LOCATE CU FOR AHU PER LL REQUIREMENTS

VERIFY SPACE AND REVISE SIZES TO FIT IN FIELD

ALL EXH AND OA DUCT THRU DEMISING WALLS SHALL HAVE FIRE DAMPERS

SYMBOL LEGEND

- (T)A — THERMOSTAT "A" REPRESENTS UNIT NO.
- EQUIPMENT DESIGNATION "XX" SEE THIS SHEET FOR APPROPRIATE SCHEDULES
- SUPPLY AIR DEVICE - FOR ACTUAL SIZE SEE AIR DEVICE SCHEDULE SHEET THIS SHEET. SEE SCHEDULE FOR NECK AND DUCT RUNOUT SIZE.
- EXHAUST OR RETURN AIR DEVICE FOR ACTUAL SIZE SEE AIR DEVICE SCHEDULE SHEET THIS SHEET. SEE SCHEDULE FOR NECK AND DUCT RUNOUT SIZE.
- EXISTING DUCT
- ROUND DUCTWORK
- RECTANGULAR DUCT
- VOLUME DAMPER
- TYPICAL CONTROL WIRING BETWEEN THERMOSTAT AND RTU OR TERMINAL

HVAC GENERAL NOTES:

A. ALL WORK SHALL BE IN COMPLETE COMPLIANCE WITH LOCAL MECHANICAL CODE, N.E.C., NFPA, AND ALL LOCAL AND APPLICABLE JURISDICTIONAL AUTHORITIES.

B. REFER TO ARCHITECTURAL PLANS FOR EXACT WALL AND FLOOR AND CEILING ELEVATIONS, TYPES AND APPLICABLE BUILDING CONSTRAINTS.

C. COORDINATE WITH PLUMBING, & ELECTRICAL CONTRACTORS FOR ROUTING OF SYSTEMS CONCEALED IN CEILINGS, WALLS AND FLOORS, CHASES AND ATTIC. AVAILABLE ROOM ABOVE THE CEILING IS EXTREMELY TIGHT.

D. VERIFY CONCEALED SYSTEMS BEFORE INITIATING ANY WORK.

E. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO VERIFY EXISTING CONDITIONS. ANY CONDITIONS NOT IN COMPLIANCE WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS, APPLICABLE CODES/ETC., SHALL BE NOTED AND INCLUDED IN THIS CONTRACTOR'S BID.

F. ALL DIMENSIONS ARE INSIDE AIR STREAM. TRANSITION TO MEET CEILING SPACE AS REQUIRED.

G. NOT ALL VD ARE SHOWN. REFER TO SCHEMATICS FOR SPIN IN DETAILS ON ALL VD.

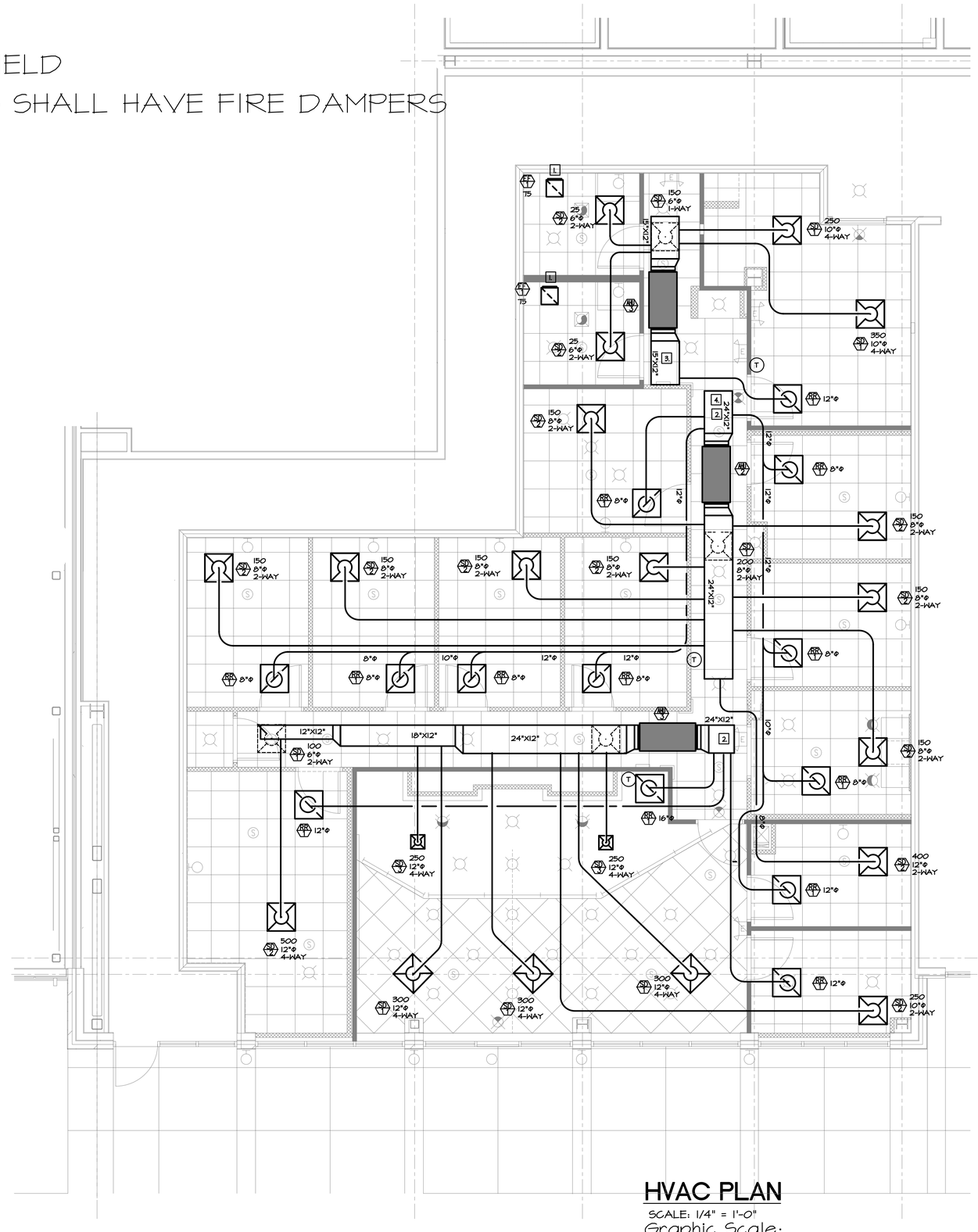
H. VERIFY ALL EQ. CONNECTIONS AND TRANSITION AS REQUIRED.

I. ALL DUCTWORK FABRICATED TO SMACNA STANDARDS.

EQ RECTANGULAR CS TO ROUND IS ACCEPTABLE

HVAC KEYED NOTES:

1. ROUTE 6"Φ EXHAUST FROM FAN TO LL PROVIDED DUCT IN CORRIDOR.
2. ROUTE 12"Φ OA FROM AHU TO LL PROVIDED DUCT IN CORRIDOR.
3. ROUTE 6"Φ OA FROM AHU TO LL PROVIDED DUCT IN CORRIDOR.
4. PROVIDE BYPASS ON SUPPLY TO RETURN SO WHEN ALL SD2 SHUTDOWN THIS OPENS (12"Φ)



HVAC PLAN

SCALE: 1/4" = 1'-0"

Graphic Scale: 0 4' 8'

STATE OF MISSOURI
JOHN CRANE ZEKIND
NUMBER E-19648
REGISTERED PROFESSIONAL ENGINEER

2-16-21

MASSAGE LUXE
SUMMIT AT WEST PRYOR

940 NW PRYOR ROAD
LEE'S SUMMIT, MO, 64081

John C. Zekind, PE
CONSULTING ENGINEERS
1276 WHITE ROAD
CHESTERFIELD, MO, 63017
314-878-2290

Project Number:

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- ☐ Review
- ☐ Pricing
- ☐ Permit 2-16-21
- ☐ Bidding
- ☐ Construction

Sheet Number: M-1

EXHAUST FAN SCHEDULE

MARK	MFGR.	MODEL No.	CFM	S.P.	HP	RPM	SONES	LOCATION	ELECTRICAL	REMARKS
EF-1	GREENHECK		75	.25	130W		LESS THAN 12	CEILING	120V,1Φ	

ALL POWER AND CONTROL WIRING BY THE ELECTRICAL CONTRACTOR.

AIR DEVICE (DIFFUSERS, REGISTERS, GRILLES) SCHEDULE

MARK	MFGR.	MODEL No	CFM	NECK SIZE	PANEL SIZE	FRAME STYLE	FINISH	THROW • 100 FPM	AIR PATTERN	MTG.	△P	NC	ROUND DUCT CONNECT SIZE
SR-1	TITUS	DL	VARIES	VARIES	VARIES	VARIES	OFF-WHITE	--	VARIES	DUCT	--	--	N.A.
RR-1	TITUS	TXR	VARIES	VARIES	VARIES	VARIES	OFF-WHITE	--	VARIES	CLG	--	--	N.A.
SD-1	TITUS	TDCAA	VARIES	VARIES	VARIES	VARIES	OFF-WHITE	--	VARIES	CLG	--	--	N.A.

SD-2 IS ACUTHERM OR EQUAL HEATING COOLING CONTROL DIFFUSER
SD-3 IS IN SMALLEST DW FRAME MODULE FOR DUCT CONNECTION

ELECTRIC FURNACE SCHEDULE

MARK	MFGR.	MODEL NO.	WT.	COOLING CAPACITY			FAN				HEATING CAPACITY	ELEC	REMARKS
				SEN	LAT	TOTAL	CFM	ESP	HP	RPM			
AHU-1	5 TON	5 TON	200	48	12	60	2200	.6"	1/2	LOW	20 KW	208V, 1Φ	(1)(2)(3)(4) OA = 650
AHU-2	5 TON	5 TON	200	48	12	60	2200	.6"	1/2	LOW	20 KW	208V, 1Φ	(1)(2)(3)(4) OA = 650
AHU-3	2 TON	2 TON	200	20	4	24	800	.6"	1/2	LOW	20 KW	208V, 1Φ	(1)( )(3)(4) OA = 300

(1) PROVIDE 30% THROWAWAY FILTER (ON R.A.)

(2) WITH SMOKE DETECTOR IN RA, INDICATION VISIBLE FROM FLOOR.

(3) WITH "A" TYPE DX COIL
ALL POWER AND CONTROL WIRING BY THE ELECTRICAL CONTRACTOR.

(4) PROVIDE SINGLE POINT ELECTRICAL CONNECTION FOR AHU.

CONDENSING UNIT SCHEDULE (1)

MARK	MFGR.	MODEL NO.	WT.	COOLING CAPACITY		REFRIG. LINES		EER	ELEC	REMARKS
				BTU/HR	CONDITIONS	LIQUID	VAPOR			
CU-1	5 TON	5 TON	200	60,000	95 AMB(80/67 EAT)	5/8	1-3/8	16	208V, 1Φ,	(1)(2)
CU-2	5 TON	5 TON	200	60,000	95 AMB(80/67 EAT)	5/8	1-3/8	16	208V, 1Φ,	(1)(2)
CU-3	2 TON	2 TON	200	24,000	95 AMB(80/67 EAT)	5/8	1-3/8	16	208V, 1Φ,	(1)(2)

(1) EACH CU # IS SERVING CORRESPONDING AHU # ABOVE.

(2) WITH NITE SETBACK T-STAT WITH BATTERY BACKUP.

ALL POWER AND CONTROL WIRING BY THE ELECTRICAL CONTRACTOR.

LOCATION OF CU IS SHOWN -COORDINATE EXACT PLACEMENT OF CU WITH OWNER

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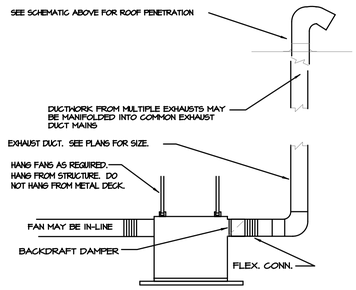
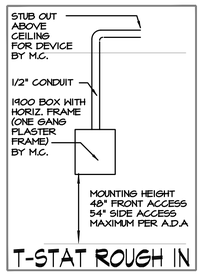
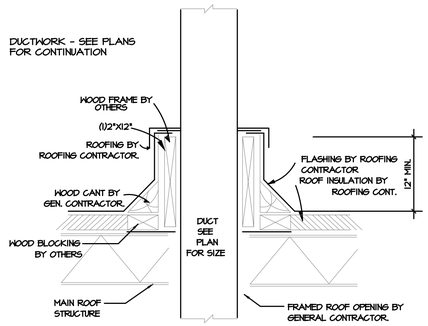
OUT THRU WALL TO WALL CAP SIM.



CEILING FAN SCHEMATIC

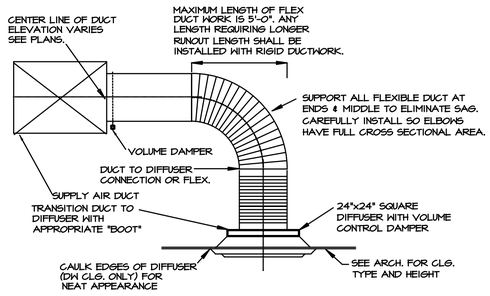
SCALE: NTS





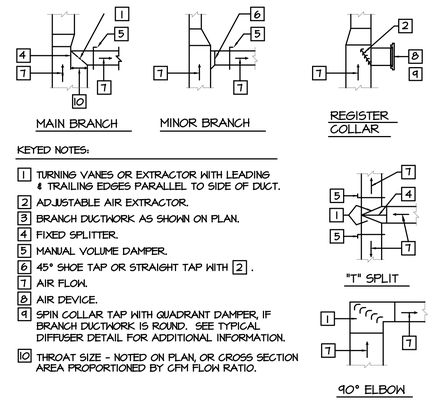
TYPICAL DUCT THROUGH ROOF SCHEMATIC

NOT TO SCALE



TYPICAL DIFFUSER SCHEMATIC

SCALE: NTS



KEYED NOTES:

1. TURNING VANES OR EXTRACTOR WITH LEADING & TRAILING EDGES PARALLEL TO SIDE OF DUCT.
2. ADJUSTABLE AIR EXTRACTOR.
3. BRANCH DUCTWORK AS SHOWN ON PLAN.
4. FIXED SPLITTER.
5. MANUAL VOLUME DAMPER.
6. 45° SHOE TAP OR STRAIGHT TAP WITH 2.
7. AIR FLOW.
8. AIR DEVICE.
9. SPIN COLLAR TAP WITH QUADRANT DAMPER, IF BRANCH DUCTWORK IS ROUND. SEE TYPICAL DIFFUSER DETAIL FOR ADDITIONAL INFORMATION.
10. THROAT SIZE - NOTED ON PLAN, OR CROSS SECTION AREA PROPORTIONED BY CFM FLOW RATIO.

TYPICAL DUCTWORK FITTING SCHEMATICS

NOT TO SCALE

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ZEKIND
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HVAC SPECIFICATION

1 PART 1 - GENERAL

1.01 GENERAL

REFER TO "DIVISION NO. 1 GENERAL REQUIREMENTS", AS WELL AS GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND SPECIAL CONDITIONS OF THE CONSTRUCTION CONTRACT FOR PROVISIONS WHICH MAY APPLY TO THE WORK UNDER THIS SECTION.

1.02 PLANS AND SPECIFICATIONS

. PLANS AND SPECIFICATIONS ARE TO BE CONSIDERED AS MUTUALLY COMPLIMENTARY, AND REQUIREMENTS OF ONE SHALL BE CONSIDERED AS REQUIREMENTS OF BOTH. IF CONFLICTING REQUIREMENTS ARE SHOWN, THE MOST RESTRICTIVE REQUIREMENT SHALL APPLY AS ASCERTAINED BY THE ARCHITECT/ENGINEER. INFORMATION GIVEN HEREIN AND ON PLANS IS AS COMPLETE AND AS ACCURATE AS COULD BE SECURED AT THE TIME OF PREPARATION OF THIS DESIGN, BUT COMPLETE AND TIMELY ACCURACY CANNOT BE GUARANTEED. ROUTING OF DUCTWORK, PIPING CIRCUITS AND LOCATION OF EQUIPMENT, APPARATUS, FIXTURES AND OTHER DEVICES ARE SHOWN ON PLANS FOR GENERAL GUIDANCE. COORDINATE WORK WITH OTHER CONTRACTORS AND PROVIDE ANY NECESSARY DEVIATIONS IN ROUTING (AS FAR AS 10' FROM THOSE SHOWN) TO PROVIDE SYSTEMS AS SPECIFIED OR IMPLIED, WITHOUT INTERFERENCE, PURSUANT TO THESE REQUIREMENTS AND AT NO COST TO THE OWNER, ARCHITECT OR ENGINEER.

1.03 COORDINATION

CAREFULLY EXAMINE ALL CONTRACT DOCUMENTS AND INCLUDE IN THE COST OF THIS BID ALL WORK NORMALLY CLAIMED BY THE TRADES UNDER YOUR CONTRACT. COORDINATE WORK WITH THE WORK OF OTHER CONTRACTORS AND SHALL DETERMINE THAT THE WORK INSTALLED WILL NOT INTERFERE WITH THE WORK OF OTHER CONTRACTORS. IF WORK IS INSTALLED WHICH DOES INTERFERE, IT SHALL BE CORRECTED AT NO COST TO THE OWNER. OCCUPATION OF SPACE BY ANY CONTRACTOR DOES NOT GIVE HIM RIGHT OF PRIORITY TO THE SPACE. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH GOVERNING CODES, UTILITY STANDARDS, LOCAL PRACTICES AND MANUFACTURER'S PUBLISHED STANDARDS. IF ANY PORTION OF THE WORK SPECIFIED OR SHOWN ON THE DRAWINGS IS CONTRARY TO THE ABOVE, THE CONTRACTOR SHALL BE REQUIRED TO BRING THE MATTER TO THE ATTENTION OF THE ARCHITECT/ ENGINEER (OWNER'S REPRESENTATIVE) PRIOR TO ROUGH - IN FOR CLARIFICATION OR REVISION. IT IS ASSUMED THAT THE CONTRACTOR HAS A SPECIAL KNOWLEDGE OF LOCAL CODES, PRACTICES AND STANDARDS. BECAUSE OF HIS SPECIAL KNOWLEDGE, HE SHALL BE HELD RESPONSIBLE FOR REPLACEMENT OF IMPROPER INSTALLATIONS WHICH HAVE NOT BEEN CALLED TO THE ATTENTION OF ARCHITECT/ENGINEER.

1.04 PERMITS, LICENSES, INSPECTIONS AND TAXES

PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS HE OBTAINS IN CONJUNCTION WITH HIS WORK AND SHALL COMPLY WITH ALL LAWS, ORDINANCES, ETC. IF THE PLANS AND/OR SPECIFICATIONS ARE AT A VARIANCE THEREWITH, NOTIFY THE ENGINEER IN WRITING BEFORE THE WORK IS PERFORMED. IF THE CONTRACTOR, WITHOUT NOTICE, SHALL DO ANY WORK CONTRARY TO ANY LAW, ORDINANCE, RULE OR REGULATION, HE SHALL BE HELD RESPONSIBLE FOR ANY SUCH VIOLATION AND ALL COSTS ARISING THEREFROM SHALL BE BORNE BY HIM, INCLUDE ANY LOCAL, FEDERAL AND STATE TAXES IN YOUR BID.

1.05 BID AND SUBSTITUTES

A. ALL BIDS SHALL BE BASED STRICTLY ON THE BASIS OF THE DRAWINGS AND SPECIFICATIONS. ANY REQUESTS FOR SUBSTITUTIONS SHALL BE INCLUDED AS A VOLUNTARY ALTERNATE. A COMPLETE DESCRIPTION OUTLINING THE VOLUNTARY ALTERNATE SHALL BE INCLUDED WITH A LISTING OF A COST ADD OR COST DEDUCT TO THE BASE BID. OWNER SHALL GIVE FINAL APPROVAL ON ALL VOLUNTARY ALTERNATES.

B. MEET THE RESPONSIBILITY OF COORDINATION WITH OTHER TRADES, ANY CHANGES INCURRED IN ELECTRICAL, HVAC, FIRE PROTECTION, GENERAL CONTRACTS, ETC., WHICH RESULT FROM EQUIPMENT SUBSTITUTION. ANY ADDITIONAL COSTS INVOLVED, DUE TO SUBSTITUTIONS, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR PROPOSING THE SUBSTITUTION.

1.06 SHOP DRAWINGS

SUBMIT FOR REVIEW SIX (6) COPIES OF SHOP DRAWINGS AND DESCRIPTIVE LITERATURE OF EQUIPMENT TO BE FURNISHED UNDER THIS CONTRACT. DRAWINGS SHALL STATE CAPACITIES, SIZES AND ALL INFORMATION SHOWN IN SCHEDULES ON PLANS AS A MINIMUM OF ALL EQUIPMENT.

1.07 OPERATION AND MAINTENANCE MANUALS AND INSTRUCTIONS

PRIOR TO FINAL PAYMENT, THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE ARCHITECT/ENGINEER FOR SUBMITTAL TO THE OWNER.

1.07 RECORD DRAWINGS

AS BUILT REPRODUCIBLE DRAWINGS ARE TO BE SUBMITTED TO ARCHITECT/ ENGINEER FOR REVIEW, PRIOR TO THE TIME OF REQUEST FOR FINAL PAYMENT.

1.08 WORKMANSHIP AND MATERIALS

ALL WORK SHALL BE PERFORMED IN A MANNER ACCEPTABLE TO THE ENGINEER, ARCHITECT AND THE OWNER, BY PROPERLY TRAINED, SUPERVISED AND EXPERIENCED PERSONNEL USING NEW AND CLEAN MATERIALS, SUPPLIES EQUIPMENT, HARDWARE AND FIXTURES.

1.09 PROTECTION OF EQUIPMENT AND WORK

EQUIPMENT, FIXTURES AND TRIM SHALL BE PROTECTED AGAINST DAMAGE DUE TO BUILDING MATERIALS, ACID, TOOLS AND EQUIPMENT OR ANY CAUSES INCIDENTAL TO CONSTRUCTION. THE FINISHED SURFACE OF EACH PIECE OF EQUIPMENT AND FIXTURE SHALL BE COVERED WITH BUILDING PAPER OR SIMILAR PROTECTION. ALL EQUIPMENT DAMAGED BY ANY CAUSE AND ANY TRIM WITH MARRED OR SCRATCHED FINISH SHALL BE REPLACED AT NO COST TO THE OWNER. THE EQUIPMENT AND EQUIPMENT TRIM PROTECTION SHALL BE REMOVED AT THE COMPLETION OF CONSTRUCTION.

1.10 TEMPORARY FACILITIES

FURNISH, INSTALL AND KEEP IN PROPER REPAIR ALL TEMPORARY POWER, LIGHTING AND OTHER FACILITIES REQUIRED FOR HIS CONSTRUCTION PURPOSES. AFTER PERMANENT FACILITIES ARE INSTALLED, THIS CONTRACTOR SHALL REMOVE ALL TEMPORARY FACILITIES ASSOCIATED WITH HIS CONSTRUCTION WORK OR PURPOSE.

1.11 MATERIAL AND EQUIPMENT HANDLING AND STORAGE

IT IS RECOGNIZED THAT SPACE AT THE PROJECT FOR STORAGE OF MATERIALS AND PRODUCTS IS LIMITED. COORDINATE THE DELIVERIES OF THE MATERIALS AND PRODUCTS WITH THE SCHEDULING AND SEQUENCING OF THE WORK SO THAT STORAGE REQUIREMENTS AT THE PROJECT ARE MINIMIZED. IN GENERAL, DO NOT DELIVER INDIVIDUAL ITEMS OF EQUIPMENT TO THE PROJECT SUBSTANTIALLY AHEAD OF THE TIME OF INSTALLATION.

1.12 MAINTENANCE OF WORK AREAS

DURING THE PROJECT, MAINTAIN WORK AREA IN AN ORGANIZED MANNER, DO NOT ALLOW DEBRIS TO ACCUMULATE AND STORE EQUIPMENT, TOOLS AND SUPPLIES IN A MANNER WHICH SHALL NOT CAUSE INTERFERENCE WITH THE ACTIVITIES OF OTHERS ENGAGED ON THIS PROJECT.

1.13 GUARANTEE

THE CONTRACTOR SHALL, BY ACCEPTING THESE PLANS AND SPECIFICATIONS AND SIGNING THE CONTRACT, SHALL GUARANTEE THE FOLLOWING:

ALL EQUIPMENT, ACCESSORIES AND MATERIALS FURNISHED BY HIM FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP. IF ANY EQUIPMENT FAILS, DOES NOT OPERATE SATISFACTORILY OR SHOWS UNDUE WEAR, THE CONTRACTOR WILL BE NOTIFIED AND WILL BE REQUIRED TO REMEDY THE DEFECT IMMEDIATELY AT HIS OWN EXPENSE.

2 MATERIALS

2.01 FURNISH AND INSTALL GALVANIZED STEEL DUCTWORK AND SHEET METAL WORK AS SHOWN ON PLANS AND INDICATED HEREIN. UNLESS OTHERWISE SHOWN OR INDICATED, ALL DUCTWORK SHALL BE INSTALLED IN COMPLETE CONFORMANCE WITH SMACNA AS A MINIMUM (P - 2 PRESSURE RANGE). ALL SUPPLY AND RETURN AIR DUCTWORK SHALL HAVE 1/2" LINER.
ALL MATERIALS USED SHALL MEET 25/50 FLAME/SMOKE RATINGS.

2.02 VOLUME DAMPERS

A. ON RIGID BRANCH TAKEOFFS TO ROUND FLEXIBLE DUCTWORK, PROVIDE BUTTERFLY TYPE VOLUME DAMPERS WITH INTEGRAL EXTRACTORS. SHAFTS SHALL BE MOUNTED PARALLEL TO THE GROUND, AND REGULATOR TO OPERATE DAMPER SHALL BE MOUNTED OUTSIDE DUCTWORK INSULATION TO BE COMPLETELY ACCESSIBLE.

B. IN RIGID ROUND DUCTWORK PROVIDE BUTTERFLY TYPE DAMPER WITH REGULATOR MOUNTED OUTSIDE DUCTWORK, AND SHAFT PARALLEL TO GROUND.

C. IN RECTANGULAR DUCTWORK PROVIDE OPPOSED BLADE VOLUME DAMPERS WITH REGULATOR MOUNTED OUTSIDE DUCTWORK INSULATION AND SHAFT PARALLEL TO GROUND.

2.03 FLEXIBLE CONNECTIONS SHALL BE VENTGLASS (OR EQUAL BY EXELON OR DURODYNE) HEAVY GLASS FABRIC, DOUBLE COATED OF NEOPRENE, OF APPROXIMATELY 30 OZ. PER SQUARE YARD, PROVIDED WITH 3" WIDE 24 GAUGE METAL MOUNTING STRIPS ATTACHED TO EACH EDGE AND SHALL BE SUITABLE FOR EACH PRESSURE CLASS OF DUCTWORK INVOLVED.

2.04 TURNING VANES: ALL CHANGES IN DIRECTION IN DUCTWORK GREATER THAN 45 DEGREES SHALL BE MADE WITH TURNING VANES. TURNING VANES SHALL BE FACTORY MANUFACTURED PRODUCTS - CONTRACTOR FABRICATED TURNING VANES SHALL NOT BE ALLOWED.

2.05 ROOFTOP UNITS AND SPLIT SYSTEMS:

THE UNITS ARE TO BE COMPLETE IN ALL RESPECTS WITH ALL STANDARD EQUIPMENT INCLUDING FILTERS, ELECTRIC HEATING COIL, INDOOR DX COIL, INDOOR FAN, REQUIRED SAFETIES, AND OTHER NECESSARY REFRIGERATION AND TEMPERATURE CONTROLS. UNITS SHALL BE SUPPLIED WITH FILTER TRACK AND FILTERS. ALL UNITS SHALL INCLUDE PRESSURE SWITCHES, LOSS OF CHARGE PROTECTION, COIL FREEZE PROTECTION, UNITS SHALL BE BY CARRIER, YORK OR TRANE OR APPROVED EQUAL

2.06 CONTROLS

GAS PIPING SHALL BE SCH 40 BLACK STEEL WITH T HROUGHT THREADED JOINTS. GAS PIPING SHALL BE PAINTED ON EXTERIOR WITH RUST RESISTANT PAINT.

2.07 CONTROLS

PROVIDE HEATING COOLING THERMOSTAT WITH 24 HOUR- 7 DAY PROGRAMMING AND BATTERY BACKUP INTEGRAL.

PART 3 - EXECUTION

3.01 DUCTWORK INSTALLATION

LOCATE DUCTWORK RUNS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND AVOID DIAGONAL RUNS WHEREVER POSSIBLE. LOCATE RUNS AS INDICATED BY DIAGRAMS, DETAILS AND NOTATIONS OR, IF NOT OTHERWISE INDICATED, RUN DUCTWORK IN THE SHORTEST ROUTE SERVICING THE BUILDING AND ITS EQUIPMENT. ROUTING OF DUCTWORK SHALL BE IN SUCH A MANNER TO CAUSE MINIMUM INTERFERENCE WITH CONSTRUCTION. ALL DUCTWORK SHALL BE SUBSTANTIALLY AND NEATLY SUPPORTED ON HEAVY IRON STRAP OR TRAPEZE HANGERS WITH BEAM CLAMPS RIVETED OR BOLTED TO DUCTS PROPERLY ANCHORED TO BUILDING CONSTRUCTION SO HORIZONTAL DUCTS ARE WITHOUT SAG OR SWAY, VERTICAL ARE WITHOUT BUCKLE AND ALL ARE FREE FROM THE POSSIBILITY OF DEFORMATION, COLLAPSE OR VIBRATION. ALL DUCT AND FITTINGS SHALL BE SEALED WITH DUCT SEALER.

3.02 INSTALLATION ROOFTOP UNITS AND SPLIT SYSTEMS

INSTALL ROOFTOP UNITS AND SPLIT SYSTEMS WHERE SHOWN, IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S WRITTEN INSTRUCTIONS, AND RECOGNIZED INDUSTRY PRACTICES, TO INSURE THAT UNITS COMPLY WITH REQUIREMENTS AND SERVE INTENDED PURPOSES. COORDINATE WITH OTHER WORK, INCLUDING DUCTWORK, ROOF DECKING, PIPING AND ELECTRICAL WORK, AS NECESSARY.

3.03 TESTING AND BALANCING

ALL TESTING AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH AABC STANDARDS. BALANCE ALL AIR DEVICES TO WITHIN 10% OF DESIGN RATED FLOW AND COMPILE ALL T & B DATA IN REPORT. PROVIDE 6 COPIES IN BINDER TO OWNER UPON COMPLETION.

END OF SECTION

LOAD CALCULATIONS

OUTSIDE AIR CALCULATIONS PER IMC

JOB: MASSAGE LUXE – LEE SUMMIT

AREA	SF	IMC CATEGORY	IMC PEOPLE DENSITY	R(P)	(R(F)	PEOPLE PER IMC	CALC. OA CFM PER CODE	CALC. OA WITH E(Z) FACTOR_	OA USED FOR LOADS
RECPT	560	RECEPTTION	30	5	0.06	16.8	117.6	147	150
SALES									
MASSAGE	1710	SALON	25	20	0.12	42.75	1060.2	1325.25	1325
OFF/STOR	330	OFFICE	5	5	0.06	1.65	28.05	35.0625	33
CORR, ETC									
									1508

NOTE: OA CALCULATED BASED UPON E(Z) OF .8 FROM TABLE 403.3.1.2

```
E&17.5c66f          ZONE DESIGN COOLING LOAD SUMMARY
  Location    : ST LOUIS, MO                                  02-15-21
  Prepared By : E20-II HVAC Design                            6100192002
  Carrier Hourly Analysis Program                             Page 1 of 2
================================================================================
CALCULATION DATA:
        Zone Name : MASSAGE LUXE LEE SUMMIT    Calc Time: Aug 1300h
        Job Name  : BLOCK                      Amb db/wb: 94.8/ 76.5 F
        Space Name: MASSAGE LUXE LEE SUMMIT
================================================================================
LOAD INFORMATION
--------------------------------------------------------------------------------
                                                SENSIBLE        LATENT
    LOAD COMPONENT                              (BTU/hr)        (BTU/hr)
--------------------------------------------------------------------------------
    SOLAR LOAD                                    15,810               0
    GLASS TRANSMISSION                             2,670               0
    WALL TRANSMISSION                                892               0
    ROOF TRANSMISSION                                  0               0
    PARTITION TRANSMISSION                             0               0
    LIGHTING   (     6,500 W TOTAL)               17,108               0
    OTHER ELEC. (       0 W TOTAL)                    0               0
    PEOPLE (    20.00 PEOPLE TOTAL)                3,293           2,400
    MISCELLANEOUS LOADS                                0               0
    COOLING INFILTRATION                           1,668           2,140
    PULLDOWN/WARM-UP                                 951               0
    COOLING SAFETY LOAD                            4,229             454
--------------------------------------------------------------------------------
    SUB-TOTALS                                    46,521           4,994
    NET VENTILATION LOAD (   1510 CFM)            32,290          41,425
    SUPPLY FAN LOAD (BHP=    1.3)                  3,193               0
    WALL LOAD TO PLENUM                                0               0
    ROOF LOAD TO PLENUM                                0               0
    LIGHTING LOAD TO PLENUM                            0               0
--------------------------------------------------------------------------------
    TOTAL COOLING LOADS                           82,004          46,419
================================================================================
COIL SELECTION PARAMETERS:
    COIL ENTERING AIR TEMP. (DB/WB)     =      87.5/ 72.0 deg F
    COIL LEAVING AIR TEMP. (DB/WB)      =      55.8/ 55.2 deg F
    COIL SENSIBLE LOAD                  =         82,004 BTU/hr
    COIL TOTAL LOAD                     =        128,424 BTU/hr
    COOLING SUPPLY AIR TEMPERATURE      =           57.0 deg F
    TOTAL COOLING CFM (actual)          =         2,393 CFM
    TOTAL COOLING CFM (std. air)        =         2,393 CFM
    RESULTING ROOM REL. HUMIDITY        =          51.2 %
    COIL BYPASS FACTOR                  =         0.050
    COIL APPARATUS DEWPOINT             =          54.1 deg F
    REHEAT REQUIRED                     =             0 BTU/hr
================================================================================
GENERAL INFORMATION
    TOTAL COOLING LOAD                  =         10.70 Tons
                                        =       242.95 sqft/Tons
    TOTAL FLOOR AREA                    =     2,600.00 sqft
    OVERALL U-FACTOR                    =         0.221 BTU/hr/sqft/F
    COOLING CFM/sqft                    =          0.92 CFM/sqft
================================================================================
          ZONE DESIGN COOLING LOAD SUMMARY
  Location    : ST LOUIS, MO                                  02-15-21
  Prepared By : E20-II HVAC Design                            6100192002
  Carrier Hourly Analysis Program                             Page 2 of 2
================================================================================
CALCULATION DATA:
        Zone Name : MASSAGE LUXE LEE SUMMIT    Calc Time: Aug 1300h
        Job Name  : BLOCK                      Amb db/wb: 94.8/ 76.5 F
        Space Name: MASSAGE LUXE LEE SUMMIT
================================================================================
WALL AND GLASS LOAD BREAKDOWN
--------------------------------------------------------------------------------
    LOAD COMPONENT      AREA        TRANSMISSION        SOLAR LOAD
                        (sqft)      (BTU/hr)            (BTU/hr)
--------------------------------------------------------------------------------
    GLASS LOADS: NE         0               0                   0
                 E          0               0                   0
                 SE         0               0                   0
                 S        324           2,670              15,810
                 SW         0               0                   0
                 W          0               0                   0
                 NW         0               0                   0
                 N          0               0                   0
                 H          0               0                   0
    WALL LOADS:  NE         0               0                   -
                 E         40              97                   -
                 SE         0               0                   -
                 S        600             795                   -
                 SW         0               0                   -
                 W          0               0                   -
                 NW         0               0                   -
                 N          0               0                   -
================================================================================
          ZONE DESIGN HEATING LOAD SUMMARY
Location    : ST LOUIS, MO                                  02-15-21
Prepared By : E20-II HVAC Design                            6100192002
Carrier Hourly Analysis Program                             Page 1 of 1
================================================================================
CALCULATION DATA:
        Zone Name : MASSAGE LUXE LEE SUMMIT    Calc Time: Winter design
        Job Name  : BLOCK                      Amb db   : -2.0 F
        Space Name: MASSAGE LUXE LEE SUMMIT
================================================================================
    LOAD COMPONENT                          LOAD (BTU/hr)
--------------------------------------------------------------------------------
    WALL TRANSMISSION                           3,686
    ROOF TRANSMISSION                               0
    GLASS TRANSMISSION                         11,664
    TRANSMISSION LOSS TO UNCOND. SPACES             0
    INFILTRATION LOSS                           6,065
    SLAB FLOOR                                  5,882
    HEATING SAFETY BTU/hr                       2,730
--------------------------------------------------------------------------------
    SUB-TOTAL                                  30,027
    NET VENTILATION LOSS                      117,418
--------------------------------------------------------------------------------
    TOTAL HEATING LOAD                        147,445

    HEATING SUPPLY CFM                            695 CFM
    HEATING SUPPLY AIR TEMPERATURE              110.0 deg F
    HEATING VENTILATION AIR CFM                 1,510 CFM
    HEATING THERMOSTAT SETPOINT TEMP             70.0 deg F
================================================================================
```

MASSAGE LUXE
SUMMIT AT WEST PRYOR

940 NW PRYOR ROAD
LEE'S SUMMIT, MO, 64081

John C. Zekind, PE
CONSULTING ENGINEERS
1276 WHITE ROAD
CHESTERFIELD, MO, 63017
314-878-2290

Project Number:
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- ☐ Construction

Sheet Number:

M-4

VERIFY ALL LOCATIONS, HTS, AND LOADS PRIOR TO BID AND ADJUST AS REQUIRED

GENERAL NOTES: ELECTRICAL PLANS

A. ALL WORK SHALL BE IN COMPLETE CONFORMANCE WITH THE LATEST APPLICABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND NFPA 101 LIFE SAFETY CODES AT MINIMUM, WHETHER EXPLICITLY SHOWN OTHERWISE OR NOT.

B. THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS.

C. ALL CONDUCTORS ARE COPPER AND ARE ROUTED IN CONDUIT.

D. PRODUCE A PLAN FOR SUBMISSION IN COORDINATION WITH THE SPRINKLER, HVAC AND PLUMBING CONTRACTORS TO COORDINATE ROUTING AND PLACEMENT OF DEVICES, ANGLARIES, FIXTURES, CONDUIT, ETC., SO THAT NO COORDINATION PROBLEMS OCCUR. THIS SHALL BE DONE PRIOR TO INITIATION OF ANY WORK.

E. REFER TO ARCHITECTURAL PLANS FOR CEILING HEIGHTS, WALL CONSTRUCTION AND LOCATIONS OF VISIBLE OBJECTS ON THE EXTERIOR OF THE BUILDING.

F. FOR ADDITIONAL INFORMATION AND FOR EXACT POINT OF CONNECTIONS OF ROUGH-IN POINTS TO EQUIPMENT, SEE BOTH THE EQUIPMENT CUT SHEETS AS WELL AS THE ARCHITECTURAL PLANS AND SPECIFICATIONS. VERIFY ALL ELEVATIONS AS WELL AS EXACT REQUIRED LOCATIONS OF ELECTRICAL CONNECTIONS AND CONN. EQUIP. PRIOR TO INITIATING ANY WORK, BECAUSE ALL ELEVATIONS ARE APPROX.

G. BE RESPONSIBLE NOT ONLY FOR THE ROUGH-IN POINTS REQUIRED AS SHOWN GENERALLY HEREIN, BUT ALSO FOR FINAL CONNECTION TO ALL EQUIPMENT AND THE FURNISHING AND INSTALLING OF MATERIALS AND LABOR FOR SUCH AS REQUIRED TO MAKE FULLY FUNCTIONAL.

H. PROVIDE CONNECTIONS TO ALL EQUIPMENT AS RECOMMENDED BY THE MANUFACTURER. IF EQUIPMENT COMES WITH A CORD AND PLUG, PROVIDE MATCHING RECEPTACLE IN REQUIRED JUNCTION BOX. EXACT LOCATIONS OF OUTLETS FOR ALL EQUIPMENT SHALL BE AS DIRECTED BY SUPPLIERS SHOP DRAWING.

I. PROVIDE PLUG AND CORD FOR ALL EQUIPMENT NOT SHIPPED WITH A PLUG AND CORD BUT REQUIRES CONNECTION TO A RECEPTACLE. PLUG AND CORD SHALL BE APPROPRIATE NEMA TYPE, UL LISTED AND SIZED TO HANDLE THE LOAD PER THE N.E.C.

J. ALL FLEXIBLE CONDUIT SHALL BE LIQUID TIGHT CONDUIT

K. ALL CONDUCTORS MAY NOT BE SHOWN IN CONDUIT TO PROMOTE CLARITY.

ELECTRICAL SYMBOLS:

- DUPLEX RECEPTACLE - MOUNT AT 9" AFF TO BOTTOM OF BOX UNLESS OTHERWISE NOTED.
- DOUBLE DUPLEX RECEPTACLE ("QUADRAPLEX")
- SPECIAL PURPOSE RECEPTACLE
- TELEPHONE JACK - PROVIDE & INSTALL CONDUIT & J-BOX AS REQ'D. TO CEILING WITH PULL WIRE.
- SINGLE POLE, SINGLE LEVER SWITCH AT 40" AFF U.N.O.
- 2 X 3 JUNCTION BOX - MTD. AS SHOWN
- INDICATES DROP IN WALL FROM CEILING
- CONDUIT ABOVE CEILING OR IN WALLS
- FLEXIBLE CONDUIT BELOW FLOOR OR COUNTER
- CONDUCTORS (\ IS NEUTRAL, | IS HOT, / IS GROUND)
- (POS) 2 X 3 JUNCTION BOX - WITH PULL WIRE AND CONDUIT TO CEILING
- (TV) 2 X 3 JUNCTION BOX - WITH PULL WIRE AND CONDUIT TO CEILING

FEEDER SCHEDULE

1 PHASE BRANCH CIRCUIT WIRE SIZE (2P CIRCUITS) (UNLESS NOTED OTHERWISE)

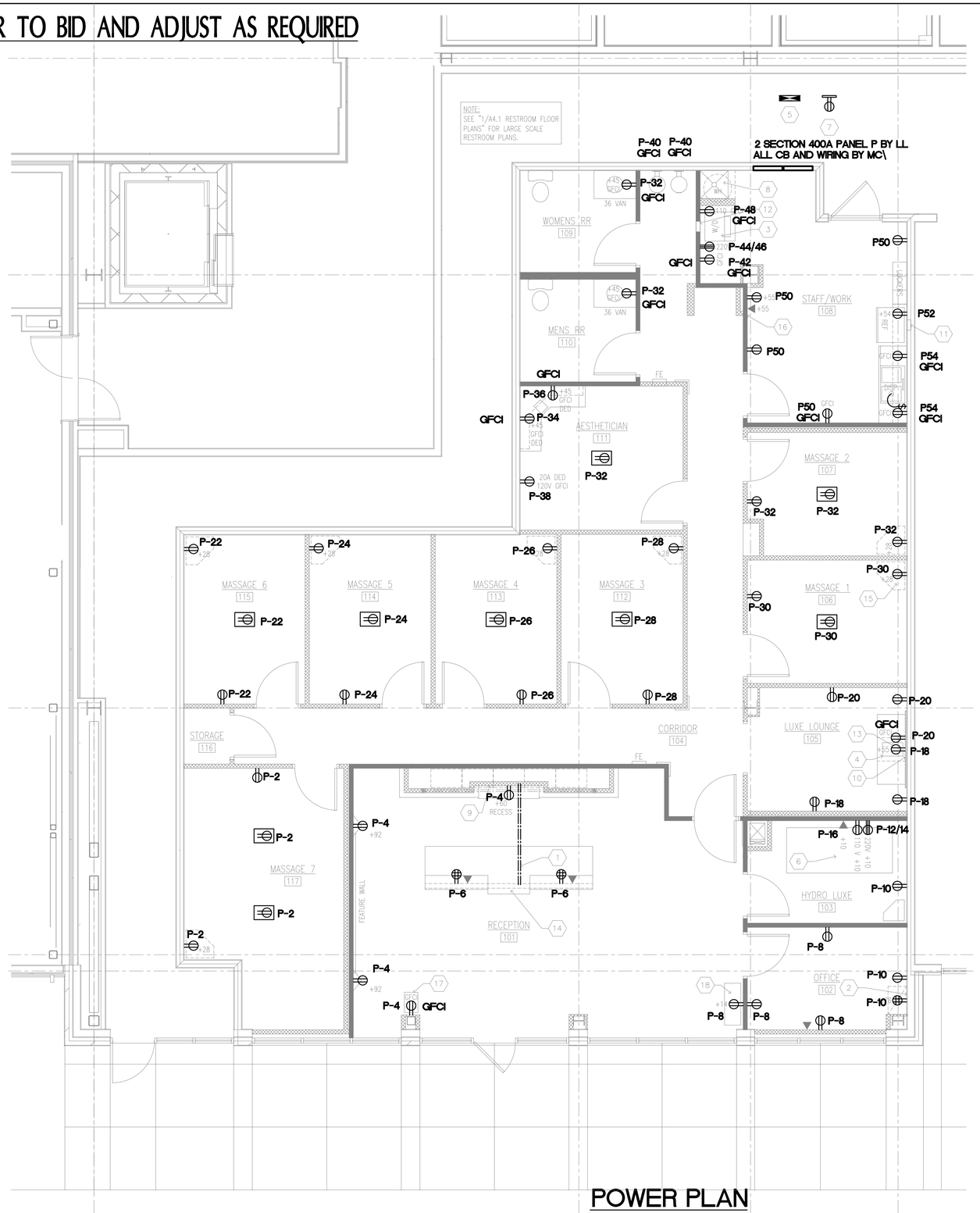
30 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 2#10, 1#10 GND IN 1/2"C.
40 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 2#8, 1#10 GND IN 3/4"C.
60 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 2#6, 1#8 GND IN 1"C.
100 AMPERE BRANCH CURCUIT FEEDERS SHALL BE 3#3, 1#8 GND IN 1.25" CONDUIT.
150 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 3-#1/0 WITH #2 GND IN 1.5" C.

3 PHASE BRANCH CIRCUIT WIRE SIZE: (UNLESS NOTED OTHERWISE)

200 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4-#3/0 WITH #2 GND IN 2" C.
100 AMPERE BRANCH CURCUIT FEEDERS SHALL BE 4#3, 1#8 GND IN 1.25" CONDUIT.
75 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#4, 1#8 GND IN 1-1/4"C.
70 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#4, 1#8 GND IN 1-1/4"C.
60 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#6, 1#8 GND IN 1"C.
45 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#8, 1#10 GND IN 1"C.
40 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#8, 1#10 GND IN 1"C.
30 AMPERE BRANCH CIRCUIT FEEDERS SHALL BE 4#10, 1#10 GND IN 3/4"C.

HVAC AND PLUMBING CIRCUITS

P-1/3 100A/NF/2P DISC - AHU-1
P-5/7 60A/NF/WP/2P DISC - CU-1
P-9/11 100A/NF/2P DISC - AHU-2
P-13/15 60A/NF/WP/2P DISC - CU-2
P-17/19 60A/NF/2P DISC - AHU-3
P-21/23 60A/NF/WP/2P DISC - CU-3
P-25/27 60A/NF/WP/2P DISC - DWH-1



POWER PLAN

SCALE: 1/4" = 1'-0"

Graphic Scale: 0 4' 8'

POWER PLAN KEYED NOTES

THIS SHEET ONLY
(X) (SHOWN THUS TYPICAL)

1. INSTALL CONDUIT BELOW SLAB (2 TYP.) FOR ELECTRIC AND DATA SUPPLY TO BELOW DESK
(1) 3/4" DIA. DATA FROM DESK TO DMARC AT OFFICE.
(1) 3/4" DIA. 110V TO DESK
2. DATA/COMM. SHELF - SEE 1/A1.1.
3. STACKED WASHER/DRYER MODEL #DLE2516W & WM2140CW BY LG. VENT DRYER TO EXTERIOR AS REQUIRED BY CODE.
NOTE:
GFCI OUTLET AT WASHER/DRUER LOCATION SHALL BE ACCESSIBLE TO REACH AS REQUIRED TO MANUALLY RESET OUTLET.
4. QUENCH Q7 COUNTERTOP WATER DISPENSER. PROVIDE & INSTALL 1/4" WATER SUPPLY TO BELOW COUNTER. SEE CONSTRUCTION MANUAL.
5. LOCATION NEW ELECTRICAL PANEL - SEE ELECTRICAL DRAWINGS.
6. HYDRO LUXE BED.
7. DMARC PANEL - VERIFY LOCATION (SEE FLOOR PLAN).
8. WATER HEATER AT PLATFORM ABOVE MOP SINK. SECURE WATER HEATER TO PLATFORM AND WALL AS REQUIRED BY CODE. INSTALL GALV. MTL. PAN W/ 2" LIP & DRAIN AS REQUIRED BY CODE- SEE PLUMBING DRAWINGS.
9. LOCATION WALL MOUNTED TELEVISION SCREEN. INSTALL FLAT, NON-ARTICULATING TELEVISION MOUNTING SYSTEM. MODEL #DXTVM113 BY DYNEX. INSTALL BLOCKING AS REQUIRED. MOUNT 65" A.F.F. AT CENTER OF NICHE.
10. LOCATION WALL MOUNTED TELEVISION SCREEN. INSTALL FLAT, NON-ARTICULATING TELEVISION MOUNTING SYSTEM. MODEL #DXTVM113 BY DYNEX. INSTALL BLOCKING AS REQUIRED. MOUNT 60" A.F.F. AT CENTER "BUMP OUT".
11. RECESSED ICE MAKER BOX W/ WATER SUPPLY. PROVIDE & INSTALL AS REQUIRED BY CODE.
12. LOCATION RECESS MOUNTED WASHER BOX. PROVIDE & INSTALL WASHER BOX AS REQUIRED BY CODE.
13. CENTER OUTLET @ WALL ABOVE COUNTER (RECESSED).
14. RECEPTION DESK PROVIDED BY OTHERS - INSTALLED BY GENERAL CONTRACTOR.
15. LOCATION SHELVING UNIT @ EACH MASSAGE ROOM. SEE RESPONSIBILITY MATRIX. INSTALL OUTLET BEHIND SHELVING UNIT 1'-0" HORIZ. FROM NEAREST ROOM CORNER AND 28" ON CENTER A.F.F. (7 TYP.).
16. LOCATION WALL MOUNTED TELEVISION SCREEN. INSTALL FLAT, NON-ARTICULATING TELEVISION MOUNTING SYSTEM. MODEL #DXTVM113 BY DYNEX. INSTALL BLOCKING AS REQUIRED. MOUNT 60" A.F.F. COORDINATE LOCATION WITH TENANT.
17. QUENCH 7 FREE STANDING WATER DISPENSER. PROVIDE & INSTALL 1/4" WATER SUPPLY. SEE CONSTRUCTION MANUAL.
18. 36" WIDE PRODUCT SHELF.

GENERAL NOTES:

1. CONTRACTOR TO VERIFY EXISTING CONDITIONS. NOTIFY ARCHITECT OF RECORD WITH ANY DISCREPANCIES.
2. ALL FIRE PROTECTION, MECHANICAL, ELECTRICAL & PLUMBING IMPROVEMENTS SHALL BE PERFORMED BY CONTRACTORS LICENSED AND CERTIFIED FOR EACH RESPECTIVE TRADE AS REQUIRED IN THE STATE OF MISSOURI, JACKSON COUNTY, THE CITY OF LEE'S SUMMIT AND WITH LOCAL AUTHORITIES HAVING JURISDICTION REGARDING THE PROJECT SITE.
3. NEW PARTITIONS SHOWN SHADED. SEE: PARTITION TYPES.
4. INSTALL FIRE RETARDANT BLOCKING AND SHEATHING AT WALLS AS REQUIRED BY MANUFACTURER SPECIFICATIONS FOR ALL WALL MOUNTED EQUIPMENT AND FURNISHINGS.
5. ALL EQUIPMENT TO BE PROVIDED AND INSTALLED BY GENERAL CONTRACTOR AND GENERAL CONTRACTOR'S REPRESENTATIVES PER ANY AND ALL APPLICABLE CODES.
6. SEE DWG. 1/A1.1 FOR ACTUAL DIMENSIONS.

STATE OF MISSOURI
JOHN CRANE ZEKIND
NUMBER E-19648
REGISTERED PROFESSIONAL ENGINEER
2-16-21

MASSAGE LUXE
SUMMIT AT WEST PRYOR

940 NW PRYOR ROAD
LEE'S SUMMIT, MO, 64081

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Sheet Number: E-1

LIGHTING FIXTURE SCHEDULE

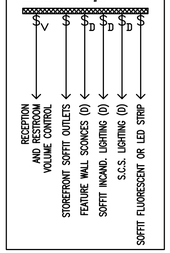
	FIXTURE DESCRIPTION	MANUFACTURER	MODEL OR SERIES	VOLTAGE	LAMP DATA QTY	LAMP DATA WATTAGE	MOUNTING	NOTES
A	6" OPEN DOWNLIGHT - LED	LITHONIA	LDN6-27/05-L06-WR-MVOLT-EZ1	MVOLT	1	8	RECESSED	
A1	4" OPEN DOWNLIGHT - LED	LITHONIA	LDN4-27/05-L06-WR-MVOLT-EZ1	MVOLT	1	9	RECESSED	
B	6" OPEN WALLWASH - LED	LITHONIA	LDN6-27/05-LW6-WR-MVOLT-EZ1	MVOLT	1	8	RECESSED	
C	WALL SCONCE - HYDRO LUXE AND MASSAGE ROOMS	ALLEN + ROTH	WS145BNK		1	60	SURFACE @ 72" A.F.F.	CENTER HORIZNTALLY ON WALL
D	WALL SCONCE - RESTROOMS	TRANS GLOBE LIGHTING	VANITY BAR - 20333 BK		3	100	SURFACE @ 86" A.F.F.	
E	2'X4' RECESSED FIXTURE - LED	LITHONIA	2ESL4-40L-MDR-EZ1-LP830	MVOLT	1	38	RECESSED	
F	3' GENERAL PURPOSE STRIP FIXTURE - LED	LITHONIA	CLX L36 3000LM SEF FDL 6Z10 30K 80CRI WH	MVOLT	1	21	SURFACE	
G	4' GENERAL PURPOSE STRIP FIXTURE - LED	LITHONIA	CLX L48 3000LM SEF FDL 6Z10 30K 80CRI WH	MVOLT	1	21	SURFACE	
X1	EMERGENCY BATTERY UNIT - LED HEADS	LITHONIA	ELM2 LED	120/277	2	2	SURFACE	WITH BATTERY BACK UP
X2	THERMOPLASTIC EXIT SIGNS WITH HEADS	LITHONIA	LHQM LED R	120/277	2	5	SURFACE	WITH BATTERY BACK UP

NOTES:
1. PROVIDE BATTERY BACKUP POWER FOR FIXTURES NOTED AS "EMERGENCY".
2. MOUNTING OF FIXTURES IS MEASURED FROM BOTTOM OF FIXTURE TO FINISHED FLOOR.

SPEAKER SYSTEM NOTES:
1. SPEAKER WIRE TYPE: 18G 2/C TYPE CMP-CL2P.
2. SPEAKERS TO BE "DAISYCHAINED"

SWITCH BANK

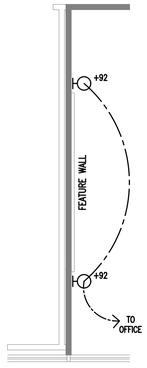
NOTE:
SWITCHES TO BE LOCATED IN SWITCH BANK AT OFFICE #102. SEE KEYED NOTE #5.



FIRE ALARM SYSTEM NOTE:
ANY MODIFICATIONS TO THE EXISTING FIRE ALARM SYSTEM SHALL BE SUBMITTED ON SEPARATE SETS OF SHOP DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION (IF SYSTEM EXISTS).

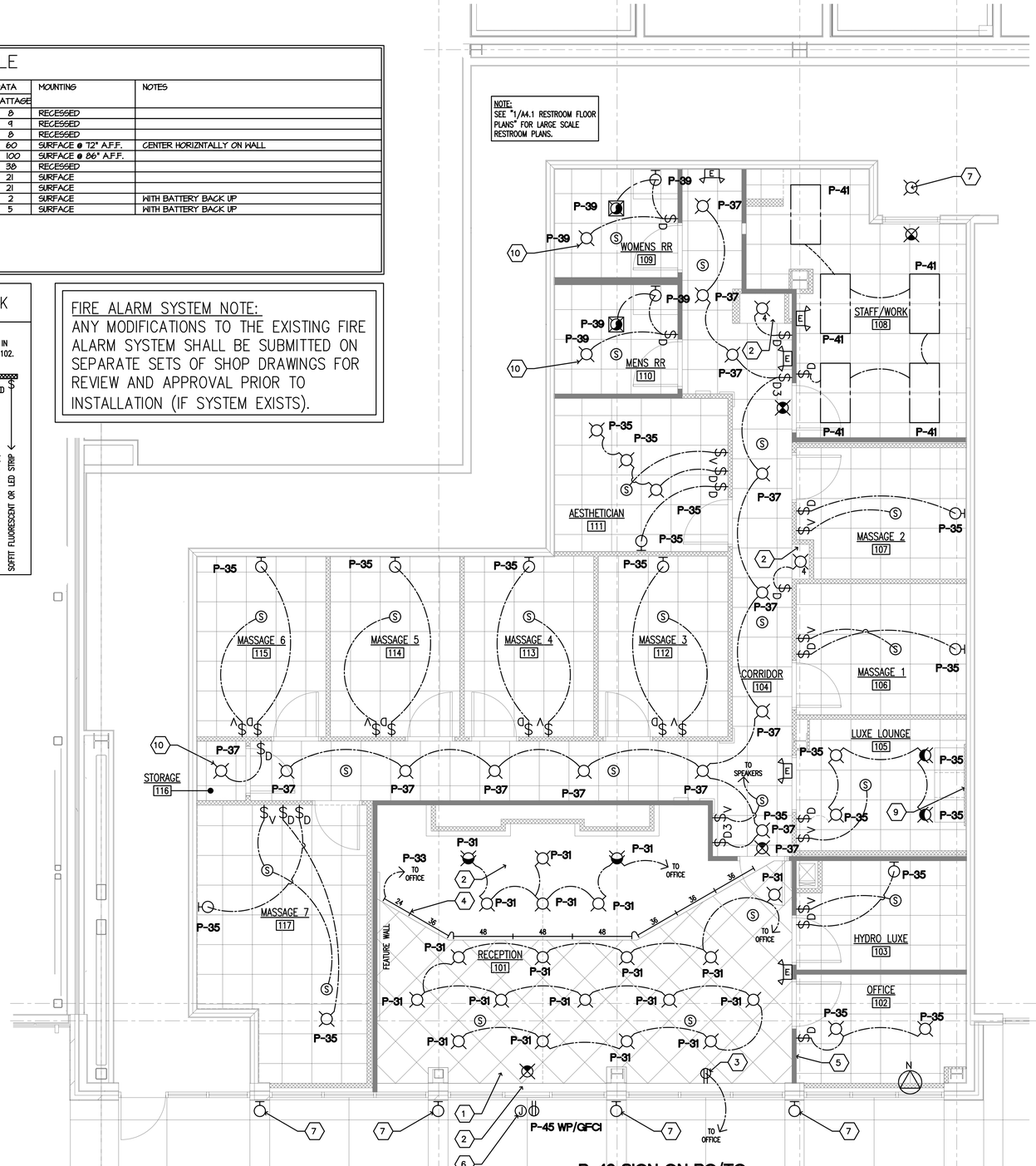
SYMBOLS LEGEND REFLECTED CEILING PLAN

- WALL SCONCE
- INCANDESCENT DOWNLIGHT 6" DIA. – EMERGENCY
- INCANDESCENT DOWNLIGHT # INDICATES DIA. IN INCHES 4" DIA. AT NICHE LOCATIONS 6" DIA. THROUGHOUT U.N.O.
- INCANDESCENT WALL WASHER # INDICATES DIA. IN INCHES 4" DIA. AT NICHE LOCATIONS 6" DIA. THROUGHOUT U.N.O.
- SURFACE MOUNTED PENDANTS
- RECESSED FLOURESCENT 2x4 LIGHT FIXTURE
- RECESSED FLOURESCENT 2x4 LIGHT FIXTURE – EMERGENCY
- (S) SPEAKER (RECESSED CEILING TYPE – NO SURFACE MOUNT ALLOWED)
- EXIT SIGN (DIRECTIONAL)
- (E) COMBINATION EXIT LIGHTING AND EXIT SIGN (DIRECTIONAL)
- (E) COMBINATION EXIT LIGHTING AND EXIT SIGN (DIRECTIONAL)
- E EXTERIOR EMERGENCY EGRESS LIGHTING
- $ SINGLE POLE SWITCH
- $D SINGLE POLE DIMMER SWITCH
- $3 THREE WAY SWITCH
- $# SINGLE POLE SWITCH – # INDICATES LOCATION A.F.F.
- $V VOLUME CONTROL
- EXHAUST FAN
- 2'x2' SUPPLY AIR DIFFUSER T/O 1'x1' SUPPLY AIR DIFFUSER @ RECEPTION SOFFIT
- 2'x2' AIR DIFFUSER RETURN



2 FEATURE WALL PLAN
SCALE: 1/4" = 1'-0"

NOTE:
SEE "1/A4.1 RESTROOM FLOOR PLANS" FOR LARGE SCALE RESTROOM PLANS.



P-43 SIGN ON PC/TC
P-47 EXTERIOR LIGHTS ON TC/PC
P-49 EM/EXIT ON LOCK ON CB

LIGHTING PLAN

SCALE: 1/4" = 1'-0"
Graphic Scale: 0 4' 8'

REFLECTED CELING PLAN KEYED NOTES

THIS SHEET ONLY
(X) (SHOWN THUS TYPICAL)

1. SUSPENDED CEILING SYSTEM TURNED 45 DEGREES – SEE DETAILS AND ROOM FINISH SCHEDULE.
2. SOFFIT W/ GYP. BD. FINISH – SEE: DETAILS.
3. INSTALL DUPLEX OUTLET @ SOFFIT ABOVE AS REQUIRED FOR INTERIOR SIGNAGE DISPLAY (1 TYP.). CENTER OUTLET AT CENTER OF WINDOW PANEL BELOW. INSTALL SWITCH AT SWITCH BANK TO CONTROL OUTLETS.
4. LED LIGHTING @ SOFFIT – SEE LIGHTING SCHEDULE & ELECTRICAL DRAWINGS. # INDICATES LENGTH OF BULB IN INCHES (FIELD VERIFY).
5. SWITCH BANK LOCATION.
6. INSTALL NEW OUTLET & JUNCTION BOX AS REQUIRED FOR ELECTRICAL SUPPLY AND TIMER FOR EXTERIOR SIGN INSTALLATION – COORDINATE W/ SIGN VENDOR, LANDLORD & TENANT (VERIFY LOCATIONS).
7. EXIST. EXTERIOR EGRESS LIGHTING (TYPICAL).
8. NOT USED.
9. THE SUSPENDED CEILING SYSTEM SHALL BE INSTALLED TO CONFORM TO THE SHAPE OF THE ACCENT WALL "BUMP OUT". DO NOT INSTALL THE SUSPENDED CEILING SYSTEM ABOVE OR "THROUGH" THE ACCENT WALL "BUMP OUT".
10. LIGHT & SWITCH THIS ROOM SHALL HAVE SENSOR/TIMER OVERIDE TO SHUT OFF LIGHT WHEN NOT IN USE. SET TIMER TO 10 MINUTES MAXIMUM.

NOTE:
SEE 1/A1.3 POWER PLAN FOR FEATURE WALL SCONCE LIGHT LOCATIONS.

GENERAL NOTES:

1. CONTRACTOR TO VERIFY EXISTING CONDITIONS. NOTIFY THE DESIGNER IN RESPONSIBLE CHARGE WITH ANY DISCREPANCIES.
2. ALL FIRE PROTECTION, MECHANICAL, ELECTRICAL & PLUMBING IMPROVEMENTS SHALL BE PERFORMED BY CONTRACTORS LICENSED AND CERTIFIED FOR EACH RESPECTIVE TRADE AS REQUIRED IN THE STATE OF MISSOURI, JACKSON COUNTY, THE CITY OF LEE'S SUMMIT AND WITH LOCAL AUTHORITIES HAVING JURISDICTION REGARDING THE PROJECT SITE.
3. PROVIDE & INSTALL LIGHTING & MECHANICAL AIR DEVICES AS REQUIRED FOR PROPER APPEARANCE & SYSTEM PERFORMANCE – SEE: SPECIFICATIONS.
4. NEW EMERGENCY EXIT SIGNAGE AND LIGHTING SYSTEM WITH 90 MINUTE BATTERY BACK-UP TO BE WIRED AND INTERCONNECTED ACCORDING TO ANY AND ALL APPLICABLE BUILDING CODES. COORDINATE INSTALLATION WITH LANDLORD AND OWNER. SEE ELECTRICAL DRAWINGS FOR FIXTURE LOCATIONS.
5. NEW OR EXISTING EMERGENCY EGRESS LIGHTING SYSTEM WITH 90 MINUTE BATTERY BACK-UP TO BE WIRED AND INTERCONNECTED ACCORDING TO ANY AND ALL APPLICABLE BUILDING CODES. COORDINATE INSTALLATION WITH LANDLORD AND OWNER. SEE ELECTRICAL DRAWINGS FOR FIXTURE LOCATIONS.
6. ALL EQUIPMENT TO BE PROVIDED AND INSTALLED BY OWNER AND OWNERS REPRESENTATIVE PER ANY AND ALL APPLICABLE CODES.
7. INSTALL FIRE SUPPRESSION/ SPRINKLER SYSTEM. CONTRACTOR TO TEST AND CONFIGURE SYSTEM AS REQUIRED FOR PROPER SYSTEM PERFORMANCE AND TO CONFORM TO ANY AND ALL APPLICABLE BUILDING CODES.
8. CONTRACTOR TO INSTALL COMPLETE HVAC SYSTEM – SEE MECHANICAL DRAWINGS.
9. CONTRACTOR/BUILDING OWNER TO PROVIDE/INSTALL EXIT ACCESS LIGHTING @ EXTERIOR EXIT LOCATIONS AS REQUIRED BY CODE.
10. ELECTRICAL CONTRACTOR TO VERIFY LIGHTING PLAN PROVIDES MIN. LIGHTING AS REQUIRED BY CODE – NOTIFY ARCHITECT WITH ANY DISCREPANSIES.
11. IF THE PLENUM SPACE BETWEEN THE SUSPENDED CEILING AND THE ROOF DECK IS USED AS A RETURN AIR PLENUM – THERE SHALL BE NO COMBUSTIBLE MATERIALS PRESENT IN THE PLENUM SPACE.
12. SUSPENDED ACOUSTICAL CEILING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF ASTM C 635 AND ASTM C 636.
13. INSTALL #TR-AP024 ACCESS PANEL AT GYPSUM BOARD CEILING IF ACCESS PANEL IS REQUIRED. INSTALL SIZE OF OPENING PER APPLICABLE BUILDING CODE.
14. SEE DWG. 1/A1.1 FOR ACTUAL DIMENSIONS.
15. SUSPENDED CEILING SYSTEM SHALL BE CENTERED IN THE CORRIDOR AS SHOWN.
16. SUSPENDED CEILING SYSTEM SHALL BE CENTERED IN EACH ROOM AS SHOWN.

VERIFY WITH OWNER\LANDLORD AND ADJUST ALL LOCATIONS AND INCLUDE IN BASE BID

STATE OF MISSOURI
JOHN CRANE ZEKIND
NUMBER E-10648
REGISTERED PROFESSIONAL ENGINEER
2-16-21

MASSAGE LUXE
SUMMIT AT WEST PRYOR

940 NW PRYOR ROAD
LEE'S SUMMIT, MO, 64081

John C. Zekind, PE
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1276 WHITE ROAD
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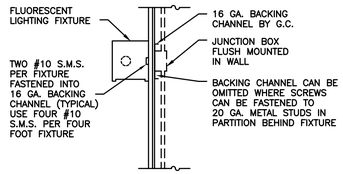
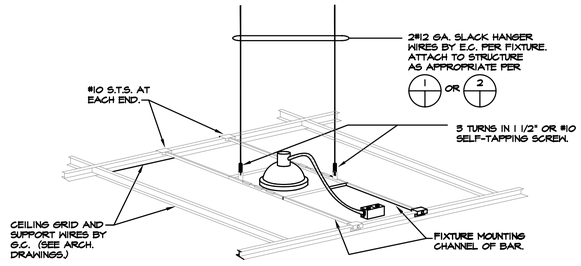
Sheet Number: E-2



WALL MOUNTED FLUORESCENT FIXTURE DETAIL

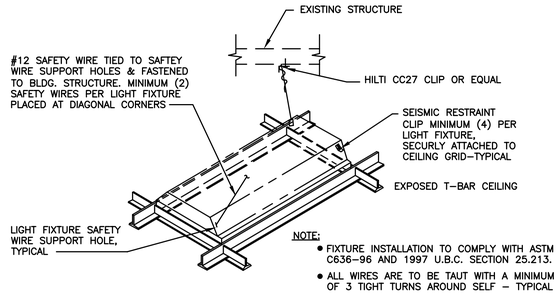
NO SCALE



INCANDESCENT FIXTURE

RECESSED FIXTURE MOUNTING DETAIL

NO SCALE

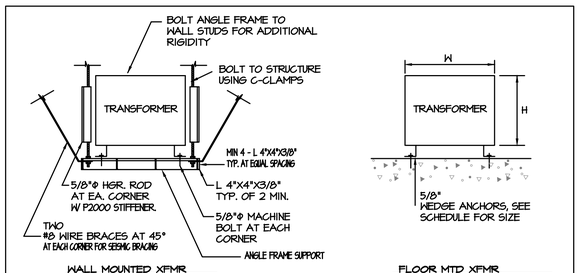


NOTE:

- FIXTURE INSTALLATION TO COMPLY WITH ASTM C636-96 AND 1997 U.B.C. SECTION 25.213.
- ALL WIRES ARE TO BE TAUT WITH A MINIMUM OF 3 TIGHT TURNS AROUND SELF - TYPICAL

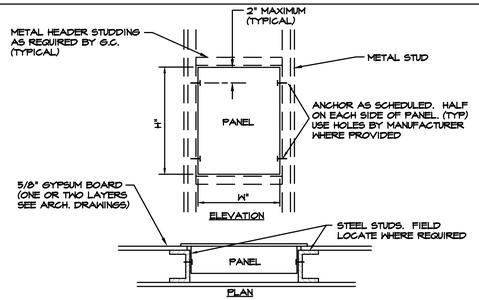
RECESSED LIGHTING FIXTURE SUPPORT DETAIL

NOT TO SCALE



WALL MOUNTED XFMR — FLOOR MTD XFMR

TYPICAL ANCHORAGE AT TRANSFORMERS

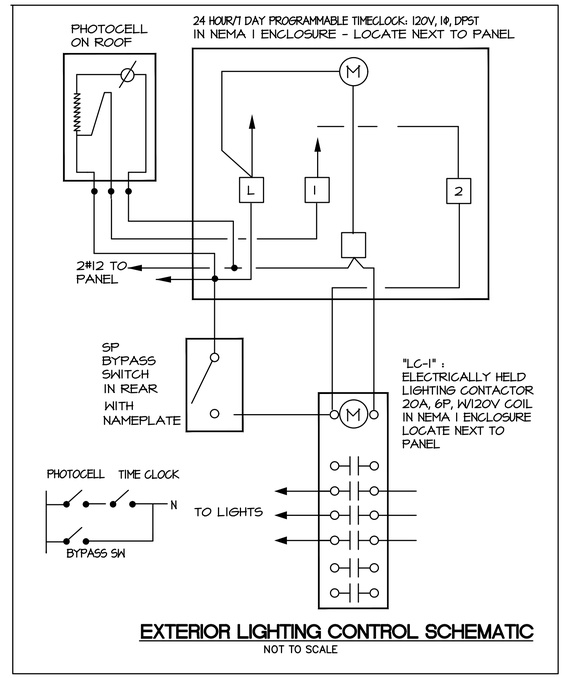


ELEVATION

PLAN

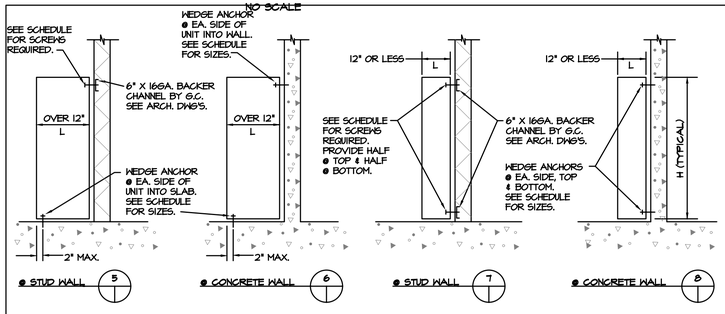
ANCHORING OF RECESSED PANELS

NO SCALE



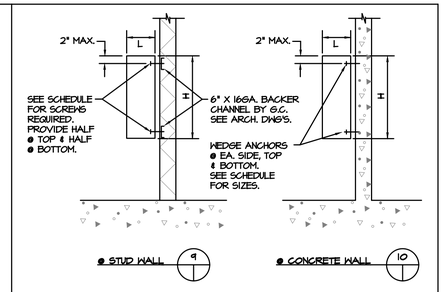
EXTERIOR LIGHTING CONTROL SCHEMATIC

NOT TO SCALE



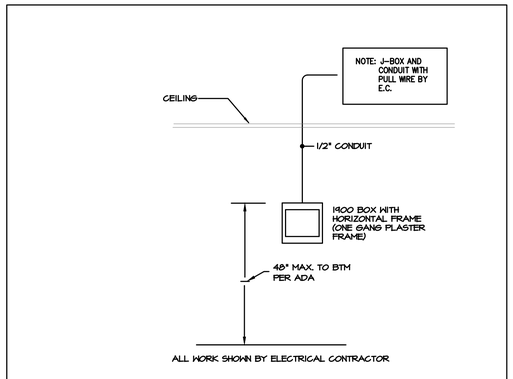
TYPICAL WALL/FLOOR SUPPORTED EQUIPMENT

NO SCALE

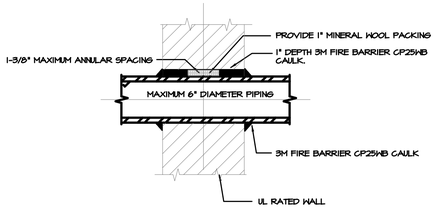


TYPICAL SURFACE MOUNTED WALL SUPPORTED EQUIPMENT

NO SCALE

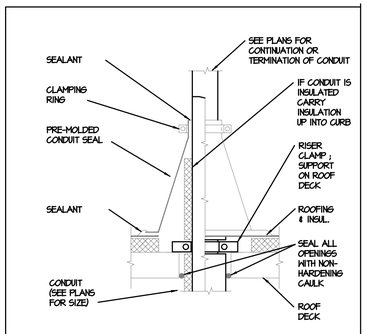


TYPICAL ADA THERMOSTAT



FIRE/SMOKE WALL CONDUIT PENETRATION

NOT TO SCALE



CONDUIT THRU ROOF

NO SCALE

STATE OF MISSOURI
JOHN CRANE ZEKIND
NUMBER E-19648
REGISTERED PROFESSIONAL ENGINEER
2-16-21

MASSAGE LUXE
SUMMIT AT WEST PRYOR

940 NW PRYOR ROAD
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Project Number:
Issued For: ☐ Review ☐ Pricing ☐ Permit 2-16-21 ☐ Bidding ☐ Construction

Sheet Number:

E-3

PANELBOARD SCHEDULE

PANEL "P" SECTION 1
120/208V, 3 PHASE, 4 WIRE
400 AMPERE BUSS
400 AMPERE MAIN
25KAIC

LOAD	LOAD (kVA)			CB		CKT		CKT	CB		LOAD (kVA)			LOAD
DESCRIPTION	LIGHTS	POWER	MECH.	A	P	NO.	PH	NO.	P	A	LIGHTS	POWER	MECH.	DESCRIPTION
AHU-1			10.5	70	2	1	A	2	1	20		0.8		RECEPTACLES
(VERIFY LOAD WITH MC)			10.5			3	B	4	1	20		0.8		RECEPTACLES
CU-1			4.0	30	2	5	C	6	1	20		1		RECEPTACLES
(VERIFY LOAD WITH MC)			4.0			7	A	8	1	20		0.4		RECEPTACLES
AHU-2			10.5	70	2	9	B	10	1	20		0.6		RECEPTACLES
(VERIFY LOAD WITH MC)			10.5			11	C	12	2	20		1.5		RECEPTACLE
CU-2			4.0	30	2	13	A	14				1.5		RECEPTACLES
(VERIFY LOAD WITH MC)			4.0			15	B	16	1	20		1.5		RECEPTACLES
AHU-3			5.0	40	2	17	C	18	1	20		0.6		RECEPTACLES
(VERIFY LOAD WITH MC)			5.0			19	A	20	1	20		0.6		RECEPTACLES
CU-3			2.0	20	2	21	B	22	1	20		0.6		RECEPTACLES
(VERIFY LOAD WITH MC)			2.0			23	C	24	1	20		0.6		RECEPTACLES
DWH-1		6.0		50	2	25	A	26	1	20		0.6		RECEPTACLES
(VERIFY LOAD WITH PC)		6.0				27	B	28	1	20		0.6		RECEPTACLES
SPARE				20	1	29	C	30	1	20		0.6		RECEPTACLES
LIGHTS	1.0			20	1	31	A	32	1	20		1.2		RECEPTACLES
LIGHTS	0.8			20	1	33	B	34	1	20		0.2		RECEPTACLES
LIGHTS	1.0			20	1	35	C	36	1	20		0.2		RECEPTACLES
LIGHTS	0.7			20	1	37	A	38	1	20		0.2		RECEPTACLES
LIGHTS/EF	0.6			20	1	39	B	40	1	20		0.8		RECEPTACLES
LIGHTS	0.5			20	1	41	C	42	1	20		0.8		RECEPTACLES
	4.6	12.0	72.0	TOTAL CONNECTED							0.0	15.7	0.0	

LOAD CALCULATIONS:								
LOAD	CONN.	DEMAND	DEMAND	DEMAND				
DESCRIPTION:	DEMAND	FACTOR:	LOAD:	AMPERE:			KVA	AMPS
LIGHTING:	4.6	1.00	4.6	12.296	A	CALCULATED DEMAND:	86.3	230.7
POWER <10kVA:	10.0	1.00	10.0	26.73	A	SPARE CAPACITY:	57.8	160.4
POWER <10kVA:	17.7	1.00	17.7	47.312	A	PERCENTAGE SPARE:	40%	
MECHANICAL EQUIPMENT	72.0	0.75	54.0	144.34	A	TOTAL PANEL CAPACITY:	144.1	400.0
CALCULATED DEMAND:	104.3		86.3	230.68	A	144 kVA x 1000	FEEDER/CIRCUIT CAPACITY:	
						216 VAC x 1.732 =	400	AMPERE RATING

PANELBOARD SCHEDULE

PANEL "P" SECTION 2
120/208V, 3 PHASE, 4 WIRE
400 AMPERE BUSS
400 AMPERE MAIN
25KAIC

LOAD	LOAD (kVA)			CB		CKT		CKT	CB		LOAD (kVA)			LOAD
DESCRIPTION	LIGHTS	POWER	MECH.	A	P	NO.	PH	NO.	P	A	LIGHTS	POWER	MECH.	DESCRIPTION
SIGN ON TC/PC	1.5			20	1	43	A	44	2	40		4.0		DRYER
EXTERIOR LIGHTS ON TC/PC	0.4			20	1	45	B	46				4.0		(VERIFY LOAD WITH MFGR)
EM/EXIT ON LOCK ON CB	0.5			20	1	47	C	48	1	20		1.5		WASHER
SPARE				20	1	49	A	50	1	20		0.8		RECEPTACLES
SPARE				20	1	51	B	52	1	20		0.8		REFERIGERATOR
SPARE				20	1	53	C	54	1	20		1		RECEPT/DISPOSER
SPARE				20	1	55	A	56	1	20				SPARE
SPARE				20	1	57	B	58	1	20				SPARE
SPARE				20	1	59	C	60	1	20				SPARE
SPARE				20	1	61	A	62	1	20				SPARE
SPARE				20	1	63	B	64	1	20				SPARE
SPARE				20	1	65	C	66	1	20				SPARE
SPARE				20	1	67	A	68	1	20				SPARE
SPARE				20	1	69	B	70	1	20				SPARE
SPARE				20	1	71	C	72	1	20				SPARE
SPARE				20	1	73	A	74	1	20				SPARE
SPARE				20	1	75	B	76	1	20				SPARE
SPARE				20	1	77	C	78	1	20				SPARE
SPARE				20	1	79	A	80	1	20				SPARE
SPARE				20	1	81	B	82	1	20				SPARE
SPARE				20	1	83	C	84	1	20				SPARE
	2.4	0.0	0.0	TOTAL CONNECTED							0.0	12.1	0.0	

LOAD CALCULATIONS:								
LOAD	CONN.	DEMAND	DEMAND	DEMAND				
DESCRIPTION:	DEMAND	FACTOR:	LOAD:	AMPERE:			KVA	AMPS
LIGHTING:	2.4	1.00	2.4	6.4152	A	CALCULATED DEMAND:	14.5	38.8
POWER <10kVA:	10.0	1.00	10.0	26.73	A	SPARE CAPACITY:	129.6	359.7
POWER <10kVA:	2.1	1.00	2.1	5.6133	A	PERCENTAGE SPARE:	90%	
MECHANICAL EQUIPMENT	0.0	1.00	0.0	0	A	TOTAL PANEL CAPACITY:	144.1	400.0
CALCULATED DEMAND:	14.5		14.5	38.758	A	144 kVA x 1000	FEEDER/CIRCUIT CAPACITY:	
						216 VAC x 1.732 =	400	AMPERE RATING

VERIFY ALL LOCATIONS, HTS, AND LOADS PRIOR TO BID AND ADJUST AS REQUIRED

STATE OF MISSOURI
JOHN CRANE ZEKIND
NUMBER E-19648
REGISTERED PROFESSIONAL ENGINEER
2-16-21

MASSAGE LUXE
SUMMIT AT WEST PRYOR

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- ☐ Construction

Sheet Number:
E-4

ELECTRICAL SPECIFICATION

1. PART I - GENERAL

1.01 ROUTING OF CONDUCTORS AND CONDUIT, LOCATION OF EQUIPMENT, APPARATUS, FIXTURES AND OTHER DEVICES ARE SHOWN ON PLANS FOR GENERAL GUIDANCE. THIS CONTRACTOR SHALL COORDINATE HIS WORK WITH THE OTHER CONTRACTORS AND SHALL PROVIDE NECESSARY DEVIATIONS IN ROUTING AND ITEM LOCATIONS, AS FAR AS 10' FROM THOSE SHOWN, AS NECESSARY TO PROVIDE OPERATING SYSTEMS AS SPECIFIED OR IMPLIED, WITHOUT INTERFERENCE AND PURSUANT TO THESE REQUIREMENTS AT NO ADDITIONAL COST.

1.02 PRIOR TO SUBMITTING HIS QUOTATION FOR WORK UNDER THIS PROJECT, THIS CONTRACTOR SHALL VISIT THE SITE TO EXAMINE ALL CONDITIONS RELATED TO WORK AND TO ACQUAINT HIMSELF WITH THESE CONDITIONS. THE SUBMISSION OF THE PROPOSAL SHALL BE CONSIDERED EVIDENCE THAT THE CONTRACTOR HAS VISITED THE SITE. NO EXTRA PAYMENTS WILL BE ALLOWED THIS CONTRACTOR ON ACCOUNT OF CLAIMS FOR EXTRA WORK MADE NECESSARY BY HIS FAILURE TO VISIT THE SITE.

1.03 ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, ALL LOCAL ORDINANCES AND LOCAL TRADE PRACTICES.

2. PART II - MATERIALS

2.01 CONDUIT

A. ALL CONDUITS SHALL BE HOT DIPPED OR ELECTRO-GALVANIZED STEEL UNLESS OTHERWISE NOTED. MINIMUM SIZE CONDUIT SHALL BE 1/2". MINIMUM SIZE CONDUIT UNDERGROUND OR IN CONCRETE OR MASONRY SHALL BE 3/4". ALL RIGID CONDUIT SHALL BE THREADED TYPE, FITTINGS SHALL BE THREADED TYPE; SET SCREW TYPE WILL NOT BE ACCEPTED.

B. STEEL CONDUIT - HEAVY WALL "HEAVY WALL" GALVANIZED RIGID METALLIC CONDUIT (G.R.M.C.) SHALL BE USED IN THE FLOOR SLAB FOR ALL FEEDERS AND FOR INSTALLATION IN CONCRETE OR IN WET LOCATIONS OR WHERE THE RACEWAY MAY BE EXPOSED TO WEATHER OR SUBJECT TO MECHANICAL INJURY. COUPLINGS SHALL BE SEALED WITH WATERPROOF SEALING COMPOUND.

C. RIGID STEEL CONDUIT (G.R.M.C.) - FULL WEIGHT STEEL PIPE OF STANDARD PIPE DIMENSIONS, THREADED. CONDUIT SHALL HAVE GALVANIZED COATING APPLIED TO BOTH INSIDE AND OUTSIDE SURFACES, INCLUDING THE THREADS. CONDUIT SHALL BE THREADED 3/4" BACK FROM END OF PIPE SO THAT NO THREAD WILL BE EXPOSED. HOT DIPPED GALVANIZED CONDUIT WRAPPED WITH PLYMOUTH PLYMOUTH 20 MAGI PIPE WRAPPING TAPE SHALL BE USED FOR UNDERGROUND DIRECT BURIAL. HOT DIPPED GALVANIZED CONDUIT SHALL BE USED FOR UNDERGROUND CONCRETE ENCASED, OR WHERE EXPOSED TO WEATHER.

D. "THIN WALL" GALVANIZED ELECTRICAL METALLIC TUBING (E.M.T.) SHALL BE USED IN WALLS AND CEILINGS, ONLY APPROVED COMPRESSION TYPE COUPLINGS WILL BE PERMITTED. FLEXIBLE METALLIC CONDUIT MAY BE USED ON SHORT FINAL CONNECTIONS TO MOTORS AND LIGHTINGS FIXTURES .

E. ELECTRIC METALLIC TUBING (E.M.T.) - THREADLESS THIN WALL CONDUIT GALVANIZED OR ZINC METALLIZED, (INSIDE AND OUTSIDE) MAY BE USED FOR BRANCH CIRCUIT CONDUCTORS UP TO SIZE 1/0 MAXIMUM IN EXPOSED DRY LOCATIONS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND IN FURRED SPACES.

F. FLEXIBLE STEEL CONDUIT: USE 1/2" MINIMUM, EXCEPT WHERE NOTED OTHERWISE. FLEXIBLE CONDUIT SHALL BE USED FOR THE FOLLOWING APPLICATION ONLY:

   A. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, MAXIMUM LENGTH 18".
   B. FOR FINAL CONNECTION TO MORTAR OUTLETS ON VIBRATING EQUIPMENT.
   C. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE, MINIMUM 4', MAXIMUM 6' LENGTH.
   D. FOR SHORT CONNECTIONS AS APPROVED BY THE ENGINEER.
   E. FOR EXPANSION JOINT CROSSINGS.
   F. FOR WEATHERPROOF INSTALLATIONS WITH PLYVINYL SHEATINGS, SIMILAR TO AMERICAN METAL HOSE "SEALTITE" TYPE "UA" OR EQUAL.

G. FLEXIBLE STEEL CONDUIT: SINGLE STRIP TYPE, MINIMUM SIZE 1/2", EXCEPT AS NOTED, GALVANIZED, MAXIMUM RESISTANCE OF ARMOR 1.5 OHMS PER 1000 FEET. CONDUIT SHALL BE AS MANUFACTURED BY ANACONDA OR APPROVED EQUAL.

H. POLYVINYL CHLORIDE CONDUIT (PVC)

WHERE APPROVED BY LOCAL AND STATE CODE AUTHORITIES FOR THE UNDERGROUND INSTALLATION,POLYVINYL CHLORIDE (PVC) CONDUIT SHALL BE SCHEDULE 40, 90 DEGREES C, LISTED.ALL JOINTS SHALL BE SOLVENT WELDED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

I. GROUNDING

   1. GROUND WIRES SHALL BE RUN IN EACH CONDUIT AND SIZED PER ARTICLE 250-95 OF THE NEC. GROUND WIRES SHALL BE TERMINATED TO THE METALLIC ENCLOSURES OF THE PANELS, DISCONNECTS, TROUGHS, MAIN SWITCHBOARD AND OUTLET BOXES.

   2. ALL PROVISIONS OF ARTICLES 341, 250 AND 300-22 OF THE NEC SHALL BE STRICTLY ADHERED TO, ALL LOCAL AND STATE CODES SHALL APPLY.

2.02 CONDUCTORS:

TYPE - ALL WIRING SHALL BE "COPPER" AND COMPLY WITH THE LATEST SPECIFICATIONS OF THE NEC. WIRE AND CABLE SHALL BE NEW, SHALL HAVE SIZE, TYPE OF INSULATION, VOLTAGE RATING, AND MANUFACTURER'S NAME PERMANENTLY MARKED ON OUTER COVERING AT REGULAR INTERVALS. ALL WIRING SHALL BE IN CONDUIT, UNLESS OTHERWISE INDICATED.

UNLESS OTHERWISE CALLED FOR, THE INSULATION OF CABLES AND WIRES SHALL BE AS FOLLOWS: CONDUCTORS #10 OR SMALLER BE SOLID. CONDUCTORS #8 AND LARGER SHALL BE STRANDED.

APPLICATIONS	TYPES OF WIRES AND CABLES
FEEDERS TO PANELBOARDS.	TYPE THH-75 DEGREES C
BRANCH CIRCUITS FOR SIZES #6 AND LARGER.	TYPE THH-75 DEGREES C
BRANCH CIRCUITS FOR SIZES SMALLER THAN #6.	TYPE THHN/THWN 75 DEGREES C,RID DEGREES C
FEEDERS AND BRANCH CIRCUITS BELOW GRADE OR OUTSIDE BUILDING SMALLER THAN #6.	TYPE THH-75 DEGREES C
FIXTURE WIRING	TYPE THH-90 DEGREES C

COLOR CODING OF CONDUCTORS

A. ALL BRANCH CIRCUITS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC AND SHALL BE:

120/208 VOLT		277/480 VOLT
BLACK	PHASE A	BROWN
RED	PHASE B	ORANGE
BLUE	PHASE C	YELLOW
WHITE	NEUTRAL	GRAY *

* MAY BE WHITE WITH TRACER.

B. GROUNDING CONDUCTOR (ALL SYSTEMS) - GREEN
C. SWITCHED LEG - PURPLE
D. DUMMY LEGS OF 3-WAY SWITCHING - PINK

2.02 TRANSFORMERS.

DRY TYPE TRANSFORMERS SHALL BE TWO WINDING, TOTALLY ENCLOSED, SELF COOLED, LOW AUDIBLE SOUND LEVEL OF THE SIZE AND ELECTRICAL CHARACTERISTICS AS SCHEDULED. TRANSFORMERS 25 KVA AND UNDER SHALL HAVE A UL RATING LIMITING SYSTEM TEMPERATURE TO 80 DEGREES C, 30 KVA AND ABOVE SHALL HAVE UL RATING LIMITING TEMPERATURE TO 80 DEGREES C, BOTH WITH RESPECT TO A 40 DEGREES C AMBIENT. MAXIMUM ACCESSIBLE SOUND LEVEL FOR ALL K.V.A. RATING SHALL NOT EXCEED 46 DECIBELS.TRANSFORMERS SHALL HAVE A MINIMUM 10 PERCENT OVERLOAD CAPACITY AT RATED VOLTAGE. ENCLOSURE SHALL BE FURNISHED WITH LIFTING BRACKETS DESIGNED TO FACILITATE HANDLING AND INSTALLATION. VENTILATING OPENINGS SHALL BE DESIGNED IN A MANNER TO PREVENT ACCESS TO LIVE PARTS. USE FLEXIBLE CONDUIT, 2 DIA. 90 MINIMUM LENGTH, FOR CONNECTIONS TO TRANSFORMER CASE. MAKE CONDUIT CONNECTIONS TO SIDE PANEL OF ENCLOSURE. MOUNT TRANSFORMERS ON VIBRATION ISOLATING PADS SUITABLE FOR ISOLATING THE TRANSFORMER NOISE FROM THE BUILDING STRUCTURE. PROVIDE SEISMIC RESTRAINTS.

2.04 PANELS:

LIGHTING PANELBOARDS SHALL BE CIRCUIT BREAKER, DEAD-FRONT TYPE IN ACCORDANCE WITH UL STANDARDS FOR PANELBOARDS AND STANDARD FOR CABINETS AND BOXES AND SHALL BE SO LABELED.PROVIDE A MINIMUM OF ONE (1) 3/4" CONDUIT STUBBED OUT OF EACH RECESSED PANELBOARD TO ABOVE THE CEILING (DEPENDING ON AREA(S) SERVED BY PANEL) FOR EVERY THREE (3) SPARE OR SPACES. PANEL DIRECTORIES SHALL BE TYPED AND FILLED OUT BY ELECTRICAL CONTRACTOR AFTER TESTING PHASE BALANCING AND CHECKOUT. TWO AND THREE POLE BREAKERS SHALL BE FURNISHED WHERE CALLED FOR. HANDLE TIES WILL NOT BE ACCEPTED. PANELBOARD BUSSING SHALL BE ELECTRICAL GRADE COPPER. ALL BREAKERS SHALL BE BOLT-ON TYPE. TWO AND THREE POLE BREAKERS SHALL HAVE COMMON TRIP. BOXES SHALL BE COMMERCIAL HOT GALVANIZED SHEET STEEL, 14 GAUGE MINIMUM. IDENTIFY PANELS WITH ENGRAVED LAMICOID NAMEPLATES INDICATING THE PANEL IDENTIFICATION AND PANEL VOLTAGE.

2.04 BOXES:

OUTLET AND SWITCH BOXES:
FURNISH OUTLETS AND BOXES WHERE REQUIRED BY PLANS, EQUIPMENT REQUIREMENTS, OR CODE. RECORD ALL LOCATIONS AND MOUNTING HEIGHTS OF ALL OUTLET, PULL AND JUNCTION BOXES. ALL OUTLET AND SWITCH BOXES SHALL BE NEC APPROVED TYPE, SIZED TO PROVIDE AMPLE SPACE FOR WIRING DEVICES, CONDUCTORS, AND GROUNDING WIRES. WHERE SPACE IS AVAILABLE, ALL FEED THROUGH BOXES SHALL BE MINIMUM 4" SQUARE BY 1 1/2" DEEP. BOXES SHALL BE SET BACK TO ALLOW THE INSTALLATION OF A SQUARE CUT AND RAISED ADAPTER RING. DEPTH OF RAISED PORTION SHALL MATCH THE WALL CONSTRUCTION. WHEN MORE THAN ONE WIRING DEVICE (SWITCHES AND RECEPTACLES) IS SHOWN ON THE SAME LOCATION, GANG BOXES SHALL BE USED.WHERE ANY DEVICE IS INSTALLED WITH EXPOSED CONDUIT, THE OUTLET BOX SHALL BE TYPE "FS". PROVIDE A BLANK COVER FOR EACH OUTLET NOT TO BE PROVIDED WITH LIGHT FIXTURE OR OTHER DEVICE.

FLOOR BOXES
PLUGS AND TRIM SHALL BE BRASS. OUTLET BOX SHALL BE CAST IRON OR STAMPED STEEL. OUTLETS SHALL BE INSTALLED SO THAT THE TOP OPENING WILL BE FLUSH WITH FINISHED FLOOR. THE ELECTRICAL CONTRACTOR SHALL GROUT IN AROUND OUTLETS AS REQUIRED, SHALL BE INSTALLED IN ALL CARPETED AREAS AFTER CARPET IS IN PLACE.

PULL AND JUNCTION BOXES
PULL AND JUNCTION BOXES ARE NOT COMPLETELY SHOWN ON PLANS. THEY SHALL BE INSTALLED WHERE REQUIRED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE.ALL BOXES SHALL BE CONSTRUCTED OF MINIMUM NO. 14 GAUGE HOT-DIPPED GALVANIZED STEEL, CAST OR SHEET ALUMINUM WITH SCREWED OR HINGED COVER. FASTENERS SHALL BE BRASS OR ZINC COATED SCREWS. WHERE EXPOSED TO WEATHER, MOISTURE-TIGHT GASKET SHALL BE PROVIDED. ELECTRICAL BOXES WITH UN-USED KNOCKOUTS SHALL BE PLUGGED. ALL BOXES SHALL BE OF ADEQUATE SIZE WITHOUT THE USE OF EXTENSION BOXES.

2.5 DISCONNECT SWITCHES

DISCONNECT SWITCHES FOR SINGLE AND THREE PHASE LOADS OVER 1000 WATTS OR 1/2 HORSEPOWER SHALL BE HORSEPOWER RATED, HEAVY DUTY TYPE, QUICK-MAKE, QUICK-BREAK AS MANUFACTURED BY ITE, CHALLENGER, SQUARE D, GENERAL ELECTRIC, WESTINGHOUSE OR OWNER/ENGINEER APPROVED EQUAL. SWITCHES EXPOSED TO WEATHER SHALL BE NEMA 3R.

2.6 NAMEPLATES AND LABELS

NAMEPLATES

A. NAMEPLATES SHALL BE 4" X 1" X 1/8" TRACK WHITE CORE, BLACK FACE, PLASTIC WITH ENGRAVED LETTERS. ATTACHMENT TO EQUIPMENT SHALL BE DONE BY MEANS OF SCREWS.

B. NAMEPLATES SHALL BE USED FOR ALL MAJOR EQUIPMENT SUCH AS SWITCHBOARDS, MOTOR PANELBOARDS, MOTOR CONTROL CENTERS, UNIT SUBSTATIONS, TRANSFORMERS, PANELBOARDS (LIGHTING, POWER AND AUXILIARY) ON EACH SWITCH AND STARTER IN EACH PANELBOARD AND MOTOR CONTROL CENTER, DISCONNECT SWITCHES, RELAYS, LOOSE MOUNTED MOTOR STARTERS, AND ON CONTROL PANELS SERVING FIRE ALARM, SECURITY AND PUBLIC ADDRESS SYSTEM AND MOTOR CIRCUITS.

LABELS

A. LABELS (STENCILS) SHALL BE BRADY OR WESTLINE AND SHALL BE COLOR CODED IN ACCORDANCE WITH ASA-Z34.1-53 "SAFETY COLOR CODE" TO INCLUDE SYSTEM VOLTAGES, ABBREVIATIONS OF SERVICE, ETC., FOR EXAMPLE: 480V, TELEPHONE, SECURITY, INTERCOM, EMERGENCY, 120/208V, ETC.

2.7 TIMECLOCKS

TIMECLOCKS SHALL BE 24 HOUR, 7 DAY WITH BATTERY BACKUP. EACH DAY SHALL HAVE MINIMUM OF 2 ON AND 2 OFF PERIODS. TIMECLOCK SHALL HAVE MANUAL OVERRIDE SWITCH. TIMECLOCK SHALL BE LOCATED IN NEMA ENCLOSURE. TIMECLOCK SHALL BE BY TORK, PARAGON OR EQUAL.

2.8 LOW VOLTAGE WIRING

ALL SPECIAL SYSTEM LOW VOLTAGE WIRING SHALL BE IN CONDUIT.

PART III EXECUTION

3.1 ALL WORK SHALL BE IN COMPLETE ACCORDANCE WITH THE N.E.C. AND ALL APPLICABLE CODES WHETHER EXPLICITLY SHOWN OR NOT. ALL PANELS SHALL HAVE TYPEWRITTEN DIRECTORIES, AND ALL CIRCUITS SHALL BE TAGGED. ALL SYSTEMS SHALL BE GUARANTEED FOR 1 YEAR AFTER OWNER'S WRITTEN ACCEPTANCE. PROPERLY GROUND ALL SYSTEMS AND BALANCE PHASES. IF REQUIRED INCREASE BRANCH CIRCUIT SIZES TO REDUCE VOLTAGE DROP. ALL WORK SHALL BE COORDINATED WITH THE LANDLORD'S CONTRACTOR TO ASSURE A FULLY FUNCTIONAL AND COMPLETE SYSTEM.

3.2 CONDUIT TYPES:

INDOOR, EXPOSED OR CONCEALED AREAS - USE EMT FOR SIZES UP TO 4", USE G.R.M.C. (GALVANIZED RIGID METAL CONDUIT) FOR 5" AND ABOVE UNLESS OTHERWISE NOTED AND G.R.M.C. WHERE EXPOSED TO PHYSICAL DAMAGE AND WHERE SUBJECT TO MOISTURE AND DETERIORATION. BURIED IN CONCRETE FLOOR SLAB SYSTEM - G.R.M.C. WITH RUST RESISTANT WRAP AND SHALL BE COVERED WITH A MINIMUM OF 2" CONCRETE ABOVE CONDUIT.INSTALLED BELOW CONCRETE SLAB (SERVICE ENTRANCE) - G.R.M.C. WRAP ENCASED IN CONCRETE ENVELOPE. CONCRETE ENVELOPE SHALL BE MINIMUM 3" AROUND CONDUIT. INSTALLED BELOW CONCRETE SLAB (FEEDERS OR BRANCH CIRCUITS) - G.R.M.C. STEEL WITH RUST RESISTANT WRAP NOT ENCASED
ALL UNDERGROUND G.R.M.C. STEEL CONDUIT NOT ENCASED IN CONCRETE SHALL BE WRAPPED WITH PIPE WRAPPING TAPE, SCOTCH-RAP #51 OR PLYMOUTH-BRUSH "PLYWRAP-20" TAPE TO COVER CONDUIT AND FITTINGS.INSTALLED OUTSIDE OF BUILDING (ABOVE GRADE) - G.R.M.C. WHEN EXPOSED TO WEATHER. ALL EXPOSED THREADS SHALL BE FIELD PAINTED WITH RUSTPROOF PRIMER BY EACH CONTRACTOR.FLEXIBLE METAL RACEWAYS SHALL BE USED FOR CONNECTION TO ALL MOTORIZED EQUIPMENT, TRANSFORMERS AND EQUIPMENT SUBJECT TO VIBRATION, ADJUSTMENTS AND/OR MOVEMENT AND TO CONTROL EQUIPMENT REQUIRING PIPING CONNECTIONS. RACEWAYS SHALL BE AS MANUFACTURED BY ANACONDA OR APPROVED EQUAL.

3.3 CONDUIT INSTALLATION

A COMPLETE CONTINUOUS RACEWAY SHALL BE PROVIDED FOR PULLING AND INSTALLING OF WIRES. ALL WIRING SHALL BE RUN IN RACEWAYS UNLESS OTHERWISE INDICATED. ALL CONDUIT MUST BE REAMED AFTER CUTTING. CONDUITS SHALL BE CUT SQUARE, REAMED TO FULL SIZE, SHOULDERED WITHOUT BUTTING INTO COUPLINGS OR FITTINGS. THE THREAD SHALL BE OF STANDARD LENGTH AND DIAMETER REQUIRED FOR THE SIZE OF CONDUIT USE DNA DON APPROVED TYPE OF GRAPHITE BEARING THREAD LUBRICANT SHALL BE USED IN MAKING UP THREADS. WHERE CONDUITS ARE CUT IN THE FIELD, USE A STANDARD CUTTING DIE WITH 3/4" TAPER PER FOOT. RUNNING THREADS WILL NOT BE ACCEPTABLE. CONDUITS SHALL HAVE A SMOOTH INTERIOR SURFACE FREE OF OBSTRUCTIONS, SHALL BE CAPPED WITH APPROVED CONDUIT SEALS DURING

CONSTRUCTION PERIOD, SHALL BE UNIFORMLY SLOPED TO ELIMINATE TRAPPED CONDENSATION, AND SHALL BE THOROUGHLY CLEANED AND DRY BEFORE PULLING ANY WIRE. CONDUIT INSTALLATION SHALL CLEAR ALL HOT PIPES SUCH AS HOT WATER, ETC., NOT LESS THAN 6" ALL CONDUITS IN FINISHED AREAS SHALL BE CONCEALED, UNLESS OTHERWISE INDICATED ON THE PLANS. CONDUITS IN EQUIPMENT ROOM AND UNFINISHED STORAGE AREAS MAY BE EXPOSED. ALL EXPOSED CONDUIT SHALL BE INSTALLED PERPENDICULAR OR PARALLEL TO BUILDING LINES.BUSHINGS SHALL BE USED WHERE CONDUITS ENTER PANELBOARDS. ALL BUSHINGS SHALL BE OF INSULATED TYPE WITH PROVISIO FOR GROUNDING AS TYPE "BL" MADE BY O.Z. GEDNEY OR APPROVED EQUAL. CONCEALED CONDUITS INSTALLED ABOVE SUSPENDED CEILING SHALL BE RUN CLOSE TO THE UNDERSIDE OF CONSTRUCTION ABOVE, AND SHALL BE COORDINATED WITH THE OTHER SUBCONTRACTORS SO AS TO ALLOW ROOM FOR RUNNING DUCTS AND PIPING. PROVIDE FLEXIBLE CONDUIT CONNECTION AS REQUIRED BY NEC. FOR ALL RECESSED LIGHTING FIXTURES. FLEXIBLE CONDUIT CONNECTION SHALL

OPEN END OF CONDUITS SHALL BE CAPPED WITH CAP DURING ROUGHING-IN TO PREVENT THE ACCUMULATION OF DIRT AND MOISTURE CONDENSATION IN THE CONDUIT. SUPPORT FOR CONDUIT 1" AND SMALLER SHALL BE 1 OR 2 HOLE PIPE STRAPS SPACED AT NOT TO EXCEED 8'-0" INTERVALS AND WITHIN 18" OF AN OUTLET BOX, JUNCTION BOX, PULL BOX, OR TERMINAL CABINET. SUPPORT FOR CONDUIT LARGER THAN 1" SHALL BE 2 HOLE PIPE STRAPS. WHERE THE CONDUIT RUNS ARE GROUPED, CONDUIT TRAPEZES SUPPORTED ON 3/8" DIAMETER RODS MINIMUM SHALL BE USED. FASTENING DEVICES TO UNDERSIDE OF ROOF DECK SHALL NOT BE PERMITTED. ALL SUSPENDED AND/OR FASTENING DEVICES SHALL BE SUSPENDED FROM STRUCTURE ABOVE WITH ADEQUATE STRUCTURAL STEEL SUPPORT OR ANGLE IRON. PULL WIRES - A CONTINUOUS 12 AWG GALVANIZED IRON PULL WIRE OR 1/0" POLYPROPYLENE LINE EXTENDING FROM JUNCTION BOX TO JUNCTION BOX SHALL BE INSTALLED IN ALL EMPTY CONDUIT, AND SHALL BE TAGGED TO SHOW TERMINAL POINTS AND LENGTH OF RUNS. JOINTS IN G.R.M.C. CONDUIT INSTALLED IN CONCRETE OR MASONRY SHALL BE MADE LIQUID TIGHT AND SHALL ENGAGE NOT LESS THAN FIVE THREADS. CONDUIT IN CONCRETE SHALL BE PLACED SO THAT NO PORTION OF THE CONDUIT OR COUPLINGS ARE EXPOSED AND AT A SUFFICIENT DEPTH TO PREVENT CRACKING OR SPALLING. CONNECTIONS TO MINING ENCLOSURES - CONDUITS SHALL BE SECURED TO OUTLET BOXES OR MINING ENCLOSURES WITH DOUBLE LOCK NUTS AND BUSHINGS. WHERE CONDUIT BOXES WITH THREADED HUBS ARE USED, CONDUIT SHALL ENGAGE AT LEAST FIVE THREADS IN HUB.NO MORE THAN THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREE TOTAL) SHALL BE MADE IN CONDUIT RUN BETWEEN OUTLETS, PULL BOXES, JUNCTION BOXES OR PANELS. RUNS OVER 100' SHALL HAVE PULL

3.4 CONDUCTORS:

ALL BRANCH CIRCUITS SHALL BE A MINIMUM #12 WIRE. 120 VOLT BRANCH CIRCUITS LONGER THAN 100 FEET SHALL BE A MINIMUM #10. 208 VOLT OR 277 VOLT BRANCH CIRCUITS LONGER THAN 200 FEET SHALL BE A MINIMUM #10. CONTROL WIRING SHALL BE A MINIMUM #14 WIRE UNLESS NOTED OTHERWISE. CODE APPROVED PRESSURE TYPE CONNECTORS SUCH AS "IDEAL WING-NUT" MAY BE USED FOR SIZES #10 AND SMALLER. TERMINALS, TAPS AND SPLICES IN WIRE #8 AND LARGER SHALL BE MADE WITH SOLDERLESS COMPRESSION TYPE CONNECTORS. ALL JOINTS OR SPLICES SHALL BE WRAPPED WITH INSULATION TAPE SO THAT THE INSULATION OF THE JOINT, ETC. SHALL NOT BE LESS THAN INSULATION OF THE WIRE.ALL BRANCH CIRCUITS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC. NO CONDUCTORS OR CABLES SHALL BE INSTALLED IN RACEWAYS UNTIL THE RACEWAY SYSTEM HAS BEEN COMPLETED. WHEN INSTALLING CONDUCTORS, THE ELC SHALL EXERCISE DUE CARE TO PREVENT DAMAGE TO CONDUCTOR OR INSULATION. ALL FEEDER CABLES SHALL BE CONTINUOUS FROM ORIGINAL TO PANEL OR EQUIPMENT TERMINATION WITHOUT RUNNING SPLICES IN INTERMEDIATE PULL OR SPLICE BOXES. WHERE TAPS AND/OR SPLICES ARE NECESSARY AND APPROVED, THEY SHALL BE MADE IN APPROVED SPLICE BOXES WITH SUITABLE COMPRESSION TYPE CONNECTORS AS NOTED HEREINALL BRANCH CIRCUIT CABLE TERMINATIONS, TAPS AND SPLICES #8 AND SMALLER SHALL BE MADE WITH SOLDERLESS SPRING TYPE CONNECTORS SUCH AS "SCOTCHLOK" OR "MINIGRIP".COMPRESSION TYPE CONNECTORS ARE REQUIRED ON BRANCH CIRCUIT AND FEEDER CABLES #6 AND LARGER SHALL BE OF THE TYPE AS MANUFACTURED BY THE BURNDY COMPANY AND SHALL BE INSTALLED WITH APPROVED HYDRAULIC TOOLS TO ASSURE A PERMANENT MECHANICALLY SECURE HIGH CONDUCTIVITY JOINT. ALL UNINSULATED SPLICES, JOINTS AND FREE ENDS OF CONDUCTORS SHALL BE COVERED WITH RUBBER AND FRICTION TAPE OR HIGH-DIELECTRIC POLYVINYLCHLORIDE SCOTCH 33 ELECTRICAL TAPE. INSULATION VALUE TO BE SAME AS WIRE INSULATION.WHERE CONDUCTORS ARE CONNECTED TO METALLIC SURFACES, THE COATED SURFACES OF THE METAL SHALL BE CLEANED TO THE BARE METAL BEFORE INSTALLING THE CONNECTOR. LACQUER COATING OF ALL CONDUCTORS SHALL BE INSTALLED WHEN PANEL COVERS ARE REMOVED OR SWITCH DOORS ARE OPEN, THE CONDUCTOR SIZE SHALL BE EASILY READ.

3.5 INSTALLATION OF PANELS.

SET PANELS COMPLETELEY LEVEL AND PLUMB.MEASURE STEADY STATE LOAD CURRENTS AT EACH PANELBOARD FEEDER. SHOULD THE DIFFERENCE AT ANY PANELBOARD BETWEEN PHASES EXCEED 20 PERCENT, REARRANGE CIRCUITS IN THE PANELBOARD TO BALANCE THE PHASE LOADS WITHIN 20 PERCENT.

MECHANICAL INSPECTION. INSPECT FOR PHYSICAL DAMAGE, PROPER ALIGNMENT, ANCHORAGE, AND GROUNDING. CHECK PROPER INSTALLATION AND TIGHTNESS OF CONNECTIONS FOR CIRCUIT BREAKERS, FUSIBLE SWITCHES, AND FUSES.

3.5 INSTALLATION OF BOXES

INSTALL ELECTRICAL BOXES AS SHOWN ON DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE FILLING, EQUIPMENT CONNECTIONS AND COMPLIANCE WITH REGULATORY REQUIREMENTS. INSTALL ELECTRICAL BOXES TO MAINTAIN HEADROOM AND TO PRESENT NEAT APPEARANCE. INSTALL FULL BOXES AND JUNCTION BOXES ABOVE ACCESSIBLE CEILINGS AND IN UNFINISHED AREAS ONLY. INACCESSIBLE CEILING AREAS: INSTALL OUTLET AND JUNCTION BOXES NO MORE THAN 6 INCHES (150 MM) FROM CEILING ACCESS PANEL OR FROM REMOVABLE RECESSED LUMINAIRE. INSTALL BOXES TO PRESERVE FIRE RESISTANCE RATING OF PARTITIONS AND OTHER ELEMENTS, USING MATERIALS AND METHODS UNDER THE OTHER PROVISIONS OF THIS SPECIFICATION. ALIGN ADJACENT WALL-MOUNTED OUTLET BOXES FOR SWITCHES, THERMOSTATS, AND SIMILAR DEVICES WITH EACH OTHER. USE FLUSH MOUNTING OUTLET BOXES IN FINISHED AREAS. SECURE FLUSH MOUNTING BOX TO INTERIOR WALL AND PARTITION STUDS. ACCURATELY POSITION TO ALLOW FOR SURFACE FINISH THICKNESS. USE STAMPED STEEL BRIDGES TO FASTEN FLUSH MOUNTING OUTLET BOX BETWEEN STUDS. INSTALL FLUSH MOUNTING BOX WITHOUT DAMAGING WALL INSULATION OR REDUCING ITS EFFECTIVENESS. USE ADJUSTABLE STEEL CHANNEL FASTENERS FOR HUNG CEILING OUTLET BOX. DO NOT FASTEN BOXES TO CEILING SUPPORT WIRES. SUPPORT BOXES INDEPENDENTLY OF CONDUIT. WHERE DRAWINGS SHOW BACK-TO-BACK WIRING DEVICES, THE DEVICES ON OPPOSITE SIDE OF THE WALL SHALL BE OFFSET A MINIMUM OF 24" SO THAT EACH DEVICE WILL BE INSTALLED IN SEPARATE BOXES TO AVOID SOUND TRANSMISSION BETWEEN ADJACENT ROOMS. THROUGH-THE-WALL BOXES SHALL NOT BE USED.

COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES, AND BACKSPLASHES AND FOR KITCHEN EQUIPMENT.

VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH DRAWINGS OF INTERIOR DETAILS AND FINISH AND EQUIPMENT CUT SHEETS. IN CENTERING OUTLETS AND LOCATING BOXES, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG PANELS AND THE LIKE AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.

3.6 INSTALLATION OF TRANSFORMERS

TRANSFORMERS SHALL BE FLOOR MOUNTED WITH CLEARANCES PER SECTION 450 OF NEC.

END OF SECTION

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JOHN CRANE ZEKIND
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2-16-21

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PLUMBING FIXTURE CONNECTION SCHEDULE

MARK	W	V	HW	CW	T	CARRIER	REMARKS
FD-1	3"	2"		-	-	-	
FS-1	3"	2"			3"	-	
HD-1	3"	2"			3"	-	
LAV-1	2"	2"	1/2"	1/2"	2"	BY MFGR.	
MB-1	3"	2"	1/2"	1/2"	3"	-	
SK-1,2	3"	2"	1/2"	1/2"	2"	-	
WMA-1	3"	2"	-	1/2"	-	-	
WC-1,2	4"	2"	-	1/2"	-	-	

PLUMBING KEYED NOTES:

1. CONNECT TO EXISTING 4" SANITARY, 2" V. AS REQUIRED FIELD VERIFY POINT OF CONN. AND I.E. PRIOR TO BID
2. CONNECT TO EXISTING 1"CW AND REQUIRED FIELD VERIFY POINT OF CONN. AND I.E. PRIOR TO BID

GENERAL NOTES:

A. ALL WORK SHALL BE IN COMPLETE COMPLIANCE WITH STATE PLUMBING CODES/AMENDMENTS, NFPA, ALL LOCAL & APPLICABLE JURISDICTIONAL AUTHORITIES.

B. REFER TO ARCHITECTURAL PLANS FOR EXACT WALL AND FLOOR ELEVATIONS, TYPES AND APPLICABLE BUILDING CONSTRAINTS.

C. COORDINATE WITH THE ELECTRICAL, THE FIXTURE AND THE HVAC CONTRACTORS FOR ROUTING OF SYSTEMS CONCEALED IN CEILINGS, WALLS, CHASES, ATTIC, AND FLOORS. AVAILABLE ROOM ABOVE THE CEILING IS TIGHT IN MANY CASES, DEVELOP A HIGHWAY PLAN WITH ALL OTHER SUB CONTRACTORS AND PROVIDE A SUBMISSION OF SUCH FOR REVIEW PRIOR TO INITIATING ANY WORK.

D. VERIFY INVERT ELEVATIONS BEFORE INITIATING ANY WORK.

E. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO VERIFY EXISTING CONDITIONS. ANY CONDITIONS NOT IN COMPLIANCE WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS, OR APPLICABLE CODES, ETC.... SHALL BE NOTED AND INCLUDED IN THIS CONTRACTOR'S BID.

F. COORDINATE EXACT PIPE SIZES WITH AVAILABLE WALL FURRING DIMENSIONS PRIOR TO ROUGH-IN.

G. SANITARY SHALL HAVE A 1/4" PER FOOT SLOPE - VERIFY WITH CIVIL PLANS

H. THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS.

I. BE RESPONSIBLE NOT ONLY FOR THE ROUGH-IN POINTS REQUIRED AS SHOWN GENERALLY HEREIN, BUT ALSO FOR FINAL CONNECTION TO ALL EQUIPMENT AND THE FURNISHING AND INSTALLING OF MATERIALS AND LABOR FOR SUCH AS REQUIRED TO MAKE FULLY FUNCTIONAL.

J. SEE ARCHITECTURAL PLANS FOR EXACT FIXTURE LAYOUT.

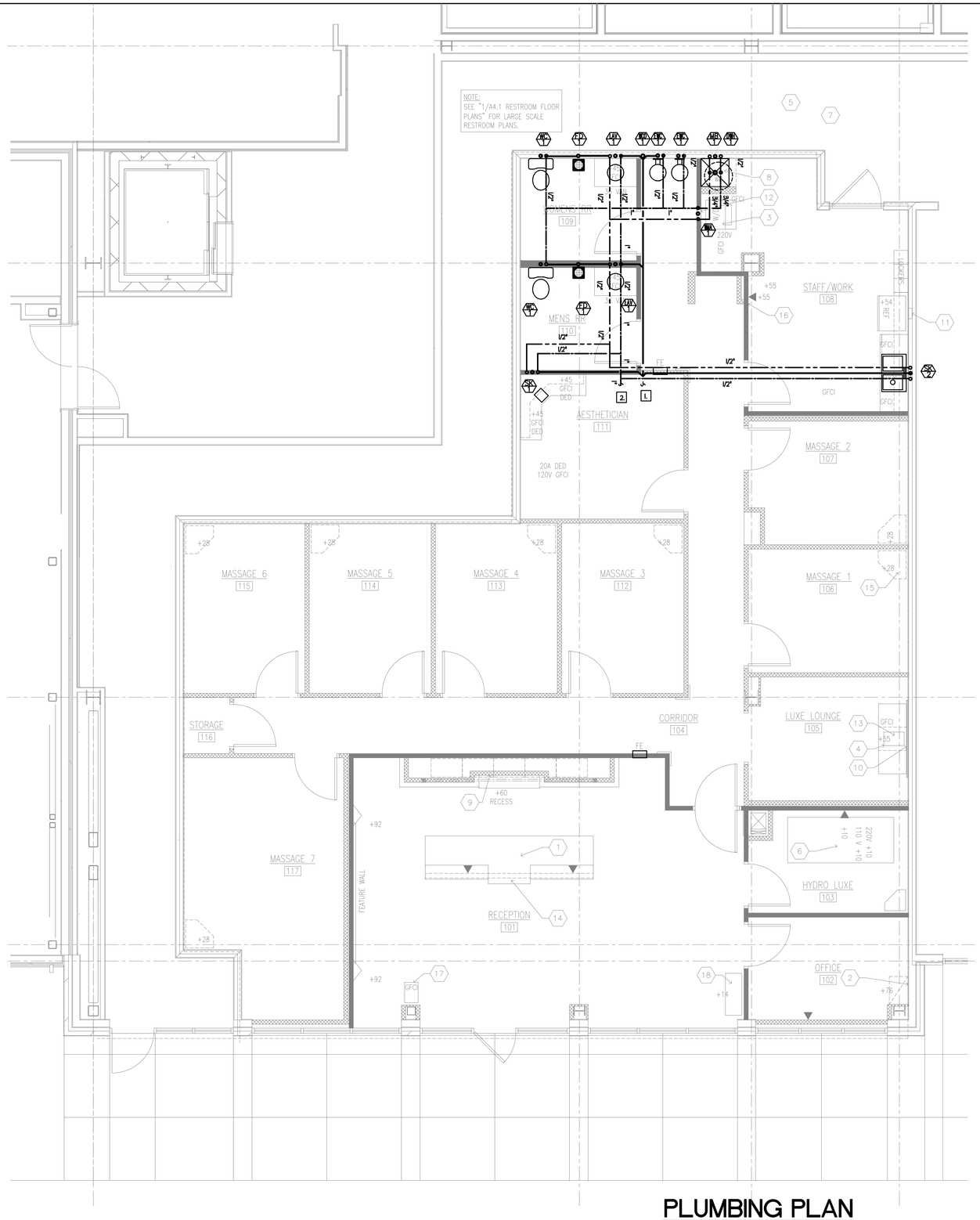
K. REVIEW CAREFULLY AND FULLY ALL LITERATURE ON EQUIPMENT TO BE FURNISHED BY OTHERS. INSTALL ALL REQUIRED TRIM AND ACCESSORIES TO PROVIDE A FULLY FUNCTIONING SYSTEM (FOR EXAMPLE, TRAPS, SHUTOFFS, ESCUTCHEONS, FLEX CONNECTORS, UNIONS, TPRV'S, VACUUM BREAKERS, TRAP PRIMERS, ETC...)

L. PROVIDE SHUTOFF VALVES WITH UNIONS (DIELECTRIC WHERE REQUIRED) ON ALL CONNECTIONS TO EQUIPMENT IN FULLY ACCESSIBLE LOCATIONS. ALSO PROVIDE SHUTOFF VALVES ON EACH DISTINCT BRANCH WATER LINE.

M. ALL PIPING SHALL BE CONCEALED IN WALLS/FLOORS OR ABOVE CEILINGS UNLESS EXPLICITLY NOTED OTHERWISE.

PLUMBING SYMBOLS

SANITARY SEWER BELOW FLOOR
VENT
COLD WATER
HOT WATER
FLOOR DRAIN
PLUMBING FIXTURE MARK (FD)
KEYED NOTE [1]
RISER DESIGNATION (P)
SANITARY INVERT ELEVATION



PLUMBING PLAN

SCALE: 1/4" = 1'-0"

Graphic Scale: 0 4' 8'

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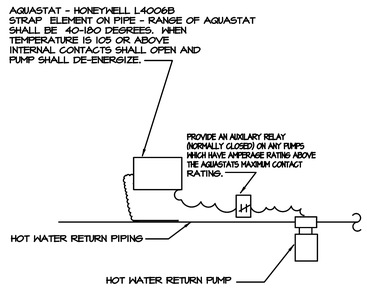
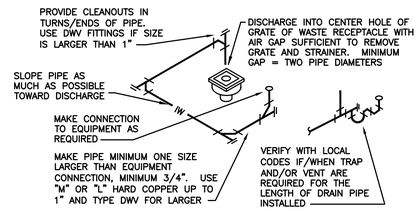


WATER HEATER AQUASTAT SCHEMATIC

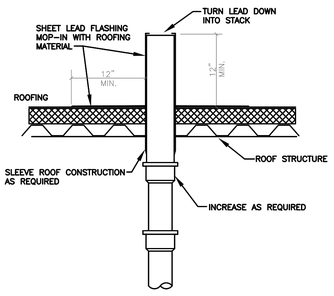
NOT TO SCALE



ROUTE PIPE INCONSPICUOUSLY AND UNOBTRUSIVELY. HANG PIPE AS REQUIRED. DO NOT INSULATE INDIRECT DRAIN PIPE WHEN INSTALLED EXPOSED IN FOOD SERVICE FACILITY. REFER TO LOCAL CODES FOR FURTHER INFORMATION.

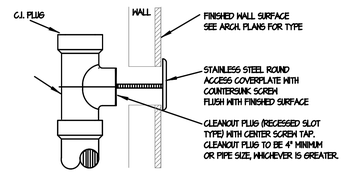
INDIRECT DRAIN SCHEMATIC

NOT TO SCALE



VENT THROUGH ROOF DETAIL

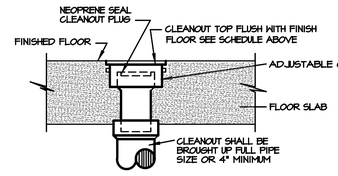
NOT TO SCALE



WALL CLEANOUT SCHEMATIC

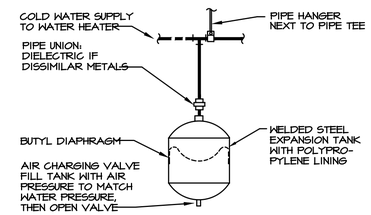
NOT TO SCALE

FLOOR CLEANOUT SCHEDULE		
FLOOR TYPE	CLEANOUT TYPE	TOP MATERIAL
UNFINISHED	ROUND	CAST-IRON
V.A.T.	SQUARE-TILETOP	NICKLE BRONZE
QUARRY TILE	SQUARE-TILETOP	NICKLE BRONZE
CERAMIC TILE	SQUARE TERRAZO	TILE



FLOOR CLEANOUT SCHEMATIC

NOT TO SCALE

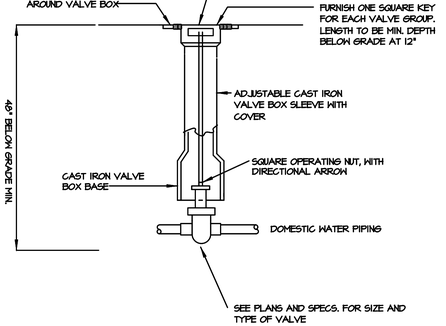


PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. MAKE PIPE SAME SIZE AS TANK FITTING. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION PROCEDURE. VERIFY PROPER OPERATION WHEN INSTALLED.

EXPANSION TANK INSTALLATION SHALL OCCUR ONLY WHEN THERE IS A BACK FLOW PREVENTION DEVICE INSTALLED WITHIN THE TENANT SPACE WATER SYSTEM OR BUILDING WATER SYSTEM. FIELD VERIFY BACKFLOW PREVENTION DEVICE.

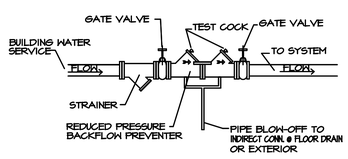
DOMESTIC EXPANSION TANK SCHEMATIC

NOT TO SCALE



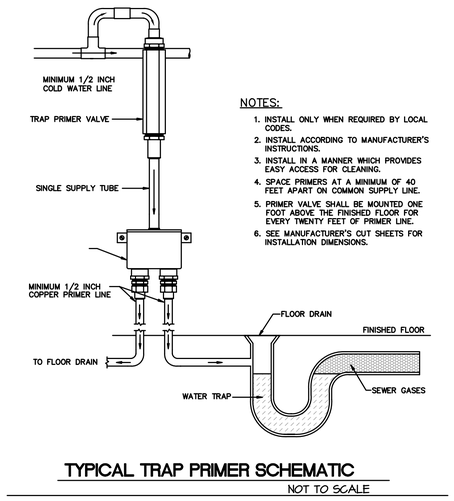
WATER SERVICE EXTERIOR SHUTOFF SCHEMATIC

NOT TO SCALE



BACKFLOW PREVENTER SCHEMATIC

NOT TO SCALE

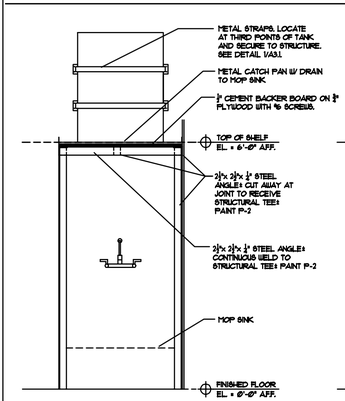


NOTES:

1. INSTALL ONLY WHEN REQUIRED BY LOCAL CODES.
2. INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
3. INSTALL IN A MANNER WHICH PROVIDES EASY ACCESS FOR CLEANING.
4. SPACE PRIMERS AT A MINIMUM OF 40 FEET APART ON COMMON SUPPLY LINE.
5. PRIMER VALVE SHALL BE MOUNTED ONE FOOT ABOVE THE FINISHED FLOOR FOR EVERY TWENTY FEET OF PRIMER LINE.
6. SEE MANUFACTURER'S CUT SHEETS FOR INSTALLATION DIMENSIONS.

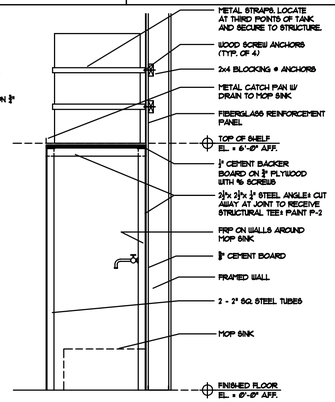
TYPICAL TRAP PRIMER SCHEMATIC

NOT TO SCALE



3 ELEV.@ WATER HEATER PLATFORM

NOT TO SCALE



2 SECTION @ WATER HEATER PLATFORM

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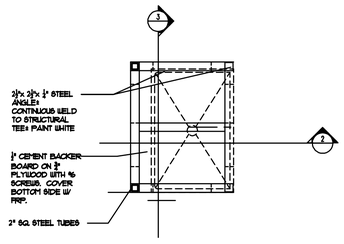
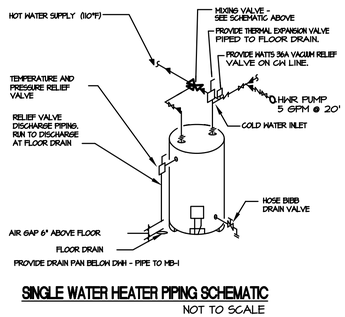


1 PLAN @ WATER HEATER PLATFORM

NOT TO SCALE



SINGLE WATER HEATER PIPING SCHEMATIC

NOT TO SCALE

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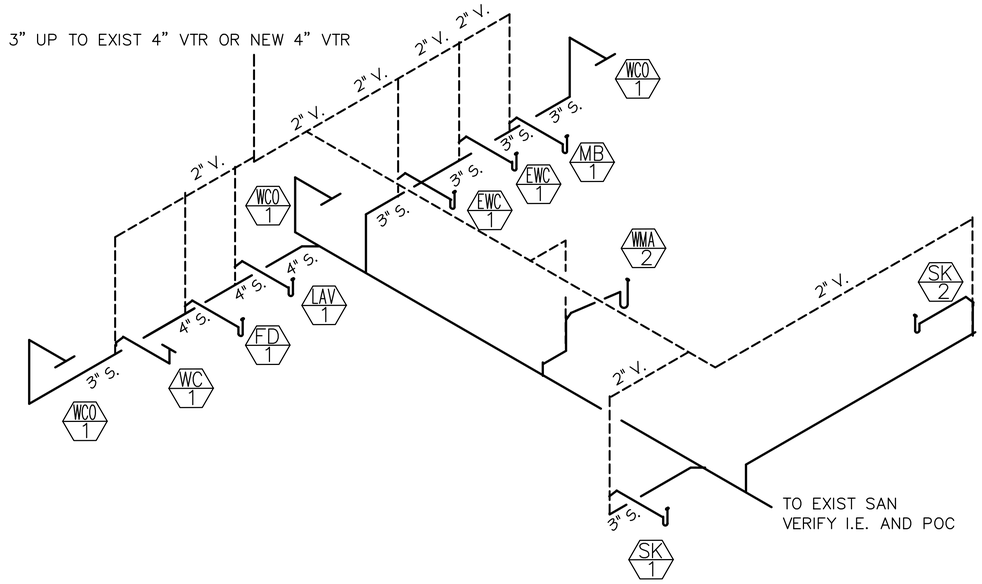
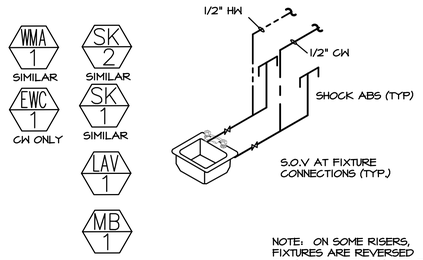


SANITARY ISOMETRIC #1

NOT TO SCALE

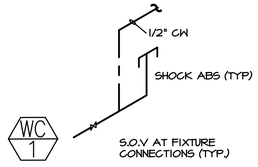
TYPICAL FOR ALL SINKS



NOTE: ON SOME RISERS, FIXTURES ARE REVERSED OR ARE MIRROR IMAGED TO THIS RISER.

VERIFY I.E. AND POC

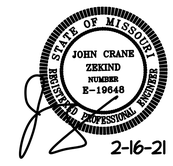
A / P1 WATER RISER NO. A



NOTE: ON SOME RISERS, FIXTURES ARE REVERSED OR ARE MIRROR IMAGED TO THIS RISER.

VERIFY I.E. AND POC

B / P1 WATER RISER NO. B



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PLUMBING SPECIFICATION

1. PART 1 - GENERAL

1.01 GENERAL

REFER TO "DIVISION NO. 1 GENERAL REQUIREMENTS", AS WELL AS GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND SPECIAL CONDITIONS OF THE CONSTRUCTION CONTRACT FOR PROVISIONS WHICH MAY APPLY TO THE WORK UNDER THIS SECTION.

1.02 PLANS AND SPECIFICATIONS

. PLANS AND SPECIFICATIONS ARE TO BE CONSIDERED AS MUTUALLY COMPLIMENTARY, AND REQUIREMENTS OF ONE SHALL BE CONSIDERED AS REQUIREMENTS OF BOTH. IF CONFLICTING REQUIREMENTS ARE SHOWN, THE MOST RESTRICTIVE REQUIREMENT SHALL APPLY AS ASCERTAINED BY THE ARCHITECT/ENGINEER. ENT INFORMATION GIVEN HEREIN AND ON PLANS IS AS COMPLETE AND AS ACCURATE AS COULD BE SECURED AT THE TIME OF PREPARATION OF THIS DESIGN, BUT COMPLETE AND TIMELY ACCURACY CANNOT BE GUARANTEED. ROUTING OF CONDUIT, CIRCUITS AND LOCATION OF EQUIPMENT, APPARATUS, FIXTURES AND OTHER DEVICES ARE SHOWN ON PLANS FOR GENERAL GUIDANCE. COORDINATE WORK WITH OTHER CONTRACTORS AND PROVIDE ANY NECESSARY DEVIATIONS IN ROUTING (AS FAR AS 10' FROM THOSE SHOWN) TO PROVIDE SYSTEMS AS SPECIFIED OR IMPLIED, WITHOUT INTERFERENCE, PURSUANT TO THESE REQUIREMENTS AND AT NO COST TO THE OWNER, ARCHITECT OR ENGINEER.

1.03 COORDINATION

CAREFULLY EXAMINE ALL CONTRACT DOCUMENTS AND INCLUDE IN THE COST OF THIS BID ALL WORK NORMALLY CLAIMED BY THE TRADES UNDER YOUR CONTRACT. COORDINATE WORK WITH THE WORK OF OTHER CONTRACTORS AND SHALL DETERMINE THAT THE WORK INSTALLED WILL NOT INTERFERE WITH THE WORK OF OTHER CONTRACTORS. IF WORK IS INSTALLED WHICH DOES INTERFERE, IT SHALL BE CORREC TED AT NO COST TO THE OWNER. OCCUPATION OF SPACE BY ANY CONTRACTOR DOES NOT GIVE HIM RIGHT OF PRIORITY TO THE SPACE. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH GOVERNING CODES, UTILITY STANDARDS, LOCAL PRACTICES AND MANUFACTURER'S PUBLISHED STANDARDS . IF ANY PORTION OF THE WORK SPECIFIED OR SHOWN ON THE DRAWINGS IS CONTRARY TO THE ABOVE, THE CONTRACTOR SHALL BE REQUIRED TO BRING THE MATTER TO THE ATTENTION OF THE ARCHITECT/ ENGINEER (OWNER'S REPRESENTATIVE) PRIOR TO ROUGH - IN FOR CLARIFICATION OR REVI SION. IT IS ASSUMED THAT THE CONTRACTOR HAS A SPECIAL KNOWLEDGE OF LOCAL CODES, PRACTICES AND STANDARDS. BECAUSE OF HIS SPECIAL KNOWLEDGE, HE SHALL BE HELD RESPONSIBLE FOR REPLACEMENT OF IMPROPER INSTALLATIONS WHICH HAVE NOT BEEN CALLED TO THE ATTENTION OF ARCHITECT/ENGINEER.

1.04 PERMITS, LICENSES, INSPECTIONS AND TAXES

PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS HE OBTAINS IN CONJUNCTION WITH HIS WORK AND SHALL COMPLY WITH ALL LAWS, ORDINANCES, ETC. IF THE PLANS AND/OR SPECIFICATIONS ARE AT A VARIANCE THEREWITH, NOTIFY THE ENGINEER IN WRITING BEFORE THE WORK IS PERFORMED. IF THE CONTRACTOR, WITHOUT NOTICE, SHALL DO ANY WORK CONTRARY TO ANY LAW, ORDINANCE, RULE OR REGULATION, HE SHALL BE HELD RESPONSIBLE FOR ANY SUCH VIOLATION AND ALL COSTS ARISIN G THEREFROM SHALL BE BORNE BY HIM. INCLUDE ANY LOCAL, FEDERAL AND STATE TAXES IN YOUR BID.

1.05 BID AND SUBSTITUTES

A. ALL BIDS SHALL BE BASED STRICTLY ON THE BASIS OF THE DRAWINGS AND SPECIFICATIONS. ANY REQUESTS FOR SUBSTITUTIONS SHALL BE INCLUDED AS A VOLUNTARY ALTERNATE. A COMPLETE DESCRIPTION OUTLINING THE VOLUNTARY ALTERNATE SHALL BE INCLUDED WITH A LISTING OF A COST ADD OR COST DEDUCT TO THE BASE BID. OWNER SHALL GIVE FINAL APPROVAL ON ALL VOLUNTARY ALTERNATES.

B. MEET THE RESPONSIBILITY OF COORDINATION WITH OTHER TRADES, ANY CHANGES INCURRED IN PLUMBING, HVAC, FIRE PROTECTION, GENERAL CONTRACTS, ETC., WHICH RESULT FROM EQUIPMENT SUBSTITUTION. ANY ADDITIONAL COSTS INVOLVED, DUE TO SUBSTITUTIONS, WILL BE THE RESPONSIBILITY OF THE CONTRACTOR PROPOSING THE SUBSTITUTION.

1.06 SHOP DRAWINGS

SUBMIT FOR REVIEW SIX (6) COPIES OF SHOP DRAWINGS AND DESCRIPTIVE LITERATURE OF EQUIPMENT TO BE FURNISHED UNDER THIS CONTRACT. DRAWINGS SHALL STATE CAPACITIES, SIZES AND ALL INFORMATION SHOWN IN SCHEDULES ON PLANS AS A MINIMUM OF ALL EQUIPMENT.

1.07 OPERATION AND MAINTENANCE MANUALS AND INSTRUCTIONS

PRIOR TO FINAL PAYMENT, THREE (3) SETS OF OPERATION AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE ARCHITECT/ENGINEER FOR SUBMITTAL TO THE OWNER.

1.07 RECORD DRAWINGS

AS BUILT REPRODUCIBLE DRAWINGS ARE TO BE SUBMITTED TO ARCHITECT/ ENGINEER FOR REVIEW, PRIOR TO THE TIME OF REQUEST FOR FINAL PAYMENT.

1.08 WORKMANSHIP AND MATERIALS

ALL WORK SHALL BE PERFORMED IN A MANNER ACCEPTABLE TO THE ENGINEER, ARCHITECT AND THE OWNER, BY PROPERLY TRAINED, SUPERVISED AND EXPERIENCED PERSONNEL USING NEW AND CLEAN MATERIALS, SUPPLIES EQUIPMENT, HARDWARE AND FIXTURES.

1.09 PROTECTION OF EQUIPMENT AND WORK

EQUIPMENT, FIXTURES AND TRIM SHALL BE PROTECTED AGAINST D AMAGE DUE TO BUILDING MATERIALS, ACID, TOOLS AND EQUIPMENT OR ANY CAUSES INCIDENTAL TO CONSTRUCTION. THE FINISHED SURFACE OF EACH PIECE OF EQUIPMENT AND FIXTURE SHALL BE COVERED WITH BUILDING PAPER OR SIMILAR PROTECTION. ALL EQUIPMENT DAMAGED BY ANY CAUS E AND ANY TRIM WITH MARRED OR SCRATCHED FINISH SHALL BE REPLACED AT NO COST TO THE OWNER. THE EQUIPMENT AND EQUIPMENT TRIM PROTECTION SHALL BE REMOVED AT THE COMPLETION OF CONSTRUCTION.

1.10 TEMPORARY FACILITIES

FURNISH, INSTALL AND KEEP IN PROPER REPAIR ALL TEMPORARY POWER, LIGHTING AND OTHER FACILITIES REQUIRED FOR HIS CONSTRUCTION PURPOSES. AFTER PERMANENT FACILITIES ARE INSTALLED, THIS CONTRACTOR SHALL REMOVE ALL TEMPORARY FACILITIES ASSOCIATED WITH HIS CONSTRUCTION WORK OR PURPOSE.

1.11 MATERIAL AND EQUIPMENT HANDLING AND STORAGE

IT IS RECOGNIZED THAT SPACE AT THE PROJECT FOR STORAGE OF MATERIALS AND PRODUCTS IS LIMITED. COORDINATE THE DELIVERIES OF THE MATERIALS AND PRODUCTS WITH THE SCHEDULING AND SEQUENCING OF THE WORK SO THAT STORAGE QUIREMENTS AT THE PROJECT ARE MINIMIZED. IN GENERAL, DO NOT DELIVER INDIVIDUAL ITEMS OF EQUIPMENT TO THE PROJECT SUBSTANTIALLY AHEAD OF THE TIME OF INSTALLATION.

1.12 MAINTENANCE OF WORK AREAS

DURING THE PROJECT, MAINTAIN WORK AREA IN AN ORGANIZED MNER, DO NOT ALLOW DEBRIS TO ACCUMULATE AND STORE EQUIPMENT, TOOLS AND SUPPLIES IN A MANNER WHICH SHALL NOT CAUSE INTERFERENCE WITH THE ACTIVITIES OF OTHERS ENGAGED ON THIS PROJECT.

1.13 GUARANTEE

THE CONTRACTOR SHALL, BY ACCEPTING THESE PLANS AND SPECIFICATIONS AND SIGNING THE CONTRACT, SHALL GUARANTEE THE FOLLOWING:

ALL EQUIPMENT, ACCESSORIES AND MATERIALS FURNISHED BY HIM FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP. IF ANY EQUIPMENT FAILS, DOES NOT OPERATE SATISFACTORILY OR SHOWS UNDUE WEAR, THE CONTRACTOR WILL BE NOTIFIED AND WILL BE REQUIRED TO REMEDY THE DEFECT IMMEDIATELY AT HIS OWN EXPENSE.

2. MATERIALS

2.01 DOMESTIC WATER PIPING SHALL BE TYPE "L" COPPER WITH WROUGHT FITTINGS AND LEAD FREE SOLDER. HANGERS FOR DOMESTIC WATER PIPING SHALL BE EQUAL TO FEE & MASON FIGURE 800 (FOR INSULATED PIPING) AND FIGURE 500 (FOR NON-INSULATED PIPING).

2.02 SOIL AND WASTE PIPING SHALL BE SERVICE WEIGHT CAST IRON WITH BELL AND SPIGOT JOINTS, EXCEPT USE DWV PVC WHERE CODE ALLOWS

2.03 VALVES

A. SHUTOFF VALVES SHALL BE EITHER GATE VALVES (150 LB.) (STOCKHAM B-105, CRANE 428VB, POWELL 2100) OR BALL VALVES (STOCKHAM S2TBRRT, CRANE 43OTRF, OR JAMESBURY A-11-TT/2111).

2.04 PLUMBING SPECIALITIES

A. AIR CHAMBERS TO BE CONSTRUCTED OF TYPE "L" COPPER. AIR CHAMBERS TO BE ONE SIZE LARGER THAN SUPPLY, 18" LONG, PROPERLY CAPPED, AND RIGIDLY SUPPORTED. AT CONTRACTOR'S OPTION, FACTORY FABRICATED CHAMBERS WITH EQUAL VOLUME, MAY BE USED IN PLACE OF PIPE CHAMBERS. APROVED MANUFACTURERS: NIBCO, WOLVERINE, WADE, AMTROL.

B. PLUMBING FIXTURES SHALL BE BY ELKAY OR EQUAL.

3. PART 3 - EXECUTION

3.01 GENERAL

A. ALL PLUMBING FIXTURES, EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN COMPLETE ACCORDANCE WITH LATEST APPLICABLE EDITION OF THE GOVERNING JURISDICTIONAL PLUMBING CODE.

3.02 INSTALLATION OF DOMESTIC WATER PIPING

A. RUN LEVEL AS HIGH AS POSSIBLE IN BUILDING STRUCTURE. INSTALL HANGERS FOR ALLOWING FOR EXPANSION AND CONTRACTION, AND ANCHOR WHERE REQUIRED. SEPARATE HOT AND COLD PIPES, 6" MINIMUM. INSTALL 3/4" HOSE END DRAIN VALVE AT LOW POINTS. INSTALL GATE VALVE AT EACH PLUMBING FIXTURE OR GROUP OF FIXTURES, AND AT EACH POINT OF CONNECTION TO EQUIPMENT. ALLOW ACCESS TO EQUIPMENT, FOR SERVICING OF PUMPS OR EQUIPMENT WITH DRAINING SYSTEM. INSTALL 1/2" ARMAFLEX OR RUBATEX (K=.28) ON ALL DOMESTIC WATER PIPING EXCEPT THAT WHICH IS ENCLOSED IN A CHASE.

3.03 INSTALLATION OF SOIL, WASTE AND VENT PIPING

A. PIPING SHALL BE INSTALLED WITH A SLOPE OF AT LEAST 1/4" PER FOOT IN THE DIRECTION OF THE FLOW FOR DRAINS, AND AGAINST GAS FLOW FOR VENTS.

B. EACH FIXTURE AND PIECE OF EQUIPMENT REQUIRING CONNECTION TO THE DRAINAGE SYSTEM, EXCEPT FIXTURES WITH CONTINUOUS WASTE, SHALL BE EQUIPPED WITH A TRAP. EACH TRAP SHALL BE PLACED AS NEAR TO THE FIXTURE AS POSSIBLE AND NO FIXTURE SHALL BE DOUBLE TRAPPED. TRAPS SHALL BE CAST IRON.

3.04 INSTALLATION OF VALVES

A. LOCATE VALVES SO AS TO BE ACCESSIBLE AND SO TAHT SEPARATE SUPPORT CAN BE PROVIDED WHEN NECESSARY. INSTALL VALVES WITH STEMS POINTED UP. DO NOT INSTALL BRONZE VALVES AND VALVE COMPONENTS IN DIRECT CONTACT WITH STEEL, UNLESS BRONZE AND STEEL ARE SEPARATED BY A DIELECTRIC INSULATOR.

3.05 INSTALLATION OF FIXTURES AND PLUMBING SPECIALITIES

A. INSTALL AIR CHAMBERS FULL TUBE SIZE AND A MINIMUM OF 18" LONG AT EACH FIXTURE.

B. IN ADDITION TO VALVE LOCATIONS SHOWN ON PLANS, VALVES SHALL BE INSTALLED ON EACH MAIN AND EACH BRANCH OF THE MAINS, EACH PIECE OF EQUIPMENT, FIXTURE OR FIXTURE GROUP. ALL ITEMS REQUIRING WATER SUPPLY SHALL BE SEPARATELY VALVED. ALL VALVES SHALL BE LOCATED AS TO BE EASILY ACCESSIBLE.

3.07 PLUMBING TESTING AND STERILIZATION

A. TEST DRAINAGE VENT INSIDE CONDUCTOR PIPING BEFORE FIXTURE OR DRAINS ARE INSTALLED, BY CAPPING OR PLUGGING THE OPENINGS AND FILLING THE ENTIRE SYSTEM WITH WATER AND ALLOWING IT TO STAND THUS FILLED FOR ONE HOUR. IF TESTED IN SECTIONS, THE SYSTEM SHALL BE SUBJECTED TO NOT LESS THAN 10 FOOT HEAD.

B. TEST DOMESTIC WATER SUPPLY PIPING, BEFORE FIXTURES OR FAUCETS ARE CONNECTED, BY CAPPING OR PLUGGING THE OPENINGS, CONNECTING A TESTING PUMP, FILLING THE SYSTEM WITH WATER AND APPLYING A HYDROSTATIC PRESSURE TEST.

C. TEST ALL WATER PIPING, UNDER A HYDROSTATIC PRESSURE OF 50 PERCENT IN EXCESS OF THE MAXIMUM WORKING PRESSURE THAT THE SECTION OF PIPING WILL REQUIRE TO CARRY, BUT NOT LESS THAN 100 PSI. TEST PRESSURE SHALL BE HELD FOR A MINIMUM OF 4 HOURS AND SHOWN TO BE TIGHT BEFORE THE COVERING IS APPLIED.

D. AFTER PRESSURE TESTS HAVE BEEN MADE, THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE THOROUGHLY FLUSHED WITH WATER UNTIL ALL ENTRAINED DIRT AND MUD HAVE BEEN REMOVED, AND SHALL BE STERILIZED BY CHLORINATING. THE CHLORINATE SHALL BE A DOSAGE OF NOT LESS THAN 50 PARTS PER MILLION AND SHALL BE INTRODUCED INTO THE SYSTEM IN AN APPROVED MANNER. THE TREATED WATER SHALL BE RETAINED IN THE PIPE LONG ENOUGH TO DESTROY ALL NON-SPORE FORMING BACTERIA. EXCEPT WHERE A SHORTER PERIOD IS APPROVED, THE RETENTION TIME SHALL BE AT LEAST 24 HOURS AND SHALL PRODUCE NOT LESS THAN 10 P.P.M. OF CHLORINE AT THE EXTREME END OF THE SYSTEM AT THE END OF THE RETENTION PERIOD.

END OF SECTION

PLUMBING FIXTURE SCHEDULE

DWH-1: DOMESTIC WATER HEATER 50 GALLON 12 KW LOW BOY DWH HAVE 150 PSI WORKING PRESSURE, AND BE EQUIPPED WITH A MAGNESIUM ANODE. CONTROLS SHALL INCLUDE A THERMOSTAT AND A HIGH TEMPERATURE CUTOFF. THE JACKET SHALL PROVIDE FULL SIZE CONTROL COMPARTMENTS FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH THE FRONT PANEL OPENINGS AND ENCLOSE THE TANK WITH POLYURETHANE FOAM INSULATION. INSTALL TEMPERATURE/PRESSURE RELIEF VALVE, PROVIDED WITH UNIT. THE DISCHARGE SHALL BE PIPED TO THE SAFE PAN WITH MIN. 2" AIR GAP. HEATER SHALL HAVE A THREE YEAR WARRANTY AS OUTLINED IN WRITTEN WARRANTY.	LAV-1: WALL HUNG LAVATORY - ADA TYPE COUNTERTOP ADA LAVATORY VITREOUS CHINA, SELF RIMMING WITH AM STD 7500.170 CENTERSET GOOSNECK FAUCET WITH WRIST BLADES, WITH MODURE #155 GRID DRAIN, BRASSCRAFT RH12A SUPPLIES WITH STOPS, DEARBORN CHROME PLATED P-TRAP # 100-1, TRUEBRO LAV-GUARD TRAP WRAP.
	MB-1 MOP BASIN FIAT MSB-24X24, 24X24" MOLDED STONME MOP BASIN FAUCET WITH VB AND MOP HOOK, 55 RIM GUARDS GRID DRAIN, BRASSCRAFT RH12A SUPPLIES WITH STOPS,
FD-2: FLOOR DRAIN WITH DOME STRAINER FOR WASH TROUGH	SK-1,2 SINKS PER ARCH PLANS, INSTALLED COMPLETELY BY PC
FD-1: FLOOR DRAIN. WATTS FD-100A, 3" WITH NICKEL BRONZE STRAINER.	
FS-1: FLOOR SINK FLOOR SINK - JOSAM MODEL 44312-3-31 - WITH HALF GRATE AND ALUMINUM SEDIMENT BUCKET. BODY SHALL BE CAST IRON WITH ACID RESISTANT INTERIOR AND NON-TRAFFIC TOP, 2" DISCHARGE.	
FCO: FLOOR CLEANOUT FLOOR CLEANOUT, WATTS CO-200-R FLOOR CLEANOUT WITH ROUND NICKEL BRASS TOP.	WMA-1 GUY GREY WASHING MACHINE ADAPTER
	WC-1: WATER CLOSET - ADA TYPE AMERICAN STANDARD CADET WITH VITREOUS CHINA ELONGATED BOWL BATHMASTER 875171 OPEN FRONT SEAT, BRASS CRAFT RH12A SUPPLY WITH STOP.

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JOHN CRANE ZEKIND
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REGISTERED PROFESSIONAL ENGINEER
2-16-21

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- ☐ Pricing
- ☐ Permit 2-16-21
- ☐ Bidding
- ☐ Construction

Sheet Number:

P-4

SEISMIC CODE BLOCK

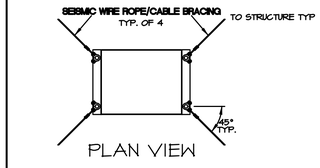
MECHANICAL & PLUMBING COMPONENTS
EARTHQUAKE LOAD RESISTANCE

SEISMIC USE GROUP (2) — SEISMIC DESIGN CATEGORY (D)

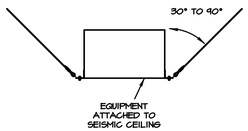
LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC		SWAY BRACING		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			COMMENTS
					ON CONST. DOCUMENTS	SUBSEQUENT SUBMITTAL		
	NOT PROVIDED	PROVIDED	NOT PROVIDED	PROVIDED	DRAWING NO. OR SPEC. SECTION	SHOP DRAWINGS	SEPERATE PERMIT/PLANS	
FIRE PROTECTION, DETECTION & ALARM EQUIPMENT & SYSTEM COMPONENTS SEE ATTACHMENT "C" TABLE 200								
HAZARDOUS EQUIP. AND SYSTEM COMPONENTS SEE ATTACHMENT "C" TABLE 200								
OTHER EQUIPMENT & SYSTEM COMPONENTS NEEDED FOR CONTINUED OPERATION OF SEISMIC USE GROUP III FACILITIES OR WHOSE FAILURE COULD IMPAIR THEIR CONTINUED OPERATION SEE ATTACHMENT "C" TABLE 200								
OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS								
DUCTWORK	X		X		NOTE 1			NOTE 1
AIR DEVICES: DIFFUSERS, REGISTERS, GRILLES	X		X		NOTE 2			NOTE 2
CEILING EF	X		X		NOTE 5			NOTE 5
ROOF EF		X		X	NOTE 3			NOTE 3
KITCHEN HOOD		X		X	NOTE 7			NOTE 7
AHU/CU		X		X	NOTE 8			NOTE 8

NOTE 1: DUCTWORK TO BE MOUNTED WITHIN 12" OF STRUCTURE, THUS EXEMPT,
NOTE 2: AIR DEVICES ARE EXCEPTED. BUT SHALL BE ATTACHED TO SEISMIC CEILING
NOTE 3: NOT USED
NOTE 4: NOT USED
NOTE 5: CEILING EFS EXEMPTED (LESS THAN 10 LBS) BUT OVER SHALL BE SUPPORTED FROM STRUCTURE AND SCREWED TO SEISMIC CEILING GRID/STRUCTURE..
NOTE 6: NOT USED
NOTE 7: SEE SCHEMATICS THIS SHEET AND ON M SHEETS.

ALL SEISMIC BRACING AND ATTACHMENTS SHALL BE BY LOOS OR APPROVED EQUAL
THREADED RODS SHALL BE 1/2" AND MAX 12" FROM BOTTOM OF JOISTS



PLAN VIEW



ELEVATION

SESIMIC FOR CEILING EXHAUST FANS OVER 10 LB
SESIMIC FOR ALL AHU - SEE ALSO MECH DWGS

SEISMIC CODE BLOCK

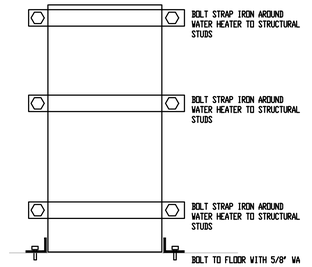
MECHANICAL & PLUMBING COMPONENTS
EARTHQUAKE LOAD RESISTANCE

SEISMIC USE GROUP ( ) 2 — SEISMIC DESIGN CATEGORY ( ) D

LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC		SWAY BRACING		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			COMMENTS
					ON CONST. DOCUMENTS	SUBSEQUENT SUBMITTAL		
	NOT PROVIDED	PROVIDED	NOT PROVIDED	PROVIDED	DRAWING NO. OR SPEC. SECTION	SHOP DRAWINGS	SEPERATE PERMIT/PLANS	
FIRE PROTECTION, DETECTION & ALARM EQUIPMENT & SYSTEM COMPONENTS SEE ATTACHMENT "C" TABLE 200								
HAZARDOUS EQUIP. AND SYSTEM COMPONENTS SEE ATTACHMENT "C" TABLE 200								
OTHER EQUIPMENT & SYSTEM COMPONENTS NEEDED FOR CONTINUED OPERATION OF SEISMIC USE GROUP III FACILITIES OR WHOSE FAILURE COULD IMPAIR THEIR CONTINUED OPERATION SEE ATTACHMENT "C" TABLE 200								
OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS								
PLUMBING PIPING	NOTE 1	NOTE 2	NOTE 1	NOTE 2	NOTE 1			
WATER HEATER								

NOTE 1
WATER PIPING IS 2" OR LESS OF COPPER, IT IS EXCEPTED FROM SEISMIC BRACING
VENT PIPING IS 4" OR LESS OF PVC, AND IT IS EXCEPTED FROM SEISMIC BRACING

NOTE 2
WATER HEATER IS BOLTED TO FLOOR AT CORNERS WITH 5/8" WA AND STRAPPED TO WALL



SESIMIC FOR WATER HEATER

SEISMIC CODE BLOCK

MECHANICAL COMPONENTS
EARTHQUAKE LOAD RESISTANCE

SEISMIC USE GROUP (2) — SEISMIC DESIGN CATEGORY (D)

LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC		SWAY BRACING		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS			COMMENTS
					ON CONST. DOCUMENTS	SUBSEQUENT SUBMITTAL		
	NOT PROVIDED	PROVIDED	NOT PROVIDED	PROVIDED	DRAWING NO. OR SPEC. SECTION	SHOP DRAWINGS	SEPERATE PERMIT/PLANS	
FIRE PROTECTION, DETECTION & ALARM EQUIPMENT & SYSTEM COMPONENTS								
HAZARDOUS EQUIP. AND SYSTEM COMPONENTS								
OTHER EQUIPMENT & SYSTEM COMPONENTS NEEDED FOR CONTINUED OPERATION OF SEISMIC USE GROUP III FACILITIES OR WHOSE FAILURE COULD IMPAIR THEIR CONTINUED OPERATION								
OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS								
LIGHTS		X		X	E-3			NOTE 1

NOTE 1: LIGHTS/TRACK BOLTED TO STRUCTURE OR LAY IN PER DETAIL

2-16-21

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MPE-1