC CONTRACTOR SHALL PROVIDE THE OWNER WITH THREE (3) SETS OF COMPLETE MAINTENANCE AND OPERATING INSTRUCTIONS, AND TECHNICAL D IN BOOKLET FORM. OF ALL EQUIPMENT AND DEVICES FURNISHED IN THE CONTRACT 1.07 CONTRACTOR'S INSPECTION

CONTRACT DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY REQUIRED COMPONENTS, DEVICES, FITTINGS, ETC. THE CONTRACTOR SHALL INCLUDE ALL EQUIPMENT AND ACCESSORIES NECESSARY FOR COMPLETE AND OPERATIONAL HE HVAC CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL DRAWINGS AND

THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES TO DETERMINE THE EXTENT OF WORK. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IF SO DIRECTED BY THE ARCHITECT, THE HVAC CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LAYOUT TO PREVENT CONFLICT WITH THOSE OF OTHER TRADES AND FOR PROPER INSTALLATION OF

WORK. REFER TO THE ARCHITECT'S REFLECTED CEILING PLAN FOR EXACT LOCATION OF AIR DIFFUSERS, REGISTERS AND GRILLES. THE CONTRACTOR SHALL COORDINATE LOCATIONS OF EQUIPMENT WITH ALL TRADES BEFORE STARTING CONSTRUCTION. ANY MODIFICATIONS TO THE EQUIPMENT LAYOUT REQUIRED FOR INSTALLATION SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. 1.08 ARRANGEMENT OF WORK:

WORK SHALL BE COORDINATED BETWEEN TRADES TO PREVENT UNNECESSARY INTERFERENCE. MAINTAIN CLEARANCES BETWEEN HVAC EQUIPMENT AND BUILDING CONSTRUCTION. WORK SHALL PRESENT A NEAT COORDINATED APPEARANCE. INSTALL WORK AS NECESSARY TO PROVIDE MAXIMUM POSSIBLE HEADROOM ADEQUATE CLEARANCE AND READY ACCESS FOR INSPECTION, OPERATION, SAFE MAINTENANCE AND REPAIR AND CODE CONFORMANCE. WHERE SPACE APPEARS

INADEQUATE, CONSULT THE OWNER BEFORE PROCEEDING WITH INSTALLATION.

1.09 INSURANCE:

FURNISH INSURANCE CERTIFICATES REQUIRED BY THE OWNER.

1.10 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS:

OBTAIN AND PAY FOR PERMITS, INSPECTIONS, LICENSES AND CERTIFICATES REQUIRED. WORK OF THIS CONTRACT SHALL MEET STATE BUILDING CODE, STATE FIRE SAFETY CODE AND OTHER LAWS, RULES AND REGULATIONS OF LOCAL, STATE AND FEDERAL AUTHORITIES: NATIONAL FIRE PROTECTION ASSOCIATION #90A ANI

EQUIPMENT, MATERIALS AND COMPONENTS LISTED UL PRODUCT DIRECTORIES,

ANY EQUIPMENT WHICH OPERATES WITH FILTERS OR STRAINERS SHALL HAVE FILTERS AND STRAINERS INSTALLED AT ALL TIMES.

THE HVAC CONTRACTOR SHALL INSTALL ALL MOTORS AND ELECTRIC HEATERS PROVIDED UNDER THE HVAC CONTRACT READY FOR WIRING BY THE ELECTRICAL

CONTRACTOR AND SHALL FURNISH AND DELIVER TO THE ELECTRICAL CONTRACTOR WIRING DIAGRAMS FOR ALL MOTOR STARTERS FOR INSTALLATION AND WIRING.

THE HVAC CONTRACTOR SHALL FURNISH MOTOR STARTERS, AND RELAYS TO THE ELECTRICAL CONTRACTOR FOR INSTALLATION AND WIRING. THE HVAC

CONTRACTOR SHALL PERFORM ALL EXCAVATION, BACKFILL, CHASES, OPENINGS, CUTTING, PATCHING, BUILDING STRUCTURAL SUPPORT FOR HVAC EQUIPMENT AND

THE HVAC CONTRACTOR SHALL VERIFY IN THE FIELD ALL MEASUREMENTS NECESSARY FOR THE WORK. VERIFY THERMOSTAT LOCATIONS AND ELEVATIONS

THE HVAC CONTRACTOR SHALL COORDINATE SUPPLY AND RETURN DUCTWORK LOCATIONS WITH STRUCTURE, CONDUITS AND PIPING OF OTHER TRADES.

EQUIPMENT AND MATERIALS SHALL BE NEW, OF FIRST QUALITY, SELECTED AND

MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

ARRANGED TO FIT PROPERLY INTO SPACES INDICATED. INSTALL EQUIPMENT AND

SHUTDOWN OF EXISTING SERVICES AND UTILITIES SHALL, WITHOUT EXCEPTION, BE COORDINATED WITH THE PROPER UTILITY AND WITH THE OWNER AS TO DATE, TIME

OF DAY, AND DURATION BEFORE ANY SERVICE IS INTERRUPTED. NOTFY THE OWNER OF ESTIMATED DURATION OF SHUTDOWN PERIOD AT LEAST TEN DAYS IN

CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUGS DURING

NO EQUIPMENT SHALL BE OPERATED FOR TEMPORARY SERVICE OR TESTING

WITHOUT PROPER LUBRICATION. ITEMS REQUIRING LUBRICATION SHALL BE LEFT FRESHLY AND FULLY LUBRICATED AT TIME OF SUBSTANTIAL COMPLETION.

MECHANICAL AND ELECTRICAL EQUIPMENT AND MATERIALS SHALL HAVE PRIME

PROVIDE NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE

AT CLOSING OF EACH WORKING DAY, PROVIDE TEMPORARY FIRESTOPPING IN

PERMANENT OPENINGS THROUGH FIRE-RATED PARTITIONS AND FLOORS, AS REQUIRED. MATERIALS USED FOR FIRE STOPPING SHALL BE CLASS A

INCOMBUSTIBLE" WITH FIRESTOPPING CAPABILITIES EQUAL TO THAT OF

EVERY OPENING CUT BETWEEN FLOORS AND THROUGH FIRE-RATED PARTITIONS. PERMANENT FIRESTOPS SHALL BE PROVIDED AROUND SLEEVES AND AT OTHER

PROVIDE NECESSARY SUPPORTS, PADS, BASES AND PIERS REQUIRED. EQUIPMENT

SHALL BE SECURELY ATTACHED TO BUILDING STRUCTURE IN ACCEPTABLE MANNER ATTACHMENTS SHALL BE OF STRONG AND DURABLE NATURE, AS DETERMINED BY

FURNISH OWNER WITH ONE (1) COMPLETE NEW SET OF ANY SPECIAL LUBRICATION DEVICES REQUIRED FOR SERVICING, E.G., GREASE GUNS, FITTINGS AND ADAPTERS.

CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL OR DAMAGING WATER. PROTECT EXISTING PROPERTY, EQUIPMENT AND FINISHES FROM DAMAGE

REPAIR, TO ORIGINAL CONDITION, EXISTING PROPERTY THAT HAS BEEN DAMAGED

WORK SITE MUST BE KEPT CLEAN. RUBBISH, DEBRIS AND LEFTOVER OR EXCESS

CONTRACTOR SHALL PROVIDE ALL LOW VOLTAGE WIRING FOR CONTROLS AND COORDINATE CONNECTIONS TO POWER WIRING WITH DIVISION 16. THE GENERAL

#90B; BOCA MECHANICAL & PLUMBING CODES; NATIONAL ELECTRICAL CODE; AND OCAL UTILITY COMPANY REQUIREMENTS. PAY UTILITY COMPANY BACK CHARGES

SHALL BEAR UL LABELS.

1.12 WORK BY OTHERS:

1.1.3 FIFLD MEASUREMENTS

1.14 WORKMANSHIP:

1.17 PROTECTION:

1.18 CLEANING:

1.19 LUBRICATION:

1.20 PAINTING:

1.22 WATERPROOFING

1.23 FIREPROOFING

OPENINGS WATERPROOF

ADJACENT CONSTRUCTION.

1.24 BASES AND SUPPORTS:

WITH THE OWNER BEFORE INSTALLATION.

1.16 OPERATION OF SERVICES AND UTILITIES:

ADVANCE OF PROPOSED SHUTDOWN

DURING EXECUTION OF THE WORK.

MATERIALS SHALL BE REMOVED DAILY.

COAT AND STANDARD MANUFACTURER'S FINISH

FINISH WORK

1.11 FILTERS AND STRAINERS:

PROVIDE EACH UNIT WITH HORIZONTAL SUPPORT FRAME KIT AND VENT/INTAKE AIR ROOF TERMINATION KIT.

TRANSFORMER: 24 V CONTROL TRANSFORMER IS FURNISHED AS STANDARD EQUIPMENT AND IS FACTORY INSTALLED IN CONTROL BOX. TRANSFORMER HAS CIRCUIT BREAKER WIRED IN SERIES FOR ADDED PROTECTION.

PROVIDE LOW VOLTAGE, ADJUSTABLE HEATING/COOLING (ELECTRONIC PROGRAMMABLE) ROOM THERMOSTATS, TO CONTROL AIR FURNACE AND CONDENSING UNITS OPERATION TO MAINTAIN ROOM TEMPERATURE SETTINGS AND OPERATE UNIT VENTILATION CYCLE. INTERFACE WITH AIR FURNACES RESPECTIVE OUTSIDE AIR MOTORIZED DAMPER AND CONDENSING UNIT PROVIDING ALL RELAYS AND COMPONENTS TO PROVIDE A FULLY OPERATIONAL TEMPERATURE/VENTILATION CONTROL SYSTEM. ELECTRONIC PROGRAMMABLE THERMOSTAT IS BASED ON BASYS CONTROLS MODEL SZ1020, PROVIDING 7 DAY

PROGRAMMING OF OCCUPIED/UNOCCUPIED TIME PERIODS AND TEMPERATURE

MOUNT IN FURNACE SUPPLY PLENUM COPPER TUBE ALUMINUM FIN COIL ASSEMBLY, WITH GALVANIZED DRAIN PAN, DRAIN CONNECTION, REFRIGERANT PIPING CONNECTIONS.

PROVIDE FACTORY INSTALLED THERMOSTATIC EXPANSION VALVE. LOW VOLTAGE, ADJUSTABLE ROOM THERMOSTAT CONTROLS COMPRESSOR, CONDENSER FAN, AND SUPPLY FAN TO MAINTAIN ROOM TEMPERATURE SETTING. INCLUDE ELECTRONIC PROGRAMMABLE THERMOSTAT WITH 24 HOUR, 7 DAY

TIMED OFF CIRCUIT SHALL LIMIT NUMBER OF COMPRESSOR STARTS TO 12 PER

PROVIDE REFRIGERANT PRESSURE SWITCH TO CYCLE CONDENSER FAN. 2.03 CONDENSING UNITS

PROVIDE SELE-CONTAINED PACKAGED, FACTORY ASSEMBLED AND PRE-WIRED UNITS SUITABLE FOR OUTDOOR USE CONSISTING OF CABINET, COMPRESSORS, CONDENSING COIL AND FANS, INTEGRAL SUB-COOLING COIL, CONTROLS, LIQUID RECEIVER. AND SCREENS. USE CORROSION RESISTANT MATERIALS FOR PARTS IN

CONTACT WITH REFRIGERANT. PROVIDE TIMER CIRCUITS TO PREVENT RAPID LOADING AND UNLOADING OF COMPRESSOR. GALVANIZED STEEL WITH BAKED ENAMEL FINISH, AND REMOVABLE ACCESS DOORS OR PANELS WITH QUICK FASTENERS. HERMETIC RECIPROCATING TYPE WITH DISCHARGE SERVICE VALVE, CRANKCASE OIL HEATER AND SUCTION STRAINER. COMPRESSOR SHALL HAVE A FORCED FEED LUBRICATION SYSTEM WITH A REVERSIBLE OIL PUMP AND INITIAL OIL CHARGE. MOTOR SHALL BE REFRIGERANT GAS COOLED, HIGH TORQUE, HERMETIC, BI INDUCTION TYPE, FOUR-POLE, WITH INHERENT THERMAL PROTECTION ON ALL THREE PHASES AND SHALL BE MOUNTED ON VIBRATION ISOLATOR PADS. CONDENSER COIL SHALL BE SEAMLESS COPPER TUBING WITH ALUMINUM FINS CONDENSER FAN SHALL BE VERTICAL DISCHARGE, DIRECT DRIVE AXIAL FANS RESILIENTLY MOUNTED WITH GUARD AND MOTOR. PROVIDE PERMANENTLY UBRICATED BALL BEARING MOTORS WITH BUILT-IN CURRENT AND OVERLOAD

CONTROL PANEL SHALL CONTAIN THE FIELD POWER CONNECTION POINTS, CONTROL INTERLOCK TERMINALS, AND TERMINALS TO CONNECT CONTRACTOR FURNISHED AND FIELD INSTALLED THERMOSTAT. HINGED ACCESS DOORS SHALL BE LOCKABLE. DEADFRONT PANELS ARE REQUIRED TO PROTECT AGAINST ACCIDENTAL CONTACT WITH LINE VOLTAGE WHEN ACCESSING THE CONTROL SYSTEM.

POWER AND STARTING COMPONENTS SHALL INCLUDE FACTORY FUSING OF FAN MOTORS AND CONTROL CIRCUIT; INDIVIDUAL CONTACTORS FOR EACH FAN MOTOR, SOLID-STATE START TIMER, SOLID-STATE COMPRESSOR THREE-PHASE MOTOR OVERLOAD PROTECTION, INHERENT FAN MOTOR OVERLOAD PROTECTION AND UNIT POWER TERMINAL BLOCKS FOR CONNECTION TO REMOTE FUSED DISCONNECT

PROVIDE RECYCLING PUMPDOWN CONTROL, HIGH AND LOW PRESSURE SAFETY SWITCHES, WATER TEMPERATURE CONTROLLER, FREEZE PROTECTION PRESSURESTATS, AND FAN CYCLING CONTROLS. THE FOLLOWING OPTIONS ARE TO BE INCLUDED:

> CONTROL CIRCUIT TRANSFORMER EXPANSION VALVE KIT. CRANKCASE HEATER.

PROTECTION

TIMED-OFF CONTROL. MOUNTING BASE WITH UNIT STAND-OFF COMPRESSOR MONITOR (LOW AMBIENT CUT-OUT)

2.04 EXHAUST FANS CEILING MOUNTED EXHAUST AIR FAN SHALL BE OF THE CENTRIFUGAL DIRECT DRIVE TYPE. THE FAN HOUSING SHALL BE CONSTRUCTED OF HEAVY GAUGE GALVANIZED STEEL. THE HOUSING INTERIOR SHALL BE LINED WITH ${\color{black}{\leftarrow}}$ INCH ACOUSTICAL INSULATION. THE OUTLET DUCT COLLAR SHALL INCLUDE AN ALUMINUM BACKDRAFT DAMPER AND SHALL BE SPRING LOADED. GRILLE SHALL BE CONSTRUCTED OF HIGH IMPACT POLYSTYRENE AND SHALL BE NON-YELLOWING

ACCESS FOR WIRING SHALL BE EXTERNAL. THE MOTOR DISCONNECT SHALL BE INTERNAL AND OF THE PLUG IN TYPE. THE MOTOR SHALL BE MOUNTED ON VIBRATION ISOLATORS. THE FAN WHEEL SHALL BE THE FORWARD CURVED CENTRIFUGAL TYPE AND DYNAMICALLY BALANCED. FAN SHALL BE AMCA CERTIFIED FOR SOUND AND AIR PERFORMANCE AND SHALL BE UL LISTED.

2.05 DIFFUSERS AND REGISTERS

DIFFUSERS AND REGISTERS SHALL BE AS SCHEDULED ON THE DRAWINGS.

PART 3 - EXECUTION 3.01 FIRE STOPS

LL PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS OR FLOORS IN WHICH PIPES OR DUCTS PASS SHALL BE SEALED WITH A UL APPROVED FIRE-STOP FITTING CLASSIFIED FOR AN HOURLY RATING EQUAL TO THE RATING OF THE WALL, CEILING

3.02 INSTALLATION ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS PRINTED INSTALLATION INSTRUCTIONS

3.03 PIPE PRESSURE TESTING REFRIGERANT PIPING SHALL BE PRESSURE TESTED BEFORE IT IS COVERED.

CONCEALED OR MADE OTHERWISE INACCESSIBLE. LEAKS FOUND DURING PRESSURE TESTS SHALL BE CORRECTED BY REMAKING THE JOINT, TIGHTENING OR OTHER SUITABLE METHOD. ANY SYSTEM REQUIRING LEAK REPAIR SHALL BE RETESTED IN HE SAME MANNER AS THE ORIGINAL TEST. THE CONTRACTOR SHALL FURNISH ALL BOOSTER PUMPS, COMPRESSORS, HOSES AND EQUIPMENT REQUIRED TO PERFORM ALL PRESSURE TESTS.

3.04 BALANCING AIR SYSTEMS

PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR THE BALANCING OF AIR SYSTEMS. BALANCING SHALL INCLUDE REBALANCING (ADJUSTING OF SHEAVES AND REPLACING BELTS AND MOTORS AS INDICATED) OF EXHAUST FANS AND AIR FURNACE SYSTEMS AS REQUIRED TO PROVIDE AIR FLOWS SPECIFIED. THE BALANCING CONTRACTOR SHALL SECURE A SET OF AS-BUILT DUCTWORK PLANS PRIOR TO COMMENCING WORK.

UPON COMPLETION OF ALL TESTS AND BALANCING OPERATIONS. THE CONTRACTOR SHALL SUBMIT EIGHT (8) COPIES OF THE CERTIFIED BALANCING REPORT TO THE GENERAL CONTRACTOR. THIS REPORT SHALL INCLUDE ALL DATA FOR EACH OF THE AIR AND WATER SYSTEMS.

BALANCING OF SYSTEMS SHALL BE FOLLOWED UP AFTER BUILDING IS OCCUPIED; ANY REBALANCING SHALL BE DONE AS REQUIRED TO MEET OCCUPANT'S REQUIREMENTS WITHOUT EXTRA CHARGE.

END OF SPECIFICATION

2.02 HEAT PUMP SPLIT SYSTEMS PART 1 – GENERAL

RELATED DOCUMENTS

1.1

1.2

1.3

1.4

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section. B. The General Conditions state that the Contract Documents are complementary, and what is required by one shall be as binding as if required 🗤 earth. there is a conflict within the Contract Documents the most expensive option shall prevail.

SYSTEMS DESCRIPTION svstem shall consist of a slim silhouette, compact, ceiling mounted indoor fan coil section A. The heat pump air conditioning system shall be a Mitsubishi Electric split system series. The

with a slim silhouette horizontal discharge outdoor unit which shall be of an inverter driven heat pump design.

B. Daiken, Sanyo, LG will be considered

C. All systems shall be complete with all components including refrigerant specialities, operating controls, and piping/installation accessories. RELATED WORK

A. This Section is to be used in conjunction with the provisions of all other Sections of Division 15, especially Section 15010, General Provisions - Mechanical.

B. Refer also to any applicable portions of Division 16, Electrical Work. SUBMITTALS

A. Provide submittals for review in accordance with the provisions of Section 15010. B. Submit Manufacturer's Installation Instructions under provisions of Section 15010. Include Manufacturer's wiring and piping diagrams prepared for this project. C. Submit samples under provisions of Section 15010.

 A_{5} All items provided under the provisions of this Section shall be new and shall be the products

of recognized manufacturers of that item.

B. All items of a similar class shall be the products of the same manufacturer. That is, all accessory items, etc. shall be from the same source. C. The units shall be listed by Electrical Laboratories (ETL) and bear the ETL label. D. All wiring shall be in accordance with the National Electric Code (NEC)

E. The shall be rated in accordance with Air Conditioning Refrigeration Institute's (ARI) Standard 210 and bear the ARI label.

F. The system will be produced in an ISO 9001 and ISO 14001 facility, which are standards set by the International Standard Organization (ISO). The system shall be factory tested for safety and function

- G. The outdoor unit will be factory charged for a length of 33 feet of refrigerant with R410A refrigerant
- H. A dry air holding charge shall be provided in the evaporator.
- I. System efficiency shall meet or exceed 16.0 SEER.
- REGULATORY REQUIREMENTS 1.6
- A. Comply with applicable regulations.
- DELIVERY, STORAGE AND HANDLING 1.7
- A. Protect equipment from physical damage by storing in protected areas and leaving factory covers in place.

B. Do not operate systems for any purpose, temporary or permanent, until ductwork is clean, filters in place, bearings lubricated, and fan has been run under observation C. Units shall be stored and handled in accordance with the manufacturer?s recommendations.

- WARRANTY 1.8
- 2-1/2 ton to 4 ton units shall have a manufacturer's warranty for a period of one (1) year from date of installation. The units shall have a limited labor warranty for a period of one (1) year from date of installation. The compressors shall have a warranty of six (6) years from date of installation. During the stated period, should any part fail due to defects in material and workmanship, it shall be repaired or replaced at the discretion of US Corporation according to 's Terms and Conditions.

PART 2 - PRODUCTS

MANUFACTURERS 2.1

- A. Mitsubishi LG
- C. Daikin 2.2 INDOOR UNIT

A. The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, control circuit board, fan and fan motor. The unit shall have a self-diagnostic function. 3-minute time delay mechanism, and an auto restart function after power interruption. Indoor unit shall be purged with dry air before shipment from factory.

2.3 UNIT CABINET:

- A. The casing shall have a smooth front, white finish ? Munsell 1.0Y 9.2/0.2.
- B. Multi directional drain connection and refrigerant piping, offering three (3) direction pipe alignments for all refrigerant piping and two (2) direction pipe alignments for condensate draining shall be standard.
- C. There shall be a separate, metal installation-plate that secures the indoor unit firmly to the wall. The installation-plate shall be securely attached to the wall using appropriate anchor method. Installing contractor shall determine the best method and be responsible for proper mounting of the installation plate to the wall.

2.4 FAN:

- A. The indoor unit fan shall be an assembly with a line-flow fan direct driven by a single motor
- B. The fan shall be statically and dynamically balanced and be powered by a motor with permanently lubricated bearing.

C. A manual adjustable guide vanes shall be provided with the ability to change the airflow from side to side (left to right).

- D. An integral, motorized, multi-position, horizontal air sweep flow louver shall provide for uniform air distribution, up and down. Five (5) positions plus Auto and Swing shall be provided, controlled from the remote controller.
- E. The indoor fan shall operate at one of five (5) speeds: Super High, High, Medium, Low, and Quiet plus Auto Fan Mode for models up to 18,000 BTU/h. and four (4) speeds: Powerful. High, Medium and Low plus Auto Fan Mode for the 24,000 BTU/h model. All speeds shall be selected from the remote controller.

2.5 FIL TER:

COIL:

A. Return air shall be filtered by means of easily removed, washable, Catechin, Antioxidant Pre-filter and an Anti-allergy enzyme filter ? blue, pleated type.

- A. The indoor unit coil shall be of nonferrous construction with smooth plate fins on copper tubina.
- B. The tubing shall have inner groves for high efficiency heat exchange.
- C. All tube joints shall be brazed with phoscopper or silver alloy.
- D. The coils shall be pressure tested at the factory.
- E. A sloped, corrosion resistant condensate pan with drain shall be provided under the coil.
- F. An optional drain pan level switch (DPLS1), designed to connect to the control board, shall be provided if required, and installed on the condensate pan to prevent condensate from overflowing.
- 2.7 ELECTRICAL:
- A. The unit electrical power shall be 208-230 volts, 1-phase, 60 hertz.
- B. The system shall be equipped with A-Control ? a system directing that the indoor unit be powered directly from the outdoor unit using a 3-wire, 14 gauge AWG connection plus ground.

C. The indoor unit shall not have any supplemental electrical heat elements.

2.8 CONTROL

- C. The indoor unit shall perform Self-diagnostic Function and Check Mode switching.
- D. Temperature changes shall be by 1°F increments with a range of 61 88°F (16-31°C). E. The microprocessor located in the indoor unit shall have the capability of sensing return air temperature and indoor coil temperature, receiving and processing commands from the wireless or a wired controller, providing emergency operation and controlling the outdoor
- F. The system shall be capable of automatically restarting and operating at the previously selected
- conditions when the power is restored after power interruption
- G. Control system shall control the continued operation of the air sweep louvers, as well as provide On/Off, System/Mode function.
- H. The indoor unit shall have a wired wall mounted remote controller.

2.9 WIRED REMOTE CONTROLLER

- A. The Wired Remote Controller shall require a terminal interface for communications. Interface will be mounted at the indoor unit. A two (2) conductor, stranded, 22 AWG twisted pair, jacketed, cable shall connect the wall controller. Connection shall not be polarity sensitive and controller wire shall not exceed thirty-three (33) feet (10m) length.
- B. The wired remote controller shall be approximately 5" x 5" in size and white in color with a light-green LCD display. The controller shall support a selection from multiple languages (Spanish, German, Japanese, Chinese, English, Russian, Italian, or French) for display information. There shall be a built-in weekly timer with up to 8 pattern settings per day. The controller shall consist of an On/Off button, Increase/Decrease Set Temperature buttons, a Cool/Auto/Fan/Dry mode selector, a Timer Menu button, a Timer On/Off button, Set Time buttons, a Fan Speed selector, a Ventilation button, a Test Run button, and a Check Mode button. The controller shall have a built-in temperature sensor. Temperature shall be displayed in either Fahrenheit (F) or Celsius (°C), and Temperature changes shall be by increments of 1°F (0.5°C). The controller shall have the capability of controlling up to a maximum of 16 systems, as a aroup with the same mode and set-point for all, at a maximum developed control cable distance of 1,500 feet (500 meters).

2.10

- 2.11 UNIT CABINET:
- B. Cabinet color shall be Munsell 3Y 7.8/1.1.

2.12

- lubricated bearings.
- C. The fan motor shall be mounted for quiet operation.
- E. The outdoor unit shall have horizontal discharge airflow.

copper tubing.

/ ULC S-102.

outdoor units.

2.14

2.15

2.13

C. The indoor units shall be capable of working with single-zone or multi-zone outdoor units OUTDOOR UNITS

A. The outdoor units are specifically designed to work with the indoor units. The outdoor units must have a thermally fused powder coated finish. The outdoor unit shall be completely factory assembled, piped and wired. Each unit shall be run tested at the factory.

A. The casing shall be fabricated of galvanized steel, bonderized, finished with an electrostatically applied, thermally fused acrylic or polyester powder coating for corrosion protection. Assembly hardware shall be cadmium plated for weather resistance.

C. Two (2) mild steel mounting feet, traverse mounted across the cabinet base pan, welded mount, providing four (4) slotted mounting holes shall be furnished. Assembly shall withstand lateral wind gust up to 155 MPH to meet applicable weather codes.

FAN: A. The unit shall be furnished with a direct drive propeller type fan

B. The outdoor unit fan motor shall be a direct current (DC) motor and have permanently

D. The fan shall be provided with a raised guard to prevent contact with moving parts.

F. Outdoor unit sound level shall not exceed 55 dBA.

COIL: A. The outdoor unit coil shall be of nonferrous construction with lanced or corrugated plate fins on

B. The coil shall be protected with an integral metal guard. C. Refrigerant flow from the outdoor unit shall be regulated by means of an electronically controlled, precision, linear expansion valve

D. Outdoor unit shall be pre-charged with sufficient R-410a refrigerant for up to twenty five (25) feet of refrigerant piping for capacities up to 18,000 BTU/h, and up to thirty three (33) feet of refrigerant piping for capacities above 18,000 BTU/h.

E. All refrigerant lines between outdoor and indoor units shall be of annealed, refrigeration grade copper tubing, ARC Type, meeting ASTM B280 requirements, individually insulated in twin-tube, flexible, closed-cell, CFC-free (ozone depletion potential of zero), elastomeric material for the insulation of refrigerant pipes and tubes with thermal conductivity equal to or better than 0.27 BTU—inch/hour per Sq Ft / F, a water vapor transmission equal to or better than 0.08 Perm-inch and superior fire ratings such that insulation will not contribute significantly to fire and up to 1? thick insulation shall have a Flame-Spread Index of less than 25 and a Smoke-development Index of less than 50 as tested by ASTM E 84 and CAN

F. All refrigerant connections between outdoor and indoor units shall be flare type.

COMPRESSOR: A. The compressor shall be a high performance, hermetic, inverter driven, variable speed, dual

rotary type manufactured by Mitsubishi Electric Corporation. B. The compressor motor shall be direct current (DC) type equipped with a factory supplied and installed inverter drive package.

C. The outdoor unit shall be equipped with an accumulator.

D. The compressor will be equipped with internal thermal overload protection.

E. The outdoor unit must have the ability to operate over the full capacity range with a maximum height difference of 40 feet and have refrigerant tubing length of 65 feet for capacities up to 15,000 BTU/h and a maximum height difference of 50 feet and have refrigerant tubing length of 100 feet for capacities above 15,000 BTU/h between indoor and

F. There shall be no need for line size changes. Filters, sight glasses, and traps shall not be used, and no additional refrigerant oil shall be required.

ELECTRICAL:

G. The compressor shall be mounted so as to avoid the transmission of vibration.

The outdoor unit electrical power supply shall be 208/230 volts, 1-phase, 60 hertz. B. The unit shall be capable of satisfactory operation within voltage limits of 187 volts to 253

C. The outdoor unit shall be controlled by microprocessors located in the indoor unit and outdoor unit. A 12 to 24 volt DC data stream shall communicate between the units providing all necessary information for full function control.

NOT FOR CONSTRUCTION

Drawn: Date: Revisions

12/15/2022

SPECIFICATION PLAN -MECHANICAL

ELECTRICAL LIGHTING NOTES:

1. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLANS FOR EXACT LOCATIONS OF CEILING MOUNTED LIGHT FIXTURES. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT OF WALL MOUNTED LIGHT FIXTURES INDOORS AND OUTDOORS.

2. ALL LIGHT FIXTURES IN CEILING SHALL BE BRACED TO THE BUILDING STRUCTURE AND NOT TO THE CEILING.

3. EMERGENCY LIGHTING UNITS AND EMERGENCY BALLASTS SHALL BE WIRED INTO ASSOCIATED LIGHTING CIRCUITS AHEAD OF ANY SWITCHED LEGS FOR CONTINUOUS CHARGING AND AC CIRCUIT MONITORING.

4. COORDINATE LOCATIONS AND DIRECTIONAL ARROWS OF ALL EXIT SIGNS WITH ARCHITECTURAL EGRESS PLAN. 5. PROVIDE IC HOUSING FOR LIGHTING FIXTURE WHERE REQUIRED;

COORDINATE WITH ARCHITECTURAL PLANS.

6. STAIRWELL LIGHTS SHALL BE CONNECTED TO SAME LIGHTING CIRCUIT BOTTOM OF STAIRWELL TO TOP. REFER TO PANEL SCHEDULES.

7. PROVIDE OCC SESNORS FOR ALL OFFICES AND COMMUNITY SPACES PER 2015 INTERNATIONAL ENERGY CODE.

ELECTRICAL POWER NOTES:

1. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL AND 2022 CT STATE BUILDING CODES. 2. ALL WORK IS NEW UNLESS OTHERWISE NOTED.

3. REFER TO ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND LOCATIONS. VERIFY WITH ARCHITECTURAL PLANS AND COORDINATE WITH THE GENERAL

CONTRACTOR PRIOR TO ROUGH-IN. NOTIFY THE ARCHITECT/G.C. OF ANY DISCREPANCIES IF DISCREPANCIES ARE NOTED. DO NOT PRÔCEED WITHOUT ARCHITECTURAL APPROVAL.

4. HVAC AND PLUMBING EQUIPMENT ARE SHOWN FOR REFERENCE ONLY. E.C. SHALL COORDINATE EXACT LOCATIONS AND POWER REQUIREMENTS OF APPLICABLE HVAC AND PLUMBING EQUIPMENT WITH MECHANICAL DRAWINGS. E.C. SHALL MAKE ALL FINAL CONNECTIONS TO ALL CONTROLS, OWNER-SUPPLIED EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT AS NEEDED.

5. E.C. SHALL PROVIDE DISCONNECT SWITCHES AND STARTERS AS REQUIRED FOR ALL EQUIPMENT WHERE THE DISCONNECT SWITCH IS NOT PROVIDED WITH THE EQUIPMENT OR BY OTHERS.

6. E.C. SHALL SUPPLY AND INSTALL FEEDERS, FUSES AND CIRCUIT BREAKERS TO MATCH THE NAME-PLATE RATING OF ALL EQUIPMENT. THIS SHALL BE INCLUDED IN THE INITIAL BID PROPOSAL AND NO EXTRAS WILL BE ACCEPTED.

7. ELECTRICAL OUTLET PLATE GASKETS SHALL BE INSTALLED IN ALL RECEPTACLES, SWITCHES OR OTHER ELECTRICAL BOXES IN WALLS SEPARATING CONDITIONED AND UNCONDITIONED SPACE.

8. ALL HOMERUNS TO PANELBOARDS DESIGNATED SHALL CONSIST OF 2#12 AWG & 1#12 GROUND IN 3/4" CONDUIT TO PANEL LABELED AT THE HOMERUN SYMBOL ÜNLESS OTHERWISE NOTED.

9. MANUAL FIRE ALARM PULL BOXES SHALL BE LOCATED NOT MORE THAN 5 FEET FROM THE ENTRANCE TO EACH EXIT.

10. THE HEIGHT OF THE MANUAL FIRE ALARM PULL BOXES SHALL BE A MINIMUM OF 42 INCHES AND A MAXIMUM OF 48 INCHES MEASURED VERTICALLY, FROM THE FLOOR LEVEL TO THE ACTIVATING HANDLE OR LEVER OF THE BOX.

11. THE MINIMUM MOUNTING HEIGHT OF THE COMBINATION HORN/STROBES SHALL BE 80 INCHES AFF TO THE BOTTOM AND MINIMUM OF 6 INCHES BELOW THE FINISHED CEILING TO THE TOP.

12. COMBINATION HORN STROBES SHALL HAVE A SOUND LEVEL RATING FROM A MINIMUM OF 75 dBA AND A MAXIMUM OF 120 dBA. THE FOLLOWING MUST BE ACHIEVED: A MINIMUM OF 15 dBA OVER AVERAGE AMBIENT SOUND LEVEL. A MINIMUM OF 90 dBA IN MECHANICAL ROOMS. ALL STROBES OUTPUTS SHALL BE 110 CANDELA.

13. CONNECT ALL BATHROOM EXHAUST FANS TO ASSOCIATED LIGHT SWITCH UNLESS OTHERWISE NOTED.

14. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO HVAC CONTROL PANELS AND OTHER DEVICES REQUIRING 120V POWER AND ABOVE; COORDINATE ALL REQUIREMENTS WITH DIV 15

15. ALL CIRCUITS BACK TO PANEL SHALL REQUIRE 20A-1 POLE BREAKERS UNLESS OTHERWISE NOTED

16. PROVIDE FIRE ALARM RELAY MODULE FOR FIRE/SMOKE DAMPERS CONNECTED TO FACP; COORDINATE ALL LOCATIONS WITH DIV. 15; PROVIDE ALL WIRING, DEVICES AND ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION. PROVIDE 120V POWER FOR SMOKE/DAMPER FROM NEAREST GENERAL RECEPTACLE CIRCUIT.

17. PROVIDE TAMPER PROOF OUTLETS FOR ALL 15A AND 20A CIRCUITS (EXCLUDING OUTLETS LOCATED IN DEDICATED SPACES IE REFRIGERATORS, DISHWASHER, WASHING MACHINES AND THE LIKE) IN LIVING SPACES OF DWELLING UNITS, CHILD CARES AREAS AND EDUCATIONAL AREAS.

L-

	ELECTRICAL SYMBOL LIST
Φ	DUPLEX RECEPTACLE OUTLET
۵	DUPLEX RECEPTACLE OUTLET MOUNTED ABOVE COUNTERTOP
Φ	SINGLE RECEPTACLE OUTLET
Ŷ	SPECIAL PURPOSES OUTLET; 208/240 VOLT
○○↓	TYPICAL LIGHTING FIXTURES (see schedule)
	TYPICAL LIGHTING FIXTURES WITH BATTERY BACKUP (see schedule)
\$ \$3 \$4 \$0	WALL SWITCH; 3 DENOTES THREE-WAY; 4 DENOTES FOUR-WAY; O DENOTES OCCUPANCY SENSOR
	WIRE CONCEALED IN WALLS OR CEILING
/\	SWITCHED CIRCUIT
	HOMERUN TO SERVICE PANEL; NUMBER OF WIRES INDICATED
S	SPEAKER
TV.	ROUGHING FOR TELEVISION; PROVIDE CONDUIT AND PULLED WIRE STUBBED ABOVE CEILING TO ACCESSIBLE LOCATION
\otimes	EXIT SIGN WITH BATTERY BACKUP (see schedule)
9	CALL-FOR-AID DOME LIGHT
E	CALL-FOR-AID PULL STATION
	CIRCUIT BREAKER PANEL BOARD – VOLTAGE NOTED
	EMERGENCY LIGHT WITH BATTERY PACK
Ī	TRANSFORMER
Ē	DISCONNECT SWITCH
1	THERMOSTAT
U U	JUNCTION BOX
	ROUGHING FOR TELEPHONE OUTLET; PROVIDE CONDUIT AND PULLED WIRE STUBBED ABOVE CEILING TO ACCESSIBLE LOCATION
V	ROUGHING FOR DUPLEX TELEPHONE/DATA OUTLET; PROVIDE CONDUIT AND PULLED WIRE STUBBED ABOVE CEILING TO ACCESSIBLE LOCATION
~	REMOTE EMERGENCY HEAD
	EMERGENCY BATTERY
GFI	GROUND FAULT CIRCUIT INTERRUPTER
WP	WEATHERPROOF
<u>+</u>	STROBE LIGHT
	FIRE ALARM COMBINATION HORN/STROBE
М	FIRE ALARM MAG DOOR HOLDER
F	FIRE ALARM MANUAL PULL STATION
TS	FIRE ALARM TAMPER SWITCH
[FS]	FIRE ALARM FLOW SWITCH
H	FIRE ALARM HEAT DETECTOR
S	FIRE ALARM SMOKE DETECTOR; D DENOTES DUCT SMOKE DETECTOR, E DENOTES ELEVATOR RECALL

NEIE
ONE TO ONE REPLACEM EMERGENCY WALL PAC COORDINATE AND VERI REWORK AND REWIRE A SHALL BE CONTROLLED
PROVIDE NEW 20A REC 20A 120V DEDICATED (
PROVIDE NEW SERVICE FOR CONDENSATE PUM CIRCUIT OFF OF EXISTII
-

ED NOTES

EMENT OF EXISTING LIGHT FIXTURES, EXIT SIGN AND RIFY EXACT LOCATION IN FIELD. AS REQUIRED. ALL LIGHTING IN COMMON AREA BY OCCUPANCY SENSOR.

CCEPTACLES TAMPER PROOF AND CONNECT TO NEW CIRCUIT OFF OF EXISTING PANEL.

E DISCONNECT SWITCH AT ACCESSIBLE LOCATION JMP AND CONNECT TO NEW 20A 120V DEDICATED TING PANEL.

CONNECTIONS TO EXISTING CONDITIONS:

WHERE NEW CIRCUITS ARE TO ADDED TO EXISTING PANELBOARDS, CONFIRM THAT PANEL HAS SUFFICIENT SPACE AND CAPACITY FOR NEW LOADS.

2. MODIFY EXISTING PANEL DIRECTORIES TO REFLECT NEW CIRCUITS, ADDED OR DELETED.

3. WHERE NOT SPECIFICALLY INDICATED, NEW CIRCUITS ARE TO BE EXTENDED TO THE NEAREST APPROPRIATE PANEL.

4. ALL NEW CIRCUITRY SHALL BE COMPLETE WITH REQUIRED BRANCH CIRCUIT PROTECTION AND GROUNDING CONNECTIONS.

5. ANY WORK REQUIRING THE SHUT-DOWN OF ELECTRICAL SERVICE TO THE BUILDING AND/OR ANY PORTION THEREOF, THE E.C. SHALL MAKE ARRANGEMENTS WITH THE OWNER AND ANY OTHER CONCERNED AUTHORITY. 6. CERTAIN SYSTEMS, SUCH AS THE FIRE ALARM SYSTEM, SECURITY SYSTEM, ETC...MAY REQUIRE STAND-BY WATCHES DURING SHUT-DOWN. E.C. SHALL ARRANGE AND PAY FOR ANY SUCH STAND-BY WATCHES.

7. EXISTING SYSTEMS AFFECTED BY NEW WORK SHALL BE TESTED COMPLETELY FOR INTEGRITY AND PROPER OPERATION. RE-FEED CIRCUITS UP-STREAM AND DOWN-STREAM OF DEVICES BEING REMOVED. 8. MAKE ANY REVISIONS TO THE EXISTING WORK FOUND NECESSARY TO MAINTAIN ORIGINAL OPERATION. FURNISH AND INSTALL ALL NECESSARY ELECTRICAL EQUIPMENT AND DEVICES AS NEEDED AT NO ADDITIONAL COST TO THE OWNER.

1. REFER TO ARCHITECTURAL REFLECTIVE LOCATIONS OF CEILING MOUNTED LIGHT FIXTU ARCHITECTURAL ELEVATIONS FOR MOUNTING LIGHT FIXTURES INDOORS AND OUTDOORS. 2. ALL LIGHT FIXTURES IN CEILING SHALL STRUCTURE AND NOT TO THE CEILING. 3. EMERGENCY LIGHTING UNITS AND EMER WIRED INTO ASSOCIATED LIGHTING CIRCUITS FOR CONTINUOUS CHARGING AND AC CIRCU 4. COORDINATE LOCATIONS AND DIRECTION WITH ARCHITECTURAL EGRESS PLAN. 5. PROVIDE IC HOUSING FOR LIGHTING FIX COORDINATE WITH ARCHITECTURAL PLANS. 6. STAIRWELL LIGHTS SHALL BE CONNECTE BOTTOM OF STAIRWELL TO TOP. REFER TO F 7. PROVIDE OCC SESNORS FOR ALL OFFIC PER 2015 INTERNATIONAL ENERGY CODE.

			LIGHTING FIXTU	RE SCHEDULE			
TYPE	SYMBOL	MANUFACTURER	CATOLG #	DESCRIPTION	LAMP	WATTS	VOLT
А	0	DAYBRITE	2FGG38L-835-4-D-UNV-SDIM	2'X4' LED RECESSED CENTER BASKET FIXTURE	LED	50	120
A4S		LEADALITE (SURFACE MOUNT)	TRUEGROOVE TM-1-1-LED-935-Q -XXX-40-C-CC-04-D-E-1-N-CS	LED LINEAR SURFACE MOUNT WITH INTEGRAL OCCUPANCY SENSOR	LED	43	120
A8P		LEADALITE (PENDANT MOUNT)	TRUEGROOVE TM-0-6-L-935-Q-XXX-40-Q 30-08-D-E-1-CS-W-XX-24	LED LINEAR SUSPENDED WITH INTEGRAL OCCUPANCY SENSOR	LED	42	120
A8S		LEADALITE (SURFACE MOUNT)	TRUEGROOVE TM-1-1-LED-935-Q -XXX-40-C-CC-08-D-E-1-N-CS	LED LINEAR SURFACE MOUNT WITH INTEGRAL OCCUPANCY SENSOR	LED	43	120
В	-¢-	LIGHTOLIER	S5R-8-30K-7	CEILING MOUNT CLOSET FIXTURE	LED	9.5	120
С	-¢-	SUNPARK	1132D-62-3000K	ENTRY AND CORRIDOR LED FIXTURE	LED	18	120
D	- 수 -	LIGHTOLIER	S7R-8-30K-10	CEILING MOUNT BATHROOM, ENTRY CANOPY FIXTURE	LED	14	120
D1	Ŷ	LITHONIA	TWX2 LED P3 40K MVOLT PE DDBXD	WALL MOUNT AREA LIGHT-MEDIUM	LED	39	120
D1	Ŷ	LITHONIA	TWX1 LED P1 40K MVOLT PE DDBXD	WALL MOUNT AREA LIGHT-SMALL	LED	11	120
E		EVENLITE	TCL-2-W-SD	WALL MOUNTED LED EMERGENCY LIGHT	LED	4	120
ER		EVENLITE	PRW-LED-2-MV-HL-SD	EXTERIOR LED EMERGENCY HEAD WITH BATTERY	LED	1.5	12
F	Q			WALL SCONCE STAIRWAY	LED	12	120
XHC	×	EVENLITE	TLA-EM-R-1-W-2H	LED EXIT SIGN WITH ADA SYMBOL	LED		120
Х	\bigotimes	EVENLITE	TLX-EM-RU-W-SD	LED EXIT SIGN	LED		120
XC	X	EVENLITE	TCXCOM-R-U-W-SD	LED EXIT SIGN EMERGENCY LIGHT COMBO	LED		120

SECOND FLOOR PLAN 3 SECOND + SCALE: 1/4"=1'-0"

<u>TES:</u>	ELECTRICAL POWER NOTES:	
CEILING PLANS FOR EXACT TURES. REFER TO G HEIGHT OF WALL MOUNTED	1. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL AND 2022 CT STATE BUILDING CODES.	
	2. ALL WORK IS NEW UNLESS OTHERWISE NOTED.	
BE BRACED TO THE BUILDING RGENCY BALLASTS SHALL BE AHEAD OF ANY SWITCHED LEGS JIT MONITORING.	3. REFER TO ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND LOCATIONS. VERIFY WITH ARCHITECTURAL PLANS AND COORDINATE WITH THE GENERAL CONTRACTOR PRIOR TO ROUGH-IN. NOTIFY THE ARCHITECT/G.C. OF ANY DISCREPANCIES IF DISCREPANCIES ARE NOTED. DO NOT PROCEED WITHOUT ARCHITECTURAL APPROVAL.	Crosskey
NAL ARROWS OF ALL EXIT SIGNS	4. HVAC AND PLUMBING EQUIPMENT ARE SHOWN FOR REFERENCE ONLY. E.C. SHALL COORDINATE EXACT LOCATIONS AND POWER REQUIREMENTS OF APPLICABLE HVAC AND PLUMBING EQUIPMENT WITH MECHANICAL DRAWINGS. E.C. SHALL MAKE ALL FINAL CONNECTIONS TO ALL CONTROLS, OWNER-SUPPLIED EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT AS NEEDED.	Architecture Preservation Planni
TED TO SAME LIGHTING CIRCUIT PANEL SCHEDULES.	5. E.C. SHALL PROVIDE DISCONNECT SWITCHES AND STARTERS AS REQUIRED FOR ALL EQUIPMENT WHERE THE DISCONNECT SWITCH IS NOT PROVIDED WITH THE EQUIPMENT OR BY OTHERS.	750 Main Street, Hartford, CT 06 T: (860)724-3000 F: (860)724-30
CES AND COMMUNITY SPACES	6. E.C. SHALL SUPPLY AND INSTALL FEEDERS, FUSES AND CIRCUIT BREAKERS TO MATCH THE NAME—PLATE RATING OF ALL EQUIPMENT. THIS SHALL BE INCLUDED IN THE INITIAL BID PROPOSAL AND NO EXTRAS WILL BE ACCEPTED.	
	7. ELECTRICAL OUTLET PLATE GASKETS SHALL BE INSTALLED IN ALL RECEPTACLES, SWITCHES OR OTHER ELECTRICAL BOXES IN WALLS SEPARATING CONDITIONED AND UNCONDITIONED SPACE.	
	8. ALL HOMERUNS TO PANELBOARDS DESIGNATED SHALL CONSIST OF 2#12 AWG & 1#12 GROUND IN $3/4$ " CONDUIT TO PANEL LABELED AT THE HOMERUN SYMBOL UNLESS OTHERWISE NOTED.	
	9. MANUAL FIRE ALARM PULL BOXES SHALL BE LOCATED NOT MORE THAN 5 FEET FROM THE ENTRANCE TO EACH EXIT.	
	10. THE HEIGHT OF THE MANUAL FIRE ALARM PULL BOXES SHALL BE A MINIMUM OF 42 INCHES AND A MAXIMUM OF 48 INCHES MEASURED VERTICALLY, FROM THE FLOOR LEVEL TO THE ACTIVATING HANDLE OR LEVER OF THE BOX.	
	11. THE MINIMUM MOUNTING HEIGHT OF THE COMBINATION HORN/STROBES SHALL BE 80 INCHES AFF TO THE BOTTOM AND MINIMUM OF 6 INCHES BELOW THE FINISHED CEILING TO THE TOP.	
	12. COMBINATION HORN STROBES SHALL HAVE A SOUND LEVEL RATING FROM A MINIMUM OF 75 dBA AND A MAXIMUM OF 120 dBA. THE FOLLOWING MUST BE ACHIEVED: A MINIMUM OF 15 dBA OVER AVERAGE AMBIENT SOUND LEVEL. A MINIMUM OF 90 dBA IN MECHANICAL ROOMS. ALL STROBES OUTPUTS SHALL BE 110 CANDELA.	
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	14. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO HVAC CONTROL PANELS AND OTHER DEVICES REQUIRING 120V POWER AND ABOVE; COORDINATE ALL REQUIREMENTS WITH DIV 15	ar
	15. ALL CIRCUITS BACK TO PANEL SHALL REQUIRE 20A-1 POLE BREAKERS UNLESS OTHERWISE NOTED	pr

16. PROVIDE FIRE ALARM RELAY MODULE FOR FIRE/SMOKE DAMPERS CONNECTED TO FACP; COORDINATE ALL LOCATIONS WITH DIV. 15; PROVIDE ALL WIRING, DEVICES AND ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION. PROVIDE 120V POWER FOR SMOKE/DAMPER FROM NEAREST GENERAL RECEPTACLE CIRCUIT.

17. PROVIDE TAMPER PROOF OUTLETS FOR ALL 15A AND 20A CIRCUITS (EXCLUDING OUTLETS LOCATED IN DEDICATED SPACES IE REFRIGERATORS, DISHWASHER, WASHING MACHINES AND THE LIKE) IN LIVING SPACES OF DWELLING UNITS, CHILD CARES AREAS AND EDUCATIONAL AREAS.

Drawn: RK 12/15/2022 Date: Revisions Second FLOOR PLAN -

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ELECTRICAL

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Architect's General Conditions are a part of this Division. All work shall be done in strict accordance with all applicable Codes and Regulations of local and State Agencies and utility companies. This Contractor shall bear the cost of all fees, permits, licenses and taxes and any utility company charges in connection with the work.

1.02 SCOPE

Furnish all labor, materials, appliances, fixtures, tools, equipment, and services pertaining to the complete installation and construction of the project's electrical systems. System shall be complete in all respects, tested, accepted and ready to operate.

1.03 SUBMITTALS

Submit six (6) copies of manufacturer's drawings of the following to the Architect for approval: Submit information on any other equipment to be used when requested by the Architect or the Engineer.

1.04 GUARANTEE

Materials, equipment and workmanship shall have standard warranty against defects in material and workmanship. Any failure due to defective or improper material, equipment, workmanship or design shall be made good, forthwith, by and at the expense of the Contractor, including any damage done to areas, materials and other systems resulting from this failure. Guarantee period shall extend for one (1) year from the Date of Acceptance.

1.05 DEFINITION

As used on Contract Documents, the term "to provide" shall mean "to furnish, install and connect completely in the specified or approved manner the item or material described.

1.06 OPERATING AND MAINTENANCE INSTRUCTIONS

Upon completion of the project, the Electrical Contractor shall fully instruct the Owner in the operation, adjustment and maintenance of all equipment and systems furnished. The Electrical Contractor shall provide the Owner with three (3) sets of complete maintenance and operating instructions, and technical data, in booklet form, of all equipment and devices furnished in the Contract.

1.07 CONTRACTOR'S INSPECTION

Contract Drawings are diagrammatic and do NOT show every required device, conductor, etc. The Contractor shall familiarize himself with the existing site conditions, prior to submitting a bid, and shall include all equipment and accessories necessary for complete and operational svstems.

The Electrical Contractor shall examine the Architectural Drawings, the drawings and specifications of other trades to determine the extent of work. The Electrical Contractor shall visit the site and become familiar with the project and local conditions before submitting a bid Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract. If so directed by the Architect or Engineer, the Electrical Contractor shall, without extra charge, make reasonable modifications in the layout to prevent conflict with those of other trades and for proper installation of work. Refer to the Architect's Reflected Ceiling Plan for exact location of air diffusers, registers and grilles. The Contractor shall coordinate locations of equipment with all trades before starting construction. Any modifications to the equipment layout required for installation shall be performed at no additional cost to the Owner.

1.08 ARRANGEMENT OF WORK:

Work shall be coordinated between trades to prevent unnecessary interference. Work shall present a neat coordinated appearance. Install work as necessary to provide maximum possible headroom, adequate clearance and ready access for inspection, operation, Code conformance, safe maintenance and repair. Where space appears inadequate, consult the Owner before proceeding with installation.

1.09 INSURANCE

Furnish insurance certificates required by the Owner.

1.10 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS:

Obtain and pay for permits, inspections, licenses and certificates required. Work of this Contract shall meet State Building Code, State Fire Safety Code and other laws, rules and regulations of local. State and Federal authorities: National Fire Protection Association #90A and #90B; Mechanical & Plumbing Codes; 2020 National Electrical Code; and local utility company requirements. Pay utility company back charges. Equipment, materials and components listed UL Product Directories, shall bear UL labels.

1.11 WORK BY OTHERS

The Electrical Contractor shall wire all motors provided under the HVAC Contract. The HVAC Contractor shall install all motors ready for wiring by the Electrical Contractor and shall furnish and deliver to the Electrical Contractor wiring diagrams for all motor starters for installation and wiring. The HVAC Contractor shall furnish motor starters, relays and all temperature control equipment to the Electrical Contractor for installation and wiring. The General Contractor shall perform all excavation, backfill, chases, openings, cutting, patching and finish work.

1.12 FIFLD MEASUREMENTS

The Electrical Contractor shall verify in the field all measurements necessary for the work. Verify the mounting heights of receptacles and fixtures with the Architect before installation. The Electrical Contractor shall coordinate his work with structure, ceilings, ductwork and piping

of other trades

1 1.3 WORKMANSHIP

Equipment and materials shall be new, of first quality, selected and arranged to fit properly into spaces indicated. Install equipment and materials in accordance with manufacturer's recommendations.

1.14 COORDINATION WITH OWNER:

All work shall be scheduled with the Owner. Interruptions in the Owner's access to the site shall be subject to Owner limitations of date and duration. 1.15 OPERATION OF SERVICES AND UTILITIES:

Shutdown of existing services and utilities shall, without exception, be coordinated with the

proper utility and with the Owner as to date, time of day, and duration before any service is interrupted. Notify the Owner of estimated duration of shutdown period at least ten days in advance of proposed shutdown.

1.16 PROTECTION:

Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material or damaging water. Protect existing property, equipment and finishes from damage. Repair, to original condition, existing property that has been damaged during execution of the work.

1.17 CLEANING:

Work site must be kept clean. Rubbish, debris and leftover or excess materials shall be removed daily.

1.18 PAINTING

Electrical equipment and materials shall have prime coat and standard manufacturer's finish. Painting of finished surfaces (excluding ceilings) shall be one coat primer and two coats viny base semi-gloss paint. Painting of ceiling shall be one coat primer and two coats flat white paint. Primer shall be omitted on repainting of existing surfaces.

1.19 CUTTING AND PATCHING:

Areas disturbed by new construction or demolition shall be patched and repaired to match existing conditions. Patch painting of ceilings shall include painting of entire ceiling of room involved. Patch painting of other surfaces shall be to nearest cut-off point. 1.20 WATERPROOFING

Provide necessary sleeves, caulking and flashing required to make openings waterproof. 1.21 FIREPROOFING

At closing of each working day, provide temporary firestopping in every opening cut between floors and through fire rated partitions. Permanent firestops shall be provided around sleeves and at other permanent openings through fire rated partitions and floors, as required. Materials used for fire stopping shall be Class A "Incombustible" with firestopping capabilities equal to that of adjacent construction

1.22 BASES AND SUPPORTS:

Provide necessary supports, pads, bases and piers required. Equipment shall be securely attached to building structure in acceptable manner. Attachments shall be of strong and durable nature, as determined by the Owner.

1.23 ACCESS:

Provide adequately sized access doors for access to concealed equipment and components requiring servicing or inspection. Doors shall have fire ratings equal to construction in which they are located

1.24 TESTS

Perform tests required by the Owner, legal authorities and agencies. 1.25 SEISMIC REQUIREMENTS

Submit four (4) copies of a final inspection report which includes: sealed certification by a Structural Engineer with P.E. registration in the state in which the project is located, that:

Engineer has reviewed the project. Engineer has approved the use of the devices for the particular applications. The devices satisfy Specification and Code mandated seismic criteria.

1.26 ELECTRICAL IDENTIFICATION

Provide wire markers on each conductor in panelboard gutters, pull boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on equipment manufacturer's shop drawings for control wiring. Provide neatly typed directory in door of each branch circuit panelboard identifying each circuit, its use, and

Provide typed legend of circuits in each main circuit board and distribution panel

PART 2 - PRODUCTS 2.01 RACEWAYS

Flexible steel conduit shall have an integral bond wire for grounding. Liquid-tight flexible conduit shall be used where flexibility and protection from liquids, vapors, or solids is needed. Aluminum conduit and fittings will not be allowed unless specifically noted on drawings.

A. Riaid Metal Conduit and Fittinas:

Rigid Steel Conduit: ANSI C80.1-2005.

Fittings and Conduit Bodies: ANSI/NEMA FB 2.10-2003; threaded type, material to match conduit. B. Intermediate Metal Conduit (IMC) and Fittings:

Conduit: Galvanized steel. ANSI C80.3-2005

Fittings and Conduit Bodies: ANSI/NEMA FB 2.10-2013; use fittings and conduit bodies specified above for rigid steel conduit.

C. Electrical Metallic Tubing (EMT).

Electrical Metallic Tubing. ANSI C80.6-2005

Fittings and Conduit Bodies: Material to Match.

D. Liquidtight Flexible Conduit and Fittings:

Conduit: Flexible metal conduit with PVC jacket

Fittings and Conduit Bodies: ANSI/NEMA FB 2.20-2012. E. Surface Metal Raceways:

As manufactured by Wiremold, Inc., type and size as indicated on Drawings. F. PVC Raceways:

As installed per Article 352 of the NEC.

G. Conduit Supports:

Conduit Clamps, Straps, and Supports: Steel or malleable iron. 2.02 SLEEVES

Through fire rated building elements: UL approved for the application and rating. Through new construction: 18 gage galvanized sheet metal, flush with surface on both sides. Through existing construction: Neatly core-bored hole or schedule 40 steel pipe sleeve, securely mortared into place

Wet Locations: Extend sleeve 2" above finished floor. If hole is core-bored, provide sheet metal collar sealed to opening, extending 2" above floor. 2.03 WIRE AND CABLE

Thermoplastic - insulated Building Wire: NEMA WC 70. Rubber-insulated Building Wire: NEMA WC 70.

Feeders and Branch Circuits Larger Than 6 AWG; Copper, stranded conductor, 600 volt insulation, THW, THHN/THWN.

Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, THW OR THHN/THWN, stranded conductor Control Circuits: Copper, stranded conductor 600 volt insulation. THW. THHN. THWN. XHHW.

Wire sizes #14 and larger shall be stranded. All sizes called for in the specifications or on the plans are American Wire Gauge sizes. Conductors shall be copper, unless noted differently.

All wire shall be factory color-coded with a separate color for phase, switch and neutral used consistently throughout. The neutral wire of all branch circuits shall be white. Green shall be used for equipment grounding conductors. Feeders shall be phase color coded at all access points. The use of MC or SER cable for panel feeders is acceptable where concealed. Exposed feeders shall be run in EMT or RGC.

able for panel feeders is prohibited. Use appropriate type of rigid metal race The use of MC cable and NM cable is acceptable as allowed by code or as unless otherwise noted elsewhere. Where MC or NM cable is permitted under this specification, its use shall be governed by Article 330 and 334, respectively of the National Electric Code and approved by authorities having jurisdiction.

Cables are required to be installed per NEC. All installation shall be coordinated with construction types and NEC requirements. Coordinate types of construction with Architectural plans and specifications. Install cables in conduit where required by NEC.

Provide plenum rated cable where required. Coordinate with Div. 15. All wiring for branch circuits and grounding shall be provided and installed per NEC requirements. Any discrepancies to said requirements on drawings shall be verified during bid process with Engineer. Remote Control and Signal Cable:

A. Control Cable for Class 1 Remote Control and Signal Circuits: Copper conductor, 600 volt insulation, rated 90 degree C. individual conductors twisted together, and covered with an overall PVC jacket. B. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300 volt insulation, rated 90 degree C, individual conductors twisted together, and covered with a PVC jacket; UL listed.

2.04 BRANCH CIRCUITS

Provide all conduits, outlets, wiring for all power, lighting, control, equipment, motor, and special systems in the project All Electrical work on the project shall be provided under this Division unless specifically stated elsewhere.

2.05 GROUNDING CONDUCTORS

Furnish grounding conductors as indicated on drawings. All metallic parts of the system, including conduit, raceways, supports, switchboards, transformer neutrals, cabinets, and equipment shall be grounded in accordance with the National Electrical Code, and as indicated on the drawings. Separate insulated grounding conductor shall be installed in all conduits and in cable assemblies for all branch circuits and feeders. Outer metal jacket of cables or raceways shall not be used as the only method of grounding.

each branch circuit having a three phase protective device.

Equipment grounding conductors are indicated on drawings. Where not indicated, they shall be provided in accordance with Table 250-122 of the NEC Grounding system shall have a resistance of not greater than 3 ohms and shall be measured before equipment

is placed in operation.

Ground connectors shall be clamp type and bolts, nuts, lock washer and other components shall insure a permanent, corrosion resistant assembly. Connectors shall be as manufactured by Burndy, Ilsco, or Greaves. Equipment grounding system shall be connected to ground rod grid for system grounding. Install grounding conductor to ground rod grounding system for telephone service. Ground rods copper clad steel, 3/4" diameter, not less than 10'—0" long.

2.06 SWITCHES AND RECEPTACLES Switches:

1. 20 Amp - 1P, Hubbell #CBS120-1. 20 Amp - 2P, Hubbell #CBS220-1. 20 Amp - 3-Way, Hubbell #CBS320-1.

. 20 Amp — 4—Way, Hubbell #CBS420-5. 20 Amp – With Pilot Light, Hubbell #1221–IL.

Receptacles: Specification Grade duplex, three wire, 125 volt, grounding: 1. 20 Amp – Hubbell #5462–I – Ivory.

Face Plates: (With the required number of gangs): Smooth thermoplastic (color selected by Architect) or satin

finish stainless 203/204. Face Plates: (Wet or Damp Locations) Cast aluminum, gasketed, with double lift covers, Hubbell #5205WO.

2.07 GROUND FAULT INTERRUPTER RECEPTACLES

Duplex, 20A, 125 volt AC, specification grade Ivory, NEMA WD 6-2002, NEMA 5-20K, Hubbell #GFTR20-IU. Face Plates: (Wet or Damp Locations) Cast aluminum, vertical, gasketed, in-use cover Hubbell #WP826

breaker size. Prepare directory only after all circuit adjusting for phase balancing has been completed.

Distribution systems shall be provided with a separate grounding conductor for each three-phase feeder, for

Required grounding conductor shall be installed in raceway with related phase and/or neutral conductors.

2.08 OUTLET BOXES

Outlet boxes and covers shall be pressed steel, except as noted, and protected against corrosion with zinc applied by the electric galvanizing, hot dipping or sheradizing process. Outlet boxes shall be of sizes and type to accommodate:

1. Structural conditions.

Size and number of raceways and conductors or cable entering. 3. Device or fixture for which required.

Outside lighting outlets shall have galvanized or cadmium plated cast iron boxes with gaskets, drilled and tapped to take fixture specified for these locations. Floor boxes where shown on plans shall be adjustable, watertight, cast iron, with brass cover and flange to match floor finish. Box shall be drilled and tapped to accommodate entering

conduits and furnished with power or low tension pedestal head as indicated. Furnish in Steel City. National or equal. Cast Boxes: Cast feralloy, deep type, gasketed cover, threaded hubs.

2.09 PULL AND JUNCTION BOXES

Sheet Metal Boxes: ANSI/NEMA OS 3-2012; galvanized steel. Sheet Metal Boxes larger than 12 Inches in any Dimension to be hinged enclosure.

Cast Metal Boxes for Outdoor and Wet Location Installations: NEMA 250; Type 4 and Type 6, flat_flanged, surface-mounted junction box, UL listed as raintight. Galvanized cast iron box and cover with ground flange, neoprene gasket, and stainless steel cover screws. 2.10 BOXES AND FITTINGS

Outlet boxes and fittings shall be installed at each outlet switch or junction point of conduit. Outlet boxes shall be as manufactured by Steel City, National or Raco.

2.11 PANELBOARDS

Acceptable manufacturers: Square D, Westinghouse and Siemens.

Panels: Surface or flush mounted as indicated on the Drawings, complete with panel trim having concealed hinges and trim mounting screws. Provide locking door with flush catch. Tube: Galvanized.

Keys: Provide two keys for each panel. Make keys interchangeable for panels of same voltage. 120/240 Volt Panelboards: 1 phase, 3 wire, solid neutral design with sequence style bussing and full capacity neutral, composed of an assembly of bolt-in-place molded case automatic circuit breakers with thermal and magnetic trip and trip free position separate from either ON or OFF positions. Provide common simultaneous trip for 2 pole breakers. Provide interrupting ratings of 22,000 AIC for 240 volts.

2.12 DISCONNECT SWITCHES

Acceptable manufacturers: Square D, Westinghouse and Siemens.

Motor and circuit disconnects shall have an Underwriters' Laboratory label. Single Phase Disconnect Switches: Two pole toggle switch and one pole thermo switches.

Shall be rated to protect equipment.

Contractor shall coordinate with equipment served by each disconnect to verify the need for a fused element in the disconnect. Provide such whenever required or recommended by the manufacturer of the equipment served.

2.13 LIGHTING

Furnish and install lighting fixtures, lighting equipment and lamps and/or tubes for all lighting outlets as shown on the plans and listed on the fixture schedule. Furnish and install all mounting accessories, brackets, stems, etc., required for the complete installation of the lighting fixtures.

Fixture wire shall be in strict compliance with the latest National Electrical Code. No fixture wiring shall be smaller than #12 AWG. Wiring shall be protected with tape or tubing at all points where abrasion is liable to occur. All wiring shall be concealed within fixture construction. Lighting shall be LED unless otherwise noted. Provide lamps and drivers as listed in the lighting

fixture schedule or equals if equals are allowed. 2.14 EMERGENCY LIGHTING UNITS

Provide fully automatic operation on power failure. Supply 6 volt power with minimum operating time of 1-1/2 hours with both 10 watt sealed beams on. Provide nickel cadmium battery rated at 16 ampere hours, fully automatic charger with

automatic high and low rates, built-in test switch, local sealed beam lights, transfer relay, high rate charge indicator, battery state indicator, and mounting brackets. PART 3 - EXECUTION

3.01 FIRE STOPS

All penetrations through fire rated walls, ceilings or floors in which raceways and wiring pass shall be sealed with a UL approved fire—stop fitting classified for an hourly rating equal to the rating of the wall, ceiling or floor.

3.02 NOT USED 3.03 SUPPORT INSTALLATION

Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using precast insert system, expansion anchors, preset inserts or beam clamps. Use expansion anchors or preset inserts in solid masonry walls, self-drilling anchors or

expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction

Do not fasten supports to piping, ductwork, mechanical equipment, or conduit. Do not use powder-actuated anchors.

Do not drill structural steel or concrete members.

Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts. In wet locations install free-standing electrical equipment on concrete pads.

Install surface-mounted cabinets and panelboards with minimum of four anchors. Provide steel channel supports to stand cabinet one inch off wall.

Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards 3.04 GENERAL WIRING METHODS

Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring

Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet, and for 20 ampere.

Place an equal number of conductors for each phase of a circuit in same raceway or cable. Splice only in junction or outlet boxes.

Neatly train and lace wiring inside boxes, equipment, and panelboards.

Make Conductor lengths for parallel circuits equal.

All wires and cables shall be continuous from origin to destination without running splices. At the end of these wires and cables, a sufficient slack shall be left as may be required for making proper connections.

No grease or other component which contains acids shall be used in pulling wires and cables. Where solid conductors are to be connected directly to the devices without the use of lugs, such as occurs at lighting switches and plug receptacles, the wire shall be formed into a loop to fit around the screv

3.05 WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricate for pulling 4 AWG and larger wires. Install wire in raceway after all mechanical work likely to injure conductors has been completed.

Completely and thoroughly swab raceway system before installing conductors. 3.06 CABLE INSTALLATION

Provide protection for exposed cables where subject to damage.

Support cables above accessible ceilings do not rest on ceiling tiles. Use spring metal clips or cable ties to support cables from structure. Include bridle rings or drive rings. Use suitable cable fittings and connectors.

Use solderless pressure connectors with insulating covers for copper wire splices and taps, 8 AWG and smaller. For 10 AWG and smaller, use insulated spring wire connectors with plastic

conductors and connectors with electrical tape to 150 percent of the insulation value of conductor.

Thoroughly clean wires before installing lugs and connectors. Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

Terminate spare conductors with electrical tape. 3.07 FIELD QUALITY CONTROL

Inspect wire and cable for physical damage and proper connection. Torque test conductor connections and terminations to manufacturer's recommended values. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

Conduits must be swabbed out and made thoroughly dry before pulling wire and cable. 3.08 HANGERS AND ATTACHMENTS

In general, the following methods of fastening of supports to building structure shall be used. Bolts and expansion shields to be used in concrete slabs where weight does not exceed 100

pounds per fastening.

pounds per fastening. Inserts to be used in heavyweight concrete structural slabs where weight does not exceed 500

pounds per fastening. Where the aforementioned fastening methods are not applicable or where inserts have for any reason not been provided, supply a steel fishplate (1/4) thick with area required) with thru-bolt for each fastening. Fishplate assembly shall be chased into slab and grouted flush with top of slab.

Provide such channel or angle iron members as may be necessary to bridge between structural steel and receive supports for fastening. Such auxiliary steel shall be welded to the structural steel.

Supporting racks of angle iron, flat iron and channel iron members shall be provided for electrical work indicated as being supported from walls where such walls are found to be incapable of supporting the weight.

Where provided, supporting racks shall be rigidly bolted or welded together and adequately braced to provide a substantial structure. Racks shall be of ample size to provide for a workmanlike arrangement of all equipment thereon. No metal enclosures of equipment, etc. for surface installation shall be mounted directly on any wall. Provide flat bar members for a minimum of 1/4" space between the wall and metal

enclosure shall be installed. 3.09 LOCATION OF OUTLETS

Coordinate work with other trades so that exact roughing locations are available for all devices and equipment

construction. Such changes shall be executed as part of the work of this Section. Verify locations shown on drawings with Architect and/or Owner, correcting discrepancies as they arise, all at no additional cost to the Owner.

Outlets in equipment spaces shall be roughed after final location of piping and equipment has been established.

Dimensions scaled from Electrical or Mechanical Drawings shall not be relied on in locating outlets. Use only Architectural Drawings for the determination of measurement of work in the

3.10 RACEWAY INSTALLATION

conduit low point

and nipples.

3.11 CIRCUITING

system.

3.12 GROUNDING CABLES

and adjacent piping.

stamped galvanized hangers.

Intermediate Metal Conduit:

Electrical Metallic Tubing:

3.17 CONDUIT/RACEWAY SCHEDULE

Wet Interior Locations: Rigid steel.

Dry Concealed Locations: EMT.

3.18 DEVICE INSTALLATION

grounding pole on bottom.

Rigid Polyvinyl Chloride Conduit:

Rigid Metal Conduit:

3.16 CONTINUITY

Exposed raceways passing through walls, floors or ceilings shall be fitted with escutcheon plates. Installation of raceways shall not weaken the building elements, and shall not affect their fire resistance rating.

Install conduit and raceways plumb and level, parallel to lines of building. All conduits and raceways to be concealed, except as noted on the Drawings. Conduits that cannot be concealed shall be brought to the attention of the Architect so he can render an alternate conduit method. Use of surface mounted raceways shall be approved only by Architect and Engineer.

Cut conduit square using a saw or pipe cutter; de-burr cut ends. Bring conduit to the shoulder of fittings and couplings and fasten securely.

listed fire rating equal to wall or floor rating.

Use split bolt connectors for copper wire splices and taps, 6 AWG and larger. Tape uninsulated

Inserts to be used in lightweight concrete structural slabs where weight does not exceed 300

Locations shown on drawings are subject to modification due to conditions arising during

Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.

Install no more than the equivalent of four 90-degree bends between boxes.

Use conduit fittings to make sharp changes in direction, as around beams. Use hydraulic bender or factory elbows for bends in conduit larger than 2 inch size.

Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at

Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture. Provide No. 12 AWG insulated conductor or suitable pull string in empty conduit, except sleeves

Install expansion joints where conduit crosses building expansion joints. Where conduit penetrates fire-rated walls and floors, provide mechanical firestop fittings with UL

Connect each device, fixture or equipment item to the appropriate poles of the proper panel. Arrange branch circuits to balance the loads on the phases of the panel feeder. Where 120 volt, 3 or 4 wire circuits are indicated, the circuit shall consist of separate phases and a common neutral. Maximum phase unbalance shall not exceed 10%.

Lay grounding cables slack to prevent damage. Connections to have bright, clean, metal contact. Connections to be readily accessible for inspection and for checking resistance of ground

3.15 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

Size conduit for conductor type and number installed, 3/4 inch minimum size. Arrange conduit to maintain headroom and present a neat appearance.

Route exposed conduit and conduit above accessible ceilings, parallel and perpendicular to walls Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

Arrange conduit supports to prevent distortion or alignment by wire pulling operations. Fasten conduit using galvanized straps, lay—in adjustable hangers, clevis hangers, or bolted split

Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

Support conduit at a maximum of 10 feet on center. Refer to the following articles of the

Art 342.30 Art 344.30 Art 358.30 Art 352.30

Install convenience receptacles 18 inches above floor, 6 inches above countersS backsplash

All conduits and cable assemblies are to be concealed unless otherwise noted.

Complete raceway systems shall become metallically continuous and shall be thoroughly grounded in accordance with requirements of the National electrical Code and its latest revisions.

Dry Exposed Locations: Rigid steel or IMT, surface metal raceways.

Install wall switches 48 inches above floor. OFF position down Install wall dimmers 48 inches above floor. Separate adjacent dimmers as instructed by manufacturer to prevent a requirement for derating of dimmers. Do not use common neutrals.

Install specific-use receptacles at heights shown on Contract Drawings.

Install decorative plates on switch, receptacle, and blank outlets in finished are areas, using jumbo size plates for outlets installed in masonry walls.

Install advanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

Install devices and wall plates flush and level. Verify all mounting heights with architectural drawings.

Coordinate device locations with architectural details.

3.19 COORDINATION OF BOX LOCATIONS

Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.

Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of boxes and outlets prior to rough-in.

Locate and install boxes to allow access. Locate and install to maintain headroom and to present a neat appearance.

Locate boxes in masonry walls to require minimum cutting. Coordinate masonry cutting to achieve neat openings for boxes.

Provide knockout closures for unused openings. Support boxes independently of conduit except for cast boxes that

are connected to two rigid metal conduits, both supported within 12 inches of box.

Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.

Align wall-mounted outlet boxes for switches, and similar devices. Boxes shall set plumb and true in building surface and furnished with suitable plaster rings where so required.

3.20 PULL AND JUNCTION BOX INSTALLATION Locate pull boxes and junction boxes above accessible ceilings or in

unfinished areas. Support pull and junction boxes independent of conduit.

3.21 PANELBOARD INSTALLATION

Provide mounting brackets, busbar drilling, and filler pieces for unused

Prepare and affix typewritten directory to inside cover of panelboard indicating loads controlled by each circuit. 3.22 LIGHTING

Verify all ceiling types and construction before ordering lighting fixtures to confirm that final ceilings approved for installation and the lighting fixtures are compatible to each other in all respects.

Lighting fixtures shall not be installed until finished coat of paint has been applied to ceilings and walls and allowed to dry thoroughly. Any fixtures, reflectors, or glassware broken prior to the time of final inspection must be restored without cost to the Owner. Just prior to occupancy, all fixtures shall be relamped with new lamps, if needed.

