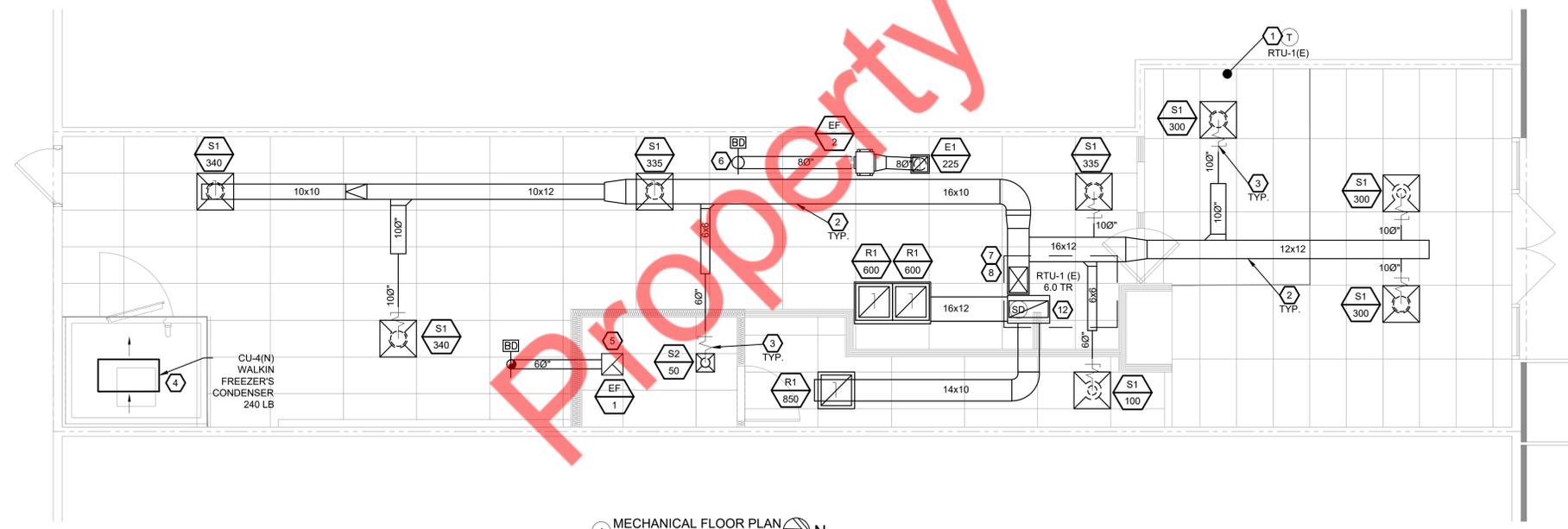


2 MECHANICAL ROOF PLAN  
SCALE: 1/4" = 1'-0"

MECHANICAL KEY NOTES

- 1 INSTALL AND WIRE NEW 7-DAY PROGRAMMABLE THERMOSTATS. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. MOUNT 48" A.F.F. PROVIDE LOCKABLE COVER.
- 2 PROVIDE GALVANIZED STEEL DUCTWORK. SIZES AS NOTED ON DRAWINGS. DUCTWORK SIZES ARE SHEET METAL SIZES. DUCTWORK TO BE INSULATED WITH 1 1/2" INSULATION AND VAPOR BARRIER.
- 3 MAXIMUM FIVE (5) FEET OF FLEXIBLE DUCT. ONLY ONE 90° ELBOW ALLOWED IN FLEXIBLE DUCTWORK.
- 4 WALK IN FREEZER, CONDENSING UNIT TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. CONDENSING UNIT IS MOUNTED ON TOP OF WALK IN.
- 5 FURNISH AND INSTALL NEW CEILING MOUNTED EXHAUST FAN, EF-1(N), GREENHECK MODEL SP-A200, 70 CFM AND 6"Ø DUCT GOING UP THROUGH ROOF.
- 6 ROUTE 8"Ø EXHAUST DUCT UP THROUGH ROOF WITH TALL CONE FLASHING, WEATHER SKIRT, AND VENT CAP. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES AND TERMINATES 36" ABOVE ROOF.
- 7 EXTEND FULL SIZE SUPPLY & RETURN AIR DUCTWORK FROM ROOFTOP UNITS TO SPACE. EXTEND AS SHOWN. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
- 8 PROVIDE REMOTE TEMP. SENSOR MOUNTED IN RETURN DUCT AND WIRE BACK TO T-STAT.
- 9 ROUTE CONDENSATE DRAIN FROM RTU-1(E) TO NEAREST DRAIN POINT.
- 10 CONTRACTOR TO VERIFY ANY EXHAUST TERMINATION OF ADJACENT TENANT SHALL BE 10'-0" AWAY FROM THE RTU-1(E) OUTSIDE AIR INTAKE.
- 11 CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY INTAKE SOURCE FROM ADJACENT TENANTS SHOULD BE AT LEAST 10' AWAY FROM EXHAUST DUCT TERMINATING ON ROOF.
- 12 SMOKE DETECTOR SHALL BE FURNISHED/INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR TO SHUT DOWN CORRESPONDING RTU UNDER ALARM CONDITIONS. ALL WIRING SHALL BE IN CONDUIT PER N E C SMOKE DETECTOR SHALL BE SYSTEM SENSOR MODEL DH100ACDCLP OR EQUAL.



1 MECHANICAL FLOOR PLAN  
SCALE: 1/4" = 1'-0"

MECHANICAL SYMBOLS LEGEND	
(T)	THERMOSTAT
(S)	TEMPERATURE SENSOR
(SD)	SMOKE DETECTOR
~w~w~	FLEXIBLE DUCT
— —	VOLUME DAMPER
⊗	SUPPLY AIR DIFFUSER
⊙	RETURN AIR GRILLE
— —	PIPE TURNING DOWN
— —	CONDENSATE DRAIN
— —	NEW DUCTWORK
(S1 100)	AIR DEVICE # CFM
	S - SUPPLY R - RETURN E - EXHAUST

DIFFUSER NECK SIZE SCHEDULE	
NECK SIZE	CFM
6"Ø	0 - 100
8"Ø	101 - 200
10"Ø	201 - 400
12"Ø	401 - 600
14"Ø	601 - 900
16"Ø	901 - 1300

ROOF TOP UNIT SCHEDULE													
MARK	MANUFACTURER	MODEL NO.	SUPPLY CFM	O.A. CFM	EXT.SP. (IN.WC.)	COOLING TONS	COOLING MBH		ELECTRICAL		WEIGHT LBS	REMARKS	
							TTL/SEN	GAS HEATING MBH IN/OUT	MCA/MOCP	V/PH			
RTU-1(E)	CARRIER	48FCEM07 (OR EQUIVALENT)	2400	350	0.7	6.0	72.4/55.6		110/88	29A/45A	208-230/3	850	1-15

NOTES:-  
1. RTU TO BE PROVIDED AND INSTALLED BY LANDLORD.  
2. ALL EQUIPMENT MUST BE MEETING OR EXCEEDING THE BRANDS MINIMUM REQUIREMENTS.  
3. ELECTRICAL CONNECTION TO BE SINGLE POINT AND TO BE THROUGH THE BOTTOM OF THE UNIT.  
4. PROVIDE DISCONNECT SWITCH AND AN UNPOWERED GFIC RECEPTACLE.  
5. 14" ROOF CURB - CONTRACTOR SHALL FIELD INSULATE. SHIP ASAP AHEAD OF THE UNIT.  
6. CONDENSATE DRAIN WITH 2" DEEP VENTED TRAP DISCHARGE TO SPLASH BLOCK ON ROOF.  
7. CABINET WITH 1/2" FIBERGLASS INSULATION.  
8. UNIT SHALL BE COMPLETE WITH GAS HEATING SECTION GAS REGULATOR TO RECEIVE 4.5-14" GAS PRESSURE FROM MAIN.  
9. DRY BULB & ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF / 25% MANUAL OUTSIDE AIR DAMPER ASSEMBLY WITH HOOD (ZONE 'E' ONLY). PROVIDE ECONOMIZER WITH FDD.  
10. PROVIDE 8-WIRE, 24 VAC, AUTOMATIC CHANGEOVER, 2-STAGE HEAT / COOL, REMOTELY PROGRAMMABLE THERMOSTAT.  
11. REMOTE SENSORS SHALL BE PROVIDED IN RETURN AIR DUCT AND WIRED BACK TO PROGRAMMABLE, 24 HOUR, 7 DAY, THERMOSTATS.  
12. ANTI SHORT CYCLE TIMER.  
13. PROVIDE THROWAWAY 2" FILTERS MERV 8.  
14. WHERE REQUIRED, PROVIDE LOW AMBIENT COOLING CAPABILITY DOWN TO 0 DEGREES F.  
15. PROVIDE ALL COMPRESSORS WITH 5 YEAR WARRANTY.

EXHAUST FAN SCHEDULE							
UNIT TAG	SERVICE	CFM	E.S.P. (IN. OF W.G.)	RPM/ WATTS	ELECT. (V/PH)	MANUF. & MODEL NO.	REMARK
EF-1	RESTROOM	70	0.68	900/44W	115/1	GREENHECK SP-A200	1-2
EF-2	BAKING	225	0.5	1050/93W	115/1	GREENHECK CSP-A290	1-2

REMARKS  
1. DISCONNECT SWITCH GRAVITY BACKDRAFT DAMPER, FLEXIBLE DUCT COLLAR CONNECTION.  
2. ELECTRICAL CONTRACTOR SHALL INTERLOCK EF-1 & EF-2 WITH RTU-1(E).

WALK IN FREEZER SCHEDULE								
MARK	MANUFACTURER	MODEL	DEFROST	V/PH/H	MCA	MOCP	WEIGHT	
RUSSELL C/U	RUSSELL	RFO250L4SDA	ELECTRIC	208/230/1/60	32	45	240	
RUSSELL COIL	RUSSELL	ASLE35-70	-	208/230/1/60 EC	9	20	125	

NOTES:-  
1. CONTRACTOR TO CONFIRM THE SPECIFICATIONS AND CAPACITY BEFORE BILLING/PURCHASE.  
2. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION ON SITE.  
3. CONTRACTOR TO INSTALL AS PER MANUFACTURER'S SPECIFICATIONS.  
4. PROVIDE ALL ASSOCIATED ACCESSORIES.  
5. A LICENCED REFRIGERATION INSTALLER MUST DECIDE PLACEMENT OF EVAPORATOR BASE ON SITE CONDITIONS.  
6. EVAPORATOR PLACEMENT ON DRAWING SHOULD BE USED FOR REFERENCE ONLY.

AIR DEVICE SCHEDULE							
PLAN MARK	MANUFACTURER	MODEL	MATL	NECK SIZE	FRAME TYPE	PANEL SIZE	REMARKS
S1	TITUS	OMNI	ST	SCHED	LAY-IN	24"x24"	1,2,3
S2	TITUS	OMNI	ST	SCHED	LAY-IN	12"x12"	1,2,3
R1	TITUS	PAR	ST	SCHED	LAY-IN	24"x24"	1,2,3
E1	TITUS	350FL	ST	SCHED	LAY-IN	12"x12"	1,2,3

1. BRANCH DUCT SAME DIAMETER AS GRILLE NECK SIZE.  
2. TO BE PAINTED AS NOTED ON ARCH SHEETS.  
3. SUPPLIED BY AND INSTALLED BY TENANT GC.

DIFFUSER NECK SIZE SCHEDULE	
NECK SIZE	CFM
6"Ø	0 - 100
8"Ø	101 - 200
10"Ø	201 - 400
12"Ø	401 - 600
14"Ø	601 - 900
16"Ø	901 - 1300

AIR BALANCE					
UNIT	SUPPLY AIR (CFM)	OUTSIDE AIR		RETURN AIR (CFM)	EXHAUST AIR (CFM)
		(CFM)	%OA		
RTU-1(E)	2400	350	14.58	2050	-
EF-1	-	-	-	-	70
EF-2	-	-	-	-	225
TOTAL	2400	350		2050	295
BUILDING PRESSURE:				55 CFM	POSITIVE

- NOTES:-  
1. CONTRACTOR TO ADJUST MOTORIZED DAMPER ON FRESH AIR TAP TO PROVIDE OUTSIDE AIR AS MENTIONED IN ABOVE TABLE.

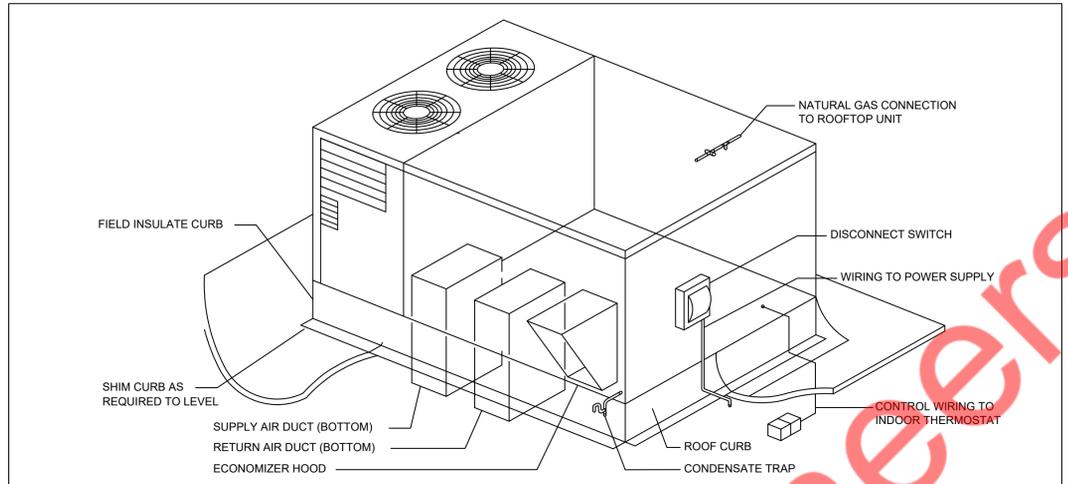
VENILATION CALCULATION AS PER IMC 2018											
ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000sq.ft	NUMBER OF PEOPLE	NUMBER OF CHAIR	FINAL PEOPLE NO.	MIN OUTSIDE AIR		REQ. OSA (CFM)	PROVIDED OSA (CFM)	EXHAUST AIRFLOW RATE (CFM/FIXTURE)	TOTAL EXHAUST (CFM)
						CFM/PEOPLE	CFMSQ.FT				
ORDER	380	50	19	11	11	7.5	0.06	105	350	0	0
TOILET	51	0	0	0	0	0	0	0		70	70
BAKING	322	20	7	5	5	7.5	0.12	76		0.7	225
DISHWASH	392	0	0	2	2	0	0.12	47		0	0
PASSAGE	98	0	0	0	0	0	0.06	6		0	0
						Total		228			

Property of NY Engineers

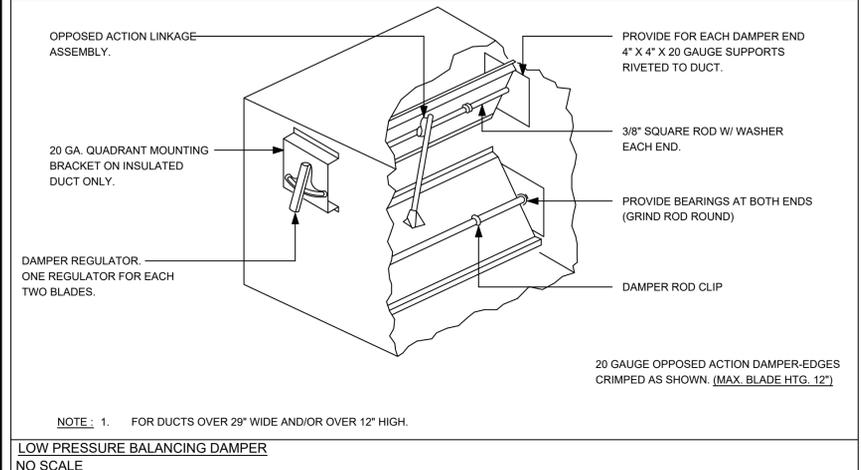
### DUCT INSULATION SCHEDULE

IDENTIFICATION	CONDUIT	USE	INSULATION TYPE & VAPOR BARRIER	THICKNESS	JACKET
FRESH AIR CONCEALED	ROUND / OVAL	UP TO THE MIXING BOX / COIL	MICROLITE 75 TYPE C/W VAPOR BARRIER FSK	2"	NONE
	RECTANGULAR	UP TO THE MIXING BOX / COIL	SPIN GLAS MODEL 813 C/W VAPOR BARRIER FSK	2"	NONE
FRESH AIR EXPOSED	ROUND / OVAL	UP TO THE MIXING BOX / COIL	MICROLITE 75 TYPE C/W VAPOR BARRIER FSK	2"	CANEVAS
	RECTANGULAR	UP TO THE MIXING BOX / COIL	SPIN GLAS MODEL 813 C/W VAPOR BARRIER FSK	2"	CANEVAS
EXHAUST CONCEALED	ROUND / OVAL	10'-0" FROM OUTSIDE	MICROLITE 75 TYPE C/W VAPOR BARRIER FSK	2"	NONE
	RECTANGULAR	10'-0" FROM OUTSIDE	SPIN GLAS MODEL 813 C/W VAPOR BARRIER FSK	2"	NONE
CONCEALED SUPPLY	ROUND / OVAL	FULL LENGTH INCLUDING PLENUM BOX	MICROLITE 75 TYPE C/W VAPOR BARRIER FSK	1-1/2"	NONE
	RECTANGULAR	FULL LENGTH INCLUDING PLENUM BOX	SPIN GLAS MODEL 813 C/W VAPOR BARRIER FSK	1"	NONE
EXPOSED SUPPLY	ROUND / OVAL	FULL LENGTH INCLUDING PLENUM BOX	MICROLITE 75 TYPE FIRST 10'-0" INTERNALLY INSULATED	1"	NONE
RETURN CONCEALED/EXPOSED	RECTANGULAR	FULL LENGTH INCLUDING PLENUM BOX	SPIN GLAS MODEL 813 C/W VAPOR BARRIER FSK	1"	N/A

**NOTES:**  
 CONCEALED: DUCTS ABOVE CEILING, IN SHAFTS, IN WALLS OR FLOOR.  
 EXPOSED: ELEMENTS NOT CONCEALED.

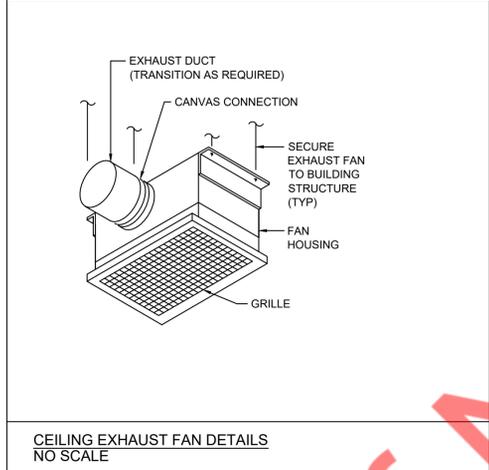


**ROOFTOP UNIT SCHEMATIC DIAGRAM**  
NO SCALE

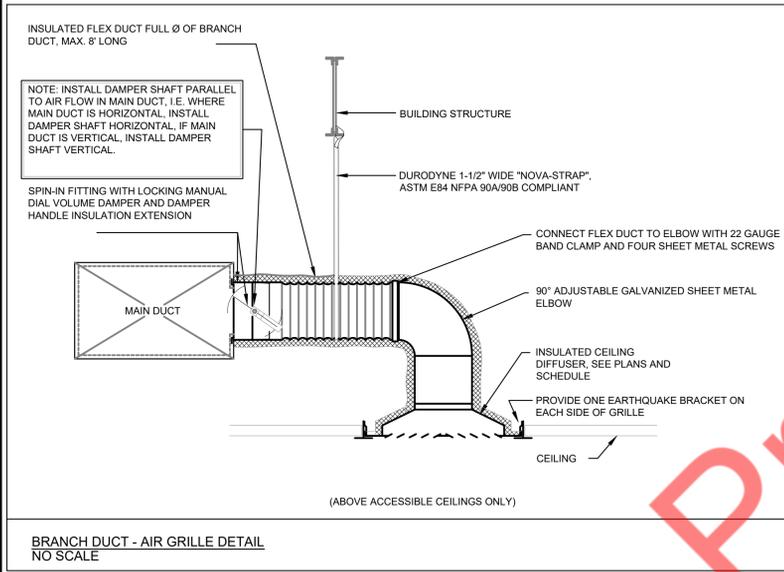


**NOTE:** 1. FOR DUCTS OVER 29" WIDE AND/OR OVER 12" HIGH.

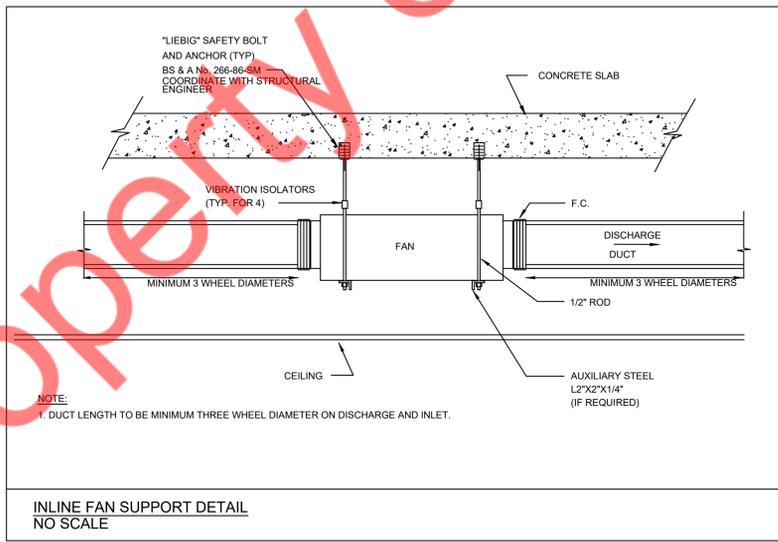
**LOW PRESSURE BALANCING DAMPER**  
NO SCALE



**CEILING EXHAUST FAN DETAILS**  
NO SCALE



**BRANCH DUCT - AIR GRILLE DETAIL**  
NO SCALE



**INLINE FAN SUPPORT DETAIL**  
NO SCALE

## MECHANICAL SPECIFICATIONS

1. **GENERAL**
    - A. THE GENERAL CONDITIONS OF THE GENERAL SPECIFICATIONS, AND ALL APPLICABLE INSTRUCTIONS TO BIDDERS SHALL BE PART OF THESE SPECIFICATIONS.
    - B. THE WORD "PROVIDE" AS USED HEREIN MEANS TO FURNISH AND INSTALL COMPLETE.
    - C. THE TERM "CONTRACTOR" AS USED HEREIN MEANS ANY CONTRACTOR OR SUBCONTRACTOR CONTRACTED TO PERFORM WORK INCLUDED IN AND DEFINED BY THIS SECTION.
    - D. MECHANICAL WORK SHALL BE PROVIDED IN STRICT COMPLIANCE WITH THE LATEST ADDITION OF THE 2018 INTERNATIONAL MECHANICAL CODE, AND ALL APPLICABLE LOCAL ORDINANCES, STATE LAWS AND FEDERAL LAWS.
  2. **PRIOR TO BIDDING:**
    - A. THOROUGHLY REVIEW THE BID INSTRUCTIONS INCLUDING ALL ARCHITECTURAL AND MEP CONSTRUCTION DOCUMENTS. OBTAIN AND THOROUGHLY EXAMINE THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, DETAILS, AND REQUIREMENTS FOR THE SCHEDULED AND SPECIFIED EQUIPMENT AND MATERIALS. FOR AMBIGUOUS, CONTRADICTORY, OR CONFLICTING ITEMS WITHIN THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR SHALL REQUEST CLARIFICATION IN A WRITTEN "REQUEST FOR INFORMATION" (RFI), AT LEAST FIVE (5) WORKING DAYS PRIOR TO BID DATE. RFI NOT CLARIFIED PRIOR TO BID SHALL BE PROVIDED PER THE ARCHITECT (ENGINEER) IN STRICT ACCORDANCE WITH THE MOST STRINGENT MATERIALS, EQUIPMENT, AND SCOPE OF WORK.
    - B. EXISTING CONDITIONS: THE CONTRACT DOCUMENTS ARE BASED ON INFORMATION PROVIDED TO CASE ENGINEERING AT THE TIME OF DESIGN. THIS CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO: EXISTING HVAC SYSTEM LOCATIONS, EXISTING DUCT LAYOUTS, CLEARANCES, ETC. REPORT IN WRITING ANY DISCREPANCIES TO THE ENGINEER AT LEAST FIVE (5) BUSINESS DAYS PRIOR TO BID. DISCREPANCIES NOT CLARIFIED PRIOR TO BID SHALL BE PROVIDED PER THE ENGINEER IN STRICT ACCORDANCE WITH THE MOST STRINGENT MATERIALS, EQUIPMENT, AND SCOPE OF WORK.
    - C. IF THE CONTRACTOR BELIEVES THE DRAWINGS AND SPECIFICATIONS CONFLICT WITH CODE REQUIREMENTS, IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING.
    - D. NO ALLOWANCES WILL BE MADE DUE TO CONTRACTOR'S UNFAMILIARITY WITH THE CONSTRUCTION DOCUMENTS OR FOR THE FAILURE OF THE CONTRACTOR TO OBTAIN CLARIFICATIONS PRIOR TO BID.
    - E. VISIT THE JOB SITE AND THOROUGHLY INVESTIGATE CONDITIONS. THE LACK OF SPECIFIC INFORMATION ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.
    - F. REFER TO APPLICABLE CODES CITED IN CONSTRUCTION DOCUMENTS, EXAMINE GOVERNING STATE AND LOCAL CODES, AND LOCAL REGULATIONS AND ORDINANCES, AND PROVIDE ALL EQUIPMENT AND INSTALLATION IN STRICT ACCORDANCE WITH SAME.
    - G. REFER TO CONSTRUCTION DOCUMENTS FOR SCHEDULED AND SPECIFIED MATERIALS AND EQUIPMENT. INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND DETAILS.
    - H. ALL WORK SHALL BE COMPLETED IN STRICT ACCORDANCE WITH THE LANDLORD'S CONSTRUCTION CRITERIA AND TENANT/LANDLORD AGREEMENT. THIS CONTRACTOR SHALL EXAMINE THE LANDLORD CRITERIA AND TENANT/LANDLORD AGREEMENT AND THEY SHALL BE PART OF THESE SPECIFICATIONS. NO ALLOWANCES WILL BE MADE DUE TO CONTRACTOR'S UNFAMILIARITY WITH THESE DOCUMENTS.
  3. **BIDDING**
    - A. SUBMISSION OF A BID ACKNOWLEDGES THAT THE CONTRACTOR HAS REVIEWED THE BID INSTRUCTIONS, HAS VISITED THE SITE, EXAMINED ALL CONSTRUCTION DOCUMENTS, AND AGREES TO ALL ITEMS AND CONDITIONS WITHIN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR'S BID SHALL INCLUDE ALL MECHANICAL WORK IN THE CONSTRUCTION DOCUMENTS, INCLUDING MECHANICAL WORK RELATED TO EQUIPMENT FURNISHED/PROVIDED BY OTHERS.
  4. **PERMITS**
    - A. SECURE AND PAY FOR ALL PERMITS, LICENSES, AND INSPECTIONS REQUIRED BY THE AHJ FOR THIS WORK.
  5. **SUBSTITUTIONS**
    - A. MANUFACTURER'S EQUIPMENT AND MATERIALS SCHEDULED, NOTED, AND SPECIFIED IN THE CONSTRUCTION DOCUMENTS ARE THE DESIGN STANDARD. NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT OR ENGINEER. IN BIDDING, DO NOT ASSUME ACCEPTANCE OF SUBSTITUTIONS. CONTRACTOR MUST STATE IN SUBSTITUTION REQUEST: "PROPOSED SUBSTITUTIONS ARE EQUAL OR OF HIGHER QUALITY, EFFICIENCY AND DEPENDABILITY COMPARED TO THE SPECIFIED EQUIPMENT AND MATERIAL. CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ADDITIONAL ENGINEERING COSTS AND COSTS TO OTHER CONTRACTORS DUE TO SUBSTITUTIONS." IF DEEMED NECESSARY BY THE ARCHITECT OR ENGINEER, SUBSTITUTIONS WHICH ARE NOT APPROVED OR NOT EQUAL TO DESIGN STANDARD SHALL BE REMOVED AND THE SCHEDULED, NOTED, AND SPECIFIED EQUIPMENT AND MATERIALS SHALL BE INSTALLED AT CONTRACTOR'S EXPENSE. SUBMITTING CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR ADDITIONAL ENGINEERING COSTS AND COSTS TO OTHER CONTRACTORS DUE TO SUBSTITUTIONS.
  6. **SCHEDULING**
    - A. ALL PERFORMANCE OF CONSTRUCTION SHALL BE AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION, AS SCHEDULED BY THE GC. PROVIDE COMPLETE INFORMATION AND FULL COOPERATION WITH OTHER CONTRACTORS AND TRADES, AS REQUIRED FOR THE TIMELY COMPLETION AND COORDINATION OF THE COMPLETE PROJECT.
    - B. PROVIDE ALL TESTS AND INSPECTIONS REQUIRED BY AHJ.
    - C. PROVIDE A SIGNED CERTIFICATE OF INSPECTION AT THE PROJECT COMPLETION.
  7. **SCOPE**
    - A. PROVIDE PERMIT(S), INSPECTIONS, FINAL CERTIFICATE(S) OF INSPECTION BY PERMIT AND INSPECTION FEES, AND ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY FOR A COMPLETE AND FULLY OPERATING HVAC SYSTEM.
    - B. INSTALL ALL WORK AND EQUIPMENT RIGID, DEAD LEVEL, PLUMB, AND TRUE-TO-LINE. UNLESS NOTED OTHERWISE, SUPPORT AND MOUNTING OF EQUIPMENT, DUCT, PIPING, ETC., ARE THIS CONTRACTOR'S MEANS AND METHODS. THE CONTRACTOR SHALL UNDERSTAND THE SPECIFIED AND SCHEDULED EQUIPMENT AND MATERIALS AND MEANS AND METHODS OF INSTALLATION. THIS CONTRACTOR SHALL PROVIDE ALL ACCESSORIES REQUIRED FOR PROPER SUPPORT WHETHER SHOWN ON THE DRAWINGS OR NOT. IF SUPPORTS ARE REQUIRED, CONTRACTOR SHALL SUBMIT DRAWINGS TO THE ARCHITECT FOR APPROVAL.
    - C. PROVIDE ACCESSORY MOUNTING HARDWARE INCLUDING BUT NOT LIMITED TO STRUCTURAL STEEL, STRUT SYSTEMS, ALL THREAD RODS, AND BRACES, AS REQUIRED TO MOUNT EQUIPMENT. PROVIDE STEEL SHAPES AND FRAMES TO SUPPORT EQUIPMENT WHERE NEEDED. ALL SYSTEMS SHALL BE SUPPORTED INDEPENDENT OF AND ISOLATED FROM EQUIPMENT VIBRATION.
    - D. PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTALLATION AND MAINTENANCE LITERATURE. COMPONENTS REQUIRING PERIODIC MAINTENANCE
  - OR ADJUSTMENTS SHALL BE INSTALLED AS TO PERMIT ACCESS WITHOUT DAMAGE TO STRUCTURE, FINISHES, OR OTHER EQUIPMENT.
  - E. CONTRACTOR SHALL PROVIDE DAILY CLEAN-UP, REMOVAL AND LEGAL DISPOSAL OF ALL RUBBISH GENERATED BY THIS WORK.
  - F. AS-BUILT DRAWINGS: DURING CONSTRUCTION, AS WORK PROCEEDS, MAINTAIN AS-BUILT MARK-UPS OF ACTUAL INSTALLATION. AT CONSTRUCTION COMPLETION AND PRIOR TO TURNOVER TO OWNER, PROVIDE FINAL MARK-UPS IN PDF FORMAT TO ARCHITECT AND ENGINEER.
  - G. PROVIDE FINAL CONNECTIONS TO EQUIPMENT FURNISHED/PROVIDED BY OTHERS, AS NOTED.
  - H. DO NOT ROUTE ANY PIPING OR DUCTWORK ABOVE ELECTRICAL PANELS.
  - I. UNLESS NOTED OTHERWISE, ALL DUCT AND PIPE SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALLS, BEAMS, OR COLUMNS. PIPE SHALL BE RUN AS DIRECT AS POSSIBLE - AVOID UNNECESSARY OFFSETS AND MAXIMIZE HEADROOM.
  - J. PRIOR TO ORDERING EQUIPMENT, THIS CONTRACTOR SHALL PROVIDE FINAL COORDINATION OF ELECTRICAL POWER REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.
  - K. CONTRACTOR SHALL MAINTAIN ACTIVITIES WITHIN AREA APPROVED BY OWNER OR GC. CONTRACTOR'S ACTIVITIES SHALL NOT INTERFERE WITH THE OWNER'S OPERATIONS, EXCEPT AS APPROVED.
  - L. EXCEPT THOSE COORDINATED AND APPROVED BY THE G.C., CONTINUITY OF ALL BUILDING SERVICES AND UTILITIES SERVING BUILDING FACILITIES SHALL BE MAINTAINED UNINTERRUPTED AT NO ADDITIONAL COST. PROVIDE ALL NECESSARY CROSS CONNECTIONS AND TEMPORARY CONNECTIONS REQUIRED TO PERFORM THE CONSTRUCTION, AS DETERMINED BY THE G.C., AND NEEDED TO MAINTAIN CONTINUITY OF THE BUILDING SERVICE(S). THIS CONTRACTOR SHALL SCHEDULE WORK SUCH THAT ANY AND ALL CONNECTIONS, AND/OR REARRANGEMENT OF EXISTING EQUIPMENT, PIPING, ETC., SHALL ASSURE FULL RESUMPTION OF SERVICE(S) AT THE G.C.'S DESIGNATED TIME.
8. **CODE REQUIREMENTS**
  - A. ALL WORK SHALL COMPLY WITH THE CONSTRUCTION DOCUMENTS OR, AS DIRECTED BY THE ARCHITECT (ENGINEER), AND SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS OF THE AHJ, WHETHER SO SHOWN OR NOT. CONTRACTOR SHALL BE FAMILIAR WITH PROVISIONS OF ALL APPLICABLE CODES AND SHALL INSURE THE WORK COMPLIES WITH ALL LOCAL, STATE AND FEDERAL CODES, TRADE STANDARDS AND MANUFACTURER'S RECOMMENDATIONS. IF CONTRACTOR BELIEVES THE DRAWINGS AND/OR SPECIFICATIONS CONFLICT WITH CODE REQUIREMENTS, IMMEDIATELY NOTIFY THE G.C. IN WRITING. DO NOT INSTALL WORK NOT COMPLYING WITH CODE REQUIREMENTS. IN CASE OF CONFLICT BETWEEN THE CONSTRUCTION DOCUMENTS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. AS A MINIMUM STANDARD, CONTRACTOR SHALL SATISFY CODE REQUIREMENTS. ALL MODIFICATIONS REQUIRED BY AHJ SHALL BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. BEFORE COMMENCING WORK NOT SHOWN IN DOCUMENTS BUT REQUIRED TO ACHIEVE FULL COMPLIANCE WITH CODES, CONTRACTOR SHALL NOTIFY ARCHITECT (ENGINEER).
9. **CUTTING & PATCHING**
  - A. CORE-DRILL OR SAW-CUT EXISTING FLOORS, WALLS, ROOF, ETC., AS REQUIRED FOR EQUIPMENT, PIPE, OR DUCTWORK. PRIOR TO CUTTING, PERFORM NON-DESTRUCTIVE TESTING TO VERIFY LOCATION OF STRUCTURAL COMPONENTS. NOTIFY ARCHITECT (ENGINEER) OF ANY DISCREPANCIES. PATCH SURROUNDING AREAS FLUSH WITH ADJACENT SURFACES AND REPAIR TO REPAIR THE FINISH. PATCH AND REPAIR ROOF TO MATCH EXISTING ROOFING. ALL ROOF WORK SHALL MEET WARRANTY REQUIREMENTS OF EXISTING ROOFING. COORDINATE REQUIRED OPENINGS AND PENETRATIONS WITH THE GC AND OTHER TRADES. (OPENINGS IN FOUNDATIONS, FLOORS, WALLS, CEILINGS, AND ROOF SHALL BE BUILT INTO THE STRUCTURE WITH SLEEVES, CURBS, ETC.)
10. **FIRE STOPPING**
  - A. PROVIDE FIRE STOPPING FOR PENETRATIONS OF DUCT, PIPING, AND OTHER MECHANICAL EQUIPMENT THROUGH FIRE-RATED VERTICAL BARRIERS (WALLS AND PARTITIONS), HORIZONTAL BARRIERS (FLOOR/CEILING ASSEMBLIES), AND VERTICAL SERVICE SHAFT WALLS AND PARTITIONS. FIRESTOP SYSTEM INSTALLATION MUST MEET REQUIREMENTS OF ASTM E 814 OR UL 1479 TESTED ASSEMBLIES THAT PROVIDE A FIRE RATING EQUAL TO OR GREATER THAN THAT OF CONSTRUCTION BEING PENETRATED. INSTALL IN STRICT ACCORDANCE WITH UL FIRE RESISTANCE DIRECTORY, AHJ, AND MANUFACTURER'S SPECIFIED REQUIREMENTS. ONLY TESTED FIRESTOP SYSTEMS BY "3M", "HILTI", OR EQUAL SHALL BE USED. REFER TO ARCHITECTURAL DRAWINGS FOR ASSEMBLY RATING.
11. **MATERIALS AND WORKMANSHIP**
  - A. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE NEW U.N.O., FREE OF DEFECTS, AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND DETAILS, AND INDEPENDENTLY TESTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY - UNDERWRITERS LABORATORIES (UL) OR INTERTEK (ETL). ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURE AND QUALITY U.N.O.
  - B. ALL MATERIALS WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723. ALL MATERIALS INSTALLED IN PLENUM SPACES SHALL BE LISTED AND LABELED FOR SUCH APPLICATION.
  - C. ALL WORK SHALL BE SUPERVISED BY THE INSTALLING CONTRACTOR'S COMPETENT AND SKILLED FOREMAN. ALL WORK SHALL BE PERFORMED BY COMPETENT AND SKILLED WORKERS, WITH ALL TRADE AND MANUFACTURER REQUIRED TRAINING, AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE BEST QUALITY STANDARDS OF THE TRADE AND IN CONFORMANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES AND STANDARDS, INCLUDING APPLICABLE OSHA REGULATIONS. PROPERLY PROTECT WORK DURING CONSTRUCTION. AT CONSTRUCTION COMPLETION, THOROUGHLY CLEAN WORK AND REMOVE ALL DEBRIS FROM THE PREMISES.
12. **PROTECTION OF WORK AND PROPERTY**
  - A. PROTECT ALL WORK FROM DAMAGE AND PROTECT THE OWNER'S PROPERTY FROM DIRT, DAMAGE, OR LOSS ARISING FROM CONTRACTOR WORK.
  - B. COMPLY WITH OSHA REQUIREMENTS AND TAKE ALL NECESSARY PRECAUTIONS FOR EMPLOYEE SAFETY.
  - C. PROTECT ALL OPEN PIPING, DUCT, AND EQUIPMENT, EXISTING AND NEW, FROM CONSTRUCTION DIRT AND DUST. COVER, CAP, OR PLUG OPEN ENDS OF PIPING AND DUCT. KEEP EQUIPMENT COVERED OR COVER AND SEAL EQUIPMENT OPENINGS. ANY MECHANICAL SYSTEMS, NEW AND/OR EXISTING OPERATED DURING CONSTRUCTION SHALL BE PROTECTED BY COVERING EACH RETURN AIR DUCT OPENING WITH MERV 8 FILTERS AND INSTALLING MERV 8 FILTER(S) IN EQUIPMENT FILTER RACK. PRIOR TO TESTING AND BALANCING, REMOVE FILTERS FROM FILTER RACKS AND INSTALL NEW MERV 8 FILTERS.
  - D. AT COMPLETION OF WORK, PRIOR TO EQUIPMENT START-UP, REMOVE COVERS, CAPS, OR PLUGS ON DUCT AND PIPING.
13. **DAMAGE BY LEAKS**
  - A. THIS CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL DAMAGES TO THE PROPERTY (GROUNDS, WALKS, ROADS, BUILDING COMPONENTS, FINISHES, SYSTEMS, ELECTRICAL SYSTEMS, HVAC SYSTEMS, AND THEIR EQUIPMENT AND CONTENT) CAUSED BY LEAKS IN THE SYSTEMS BEING INSTALLED OR HAVING BEEN INSTALLED AS PART OF THIS WORK. ALL REPAIRS WILL BE MADE AT THIS CONTRACTOR'S EXPENSE.
14. **DRAWINGS AND SPECIFICATIONS**
  - A. DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW GENERAL LOCATIONS OF DUCTS, PIPES, AND EQUIPMENT AND THE METHODS OF CONNECTING AND CONTROL. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONDITIONS AND THE WORK OF OTHER TRADES PERMIT. THE DRAWINGS ARE NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL OR ALL OFFSETS, TRANSITIONS, OR FITTINGS REQUIRED FOR A COMPLETE SYSTEM NOR IS IT IMPLIED THAT ALL CONFLICTS BETWEEN BUILDING ELEMENTS AND/OR OTHER TRADES ARE INDICATED. DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF DOORS, WINDOWS, LIGHTS, ETC.
  - B. THE DRAWINGS AND SPECIFICATIONS ARE MUTUALLY COMPLEMENTARY, AND ANY WORK REQUIRED BY ONE BUT NOT BY THE OTHER SHALL BE REQUIRED BY BOTH.
  - C. PRIOR TO INSTALLING EQUIPMENT, DUCT, OR PIPE COORDINATE PROPOSED LOCATIONS WITH EACH TRADE/DISCIPLINE AND GC. EXAMINE EACH DISCIPLINE'S DRAWINGS FOR CONSTRUCTION DETAILS, CEILING HEIGHTS, REQUIRED CLEARANCES, AND SPACE CONSTRAINTS. PROVIDE SYSTEMS INSTALLATION BASED ON THIS EXAMINATION AND COORDINATION. IMMEDIATELY REPORT INSTALLATION CONFLICTS IN WRITING TO THE GC. RESOLVE ALL CONFLICTS WITH GC AND OTHER TRADES PRIOR TO PROCEEDING. INSTALLING CONTRACTOR IS FULLY RESPONSIBLE FOR CORRECT INTERPRETATION AND APPLICATION OF ALL SIZES AND DIMENSIONS.
  - D. SIGNIFICANT DEVIATIONS OR CHANGES FROM THE DRAWINGS WHICH ARE REQUIRED TO ACCOMPLISH THE INTENT OF THE CONTRACT DOCUMENTS MUST BE REVIEWED AND APPROVED BY THE ARCHITECT (ENGINEER) BEFORE PROCEEDING. IF THE CONTRACTOR BELIEVES CHANGES TO THE CONTRACT DRAWINGS ARE NECESSARY, SHOP DRAWINGS WITH WRITTEN DESCRIPTIONS OF THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE ARCHITECT (ENGINEER) FOR APPROVAL.
  - E. ALL PIPE, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS AND ROOF SHALL BE FLASHED WATERPROOF. PROVIDE ALL FLASHING FOR PIPE AND DUCTWORK PENETRATING BUILDING ENVELOPE. PROVIDE DUCT AND/OR PIPE SLEEVES AT WALL PENETRATIONS. SEAL ANNULAR SPACE WEATHER TIGHT.
15. **CONTROLS**
  - A. PROVIDE COMPLETE EQUIPMENT CONTROLS, INCLUSIVE OF ALL COMPONENTS, VOLTAGES, PROGRAMMING (PNEUMATIC TUBING), WIRING ETC. FOR COMPLETE AND OPERATIONAL SYSTEMS. MOUNT THERMOSTATS AND SWITCHES 4'-0" ABOVE FINISHED FLOOR. MOUNT OTHER SENSORS (HUMIDITY, CO2, CO, NOX, ETC.) PER MANUFACTURER'S IOM. PRIOR TO MOUNTING, COORDINATE THERMOSTAT LOCATION(S) WITH FINAL FIXTURES AND EQUIPMENT. DO NOT MOUNT THERMOSTATS IN DIRECT SUNLIGHT, IN DISCHARGE OF SUPPLY GRILLES) NEAR HEAT PRODUCING APPLIANCES OR EQUIPMENT, ON WALLS WITH INTERNAL HEAT SOURCES (DUCT OR PIPING), OR ON EXTERIOR WALLS. IF EXTERIOR WALL MOUNTING IS NECESSARY, PROVIDE INSULATED MOUNTING BASE. WHERE THERMOSTAT LOCATION IS SUBJECT TO DAMAGE, PROVIDE LOCKABLE HIGH-IMPACT GUARD.
16. **DUCT MOUNTED SMOKE DETECTORS**
  - A. RETURN AIR DUCT MOUNTED SMOKE DETECTORS SHALL BE PROVIDED BY E.C. AND UPON DETECTING SMOKE, SHALL SHUT DOWN PROTECTED AIR SYSTEM.
17. **SHOP DRAWINGS**
  - A. SUBMIT SHOP DRAWINGS ON SCHEDULED AND NOTED EQUIPMENT AND MATERIALS. PRIOR TO SUBMITTAL, EACH SHOP DRAWING SHALL BE REVIEWED BY THE CONTRACTOR TO ENSURE THAT THE PROPOSED EQUIPMENT IS CLEARLY MARKED, HIGHLIGHTED, AND NOTED ALL DIMENSIONS, QUANTITIES, CONNECTIONS, CAPACITIES AND ACCESSORIES SHALL BE CLEARLY SHOWN IN CONFORMANCE WITH THE CONTRACT DOCUMENTS, AND SHALL BE MARKED OR STAMPED TO CONFIRM THAT SUCH REVIEW WAS MADE AND COMPLIANCE WAS CONFIRMED. SHOP DRAWING SUBMITTED WITHOUT BEING MARKED, HIGHLIGHTED, AND NOTED WILL BE REJECTED WITHOUT REVIEW.
  - B. PROVIDE ADEQUATE TIME FOR REVIEW AND CORRECTIONS, IF ANY, TO PREVENT CONSTRUCTION DELAY.
  - C. REVIEW OF SHOP DRAWINGS BY THE OWNER, OWNER'S AGENT, ARCHITECT, OR ENGINEER IS FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS SOLELY RESPONSIBILITY FOR COMPLYING WITH ALL TERMS OF THE CONTRACT DOCUMENTS AND FOR PERFORMANCE OF ALL EQUIPMENT AND MATERIALS PURCHASED, FOR QUANTITIES, PROPER FIT, AND OTHER DIMENSIONAL REQUIREMENTS.
18. **DUCTWORK**
  - A. REFER TO DUCT INSULATION SCHEDULE FOR CLARIFICATION OF DUCT DIMENSIONS. PROVIDE ALL DUCTWORK IN STRICT ACCORDANCE WITH THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE", LATEST EDITION. U.N.O. ALL RIGID DUCTWORK SHALL BE GALVANIZED SHEET METAL. NO FIBERGLASS DUCTBOARD WILL BE ALLOWED. ALL EXPOSED DUCTWORK SHALL HAVE A MILL-PHOSPHATIZED FINISH FOR PAINT ADHESION. EXPOSED ROUND DUCT SHALL BE SPIRAL SEAM TYPE.
  - B. REMOVE UNUSED SECTIONS OF DUCTWORK AS DESIGNATED. UNUSED OPENINGS IN EXISTING DUCT SHALL BE SEALED WITH GALVANIZED SHEET METAL OF THE SAME GAUGE AS THE DUCT. INSULATE AND/OR LINE WITH INSULATION TO MATCH EXISTING. SEAL GALVANIZED SHEET METAL CAP TO EXISTING DUCT WITH APPROVED MASTIC. EXISTING DUCT INSULATION AND/OR INSULATION SCRM DAMAGED BY THIS WORK SHALL BE REPAIRED. SEAL ALL INSULATION SEAMS AND JOINTS.
  - C. PROVIDE DAMPERS AT EACH BRANCH DUCT SERVING AIR DEVICES AND AS SHOWN AND DETAILED. ALL FLEXIBLE DUCT SHALL BE THERMAFLEX TYPE MKE, MAXIMUM 5'-0" LONG. FLEXDUCT SHALL BE INSTALLED IN ACCESSIBLE CONCEALED SPACES ONLY AND WITHOUT SAGS. INSTALLATION ABOVE INACCESSIBLE CEILINGS IS UNACCEPTABLE.
19. **DUCT SEALING**
  - A. IN CONDITIONED AREAS, SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT, WITH VOC CONTENT NO GREATER THAN 250G/L AND RECOMMENDED BY THE MANUFACTURER FOR SEALING SHEET METAL DUCT. SEAL JOINTS, SPIN-IN FITTINGS, AND FASTENING SCREWS WITH MASTIC. HVAC SYSTEM LEAKAGE SHALL NOT EXCEED 5% OF DESIGN FLOW.
20. **DUCT INSULATION**
  - A. SEE DUCT INSULATION SCHEDULE.
21. **EQUIPMENT**
  - A. INSTALL ALL EQUIPMENT AND MATERIALS IN STRICT ACCORDANCE

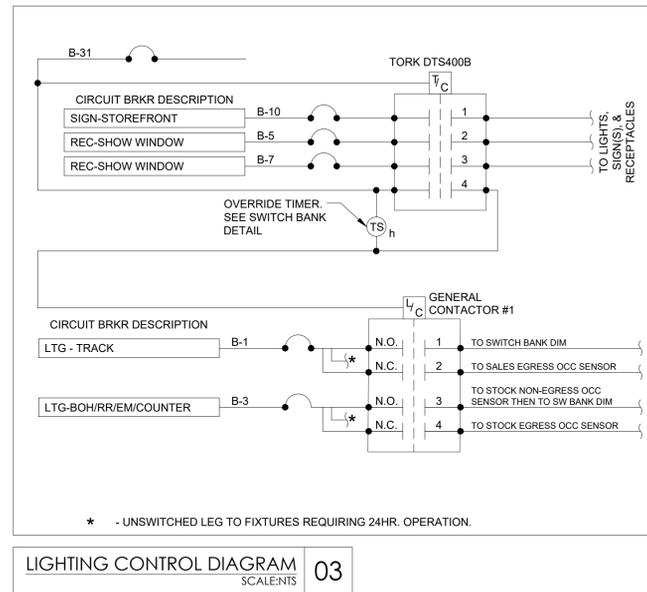
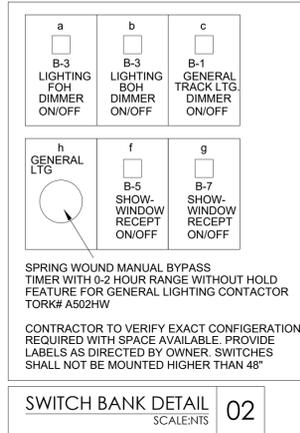
## GEORGIA STATE BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2018 GEORGIA STATE BUILDING CODE AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.
2. TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH 2018 IBC REQUIREMENTS AS OUTLINES IN SECTION [BC.1704].
3. THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.
4. A WRITTEN REPORT DESCRIBING THE ACTIVITIES AND MEASUREMENTS COMPLETED IN ACCORDANCE WITH THE IECC 2015.
5. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION MC 107 AND THE FOLLOWING SECTIONS OF THE 2018 INTERNATIONAL MECHANICAL CODE:
  - A. VENTILATION SYSTEM BALANCING MC 403.3.1.5
6. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
  - A. DUCT CONSTRUCTION AND INSTALLATION- MC 603
  - B. STANDARDS OF HEATING - MC 309.1
  - C. AIR INTAKES, EXHAUSTS AND RELIEFS - MC 401.5
  - D. GAS FIRED EQUIPMENT - FUEL GAS CODE
  - E. AIR FILTERS - MC 605
  - F. SMOKE DETECTORS AND FIRE AND SMOKE DAMPERS - MC 606 & 607 RESPECTIVELY
7. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
8. VENTILATION FOR ALL AREA SHALL COMPLY WITH MC 401.
9. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY MC 403.1.1.
10. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
11. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
12. SMOKE DETECTOR SHALL MEET UL268A.
13. INDOOR DUCT AND PLENUM INSULATION SCHEDULE:  
(SECTION 230713)
  - A. CONCEALED, RECTANGULAR, ROUND AND FLAT-OVAL, SUPPLY-RETURN, OUTDOOR-AND EXHAUST-AIR DUCT AND AIR PLENUM INSULATION:
  - B. FLEXIBLE ELASTOMERIC, MINERAL-FIBER BLANKET, MINERAL-FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS:

UNCONDITIONED SPACES WITHIN BUILDING:	R-6
WITHIN BUILDING ENVELOPE ASSEMBLY:	R-8
OUTSIDE OF BUILDING:	R-8

-- END OF SPECIFICATIONS --



LIGHT FIXTURE SCHEDULE						
TYPE	CATALOG NUMBER	LAMP DATA		DESCRIPTION	NOTES	
		TYPE	VOLTA			VOLTAGE
A	DTF4UZDB135K	LED	29	120V	2X4 LED PANEL, 3300 LUMEN, SURFACE MOUNTED	4
AE	DTF4UZDB135K-EB	LED	29	120V	2X4 LED PANEL, W/BATTERY BACKUP	4
C	CONTECH-#K6SA1-30KC-MVD-F	LED	10	120V	SURFACE MOUNTED FIXTURE	4
T	TRACK LIGHT	LED	10	120V	TRACK HEAD CTL816GU10-P	-
EX	CONTECH LIGHTING - EXREM	LED	4	120V	RED LETTERS, EXIT LIGHTING IN SALES, RECESSED	1,2
EM	CONTECH LIGHTING - EL2HALEDEM	LED	5	120V	TWIN HEAD EGRESS LIGHTING WITH BATTERY	1

**LIGHT FIXTURE SCHEDULE NOTES:**

- FIELD VERIFY UNIT CAN PROVIDE EMERGENCY EGRESS LIGHTING.
- PROVIDE REMOTE HEAD AS NEEDED.
- ALL EMERGENCY LIGHTS FIXTURES SHALL HAVE 90 MINUTES BATTERY BACK UP.
- THE LIGHT FIXTURE SHALL BE COMPATIBLE AS SURFACE MOUNTED, E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR THE EXACT FIXTURE DETAILS.

**LIGHT FIXTURE DIMMING**

CONTRACTOR SHALL VERIFY DIMMING PROTOCOL REQUIREMENTS FOR LIGHT FIXTURES SELECTED FOR THIS PROJECT WITH LIGHTING SUPPLY VENDOR. SOME LIGHT FIXTURES SPECIFIED FOR THIS PROJECT MAY REQUIRE LOW VOLTAGE SIGNAL WIRES BETWEEN THE DIMMER(S) AND THE LIGHT FIXTURE(S). CONTRACTOR IS RESPONSIBLE FOR ALL MATERIALS AND LABOR REQUIRED TO ACHIEVE THE DIMMING.

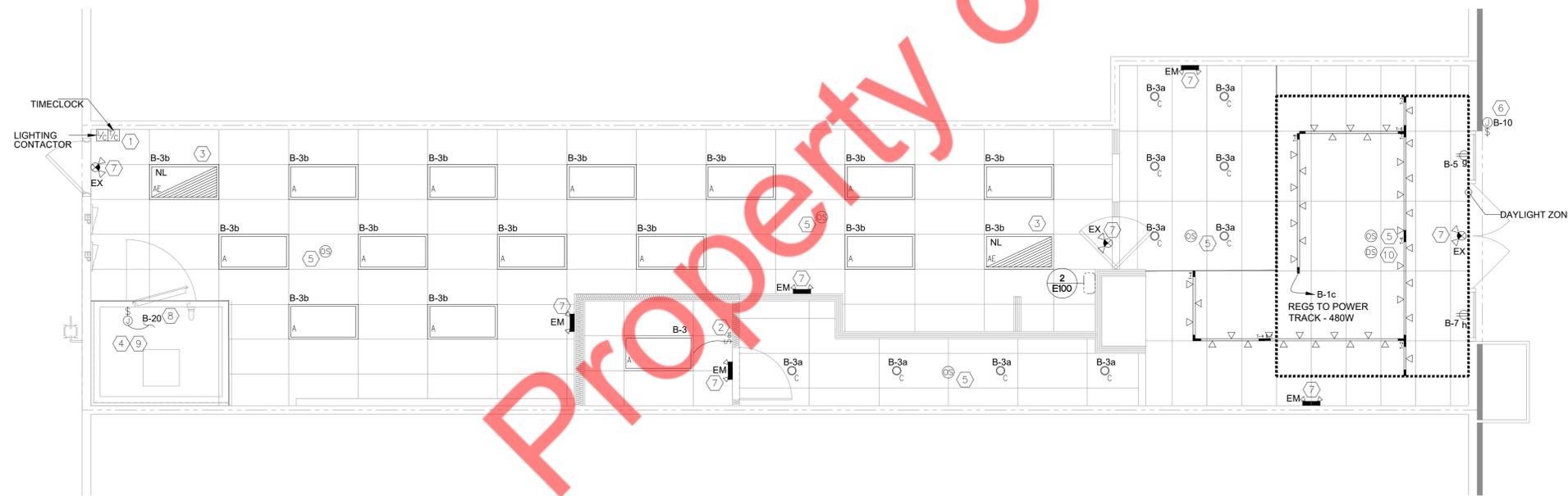
CON-TECH CURRENT LIMITING DEVICES		
REG5	480W	4A

**GENERAL NOTES**

- THE FOLLOWING GENERAL CONDITIONS APPLY TO WORK ON THIS SHEET.
- COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- ALL EXPOSED SURFACE WALL MOUNTED RACEWAYS SHALL BE IN EMT CONDUIT WITH COMPRESSION FITTINGS AS REQUIRED.
- REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSION AND LOCATION OF LIGHT FIXTURES AND DEVICES
- REFER TO ELECTRICAL SPECIFICATIONS ELSEWHERE IN THESE DRAWINGS FOR FURTHER INFORMATION AND REQUIREMENTS. GENERAL CONDITIONS AND SUMMARY OF WORK ALSO DIRECTLY APPLY TO THIS WORK.
- ALL LOW VOLTAGE WIRING SHALL BE CONCEALED IN CONDUITS IN EXPOSED CEILING AREAS
- ALL LOW VOLTAGE WIRING AND WALL MODIFICATION SHALL BE DONE PRIOR TO ARTIST PAINTING TENANT WALLS.
- ALL RECEPTACLES IN KITCHEN AND PREP AREA SHALL BE GFI TYPE, AS PER NEC 210.8(B). GFI RECEPTACLE SHALL BE LOCATED AT ACCESSIBLE LOCATION, ELSE GFI BREAKER SHALL BE PROVIDED IN THE PANEL.

**KEY NOTES**

- COORDINATE EXACT LOCATION OF TIME CLOCK AND LIGHTING CONTACTOR IN THE FIELD.
- WALL MOUNTED SWITCH WITH OCCUPANCY SENSOR FOR RESTROOM, COORDINATE EXACT LOCATION AND MOUNTING HEIGHT IN THE FIELD.
- PROVIDE HOT, UNSWITCHED CONDUCTOR TO LIGHT TO RENDER FIXTURE OPERATIONAL 24HRS A DAY.
- PROVIDE JUNCTION BOX AND POWER FOR WALK-IN BOX LIGHTING. E.C. SHALL COORDINATE WITH WIB VENDOR FOR EXACT POWER REQUIREMENT.
- CEILING MOUNTED OCCUPANCY SENSOR TO CONTROL GENERAL LIGHTING CIRCUIT FOR NON-BUSINESS HOURS EGRESS LIGHTING. SEE 'TIMECLOCK AND LIGHTING CONTROL DIAGRAM' ON SHEET 3/E100.
- J-BOX W/DISCONNECTING MEANS PER NEC FOR SIGNAGE. CONNECT TO SIGN COMPLETE. ROUTE CIRCUIT TO PANEL INDICATED VIA 4 CIRCUIT ASTRONOMICAL TIME CLOCK (TORK DTS400B) LOCATED IN KITCHEN. VERIFY EXACT LOCATION OF EXTERIOR SIGNAGE WITH OWNER AND SIGN VENDOR. WALL PENETRATION THRU LL FACADE MUST BE SEALED WITH MATERIAL OF LIKE COLOR.
- CONNECT EMERGENCY AND EXIT FIXTURE TO NEAREST LIGHTING CIRCUIT AHEAD OF ANY SWITCHING.
- CONNECT TO COOLER/FREEZER LIGHT FIXTURE. ELECTRICAL CONTRACTOR SHALL PROVIDE LAMPS FOR FIXTURE. FIELD VERIFY LAMPING. LIGHT FIXTURE SHIPPED LOOSE BY MANUFACTURER. E.C. SHALL INSTALL AND CONNECT.
- PROVIDE SEAL-OFFS AT ALL COOLER WALL PENETRATIONS.
- LIGHT FIXTURES IN THIS AREA SHALL BE CONTROLLED BY DAYLIGHT SENSOR FOR DAYLIGHT HARVESTING.





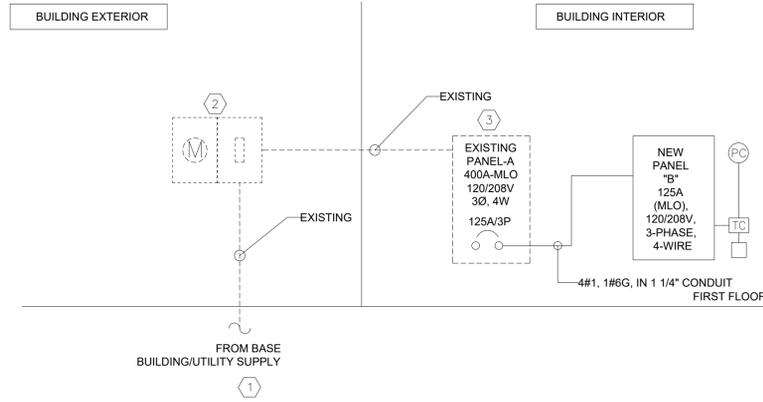
# KEY NOTES - ROOF PLAN

1. WEATHERPROOF G.F.C.I. RECEPTACLE PROVIDED BY EC TO BE INSTALLED PER N.E.C. 210-63 BY EC.
2. EXISTING MECHANICAL EQUIPMENT WITH ITS ELECTRICAL CONNECTION AND ELECTRICAL FIXTURE TO REMAIN. E.C. SHALL VERIFY OPERABLE CONDITION OF ELECTRICAL CONNECTION AND ELECTRICAL FIXTURE ON FIELD. REPLACE IF INOPERABLE. BASE BID ACCORDINGLY. E.C. SHALL COORDINATE WITH LANDLORD FOR THE EXACT LOCATION OF RTU AND ITS ELECTRICAL CONNECTIONS ON FIELD.

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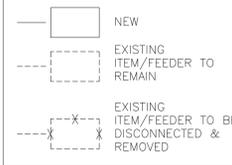
**ELECTRICAL RISER DIAGRAM**



**RISER DIAGRAM KEYED NOTES:**

- EXISTING 400A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL SERVICE FOR THE PROJECT SPACE PROVIDED BY LANDLORD SHALL REMAIN. E.C. SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT POWER DISTRIBUTION IN THE FIELD.
- NEW 400A, 120/208V, 3 PH ELECTRICAL METER AND DISCONNECT SWITCH PROVIDED IN EMPTY METER SOCKET BY LANDLORD. E.C. SHALL VERIFY THE SCOPE OF WORK PRIOR TO BID.
- EXISTING 400A, 120/208V, 3 PH ELECTRICAL PANEL "A" TO REMAIN. E.C. SHALL VERIFY EXACT LOCATION, RATING AND OPERABLE CONDITION OF PANEL IN THE FIELD. REPLACE IF FOUND INOPERABLE, BASE BID ACCORDINGLY.
- NEW 125A(MLO), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "B". E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.

**ELECTRICAL RISER SYMBOLS**



**RISER DIAGRAM GENERAL NOTES:**

- E.C SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD. INFORM ENGINEER ON RECORD IN CASE OF ANY DISCREPANCY.
- E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZE AND DISTRIBUTION.
- E.C. SHALL VERIFY FAULT CURRENT AVAILABLE WITH UTILITY COMPANY AND CALCULATE EXACT A.I.C. RATING REQUIRED PRIOR TO BID.
- E.C. SHALL VERIFY RATING AND OPERABLE CONDITION OF EXISTING ELECTRICAL FEEDER, PANELS, BREAKER ETC IN THE FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

**KITCHEN EQUIPMENT SCHEDULE**

PLAN MARK	EQ. DESCRIPTION	LOAD(KVA)	VOLT/PHASE	DISC BY	MCA	MOCP	REMARK
100	FULL SIZE ELECTRICAL CONVECTION OVEN	11	208/3	HARD WIRED	30.50	40	BLODGETT MODEL MARK V-100
102A	WARMER - SHORT	1.36	120/1	5-15P	11.30	20	
103	MICROWAVE	1	120/1	PLUG	8.60	20	
203	CONSERVE WELL	0.4	120/1	5-15P	3.30	20	
204	WATER HEATER	8	208/3	SWITCH	22.12	30	
300	WALK-IN-BOX EVAPORATOR	3.12	208/1	SWITCH	15.00	20	
300A	WALK-IN-BOX CONDENSER	6.32	208/2	SWITCH	30.40	45	
301	CHEST FREEZER	0.2	120/1	5-15P	1.73	20	
302	ICE CREAM FREEZER	0.4	120/1	PLUG	3.30	20	
303	BEVERAGE COOLER	0.4	120/1	PLUG	3.30	20	
303A	WIRELESS DOOR SENSOR CHIME						COORDINATE WITH LV CONTRACTOR
304	MINI FRIDGE	0.1	120/1	PLUG	0.80	20	
400-7	FOH CABINET	1.2	120/2	PLUG	10.00	20	
500	CASH REGISTER	0.18	120/1	PLUG	1.50	20	
501	DIGITAL MENU BOARD	0.5	120/1	PLUG	4	20	
502	HR MONITOR	0.5	120/1	PLUG	4	20	
511	SECURITY CAMERA						COORDINATE WITH SECURITY CONTRACTOR
512	SECURITY ALARM PANEL	0.01	120-1	DIRECT	0.1	20	COORDINATE WITH SECURITY CONTRACTOR
513	WIRELESS SHOCK SENSOR AND TRANSMITTER						COORDINATE WITH SECURITY CONTRACTOR
514	WIRELESS MOTION DETECTOR						COORDINATE WITH SECURITY CONTRACTOR
515	WIRELESS GLASS BREAK SENSOR						COORDINATE WITH SECURITY CONTRACTOR
516	SPEAKER						COORDINATE WITH LV CONTRACTOR
517	SAFE	0.18	120/1	PLUG	2.00	20	
702	HAND DRYER	1.72	120/1	DIRECT	15	20	
	RTU-1(E)	11.16	240/1	SWITCH	29	45	

E.C. TO VERIFY EXACT VOLTAGE, NO OF WIRES, BREAKER AND POWER CONNECTION REQUIREMENT OF THE EQUIPMENT WITH EQUIPMENT MANUFACTURER. ANY DISCREPANCIES SHALL BE COMMUNICATED WITH ENGINEER ON RECORD PRIOR TO BIDDING/ROUGH-IN.

PANEL: A (EXISTING)												MOUNTING: RECESSED		
120/208	VOLTS	3 PHASE		4 WIRE								LOCATION: BOH		
MLO	400A	BUS: 400A		MINIMUM		AIC RATING : 22 KAIC						FED FROM: DISCONNECT		
<b>NOTE:</b>														
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	SPARE				0.00						SPARE	20	2
3	45/2P	WIB CONDENSER	H	3.16	2#8, 1#10, 3/4"C		3.52		2#12, 1#12, 3/4"C	0.36	R	RESTROOM GFI RECEPTACLE	20	4
5			H	3.16					2#12, 1#12, 3/4"C	1.50	R	HAND DRYER	20	6
7	20/2P	WIB EVAPORATOR	H	0.94	2#12, 1#12, 3/4"C	0.94			2#12, 1#12, 3/4"C	0.50	R	WIB MISCELLANEOUS LOAD	20	8
9			H	0.94			1.44		2#12, 1#12, 3/4"C	0.18	E	502-HR MONITOR	20	10
11	20	SPARE						0.18	2#12, 1#12, 3/4"C	0.18	E	511-SECURITY CAMERA	20	12
13	20	SPARE					0.50		2#12, 1#12, 3/4"C	0.50	E	SPARE	20	14
15	20	SPARE					0.00					SPARE	20	16
17	20	SPARE					0.00	0.00				SPARE	20	18
19	20	SPARE					0.00					SPARE	20	20
21	20	SPARE					0.00	0.00				SPARE	20	22
23	20	SPARE						3.00	3#10, 1#10, 3/4"C	3.00	O	WH-1	30/3P	24
25		SPACE					3.00			3.00	O			26
27		SPACE					3.00			3.00	O			28
29		SPACE						0.00				SPARE	20	30
31		SPACE					0.00					SPARE	20	32
33		SPACE						0.10	2#12, 1#12, 3/4"C	0.10	M	EF-1	20	34
35		SPACE						0.10	2#12, 1#12, 3/4"C	0.10	M	EF-2	20	36
37		SPACE					3.48			3.48	H			38
39		SPACE					3.48		3#8, 1#10, 3/4"C	3.48	H	RTU-1 (E)	45/3P	40
41		SPACE						3.48		3.48	H			42
43		SPACE					10.87			10.87	O			44
45		SPACE					10.87		4#1, 1#6, 1 1/4"C	10.87	O	TO PANEL "B"	125/3P	46
47		SPACE						10.87		10.87	O			48
						<b>18.78</b>	<b>22.40</b>	<b>22.29</b>						

PANEL: B (NEW)												MOUNTING: RECESSED		
120/208	VOLTS	3 PHASE		4 WIRE								LOCATION: BOH		
MLO	125A	BUS: 125A		MINIMUM		AIC RATING : 22 KAIC						FED FROM: PANEL "A"		
<b>NOTE:</b>														
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	LIGHT - DAYLIGHT ZONE	L	0.42	2#12, 1#12, 3/4"C	0.78			2#12, 1#12, 3/4"C	0.36	R	CASH REGISTER	20	2
3	20	LIGHT - FOH & BOH	L	0.60	2#12, 1#12, 3/4"C		0.96		2#12, 1#12, 3/4"C	0.36	R	COMPUTER OUTLET	20	4
5	20	SHOW WINDOW	L	1.00	2#12, 1#12, 3/4"C			1.36	2#12, 1#12, 3/4"C	0.36	R	DESK QUAD	20	6
7	20	SHOW WINDOW	L	1.00	2#12, 1#12, 3/4"C	1.36			2#12, 1#12, 3/4"C	0.36	R	DATA RACK QUAD	20	8
9	20	102A-WARMER	E	1.36	2#12, 1#12, 3/4"C		2.36		2#12, 1#12, 3/4"C	1.00	L	EXTERIOR SIGNAGE	20	10
11	20	517_SAFE	R	0.18	2#12, 1#12, 3/4"C			0.38	2#12, 1#12, 3/4"C	0.20	E	301-CHEST FREEZER	20	12
13	20	103-MICROWAVE	E	1.00	2#12, 1#12, 3/4"C	11.16				10.16	E			14
15	20	203-CONDENSER WELL	E	0.40	2#12, 1#12, 3/4"C		10.56		3#8, 1#10, 3/4"C	10.16	E	100-FULL SIZE OVEN	40/3P	16
17	20	301-CHEST FREEZER	E	0.20	2#12, 1#12, 3/4"C			10.36		10.16	E			18
19	20	302-ICE CREAM FREEZER	E	0.40	2#12, 1#12, 3/4"C	0.90			2#12, 1#12, 3/4"C	0.50	L	WIB LIGHTING	20	20
21	20	303-BEVERAGE COOLER	E	0.38	2#12, 1#12, 3/4"C		0.74		2#12, 1#12, 3/4"C	0.36	R	ROOF RECEPTACLES	20	22
23	20	304-MINI FRIDGE	E	0.10	2#12, 1#12, 3/4"C			0.10				SPARE	20	24
25	20	500-POS	R	0.36	2#12, 1#12, 3/4"C	0.46			2#12, 1#12, 3/4"C	0.10	M	RECIRCULATION PUMP	20	26
27	20	501-DIGITAL MONITORS	R	0.72	2#12, 1#12, 3/4"C		1.26		2#12, 1#12, 3/4"C	0.54	R	GENERAL RECEPTACLE - BOH	20	28
29	20	512-SECURITY ALARM PANEL	O	0.10	2#12, 1#12, 3/4"C			0.82	2#12, 1#12, 3/4"C	0.72	R	GENERAL RECEPTACLE - FOH	20	30
31	20	TIME CLOCK	O	0.10	2#12, 1#12, 3/4"C	0.10						SPARE	20	32
33	20	FOH CABINET	R	1.80	2#12, 1#12, 3/4"C		1.80					SPARE	20	34
35	20	SPARE						0.00				SPARE	20	36
37	20	SPARE					0.00					SPARE	20	38
39	20	SPARE						0.00				SPARE	20	40
41	20	SPARE						0.00				SPARE	20	42
						<b>14.66</b>	<b>15.88</b>	<b>13.02</b>						

**PANEL SCHEDULE GENERAL NOTES:**

- ALL CIRCUITING SHOWN IN PANEL "A" FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR DISCREPANCIES.
- ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
- E.C. SHALL VERIFY THAT ALL THE NEWLY ADDED BREAKERS IN THE EXISTING PANEL SHALL BE COMPATIBLE WITH PANEL TYPE.
- E.C. SHALL VERIFY EXACT CIRCUIT NUMBER & BREAKER SIZE OF EXISTING DEVICES IN FIELD.
- E.C. SHALL VERIFY THE EXISTING EQUIPMENT LOAD & RATINGS IN FIELD AND ACCORDINGLY CONSIDER THE ELECTRICAL LOAD IN PANEL BOARD SCHEDULE.

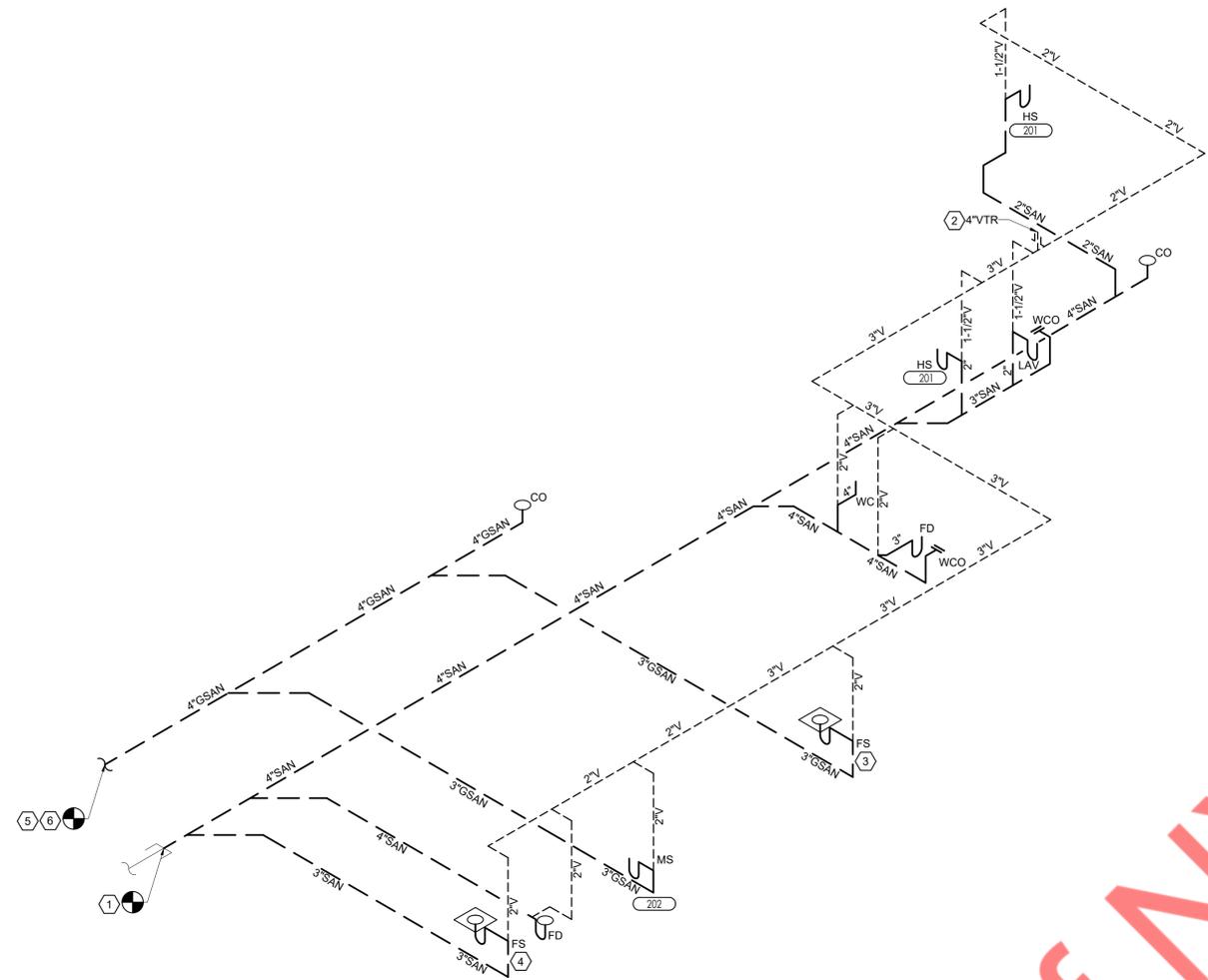
**PANEL SCHEDULE KEYED WORK NOTES:**

- E.C TO PROVIDE ONE 125A/3P CIRCUIT BREAKER IN PLACE OF THREE SPACES. BASE BID ACCORDINGLY

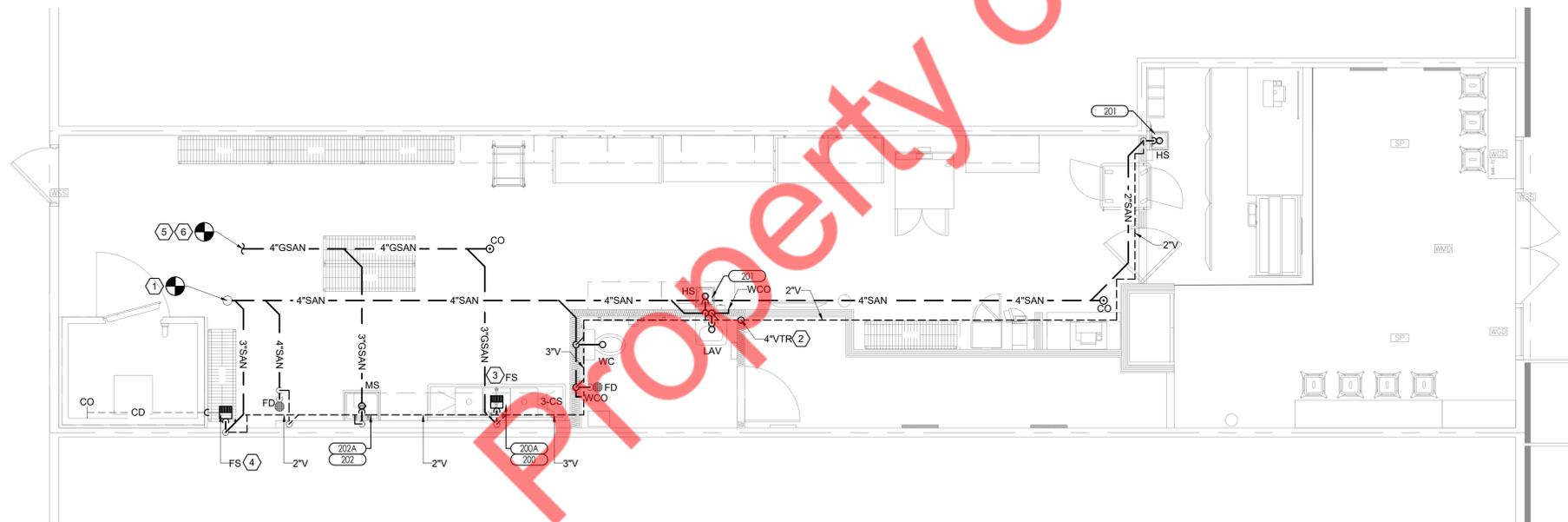
**PANEL SCHEDULE ABBREVIATIONS:**

- L = LIGHTING
- R = RECEPTACLE
- H = HVAC
- E = EQUIPMENT
- M = MOTOR
- O = OTHER





SANITARY AND VENT RISER DIAGRAM  
SCALE: NOT TO SCALE

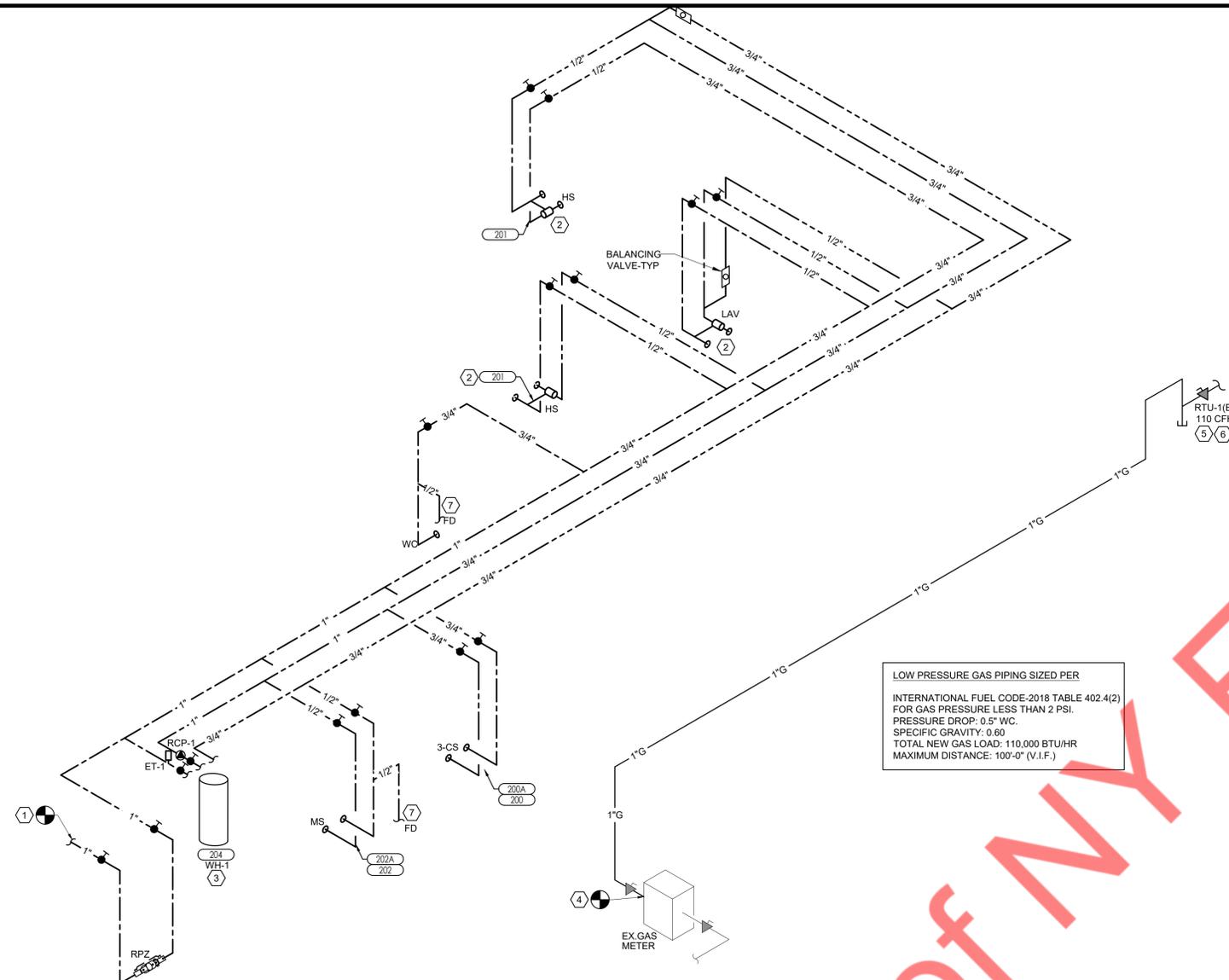


SANITARY AND VENT PLAN  
SCALE: 1/4" = 1'0"



KEYED NOTES

- ① CONNECT NEW 4" SANITARY PIPING TO EXISTING SANITARY STUB UP IN SPACE. CONTRACTOR TO VERIFY IN FIELD FOR EXACT LOCATION, INVERT AND ADEQUATE SIZE OF EXISTING SANITARY LINE PRIOR TO BID.
- ② CONNECT NEW 3" VENT PIPING TO NEW 4" VTR. CONTRACTOR TO VERIFY IN FIELD FOR EXACT LOCATION AND ENSURE THE NEW VTR SHOULD BE 10' AWAY FROM ANY MECHANICAL AIR INTAKES.
- ③ CONNECT INDIRECT DRAIN PIPING FROM 3-COMP SINK TO FLOOR SINK. PROVIDE AIR GAP MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
- ④ CONNECT 3/4" CONDENSATE DRAIN FROM WALK IN COOLER TO FLOOR SINK WITH APPROVED AIR GAP.
- ⑤ CONNECT NEW 4" GREASE SANITARY PIPING TO EXISTING SANITARY STUB UP IN SPACE. CONTRACTOR TO VERIFY IN FIELD FOR EXACT LOCATION, INVERT AND ADEQUATE SIZE OF EXISTING GREASE SANITARY LINE PRIOR TO BID.
- ⑥ CONTRACTOR TO ENSURE THAT THE EXISTING GREASE INTERCEPTOR WILL SUFFICE THE ADDITION OF GREASE WASTE FROM TENANT SPACE AND NOTIFY THE ENGINEER IF NOT.



LOW PRESSURE GAS PIPING SIZED PER  
 INTERNATIONAL FUEL CODE-2018 TABLE 402.4(2)  
 FOR GAS PRESSURE LESS THAN 2 PSI.  
 PRESSURE DROP: 0.5" WC.  
 SPECIFIC GRAVITY: 0.60  
 TOTAL NEW GAS LOAD: 110,000 BTU/HR  
 MAXIMUM DISTANCE: 100'-0" (V.I.F.)

**GAS NOTES:**  
 CONTRACTOR SHALL VERIFY EXACT DEVELOPED DISTANCE FROM EXISTING GAS METER TO FARTHEST GAS LINE POINT. ADJUST GAS SIZES ACCORDINGLY.  
 CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR MECHANICAL EQUIPMENTS.  
 PROVIDE SHUT-OFF VALVE AND PRESSURE REGULATOR AN ACCESSIBLE LOCATION.  
 CONTRACTOR SHALL VERIFY ACTUAL GAS PRESSURE AND LONGEST LENGTH OF RUN FROM METER TO FARTHEST APPLIANCE PRIOR TO INSTALLATION AND NOTIFY ENGINEER IF CONDITIONS DIFFER FROM THOSE SHOWN ON THE PLAN.  
 CONTRACTOR SHALL APPLY FOR GAS SERVICE AND COORDINATE GAS SERVICE IN A TIMELY MANNER. IF PRESSURE IS HIGHER THAN THE GAS PRESSURE USED TO SIZE THE GAS PIPING, CONTRACTOR SHALL PROVIDE A PRESSURE REGULATOR. IF LOWER, CONTACT THE PROFESSIONAL OF RECORD IMMEDIATELY FOR DIRECTION. IF THE PROFESSIONAL OF RECORD IS NOT CONTACTED, IT IS ASSUMED GAS PRESSURE IS VERIFIED AND ADEQUATE FOR THE SYSTEM DESIGNED ON THE DRAWINGS.

PIPE MATERIAL SCHEDULE	
PIPE	MATERIALS
WASTE PIPING	CAST IRON PIPE
VENT	CAST IRON PIPE
GAS	METALLIC PIPE SCH-40
WATER PIPING	TYPE L OR TYPE M COPPER PIPE AND FITTINGS, SOLDER, OR SOFT COPPER PIPE
CONTROL	BALL VALVES FOR SHUT OFF AND FLOW
INSULATION	ALL HOT WATER PIPING TO BE INSULATED PER 2015 IECC SECTION 403.2.10

PLUMBING FIXTURE CALCULATIONS						
PLUMBING FIXTURE	PLUMBING FIXTURE QUANTITY	DRAINAGE FIXTURE UNIT EA.	DRAINAGE FIXT. UNIT TOTAL	VENT SIZE EACH	C.W. FIXTURE UNIT EACH	C.W. FIXTURE UNIT TOTAL
WATER CLOSET	1	4	4	2"	5	5
LAVATORY	1	2	2	1.5"	2	2
FLOOR SINK	2	5	10	2"	-	-
FLOOR DRAIN	1	5	5	2"	-	-
FLOOR DRAIN	1	6	6	2"	-	-
MOP SINK	1	5	5	2"	3	3
HAND SINK	2	2	4	1.5"	1	2
*3 COMP SINK	1	6	6	2"	4	4
		TOTAL	42	-		16
SERVICE CONNECTION SIZE AS PER IPC 2018 SECTION 710 AND APPENDIX E.			SAN.	VENT	C.W.	
			4"	3"	1"	

- KEYED NOTES**
- CONNECT NEW 1" CW LINE TO EXISTING CW MAIN LINE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, LOCATION, PRESSURE WATER SUB-METER. UPGRADE EXISTING CW SIZE IF NOT SUFFICIENT.
  - PROVIDE A TEMPERING VALVE FOR LAVATORIES AND HAND SINK. POWER HYDROGUARD SERIES LFLM495, ASSE, 1070 OR EQUAL. SET TEMPERATURE TO A MAXIMUM OF 110° F.
  - ROUTE TEMPERATURE AND PRESSURE RELIEF TO NEAREST DRAIN.
  - CONTRACTOR SHALL CONNECT NEW 1" GAS LINE FROM THE EXISTING GAS METER FOR THE TENANT SPACE. VERIFY EXACT SIZE, LOCATION, AND DISTANCE IN FIELD PRIOR TO BID AND ENSURE IT IS ADEQUATELY SIZED FOR NEW GAS LOAD. COORDINATE TENANT REQUIREMENTS WITH LANDLORD AND LOCAL UTILITY COMPANY PRIOR TO BID.
  - CONTRACTOR SHALL PROVIDE NEW DIRT LEG, SHUT-OFF PLUG COCK, AND UNION. PROVIDE SHUT-OFF VALVE AN ACCESSIBLE LOCATION.
  - CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE GAS SERVICE PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR MECHANICAL EQUIPMENTS AND WATER HEATER.
  - PROVIDE TRAP PRIMER RECESSED IN WALL WITH ACCESS PANEL. ROUTE 1/2" CW TO FLOOR DRAIN PER MANUFACTURER SPECIFICATIONS AND LOCAL CODE.

WATER SUPPLY AND GAS RISER DIAGRAM  
 SCALE: NOT TO SCALE 2



WATER SUPPLY AND GS PIPING PLAN  
 SCALE: 1/4" = 1'0" 1

PLUMBING EQUIPMENT SCHEDULE						
MARK	FIXTURE	ROUGH-IN-SIZE				DESCRIPTION/REMARKS
		S/W	V	CW	HW	
WHA	WATER HAMMER ARRESTER	-	-	LINE SIZED	-	PPP, INC. SERIES SC, FULLY MECHANICAL WATER HAMMER ARRESTER SIZED AND LOCATED PER THE MANUFACTURER SPECIFICATIONS.
MXV	MIXING VALVE	-	-	1/2"	1/2"	WATTS REGULATOR #LFUSG-B UNDER SINK THERMOSTATIC MIXING VALVE, WITH LEAD FREE BRASS BODY AND TAMPER RESISTANT LOCKING NUT. CERTIFIED: ASSE 1070. MAX DISCHARGE TEMPERATURE SHALL BE 110° F.
WH	ELECTRIC WATER HEATER	-	-	1"	1"	RHEEM #E550-9-G ELECTRIC WATER HEATER, 50 GALLON CAPACITY TANK, 208V/3PH, 9KW INPUT, SET DISCHARGE TEMPERATURE TO 120°F, 41 GPH RECOVERY AT 90°F RISE.
RCP	RE-CIRCULATION PUMP	-	-	-	3/4"	BELL & GOSSETT #NBF-9U/LW WET ROTOR CIRCULATOR PUMP WITH LEAD FREE CONSTRUCTION, 2 GPM @ 10F T HEAD, 120V / 1PH, PROVIDE WITH AQS-384 AQUASTAT AND FLEXIBLE PLUG-IN CORD. INSTALL PER MANUFACTURER'S SPECIFICATIONS.
ET	EXPANSION TANK	-	-	1"	-	AMTROL ST-5, MAX WORKING PRESSURE-150 PSIG, MAXIMUM OPERATION TEMPERATURE-140F, SIZE- 8" DIA X 13" HEIGHT.

PLUMBING FIXTURE SCHEDULE						
MARK	FIXTURE	ROUGH-IN-SIZE				DESCRIPTION/REMARKS
		S/W	V	CW	HW	
WCO	WALL CLEANOUT	LINE SIZED	-	-	-	ZURN #1443 SQUARE WALL CLEANOUT, DURA-COATED CAST IRON BODY, GAS AND WATER TIGHT TAPERED THREAD PLUG, AND NICKEL BRONZE SECURED SQUARE, SMOOTH WALL ACCESS COVER AND FRAME.
FCO	FLOOR CLEANOUT	LINE SIZED	-	-	-	ZURN #1400 ADJUSTABLE FLOOR CLEANOUT, DURA-COATED CAST IRON BODY, GAS AND WATER TIGHT TAPERED THREAD PLUG, AND 5/8" ROUND POLISHED NICKEL BRONZE TOP.
FD	FLOOR DRAIN	3"	2"	1/2"	-	ZURN #FD-2340, MEDIUM DUTY PVC BODY FLOOR DRAIN WITH STEEL THREADED INSERTS AND ADJUSTABLE CAST IRON 6" ROUND TOP, AND TRAP PRIMER CONNECTION.
WC	WATER CLOSET (ADA)	4"	2"	3/4"	-	AMERICAN STANDARD "CADET" #2467.016 WHITE VITREOUS CHINA, FLOOR MOUNTED, ADA COMPLIANT TANK TYPE PRESSURE ASSISTED 1.6 GPF WATER CLOSET. TRIP LEVER SHALL BE INSTALLED ON WIDE SIDE OF STALL. INCLUDE BEMIS #1055 WHITE ELONGATED OPEN FRONT SEAT-LESS COVER, WITH CHECK HINGE STOPS.
LAV	LAVATORY (ADA)	2"	1 1/2"	1/2"	1/2"	AMERICAN STANDARD "LUCERNE" WALL HUNG LAVATORY, #0355.012, COLOR: WHITE, FAUCET: "SEVA" #1480.110, SINGLE LEVER CONTROL (1.5 GPM), OFF-SET GRID DRAIN, BRASSCRAFT "COMMERCIAL" RIGID SUPPLIES, ANGLE STOPS, AND CHROME PLATED 17GA. L.A. PATTERN CAST BRASS P-TRAP WITH SECURED ESCUTCHEON. P-TRAP AND WATER SUPPLIES SHALL BE WRAPPED WITH TRUEBRO LAVGUARD #102 FOR HANDICAP PROTECTION.
TP	TRAP PRIMER	-	-	1/2"	-	PPP, INC. #PR-500 "PRIME RITE" TRAP PRIMER, BRONZE CONSTRUCTION WITH VACUUM PORTS, ADJUSTABLE WITH 1/2" COPPER TYPE "L" TO RECEIVER. PROVIDE DISTRIBUTION UNIT AS REQUIRED FOR SUPPLY TO MULTIPLE DRAINS. INSTALL VALVE RECESSED IN WALL A MINIMUM 12" AFF, PROVIDE ACCESS PANEL.

EQUIPMENT LIST - WASTE AND VENT					
ITEM NO	DESCRIPTION	Vent	Dir. Waste	Ind. Waste	
200	THREE COMPARTMENT SINK 90" L	2"	-	-	2"
201	HAND SINK (SERVICE)	1-1/2"	2"	-	-
202	MOP SINK	2"	3"	-	-
WC	WATER CLOSET	2"	4"	-	-
LAV	LAVATORY	1-1/2"	2"	-	-
FD	FLOOR DRAIN	2"	3"	-	-

REFER TO ARCHITECT EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.

EQUIPMENT LIST - WATER SUPPLY				
ITEM NO	DESCRIPTION	CW	HW	
200A	THREE COMPARTMENT SINK 90" L	3/4"	3/4"	
201	HAND SINK (SERVICE)	1/2"	1/2"	
202A	MOP SINK	1/2"	1/2"	
WC	WATER CLOSET	3/4"	-	
LAV	LAVATORY	1/2"	1/2"	

REFER TO ARCHITECT EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.

TESTING PROCEDURES	
1.	WATER SYSTEM SHALL BE TESTED AND PROVED TIGHT UNDER PRESSURE NOT LESS THAN THE WORKING PRESSURE OF THE SYSTEM.
2.	CHLORINATE ALL WATER PIPING FOR A PERIOD OF 8 HRS, BY CHARGING WITH A HYPOCHLORINATE SOLUTION TO ACHIEVE A 5 PPM STRENGTH AT THE FIXTURE FURTHEST FROM THE POINT OF APPLICATION. UPON COMPLETION OF THE CHLORINATION, FLUSH ALL PIPING UNTIL NO CHLORINE CAN BE DETECTED BY TASTE. CLEAN ALL STRAINERS AND SET WATER FLOWS FROM FIXTURES IN ACCORDANCE WITH MANUFACTURER AND LOCAL REQUIREMENTS.
3.	TEST INSTALLED WASTE AND VENT PIPING FOR A PERIOD OF 8 HRS, BY CAPPING OR PLUGGING ALL JOINTS TO A LEVEL OF THE HIGHEST FIXTURE OR FITTING. FILL THE SYSTEM WITH WATER AND OBSERVE FOR ANY LEAKS.

PLUMBING LEGEND		
SYMBOL	ABBREV.	DESCRIPTION
---	EX.CW	EXIST. COLD WATER PIPING
---	SAN	SANITARY UNDERGROUND PIPING
---	GSAN	GREASE SANITARY UNDERGROUND PIPING
---	SAN	SANITARY ABOVEGROUND PIPING
---		VENT PIPING
---		COLD WATER PIPING
---		HOT WATER PIPING
---		HOT WATER RETURN PIPING
---		CONDENSATE DRAIN PIPING
○		PIPE UP
○		PIPE DROP
G		GAS PIPE
⊗		SHUT-OFF VALVE
⊙		POINT OF NEW CONNECTION
⊖		BALANCING VALVE
EX		EXISTING
FLR		FLOOR
CLG		CEILING
ABV		ABOVE
BEL		BELOW
UG		UNDERGROUND
DN		DOWN
RCP		RE-CIRCULATION PUMP
TYP.		TYPICAL
A.F.F.		ABOVE FINISH FLOOR
B.F.F.		BELOW FINISH FLOOR
CD		CONDENSATE DRAIN
WH		WATER HEATER
ET		EXPANSION TANK

PLUMBING GENERAL NOTES	
01.	NOTE: FOR THE PURPOSE OF CLARITY AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATIONS OF EQUIPMENT ARE DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS AND VERIFY THIS INFORMATION PRIOR TO ORDERING, FABRICATING OR INSTALLING ANY MATERIALS.
02.	THE PLUMBING SYSTEM DESIGN, INSTALLATION AND MATERIALS SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION.
03.	PLUMBING QUALITY, WEIGHTS OF MATERIALS AND ALTERNATE METHODS OF CONSTRUCTION SHALL CONFORM TO THE GEORGIA STATE PLUMBING CODE (IPC 2018) REQUIREMENTS.
04.	CONTRACTOR SHALL COORDINATE ALL WORK SHOWN ON THESE DRAWINGS AND SPECIFICATIONS WITH ALL DISCIPLINES AND TRADES PRIOR TO SUBMITTAL OF BID AND INSTALLATION OF SYSTEM.
05.	CONTRACTOR SHALL MAKE ALL ARRANGEMENTS WITH UTILITY COMPANIES FOR SERVICE AND CONNECTIONS AND SHALL PAY FOR ALL FEES, CHARGES, PERMITS AND METERS.
06.	THE PLUMBING CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND LABOR (INCLUDING THE COMPLETE PLUMBING SYSTEM) FOR A PERIOD OF ONE YEAR FROM WRITTEN ACCEPTANCE BY THE TENANT. ANY DEFECTS IN MATERIALS AND OR LABOR FOUND WITHIN THE GUARANTEE PERIOD SHALL BE REMEDIED OR REPAIRED BY THIS CONTRACTOR IN A TIMELY FASHION, AT NO COST TO THE TENANT.
07.	ALL PLUMBING FIXTURE LOCATIONS (WATER CLOSETS, LAVATORIES ETC.) ARE DIAGRAMMATIC. CONTRACTOR SHALL REFER TO FOOD SERVICE AND ARCHITECTURAL DRAWINGS FOR EXACT PLACEMENT AND MOUNTING HEIGHTS.
08.	ANY DEVIATIONS FROM THE DRAWINGS OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.
09.	CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTAL OF BID AND FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS. SUBMITTAL OF BID WILL VERIFY THAT THE CONTRACTOR HAS VISITED THE SITE.
10.	PIPING SHALL BE INSTALLED PARALLEL TO BUILDING LINES AND SUPPORTED AND ANCHORED AS REQUIRED TO FACILITATE EXPANSION AND CONTRACTION. THE INSTALLATION SHALL MEET ALL CONSTRUCTION CONDITIONS AND ALLOW FOR THE INSTALLATION OF OTHER TRADES.
11.	SUPPORT PIPING WITH CLEVIS OR SPLIT RING TYPE PIPE HANGERS WITH 3/8" ALL THREAD ROD AND BEAM CLAMPS. *PLUMBERS TAFE AND WIRES NOT PERMITTED.
12.	TRAP PRIMERS FOR FLOOR DRAINS AND FLOOR SINKS AND WATER HAMMER ARRESTORS TO BE INSTALLED AS PER THE GEORGIA STATE PLUMBING CODE (IPC 2018) REQUIREMENTS OF THE AMERICAN SOCIETY OF SANITARY ENGINEERING (ASSE 1010) SIZING AND INSTALLATION REQUIREMENTS.
13.	ALL VALVES, TRAP PRIMERS, WATER HAMMER ARRESTORS OR OTHER EQUIPMENT SHOWN IN WALLS OR ABOVE NON-ACCESSIBLE CEILINGS SHALL BE INSTALLED BEHIND AN ACCESS PANEL.
14.	ALL SERVICE WATER HEATING EQUIPMENT TO BE IN COMPLIANCE WITH THE GEORGIA STATE PLUMBING CODE (IPC 2018) REQUIREMENTS.
15.	ALL ITEMS PROJECTING THROUGH THE ROOF SHALL BE FLASHED THROUGH CURBS OR PIPE SEALS A MINIMUM OF 12" ABOVE THE ROOF. THE PIPE CURBS AND SEALS SHALL BE INSTALLED BY THE ROOFING CONTRACTOR. ENSURE THAT AMPLE BOOT OPENINGS ARE PROVIDED TO ACCOMMODATE ANY ELECTRICAL CONDUIT PENETRATIONS REQUIRED FOR POWER.
16.	PLUMBING CONTRACTOR SHALL PROVIDE MANUFACTURER'S OPERATION LITERATURE FOR ALL INSTALLED EQUIPMENT AND FIXTURES AT THE DATE OF STORE TURNOVER.
17.	CONTRACTOR SHALL PROVIDE: FAUCETS, TRAPS, STOPS, BALL VALVES, BACKFLOW DEVICES FOR KITCHEN EQUIP, GASCOCKS, WATER HAMMER ARRESTORS, CLEANOUT COVERS AND INDIRECT WASTE TO AN APPROVED RECEIVER AND ALL NECESSARY TRIM FOR A COMPLETELY CONNECTED PLUMBING SYSTEM.
18.	ALL CLEANOUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE AND LOCATED AS PER CODE REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE ALL CLEAN OUT LOCATIONS WITH EQUIPMENT, MILLWORK, ETC. PRIOR TO INSTALLATION.
19.	ALL PLUMBING FIXTURE VENTS TO TERMINATE A MINIMUM OF 12 INCHES FROM ANY VERTICAL SURFACE AND 10'-0" FROM OR 3'-0" ABOVE ANY MECHANICAL EQUIPMENT OUTSIDE AIR INTAKE.
20.	ALL VALVES, UNIONS, ETC. TO BE SAME SIZE AS CONNECTED SUPPLY LINE UNLESS OTHERWISE NOTED ON DRAWINGS.
21.	UNIONS SHALL BE PROVIDED AND INSTALLED AFTER EACH SCREW-TYPE VALVE AND PRIOR TO EQUIPMENT CONNECTIONS.
22.	PIPING SHALL BE INSTALLED COMPLETE WITH DIELECTRIC UNIONS BETWEEN CONNECTIONS OF NON-FERROUS MATERIALS.
23.	PROVIDE ACCESSIBLE WATER SUPPLY STOP VALVE(S) AT EACH FIXTURE.
24.	PROVIDE A LINE SIZED PRESSURE REDUCING VALVE AT THE BUILDING SERVICE CONNECTION SHOULD THE SUPPLY PRESSURE EXCEED 80 PSI.
25.	ALL UNDERGROUND METALLIC PIPE AND FITTINGS SHALL BE PROTECTED IN ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS.
26.	NO PIPING SHALL BE DIRECTLY EMBEDDED IN CONCRETE, MASONRY WALLS, OR CONCRETE FOOTINGS.
27.	THE PLUMBING CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR ALL POINTS OF CONNECTION WITH THE GENERAL CONTRACTOR AND OTHER TRADES PRIOR TO START OF WORK.
28.	VERIFY EXACT LOCATIONS, DEPTH AND SIZE OF ALL PIPING TO WHICH CONNECTIONS ARE REQUIRED. COORDINATE ALL CONNECTIONS WITH SITE CONDITIONS AND SITE UTILITY CONTRACTOR/ REPRESENTATIVE.
29.	ALL HORIZONTAL PIPING LINES EXTENDED AND CONNECTED TO EQUIPMENT SHALL BE RUN AT THE HIGHEST POSSIBLE ELEVATIONS AND NOT LESS THAN 6" ABOVE THE FLOOR TO PROVIDE CLEARANCE FOR CLEANING.
30.	ALL CUTTING OF EXISTING PAVING, WALKS AND/OR FLOORS SHALL UTILIZE MACHINE SAW CUTTING EQUIPMENT. HOLES FOR PIPES IN CONCRETE WALLS OR FLOORS SHALL UTILIZE CORE DRILLING EQUIPMENT. COORDINATE WITH ARCHITECTURAL DETAILS FOR FLOOR CUTTING AND PATCHING.
31.	THE PLUMBING CONTRACTOR IS TO PROVIDE ALL ADDITIONAL STEEL, HANGER MATERIALS, RODS AND CLAMPS AS REQUIRED FOR COORDINATION WITH WORK OF OTHER TRADES.
32.	PIPING LAYOUT IS SCHEMATIC ONLY, EXACT ROUTING AND INSTALLATION OF PIPES TO BE COORDINATED WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER CONTRACTORS. NO WATER OR DRAIN LINES ARE PERMITTED TO BE INSTALLED OVER OR UNDER ELECTRICAL PANELS.
33.	NO LIQUID TRANSMISSION PLUMBING PIPING SHALL BE INSTALLED ABOVE ELECTRICAL SWITCH GEAR, EQUIPMENT, OR PANELS. MAKE ADJUSTMENTS NECESSARY TO REROUTE PIPING FOR ACTUAL INSTALLATION OF ELECTRIC EQUIPMENT.
34.	WHENEVER FOUNDATION WALLS, EXTERIOR WALLS, ROOFS, ETC. ARE PENETRATED FOR THE INSTALLATION OF PLUMBING SYSTEMS, THEY SHALL BE PATCHED TO MATCH EXISTING CONSTRUCTION AND SEALED WEATHER TIGHT.
35.	EXPOSED PIPING IN THE GUEST AREAS SHALL BE PAINTED TO MATCH THE WALL COLOR. EXPOSED GAS PIPING IN THE KITCHEN SHALL BE PAINTED WHITE.
36.	DURING THE PROGRESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF ALL CHANGES MADE IN THE PLUMBING SYSTEMS. THE RECORD DRAWING SHALL SHOW CHANGES IN MANUFACTURER (WITH NUMBERS AND TRADE NAMES), MATERIALS, SIZES, LOCATIONS AND HOOK-UP POINTS. AS-BUILTS SHALL BE GIVEN TO OWNERS' CONSTRUCTION MANAGER AT COMPLETION OF JOB.
37.	UPON COMPLETION OF JOB, THIS CONTRACTOR SHALL INSPECT ALL EXPOSED PORTIONS OF THE PLUMBING INSTALLATION AND COMPLETELY REMOVE ALL EXPOSED LABELS, SOIL, MARKINGS AND FOREIGN MATERIAL EXCEPT PRODUCT LABELS AND THOSE REQUIRED BY LAW.
38.	PLUMBING CONTRACTOR SHALL BE ON SITE AND PRESENT AT THE DATE OF STORE TURNOVER.

ENERGY CONSERVATION NOTES																																																		
1. ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE-RETARDANT, FACTORY-APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY-APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY WITH 2015 INTERNATIONAL ENERGY CONSERVATION CODE, SECTION C403.2.10 REFER BELOW TABLE.																																																		
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2. WATER DISTRIBUTION SYSTEM AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.7, HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:																																																		
a. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.																																																		
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3. AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE C404.6.1 HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER.																																																		
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