LEGEND

Symbol	Description
	CEILING SUPPLY DIFFUSER
	CONCENTRIC SUPPLY & RETURN DIFFUSER
	CEILING RETURN AIR GRILLE
	MANUAL VOLUME DAMPER
	FIRE DAMPER, FIRE SMOKE DAMPER
	THERMOSTAT
	MOTORIZED DAMPER
	NEW WORK
	SMOKE DETECTOR
	TEMPERATURE SENSOR
	BACKDRAFT DAMPER
	POINT OF CONNECTION
	POINT OF DISCONNECTION
	DOOR UNDERCUT

ABBREVIATIONS

A/C	ABOVE CEILING	ID	INSIDE DIMENSION
AD	ACCESS DOOR	IN	INCHES
ADJ	ADJUSTABLE		
AFF	ABOVE FINISHED FLOOR	KW	KILOWATTS
AUTO	AUTOMATIC		
AC	AIR CONDITIONING		
AHU	AIR HANDLING UNIT	LAT	LEAVING AIR TEMPERATURE
		LB	POUNDS
BAL	BALANCING	LG	LINEAR GRILLE
BDD	BACKDRAFT DAMPER	LRG	LINEAR RETURN GRILLE
B/F	BELOW FLOOR	LWR	LOOP WATER RETURN
B/G	BELOW GRADE	LWS	LOOP WATER SUPPLY
B'FLY	BUTTERFLY		
BHP	BRAKE HORSEPOWER	MIN	MINIMUM
BCO	BASE CLEANOUT	MAX	MAXIMUM
		MD	MANUAL DAMPER
CFM	CUBIC FEET PER MINUTE	MOD	MOTOR OPERATED DAMPER
CBCR	CURVED BLADE CEILING REGISTER	MFR	MANUFACTURER
CSD	CEILING SUPPLY DIFFUSER		
CU	CONDENSING UNIT	NC	NORMALLY CLOSED
CW	COLD WATER (DOMESTIC)	NG	NATURAL GAS
CHWS	CHILLED WATER SUPPLY	NFWH	NON-FREEZE WALL HYDRANT
CHWR	CHILLED WATER RETURN	NO	NORMALLY OPEN
CWS	CONDENSER WATER SUPPLY	NOM	NOMINAL
CWR	CONDENSER WATER RETURN		
CON	CONCENTRIC	OA	OUTSIDE AIR
CO	CLEANOUT	OD	OUTSIDE DIMENSION
COND	CONDENSATE	OBD	OPPOSED BLADE DAMPER
db	DRY BULB		
DN	DOWN	PIU	POWERED INDUCTION UNIT
DR	DRAIN	PSI	POUNDS PER SQUARE INCH
do	DITTO		
dB	DECIBELS		
DWG	DRAWING	RA	RETURN AIR
		RAD	RADIUS
EA	EACH	RG	RETURN AIR GRILLE
EAT	ENTERING AIR TEMPERATURE	RED	REDUCER
ECC	ECCENTRIC	RL	REFRIGERANT LIQUID
EF	EXHAUST FAN	RS	REFRIGERANT SUCTION / RETURN SLOTS
EOD	EMERGENCY OVERFLOW DRAIN	RTU	ROOFTOP UNIT
ER	EXHAUST REGISTER	RR	RETURN REGISTER
ESP	EXTERNAL STATIC PRESSURE		
EWT	ENTERING WATER TEMPERATURE	SP	STATIC PRESSURE
EXH	EXHAUST	SPS	STATIC PRESSURE SENSOR
EFF	EFFICIENCY	SA	SUPPLY AIR
EG	EXHAUST AIR GRILLE	SAN	SANITARY
F	FAHRENHEIT	SD	SMOKE DAMPER / SLOT DIFFUSER
FCO	FLOOR CLEAN OUT	SEN	SENSIBLE
FCU	FAN COIL UNIT	SQ	SQUARE
FSD	FIRE/SMOKE DAMPER	SR	SUPPLY REGISTER
FD	FIRE DAMPER OR FLOOR DRAIN	ST	STORM
FL DR	FLOOR DRAIN (only)	SS	SPLIT SYSTEM
FLR	FLOOR	SG	SUPPLY AIR GRILLE
FOB	FLAT ON BOTTOM	TEMP	TEMPERATURE
FOR	FUEL OIL RETURN	TG	TRANSFER GRILLE
FOS	FUEL OIL SUPPLY	TYP	TYPICAL
FOT	FLAT ON TOP		
FPM	FEET PER MINUITE		
FPS	FEET PER SECOND		
FT	FEET	UON	UNLESS OTHERWISE NOTED
G	GATE	V	VENT
GA	GAUGE	VA	VALVE
GPM	GALLONS PER MINUTE	VTR	VENT THRU ROOF
GL	GLOBE	VAV	VARIABLE AIR VOLUME
GCO	GRADE CLEANOUT		
		wb	WET BULB
HD	HUB DRAIN	WC	WATER COLUMN
HP	HORSEPOWER	WHA	WATER HAMMER ARRESTOR
HTG	HEATING	WT	WEIGHT
HW	HOT WATER (DOMESTIC)	W	WASTE
HWR	HOT WATER RETURN		
HWRR	HOT WATER REVERSE RETURN		
HWS	HOT WATER SUPPLY		
Hz	HERTZ		

A. GENERAL CONDITIONS

1. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND ALL OTHER SPECIFICATION SECTIONS (IF PROVIDED AS PART OF THE CONTRACT) ARE A PART OF THIS CONTRACT.
2. THE TERM "CONTRACTOR" SHALL MEAN THE "MECHANICAL CONTRACTOR HIRED TO COMPLETE THE WORK OUTLINED IN THESE PLANS AND SPECIFICATIONS", UNLESS OTHERWISE SPECIFIED.
3. THE CONTRACTOR FOR THIS WORK IS REQUIRED TO REVIEW ALL DRAWINGS FOR ALL OTHER TRADES.
4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THEIR SUBCONTRACTORS WITH A FULL SET OF BID DOCUMENTS INCLUDING SPECIFICATIONS AND MUST COORDINATE ITS WORK AND INSPECTIONS AND THE WORK AND INSPECTION OF THEIR SUBCONTRACTORS WITH ALL OTHER TRADES ON SITE TO CONFORM WITH THE GENERAL CONTRACTOR'S TIME SCHEDULE.
5. BY SUBMITTING A QUOTATION OR PROPOSAL THE MECHANICAL CONTRACTOR EXPRESSLY STATES AND WARRANTS THAT ALL DRAWINGS AND SPECIFICATIONS HAVE BEEN THOROUGHLY REVIEWED, AND THAT THIS CONTRACTOR HAS BECOME FAMILIARIZED WITH JOB SITE CONDITIONS AND IS TOTALLY QUALIFIED TO PERFORM ALL OF THE WORK REQUIRED.
6. BEFORE SUBMITTING A FINAL PROPOSAL THE CONTRACTOR SHALL EXAMINE THE SITE OF THE PROPOSED WORK TO DETERMINE THE EXISTING CONDITIONS THAT MAY AFFECT THE PROPOSAL. IF DISCREPANCIES ARE NOTED BETWEEN THE DOCUMENTS AND THE EXISTING CONDITIONS THE ARCHITECT SHALL BE NOTIFIED AND THE CONTRACTOR SHALL RECEIVE CLARIFICATION BEFORE SUBMITTING A BID. THE SUBMISSION OF A PROPOSAL SHALL INDICATE THAT ALL CHARGES AND COSTS MADE NECESSARY BY EXISTING CONDITIONS ARE INCLUDED AND THAT THE COMPLETE SYSTEM AS DESCRIBED HEREIN WILL BE FURNISHED AT THE PROPOSED COST.
   A. THE HVAC SUBCONTRACTOR IS REQUIRED TO VISIT THE SITE DURING BIDDING AND VERIFY LOCATION(S) OF WHERE DUCTWORK IS INDICATED TO BE PLACED, THEIR ROUTES AND POSSIBLE INTERSECTION(S) WITH OTHER EQUIPMENT/WORK (PLUMBING, SPRINKLER, ELECTRICAL, ETC.) TO BE INSTALLED AND/OR EXISTING TO REMAIN AND TO VERIFY HEIGHTS TO "BE INSTALLED" TO MAINTAIN DESIGNED CEILING HEIGHTS AND HEAD ROOM. ANY DISCREPANCIES BETWEEN DESIGNED AND ACTUAL ARE TO BE TOLD TO THE GENERAL CONTRACTOR AND BE INDICATED ON THE BID FORM.
7. WHEN USED, THE TERM "PROVIDED BY CONTRACTOR" SHALL BE INTERPRETED AS MEANING "FURNISHED AND INSTALLED BY CONTRACTOR" WITH THE EXCEPTION WHERE ITEMS ARE "PROVIDED BY TENANT" SHALL BE INTERPRETED AS MEANING "FURNISHED BY TENANT (INSTALLED BY CONTRACTOR)", EXCEPT WHERE NOTED OTHERWISE.

B. GENERAL REQUIREMENTS

1. THE MECHANICAL SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK/SERVICES TO CONTACT THE LOCAL BUILDING DEPARTMENT/AGENCY TO DISCUSS CODE ISSUES/IDIOSYNCRASIES REGARDING THEIR SERVICES AND THE QUOTE ASSOCIATED WITH THE SERVICES TO THE GENERAL CONTRACTOR FOR THIS PROJECT. THIS CONTRACTOR TO BE FAMILIAR WITH THE SITE WHERE SUCH SERVICES/WORK WILL BE PERFORMED, THIS SPECIFIC USE AND THE IDIOSYNCRASIES ASSOCIATED WITH THE LIFE, SAFETY AND HEALTH ASSOCIATED WITH THIS WORK AND TO INDICATE ON THE QUOTE ANY ITEMS REQUIRED THAT ARE NOT NECESSARILY SHOWN ON THE DRAWINGS/SPECIFICATIONS.
2. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, TOOLS, TRANSPORTATION, INCIDENTALS AND DETAILS NECESSARY TO PROVIDE COMPLETE AND FULLY FUNCTIONAL MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS, AS CALLED FOR IN THE SPECIFICATIONS (IF SUPPLIED) AND AS REQUIRED BY JOB CONDITIONS. ALL WORK NOT SPECIFICALLY NOTED AS BEING BY THE LANDLORD SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR. CLOSELY COORDINATE THE ENTIRE INSTALLATION WITH LANDLORD AS REQUIRED. FIELD VERIFY THE EXACT TYPE, SIZE, LOCATION, REQUIREMENTS, ETC. OF EXISTING EQUIPMENT, PIPE AND DUCTS SERVING THE TENANT SPACE PRIOR TO SUBMISSION OF BID.
3. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO SUPPLEMENT EACH OTHER AND ANY MATERIAL OR LABOR CALLED FOR IN ONE SHALL BE PROVIDED EVEN THOUGH NOT SPECIFICALLY MENTIONED IN BOTH. ANY MATERIAL OR LABOR WHICH IS NEITHER SHOWN ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS, BUT WHICH IS NECESSARY TO COMPLETE THE WORK OR WHICH IS USUALLY INCLUDED IN WORK OF SIMILAR CHARACTER, SHALL BE PROVIDED AS PART OF THE CONTRACT.
4. WHERE THE DRAWINGS AND / OR SPECIFICATIONS CALL FOR ITEMS THAT EXCEED CODES OR THE LANDLORD'S TENANT CRITERIA, THE CONTRACTOR IS STILL RESPONSIBLE FOR PROVIDING THE SYSTEM AS DESIGNED AND DESCRIBED ON THE DRAWINGS, UNLESS SPECIFICALLY NOTED OTHERWISE.
5. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH DETAILED REQUIREMENTS OF LEASE EXTRACTS FROM THE LANDLORD AND TENANT.
6. COORDINATE LOCATIONS OF ALL AIR OUTLETS WITH ALL WALLS, LIGHTS, SPRINKLER HEADS, CEILING TILES AND DECORATIVE CEILING FIXTURES PRIOR TO INSTALLATION.
7. ALL MECHANICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATION, SERVICE, MAINTENANCE AND REPAIR. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SUFFICIENT ACCESS TO ALL EQUIPMENT FOR SERVICE.
8. THE CONTRACTOR SHALL DO ALL CUTTING, CORE DRILLING, CHASING, OR CHANNELING AND PATCHING REQUIRED FOR ANY WORK UNDER THIS CONTRACT. CUTTING SHALL HAVE PRIOR APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER AND THE LANDLORD OR LANDLORD'S REPRESENTATIVE. PATCHING SHALL MATCH FINISH OF SURROUNDING AREA.

C. CODES

1. ALL WORK SHALL BE PERFORMED IN A NEAT AND PROFESSIONAL MANNER USING GOOD CONSTRUCTION PRACTICES. ALL WORK SHALL CONFORM TO THE LATEST ADOPTED EDITION OF THE LANDLORD'S CRITERIA; THE STATE, COUNTY AND LOCAL CODES AND ORDINANCES; THE LATEST EDITIONS OF ASHRAE STANDARDS; THE LIFE SAFETY CODE; THE APPLICABLE BUILDING CODE; UNDERWRITERS LABORATORIES; THE NATIONAL ELECTRICAL CODE; NFPA 70, 90A, AND 96; AND ALL OTHER APPLICABLE CODES ENFORCED BY AUTHORITIES HAVING JURISDICTION. THE CHANGES REQUIRED BY ANY APPLICABLE CODES SHALL BE INCLUDED IN THE BID. AFTER THE CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE TENANT TO THE CONTRACTOR.

D. LICENSES, PERMITS, INSPECTIONS AND FEES

1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL LICENSES, PERMITS, INSPECTIONS AND FEES REQUIRED OR RELATED TO THIS WORK.
2. FURNISH TO THE TENANT'S CONSTRUCTION MANAGER ALL CERTIFICATES OF INSPECTION AND FINAL INSPECTION APPROVAL AT COMPLETION OF PROJECT.

E. DRAWINGS

1. DRAWINGS (PLANS AND SPECIFICATIONS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. BECAUSE OF THE SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL DUCT AND PIPE OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. THE MECHANICAL CONTRACTOR MUST OBTAIN APPROVED CONSTRUCTION DRAWINGS FROM THE GENERAL CONTRACTOR BEFORE BEGINNING ANY WORK.
2. THE LAYOUT SHOWN ON THE DRAWINGS IS BASED ON A PARTICULAR MAKE OF EQUIPMENT. IF ANOTHER MAKE OF EQUIPMENT IS USED WHICH REQUIRES MODIFICATION OR CHANGE OF ANY DESCRIPTION FROM THE DRAWINGS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE AS PART OF THIS WORK, FOR MAKING ALL SUCH MODIFICATIONS AND CHANGES, INCLUDING THOSE INVOLVING OTHER TRADES WITH THE COST THEREOF INCLUDED IN THE BID. IN SUCH CASE, CONTRACTOR SHALL SUBMIT DRAWINGS AND SPECIFICATIONS PRIOR TO STARTING WORK SHOWING ALL SUCH MODIFICATIONS AND CHANGES. THE PROPOSAL SHALL BE SUBJECT TO THE APPROVAL OF THE TENANT'S CONSTRUCTION MANAGER.

F. EXISTING LEASE SPACE CONDITIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THE DEMOLITION OF EXISTING MECHANICAL WORK IN THE SPACE NOT SHOWN TO BE REUSED IN THE NEW TENANT SPACE.
2. THE CONTRACTOR, IN REGARDS TO ANY SAW CUTTING, CORE DRILLING OR ANY PENETRATING OF A CONCRETE SLAB, FLOOR AND/OR ROOF, IS REQUIRED TO SURVEY DURING BIDDING TO DETERMINE ANY ISSUES, INCLUDING BUT NOT LIMITED TO, NECESSITY OF X-RAYING OF A CONCRETE SLAB, WHERE SUCH MATERIAL BEING PENETRATED IS NOT PROJECTED AND/OR ROUTED INTO A SPACE(S) THAT CREATES A NON-CODE COMPLIANT CONDITION, THE NEED FOR WEATHER STRIPPING, WATERPROOFING OR OTHER CONDITION AND TO NOTIFY THE OWNER IF A PROBLEM(S) MAY EXIST AND TO INCLUDE COSTS TO SOLVE THE ISSUE UNCOVERED, IN ADDITION TO, NOTIFYING THE ARCHITECT OF RECORD REGARDING SUCH ISSUE(S).
3. ACTIVE LANDLORD OR OTHER TENANT SERVICES ENCOUNTERED IN WORK SHALL BE PROTECTED AND SUPPORTED. IF EXISTING SERVICES NOT ANTICIPATED REQUIRE RELOCATION, CONTACT THE TENANT'S CONSTRUCTION MANAGER IMMEDIATELY. ALL COSTS FOR REPAIR OF DAMAGES TO ACTIVE LANDLORD OR OTHER TENANT SERVICES DURING CONSTRUCTION SHALL BE PAID FOR BY THE CONTRACTOR CAUSING THE DAMAGE.
4. TIE-INS AND MODIFICATIONS TO EXISTING LANDLORD SERVICES MUST BE DONE WITH MINIMUM INTERRUPTION OF LANDLORD OPERATION AND DURING HOURS SPECIFIED BY THE LANDLORD. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING EXACT WORKING HOURS OF THIS WORK WITH THE LANDLORD PRIOR TO SUBMITTING THEIR BID. THE CONTRACTOR SHALL INCLUDE IN THEIR BID, ALL PREMIUM TIME REQUIRED TO PERFORM MODIFICATIONS DURING OTHER THAN NORMAL WORKING HOURS. ALL SUCH WORK MUST BE COORDINATED WITH THE LANDLORD.
5. EQUIPMENT AND MATERIALS IN TRANSIT SHALL UTILIZE FREIGHT ELEVATOR OR STAIRS. SAID EQUIPMENT OR MATERIALS SHALL BE DISASSEMBLED AS REQUIRED TO MEET THE RESTRICTIONS IMPOSED BY THE BUILDING OR ITS COMPONENT CONSTRAINTS AND THEN REASSEMBLED IN THE NEW WORK AREA.
6. ALL WORK SHALL BE DONE WITH A MINIMUM OF NOISE AND DISTURBANCE TO BUSINESS ROUTINE. ALL WORK SCHEDULES SHALL BE COORDINATED WITH, AND APPROVED BY, THE TENANTS CONSTRUCTION MANAGER.
7. SINCE THESE ARE SECURE FLOORS, ALL DELIVERIES, WORKERS, WORK OPERATORS, ETC., REQUIRED BY THE CONTRACTOR FOR WORK PERFORMED IN ANY AREA OR SITE BUILDING SHALL BE IN STRICT CONFORMANCE TO THE RULES AND REGULATIONS OF THE OWNER.
8. CONTRACTOR SHALL PROTECT THEIR WORK AND EQUIPMENT FROM DAMAGE, VANDALS, ETC. ANY ITEM THAT IS DAMAGED, VANDALIZED OR STOLEN PRIOR TO ACCEPTANCE OF BUILDING BY OWNER AND ARCHITECT SHALL BE REPLACED BY RESPECTIVE CONTRACTOR AT NO CHARGE TO TENANT.
9. IT IS SPECIFICALLY THE INTENTION OF THIS SPECIFICATION TO HOLD THE CONTRACTOR RESPONSIBLE FOR ALL DAMAGE DONE TO ANY EXISTING FACILITIES, EQUIPMENT, PAINTING, OR ARCHITECTURAL AND STRUCTURAL FEATURES OF THE BUILDING, BY EITHER THEIR OWN WORKMEN OR BY ANY OF THEIR SUBCONTRACTORS. THE CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY THEIR OWN WORKMEN OR SUBCONTRACTORS AND THE OWNER AT THEIR DISCRETION, MAY WITHHOLD PAYMENTS EQUAL TO THE REASONABLE COST OF THE REPAIRS.
10. THIS CONTRACTOR OR THEIR WORKMEN SHALL NOT BE PERMITTED TO USE ANY PART OF THE EXISTING BUILDING AS A SHOP WITHOUT THE APPROVAL OF THE OWNER AND ARCHITECT.
11. WHERE THE WORK MAKES TEMPORARY SHUTDOWN OF SERVICES UNAVOIDABLE, THEY SHALL BE MADE AT NIGHT OR AT SUCH TIMES AS WILL CAUSE THE LEAST INTERFERENCE WITH THE ESTABLISHED OPERATING ROUTINE.
12. THIS CONTRACTOR SHALL ARRANGE THE WORK SO AS TO ASSURE THAT SERVICES WILL BE SHUT DOWN ONLY DURING THE TIME ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTION TO THE EXISTING WORK. THIS CONTRACTOR SHALL GIVE AMPLE WRITTEN NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED SHUT DOWN.
13. ALL MOTORS, FANS, CONTROLS, FIXTURES, HVAC UNIT, DUCTWORK AND OTHER EQUIPMENT FOR USE IN THIS CONTRACT SHALL BE PROTECTED BY TARPAULIN OR BY BOXING AS SOON AS DELIVERED TO THE SITE AND SHALL BE KEPT CLEAN AND DRY. THE MOTORS, UNITS, FIXTURES, FANS, DUCTWORK AND MOVING PARTS SHALL BE KEPT COVERED SO AS TO ELIMINATE DIRT, DUST AND OTHER MATERIALS ENTERING THE PARTS DURING ERECTION AND CONSTRUCTION WORK ON THE BUILDING. SHOULD IT BE FOUND THAT ANY PARTS ARE DAMAGED DUE TO CARELESSNESS ON THE PART OF THE CONTRACTOR IN NOT PROVIDING PROPER PROTECTION, SUCH PART OR PARTS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST AND EXPENSE. ALL OPENINGS IN DUCTS, PIPING, CONDUITS, ETC., SHALL BE PROPERLY PROTECTED WITH TEMPORARY CAPS OR PLUGS AT ALL TIMES.

G. DISCREPANCIES IN DOCUMENTS

1. DRAWINGS (PLANS, SPECIFICATIONS AND DETAILS) ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION AND INTENT OF THE MECHANICAL SYSTEMS. WHERE DRAWING, EXISTING SITE CONDITIONS, SPECIFICATIONS OR OTHER TRADES CONFLICT OR ARE UNCLEAR, ADVISE THE GENERAL CONTRACTOR IN WRITING, PRIOR TO SUBMITTAL OF BID. THE GENERAL CONTRACTOR IS RESPONSIBLE TO ADVISE THE TENANT'S CONSTRUCTION MANAGER, IN WRITING, OF VARIATIONS TO THE CONTRACT DOCUMENTS PRIOR TO SUBMISSION OF BID. OTHERWISE, TENANT'S CONSTRUCTION MANAGER'S INTERPRETATION OF CONTRACT DOCUMENTS OR CONDITIONS SHALL BE FINAL WITH NO ADDITIONAL COMPENSATION PERMITTED.

H. TRADE NAMES AND MANUFACTURERS

1. WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THE EXACT EQUIPMENT SHALL BE USED AS A MINIMUM STANDARD FOR THE BASE BID. MANUFACTURERS CONSIDERED AS AN EQUIVALENT OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJECT TO REVIEW IN WRITING BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO ACCEPTANCE. THE USE OF ANY UNAUTHORIZED EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

I. SHOP DRAWINGS

1. SUBMIT THREE COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUCT FABRICATION DRAWINGS TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW PRIOR TO ORDERING EQUIPMENT. SUBMISSIONS MUST BE EARLY ENOUGH TO ALLOW THE TENANT'S CONSTRUCTION MANAGER EIGHT WORKING DAYS FOR REVIEW WITHOUT CAUSING DELAYS OR CONFLICTS TO THE JOB'S PROGRESS. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS USING THE MANUFACTURER'S LISTED ON THE DRAWINGS. SHOP DRAWINGS SHALL INCLUDE ALL DATA THAT PERTAINS TO THE REQUIREMENTS SET FORTH ON THE DRAWINGS AND IN THE SPECIFICATIONS. THE SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED TO CUTS OR CATALOGS INCLUDING DESCRIPTIVE LITERATURE AND CHARACTERISTICS OF EQUIPMENT SHALL SHOW MAJOR DIMENSIONS, ROUGHING-IN DATA, CAPACITY, CURVES, PRESSURE DROPS, CODE COMPLIANCE, MOTOR AND DRIVE DATA AND ELECTRICAL DATA. OBSERVE SPECIAL INSTRUCTIONS WHEN REQUIRED. SUBMITTALS SHALL BEAR THE STAMP OF THE GENERAL AND SUBCONTRACTOR SHOWING THAT HE HAS REVIEWED AND CONFIRMED THAT THEY ARE IN CONFORMANCE WITH THE CONTRACT DOCUMENTS OR INDICATE WHERE EXCEPTIONS TAKE PLACE. LACK OF SUCH CONTRACTOR'S REVIEW WILL BE CAUSE FOR REJECTION WITHOUT REVIEW BY TENANT'S CONSTRUCTION MANAGER. ALL SHOP DRAWINGS MUST APPEAR IN THE OPERATION AND MAINTENANCE MANUALS LEFT ON SITE AT JOB COMPLETION.
   A. BY SUBMITTING SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND SIMILAR SUBMITTALS, THE CONTRACTOR REPRESENTS TO THE CLIENT AND ARCHITECT THAT THE CONTRACTOR HAS (1) REVIEWED AND APPROVED THEM, (2) DETERMINED AND VERIFIED MATERIALS, FIELD MEASUREMENTS AND FIELD CONSTRUCTION CRITERIA RELATED THERETO, OR WILL DO SO AND (3) CHECKED AND COORDINATED THE INFORMATION CONTAINED WITHIN SUCH SUBMITTALS WITH THE REQUIREMENTS OF THE WORK AND OF THE CONTRACT DOCUMENTS.
   B. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.
   C. THE WORK SHALL BE IN ACCORDANCE WITH APPROVED SUBMITTALS EXCEPT THAT THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY ANY APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE CLIENT IN WRITING OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND
      C.1. THE ARCHITECT HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION AS A MINOR CHANGE IN THE WORK, OR
      C.2. A CHANGE ORDER OR CONSTRUCTION CHANGE DIRECTIVE HAS BEEN ISSUED AUTHORIZING THE DEVIATION.
      C.3. THE CONTRACTOR SHALL DIRECT SPECIFIC ATTENTION IN WRITING OR ON RESUBMITTED SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS, TO REVISIONS OTHER THAN THOSE REQUESTED BY THE ARCHITECT ON PREVIOUS SUBMITTALS. IN THE ABSENCE OF SUCH WRITTEN NOTICE, THE ARCHITECT'S APPROVAL OF A RESUBMISSION SHALL NOT APPLY TO SUCH REVISIONS.
2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND / OR THEIR SUBCONTRACTORS TO FURNISH SHOP DRAWINGS AND SUBMITTALS ON ANY AND ALL EQUIPMENT, DUCT, DAMPERS, CONTROLS ETC. TO THE TENANT'S CONSTRUCTION MANAGER OR ARCHITECT FOR THEIR REVIEW PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS, OMISSIONS OR OTHER DEFICIENCIES OR DEVIATIONS IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS BY THE TENANT'S CONSTRUCTION MANAGER'S OR ARCHITECT'S APPROVALS THEREOF.

J. RECORD DRAWINGS

1. THE CONTRACTOR SHALL MAINTAIN ONE COPY OF DRAWINGS AND SPECIFICATIONS ON THE JOB SITE TO RECORD DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS LOCATIONS OF CONCEALED PIPING VALVES AND DUCTS, REVISIONS, ADDENDUM'S AND CHANGE ORDERS, SIGNIFICANT DEVIATIONS MADE NECESSARY BY FIELD CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS AND CONTRACTOR'S COORDINATION WITH OTHER TRADES AND EXACT ROUTING OF ALL SANITARY AND DOMESTIC WATER PIPING UNDER FLOOR.
2. AT COMPLETION OF THE PROJECT AND BEFORE FINAL APPROVAL, THE CONTRACTOR SHALL MAKE ANY FINAL CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE THEREON. THE DRAWINGS ARE TO BE TURNED OVER TO THE TENANT.

K. GUARANTEE, WARRANTY

1. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN THE PROPOSAL A ONE YEAR GUARANTEE, WARRANTY ON ALL EQUIPMENT AND MATERIAL INSTALLED OR REFURBISHED, ALL MATERIALS AND WORK UNDER THE CONTRACT AND SHALL MAKE GOOD, REPAIR, OR REPLACE AT THEIR OWN EXPENSE, ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WHICH MAY BE DISCOVERED WITHIN A PERIOD OF 12 MONTHS FROM THE DATE OF WRITTEN ACCEPTANCE OF THE INSTALLATION BY THE TENANT'S CONSTRUCTION MANAGER. IN CASE OF REPLACEMENT OR REPAIR OF EQUIPMENT DUE TO FAILURE WITHIN THE GUARANTEE PERIOD, THE GUARANTEE ON THAT PORTION OF WORK SHALL BE EXTENDED FOR A PERIOD OF 12 MONTHS FROM THE DATE OF SUCH REPLACEMENT OR REPAIR. THIS GUARANTEE, WARRANTY IS TO INCLUDE ALL LABOR, MATERIAL, PARTS, ETC. NECESSARY TO MAINTAIN THE SYSTEM IN SATISFACTORY OPERATION FOR A PERIOD OF ONE YEAR STARTING FROM THE DATE OF ACCEPTANCE OF THE SYSTEM BY THE TENANT. IT SHALL ALSO INCLUDE ONE SUMMER TO WINTER CHANGEOVER AND ONE WINTER TO SUMMER CHANGEOVER, A NEW SET OF FILTERS AT THE TIME OF STARTUP AND TWELVE (12) MONTHLY FILTER CHANGES DURING THE FIRST YEAR. THE NORMAL PREVENTATIVE MAINTENANCE WORK SHALL BE PERFORMED AT THE TIME OF THE FILTER CHANGES. USE ONLY #40 PLEATED TYPE AIR FILTERS.

L. OPERATIONS MANUALS

1. ONE COPY OF EACH OPERATION AND MAINTENANCE MANUAL FOR ALL EQUIPMENT FURNISHED ON THE JOB SHALL BE PROVIDED TO THE TENANT BOUND TOGETHER IN A 3 INCH, THREE RING BINDER. THE BINDER SHALL INCLUDE BUT NOT BE LIMITED TO INSTALLATION, MAINTENANCE AND OPERATING INSTRUCTIONS, PAMPHLETS OR BROCHURES, REVIEWED SHOP DRAWINGS AND WARRANTIES OBTAINED FROM EACH MANUFACTURER OF PRINCIPAL ITEMS OF EQUIPMENT.

M. SLEEVES

1. THE CONTRACTOR SHALL PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE INSTALLATION. EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL, OR PARTITION AND SHALL BE CUT FLUSH WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2 INCHES ABOVE THE FLOOR.
2. ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND / OR FLOORS SHALL BE FIRE SEALED WITH APPROVED SEALANTS RATED FOR THE APPLICATION SO AS TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY. CONFORM TO THE U.L. ASSEMBLY RATING OF THE FLOOR OR WALL.
3. SLEEVES IN BEARING AND MASONRY WALLS, FLOORS AND PARTITIONS SHALL BE STANDARD WEIGHT STEEL PIPE FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDED CEILINGS OR FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE 22 GAUGE GALVANIZED STEEL MINIMUM.
4. DUCT SLEEVES SHALL BE MINIMUM 14 GAUGE STEEL.

N. HANGERS

1. HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS WITH RETAINING CLIPS, CHANNELS, HANGER RODS, ETC. NECESSARY FOR THE INSTALLATION OF WORK.
2. HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT TO PIPING OR DUCTWORK. DUCTWORK SHALL NOT BE SUPPORTED FROM ROOF DECKING AND/OR BRIDGING, BUT SHALL BE SUSPENDED FROM THE TOP CHORD OF BAR JOISTS, STEEL OR OTHER STRUCTURE. DUCTWORK SHALL CLEAR ALL SPRINKLERS AND OTHER OBSTACLES AND SHALL BE HUNG AS HIGH AS POSSIBLE IN WORK AND STORAGE AREAS. WHERE INTERFERENCE'S OCCUR, IN ORDER TO SUPPORT DUCTWORK OR PIPING, THE CONTRACTOR MUST INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE THEY DO NOT INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, ACCESS DOORS AND OTHER EQUIPMENT SERVICE REQUIREMENTS AND/OR OTHER TRADES. HANGER TYPES AND INSTALLATION METHODS ARE SUBJECT TO LANDLORD CRITERIA.
3. HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DIAMETER OF INSULATION. INSTALL 6 INCH LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER AND THE PIPE INSULATION.
4. HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED FROM ONE ANOTHER.

O. ACCESS DOORS

1. FURNISH STEEL ACCESS DOORS AND FRAMES, MINIMUM 16 INCHES BY 20 INCHES OR AS REQUIRED FOR ADEQUATE ACCESS TO THE GENERAL CONTRACTOR FOR ALL LOCATIONS WHERE NECESSARY TO PROVIDE ACCESS TO CONCEALED VALVES AND OTHER EQUIPMENT REQUIRING SERVICE OR INSPECTION. LOCATION, TYPE, SIZE AND NUMBER WILL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE TENANT CONSTRUCTION MANAGER TO SUIT EQUIPMENT REQUIREMENTS. GENERAL CONTRACTOR WILL INSTALL ACCESS DOORS AND FRAMES.
2. ACCESS DOORS LOCATED IN FIRE-RATED WALLS, FLOORS, CEILING-FLOOR, OR CEILING-ROOF ASSEMBLIES SHALL BE FIRE RATED, U.L. LISTED AND LABELED.
3. ACCESS DOORS SHALL BE FLUSH TYPE, MANUFACTURED FROM 14 GAUGE STEEL, COMPLETE WITH FLUSH FLANGE TYPE FRAMES MANUFACTURED FROM 16 GAUGE STEEL, PROVIDED WITH ANCHORS. ACCESS DOORS SHALL BE SUITABLE FOR INSTALLATION IN WALL OR CEILING MATERIALS SHOWN IN ROOM FINISH SCHEDULES. PROVIDE ACCESS DOORS FOR ALL CONCEALED VALVES, VENTS, DAMPERS, FIRE DAMPERS, EXPANSION JOINTS, PULL BOXES, SHOCK ABSORBERS, DRAINS, MOTORS, FANS, PUMPS AND ANY OTHER ITEM REQUIRING SERVICE. DOORS IN PLASTER OR CONCRETE SURFACES SHALL HAVE A RECESSED DOOR WITH CONCRETE OR PLASTER FACING. DOORS IN CARPETED OR TILED AREAS SHALL BE RECESSED WITH TILE FACING. NO ACCESS DOORS ARE REQUIRED IN 2' x 2' AND 2' x 4' LAY-IN ACOUSTIC TILE CEILING. PROVIDE COLORED PINS TO DENOTE ACCESS TILES. FURNISH FACTORY MADE METAL ACCESS DOORS, COMPLETELY FLUSH, "ALLAN HEAD" SCREWDRIVER OPERATED, WITH FRAMES AND CAM-TYPE CATCH WITH STAINLESS STEEL STUD. DOORS SHALL BE NOT LESS THAN 1' x 1' FOR HAND ACCESS. DOORS IN WALLS AND CEILING SHALL BE PRIME COATED CARBON STEEL. FURNISH FIRE RATED DOORS FOR FIRE RATED CONSTRUCTION. RATING OF DOOR MUST BE SAME RATING AS CONSTRUCTION.

P. ELECTRIC MOTORS

1. FURNISH, INSTALL AND ALIGN ALL MOTORS REQUIRED FOR THIS EQUIPMENT, UNLESS THEY ARE FACTORY INSTALLED ON THE UNIT. ALL STARTERS AND ASSOCIATED WIRING AND SAFETY SWITCHES FOR SUCH MOTORS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. STARTERS SHALL MEET ALL REQUIREMENTS AS DEFINED IN THE ELECTRICAL SPECIFICATIONS.
2. DESIGN, CONSTRUCTION AND PERFORMANCE CHARACTERISTICS OF MOTORS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF LATEST NEMA, ANSI, ISEE STANDARDS FOR ELECTRICAL EQUIPMENT. ALL MOTORS SHALL BE SUITABLE FOR OPERATION ON VOLTAGE VARIATION OF PLUS OR MINUS 10 PERCENT, 40 DEGREES C AMBIENT TEMPERATURE AND HAVE A SERVICE FACTOR OF NOT LESS THAN 1.15.

Q. LOW VOLTAGE (24 VOLT) WIRING

1. THE CONTRACTOR IS TO INSTALL ALL LOW VOLTAGE WIRING REQUIRED FOR THEIR EQUIPMENT. THIS WORK INCLUDES ALL TRANSFORMERS AND DEVICES TO MAKE THIS A COMPLETE FUNCTIONAL SYSTEM.
2. ALL WORK IS TO CONFORM TO THE ELECTRICAL SPECIFICATIONS AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
3. ANY CONDUIT REQUIRED BY CODE OR THE LANDLORD WILL BE INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.
4. SMOKE DETECTORS AND REMOTE TEST STATION:
   A. IONIZING TYPE ARE TO BE USED ON THE RETURN SIDE OF THE AHU AND PHOTO-TYPE ARE TO BE USED ON THE SUPPLY SIDE. ON ALL OTHER TYPES OF HVAC UNITS WHERE SMOKE DUCT DETECTORS ARE REQUIRED, USE FIELD INSTALLED IONIZING TYPE IN RETURN DUCTWORK AND PHOTO-TYPE ON THE SUPPLY LOCATED BEFORE THE FIRST TAKEOFF. ONCE ACTIVATED, THE SMOKE DETECTOR WILL SHUT DOWN HVAC UNIT.
   B. SMOKE DETECTORS SHALL HAVE THEIR OWN REMOTE KEY TEST STATION SYSTEM WITH AUDIBLE AND VISUAL ALARM, SIMPLEX MODEL 4098-9842 OR APPROVED EQUIVALENT. ALARM TO HAVE CANDELA SETTING OF 75 AND A HIGH VOLUME HORN TONE SETTING.
   C. ALARM SYSTEM MAY BE DELETED WHERE NOT REQUIRED BY LANDLORD OR BY LOCAL CODE.

--SPECIFIC NOTES --

A. HEATING, VENTILATION AND AIR CONDITIONING

1. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL PLANS AND SPECIFICATIONS TO SEQUENCE, COORDINATE AND INTEGRATE THE VARIOUS ELEMENTS OF THE HVAC SYSTEM, MATERIALS AND EQUIPMENT WITH OTHER CONTRACTORS TO AVOID INTERFERENCE'S AND CONFLICTS.

B. HVAC EQUIPMENT (REFER TO PLANS FOR SCHEDULE OF EQUIPMENT)

1. PRIMARY HVAC UNITS ARE TO BE AS SCHEDULED. EQUIVALENTS MAY BE SUBSTITUTED WITH WRITTEN APPROVAL ONLY.
2. ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL DEVICES, APPURTENANCES AND ACCESSORIES PROVIDED TO MEET THE DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DRAWINGS AND SPECIFIED.
3. EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL AIR CONDITIONING EQUIPMENT MUST HAVE A CONDENSATE DRAIN AND BE TRAPPED IN ACCORDANCE WITH MANUFACTURER'S DATA. SEE DRAWINGS FOR ADDITIONAL DETAILS.
4. SECONDARY DRAIN PANS ARE REQUIRED TO BE INSTALLED BENEATH ALL INDOOR AIR CONDITIONING EQUIPMENT WITH THE EXCEPTION OF AIR TERMINAL BOXES. SECONDARY PANS ARE TO PROTECT ENTIRE UNIT. PROVIDE CONDENSATE PUMPS AS REQUIRED. CONDENSATE SHALL BE DIRECTED TO MOP SINK, LAVATORY TRAP OR OTHER APPROVED DRAIN.

C. TOILET EXHAUST FANS

1. WHERE SHOWN ON DRAWINGS PROVIDE A TOILET EXHAUST FAN COMPLETE WITH GRAVITY BACKDRAFT DAMPER. ALL DUCTWORK, ROOF OPENINGS AND CAPS NECESSARY TO PROVIDE A COMPLETE EXHAUST SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR. REFER TO PLANS FOR APPLICABILITY.

D. VIBRATION ISOLATION DEVICES

1. VIBRATION ISOLATION DEVICES SHALL BE PROVIDED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, WATER SOURCE HEAT PUMPS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC.) AND STRUCTURE.
2. VIBRATING EQUIPMENT HUNG FROM STRUCTURE SHALL BE ISOLATED WITH RUBBER AND SPRING DEVICES. VIBRATING EQUIPMENT SUPPORTED FROM FLOOR OR DECK SHALL BE ISOLATED WITH HOUSED SPRING MOUNT DEVICES.
3. EXAMINE DEAD LOAD AND OPERATING LOAD CONDITIONS WHEN SELECTING DEVICES. ADJUST FOR PROPER ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR.
4. CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.
5. CONSULT MANUFACTURER FOR APPLICATION DATA.

E. CURBS AND STEEL FRAMING FOR SUPPORT

1. THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMING REQUIRED TO INSTALL ALL HVAC EQUIPMENT. CURBS SHALL BE A MINIMUM OF 14 INCHES HIGH AND OF THE SAME MANUFACTURER AS THE EQUIPMENT SUPPORTED. INSULATE UNDER THE COMPRESSOR SECTION TO PREVENT CONDENSATION. ALL CURBS MUST BE INSTALLED SO THAT THE TOP OF CURBS ARE "DEAD" LEVEL. ALL PENETRATIONS OF EXISTING STRUCTURE SHALL BE DONE IN ACCORDANCE WITH THE LANDLORD'S GUIDELINES AT THIS CONTRACTOR'S EXPENSE. ALL CONNECTIONS TO ROOFTOP EQUIPMENT SHALL BE INSIDE THE CURB (CONDENSATE DRAIN, POWER WIRING, CONTROL WIRING, ETC.).

F. METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED

1. NO DUCTWORK SHALL BE FABRICATED PRIOR TO APPROVAL BY THE TENANT'S CONSTRUCTION MANAGER. DEVIATIONS FROM DESIGN MUST BE APPROVED BY TENANT'S CONSTRUCTION MANAGER PRIOR TO FABRICATION OR INSTALLATION. ALL DUCT SHOWN AS ROUND ABOVE A CEILING SHALL BE LONGITUDINAL SEAM DUCT AND SPIRAL WHERE EXPOSED, OR AS SHOWN ON THE DRAWINGS.
2. ALL DUCTWORK SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW VELOCITY AND "HVAC DUCT CONSTRUCTION STANDARDS MANUAL", LATEST EDITION AND ASHRAE USING PRIME SHEETS OF GALVANIZED STEEL. CONFORM TO THE REQUIREMENTS IN THE REFERENCED STANDARD FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, TIE ROD APPLICATIONS AND JOINT TYPES AND INTERVALS. ALL SQUARE ELBOWS SHALL BE PROVIDED WITH DOUBLE WALLED VANES ON MAXIMUM 3" CENTERS. PROVIDE SEAL CLASS "C" ON ALL TRAVERSE JOINTS UNLESS SUPERSEDED BY MORE STRINGENT LOCAL CODES. ALL DUCT CONNECTIONS ARE TO BE RIGID AND LEAK FREE ASSEMBLIES.
3. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ANY DUCTWORK INSTALLED IS TO BE COMPLETELY SEALED UP OF ANY OPENINGS, EITHER AT THE BEGINNING OR END OF A DUCT RUN OR AT A BRANCH, COLLAR DIFFUSER OR REGISTER TO AVOID DIRT OR OTHER CONTAMINANTS FROM ENTERING THE SYSTEM.
4. EXCEPT WHERE OTHERWISE INDICATED, CONSTRUCT DUCT SYSTEMS TO 2-INCH WATER GAUGE PRESSURE CLASSIFICATION (VERIFY WHETHER RETURN OR EXHAUST DUCT IS POSITIVE OR NEGATIVE PRESSURE). PRESSURE TEST DUCTS FOR LEAKAGE. REMAKE LEAKING JOINTS AND APPLY SEALANTS AS REQUIRED TO FABRICATE A SYSTEM THAT DOES NOT EXCEED 5 PERCENT LEAKAGE OR LESS AS STATED BY PRESSURE CLASS RATINGS IN SMACNA STANDARDS.
5. AS A MINIMUM, CROSSBREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3/8 INCH WIDE BY 3/16 INCH DEEP ON 12 INCH CENTERS TO PREVENT VIBRATIONS.
6. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SUPPORT SYSTEMS INDICATED IN SMACNA STANDARDS. NO WOOD SHALL BE USED TO SUPPORT OR BRACE DUCTS. PROVIDE SWAY AND SEISMIC BRACING AS REQUIRED BY STATE AND LOCAL CODES OR BY LANDLORD.
7. WHERE DUCTS PASS THROUGH ROOFS, FLOORS AND FIRE RATED PARTITIONS, PROVIDE AS MINIMUM 1-1/2 INCH BY 1-1/2 INCH BY 1/8 INCH STEEL ANGLE FRAMES AT EACH SIDE OF OPENING. THE ANNULAR SPACE BETWEEN DUCT AND ANGLE FRAMES SHALL BE CAULKED WITH SILICONE SEALANT OR FIREPROOFED AS REQUIRED BY THE ASSEMBLY FIRE RATING. CONTRACTOR TO PROVIDE FIRE OR COMBINATION FIRE / SMOKE DAMPERS AT EACH PENETRATION WHERE REQUIRED BY CODE.
8. ALL TRAVERSE JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR-TIGHT WITH DAP CMC DUCT SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS.
9. SOFT ELASTOMER BUTYL GASKETS WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.
10. DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.
11. PROVIDE ACCESS TO ALL MOTORIZED DAMPERS, FIRE DAMPERS, FIRE / SMOKE DAMPERS, CONTROLS AND OTHER ITEMS IN DUCTWORK THAT REQUIRE SERVICE OR INSPECTION. IF THE ACCESS PANEL LOCATION IS EXPOSED TO THE SALES AREA, IT MUST BE APPROVED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO INSTALLATION. LAY-IN SUPPLY AND RETURN AIR DIFFUSERS, GRILLES AND REGISTERS WITH PLASTER FRAMES MAY BE USED AS ACCESS LOCATIONS.
12. ALL BRANCHES AND TAKEOFFS SHALL BE EQUIPPED WITH MANUAL VOLUME CONTROLLING DEVICES HAVING AN INDICATING AND LOCKING DEVICE.
13. DUCT SIZES SHOWN ON PLAN ARE CLEAR INSIDE AIR STREAM DIMENSIONS.

G. FLEXIBLE CONNECTIONS

1. FLEXIBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, ROOFTOP UNITS, WATER SOURCE HEAT PUMPS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC.) AND DUCTS OR CASINGS. ALSO PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.
2. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FLAMEPROOF FABRIC. PROVIDE ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMISSION OF VIBRATION.
3. FLEXIBLE CONNECTIONS ARE TO BE RATED FOR THE OPERATING PRESSURE OF THE SYSTEM.
4. FINAL CONNECTIONS TO EXHAUST FAN(S) SHALL BE WITH A HEAVY AIRTIGHT ACID RESISTANT FIRE RETARDANT FIBERGLASS NEOPRENE CONNECTOR, A MINIMUM OF SIX (6) INCHES IN LENGTH. THE CONNECTOR SHALL BE FASTENED TO EQUIPMENT AND DUCT WITH TWO FLEXIBLE REMOVABLE BRASS STRAPS OR ALTERNATE APPROVED METHOD.

H. THERMOSTATS

1. MOUNT THERMOSTATS 4'-0" (ADA-COMPLIANT), THERMOSTAT SENSORS 5'-0" ABOVE FINISHED FLOORS, OR AS SHOWN ON THE PLANS, AND SET DATE, TIME, TEMPERATURE, ETC. TURN OVER OPERATING INSTRUCTIONS TO TENANT REPRESENTATIVE.

I. FIRE DAMPERS, SMOKE DAMPERS

1. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL FIRE DAMPERS AS REQUIRED BY LANDLORD AND / OR TENANT CRITERIA AND / OR CODES HAVING JURISDICTION. ALL FIRE DAMPERS SHALL COMPLY WITH THE REQUIREMENTS OF THE BOARD OF FIRE UNDERWRITERS, THE LOCAL FIRE MARSHAL AND SHALL BE LABELED AND APPROVED BY UNDERWRITERS LABORATORIES.
2. FIRE DAMPERS SHALL HAVE THE BLADES OUT OF THE AIR STREAM AND A 165- DEGREE 'F' FUSIBLE LINK.
3. PROVIDE ALL NECESSARY FRAMING AND SLEEVES FOR DAMPER MOUNTING PER UL AND CODE REQUIREMENTS.
4. PROVIDE DUCT ACCESS DOORS IN AN ACCESSIBLE LOCATION FOR ALL FIRE DAMPERS. DOOR IS TO BE 20-GAUGE GALVANIZED DOOR WITH QUICK-OPENING LATCH AND PIANO HINGE.
5. WHERE REQUIRED BY LOCAL CODES, LANDLORD AND IF INDICATED ON DRAWINGS, PROVIDE UL555S SMOKE DAMPER WITH FIRE / HEAT / SMOKE SENSOR, REVERSIBLE MOTOR AND INTERLOCK WITH FIRE ALARM SYSTEM.

J. FLEXIBLE AIR DUCT

1. FLEXIBLE DUCT FOR CONNECTIONS SHALL BE A FACTORY FABRICATED ASSEMBLY CONSISTING OF AN INNER SLEEVE, INSULATION AND AN OUTER MOISTURE BARRIER. THE INNER SLEEVE SHALL BE CONSTRUCTED OF A CONTINUOUS VINYL COATED SPRING STEEL WIRE HELIX FUSED TO A CONTINUOUS LAYER OF FIBERGLASS IMPREGNATED AND COATED VINYL. A 1-1/4" THICK LAYER OF INSULATING BLANKET OF FIBERGLASS WOOL SHALL ENCASE THE INNER SLEEVE AND BE SHEATHED WITH AN OUTER MOISTURE BARRIER OF A BI-DIRECTIONAL REINFORCED METALIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM WORKING VELOCITY OF 6000 FPM AND SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES UNDER THEIR UL-181 STANDARDS AS A CLASS 1 DUCT AND SHALL COMPLY WITH NFPA STANDARD - 90A. THE FLEXIBLE DUCT SHALL BE THERMAFLEX M-KC OR APPROVED EQUIVALENT. FLEXIBLE DUCT SHALL ROUTE FROM SHEET METAL DUCTWORK TO CEILING DIFFUSERS ONLY. THERE SHALL BE NO EXPOSED FLEXIBLE DUCT.
2. FLEXIBLE AIR DUCT MAY ONLY BE USED IN VERTICAL APPLICATIONS WITH PRIOR APPROVAL FROM THE TENANT'S CONSTRUCTION MANAGER.
3. FLEXIBLE DUCT SHALL NOT EXTEND OVER 5 FEET IN LENGTH AT ANY ONE LOCATION.

K. SUPPLY AND RETURN AIR TAKEOFF FITTINGS

1. RECTANGULAR DUCT
   A. PROVIDE 45-DEGREE RECTANGULAR TAKEOFFS FROM MAIN DUCTWORK TO RECTANGULAR BRANCHES.
2. SPIRAL DUCT
   A. PROVIDE SADDLE OR DIRECT CONNECTION OF A BRANCH DUCT INTO A LARGER DUCT. THE DIAMETER OF THE BRANCH SHALL NOT EXCEED TWO THIRDS OF THE DIAMETER OF THE MAIN. PROTRUSIONS INTO THE MAIN ARE NOT ALLOWED.

L. DAMPERS

1. PROVIDE MANUAL LOCKING QUADRANT VOLUME CONTROL DAMPERS WITH HANDLE OPERATORS IN EACH BRANCH DUCT AND AS SHOWN ON PLANS TO FACILITATE AIR BALANCING.
2. WHERE ACCESS TO BALANCING DAMPER IS RESTRICTED OR IN AREAS WITH SHEET ROCK CEILINGS, YOUNG REGULATORS SHALL BE USED.
3. ALL RECTANGULAR DAMPERS IN OUTSIDE AIR AND RELIEF AIR DUCTS ARE TO BE OPPOSED BLADE TYPE. ALL RECTANGULAR DAMPERS IN RETURN AIR DUCTS TO BE PARALLEL BLADE TYPE. ALL OUTSIDE AIR DUCT DAMPERS MUST ALSO BE OF THE LOW LEAKAGE TYPE.
4. ALL MOTORIZED DAMPERS NOT FURNISHED WITH EQUIPMENT ARE TO BE HONEYWELL DAMPERS.
5. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.

M. DIFFUSERS, GRILLES AND REGISTERS

1. PROVIDE DIFFUSERS, GRILLES AND REGISTERS AS SCHEDULED. DEVICES TO BE COMPLETE WITH FRAMES AND ALL ACCESSORIES. ALL DIFFUSERS, GRILLES AND REGISTERS IN SHEET ROCK CEILINGS TO BE PROVIDED WITH PLASTER FRAMES. FINISH TO BE COORDINATED WITH INTERIOR FINISHES.
2. INSTALL ALL AIR DEVICES AS LOCATED ON THE ARCHITECTURAL REFLECTED CEILING PLAN OR THE MECHANICAL PLAN.

N. DUCTWORK INSULATION

1. ALL NEW SUPPLY AND RETURN AIR DUCTWORK WITHIN 10' OF HVAC UNIT SHALL BE ACOUSTICALLY LINED. DUCT SIZES SHOWN ON THE DRAWING ARE INTERNAL FREE AREA SIZES. INTERNAL LINER SHALL BE 1-INCH THICK DUCT LINER EQUIVALENT TO JOHNS MANVILLE "PERMACOTE LINACOUSTIC" ("R VALUE" = 6) AND SHALL BE APPLIED TO THE DUCTWORK WITH FIRE RESISTIVE ADHESIVES AND CADMIUM OR COPPER PLATED MECHANICAL FASTENERS.
2. ALL OUTSIDE AIR AND UNEXPOSED DUCTWORK WITHIN BUILDING, EXCEPT WHERE ACOUSTICALLY LINED, SHALL HAVE 2-INCH, FIBERGLASS DUCT WRAP INSULATION WITH FSK FACING EQUIVALENT TO JOHNS MANVILLE "MICROLITE XG TYPE 75" (INSTALLED "R VALUE" = 6).
3. MINIMUM INSULATION REQUIREMENTS AS PER DELAWARE ENERGY CONSERVATION CODE 2018:

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

4. LEADING EDGES OF DUCT INSULATION SHALL BE OVERLAPPED BY ADJOINING INSULATION AT LEAST 6 INCHES MINIMUM AND THEN SEALED WITH FOIL VAPOR BARRIER ADHESIVE AND DUCT MASTIC SO THAT NO FIBERGLASS INSULATION IS VISIBLE.
5. ALL INSULATION ON EXISTING PIPING OR DUCTS THAT BECOMES WET, DAMAGED, DISTURBED OR GETS REMOVED SHALL BE REPLACED.
6. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES. INSULATION MUST COMPLY WITH NFPA 90A.
7. ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NO HIGHER THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM TEST: C411 OR AS REQUIRED BY LOCAL CODES.
8. EXTERIOR SUPPLY AND RETURN DUCT INSULATION:
   A. SERVICE: RECTANGULAR, SUPPLY-AIR AND RETURN-AIR DUCTS.
      A.1. MATERIAL: INSULATION BOARD, 6 PSF MINIMUM AND PLAIN FACING.
      A.2. THICKNESS: 2 INCHES.
      A.3. NUMBER OF LAYERS: TWO.
      A.4. TOTAL THICKNESS = 4".
      A.5. VAPOR RETARDER REQUIRED: YES.
   B. INORGANIC GLASS FIBERS PREFORMED AND BONDED BY THERMOSETTING RESIN. MUST COMPLY WITH ASTM C 612, TYPE 1A & 1B, KNAUF INSULATION OR APPROVED EQUIVALENT.
   C. INSULATION INSTALLED OUTDOORS: FLAME SPREAD RATING OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS.
8. APPLY INSULATION AS FOLLOWS:
   A. APPLY TWO-LAYER INSULATION WITH JOINTS TIGHTLY BUTTED AND STAGGERED AT LEAST 3 INCHES. SECURE LAYERS WITH ADHESIVE, MECHANICAL FASTENERS OR BANDING. FASTENERS SHALL BE LOCATED A MAXIMUM OF 3" FROM EACH EDGE AND NO GREATER THAN 12" APART.
   B. ON EXPOSED APPLICATIONS, FINISH INSULATION WITH A SKIM COAT OF MINERAL-FIBER, HYDRAULIC-SETTING CEMENT TO SURFACE OF INSTALLED INSULATION. WHEN DRY, APPLY FLOOD COAT OF LAGGING ADHESIVE AND PRESS ON ONE LAYER OF GLASS CLOTH OR TAPE. OVERLAP EDGES AT LEAST 1 INCH (25 MM). APPLY FINISH COAT OF LAGGING ADHESIVE OVER GLASS CLOTH OR TAPE. THIN THE FINISH COAT TO ACHIEVE SMOOTH FINISH. OUTDOOR JACKET: POLYGUARD PRODUCTS, INC. 'ALUMAGUARD 60' OR MFM BUILDING PRODUCTS CORP. 'FLEXCLAD 400'.

O. SYSTEM CLEANOUT

1. UPON COMPLETION OF INSTALLATION, CLEAN ENTIRE SYSTEM BEFORE INSTALLING AIR OUTLETS. CONTRACTOR TO PROVIDE A CERTIFICATION THAT CLEANING WAS ACCOMPLISHED PRIOR TO PROJECT CLOSEOUT.
2. FILTERS MUST BE IN UNITS AT ANY TIME FANS ARE OPERATED.

P. SYSTEM TESTING, ADJUSTING AND BALANCING

1. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE COMPLETED BY AN INDEPENDENT CONTRACTOR WHO IS CURRENTLY LICENSED BY THE ASSOCIATED AIR BALANCING COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). NO OTHER BALANCE REPORTS WILL BE REVIEWED OR ACCEPTED. ALL BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MOST RECENT STANDARDS OF THEIR SOCIETY. PAYMENT OF ALL COSTS FOR TESTING SHALL BE MADE BY THE HVAC CONTRACTOR.
2. THE CONTRACTOR SHALL INSTALL NEW FILTERS IN ALL UNITS PRIOR TO THE AIR BALANCING. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION.
3. BALANCE AIR AND WATER QUANTITIES TO WITHIN PLUS OR MINUS 5 PERCENT OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS, PULLEYS OR THE ADDITION OF DAMPERS REQUIRED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PROVIDED BY THE HVAC CONTRACTOR WITH NO ADDITIONAL COST TO THE TENANT.
4. THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION:
   A. AABC OR NEBB CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR.
   B. INSTRUMENTATION LIST WITH LAST CALIBRATION DATES.
   C. MAKE AND MODEL NUMBERS OF ALL HVAC EQUIPMENT TESTED.
   D. AIR CFM AND STATIC PRESSURE READINGS (DISCHARGE AND SUCTION) AS MEASURED BY PITOT TUBE DUCT TRAVERSE AT THE UNITS.
   E. MOTOR NAMEPLATE DATA WITH ACTUAL FIELD VOLTAGE AND AMPERAGE READINGS FOR EACH LEG.
   F. MOTOR AND FAN RPM, SHEAVE SIZES AND BELT SIZES AND LENGTHS.
   G. OUTSIDE, RETURN, MIXED AND SUPPLY AIR TEMPERATURES AT FULL COOLING.
   H. MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT.
   I. FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETURNS WHERE DUCTED).
   J. INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.
5. ALL CONTROL SEQUENCES SHALL BE TESTED AND OPERATING STATUS RECORDED IN THE REPORT.
6. THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW AND COMMENT.
7. THE BALANCING CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS REQUIRED FOR THE SYSTEM DESIGNED IN THESE DRAWINGS. THE BALANCING CONTRACTOR SHALL RECHECK ANY ITEMS THAT THE TENANT DEEMS NECESSARY AT NO ADDITIONAL COST TO THE TENANT.
8. FINAL BALANCE REPORT SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL.

Property of My Engineers

Ollie's Bargain Outlet Tenant Improvement

M001

MECHANICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES

Q. FINAL HVAC INSPECTIONS

1. ASIDE FROM NORMAL INTERIM INSPECTIONS OF WORK IN PLACE, THE TENANT SHALL HAVE THE RIGHT TO HAVE AN INDEPENDENT HVAC CONTRACTOR INSPECT THE FINISHED HVAC INSTALLATION UPON COMPLETION FOR COMPLIANCE WITH THE PLANS, SPECIFICATIONS AND CODES. THE INSTALLING CONTRACTOR WILL BE RESPONSIBLE TO BRING ALL ITEMS REPORTED BY THE INDEPENDENT HVAC CONTRACTOR UP TO PLANS AND SPECIFICATIONS REQUIREMENTS AT NO ADDITIONAL COST TO THE TENANT.

R. INDOOR AIR QUALITY

1. NO ANALYSIS HAS BEEN MADE WITH REGARD TO SOURCES OR POTENTIAL SOURCES OF INDOOR OR OUTDOOR AIR CONTAMINANTS OR LEVELS OF CONTAMINATION.
2. IT IS THE RESPONSIBILITY OF THE GENERAL AND MECHANICAL CONTRACTOR TO INFORM THE TENANT'S REPRESENTATIVE, LANDLORD AND TENANT'S ARCHITECT IF ANY SOURCE OR POTENTIAL SOURCE OF INDOOR AIR CONTAMINATION IS IDENTIFIED.
3. PRIOR TO ENCLOSING SPACES SUCH AS PLUMBING CHASES, AIR SHAFTS AND RETURN AIR PLENUMS CLEAN ALL AREAS THOROUGHLY. THE CONTRACTOR SHALL GUARANTEE THAT THE PLENUM CHAMBER USED FOR RE-CIRCULATING OF AIR WILL BE OF TIGHT CONSTRUCTION AND THAT ALL SOURCES OF CONTAMINATION FROM TRAPS, SOIL STACKS, DOWNSPOUTS, VENTS, EXHAUST DISCHARGES AND OTHER SOURCES WILL BE ENCLOSED SO THAT NO CONTAMINATED AIR WILL BE RE-CIRCULATED.
4. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES SHUT OFF THE HVAC SYSTEM, BLOCK OFF ALL AIR GRILLS, DIFFUSERS AND OTHER OPENINGS OUTSIDE THE IMMEDIATE CONSTRUCTION AREA. OPENINGS TO ADJACENT TENANT SPACES SHALL BE COVERED WITH FILTER MEDIA TO PREVENT DUST AND OTHER AIRBORNE CONTAMINANTS FROM PASSING TO ADJOINING SPACES.
5. CONTRACTOR TO INSTALL TEMPORARY EXHAUST SYSTEM TO VENTILATE CONSTRUCTION SITE AND KEEP SITE UNDER SLIGHT NEGATIVE PRESSURE DURING ALL HOURS OF CONSTRUCTION, EVEN IF AFTER NORMAL BUSINESS HOURS.
6. CONTRACTOR TO INSTALL TEMPORARY BARRIERS TO PROTECT ADJACENT SPACES FROM DUST, PARTICULATES, VAPORS AND NOISE. WHERE TEMPORARY BARRIERS ARE INSTALLED ALWAYS MAINTAIN FIRE EXITS AND EXITWAYS.

THERMOSTATIC CONTROLS:

A. GENERAL:

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 HUMIDITY 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:

1. THE PERIMETER SYSTEM INCLUDES AT LEAST 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.

B. DEADBAND:

WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEAD BAND 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.

C. 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 C403.4.1.2.

D. HEATED OR COOLED VESTIBULES

THE HEATING SYSTEM FOR HEATED VESTIBULES AND AIR CURTAINS WITH INTEGRAL HEATING SHALL BE PROVIDED WITH CONTROLS CONFIGURED TO SHUT OFF THE SOURCE OF HEATING WHEN THE OUTDOOR AIR TEMPERATURE IS GREATER THAN 45°F (7°C). VESTIBULE HEATING AND COOLING SYSTEMS SHALL BE CONTROLLED BY A THERMOSTAT LOCATED IN THE VESTIBULE CONFIGURED TO LIMIT HEATING TO A TEMPERATURE NOT GREATER THAN 60°F (16°C) AND COOLING TO A TEMPERATURE NOT LESS THAN 85°F (29°C).

EXCEPTION:

1. CONTROL OF HEATING OR COOLING PROVIDED BY SITE-RECOVERED ENERGY OR TRANSFER AIR THAT WOULD OTHERWISE BE EXHAUSTED.

E. 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 READILY ACCESSIBLE MANUAL SHUTOFF SWITCH.

F. 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).

G. 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.

H. AUTOMATIC START :

AUTOMATIC START CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE 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.

DELAWARE BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF INTERNATIONAL BUILDING CODE IBC 2018, AND ALL RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
2. VENTILATION FOR ALL AREA SHALL COMPLY WITH IMC 2021, CHAPTER 4.
3. AS PER C408.2.5 OF IECC 2018, CONSTRUCTION DOCUMENT SHALL REQUIRE THAT, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS OF THE ACTUAL INSTALLATION BE PROVIDED TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE BUILDING OWNER.
4. AS PER C408.3.2 OF IECC 2018, CONSTRUCTION DOCUMENT SHALL REQUIRE THAT AN OPERATING MANUAL AND A MAINTAINED MANUAL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.
5. 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 PHILADELPHIA BUILDING CODE IBC 2018, REQUIREMENTS AS OUTLINES IN SECTION.
6. 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.
7. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF IMC 2021 CHAPTER 4: MECHANICAL VENTILATION - SECTION 403.
8. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:

A. STANDARDS OF HEATING - IMC 2021.
B. DUCT CONSTRUCTION AND INSTALLATION-SECTION 603 OF IMC 2021.
C. AIR INTAKES, EXHAUSTS AND RELIEF-SECTION 401 OF IMC 2021.
D. AIR FILTERS -SECTION 605 OF IMC 2021.
E. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS -SECTION 513 OF IMC 2021.

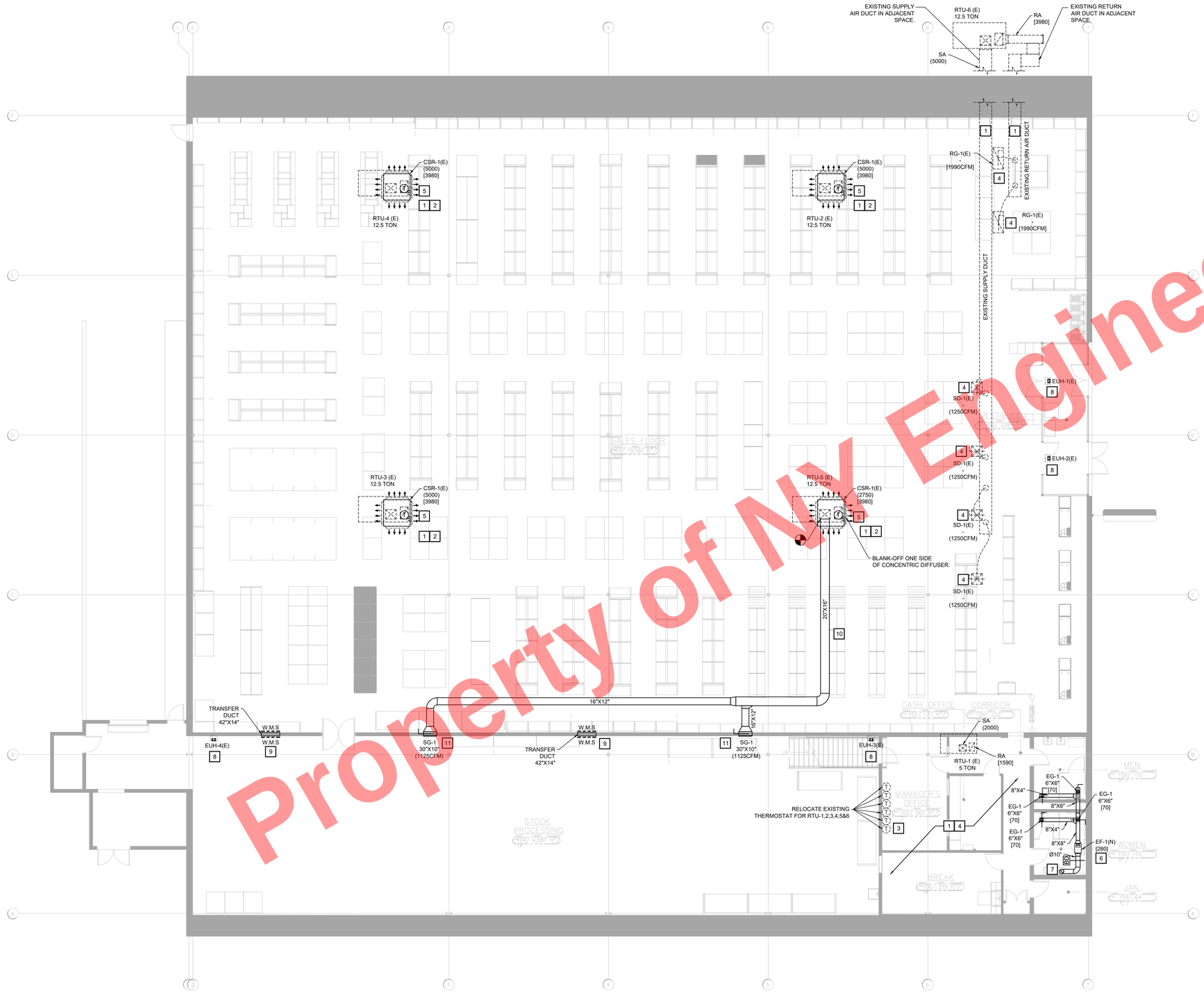
9. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
10. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY IMC 2021 CHAPTER 4 SECTION 403.3. HVAC SYSTEM SHALL BE BALANCED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS AS REQUIRED BY 2018 IECC SECTION 408.2.2.
11. SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION 606 IMC 2021, TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.
12. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
13. 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.

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M002

MECHANICAL GENERAL NOTES



01 MECHANICAL FLOOR PLAN
SCALE: 1 / 8" = 1' - 0"

GENERAL NOTES:

1. EXACT LOCATION OF ALL AIR DISTRIBUTION DEVICES SHALL BE COORDINATED WITH THE ARCHITECTURAL RCP & LIGHTING LAYOUT.
2. COORDINATE THE EXACT LOCATION OF ALL THERMOSTATS WITH FINAL FURNITURE LAYOUT, EQUIPMENT LAYOUT, ARCH AND OWNERS REPRESENTATIVE. CONTRACTOR SHALL TIE NEW T-STATS INTO BUILDING EMS AND UPDATE IT ACCORDINGLY.
3. PROVIDE ALL MANUFACTURER AND NEC REQUIRED CLEARANCE FOR ALL EQUIPMENT.
4. CONTRACTOR SHALL BALANCE EACH DEVICE WITH THE CFM SHOWN ON PLAN.
5. NEW DUCTWORK SHOWN ON PLAN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR PIPING AND DUCTWORK ROUTING. OFFSET AND RUN PIPING, DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ANY EXTRA PIPING, DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATION.
6. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
7. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
8. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.
9. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
10. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
11. MOUNT DUCTWORK AS HIGH AS POSSIBLE.
12. TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO G.C AND OWNER.
13. NEW DUCTWORK IN CONCEALED AREAS MAY BE RECTANGULAR WITH EQUIVALENT CROSS SECTIONAL FLOW AREA.
14. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS/ROOF PENETRATIONS. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR FIRE RATINGS OF THE WALLS.
15. R-8 INSULATION (INTERNAL FOR EXPOSED DUCTS AND EXTERNAL FOR CONCEALED DUCTS) FOR SUPPLY & RETURN AIR DUCTS. PROVIDE ACOUSTIC INSULATION ON MAIN SUPPLY AND RETURN DUCTS UP TO 10 FT. FROM HVAC UNIT.
16. PROVIDE CABLE OPERATED DAMPER IN INACCESSIBLE CEILINGS.

KEYED NOTES:

1. EXISTING SUPPLY AND RETURN DUCT FROM RTU'S TO REMAIN SAME ALONG ALL SUPPORTS, ACCESSORIES, SENSORS AND DAMPERS. EXTENT/ MODIFY DUCTWORK AS REQUIRED. IF ANY ITEMS ARE DAMAGED, REPLACE WITH NEW AS REQUIRED. CONTRACTOR TO FIELD VERIFY BEFORE THE BASE BID. CONTRACTOR TO CLEAN AND REFURBISH THE DUCTWORK TO "LIKE NEW" CONDITION AS REQUIRED. REPLACE THE INSULATIONS IF DAMAGED. PROVIDE NEW SMOKE DETECTOR IN RETURN AIR DUCTWORK.
2. EXISTING CONCENTRIC DIFFUSER TO REMAIN WITH ALL ACCESSORIES AND SUPPORTS. RE-BALANCE THE RETURN AIR CFM AS SHOWN IN THE PLAN.
3. REUSE AND RELOCATE THE EXISTING THERMOSTAT FOR EXISTING RTUs. IF THE EXISTING THERMOSTAT IS FOUND TO BE DAMAGED, PROVIDE A NEW 7-DAY PROGRAMMABLE THERMOSTAT AND WIRE IT TO THE TEMPERATURE SENSORS MOUNTED IN THE RETURN AIR DUCT. COORDINATE THE EXACT LOCATION WITH THE ARCHITECT AND OWNER PRIOR TO ROUGH-IN AND PROVIDE A LOCKABLE COVER.
4. EXISTING SUPPLY/RETURN GRILLE/DIFFUSER TO REMAIN ALONG WITH ALL ASSOCIATED SUPPORTS ,DUCTWORK AND DAMPER. EXTEND /MODIFY DUCTWORK AS REQUIRED.IN ABSENCE OF AN EXISTING VOLUME CONTROL DAMPER, PROVIDE A NEW ONE AS REQUIRED.CONTRACTOR SHALL CLEAN AND REFURBISH TO LIKE NEW CONDITION.REPAIR/REPLACE DIFFUSER IF REQUIRED. COORDINATE FINAL LOCATION IN FIELD. BALANCE THE CFM AS SHOWN IN THE PLAN. CONTRACTOR VERIFY THE EXACT DIMENSION OF THE BRANCH CONNECTION IN FIELD. REPORT BACK TO ENGINEER IF FOUND ANY DISCREPANCIES.
5. EXISTING TEMPERATURE SENSOR TO REMAIN SAME. RELOCATE TO EXISTING RETURN AIR DUCTWORK AS SHOWN IN THE PLAN. PROVIDE WITH NEW IF FOUND DAMAGED.
6. PROVIDE A NEW IN-LINE EXHAUST FAN AS SHOWN ON THE PLAN AND TERMINATE THE EXHAUST ON ROOF. THE CONTRACTOR SHALL FIELD-VERIFY THE CAPACITY OF THE EXISTING EXHAUST FAN. IF THE EXISTING FAN MEETS THE REQUIRED CAPACITY AS SHOWN IN THE SCHEDULE, IT MAY BE REUSED; OTHERWISE, INSTALL A NEW FAN AS INDICATED IN THE PLAN AND SCHEDULE.
7. ROUTE Ø10" EXHAUST DUCT UP TO ROOF AS SHOWN & TERMINATE WITH GOOSE NECK & WIRE MESH, TERMINATION SHALL BE AT LEAST 3FT ABOVE & 10 FT AWAY FROM ANY FRESH AIR INTAKE. CONTRACTOR TO FIELD VERIFY FIRE RATING OF ROOF. PROVIDE FIRE DAMPER AT ROOF PENETRATION AS/IF REQUIRED BY LOCAL CODES.
8. REUSE ALL EXISTING UNIT HEATERS ALONG WITH ALL ACCESSORIES, SUPPORTS AND SENSORS. FIELD VERIFY THE EXACT LOCATION IN SPACE.
9. CONTRACTOR SHALL PROVIDE A NEW TRANSFER DUCT WITH WIREMESH ON BOTH SIDES AS SHOWN ON THE PLANS. COORDINATE IN THE FIELD FOR THE EXACT INSTALLATION HEIGHT. CONTRACTOR SHALL FIELD VERIFY WHETHER SUFFICIENT OPENING IS AVAILABLE IN THE WALL FOR AIR TRANSFER. IF ADEQUATE OPENING IS AVAILABLE, THE TRANSFER DUCT MAY BE ELIMINATED. INSTALL BELOW THE CEILING IN SALES AREA.
10. PROVIDE NEW DUCTWORK AS SHOWN IN THE PLAN. COORDINATE WITH EXISTING LIGHT FIXTURES.
11. PROVIDE NEW SUPPLY GRILLE ALONG WITH VOLUME DAMPER FOR THE STOCK PROCESSING ROOM AS SHOWN IN THE PLAN.

NOTES:

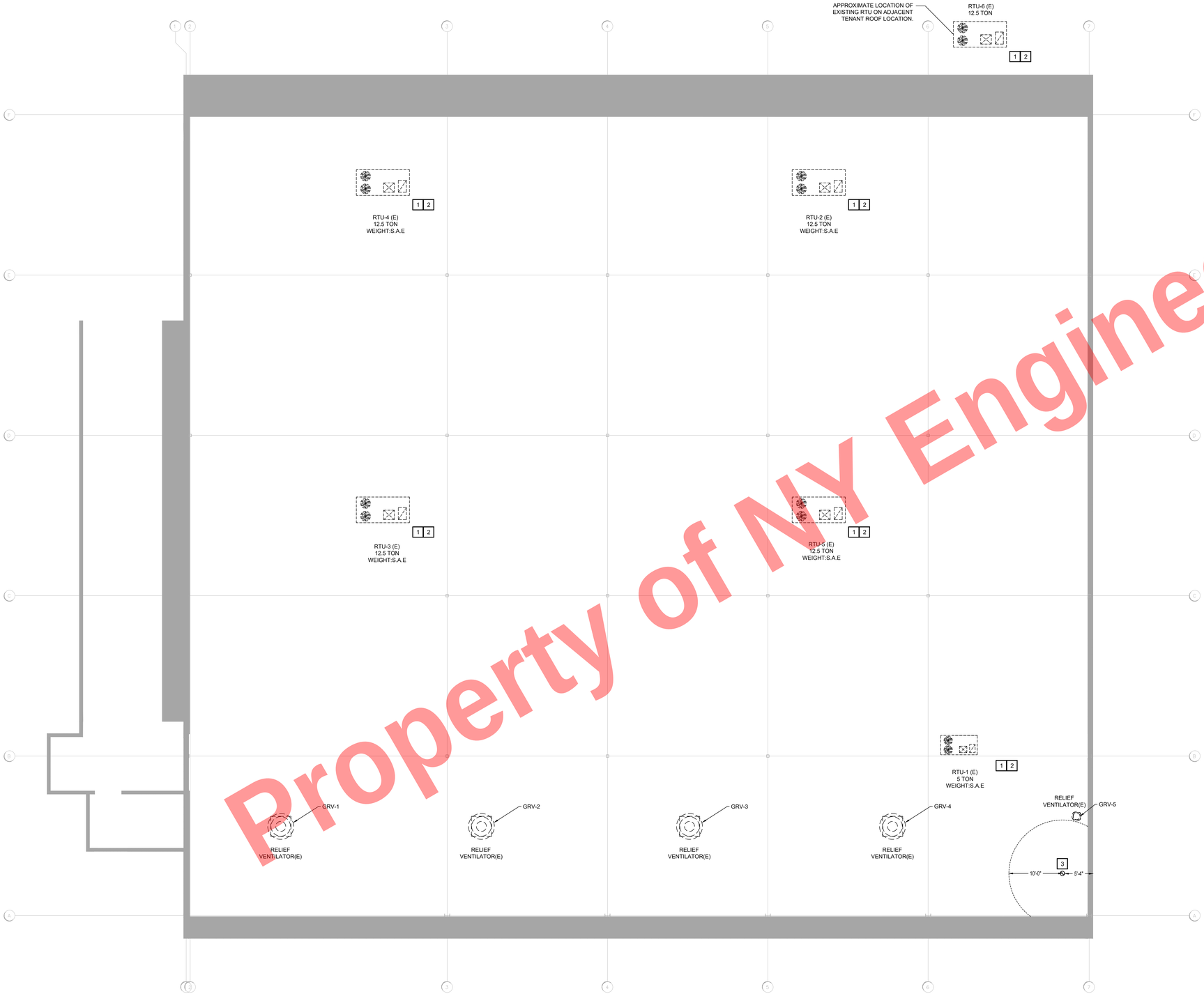
1. THERMOSTATS ARE TO BE CONTROLLED THROUGH AN ENERGY MANAGEMENT SYSTEM. GENERAL CONTRACTOR SHALL PURCHASE AND INSTALL THIS SYSTEM FROM RIDDLEBERGER BROTHERS, INC. CONTACT WAYNE GIBSON, OR ROBIN KISER AT 1-866-724-7378 TO PURCHASE SYSTEM.
2. GENERAL CONTRACTOR SHALL WORK WITH RIDDLEBERGER TO COMMISSION THE EMS. GENERAL CONTRACTOR SHALL HAVE ITS HVAC CONTRACTOR INSTALL TEMPORARY THERMOSTATS TO COMMISSION THE DUCT DETECTORS AS TENANT'S EMS IS PROGRAMMED TO RUN IN AUTO FAN WHICH WILL NOT WORK TO TEST THE DUCT DETECTORS.

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Ollie's Bargain Outlet Tenant Improvement

M100

MECHANICAL FLOOR PLAN



GENERAL NOTES:

1. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS ON FIELD.
2. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
3. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
4. 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.

KEYED NOTES:

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION, CONFIGURATION & WORKING CONDITIONS OF EXISTING RTU'S PRIOR TO START WORK. INFORM TO ENGINEER ON RECORD IF ANY DISCREPANCIES ARE FOUND. EXISTING MECHANICAL ROOF TOP UNIT TO REMAIN ALONG WITH ALL ASSOCIATED ACCESSORIES ,ALL OTHER SENSORS & CONTROLS. IF REQUIRED CONTRACTOR SHALL REFURBISH THE UNIT TO BRING LIKE NEW ONE. REPLACE FILTER IF REQUIRED.
2. REUSE EXISTING CONDENSATE DRAIN, ENSURE THE DRAIN IS DISPOSED IN APPROVED PLACE OF DISPOSAL.
3. COORDINATE FINAL LOCATION OF ROOF OPENINGS WITH STRUCTURAL. TERMINATE EXHAUST AIR WITH GOOSENECK AND WIREMESH. TERMINATION SHALL BE AT LEAST 3FT ABOVE & 10 FT AWAY FROM ANY FRESH AIR INTAKE.
4. EXISTING RELIEF VENTILATOR TO REMAIN SAME, CLEAN AND REFURBISH "LIKE NEW" CONDITION. CONTRACTOR TO FIELD VERIFY THE WORKING CONDITION. IF FOUND DAMAGED, CONTRACTOR TO INFORM THE ENGINEER PRIOR TO BID.

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01 MECHANICAL ROOF PLAN
SCALE: 1 / 8" = 1' - 0"

Ollie's Bargain Outlet Tenant Improvement

M200

MECHANICAL ROOF PLAN

HEAT PUMP ROOF TOP UNIT SCHEDULE

UNIT ID	MANUFACTURER	EFFICIENCY	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN			HEATING		COOLING			ELECTRICAL					EER	IEER	WEIGHT (LBS)
						TOTAL	OUTSIDE	ESP	HEATPUMP HEATING CAPACITY @47 DEG	SUPPLEMENTARY ELECTRIC HEATING	TOTAL	AMBIENT	ENTERING	VOLTS	PHASE	HZ	MCA(A)	MOCP(A)			
						CFM	AIR CFM	(IN. WG)	MBH	KW	MBH	DB (°F)	DB / WB(°F)								
RTU-1(E)	YORK (V.I.F.)	S.A.E	XP060E15N4AAA2A (V.I.F.)	SEE PLAN	5.0 (V.I.F.)	2000 (V.I.F.)	410	S.A.E	S.A.E	15 (V.I.F)	S.A.E	S.A.E	S.A.E	460(V.I.F.)	3 (V.I.F.)	60 (V.I.F.)	42 (V.I.F)	60 (V.I.F.)	S.A.E	S.A.E	S.A.E
RTU-2(E)	YORK (V.I.F.)	S.A.E	XP150E24A4MAA5A (V.I.F.)	SEE PLAN	12.5 (V.I.F.)	5000 (V.I.F.)	1020	S.A.E	S.A.E	24 (V.I.F)	S.A.E	S.A.E	S.A.E	460(V.I.F.)	3 (V.I.F.)	60 (V.I.F.)	72 (V.I.F.)	90 (V.I.F.)	S.A.E	S.A.E	S.A.E
RTU-3(E)	YORK (V.I.F.)	S.A.E	XP150E24A4MAA5A (V.I.F.)	SEE PLAN	12.5 (V.I.F.)	5000 (V.I.F.)	1020	S.A.E	S.A.E	24 (V.I.F)	S.A.E	S.A.E	S.A.E	460(V.I.F.)	3 (V.I.F.)	60 (V.I.F.)	72 (V.I.F.)	90 (V.I.F.)	S.A.E	S.A.E	S.A.E
RTU-4(E)	YORK (V.I.F.)	S.A.E	XP150E24A4MAA5A (V.I.F.)	SEE PLAN	12.5 (V.I.F.)	5000 (V.I.F.)	1020	S.A.E	S.A.E	24 (V.I.F)	S.A.E	S.A.E	S.A.E	460(V.I.F.)	3 (V.I.F.)	60 (V.I.F.)	72 (V.I.F.)	90 (V.I.F.)	S.A.E	S.A.E	S.A.E
RTU-5(E)	YORK (V.I.F.)	S.A.E	XP150E24A4MAA5A (V.I.F.)	SEE PLAN	12.5 (V.I.F.)	5000 (V.I.F.)	1020	S.A.E	S.A.E	24 (V.I.F)	S.A.E	S.A.E	S.A.E	460(V.I.F.)	3 (V.I.F.)	60 (V.I.F.)	72 (V.I.F.)	90 (V.I.F.)	S.A.E	S.A.E	S.A.E
RTU-6(E)	YORK (V.I.F.)	S.A.E	XP150E24A4MAA5A (V.I.F.)	SEE PLAN	12.5 (V.I.F.)	5000 (V.I.F.)	1020	S.A.E	S.A.E	24 (V.I.F)	S.A.E	S.A.E	S.A.E	460(V.I.F.)	3 (V.I.F.)	60 (V.I.F.)	72 (V.I.F.)	90 (V.I.F.)	S.A.E	S.A.E	S.A.E

NOTES / ACCESSORIES FOR EXISTING RTU

1. S.A.E :- SAME AS EXISTING. V.I.F:- VERIFY IN FIELD.
2. EXISTING RTUs WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED, CONTRACTOR TO CONFIRM IF EXISTING RTUs ARE WORKING AT 100% RATED CAPACITY.
3. THE CONTRACTOR SHALL FIELD-VERIFY THE AVAILABILITY AND CAPACITY OF THE EXISTING ELECTRIC HEAT FOR THE EXISTING RTUs. ANY DISCREPANCIES FROM THE ELECTRIC HEATING VALUES LISTED IN THE SCHEDULE SHALL BE REPORTED TO THE ENGINEER.
4. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF RTUs ON SITE.
5. IF REQUIRED, PROVIDE NEW THERMOSTATS AND TEMPERATURE SENSORS COMPATIBLE WITH EXSITING RTUs. COORDINATE FINAL LOCATION WITH ARCHITECT/OWNER.
6. CONTRACTOR TO REBALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON EXISTING RTU TO MATCH VALUES MENTIONED IN THE AIR BALANCING TABLE.
7. REPLACE ALL THE FILTERS, AS/IF REQUIRED. PROVIDE MINIMUM MERV-8 FILTERS.

AIR BALANCE SCHEDULE

UNIT	AREA SERVED	SUPPLY	OUTSIDE AIR	RETURN	EXHAUST AIR
RTU-1(E)	SEE PLAN	2000	410	1590	-
RTU-2(E)	SEE PLAN	5000	1020	3980	-
RTU-3(E)	SEE PLAN	5000	1020	3980	-
RTU-4(E)	SEE PLAN	5000	1020	3980	-
RTU-5(E)	SEE PLAN	5000	1020	3980	-
RTU-6(E)	SEE PLAN	5000	1020	3980	-
EF-1(N)	SEE PLAN	-	-	-	280
TOTAL:		**27000**	**5510**	**21490**	**280**
BUILDING PRESSURE:		**-**	**5230**	**-**	**POSITIVE**

MECHANICAL FAN SCHEDULE

TAG	FLOW RATE	STATIC PRESSURE	ELECTRICAL DATA					WEIGHT	OPERATION	BASIS OF DESIGN	
		EXTERNAL	FAN SPEED	MOTOR DETAILS			V/HZ/PH				
	CFM	IN W.G.	RPM	FLA	MCA	MOP		LBS		MANUFACTURER	MODEL
EF-1(N)	280	0.8	1444	2.1	2.6	15	208/60/1	50	INTERLOCK WITH TIMECLOCK	GREENHECK	SQ-98-VG

NOTES:

1. INTERLOCK FAN WITH TIMECLOCK.
2. COORDINATE WITH ARCH./G.C. ACCESS DOORS FOR SERVICING ALL FANS WITHIN CEILINGS
3. FAN SPEED SHALL BE EASILY FIELD ADJUSTABLE.
4. REFER TO DETAILS, FAN SHALL BE MOUNTED W/SUPPORT FRAMING BY OTHERS.
5. ALL EQUIPMENT NORMAL POWER WIRING BY ELECTRICAL CONTRACTOR. COORDINATE POWER REQUIREMENTS

AIR TERMINAL SCHEDULE

TAG	MANUFACTURER & MODEL	OUTER SIZE(IN)	NECK SIZE(IN)	CFM RANGE	DESCRIPTION
SG-1	TITUS 300FL (OR EQUIVALENT)	30"X10"	-	900-1400	ALUMINUM DOUBLE DEFLECTION SUPPLY GRILLE, 3/4" BLADE SPACING, FRONT BLADES PARALLEL TO LONG DIMENSION, WALL MOUNTED GRILLE.
EG-1	TITUS 350F (OR EQUIVALENT)	6"X6"	6"X6"	0-100	EXHAUST AIR GRILLE CEILING MOUNTED

NOTES:

1. COORDINATE FINAL ACCESSORIES, FINISHES, AND LENGTHS WITH CONSTRUCTION MANAGER & ARCHITECT PRIOR TO PROCUREMENT.
2. PROVIDE AIR DEVICE WITH OPPOSED BLADE VOLUME DAMPER. AIR DEVICE RUN-OUT SHALL BE SAME SIZE AS DIFFUSER NECK FOR EG-1.
3. SELECTION BASED ON TITUS OR APPROVED EQUIVALENT. ALL SUPPLY/RETURN AIR DEVICES SHALL NOT EXCEED 30 NC.
4. COORDINATE WITH DUCTING CONTRACTOR FOR NECESSARY TRANSITIONS AND CONNECTIONS FOR CONCENTRIC DIFFUSER.
5. INSTALL AS PER MANUFACTURER SPECIFICATIONS.

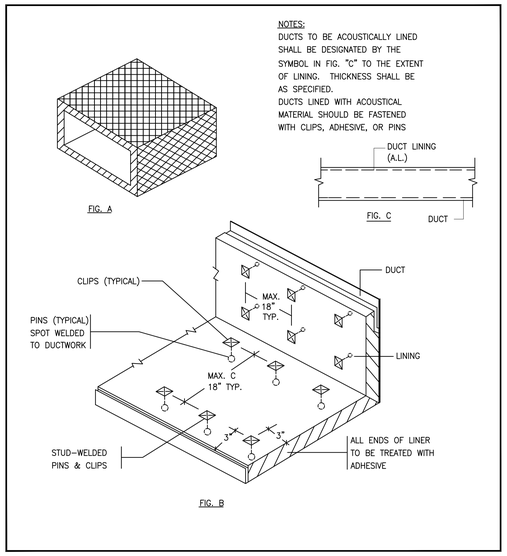
VENTILATION CALCULATION

ROOM NAME	AREA (SF)	NUMBER OF PEOPLE/1000sq.ft AS PER IMC 2021	AS PER ARCH	NUMBER OF PEOPLE IMC 2021	FINAL PEOPLE NO.	CFM AS PER IMC 2021		CALCULATED VENT CFM	PROVIDED. OAI	PROVIDED. EX
						CFM/PERSON	CFM/SQ.FT			
SALES FLOOR	19160	15	320	287	320	7.5	0.12	4699	4700	0
VESTIBULE	235	10	0	2	0	5	0.06	14	15	0
STOCK PROCESSING	4587	0	0	0	0	0	0.12	550	550	0
CASH OFFICE	137	5	1	1	1	5	0.06	13	15	0
OFFICE LOBBY	87	-	-	-	0	0	0.06	5	10	0
MANAGER'S OFFICE	170	5	2	1	2	5	0.06	20	20	0
CORRIDOR	223	-	-	-	0	0	0.06	13	15	0
BREAK ROOM	259	70	18	18	18	7.5	0.18	182	185	0
MEN'S TOILET	115	-	-	-	-	-	-	-	-	140
WOMEN'S TOILET	115	-	-	-	-	-	-	-	-	140
JANITOR	64	-	-	-	-	-	-	-	-	0
TOTAL	**25152**	**-**	**341**	**-**	**-**	**-**	**-**	**-**	**5510**	**280**

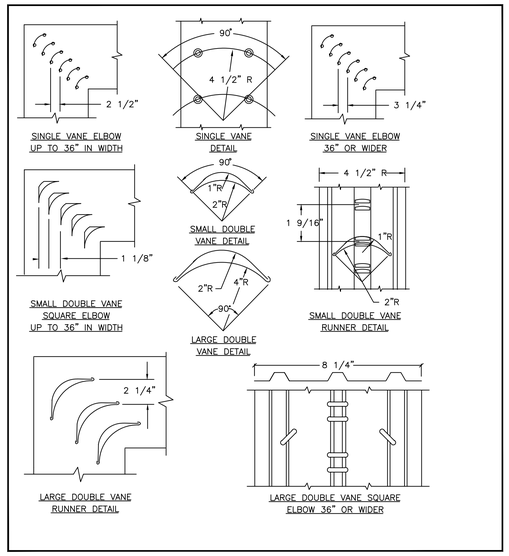
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Ollie's Bargain Outlet Tenant Improvement

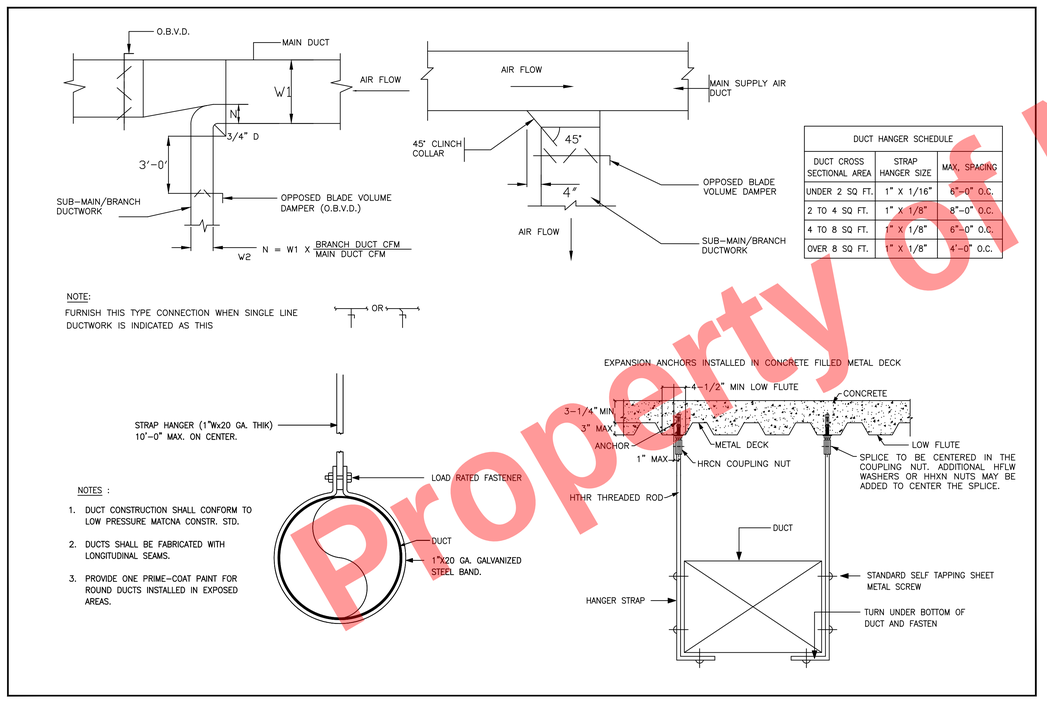
M300



01 ACOUSTICAL TREATMENT DUCT LINING
SCALE: N.T.S.

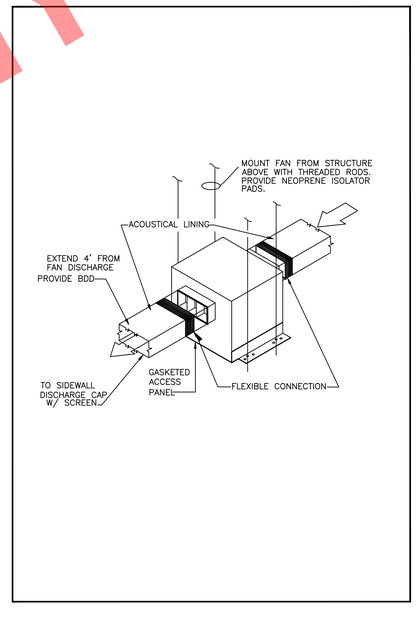


02 LOW VELOCITY DUCT ELBOW
SCALE: N.T.S.



DUCT HANGER SCHEDULE		
DUCT CROSS SECTIONAL AREA	STRAP HANGER SIZE	MAX. SPACING
UNDER 2 SQ FT.	1" X 1/16"	6'-0" O.C.
2 TO 4 SQ FT.	1" X 1/8"	8'-0" O.C.
4 TO 8 SQ FT.	1" X 1/8"	6'-0" O.C.
OVER 8 SQ FT.	1" X 1/8"	4'-0" O.C.

03 DUCT HANGING AND SUB-MAIN/BRANCH DUCT DETAILS
SCALE: N.T.S.



04 INLINE EXHAUST FAN DETAIL
SCALE: N.T.S.

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M400

ELECTRICAL SYMBOLS LIST

SYMBOL	DESCRIPTION
	POWER AND TELECOMMUNICATION
	CIRCUIT HOMERUN TO PANEL
	SINGLE RECEPTACLE OUTLET - WALL MOUNTED
	DUPLEX RECEPTACLE OUTLET - WALL MOUNTED
	G.F.C.I. DUPLEX RECEPTACLE OUTLET - WALL MOUNTED
	S/O CORD (CORD REEL) DUPLEX OUTLET
	S/O CORD (CORD REEL) QUAD OUTLET
	WALL MOUNTED QUAD RECEPTACLE OUTLET
	DUPLEX RECEPTACLE - FLOOR MOUNTED
	DUPLEX RECEPTACLE - CEILING MOUNTED
J J+	JUNCTION BOX
	TELEPHONE / DATA COMBINATION OUTLET - WALL MOUNTED
	TELEPHONE OUTLET - WALL MOUNTED
	DATA OUTLET - WALL MOUNTED
	PANELBOARD WALL/RECESSED MOUNTED (277/480 VOLT, 120/208Y VOLT AS NOTED ON PLANS)
	TRANSFORMER (RATING AND CONFIGURATIONS AS NOTED ON PLANS)
	DISCONNECT SWITCH (FRAME/POLES/FUSE-IF REQUIRED)
M	MOTOR LOAD
	BUZZER
B	BELL
	POWER POLE
S_M	MOTOR RATED TOGGLE SWITCH
$_{S}$	SWITCH U.O.N - WALL MOUNTED (48" AFF) UNO 'S' 'BLANK' - S.P.S.T. SWITCH

ABBREVIATION:

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

ELECTRICAL DEMOLITION NOTES:

A. PRIOR TO SUBMITTING A PROPOSAL, THE ELECTRICAL CONTRACTOR SHALL VISIT AND CAREFULLY INVESTIGATE THE EXISTING AREAS AFFECTED BY THIS WORK IN ORDER TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. THE CONTRACTOR SHALL BASE HIS BID ACCORDINGLY. SUBMISSION OF PROPOSAL WILL BE CONSTRUED AS CONFIRMATION THAT A THOROUGH EXAMINATION OF THE SITE HAS BEEN MADE BY THE CONTRACTOR. LATER CLAIMS FOR UNFORESEEN EXTRA LABOR, EQUIPMENT OR MATERIALS WILL NOT BE ACCEPTED IF SAID CLAIM(S) COULD HAVE BEEN FORESEEN DURING THE SITE INVESTIGATION.

B. CONTRACTOR'S WORK SHALL COMPLY WITH ALL SAFETY RELATED WORK PRACTICES DETAILED IN THE LATEST EDITION OF NFPA 70E.

C. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL ELECTRICAL FACILITIES RENDERED INACTIVE OR OBSOLETE BY THE SCOPE OF THE ARCHITECTURAL, MECHANICAL AND PLUMBING DEMOLITION WORK. THE CONTRACTOR IS ALERTED THAT SUCH ELECTRICAL FACILITIES MAY NOT BE EXPLICITLY SHOWN ON THE ELECTRICAL DEMOLITION DRAWINGS. THE CONTRACTOR SHALL VISIT THE SITE, REFER TO THE ARCHITECTURAL, MECHANICAL,ELECTRICAL AND PLUMBING DRAWINGS, AND COORDINATE WITH THE GENERAL, MECHANICAL, AND PLUMBING CONTRACTOR(S), AND INCLUDE ALL ELECTRICAL DEMOLITION WORK INCLUDING,HOWEVER NOT NECESSARILY LIMITED TO, THE COMPLETE REMOVAL OF ALL ELECTRICAL AND CONTROL WIRES, CONDUIT,JUNCTION BOXES, ENCLOSURE AND RACEWAY SUPPORT SYSTEMS, DISCONNECT SWITCHES, CIRCUIT BREAKERS ETC. INTENDED FOR REMOVAL AS REQUIRED TO COMPLETE THE WORK.

D. THE INTENT OF THE DEMOLITION WORK REQUIREMENTS INCLUDE ALL LABOR AND EQUIPMENT REQUIRED TO ATTAIN THE FINAL CONDITIONS AS SHOWN ON THE ARCHITECTURAL, MECHANICAL, TEMPERATURE CONTROL AND PLUMBING, STRUCTURAL, ELECTRICAL NEW WORK PLANS. THE CONTRACTOR SHALL REVIEW ALL OTHER TRADE DRAWINGS, AND COORDINATE WILL ALL OTHER TRADE CONTRACTORS, AND BASE HIS BID ACCORDINGLY.

E. REFER TO THE ARCHITECTURAL DEMOLITION PLANS FOR SCOPE RELATED TO THE LAYOUT OF WALLS, CEILINGS, ETC... TO BE REMOVED.

F. COORDINATE ALL POWER SHUT-DOWNS AND FIRE ALARM SYSTEM MODIFICATIONS, WHERE APPLICABLE, WITH THE ONSITE FACILITIES MANAGEMENT TEAM.

G. REMOVE ALL EXISTING DEVICES (RECEPTACLES, DATA OUTLETS, SWITCHES, EMPTY JUNCTION BOXES, ETC...) ASSOCIATED WITH ANY WALLS OR OTHER PARTITIONS IDENTIFIED TO BE REMOVED. REMOVE ALL ASSOCIATED CONDUIT AND WIRING BACK TO ITS SOURCE. RE-LABEL ALL NEW SPARE BREAKERS AS "SPARE IN THE APPROPRIATE PANEL SCHEDULES.

H. REMOVE ALL EXISTING DEVICES (RECEPTACLES, DATA OUTLETS, SWITCHES, EMPTY JUNCTION BOXES, ETC...) ON EXISTING TO REMAIN WALLS, BOTH INTERIOR AND PERIMETER, UNLESS SPECIFICALLY SHOWN AS EXISTING TO REMAIN ON SHEETS ELSEWHERE IN THIS SET. REMOVE ALL ASSOCIATED CONDUIT AND WIRING BACK TO ITS SOURCE. RE-LABEL ALL NEW SPARE BREAKERS AS "SPARE" IN THE APPROPRIATE PANEL SCHEDULES.

I. NO BLANK COVERPLATES SHALL BE ALLOWED. REFER TO ARCHITECTURAL SET FOR DETAILS CONCERNING PATCHING OF EXISTING OPENINGS BASED ON THE PARTITION TYPE IT CURRENTLY RESIDES.

J. FOR ANY MECHANICAL EQUIPMENT BEING REMOVED, REMOVE ALL WIRING, CONDUIT, AND ASSOCIATED DISCONNECTS BACK TO ITS SOURCE. COORDINATE EXACT UNITS BEING REMOVED WITH DIVISION 22 & 23. RE-LABEL ALL NEW SPARE BREAKERS AS "SPARE IN THE APPROPRIATE PANEL SCHEDULES.

K. REMOVE ALL ABANDONED EMPTY CONDUIT AND JUNCTION BOXES FROM THE CEILING SPACE.

L. ANY EXISTING FLOOR BOX, ABANDONED CONDUIT PENETRATION, ETC... THROUGH THE SLAB WITHIN THE SCOPE OF WORK AREA NOT SPECIFICALLY IDENTIFIED TO REMAIN SHALL BE REMOVED AND THE FLOOR PATCHED TO A LIKE NEW CONDITION.

M. COORDINATE WITH THE TENANT AND/OR LANDLORD EXACTLY WHICH DEVICES AND EQUIPMENT ARE REQUIRED TO BE TURNED OVER TO THE OWNER ONCE REMOVED.

N. PROVIDE ADEQUATE PROTECTION OF ANY EXISTING TO REMAIN DEVICE OR FIXTURE SUCH THAT IT IS NOT DAMAGED DURING THE CONSTRUCTION PROCESS.

GENERAL ELECTRICAL NOTES:

ALL WORK THIS DIVISION SHALL COMPLY WITH ALL LOCAL BUILDING CODES, LAWS, REGULATIONS, ORDINANCES, AND THE REQUIREMENTS OF THE DELAWARE CONSTRUCTION AND DEMOLITION SAFEGUARDING CODE 2019.

A. ALL WORK SHALL COMPLY WITH BASE BUILDING SPECIFICATIONS. OBTAIN A COPY OF SPECIFICATIONS FROM BUILDING MANAGER IF NECESSARY.

B. THE CONTRACTOR SHALL KEEP A RECORD OF THE CHANGES WHICH ARE IN CONFLICT WITH THESE DRAWINGS AND SPECIFICATIONS. AT THE COMPLETION OF HIS WORK HE SHALL SUBMIT "AS BUILT PRINTS TO THE OWNER.

C. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY FITTING AND DETAIL. ALL WORK SHALL BE INSTALLED SO THAT JUNCTION BOXES AND COMPONENTS WILL BE ACCESSIBLE FOR SERVICE.

D. ALL SYSTEMS, EQUIPMENT, COMPONENTS, WORK, ETC. PROVIDED UNDER THIS DIVISION SHALL BE COVERED BY A ONE YEAR GUARANTEE STARTING AT THE TIME OF FINAL ACCEPTANCE OF THE WORK.BY THE OWNER ANY DEFECTS IN THE WORK, SYSTEMS, EQUIPMENT, OR COMPONENTS FOUND DURING THIS YEAR SHALL BE CORRECTED AT NO CHARGE. THE GUARANTEE SHALL INCLUDE PROVIDING ALL NECESSARY CUTTING, PATCHWORK, REPAINTING, ETC. TO MAKE THE WORK COMPLETE AND NEW.

E. ALL CONDUIT MUST BE CONCEALED IN THE WALLS OR ABOVE THE CEILING UNLESS OTHERWISE NOTED. MINIMUM CONDUIT SIZE IS 1/2".

F. ALL CONDUCTORS SHALL BE COPPER WITH TYPE "THW" OR "THHN" INSULATION AND THE MINIMUM WIRE SIZE SHALL BE #12 A.W.G. WITH A 167 DEGREE TEMPERATURE RATING.

G. ALL WORK MUST BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER ACCORDING TO GENERALLY ACCEPTED PRINCIPALS OF FIRST CLASS WORKMANSHIP.

H. RECESSED INCANDESCENT FIXTURES SHALL BE SUPPORTED IN COMPLIANCE WITH N.E.C. 410.36.

I. ALL PENETRATIONS THRU RATED WALLS, FLOORS AND CEILINGS SHALL BE FIRE STOPPED PER N.E.C. 300.21.

J. PROVIDE ALL GROUNDING AND BONDING AS REQUIRED BY N.E.C.

K. DEVICE MOUNTING HEIGHTS ARE TO BE MEASURED TO THE DEVICE CENTERLINE.

L. ALL CONDUIT SHALL BE 1/2" EMT WITH 2#12,1#12G AWG CONDUCTORS UNLESS OTHERWISE NOTED.

M. PROVIDE #12AWG GND. FOR ALL MECHANICAL EQUIPMENT UNLESS SHOWN OTHERWISE. ALL EQUIPMENT SHALL BE GROUNDED AT THE PANEL WHICH FEEDS THE EQUIPMENT.

N. COORDINATE RECEPTACLE NEMA TYPE AND VOLTAGE WITH COPIERS AND EQUIPMENT.

O. PROVIDE A NEW DIRECTORY FOR ALL PANELS. CORRECTLY LABEL ALL CIRCUITS, SPARES AND SPACES IN ACCORDANCE WITH N.E.O. 408.4(A).

P. PROVIDE A SEPARATE GREEN, INSULATED, #12AWG EQUIPMENT GROUNDING CONDUCTOR ROUTED WITH THE BRANCH CIRCUIT HOMERUN CONDUCTORS.

Q. WHERE WORK BY THE GENERAL CONTRACTOR (WALL REMOVAL, NEW OR RELOCATED WALL OPENING, ETC.) RESULTS IN THE REMOVAL, RELOCATION OF REFEEDING OF ELECTRICAL DEVICES, THE ELEC. CONTRACTOR SHALL DISCONNECT OR RECONNECT AS REQUIRED ALL ACTIVE DEVICES REMAINING ON THAT CIRCUIT SYSTEM.

R. DEVICE BOXES IN RATED WALLS SHALL MEET STANDARD BUILDING CODE SECTION 706.4.

S. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE LABEL LISTED BY A APPROVED THIRD PARTY TESTING AGENCY.

T. DEDICATED RECEPTACLES TO RECEIVE VISUAL DESIGNATION.

U. OUTLET BOX SHALL NOT BE MOUNTED BACK TO BACK.

V. BLANK FACEPLATES ARE NOT ALLOWED, U.N.O.. ANY EXISTING OUTLET OR TELE/DATA LOCATION NOT USED OR SHOWN WITHIN THE SCOPE OF WORK IN THESE PLANS SHOULD BE REMOVED, PATCHED, AND REPAIRED.

W. MULTIWIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH A MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS PER N.E.C. 210.4(B).

X. MULTIWIRE BRANCH CIRCUITS SUPPLYING POWER TO PERMANENTLY CONNECTED FREESTANDING PARTITIONS SHALL BE PROVIDED WITH A MEANS TO DISCONNECT SIMULTANEOUSLY ALL UNGROUNDED CONDUCTORS AT THE PANEL BOARD WHERE THE BRANCH CIRCUIT ORIGINATES PER N.E.C. 605.8.

Y. ARC-FLASH HAZARD WARNING SHALL BE PROVIDED ON ALL EQUIPMENT IN AFFECTED ELECTRICAL ROOMS PER N.E.C. 110.16.

Z. PROVIDE PLASTIC NAMEPLATE ON ALL PANELS (NEW AND EXISTING) INDICATING PANEL NAME AND SOURCE PER N.E.C 408.4(B).

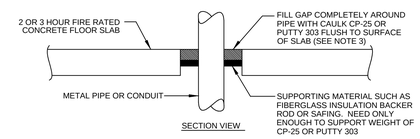
AA. ALL WIRING TERMINATIONS ARE ASSUMED TO BE 75DEG C RATED, UNLESS NOTED OTHERWISE. ALL WIRING UNDER 100A IS BASED ON A 60DEG C TERMINATION.

APPLICABLE CODES:

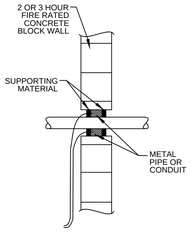
ALL WORK SHALL COMPLY WITH THE PROVISIONS OF THE SPECIFICATIONS AND DRAWINGS, AND SHALL SATISFY ALL APPLICABLE CODES, ORDINANCES, AND REGULATIONS OF ALL GOVERNING BODIES INVOLVED. APPLICABLE CODES INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:

1. BUILDING: DELAWARE CONSTRUCTION AND DEMOLITION SAFEGUARDING CODE 2019.
2. ELECTRICAL: DELAWARE ELECTRICAL CODE 2020 (NEC 2020).

FIRE STOP DETAILS:



SECTION VIEW



SECTION VIEW

NOTES:

1. FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
2. RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
3. UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
4. WHEN ANNULAR SPACE EXCEEDS 3/4" (19mm). A 28 AWG METAL COVER PLATE MUST BE MECHANICALLY SECURED ATOP THE 3M FIRE BARRIER APPLICATION, OR TIGHTLY PACK A NON-COMBUSTIBLE DAMMING MATERIAL ATOP INSTALLED CAULK OR PUTTY.
5. OPTIONS TO MASKING TAPE TO PREVENT SAGGING:
   A. INSTALL ADDITIONAL DAMMING MATERIAL OVER PRODUCT TO HOLD WITHIN OPENING.
   B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO AIR CURE IN SMALL BATCHES FOR 12 HRS. THEN HAND FORM INTO OPENING.
6. WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE:

WET DEPTH	PIPE SIZE	FIRE RATING
1/2" (13mm)	MAX. 8" (203mm)	2 HRS.
" (25mm)	MAX. 6" (152mm)	3 HRS.

1" (25mm) DEPTH CAULK CP-25 OR PUTTY 303 WITHIN WALL

STOP AND READ:

THE CONTRACTOR AND SUB-CONTRACTORS **SHALL NOT INITIATE ANY WORK UNTIL EXISTING FIELD CONDITIONS ARE PROPERLY VERIFIED**.

Property of NY Engineers

Ollie's Bargain Outlet Tenant Improvement

E001

ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES

I. GENERAL REQUIREMENTS

1. GENERAL CONDITIONS: ALL CONDITIONS AND REQUIREMENTS UNDER THE "GENERAL CONDITIONS", THE "SUPPLEMENTARY GENERAL CONDITIONS", THE "SPECIAL CONDITIONS" SHALL BECOME A PART OF THIS SPECIFICATION, AND BIDDERS WILL EXAMINE ALL DRAWINGS AND READ ALL PARTS OF THE SPECIFICATIONS TO AVOID OMISSIONS, DUPLICATIONS AND TO INSURE COMPLETE EXECUTION OF ALL WORK FOR ELECTRICAL.

2. GENERAL: THE WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT AND INCIDENTAL COSTS NECESSARY TO FURNISH AND INSTALL ALL ELECTRICAL WORK, EQUIPMENT, LAMPS, ETC. INDICATED ON THE DRAWINGS, AS SPECIFIED HEREIN, OR BOTH.

A. THE ELECTRICAL SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK / SERVICES TO CONTACT THE LOCAL BUILDING DEPARTMENT / AGENCY TO DISCUSS CODE ISSUES / IDIOSYNCRASIES REGARDING THEIR SERVICES AND THE QUOTE ASSOCIATED WITH THE SERVICES TO THE GENERAL CONTRACTOR FOR THIS PROJECT. THIS CONTRACTOR TO BE FAMILIAR WITH THE SITE WHERE SUCH SERVICES / WORK WILL BE PERFORMED, THIS SPECIFIC USE AND THE IDIOSYNCRASIES ASSOCIATED WITH THE LIFE, SAFETY AND HEALTH ASSOCIATED WITH THIS WORK AND TO INDICATE ON THE QUOTE ANY ITEMS REQUIRED THAT ARE NOT NECESSARILY SHOWN ON THE DRAWINGS / SPECIFICATIONS.

3. THE TENANT'S GENERAL CONTRACTOR AND/OR HIS ELECTRICAL SUBCONTRACTOR IS TO VERIFY ALL EQUIPMENT SPECIFICATIONS AND REQUIREMENTS WITH THE TENANT OR THE TENANT'S CONSTRUCTION REPRESENTATIVE PRIOR TO START OF CONSTRUCTION. THIS CONTRACTOR TO VERIFY AMPERAGE AND VOLTAGE SPECIFICATIONS AND REQUIREMENTS (SERVICE AND PANEL SPECIFICATION) WITH THE ELECTRICAL SUBCONTRACTOR IN COORDINATION WITH EQUIPMENT SPECIFICATIONS FOR EQUIPMENT SUPPLIED BY THE TENANT, THE CONTRACTORS OR OTHER SOURCES (AS SPECIFIED BY THE ARCHITECT) AS A DOUBLE CHECK TO ASCERTAIN PROPER INSTALLATION OF EQUIPMENT AT THE CORRECT VOLTAGE/ AMPERAGE.

A. THE ELECTRICAL SUBCONTRACTOR IS REQUIRED TO VISIT THE SITE DURING BIDDING AND VERIFY LOCATION(S) OF WHERE THE ELECTRICAL EQUIPMENT/PIPING IS INDICATED TO BE PLACED, SIZE OF ANY EXISTING SERVICE AND WHAT IS INDICATED TO BE INSTALLED OR "EXISTING TO REMAIN" AND IF NEW SERVICE IS INDICATED, TO VERIFY IF DIFFERENT THAN THE DRAWINGS, SIZE OF FEEDER PIPES, REQUIRED DISTANCES AND POSSIBLE ADDITIONAL WORK REQUIRED AT THE ELECTRICAL DISTRIBUTIONS ROOM. ANY DISCREPANCIES BETWEEN DESIGNED AND ACTUAL TO BE TOLD TO THE GENERAL CONTRACTOR AND BE INDICATED ON THE BID FORM.

4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL FROM THE BUILDING AND ELECTRICAL INSPECTORS FOR ALL CONCEALED WORK PRIOR TO CLOSING UP WALLS, FLOORS AND CEILINGS.

5. TENANT'S GENERAL CONTRACTOR SHALL BRING IN ALL ADDITIONAL SERVICES, ADEQUATE FOR TENANT'S NEEDS AS REQUIRED, INCLUDING BUT NOT LIMITED TO ELECTRIC, SPRINKLER, SOIL (WASTE), DOMESTIC WATER LINES, OUTSIDE TOILET EXHAUST AIR, FIRE ALARM, TELEPHONE AND DATA.

6. SCOPE: FURNISH LABOR, MATERIALS, TOOLS, EQUIPMENT, ETC., REQUIRED FOR A COMPLETE INSTALLATION OF ELECTRICAL SYSTEMS AND WORK, IN ACCORDANCE WITH LOCAL CODES AND GOVERNING BODIES HAVING JURISDICTION, AS SHOWN ON DRAWINGS, AND AS SPECIFIED, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

A. NEW SERVICE -- TENANT'S CONTRACTOR IS TO REUSE EXISTING ELECTRICAL SERVICE OR CONDUIT ONLY; FURNISH AND INSTALL NEW ELECTRICAL SERVICE WIRE AND EXTEND BOTH CONDUIT AND WIRE TO POINT OF ALL NEW PANELS, TRANSFORMERS, WIREWAYS, TROUGHS, TIME CLOCKS, ETC.. SINCE SPACE MAY OR MAY NOT BE MEASURED OR REVIEWED BY TENANT'S ARCHITECT, THE ACTUAL LOCATION OF SERVICE AND PANEL LOCATIONS MAY NOT BE KNOWN. THE ELECTRICAL SUBCONTRACTOR, IN REVIEW OF THE PREMISES, IS REQUIRED TO INSTALL PANELS IN LOCATION AS NOTED ON DRAWINGS AND MUST INCLUDE IN HIS BID ANY EXTENSION OF CONDUIT AND WIRE, NEW DISCONNECTS, RELOCATION OR INSTALLATION OF PANELS, TROUGHS, WIREWAYS, ETC. TO MAKE THE SYSTEM WHOLE AND TO UPGRADE AS NECESSARY TO MEET CODE REQUIREMENTS. INSTALL NEW SERVICE INCLUDING CONDUIT AND WIRE FROM DEMISED PREMISES TO LANDLORD'S ELECTRICAL ROOM IF THE EXISTING SERVICE NEEDS TO BE UPGRADED FROM WHAT TENANT WAS ORIGINALLY TOLD SERVICE WOULD BE, OR THE SERVICE NEEDS TO BE MOVED BECAUSE IT'S EITHER SHOWN TO BE MOVED OR IS EXISTING NOW IN THE PATH OF FUTURE PARTITION OR OTHER SERVICES.

B. EXISTING SERVICE - TENANT'S CONTRACTOR IS TO REUSE EXISTING ELECTRICAL SERVICE WIRE, CONDUIT AND ELECTRICAL EQUIPMENT; CUT AND EXTEND TO POINT OF NEW ELECTRICAL EQUIPMENT. ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS REUSED TO BE BROUGHT UP TO "LIKE NEW" CONDITION AND THE LATEST N.E.C. STANDARD. SINCE SPACE MAY OR MAY NOT BE MEASURED OR REVIEWED BY TENANT'S ARCHITECT, THE ACTUAL LOCATION OF SERVICE AND PANEL LOCATIONS MAY NOT BE KNOWN. THE ELECTRICAL SUBCONTRACTOR, IN REVIEW OF THE PREMISES IS REQUIRED TO INSTALL PANELS IN LOCATION AS NOTED ON DRAWINGS AND MUST INCLUDE IN HIS BID ANY EXTENSION OF CONDUIT AND WIRE, NEW DISCONNECTS, RELOCATION OR INSTALLATION OF PANELS, TROUGHS, WIREWAYS, ETC. TO MAKE SYSTEM WHOLE AND TO UPGRADE AS NECESSARY TO MEET CODE REQUIREMENTS. INSTALL NEW SERVICE INCLUDING CONDUIT AND WIRE FROM DEMISED PREMISES TO LANDLORD'S ELECTRICAL ROOM IF THE EXISTING SERVICE NEEDS TO BE UPGRADED FROM WHAT TENANT WAS ORIGINALLY TOLD SERVICE WOULD BE, OR THE SERVICE NEEDS TO BE MOVED BECAUSE IT'S EITHER SHOWN TO BE MOVED OR IS EXISTING NOW IN THE PATH OF FUTURE PARTITION OR OTHER SERVICES. IF SERVICE IS ADEQUATE BUT MUST BE RELOCATED, CUT AND EXTEND EXISTING WIRE AND CONDUIT TO POINT OF ALL NEW PANELS, DISCONNECTS, TROUGHS, TIME CLOCKS, ETC.

C. POWER DISTRIBUTION SYSTEMS AND TRANSFORMER.

D. ELECTRICAL ENERGIZING -- MISCELLANEOUS FAN AND MOTOR.

E. MOTOR POWER WIRING SYSTEM.

F. TELEPHONE EMPTY CONDUIT SYSTEM (INCLUDING TERMINAL BOXES AND OUTLETS).

G. CONVENIENCE RECEPTACLE SYSTEM, DOOR ALARM/ ENTRY SYSTEM/ SECURITY.

H. SOUND SYSTEM, INTERCOM SYSTEM - FURNISHED AND INSTALLED BY THIS CONTRACTOR IF REQUIRED BY CLIENT;

I. GROUNDING IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND ALL MALL REQUIREMENTS.

J. LOCK OUTS FOR ALARM SYSTEMS, CASH REGISTERS, GRILLE AT ENTRY (IF APPLICABLE) AS REQUIRED. SEE PANEL SCHEDULE FOR CIRCUITS.

K. SMOKE DETECTORS FURNISHED AND INSTALLED WITHIN STORE TO INCLUDE LOCATIONS AND INTERNAL / EXTERNAL WIRING IF REQUIRED BY LANDLORD OR FIRE MARSHAL.

L. ELECTRICAL SUBCONTRACTOR, WHEN BIDDING THIS WORK, TO CHECK TO MAKE SURE THAT SERVICE WIRE, CONDUIT, DISCONNECTS, ETC., ARE ADEQUATE FOR TENANT'S NEEDS. IF ADDITIONAL SERVICE IS REQUIRED, INCLUDE NEW CONDUIT AND SERVICE FEED OR DISCONNECTS, METER BASE AND METER (IF APPLICABLE), ETC., TO BRING SUCH SERVICE UP TO TENANT'S NEEDS.

M. FURNISH AND INSTALL ALL CONDUIT AND WIRING, DISCONNECTS, BREAKERS, BALANCING OF LOADS, ETC. FOR HOOKUP OF ALL H.V.A.C. EQUIPMENT, UNIT(S), OR INLINE HEATERS WHETHER SUCH HEATERS OR EQUIPMENT / UNITS ARE SHOWN OR NOT.

N. FURNISH AND INSTALL A TWENTY FOUR (24) HOUR, SEVEN (7) DAY TIME CLOCK INCLUDING ALL INTEGRAL WIRING AND LOAD BALANCING (PANEL) FOR CONTROLLING THE STOREFRONT SIGN, WHETHER SUCH WORK IS OR IS NOT SHOWN ON PLANS / OR SPECIFICATIONS.

O. ALL ELECTRICAL ROUGH-IN TO BE NEW AND THE ORIGINAL SERVICES TO THE DEMISED PREMISES TO BE REUSED; CUT AND EXTEND TO POINT OF ALL NEW ELECTRICAL EQUIPMENT (IF ANY EQUIPMENT IS REUSED, UPGRADE SAME TO "LIKE NEW" CONDITION AND THE LATEST N.E.C. STANDARDS) BY THE TENANT'S CONTRACTOR UNLESS NOTED OTHERWISE ON DRAWINGS. TENANT'S GENERAL CONTRACTOR TO FIELD VERIFY THAT ALL UTILITY LINES ARE AT OR ADJACENT TO TENANT'S SPACE AS NOTED AND AT THE SIZE SPECIFIED. IF THE UTILITIES ARE NOT IN LOCATIONS AS NOTED ON THE DRAWINGS OR OF A SIZE LARGER OR SMALLER THAN NOTED, THIS CONTRACTOR IS TO NOTIFY THE TENANT'S ARCHITECT IMMEDIATELY.

P. THE TENANT'S ELECTRICAL SUBCONTRACTOR IS TO PROVIDE A NEW CIRCUIT DIRECTORY(IES) WITH PROPER PHASING AND BALANCING, WHICH IS TO CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND UNDERWRITER'S CODE.

Q. THE SIGN(S) JUNCTION BOX PERMIT IS TO BE INCLUDED IN THE WORK FOR THE ELECTRICAL SUBCONTRACTOR AND THE BOX IS TO BE SUPPLIED BY THIS CONTRACTOR AND PROPERLY LABELED.

R. FURNISH AND INSTALL NEW (OR REFURBISH IF EXISTING) TOILET EXHAUST WITH ASSOCIATED DUCTWORK, ROOF PENETRATIONS, OR HOOK UP TO COMMON EXHAUST DUCT WITH BACKDRAFT DAMPER ETC., INCLUDING ASSOCIATED ELECTRICAL HOOKUP AND PANEL CONNECTIONS, WHETHER SUCH WORK IS SHOWN OR NOT SHOWN ON PLANS AND SPECIFICATIONS.

S. IF A SMOKE EVACUATION AND / OR DETECTION SYSTEM OCCURS FOR THIS SPACE, IT SHALL BE LEFT INTACT DURING CONSTRUCTION AND ANY NEW WORK, MODIFICATIONS AND/ OR REWIRING TO BE COMPLETED DURING CONSTRUCTION PHASE TO POINT OF NEW PANELS, WHETHER SHOWN OR NOT SHOWN ON PLANS AND SPECIFICATIONS.

T. ENGINEER, FURNISH AND INSTALL ANY AND ALL REQUIRED SMOKE EVACUATION, SMOKE DETECTION AND FIRE ALARM SYSTEMS, INCLUDING ANY AND ALL PARTS AND LABOR, TO MEET LOCAL CODE, LANDLORD REQUIREMENTS AND FIRE MARSHAL SPECIFICATIONS WHETHER SHOWN OR NOT SHOWN ON PLANS AND SPECIFICATIONS.

U. THE ELECTRICAL SUBCONTRACTOR TO COORDINATE WITH OTHER ENGINEERING DRAWINGS AND INCLUDE COSTS (LABOR AND MATERIALS) NECESSARY FOR OTHER ELECTRICAL EQUIPMENT / FIXTURES NOT SHOWN ON THESE ELECTRICAL DRAWINGS, BUT SHOWN ON OTHER ENGINEERING DRAWINGS.

7. SUBSTITUTIONS: CATALOG AND MANUFACTURER'S NUMBERS IN THIS SECTION AND ON THE DRAWINGS ARE FOR THE PURPOSE OF ESTABLISHING STANDARDS OF QUALITY AND TYPE OF MATERIALS TO BE USED. PRODUCTS OR OTHER MANUFACTURERS MAY BE USED IF SIMILAR AND EQUAL IN QUALITY AND DESIGN IN THE OPINION OF THE OWNER OR OWNER'S ARCHITECT AND ARE SPECIFICALLY APPROVED BY THE OWNER OR OWNER'S ARCHITECT, IN WRITING, PRIOR TO CLOSE OF BIDDING. REQUESTS FOR APPROVAL OF SUBSTITUTIONS SHALL BE IN WRITING, AND SHALL INCLUDE REPORTS OF TESTS, PERFORMANCE DATA OR OTHER PROOF OF EQUALITY TO THE ITEM SPECIFIED.

8. SHOP DRAWINGS & SUBMITTALS: PRIOR TO THE COMMENCEMENT OF WORK, SUBMIT ONE (1) SET OF THE FOLLOWING ITEMS TO THE OWNER'S ARCHITECT IN THE FORM OF SHOP DRAWINGS, DETAILS OR CATALOG CUTS FOR THE RECORD: POWER PANELS, WIRING DEVICES, SAFETY SWITCHES, TRANSFORMER, TIME CLOCKS AND ANY OTHER ITEMS AS REQUESTED BY THE OWNER OR THE OWNER'S ARCHITECT.

A. BY SUBMITTING SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND SIMILAR SUBMITTALS, THE CONTRACTOR REPRESENTS TO THE CLIENT AND ARCHITECT THAT THE CONTRACTOR HAS (1) REVIEWED AND APPROVED THEM, (2) DETERMINED AND VERIFIED MATERIALS, FIELD MEASUREMENTS AND FIELD CONSTRUCTION CRITERIA RELATED THERETO, OR WILL DO SO AND (3) CHECKED AND COORDINATED THE INFORMATION CONTAINED WITHIN SUCH SUBMITTALS WITH THE REQUIREMENTS OF THE WORK AND OF THE CONTRACT DOCUMENTS.

B. THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT DOCUMENTS REQUIRE SUBMITTAL AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT.

C. THE WORK SHALL BE IN ACCORDANCE WITH APPROVED SUBMITTALS EXCEPT THAT THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS BY ANY APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE CLIENT IN WRITING OF SUCH DEVIATION AT THE TIME OF SUBMITTAL AND

C.1. THE ARCHITECT HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION AS A MINOR CHANGE IN THE WORK, OR A CHANGE ORDER OR CONSTRUCTION CHANGE DIRECTIVE HAS BEEN ISSUED AUTHORIZING THE DEVIATION.
C.2. THE CONTRACTOR SHALL DIRECT SPECIFIC ATTENTION IN WRITING OR ON RESUBMITTED SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS, TO REVISIONS OTHER THAN THOSE REQUESTED BY THE ARCHITECT ON PREVIOUS SUBMITTALS. IN THE ABSENCE OF SUCH WRITTEN NOTICE, THE ARCHITECT'S APPROVAL OF A RESUBMISSION SHALL NOT APPLY TO SUCH REVISIONS.

D. THE CONTRACTOR SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS OR OMISSIONS IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS BY THE ARCHITECT'S APPROVAL THEREOF.

10. WORKMANSHIP:

A. USE EXPERIENCED, WELL-QUALIFIED CRAFTSMEN, IN GOOD STANDING WITH THEIR RESPECTIVE LABOR UNIONS.

B. USE CAPABLE AND EXPERIENCED SUPERINTENDENTS, AUTHORIZED BY THE CONTRACTOR TO INSTRUCT WORK, MAKE JOB DECISIONS AND ACT FOR THE CONTRACTOR IN ALL MATTERS PERTAINING TO THE CONTRACT.

11. PERMITS, TESTS AND INSPECTIONS:

A. APPLY FOR, SECURE AND PAY FOR ALL REQUIRED PERMITS, FEES, LICENSES AND ROYALTIES TO ACCOMPLISH THE WORK.

B. APPLY FOR, SECURE AND PAY FOR ALL REQUIRED TESTS AND INSPECTIONS TO ACCOMPLISH THE WORK IN CONFORMANCE WITH ALL CODES AND JURISDICTIONS.

C. FURNISH SIGNED CERTIFIED AND ACCEPTABLE COPIES OF ALL ITEMS COVERED IN (A) AND (B) ABOVE TO THE OWNER FOR HIS RECORDS.

D. COMPLY WITH RULES AND REGULATIONS OF JURISDICTIONAL AUTHORITIES AND MALL OR LEASE SPECIFICATIONS AND REPORT ANY DEVIATIONS ON DRAWINGS TO OWNER.

12. CODES, RULES AND REGULATIONS: INCLUDE IN ELECTRICAL BID ANY ADDITIONAL MATERIALS AND LABOR, THAT MAY BE REQUIRED FOR COMPLIANCE WITH ALL GOVERNING LAWS, RULES AND REGULATIONS, EVEN THOUGH THE WORK IS NOT MENTIONED IN THESE SPECIFICATIONS OR SHOWN ON THE DRAWINGS. NOTHING IN THE PLANS OR SPECIFICATIONS SHALL BE DEEMED AS AUTHORITY TO VIOLATE ANY GOVERNING CODE.

13. ACCURACY OF DATA:

A. THE DATA GIVEN HEREIN AND ON THE DRAWINGS ARE AS EXACT AS COULD BE SECURED, BUT THEIR ABSOLUTE ACCURACY IS NOT GUARANTEED. THE SPECIFICATIONS AND DRAWINGS ARE FOR THE ASSISTANCE AND GUIDANCE OF THE CONTRACTOR. EXACT LOCATIONS, DISTANCES, LEVELS, ETC., WILL BE GOVERNED BY THE BUILDING AND THE CONTRACTOR SHALL USE THE DATA CONTAINED HEREIN WITH THIS UNDERSTANDING.

B. THE EXACT LOCATION OF EACH AND EVERY OUTLET OF EACH WIRING SYSTEM, NOT DIMENSIONED ON THE DRAWINGS, SHALL BE AS DIRECTED BY THE OWNER, THE OWNER'S ARCHITECT OR HIS SELECTED REPRESENTATIVE.

14. CLEANUP: REMOVE ALL SURPLUS MATERIAL, EQUIPMENT AND DEBRIS INCIDENTAL TO THIS WORK AND LEAVE THE PREMISES IN A CONDITION ACCEPTABLE TO THE OWNER.

15. GUARANTEE: FURNISH A WRITTEN CERTIFIED GUARANTEE, IN ACCEPTABLE FORM TO THE OWNER, AGAINST ANY DEFECTIVE WORKMANSHIP, MATERIAL AND OPERATING EQUIPMENT. THIS GUARANTEE SHALL BE IN FULL FORCE AND EFFECTIVE FOR A PERIOD OF ONE (1) YEAR AFTER ACCEPTANCE OF THE INSTALLATION.

16. TEMPORARY ELECTRIC SERVICE: THE ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRICAL WIRING FOR CONSTRUCTION USE AS FOLLOWS: THE SERVICE ENTRANCE AND FEEDER SHALL BE 60 AMPS, SINGLE PHASE, 3 WIRE 120/208 VOLT FUSED MAIN DISCONNECT. THE FEEDER TO SERVE THE TEMPORARY DISTRIBUTION WIRING . THE WIRING SHOULD BE EXTENDED ALSO, SO THERE IS A 120 VOLT SINGLE PHASE OUTLET WITHIN 75 FEET OF ANY PORTION OF THE BUILDING. PROVIDE GROUND FAULT PROTECTION FOR ALL REQUIRED RECEPTACLES NOT TO BECOME A PERMANENT PART OF THE INSTALLATION.

17. STRUCTURAL CONDITIONS: NOTCHING AND BORING OF STRUCTURAL MEMBERS WILL NOT BE PERMITTED. IF CONDUIT, BOXES, ETC. NEED TO BE HUNG FROM STRUCTURAL STEEL, ONLY HANG FROM TOP FLANGE OF BEAMS AND TOP CHORDS AND ONLY AT PANEL POINTS OF JOISTS/ TRUSSES.

18. COOPERATION WITH OTHER CONTRACTORS: THIS CONTRACTOR SHALL COOPERATE WITH ALL OTHER CONTRACTORS FURNISHING LABOR MATERIALS AND ALL WORK, SO THAT THE WORK AS A WHOLE SHALL BE EXECUTED AND COMPLETED WITHOUT CONFLICT OR DELAY. IN THE EVENT OF ANY MECHANICAL OBSTRUCTION, AS PLUMBING OR AIR CONDITIONING DUCTS IN WAY OF ELECTRICAL EQUIPMENT, IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO NOTIFY THE OWNER'S ARCHITECT BEFORE COMMENCING ANY WORK.

II. BASIC MATERIALS AND METHODS

1. RACEWAYS AND BOXES:

A. WHERE SIZES OF RACEWAY OR BOXES ARE NOT INDICATED, THE CONTRACTOR SHALL SIZE THESE ITEMS AS REQUIRED FOR THE INSTALLATION.

B. WORK INSTALLED IN METAL PARTITIONS SHALL BE RUN IN CONCEALED ELECTRIC METALLIC TUBING OR FLEXIBLE CONDUIT AS REQUIRED BY GOVERNING CODE AND LANDLORD.

C. BRANCH CIRCUIT WORK CHASED INTO EXISTING CONSTRUCTION FOR CONCEALMENT UNDER PATCHED FINISHES, MAY BE INSTALLED IN RIGID CONDUIT, OR EMT.

D. CONDUITS THAT RUN EXPOSED ON EXTERIOR OF BUILDING SHALL BE RIGID CONDUIT WITH WEATHER TIGHT, CORROSION RESISTANT FITTINGS.

E. FLEXIBLE STEEL CONDUITS SHALL BE USED IN MAKING UP SHORT, FLEXIBLE CONNECTIONS TO ROTATING OR VIBRATING MACHINERY, MINIMUM 12" LENGTH AND FOR CONNECTIONS BETWEEN JUNCTION BOXES IN HUNG OR FURRED CEILING FIXTURES.

F. ALL INTERIOR FEEDERS OR EXPOSED FEEDERS TO THE PUBLIC'S EYE, SHALL BE INSTALLED IN RIGID CONDUIT OR EMT.

G. ALL INTERIOR LOW VOLTAGE WIRING SHALL BE INSTALLED IN RIGID CONDUIT OR EMT WHERE REQUIRED BY CODE.

H. MINIMUM SIZE CONDUIT SHALL BE 3/4" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

I. ALL WORK RUN IN UNEXCAVATED AREAS, CRAWL SPACES, TUNNELS, OR UNDERGROUND SHALL BE INSTALLED IN RIGID CONDUIT.

J. ALL WORK RUN EXPOSED WITHIN THE BUILDING MAY BE INSTALLED IN RIGID STEEL CONDUIT OR ELECTRICAL METALLIC TUBING.

K. ALL WORK RUN CONCEALED WITHIN HUNG OR FURRED CEILINGS, METAL STUD PARTITIONS AND THE LIKE, MAY BE INSTALLED IN RIGID STEEL CONDUIT, ELECTRIC METALLIC TUBING EXCEPT THAT WIRING IN OR THROUGH SLABS SHALL BE IN RIGID CONDUIT.

L. GALVANIZED PRESSED STEEL OUTLET BOXES OF PROPER SIZE AND TYPE AS REQUIRED BY THE BUILDING CONDITIONS SHALL BE PROVIDED FOR ALL INTERIOR OUTLETS, SWITCHES, RECEPTACLES, CLOCKS, SIGNALS, AND THE LIKE.

M. PROVIDE GALVANIZED FITTINGS FOR EXPOSED WORK, THREADED FOR CONDUIT CONNECTIONS AND PROVIDE WITH SUITABLE COVERS.

N. THE OUTLETS FOR LOCAL SWITCHES SHALL BE INSTALLED ADJACENT TO THE TRIM ON THE STRIKING SIDE OF THE DOOR, REGARDLESS OF THE LOCATIONS INDICATED ON THE DRAWINGS; THEREFORE, CHECK ALL DOOR SWINGS BEFORE INSTALLING CONDUIT AND OUTLETS.

2. GROUNDING:

A. ALL MAJOR PARTS NOT CARRYING CURRENT, INCLUDING THE FOLLOWING ITEMS BELOW, SHALL BE PROPERLY GROUNDED:

A.1. SECONDARY FEEDER CONDUIT AND EQUIPMENT ENCLOSURES.
A.2. PANEL BOARD ENCLOSURES, PULL AND JUNCTION BOXES, CABLE TROUGHS.
A.3. ALL CONDUITS, METAL MOLDING AND OUTLET BOXES.
A.4. FAN AND EQUIPMENT HOUSINGS EXPOSED ON THE STRUCTURE OR ON GRADE.

B. ALL CASH REGISTER OUTLETS TO BE ISOLATED AND SEGREGATED.

3. SAFETY SWITCHES: PROVIDE WHERE SHOWN OR AS REQUIRED, HEAVY-DUTY, METAL ENCLOSED, EXTERNALLY OPERATED FUSED, OR UNFUSED, SAFETY SWITCHES, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED. THE OPERATING MECHANISM SHALL BE SO DESIGNED THAT THE SWITCHES MAY BE LOCKED IN THE "ON" OR "OFF" POSITIONS. WHERE "WEATHERPROOF" SAFETY SWITCHES ARE INDICATED OR REQUIRED, THESE SHALL BE AS SPECIFIED ABOVE EXCEPT ENCLOSURES SHALL BE NEMA III, RAINTIGHT.

4. MOTOR AND OTHER WIRING:

A. PROVIDE ALL REQUIRED CONDUIT, WIRING AND SAFETY SWITCHES FOR ALL MOTORS, AND ANY OTHER ELECTRICAL EQUIPMENT INSTALLED OR CONNECTED UNDER THIS DIVISION.

B. ALL MOTORS WILL BE FURNISHED AND SET UNDER OTHER DIVISION, THE WORK OF THIS DIVISION SHALL INCLUDE PROVIDING ALL CONNECTIONS SO AS TO BE COMPLETE.

C. ALL STARTING DEVICES, MOTOR CONTROLLERS, FLOAT SWITCHES, LEVEL SENSORS, ALARM DEVICES, REMOTE CONTROL PUSH BUTTONS, ETC., WILL BE FURNISHED BY THE VARIOUS CONTRACTORS, UNLESS OTHERWISE NOTED HEREIN. BUT THIS CONTRACTOR SHALL SET THESE DEVICES AND PROVIDE ALL CONNECTIONS.

D. FOR EACH THERMOSTAT (BY H.V.A.C.), PROVIDE 4" x 4" OUTLET BOX WITH 3/4" EMPTY CONDUIT STUBBED UP INTO CEILING AND BUSHED. PROVIDE STEEL DRAG WIRE FOR EACH LOCATION.

5. WIRING DEVICES:

A. COMPUTER RECEPTACLES AT CASH WRAP AREA SHALL BE HUBBELL #IG5262, COMPUTER GRADE WITH "ISOLATED" GROUND LUGS.

B. ALL WIRING DEVICES INSTALLED IN THIS BUILDING SHALL BE "SPECIFIED GRADE," MANUFACTURED BY ARROW, HART AND HEGEMAN, HUBBELL, GENERAL ELECTRIC, OR EQUIVALENT.

C. LOCAL SWITCHES SHALL BE TOGGLE TYPE, A.C. RATED 20 AMPERES, 125 VOLTS, QUIET-TYPE WITH SILENT OPERATING MECHANISM, TOTAL CLOSED IN A MOLDED COMPOSITION BASE. SWITCHES SHALL BE SINGLE POLE, THREE OR FOUR-WAY AS INDICATED. WHERE LOCK TYPE LOCAL SWITCHES ARE INDICATED, THESE SHALL BE SIMILAR TO ABOVE SPECIFICATION WITH KEY OPERATOR; PROVIDE TO OWNER TWO (2) KEYS FOR EACH SWITCH INSTALLED.

D. ALL RECEPTACLES INSTALLED IN THIS BUILDING SHALL BE OF THE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION TO CONDUIT SYSTEM.

6. WIRES AND CABLES:

A. ALL WIRE FOR POWER INSTALLATIONS SHALL BE HIGH CONDUCTIVITY COPPER, 600 VOLT INSULATED IN ACCORDANCE WITH THE NATIONAL BOARD OF FIRE UNDERWRITERS STANDARDS FOR TYPE "THW" WIRES, EXCEPT AS NOTED ON THE DRAWINGS OR OTHERWISE SPECIFIED HEREIN.

B. NO WIRE SHALL BE SMALLER THAN NO. 12 A.W.G.. ALL WIRES NO. 8 AND LARGER SHALL BE STRANDED.

C. WIRES SHALL BE COLOR CODED.

D. ALL WIRES SHALL BE POLARIZED.

E. HOME RUNS AND BRANCH WIRING FOR 120 VOLT CIRCUITS SHALL BE AS FOLLOWS:

LENGTH	HOME RUN WIRE SIZE	CIRCUIT WIRE SIZE
1' TO 50'	12	12
50' TO 100'	10	12
100' TO 150'	8	12

7. PANELBOARDS:

A. PANELBOARDS SHALL BE LIGHTING AND APPLIANCE TYPE, DEAD FRONT, SAFETY TYPE, FURNISHED WITH BRANCH CIRCUIT BREAKER OVERCURRENT PROTECTIVE DEVICES, COPPER PHASE, NEUTRAL AND EQUIPMENT GROUNDING BUS BARS, MAIN CIRCUIT BREAKER OR MAIN LUG ONLY AS NOTED ON THE DRAWINGS. MAIN BUSES AND CONNECTORS SHALL BE HARD DRAWN COPPER OF 98% CONDUCTIVITY. LOAD CENTERS ARE NOT ACCEPTABLE FOR USE.

B. CIRCUIT BREAKERS SHALL BE MOLDED CASE, BOLT-ON TYPE SUITABLE FOR VOLTAGE AND AMPERE RATINGS INDICATED ON DRAWINGS AND IN PANEL SCHEDULES. REFER TO THE PANEL SCHEDULES ON THE DRAWINGS FOR ADDITIONAL ACCESSORIES TO BE PROVIDED AT SELECT CIRCUIT BREAKERS.

C. CIRCUIT BREAKERS SHALL HAVE A MINIMUM AMPERE INTERRUPTING CAPACITY (AIC) OF 10,000 AMPERES FOR 120/208V SYSTEMS, 14,000 FOR 277/480V SYSTEMS

D. WHERE THE POWER SYSTEM STUDY IDENTIFIES AVAILABLE FAULT CURRENT VALUES AT EXISTING AND NEW PANELS THAT ARE HIGHER THAN THE MINIMUM AIC RATINGS SPECIFIED HEREIN, PROVIDE CIRCUIT BREAKERS IN THE PANELS THAT HAVE AIC RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT AT THE PANEL AS DETERMINED BY THE POWER SYSTEM STUDY.

E. PROVIDE NEMA 1 ENCLOSURES FOR INTERIOR PANELS.

F. PANEL BOARDS SHALL BE EQUIPPED WITH FLUSH TYPE LOCK AND CATCH. ALL LOCKS SHALL BE KEYED ALIKE, WITH TWO KEYS SUPPLIED WITH EACH LOCK.

G. CIRCUIT BREAKERS SERVING LIGHTING CIRCUITS SHALL BE RATED FOR SWITCH DUTY.

H. CIRCUIT BREAKERS SERVING HVAC EQUIPMENT SHALL BE HACR RATED.

I. ALL LUGS SHALL BE OF THE SOLDERLESS TYPE AND RATED AT A MINIMUM OF 75°C.

J. PROVIDE NEW CIRCUIT DIRECTORIES WITHIN NEW AND EXISTING PANELS TO REFLECT THE WORK OF THIS CONTRACT. DIRECTORY SHALL BE TYPEWRITTEN OR COMPUTER GENERATED. HANDWRITTEN CIRCUIT DIRECTORIES ARE NOT ACCEPTABLE.

K. UTILIZE FINAL, OWNER ASSIGNED ROOM NAMES AND NUMBERS TO IDENTIFY SPACES WITHIN THE CIRCUIT DIRECTORIES. COMPLY WITH NEC 408.4 WHEN IDENTIFYING CIRCUITS IN CIRCUIT DIRECTORIES.

L. PANEL CIRCUITS SHALL BE CONFIGURED SUCH THAT THE LOAD IS DISTRIBUTED EVENLY ACROSS ALL THREE PHASES TO WITHIN 10% IN ACCORDANCE WITH N.E.C. REQUIREMENTS.

M. ALL NEW AND EXISTING PANEL BOARDS SHALL BE LABELED TO IDENTIFY THE AMOUNT OF FAULT CURRENT AVAILABLE AT THE PANEL AS DETERMINED BY THE POWER SYSTEM STUDY TO BE PERFORMED. LABEL SHALL BE MACHINE PRINTED, BLACK TEXT ON CLEAR, SELF ADHESIVE TAPE. INSTALL LABEL .

8. DRY TYPE TRANSFORMERS (IF NEW IS REQUIRED):

A. BRANCH CIRCUIT AND DISTRIBUTION TRANSFORMERS SHALL BE THE DRY TYPE AND SHALL HAVE THE RATINGS INDICATED.

B. SINGLE PHASE TRANSFORMERS SHALL BE 480 VOLT PRIMARY AND 120/208 VOLT SECONDARY. THREE PHASE TRANSFORMERS SHALL BE 480 VOLT DELTA PRIMARY AND 120/208 VOLT GROUNDED TYPE SECONDARY. TRANSFORMERS 25 KVA AND LARGER SHALL HAVE A MINIMUM OF 4 1/2% CAPACITY PRIMARY TAPS.

C. TRANSFORMERS SHALL HAVE A U.L. RECOGNIZED 220 DEGREE INSULATION SYSTEM AND SHALL BE DESIGNED SO THAT UNDER FULL LOAD, THE AVERAGE CONDUCTOR TEMPERATURE RISE DOES NOT EXCEED 115 DEGREE C. RISE ABOVE A 40 DEGREE C. AMBIENT AND THE ENCLOSURE DOES NOT EXCEED A 50 DEGREE C. RISE AT ANY POINT.

D. TRANSFORMER COILS SHALL BE OF THE CONTINUOUS WOUND CONSTRUCTION AND SHALL BE IMPREGNATED WITH NON—HYGROSCOPIC, THERMOSETTING VARNISH. ALL CORES TO BE CONSTRUCTED OF HIGH GRADE, NON—AGING SILICON STEEL WITH HIGH MAGNETIC PERMEABILITY, AND LOW HYSTERESIS AND EDDY CURRENT LOSSES. MAGNETIC FLUX DENSITIES SHALL BE KEPT WELL BELOW THE SATURATION POINT. THE CORE LAMINATIONS SHALL BE CLAMPED TOGETHER WITH STRUCTURAL STEEL ANGLES. THE COMPLETED CORE AND COIL SHALL THEN BE BOLTED TO THE BASE OF THE ENCLOSURE BUT ISOLATED THEREFROM BY MEANS OF RUBBER, VIBRATION-ABSORBING MOUNTS. THERE SHALL BE NO METAL-TO-METAL CONTACT BETWEEN THE CORE AND COIL AND THE ENCLOSURE. ON TRANSFORMERS 500 KVA AND SMALLER, THE VIBRATION ISOLATING SYSTEM SHALL BE DESIGNED TO PROVIDE A PERMANENT FASTENING OF THE CORE AND COIL TO THE ENCLOSURE. SOUND ISOLATING SYSTEMS REQUIRING THE COMPLETE REMOVAL OF ALL FASTENING DEVICES WILL NOT BE ACCEPTABLE. SOUND LEVELS SHALL BE GUARANTEED BY THE MANUFACTURER NOT TO EXCEED THE FOLLOWING: 25 TO 50 KVA - 45 DB; 51 TO 150 KVA - 50 U. BALLASTS FOR HIGH INTENSITY DISCHARGE (HID) LAMPS SHALL BE CONSTANT WATTAGE DB; 151 TO 300 KVA - 55 DB; 301 TO 500 KVA — 60 DB.

E. TRANSFORMERS SHALL BE COMPLIANT WITH THE 2016 DOE EFFICIENCY STANDARDS.

F. TRANSFORMERS THAT ARE OF THE FLOOR-MOUNTED TYPE SHALL BE MOUNTED ON KORFUND VIBRATION ELIMINATORS OF THE PAD TYPE.

G. G. TRANSFORMERS SHALL BE AS MANUFACTURED BY SAME MANUFACTURER INSTALLED IN THE BASE BUILDING

III. SPECIFIC ELECTRICAL SPECIFICATIONS

9. SEE ELECTRICAL DRAWINGS - LANDLORD'S CRITERIA: THE ELECTRICAL CONTRACTOR IS TO BECOME FAMILIARIZED WITH LANDLORD'S CRITERIA FOR THIS LOCATION AND INCLUDE ANY WORK REQUIRED OF THIS CRITERIA, WHICH IS NOT SPECIFICALLY NOTED IN THESE DRAWINGS AND SPECIFICATIONS.

IV. TELEPHONE

1. PROVIDE 3/4" EMT IN WALLS WITH DRAG STRING AT EACH LOCATION.

V. MISCELLANEOUS

1. ALUMINUM WIRE IS STRICTLY PROHIBITED FOR THIS PROJECT.

2. DURING DEMOLITION, ANY ELECTRICAL EQUIPMENT, FIXTURE SYSTEMS, CONDUIT AND WIRE ARE TO BE REMOVED AS NOTED AND NOT REUSED. THIS UNUSED EQUIPMENT, FIXTURE SYSTEMS, CONDUIT, AND WIRE MAY NOT BE ABANDONED AND LEFT WITHIN THE SPACE. THEY MUST BE REMOVED TO AN APPROVED DISPOSAL SITE.

HOME RUNS AND BRANCH WIRING FOR 120 VOLT 16 AMP CIRCUITS SHALL BE AS FOLLOWS TO ACCOUNT FOR VOLTAGE DROP:

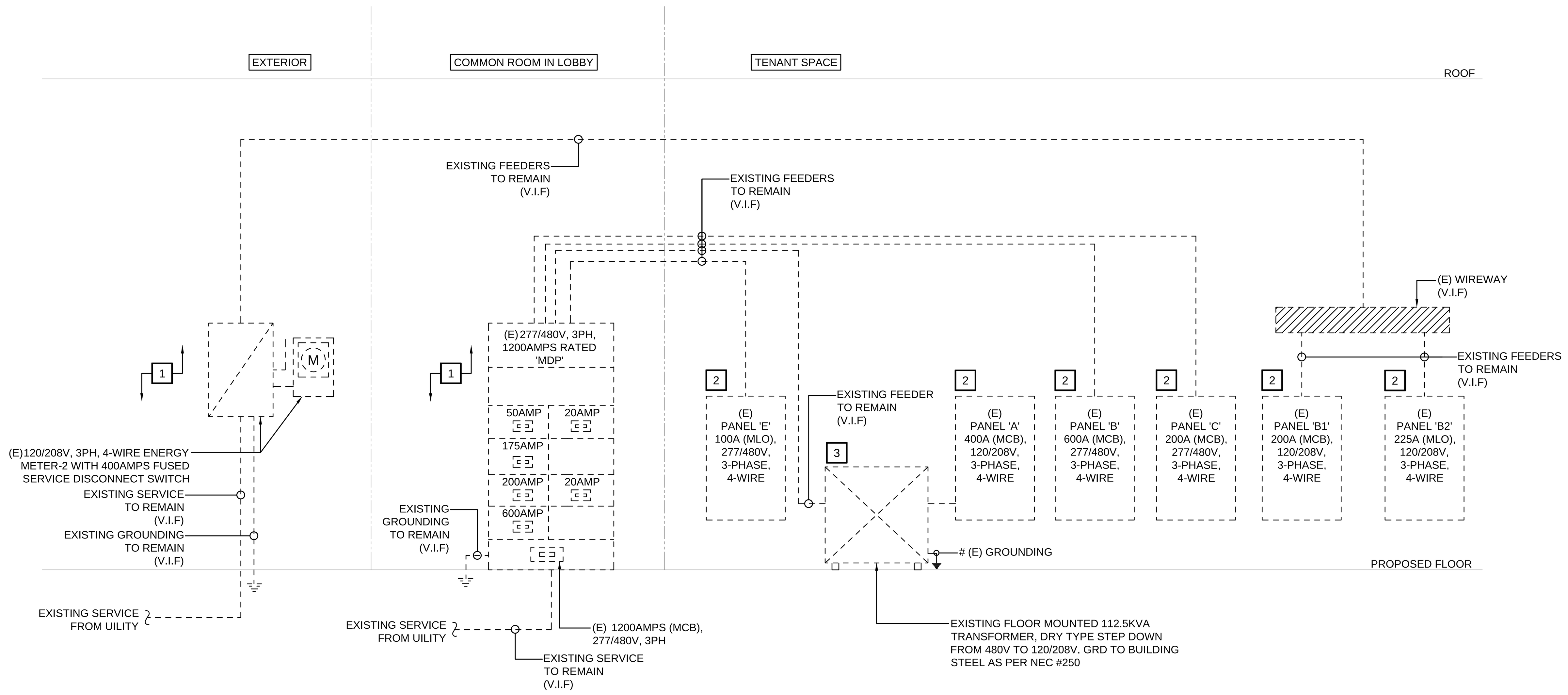
LENGTH	HOME RUN WIRE SIZE	CIRCUIT WIRE SIZE
1' TO 65'	12	12
66' TO 104'	10	12
105' TO 156'	8	12
157' TO 263'	6	12
264' TO 419'	4	12

Property of NY Engineers

Ollie's Bargain Outlet Tenant Improvement

E002

ELECTRICAL SPECIFICATIONS



ABBREVIATIONS:
(N) - NEW
(E) - EXISTING
(R) - RELOCATED

LEGEND:
——— NEW
- - - - EXISTING

GENERAL NOTES:

1. PROPER CLEARANCE MUST BE MAINTAINED ABOUT ELECTRICAL EQUIPMENT PER N.E.C. FIELD VERIFY EXACT MOUNTING SPACE AVAILABLE IN ELECTRICAL ROOM/AREA PRIOR TO INSTALLATION OF ELECTRICAL EQUIPMENT.
2. MAKE ALL FINAL ELECTRICAL CONNECTIONS FOR A COMPLETE ELECTRICAL DISTRIBUTION SYSTEM. ALL CONNECTIONS/DISCONNECTIONS TO LANDLORDS/UTILITIES SERVICE EQUIPMENT SHALL BE AS DIRECTED BY LANDLORDS/UTILITIES SITE REPRESENTATIVE. TENANT GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TERMINATION/DETERMINATION EXPENSES.
3. SYSTEM SHALL BE GROUNDED TO THE MAIN BUILDING'S GROUNDING SYSTEM.
4. DISCONNECT SWITCHES AND PANELS SHALL BE INSTALLED ON PLYWOOD BACKBOARDS.
5. TENANT CONTRACTOR MUST VERIFY ELECTRICAL SERVICE, SUB-FEED WIRING AND PANELS PRIOR TO START OF TENANT'S ELECTRICAL WORK. TENANT GENERAL CONTRACTOR SHALL MAKE APPLICATION TO THE LOCAL UTILITY FOR CONTINUED METERED ELECTRIC SERVICE IN THE TENANT'S NAME. TENANT GENERAL CONTRACTOR SHALL CONFIRM ALL LOCAL UTILITY GUIDELINES AND REQUIREMENTS PRIOR TO BID, SHALL INCLUDE THE COSTS OF THESE REQUIREMENTS IN THE BID, AND SHALL COMPLY WITH THEM DURING CONSTRUCTION. AVAILABLE FAULT CURRENT AT SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT PER NATIONAL ELECTRICAL CODE (NEC) OF ARTICLE 110.24.
6. CONTRACTOR SHALL COORDINATE SHORT CIRCUIT RATING (Isc) WITH UTILITY & AHJ, PRIOR TO COMMENCING ANY WORK, TYPICAL FOR ALL ELECTRICAL EQUIPMENT
7. CONTRACTOR SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
8. CONTRACTOR SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT LOCATION OF THE EXISTING SWITCH GEAR AND EXACT POWER DISTRIBUTION.
9. CONTRACTOR SHALL VERIFY OPERABLE CONDITION INFIELD OF ALL EXISTING TO REMAIN ELECTRICAL DEVICES/EQUIPMENTS AND REPLACE WITH NEW IF FOUND INOPERABLE.
10. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. ALL CONDUIT ROUTING AND OFFSETS, DROPS AND RISES OF RUNS ARE NOT SHOWN ON THE PLANS AND ARE SHOWN DIAGRAMMATICALLY IN THE RISERS. 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.

KEYED NOTES:

1 ELECTRICAL CONTRACTOR SHALL COORDINATE WITH BASE BUILDING/LANDLORD/OWNER FOR EXACT POWER DISTRIBUTION, SCOPE AND LIABILITIES PRIOR TO COMMENCING ANY WORK. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCIES. BASE BID ACCORDINGLY.

2 EXISTING ELECTRICAL PANELS SHALL REMAIN. ELECTRICAL CONTRACTOR TO FIELD VERIFY THE EXACT SIZE, LOCATION & OPERABLE CONDITION OF THE PANEL; REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

3 EXISTING 112.5KVA FLOOR MOUNTED TRANSFORMER TO REMAIN. ELECTRICAL CONTRACTOR TO FIELD VERIFY THE EXACT SIZE, LOCATION & OPERABLE CONDITION; REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

VERIFY THE FOLLOWING PRIOR TO BID/ PRICING:

- EXISTING CONDUIT AND FEEDERS SIZE BETWEEN TENANT SPACE AND LANDLORD SWITCHBOARD.
- EXISTING MAIN SERVICE DISCONNECT RATING.
- EXISTING METER.

IF THE EXISTING SERVICE DISCONNECT AND FEEDERS ARE RATED FOR LESS THAN THE RATING SHOWN ON THIS RISER. NOTIFY THE PROJECT MANAGER AND ENGINEER IMMEDIATELY PRIOR TO SUBMITTING BID/ PRICING PACKAGE SO DRAWINGS CAN BE REVISED AND UPDATED ACCORDINGLY

PANEL SCHEDULE KEYED NOTES:

A NEW BREAKERS MAY BE REQUIRED FOR USE IN THE EXISTING PANELBOARD TO MATCH RATING INDICATED IN THE PANEL SCHEDULE. PRIOR TO BID/PRICING, THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL EXISTING-TO-REMAIN PANELBOARD MANUFACTURER AND MODEL NUMBER TO ENSURE THAT REPLACEMENT BREAKERS ARE AVAILABLE. WHERE BREAKER AVAILABILITY ISSUES ARISE, NOTIFY THE PROJECT MANAGER PRIOR TO BID/PRICING.

B DESIGNATED CIRCUIT NUMBER SHOWN ON THE PANEL SCHEDULE FOR A CERTAIN LOAD, MAY BE DIFFERENT THAN THE ACTUAL CIRCUIT NUMBER IN THE EXISTING PANELBOARD. ALL EXISTING-TO-REMAIN ELECTRICAL LOADS SHALL REMAIN CONNECTED TO THE SAME BREAKER AND CIRCUIT DESIGNATION. AVAILABLE SPARES AND SPACES SHALL BE UTILIZED TO FEED THE NEW LOADS.

C CONTRACTOR SHALL VERIFY THE EXISTING BREAKER AND CIRCUIT FEEDING THE EXISTING HVAC UNITS SERVING THE SPACE. REUSE THE EXISTING CIRCUIT IF IT IS IN PROPER WORKING CONDITION; PROVIDE A NEW CIRCUIT IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

ELECTRICAL PANEL SCHEDULE

PANELBOARD	B1	VOLTAGE	120 / 208 V	PHASE	3	WIRE	4
PANEL TYPE	MCB	MAINS	200A	BUS RATING	225A	AIC RATING	V.I.F
NEMA TYPE ENCLOSURE	1	MOUNTING	FLUSHED	OPTIONS		NOTE	EXISTING PANEL

A B

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1		(N)	SCRUBBER_RECEPT	1	12	20	1,000	A	180	20	12	1	EXTERIOR RECEPT	(N)		2
3		(N)	MICROWAVE_RECEPT	1	12	20	1,200	B	180	20	12	1	EXTERIOR RECEPT	(N)		4
5		(N)	SINK_RECEPT	1	12	20	800	C	1,200	20	12	1	VENDING MACHINE	(N)		6
7		(N)	REFRIGERATOR_RECEPT	1	12	20	1,200	A	1,200	20	12	1	VENDING MACHINE	(N)		8
9		(N)	BREAKROOM_RECEPT	1	12	20	540	B	360	20	12	1	CASH OFFICE RECEPT	(N)		10
11		(N)	MANAGER'S RECEPT	1	12	20	200	C	1,080	20	12	1	SALES FLOOR RECEPT	(N)		12
13		(N)	MANAGER'S RECEPT	1	12	20	200	A	1,080	20	12	1	SALES FLOOR RECEPT	(N)		14
15		(N)	MANAGER'S RECEPT	1	12	20	200	B	1,500	20	12	1	AUTOMATIC DOORS	(N)		16
17		(N)	MANAGER'S RECEPT	1	12	20	200	C					SPACE			18
19		(N)	REDBOARD RECEPT	1	12	20	1,000	A		20		1	SPARE			20
21		(N)	REDBOARD RECEPT	1	12	20	500	B		20		1	SPARE			22
23		(N)	REDBOARD RECEPT	1	12	20	500	C		20		1	SPARE			24
25		(N)	CASH OFFICE PLUG MOLD	1	12	20	1,080	A	1,200	20	12	1	WOMEN RESTROOM HAND DRYER	(N)		26
27		(N)	CASH OFFICE PLUG MOLD	1	12	20	1,080	B		20		1	SPARE			28
29		(N)	CASH OFFICE PLUG MOLD	1	12	20	1,080	C		20		1	SPARE			30
31		(N)	CASH OFFICE PLUG MOLD	1	12	20	1,080	A		20		1	SPARE			32
33		(N)	BUILDING SIGN	1	12	20	1,200	B		20		1	SPARE			34
35		(N)	TILE LIGHT	1	12	20	500	C		20		1	SPARE			36
37			SPARE	1		20		A					SPACE			38
39			SPARE	1		20		B		20		1	EXISTING OUTSIDE REC			40
41			SPARE	1		20		C		20		1	SPARE			42

ALL PHASES TO BE BALANCED T0 WITHIN 7%
A= 9,220 WATTS
B= 6,760 WATTS
C= 5,560 WATTS

TOTAL CONNECTED LOAD 21,540 WATTS 60 AMPS
TOTAL DEMAND LOAD 17,045 WATTS 48 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
EMS ROUTING TO THE EMS PANEL
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL PANEL SCHEDULE

PANELBOARD	B2	VOLTAGE	120 / 208 V	PHASE	3	WIRE	4
PANEL TYPE	MLO	MAINS	NA	BUS RATING	225A	AIC RATING	V.I.F
NEMA TYPE ENCLOSURE	1	MOUNTING	FLUSHED	OPTIONS		NOTE	EXISTING PANEL

A B

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1		(N)	POWER POLE CASH REGISTER	1	12	20	1,500	A	1,500	20	12	1	POWER POLE CASH REGISTER	(N)		2
3		(N)	POWER POLE CASH REGISTER	1	12	20	1,500	B	1,500	20	12	1	POWER POLE CASH REGISTER	(N)		4
5		(N)	POWER POLE CASH REGISTER	1	12	20	1,500	C	1,500	20	12	1	POWER POLE CASH REGISTER	(N)		6
7		(N)	POWER POLE CASH REGISTER	1	12	20	1,500	A	1,500	20	12	1	POWER POLE CASH REGISTER	(N)		8
9			SPARE	1		20		B		20		1	SPARE			10
11			SPARE	1		20		C	1,080	20	12	1	EXISTING ROOF GFI REC	(E)		12
13			SPARE	1		20		A		20		1	SPARE			14
15			SPARE	1		20		B	1,200	20	12	1	MENS RESTROOM HAND DRYER	(N)		16
17		(E)	EXISTING WATER HEATER (EWH-1)	2	10	30	2,250	C		20		1	SPARE			18
19							2,250	A		20		1	SPARE			20
21			SPARE	1		20		B		20		1	SPARE			22
23			SPARE	1		20		C		20		1	SPARE			24
25			SPARE	1		20		A		20		1	SPARE			26
27			SPACE					B		20		1	SPARE			28
29			SPARE					C		30		2	SPARE			30
31			SPARE					A								32
33			SPARE					B		30		2	SPARE			34
35			SPARE					C								36
37			SPARE	2		30		A		30		2	SPARE			38
39								B								40
41			SPARE					C					SPARE			42

ALL PHASES TO BE BALANCED T0 WITHIN 7%
A= 8,250 WATTS
B= 4,200 WATTS
C= 6,330 WATTS

TOTAL CONNECTED LOAD 18,780 WATTS 53 AMPS
TOTAL DEMAND LOAD 16,640 WATTS 47 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
EMS ROUTING TO THE EMS PANEL
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL LOAD SUMMARY (208V/3PH SERVICE) - METER 2

DESCRIPTION	NEC CONNECTED kW	VOLT	PHASE	NEC DEMAND FACTOR	NEC DEMAND kW
RECEPTACLES	34.1	120	1	>10kW=10+[0.5*(kW-10)]	22.1
STOREFRONT SIGN	1.7	120	1	1.25	2.1
HOT WATER HEATER	4.5	208	1	1.00	4.5
TOTALS	40.3				28.7

NOTES:
* USE GREATER VALUE OF THE TWO CATEGORIES.
** 125% OF THE LARGEST MOTOR OR COMPRESSOR IN SYSTEM APPLIED ONLY ON ONE UNIT.
*** N.E.C. ARTICLE 220-12 REQUIREMENT (200 VA PER FOOT OF SHOW WINDOW) MINUS ACTUAL SHOW WINDOW LIGHTING kVA.

N.E.C. DEMAND kVA x 1,000 / SYSTEM VOLTAGE x 1.732 — MINIMUM FEEDER AMPERAGE

28.7 x 1000 = 28,685
208 x 1.732 = 360
79.6 AMPS USE (EXISTING) 400AMP SERVICE.

ELECTRICAL PANEL SCHEDULE

PANELBOARD	MDP	VOLTAGE	277 / 480 V	PHASE	3	WIRE	4
PANEL TYPE	MCB	MAINS	1200A MCB	BUS RATING	1200A	AIC RATING	V.I.F
NEMA TYPE ENCLOSURE	1	MOUNTING	SURFACE	OPTIONS		NOTE	EXISTING PANEL

A B

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1							1,000	A								2
3		(E)	EXISTING EMERGENCY PANEL 'E'	3	8	50	1,000	B		20		3	SPARE			4
5							800	C								6
7							4,753	A					SPACE			8
9		(E)	TO EXISTING PANEL 'A' VIA 112.5KVA TRANSFORMER	3	2/0	175	4,753	B					SPACE			10
11							5,682	C					SPACE			12
13							11,358	A								14
15		(E)	EXISTING PANEL 'C'	3	3/0	200	10,358	B		20		3	SPARE			16
17							10,358	C								18
19							130,653	A					SPACE			20
21		(E)	EXISTING PANEL 'B'	3	(2) 350	600	130,653	B					SPACE			22
23							130,653	C					SPACE			24

ALL PHASES TO BE BALANCED T0 WITHIN 7%
A= 147,764 WATTS
B= 146,764 WATTS
C= 147,493 WATTS

TOTAL CONNECTED LOAD 442,021 WATTS 532 AMPS
TOTAL DEMAND LOAD 444,171 WATTS 535 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
EMS ROUTING TO THE EMS PANEL
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL PANEL SCHEDULE

PANELBOARD	A	VOLTAGE	120 / 208 V	PHASE	3	WIRE	4
PANEL TYPE	MCB	MAINS	400A	BUS RATING	400A	AIC RATING	V.I.F
NEMA TYPE ENCLOSURE	1	MOUNTING	SURFACE	OPTIONS		NOTE	EXISTING PANEL

A B

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1								A								2
3		(E)	SPARE	3		50		B		15		3	SPARE	(E)		4
5								C								6
7				1		20		A	271							8
9		(E)	TRUCK DOCK LIGHT	1	12	20	300	B	271	20	12	2	EXHAUST FAN (EF-1)	(N)		10
11							3,482	C		20		1	SPARE			12
13		(N)	BALER	3	4	60	3,482	A	500	20	12	1	SALES FLOOR CEILING CORD REELS	(N)		14
15							3,482	B	500	20	12	1	SALES FLOOR CEILING CORD REELS	(N)		16
17		(N)	TICKET MACHINE	1	12	20	1,000	C	1,200	20	12	1	SODA MACHINE RECEPT	(N)		18
19								A	500	20	12	1	PUBLIC VIEW MONITOR RECEPT	(N)		20
21		(E)	SPARE	3		100		B	200	20	12	1	EXISTING EMS PANEL	(E)		22
23								C		30		2	SPARE			24
25			SPARE	1		20		A								26
27			SPACE					B		30		2	SPARE			28
29			SPACE					C								30

ALL PHASES TO BE BALANCED T0 WITHIN 7%
A= 4,753 WATTS
B= 4,753 WATTS
C= 5,682 WATTS

TOTAL CONNECTED LOAD 15,188 WATTS 43 AMPS
TOTAL DEMAND LOAD 15,263 WATTS 43 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
EMS ROUTING TO THE EMS PANEL
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL PANEL SCHEDULE

PANELBOARD	E	VOLTAGE	277 / 480 V	PHASE	3	WIRE	4
PANEL TYPE	MLO	MAINS	NA	BUS RATING	100A	AIC RATING	V.I.F
NEMA TYPE ENCLOSURE	1	MOUNTING	SURFACE	OPTIONS		NOTE	EXISTING PANEL

A B

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1			SPACE					A					SPACE			2
3			SPACE					B					SPACE			4
5		(E)	EXISTING STORAGE EXIT LIGHT	1	12	20	800	C		20		1	SPARE			6
7		(E)	EXISTING FRONT SALES EXIT LIGHT	1	12	20	1,000	A		20		1	SPARE			8
9		(E)	EXISTING REAR SALES EXIT LIGHT	1	12	20	1,000	B		20		1	SPARE			10
11			SPACE					C					SPACE			12

ALL PHASES TO BE BALANCED T0 WITHIN 7%
A= 1,000 WATTS
B= 1,000 WATTS
C= 800 WATTS

TOTAL CONNECTED LOAD 2,800 WATTS 4 AMPS
TOTAL DEMAND LOAD 3,500 WATTS 5 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
EMS ROUTING TO THE EMS PANEL
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL PANEL SCHEDULE

PANELBOARD	B	VOLTAGE	277 / 480 V	PHASE	3	WIRE	4
PANEL TYPE	MCB	MAINS	600A	BUS RATING	600A	AIC RATING	V.I.F
NEMA TYPE ENCLOSURE	1	MOUNTING	SURFACE	OPTIONS		NOTE	EXISTING PANEL

A B

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1								A	19,930							2
3		(E)	SPARE	3		30		B	19,930	90	4	3	EXISTING RTU-4	(E)	C	4
5								C	19,930							6
7							19,930	A	19,930							8
9	C	(E)	EXISTING RTU-2	3	4	90	19,930	B	19,930	90	4	3	EXISTING RTU-3	(E)	C	10
11							19,930	C	19,930							12
13								A	19,930							14
15			SPARE	3		90		B	19,930	90	4	3	EXISTING RTU-6	(E)	C	16
17								C	19,930							18
19							19,930	A								20
21	C	(E)	EXISTING RTU-5	3	4	90	19,930	B		90		3	SPARE			22
23							19,930	C								24
25							13,287	A	4,429							26
27	C	(E)	EXISTING RTU-1	3	4	60	13,287	B	4,429	20	12	3	EXISTING STOCK ROOM HEAT BACK	(E)	C	28
29							13,287	C	4,429							30
31							4,429	A	4,429							32
33	C	(E)	EXISTING STORAGE HEATER	3	12	20	4,429	B	4,429	20	12	3	EXISTING STOCK ROOM HEAT MIDDLE	(E)	C	34
35							4,429	C	4,429							36
37							4,429	A					SPACE			38
39	C	(E)	EXISTING HEAT MEZZANINE	3	12	20	4,429	B					SPACE			40
41							4,429	C					SPACE			42
43			SPACE					A					SPACE			44

ALL PHASES TO BE BALANCED T0 WITHIN 7%
A= 130,653 WATTS
B= 130,653 WATTS
C= 130,653 WATTS

TOTAL CONNECTED LOAD 391,959 WATTS 472 AMPS
TOTAL DEMAND LOAD 391,959 WATTS 472 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
EMS ROUTING TO THE EMS PANEL
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL PANEL SCHEDULE

PANELBOARD	C	VOLTAGE	277 / 480 V	PHASE	3	WIRE	4
PANEL TYPE	MCB	MAINS	200A	BUS RATING	225A	AIC RATING	V.I.F
NEMA TYPE ENCLOSURE	1	MOUNTING	FLUSHED	OPTIONS		NOTE	EXISTING PANEL

A B

CKT. NO.	EQT TAG	CKT TAG	DESCRIPTION	POLE	WIRE SIZE	BKR. SIZE	TOTAL WATTS	PHASE	TOTAL WATTS	BKR. SIZE	WIRE SIZE	POLE	DESCRIPTION	CKT TAG	EQT TAG	CKT. NO.
1		(E)	EXISTING ROW 1 & 2 LIGHTS	1	12	20	500	A	500	20	12	1	EXISTING STORAGE LIGHTS	(E)		2
3		(E)	EXISTING ROW 3 & 4 LIGHTS	1	12	20	500	B		20		1	SPARE			4
5		(E)	EXISTING ROW 5 & 6 LIGHTS	1	12	20	500	C		20		1	SPARE			6
7		(E)	EXISTING ROW 7 & 8 LIGHTS	1	12	20	500	A		20		1	SPARE			8
9		(E)	EXISTING ROW 9 & 10 LIGHTS	1	12	20	500	B		20		1	SPARE			10
11		(E)	EXISTING ROW 11 & 12 LIGHTS	1	12	20	500	C		20		1	SPARE			12
13		(E)	EXISTING ROW 13 & 14 LIGHTS	1	12	20	500	A		20		1	SPARE			14
15		(E)	EXISTING ROW 15 & 16 LIGHTS	1	12	20	500	B		20		1	SPARE			16
17		(E)	EXISTING ROW 17 LIGHTS	1	12	20	500	C		20		1	SPARE			18
19		(E)	EXISTING ROW LIGHTS	1	12	20	500	A		20		1	SPARE			20
21			SPARE	1		20		B		20		1	SPARE			22
23			SPARE	1		20		C		20		1	SPARE			24
25			SPARE	1		20		A		20		1	SPARE			26
27			SPARE	1		20		B		20		1	SPARE			28
29			SPARE	1		20		C	4,429							30
31							4,429	A	4,429	20	12	3	EXISTING ENTRY HEATER (EUH-2)	(E)	C	32
33	C	(E)	EXISTING ENTRY HEATER (EUH-1)	3	12	20	4,429	B	4,429							34
35							4,429	C		20		1	SPARE			36
37			SPARE					A		20		1	SPARE			38
39			SPARE					B		20		1	SPARE			40
41			SPARE					C					SPACE			42
43			SPACE					A					SPACE			44

ALL PHASES TO BE BALANCED T0 WITHIN 7%
A= 11,358 WATTS
B= 10,358 WATTS
C= 10,358 WATTS

TOTAL CONNECTED LOAD 32,074 WATTS 39 AMPS
TOTAL DEMAND LOAD 33,449 WATTS 41 AMPS

(E) EXISTING TO REMAIN
(N) NEW CIRCUIT
GFCI GROUND FAULT CURRENT INTERRUPTER
IG CIRCUITS WITH ISOLATED GROUND
TC CIRCUITS ON TIMECLOCK
EMS ROUTING TO THE EMS PANEL
C BREAKER LOCK
a,b,c SWITCHES CONTROLLING LIGHTS

ELECTRICAL LOAD SUMMARY (480V/3PH SERVICE)

DESCRIPTION	NEC CONNECTED kW	VOLT	PHASE	NEC DEMAND FACTOR	NEC DEMAND kW
LIGHTING- 120V	0.3	120	1	1.25	0.4
LIGHTING - 277V	8.3	277	1	1.25	10.4
RECEPTACLES	2.9	120	1	>10kW=10+[0.5*(kW-10)]	2.9
EXH. FANS	0.5	208	1	1.00	0.5
EQUIPMENTS	11.4	208	1	1.00	11.4
SPACE HEATER	79.7	480	3	1.00	79.7
ROOFTOP UNITS	338.8	480	3	1.00	338.8
TOTALS	442.0				444.2

NOTES:
* USE GREATER VALUE OF THE TWO CATEGORIES.
** 125% OF THE LARGEST MOTOR OR COMPRESSOR IN SYSTEM APPLIED ONLY ON ONE UNIT.
*** N.E.C. ARTICLE 220-12 REQUIREMENT (200 VA PER FOOT OF SHOW WINDOW) MINUS ACTUAL SHOW WINDOW LIGHTING kVA.

N.E.C. DEMAND kVA x 1,000 / SYSTEM VOLTAGE x 1.732 — MINIMUM FEEDER AMPERAGE

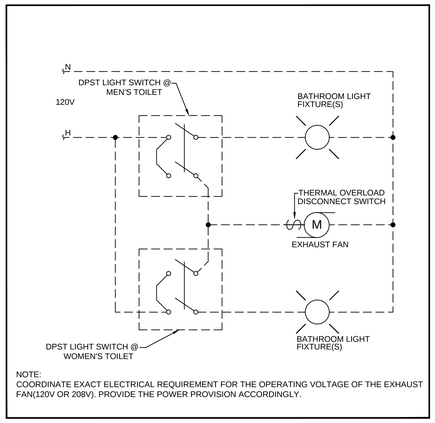
444.2 x 1000 = 444,171
480 x 1.732 = 831
534.3 AMPS USE (EXISTING) 1200AMP SERVICE.

Property of NY Engineers

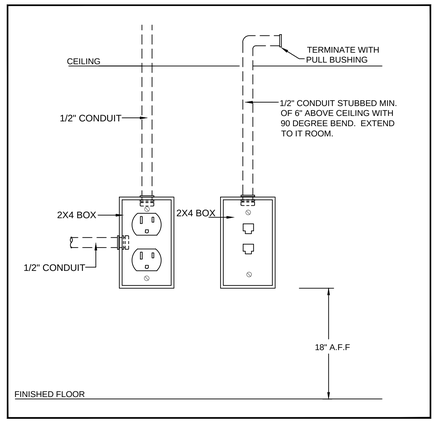
Ollie's Bargain Outlet Tenant Improvement

E003

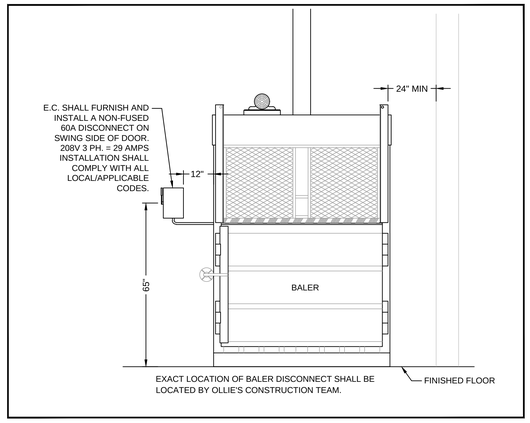
RISER DIAGRAM AND PANEL SCHEDULES



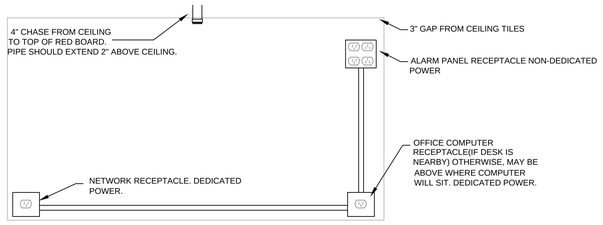
01 TOILET EXHAUST FAN DETAIL
SCALE: N.T.S.



02 POWER AND COMMUNICATION OUTLET INSTALLATION DETAIL
SCALE: N.T.S.

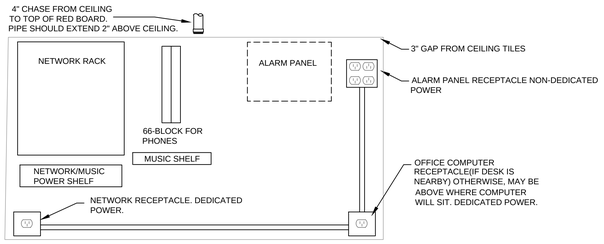


03 BALER ELECTRICAL DETAIL
SCALE: N.T.S.

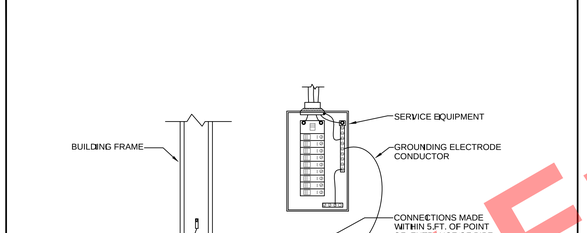


NOTE:
COORDINATE REDBOARD LAYOUT WITH OLLIE'S CONSTRUCTION MANAGER FOR SPECIFIC CONSTRUCTION SITE.

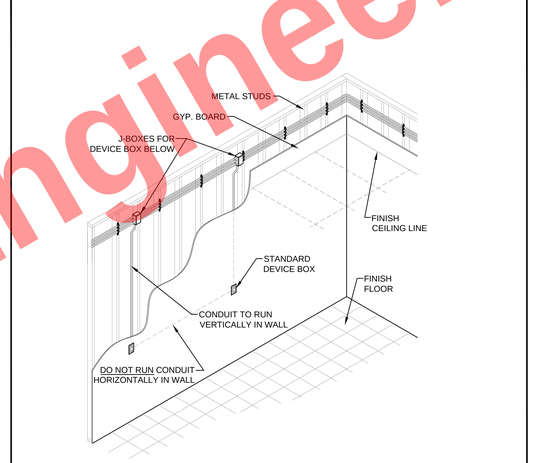
VERIFY EQUIPMENT PLACEMENT AND LAYOUT FOR ANY UPDATES OR CHANGES TO CORPORATE REQUIREMENTS PER OLLIE'S CONSTRUCTION MANAGER.



05 REDBOARD LAYOUT
SCALE: N.T.S.



06 GROUNDING ELECTRODE SYSTEM
SCALE: N.T.S.



04 ISOMETRIC DETAIL OF CONDUIT MOUNTING
SCALE: N.T.S.

Property of NV Engineers

Ollie's Bargain Outlet Tenant Improvement

E004

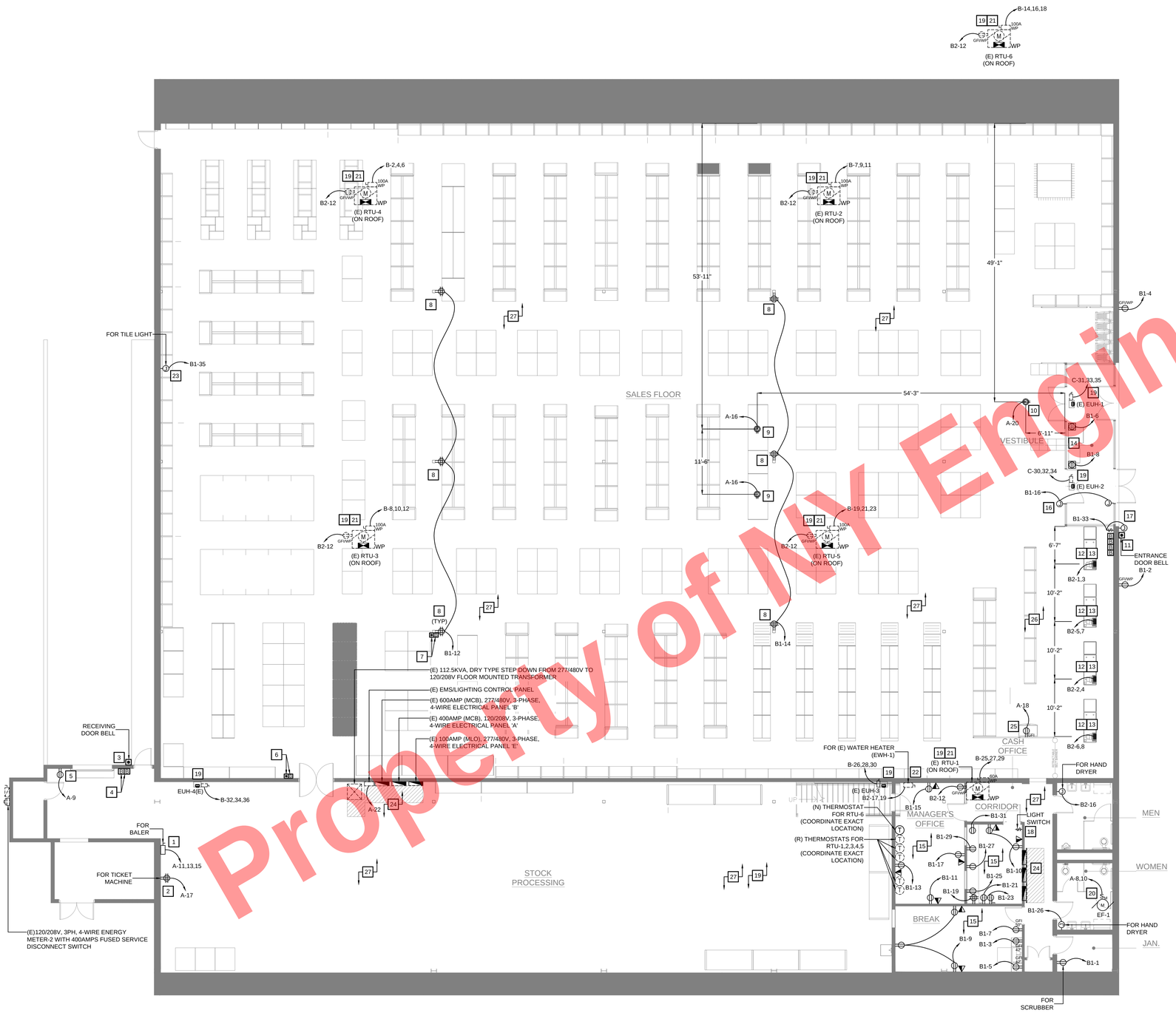
LEGEND:
NEW
EXISTING

GENERAL NOTES:

1. COORDINATE ALL DEVICE LOCATIONS AND MOUNTING HEIGHTS WITH THE ARCHITECT & FURNITURE VENDOR PRIOR TO INSTALLATION.
2. 'E' DENOTES EXISTING DEVICE TO REMAIN. 'R' DENOTES EXISTING DEVICE TO BE RELOCATED.
3. ALL WALL MOUNTED RECEPTACLES AND TEL. DATA OUTLETS SHALL BE MOUNTED AT 18" A.F.F. UNLESS OTHERWISE NOTED.
4. ALL WIRING/CABLING AND OTHER TELCO/DATA DEVICES SHALL BE PROVIDED BY TELCO/DATA CONTRACTOR. GENERAL CONTRACTOR SHALL VERIFY THE LOCATIONS OF DEVICES AND PROVIDE ROUGH-INS. PROVIDE BACKBOX AND CONDUIT TO ABOVE CEILING IF PARTITION IS INSULATED. COORDINATE WITH ARCHITECTURAL DRAWINGS.
5. MAXIMUM VOLTAGE DROP FOR FEEDER AND BRANCH CIRCUIT CONDUCTORS COMBINED, SHALL NOT EXCEED A 5% VOLTAGE DROP.
6. DEDICATED OUTLETS SHALL BE 20A RATED, U.N.O.
7. PROVIDE SERVICE EQUIPMENT AIC MARKING PER NEC 110.24(A) AND 110.24 (B) FOR MODIFICATIONS IF REQUIRED.
8. RECEPTACLES SHALL BE INSTALLED PER ANSI A117.1.
9. LABEL ALL OUTLETS AND JUNCTION BOXES WITH THE CORRESPONDING CIRCUIT DESIGNATION. LABEL TO BE TYPEWRITTEN; BLACK LETTERS ON WHITE BACKGROUND.
10. PROVIDE PULL STRINGS FOR ALL EMPTY CONDUIT. EACH NON-TERMINATED CONDUIT END SHALL BE PROVIDED WITH A BUSHING.
11. DIVISION 26 CONTRACTOR SHALL COORDINATE WITH DIVISION 23 TO MAKE SURE RETURN AIR OPENINGS ARE KEPT CLEAR OF ANY CONDUITS.
12. ALL RECEPTACLES WITHIN 6'-0" OF ANY WATER SOURCE SHALL BE 'GFCI' TYPE.
13. G.C. TO COORDINATE ALL LOW VOLTAGE LOCATIONS AND REQUIREMENTS WITH TENANT & TENANT LV SUBCONTRACTOR.
14. REFER TO DWG. E001 FOR ELECTRICAL GENERAL NOTES, SYMBOL LIST & ABBREVIATIONS. REFER TO DWG. E002 FOR ELECTRICAL SPECIFICATION. REFER DWG. E300 FOR ELECTRICAL RISER DIAGRAM.
15. FINAL CONDUIT/CABLE ROUTING SHALL BE DETERMINED IN-FIELD, AND PRIOR TO THE COMMENCEMENT OF WORK, COORDINATED WITH OTHER TRADE CONTRACTORS AND THE TENANT.
16. OUTLETS' LOCATION SHOWN IN THE DRAWING ARE DIAGRAMMATIC, FOR ACTUAL LOCATION AND MOUNTING HEIGHT REFER ARCHITECTURAL PLAN.
17. CONTRACTOR SHALL COORDINATE EXACT RECEPTACLE TYPE FOR EQUIPMENT WITH EQUIPMENT VENDOR/MANUFACTURER.
18. BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 50 AMPERES OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150 VOLTS OR LESS TO GROUND, 100 AMPERES OR LESS, INSTALLED IN THE LOCATIONS SPECIFIED IN 210.8(B)(1) THROUGH (B)(12) SHALL HAVE GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL. PER 2020 NEW JERSEY ELECTRICAL CODE SECTION 210.8 (B) (1)-(10).
19. PER NEC 406.12, ALL 15- AND 20-AMPERE, 125- AND 250-VOLT NONLOCKING-TYPE RECEPTACLES INSTALLED IN PUBLIC AREAS ACCESSIBLE TO CHILDREN SHALL BE TAMPER-RESISTANT TYPE.

KEYED NOTES:

1. PROVIDE 60A/3P/NF/240V/NEMA 1 DISCONNECT SWITCH FOR BALER, VERIFY LOAD WITH BALER SUPPLIER. PROVIDE (3) #6, #8 GROUND IN 1" CONDUIT. VERIFY EXACT LOCATION OF BALER WITH OLLIE'S. REFER TO BAILER DETAIL, SHEET E3.0
2. OUTLET FOR TICKET MACHINE SHALL BE 60" AFF. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION OF BALER , MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
3. RECEIVING DOOR BELL @ 5'-0" AFF. CONTRACTOR TO VERIFY EXACT LOCATION, MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S/VENDOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
4. ENTRANCE DOOR BELL AUDIBLE, RECEIVING DOOR BELL (TWO LOCATIONS). CONTRACTOR TO VERIFY EXACT LOCATION, MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S/VENDOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
5. DUPLEX RECEPTACLE CIRCUIT FOR DOCK LIGHT MOUNTED AT 60" AFF. CONTRACTOR TO VERIFY EXACT MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S/VENDOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
6. CARPET HELP BELL / CARPET HELP BELL AUDIBLE (TWO LOCATIONS). @ 5'-0" AFF. COORDINATE EXACT MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S/VENDOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
7. FURNITURE HELP BELL / FURNITURE HELP BELL AUDIBLE @ 5'-0" AFF. COORDINATE EXACT MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S/VENDOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
8. NEW QUAD BOX OUTLET (QUAD RECEPTACLE) MOUNTED TO COLUMN @ 18" AFF. COORDINATE EXACT MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
9. CONTRACTOR SHALL PROVIDE AND INSTALL RETRACTABLE CORD REEL(S) (BAYCO SL-800 TRIPLE TAP 30-FOOT METAL REEL, OR SIMILAR). COORDINATE EXACT MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
10. MOUNT ONE (1) DUPLEX IN CEILING NEAR STOREFRONT ENTRY DOOR FOR PUBLIC VIEW MONITOR/ SURVEILLANCE EQUIPMENT (CENTER OF THE ENTRANCE DOOR 10'-12' FROM THE DOOR AND 12' AFF). ELECTRICAL CONTRACTOR TO COORDINATE EXACT MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
11. ENTRANCE DOOR BELL @ 5'-0" AFF. ELECTRICAL CONTRACTOR TO VERIFY EXACT LOCATION, MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIE'S/VENDOR PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
12. CONTRACTOR SHALL PROVIDE TWO DEDICATED CIRCUITS TO THE POWER POLE. ONE CIRCUIT TO THE SINGLE ROUND ORANGE OUTLET. THE OTHER CIRCUIT SHALL SERVE (1) STANDARD DUPLEX (DIRTY POWER) AT THE BOTTOM SHELF. CONTRACTOR SHALL VERIFY EXACT LOCATION AND MOUNTING HEIGHT WITH THE OLLIE'S REPRESENTATIVE. BASE BID ACCORDINGLY.
13. CONTRACTOR SHALL PROVIDE A POWER POLE FOR EACH PERMANENT CHECK STAND. POWER POLE SHALL BE A WIREMOLD 25DTC TWO CHANNEL BLANK POLE. COORDINATE HEIGHT (10.5', 12.5', OR 15.5') OF POLE WITH ARCHITECT AND OWNER. COLOR SHALL BE IVORY. COORDINATE EXACT REQUIREMENT PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
14. FLOOR MOUNTED DUPLEX OUTLET FOR VENDING MACHINES. CONTRACTOR TO COORDINATE WITH THE EXACT LOCATION, POWER REQUIREMENT WITH OLLIE'S PRIOR TO ROUGH-IN. OUTLETS SHALL BE DUST- AND WATER-RESISTANT. BASE BID ACCORDINGLY.
15. CONTRACTOR SHALL VERIFY EXACT LOCATION, QUANTITY AND MOUNTING HEIGHT OF THE RECEPTACLE'S FOR MANAGER'S OFFICE, CASH OFFICE AND BREAK ROOM WITH THE OLLIE'S REPRESENTATIVE. BASE BID FOR THE ACCORDINGLY.
16. FOR AUTOMATIC DOORS. CONTRACTOR SHALL VERIFY EXACT LOCATION, MOUNTING HEIGHT AND EXACT POWER REQUIREMENT FOR THE DOOR'S WITH OLLIE'S PRIOR TO ROUGH-IN. BASE BID FOR THE ACCORDINGLY.
17. PROVIDE DEDICATED CIRCUIT AND JUNCTION BOX FOR OLLIE'S EXTERIOR SIGN. PROVIDE DISCONNECTING MEANS PRIOR TO CONNECTION TO SIGN MOUNTING JUNCTION BOX. DISCONNECT SHALL BE LOCATED EITHER ABOVE LAY-IN CEILING, ON BACK SIDE OF PARAPET, PER THE DIRECTION OF THE OWNER.
18. CONTRACTOR SHALL COORDINATE WITH OLLIE'S TO CONFIRM THE EXACT ELECTRICAL REQUIREMENTS FOR THE CASH OFFICE LIGHT SWITCH. PROVIDE THE NECESSARY LIGHTING CONTROLS AS REQUIRED.
19. EXISTING HVAC UNITS AND ASSOCIATED BRANCH CIRCUITS TO REMAIN. CONTRACTOR SHALL FIELD VERIFY AND UTILIZE EXISTING BRANCH CIRCUIT & DISCONNECT IF IT'S IN OPERABLE CONDITION; PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
20. EXHAUST FAN SHALL BE PROVIDED WITH THE REQUIRED ROUGH-INS, MOCP, AND WIRE SIZES. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER FOR THE EXACT TYPE OF ROUGH-INS AND WIRE SIZE AT THE COMMENCEMENT OF WORK.
21. CONTRACTOR SHALL VERIFY THAT THERE IS A POWERED 120V 20A GFI WEATHERPROOF WITHIN 25 FEET OF EACH HVAC UNIT. THE ELECTRICAL CONTRACTOR SHALL ENSURE THAT THE FACTORY-MOUNTED CONVENIENCE OUTLET IS POWERED AND WIRE IT TO THE CIRCUIT AS SHOWN. COORDINATE FINAL HVAC PLACEMENT AND ADD EXTRA RECEPTACLES AS NEEDED.
22. EXISTING WATER HEATER AND ASSOCIATED BRANCH CIRCUITS TO REMAIN. CONTRACTOR SHALL FIELD VERIFY AND UTILIZE EXISTING BRANCH CIRCUIT & DISCONNECT IF IT'S IN OPERABLE CONDITION; PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
23. CONTRACTOR SHALL FURNISH AND INSTALL A J-BOX AT 8'-6" AFF FOR INSTALLATION OF (1) 4' T8 FIXTURE HARDWIRED WITH DISPLAY. FIXTURE IS TO BE SWITCHED WITH THE MAIN STORE LIGHTING. COORDINATE EXACT LOCATION, MOUNTING HEIGHT AND POWER REQUIREMENT WITH OLLIES PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
24. EXISTING ELECTRICAL PANELS SHALL REMAIN. CONTRACTOR SHALL COORDINATE WITH THE LANDLORD IN FIELD & VERIFY EXACT LOCATION, RATING, VOLTAGE, PHASE & OPERABLE CONDITION IN THE FIELD. REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY. CONTRACTOR SHALL MAINTAIN CLEARANCE FOR ELECTRICAL PANEL PER NEC 110.26 (A) (1). REFER TO SHEET E003.0 ELECTRICAL RISER DIAGRAM FOR MORE INFORMATION.
25. RECEPTACLE FOR DRINK COOLER. CONTRACTOR TO COORDINATE THE EXACT LOCATION AND POSITIONING OF THE RECEPTACLE. INSTALL IT ON THE MULLION OR FLOOR MOUNTED AS REQUIRED BY OLLIE'S STANDARDS. BASE BID ACCORDINGLY.
26. CONTRACTOR TO COORDINATE FOR THE EXACT LOCATION FOR SWITCH MOUNTED FOR SINGLE LIGHT IN EACH CASHIER STATION POWER POLE WITH OLLIES. PROVIDE REQUIRED CONNECTIONS AND CONTROLS ACCORDINGLY.
27. EXISTING LIGHT FIXTURE AND CONTROLS TO REMAIN. FIELD VERIFY THE OPERABLE CONDITION WITH ARCHITECT/OWNER IN FIELD. REUSE WHEREVER POSSIBLE, OTHERWISE PROVIDE NEW LIGHTING CONTROLS/FIXTURES AS REQUIRED PER OLLIES STANDARDS. BASE BID ACCORDINGLY.



01 ELECTRICAL POWER PLAN
SCALE: 1/8" = 1' - 0"

Property of NY Engine

Ollie's Bargain Outlet Tenant Improvement

E100

ELECTRICAL POWER PLAN