MECHANICAL GENERAL NOTES

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 CONTRAC
- THE TERM "CONTRACTOR" SHALL MEAN THE "MECHANICAL CONTRACTOR HIRED TO COMPLETE THE WORK OUTLINED IN THESE PLANS AND SPECIFICATIONS", UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR FOR THIS WORK IS REQUIRED TO REVIEW ALL DRAWINGS FOR ALL OTHER TRADES.
- 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 THOROLIGHLY REVIEWED AND THAT THIS CONTRACTOR HAS BECOME FAMILIARIZED WITH JOB SITE CONDITIONS AND IS TOTALLY QUALIFIED TO PERFORM ALL OF THE WORK REQUIRED
- 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 1. 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.
- 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

GENERAL REQUIREMENTS

- THE MECHANICAL SUBCONTRACTORS QUOTING ON THEIR SPECIFIC SCOPE OF WORK/SERVICES TO CONTACT THE 1. SUBMIT THREE COPIES OF MATERIAL LISTS AND SHOP DRAWINGS FOR ALL EQUIPMENT AND DUC 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.
- 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.
- 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
- WHERE THE DRAWINGS AND / OR SPECIFICATIONS CALL FOR ITEMS THAT EXCEED CODES OR THE LANDI ORD'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.
- 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.
- 3. 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.

CODES

. ALL WORK SHALL BE PERFORMED IN A NEAT AND PROFESSIONAL MANNER USING GOOD CONSTRUCTION 2. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND / OR THEIR SUBCONTRACTORS TO 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 E CONTRACT IS ISSUED, NO ADDITIONAL COST DUE TO CODE ISSUES SHALL BE REIMBURSED BY THE TENAN TO THE CONTRACTOR.

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.

DRAWINGS

- 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 K. GUARANTEE, WARRANTY 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.
- 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.

E. 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.
- THE CONTRACTOR SHALL INCLUDE, AND WILL BE HELD RESPONSIBLE FOR, THE REMOVAL OF ALL EXISTING FIRE 1. ONE COPY OF EACH OPERATION AND MAINTENANCE MANUAL FOR ALL EQUIPMENT FURNISHED ON PROTECTION PLUMBING FIXTURES PIPING HVAC UNITS REFRIGERANT RECAPTURE EXHAUST FANS DUCTWORK, ETC, AND ASSOCIATED ROOF CURBS NOT TO BE REUSED ON THIS PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE. CONTRACTOR MUST VERIFY WITH THE LANDLORD ALL PRESUMED ABANDONED EQUIPMENT, PIPES, DUCTWORK AND EQUIPMENT PRIOR TO REMOVAL. ROOF CURBS SHALL BE REMOVED AND THE ROOF PATCHED UNLESS NOTED FOR REUSE OR RECONFIGURATION ON PLANS. ROOF PATCHING SHALL BE PERFORMED AT THE CONTRACTOR'S EXPENSE BY A ROOFING CONTRACTOR APPROVED BY THE LANDLORD. ALL EXTRANEOUS ITEMS IN THE SPACE OR ON THE ROOF (ABOVE THIS SPACE) NOT APPLICABLE TO THE NEW WORK OR PART OF THE LANDLORD'S OR ANOTHER TENANT'S ACTIVE SYSTEM MUST BE REMOVED AND ROOF / WALL / FLOOR MUST BE 1. PATCHED / REPAIRED TO MATCH THE EXISTING STRUCTURE. EXISTING ABANDONED PIPES, DUCTS OR EQUIPMENT IN THE FLOOR, EMBEDDED IN CONCRETE OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL WHEN THEY ARE NOT REUSED IN THIS PROJECT.
- A. IF REQUIRED BY THE LANDLORD OR CODES, ABANDONED PIPING AND / OR DUCTWORK MUST BE REMOVED TO 2. ALL SLEEVES AND OPENINGS THROUGH FIRE RATED WALLS AND / OR FLOORS SHALL POINT OF ORIGIN. CONFIRM THE EXTENT OF DEMOLITION PRIOR TO BID AND INCLUDE IN BID PROPOSAL.
- 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 3. SLEEVES IN BEARING AND MASONRY WALLS, FLOORS AND PARTITIONS SHALL BE STANDARD WEIG 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 4. DUCT SLEEVES SHALL BE MINIMUM 14 GAUGE STEE 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.
- 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 2. ITS COMPONENT CONSTRAINTS AND THEN REASSEMBLED IN THE NEW WORK AREA.
- 3. 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.
- 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.
- . CONTRACTOR SHALL PROTECT THEIR WORK AND EQUIPMENT FROM DAMAGE, VANDALS, ETC. ANY ITEM THAT IS 3. HANGERS FOR ALL INSULATED PIPING SHALL BE SIZED AND INSTALLED FOR THE OUTER DAMAGED, VANDALIZED OR STOLEN PRIOR TO ACCEPTANCE OF BUILDING BY OWNER AND ARCHITECT SHALL BE INSULATION. INSTALL 6 INCH LONG SPLIT CIRCLE GALVANIZED SADDLE BETWEEN THE HANGER REPLACED BY RESPECTIVE CONTRACTOR AT NO CHARGE TO TENANT
- DAMAGE DONE TO ANY EXISTING FACILITIES FOUIPMENT 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
- 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 CONTRACTOR SHALL GIVE AMPLE WRITTEN NOTICE IN ADVANCE TO THE OWNER OF ANY REQUIRED
- 13. ALL MOTORS, FANS, CONTROLS, FIXTURES, HVAC UNIT, DUCTWORK AND OTHER EQUIPMENT FC CONTRACT SHALL BE PROTECTED BY TARPAULIN OR BY BOXING AS SOON AS DELIVERED TO THE BE KEPT CLEAN AND DRY. THE MOTORS, UNITS, FIXTURES, FANS, DUCTWORK AND MOVING PARTS COVERED SO AS TO ELIMINATE DIRT. DUST AND OTHER MATERIALS ENTERING THE PARTS DURING CONSTRUCTION WORK ON THE BUILDING. SHOULD IT BE FOUND THAT ANY PARTS ARE DAM CARELESSNESS ON THE PART OF THE CONTRACTOR IN NOT PROVIDING PROPER PROTECTION. PARTS SHALL BE REPLACED BY THE CONTRACTOR AT THEIR OWN COST AND EXPENSE ALL OPEN. PIPING, CONDUITS, ETC., SHALL BE PROPERLY PROTECTED WITH TEMPORARY CAPS OR PLUGS AT
- 14. THE CONTRACTOR, IN REGARDS TO ANY SAWCUTTING, COREDRILLING OR ANY PENETRATING O SLAB, FLOOR AND/OR ROOF, IS REQUIRED TO SURVEY DURING BIDDING TO DETERMINE ANY ISSU BUT NOT LIMITED TO, NECESSITY OF X-RAYING OF A CONCRETE SLAB, WHERE SUCH M. PENETRATED IS NOT PROJECTED AND/OR ROUTED INTO A SPACE(S) THAT CREATES A NON-CO CONDITION THE NEED FOR WEATHERSTRIPPING WATERPROOFING OR OTHER CONDITION AND OWNER IF A PROBLEM(S) MAY EXIST AND TO INCLUDE COSTS TO SOLVE THE ISSUE UNCOVERED, IN NOTIFYING THE ARCHITECT OF RECORD REGARDING SUCH ISSUE(S).

G. DISCREPANCIES IN DOCUMENTS

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

H. TRADE NAMES AND MANUFACTURERS

- WHERE TRADE NAMES AND MANUFACTURERS ARE USED ON THE DRAWINGS OR IN THE SPECIF EXACT EQUIPMENT SHALL BE USED AS A MINIMUM STANDARD FOR THE BASE BID. MA CONSIDERED AS AN EQUIVALENT OR BETTER IN ALL ASPECTS TO THAT SPECIFIED WILL BE SUBJEC WRITING BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO ACCEPTANCE. THE USE OF ANY EQUIPMENT SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENS
- I. SHOP DRAWINGS
- DRAWINGS TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW PRIOR TO ORDERIN SUBMISSIONS MUST BE EARLY ENOUGH TO ALLOW THE TENANT'S CONSTRUCTION MANAGER E DAYS FOR REVIEW WITHOUT CAUSING DELAYS OR CONFLICTS TO THE JOB'S PROGRESS. SUBMIT IN ACCORDANCE WITH THE GENERAL CONDITIONS USING THE MANUFACTURER'S LISTED ON T SHOP DRAWINGS SHALL INCLUDE ALL DATA THAT PERTAINS TO THE REQUIREMENTS SET F DRAWINGS AND IN THE SPECIFICATIONS. THE SUBMITTAL SHALL INCLUDE BUT NOT BE LIMITED CATALOGS INCLUDING DESCRIPTIVE LITERATURE AND CHARACTERISTICS OF EQUIPMENT SHALL DIMENSIONS, ROUGHING-IN DATA, CAPACITY, CURVES, PRESSURE DROPS, CODE COMPLIANCE DRIVE DATA AND ELECTRICAL DATA. OBSERVE SPECIAL INSTRUCTIONS WHEN REQUIRED. SUBI BEAR THE STAMP OF THE GENERAL AND SUBCONTRACTOR SHOWING THAT HE HAS REVIEWED AN THAT THEY ARE IN CONFORMANCE WITH THE CONTRACT DOCUMENTS OR INDICATE WHERE EXC PLACE LACK OF SUCH CONTRACTOR'S REVIEW WILL BE CAUSE FOR REJECTION WITHOUT REVIE CONSTRUCTION MANAGER. ALL SHOP DRAWINGS MUST APPEAR IN THE OPERATION AND MAINTEN LEFT ON SITE AT JOB COMPLETION.
- BY SUBMITTING SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND SIMILAR SUBMITTALS, THE REPRESENTS TO THE CLIENT AND ARCHITECT THAT THE CONTRACTOR HAS (1) REVIEWED THEM (2) DETERMINED AND VERIFIED MATERIALS FIELD MEASUREMENTS AND FIELD CONSTRUCT RELATED THERETO, OR WILL DO SO AND (3) CHECKED AND COORDINATED THE INFORMATI WITHIN SUCH SUBMITTALS WITH THE REQUIREMENTS OF THE WORK AND OF THE CONTRACT DO
- THE CONTRACTOR SHALL PERFORM NO PORTION OF THE WORK FOR WHICH THE CONTRACT REQUIRE SUBMITTAL AND REVIEW OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMIL UNTIL THE RESPECTIVE SUBMITTAL HAS BEEN APPROVED BY THE ARCHITECT
- THE WORK SHALL BE IN ACCORDANCE WITH APPROVED SUBMITTALS EXCEPT THAT THE CONT NOT BE RELIEVED OF THE RESPONSIBILITY FOR DEVIATIONS FROM REQUIREMENTS OF T DOCUMENTS BY ANY APPROVAL OF SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMIL UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE CLIENT IN WRITING OF SUCH DEV TIME OF SUBMITTAL AND
- C.1. THE ARCHITECT HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION AS A MINOR (WORK, OR
- C.2. A CHANGE ORDER OR CONSTRUCTION CHANGE DIRECTIVE HAS BEEN ISSUED AUTI DEVIATION
- C.3. THE CONTRACTOR SHALL DIRECT SPECIFIC ATTENTION IN WRITING OR ON RESUB DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS, TO REVISIONS OTHER REQUESTED BY THE ARCHITECT ON PREVIOUS SUBMITTALS. IN THE ABSENCE OF SUCH WE THE ARCHITECT'S APPROVAL OF A RESUBMISSION SHALL NOT APPLY TO SUCH REVISIONS.
- DRAWINGS AND SUBMITTALS ON ANY AND ALL EQUIPMENT, DUCT, DAMPERS, CONTROLS ETC. TO CONSTRUCTION MANAGER OR ARCHITECT FOR THEIR REVIEW PRIOR TO CONSTRUCTION. THE SHALL NOT BE RELIEVED OF RESPONSIBILITY FOR ERRORS, OMISSIONS OR OTHER DEFICIENCIES (IN SHOP DRAWINGS, PRODUCT DATA, SAMPLES OR SIMILAR SUBMITTALS BY THE TENANT'S C MANAGER'S OR ARCHITECT'S APPROVALS THEREOF.

. RECORD DRAWINGS

- THE CONTRACTOR SHALL MAINTAIN ONE COPY OF DRAWINGS AND SPECIFICATIONS ON THE JOB SI DEVIATIONS FROM CONTRACT DRAWINGS, SUCH AS LOCATIONS OF CONCEALED PIPING VALVE REVISIONS, ADDENDUM'S AND CHANGE ORDERS, SIGNIFICANT DEVIATIONS MADE NECESS/ CONDITIONS, APPROVED EQUIPMENT SUBSTITUTIONS AND CONTRACTOR'S COORDINATION WITH (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 MA CORRECTIONS TO DRAWINGS AND CERTIFY THE ACCURACY OF EACH PRINT BY SIGNATURE TH DRAWINGS ARE TO BE TURNED OVER TO THE TENANT.

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

L. OPERATIONS MANUALS

BE PROVIDED TO THE TENANT BOUND TOGETHER IN A 3 INCH, THREE RING BINDER. THE BINDER BUT NOT BE LIMITED TO INSTALLATION. MAINTENANCE AND OPERATING INSTRUCTIONS. BROCHURES, REVIEWED SHOP DRAWINGS AND WARRANTIES OBTAINED FROM EACH MAN PRINCIPAL ITEMS OF EQUIPMENT.

M. SLEEVES

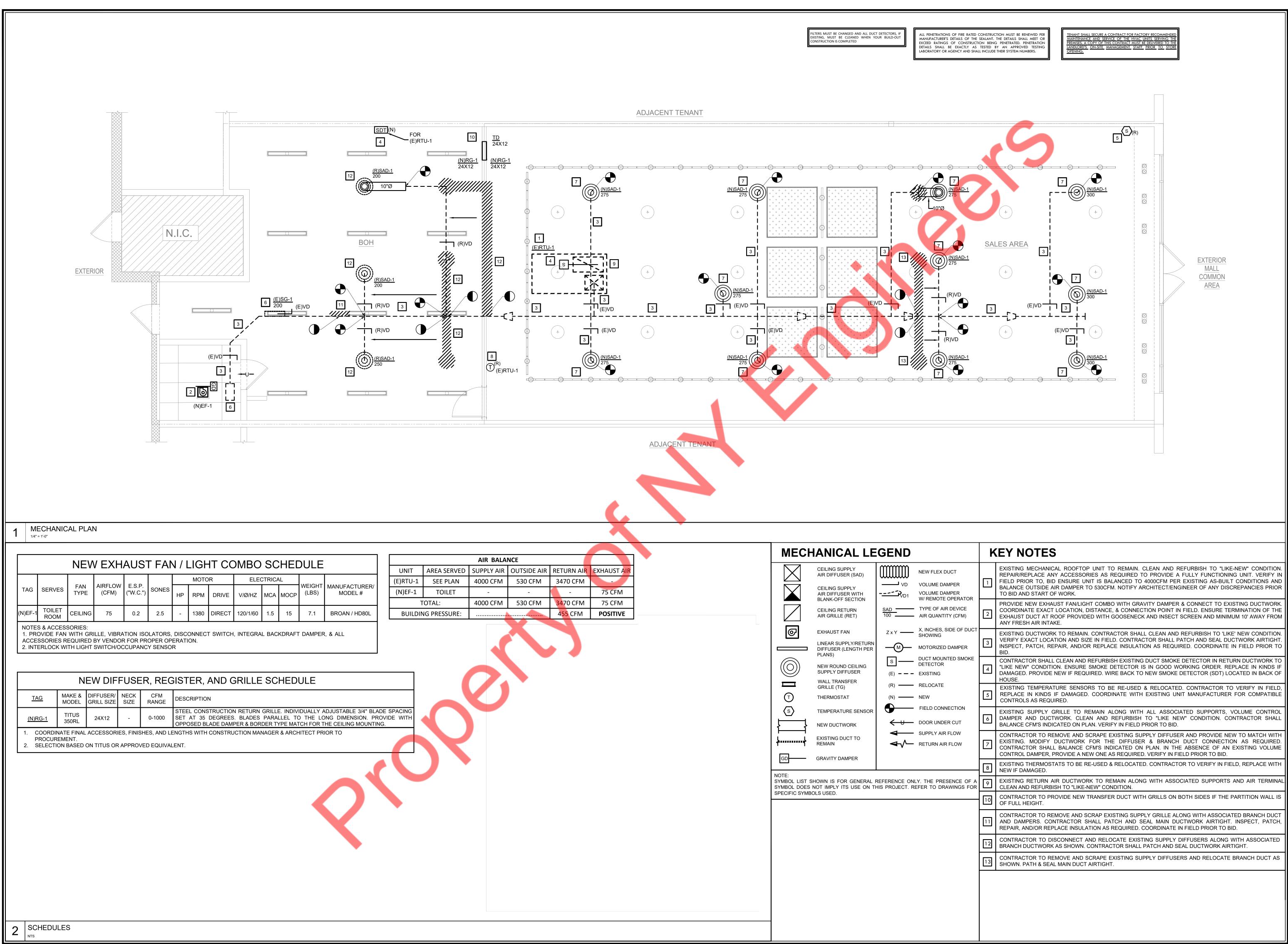
- THE CONTRACTOR SHALL PROVIDE SLEEVES TO PROTECT EQUIPMENT OR FACILITIES IN THE EACH SLEEVE SHALL EXTEND THROUGH ITS RESPECTIVE FLOOR, WALL, OR PARTITION AND S WITH EACH SURFACE EXCEPT SLEEVES THAT PENETRATE THE FLOOR, WHICH SHALL EXTEND 2 THE FLOOR.
- APPROVED SEALANTS RATED FOR THE APPLICATION SO AS TO MAINTAIN THE FIRE RATING OF CONFORM TO THE U.L. ASSEMBLY RATING OF THE FLOOR OR WALL
- FINISHED WITH SMOOTH EDGES. FOR OTHER THAN MASONRY PARTITIONS, THROUGH SUSPENDE FOR CONCEALED VERTICAL PIPING, SLEEVES SHALL BE 22 GAUGE GALVANIZED STEEL MINIMUM.
- HANGERS SHALL INCLUDE ALL MISCELLANEOUS STEEL SUCH AS ANGLE IRON, BANDS, C-CLAMPS W CLIPS, CHANNELS, HANGER RODS, ETC. NECESSARY FOR THE INSTALLATION OF WORK. HANGERS SHALL BE FASTENED TO BUILDING STEEL, CONCRETE, OR MASONRY, BUT NOT
- DUCTWORK. DUCTWORK SHALL NOT BE SUPPORTED FROM ROOF DECKING AND/OR BRIDGING, SUSPENDED FROM THE TOP CHORD OF BAR JOISTS, STEEL OR OTHER STRUCTURE. DUCTWORK ALL SPRINKLERS AND OTHER OBSTACLES AND SHALL BE HUNG AS HIGH AS POSSIBLE IN WORK AREAS. WHERE INTERFERENCE'S OCCUR, IN ORDER TO SUPPORT DUCTWORK OR PIPING, THE MUST INSTALL TRAPEZE TYPE HANGERS OR SUPPORTS WHICH SHALL BE LOCATED WHERE INTERFERE WITH ACCESS TO FIRE DAMPERS, VALVES, ACCESS DOORS AND OTHER EQUIPI REQUIREMENTS AND/OR OTHER TRADES. HANGER TYPES AND INSTALLATION METHODS ARE LANDLORD CRITERIA.
- INSULATION.
-). IT IS SPECIFICALLY THE INTENTION OF THIS SPECIFICATION TO HOLD THE CONTRACTOR RESPONSIBLE FOR ALL 4. HANGERS AND PIPING OF DISSIMILAR METALS SHALL BE DI-ELECTRICALLY SEPARATED FROM ONE O. ACCESS DOORS

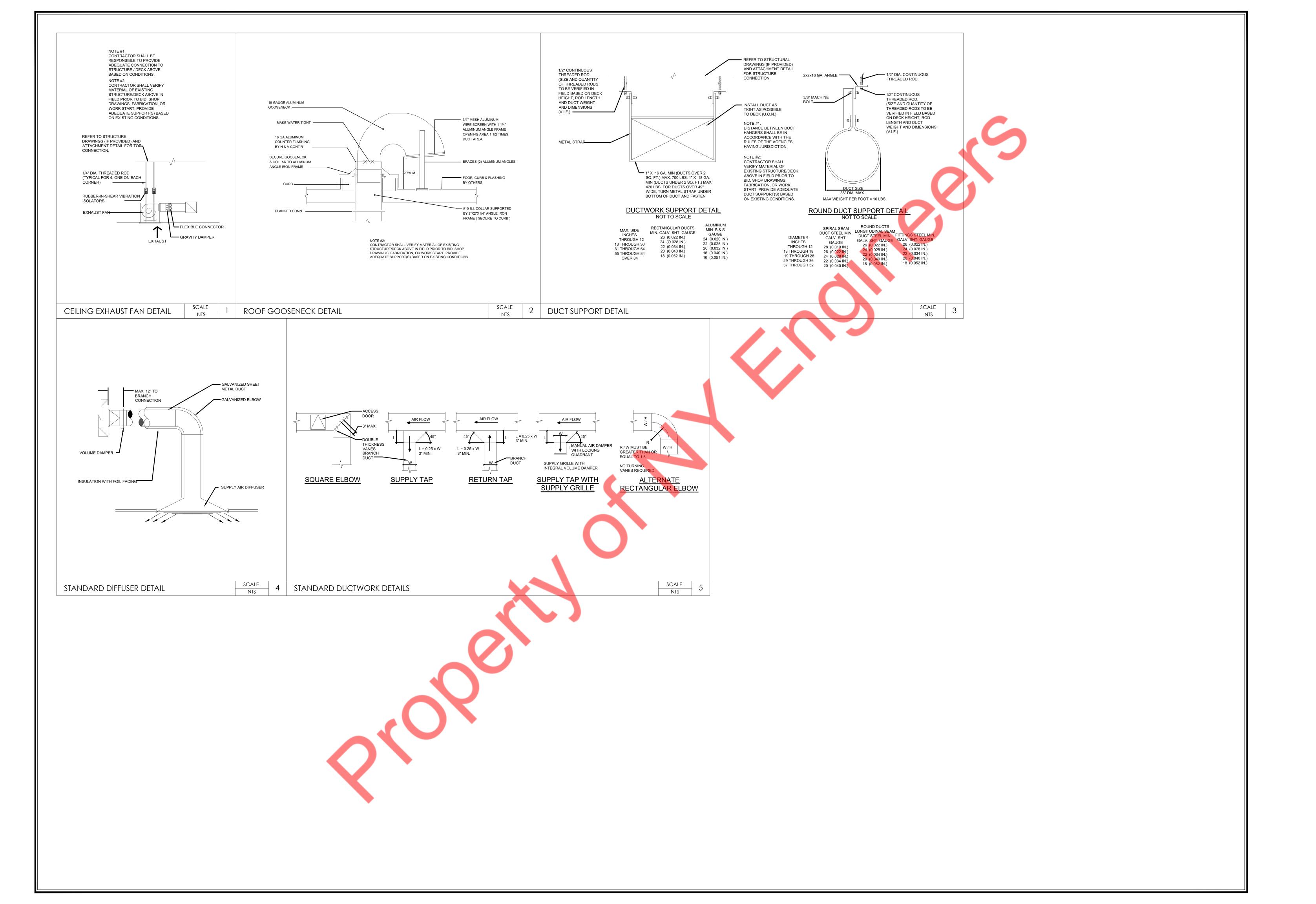
 - ADEQUATE ACCESS TO THE GENERAL CONTRACTOR FOR ALL LOCATIONS WHERE NECESSARY TO PROVIDE ACCESS TO CONCEALED VALVES AND OTHER EQUIPMENT REQUIRING SERVICE OR INSPECTION | OCATION TYPE SIZE AND NUMBER WILL BE DETERMINED BY THE CONTRACTOR AND APPROVED BY THE TENANT CONSTRUCTION MANAGER TO SUIT EQUIPMENT REQUIREMENTS. GENERAL CONTRACTOR WILL INSTALL ACCESS DOORS AND FRAMES.

SHUT DOWN.	3. ACCESS DOORS SHALL BE FLUSH TYPE, MANUFACTURED FROM 14 GAUGE STEEL, COMPLETE WITH FLUSH FLANGE	I. FLEXIBLE CONNECTIONS
OR USE IN THIS SITE AND SHALL	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	 FLEXIBLE COLLARS SHALL BE PROVIDED IN ALL CONNECTIONS BETWEEN VIBRATING E UNITS, WATER SOURCE HEAT PUMPS, AIR HANDLERS, FAN POWERED VAV BOXES, ET(
SHALL BE KEPT ERECTION AND	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.	ALSO PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION
IAGED DUE TO SUCH PART OR INGS IN DUCTS,	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	 FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FLAME ADEQUATE JOINT FLEXIBILITY TO ALLOW FOR MOVEMENT AND PREVENT THE TRANSMI
ALL TIMES. F A CONCRETE	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	 FLEXIBLE CONNECTIONS ARE TO BE RATED FOR THE OPERATING PRESSURE OF THE S FINAL CONNECTIONS TO EXHAUST FAN(S) SHALL BE WITH A HEAVY AIRTIGHT ACID R
JES, INCLUDING	CONSTRUCTION.	4. FINAL CONNECTIONS TO EXHAUST PAN(S) SHALL BE WITH A HEAVY AIRTIGHT ACID R FIBERGLASS NEOPRENE CONNECTOR, A MINIMUM OF SIX (6) INCHES IN LENGTH. FASTENED TO EQUIPMENT AND DUCT WITH TWO FLEXIBLE REMOVABLE BRASS
DE COMPLIANT TO NOTIFY THE	P. ELECTRIC MOTORS	APPROVED METHOD.
N ADDITION TO,	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	J. THERMOSTATS 1. MOUNT THERMOSTATS 4'-0" (ADA-COMPLIANT), THERMOSTAT SENSORS 5'-0" ABOVE
	REQUIREMENTS AS DEFINED IN THE ELECTRICAL SPECIFICATIONS.	SHOWN ON THE PLANS, AND SET DATE, TIME, TEMPERATURE, ETC. TURN OVER OP TENANT REPRESENTATIVE.
ERAL LOCATION CIFICATIONS OR NG, PRIOR TO	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	K. FIRE DAMPERS, SMOKE DAMPERS
CONSTRUCTION SSION OF BID.	AMBIENT TEMPERATURE AND HAVE A SERVICE FACTOR OF NOT LESS THAN 1.15.	1. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL FIRE DAMPERS AS REQUIRE TENANT CRITERIA AND / OR CODES HAVING JURISDICTION. ALL FIRE DAMPERS
OCUMENTS OR	Q. LOW VOLTAGE (24 VOLT) WIRING 1. THE CONTRACTOR IS TO INSTALL ALL LOW VOLTAGE WIRING REQUIRED FOR THEIR EQUIPMENT. THIS WORK	REQUIREMENTS OF THE BOARD OF FIRE UNDERWRITERS, THE LOCAL FIRE MARSHAL A APPROVED BY UNDERWRITERS LABORATORIES.
	INCLUDES ALL TRANSFORMERS AND DEVICES TO MAKE THIS A COMPLETE FUNCTIONAL SYSTEM.	2. FIRE DAMPERS SHALL HAVE THE BLADES OUT OF THE AIR STREAM AND A 165- DEGREE
FICATIONS, THE	2. ALL WORK IS TO CONFORM TO THE ELECTRICAL SPECIFICATIONS AND THE REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.	3. PROVIDE ALL NECESSARY FRAMING AND SLEEVES FOR DAMPER MOUNTING PER UL AN
T TO REVIEW IN JNAUTHORIZED E.	3. ANY CONDUIT REQUIRED BY CODE OR THE LANDLORD WILL BE INSTALLED BY THE ELECTRICAL SUBCONTRACTOR.	4. PROVIDE DUCT ACCESS DOORS IN AN ACCESSIBLE LOCATION FOR ALL FIRE DAMPERS GALVANIZED DOOR WITH QUICK-OPENING LATCH AND PIANO HINGE.
	4. SMOKE DETECTORS AND REMOTE TEST STATION:	 WHERE REQUIRED BY LOCAL CODES, LANDLORD AND IF INDICATED ON DRAWING DAMPER WITH FIRE / HEAT / SMOKE SENSOR, REVERSIBLE MOTOR AND INTERLOCK WITH MITHER AND AND AND AND AND AND AND AND AND AND
T FABRICATION G EQUIPMENT.	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	L. FLEXIBLE AIR DUCT
IGHT WORKING TALS SHALL BE	THE FIRST TAKEOFF. ONCE ACTIVATED, THE SMOKE DETECTOR WILL SHUT DOWN HVAC UNIT.	1. FLEXIBLE DUCT FOR CONNECTIONS SHALL BE A FACTORY FABRICATED ASSEMBLY SLEEVE, INSULATION AND AN OUTER MOISTURE BARRIER. THE INNER SLEEVE SHA
HE DRAWINGS. ORTH ON THE D TO CUTS OR	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.	CONTINUOUS VINYL COATED SPRING STEEL WIRE HELIX FUSED TO A CONTINUO IMPREGNATED AND COATED VINYL. A 1-1/4" THICK LAYER OF INSULATING BLANKET O ENCASE THE INNER SLEEVE AND BE SHEATHED WITH AN OUTER MOISTURE BAR
SHOW MAJOR , MOTOR AND	C. ALARM SYSTEM MAY BE DELETED WHERE NOT REQUIRED BY LANDLORD OR BY LOCAL CODE.	REINFORCED METALIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED VELOCITY OF 6000 FPM AND SHALL BE LISTED BY THE UNDERWRITERS LABORAT
MITTALS SHALL ND CONFIRMED		STANDARDS AS A CLASS 1 DUCT AND SHALL COMPLY WITH NFPA STANDARD - 90A. THE THERMAFLEX M-KC OR APPROVED EQUIVALENT. FLEXIBLE DUCT SHALL ROUTE FROM
CEPTIONS TAKE W BY TENANT'S ANCE MANUALS	SPECIFIC NOTES A. HEATING, VENTILATION AND AIR CONDITIONING	TO CEILING DIFFUSERS ONLY. THERE SHALL BE NO EXPOSED FLEXIBLE DUCT. 2. FLEXIBLE AIR DUCT MAY ONLY BE USED IN VERTICAL APPLICATIONS WITH PRIOR APP
	1. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL	CONSTRUCTION MANAGER.
E CONTRACTOR AND APPROVED CTION CRITERIA	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.	 FLEXIBLE DUCT SHALL NOT EXTEND OVER 5 FEET IN LENGTH AT ANY ONE LOCATION. M. SUPPLY AND RETURN AIR TAKEOFF FITTINGS
ON CONTAINED CUMENTS.	B. HVAC EQUIPMENT (REFER TO PLANS FOR SCHEDULE OF EQUIPMENT)	1. RECTANGULAR DUCT
	1. PRIMARY HVAC UNITS ARE TO BE AS SCHEDULED. EQUIVALENTS MAY BE SUBSTITUTED WITH WRITTEN	A. PROVIDE 45-DEGREE RECTANGULAR TAKEOFFS FROM MAIN DUCTWORK TO RECTAI
AR SUBMITTALS	APPROVAL ONLY. ALL COMPRESSORS ARE TO INCLUDE A 5 YEAR EXTENDED WARRANTY. 2. ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL DEVICES, APPURTENANCES AND	2. SPIRAL DUCT
RACTOR SHALL HE CONTRACT	ACCESSORIES PROVIDED TO MEET THE DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DRAWINGS AND SPECIFIED.	A. PROVIDE SADDLE OR DIRECT CONNECTION OF A BRANCH DUCT INTO A LARGER DU BRANCH SHALL NOT EXCEED TWO THIRDS OF THE DIAMETER OF THE MAIN. PROTR
R SUBMITTALS	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	NOT ALLOWED. N. DAMPERS
CHANGE IN THE	MANUFACTURER'S DATA. SEE DRAWINGS FOR ADDITIONAL DETAILS.	1. PROVIDE MANUAL LOCKING QUADRANT VOLUME CONTROL DAMPERS WITH HANDLE OF
	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	DUCT AND AS SHOWN ON PLANS TO FACILITATE AIR BALANCING. 2. WHERE ACCESS TO BALANCING DAMPER IS RESTRICTED OR IN AREAS WITH SHEI
HORIZING THE	CONDENSATE PUMPS AS REQUIRED. CONDENSATE SHALL BE DIRECTED TO MOP SINK, LAVATORY TRAP OR OTHER APPROVED DRAIN.	REGULATORS SHALL BE USED.
BMITTED SHOP R THAN THOSE	C. TOILET EXHAUST FANS	3. ALL RECTANGULAR DAMPERS IN OUTSIDE AIR AND RELIEF AIR DUCTS ARE TO BE OR RECTANGULAR DAMPERS IN RETURN AIR DUCTS TO BE PARALLEL BLADE TYPE. ALL C
RITTEN NOTICE,	 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. 	MUST ALSO BE OF THE LOW LEAKAGE TYPE. 4. ALL MOTORIZED DAMPERS NOT FURNISHED WITH EQUIPMENT ARE TO BE HONEYWELL
FURNISH SHOP THE TENANT'S	D. BASEBOARD, CABINET AND UNIT HEATERS	O. DIFFUSERS, GRILLES AND REGISTERS
CONTRACTOR OR DEVIATIONS CONSTRUCTION	1. WHERE SHOWN ON THE DRAWINGS, PROVIDE ELECTRIC HEATERS COMPLETE WITH ELECTRIC HEATING COIL, CONTROLS AND INTEGRAL OR REMOTE THERMOSTAT AS SHOWN.	 PROVIDE DIFFUSERS, GRILLES AND REGISTERS AS SCHEDULED. DEVICES TO BE CO ALL ACCESSORIES. ALL DIFFUSERS, GRILLES AND REGISTERS IN SHEET ROCK CEILI
	E. INLINE PUMPS	PLASTER FRAMES. FINISH TO BE COORDINATED WITH INTERIOR FINISHES.
	1. WHERE SHOWN ON DRAWINGS, PROVIDE AN INLINE CLOSE COUPLED PUMP(S), BRONZE FITTED. PUMPS SHALL BE FURNISHED WITH BRONZE CASE WEARING RINGS, BRONZE SHAFT SLEEVE AND MECHANICAL SHAFT SEALS.	 INSTALL ALL AIR DEVICES AS LOCATED ON THE ARCHITECTURAL REFLECTED CEILING PLAN.
TE TO RECORD	PUMPS TO BE SO CONSTRUCTED THAT THEY MAY BE MOUNTED IN A HORIZONTAL OR VERTICAL PIPE LINE. MOTOR TO BE 1750 RPM UNLESS NOTED OTHERWISE.	P. DUCTWORK INSULATION
ARY BY FIELD OTHER TRADES	F. VIBRATION ISOLATION DEVICES	1. ALL NEW SUPPLY AND RETURN AIR DUCTWORK WITHIN 10' OF HVAC UNIT SHALL BE A SIZES SHOWN ON THE DRAWING ARE INTERNAL FREE AREA SIZES. INTERNAL LINER S
AKE ANY FINAL	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	LINER EQUIVALENT TO JOHNS MANVILLE "PERMACOTE LINACOUSTIC" ("R VALUE" = 6) THE DUCTWORK WITH FIRE RESISTIVE ADHESIVES AND CADMIUM OR COPPER PLATED
HEREON. THE	STRUCTURE.	2. ALL OUTSIDE AIR AND UNEXPOSED DUCTWORK WITHIN BUILDING, EXCEPT WHERE A HAVE 2-INCH, FIBERGLASS DUCT WRAP INSULATION WITH FSK FACING EQUIVAL
	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.	"MICROLITE XG TYPE 75" (INSTALLED "R VALUE" = 6).3. MINIMUM INSULATION REQUIREMENTS AS PER 2021 INTERNATIONAL ENERGY CONSER'
RRANTY ON ALL	3. EXAMINE DEAD LOAD AND OPERATING LOAD CONDITIONS WHEN SELECTING DEVICES. ADJUST FOR PROPER	UNCONDITIONED SPACES WITHIN BUILDING: R-6 WITHIN BUILDING ENVELOPE ASSEMBLY: R-8
MATERIAL OR E OF WRITTEN	ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR.	OUTSIDE OF BUILDING: R-8
PLACEMENT OR AT PORTION OF ENT OR REPAIR.	4. CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND THE UPPER AND LOWER ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.	 LEADING EDGES OF DUCT INSULATION SHALL BE OVERLAPPED BY ADJOINING INSU MINIMUM AND THEN SEALED WITH FOIL VAPOR BARRIER ADHESIVE AND DUCT MASTI INSULATION IS VISIBLE.
MAINTAIN THE F ACCEPTANCE	5. CONSULT MANUFACTURER FOR APPLICATION DATA.	5. ALL INSULATION ON EXISTING PIPING OR DUCTS THAT BECOMES WET, DAMAGED, DIS
OVER AND ONE E (12) MONTHLY	 G. CURBS AND STEEL FRAMING FOR SUPPORT 1. THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMING REQUIRED TO INSTALL ALL HVAC 	6. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITT
ORK SHALL BE	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	ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES. INSULATION MUST COMPLY
	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	 ALL INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A OF NO HIGHER THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM TEST: C411 C COPER
THE JOB SHALL SHALL INCLUDE AMPHLETS OR	EXPENSE. ALL CONNECTIONS TO ROOFTOP EQUIPMENT SHALL BE INSIDE THE CURB (CONDENSATE DRAIN, POWER WIRING, CONTROL WIRING, ETC.).	CODES. 8. EXTERIOR SUPPLY AND RETURN DUCT INSULATION:
FACTURER OF	H. METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED	A. SERVICE: RECTANGULAR, SUPPLY-AIR AND RETURN-AIR DUCTS.
	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	A.1. MATERIAL: INSULATION BOARD, 6 PSF MINIMUM AND PLAIN FACING. A.2. THICKNESS: 2 INCHES.
INSTALLATION. BE CUT FLUSH	SPIRAL WHERE EXPOSED, OR AS SHOWN ON THE DRAWINGS.	A.2. THICKNESS 2 INCHES. A.3. NUMBER OF LAYERS: TWO. A.4. TOTAL THICKNESS = 4".
INCHES ABOVE	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	A.5. VAPOR RETARDER REQUIRED: YES.
E SEALED WITH THE ASSEMBLY.	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"	B. INORGANIC GLASS FIBERS PREFORMED AND BONDED BY THERMOSETTING RESIN. C 612, TYPE 1A & 1B, KNAUF INSULATION OR APPROVED EQUIVALENT.
HE ASSEMBLT.	ON ALL TRAVERSE JOINTS UNLESS SUPERSEDED BY MORE STRINGENT LOCAL CODES. ALL DUCT CONNECTIONS ARE TO BE RIGID AND LEAK FREE ASSEMBLIES.	C. INSULATION INSTALLED OUTDOORS: FLAME SPREAD RATING OF 25 OR LESS AND 3 OF 50 OR LESS.
GHT STEEL PIPE D CEILINGS OR	3. DURING THE CONSTRUCTION PHASE OF THE PROJECT, ANY DUCTWORK INSTALLED IS TO BE COMPLETELY	8. APPLY INSULATION AS FOLLOWS:
	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.	A. APPLY TWO-LAYER INSULATION WITH JOINTS TIGHTLY BUTTED AND STAGGERED A LAYERS WITH ADHESIVE, MECHANICAL FASTENERS OR BANDING. FASTENERS SHA
	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).	OF 3" FROM EACH EDGE AND NO GREATER THAN 12" APART.
/ITH RETAINING	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 DATINGS IN SMACNA STANDARDS.	B. ON EXPOSED APPLICATIONS, FINISH INSULATION WITH A SKIM COAT OF MINERAL- CEMENT TO SURFACE OF INSTALLED INSULATION. WHEN DRY, APPLY FLOOD CO AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OR TARE. OVERLAP EDGES AT LEAST AND DRESS ON ONE LAYER OF GLASS CLOTH OF TARE. OVERLAP AND DRESS ON ONE LAYER OF GLASS AND DRESS ON ONE LAYER AND DRESS ON DRESS ON DRESS ON ONE LAYER AND DRESS ON DRESS ON DRESS ON DRESS ON DRESS ON DRESS
to piping or	RATINGS IN SMACNA STANDARDS.5. AS A MINIMUM, CROSSBREAK ALL FLAT SURFACES OR REINFORCE WITH A BEAD APPROXIMATELY 3/8 INCH WIDE	AND PRESS ON ONE LAYER OF GLASS CLOTH OR TAPE. OVERLAP EDGES AT LE/ FINISH COAT OF LAGGING ADHESIVE OVER GLASS CLOTH OR TAPE. THIN THE SMOOTH FINISH. OUTDOOR JACKET: POLYGUARD PRODUCTS, INC. 'ALUMAGU/
BUT SHALL BE (SHALL CLEAR	BY 3/16 INCH DEEP ON 12 INCH CENTERS TO PREVENT VIBRATIONS.	PRODUCTS CORP. 'FLEXCLAD 400'.
AND STORAGE	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 OF BY LANDLORD.	Q. SYSTEM CLEANOUT 1. UPON COMPLETION OF INSTALLATION, CLEAN ENTIRE SYSTEM BEFORE INSTALLING A
THEY DO NOT MENT SERVICE E SUBJECT TO	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	TO PROVIDE A CERTIFICATION THAT CLEANING WAS ACCOMPLISHED PRIOR TO PROJECT
	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	 FILTERS MUST BE IN UNITS AT ANY TIME FANS ARE OPERATED. R. SYSTEM TESTING, ADJUSTING AND BALANCING
DIAMETER OF AND THE PIPE	ASSEMBLY FIRE RATING. CONTRACTOR TO PROVIDE FIRE OR COMBINATION FIRE / SMOKE DAMPERS AT EACH PENETRATION WHERE REQUIRED BY CODE.	1. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE COMPLETED BY AN II
ANOTHER.	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.	WHO IS CURRENTLY LICENSED BY THE ASSOCIATED AIR BALANCING COUN ENVIRONMENTAL BALANCING BUREAU (NEBB). NO OTHER BALANCE REPORTS WILL B
		ALL BALANCING WORK MUST BE COMPLETE AND DONE IN ACCORDANCE WITH THE MC

1. FURNISH STEEL ACCESS DOORS AND FRAMES, MINIMUM 16 INCHES BY 20 INCHES OR AS REQUIRED FOR 10. DUCT TRANSITIONS SHALL NOT EXCEED 30 DEGREES SLOPE EXCEPT AS SPECIFICALLY NOTED OTHERWISE.

2 Y S	2. ACCESS DOORS LOCATED IN FIRE-RATED WALLS, FLOORS, CEILING-FLOOR, OR CEILING-ROOF ASSEMBLIES SHALL BE FIRE RATED, U.L. LISTED AND LABELED.	INDICATING AND LOCKING DEVICE.	4. THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION:A. AABC OR NEBB CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR.
3 S I	B. 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	 I. 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. 	 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.
T D O	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	ALSO PROVIDE FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS. 2. FLEXIBLE CONNECTIONS SHALL BE CONSTRUCTED OF NEOPRENE-COATED FLAMEPROOF FABRIC. PROVIDE	 MOTOR NAMEPLATE DATA WITH ACTUAL FIELD VOLTAGE AND AMPERAGE READINGS FOR EACH LEG. MOTOR AND FAN RPM, SHEAVE SIZES AND BELT SIZES AND LENGTHS. OUTSIDE, RETURN, MIXED AND SUPPLY AIR TEMPERATURES AT FULL COOLING.
R S,	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.	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.	 H. WATER BALANCE DATA INCLUDING GPM WITH INLET AND OUTLET TEMPERATURE AND PRESSURE READINGS. I. MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT. J. FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETURNS WHERE DUCTED). K. INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.
E G G	FURNISH FIRE RATED DOORS FOR FIRE RATED CONSTRUCTION. RATING OF DOOR MUST BE SAME RATING AS CONSTRUCTION.	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	5. ALL CONTROL SEQUENCES SHALL BE TESTED AND OPERATING STATUS RECORDED IN THE REPORT.
T <u>P</u> E D, 1	 <u>P. ELECTRIC MOTORS</u> 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 	APPROVED METHOD.	THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR REVIEW AND COMMENT.
	SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. STARTERS SHALL MEET ALL REQUIREMENTS AS DEFINED IN THE ELECTRICAL SPECIFICATIONS.	 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. 	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.
N 2 R O	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.	K. FIRE DAMPERS, SMOKE DAMPERS 1. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL FIRE DAMPERS AS REQUIRED BY LANDLORD AND / OR	3. FINAL BALANCE REPORT SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUAL. S. FINAL HVAC INSPECTIONS
n D. R <u>Q</u>	LOW VOLTAGE (24 VOLT) WIRING	TENANT CRITERIA AND / OR CODES HAVING JURISDICTION. ALL FIRE DAMPERS SHALL COMPLY WITH THE 1 REQUIREMENTS OF THE BOARD OF FIRE UNDERWRITERS, THE LOCAL FIRE MARSHAL AND SHALL BE LABELED AND APPROVED BY UNDERWRITERS LABORATORIES.	I. 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
	 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. ALL WORK IS TO CONFORM TO THE ELECTRICAL SPECIFICATIONS AND THE REQUIREMENTS OF THE AUTHORITIES 	 FIRE DAMPERS SHALL HAVE THE BLADES OUT OF THE AIR STREAM AND A 165- DEGREE 'F' FUSIBLE LINK. PROVIDE ALL NECESSARY FRAMING AND SLEEVES FOR DAMPER MOUNTING PER UL AND CODE REQUIREMENTS. 	RESPONSIBLE TO BRING ALL ITEMS REPORTED BY THE INDEPENDENT HVAC CONTRACTOR UP TO PLANS AND SPECIFICATIONS REQUIREMENTS AT NO ADDITIONAL COST TO THE TENANT.
E 2 S N D 3	HAVING JURISDICTION.	 PROVIDE ALL NECESSART PRAVING AND SLEEVES FOR DAMPER MOUNTING PER OL AND CODE RECORDINEMENTS. PROVIDE DUCT ACCESS DOORS IN AN ACCESSIBLE LOCATION FOR ALL FIRE DAMPERS. DOOR IS TO BE 20-GAUGE 1 GALVANIZED DOOR WITH QUICK-OPENING LATCH AND PIANO HINGE. 	 INDOOR AIR QUALITY NO ANALYSIS HAS BEEN MADE WITH REGARD TO SOURCES OR POTENTIAL SOURCES OF INDOOR OR OUTDOOR AIR CONTAMINANTS OR LEVELS OF CONTAMINATION.
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 	5. WHERE REQUIRED BY LOCAL CODES, LANDLORD AND IF INDICATED ON DRAWINGS, PROVIDE UL555S SMOKE 2 DAMPER WITH FIRE / HEAT / SMOKE SENSOR, REVERSIBLE MOTOR AND INTERLOCK WITH FIRE ALARM SYSTEM.	 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.
N T. G	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	L. FLEXIBLE AIR DUCT 1. FLEXIBLE DUCT FOR CONNECTIONS SHALL BE A FACTORY FABRICATED ASSEMBLY CONSISTING OF AN INNER	 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
E S. E	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.	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	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.
R D L	C. ALARM SYSTEM MAY BE DELETED WHERE NOT REQUIRED BY LANDLORD OR BY LOCAL CODE.	REINFORCED METALIZED VAPOR BARRIER. THE FLEXIBLE DUCT SHALL BE RATED FOR A MAXIMUM WORKING 4 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	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
s	SPECIFIC NOTES	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.	CONTAMINANTS FROM PASSING TO ADJOINING SPACES. 5. CONTRACTOR TO INSTALL TEMPORARY EXHAUST SYSTEM TO VENTILATE CONSTRUCTION SITE AND KEEP SITE
S <u>A</u> 1 R	. BEFORE STARTING WORK, THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL	 FLEXIBLE AIR DUCT MAY ONLY BE USED IN VERTICAL APPLICATIONS WITH PRIOR APPROVAL FROM THE TENANT'S CONSTRUCTION MANAGER. FLEXIBLE DUCT SHALL NOT EXTEND OVER 5 FEET IN LENGTH AT ANY ONE LOCATION. 	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,
D A D		M. SUPPLY AND RETURN AIR TAKEOFF FITTINGS	VAPORS AND NOISE. WHERE TEMPORARY BARRIERS ARE INSTALLED ALWAYS MAINTAIN FIRE EXITS AND EXITWAYS.
⊑ S 1 S	 B. HVAC EQUIPMENT (REFER TO PLANS FOR SCHEDULE OF EQUIPMENT) PRIMARY HVAC UNITS ARE TO BE AS SCHEDULED. EQUIVALENTS MAY BE SUBSTITUTED WITH WRITTEN APPROVAL ONLY. ALL COMPRESSORS ARE TO INCLUDE A 5 YEAR EXTENDED WARRANTY. 	A. PROVIDE 45-DEGREE RECTANGULAR TAKEOFFS FROM MAIN DUCTWORK TO RECTANGULAR BRANCHES.	<u>THERMOSTATIC CONTROLS:</u> A. GENERAL: THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY
2 L	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.	 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 	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.
I S E 3	B. EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL AIR	N. DAMPERS	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
E 4	MANUFACTURER'S DATA. SEE DRAWINGS FOR ADDITIONAL DETAILS. 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	1. PROVIDE MANUAL LOCKING QUADRANT VOLUME CONTROL DAMPERS WITH HANDLE OPERATORS IN EACH BRANCH DUCT AND AS SHOWN ON PLANS TO FACILITATE AIR BALANCING.	SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET: 1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN ± 45
E	CONDENSATE PUMPS AS REQUIRED. CONDENSATE SHALL BE DIRECTED TO MOP SINK, LAVATORY TRAP OR OTHER APPROVED DRAIN.	2. WHERE ACCESS TO BALANCING DAMPER IS RESTRICTED OR IN AREAS WITH SHEET ROCK CEILINGS, YOUNG REGULATORS SHALL BE USED.	DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLE BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.
P <u>C</u> E E, 1	2. TOILET EXHAUST FANS . 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	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.	B. DEAD BAND: 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)
P S <u>D</u>	PROVIDED BY THE CONTRACTOR. REFER TO PLANS FOR APPLICABILITY.	4. ALL MOTORIZED DAMPERS NOT FURNISHED WITH EQUIPMENT ARE TO BE HONEYWELL DAMPERS. O. DIFFUSERS, GRILLES AND REGISTERS	WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM. EXCEPTIONS:
R S 1 N	. WHERE SHOWN ON THE DRAWINGS, PROVIDE ELECTRIC HEATERS COMPLETE WITH ELECTRIC HEATING COIL, CONTROLS AND INTEGRAL OR REMOTE THERMOSTAT AS SHOWN.	 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. 	 THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.
-	. WHERE SHOWN ON DRAWINGS, PROVIDE AN INLINE CLOSE COUPLED PUMP(S), BRONZE FITTED. PUMPS SHALL BE	 INSTALL ALL AIR DEVICES AS LOCATED ON THE ARCHITECTURAL REFLECTED CEILING PLAN OR THE MECHANICAL PLAN. 	C. 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).
D S,	FURNISHED WITH BRONZE CASE WEARING RINGS, BRONZE SHAFT SLEEVE AND MECHANICAL SHAFT SEALS. PUMPS TO BE SO CONSTRUCTED THAT THEY MAY BE MOUNTED IN A HORIZONTAL OR VERTICAL PIPE LINE. MOTOR TO BE 1750 RPM UNLESS NOTED OTHERWISE.	P. DUCTWORK INSULATION 1. ALL NEW SUPPLY AND RETURN AIR DUCTWORK WITHIN 10' OF HVAC UNIT SHALL BE ACOUSTICALLY LINED. DUCT	D. 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
_	VIBRATION ISOLATION DEVICES VIBRATION ISOLATION DEVICES SHALL BE PROVIDED IN ALL SUPPORTS BETWEEN VIBRATING EQUIPMENT (FANS,	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.	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.
L E 2	ROOFTOP UNITS, WATER SOURCE HEAT PUMPS, AIR HANDLERS, FAN POWERED VAV BOXES, ETC.) AND STRUCTURE.	 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). 	E. 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
L	VIBRATING EQUIPMENT SUPPORTED FROM FLOOR OR DECK SHALL BE ISOLATED WITH HOUSED SPRING MOUNT DEVICES.	 MINIMUM INSULATION REQUIREMENTS AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE: UNCONDITIONED SPACES WITHIN BUILDING: R-6 WITHIN BUILDING ENVELOPE ASSEMBLY: R-8 	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 DEADBAND.
D R N R 4	ALIGNMENT AND LOADING. AVOID "GROUNDING" THE ISOLATOR. CHECK HANGER ROD SIZE FOR ALLOWABLE LOADS AT THE ISOLATING DEVICE AND THE UPPER AND LOWER	OUTSIDE OF BUILDING: R-8	F. AUTOMATIC START AND STOP: AUTOMATIC START AND STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE AUTOMATIC START CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START
F R. E 5	ATTACHMENTS TO STRUCTURES, DUCTS, EQUIPMENT, ETC.	MINIMUM AND THEN SEALED WITH FOIL VAPOR BARRIER ADHESIVE AND DUCT MASTIC SO THAT NO FIBERGLASS INSULATION IS VISIBLE.	TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY. AUTOMATIC STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM WITH DIRECT DIGITAL CONTROL OF INDIVIDUAL ZONES. THE
E <u>G</u> Y E 1	CURBS AND STEEL FRAMING FOR SUPPORT THIS CONTRACTOR WILL PROVIDE ALL NECESSARY CURBS AND STEEL FRAMING REQUIRED TO INSTALL ALL HVAC	 ALL INSULATION ON EXISTING PIPING OR DUCTS THAT BECOMES WET, DAMAGED, DISTURBED OR GETS REMOVED SHALL BE REPLACED. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN 	AUTOMATIC STOP CONTROLS SHALL BE CONFIGURED TO REDUCE THE HVAC SYSTEM'S HEATING TEMPERATURE SETPOINT AND INCREASE THE COOLING TEMPERATURE SETPOINT BY NOT LESS THAN 2°F (-16.6°C) BEFORE SCHEDULED UNOCCUPIED PERIODS BASED ON THE THERMAL LAG AND ACCEPTABLE DRIFT IN SPACE TEMPERATURE THAT IS WITHIN COMFORT LIMITS.
	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	 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 	
L E R	EXPENSE. ALL CONNECTIONS TO ROOFTOP EQUIPMENT SHALL BE INSIDE THE CURB (CONDENSATE DRAIN, POWER WIRING, CONTROL WIRING, ETC.).	 8. EXTERIOR SUPPLY AND RETURN DUCT INSULATION: 	<u>GRAND PRAIRIE,TX BUILDING DEPARTMENT NOTES</u> ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF IBC 2021, AND ALL RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.
	I. METAL DUCTWORK - NO FIBERGLASS DUCT ALLOWED . 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	 A. SERVICE: RECTANGULAR, SUPPLY-AIR AND RETURN-AIR DUCTS. A.1. MATERIAL: INSULATION BOARD, 6 PSF MINIMUM AND PLAIN FACING. 	 ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2021 INTERNATIONAL MECHANICAL CODE, CHAPTER 4. AS PER C408.2.5 OF IECC 2021, CONSTRUCTION DOCUMENT SHALL REQUIRE THAT, WITHIN 90 DAYS AFTER
N. H	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.	A.2. THICKNESS: 2 INCHES.A.3. NUMBER OF LAYERS: TWO.A.4. TOTAL THICKNESS = 4".	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 2021, CONSTRUCTION DOCUMENT SHALL REQUIRE THAT AN OPERATING MANUAL
Е 2 н	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	 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. 	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.
Y.	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.	 C. INSULATION INSTALLED OUTDOORS: FLAME SPREAD RATING OF 25 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS. 	 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 IBC 2021, REQUIREMENTS AS OUTLINES IN SECTION.
E R 3	B. 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.	 APPLY INSULATION AS FOLLOWS: A. APPLY TWO-LAYER INSULATION WITH JOINTS TIGHTLY BUTTED AND STAGGERED AT LEAST 3 INCHES. SECURE 	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
4	I. 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).	LAYERS WITH ADHESIVE, MECHANICAL FASTENERS OR BANDING. FASTENERS SHALL BE LOCATED A MAXIMUM OF 3" FROM EACH EDGE AND NO GREATER THAN 12" APART.	CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS. 7. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF IMC 2021 CHAPTER 4:
G	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.	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	MECHANICAL VENTILATION - SECTION 403. 8. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
R 5 E R	 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. INSTALL RIGID ROUND AND RECTANGULAR METAL DUCT WITH SURPORT. SYSTEMS INDICATED IN SMACNA. 	SMOOTH FINISH. OUTDOOR JACKET: POLYGUARD PRODUCTS, INC. 'ALUMAGUARD 60' OR MFM BUILDING PRODUCTS CORP. 'FLEXCLAD 400'.	 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.
R T E	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.	 Q. 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. 	 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.
0 7 F	DUCT AND ANGLE FRAMES SHALL BE CAULKED WITH SILICONE SEALANT OR FIREPROOFED AS REQUIRED BY THE	 FILTERS MUST BE IN UNITS AT ANY TIME FANS ARE OPERATED. R. SYSTEM TESTING, ADJUSTING AND BALANCING 	 MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM
F E 8	PENETRATION WHERE REQUIRED BY CODE. 3. ALL TRAVERSE JOINTS AND SEAMS IN SUPPLY AIR DUCT SHALL BE SEALED AIR-TIGHT WITH DAP CMC DUCT	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	 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. 11. HVAC SYSTEM SHALL BE BALANCED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING
	SEALER. JOINTS ALSO SHALL BE RIVETED OR CONNECTED WITH SHEET METAL SCREWS. SOFT ELASTOMER BUTYL GASKETS WITH ADHESIVE BACKING SHALL BE USED TO SEAL FLANGED JOINTS.	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.	 STANDARDS AS REQUIRED BY IECC 2021 SECTION 408.2.2. 12. 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
E	1. PROVIDE ACCESS TO ALL MOTORIZED DAMPERS, FIRE DAMPERS, FIRE / SMOKE DAMPERS, CONTROLS AND OTHER	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.	FAN.13. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
N D	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.	 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. 	14. 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.





ELECTRICAL GENERAL NOTES

- A. SCOPE OF WORK
- 1. FURNISH ALL LABOR AND MATERIAL TO COMPLETE ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS
- 2. THE LISTING OF ARTICLE OR MATERIAL, OPERATION OR METHOD, REQUIRES THAT THE CONTRACTOR SHALL PROVIDE AND INSTALL, UNLESS NOTED TO BE SUPPLIED BY OTHERS, EACH ITEM LISTED OF QUALITY OR SUBJECT TO QUALIFICATION NOTED. EACH OPERATION SHALL BE PERFORMED ACCORDING TO STANDARD PRACTICE, MANUFACTURER'S INSTRUCTIONS AND CONDITIONS STATED, PROVIDING, THEREFORE, ALL NECESSARY LABOR, EQUIPMENT AND INCIDENTALS.
- 3. THE ELECTRICAL CONTRACTOR SHALL SCHEDULE HIS WORK TO CONFORM TO THE PROGRESS OF THE OTHER TRADES AND CONTRACTORS EMPLOYED ON THIS PROJECT. THE PRINCIPAL ITEMS OF WORK INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
- A. PROVIDE ELECTRICAL SERVICE INCLUDING CONDUITS, CABLES, TERMINATIONS, METERING EQUIPMENT, ETC. IN ACCORDANCE WITH UTILITY REQUIREMENTS AND DRAWINGS
- B. PROVIDE LIGHTING FIXTURE AS SHOWN ON DRAWINGS. THIS SHALL INCLUDE ALL ASSOCIATED LAMPS, BOXES, SWITCHES, CONTRACTORS, AND BRANCH CIRCUIT WIRING AND MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.
- C. PROVIDE DEVICES (RECEPTACLES, SWITCHES, ETC.) AS SHOWN ON DRAWINGS. THIS SHALL INCLUDE ALL ASSOCIATED BRANCH CIRCUIT WIRING AND MATERIAL REQUIRED FOR A COMPLETE INSTALLATION.
- D. POWER FEEDERS TO HVAC EQUIPMENT INCLUDING RTU'S, EXHAUST FANS, INCLUDING DISCONNECT SWITCHES, CONTROL DEVICES, STARTERS FOR MOTORS NOT PROVIDED BY OTHERS. (CONSULT HVAC CONTRACTOR FOR PHASE AND VOLTAGE OF EQUIPMENT AND ACTUAL NAMEPLATE RATINGS FOR FEEDER MINIMUM CONDUCTOR AMPACITIES (MCA) AND MAXIMUM OVERCURRENT PROTECTION DEVICES (MOCPD) INFORMATION PRIOR TO INSTALLATION AND PRIOR TO PURCHASING ELECTRICAL EQUIPMENT.
- E. PROVIDE POWER DISTRIBUTION EQUIPMENT (PANELBOARDS, DISCONNECT SWITCH3S, CONTRACTORS, MOTOR STARTERS, ENCLOSED CIRCUIT BREAKERS, ETC.) AS SHOWN ON DRAWINGS OR AS REQUIRED FOR THIS PROJECT. THIS SHALL INCLUDE ALL WIRING AND ASSOCIATED MATERIAL REQUIRED FOR A COMPLETE INSTALLATION.
- F. PROVIDE FIRE ALARM SYSTEM ONLY IF REQUIRED BY FIRE MARSHALL OR LOCAL CODES. (E.C. MUST VERIFY REQUIREMENTS PRIOR TO BIDDING)
- G. PROVIDE TESTING OF ALL ELECTRICAL EQUIPMENT.
- H. PROVIDE TIMERS, PHOTOCELLS, AND CONTRACTORS FOR CONTROL OF EXTERIOR LIGHTING AND HVAC EQUIPMENT.
- I. PROVIDE BACKBOXES, PULLSTATIONS, AND CONDUIT TO ABOVE ACCESSIBLE CEILING FOR ALL VOICE AND COMMUNICATIONS OUTLETS.
- J. PROVIDE CONDUIT, JUNCTION BOXES, 115 VOLT FEEDERS, BACKBOXES, ETC. AS REQUIRED FOR SECURITY SYSTEM CAMERAS, ELECTRICAL DOOR STRIKES, ALARMS, REQUEST TO EXIT, MOTION SENSORS, CARD READERS, KEYPADS AND MAIN SECURITY PANEL AS PER DRAWINGS OR AS DIRECTED BY OWNER OR ARCHITECT. VERIFY EXTENT OF WORK PRIOR TO SUBMITTING BIDS.
- K. PROVIDE EMERGENCY LIGHTING, BATTERY UNITES, REMOTE HEADS, EXIT LIGHTS AND ALL ASSOCIATED WIRING, CONDUIT, JUNCTION BOXES, CONNECTIONS, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION.
- B. INSTALLATION
- 1. THIS CONTRACTOR SHALL VISIT THE JOB SITE TO DETERMINE PRESENT CONDITIONS AND VERIFY EXACT LOCATION OF EQUIPMENT AND LOCAL REGULATIONS PRIOR TO SUBMITTING BID.
- 2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AN PATCHING OF EXISTING WALLS CEILINGS AND FLOOR SLABS NECESSARY FOR THE COMPLETION OF HIS WORK.
- 3. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL WORK AND MATERIAL SHOWN SHALL BE PERFORMED, FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- 4. THE COMPLETE INSTALLATION SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND CITY CODES, RULES, REGULATIONS AND ORDINANCE. ALSO MAKE APPLICATION FOR AN ND PAY ALL FEES IN CONNECTION WITH ANY PERMITS, TESTS AND INSPECTIONS THAT MAY BE REQUIRED.
- 5. GUARANTEE ALL WORKMANSHIP, MATERIAL AND PERFORMANCE FOR PERIOD OF ONE (1) YEAR FROM DATE OF FINAL ACCEPTANCE.
- 6. THE EXACT MOUNTING LOCATIONS OF APPARATUS, DEVICES, EQUIPMENT AND CONDUITS SHALL BE ASCERTAINED FROM OWNER OR THEIR REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY. SHOULD THE CONTRACTOR FAIL TO ASCERTAIN SUCH LOCATIONS, THE WORK SHALL BE CHANGED AT THIS OWN EXPENSE WHEN SO ORDERED BY OWNER, THE OWNER RESERVES THE RIGHT TO MAKE MINOR CHANGES IN THE LOCATION OF CABLE, CONDUIT AND EQUIPMENT INSTALLED BY THIS CONTRACTOR UP TO THE TIME OF INSTALLATION, WITHOUT ADDITIONAL COST.
- 7. ALL CONDUCTORS SHALL BE COPPER, THHN INSULATION UNLESS OTHERWISE NOTED. ALL WIRING SHALL BE IN EMT OR MC CABLE RUN CONCEALED IN FINISHED AREAS AND NOT SUBJECT TO PHYSICAL DAMAGE. RUN EMT IN UNFINISHED CEILING AREAS.
- 8. RUN ALL CONDUIT CONCEALED IN BLOCK WALLS AND RECESS ALL DEVICES IN BIRCH WALLS TO THE EXTENT POSSIBLE AND/OR PRACTICAL.
- C. DRAWINGS AND SPECIFICATIONS
- 1. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS OF EQUIPMENT AND PIPING. DIMENSIONS GIVEN ON THE PLANS SHALL BE VERIFIED IN THE FIELD. DRAWINGS MAY NOT BE SCALED TO OBTAIN EXACT DIMENSIONS.
- 2. THE EXACT LOCATIONS OF APPARATUS, FIXTURES, EQUIPMENT AND CONDUITS SHALL BE ASCERTAINED FROM THE OWNER OR HIS REPRESENTATIVE IN THE FIELD, AND THE WORK SHALL BE LAID OUT ACCORDINGLY, SHOULD THE CONTRACTOR FAIL TO ASCERTAIN SUCH LOCATIONS, THE WORK SHALL BE CHANGED AT HIS OWN EXPENSE WHEN SO ORDERED BY THE OWNER.
- 3. THIS CONTRACTOR SHALL FURNISH SUCH LABOR AND MATERIALS AS HERE-IN-AFTER SPECIFIED AND AS REQUIRED TO COMPLETE ALL ELECTRICAL CONNECTIONS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT AND OWNER'S EQUIPMENT AS SHOWN AND/OR SPECIFIED.
- L. VISITING TO THE SITE
- 1. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING HIS WORK, AND THE SUBMISSION OF HIS PROPOSAL SHALL BE CONSTRUED AS INDICATING SUCH KNOWLEDGE, NO ADDITIONAL PAYMENT WILL BE MADE ON CLAIMS THAT ARISE FROM LACK OF SUCH KNOWLEDGE OF EXISTING CONDITIONS.
- E. MATERIALS AND WORKMANSHIP
- 1. ALL WORK SHALL BE INSTALLED IN PRACTICAL AND WORKMANLIKE MANNER BY COMPETENT WORKMEN, SKILLED IN THEIR BRANCH OF THE TRADE.
- 2. UNLESS SPECIFICALLY SPECIFIED OR INDICATED ONT HE DRAWINGS TO THE CONTRARY, ALL MATERIALS SHALL BE NEW AND FREE FROM DEFECTS, AND SHALL BE THE BEST OF THEIR SEVERAL KINDS.
- 3. ALL MATERIALS SHALL MEET OR EXCEED STANDARDS SPECIFIED BY UL, NEMA, ANSI AND IEEE WHEREVER SUCH STANDARDS HAVE BEEN ESTABLISHED.
- 4. THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND EXCESS MATERIALS ASSOCIATED WITH HIS WORK AND LEAVE THE WORK AREA CLEAN AT THE END OF EACH WORK DAY.
- 5. ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BEAR THE UNDERWRITER'S LABORATORIES LABEL.
- F. <u>DEFINITIONS</u>
- 1. "INSTALL" SHALL MEAN TO PLACE, FIX IN POSITION, SECURE, ANCHOR, ETC. INCLUDING NECESSARY APPURTENANCES AND LABOR SO THAT THE EQUIPMENT OR INSTALLATION WILL FUNCTION AS SPECIFIED AND INTENDED.
- 2. "FURNISH" SHALL MEAN TO PURCHASE AND SUPPLY EQUIPMENT OR COMPONENTS.
- 3. "PROVIDE" SHALL MEAN TO "FURNISH AND INSTALL".
- 4. "OR APPROVED EQUIVALENT" AND "OR EQUIVALENT" SHALL MEAN EQUIVALENT IN TYPE, DESIGN, QUALITY, ETC. AS DETERMINED BY THE OWNER AND APPROVED BY THE ENGINEER.

- G. CODES, PERMITS, AND INSPECTIONS
- INSTALL ALL WORK IN FULL ACCORDANCE WITH CODES, RULES, AND MUNICIPAL, CITY, COUNTY, STATE AND PUBLIC UTILITY AND ALL C HAVING JURISDICTION OVER THE PREMISES. THIS SHALL INCLUDE A INDUSTRIAL RELATIONS, OSHA AND THE REQUIREMENTS OF THE NA CODES, AS INTERPRETED BY THE LOCAL INSPECTION DIVISION. ALL TH AND REGULATIONS ARE HEREBY INCORPORATED INTO THIS SPECIFICATION
- COMPLY WITH SPECIFICATION REQUIREMENTS WHICH ARE IN REQUIREMENTS AND NOT IN CONFLICT WITH SAME.
- THE CONTRACTOR SHALL SECURE ALL PERMITS AND CERTIFICATE INCIDENTAL TO HIS WORK, REQUIRED BY THE FOREGOING AUTHO CERTIFICATES SHALL BE DELIVERED TO THE OWNER IN DUPLICATE, BEFO ON CONTRACT WILL BE ALLOWED. THE CONTRACTOR SHALL PAY ALL F OTHER EXPENSES IN CONNECTION THEREWITH.

LABELING AND NAMEPLATES

- PERMANENTLY LABEL PANELBOARDS, TIME SWITCHES, CONTRACT SWITCHES INDICATING EQUIPMENT OR PANELS AND AREAS WHICH THE PULL AND JUNCTION BOXES SERVING MECHANICAL EQUIPMENT.
- . LIGHTING AND APPLIANCE PANELS SHALL BE LABELED AS SHOWN ON D
- ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL IDENTIFICA JUNCTION BOXES FURNISHED BY HIM.
- 4. IDENTIFY AS TO USE ON FACE OF EQUIPMENT BY MEANS OF LAMINATED PHENOLIC LABEL WITH 1/2" LETTERS ENGRAVED THROUGH BLACK TO W
- TESTS AND VOLTAGE RECORD
- ELECTRICAL CONTRACTOR SHALL TEST ALL WIRING AND CONNECTION AND GROUNDS. WHEN THE INSULATION RESISTANCE TEST SHALL INDIC OF FAULTY INSULATION, THE CONTRACTOR SHALL LOCATED THE POIN INSULATION AND HE SHALL PULL OUT THE CONDUCTOR AT FAULT, R NEW, AND DEMONSTRATE, BY FURTHER TEST THE ELIMINATION OF SUCH
- RECORD FEEDER LOAD CURRENTS AND LINE VOLTAGES MEASURED AT ADJUST SINGLE PHASE LOAD CONNECTIONS TO BALANCE FEEDER PROVIDE THE OWNER WITH A COMPLETE COPY OF ALL LOAD AND VOL
- BRANCH CIRCUIT WIRING
- PROVIDE A SYSTEM OF PANELS, CONDUITS, FITTING, BOXES, SUPPOR MISCELLANEOUS MATERIALS REQUIRED FOR EQUIPMENT INDICATED ON AND READY FOR OPERATION BY THE OWNER.
- 2. HOME RUNS FROM 20A OUTLETS 125 FT. OR OVER AT 277 VOLTS, OR 120 VOLTS SHALL BE #10.0 WIRE.
- ALL FIXTURE AND BRANCH CIRCUIT WIRING CONNECTIONS OR SPLICES JUNCTION AND OUTLET BOXES WITH U.L. LISTED PRESSURE TYPE. CONN FOR 600 VOLTS (1,000 VOLTS WHEN ENCLOSED IN FIXTURE). IDEAL NUTS AND/OR WIRE NUTS OR APPROVED EQUIVALENT MAY BE USED F OF #8 GAUGE OR LESS.
- . CONDUCTORS
- SIZES OF CONDUCTORS FOR FEEDERS ARE GIVEN ON THE DRAWING SMALLER THAN #12 GAUGE SHALL BE USED FOR BRANCH LIGHTING O ALL WIRING SHALL HAVE THE U.L. LABEL, AND BE OF 98% CON ALUMINUM WIRE OR ALUMINUM CABLE IS NOT ACCEPTABLE UNLESS SP ON DRAWINGS.
- . THE GAUGE OF ALL WIRE SHALL BE IN ACCORDANCE WITH B & S STAND . ALL WIRE AND CABLE FOR BRANCH LIGHTING OR SMALL POWER CII
- "NEC: TYPE "THHN" 600 VOLT INSULATION,
- 4. WIRE AND CABLE ABOVE #8 GAUGE SHALL BE STRANDED TYPE "THE VOLTS.
- L. CONDUIT AND CABLES
- . ALL CONDUIT SHALL BE RIGID, THREADED, METAL CONDUIT OR ELECTRICA (EMT) UNLESS OTHERWISE SPECIFICALLY STATED HEREIN.
- 2. CONDUIT AND EMT SHALL BE DELIVERED TO THE BUILDING IN 10 FOOT
- LENGTH SHALL HAVE THE APPROVED UNDERWRITER'S LABORATORIES LAI
 CONDUIT SHALL BE RUN CONCEALED IN ALL FINISHED AREAS OF THE BUI RUN EXPOSED IN UNFINISHED AREAS AT CEILING OF JOIST LEVEL. R

BLOCK WALLS THE EXTENT THAT IS PRACTICAL.

- . EMT CONNECTORS AND COUPLERS SHALL BE RAIN TIGHT COMPR SET-SCREW WHERE ACCEPTABLE TO OWNER AND LOCAL CODES) M MANUFACTURED BY THOMAS & BETTS, STEEL CITY OF APPLETON. BE SHALL BE MADE WITH A HICKEY OR POWER BENDER WITHOUT KINKING THE SMOOTH BORE OF THE CONDUIT. PARALLELED CONDUITS SHALL R TRUE WITH OFFSETS UNIFORM AND SYMMETRICAL, CONDUIT TERMINA CABINETS SHALL BE RIGIDLY SECURED WITH LOCKNUTS AND BUSHING THE NATION ELECTRICAL CODE. INSULATED BUSHINGS SHALL BE USED 1-1/4" TRADE SIZE AND LARGER.
- 5. CONDUIT SHALL BE SECURELY FASTENED IN PLACE AT NO MORE THAN 1 HANGER, SUPPORTS, OR FASTENINGS SHALL BE PROVIDED AT EACH CC AT THE END OF EACH STRAIGHT RUN TERMINATING AT A BOX OR CABIN NOT BE SUSPENDED FROM THE CEILING OR CEILING SUSPENSION WIRES
- HORIZONTAL AND VERTICAL CONDUIT RUNS SHALL BE SUPPORT MALLEABLE STRAPS, OR THEIR APPROVED METAL DEVICE WITH SUITABI CLAMPS FOR MOUNTING TO BUILDING STRUCTURE OR SPECIAL BRACKE BE SUPPORTED FROM STRUCTURAL STEEL OR JOIST AND INDEPENDENT DO NOT SUPPORT CONDUIT FROM METAL ROOF DECK, OR ANY OTH OF ANOTHER TRADE.
- NON-METALLIC SHEATHED CABLE (ROMEX) OR AC CABLE SHALL NOT CABLE MAY BE USED ONLY WHEN CONCEALED IN FINISHED WALLS OR A WHEN NOT SUBJECT TO PHYSICAL DAMAGE UNLESS ITS USE IS NOT OWNER OR LOCAL CODES.
- 8. ONLY SHORT RUNS OF FLEXIBLE METAL CONDUIT NOT OVER 30" IN LEN FOR TERMINAL CONNECTIONS TO MOTORS AND OTHER VIBRATING EQU FOR ELECTRICAL EQUIPMENT WHERE IT IS NOT PRACTICAL TO MAKE F WITH RIGID CONDUIT. FLEXIBLE CONDUIT EXPOSED TO WEATHER SHA EQUIVALENT.
- . CONDUIT SYSTEM SHALL CONFORM TO ALL THE REQUIREMENT ELECTRICAL CODE AND LOCAL CODES.
- M. <u>GROUNDING</u>
- 1. THIS CONTRACTOR SHALL PROVIDE, INSTALL AND CONNECT A CON GROUNDING FOR ALL EQUIPMENT AND STRUCTURES A GOOD ELECTRICAL CONNECTION SHALL BE MADE WITH APPROVED GROUNDING
- ELECTRICAL SYSTEM AND EQUIPMENT GROUNDS SHALL COMPLY WITH AND NEC CODES AND REGULATIONS.
 PANELS, CONDUIT SYSTEMS MOTOR FRAMES, LIGHTING FIXTURES AND
- THAT ARE PART OF OF THIS INSTALLATION SHALL BE SECURELY MECHANICALLY AND ELECTRICALLY IN ACCORDANCE WITH ALL CODES.
- MAIN GROUNDING SYSTEM (WHEN APPLICABLE) SHALL BE SIZED TO CO 250-66 OF NATIONAL ELECTRIC CODE. PROVED CONDUIT TO PROTE FROM DAMAGE TO ANY AREA 6 FEET ABOVE FLOOR
- N. LIGHTING/APPLIANCE PANELBOARDS AND DISTRIBUT
- 1. DISTRIBUTION PANELS SHALL BE SQUARE "D" CO., TYPE "ILINE" OR APPF G.E., SIEMENS, OR CUTLER HAMMER.
- 2. 480/277V PANELS SHALL BE SQUARE "D" CO. TYPE "NF" OR APPROVED EQUIVALENT BY G.E., SIEMENS, OR CUTLER HAMMER. BREAKERS SHALL BE BOLTED TO BUS TYPE, QUICK-MAKE, BREAK-BREAKERS, AND CAPABLE OF INTERCHANGING ONE, TWO OR THREE POLE UNITS. MULTIPLE UNITS SHALL BE COMMON TRIP. PROVIDE SPARE BREAKERS IN EACH PANEL AS SHOWN. ALL BUSSING SHALL BE 98% CONDUCTIVITY COPPER, ALUMINUM BUS, ALUMINUM CONDUCTORS OR ALUMINUM LUGS ARE NOT ACCEPTABLE.

	3.	208/120V PANELS SHALL BE SQUARE "D" CO. TYPE "NQOD" OR APPROVED EQUIVALENT BY	X. ALARM AND DETECTION SYSTEMS (BY VEN
ND REGULATIONS OF	4.	G.E., SIEMENS, OR CUTLER HAMMER WITH TYPE "QOB" BOLT-ON BRANCH BREAKERS ONLY. SHORT CIRCUIT RATINGS OF NEW PANELS SHALL BE AS NOTED ON DRAWINGS, OR AS	1. PROVIDE NECESSARY CONDUIT AND POWER FOR ALA SHALL INCLUDE THE FOLLOWING:
OTHER AUTHORITIES ALL DEPARTMENT OF VATIONAL ELECTRICAL THESE CODES, RULES TION.	4.	OTHERWISE DIRECTED BY LOCAL UTILITY COMPANY. UL TESTED AND CERTIFIED SERIES RATINGS ARE ACCEPTABLE WITH WRITTEN DOCUMENTATION SHOWING SERIES RATINGS BUT ONLY IF ACCEPTABLE TO OWNER OR LOCAL CODES.	 DEDICATED 20 AMP / 120 VOLT CIRCUIT (S). 3/4" CONDUIT (EMPTY) TO EACH TO DOOR CONTACT ALARM, FILM CAMERA, SUSPICION BUTTON, ETC.
EXCESS OF CODE	О.	GENERAL FOR ALL PANELS	SCHEDULE)
TED OR INSPECTION HORITIES. ALL SUCH FORE FINAL PAYMENT	1.	METAL FRAMED CARDHOLDERS WITH TYPEWRITTEN CIRCUIT DIRECTORY MUST BE PROVIDED FOR EACH PANEL. DIRECTORY SHALL BE CLEAR AND DESIGNATION SHALL MATCH IDENTIFICATION ON EQUIPMENT. PANELBOARDS (POWER PANELS AND LIGHTING PANELS) SHALL BE WITH IDENTIFICATION LABELED ON SWITCH AND/OR PANEL DOOR. PROVIDE ENGRAVED LAMINATED PHENOLIC NAMEPLATE WITH 1/2" LETTERS.	 COORDINATE ALL LOCATIONS OF ALARM AND DETEC ITEMS ARE NOT SHOWN ON ELECTRICAL DRAWINGS. Y. <u>COMMUNICATION SYSTEMS</u>
L FEES, CHARGES AND	2.	ALL PANELS SAFETY SWITCHES, STARTERS AND IN GENERAL, ALL EQUIPMENT REQUIRING LUGS SHALL BE EQUIPPED WITH SOLDERLESS TYPE U.L. APPROVED LUGS.	1. WORK INCLUDES: EMPTY CONDUIT WITH NYLON F TELEPHONE WIRING.
	3.	PROVIDE ALL NECESSARY UNISTRUT, CHANNEL, BACKING AND SUPPORTS TO MOUNT PANELBOARDS SECURELY IN PLACE.	2. WORK BY COMMUNICATIONS CONTRACTOR:
CTORS AND SAFETY HEY SERVE. LABEL ALL	4.	SCREW FASTENED HANDLE LOCK-ON DEVICES ARE REQUIRED ON CIRCUIT BREAKERS PROTECTING SERVICES TO THE FOLLOWING EQUIPMENT:	 ALL WIRING FOR TELEPHONE INSTRUMENTS ALL TELEPHONE INSTRUMENTS
DRAWINGS. ATION FOR PULL OR	А. В.	EMERGENCY, EXIT, SECURITY AND NIGHT LIGHTS. HEATING AND COOLING CONTROL CIRCUITS.	
	ь. С.	ALL TIME SWITCHES.	HOME RUNS AND BRANCH WIRING FOR 120 VOLT 16 AMP
ED BLACK AND WHITE WHITE.	Ρ.	TOGGLE SWITCHES AND RECEPTACLES	AS FOLLOWS TO ACCOUNT FOR VOLTAGE DROP: LENGTH HOME RUN WIRE SIZE CIRCUIT V
DNS FOR CONTINUITY DICATE THE POSSIBILITY	1.	SINGLE POLE 1221 AND THREE(3) WAY #1223- SWITCHES SHALL BE RATED 20 AMPERE, 277/120 VOLTS, COLOR TO BE BID AS WHITE (FINAL SELECTION BY ARCHITECT) HUBBELL OR EQUIVALENT. SWITCHES SHALL BE MOUNTED 4'-0" ABOVE FINISHED FLOOR TO CENTERLINE.	1' TO 65' 12 66' TO 104' 10 105' TO 156' 8 157' TO 263' 6
NNTS OF SUCH FAULT REPLACE SAME WITH	2.	DUPLEX RECEPTACLES SHALL BE AS SPECIFIED ON DRAWINGS.	264' TO 419' 4
CH FAULT. T EACH PANELBOARD.	Q.	DISCONNECT SWITCHES	
R LOADS WITH 10%. DLTAGE RECORDS.	1.	AN APPROVED HORSEPOWER RATED, HEAVY DUTY, DISCONNECT SWITCH SHALL BE PROVIDED WITHIN SIGHT OF EACH MOTOR AND EACH HEATING UNIT. PROVIDE FUSED SWITCHES WHERE BRANCH CIRCUIT FUSES ARE NOT SIZED FOR OVERLOAD PROTECTION.	
ORTS AND ALL OTHER	2. 3.	SWITCHES ON THE ROOF SHALL BE WEATHERPROOF MOUNTED ON UNISTRUT. SWITCHES SHALL BE LABELED ON THEIR COVER IDENTIFYING THE EQUIPMENT TO BE	
ON PLANS, COMPLETE	-	PROTECTED.	
DR 60 FT. OR OVER AT	R.	MOTORS AND WIRING	
CES SHALL BE MADE IN NECTORS AND LISTED AL INDUSTRIES WING	1.	FURNISH AND INSTALL DISCONNECT SWITCHES (EXCEPT WHERE SPECIFICALLY SPECIFIED BY OTHERS) AND RUN POWER CIRCUITS FROM THE POWER PANEL THROUGH DISCONNECT SWITCHES & CONTROL DEVICES TO MOTOR TERMINALS.	
FOR JOINTS IN WIRE	2. A.	PROVIDE ALL STARTERS, CONTROLS AND PUSH BUTTON STATIONS ETC. NOT SUPPLIED BY MECHANICAL OR OTHER CONTRACTORS REQUIRED FOR THE PROPER AND INTENDED OPERATION OF MOTORS AND OR MOTORIZED EQUIPMENT SUPPLIED BY OTHERS. THE ABOVE ELECTRICAL EQUIPMENT SHALL BE MOUNTED SECURELY TO WALL OR FRAMES	
INGS, AND NO WIRE	А.	AND THE ELECTRICAL EQUIPMENT STALL BE MOUNTED SECORELL TO WALL OR TRAMES AND THE ELECTRICAL CONTRACTOR SHALL FURNISH ALL NECESSARY BRACKETS, STRUCTURAL PIECES, EXPANSION BOLTS AND OTHER ACCESSORIES REQUIRED.	
OR POWER CIRCUITS.	В.	WOODEN PLUGS SHALL NOT BE PERMITTED FOR ANCHORING.	
SPECIFICALLY SHOWN	C.	ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER LUBRICATION OF ALL MOTORS.	
NDARD. CIRCUITS SHALL HAVE	3.	REFER ALSO TO MECHANICAL SPECIFICATIONS FOR WORK BY MECHANICAL CONTRACTOR WHICH MAY RESULT IN ADDITIONAL WORK FOR THIS ELECTRICAL CONTRACTOR.	
	4.	THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING AN CONNECTIONS TO	
HHN" INSULATED 600	5.	ALL HVAC EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING AND CONNECTIONS TO ALL HVAC EQUIPMENT NOT PROVIDED BY OTHERS.	
ICAL METALLIC TUBING	6.	THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONTROL EQUIPMENT (STARTERS, CONTRACTORS ETC.) NOT SUPPLIED BY HVAC CONTRACTOR BUT REQUIRED FOR THE INTENDED OPERATION OF HVAC EQUIPMENT	
t lengths and each Label.	7.	THE ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT SWITCHES FOR ALL HVAC EQUIPMENT NOT SUPPLIED BY OTHERS.	
BUILDING AND MAY BE RUN CONCEALED IN	8.	REFER TO MECHANICAL SPECIFICATION AND DRAWINGS FOR ADDITIONAL ELECTRICAL WORK AND COORDINATION.	
APRESSION TYPE (OR	S.	FUSES	
) MADE OF STEEL AS BENDS AND OFFSETS (ING OR DESTROYING L RUN STRAIGHT AND INALS AT BOXES AND	1.	REPLACE ALL FUSES BLOWN DURING CONSTRUCTION AND TESTING AN PROVIDE A COMPLETE ST OF FUSES IN ALL FUSE HOLDERS, SWITCHES, PANELS AND ALL OTHER DEVICES REQUIRING FUSES.	
NGS AS REQUIRED BY SED ON ALL CONDUIT	2.	FUSES SHALL BE CURRENT LIMITING, DUAL ELEMENT TIME DELAY TYPE PROVIDE OWNER WITH ONE SET OF SPARE FUSES FOR EACH FUSED SWITCH.	
1 10 FT. CENTERS, AND	Τ.	GUARANTEE	
CONDUIT ELBOW AND BINET. CONDUIT SHALL RES.	1.	IN ADDITION TO WARRANTIES OF EQUIPMENT BY MANUFACTURER OF SAME, THIS CONTRACTOR SHALL ALSO GUARANTEE EQUIPMENT PROVIDED BY HIM AND SHALL BEHELD FOR A PERIOD OF ONE (1) YEAR TO MAKE GOOD ANY DEFECTS IN MATERIALS AND WORKMANSHIP OCCURRING DURING THIS PERIOD, AT HIS SOLE EXPENSE. THE ONE (1)	
DRTED BY ONE-HOLE ABLE BOLTS, OR BEAM CKETS, CONDUIT SHALL	U.	YEAR PERIOD SHALL START FROM DATE OF FINAL ACCEPTANCE BY OWNER.	
NT OF OTHER PIPING. THER SUPPORT DEVICE	1.	KEEP ONE (1) SET OF WORKING DRAWINGS AND SHIP DRAWINGS AT THE JOB SITE FOR SOLE PURPOSE OF RECORDING ALL CHANGES MADE DURING CONSTRUCTION. AFTER COMPLETION OF THE WORK AND BEFORE REQUESTING FINAL PAYMENT, THE ABOVE	
OT BE USED. TYPE MC R ABOVE CEILING AND OT APPROVED ABBEY	V.	MENTIONED DRAWINGS SHALL BE DELIVERED TO THE OWNER.	
ENGTH SHALL BE USED QUIPMENT, AND ALSO	v. 1.	WHENEVER ALTERNATE MATERIALS ARE SPECIFIED, IT IS WITH THE UNDERSTANDING THAT ANY ONE OF THE MATERIALS IS ACCEPTABLE TO THE OWNER. MATERIALS AND EQUIPMENT OTHER THAN THOSE SPECIFIED ARE NOT TO BE ASSUMED TO BE SATISFACTORY SUBSTITUTES	
E FINAL CONNECTION HALL BE "SEALTITE" OR			
OF THE NATIONAL	W.	SHOP DRAWINGS ONLY MANDATORY SHOP DRAWINGS AS LIMITED.OUTLINE HEREIN SHALL BE SUBMITTED.	
•	2.	NO WORK SHALL BE INSTALLED UNTIL THE MANDATORY SHOP DRAWINGS HAVE BEEN	
OMPLETE SYSTEM OF D MECHANICAL AND ING CONNECTORS.	_	APPROVED BY THE ARCHTITECT/ENGINEER,. THE ARCHITECT/ENGINEER SHALL REVIEW SUBJECT SHOP DRAWINGS BEFORE A COPY IS SUBMITTED TO THE OWNER FOR RECORD PURPOSES.	
ITH ALL LOCAL, STATE	3.	ONLY MATERIAL AND EQUIPMENT MANUFACTURERS OF PRODUCTS OR SYSTEMS LISTED BELOW SHALL FURNISH MANDATORY SHOP DRAWINGS FOR APPROVAL BY THE ARCHITECT/ENGINEER PRIOR T CONTRACTORS PURCHASING EQUIPMENT, SHIP DRAWINGS ARE TO CONTAIN THE FOLLOWING:	
ND OTHER EQUIPMENT Y GROUNDED BOTH S.		MANUFACTURER'S NAME, MATERIAL DESCRIPTION, SIZES AND DIMENSIONS AND OTHER PERTINENT INFORMATION TO CONFIRM AS MINIMUM STANDARD FOR EQUIPMENT LISTED IN THE SCHEDULES ON THE DRAWINGS AND OR IN THE SPECIFICATIONS.	
CONFORM WITH TABLE DTECT GROUND WIRE	4.	SUBMIT A COPY OF SEVEN (7) COPIES OF ALL REQUIRED ELECTRICAL SHOP DRAWINGS.	
JTION PANELS	5.	THE FOLLOWING SHOP DRAWING SUBMITTALS ARE A MANDATORY REQUIREMENT OF THE OWNER, IF THE FOLLOWING EQUIPMENT IS TO BE INSTALLED:	
PPROVED EQUIVALENT	*	STEP DOWN TRANSFORMERS (480-120/208V) WHEN APPLICABLE WIRING DEVICES (INCLUDING WEATHERPROOF RECEPTACLES)	
OVED EQUIVALENT BY DITED TO BUS TYPE, ONE, TWO OR THREE ARE BREAKERS IN EACH	* * * *	LIGHTING FIXTURES & EMERGENCY LIGHTING FIXTURES DISCONNECT SWITCHES POWER/LIGHTING PANELS MOTOR STARTERS FIRE ALARM DEVICES	

R FOR ALARM AND DETECTION SYSTEMS. THIS

X. ALARM AND DETECTION SYSTEMS (BY VENDOR)

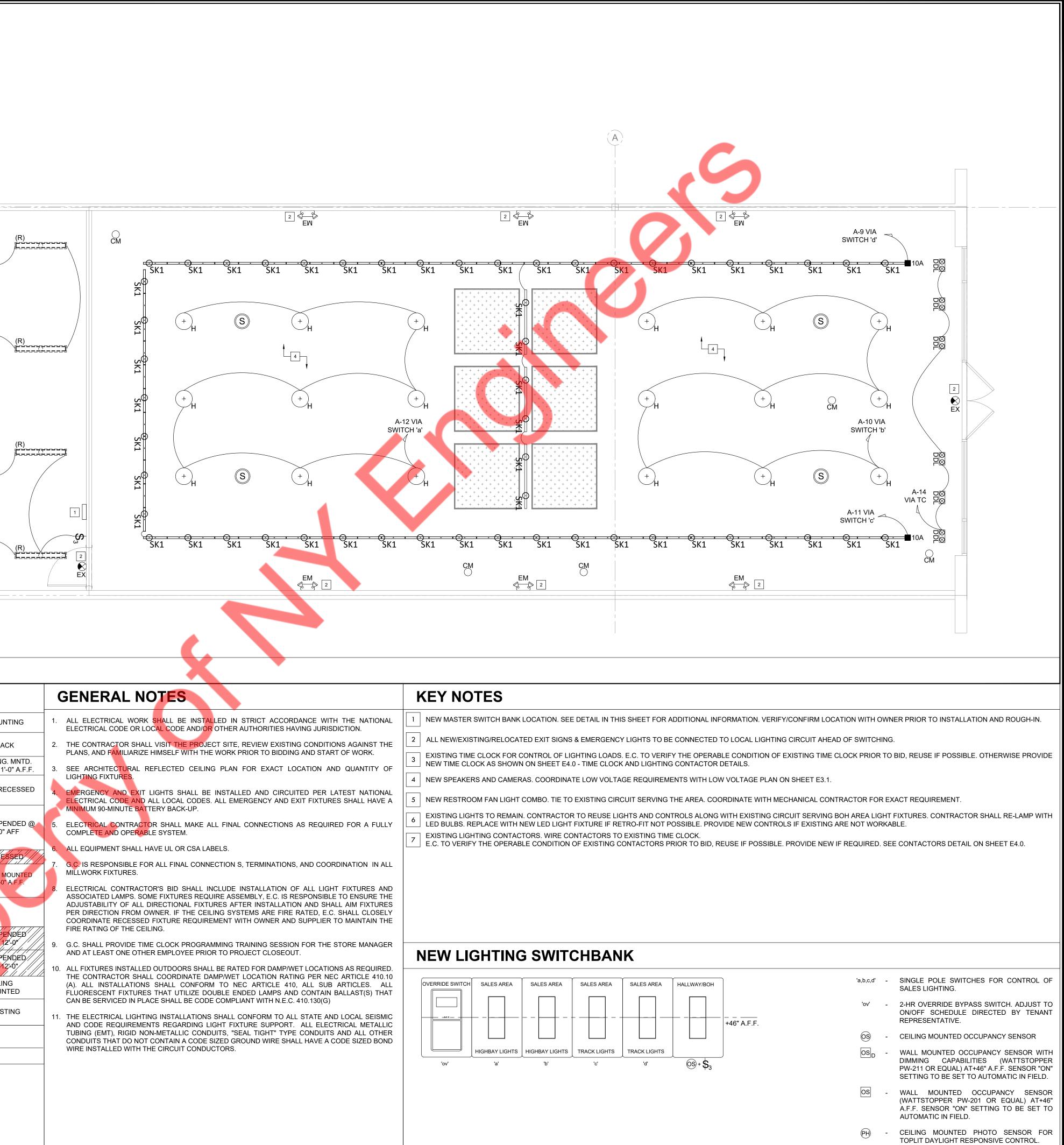
R CONTACT, SOUND DETECTION SILENT DURESS DN, ETC. (REFER TO ARCHITECTURAL DOOR

ND DETECTION SYSTEM WITH OWNER. THESE

NYLON PULLWIRES AND BOXES FOR UTILITY

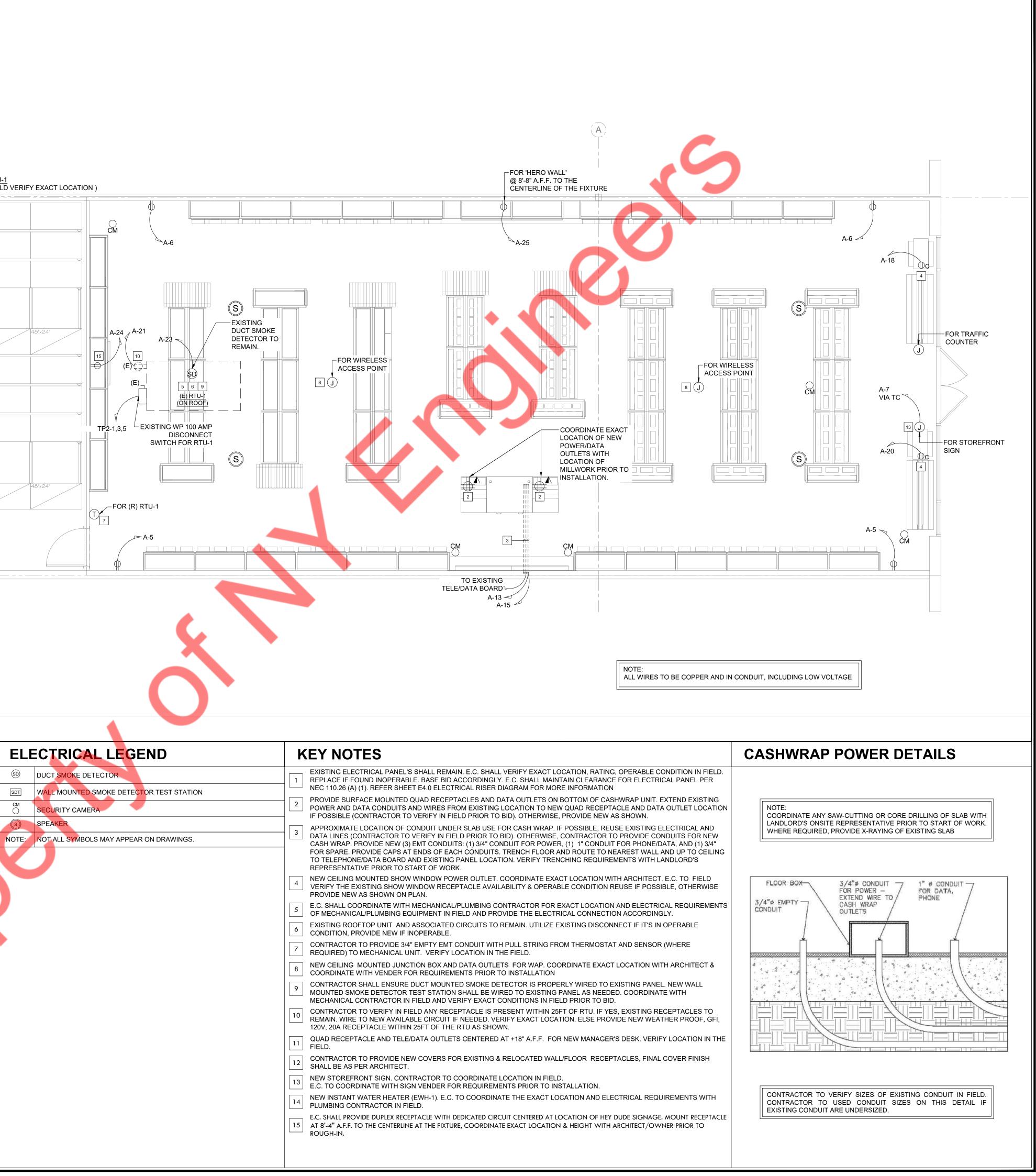
6 AMP CIRCUITS SHALL BE CUIT WIRE SIZE 12 12 12 12

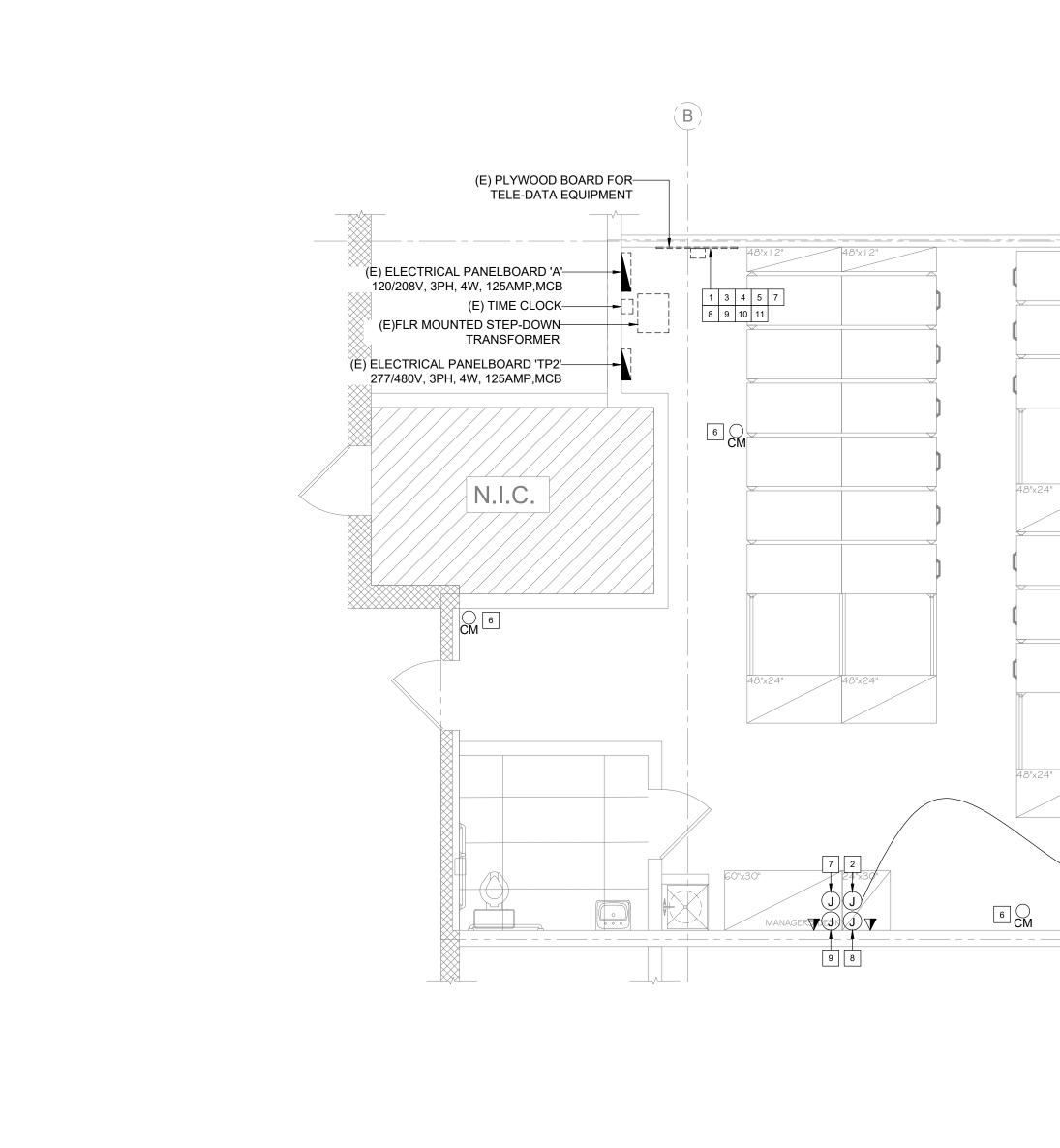
				(E) PLYWOOD BOARD FOR TELE-DATA EQUIPMENT	(B)								Â	
				RICAL PANELBOARD 'A'		2 ¢ EW					2 EW	2 EW		
			(E)FLR	(E) TIME CLOCK	(R)	(R)	<u></u>	(R)) M r ⊖:			<u> </u>	
				CAL PANELBOARD 'TP2'						SK1 SK1 SK1	 		1 SK1 Sk	K1 SK
				N.I.C.	(R)		<u>=72===</u>)⁄	(R)		SK1 (S)	+ H	+ + + + + + + + + + + + + + + + + + +		(+) H
							ţ			K1 SK1 + H	+ + H SW	++++++++++++++++++++++++++++++++++++++		+ H
				(R) 2 (R) (E) EX OS	(R)			(R) <u> <u> </u> </u>		SK1 SK1	+ H	+ + + + + + + + + + + + + + + + + + +		(+) H
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	ELECTRICAL /4" = 1'-0"	LIGHTING PLA	N		_									
											•			
			LIGH	T FIXTURE SCHE	EDULE					AL NOTES		KEY NOTES		
TYPE	SYMBOL	MANUFACTURER	R MODEL	DESCRIPTION	COLOR LA	AMP LAMP FIXTU WATT. WAT		E MOUNTING 1.	. ALL ELECTRICA	AL WORK SHALL BE INSTALLED IN STRIC DDE OR LOCAL CODE AND/OR OTHER AUTHO	ORITIES HAVING JURISDICTION.	KEY NOTES 1 NEW MASTER SWITCH BANK LOCATE 2 ALL NEW/EXISTING/RELOCATED EXI		
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	⊙ SK1	NORDEON	MODEL SKE1-28W-UNV-835-**-DIM XSB12-Xm24/25C-25C/35K/	DESCRIPTION LED TRACKHEAD -3500K NEW LIGHT TRACK 2 HEAD LED MULTIPLA DOWNLIGHT- 3500 K W/ LOUVER (SEMI-RECESSED	COLOR LA BLACK LE			E MOUNTING 1. TRACK 2. CLNG. MNTD.	 ALL ELECTRICA ELECTRICAL CO THE CONTRACT PLANS, AND FAI SEE ARCHITEC LIGHTING FIXTU EMERGENCY A 	AL WORK SHALL BE INSTALLED IN STRIC DDE OR LOCAL CODE AND/OR OTHER AUTHO TOR SHALL VISIT THE PROJECT SITE, REVIE MILIARIZE HIMSELF WITH THE WORK PRIOR DTURAL REFLECTED CEILING PLAN FOR JRES. ND EXIT LIGHTS SHALL BE INSTALLED A	DRITIES HAVING JURISDICTION. EW EXISTING CONDITIONS AGAINST THE TO BIDDING AND START OF WORK. EXACT LOCATION AND QUANTITY OF ND CIRCUITED PER LATEST NATIONAL	1 NEW MASTER SWITCH BANK LOCATE 2 ALL NEW/EXISTING/RELOCATED EXI 3 EXISTING TIME CLOCK FOR CONTRO 3 NEW TIME CLOCK AS SHOWN ON SH 4 NEW SPEAKERS AND CAMERAS. CO	T SIGNS & EMERGENCY DL OF LIGHTING LOADS EET E4.0 - TIME CLOCK ORDINATE LOW VOLTA	EY LIGHTS TO S. E.C. TO VE K AND LIGHT AGE REQUIRI
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SK1 - DDL H EM	SK1 SK1 DDL H (+) M (+)	NORDEON SOLAIS LIGHTING ENVISION LED LIGHTING CREE LIGHTING EXITRONIX	R MODEL SKE1-28W-UNV-835-**-DIM XSR12-Xm24/25C-25C/35K/ 2000/WH/WH/010/HL/HL LED-RHB3C-3P150W-CTRI-BL-10-UNV //CR6T-1600L-35K-12// LED51-EM	DESCRIPTION LED TRACKHEAD -3500K NEW LIGHT TRACK 2 HEAD LED MULTIPLA DOWNLIGHT- 3500 K W/ LOUVER (SEMI-RECESSED DOUBLE DOWNLIGHT) ENVISION DECORATIVE LED, HIGHBAY 16" LED W SUSPENDED BEAD REFRACTOR AND CONICAL DROP LENS SUSPENDED HIGH BAY PENDANTS //ED 1600LM DOWNLIGHT/ 3500 K///// REMOTE LAMPS FOR LED EXIT VEX REMOTE SERIES , REMOTE	COLOR LA	ED 24.4w 28v ED 60W -	v 120v - 44	MOUNTING 1. TRACK 2. CLNG. MNTD. @ 11'-0" A.F.F. 3. SEMI-RECESSED 4. SUSPENDED @ 11'-10" AFF 5. RECESSED 6. WALL MOUNTED @ 11'-0" A.F.F. 8. SUSPENDED 9.	 ALL ELECTRICA ELECTRICAL CO THE CONTRACT PLANS, AND FAI SEE ARCHITEO LIGHTING FIXTU EMERGENCY A ELECTRICAL CO MINIMUM 90-MIN ELECTRICAL CO COMPLETE AND ALL EQUIPMENT G.C. IS RESPON MILLWORK FIXT ELECTRICAL CO ASSOCIATED LA ADJUSTABILITY PER DIRECTION COORDINATE R FIRE RATING OF G.C. SHALL PRO 	AL WORK SHALL BE INSTALLED IN STRICT DE OR LOCAL CODE AND/OR OTHER AUTHOR TOR SHALL VISIT THE PROJECT SITE, REVIE MILIARIZE HIMSELF WITH THE WORK PRIOR TURAL REFLECTED CEILING PLAN FOR JRES. ND EXIT LIGHTS SHALL BE INSTALLED A DOE AND ALL LOCAL CODES. ALL EMERGEN NUTE BATTERY BACK-UP. ONTRACTOR SHALL MAKE ALL FINAL CON O OPERABLE SYSTEM. T SHALL HAVE UL OR CSA LABELS. ISIBLE FOR ALL FINAL CONNECTION S, TER URES. ONTRACTOR'S BID SHALL INCLUDE INSTA AMPS. SOME FIXTURES REQUIRE ASSEMBLY OF ALL DIRECTIONAL FIXTURES AFTER IN N FROM OWNER. IF THE CEILING SYSTEMS DECESSED FIXTURE REQUIREMENT WITH O F THE CEILING.	DRITIES HAVING JURISDICTION. EW EXISTING CONDITIONS AGAINST THE TO BIDDING AND START OF WORK. EXACT LOCATION AND QUANTITY OF ND CIRCUITED PER LATEST NATIONAL NCY AND EXIT FIXTURES SHALL HAVE A NECTIONS AS REQUIRED FOR A FULLY MINATIONS, AND COORDINATION IN ALL LLATION OF ALL LIGHT FIXTURES AND Y, E.C. IS RESPONSIBLE TO ENSURE THE ISTALLATION AND SHALL AIM FIXTURES ARE FIRE RATED, E.C. SHALL CLOSELY WNER AND SUPPLIER TO MAINTAIN THE	1 NEW MASTER SWITCH BANK LOCATED 2 ALL NEW/EXISTING/RELOCATED EXI 3 EXISTING TIME CLOCK FOR CONTROL 3 EXISTING TIME CLOCK AS SHOWN ON SH 4 NEW SPEAKERS AND CAMERAS. CO 5 NEW RESTROOM FAN LIGHT COMBC 6 EXISTING LIGHTS TO REMAIN. CONT 1 LED BULBS. REPLACE WITH NEW LE 7 E.C. TO VERIFY THE OPERABLE CON	T SIGNS & EMERGENCY DL OF LIGHTING LOADS EET E4.0 - TIME CLOCK ORDINATE LOW VOLTA . TIE TO EXISTING CIRC RACTOR TO REUSE LIG D LIGHT FIXTURE IF RE VIRE CONTACTORS TO DITION OF EXISTING C	CY LIGHTS TO S. E.C. TO VEI K AND LIGHT AGE REQUIRE CUIT SERVIN GHTS AND CO ETRO-FIT NO D EXISTING T CONTACTORS
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SK1 - DDL H EM EX SL SL SL (R) EFL (R) E		NORDEON SOLAIS LIGHTING ENVISION LED LIGHTING CREE LIGHTING EXITRONIX METALUX METALUX BROAN / NUTONE EXISTING	R MODEL SKE1-28W-UNV-835-**-DIM XSR12-Xm24/25C-25C/35K/ 2000/WH/WH/010/HL/HL LED-RHB3C-3P150W-CTRI-BL-10-UNV //CR6T-1600L-35K-12// LED51-EM VEX-U-BP-WB-WH-R6-G2 //8SLSTP8040DD-UNV //4SLSTP4040DD-UNV //4SLSTP4040DD-UNV //ASLSTP4040DD-UNV //ASLSTP4040DD-UNV //LED51-EM //LED51-EM //LED51-EM //RESTP4040DD-UNV	DESCRIPTION LED TRACKHEAD -3500K NEW LIGHT TRACK 2 HEAD LED MULTIPLA DOWNLIGHT- 3500 K W/ LOUVER (SEMI-RECESSED DOUBLE DOWNLIGHT) ENVISION DECORATIVE LED, HIGHBAY 16" LED W SUSPENDED BEAD REFRACTOR AND CONICAL DROP LENS SUSPENDED HIGH BAY PENDANTS //ED 1600LM DOWNLIGHT- 3500/K//// REMOTE LAMPS FOR LED EXIT VEX REMOTE SERIES , REMOTE CABLE THERMOPLASTIC LED /LENSED 8'-0" LØNG STRIP /LENSED 8'-0" LØNG STRIP NEW RESTROOM LIGHTING EXISTING	COLOR LA BLACK LE BLACK LE BLACK LE BLACK LE WHITE LE ////////////////////////////////////	ED 24.4w 28v ED 60W - ED 20.5 / 20.5 / ED 76xV ED 76xV ED 35W STING	N 120V - 44 - 120 120 120 120	MOUNTING1.TRACK2.CLNG. MNTD. @ 11'-0" A.F.F.3.SEMI-RECESSED4.SUSPENDED @ 11'-10" AFF5.RECESSED6.RECESSED7.WALL MOUNTED @ 11'-0" A.F.F.8.SUSPENDED @ 12'-0"9.SUSPENDED @ 12'-0"9.SUSPENDED @ 12'-0"10.CEILING MOUNTED10.	 ALL ELECTRICA ELECTRICAL CO ELECTRICAL CO DIANS, AND FAI SEE ARCHITEO LIGHTING FIXTU EMERGENCY A ELECTRICAL CO MINIMUM 90-MIN ELECTRICAL CO COMPLETE AND ELECTRICAL CO COMPLETE AND ALL EQUIPMENT G.C. IS RESPON MILLWORK FIXT ELECTRICAL CO ASSOCIATED LA ADJUSTABILITY PER DIRECTION COORDINATE R FIRE RATING OF G.C. SHALL PRO AND AT LEAST OF G.C. SHALL PRO AND AT LEAST OF ALL FIXTURES I THE CONTRACT (A). ALL INSTA FLUORESCENT CAN BE SERVIC THE ELECTRICA AND CODE REC TUBING (EMT), CONDUITS THAT 	AL WORK SHALL BE INSTALLED IN STRIC DDE OR LOCAL CODE AND/OR OTHER AUTHO TOR SHALL VISIT THE PROJECT SITE, REVIE MILIARIZE HIMSELF WITH THE WORK PRIOR TURAL REFLECTED CEILING PLAN FOR JRES. ND EXIT LIGHTS SHALL BE INSTALLED A DDE AND ALL LOCAL CODES. ALL EMERGEN NUTE BATTERY BACK-UP. DNTRACTOR SHALL MAKE ALL FINAL CON DOPERABLE SYSTEM. T SHALL HAVE UL OR CSA LABELS. ISIBLE FOR ALL FINAL CONNECTION S, TER 'URES. DNTRACTOR'S BID SHALL INCLUDE INSTA AMPS. SOME FIXTURES REQUIRE ASSEMBL' OF ALL DIRECTIONAL FIXTURES AFTER IN N FROM OWNER. IF THE CEILING SYSTEMS DECESSED FIXTURE REQUIREMENT WITH O THE CEILING. DVIDE TIME CLOCK PROGRAMMING TRAININ ONE OTHER EMPLOYEE PRIOR TO PROJECT INSTALLED OUTDOORS SHALL BE RATED FOR JUNTALED OUTDOORS SHALL BE RATED FOR JUNTALED OUTDOORS SHALL BE RATED FOR JUNTALED OUTDOORS SHALL BE RATED FOR JUNTALLED OUTDOORS SHALL BE RATED FOR JUNTALLES THAT UTILIZE DOUBLE ENDED JUNTALLED OUTDOORS SHALL BE RATED FOR JUNTALLED OUTDOORS SHALL STALL FOR TO NEC AF	DRITIES HAVING JURISDICTION. EW EXISTING CONDITIONS AGAINST THE TO BIDDING AND START OF WORK. EXACT LOCATION AND QUANTITY OF ND CIRCUITED PER LATEST NATIONAL NCY AND EXIT FIXTURES SHALL HAVE A NECTIONS AS REQUIRED FOR A FULLY MINATIONS, AND COORDINATION IN ALL LLATION OF ALL LIGHT FIXTURES AND Y, E.C. IS RESPONSIBLE TO ENSURE THE ISTALLATION AND SHALL AIM FIXTURES ARE FIRE RATED, E.C. SHALL CLOSELY WNER AND SUPPLIER TO MAINTAIN THE NG SESSION FOR THE STORE MANAGER CLOSEOUT. DR DAMP/WET LOCATIONS AS REQUIRED. ATION RATING PER NEC ARTICLE 410.10 RTICLE 410, ALL SUB ARTICLES. ALL LAMPS AND CONTAIN BALLAST(S) THAT VITH N.E.C. 410.130(G) DRM TO ALL STATE AND LOCAL SEISMIC SUPPORT. ALL ELECTRICAL METALLIC IGHT" TYPE CONDUITS AND ALL OTHER	1 NEW MASTER SWITCH BANK LOCATED 2 ALL NEW/EXISTING/RELOCATED EXI 3 EXISTING TIME CLOCK FOR CONTRONEW TIME CLOCK AS SHOWN ON SHOW 4 NEW SPEAKERS AND CAMERAS. CO 5 NEW RESTROOM FAN LIGHT COMBO 6 EXISTING LIGHTS TO REMAIN. CONT 1 LED BULBS. REPLACE WITH NEW LE 7 EXISTING LIGHTING CONTACTORS. NEXT SHOW THE OPERABLE CON 8 NEW LIGHTY THE OPERABLE CON 9 NEW LIGHTING SALES AREA 9 SALES AREA	T SIGNS & EMERGENCY DL OF LIGHTING LOADS EET E4.0 - TIME CLOCK ORDINATE LOW VOLTA . TIE TO EXISTING CIRC RACTOR TO REUSE LIG D LIGHT FIXTURE IF RE VIRE CONTACTORS TO DITION OF EXISTING C VITCHBAN AREA SALES AREA	SY LIGHTS TO S. E.C. TO VE K AND LIGHT AGE REQUIRE CUIT SERVIN GHTS AND CO ETRO-FIT NO D EXISTING T CONTACTORS



WALL MOUNTED MANUAL 3-WAY TOGGLE **\$**3 -SWITCH.

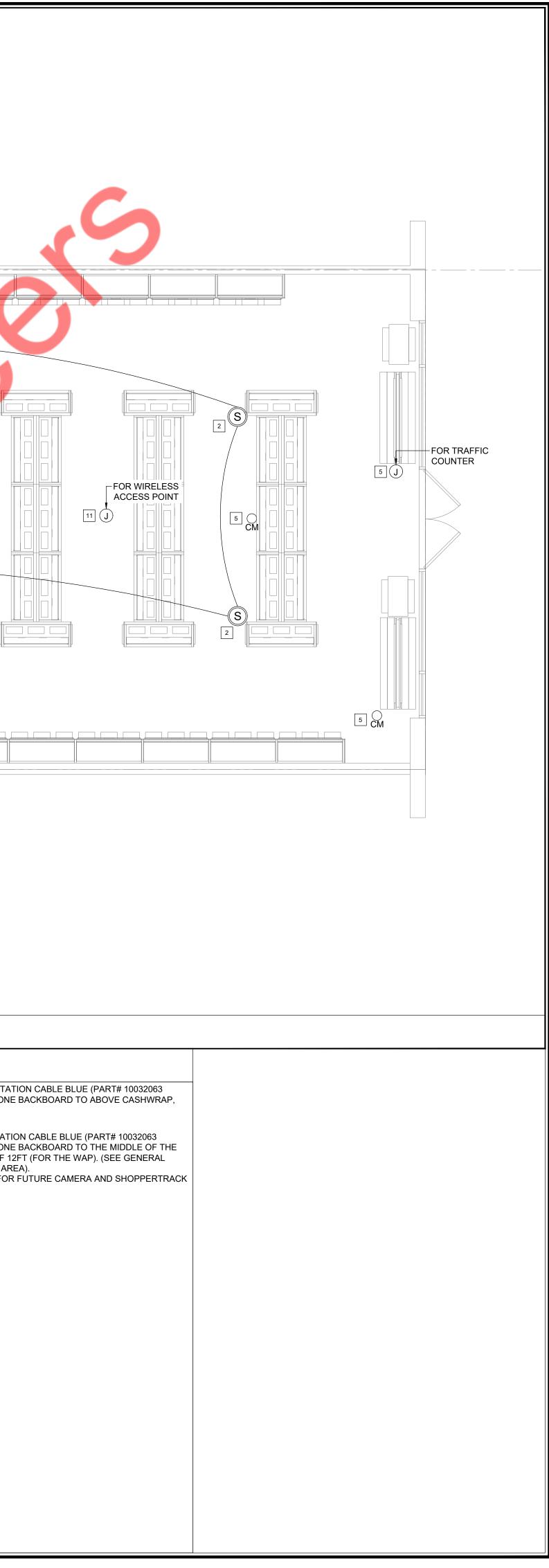
		(B)	
	YWOOD BOA E-DATA EQI	JIPMENT	
			- <u>FOR (E) RTU-</u> (E.C. TO FIEL
(E) ELECTRICAL PANELB 120/208V, 3PH, 4W, 1254			ſ
(E) TIME (E)FLR MOUNTED STEE TRANSF			
(E) ELECTRICAL PANELBOA 277/480V, 3PH, 4W, 125A	RD 'TP2'		
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N.I.	C .		48"x24"
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			48"x24"
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			\bigcirc
			<u>СМ</u>
		UNDER HEATER	
1 ELECTRICAL POWER PLAN			
GENERAL NOTES	ELE	ECTRICAL LEGEND	
1. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT.	SYMBOL	DESCRIPTION HOME RUN.	
2. FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. INSTALL AUDIO / VISUAL ALARM, P.A. SPEAKER, SMOKE CONTROL WIRING TO RTU PLUS ROOM SMOKE	\ominus	DUPLEX RECEPTACLE @ 18" A.F.F. U.N.O. MOUNTED AT CODE HEIGHT.	
DETECTOR. EMPLOY LANDLORD'S APPROVED CONTRACTOR FOR ALL CONNECTIONS TO THE MALL MASTER ALARM SYSTEM. 3. ALL DUPLEX RECEPTACLES, LIGHT SWITCHES AND COVER-PLATES SHALL		GROUND FAULT PROTECTED DUPLEX RECEPTACLE. QUAD RECEPTACLE @ 18" A.F.F. U.N.O. MOUNTED AT CODE HEIGHT.	
 ALL DUPLEX RECEPTACLES, LIGHT SWITCHES AND COVER-PLATES SHALL MATCH ADJACENT FINISHES. SEE ARCHITECTURAL FINISH SCHEDULE. CONDUIT TO BE GROUPED IN PARALLEL RUNS SUPPORTED BY UNISTRUT 		USB/ DUPLEX COMBINATION RECEPTACLE	
HANGERS W/ 90 DEGREE BRANCH RUNS TO FIXTURES. ELECTRICAL CONTRACTOR TO COORDINATE WITH HVAC CONTRACTOR FOR LOCATION AND CLEARANCES FOR EQUIPMENT.	⊖_ _{sw}	SHOW WINDOW OUTLET SINGLE OUTLET/SPECIAL RECEPTACLE	
5. PROVIDE 120V, 20A DEDICATED CIRCUIT, IF REQUIRED, FOR FIRE ALARM. COORDINATE WITH LANDLORDS REPRESENTATIVE.		FLOOR QUAD TELEPHONE RECEPTACLE AT +18"A.F.F., U.N.O.	
6. CIRCUITING MAY BE ADJUSTED IN THE FIELD AS CONDITIONS REQUIRE. PROVIDE A TYPE-WRITTEN PANEL SCHEDULE IN ALL PANELS.		FLOOR TELEPHONE RECEPTACLE.	
7. CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY. MAINTAIN EXISTING CIRCUIT OF EXISTING EQUIPMENT, DEVICES, FIXTURES, ETC. TO REMAIN.		DATA RECEPTACLE AT +18"A.F.F., U.N.O. TELEPHONE / DATA COMBINATION RECEPTACLE AT +18"A.F.F., U.	N.O.
CONTRACTOR TO ENSURE THAT ALL EXISTING		FLOOR TELEPHONE / DATA COMBINATION RECEPT.	
OUTLET/RECEPTACLE TO REMAIN/RE-USE ARE IN GOOD WORKING CONDITION. REPLACE COVER PLATES WITH NEW TO MATCH NEW OUTLETS.	(T) (PP)	THERMOSTAT POWER POLE.	
ALL MECHANICAL/HVAC EQUIPMENT TO REMAIN. UTILIZED	\$ OS	LIGHT SWITCH. WALL MOUNTED OCCUPANCY SENSOR AT +46" A.F.F.	
EXISTING CIRCUIT, VERIFY IN FIELD. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.	OS	CEILING MOUNTED OCCUPANCY SENSOR.	
ALL RECEPTACLES WITHOUT TAG (E) ARE NEW TO BE		JUNCTION BOX. DISCONNECT SWITCH.	
PROVIDED AND INSTALLED BY CONTRACTOR.			
NOTE: NOT ALL SYMBOLS MAY APPEAR ON DRAWINGS. ALL OUTLETS TO BE WHITE. (E) - EXISTING (R) - EXISTING/RELOCATED	(SD)	FLOOR DUPLEX RECEPTACLE DUCT SMOKE DETECTOR	
(C) - CEILING MOUNTED (F) - FLOOR MOUNTED	SDT	WALL MOUNTED SMOKE DETECTOR TEST STATION	





GENERAL	NOTES
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(E) PLYWOOD BOARD FOR TELE-DATA EQUIPMENT			
		TOR WIRELESS FOR WIRELESS S S TO TELEDA	10 10 10 10 10 10 10 10 10 10
1 Low VOLTAGE PLAN SERVICE SERVICES A REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF MECHANICAL EQUIPMENT. B FIRE ALARM SYSTEM BY FIRE ALARM CONTRACTOR. C CONDUIT TO BE GROUPED IN PARALLEL RUNS SUPPORTED BY UNISTRUT HANGERS W/ 90 DEGREE BRANCH RUNS TO FIXTURES. ELECTRICAL CONTRACTOR TO COORDINATE WITH HVAC CONTRACTOR FOR LOCATION AND CLEARANCES FOR COUPMENT. D PROVIDE 120V, 20A DEDICATED CIRCUIT, IF REQUIRED, FOR FIRE ALARM. COORDINATE WITH LANDLORDS REPRESENTATIVE. C. CIRCUITING MAY BE ADJUSTED IN THE FIELD AS CONDITIONS REQUIRE. PROVIDE A TYPE-WRITTEN PANEL SCHEDULE IN ALL PANELS. C. CIRCUIT NUMBERS SHOWN ARE FOR REFERENCE ONLY. MAINTAIN EXISTING CIRCUIT OF EXISTING EQUIPMENT, DEVICES, FIXTURES, ETC. TO REMAIN. I. LT/SPEAKER CABLE SPECIFICATIONS: WHEN THE SALES AREA HAS OPEN CELLING, SUBSTITUTE LANMARK 390 STATION CABLE WHITE (PART# 10032020 PLENUM RATED; JOR THE LANAMAKS 305 STATION CABLE WHITE (PART# 10032020 PLENUM RATED; JOR THE LANAMAKS 305 STATION CABLE BLUE AND BLACK. PROVIDE JUNCTION BOXES FOR NOTES 2, 5, 6 AND 11. QUANTITY AND LOCATION TO BE DETERMINED BY PROJECT MANAGERS FOR NOTES 5, 6 AND 11. H. IF A LOW VOLTAGE PERMIT IS REQUIRED TO RUN THE CABLES THEN IT IS THE ELECTRICIAN'S RESPONSIBILITY TO OBTAIN THIS PERMIT AS WELL AS RESEARCH WHETHER IT IS NEEDED PRIOR TO THE START OF THE PROJECT.	SYMBOL DESCRIPTION SECURITY CAMERA SPEAKER NOTE: NOT ALL SYMBOLS MAY APPEAR ON DRAWINGS.	 KEY NOTES NEW TELEPHONE BACKBOARD LOCATION (V.I.F.). ENSURE THERE IS CONDUIT FOR THE PHONE BINES AND 66 PHONE WIRING BLOCK. SEE ARCHITECTURAL PLAN FOR TELEPHONE BACKBOARD INFORMATION. PROVIDE J-BOX ABOVE CEILING FOR SPEAKER LINE. RUN ONE SINGLE LINE BEIDEN 6200UE 10 AWG PLENUM RATED SPEAKER LINE. RUN ONE SINGLE LINE BEIDEN 6200UE 10 AWG PLENUM RATED SPEAKER LOCATION AND CONTINUE IN A DAISY-CHAIN FASHION FOR THE REMAINING SPEAKER LOCATIONS. PROVIDE 6 LINES OF LANMARK 350 STATION CABLE BLUE (PART# 10027063 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO THE CASHWRAP LOCATION, LEAVING A SERVICE LOOP OF 12 FT FOR EACH LINE (FOR CASHWRAP DATA). (SEE GENERAL NOTES FOR OPEN CEILING IN SALES AREA). PROVIDE 2 LINES OF LANMARK 350 STATION CABLE BLACK (PART# 10067869 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO THE CASHWRAP LOCATION, LEAVING A SERVICE LOOP OF 12 FT FOR EACH LINE (FOR CASHWRAP PHONE). (SEE GENERAL NOTES). PROVIDE 3 LINES OF LANMARK 350 STATION CABLE BLACK (PART# 10032063 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO THE CASHWRAP LOCATION, LEAVING A SERVICE LOOP OF 12 FT FOR EACH LINE (FOR CASHWRAP PHONE). (SEE GENERAL NOTES). PROVIDE 3 LINES OF LANMARK 350 STATION CABLE BLUE (PART# 10032063 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO THE FRONT DOOR LOCATION, LEAVING A SERVICE LOOP OF 12 FT FOR EACH LINE (FOR SECURITY CAMERAS AND TRAFFIC COUNTER). (SEE GENERAL NOTES). PROVIDE 3 LINES OF LANMARK 350 STATION CABLE BLUE (PART# 10032063 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO SUCCINITY CAMERAS. (SEE GENERAL NOTES FOR OPEN CEILING IN SALES AREA). PROVIDE 3 LINES OF LANMARK 350 STATION CABLE BLUE (PART# 10032063 PLENUM RATED) FROM THE TELEPHONE BACKBOARD TO THE MANAGER'S DESK AUDIO/NISUAL JUNCTION BOX AT 5-0°. LEAVING 1FT OF SLACK CABLE LOCATE JUNCTION BOX AT 18° A.F.F. (FOR MANAGER'S PC AND PRINTER). (SEE GENERAL NOTES). PROVIDE 2 LINES OF LANMARK 350 STATION CABLE BLACK (PART#	10 PROVIDE 3 LINES OF LANMARK 350 STATIO PLENUM RATED) FROM THE TELEPHONE I LEAVING A SERVICE LOOP OF 12FT. (SEE GENERAL NOTES). 11 PROVIDE 2 LINE OF LANMARK 350 STATIO PLENUM RATED) FROM THE TELEPHONE I STORE, LEAVING A SERVICE LOOP OF 12FN NOTES FOR OPEN CEILING IN SALES ARE. PROVIDE ENOUGH EXTRA CABLING FOR FNEAR ENTRY DOORS. NOTES FOR OPEN CEILING IN SALES ARE.



ELECTRICAL PANEL SCHEDULE AND LOAD SUMMARY

					E	ELE	CTF	RICAI	_ PA	NEL	SCH	IEDI	JLE		1 2		
PANE		RD		A	VOLTAC	GE	120	/ 208 V	PHASE		3	3	WIRE		4		
PANE				EXISTING	MAINS		l	MCB	BUS RAT	NG	1:	25	AIC RATI	NG	FIELD VERIFY	1	
NEMA	TYPE	ENCLO	SURE	1	MOUNT	NG	SU	RFACE	OPTIONS			*	NOTE		EXISTING PANEL]	
CKT.	EQT	СКТ	DESC		POLE	WIRE	BKR.	TOTAL	PHASE	TOTAL	BKR.	WIRE	POLE	DESCE		СКТ	1
NO.	TAG	TAG	DESC			SIZE	SIZE	WATTS		WATTS	SIZE	SIZE		DESCR		TAG	
1		(E)	REST	ROOM LTS	1	12	20	100	Α		15		2	SD	ARE	(E)	T
3		(E)	RESTRO	OM OUTLET	1	12	20	180	В		13		2	56	ANE	(=)	
5		(N)	SALE	S OUTLET	1	12	20	360	С	360	20	12	1	SALES	OUTLET	(E)	
7	C1	(N)	STORE	FRONT SIGN	1	12	20	1200	Α	650	20	12	1	BOH AREA	LIGHTING	(E)	
9	C2/d	(N)		TS SALES AREA	1	12	20	728	В	540	20	12	1		TS SALES AREA	(N)	(
11	C2/c	(N)		TS SALES AREA	1	12	20	756	С	540	20	12	1		TS SALES AREA	(N)	(
13		(N)		RAP OUTLET	1	12	20	360	Α	132	20	12	1		S SALES AREA	(N)	
15		(N)		ISO GRND PLUGS	1	12	20	360	B	180	20	12	1			(N)	
17		(N)		DESK OUTLET	1	12	20	360	С	1,800	20	12	1		W RECEPTACLE	(N)	
19		(N)		RINTER	1	12	20	500	A	1,800	20	12	1		W RECEPTACLE	(N)	
21		(E)		/P RECEPTACLE	1	12	20	360	В	1,650	20	12	1		R HEATER(EWH-1)	(E)	_
23		(E)		DKE DETECTOR	1	12	20	100	С	1,200	20	12	1		GN	(E)	
25		(N)			1	12	20	180	Α		20		1		ARE	──	╞
27			-	PARE	1		20		В		20		1		ARE	<u> </u>	_
29			_	PARE	1		20		C		20		1	SP.	ARE		
ALL P		S TO B	E BALANCED TO								EXISTING		IAIN				
A=	4,922			WATTS						(N)	NEW CIR	CUIT					
B=	3,998			WATTS						GFCI	GROUND	FAULT	CURRENT	NTERRUPTER			
C=	5,476			WATTS						IG	CIRCUIT	S WITH IS	SOLATED	GROUND			
	TC CIRCUITS ON TIMECLOCK																
										EMS	ROUTING		EMS PAN	EL			
ΤΟΤΑ	L CON	NECTE	D LOAD	14,396	WATTS			40	AMPS	С	BREAKE	R LOCK					
ΤΟΤΑ			DAD	16,758	WATTS			47	AMPS	a,b,c	SWITCH	ES CONT	ROLLING I	LIGHTS			

PANEL SCHEDULE GENERAL NOTES:

1. ALL CIRCUITING SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES ON FIELD AND INFORM ENGINEER FOR DISCREPANCIES.

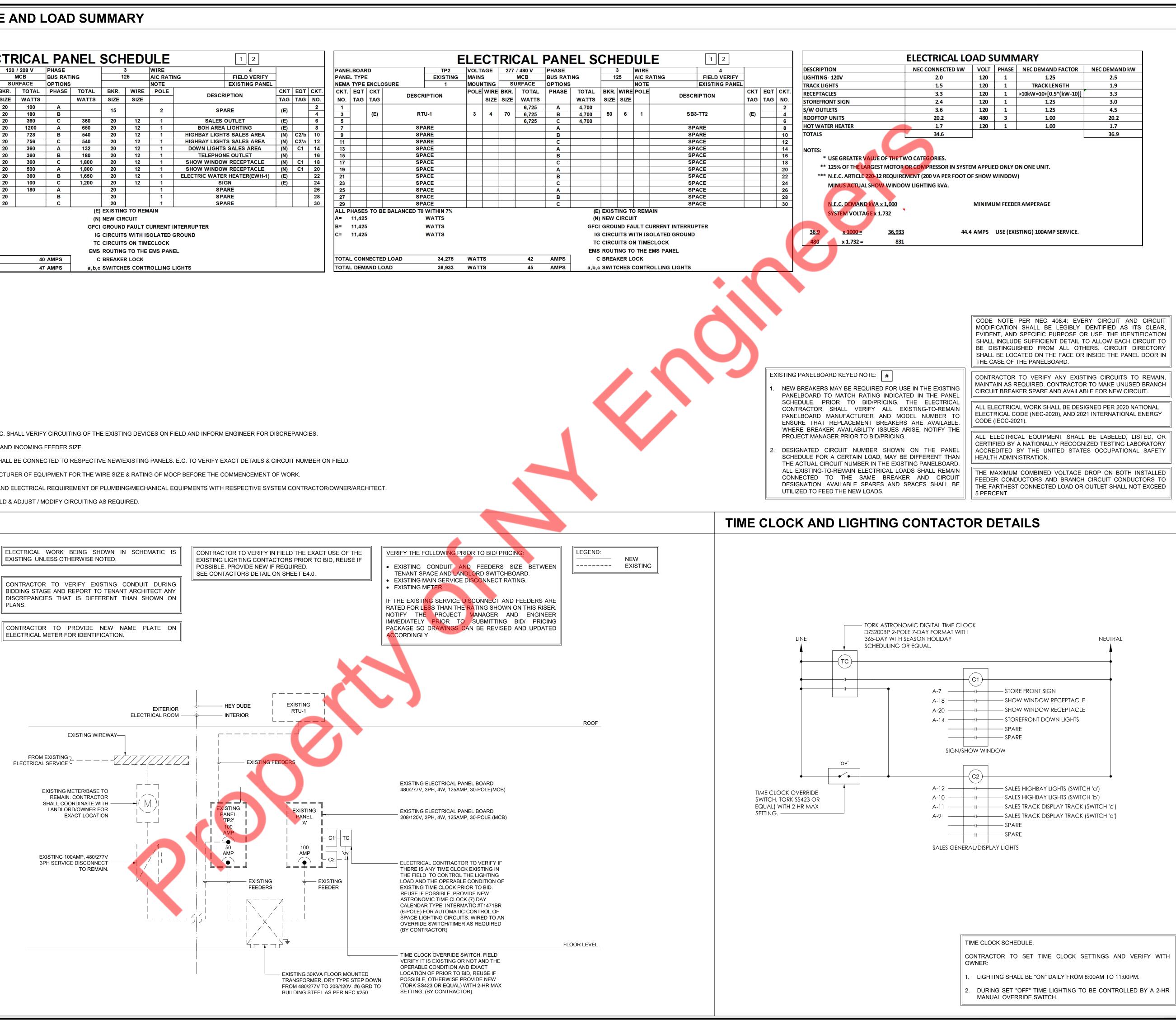
- 2. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
- 3. ALL EXISTING TO REMAIN ELECTRICAL DEVICES/EQUIPMENTS SHALL BE CONNECTED TO RESPECTIVE NEW/EXISTING PANELS. E.C. TO VERIFY EXACT DETAILS & CIRCUIT NUMBER ON FIELD.
- 4. ELECTRICAL CONTRACTOR TO COORDINATE WITH THE MANUFACTURER OF EQUIPMENT FOR THE WIRE SIZE & RATING OF MOCP BEFORE THE COMMENCEMENT OF WORK.
- 5. ELECTRICAL CONTRACTOR TO COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENT OF PLUMBING/MECHANICAL EQUIPMENTS WITH RESPECTIVE SYSTEM CONTRACTOR/OWNER/ARCHITECT.
- 6. E.C. SHALL VERIFY THE EXACT CIRCUIT, CIRCUIT NUMBER IN FIELD & ADJUST / MODIFY CIRCUITING AS REQUIRED.

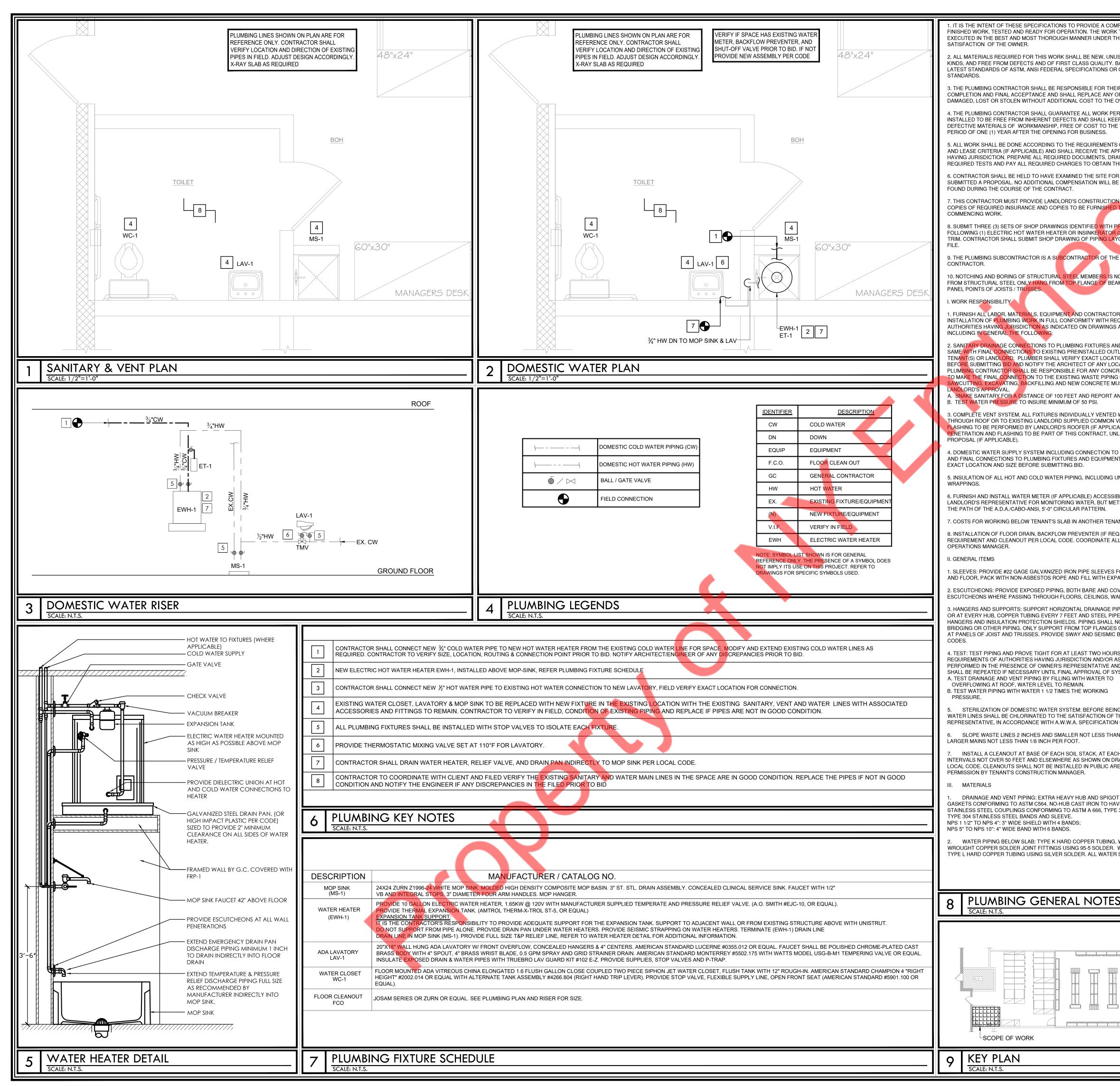
ELECTRICAL RISER DIAGRAM

RISER DIAGRAM NOTES

- A. HVAC CIRCUIT BREAKERS TO BE "HACR" TYPE WHERE REQUIRED BY EQUIPMENT NAMEPLATE PER N.E.C.
- B. BALANCE ALL PANELS AND ELECTRICAL EQUIPMENT. UNDER LOAD CONDITIONS, TO ±7% BETWEEN PHASES: A/B, B/C, C/A REGARDLESS OF CIRCUITING INDICATED. PROVIDE BALANCE SHEET TO CONSTRUCTION MANAGER AT PUNCHLIST.
- 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.
- D. 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.
- SYSTEM SHALL BE GROUNDED TO THE MAIN BUILDING'S GROUNDING SYSTEM.
- G. DISCONNECT SWITCHES AND PANELS SHALL BE INSTALLED ON PLYWOOD BACKERBOARDS.
- H. 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 ARTICLE 110.24.
- CONTRACTOR SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
- CONTRACTOR SHALL COORDINATE WITH BASE BUILDING FOR THE EXACT LOCATION OF THE EXISTING SWITCH GEAR AND EXACT POWER DISTRIBUTION .
- CONTRACTOR SHALL VERIFY OPERABLE CONDITION INFIELD OF ALL EXISTING TO REMAIN ELECTRICAL DEVICES/EQUIPMENTS AND REPLACE WITH NEW IF FOUND INOPERABLE.

ELECTRICAL METER FOR IDENTIFICATION.





MPLETE INSTALLATION FOR RK THROUGHOUT SHALL BE THE DIRECTION OF AND TO THE	TO NSF/ANSI 61 AND ASTM B 75, ASTM B 88, ASTM B 251, OR ASTM B 447. ALL PIPE FITTINGS SHALL CONFORM TO ASSE 1061, ASME B 16.15, ASME B 16.18, ASME B 16.22, ASME B 16.23, ASME B 16.26, AND ASME B 16.29.
IUSED, BEST OF ITS RESPECTIVE . BASIS OF QUALITY SHALL BE	3. VALVES: GATE VALVE WATTS SERIES B-3000, CHECK VALVE WATTS SERIES B-5000, BALL VALVE WATTS SERIES B6080 OR B6081 FULL PORT. ALL VALVES 1/2" TO 2" BRONZE BODY. VALVES SHALL CONFORM TO NSF/ANSI 61.
R OTHER ACCEPTABLE	4. PRESSURE AND TEMPERATURE RELIEF VALVE: WATTS REGULATING CO. MODEL 10L. T&P RELIEF VALVE SHALL CONFORM TO ANSI Z21.22.
IEIR WORK UNTIL ITS YOF THE SAME WHICH MAY BE E OWNER.	5. AIR VENT: HOFFMAN #79 WATER MAIN VENT VALVE.
ERFORMED AND MATERIALS EEP IN REPAIR AND REPLACE ANY HE TENANT (OWNER) FOR A	 6. MIXING VALVE: WATTS SERIES MMV MIXING VALVE, 1/2" LINE SIZE. MIXING VALVE SHALL CONFORM TO ASSE 1017. IV. INSULATION
IS OF ALL APPLICABLE CODES APPROVAL OF ALL AUTHORITIES RAWINGS AND PERFORM ALL	1. ALL HOT AND COLD WATER PIPING AND FITTINGS SHALL BE INSULATED WITH 1" THICK RIGID FIBERGLASS WITH VAPOR BARRIER UNIVERSAL JACKET PASTED WITH VAPOR BARRIER CEMENT. VAPOR BARRIER NOT REQUIRED ON HOT WATER PIPING.
THESE APPROVALS. OR THE WORK BEFORE HAVING BE ALLOWED FOR CONDITIONS	 ALL ADA CONFORMING, WHEELCHAIR ACCESSIBLE LAVATORY P-TRAP AND ANGLE VALVE ASSEMBLIES TO BE COVERED WITH THE MOLDED, ANTIMICROBIAL TRUBRO, INC "LAV-GUARD" UNDERSINK PROTECTIVE PIPE COVER MODEL #103. SPECIFIC PLUMBING SPECIFICATIONS
ON REPRESENTATIVE WITH D TO THE OWNER BEFORE	1. INSTALL NEW ONLY IF EXISTING DOES NOT MEET CURRENT ADA/CABO-ANSI (AS APPLICABLE) STANDARDS, OR IS DAMAGED, NOT IN WORKING ORDER OR NOT EXISTING AS APPLICABLE.
PROJECT NAME OF THE R (2) PLUMBING FIXTURES AND AYOUT TO THE OWNER FOR THEIR	2. IT IS THIS CONTRACTOR'S RESPONSIBILITY TO SUPPLY HANDICAPPED TOILET FIXTURES, IF REQUIRED BY CODE OR NOTED ON THE DRAWINGS, UTILIZING THE SPECIFICATION ABOVE AS A STANDARD AND MEETING CODE REQUIREMENTS. SPACING OF FIXTURES TO BE COORDINATED WITH THE GENERAL CONTRACTOR AS WELL AS THE PLUMBING INSPECTOR'S REQUIREMENTS.
HE TENANT'S GENERAL	VI. LANDLORD'S CRITERIA1. THE PLUMBING CONTRACTOR IS TO BECOME FAMILIARIZED WITH LANDLORD'S CRITERIA FOR
NOT PERMITTED. WHEN HANGING EAMS AND TOP CHORDS ONLY AT	THIS LOCATION AND INCLUDE ANY WORK REQUIRED OF THIS CRITERIA, WHICH IS NOT SPECIFICALLY NOTED IN THESE DRAWINGS AND SPECIFICATIONS.
ORS FOR A COMPLETE, SAFE REQUIREMENTS OF ALL	FIELD VERIFY ALL CONDITIONS DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.
IS AND/OR HEREIN SPECIFIED, AND EQUIPMENT REQUIRING JTLETS PROVIDED BY PRIOR ATION OF WASTE PIPE OUTLET	THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT
DCATION DISCREPANCIES. CRETE SAWCUTTING REQUIRED NG OR CAPPED OUTLET(S). MUST MEET WITH THE ANY BLOCKAGE.	CONTRACTORS COST. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY
D WITH FINAL CONNECTION VENT. ROOF PENETRATION AND	APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.
CABLE). COST OF ROOF NLESS NOTED OTHERWISE IN BID	ANY CHANGES AND OR UPGRADES TO TENANT'S EXISTING PLUMBING SYSTEMS SHALL COMPLY WITH ALL CODES AND MALL CRITERIA.
TO EXISTING CAPPED OUTLET ENT REQUIRING SAME. VERIFY	ALL MAIN WATER LINES SHALL BE COPPER - PVC IS NOT PERMITTED THERE SHALL BE NO PIPING JOINTS OR FITTINGS INSTALLED IN WATER PIPING BELOW THE FLOOR SLAB. PEX IS AN ALTERATIVE, IF ALLOWABLE AND COMPLIANT WITH LOCAL CODE.
UNDER LAVATORY A.D.A. PIPE	ALL DRAIN, WASTE AND VENT PIPING AND FITTINGS ABOVE GRADE MUST BE CAST IRON PIPE. (PVC IS ACCEPTANCE IN OUR NEW CONSTRUCTION AS LONG AS IT IS NOT INSTALLED IN A RETURN AIR PLENUM.)
SIBLE TO UTILITY COMPANY OR ETER SHOULD IN NO WAY BE IN	PLUMBING IS NOT PERMITTED IN ANY DEMISING PARTITIONS. FUR OUT THE WALL AS NECESSARY.
NANT'S SPACE.	EXHAUST AND PLUMBING VENTS SHALL BE LOCATED A MINIMUM OF 10-0" AWAY FROM ANY OUTSIDE AR INTAKE, AND 5-0" FROM ANY DEMISING WALL VERTICAL PLANE. ALL VENTS SHALL
EQ. BY CODE) PER LANDLORD ALL LOCATIONS WITH	BE LOCATED OUTSIDE OF ANY SNOW DRIFT ZONES AS SPECIFIED ON THE CENTER'S DOCUMENTATION. ALL PENETRATIONS TO ROOF MUST BE APPROVED BY LANDLORD. ALL RELATED ROOF WORK
S FOR PIPING THROUGH WALLS	MUST BE DONE BY MALL'S DESIGNATED ROOFING CONTRACTOR. AT TENANT'S EXPENSE. COORDINATE AL WORK WITH PROPERTY MANAGEMENT ON SITE.
(PANDO NON-SHRINKING CEMENT.	ANY UNUSED PLUMBING EQUIPMENT, PIPING, ETC., WITHIN OR SERVING THE PREMISES MUST BE COMPLETELY REMOVED TO POINT OF ORIGIN. DO NOT ABANDON IN PLACE. ALL PENETRATIONS THROUGH THE ROOF SHALL BE PATCHED AND REPAIRED BY THE APPROVED
VALLS OR PARTITIONS. PIPING AT LEAST EVERY 5 FEET IPE EVERY 10 FEET WITH "CLEVIS"	ROOFING CONTRACTOR APPROVED BY PROPERTY MANAGEMENT. IF NOT ALREADY EXISTING, INSTALL A SHUT OFF VALVE ON DOMESTIC WATER LINE INSIDE SPACE. EXISTING SHUT OFF VALVE TO THE SPACE SHALL SERVE AS THE POINT OF SERVICE TO
NOT BE SUPPORTED FROM S OF BEAMS AND TOP CHORDS C BRACING WHERE REQUIRED BY	THE TENANT SPACE. ALL NEW PLUMBING (DOMESTIC WATER AND DRAIN WASTE VENT DWV PIPING) SHALL BE
IRS IN ACCORDANCE WITH AS SPECIFIED. TEST SHALL BE	INSULATED WHERE EXPOSED OR IN PLENUM SPACES. TENANT IS REQUIRED TO INSTALL A WATERPROOF MEMBRANE IN ALL WET AREAS OF THE
AS SPECIFIED. TEST SHALL BE AND LOCAL INSPECTOR. TEST SYSTEM IS OBTAINED.	SPACE. TENANT SHALL USE A 30 MIL POLYETHYLENE CLEAVAGE MEMBRANE (EQUAL TO NOBLESEAL TS) INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND ANSI A106. MEMBRANE MUST BE EXTENDED UP THE WALL A MINIMUM OF 6" OR EQUAL TO THE HEIGHT OF THE FLOOR BASE. TENANT'S GENERAL CONTRACTOR SHALL ADVISE THE PROPERTY MANAGEMENT TEAM PRIOR
ING PLACED IN SERVICE, ALL THE ARCHITECT OR LANDLORD'S ON C651-05.	TO ANY SLAB MODIFICATIONS OR REMOVAL. TEAM PROPERTY MANAGEMENT TEAM PRIOR TO ANY SLAB MODIFICATIONS OR REMOVAL. TENANT GC SHALL VERIFY THAT WORK SHALL NOT CONFLICT WITH ANY EXISTING STRUCTURAL. UTILITY, OF OTHER UNDER-SLAB CONDITION.(NON-DESTRUCTIVE VERIFICATION MAYBE REQUIRED.) ANY DAMAGE OR DOWNTIME CAUSED BY TENANTS WORK SHALL BE REPAIRED AND REIMBURSED AT TENANTS EXPENSE.
IAN 1/4 INCH PER FOOT. SLOPE	VAPOR BARRIER AND DOWELS MUST BE REVIEWED AND APPROVED BY THE PROPERTY'S OPERATION DIRECTOR PRIOR TO TRENCH CONCRETE BACKFILL WHERE THE SLAB IS SAW-CUT AND REMOVED FOR TRENCHING, LANDLORD REQUIRES TENANTS CONTRACTOR TO INSTALL
ACH CHANGE IN DIRECTION, AT DRAWINGS OR REQUIRED BY	APPROPRIATE MOISTURE BARRIER (STEGO 15 MIL THICK). CONFIRM WORK WITH CENTER OPERATIONS DIRECTOR BEFORE YOU BACKFILL.
REAS WITHOUT SPECIFIC	<u>GENERAL NOTE:</u> POUR BACK MUST BE DOWELED INTO EXISTING SLAB. VAPOR BARRIER MUST BE REPAIRED BEFORE POUR BACK
OT CAST IRON SOIL WITH RUBBER AVE HEAVY DUTY, TYPE 304 PE 304 STAINLESS STEEL SHIELD,	SOME TENANT SUITES HAVE FURRED OUT COLUMNS WITH ACCESS PANELS TO AN EXISTING CLEAN OUT OR EXPOSED ROOF DRAIN. TENANT WILL BE REQUIRED TO ALWAYS KEEP THIS ACCESS PANEL AREA CLEAR OF OBSTRUCTIONS. REFER TO PLUMBING DRAWINGS FOR PIPE LOCATIONS. EXISTING CONDUITS, EXPOSED LOW VOLTAGE WIRING, WATER PIPES, DRAIN LINES,
G, WITH CAST BRONZE OR	ETC. MAY BE INSTALLED EITHER ABOVE THE EXISTING CEILING. INSIDE THE ORIGINAL CONCRETE SLAB OR JUST BELOW THE SLAB LANDLORD'S AS BUILT DRAWINGS MAY NOT ACCURATELY REFLECT THESE INSTALLATIONS. IT IS THE TENANT AND ITS CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF ANY PIPE OR CONDUIT UNDER THE SLAB BY
. WATER PIPING ABOVE SLAB: R SUPPLY PIPING TO CONFORM	WHATEVER MEANS THE CONTRACTOR DEEMS APPROPRIATE PRIOR TO CUTTING THE SLAB. LIKEWISE, IDENTIFY ALL WIRING, CONDUITS, PIPING OR OTHER ITEMS IN THE ABOVE CEILING SPACE PRIOR TO REMOVING IT. ANY REPAIRS OR DAMAGES RESULTING FROM THE TENANT CONTRACTORS WORK WILL BE THAT CONTRACTORS RESPONSIBILITY TO REPAIR TO THE LANDLORDS SATISFACTION.
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