MEC	CHANICAL SYMBO	LS		ABBREVIAT	IONS	MECHANICAL GENERAL NOTES
SYMBOL DESCRIPTION	SYMBOL (X) S,R,E CFM NFCK SIZE	AIR DEVICE TAG ('S' = SUPPLY, 'R' = RETURN, 'E' = EXHAUST, 'T' = TRANSFER)	ABBREVIATION A ADD ABS	N DESCRIPTION ABBR AMPS AUTOMATIC AIR DAMPER ABSOLUTE KEC	EVIATION DESCRIPTION JANITOR SINK KITCHEN FOUIPMENT CONTRACTOR	 A. REFER TO MECHANICAL PLANS FOR DEMOLITION, NEW WORK, AND ADDITION INFORMATION FOR RELOCATED ITEMS. B. REFER TO MECHANICAL SPECIFICATIONS, SCHEDULES, AND DETAIL DRAWING AND AND DETAIL DRAWING AND AND AND AND AND AND AND AND AND AND
Image: Second		SUPPLY AIR DEVICE	ACCU A/C AD ADA ADA	AIR COOLED CONDENSING UNIT KW AIR CONDITIONING KWH ACCESS DOOR OR AREA DRAIN AMERICAN DISABILITIES ACT LAT ADJUSTABLE LAV	KILOWATT KILOWATT HOUR LEAVING AIR TEMPERATURE	 FOR ADDITIONAL INFORMATION. D. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS OF ALL EQUIPMENT DUCTWORK, & PIPING PRIOR TO SUBMITTING A BID. COORDINATE COMPLET
			AFF AHU AMB ANSI AP	ABOVE FINISHED FLOOR AIR HANDLING UNIT AMBIENT AMERICAN NATIONAL STANDARDS INSTITUTE LF	POUND LEAVING DRY BULB LENGTH LINEAR FEET	 WITH ALL OTHER TRADES. RELOCATE TERMINAL UNITS AND PROVIDE ADDITIONAL DUCTWORK, OFFSETS, FITTINGS, ETC. AS REQUIRED. E. THE CONTRACTOR SHALL VERIFY THAT ALL EXISTING AND NEW MECHANIC FOURMENT ARE MOUNTED SO THAT ALL REQUIRED CODE AND
			APD ~ ARCH AS AVG	AIR PRESSURE DROP APPROXIMATELY ARCHITECT AIR SEPARATOR AVERAGE MAL	LOW PRESSURE LEAVING WATER TEMPERATURE MIXED AIR TEMPERATURE MAKE UP AIR LINIT	MANUFACTURER'S SERVICES CLEARANCES ARE MAINTAINED AT THE BOT AND SIDES OF EACH UNIT FOR PROPER SERVICING AND MAINTENANCE. COORDINATE COMPLETELY WITH ALL NEW WALLS TO STRUCTURE, AND RELOCATE AS REQUIRED TO MAINTAIN PROPER CLEARANCES.
INSIDE DIMENSIONS) INCHES WIDTH / INCHES HEIGHT OR ROUND	RØFOR	SLOT DIFFUSER	BDD BHP BFP	BACKDRAFT DAMPER MAX BRAKE HORSEPOWER MC BACKFLOW PREVENTOR MD	MAXIMUM BTH/HR X 1,000 MECHANICAL CONTRACTOR MOTORIZED DAMPER	F. DUE TO DRAWING SCALE, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTO SHALL EXAMINE FIELD CONDITIONS AND FURNISH THE NECESSARY FITTIN
CONCENTRIC TRANSITION 15° ANGLE MAXIMUM UNLESS NOTED OTHERWISE		SUPPLY AIRFLOW DIRECTION	CA CAV CCW CD	COMPRESSED AIR MIN CONSTANT AIR VOLUME MISC COUNTER CLOCKWISE MPT CONDENSATE DRAIN MTL	MINIMUM MISCELLANEOUS MALE PIPE THREAD METAL	SHALL FURNISH AND INSTALL BALANCING DAMPERS IN HVAC SYSTEMS TH HAVE MORE THAN ONE INLET/OUTLET UNLESS NOTED OTHERWISE. BALAN DAMPERS SHALL APPLY TO NEW AND EXISTING DUCTWORK.
ECCENTRIC TRANSITION 15° ANGLE MAXIMUM UNLESS NOTED OTHERWISE	~#-	RETURN OR EXHAUST AIRFLOW DIRECTION	CFM CFOI CFS CH CHWM	CUBIC FEET PER MINUTE MVD CONTRACTOR FURNISHED / OWNER INSTALLED MZ CUBIC FEET PER SECOND CHILLER NA CHILLED WATER MAKE-UP NC	MANUAL VOLUME DAMPER MULTIZONE NOT APPLICABLE NOISE CRITERIA	G. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO BRI THE ATTENTION OF THE MECHANICAL ENGINEER ANY SLAB-TO-SLAB PAR THAT DO NOT HAVE PROPER RETURN AIR PATHWAYS. ALL PENETRATION SLAB-TO-SLAB PARTITIONS SHALL BE SEALED AIR-TIGHT.
ROUND TO SQUARE TRANSITION 15° ANGLE MAXIMUM UNLESS NOTED OTHERWISE	(E)	EXISTING THERMOSTAT OR SENSOR TO REMAIN	CHWP CHWPP CHWR CHWS CHWSP	CHILLED WATER PUMPN.C.CHILLED WATER PRIMARY PUMPNICCHILLED WATER RETURNN.O.CHILLED WATER SUPPLYNTSCHILLED WATER SECONDARY PUMPNTS	NORMALLY CLOSED NOT IN CONTRACT NORMALLY OPEN NOT TO SCALE	H. MECHANICAL CONTRACTOR SHALL VERIFY THAT LOCATION OF CEILING A WALL MOUNTED AIR CONDITIONING SLOTS, DIFFUSERS, GRILLES, AND REGISTERS SHOWN ON THE DRAWINGS ARE ACCEPTABLE TO THE ARCHIT
RECTANGULAR ELBOW WITH TURNING VANES	ر <u>آ</u> (D)	THERMOSTAT OR SENSOR TO BE DEMOLISHED	CI CLG CLG HT CW CO	CAST IRONOACEILINGOADCEILING HEIGHTOATCLOCKWISEOBDCLEAN-OUT, CARBON MONOXIDEOD	OUTSIDE AIR OUTSIDE AIR DAMPER OUTSIDE AIR TEMPERATURE OPPOSED BLADE DAMPER OUTSIDE DIAMETER	 I. VERIFY EXACT REQUIREMENTS AND OPERATION OF EXISTING BUILDING CONTROL SYSTEM WITH BUILDING OWNER PRIOR TO SUBMITTING A BID.
RECTANGULAR ELBOW WITHOUT TURNING VANES	Ē	EXISTING THERMOSTAT OR SENSOR TO BE RELOCATED	CO2 COL CONC COP CP	CARBON DIOXIDEOFCICOLUMNOFDCONCRETEOFOICOEFFICIENT OF PERFORMANCE (HEATING)OZCONDENSATE PUMPOZ	OWNER FURNISHED / CONTRACTOR INSTALLED OVERFLOW DRAIN OWNER FURNISHED / OWNER INSTALLED OUNCE	 J. THE CONTRACTOR SHALL REPLACE ANY DAMAGED OR NON-FUNCTIONIN THERMOSTATS. NEW THERMOSTATS SHALL MATCH BUILDING STANDARD K. ALL REFRIGERANT CIRCUITS WITH SERVICE PORTS LOCATED ON THE EX
STANDARD BRANCH FOR SUPPLY (WITH MANUAL VOLUME	IE DAMPER) (R)	NEW LOCATION FOR RELOCATED THERMOSTAT OR SENSOR	CT CU CV CV CW CWP	COOLING TOWER P CONDENSING UNIT PCT CONSTANT VOLUME PD COLD WATER PF CONDENSER WATER PLIMP PH	PUMP PERCENT PRESSURE DROP/DIFFERENCE PRE-FILTER PHASE	OF THE BUILDING SHALL BE PROVIDED WITH LOCKING ACCESS PORT CAI REQUIREMENT APPLIES TO ALL NEW REFRIGERANT CIRCUITS AND EXIST REFRIGERANT CIRCUITS WHEN EQUIPMENT IS RE-USED ON CHANGE OF U PROJECTS.
STANDARD BRANCH FOR SUPPLY OR RETURN (WITHOUT VOLUME DAMPER)	r Manual (NEW THERMOSTAT OR SENSOR	CWR CWS dB	CONDENSER WATER RETURN CONDENSER WATER SUPPLY DECIBEL(S) DEVIDENT DECIBEL PRV	B PLUMBING POINT OF CONNECTION PARTS PER MILLION PRESSURE REDUCING STATION PRESSURE REDUCING VALVE	L. FOR ANY NEW OR RELOCATED FAN-POWERED BOXES PROVIDE EACH FAN-POWERED BOX WITH A HARDWIRED SHUTDOWN WITH THE RTU OR AIR-HANDLING UNIT SMOKE DETECTOR.
ROUND SPIN-IN TAP (WITH DAMPER)		NEW HUMIDISTAT (SUBSCRIPTS, LINE WEIGHTS, & LINE TYPES SIMILAR TO THERMOSTATS)	DDC DEG DF DH	DIRECT DIGITAL CONTROL DEGREE(S) DRINKING FOUNTAIN DUCT HEATER DIAMETER DIAMETER DIAMETER	POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH POUNDS PER SQUARE INCH, ABSOLUTE POUNDS PER SQUARE INCH, GAGE	M. ANY INDIVIDUAL FAN-POWERED BOX THAT SUPPLIES MORE THAN 2000 C SHALL HAVE ITS OWN AREA SMOKE DETECTOR HARDWIRED TO SHUT DO UNIT UPON DETECTION OF PRODUCTS OF COMBUSTION.
		NEW CARBON DIOXIDE MONITOR (SUBSCRIPTS, LINE WEIGHTS, &	DP DPT D DT DT	DIAMETER TAG DEW POINT DEW POINT TEMPERATURE DRAIN QT DELTA TEMPERATURE QTY	QUART QUANTITY	N. MECHANICAL CONTRACTOR SHALL VERIFY THAT LOCATION OF CEILING WALL MOUNTED AIR CONDITIONING SLOTS, DIFFUSERS, GRILLES, AND REGISTERS SHOWN ON THE DRAWINGS ARE ACCEPTABLE TO THE ARCH PRIOR TO INSTALLATION.
		NEW CARBON MONOXIDE MONITOR (SUBSCRIPTS, LINE WEIGHTS, &	EAT ECON EDB EDH	ENTERING AIR TEMPERATURE RAF ECONOMIZER RAF ENTERING DRY BULB RAT ELECTRIC DUCT HEATER RCP	RETURN AIR RETURN AIR FAN RETURN AIR TEMPERATURE REINFORCED CONCRETE PIPE	O. NEW EXPOSED TO VIEW EXHAUST DUCTWORK SHALL BE SINGLE WALL, UN-INSULATED, AND HAVE A "PAINT GRIP" FINISH. REFER TO THE ARCHIT FINISH OF DUCTWORK.
		LINE TYPES SIMILAR TO THERMOSTATS)	EER EF EFF ELEC ENT	ENERGY EFFICIENCY RATIO RD EXHAUST FAN REF EFFICIENCY RH ELECTRIC RHC ENTERING RM	REGRIGERATOR RELATIVE HUMIDITY REHEAT COIL ROOM	P. NEW EXPOSED TO VIEW SUPPLY DUCTWORK THAT IS INDICATED WITH A HATCH SHALL BE AS SPECIFIED WITHIN THE MECHANICAL SYMBOLS ON DRAWING AND ON DRAWING M0.2.
	Ì	CONTROL WIRE	EQIV FT EQP ESP ET EUH, EH	EQUIVALENT FEETRPMEQUIPMENTRPSEXTERNAL STATIC PRESSURERTUEXPANSION TANKRVELECTRIC (UNIT) HEATERRV	REVOLUTIONS PER MINUTE REVOLUTIONS PER SECOND ROOF TOP UNIT RELIEF VALVE	
	SP	NEW STATIC PRESSURE SENSOR (SUBSCRIPTS, LINE WEIGHTS, & LINE TYPES SIMILAR TO THERMOSTATS)	EVAP EWB EWH EWT EXH	EVAPORAT(E), (IVE)SAENTERING WET BULBSAFELECTRIC WATER HEATERSANENTERING WATER TEMPERATURESATEXHAUSTSCFM	SUPPLY AIR SUPPLY AIR FAN SANITARY SATURATED M STANDARD CUBIC FEET PER MINUTE	
COMBINATION SMOKE/FIRE DAMPER (VERTICAL POSITION	N) (SD)	SMOKE DETECTOR (SHOWN FOR REFERENCE ONLY) PROVIDED & INSTALLED BY THE ELECTRICAL CONTRACTOR	EXT F FA FC	EXTERIOR SCFS SD FAHRENHEIT SEC FREE AREA SFD FLEXIBLE CONNECTION SH	S STANDARD CUBIC FEE PER SECOND SMOKE DAMPER, STORM DRAIN SECOND(S) SMOKE/FIRE DAMPER SHOWER	
FD FIRE DAMPER (HORIZONTAL POSITION)		NEW EQUIPMENT (SUBSCRIPTS, LINE WEIGHTS, & LINE TYPES SIMILAR TO THERMOSTATS, UNLESS NOTED OTHERWISE)	FCO FCU FD FDC	FLOOR CLEAN-OUT SHT FLOOR CLEAN-OUT SHT FAN COIL UNIT SK FLOOR DRAIN, FIRE DAMPER SP FIRE DEPARTMENT CONNECTION SPEC FINAL FILTERS SS	SHEET SINK SUMP PUMP C SPECIFICATIONS SERVICE SINK SANITARY SEWER STORM	
COMBINATION SMOKE/FIRE DAMPER (HORIZONTAL POSIT	TION) EQP-TAG-#	EQUIPMENT TAG/LABEL	FF FHC FLR FPC FS	FINAL FILTERS 50 FIRE HOSE CABINET 51 FLOOR STC FIRE PROTECTION CONTRACTOR STD FLOOR SINK 51	SEWER, STAINLESS STEEL SOUND TRANSMISSION CLASS STANDARD	OUTSIDE AIR CALCULATIONS
FLEXIBLE CONNECTION		EXISTING PIPING (3" AND SMALLER PIPES SHOWN AS SINGLE LINE) DEMO PIPING NEW PIPING	FPTU FTLB FPM FPS FRP	FAN POWERED TERMINAL UNITTFOOT POUNDT&PFEET PER MINUTET/SFEET PER SECONDTABFIBERGLASS REINFORCED PLASTICTD	TEMPERATURE TEMPERATURE AND PRESSURE VALVE TUB/SHOWER COMBINATION TEST ADJUST & BALANCE TEMPERATURE DIFFERENCE	OUTSIDE AIR SHALL BE PROVIDED IN ACCORDANCE WITH THE 2021 UNIFORM CODE. THE REQUIRED OUTSIDE AIR VENTILATION WAS CALCULATED AS FOLL VBZ = (RP*PZ) + (RA*AZ)
POSITIVE PRESSURE RECTANGULAR DUCT DOWN		PIPE DOWN	G GA GAL	FACE VELOCITYTDHTDVTDVNATURAL GASTEMIGAGETONSGALLONTSTA	TRIPLE DUTY VALVE TEMPERATURE TONS OF REFRIGERATION THERMOSTAT	EZ= 0.8 VOZ=VBZ / EZPRPZPA
NEGATIVE PRESSURE RECTANGULAR DUCT DOWN	o	PIPE UP	GC GPH GPM GPS GT	GENERAL CONTRACTORTYPGALLONS PER HOURUGALLONS PER MINUTEUGALLONS PER SECONDUCGREASE TRAPUH	HEAT TRANSFER COEFFICIENT UNDERCUT, UNDER COUNTER UNIT HEATER	NF FZ NA AZ SPACE CFM OA / P P CFM OA/SF SF CORRIDOR 5.0 0.0 0.06 890
	(1)	KEYED DRAWING NOTE	H HB HD HEPA	HEIGHT UNO HOSE BIB UV HEAD HIGH EFFICIENCY PARTICULATE AIR (FILTER) V	UNLESS NOTED OTHERWISE URINAL UNIT VENTILATOR VENT, VOLTS	ELECTRICAL 5.0 0.0 0.06 55 MN & WM TLT 5.0 0.0 0.06 120
			HOA HP HR HS HSTAT	HAND, OFF, AUTO STATIONVAHORSEPOWERVACHOURVAVHAND SINKVFDHUMIDISTATVRF	VOLT AMPERE VACUUM VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE VARIABLE REFRIGERANT FLOW	UTILITY 5.0 0.0 0.06 55 REQUIRED TOTAL VOZ
			HT HTR HVAC HW HWC	HEIGHT VRV HEATER VEL HEATING, VENTILATION, AND AIR CONDITIONING VER HOT WATER VOL HOT WATER COIL VTR	VARIABLE REFRIGERANT VOLUME VELOCITY TVERTICAL VOLUME VENT THROUGH THE ROOF	THE AREAS ABOVE ARE SERVED BY AHU-1. TO SATISFY THE OUTSIDE AIR REG THE CONTRACTOR SHALL BALANCE THE OUTSIDE AIR TO THE VALUES INDICA
		DRAWING REVISION TRIANGLE	HWCP HWP HWR HWS	HOT WATER CIRCULATING PUMP	VARIABLE VOLUME TERMINAL WASTE, WIDTH WITH WITHOUT	MECHANICAL SCHEDULE DRAWING. MECHANICAL DRAWING LIST
		DRAWING REVISION CLOUD	HZ IAQ ID	FREQUENCY WB INDOOR AIR QUALITY WCC INSIDE DIAMETER WH INCHES, WATER COLUMN WHA	WET BULB WATER CLOSET WALL CLEAN-OUT WALL HYDRANT WATER HAMMER ARRESTOR	M0.000 MECHANICAL COVER SHEET M0.001 MECHANICAL SPECIFICATIONS
RADIUS ELBOW (R = 1.5 X DIAMETER)			IN VUC INCL INSUL INT INV	INCLUDE WM INSULAT(E), (ED), (ION) WT INTERIOR WTR INVERT VCO	WATER METER WEIGHT WATER	M0.002 MECHANICAL SPECIFICATIONS M2.001 MECHANICAL PLAN - LEVEL 1 M2.002 MECHANICAL PLAN - LEVEL 2
			IPS	INTERNATIONAL PIPE STANDARD	YARD	M2.003 MECHANICAL PLAN - ROOF



PART 1 -	GENERAL		
1.1 SECT	ION INCLUDES	1.	6 QUALITY ASSURANCE
HA	NGERS, AND SUPPORTS.		1. THE CONTRACTOR SHALL COMPLY WITH TH
1.2 RELA			
1.	THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, SUPPLIES, MATERIALS, TOOLS,		CITY AND/OR COUNTY BUILDING CODES AN CITY, COUNTY, STATE DEPARTMENT OF HI
2	LABOR, ETCFOR A COMPLETE INSTALLATION.	1	INTERNATIONAL BUILDING CODE (IBC) - 202 INTERNATIONAL MECHANICAL CODE (IMC)
Ζ.	ALL OTHER TRADES ON THIS PROJECT.	1	INTERNATIONAL PLUMBING CODE (IPC) - 20 INTERNATIONAL ENERGY CONSERVATION OCCUPATIONAL SAFETY AND HEALTH ADM
3.	THE CONTRACTOR SHALL PROVIDE A COMPLETE MECHANICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED BY NOTES OR THE SPECIFICATIONS.		TEXAS ACCESSIBILITY STANDARDS (TAS) NATIONAL ELECTRIC CODE (NEC) - 2020 W/
4.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND	т	UNIFORM MECHANICAL CODE (UMC) - 2021 UNIFORM PLUMBING CODE (UPC) - 2021 W/
5.	THE CONTRACTOR SHALL REVIEW SITE CONDITIONS ALONG WITH THE CONTRACT		2. WHEN DIFFERENT SECTIONS OF ANY APPLIC MATERIALS, METHODS OF CONSTRUCTION,
6.	THE CONTRACTOR SHALL FIELD VERIFY ALL SITE MEASUREMENTS WITH REGARDS TO		B. MANUFACTURER QUALIFICATIONS
	ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR ANY DISCREPANCIES BETWEEN DIMENSIONS INDICATED ON THE CONTRACT DOCUMENTS AND ACTUAL FIELD	NU	1. MINIMUM OF 5 YEARS EXPERIENCE MANUFA
	MEASUREMENTS.		C. INSTALLER QUALIFICATIONS
A. AN	REINCES		 MINIMUM OF 2 YEARS EXPERIENCE INSTALL STANDARDS FOR MATERIAL AND INSTALLATION
1.	ASHRAE 62.1 - VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY		1. THE CONTRACTOR SHALL USE MATERIALS
2.	ASHRAE 90.1 - ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL		UNDERWRITERS LABORATORIES (UL) AS CO STANDARDS HAVE BEEN ESTABLISHED FOR OUESTION THE CONTRACTOR SHALL EXEC
B. UN	DERWRITERS LABORATORY (UL)		TO PRESENT A CLEAN, NEAT, AND PROFESS COMPLETED.
1.	LISTED PRODUCTS		2. THE CONTRACTOR, UNLESS NOTED OTHER
.4 SUBN	ITTALS		BELOW:
A. TH EQ	E CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF THE SHOP DRAWINGS, UIPMENT PERFORMANCE SUBMITTALS, AND PRODUCT DATA FOR THE FOLLOWING ITEMS	S:	AMCA AIR MOVING & CONDITIONING A ANSI AMERICAN NATIONAL STANDAI
1.	EQUIPMENT		ARI AIR-CONDITIONING & REFRIGE ASHRAE AMERICAN SOCIETY OF HEATIN ENGINEERS
2.	DUCTWORK		ASME AMERICAN SOCIETY OF MECHA ASTM AMERICAN SOCIETY OF TESTIN
3.			IAPMO INTERNATIONAL ASSOCIATION NEC NATIONAL ELECTRIC CODE
4. 5.	AIR DEVICES (GRILLES, REGISTERS, AND DIFFUSERS)		NEIMA NATIONAL ELECTRICAL MANUF NFPA NATIONAL FIRE PROTECTION A SMACNA SHEET METAL & AIR CONDITION
6.	CONTROLS		E. PERMITS, FEES, AND INSPECTIONS
7.	ALL OTHER INSTALLED MECHANICAL ITEMS		1. THE CONTRACTOR SHALL PROVIDE AND CO
B. SH	OP DRAWINGS		DEPARTMENT HAVING JURISDICTION.
1. 2			2. THE CONTRACTOR SHALL BE RESPONSIBLE TESTS, CERTIFICATIONS, AND INSPECTIONS
∠. 3.	DIMENSIONS TO ADJACENT CONSTRUCTION AND/OR OBSTRUCTIONS		3. THE CONTRACTOR SHALL NOTIFY THE OWN WHEN EQUIPMENT IS TO BE TESTED OR UT
4.	ALL REQUIRED CLEARANCES AND ACCESS DIMENSIONS FOR SERVICING		CONCEALED AND BEFORE TRENCHES ARE (
C. EQ	UIPMENT WEIGHTS		 F. SCHEDULING, COORDINATION, & COOPERATION 1. THE CONTRACTOR SHALL SCHEDULE THEFE
1.	THE CONTRACTOR SHALL INCLUDE EQUIPMENT WEIGHTS ON ALL SUBMITTALS TO VERI WHICH PIECES OF EQUIPMENT WEIGH 300 POUNDS OR MORE.	FY	TRADES ON THE PROJECT SITE TO AVOID D WORK.
D. HA	ZARDOUS MATERIALS, PRODUCTS, PROCESSES, AND VOC'S		2. THE CONTRACTOR SHALL COOPERATE WITH
1.	IN THE EVENT THAT MATERIALS, PRODUCTS, AND/OR PROCESSES BEING PROPOSED FO THIS PROJECT CONTAIN, OR MAY EMIT, ANY VOLATILE ORGANIC COMPOUNDS (VOC), FORMALDEHYDE FORMULATIONS, OR HAZARDOUS OUT-GASSING, AS DETERMINED BY	OR	INSTALLATION OF THEIR WORK AND COORD PROVIDE REQUIRED CLEARANCE OF PIPING REQUIRED.
	THE MANUFACTURER, A MATERIALS SAFETY DATA SHEET SHALL BE SUBMITTED AS PAF OF THE SHOP DRAWING PROCESS FOR REVIEW BY THE ARCHITECT, ENGINEER, AND OWNER.	Κ Ι	 SHOULD ANY CHANGES OCCUR DUE TO THE AND/OR CONFLICTS WITH THE CONTRACT D SUBMIT PROPOSED CHANGES TO THE ENGI ALTERNATE METHOD OF COMPLETING THEI
E. SU			CONTRACT DOCUMENTS.
1.	WRITTEN AUTHORIZATION FROM THE ENGINEER OF RECORD AND OWNER.	х	4. NUTIFY THE OWNER TWENTY FOUR (24) HOU TESTED OR UTILITIES ARE TO BE SHUT-OFF TRENCHES ARE COVERED UP
2.	THE DETERMINATION OF WHAT SHALL BE CONSIDERED EQUAL IS AT THE SOLE DISCRETION OF THE ENGINEER OF RECORD AND OWNER.		5. IF THE CONTRACTOR FAILS TO COMPLY WIT
3.	THE CONTRACTOR SHALL INCLUDE SUFFICIENT DESCRIPTIVE INFORMATION, INCLUDING BUT NOT LIMITED TO THE MANUFACTURER'S PUBLISHED DATA TO ESTABLISH CONTRAC COMPLIANCE.	G CT	REPAIRING DAMAGE TO OTHER CONTRACTO ADDITIONAL COST.
4.	THE CONTRACTOR SHALL SUBMIT SAMPLES IF REQUESTED BY THE ARCHITECT OR ENGINEER OF RECORD.		 PORTIONS OF THE BUILDING MIGHT BE IN US CONSTRUCTION PERIOD OF THIS PROJECT. CHILLED WATER, HEATING HOT WATER FIR
5.	ALL SUBSTITUTIONS SHALL BE SUBMITTED AT LEAST SEVEN (7) DAYS PRIOR TO BID SUBMISSION FOR REVIEW		WATER WHICH WILL BE REQUIRED FOR THIS ANY REASON WITHOUT PRIOR COORDINATI
6.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND ALL		BUILDING MANAGEMENT OR BUILDING OWN BUILDING MANAGEMENT TEAM OR BUILDING THE DATE, START TIME, AND DURATION TH
	ASSOCIATED COSTS FOR ALL DIMENSIONAL DIFFERENCES, WEIGHTS, CLEARANCES, MATERIAL & LABOR FOR ALL SUBSTITUTIONS.		MANAGEMENT TEAM OR BUILDING OWNER F ADVANCE NOTIFICATION OF SEVEN (7) DAYS MANAGEMENT TEAM OR OWNER PRIOR TO
.5 DEFIN			7. AREAS OF THE BUILDING MIGHT BE OCCUPI
A. HV PE UN	RC - HEATING, VENTILATION, AND AIR CONDITIONING. ALL EQUIPMENT INCLUDED TO RFORM HVAC, BUT NOT LIMITED TO THE FOLLOWING: AIR-HANDLING UNITS, ROOFTOP ITS, SPLIT SYSTEMS, VRF SYSTEMS, VAV UNITS, TERMINAL UNITS, FAN POWERED UNITS, NS, PLIMPS, ETC		PROJECT. NOISY, DUSTY, AND/OR OTHER CO WORK WHICH MAY DISTURB OR CAUSE CON SHALL NOT BE ACCEPTABLE.THE CONTRAC
FA B. DU	NS, PUMPS, ETC CTWORK - MATERIAL USED FOR THE DISTRIBUTION OF HOT/COLD. EXHAUST VENTILATIO	DN,	AND MATERIALS WHICH SHALL NOT ADVERS THE OCCUPIED AREAS.
AN	D/OR TRANSFER AIRFLOW.		8. ALL AFTER-HOUR OR OVERTIME WORK REQ DISRUPTION OF OCCUPANTS SHALL BE PRC
C. PIF CC	ING - MATERIAL USED FOR THE DISTRIBUTION OF HOT/CHILLED WATER, AND/OR NDENSATE DRAINAGE.		
D. CC	NTROLS - THERMOSTATS (T-STATS), BUILDING AUTOMATION SYSTEM (BAS), BUILDING NAGEMENT SYSTEM (BMS), ENERGY MANAGEMENT SYSTEM (EMS), AND FIRE ALARM NTROL PANEL (FACP).		9. AFTER COMPLETION OF INSTALLATION, BUT CONTRACTOR SHALL CERTIFY IN WRITING T AND PROCESSES USED TO NOT CONTAIN A (PCB).
MA CC			
MA CC E. AB	BREVIATIONS		

MPLY WITH THE REQUIREMENTS OF THE AUTHORITIES PLICABLE CODES AT THE LOCATION OF THE PROJECT.

ES ACT (ADA) ING CODES AND/OR ORDINANCES RTMENT OF HEALTH ODE (IBC) - 2021 W/ LOCAL AMENDMENTS L CODE (IMC) - 2021 W/ LOCAL AMENDMENTS CODE (IPC) - 2021 W/ LOCAL AMENDMENTS NSERVATION CODE (IECC) - 2021 W/ LOCAL AMENDMENTS D HEALTH ADMINISTRATION (OSHA)

EC) - 2020 W/ LOCAL AMENDMENTS (UMC) - 2021 W/ LOCAL AMENDMENTS PC) - 2021 W/ LOCAL AMENDMENTS

OF ANY APPLICABLE CODES SPECIFY DIFFERENT NSTRUCTION, OR OTHER REQUIREMENTS, THEN THE MOST

ENCE MANUFACTURING SIMILAR PRODUCTS.

ENCE INSTALLING SIMILAR PRODUCTS.

NSTALLATION WORKMANSHIP

E MATERIALS THAT ARE NEW, LISTED, AND LABELED BY THE ES (UL) AS CONFORMING TO ITS STANDARDS, WHERE SUCH ABLISHED FOR THE PARTICULAR TYPE OF MATERIAL IN & SHALL EXECUTE ALL WORK IN A WORKMAN LIKE MANNER AND PROFESSIONAL WORKMAN LIKE APPEARANCE WHEN

IOTED OTHERWISE, SHALL PROVIDE AND INSTALL THAT CONFORMS THE THE LATEST STANDARDS LISTED

ONDITIONING ASSOCIATIONS, INC. ONAL STANDARDS ASSOCIATION NG & REFRIGERATION INSTITUTE ETY OF HEATING, REFRIGERATION, & AIR-CONDITIONING

TY OF MECHANICAL ENGINEERS TY OF TESTING & MATERIALS ASSOCIATION OF PLUMBING & MECHANICAL OFFICIALS RIC CODE RICAL MANUFACTURERS ASSOCIATION

ROTECTION ASSOCIATION AIR CONDITIONING CONTRACTOR ASSOCIATION

OVIDE AND COORDINATE ALL REQUIRED PERMITS, INTERIM IONS, AND APPROVALS FROM THE INSPECTION ICTION.

RESPONSIBLE FOR PAYMENT FOR ALL PERMITS, FEES, INSPECTIONS.

TIFY THE OWNER TWENTY FOUR (24) HOURS IN ADVANCE ESTED OR UTILITIES ARE TO BE SHUT-OFF, BEFORE BEING ENCHES ARE COVERED UP.

IEDULE THEIR WORK AND COOPERATE WITH ALL OTHER E TO AVOID DELAYS, INTERFERENCES, AND UNNECESSARY

DPERATE WITH OTHERS TO PROVIDE FOR THE K AND COORDINATE WITH WORK OF ALL OTHER TRADES TO ICE OF PIPING, DUCTWORK, CONDUIT, ETC. WHEN SUCH IS

R DUE TO THE COORDINATION WITH OTHER TRADES CONTRACT DOCUMENTS, THEN THE CONTRACTOR SHALL TO THE ENGINEER OF RECORD FOR REVIEW OF AN PLETING THEIR WORK ACCORDING TO THE INTENT OF THE

FOUR (24) HOURS IN ADVANCE WHEN EQUIPMENT IS TO BE BE SHUT-OFF, BEFORE BEING CONCEALED AND BEFORE

D COMPLY WITH THE ABOVE REQUIREMENTS, THEN THE ER AND RETEST DUCTWORK, PIPING, OR EQUIPMENT, ER CONTRACTOR'S WORK AS WELL AS THEIR OWN WITHOUT

MIGHT BE IN USE AND OCCUPIED DURING THE HIS PROJECT. ALL BUILDING SERVICES, UTILITIES, POWER, DT WATER, FIRE PROTECTION, AND DOMESTIC COLD & HOT IRED FOR THIS PROJECT SHALL NOT BE DISRUPTED FOR COORDINATION WITH A REPRESENTATIVE OF THE BUILDING OWNER. A WRITTEN AUTHORIZATION FROM THE M OR BUILDING OWNER SHALL BE REQUIRED TO DOCUMENT DURATION THAT WERE APPROVED BY THE BUILDING DING OWNER FOR SUCH DISRUPTION. AN ADDITIONAL SEVEN (7) DAYS MINIMUM SHALL BE GIVEN TOT HE BUILDING ER PRIOR TO EACH DISRUPTION.

HT BE OCCUPIED DURING CONSTRUCTION OF THIS D/OR OTHER CONSTRUCTION OPERATIONS REQUIRED FOR DR CAUSE COMPLAINTS BY THE BUILDING OCCUPANTS THE CONTRACTOR SHALL USE CONSTRUCTION METHODS IL NOT ADVERSELY AFFECT THE INDOOR AIR QUALITY OF

ME WORK REQUIRED BY THE CONTRACTOR TO AVOID SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE

ALLATION, BUT PRIOR TO SUBSTANTIAL COMPLETION, THE Y IN WRITING THAT PRODUCTS AND MATERIALS INSTALLED OT CONTAIN ASBESTOS OR POLYCHLORINATED BIPHENYL G. COMPLETED WORK

- 1. THE CONTRACTOR SHALL INSPECT THE INSTALLATION TO ASSURE THAT WORK IS COMPLETE AND THE REQUIREMENTS OF THE CONTRACT HAVE BEEN COMPLETED BEFORE REQUESTING FINAL PAYMENT.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. THE CONTRACTOR SHALL ORDER ALL MATERIALS AND EQUIPMENT ON SCHEDULE TO BE ABLE TO COMPLETE ALL CONSTRUCTION BY THE SCHEDULED COMPLETION DATE.
- B. THE CONTRACTOR SHALL DELIVER AND STORE PRODUCTS IN THE MANUFACTURER'S UNOPENED PACKAGING BEARING THE BRAND NAME AND THE MANUFACTURER'S IDENTIFICATION UNTIL READY FOR INSTALLATION.
- C. THE CONTRACTOR SHALL KEEP THE BUILDING AND CONSTRUCTION AREAS CLEAN AND CLEAR OF ALL SCRAP MATERIALS AT ALL TIMES. THE CONTRACTOR SHALL STORE MATERIALS AND EQUIPMENT IN DESIGNATED STORAGE AREAS.
- D. THE CONTRACTOR SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS TO HANDLE AND STORE ALL MATERIALS TO AVOID DAMAGE.
 1.8 PROJECT CONDITIONS
- A. THE CONTRACTOR SHALL MAINTAIN ENVIRONMENTAL CONDITIONS (TEMPERATURE, HUMIDITY, AND VENTILATION) WITHIN THE LIMITS RECOMMENDED BY THE MANUFACTURER FOR OPTIMUM RESULTS. THE CONTRACTOR SHALL NOT INSTALL PRODUCTS UNDER ENVIRONMENTAL CONDITIONS OUTSIDE THE MANUFACTURER'S RECOMMENDED LIMITS AND INSTALLATION INSTRUCTIONS.
- B. PROTECTION
- 1. THE CONTRACTOR SHALL PROTECT THE WORK, EQUIPMENT, AND MATERIALS FROM DAMAGE BY HIS WORK OR HIS PERSONNEL.
- 2. THE CONTRACTOR SHALL CORRECT ALL DAMAGE THUS CAUSED WITHOUT ADDITIONAL COST TO THE OWNER.
- 3. THE CONTRACTOR SHALL PROTECT ALL WORK, MATERIALS, AND EQUIPMENT FROM
- THEFT, INJURY, OR DAMAGE.4. THE CONTRACTOR SHALL CAREFULLY STORE ALL MATERIALS AND EQUIPMENT RECEIVED
- ON SITE WHICH IS NOT IMMEDIATELY INSTALLED.5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, MATERIALS, AND EQUIPMENT
- 6. THE CONTRACTOR SHALL SEAL ALL OPEN ENDS OF DUCTWORK, PIPING, AND EQUIPMENT DURING CONSTRUCTION WITH TEMPORARY COVERS OR PLUGS TO PREVENT THE ENTRY OF DUST, DIRT, AND CONSTRUCTION DEBRIS.

UNTIL FINAL ACCEPTANCE BY THE OWNER.

- 7. THE CONTRACTOR SHALL PROTECT ALL EQUIPMENT AND MATERIALS FROM DAMAGE DUE TO WATER, SPRAY-ON FIREPROOFING, CONSTRUCTION DEBRIS PER THE REQUIREMENTS OF THE ENGINEER OF RECORD AND/OR THE OWNER.
- 8. THE CONTRACTOR SHALL CLEAN ALL INTERIOR SURFACES (EQUIPMENT & DUCTWORK) PRIOR TO INSTALLATION.
- 9. THE CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT FILTERS DURING CONSTRUCTION. REPLACE FILTER MEDIA AT THE AHU AND RETURNS A MINIMUM OF TWO TIMES DURING CONSTRUCTION.
- 10. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION FILTERS OVER ALL AIR-HANDLING UNIT INTAKES AND MAINTAIN FILTER MEDIA DURING CONSTRUCTION.
- 11. THE CONTRACTOR SHALL PROVIDE FILTER MEDIA FOR ALL RETURN AIR INTAKES TO
- MECHANICAL ROOMS. 12. THE CONTRACTOR SHALL REMOVE ALL CONSTRUCTION FILTERS AT THE END OF

CONSTRUCTION. 13. THE CONTRACTOR SHALL REPLACE ALL FILTERS (EXCEPT CONSTRUCTION FILTERS) WITH NEW FILTERS AT THE END OF CONSTRUCTION.

 1.9 WARRANTY
 A. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE (1) YEAR WARRANTY FROM THE SUBSTANTIAL COMPLETION DATE FOR ALL WORK PERFORMED UNDER THIS CONTRACT. THE DATE OF SUBSTANTIAL COMPLETION SHALL BE DETERMINED BY THE OWNER OR THE OWNER'S REPRESENTATIVE. THE WARRANTY SHALL INCLUDE WORKMANSHIP, LABOR, EQUIPMENT, AND MATERIALS. THE CONTRACTOR SHALL REFER TO THE CONTRACT DOCUMENTS FOR ALL OTHER REQUIRED WARRANTY PERIODS.

1.10 DRAWINGS AND SPECIFICATIONS

- A. ALL DRAWINGS SHALL BE CONSIDERED SCHEMATIC AND MAY NOT INDICATE THE EXACT LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR THE ACTUAL DIMENSIONS. THE CONTRACTOR SHALL FIT THEIR WORK TO CONFORM TO THE DETAILS OF THE BUILDING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ALL WORK TO PROVIDE ALL OF THE REQUIRED CODE AND MANUFACTURER'S CLEARANCES.
- B. ALL DRAWINGS ARE DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED.
- C. DUE TO DRAWING SCALE, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL EXAMINE FIELD CONDITIONS AND FURNISH THE NECESSARY FITTINGS WHICH MAY BE REQUIRED TO COMPLETE THE INSTALLATION. CONTRACTOR SHALL FURNISH AND INSTALL BALANCING DAMPERS IN HVAC SYSTEMS THAT HAVE MORE THAN ONE INLET/OUTLET UNLESS NOTED OTHERWISE. BALANCING DAMPERS SHALL APPLY TO NEW AND EXISTING DUCTWORK.
- D. THE SYMBOLS SHOWN ON THE DRAWINGS ARE ILLUSTRATIVE IN NATURE AND ARE PROVIDED FOR REFERENCE ONLY.
- E. THE DRAWINGS ARE BASED UPON THE EXISTING DOCUMENTS PROVIDED BY THE OWNER. THE CONTRACTOR SHALL REPORT ANY UNCOVERED UTILITIES, SERVICES, DUCTWORK, PIPING, ETC. TO THE ARCHITECT BEFORE DISTURBING THE EXISTING INSTALLATION. THE CONTRACTOR SHALL VERIFY THAT ANY ABANDONED DUCTWORK AND PIPING SERVE ONLY ABANDONED FACILITIES.

1.11 AS-BUILT DRAWINGS

- A. DURING CONSTRUCTION THE CONTRACTOR SHALL RECORD ON ONE (1) SET OF MECHANICAL DRAWINGS ALL CHANGES AND DEVIATIONS FROM THE CONTRACT DOCUMENTS IN SIZE, LOCATIONS, AND TYPES OF ALL MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL RECORD THE FINAL LOCATION OF EQUIPMENT, DUCTWORK, PIPING, ETC... TO INDICATE THE FINAL INSTALLATION. THE CONTRACTOR SHALL MAKE SUFFICIENT MEASUREMENTS TO LOCATE ALL EQUIPMENT AND ACCESSORIES.
- B. THE CONTRACTOR SHALL PROVIDE A COMPLETE RED-LINED ELECTRONIC AS-BUILT SET OF DRAWINGS TO THE ENGINEER OF RECORD.

1.12 OPERATION AND MAINTENANCE DATA / CLOSE-OUT DOCUMENTS

- A. THE CONTRACTOR SHALL PROVIDE AND DELIVER TO THE ARCHITECT AND ENGINEER OF RECORD A COMPLETE ELECTRONIC COPY OF ALL DATA PREPARED BY THE MANUFACTURERS THAT DETAIL THE OPERATION AND THE MAINTENANCE INSTRUCTIONS FOR ALL MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL INSTRUCT THE OWNER OR OWNER'S REPRESENTATIVE IN THE OPERATION OF ALL EQUIPMENT.
- B. THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF THE OWNER'S OPERATION AND MAINTENANCE MANUALS, AS-BUILT DRAWINGS, AND A COMPLETE PARTS LIST FOR ALL INSTALLED EQUIPMENT. ALL CLOSE-OUT DOCUMENTS SHALL BE SUBMITTED THE THE OWNER AND ENGINEER OF RECORD FOR REVIEW.
- C. THE CONTRACTOR SHALL PROVIDE THE OWNER A TYPED ELECTRONIC LIST OF ALL NEW AND EXISTING EQUIPMENT, INDICATED THE MANUFACTURER, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, PHASE, HP, KW, CFM, ETC.
- 1.13 PENETRATIONS, CUTTING, AND PATCHING
- A. THE CONTRACTOR SHALL PERFORM CUTTING AND PATCHING IN ACCORDANCE WITH THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THE CONTRACT.
- B. THE CONTRACTOR SHALL PROVIDE ALL SLEEVES REQUIRED FOR THE PROPER INSTALLATION OF THE WORK INCLUDED IN THIS SECTION.
- C. THE CONTRACTOR SHALL MAKE ALL PENETRATIONS THROUGH WALLS AT 90 DEGREE ANGLES. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS AT FIRE, SMOKE, AND FIRE/SMOKE PARTITIONS WITH FIRE SAFING MATERIAL. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS AT SOUND WALLS WITH SOUNDPROOFING MATERIAL.
- D. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL NOT DO MORE CUTTING AND PATCHING THAN WHAT IS REQUIRED FOR THE INSTALLATION OF THEIR WORK.
- E. THE CONTRACTOR SHALL NOT CUT STRUCTURAL MEMBERS OR EXPOSED SURFACE OF CONCRETE BLOCK.
- F. THE BUILDING MAY HAVE A STRUCTURAL SYSTEM UTILIZING POST-TENSIONED CABLES. THE CONTRACTOR SHALL DETERMINE THE EXISTING STRUCTURAL SYSTEM PRIOR TO CUTTING, DRILLING, OR CORING. IF POST-TENSIONED CABLES ARE EXISTING, THE CONTRACTOR SHALL X-RAY ALL PENETRATIONS PRIOR TO CUTTING THE FLOOR SLAB.
- 1.14 PRE-CONSTRUCTION SERVICE CHECK-OUT
- A. AFTER AWARD OF THE CONTRACT AND PRIOR TO CONSTRUCTION THE MECHANICAL CONTRACTOR THAT IS AWARDED THE PROJECT SHALL PERFORM THE FOLLOWING PRE-CONSTRUCTION SERVICE CHECK-OUT FOR ALL EXISTING EQUIPMENT TO BE RE-USED.
- B. TEST THE HEATING AND COOLING CYCLE OF EACH EXISTING PIECE OF HVAC EQUIPMENT THAT SERVES THIS LEASE SPACE. VERIFY THAT ALL CONTROLLERS, ACTUATORS, THERMOSTATS, AND OTHER CONTROLS ARE FULLY OPERATIONAL. VERIFY THAT THE COILS ARE CLEAN AND THAT ALL BELTS AND SHEAVES ARE IN GOOD WORKING ORDER.
- C. VERIFY THAT THE EXISTING HVAC EQUIPMENT IS OPERATION AND ACHIEVING PROPER LEAVING AIR TEMPERATURES AND THAT THE FILTERS ARE IN PLACE.
- D. ALL RE-USED CONDENSATE PIPING SHALL BE BLOWN CLEAN WITH COMPRESSED AIR.
- E. REPLACE DAMAGED OR MISSING INSULATION ON DUCTWORK AND PIPING. EXTERIOR INSULATION SHALL BE PROVIDED WITH NEW JACKETING AS SPECIFIED.
- F. REPLACE ALL AIR FILTERS ON THE HVAC EQUIPMENT THAT SERVES THIS LEASE SPACE. REPLACE WITH RIGID FRAME FILTERS AND NOT TEMPORARY HAND CUT FILTER MEDIA.
- G. THE CONTRACTOR SHALL NOTIFY THE BUILDING OWNER IN WRITING OF ANY DEFICIENCIES FOUND AND SHALL OBTAIN WRITTEN INSTRUCTIONS FROM THE BUILDING OWNER PRIOR TO BEGINNING CONSTRUCTION REGARDING ANY ACTION TO BE TAKEN TO CORRECT FOUND DEFICIENCIES. ITEMS THAT ARE NOT ADDRESSED IN THE PRE-CONSTRUCTION SERVICE CHECK-OUT SHALL BE CORRECTED BY THE CONTRACTOR PRIOR TO THE COMPLETION OF CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- 1.15 TEMPERATURE CONTROLS
- A. THE TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE COMPONENTS NECESSARY FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
- B. THE CONTROLS CONTRACTOR SHALL EXPAND THE EXISTING BASE BUILDING DDC SYSTEM AND PROGRAMMING AND SHALL PROVIDE NEW COMPONENTS, CONTROLLERS, ACTUATORS, ACCESSORIES, AND PROGRAMMING MODES OF OPERATION AND SET POINTS WITH BUILDING ENGINEER PRIOR TO BID.
- C. CONTROLS SHALL BE INSTALLED TO MATCH EXISTING BUILDING STANDARD CONTROLS, INCLUDING SUPPORTING FUNCTIONS OF THE EXISTING EMCS. LOW VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR. LINE VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO BID.
- D. REFER TO BASE BUILDING TEMPERATURE CONTROLS SEQUENCE OF OPERATION FOR ADDITIONAL TEMPERATURE CONTROLS REQUIREMENTS.
- E. COORDINATE WITH THE BUILDING OWNER'S OPERATION ENGINEER FOR ALL COOLING AND HEATING THERMOSTAT SET POINTS. PROVIDE OPERATOR TRAINING FOR ALL NEW CONTROLS AND SYSTEMS PROVIDED. PROVIDE CONTROLS O&M MANUALS TO THE OPERATIONS ENGINEER UPON COMPLETION OF THE CONTROLS SYSTEM.
- F. UPDATE PROGRAMMING OF AFTER-HOURS-AIR-CONDITIONING FOR NEW TENANT. COORDINATE ALL REQUIREMENTS (INCLUDING DIAL UP CODES, SCHEDULES, ETC.) COMPLETELY WITH BUILDING OWNER.
- G. LOW VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR. LINE VOLTAGE WIRING SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR SHALL COORDINATE EXACT REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO SUBMITTING A BID.
- H. ALL REQUIRED PNEUMATIC TUBING SHALL BE PROVIDED AND INSTALLED BY THE CONTROLS CONTRACTOR.
- I. THE CONTROLS CONTRACTOR SHALL CALIBRATE ALL NEW AND EXISTING PNEUMATIC CONTROLS AND THERMOSTATS UPON COMPLETION.
- J. THE GENERAL CONTRACTOR SHALL INCLUDE CONTROLS AND GRAPHICS AS PART OF THE PROJECT CLOSEOUT.



	THE CONTRACTOR SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY TO COMPLETE THE INSTALLATION OF MECHANICAL SYSTEMS AND EQUIPM THE INSTALLATION SHALL BE PERFORMED BY THE CONTRACTOR AND/OR THE MANUFACTURER'S REPRESENTATIVE REGULARLY ENGAGED IN THE APPLICATION AND INSTALLATION OF THE MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL INSTALL MATERIALS AND EQUIPMENT PER THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
B.	ALL INSULATION MATERIALS AND ALL OTHER ACCESSORIES SHALL BE ASTM E 84 25/50 HAZARD RATING NOT TO EXCEED 25 FOR FLAME SPREAD INDEX AND NOT TO EXCEED 5 SMOKE DEVELOPED INDEX. ALL PRODUCTS, THEIR SHIPPING CARTONS, OR PACKAGING SHALL BEAR A LABEL INDICATING THAT THE FLAME AND SMOKE SPREAD RATINGS DO I EXCEED THE ABOVE STATED REQUIREMENTS.
C.	THE CONTRACTOR SHALL COMPLY WITH NFPA 90A, "STANDARDS FOR THE INSTALLATIC AIR-CONDITIONING, AND VENTILATING SYSTEMS."
D.	THE CONTRACTOR SHALL INSULATE ALL HVAC EQUIPMENT, DUCTWORK, AND PIPING P SPECIFICATIONS LISTED.
E.	ACCESSORIES SUCH AS ADHESIVE, MASTICS, CEMENT, TAPES, GLAZE FABRIC, AND CO FOR FITTINGS SHALL NOT PRODUCE FLAMING DROPLETS WHEN SUBJECTED TO FIRE, / THE SAME COMPONENT RATINGS LISTED ABOVE.
F.	EXECUTION (EQUIPMENT, DUCTWORK, & PIPING) - UNLESS NOTED OTHERWISE
	1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WORK VERTICAL AND HORIZ AS WELL AS PARALLEL AND PERPENDICULAR TO BUILDING LINES.
	 THE CONTRACTOR SHALL AVOID DIAGONAL RUNS. THE CONTRACTOR SHALL INSTALL DUCT/DIDING SYSTEMS IN THE SHOPTEST POLICE
	 THE CONTRACTOR SHALL INSTALL DUCT/PIPING SYSTEMS IN THE SHORTEST ROUTHAT DOES NOT OBSTRUCT USEABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT. THE CONTRACTOR SHALL INSTALL DUCTWORK & PIPING WITH A CLEARANCE OF 1.
G.	PLUS ALLOWANCE FOR INSULATION THICKNESS, HANGERS, AND/OR SUPPORTS.
	1. THE CONTRACTOR SHALL PROVIDE A MINIMUM 24"X24" ACCESS PANEL, UNLESS N OTHERWISE, IN GYPSUM BOARD CEILINGS FOR ACCESS TO EQUIPMENT LOCATED INACCESSIBLE CEILINGS.
	2. THE CONTRACTOR SHALL PROVIDE A MINIMUM 12"X12" ACCESS DOOR AT ALL LOC OF DUCT CHASES, FIRE DAMPERS, AND SMOKE/FIRE DAMPERS.
	3. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION, FINISH, AND SPECIFICA OF ACCESS PANELS AND DOORS WITH THE ARCHITECT.
Н.	PARTITION & FLOOR PENETRATIONS
	1. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS OF SLAB-TO-SLAB PARTITIONS AIR-TIGHT.
	2. THE CONTRACTOR SHALL SEAL ALL NEW AND EXISTING PIPES, CONDUITS, AND DUPENETRATIONS THRU FIRE RATED WALLS WITH FIRE CAULKING. FIRE CAULKING SIDE EQUAL TO 3M BRAND CP25WP FIRE CAULK. THE CONTRACTOR SHALL INSTALL FIRE CAULKING IN STRICT ACCORDANCE WITH ALL OF THE MANUFACTURER'S WRITH INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH ALL APPLICABLE UL DET
	3. THE CONTRACTOR SHALL SEAL ALL NEW AND EXISTING PIPES, CONDUITS, AND DUPENETRATIONS THRU FLOORS WITH FIRE CAULKING. FIRE CAULKING SHALL BE EC 3M BRAND CP25WP FIRE CAULK. THE CONTRACTOR SHALL INSTALL ALL FIRE CAUL STRICT ACCORDANCE WITH ALL OF THE MANUFACTURER'S WRITTEN INSTALLATIO INSTRUCTIONS AND IN ACCORDANCE WITH ALL APPLICABLE UL DETAILS.
I.	PLENUM & NON-PLENUM RATED MATERIALS
	1. THE CONTRACTOR SHALL VERIFY THAT THERE ARE NO NON-PLENUM RATED MATE IN THE RETURN AIR PLENUM.
	2. THE CONTRACTOR SHALL ENCAPSULATE ALL NON-PLENUM RATED MATERIALS IN A MANNER APPROVED BY THE AUTHORITY HAVING JURISDICTION.
	3. IF THE NON-PLENUM RATED MATERIALS ARE NOT ENCAPSULATED IN A MANNER APPROVED BY THE AUTHORITY HAVING JURISDICTION, THEN THE CONTRACTOR S REPLACE THE MATERIAL WITH AN APPROVED PLENUM RATED MATERIAL AT NOT ADDITIONAL COST.
J.	DUCTWORK AND PIPING INSTALLATION
	1. THE CONTRACTOR SHALL INSTALL ALL DUCTWORK AND PIPING TIGHT TO STRUCT UNLESS NOTED OTHERWISE.
K.	RETURN AIR PATHWAYS
	1. THE CONTRACTOR SHALL BE RESPONSIBLE TO BRING TO THE ATTENTION OF THE MECHANICAL ENGINEER ANY SLAB-TO-SLAB PARTITIONS THAT DO NOT HAVE PROPRETURN AIR PATHWAYS.
L.	 PRIOR TO ANY CONSTRUCTION THE MECHANICAL CONTRACTOR SHALL RECORD T QUANTITY FOR EACH EXISTING AIR DEVICE IN THE ADJACENT SPACES AND RESTR THAT IS CONNECTED TO COMMON EQUIPMENT SERVICING THIS SPACE.
	2. AFTER THE COMPLETION OF THE RENOVATION WORK, THE MECHANICAL CONTRAC SHALL USE THE SAME BALANCING EQUIPMENT TO RE-BALANCE THE AIR DEVICES CONNECTED TO COMMON EQUIPMENT IN ADJACENT SPACES TO THE ORIGINAL AIR
M.	PRODUCTS - SEE BELOW AND REFER TO THE OTHER CONTRACT DOCUMENTS FOR
N.	ADDITIONAL SPECIFICATIONS AND REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE VIBRATION ISOLATION DEVICES TO INSURE THAT N AND VIBRATION ARE HELD TO A MINIMUM WHEN MOUNTING, SUPPORTING, HANGING, A CONNECTING TO EQUIPMENT.
О.	THE CONTRACTOR SHALL INSTALL DUCT ACCESSORIES, HANGERS, AND SUPPORTS OF MATERIALS SUITED TO DUCT MATERIALS; USE GALVANIZED-STEEL ACCESSORIES IN GALVANIZED-STEEL DUCTS, STAINLESS-STEEL ACCESSORIES IN STAINLESS-STEEL DU
	DIELECTRIC FITTINGS - ASSEMBLY OF COPPER ALLOY AND FERROUS MATERIALS WITH SEPARATING NON-CONDUCTIVE INSULATING MATERIAL. INCLUDE END CONNECTIONS COMPATIBLE WITH PIPES TO BE JOINED.
P.	

TO ORDERING.

2.2 DUCTWORK

INNER LINER, A LAYER OF FIBERGLASS INSULATION AS SPECIFIED, AND A SOLID OUTER "PAINT GRIP" FINISH PRIOR TO ORDERING.

E. REINFORCEMENT SHAPES AND PLATES - UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL PROVIDE GALVANIZED STEEL REINFORCING WHERE INSTALLED ON GALVANIZED SHEET METAL DUCTS PER SMACNA REQUIREMENTS. F. HANGERS AND SUPPORTS

- BUILDING MATERIALS.
 - ROD.
 - 3. STRAPS AND ROD SIZES CONFORM WITH TABLE 4-1 IN SMACNA HVAC DUCT
 - OF 8'-0" ON CENTER, UNLESS NOTED OTHERWISE.
 - G. EQUIPMENT CONNECTIONS CONNECT EQUIPMENT WITH FLEXIBLE CONNECTORS.

 - INC., OR EQUAL.
 - 3. COATINGS & ADHESIVES: COMPLY WITH UL 181, CLASS 1.

DUCT CONSISTENT WITH PRESSURE CLASS.

- BUILD-OUT.
- K. REMOTE DAMPER OPERATORS

- 3. CABLE-TYPE OPERATOR.
- 4. CONCEALED WITHIN DUCT RUN-OUT TO AIR DEVICE.
- 5. ACCESSIBLE FOR BALANCING FROM FACE OF AIR DEVICE.
- L. TURNING VANES

THAN 45°. M. INSULATED FLEXIBLE DUCTWORK

- HART & COOLEY, INC., MCGILL AIRFLOW CORPORATION, OR EQUAL.
- VAPOR-BARRIER FILM.
- 4. MAXIMUM AIR VELOCITY: 2000 FPM.
- 5. FLEX DUCT LENGTH SHALL NOT EXCEED 5'-0" MAXIMUM.
- WIDE SHEET METAL PROTECTIVE SADDLE.
- SMACNA APPROVED DUCT TAPE, AND INSTALLING AN ADDITIONAL "PANDUIT" STRAP OVER THE DUCT TAPE.

A. THE INDICATED DUCTWORK SIZES ARE FREE AREA SIZES (INTERNAL DIMENSIONS) WITH THE SIZES SHOWN AS (WIDTH / HEIGHT). B. GALVANIZED SHEET METAL STEEL - LOCK-FORMING QUALITY, ASTM A 527, COATING

DESIGNATION G 90, MILL PHOSPHATIZED FINISH FOR EXPOSED SURFACES OF DUCTS EXPOSED TO VIEW. DUCTWORK SHALL BE A MINIMUM OF 24 GAUGE METAL FABRICATION. INSTALL DUCTWORK PER SMACNA REQUIREMENTS. DUCT SHALL BE FABRICATED AND SEALED TO MEET 2" STATIC PRESSURE. ALL DUCTS SHALL BE SEALED. THIS INCLUDES ALL SEAMS AND JOINTS. ROUND METAL DUCTWORK SHALL BE SPIRAL SEAM (NO LONG SEAM ROUND DUCTWORK). ALL DUCT SHALL BE PRESSURE TESTED TO 1% LEAKAGE AT 2" STATIC PRESSURE. SEAL ALL JOINTS AND SEAMS WITH WATER BASED DUCT MASTIC. CONTRACTOR SHALL CONFORM TO THE REQUIREMENTS IN THE SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", TABLE 1-3 THROUGH 1-25, INCLUDING THEIR ASSOCIATED DETAILS. CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES, INTERVALS, TIE ROD APPLICATIONS, AND JOINT TYPES AND INTERVALS.

C. UNLESS NOTED OTHERWISE, ALL EXPOSED TO VIEW ROUND DUCTWORK SHALL BE EQUAL TO "LINDAB SPIROsafe" SPIRAL DOUBLE WALL INSULATED DUCT SYSTEM. DUCT AND FITTINGS SHALL CONSIST OF A SOLID INNER LINER, A LAYER OF FIBERGLASS BOARD INSULATION AS SPECIFIED, AND A SOLID OUTER PRESSURE SHELL. (RIGID ROUND DUCT WITH LONGITUDINAL SEAM SHALL NOT TO BE USED.) REFER TO MECHANICAL SPECIFICATIONS FOR MINIMUM INSULATION R-VALUE. THE CONTRACTOR MAY TRANSITION DUCTWORK TO SINGLE WALL WITH EXTERIOR WRAPPED INSULATION IN AREAS WHERE THE DUCTWORK IS NOT VISIBLE. PROVIDE DOUBLE WALL EXPOSED SPIRAL DUCTWORK WITH PAINT GRIP FINISH AND REFER TO ARCHITECT FOR COLOR FINISH. CONTRACTOR SHALL VERIFY "PAINT GRIP" FINISH PRIOR

D. UNLESS NOTED OTHERWISE, ALL EXPOSED TO VIEW RECTANGULAR DUCTWORK SHALL BE DOUBLE WALL INSULATED DUCT SYSTEM. DUCT AND FITTINGS SHALL CONSIST OF A SOLID

PRESSURE SHELL. REFER TO MECHANICAL SPECIFICATIONS FOR MINIMUM INSULATION R-VALUE. THE CONTRACTOR MAY TRANSITION DUCTWORK TO SINGLE WALL WITH EXTERIOR WRAPPED INSULATION IN AREAS WHERE THE DUCTWORK IS NOT VISIBLE. PROVIDE "PAINT GRIP" FINISH AND REFER TO THE ARCHITECT FOR COLOR. CONTRACTOR SHALL VERIFY

1. BUILDING ATTACHMENTS - STRUCTURAL STEEL FASTENERS APPROPRIATE FOR THE

2. HANGERS - GALVANIZED SHEET STEEL, OR ROUND UN-COATED STEEL, AND THREADED

CONSTRUCTION STANDARDS, 1995 EDITION, FOR THE SHEET STEEL WIDTH & GAUGE, AS WELL AS STEEL ROD DIAMETERS. ALL DUCTWORK SHALL BE SUPPORTED AT A MINIMUM

4. DUCT ATTACHMENTS - SHEET METAL SCREWS, BLIND RIVETS, OR SELF-TAPPING METAL SCREWS, COMPATIBLE WITH THE DUCT MATERIALS.

1. AVAILABLE MANUFACTURES: DURO DYNE CORP., VENTFABRICS, INC., WARD INDUSTRIES,

2. MATERIALS: FLAME-RETARDANT OR NON-COMBUSTIBLE FABRICS.

4. METAL-EDGED CONNECTORS: FACTORY FABRICATED WITH A FABRIC STRIP 3-1/2 INCHES WIDE ATTACHED TO TWO (2) STRIPS OF 2-3/4-INCH WIDE, 0.028-INCH-THICK, GALVANIZED SHEET STEEL SHEETS. PROVIDE METAL COMPATIBLE WITH CONNECTED DUCTS.

H. MANUAL VOLUME CONTROL DAMPERS - FURNISH AND INSTALL FACTORY-FABRICATED VOLUME CONTROL DAMPERS, COMPLETE WITH STAND-OFFS (APPROPRIATE TO ACCOMMODATE INSULATION), ALL REQUIRED HARDWARE AND ACCESSORIES. LOCKING QUADRANT SHALL BE PROVIDED FOR ALL DAMPERS, STIFFEN THE DAMPER BLADES TO PROVIDE STABILITY UNDER OPERATING CONDITIONS. PROVIDE LOCKING DEVICE TO HOLD SINGLE-BLADE DAMPERS IN A FIXED POSITION WITHOUT VIBRATION. PROVIDE WITH 2" INSULATION BUILD-OUT, CLOSE DUCT PENETRATIONS FOR DAMPER COMPONENTS TO SEAL

I. STANDARD VOLUME DAMPER - SINGLE-BLADE, OPPOSED-BLADE DESIGN AS INDICATED, LOW-LEAKAGE RATING, WITH LINKAGE OUTSIDE OF AIRSTREAM. PROVIDE WITH 2" INSULATION

J. SPIN-IN DAMPERS - ROUND SPIN-IN TAPS IN LOW PRESSURE DUCTWORK SHALL BE MADE WITH A SPIN-IN COLLAR WITH A LOCKING QUADRANT WITH A 2" STAND-OFF. SPIN-IN DAMPERS SHALL BE INSTALLED WITH THE DAMPER AXIS PARALLEL TO THE DIRECTION OF AIRFLOW.

1. THE CONTRACTOR SHALL PROVIDE REMOTE DAMPER OPERATORS FOR ALL SPIN-IN AND/OR VOLUME DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS.

2. REMOTE DAMPER OPERATORS SHALL BE ROTO-TWIST OR APPROVED EQUAL.

6. CONTRACTOR SHALL PROVIDE REQUIRED CABLE LENGTHS, MOUNTING CLAMPS, AND ALL OTHER REQUIRED COMPONENTS FOR PROPER INSTALLATION AND OPERATION.

1. INSTALL TURNING VANES IN ALL RECTANGULAR SUPPLY DUCTS IN ELBOWS GREATER

1. AVAILABLE MANUFACTURES: DUCTMATE INDUSTRIES, INC., FLEXMASTER U.S.A., INC.

2. INSULATED, FLEXIBLE DUCT SHALL BE UL 181, CLASS 1, 2-PLY VINYL FILM SUPPORTED BY HELICALLY WOUND, SPRING-STEEL WIRE; FIBROUS-GLASS INSULATION; POLYETHYLENE

3. PRESSURE RATING: 10-INCH W.G. POSITIVE AND 1.0-INCH W.G. NEGATIVE.

6. FLEX DUCT SUPPORT: HORIZONTAL SUPPORT IS REQUIRED. DUCT SHALL BE SUSPENDED ON 36-INCH CENTERS WITH A MINIMUM 3/4" WIDE BAND STRAP AND A MINIMUM 6-INCH

ALL JOINTS AND CONNECTIONS OF FLEXIBLE DUCT SHALL BE MADE BY INSTALLING "PANDUIT" STRAPS ON INNER JACKET, SEALING OUTER JACKET WITH 2 WRAPS OF

2.3 DUCTWORK INSULATION

- A. ALL INSULATION SYSTEMS SHALL MEET THE REQUIREMENTS OF THE CURRENT VERSION OF THE INTERNATIONAL ENERGY CONSERVATION CODE WHICH REQUIRES THE FOLLOWING:
- 1. UNLESS OTHERWISE NOTED, WHEN DUCTWORK IS LOCATED WITHIN CONDITIONED SPACES, THEN THE INSTALLED MINIMUM R-VALUE OF 6 SHALL BE USED FOR HOT AIR, COLD AIR, AND OUTSIDE AIR DUCTWORK AND PLENUMS.
- 2. UNLESS OTHERWISE NOTED, WHEN DUCTWORK IS LOCATED WITHIN UN-CONDITIONED SPACES, THEN THE INSTALLED MINIMUM R-VALUE OF 8 SHALL BE USED FOR HOT AIR, COLD AIR, AND OUTSIDE AIR DUCTWORK AND PLENUMS.
- 3. UNLESS OTHERWISE NOTED, ALL DUCTWORK THAT IS LOCATED ON THE EXTERIOR OF A BUILDING SHALL HAVE THE INSTALLED MINIMUM R-VALUE OF 8 AND THE THICKNESS OF DUCTWORK SHALL BE INCREASED TO COMPLY.

B. CONCEALED DUCT INSULATION - UNLESS NOTED OTHERWISE ALL INSULATED DUCTWORK SHALL HAVE EXTERNALLY INSULATION. EXTERNAL DUCT INSULATION SHALL BE GLASS FIBER BLANKET-TYPE INSULATION OF NOT LESS THAN 1 POUND PER CUBIC FOOT DENSITY WITH A FACTORY APPLIED FLAME-RETARDANT VAPOR BARRIER FACING. THE FACING SHALL CONSIST OF A LAYER OF ALUMINUM FOIL, RE-INFORCED LAYER OF GLASS FIBERS, AND A LAYER OF KRAFT PAPER ALL BONDED TOGETHER WITH FIRE-RETARDANT AND ADHESIVE OR A MINIMUM DENSITY OF SIX (6) POUNDS PER CUBIC FOOT OF RIGID INSULATION BOARD WITH ALL SERVICE JACKET (ASJ) SECURED WITH MECHANICAL FASTENERS TRIMMED FLUSH WITH THE INSULATION. INSULATION AND ADHESIVES SHALL ALL BE RATED IN ACCORDANCE WITH UL 181A OR 181B. BLANKET INSULATION SHALL BE EQUAL TO CERTAINTEED STANDARD DUCT INSULATION TYPE IV BLANKET, TWO (2") THICK WRAP, FOSTER 30-30 MASTIC WITH FIBERGLASS MESH AT ALL JOINTS AND SEAMS. TAPE IS NOT ACCEPTABLE.

C. RETURN SOUND BOOTS ONLY - INTERNAL DUCT INSULATION SHALL BE 1" THICK, 0.75 POUND PER CUBIC FOOT DENSITY SECURED WITH ADHESIVE AND PINS.

SUPPLY AIR:EXTERNALLY WRAPPEDRETURN AIR:EXTERNALLY WRAPPEDOUTSIDE AIR:EXTERNALLY WRAPPEDRELIEF AIR:EXTERNALLY WRAPPED	D. DUCTWORK INS	ULATION APPLICATION SCHEDULE
	SUPPLY AIR: RETURN AIR: OUTSIDE AIR: RELIEF AIR:	EXTERNALLY WRAPPED EXTERNALLY WRAPPED EXTERNALLY WRAPPED EXTERNALLY WRAPPED

2.4 DUCTWORK PAINTING

- A. INTERIOR DUCTWORK PAINT THE VISIBLE INTERIOR SURFACES WITH ONE (1) COAT OF FLAT BLACK APPLIED OVER A COMPATIBLE GALVANIZED-STEEL PRIMER FOR THE METAL DUCTS THAT HAVE INTERIOR SURFACES VISIBLE THROUGH REGISTERS, GRILLES, OR OPEN ENDS OF DUCTWORK.
- B. EXPOSED TO VIEW INTERIOR DUCTWORK EXPOSED TO VIEW DUCTWORK SHALL BE PROVIDED WITH A 'PAINT-GRIP" FINISH. THE CONTRACTOR SHALL APPLY A MINIMUM OF TWO (2) COATS OF PAINT ON TOP OF THE "PAINT-GRIP" FINISH. THE COLOR OF THE EXPOSED TO VIEW NEW DUCTWORK THAT IS LOCATED INDOORS SHALL MATCH THE EXISTING EXPOSED TO VIEW DUCTWORK WITHIN THE SPACE UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL ALSO VERIFY THE COLOR WITH THE ARCHITECT BEFORE APPLYING PAINT. THE SEALANT USED FOR EXPOSED TO VIEW DUCTWORK JOINTS SHALL BE CLEAR SEALANT.

2.5 PIPING

A. CONDENSATE DRAIN PIPING - TYPE "L" HARD DRAWN COPPER TUBING WITH SOLDER JOINTS. B. REFRIGERANT PIPING - TYPE "L" HARD DRAWN "ACR" TUBING THAT HAS BEEN CLEANED AND CAPPED FOR REFRIGERATION SERVICE.

2.6 PIPING INSULATION

- A. AVAILABLE MANUFACTURERS: ARMACELL, AEROFLEX, RUBATEX, OR EQUAL.
- B. INSULATE ALL CONDENSATE DRAIN PIPING, REFRIGERANT PIPING, CHILLED WATER, AND HEATING HOT WATER WITH "AP ARMAFLEX" OR RUBATEX R-180-FS 25/50 RATED FLEXIBLE ELASTOMERIC PIPE INSULATION. PROVIDE PROTECTION, BLOCKING, AND SHIELDS AT EACH HANGER. PIPE ELBOWS & FITTINGS SHALL BE INSULATED AND COVERED WITH ZESTON 2000 25/50 FIRE/SMOKE RATED PVC JACKETS.
- C. PIPE INSULATION THICKNESS SCHEDULE (INCREASE THICKNESS BY 1/2" WHEN EXPOSED TO FREEZING CONDITIONS)

OPERATING	INSULATION	PIPE
TEMP °F	THICKNESS	DIAMETER
40-60	1"	LESS THAN 1-1/2"
40-60	1"	1-1/2" AND LARGER
105-140	1"	LESS THAN 1-1/2"
105-140	2"	1-1/2" AND LARGER
141-200	2"	LESS THAN 1-1/2"
141-200	2"	1-1/2" AND LARGER

- D. ALL DRAIN PIPING RECEIVING CHILLED DRAINAGE SHALL BE INSULATED WITH 1" THICKNESS FLEXIBLE ELASTOMERIC PIPE INSULATION SPECIFIED ABOVE.
- E. EXTERIOR EXPOSED INSULATED PIPING PROVIDE OUTER ALUMINUM JACKET AND WRAP COMPLETELY AROUND. PROPOSED ALTERNATE JACKETING SYSTEMS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW FOR COMPLIANCE. 2.7 EQUIPMENT LABELING
- A. ALL MECHANICAL EQUIPMENT SHALL BE IDENTIFIED BY NAMEPLATES PERMANENTLY ATTACHED TO THE EQUIPMENT. NAMEPLATES SHALL BE BLACK SURFACE WITH WHITE ENGRAVED LETTERS. NAMEPLATES SHALL BE A MINIMUM OF 3-INCH LONG BY 1-INCH WIDE WITH WHITE LETTERS A MINIMUM OF 1/4-INCH HIGH.
- B. IF THE MECHANICAL EQUIPMENT IS LOCATED ABOVE A LAY-IN CEILING, THEN THE CONTRACTOR SHALL PERMANENTLY ATTACH A NAMEPLATE TO THE GRID UNDER THE EQUIPMENT. THE NAMEPLATE ATTACHED TO THE GRID SHALL WHITE SURFACE WITH BLACK LETTERS. NAMEPLATES SHALL BE A MINIMUM OF 3-INCH LONG BY 1-INCH WIDE WITH BLACK LETTERS A MINIMUM OF 1/4-INCH HIGH.
- C. IF THE MECHANICAL EQUIPMENT IS LOCATED ABOVE AN ACCESS PANEL, THEN THE CONTRACTOR SHALL PERMANENTLY ATTACH A NAMEPLATE TO THE ACCESS PANEL UNDER THE EQUIPMENT. THE NAMEPLATE ATTACHED TO THE ACCESS PANEL SHALL BE WHITE SURFACE WITH BLACK LETTERS. NAMEPLATES SHALL BE A MINIMUM OF 3-INCH LONG BY 1-INCH WIDE WITH BLACK LETTERS A MINIMUM OF 1/4-INCH HIGH.

2.8 TESTING, ADJUSTING, AND BALANCING

- A. THE CONTRACTOR SHALL PROVIDE FULL TESTING, ADJUSTING, AND BALANCING (TAB) SERVICE FROM AN IMPARTIAL NEBB CERTIFIED FIRM. TAB FIRM SHALL PROVIDE AN ELECTRONIC, TYPED, CERTIFIED REPORT TO THE ENGINEER OF RECORD FOR REVIEW.
- B. UPON COMPLETION OF HVAC WORK, AND PRIOR TO TENANT OCCUPANCY, ALL AIR & WATER SYSTEMS SHALL BE ADJUSTED AND BALANCED TO WITHIN +/- 10% OF THE INDICATED DESIGN AIR QUANTITIES AND IN ACCORDANCE WITH ALL NEBB OR AABC RECOMMENDATIONS AND PROCEDURES.
- C. THE HVAC TAB CONTRACTOR SHALL HAVE CURRENT NEBB OR AABC CERTIFICATION.
- D. ALL INSTRUMENTS USED SHALL HAVE CURRENT CALIBRATED CERTIFICATION WITHIN 90 DAYS OF SCHEDULED CONSTRUCTION COMPLETION.
- E. TABULATE ALL TEST DATA ON NEBB OR AABC FORMS.

F. IF PROBLEMS ARE ENCOUNTERED DURING BALANCING, THE HVAC TAB CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR AND IF NECESSARY, THE ENGINEER OF RECORD BEFORE COMPLETION OF THE TESTING & BALANCING.

- G. COORDINATE WITH THE TEMPERATURE CONTROLS CONTRACTOR OR OWNER'S BUILDING ENGINEER AS NECESSARY TO UPDATE/PROGRAM ALL REQUIRED SYSTEM STATIC PRESSURE SET-POINTS AND OTHER BASE BUILDING TEMPERATURE CONTROLS SYSTEM CONTROL POINTS AS DETERMINED THROUGH THE TEST-ADJUST-BALANCE.
- H. THE CONTRACTOR SHALL ADJUST ALL VAV TERMINAL UNITS AND FAN-POWERED UNITS MINIMUM AND MAXIMUM SET-POINTS.





			(GENI	ERAL	NOT	ES		
	A.	REFER TO M ADDITIONAL	ECHANICAL INFORMAT	L COVER ION.	SHEET FC	OR SYMBC	ILS, ABBRE	VIATION	S, A
	В.	REFER TO SE	PECIFICATI N.	ONS, DE	TAILS, ANE	O SCHEDU	LES FOR A	DDITION	AL
	C.	REFER TO DI	RAWING M2	2.002 FOF	R CONTINU	JATION OF	- MECHANI	CAL WOF	rk /
	D.	CONTRACTO AND CEILING	R SHALL P	ROVIDE (TIONS.	CHROME F	PLATED PI	PE ESCUTO	CHEONS	AT
	E.	CONTRACTO CONDENSAT COORDINATE	R SHALL C E PIPING W E ROUTING S AND MINI	OORDINA /ITH ALL PIPING 1 MUM SLO	ATE ROUT OTHER TH O ACCOM	ING REFR RADES. CC IMODATE	IGERANT P INTRACTOF EQUIPMEN S FOR CON	IPING AN R SHALL T SERVIO DENSAT	ID CE E P
	F.	ALL DUCTWO MIN. GALVAN DOUBLE WAL	ORK ON THI IIZED RIGID .L, AND SE/	E POSITIN ROUND ALED. PR	/E PRESS DUCT WIT OVIDE "H/	URE SIDE TH SPIRAL ARDCAST"	OF THE FA SEAM DUC SEALANT	N SHALL CT CONS ⁻ AT ALL JO	BE TRU DIN
	1. 2. 3. 4.	LIGHT DASHE PROVIDE CO ROUTE THE F	KEY ED LINES IN NCRETE EC REFRIGERA	ED C IDICATE QUIPMEN	PRAW REQUIRED T PAD. IG UP TO I	ING I SERVICE		S ALL TO 12	
	5.	INDICATED C	UTDOOR U	IE REFRIG INIT. PIPING S	UPPORTS		OUTSIDE.		ALL
	6.	REFER TO MI		SHEET	SPECIFICA	ATIONS FO	OR PIPING N ETING FOR	MATERIA EXTERIO	L, F OR
	7.	EXPOSED IN CONTRACTO	SULATED P R SHALL C	IPING. OORDINA			HEATER PI		
Λ	8.	PROVIDE A F	ULL SIZE S	CATION.			OP OF THE	(6) EXHA	
	9.	DEVICES ANI	CONNEC		HAUST DU	JCT ON TO 2. REFER	OP AS INDIC	ÀTED.)2 F
	10.	CONTINUATI	ON. BON MONO	XIDE SE	NSOR ON		CATED COL	UMN AT	5 F
	~	AFF.	\cdots		\dots	\dots	m	\sim	~





			GE	ENER,	AL NOT	ES	
	А.	REFER TO I ADDITIONA	MECHANICAL CC L INFORMATION	VER SHEE	T FOR SYMBO	DLS, ABBREVI	ATIONS
	В.	REFER TO S	SPECIFICATIONS	S, DETAILS,	AND SCHEDU	JLES FOR ADE	DITIONA
	C.	REFER TO I	DRAWING M2.007	I FOR CON	TINUATION O	F MECHANICA	L WORI
	D.	CONTRACT	OR SHALL PROVI IG PENETRATION	IDE CHRO	ME PLATED P	IPE ESCUTCH	EONS A
	E.	CONTRACT CONDENSA COORDINA	OR SHALL COOF TE PIPING WITH TE ROUTING PIP	RDINATE R ALL OTHE ING TO AC	OUTING REFF R TRADES. CO COMMODATE	RIGERANT PIPI ONTRACTOR S EQUIPMENT S	NG ANE SHALL SERVIC
	F.	ALL DUCTW MIN. GALVA	VORK ON THE PO		ESSURE SIDE	S FOR CONDE	SHALL E
		DOUBLE W					ALL JO
	1						
	1. 2.	ROUTE THE INDICATED THE MOP S FOOT TO TH PROVIDE A RECEPTOR CONDENSA	E 3/4" CONDENSA MOP SINK. REFE INK. SLOPE THE HE DISCHARGE I MINIMUM 1" AIR . FIELD VERIFY A TE PIPING WITH	ATE PIPING ER TO PLUI E CONDENS LOCATION. GAP ABOV AND COOR ALL TRAD	AS INDICATE MBING DRAWI SATE PIPING I ROUTE CD P (E THE FLOOE DINATE THE E ES.	E CLEARANCE D FROM THE / NGS FOR EXA DOWN A MINIM IPING DOWN II D RIM OF THE I EXACT ROUTIN	AHU TO CT LOC IUM OF N THE V INDIREC IG OF T
	3.	ROUTE THE	REFRIGERANT	PIPING DO	WN TO LEVEL	. 1.	
	4.	6" EXHAUS REFER TO OVERALL S LOUVER SH OF 10'-0" AV SHALL HAV BE PROVID BIRDSCREE THE MAXIM EXTERNALL THE BACK S	T DUCTWORK UP THE ARCHITECT IZE, AND EXACT IALL BE MOUNTE VAY FROM EXHA E DRAINABLE GI ED WITH 0.75" X EN. THE LOUVER UM VELOCITY SI SIDE OF THE INT CLOSED AND CO	P TO EXHAN FOR INTAN LOCATION D A MINIM JUST OUTL JTTERS TO 0.75" FLAT SHALL HA HALL BE LE HEET MET AKE LOUV	UST ROOF CA (E LOUVER SI I. THE BOTTO UM OF 10'-0", ETS AND PLU) THE BUILDIN EXPANDED A VE A MINIMUN ESS THAN 500 AL PLENUM W FR. THE BACK	P ON ROOF. PECIFICATION M OF THE OUT ABOVE GRADE MBING VENTS IG EXTERIOR. LUMINUM INTI M 0.5 SF OF FF FPM. PROVID TH A BACKDF (DRAFT DAMP	S, FINIS [SIDE A E AND A LOUVE ERNAL REE ARE E A FUL RAFT DA ER SHA
^		CONTRACT SO THAT W THE CONTR	OR SHALL PITCH ATER WILL DRAI RACTOR SHALL E	THE BOT N BACK TH BALANCE T	IROUGH THE F IROUGH THE IROUGH THE	FULL SIZE SHE LOUVER TO TI AIR TO EACH (ET MET HE EXTI
<u>/1</u>	6.	OUTSIDE A	IR DUCTWORK B	ETWEEN T	HE INTAKE LO	DUVER AND CONSULATED WI	ONNEC ^T
Ę	7.	R-8 INSULA	TION. ALL INSULATED S	SUPPLY DU	JCT.		
È	8.	EXHAUST D	OUCT DOWN THR	OUGH LEV	EL 2 SLAB. RE	EFER TO DRAN	VING M
Ś	9.	CONNECT A TRANSITION	A 26/26 EXHAUST N AS REQUIRED DCATED ON THE	DUCT ON UP TO 24/2 ROOF.	TOP OF THE A	42/16 EXHAUS T DAMPER IN	T DUCT THE RO
	TH CO EQ PEI CO SP BU UN CO TH TH TH TH PR	E ROOF SYS NTRACTOR S UIPMENT ON NETRATIONS NTACT BUILL ECIFICATION ILDING. DER NO CIRC NTRACTORS E EXISTING F ROUGH THE E CONTRACT IRRANTY IS N OJECT.	RO TEM INSTALLED SHALL COMPLY \ THE ROOF. THIS , EQUIPMENT CU DING MANAGER S FOR ANY WOF CUMSTANCES SH E ALLOWED TO ROOF WARRANT BUILDING OWNE TOR SHALL TAKE NOT VOIDED DUE	OF W IN THIS BU WITH ALL V S INCLUDE JRBS, VTR FOR ROOF K TO BE P HALL THE C O MAKE RO Y. ALL PEN R'S PREFE TO CONS	ARRANTY GU VARRANTY GU S THE INSTAL S AND PIPE S WARRANTY I ERFORMED C SENERAL COM OF PENETRA ETRATIONS S ERRED ROOFI PONSIBILITY TRUCTION AS	VTY WARRANTY. JIDELINES WH LATION OF RO UPPORTS. NFORMATION IN THE ROOF O ITRACTOR OR TIONS. TO DO SHALL BE COO NG CONTRAC TO ENSURE TH SSOCIATED WI	THE IILE INS OF AND FC OF THIS SO WC PRDINAT TOR. HAT THI TH THIS





A.	REFER TO MECHANICAL COVER SHEET FOR SYMBOLS, ABBREVI
в.	ADDITIONAL INFORMATION. REFER TO SPECIFICATIONS, DETAILS, AND SCHEDULES FOR ADD
	INFORMATION.
1	REFER TO ARCHITECT FOR DEPMANENT POOF ACCESS ADDED
ı. 2.	EXHAUST ROOF CAP WITH ROOF CURB.
3.	EXHAUST FAN LOCATED ON ROOF WITH SCHEDULED ROOF CUR

CONTACT BUILDING MANAGER FOR ROOF WARRANTY INFORMATION AND FOR EXACT

SPECIFICATIONS FOR ANY WORK TO BE PERFORMED ON THE ROOF OF THIS BUILDING. UNDER NO CIRCUMSTANCES SHALL THE GENERAL CONTRACTOR OR ANY SUB CONTRACTORS BE ALLOWED TO MAKE ROOF PENETRATIONS. TO DO SO WOULD VOID

THE EXISTING ROOF WARRANTY. ALL PENETRATIONS SHALL BE COORDINATED THROUGH THE BUILDING OWNER'S PREFERRED ROOFING CONTRACTOR. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY TO ENSURE THAT THE ROOF WARRANTY IS NOT VOIDED DUE TO CONSTRUCTION ASSOCIATED WITH THIS

PROJECT.











			TOTAL	TOTAL S.P.		FAN TYPE	E	LECTRI	CAL DAT	A	BASIS OF DESIGN
MARK	LOCATION	SERVICE	CFM	IN. WG.	FRPM	ARRANGEMENT	FLA	HP (W)	VOLT S	PH	MANUFACTURER & MO
GEF	SEE PLANS	GARAGE	4500	0.33	1098	CENTRIFUGAL	-	1	120	1	GREENHECK AE-24-431
 ALU ALU ALU MOT MOT PSC UL 7 ALU SPE GRA ALU BCC 	MINUM BLADES MINUM CURB (OR ISOLATED OR WITH THEF MOTOR 05 LISTED MINUM BIRDS(ED CONTROLL VITY BACKDRA MINUM ROOF (OF CURB INSUL	CAP ON SHOCK I RMAL OVERL REEN ER AFT DAMPEF CURB - GPIP ATION 1.5"	MOUNTS _OAD R - 24"X24" -34-A12, CON	ITRACTOR SH	ALL CONF	IRM ROOF PITCH W	ITH ARC	СНІТЕСТ	PRIOR 1	TO ORD	ERING
2. GARAG THE C/ 3. THE DI	E EXHAUST FA ARBON MONOX SCONNECT SW	IN, GEF SHA IDE LEVEL IS ITCH SHALL	LL OPERATE S GREATER		ARBON M		SENDS	A SIGN	AL TO OI	PERATE	E THE EXHAUST FAN BECA
GARAG THE C/ THE C/ THE DI THE DI THE DI S. THE DI	GE EXHAUST FA ARBON MONOX SCONNECT SW GE EXH R SHALL BE PR AL CODE. THE F 'S:	IN, GEF SHA IDE LEVEL IS TITCH SHALL	LL OPERATE S GREATER NOT BE UN NOT BE UN ACCORDANC XHAUST AIR	E WHEN THE C THAN 35 PPM. IT MOUNTED A ALCULA E WITH THE 2 VALUE WAS C	ARBON MAND SHALL	ONOXIDE MONITOR L BE PROVIDED AND NS DRM ED	SENDS	A SIGN	AL TO OI	PERATE	E THE EXHAUST FAN BECA
GARAG THE C/ 3. THE DI GARA	GE EXHAUST FA ARBON MONOX SCONNECT SW GE EXH R SHALL BE PR AL CODE. THE F (S:	N, GEF SHA IDE LEVEL IS ITCH SHALL	LL OPERATE S GREATER NOT BE UN ACCORDANC XHAUST AIR	E WHEN THE C THAN 35 PPM. IT MOUNTED A ALCULA E WITH THE 2 VALUE WAS C REQUIRED	ARBON MAND SHALL	ONOXIDE MONITOR L BE PROVIDED AND SRM ED	SENDS	A SIGN	AL TO OI	PERATE	THE EXHAUST FAN BECA
GARAG THE C/ 3. THE DI GARA	GE EXHAUST FA ARBON MONOX SCONNECT SW GE EXH R SHALL BE PR AL CODE. THE F S:	IDE LEVEL IS IDE LEVEL IS ITCH SHALL	LL OPERATE S GREATER NOT BE UN ACCORDANC XHAUST AIR EXHAUST	E WHEN THE C THAN 35 PPM. IT MOUNTED A ALCULA E WITH THE 2 VALUE WAS C REQUIRED EXHAUST	ARBON MAND SHALL	ONOXIDE MONITOR L BE PROVIDED AND ST	SENDS	A SIGN	AL TO OI	PERATE	THE EXHAUST FAN BECA
GARAG THE C/ 3. THE DI GARA DUTSIDE AI IECHANIC/ IECHANIC/ IS FOLLOW	GE EXHAUST FA ARBON MONOX SCONNECT SW GE EXH R SHALL BE PR AL CODE. THE F 'S:	IN, GEF SHA IDE LEVEL IS ATTCH SHALL	LL OPERATE S GREATER NOT BE UN ACCORDANC XHAUST AIR EXHAUST CFM/SF	E WHEN THE C THAN 35 PPM. IT MOUNTED A ALCULA E WITH THE 2 VALUE WAS C REQUIRED EXHAUST CFM	ARBON MAND SHALL	ONOXIDE MONITOR	SENDS	A SIGN	AL TO OI	PERATE	E THE EXHAUST FAN BECA

	SPLIT SYSTEM AIR-HANDLING UNIT SCHEDULE																
		EXT. SP.	С	COOLING CAPACITY DATA			ELECTRIC HEAT DATA			EVAPORATOR ELECTRICAL DATA				BASIS OF DESIGN	WEIG		
MARK	SERVES	CFM	AIRFLOW CFM	DROP IN.	EDB °F	EWB °F	NET SENSIBLE MBH	NET TOTAL MBH	HEATING CAPACITY KW	STAGES	V/PH	HP	V/PH	MCA	MOP	MANUFACTURER & MODEL	LBS
AHU-1	SEE PLANS	1600	210	0.5	77.1	63.9	34.5	38.1	(39.0 MBH)	1	208/3	3/4	208/3	-	-	TRANE TEM6A0C48	174
	SEL FLANS	1000	210	0.5	77.1	03.9	04.0	50.1		1	200/3	5/4	200/3	-	-	TRANE TEMOA0C40	

NOTES:

1. THE AIR-HANDLING UNITS SHALL BE PROVIDED WITH THE FOLLOWING: VERTICAL CONFIGURATION

FLEXIBLE INLET & OUTLET CONNECTIONS

 VIBRATION ISOLATION KIT SINGLE POINT ELECTRICAL CONNECTION AIR-HANDLING UNIT

- ECM FAN MOTOR FOIL FACE INSULATION
- IAQ SLOPING DRAIN PAN FREEZE STAT

• 2" THICK PLEATED MEDIA (MERV 8) FILTERS IN A FILTER BOX BASE WITH HINGED DOOR AUXILIARY DRAIN PAN WITH FLOAT SWITCH WIRED TO DE-ENERGIZE UNIT UPON RISE OF WATER IN PAN

2. 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTOMATIC CHANGE-OVER, HONEYWELL VISION PRO-8000 ELECTRONIC PROGRAMMABLE THERMOSTAT OR EQUAL. THERMOSTAT SHALL HAVE A LARGE BACKLIT TOUCH SCREEN, BATTERY BACKUP TO RETAIN PROGRAMMING DURING POWER OUTAGE. THERMOSTAT SHALL AUTOMATICALLY RESET TIME SCHEDULES FOR DAYLIGHT SAVINGS TIME. SUPPORT FOR MULTIPLE STAGE HEATING/COOLING (AS REQUIRED), ADJUSTABLE PARTIAL OR FULL KEYPAD LOCKOUT, 5-YEAR WARRANTY.

3. THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. 4. SEQUENCE OF OPERATION:

OCCUPIED MODE EACH T-STAT SHALL CONTROL THE RESPECTIVE UNIT TO MAINTAIN THE HEATING/COOLING SET POINTS (INITIALLY 72°F HEATING / 75°F COOLING). THE MOTORIZED OUTSIDE AIR DAMPER SHALL BE POWERED OPEN.

UN-OCCUPIED MODE EACH T-STAT SHALL CONTROL THE RESPECTIVE UNIT TO MAINTAIN THE HEATING/COOLING SET BACK POINTS (55°F HEATING / 85°F COOLING). THE MOTORIZED OUTSIDE AIR DAMPER SHALL BE CLOSED.



				AIR DE\	ICE SC	HEDULE		
	MARK	SERVICE	TYPE	FINISH	NECK SIZE	MODULE SIZE	FACE SIZE	BASIS OF DESIGN
	A	SUPPLY	SQUARE PLAQUE	OFF-WHITE	SEE PLANS	-	24"X24"	TITUS, OMNI-AA, LAY-IN
	В	RTN/TRANSFER	EGGCRATE	OFF-WHITE	SEE PLANS	-	NECK +2"	TITUS, 50F, LAY-IN
$\sqrt{1}$	C	SUPPLY	SIDEWALL	OFF-WHITE	SEE PLANS		NECK +2"	TITUS, 272FS, SURFACE MOUNT
(D	EXHAUST	EGGCRATE	OFF-WHITE	SEE PLANS	•	NECK +2"	TITUS, 50F, LAY-IN

<u>NOTES:</u>

1. DUCT RUN-OUTS TO AIR DEVICES SHALL BE EQUAL TO THE SIZE INDICATED IN THE SCHEDULE ABOVE, UNLESS NOTED OTHERWISE ON THE PLANS. PROVIDE A TRANSITION TO THE NECK SIZE DOWNSTREAM OF TAP AND BRANCH DUCTWORK. 2. FLEXIBLE DUCTWORK SHALL BE LIMITED TO 5 FEET MAXIMUM PER DUCT RUN-OUT. PROVIDE RIGID ROUND EXTERNALLY INSULATED DUCTWORK FOR

RUN-OUTS THAT EXCEED 5 FEET OF TOTAL LENGTH. SUPPORT FLEXIBLE DUCTWORK WITH GALVANIZED STRAP HANGERS SPACED A MAXIMUM OF 3 FEET ON CENTER.

3. CONTRACTOR SHALL COORDINATE FINISH COLOR WITH THE ARCHITECT PRIOR TO ORDERING. SUBMIT COLOR CHART TO ARCHITECT.

4. CONTRACTOR SHALL PROVIDE INSULATED BACKPAN ON ALL SUPPLY AIR DEVICES. INSULATION SHALL MATCH THE DUCT SERVICE TYPE. REFER TO THE MECHANICAL SPECIFICATIONS FOR MINIMUM R-VALUE.

5. CONTRACTOR SHALL VERIFY CEILING TYPE CONSTRUCTION WITH THE ARCHITECT AND PROVIDE FRAMING AS REQUIRED FOR ALL AIR DEVICES.

6. CONTRACTOR SHALL PROVIDE AUXILIARY TRIM FRAME FOR ALL AIR DEVICES INSTALLED IN NON-LAY-IN CEILINGS.

7. REFER TO DETAIL FOR AIR DEVICES THAT REQUIRE A FULL SIZE SHEET METAL PLENUM.

8. CONTRACTOR SHALL COORDINATE EXACT MOUNTING HEIGHT AND LOCATION OF SIDEWALL GRILLES AND DOOR GRILLES WITH THE ARCHITECT.

ELECTRIC CEILING UNIT HEATER SCHEDULE											
		TOTAL	DRIVE	E	LECTRIC	CAL DAT	A	BASIS OF DESIGN			
MARK	LOCATION	DISCHAGE	CFM	TYPE	KW	HP	V	PH	MANUFACTURER & MO		
ECUH-1	ENTRY 101	VERTICAL	175	DIRECT	3.0	-	208	1	MARKEL 3380 SERIES, HF33		

NOTES:

1. ELECTRIC CEILING UNIT HEATERS SHALL BE PROVIDED WITH THE FOLLOWING (UNLESS NOTED OTHERWISE):

 UL LISTED HEAVY GAUGE STEEL HOUSING

 CEILING SUSPENDED BAKED-ON POWDER COAT IN CEILING WHITE COLOR

 WHITE POWDER COATED 18 GAUGE STEEL GRILL HEATER SHALL HAVE A LOW SPEED MOTOR TO DRIVE A VANE AXIAL BLOWER FOR DOWNFLOW AIR • HEATING ELEMENT SHALL BE OF THE BLOCK FINNED TYPE WITH LARGE, PARALLEL STEEL FINS FOR QUICK HEAT TRANSFER UNIT SHALL BE RECESS MOUNTED

 UNIT SHALL BE PROVIDED STANDARD WITH A MANUAL RESET CAPILLARY TYPE LIMIT CONTROL • FACTORY INSTALLED TAMPER RESISTANT THERMOSTAT(HEATING SETPOINT SHALL BE 70°F)

2. THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

3. INSTALL PER THE EQUIPMENT MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.

SPLIT SYSTEM CONDENSING UNIT SCHEDULE

MARK		OUTDOOR	ELEC	TRICAL [DATA	MINIMUM	BASIS OF DESIGN	WEIGH
	SERVES	AMBIEN I TEMP °F	V/PH	MCA	MOP	(S)EER	MANUFACTURER & MODEL	LBS.
CU-1	AHU-1	105	208/3	18	30	(14.0)	TRANE 4TTA4048	189

NOTES:

- 1. THE CONDENSING UNITS SHALL BE PROVIDED WITH THE FOLLOWING: ANTI-SHORT CYCLE RELAY
- HIGH PRESSURE AND LOW PRESSURE PROTECTION
- FILTER DRYER LOW-AMBIENT CONTROLS
- EVAPORATOR DEFROST CONTROL AS REQUIRED TO ALLOW OPERATION DOWN TO 0°F AMBIENT HARD START KIT
- TIMED-OFF CONTROL HAIL GUARDS

 VIBRATION ISOLATION 5-YR COMPRESSOR WARRANTY

- 2. THE CONTRACTOR SHALL DETERMINE THE EXACT LENGTHS OF REFRIGERANT LINES REQUIRED AND SUBMIT TO THE MANUFACTURER FOR SIZING OF THE REFRIGERANT PIPING. THE CONTRACTOR SHALL PROVIDE ADDITIONAL COMPONENTS AS RECOMMENDED BY THE MANUFACTURER FOR PROPER OPERATION OF THE UNITS. THE CONTRACTOR SHALL INSTALL THE REFRIGERANT PIPING PER THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
- 3. THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

	FAN SCHEDULE														
	MARK			TOTAL	TOTAL S.P.		FAN TYPE	E	LECTRIC	CAL DAT	A	BASIS OF DESIGN			
		LUCATION	SERVICE	CFM	IN. WG.		ARRANGEMENT	FLA	HP (W)	VOLT S	PH	MANUFACTURER & MODEL			
	EF-1	SEE PLANS	JANITOR	70	0.33	718	CENTRIFUGAL	1.15	(80)	120	1	GREENHECK SP-B110			
	EF-2	SEE PLANS	TOILET	70	0.33	718	CENTRIFUGAL	1.15	(80)	120	1	GREENHECK SP-B110			
	EF-3	SEE PLANS	TOILET	70	0.33	718	CENTRIFUGAL	1.15	(368)	120	1	GREENHECK SP-B110			
				-					-	-	-				

NOTES:

1. EXHAUST FANS, SHALL BE PROVIDED WITH THE FOLLOWING (UNLESS NOTED OTHERWISE):

- INTEGRAL BACKDRAFT DAMPER MOTOR RATED FOR CONTINUOUS USE
- MOTOR WITH THERMAL OVERLOAD
- UL 507 LISTED SPEED CONTROLLER
- ALUMINUM ROOF CAP, CURB MOUNTED, PN: RCC-7, INTEGRAL ALUMINUM BIRDSCREEN, BUILT-IN CURB CAP TIME DELAY SWITCH (EF-2 AND EF-3 ONLY)
- VIBRATION ISOLATION KIT
- STANDARD GRILLE FLEXIBLE OUTLET CONNECTION
- ALUMINUM ROOF CURB GPIP-15-A12, CONTRACTOR SHALL CONFIRM ROOF PITCH WITH ARCHITECT PRIOR TO ORDERING ROOF CURB INSULATION 1.5"
- 2. EXHAUST FAN, EF-1 SHALL OPERATE CONTINUOUSLY DURING THE OCCUPIED MODE.
- 3. EXHAUST FANS, EF-2 AND EF-3 SHALL OPERATE BY WALL TIME DELAY SWITCH.
- 4. THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.



ELECTRIC UNIT HEATER SCHEDULE AIRFLOW | TOTAL | DRIVE | ELECTRICAL DATA BASIS OF DESIGN MARK LOCATION DISCHARGE MANUFACTURER & MODEL TYPE KW HP V PH DIRECTION CFM EUH-1 FIRE RISER | HORIZONTAL | 400 | DIRECT | 3.3 | 1/125 | 208 | 1 | MARKEL TASKMASTER F1F5103N SUITE 201 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-2 EUH-3 SUITE 201 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N SUITE 201 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-4 SUITE 201 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-5 SUITE 202 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-6 SUITE 202 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-7 EUH-8 SUITE 202 | VERTICAL | 400 | DIRECT | 3.3 | 1/125 | 208 | 1 | MARKEL TASKMASTER F1F5103N SUITE 202 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-9 SUITE 202 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-10 SUITE 202 VERTICAL 400 DIRECT 3.3 1/125 208 1 MARKEL TASKMASTER F1F5103N EUH-11

NOTES:

1. ELECTRIC UNIT HEATERS SHALL BE PROVIDED WITH THE FOLLOWING (UNLESS NOTED OTHERWISE):

 UL LISTED HEAVY DUTY

 SUSPENDED FACTORY MOUNTING BRACKET - REFER TO HORIZONTAL/VERTICAL DISCHARGE AND PROVIDE APPROPRIATE BRACKET

DUST SHIELD

- OSHA FAN GUARD RADIAL DIFFUSER FOR VERTICAL DOWNWARD DISCHARGE
- DIRECT DRIVE FAN MOTOR MARKEL MODEL T5100 BUILT-IN T-STAT (SET TO MAINTAIN A MINIMUM TEMPERATURE OF 50°F)

 CONTROL VOLTAGE 24V 24V TRANSFORMER

CONTRACTOR.

2. THE DISCONNECT SWITCH SHALL NOT BE UNIT MOUNTED AND SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL

3. INSTALL PER THE EQUIPMENT MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.



	LEGEND OF ELECTR	ICAL SYI	MBOLS	ELECTRICAL GENERAL NOTES			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	A. REFER TO ELECTRICAL PLANS FOR DEMOLITION, NEW WORK, AND ADDITIONAL INFORMATION FOR RELOCATED ITEMS.	Туре		
	CONDUIT RUN CONCEALED IN WALLS OR ABOVE CEILING. ARROW INDICATES HOMERUN TO PANEL. CONDUCTOR DESIGNATIONS ARE AS FOLLOWS: LONG HATCH INDICATES NEUTRAL, SHORT HATCH INDICATES PHASE, "DOT" INDI-	PI B		B. REFER TO ELECTRICAL SPECIFICATIONS, SCHEDULES, AND DETAIL DRAWINGS FOR ADDITIONAL INFORMATION.	B	METALUX METALUX	22FP323
	CATES INSULATED OR ISOLATED GROUND, AND NO HATCHES INDICATES TWO CONDUCTORS. CONDUIT RUN CONCEALED IN FLOOR SLAB, BELOW FLOOR SLAB OR BELOW	TGB	TELEPHONE GROUND BUS	D. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS OF ALL DEVICES, PANELS, & CIRCUITING PRIOR TO SUBMITTING A BID. COORDINATE COMPLETELY	J	METALUX	2VT3-LC
	SCREENING SHADE INDICATES FIXTURE CONNECTION ON	MTGB MEGB	MAIN TELEPHONE GROUND BUS	WITH ALL OTHER TRADES.	K	WAC Lighting	PT065-S
	EMERGENCY OR NIGHT LIGHT CIRCUIT. EXIT LIGHT. PROVIDE ARROWS AS INDICATED ON DRAWINGS.		TRANSFORMER W/ NEC CLEARANCES; REFER TO DWG FOR VOLTAGE	E. THE CONTRACTOR SHALL VERIFY THAT ALL EXISTING AND NEW ELECTRICAL E/kVA DEVICES AND DISTRIBUTION EQUIPMENT ARE MOUNTED SO THAT ALL REQUIRED	M	LIGHTWAY	NEFW-4
			SURFACE PANELBOARD W/ NEC CLEARANCES; 120/208 VOLT.	COORDINATE COMPLETELY WITH ALL NEW WALLS AND RELOCATE AS REQUIRED TO MAINTAIN PROPER CLEARANCES	Ν	INTENSE LIGHTING	MXG2P
	DUPLEX RECEPTACLE OUTLET; 20 AMP, 125V., 3 WIRE, GROUNDED TYPE.		SURFACE PANELBOARD W/ NEC CLEARANCES; 277/480 VOLT.	F. DUE TO DRAWING SCALE, IT IS NOT POSSIBLE TO INDICATE ALL CONDUIT AND	0	INTENSE LIGHTING	MXG2P
<u>+</u>	QUADRUPLEX RECEPTACLE OUTLET GANGED WITH A COMMON WALL PLATE; (2)-20 AMP, 125V, 3 WIRE, GROUNDED TYPE.		RECESS PANELBOARD W/ NEC CLEARANCES; 120/208 VOLT.	FITIINGS WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL EXAMINE FIELD CONDITIONS AND FURNISH THE NECESSARY COMPONENTS WHICH MAY BE	Р	NEO-RAY	S122DIV
Щ	DUPLEX RECEPTACLE OUTLET LOCATED ABOVE SPLASH ABOVE COUNTER; 20 AMP, 125V, 3 WIRE GROUNDED TYPE. REFER TO ARCHITECTURAL		RECESS PANELBOARD W/ NEC CLEARANCES; 277/480 VOLT.	REQUIRED TO COMPLETE THE INSTALLATION.	P1		FINISH
GFI	DRAWINGS FOR EXACT HEIGHT. DUPLEX RECEPTACLE OUTLET WITH GROUND FAULT INTERRUPTER; 20 AMP,	NOTES: 1. ALL SYM	BOLS MAY NOT BE USED ON THESE DRAWINGS.	G. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO BRING TO THE ATTENTION OF THE ELECTRICAL ENGINEER ANY SAFETY OR CODE CONCERNS WITH THE PROPOSED PLAN PRIOR TO ROUGH IN			FINISH
₩ WP/GFI	125V., 3 WIRE GROUNDED TYPE. DUPLEX RECEPTACLE OUTLET W/ WEATHERPROOF WHILE IN USE COVER;	2. REFER T	O ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS	H. ELECTRICAL CONTRACTOR SHALL VERIFY THAT LOCATION OF CEILING, FLOOR,			
	GROUND FAULT INTERRUPTER, 20 AMP, 125V., 3 WIRE, GROUNDED TYPE. SPECIAL RECEPTACLE OUTLET: SEE DRAWIINGS FOR NEMA			AND WALL MOUNTED ELECTRICAL DEVICES OR DISTRIBUTION EQUIPMENT SHOWN ON THE DRAWINGS ARE ACCEPTABLE TO THE ARCHITECT PRIOR TO			
(FE)	FLUSH MOUNTED FIRE RATED POKE THRU DEVICE FOR FURNITURE FEED. SEE				LIGH	T FIXTURE SCHEDULE NOTE	S
	DRAWINGS FOR SPECIFICATIONS. FLUSH MOUNTED FIRE RATED POKE THRU DEVICE W/ RECEPTACLE(S) AND/OR	(E)	EXISTING TO REMAIN	SWITCHES, RECEPTACLES, OR COVERS . NEW DEVICES AND COVERS SHALL MATCH BUILDING STANDARD	1. C(NTRACTOR SHALL VERIFY CEILING TYF	PES AND COOR
	DATA AND/OR TELEPHONE. SEE DRAWINGS FOR SPECIFICATIONS. FLUSH MOUNTED FLOOR BOX W/ RECEPTACLE (S) AND/OR DATA AND/ OR	(N) (R)	NEW ITEM NOTED TO BE RELOCATED	J. ALL EQUIPMENT LOCATED OUTSIDE OR EXPOSED TO UNCONDITIONED AIR SHALL	M# 2. FI	INUFACTURER PRIOR TO PURCHASE, A	RE PRIOR TO II
PP	TELEPHONE. SEE DRAWINGS FOR SPECIFICATIONS. POWER POLE PROVIDED BY OTHERS. RE: DRAWINGS FOR MORE	(D) AFF	ITEM NOTED TO BE DEMOLISHED ABOVE FINISHED FLOOR	BE INSTALLED OR PROVIDED WITH NEMA 3R RATED ENCLOSURES.	3. VE	RIFY APPEARANCE AND FINISH OF ALI	L LIGHT FIXTUR
	TELEPHONE OUTLET.	AD AIC	AUTOMATIC DAMPER AMPERE INTERRUPTING CAPACITY	K. NEW EXPOSED TO VIEW DISCONNECTS, CONDUIT, OR DISTRIBUTION EQUIPMENT SHALL BE PAINTED TO MATCH BUILDING EXTERIOR. REFER TO THE ARCHITECT	4. Pf	OVIDE HOUSING TO MATCH FIXTURE S	SELECTED
TV	CABLE T.V. OUTLET	AL AMP	ALUMINUM AMPERAGE	FOR FINISH OF EQUIPMENT.	5. ()	JORDINATE FINAL MOUNTING HEIGHT W	VIIH ARHIIECI
	COMBINATION TELEPHONE / DATA OUTLET.	ATS AWG	AUTOMATIC TRANSFER SWITCH AMERICAN WIRE GAUGE				
\bigtriangledown	DATA OUTLET -	BKR C	BREAKER CONDUIT				
<u> </u>	TELEPHONE TERMINAL BOARD, 4'x8'x3/4" FIRE RATED PLYWOOD.	CKT. CT	CIRCUIT CURRENT TRANSFORMER				
\$	SINGLE POLE, SINGLE-THROW SWITCH; 20 AMP, 120/277V.	CU DC	COPPER DIRECT CURRENT		\$0S1 5	ENSORSWITCH #WSX-PDT-SA-*	SINGLE REI
\$3	3-WAY SWITCH: 20 AMP, 120/277V.	DISC. EC	DISCONNECT ELECTRICAL CONTRACTOR		\$vs1 5	ENSORSWITCH #WSX-PDT-SA-*	SINGLE RE
\$4	4-WAY SWITCH: 20 AMP, 120/277V.	EMT EPO	ELECTRICAL METALLIC TUBING EMERGENCY POWER OFF		\$052 S	ENSORSWITCH #WSX-PDT-2P-2SA-*	DUAL RELA TO "MANUA
¢K		FA FACP	FIRE ALARM FIRE ALARM CONTROL PANEL		۵. ¢		nLIGHT ENA
р \$00	DIMMER SWITCH. SEE DRAWINGS FOR SPECIFICATIONS.	FC FLA	FOOT CANDLE FULL LOAD AMPS		\$* ç	 ENSORSWITCH #nPODM	nl IGHT_FN
	CEILING MOUNTED OCCUPANCY SENSOR AS SPECIFIED: 120/277VAC	GC GFI	GENERAL CONTRACTOR GROUND FAULT INTERRUPTER		\$2* 5	 ENSORSWITCH #nPODM-2P	nLIGHT EN
	EMERGENCY POWER OFF SWITCH (E.P.O.)	GND.	GROUND HEAVY DUTY		\$4* 5		nLIGHT EN
•	PUSH BUTTON	HOA	HAND-OFF-AUTO		<u></u>	ENSORSWITCH #nPODM-DX	nlight fn
	BUZZER -	IG	ISOLATED GROUND THOUSAND CIRCULAR MILS		ф. с		nLIGHT EN
J	JUNCTION BOX MOUNTED ABOVE ACCESSIBLE CEILING.	KW	KILOWATT				nLIGHT_EN4
J	JUNCTION BOX - WALL MOUNTED	MCB MH	MAIN CIRCUIT BREAKER				SINGLE CIE
	DISCONNECT IN A NEMA 1 ENCLOSURE, UNLESS OTHERWISE SPECIFIED.	MSB	MAIN SWITCHBOARD				
	SINGLE PHASE MOTOR	NEC	NATIONAL ELECTRICAL CODE			ENSORSWITCH #ncm-PDI-9	
\bigcirc	THREE PHASE MOTOR	NFPA	NATIONAL ELECTRICAL MANUFACTORES ASSOCIATION NATIONAL FIRE PROTECTION ASSOCIATION			ENSORSWITCH #CM-PDI-10	
\square	MOTOR STARTER / DISCONNECT IN A NEMA 1 ENCLOSURE, UNLESS OTHER- WISE SPECIFIED. REFER TO DRAWINGS FOR AMPERAGE, PHASES, FUSE SIZE	NF	NON-FUSED			LNSORSWITCH #nCM-PD1-10	
	MOTOR STARTER/VFD IN A NEMA 1 ENCLOSURE. UNLESS OTHERWISE		NOT TO SCALE PHASE		PP20 S		
	SPECIFIED. REFER TO DRAWINGS FOR AMPERAGE ,PHASES,AND SIZE. - CONTACTOR IN A NEMA 1 ENCLOSURE, UNLESS OTHERWISE SPECIFIED. RE- -	PNL	PANEL OR PANELBOARD			ENSORSWITCH #nPP16-SA	
PC	FER TO DRAWINGS FOR AMPERAGE AND NUMBER OF POLES. - PHOTO-ELECTRIC CELL -	RACP	REMOTE ANNUNCIATOR CONTROL PANEL			SORSWITCH #nPP16-D-SA	nlight en
TC	TIMECLOCK IN NEMA 1 ENCLOSURE, OTHERWISE SPECIFIED. REFER TO	RE:	REFERENCE SMOKE/EIDE DAMBER			LNSORSWIICH #nPP16-D-ER	EMERGENC
CR	CARD READER JUNCTION BOX WITH 3/4"C TO ACCESSIBLE CEILING U.N.O.	SPEC.	SPECIFICATIONS			ENSORSWITCH #nPP16-ER	nLIGHI EN
Ţ	GROUND -	TS	TIME SWITCH		NOTE: – DISABL	E PHOTO SENSOR OPTION ON ALL O(CCUPANCY SEN
-	FIRE ALARM SYMBOLS	TYP			-DISABL -SET "C	E "SELF-ADAPTIVE MODE" ON ALL OC ELAYED OFF" SETTING TO 20 MINUTES	CUPANCY SEN S.
SD	SMOKE DETECTOR (IONIZATION)	U.N.O.			-SET WA	JWER PACKS "PPD" AND "PPM" TO ' L nlight enabled devices, route	"MANUAL ON" CAT-5E CABLE
H	HEAT DETECTOR	V	VOLTAGE		SENSORS	WITCH SHOP DRAWINGS FOR WIRING SWITCHES/DIMMERS ASSOCIATED WITH	REQUIREMENTS POWER PACK
	DUCT DETECTOR WITH SAMPLING TUBE.	WP	WEATHER PROOF		-FOR M	ULTI-SWITCH nLIGHT DEVICES ON COM NER PACK. FOR EXAMPLE, SWITCH L	MMON ZONE, S .EG "a" SHALL
	TAMPER SWITCH	WPIU WR	WEATHER PROOF IN USE COVER WEATHER RESISTANT		CHANNEI -WHERE	#2, ETC. MULTIPLE OCCUPANCY SENSORS ARE	E INDICATED WI
	WATER FLOW SWITCH.	XFMR	IRANSFORMER		IN PARA	_LEL SO THAT ANY OF THE OCCUPANO	CY SENSORS \
	MAGNETIC DOOR HOLD OPEN.						
(SFD)	SMOKE FIRE DAMPER						
	FIREMAN'S PHONE JACK.						
	FIREMAN'S TELEPHONE HANDSET.						
FACP	FIRE ALARM CONTROL PANEL.						
RACP	FIRE ALARM REMOTE ANNUNCIATOR.						

ES1.000 added

Catalog Number	Mounting	Lum. Watts	Description
4VT2-LD5-4-DR-W-UNV-L840-CD1-WL-U	SURFACE	29.9	4FT TAMPER RESISTANT VAPORTITE
22FP3235C	RECESSED	29.4	2X2- EDGE LIT PANEL
700BCELI24FINISH-LED930	WALL	23.5	ELLIS 24IN BATH BAR
2VT3-LD5-3-G-UNV-L840-CD1-U	CEILING	23.92	2FT VAPORTITE
FM-07SQ-930-FINISH	CEILING	15.2119	7IN SQUARE CEILING MOUNT
97065-SU	WALL	59.8	OUTDOOR WALL MOUNT MULTIVOLT WALL PACK; SUPER WHITE
NEFW-460-LED-O5C-4-B1-B1-DIM	EXTERIOR WALL	45	60IN WET-LISTED EXTERIOR WALL SCONCE
MXG2PSDREM2L03050 FINISH-MOUNTING	PENDANT	10	12IN LED SQUARE DOWNLIGHT CYLINDER W/REMOTE DRIVER ENCLOSURE
REMMXG2PL0EM7			
MXG2PSU2L030DIM5050 FINISH CRWB	WALL	N.A.	12IN WALL SCONCE SQUARE CYLINDER UD/DOWN
\$122DIW-C675D710U830-4F0-1E-UDD-A1-	WALL	45	2IN WALL DIRECT/INDIRECT
FINISH			
\$122DIW-C675D710U830-4F0-1E-UDD-A1-	WALL	23	2IN WALL DIRECT/INDIRECT
FINISH			

TYPES AND COORDINATE ADDITIONAL LIGHT FIXTURE MOUNTING REQUIREMENTS WITH SE, AND/OR RELOCATION.

IXTURE PRIOR TO INSTALLATION.

F ALL LIGHT FIXTURES WITH ARCHITECT PRIOR TO PURCHASE.

GHT WITH ARHITECT PRIOR TO PURCHASE.

ANCY SENSOR LEGEND

	NOTES
	SINGLE RELAY, LINE VOLTAGE, WALL MOUNTED. FACTORY SET TO "AUTO ON".
	SINGLE RELAY, LINE VOLTAGE, WALL MOUNTED. FACTORY SET TO "MANUA ON".
SA-*	DUAL RELAY, LINE VOLTAGE, WALL MOUNTED. BOTH RELAYS FACTORY SET TO "MANUAL ON".
X	nLIGHT ENABLED, WALL MOUNTED WITH ON/OFF AND RAISE/LOWER CONTROL.
	nLIGHT ENABLED, DIGITAL SWITCH WITH "OFF/ON".
	nlight enabled, 2–Zone, digital switch with "off/on".
	nLIGHT ENABLED, 4-ZONE, DIGITAL SWITCH WITH "OFF/ON".
	nLIGHT ENABLED, DIGITAL ON/OFF WITH RAISE/LOWER CONTROL.
	nLIGHT ENABLED, 2-ZONE, DIGITAL ON/OFF WITH RAISE/LOWER CONTROL
	nLIGHT ENABLED, SINGLE CIRCUIT, CEILING MOUNTED, HIGH MOUNT
	SINGLE CIRCUIT, CEILING MOUNTED, STANDARD ZONE.
	nLIGHT ENABLED, SINGLE CIRCUIT, CEILING MOUNTED, STANDARD ZONE
	SINGLE CIRCUIT, CEILING MOUNTED, EXTENDED ZONE.
	nLIGHT ENABLED, SINGLE CIRCUIT, CEILING MOUNTED, EXTENDED ZONE
	nLIGHT ENABLED, AUTO ON, POWER PACK
	nLIGHT ENABLED, MANUAL ON, POWER PACK
	nlight enabled, manual on, power pack with 0-10V output.
	nLIGHT ENABLED, MANUAL ON, POWER PACK WITH 0-10V OUTPUT AND EMERGENCY OPERATION.
	nLIGHT ENABLED, MANUAL ON, POWER PACK WITH EMERGENCY OPERATION
L OCCU L OCCU NUTES. DRS TO TO "M, UTE CA RING RE	JPANCY SENSORS. IPANCY SENSORS "MANUAL ON" ANUAL ON" T-5E CABLE AS REQUIRED BETWEEN DEVICES. REFERENCE QUIREMENTS.

WITH POWER PACK "PPA" SHALL CONNECTED TO THE LOAD SIDE OF THE POWER N COMMON ZONE, SWITCH LEG DESIGNATION INDICATES CORRESPONDING CHANNEL TCH LEG "α" SHALL BE ASSIGNED TO CHANNEL #1 – SWITCH LEG "6' TO ARE INDICATED WITH "LIKE" SWITCH LEG, CONNECT ALL OCCUPANCY SENSORS IPANCY SENSORS WILL ACTIVATE THE "OCCUPIED" MODE FOR THAT AREA.



ELECTRICAL GENERAL NOTES

THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE PROVIDED THEY ARE NOT IN CONFLICT WITH THOSE CODES.

FURNISH AND INSTALL ALL ITEMS, INCLUDING EVERY ARTICLE, DEVICE, OR ACCESSORY REASONABLY NECESSARY TO FACILITATE EACH SYSTEM'S FUNCTIONING AS INDICATED BY THE DESIGN AND THE EQUIPMENT SPECIFIED. ELEMENTS OF THE WORK SHALL INCLUDE, BUT ARE NOT LIMITED TO, MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, HOISTING/RIGGING, STORAGE, UTILITIES, AND ALL REQUIRED PERMITS AND LICENSES. 2. WORK SHALL COMPLY WITH THE MOST RECENT VERSION OF ALL APPLICABLE LAWS, RULES, REGULATIONS AND ORDINANCES OF ALL FEDERAL, STATE AND LOCAL AUTHORITIES. IN THE EVENT OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND THE LOCAL ENFORCING AUTHORITY, THE LATTER SHALL RULE. ANY MODIFICATION RESULTING THEREFROM SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER OR ARCHITECT/ENGINEER. THE CONTRACTOR SHALL REPORT ANY SUCH MODIFICATIONS TO THE ARCHITECT/ENGINEER AND SECURE HIS APPROVAL BEFORE PROCEEDING. SHOULD THE REQUIREMENTS OF THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THE CODES,

DRAWINGS ARE SCHEMATIC IN NATURE AND DO NOT NECESSARILY REFLECT ALL WORK REQUIRED TO COMPLETE PROJECT. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT AS REQUIRED TO COMPLETE PROJECT WITHIN DESIGN INTENT AT NO ADDITIONAL COST TO OWNER/TENANT OR TENANT. CONTRACTOR SHALL REQUEST ADDITIONAL INFORMATION IN CASES OF DOUBT. 4. IN THE EVENT OF A CONFLICT BETWEEN DRAWINGS AND/OR SPECIFICATIONS, THE GREATER AMOUNT OF TOTAL COST

SHALL BE PRICED. BRING THE CONFLICT TO THE ATTENTION OF THE ENGINEER AND REQUEST DIRECTION. PRE-CONSTRUCTION

GENERAL PROVISIONS

- BEFORE SUBMITTING A BID, CONTRACTOR SHALL VISIT THE SITE AND ASCERTAIN FOR HIMSELF THE CONDITIONS TO BE MET IN INSTALLING THE WORK AND MAKE PROVISIONS FOR THE CONDITIONS IN HIS FINAL PRICE. FAILURE ON THE PART OF THE CONTRACTOR TO COMPLY WITH THIS REQUIREMENT SHALL NOT BE CONSIDERED JUSTIFICATION FOR THE OMISSION OR FAULTY INSTALLATION OF ANY WORK COVERED BY THE CONTRACT DOCUMENTS
- CONSIDERATION SHALL NOT BE GRANTED FOR MISUNDERSTANDING OF THE SCOPE OR AMOUNT OF WORK TO BE PERFORMED. TENDER OF A PROPOSAL CONVEYS FULL CONTRACTOR AGREEMENT OF THE ITEMS AND CONDITIONS SPECIFIED AND/OR INDICATED, SCHEDULED, OR IMPLIED ON THE CONTRACT DOCUMENTS, AND/OR REQUIRED BY THE NATURE OF THIS WORK.
- FEES IN CONNECTION WITH SUCH PERMITS, LICENSES AND INSPECTIONS. DEMOLITION

1 ALL EXISTING CONDUIT AND CONDUCTORS SERVING THE AREA UNDER CONTRACT NOT TO BE RE-USED SHALL BE TERMINATED AT LAST PORTION OF CIRCUIT REQUIRING ENERGIZATION BEFORE THE DEMOLITION AREA. IF A CIRCUIT SERVICES ONLY THE DEMOLITION AREA. REMOVE ALL CONDUITS AND CONDUCTORS BACK TO THE PANELBOARD OR BASE BUILDING GRID BOX AND DE-ENERGIZE THE CIRCUIT BREAKER. MAKING IT A SPARE. NOTE "SPARE" OR "GRID-SPARE" ACCORDINGLY ON PANELBOARD DIRECTORY.

- SECURITY CABLING. REMOVE ALL EXISTING CONDUIT AND WIRING THAT IS SUPPORTED FROM THE CEILING GRID. REMOVE ALL EXISTING UNUSED ELECTRICAL EQUIPMENT, CONTROLS, CONDUIT, HANGERS, WIRING, ETC. 3. RELOCATE AND RECONNECT ACTIVE PORTIONS OF THE ELECTRICAL SYSTEM OUTSIDE OF THE SCOPE OF DEMOLITION, AS
- REQUIRED TO MAINTAIN A COMPLETE AND OPERATING SYSTEM THAT IS FUNCTIONALLY EQUIVALENT TO THE PRE-EXISTING SYSTEM PRIOR TO DEMOLITION.
- 4. ELECTRICAL PLANS INDICATE FINAL WIRING DEVICE, DATA/COMMUNICATIONS OUTLET AND SWITCH LOCATIONS. ALL OTHER EXISTING WIRING DEVICES, DATA/COMMUNICATIONS OUTLETS AND SWITCHES SHALL BE REMOVED AND WALLS SHALL BE PATCHED
- 5. ALL EXISTING JUNCTION BOXES, OUTLETS, PULL BOXES, ETC., LOCATED ABOVE NON-ACCESSIBLE CEILINGS INSTALLED UNDER THIS TENANT IMPROVEMENT PROJECT SHALL BE RELOCATED AS NECESSARY TO A LOCATION ABOVE AN ACCESSIBLE CEILING. WHERE EXISTING JUNCTION BOXES ARE NOT PRACTICAL TO RE-LOCATE, ELECTRICAL CONTRACTOR SHALL NOTIFY ARCHITECT AND ENGINEER PRIOR TO SUBSTANTIAL START OF CONSTRUCTION.
- 6. REMOVE ALL EXISTING UNUSED ELECTRICAL EQUIPMENT, CONTROLS, CONDUIT, HANGERS, WIRING, ETC.. FROM ABOVE CEILINGS.
- 7. REFER TO ARCHITECTURAL DRAWINGS FOR LIGHT FIXTURES TO BE RELOCATED. RELOCATE AND RECIRCUIT FIXTURES AS SHOWN. PROVIDE ADDITIONAL FIXTURES TO MATCH FIXTURE QUANTITIES SHOWN. FIELD VERIFY EXISTING CONDITIONS. 10. REFER TO ARCHITECTURAL PLANS FOR WALL AND PARTITIONS TO BE REMOVED. CONTRACTOR SHALL PROVIDE
- ELECTRICAL DEMOLITION AS PREVIOUSLY DESCRIBED. 11. REFER TO ARCHITECTURAL DRAWINGS FOR RECEPTACLES AND VOICE/DATA OUTLETS TO BE REMOVED. FIELD VERIFY
- 12. CONTRACTOR SHALL REMOVE AND REPLACE ALL WIRING DEVICES NOT CONFORMING TO BUILDING STANDARDS. 13. REMOVE ALL EXISTING CONDUIT AND WIRING THAT IS SUPPORTED FROM THE CEILING GRID VIA CADDY CLIPS, ETC. AND REPLACE EXISTING CONDUIT THAT IS TO BE REUTILIZED WITH MATCHING CONDUIT AND WIRING PROPERLY SUPPORTED
- FROM STRUCTURE ABOVE. 14. REMOVE ALL EXISTING CONDUIT AND WIRING THAT IS SUPPORTED FROM THE CEILING GRID VIA CADDY CLIPS, ETC. AND REPLACE EXISTING CONDUIT THAT IS TO BE REUTILIZED WITH MATCHING CONDUIT AND WIRING PROPERLY SUPPORTED FROM STRUCTURE ABOVE.

15. RE-SUPPORT AND/ RE-ROUTE ANY REMAINING PIPING OR DEVICES THAT WERE SUPPORTED BY DEMOLISHED WALLS. SUBMITTALS

- 1. ALL EQUIPMENT AND MATERIAL TO BE FURNISHED AND INSTALLED ON THIS PROJECT SHALL BE UL OR ETL LISTED, IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION. AND SUITABLE FOR ITS INTENDED USE ON THIS PROJECT. 2 MATERIALS AND FOUIPMENT SHALL BE NEW AND IN GOOD CONDITION. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES INDICATED ARE INTENDED TO IDENTIFY STANDARDS OF QUALITY AND PERFORMANCE NECESSARY FOR THE PROPER FUNCTIONING OF THE WORK. MATERIALS AND EQUIPMENT, WHICH ARE FOUND TO HAVE FACTORY DEFECTS SHALL BE REPLACED OR REPAIRED IN A MANNER ACCEPTABLE TO THE OWNER/TENANT AND ENGINEER AT NO ADDITIONAL COST TO THE OWNER/TENANT
- 3. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL NEW EQUIPMENT, CONTROLS, AND FIXTURES TO BE PROVIDED. SUBMIT .PDF FORMAT FILE FOR APPROVAL. 4. THE FOLLOWING SUBMITTAL DATA SHALL BE FURNISHED AND SHALL INCLUDE BUT NOT BE LIMITED TO: A. ALL NEW EQUIPMENT, CONTROLS, SPECIALTY WIRING DEVICES, AND LIGHT FIXTURES B. LIGHTING CONTROL SHOP DRAWINGS - WHERE DIMMING CONTROL PANELS OR nLIGHT CONTROLS ARE UTILIZED
- C. COORDINATION DRAWINGS D. FIRE ALARM MATERIAL AND SHOP DRAWINGS E. FIRE STOP MATERIALS AND INSTALLATION DETAILS

CONSTRUCTION ALL WORK SHALL BE ARRANGED IN A NEAT, WELL ORGANIZED MANNER, ALL SERVICES SHALL BE ROUTED PARALLEL AND

- PERPENDICULAR TO THE PRIMARY LINES OF THE BUILDING. LOCATE ALL OPERATING AND CONTROL EQUIPMENT PROPERLY TO PROVIDE EASY ACCESS AND ARRANGE ENTIRE WORK WITH ADEQUATE ACCESS FOR OPERATION AND MAINTENANCE, AND FOR PROPER CODE AND/OR MANUFACTURERS CLEARANCES 2. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL COORDINATE THE INSTALLATION OF DUCTWORK, PIPING CONDUIT, CABLE, ETC., WITH LIGHTING FIXTURES, SPECIAL CEILING CONSTRUCTION, AIR DISTRIBUTION EQUIPMENT, AND THE STRUCTURE, PROVIDE ADDITIONAL RISES AND OFFSETS AS REQUIRED. IF, AFTER INSTALLED, NEW DUCTWORK, PIPING CONDUIT, CABLE, ETC., IS FOUND TO BE IN CONFLICT WITH THE ARCHITECTURE, STRUCTURE OR OTHER TRADE WORK. WHICH IS FITHER EXISTING OR SHOWN ON THE CONTRACT DOCUMENTS. THE DUCTWORK, PIPING, CONDUIT, CABLE, ETC.
- SHALL BE RELOCATED WITHOUT ADDITIONAL COST TO THE OWNER/TENANT. COORDINATE ALL WORK COMPLETELY WITH ALL OTHER TRADES PRIOR TO INSTALLATION. 3. THE CONTRACTOR SHALL PROTECT THE WORK, EQUIPMENT, AND MATERIALS FROM DAMAGE BY HIS WORK OR HIS RSONNEL, AND SHALL CORRECT ALL DAMAGE THUS CAUSED WITHOUT ADDITIONAL COST TO THE OWNER. TH CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, MATERIALS, AND EQUIPMENT UNTIL FINAL ACCEPTANCE BY THE OWNER. PROTECT ALL WORK AGAINST THEFT, INJURY, OR DAMAGE AND CAREFULLY STORE MATERIAL AND EQUIPMEN RECEIVED ON SITE WHICH IS NOT IMMEDIATELY INSTALLED. THE CONTRACTOR SHALL CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUGS DURING CONSTRUCTION TO PREVENT THE ENTRY OF DUST, DIRT, AND OBSTRUCTING
- MATERIAL. THE CONTRACTOR SHALL PROTECT ALL EQUIPMENT AND MATERIALS FROM DAMAGE DUE TO WATER, SPRAY-ON FIREPROOFING, CONSTRUCTION DEBRIS, ETC. IN A MANNER ACCEPTABLE TO THE ENGINEER AND/OR OWNER. 4. AREAS OF THE EXISTING BUILDING WILL BE OCCUPIED DURING CONSTRUCTION OF THIS PROJECT. NOISY, DUSTY, AND/OR OTHER CONSTRUCTION OPERATIONS REQUIRED FOR WORK WHICH DISTURB OR CAUSE COMPLAINTS BY THE EXISTING BUILDING OCCUPANTS SHALL NOT BE ACCEPTABLE. ALL AFTER-HOUR OR OVERTIME WORK REQUIRED BY THE
- CONTRACTOR TO AVOID DISRUPTION OF EXISTING OCCUPANTS WILL BE PROVIDED AT NO COST TO THE OWNER/TENAN THE CONTRACTOR SHALL USE CONSTRUCTION METHODS AND MATERIALS WHICH SHALL NOT ADVERSELY AFFECT THE INDOOR AIR QUALITY OF THE EXISTING OCCUPIED AREAS 5. ALL BUILDING SERVICES, UTILITIES, POWER, FIRE PROTECTION, AND DOMESTIC COLD AND HOT WATER MAY NOT BE DISRUPTED FOR ANY REASON WITHOUT PRIOR COORDINATION WITH A REPRESENTATIVE OF BUILDING OPERATIONS.
- THIS BUILDING MAY HAVE A STRUCTURAL SYSTEM UTILIZING POST-TENSIONED CABLES. THE CONTRACTOR SHALL DETERMINE THE EXISTING STRUCTURAL SYSTEM PRIOR TO CUTTING, DRILLING, OR CORING. THE CONTRACTOR SHALL SCAN ALL PENETRATIONS PRIOR TO CUTTING THE FLOOR SLAB. . PENETRATIONS THROUGH FLOORS OR FIRE-RATED CONSTRUCTION SHALL BE FIRESAFED TO COMPLY WITH ASTM E-814 (UL

1479), AND THE LOCAL AUTHORITY HAVING JURISDICTION. PROJECT CLOSE-OUT

- THE ELECTRICAL CONTRACTOR SHALL PERFORM THE FOLLOWING TASKS UPON PROJECT COMPLETION. ALL REQUIRED REPORTS AND AS-BUILTS SHALL BE SUBMITTED WITHIN TWO (2) WEEKS OF DATE OF SUBSTANTIAL COMPLETION OR OWNER OCCUPANCY.
- A. SUBMIT "AS-BUILT" RECORD DRAWINGS INDICATING ACTUAL AS-BUILT CONDITIONS TO THE ARCHITECT/ENGINEER FOR REVIEW. RECORD DRAWINGS SHALL BE STAMPED "AS-BUILT" AND SHALL HAVE THE NAME. ADDRESS, AND TELEPHONE NUMBER OF THE CONTRACTOR. ALL ENGINEERS' SEALS SHALL BE REMOVED FROM THE DRAWINGS. PROVIDE FOUR (4) BLACK AND WHITE DIGITAL COPIES AND ONE (1) ELECTRONIC FILE.
- B. EXISTING CIRCUITRY SHOWN FOR INFORMATION ONLY. CONTRACTOR SHALL FIELD VERIFY EXACT CIRCUITRY AND NDICATE ANY DEVIATIONS ON THE "AS BUILT" DRAWINGS. "AS BUILT" DRAWINGS SHALL ACCURATELY INDICATE THE LOCATION OF ALL NEW AND EXISTING JUNCTION BOXES WITH THE RESPECTIVE PANEL AND CIRCUIT NUMBERS.
- C. SUBMIT TWO (2) COPIES OF OPERATION AND MAINTENANCE MANUALS. THE MANUALS SHALL INCLUDE RATINGS, CAPACITIES, PARTS LISTS, WIRING DIAGRAMS, SERVICE/MAINTENANCE RECOMMENDATIONS, AND WARRANTIES.
- D. SUBMIT WRITTEN RESPONSE TO ALL FIELD REPORTS INDICATING CORRECTIVE ACTIONS TAKEN AND DATE CORRECTIVE ACTION WAS TAKEN TO THE ARCHITECT/ENGINEER FOR REVIEW.
- 1. THE WARRANTY PERIOD SHALL BE NO LESS THAN ONE (1) FULL YEAR, UNLESS SPECIFIED OTHERWISE AND SHALL INCLUDE AT LEAST ONE (1) FULL HEATING SEASON AND ONE (1) FULL COOLING SEASON. DURING THE WARRANTY PERIOD THE CONTRACTOR SHALL GUARANTEE THE FOLLOWING IN A FORM SATISFACTORY TO THE OWNER/TENANT A. ALL WORK INSTALLED SHALL BE FREE FROM ANY AND ALL DEFECTS IN WORKMANSHIP AND/OR MATERIALS. B ALL APPARATUS WILL DEVELOP CAPACITIES AND PERFORMANCE CHARACTERISTICS SPECIFIED.
- C. THE SYSTEMS SHALL OPERATE WITHOUT MALFUNCTION. THE START OF THE CONTRACTOR'S WARRANTY PERIOD SHALL COMMENCE ON THE DATE OF "SUBSTANTIAL COMPLETION" AS AGREED TO BY THE OWNER/TENANT.

ELECTRICAL SPECIFICATIONS

CONDUIT ALL CONDUITS SHALL BE CONCEALED IN PIPE CHASES, WALLS, FURRED SPACED, OR ABOVE THE CEILING OF THE BUILDING UNLESS OTHERWISE INDICATED. CONDUIT SHALL NOT BE EMBEDDED IN ANY STRUCTURAL SLAB OR STRUCTURAL MEMBER

- JNLESS APPROVED IN WRITING BY THE STRUCTURAL ENGINEEF 2. CONDUIT MAY BE RUN EXPOSED IN MECHANICAL ROOMS, DUCT AND PIPING CHASES, BUT ONLY WHERE NECESSARY, ALL EXPOSED CONDUIT SHALL BE RUN IN THE NEATEST, MOST INCONSPICUOUS MANNER, AND PARALLEL OR PERPENDICULAR
- TO THE BUILDING LINES. ALL CONDUIT AND SURFACE RACEWAYS SHALL BE ADEQUATELY AND PROPERLY SUPPORTED FROM THE BUILDING
- STRUCTURE BY MEANS RECOMMENDED BY THE MANUFACTURER, OR BY THE USE OF HANGER RODS OR CLAMPS. ALL CONDUITS THROUGHOUT THE BUILDING SHALL BE SUPPORTED AT MINIMUM 10 FEET ON CENTERS HORIZONTALLY AND
- SUPPORTED 6 FEET ON CENTERS VERTICALLY. SUPPORT CONDUIT WITHIN 3' OF ALL CONNECTIONS TO BOXES. . CONDUIT SHALL NOT BE SUPPORTED FROM DUCTWORK, PIPING, OR EQUIPMENT.
- 6. THE LOAD AND SPACING ON EACH HANGER AND/OR INSERT SHALL NOT EXCEED THE SAFE ALLOWABLE LOAD FOR ANY COMPONENT OF THE SUPPORT SYSTEM, INCLUDING THE CONCRETE WHICH HOLDS THE INSERTS. CONFIRM WITH STRUCTURAL ENGINEER WHERE REQUIRED.
- 7. ALL ELECTRICAL CONDUCTORS SHALL BE INSTALLED IN CONDUIT, OR SURFACE METAL RACEWAYS. IN ADDITION, EMPTY CONDUIT OR SURFACE METAL RACEWAYS SHALL BE INSTALLED FOR THE VOICE/DATA SYSTEM, AND FOR OTHER SYSTEMS AS INDICATED ON THE DRAWINGS
- GALVANIZED RIGID METAL CONDUIT (RMC) SHALL BE USED WHERE CONDUIT IS IN A CONCRETE SLAB WITH A VAPOR BARRIER (PROVIDE TAPE WRAP), WHERE SUBJECT TO PHYSICAL DAMAGE, OR IN SIZES GREATER THAN 4" IN DIAMETER. 9 RMC CONDUIT SHALL BE JOINED WITH THREADED COUPLINGS AND SHALL BE SECURED IN CABINETS, OUTLETS, ETC, WITH DOUBLE LOCK NUTS AND SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AS MANUFACTURED BY STEEL CITY OR
- EQUAL. COUPLINGS, ETC., SHALL BE THREADED. 10. RIGID STEEL CONDUIT SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUT. FULL LENGTHS OF PIPE SHALL HAVE GALVANIZED OR ZINC-COATED THREADS ON BOTH ENDS.
- 3. CONTRACTOR SHALL SECURE ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED FOR HIS WORK, AND SHALL PAY ALL 11. EMT MAY BE USED INDOORS WHERE CONCEALED OR EXPOSED ABOVE GRADE, EXCEPT WHERE RIGID STEEL CONDUIT IS REQUIRED. ELECTRICAL METALLIC TUBING SHALL BE MADE OF THIN-WALL STEEL TUBING UP TO 4" CONDUIT SIZE, AND SHALL BE GALVANIZED INSIDE AND OUTSIDE. 12. EMT SHALL BE JOINED WITH STEEL SET SCREW TYPE COUPLINGS AND CONDUITS SHALL BE SECURED WITH STEEL SET
 - SCREW TYPE CONNECTORS AT PANELS, JUNCTION BOXES, OUTLETS, ETC. DIE-CAST TYPE CONNECTORS ARE NOT ACCEPTABLE
- 3. IF IT COMPLIES WITH THESE SPECIFICATIONS, CONDUIT MANUFACTURED BY ONE OF THE FOLLOWING WILL BE CCEPTABLE: ALLIED, REPUBLIC, WHEATLAND, 2. REMOVE ALL ABANDONED "LOW VOLTAGE" CABLING INCLUDING FIRE ALARM CABLING, TELEPHONE/DATA CABLING, AND 14. IF IT COMPLIES WITH THESE SPECIFICATIONS, CONNECTORS MANUFACTURED BY ONE OF THE FOLLOWING WILL BE ACCEPTABLE: MIDWEST, T & B.

FLEXIBLE METAL CONDUIT

- FLEXIBLE METAL CONDUIT SHALL BE HOT-DIPPED GALVANIZED STEEL STRIP, SPIRAL WOUND AND INTERLOCKED, AND SHALL BE PROVIDED WITH INSULATED ANTI-SHORT BUSHINGS AT ALL TERMINATIONS. FLEXIBLE METAL CONDUIT SHALL BE SECURED WITH GALVANIZED OR SHERADIZED CONNECTORS SUITABLE FOR CONNECTION TO THE ASSOCIATED BOXES AND CONDUITS. DIE CAST CONNECTORS ARE NOT ACCEPTABLE.
- 3. FLEXIBLE METAL CONDUIT SHALL BE USED INDOORS AT ANY HEIGHT. IN LENGTHS NOT TO EXCEED 48 INCHES. TO EXTEND CONDUIT CONNECTIONS TO MOTORS, TRANSFORMERS, BUSWAY SWITCHES, AIR DISTRIBUTION TERMINAL JNITS, LIGHTING FIXTURES NOT CONNECTED BY RIGID CONDUIT, CONTROL EQUIPMENT AND DEVICES, PERMANENTLY ONNECTED EQUIPMENT OR APPLIANCES, OR FOR EQUIPMENT AND DEVICES REQUIRING ADJUSTMENT AND/OR REMOVAL FOR MAINTENANCE. FLEXIBLE METAL CONDUIT SHALL NOT BE USED FOR CONNECTIONS IN ELEVATOR MACHINE ROOMS. LIQUID-TIGHT FLEXIBLE CONDUIT SHALL BE USED IN ALL OF THE ABOVE AREAS WHERE FLEXIBLE METAL CONDUIT IS NOT PERMITTED. A "GREEN" INSULATED COPPER GROUNDING CONDUCTOR SHALL BE INSTALLED WITH THE CIRCUIT CONDUCTORS AND SIZED IN ACCORDANCE WITH TABLE 250-122 OF THE LATEST EDITION OF THE
- NATIONAL ELECTRICAL CODE. FLEXIBLE METAL CONDUIT (MINIMUM 3/8" DIAMETER) MAY BE USED FOR FIXTURE-TAILS, FOR CONNECTION OF NDIVIDUAL LIGHTING FIXTURES TO THEIR ASSOCIATED LIGHTING SYSTEM JUNCTION BOXES LENGTHS NOT TO XCEED 6 FEET, AND PROVIDED THE CIRCUIT CONDUCTORS CONTAINED THEREIN ARE PROTECTED BY OVER URRENT DEVICES RATED AT 20 AMPERES OR LESS. A "GREEN" INSULATED COPPER GROUNDING CONDUCTOR SHALL BE INSTALLED WITH THE CIRCUIT CONDUCTORS AND SIZED IN ACCORDANCE WITH TABLE 250-122 OF THE 5 CONTINUITY OF THE EQUIPMENT GROUND ACROSS FLEXIBLE METAL CONDUIT CONNECTIONS SHALL BE MAINTAINED.
- THE CONTINUITY SHALL BE MAINTAINED BY INSTALLING A BARE COPPER BONDING CONDUCTOR SIZED IN ACCORDANCE WITH TABLE 250-95 OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. THE BARE COPPER BONDING CONDUCTOR SHALL BE INSTALLED OUTSIDE THE FLEXIBLE AND SHALL BE CONNECTED ON ONE END OF THE FLEXIBLE CONDUIT BY A SUITABLE BINDING POST AN SIMILARLY CONNECTED ON THE OPPOSITE END WITH ANOTHER SUITABLE BINDING POST.
- 6. IF IT COMPLIES WITH THESE SPECIFICATIONS, CONDUIT MANUFACTURED BY ONE OF THE FOLLOWING WILL BE ACCEPTABLE: AMERICAN FLEXIBLE CONDUIT COMPANY, ANACONDA, CERRO, OR ELECTRI-FLEX. 7. IF IT COMPLIES WITH THESE SPECIFICATIONS, CONNECTORS MANUFACTURED BY ONE OF THE FOLLOWING WILL BE ACCEPTABLE: MIDWEST, APPLETON.
- TYPE "MC" METAL CLAD CABLE IF ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AND THE BUILDING OWNER. TYPE "MC" CABLE MAY BE USED IN WALL PARTITIONS IN FINISHED AREAS AND CONNECTION OF LIGHT FIXTURE TAILS, AND WIRING DEVICES, MC CABLE SHALL NOT EXCEED 8' IN LENGTH ABOVE THE CEILING LINE. MC CABLE SHALL BE TYPE 2-#12 OR 3-#12 "THHN" SOLID COPPER INSULATED PHASE CONDUCTORS, AND BARE GROUNDING CONDUCTOR. MC CABLE SHALL BE PROVIDED WITH INSULATED IDENTIFICATION/LABELING ANTI-SHORT BUSHINGS AT ALL TERMINATIONS. MC CABLE CONNECTORS SHALL BE STEEL GALVANIZED OR SHERADIZED, SUITABLE FOR CONNECTION TO ASSOCIATED BOXES. DIE CAST CONNECTORS ARE NOT ACCEPTABLE.
- 2. IF IT COMPLIES WITH THE SPECIFICATIONS, ARMORED CABLE MANUFACTURED BY ONE OF THE FOLLOWING WILL BE ACCEPTABLE: AMERICAN FLEXIBLE CONDUIT, BRAND-REX. 3. IF IT COMPLIES WITH THE SPECIFICATIONS, CONNECTORS MANUFACTURED BY ONE OF THE FOLLOWING WILL BE ACCEPTABLE: THOMAS & BETTS, MIDWEST.
- CONDUIT INSTALLATION 1. METAL CONDUIT SHALL BE OF AMPLE SIZE TO PERMIT THE EASY INSERTION OR WITHDRAWAL OF CONDUCTORS
- WITHOUT ABRASION. ALL JOINTS SHALL BE CUT SQUARE, REAMED SMOOTH AND DRAWN UP TIGHT. NO NON-FLEXIBLE METAL CONDUIT SHALL BE SMALLER THAN 1/2". 2. SO FAR AS PRACTICABLE, ALL EXPOSED METAL CONDUIT SHALL RUN WITHOUT TRAPS. WHERE TRAPS OR DIPS ARE UNAVOIDABLE, A JUNCTION OR PULL BOX SHALL BE PLACED AT EACH LOW POINT. EACH ENTIRE METAL CONDUIT SYSTEM SHALL BE INSTALLED COMPLETE BEFORE ANY CONDUCTORS ARE DRAWN IN.
- TO GUARD AGAINST OBSTRUCTIONS AND OMISSIONS, EACH RUN OF CONDUIT SHALL BE FINISHED BEFORE PLASTERING IS INSTALLED. ALL METAL CONDUIT SHALL BE SWABBED AFTER PLASTER IS FINISHED AND DRY. AS SOON AS CONDUIT HAS BEEN PERMANENTLY INSTALLED IN PLACE, CONDUIT SHALL BE CAPPED OR PLUGGED
- WITH STANDARD ACCESSORIES. . METAL CONDUIT FOR TELEPHONE, SIGNAL, COMMUNICATION, AND TEMPERATURE CONTROL SYSTEMS SHALL BE PROVIDED WITH PULL BOXES OF APPROVED SIZES AT INTERVALS NOT EXCEEDING 70 FEET IN LENGTH OR AFTER TWO RIGHT ANGLE BENDS. BOXES SHALL BE SIZED IN ACCORDANCE WITH THE PERCENT FILL REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. AND AS INDICATED ON THE DRAWINGS
- ALL EMPTY CONDUIT SYSTEM SHALL HAVE A 1/8" BRAIDED POLYPROPYLENE ROPE OR #14 GALVANIZED STEEL PULL WIRE INSTALLED. AT LEAST 12" OF PROPERLY SECURED ROPE OR WIRE SHALL BE FOLDED BACK INTO EACH END OF THE EMPTY CONDUITS. WHERE PERMITTED BY THE LOCAL AUTHORITY - ARMORED CABLE MAY BE USED INDOORS WHERE CONCEALED ABOVE GRADE, FOR FIXTURE-TAILS OF INDIVIDUAL LIGHTING FIXTURES IN SUSPENDED ACCESSIBLE TYPE CEILINGS.
- THESE FIXTURE-TAILS SHALL IN LENGTHS NOT TO EXCEED 6 FEET FOR CONNECTION TO THEIR ASSOCIATED LIGHTING JUNCTION BOXES. THE POINT OF CONNECTION OF THE ARMORED CABLE TO THE INDIVIDUAL LIGHTING FIXTURES SHALL NOT BE MORE THAN 3" FROM THE FIXTURE BALLASTS... FLEXIBLE METAL CONDUIT, LIQUID TIGHT FLEXIBLE METAL CONDUIT AND ARMORED CABLE SHALL BE SECURED NO LESS THE EVERY 54" AND WITHIN 12" OF A JUNCTION BOX. IT IS NOT ACCEPTABLE TO LAY CABLES ON CEILING,
- DUCTWORK. ETC. WHERE PERMITTED BY THE LOCAL AUTHORITY - ARMORED CABLE MAY BE USED INDOORS FOR INDIVIDUAL DROPS O OUTLETS AND SWITCHES, WHERE CONCEALED IN WALLS AND PARTITIONS - PROVIDED THE FOLLOWING CONDITIONS ARE MET
- A. THE BRANCH CIRCUIT HOMERUN WIRING IS INSTALLED IN THE ACCESSIBLE CEILING PLENUM USING METAL B. JUNCTION BOXES ARE LOCATED IN THE ACCESSIBLE CEILING PLENUM ADJACENT TO THE ASSOCIATED WALLS OR PARTITIONS IN WHICH OUTLETS OR SWITCH LEGS ARE INSTALLED.
- LENGTH OF ARMORED CABLE DROP IS NOT GREATER THAN 12'-O" FROM JUNCTION BOXES TO WIRING DEVICES WITHIN WALL 10. MC CABLE SHALL NOT BE USED FOR HOMERUN WIRING. HOMERUNS SHALL BE HARD PIPED WITH METAL CONDUIT. OUTLET BOXES
- IN STANDARD PARTITIONS, WHERE 1/2", 3/4", AND 1" CONDUITS ARE EMPLOYED: 4" SQUARE BY 2-1/8" DEEP BOXES WITH 1-GANG OR 2-GANG PLASTER COVERS SHALL BE USED UNLESS NOTED OTHERWISE.
- 2. IN THIN PARTITIONS MEASURING 3-1/2" OR LESS: 4" SQUARE BY 1-1/2" DEEP BOXES WITH 1-GANG OR 2-GANG PLASTER COVERS SHALL BE USED UNLESS NOTED OTHERWISE
- IN STANDARD PARTITIONS, WHERE 1-1/4" CONDUITS ARE EMPLOYED: 4-11/16" SQUARE BY 2-1/8" DEEP BOXES WITH 1-GANG OR 2-GANG PLASTER COVERS SHALL BE USED UNLESS NOTED OTHERWISE.
- 4. OUTLET BOXES SHALL BE SECURELY ATTACHED TO THE PARTITION STUDS, WITH AT LEAST ONE (1) PARTITION STUD PEPARATING THE OUTLET BOXES. IT IS NOT ACCEPTABLE TO SECURE OUTLET BOXES ONLY TO DRYWALL PARTITION.
- 5. OUTLET, SWITCH AND JUNCTION BOXES FOR VARIOUS USES SHALL BE AS MANUFACTURED BY THOMAS & BETTS OR AN APPROVED EQUAL
- 6. PROVIDE EXTRA DUTY COVERS FOR ALL 15 AND 20 AMP, 125 AND 250 VOLT RECEPTACLES IN ALL WET LOCATIONS PER NEC 406.9(B)(1) WHERE OCCUPANCY SENSORS/LIGHT SWITCHES ARE INSTALLED AT END OF DOOR SWING, GENERAL CONTRACTOR TO INSTALL STUD AT 42" FROM HINGE WALL. INSTALL SWITCHES ON EITHER SIDE OF STUD.
- 8. WHERE MULTI-GANG BACK BOXES ARE REQUIRED, THE BACK BOX SHALL CONSIST OF A SINGLE UNIT SINGLE BACK BOX WITH MUDRING OR MASONRY STYLE JUNCTION BOX. GANGABLE STYLE BACK BOXES ARE NOT ACCEPTABLE.
- GROUNDING 1. THE ELECTRICAL DISTRIBUTION SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE (NEC), AS SHOWN AND SPECIFIED, AND RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED FUNCTIONS. ALL CONDUIT SHALL HAVE AN EQUIPMENT GROUND

ELECTRICAL SPECIFICATIONS

- PROVIDE BUILDING STANDARD WIRING DEVICES. WHERE A BUILDING STANDARD IS NOT ESTABLISHED, ELECTRICAL RECEPTACLES SHALL BE LEVITON 120 VOLT, 20 AMP, #16362-W SERIES, DECORATOR STYLE, BACK/SIDE WIRED WITH CHING COVER PLATE UNLESS OTHERWISE INDICATED. LIGHTING SWITCHES SHALL BE LEVITON #5621-2W OR #5623-2W WITH MATCHING COVER PLATES. DEVICES SHALL BE WHITE UNLESS OTHERWISE INDICATED. COVER PLATES SHALL BE NYLON UNLESS OTHERWISE NOTED. EQUAL DEVICES BY HUBBELL, LEGRAND ARE ACCEPTABLE. 2. ALL WIRING DEVICES SHALL BE RATED 20-AMP MINIMUM. EXISTING 15-AMP DEVICES SHALL BE REPLACED WITH 20-AMP WHERE NEW CIRCUITING IS INDICATED/REQUIRED.
- ALL NEW AND EXISTING GFI RECEPTACLES INDICATED ON THE PLANS SHALL MEET THE REVISED LATEST U.L. #943 REQUIREMENTS. WEATHERPROOF RECEPTACLES SHALL BE LISTED WEATHER RESISTANT TYPE. REPLACE EXISTING DEVICES AS REQUIRED.
- 4. ALL WIRING DEVICES (EXCLUDING LIGHT SWITCHES) SHALL BE LABELED WITH SELF-ADHESIVE, LAMINATED TAPE OTHERWISE. PROVIDE SAMPLE OF LABELS TO ARCHITECT AND LANDLORD FOR APPROVAL PRIOR TO INSTALLATION. CONDUCTORS
- ALL CONDUCTORS FURNISHED AND INSTALLED SHALL COMPLY WITH THE REQUIREMENTS AND LATEST REVISIONS OF THE NATIONAL ELECTRICAL CODE (NEC) NATIONAL ELECTRICAL SAFETY CODE (NESC) STANDARDS OF THE UNDERWRITER'S LABORATORIES (UL). NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA). INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE).
- ALL FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE SOFT DRAWN, ANNEALED COPPER, HAVING A CONDUCTIVITY OF NOT LESS THAN 98% OF THAT OF PURE COPPER, AND MEETING BEFORE STRANDING, THE REQUIREMENTS OF ASTM B-3, "STANDARD SPECIFICATIONS FOR SOFT OR ANNEALED COPPER WIRE FOR ELECTRICAL PURPOSES", LATEST EDITION. 3. UNLESS OTHERWISE SPECIFIED OR NOTED, ALL CONDUCTORS NO. 10 AND SMALLER SHALL BE SOLID COPPER THHN WITH
- AN INSULATING OUTER JACKET SUITABLE FOR CONDUCTOR TEMPERATURES OF 90°C, EXCEPT FOR NEC CLASS 1, 2, 3, CONDUCTORS WHICH MAYBE STRANDED IF TERMINATED AS REQUIRED HEREIN. 4. UNLESS OTHERWISE SPECIFIED OR NOTED, ALL CONDUCTORS NO. 8 AND LARGER SHALL BE THWN-2/THHN. 600 VOLT.
- STRANDED WITH A THERMOPLASTIC INSULATING COMPOUND AND AN OUTER JACKET (THWN-2/THHN ONLY) SUITABLE FOR CONDUCTOR TEMPERATURES OF 90°C. STRANDED WIRE SHALL BE TERMINATED AS SPECIFIED HEREIN.
- IF IT COMPLIES WITH THESE SPECIFICATIONS, THE FOLLOWING CONDUCTOR MANUFACTURERS WILL BE ACCEPTABLE: ESSEX, GENERAL CABLE, ENCORE, SOUTHWIRE OR APPROVED EQUAL. 6. IF IT COMPLIES WITH THESE SPECIFICATIONS, CABLE LUGS AND TERMINATION FITTINGS MANUFACTURED BY ONE OF THE
- FOLLOWING WILL BE ACCEPTABLE: BLACKBURN, BURNDY, IDEAL, THOMAS & BETTS OR APPROVED EQUAL 7. NO SPLICES OR TAPS SHALL BE MADE IN ANY CONDUCTOR EXCEPT IN OUTLET BOXES, JUNCTION BOXES, SPLICE BOXES,
- OR OTHER DEVICES AND EQUIPMENT IN EXPOSED AND ACCESSIBLE LOCATIONS APPROVED FOR THE PURPOSE BY THE LATEST EDITION OF THE NEC. 8. ALL NO. 10 AWG AND SMALLER SOLID CONDUCTORS SHALL BE SPLICED WITH PRE-INSULATED SPRING CONNECTORS. ALL
- NO. 10 AWG AND SMALLER STRANDED CONDUCTORS FOR NEC CLASS 1, 2, 3 WIRING SHALL BE TERMINATED WITH AMP 'PIDG' UL LISTED PREMIUM GRADE INSULATED FORK CONNECTORS. OR APPROVED EQUAL. AND SHALL BE SPLICES IN A JUNCTION BOX WITH AMP "PLASTIC-GRIP" UL LISTED STANDARD GRADE INSULATED BUTT SPLICES. OR APPROVED EQUAL 9. ALL 120 VOLT, 20 AMP HOME RUNS LONGER THAN 50 FEET AND ALL 277 VOLT, 20 AMP HOME RUNS LONGER THAN 100 FEET SHALL BE #10 MINIMUM.
- 10. EMT CONDUIT SHALL BE SIZED IN ACCORDANCE WITH THE PERCENT FILL REQUIREMENTS OF THE NEC AND AS INDICATED ON THE DRAWINGS AND SHALL BE OF AMPLE SIZE TO PERMIT THE READY INSERTION AND WITHDRAWAL OF CONDUCTORS WITHOUT ABRASION. GROUPING OF "HOME RUNS" IS ACCEPTABLE ONLY WHERE THE NUMBER OF CONDUCTORS INDICATED ON THE DRAWINGS IS MAINTAINED AND THE PROPER NEC DE-RATING FACTORS ARE APPLIED BASED ON FULL RATING OF THE BRANCH CIRCUIT OVERCURRENT PROTECTION DEVICES. FOR 20 AMP CIRCUITS, NOT MORE THAN NINE(9) - #12 THHN
- OR #10 THHN CURRENT CARRYING (PHASE & NEUTRAL) CONDUCTORS SHALL BE INSTALLED IN EACH RACEWAY. THE USE OF "PUSH-IN" STYLE WIRE CONNECTORS (WAGO OR SIMILAR) ARE STRICTLY PROHIBITED FOR TERMINATIONS OF BRANCH CONDUCTORS, CONDUCTORS SHALL BE TWISTED AND TERMINATED WITH APPROVED WIRE NUT CONNECTION THE USE OF "PUSH-IN" WIRE CONNECTORS ARE ACCEPTABLE ONLY WHEN PROVIDED BY MANUFACTURER AND PRE-TERMINATED WITHIN A LIGHT FIXTURE.

PANELBOARDS

- CONTRACTOR SHALL PROVIDE ACCURATE TYPE WRITTEN PANEL SCHEDULES. SCHEDULES SHALL INDICATE DEVICES AND/OR EQUIPMENT SERVED, LOCATION AND/OR ROOM NUMBERS FOR NEW AND EXISTING CIRCUITS. PROVIDE NEW SCHEDULES FOR ALL NEW AND EXISTING PANELS 2. WHERE PANELBOARDS HAVE MULTIPLE PANEL SECTIONS, A BONDING JUMPER SIZED PER NEC, SHALL BE USED TO BOND
- EACH PANEL ENCLOSURE. USE OF CONDUIT AS ONLY MEANS FOR CONTINUITY IS UNACCEPTABLE. LIGHTING AND LIGHTING CONTROLS 1. FURNISH AND INSTALL LIGHTING FIXTURES OF THE TYPES SCHEDULED ON THE DRAWINGS. FIXTURE MANUFACTURES SHALL BE AS SCHEDULED ON THE DRAWINGS. ALTERNATE MANUFACTURERS WILL BE CONSIDERED
- IF SUBMITTED 7 DAYS PRIOR TO BID. FIXTURES SHALL BE FURNISHED WITH ALL REQUIRED ACCESSORIES AND TRIM AS REQUIRED FOR A COMPLETE INSTALLATION IN THE CEILING TYPE SHOWN ON THE ARCHITECTURAL DRAWINGS. 2. A SEPARATE NEUTRAL SHALL BE PULLED FOR EACH DIMMED CIRCUIT.
- 3. FOR LED FIXTURES, LAMPS, DRIVERS, AND COMPONENTS, PROVIDE A COMPLETE WARRANTY FOR PARTS AND LABOR FOR A MINIMUM OF FIVE (5) YEARS FROM DATE OF SUBSTANTIAL COMPLETION. FOR EXISTING LIGHT FIXTURES WITH BATTERY PACKS, ELECTRICAL CONTRACTOR SHALL ASSUME NEW BATTERY PACKS WILL BE REQUIRED UNLESS FIELD VERIFICATION PROVES OTHERWISE.

- EXISTING CIRCUITRY IS SHOWN FOR INFORMATION ONLY. EXISTING CIRCUITRY INFORMATION TAKEN FROM COMBINATION OF FIELD SURVEY AND PREVIOUS TENANT DRAWINGS. CONTRACTOR SHALL FIELD VERIFY EXACT CIRCUITRY AND INDICATE ANY DEVIATIONS ON THE "AS BUILT" DRAWINGS. "AS BUILT" DRAWINGS SHALL ACCURATELY INDICATE THE LOCATION OF ALL NEW AND EXISTING JUNCTION BOXES WITH THE RESPECTIVE PANEL AND CIRCUIT NUMBERS.
- 2. ALL PANELBOARDS, MOTOR STARTERS, CONTROL PANELS, CONTROL REMOTE STATIONS, DISCONNECT SWITCHES, CIRCUIT BREAKERS OR OTHER EQUIPMENT IN SEPARATE ENCLOSURES SHALL BE EQUIPPED WITH NAMEPLATES. THE NAMEPLATES SHALL BE ENGRAVED RIGID PLASTIC LAMINATE OR APPROVED EQUAL, WHITE LETTERING ON BLACK BACKGROUND FOR EQUIPMENT 208/120 VOLT AND BLACK LETTERING ON WHITE BACKGROUND FOR EQUIPMENT 480/277 VOLT, AND BE ATTACHED TO THE EQUIPMENT SECURELY WITH SCREWS. EACH NAMEPLATE SHALL GIVE THE NUMBER
- DESIGNATION OF THE EQUIPMENT AS SHOWN ON THE ONE LINE DIAGRAM AND ALSO THE SOURCE. UTILIZE SIMILAR RED AND WHITE NAMEPLATES FOR ALL EMERGENCY POWERED EQUIPMENT ALL WIRING DEVICES (EXCLUDING LIGHT SWITCHES) SHALL BE LABELED WITH SELF-ADHESIVE, LAMINATED TAPE INDICATING THE CIRCUIT NUMBER AND PANEL DESIGNATIONS. UTILIZE CLEAR TAPE WITH BLACK LETTERS UNLESS NOTED OTHERWISE. PROVIDE SAMPLE OF LABELS TO ARCHITECT AND LANDLORD FOR APPROVAL PRIOR TO INSTALLATION.

THE ASSOCIATED PANEL, CIRCUITS, AND VOLTAGE SHALL BE IDENTIFIED ON ALL JUNCTION BOX COVERS.

- 1. COORDINATE THE INSTALLATION OF ELECTRICAL AND COMMUNICATION CONDUIT TO FURNITURE SYSTEMS WITH THE ARCHITECT PRIOR TO THE INSTALLATION OF ELECTRICAL ITEMS. VERIFY IN WRITING WITH THE ARCHITECT THAT THE QUANTITY OF WIRES AND CIRCUITS CORRESPONDS TO THE FURNITURE SYSTEMS THAT WILL BE SUPPLIED TO THIS PROJECT.
- 2. PROVIDE HEAVY DUTY DISCONNECTS AS REQUIRED FOR THE PLUMBING AND MECHANICAL EQUIPMENT. COORDINATE WITH ALL TRADES.
- WHERE SEPARATE HOME RUNS ARE INDICATED ON THE PLANS, DO NOT UTILIZE THE NEUTRAL OR GROUND CONDUCTOR FOR ANY OTHER CIRCUITS. TERMINATE ONLY AT DEVICES AND PANELBOARD AS INDICATED. 4. ALL BRANCH CIRCUITS SHALL BE PROVIDED WITH DEDICATED NEUTRALS PER NEC 210.4(B) UNLESS NOTED OTHERWISE MULTIWIRE BRANCH CIRCUITS MAY BE UTILIZED FOR BREAK ROOM APPLIANCE LOADS. EXISTING MULTIWIRE BRANCH CIRCUITS TO BE RE-UTILIZED, AND FOR LOADS WHERE DEDICATED NEUTRALS ARE NOT POSSIBLE (I.E. FURNITURE SYSTEMS). WHERE MULTIWIRE BRANCH CIRCUITS ARE UTILIZED, PROVIDE HANDLE-TIES IN LIEU OF MULTI-POLE BREAKERS
- 5. PROVIDE AN EMPTY BOX AND PULL STRING TO ACCESSIBLE CEILING SPACE FOR ALL COMMUNICATION AND A/V DEVICES UNLESS NOTED OTHERWISE. ALL COMMUNICATION DEVICES LOCATED ON WALLS TO DECK AND/OR SOUND INSULATED WALLS SHALL BE PROVIDED WITH 3/4" EMT CONDUIT AND PULL STRING INTO ACCESSIBLE CEILING SPACE 6. ALL EXISTING JUNCTION BOXES, OUTLETS, PULL BOXES, ETC., LOCATED ABOVE NON-ACCESSIBLE CEILINGS INSTALLED UNDER THIS TENANT IMPROVEMENT PROJECT SHALL BE RELOCATED AS NECESSARY TO A LOCATION ABOVE AN ACCESSIBLE CEILING. WHERE EXISTING JUNCTION BOXES ARE NOT FEASIBLE TO RE-LOCATE, ELECTRICAL CONTRACTOR
- SHALL NOTIFY ARCHITECT AND ENGINEER. AT ALL EXPOSED CEILING AREAS, UTILIZE 3/4" MINIMUM EMT CONDUIT FOR ALL BRANCH CIRCUITING, FIRE ALARM, AND CONTROLS CABLING. COORDINATE ALL CONDUIT ROUTING WITH THE ARCHITECT PRIOR TO INSTALLATION AND PROVIDE A SHOP DRAWING FOR REVIEW THAT INDICATES ALL PROPOSED CONDUIT ROUTING AT EXPOSED CEILING AREAS. ALL
- CONDUIT SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO THE LINES OF THE BUILDING AND SHALL BE PAINTED TO MATCH THE FINISH OF THE STRUCTURE. 8. NEUTRAL CONDUCTORS SHALL BE PROPERLY GROUPED IN AT LEAST ONE(1) LOCATION WITHIN ANY ENCLOSURE PER NEC
- 9. PENETRATIONS THROUGH FLOORS OR FIRE-RATED CONSTRUCTION SHALL BE FIRESAFED TO COMPLY WITH ASTM E-814 (UL 1479), AND THE LOCAL AUTHORITY HAVING JURISDICTION.

WIRING DEVICES

FIRE ALARM - FIRE ALARM CONTRACTOR SCOPE OF WORK

- 1. THE FIRE ALARM CONTRACTOR SHALL FIELD VERIFY EXISTING SYSTEM CAPACITIES AND SHALL EXPAND SYSTEM AS REQUIRED. FIRE ALARM CONTRACTOR SHALL PROVIDE ALL FIRE ALARM EQUIPMENT. DEVICES, AND APPURTENANCES AS REQUIRED FOR A COMPLETE SYSTEM PER NFPA 72 AND THE AHJ REQUIREMENTS AT NO ADDITIONAL COST TO OWNER OR TENANT PROVIDE CEILING MOUNT NOTIFICATION DEVICES UNLESS DIRECTED OTHERWISE BY ARCHITECT. 3. PROVIDE WALL MOUNTED NOTIFICATION DEVICES AT MECHANICAL AND ELECTRICAL ROOMS.
 - 4. PROVIDE DUCT MOUNTED SMOKE DETECTORS AS REQUIRED FOR MECHANICAL EQUIPMENT. COORDINATE WITH
 - MECHANICAL CONTRACTOR 5. FIRE ALARM CONTRACTOR SHALL SUBMIT SHOP DRAWINGS INCLUDING THE COMPLETE SYSTEM LAYOUT OF THE FIRE
- ALARM SYSTEM TO THE AUTHORITIES HAVING JURISDICTION AND THE ARCHITECT FOR ADA REVIEW. INDICATING THE CIRCUIT NUMBER AND PANEL DESIGNATIONS. UTILIZE CLEAR TAPE WITH BLACK LETTERS UNLESS NOTED 6. FIRE ALARM CABLING INSTALLED IN RETURN AIR PLENUMS SHALL BE PLENUM RATED.
 - 7. PROVIDE A MINIMUM ONE(1) YEAR FULL PARTS AND LABOR WARRANTY FOR ALL FIRE ALARM WORK UNDER THIS CONTRACT 8. FIRE ALARM CONTRACTOR SHALL FURNISH, ACCORDING TO THE CONDITIONS OF THE CONSTRUCTION CONTRACT, SHOP DRAWINGS INCLUDING THE COMPLETE LAYOUT OF FIRE PROTECTION SYSTEMS TO THE AUTHORITIES HAVING
 - JURISDICTION, LOCAL FIRE DEPARTMENT, THE OWNER'S INSURANCE CARRIER, AND LANDLORD FOR APPROVAL.
 - FIRE ALARM ELECTRICAL CONTRACTOR SCOPE ASSUME CEILING MOUNTED NOTIFICATION DEVICES UNLESS DIRECTED OTHERWISE BY ARCHITECT. PROVIDE T-BAR HANGERS (WHERE REQUIRED) AND JUNCTION BOX.
 - FOR MECHANICAL AND ELECTRICAL ROOMS, ASSUME WALL MOUNTED FIRE ALARM DEVICES. PROVIDE 4" SQ. X 2-1/8"D BACKBOX AND 3/4" EMT TO ABOVE ACCESSIBLE CEILING.
 - COORDINATE DEVICE LOCATIONS WITH FIRE ALARM SHOP DRAWINGS, THE ARCHITECT AND ALL TRADES PRIOR TO START OF CONSTRUCTION
 - 4. ELECTRICAL DRAWINGS REFLECT ONLY SMOKE DETECTORS FOR CONTROL OF MECHANICAL SYSTEMS AND
 - SMOKE/FIRE DAMPER POWER CONNECTIONS. 5. FOR APPROXIMATE QUANTITY OF NOTIFICATION DEVICES, PROVIDE BACK-BOXES FOR THE FOLLOWING LOCATIONS -STORAGE ROOMS, JANITOR CLOSETS -RESTROOMS
 - -MULTI-OCCUPANT OFFICES -BREAK ROOMS
 - -CONFERENCE, TRAINING, TEAM, HUDDLE ROOMS -RECEPTION, WAITING, LOBBY AREAS
 - -OPEN OFFICE AND LARGE ENCLOSED ROOMS, (1) BACK-BOX PER 50'X50' AREA

PRE-CONSTRUCTION FUNCTIONAL TEST

PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL FUNCTIONALLY TEST ALL ELECTRICAL AND FIRE ALARM EQUIPMENT THAT IS EXISTING TO REMAIN OR RELOCATED IN THIS PROJECT. THE CONTRACTOR SHALL PROVIDE A WRITTEN DESCRIPTION OF ANY AND ALL DEFICIENCIES TO THE OWNER/TENANT. ANY DEFICIENCIES FOUND AFTER THE START OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT NO COST TO THE OWNER/TENANT. THE EQUIPMENT TO BE TESTED INCLUDES, BUT IS NOT LIMITED TO: RECEPTACLES, LIGHT FIXTURES, EXIT SIGNS, OCCUPANCY SENSORS, PANEL BOARDS, TRANSFORMERS, EMERGENCY LIGHTING BATTERY UNITS, AND SWITCHES.

APPLICABLE CODES AND STANDARDS

4. NEW AND EXISTING CIRCUITRY SHALL BE ACCURATELY IDENTIFIED AT THE RESPECTIVE ABOVE CEILING JUNCTION BOXES.

BUILDING CODE - 2021 IBC WITH CITY OF AUSTIN AMENDMENTS

FIRE CODE - 2021 IFC WITH CITY OF AUSTIN AMENDMENTS ELECTRICAL CODE - 2020 NEC WITH CITY OF AUSTIN AMENDMENTS MECHANICAL CODE - 2021 UMC WITH CITY OF AUSTIN AMENDMENTS

5. PLUMBING CODE - 2021 UPC WITH CITY OF AUSTIN AMENDMENTS

6. OTHER - 2021 INTERNATIONAL ENERGY CONSERVATION CODE WITH CITY OF AUSTIN AMENDMENTS OTHER - LIFE SAFETY CODE (NFPA 101) 2021 EDITION

- 8. OTHER FEDERAL DEPARTMENT OF JUSTICE AMERICANS WITH DISABILITIES ACT AND TEXAS ACCESSIBILITY STANDARDS.
- 9. ALL APPLICABLE CITY OF AUSTIN ORDINANCES 10. CURRENT (11/9/2020) CITY OF AUSTIN ELECTRIC UTILITY DESIGN CRITERIA MANUAL.

11. SUBCHAPTER E OF THE CITY OF AUSTIN LAND DEVELOPMENT CODE.





	GENERAL NOTES
A.	REFER TO ELECTRICAL COVER SHEET E-000 FOR SYMBOLS, ABBREVIATIONS, AND ADDITIONAL INFORMATION.
В.	REFER TO ELECTRICAL SPECIFICATIONS, DETAILS, AND SCHEDULES FOR ADDITIONAL INFORMATION.
C.	EGRESS (NORMALLY OFF) LIGHTING AND EXIT SIGNS WHERE NOT SHOWN WITH A CIRCUIT DESIGNATION, SHALL BE CONNECTED TO NEAREST ADJACENT BRANCH CIRCUIT SERVING THE LIGHTING WITHIN THE SAME AREA. TYPICAL FOR ALL EGRESS (NORMALLY OFF) AND EXIT SIGN LIGHTING U.N.O.
D.	VERIFY THE EXACT LOCATION OF ALL EXIT SIGNS WITH THE FINAL LAYOUT AND ORIENTATION OF BUILDING ENTITIES. ENSURE THAT AN EXIT SIGN IS VISIBLE WITHIN 100-FEET OF ANY POINT ALONG THE PATH OF EGRESS. VERIFY EXACT REQUIREMENTS WITH THE LOCAL AHJ AND THE EXIT SIGN MANUFACTURER PRIOR TO ROUGN-IN.
E.	VERIFY THE EXACT MOUNTING HEIGHT AND MOUNTING REQUIREMENTS OF ALL LIGHTING FIXTURES WITH THE ARCHITECT PRIOR TO ANY LIGHT FIXTURE ROUGH-IN.
F.	COORDINATE AND VERIFY THE EXACT SENSOR (OCCUPANCY, VACANCY, ETC.) LOCATION, MOUNTING AND INSTALLATION REQUIREMENTS WITH THE EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN.
G.	COORDINATE THE EXACT ZONING AND CONTROL OF ALL FIXTURES WITH THE ARCHITECT/OWNER. CONTRACTOR SHALL COORDINATE ALL REQUIRED COMPONENTS OF THE LIGHTING CONTROL SYSTEM WITH THE ARCHITECT/OWNER PRIOR TO ANY ROUGH-IN.
Н.	ALL INTERIOR NORMAL POWER LIGHTING FIXTURES SHALL BE FULLY DIMMABLE. TYPICAL FOR ALL INTERIOR NORMAL POWER FIXTURES, U.N.O.
I.	VERIFY THE DIMMING TECHNOLOGY OF EACH FIXTURE TO BE DIMMED WITH THE EQUIPMENT MANUFACTURER AND PROVIDE A COMPATIBLE DIMMER SWITCH AND DIMMING POWER PACK/LOAD CONTROL. VERIFY REQUIREMENTS WITH THE EQUIPMENT MANUFACTURER.
J.	ALL NEW LIGHT SWITCHES SHALL BE BASE BUILDING SPECIFICATION GRADE. COORDINATE THE DEVICE STYLE AND FINISH WITH THE BUILDING MANAGEMENT AND ARCHITECT PRIOR TO INSTALLATION. ALL DEVICES SHALL BE RATED 20-AMP MINIMUM.
K.	REFERENCE ARCHITECTURAL DRAWINGS AND COORDINATE THE EXACT LOCATION AND ORIENTATION FOR ALL NEW LIGHT SWITCHES AND LIGHT FIXTURES WITH THE ARCHITECT AND OWNER PRIOR TO INSTALLATION.
L.	ALL POWER PACKS/BALLASTS FOR LIGHTING/SENSORS MOUNTED IN GYPSUM BOARD CEILING SHALL BE REMOTE MOUNTED IN EASILY ACCESSIBLE DROP CEILING AREAS. POWER PACKS/BALLAST ARE TO BE LABELED.
M.	LOWER CASE LETTERS INDICATES CORRESPONDING SWITCH LEG FOR LIGHT FIXTURE CONTROL.
	KEYED DRAWING NOTES "-(1)"
1.	MAIN SWITCHBANK FOR COMMON/LOBBY AREA LIGHTING CONTROL . COORDINATE THE EXACT SWITCHING SCHEMES AND SWITCHBANK LOCATION WITH THE ARCHITECT AND LIGHTING CONTROL MANUFACTURER RECOMMENDATIONS.
2.	SPRINKLER SYSTEM FLOW AND TAMPER SWITCHES AT OS&Y VALVES TO BE MONITORED BY THE FIRE ALARM SYSTEM. COORDINATE THE EXACT LOCATION AND QUANTITY WITH THE SPRINKLER SYSTEM CONTRACTOR. VERIFY CONNECTION REQUIREMENTS WITH THE FIRE ALARM CONTRACTOR AND MANUFACTURER.
3.	SPRINKLER MONITORING SYSTEM PANEL. THE CONTRACTOR SHALL ROUTE 1- 1" EMPTY CONDUIT WITH PULLWIRE FROM SPRINKLER MONITORING SYSTEM PANEL TO BUILDING TELEPHONE SERVICE PANEL. COORDINATE EXACT PANEL INSTALLATION REQUIREMENTS WITH THE SPRINKLER SYSTEM AND FIRE ALARM CONTRACTORS.
4.	ALL ELEVATOR PIT CONDUITS SHALL BE ENCLOSED IN NEMA '4X' CONDUIT PER ASME A17.1 RULE 102.2.
5.	GROUND ALL ELEVATOR ELECTRICAL EQUIPMENT, CONTROLLERS, AND MACHINES WIN ACCORDANCE WITH NEC 620.81-82 AND ASME A17.1 RULE 102.1.
6.	COORDINATE WITH THE ELEVATOR MANUFACTURER TO VERIFY ALL ELEVATOR INSTALLATION AND MOUNTING REQUIREMENTS AS WELL AS ALL CONNECTION POINTS PRIOR TO ROUGH-IN OF ANY ELEVATOR DEVICES. REFER TO THIS PROJECT'S SHOP DRAWINGS FROM THE ELEVATOR MANUFACTURER FOR THE EXACT INSTALLATION REQUIREMENTS.
7.	PROVIDE HEAT DETECTOR IN ELEVATOR PIT NO HIGHER THAN 2-FEET ABOVE THE PIT FLOOR AND NOT MORE THAN 2-FEET FROM THE NEAREST SPRINKLER HEAD. COORDINATE EXACT LOCATION WITH FIRE SPRINKLER CONTRACTOR AND ELEVATOR SHAFT EQUIPMENT.

8. ELECTRICAL CONNECTION TO ELEVATOR SUMP PUMP. COORDINATE THE EXACT INSTALLATION, CONNECTION AND CONTROL REQUIREMENTS WITH THE PUMP AND ELEVATOR MANUFACTURERS.



"-1" ORDINATE RCHITECT



A В

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Е F

> 2ND LEVEL 1





ELECTRICAL - POWER & LIGHTING PLAN SCALE: ¹/₈" = 1'-0"

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Α.	REFER TO SHEET E-000 ELECTRICAL COVER SHEET FOR ADDITIONAL INFORMATION.
B.	ALL NEW RECEPTACLES SHALL BE SPECIFICATION GRADE. COORDINATE T DEVICE STYLE AND FINISH WITH THE BASE BUILDING SPECS, TENANT, AND ARCHITECT PRIOR TO INSTALLATION. ALL DEVICES SHALL BE RATED 20-AM MINIMUM. ALL DEVICES SHALL BE MATCHING IN FINISH AND COLOR PRIOR COMPLETION OF PROJECT.
C.	THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO E
D.	THE CONTRACTOR SHALL ACCURATELY LABEL NEW JUNCTION BOXES WIT RESPECTIVE PANEL AND CIRCUIT NUMBER(S). IN ADDITION, THE RESPECTI PANELBOARD DIRECTORIES SHALL BE PRINTED AND STORED WITH THE PANELBOARDS
E.	ELECTRICAL CONTRACTOR SHALL PROVIDE "TYPED" PANEL BOARD SCHEI FOR ALL PANELS SERVING THE PROJECT AREA.
F.	REFERENCE ARCHITECTURAL DRAWINGS AND COORDINATE THE EXACT LO AND ORIENTATION FOR ALL NEW RECEPTACLES, AND DATA DEVICES WITH ARCHITECT AND OWNER PRIOR TO INSTALLATION.
G.	ALL BRANCH CIRCUITRY SHALL BE ACCURATELY IDENTIFIED AT THE RESPE ABOVE CEILING JUNCTION BOXES. THE ASSOCIATED PANEL, CIRCUITS, AND VOLTAGE SHALL BE IDENTIFIED ON ALL JUNCTION BOX COVERS. IN ADDITIC PANEL DIRECTORIES SHALL BE UPDATED.
Н.	ALL CIRCUIT BREAKER NOT UTILIZED SHALL BE TURNED "OFF" AND LABELE "SPARE" ON UPDATED PANEL SCHEDULE.
I.	ALL CIRCUIT BREAKERS TO BE UTILIZED FOR EQUIPMENT WITH HERMETIC REFRIGERANT MOTOR-COMPRESSORS (HVAC EQUIPMENT AND REFRIGER/ SHALL BE HACR TYPE.
J.	ALL CIRCUIT BREAKERS TO BE UTILIZED FOR VENDING MACHINES SHALL B TYPE.
K.	ALL MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH HANDLE TIES NEC 210.4.
L.	PROVIDE TAMPER RESISTANT RECEPTACLES FOR ALL 125V, 15A AND 20A RECEPTACLES IN ALL CHILDCARE AREAS AND WHERE REQUIRED IN COMM AREAS IN ACCORDANCE WITH NEC ARTICLE 406.12.
M.	FIRE ALARM SYSTEM SHALL BE DESIGNED AND SUBMITTED TO THE AUTHO HAVING JURISDICTION BY A LICENSED FIRE ALARM CONTRACTOR. FIRE AL CONTRACTOR SHALL PROVIDE DESIGN DRAWINGS WHICH ARE NFPA 72 COMPLIANT FOR AHJ APPROVAL. IN ADDITION, THE LICENSED FIRE ALARM CONTRACTOR SHALL PROVIDE APPROVED/STAMPED PLANS FOR PERMIT SUBMISSION. FIRE ALARM CONTRACTOR SHALL PROVIDE NEW COMPONEN ACCESSORIES, EQUIPMENT, AND DEVICES AS REQUIRED FOR A COMPLETE SYSTEM CAPABLE OF SERVING THE SCOPE OF WORK INDICATED.
N.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER.
N.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER.
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N.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER. KEYED DRAWING NOTES "- PROVIDE 2'x4'x3/4" MARINE RATED PLYWOOD BACKBOARD FOR TELEPHONE BC PROVIDE AND ROUTE EMPTY 2" CONDUIT WITH PULLSTRING ABOVE CEILING, OR DIRECTED BY THE ARCHITECT, BUILDING OWNER OR SERVING UTILITY, TO THE EXIS BUILDING TELECOM SERVICE ENTRANCE/DEMARC LOCATION. COORDINATE INSTALLATION WITH BUILDING OWNER AND SERVING UTILITY. PROVIDE A MINIMU GROUND CONDUCTOR FROM TELECOM BOARD TO THE SERVICE ENTRANCE GROUND FOR TELECOM EQUIPMENT GROUNDING.
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N.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER.
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N.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER.
N. 1. 2. 3. 4. 5. 5. 7.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER.
N. 1. 2. 3. 4. 5. 6. 7. 8.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER.
N. 1. 2. 3. 4. 5. 6. 7. 8. 9.	PROVIDE SWITCH MOUNTED IN BACKSPLASH FOR GARBAGE DISPOSAL, DISHWASHER, AND ANY OTHER EQUIPMENT REQUIRING AN ACCESSIBLE DISCONNECTING MEANS INSTALLED BELOW COUNTER.



PANEL PANEL PANEL L2 PANEL HP 2ND LEVEL - FINISHED FLOOR 1ST LEVEL - FINISHED FLOOR FINI				
PANEL L1 PANEL L2 2ND LEVEL - FINISHED FLOOR 1ST LEVEL - FINISHED FLOOR				
PANEL L1 PANEL L2 ND LEVEL - FINISHED FLOOR NOT LEVEL - FINISHED FLOOR IST LEVEL - FINISHED FLOOR				
2ND LEVEL - FINISHED FLOOR WIT IST LEVEL - FINISHED FLOOR	PANEL L1	PANEL L2	PANEL <u>HP</u>	
NOLULI TST LEVEL - FINISHED FLOOR FINI			2ND LEVEL – FINISHED FLOOI	7
IST LEVEL - FINISHED FLOOR				
IST LEVEL - FINISHED FLOOR FINI				
1ST LEVEL - FINISHED FLOOR FINI				
1ST LEVEL - FINISHED FLOOR FINI				
1ST LEVEL - FINISHED FLOOR FINI			A D R P O R	EXTERIOR
			1ST LEVEL - FINISHED FLOOF	R FINIS

		MAINS: 400 A, MLO												
	PANEL 12 (NEW) VOLTAGE: 120/208 V., 3 PH, 4 W													
PANEL:	L2 (I	NEVV)		E	BUSSING:	400 A, W	/ EQUIPT.	GROUND						
ENCLOSURE	RECESS	ED/NEMA 1	D/NEMA 1 AIC RATING: 35K RMS SYM, FULLY RATED											
	BKR	PHASE LOAD (VA	CIRC.	CIRC.	PHASE	LOAD (VA	.)	BKR						
DESCRIPTION	SIZE	A B	C	NO.	NO.	Α	B	Ć	SIZE	DESCRIPTION				
SPARE	20/1	0		1	2	0			20/1	SPARE				
SPARE	20/1	0		3	4		0		20/1	SPARE				
SPARE	20/1		0	5	6			0	20/1	SPARE				
SPARE	20/1	0		7	8	0			20/1	SPARE				
SPARE	20/1	0		9	10		0		20/1	SPARE				
SPARE	20/1		0	11	12			0	20/1	SPARE				
SPARE	20/1	0		13	14	0			20/1	SPARE				
SPARE	20/1	0		15	16		0		20/1	SPARE				
SPARE	20/1		0	17	18			0	20/2	SPARE				
SPARE	20/1	0		19	20	0				SPARE				
SPARE	20/1	0		21	22		0		20/2	SPARE				
SPARE	20/1		0	23	24			0		SPARE				
SPARE	20/1	0		25	26	0			20/2	SPARE				
SPARE	20/1	0		27	28		0			SPARE				
SPARE	20/1		0	29	30			0	20/2	SPARE				
SPARE	20/1	0		31	32	0				SPARE				
SPARE	20/1			33	34		0		20/1	SPARE				
SPARE	20/1		0	35	36			0	20/1	SPARE				
SPARE	20/1	0		37	38	0			20/1	SPARE				
SPARE	20/1	0		39	40		0		20/1	SPARE				
SPARE	20/1		0	41	42			0	20/1	SPARE				
S	UBTOTAL	. 0 0	0			0	0	0	SUBTOTA	۸L				
		<u> </u>	4	1		<u> </u>			1					
CONNECTED L	OAD	PANELBOAR	D LOAD A	NALYSIS	(VOLT-AN	IPS)								
PHASE A (VA):	0	LOAD TYPE:	LIGHT	RECPT	COOLING	HÉAT	MOTOR	MISC	KITCHEN					
PHASE B (VA)	0	CONNECTED:	0	0	0	0	0	0	0					
PHASE C (VA)	0	DEMAND:	0	0	0	0	0	0	0					
TOTAL LOAD (VA):	0	NEC DEMAND:	0	VA		0.0	AMPS, 31	PHASE						

						MAINS	: 400 A, MI	_0					
ΡΔΝΕΙ	12/1	NFW			N	OLTAGE:	120/208 \	/., 3 PH, 4	W				
	66 (1				BUSSING: 400 A, W/ EQUIPT. GROUND								
ENCLOSURE	: RECESS	ED/NEMA	1		AIC	AIC RATING: 35K RMS SYM, FULLY RATED							
	BKR	PHASE	LOAD (VA	7)	CIRC.	CIRC.	PHASE	LOAD (VA	A)	BKR			
DESCRIPTION	SIZE	Α	В	C	NO.	NO.	Α	В	C	SIZE	DESCRIPTION		
SPARE	20/1	0			1	2	0			20/1	SPARE		
SPARE	20/1		0		3	4		0		20/1	SPARE		
SPARE	20/1			0	5	6			0	20/1	SPARE		
SPARE	20/1	0			7	8	0			20/1	SPARE		
SPARE	20/1		0		9	10		0		20/1	SPARE		
SPARE	20/1			0	11	12			0	20/1	SPARE		
SPARE	20/1	0			13	14	0			20/1	SPARE		
SPARE	20/1		0		15	16		0		20/1	SPARE		
SPARE	20/1			0	17	18			0	20/2	SPARE		
SPARE	20/1	0			19	20	0				SPARE		
SPARE	20/1		0		21	22		0		20/2	SPARE		
SPARE	20/1			0	23	24			0		SPARE		
SPARE	20/1	0			25	26	0			20/2	SPARE		
SPARE	20/1		0		27	28		0			SPARE		
SPARE	20/1			0	29	30			0	20/2	SPARE		
SPARE	20/1	0			31	32	0				SPARE		
SPARE	20/1		0		33	34		0		20/1	SPARE		
SPARE	20/1			0	35	36			0	20/1	SPARE		
SPARE	20/1	0			37	38	0			20/1	SPARE		
SPARE	20/1		0		39	40		0		20/1	SPARE		
SPARE	20/1			0	41	42			0	20/1	SPARE		
	SUBTOTAL	. 0	0	0			0	0	0	SUBTOTAL			
					-								
CONNECTED L	.OAD	PAI	NELBOAR	d load a	NALYSIS	(VOLT-AN	/IPS)						
PHASE A (VA)): 0	LO	AD TYPE:	LIGHT	RECPT	COOLING	HEAT	MOTOR	MISC	KITCHEN			
PHASE B (VA)): 0	CON	INECTED:	0	0	0	0	0	0	0			
PHASE C (VA)): 0		DEMAND:	0	0	0	0	0	0	0			
TOTAL LOAD (VA)): 0	NEC	DEMAND:	0	VA		0.0	AMPS, 3	PHASE				





ONE-LINE DIAGRAM - GENERAL NOTES:

- 1. ALL GROUNDING SHALL BE IN STRICT ACCORDANCE WITH NEC REQUIREMENTS.
- 2. COORDINATE THE AIC RATING OF ELECTRICAL PANELBOARDS AND EQUIPMENT WITH THE UTILITY COMPANY INTERRUPTING RATINGS OF THEIR ELECTRICAL GEAR.
- 3. COORDINATE THE EXACT INSTALLATION REQUIREMENTS FOR THE NEW ELECTRICAL SERVICE WITH THE LOCAL ELECTRICAL UTILITY COMPANY. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE ALL INSTALLATION REQUIREMENTS ARE PER THE LOCAL UTILITY COMPANY AND LOCAL AHJ REQUIREMENTS.

ONE-LINE DIAGRAM KEYED NOTES

- 1 NEW UTILITY PULLBOX PER LOCAL UTILITY REQUIREMENTS.
- 2 COORDINATE THE EXACT SECONDARY RISER INSTALLATION REQUIREMENTS WITH THE LOCAL UTILITY.
- 3 NEW UTILITY METER/TRANSOCKET. COORDINATE THE EXACT GEAR/EQUIPMENT REQUIREMENTS WITH THE LOCAL UTILITY.



								• • -														
⁺ 0.4	⁺ 0.6	⁺ 0.7	[†] 1.0	1.2	[†] 1.6	[†] .7	⁺ 2.3	⁺ 2.7	⁺ 2.9	⁺ 2.7	⁺ 2.5	⁺ 2.6	⁺ 2.7	⁺ 2.8	⁺ 2.6	⁺ 2.1	[†] .5	1.4	1.1	⁺ 0.8	⁺ 0.7	⁺ 0.5
⁺ 0.5	⁺ 0.7	[†] .0	1.4	1.8	⁺ 2.5	⁺ 2.8	⁺ 4.0	⁺ 5.0	⁺ 5.1	⁺ 4.6	⁺ 4.0	⁺ 4.1	⁺ 4.9	⁺ 5.1	⁺ 4.7	⁺ 3.5	⁺ 2.3	⁺ 2.2	1.6	1.2	⁺ 0.9	⁺ 0.6
⁺ 0.7	⁺ 0.9	1.3	⁺ 2.0	⁺ 2.8	⁺ 3.9	⁺ 4.4	⁺ 6.9	⁺ 9.3	⁺ 9.3	⁺ 7.4	⁺ 6.4	⁺ 6.5	⁺ 8.0	⁺ 9.5	⁺ 8.5	⁺ 5.9	⁺ 3.4	⁺ 3.3	⁺ 2.4	1.6 [†]	1.ı	⁺ 0.8
⁺ 0.9	1.3	⁺ 2.0	⁺ 3.0	⁺ 4.0	⁺ 5.8	⁺ 6.2	10.8	[†] 14.6	13.5	10.9	⁺ 9.1	⁺ 9.4	11.7 [†]	⁺ 14.7	13.6	* 8.8	⁺ 4.5	⁺ 5.1	⁺ 3.4	⁺ 2.4	⁺ 1.6	1.0
1.0	1.6	⁺ 2.6	⁺ 4.2	⁺ 6.2	7.9	4.9	⁺ 8.9	*	±	⁺ 5.8	⁺ 9.2	⁺ 9.0	⁺ 5.7	÷.5	⁺ 8.6	*8.8	+4.7	⁺ 6.8	⁺ 5.0	⁺ 3.2	⁺ 2.0	⁺ 1.2
1.1	1.9	⁺ 3.3	⁺ 5.7	⁺ 8.9	11.3	5.5	→ A [†] 9.9	⁺ 9.3	⁺ 6.3	+ 6.7	A	10.1	+ 6.6	÷6.3	•.• ▲	9.7	+5.3	10.1	⁺ 7.2	⁺ 4.3	⁺ 2.5	[†] 1.5
1.2	⁺ 2.0	⁺ 3.6	⁺ 6.2	⁺ 9.8	t 12.4	5.2	⁺ 8.1	*8.0	⁺ 6.4	+ 6.7	*8.7	*.6	+ 6.6	+6.4	****	*8.0	+5.1	11.4	⁺ 8.0	⁺ 4.8	⁺ 2.8	1.7 [†]
1.3	⁺ 2.0	⁺ 3.4	⁺ 5.5	* 8.2	10.4	÷5.7	∲.0	+ 8.8	+ 6.7	+ 7.3	⁺ 9.6	+ 9.5	⁺ 7.2	+ 6.8	⁺ 8.9	+ 8.8	÷5.5	⁺ 9.7	⁺ 7.1	⁺ 4.5	⁺ 2.8	[†] 1.7
1.3	⁺ 2.0	⁺ 3.2	⁺ 4.9	⁺ 6.8	*8.8	⁺ 6.3	⁺ 11.2	¹ 0.5	⁺ 7.1	⁺ 7.8	⁺ <mark>¦1.8 .</mark>	₁ [†] 1.5	⁺ 7.7	⁺ 7.2	10 .7 →	⁺ 1.0	⁺ 6.0	7.7	⁺ 6.0	⁺ 4.1	⁺ 2.7	[†] 1.7
1.4	⁺ 2.1	⁺ 3.3	⁺ 5.1	⁺ 7.2	*8.4	+6.3	A	÷ 9.6	[†] 7.4	⁺ 7.8	A 10.9	10.7	+ 7.7	⁺ 7.4	<u>م</u> • 9.7	⁺ 10.1		*8.1	⁺ 6.2	⁺ 4.2	⁺ 2.7	1.8
1.4	⁺ 2.1	⁺ 3.6	⁺ 5.8	⁺ 8.9	11.1	⁺ 5.7	⁺ 8.4	⁺ 8.5	⁺ 7.0	⁺ 7.0	⁺ 9.0	⁺ 9.0	+ 6.9	⁺ 7.1	⁺ 8.5	* 8.3	⁺ 5.5	10.3	⁺ 7.3	4.8	⁺ 2.9	[†] 1.8
1.4	⁺ 2.1	⁺ 3.9	⁺ 6.4	10.3	[[‡] 3,0	<u> </u>	10.1	⁺ 9.9	⁺ 7.4	⁺ 8.0	10.6	10.4	⁺ 7.8	[†] 7.5	10.0	⁺ 9.9	+ 6.0	12.1	* 8.7	⁺ 5.3	⁺ 3.1	1.9
1.3	1.9	⁺ 3.3	⁺ 5.8	⁺ 9.0	11.8	⁺ 6.7	 11.8A	1 1.1	⁺ 7.7	⁺ 8.3	12.2 A	11.9 ⁻	* 8.0	+ 7.7	† 11.3 A	 11.4	+ 6.3	11.4	⁺ 8.2	⁺ 5.1	⁺ 3.1	1.9 ⁻
1.3	[†] 1.5	⁺ 2.5	⁺ 4.1	⁺ 6.3	* 8.8	⁺ 6.5	[†] 10.1	⁺ 9.8	⁺ 7.6	⁺ 7.8		[†] 10.6	⁺ 7.6	⁺ 7.6	⁺ 9.8	⁺ 9.7	+6.0	⁺ 9.1	⁺ 6.8	⁺ 4.4	⁺ 2.9	⁺ 1.9
1.2	1.1	[†] 1.7	⁺ 2.5	⁺ 4.0		⁺ 6.6	⁺ 9.5	⁺ 9.4	⁺ 6.4	STRUC WITH FI SUFFIC THR FII	TURE TO B IRE PROOF IENT TO O RE RATING	E SPRAY TING BTAIN A	′ED [†] 7.8	⁺ 6.2	⁺ 9.2	⁺ 8.9	÷5.9	7.9	⁺ 5.9	⁺ 4.2	⁺ 2.8	[†] 1.8
1.2	⁺ 0.8	[†] .1	1.2	⁺ 3.0		*8.1	12.1	11.2	⁺ 8.2	PA ⁺ 8.6	RKING GAI	RAGE 12.0	*8.3	÷8.1	[†] 11.1	i1.1	+6.4	⁺ 9.3	⁺ 6.9	⁺ 4.6	⁺ 2.9	⁺ 1.8
1.1	⁺ 0.5	⁺ 0.6	⁺ 0.0	2.5		*8.4	A	11.5	*8.0	⁺ 8.7	A	⊐ 12.0	*8.3	⁺ 7.8	⊷ A	11.1		11.5	*8.4	⁺ 5.1	⁺ 3.1	⁺ 1.9
1.0	⁺ 0.4	⁺ 0.4	⁺ 0.0	⁺ 2.2		*8.2		10.5	⁺ 8.1	⁺ 8.1	10.4	⁺ 10.2	+ 7.7	⁺ 7.4	⁺ 9.5	⁺ 9.3	⁺ 5.8	12.0	⁺ 8.5	⁺ 5.2	⁺ 3.1	1.9
⁺ 0.8	⁺ 0.2	⁺ 0.1	⁺ 0.0	+ 7.4		 <mark>∕∕ [†]8,8 //</mark>	12.8	-12.0 7	[†] 8.4	* 8.2	+ 11.4	⁺ 11.0	+.7	⁺ 7.4	10.1	10.1	÷ 5.8	⁺ 9.9	⁺ 7.2	4.6	⁺ 2.9	⁺ 1.8
⁺ 0.6	⁺ 0.1	⁺ 0.0	⁺ 0.0	4 + 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		70.5	15.9 ^A	[†] 4,6	-8 .1	⁺ 8.0	A †A 11.8	⊐ [†] 11.5	⁺ 7.4	⁺ 7.0	10.2	 10.4	⁺ 5.5	⁺ 7.7	⁺ 5.9	4.0	⁺ 2.6	[†] .7
⁺ 0.4	⁺ 0.0	⁺ 0.0	⁺ 0.0	<i>a a a a a a a a a a</i>			11.5 ⁴	8 4 4 4 6 4 1 4 1 2 4 1 6 1 4	6.1	⁺ 6.9	⁺ 9.4	⁺ 9.2	⁺ 6.7	+ 6.0	⁺ 7.0	+ 7.2	+ 4.3	7.5	⁺ 5.8	⁺ 4.0	⁺ 2.6	[†] .6
⁺ 0.3	⁺ 0.0	⁺ 0.0	⁺ 0.0		12.5 13.6 14.4 N 16.3		4 13.7 4 J5.3	1 (14) K 4 13.9	-≟9]-6" CLG ⊶ A3.5 ENTR'	Y ⁺ 5.9	⁺ 8.3	⁺ 8.2	⁺ 5.9	⁺ 4.8	⁺ 4.6	⁺ 4.2	⁺ 3.0	⁺ 9.3	⁺ 6.9	⁺ 4.4	⁺ 2.7	[†] 1.6
⁺ 0.2	⁺ 0.0	⁺ 0.0	⁺ 0.0					1 1 4 1 5 5 1 1 1 4 1 1 1 1	⁴ 4 3.1	⁺ 5.7	[†] 10.0	⁺ 9.8	⁺ 6.0	+ 4.2	4. +3.7 A	4 ^{°°} 3.2 ^{°°} 4 ^Δ	2.5	⊡ [†] 0.6	⁺ 7.8	⁺ 4.6	⁺ 2.7	1.6
⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0		16.9 19.2 16.9 19.2 14.3 N5.8			4 4 4 5.4 5 4 12.5 5 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	⁴ . 	⁺ 5.4	A 9.8	⊐ ∲.8	⁺ 5.9	3.8 s		4 15.0 4 17.2 4 15.0 4 17.2 4 16.1 1 1 185	17.1 14.6 SH ⁴ 4 3 18.2 15.6	*8.9	⁺ 6.7	⁺ 4.1	⁺ 2.4	⁺ 1.4
⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0	0.3 • • • • • • • • • • • • • • • • • • •			1 8.3 5 .9	198 4	4 - 2.5	⁺ 4.6	⁺ 7.2	⁺ 7.4			16.0 ° 17.1 16.0	<u>144</u> 165		5.1	⁺ 4.4	⁺ 2.9	⁺ 1.8	1.2
⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0	CLG. AT	ATHYE FROOF	5.3	⁴ 4 4 9.7					⁺ 0.0	⁺ 0.0	0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 2.5	⁺ 2.4	1.8	1.3	⁺ 0.9
⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	0.8	⁺ 1.2	1.7	2.0 °C	1.8	0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	+0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	1.3	1.2	1.1	+ 0.8	⁺ 0.6
⁺ 0.0	⁺ 0.0	⁺ 0.2	[†] 0.3	⁺ 0.4	⁺ 0.6	+0.6	+ ~ d 0.6 ~ d ~ d	4 0.6	0.4	⁺ 0.0	⁺ 0.0	⁺ 0.0	+ 0.0	4 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	+0.7	÷0.7	⁺ 0.6	⁺ 0.5	⁺ 0.4
	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		⁺ 0.2	⁺ 0.2	⁺ 0.3	⁺ 0.3			0.3	0.0	+ 0.0	⁺ 0.0	⁺ 0.0	4 47 47	4 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9 4 9				, , , , , , , , , , , , , , , , , , ,	+ 0.3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.3	+0.3
÷0.1	⁺ 0.1		+0.1	+ 0.1	0.1				4 9 4 9 4 9 4 9 4 9 4 9 4	⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0	0 .0		⁴ ⁴ 0.0	0.0		+ 0.2	4 + 1 1 1 4 0.2 4	² ⁺ 0.2	⁴ 0.2
⁺ 0.1	⁺ 0.1		* 0 .1 * 0 .1 * 4		4 4 4 4 4 4 4 4 4 4			4, 0.1	40. 	⁺ 0.1	⁺ 0.1	⁺ 0.0	⁺ 0.0	+0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	0.1
⁺ 0.0	⁺ 0.0	+ 0.0	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0	[†] 0.1	⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0		- 3 4 4		<u>5</u>				
⁺ 0.0	[†] 0.0	⁺ 0.0	⁺ 0.0	0.0	⁺ 0.0	⁺ 0.0	: : 9 <u>} - : : : :</u>	1														

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

 $^{\circ}$ YRIGHT 2022 - FIFTH DIMENSI ϕ N ARCHITECTURE & INTERIORS, LLC

Lumino	aire Sche	edule								
Symbo	ol Qty	Туре	Manufacturer	Catalog Number	Mounting	Lamp	Lum. Watts	Controls	Description	Notes
— •	1 16	A	METALUX	4VT2-LD5-4-DR-W-UNV-L840-CD1-WL-U	SURFACE	LED; 4K	29.9		4FT TAMPER RESISTANT VAPORTITE	
•	6	В	METALUX	22FP3235C	RECESSED	LED; 35K	29.4		2X2- EDGE LIT PANEL	
	2	С	TECH LIGHTING	700BCELI24FINISH-LED930	WALL	LED; 3K	23.5		ELLIS 24IN BATH BAR	
+] 2	J	METALUX	2VT3-LD5-3-G-UNV-L840-CD1-U	CEILING	LED; 4K	23.92		2FT VAPORTITE	
+	3	K	WAC Lighting	FM-07SQ-930-FINISH	CEILING	LED; 3K	15.2119		7IN SQUARE CEILING MOUNT	
·	9	L	SUNLITE	97065-SU	WALL	LED; 5K	59.8		OUTDOOR WALL MOUNT MULTIVOLT WALL PACK; SUPER WHITE	
	• 1	М	LIGHTWAY	NEFW-460-LED-O5C-4-B1-B1-DIM	EXTERIOR WALL	LED; 4K	45		60IN WET-LISTED EXTERIOR WALL SCONCE	
\square	2	N	INTENSE LIGHTING	MXG2PSDREM2L03050 FINISH-MOUNTING	PENDANT	LED; 3K	10		12IN LED SQUARE DOWNLIGHT CYLINDER W/REMOTE DRIVER ENCLOSURE	
				REMMXG2PL0EM7						
₽	2	0	INTENSE LIGHTING	MXG2PSU2L030DIM5050 FINISH CRWB	WALL	LED; 3K	N.A.		12IN WALL SCONCE SQUARE CYLINDER UD/DOWN	
	2	Р	NEO-RAY	\$122DIW-C675D710U830-4F0-1E-UDD-A1-	WALL	LED; 3K	45		2IN WALL DIRECT/INDIRECT	PLEASE VERIFY PLACEMENT OF FIXTURE; DEPENDANT ON EXTERIOR MULLION
				FINISH						
	1	P1	NEO-RAY	\$122DIW-C675D710U830-4F0-1E-UDD-A1-	WALL	LED; 3K	23		2IN WALL DIRECT/INDIRECT	
				FINISH						



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	PLUMBIN	G SYMBOL	S		ABBREV		S	PLUMBING GENERAL NOTES
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	A. REFER TO THE PLUMBING PLANS FOR DEMOLITION, NEW WORK, AND ADDITION
	COLD WATER SUPPLY	<u>X</u> <u>X</u> 3	FIRE HOSE VALVE	A ADD ABS ACCU	AMPS AUTOMATIC AIR DAMPER ABSOLUTE AIR COOLED CONDENSING UNIT	JS KEC KW	JANITOR SINK KITCHEN EQUIPMENT CONTRACTOR KILOWATT	 B. REFER TO THE PLUMBING SPECIFICATIONS, SCHEDULES, RISERS, AND DETAIL DRAWINGS FOR ADDITIONAL INFORMATION.
NPW	NON-POTABLE WATER		ALARM VALVE	A/C AD ADA ADJ AFF AHU	AIR CONDITIONING ACCESS DOOR OR AREA DRAIN AMERICAN DISABILITIES ACT ADJUSTABLE ABOVE FINISHED FLOOR AIR HANDLING LINIT	KWH LAT LAV LB	KILOWATT HOUR LEAVING AIR TEMPERATURE LAVATORY POUND LEAVING DRY BUI B	C. CONTRACTOR SHALL FIELD VERIFY ACTUAL LOCATIONS OF ALL EQUIPMENT, DUCTWORK, & PIPING PRIOR TO SUBMITTING A BID. COORDINATE COMPLETELY WITH ALL OTHER TRADES. RELOCATE TERMINAL UNITS AND PROVIDE ADDITIONAL DUCTWORK, OFFSETS, FITTINGS, ETC. AS REQUIRED.
	HOT WATER SUPPLY	- _	DRY-PIPE VALVE	AMB ANSI AP APD ~	AMBIENT AMERICAN NATIONAL STANDARDS INSTITUTE ACCESS PANEL AIR PRESSURE DROP APPROXIMATELY	L LF LOC LP LWT	LENGTH LINEAR FEET LIMITS OF CONSTRUCTION LOW PRESSURE LEAVING WATER TEMPERATURE	D. THE CONTRACTOR SHALL VERIFY THAT ALL EXISTING AND NEW PLUMBING EQUIPMENT ARE MOUNTED SO THAT ALL REQUIRED CODE AND MANUFACTURER'S SERVICES CLEARANCES ARE MAINTAINED AT THE BOTTOM AND SIDES OF EACH UNIT FOR PROPER SERVICING AND MAINTENANCE
140	140°F HOT WATER SUPPLY	¢	POST-INDICATOR VALVE	ARCH AS AVG BDD	ARCHITECT AIR SEPARATOR AVERAGE BACKDRAFT DAMPER	MAT MAU MAX MBH	MIXED AIR TEMPERATURE MAKE UP AIR UNIT MAXIMUM BTH/HR X 1,000	 COORDINATE COMPLETELY WITH ALL NEW WALLS TO STRUCTURE, AND RELOCATE AS REQUIRED TO MAINTAIN PROPER CLEARANCES. E. REFER TO THE ARCHITECTURAL PLANS AND DETAILS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL PLANS IN DETAILS FOR EXACT LOCATIONS.
	HOT WATER RETURN	-xt/i-t/xi-	DETECTOR CHECK VALVE	CA CAV	BRAKE HORSEPOWER BACKFLOW PREVENTOR COMPRESSED AIR CONSTANT AIR VOLUME	MC MD MECH MIN MISC MBT	MECHANICAL CONTRACTOR MOTORIZED DAMPER MECHANICAL MINIMUM MISCELLANEOUS	 AND MOUNTING HEIGHTS OF ALL PLUMBING FIXTURES, FLOOR DRAINS, FLOOR SINKS, ETC. F. ALL SANITARY PIPING SHALL BE SLOPED AS PER CODE BASED UPON PIPE SIZE
	TRAP PRIMER	×	STANDPIPE BASE VALVE	CD CFM CFOI CFS CH	COUNTER CLOCKWISE CONDENSATE DRAIN CUBIC FEET PER MINUTE CONTRACTOR FURNISHED / OWNER INSTALLED CUBIC FEET PER SECOND CHILLER	MF I MTL MVD MZ	MALE FIFE THREAD METAL MANUAL VOLUME DAMPER MULTIZONE	 G. THE PLUMBING CONTRACTOR SHALL COORDINATE EXACT ROUTING OF ALL PIPING WITH THE WORK OF ALL OTHER TRADES. PROVIDE OFFSETS IN PIPING WHERE REQUIRED BY COORDINATION OF TRADES. H. THE PLUMBING CONTRACTOR SHALL CLEAN FLUSH AND DISINFECT ALL COLD
A	COMPRESSED AIR		FIRE DEPARTMENT CONNECTION	CHWM CHWP CHWPP CHWR CHWSP CHWSP	CHILLER CHILLED WATER MAKE-UP CHILLED WATER PUMP CHILLED WATER PRIMARY PUMP CHILLED WATER RETURN CHILLED WATER SUPPLY CHILLED WATER SECONDARY PUMP	NC N.C. NIC N.O. NTS	NOISE CRITERIA NORMALLY CLOSED NOT IN CONTRACT NORMALLY OPEN NOT TO SCALE	 I. INSTALL ALL FLOOR DRAINS AND FLOOR SINKS SUCH THAT GRATING IS FLUSH WITH ADJACENT FLOORING SURFACE. FLOOR SHALL SLOPE TO DRAINS NOT FLOOR SINKS, COORDINATE ALL REQUIREMENTS WITH ARCHITECT AND GENER
G	NATURAL GAS	F ² /2°	RELIEF VALVE	CI CLG CLG HT CW CO	CAST IRON CEILING CEILING HEIGHT CLOCKWISE CLEAN-OUT, CARBON MONOXIDE	OA OAD OAT OBD OD	OUTSIDE AIR OUTSIDE AIR DAMPER OUTSIDE AIR TEMPERATURE OPPOSED BLADE DAMPER OUTSIDE DIAMETER	 J. VENTS THROUGH ROOF TO BE LOCATED A MINIMUM OF 10'-0" HORIZONTALLY AWAY FROM OUTSIDE AIR INTAKES.
—— F ——	FIRE MAIN, STANDPIPE	⋈	GATE VALVE	CO2 COL CONC COP CP	CARBON DIOXIDE COLUMN CONCRETE COEFFICIENT OF PERFORMANCE (HEATING) CONDENSATE PUMP	OFCI OFD OFOI OZ	OWNER FURNISHED / CONTRACTOR INSTALLED OVERFLOW DRAIN OWNER FURNISHED / OWNER INSTALLED OUNCE	K. FLOOR DRAINS NOT RECEIVING REGULAR-USE DRAINAGE ARE TO BE TRAP PRIMERED.
s	SPRINKLER, DRY OR WET	ю	OS&Y VALVE		CONDENSING UNIT CONSTANT VOLUME COLD WATER CONDENSER WATER PUMP	PCT PD PF PH PIBC	POMP PERCENT PRESSURE DROP/DIFFERENCE PRE-FILTER PHASE PLUMBING	 INCOMPEDIATION CONTROL DEPARTMENT STANDARDS WHERE NOT PROVIDED OR INADEQUATELY PROVIDED, BY EQUIPMENT MANUFACTURER. M. INSTALL PIPING AS HIGH AS POSSIBLE UNLESS NOTED OTHERWISE.
	PLUMBING VENT	i ¢ i	CIRCUIT SETTER	dB DB DDC	DECIBEL(S) DRY BULB TEMPERATURE DIRECT DIGITAL CONTROL	POC PPM PRS PRV PSF	POINT OF CONNECTION PARTS PER MILLION PRESSURE REDUCING STATION PRESSURE REDUCING VALVE POUNDS PER SQUARE FOOT	 N. VERIFY DIMENSIONS FROM ARCHITECTURAL DRAWINGS AND FROM ACTUAL MEASUREMENTS AT JOBSITE. O. PROVIDE SADDLES AND SHIELDS FOR SUPPORT OF INSULATED PIPING TO
PD	PUMP DISCHARGE	— ×	GLOBE VALVE	DEG DF DH DIA DP	DEGREE(S) DRINKING FOUNTAIN DUCT HEATER DIAMETER DEW POINT	PSI PSIA PSIG PTAC PVC	POUNDS PER SQUARE INCH POUNDS PER SQUARE INCH, ABSOLUTE POUNDS PER SQUARE INCH, GAGE PACKAGED TERMINAL AIR CONDITIONER POLYVINYL CHLORIDE	PREVENT CRUSHING. P. PIPING PENETRATIONS THROUGH PERIMETER BEAMS, FOUNDATION ON GRADE AND STRUCTURAL FLOORS SHALL BE SLEEVED. COORDINATE SLEEVE LOCATIONS AND SIZES WITH STRUCTURAL PRIOR TO POUR
	SANITARY, ABOVE GRADE	KX	CIRCUIT SOLVER	DPT D DT DYCO EAT	DEW POINT TEMPERATURE DRAIN DELTA TEMPERATURE DOUBLE YARD CLEAN-OUT ENTERING AIR TEMPERATURE	QT QTY RA	QUART QUANTITY RETURN AIR	 Q. PROVIDE DIELECTRIC UNIONS AT DISSIMILAR MATERIALS. R. PROVIDE ESCUTCHEONS AT ALL FINISHED WALL AND CEILING PIPING
ss	SANITARY, BELOW GRADE	ιδι	BALL VALVE	ECON EDB EDH EER EF EFF	ECONOMIZER ENTERING DRY BULB ELECTRIC DUCT HEATER ENERGY EFFICIENCY RATIO EXHAUST FAN EFEICIENCY	RAT RCP RD REF RH	RETURN AIR TEMPERATURE REINFORCED CONCRETE PIPE ROOF DRAIN REFRIGERATOR RELATIVE HUMIDITY	S. ALL PIPING SHALL BE IDENTIFIED AS TO TYPE OF USE, SERVICE, AND DIRECTIONS. OF FLOW. LOCATE MARKERS AT EACH VALVE, AT ENTRIES TO WALLS, AND ON 20-FOOT CENTERS ON STRAIGHT RUNS OF PIPE. PROVIDE A FLOW ARROW AT
RD	STORM, ABOVE GRADE	N	CHECK VALVE	EFF ELEC ENT EQIV FT EQP ESP	EFFICIENCY ELECTRIC ENTERING EQUIVALENT FEET EQUIPMENT EXTERNAL STATIC PRESSURE	RHC RM RPM RPS RTU	REHEAT COIL ROOM REVOLUTIONS PER MINUTE REVOLUTIONS PER SECOND ROOF TOP UNIT	EACH IDENTIFICATION MARKER. PIPE MARKERS SHALL BE SETON "SETMARK" C EQUAL. T. COORDINATE WORK COMPLETELY WITH ALL OTHER TRADES.
RD	STORM, BELOW GRADE	d =	BUTTERFLY VALVE	ET EUH, EH EVAP EWB FWH	EXPANSION TANK ELECTRIC (UNIT) HEATER EVAPORAT(E), (IVE) ENTERING WET BULB ELECTRIC WATER HEATER	RV SA SAF SAN	RELIEF VALVE SUPPLY AIR SUPPLY AIR FAN SANITARY	 U. INSTALL PIPING FREE OF SAGS AND BENDS. PROVIDE NON-METALLIC COATED HANGERS WHERE IN DIRECT CONTACT WITH COPPER PIPING. V. PROVIDE ENGINEERED WATER HAMMER ARRESTERS SIZED AND PLACED IN
OD	OVERFLOW, ABOVE GRADE		PLUG VALVE	EWT EXH EXT	ENTERING WATER TEMPERATURE EXHAUST EXTERIOR FAHRENHEIT	SAT SCFM SCFS SD SEC SED	SATURATED STANDARD CUBIC FEET PER MINUTE STANDARD CUBIC FEE PER SECOND SMOKE DAMPER, STORM DRAIN SECOND(S) SMOKE/EIDE DAMPER	 ACCORDANCE WITH STANDARD PDI-WH 201. AIR CHAMBERS SHALL NOT BE ALLOWED. W. PROVIDE FLEXIBLE EXPANSION FITTINGS SUITABLE FOR SANITARY (DWV) AND RAINWATER PIPING WHERE PIPING ENTERS EXPANSIVE SOILS TO ALLOW FOR
OD	OVERFLOW, BELOW GRADE	&	PRESSURE REGULATING VALVE	FA FC FCO FCU FD FDC	FREE AREA FLEXIBLE CONNECTION FLOOR CLEAN-OUT FAN COIL UNIT FLOOR DRAIN, FIRE DAMPER FIRE DEPARTMENT CONNECTION	SFD SH SHT SK SP SPEC	SHOWER SHEET SINK SUMP PUMP SPECIFICATIONS	 4-IN OF DIFFERENTIAL MOVEMENT. X. MAKE ALL NECESSARY EXCAVATIONS, CUTTING OF PAVING, CONCRETE, ETC., REMOVAL OF UNUSABLE SPOIL MATERIAL, DO ALL BACKFILLING WITH STABILIZ FILL, AND DO TEMPORARY PATCH PAVING REPAIRS NECESSARY FOR PROPER
• •	FLOOR DRAIN	¤	SOLENOID VALVE	FF FHC FLR FPC FS	FINAL FILTERS FIRE HOSE CABINET FLOOR FIRE PROTECTION CONTRACTOR FLOOR SINK	SS STC STD	SERVICE SINK, SANITARY SEWER, STORM SEWER, STAINLESS STEEL SOUND TRANSMISSION CLASS STANDARD	EXECUTION OF THE WORK. BACKFILL SHALL BE MECHANICALLY COMPACTED T A DENSITY OF 95% OF THE MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST.
	FLOOR SINK	₽ , ₽	STRAINER	FPTU FTLB FPM FPS FRP FV	FAN POWERED TERMINAL UNIT FOOT POUND FEET PER MINUTE FEET PER SECOND FIBERGLASS REINFORCED PLASTIC FACE VELOCITY	T T&P T/S TAB TD TDH TDH	TEMPERATURE TEMPERATURE AND PRESSURE VALVE TUB/SHOWER COMBINATION TEST ADJUST & BALANCE TEMPERATURE DIFFERENCE TOTAL DYNAMIC HEAD TRIPLE DUTY VALVE	 Z. PROVIDE MINIMUM 1" AIR GAP OR 2 TIMES THE PIPE DIAMETER, WHICHEVER IS GREATER, AT DRAIN DISCHARGE FOR ALL INDIRECT WASTE DISCHARGE PIPING
	ROOF DRAIN		SLEEVE	G GA GAL GC	NATURAL GAS GAGE GALLON GENERAL CONTRACTOR	TEMP TONS TSTAT TYP	TEMPERATURE TONS OF REFRIGERATION THERMOSTAT TYPICAL	AA. PROVIDE A MINIMUM 1" AIR GAP OR 2 TIMES THE PIPE DIAMETER, WHICHEVER I GREATER, ABOVE THE FLOOD RIM OF A JANITOR SINK FOR ALL INDIRECT WAST DISCHARGE PIPING.
·⊢ -œœe-	CLEAN-OUT: WALL, FLOOR, YARD, DOUBLE		UNION	GPH GPM GPS GT	GALLONS PER HOUR GALLONS PER MINUTE GALLONS PER SECOND GREASE TRAP	U UC UH UNO UB	HEAT TRANSFER COEFFICIENT UNDERCUT, UNDER COUNTER UNIT HEATER UNLESS NOTED OTHERWISE URINAL	AD: DISCHARGE FINITION A DISTINGUENCIAL DE LOOF ED OF AND DECORE FASTENED TO THE UNDERSIDE OF THE COUNTER OR AN APPROVED DISHWASHER AIR-GAP FITTING IS REQUIRED. AC. COMPRESSION TANKS SUPPLIED AT EACH WATER HEATER SHALL BE SECURED
+	HOSE BIBB, WALL HYDRANT	Q`A`	SHOCK ARRESTER AND SIZE ('X')	HB HD HEPA HOA HP	HOSE BIB HEAD HIGH EFFICIENCY PARTICULATE AIR (FILTER) HAND, OFF, AUTO STATION HORSEPOWER	UV V VA VAC	UNIT VENTILATOR VENT, VOLTS VOLT AMPERE VACUUM	TO A WALL WITH (2) 1" X 14 GA. GALVANIZED STRAPS. PROVIDE LAG BOLTS AND BLOCKING AS REQUIRED. AD. AN ATMOSPHERIC VACUUM BREAKER OR OTHER APPROVED BACKFLOW PREVENTION DEVICE MUST BE INSTALLED ON ALL THREADED HOSE BIBB, WAL
	PIPING AND EQUIPMENT SHOWN LIGHT AND SOLID ARE FURNISHED BY OTHERS	B+	WATER CONNECTION, WALL BOX	HR HS HSTAT HT HTR	HOUR HAND SINK HUMIDISTAT HEIGHT HEATER	VAV VFD VRF VRV VEL VEPT	VARIABLE AIR VOLUME VARIABLE FREQUENCY DRIVE VARIABLE REFRIGERANT FLOW VARIABLE REFRIGERANT VOLUME VELOCITY	HYDRANT OR THREADED FAUCET CONNECTIONS LOCATED INSIDE OR OUTSIDE THE BUILDING.
	EXISTING PIPING AND EQUIPMENT SHOWN LIGHT LINES	\bigcirc	EQUIPMENT	HVAC HW HWC HWCP HWP	HEATING, VENTILATION, AND AIR CONDITIONING HOT WATER HOT WATER COIL HOT WATER CIRCULATING PUMP HOT WATER PUMP	VCKI VOL VTR VVT	VEINICAL VOLUME VENT THROUGH THE ROOF VARIABLE VOLUME TERMINAL WASTE WIDTH	
∞ — ♦—	NEW TO EXISTING CONNECTION LOCATION DEMOLISH TO THIS POINT	DWH-1	EQUIPMENT TAG, FIXTURE TAG	HWK HWS HWT HZ	HOT WATER RETURN HOT WATER SUPPLY HOT WATER TANK FREQUENCY	W/ W/O WB WC WCO	WITH WITHOUT WET BULB WATER CLOSET WALL CLEAN-OUT	PLUIVIBING DRAVVING LIST DRAWING # DESCRIPTION P0.000 PLUMBING COVER SHEET
2 working days Defore you Defore CALL 811		1		ID IN WC INCL INSUL INT INV I/O IPS IPT IWH	INSIDE DIAMETER INCHES, WATER COLUMN INCLUDE INSULAT(E), (ED), (ION) INTERIOR INVERT INPUT/OUTPUT INTERNATIONAL PIPE STANDARD IRON PIPE THREADED INSTANTANEOUS WATER HEATER	WH WHA WM WT WTR YCO YD YR ZN	WALL HYDRANT WATER HAMMER ARRESTOR WATER METER WEIGHT WATER YARD CLEAN-OUT YARD YEAR ZONE	P0.001PLUMBING SPECIFICATIONSP0.002PLUMBING SPECIFICATIONSP2.000PLUMBING PLAN - UNDERSLABP2.001PLUMBING PLAN - LEVEL 1P2.002PLUMBING PLAN - LEVEL 2P5.000PLUMBING DETAILSP5.001PLUMBING DETAILSP6.000PLUMBING SCHEDULES & RISERS





s, LLC		
RIORS	PART 1 - GENERAL	
INTE		
JRE &	A. PLUMBING EQUIPMENT, PIPING, FIXTURES, ACCESSORIES, ASSOCIATED TRIM, INSULATION, HANGERS, AND SUPPORTS.	
LECTL	1.2 RELATED SECTIONS	HAVING JURISDICTION AND APPLICABLE CO
RCHI ⁻	A. SCOPE OF WORK	AMERICANS WITH DISABILITIES ACT (ADA) CITY AND/OR COUNTY BUILDING CODES A
IÓN A	 THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, SUPPLIES, MATERIALS, TOOLS, LABOR, ETCFOR A COMPLETE INSTALLATION. 	CITY, COUNTY, STATE DEPARTMENT OF HI INTERNATIONAL BUILDING CODE (IBC) - 20
MENS	2. THE CONTRACTOR SHALL COORDINATE ALL OF THE CONSTRUCTION WORK WITH ALL OTHER TRADES ON THIS PROJECT	INTERNATIONAL MECHANICAL CODE (IMC) INTERNATIONAL PLUMBING CODE (IPC) - 20 INTERNATIONAL ENERGY CONSERVATION
TH DII	3. THE CONTRACTOR SHALL PROVIDE A COMPLETE PLUMBING SYSTEM AS SHOWN ON THE	OCCUPATIONAL SAFETY AND HEALTH ADM TEXAS ACCESSIBILITY STANDARDS (TAS)
2 - FIF	DRAWINGS AND SPECIFIED BY NOTES AND/OR THE SPECIFICATIONS.	NATIONAL ELECTRIC CODE (NEC) - 2020 W UNIFORM MECHANICAL CODE (UMC) - 2021
T 202:	4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS FOR SCOPE OF WORK THAT SHALL BE COMPLETED FOR THIS PROJECT.	2 WHEN DIFFERENT SECTIONS OF ANY ADDI
'RIGH	 THE CONTRACTOR SHALL REVIEW SITE CONDITIONS ALONG WITH THE CONTRACT DOCUMENTS TO ASCERTAIN THE COMPLETE SCOPE OF WORK FOR THE PROJECT. 	MATERIALS, METHODS OF CONSTRUCTION, RESTRICTIVE SHALL GOVERN.
COP	6. THE CONTRACTOR SHALL FIELD VERIFY ALL SITE MEASUREMENTS WITH REGARDS TO	B. MANUFACTURER QUALIFICATIONS
	THE SCOPE OF WORK TO ACCOUNT FOR ALL REQUIRED DIMENSIONAL ADJUSTMENTS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR ANY DISCREPANCIES BETWEEN	1. MINIMUM OF 5 YEARS EXPERIENCE MANUFA
	MEASUREMENTS.	C. INSTALLER QUALIFICATIONS
	1.3 REFERENCES	1. MINIMUM OF 2 YEARS EXPERIENCE INSTALL
	A. AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)	D. STANDARDS FOR MATERIAL AND INSTALLATION
	B. AMERICAN SOCIETY OF PLUMBING ENGINEERS (ASPE)	1. THE CONTRACTOR SHALL USE MATERIALS UNDERWRITERS LABORATORIES (UL) AS CO STANDARDS HAVE BEEN ESTABLISHED FOR
	D. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)	QUESTION. THE CONTRACTOR SHALL EXEC TO PRESENT A CLEAN, NEAT, AND PROFESS
	E. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)	COMPLETED.
	F. UNDERWRITERS LABORATORY (UL)	2. THE CONTRACTOR, UNLESS NOTED OTHER MATERIALS AND EQUIPMENT THAT CONFOR BELOW:
	1. LISTED PRODUCTS	ANSI AMERICAN NATIONAL STANDA
		ARI AIR-CONDITIONING & REFRIGE ASHRAE AMERICAN SOCIETY OF HEATI
	A. THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF THE SHOP DRAWINGS, EQUIPMENT PERFORMANCE SUBMITTALS, AND PRODUCT DATA FOR THE FOLLOWING ITEMS:	ASME AMERICAN SOCIETY OF MECH
	1. EQUIPMENT	ASTM AMERICAN SOCIETY OF TESTIN IAPMO INTERNATIONAL ASSOCIATION
	2. PIPING	NEC NATIONAL ELECTRIC CODE NEMA NATIONAL ELECTRICAL MANUF
	3. INSULATION	
_	5. TRIM/ACCESSORIES	1. THE CONTRACTOR SHALL PROVIDE AND CO
	6. ALL OTHER INSTALLED PLUMBING ITEMS	INSPECTIONS, FINAL INSPECTIONS, AND AP DEPARTMENT HAVING JURISDICTION.
	B. SHOP DRAWINGS	2. THE CONTRACTOR SHALL BE RESPONSIBLE
	1. INCLUDE SYSTEM COMPONENTS	3. THE CONTRACTOR SHALL NOTIFY THE OWN
	2. APPLICABLE DIMENSIONAL DATA	WHEN EQUIPMENT IS TO BE TESTED OR UT CONCEALED AND BEFORE TRENCHES ARE
	ALL REQUIRED CLEARANCES AND ACCESS DIMENSIONS FOR SERVICING	4. THE CONTRACTOR SHALL BE RESPONSIBLE
	C. EQUIPMENT WEIGHTS	F. SCHEDULING, COORDINATION, & COOPERATION
	1. THE CONTRACTOR SHALL INCLUDE EQUIPMENT WEIGHTS ON ALL SUBMITTALS TO VERIFY	1. THE CONTRACTOR SHALL SCHEDULE THEIF
	D HAZARDOUS MATERIALS PRODUCTS PROCESSES AND VOC'S	TRADES ON THE PROJECT SITE TO AVOID D WORK.
	1. IN THE EVENT THAT MATERIALS, PRODUCTS, AND/OR PROCESSES BEING PROPOSED FOR	2. THE CONTRACTOR SHALL COOPERATE WIT INSTALLATION OF THEIR WORK AND COORE
	THIS PROJECT CONTAIN, OR MAY EMIT, ANY VOLATILE ORGANIC COMPOUNDS (VOC), FORMALDEHYDE FORMULATIONS, OR HAZARDOUS OUT-GASSING, AS DETERMINED BY THE MANUEACTURED, A MATERIAL & SAFETY DATA SUFET SUALL DE SURMITTED AS DART.	PROVIDE REQUIRED CLEARANCE OF PIPING REQUIRED.
	OF THE SHOP DRAWING PROCESS FOR REVIEW BY THE ARCHITECT, ENGINEER, AND OWNER.	3. SHOULD ANY CHANGES OCCUR DUE TO THI AND/OR CONFLICTS WITH THE CONTRACT (
	E. SUBSTITUTIONS OF EQUIPMENT OR MATERIALS	SUBMIT PROPOSED CHANGES TO THE ENGI ALTERNATE METHOD OF COMPLETING THE
	1. THE CONTRACTOR SHALL NOT SUBSTITUTE EQUIPMENT OR MATERIAL WITHOUT PRIOR	
	2. THE DETERMINATION OF WHAT SHALL BE CONSIDERED EQUAL IS AT THE SOLE	4. NOTIFY THE OWNER TWENTY FOUR (24) HO TESTED OR UTILITIES ARE TO BE SHUT-OFF TRENCHES ARE COVERED UP.
	DISCRETION OF THE ENGINEER OF RECORD AND OWNER.	5. IF THE CONTRACTOR FAILS TO COMPLY WIT
	 THE CONTRACTOR SHALL INCLUDE SUFFICIENT DESCRIPTIVE INFORMATION, INCLUDING BUT NOT LIMITED TO THE MANUFACTURER'S PUBLISHED DATA TO ESTABLISH CONTRACT COMPLIANCE 	CONTRACTOR SHALL UNCOVER AND RETES DAMAGE TO OTHER CONTRACTOR'S WORK
_	4. THE CONTRACTOR SHALL SUBMIT SAMPLES IF REQUESTED BY THE ARCHITECT OR	 PORTIONS OF THE BUILDING MIGHT BE IN U
	ENGINEER OF RECORD.	CONSTRUCTION PERIOD OF THIS PROJECT. CHILLED WATER, HEATING HOT WATER, FIR
	5. ALL SUBSTITUTIONS SHALL BE SUBMITTED AT LEAST SEVEN (7) DAYS PRIOR TO BID SUBMISSION FOR REVIEW.	WATER WHICH WILL BE REQUIRED FOR THIS ANY REASON WITHOUT PRIOR COORDINATI BUILDING MANAGEMENT OR BUILDING OWN
	 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND ALL ASSOCIATED COSTS FOR ALL DIMENSIONAL DIFFERENCES, WEIGHTS, CLEARANCES, 	BUILDING MANAGEMENT TEAM OR BUILDING THE DATE, START TIME, AND DURATION TH
	MATERIAL & LABOR FOR ALL SUBSTITUTIONS.	MANAGEMENT TEAM OR BUILDING OWNER I ADVANCE NOTIFICATION OF SEVEN (7) DAY
	A. FIXTURES: WATER CLOSETS, URINALS, LAVATORIES, ETC. AND PIECE OF PLUMBING	7 AREAS OF THE BUILDING MIGHT BE OCCUP
	EQUIPMENT.	PROJECT. NOISY, DUSTY, AND/OR OTHER C WORK WHICH MAY DISTURB OR CAUSE COM
	B. TRIM: FAUCETS, TRAPS, STOPS, STRAINERS, ETC. ITEMS ASSOCIATED WITH THE PLUMBING FIXTURES.	SHALL NOT BE ACCEPTABLE.THE CONTRAC AND MATERIALS WHICH SHALL NOT ADVERS
	C. PIPING - MATERIAL USED FOR THE DISTRIBUTION OF DOMESTIC HOT/COLD WATER, WASTE WASTE, WASTE, CONDENSATE DRAINAGE, AND STORM DRAINAGE.	8. ALL AFTER-HOUR OR OVERTIME WORK REG
	D. ABBREVIATIONS	DISRUPTION OF OCCUPANTS SHALL BE PRO OWNER.
_	1. REFER TO THE CONTRACT DRAWINGS FOR DEFINITIONS OF ALL ABBREVIATIONS.	9. AFTER COMPLETION OF INSTALLATION, BUT
		AND PROCESSES USED TO NOT CONTAIN A (PCB).

OMPLY WITH THE REQUIREMENTS OF THE AUTHORITIES APPLICABLE CODES AT THE LOCATION OF THE PROJECT.

IES ACT (ADA) DING CODES AND/OR ORDINANCES RTMENT OF HEALTH ODE (IBC) - 2021 W/ LOCAL AMENDMENTS AL CODE (IMC) - 2021 W/ LOCAL AMENDMENTS CODE (IPC) - 2021 W/ LOCAL AMENDMENTS DNSERVATION CODE (IECC) - 2021 W/ LOCAL AMENDMENTS D HEALTH ADMINISTRATION (OSHA)

NEC) - 2020 W/ LOCAL AMENDMENTS E (UMC) - 2021 W/ LOCAL AMENDMENTS UPC) - 2021 W/ LOCAL AMENDMENTS

OF ANY APPLICABLE CODES SPECIFY DIFFERENT DNSTRUCTION, OR OTHER REQUIREMENTS, THEN THE MOST I.

IENCE MANUFACTURING SIMILAR PRODUCTS.

EVENCE INSTALLING SIMILAR PRODUCTS.

INSTALLATION WORKMANSHIP

SE MATERIALS THAT ARE NEW, LISTED, AND LABELED BY THE RIES (UL) AS CONFORMING TO ITS STANDARDS, WHERE SUCH TABLISHED FOR THE PARTICULAR TYPE OF MATERIAL IN OR SHALL EXECUTE ALL WORK IN A WORKMAN LIKE MANNER I, AND PROFESSIONAL WORKMAN LIKE APPEARANCE WHEN

NOTED OTHERWISE, SHALL PROVIDE AND INSTALL THAT CONFORMS THE THE LATEST STANDARDS LISTED

TIONAL STANDARDS ASSOCIATION IING & REFRIGERATION INSTITUTE CIETY OF HEATING, REFRIGERATION, & AIR-CONDITIONING CIETY OF MECHANICAL ENGINEERS CIETY OF PLUMBING ENGINEERS

IETY OF TESTING & MATERIALS ASSOCIATION OF PLUMBING & MECHANICAL OFFICIALS TRIC CODE TRICAL MANUFACTURERS ASSOCIATION PROTECTION ASSOCIATION

ROVIDE AND COORDINATE ALL REQUIRED PERMITS, INTERIM CTIONS, AND APPROVALS FROM THE INSPECTION

E RESPONSIBLE FOR PAYMENT FOR ALL PERMITS, FEES, D INSPECTIONS.

OTIFY THE OWNER TWENTY FOUR (24) HOURS IN ADVANCE TESTED OR UTILITIES ARE TO BE SHUT-OFF, BEFORE BEING RENCHES ARE COVERED UP.

E RESPONSIBLE FOR ALL DOMESTIC AND FIRE PROTECTION

CHEDULE THEIR WORK AND COOPERATE WITH ALL OTHER SITE TO AVOID DELAYS, INTERFERENCES, AND UNNECESSARY

OOPERATE WITH OTHERS TO PROVIDE FOR THE ORK AND COORDINATE WITH WORK OF ALL OTHER TRADES TO ANCE OF PIPING, DUCTWORK, CONDUIT, ETC. WHEN SUCH IS

CUR DUE TO THE COORDINATION WITH OTHER TRADES HE CONTRACT DOCUMENTS, THEN THE CONTRACTOR SHALL ES TO THE ENGINEER OF RECORD FOR REVIEW OF AN MPLETING THEIR WORK ACCORDING TO THE INTENT OF THE

Y FOUR (24) HOURS IN ADVANCE WHEN EQUIPMENT IS TO BE O BE SHUT-OFF, BEFORE BEING CONCEALED AND BEFORE

TO COMPLY WITH THE ABOVE REQUIREMENTS, THEN THE VER AND RETEST PIPING AND EQUIPMENT, REPAIRING ACTOR'S WORK AS WELL AS THEIR OWN WITHOUT

MIGHT BE IN USE AND OCCUPIED DURING THE THIS PROJECT. ALL BUILDING SERVICES, UTILITIES, POWER, OT WATER, FIRE PROTECTION, AND DOMESTIC COLD & HOT UIRED FOR THIS PROJECT SHALL NOT BE DISRUPTED FOR OR COORDINATION WITH A REPRESENTATIVE OF THE BUILDING OWNER. A WRITTEN AUTHORIZATION FROM THE AM OR BUILDING OWNER SHALL BE REQUIRED TO DOCUMENT DURATION THAT WERE APPROVED BY THE BUILDING LDING OWNER FOR SUCH DISRUPTION. AN ADDITIONAL SEVEN (7) DAYS MINIMUM SHALL BE GIVEN TOT HE BUILDING /NER PRIOR TO EACH DISRUPTION.

GHT BE OCCUPIED DURING CONSTRUCTION OF THIS ND/OR OTHER CONSTRUCTION OPERATIONS REQUIRED FOR OR CAUSE COMPLAINTS BY THE BUILDING OCCUPANTS E.THE CONTRACTOR SHALL USE CONSTRUCTION METHODS ALL NOT ADVERSELY AFFECT THE INDOOR AIR QUALITY OF

IME WORK REQUIRED BY THE CONTRACTOR TO AVOID S SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE

TALLATION, BUT PRIOR TO SUBSTANTIAL COMPLETION, THE FY IN WRITING THAT PRODUCTS AND MATERIALS INSTALLED NOT CONTAIN ASBESTOS OR POLYCHLORINATED BIPHENYL G. COMPLETED WORK

- 1. THE CONTRACTOR SHALL INSPECT THE INSTALLATION TO ASSURE THAT WORK IS COMPLETE AND THE REQUIREMENTS OF THE CONTRACT HAVE BEEN COMPLETED BEFORE REQUESTING FINAL PAYMENT.
- 1.7 DELIVERY, STORAGE, AND HANDLING
- A. THE CONTRACTOR SHALL ORDER ALL MATERIALS AND EQUIPMENT ON SCHEDULE TO BE ABLE TO COMPLETE ALL CONSTRUCTION BY THE SCHEDULED COMPLETION DATE.
- B. THE CONTRACTOR SHALL DELIVER AND STORE PRODUCTS IN THE MANUFACTURER'S UNOPENED PACKAGING BEARING THE BRAND NAME AND THE MANUFACTURER'S IDENTIFICATION UNTIL READY FOR INSTALLATION.
- C. THE CONTRACTOR SHALL KEEP THE BUILDING AND CONSTRUCTION AREAS CLEAN AND CLEAR OF ALL SCRAP MATERIALS AT ALL TIMES. THE CONTRACTOR SHALL STORE MATERIALS AND EQUIPMENT IN DESIGNATED STORAGE AREAS.
- D. THE CONTRACTOR SHALL COMPLY WITH THE MANUFACTURER'S RECOMMENDATIONS TO HANDLE AND STORE ALL MATERIALS TO AVOID DAMAGE.
 8 PROJECT CONDITIONS
- 1.8 PROJECT CONDITIONS
- A. THE CONTRACTOR SHALL MAINTAIN ENVIRONMENTAL CONDITIONS (TEMPERATURE, HUMIDITY, AND VENTILATION) WITHIN THE LIMITS RECOMMENDED BY THE MANUFACTURER FOR OPTIMUM RESULTS. THE CONTRACTOR SHALL NOT INSTALL PRODUCTS UNDER ENVIRONMENTAL CONDITIONS OUTSIDE THE MANUFACTURER'S RECOMMENDED LIMITS AND INSTALLATION INSTRUCTIONS.
- **B. PROTECTION**
- 1. THE CONTRACTOR SHALL PROTECT THE WORK, EQUIPMENT, AND MATERIALS FROM DAMAGE BY HIS WORK OR HIS PERSONNEL.
- 2. THE CONTRACTOR SHALL CORRECT ALL DAMAGE THUS CAUSED WITHOUT ADDITIONAL COST TO THE OWNER.
- 3. THE CONTRACTOR SHALL PROTECT ALL WORK, MATERIALS, AND EQUIPMENT FROM THEFT, INJURY, OR DAMAGE.
- 4. THE CONTRACTOR SHALL CAREFULLY STORE ALL MATERIALS AND EQUIPMENT RECEIVED
- ON SITE WHICH IS NOT IMMEDIATELY INSTALLED.5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, MATERIALS, AND EQUIPMENT

UNTIL FINAL ACCEPTANCE BY THE OWNER.

- 6. THE CONTRACTOR SHALL SEAL ALL OPEN ENDS OF DUCTWORK, PIPING, AND EQUIPMENT DURING CONSTRUCTION WITH TEMPORARY COVERS OR PLUGS TO PREVENT THE ENTRY OF DUST, DIRT, AND CONSTRUCTION DEBRIS.
- 7. THE CONTRACTOR SHALL PROTECT ALL EQUIPMENT AND MATERIALS FROM DAMAGE DUE TO WATER, SPRAY-ON FIREPROOFING, CONSTRUCTION DEBRIS PER THE REQUIREMENTS OF THE ENGINEER OF RECORD AND/OR THE OWNER.
- 8. THE CONTRACTOR SHALL CLEAN ALL INTERIOR SURFACES (EQUIPMENT/PIPING) AFTER INSTALLATION. AFTER INSTALLATION OF PLUMBING EQUIPMENT AND PIPING THE CONTRACTOR SHALL FLUSH THE WATER SYSTEMS WITH WATER OF AT LEAST 3 FEET PER SECOND TO REMOVE DUST AND FOREIGN MATERIALS FROM THE SYSTEM. PLUMBING SYSTEMS SHALL BE FLUSHED WITH THE APPROPRIATE DETERGENTS AND CLEANING CHEMICALS. DISINFECT POTABLE SYSTEMS APPROPRIATELY PRIOR TO USE.

1.9 WARRANTY

A. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE (1) YEAR WARRANTY FROM THE SUBSTANTIAL COMPLETION DATE FOR ALL WORK PERFORMED UNDER THIS CONTRACT. THE DATE OF SUBSTANTIAL COMPLETION SHALL BE DETERMINED BY THE OWNER OR THE OWNER'S REPRESENTATIVE. THE WARRANTY SHALL INCLUDE WORKMANSHIP, LABOR, EQUIPMENT, AND MATERIALS. THE CONTRACTOR SHALL REFER TO THE CONTRACT DOCUMENTS FOR ALL OTHER REQUIRED WARRANTY PERIODS.

1.10 DRAWINGS AND SPECIFICATIONS

A. ALL DRAWINGS SHALL BE CONSIDERED SCHEMATIC AND MAY NOT INDICATE THE EXACT LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR THE ACTUAL DIMENSIONS. THE CONTRACTOR SHALL FIT THEIR WORK TO CONFORM TO THE DETAILS OF THE BUILDING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE ALL WORK TO PROVIDE ALL OF THE REQUIRED CODE AND MANUFACTURER'S CLEARANCES.

- B. ALL DRAWINGS ARE DIAGRAMMATIC ONLY AND SHALL NOT BE SCALED.
- C. DUE TO DRAWING SCALE, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. THE CONTRACTOR SHALL EXAMINE FIELD CONDITIONS AND FURNISH THE NECESSARY FITTINGS WHICH MAY BE REQUIRED TO COMPLETE THE INSTALLATION.
- D. THE SYMBOLS SHOWN ON THE DRAWINGS ARE ILLUSTRATIVE IN NATURE AND ARE PROVIDED FOR REFERENCE ONLY.
- E. THE DRAWINGS ARE BASED UPON THE EXISTING DOCUMENTS PROVIDED BY THE OWNER. THE CONTRACTOR SHALL REPORT ANY UNCOVERED UTILITIES, SERVICES, DUCTWORK, PIPING, ETC. TO THE ARCHITECT BEFORE DISTURBING THE EXISTING INSTALLATION. THE CONTRACTOR SHALL VERIFY THAT ANY ABANDONED PIPING SERVES ONLY ABANDONED FACILITIES.

1.11 AS-BUILT DRAWINGS

A. DURING CONSTRUCTION THE CONTRACTOR SHALL RECORD ON ONE (1) SET OF PLUMBING DRAWINGS ALL CHANGES AND DEVIATIONS FROM THE CONTRACT DOCUMENTS IN SIZE, LOCATIONS, AND TYPES OF ALL MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL RECORD THE FINAL LOCATION OF EQUIPMENT, PIPING, ETC... TO INDICATE THE FINAL INSTALLATION. THE CONTRACTOR SHALL MAKE SUFFICIENT MEASUREMENTS TO LOCATE ALL EQUIPMENT AND ACCESSORIES.

B. THE CONTRACTOR SHALL PROVIDE A COMPLETE RED-LINED ELECTRONIC AS-BUILT SET OF DRAWINGS TO THE ENGINEER OF RECORD.

- 1.12 OPERATION AND MAINTENANCE DATA / CLOSE-OUT DOCUMENTS
- A. THE CONTRACTOR SHALL PROVIDE AND DELIVER TO THE ARCHITECT AND ENGINEER OF RECORD A COMPLETE ELECTRONIC COPY OF ALL DATA PREPARED BY THE MANUFACTURERS THAT DETAIL THE OPERATION AND THE MAINTENANCE INSTRUCTIONS FOR ALL MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL INSTRUCT THE OWNER OR OWNER'S REPRESENTATIVE IN THE OPERATION OF ALL EQUIPMENT.
- B. THE CONTRACTOR SHALL SUBMIT AN ELECTRONIC COPY OF THE OWNER'S OPERATION AND MAINTENANCE MANUALS, AS-BUILT DRAWINGS, AND A COMPLETE PARTS LIST FOR ALL INSTALLED EQUIPMENT. ALL CLOSE-OUT DOCUMENTS SHALL BE SUBMITTED THE THE OWNER AND ENGINEER OF RECORD FOR REVIEW.
- C. THE CONTRACTOR SHALL PROVIDE THE OWNER A TYPED ELECTRONIC LIST OF ALL NEW AND EXISTING EQUIPMENT, INDICATED THE MANUFACTURER, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, PHASE, HP, KW, GPM, ETC.

1.13 PENETRATIONS, CUTTING, AND PATCHING

- A. THE CONTRACTOR SHALL PERFORM CUTTING AND PATCHING IN ACCORDANCE WITH THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THE CONTRACT.
- B. THE CONTRACTOR SHALL PROVIDE ALL SLEEVES REQUIRED FOR THE PROPER INSTALLATION OF THE WORK INCLUDED IN THIS SECTION.
- C. THE CONTRACTOR SHALL MAKE ALL PENETRATIONS THROUGH WALLS AT 90 DEGREE ANGLES. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS AT FIRE, SMOKE, AND FIRE/SMOKE PARTITIONS WITH FIRE SAFING MATERIAL. THE CONTRACTOR SHALL SEALL ALL PENETRATIONS AT SOUND WALLS WITH SOUNDPROOFING MATERIAL.
- D. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL NOT DO MORE CUTTING AND PATCHING THAN WHAT IS REQUIRED FOR THE INSTALLATION OF THEIR WORK.
- E. THE CONTRACTOR SHALL NOT CUT STRUCTURAL MEMBERS OR EXPOSED SURFACE OF CONCRETE BLOCK.
- F. THE BUILDING MAY HAVE A STRUCTURAL SYSTEM UTILIZING POST-TENSIONED CABLES. THE CONTRACTOR SHALL DETERMINE THE EXISTING STRUCTURAL SYSTEM PRIOR TO CUTTING, DRILLING, OR CORING. IF POST-TENSIONED CABLES ARE EXISTING, THE CONTRACTOR SHALL X-RAY ALL PENETRATIONS PRIOR TO CUTTING THE FLOOR SLAB.



THE CONTRACTOR SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY TO COMPLETE THE INSTALLATION OF PLUMBING SYSTEMS AND EQUIPMENT. THE INSTALLATION SHALL BE PERFORMED BY THE CONTRACTOR AND/OR THE MANUFACTURER'S REPRESENTATIVE REGULARLY ENGAGED IN THE APPLICATION AND INSTALLATION OF THE	S. UPON COMPLETION OF ALL TEST AND NECESSARY REPAIRS OR REPLACEMENTS, ALL WATE PIPING SYSTEMS SHALL BE SUBJECTED TO A DISINFECTION PROCEDURE AS HEREIN SPECIFIED. THE SYSTEMS TO BE DISINFECTED SHALL INCLUDE HOT & COLD DOMESTIC WATER PIPING, DRINKING WATER PIPING, AND ANY OTHER SYSTEMS THAT MAY BE CONNECTED TO THE SAME SUPPLY SOURCE. THE DISINFECTANT SHALL BE APPLIED TO ALL PIPING INCLUDED IN THE CONTRACT OR FOR THE MAIN CUT-OFF VALVE THROUGH ALL TAN
MATERIALS AND EQUIPMENT. THE CONTRACTOR SHALL INSTALL THE MATERIALS AND EQUIPMENT PER THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.	PUMPS, AND OTHER APPURTENANCES CONNECTED THERETO.
ALL INSULATION MATERIALS AND ALL OTHER ACCESSORIES SHALL BE ASTM E 84 25/50 FIRE HAZARD RATING NOT TO EXCEED 25 FOR FLAME SPREAD INDEX AND NOT TO EXCEED 50 FOR SMOKE DEVELOPED INDEX. ALL PRODUCTS, THEIR SHIPPING CARTONS, OR PACKAGING SHALL BEAR A LABEL INDICATING THAT THE FLAME AND SMOKE SPREAD RATINGS DO NOT	U. PRODUCTS - SEE BELOW AND REFER TO THE OTHER CONTRACT DOCUMENTS FOR ADDITIONAL SPECIFICATIONS AND REQUIREMENTS.
EXCEED THE ABOVE STATED REQUIREMENTS.	2.2 PLUMBING FIXTURES
ACCESSORIES SUCH AS ADHESIVE, MASTICS, CEMENT, TAPES, GLAZE FABRIC, AND COVERS FOR FITTINGS SHALL NOT PRODUCE FLAMING DROPLETS WHEN SUBJECTED TO FIRE, AND THE SAME COMPONENT RATINGS LISTED ABOVE.	FLANGES, CARRIERS, CAP SETTING COMPOUND, ETC. FITTINGS AND PIPING SHALL BE BRA AND WHEREVER EXPOSED, SHALL BE POLISHED CHROME PLATED. PROVIDE TIGHT WALL OF FLOOR ESCUTCHEONS OF CHROME PLATED BRASS WHEREVER PIPES PASS THROUGH FLOORS, WALLS, OR CEILINGS.
. EXECUTION (EQUIPMENT, FIXTURES, & PIPING) - UNLESS NOTED OTHERWISE	B. PLUMBING FIXTURES SHALL BE AS SCHEDULED ON THESE DRAWINGS OR LISTED EQUAL.
1. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL WORK VERTICAL AND HORIZONTAL, AS WELL AS PARALLEL AND PERPENDICULAR TO BUILDING LINES.	2.3 PIPING MATERIALS
2. THE CONTRACTOR SHALL AVOID DIAGONAL RUNS FOR ALL ABOVE GRADE PIPING ONLY.	1. ABOVE GRADE:
 THE CONTRACTOR SHALL INSTALL PIPING SYSTEMS IN THE SHORTEST ROUTE THAT DOES NOT OBSTRUCT USEABLE SPACE OR BLOCK ACCESS FOR SERVICING THE BUILDING AND ITS EQUIPMENT. 	ASTM B88, TYPE "L" HARD DRAWN COPPER WITH SOLDER OR "PROPRESS" JOINTS. 2. BELOW GRADE: ASTM B88, TYPE "K" COPPER, SEAMLESS TUBING, PIPING SHALL BE INSULATED AS
4. THE CONTRACTOR SHALL INSTALL ALL PIPING WITH A CLEARANCE OF 1-INCH, PLUS ALLOWANCE FOR INSULATION THICKNESS, HANGERS, AND/OR SUPPORTS.	SPECIFIED AND ROUTED WITHIN A PVC SLEEVE TO PROTECT THE PIPING INSULATION B. TRAP PRIMER PIPING
ACCESS PANELS 1. THE CONTRACTOR SHALL PROVIDE A MINIMUM 24"X24" ACCESS PANEL, UNLESS NOTED	1. ASTM B88, TYPE "K" COPPER, SEAMLESS TUBING, 1/2".
OTHERWISE, IN GYPSUM BOARD CEILINGS FOR ACCESS TO EQUIPMENT LOCATED ABOVE INACCESSIBLE CEILINGS. 2 THE CONTRACTOR SHALL PROVIDE A MINIMUM 12"X12" ACCESS DOOR AT ALL LOCATIONS	C. SANITARY SEWER (WASTE) AND VENT PIPING 1. ABOVE GRADE: ASTM D2665, SCHEDULE 40 PVC, JOINED WITH SOLVENT WELDS
OF PIPE CHASES FOR ACCESS TO SHUT-OFF VALVE, SERVICE VALVES, AND WATER HAMMER ARRESTORS (OR 24"X24" ACCESS PANEL FOR DUAL WATER HAMMER ARRESTORS).	 BELOW GRADE: ASTM D2665, SCHEDULE 40 PVC JOINED WITH SOLVENT WELDS.
3. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION, FINISH, AND SPECIFICATIONS OF ACCESS PANELS AND DOORS WITH THE ARCHITECT.	3. GREASE WASTE: ASTM A74, CAST IRON, HUB AND SPIGOT TYPE, JOINED WITH ASTM C564 NEOPRENE
. PARTITION & FLOOR PENETRATIONS 1. THE CONTRACTOR SHALL SEAL ALL PENETRATIONS OF SLAB-TO-SLAB PARTITIONS	4. WASTE AND VENT PIPING (WITHIN RETURN AIR PLENUM): ASTM A888. HUBLESS CAST IRON. WITH CISPI 301 SPIGOT READ ENDS FOR COUPLING
AIR-TIGHT. 2. THE CONTRACTOR SHALL SEAL ALL NEW AND EXISTING PIPES, CONDUITS, AND DUCT	ASSEMBLY. 5. INDIRECT DRAINS:
PENETRATIONS THRU FIRE RATED WALLS WITH FIRE CAULKING. FIRE CAULKING SHALL BE EQUAL TO 3M BRAND CP25WP FIRE CAULK. THE CONTRACTOR SHALL INSTALL ALL FIRE CAULKING IN STRICT ACCORDANCE WITH ALL OF THE MANUFACTURER'S WRITTEN	ASTM B88, TYPE "L" COPPER WITH SOLDERED JOINTS. 6. INDIRECT DRAIN PIPING (WITHIN RETURN AIR PLENUM): ASTM D88, TYPE "L" COPPER WITH SOLDERED JOINTS
 THE CONTRACTOR SHALL SEAL ALL NEW AND EXISTING PIPES, CONDUITS, AND DUCT PENETRATIONS THRU FLOORS WITH FIRE CAULKING. FIRE CAULKING SHALL BE EQUAL TO 	 7. RPZ RELIEF DISCHARGE PIPING: ABOVE GRADE: ASTM B88, TYPE "L" COPPER WITH SOLDERED JOINTS.
3M BRAND CP25WP FIRE CAULK. THE CONTRACTOR SHALL INSTALL ALL FIRE CAULKING IN STRICT ACCORDANCE WITH ALL OF THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH ALL APPLICABLE UL DETAILS.	
PLENUM & NON-PLENUM RATED MATERIALS	1. ABOVE GRADE: AS I M A53, SCHEDULE 40 BLACK STEEL, WELDED OR WITH THREADI FITTINGS.
IN THE RETURN AIR PLENUM.	2. DELOW GRADE: SAME AS ABOVE GRADE, EXCEPT WITH HIGH-DENSITY POLYETHYLE COATING.
2. THE CONTRACTOR SHALL ENCAPSULATE ALL NON-PLENUM RATED MATERIALS IN A MANNER APPROVED BY THE AUTHORITY HAVING JURISDICTION.	E. PLUMBING VALVES
 IF THE NON-PLENUM RATED MATERIALS ARE NOT ENCAPSULATED IN A MANNER APPROVED BY THE AUTHORITY HAVING JURISDICTION, THEN THE CONTRACTOR SHALL REPLACE THE MATERIAL WITH AN APPROVED PLENUM RATED MATERIAL AT NOT ADDITIONAL COST. 	 ALL GAS VALVES SHALL BE PLUG VALVES UNLESS NOTED OTHERWISE. F. GAS PIPING PAINTING
PIPE INSTALLATION	1. GAS PIPING ON THE ROOF NOT VISIBLE FROM GRADE SHALL BE PAINTED WITH (2) COA OF YELLOW PAINT
1. THE CONTRACTOR SHALL INSTALL ALL PIPING TIGHT TO STRUCTURE UNLESS NOTED OTHERWISE.	 GAS PIPING VISIBLE FROM GRADE SHALL BE PAINTED WITH (2) COATS OF PAINT. THE CONTRACTOR SHALL PAINT THE EXPOSED TO VIEW GAS PIPING TO MATCH THE COLOR
. PRODUCTS - SEE BELOW AND REFER TO THE OTHER CONTRACT DOCUMENTS FOR ADDITIONAL SPECIFICATIONS AND REQUIREMENTS. . THE CONTRACTOR SHALL PROVIDE VIBRATION ISOLATION DEVICES TO INSURE THAT NOISE	G. ELEVATOR SUMP PUMP DISCHARGE PIPING
AND VIBRATION ARE HELD TO A MINIMUM WHEN MOUNTING, SUPPORTING, HANGING, AND CONNECTING TO EQUIPMENT.	 ELEVATOR SUMP PUMP DISCHARGE PIPING WITHIN THE ELEVATOR SHAFT: ASTM B88, TYPE "L" HARD DRAWN COPPER WITH SOLDER OR "PROPRESS" JOINTS. ONCE OUTSITE THE ELEVATOR SHAFT AND JUST BEFORE ROUTING BELOW GRADE TO
SUITED TO EQUIPMENT & PIPING MATERIALS; USE GALVANIZED-STEEL ACCESSORIES IN GALVANIZED-STEEL PIPING, STAINLESS-STEEL ACCESSORIES IN STAINLESS-STEEL PIPING.	CONTINUE TO THE CIVIL STORM WATER SYSTEM: ASTM D2665, SCHEDULE 40 PVC JOINED WITH SOLVENT WELDS.
. DIELECTRIC FITTINGS - ASSEMBLY OF COPPER ALLOY AND FERROUS MATERIALS WITH SEPARATING NON-CONDUCTIVE INSULATING MATERIAL. INCLUDE END CONNECTIONS COMPATIBLE WITH PIPES TO BE JOINED	H. FIRE SPRINKLER PIPING
D. PROVIDE TIGHT WALL OR FLOOR ESCUTCHEONS OF CHROME PLATED BRASS WHEREVER PIPES PASS THROUGH FLOORS, WALLS, OR CEILINGS.	SCHEDULE 40, WITH THREADED FITTINGS. ASTM A-795, DYNA-FLEX, HIGH STRENGTH STEEL, WITH ROLLED GROOVE COUPLING. RIGID CHLORINATED POLYVINYL CHLORIDE (CPVC), TYPE IV GRADE 1, ASTM D1784, ORANGE, WITH SOLVENT WELDS.
. FITTINGS ON COPPER TUBING SHALL BE SOLDER-JOINT TYPE OF WROUGHT COPPER AND SHALL BE ASSEMBLED WITH SPECIAL SOLDER, USING A NON-CORROSIVE FLUX, ALL AS RECOMMENDED BY THE MANUFACTURER OF THE TUBING AND THE FITTING SUBFACES TO BE	2. DRY PIPE: (AIR MAINT.); GALVANIZED, SCHEDULE 40, WITH THREADED FITTINGS. (N2 MAINT.); BLACK STEEL, SCHEDULE 10, WITH ROLLED GROOVE COUPLING SCHEDULE 40 WITH THREADED FITTINGS
SOLDERED SHALL BE CLEANED BRIGHT. USE 95-5 SOLDER FOR WATER PIPING AND 50-50 SOLDER FOR DRAINS AND VENTS. HEAT COPPER TUBING LARGER THAN 1" WITH RING TORCH.	3. BELOW GRADE: AWWA C900, PVC WITH GASKET HUB AND SPIGOT JOINTS.
	2.4 PIPING INSULATION
RUNS AT INTERVALS NOT EXCEEDING 50'. CLEAN-OUTS SHALL BE BRASSED CAULK INTO THE LINES, AND WHERE THEY OCCUR IN THE WALLS OR FLOOR OF FINISHED AREAS THEY SHALL	B. INSULATE ALL CONDENSATE DRAIN PIPING, DOMESTIC HOT & COLD PIPING, AND DOMESTIC
BE PROVIDED WITH ADJUSTABLE ACCESS PLATES. ALL INTERIOR CLEAN-OUTS SHALL BE THE SAME SIZE AS THE PIPE SERVED UP TO 4" SIZE AND 4" FOR ALL LARGER LINE SIZES UNLESS NOTED OTHERWISE. EXTERIOR CLEAN-OUTS SHALL CONSIST OF A CONCRETE ENCASED WYE	REGIRGOLATION FIFING WITH "AP ARMAFLEX" OR RUBATEX R-180-FS 25/50 RATED FLEXIBLI ELASTOMERIC PIPE INSULATION. PROVIDE PROTECTION, BLOCKING, AND SHIELDS AT EACI HANGER. PIPE ELBOWS & FITTINGS SHALL BE INSULATED AND COVERED WITH ZESTON 200
IN THE LINE WITH THE CLEAN-OUT LEG EXTENDING UPWARD FROM AND TERMINATING IN A CONCRETE SLAB BELOW GRADE. A STANDARD CAST IRON CLEAN-OUT CASTING SHALL BE SET ON THIS SLAB IN SUCH A MANNER AS TO BE FLUSH WITH THE FINISHED GRADE AND TO	25/50 FIRE/SMOKE RATED PVC JACKETS. C. PIPE INSULATION THICKNESS SCHEDULE (INCREASE THICKNESS BY 1/2" WHEN EXPOSED T
	FREEZING CONDITIONS)
PROVIDE ACCESS THROUGH ITS COVER TO THE CLEAN-OUT. A REMOVABLE CONCRETE STOPPER SHALL BE SET IN THE OPEN TOP OF THE CLEAN-OUT PIPE. CLEAN-OUTS SHALL BE	
PROVIDE ACCESS THROUGH ITS COVER TO THE CLEAN-OUT. A REMOVABLE CONCRETE STOPPER SHALL BE SET IN THE OPEN TOP OF THE CLEAN-OUT PIPE. CLEAN-OUTS SHALL BE THE SAME SIZE AS THE SEWER PIPING. . WATER HAMMER ARRESTORS SHALL BE PROVIDED ON ALL SUPPLY LINES, BOTH HOT & COLD.	OPERATING INSULATION PIPE TEMP °F THICKNESS DIAMETER 40-60 1" LESS THAN 1-1/2"
 PROVIDE ACCESS THROUGH ITS COVER TO THE CLEAN-OUT. A REMOVABLE CONCRETE STOPPER SHALL BE SET IN THE OPEN TOP OF THE CLEAN-OUT PIPE. CLEAN-OUTS SHALL BE THE SAME SIZE AS THE SEWER PIPING. WATER HAMMER ARRESTORS SHALL BE PROVIDED ON ALL SUPPLY LINES, BOTH HOT & COLD, NEAR EACH FAUCET CONTROL VALVE, OR FLUSH VALVE, AS APPLICABLE. WATER HAMMER ARRESTORS SHALL BE SIZED PER EACH FIXTURE APPLICATION IN ACCORDANCE WITH THE PLUMBING DRAINAGE INSTITUTE (PDI) WH-201. ONLY THREADED END WATER HAMMER 	OPERATING INSULATION PIPE TEMP °F THICKNESS DIAMETER 40-60 1" LESS THAN 1-1/2" 40-60 1" 1-1/2" AND LARGER 105-140 1" LESS THAN 1-1/2" 105-140 2" 1-1/2" AND LARGER

- ND NECESSARY REPAIRS OR REPLACEMENTS, ALL WATER CTED TO A DISINFECTION PROCEDURE AS HEREIN ISINFECTED SHALL INCLUDE HOT & COLD DOMESTIC PIPING, AND ANY OTHER SYSTEMS THAT MAY BE Y SOURCE. THE DISINFECTANT SHALL BE APPLIED TO ALL CT OR FOR THE MAIN CUT-OFF VALVE THROUGH ALL TANKS, CES CONNECTED THERETO.
- ALL HAVE CHROME PLATED SUPPLY STOPS. ER TO THE OTHER CONTRACT DOCUMENTS FOR REQUIREMENTS.

, SEAMLESS TUBING. PIPING SHALL BE INSULATED AS HIN A PVC SLEEVE TO PROTECT THE PIPING INSULATION.

- ENT PIPING
- VC JOINED WITH SOLVENT WELDS.
- VC JOINED WITH SOLVENT WELDS.
- ND SPIGOT TYPE, JOINED WITH ASTM C564 NEOPRENE
- HIN RETURN AIR PLENUM): RON, WITH CISPI 301 SPIGOT BEAD ENDS FOR COUPLING

WITH SOLDERED JOINTS.

IN RETURN AIR PLENUM): WITH SOLDERED JOINTS.

SCHEDULE 40 BLACK STEEL, WELDED OR WITH THREADED

ADE SHALL BE PAINTED WITH (2) COATS OF PAINT. THE HE EXPOSED TO VIEW GAS PIPING TO MATCH THE COLOR

E PIPING ARGE PIPING WITHIN THE ELEVATOR SHAFT:

SCHEDULE 10, WITH ROLLED GROOVE COUPLING OR D FITTINGS. ASTM A-795, DYNA-FLEX, HIGH STRENGTH COUPLING. RIGID CHLORINATED POLYVINYL CHLORIDE M D1784, ORANGE, WITH SOLVENT WELDS.

ACELL, AEROFLEX, RUBATEX, OR EQUAL. N PIPING, DOMESTIC HOT & COLD PIPING, AND DOMESTIC

- D. ALL DRAIN PIPING RECEIVING CHILLED DRAINAGE SHALL BE INSULATED WITH 1" THICKNESS FLEXIBLE ELASTOMERIC PIPE INSULATION SPECIFIED ABOVE.
- E. IF ROUTED IN EXTERIOR WALL, INCREASE INSULATION THICKNESS BY 1/2".

F. EXTERIOR EXPOSED INSULATED PIPING - PROVIDE OUTER ALUMINUM JACKET AND WRAP COMPLETELY AROUND. PROPOSED ALTERNATE JACKETING SYSTEMS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW FOR COMPLIANCE.

- 2.5 EQUIPMENT LABELING
- A. ALL PLUMBING EQUIPMENT SHALL BE IDENTIFIED BY NAMEPLATES PERMANENTLY ATTACHED TO THE EQUIPMENT. NAMEPLATES SHALL BE BLACK SURFACE WITH WHITE ENGRAVED LETTERS. NAMEPLATES SHALL BE A MINIMUM OF 3-INCH LONG BY 1-INCH WIDE WITH WHITE LETTERS A MINIMUM OF 1/4-INCH HIGH.
- B. IF THE PLUMBING EQUIPMENT IS LOCATED ABOVE A LAY-IN CEILING, THEN THE CONTRACTOR SHALL PERMANENTLY ATTACH A NAMEPLATE TO THE GRID UNDER THE EQUIPMENT. THE NAMEPLATE ATTACHED TO THE GRID SHALL BE WHITE SURFACE WITH BLACK LETTERS. NAMEPLATES SHALL BE A MINIMUM OF 3-INCH LONG BY 1-INCH WIDE WITH BLACK LETTERS A MINIMUM OF 1/4-INCH HIGH.
- C. IF THE PLUMBING EQUIPMENT IS LOCATED ABOVE AN ACCESS PANEL, THEN THE CONTRACTOR SHALL PERMANENTLY ATTACH A NAMEPLATE TO THE ACCESS PANEL UNDER THE EQUIPMENT. THE NAMEPLATE ATTACHED TO THE ACCESS PANEL SHALL BE WHITE SURFACE WITH BLACK LETTERS. NAMEPLATES SHALL BE A MINIMUM OF 3-INCH LONG BY 1-INCH WIDE WITH BLACK LETTERS A MINIMUM OF 1/4-INCH HIGH.
- 2.6 FIRE PROTECTION SYSTEM (EXISTING SPRINKLER SYSTEM SHALL BE MODIFIED) A. THESE CONTRACT DOCUMENTS ARE TO BE REVIEWED FOR CONCEPT ONLY DURING THE BUILDING PERMIT PLAN REVIEW. DESIGN AND INSTALLATION ARE REQUIRED TO BE PERFORMED BY A CONTRACTOR PROPERLY LICENSED BY THE STATE FIRE MARSHAL AND MUST COMPLY WITH THE LATEST EDITION OF NFPA-13 AND NFPA-14 AS ADOPTED BY THE
- LOCAL FIRE DEPARTMENT. IN ADDITION, THE INSTALLATION MUST COMPLY WITH THE APPLICABLE BUILDING CODE, STATE OF TEXAS AND CITY REQUIREMENTS, AND NATIONAL CODES AND STANDARDS. B. THE SPRINKLER CONTRACTOR SHALL RELOCATE EXISTING SPRINKLER HEADS AND PIPING,
- AND SHALL PROVIDE NEW SPRINKLER HEADS AND PIPING AS REQUIRED TO PROVIDE FULL COVERAGE OF THIS LEASE SPACE IN STRICT ACCORDANCE WITH NFPA-13, AND ALL CITY, STATE, AND NATIONAL CODES AND STANDARDS. NEW SPRINKLER HEADS SHALL MATCH EXISTING BUILDING STANDARD HEADS. COVERAGE AND DENSITY SHALL MATCH EXISTING BUILDING.
- C. THE SPRINKLER CONTRACTOR SHALL REFER TO THE ARCHITECTURAL REFLECTED CEILING PLAN TO DETERMINE EXACT LOCATIONS OF ALL SPRINKLER HEADS. RELOCATE EXISTING SPRINKLER HEADS AND PIPING WHERE DUCTWORK AND/OR LIGHTING FIXTURE CONFLICTS OCCUR.
- D. SPRINKLERS LOCATED IN ACOUSTIC TILE CEILINGS SHALL BE ON CENTER.
- E. SPRINKLER BRANCH PIPING SHALL NOT BE LOCATED DIRECTLY BELOW TERMINAL UNITS OR OTHER MECHANICAL EQUIPMENT. RELOCATE BRANCH PIPING AND SPRINKLER HEADS AS REQUIRED TO PROVIDE CLEAR SERVICE BELOW.
- F. COORDINATE SPRINKLER LOCATIONS WITH ARCHITECT IN HIGH-FINISH AREAS AND IN HARD CEILINGS. G. INSTALL EXPOSED PIPING IN FINISHED AREAS WITH NO CEILINGS AS HIGH AND
- INCONSPICUOUS AS POSSIBLE. COORDINATE PAINTING REQUIREMENTS WITH ARCHITECT. H. PROTECTION CRITERIA FOR SPRINKLERS SHALL BE BASED ON THE FOLLOWING
- AREA/DENSITY REQUIREMENTS: OFFICE AND PUBLIC AREAS - LIGHT HAZARD. (DROP CEILINGS/HARD CEILINGS)
- 1. 0.10 GPM OVER MOST REMOTE 1,500 SQUARE FEET WITH THE PROTECTION AREA PER SPRINKLER NOT EXCEEDING 225 SQUARE FEET.
- CEILING SPRINKLERS SHALL BE ORDINARY TEMPERATURE RATED, CONCEALED TYPE, COORDINATE COVER FINISH WITH ARCHITECT. EXCEPTION OUTDOOR AREAS: HIGH TEMPERATURE RATED.
- OFFICE AND PUBLIC AREAS LIGHT HAZARD. (OPEN CEILING)
- 1. 0.10 GPM OVER MOST REMOTE 1,500 SQUARE FEET WITH THE PROTECTION AREA PER SPRINKLER NOT EXCEEDING 225 SQUARE FEET.
- 2. CEILING SPRINKLERS SHALL BE ORDINARY TEMPERATURE RATED, PENDANT/UPRIGHT TYPE. EXCEPTION OUTDOOR AREAS: HIGH TEMPERATURE RATED. KITCHEN/COOKING/SERVICE AREA - ORDINARY HAZARD
- 1. 0.15 GPM OVER MOST REMOTE 2,000 SQUARE FEET WITH THE PROTECTION AREA PER SPRINKLER NOT EXCEEDING 225 SQUARE FEET.
- 2. CEILING SPRINKLERS SHALL BE INTERMEDIATE TEMPERATURE RATED, RECESSED
- CHROME TYPE. MECHANICAL EQUIPMENT ROOMS - ORDINARY HAZARD
 - 0.15 GPM OVER MOST REMOTE 2,000 SQUARE FEET WITH THE PROTECTION AREA PER SPRINKLER NOT EXCEEDING 130 SQUARE FEET.
 - 2. CEILING SPRINKLERS SHALL BE INTERMEDIATE TEMPERATURE RATED, PENDANT TYPE. PARKING GARAGE AND UNCONDITIONED AREAS - ORDINARY HAZARD, GROUP II DRY PIPE
 - 0.15 GPM OVER MOST REMOTE 1,950 SQUARE FEET WITH THE PROTECTION AREA PER SPRINKLER NOT EXCEEDING 130 SQUARE FEET.
 - 2. CEILING SPRINKLERS SHALL BE INTERMEDIATE TEMPERATURE RATED, PENDANT TYPE. ELEVATOR MACHINE ROOM AND HOISTWAY
- 1. ELEVATOR MACHINE ROOM AND HOISTWAY SHALL BE PROTECTED WITH INTERMEDIATE TEMPERATURE RATED HEADS PER NFPA 13.
- I. COORDINATE SPRINKLER AND PIPING DEMOLITION AND RELOCATION REQUIRED TO OCCUR DURING DEMOLITION PACKAGE DUE TO ARCHITECTURAL CEILING, DUCTWORK AND EQUIPMENT MODIFICATIONS, ETC.
- J. APPLICABLE STANDARDS: NFPA 13: INSTALLATION OF SPRINKLER SYSTEMS. NFPA 101: SAFETY TO LIFE FROM FIRE IN BUILDINGS AND STRUCTURES. NFPA 51B: FIRE PREVENTION DURING WELDING, CUTTING, AND OTHER HOT WORK.
- NFPA 241: SAFEGUARDING CONSTRUCTION, ALTERATION, AND DEMOLITION OPERATIONS. K. CONTRACTOR (PROPERLY LICENSED WITH THE STATE FIRE MARSHAL) SHALL FURNISH, ACCORDING TO THE CONDITIONS OF THE CONSTRUCTION CONTRACT, SHOP DRAWINGS INCLUDING THE COMPLETE LAYOUT OF FIRE PROTECTION SYSTEMS TO THE AUTHORITIES HAVING JURISDICTION, LOCAL FIRE DEPARTMENT AND THE OWNER'S INSURANCE CARRIER FOR APPROVAL.
- L. THE CONTRACTOR SHALL ALLOW A MINIMUM OF 5 WORKING DAYS FOR REVIEW OF REMODELED SYSTEMS AND A MINIMUM OF 15 WORKING DAYS FOR THE NEW SYSTEMS PLAN REVIEWS. REVIEW TIMES MAY BE LONGER DEPENDING ON CURRENT PLAN REVIEW WORK LOAD.





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NECHANICAL CONTINUES AND CAN USE AND CAN BE AND ADDITIONAL CONTINUES AND CAN USE CAN USE AND CAN USE CAN USE AND CONTINUES AND CAN USE CANNOD CAN USE CAN USE AND CAN USE CAN USE CAN USE CONTINUES AND CAN USE CAN U	D.	AND ROUTING NOT INDICATED ON PLANS.
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g P2.000 For C Ge Piping UP Ig Piping to E	CONTINUA TO BE JU BEGIN DRA	TION. CO ST ABOVE AINING BY	NTRACTO E THE 100 ' GRAVITY	R SHALL F -YEAR FLC '.	ROUTE THE OOD LINE B	EFO
ump pump dis Opper piping G p2.000 for (Scharge To 4" PVC Continua	PIPING D C PIPE JU TION.	OWN BEL ST ABOVE	OW THE S E THE SLAP	LAB. TRAN 3. REFER T	SIT O
6" SAMPLE PC UT WITH THE / S.	ORT. SAMF ABILITY TO	PLE PORT O VISUALL	SHALL BE	e a single Ie flow li	E RISER TV INE AND RI	/O-' ∃TF
	ATION. FIRE SPRINKL ER SYSTEM NO VAL INFORMAT FIRE SPRINKL GARAGE IS O SHALL BE USE SPRINKLER S ITIONAL INFOR FIRE SPRINKL CT FOR AREA S. REFER TO "F CATIONS SHEE L SUMP PUMP MP DISCHARCO OR SUMP PUMP G PIPING TO E UMP PUMP DIS OPPER PIPING OPPER PIPING C SAMPLE PC UT WITH THE S S.	ATION. FIRE SPRINKLER SCOPI ER SYSTEM NOTES" ON VAL INFORMATION. FIRE SPRINKLER SCOPI GARAGE IS OPEN. TRA SHALL BE USED FOR TH SPRINKLER SYSTEM NO ITIONAL INFORMATION. FIRE SPRINKLER SCOPI CT FOR AREAS THAT HA S. REFER TO "FIRE SPRII CATIONS SHEET FOR AD L SUMP PUMP DISCHARGE". OR SUMP PUMP DISCHARGE DEPING UP TO BE JU G PIPING TO BEGIN DRA UMP PUMP DISCHARGE OPPER PIPING TO 4" PVO S P2.000 FOR CONTINUA 6" SAMPLE PORT. SAMI UT WITH THE ABILITY TO S.	ATION. FIRE SPRINKLER SCOPE. THIS AF ER SYSTEM NOTES" ON THE PLUI VAL INFORMATION. FIRE SPRINKLER SCOPE. THIS AF GARAGE IS OPEN. TRASH 102 IS SHALL BE USED FOR THE PARKIN SPRINKLER SYSTEM NOTES" ON ITIONAL INFORMATION. FIRE SPRINKLER SCOPE. THE CC CT FOR AREAS THAT HAVE A CEI 3. REFER TO "FIRE SPRINKLER SY CATIONS SHEET FOR ADDITIONAL L SUMP PUMP DISCHARGE PIPIN MP DISCHARGE". 9. SUMP PUMP DISCHARGE PIPIN 3 P2.000 FOR CONTINUATION. CO GE PIPING UP TO BE JUST ABOVE IG PIPING TO BEGIN DRAINING BY UMP PUMP DISCHARGE PIPING D DPPER PIPING TO 4" PVC PIPE JU 3 P2.000 FOR CONTINUATION. 6" SAMPLE PORT. SAMPLE PORT UT WITH THE ABILITY TO VISUALI 3.	ATION. FIRE SPRINKLER SCOPE. THIS AREA HAS A ER SYSTEM NOTES" ON THE PLUMBING SP VAL INFORMATION. FIRE SPRINKLER SCOPE. THIS AREA HAS A GARAGE IS OPEN. TRASH 102 IS NOT HEA SHALL BE USED FOR THE PARKING GARAG SPRINKLER SYSTEM NOTES" ON THE PLUM ITIONAL INFORMATION. FIRE SPRINKLER SCOPE. THE CONTRACTO CT FOR AREAS THAT HAVE A CEILING AND S. REFER TO "FIRE SPRINKLER SYSTEM NO CATIONS SHEET FOR ADDITIONAL INFORMA L SUMP PUMP DISCHARGE PIPING AT 10-0 IMP DISCHARGE". R SUMP PUMP DISCHARGE PIPING UP FRO 5 P2.000 FOR CONTINUATION. CONTRACTO GE PIPING UP TO BE JUST ABOVE THE 100 IG PIPING TO BEGIN DRAINING BY GRAVITY UMP PUMP DISCHARGE PIPING DOWN BEL DOPER PIPING TO 4" PVC PIPE JUST ABOVE 5 P2.000 FOR CONTINUATION. 6" SAMPLE PORT. SAMPLE PORT SHALL BI UT WITH THE ABILITY TO VISUALLY SEE TH 3.	ATION. FIRE SPRINKLER SCOPE. THIS AREA HAS A CEILING. ER SYSTEM NOTES" ON THE PLUMBING SPECIFICATI- VAL INFORMATION. FIRE SPRINKLER SCOPE. THIS AREA HAS A CEILING, GARAGE IS OPEN. TRASH 102 IS NOT HEATED. THEF SHALL BE USED FOR THE PARKING GARAGE AND FO SPRINKLER SYSTEM NOTES" ON THE PLUMBING SPE ITIONAL INFORMATION. FIRE SPRINKLER SCOPE. THE CONTRACTOR SHALL I CT FOR AREAS THAT HAVE A CEILING AND AREAS TH 3. REFER TO "FIRE SPRINKLER SYSTEM NOTES" ON T ATIONS SHEET FOR ADDITIONAL INFORMATION. L SUMP PUMP DISCHARGE PIPING AT 10-0" INTERVA IMP DISCHARGE". R SUMP PUMP DISCHARGE PIPING UP FROM BELOW B P2.000 FOR CONTINUATION. CONTRACTOR SHALL GE PIPING UP TO BE JUST ABOVE THE 100-YEAR FLC IG PIPING TO BEGIN DRAINING BY GRAVITY. UMP PUMP DISCHARGE PIPING DOWN BELOW THE S DPPER PIPING TO BEGIN DRAINING BY GRAVITY. UMP PUMP DISCHARGE PIPING DOWN BELOW THE SLAW 3. 6" SAMPLE PORT. SAMPLE PORT SHALL BE A SINGLE UT WITH THE ABILITY TO VISUALLY SEE THE FLOW L 3.	ATION. FIRE SPRINKLER SCOPE. THIS AREA HAS A CEILING. REFER TO ER SYSTEM NOTES" ON THE PLUMBING SPECIFICATIONS SHEE' VAL INFORMATION. FIRE SPRINKLER SCOPE. THIS AREA HAS A CEILING, HOWEVER GARAGE IS OPEN. TRASH 102 IS NOT HEATED. THEREFORE, A SHALL BE USED FOR THE PARKING GARAGE AND FOR TRASH 1 SPRINKLER SYSTEM NOTES" ON THE PLUMBING SPECIFICATION TITONAL INFORMATION. FIRE SPRINKLER SCOPE. THE CONTRACTOR SHALL REFER TO CT FOR AREAS THAT HAVE A CEILING AND AREAS THAT DONT S. REFER TO 'FIRE SPRINKLER SYSTEM NOTES' ON THE PLUMB ATIONS SHEET FOR ADDITIONAL INFORMATION. L SUMP PUMP DISCHARGE PIPING AT 10'-0" INTERVALS AS "ELE IMP DISCHARGE". IR SUMP PUMP DISCHARGE PIPING UP FROM BELOW. REFER TO G PIPING TO BE JUST ABOVE THE 100-YEAR FLOOD LINE B IG PIPING TO BEGIN DRAINING BY GRAVITY. UMP PUMP DISCHARGE PIPING DOWN BELOW THE SLAB. TRAN DPER PIPING TO BEGIN DRAINING BY GRAVITY. UMP PUMP DISCHARGE PIPING DOWN BELOW THE SLAB. TRAN DPER PIPING TO A "PVC PIPE JUST ABOVE THE SLAB. REFER TO S 22.000 FOR CONTINUATION. 6" SAMPLE PORT. SAMPLE PORT SHALL BE A SINGLE RISER TY UT WITH THE ABILITY TO VISUALLY SEE THE FLOW LINE AND RI 3.

A. REFER TO PLUMBING COVER SHEET FOR SYMBOLS, ABBREVIATIONS, AND ADDITIONAL INFORMATION.
 B. REFER TO RISER AND EQUIPMENT CONNECTION SCHEDULE FOR ADDITIONAL SI AND ROUTING NOT INDICATED ON PLANS.
C. REFER TO PLUMBING SPECIFICATIONS AND DETAILS FOR ADDITIONAL INFORMATION.
D. CONTRACTOR SHALL DETERMINE INVERT AND VERIFY THAT THEY ARE COORDINATED WITH OTHER TRADES.
E. JOB CONDITIONS RESULT IN UNUSUALLY LIMITED SPACE FOR SYSTEM INSTALLATION THAT PERMITS SERVICE, AND MAINTENANCE. UTMOST ATTENTIO SHALL BE REQUIRED FOR ALL ELEMENTS OF CONSTRUCTION, BUT ESPECIALLY PLANNING, COORDINATION AND TRADES WORKMANSHIP.
F. PROVIDE STEEL NAIL PLATES NOT LESS THAN 18 GAUGE IN THICKNESS TO ALL PLASTIC AND COPPER PIPING PENETRATING FRAMING MEMBERS WITHIN 1-INCH THE EXPOSED FRAMING PER CODE.
 G. REFER TO THE ARCHITECT'S DRAWING NOTES AND REQUIREMENTS. IN CASE OF ANY DISCREPANCIES THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR SPECIFICATIONS.
 H. COORDINATE ALL WORK WITH ALL OTHER TRADES. I. FIELD VERIFY ALL CONDITIONS AND SCOPE OF WORK PRIOR TO STARTING WOR COORDINATE SEQUENCING OF WORK WITH OWNER'S REPRESENTATIVE.
J. CONNECTIONS OF NEW PIPING TO EXISTING PIPING SHALL BE DONE IN SUCH A MANNER AS TO NOT DAMAGE EXISTING SYSTEMS. REPORT ALL SUCH
OCCURRENCES IMMEDIATELY TO THE ARCHITECT/OWNER'S REPRESENTATIVE. K. COORDINATE SHUTDOWN OF SYSTEMS DURING CONSTRUCTION WITH OTHER
L. RE-ROUTING OF EXISTING PIPING SHALL BE DONE IN SUCH A MANNER AS TO NO
ARCHITECT/OWNER'S REPRESENTATIVE FOR LOCATIONS. M. REPORT ALL SYSTEMS OR COMPONENTS APPEARING TO BE DEFECTIVE.
NON-OPERATIONAL OR "SUSPECT", TO OWNER'S REPRESENTATIVE/ARCHITECT IMMEDIATELY TO DETERMINE FURTHER ACTION.
N. REFER TO DRAWING P2.001 FOR CONTINUATION OF PLUMBING WORK BELOW.
1 VENT PIPING LIP EROM BELOW, CONTINUE ROLITING PIPING AS INDICATED
CONTRACTOR SHALL COORDINATE INSTALLING VENT PIPING TIGHT TO STRUCTURE WHILE ALLOWING FOR THE REQUIRED SLOPE.
 UP TO 3" VTR. PROVIDE VALVE AND CAP FOR FUTURE TENANT CONNECTION.
4. DOMESTIC COLD WATER PIPING UP FROM BELOW. REFER TO DRAWING P2.001 FOR CONTINUATION.
5. SUSPEND WATER HEATER AND ITS AUXILIARY DRAIN PAN ABOVE THE MOP SINK REFER TO DETAILS FOR ADDITIONAL INFORMATION.
6. ROUTE WATER HEATER RELIEF AND DRAINS INDEPENDENTLY ALONG WALL OVE TO THE MOP SINK AND PROVIDE AN AIR GAP FROM THE DISCHARGE OF THE DRAIN PIPING A MINIMUM OF 2 X THE PIPE DIAMETER OR 1" (WHICHEVER IS
GREATER) ABOVE THE FLOOD RIM OF THE MOP SINK. PIPING NOT SHOWN FOR CLARITY.
7. INSTALL PRE-PIPED THERMOSTATIC MIXING VALVE ON WALL. REFER TO DETAIL FOR ADDITIONAL INFORMATION.
8. THE CONTRACTOR SHALL BALANCE THE 1/2" HOT WATER RETURN CIRCUIT SETTER TO 1.0 GPM. 9. CONTRACTOR SHALL COORDINATE ROUTING VENT PIPING AS HIGH AS POSSIBLE
WHILE MAINTAINING THE REQUIRED SLOPE TO ACCOMMODATE THE SERVICE CLEARANCE OF THE AHU. REFER TO THE MECHANICAL DRAWINGS FOR LOCATION OF AHU.
10. LIMIT OF FIRE SPRINKLER SCOPE. THIS AREA HAS A CEILING. REFER TO "FIRE SPRINKLER SYSTEM NOTES" ON THE PLUMBING SPECIFICATIONS SHEET FOR
ADDITIONAL INFORMATION. 11. LIMIT OF FIRE SPRINKLER SCOPE. THIS AREA DOES NOT HAVE A CEILING. REFEI TO "FIRE SPRINKLER SYSTEM NOTES" ON THE PLUMBING SPECIFICATIONS SHEE
FOR ADDITIONAL INFORMATION.
notes deleted
ROOF WARRANTY
THE ROOF SYSTEM INSTALLED IN THIS BUILDING HAS A WARRANTY. THE
EQUIPMENT ON THE ROOF. THIS INCLUDES THE INSTALLATION OF ROOF PENETRATIONS, EQUIPMENT CURBS, VTR'S AND PIPE SUPPORTS.
CONTACT BUILDING MANAGER FOR ROOF WARRANTY INFORMATION AND FOR EXAC SPECIFICATIONS FOR ANY WORK TO BE PERFORMED ON THE ROOF OF THIS BUILDING.
UNDER NO CIRCUMSTANCES SHALL THE GENERAL CONTRACTOR OR ANY SUB CONTRACTORS BE ALLOWED TO MAKE ROOF PENETRATIONS. TO DO SO WOULD VO
THE EXISTING ROOF WARRANTY. ALL PENETRATIONS SHALL BE COORDINATED THROUGH THE BUILDING OWNER'S PREFERRED ROOFING CONTRACTOR.
WARRANTY IS NOT VOIDED DUE TO CONSTRUCTION ASSOCIATED WITH THIS PROJECT.

١٨/٨		DDEC							D	OMESTIC	; WAT	ER H	EATER	(ELEC) SCHEDL	ILE
VVA						IITS					STORAGE	E C.	APACITY	EL	ECTRICAL	DATA	BASIS OF DESIGN
FIXTURE	TYPE OF SUPPLY CONTROL		PUBLIC			PRIVATE		MARK	SERVES	LOCATION	GALLONS	GPH	TEMP	KW	VOLTS	PH	MANUFACTURER & MODEL
		TOTAL	CW	HW	TOTAL	CW	НW	EWH	POTABLE	SEE PLANS	6	8	80	1.5	120	1 /	AO SMITH DEL-6S-1.5
WATER CLOSET	FLUSH VALVE	-	8	-	5	5	-	NOTES:									
WATER CLOSET	FLUSH TANK	15	5	-	2.5	2.5	-	1. PROVI	DE AMTROL	EXTROL ST-5-C S	SERIES PRE	-CHARGE	D THERMAL	EXPANSION A	BSORBER	(ET) FOR WATER H	HEATER.
PEDESTAL URINAL	FLUSH VALVE	-	4	-	-	-	-	2. WATE 3. WATE	R HEATER S R HEATER IN	ET POINT SHALL ISTALLATIONS SH	BE AT 140°F HALL MEET	: OR EXCEB	ED ALL CODE	REQUIREME	NTS. LOCA	L AMENDMENTS. A	AND MANUFACTURER'S
WALL URINAL	FLUSH VALVE	3	4	-	-	-	-	RECOI	MMENDED IN	ISTALLATION RE		S.		ES SHALL BE			
LAVATORY	FAUCET	11	1.5	1.5	1	1	1	5. COOR					TECTURAL.				
BATHTUB	FAUCET	-	2	3	2	1.5	1.5	6. COOR 7. THE D	ISCONNECT	SWITCH SHALL N		n and rei I MOUNTE	D AND SHAL	L BE PROVIDE	ECTRICAL ED AND INS	STALLED BY THE E	LECTRICAL
SHOWER HEAD	MIXING VALVE	-	2	3	2	1	2	CONT	RACTOR.								
BATHROOM GROUP	FLUSH VALVE CLOSET	-	-	-	8	8	3										
BATHROOM GROUP	FLUSH TANK CLOSET	-	-	-	6	6	3					PUN	IP SCH	EDULE			
SEPARATE SHOWER	MIXING VALVE	-	-	-	2	1	2				FLOW	DESIGN HEAD		ECTRICAL DA	TA	BASIS	OF DESIGN
SERVICE SINK	FAUCET	2	3	3	-	-	-	MARK	SERVICE	IYPE	GPM	FT. W.G	HP	RPM	V / PH	MANUFAC	TURER & MODEL
LAUNDRY TUBS (1-3)	FAUCET	-	-	-	3	3	3	HWRP	HW CIRC.	CENTRIFUGAL	1.0	25	1/4	3300	120 / 1	ITT NBF	-36 (SPEED 1)
COMBINATION FIXTURE	FAUCET	-	-	-	3	3	3		I				ļ	1 1		I	, , , , , , , , , , , , , , , , , , ,
						-		NOTES:									
PDI	JNITS	А	В	С	D	E	F	1. PROVI 2. THE D	DE HWRP W ISCONNECT	ITH 24-HR, 7-DAY SWITCH SHALL N	TIMER CON	NTROLLER MOUNTE	INSTALL AC D AND SHAL	UASTAT ON ⁻ L BE PROVIDI	THE RETUF ED AND INS	RN ADJACENT TO L STALLED BY THE E	AST FIXTURE TAP. LECTRICAL
FIXTUR	E UNITS	1 - 11	12 - 32	33 - 60	61 - 113	114 - 154	155 - 330	CONT	RACTOR.								
NOTES:																	
1. SIZING PER THE PLUMBING	AND DRAINAGE INSTITUTE (PD	I) STANDA	RD PDI-HW	201.						THER	MOST		MIXING		FSC		
2. ALL SIZING DATA BASED O	N THE FLOW VELOCITIES OF 10	FPS OR LE	SS.						DESIGN								
3. ROUND UP THE FIXTURE-U	NIT TOTAL TO THE NEXT LARGE	R WHOLE	NUMBER.					MARK	FLOW	PRESSURE DR DESIGN FLOW	OP @ F RATE F		FLOW	BA		SIGN	NOTES
									[GPM]	[PSI]		SPM] ¹	[GPM] ²	MANUFACTUF	RER	MODEL NUMBER	
								TMV-1	2.63	0.55		0.5	19	POWERS		LFSH1432	1, 2, 3
								TMV-2	0.5	2	(0.35	2	POWERS		LFE480	4

DOMESTIC WATER AND WASTE WATER CALCULATIONS

	TAC			WATER	BRA FIXTUR	NCH E UNITS	TOTAL DCW	SANITAR	Y WASTE
ROOW / AREA	TAG	FIATORE TYPE	QIT	UNITS	HW	CW	FIXTURE UNITS	DRAINAGE DFU	TOTAL DFU
SEE PLANS	MS	MOP SINK	1	1.50	1.13	1.13	1.50	3.00	3.00
RESTROOM	EWC	WATERCOOLER (DBL. BOWL TAS)	2	0.50	-	1.00	1.00	0.50	1.00
RESTROOM	LV	LAVATORY	2	1.00	1.50	1.50	2.00	1.00	2.00
RESTROOM	WC	WATER CLOSET - FT	2	2.50	-	5.00	5.00	4.00	8.00
RISER	FS	FLOOR SINK - 4"	1	-	-	-	-	8.00	8.00
EXTERIOR	WH	WALL HYDRANT	1	2.50	-	2.50	2.50	-	-
EXTERIOR	WH	WALL HYDRANT	1	1.00	-	1.00	1.00	-	-
			TOT	AL WSFU =	2.63	12.13	13.00	TOTAL DFU =	22.00
		RECOMMENDED MIN	IMUM	BUILDING W	ATER SU	JPPLY PIF	PE SIZE (INC	HES) [NOTE 2]	1-1/2"
		RECOMMENDE	D MINI	MUM BUILD	ING WAT	ER SERV	ICE METER	SIZE (INCHES)	2"
		RECOMMENDE			DING SAN	NITARY SI	EWER PIPE	SIZE (INCHES)	4.00

NOTES: 1. CALCULATIONS PER THE 2021 UPC. 2. BASED ON A SUPPLY PRESSURE RANGE OF 50 TO 60 PSI. 3. THE ESTIMATED TOTAL BUILDING DOMESTIC WSFU = 45 WSFU'S. 4. THE ESTIMATED TOTAL BUILDING SANITARY WASTE = 62 DFU'S.

NOTES:

1. MINIMUM FLOW RATE REQUIRED TO MAINTAIN TEMPERATURE CONTROL. PRESSURE DROP OF 5 PSI ACROSS VALVE.
 VALVE FINISH IS TO BE ROUGH BRONZE.

VALVE FINISH IS TO BE POLISHED CHROME. MIXING VALVE SHALL FAIL CLOSED UPON OUTLET TEMPERATURES EXCEEDING 110°F. SET OUTLET TEMPERATURE TO 105°F.

\frown	\sim	\sim	\sim	\sim	\sim	\sim	\sim								
	ELEVATOR SUMP PUMP SCHEDULE														
MARK SERVICE TYPE FLOW DESIGN ELECTRICAL DATA BASIS OF DESIGN MANUFACTURER & MODEL															
	GPM FT. W.G. HP RPM V/PH														
SP	SP ELEV. SUMP SUBMERSIBLE 50 19 1/2 3600 120 / 1 STANCOR SE-50 3														
NOTES:															
1. SUMP F	PUMP SHAL			WITHOUT A	NY HUMAN	INTERVEN	TION.								
3. PROVID	DE SUMP PL		OR PUMP (STEM, REN		M, HIGH OIL	INDICATOR, AND SINGLE FLOAT WITH							
4. CONTR	ACTOR SHA	ALL COORDINATE	LOCATION	OF ALARM A	VV DEVICE	WITH THE A		HAVING JURISDICTION.							
5. NON-H 6. INSTAL A17.1-2	YDRAULIC E L ELEVATOI 2007/CSA B4	LEVATOR IN SCO R SUMP PUMP PE 4.07.	PE. NO EQU R MANUFA	JIPMENT FO CTURER'S IN	R OIL / WAT ISTALLATIO	ER SEPARA	ATION REQU TIONS AND	JIRED. IN COMPLIANCE WITH ASME							
					~~	\sim	بممر	· · · · · · · · · · · · · · · · · · ·							

MARK	DESCRIPTION	MOUNTING TYPE	MANUFACTURER MODEL NUMBER	SPECIFICATIONS	ADA (Y/N)	BRANCH CONNECTION SIZE UNLESS NOTED OTHERWISE			P-TRAP SIZE	
						CW	HW	SAN	VENT	
EWC	ELECTRIC WATER COOLER	WALL	ELKAY LZSTL8WSLK	SELF CONTAINED, BARRIER FREE, DUAL LEVEL, SELF CLOSING PUSH BARS ON FRONT AND SIDES, SAFETY BUBBLERS, 8.0 GPH CAPACITY. WATER COOLER (LZSTL8WSLC), BOTTLE FILLER (LZWSR), AND FILTER. FILTER SHALL BE CERTIFIED TO NSF 42 AND 53 FOR LEAD, PARTICULATE, CHLORINE, TASTE, AND ODOR REDUCTION. 3000 GALLON CAPACITY. GALVANIZED FRAME WITH STAINLESS STEEL BASIN. REFER TO ARCHITECTS DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHT. PROVIDE APRONS IF REQUIRED BY TAS. CONTRACTOR SHALL SUPPLY THE SCHEDULED P-TRAP FOR EWC. 115V/60HZ, 6A, 370W.	γ	1/2"	-	1-1/2"	1-1/2"	1-1/2"
FCO	FLOOR CLEAN-OUT	FLOOR	JR SMITH 4020 SERIES	CAST-IRON BODY, ABS GASKETED CLEANOUT PLUG, SATIN NICKEL BRONZE FLANGE AND COVER. TWO-PIECE, THREADED, ADJUSTABLE HOUSING FOR FLUSH INSTALLATION. PROVIDE WITH FLANGE WITH FLASHING CLAMPS (-F-C).	-	-	-	SEE PLANS	-	-
FS	FLOOR SINK	FLOOR	JR SMITH 3140 SERIES	12" X 12" 8" RECEPTOR, ACID-RESISTANT ENAMELED CAST IRON, ALUMINUM DOME STRAINER, RIM WITH 1/2 GRATE	-	-	-	4"	2"	4"
LV	LAVATORY	WALL	KOHLER KINGSTON K-2005 SERIES	BOWL: RECTANGULAR 21 X 18 IN, INGLE FAUCET HOLE, CONCEALED ARM CARRIER SYSTEMS, FRONT OVERFLOW, WHITE. FAUCET: KOHLER K-13460, 0.50 GPM WITH TIME-OUT SETTING AT 30-SECONDS, ADA COMPLIANT, SENSOR ACTIVATED, AERATED SPRAY HEAD, CHROME PLATED BRASS, DC BATTERY POWERED. SUPPLY: MCGUIRE 2167 SERIES. LOOSE KEY WITH RISER. TRAP: MCGUIRE 8902 SERIES. CAST BODY WITH CLEAN-OUT. CARRIER: SMITH 0700 SERIES. STRAINER, AND TAILPIECE: MCGUIRE 155WC OFFSET TAILPIECE, OPEN GRID STRAINER. PROTECTIVE PIPE COVERS: TRUEBRO OR EQUAL.	Y	1/2"	1/2"	2"	1-1/2"	1-1/4"
MS	MOP SINK	FLOOR	FIAT MSB-24X24	24 X 24-IN, 10-IN HIGH WALLS WITH 1-IN WIDE SHOULDERS, STAINLESS STEEL DRAIN BODY (3-IN DRAIN PIPE CONNECTION), COMBINATION DOME STRAINER AND STAINLESS STEEL LINT BASKET. FAUCET: 830 WALL MOUNTED FAUCET WITH VACUUM BREAKER, PAIL HOOK AND 3/4" HOSE THREAD ON SPOUT. STAINLESS STEEL WALL GUARDS, BUMPER GUARDS, MOP BRACKET, HOSE, AND BRACKET.	-	3/4"	3/4"	3"	2"	3"
TP	TRAP PRIMER	WALL	PPP DUAL-FLOW	BRASS BODY, 1/2" MALE NPT INLET, 1/2" FEMALE NPT OUTLET. PROVIDE DISTRIBUTION UNITS AS REQUIRED.	-	1/2"	-	-	-	-
WC	WATER CLOSET	FLOOR	KOHLER "HIGHLINE" K-3519-TR	VITREOUS CHINA, ELONGATED RIM, EQUIPPED WITH SLOAN "FLUSHMATE" SYSTEM, CLOSE-COUPLED TANK, 2" OUTLET, 1.0 GALLONS PER FLUSH, WITH BOLT CAPS, INTEGRAL TRAP, AND LOCKING TANK LID. SEAT: CHURCH 9500C SERIES . OPEN-FRONT SEAT WITHOUT COVER. SHALL BE ADA COMPLIANT. MOUNT TANK FLUSH HANDLE TOWARD THE "WIDE" SIDE OF ADA COMPLIANT STALL. REFER TO ARCHITECTS DRAWINGS FOR EXACT LOCATION.	Y	1/2"	_	4"	2"	-
WCO	WALL CLEAN-OUT	WALL	-	TAPPED CLEANOUT TEE, EXTRA-HEAVY, THREADED, SOLID HEXAGONAL NUT. CLEANOUTS IN HUBS OF COMBINATION WYE AND 1/8-BENDS OR WYES: TAPPED SPIGOT. CLEANOUTS AT ENDS OF HUBLESS COMBINATION WYE AND 1/8-BENDS OR WYES: BLIND PLUG. COVERS OVER CLEANOUTS IN CONCEALED VERTICAL PIPING (ALL AREAS, FINISHED AND UNFINISHED): SQUARE FRAME WITH SECURED, SMOOTH, SATIN NICKEL BRONZE ACCESS COVER. OPENING SIZES: 4-IN AND SMALLER PIPING: 6 X 6-IN. LARGER THAN 4-IN PIPING: 8 X 8-IN. CERAMIC TILE, QUARRY TILE, STONE, RESILIENT TILE, AND SHEET: FACE FLANGE TO HIDE ROUGH WALL OPENING. SMITH 4430 SERIES. TERRAZZO AND CONCRETE (FINISHED AREAS): PLASTER GROUND FLANGE AND FLUSH-WITH-WALL FRAME. SMITH 4431 SERIES	-	-	-	-	-	-
WH	WALL HYDRANT	WALL	WOODFORD MODEL B65	ANTI-SIPHON FREEZELESS WALL HYDRANT. CHROME FINISH WITH ANTI-SIPHON VACUUM BREAKER WITH 3/4" MALE HOSE THREAD, HARDENED STAINLESS STEEL STEM WITH LOOSE TEE KEY OPERATOR, CONCEALED BOX TYPE.	-	3/4"	-	-	-	-
YCO	YARD CLEAN-OUT	GRADE	JR SMITH 4237	EXTRA-HEAVY, DOUBLE-FLANGED, CAST-IRON FERRULE, COMPLETELY FREE OF PIPING SO THAT NO LOAD IS TRANSMITTED TO PIPE. CONCRETE: HEAVY-DUTY ROUND TOP WITH SCORIATED COVER AND LIFTING DEVICE, SET IN FINISHED CONCRETE. POURED AT SURFACE USING HIGH FLANGE. NON-SURFACED AND ASPHALT: HEAVY-DUTY ROUND TOP WITH SCORIATED COVER AND LIFTING DEVICE, SET IN 6-IN THICK CONCRETE PAD, 24 X 24-IN SQUARE. POURED BELOW SURFACE USING LOW FLANGE. NICKEL BRONZE FINISH.	-	-	-	4"	-	-

