ELECTRICAL LEGEND:

DESCRIPTION

20A, 125V, DUPLEX RECEPTACLE (NEMA 5-20R), WALL MTD

- 20A, 125V, DUPLEX RECEPTACLE (NEMA 5-20R), WALL MTD ISOLATED
- 20A, 125V, GFCI DUPLEX RECEPTACLE (NEMA 5-20R), WALL MTD
- 20A, 125V, SPLIT WIRED DUPLEX RECEPTACLE (NEMA 5-20R), WALL
- 20A, 125V, QUADRUPLEX RECEPTACLE (NEMA 5-20R), WALL MTD,
- ISOLATED GROUND
- 20A, 125V, GFCI QUADRUPLEX RECEPTACLE (NEMA 5-20R), WALL MTD

20A, 125V, QUADRUPLEX RECEPTACLE (NEMA 5-20R), WALL MTD

- 20A, 125V, SPLIT WIRED QUADRUPLEX RECEPTACLE (NEMA 5-20R),
- 20A, 125V, SIMPLEX RECEPTACLE (NEMA 5-20R), WALL MTD
- 20A, 125V, SIMPLEX RECEPTACLE (NEMA 5-20R), WALL MTD ISOLATED
- POWER RECEPTACLE, FLOOR MTD (SEE SPECS OR NOTES)
- 20A, 125V, DUPLEX RECEPTACLE (NEMA 5-20R), FLOOR MTD
- 20A, 125V, QUADRUPLEX RECEPTACLE (NEMA 5-20R), FLOOR MTD
- SPECIAL PURPOSE RECEPTACLE, FLOOR MTD (SEE EQUIPMENT
- 20A, 125V, DUPLEX RECEPTACLE (NEMA 5-20R), CEILING MTD
- 20A, 125V, QUADRUPLEX RECEPTACLE (NEMA 5-20R), CEILING MTD
- SPECIAL PURPOSE RECEPTACLE, WALL MTD (SEE EQUIPMENT SCHEDULE OR NOTES)
- 125 / 250V, RECEPTACLE (NEMA 14-30R / NEMA 14-50R), WALL MTD SEE EQUIPMENT SCHEDULE OR NOTES)
- DROP CORD (SEE SPECS OR NOTES)
- POWER POLE (SEE SPECS OR NOTES)
- JUNCTION BOX, WALL MTD
- JUNCTION BOX
- DISCONNECT SWITCH NON-FUSED
- DISCONNECT SWITCH FUSED
- ELECTRICAL PANEL / ENCLOSURE AS NOTED ON PLAN DRAWINGS, SURFACE/RECESSED
- ELECTRIC UTILITY METER
- TELEPHONE OUTLET, WALL MTD
- 1 TELE OUTLET, U.N.O. X = NUMBER OF TELEPHONE PORTS
- DATA OUTLET, WALL MTD
- 1 DATA OUTLET, U.N.O. Y = NUMBER OF DATA PORTS
- COMBINATION TELE/DATA OUTLET, WALL MTD
- 1 TELE / 2 DATA OUTLETS, U.N.O. X = NUMBER OF TELEPHONE PORTS
- Y = NUMBER OF DATA PORTS

ELECTRICAL DRAWING LIST:										
SR. NO.	DWG. NO.	DRAWING NAME								
01	E0.0	ELECTRICAL GENERAL NOTES AND LEGEND								
02	E1.0	ELECTRICAL FLOOR PLAN								
03	E2.0	ELECTRICAL RISER & PANEL SCHEDULE								
04	E3.0	ELECTRICAL DETAILS								
05	E4.0	ELECTRICAL SPECIFICATIONS								

STOP AND READ:

THE CONTRACTOR AND SUB-CONTRACTORS $\underline{\textbf{SHALL NOT INITIATE ANY WORK UNTIL}}$ EXISTING FIELD CONDITIONS ARE PROPERLY VERIFIED.

GENERAL NOTES:

LISTED, LABELED, OR APPROVED.

- COMPLETE SYSTEM: FURNISH ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, SUPERINTENDENTS AND SERVICES REQUIRED TO CONSTRUCT, INSTALL, AND MODIFY THE ELECTRICAL SYSTEMS AS HEREIN SPECIFIED AND SHOWN ON THESE DRAWINGS FOR A COMPLETE OPERATIONAL SYSTEM. COORDINATE WORK TO BE PERFORMED OR INSTALLED BY OTHERS AFFECTING THE ELECTRICAL WORK AND FURNISH AND INSTALL ALL NECESSARY STEEL SHAPES, BLOCKING, ANCHORS, SLEEVES, HANGERS, ETC. FOR ATTACHING OR CONNECTING ELECTRICAL WORK TO RELATED WORK OF OTHER TRADES. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN, WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE PROVIDED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
- 2. REGULATIONS: ALL ELECTRICAL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE LATEST ADOPTED NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE LOCAL BUILDING CODES, RULES, REGULATIONS AND AUTHORITIES HAVING JURISDICTION.
- 3. WORKMANSHIP: ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER SUBJECT TO THE APPROVAL OF THE OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE. RACEWAY, FIXTURES, AND WIRING DEVICES SHALL BE PROPERLY ALIGNED AND SUPPORTED.RACEWAY SHALL BE GROUPED AND INSTALL IN RUNS WHICH ARE PARALLEL AND PERPENDICULAR WITH
- 4. COORDINATION: PRIOR TO COMMENCEMENT OF WORK, EXAMINE ALL CONSTRUCTION DRAWINGS AND SPECIFICATIONS AND COORDINATE WITH ALL OTHER TRADES IN ORDER TO BECOME FAMILIAR WITH ALL ASPECTS OF THE DESIGN AFFECTING THE ELECTRICAL WORK. REFER TO ARCHITECTURAL DRAWINGS AND EQUIPMENT VENDOR CUT SHEETS FOR EQUIPMENT POWER/CONTROL REQUIREMENTS, CONNECTIONS, MOUNTING HEIGHTS, AND LOCATIONS OF ALL NEW ELECTRICAL DEVICES. FIELD VERIFY EXACT NAMEPLATE DATA ON ALL EQUIPMENT FURNISHED UNDER OTHER DIVISIONS AND/OR BY THE OWNER PRIOR TO THE INSTALLATION OF ELECTRICAL WORK AND MAKE ANY ADJUSTMENTS TO OUTLETS, CONDUITS, WIRE, AND/OR CIRCUIT BREAKER RATINGS AS REQUIRED TO MATCH EQUIPMENT ACTUALLY FURNISHED. FINAL LOCATION OF EQUIPMENT AND DEVICES TO BE COORDINATED WITH OWNER.
- EXISTING CONDITIONS: SURVEY SITE OF WORK PRIOR TO SUBMITTING BID TO BECOME FULLY INFORMED OF ALL CONDITIONS THAT EFFECT THE WORK AND COST THEREOF. CONSIDERATIONS WILL NOT BE GRANTED FOR ANY ALLEGED MISUNDERSTANDING OF THE AMOUNT OF WORK TO BE PERFORMED. NOTIFY THE ARCHITECT AND/OR ENGINEER IN ADVANCE OF ANY DISCREPANCIES OR OMISSIONS.
- 6. PERMITS: OBTAIN ALL NECESSARY PERMITS, LICENSES, AND INSPECTIONS AS REQUIRED BY THE MUNICIPALITY AND UTILITY COMPANY. PAY ALL ASSOCIATED FEES FOR PERMITS AND OTHER MUNICIPAL AND GOVERNING REQUIREMENTS.
- 7. UTILITIES: COORDINATE WITH POWER AND TELEPHONE COMPANIES FOR SERVICE REQUIREMENTS. NOTIFY UTILITIES OF COMMENCEMENT OF WORK AND MAKE ALL ARRANGEMENTS FOR TEMPORARY SERVICES. THE COST FOR ALL WORK AND MATERIALS REQUIRED BY UTILITY COMPANIES AND SET-UP OF SERVICE SHALL BE INCLUDED IN BID.
- 8. INTERRUPTION OF ELECTRICAL POWER: COORDINATE ALL WORK REQUIRING INTERRUPTION OF ELECTRICAL POWER WITH THE BUILDING OWNER AND OBTAIN WRITTEN PERMISSION FROM THE BUILDING OWNER PRIOR TO SHUTTING DOWN POWER TO ANY SWITCHBOARD. PROVIDE NOTICE TO ALL OTHER TRADES OF ALL SCHEDULED INTERRUPTIONS OF POWER.
- 9. PRODUCTS: ALL ELECTRICAL MATERIALS SHALL BE NEW EXCEPT WHERE SPECIFICALLY NOTED AS EXISTING TO BE REUSED. MATERIAL AND METHODS OF INSTALLATION SHALL CONFORM TO THE STANDARDS OF UNDERWRITERS LABORATORIES, INC. (UL), ANSI, NFPA, ADA, AND ALL APPLICABLE LOCAL ORDINANCES. DEFECTIVE EQUIPMENT AND/OR EQUIPMENT DAMAGED DURING INSTALLATION AND/OR TESTING SHALL BE REPLACED OR REPAIRED IN A MANNER MEETING THE APPROVAL OF THE ARCHITECT AND THE ENGINEER. PROPOSED EQUIPMENT SHALL BE NRTL
- 10. PENETRATIONS: COORDINATE FLOOR AND WALL PENETRATIONS WITH STRUCTURAL ENGINEER. ALL PENETRATIONS THROUGH FIRE-RATED SLABS AND/OR PARTITIONS SHALL BE FIRE-PROOFED BY AN APPROVED METHOD TO THE SAME OR GREATER RATING THAN THAT OF THE SLAB OR PARTITION. ALL PENETRATION SHALL RECEIVE CAULKING TO SEAL ANY TYPE OF
- 11. AVAILABLE FAULT CURRENT: VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND MAKE EQUIPMENT PROVISIONS AS NECESSARY
- 12. VOLTAGE DROP: INCREASE WIRE SIZES AS REQUIRED TO MAINTAIN VOLTAGE DROPS @ A MAXIMUM OF 3% FOR BRANCH CIRCUITS AND 2% FOR FEEDERS.
- 13. WIRING: ALL CONDUCTORS CARRYING 50 VOLTS OR MORE SHALL BE MINIMUM #12 AWG, CU, UNLESS NOTED OTHERWISE. ALL CONDUCTOR SIZES ARE BASED ON COPPER, UNLESS NOTED OTHERWISE. PROVIDE TYPE THEN OR XHHW TYPE INSULATIONS, COORDINATE INSULATION TYPES WITH ENVIRONMENTAL CONDITIONS, NEC REQUIREMENTS, AND CONDUIT FILL REQUIREMENTS. ALL CONDUCTOR SIZES ARE BASED ON 60 C INSULATION FOR CIRCUITS RATED 100 A OR LESS AND 75 C FOR CIRCUITS RATED MORE THAN 100 A.
- 14. COLOR CODING: FOR EXISTING WIRING SYSTEMS, COLOR CODING SHALL FOLLOW EXISTING SITE REQUIREMENTS. FOR NEW INSTALLATIONS OR WHERE EXISTING INSTALLATIONS DO NOT HAVE A COLOR CODING CONVENTION, THE FOLLOWING SYSTEMS OF COLOR CODING SHALL BE STRICTLY ADHERED TO AND FOLLOWED THROUGHOUT:

CONDUCTOR	480Y/277V	240V OR LESS
PHASE A:	BROWN	BLACK
PHASE B:	ORANGE	RED
PHASE C:	YELLOW	BLUE
NEUTRAL:	GRAY	WHITE
EQUIPMENT GROUND:	GREEN	GREEN
ISOLATED GROUND:		GREEN W/ YELLOW STRIPE

- GROUNDING: ALL CIRCUITS SHALL BE RUN WITH AN INSULATED GREEN COPPER GROUND WIRE SIZED PER NEC. USE OF CONDUIT AS A GROUND IS UNACCEPTABLE
- 16. CONDUIT: ALL WIRING SHALL BE INSTALLED IN CONDUIT, MINIMUM 1/2" FOR INDOOR AND 3/4" FOR OUTDOOR. EMT IS ACCEPTABLE WITH COMPRESSION FITTINGS ONLY. MC IS ACCEPTABLE FOR FIXTURE WHIPS ONLY. ALL CONDUIT AND WIRING SHALL BE CONCEALED IN CEILINGS AND/OR WALLS UNLESS SPECIFICALLY NOTED OTHERWISE. CHANNEL EXISTING WALLS WHERE REQUIRED. WHERE CONDUITS ARE UNABLE TO BE CONCEALED, HARD PIPED CONDUIT SHALL BE USED AND PAINTED TO MATCH ADJOINING SURFACE.
- 7. ROUTING: CONDUIT ROUTING SHOWN IS SYMBOLIC AND DIAGRAMMATIC. INSTALL CONDUIT TO FIT ACTUAL FIELD CONDITIONS.
- 18. MODIFICATIONS TO EXISTING PANELBOARDS: PROVIDE NEW CIRCUIT BREAKERS AND/OR FUSED SWITCHES AS REQUIRED. NEW EQUIPMENT SHALL MATCH EXISTING INSTALLED EQUIPMENT AND SHALL BE OF THE SAME MANUFACTURER AND TYPE AS SIMILAR EXISTING EQUIPMENT. INTERRUPTING RATING OF EQUIPMENT SHALL BE THE SAME AS OF THE EXISTING EQUIPMENT.
- 19. IDENTIFICATION: ALL ELECTRICAL DISTRIBUTION EQUIPMENT, TRANSFORMERS, PANELBOARDS, AND OTHER ENCLOSED EQUIPMENT SHALL BE IDENTIFIED AS INDICATED IN THE CONTRACT DOCUMENTS. SAID IDENTIFICATION SHALL CONSIST OF PERMANENTLY ATTACHED ENGRAVED LAMINATED PLASTIC NAMEPLATES. EACH BRANCH CIRCUIT OVER-CURRENT PROTECTION DEVICE SHALL BE IDENTIFIED BY CIRCUIT NUMBER AND SCHEDULED INSIDE PANEL DOOR. EACH BRANCH CIRCUIT SPLICE OR TERMINATION SHALL BE IDENTIFIED BY PANEL AND CIRCUIT DESIGNATION SHOWN ON THE JUNCTION OR OUTLET BOX, OR UPON INDIVIDUAL WIRES IN CASES WHERE MORE THAN ONE OF EACH PHASE CONDUCTOR OCCUR.
- 20. SHOP DRAWINGS AND SUBMITTALS: SUBMIT MANUFACTURERS' STANDARD PRODUCT INFORMATION, PERFORMANCE SPECIFICATIONS, PHYSICAL DIMENSIONS, AND OTHER INFORMATION NECESSARY FOR ENGINEER TO ENSURE COMPLIANCE WITH SPECIFICATIONS. SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING AND INSTALLING ANY EQUIPMENT.
- 21. SUBSTITUTION AND ALTERATIONS: THERE SHALL BE NO DEVIATION FROM THE REQUIREMENTS HEREIN WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL COSTS INCURRED RESULTING FROM SUBSTITUTION OF EQUIPMENT AS WELL AS THE PERFORMANCE AND SPACE REQUIREMENTS OF SUCH EQUIPMENT.
- 22. PROJECT RECORD DOCUMENTS: THE ELECTRICAL CONTRACTOR SHALL MAINTAIN AT THE SITE, FOR THE OWNER, ONE COPY OF ALL DRAWINGS, ADDENDA, APPROVED SHOP DRAWINGS, REVISIONS AND OTHER MODIFICATIONS IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION. THE SET OF DRAWINGS AND OTHER INFORMATION SHALL BE DELIVERED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE AND ONE COPY GIVEN TO THE ENGINEER UPON COMPLETION OF WORK. DRAWINGS SHALL INCLUDE
- A. SINGLE-LINE DIAGRAM OF THE BUILDING ELECTRICAL DISTRIBUTION SYSTEM AND. B. FLOOR PLANS INDICATING LOCATION AND AREA SERVED FOR ALL DISTRIBUTION.
- 23. CERTIFICATES OF APPROVAL: ALL CERTIFICATES OF APPROVAL SHALL BE IN TRIPLICATE, DELIVERED TO THE ENGINEER AND BECOME THE PROPERTY OF THE OWNER.
- 24. OPERATIONS AND MAINTENANCE MANUALS: PROVIDE OPERATING AND MAINTENANCE MANUALS TO THE BUILDING OWNER. THE MANUALS SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING:
- A. SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, B. OPERATING MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY
- C. NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE AGENCY.
- 25. WARRANTY: THE ENTIRE ELECTRICAL SYSTEM INSTALLED UNDER THIS CONTRACT SHALL BE HANDED OVER IN PROPER WORKING ORDER. ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE SHALL BE REPLACED WITHOUT CHARGE. BENEFICIAL USE SHALL NOT BE CONSTRUED AS FINAL ACCEPTANCE. THE ELECTRICAL CONTRACTOR SHALL, DURING THE ONE YEAR GUARANTEE PERIOD, BE RESPONSIBLE FOR THE PROPER REPAIR AND ADJUSTMENTS OF ALL ELECTRICAL SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES, ETC. INSTALLED BY HIM, AND DO ALL WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.

ABBREVIATIONS:

Α	AMPERE	GRS	GALVANIZED RIGID STEEL	OCPD	OVERCURRENT PROTECTION DEVICE
AFF	ABOVE FINISHED FLOOR	HOA	HAND-OFF-AUTO	OH	OVERHEAD
AFG	ABOVE FINISHED GRADE	IG	ISOLATED GROUND	Р	POLE
AHJ	AUTHORITY HAVING JURISDICTION	JB	JUNCTION BOX	PH	PHASE
AFC	AVAILABLE FAULT CURRENT	KVA	KILOVOLT-AMPERE	PNL	PANEL
AIC	AMPERE INTERRUPTING CAPACITY	KW	KILOWATT	PWR	POWER
ATS	AUTOMATIC TRANSFER SWITCH	L.S.I.G.	LONG, SHORT, INSTANTANEOUS, GROUND FAULT	RECEP	RECEPTACLE
BLDG	BUILDING		TRIP	RM	ROOM
BRKR	BREAKER	LTG	LIGHTING	SW	SWITCH
С	CONDUIT	MCA	MINIMUM CIRCUIT AMPS	SWBR	SWITCHBOARD
CKT	CIRCUIT	MCB	MAIN CIRCUIT BREAKER	SWGR	SWITCHGEAR
CLG	CEILING.	MCC	MOTOR CONTROL CENTER	TBB	TELECOM BACKBOARD
CT	CURRENT TRANSFORMER	MCCB	MOLDED CASE CIRCUIT BREAKER	TELE	TELEPHONE
CU	COPPER	MCP	MOTOR CIRCUIT PROTECTOR	TYP	TYPICAL
CTR	CENTER	MDP	MAIN DISTRIBUTION PANEL	UG	UNDERGROUND
EA	EACH	MFS	MAXIMUM FUSE SIZE	UNO	UNLESS NOTED OTHERWISE
EGC	EQUIPMENT GROUNDING CONDUCTOR	MLO	MAIN LUG ONLY	UPS	UNINTERRUPTIBLE POWER SUPPLY
EOL	ELECTRONIC OVERLOAD	MOCP	MAXIMUM OVERCURRENT PROTECTION	V	VOLT
FDR	FEEDER	MTD	MOUNTED	VIF	VERIFY IN FIELD
FLA	FULL LOAD AMPS	MTS	MANUAL TRANSFER SWITCH	W/	WITH
GEC	GROUNDING ELECTRODE CONDUCTOR	N.C.	NORMALLY CLOSED	W	WIRE
GFI	GROUND FAULT INTERRUPTER	N.O.	NORMALLY OPEN	WP	WEATHER PROOF
GND	GROUND	NTS	NOT TO SCALE	XFMR	TRANSFORMER

ELECTRICAL GENERAL NOTES AND LEGEND

ELECTRICAL CONTRACTOR SHALL VERIFY IN FILED IF THE EXISTING ELECTRICAL SERVICE HAS ADEQUATE LOAD CAPACITY TO ACCOMMODATE THE NEW LOADS, AND ONLY UPGRADE THE ELECTRICAL SERVICE TO A HIGHER AMP SERVICE IF IT IS NECESSARY.

NOTE:

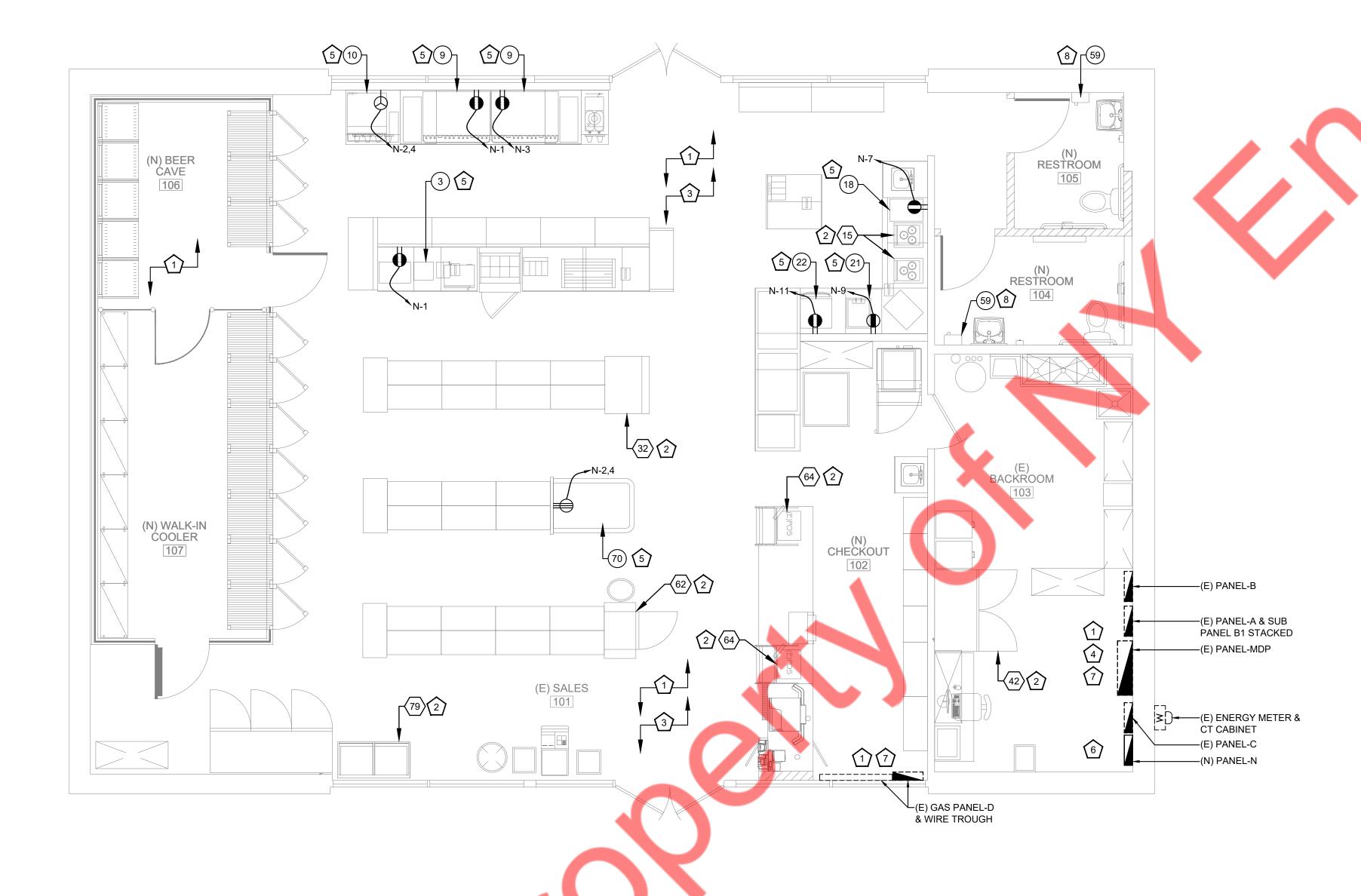
EXISTING LIGHT FIXTURES AND THEIR CONTROLS TO REMAIN U.N.O. E.C. TO FIELD VERIFY THE OPERABLE CONDITION OF EXISTING CONTROLS, BRANCH CIRCUITS, PROVIDE NEW IF FOUND INOPERABLE. E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR EXACT SCOPE. BASE BID ACCORDINGLY.

ALL RECEPTACLES USED FOR DISPENSING AND FOOD PREP SHALL BE GFCI PROTECTED PER NEC.

ELECTRICAL FLOOR PLAN



X RELOCATED EQUIPMENT



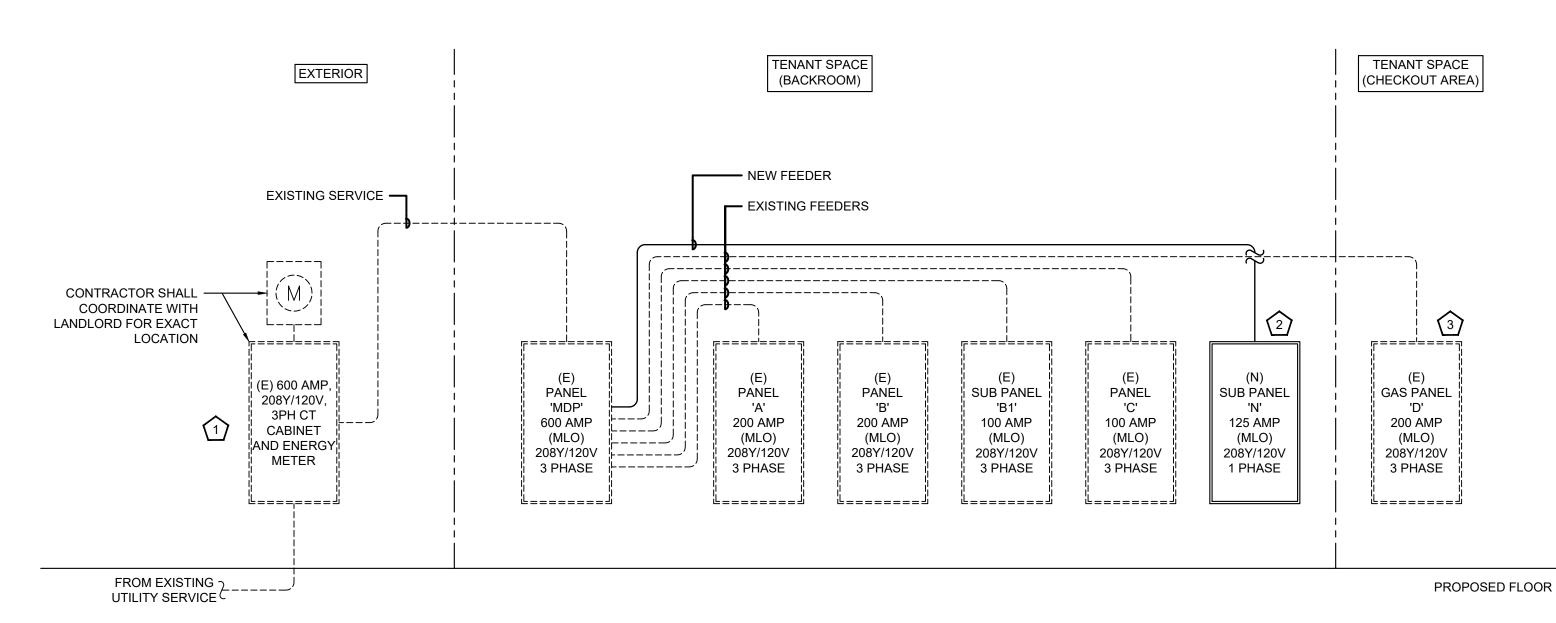
ELECTRICAL FLOOR PLAN GENERAL NOTES:

- 1. REFER TO EQUIPMENT SCHEDULE FOR EQUIPMENT ELECTRICAL AND OTHER REQUIREMENTS.
- 2. REFER TO ARCHITECTURAL DRAWINGS FOR ALL WIRING DEVICE LOCATIONS AND MOUNTING HEIGHTS.
- 3. BRANCH CIRCUITS RUN ABOVE ACCESSIBLE CEILINGS MAY USE MC CABLE.
- 4. COORDINATE ELECTRICAL REQUIREMENTS, WIRING DEVICE TYPE, MOUNTING HEIGHT, MEANS OF ATTACHMENT, AND CONNECTIONS WITH EQUIPMENT SUPPLIERS.
- 5. FINAL LOCATION OF ALL EQUIPMENT TO BE COORDINATED WITH OWNER.
- 6. VERIFY STUB-UP LOCATIONS FOR ALL UNDER SLAB CONDUITS PRIOR TO ROUGH-IN.
- 7. FOR CLARITY, CONDUIT ROUTING IS DIAGRAMMATIC. COORDINATE CONDUIT ROUTING WITH OTHER TRADES AND MAKE FIELD CHANGES AS REQUIRED.
- 8. INSTALL OUTLETS ON OPPOSITE SIDES OR PARTITIONS IN SEPARATE STUD CAVITIES. DO NOT INSTALL BACK-TO-BACK.
- 9. PROVIDE MATCHING COVER PLATES, RECEPTACLES AND RELATED ITEMS. PROVIDE ONE-PIECE TYPE GANG COVER PLATES, UNLESS NOTED OTHERWISE
- 10. CONNECT TO EXISTING BRANCH CIRCUITS WHERE POSSIBLE TO ACHIEVE ELECTRICAL DESIGN AS SHOWN. VERIFY EXISTING WIRE SIZE, BREAKER RATING, AND PANEL LOAD CAPACITY IS SUFFICIENT FOR INCREASED LOADING. PROVIDE NEW BRANCH CIRCUITS AS REQUIRED.
- 11. INTERCONNECT LOADS SUCH THAT THE CURRENT DOES NOT EXCEED 16 AMPS ON EACH 20 AMP CIRCUIT BREAKER AND/OR 12 AMPS ON EACH 15 AMP CIRCUIT BREAKER. VERIFY EXISTING WIRING IS MINIMUM #12 ANG, CU FOR A 20 AMP BREAKER AND #14 AWG, CU FOR A 15 AMP BREAKER. ALL NEW WIRING SHALL BE MINIMUM #12 AWG, CU. ALL NEW WIRING DEVICES SHALL BE RATED MINIMUM 20 AMP.
- 12. VERIFY EXISTING PANEL(S) AND UPSTREAM ELECTRICAL DISTRIBUTION SYSTEM HAVE ADEQUATE SPARE LOAD CAPACITY AND EXISTING FEEDER(S) AND CIRCUIT BREAKER(S) ARE OF SUFFICIENT SIZE TO ACCOMMODATE THE ADDITION OF NEW LOADS. NOTIFY ENGINEER IF ANY DISCREPANCIES ARISE.
- 13. VERIFY THE AVAILABLE FAULT CURRENT AND SYSTEM CAPACITY W/ THE UTILITY COMPANY AND MAKE EQUIPMENT PROVISIONS AS REQUIRED NEW CIRCUIT BREAKER INTERRUPTING RATINGS SHALL AT A MINIMUM MATCH EXISTING.
- 14. UPDATE ALL PANEL SCHEDULES W/ NEW TYPEWRITTEN DIRECTORY CARD.
- 15. CONCEAL ALL CONDUITS IN FLOORS, WALLS, OR CEILING UNLESS NOTED OTHERWISE. WHERE CONDUITS ARE UNABLE TO BE CONCEALED, PAINT TO MATCH ADJOINING SURFACE.
- 16. BRANCH CIRCUIT NUMBERS AND ELECTRICAL DEVICE LOCATIONS SHOWN ON THIS DRAWING HAVE BEEN COLLECTED FROM FIELD NOTES, WALK-THRU, SURVEY PHOTOS, EXISTING PANELBOARD DIRECTORY, AS-BUILT DRAWINGS AND/OR RECORD DRAWINGS AT THE TIME OF THE
- 17. SOME EXISTING CIRCUITS ARE UNABLE TO BE IDENTIFIED WITHOUT FURTHER INVESTIGATION, THEREFORE, ELECTRICAL CONTRACTOR SHALL FIELD VERIFY AND TRACE ALL BRANCH CIRCUITS PRIOR TO START OF WORK AND NOTIFY ENGINEER OF RECORD IN CASE OF ANY DISCREPANCIES
- 18. TO THE GREATEST EXTENT POSSIBLE, EC SHALL REUSE EXISTING BRANCH CIRCUITS SERVING AREA OF WORK AND/OR MODIFY CIRCUIT NUMBERS TO ACCOMMODATE NEW LOAD INTO EXISTING PANEL. MAINTAIN DESIGN INTENT OF PROPOSED BRANCH CIRCUITS FOR NEW ELECTRICAL DEVICES. MAXIMUM LOAD PER BRANCH CIRCUIT TO BE CONNECTED SHALL NOT EXCEED 80% OF THE CIRCUIT BREAKER CAPACITY.
- 19. NOT ALL ELECTRICAL DEVICES, RECEPTACLES, JUNCTION BOXES, DATA OUTLETS, SWITCHES, ETC. ARE SHOWN ON THIS DRAWING. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY EXISTING DEVICES AND RELOCATE, REUSE, REMOVE, ETC. AS REQUIRED BY THE NEW SCOPE OF WORK.
- 20. CONTACT ENGINEER OF RECORD IN CASE OF ANY DISCREPANCIES WHICH MAY AFFECT THE DESIGN INTENT AND/OR AFFECT LOAD SUBSTANTIALLY.

ELECTRICAL FLOOR PLAN KEYED NOTES: (#)

- 1. EXISTING KITCHEN, HVAC EQUIPMENT AND ASSOCIATED BRANCH CIRCUITS TO REMAIN U.N.O.
- EXTEND EXISTING BRANCH CIRCUIT WIRING FROM EXISTING LOCATION AS REQUIRED AND PROVIDE NEW WIRING DEVICE. NEW WIRING SHALL MATCH EXISTING. UPSIZE WIRING AS REQUIRED FOR VOLTAGE DROP.
- 3. VERIFY PLACEMENT AND THE LOAD OF EXISTING RECEPTACLES (PROVIDE NEW AS REQUIRED ONLY).
- 4. ELECTRICAL CONTRACTOR SHALL VERIFY CAPACITY OF EXISTING PANELS AND UTILIZE EXISTING SPARE/SPACE FOR CONNECTION. IF SPARE IS NOT AVAILABLE E.C. SHALL PROVIDE BREAKER SUFFICIENT TO HANDLE NEW EQUIPMENT AS DEFINED ON SHEET E2.0.
- 5. E.C. TO PROVIDE REQUIRED CIRCUITING AND CONNECTIONS. FIELD COORDINATE.
- 6. ELECTRICAL CONTRACTOR TO VERIFY ACTUAL SERVICE CONFIGURATION IN THE FIELD, AND ROUTE THE NEW PANEL (120/208V, 1PHASE, 3WIRE, 125AMP (MLO) TO THE EXISTING PANEL 'MDP' AS REQUIRED. SEE SHEET E2.0.
- 7. ELECTRICAL CONTRACTOR SHALL TEST PANELS TO ENSURE MAXIMUM LOADING DOES NOT EXCEED 80% OF CAPACITY, AND AND BALANCE THE PANELS AS REQUIRED.
- 8. REUSE EXISTING BRANCH CIRCUIT FOR RESTROOM'S LIGHTING & HAND DRYER, PROVIDE NEW WIRING AS REQUIRED.

Sheet
ELECTRICAL FLOOR PLAN



ELECTRICAL RISER GENERAL NOTES:

- PROPER CLEARANCE MUST BE MAINTAINED ABOUT ELECTRICAL EQUIPMENT PER N.E.C. FIELD VERIFY EXACT MOUNTING SPACE AVAILABLE IN ELECTRICAL ROOM/AREA PRIOR TO INSTALLATION OF ELECTRICAL EQUIPMENT.
- MAKE ALL FINAL ELECTRICAL CONNECTIONS FOR A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM. ALL CONNECTIONS/DISCONNECTIONS TO LANDLORDS/UTILITIES SERVICE EQUIPMENT SHALL BE AS DIRECTED BY LANDLORDS/UTILITIES SITE REPRESENTATIVE. TENANT GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TERMINATION/DETERMINATION EXPENSES.
- 3. SYSTEM SHALL BE GROUNDED TO THE MAIN BUILDING'S GROUNDING SYSTEM.
- 4. DISCONNECT SWITCHES AND PANELS SHALL BE INSTALLED ON PLYWOOD BACKBOARDS.
- TENANT CONTRACTOR MUST VERIFY ELECTRICAL SERVICE, SUB-FEED WIRING AND PANELS PRIOR TO START OF TENANT'S ELECTRICAL WORK. TENANT GENERAL CONTRACTOR SHALL MAKE APPLICATION TO THE LOCAL UTILITY FOR CONTINUED METERED ELECTRIC SERVICE IN THE TENANT'S NAME. TENANT GENERAL CONTRACTOR SHALL CONFIRM ALL LOCAL UTILITY GUIDELINES AND REQUIREMENTS PRIOR TO BID, SHALL INCLUDE THE COSTS OF THESE REQUIREMENTS IN THE BID, AND SHALL COMPLY WITH THEM DURING CONSTRUCTION. AVAILABLE FAULT CURRENT AT SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT PER NATIONAL ELECTRICAL CODE (NEC) OF ARTICLE 110.24.
- 6. CONTRACTOR SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
- 7. CONTRACTOR SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT LOCATION OF THE EXISTING SWITCH GEAR AND EXACT POWER DISTRIBUTION .

ELECTRICAL RISER KEYED WORK NOTES:

- E.C. SHALL COORDINATE WITH BASE BUILDING/LANDLORD/OWNER FOR LOCATION OF ELECTRICAL METER & DISCONNECT SWITCH OF THIS SPACE. PRIOR TO COMMENCING ANY WORK. BASE BID ACCORDINGLY.
- 2. NEW 125AMP (MLO), 120/208V, 1-PHASE, 3-WIRE ELECTRICAL PANEL "N". E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- E.C. SHALL FIELD VERIFY EXACT ELECTRICAL RATING, SIZE OF EXISTING BRANCH BREAKERS IN FIELD AND DETAILS OF EXISTING LOADS CONNECTED TO THIS PANEL. PRIOR TO COMMENCING ANY WORK. BASE BID ACCORDINGLY.

PANEL SCHEDULE:

PANEL:	Α	A (EXISTING) Sections: 1									MOUNTING:	SURFAC	E
208Y/120	VOLTS,		1	PHASE	3	WIRE					PANEL LOCATION:	BACKRO	ом
MCB NOTE:	NA		BUS:	225A	MIN.		INTERRUPTING RATING		V.I.F.		FED FROM: MDB		
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHA	SE (KVA) B	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	PUMP UNDER SINK & WORK TABLE REC (2 TANDEM BREAKER)	Н	1.00	2#12, 1#12G, 3/4"C	2.50		2#10, #10G, 3/4"C	1.50	М	EXISTING LOAD	30/2P	2
3	20	REC_EXISTING	R	1.08	2#12, 1#12G, 3/4"C		2.58		1.50	М			4
5	20	REC_EXISTING	R	1.08	2#12, 1#12G, 3/4"C	2.08		2#12, 1#12G, 3/4"C	1.00	R	PIZZA SPINNER (2 TANDEM BREAKERS)	20	6
7	20	REC_EXISTING	R	1.08	2#12, 1#12G, 3/4"C		2.08	2#12, 1#12G, 3/4"C	1.00	R	FLEX #2 & FLEX #1 SERVE (2 TANDEM BREAKERS)	20	8
9	20	REC_EXISTING	R	1.08	2#12, 1#12G, 3/4"C	2.08		2#12, 1#12G, 3/4"C	1.00	R	FLEX #2 & FLEX #1 SERVE (2 TANDEM BREAKERS)	20	10
11	20	REC_EXISTING	R	1.08	2#12, 1#12G, 3/4"C		2.08	2#12, 1#12G, 3/4"C	1.00	R	WORK TABLE_COOLER & REC. (2 TANDEM BREAKERS)	20	12
13	30/2P	EXISTING LOAD	М	2.00	2#10, #10G, 3/4"C	3.00		2#12, 1#12G, 3/4"C	1.00	K	ICE MARCH	20/2P	14
15	30/ 21	EXISTING EOAD	М	2.00	2110, 1100, 5, 4 0		3.00	2112, 11120, 3, 4 0	1.00	K		20/ 21	16
17	20	HAND DRYER	E	1.00	2#12, 1#12G, 3/4"C	2.00		2#12, 1#12G, 3/4"C	1.00	R	WORK TABLE_COOLER & REC. (2 TANDEM BREAKERS)	20	18
19	20	REC_EXISTING	R	0.72	2#12, 1#12G, 3/4"C		1.72	2#12, 1#12G, 3/4"C	1.00	R	WORK TABLE_COOLER & REC. (2 TANDEM BREAKERS)	20	20
21	20	HAND DRYER & REC_EXISTING (2 TANDEM BREAKER)	R	1.50	2#12, 1#12G, 3/4"C	2.50		2#12, 1#12G, 3/4"C	1.00	R	WORK TABLE_COOLER & REC. (2 TANDEM BREAKERS)	20	22
23	50/2P	TURBO CHEF	К	3.50	- 2#8, 1#10G, 3/4"C		4.50	2#12, 1#12G, 3/4"C	1.00	R	WORK TABLE_COOLER & REC. (2 TANDEM BREAKERS)	20	24
25	30/21	TORBO CHEI	К	3.50	2#8, 1#10G, 3/ 4 C	4.50		2#12, 1#12G, 3/4"C	1.00	R	WORK TABLE_COOLER & REC. (2 TANDEM BREAKERS)	20	26
27	20	TURBO AIR 3 DOOR FREEZER & REC_EXISTING (2 TANDEM BREAKER)	E	1.50	2#12, 1#12G, 3/4"C		6.50	2#12, 1#12G, 3/4"C	5.00	К	UNOX OVEN (2 TANDEM BREAKERS)	40/2P	28
29	20	LIGHTING_EXISTING STOCK RM RR	L	0.50	2#12, 1#12G, 3/4"C	1.50		2#12, 1#12G, 3/4"C	1.00	н	UNOX HOOD (2 TANDEM BREAKERS)	20/2P	30
31	20	LIGHTING_COOLER	L	0.50	2#12, 1#12G, 3/4"C		1.50	2#12, 1#12G, 3/4"C	1.00	К	COFFEE MAKER #1 (2 TANDEM BRE <mark>AKER</mark> S)	20/2P	32
33	20	REC_EXISTING	R	0.72	2#12, 1#12G, 3/4"C	1.72		2#12, 1#12G, 3/4"C	1.00	К	COFFEE MAKER #2 (2 TANDEM BREAKERS)	20/2P	34
35	20	REC_POS	R	0.50	2#12, 1#12G, 3/4"C		1.00	2#12, 1#12G, 3/4"C	0.50	R	REC_POS	20	36
37	20	ICE CREAM	E	1.00	2#12, 1#12G, 3/4"C	1.50		2#12, 1#12G, 3/4"C	0.50	R	REC_POS	20	38
39	20/2P	EXISTING WATER HEATER	H	1.50	2#12, 1#12G, 3/4"C		2.58	2#12, 1#12G, 3/4"C	1.08	R	REC_EXISTING	20	40
41			Н	1.50	1	2.00		2#12, 1#12G, 3/4"C	0.50	R	REC_POS	20	42
		LOAD CLASSIFICATION		CONNEC	TED LOAD (MAA)	25.38	27.54	DEMAND LOAD (IC.)					
LICUTING		LOAD CLASSIFICATION		CONNEC	TED LOAD (KVA)	DEM		DEMAND LOAD (KVA)			PANEL TOTAL LOAD		
LIGHTING RECEPTAC		L R			1.00 20.42	10		1.00 20.42			TOTAL CONNECTED LOAD	E2 02	2 KVA
HVAC	LE	H			5.00	10		5.00			TOTAL DEMAND LOAD		2 KVA
MISCELLA	NEOLIS	M M			7.00	70		4.90			TOTAL CONNECTED CURRENT	254.42	+
EQUIPME		E IVI			3.50	10		3.50			TOTAL DEMAND CURRENT		
KITCHEN		E K			16.00		0/4	10.40			SYSTEM VOLTAGE		/208//

PANEL SCHEDULE GENERAL NOTES:

- 1. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
- 2. ELECTRICAL CONTRACTOR TO COORDINATE WITH THE MANUFACTURER OF EQUIPMENT FOR THE WIRE SIZE & RATING OF MOCP BEFORE THE COMMENCEMENT OF WORK.
- . ELECTRICAL CONTRACTOR TO COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENT OF PLUMBING/MECHANICAL EQUIPMENTS WITH RESPECTIVE SYSTEM CONTRACTOR/OWNER/ARCHITECT.
- EXISTING BRANCH CIRCUIT'S WIRE SIZE ARE SHOWN FOR REFERENCE ONLY. ELECTRICAL CONTRACTOR TO FIELD VERIFY EXISTING WIRE SIZE, PROVIDE NEW BRANCH CIRCUITS AS REQUIRED.

NEW EQUIPMENT LIST:

TEM	QTY	DESCRIPTION	MANUFACTURER	MODEL NO.	VOLTAGE	PHASE	AMPS	RECEPTACLE	REMARKS
3	1	NACHO THEATER			115	1			
9	2	12-HEAD FOUNTAIN	CORNELIUS	ENDURO 300	115	1	5.2		
10	1	4-HEAD FROSTER MACHINE	CORNELIUS	VIPER	230	1	30		
18	1	ICE DISP. COFFEE	FOLLETT	-	115	1	5	NEMA 5-15R	
21	1	2-FLAVOR CREAMISER	-	-	120	1	3.2		GROUNDED OUTLET
22	1	5-HEAD CAPPUCCINO	CURTIES	PCGT5	120	1	15		
70	1	DELI CHILL CASE (HUSSMANN TY3ECRC-3x4.5E-S ENDCAP COOLER)	-	-	208	1	22	NEMA L14-30P	

EQUIPMENT GENERAL NOTES:

RISER DIAGRAM SYMBOL:

-X----X-#

NEW

| ITEM/FEEDER

TO REMAIN

r--X--- EXISTING ITEM/FEEDER

L__X__J REMOVED

- ELECTRICAL CONTRACTOR SHALL VERIFY EXACT POWER AND CONNECTION REQUIREMENTS WITH THE MANUFACTURER PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
- 2. ELECTRICAL CONTRACTOR SHALL PROVIDE CORD AND PLUG FOR EQUIPMENT, IF ANY, WITH CORD AND PLUG NOT INCLUDED.
- COORDINATE NEMA RECEPTACLE CONFIGURATION WITH THE EQUIPMENT SUPPLIER.
- 4. PROVIDE GFCI DEVICES OR CIRCUIT BREAKERS WHERE REQUIRED BY NEC.
- 5. NEW CIRCUITS SHALL BE CONNECTED TO UNUSED OR MADE SPARE BY DEMOLITION POLES IN EXISTING PANELS.
- PRIOR TO ADDING NEW CIRCUITS, EACH PANEL EXISTING LOAD MUST BE CAREFULLY DETERMINED BY THE ELECTRICAL CONTRACTOR IN ACCORDANCE WITH NEC 220.87(1), (2) (3). THIS SHALL BE THE BASELINE FOR DETERMINING EACH INDIVIDUAL PANEL CAPACITY. DO NOT ADD LOAD TO 80% OR MORE OF PANEL FEEDER OR MAIN SERVICE ENTRANCE UPSTREAM CIRCUIT BREAKER.
- DO NOT ADD NEW LOAD TO THE FUEL/GAS PANEL.
- 8. EXTERIOR EQUIPMENT AND DEVICES SHALL BE NEMA 3R

AMPS 1 20 VIR R 0.72 2#12, 1#12G, 3/4"C 0.92 2#12, 1#12G, 3/4"C 0.00 E AMPS 3 20 BAKERY DISPLAY E 1.00 2#12, 1#12G, 3/4"C 2.00 2#12, 1#12G, 3/4"C 1.00 L EXTERIOR LIGHTING 20/2P 6 5 20 COKE BACK DOOR E 1.00 2#12, 1#12G, 3/4"C 2.00 2#12, 1#12G, 3/4"C 1.00 L EXTERIOR LIGHTING 20/2P 6 7 20 SANDWICH BACK DOOR K 1.00 2#12, 1#12G, 3/4"C 2.00 2#10, 1#10G, 3/4"C 1.00 L CANOPY LIGHTING 30/2P 6 9 40/2P EXISTING LOAD K 3.00 2#8, 1#10G, 3/4"C 4.00 2#12, 1#12G, 3/4"C 1.00 R EXISTING LOAD 20 12 13 20 EXISTING LOAD R 0.50 2#12, 1#12G, 3/4"C 1.50 2#12, 1#12G, 3/4"C 1.00 R EXISTING LOAD 20 12 14 20 2 200 2 200 2 200 2 200 2 200 200 2	ANEL:	В	(EXISTING)	Sections:	1							MOUNTING	SURFACE	
TRIP AMPS DESCRIPTION OF LOAD VIR R 0.72 2#12, 1#12G, 3/4"C 0.92 2#12, 1#12G, 3/4"C 0.00 E 0.00 L 0.	8Y/ 12 0	VOLTS,		1	PHASE	3	WIRE					PANEL LOCATION	BACKRO	ОМ
AMPS DESCRIPTION OF LOAD TYPE (KVA) MINIMUM BRANCH CIRCUIT A B MINIMUM BRANCH CIRCUIT LOAD (KVA) LOAD TYPE DESCRIPTION OF LOAD AMPS CKTT		NA		BUS:	<mark>22</mark> 5A	MIN.	•	INTER	RUPTING RATING	V.I.F.		FED FROM: MDB		
1 20 VIR R 0.72 2#12, 1#12G, 3/4"C 0.92 2#12, 1#12G, 3/4"C 0.20 E (2TANDEM BREAKERS) 20 2 3 20 BAKERY DISPLAY E 1.00 2#12, 1#12G, 3/4"C 2.00 2#12, 1#12G, 3/4"C 1.00 L 5 20 COKE BACK DOOR E 1.00 2#12, 1#12G, 3/4"C 2.00 2#12, 1#12G, 3/4"C 1.00 L 7 20 SANDWICH BACK DOOR K 1.00 2#12, 1#12G, 3/4"C 2.00 2#10, 1#10G, 3/4"C 1.00 L 9 40/2P EXISTING LOAD K 3.00 2#8, 1#10G, 3/4"C 4.00 2#12, 1#12G, 3/4"C 1.00 R EXISTING LOAD 20 12 13 20 EXISTING LOAD R 0.50 2#12, 1#12G, 3/4"C 1.50 2#12, 1#12G, 3/4"C 1.00 R EXISTING LOAD 20 14 15 20/2P EXTERIOR LIGHTING L 1.00 2#13, 1#13G, 3/4"C 1.50 2#12, 1#12G, 3/4"C 1.00 R EXISTING LOAD 30 146 15 20/2P EXTERIOR LIGHTING L 1.00 2#13, 1#13G, 3/4"C 1.00 2#10, 1#10G, 3/4"C 1.00 R EXISTING LOAD 30 146	CT NO.		DESCRIPTION OF LOAD	LOAD TYPE		MINIMUM BRANCH CIRCUIT			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD		скт по
\$\frac{5}{2}\frac{2}{2}\frac{\text{Cokeback Door}}{\text{Cokeback Door}} \frac{\text{E}}{\text{ 1.00}} \frac{2\frac{4\text{21, 1\frac{1126, 3/4\color{1.00}}{\text{C}}}} \frac{2\text{2.00}}{\text{21, 1\frac{1126, 3/4\color{1.00}}{\text{C}}}} \frac{1.00}{\text{L}} \text{L} \frac{2\text{CANOPY LIGHTING}}{\text{1.00}} \frac{2\text{0.7}}{\text{2.00}} \frac{2\text{210, 1\frac{1126, 3/4\color{1.00}}{\text{C}}} \frac{1.00}{\text{L}} \text{L} \frac{2\text{CANOPY LIGHTING}}{\text{1.00}} \frac{3\text{0.7}}{\text{2.00}} \frac{2\text{1126, 3/4\color{1.00}}}{\text{4.00}} \frac{2\text{1126, 3/4\color{1.00}}}{\text{4.00}} \frac{2\text{1126, 3/4\color{1.00}}}{\text{1.00}} \text{R} \frac{2\text{CANOPY LIGHTING}}{\text{1.00}} \frac{2\text{0.7}}{\text{2.00}} \frac{2\text{1126, 3/4\color{1.00}}}{\text{1.00}} \text{R} \frac{2\text{0.7}}{\text{1.00}}} \frac{2\text{1.00}}{\text{1.00}} \text{R} \frac{2\text{0.7}}{\text{1.00}}} \frac{2\text{1.00}}{\text{1.00}} \text{R} \frac{2\text{0.7}}{\text{1.00}}} \frac{2\text{1.00}}{\text{1.00}} \text{R} \text{EXISTING LOAD}} \text{2.00} \frac{2\text{1126, 3/4\color{1.00}}}{\text{1.00}} \text{R} \text{EXISTING LOAD}	1	20	VIR	R	0.72	2#12, 1#12G, 3/4"C	0.92		2#12, 1#12G, 3/4"C	0.20	E		20	2
9 40/2P EXISTING LOAD				_	_		2.00	2.00	2#12, 1#12G, 3/4"C		L L	EXTERIOR LIGHTING	20/2P	6
11 40/2P EXISTING LOAD		20	SANDWICH BACK DOOR			2#12, 1#12G, 3/4"C	4.00	2.00	2#10, 1#10G, 3/4"C		L	CANOPY LIGHTING	30/2P	8
15 20/2P EXTERIOR LIGHTING L 1.00 2#12 1#12G 3/4"C 2.00 2#10, 1#10G, 3/4"C 1.00 R EXISTING LOAD 30 16		40/2P	EXISTING LOAD			2#8, 1#10G, 3/4"C	4.00	4.00	2#12, 1#12G, 3/4"C		R	EXISTING LOAD	20	12
	13 🦯	20	EXISTING LOAD	R	0.50	2#12, 1#12G, 3/4"C	1.50		2#12, 1#12G, 3/4"C	1.00	R	EXISTING LOAD	20	14
		20/2P	EXTERIOR LIGHTING			2#12, 1#12G, 3/4"C		2.00			-			16
	,													

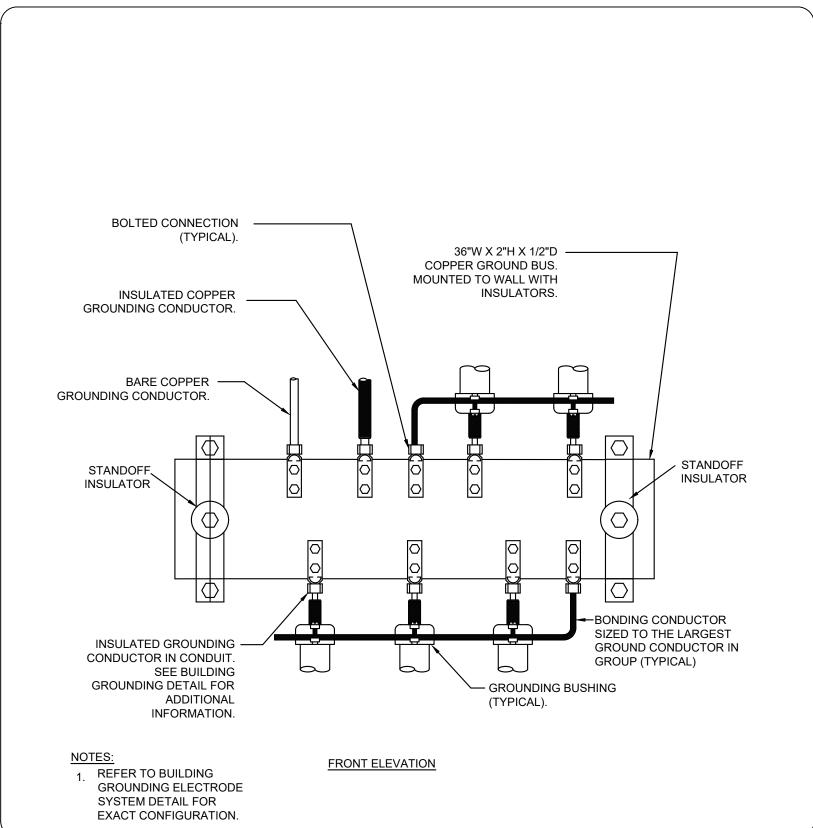
PANEL:	B1	(EXISTING)	Sections:	1							MOUNTING:	SURFAC	E
208Y/120	VOLTS,		1	PHASE	3	WIRE					PANEL LOCATION:	BACKRO	OM
MCB NOTE:	NA		BUS:	125A	MIN.		INTER	RUPTING RATING	V.I.F.		FED FROM:	PANEL-E	3
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHA	SE (KVA)	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT N
1	20/20	CANODVIICUTS	L	1.00	2412 44126 2/416	2.20		2#10, 1#10G, 3/4"C	1.20	L	SHELL SIGN	30	2
3	20/2P	CANOPY LIGHTS	L	1.00	2#12, 1#12G, 3/4"C		2.20	2#10, 1#10G, 3/4"C	1.20	L	SIGN	30	4
5	20/2P	POLE LIGHTS	L	1.00	2#12, 1#12G, 3/4"C	1.50		2#12, 1#12G, 3/4"C	0.50	E	WAN	20	6
7	20/21	FOLE LIGHTS	L	1.00	2#12, 1#12G, 3/4 C		1.50	2#12, 1#12G, 3/4"C	0.50	E	WAN-2	20	8
9	20	HOT DOG #1 & #2 (2 TANDEM BREAKERS)	К	2.00	2#12, 1#12G, 3/4"C	2.50		2#12, 1#12G, 3/4"C	0.50	L	LIGHTING CONTROLS	20	10
11	20	NACHO & CONDIMENT_ISLAND (2 TANDEM BREAKERS)	К	2.00	2#12, 1#12G, 3/4"C		3.00	2#12, 1#12G, 3/4"C	1.00	E	COKE COOLER (2 TANDEM BREAKERS)	20	12
			•		1	6.20	6.70						
LOAD CLASSIFICATION CONNECTED LOAD (KVA)			TED LOAD (KVA)	DEN	1AND	DEMAND LOAD (KVA)			DANIEL TOTAL LOAD				
LIGHTING		L			6.90	10	00%	6.90	PANEL TOTAL LOAD				
RECEPTAC	LE	R			0.00	100%		0.00			TOTAL CONNECTED LOAD	12.90	0 KVA
HVAC		Н			0.00	10	00%	0.00	TOTAL DEMAND LOAD		11.50	0 KVA	
MISCELLA					70%		0.00	TOTAL		TOTAL CONNECTED CURRENT		2 AMP	
EQUIPME	NTS	E			2.00	10	00%	2.00			TOTAL DEMAND CURRENT		9 AMP
KITCHEN L	.OAD	K			4.00	6.	5%	2.60			SYSTEM VOLTAGE	120)/208V

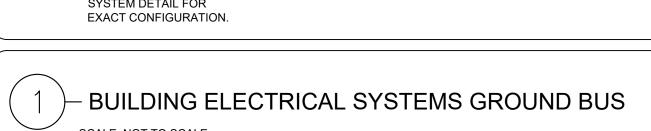
PANEL:	N	(NEW)	Sections:	1							MOUNTING:	SURFACE	
208Y/120	VOLTS,		1	PHASE	3	WIRE					PANEL LOCATION:	BACKRO	MC
MCB NOTE:	NA		BUS:	125A	MIN.		INTERI	RUPTING RATING	22KA		FED FROM:	MDP	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHA	SE (KVA)	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO
1	20	12-HEAD FOUNTAIN	E	0.60	2#12, 1#12G, 3/4"C	2.60		2#10, 1#10G, 3/4"C	2.00	E	4-HEAD FROSTER MACHINE	30/2P	2
3	20	12-HEAD FOUNTAIN	E	0.60	2#12, 1#12G, 3/4"C		2.60	2#10, 1#100, 3/4 C	2.00	Е	4-HEAD PROSTER MACHINE	30/ ZP	4
5	20	NACHO THEATER	E	1.00	2#12, 1#12G, 3/4"C	3.00		2#10, 1#10G, 3/4"C	2.00	Е	DELI CHILL CASE	30/2P	6
7	20	ICE DISP. COFFEE	E	0.60	2#12, 1#12G, 3/4"C		2.60	2#10, 1#100, 3/4 C	2.00	Е	(ENDCAP COOLER)	30/ ZF	8
9	20	2-FLAVOR CREAMISER	E	0.40	2#12, 1#12G, 3/4"C	0.40					SPARE	20	10
11	20	5-HEAD CAPPUCCINO	E	1.00	2#12, 1#12G, 3/4"C		1.00				SPARE	20	12
	•		•			6.00	6.20			•			•
	L	LOAD CLASSIFICATION		CONNEC	TED LOAD (KVA)	DEM	IAND	DEMAND LOAD (KVA)			DANIEL TOTAL LOAD		
IGHTING		L			0.00	10	10%	0.00			PANEL TOTAL LOAD		
RECEPTAC	CLE	R			0.00	100%		0.00			TOTAL CONNECTED LOAD	12.20	KVA
IVAC		Н			0.00	10	0.00		TOTAL DEMAND LOAD		12.20	KVA	
VISCELLA	NEOUS	M			0.00	70	0%	0.00			TOTAL CONNECTED CURRENT	58.65	AMP
QUIPME	NTS	E			12.20	10	10%	12.20			TOTAL DEMAND CURRENT	58.65	AMP
KITCHEN	LOAD	К			0.00	65	5%	0.00			SYSTEM VOLTAGE	120/	/208V

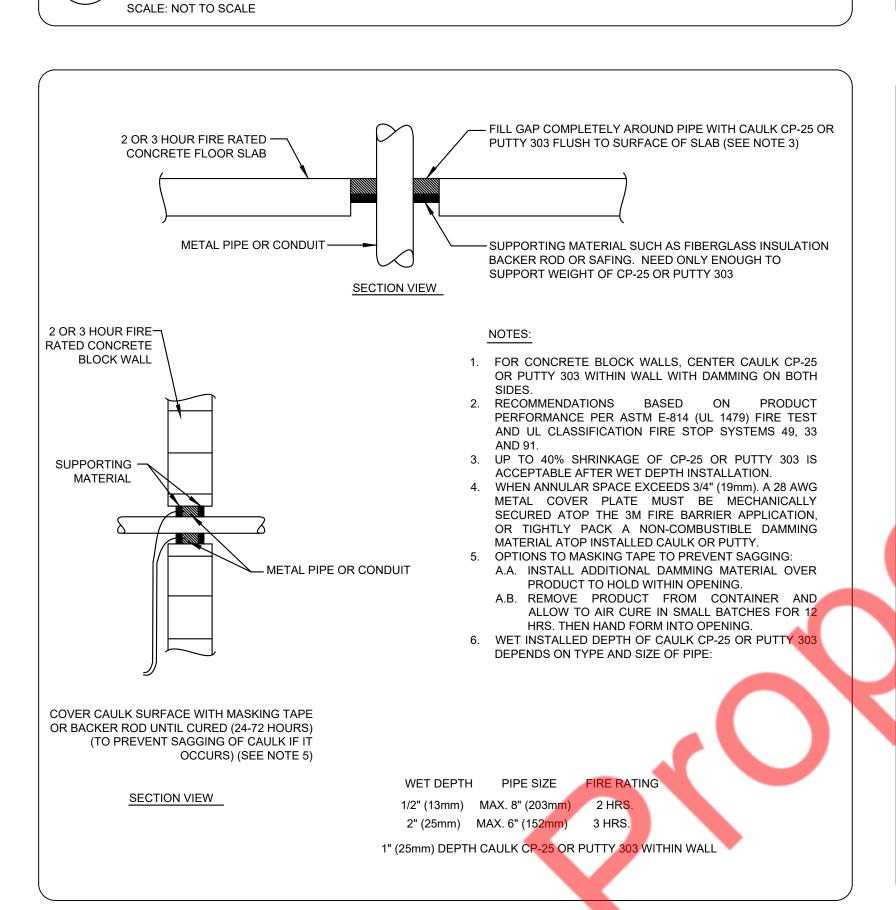
PANEL:	C	(EXISTING)	Sections:									MOUNTING:	SURFACE	
208Y/120	VOLTS,		3	PHASE	4	WIRE						PANEL LOCATION:	BACKROOM	М
MCB NOTE: ML	NA .O PANEL		BUS:	225A					INTERRUPTING RATING:	V.I.F.		FED FROM:	MDB	
CKT NO	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TVPI	I DAD (KVA)	MINIMUM BRANCH CIRCUIT	PER	PHASE ((KVA)	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO
CKI NO.	TIMI AIVII 3	DESCRIPTION OF LOAD	LOAD IIII	LOAD (KVA)	WINTING WILLIAM CINCOTT	Α	В	С	WINVINION BIGAVETI CIRCOTT	LOAD (KVA)	LOAD III E	DESCRIPTION OF EOAB	IIIII AIVII 3	CICITIV
1	30/2P	EXISTING LEFT ICE	E	1.00	2#10 1#10, 3/4"C	3.00			2#10, #10G, 3/4"C	2.00	Н	ROOF CONDENSOR	30/2P	2
3	30/21	EXISTING LEFT ICE	E	1.00	2#10 1#10, 3/4 C		3.00		2#10, #100, 3/4 C	2.00	н	ROOF CONDENSOR	30/25	4
5	30/2P	EXISTING FROSTER REF	E	1.50	2#10 1#10, 3/4"C			2.50	2#12, 1#12, 3/4"C	1.00	R	REC_EXISTING FOUNTAIN (2 TANDEM BREAKERS)	20	6
7			E	1.50		9.50				8.00	Н			8
9	20/2P	EVICTING LOAD	E	1.50	2#12 1#12 2/486		9.50		4#3, 1#8, 1 1/4"C	8.00	Н	HVAC UNIT	100/3P	10
11	20/28	EXISTING LOAD	Е	1.50	2#12, 1#12, 3/4"C			9.50	1	8.00	Н			12
13			Н	2.50		5.00				2.50	Н			14
15	40/2P	EXISTING WALK IN COOLER	Н	2.50	3#8, 1#10G, 3/4"C		5.00		3#10, 1#10, 3/4"C	2.50	Н	AIR COMPRESSOR	30/3P	16
17			Н	2.50	1 ' ' ' '			5.00	1	2.50	Н			18
				1	1	17.50	17.50	17.00		'				-1
	LOAD CLASSIFICATION CONNECTED LOAD (KVA) DEMAN						DEMAND LOAD (KVA)							
LIGHTING					0.00	_	125%		0.00	1		PANEL TOTAL LOAD		
RECEPTAC		R			1.00	_	00%		1.00			TOTAL CONNECTED LOAD	52 OC	KVA
HVAC/PL		Н			43.00		10%		43.00			TOTAL DEMAND LOAD	t	KVA
MISCELLA		M			0.00		10%		0.00			TOTAL CONNECTED CURRENT		
EQUIPME		E			8.00		10%		8.00			TOTAL CONNECTED CORRENT	144.34	
KITCHEN I		K			0.00	-	5%		0.00	 		SYSTEM VOLTAGE		

Sheet ELECTRICAL RISER & PANEL SCHEDULE

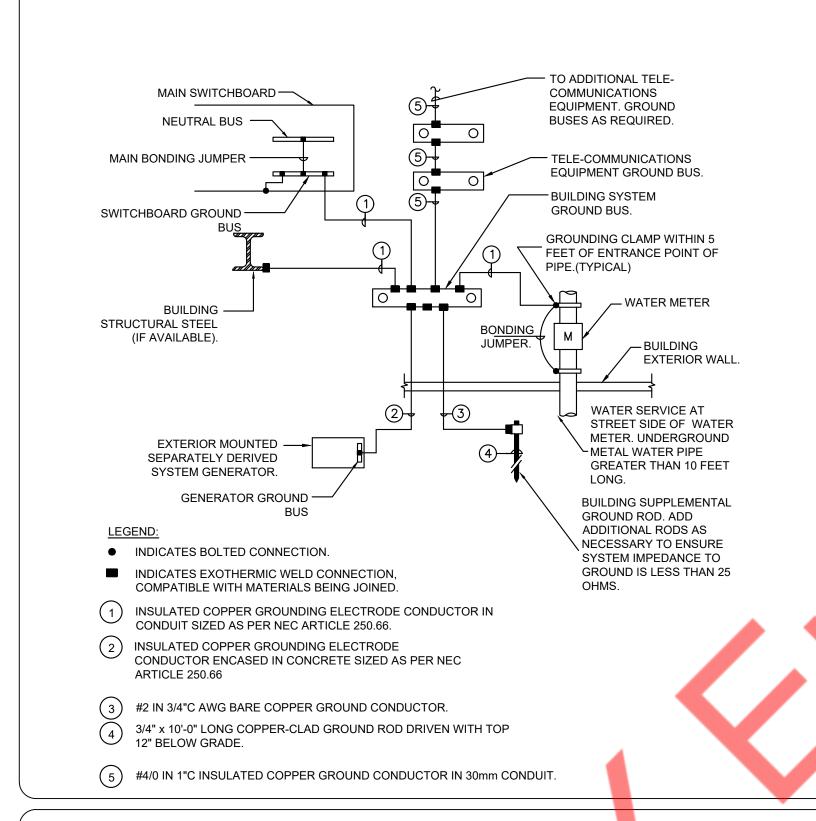




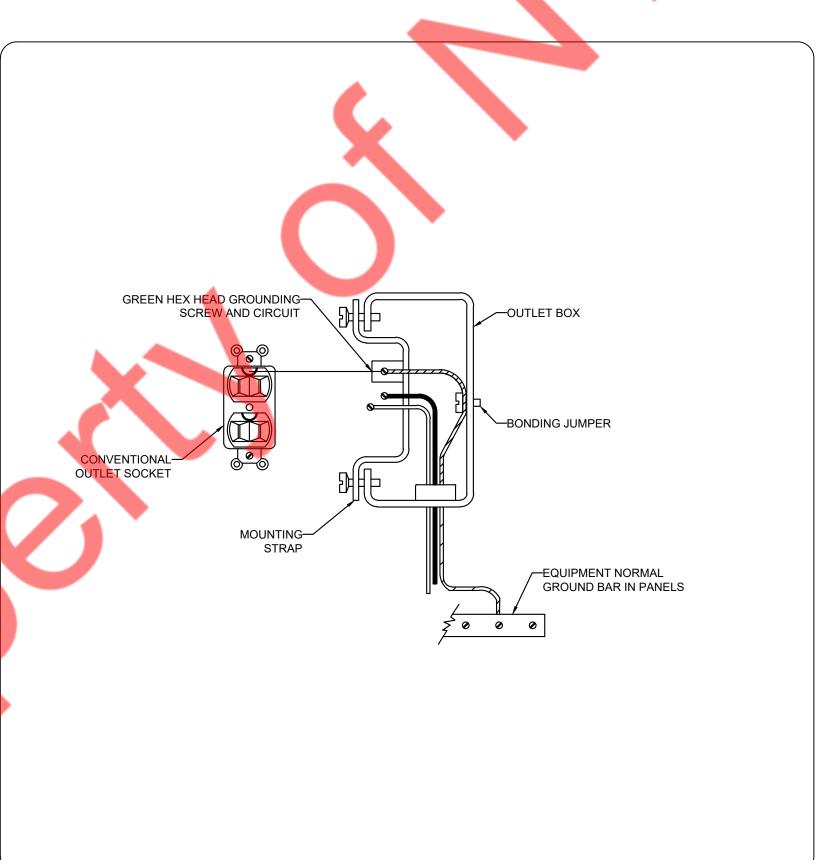




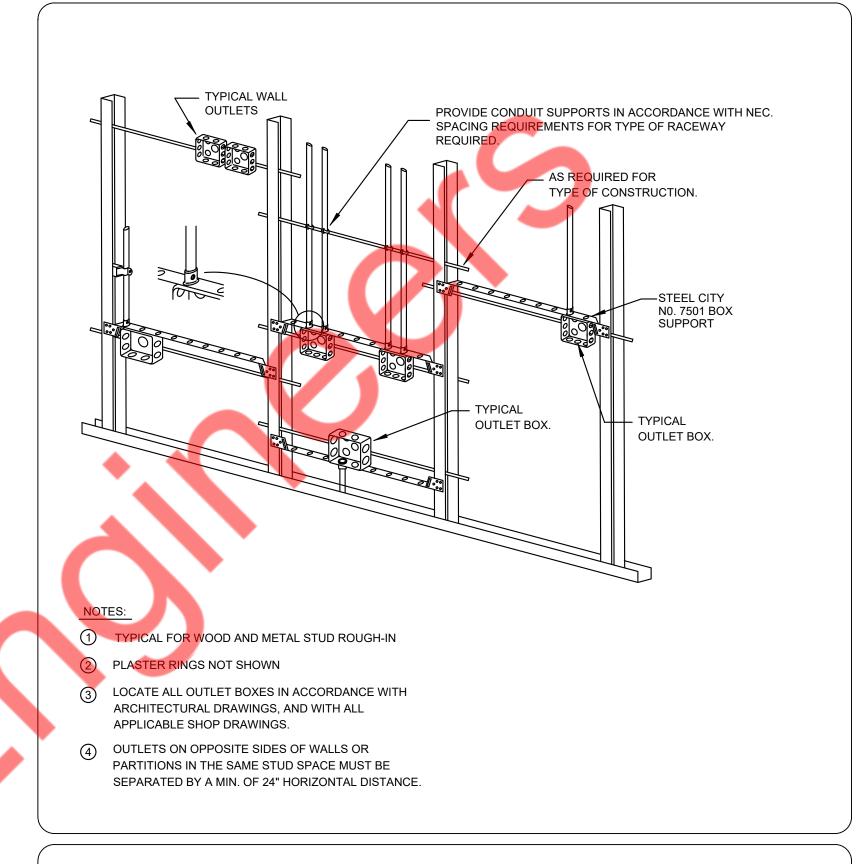






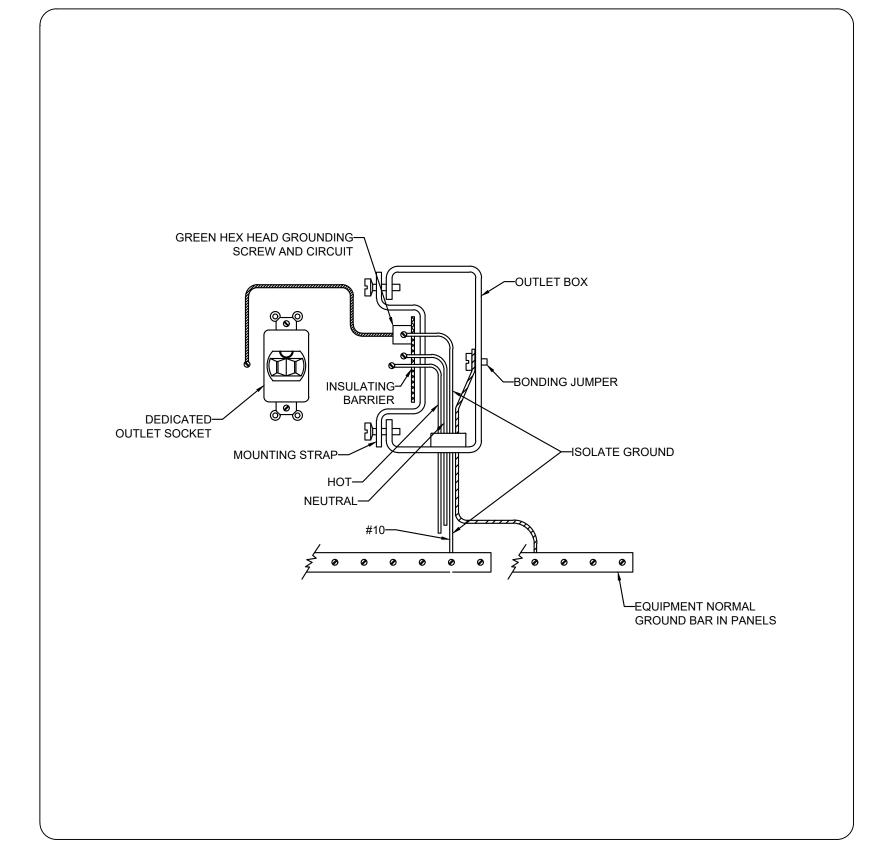






TYPICAL ROUGH-IN REQUIREMENTS

SCALE: NOT TO SCALE



6 — ISOLATED GROUND OUTLET

SCALE: NOT TO SCALE

Sheet ELECTRICAL DETAILS

E3.0

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. THE GENERAL PROVISIONS OF THE CONTRACT INCLUDING GENERAL AND SPECIAL CONDITIONS AND GENERAL REQUIREMENTS SHALL APPLY TO ALL WORK UNDER THIS SECTION.

1.02 REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS

THE REQUIREMENTS OF THE LOCAL BUILDING DEPARTMENT, THE SERVING UTILITY COMPANIES, THE NATIONAL ELECTRICAL CODE, NATIONAL ELECTRICAL SAFETY CODE, LIFE SAFETY CODE, OCCUPATIONAL SAFETY AND HEALTH ACT, AND APPLICABLE NATIONAL, STATE AND LOCAL CODES, ORDINANCES AND REGULATIONS.

A. EQUIPMENT. FIXTURES. MATERIAL AND INSTALLATION SHALL CONFORM TO

- B. ALL EQUIPMENT SHALL BE EQUAL TO OR EXCEED THE MINIMUM REQUIREMENTS OF NEMA, IEEE, AND UL.
- C. SHOULD ANY CHANGE IN DRAWINGS OR SPECIFICATIONS BE REQUIRED TO COMPLY WITH GOVERNMENTAL REGULATIONS, THE CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER PRIOR TO EXECUTION OF THE WORK. THE WORK SHALL BE CARRIED OUT ACCORDING TO THE REQUIREMENTS OF SUCH CODE IN ACCORDANCE WITH THE INSTRUCTION OF THE ARCHITECT/ENGINEER AND AT NO ADDITIONAL COST TO THE OWNER.
- D. THE PROVISIONS OF STANDARDS, CODES, LAWS, ORDINANCES, ETC., SHALL BE CONSIDERED MINIMUM REQUIREMENTS. IN CASE OF CONFLICT BETWEEN THEIR PUBLISHED REQUIREMENTS, THE OWNER'S REPRESENTATIVE SHALL DETERMINE WHICH IS TO BE FOLLOWED AND HIS DECISION SHALL BE BINDING. SPECIFIC REQUIREMENTS OF THIS SPECIFICATION OR THE DRAWINGS, WHICH EXCEED THE PUBLISHED REQUIREMENTS, SHALL TAKE PRECEDENCE OVER THEM.

A. ALL LOCAL FEES, PERMITS, AND SERVICES OF INSPECTION AUTHORITIES SHALL BE OBTAINED AND PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL COOPERATE FULLY WITH LOCAL COMPANIES WITH RESPECT TO THEIR SERVICES. CONTRACTOR SHALL INCLUDE IN HIS BID ANY COSTS TO BE INCURRED RELATIVE TO POWER SERVICE (PRIMARY AND/OR SECONDARY) AND TELEPHONE SERVICE.

1.04 SCOPE OF WORK

- A. THIS DIVISION OF THE SPECIFICATIONS COVERS THE ELECTRICAL SYSTEMS OF THE PROJECT. IT INCLUDES WORK PERFORMED BY THE ELECTRICAL TRADES AS WELL AS TRADES NOT NORMALLY CONSIDERED AS ELECTRICAL
- B. PROVIDE ALL INCIDENTALS, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, SUPERVISION, LABOR CONSUMABLE ITEMS, FEES, LICENSES, ETC., NECESSARY TO PROVIDE COMPLETE SYSTEMS. PERFORM START-UP AND CHECKOUT ON EACH ITEM AND SYSTEM TO PROVIDE FULLY OPERABLE SYSTEMS.
- C. EXAMINE AND COMPARE THE ELECTRICAL DRAWINGS WITH THESE SPECIFICATIONS, AND REPORT ANY DISCREPANCIES BETWEEN THEM TO THE ARCHITECT/ENGINEER AND OBTAIN FROM HIM WRITTEN INSTRUCTIONS FOR CHANGES NECESSARY IN THE WORK. AT TIME OF BID THE MOST STRINGENT REQUIREMENTS MUST BE INCLUDED IN THE BID.
- D. EXAMINE AND COMPARE THE ELECTRICAL DRAWINGS AND SPECIFICATIONS WITH THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES, AND REPORT ANY DISCREPANCIES BETWEEN THEM TO THE ARCHITECT/ENGINEER AND OBTAIN FROM HIM WRITTEN INSTRUCTIONS FOR CHANGES NECESSARY IN THE WORK. AT TIME OF BID, THE MOST STRINGENT REQUIREMENTS MUST BE INCLUDED IN SAID BID.
- E. INSTALL AND COORDINATE THE ELECTRICAL WORK IN COOPERATION WITH OTHER TRADES INSTALLING INTERRELATED WORK. BEFORE INSTALLATION, MAKE PROPER PROVISIONS TO AVOID INTERFERENCES IN A MANNER APPROVED BY THE ARCHITECT/ENGINEER. ALL CHANGES REQUIRED IN THE WORK OF THE CONTRACTOR, CAUSED BY HIS NEGLECT TO DO SO, SHALL BE MADE BY HIM AT HIS OWN EXPENSE.
- F. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO PROVIDE A COMPLETE WORKARIE SYSTEM READY FOR THE OWNER'S OPERATION ANY ITEM NOT SPECIFICALLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS, BUT NORMALLY REQUIRED TO CONFORM WITH THE INTENT, ARE TO BE CONSIDERED A PART OF THE CONTRACT.
- G. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW AND UNUSED (TEMPORARY LIGHTING AND POWER PRODUCTS ARE EXCLUDED) AND FREE FROM DEFECTS. ALL MATERIALS USED SHALL BEAR THE UNDERWRITER'S LABORATORY, INC. LABEL PROVIDED A STANDARD HAS BEEN ESTABLISHED FOR THE MATERIAL IN QUESTION.
- H. EXCEPT FOR CONDUIT, CONDUIT FITTINGS, OUTLET BOXES, WIRE AND CABLE, ALL ITEMS OF EQUIPMENT OR MATERIAL SHALL BE THE PRODUCT OF ONE MANUFACTURER THROUGHOUT THE ENTIRE PROJECT. MULTIPLE MANUFACTURERS WILL NOT BE PERMITTED.

1.05 REFERENCES

- A. UTILIZE THE FOLLOWING ABBREVIATIONS AND DEFINITIONS FOR DISCERNMENT WITHIN THE DRAWINGS AND SPECIFICATIONS.
- ABBREVIATIONS a. NEC NATIONAL ELECTRICAL CODE.
- b. OSHA OCCUPATIONAL SAFETY AND HEALTH ACT.
- c. ANSI AMERICAN NATIONAL STANDARDS INSTITUTE.
- d. NFPA NATIONAL FIRE PROTECTION ASSOCIATION. e. ASA AMERICAN STANDARDS ASSOCIATION.
- f. IEEE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS.
- g. NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION.
- h. UL UNDERWRITERS' LABORATORIES, INC. IES ILLUMINATING ENGINEERING SOCIETY.
- j. ICEA INSULATED CABLE ENGINEERS ASSOCIATION.
- k. ASTM AMERICAN SOCIETY OF TESTING MATERIALS. I. ETL ELECTRICAL TESTING LABORATORIES, INC.
- m. CBM CERTIFIED BALLAST MANUFACTURERS.
- n. EIA ELECTRONIC INDUSTRIES ASSOCIATION. LED LIGHT EMITTING DIODE.
- p. OEM ORIGINAL EQUIPMENT MANUFACTURER.

1.06 DEFINITIONS

- A. "PROVIDE" MEANS TO SUPPLY, PURCHASE, TRANSPORT, PLACE, ERECT, CONNECT, TEST, AND TURN OVER TO OWNER, COMPLETE AND READY FOR REGULAR OPERATION, THE PARTICULAR WORK REFERRED TO.
- B. "INSTALL" MEANS TO JOIN, UNITE, FASTEN, LINK, ATTACH, SET UP, OR OTHERWISE CONNECT TOGETHER BEFORE TESTING AND TURNING OVER TO OWNER, COMPLETE AND READY FOR REGULAR OPERATION, THE PARTICULAR WORK REFERRED TO.
- C. "FURNISH" MEANS TO SUPPLY ALL MATERIALS, LABOR, EQUIPMENT, TESTING APPARATUS, CONTROLS, TESTS, ACCESSORIES, AND ALL OTHER ITEMS CUSTOMARILY REQUIRED FOR THE PROPER AND COMPLETE APPLICATION FOR THE PARTICULAR WORK REFERRED TO.
- CONDUCTORS, CONNECTORS, TAPE, JUNCTION AND OUTLET BOXES, CONNECTIONS, SPLICES, AND ALL OTHER ITEMS NECESSARY AND/OR REQUIRED IN CONNECTION WITH SUCH WORK.

D. "WIRING" MEANS THE INCLUSION OF ALL RACEWAYS, FITTINGS,

- E. "CONDUIT" MEANS THE INCLUSION OF ALL FITTINGS, HANGERS, SUPPORTS, SLEEVES, ETC.
- F. "AS DIRECTED" MEANS AS DIRECTED BY THE ARCHITECT/ENGINEER, OR HIS REPRESENTATIVE.
- G. "CONCEALED" MEANS EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED BEHIND WALL FURRING OR WITHIN DOUBLE PARTITIONS, OR INSTALLED ABOVE HUNG CEILINGS.

1.07 COORDINATION OF THE WORK

- A. CERTAIN MATERIALS WILL BE PROVIDED BY OTHER TRADES. EXAMINE THE CONTRACT DOCUMENTS TO ASCERTAIN THESE REQUIREMENTS.
- B. CAREFULLY CHECK SPACE REQUIREMENTS WITH OTHER TRADES AND THE PHYSICAL CONFINES OF THE AREA TO INSURE THAT ALL MATERIAL CAN BE INSTALLED IN THE SPACES ALLOTTED THERETO INCLUDING FINISHED SUSPENDED CEILINGS AND THE SPACES WITHIN THE EXISTING BUILDING. MAKE MODIFICATIONS THERETO AS REQUIRED AND APPROVED.
- C. TRANSMIT TO OTHER TRADES ALL INFORMATION REQUIRED FOR WORK TO BE PROVIDED UNDER THEIR RESPECTIVE SECTIONS IN AMPLE TIME FOR INSTALLATION.
- D. WHEREVER WORK INTERCONNECTS WITH WORK OF OTHER TRADES, COORDINATE WITH OTHER TRADES TO INSURE THAT ALL TRADES HAVE THE INFORMATION NECESSARY SO THAT THEY MAY PROPERLY INSTALL ALL THE NECESSARY CONNECTIONS AND EQUIPMENT. IDENTIFY ALL ITEMS OF WORK THAT REQUIRE ACCESS SO THAT THE CEILING TRADE WILL KNOW WHERE TO INSTALL ACCESS DOORS AND PANELS.
- E. COORDINATE, PROJECT AND SCHEDULE WORK WITH OTHER TRADES IN ACCORDANCE WITH THE CONSTRUCTION SEQUENCE.
- F. THE DRAWINGS SHOW ONLY THE GENERAL RUN OF RACEWAYS AND APPROXIMATE LOCATION OF OUTLETS. ANY SIGNIFICANT CHANGES IN LOCATION OF OUTLETS, CABINETS, ETC., NECESSARY IN ORDER TO MEET FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/ENGINEER AND RECEIVE HIS APPROVAL BEFORE SUCH ALTERATIONS ARE MADE. ALL SUCH MODIFICATIONS SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.
- G. OBTAIN FROM THE ARCHITECT/ENGINEER IN THE FIELD THE LOCATION OF SUCH OUTLETS OR EQUIPMENT NOT DEFINITELY LOCATED ON THE
- H. CIRCUIT "TAGS" IN THE FORM OF ARROWS ARE USED WHERE SHOWN TO INDICATE THE HOME RUNS OF RACEWAYS TO ELECTRICAL DISTRIBUTION POINTS. THESE TAGS SHOW THE CIRCUITS IN EACH HOME RUN AND THE PANEL DESIGNATION. SHOW THE ACTUAL CIRCUITS NUMBERS ON THE FINISHED RECORD DRAWINGS AND ON PANEL DIRECTORY CARD. WHERE CIRCUITING IS NOT INDICATED, ELECTRICAL SUBCONTRACTOR MUST PROVIDE REQUIRED CIRCUITING IN ACCORDANCE WITH THE LOADING INDICATED ON THE DRAWINGS AND/OR AS DIRECTED.
- ADJUST LOCATION OF CONDUITS, PANELS, EQUIPMENT, PULL BOXES, FIXTURES, ETC. TO ACCOMMODATE THE WORK TO PREVENT INTERFERENCES, BOTH ANTICIPATED AND ENCOUNTERED. DETERMINE THE EXACT ROUTE AND LOCATION OF EACH RACEWAY PRIOR TO FABRICATION. 1. RIGHT-OF-WAY:
- a) LINES THAT PITCH HAVE THE RIGHT-OF-WAY OVER THOSE THAT DO NOT PITCH. FOR EXAMPLE: STEAM, CONDENSATE, AND PLUMBING DRAINS NORMALLY HAVE RIGHT-OF-WAY. LINES WHOSE ELEVATIONS CANNOT BE CHANGED TO HAVE RIGHT-OF-WAY OVER LINES WHOSE ELEVATIONS CAN BE CHANGED.
- b) MAKE OFFSETS, TRANSITIONS AND CHANGES IN DIRECTION IN RACEWAYS AS REQUIRED TO MAINTAIN PROPER HEADROOM IN PITCH OF SLOPING LINES WHETHER OR NOT INDICATED ON THE DRAWINGS. J. WHEREVER THE WORK IS OF SUFFICIENT COMPLEXITY, PREPARE
- ADDITIONAL DETAIL DRAWINGS TO SCALE SIMILAR TO THAT OF THE BIDDING DRAWINGS, PREPARED ON TRACING MEDIUM OF THE SAME SIZE AS CONTRACT DRAWINGS. WITH THESE LAYOUTS, COORDINATE THE WORK WITH THE WORK OF OTHER TRADES. SUCH DETAILED WORK TO BE CLEARLY IDENTIFIED ON THE DRAWINGS AS TO THE AREA TO WHICH IT APPLIES. SUBMIT FOR REVIEW DRAWINGS CLEARLY SHOWING THE WORK AND ITS RELATION TO THE WORK OF OTHER TRADES BEFORE COMMENCING SHOP FABRICATION OR ERECTION IN THE FIELD.
- K. COORDINATE WITH THE LOCAL ELECTRIC UTILITY COMPANY AND THE LOCAL TELEPHONE COMPANY AS TO THEIR REQUIREMENTS FOR SERVICE CONNECTIONS AND PROVIDE ALL NECESSARY MATERIALS, LABOR AND
- L. COORDINATE WITH CONTRACTORS FOR WORK UNDER OTHER DIVISIONS OF THIS SPECIFICATION FOR ALL WORK NECESSARY TO ACCOMPLISH THIS CONTRACTOR'S WORK.

1.08 EXAMINATION OF SITE

A. PRIOR TO THE SUBMITTING OF BIDS, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. FAILURE TO COMPLY WITH THE INTENT OF THIS PARAGRAPH WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING ALL NECESSARY WORK SHOWN ON THE DRAWINGS.

1.09 PROGRESS OF WORK

A. THE CONTRACTOR SHALL ORDER THE PROGRESS OF HIS WORK TO CONFORM TO THE PROGRESS OF THE WORK OF OTHER TRADES AND SHALL COMPLETE THE ENTIRE INSTALLATION AS SOON AS THE CONDITIONS OF THE BUILDING WILL PERMIT. ANY COST RESULTING FROM THE DEFECTIVE OR ILL-TIMED WORK PERFORMED UNDER THIS SECTION SHALL BE BORNE BY THE CONTRACTOR.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. SHIP AND STORE ALL PRODUCTS AND MATERIALS IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE, WEATHER AND ENTRY OF DEBRIS. IF ITEMS ARE DAMAGED, DO NOT INSTALL, BUT TAKE IMMEDIATE STEPS TO OBTAIN REPLACEMENT OR REPAIR. ANY SUCH REPAIRS SHALL BE SUBJECT TO REVIEW AND ACCEPTANCE OF THE ARCHITECT/ENGINEER.
- B. DELIVER MATERIALS IN MANUFACTURER'S UNOPENED CONTAINER FULLY IDENTIFIED WITH MANUFACTURER'S NAME, TRADE NAME, TYPE, CLASS, GRADE, SIZE AND COLOR.
- C. STORE MATERIALS SUITABLY SHELTERED FROM THE ELEMENTS, BUT READILY ACCESSIBLY FOR INSPECTION BY THE ARCHITECT/ENGINEER UNTIL INSTALLED. STORE ALL ITEMS SUBJECT TO MOISTURE DAMAGE IN DRY, HEATED SPACES.

1.11 EQUIPMENT ACCESSORIES

- A. PROVIDE SUPPORTS, HANGERS AND AUXILIARY STRUCTURAL MEMBERS REQUIRED FOR SUPPORT OF THE WORK.
- B. FURNISH AND SET ALL SLEEVES FOR PASSAGE OF RACEWAYS THROUGH STRUCTURAL, MASONRY AND CONCRETE WALLS OF FLOORS AND ELSEWHERE AS WILL BE REQUIRED FOR THE PROPER PROTECTION OF EACH RACEWAY PASSING THROUGH BUILDING SURFAC
- C. WALL MOUNTED EQUIPMENT MAY BE DIRECTLY SECURED TO WALL BY MEANS OF STEEL BOLTS. MAINTAIN AT LEAST 1" AIR SPACE BETWEEN EQUIPMENT AND SUPPORTING WALL. GROUPS OR ARRAYS OF EQUIPMENT MAY BE MOUNTED ON ADEQUATELY SIZED STEEL ANGLES, CHANNELS, OR BARS. PREFABRICATED STEEL CHANNELS PROVIDING A HIGH DEGREE OF MOUNTING FLEXIBILITY, SUCH AS THOSE MANUFACTURED BY KINDORF, GLOB-STRUTT AND UNISTRUT, MAY BE USED FOR MOUNTING ARRAYS OF EQUIPMENT.

1.12 OPERATIONS AND MAINTENANCE MANUALS

1. PROVIDE TWO (2) COPIES OF EACH MANUAL.

- A. GENERAL: PROVIDE OPERATIONS & MAINTENANCE (O&M) MANUALS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- 2. MANUALS SHALL BE 8-1/2 INCHES X 11 INCHES IN HARD COVER 3-RING
- LOOSE-LEAF BINDERS. 3. MANUALS SHALL BE COMPLETE AND IN OWNER'S HANDS PRIOR TO TURNING BUILDING OVER TO OWNER AND AT LEAST 10 DAYS PRIOR TO
- INSTRUCTION TO OPERATING PERSONNEL B. PROVIDE MANUFACTURER'S LITERATURE AS REGULARLY PUBLISHED BY THE RESPECTIVE MANUFACTURERS FOR PROPER PREVENTATIVE AND
- COMPREHENSIVE MAINTENANCE. C. PROVIDE O&M MANUALS INCLUDING BUT NOT LIMITED TO THE FOLLOWING.

- 1. ALPHABETICAL LIST OF ALL SYSTEM COMPONENTS, WITH THE NAME, ADDRESS, AND 24-HOUR PHONE NUMBER OF THE COMPANY RESPONSIBLE FOR SERVICING EACH ITEM DURING THE FIRST YEAR OF
- OPERATION 2. OPERATING INSTRUCTIONS FOR COMPLETE SYSTEM INCLUDING:
- a) NORMAL STARTING, OPERATING, AND SHUT-DOWN. b) EMERGENCY PROCEDURES FOR FIRE OR FAILURE OF MAJOR
- EQUIPMENT.
- c) SUMMER AND WINTER SPECIAL PROCEDURES, IF ANY.
- d) DAY AND NIGHT SPECIAL PROCEDURES, IF ANY, 3. MAINTENANCE INSTRUCTION INCLUDING:
- a) PROPER LUBRICANTS AND LUBRICATING INSTRUCTIONS FOR EACH PIECE OF EQUIPMENT, AND DATE WHEN LUBRICATED. b) NECESSARY CLEANING, REPLACEMENT AND/OR ADJUSTMENT
- 4. MANUFACTURER'S DATA FOR EACH PIECE OF EQUIPMENT INCLUDING: a) INSTALLATION INSTRUCTIONS.
- b) DRAWINGS AND SPECIFICATIONS.
- c) PARTS LIST, INCLUDING RECOMMENDED ITEMS TO BE STOCKED.
- d) COMPLETE WIRING DIAGRAMS.
- e) MARKED OR CHANGED PRINTS LOCATING ALL CONCEALED PARTS AND ALL VARIATIONS FROM THE ORIGINAL SYSTEM DESIGN. f) TEST AND INSPECTION CERTIFICATES.
- D. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR ADDITIONAL O&M REQUIREMENTS.

1.13 RECORD DOCUMENTS

- A. DURING CONSTRUCTION, KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK AS SHOWN ON DRAWINGS AND THAT WHICH IS ACTUALLY INSTALLED. KEEP THIS RECORD SET OF PRINTS AT THE JOB SITE
- FOR REVIEW BY THE ARCHITECT/ENGINEER. B. UPON COMPLETION OF THE INSTALLATION AND ACCEPTANCE BY THE OWNER, TRANSFER ALL RECORD DRAWING INFORMATION TO ONE NEAT AND LEGIBLE SET OF PRINTS. THEN DELIVER THEM TO THE ARCHITECT/ENGINEER FOR TRANSMITTAL TO THE OWNER.
- C. PROVIDE IN EACH MAIN ELECTRICAL SWITCHBOARD ROOM A FRAMED COPY UNDER GLASS OF THE APPROPRIATE SINGLE LINE RISER DIAGRAM AS REVIEWED BY THE ELECTRICAL ENGINEER. MEDIA SHALL BE A HIGH QUALITY PRESENTATION TYPE PAPER. BLUEPRINTS OR OTHER MEDIA WHICH FADE SHALL NOT BE USED.

1.14 GUARANTEE

A. GUARANTEE ALL MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER, EXCEPT THAT WHERE GUARANTEES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED HEREIN, SUCH LONGER TERM TO APPLY. WITHIN 24 HOURS AFTER NOTIFICATION, CORRECT ANY DEFICIENCIES THAT OCCUR DURING THE GUARANTEE PERIOD AT NO ADDITIONAL COST TO THE OWNER, ALL TO THE SATISFACTION OF THE OWNER AND ARCHITECT/ENGINEER. OBTAIN SIMILAR GUARANTEES FROM SUBCONTRACTORS, MANUFACTURERS, SUPPLIERS AND

PART 2 - PRODUCTS

SUBTRADE SPECIALISTS.

2.01 MATERIALS

- A. APPLICABLE EQUIPMENT AND MATERIALS SHALL BE LISTED UNDERWRITERS' LABORATORIES AND MANUFACTURED IN ACCORDANCE WITH ASME, NEMA, ANSI OR IEEE STANDARDS, AND AS APPROVED BY LOCAL AUTHORITIES HAVING JURISDICTION AS MENTIONED IN DIVISION 1.
- B. IF PRODUCTS AND MATERIALS ARE SPECIFIED OR INDICATED ON THE DRAWINGS FOR A SPECIFIC ITEM OR SYSTEM, USE THOSE PRODUCTS OR MATERIALS, IF PRODUCTS AND MATERIALS ARE NOT LISTED IN EITHER OF THE ABOVE, USE FIRST CLASS PRODUCTS AND MATERIALS, SUBJECT TO APPROVAL OF SHOP DRAWINGS WHERE SHOP DRAWINGS ARE REQUIRED
- OR AS APPROVED IN WRITING WHERE SHOP DRAWINGS ARE NOT REQUIRED. C. ALL EQUIPMENT CAPACITIES, ETC. ARE LISTED FOR JOB SITE OPERATING CONDITIONS. ALL EQUIPMENT SENSITIVE TO ALTITUDES OR AMBIENT TEMPERATURES TO BE DERATED AND METHOD OF DERATING SHOWN ON SHOP DRAWINGS. WHERE OPERATING CONDITIONS SHOWN DIFFER FROM THE LABORATORY TEST CONDITIONS, THE EQUIPMENT TO BE DERATED AND THE METHOD OF DERATING SHOWN ON SHOP DRAWINGS.

- 2.02 SUBSTITUTION OF MATERIALS OR EQUIPMENT A. ALL REQUESTS FOR SUBSTITUTION OF MATERIALS OR EQUIPMENT SHALL BE MADE IN WRITING BY THE CONTRACTOR. THE REQUEST MUST BE IN THE ENGINEERS OFFICE NOT LESS THAN 10 DAYS PRIOR TO THE BID DATE. SAMPLES OF PROPOSED SUBSTITUTE MATERIALS OR EQUIPMENT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW WHENEVER THEY ARE REQUESTED. BIDS SHALL BE BASED ONLY UPON THE SPECIFIED MATERIALS AND EQUIPMENT, OR SUBSTITUTES THAT HAVE RECEIVED WRITTEN
- ACCEPTANCE FROM THE ENGINEER PRIOR TO THE BID. B. WHEREVER THE WORDS "FOR APPROVAL" OR "APPROVED" ARE USED IN REGARD TO MANUFACTURED SPECIALTIES, OR WHEREVER IT IS DESIRED TO SUBSTITUTE A DIFFERENT MAKE OR TYPE OF APPARATUS FOR THAT SPECIFIED, SUBMIT ALL INFORMATION PERTINENT TO THE ADEQUACY AND
- ADAPTABILITY OF THE PROPOSED APPARATUS, AND SECURE ARCHITECT/ENGINEER'S ACCEPTANCE BEFORE APPARATUS IS ORDERED. C. WHEREVER QUANTITIES OR A DEFINITE MAKE AND SIZE OF APPARATUS IS SPECIFIED, THE MAKE AND SIZE OF APPARATUS WHICH IS PROPOSED MUST CONFORM SUBSTANTIALLY (IN REGARD TO THE OPERATING RESULTS) TO THAT SPECIFIED OR IMPLIED. SAME SHALL APPLY TO IMPORTANT DIMENSIONS RELATING TO OPERATION OF APPARATUS IN COORDINATION WITH THE REST OF THE SYSTEM, OR TO PROPERLY FITTING IT INTO AVAILABLE SPACE CONDITIONS. ANY SUBSTITUTION OF EQUIPMENT OR APPARATUS SHALL INCLUDE ALL NECESSARY REVISIONS, AS REQUIRED TO
- COMPLETE THE INSTALLATION. ACCEPTANCE OF SUBSTITUTIONS, FOR EQUIPMENT SPECIFIED HEREIN, WILL NOT BE GIVEN MERELY UPON SUBMISSION OF MANUFACTURER'S NAMES AND WILL BE GIVEN ONLY AFTER RECEIPT OF COMPLETE AND SATISFACTORY PERFORMANCE DATA COVERING THE COMPLETE RANGE OF OPERATING CONDITIONS IN TABULAR AND GRAPHICAL FORM. FURNISH COMPLETE AND SATISFACTORY INFORMATION RELATIVE TO EQUIPMENT DIMENSIONS, WEIGHT, ETC. ACCEPTANCE OF ALL EQUIPMENT SPECIFIED OR SHOWN ON THE DRAWINGS, OR SUBSTITUTIONS SUBMITTED FOR THAT SPECIFIED OR SHOWN ON THE DRAWINGS, WILL BE GRANTED IF SUCH EQUIPMENT, IN THE OPINION OF THE ARCHITECT/ENGINEER, CONFORMS TO THE PERFORMANCE REQUIREMENTS, SPACE CONDITIONS, WEIGHT REQUIREMENTS AND QUALITY REQUIREMENTS. ANY ADDITIONAL CONSTRUCTION AND DESIGN COSTS INCURRED AS A RESULT OF ANY ACCEPTED SUBSTITUTION SHALL BE BORNE BY THE CONTRACTOR. THE OPINION AND JUDGEMENT OF THE ARCHITECT/ENGINEER SHALL BE FINAL, CONCLUSIVE, AND BINDING.

2.03 SHOP DRAWINGS

- A. PREPARE AND SUBMIT DETAILED SHOP DRAWINGS FOR MATERIALS, SYSTEMS, AND EQUIPMENT AS LISTED HEREIN, INCLUDING LOCATIONS AND SIZES OF ALL OPENINGS IN FLOOR DECKS, WALLS, AND FLOORS.
- B. THE WORK DESCRIBED IN ANY SHOP DRAWING SUBMISSION SHALL BE CAREFULLY CHECKED FOR ALL CLEARANCES (INCLUDING THOSE REQUIRED FOR MAINTENANCE AND SERVICING), FIELD CONDITIONS, MAINTENANCE OF ARCHITECTURAL CONDITIONS, AND PROPER COORDINATION WITH ALL TRADES ON THE JOB. EACH SUBMITTED SHOP DRAWING SHALL INCLUDE A CERTIFICATION THAT ALL RELATED JOB CONDITIONS HAVE BEEN CHECKED AND THAT NO CONFLICT EXISTS.
- C. ALL DRAWINGS SHALL BE SUBMITTED SUFFICIENTLY IN ADVANCE OF FIELD

- REQUIREMENTS TO ALLOW AMPLE TIME FOR CHECKING AND RESUBMITTAL AS MAY BE REQUIRED. ALL SUBMITTALS SHALL BE COMPLETE AND CONTAIN ALL REQUIRED AND DETAILED INFORMATION.
- D. ACCEPTANCE OF ANY SUBMITTED DATA OR SHOP DRAWINGS FOR MATERIAL, EQUIPMENT APPARATUS, DEVICES, ARRANGEMENTS, AND LAYOUT SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY OF FURNISHING SAME OF PROPER DIMENSIONS AND WEIGHT, CAPACITIES, SIZES, QUANTITY, QUALITY AND INSTALLATION DETAILS, TO EFFICIENTLY PERFORM THE REQUIREMENTS AND INTENT OF THE CONTRACT. SUCH ACCEPTANCE SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR INADEQUACIES OF ANY SORT ON SUBMITTED DATA OR SHOP
- E. EACH SHOP DRAWING SHALL CONTAIN THE FOLLOWING INFORMATION.
- a) PROJECT TITLE.

PROVIDE GENERAL INFORMATION ON EACH COPY OF THE SUBMITTAL.

- b) REFERENCE TO THE APPLICABLE DRAWING AND SPECIFICATION
- c) CONTRACTOR AND SUPPLIER IDENTIFICATION, ADDRESSES AND TELEPHONE NUMBERS.
- 2. CERTIFICATION THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL 3. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION REQUIREMENTS.
- F. SHOP DRAWING SUBMITTALS SHALL BE PROVIDED FOR EACH SPECIFIC
- MATERIAL, SYSTEM, OR EQUIPMENT AS IDENTIFIED HEREIN.
- AS A MINIMUM, MAKE SUBMITTALS ON THE FOLLOWING ITEMS: a. RACEWAYS, CONDUIT & WIRE
- b. WIRING DEVICES AND PLATES c. SWITCHBOARDS

d) SUBMITTAL DATE.

- d. TRANSFORMERS
- e. PANELBOARDS
- g. DISCONNECT SWITCHES
- h. MOTOR CONTROL CENTERS
- MOTOR CONTROLLERS, STARTERS, AND CONTACTORS j. LIGHTING FIXTURES, LAMPS
- k. INSTRUMENTATION, METERING EQUIPMENT
- I. SPECIAL SYSTEMS FIRE ALARM, SECURITY, CCTV, INTERCOM, ETC.
- 2. REFER TO INDIVIDUAL SPECIFICATION SECTIONS FOR ADDITIONAL SUBMITTAL REQUIREMENTS.

PART 3 - EXECUTION

- 1 INSTALLATION FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLING, CONNECTING, AND ADJUSTING ALL EQUIPMENT. PROVIDE ONE COPY OF SUCH INSTRUCTIONS TO THE ARCHITECT/ENGINEER BEFORE INSTALLING ANY QUIPMENT. PROVIDE A COPY OF SUCH INSTRUCTIONS AT THE EQUIPMENT
- DURING ANY WORK ON THE EQUIPMENT. PROVIDE ALL SPECIAL SUPPORTS, CONNECTIONS, WIRING, ACCESSORIES, ETC.
- B. USE MECHANICS SKILLED IN THEIR TRADE FOR ALL WORK. C. KEEP ALL ITEMS PROTECTED BEFORE AND AFTER INSTALLATION. CLEAN UP
- D. BEFORE COMMENCING WORK, EXAMINE ALL ADJOINING, UNDERLYING, ETC., WORK ON WHICH THIS WORK IS IN ANY WAY DEPENDENT FOR PERFECT WORKMANSHIP AND REPORT ANY CONDITION WHICH PREVENTS PERFORMANCE OF FIRST CLASS WORK. BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS TO WHICH CONNECTIONS MUST BE MADE OR WHICH MUST BE CHANGED OR ALTERED.

3.02 PREMIUM TIME WORK A. THE FOLLOWING WORK SHALL BE PERFORMED AT NIGHT OR WEEKEND OTHER THAN HOLIDAY WEEKENDS AS DIRECTED AND COORDINATED WITH

AND NOT INTERFERE WITH NORMAL BUILDING OPERATIONS.

 ALL TIE-IN, CUT-OVER AND MODIFICATIONS TO THE EXISTING ELECTRICAL SYSTEM AND OTHER EXISTING SYSTEM REQUIRING TIE-INS OR MODIFICATIONS SHALL BE ARRANGED AND SCHEDULED WITH THE OWNER TO BE DONE AT A TIME AS TO MAINTAIN CONTINUITY OF THE SERVICE

- 3.03 EXCAVATION, TRENCHING AND BACKFILL A. PROVIDE EXCAVATION FOR THE WORK. EXCAVATE ALL MATERIAL ENCOUNTERED, TO THE DEPTHS INDICATED ON THE DRAWINGS OR REQUIRED. REMOVE FROM THE SITE, EXCAVATED MATERIALS NOT REQUIRED OR SUITABLE FOR BACKFILL. PROVIDE GRADING, AS MAY BE NECESSARY, TO PREVENT SURFACE WATER FROM FLOWING INTO TRENCHES OR OTHER EXCAVATIONS. REMOVE ANY WATER ACCUMULATING THEREIN. PROVIDE SHEETING AND SHORING AS MAY BE NECESSARY FOR
- THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. B. PROVIDE TRENCHES OF WIDTHS NECESSARY FOR THE PROPER EXECUTION OF THE WORK. GRADE BOTTOM OF THE TRENCHES ACCURATELY TO PROVIDE UNIFORM BEARING AND SUPPORT THE WORK ON UNDISTURBED SOIL AT EVERY POINT ALONG ITS ENTIRE LENGTH. EXCEPT WHERE ROCK IS ENCOUNTERED, DO NOT EXCAVATE BELOW THE DEPTHS INDICATED. WHERE ROCK EXCAVATIONS ARE REQUIRED, EXCAVATE ROCK TO A MINIMUM OVERDEPTH OF FOUR (4") INCHES BELOW THE TRENCH DEPTHS INDICATED ON THE DRAWINGS OR REQUIRED. BACKFILL OVERDEPTHS IN THE ROCK EXCAVATION AND UNAUTHORIZED OVERDEPTHS WITH LOOSE GRANULAR. MOIST EARTH, THOROUGHLY MACHINE TAMPED, TO A COMPACTION LEVEL OF AT LEAST 95 PERCENT TO STANDARD PROTECTOR DENSITY OR 75 PERCENT RELATIVE DENSITY OR AS SPECIFIED BY THE ARCHITECT.WHENEVER UNSTABLE SOIL THAT IS INCAPABLE OF PROPERLY SUPPORTING THE WORK, AS DETERMINED BY ARCHITECT/ENGINEER, IS ENCOUNTERED IN THE BOTTOM OF THE TRENCH, REMOVE SOIL TO A DEPTH REQUIRED AND BACKFILL THE TRENCH TO THE PROPER GRADE WITH
- COARSE SAND, FINE GRAVEL, OR OTHER SUITABLE MATERIAL. C. EXCAVATE TRENCHES FOR UTILITIES TO A DEPTH THAT WILL PROVIDE THE FOLLOWING MINIMUM DEPTHS OF COVER FROM EXISTING GRADE OR FROM INDICATED FINISHED GRADE, WHICHEVER IS LOWER, UNLESS OTHERWISE
- SPECIFICALLY SHOWN. 1. PRIMARY ELECTRIC SERVICE: FOUR (4) FEET (MINIMUM)
- 2. SECONDARY ELECTRIC SERVICE: TWO (2) FEET (MINIMUM) 3. TELEPHONE SERVICE: TWO (2) FEET (MINIMUM)
- OR SOIL SURFACES WHICH MUST RESIST HORIZONTAL FORCES. E. DO NOT BACKFILL TRENCHES UNTIL ALL REQUIRED TESTS HAVE BEEN PREFORMED AND THE INSTALLATION OBSERVED BY THE ENGINEER. COMPLY WITH THE REQUIREMENTS OF OTHER SECTIONS OF THESE SPECIFICATIONS. BACKFILL SHALL CONSIST OF NON-EXPANSIVE SOIL WITH LIMITED POROSITY. DEPOSIT IN SIX (6") INCH LAYERS AND THOROUGHLY AND CAREFULLY TAMP

UNTIL THE WORK HAS A COVER OF NOT LESS THAN ONE (1) FOOT. BACKFILL

AND TAMP REMAINDER OF TRENCH AT TWELVE (12") INCH INTERVALS UNTIL

COMPLETE. UNIFORMLY GRADE THE FINISHED SURFACE. BACKFILL AND

D. TRENCHES SHALL NOT BE PLACED WITHIN TEN (10) FEET OF FOUNDATION

TAMP WITH COMPACTION AT LEAST EQUAL TO THE SURROUNDING AREA.

3.04 CUTTING, PATCHING AND REPAIRING A. THE WORK SHALL BE CAREFULLY LAID OUT IN ADVANCE. WHERE CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES IS NECESSARY FOR THE PROPER INSTALLATION, SUPPORT OR ANCHORAGE OF RACEWAY, OUTLETS OR OTHER EQUIPMENT, THE WORK SHALL BE CAREFULLY DONE. ANY DAMAGE TO THE BUILDING, PIPING, EQUIPMENT OR DEFACED FINISH PLASTER, WOODWORK, METALWORK, ETC. SHALL BE REPAIRED BY SKILLED MECHANICS OF THE TRADES INVOLVED AT NO ADDITIONAL COST TO THE

- B. WHERE CONDUITS, MOUNTING CHANNELS, OUTLET, JUNCTION, OR PULL BOXES ARE MOUNTED ON A PAINTED SURFACE, OR A SURFACE TO BE PAINTED, THEY SHALL BE PAINTED TO MATCH THE SURFACE. WHENEVER SUPPORT CHANNELS ARE CUT, THE BARE METAL SHALL BE COLD GALVANIZED.
- 3.05 DEMOLITION AND CONTINUANCE OF EXISTING SERVICES
- A. ALL EXISTING ELECTRICAL SERVICES NOT SPECIFICALLY INDICATED TO BE REMOVED OR ALTERED SHALL REMAIN AS THEY PRESENTLY EXIST.
- B. SHOULD ANY EXISTING SERVICES INTERFERE WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL (AFTER OBTAINING WRITTEN APPROVAL FROM THE ARCHITECT/ENGINEER) ALTER OR REROUTE SUCH EXISTING EQUIPMENT TO FACILITATE NEW CONSTRUCTION.
- UNDER NO CIRCUMSTANCES SHALL EXISTING SERVICES BE TERMINATED OR ALTERED UNLESS DEEMED NECESSARY BY THE ARCHITECT/ENGINEER OR SPECIFIED HEREIN; ALSO, PRIOR TO ALTERING ANY EXISTING SITUATION, THE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING GIVING TWO (2)
- WEEKS ADVANCE NOTICE OF PLANNED ALTERATION. IT SHALL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY TO GUARANTEE CONTINUITY OF PRESENT FACILITIES (WITH RESPECT TO DAMAGE OR ALTERATION DUE TO NEW CONSTRUCTION) AND ANY UNAUTHORIZED ALTERATION TO EXISTING EQUIPMENT SHALL BE CORRECTED BY THE CONTRACTOR TO THE ARCHITECT/ENGINEER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.

3.06 CLEANING UP

- A. CONTRACTOR SHALL TAKE CARE TO AVOID ACCUMULATION OF DEBRIS, BOXES, CRATES, ETC., RESULTING FROM THE INSTALLATION OF HIS WORK. CONTRACTOR SHALL REMOVE FROM THE PREMISES EACH DAY ALL DEBRIS, BOXES, ETC., AND KEEP THE PREMISES CLEAN.
- B. CONTRACTOR SHALL CLEAN UP ALL FIXTURES AND EQUIPMENT AT THE COMPLETION OF THE PROJECT.
- C. ALL SWITCHBOARDS, PANELBOARDS, WIREWAYS, TRENCH DUCTS, CABINETS AND ENCLOSURES SHALL BE THOROUGHLY VACUUMED CLEAN PRIOR TO ENERGIZING EQUIPMENT AND AT THE COMPLETION OF THE PROJECT. EQUIPMENT SHALL BE OPENED FOR OBSERVATION BY THE

ARCHITECT/ENGINEER AS REQUIRED.

- 3.07 WATERPROOFING A. AVOID, IF POSSIBLE, THE PENETRATION OF ANY WATERPROOF MEMBRANES SUCH AS ROOFS, MACHINE ROOM FLOORS, BASEMENT WALLS, AND THE LIKE. IF SUCH PENETRATION IS NECESSARY, PERFORM IT PRIOR TO THE WATERPROOFING AND FURNISH ALL SLEEVES OR PITCH-POCKETS REQUIRED. ADVISE THE ARCHITECT/ENGINEER AND OBTAIN WRITTEN PERMISSION BEFORE PENETRATING ANY WATERPROOF MEMBRANE, EVEN
- WHERE SUCH PENETRATION IS SHOWN ON THE DRAWINGS. B. IF CONTRACTOR PENETRATES ANY WALLS OR SURFACES AFTER THEY HAVE BEEN WATERPROOFED, HE SHALL RESTORE THE WATERPROOF INTEGRITY OF THAT SURFACE AS DIRECTED BY THE ARCHITECT/ENGINEER AT HIS OWN
- B. INCLUDE SUPPORTING FRAMES OR RACKS EXTENDING FROM BUILDING STRUCTURE FOR WORK INDICATED AS BEING SUPPORTED FROM WALLS WHERE THE WALLS ARE INCAPABLE OF SUPPORTING THE WEIGHT. IN PARTICULAR, PROVIDE SUCH FRAMES OR RACKS IN ELECTRIC CLOSETS.

C. INCLUDE SUPPORTING FRAMES OR RACKS FOR EQUIPMENT, INTENDED FOR

A. SUPPORT WORK IN ACCORDANCE WITH THE BEST INDUSTRY PRACTICE AND

- VERTICAL SURFACE MOUNTING, WHICH IS REQUIRED IN A FREE STANDING D. SUPPORTING FRAMES OR RACKS SHALL BE OF STANDARD ANGLE, STANDARD CHANNEL OR SPECIALTY SUPPORT SYSTEM STEEL MEMBERS. THEY SHALL BE RIGIDLY BOLTED OR WELDED TOGETHER AND ADEQUATELY BRACED TO FORM A SUBSTANTIAL STRUCTURE. RACKS SHALL BE OF AMPLE
- SIZE TO ASSURE A WORKMANLIKE ARRANGEMENT OF ALL EQUIPMENT MOUNTED ON THEM. E. NOTHING, (INCLUDING OUTLET, PULL AND JUNCTION BOXES AND FITTINGS) SHALL DEPEND ON ELECTRIC CONDUITS, RACEWAYS, OR CABLES FOR SUPPORT, EXCEPT THAT THREADED HUB TYPE FITTINGS HAVING A GROSS VOLUME NOT IN EXCESS OF 100 CUBIC INCHES MAY BE SUPPORTED FROM HEAVY WALL CONDUIT, WHERE THE CONDUIT IS SECURELY SUPPORTED
- OPPOSITE SIDES. F. NOTHING SHALL REST ON, OR DEPEND FOR SUPPORT ON, SUSPENDED CEILINGS MEDIA (TILES, LATH, PLASTER, AS WELL AS SPLINES, RUNNERS,

BARS AND THE LIKE IN THE PLANE OF THE CEILING).

THE BEST INDUSTRY PRACTICE AND THE FOLLOWING.

FROM THE STRUCTURE WITHIN FIVE INCHES OF THE FITTING ON TWO

G. PROVIDE REQUIRED SUPPORTS AND HANGERS FOR CONDUIT, EQUIPMENT, ETC., SO THAT LOADING WILL NOT EXCEED ALLOWABLE LOADINGS OF STRUCTURE.

A. FASTEN ELECTRIC WORK TO BUILDING STRUCTURE IN ACCORDANCE WITH

B. FLOOR OR PAD MOUNTED EQUIPMENT SHALL NOT BE HELD IN PLACE SOLELY BY ITS OWN DEAD WEIGHT. INCLUDE ANCHOR FASTENING IN ALL C. FOR ITEMS WHICH ARE SHOWN AS BEING CEILING MOUNTED AT LOCATIONS WHERE FASTENING TO THE BUILDING CONSTRUCTION ELEMENT ABOVE IS

NOT POSSIBLE, PROVIDE SUITABLE AUXILIARY CHANNEL OR ANGLE IRON

AND ALL MATERIALS, CONNECTIONS, LABOR, ETC., REQUIRED TO PERFORM

IS FULLY OCCUPIED. MAKE FINAL TRANSFORMER TAP ADJUSTMENTS BASED

BRIDGING, TYING TO THE BUILDING STRUCTURAL ELEMENTS.

3.09 FASTENINGS

- 3.10 TESTING EQUIPMENT AND MATERIALS A. THE CONTRACTOR SHALL PROVIDE ALL TESTING INSTRUMENTS, EQUIPMENT
- B. TEST ALL CIRCUITS, FIXTURES, EQUIPMENT, AND SYSTEMS FOR PROPER OPERATION AND FREEDOM FROM GROUNDS, SHORTS AND OPEN CIRCUITS BEFORE ACCEPTANCE IS REQUESTED. C. MEASURE VOLTAGE AT PANELBOARDS AND OUTLETS AFTER THE BUILDING
- ON THESE MEASUREMENTS. D. PERFORM ALL TESTS REQUIRED BY LOCAL AUTHORITIES, SUCH AS TESTS OF
- LIFE SAFETY SYSTEMS, IN ADDITION TO TESTS SPECIFIED HEREIN. E. PERFORM TESTS REQUIRED BY OTHER SPECIFICATION SECTIONS.



SPECIFICATIONS

ELECTRICAL

BUILDING DEPARTMENT PLUMBING NOTES

- 1. ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE.
- 2. INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC
- 3. PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION PC 305.
- 4. TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION PC
- RODENT PROOFING AS PER PC 304.
- 6. MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 303, PC 605, PC 702, PC 902, PC 1102.
- IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
- 8. DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002, AND CLEAN-OUTS SHALL BE INSTALLED IN D. REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708.
- 9. DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
- 10. VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308.
- 11. WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND E. SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF

CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 610.

- 12. THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 SECTION PC 701, 704, 705, 706, 707, 708, 711.
- 13. VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE
- 14. INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC 312.

1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND 1.03 SUBSTITUTIONS METHODS

- A. PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.
- B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SUBSTITUTIONS, INCLUDING ALL RELATED COSTS. SATISFACTION.
- C. OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE WITH RELATED ACCESSORIES.
- D. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS
- E. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN DEFINITIONS. EXISTING CONDITIONS.
- F. IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.
- G. ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.
- H. COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, AND/OR APPROVED BY THE ARCHITECT.
- I. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS. DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.
- J. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.
- K. THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE ARCHITECTURAL DRAWINGS. PROVIDED BY THE GENERAL CONTRACTOR.

1.02 SUBMITTALS

- A. SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. UNLESS A. SANITARY AND VENT PIPING: OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.
- PIPE AND FITTINGS
- VALVES HANGERS AND SUPPORTS
- PLUMBING PIPING LAYOUT TESTS
- PLUMBING FIXTURES
- FLOOR DRAINS MIXING VALVES
- BACKFLOW PREVENTER 10. ALL SCHEDULED PLUMBING EQUIPMENT
- B. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT B. DOMESTIC WATER PIPING: BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.
- 7. EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE C. THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.
 - THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
 - TEST RESULTS TO THE OWNER AND THE ARCHITECT.
 - F. SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY
- INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF G. FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES CHAPTER 9 SECTIONS PC 901 THROUGH PC 912 THROUGH PC FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.
 - H. RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.

- A. ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURER'S EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.
- PROTECTION OF ALL NEW CONDITIONS AND MATERIALS WITHIN B. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY D. HANGERS AND SUPPORTS:

1.04 DEFINITIONS

- ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND A. FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE
 - B. INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED

ACCESSORIES.

- C. PROVIDE: TO FURNISH AND INSTALL
- BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE D. PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE 5. UNLESS OTHERWISE INDICATED OR REQUIRED BY AUTHORITIES HAVING WORK. BY COMMENCING WORK, THE CONTRACTOR CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.
- WORK AND BID PRICE SUCH THAT NO ADDITIONAL E. REFER TO THE NATIONAL STANDARD PLUMBING CODE FOR ADDITIONAL

- CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL A. THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, E. VALVES: RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE
- INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.
- FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE
 - D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.
- COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, E. VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE
- ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL

- ABOVE GRADE PIPING SHALL BE HUBLESS CAST IRON PIPE WITH STAINLESS STEEL COUPLINGS AND ELASTOMERIC GASKETS WITH A MINIMUM NO. OF BANDS PER COUPLING AS PER CISPI 310-12.
- 2. SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 3" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
- 3. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.

- ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
- FITTINGS IN DOMESTIC WATER PIPING SHALL BE WROUGHT COPPER OR CAST BRASS.
- JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
- THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
- COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.

C. MIXING VALVES

DIFFERENTIAL.

- VALVE BODY SHALL BE MADE OF CAST BRASS. THE INTERNAL COMPONENTS SHALL BE MADE OF BRASS OR STAINLESS STEEL.
- TYPES A, C & D VALVES: VALVE SHUTS OFF IN FULL COLD POSITION AND MUST PASS THROUGH COLD RANGE BEFORE DELIVERING WARM, AND/OR HOT WATER. TEMPERATURE LIMIT SET AT 105°F MAXIMUM DELIVERY TEMPERATURE. IF ONE SUPPLY SHOULD FAIL, THE OTHER WILL AUTOMATICALLY AND INSTANTLY SHUT DOWN. DELIVERY CAPACITY IS 0.55GPM @ 5 PSIG
- TYPES OF VALVES: TYPE A- THERMOSTATICALLY OPERATED BY MEANS OF BI-METALLIC STRIP, OR EXPANSION BELLOWS; TYPE B-SINGLE HANDLE MECHANICAL MIXER, OR INDIVIDUAL HOT AND COLD CONTROL VALVES; TYPE C- PRESSURE BALANCING SHOWER VALVE/PISTON OPERATED MIXING VALVE; TYPE D- BALANCED PRESSURE OPERATION, WITH INTEGRAL DIAL THERMOMETER INDICATING DELIVERED WATER TEMPERATURE.
- EACH ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUT-OFF SWITCH. ALL INTERNAL CIRCUITS SHALL BE FUSED. THE OUTER JACKET SHALL BE OF BAKED ENAMEL FINISH AND SHALL BE PROVIDED WITH FULL SIZE CONTROL COMPARTMENT FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH HINGED FRONT PANEL AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. ELECTRICAL JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK SHALL BE PROVIDED. THE DRAIN VALVE SHALL BE I. VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES. LOCATED IN THE FRONT FOR EASE OF SERVICING.

- 1. HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION, PIPING SHALL NOT BE HUNG FRO OTHER PIPE.
- 2. SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
- 3. ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED 4. PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE
- REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. JURISDICTION, THE FOLLOWING SHALL BE PROVIDED WITH SEISMIN RESTRAINTS AS REQUIRED BY THE BOCA NATIONAL BUILDING CODE, SECTION 1610.6.4: ALL EQUIPMENT AND MACHINERY, ALL NEW PIPING 2-1/2" AND LARGER (1-1/4" AND LARGER INBOILER/MECHANICAL ROOMS) WITH HANGERS GREATER THAN 12" IN LENGTH FROM THE TOP OF PIPE TO THE STRUCTURE.
- 6. SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

- PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT-OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4", PROVIDE GATE VALVES. PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT-OFF DUTY.
- ALL FIXTURES WITH THE EXCEPTION O FLUSHOMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
- ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF ALVES ON SUPPLY LINES.
- ALL BRANCH LINES TO HAVE SHUT-OFF VALVES. ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS
- WATER CIRCULATING SYSTEM. IN GENERAL. VALVES SIZED 2 INCHES AND SMALLER SHALL HAVE
- INCHES AND LARGER SHALL HAVE FLANGED END CONNECTIONS. GATE AND GLOBE VALVES SHALL BE PRESSURE RATED AND OF
- BALL VALVES SHALL BE BRONZE, FULL PORT TYPE WITH STAINLESS STEEL BALL, BLOW-OUT PROOF STEM, AND SOLDER OR THREADED **END CONNECTIONS**

F. SLEEVES AND ESCUTCHEONS:

- 4. SLEEVES THROUGH STRUCTURAL CONCRETE MEMBERS AND SLEEVES FOR WALLS BELOW GRADE AND FLOORS ON GRADE SHALL BE STANDARD WEIGHT GALVANIZED SCHEDULE 40 STEEL PIPE. SLEEVES THROUGH OTHER THAN STRUCTURAL COMPONENTS OF THE BUILDING SHALL BE 20 GAGE GALVANIZED SHEET METAL WITH LOCK SEAM JOINTS. USG THERMAFIBER SAFING INSULATION SHALL BE INSTALLED BETWEEN PIPE AND SLEEVE.
- 5. PIPE ESCUTCHEON PLATES SHALL BE INSTALLED WHERE EXPOSED PIPING PASSES THROUGH WALLS, CEILINGS, AND FLOORS AND SHALL BE MINIMUM 20 GAGE STEEL. PROVIDE CHROME PLATED ESCUTCHEON PLATES IN FINISHED AREAS.

G. DRAINAGE ACCESSORIES

- a. INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.
- b. SECURE EXTERNAL COMPONENTS IN PLACE WITH VANDAL RESISTANT FASTENERS OR DEVICES WHICH CANNOT BE REMOVED WITHOUT SPECIAL TOOLS.

DEVICES:

- a. CLEANOUT & CLEANOUT PLUG
- THREADED PIPE FITTING OR CAST IRON FERRULE WITH GAS TIGHT CLEANOUT PLUG
- PLUG SHOULD BE CAST BRASS OR BRONZE, WITH THREADED END, AND RAISED OR COUNTERSUNK HEAD.
- LUBRICATE THREADS OF CLEANOUT PLUG WITH ANTI-SEIZE LUBRICANT BEFORE FINAL INSTALLATION.

b. CLEANOUT WALL PLATE

 IT SHOULD BE STANDARD DUTY FLOOR CLEANOUT FITTING WI COATED CAST IRON BODY; ROUND, POLISHED NICKEL BRONZE SCORIATED TOP SECURED TO CLEANOUT PLUG WITH STAINLESS STEEL VANDAL RESISTANT FASTENER; THREADED HEIGHT ADJUSTMENT, CAST IRON HEAD, GAS TIGHT CLEANOUT PLUG, AND CONNECTION TO MATCH PIPING OPTION SELECTED.

4. INDIRECT WASTE FUNNEL

a. IT SHOULD BE COMBINATION OF FUNNEL DRAIN AND P TRAP WITH POLISHED CHROME PLATED CAST BRASS CONSTRUCTION WITH 4" TOP DIA., 4" DEEP WITH THREADED OUTLET.

H. INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE

- J. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT.PROVIDE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'-0" IN LENGTH
- (. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED URFACES.INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL. MOVE PROTECTIVE COATINGS PRIOR TO INSTALLATION.
- FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.

M. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

- N. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING A. INSTALL PLUMBING PIPING IN ACCORDANCE WITH RECOGNIZED VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.
- O. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.
- P. PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.
- Q. PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND INSTALLED BY THE GENERAL CONTRACTOR.
- R. ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.
- CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE S. ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.
 - WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.
- PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT U. AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY
- THREADED OR SOLDER END CONNECTIONS. VALVES SIZED 2-1/2 V. CONNECT GAS PIPING TO ALL GAS-FIRED EQUIPMENT WITH GAS COCK, DIRT LEG AND UNION.
- TYPE THAT CAN BE PACKED UNDER PRESSURE WHETHER OPEN OR W. FOR ALL GAS-FIRED EQUIPMENT, VERIFY INPUT RATING AND PRESSURE REQUIREMENTS. PROVIDE GAS PRESSURE REGULATORS VENTED TO THE BUILDING EXTERIOR ON GAS SUPPLY TO ALL EQUIPMENT REQUIRING LOWER THAN LINE GAS PRESSURE

- X. ALL PIPING INSTALLED ON THE ROOF SHALL BE SUPPORTED BY "PILLOW BLOCK" PIPE STANDS AS MANUFACTURED BY MIRO INDUSTRIES, OR APPROVED EQUAL. WOOD PIPE SUPPORTS SHALL NOT BE ACCEPTABLE. PROVIDE TRAFFIC/WALK PADS BELOW ALL PIPE STANDS.
- INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.
- PROVIDE WATER HAMMER ARRESTERS ON SUPPLY PIPING TO ALL FLUSHOMETER VALVES AND QUICK-CLOSING VALVES.
- AA. UNLESS OTHERWISE INDICATED, TRAPS SEALS AT ALL FLOOR DRAINS SHALL BE MAINTAINED BY AN APPROVED TRAP PRIMING DEVICE.
- AB. MAINTAIN ALL REQUIRED AND RECOMMENDED CLEARANCES FOR ALL PLUMBING SYSTEM COMPONENTS AND EQUIPMENT.
- 2. INSTALLATION

2.01 GENERAL

- A. ALL WORK WHICH REQUIRES DISRUPTION OF THE ROOFING SHALL BE DONE BY A CONTRACTOR CERTIFIED BY THE ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ANY EXISTING ROOF WARRANTIES.
- B. EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECTS.
- C. EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.
- COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.
- REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN AND
- FERROUS END PIPE. REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE,
- BEFORE ASSEMBLY. G. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND
- COORDINATION WITH THE WORK OF OTHER TRADES IS REQUIRED. PROVIDE OFFSETS IN PIPING SYSTEMS OR MINOR DEVIATIONS TO THE INDICATED PIPE ROUTING IN ORDER TO COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES AND THE GENERAL
- NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.
- PRIOR TO DISCONNECTING AND CONNECTING NEW WORK TO EXISTING SYSTEMS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE PROPERTY MANAGER AND OFFER A PROPOSED SCHEDULE OF WORK. ESB WILL AUTHORIZE CONNECTIONS AND COORDINATE NECESSARY SHUT DOWNS AND DRAIN DOWNS AS REQUIRED. SHUT DOWNS AND DRAIN DOWNS MAY BE PERFORMED BY THE PLUMBING CONTRACTOR ONLY AFTER RECEIVING ESB AUTHORIZATION, AND SHOULD BE PERFORMED UNDER SUPERVISION OF ESB PERSONNEL. THREE (3) DAYS ADVANCE NOTICE TO THE PROPERTY MANAGER IS REQUIRED.
- K. THE PLUMBING CONTRACTOR IS ADVISED THAT DUE TO THE NATURE OF THE OPERATIONS AND TENANT REQUIREMENTS, CONNECTIONS TO EXISTING SYSTEMS MAY HAVE TO BE MADE AFTER REGULAR WORKING HOURS. THE PROPERTY MANAGER WILL ADVISE THE PLUMBING CONTRACTOR OF THE TIME CONSTRAINTS UPON RECEIPT AND APPROVAL OF THE PLUMBING CONTRACTOR'S REQUEST FOR SHUT
- L. WHEN CONNECTING TO EXISTING STACKS AND RISERS. PROVISION IS TO REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING BE MADE FOR FUTURE CONNECTIONS BY PROVIDING CAPPED AND VALVED OUTLETS ON DOMESTIC WATER RISERS AND PLUGGED OUTLETS ON THE SANITARY AND VENT STACKS.

DOWN AND CONNECTION TO EXISTING SYSTEMS.

2.02 ABOVE GRADE

BUILDING CONDITIONS.

- INDUSTRY PRACTICES TO ENSURE THAT PIPING COMPLIES WITH
- REQUIREMENTS AND SERVES INTENDED PURPOSES. B. ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE. MAINTAIN GRADIENT. SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN. IN DOMESTIC WATER SYSTEMS, PROVIDE DRAIN VALVES AT MAIN SHUT-OFF VALVES AND ALL LOW POINTS IN
- CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR. C. USE EXISTING CONNECTIONS AT MAINS WHERE AVAILABLE FOR NEW BRANCH PIPING. LOCATE ALL RISERS AND PIPING BEFORE CONSTRUCTION COMMENCES AND TAKE CARE NOT TO DAMAGE SAME. ANY DAMAGE OCCURRING TO THE EXISTING PIPING WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

2.03 INSULATION

COVER ALL HOT WATER AND HOT WATER RE-CIRCULATION PIPE WITH 1" THICK FOR PIPE SIZE UP TO 1½" AND 1½" THICK FOR PIPE SIZE 1½" AND GREATER WITH MANVILLE MICRO-LOK AP-T PLUS FIBERGLASS INSULATION. COVER ALL COLD WATER PIPE WITH 1/2" THICK FOR PIPE SIZE UP TO 11/2" AND 1" THICK FOR PIPE SIZE 11/2" AND GREATER WITH 1" MANVILLE MICRO-LOK AP-T PLUS FIBERGLASS INSULATION. FITTINGS AND VALVES SHALL BE INSULATED WITH MANVILLE ZESTON 2000 PVC INSULAT-ED FITTING COVERS. INSTALL ALL INSULATION AS PER MANUFACTURERS RECOMMENDATIONS. ALL INSULATION MATERIAL SHALL COMPLY WITH THE CITY BUILDING CODE REQUIREMENT OF A FLAME SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DEVELOPED RATING NOT TO EXCEED 50. ALL PIPE INSULATION SHALL COMPLY WITH ASHRAE 90.1 2007 ENERGY CONSERVATION CODE.

- A. AT THE COMPLETION OF THE PLUMBING WORK, COMPLETELY TEST THE ENTIRE INSTALLATION OF ALL SYSTEMS FOR PROPER OPERATION AND COMPLIANCE WITH APPLICABLE CODES AND LOCAL REQUIREMENTS. CORRECT ALL DEFICIENCIES FOUND.
- B. TESTING OF THE INSTALLED SYSTEMS SHALL BE MADE BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER.
- C. THE CONTRACTOR SHALL NOT COVER UP OR PERMANENTLY CONCEAL PIPING, DEVICES OR ANY PORTION OF NEWLY CONSTRUCTED PLUMBING SYSTEM(S) UNTIL SUCH SYSTEM, OR PORTION OF THE SYSTEM, HAS BEEN TESTED IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER AND INSPECTED BY THE LOCAL INSPECTOR AND APPROVED IN WRITING, EXCEPT PIPING PASSING THROUGH FLOORS, WALLS, PARTITIONS, OR BEAMS, FOR DISTANCES EQUAL TO THE THICKNESS OF SUCH FLOOR, WALL, PARTITION OR BEAM.
- D. THIS CONTRACTOR SHALL NOTIFY THE VARIOUS DEPARTMENTS, BUREAUS AND INDIVIDUALS AT LEAST TWO WEEKS IN ADVANCE OF THE TIME THAT THE TESTS ARE TO BE CONDUCTED.
- E. ALL DEFECTIVE PARTS SHALL BE REPLACED OR CORRECTED BY THIS CONTRACTOR AND AN EXTRA TEST OR TESTS SHALL BE MADE UNTIL THE OPERATION IS SATISFACTORY. ALL ARRANGEMENTS AND EXPENSES NECESSARY TO CONDUCT ALL TESTS REQUIRED BY THESE SPECIFICATIONS AND THE VARIOUS AGENCIES HAVING JURISDICTION OVER THE WORK INSTALLED UNDER THIS CONTRACT SHALL BE MADE BY THIS CONTRACTOR. NO EXTRA COMPENSATION WILL BE ALLOWED FOR THESE TESTS, THE COST THEREOF BEING INCLUDED IN THE LUMP SUM BID FOR THIS CONTRACT.
- . WHERE ANY EVIDENCE OF STOPPAGE IS FOUND IN PIPING OR EQUIPMENT, THIS CONTRACTOR SHALL DISCONNECT, CLEAN, REPAIR AND RECONNECT ALL OBSTRUCTED PIPING OR EQUIPMENT AND SHALL ALSO PAY FOR ALL NECESSARY CUTTING AND REPAIRS TO ADJOINING
- G. ALL PIPING AND EQUIPMENT SHALL BE THOROUGHLY CLEANED INSIDE AND OUT, OF DIRT, CUTTINGS, OILS AND OTHER FOREIGN SUBSTANCES AND SHALL BE LEFT CLEAN.
- H. ALL REQUIRED TESTS SHALL BE WITNESSED BY LOCAL AUTHORITIES AND

I. ALL EQUIPMENT WILL BE FACTORY TESTED.

THE OWNER'S REPRESENTATIVE.

- J. CONTRACTOR SHALL IDENTIFY TO THE OWNER'S REPRESENTATIVE ANY LEAKS OR DAMAGE THAT OCCURS AS A RESULT OF SYSTEM TESTING. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO LIMIT ANY POTENTIAL DAMAGE. CORRECTIVE ACTION REQUIRED AS A RESULT OF TESTING SHALL BE PERFORMED IMMEDIATELY AND AT THE
- K. REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE

ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.

CONTRACTOR'S EXPENSE.

L. TESTING REQUIREMENTS a. TEST ALL DOMESTIC WATER PIPING HYDROSTATICALLY TO 125

d. THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR

ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE

- b. HYDROSTATIC TEST PRESSURES SHALL REMAIN CONSTANT WITH NO VARIATION FOR 120 MINUTES. c. TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
- TEST AREA AND ADJACENT TENANT OR ESB SPACES. M. REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIN CHEMICAL CORP.) AT A STRENGTH TO
- OF RETENTION AS STIPULATED. N. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY

MEET STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD

PRIOR TO FINAL ACCEPTANCE.

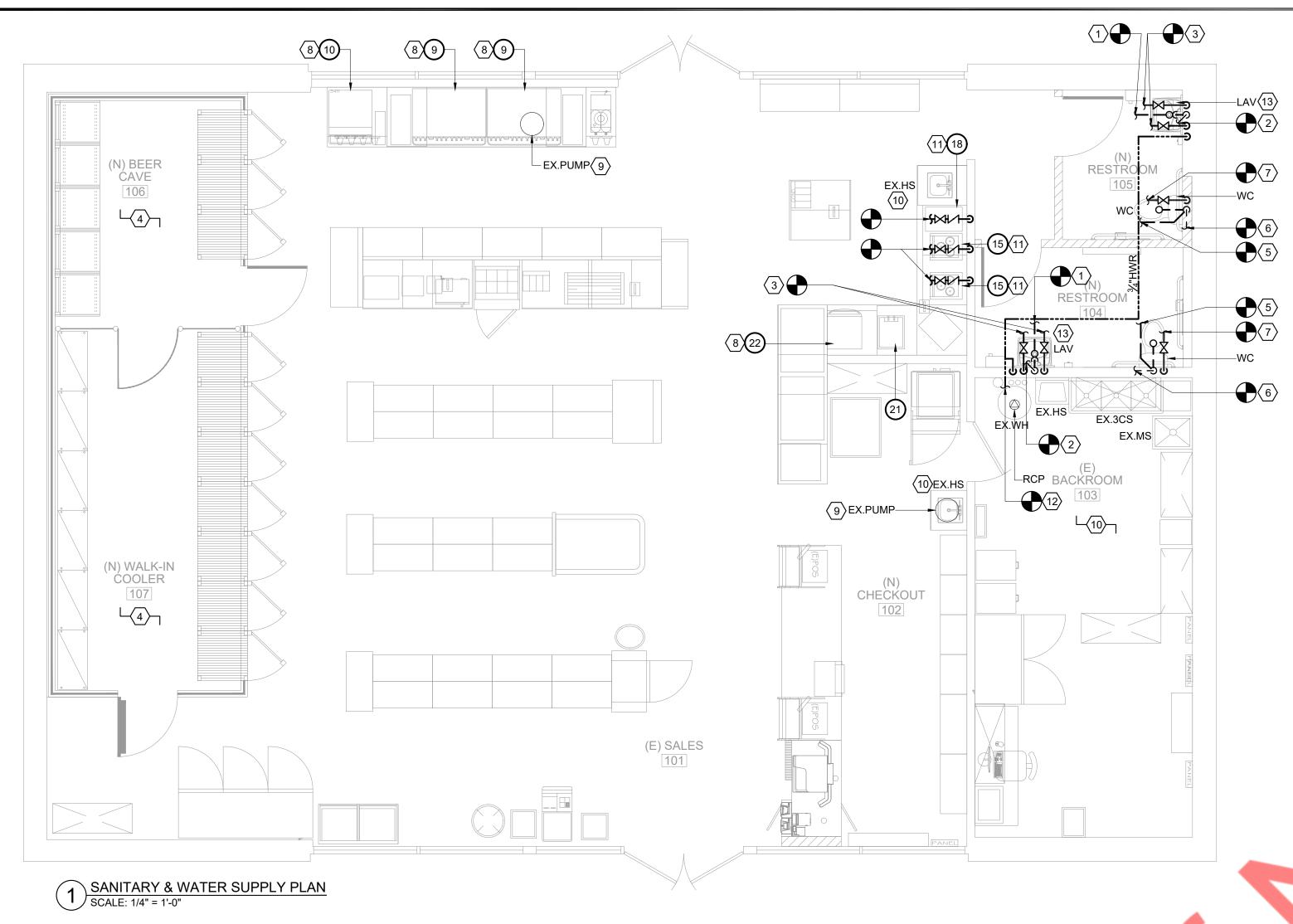
WARRANTY

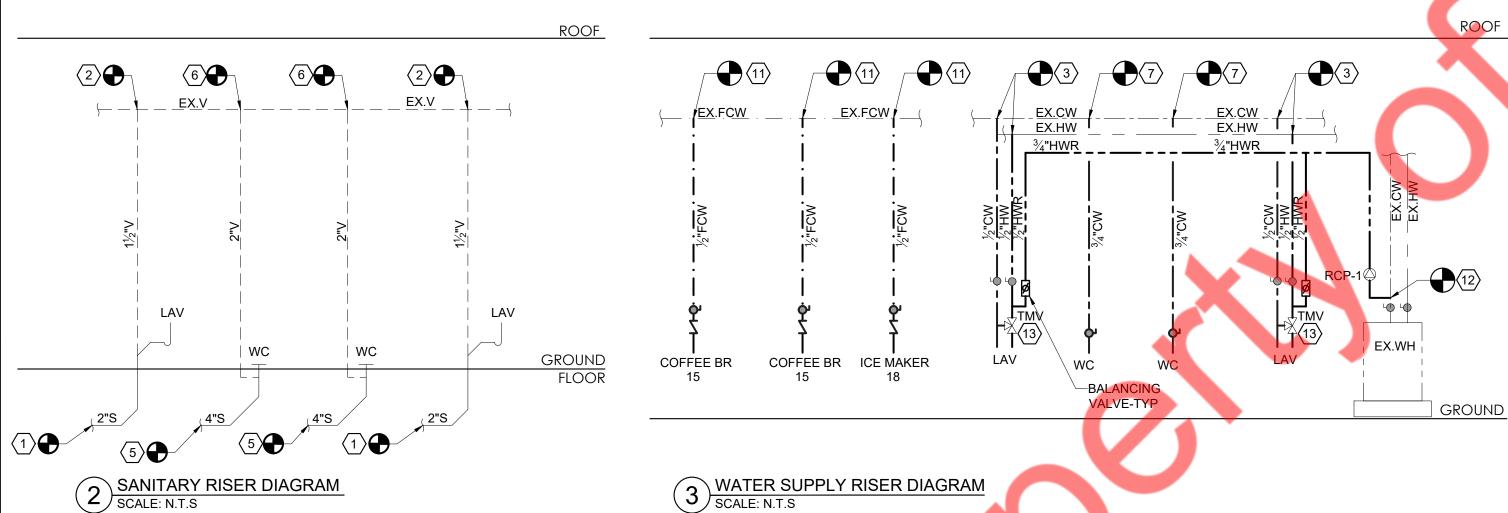
PROMPTLY REPAIRED.

A. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY CORRECT AND REPAIR ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT MAY OCCUR WITHIN THAT PERIOD SHALL ALSO BE



PLUMBING GENERAL NOTES & SPECIFICATIONS





					MENT SCHEDULE		
ITEM#	QTY	ITEM DESCRIPTION	COLD WATER	HOT WATER	FILTER WATER	DRAIN	REQUIREMENTS
WC	1	WATER CLOSET	3/4"	-	-	4" D	CONNECT TO EXISTING SANITARY & WATER MAIN CONNECTIONS
LAV	1	LAVATORY	1/2"	1/2"	-	2" D	CONNECT TO EXISTING SANITARY & WATER MAIN CONNECTIONS
9	2	12 HEAD POST MIX DISPENSER	-	-	1/2"	1" IND	ROUTE INDIRECT WASTE TO NEAREST DRAIN & CONNECT SUPPLY LINE TO EXISTING FCW MAIN LINE
10	1	4 FLAVOR FROZEN DISPENSER	-	-	1/2"	1" IND	ROUTE INDIRECT WASTE TO NEAREST DRAIN & CONNECT SUPPLY LINE TO EXISTING FCW MAIN LINE
15	2	RELOCATED COFFEE BREWER	-	-	1/2"	IND	ROUTE INDIRECT WASTE TO NEAREST DRAIN & CONNECT SUPPLY LINE TO EXISTING FCW MAIN LINE
18	1	ICE MACHINE	-	-	1/4"	À	CONNECT SUPPLY LINE TO EXISTING FCW MAIN LINE
22	1	5 HEAD CAPPUCCINO MACHINE	-	-	1/2"	-	CONNECT SUPPLY LINE TO EXISTING FCW MAIN LINE

	PUMP SCHEDULE													
ID	DESCRIPTION	MANUFACTURER	MODEL NO.	VOLT	PH	TRIM AND REMARKS								
RCP	RECIRCULATION PUMP	GRUNDFOS	UP 15-18 B5	115 V	ļ ļ	2 GPM @ 10 FT. HEAD. INSTALL NEAR WATER HEATER PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE AQUASTAT WITH TIMER KIT								

PLUMBING	LEGENDS	PLUMBING ABBREVIATIONS					
— — SAN — —	SANITARY SEWER	CW	COLD WATER				
	VENT PIPING	HW	HOT WATER				
	COLD WATER	HWR	HOT WATER RETURN				
	FILTERED COLD WATER	SAN	SANITARY				
	HOT WATER	V	VENT				
	RECIRCULATING HOT WATER	BFP	BACKFLOW PREVENTER				
	SECONDARY BFP	EX. / E	EXISTING				
	BALANCING VALVE	GC	GENERAL CONTRACTOR				
——————————————————————————————————————	PIPE UP OR DOWN	HS	HAND SINK				
	PIPE UP	MS	MOP SINK				
——————————————————————————————————————	UNION	3CS	3-COMPARTMENT SINK				
-↓ -/>>	ISOLATION VALVE	WC	WATER CLSET				
<u> </u>	CLEANOUT	LAV	LAVATORY				
•	POINT OFF CONNECTION	RCP	RE-CIRCULATION PUMP				
WH	WATER HEATER	FCW	FILTER COLD WATER LINE				

L							
PLUMBING KEY NOTES							
N	IO.	ITEM DESCRIPTION	#			NO.	ITEM DESCRIPTION
	1	EXTEND AND CONNECT NEW 2" SANITARY PIPING TO EXISTING SANITARY MAIN LINE IN THE SPACE. CONTRACTOR SHALL VERIFY THE EXISTING SANITARY SIZE, ROUTING, INVERT & TIE-IN CONNECTION PRIOR TO BID .				8	EXISTING BEVERAGE EQUIPMENTS TO REPLACED WITH NEW EQUIPMENTS IN THE EXISTING LOCATIONS WITH THE EXISTING SANITARY AND WATER SUPPLY CONNECTIONS, ASSOCIATED ACCESSORIES AND FITTINGS TO REMAIN. CONTRACTOR TO FILED VERIFY THE EXISTING PLUMBING CONNECTION LOCATIONS AND SAME AS TO BE WORKING CONDITIONS. NOTIFY THE ENGINEER IF ANY DISCREPANCIES IN THE FIELD.
	2		NECT NEW 1-1/2" VENT PIPING TO LLL VERIFY SIZE, ROUTING, LOCAT PE / VTR.			9	EXISTING EJECTOR PUMP WITH THE EXISTING SANITARY, VENT CONNECTIONS AND ASSOCIATED ACCESSORIES AND FITTINGS TO BE REMAIN. CONTRACTOR TO FILED VERIFY CONDITION OF EXISTING EJECTOR PUMP PRIOR TO BID.
	3		NECT NEW 1/2" CW & HW PIPING T CE. CONTRACTOR SHALL VERIFY T			1 10	EXISTING PLUMBING FIXTURES WITH EXISTING SANITARY, VENT AND WATER SUPPLY CONNECTION AND ASSOCIATED ACCESSORIES TO BE REMAIN.
	4		ALL CONNECT NEW CONDENSATE H APPROVED AIR GAS AS REQUIR PRIOR TO BID.			11	EXTEND AND CONNECT NEW 1/2" FCW PIPING WITH WATTS SD-3 BACKFLOW PREVENTER TO THE EXISTING FILTER COLD WATER MAIN LINE IN THE SPACE. CONTRACTOR TO VERIFY IN THE FILED TO EXTEND DRAIN LINE AND TIE INTO EXISTING SANITARY LINE OR ADJACENT FLOOR DRAIN / FLOOR SINKS WITH APPROVED AIR GAP REQUIRED BY CODE.
	5	_	NECT NEW 4" SANITARY PIPING TO FOR SHALL VERIFY THE EXISTING OR TO BID .				CONTRACTOR SHALL CONNECT NEW ¾" HWR LINE TO THE PUBLIC LAVATORIES WITH BALANCING VALVES. CONTRACTOR TO VERIFY IN THE FILED PRIOR TO BID.
•	6		NECT NEW 2" VENT PIPING TO THE LLL VERIFY SIZE, ROUTING, LOCAT E / VTR.				PROVIDE THERMOSTATIC MIXING VALVE SET TO 105°F/110°F FOR LAVATORY AS PER PLUMBING CODE REQUIREMENT.
	/		NECT NEW 3/4" CW PIPING TO THE FOR SHALL VERIFY THE EXISTING			14	

GENERAL NOTES

- A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE PLUMBING SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE
- RUN ALL SOIL WASTE AND VENT PIPING WITH 2% MINIMUM GRADE UNLESS OTHERWISE NOTED. HORIZONTAL VENT PIPING SHALL BE GRADED TO DRIP BACK TO THE SOIL OR WASTE PIPE BY GRAVITY
- C. ADJUST SEWER INVERTS TO KEEP TOPS OF PIPE IN LINE WHERE PIPE SIZE CHANGES.
- D. MAINTAIN A MINIMUM OF 5'-0" OF GROUND COVER OVER ALL UNDERGROUND WATER MAINS AND A MINIMUM OF 3'-0" OF GROUND COVER OVER ALL UNDERGROUND SEWERS AND DRAINS.
- E. PROVIDE SHUTOFF VALVES IN ALL DOMESTIC WATER PIPING SYSTEM BRANCHES IN WHICH BRANCH PIPING SERVES TWO OR MORE FIXTURES.
- UNLESS OTHERWISE NOTED, ALL DOMESTIC COLD AND HOT WATER PIPING SHALL BE 1/2" SIZE. UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF SLAB, WITH SPACE FOR INSULATION IF REQUIRED
- G. INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
- H. WHERE DOMESTIC COLD AND HOT WATER PIPING DROPS INTO A PIPE CHASE, THE SIZE SHOWN FOR THE PIPE DROPS SHALL BE USED TO THE LAST FIXTURE.
- I. INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING
- J. ALL PIPING SHALL CLEAR DOORS AND WINDOWS.
- K. ALL PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
- UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES, AND IN LONG PIPING RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.
- M. ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
- N. ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- O. PROVIDE CHAINWHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7'-0"ABOVE FLOOR LEVEL; CHAIN SHALL EXTEND TO 7'-0" ABOVE FLOOR LEVEL
- P. PROVIDE ALL PLUMBING FIXTURES AND EQUIPMENT WITH ACCESSIBLE STOPS
- Q. UNLESS OTHERWISE NOTED, DRAINS SHALL BE INSTALLED AT THE LOW POINT OF ROOFS, AREAWAYS, FLOORS, ETC.
- R. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
- S. ALL VALVES SHALL BE INSTALLED SO THAT VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED
- T. ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- U. PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.

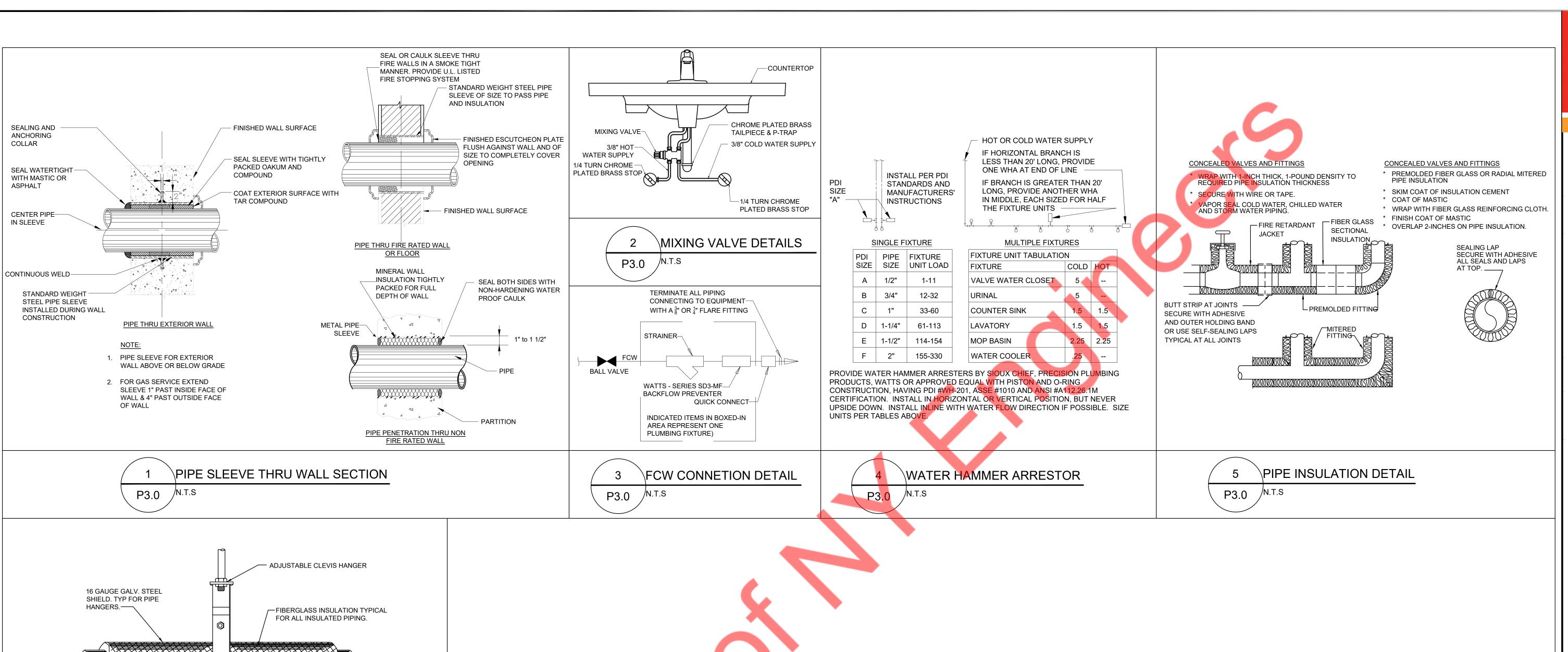
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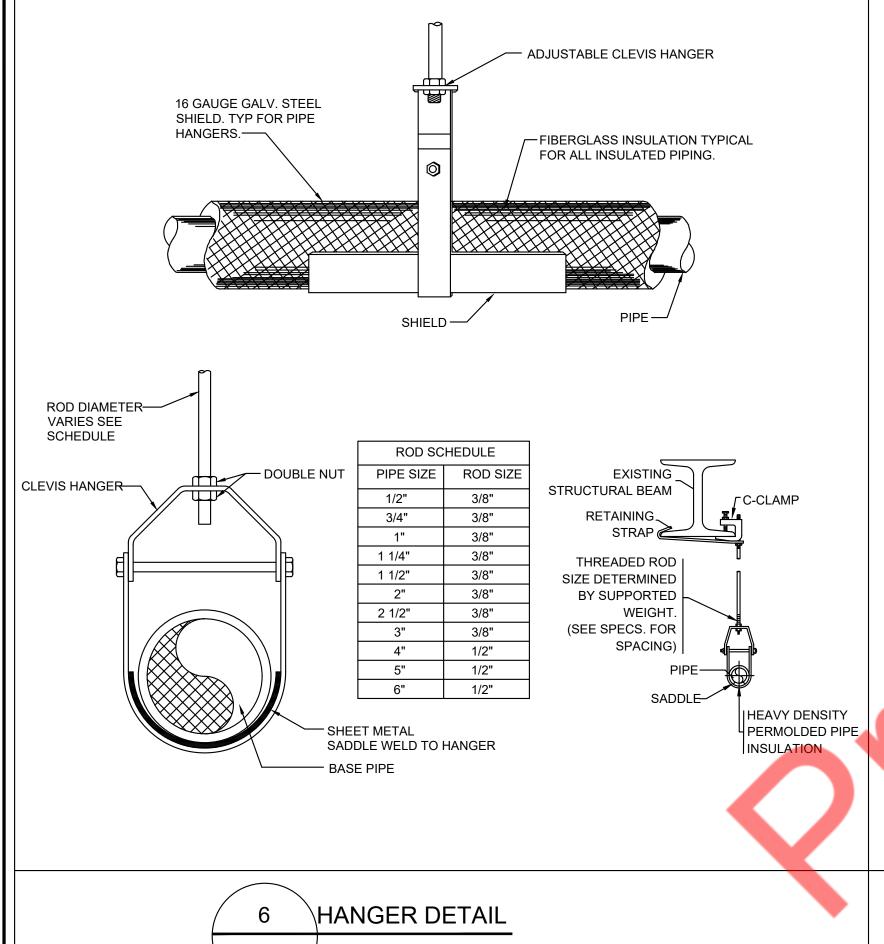
- A. THE CONTRACTOR IS RESPONSIBLE FOR INVESTIGATING AS-BUILT CONDITIONS PRIOR TO ANY DEMOLITION. SHOULD THERE BE ANY DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE DESIGN INTENT; THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM ARCHITECT/ENGINEER.
- B. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL, PRESERVATION, STORAGE, AND PROTECTION OF ALL EQUIPMENT AND DEVICES DESIGNATED TO BE REMOVED AND RE-INSTALLED. ALL
- EXISTING AND LIFE SAFETY SYSTEMS THAT EXTEND INTO OCCUPIED AREAS SHALL REMAIN OPERATIONAL.
- CONTRACTOR SHALL COORDINATE ALL OUTAGES MINIMUM OF SEVEN (7) DAYS PRIOR TO OUTAGE. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE PERSONNEL FOR FIRE AND SECURITY WATCH DURING OUTAGES TO FIRE AND SECURITY SYSTEMS.
- D. WATER PIPE SIZES SHOWN ARE MINIMUM BASED ON PLUMBING FIXTURES AND THEIR ASSOCIATED FIXTURE UNITS. DOMESTIC WATER PIPE SIZES ARE BASED OFF OF 5 FT/SEC FLOW VELOCITY FLOWING THROUGH COPPER PIPE
- E. PLUMBING CONTRACTOR TO FIELD-VERIFY LOCATION, SIZE, TYPE, AND CONDITION OF EXISTING PIPING.

PLUMBING PLANS, RISERS & SCHDULES

P2.0







Sheet
PLUMBING DETAILS

P3.0