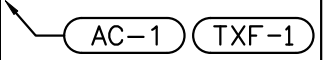








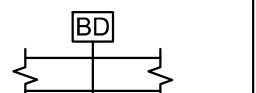
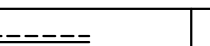
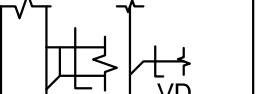
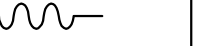
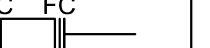
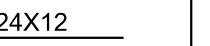
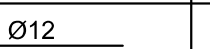
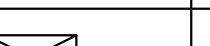




MECHANICAL SYMBOLS LIST		CONTROLS AND SENSORS	
	EQUIPMENT SYMBOL		THERMOSTAT
			DUCT SMOKE DETECTOR
<b>AIR DEVICES</b>			HUMIDITY SENSOR
	CEILING DIFFUSER SUPPLY		MANUAL ON/OFF SWITCH FOR HOOD
	CEILING DIFFUSER RETURN		CARBON DIOXIDE SENSOR
<b>DUCT ACCESSORIES</b>		<b>DUCTWORK</b>	
	BACKDRAFT DAMPER		AIR DUCT W/ 1.5" ACOUSTICAL LINING
	VOLUME DAMPER W/ ACCESS DOOR		FLEXIBLE DUCT
			FLEXIBLE CONNECTION
			RECTANGULAR DUCT (WIDTH X DEPTH)
			ROUND DUCT (DIAMETER)
			SUPPLY AIR RECTANGULAR DUCT CROSS SECTION
			RETURN AIR RECTANGULAR DUCT CROSS SECTION
			ROUND DUCT CROSS SECTION

MECHANICAL ABBREVIATIONS	
BD	BACKDRAFT DAMPER
RTU	ROOF TOP UNIT
VD	VOLUME DAMPER
CFM	CUBIC FEET PER MINUTE
EER	ENERGY EFFICIENCY RATIO
EA	EXHAUST AIR
FC	FLEXIBLE CONNECTION
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
SP	STATIC PRESSURE
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
MAU	MAKE-UP AIR UNIT
KEF	KITCHEN EXHAUST FAN
TEF	TOILET EXHAUST FAN
WMS	WIRE MESH SCREEN

GENERAL ABBREVIATIONS	
DN	DOWN
EFF	EFFICIENCY
UP	UP
EQUIP	EQUIPMENT
EXH	EXHAUST
(E)	EXISTING
FPM	FEET PER MINUTE
FT	FEET
HP	HORSEPOWER
HZ	HERTZ
IN	INCHES
KW	KILOWATT
LB	POUND
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCOP	MAXIMUM OVERCURRENT PROTECTION
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
PH	PHASE
PLBG	PLUMBING
RPM	REVOLUTIONS PER MINUTE
SPEC	SPECIFICATION
SF	SQUARE FEET
TEMP	TEMPERATURE
TON	TONS OF REFRIGERATION
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE

MECHANICAL DRAWING LIST	
M-001	MECH. GENERAL NOTES, SYMBOLS LIST & ABBREVIATIONS
M-002	MECHANICAL SPECIFICATIONS
M-101	MECHANICAL FLOOR & ROOF PLANS
M-501	MECHANICAL DETAILS
M-601	MECHANICAL SCHEDULES
H-101	KITCHEN HOOD DRAWINGS

### CELINA BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2021 INTERNATIONAL BUILDING CODE, BUILDING, AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

- THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS. 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 2021 INTERNATIONAL BUILDING CODE.
- 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.
- TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION MC 107 AND THE FOLLOWING SECTIONS OF THE 2021 INTERNATIONAL BUILDING CODE.
  - REFRIGERATION SYSTEMS - 2021 INTERNATIONAL MECHANICAL CODE.
  - VENTILATION SYSTEM BALANCING MC 403.1.
- THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD.
  - STANDARDS OF HEATING - 2021 INTERNATIONAL MECHANICAL CODE (BASE CODE - SECTION 309.1
  - DUCT CONSTRUCTION AND INSTALLATION - 2021 INTERNATIONAL MECHANICAL CODE - SECTION 603.1
  - AIR INTAKES, EXHAUSTS AND RELIEF - 2021 INTERNATIONAL MECHANICAL CODE - SECTION 401.5
  - AIR FILTERS - 2021 INTERNATIONAL MECHANICAL CODE - SECTION 605
  - GAS FIRED EQUIPMENT - 2021 INTERNATIONAL MECHANICAL CODE - SECTION 901
- MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
- VENTILATION FOR ALL AREA SHALL COMPLY WITH 2021 INTERNATIONAL MECHANICAL CODE - SECTION 401.
- A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2021 INTERNATIONAL MECHANICAL CODE - SECTION 403.3.
- REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
- 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.
- ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
- SMOKE DETECTOR SHALL MEET UL268A.

### CODE COMPLIANCE

ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT:

- 2021 INTERNATIONAL ENERGY CONSERVATION CODE
- 2021 INTERNATIONAL MECHANICAL CODE.
- 2021 INTERNATIONAL PLUMBING CODE.
- 2023 NATIONAL ELECTRICAL CODE.
- 2021 INTERNATIONAL BUILDING CODE.
- 2021 INTERNATIONAL FUEL GAS CODE.

### GENERAL NOTES

- CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.
- ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE GARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
- BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
- THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
- THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
- DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
- WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
- CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.
- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.
- SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. MULTIROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.
- PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.
- SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
- INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
- ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.
- REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN HUNG CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND DEVICES. HVAC CONTRACTOR TO FURNISH ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS TILE IDENTIFICATION: PROVIDE BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.
- THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
- UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
- MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE
- ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FAILURE OF ANY DUCTWORK SYSTEM OR EQUIPMENT TO FUNCTION PROPERLY UPON COMPLETION OF HIS WORK UPON SAID SYSTEM OR EQUIPMENT.
- SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.
- ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION.
- INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
- THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
- SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.
- WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY. DEFINITIONS:
  - "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
  - "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

### SCOPE OF WORK








#### SCOPE OF WORK

- THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLANS) DESIGN, DETAIL DRAWINGS, NOTES, RFIS, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
- THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
- THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

### MECHANICAL NOTES

#### GENERAL:

- PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS APPROXIMATELY SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
- WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
- ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT. OF, ISOLATED EQUIPMENT (EXCEPT AT BASE, ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS. DO THE SAME FOR SUPPORTS OF STEAM MAINS WITHIN 50 FT. OF BOILER OR PRESSURE-REDUCING VALVES.
- PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS OF STEAM MAINS WITHIN 50 FT. OF BOILERS AND PRESSURE-REDUCING VALVES.
- MAINTAIN A MINIMUM 6'-8" CLEARANCE TO THE UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
- ALL MECHANICAL ROOM DOORS SHALL BE A MINIMUM OF 4'-0" WIDE.
- WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.
- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
- ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
- ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST CHORDS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
- ALL ROOF-MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
- LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
- ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.

ISSUED REVISIONS:	
	BUILDING COMMENT
	
	
	
	
	
	

Blaze Pizza  
Mech. general notes, symbols list & abbreviations

SPECIFICATIONS

SECTION 0001 - NOTICE TO BIDDERS

- 1.1 BIDDERS REPRESENTATIONS
A. THE BIDDER BY MAKING A BID REPRESENTS THAT:
THE BIDDER HAS READ AND UNDERSTANDS THE BIDDING DOCUMENTS...
B. THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.
C. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS FOR THE BIDDER TO SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR.
D. SHOULD CONFLICTS OR DISCREPANCIES OCCUR WITHIN THE BIDDING DOCUMENTS, THE ITEM OR ITEMS IN DISPUTE THAT REPRESENT THE GREATER COST SHALL PREVAIL IN THE FINAL BID.
E. THE BID IS BASED UPON THE MATERIALS, EQUIPMENT AND SYSTEMS REQUIRED BY THE BIDDING DOCUMENTS WITHOUT EXCEPTION.

- 1.2 EXISTING CONDITIONS AND COORDINATION
A. THE BIDDER HAS VISITED THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND HAS CORRELATED THE BIDDER'S PERSONAL OBSERVATIONS WITH THE REQUIREMENTS OF THE PROPOSED BIDDING DOCUMENTS.
B. THE BIDDER SHALL PROPOSE COORDINATION OF WORK SUCH THAT CONFLICTS WITH OTHER TRADES AND SPACE ALLOCATIONS ARE AVOIDED.
1.3 RESPONSIBILITIES
A. THE BIDDER UNDERSTANDS THAT ANY CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE TIMELY COMPLETION AND ACCEPTANCE OF THEIR WORK AND THAT ANY ITEMS DAMAGED, LOST OR STOLEN DURING TIME OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHOUT ANY ADDITIONAL COST TO THE OWNER.
B. THE BIDDER UNDERSTANDS THAT ANY PROPOSED WORK IN OCCUPIED TENANT SPACES SHALL BE PERFORMED DURING TIMES OF NON-TENANT OCCUPANCY OR AS SCHEDULED OR DIRECTED BY THE BUILDING MANAGER.
C. THE BIDDER UNDERSTANDS THAT ANY PROPOSED SHUT-DOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUT-DOWNS ARE TO BE KEPT TO A MINIMUM.

END OF SECTION 0001

SECTION 0101 - QUALITY OF WORK

- 1.1 WORKMANSHIP
A. ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
B. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.
C. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.
1.2 CODE COMPLIANCE
A. ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.

END OF SECTION 0101

SECTION 0102 -REQUIRED DOCUMENTS

- 1.1 SHOP DRAWINGS
A. A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.
1.2 SUBMITTALS
A. EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES AND CHOICES SHALL BE CLEARLY CHECKED, PRINTED OR OTHERWISE INDICATED ON THE SUBMITTALS.
1.3 RECORD DRAWINGS
A. UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER DEPICTING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.
1.4 EQUIPMENT OPERATING INSTRUCTIONS
A. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS, EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.
B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.
C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

END OF SECTION 0102

SECTION 230517 - SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

- 1.1 SLEEVE-SEAL SYSTEMS
A. FIELD-ASSEMBLED, MODULAR SEALING-ELEMENT UNIT FOR FILLING ANNULAR SPACE BETWEEN PIPING AND SLEEVE.
1. SEALING ELEMENTS: EPDM RUBBER OR NBR.
2. PRESSURE PLATES: CARBON STEEL, PLASTIC, STAINLESS STEEL.
3. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING, STAINLESS STEEL.
B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
1. ADVANCE PRODUCTS & SYSTEMS, INC.
2. CALPICO, INC.
3. METRAFLEX COMPANY (THE).
4. PIPELINE SEAL AND INSULATOR, INC.
5. PROCO PRODUCTS, INC.

- 1.2 SLEEVE-SEAL FITTINGS
A. MANUFACTURED PLASTIC, SLEEVE-TYPE, PLASTIC OR RUBBER WATER-STOP ASSEMBLY MADE FOR IMBEDDING IN CONCRETE SLAB OR WALL.
1.3 GROUT
A. NON-SHRINK, FACTORY PACKAGED.
1.4 SLEEVE AND SLEEVE-SEAL SCHEDULE
A. USE SLEEVES AND SLEEVE SEALS FOR THE FOLLOWING PIPING-PENETRATION APPLICATIONS:
1. INTERIOR PARTITIONS:
a. PIPING SMALLER THAN NPS 6 (DN 150): GALVANIZED-STEEL-PIPE SLEEVES, PVC-PIPE SLEEVES.
b. PIPING NPS 6 (DN 150) AND LARGER: GALVANIZED-STEEL-SHEET SLEEVES.

END OF SECTION 230517

SECTION 230518 - ESCUTCHEONS FOR HVAC PIPING

- PART 2 - PRODUCTS
2.1 ESCUTCHEONS
A. ONE-PIECE, CAST-BRASS TYPE: WITH POLISHED, CHROME-PLATED AND ROUGH-BRASS FINISH AND SETSCREW FASTENER.
B. ONE-PIECE, DEEP-PATTERN TYPE: DEEP-DRAWN, BOX-SHAPED BRASS WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.
C. ONE-PIECE, STAMPED-STEEL TYPE: WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.
2.2 FLOOR PLATES
A. ONE-PIECE FLOOR PLATES: CAST-IRON FLANGE WITH HOLES FOR FASTENERS.

- PART 3 - EXECUTION
3.1 INSTALLATION
A. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS.
B. INSTALL ESCUTCHEONS WITH ID TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OD THAT COMPLETELY COVERS OPENING.

- 1. ESCUTCHEONS FOR NEW PIPING:
a. PIPING WITH FITTING OR SLEEVE PROTRUDING FROM WALL: ONE-PIECE, DEEP-PATTERN TYPE.
b. INSULATED PIPING: ONE-PIECE, STAMPED-STEEL TYPE.
c. BARE PIPING AT WALL AND FLOOR PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.
d. BARE PIPING AT CEILING PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.
3.2 FIELD QUALITY CONTROL
A. REPLACE BROKEN AND DAMAGED ESCUTCHEONS AND FLOOR PLATES USING NEW MATERIALS.

END OF SECTION 230518

SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

- 1.1 PERFORMANCE REQUIREMENTS
A. DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.
B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.
1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.
2. DESIGN EQUIPMENTS SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS.
3. DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

END OF SECTION 230529

- 1.2 SUBMITTALS
A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER
1.3 QUALITY ASSURANCE
A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE - STEEL."
COMPONENTS
A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL
B. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL
C. FIBERGLASS PIPE HANGERS: -CLEVIS, CENTURY COMPOSITES, COOPER B-LINE
D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER
E. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE
F. THERMAL-HANGER SHIELD INSERTS:
G. FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS
H. PIPE STANDS: COMPACT, LOW TYPE, SINGLE PIPE, HIGH TYPE, SINGLE PIPE, HIGH TYPE, MULTIPLE PIPES, CURB-MOUNTED TYPE
I. EQUIPMENT SUPPORTS.

END OF SECTION 230529

SECTION 230548 - VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT

- PART 1 - GENERAL
1.1 COMPONENTS
A. VIBRATION ISOLATORS:
1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS
2. MOUNTS: DOUBLE-DEFLECTION TYPE.
3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
4. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
6. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
7. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
8. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
9. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.
10. PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
11. RESILIENT PIPE GUIDES.

- B. AIR-MOUNTING SYSTEMS:
1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWES.
2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWES.
C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL, WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.
D. VIBRATION ISOLATION EQUIPMENT BASES:
1. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
2. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE

- 1.2 FIELD QUALITY CONTROL
A. TESTING: BY EITHER OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.

- PART-2 PRODUCTS
1.1 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES
A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. ACE MOUNTINGS CO., INC.
2. AMBER/BOOTH COMPANY, INC.
3. CALIFORNIA DYNAMICS CORPORATION.
4. HILTI, INC.
5. ISOLATION TECHNOLOGY, INC.
6. KINETICS NOISE CONTROL.
7. LOOS & CO.; CABLEWARE DIVISION.
8. MASON INDUSTRIES.
9. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
10. UNISTRUT; TYCO INTERNATIONAL, LTD.

END OF SECTION 230548

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

- 1.1 SUMMARY
A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:

- 1. AIR SYSTEMS: CONSTANT VOLUME.
1.2 QUALITY ASSURANCE
A. THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.
1.3 EXECUTION
A. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR AND HYDRONIC SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
B. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR AND HYDRONIC SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.
C. THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.
D. PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.
E. THE CONTRACTOR SHALL HAVE FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.
F. THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS SECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.
G. ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.
H. TOLERANCES: PLUS OR MINUS 5 PERCENT OF DESIGN VALUES.
I. INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.
J. ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.

END OF SECTION 230593

SECTION 230713 - DUCT INSULATION

- 1.1 QUALITY ASSURANCE
SURFACE-BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE TO THE FACING OR JACKET TO THE INSULATION) A FLAME-SPREAD INDEX OF 25, AND SMOKE-DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75, AND SMOKE-DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS; ACCORDING TO ASTM E 84.
1.2 FIELD QUALITY CONTROL
A. FIELD INSPECTIONS: BY OWNER-ENGAGED AGENCY.
1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE:
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

- 1.4 ITEMS NOT INSULATED:
1. FIBROUS-GLASS DUCTS.
2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1.
3. FACTORY-INSULATED FLEXIBLE DUCTS.
4. FACTORY-INSULATED PLENUMS AND CASINGS.
5. FLEXIBLE CONNECTORS.
6. VIBRATION-CONTROL DEVICES.
7. FACTORY-INSULATED ACCESS PANELS AND DOORS.
8. DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.

- 1.5 PRODUCTS
A. THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:
1. JOHNS-MANVILLE
2. OWENS-CORNING

- 1.6 ACOUSTICAL TREATMENT
1. WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-5 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER. LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED.

END OF SECTION 230713

SECTION 233113 - METAL DUCTS

- 1.1 CONSTRUCTION
A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS, WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 1 INCH WG PRESSURE, SEAL CLASS "A".
B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 1" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:
1. CONSTRUCT SO THAT ALL INTERIOR SURFACES ARE SMOOTH, USE SLIP AND DRIVE OR FLANGED AND BOLTED CONSTRUCTION WHEN FABRICATING RECTANGULAR DUCTWORK, USE SPIRAL LOCK SEAM CONSTRUCTION WHEN FABRICATING ROUND SPIRAL DUCTWORK. SHEET METAL SCREWS MAY BE USED ON DUCT HANGERS, TRANSVERSE JOINTS AND OTHER SMACNA APPROVED LOCATIONS IF THE SCREW DOES NOT EXTEND MORE THAN 1/2 INCH INTO THE DUCT.
2. SHEET STEEL SHALL COMPLY WITH ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENT FOR SHEET METALLIC-COATED BY HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES ALL 90° ELBOWS.
3. LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.
4. RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AVG A5.2.

- C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:
USG MAX. SIDE INCHES TRANSVERSE JOINTS AND BRACING
22 UP TO 12 S SLIP, DRIVE SLIP, ONE INCH POCKET LOCK ON 8 FOOT CENTERS
22 13 TO 24 1"X1"X1/8" ANGLES ON 4 FOOT CENTERS
20 25 TO 35 1"X1"X1/8" ANGLES ON 2 FOOT CENTERS
D. PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:

- 1. UPSTREAM OF EACH REHEAT COIL AND VAV BOX.
2. DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.
E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3-6 AND AS SHOWN IN FIG. 3-1 AND 3-2 FOR ROUND DUCTWORK.
F. ALL DUCTWORK SHALL BE SEALED TO CLASS "A" AND LEAK TESTED TO MEAT SMACNA CLASS 6 FOR RECTANGULAR AND CLASS 3 FOR ROUND DUCTS.
1.2 MATERIALS
A. SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS.
B. SINGLE-WALL ROUND AND FLAT-OVAL DUCTS AND FITTINGS.
C. SHEET METAL MATERIALS:
1. GALVANIZED SHEET STEEL.
2. STAINLESS-STEEL SHEETS.
3. ALUMINUM SHEETS.
4. FACTORY-APPLIED ANTI-MICROBIAL COATING.
D. DUCT LINER:
1. FIBROUS GLASS, TYPE I, FLEXIBLE.
a. WITH ANTI-MICROBIAL EROSION-RESISTANT COATING.
2. FLEXIBLE ELASTOMERIC.
3. NATURAL FIBER.
E. SEALANT MATERIALS:
1. TWO-PART TAPE SEALING SYSTEM.
2. WATER-BASED JOINT AND SEAM SEALANT.
3. SOLVENT-BASED JOINT AND SEAM SEALANT.
4. FLANGED JOINT SEALANT.
5. FLANGE GASKETS.
6. ROUND DUCT JOINT O-RING SEALS.

- 1.3 DUCT CLEANING
A. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.
B. CLEAN THE FOLLOWING ITEMS:
1. AIR OUTLETS AND INLETS.
2. SUPPLY, RETURN, AND EXHAUST FANS.
3. AIR HANDLING UNIT.
4. COILS AND RELATED COMPONENTS.
5. RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.

- 6. SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
7. DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.

- 1.4 DUCT SCHEDULE
A. ALL DUCTS SHALL BE GALVANIZED STEEL EXCEPT AS FOLLOWS:
1. MOIST ENVIRONMENT DUCT MATERIAL: ALUMINUM.

END OF SECTION 233113

SECTION 233713 - DIFFUSERS AND GRILLES

- 1.1 PRODUCTS
A. DIFFUSERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS. ALL REGISTERS AND DIFFUSERS SHALL BE PRIME COATED STEEL OR EXTRUDED ALUMINUM FINISHED UNLESS OTHERWISE NOTED IN BAKED WHITE ENAMEL.
B. MANUFACTURERS: TITUS
1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:
a. CARNES.
b. HART & COOLEY INC.
c. KRUEGER.
d. METALAIR, INC.
e. NAIOR INDUSTRIES INC.
C. ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.
D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

END OF SECTION 233713

- THERMOSTATIC CONTROLS (MANDATORY):
C403.4.1 THERMOSTATIC CONTROLS
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE, WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDIFY CONTROL SYSTEM.
EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:
1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN ± 45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

- C403.4.1.1 HEAT PUMP SUPPLEMENTARY HEAT
HEAT PUMPS HAVING SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL HAVE CONTROLS THAT LIMIT SUPPLEMENTAL HEAT OPERATION TO ONLY THOSE TIMES WHEN:
1.THE VAPOR COMPRESSION CYCLE CANNOT PROVIDE THE NECESSARY HEATING ENERGY TO SATISFY THE THERMOSTAT SETTING.
2.THE HEAT PUMP IS OPERATING IN DEFROST MODE.
3.THE VAPOR COMPRESSION CYCLE MALFUNCTIONS, OR
4.THE THERMOSTAT MALFUNCTIONS.

- C403.4.1.2 DEADBAND
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.
EXCEPTIONS:
1. THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.
2. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.

- C403.4.1.3 SETPOINT OVERLAP RESTRICTION
WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.2.4.1.2.

- C403.4.2 OFF-HOUR CONTROLS
EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.
EXCEPTIONS:
1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.
2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.

- C403.4.2.1 THERMOSTATIC SETBACK
THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

- C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

- C403.4.2.3 AUTOMATIC START & STOP
AUTOMATIC START AND STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE AUTOMATIC START CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY. AUTOMATIC STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM WITH DIRECT DIGITAL CONTROL OF INDIVIDUAL ZONES. THE AUTOMATIC STOP CONTROLS SHALL BE CONFIGURED TO REDUCE THE HVAC SYSTEM'S HEATING TEMPERATURE SETPOINT AND INCREASE THE COOLING TEMPERATURE SETPOINT BY NOT LESS THAN 2°F (-16.6°C) BEFORE SCHEDULED UNOCCUPIED PERIODS BASED ON THE THERMAL LAG AND ACCEPTABLE DRIFT IN SPACE TEMPERATURE THAT IS WITHIN COMFORT LIMITS.

ISSUED REVISIONS:
A BUILDING COMMENT

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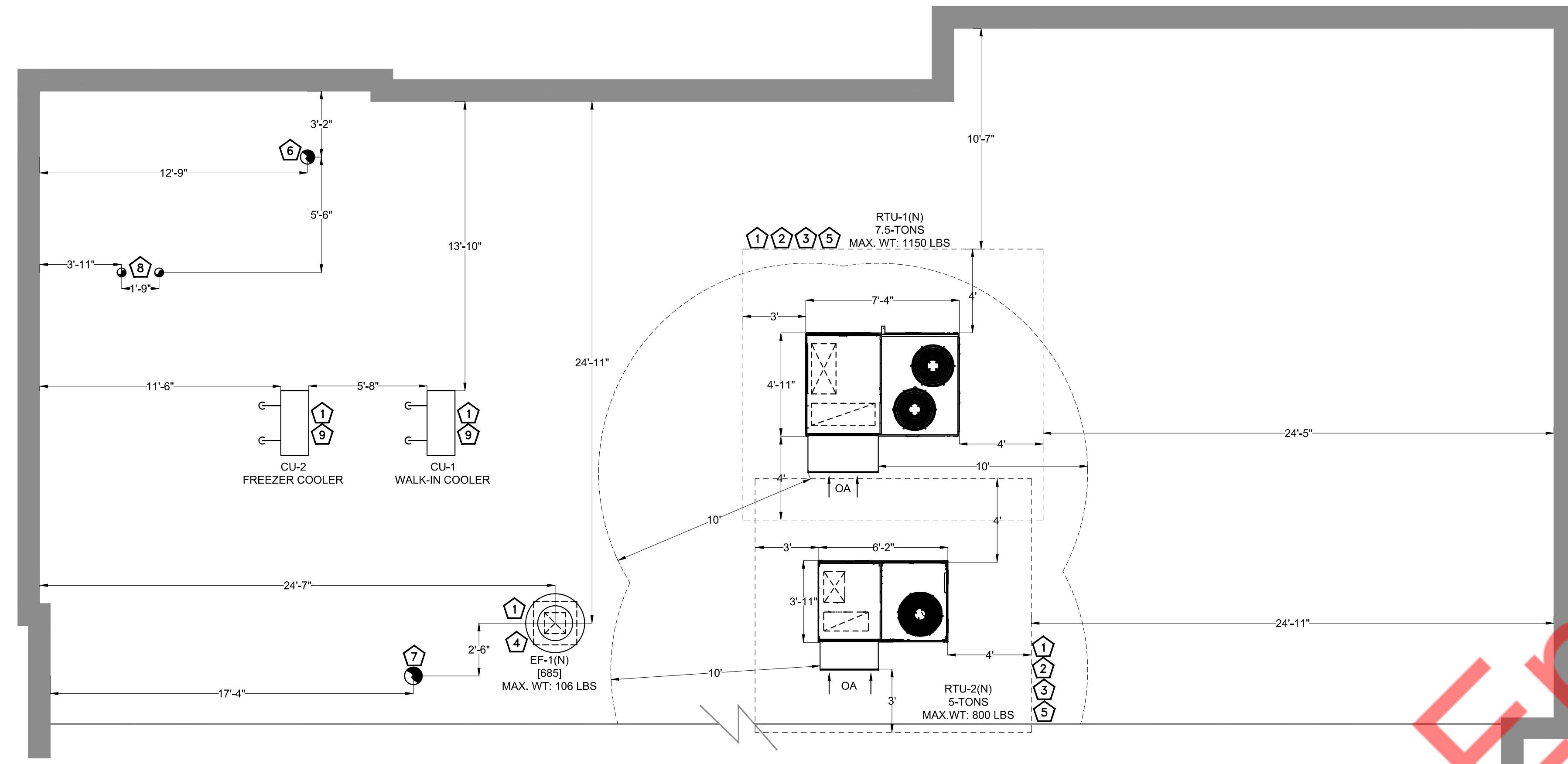
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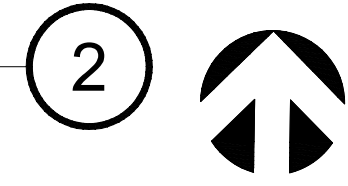
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**MECHANICAL ROOF PLAN**

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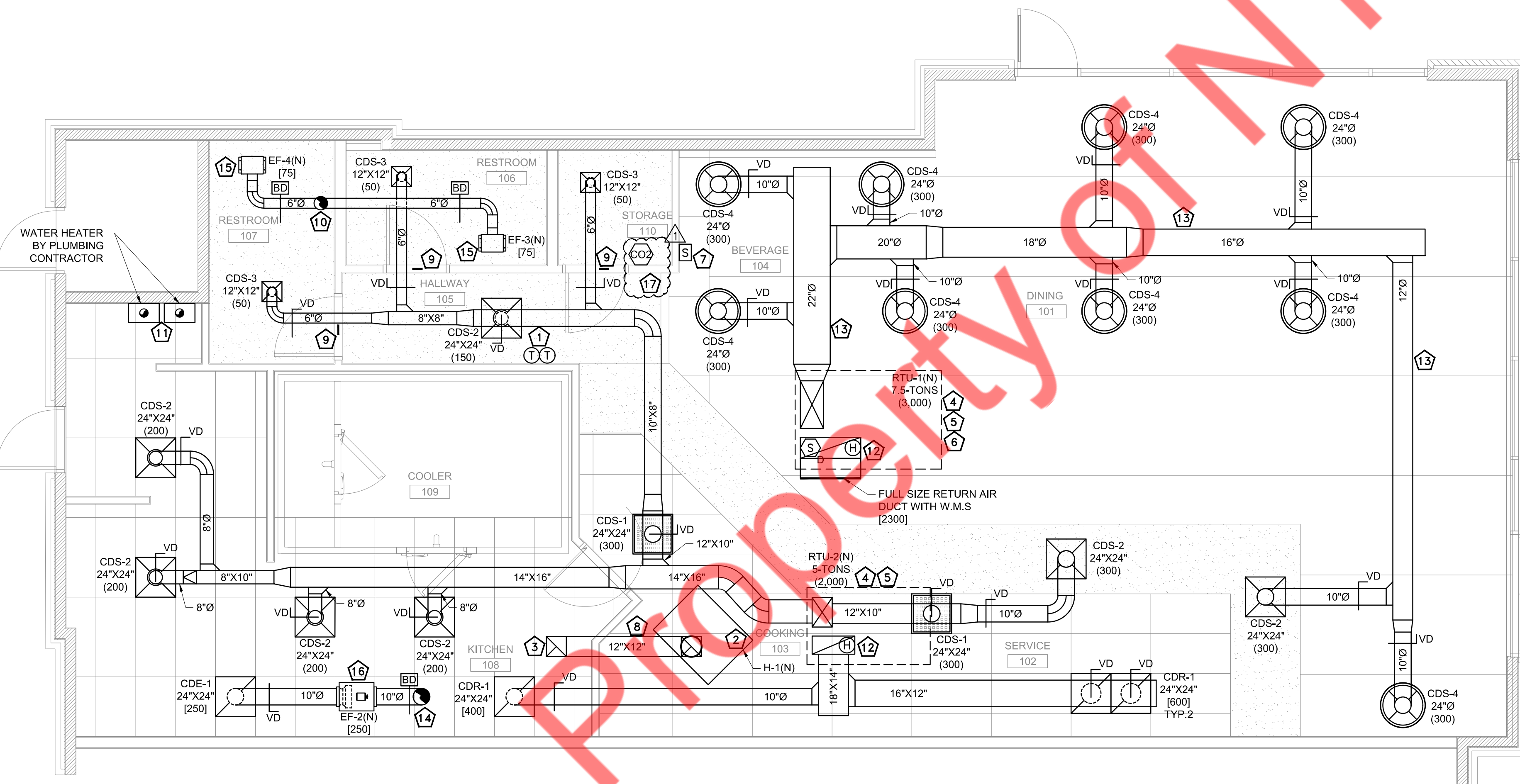


- MECHANICAL GENERAL NOTES**
- COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
  - EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
  - CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
  - ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED.
  - ALL RTU WEIGHTS ARE INCLUDING ROOF CURBS AND/OR ADAPTORS.
  - PROVIDE ALL NEW DUCTWORK AS SHOWN. DUCT WORK ABOVE CEILING TO BE INSULATED ACCORDING TO 2021 INTERNATIONAL ENERGY CONSERVATION CODE.
  - FLEXIBLE AIR CONNECTORS SHALL BE TESTED IN ACCORDANCE WITH UL 181. SUCH DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE AIR CONNECTORS. FLEXIBLE AIR CONNECTORS SHALL BE LIMITED IN LENGTH TO 14 FEET.
  - TEST & BALANCE SYSTEM PRIOR TO CLOSEOUT OF PROJECT. PROVIDE A DETAILED REPORT TO OWNER, ARCHITECT, & ENGINEER.
  - ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
  - DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
  - THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
  - PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS/SLABS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
  - ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
  - THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN ±10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
  - PROVIDE DUCT INSULATION AS SPECIFIED WITH MINIMUM VALUES AS FOLLOWS:  
R-8 SUPPLY & RETURN DUCT INSULATION IN UNCONDITIONED SPACES WITHIN BUILDING.  
R-8 SUPPLY & RETURN DUCT INSULATION WITHIN BUILDING ENVELOPE ASSEMBLY.  
R-8 SUPPLY & RETURN DUCT INSULATION OUTSIDE OF BUILDING.
  - PROVIDE CORD/CABLE OPERATED DAMPER FOR THE AIR TERMINAL IN INACCESSIBLE CEILINGS.
  - ALL EXPOSED ROUND DUCTWORK SHALL BE SPIRAL GALVANIZED SHEET METAL, DOUBLE WALL, SEPARATED WITH 1" THICK INSULATION, INNER WALL SHALL BE PERFORATED.

- MECHANICAL ROOF PLAN KEY NOTES**
- COORDINATE FINAL LOCATION OF EQUIPMENT WITH STRUCTURAL ENGINEER/DRAWINGS.
  - NEW ROOFTOP UNIT IS PROVIDED. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCT CONNECTIONS. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULES. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. TRANSITION AND CONNECT SUPPLY AND RETURN DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE.
  - CONDENSATE DRAIN FROM RTU-1(N) & RTU-2(N) SHALL BE CONVEYED TO AN APPROVED PLACE OF DISPOSAL. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF NOT LESS THAN 1/8" UNIT VERTICAL IN 12 UNITS HORIZONTAL (1% SLOPE). CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR OTHER AREAS SO AS TO CAUSE NUISANCE.
  - PROVIDE ROOF MOUNTED GREASE EXHAUST FAN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES & A MINIMUM OF 40" ABOVE ROOF.
  - CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY EXHAUST SOURCE SHOULD BE AT LEAST 10' AWAY FROM THE OUTSIDE AIR INTAKE OPENING OF RTUs.
  - ROUTE 8"Ø TOILET EXHAUST DUCT UP THROUGH ROOF WITH WEATHER SKIRT & GOOSENECK. MAINTAIN MINIMUM 10'-0" FROM OUTSIDE AIR INTAKES.
  - ROUTE 10"Ø EXHAUST DUCT UP THROUGH ROOF WITH WEATHER SKIRT & GOOSENECK. MAINTAIN A MINIMUM 10'-0" FROM OUTSIDE AIR INTAKES.
  - PROVIDE 3"Ø/5"Ø CONCENTRIC VENT FOR WATER HEATER INTAKE & EXHAUST VENT. INSTALL AS PER MANUFACTURER'S RECOMMENDATION/INSTRUCTIONS.
  - REFRIGERATION CONDENSING UNIT. INSTALL OWNER PROVIDED REFRIGERATION CONDENSING UNIT PER MANUFACTURER'S INSTRUCTIONS. PROVIDE NEW REFRIGERATION LINE-SETS FOR WALK-IN COOLER/FREEZER AND ICE MACHINE. LINES SHALL BE SIZED AND INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

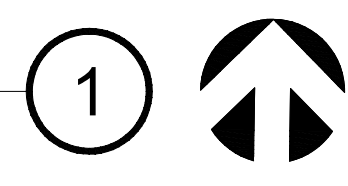
- MECHANICAL FLOOR PLAN KEY NOTES**
- PROVIDE NEW 7-DAY PROGRAMMABLE THERMOSTAT WITH LOCKING COVER. PROVIDE REMOTE SENSOR LOCATED 48" A.F.F. NEAR LOCATION INDICATED. COORDINATE LOCATION ON SITE WITH GENERAL CONTRACTOR AND EQUIPMENT. AVOID LOCATING NEAR OR ABOVE SOURCES OF HEAT. INTERLOCK WITH ASSOCIATED RTU. CONFIRM FINAL LOCATION WITH ARCHITECT/OWNER.
  - INSTALL TYPE-I GREASE EXHAUST HOOD. SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE TRAPEZE HANGERS FOR ALL THREAD SUPPORT UNDER DUCTWORK AS REQUIRED. TRANSITION FROM HOOD CONNECTION TO WELDED KITCHEN EXHAUST DUCT SIZES SHOWN. THE HOOD AND DUCT SHALL HAVE AN APPROVED FIRE PROTECTION. THE FIRE-EXTINGUISHING SYSTEM SHALL BE INTERCONNECTED TO THE FUEL OR CURRENT SUPPLY SO THAT THE FUEL OR CURRENT SUPPLY IS AUTOMATICALLY SHUT OFF TO ALL EQUIPMENT UNDER THE HOOD WHEN THE SYSTEM IS ACTIVATED. REFER TO HOOD SCHEDULE AND DRAWINGS FOR HOOD SPECIFICATIONS. INSTALL STAINLESS STEEL WRAPPER PANELS AT TOP PERIMETER OF HOOD TO ABOVE T-BAR CEILING. HOOD TO SERVE GAS FIRED PIZZA OVEN.
  - 12"X12" GREASE EXHAUST DUCT FROM HOOD UP THRU ROOF TO KITCHEN EXHAUST FAN. PROVIDE FIRE WRAP ON ON DUCT RATED FOR 0" CLEARANCE TO COMBUSTIBLES.
  - EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM ROOFTOP UNITS TO SPACE. EXTEND AS SHOWN. TRANSITION DUCT AS NECESSARY TO MAKE CONNECTION. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
  - CONTRACTOR TO PROVIDE TEMPERATURE SENSOR IN RETURN AIR DUCT & WIRE BACK TO RTUs.
  - DUCT MOUNTED SMOKE DETECTOR SHALL BE FURNISHED/INSTALLED BY THE MECHANICAL CONTRACTOR IN THE RETURN AIR DUCT AND WIRED BY THE ELECTRICAL CONTRACTOR TO SHUT DOWN THE CORRESPONDING RTU UNDER THE ALARM CONDITIONS. ALL WIRING SHALL BE IN CONDUIT PER N E C SMOKE DETECTOR SHALL BE SYSTEM SENSOR MODEL DH100ACDCLP OR EQUAL.
  - PROVIDE AND INSTALL EMERGENCY MANUAL SHUTDOWN PUSH BUTTON FOR HOOD. PUSH BUTTON SHALL BE IN THE PATH OF EGRESS, A MINIMUM OF 10' AWAY FROM THE HOOD AND A MAXIMUM OF 20'.
  - GREASE DUCT TO BE PROVIDED WITH KITCHEN EQUIPMENT AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
  - PROVIDE 6"X6" DOOR GRILLE FOR TRANSFER AIR.
  - ROUTE 8"Ø TOILET EXHAUST DUCT UP THROUGH ROOF WITH TALL FLASHING, WEATHER SKIRT AND GOOSENECK. MAINTAIN A MINIMUM 10'-0" FROM ALL OUTSIDE AIR INTAKES.
  - PROVIDE 3"Ø/5"Ø CONCENTRIC VENT FOR WATER HEATER INTAKE & EXHAUST VENT. INSTALL AS PER MANUFACTURER'S RECOMMENDATION / INSTRUCTIONS.
  - FURNISH AND INSTALL HUMIDITY SENSOR IN RETURN AIR DUCT TO MAINTAIN 50% RELATIVE HUMIDITY IN SPACE.
  - ROUTE DUCTWORK TIGHT TO DECK AND INSIDE JOIST SPACING TO AVOID OPEN CELL SUSPENDED CEILING SYSTEM.
  - ROUTE 10"Ø EXHAUST DUCT UP THROUGH ROOF WITH TALL FLASHING, WEATHER SKIRT AND GOOSENECK. MAINTAIN A MINIMUM 10'-0" FROM ALL OUTSIDE AIR INTAKES.
  - PROVIDE NEW CEILING MOUNTED TOILET EXHAUST FAN. CONTRACTOR TO INSTALL FAN AS PER MANUFACTURER'S RECOMMENDATIONS. INTERLOCK EXHAUST FAN EF-2(N) WITH RTU-2(N) COORDINATE WITH ELECTRICAL CONTRACTOR.
  - PROVIDE NEW INLINE EXHAUST FAN. CONTRACTOR TO INSTALL FAN AS PER MANUFACTURER'S RECOMMENDATIONS. INTERLOCK EXHAUST FAN EF-2(N) WITH RTU-2(N) COORDINATE WITH ELECTRICAL CONTRACTOR.
  - PROVIDE CO2 SENSOR/MONITOR. MOUNT 12" A.F.F. AND WITHIN 15 FT OF CO2 TANKS. SENSOR SHALL BE A LOGICO2 MK10 ALL IN ONE SENSOR, OR LOGICO2 MK9 IF CENTRAL SYSTEM IS REQUIRED. PROVIDE REMOTE STROBE AND ALARM.

- KITCHEN EXHAUST NOTES**
- ALL TYPE I GREASE DUCT SHALL BE WRAPPED WITH TWO LAYERS OF 3M™ FIRE BARRIER DUCT WRAP 615+ DUCT ENCLOSURE SYSTEM PROVIDING 2-HOUR FIRE RESISTANT PROTECTION. WRAP SHALL CONSIST OF 3" PERIMETER AND LONGITUDINAL OVERLAPS WITH ZERO CLEARANCE TO COMBUSTIBLES. DUCT WRAP SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 96 AND ICC-ES EVALUATION REPORT NO. ESR-1255. DUCT WRAP IS UL LISTED. DUCT WRAP SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - MATERIAL - STEEL NOT LESS THAN 0.075 INCH (NO. 16 GAGE) IN THICKNESS, WITH JOINTS AND SEAMS MADE WITH A CONTINUOUS LIQUID-TIGHT WELD MADE ON THE EXTERNAL SURFACE OF THE DUCT SYSTEM.
  - ALL TURNS IN KITCHEN EXHAUST DUCT SHALL BE ACHIEVED WITH THE USE OF A 1.5 RADIUS/WIDTH SMOOTH RADIUS ELBOW. REFERENCE DETAILS.
  - HORIZONTAL DUCT SERVING TYPE I HOODS SHALL BE SLOPED NOT LESS THAN 2% TOWARD HOOD.
  - A PERFORMANCE TEST SHALL BE CONDUCTED UPON COMPLETION AND BEFORE FINAL APPROVAL OF THE INSTALLATION OF A VENTILATION SYSTEM SERVING COMMERCIAL COOKING APPLIANCES. THE TEST SHALL VERIFY THE RATE OF EXHAUST AIRFLOW, MAKEUP AIRFLOW, AND PROPER OPERATION AS SPECIFIED IN THE MECHANICAL CODE (INCLUDING CAPTURE AND CONTAINMENT TEST). THE PERMIT HOLDER SHALL FURNISH THE NECESSARY TEST EQUIPMENT AND DEVICES REQUIRED TO PERFORM THE TESTS. COORDINATE ALL TESTS WITH AHJ, INCLUDING FINAL REPORT/SUBMITTAL AND WITNESS REQUIREMENTS.
  - SLOPE ALL HORIZONTAL GREASE DUCT 1" PER FOOT WHERE SPACE ALLOWS, BUT NOT LESS THAN 1/4" PER FOOT AS REQUIRED BY AHJ.
  - CONTRACTOR TO PROVIDE AND INSTALL ALL CODE REQUIRED FIRE RATED ACCESS DOORS IN GREASE DUCTS AT ALL LOCATIONS REQUIRED BY CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
  - PROVIDE CLEANOUTS IN ALL KITCHEN EXHAUST DUCTWORK AT EVERY CHANGE OF DIRECTION AND AT EVERY 12' OF DUCT. PROVIDE ACCESS PANELS AT ALL GREASE DUCT CLEANOUTS. PROVIDE AS PER LOCAL CODE.
  - COORDINATE HOOD INSTALLATION WITH HOOD PLANS. HOOD OPERATION, CAPTURE, SIZE AND ACCESSORIES ARE BASED ON EQUIPMENT AND CLEARANCES INDICATED IN PLANS. FIELD VERIFY AND COORDINATE HOODS WITH EQUIPMENT FURNISHED. COORDINATE HOOD CONNECTIONS WITH HOOD PLANS AND MANUFACTURER PRIOR TO FABRICATION.
  - COORDINATE INTERLOCKS AND HOOD CONTROLS WITH HOOD PLANS AND HOOD MANUFACTURER PRIOR TO INSTALLATION.



**MECHANICAL FLOOR PLAN**

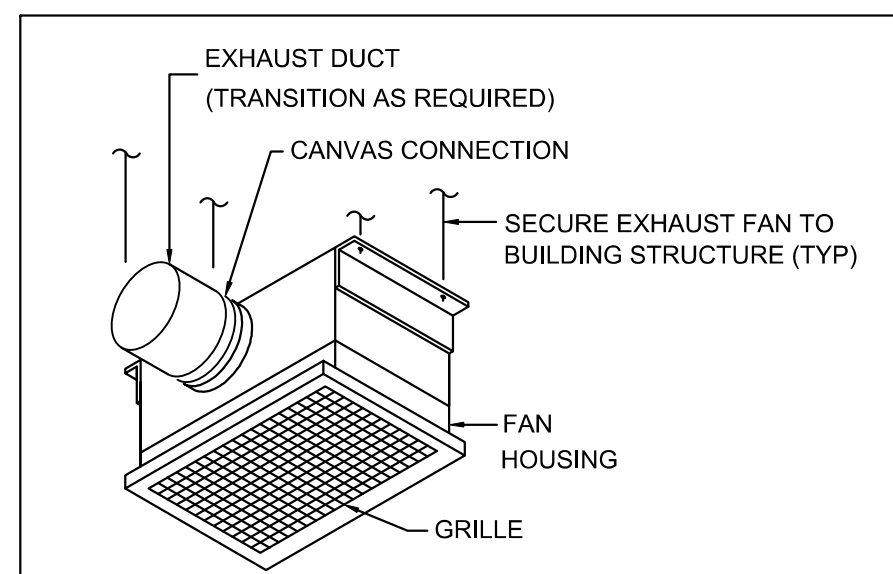
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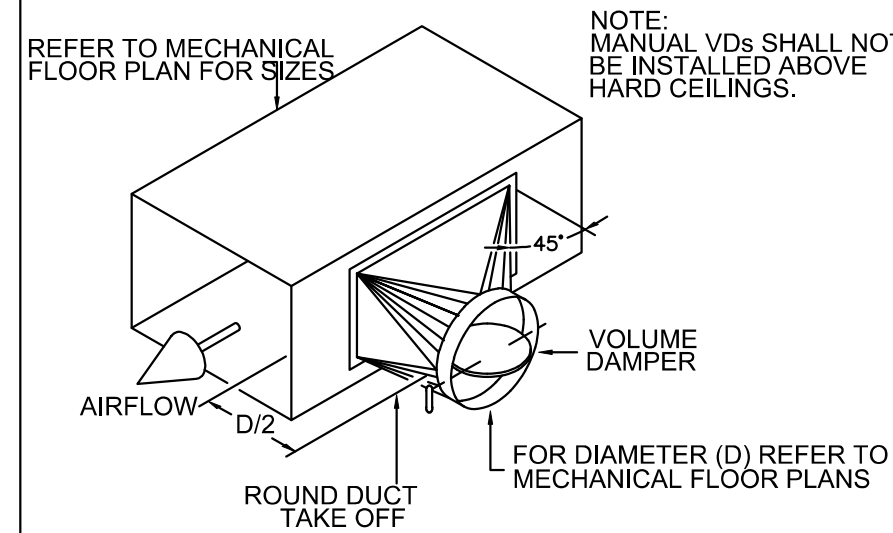
ISSUED REVISIONS:
▲ BUILDING COMMENT

Blaze Pizza  
Mechanical Floor & Roof Plans

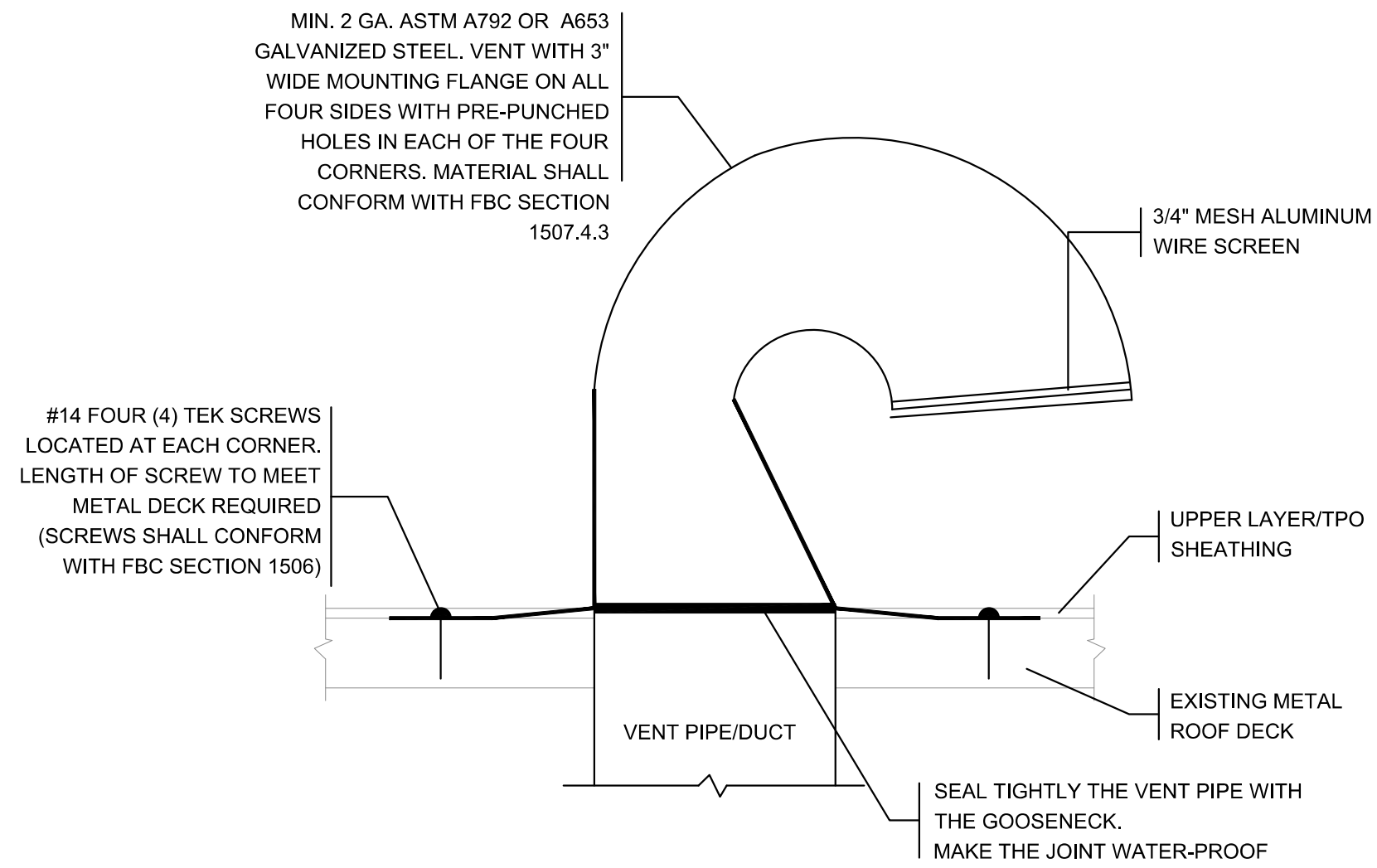
M-101



**1 CEILING EXHAUST FAN DETAIL**  
M-501 N.T.S.



**2 ROUND DUCT TAKE OFF DETAIL**  
M-501 N.T.S.



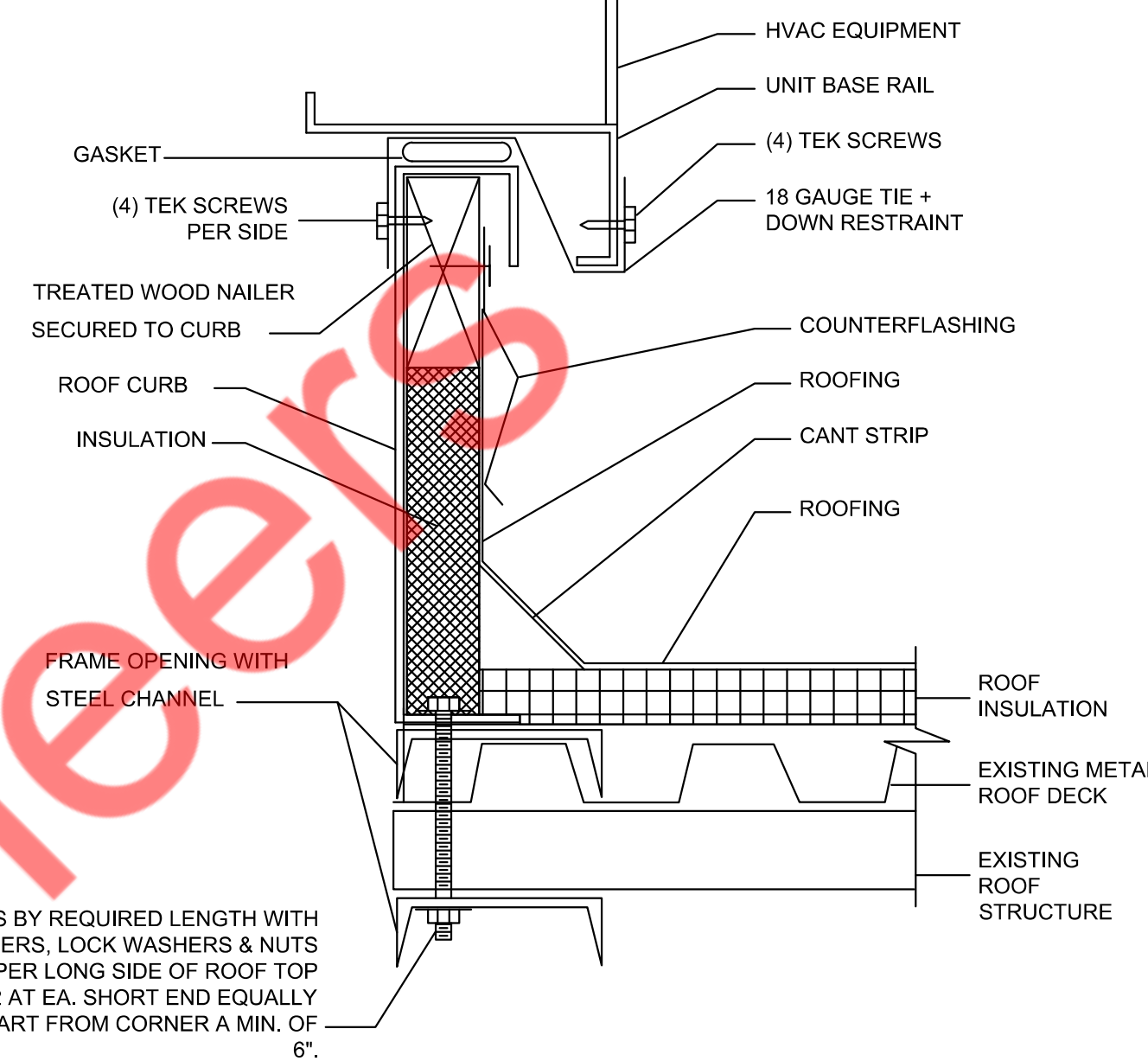
**3 TYPICAL DETAIL OF ROOF GOOSENECK**  
M-501 N.T.S.

**ATTACHMENT METHOD:**  
CUT OUT THE GOOSENECK VENT OPENING IN THE ROOF SHEATHING ACCORDING WITHIN MAXIMUM DIMENSIONS. DO NOT CUT INTO TRUSSES OR RAFTERS WHEN CUTTING OPENING IN THE ROOF.

REMOVE INTERFERING SHINGLE NAILS AROUND THE PERIMETER OF THE OPENING AND ANY DEBRIS SO THAT THE NAILING FLANGE OF THE VENT LAYS FLAT TO THE ROOF SHEATHING. SLIDE THE TOP AND SIDE FLANGES OF THE VENT UNDERNEATH THE SHINGLES AND ALLOW THE BOTTOM FLANGE TO LIE ON THE TOP OF THE SHINGLES. CARE SHOULD BE TAKEN IN KEEPING THE VENT PROPERLY ALIGNED. VENT PIPE IS SEALED IF UTILIZED. SCREW IN PLACE USING FOUR (4) TEK SCREWS LOCATED AT EACH CORNER (SCREWS SHALL CONFORM WITH FBC SECTION 1506). ROOFING CEMENT SHOULD BE APPLIED TO ALL SHINGLE EDGES NEAR THE OUTER EDGE AND AROUND THE ENTIRE PERIMETER.

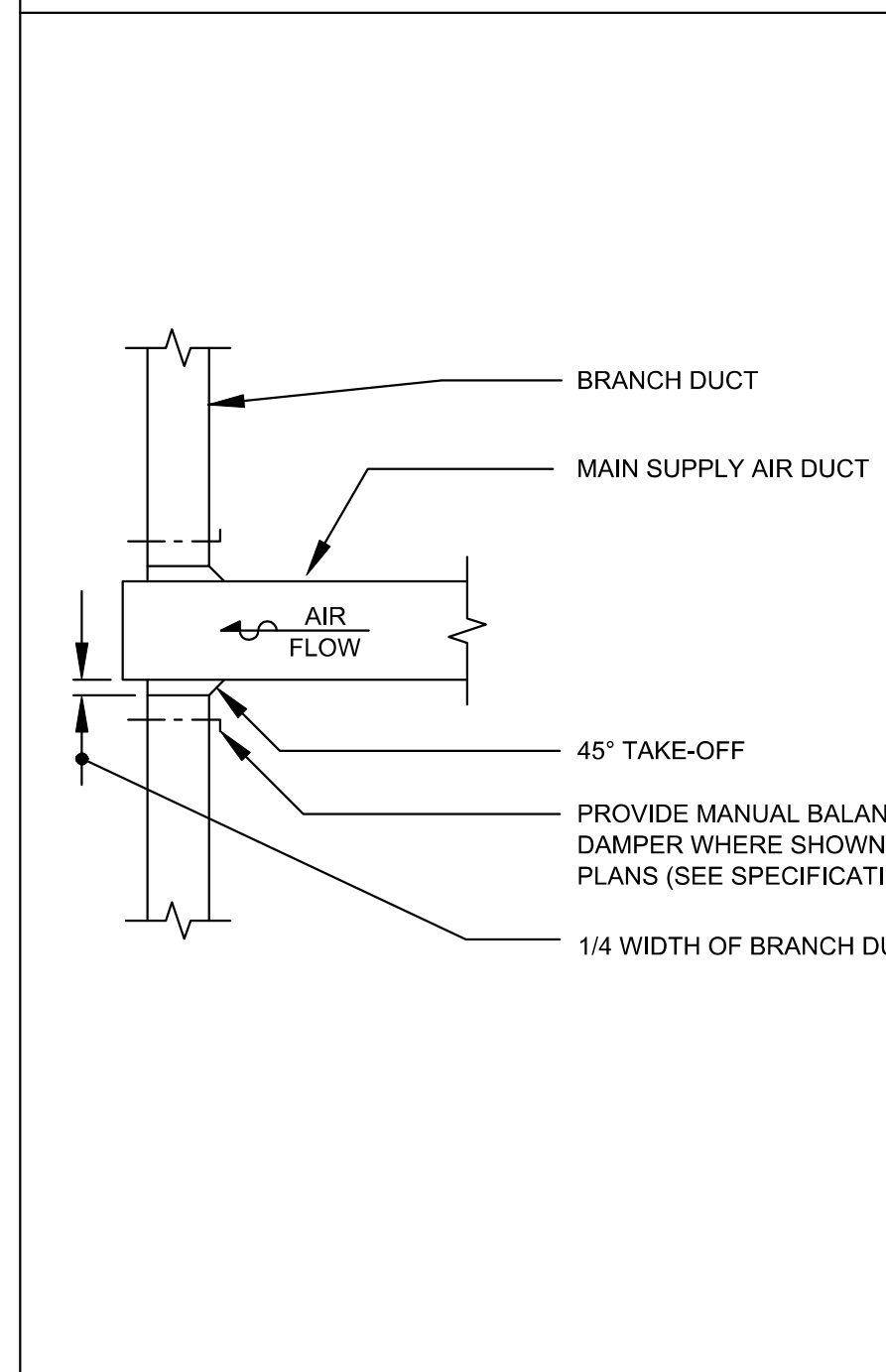
**ALLOWABLE ROOF COVERINGS:** ASPHALT SHINGLES

**MAXIMUM DESIGN PRESSURE:**  
-52.5 PSF FOR INSTALLATIONS OVER PLYWOOD DECK  
-22.5 PSF FOR INSTALLATION OVER OSB DECK  
PRESSURES CALCULATED USING 2.1 MARGIN OF SAFETY PER 1504.9.

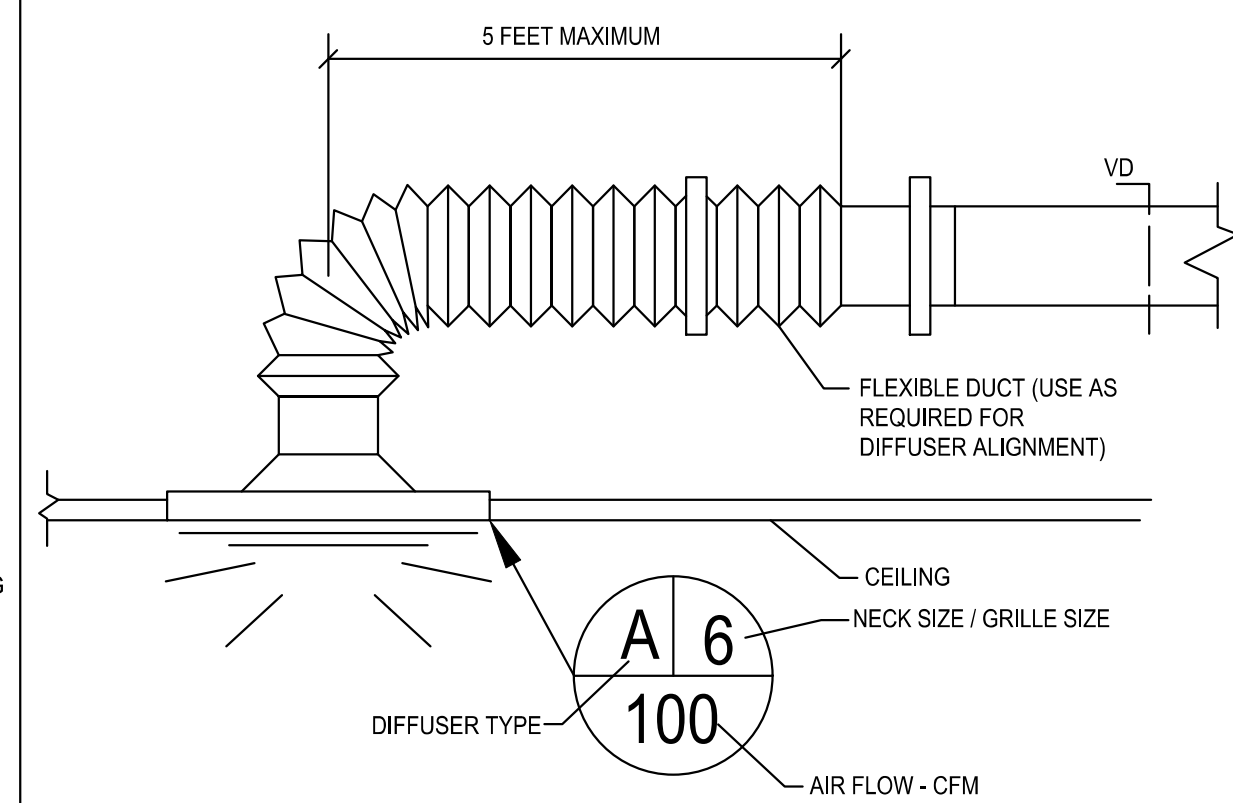


**4 ROOF-TOP UNIT CURB DETAIL**  
M-501 N.T.S.

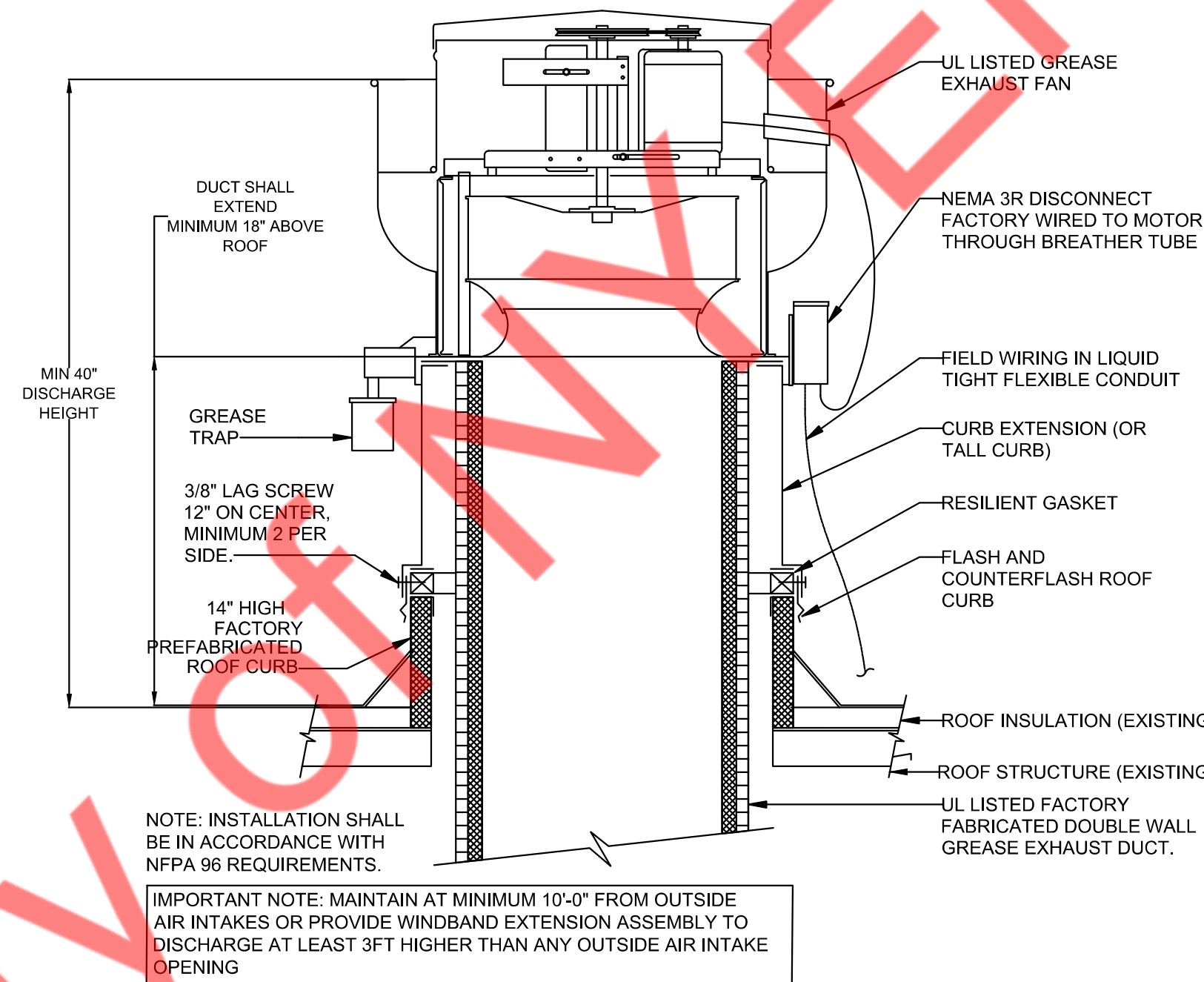
MIN. 3/8" BOLTS BY REQUIRED LENGTH WITH FENDER WASHERS, LOCK WASHERS & NUTS @ EA. 4 PER LONG SIDE OF ROOF TOP CURBS & 2 AT EA. SHORT END EQUALLY SPACED - START FROM CORNER A MIN. OF 6".



**5 SUPPLY AIR DUCT DETAIL**  
M-501 N.T.S.

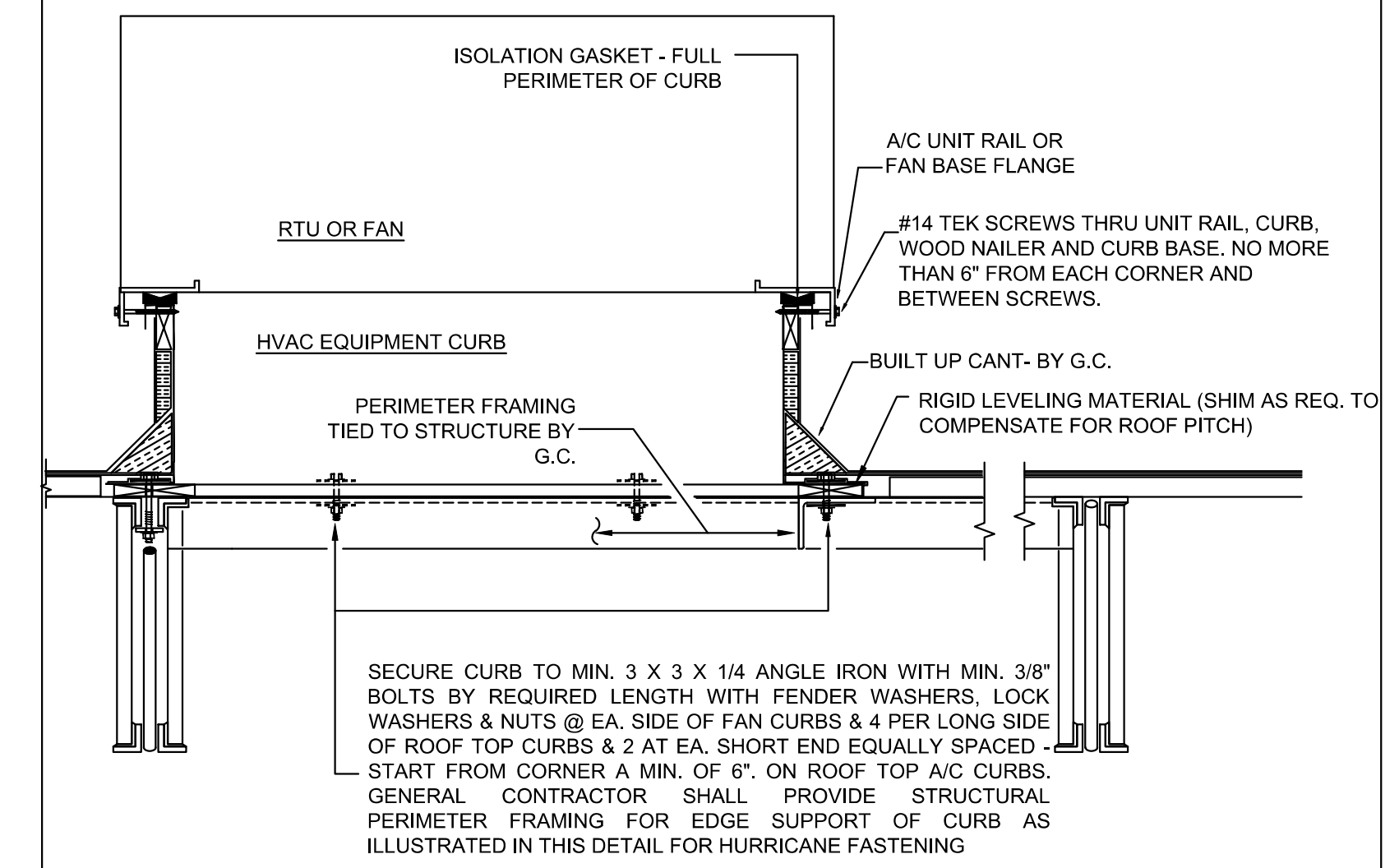


**6 CEILING DIFFUSER BRANCH DUCT CONNECTION**  
M-501 N.T.S.

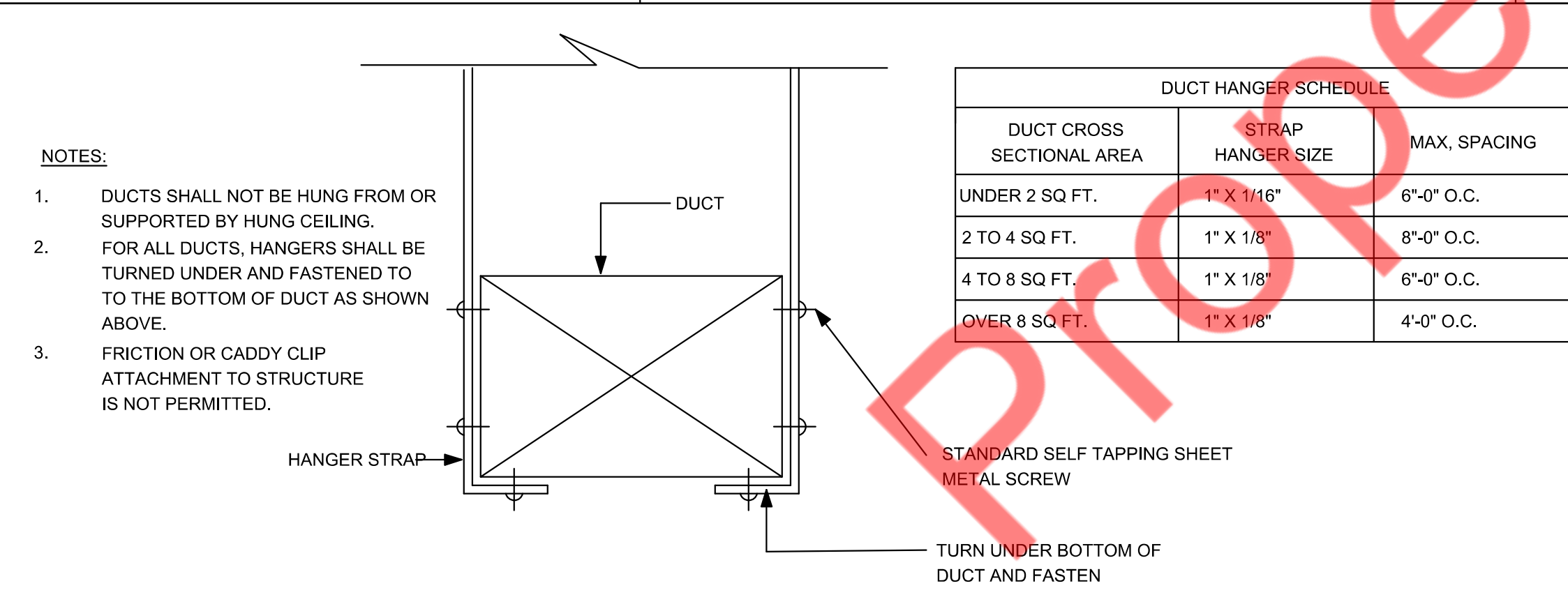


**7 ROOF MOUNTED KITCHEN EXHAUST FAN DETAIL**  
M-501 N.T.S.

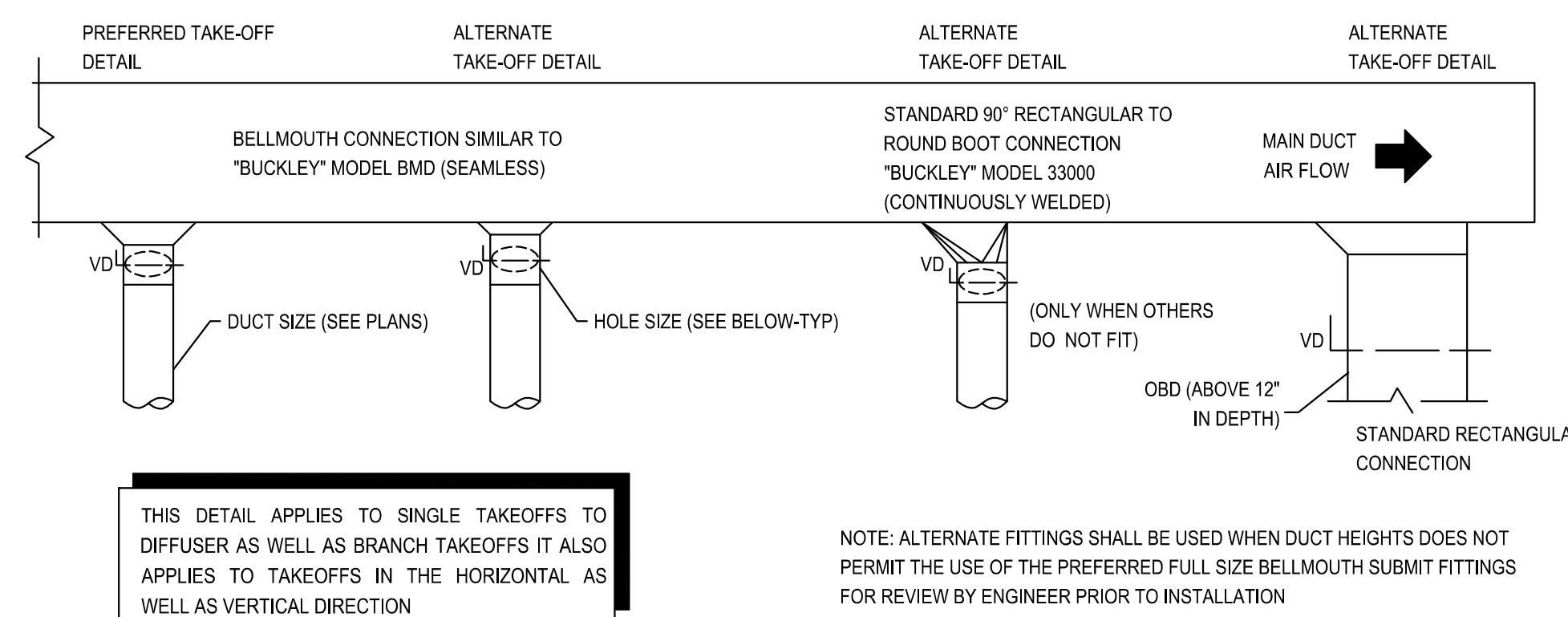
**NOTE:** INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 96 REQUIREMENTS.  
**IMPORTANT NOTE:** MAINTAIN AT MINIMUM 10'-0" FROM OUTSIDE AIR INTAKES OR PROVIDE WINDBAND EXTENSION ASSEMBLY TO DISCHARGE AT LEAST 3FT HIGHER THAN ANY OUTSIDE AIR INTAKE OPENING



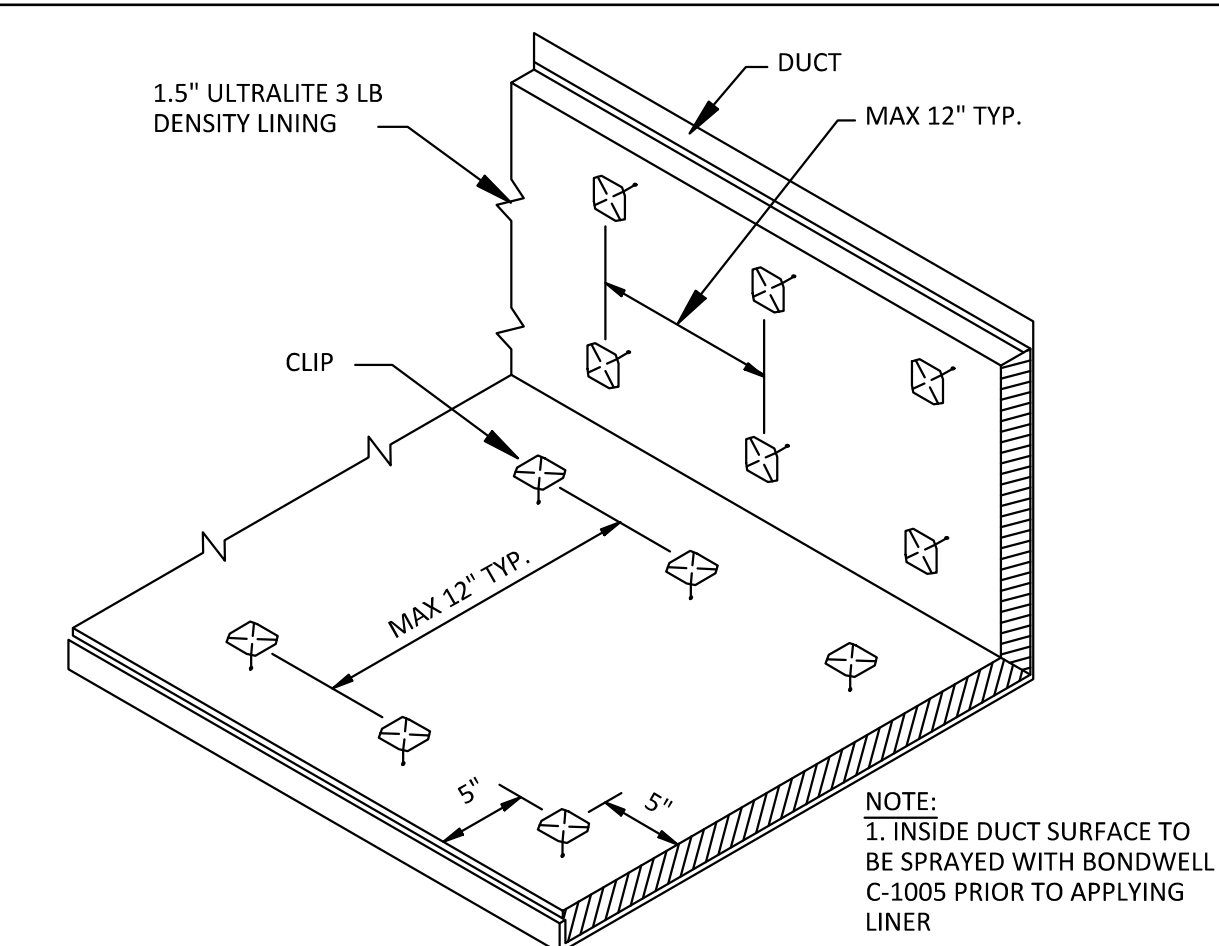
**8 ROOF TOP UNIT INSTALLATION DETAILS**  
M-501 N.T.S.



**9 DUCT HANGING DETAILS**  
M-501 N.T.S.



**10 DUCT TAKEOFFS**  
M-501 N.T.S.



**11 DUCT PLENUM LINING**  
M-501 N.T.S.

ISSUED REVISIONS:
△ BUILDING COMMENT

ROOF TOP UNIT (GAS HEAT) SCHEDULE																							
UNIT ID	MANUFACTURER	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN			HEATING CAPACITY			COOLING CAPACITY			ELECTRICAL DATA					EER	IEER/SEER	THERMAL EFFICIENCY (%)	MAX OPERATING WEIGHT (LBS.)	
					SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	MAX. ESP (IN. OF W.G.)	INPUT (MBH)	OUTPUT (MBH)	GAS SUPPLY PRESSURE (IN. WC)	TOTAL (MBH)	SENSIBLE (MBH)	AMBIENT TEMP. DB (°F)	ENTERING TEMP. DB / WB (°F)	VOLTS	PHASE	HZ	MCA (A)					MOCP (A)
RTU-1(N)	CARRIER	48FEDM08B2A6-0A0A0 (OR EQUIVALENT)	SEE PLAN	7.5	3000	700	1	125	103	4-13	93.4	71.1	95	80/67	460	3	60	19	25	11.2	15/-	82	1150
RTU-2(N)	CARRIER	48FEDA06A2A6-0A0A0 (OR EQUIVALENT)	SEE PLAN	5	2000	400	1	67	54	4-13	62	46.2	95	80/67	460	3	60	13	20	11.4	-/14	81	800

**NOTES / ACCESSORIES -**

- CONTRACTOR TO BALANCE OUTSIDE AIR DAMPER ON RTU TO MATCH VALUE MENTIONED IN EQUIPMENT SCHEDULE.
- REPLACE ALL AIR FILTERS WITH NEW MERV-13 FILTERS BEFORE HANDING OVER THE SPACE TO THE OWNER/TENANT.
- BOTTOM DISCHARGE & RETURN CONFIGURATION.
- UNIT TO BE PROVIDED WITH LOW LEAKAGE VOLUME CONTROL DAMPER, NEMA 3R DISCONNECT, FAN WITH VFD, VIBRATION ISOLATION SPRING SUPPORTED BLOWER, INTAKE HOOD, SCREEN INTAKE.
- CONTRACTOR TO BALANCE OUTSIDE AIR DAMPER ON RTUS TO MATCH VALUE MENTIONED IN EQUIPMENT SCHEDULE.
- PROVIDE FLEXIBLE CONNECTION AT DUCT CONNECTION TO UNIT.
- PROVIDE VIBRATION ISOLATOR FOR UNIT MOUNTING.
- UNIT SHALL BE COMPLETE WITH GAS HEATING SECTION. GAS REGULATOR TO RECEIVE 4-13" GAS PRESSURE FROM MAIN.
- PROVIDE SMOKE DETECTOR IN RETURN AIR SIDE OF RTU-2(N). PROVIDE GLOBAL SHUTDOWN TO ALL HVAC UNITS UPON ACTIVATION OF A BUILDING'S FIRE ALARM SYSTEM.
- PROVIDE ALL COMPRESSORS WITH 5 YEAR WARRANTY.
- ANTI SHORT CYCLE TIMER.
- CONNECT CONDENSATE DRAIN LINE FROM RTUS ON THE ROOF TO THE NEAREST DRAIN POINT. CONNECT TO A DRAIN LINE VIA AIR GAP IN AN APPROVED MANNER.
- PROVIDE 14" ROOF CURB. CONTRACTOR TO FIELD INSULATE.
- DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF / 25% MANUAL OUTSIDE AIR DAMPER ASSEMBLY WITH HOOD (ZONE 'E' ONLY). PROVIDE ECONOMIZER WITH FDD.
- REMOTE SENSOR SHALL BE PROVIDED IN RETURN AIR DUCT & WIRED BACK TO PROGRAMMABLE, 24 HOUR, 7 DAY, THERMOSTATS.
- RTU TO BE PROVIDED BY TENANT.

KITCHEN EXHAUST FAN SCHEDULE									
MARK	MANUFACTURER	MODEL	SERVICE	MOTOR BHP	EXHAUST AIR DATA		ELECTRICAL DATA		MAX. WEIGHT
					AIR (CFM)	E.S.P (IN. W.G.)	VOLTAGE	PHASE	
EF-1(N)	CAPTIVEAIRE	DU33HFA	H-1(N)	0.165	865	1	115	1	106

**NOTES:**

- EF-1(N) TO SERVE HOOD HD-1(N). INTERLOCK WITH HD-1(N) FOR SIMULTANEOUS OPERATION.
- EF-1(N) SHALL BE UL 762 LISTED, WITH FACTORY VENTED CURB, HINGE BASE KIT, GREASE DRAIN, SPEED CONTROLLER AND DIRECT DRIVE.
- PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE NEMA 3R DISCONNECT SWITCH & THERMAL OVERLOAD PROTECTION. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.

EXHAUST FAN SCHEDULE											
TAG	QUANTITY	FLOW RATE CFM	STATIC PRESSURE EXTERNAL IN W.G.	ELECTRIC DATA				MAXIMUM LOUDNESS DBA	BASIS OF DESIGN		MAX. WEIGHT (LBS)
				SPEED RPM	V/PH/HZ	MCA (A)	MOCP (A)		MANUFACTURER	MODEL	
EF-2(N)	1	250	0.5	1246	460/60/3	1.4	15	55	GREENHECK	BSQ-80 (OR EQUIVALENT)	90
EF-3(N) & EF-4(N)	2	75	0.5	773	115/60/1	0.4	15	35	GREENHECK	SP-LP0511-1 (OR EQUIVALENT)	20

**NOTES:**

- INTERCONNECT WITH EF-2(N) WITH RTU-2(N). COORDINATE WITH ELECTRICAL CONTRACTOR.
- INTERCONNECT WITH EF-3(N) & EF-4(N) WITH RESTROOM LIGHT SWITCH. COORDINATE WITH ELECTRICAL CONTRACTOR.
- PROVIDE THERMAL OVERLOAD PROTECTION, BACKDRAFT DAMPER, AMCA SEAL & UL CERTIFIED.
- PROVIDE ALL NECESSARY ACCESSORIES & INSTALL AS PER MANUFACTURER'S RECOMMENDATION.

AIR TERMINAL DEVICES SCHEDULE							
TAG	SIZE (IN.)	DESCRIPTION	CONSTRUCTION	NECK SIZE (IN.)	BASIS OF DESIGN		NOTES
					MANUFACTURER	MODEL	
CDS-1	24"x24"	ALUMINIUM FACE, STEEL BACKPAN PERFORATED SUPPLY DIFFUSER WITH FACE MOUNTED DEFLECTORS	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	PAS-AA	1,2,3,4,5,6
CDS-2	24"x24"	SQUARE CONE DIFFUSER	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	TMS-AA	1,2,3,4,5,6
CDS-3	12"x12"	SQUARE CONE DIFFUSER	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	TMS-AA	1,2,3,4,5,6
CDS-4	24"	ALUMINIUM, ROUND DIFFUSER WITH ADJUSTABLE DISCHARGE PATTERNS	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	TMRA-AA	1,2,3,4,5,6
CDR-1	24"x24"	ALUMINIUM EGGCRATE RETURN GRILLE	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	50F	1,2,3,4,5,6
CDE-1	24"x24"	ALUMINIUM EGGCRATE RETURN GRILLE	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	50F	1,2,3,4,5,6

**NOTES:**

- PROVIDE FRAME FOR MOUNTING AIR DEVICE IN LAY-IN GRID CEILING UNLESS REFLECTED CEILING PLAN INDICATES HARD CEILING. IN AREAS WITH HARD CEILINGS, PROVIDE FRAMES FOR SURFACE MOUNTING.
- UNLESS OTHERWISE NOTED, BRANCH DUCTS SERVING AIR DEVICES SHALL BE SAME SIZE AS NECK OF AIR DEVICE.
- ARCHITECT/OWNER TO CONFIRM FINAL COLOR/FINISH/BORDER TYPE.
- MAXIMUM NOISE CRITERION RATING < 30 DBA.
- PROVIDE AN OPPOSITE BLADE DAMPER FOR AIR BALANCING.
- FOR ROUND NECK DIFFUSERS: NECK SIZES SHALL BE:-  
16" DIA: 901-1100 CFM  
14" DIA: 601-900 CFM  
12" DIA: 401-600 CFM  
10" DIA: 201-400 CFM  
8" DIA: 101-200 CFM  
6" DIA: 0-100 CFM

VENTILATION CALCULATION TABLE													
ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000sq.ft AS PER 2021 IMC	NUMBER OF PEOPLE AS PER 2021 IMC	NUMBER OF CHAIR	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER 2021 IMC		EFFECTIVENESS (Eb2)	REQUIRED OUTSIDE AIR (CFM)	PROVIDED OUTSIDE AIR (CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT) OR (CFM/FIXTURE)	REQUIRED EXHAUST (CFM)	PROVIDED EXHAUST (CFM)
						CFM/PEOPLE	CFM/SQ.FT						
101-DINING	1058	70	75	28	30	7.5	0.18	0.8	519	1100	0	0	0
102-SERVICE	230	15	4	2	2	7.5	0.12	0.8	53	1100	0.7	161	685
103-COOKING	40	20	1	0	1	7.5	0.12	0.8	15	1100	0	0	0
104-BEVERAGE	75	15	2	0	0	7.5	0.12	0.8	11	1100	0	0	0
105-HALLWAY	74	0	0	0	0	0	0.12	0.8	11	1100	0	0	0
106-RESTROOM	58	0	0	0	0	0	0	0.8	0	1100	70	70	75
107-RESTROOM	70	0	0	0	0	0	0	0.8	0	1100	70	70	75
108-KITCHEN	356	20	8	0	2	7.5	0.12	0.8	72	1100	0.7	249	250
110-STORAGE	32	0	0	0	0	0	0.12	0.8	5	1100	0	0	0
TOTAL	1993	-	-	-	35	-	-	-	687	1100	-	550	1085

AIR BALANCE					
UNIT	AREA SERVED	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR
RTU-1(N)	SEE PLAN	3000 CFM	700 CFM	2300 CFM	-
RTU-2(N)	SEE PLAN	2000 CFM	400 CFM	1600 CFM	-
EF-1(N)	SEE PLAN	-	-	-	685 CFM
EF-2(N)	SEE PLAN	-	-	-	250 CFM
EF-3(N)	SEE PLAN	-	-	-	75 CFM
EF-4(N)	SEE PLAN	-	-	-	75 CFM
TOTAL:		5000 CFM	1100 CFM	3900 CFM	1085 CFM
BUILDING PRESSURE: .....				15 CFM	POSITIVE

1. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON RTUS TO MATCH VALUES AS MENTIONED IN ABOVE TABLE.

ISSUED REVISIONS:
△ BUILDING COMMENT
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Blaze Pizza  
Mechanical Schedules

Sheet #	Item #	INDEX	W.O. #	Rev.
01		SHEET INDEX, GENERAL & APPROVAL NOTES		--
02		50-MS-01-01-0200S (PLAN/SECTION VIEW/SECTION VIEW)		--
03		VENTILATOR WITH FLAT FRONT & OPTIONAL CURVED FRONT DETAIL		--
04		CURVED LIGHT & DCA DETAILS (OPTIONAL)		--

**GENERAL NOTES**

**EXHAUST VOLUME REQUIREMENTS**

- Exhaust volumes, as shown on this drawing, are determined by established engineering criteria and in accordance with the terms of the UL listing.
- Hood static pressure is  $0.50''$  w.g. at the duct take-off collar. Refer to drawing. Total duct system and other external statics must be added to above for determining proper exhaust fan static pressure drop. Static based on operation at mean sea level.
- Duct size based on 1800 fpm.

**MAKE-UP AIR REQUIREMENTS**

- Make-up air should be supplied for replacement of air exhausted through kitchen exhaust systems. Make-up air should be delivered through registers at ceiling height and distributed throughout the kitchen. A general "rule of thumb" is that 75% to 80% of the replacement air should be fresh, conditioned (heated or cooled) or brought into the kitchen area - with the remaining 20% to 25% allowed to flow into the kitchen from adjacent areas.

**INSTALLATION**

- Hood to be installed in accordance with this drawing, NFPA-96 and all other local applicable codes. Special attention must be given to code regulations relative to clearances from surrounding combustible and limited combustible construction (walls, ceiling, etc.).
- All ductwork beyond the hood duct take-off collar to be provided and installed by others, in accordance with applicable codes. Exhaust ducts must be grease and water tight with continuous external welds. The exhaust duct must be continuously welded to the hood duct collar.

**CONSTRUCTION**

- Hoods are manufactured in strict accordance with specifications.
- Hoods constructed of 16 Ga. Stainless Steel, Type 430, No. 4 finish unless otherwise noted on drawings.

**FILTERS**

- Filters are Stainless Steel U.L. classified and meet NFPA-96 requirements.

**FIRE EXTINGUISHING SYSTEM**

- The Hood is Factory Pre-Piped for an Ansul R-102 Fire Extinguishing System.
- The Chemical Line Pre-Piping includes Duct Collar and Plenum Protection with Nozzles stubbed out to a single connection point.
- Detection Line Pre-Piping includes a Fuse Link Bracket located at the Duct Collar and Duct Conduit stubbed out to a single connection point. One (1) 450°F Fuse Link is provided, wire tied to the Fuse Link Bracket. The Detection Cable and other hardware is Not Provided.
- NOTE: All other required Ansal Parts, Plans and Permits are Not Provided.

**HOOD TESTING, LISTING AND COMPLIANCE REFERENCES:**

**INTERTEK TESTING SERVICES, INC.**

TYPE: HOOD IS E.T.E. LISTED EXHAUST HOODS WITHOUT EXHAUST CHAMBERS, REPORT NO. 319292X31-002

TESTED TO U.L. STANDARD 710 REQUIREMENTS.

**NATIONAL FIRE PROTECTION ASSOCIATION**

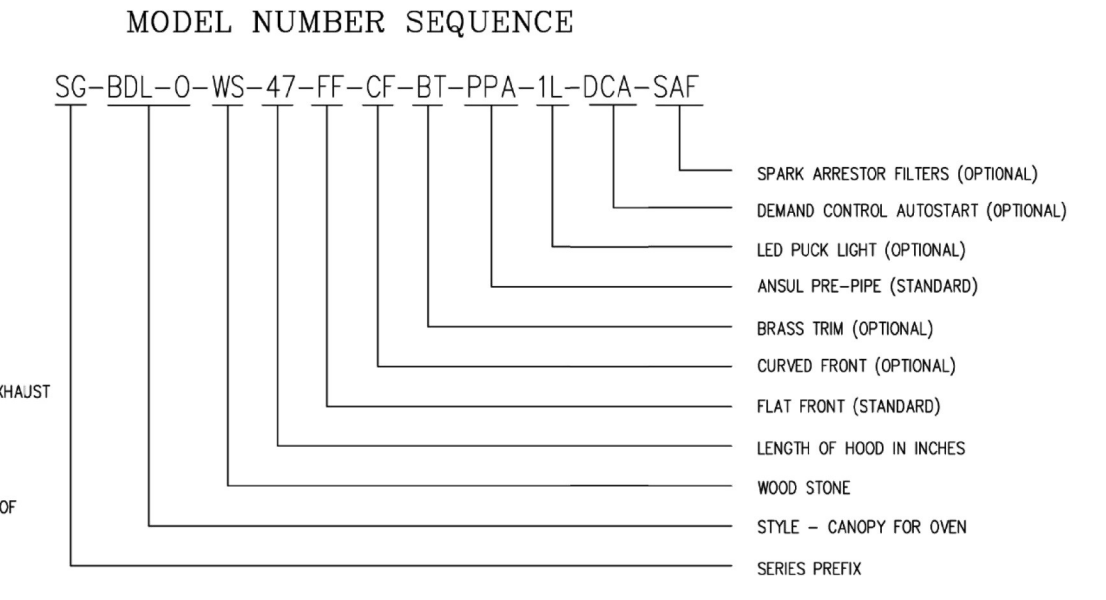
MEETS ALL REQUIREMENTS OF NFPA-96 "STANDARD FOR VENTILATION CONTROL & FIRE PROTECTION OF COMMERCIAL COOKING OPERATIONS"

**UL - SANITATION LISTED**

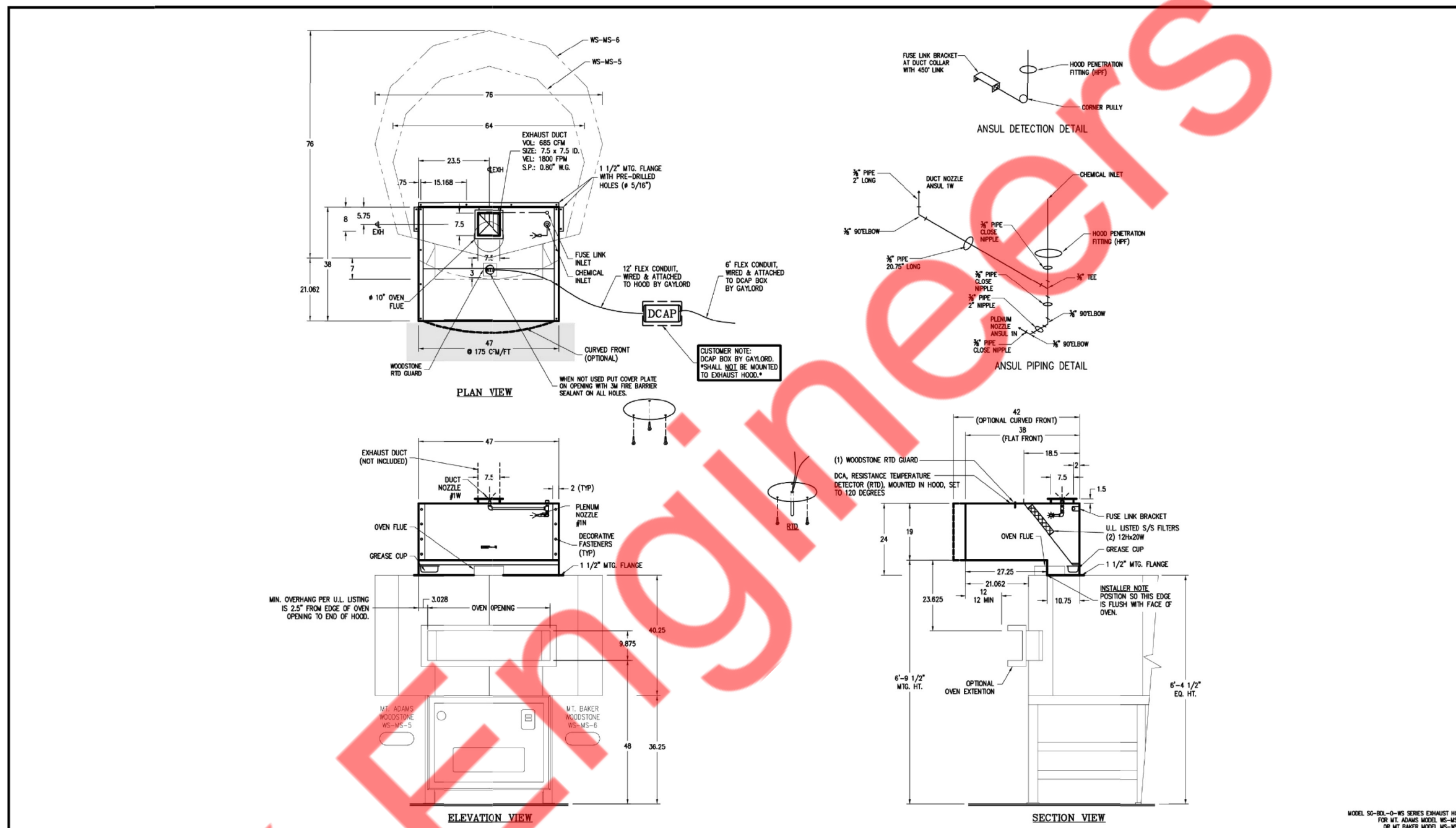
MEETS ALL REQUIREMENTS OF NSF STANDARD NO.2 "FOOD SERVICE EQUIPMENT"

**MECHANICAL CODES**

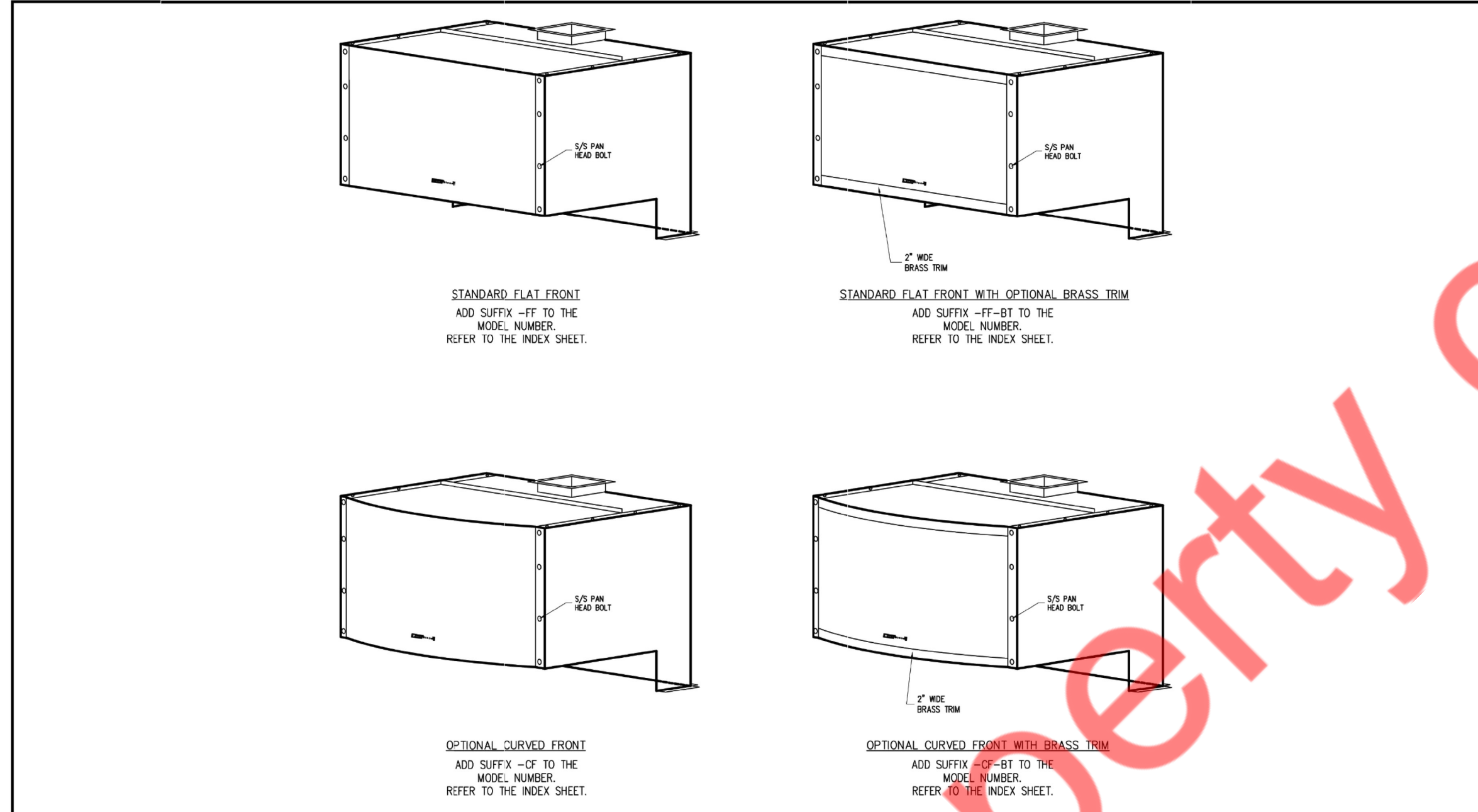
MEETS ALL REQUIREMENTS OF THE IMC, BOCA, SBCCI AND IMC.



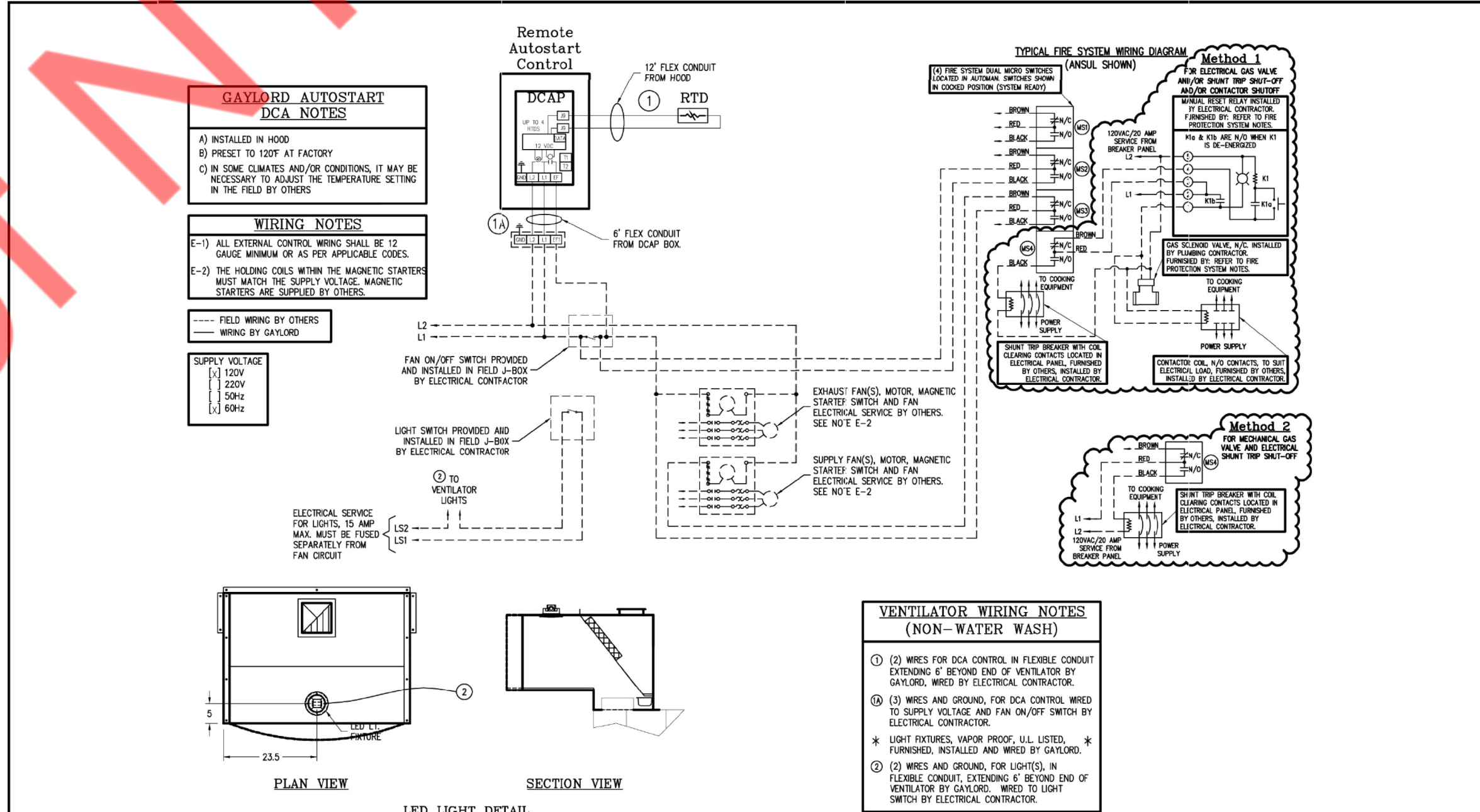
NO.	DATE	DESCRIPTION	BY	CHKD.
1	08-20-20	ISSUE FOR PERMIT	...	...
2	08-20-20	ISSUE FOR PERMIT	...	...
3	08-20-20	ISSUE FOR PERMIT	...	...
4	08-20-20	ISSUE FOR PERMIT	...	...
5	08-20-20	ISSUE FOR PERMIT	...	...
6	08-20-20	ISSUE FOR PERMIT	...	...
7	08-20-20	ISSUE FOR PERMIT	...	...
8	08-20-20	ISSUE FOR PERMIT	...	...
9	08-20-20	ISSUE FOR PERMIT	...	...
10	08-20-20	ISSUE FOR PERMIT	...	...



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ISSUED REVISIONS:
△ BUILDING COMMENT
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Blaze Pizza  
Kitchen Hood Drawings

LIGHTING PLAN LEGEND	
$\$^A$	SWITCH TYPE (SUPERSCRIPIT IN UPPERCASE) 20A, 120V SPST WALL SWITCH (UON) SWITCH TAG (SUBSCRIPT IN LOWERCASE)
$\$^{OS}$	WALL SWITCH WITH OCCUPANCY SENSOR
$\$^{VS}$	WALL SWITCH WITH VACANCY SENSOR
$\$^T$	WALL SWITCH WITH TIMER
$\$^{D,T}$	WALL SWITCH WITH DIMMER & TIMER
$\$^J$	3 WAY WALL SWITCH (SPDT)
$\$^4$	4 WAY / INTERMEDIATE WALL SWITCH (DPDT)
$\$^R$	WALL SWITCH WITH SPEED REGULATOR
$\$^M$	MOTOR RATED WALL SWITCH
$\$^{Th}$	THERMOSTAT WALL SWITCH
$\$^{MO}$	MANUAL OVERRIDE WALL SWITCH
$\square_{PC}$	PHOTOCELL WALL MOUNTED
$\square_{OS}$	OCCUPANCY SENSOR WALL MOUNTED
$\square_{OS}$	OCCUPANCY SENSOR CEILING MOUNTED
$\square_{VS}$	VACANCY SENSOR CEILING MOUNTED
$\square_{DS}$	DAY LIGHT SENSOR CEILING MOUNTED
$\square_{TC}$	TIME CLOCK - DUAL CHANNEL
$\square_{LC}$	LIGHTING CONTACTOR
$\square_{CL}$	CURRENT LIMITER 1 AMPS

ANNOTATION	
$\#$	KEYED NOTE
$\#$	EQUIPMENT TAG
$\ominus$	CALLOUT: DETAIL NUMBER ON TOP DRAWING NUMBER ON BOTTOM
$\curvearrowright$	ELEVATION REFERENCE
A:1	CIRCUIT 1 IN PANEL A

POWER AND COMMUNICATION PLAN LEGEND	
$\square_{\phi}$	WALL MOUNTED SIMPLEX RECEPTACLE, RATING SHALL BE SAME AS BREAKER OR AS NOTED
$\square_{\phi}$	20A, 120V WALL MOUNTED DUPLEX RECEPTACLE
$\square_{\phi,U}$	20A, 120V WALL MOUNTED RECEPTACLE WITH USB OUTLET
$\square_{\phi,S}$	20A, 120V WALL MOUNTED HALF SWITCHED DUPLEX RECEPTACLE WITH SWITCH
$\square_{\phi,S}$	20A, 120V WALL MOUNTED FULL SWITCHED DUPLEX RECEPTACLE WITH SWITCH
$\square_{\phi}$	20A, 120V WALL MOUNTED GFCI DUPLEX RECEPTACLE
$\square_{\phi,C}$	20A, 120V CEILING MOUNTED DUPLEX RECEPTACLE
$\square_{\phi,F}$	20A, 120V FLOOR MOUNTED DUPLEX RECEPTACLE
$\square_{\phi}$	20A, 120V WALL MOUNTED QUAD RECEPTACLE
$\square_{\phi}$	WALL MOUNTED SPECIAL RECEPTACLE, RATING SHALL BE SAME AS BREAKER OR AS NOTED
$\square_{\phi}$	JUNCTION BOX WITH BLANK COVER PLATE, WALL MOUNTED
$\square_{\phi}$	JUNCTION BOX WITH BLANK COVER PLATE, CEILING MOUNTED
$\square_{\phi}$	DATA OUTLET - QUANTITY AS INDICATED
$\square_{\phi}$	TELEPHONE OUTLET - QUANTITY AS INDICATED
$\square_{\phi}$	DATA / TELEPHONE COMBINATION OUTLET - QUANTITY AS INDICATED
$\square_{\phi}$	DATA RACK + TELEPHONE DISTRIBUTION BOARD - AS REQUIRED
$\square_{\phi}$	CABLE TV OUTLET
$\square_{\phi}$	NON FUSED DISCONNECT SWITCH - RATING EQUAL TO OR MORE THAN BREAKER RATING
$\square_{\phi}$	FUSED DISCONNECT SWITCH - FUSE RATING AS NEEDED -

SCOPE OF WORK	
A.	SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.
B.	ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.
C.	THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR
D.	THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
E.	CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE FLORIDA BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.
F.	AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

ELECTRICAL DRAWING LIST	
E-001	ELECTRICAL GENERAL NOTES, SYMBOL LIST & ABBREVIATIONS
E-002	ELECTRICAL SPECIFICATION SHEET 1 OF 2
E-003	ELECTRICAL SPECIFICATION SHEET 2 OF 2
E-101	ELECTRICAL LIGHTING PLAN
E-201	ELECTRICAL FLOOR POWER PLAN
E-202	ELECTRICAL ROOF POWER PLAN
E-301	ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE

ELECTRICAL ABBREVIATIONS	
A	AMPERES
AF	AMPERE FRAME / AMP FUSE
AFF	ABOVE FINISHED FLOOR
AS	AMP SWITCH
AIC	AMPS INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
C/B, CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
COMM	COMMUNICATION
CT	CURRENT TRANSFORMER
CU	COPPER
°C	DEGREE CELSIUS
CL	CURRENT LIMITER
DWG	DRAWING
DPSP	DOUBLE POLE SINGLE THROW
DPDT	DOUBLE POLE DOUBLE THROW
E	EXISTING
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
ER	EXISTING TO BE RELOCATED
ETR	EXISTING TO REMAIN
EOR	ENGINEER OF RECORD
°F	DEGREE FAHRENHEIT
FA	FIRE ALARM
G	GROUND
GFI	GROUND FAULT INTERRUPTER
GC	GENERAL CONTRACTOR
HD	HAND DRYER
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
IC	INTERRUPTING CAPACITY
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATTS
LP	LIGHTING PANEL
LL	LAND LORD
LTG	LIGHTING
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
N	NEUTRAL
NIC	NOT IN CONNECT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
PP	POWER PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
R	REMOVE
RE	RELOCATED EXISTING
RR	REMOVE & RELOCATE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
TR	TAMPER RESISTANT
TYP	TYPICAL
USB	USB JACK
UON	UNLESS OTHERWISE NOTED
VA	VOLT AMPERE
VIF	VERIFY IN FIELD
WP	WEATHER PROOF
W	WIRE / WATT
XMER	TRANSFORMER

DEMOLITION NOTES	
1.	IN EVERY INSTANCE OF DEMOLITION AND/OR REMODELING, THE ELECTRICAL CONTRACTOR SHALL FIGURE A COMPLETE JOB AS NONE OTHER SHALL BE ACCEPTED.
2.	THE DRAWINGS ARE TO BE USED ONLY AS A GUIDELINE FOR DEMOLITION. THE ELECTRICAL CONTRACTOR MUST VISIT THE SITE PRIOR TO BIDDING TO VERIFY ALL WORK REQUIRED FOR A COMPLETE JOB & INCLUDE THE COST OF SUCH WORK IN HIS BID.
3.	THE ELECTRICAL CONTRACTOR SHALL MAINTAIN EXISTING SERVICES TO & IN THE EXISTING AREA AS REQUIRED.
4.	IF NECESSARY, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY SERVICES IN THE EXISTING AREAS.
5.	THE ELECTRICAL CONTRACTOR SHALL DISCONNECT & REMOVE ELECTRIC SERVICE TO ALL MECHANICAL EQUIPMENT BEING REMOVED AS A RESULT OF THE REMODELING.
6.	ELECTRICAL EQUIPMENT & DEVICES SHALL BE REMOVED COMPLETE INCLUDING CONDUIT & WIRE.
7.	FLUSH MOUNTED WALL OUTLETS SHALL BE BLANKED-OFF WITH A COVER PLATE. COVER PLATE COLOR SHALL BE SELECTED BY ARCHITECT.
8.	ANY EXISTING CONDUIT, WIRING AND/OR ELECTRICAL & MECHANICAL DEVICES BEING DISTURBED BY THE WORK SHALL BE REWORKED BY THIS CONTRACTOR AS REQUIRED TO RETURN TO ITS FORMER EXISTING OPERATING CONDITION.
9.	ANY CIRCUITS FEEDING THROUGH DEVICES OR EQUIPMENT BEING RELOCATED, REWORKED, OR ABANDONED & SERVING OTHER ELECTRICAL DEVICES, AND/OR EQUIPMENT SHALL BE MAINTAINED BY PROVIDING J-BOXES OR OTHER ACCEPTABLE METHOD AS REQUIRED.
10.	ALL WALLS, CEILINGS, FLOORS, ETC., BEING DISTURBED BY THE WORK SHALL BE RETURNED TO FINISHED CONDITIONS TO MATCH EXISTING BY THE ELECTRICAL CONTRACTOR & HE SHALL DO HIS OWN CUTTING & PATCHING AS NECESSARY UNDER HIS CONTRACT.
11.	EXISTING MATERIALS SHALL BE TURNED OVER TO THE OWNER. IF NOT REQUIRED BY OWNER, THE ELECTRICAL CONTRACTOR SHALL REMOVE THESE MATERIALS FROM THE PREMISES.
12.	ALL CONDUIT AND CABLING SHALL BE PROPERLY SUPPORTED AS REQUIRED BY THE NATIONAL ELECTRICAL CODE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE AND/OR REWORK EXISTING CONDUIT AND/OR CABLING THAT IS NOT IN COMPLIANCE WITH THIS REQUIREMENT.
13.	CONTRACTOR SHALL FIELD VERIFY SLAB ON GRADE FLOOR CONSTRUCTION TYPE PRIOR TO CUTTING. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR CUT A STRUCTURAL FLOOR SLAB THICKER THAN FOUR (4") INCHES WITHOUT PRIOR WRITTEN APPROVAL FROM ENGINEER OF RECORD. NOTIFY ENGINEER OF RECORD OF ANY SLAB THICKNESS GREATER THAN FOUR (4") INCHES PRIOR TO PROCEEDING WITH ANY SAW CUTTING.

CODE COMPLIANCE	
ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT:	
a.	2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
b.	2023 NATIONAL ELECTRICAL CODE, (NEC)

GENERAL NOTES	
1.	CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
2.	FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
3.	SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK), NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
4.	LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
5.	VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
6.	CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
7.	ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
8.	CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
9.	MINIMUM SIZE OF CONDUIT SHALL BE 3/4", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
10.	CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
11.	PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
12.	SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
13.	FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
14.	ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN TIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
15.	ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
16.	ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
17.	ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
18.	ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
19.	OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
20.	COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.
21.	COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
22.	REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
23.	REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
24.	LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
25.	NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD, PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.
26.	ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE LABEL LISTED BY A NEVADA APPROVED THIRD PARTY TESTING AGENCY.

ISSUED REVISIONS:	
△	BUILDING COMMENT
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Blaze Pizza  
Electrical general notes, symbol list & abbreviations

## ELECTRICAL SPECIFICATIONS

### GENERAL:

- A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.
- B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.
- C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- D. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
- E. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.
- F. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.
- G. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.
- H. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT ND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.
- I. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- J. UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
- K. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
- L. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
- M. THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

## GENERAL PROVISIONS FOR ELECTRICAL WORK:

### DEFINITIONS:

- "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
- "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
- "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
- "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
- "WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.
- "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.
- "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
- "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING OWNER, PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

### QUALITY ASSURANCE

- QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.
- GARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.
- CURRENT CHARACTERISTICS:
  - SERVICE: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.
  - DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

### 4) HEIGHTS OF OUTLETS:

- FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:
  - RECEPTACLES AND TELEPHONES: 1 FT-6 IN.
  - WALL SWITCHES: 4 FT-0 IN.
  - WALL FIXTURES: 7 FT-0 IN.
  - MOTOR CONTROLLERS: 5 FT-0 IN.
  - CLOCKS: 7 FT 6 IN
- EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

### PRODUCT DELIVERY, STORAGE AND HANDLING

- MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.
- ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

### MATERIALS

- NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.
- CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.
- INSERTS AND SUPPORTS:
  - INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.
    - SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
    - MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
    - CLIP FORM NAILS FLUSH WITH INSERTS.
    - MAXIMUM LOADING 75 PERCENT OF RATING.
  - SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.
  - GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.
  - WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES. AFTER FABRICATION, UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRER SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC BASED PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.

BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

### LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

- PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.
- ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.
- DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED, VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE-QUICK-BREAK, UL CLASS R UP TO 600 AMP, MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD POINT, NEMA TYPE 1, EXCEPT AS NOTED.

### DISCONNECTS

- DISCONNECT SWITCHES SHALL CONFORM TO NEMA AND UL STANDARDS, AND SHALL BE HORSEPOWER RATED.
- SWITCHING MECHANISM SHALL BE QUICK-MAKE, QUICK-BREAK, SINGLE THROW WITH EXTERNAL OPERATING HANDLE MECHANICALLY INTERLOCKED WITH ENCLOSURE COVER TO PROVIDE ACCESS TO INTERIOR WHEN DISCONNECT IS IN OFF POSITION ONLY. PROVIDE MEANS TO LOCK OPERATING HANDLE IN THE OPEN AND CLOSED POSITION. DESIGNATE ON THE ENCLOSURE THE OPEN AND CLOSED POSITION OF THE OPERATING HANDLE.
- SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.
- SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

### FUSES:

- CIRCUITS 0 TO 600 AMPERES SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V) /LPS-RK (AMP)SP (600V) OR LPJ (AMP)SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.
  - MOTOR CIRCUITS - ALL INDIVIDUAL MOTOR CIRCUITS WITH FULL LOAD AMPERE RATINGS (FLA) OF 480 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMANN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V) /LPS-RK (AMP)SP (600V) OR LPJ (AMP)SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.
  - ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.
  - PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.
  - CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPPING, OPEN AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
    - 120 VOLTS, 100-AMP FRAME: 10,000 AMPS, 1 POLE.
    - 120/240 VOLTS, 225-AMP FRAME: 22,000 AMPS MINIMUM
- DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:
- THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.
  - NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS, COVERS TO BE PAD-LOCKABLE.
  - PANELBOARD SHALL BE CONSTRUCTED OF CODE-GAUGE STEEL, GRAY FINISH OVER RUST INHIBITOR, FOR SURFACE MOUNTING. BOX AND PANEL FRAME SHALL BE FLANGED AND REINFORCED FOR RIGID SUPPORT OF INTERIOR AND ACCURATE ALIGNMENT OF INTERIOR WITH FRONT. TRIMS TO BE FASTENED TO BACK BOX WITH SCREWS.
  - ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).
  - DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS, APPLICATIONS.

### PANELBOARDS:

- PANELBOARDS SHALL BE OF THE DEAD FRONT TYPE MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEPT ALIKE.
- CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS, MINIMUM GUTTER SPACES SHALL BE 5-3/4" SIDES, TOP AND BOTTOM, INCREASE FOR THROUGH FEEDERS, PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED.
- LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AND AS NOTED ON THE CONTRACT DRAWINGS. A TOTAL OF 5 SPARE LOCKING TABS SHALL BE FURNISHED TO THE OWNER.
- BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C. AS DEFINED IN IEEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.
- ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED, TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS, COVERS SHALL BE HINGED DOOR-IN-DOOR CONSTRUCTION WITH CYLINDER LOCKS AND CATCHES. LOCKS MUST BE COMPATIBLE WITH BUILDING STANDARD KEY SYSTEM AND WHEN NONE EXISTS, THEY SHALL BE SIMILAR TO A YALE NO. 911 KEY.
- DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARD SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.
- ALL STANDARD PANELBOARDS SHALL BE A MINIMUM OF 20" WIDE AND 5 3/4" DEEP.
- FURNISH ALL PANELBOARDS WITH FEED-THRU LUGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- ALL NEW PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED WHITE CORE LAMACOID NAMEPLATE, WITH 3/4 IN. WHITE LETTERING ON A BLACK BACKGROUND, WITH DESIGNATION LISTED (PANELBOARD NAME), FASTENED WITH EPOXY CEMENT OR OVAL HEAD CHROME PLATED MACHINE SCREWS.
- THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER, THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.
- TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.
- ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG.
- SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN. WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.
- FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.

### SHOP DRAWINGS

- PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.
- INDICATE ON EACH SHOP DRAWINGS SUBMITTED:
  - PROJECT NAME AND LOCATION
  - NAME OF ARCHITECT AND ENGINEER
  - ITEM IDENTIFICATION
  - APPROVAL STAMP OF PRIME CONTRACTOR
- SUBMISSIONS:
  - SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
  - SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.
- SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:
  - SAFETY/DISCONNECT SWITCHES
  - FUSES
  - CIRCUIT BREAKERS
  - PANELBOARDS/LOAD CENTER (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).
  - RACEWAYS
  - WIRE AND CABLE
  - WALL SWITCHES
  - INSERTION RECEPTACLES
  - MOMENTARY CONTACT SWITCHES
  - TIME SWITCHES
  - LIGHTING FIXTURES.
- ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE, CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWING, PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

### AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

- UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.
- THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.
- THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.
- REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

### INSTALLATION

- DISTRIBUTION PANELBOARD SHALL BE MOUNTED TO STRUCTURAL STEEL CHANNEL (KINDORF) WHICH SHALL BE BOLTED TO THE WALL USING EXPANSION ANCHORS FOR LARGE PANELS.

### IDENTIFICATION

- PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.
- NAMEPLATES SHALL BE MOUNTED ON THE FRONT COVER SECURED WITH SELF-TAPPING SCREWS OR NUTS AND BOLTS. NAMEPLATES SHALL BE LAMINATED PHENOLIC, BLACK WITH A MINIMUM OF 1/4" HIGH WHITE LETTERING.

DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

POWER PANELBOARDS SHALL BE SIMILAR TO GENERAL ELECTRIC TYPE OMR", AS MANUFACTURED BY ATLAS SWITCH COMPANY, ELECTRIC SWITCHBOARD COMPANY OR APPROVED EQUAL.

PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

### WIRE AND CABLE:

- PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.
- CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.
- CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP, INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.
- INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLOURESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).
- ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY, LOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS. WHEN USED IN LIEU OF WIRING IN CONDUIT, STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HISTORICAL GRADE 'BX'.
- COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:  
BLACK FOR A PHASE  
RED FOR B PHASE  
BLUE FOR C PHASE

  - NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.  
  
WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.
  - PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE AND POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.
  - TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISIZE COMPOUND ON TANG.
  - NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 100/208 AND 265/480 VOLT SYSTEMS, EXCEPT 480 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.
  - LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.
  - PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

### WIRING DEVICES:

- WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.
- LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/208 VOLT, AC, SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).
- STRAIGHT BLADE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.
  - SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).
  - USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT.
- DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.
- COLORS: COORDINATE COLORS WITH ARCHITECT.
- MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL); COORDINATE WITH ARCHITECT.

ISSUED REVISIONS:
▲ BUILDING COMMENT
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**MATERIALS**

- 1) RACEWAYS:
- a. RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.
  - b. ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADESS.
  - c. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.
  - d. WIREWAYS: WIRE SHALL BE AS NOTED. MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.
  - e. SURFACE METAL RACEWAY: SIZE AS NOTED. BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

- 2) FITTINGS AND ACCESSORIES:
- a. RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.
  - b. ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.
  - c. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.
  - d. BUSHINGS: METALLIC INSULATED TYPE.

NOTE:-

1. E.C. TO ENSURE THAT THE ELECTRICAL CIRCUIT 100 A NOMINAL OR LESS, THE ALLOWABLE AMPACITY OF THE CONDUCTOR TO CONNECT TO THE TERMINALS OF ITS EQUIPMENT, IS SUCH THAT THE MAXIMUM TERMINAL TEMPERATURE IS 60°C. IF THE CIRCUIT IS MORE THAN 100 A NOMINAL, THE ALLOWABLE AMPACITY OF THE CONDUCTOR MUST BE SUCH THAT THE MAXIMUM TERMINAL TEMPERATURE IS 75°C.

**BOXES:**

- a. OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED, WITHOUT FIXTURE OR DEVICE. FURNISH BLANK COVER, OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.
- b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.
- c. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED. PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY. EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS ON METAL. BEAM CLAMPS ON FRAMEWORK. WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK, NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS. CRC-COLD GALVANIZED, EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

D. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

D. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN

FINISHED SPACES, WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

E. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.

F. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

**LIGHTING FIXTURES:**

- A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.
- B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.
- C. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH. TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.
- D. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OR SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.
- E. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.
- F. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.
- G. FLUORESCENT LIGHTING FIXTURES, INCLUDING GENERAL CONSTRUCTION, LAMPS AND BALLASTS SHALL CONFORM TO THE ENERGY EFFICIENCY REQUIREMENTS OF CONSOLIDATED EDISON CO. AND QUALITY FOR A UTILITY REBATE TO OWNER UNDER CON EDISON'S ENLIGHTENED ENERGY LIGHTING REBATE PROGRAM. CONTRACTOR SHALL COORDINATE REBATE PROGRAM WITH CON EDISON AND ARRANGE FOR CON EDISON TO PERFORM A SURVEY TO INVENTORY ALL EXISTING FIXTURES PRIOR TO DEMOLITION.
- H. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

**TELEPHONE CONDUIT SYSTEM:**

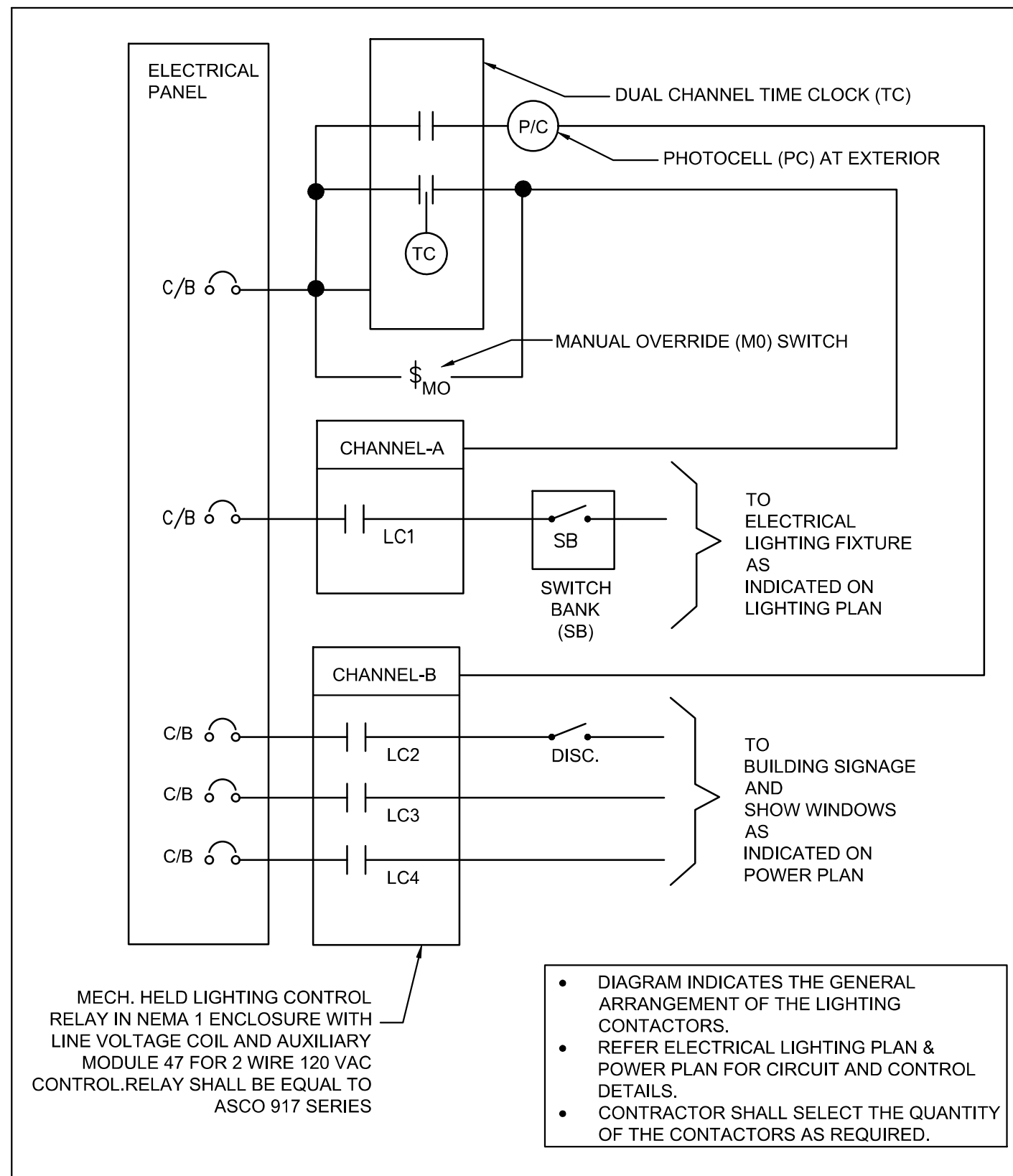
- A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.
- B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.
- C. OUTLETS SHALL BE:
  - 1) WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.
- D. PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.
- E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM OUTLET BOX TO BUSHED END THRU WALL 6" BELOW THE PLASTER CEILING.
- F. FACE RACEWAYS IN ROOMS SHALL HUBBELL HBL500, HBL750 OR HBL2000 SERIES OR AS ACCEPTABLE.

**GROUNDING AND BONDING:**

- A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH (2020 NATIONAL ELECTRICAL CODE WITH NO AMENDMENTS), AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM, WHERE FLEXIBLE CONDUIT IS USED FOR PART OF A CONDUIT RUN, EXCEPT LIGHTING BRANCH CIRCUITS, AN INSULATED GROUNDING CONDUCTOR SHALL BE PROVIDED IN THE CONDUIT AND CONNECTED TO GROUNDING BUSHINGS AT EACH END OF THE RUN.
- B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.
- C. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.
- D. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.
- E. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS:
  - 1) CIRCUITS SERVING ANY WALL BOX DIMMER.
  - 2) CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE, OR AS OTHER WISE NOTED ON DRAWINGS.
  - 3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES
  - 4) ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

ISSUED REVISIONS:	
△	BUILDING COMMENT
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**Blaze Pizza**  
Electrical Specification Sheet 2 of 2



**LIGHTING CONTACTORS (LC) TYPICAL DETAIL**

SCALE: N.T.S

LIGHT FIXTURE SCHEDULE								
TAG	QTY	FIXTURE DETAIL	MAKE	MODEL	LOAD IN VA	VOLTAGE	BATTERY	NOTES
P1	5	CC-CUSTOM COLOR / 93-WHITE INTERIOR / 91-BLACK CANOPY / CORD MOUNT	HI-LITE MFG CO	H-BPPEN361-3	100	120	-	-
R1	19	6" WHT. RECESSED	ENVISION	LED-RDL-JBX-5/6-15W-5CCT-WH-SM	15	120	NO	3
R1-EM	4	6" WHT. RECESSED w/EM	ENVISION	LED-RDL-JBX-5/6-15W-5CCT-WH-SM-EMB	15	120	YES	3
R2	12	6" WHT. RECESSED	ENVISION	LED-RDL-JBX-5/6-15W-5CCT-WH-SM	15	120	NO	1,2,3,5
LTR	1	LED ROPE LIGHTING	TBD	TBD	8W/FT	-	-	-
TR1	5	BACKLIT LED PANEL 2X4	ENVISION	LED-BPL-2X4-3M50-5CCT	50	120	NO	-
TR1-EM	1	BACKLIT LED PANELS 2X4 w/ EMERGENCY BACKUP	ENVISION	LED-BPL-2X4-3M50-5CCT-EMB	50	120	YES	-
LT8	9	8FT TRACK / (4) TRACK HEADS / BLACK	CONTECH / LF ILLUMINATION	LT8-B / TZA01-A-J-06C-9235-M-D1-1-BK	6	120	NO	2
EMC1	4	EMERGENCY EXIT SIGN / 90 MIN / DIRECTIONAL ARROWS / CLG. OR WALL MOUNTED	COOPER / SURE-LITE	APCH7R8K	1.31	-	-	3,4
EM	1	EMERGENCY LIGHT	TBD	TBD	-	-	YES	3,4
EMX	2	REMOTE DUAL HEADS LED EMERG. LIGHTS / 90 MIN. / 3.6V / BLACK	COOPER / SURE-LITE	APWR2BK	1	-	-	1,3,4

**NOTES:-**

- COORDINATE EXACT MAKE/MODEL NUMBER WITH THE OWNER/ARCHITECT.
- COORDINATE REQUIREMENT OF THE CURRENT LIMITER WITH THE VENDOR AND PROVIDE AS NEEDED.
- SELECT EQUIVALENT FIXTURE AT 120V OR PROVIDE ADAPTER OF TRANSFORMER AS NEEDED.
- THE LIGHT FIXTURE SHALL HAVE MINIMUM OF 90MINTS OF BATTERY BACKUP.
- WATTAGE HAS BEEN ASSUMED FOR COMCHECK.

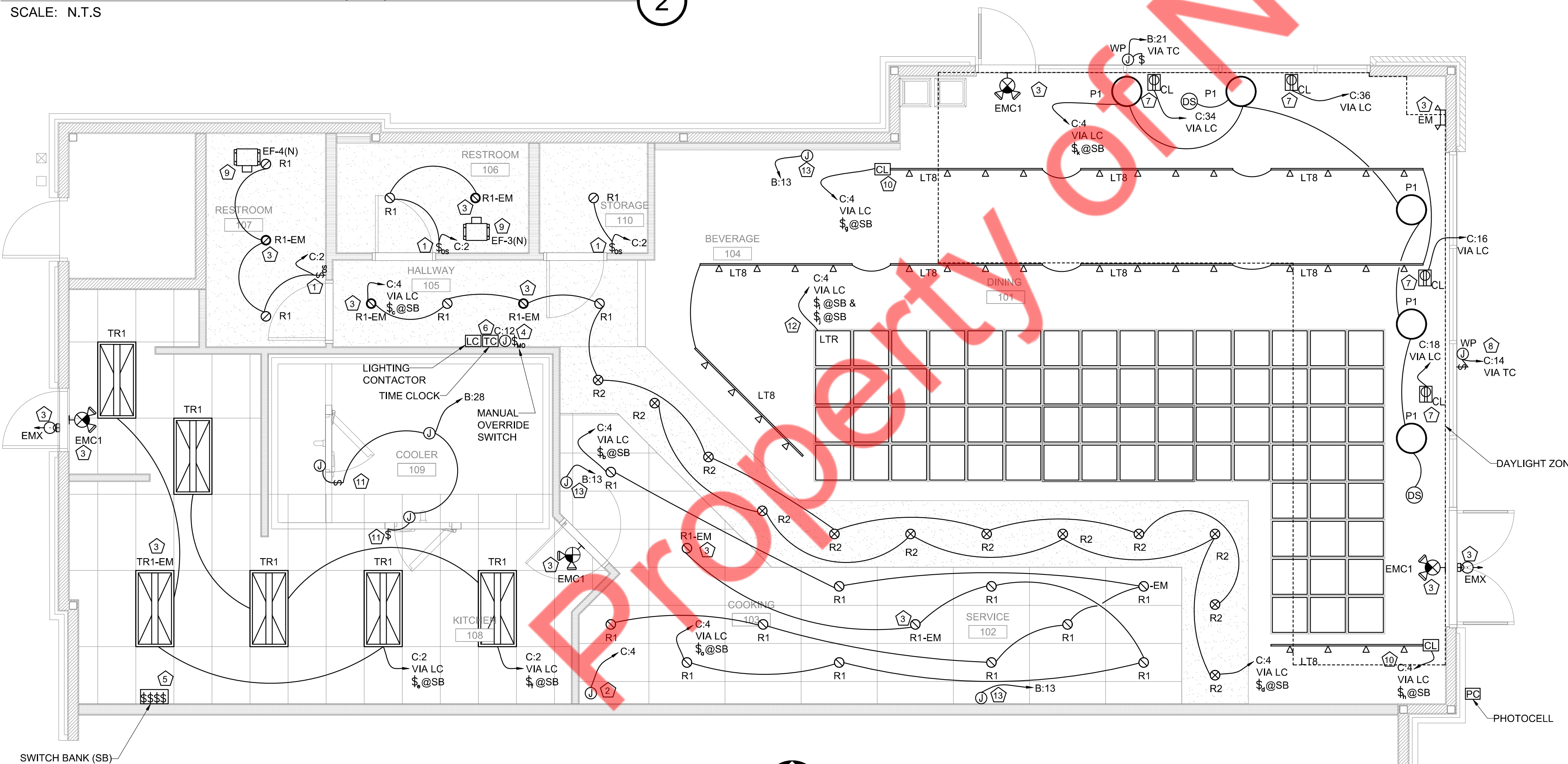
**LIGHTING FIXTURE SCHEDULE NOTES:**

- ALL (NEW) LIGHTING FIXTURES SHOWN ON THE LIGHTING FIXTURES SCHEDULE ARE SUBJECT TO THE ARCHITECT'S APPROVAL. E.C. SHALL COORDINATE MAKE, MODEL, FINISHES, AND OTHER CRITICAL PARAMETERS WITH THE ARCHITECT BEFORE PURCHASING.
- THE ADDITIONAL ACCESSORIES (VIZ. DRIVERS AND CURRENT LIMITERS) REQUIRED FOR THE PROPER WORKING OF THE LIGHTING FIXTURES MIGHT NOT BE PROVIDED BY THE VENDOR. E.C. SHALL PURCHASE IT SEPARATELY.
- ALL LIGHTING FIXTURES ARE RATED FOR 120V UNLESS OTHERWISE NOTED.
- ALL EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS SHALL HAVE A MINIMUM OF 90 MINUTES OF BATTERY BACKUP OR AS REQUIRED BY AHJ.
- WATTS PER FACE FOR EXIT SIGNS SHALL NOT EXCEED 5 WATTS.
- ALL LIGHTING CONTROLS SHALL BE PER AHJ AND CODE COMPLIANCE.

**LIGHTING PLAN GENERAL NOTES:**

- ELECTRICAL SWITCHES: CONTROLS AND SWITCHES INTENDED TO BE USED BY THE OCCUPANT OF A ROOM OR AREA TO CONTROL LIGHTING AND RECEPTACLE OUTLETS, APPLIANCES OR COOLING, HEATING AND VENTILATING EQUIPMENT, SHALL COMPLY WITH CODE EXCEPT THE LOW REACH SHALL BE MEASURED TO THE BOTTOM OF THE OUTLET BOX AND THE HIGH REACH SHALL BE MEASURED TO THE TOP OF THE OUTLET BOX.
- E.C. TO VERIFY REQUIREMENT OF THE NO. OF SWITCHES AND CONTROL PER PLAN AND PROVIDE ACCORDINGLY.
- MINIMUM #12 AWG COPPER WIRING SHALL BE USED FOR THE LIGHTING CIRCUIT.
- THE NEUTRAL AND GROUNDING ARE NOT SHOWN ON THE DRAWING. E.C. TO PROVIDE AS REQUIRED.
- EMERGENCY LIGHT SHALL TURN ON DURING POWER FAILURE WHEREAS ALL EXIT SIGNS SHALL BE PERMANENTLY ON.
- 1 RECEPTACLE PER 20 LINEAR FEET OF PERIMETER WALL, MINIMAL LIGHTING (ABOUT 1 LIGHT PER 96 S.F) WITH 3-WAY SWITCH AT THE FRONT AND REAR DOOR, POWER FOR BUILDING SIGN ON FRONT FACADE ON TIMER.
- EXIT SIGNS COMPLYING WITH 101.5-10 SHALL DEFINE EXITS AND ACCESS TO EXITS WHERE THE EXIT IS NOT IMMEDIATELY APPARENT.
- ALL LIGHT FIXTURES OVER FOOD SERVICE AREA SHALL HAVE LENS COVERS OR SHATTER PROOF BULBS.
- ALL WORK SHOWN SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, ORDINANCES, ETC.
- ALL EXIT SIGNS AND EMERGENCY LIGHTING COMPONENTS TO BE WIRED AHEAD OF LOCAL SWITCHES AND CONTROLS. NIGHT LIGHTS SHALL BE WIRED AHEAD OF ALL LOCAL CONTROLS.
- EXIT SIGNS AND EMERGENCY LIGHTS SHALL HAVE THEIR OWN SELF-CONTAINED (MINIMUM 90 STANDBY BATTERY POWER SUPPLY. IF LOCAL CODE REQUIRES A DIRECT TAP BEFORE ANY CIRCUIT BREAKERS THEN INCORPORATE INTO THE FEEDER DIAGRAM.
- LUMINAIRES INSTALLED IN CONTINUOUS ROWS SHALL BE GROUNDED WITH A CONDUCTOR ROUTED FROM LUMINAIRE TO LUMINAIRE, ATTACHED TO EACH WITH GROUNDING LUG OR ALIGNING CLIPS ARE NOT ACCEPTABLE. LUMINAIRE GROUNDING SHALL BE INSTALLED IN COMPLIANCE WITH NATIONAL ELECTRICAL CODE, ARTICLE 410-44.
- PROVIDE ENTIRELY SEPARATE RACEWAY SYSTEM FOR EMERGENCY LIGHTS OR EXIT SIGNS ONLY WHERE REQUIRED. CONNECT TO NORMAL ELECTRICAL SYSTEM WHERE ACCEPTABLE TO THE LOCAL CODE AUTHORITY.
- CONDUIT SHALL BE ELECTRICAL METALLIC (STEEL) TUBING (EMT), RIGID STEEL ( SIZE IN ACCORDANCE WITH NEC), OR MC CABLE WHERE ALLOWED BY CODE. WHERE MC CABLE IS USED, PROPER SECUREMENT AND SUPPORT (AT INTERVALS NOT EXCEEDING 6 FEET) SHALL BE FOLLOWED PER NEC ART. 330-30.
- PROVIDE EMERGENCY LIGHTING TO MEET THE REQUIRED FOOT CANDLE LEVEL PER LOCAL CODE.
- VERIFY ALL FIXTURE SPECIFICATIONS, COLOR TEMPERATURES, AND LUMEN OUTPUT VALUES WITH ARCHITECT PRIOR TO BID.
- E.C. SHALL REARRANGE (IF REQUIRED) THE EMERGENCY FIXTURES TO PROVIDE INITIAL ILLUMINATION THAT IS NOT LESS THAN AN AVERAGE OF 1 FOOTCANDLE (11 LUX) AND A MINIMUM AT ANY POINT OF 0.1 FOOTCANDLE (1 LUX) MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL. ILLUMINATION LEVELS SHALL BE PERMITTED TO DECLINE TO 0.6 FOOTCANDLE (6 LUX) AVERAGE AND A MINIMUM AT ANY POINT OF 0.06 FOOTCANDLE (0.6 LUX) AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40 TO 1 SHALL NOT BE EXCEEDED.

ISSUED REVISIONS:	
△	BUILDING COMMENT
△	
△	
△	
△	
△	



**ELECTRICAL LIGHTING PLAN**

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

**LIGHTING PLAN KEYED NOTES:**

- WALL MOUNTED OCCUPANCY SENSOR. SET OFF TIME TO 15 MINUTES FOR RESTROOM. SET DIP SWITCH TO AUTOMATIC ON.
- J-BOX FOR HOOD LIGHTS. HOOD LIGHT FIXTURES BY HOOD SUPPLIER, WIRED BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE BULBS IN FIXTURES AS REQUIRED. REFER TO HOOD DRAWINGS FOR DETAILS.
- LOOP ALL EMERGENCY LIGHT FIXTURES AND EXIT SIGNS, AND CONNECT THEM TO THE HOT (UN-SWITCHED) LEG OF THE NEAREST LIGHTING CIRCUIT.
- E.C. SHALL COORDINATE EXACT LOCATION OF MANUAL OVERRIDE SWITCH WITH ARCHITECT/OWNER.
- E.C. SHALL COORDINATE EXACT LOCATION OF SWITCH BANK (SB) WITH ARCHITECT/OWNER. ALSO COORDINATE THE EXACT NUMBER OF SWITCHES AS SHOWN IN THE PLAN. SWITCHES SHALL HAVE PILOT LIGHTS.
- E.C. SHALL COORDINATE EXACT LOCATION OF TIME CLOCK & LIGHTING CONTACTOR WITH ARCHITECT/OWNER.
- FOR SHOW WINDOW RECEPTACLE MOUNTING HEIGHT & LOCATION, E.C. TO COORDINATE WITH ARCHITECT/OWNER. RECEPTACLE TO BE CONTROLLED BY LIGHTING CONTACTOR. PROVIDE ACCORDINGLY.
- INSTALL A JUNCTION BOX AND A SWITCH FOR THE SIGNAGE IN AN ACCESSIBLE LOCATION. CONNECT THE SIGNAGE TO THE INDICATED CIRCUIT THROUGH THE LIGHTING CONTACTOR (LC). COORDINATE WITH THE OWNER OR LANDLORD TO DETERMINE THE EXACT SWITCH LOCATION AND SCHEDULE FOR THE TIME CLOCK.
- COORDINATE FOR RESTROOM EXHAUST FANS EF-3(N) AND EF-4(N) AS PER MECHANICAL DRAWINGS AND INTERLOCK WITH RESTROOM LIGHT.
- PROVIDE A 3-AMP CURRENT LIMITER FOR TRACK LIGHTING.
- NEW SWITCH (PILOT LIGHT) AND VAPOR-PROOF LIGHT FOR FREEZER/COOLER INTERIOR LIGHTING.
- PROVIDE POWER AND CONTROL WIRING FOR ROPE LIGHTING AS REQUIRED. COORDINATE EXACT WIRING REQUIREMENTS, CONTROL TYPE, AND ZONING WITH LIGHTING VENDOR. PROVIDE (2) SWITCHED SECTIONS FOR CODE-COMPLIANT B-LEVEL CONTROL VIA MANUAL SWITCHES AND TIMER CONTROLLED LIGHTING CONTACTOR.
- JUNCTION BOX FOR NEON WALL ART. COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT.

**Blaze Pizza**  
Electrical Lighting Plan

ELECTRICAL EQUIPMENT SCHEDULE														
TAG	QTY.	EQUIPMENT DESCRIPTION	MAKE	MODEL	INSTALL BY	PROVIDED BY	VOLTS	PHASE	AMPS	LOAD IN VA	C.B. AMPS/POLES	CONNECTION TYPE	WIRE HT. A.F.F.	NOTES
1.0	2	DOUGH PRESS- MANUAL	DOUGHXPRESS	D-TXM-2-18	KES	GC	220	1	15	3600	20/2P	NEMA 6-20P	VERIFY	1
4.1	1	REFRIGERATED SANDWICH UNIT w/s. INSUL. COVERS-60"	TRUE	TSSU-60-24M-B-ST-HC	KES	GC	120	1	6.5	780	20/1P	NEMA 5-15P	18"	1, 2
4.2	2	REFRIGERATED SANDWICH UNIT w/s. INSUL. COVERS-72"	TRUE	TSSU-72-30CM-B-ST-HC	KES	GC	120	1	7.2	864	20/1P	NEMA 5-15P	18"	1, 2
5	1	PRINTER	EPSON	TM-88III	VENDOR	GC	120	1	1.6	192	20/1P	NEMA 5-20R	18"	1, 2
5.1	1	LABEL PRINTER	EPSON	TML-90 PLUS	VENDOR	GC	120	1	1.6	192	20/1P	NEMA 5-20R	18"	1
6	1	FRONT BREATHING REFRIGERATED DISPLAY CASE w/ CASTERS	FEDERAL	ELPRS53-BP	KES	GC	120	1	16	1920	20/1P	NEMA 5-20P	18"	1, 2
7.1	1	EXHAUST HOOD	WOODSTONE	SG-BDL-0-WS-47-FF	KES	GC	208	1	5.4	1123	15/2P	HARDWIRE, 2P DISCONNECT	VERIFY	1, 5
7.2	1	ANSUL SYSTEM	ANSUL	R-102	GC	GC	120	1	1.5	180	20/1P	HARDWIRE, 1P DISCONNECT	VERIFY	1, 5
7.5	1	ELECTRIC VENTLESS CONVEYOR OVEN, SNGL STACK-COUNTERTOP	MIDDLEBY	PS2020E-V-1	KES	GC	208	3	40	14394	50/3P	NEMA 15-50P	VERIFY	1, 5, 6
7.RO	1	ONEREV ROTATING OVEN	WOOD STONE	WS-RV-7880	KES	GC	120	1	1.1	132	20/1P	HARDWIRE, 1P DISCONNECT	VERIFY	1, 5, 6
13	1	TEA BREWER	BUNN	TB3Q	COKE	COKE	120	1	14	1680	20/1P	NEMA 5-20R	48"	1
15	1	COKE AND ICE DISPENSER	LANCER	BD4500-30	COKE	COKE	120	1	3	360	20/1P	NEMA 5-20R	-	1
16	2	BEVERAGE DISPENSER	VOLLRATH	VB8E2-37-7	KES	GC	120	1	5.5	660	20/1P	NEMA 5-15P	48"	1
20	1	UNDERCOUNTER REFRIGERATOR	TRUE	TUC-27-HC	KES	GC	120	1	2	240	20/1P	NEMA 5-15P	18"	1
25	1	DOUGH ROUNDER	SOMERSET IND.	SDR-4008Z	KES	GC	120	1	13.8	1656	20/1P	HARDWIRE, 1P DISCONNECT	18"	1
26	1	FOOD MIXER	HOBART	HL662-1STD	KES	GC	208	3	10	3598	20/3P	HARDWIRE, 3P DISCONNECT	48"	1
28	1	HOT WATER DISPENSER	BUNN	HSX ELEMENT SST 43600.0026	KES	GC	120	1	12.5	1500	20/1P	HARDWIRE, 1P DISCONNECT	48"	1
32	1	PRODIGY ELITE 1,000LB MODULAR CUBE ICE MACHINE w/o BIN	SCOTSMAN	MC1030SA-32	KES	GC	208	1	16	3328	20/2P	HARDWIRE, 2P DISCONNECT	VERIFY	-
33	1	BAG-IN-BOX AND CARBONATOR SYSTEM	-	-	VENDOR	VENDOR	120	1	5	600	20/1P	NEMA 5-20R	VERIFY	1
44DM	1	DISHMACHINE - HT, INSUL,O-LIME, FILTER,DET.D,80R/H-208V	ELECTROLUX	504263	KES	GC	208	3	28	10076	35/3P	HARDWIRE, 3P DISCONNECT	VERIFY	1
46	2	WATER HEATER - TANKLESS	RINNAI	CU199E-N	GC	GC	120	1	-	-	20/1P	HARDWIRE, 1P DISCONNECT	VERIFY	1
47	1	WALK-IN COOLER/FREEZER	KOLPAK	A034071R2	KES	GC	208	1	10.4	2163	20/2P	HARDWIRE, 2P DISCONNECT	VERIFY	1, 3, 4
52	2	POS TERMINAL	-	-	SDCR	SDCR	-	-	-	-	-	CASH DRAWER MOUNTED AT UNDERSHELF	VERIFY	-
98	1	POS SYSTEM	SDCR	SDCR	VENDOR	VENDOR	120	1	3.5	420	20/1P	NEMA 5-20R	VERIFY	1

NOTES:-

1. VERIFY EXACT CORD AND PLUG REQUIREMENTS AND MOUNTING HEIGHT FOR ALL EQUIPMENT WITH EQUIPMENT VENDOR/OWNER PRIOR TO COMMENCING ROUGH-IN.

2. MOUNT ELECTRICAL DEVICE IN CASEWORK. RACEWAY TO BE MOUNTED WITHIN CASEWORK (OR WALL) SO AS TO BE CONCEALED FROM VIEW.

3. ELECTRICAL CONTRACTOR TO PROVIDE ALL POWER AND CONTROL WIRING NECESSARY FOR A COMPLETE INSTALLATION OF WALK-IN COOLERS AND FREEZERS. THIS INCLUDES WIRING AND CONNECTIONS TO LIGHTS, SWITCHES, EVAPORATORS, CONDENSING UNITS, DEFROST TIMERS, DOOR HEATERS, ETC. COORDINATE INSTALLATION WITH KITCHEN EQUIPMENT SUPPLIER. ALL PENETRATIONS INTO UNITS SHALL BE WATER TIGHT AND PROPERLY SEALED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. ALL ELECTRICAL DEVICES WITHIN WALK-IN UNITS SHALL BE WEATHERPROOF.

4. WALK-IN COOLER IS A SPLIT SYSTEM WITH COMPRESSOR LOCATED OUTDOORS.

5. PROVIDE ELECTRICAL POWER/CONTROL CIRCUITS TO EXHAUST FANS. INTERLOCK FOR SIMULTANEOUS OPERATION. SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION. COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT REQUIREMENTS.

6. PROVIDE INTERLOCK WITH KITCHEN HOOD ANSUL FIRE SUPPRESSION. PROVIDE FOR SHUT-OFF OF ALL AIR MOVING EQUIPMENT AND TO ELECTRICAL OUTLETS SERVING EQUIPMENT UNDER HOOD.

7. PROVIDE 6 FT. MOLDED CASE RECEPTACLE AND PLUG OF NEMA CONFIGURATION LISTED. PLUG TO BE WIRED DIRECTLY TO EQUIPMENT TERMINAL STRIP. RECEPTACLES RATED OVER 20A SHALL HAVE TWIST LOCKS.

\*\* EQUIPMENT SCHEDULE IS PROVIDED BY CORPORATE APPROVED KES. CONTRACTOR SHALL CONFIRM MAKE, MODEL, AND SIZE PRIOR TO ORDERING ANY EQUIPMENT. IF ANY DISCREPANCIES EXIST IN SIZE, MAKE, OR MODEL THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND ARCHITECT AND AWAIT FOR DIRECTION. SHOULD CONTRACTOR ORDER EQUIPMENT WITHOUT CONFIRMATION, CONTRACTOR DOES SO AT OWN RISK AND ANY ASSOCIATED COST.

POWER PLAN GENERAL NOTES:

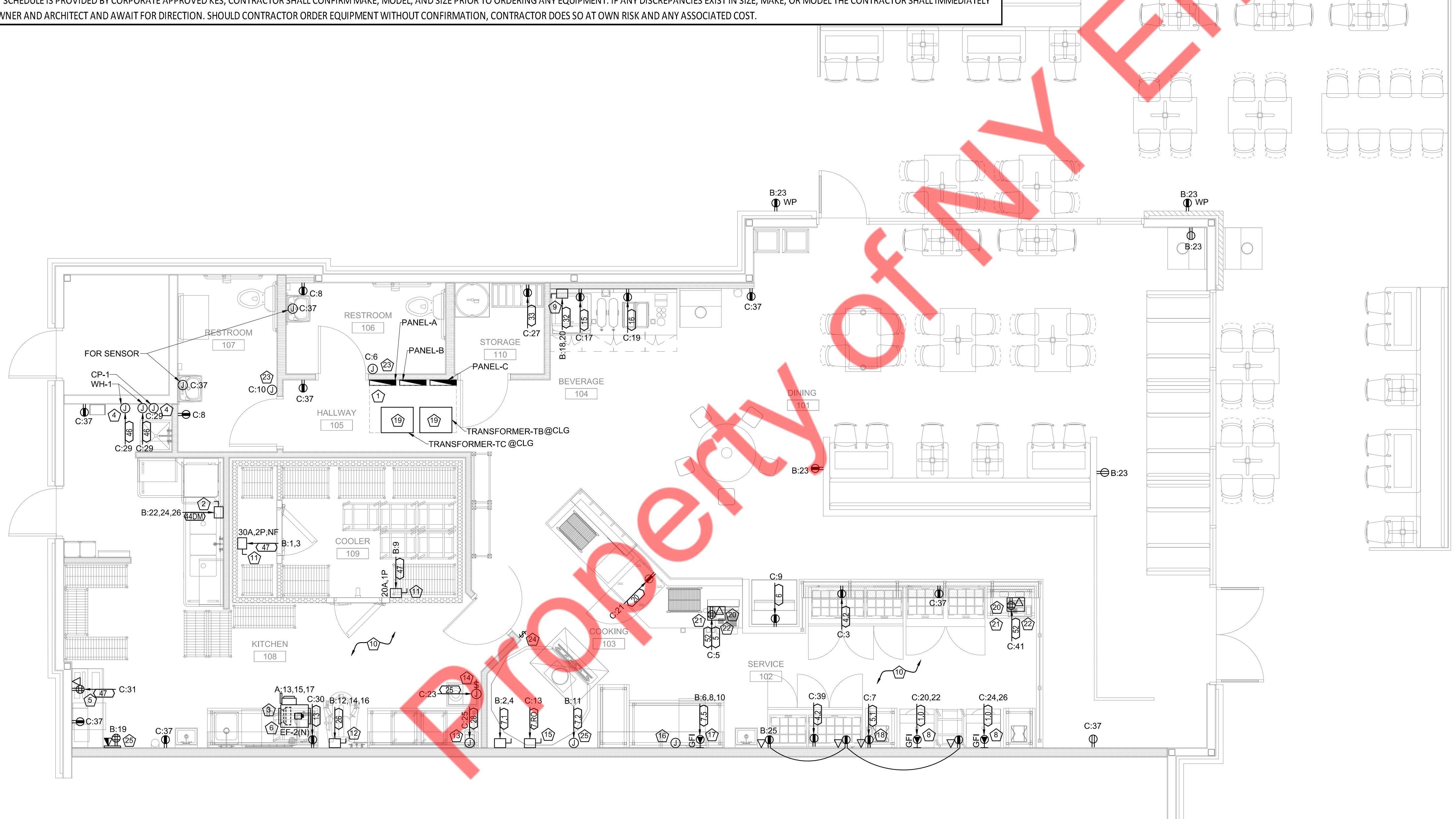
- THE LOCATION OF ALL ELECTRICAL EQUIPMENT (NOT PROVIDED IN THE ARCHITECTURAL PLAN) SHALL BE VERIFIED WITH THE ARCHITECT/OWNER BEFORE BID.
- POWER AND LOCATION OF ALL THE MECHANICAL AND PLUMBING UNITS SHALL BE COORDINATED WITH THE RESPECTIVE CONTRACTORS BEFORE BID.
- ELECTRICAL OUTLETS PLACED ON BOTH SIDES OF THE WALL PARTITION TO BE LOCATED OFFSET OF EACH OTHER.
- THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.
- ALL 125V-250V RECEPTACLES SUPPLIED BY SINGLE-PHASE CIRCUITS RATED 150V OR LESS TO GROUND, 50A OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE PHASE BRANCH CIRCUIT RATED 150V OR LESS TO GROUND, 100A OR LESS INSTALLED IN THE LOCATIONS SPECIFIED IN NEC 210.8(B)(1) THROUGH (12) SHALL HAVE GFCI PROTECTION.
- GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE A GFI RECEPTACLE DISCONNECT IN THE READILY ACCESSIBLE LOCATION. PROVIDE GFI BREAKER IN THE PANEL IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE WHEN INSTALLED IN THE DESIRED LOCATION.
- E.C. TO PROVIDE 4"x4"x3/4" FIRE RATED PLYWOOD TELEPHONE BOARD. PROVIDE (1)2GND TO SERVICE GROUND. VERIFY LOCATION WITH LANDLORD/OWNER PRIOR TO ROUGH-IN.
- E.C. TO VERIFY WITH AHJ FOR ANY OTHER INSTALLATION REQUIREMENTS FOR EXPOSED CONDUIT.
- COORDINATE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS OF THE THERMOSTATS AND MOTORIZED DAMPERS WITH THE MECHANICAL DRAWINGS IN THE FIELD. PROVIDE WIRING AS REQUIRED.
- RECEPTACLES TO BE MOUNTED AT 24" A.F.F. UNLESS OTHERWISE NOTED.
- COORDINATE LV EQUIPMENT WITH LV VENDOR AND PROVIDE CIRCUITING IF NEEDED.

ELECTRICAL POWER PLAN KEY NOTES:

- CLEAR WORKING & DEDICATED SPACE SHALL BE PROVIDED FOR THE ELECTRICAL PANELS IN ACCORDANCE WITH THE NEC 110.26.
- EC TO PROVIDE 60A, 3-POLE, NON FUSED, NEMA 4X, STAINLESS STEEL DISCONNECT FOR DISHMACHINE #44DM. EC TO PROVIDE (3)#8, (1)#10G, IN 3/4"C.
- E.C. SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT & INTERLOCKING OF THE HVAC UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROLS AS REQUIRED.
- E.C. SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE PLUMBING UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROLS AS REQUIRED.
- (1) DUPLEX & (1) COMBING DATA TELEPHONE OUTLET FOR MANAGER'S DESK POS STATION. E.C. TO VERIFY FINAL LOCATION AND MOUNTING HEIGHT OF OUTLETS WITH ARCHITECT PRIOR TO ROUGH-IN.
- INTERLOCK EF-2(N) WITH RTU-2(N).
- E.C. SHALL COORDINATE WITH HOOD VENDOR FOR ANSUL SYSTEM LOCATION AND CONNECTION REQUIREMENTS.
- DOUGH PRESS: PROVIDE 208V NEMA 6-20P RECEPTACLE AND DEDICATED 20A CIRCUIT (FOR MANUAL PRESS). OUTLETS MOUNTED AT 18" AFF AT EACH DOUGH PRESS LOCATION. (2)#10, (1)#10G
- ICE MACHINE: PROVIDE 30A, 2-POLE, NEMA 4X STAINLESS STEEL DISCONNECT SWITCH FOR #9 ICE MACHINE. PROVIDE ALL CONDUIT, WIRE AND COMPONENTS FOR FULL CONTROL.
- VERIFY EXACT MOUNTING HEIGHT WITH OWNER AND EQUIPMENT MANUFACTURER. VERIFY EXACT REQUIREMENT WITH EQUIPMENT MANUFACTURER PRIOR TO CONSTRUCTION.
- NEW WALK-IN COOLER/FREEZER EVAPORATOR: EC TO PROVIDE NEW WEATHERPROOF NON-FUSED DISCONNECT SWITCH FOR COOLER EVAPORATOR. PROVIDE 3/4"C, 2#12, #12 GND. FOR COMPLETE WORKING SYSTEM. EC TO VERIFY ALL REQUIREMENTS WITH MANUFACTURER PRIOR TO INSTALLATION.
- FOOD MIXER: PROVIDE A 30A 3-POLE NON-FUSED NEMA 4X STAINLESS STEEL DISCONNECT SWITCH FOR #26 FOOD MIXER. PROVIDE 3/4"C, 3#12, #12 GND.
- HOT WATER DISPENSER: PROVIDE A J-BOX WITH 20A 1-POLE TOGGLE DISCONNECT SWITCH FOR #28 HOT WATER DISPENSER.
- DOUGH ROUNDER: PROVIDE A J-BOX WITH 20A 1-POLE TOGGLE DISCONNECT SWITCH FOR #25 DOUGH ROUNDER. PROVIDE 1/2"C, 2#12, #12 GND. EC TO VERIFY LOCATION PRIOR TO ROUGH-IN WITH GC AND OWNERS REPRESENTATIVE.
- PIZZA OVEN: PROVIDE A J-BOX WITH 20A 1-POLE TOGGLE DISCONNECT SWITCH FOR #7 PIZZA OVEN. CONNECT POWER CORD TO DISCONNECT AND TO PIZZA OVEN TERMINAL STRIP PER MANUFACTURER'S INSTRUCTION. PROVIDE FOR AUTOMATIC SHUT-OFF OF POWER UPON ACTIVATION OF KITCHEN HOOD FIRE SUPPRESSION SYSTEM.
- EC TO PROVIDE JUNCTION BOX WITH COVERPLATE AND CONDUIT AND PULLSTRING FOR FUTURE STACK OVEN CONNECTION. VERIFY WITH OWNER FOR SPECIFICATION.
- CONVEYOR PIZZA OVEN: VERIFY WITH MANUFACTURER SPECIFICATION FOR DEVICE REQUIRED FOR INSTALLATION OF CONVEYOR PIZZA OVEN. EC TO PROVIDE (3)#6, (1)#8G, IN 1"C TO CIRCUIT SPECIFIED.
- PRINTER POWER/DATA: PROVIDE 120 VOLT I.G. DUPLEX RECEPTACLE FOR PRINTER POWER AND J-BOX WITH ONE RJ-45 CAT5E FEMALE CONNECTOR FOR PRINTER @ 18" A.F.F. PROVIDE 1/2" CONDUIT WITH ONE PLENUM RATED CAT5E 24AWG SOLID COPPER CABLES (EIA/TIA 568B PAIR1-BLUE, PAIR2-ORANGE, PAIR3-GREEN, PAIR4-BROWN STRAIGHT THROUGH - NO CROSS-OVER) FROM PRINTER TO PATCH PANEL LOCATED AT MANAGER'S DESK. RECEPTACLES TO BE LOCATED ON PONY WALL OR INTERIOR WALL. MOUNT ON EXTERIOR OR DEMISING WALL.
- WALL/CEILING HUNG TRANSFORMER. E.C. SHALL COORDINATE MOUNTING ACCESSORIES WITH THE VENDOR. WEIGHT-BEARING CAPACITY WITH THE STRUCTURAL ENGINEER, AND OPEN INSTALLATION REQUIREMENTS WITH THE ARCHITECT BEFORE INSTALLATION.
- MAIN POS WORKSTATION POWER: PROVIDE NEMA QUADPLEX ISOLATED GROUND RECEPTACLE FOR POS EQUIPMENT ON DEDICATED CIRCUIT. MOUNT RECEPTACLE @ 18" A.F.F. AND WITHIN 3 FT. OF POS STATION. RECEPTACLE SHALL BE ORANGE AND LABELED "FOR POS ONLY". VERIFY WITH OWNER POS REQUIREMENTS PRIOR TO CONSTRUCTION.
- MAIN POS WORKSTATION DATA: PROVIDE J-BOX WITH TWO RJ45 CAT5E FEMALE CONNECTORS UNDER COUNTER AT AT EACH POS TERMINAL. PROVIDE 3/4" CONDUIT WITH TWO PLENUM RATED CAT5E 24AWG SOLID COPPER CABLES (EIA/TIA 568B PAIR1-BLUE, PAIR2-ORANGE, PAIR3-GREEN, PAIR4-BROWN STRAIGHT THROUGH - NO CROSS-OVER) FROM POS WORKSTATION TO PATCH PANEL LOCATED AT MANAGER'S DESK. GENERAL CONTRACTOR TO PROVIDE ACCESS HOLE IN MILLWORK SURFACE WITH GROMMET.
- CORD CONNECTION: GENERAL CONTRACTOR TO PROVIDE CORD HOLE WITH GROMMET IN COUNTERTOP FOR POWER CORD CONNECTION TO UNDER-COUNTER RECEPTACLE.
- E.C. TO COORDINATE WITH OWNER/ARCHITECT FOR THE CORRECT LOCATION OF HAND DRYER.
- EXHAUST SYSTEM CONTROL & INTERLOCK: INTERLOCK RTUs WITH EXHAUST FAN FOR SIMULTANEOUS OPERATIONS. INTERLOCK OVEN TO ALLOW OPERATION ONLY WHEN EXHAUST FAN IS ON. COORDINATE INTERLOCK WITH MECHANICAL CONTRACTOR AND KITCHEN EQUIPMENT SUPPLIER. ALL FANSHOODS SHALL BE ACTIVATED BY A WALL MOUNTED TOGGLE SWITCH. VERIFY WITH OWNER EXACT LOCATION.
- A QUAD AND DATA/TELEPHONE OUTLETS ARE TO BE PROVIDED ON THE PLYWOOD BACKING DESIGNED FOR THE LV. RACK. EXTEND THE CONDUIT FROM THE LV. RACK UP TO THE LOCATION DECIDED BY THE LANDLORD/OWNER/L.V. VENDOR OR SERVICE PROVIDER.
- EXTEND/PROVIDE CONDUIT AND NEW FEEDER FROM THE EXISTING STUB UP PROVIDED BY THE LANDLORD UP TO THE PANEL LOCATION AS SHOWN IN THE RISER DIAGRAM.

KITCHEN EQUIPMENT NOTES:

- ALL COVERPLATES AND DISCONNECT SWITCHES IN KITCHEN AREA SHALL BE STAINLESS STEEL.
- ALL ELECTRICAL WORK FOR FOOD SERVICE EQUIPMENT SHALL BE COMPLETELY INTERWIRED BY ELECTRICAL CONTRACTOR. FINAL CONNECTIONS TO EQUIPMENT JUNCTION BOX OR PULL BOX, AND ALL ELECTRICAL WORK FROM PANEL BOARDS, TO BE BY THE ELECTRICAL CONTRACTOR.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ROUGH-IN AND FINAL CONNECTION TO THE FOOD SERVICE EQUIPMENT. ALL WORK TO BE IN COMPLIANCE WITH ALL NATIONAL, STATE AND LOCAL CODES APPLICABLE.
- VERIFY OUTLET RATING AND CONFIGURATION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- VERIFY EXACT LOCATION AND MOUNTING HEIGHTS OF ALL OUTLETS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL PLUGS AND CORDS REQUIRED. ALL CORDS SHALL BE NEMA RATED AND UL APPROVED FOR MANUFACTURER AND EQUIPMENT.
- ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL JUNCTION BOXES, PVC OR METAL CONDUIT, CONVENIENCE OUTLETS WITH COVERS, SWITCHES, CONNECTORS, CONTROLS, AND OTHER ACCESSORIES THAT ARE NOT AN INTEGRAL PART OF THE FOOD SERVICE EQUIPMENT AS REQUIRED TO MAKE FINAL CONNECTIONS TO THE FOOD SERVICE EQUIPMENT FOR A COMPLETE AND FUNCTIONAL OPERATION MEETING ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES.
- ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL DISCONNECTS OR CIRCUIT BREAKERS AS REQUIRED BY CODES FOR EACH CONNECTION. COORDINATE LOCATION WITH THE KITCHEN EQUIPMENT CONTRACTOR.
- ALL 15AMP AND 20AMP, 125V-2P-3W RECEPTACLES IN KITCHEN AND COUNTER AREAS SHALL BE GFCI TYPE RECEPTACLES PER N.E.C. 210-8(B)
- E.C. TO VERIFY WITH AHJ FOR ANY OTHER INSTALLATION REQUIREMENTS FOR EXPOSED CONDUIT.



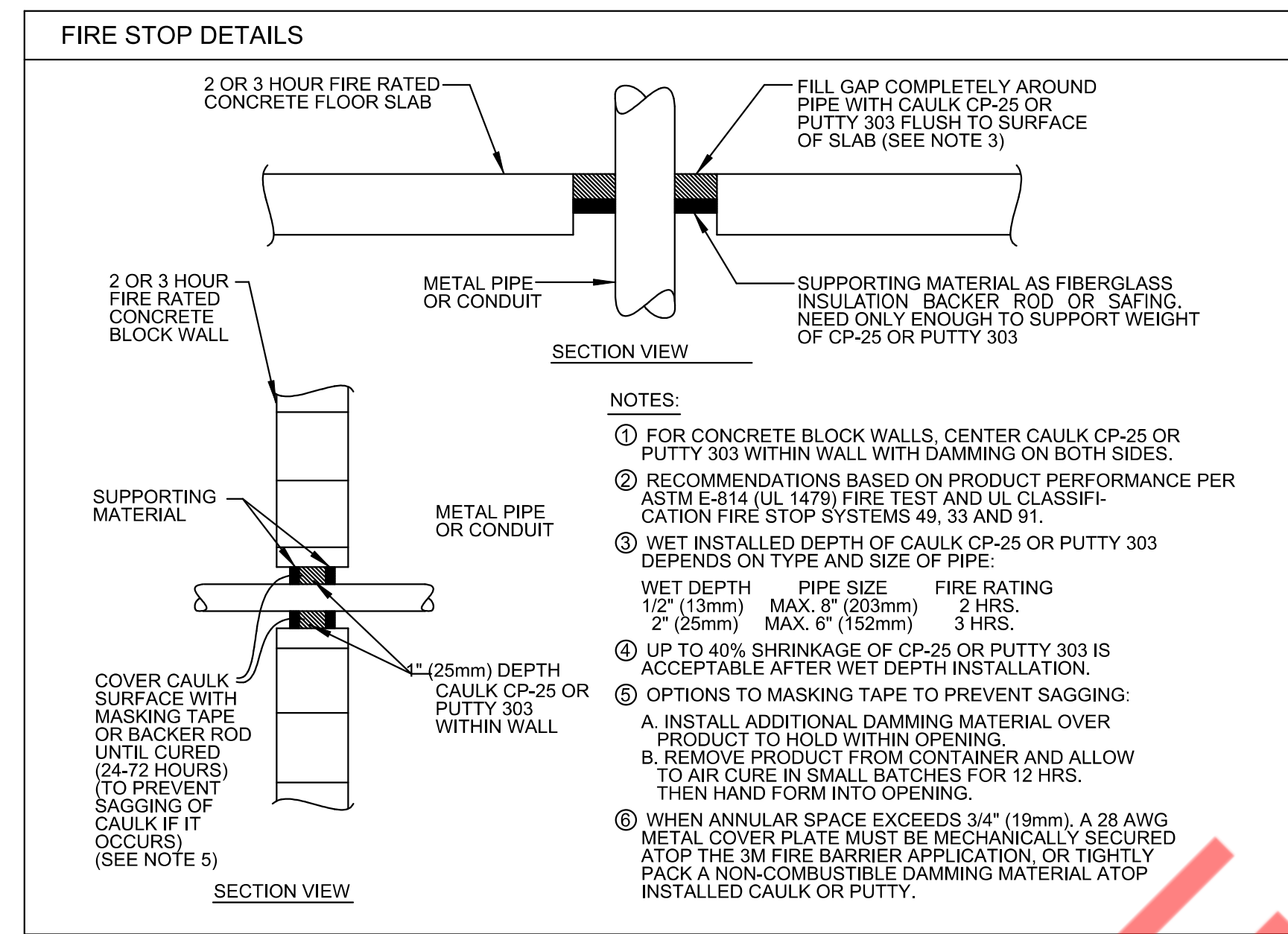
ELECTRICAL FLOOR POWER PLAN  
SCALE: 1/4"=1'-0"

ISSUED REVISIONS:	
NO.	DESCRIPTION

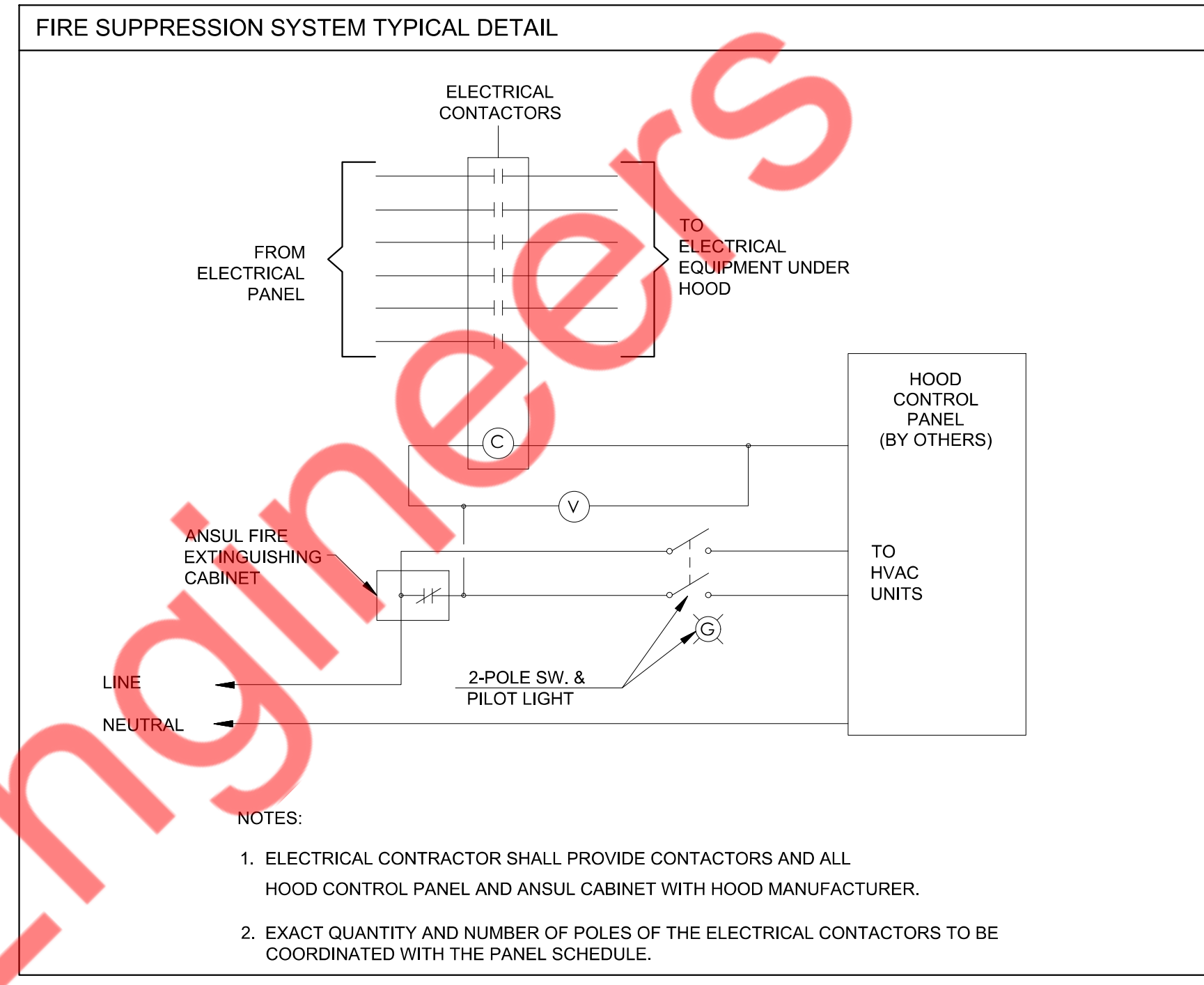
BLAZE PIZZA  
Electrical Floor Power Plan

- ROOF PLAN GENERAL NOTES:**
- ALL THE ELECTRICAL ELEMENT VIZ. CONDUITS, WIRING, AND DISCONNECT SWITCHES SHALL BE RATED FOR THE EXTERIOR USE.
  - THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.
  - GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE A GFI BREAKER IN THE PANEL FOR THE INDICATED CIRCUIT IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE.
  - A 125-VOLT, SINGLE-PHASE, 15- OR 20-AMPERE-RATED RECEPTACLE OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION WITHIN 7.5 M (25 FT) OF THE EQUIPMENT AS SPECIFIED IN 210.63(A) AND (B) AS PER NEC 210.63.

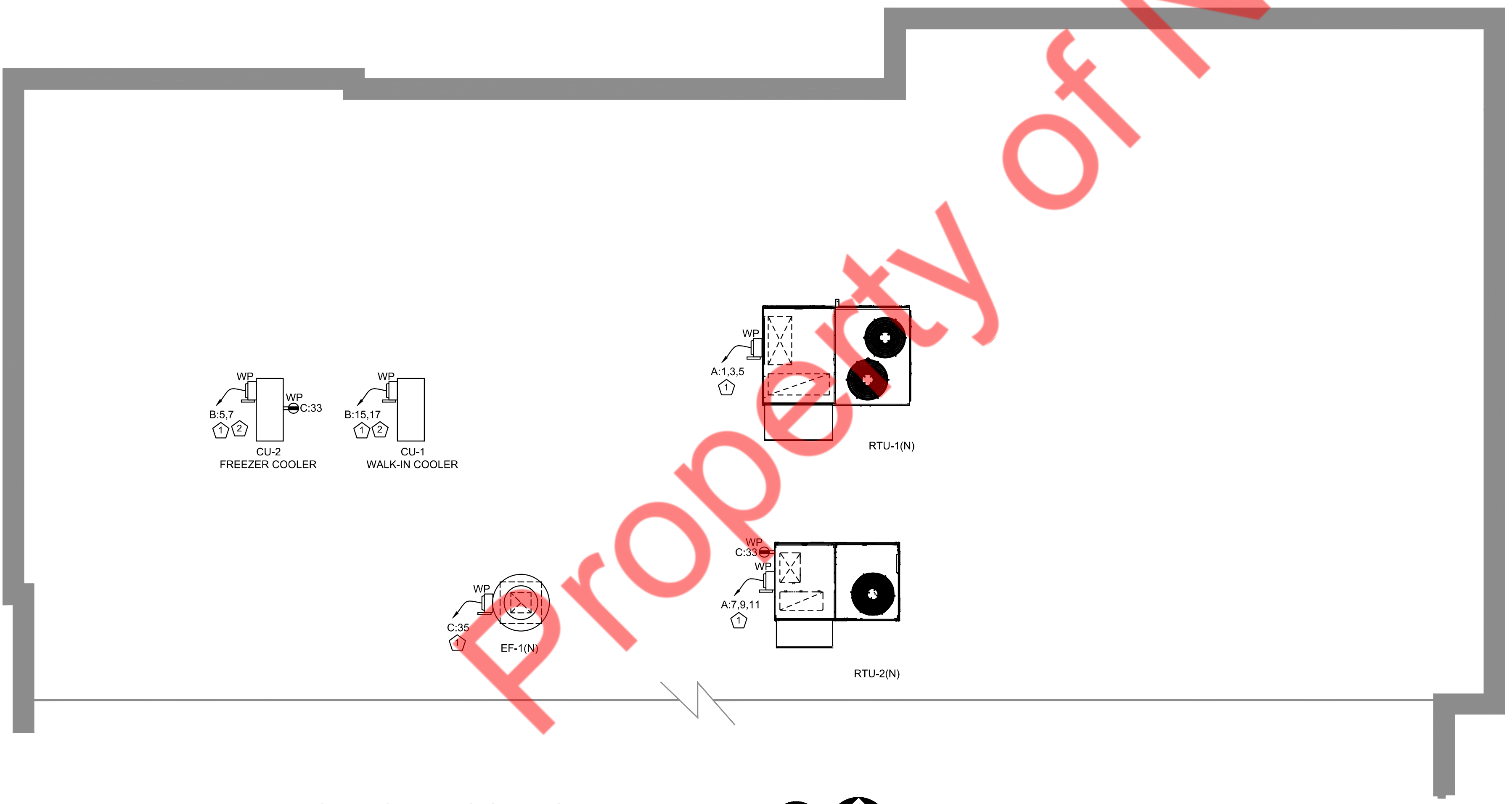
- ROOF PLAN KEY NOTES:**
- E.C. SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE HVAC UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROLS AS REQUIRED.
  - WALK-IN COOLER/FREEZER COMPRESSOR: PROVIDE A WEATHERPROOF 30A 2-POLE NON-FUSED DISCONNECT SWITCH FOR WALK-IN COOLER REMOTE COMPRESSOR UNIT AND WALK-IN FREEZER REMOTE COMP AND EVAPHEATER. INSTALL 3/4" C, 2#10, 1#10GND.



**FIRE STOP DETAIL** ②  
SCALE: N.T.S



**FIRE SUPPRESSION SYSTEM TYPICAL DETAIL** ③  
SCALE: N.T.S



**ELECTRICAL ROOF POWER PLAN** ①  
SCALE: 1/4"=1'-0"

ISSUED REVISIONS:	
△	BUILDING COMMENT
△	
△	
△	
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Blaze Pizza  
Electrical Roof Power Plan

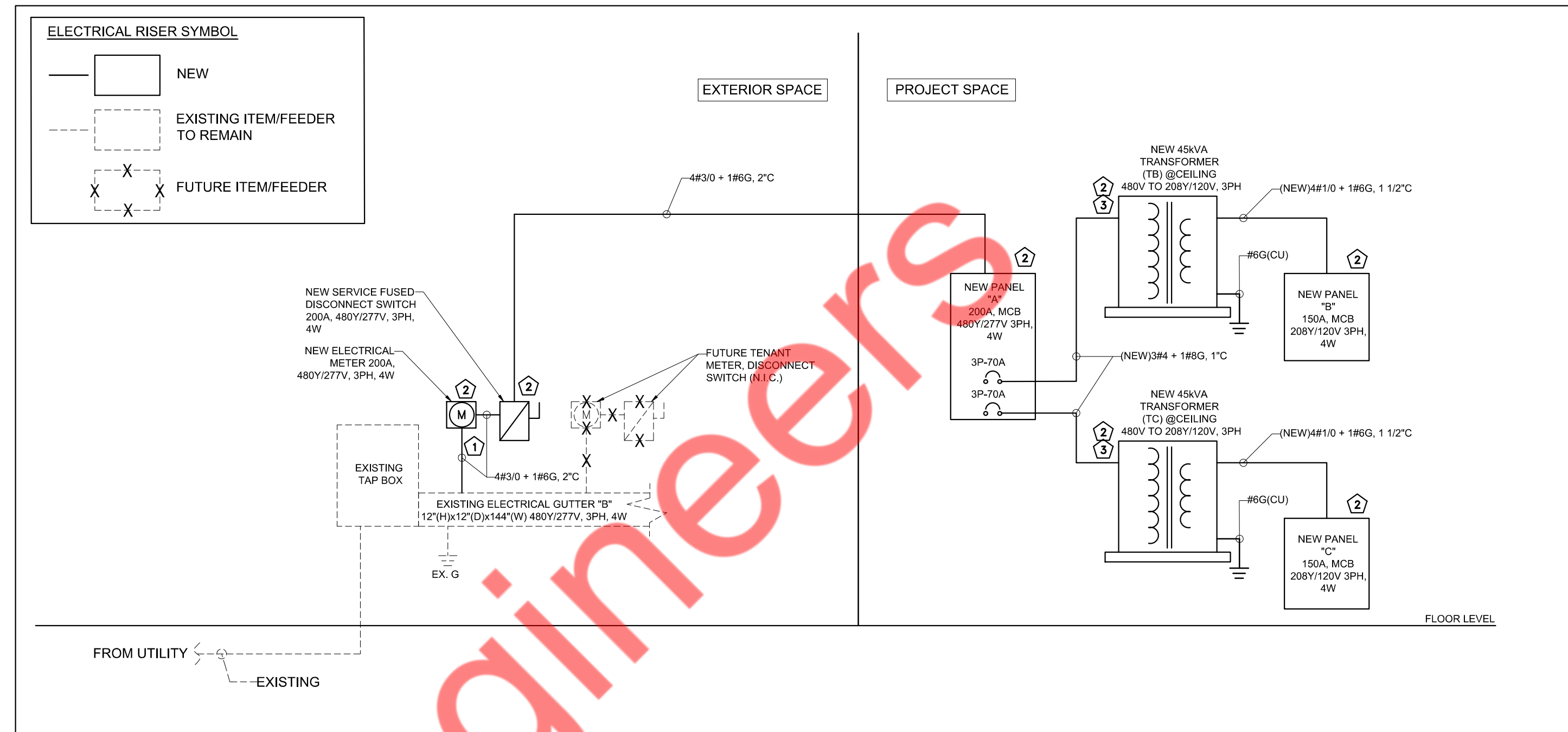
PANEL: A (NEW)												MOUNTING: SURFACE		
480Y/277		PHASE 3										PANEL LOCATION: HALLWAY		
200A MCB		WIRE 4										FED FROM: METER VIA SER. DIS.		
		DEMAND LOAD 93.12												
		DEMAND CURRENT 112.13												
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1			H	5.26		A	B	C		11.05	X	PANEL-B VIA TB (45kVA)	70/3P	2
3	25/3P	RTU-1(N)	H	5.26	RWC	16.31			RRF	11.05	X			4
5			H	5.26						11.05	X			6
7			H	3.60		14.25			RRF	10.65	X	PANEL-C VIA TC (45kVA)	70/3P	8
9	20/3P	RTU-2(N)	H	3.60	RWC	14.25				10.65	X			10
11			H	3.60						10.65	X			12
13			M	0.39		0.39						SPACE		14
15	15/3P	EF-2(N)	M	0.39	RWC	0.39						SPACE		16
17			M	0.39								SPACE		18
19		SPACE				0.00						SPACE		20
21		SPACE				0.00						SPACE		22
23		SPACE				0.00						SPACE		24
25		SPACE				0.00						SPACE		26
27		SPACE				0.00						SPACE		28
29		SPACE				0.00						SPACE		30
31		SPACE				0.00						SPACE		32
33		SPACE				0.00						SPACE		34
35		SPACE				0.00						SPACE		36
37		SPACE				0.00						SPACE		38
39		SPACE				0.00						SPACE		40
41		SPACE				0.00						SPACE		42
						30.94	30.94	30.94						

PANEL: B (NEW)												MOUNTING: SURFACE		
208Y/120		PHASE 3										PANEL LOCATION: HALLWAY		
150A MCB		WIRE 4										FED FROM: PANEL-A VIA TB		
		DEMAND LOAD 33.14												
		DEMAND CURRENT 92.10												
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20/2P	47 - WALK-IN FREEZER - EVAPORATOR/HEATER	O	1.08	RWC	A	B	C		0.56	O	7.1 - EXHAUST HOOD	15/2P	2
3			O	1.08		1.64				0.56	O			4
5	20/2P	47 - WALK-IN FREEZER - COMPRESSOR	O	1.31	RWC	6.11				4.80	E	7.5 - ELECTRIC VENTLESS CONVEYOR OVEN	50/3P	6
7			O	1.31						4.80	E			8
9	20/1P	47 - WALK-IN COOLER - EVAPORATOR	O	0.22	RWC	5.02				4.80	E			10
11	20/1P	7.2-ANSUL SYSTEM	O	0.18	RWC	1.38				1.20	E			12
13	20/1P	NEON WALL ART	L	0.30	RWC	1.50				1.20	E	26 - FOOD MIXER	20/3P	14
15			O	1.13		2.33				1.20	E			16
17	20/2P	47 - WALK-IN COOLER - COMPRESSOR	O	1.13	RWC	2.80				1.66	E	32 - PRODIGY ELITE 1,000LB MODULAR CUBE ICE MACHINE	20/2P	18
19	20/1P	DATA RACK	R	0.36	RWC	2.02				1.66	E			20
21	20/1P	BUILDING SIGNAGE	L	1.20	RWC	4.56				3.36	E			22
23	20/1P	GENERAL RECEPTACLES	R	0.90	RWC	4.26				3.36	E	44DM - DISHMACHINE	35/3P	24
25	20/1P	MENU BOARD	R	0.54	RWC	3.90				3.36	E			26
27	20/1P	SPARE				0.48				0.48	O	WALK-IN BOX - LIGHTING, DOOR HTR. COND	20/1P	28
29	20/1P	SPARE				0.00						SPACE		30
31	20/1P	SPARE				0.00						SPACE		32
33		SPACE				0.00						SPACE		34
35		SPACE				0.00						SPACE		36
37		SPACE				0.00						SPACE		38
39		SPACE				0.00						SPACE		40
41		SPACE				0.00						SPACE		42
						15.18	14.03	14.55						

PANEL: C (NEW)												MOUNTING: SURFACE		
208Y/120		PHASE 3										PANEL LOCATION: HALLWAY		
150A MCB		WIRE 4										FED FROM: PANEL-A VIA TC		
		DEMAND LOAD 31.95												
		DEMAND CURRENT 88.79												
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA)			NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20/1P	4.1 - REFRIGERATED SANDWICH UNIT	E	0.78	RWC	1.78				1.00	L	LIGHTING - KITCHEN, RESTROOM, COOLER	20/1P	2
3	20/1P	4.2 - REFRIGERATED SANDWICH UNIT	E	0.86	RWC	2.36				1.50	L	LIGHTING - DINING, SERVICE, HOOD, HALLWAY	20/1P	4
5	20/1P	5 - PRINTER & S2 - POS TERMINAL	R	0.20	RWC	1.20				1.00	O	RESTROOM - HAND DRYER	20/1P	6
7	20/1P	5.1 - LABEL PRINTER	R	0.20	RWC	0.56				0.36	R	RESTROOM - GFI RECEPTACLE	20/1P	8
9	20/1P	6 - FRONT BREATHING REFRIGERATED DISPLAY CASE	E	1.92	RWC	2.92				1.00	O	RESTROOM - HAND DRYER	20/1P	10
11	20/1P	SPARE				0.10				0.10	L	TIME CLOCK	20/1P	12
13	20/1P	7.RO - ONEREV ROTATING OVEN	E	0.13	RWC	1.33				1.20	L	SIGNAGE	20/1P	14
15	20/1P	SPARE				1.80				1.80	L	SHOW WINDOW	20/1P	16
17	20/1P	15 - COKE AND ICE DISPENSER	E	0.36	RWC	2.16				1.80	L	SHOW WINDOW	20/1P	18
19	20/1P	16 - BEVERAGE DISPENSER (2)	E	1.32	RWC	2.97				1.65	E	1.0 - DOUGH PRESS- MANUAL	20/2P	20
21	20/1P	20 - UNDERCOUNTER REFRIGERATOR	E	0.24	RWC	1.89				1.65	E			22
23	20/1P	25 - DOUGH ROUNDER	E	1.66	RWC	3.31				1.65	E	1.0 - DOUGH PRESS- MANUAL	20/2P	24
25	20/1P	28 - HOT WATER DISPENSER	E	1.50	RWC	3.15				1.65	E			26
27	20/1P	33 - BAG-IN-BOX AND CARBONATOR SYSTEM	O	0.60	RWC	0.60						SPARE	20/1P	28
29	20/1P	46 - WATER HEATER - TANKLESS, CP-1	O	0.10	RWC	1.78				1.68	E	13 - TEA BREWER	20/1P	30
31	20/1P	52 - POS TERMINAL & 98 - POS SYSTEM	R	0.92	RWC	0.92						SPARE	20/1P	32
33	20/1P	ROOFTOP SERVICE RECEPTACLE	R	0.36	RWC	2.16				1.80	L	SHOW WINDOW	20/1P	34
35	20/1P	EF-1(N)	M	0.30	RWC	2.10				1.80	L	SHOW WINDOW	20/1P	36
37	20/1P	GENERAL RECEPTACLES	R	1.08	RWC	1.08						SPARE	20/1P	38
39	20/1P	4.2 - REFRIGERATED SANDWICH UNIT	E	0.86	RWC	0.86						SPARE	20/1P	40
41	20/1P	52-POS	R	0.36	RWC	0.36						SPARE	20/1P	42
						11.79	12.60	11.01						

## ELECTRICAL PANEL SCHEDULE 2

SCALE: N.T.S.



### RISER DIAGRAM GENERAL NOTES

- THE ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE NEC, LOCAL CODES AND AHJ.
- ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (ISC) RATING WITH UTILITY COMPANY AND AHJ AND CALCULATE ACTUAL AIC REQUIRED PRIOR TO BID.
- VERIFY/COORDINATE THE EXACT POWER DISTRIBUTION AND SCOPE OF WORK WITH THE LANDLORD/OWNER BEFORE BID.
- REFER TO THE POWER PLAN FOR THE PROPOSED LOCATION OF ALL NEW EQUIPMENT (ELECTRICAL PANELS AND TRANSFORMERS) SHOWN IN THE RISER. COORDINATE THE EXACT LOCATION WITH THE OWNER IN THE FIELD. INFORM EOR OF ANY DISCREPANCY BEFORE BID.
- ENSURE THE COMBINED VOLTAGE DROP OF THE FEEDER AND BRANCH CIRCUIT IS NOT MORE THAN THE 5% PER CODE.
- ENSURE THAT THE CLEAR WORKING AND DEDICATED SPACE HAS BEEN PROVIDED FOR THE EQUIPMENT AS PER NEC 110.26.
- THE VOLTAGE AND FREQUENCY FLUCTUATION IN THE ELECTRICAL UTILITY SERVICE AT THE SERVICE ENTRY SHALL NOT BE MORE THAN +/- 5% AND +/- 1%, RESPECTIVELY. PROVIDE THE REGULATORS IF SUCH CASE IS OBSERVED.
- PROVIDE GEC AND EGC AS PER 250.66 & 250.122 RESPECTIVELY, AS NEEDED. PROVIDE SEPARATE GROUND CONDUCTORS IN ALL CONDUITS.
- THE PART OF RISER MARKED AS EXISTING IS FOR REFERENCE PURPOSES ONLY. E.C. SHALL VERIFY THE AVAILABILITY, LOCATION, RATING, OPERABLE CONDITION AND EXACT POWER FLOW IN FIELD. INFORM EOR OF ANY DISCREPANCY BEFORE BID.
- E.C. SHALL VERIFY THE INCOMING SERVICE AMPERAGE, VOLTAGE, NUMBER OF PHASES, WIRE SIZE AND DISTRIBUTION IN FIELD.

### RISER DIAGRAM KEY NOTES

- NEW 200A, 480Y/277V, 3PH, 4W ELECTRICAL SERVICE FEEDER FROM EXISTING ELECTRICAL GUTTER FOR THE PROJECT SPACE. COORDINATE THE EXACT LOCATION WITH THE UTILITY/LANDLORD/OWNER.
- E.C. SHALL COORDINATE WITH ARCHITECT/OWNER THE EXACT LOCATION OF THE NEW ELECTRICAL EQUIPMENT IN THE FIELD.
- PROVIDE NEW TRANSFORMER WITH NECESSARY ACCESSORIES.

ELECTRICAL SERVICE LOAD CALCULATION							
LOAD DESCRIPTION	LOAD TAG	CONNECTED LOAD (KVA)			TOTAL KVA	D.F.	DEMAND (KVA)
		PANEL A	PANEL B	PANEL C			
TOTAL LIGHTING	L	0.00	1.50	11.00	12.50	125%	15.63
TOTAL RECEPTACLE	R	0.00	1.80	3.48	5.28	#	5.28
TOTAL EQUIPMENT	E	0.00	31.41	17.92	49.33	65%	32.06
TOTAL OTHER	O	0.00	9.05	2.70	11.75	100%	11.75
TOTAL HVAC	H	26.57	0.00	0.00	26.57	100%	26.57
NON COINCIDENT	N	0.00	0.00	0.00	0.00	0%	0.00
TOTAL MOTOR	M	1.16	0.00	0.30	0.00	100%	0.00
LARGEST MOTOR						25%	0.00
# = Demand factor 100% for first 10kVA and 50% for rest of the receptacle load							91.29
SERVICE VOLTAGE	480Y/277						
DEMAND (kVA)	91.29	NEW 200A, 480Y/277V, 3PH, 4W ELECTRICAL SERVICE					
DEMAND (AMPS)	109.93						

### PANEL SCHEDULE GENERAL NOTES

- ALL CIRCUITING SHOWN IS 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 IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK.
- THE BREAKER FEEDING HVAC UNITS SHALL BE HACR TYPE.
- REFER TO THE BRANCH CIRCUIT WIRING CHART FOR WIRE SIZES. THE WIRE SIZES HAVE BEEN SELECTED BASED ON THE 75-DEGREE COLUMN OF NEC 310.15 B 16 FOR COPPER CONDUCTOR. THE WIRE SIZE MIGHT CHANGE IF THE TEMPERATURE, MATERIAL, OR VOLTAGE DROP IS DIFFERENT. E.C. SHALL SIZE THE BRANCH CIRCUIT ACCORDINGLY.
- PROVIDE BREAKER LOCKING DEVICES IN THE PANELS, WHEREVER REQUIRED BY CODE. INCLUDING BUT NOT LIMITED TO BREAKERS FEEDING HARD-WIRED EQUIPMENT, EMERGENCY LIGHTING CIRCUIT, FIRE ALARM CIRCUITS AND SECURITY EQUIPMENT.
- THE CONTRACTOR SHALL VERIFY BREAKER AND BRANCH CIRCUIT REQUIREMENTS FOR THE EQUIPMENT IN THE FIELD.
- THE ELECTRICAL LOAD SHALL BE BALANCED WITHIN 10% FOR ALL 3 PHASES.
- THE CONTRACTOR IS TO PROVIDE A CIRCUIT DIRECTORY FOR EACH PANEL BOARD AS PER 408.4 (A).

### BRANCH CIRCUIT WIRING CHART

BREAKER	BRANCH CIRCUIT SIZE
15/1P	2#12 + 1#12G, 3/4" C
20/1P	2#12 + 1#12G, 3/4" C
15/2P	2#12 + 1#12G, 3/4" C
20/2P	2#12 + 1#12G, 3/4" C
25/2P	2#10 + 1#10G, 3/4" C
30/2P	2#10 + 1#10G, 3/4" C
35/2P	2#8 + 1#10G, 3/4" C
40/2P	2#8 + 1#10G, 3/4" C
45/2P	2#8 + 1#10G, 3/4" C
50/2P	2#8 + 1#10G, 3/4" C
60/2P	2#6 + 1#10G, 3/4" C
70/2P	2#4 + 1#8G, 1" C
80/2P	2#4 + 1#8G, 1" C
90/2P	2#3 + 1#8G, 1" C
100/2P	2#3 + 1#8G, 1" C
15/3P	3#12 + 1#12G, 3/4" C
20/3P	3#12 + 1#12G, 3/4" C
25/3P	3#10 + 1#10G, 3/4" C
30/3P	3#10 + 1#10G, 3/4" C
35/3P	3#8 + 1#10G, 3/4" C
40/3P	3#8 + 1#10G, 3/4" C
45/3P	3#8 + 1#10G, 3/4" C
50/3P	3#8 + 1#10G, 3/4" C
60/3P	3#6 + 1#10G, 3/4" C
70/3P	3#4 + 1#8G, 1" C
80/3P	3#4 + 1#8G, 1" C
90/3P	3#3 + 1#8G, 1" C
100/3P	3#3 + 1#8G, 1" C

### PANEL SCHEDULE ABBREVIATIONS AND NOTES

TAG	DESCRIPTION
L	LIGHTING
R	RECEPTACLE
H	HVAC
E	ELECTRICAL EQUIPMENT
M	LARGEST MOTOR
O	

**PLUMBING SYMBOLS LIST**

— GSAN —	GREASE SANITARY SEWER (UNDERFLOOR)
— SAN —	SANITARY SEWER (UNDERFLOOR)
-----	VENT PIPING
-----	COLD WATER PIPING
-----	HOT WATER PIPING
-----	HOT WATER RETURN PIPING
-----	FILTER PIPING
-----	EXISTING COLD WATER PIPING
— P-TRAP —	P-TRAP
— O —	PIPE UP
— D —	PIPE DROP
— O —	CLEANOUT
— I —	PLUGGED OUTLET/CLEANOUT
— I —	POINT OF CONNECTION
— BFP —	SECONDARY BFP

**PLUMBING ABBREVIATIONS**

CO	CLEANOUT
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
V	VENT
W	WASTE
LAV	LAVATORY
WC	WATER CLOSET
TYP.	TYPICAL
DN	DOWN
AFF	ABOVE FINISH FLOOR
FD	FLOOR DRAIN
SQ. FT.	SQUARE FEET
BFP	BACK FLOW PREVENTER
WH-1	WATER HEATER
N.I.C.	NOT IN SCOPE
ET-1	EXPANSION TANK
RCP-1	HOT WATER CIRCULATION PUMP

**PLUMBING DRAWING LIST**

P-001	PLUMBING SYMBOLS & SPECIFICATIONS
P-101	PLUMBING SANITARY FLOOR PLAN
P-102	PLUMBING DOMESTIC WATER FLOOR PLAN
P-103	PLUMBING GAS PLAN
P-501	PLUMBING DETAILS (1 OF 2)
P-601	PLUMBING SCHEDULES
P-602	PLUMBING RISERS

**BUILDING DEPARTMENT PLUMBING NOTES**

- ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF INTERNATIONAL PLUMBING CODE 2021.
- INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 702.2
- PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION PC 305.
- TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION PC 306.
- RODENT PROOFING AS PER PC 304
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 303, PC 605, PC 702, PC 902, PC 1102.
- EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002 AND CLEANOUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708
- DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 610
- 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.
- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTIONS PC 901 THROUGH PC 912 THROUGH PC 917
- INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC 107.
- GAS PIPING SHALL BE IN ACCORDANCE WITH 2021 INTERNATIONAL FUEL GAS CODE CHAPTER 4.

**PLUMBING SPECIFICATIONS:**

**1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS**

**1.01 SCOPE**

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 PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.

C. OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.

D. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.

E. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT. SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.

F. IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL 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, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.

I. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.

J. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, 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 ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

**1.02 SUBMITTALS**

A. SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION UNLESS OTHERWISE DIRECTED. CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.

- PIPE AND FITTINGS
- VALVES
- HANGERS AND SUPPORTS
- PLUMBING PIPING LAYOUT
- TESTS
- PLUMBING FIXTURES
- WATER HEATERS & ACCESSORIES
- MIXING VALVES
- ALL SCHEDULED PLUMBING EQUIPMENT

B. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT 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.

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.

D. REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO 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.

E. SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY 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 COMPANY.

G. FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES 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.

**1.03 SUBSTITUTIONS**

A. ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURERS EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURERS 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.

B. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.

**1.04 DEFINITIONS**

A. FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.

B. INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.

C. PROVIDE: TO FURNISH AND INSTALL.

D. PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.

**1.05 DRAWINGS**

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, 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.

B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.

C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.

D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.

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 OWNER.

F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

**1.06 PRODUCTS**

**A. SANITARY AND VENT PIPING:**

- ABOVE GRADE AND UNDERGROUND PIPING SHALL BE POLYVINYL CHLORIDE (PVC) PIPE AS PER ASTM D2665, ASTM F891, ASTM F1488, CSA B181.2 AS PER INTERNATIONAL PLUMBING CODE 2021, TABLE 702.1 AND TABLE 702.2. OR PIPING SHALL BE HUBLESS CAST IRON PIPE WITH STAINLESS STEEL COUPLINGS AND ELASTOMERIC GASKETS WITH A MINIMUM 4 BANDS PER COUPLING.
- 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.
- ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND FOR PVC PIPE AND FITTINGS MARKED WITH ASTM D2665; ASTM F1866; ASTM D3034, AND BE LISTED BY NSF INTERNATIONAL.

**B. DOMESTIC WATER PIPING:**

- PIPING FROM THE SERVICE TERMINATION THROUGHOUT THE REST OF THE BUILDING: FOR BURIED LINE, TYPE "K", HARD DRAWN COPPER, ABOVE GRADE, TYPE "L", HARD DRAWN COPPER, WROUGHT COPPER FITTINGS.
- FITTINGS IN DOMESTIC WATER PIPING SHALL BE WROUGHT COPPER OR CAST BRASS OR CPVC AS PER ASSE 1061, ASTM D2846, ASTM F437, ASTM F438, ASTM F439, CSA B137.6 STANDARDS.
- 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.
- 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 IECC 2021, SECTION C404.4 REFER BELOW TABLE C403.12.3

MINIMUM PIPE INSULATION THICKNESS						
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)			
	CONDUCTIVITY BTU IN/ (H · FT <sup>2</sup> · °F)	MEAN RATING TEMPERATURE, °F	<1	1 to < 1½	1½ to < 4	4 to >=8
141-200	0.25-0.29	125	1.5	1.5	2	2
105-140	0.21-0.23	100	1.0	1.0	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0

7. WATER DISTRIBUTION SYSTEM AS PER IECC 2021, C404.6.1, 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:

- 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.
- THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).

8. AS PER INTERNATIONAL ENERGY CONSERVATION CODE 2021, C404.6.1, 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.

9. HW SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER INTERNATIONAL ENERGY CONSERVATION CODE 2021, C404.5, C404.5.1, C404.5.2 THE HW PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE C404.5.1.

NOMINAL PIPE SIZE (INCHES)	MIXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1¼"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

10. SEAL ALL JOINTS BETWEEN SEGMENTS OF INSULATION.

11. PROVIDE SHIELDS BETWEEN HANGERS AND INSULATION.

**C. HANGERS AND SUPPORTS:**

- 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 FROM OTHER PIPE.
- SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
- ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS.
- PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

**D. VALVES:**

- 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 OF FLUSHOMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
- ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF VALVES ON SUPPLY LINES.
- ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
- ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
- PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

E. 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 ABOVE.

F. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE 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.

G. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.

H. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.

I. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

J. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.

K. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

L. PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE DRAIN.

M. PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.

N. ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.

O. 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.

P. 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.

Q. AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.

R. 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.

**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 SHALL BE WEATHER PROOF IN ALL RESPECTS.

C. EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.

D. COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.

E. REAM PIPE AND TUBE ENDS. REMOVE BURRS, BEVEL PLAIN AND FERROUS END PIPE.

F. REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

G. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS.

H. 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 BUILDING CONDITIONS.

I. NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.

J. 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 DOWN AND CONNECTION TO EXISTING SYSTEMS.

L. WHEN CONNECTING TO EXISTING STACKS AND RISERS, PROVISION IS TO BE MADE FOR FUTURE CONNECTIONS BY PROVIDING CAPPED AND VALVED OUTLETS ON DOMESTIC WATER RISERS AND PLUGGED OUTLETS ON THE SANITARY AND VENT STACKS.

**2.02 ABOVE GRADE**

A. INSTALL PLUMBING PIPING IN ACCORDANCE WITH RECOGNIZED 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 PIPING.

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.

**3. TESTING**

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 CONTRACTOR 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.

F. 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 WORK.

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 THE OWNER'S REPRESENTATIVE.

I. ALL EQUIPMENT WILL BE FACTORY TESTED.

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 CONTRACTOR'S EXPENSE.

K. REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.

**L. TESTING REQUIREMENTS**

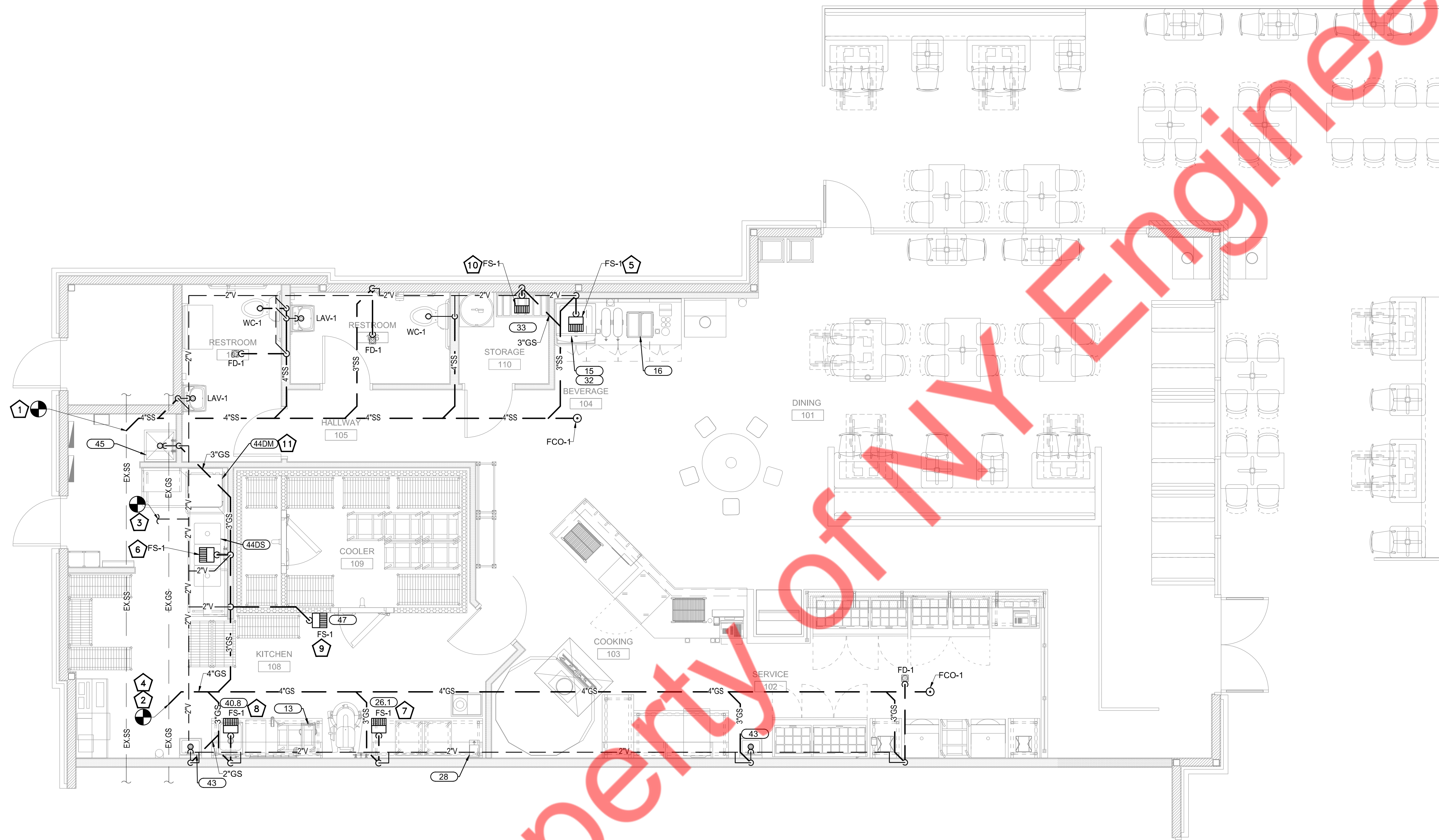
- UPON COMPLETION OF SECTION OF OR THE ENTIRE SUPPLY SYSTEM, THE SYSTEM, OR THE PORTION COMPLETED, SHALL BE TESTED AND PROVED TIGHT UNDER A WATER PRESSURE NOT LESS THAN THE WORKING PRESSURE OF THE SYSTEM.
- TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
- THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE TEST AREA AND ADJACENT TENANT OR ESB SPACES.

M. REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIIN CHEMICAL CORP.) AT A STRENGTH TO MEET STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD OF RETENTION AS STIPULATED.

N. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.

**4. WARRANTY**

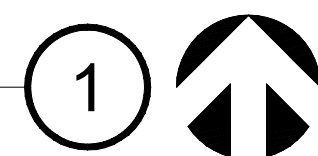
A. EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR 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 PROMPTLY REPAIRED.



- GENERAL NOTES:**
- COORDINATE ROOF PENETRATIONS WITH TENANTS GENERAL CONTRACTOR AND LANDLORD. PROVIDE AND PAY FOR ANY REQUIRED ROOFING BY LANDLORD'S ROOFING CONTRACTOR.
  - CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE BUILDING STRUCTURE OR BUILDING UTILITIES CAUSED AS RESULT OF THE CONTRACTOR'S WORK UNDER THIS CONTRACT. IT IS RECOMMENDED THAT MASONRY/CONCRETE FLOORS/WALLS BE X-RAYED PRIOR TO ANY PENETRATIONS.
  - CONTRACTOR SHALL INSULATE ALL INDIRECT DRAIN LINES (INCLUDING CONDENSATE LINES) FROM ALL MECHANICAL COOLING & REFRIGERATION EQUIPMENT, COLD WELLS, ICE TRAYS AND ANY FIXTURE/EQUIPMENT ITEM THAT MAY CONVEY WASTE UNDER 65°F AND/OR CAUSES CONDENSATION ON PIPING SURFACES. INSULATION SHALL BE 1/2" THICK CLOSED CELL ELASTOMERIC (RUBATEX OR EQUAL).
  - VERIFY WITH GENERAL CONTRACTOR AND KITCHEN EQUIPMENT VENDOR FINAL LOCATION OF ALL FLOOR SINKS AND FLOOR DRAINS. LOCATE FLOOR SINKS AND FLOOR DRAINS TO AVOID LEGS OF KITCHEN EQUIPMENT.
  - REFER TO ARCHITECTURAL PLANS AND KITCHEN VENDOR DRAWINGS FOR DIMENSIONAL INFORMATION.
  - ALL NEW CONCRETE AT TRENCHED AREAS TO MATCH EXISTING THICKNESS AND TO BE PINNED TO EXISTING SLAB.
  - DWW PIPING SHOWN ON PLANS IS FOR REFERENCE ONLY. FIELD VERIFY EXISTING PIPING AND FIXTURE LOCATIONS AND PROVIDE NEW FIXTURES AND PIPING AS REQUIRED.

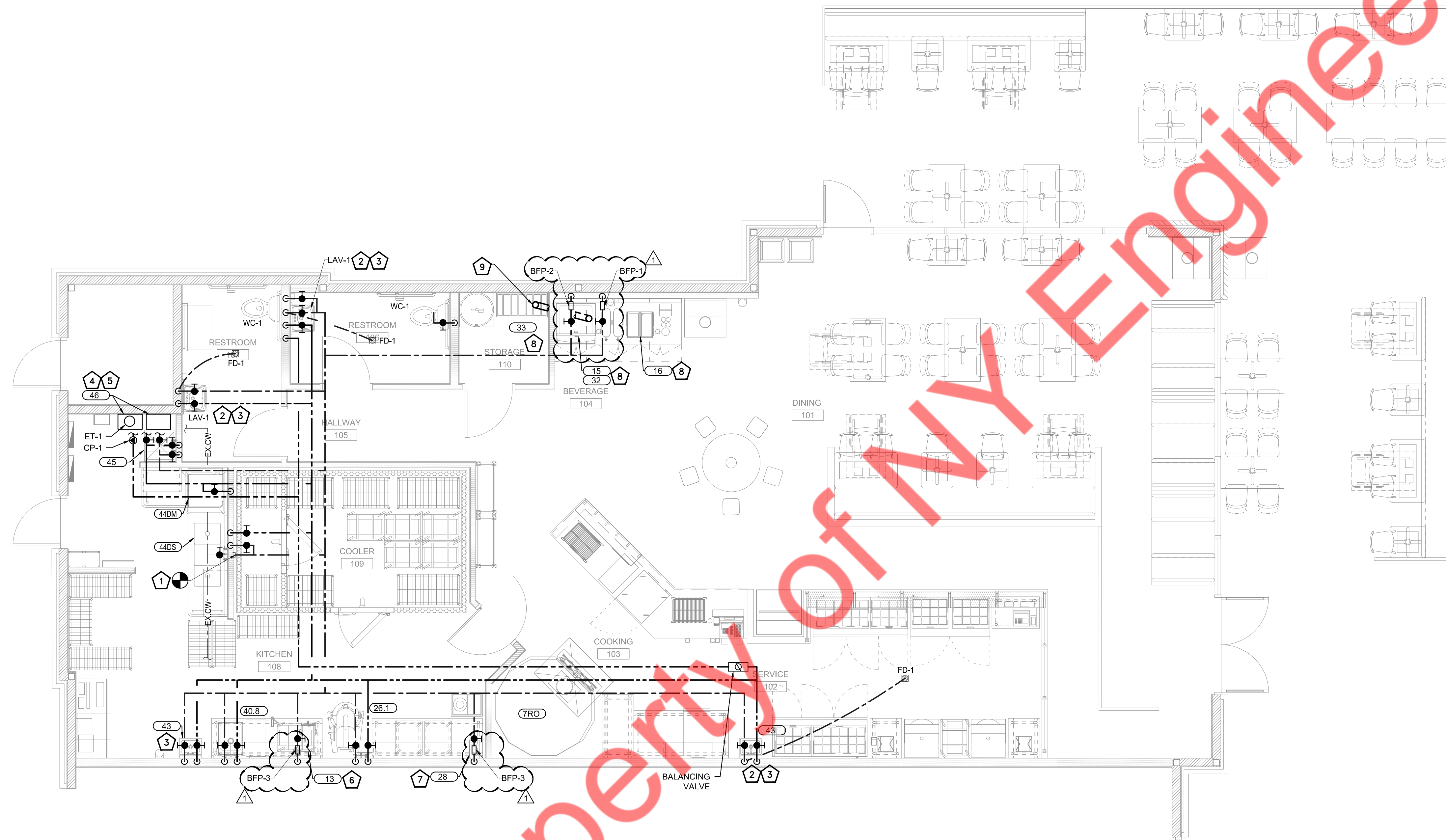
- SANITARY KEYED NOTES:**
- CONNECT NEW 4" SANITARY LINE TO EXISTING SANITARY WASTE LINE IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY SIZE, ROUTING AND INVERT ON SITE.
  - CONNECT NEW 4" GREASE SANITARY LINE TO EXISTING GREASE SANITARY LINE CAPPED WITH FLOOR CLEANOUT. CONTRACTOR TO FIELD VERIFY EXISTING GREASE SANITARY SIZE, ROUTING AND INVERT ON SITE.
  - CONNECT NEW 3" VENT LINE TO EXISTING VENT THROUGH ROOF LINE. CONTRACTOR TO FIELD VERIFY EXISTING VENT LINE LOCATION AND SIZE. COORDINATE WITH OVERALL PLAN. REROUTE AND UPGRADE SIZE OF THE VENT LINE AS NEEDED. BASE BID ACCORDINGLY.
  - THE EXISTING GREASE INTERCEPTOR SHALL HAVE A RETENTION CAPACITY OF 540 GALLONS OF GREASE WASTE FROM THE CURRENT TENANT SPACE.
  - ROUTE INDIRECT WASTE FROM COKE AND ICE DISPENSER, CUBE ICE MACHINE, BEVERAGE DISPENSER TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
  - ROUTE INDIRECT WASTE FROM 3 COMP SINK, DISH MACHINE TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
  - ROUTE INDIRECT WASTE FROM SERVICE FAUCET AND HOT WATER DISPENSER TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
  - ROUTE INDIRECT WASTE FROM PREP SINK AND TEA BREWER TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
  - ROUTE INDIRECT WASTE FROM WALK-IN FREEZER TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
  - ROUTE INDIRECT WASTE FROM BAG-IN-BOX AND CARBONATOR SYSTEM TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
  - PROVIDE DRAIN TEMPERING VALVE (DTV) FOR DISHWASHER DRAIN.

**PLUMBING SANITARY FLOOR PLAN**  
SCALE: 1/4"=1'-0"



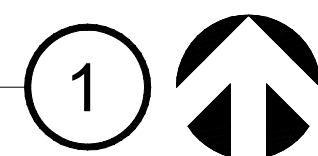
ISSUED REVISIONS:	
△	BUILDING COMMENT

Blaze Pizza  
Plumbing Sanitary Floor Plan



**PLUMBING DOMESTIC WATER FLOOR PLAN**

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



BACK FLOW PREVENTER ASSEMBLY REQUIREMENTS				
ITEM NAME	TYPE OF EQUIPMENT ON SYSTEM	METHOD OF CROSS CONNECTION CONTROL	MANUFACTURE AND MODEL NUMBER	REMARKS
BFP-1	CARBONATOR SODA SYSTEM	DUAL CHECK VALVE WITH ATMOSPHERIC PORT	WATTS SD3-QT ASSE 1022/1024 CERT	STAINLESS STEEL BODY WITH QUARTER TURN VALVE SSS STRAINER.
BFP-2	ICE MACHINE	REDUCED PRESSURE ZONE ASSEMBLY	WATTS LF-009-QT-S	STAINLESS STEEL BODY WITH QUARTER TURN VALVE BRONZE STRAINER.
BFP-3	TEA MACHINE HOT WATER DISPENSER	DUAL CHECK VALVE WITH ATMOSPHERIC PORT	WATTS SD3-QT ASSE 1022/1024 CERT	STAINLESS STEEL BODY WITH QUARTER TURN VALVE BRONZE STRAINER.
-	WATER SERVICE	REDUCED PRESSURE ZONE ASSEMBLY	WATTS LF-919-QT	LEAD FREE CAST COPPER WITH QUATER TURN

1. CONTRACTOR SHALL PROVIDE INDIVIDUAL BACKFLOW PREVENTERS FOR EACH PIECE OF EQUIPMENT.  
 2. EACH BACKFLOW PREVENTER MUST HAVE TESTING PORTS.  
 3. BRONZE BODIED BACKFLOW PREVENTERS ARE PERMISSIBLE IF ALLOWED BY LOCAL CODES.

**WATER NOTES**

TENANT GC SHALL PROVIDE AND INSTALL WATER SUBMETER TO BE PURCHASED FROM LL VENDOR. METER SHALL BE LOCATED ABOVE CEILING, BUT NO HIGHER THAN TEN FEET.

**DOMESTIC WATER PIPING PLAN NOTES:**

- COORDINATE ROOF PENETRATIONS WITH THE LANDLORD'S ROOFING CONTRACTOR. PROVIDE AND PAY FOR ANY REQUIRED ROOFING BY LANDLORD'S ROOFING CONTRACTOR. SEE DETAIL 12/P-501 FOR SIMILAR CONDITION.
- CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE BUILDING STRUCTURE OR BUILDING UTILITIES CAUSED AS RESULT OF THE CONTRACTOR'S WORK UNDER THIS CONTRACT. IT IS RECOMMENDED THAT MASONRY/CONCRETE FLOORS/WALLS BE X-RAYED PRIOR TO ANY PENETRATIONS.
- CONTRACTOR SHALL INSULATE ALL INDIRECT DRAIN LINES (INCLUDING CONDENSATE LINES) FROM ALL MECHANICAL COOLING & REFRIGERATION EQUIPMENT, COLD WELLS, ICE TRAYS AND ANY FIXTURE/EQUIPMENT ITEM THAT MAY CONVEY WASTE UNDER 65°F AND/OR CAUSES CONDENSATION ON PIPING SURFACES. INSULATION SHALL BE 1/2" THICK CLOSED CELL (RUBATEX OR EQUIV.).
- VERIFY WITH GENERAL CONTRACTOR AND KITCHEN EQUIPMENT VENDOR FINAL LOCATION OF ALL FLOOR SINKS AND FLOOR DRAINS. LOCATE FLOOR SINKS AND FLOOR DRAINS TO AVOID LEGS OF KITCHEN EQUIPMENT.
- REFER TO ARCHITECTURAL PLANS AND KITCHEN VENDOR DRAWINGS FOR DIMENSIONAL INFORMATION.
- TENANT SHALL BE REQUIRED TO HAVE THE DEMISED PREMISES SEPARATELY METERED AT TENANT'S EXPENSE. ALL METERS OR OTHER MEASURING DEVICES IN CONNECTION WITH UTILITY SERVICES SHALL BE PROVIDED BY TENANT AT TENANT'S EXPENSE. TENANT WILL BE RESPONSIBLE FOR TAPPING INTO PROVIDED DOMESTIC WATER LINE INCLUDING LINE TAP AND SHUT OFF VALVE. ALL ERVICE DEPOSITS SHALL BE MADE BY TENANT AT TENANT'S EXPENSE. COORDINATE WITH THE LOCAL AHJ.

**DOMESTIC WATER KEYED NOTES:**

- EXTEND AND CONNECT NEW 1-1/2" CW TO EXISTING 1-1/2" WATER SUPPLY STUBBED TO SPACE. FIELD VERIFY SIZE, LOCATION AND CONDITION OF EXISTING WATER PIPING IN FIELD PRIOR TO ANY WORK. MAKE NECESSARY CONNECTIONS AS REQUIRED. PLUMBING CONTRACTOR SHALL FIELD VERIFY POINT OF CONNECTION PRIOR TO WATER PIPE AND WATER METER INSTALLATION. CONTRACTOR TO PROVIDE WATER SUBMETER. COORDINATE EXACT MODEL AND LOCATION WITH LANDLORD AND UTILITY COMPANY.
- TRAP PRIMER IN WALL WITH 1/2" CW TO FLOOR DRAIN. PROVIDE ASSE 1018 OR EQUAL POTABLE WATER SUPPLY TRAP PRIMER.
- PROVIDE ASSE 1070 OR SIMILAR APPROVED MIXING VALVE (MV-1) FOR LAVATORIES AND HAND SINK. SET AT TEMPERATURE TO A MAXIMUM 110 °F
- ROUTE WATER HEATER DRAIN TO MOP SINK WITH APPROVED AIR GAP.
- NEW WALL MOUNTED TANKLESS GAS WATER HEATER WITH ASSOCIATED EXPANSION TANK (ET-1), AND CIRCULATION PUMP (RCP-1), PROVIDE DRAIN PAN (REFER SCHEDULE).
- EXTEND 1/2" CW TO WATER FILTER (SIMILAR TO AQUA-POOR MODEL AP200);  
EXTEND:  
1/2" CW TO (13) SEE RISER DIAGRAM FOR MORE DETAILS
- EXTEND 1/2" CW TO WATER FILTER (SIMILAR TO AQUA-POOR MODEL AP200);  
EXTEND:  
1/2" CW TO (28) SEE RISER DIAGRAM FOR MORE DETAILS
- EXTEND 3/4" CW TO WATER FILTER (SIMILAR TO AQUA-POOR MODEL AP200);  
EXTEND:  
1/2" CW TO (15)  
1/2" CW TO (16)  
1/2" CW TO (32)  
1/2" CW TO (33) SEE RISER DIAGRAM FOR MORE DETAILS
- SODA LINE CONDUIT: PROVIDE AND INSTALL 6"Ø SCHEDULE 80 PVC CONDUIT FOR SODA LINES (BY OTHERS) FROM BEVERAGE ISLAND TO BAG-N-BOX/CARBONATOR. VERIFY WITH KITCHEN EQUIPMENT VENDOR.

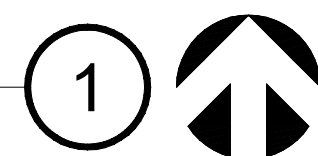
ISSUED REVISIONS:	
▲	BUILDING COMMENT
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**Blaze Pizza**  
Plumbing Domestic Water Floor Plan



**PLUMBING GAS PLAN**

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



- GAS PIPING PLAN NOTES:**
- COORDINATE ROOF PENETRATIONS WITH THE TENANT GENERAL CONTRACTOR AND LANDLORD. PROVIDE AND PAY FOR ANY REQUIRED ROOFING BY LANDLORD'S ROOFING CONTRACTOR.
  - CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE BUILDING STRUCTURE OR BUILDING UTILITIES CAUSED AS RESULT OF THE CONTRACTOR'S WORK UNDER THIS CONTRACT. IT IS RECOMMENDED THAT MASONRY/CONCRETE FLOORS/WALLS BE X-RAYED PRIOR TO ANY PENETRATIONS.
  - REFER TO ARCHITECTURAL PLANS AND KITCHEN VENDOR DRAWINGS FOR DIMENSIONAL INFORMATION.

GAS DEMAND SCHEDULE	
EQUIPMENT	CFH
RTU-1(N)	125
RTU-2(N)	67
WH QTY 2	398
PIZZA OVEN	350
<b>TOTAL DEMAND</b>	<b>940</b>

- GAS PIPING INSTALLATION NOTES:**
- GAS SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH 2021 INTERNATIONAL FUEL GAS CODE. SUBMIT SHOP DRAWINGS TO ENGINEER SHOWING FINAL ROUTING, MATERIALS, SHUT-OFFS, DETAILS, LINE SIZES FOR A COMPLETE GAS SERVICE TO THIS PROJECT.
  - THE GAS SYSTEM HAS BEEN DESIGNED USING THE LONGEST LINE METHOD WITH THE FOLLOWING CRITERIA:  
GAS: 1,000 BTU/HR = 1 CFH  
SPECIFIC GRAVITY: 0.60  
PRESSURE DROP: 0.5 IN. W.C.  
THIS PROJECT REQUIRES 940 CFH OF GAS CAPACITY AT 70 FT. T.D.L. CONTRACTOR SHALL VERIFY EXACT GAS REQUIREMENT WITH TENANT PRIOR TO CONSTRUCTION.
  - CONTRACTOR SHALL PROVIDE AND PAY FOR ANY REQUIRED UPGRADE OF EXISTING GAS SERVICE AND METER.
  - CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE BUILDING STRUCTURE OR BUILDING UTILITIES CAUSED BY SLAB PENETRATIONS. IT IS RECOMMENDED THAT THE FLOOR BE X-RAYED PRIOR TO ANY SLAB PENETRATIONS.
  - COORDINATE ROOF PENETRATIONS WITH TENANTS GENERAL CONTRACTOR AND LANDLORD. PROVIDE AND PAY FOR ANY REQUIRED ROOFING BY ROOFING CONTRACTOR.
  - VERIFY ALL GAS CONNECTIONS WITH MANUFACTURE'S INSTRUCTIONS PRIOR TO CONSTRUCTION. PROVIDE CABLE RESTRAINTS FOR ALL GAS FIRED EQUIPMENT ON MOVABLE EQUIPMENT.
  - EXTERIOR GAS LINES TO BE PAINTED BLACK.

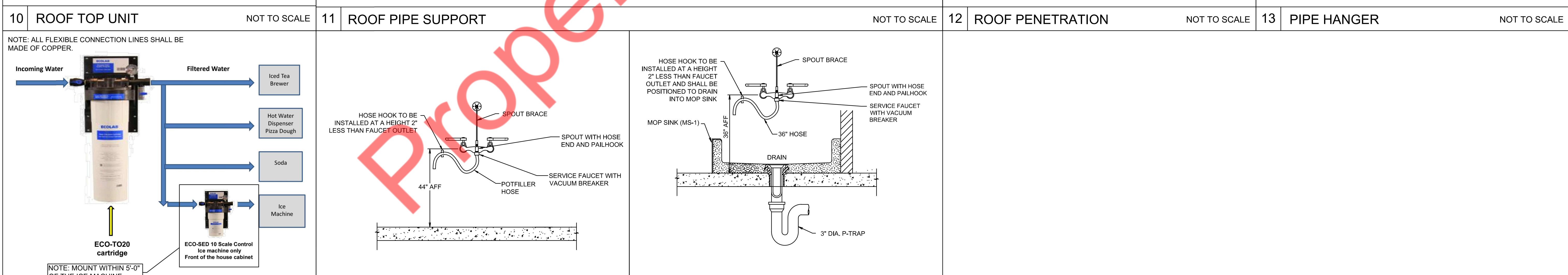
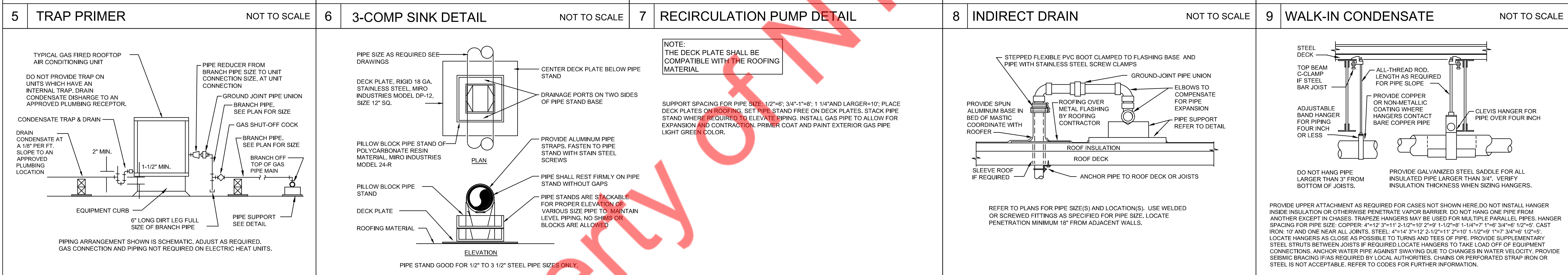
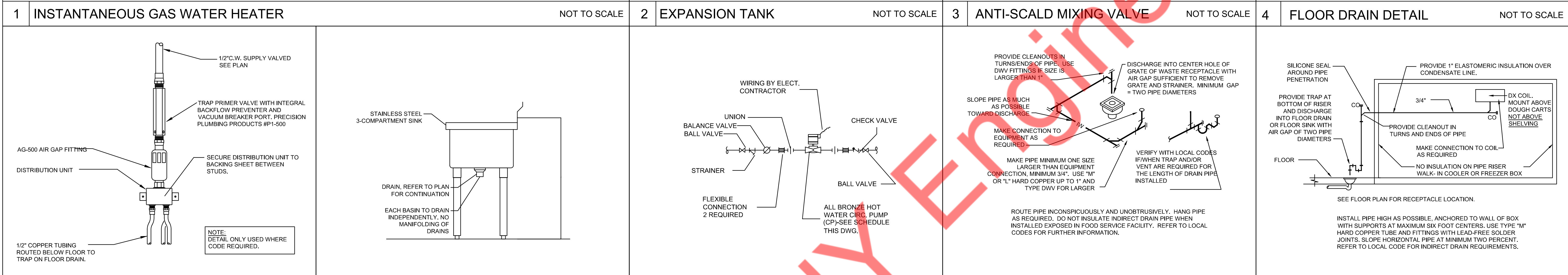
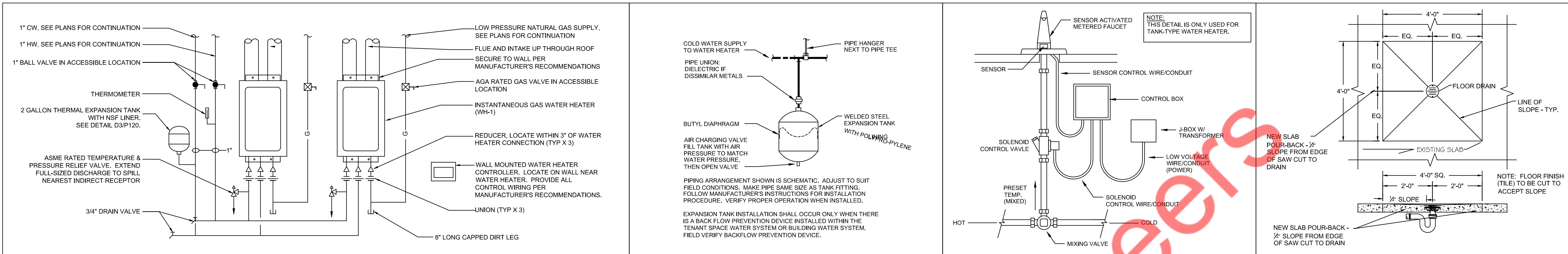
- GAS PLAN KEYED NOTES:**
- NEW GAS METER. CONNECTION TO GAS METER AND SERVICE PROVIDED BY TENANT IN THIS VICINITY - FIELD VERIFY. COORDINATE LOCATION OF METER WITH LANDLORD. MAKE NECESSARY CONNECTIONS AS REQUIRED. PLUMBING CONTRACTOR SHALL FIELD VERIFY PIPE ELEVATIONS AND PENETRATIONS PRIOR TO GAS LINE INSTALLATION. ARRANGE AND PAY FOR ANY REQUIRED UPGRADE TO METER AND SERVICE REQUIRED TO MEET DESIGN GAS LOAD.
  - GAS LINE: INSTALL NEW GAS LINE SIZED PER PLAN ON ROOF. VERIFY WITH LANDLORD EXACT GC/PC TO CONFIRM (PRIOR TO SUBMITTING BID) IF GAS LINE IS EXISTING.
  - GAS LINE PENETRATION: INSTALL NEW GAS LINE DOWN FROM ROOF INTO TENANT SUITE. COORDINATE WITH GENERAL CONTRACTOR AND LANDLORD LOCATION OF PENETRATION.
  - ANSUL R-102 CONTROL & CHEMICAL BOX ABOVE OVEN (BY OTHERS).
  - EMERGENCY SHUT-OFF: OVEN VENDOR PROVIDED 1-1/2" GAS AUTOMATIC EMERGENCY SHUT-OFF VALVE CONTROLLED BY HOOD FIRE SUPPRESSION SYSTEM LOCATED IN OVEN. VERIFY LOCATION PRIOR TO INSTALLATION. COORDINATE INSTALLATION WITH ELECTRICAL AND MECHANICAL CONTRACTORS.
  - PIZZA OVEN: PROVIDE 1-1/2" GAS SHUT-OFF VALVE WITH DIRT LEG AND GAS CONNECTOR TO PIZZA OVEN. VERIFY EXACT CONNECTION REQUIREMENTS WITH EQUIPMENT MANUFACTURER. NO FLEXIBLE CONNECTION ALLOWED.
  - A/C UNIT: PROVIDE 1" FLEXIBLE GAS CONNECTION WITH GAS SHUT-OFF VALVE AND DIRT LEG TO A/C UNIT (SEE GAS PIPING ISOMETRIC FOR LENGTH AND GAS LOAD). VERIFY EXACT CONNECTION REQUIREMENTS WITH EQUIPMENT MANUFACTURER.

**GAS NOTES**  
ALL GAS ROUTING ON ROOF AND METER PLACEMENT LOCATION SHALL BE COORDINATED WITH LANDLORD PRIOR TO INSTALLATION. GAS LINES SHALL BE PAINTED YELLOW UNLESS OTHERWISE NOTED. TENANT SHALL COORDINATE METER INSTALLATION WITH FRANCHISE UTILITY COMPANY.

**ISSUED REVISIONS:**

NO.	REVISION

**Blaze Pizza**  
Plumbing Gas Plan



ISSUED REVISIONS:	
▲	BUILDING COMMENT

**Blaze Pizza**  
Plumbing Details

PLUMBING FIXTURE SCHEDULE								
TAG	FIXTURE	COLD WATER	HOT WATER	WASTE	TRAP	VENT	WATER CONSUMPTION	REMARK
WC-1	WATER CLOSET (ADA APPROVED, VERIFY WITH OWNER)	3/4"	-	3"	INT.	2"	1.6 GPF	"KOHLER" HIGHLINE MODEL K3493 WHITE VITREOUS CHINA FLOOR MOUNTED COMBINATION TOILET WITH ELONGATED BOWL OR APPROVED EQUAL. TOILET SHALL HAVE 2" TRAPWAY, CHROME TRIP LEVER, AND 1.6 GPF. PROVIDE WITH SLOAN FLUSHMATE III 503H SERIES, ORDER MODEL K-3493 WITH LEFT HAND TRIP LEVER OR MODEL K-3493RA-O WITH RIGHT HAND TRIP LEVER TO COMPLY WITH ADA FLUSH ACTIVATOR REQUIREMENTS. INCLUDE MODEL K-4731 ELONGATED OPEN FRONT TOILET SEAT. TOILET SHALL BE ADA, ASME A112.19.2 AND CALIF. GREEN BUILDING CODE COMPLIANT.
L-1	LAVATORY (ADA APPROVED)	1/2"	1/2"	2"	1-1/4"	1-1/2"	0.5 GPM/0.20GPC	"KOHLER" GREENWICH MODEL K-2032 VITREOUS CHINA WALL MOUNT ADA COMPLIANT LAVATORY WITH 4" CENTERS OR APPROVED EQUAL. INCLUDE "SLOAN" MODEL ETF-600-B-BDM ADA COMPLIANT POLISHED CHROME CENTERSET LAVATORY FAUCET OR APPROVED EQUAL. INCLUDE SENSOR OPERATED METERED FAUCET W/ 0.5 GPM FLOWRATE, 4" CENTERS, VANDAL-RESISTANT AERATOR AND GRID STRAINER, BOX MOUNT 120V/24VAC TRANSFORMER, SET METER TO 0.25 MIN / CYCLE (0.20 GAL./CYCLE) LAVATORY TO BE ADA, INPKMURC, ICCANSI A117.1, ASME A112.19.2 COMPLIANT. FAUCET TO BE ADA, ASME A112.18.1 AND CALIF. GREEN BUILDING CODE COMPLIANT. P.C. TO COORD. W/ E.C. FOR TRANSFORMER ELECT. ROUGH-IN REQUIREMENTS
WH-1(46)	WATER HEATER	1-1/4"	1-1/4"	-	-	-	-	RINNAI INSTANTANEOUS GAS WATER HEATER MODEL RUC98L. UNIT IS CAPABLE OF PROVIDING 4.4GPM AT 80°F RISE. WATER SHALL BE SUPPLIED AT 120°F. QTY OF 2. NATURAL GAS INPUT OF 199,000 BTU INPUT COMPLETE WITH ALL STANDARD ACCESSORIES REQUIRED FOR OPERATION, INCLUDING TEMPERATURE AND PRESSURE RELIEF VALVE AND DRAIN VALVE SIZED FOR APPLICATION EXPANSION TANK. PROVIDE WITH MULTI UNIT CONNECTOR. PROVIDE ISOLATION KIT PER MANUFACTURERS RECOMMENDATIONS.
ET-1	EXPANSION TANK	1/2"	-	-	-	-	-	RHEEM/RIJUD "THERM-X-GUARD" POTABLE WATER EXPANSION TANK, MODEL #RRT-5.5 GALLON TANK VOLUME, STD FACTORY PRE-CHARGE AT 40 PSI, PROVIDE STRAP AND SUPPORT.
VR-1	WATER HEATER VACUUM CONTROL VALVE	-	-	-	-	-	-	"WATTS REGULATOR" WATER SERVICE VACUUM RELIEF VALVE, MODEL #N36 M1, ORDER #138458-3/4" NPT, OPENS @ LESS THAN 1/2" VACUUM. TESTED & RATED UNDER "ANSI 21.22, CGA CERTIFIED OR APPROVED"
FS-1	FLOOR SINK	-	-	3"	3"	2"	-	"PRO FLO" MODEL PF42858 12"x12" PVC RECEPTOR W/ NICKEL BRONZE STRAINER W/ 1/2" OPENING IN GRATE SEDIMENT BUCKET.
TP-1	TRAP PRIMER	1/2"	-	-	-	-	-	"TRAP PRIMER (SINGLE DRAW DISTRIBUTION), "PRECISION PLUMBING PRODUCTS, INC." OREGAN #1 PO-500 TRAP PRIMER, PISTON OPERATED (TO OPERATE @ LESS THAN 1 PSI PRESSURE DROP), ISOLATION VALVE, & STAINLESS STEEL ACCESS PANEL.
FD-1	FLOOR DRAIN	-	-	2"	2"	1-1/2"	-	"J.R SMITH" MODEL #2005 FLOOR DRAIN W/ 5" POLISHED BRONZE SQUARE TOP STRAINER, INCLUDE DUCO CAST IRON BODY WITH FLASHING COLLER, ADJUSTABLE STRAINER HEAD, 1/2" TRAP PRIMER CONNECTION, AND NO HUB CONNECTION.
BF-1	CARBONATED BEVERAGE BACKFLOW PREVENTER	1/2"	-	-	-	-	-	"WILKINS" MODEL 740 3/8" CARBONATED BEVERAGE BACKFLOW PREVENTER, STAINLESS STEEL BODY, SILICONE & BUNA NITRILE ELASTOMERS AND INTEGRAL STAINLESS STEEL SPRING, ASSE 1022 COMPLIANT
RP-1	PRINCIPLE REDUCED PRESSURE BACKFLOW PREVENTER	1/2"	-	-	-	-	-	"WILKINS" MODEL 975XLS1 1/2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, STAINLESS STEEL MAIN BODY WITH TO INLINE INDEPENDENT CHECK VALVES SEPERATED BY AN INTERMEDIATE CHAMBER FOR RELIEF VENTING TO THE ATMOSPHERE. PREVENTAL SHALL COME WITH TWO FULL PORT BALL VALVES AND MODEL AG AIR GAP.
MV-1	MIXING VALVE	1/2"	1/2"	-	-	-	-	"SLOAN" MODEL BDM THERMOSTATIC MIXING VALVE. VALVE SHALL PROVIDE TEMPERED HOT WATER (95°F - 110°F) AT POINT OF USE.
HS-1	HAND SINK (ADA COMPLIANT)	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	0.5GPM	"UNIVERSAL STAINLES" MODEL EHS-IRL WALL MOUNTED HAND SINK WITH GOOSENECK FAUCET AND 1.5" BASKET DRAIN SUPPLIED BY OTHERS AND INSTALLED BY PLUMBING CONTRACTOR. SEE EQUIPMENT SCHEDULE IN ARCHITECTS DRAWINGS FOR ADDITIONAL INFORMATION. PROVIDE A DIRECT CONNECTION PER NOTE #3
SK-1(44DS)	3-COMPARTMENT SINK	1/2"	1/2"	2"	1-1/2"	1-1/2"	1.42 GPM	"ADVANCE TABCO" MODEL FC-3-1824-18RL THREE COMPARTMENT SINK. INCLUDE "T&S" MODEL B-2299 WALL MOUNT FAUCET AND "T&S" MODEL B-0133 SPRAY NOZZLE (1.42 GPM) SUPPLIED BY OTHERS AND INSTALLED BY PLUMBING CONTRACTOR. SEE EQUIPMENT SCHEDULE IN ARCHITECTS DRAWINGS FOR ADDITIONAL INFORMATION.
SK-2(44DM)	1-COMPARTMENT SINK	1/2"	1/2"	INDIRECT	-	-	1.5GPM	"ADVANCE TABCO" MODEL TA-11D DROP IN PREP SINK. INCLUDE "T&S" MODEL B-0232 DECK MOUNT FAUCET PROVIDE WITH 1.5 GPM AERATOR SUPPLIED BY OTHERS AND INSTALLED BY PLUMBING CONTRACTOR. SEE EQUIPMENT SCHEDULE IN ARCHITECTS DRAWINGS FOR ADDITIONAL INFORMATION. PROVIDE INDIRECT CONNECTION TO FLOOR SINK PER NOTE #1.
WF-1	WATER FILTER	3/4"	-	-	-	-	-	"ECOLAB" MODEL 9320-2268 TWIN DUAL OUTLET HC WATER FILTER, SUPPLIED BY OTHERS AND INSTALLED BY PLUMBING CONTRACTOR. SEE EQUIPMENT SCHEDULE IN ARCHITECTS DRAWINGS FOR ADDITIONAL INFORMATION. INCLUDE CARTRIDGE TYPE FILTERS W/ 3/4" INLET/OUTLET, CERTIFIED UNDER NSF/ANSI STANDARDS 42 & 53.
F-1	FAUCET	1/2"	1/2"	-	-	-	1.5 GPM	"T & S BRASS" MODEL B-0674-BSTP SERVICE SINK FAUCET SUPPLIED BY OTHERS AND INSTALLED BY PLUMBING CONTRACTOR. SEE EQUIPMENT SCHEDULE IN ARCHITECTS DRAWINGS FOR ADDITIONAL INFORMATION. INCLUDE POLISHED CHROME PLATED FINISH, VACUUM BREAKER NOZZLE, PAIL HOOK AND 3/4" GARDEN HOSE THREAD- 6" NSF FILLER HOSE, ADA COMPLIANT.
WCO	WALL CLEANOUT	-	-	-	-	-	-	ZURN MODEL NO. Z1446 CLEANOUT TEE, DURA-COATED CAST IRON BODY, GAS AND WATERTIGHT ABS TAPERED THREAD PLUG, AND ROUND, SMOOTH STAINLESS STEEL WALL ACCESS COVER WITH SECURING SCREW.
CP-1	CIRCULATION PUMP	-	3/4"	-	-	-	-	MODEL: TACO 007E MAX. SHUT-OFF HEAD: 10 FEET MAX. FLOW: 16 GPM MAX. OPERATING PRESSURE: 125 PSI (8.6 BAR) VOLTAGE: 120V, 60 HZ SINGLE PHASE MAX. AMP RATING: 0.54" EQUIPPED WITH A CAST IRON CASING AND SHOULD BE USED FOR CLOSED LOOP SYSTEMS ONLY. W/TIMER & AQUASTAT
WHY-1	WALL HYDRANT	3/4"	-	-	-	-	2 GPM	WOODFORD MODEL B65 ANTI-SIPHON FREEZELESS WALL HYDRANT WITH CHROME STOPS AND BRAIDED SUPPLIES.
MS-1(45)	MOP SINK	1/2"	1/2"	3"	3"	2"	2 GPM	"UNIVERSAL" MODEL MOP-20-12 MOP SINK OR APPROVED EQUAL. INCLUDE "KROWNE" MODEL 16-127 SERVICE FAUCET, HOSE AND BRACKET, AND MOP HANGER, FAUCET TO INCLUDE VACUUM BREAKER, PAIL HOOK, INTEGRAL STOPS, AND FOUR ARM HOT/COLD HANDLES. SEE NOTE #3
HB-1	HOSE BIBB	1/2"	-	-	-	-	2 GPM	WOODFORD MODEL 21 WALL HYDRANT WITH CHROME STOPS AND BRAIDED SUPPLIES.
WS1	COUNTER MOUNTED HAND SINK	1/2"	1/2"	1-1/2"	1-1/2"	1-1/2"	0.5 GPM	TOTO MODEL LT995G#01. INSTALLED ON WALL MOUNTED COUNTER, PROVIDE KOHLER BOTTLE TRAP K-9033-BL.

EQUIPMENT RESPONSIBILITY			
TAG	ITEM	PROVIDED BY	INSTALLED BY
WC-1	WATER CLOSET	PC	PC
L-1	LAVATORY SINK	PC	PC
43	HAND SINK	OWNER	PC
44	3 COMP. SINK	OWNER	PC
40,8	1 COMP. SINK	OWNER	PC
45	MOP SINK	OWNER	PC
46	WATER HEATER	PC	PC
ET-1	EXPANSION TANK	PC	PC
VR-1	VACUUM CONTROL VALVE	PC	PC
FS-1	FLOOR SINK	PC	PC
TP-1	TRAP PRIMER	PC	PC
FD-1	FLOOR DRAIN	PC	PC
RP-1	REDUCED PRESS BACKFLOW	PC	PC
BF-1	DOUBLE CHECK VALVE	PC	PC
31	WATER FILTER	OWNER	PC
26.1	DOUGH FAUCET	OWNER	PC
WS-1	COUNTER MOUNTED HAND SINK	OWNER	PC

NOTES:  
VERIFY W/ ARCHITECTURAL DWGS.  
PC = PLUMBING CONTRACTOR  
GC = GENERAL CONTRACTOR  
OWNER = BLAZE PIZZA

FIXTURE UNIT					
FIXTURE	TOTAL	WASTE		WATER	
		DFU	TOTAL	DFU	TOTAL
WATER CLOSET	3	4.0	12.0	2.5	7.5
LAVATORY SINK	2	1.0	2.0	3.0	3.0
MOP SINK	1	2.0	2.0	3.0	3.0
3 COMP. SINK	1	-	-	3.0	3.0
1 COMP. SINK	1	-	-	3.0	3.0
HAND SINK	4	2.0	8.0	1.5	6.0
FLOOR DRAIN	6	5.0	30.0	-	-
SODA DISPENSER	1	-	-	1.0	1.0
HOT WATER MACHINE	1	-	-	1.0	1.0
TEA BREWER	1	-	-	1.0	1.0
DOUGH FAUCET	1	-	-	1.0	1.0

BASED ON 2021 IPC APPENDIX E TABLE E103.3(2)

TABLE TO CALCULATE DRAINAGE FIXTURE UNITS FOR GREASE WASTE			
FIXTURE	DFU	QTY	TOTAL DFU
HAND SINK	2	3	6
FLOOR SINK	5	5	25
MOP SINK	2	1	2
FLOOR DRAIN	0	4	0
TOTAL DFU			33

NOTE - DFU VALUE AS PER TABLE 709.1, 2021 INTERNATIONAL PLUMBING CODE

CONVERSION OF DFU TO GPM BASED ON CHAPTER 7 SECTION 709.1 33 DFU IS 16.5 GPM

AS PER 2023 FLORIDA PLUMBING CODE 8TH EDITION CHAPTER 10 SECTION 1003.3.7 THE CAPACITY OF GREASE INTERCEPTOR IS PEAK DRAIN FLOW MULTIPLIED BY 30 MINUTES RETENSION TIME.

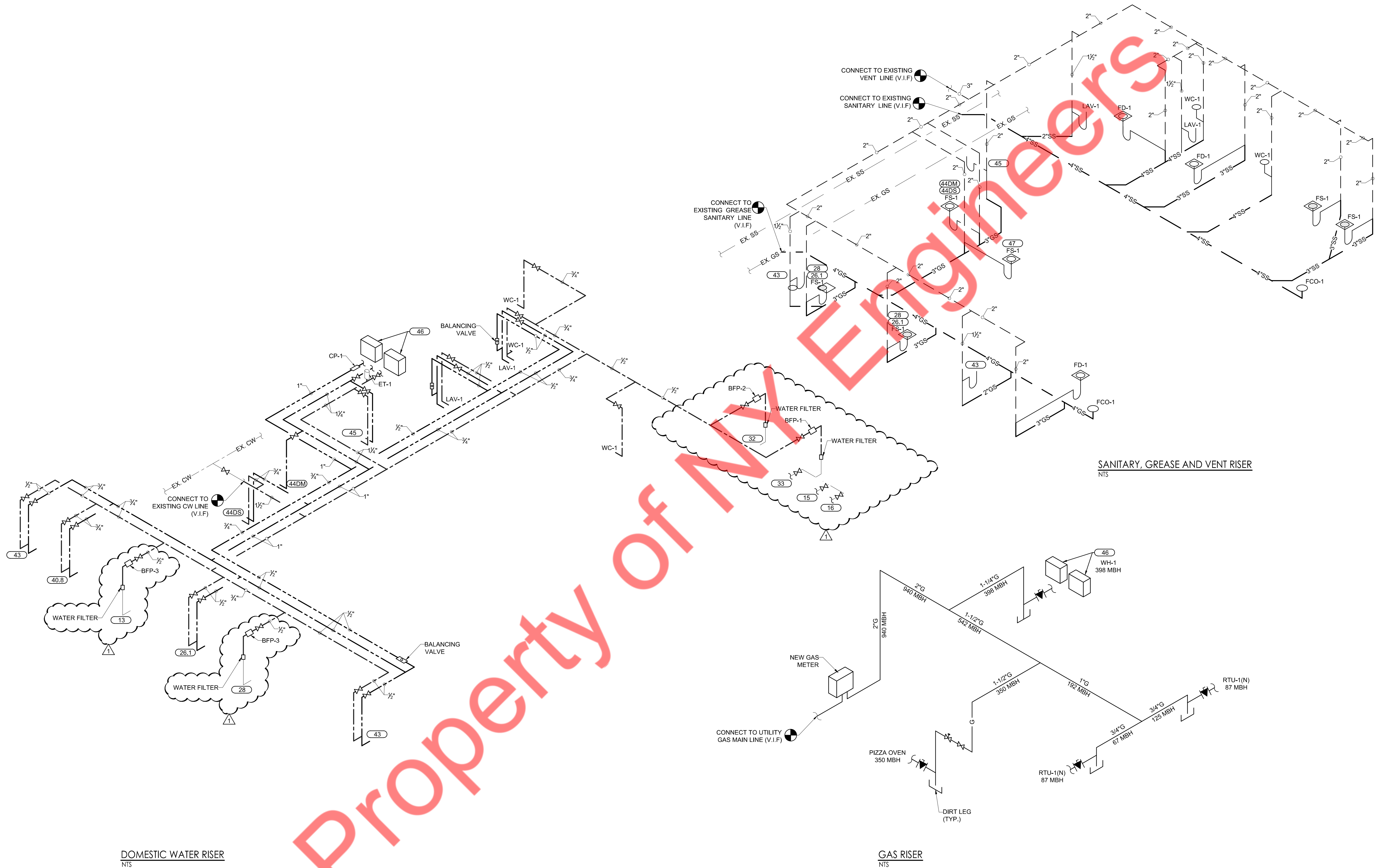
16.5(GPM) X 30(MIN.) = 495 GALLONS.

MINIMUM GRESSE INTERCEPTOR REQUIRED = 750 GALLONS.

GAS DEMAND SCHEDULE		
EQUIPMENT	QTY.	CFH
RTU-1(N)	1	125
RTU-2(N)	1	67
WATER HEATER	2	398
PIZZA OVEN	1	350
TOTAL DEMAND		940

ISSUED REVISIONS:	
△	BUILDING COMMENT
△	
△	
△	
△	
△	
△	
△	

Blaze Pizza  
Plumbing Schedules



DOMESTIC WATER RISER  
NTS

SANITARY, GREASE AND VENT RISER  
NTS

GAS RISER  
NTS

Property of M Engineers

ISSUED REVISIONS:	
△	BUILDING COMMENT

Blaze Pizza  
Plumbing Riser Diagrams