## **ABBREVIATIONS**

ABV	ABOVE	CFS	CUBIC FEET PER SECOND	EPO	EMERGENCY POWER OFF	FPM	FEET PER MINUTE	HW	DOMESTIC HOT WATER	0	OXYGEN	RL	REFRIGERANT LIQUID	U.N.O.	UNLESS NOTED OTHERW
NDA	AMERICANS WITH DISABILITIES ACT	CLG	CEILING	(ER)	EXISTING TO BE RELOCATED	FSD	COMBINATION FIRE SMOKE DAMPER	HWC	DOMESTIC HOT WATER RECIRCULATION	OA	OUTSIDE AIR	RPM	REVOLUTIONS PER MINUTE	V	VENT
ΔD.	AREA DRAIN	CHR	CHILLED WATER SUPPLY	ERV	ENERGY RECOVERY VENTILATOR	FT	FEET	НХ	HEAT EXCHANGER	OBD	OPPOSED BLADE DAMPER	RPZ	REDUCED PRESSURE ZONE	VAC	VACUUM
F	ABOVE FINISHED FLOOR	CHS	CHILLED WATER SUPPLY	ESP	EXTERNAL STATIC PRESSURE	FU	FIXTURE UNITS	IG	ISOLATED GROUND	OCD	OVERFLOW CONDENSATE DRAIN	RS	REFRIGERANT SUCTION	VFD	VARIABLE FREQUENCY
	ALUMINUM	CO	CLEANOUT	EWC	ELECTRIC WATER COOLER	FV	FACE VELOCITY	IWH	INSTANTANEOUS WATER HEATER	OCPD	OVERCURRENT PROTECTIVE	RTU	ROOFTOP UNIT	VIF	VERIFY IN FIELD
	ANALOG INPUT	CR	CONDENSER WATER RETURN	EWH	ELECTRIC WATER HEATER	G	GAS	IW	INDIRECT WASTE	OFOL	DEVICE	S	SINK	VTR	VENT THROUGH ROOF
	ANALOG OUTPUT	CS	CONDENSER WATER SUPPLY	EWT	ENTERING WATER TEMPERATURE	GFI	GROUND FAULT INTERRUPTER	IWV	INDIRECT WASTE VENT	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED	SA	SUPPLY AIR	W	SANITARY WASTE
D	AIR PRESSURE DROP	CW	DOMESTIC COLD WATER	EXH.	EXHAUST	GM	GAS METER	KW	KILOWATT	OFD	OVERFLOW ROOF DRAIN	SAG	SUPPLY AIR GRILLE/REGISTER	WB	WET BULB
T	ABOVE GROUND STORAGE TANK	CU	COPPER	(F)	FUTURE	GND	GROUND	L	LAVATORY	OSD	OVERFLOW STORM	SAN	SANITARY SEWER	WC	WATER CLOSET
S	BUILDING AUTOMATION SYSTEM	(D)	EXISTING TO BE DEMOLISHED	°F	DEGREES FAHRENHEIT	GPH	GALLONS PER HOUR	LAT	LEAVING AIR TEMPERATURE	PBD	PARALLEL BLADE DAMPER	SD	STORM DRAIN	WCO	WALL CLEANOUT
=	BELOW FINISHED FLOOR	DB	DRY BULB	FCO	FLOOR CLEANOUT	GPM	GALLONS PER MINUTE	LBS	POUNDS	PH	PHASE	SF	SQUARE FEET	WP	WEATHER PROOF
Р	BACKFLOW PREVENTER	DCO	DOUBLE CLEANOUT	FD	FIRE DAMPER	GRS	GALVANIZED RIGID STEEL	MATV	MASTER ANTENNA TELEVISION SYSTEM	PP	POWER POLE	SMD	SMOKE DAMPER	WPD	WATER PRESSURE DR
D	BACKDRAFT DAMPER	DI	DIGITAL INPUT	FDC	FIRE DEPARTMENT CONNECTION	GW	GREASY WASTE	MB	MOP BASIN	PSI	POUNDS PER SQUARE INCH	SP	STATIC PRESSURE	WSHP	WATER-SOURCE HEAT
Р	BRAKE HORSEPOWER	DN	DOWN	FDS	FUSED DISCONNECT SWITCH	GWH	GAS WATER HEATER	MBH	THOUSANDS OF BTUS PER HOUR	PSIG	POUNDS PER SQUARE INCH (GAGE)	SPD	STATIC PRESSURE DROP	"WC	INCHES WATER COLUM
J	BRITISH THERMAL UNIT	DO	DIGITAL OUTPUT	FLA	FULL LOAD AMPS	НВ	HOSE BIBB	MCA	MINIMUM CIRCUIT AMPS	PVC	POLYVINYL CHLORIDE PIPE	TPV	TRAP PRIMER VALVE	" WG	INCHES WATER GAUG
UH	BRITISH THERMAL UNIT PER HOUR	DT	DAY TANK	FLD	FLOOR DRAIN	HD	HUB DRAIN	MFG	MANUFACTURER	(R)	RELOCATED	TPD	TOTAL PRESSURE DROP	WM	WALL MOUNTED
	CONDUIT	(E)	EXISTING	FL	FLOW LINE	HG	REFRIGERANT HOT GAS	MOCP	MAXIMUM OVERCURRENT PROTECTION	RA	RETURN AIR	TP	TOTAL PRESSURE	XFMR	TRANSFORMER
	COMPRESSED AIR	EAG	EXHAUST AIR GRILLE/REGISTER	FOR	FUEL OIL RETURN	HI	HARDWIRE INTERLOCK	MTD	MOUNTED	RABL	RETURN AIR BOOT (L-SHAPPED)	TW	DOMESTIC TEMPERED WATER		
	CIRCUIT BREAKER	EAT	ENTERING AIR TEMPERATURE	FOS	FUEL OIL SUPPLY	HP	HORSEPOWER	NC	NOISE CRITERIA	RABU	RETURN AIR BOOT (U-SHAPPED)	U	URINAL		
)	CONDENSATE DRAIN	E.C.	EMPTY CONDUIT	FP	FIRE PROTECTION WATER	HR	HEATING HOT WATER RETURN	NIC	NOT IN CONTRACT	RAG	RETURN AIR GRILLE/REGISTER	UF	UNDERFLOOR		
M	CUBIC FEET PER MINUTE	EFF	EFFICIENCY	FPI	FINS PER INCH	HS	HEATING HOT WATER SUPPLY	N3R	NEMA 3R	RD	ROOF DRAIN	UG	UNDERGROUND		
	HANICAL AND PL	ПМБ	ING SYMBOLS												

#### —CD— CONDENSATE DRAIN PIPING

THIN LINE WEIGHTS REPRESENT EXISTING WORK

BOLD LINE WEIGHTS REPRESENT NEW WORK

— F — FIRE PROTECTION PIPING —\_TW—\_ TEMPERED DOMESTIC WATER PIPING HEET ON WHICH DETAIL APPEARS ETAIL NUMBER

EXISTING TO BE REMOVED

DOMESTIC COLD WATER PIPING

DOMESTIC HOT WATER RETURN PIPING

DOMESTIC HOT WATER PIPING

SANITARY VENT PIPING

PLUMBING RISER — PLUMBING RISER

TELEPHONE OUTLET

RUN 3/4" E.C. TO 6" ABV. CLG.

----

\_\_\_\_

----

REGISTER

# — SCHEDULE DESIGNATION A 10"Ø NECK SIZE 200 AIR QUANTITY (CFM)

#### **/**//// EXISTING DUCTWORK TO BE REMOVED **EXISTING DUCTWORK NEW DUCTWORK** CHANGE OF ELEVATION - RISE (R) DROP (D) DUCT RISER, POSITIVE PRESSURE FIRST FIGURE IS TOP DIMENSION DUCT RISER, NEGATIVE PRESSURE FIRST FIGURE IS TOP DIMENSION DUCT TURNED DOWN, POSITIVE PRESSURE FIRST FIGURE IS TOP DIMENSION DUCT TURNED DOWN, NEGATIVE PRESSURE FIRST FIGURE IS TOP DIMENSION DUCT TURNED UP, POSITIVE PRESSURE FIRST FIGURE IS TOP DIMENSION

MANUAL VOLUME DAMPER

DUCT CAP

TIMER SWITCH

DUCT TURNED UP, NEGATIVE PRESSURE FIRST FIGURE IS TOP DIMENSION

CEILING DIFFUSER CEILING EXHAUST/RETURN GRILLE SLOT DIFFUSER SIDEWALL GRILLE OR REGISTER INDICATES DIRECTION OF AIRFLOW ROUND 1 THERMOSTAT FLOW METER FLOW METER VARIABLE FREQUENCY DRIVE CONTROLLER PIPE, TURNED UP —ю PIPE, TURNED DOWN

CONNECTION, TOP **ELBOW** TEE 45° TEE <del>----</del> CAP WALL CLEAN-OUT WATER HAMMER œщŢ ARRESTER P-TRAP STRAINER FLANGE UNION CONNECT NEW TO EXISTING

HEAT DETECTOR BELOW FLOOR

CONNECTION, BOTTOM

CHECK VALVE ANGLE VALVE GATE VALVE GLOBE VALVE BALANCING VALVE PRESSURE RELIEF VALVE PRESSURE REGUENTORALVE SOLENOID VALVE THERMOSTATIC TEMPERING VALVE TAMPER SWITCH VALVE PLUG VALVE

ιδι

BUTTERFLY VALVE

BALL VALVE

\_\_ \_

PUMP PUMP/FAN

PRESSURE SENSOR

TRAP PRIMER VALVE

REGULATOR

HOSE BIBB

THERMOMETER

PENETRATION

PRESSURE GUAGE

FULL ENCIRCLEMENT TEE

CONCENTRIC REDUCER

ECCENTRIC REDUCER

TEMPERATURE WELL

# **ELECTRICAL AND LIGHTING SYMBOLS**

<del>XXXX</del>	REPRESENTS DEMO WORK	<b>⋖</b> WM	WALL TELEPHONE OUTLET	<b>\$</b> v	WALL MOUNTED VOLUME CONTROL (P.A.)	TS	FIRE ALARM SYSTEM TAMPER SWITCH	$\otimes$
- LV	LOW VOLTAGE		RUN 3/4" E.C. TO 6" ABV. CLG. TELEPHONE / DATA OUTLET	N-	DIMMER SWITCH	FAA	FIRE ALARM ANNUNCIATOR PANEL	ŢV
	CONDUIT	4	RUN 3/4" E.C. TO 6" ABV. CLG.	Ю	MOTION DETECTOR SWITCH LEVITON MODEL NUMBER OSSMT-MD	FACP	FIRE ALARM CONTROL PANEL	_
	UNDERGROUND/UNDERFLOOR CONDUIT	$\triangleleft_{F}$	FIREMAN'S TELEPHONE JACK	<b>•</b>		FS	FIRE ALARM SYSTEM FLOW SWITCH	
<u></u>	FLEXIBLE CONDUIT		FLUSH FLOOR DATA OUTLET	<b>M</b>	CEILING MOUNTED MOTION DETECTOR LEVITON MODEL NUMBER OSC20M	GEN	GENERATOR REMOTE ALARM	
	WIRE MOLD		FLUSH FLOOR TELEPHONE OUTLET	ш	PLUG MOLD	GAP	GENERATOR REMOTE ANNUNCIATOR PANEL	
•	HOMERUN		FLUSH FLOOR TELE/DATA OUTLET	Ю	WALL MOUNTED CLOCK	©	GENERATOR	
1	WIRING, NEUTRAL	ΗO	PUSH-BUTTON		BUZZER	Ю	GROUNDING MODULE FOR SURGERY ROOM	
1	WIRING, HOT	마	DISCONNECT SWITCH	$\Box$	BELL		OWNER FURNISHED CONTRACTOR INSTALLED	
ή	WIRING, SWITCHLEG	□L A/B/C/D	FUSED DISCONNECT SWITCH	38	LOW VOLTAGE TRANSFORMER	苗	ADA APPROVED FIRE ALARM HORN	
†	WIRING, GROUND	A=AMPE		$\odot$	GROUND ROD W/TEST WELL	E⊄	ADA APPROVED AUDIO/VISUAL FIRE ALARM SIGNALING DEVICE COMPATIBLE WITH EXISTING	;
 	WIRING, ISOLATED GROUND		(NF = NON-FUSED)	HK	SECURITY KEY PAD		FIRE ALARM SYSTEM. MOUNT @ 80" A.F.F.	<del>////</del> /
I •	NEMA L5-30R RECEPTACLE		RATING, IF NOT D REFER TO SPECIFICATIONS.	KP	KEY PAD	€d	CEILING MOUNTED ADA APPROVED AUDIO/VISUA FIRE ALARM SIGNALING DEVICE COMPATIBLE	AL O
<del>-</del>	SINGLE RECEPTACLE	<b>⊠</b> P	COMBINATION MOTOR STARTER	LPA	MEDICAL GAS LINE PRESSURE ALARM PANEL		WITH EXISTING FIRE ALARM SYSTEM.	
→ —	DUPLEX RECEPTACLE	M	VFD (VARIABLE FREQUENCY DRIVE)	MAP	MEDICAL GAS ALARM PANEL	<u>S</u> 4	ADA 'STROBE ONLY' FIRE ALARM DEVICE MOUNT @ 80" AFF	ю
	ABOVE COUNTER DUPLEX RECEPTACLE	<b>X</b> H	TVSS (TRANSIENT VOLTAGE SURGE	ML	MAGNETIC LOCK	0.4	CEILING MOUNTED ADA 'STROBE ONLY'	-4
<b>=</b> _₩			SUPPRESSOR)	MH	MAGNETIC HOLD-OPEN DEVICE	<b>©</b> ⊲	FIRE ALARM DEVICE	•
<b>#</b>	QUADRAPLEX RECEPTACLE	파	ENCLOSED CIRCUIT BREAKER DISCONNECT	PC	PHOTOELECTRIC CELL	Ē	ADA APPROVED FIRE ALARM PULLSTATION DEVICE COMPATIBLE WITH EXISTING FIRE	•
₩	ABOVE COUNTER QUADRAPLEX RECEPTACLE MOUNT @ 44" A.F.F. U.N.O.	✓ FC	FLOOR MOUNTED BOX IN TOMBSTONE AND POKE THRU FITTING FOR DATA/TEL.	TC	TIME CLOCK	ш	ALARM SYSTEM.	
↔	SPECIAL PURPOSE RECEPTACLE		CONNECTION TO FURNITURE SYSTEM	<u></u>	INTERCOM	M	METER	
	(VERIFY EXACT NEMA CONFIGURATION)	<i>/ / /</i>	MOTOR	·		<u></u>	METER	
<b>=</b> ⊙=	FLUSH FLOOR MOUNT DUPLEX RECEPTACLE	①	JUNCTION BOX	ICM	INTERCOM CALL MASTER STATION	(K)	KIRK-KEY INTERLOCK	
<del>*</del>	CEILING MOUNTED DUPLEX RECEPTACLE	Ю	WALL MOUNTED JUNCTION BOX	СМ	SQUARE D POWERLOGIC CIRCUIT MONITOR	Ø	VESDA	$\Box$
#	FLOOR MOUNTED QUADRAPLEX RECEPTACLE	ı <b>♦</b>	J/BOX FOR VOICE/DATA COMMUNICATIONS	CR	CARD READER	0	CEILING SPEAKER	
<del>#</del>	CEILING MOUNTED QUADRAPLEX RECEPTACLE		CABLE FOR MODULAR FURNITURE SYSTEM. RUN 1r" E.C. W/PULL STRING TO 6"	CL	SECURITY SYSTEM CAM-LOCK DEVICE		NOTE: SUB SCRIPT 'F' DENOTES FIRE ALARM	
$\Box$	FLUSH FLOOR DUPLEX/DATA/TELE OUTLET	_	ABOVE CEILING	A	FM 200 ABORT SWITCH	◁	WALL HUNG SPEAKER NOTE: SUB SCRIPT 'F'	<u>8</u>
	FLUSH FLOOR QUAD/DATA/TELE OUTLET	Ю	J/BOX FOR POWER TO MODULAR FURNITURE SYSTEM.	D	DICTATION OUTLET		DENOTES FIRE ALARM	
		\$	SWITCH	DH	DOOR HOLDER	©	SMOKE DETECTOR	8
	TRANSFORMER	<b>\$</b> 2	DOUBLE POLE SWITCH	DC	DOOR CONTACT	© <sub>U</sub>	UNDERFLOOR SMOKE DETECTOR	
	120V/208 ELECTRICAL PANEL BOARD	<b>\$</b> 3	THREE-WAY SWITCH	VESDA	VESDA CONTROL PANEL	© <sub>D</sub>	DUCT MOUNTED SMOKE DETECTOR	18
	277V/480 ELECTRICAL PANEL BOARD	<b>\$</b> 4	FOUR-WAY SWITCH	VR	VEEDER ROOT	Ø	REMOTE PILOT LIGHT	
◁	DATA COMMUNICATIONS OUTLET RUN 3/4" E.C. TO 6" ABV. CLG.	<b>\$</b> M	MANUAL MOTOR STARTER	M	MANUAL CLEAN AGENT RELEASE PULL STATION	•	HEAT DETECTOR	

REMOTE FIRE ALARM CONTROL PANEL

FLAME DETECTOR TELEVISION OUTLET MTD 96" A.F.F. WITH 3/4" CONDUIT CONNECTION TO OTHER DEVICES, U.N.O. 2' X 4' FLUORESCENT-REFERENCE LIGHT FIXTURE SCHEDULE SAME AS 2' X 4' EXCEPT WITH EMERGENCY NICAD BATTERY PACK. -2' X 2' FLUORESCENT-Ξ REFERENCE LIGHT FIXTURE SCHEDULE **~~** SAME AS 2' X 2' EXCEPT WITH EMERGENCY NICAD BATTERY PACK.  $\rightarrow \leftarrow$ FLUORESCENT STRIP-REFERENCE LIGHT FIXTURE SCHEDULE FLUORESCENT STRIP-EMERGENCY NICAD BATTERY PACK. -DOWNLIGHT-REFERENCE LIGHT FIXTURE SCHEDULE ₽ WALL MOUNTED LIGHT FIXTURE-REFERENCE LIGHT FIXTURE SCHEDULE LIGHT FIXTURE REFERENCE LIGHT FIXTURE SCHEDULE WALL WASHER REFERENCE LIGHT FIXTURE SCHEDULE LIGHT FIXTURE **⊸**∕ •− REFERENCE LIGHT FIXTURE SCHEDULE --UNDER CABINET LIGHT FIXTURE REFERENCE LIGHT FIXTURE SCHEDULE **→•** LIGHT FIXTURE REFERENCE LIGHT FIXTURE SCHEDULE NOTE: REFERENCE PLANS FOR NUMBER **~~~** OF FIXTURE HEADS SINGLE FACE EXIT SIGN-SHADED AREA INDICATES ILLUMINATED FACE REFERENCE LIGHT FIXTURE DOUBLE FACE EXIT SIGN-SHADED AREA INDICATES ILLUMINATED FACE REFERENCE LIGHT FIXTURE WALL MOUNTED EXIT SIGN

REFERENCE LIGHT FIXTURE SCHEDULE

REFERENCE LIGHT FIXTURE SCHEDULE

EMERGENCY LIGHTING FIXTURE

MK 'EM' U.N.O.

**DELTA CONNECTION** 

CIRCUIT BREAKER DISCONNECT/INTERRUPTER SWITCH FUSE  $\longrightarrow$ CAPACITOR SERVICE WEATHERHEAD GROUND CONNECTION TRANSFORMER CONTROL POWER TRANSFORMER CABLE POT HEAD **BUS DUCT** GROUND FAULT RELAY FUSED CUTOUT TRANSFER SWITCH SWITCH **BATTERY** LIGHTNING ARRESTER DRAWOUT CONNECTION **GROUND BAR** CCTV CAMERA CLEAN AGENT RELEASE

POTENTIAL TRANSFORMER CURRENT TRANSFORMER CONTACTOR, NORMALLY CLOSED CONTACTOR, NORMALLY OPEN ELECTRIC RESISTANCE HEATER CLEAN AGENT STORAGE BOTTLE VIA LIGHTING CONTACTOR MEDIUM VOLTAGE CIRCUIT BREAKER TIME DELAY AND INSTANTANEOUS OVERCURRENT PROTECTIVE RELAY

WYE-CONNECTION

JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consultant:





# MEP SYMBOL LEGEND

A0314 Project Phase: CONSTRUCTION DOCUMENTS 27 AUGUST 2014

#### 16010 - BASIC ELECTRICAL REQUIREMENTS

- A. PROVIDE LABOR MATERIALS, EQUIPMENT AND TRANSPORTATION TO RECEIVE, INSTALL, ADJUST AND PUT INTO OPERATION COMPLETE ELECTRICAL SYSTEMS IN ACCORDANCE WITH THE INTENT OF THE CONTRACT DOCUMENTS. PROVIDE PRODUCTS NOT MENTIONED BUT OBVIOUSLY NECESSARY AND INCIDENTAL TO THE COMPLETION OF THIS WORK.
- B. OBTAIN ALL PERMITS AND PAY ALL FEES.
- C. ALL WORK DONE SHALL BE PERFORMED BY QUALIFIED ELECTRICIANS, UNDER THE SUPERVISION AND DIRECTION OF A SUPERINTENDENT HAVING SUCCESSFUL EXPERIENCE INSTALLING AND SUPERVISING EQUIPMENT AND SYSTEMS OF SIMILAR TYPE AND SIZE AS INDICATED BY CONTRACT
- D. EXAMINE AND BECOME FAMILIAR WITH ALL CONTRACT DOCUMENTS IN THEIR ENTIRETY. SURVEY THE PROJECT AND BECOME FAMILIAR WITH CONDITIONS AND SCOPE OF WORK, ALL COSTS SUBMITTED SHALL BE BASED ON A THOROUGH KNOWLEDGE OF ALL WORK AND MATERIALS REQUIRED. ANY ADDITIONAL COSTS DUE TO FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- E. COORDINATE WORK WITH ALL OTHERS TRADES. GIVE SPECIAL CONSIDERATION TO COORDINATING INSTALLATION OF LIGHTING, SPRINKLER PIPING, AND DUCTWORK. COORDINATE WALL OUTLET LOCATIONS WITH MILLWORK, COORDINATE WALL SWITCHES WITH DOOR SWINGS, VERIFY EXACT LOCATION, COLOR AND FINISH OF OUTLETS AND DEVICES WITH INTERIOR DESIGNER, ARCHITECT, OR DESIGNATED TENANT REPRESENTATIVE PRIOR TO INSTALLATION
- F. PRODUCTS OF A SIMILAR NATURE SHALL BE THE SAME TYPE AND MANUFACTURER. PROVIDE THE STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SPECIFIED PRODUCTS, UNLESS OTHERWISE REQUIRED BY THE DRAWINGS.
- G. ALL PRODUCTS SHALL BE UL LISTED IN ACCORDANCE WITH NATIONALLY RECOGNIZED AND ACCEPTED STANDARDS AND PROCEDURES.
- H. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE RULES, REGULATIONS, INDUSTRY STANDARDS, LOCAL CODES, LAWS, AND ORDINANCES. IN THE EVENT THAT A DISCREPANCY IS FOUND IN THE CONTRACT DOCUMENTS, NOTIFY THE ENGINEER IMMEDIATELY.

#### 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

- A. FOR SUBMITTALS, PROVIDE ELECTRONIC PDF FILES FOR ELECTRICAL MATERIALS AND PRODUCTS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: LIGHTING FIXTURES, DEVICES (SWITCHES, RECEPTACLES, ETC.). SWITCHBOARDS, TRANSFORMERS, PANEL BOARDS, CIRCUIT AND MOTOR DISCONNECTS, MOTOR CONTROLLERS SUPPORTING DEVICES, TRANSIENT VOLTAGE SURGE SUPPRESSION, AND FIRE ALARM SYSTEMS.
- B. COMPILE AND ASSEMBLE THE WARRANTIES FOR ALL EQUIPMENT SPECIFIED IN DIVISION 16, INTO A SEPARATED SET OF VINYL COVERED, THREE RING BINDERS, TABULATED AND INDEXED FOR EASY REFERENCE. PROVIDE COMPLETE WARRANTY INFORMATION FOR EACH ITEM TO INCLUDE: PRODUCT OR EQUIPMENT DESCRIPTION, MODEL NUMBER, ETC.; DATE OF BEGINNING OF WARRANTY OR BOND: DURATION OF WARRANTY OR BOND; NAMES, ADDRESSES, TELEPHONE NUMBERS AND PROCEDURES FOR FILING A CLAIM AND OBTAINING WARRANTY SERVICES.
- C. PREPARE MAINTENANCE MANUALS THAT INCLUDE THE FOLLOWING INFORMATION FOR EQUIPMENT
- 1. DESCRIPTION OF FUNCTION, NORMAL OPERATING CHARACTERISTICS AND LIMITATIONS. PERFORMANCE CURVES, ENGINEERING DATA AND TESTS, AND COMPLETE NOMENCLATURE AND COMMERCIAL NUMBERS OF REPLACEMENT PARTS.
- 2. MANUFACTURER'S PRINTED OPERATING PROCEDURES TO INCLUDE START--UP, BREAK--IN, AND ROUTINE AND NORMAL OPERATING INSTRUCTIONS; REGULATION, CONTROL, STOPPING, SHUTDOWN, AND EMERGENCY INSTRUCTIONS; AND SUMMER AND WINTER OPERATING
- 3. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING; DISASSEMBLY, REPAIR, AND REASSEMBLY; ALIGNING AND ADJUSTING
- 4. SERVICING INSTRUCTIONS AND LUBRICATION CHARTS AND SCHEDULES.
- D. UPON COMPLETION OF WORK, PREPARE ELECTRICAL "AS-BUILT" DRAWINGS, PRESENT COMPLETED DRAWINGS TO OWNER AND TWO SETS TO ARCHITECT. 'AS-BUILT' DRAWINGS SHALL INCLUDE ALL BRANCH CIRCUIT WORK, PANELBOARD INFORMATION, FINAL SWITCHING, FINAL LOCATION OF ALL EQUIPMENT, ETC.
- E. PROVIDE SUPPORTING DEVICES FOR ALL ELECTRICAL SYSTEMS IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS AND AS REQUIRED.
- F. PROVIDE ONLY FASTENERS OF THE FOLLOWING TYPES, MATERIALS, AND CONSTRUCTION
- 1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
- 2. TOGGLE BOLTS: ALL STEEL SPRINGHEAD TYPE.
- 3. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE

## <u>16060 - GROUNDING</u>

A. PROVIDE AN ELECTRICAL EQUIPMENT GROUND SYSTEM AND AN ELECTRICAL SERVICE GROUND SYSTEM AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION. A SEPARATE INSULATED EQUIPMENT GROUND CONDUCTOR SHALL BE INSTALLED IN ALL FEEDERS AND BRANCH CIRCUITS, INCLUDING ALL MOTOR FEEDERS FROM STARTER TO MOTOR. TEST AND SUBMIT REPORT OF GROUNDING SYSTEM TEST.

#### **16075 - ELECTRICAL IDENTIFICATION**

- A. FURNISH AND INSTALL ENGRAVED PLASTIC LAMINATE NAMEPLATES FOR ALL PANELS, SWITCHGEAR, SWITCHES, MOTOR STARTERS, AND ELECTRICAL EQUIPMENT. PROVIDE BRANCH CIRCUIT IDENTIFICATION (PANEL AND BRANCH CIRCUIT NUMBER) ON EACH SWITCH. RECEPTACLE. ETC., AND/OR ASSOCIATED WALL PLATE, FOR EVERY DEVICE SERVED BY THE EMERGENCY POWER DISTRIBUTION SYSTEM. EXCEPT AS OTHERWISE INDICATED, PROVIDE SINGLE LINE OF TEXT, WITH 1/2 -INCH-HIGH LETTERING ON 1-1/2-INCH-HIGH LABEL (2-INCH-HIGH WHERE TWO LINES ARE REQUIRED), WHITE LETTERING IN BLACK FIELD. TEXT SHALL MATCH TERMINOLOGY AND NUMBERING OF THE CONTRACT DOCUMENTS AND SHOP DRAWINGS.
- PROVIDE TYPED PANELBOARD SCHEDULES FOR ALL NEW PANEL BOARDS AND ALL PANEL BOARDS TO WHICH CIRCUITS HAVE BEEN ADDED.
- C. LABEL ALL WIRING DEVICES WITH PANEL AND CIRCUIT NUMBER(S) FROM WHICH THEY ARE FED.

#### 16080 - ELECTRICAL TESTING

A. ALL ELECTRICAL EQUIPMENT AND WIRING SYSTEMS SHALL BE THOROUGHLY TESTED AND ALL DEFECTS AND MALFUNCTIONING EQUIPMENT SHALL BE CORRECTED, REPAIRED OR REPLACED. ALL SYSTEMS SHALL BE TESTED; TEST DATA SHALL BE PROVIDED FOR OWNER'S RECORDS.

#### 16120-CONDUCTORS AND CABLES

- A. PROVIDE COPPER, TYPE THW, THWN, OR THHN AS REQUIRED FOR THE INTENDED USE. MINIMUM CONDUCTOR SIZE FOR BRANCH CIRCUITS SHALL BE NUMBER 12 AWG. USE NUMBER 10 AWG FOR ALL 120 VOLT BRANCH CIRCUITS LONGER THAN 100 FEET AND FOR ALL 277 VOLT BRANCH CIRCUITS LONGER THAN 200 FEET MEASURED FROM PANEL TO CENTER OF LOAD.
- B. INSTALL ALL CONDUCTORS IN CONDUIT. USE UL APPROVED PULLING LUBRICANT WHERE REQUIRED.
- C. USE NUMBER 12 AWG AS MINIMUM CONDUCTOR SIZE FOR POWER SYSTEMS AND FOR CONTROL CIRCUITS. ALL WIRES NUMBER 10 AWG AND SMALLER SHALL BE SOLID; ALL CONTROL WIRES SHALL BE STRANDED AND TERMINATED WITH CRIMPED LUGS.
- D. WHERE ALLOWED BY CODE, TYPE "MC" CABLE IS ACCEPTABLE ONLY ABOVE LAY-IN CEILINGS FOR MAXIMUM 6FT. LENGTHS AS LIGHTING FIXTURE WHIPS.

#### 16130 - RACEWAYS AND BOXES

- A. CONCEAL ALL CONDUITS, UNLESS INDICATED OTHERWISE, WITHIN FINISHED WALLS, CEILINGS, AND FLOORS. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT WATER PIPES. INSTALL RACEWAYS LEVEL, SQUARE AT RIGHT ANGLES TO THE BUILDING AND AT PROPER ELEVATIONS.
- USE ONLY MALLEABLE IRON METALLIC CONDUIT BODIES (DIECAST BODIES ARE NOT ACCEPTABLE). USE ONLY STEEL BODIES WITH GLAND RING COMPRESSION-THREADED TYPE EMT CONNECTORS WITH INSULATED THROATS.
- C. OUTDOORS: USE THE FOLLOWING WIRING METHODS:
- 1. EXPOSED: INTERMEDIATE METAL CONDUIT. 2. CONCEALED: INTERMEDIATE METAL CONDUIT.
- 3. UNDERGROUND, SINGLE RUN: RIGID NONMETALLIC CONDUIT.
- 4. UNDERGROUND, GROUPED: RIGID NONMETALLIC CONDUIT
- 5. CONNECTION TO VIBRATING EQUIPMENT: INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT: LIQUIDTIGHT FLEXIBLE METAL CONDUIT
- 6. INDOORS OR OUTDOORS: CONNECTION TO VIBRATING EQUIPMENT AND HYDRAULIC. PNEUMATIC. OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT IN MOIST OR HUMID LOCATION OR CORROSIVE ATMOSPHERE, OR WHERE SUBJECT TO WATER SPRAY OR DRIPPING OIL, GREASE, OR WATER: LIQUIDTIGHT FLEXIBLE METAL CONDUIT
- INDOORS: USE THE FOLLOWING WIRING METHODS:
- 1. CONNECTION TO VIBRATING EQUIPMENT: INCLUDING TRANSFORMERS AND HYDRAULIC PNEUMATIC OR ELECTRIC SOLENOID OR MOTOR-OPERATED EQUIPMENT: FLEXIBLE METAL
- 2. EXPOSED: ELECTRICAL METALLIC TUBING. 3. CONCEALED: ELECTRICAL METALLIC TUBING.
- ELECTRICAL METALLIC TUBING (EMT) IS EXCLUDED FROM USE IN THE FOLLOWING LOCATIONS OR CONDITIONS:
- 1. OUTSIDE STRUCTURE OR ON ROOF.
- 2. AT OR BELOW GRADE. 3. IN OR BENEATH SLABS ON GRADE.

DOCUMENTS.

- 4. IN HAZARDOUS LOCATIONS.
- 5. WHERE EXPOSED TO PHYSICAL DAMAGE.
- WHERE SUBJECT TO EXCESSIVE MOISTURE OR DETERIORATION.
- 7. HIGH VOLTAGE RACEWAYS.
- F. MINIMUM CONDUIT SIZE, INCLUDING FLEXIBLE CONDUIT, SHALL BE 3/4 INCH UNLESS MINIMUM SIZES ARE INDICATED TO BE LARGER FOR SPECIFIC SYSTEMS SPECIFIED ELSEWHERE IN THE
- PROVIDE GALVANIZED STEEL PULL AND JUNCTION BOXES THAT COMPLY WITH NEC AS TO SIZE AND CONSTRUCTION

SHALL BE INCORPORATED INTO THE 'AS-BUILT' DRAWINGS.

CONTRACT DOCUMENTS, NOTIFY THE ENGINEER IMMEDIATELY.

- H. FOR JUNCTION AND PULL BOXES, USE BOXES NOT LESS THAN 4-INCHES SQUARE AND 4-INCHES DEEP WITH REMOVABLE COVERS.
- I. USE CAST ALUMINUM OR CAST IRON BOXES WITH THREADED HUBS AND GASKETED COVERS IN DAMP/WET AREAS OR OUTDOORS.

#### 16140 - WIRING DEVICES

- A. PROVIDE UL LISTED SPECIFICATION GRADE MINIMUM 20 AMP (120 AND/OR 277 VOLT) SWITCHES AND RECEPTACLES. COLOR OF DEVICES SHALL BE AS SELECTED BY THE ARCHITECT ON A ROOM BY ROOM BASIS. ISOLATED GROUND RECEPTACLES SHALL BE UTILIZED FOR ALL DATA EQUIPMENT AND SHALL BE FURNISHED WITH AN ORANGE TRIANGLE ON THE FACE OF THE DEVICE.
- B. MOTION DETECTORS SHALL BE DUAL TECHNOLOGY TYPE (BOTH PASSIVE INFRARED AND ULTRASONIC). WALL MOUNTED MOTION SENSORS SHALL BE CONFIGURABLE AS VACANCY TYPE.
- C. PROVIDE SOLID STATE DIMMER SWITCHES CONFORMING TO NEMA WD 1, MOUNTED IN OUTLET BOXES AS INDICATED AND IN ACCORDANCE WITH THE FOLLOWING
- 1. INCANDESCENT LAMP DIMMERS: MODULAR DIMMER SWITCHES FOR INCANDESCENT FIXTURES; SWITCH POLES AND WATTAGE AS INDICATED, 120-VOLTS, 60-HZ, WITH CONTINUOUSLY ADJUSTABLE ROTARY KNOB OR TOGGLE. ANODIZED ALUMINUM FACE. SINGLE-POLE. WITH SOFT-TAP OF OTHER QUIET ON-OFF SWITCH. EQUIP WITH ELECTROMAGNETIC FILTER TO
- ELIMINATE NOISE, RF AND TV INTERFERENCE, AND 5 INCH WIRE CONNECTING LEADS. 2. FLUORESCENT LAMP DIMMERS: FULL-WAVE MODULAR TYPE AC DIMMER SWITCHES, FOR FLUORESCENT FIXTURES; WATTAGE AND VOLTAGE RATINGS AS INDICATED, AND WITH ELECTROMAGNETIC FILTERS TO MINIMIZE NOISE, AND RF AND TV INTERFERENCE. CONSTRUCTED WITH CONTINUOUSLY ADJUSTABLE TRIM POTENTIOMETER FOR ADJUSTMENT OF LOW END DIMMING ANODIZED HEAT SINKS, 5 INCH WIRE CONNECTING LEADS AND QUIET ON-OFF SWITCH, INCLUDE COMPATIBLE DIMMING LAMP BALLASTS.

#### 16170 - CIRCUIT AND MOTOR DISCONNECTS

A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY, QUICK MAKE, QUICK BREAK, 3 PHASE, 3 OR 4 POLE WITH AMPERE RATING AS REQUIRED OR SAME AS UPSTREAM OVERCURRENT PROTECTIVE DEVICE.

#### 16271 - TRANSFORMERS

- A. GENERAL PURPOSE DRY-TYPE TRANSFORMERS
- 1. COMPLY WITH NEMA STANDARD ST 20 "DRY-TYPE TRANSFORMERS FOR GENERAL APPLICATIONS." WINDINGS: 2-WINDING TYPE. THREE PHASE TRANSFORMERS SHALL USE ONE COIL PER PHASE IN PRIMARY AND SECONDARY, PROVIDE ALL COPPER WINDINGS, INSULATION TEMPERATURE RISE: 150 DEGREES C MAXIMUM RISE ABOVE 40 DEGREES C. TAPS SHALL BE SIX 2-1/2 PERCENT TAPS, 2 ABOVE AND 4 BELOW RATED HIGH-VOLTAGE.

#### 16289 - TRANSIENT VOLTAGE SURGE SUPPRESSORS

A. UNITS TO BE MOUNTED ADJACENT TO OR WITH IN PANELBOARD SERVED .

#### 16400 - SERVICE ENTRANCE

- A. PROVIDE SERVICE-ENTRANCE EQUIPMENT AND ACCESSORIES; OF TYPES, SIZES, RATINGS AND ELECTRICAL CHARACTERISTICS INDICATED. WHICH COMPLY WITH MANUFACTURER'S STANDARD MATERIALS. DESIGN AND CONSTRUCTION IN ACCORDANCE WITH PUBLISHED PRODUCT INFORMATION, AND AS REQUIRED FOR COMPLETE INSTALLATION, AND AS SPECIFIED HEREIN.
- B. PROVIDE EITHER RIGID STEEL CONDUIT OR PVC CONDUIT ENCASED IN CONCRETE RACEWAYS.

#### 16410 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

- A. CLASS J FUSES: UL 198C, "HIGH-INTERRUPTING CAPACITY FUSES, CURRENT- LIMITING TYPE." CLASS L FUSES: UL 198C, "HIGH INTERRUPTING CAPACITY FUSES, CURRENT- LIMITING
- B. CIRCUIT BREAKERS: UL 489, "MOLDED CASE CIRCUIT BREAKERS AND CIRCUIT BREAKER ENCLOSURES." AND NEMA AB 1. "MOLDED CASE CIRCUIT BREAKERS."
- C. SOLID STATE CIRCUIT-BREAKER TRIP DEVICES: SOLID STATE OVERCURRENT TRIP DEVICE SYSTEM THAT INCLUDES ONE INTEGRALLY MOUNTED CURRENT TRANSFORMER OR SENSOR PER PHASE, A
- 1 FUNCTIONS: LONG-TIME-DELAY SHORT-TIME-DELAY AND INSTANTANEOUS- TRIP FUNCTIONS
- WHICH ARE INDEPENDENT OF EACH OTHER IN BOTH ACTION AND ADJUSTMENT. 2. TEMPERATURE COMPENSATION TO ASSURE ACCURACY AND CALIBRATION STABILITY FROM
- MINUS 20 DEGREES C TO PLUS 55 DEGREES C. 3. FIELD-ADJUSTABLE, TIME-CURRENT CHARACTERISTICS.

RELEASE MECHANISM, AND THE FOLLOWING FEATURES:

- 4. CURRENT ADJUSTABILITY: ADJUSTED BY OPERATING CONTROLS ON FRONT PANEL OR BY CHANGING PLUG-IN ELEMENTS OR CURRENT TRANSFORMERS OR SENSORS.
- 5. THREE BANDS FOR LONG-TIME AND SHORT-TIME-TRIP FUNCTIONS. 6. FIVE PICKUP POINTS, MINIMUM, FOR LONG-TIME AND SHORT-TIME TRIP FUNCTIONS.
- 7. SIX PICKUP POINTS, MINIMUM, FOR INSTANTANEOUS-TRIP FUNCTIONS.
- 8. GROUND FAULT PROTECTION WITH AT LEAST THREE SHORT-TIME-DELAY SETTINGS AND THREE TRIP-TIME-DELAY BANDS. ADJUSTABLE CURRENT PICKUP.
- TRIP INDICATION: LABELED LIGHTS OR MECHANICAL INDICATORS ON TRIP DEVICE SHALL INDICATE TYPE OF FAULT CAUSING BREAKER TRIP. IF LIGHTS ARE USED, INTEGRAL POWER SOURCE SHALL MAINTAIN INDICATION FOR 60 HOURS, MINIMUM.

## 16420 - ENCLOSED CONTROLLERS

- PROVIDE FULL-VOLTAGE, NONREVERSING, ACROSS-THE-LINE, MAGNETIC CONTROLLER, WITH HAND-OFF-AUTO SWITCH, RED AND GREEN PILOT LIGHTS ON THE FACE OF THE ENCLOSURE. PROVIDE CONTROL POWER TRANSFORMER INTEGRAL WITH CONTROLLER WHERE NO OTHER SUPPLY OF 120 VOLT CONTROL POWER TO CONTROLLER IS INDICATED. PROVIDE CONTROL POWER TRANSFORMER WITH ADEQUATE CAPACITY TO OPERATE CONNECTED PILOTS, INDICATING AND CONTROL DEVICES, PLUS 100 PERCENT SPARE CAPACITY.
- B. FOR COMBINATION CONTROLLER, PROVIDE CLASS 'J' FUSED SWITCH; FACTORY ASSEMBLED WITH CONTROLLER AND ARRANGED TO DISCONNECT IT. INTERLOCK SWITCH WITH UNIT COVER OR

#### 16442 - PANEL BOARDS

A. PANEL BOARDS SHALL BE AS MANUFACTURED BY SQUARE D, GE, CUTLER HAMMER, UNITS SHALL CONSIST OF A BOX. FRONT. INTERIOR AND CIRCUIT PROTECTIVE DEVICES AND SHALL BE MANUFACTURED IN ACCORDANCE WITH NEMA STANDARDS AND BEAR APPLICABLE UL LABELS. EACH FRONT SHALL HAVE A DOOR MOUNTED ON SEMI-CONCEALED HINGES WITH A LOCK, INDEX CARD AND CARD HOLDER. ALL FRONT COVERS SHALL BE HINGED FOR QUICK ACCESS. ALL INDEX CARDS SHALL BE PROPERLY TYPEWRITTEN. PANEL BOARDS SHALL FURNISHED FOR 3 PHASE, 4 WIRE SERVICE. EACH ENCLOSURE SHALL BE PROVIDED WITH GROUNDING LUGS AND INSULATED EQUIPMENT GROUNDING BUS. BUSSING SHALL BE TIN OR SILVER PLATED COPPER ATTACHED FOR SEQUENCE PHASING THROUGHOUT. INTERRUPTING CAPACITY FOR NEW EQUIPMENT SHALL BE AS NOTED ON DRAWINGS BUT IN NO CASE SHALL BE LESS THAN 14,000 A.I.C. (480Y/277V) AND 10,000 A.I.C. (208Y/120V) UNLESS OTHERWISE NOTED. PROVIDE DOOR-IN-DOOR OR HINGED TRIM

#### **16511 - INTERIOR LIGHTING**

- A. SUPPORT ALL RECESSED AND SEMI-RECESSED FIXTURES. INSTALLED UNITS MAY BE SUPPORTED FROM SUSPENDED CEILING SUPPORT SYSTEM. INSTALL CEILING SYSTEM SUPPORT RODS OR WIRES AT A MINIMUM OF FOUR RODS OR WIRES PER FIXTURE LOCATED NOT MORE THAN 6 INCHES FROM FIXTURE CORNERS. CONFORM TO THE FOLLOWING
- 1. FIXTURES SMALLER THAN CEILING GRID: INSTALL A MINIMUM OF FOUR RODS OR WIRES FOR EACH FIXTURE AND LOCATE AT CORNER OF THE CEILING GRID WHERE THE FIXTURE IS LOCATED. DO NOT SUPPORT FIXTURES BY CEILING ACOUSTICAL PANELS
- 2. FIXTURES OF SIZES LESS THAN CEILING GRID: CENTER IN THE ACOUSTICAL PANEL. SUPPORT FIXTURES INDEPENDENTLY WITH AT LEAST TWO 3/4-INCH METAL CHANNELS SPANNING AND SECURED TO THE CEILING TEES.
- 3. INSTALL SUPPORT CLIPS FOR RECESSED FIXTURES, SECURELY FASTENED TO CEILING GRID MEMBERS, AT OR NEAR EACH FIXTURE CORNER.

# **SPECIFICATIONS: DIVISION 13 - SPECIAL SYSTEMS**

#### 13851 - FIRE ALARM SYSTEMS

- A. FIRE ALARM SYSTEM SHALL BE AN EXTENSION OF THE EXISTING FIRE ALARM SYSTEM(S). PROVIDE NEW DEVICES TO FIT AND MATCH EXISTING FIRE ALARM EQUIPMENT. PROVIDE NEW CONTROL AND/OR ANNUNCIATOR PANELS AS NECESSARY. PROVIDE NEW EQUIPMENT TO ENABLE FIRE ALARM SYSTEM TO ACCOMMODATE BOTH EXISTING AND NEW ALARM, INDICATING AND INITIATION
- PROVIDE NECESSARY WIRE AND CONDUIT FOR TYING NEW FIRE ALARM INITIATING AND SIGNALING DEVICES TO NEAREST AVAILABLE FIRE ALARM INITIATING ZONE. VERIFY THAT EXISTING FIRE ALARM SYSTEM HAS CAPACITY FOR ADDITIONAL EQUIPMENT. PROVIDE ADDITIONAL CAPACITY AS REQUIRED FOR NEW EQUIPMENT.
- C. ALL DEVICE LOCATIONS SHALL BE APPROVED BY OWNER AND AUTHORITY HAVING JURISDICTION PRIOR TO ROUGH-IN.

#### 13915 - FIRE SUPPRESSION PIPING

- A. PROVIDE COMPLETE WET PIPE FIRE SPRINKLER SYSTEM FOR THE ENTIRE SPACE. FIRE SPRINKLER SYSTEM SHALL BE APPROVED BY THE AUTHORITIES HAVING JURISDICTION. SUBMIT SPRINKLER
- B. SPRINKLER HEADS IN FINISHED AREAS SHALL BE CONCEALED TYPE WITH WHITE COVER PLATES. SPRINKLER HEADS SHALL BE CENTERED IN CEILING TILES.
- C. SPRINKLER HEADS IN UNFINISHED SPACES SHALL BE CHROME PENDANT TYPE.
- D. COORDINATE THE DESIGN AND LAYOUT OF FIRE SUPPRESSION PIPING WITH THE WORK OF ALL
- TRADES TO ALLOW ADEQUATE ABOVE CEILING CLEARANCES FOR MECHANICAL EQUIPMENT, DUCTS, CONDUIT, PLUMPING PIPING, AND LIGHT FIXTURES. E. REVISIONS TO THE EXISTING FIRE SUPPRESSION PIPING SYSTEM SHALL BE PROVIDED TO

MAINTAIN A FULLY OPERATIONAL SYSTEM THAT SATISFIES THE REQUIREMENTS OF TH

AUTHORITIES HAVING JURISDICTION. FIRE SUPPRESSION SYSTEM SHALL BE LIGHT HAZARD UNLESS OTHERWISE NOTED. F. EXTENDED COVERAGE TYPE SPRINKLER HEADS MAY BE USED WHERE APPROVED BY THE AUTHORITIES HAVING JURISDICTION.

# **15815 - METAL DUCTS**

- DUCTS SHALL BE MINIMUM 24 GAUGE SHEETMETAL CONSTRUCTED AND SEALED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS FOR THE PRESSURE CLASS OF THE SYSTEM SERVED.
- B. UNLESS NOTED OTHERWISE, ALL DUCT DIMENSIONS INDICATE THE FREE AREA REQUIRED. WHERE INTERNAL DUCT LINER IS USED, INCREASE THE DUCT DIMENSIONS ACCORDINGLY.

## 15820 - DUCT ACCESSORIES

- ELEXIBLE DUCTS MAY BE USED FOR INDIVIDUAL RUNOUTS: HOWEVER, RUNOUTS SHALL NOT EXCEED 6 FEET IN TOTAL LENGTH AND BE PROPERLY SUPPORTED TO PREVENT RESTRICTIONS TO AIR FLOW. ALL CHANGES IN DIRECTION GREATER THAN FORTY-FIVE DEGREES SHALL BE MADE WITH RIGID DUCT FITTINGS.
- FLEXIBLE DUCTS SHALL MEET CLASS I, UL-181 AND 25/50 FIRE RATING REQUIREMENTS.
- D. VERIFY ADEQUATE PATHS ARE PROVIDED FOR RETURN AIR.
- E. PROVIDE MANUAL VOLUME CONTROL DAMPER IN THE DUCT RUNOUT TO EACH AIR SUPPLY DEVICE.

## 15830 - FANS

A. ALL FANS SHALL BE AMCA CERTIFIED.

## 15855 - DIFFUSERS, REGISTERS, AND GRILLES

PROVIDED WITH MOUNTING FRAMES COMPATIBLE WITH THE CEILING OR WALL TYPE IN WHICH THEY ARE TO BE INSTALLED.

15950 - TESTING, ADJUSTING, AND BALANCING

- PROVIDE ALL CONTROLS REQUIRED TO COMPLETELY ACCOMPLISH THE IMPLIED OR INTENDED FUNCTIONS AND OPERATION OF THE SYSTEMS AND EQUIPMENT INSTALLED.
- THERMOSTATS SHALL BE INSTALLED TO COMPLY WITH THE REQUIREMENTS OF TAS AND ADA. G. EACH SYSTEM SHALL HAVE ONE SOLID-STATE PROGRAMMABLE THERMOSTAT WHICH SHALL HAVE THE CAPABILITY TO
- SET BACK OR SHUT DOWN THE SYSTEM BASED ON DAY OF THE WEEK AND TIME OF DAY, AND PROVIDE A READILY ACCESSIBLE MANUAL OVERRIDE THAT WILL RETURN TO PRESETBACK OR SHUTDOWN SCHEDULE WITHOUT REPROGRAMMING.





27 AUGUST 2014

Drawn By:	
Checked By:	
Project No.:	
Project No.:	
	A03
Project Phase:	
•	CONSTRUCTION DOCUMEN
	CONSTRUCTION DOCUMEN
D-+	

# SPECIFICATIONS: DIVISION 15 - MECHANICAL / PLUMBING

## 15050 - BASIC MECHANICAL MATERIALS AND METHODS

- PROVIDE ALL EQUIPMENT, MATERIALS, LABOR, SUPERVISION, AND SERVICES NECESSARY FOR OR INCIDENTAL TO THE INSTALLATION OF COMPLETE AND OPERATING MECHANICAL SYSTEMS AS SHOWN OR INDICATED ON THE DRAWINGS PROPER PRECAUTIONS SHALL BE TAKEN TO PROTECT ALL EXISTING OPERATIONS AND PROPERTY WITH WHICH WORK COMES IN CONTACT OR OVER WHICH MATERIALS, EQUIPMENT, DEBRIS, ETC. MAY BE TRANSPORTED, HOISTED, OR MOVED. ALL DAMAGE RESULTING FROM THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE
- LANDLORD/OWNER. MATERIALS AND/OR EQUIPMENT FAILING TO GIVE SATISFACTORY SERVICE DURING A ONE YEAR MATERIALS AND LABOR WARRANTY PERIOD SHALL BE REPAIRED OR REPLACED WITH NEW.
- C. SUBMIT AN ELECTRONIC PDF COPY OF PRODUCT DATA FOR ALL MECHANICAL AND PLUMBING ITEMS FOR APPROVAL.
- NOTIFY AND COORDINATE WITH THE BUILDING OWNER/LANDLORD/SBC BUILDING MANAGER FOR APPROVAL AND SCHEDULING OF ANY BUILDING OR EXISTING TENANT SYSTEM INTERRUPTION. E. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR
- MANNER DEMONSTRATING NEAT WORKMANSHIP F. THE SCOPE OF WORK SHALL INCLUDE ALL MATERIAL, TOOLS, SERVICE, AND COSTS NECESSARY TO COMPLETELY INSTALL ALL MECHANICAL WORK. IT IS THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS THAT THE MECHANICAL SYSTEM BE INSTALLED COMPLETE INCLUDING ALL ITEMS AND APPURTENANCES NECESSARY, REASONABLY INCIDENTAL, OR CUSTOMARILY INCLUDED EVEN THOUGH EACH AND EVERY ITEM IS NOT SPECIFICALLY

THE SERVICE INTENDED. THE INSTALLATION OF ALL EQUIPMENT SHALL BE MADE BY EXPERIENCED CRAFTSMEN IN A

- MENTIONED OR SHOWN. G. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE CONTRACT DOCUMENTS AND ALL APPLICABLE CODES AND STANDARDS WHICH INCLUDE ALL ORDINANCES, AMMENDMENTS, AND UTILITY COMPANY REGULATIONS. WHERE CONFLICTS EXIST AMONG APPLICABLE CODES AND STANDARDS, THE ARCHITECT SHALL BE NOTIFIED IN WRITING. SHOULD WORK BE PERFORMED THAT DOES NOT COMPLY WITH APPLICABLE CODES AND STANDARDS, THOSE DEFECTS SHALL BE CORRECTED WITH NO CHANGE IN CONTRACT AMOUNT.
- H. THE CONTRACT DOCUMENTS WERE PREPARED FROM INFORMATION MADE AVAILABLE; HOWEVER, CONDITIONS SURROUNDING THE INSTALLATION OF THE WORK SHALL BE CAREFULLY INVESTIGATED PRIOR TO SUBMITTING A BID, FABRICATION OF DUCTS OR PIPING, OR PROCEEDING WITH INSTALLATION. CONFLICTS DUE TO EXISTING CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR REVIEW AND RESOLUTION. UPON COMMENCEMENT
- OF CONSTRUCTION, IT SHALL BE UNDERSTOOD THAT THE CONDITIONS OF THE PREMISES HAVE BEEN ACCEPTED. COORDINATE LOCATIONS OF EXISTING EQUIPMENT (DUCTS, TERMINAL BOXES, ETC.) WITH NEW FLOOR TO STRUCTURE PARTITIONS. RELOCATE EQUIPMENT IF REQUIRED TO MAINTAIN ADEQUATE SERVICE CLEARANCE.

J. ALL EXISTING MECHANICAL EQUIPMENT AND PLUMBING FIXTURES IMPACTED BY THE DRAWINGS AND DESIGNATED TO REMAIN SHALL BE INSPECTED PRIOR TO SUBMITTING A BID. THIS EQUIPMENT IS TO BE SERVICED, CLEANED, AND

PLACED IN WORKING ORDER AS PART OF THIS WORK; THEREFORE, ALL REPAIRS, PARTS, ETC. SHALL BE INCLUDED.

- K. ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE AS SCHEDULED OR AS APPROVED EQUAL BY THE ENGINEER.
- ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE TEXAS ACCESSIBILITY STANDARDS (TAS).

M. ALL BIDDERS SHALL BE FAMILIAR WITH EXISTING CONDITIONS ON THE PREMISIS AND BE PREPARED TO COORDINATE

WITH ALL EXISTING CONDITIONS TO BE ENCOUNTERED BY ALL TRADES. ANY EXCEPTIONS SHALL BE NOTED IN WRITING AND SHALL BE INCLUDED IN THE BID. N. THE WORKING CONDITION OF ALL EXISTING EQUIPMENT TO BE RE-USED SHALL BE VERIFIED PRIOR TO THE START OF CONSTRUCTION. THE LANDLORD/OWNER/SBC BUILDING MANAGER SHALL BE GIVEN WRITTEN NOTIFICATION OF ANY

MISSING OR MALFUNCTIONING DEVICES.

- O. COORDINATE EQUIPMENT SUBSTITUTIONS FOR THE SCHEDULED OR SPECIFIED ITEM WITH ALL OTHER TRADES. COMPENSATION TO OTHER TRADES DUE TO CHANGES IN RATED VOLTAGE, PHASE, AMPERAGE, PHYSICAL SIZE, WEIGHT ARRANGEMENT SHAPE COLOR OR OTHER CHARACTERISTIC AND THE RELATED EFFECTS ARISING FROM THE
- SUBSTITUTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR MAKING THE CHANGE. THE DRAWINGS ARE DIAGRAMMATIC, BUT SHALL BE FOLLOWED AS CLOSLEY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT. PIPING ARRANGEMENTS, MECHANICAL COMPONENT LOCATIONS, AND THE LIKE HAVE BEEN DESIGNED FOR ECONOMY CONSISTENT WITH GOOD PRACTICE AND OTHER CONSIDERATIONS. MAJOR CHANGES TO THE SYSTEMS ARRANGED AS SHOWN ON THE DRAWINGS MUST BE APPROVED IN WRITING AND ALL SUCH CHANGES
- 2. UPON COMPLETION OF THE WORK, ALL EXPOSED PORTIONS OF THE MECHANICAL EQUIPMENT PROVIDED SHALL BE B. DOMESTIC COLD WATER, HOT WATER, AND HVAC CONDENSATE DRAIN PIPING SHALL BE INSULATED WITH 0.5 INCH THOROUGHLY CLEANED. REMOVE ALL TRACES OF SOIL, LABELS, GRADE, OIL, AND OTHER FOREIGN MATERIAL USING ONLY THE TYPES OF CLEANERS RECOMMENDED BY THE MANUFACTURERS OF THE EQUIPMENT BEING CLEANED.
- R. UPON COMPLETION, PROVIDE MANUFACTURER'S OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT INSTALLED AS PART OF THE WORK TO THE LANDLORD/OWNER'S REPRESENTATIVE/SBC BUILDING MANAGER. S. PROVIDE TRAINING TO OPERATING PERSONNEL FOR ALL SYSTEMS AND EQUIPMENT INSTALLED AS PART OF THE
- MAINTAIN MINIMUM CLEARANCES ABOVE FINISHED CEILINGS TO ALLOW INSTALLATION OF MECHANICAL EQUIPMENT, DUCTS, CONDUIT, PLUMBING PIPING, FIRE SUPPRESSION PIPING, AND LIGHT FIXTURES. U. IN THE EVENT OF A CONFLICT WITHIN THE CONTRACT DOCUMENTS, PROVIDE THE GREATER QUANTITY OR HIGHER
- LANDLORD/OWNER/TENANT/SBC. DRAWINGS SHALL BE PROVIDED IN ELECTRONIC FORMAT COMPATIBLE WITH ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE RULES, REGULATIONS, INDUSTRY STANDARDS, LOCAL CODES, LAWS, AND ORDINANCES. IN THE EVENT THAT A DISCREPANCY IS FOUND IN THE

V. UPON THE COMPLETION OF THE WORK, PROVIDE 'AS-BUILT' RECORD DRAWINGS TO THE

## 15060 - HANGERS AND SUPPORTS

A. ALL EQUIPMENT AND PIPING SHALL BE PROPERLY SUPPORTED WITHIN THE BUILDING AND ADEQUATE PROVISIONS SHALL BE MADE FOR SLOPE AND ANCHORAGE. HANGERS, RODS, CLAMPS, AND INSERTS SHALL BE APPROVED BY UL FOR THE SERVICE INTENDED.

## 15075 - MECHANICAL IDENTIFICATION

DESIGNATE PIPE CONTENT AND FLOW DIRECTION.

ALL MAJOR EQUIPMENT SHALL BE PROVIDED WITH ENGRAVED NAMEPLATES ATTACHED WITH SCREWS. LABLES SHALL USE NOMENCLATURE FROM EQUIPMENT SCHEDULES.

B. PIPING SYSTEMS SHALL BE IDENTIFIED WITH SNAP-ON PIPE MARKERS LOCATED EVERY TEN FEET. MARKERS SHALL

15081 - DUCT INSULATION INTERIOR METAL DUCTS SHALL BE INSULATED EXTERNALLY WITH TYPE IV DUCT WRAP, TWO INCH THICKNESS (ONE

INDICATE FREE AREA REQUIRED. INCREASE DUCT DIMENSIONS AS REQUIRED IF LINER IS USED.

- INSTALLED R-VALUE SHALL BE EQUAL TO 6.0.
  - ALL INSULATION AND JACKET MATERIALS EXPOSED TO RETURN AIR SHALL BE SPECIFICALLY APPROVED FOR THAT APPLICATION.

- 15083 PIPE INSULATION CIRCULATED DOMESTIC HOT WATER PIPING SHALL BE INSULATED WITH 1 INCH THICKNESS PRE-FORMED GLASS FIBER
- THICKNESS PRE-FORMED GLASS FIBER PIPE INSULATION WITH WHITE ALL SERVICE JACKET AND INTEGRAL VAPOR BARRIER.

ALL INSULATION AND JACKET MATERIALS EXPOSED TO RETURN AIR SHALL BE SPECIFICALLY APPROVED FOR THAT

# APPLICATION.

- ALL VALVES SHALL BE RATED FOR THE MAXIMUM PRESSURE OF THE SYSTEM IN WHICH THEY ARE TO BE INSTALLED. B. ALL WATER SERVICE VALVES SHALL BE LUG TYPE BUTTERFLY OR BALL TYPE

PIPE INSULATION WITH WHITE ALL SERVICE JACKET.

## 15140 - DOMESTIC WATER PIPING

DOMESTIC COLD AND HOT WATER PIPING AND EQUIPMENT CONDENSATE DRAIN PIPING SHALL BE TYPE L HARD COPPER WITH WROUGHT COPPER FITTINGS.

A. SANITARY WASTE, VENT, AND DRAIN PIPING 2 INCHES AND LARGER SHALL BE SERVICE WEIGHT CAST IRON. PIPING

THE AUTHORITIES HAVING JURISDICTION; HOWEVER, PVC PIPING MAY NOT BE USED IN SPACES USED FOR RETURN AIR

B. DIELECTRIC UNIONS, FITTINGS, OR COUPLINGS SHALL BE USED WHEN DISSIMILAR METALS ARE JOINED.

#### BELOW THE SLAB SHALL BE HUB AND SPIGOT TYPE WITH SEALED JOINTS. PIPING ABOVE THE SLAB SHALL BE NO-HUB TYPE. VENT PIPING MAY BE SCHEDULE 40 GALVANIZED STEEL, DWV COPPER, OR SERVICE WEIGHT CAST IRON. WASTE PIPING SMALLER THAN 2 INCHES MAY BE DWV COPPER. SCHEDULE 40 PVC PIPING MAY BE USED WHERE ACCEPTED BY

PLENUMS.

15150 - SANITARY WASTE AND VENT PIPING

15410 - PLUMBING FIXTURES A. PLUMBING FIXTURES AND EQUIPMENT SHALL BE PROVIDED AS SCHEDULED OR INDICATED AND INSTALLED COMPLETE WITH STOP VALVES, SUPPLIES, ESCUTCHEONS, AND ALL OTHER APPURTENANCES REQUIRED TO CONNECT TO ROUGH-IN PIPING AT FLOORS AND WALLS.

# 15720 - DX SPLIT SYSTEM UNITS

PROVIDE MANUFACURED PAIRED DX SPLIT SYSTEM COOLING UNITS WITH ELECTRIC STRIP HEATING UNITS OF THE NOMINAL CAPACITIES SCHEDULED. UNITS SHALL BE AS MANUFACTURED BY LENNOX, CARRIER, TRANE, MCQUAY AND AND ONE-HALF INCHES IN PLACE), OR LINED WITH ONE-HALF INCH THICKNESS DUCT LINER. ALL DUCT DIMENSIONS YORK. UNITS SHALL HAVE FRAMES FOR 1" THICKNESS FILTERS, ACCESSORIES REQUIRED FOR COMPLETE AND OPERATING SYSTEMS.

- PROVIDE FLEXIBLE DUCT CONNECTIONS AT EQUIPMENT.
- FLEXIBLE DUCTS SHALL HAVE ONE INCH THICKNESS EXTERNAL INSULATION WITH FOIL JACKET AND VAPOR BARRIER.

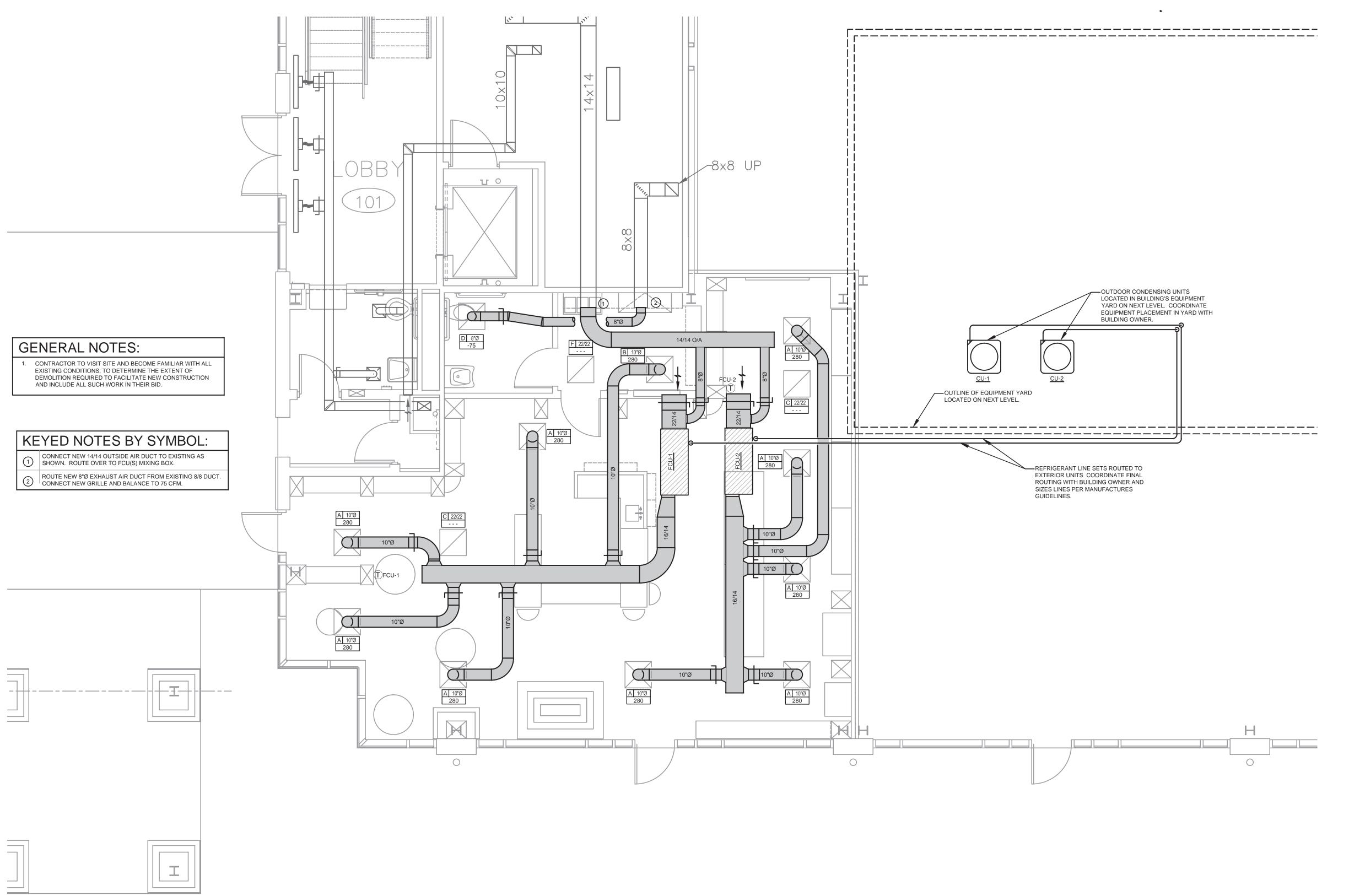
- A. DIFFUSERS, REGISTERS, AND GRILLES SHALL BE BUILDING STANDARD UNLESS NOTED OTHERWISE AND SHALL BE

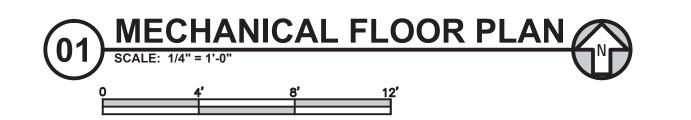
## 15900 - HVAC INSTRUMENTATION AND CONTROLS

- LOCATIONS OF ALL THERMOSTATS SHALL BE COORDINATED WITH FURNITURE LOCATIONS AND FINISHES. THERMOSTATS SHALL NOT BE INSTALLED BEHIND SYSTEM FURNITURE PANELS, IN MILLWORK, OR ABOVE DIMMERS.

A. ALL MECHANICAL SYSTEMS SHALL BE TESTED AND BALANCED USING AABC OR NEBB PROCEDURES. FINAL REPORT SHALL BE SUBMITTED TO THE TENANT.

TENANT FINISH OUT THE WOODLANDS, TX





PRE Carrices

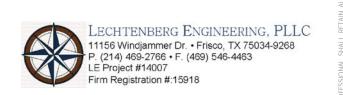
architecture | planning | interior design



Louisia 601 Sp t: 318.

JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consultant:



Sea



\_\_\_

Sheet

# MECHANICAL FLOOR PLAN

Drawn By:	
	TI
Checked By:	
	PI
Project No.:	
	A0314
Project Phase:	
	CONSTRUCTION DOCUMENTS
Date:	
	97 ALICUET 9047

M201

# SPLIT SYSTEM SCHEDULE

					_		AIR	HANDLING U	INIT									(	CONDENS	SING UNI	Γ		
		SUPP	LY FAN			COC	DLING		HEA	ATING							AMDIENT						REMARKS
MARK	O/A	CFM	E.S.P (" WG)	BHP/HP	E.A.T. (°F) DB/WB	L.A.T. (°F) DB/WB	TOT. CAP (MBH)	SEN. CAP (MBH)	KW	STEPS	MANUFACTURER	MODEL NO.	VOLT/PH	MCA	MOCD	MARK	AMBIENT TEMP (°F)	VOLT/PH	MCA	MOCD	MANUFACTURER	MODEL NO.	INLIVIANNO
FCU-1	175	1400	1.0	2.0	77.6/65.2	58.6/57.4	33.95	29.4	15.0	1	LENNOX	CBX27UH-048	460/3	4	15.0	CU-1	105	460/3	8.4	15.0	LENNOX	TSA042S4	1,2,3,4
FCU-2	175	1400	1.0	2.0	77.6/65.2	58.6/57.4	33.95	29.4	15.0	1	LENNOX	CBX27UH-048	460/3	4	15.0	CU-2	105	460/3	8.4	15.0	LENNOX	TSA042S4	1,2,3,4

MARK	DUTY	TYPE	FACE SIZE	NECK SIZE	CFM	MAX. T.P. (" WG)	MAX. N.C.	MANUFACTURER	MODEL NO.	REMARKS
А	SUPPLY	CEILING	24"X24"	AS NOTED	AS NOTED	0.15	25	TITUS	TMS	1,2
В	SUPPLY	CEILING	24"X24"	AS NOTED	AS NOTED	0.15	25	TITUS	TMS	2,3
С	RETURN	CEILING	24"X24"	22"X22"	AS NOTED	0.15	25	TITUS	PAR	1,2
E	EXHAUST	CEILING	24"X24"	8"Ø	AS NOTED	0.15	25	TITUS	PAR	2,3
F RETURN CEILING 24"X24" 22"X22" AS NOTED 0.15 25 TITUS PAR 2,3										

OUTSIDE AIR DUCT FLEX CONNECTION

SPRING

SPRING

DUCT FLANGE

DUCTWORK

FLEX CONNECTION

CONDENSATE DETECTION

FAN KILL SWITCH IN PAN.

WINIMUM 20 GA GALVANIZED

STEEL AUXILLARY DRAIN PAN

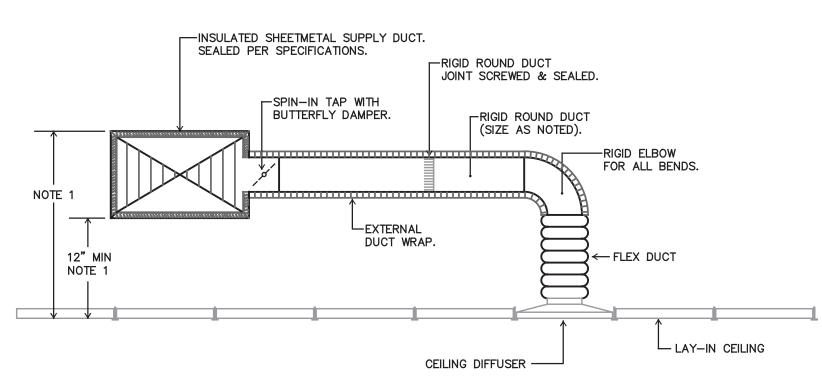
(2" DEEP) WITH SOLDERED

CORNERS. SUPPORT FROM

STRUCTURE WITH ALL THREAD

ROD.





NOTE 1: VERIFY IN FILED WITH CLEARANCES AT SHELL BUILDING STRUCTURE. NOTIFY ARCHITECT IF CONFLICTS.



PPE Consider Appaces



601 Sprii t: 318.22

JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consulta

LECHTENBERG ENGINEERING, PLLC
11156 Windjammer Dr. • Frisco, TX 75034-9268
P. (214) 469-2766 • F. (469) 546-4463
LE Project #14007
Firm Registration #:15918

A STATE OF THE STA
PATRICK A. LECHTENBERG
91377 08727/14 CENSE
Wall En-

Revisions:

Sheet

MECHANICAL
DETAILS &
SCHEDULES

Drawn By:

TL
Checked By:

PL
Project No.:

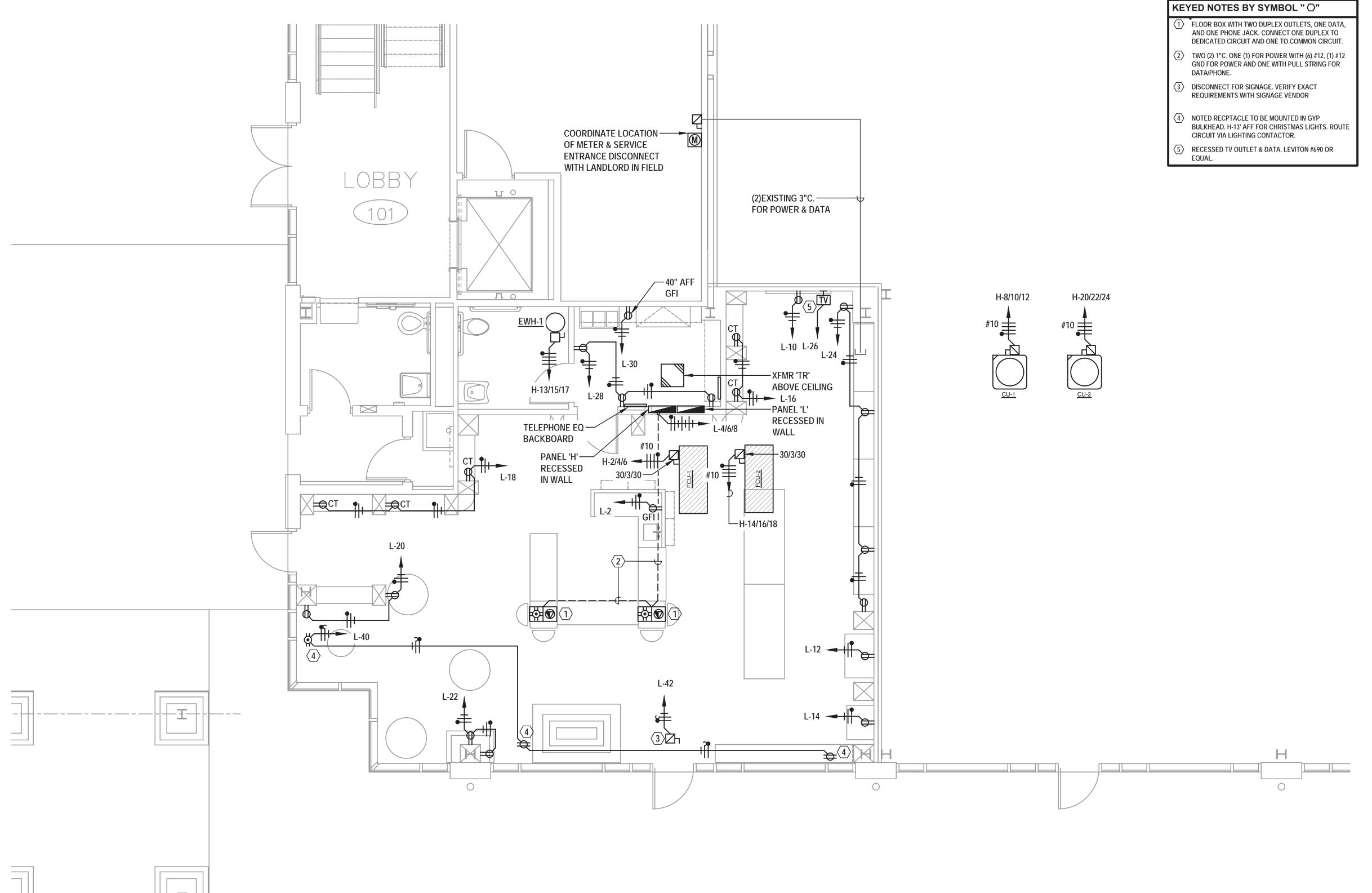
AO314
Project Phase:

CONSTRUCTION DOCUMENTS
Date:

27 AUGUST 2014

M901

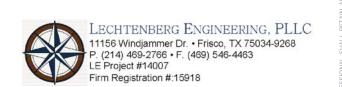
)1





JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consultant:

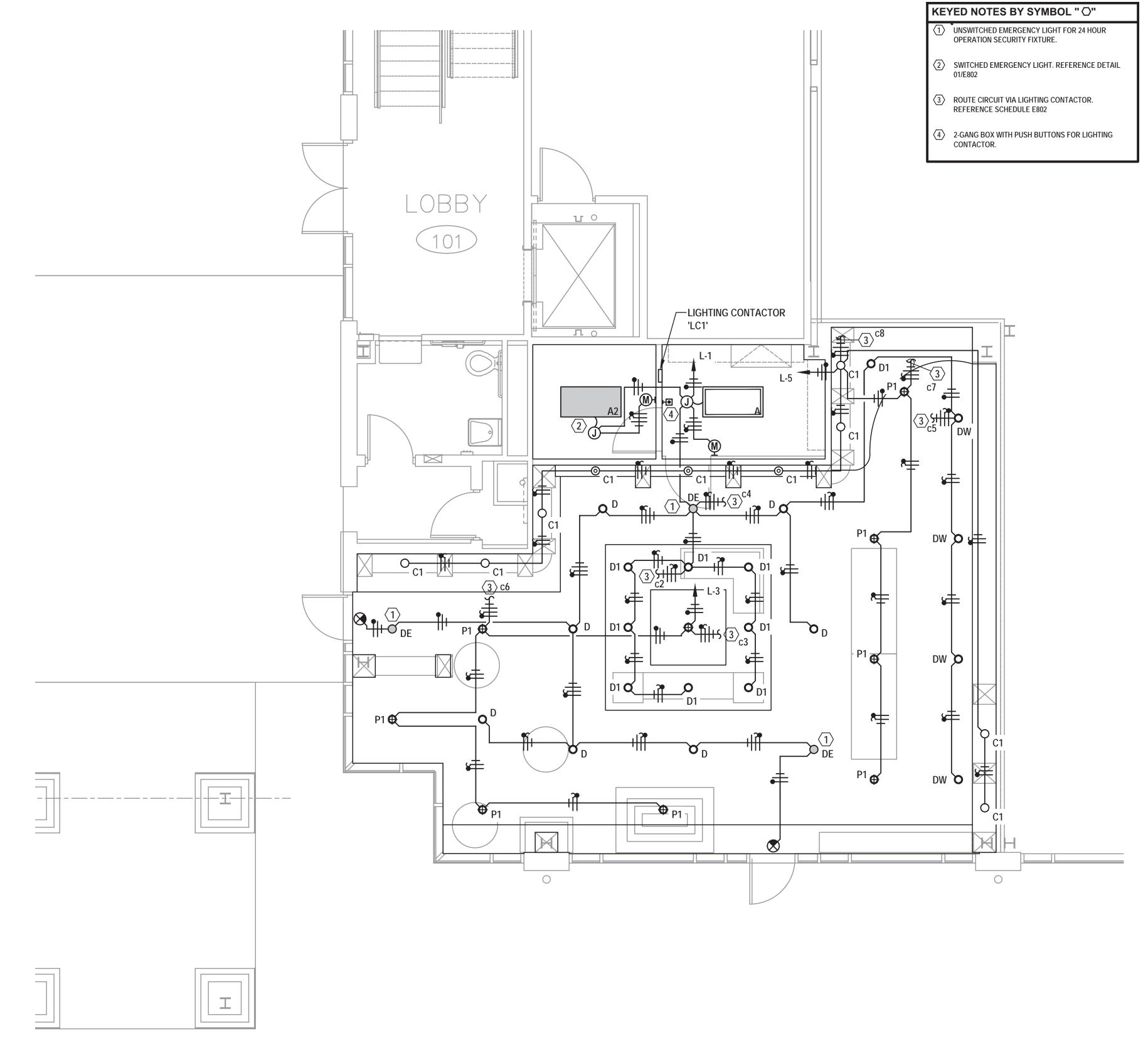




# ELECTRICAL FLOOR PLAN

A0314 CONSTRUCTION DOCUMENTS 27 AUGUST 2014

E201





PREVICES APAC architecture | planning | interior design



Louisiana 601 Spring t: 318.227.

JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consultant:



Se



REVISIONS

Sheet Tit

# LIGHTING FLOOR PLAN

Drawn By:	TI
Checked By:	
	PL
Project No.:	
	A0314
Project Phase:	
	CONSTRUCTION DOCUMENTS
Date:	
	27 AUGUST 2014

E301

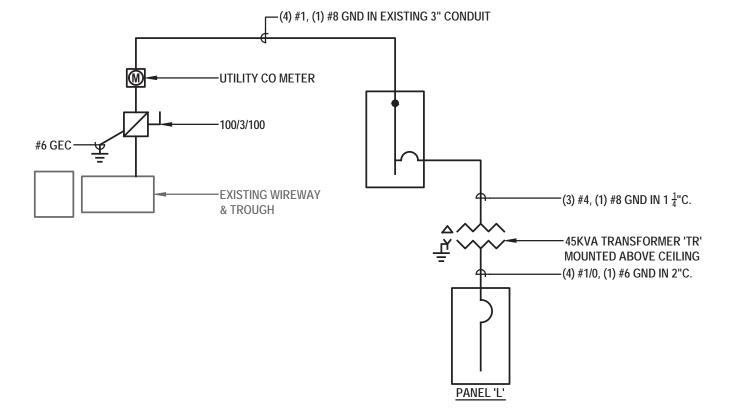
OPYRIGHT
LR REPORTS, PLANS, SPECIFICA

#### PANEL [H] SCHEDULE

PANEL [H] SCHEDULE																		_	
						(VOLT-AMPS)			_	PHASE			_	(VOLT-AMPS)				AREA (SF):	1314
DESCRIPTION	Р	AMP	LIGHT	RECEP	MOTOR	HEAT	KITCH	COMP	OTHER	CIRCUIT	OTHER	COMP	KITCH	HEAT	MOTOR	RECEP	LIGHT	P AMP	DESCRIPTION
SPARE	1	20								1 A 2				5000	960			3 30	[ FUC-1
SPARE	1	20								3 B 4				5000	960			ш	[
SPARE	1	20								5 C 6				5000				Ш	[
SPACE	-	_								7 A 8					2328			3 30	[ CU-1
SPACE	L	_								9 B 10					2328			Ш	[
SPACE	L	_								11 C 12					2328			Ш	[
[ EWH	2	20							2000	13 A 14				5000	960			3 30	[ FCU-2
[									2000	15 B 16				5000	960			ш	[
[									2000	17 C 18				5000				ш	[
[ PANEL "L"	3	70	1467	1667	0	0	0	0	833	19 A 20					2328			3 30	[ CU-2
[ VIA XFMR 'TR'			1467	1667	0	0	0	0	833	21 B 22					2328			Ш	[
[			1467	1667	0	0	0	0	833	23 C 24					2328			Ш	[
TOTALS			4401	5001	0	0	0	0	8499		0	0	0	30000	17808	0	(		TOTALS
LOAD SUMMARY			CON KVA	CON AMP	C W/SF	DIV. FAC	DES KVA	DES AMP	D W/SF	NOTES:	_	_	_	JOB NM:	JORDAN'S SV	VEET		SUMN	MARY
1.LIGHTING			4.4	5.3	3.4	1.25	5.5	6.6	4.2	1.MINIMUM IN	ITEGRATED EQU	IPMENT RATING			SHOPPE			VOLTAGE:	480
2.RECEPTACLES			5.0	6.0	3.8	1.00	5.0	6.0	3.8	36 KAIC								MCB/MLO:	MLO
3.MOTORS			17.8	21.4	13.6	0.25	4.5	5.4	3.4	2.PROVIDE FL	ULL SIZE NEUTRA	AL AND GROUNE	)	UPSTREAM C	.C.P.D.		1	AMPS:	100
4.ELECTRIC HEAT			30.0	36.1	22.8	1.00	30.0	36.1	22.8	BUS							l .	# POLES:	24
5.KITCHEN EQUIPMEN	Т		0.0	0.0	0.0	1.00	0.0	0.0	0.0	3. STUB TWO	(2) 1"C WITH PU	LLSTRING TO						MOUNT:	FLUSH
6.COMPUTER EQUIPME	ENT		0.0	0.0	0.0	1.00	0.0	0.0			LE CEILING SPAC			NOTE: CONTI	RACTOR TO			BY:	_
7.OTHER			8.5	10.2	6.5	1.00	8.5	10.2	6.5	1				BALANCE	PHASES		l .	TIME:	11:32:53 PM
8.SPARE			6.0		=	1.00			4.6	1				WITHIN +/	10%			DATE:	08/27/14
9.SPACE			6.0	1		1.00	6.0	7.2	4.6	1							SH	EET NAME:	н
TOTAL:			66		50		66			1				JOB #:	14007			FORM NO.	DFWPNL.XLS

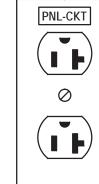
|--|

PANEL [L] SCHEDULE																		-			
						(VOLT-AMPS)				PHASE		(VOLT-AMPS)							AREA (SF): 1314		
DESCRIPTION	Р	AMP	LIGHT	RECEP	MOTOR	HEAT	KITCH	COMP	OTHER	CIRCUIT	OTHER	COMP	KITCH	HEAT	MOTOR	RECEP	LIGHT	P A	MP	DESCRIPTION	
LIGHTING	1	20	1022							1 A 2						360		1 20	- 1	CASH WRAP	
LIGHTING	1	20	1200							3 B 4						360		1 20	- 1	CASH WRAP	
LIGHTING	1	20	996							5 C 6	540							1 20	- 1	TRUFFEL CASE	
SPARE	1	20								7 A 8	495							1 20	- 1	ICE CREAM CAB	
SPARE	1	20								9 B 10	500							1 20	- 1	RECPTS	
SPARE	1	20								11 C 12	488							1 20	- 1	REACH IN REF	
SPARE	1	20								13 A 14	500							1 20	- 1	REACH IN FREZ	
SPARE	1	20								15 B 16						360		1 20	- 1	RECPTS	
SPACE	-									17 C 18						540		1 20	- 1	RECPTS	
SPACE	1-									19 A 20						360		1 20	- 1	RECPTS	
SPACE	-									21 B 22						360		1 20	- 1	RECPTS	
SPACE	1-									23 C 24						720		1 20	- 1	SPARE	
SPACE	1-									25 A 26						500		1 20	- 1	TV	
SPACE	-									27 B 28						540		1 20	- 1	WORK AREA RECPS	
SPACE	-									29 C 30						180		1 20	- 1	WORK AREA RECP	
SPACE	-									31 A 32								1 20	- 1	SPARE	
SPACE	1-									33 B 34								1 20	- 1	SPARE	
SPACE	1-									35 C 36								1 20	- 1	SPARE	
SPACE	-									37 A 38								1 20	- 1	SPARE	
SPACE	-									39 B 40						720		1 20	- 1	BLKHEAD RECPS	
SPACE	_ _									41 C 42							1200	1 20	ı	SIGN	
TOTALS	┸		3218	0	0	0	0	0	0		2523	0	0	0	0	5000	1200	)		TOTALS	
LOAD SUMMARY			CON KVA	CON AMP	C W/SF		DES KVA	DES AMP	D W/SF	NOTES:				JOB NM:	JORDAN'S SI	WEET		Sl	JMM <i>P</i>	4RY	
1.LIGHTING			4.4	12.2	3.4			15.3	4.2	1.MINIMUM IN	ITEGRATED EQU	JIPMENT RATING			SHOPPE			VOLTA	GE:	208	
2.RECEPTACLES			5.0	13.9	3.8	1.00	5.0	13.9	3.8	10KAIC							1	MCB/MI	LO:	MCB	
3.MOTORS			0.0	0.0	0.0	1.00	0.0	0.0	0.0	2.PROVIDE FI	ULL SIZE NEUTR	AL AND GROUND	)	UPSTREAM C	C.P.D.			AM	IPS:	150	
4.ELECTRIC HEAT			0.0	0.0	0.0	1.00	0.0	0.0	0.0	BUS								# POL	ES:	42	
5.KITCHEN EQUIPMENT			0.0	0.0	0.0	1.00	0.0	0.0	0.0	3. STUB TWO	(2) 1"C WITH PU	ILLSTRING TO						MOU	INT:	FLUSH	
6.COMPUTER EQUIPME	NT		0.0	0.0				0.0	0.0	ACCESSABI	LE CEILING SPAC	CE.		NOTE: CONTI	RACTOR TO			Ī	BY:	-	
7.OTHER			2.5	6.9	1.9	1.00	2.5	6.9	1.9	ı				BALANCE	PHASES			TI	ME:	11:33:09 PM	
8.SPARE			18.0			0.90	16.2	45.0	12.3	Į.				WITHIN +/	- 10%		ı	DA	TE:	08/27/14	
9.SPACE			26.0			0.90	23.4	65.0	17.8	ı						<u> </u>	SH	IEET NAM	ME:	L	
TOTAL:			12	33	9		53	146	40					JOB #:	14007			FORM I	NO.	DFWPNL.XLS	



# ELECTRICAL SINGLE LINE DIAGRAM SCALE: NONE

PROVIDE CLEAR ADHESIVE LABEL WITH MINIMUM 1/4" BLACK LETTERING FOR ALL WIRING DEVICES INDICATING PANEL & CIRCUIT NUMBER FROM WHERE IT IS FED.



DEVICE LABELING DIAGRAM

SCALE: NONE





# JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consultant:





# ELECTRICAL DETAILS, DIAGRAMS, SCHEDULES

Drawn By:	
	TL
Checked By:	
Oncorca by.	DI
	PL
Project No.:	
	A0314
Project Phase:	
	CONSTRUCTION DOCUMENTS
Date:	

E801

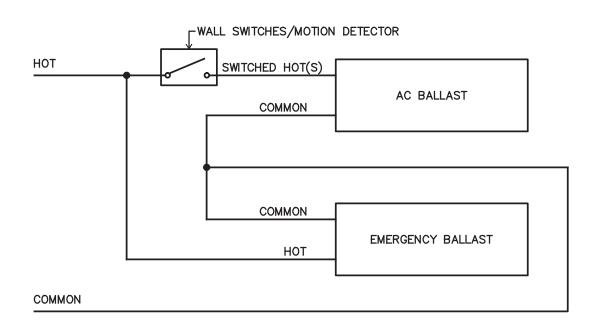
27 AUGUST 2014

	L	IGHT FIXTURE	SCHEDULE			
TYPE	DESCRIPTION	MANUFACTURER	MODEL NO.	LAMPS	VOLTAGE	WATTAGE (MAX)
Α	2' X 4' RECESSED LENSED TROFFER WITH ELECTRONIC BALLAST	LITHONIA	2SP8 G332 A1212 MVOLT 1/3	(3) 32W T8	120V	84W
AE	SAME AS "A" WITH EMERGENCY BATTERY PACK TO PROVIDE 90 MINUTES OF EGRESS ILLUMINATION	LITHONIA	2SP8 G332 A1212 MVOLT 1/3 EL	(3) 32W T8	120V	33W
C1	4" APERTURE LED DOWN LIGHT MOUNTED IN ARCH. REFERENCE ARCHITECTURAL ELEVATIONS AND DETAILS	PRESCOLITE	D4LED3-4D9LED4-35K-8-SP18-TR	LED	120V	12W
D	6" APERTURE COMPACT FLUORESCENT DOWN LIGHT WITH CLEAR SEMI-SPECULAR OPEN REFLECTOR	LITHONIA	6HF 1/26-42TRT F601AZ MVOLT	(1) 32W TRT	120V	36W
DE	SAME AS D WITH EMERGENCY BATTERY PACK TO PROVIDE 90 MINUTES OF EGRESS ILLUMINATION WITH INTEGRAL TEST SWITCH	LITHONIA	6HF 1/26-42TRT F601AZ MVOLT EL	(1) 32W TRT	120V	36W
DW	SAME AS D WITH WALL WASH OPTICS	LITHONIA	6HF 1/26-42TRT F6W4AZ MVOLT EL	(1) 32W TRT	120V	36W
P1	20" PENDANT (OWNER FURNISHED CONTRACTOR INSTALLED)	GICLEE GALLERY	17822	(3) 75W A19	120V	225W
P2	24" PENDANT (OWNER FURNISHED CONTRACTOR INSTALLED)	GICLEE GALLERY	17276	(4) 75W A20	120V	300W
EXIT	EDGE LIT EMERGENCY EXIT WITH BATTERY PACK. NUMBER OF FACES AND DIRECTIONAL ARROWS PER DRAWING	LITHONIA LIGHTING	EDGR-X-R-EL	WITH UNIT	120V	3.1W

ZONE	DESCRIPTION	VOLTAGE	CONTACTOR RATING	PHOTOCELL		TIME CLOCK			PUSHBUTTON		NOTES		
		VOLTAGE		ON	OFF	ON	OFF	ON	OFF	ON	OFF	NOTES	
C1	SIGNAGE	120V	30A/1P	YES	NO	MON	I-SAT	SI	JN	YES	YES		
<u> </u>						10:00AM	6:00PM	12:00PM	6:00PM			2	
C2	CASH WRAP DOWN LIGHTS	120V	30A/1P	NO	NO	MON	I-SAT	SI	JN	YES	YES	2	
		120 V				10:00AM	6:00PM	12:00PM	6:00PM			-	
C2	CASH WRAP PENDANTS	120V	30A/1P	NO	NO		I-SAT		JN	YES	YES	2	
						10:00AM	6:00PM	12:00PM	6:00PM				
C4	SALES AREA DOWN LIGHTS	120V	30A/1P	NO	NO		I-SAT		JN	YES	YES	2	
						10:00AM	6:00PM	12:00PM	6:00PM				
C5	SALES AREA WALL WASH	120V	30A/1P	NO	NO		I-SAT	<u> </u>	JN	YES	YES	2	
	SALES AREA PENDANTS WEST	120V	30A/1P	NO	NO	10:00AM	6:00PM I-SAT	12:00PM	6:00PM	YES	YES	2	
C6						10:00AM	6:00PM	12:00PM	JN 6:00PM				
				+			I-SAT		JN			+	
C7	SALES AREA PENDANTS EAST	120V	30A/1P	NO	NO	10:00AM	6:00PM	12:00PM	6:00PM	YES	YES	2	
	ARCHWAY DOWN LIGHTS/CANDY DISPLAY DOWN LIGHTS	1 120\/	30A/1P	NO	NO		I-SAT		JN	YES	YES		
C8						10:00AM	6:00PM	12:00PM	6:00PM			2	
	RECEPTACIES FOR CHRISTMAS	ECEPTACLES FOR CHRISTMAS	1201	221/15	\/=0		MON	I-SAT	SI	JN		1	1.
C9	LIGHTS	120V	30A/1P	YES	NO	10:00AM	6:00PM	12:00PM	6:00PM	YES	YES	2	
C9	SPARE	120V	30A/1P										
	SPARE	1200	30A/TP										
C10	SPACE												
	0.7.02											ļ	
C12	SPARE	277V	30A/1P				<del></del>						
NOTES:													

— 2-GANG PUSH BUTTON
WITH 16 PUSH BUTTONS
1-12 - LITHING CONTACTORS
13-15 - PROGRAMMABLE SCANS 16 - ALL OFF

U2 LIGHTING CONTACTOR CONTROL DETAIL
SCALE: NONE









# JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consultant:



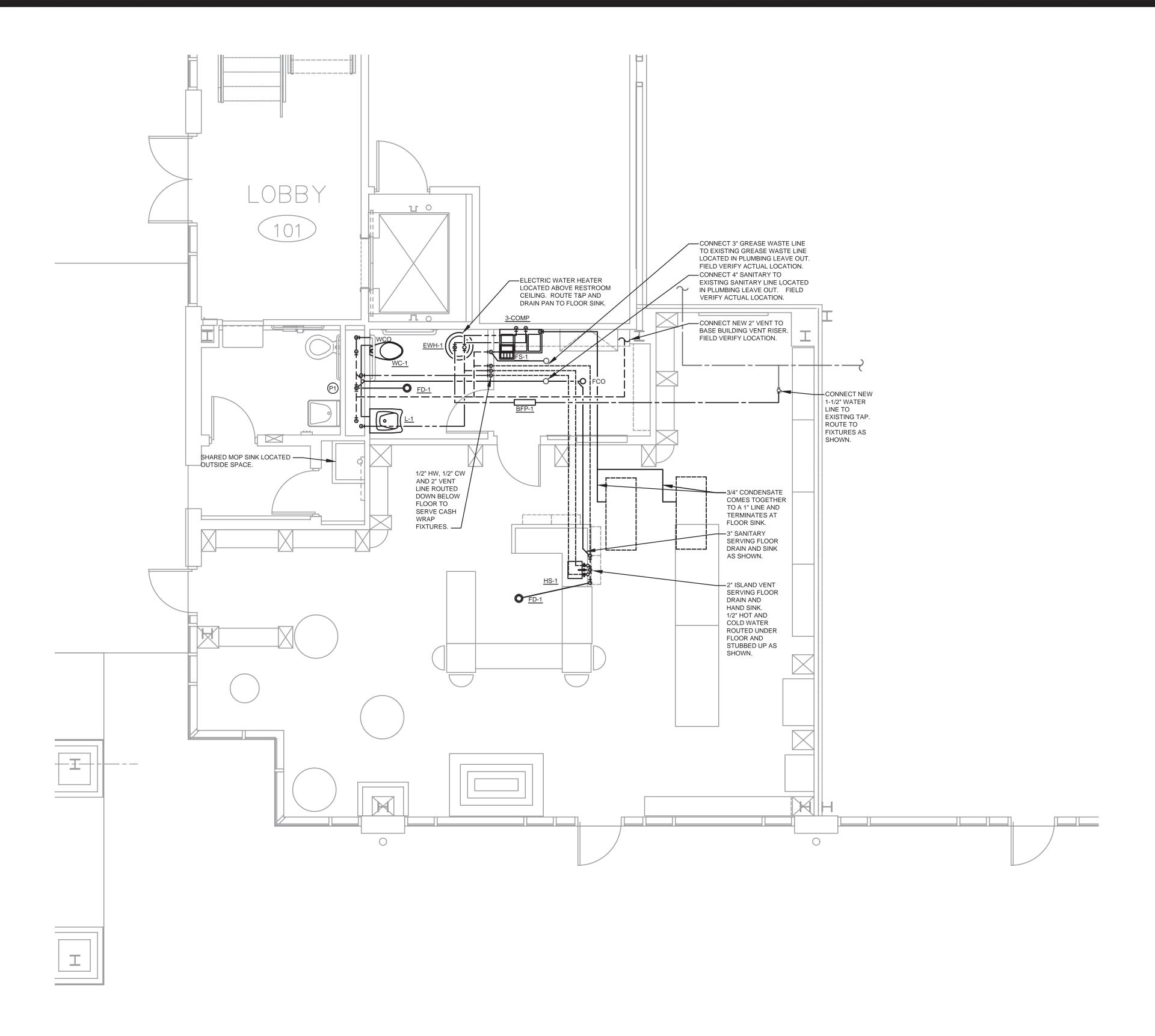


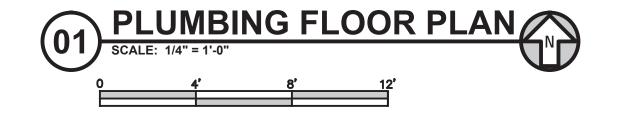
	•
	Revisions:
	Chaot Title
	Sheet Title:
EL ECTDIC A L	

# ELECTRICAL DETAILS, DIAGRAMS, SCHEDULES

Drawn By:	
	TL
Checked By:	
S. ISS. ISS. Sy.	PI
	Г
Project No.:	
	A0314
Project Phase:	
	CONSTRUCTION DOCUMENTS
Date:	
	27 ALIGUST 2014

E802





PREVICES

architecture | planning | interior design



Louisiana 601 Spring Str t: 318.227.924

JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX

Consultant:



3e



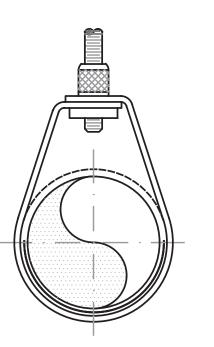
Revisions:

Sheet Ti

# PLUMBING FLOOR PLAN

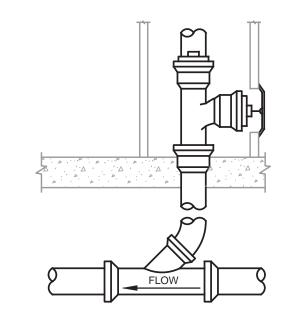
Drawn By:	
Brawn By.	Т
Checked By:	
	Р
Project No.:	
	A031
Project Phase:	
	CONSTRUCTION DOCUMENTS
Date:	
	27 AUGUST 2014

P201

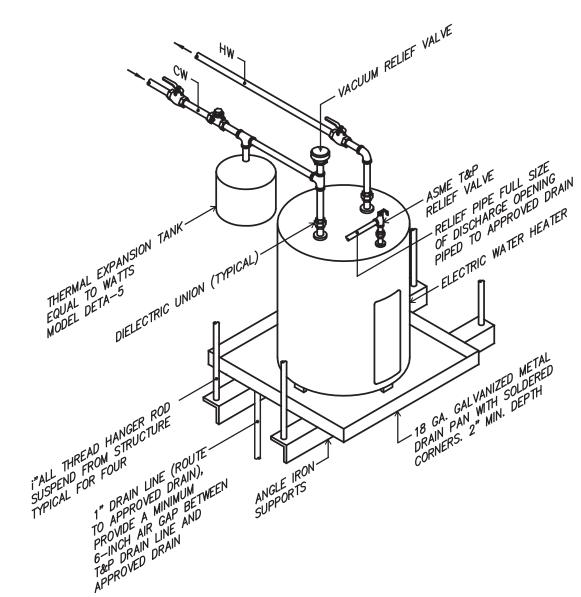


PIPE HANGER DETAIL

SCALE: NONE

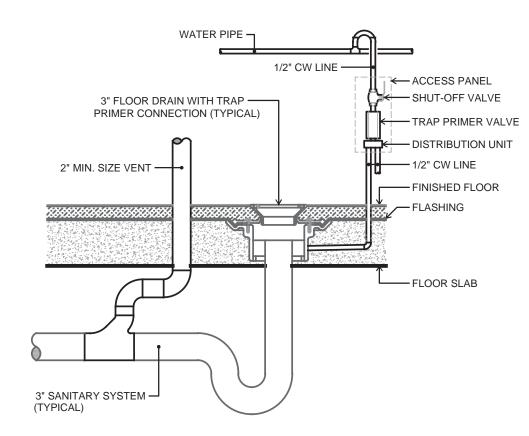


WALL CLEAN OUT DETAIL



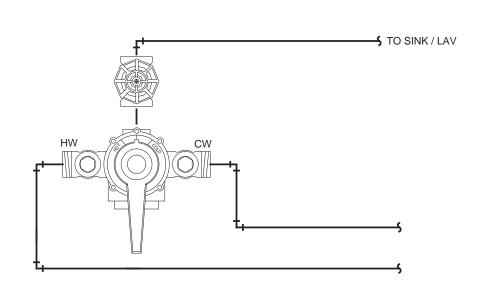
ELECTRIC WATER HEATER DETAIL

SCALE: NONE



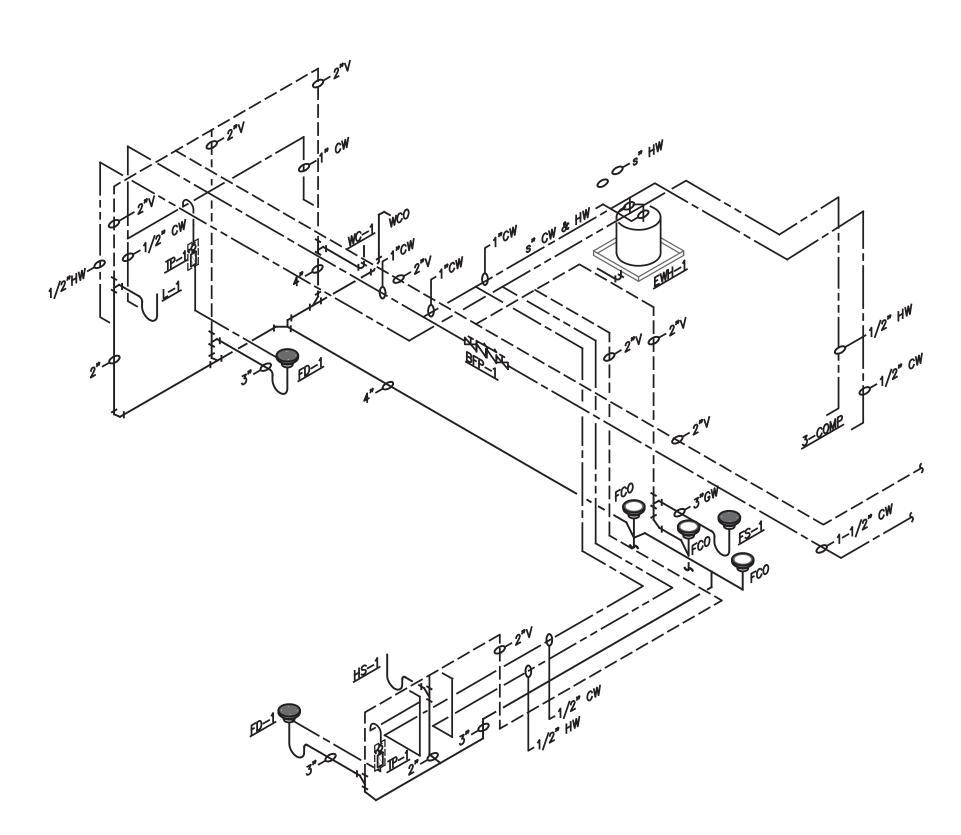
FLOOR DRAIN DETAIL

SCALE: NONE



POINT OF USE THERMOSTATIC MIXING VALVE

SCALE: NONE



P1) PLUMBING RISER

SCALE: NONE

# PLUMBING FIXTURE CONNECTION SCHEDULE

OTIEDOEE								
DESIGNATION	FIXTURE	C.W.	H.W.	SAN.	VENT			
FD/FS	FLOOR DRAIN	1/2"	-	3"	2"			
L	LAVATORY	1/2"	1/2"	2"	2"			
HS	SINK	1/2"	1/2"	2"	2"			
WC	WATER CLOSET	1"	_	4"	2"			

NOTE: ABOVE SIZES ARE MINIMUM UNLESS OTHERWISE NOTED ON DWG.

1. PITCH ALL DRAINAGE PIPING AT 1/4" FOOT MINIMUM UNLESS OTHERWISE NOTED. 2. ALL UNDERGROUND DRAINAGE PIPING SHALL BE MINIMUM OF 2" IN SIZE &  $\frac{1}{4}$ " PER FT.

SLOPE.
3. PROVIDE TRAP PRIMER UNITS FOR ALL FLOOR DRAINS WITHOUT INDIRECT WASTE PIPING.

# PLUMBING FIXTURES

MARK: <u>FD-1</u>

MAKE: JAY R. SMITH MODEL: 2005A-P050-U

DESCRIPTION: CAST IRON FLOOR DRAIN WITH BOTTOM OUTLET, REVERSIBLE FLASHING COLLAR, SEEPAGE OPENINGS AND ADJUSTABLE NICKEL BRONZE STRAINER HEAD; PROVIDE VANDAL PROOF SCREWS AND ½ TRAP PRIMER CONNECTION.

MARK: FS-1

MAKE: ZURN

MODEL: FD2375-NH3 DESCRIPTION: 12"X12" A.R.C. FLOOR SINK, 6 INCH SUMP DEPTH,

T.A.S. GUIDELINES AND ANSI A117.1 REQUIREMENTS.

WITH 3/4 INCH GRATE AND 3 INCH PIPE CONNECTION, CAST IRON BODY, ACID-RESISTANT. COATING AND PVC ANTI-SPLASH DOME STRAINER.

MARK: <u>L-1</u>

MAKE: AMERICAN STANDARD MODEL: 9141.011

DESCRIPTION: WALL-HUNG LAVATORY (4" CENTERS) COMPLETE WITH 'P' TRAP, SUPPLIES, STOPS, HANDI LAV-GUARD INSULATION KIT, AMERICAN STANDARD MODEL 7400.172H CENTERSET LAVATORY FAUCET, AND GRID STRAINER DRAIN. MOUNTING TO COMPLY WITH

MARK: HS-1

MAKE: SPRINGDALE MODEL: UCL1515B

DESCRIPTION: 19 GAUGE, STAINLESS STEEL, 7" DEEP SINGLE COMPARTMENT UNDERMOUNT SINK COMPLETE WITH GRID STRAINER, P-TRAP, SUPPLIES, AND STOPS. PROVIDE FAUCET EQUAL TO AMERICAN STANDARD MODEL SEVA 1480.101 COMPLETE WITH BRASS VALVE BODIES, AND 1.5 GPM AERATOR.

MARK: TMV-1 MAKE: WATTS

MODEL: MMV-M1 DESCRIPTION: THERMOSTATIC MIXING VALVE, BRONZE BODY, LOCKED TEMPERATURE ADJUSTMENT CAP, INTEGRAL CHECK VALVES, 3/4" INLET AND OUTLET CONNECTIONS, MIN. FLOW: 0.5 GPM,

MARK: TP-1

MAKE: PPP MODEL: P2

DESCRIPTION: TRAP PRIMER VALVE. PROVIDE TRAP PRIMER AIR GAP EQUAL TO PRECISION PLUMBING PRODUCTS MODEL AG-500.

MAX. FLOW: 12 GPM. SET OUTLET TEMPERATURE TO 110 F.

MARK: WC-1

MAKE: AMERICAN STANDARD

MODEL: 2257.103 DESCRIPTION: "AFWALL" VITREOUS CHINA WALL MOUNTED. TRIP ELONGATED BOWL COMPLETE WITH OPEN FRONT SEAT (LESS COVER), CARRIER FITTINGS, AND SLOAN ROYAL MODEL 111 FLUSH VALVE (1.28 GPF) FLUSH HANDLE ON WIDE SIDE OF STALL. MOUNTING TO COMPLY WITH T.A.S. GUIDELINES AND ANSI A117.1

REQUIREMENTS.

MARK: BFP-1 MAKE: WATTS

MODEL: 007 DESCRIPTION: 1-1/2" DOUBLE CHECK VALVE ASSEMBLY WITH BRONZE BODY. MAXIMUM WORKING PRESSURE OF 175 PSI. COORDINATE WITH LOCAL INSPECTOR FOR SPECIFIC INSTALLATION REQUIREMENTS.

MARK: <u>3-COMP</u> MAKE: KLINGERS TRADING

DESCRIPTION: SMALL 3-COMPARTMENT SINK, 18 GUAGE, TYPE 304 STAINLESS STEEL. COMPLETE WITH LEG SUPPORTS.

# WATER HEATER SCHEDULE

MARK: <u>EWH-1</u>

MAKE: AO SMITH MODEL: DEL 30

DESCRIPTION: 2 ELEMENT (SIMULTANEOUS), 3.0 KW (6.0 TOTAL KW), 30 GALLON CAPACITY, 24 GPH RECOVERY WITH 100°F TEMPERATURE RISE. 480 V / 3Ø. PROVIDE WITH DRAIN PAN, ASME T&P RELIEF VALVE AND EXPANSION TANK EQUAL TO WATTS DETA-5. STORE

WATER AT 120°F (ADJUSTABLE).



JORDAN'S SWEET SHOPPE TENANT FINISH OUT THE WOODLANDS, TX



Firm Registration #:15918



# DETAILS, & SCHEDULES -**PLUMBING**

A0314 CONSTRUCTION DOCUMENTS 27 AUGUST 2014

P901