



DIVISION OF FINANCE – PURCHASING DEPARTMENT

100 N. Broadway St, Suite 610 Wichita, KS 67202 • Phone (316) 660-7255 • Fax (316) 660-1839

PURCHASING@SEDGWICK.GOV • SEDGWICKCOUNTY.ORG

**ADDENDUM # 1
RFB #26-0035
CONSTRUCT NEW EMS POST #1**

August 20, 2026

The following is to ensure that vendors have complete information prior to submitting a *Request for Bid*. Attached are clarifications regarding the Construct New EMS Post #1:

Bid Submission date has changed: Bids are now due September 15, 2026 1:45 p.m. Bids will be opened and read that same day at 3:00 p.m.

Recommendation for award to the Board of Bids and Contracts has been changed to September 17, 2026.

Recommendation for award to the Board of County Commissioners has been changed to September 23, 2026.

Additions, corrections, and substitutions are detailed in the attached.

Firms interested in submitting a *Request for Bid* must respond with complete information and **deliver on or before 1:45 pm CDT, September 15, 2026**. Late responses will not be accepted and will not receive consideration for final award.

“PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE RFB RESPONSE PAGE.”

A handwritten signature in cursive script that reads "Lee Barrier".

Lee Barrier, NIGP-CPP
Senior Purchasing Agent

LB/ch

Addendum Number One

To The Drawings and Specifications for

EMS Post #1

RFB Bid Number: 26-0035, Sedgwick County, Kansas

Issued: August 19, 2026

HANNEY & ASSOCIATES ARCHITECTS

1726 South Hillside, Wichita, Kansas

NOTICE TO BIDDERS

You are hereby instructed to include in your bids the following changes and/or corrections to the Drawings and Specifications for the **Construction of the New EMS Post #1 – 3099 W. 13th Street North, Wichita, Kansas 67203.**

The additions and/or corrections shall be considered as a part of the Contract Documents as if incorporated therein. Where the following corrections and/or additions vary from the conditions of the Drawings and Specifications, such following changes or additions shall govern.

I. GENERAL CLARIFICATIONS:

- 1.1 The Bid Date and Time shall be changed to be Tuesday, September 15, 2026 with bids being received no later than 1:45 p.m.
- 1.2 Bid Responses will be opened at 3:00 p.m. on Tuesday, September 15, 2026. This meeting will be held in the Ruffin Building, 100 N. Broadway, 6th Floor Conference Room, Wichita, Kansas 67202.
- 1.3 Recommendation for Contract Award will be made to the Board of Bids and Contracts at its regular meeting at 10:00 a.m. on Thursday, September 17, 2026. This meeting is generally held in the Ruffin Building, 100 N. Broadway, 6th Floor Conference Room, Wichita, Kansas 67202.
- 1.4 Recommendation for Contract Award will be made to the Board County Commissioners at its regular meeting at 9:00 a.m. on Wednesday, September 23, 2026, although this date could change. This meeting is generally held in the Ruffin Building, 100 N. Broadway, Lower Level, Wichita, Kansas 67202.
- 1.5 **Approved Equals**
Company's approved equals to the original specified suppliers are required to meet all requirements of the plans, specifications, standards of performance and construction as established by the first named originally specified manufacturer's product.
- 1.6 **Shared Drive**
The existing driveway to this property has a share access with the daycare facility next door. The GC shall coordinate the with the neighbor when the drive will be closed due to construction.

- 1.7 Conditional Permit
The plans have been submitted and conditionally approved by MABCD. The full approval will not be granted until the shop drawings for the Pre-Engineered Metal Building have been submitted to and approved by MABCD.
- a. Sedgwick County has paid for the plan review fee.
 - b. The General Contractor shall be responsible for paying for the conditional permit and the full permit, when the full permit is available.
- 1.8 Emergency Radio Survey
MABCD did not note this building for an Emergency Radio Survey.
- 1.9 Pre-Bid Meeting
There was a Pre-Bid meeting held on site Friday, August 7 at 10:00 am. Attendance was not a mandatory. A list of the companies attending accompanies this email.
- 1.10 Utility Charges – Taps and New Service
The tap charge and connection costs for new services shall be included in the General Contractors base bid. This shall include gas, water, and electrical.
- 1.11 GeoTech Report
The Geotech Report was prepared by UES and is included in the specification book. Please let us know if this report is not included in your combined specification PDF.
- 1.12 Vehicle Exhaust System
The EMS Post buildings do not have a vehicle exhaust system.
- 1.13 Exterior Glazing
The EMS Post buildings do not have any special glazing requirement regarding forced entry.
- 1.14 Oshkosh Door is an approved wood door supplier.
- 1.15 Site Plan – Curb and Gutters
Concrete curb and gutters go completely around the site paving and the building island.

II. CHANGES TO SPECIFICATIONS:

- 2.1 Instruction to Bidders
Page 1, item F, Sedgwick County will be enforcing the specification requirement that the Prime Bidders shall be located within Sedgwick County, Kansas.
- 2.2 Specification Index
The Index has been corrected and is being re-issued with this addendum.
- 2.3 Section 014000 – Quality Requirements
Paragraph 10-Special Tests and Inspections
Item 10.1, Change the responsibility for the Special Tests and Inspections from the Owner to the General Contractor. The General Contractor shall be responsible for hiring and paying for the tests and special inspections required in the construction documents.
- 2.4 Section 051200 – Structural Steel Framing
This section listed correctly in the index but on the specification sheets incorrectly shows the section number as 015200. The section number on the specification sheets shall be corrected to be 051200.
- 2.5 Section 113100 – Appliances
Paragraph 8 – Range Hood,
 - a. Delete items 8.3 and 8.4.
Item 8.4 is being deleted since it is a repeat of item 8.2.
 - b. The range hood shall be non-ducted, residential, with a stainless steel finish., 36-inches wide, equal to the Broan 4136SF. The hood is provided and installed by the General Contractor.
- 2.6 Section 115000 – Range Top Fire Extinguishing System
We received a Hood Variance from by MABCD Sedgwick County, Kansas. The fire extinguishing system is not required and this section shall be deleted from the specifications. The General Contractor shall provide a 2A 10BC Dry Chemical portable fire extinguisher mounted within 30-feet of all cooking equipment. The GC and Architect will determine the location during construction.

III. CHANGES TO DRAWINGS:

- 3.1 The following new drawings are being issued with this addendum.
 - a. M4.0 Mechanical Specifications
 - b. M4.1 Mechanical Specifications
 - c. P5.0 Plumbing Specifications
 - d. E4.0 Electrical Specifications
 - e. E4.1 Electrical Specifications
- 3.2 Sheet A3.1
 - a. Door and window frames “A”, “B”, and “C” shall be changed from hollow metal to aluminum storefront, bronze anodized finish, thermally broken, 2” tall x 4-1/2” deep, center glazed, equal to Manko 2450 series.
 - b. Frame “B” shall be the windows. The frame “B” with the adjacent door (opening to the patio) shall become frame “D”. Frame “D” shall be a combination of the “B” window and door frame.
 - c. All exterior windows shall be installed with pre-finished, break metal, sub-sill flashing that has end dams.
 - d. Door Schedule
- 3.3 Sheet E2.0
 - a. Note 1 is associated with door openings 101a, 104a 111b and 112f. The actual locations of the rough-in shall be reviewed and approved by the Sedgwick County Project Manager and Architect prior to installation.

END OF ADDENDUM



EMS POST # 1
INDEX TO SPECIFICATIONS

DIVISION 0 – SEDGWICK COUNTY DOCUMENTS

Invitation to Bid	4 pages
Instructions to Bidders	5 pages
Bid Form	3 pages
Bid Terms and Conditions Revised.....	4 pages
Performance Labor and Material Bonds	1 page
Kansas Statutory Payment Bond.....	1 page
Performance Bond.....	1 page
Certified Coy of Resolution.....	1 page
Exhibit “A”	1 page
Appendices “A” and “B”.....	4 pages
Subcontracting Worksheet	1 page
Privilege Log.....	1 page
AIA A104-2017 Contract Sample.....	28 pages

DIVISION 1 – GENERAL REQUIREMENTS

Section 010000	Conditions of the Contract.....	10 pages
Section 011000	Summary of Work	3 pages
	Form: Contractor’s Statement of Responsibility for ICC 500	2 pages
	Storm Shelter Construction	
Section 012500	Substitution Procedures	4 pages
Section 012900	Payment, Proposed Change Order, and Completion Procedures.....	7 pages
Section 013200	Construction Progress Documentation	3 pages
Section 013300	Submittal Procedures.....	7 pages
Section 014000	Quality Requirements	6 pages
Section 017300	Execution.....	9 pages
Section 017839	Project Record Documents	4 pages
GeoTech Report		38 pages

DIVISION 3 – CONCRETE

Section 033000	Cast-in-Place Concrete	8 pages
----------------	------------------------------	---------

DIVISION 4 – MASONRY

Section 042200	Concrete Masonry Unit	13 pages
Section 042550	Brick Masonry	14 pages

DIVISION 5 – METALS

Section 051200	Structural Steel Framing.....	5 pages
Section 054100	Cold Formed Metal Framing	2 pages
Section 055200	Pipe and Tube Railings.....	4 pages

HANNEY & ASSOCIATES ARCHITECTS

▪ 1726 S. HILLSIDE ▪ WICHITA, KANSAS 67211 ▪ (316) 683-8965 ▪



DIVISION 6 – WOOD, PLASTICS & COMPOSITES

Section 061600	Sheathing	1	page
Section 064023	Interior Architectural Woodwork	6	pages

DIVISION 7 – THERMAL & MOISTURE PROTECTION

Section 072100	Thermal Insulation.....	4	pages
Section 072500	Weather Barriers.....	3	pages
Section 074180	Steel Wall Panels.....	5	pages
Section 076200	Sheet Metal Flashing and Trim.....	7	pages
Section 079200	Joint Sealants	6	pages
Section 072500	Expansion Control	4	pages

DIVISION 8 – OPENINGS (DOORS & WINDOWS)

Section 081113	Hollow Metal Doors and Frames.....	11	pages
Section 081416	Flush Wood Doors.....	2	pages
Section 083640	Overhead Doors.....	5	pages
Section 087100	Door Hardware	16	pages
Section 088000	Glazing	3	pages

DIVISION 9 – FINISHES

Section 092900	Gypsum Board.....	7	pages
Section 093000	Tile.....	3	pages
Section 095123	Acoustical Lay-in Ceilings	4	pages
Section 096816	Resilient Materials.....	4	pages
Section 099000	Painting.....	9	pages

DIVISION 10 – SPECIALITIES

Section 103500	Flag Poles	3	pages
Section 104416	Fire Extinguishers and Cabinets	2	pages
Section 105000	Lockers	4	pages
Section 108000	Toilet and Bath Accessories	3	pages

DIVISION 11 – EQUIPMENT

Section 113100	Appliances	2	pages
----------------	------------------	---	-------

DIVISION 12 – FURNISHINGS

Section 125100	Window Coverings	3	pages
----------------	------------------------	---	-------

DIVISION 13 – SPECIAL CONSTRUCTION

Section 131210	Pre-Engineered Buildings.....	8	pages
----------------	-------------------------------	---	-------

DIVISION 15 – HEATING, VENTILATING, AND AIR CONDITIONING (On Drawings)

DIVISION 16 – ELECTRICAL (On Drawings)

HANNEY & ASSOCIATES ARCHITECTS

▪ 1726 S. HILLSIDE ▪ WICHITA, KANSAS 67211 ▪ (316) 683-8965 ▪



DIVISION 31 – EARTHWORK

Section 311000	Site Clearing.....	4	pages
Section 312000	Earth Moving	9	pages
Section 313116	Termite Control.....	3	pages

DIVISION 31 – EXTERIOR IMPROVEMENTS

Section 321313	Concrete Paving	12	pages
Section 321373	Concrete Paving Joint Sealants	3	pages

END OF INDEX

HANNEY & ASSOCIATES ARCHITECTS

▪ 1726 S. HILLSIDE ▪ WICHITA, KANSAS 67211 ▪ (316) 683-8965 ▪

**PRE-BID/PROPOSAL MEETING
RFB #26-0035**

PROJECT: Construct New EMS Post 1 , 3099 W. 13th Street North

DATE: 8/7/2026

TIME: 10:00am

<i>CONTACT PERSON</i>	<i>COMPANY NAME</i>	<i>E-MAIL ADDRESS</i>	<i>PHONE NUMBER</i>	<i>FAX NUMBER</i>
David Stevens	TGC GROUP	dstevens@tgcgroup.net	303-520-3136	
Chris Hopping	TGC GROUP	Not Listed	Not Listed	
Greg Harman	HARMAN HUFFMAN	estimating@harmanhuffman.com	744-2081	
Randy Young	MULTICON	ry@multicon.build	316-440-0830	
BRIAN ROONY	MULTICON	NOT LISTED	Not Listed	
Libby Anderson	ICON STRUCTURES	libby.anderson@icon-structures.com	620-480-1735	
Collin Rabe	DONDLINGER	crabe@dondlinger.build	316-945-0055	
Brendan Cox	KEY CONSTRUCTION	becox@keyconstruction.com	316-475-3650	
Chance Liebau	KEY CONSTRUCTION	cliebau@keyconstruction.com	316-393-4449	
Adam Galloway	AFP	agalloway@associatedfire.net	Not listed	
Robert Foster	Marick Mechanical	rfoster@marickmechanical.com	316-866-0818	
Quentin Araiza	The Waldinger Corp	quentin@araiza@waldinger.com	316-871-0183	
Derek Dahm	THE LAW COMPANY	estimating@law-co.com	316-268-0200	
Chris Schmeidler	SBA CONSTRUCTION	chrisschmeidler@gmail.com		
William Gibbs	AFP	wgibbs@associatedfire.net	702-679-7281	
Eli Haskett	TITAN MECHANICAL	elih@titan-group.com	316-516-0054	
Daniel Chamberland	NOEL MASONRY	dc@noelmasonryandconcrete.com	316-573-9962	

MECHANICAL SPECIFICATIONS

BASIC MECHANICAL REQUIREMENTS

DRAWINGS AND SPECIFICATIONS

THE CONTRACT DRAWINGS FOR DIVISION 15 WORK ARE IN PART SCHEMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL LAYOUT, DESIGN AND ARRANGEMENT. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN THE LAYOUT OF HIS WORK AND SHALL CONSULT GENERAL INTENT CONSTRUCTION DRAWINGS, STRUCTURAL DRAWINGS, ELECTRICAL DRAWINGS AND ALL OTHER DRAWINGS FOR THIS PROJECT TO DETERMINE ALL CONDITIONS AFFECTING THE DIVISION 15 WORK.

WHERE SPECIFIC DETAILS AND DIMENSIONS FOR DIVISION 15 WORK ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL TAKE MEASUREMENTS AND MAKE LAYOUTS AS REQUIRED FOR THE PROPER INSTALLATION OF THE WORK AND COORDINATION WITH ALL OTHER WORK ON THE PROJECT. IN CASE OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE SPECIFICATIONS THAT HAVE NOT BEEN CLARIFIED BY ADDENDUM PRIOR TO BIDDING, IT SHALL BE ASSUMED BY THE SIGNING OF THE CONTRACT THAT THE HIGHER COST IS INCLUDED IN THE CONTRACT PRICE.

WORK INCLUDED

THIS WORK SHALL INCLUDE ALL PLANT, LABOR, MATERIAL AND EQUIPMENT AS REQUIRED TO FURNISH AND INSTALL DIVISION 15 WORK INCLUDING DEMOLITION AS SHOWN ON THE DRAWINGS AND AS HEREINAFTER SPECIFIED. FURNISH AND INSTALL ALL MATERIALS, EQUIPMENT, DEVICES AND ACCESSORIES NOT SPECIFICALLY CALLED FOR BY ITEM BUT THAT ARE NECESSARY TO PROVIDE THE REQUIREMENTS IN OPERATION AND FUNCTION THAT IS ESTABLISHED BY THE DESIGN AND BY THE EQUIPMENT SPECIFIED.

WORK TO INCLUDE THE PROCUREMENT OF AND PAYMENT OF ALL PERMITS AND LICENSES REQUIRED FOR THE PERFORMANCE OF THE WORK. WORK TO INCLUDE ALL FEES AND DIRECT EXPENSES INVOLVED IN ANY INSPECTIONS REQUIRED FOR THE PROJECT. ALL SCAFFOLDS, STAGING, RUNWAYS AND EQUIPMENT REQUIRED FOR THE PERFORMANCE OF THE WORK. THE REMOVAL FROM THE PREMISES, AS IT ACCUMULATES, OF ALL DIRT AND REFUSE RESULTING IN THE PERFORMANCE OF THE WORK.

PROTECTION AND DUST CONTROL

THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION TO PREVENT DAMAGE TO ADJACENT AREAS, EQUIPMENT, OR FURNISHINGS; TO PREVENT ACCIDENTAL INJURY TO THE BUILDING OCCUPANTS AND THE PUBLIC; TO PREVENT THE SPREADING OF DUST, DIRT, DEBRIS, AND MOISTURE FROM GETTING ON OR IN THE BUILDING OCCUPANTS FURNISHINGS OR EQUIPMENT.

CONTRACTOR SHALL STORE AND PROTECT FROM DAMAGE ALL EQUIPMENT AND MATERIALS AFTER DELIVERY TO THE JOB SITE. COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE. EQUIPMENT AND MATERIAL WHICH HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITIES WILL BE REJECTED, AND CONTRACTOR IS OBLIGATED TO FURNISH NEW EQUIPMENT AND MATERIAL OF A LIKE KIND. KEEP PREMISES BROOM CLEAN AT ALL TIMES FROM FOREIGN MATERIAL CREATED UNDER THIS CONTRACT. ALL PIPING, EQUIPMENT, ETC. SHALL HAVE A NEAT AND CLEAN APPEARANCE AT THE TERMINATION OF THE WORK.

EXISTING CONDITIONS

EACH BIDDER SHALL INSPECT THE SITE AS REQUIRED FOR KNOWLEDGE OF EXISTING CONDITIONS AND FAILURE TO OBTAIN SUCH KNOWLEDGE SHALL NOT RELIEVE THE SUCCESSFUL BIDDER OF THE RESPONSIBILITY TO MEET THE EXISTING CONDITIONS IN PERFORMING THE WORK UNDER THE CONTRACT.

WHERE EXISTING DUCTWORK OR PIPING IS BROKEN BY REMOVAL OF EXISTING DEVICES, EQUIPMENT OR FIXTURES, OR BY DEMOLITION WORK, CUTTING OR REMOVAL OF EXISTING BUILDING CONSTRUCTION, AND WHERE THE EXISTING PIPING OR DUCTWORK IS REQUIRED BY REMAINING DEVICES OR EQUIPMENT TO STAY IN SERVICE, THEN THE PIPING AND DUCTWORK SHALL BE COMPLETED AS REQUIRED BY JOB CONDITIONS.

MATERIAL AND MANUFACTURE

ALL MATERIAL AND EQUIPMENT SHALL BE NEW EXCEPT AS STATED OTHERWISE; SHALL BE OF THE BEST QUALITY AND DESIGN; SHALL BE FREE FROM DEFECTS AND IMPERFECTIONS AND SHALL HAVE MARKINGS OR A NAMEPLATE IDENTIFYING THE MANUFACTURER AND PROVIDING SUFFICIENT REFERENCE TO ESTABLISH QUALITY, SIZE AND CAPACITY.

SUBSTITUTIONS

ALL PRODUCTS PROPOSED FOR USE, INCLUDING THOSE SPECIFIED BY REQUIRED ATTRIBUTES AND PERFORMANCE, SHALL REQUIRE APPROVAL BY THE ENGINEER BEFORE BEING INCORPORATED INTO THE WORK. THE CONTRACTOR SHALL, IF HE DESIRES TO SUBSTITUTE OTHER THAN SPECIFIED MATERIAL, SUBMIT IN ALTERNATE PROPOSAL FORM, WITH HIS BID, A LIST OF SUCH ITEMS INDICATING ITEM, MANUFACTURER, MODEL NUMBER, AND THAT AMOUNT ADDED OR DEDUCTED FROM THE BASE BID IF THE OWNER ELECTS TO ALLOW SUBSTITUTION. EACH SUCH MATERIAL SUBSTITUTION ITEM SHALL BE SEPARATELY LISTED IN ORDER THAT PROPER CONSIDERATION MAY BE GIVEN.

WHERE THE PHRASE "OR EQUAL" OR "APPROVED EQUAL" OCCURS IN THE CONTRACT DOCUMENTS, DO NOT ASSUME THAT MATERIALS, EQUIPMENT OR METHODS WILL BE APPROVED AS EQUAL UNLESS THE ITEM HAS BEEN SPECIFICALLY APPROVED FOR THIS WORK BY THE ENGINEER/ARCHITECT.

SAFETY REGULATIONS

ALL DIVISION 15 WORK SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE AND GOVERNING SAFETY REGULATIONS OF THE OCCUPATIONAL AND SAFETY HEALTH ACT.

CODES, ORDINANCES, REGULATIONS AND U.L. APPROVAL

ALL DIVISION 15 WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS INCLUDING THE CURRENT RULES AND REGULATIONS OF THE NATIONAL ELECTRICAL CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION, UNIFORM MECHANICAL CODE, OSHA AND ALL STATE AND LOCAL LAWS, CODES AND ORDINANCES.

FIXTURES, APPLIANCES, EQUIPMENT AND MATERIALS WHICH ARE SUBJECT TO UNDERWRITERS LABORATORY TESTS SHALL BEAR SUCH APPROVAL.

FIRESTOPPING

FIRESTOPPING IS DEFINED HEREIN AS THE PROCESS OF FURNISHING AND INSTALLING A MATERIAL, OR COMBINATION OF MATERIALS, IN VARIOUS CONSTRUCTIONS TO MAINTAIN EFFECTIVE BARRIER AGAINST THE SPREAD OF FLAME, SMOKE, AND GASES AND TO RETAIN THE TIME-RATED CONSTRUCTION. IT SHALL BE USED IN SPECIFIC LOCATIONS AS SPECIFIED HEREIN.

PIPING/DUCT PENETRATIONS THROUGH TIME-RATED PARTITIONS OF FIRE WALLS SHALL BE FIRESTOPPED.

PENETRATIONS THROUGH VERTICAL PIPE SHAFTS SHALL BE FIRESTOPPED.

MATERIAL OF FIRESTOPPING SHALL BE ASBESTOS FREE AND CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS ASTM E814, UL NO. 1479.

PENETRATIONS

SEAL ALL MECHANICAL FLOOR, WALL AND ROOF PENETRATIONS WATERTIGHT. CAULK AROUND MECHANICAL PENETRATIONS WITH 3M CP-25 FIRE BARRIER CAULK (THICKNESS AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO MAINTAIN FIRE RESISTANCE RATING OF FIRE-RATED ASSEMBLIES. PIPING PENETRATIONS THROUGH ROOFS SHALL BE PROVIDED WITH PREFABRICATED ROOF CURBS MANUFACTURED BY CUSTOM CURB, INC., PATE COMPANY, THYCURB OR APPROVED EQUAL.

EXCAVATION AND BACK FILLING

PERFORM ALL EXCAVATING AND BACK FILLING FOR THE CONSTRUCTION AND INSTALLATION OF THE WORK INCLUDED UNDER THIS DIVISION. LINES SHALL BE USED TO LAYOUT THE TRENCHES FOR ALL UNDERGROUND WORK. TRENCHES CLOSE TO WALLS, FOUNDATIONS, AND COLUMNS SHALL NOT BE EXCAVATED WITHOUT PRIOR CONSULTATION WITH THE ENGINEER/ARCHITECT.

ALL EXCAVATIONS SHALL BE PROPERLY PROTECTED BY THE NECESSARY BRACING AND TIMBERS TO PREVENT ANY CAVE-INS OR INJURY TO ADJACENT IMPROVEMENTS.

CUT AND REPLACE ALL EXISTING WALKS, ROADS, STREET PAVEMENT, CURBS, STEPS, RETAINING WALLS AND MISCELLANEOUS WORK REQUIRED FOR INSTALLATION OR WORK UNDER THIS DIVISION.

THE BACK FILLING OF TRENCHES SHALL BE CARRIED OUT AS RAPIDLY AS THE FINISHED WORK IS APPROVED AND WILL PERMIT. THE TRENCH SHALL BE BACK FILLED IN LAYERS NOT TO EXCEED 6" WITH GOOD SELECTED DRY EARTH THOROUGHLY TAMPED WITH A PNEUMATIC TAMPER. AFTER BACK FILLING, ALL SURPLUS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.

SHOP DRAWINGS AND SAMPLES

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, SIX (6) COPIES OF MANUFACTURER'S SHOP DRAWINGS FOR ALL MAJOR ITEMS OF EQUIPMENT TO BE FURNISHED UNDER THIS CONTRACT, AND ALL MAJOR ITEMS REQUIRING COORDINATION BETWEEN CONTRACTORS. BEFORE SUBMITTING SHOP DRAWINGS AND MATERIAL LISTS, THE CONTRACTOR SHALL VERIFY THAT ALL THE EQUIPMENT IS MUTUALLY COMPATIBLE AND SUITABLE FOR THE INTENDED USE, AND SHALL FIT THE AVAILABLE SPACE AND ALLOW AMPLE ROOM FOR MAINTENANCE.

THE ENGINEER'S CHECKING AND SUBSEQUENT APPROVAL OF SUCH SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, QUANTITIES, OMISSIONS OF COMPONENTS OR FITTINGS, OR FOR COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS. THE CONTRACTOR SHALL PROCEED WITH THE PROCUREMENT AND INSTALLATION OF EQUIPMENT ONLY AFTER RECEIVING APPROVED SHOP DRAWINGS RELATIVE TO EACH ITEM.

ACCEPTANCE OF THE WORK SHALL BE SUBJECT TO THE ENGINEERS/ARCHITECTS APPROVAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. SHOP DRAWINGS SHALL INCLUDE MANUFACTURERS DETAIL DRAWINGS OF EQUIPMENT AND MATERIAL AND CONTRACTORS SHOP DETAILS FOR INSTALLATION OF MATERIAL AND EQUIPMENT. DESCRIPTIVE LITERATURE SHALL INCLUDE CATALOG DATA COVERING DESIGN, SIZE AND CAPACITY OF MATERIAL AND EQUIPMENT. SUBMITTALS SHALL INCLUDE THE MANUFACTURERS MODEL NUMBER, CAPACITY, PERFORMANCE DATA, ELECTRICAL CHARACTERISTICS, ETC., ALL CLEARLY SHOWN AND MARKED FOR THE SPECIFIC ITEM OF EQUIPMENT BEING FURNISHED ON THIS PROJECT.

RECORD DRAWINGS

THE CONTRACTOR SHALL KEEP DAY-TO-DAY RECORD OF ALL CHANGES OR VARIATIONS MADE FROM THE CONTRACT DOCUMENTS AND AT THE END OF THE PROJECT SHALL PROVIDE THE OWNER/ARCHITECT/ENGINEER WITH REPRODUCIBLE SETS AS REQUIRED.

OPERATION AND MAINTENANCE INSTRUCTIONS

THIS CONTRACTOR SHALL, DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE A COMPLETE BROCHURE OF ALL EQUIPMENT FURNISHED AND INSTALLED ON THIS PROJECT. THIS BROCHURE SHALL INCLUDE OPERATIONAL AND MAINTENANCE INSTRUCTIONS, MANUFACTURERS CATALOG SHEETS, WIRING DIAGRAMS, PARTS LISTS, APPROVED SHOP DRAWINGS, AND DESCRIPTIVE LITERATURE ALL AS FURNISHED BY THE EQUIPMENT MANUFACTURER. MANUAL SHALL INCLUDE AN INSIDE COVER SHEET THAT LIST THE PROJECT NAME, DATE, OWNER, ARCHITECT, MECHANICAL CONSULTANT, GENERAL CONTRACTOR, MECHANICAL CONTRACTOR, AND AN INDEX OF CONTENTS. ALL LITERATURE SHALL BE BOUND IN APPROVED BINDERS AND THREE COPIES SUBMITTED TO THE OWNER AT THE TERMINATION OF THE WORK.

GUARANTEE

GUARANTEE AGAINST DEFECTIVE WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL PAYMENT, GUARANTEE SHALL INCLUDE MATERIAL TO BE REPLACED AND ALL LABOR REQUIRED.

CUTTING, PATCHING AND ROUGH-IN

THE CONTRACTOR SHALL DO ALL CUTTING OF WALLS, FLOORS, CEILINGS, ETC. AS REQUIRED TO INSTALL WORK UNDER THIS SECTION, AND SHALL OBTAIN PERMISSION FROM THE ARCHITECT BEFORE DOING ANY CUTTING. STRUCTURAL MEMBERS SHALL NOT BE DISTURBED WITHOUT PRIOR APPROVAL FROM THE ARCHITECT. ALL HOLES SHALL BE CUT AS SMALL AS POSSIBLE. GENERAL CONTRACTOR SHALL PATCH WALLS, FLOORS, ETC. AS REQUIRED BY WORK UNDER THIS SECTION. ALL PATCHING SHALL MATCH THE ORIGINAL MATERIAL AND CONSTRUCTION, AND ANY AREAS DISTURBED BY WORK PERFORMED UNDER THIS CONTRACT SHALL BE NEATLY REPAIRED AND REFINISHED TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SATISFACTORY TO THE ARCHITECT.

ACCESS DOORS

PROVIDE ACCESS DOORS IN CEILINGS, WALLS, ETC. WHERE INDICATED OR REQUIRED FOR ACCESS OR MAINTENANCE UNDER THE CONSTRUCTION OF THE BUILDING. VALVES AND EQUIPMENT INSTALLED UNDER THIS SECTION. DOORS SHALL HAVE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, ANCHOR STRAPS, MANUFACTURED BY MILCOR, ZURN, TITUS OR EQUAL. OBTAIN ARCHITECT APPROVAL OF TYPE AND LOCATIONS BEFORE ORDERING.

AIR FILTERS

FILTERS SHALL BE FARR 30/30 THROWAWAY TYPE, OR AS OTHERWISE INDICATED ON THE DRAWINGS. ALL AIR UNITS SHALL HAVE FILTER INSTALLED ANY TIME THEY ARE OPERATED BEFORE FINAL ACCEPTANCE. PROVIDE EXTRA SET OF FILTERS AND INSTALL IN UNITS JUST BEFORE TURNING OVER BUILDING TO OWNER. EQUAL DUSTSTOP, CAMBRIDGE , OR APPROVED EQUAL.

ELECTRICAL WIRING

ALL LINE VOLTAGE WIRING SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR. ALL LINE VOLTAGE CONTROL AND INTERMEDIATE SYSTEMS SHALL ALSO BE FURNISHED BY THE ELECTRICAL CONTRACTOR. ALL LOW VOLTAGE CONTROL WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL PROVIDE THE ELECTRICAL CONTRACTOR WITH WIRING DIAGRAMS AS REQUIRED FOR PROPER EQUIPMENT HOOKUP. THIS CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR THE ACTUAL WIRE SIZING AMPS FOR MECHANICAL EQUIPMENT (FROM EQUIPMENT NAMEPLATE) TO ENSURE PROPER INSTALLATION.

REFRIGERANT AND OIL

FURNISH AND INSTALL FULL REFRIGERANT AND OIL CHARGE IN ALL NEW AIR CONDITIONING REFRIGERATION SYSTEMS, AND MAINTAIN IT FOR FULL TERM OF THE GUARANTEE.

FINAL TESTING AND ADJUSTMENTS

CONTRACTOR SHALL FURNISH TEST READINGS ON ALL FANS, UNITS, COILS, ETC. AND ADJUST EQUIPMENT TO DELIVER SPECIFIED AMOUNTS OF AIR. A TESTING AND BALANCING REPORT LOG SHALL BE MADE SHOWING ALL AIR SUPPLY QUANTITIES, FAN AND UNIT TEST READINGS, ETC., AND SIX COPIES OF THE FINAL COMPLETION OF DATA SHALL BE SUBMITTED TO THE ARCHITECT FOR EVALUATION AND APPROVAL BEFORE FINAL INSPECTION OF THE PROJECT. AIR AND WATER FLOWS SHALL BE BALANCED TO WITHIN PLUS/MINUS 10% OF DESIGN REQUIREMENTS. ALL EQUIPMENT SHALL BE ADJUSTED TO OPERATE AS INTENDED BY THE SPECIFICATION. ALL BEARINGS SHALL LINE UP. BEARINGS THAT HAVE DIRT OR FOREIGN MATERIAL IN THEM SHALL BE REPLACED WITH NEW BEARINGS WITHOUT ADDITIONAL COST TO THE OWNER.

ALL THERMOSTATS AND CONTROL DEVICES SHALL BE ADJUSTED TO OPERATE AS INTENDED. ADJUST BURNERS, FANS, ETC. FOR PROPER AND EFFICIENT OPERATION. CERTIFY TO ARCHITECT THAT ALL ADJUSTMENTS HAVE BEEN MADE AND THAT SYSTEM IS OPERATING SATISFACTORILY. ADJUST ALL AIR DEVICES TO SUPPLY THE AMOUNT OF AIR SHOWN ON THE DRAWINGS. FURTHER ADJUSTMENTS SHALL BE MADE TO OBTAIN UNIFORM TEMPERATURE IN ALL SPACES. CALIBRATE, SET, AND ADJUST ALL AUTOMATIC TEMPERATURE CONTROLS. CHECK PROPER SEQUENCING OF ALL INTERLOCK SYSTEMS, AND OPERATION OF ALL SAFETY CONTROLS.

ALL TESTING AND BALANCING WORK SHALL BE PERFORMED BE AN INDEPENDENT TESTING AND BALANCING AGENCY CERTIFIED BY NEBB OR AABC. ALL BALANCING AND TEST REPORTS SHALL BE SUBMITTED ON STANDARD AABC FORMS OR EQUIVALENT FORMS BY NEBB OR SMACNA

SETTING, ADJUSTMENT AND EQUIPMENT SUPPORTS WORK SHALL INCLUDE MOUNTING, ALIGNMENT AND ADJUSTMENT OF SYSTEMS AND EQUIPMENT.

SET EQUIPMENT LEVEL ON ADEQUATE FOUNDATIONS AND PROVIDE PROPER ANCHOR BOLTS AND ISOLATION AS SHOWN, SPECIFIED OR REQUIRED BY THE ENGINEER/MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PROVIDE CONCRETE BASES FOR ALL FLOOR AND SLAB MOUNTED EQUIPMENT. REFER TO DRAWINGS FOR REQUIRED BASE TYPE AND SIZE. PROVIDE 3-1/2" HIGH BASE WHERE BASE IS NOT SHOWN ON THE DRAWINGS.

EQUIPMENT FURNISHED BY OTHERS

THE HVAC CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY EQUIPMENT AND ACCESSORIES THAT ARE NOT PROVIDED BY THE EQUIPMENT SUPPLIER OR OWNER TO COMPLETE THE INSTALLATION. EQUIPMENT AND ACCESSORIES NOT PROVIDED BY EQUIPMENT SUPPLIER MAY INCLUDE FLUES, VENTS, INTAKES, ASSOCIATED ROOF JACKETS AND CAPS TO OUTDOORS, DAMPERS, IN-LINE FANS, ROOF FANS, CONTROL INTERLOCKS, ETC. AS REQUIRED FOR PROPER OPERATION OF THE COMPLETE SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

MISCELLANEOUS REMODELING WORK

PROVIDE ALL ITEMS OF HVAC SYSTEMS MODIFICATION REQUIRED BECAUSE OF BUILDING REMODELING, AS NOTED ON THE DRAWINGS OR NECESSARY FOR PROPER OPERATION. MATCH EXISTING MATERIALS AND CONSTRUCTION TECHNIQUES WHEN MODIFYING EXISTING SYSTEMS UNLESS SPECIFIED OTHERWISE. COORDINATE ADDITIONAL REQUIREMENTS WITH THE GENERAL CONTRACTOR AND THE ARCHITECT.

ALL EXISTING HVAC EQUIPMENT INTENDED FOR REUSE SHALL BE THOROUGHLY CLEANED AND

REFURBISHED AS REQUIRED FOR PROPER OPERATION INCLUDING REPLACEMENT OR FILTER, BELTS, MOTORS, REMOTE CONTROLS AND SAFETY INTERLOCKS.

SUPPORTS AND ANCHORS

DESCRIPTION OF WORK

PROVIDE AND INSTALL PIPING AND EQUIPMENT HANGERS, INSERTS AND SUPPORTS, ETC., AS SPECIFIED HEREIN.

STANDARDS

ALL PIPING/EQUIPMENT INSTALLATIONS SHALL MEET THE FOLLOWING STANDARDS:

ASME B31.9 - BUILDING SERVICES PIPING
MSS SP58 - PIPE HANGERS & SUPPORTS-MATERIALS, DESIGN & MANUF.
MSS SP69 - PIPE HANGERS & SUPPORTS-SELECTION & APPLICATION
MSS SP89 - PIPE HANGERS & SUPPORTS-FABRICATION & INSTALLATION

PIPE HANGERS

PIPE HANGERS SHALL BE CAPABLE OF SUPPORTING PIPING IN ALL CONDITIONS OF OPERATION. THEY SHALL ALLOW FREE EXPANSION AND CONTRACTION OF PIPING, AND PREVENT EXCESSIVE STRESS RESULTING FROM TRANSFERRED WEIGHT BEING INDUCED INTO PIPE OR CONNECTED EQUIPMENT. SUPPORT HORIZONTAL OR VERTICAL PIPES AT LOCATIONS OF LEAST VERTICAL MOVEMENT.

PROVIDE SUFFICIENT HANGERS TO ADEQUATELY SUPPORT PIPING SYSTEM AT SPECIFIED SPACING AT CHANGES IN PIPING DIRECTION AND AT CONCENTRATED LOADS. HANGERS SHALL PROVIDE FOR VERTICAL ADJUSTMENTS TO MAINTAIN PITCH REQUIRED FOR PROPER DRAINAGE AND FOR LONGITUDINAL TRAVEL DUE TO EXPANSION AND CONTRACTION OF PIPING. FASTEN HANGERS TO BUILDING STRUCTURAL MEMBERS WHEREVER PRACTICABLE. HANGERS IN DIRECT CONTACT WITH COPPER PIPE OR TUBING SHALL BE COPPER PLATED.

UNLESS INDICATED OTHERWISE ON THE DRAWINGS SUPPORT HORIZONTAL STEEL PIPE AS FOLLOWS:

PIPE SIZE - ROD DIAMETER - MAX. SPACING
UP TO 1-1/4" - 3/8" - 8 FT.
1-1/2" TO 2" - 3/8" - 10 FT.
2-1/2" TO 3-1/2" - 1/2" - 12 FT.
4" TO 5" - 5/8" - 15 FT.
6" - 3/4" - 17 FT.
8" TO 12" - 7/8" - 22 FT.

UNLESS INDICATED OTHERWISE ON THE DRAWINGS SUPPORT HORIZONTAL COPPER TUBING AS FOLLOWS:

NOM. TUBING SIZE - ROD DIAMETER - MAX. SPACING
UP TO 1" - 3/8" - 6 FT.
1-1/4" TO 1-1/2" - 3/8" - 8 FT.
2" - 3/8" - 9 FT.
2-1/2" - 1/2" - 9 FT.
3" TO 4" - 1/2" - 10 FT.

SUPPORT HORIZONTAL CAST IRON SOIL PIPING WITH ONE HANGER FOR EACH JOINT LOCATED CLOSE TO HUB.

SUPPORT PLASTIC PIPING AS RECOMMENDED BY THE PIPING MANUFACTURER.

SUPPORT VERTICAL CAST IRON SOIL PIPE AND PVC PIPE AT EVERY FLOOR AND STEEL AND COPPER TUBING AT EVERY OTHER FLOOR EXCEPT WHERE INDICATED ON THE DRAWINGS.

PROVIDE CONTINUOUS THREADED HANGERS WHEREVER POSSIBLE. NO CHAIN, WIRE, OR PERFORATED STRAPS SHALL BE USED. HANGER RODS SHALL BE SUBJECT TO TENSILE LOADING ONLY.

PROVIDE GRINNEL PIPE HANGERS FOR VERTICAL PIPE RISERS AS FOLLOWS:

PIPE MATERIAL - PIPE SIZE - HANGER FIGURE NO.
COPPER - 1/2" THRU 4" - CT-121
STEEL - 3/4" THRU 20" - 261

PROVIDE GRINNELL FIG. 194, 195, 199 STEEL WALL BRACKETS FOR PIPING SUSPENDED OR SUPPORTED FROM WALLS. BRACKETS SHALL BE PRIME COATED CARBON STEEL.

MOUNT HANGERS FOR INSULATED PIPING ON OUTSIDE OF PIPE, INSULATION SIZED TO ALLOW FOR FULL THICKNESS OF INSULATION. PROVIDE GRINNELL FIG. 167 PROTECTION SHIELDS SIZED SO THAT LINE COMPRESSIVE LOAD DOES NOT EXCEED ONE-THIRD OF INSULATION COMPRESSIVE STRENGTH. SHIELD SHALL BE GALVANIZED STEEL AND SUPPORT LOWER 180 DEGREES OF PIPE INSULATION. OMIT COPPER PLATING ON HANGERS MOUNTED OUTSIDE INSULATION ON COPPER TUBING.

PROVIDE FEE AND MASON FIG. 404 VIBRATION CONTROL HANGERS AT LOCATIONS WHERE PIPING VIBRATIONS WOULD BE TRANSMITTED TO BUILDING STRUCTURE BY CONVENTIONAL HANGERS. APPLY HANGERS WITHIN THEIR LOAD SUPPORTING RANGE.

PROVIDE ELCEN FIG. 50 PIPE SADDLE WITH ADJUSTER TO SUPPORT PIPING FROM FLOOR. PROVIDE COMPLETE WITH PEDESTAL FLOOR STAND.

PROVIDE NECESSARY STRUCTURAL STEEL AND ATTACHMENT ACCESSORIES FOR INSTALLATION OF PIPE HANGERS AND SUPPORTS. WHERE HEAVY PIPING LOADS ARE TO BE ATTACHED TO THE BUILDING STRUCTURE VERIFY STRUCTURAL LOADING WITH THE ARCHITECT PRIOR TO INSTALLATION.

EQUIVALENT HANGERS AND SUPPORTS BY AUTO-GRIP, BASIC ENGINEER, ELCEN, FEE AND MASON OR FLUOROCARBON COMPANY

PIPING INSULATION

DESCRIPTION OF WORK

PROVIDE PIPING INSULATION AND ACCESSORIES AS SPECIFIED ON THE DRAWINGS OR SPECIFIED HEREIN.

REFERENCES

ASTM C640 - CORKBOARD AND CORK PIPE THERMAL INSULATION
ASTM C921 - PROPERTIES OF JACKETING MATERIALS FOR THERMAL INSUL.
ASTM D1056 - FLEXIBLE CELLULAR MATERIALS
ASTM E84 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS
ASTM E96 - WATER VAPOR TRANSMISSION OF MATERIALS.
UL 723 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS

QUALITY ASSURANCE

MATERIALS: FLAME SPREADS/SMOKE DEVELOPED RATING OF 25/50 IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.

GLASS FIBER INSULATION - TYPE A

PIPE INSULATION INCLUDING FITTINGS AND DEVICES, UNLESS SPECIFIED OTHERWISE, SHALL BE INSULATED WITH RIGID MOLDED GLASS FIBER, WITH A K-VALUE OF 0.24 AT 75 DEGREES F (ASTM C335). INSULATION TO HAVE A MAXIMUM SERVICE TEMPERATURE OF 850 DEGREES F, MAXIMUM MOISTURE ABSORPTION OF 0.20 PERCENT BY VOLUME AND A MINIMUM SERVICE TEMPERATURE OF -20 DEGREES F.

GLASS FIBER INSULATION TO HAVE A VAPOR BARRIER JACKET MEETING ASTM C921. JACKET TO BE KRAFT PAPER REINFORCED WITH GLASS YARN AND BONDED TO ALUMINIZED FILM. THE MOISTURE VAPOR BARRIER TRANSMISSION SHALL MEET ASTM E96 AT 0.02 PERM INCHES. SECURE THE JACKET WITH SELF SEALING LONGITUDINAL LAPS AND BUTT STRIPS AND FACTORY APPLIED PRESSURE SEALING LAP ADHESIVE.

COVER FITTINGS TO THICKNESS ADJACENT COVERING WITH PRE-MOLDED FITTING COVERS.

MANUFACTURERS

OWENS/CORNING SSL II
CERTAIN TEED
KNAUF
MANVILLE

JACKETS

ALL PIPING OUTSIDE AND AS SHOWN ON THE DRAWINGS SHALL BE COVERED WITH A WEATHER PROTECTIVE JACKET CONSISTING OF 22 GAUGE ALUMINUM OR 26 GAUGE STAINLESS STEEL PROTECTIVE COVERING. EDGES OF EXTERIOR JACKET SHALL BE SECURELY CLOSED AROUND INSULATION TO

PREVENT RAIN, SNOW, DIRT, ETC. FROM DAMAGING THE UNDERLYING INSULATION IN ANY FASHION.

INSTALLATION

INSTALL INSULATION, COVERINGS, ADHESIVES, COVERING RATE OF APPLICATION, TAPE AND OTHER MATERIALS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.

SYSTEMS SHALL BE COMPLETELY COVERED THROUGHOUT, INCLUDING VALVES, FITTINGS, AND ACCESSORIES. STRAINER COVERS AND VALVE BONNETS SHALL BE ACCESSIBLE FOR MAINTENANCE. UNLESS OTHERWISE SPECIFIED, INSULATION SHALL EXTEND CONTINUOUS THROUGH SLEEVES. WHERE PIPE COVERING TERMINATES AT CEILINGS, WALL AND EQUIPMENT, FURNISH AND INSTALL COVERING PROTECTOR CUPS FASTENED TO COVERING.

WHERE PIPE HANGERS ARE PRESENT, INSULATED PIPE SHALL BE FURNISHED WITH RIBBED RIBBED GALVANIZED STEEL SHIELDS OF NOT LESS THAN 18 GAUGE, TWO-PIECE, PRE-MOLDED, HIGH COMPRESSIVE STRENGTH, INSULATION INSERTS (360 DEGREES AROUND PIPE), AND VAPOR BARRIER JACKET COVERING THE INSULATION INSERTS. INSERTS SHALL BE CONSTRUCTED OF HIGH DENSITY, 100PSI, WATERPROOFED CALCIUM SILICATE, ENCASED IN 360 DEGREE SHEET METAL SHIELD.

PIPING INSULATION SCHEDULE

NOT ALL PIPE SYSTEMS IN THE TABLE BELOW MAY NOT BE USED ON THIS PROJECT.

PIPING SYSTEM	PIPE SIZE (INCHES)	THICKNESS (INCHES)	INSULATION TYPE
DOMESTIC HOT WATER	1 TO 1-1/2	1	A
DOMESTIC COLD WATER	ALL	1/2	A
CONDENSATE DRAIN	ALL	1/2	A
REFRIG. HOT GAS & LIQUID	ALL	3/8"	A
REFRIG. SUCTION	ALL	1/2"	A

DESCRIPTION OF WORK

PROVIDE DUCTWORK INSULATION AND ACCESSORIES AS SPECIFIED ON THE DRAWINGS OR SPECIFIED HEREIN.

REFERENCES

ASTM C553 - MINERAL FIBER BLANKET AND FELT INSULATION
ASTM G612 - MINERAL FIBER BLOCK AND BOARD THERMAL INSULATION
ASTM E119 - STANDARD TEST METHODS FOR FIRE TESTS
ASTM E84 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS
ASTM E96 - WATER VAPOR TRANSMISSION OF MATERIALS.
UL 723 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS
NFPA 723 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS

QUALITY ASSURANCE

MATERIALS: FLAME SPREADS/SMOKE DEVELOPED RATING OF 25/50 IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.

GLASS FIBER, FLEXIBLE - TYPE 1

WHERE SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN PROVIDE AND INSTALL TYPE 1 INSULATION WITH THE FOLLOWING CHARACTERISTICS: SHALL MEET ASTM C1071; "K" VALUE OF 0.28 AT 75 DEGREES; MAXIMUM SERVICE TEMPERATURE OF 250 DEGREES F; MAXIMUM MOISTURE ABSORPTION OF 0.20 PERCENT BY VOLUME; DENSITY OF 3/4 LB/CU FT.

TYPE 1 INSULATION SHALL HAVE THE FOLLOWING VAPOR BARRIER JACKET CHARACTERISTICS: KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM; MOISTURE VAPOR TRANSMISSION OF 0.04 PERM; SECURE WITH PRESSURE SENSITIVE FILM. THE VAPOR BARRIER TAPE SHALL BE KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM, WITH PRESSURE SENSITIVE RUBBER BASED ADHESIVE, 6" WIDE ON 12" CENTERS.

GLASS FIBER, RIGID - TYPE 2

WHERE SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN PROVIDE AND INSTALL TYPE 2 INSULATION WITH THE FOLLOWING CHARACTERISTICS: SHALL MEET ASTM C612; "K" VALUE OF 0.28 AT 75 DEGREES; MAXIMUM SERVICE TEMPERATURE OF 250 DEGREES F; MAXIMUM MOISTURE ABSORPTION OF 0.20 PERCENT BY VOLUME; DENSITY OF 6 LB/CU FT.

TYPE 2 INSULATION SHALL HAVE THE FOLLOWING VAPOR BARRIER JACKET CHARACTERISTICS: KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM; MOISTURE VAPOR TRANSMISSION OF 0.04 PERM; SECURE WITH WELD CLIPS AT 12" O.C. SEAL CLIPS INDENTATIONS WITH MASTIC. THE VAPOR BARRIER TAPE SHALL BE KRAFT PAPER REINFORCED WITH GLASS FIBER YARN AND BONDED TO ALUMINIZED FILM, WITH PRESSURE SENSITIVE RUBBER BASED ADHESIVE.

GLASS FIBER, RIGID - TYPE 3

INSULATION TO BE THE SAME AS TYPE 2 EXCEPT FOR THE FOLLOWING: THICKNESS SHALL BE 1" THICKER THAN SPECIFIED FOR TYPE 2 INSULATION; MINIMUM 1 INCH THICKER THAN HEIGHT OF REINFORCING ANGLES AND OR CONNECTING ANGLES.

JACKETS

CANVAS JACKET - TYPE A: FABRIC SHALL BE 8OZ/SQ YD PLAIN WEAVE COTTON TREATED WITH DILUTE FIRE RETARDANT LAGGING ADHESIVE. THE LAGGING ADHESIVE SHALL BE AS RECOMMENDED BY THE INSULATION MANUFACTURER AND COMPATIBLE WITH THE INSULATION.

ALUMINUM JACKET - TYPE B: JACKET TO MEET ASTM B209. JACKET TO BE 0.016 INCH THICK SHEET FOR DUCTWORK AND 20 GAUGE FOR EQUIPMENT. THE FINISH SHALL BE STUCCO EMBOSSED. JOINTS SHALL BE LONGITUDINAL SLIP TYPE WITH 2" LAPS. CIRCUMFERENTIAL JOINTS SHALL BE SEALED WITH PRE-FORMED ANCHOR STRIPS 1-3/4" WIDE CONTAINING PLASTIC SEALANT.

MANUFACTURERS

KNAUF
OWENS/CORNING
CERTAINTEE
MANVILLE

INSTALLATION

INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. SYSTEMS SHALL BE COMPLETELY COVERED THROUGHOUT. ALL EXTERNAL SURFACE OF DUCTWORK SHALL BE WIPED CLEAN BEFORE INSTALLATION OF INSULATION. INSULATION SHALL BE WRAPPED ON EXTERIOR OF DUCTWORK WITH ALL JOINTS BUTTED AND ALL LONGITUDINAL SEAMS OVERLAPPED NOT LESS THAN 2". INSULATION SHALL BE ADHERED TO METAL DUCTWORK WITH NOT LESS THAN 4" STRIPS OF INSULATION ADHESIVE, APPLIED TO DUCTWORK AT NOT GREATER THAN 8" O.C. ON DUCTS WIDER THAN 18", INSULATION ON THE BOTTOM OF DUCTWORK SHALL BE ADDITIONALLY SECURED WITH WELDING PINS SECURED TO DUCTWORK AT NOT GREATER THAN 18" O.C. ALL JOINTS, ON LONGITUDINAL SEAMS, ALL WELD PINS, AND ALL PENETRATIONS SHALL BE APPLIED SO THAT COMPRESSED THICKNESS AT CORNERS OF DUCTWORK IS NOT LESS THAN 1". SEAL JOINTS AND BREAKS (IN DUCTS CONVEYING AIR LESS THAN ROOM TEMPERATURE) WITH 4" WIDE STRIPS OF OPEN MESH GLASS CLOTH OR TAPE IMBEDDED BETWEEN 2 COATS OF VAPOR BARRIER SEALANT. THE COMPLETE INSTALLATION SHALL FORM A SMOOTH AND NEAT APPEARANCE.

INSULATED DUCTWORK

PIPING & ACCESSORIES

SECTION INCLUDES

PIPE AND PIPE FITTINGS FOR:

NATURAL GAS PIPING SYSTEM
REFRIGERANT HOT GAS AND LIQUID PIPING SYSTEM
BELOW GROUND SANITARY, WASTE, SOIL, AND VENT PIPING SYSTEM
ABOVE GROUND SANITARY, WASTE, SOIL, AND VENT PIPING SYSTEM
DOMESTIC WATER PIPING SYSTEM
EQUIPMENT DRAINS AND OVERFLOWS

PIPING MATERIALS

PIPING USED THROUGHOUT THE PROJECT SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS. PIPING SHALL BE CLEARLY MARKED WITH MANUFACTURERS NAME AND WEIGHT. ALL MATERIALS MAY NOT BE REQUIRED FOR THIS PROJECT. SEE THE PIPING MATERIAL SCHEDULE LOCATED ON THE DRAWINGS. PIPING MATERIALS SHALL BE AS FOLLOWS:

CAST IRON PRESSURE PIPE - PIPE AND MECHANICAL JOINT CAST IRON PIPE CENTRIFUGALLY CAST IN METAL MOLDS COATED INSIDE AND OUT WITH COAL TAR VARNISH CONFORMING TO LATEST ANSI STANDARD A21.11. JOINTS TO BE MECHANICAL, BOLTED STUFFING BOX TYPE WITH PLAIN RUBBER GASKET CONFORMING TO LATEST ANSI A21.11 STANDARD.

CAST IRON BELL AND SPIGOT SOIL PIPE - PIPE AND FITTINGS SHALL BE GRAY CAST IRON BELL AND SPIGOT ENDS WITH LEAD GROOVES AND SPIGOT AND BEADS. PIPE AND FITTINGS SHALL BE COATED INSIDE AND OUT WITH ASPHALTUM PRESERVATIVE AND MEETING REQUIREMENTS OF CURRENT CAST IRON SOIL PIPE INSTITUTE STANDARD HS-67 AND ASTM STANDARD A74-69. SEAL JOINTS WITH LEAD AND OAKUM IN ACCORDANCE WITH CURRENT ANSI SPECIFICATION A40.8.

HUBLESS CAST IRON SOIL PIPE - PIPE AND FITTINGS SHALL BE GRAY CAST IRON WITH SPIGOT BEAD AND POSITIONING LUG. PIPE AND FITTINGS TO BE COATED INSIDE AND OUT WITH ASPHALTUM PRESERVATIVE AND SHALL MEET REQUIREMENTS OF CURRENT CAST IRON SOIL PIPE INSTITUTE STANDARD 301-69T. PIPE JOINTS SHALL BE NO-HUB JOINT COUPLINGS CONSISTING OF NEOPRENE RUBBER SLEEVE, STAINLESS STEEL SHIELD AND CLAMP ASSEMBLY.

CARBON STEEL PIPE (1/8" THROUGH 2-1/2") - PROVIDE CONTINUOUS WELD OR ELECTRIC RESISTANCE WELDED CARBON STEEL PIPE CONFORMING TO ASTM SPECIFICATION A-120 OR A-53 AS SCHEDULED. PIPE JOINTS SHALL BE THREADED CONFORMING TO ANSI STANDARD B2.1.

CARBON STEEL PIPE (3" AND ABOVE) - PROVIDE SEAMLESS CONTINUOUS OR ELECTRIC WELD CARBON STEEL PIPE CONFORMING TO ASTM SPECIFICATION A-120 OR A-53 AS SCHEDULED. PIPE ENDS SHALL BE BEVELED FOR WELDING.

NICKEL COPPER ALLOY PIPE (1/8" THROUGH 2-1/2") - PROVIDE CONTINUOUS WELD NICKEL COPPER ALLOY STEEL PIPE CONFORMING TO ASTM SPECIFICATION A-53. PIPE JOINTS SHALL BE THREADED CONFORMING TO ANSI STANDARD B2.1.

POLYVINYL CHLORIDE (PVC) PIPE - PROVIDE TYPE 1, GRADE 1, POLYVINYL CHLORIDE PIPE CONFORMING TO REQUIREMENTS OF CURRENT ASTM SPECIFICATION D-1785. PIPE SHALL BE APPROVED BY THE NATIONAL SANITATION FOUNDATION FOR POTABLE WATER. PIPE SHALL HAVE PLAIN ENDS AND SOCKET TYPE FITTINGS WITH JOINTS MADE WITH PVC SOLVENT CEMENT CONFORMING TO ASTM SPECIFICATION D-2546.

COPPER TUBE - PROVIDE HARD TEMPER COPPER WATER TUBE CONFORMING TO REQUIREMENTS OF CURRENT ASTM SPECIFICATION B-88. TUBING SHALL BE TYPE K, L, OR M AS SCHEDULED ON THE DRAWINGS. TUBING JOINTS SHALL BE SOLDERED OR BRAZED PER THE SCHEDULE.

COPPER TUBE TYPE ACR - PROVIDE HARD TEMPER NITROGENIZED COPPER REFRIGERANT TUBE CONFORMING TO REQUIREMENTS OF CURRENT ASTM SPECIFICATION B-88. TUBING SHALL BE TYPE K, L, OR M AS SCHEDULED ON THE DRAWINGS. TUBING JOINTS SHALL BE BRAZED PER THE SCHEDULE.

PIPING FITTINGS

PIPING FITTINGS USED THROUGHOUT PROJECT SHALL BE PROPER TYPE FOR INSTALLATION METHOD USED AND SHALL BE COMPATIBLE WITH THE PIPING SYSTEM MATERIALS. FITTINGS LISTED IN THE PIPING SCHEDULE LOCATED ON THE DRAWINGS SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

CARBON STEEL WELDED FITTINGS - PROVIDE CARBON LOW ALLOY SEAMLESS STEEL WELDING FITTINGS CONFORMING TO CURRENT ANSI STANDARD B16.9 AND ASTM SPECIFICATION A234.

NICKEL COPPER ALLOY STEEL WELDING FITTING - PROVIDE FITTING CONFORMING TO ANSI STANDARD B16.9 AND ASTM SPECIFICATION A-234.

BRANCH CONNECTION WELDING FITTINGS - PROVIDE CARBON STEEL WELDOLLET FITTINGS CONFORMING TO ANSI STANDARDS B16.9, B16.11, B31.1.0 AND ASTM SPECIFICATION A105 GRADE 11.

BRANCH CONNECTION, WELDING TO SCREWED FITTING - PROVIDE CARBON STEEL THREADOLLET FITTING CONFORMING TO ANSI STANDARDS B16.9, B16.11, B31.1. AND ASTM SPECIFICATION A105 GRADE 11.

CARBON STEEL FLANGES - PROVIDE CARBON STEEL FLANGES CONFORMING TO ASTM SPECIFICATION A181 GRADE 1 AND ANSI STANDARD B16.5.

GROOVED END PIPE COUPLING - PROVIDE STYLE 77 MALLEABLE IRON STANDARD COUPLINGS CONFORMING TO ASTM SPECIFICATION A-47 GRADE 32510 WITH "TRIPLE SEAL" GASKET AND TRACK TYPE OVAL NECK BOLTS CONFORMING TO ASTM SPECIFICATION A183.

MALLEABLE IRON SCREWED FITTINGS - PROVIDE SCREWED MALLEABLE IRON FITTINGS CONFORMING TO ANSI STANDARD B16.4, B.2.1, ASTM SPECIFICATION A-47 GRADE 32510.

CAST IRON SCREWED FITTING - PROVIDE FITTINGS CONFORMING TO ANSI STANDARD B16.4, B2.1, AND ASTM SPECIFICATION A-126 CLASS A.

WROUGHT COPPER FITTINGS - PROVIDE WROUGHT SOLDER JOINT COPPER TUBE FITTING CONFORMING TO ANSI STANDARD B16.22.

CAST BRONZE FITTINGS - PROVIDE CAST BRONZE SOLDER JOINT FITTINGS CONFORMING TO ANSI STANDARD B16.22.

PIPE FLANGE GASKETS - PROVIDE 1/16" THICK ASBESTOS GASKETS FULL FACE OR RING TYPE REQUIRED. GASKETS SHALL BE FACTORY CUT.

INSULATING UNIONS AND FLANGES

PROVIDE INSULATING UNIONS AND FLANGES CONFORMING TO THE FOLLOWING SPECIFICATIONS AND PLAINLY AND PERMANENTLY MARKED WITH MANUFACTURERS NAME AND PRESSURE CLASS RATING. UNIONS AND FLANGES SHALL BE AS FOLLOWS:

STEEL PIPE TO STEEL PIPE SCREWED END - PROVIDE STOCKHAM MALLEABLE IRON NO. 693-1/2 INSULATING UNION WITH HIGH DIELECTRIC STRENGTH INSULATING SLEEVE AND GASKET.

STEEL PIPE TO STEEL PIPE FLANGED END - PROVIDE TWO WELD NECK FLANGES OF PROPER PRESSURE RATING INSULATED ON BOTH SIDES WITH CENTRAL OR KLINGERIT FLANGE INSULATION KIT.

IRON OR STEEL PIPE TO COPPER PIPE - PROVIDE EPCO DIELECTRIC UNION OR FLANGE WITH SCREWED OR SOLDER JOINT AS REQUIRED. UNION SHALL HAVE 250PSI RATING AND FLANGE 175PSI RATING AT 190 DEGREES F.

ORIFICE FLANGES

PROVIDE RAISED FACE WELD NECK CORNER TAP CARBON STEEL ORIFICE FLANGES CONFORMING TO ASTM SPECIFICATION A 105 GRADE 1. FLANGES SHALL BE PROVIDED AS COMPLETE UNIONS WITH TWO CARBON STEEL JACK BOLTS AND TWO COMPRESSED ASBESTOS COMPOSITION GASKETS.

UNIONS

PROVIDE UNIONS OR FLANGED JOINT IN EACH LINE PRECEDING CONNECTIONS TO EQUIPMENT OR VALVES REQUIRING MAINTENANCE. PROVIDE STOCKHAM BRASS SEAT UNIONS OF MATERIAL AND PRESSURE RATING REQUIRED BY PIPING SYSTEM. WHERE PIPING SYSTEMS OF DISSIMILAR MATERIALS ARE JOINED TOGETHER PROVIDE PROPER INSULATING UNION AS SPECIFIED UNDER THIS SPECIFICATION. EQUAL FAIRBANKS, GRINNELL.

PIPE SLEEVES

PROVIDE PROPER TYPE AND SIZE PIPE SLEEVES AND INSTALL IN WALLS OR FLOORS AND WHERE OTHERWISE NOTED. SLEEVES ARE NOTE REQUIRED FOR SUPPLY AND WATER LINES THROUGH WALLS SUPPORTING PLUMBING FIXTURES OR FOR CAST IRON SOIL PIPE PASSING THROUGH CONCRETE SLAB ON GRADE EXCEPT WHERE PENETRATING A MEMBRANE WATERPROOF FLOOR.

EACH SLEEVE SHALL BE CONTINUOUS THROUGH WALL, FLOOR OR ROOF AND SHALL BE CUT FLUSH ON EACH SIDE EXCEPT WHERE INDICATED OTHERWISE. SLEEVES SHALL NOT BE INSTALLED IN STRUCTURAL MEMBERS EXCEPT WHERE INDICATED OR APPROVED. SLEEVES SHALL BE REQUIRED THROUGH FLOORS SUBJECT TO FLOODING SUCH AS TOILET ROOMS, EQUIPMENT ROOMS AND KITCHENS. THE CONTRACTOR SHALL HAVE THE OPTION OF:

1. PROVIDE A CAST IRON SLEEVE WITH INTEGRAL FLANGES EXTENDING 1" ABOVE FINISHED FLOOR. SLEEVE SHALL BE CAST IN CONCRETE WHEN FLOOR IS POURED. ANNULAR SPACE BETWEEN SLEEVE AND PIPE SHALL BE FILLED WITH KAWOOL.

2. PROVIDE CORE-DRILLED OPENING IN CONCRETE WITH THUNDERLINE LINK-SEAL OR CALPICO SEALING LINX BETWEEN PIPING AND OPENING.

SLEEVES PASSING THROUGH FLOORS WITH WATERPROOF MEMBRANES SHALL BE CORE-DRILLED AND SEALED WITH THUNDERLINE LINK-SEAL OR CALPICO SEALING LINX.

SLEEVES PASSING THROUGH WALLS WITH WATERPROOF MEMBRANES SHALL BE SEALED WITH THUNDERLINE LINK-SEAL OR CALPICO SEALING LINX.

PIPE INSULATION SHALL BE RUN CONTINUOUSLY THROUGH PIPE SLEEVES WITH 1/4" MINIMUM CLEARANCE BETWEEN INSULATION AND PIPE SLEEVES. PROVIDE METAL JACKETS OVER INSULATED PIPES PASSING THROUGH FIRE WALLS, FLOORS AND SMOKE PARTITIONS. JACKET TO BE 0.018 STAINLESS STEEL EXTENDING 12" ON EITHER SIDE OF BARRIER AND SECURED TO INSULATION WITH 3/8" WIDE BAND. PROVIDE KAOWOOL FIRE MASTER BULK PACKING BETWEEN SLEEVE AND METAL JACKET. PACKING THICKNESS SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATIONS FOR MAINTAINING THE INTEGRITY OF THE FIRE WALL/FLOOR OR SMOKE PARTITION. FIRE PROTECTION SYSTEM SHALL BE RATED PER ASTM E119. EQUIVALENTS TO KAOWOOL ARE 3M, FLAME STOP OR FLAME SAFE.

WHERE PIPING PASSES THROUGH WALLS SERVING AS AIR PLENUMS OR CHASES SEAL ANNULAR SPACE BETWEEN PIPE AND SLEEVE AIR TIGHT WITH KAOWOOL FIREMASTER BULK PACKING.

METHOD OF INSTALLATION

REAM PIPES AND TUBES. CLEAN OFF SCALE AND DIRT, INSIDE AND OUTSIDE BEFORE ASSEMBLY. REMOVE WELDING SLAG OR OTHER FOREIGN MATERIAL FROM PIPING. PROTECT OPEN ENDS OF PIPE WITH TEMPORARY PLUGS OR CAPS. RUN PIPE LINES STRAIGHT AND TRUE, PARALLEL TO BUILDING LINES WITH MINIMUM USE OF OFFSETS AND COUPLINGS. PROVIDE OFFSETS ONLY TO PROVIDE HEADROOM OR CLEARANCE AND TO PROVIDE FLEXIBILITY IN PIPE LINES. CHANGES IN DIRECTION OF PIPE LINES SHALL BE MADE WITH FITTINGS OR PIPE BENDS.

CUT PIPE TO EXACT MEASUREMENT AND INSTALL WITHOUT SPRINGING OR FORCING EXCEPT IN CASE OF EXPANSION LOOPS WHERE COLD SPRINGING IS INDICATED. TAKE PARTICULAR CARE TO AVOID CREATING, EVEN TEMPORARY, UNDUE LOADS, FORCES OR STRAINS ON VALVES, EQUIPMENT OR BUILDING ELEMENTS WITH PIPING CONNECTIONS OR PIPING SUPPORTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE OR EQUIPMENT CONNECTED.

PROVIDE FLANGES OR UNIONS AT ALL FINAL CONNECTIONS TO EQUIPMENT, TRAPS AND VALVES TO FACILITATE DISMANTLING. ARRANGE PIPING CONNECTIONS SO THAT EQUIPMENT BEING SERVED MAY BE SERVICED OR TOTALLY REMOVED WITHOUT DISTURBING PIPING BEYOND FINAL CONNECTIONS AND ASSOCIATED SHUT-OFF VALVES.

PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND FOR ACCESS TO ALL VALVES, AIR VENTS, DRAINS AND UNIONS.

THREADED JOINTS SHALL BE FULL AND CLEAN CUT. JOINTS SHALL BE MADE UP TIGHT WITH JOINT COMPOUND OR TEFLON TAPE MANUFACTURED AND APPROVED FOR USE WITHIN THE PIPE AND EXPOSED THREADS OF FERROUS PIPE SHALL BE PAINTED WITH ACID-RESISTING PAINT AFTER PIPING HAS BEEN TESTED AND PROVED TIGHT. NO CAULKING, LAMPWICK, OR OTHER MATERIAL SHALL BE USED FOR CORRECTION OF DEFECTIVE JOINTS.

WATER PIPING SHALL BE PITCHED TO DRAIN AT LOW POINTS. STEEL TO COPPER CONNECTIONS SHALL BE MADE WITH DIELECTRIC UNIONS.

EXPANSION JOINTS OR EXPANSION LOOPS AND OFFSETS SHALL BE INSTALLED WHERE SHOWN ON THE PLANS AND WHERE NECESSARY TO PROVIDE FOR EXPANSION OF PIPING.

WELD PIPE JOINTS IN ACCORDANCE WITH ANSI B31. QUALIFY WELDING PROCEDURES, WELDERS AND OPERATORS IN ACCORDANCE WITH ANSI B31.1.

REFRIGERANT HOT GAS DISCHARGE PIPING SHALL BE INSTALLED WITH 1/2" PER 10 FOOT DOWNWARD SLOPE AWAY FROM THE COMPRESSOR. INSTALL TRAPS AND DOUBLE RISERS WHERE INDICATED, AND WHERE REQUIRED TO ENTRAIN OIL IN VERTICAL RUNS UNDER ALL LOAD CONDITIONS.

DRAIN PIPING FOR COIL DRAIN PANS SHALL EXTEND FULL SIZE OF PAN OUTLET, OR MINIMUM 3/4". USE PLUGS ON ALL JOINTS WITH CROSSES. PROVIDE TRAP ON DRAIN PAN OUTLETS ON AIR SYSTEMS TO PREVENT BLOWING THROUGH TRAP. EXTEND DRAIN LINE TO OPEN WASTE OVER FLOOR DRAINS.

BRANCH CONNECTIONS AND CHANGES IN DIRECTION IN SOIL, WATER AND DOWNSPOUT LINES SHALL BE MADE WITH 45 DEGREE "Y" FITTINGS OR LONG SWEEP ELBOWS, EXCEPT THAT SANITARY TEES OR SHORT SWEEP ELBOWS MAY BE USED IN VERTICAL STACKS AND CLOSET CONNECTIONS. PIPING SHALL BE GRADED TO A UNIFORM FALL OF 1/4" PER FOOT WHERE POSSIBLE. IN NO CASE SHALL PIPING BE PITCHED LESS THAN 1/8" PER FOOT. CLEANOUTS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS, AT CHANGES IN DIRECTION OF PIPING, WHERE NECESSARY FOR EASY CLEANING OF PIPING AS REQUIRED BY CODES.

TUCKER CONNECTIONS SHALL BE INSTALLED IN VERTICAL STACKS TO ROOF TO PROVIDE FOR EXPANSION. VENT STACKS SHALL BE EXTENDED FULL SIZE OR LARGER THROUGH ROOF AND SHALL BE INSTALLED WITH SLEEVES AND WITH FLASHING/COUNTERFLASHING ASSEMBLY AS HEREIN BEFORE SPECIFIED FOR WATERTIGHT INSTALLATION.

TESTING

ALL HYDRAULIC AND PNEUMATIC TESTING SHALL CONFORM TO ANSI B31.1, B31.5, B31.8, AND B31.9. THE CONTRACTOR SHALL APPLY THE SPECIFIED TEST PRESSURE FOR A MINIMUM TIME AT LEAST EQUAL TO THE APPLICABLE STANDARD'S REQUIREMENTS.

PERFORM TESTS ONLY AFTER THE PIPE AND CONTENTS HAVE BEEN STABILIZED AT AMBIENT TEMPERATURE AND THE SOURCE OF TEST PRESSURE IS SHUT OFF. PIPING TESTS SHALL APPLY TO PIPING ONLY, WITH ALL EQUIPMENT, INSTRUMENTS BLOCKED OFF OR DISCONNECTED. NO COMPONENT OR PIPING SHALL BE SUBJECTED TO PRESSURES WHICH EXCEED THEIR RESPECTIVE PRESSURE RATINGS.

HYDROSTATIC AND PNEUMATIC TESTS SHALL APPLY TO PIPING AS SHOWN ON PLANS IN PIPE MATERIAL SCHEDULE. THE PRESSURE SHALL BE GRADUALLY RAISED TO THE VALUE SPECIFIED AND THE SOURCE BLOCKED OFF. LEAKAGE OR LOSS OF PRESSURE IN THE TEST DURATION PERIOD SHALL NOT BE ACCEPTABLE UNLESS OTHERWISE NOTED.

AUDIBLE OR VISIBLE LEAKS DETECTED DURING TESTING SHALL CAUSE TO DISAPPROVE THE TEST EVEN THOUGH THE MAXIMUM ALLOWABLE PRESSURE DROP HAS NOT BEEN EXCEEDED. THE CONTRACTOR SHALL VISUALLY EXAMINE ALL JOINTS DURING THE TESTS. THE CONTRACTOR SHALL REPAIR ALL LEAKS AND SHALL REPEAT THE COMPLETE TESTING PROCEDURE AT NO ADDITIONAL COST TO THE OWNER.

ROOFTOP UNITS

GENERAL

CONTRACTOR SHALL PROVIDE AND INSTALL AS SHOWN ON THE PLANS, ROOFTOP UNITS OF TYPE, SIZE AND CAPACITY AS SET FORTH IN SCHEDULE. ALL UNITS SHALL BE RATED AND CERTIFIED AS COMPLETE UNITS IN ACCORDANCE WITH A.R.I. STANDARD AND SHALL BEAR THE A.R.I. SEAL.

CASING

ALL UNITS SHALL BE OF QUALITY CONSTRUCTION, BRACED, AND REINFORCED FOR SERVICE INTENDED. REMOVABLE PANELS SHALL PROVIDE ACCESS TO ALL INTERNAL PARTS. THE UNIT SHALL HAVE PROVISIONS FOR LIFTING FOR A FORKLIFT OR A CRANE. UNIT CASING SHALL BE CONSTRUCTED OF ZINC COATED HEAVY GAUGE, GALVANIZED STEEL. EXTERIOR SURFACES SHALL BE CLEANED, PHOSPHATIZED AND FINISHED WITH WEATHER RESISTANT BAKED ENAMEL FINISH. THE UNIT SURFACE SHALL BE TESTED IN ACCORDANCE WITH ASTM B117. THE TOP COVER OF ONE PIECE OR WHERE SEAMS EXIST, IT SHALL BE DOUBLE HEMMED AND GASKET SEALED TO PREVENT WATER LEAKAGE.

FILTERS

UNITS BELOW 7-1/2 TONS SHALL HAVE 1" THROW AWAY FILTERS. UNITS 7-1/2 TONS AND ABOVE SHALL HAVE 2" PLEATED FILTERS

REFRIGERANT CIRCUITS

EACH REFRIGERANT CIRCUIT SHALL HAVE INDEPENDENT FIXED ORIFICE EXPANSION DEVICES, SERVICE PRESSURE PORTS AND REFRIGERANT LINE FILTER DRYERS FACTORY INSTALLED.

EVAPORATOR AND CONDENSER COILS

DIRECT EXPANSION COOLING COILS SHALL HAVE COPPER TUBES WITH MECHANICALLY BONDED ALUMINUM FINS. PROVIDE TWO OR MORE REFRIGERANT DISTRIBUTORS WHEN THERE ARE MORE THAN TWELVE (12) CIRCUITS. DX COILS SHALL BE FACTORY TESTED IN ACCORDANCE WITH ANSI B9.1. SLOPE ALL CONDENSATE DRAINS.

GAS HEATING

THE HEATING SECTION SHALL CONTAIN AN ALUMINIZED STEEL HEAT EXCHANGER THAT IS 81% MINIMUM AFUE RATED. THE HEATING SECTION SHALL HAVE A FORCED COMBUSTION BLOWER THAT UPON CALLING FOR HEAT, THE COMBUSTION BLOWER WILL PURGE THE HEAT EXCHANGER 45 SECONDS BEFORE IGNITION. IF THE SYSTEM IS UNSUCCESSFUL IN IGNITING IN THREE ATTEMPTS THE SYSTEM SHALL BE LOCKED OUT AND MUST WE MANUALLY RESET AT THE THERMOSTAT. THE UNIT SHALL HAVE 100% SAFETY GAS SHUT-OFF AND DIRECT SPARK IGNITION SYSTEM.

OUTDOOR FANS

FAN TO BE DIRECT DRIVE STATICALLY AND DYNAMICALLY BALANCED, DRAW THRU CONFIGURATION IN THE VERTICAL POSITION. THE FAN MOTORS SHALL BE PERMANENTLY LUBRICATED AND SHALL HAVE BUILT IN THERMAL OVERLOADS.

INDOOR FAN

3-5 TON UNITS SHALL HAVE FC, DIRECT DRIVE, CENTRIFUGAL FANS. FANS OVER 5 TONS SHALL BE FC BELT DRIVEN CENTRIFUGAL FANS WITH ADJUSTABLE MOTOR SHEAVES. ALL MOTORS SHALL HAVE THERMAL OVERLOAD PROTECTION.

CONTROLS

UNIT SHALL BE COMPLETELY FACTORY WIRED WITH NECESSARY CONTROLS AND CONTRACTOR PRESSURE LUGS OR TERMINAL BLOCK FOR POWER WIRING. THE UNIT SHALL BE SUPPLIED WITH MICRO-PROCESSOR CONTROLS THAT CONTROL HEATING, COOLING AND/OR VENTILATION BASED ON ELECTRONIC SIGNALS FROM INDOOR AND OUTDOOR SENSORS (SEE SEQUENCE OF OPERATION). THE MICRO-PROCESSOR SHALL PROVIDE ANTI-SHORT CYCLE TIMING AND TIME DELAY BETWEEN COMPRESSORS TO PROVIDE A HIGHER LEVEL OF MACHINE PROTECTION.

ACCESSORIES

PROVIDE UNIT WITH ROOF CURB DESIGNED TO CONNECT DIRECTLY TO THE UNITS AND TO PROVIDE SUPPORT AND WATERTIGHT INSTALLATION. THE ROOF CURB SHALL BE DESIGNED TO ALLOW FIELD FABRICATED SUPPLY AND RETURN DUCTWORK TO BE CONNECTED DIRECTLY TO THE CURB. CURB TO SHIP KNOCKDOWN READY FOR FIELD ASSEMBLY AND SHALL INCLUDE WOOD NAILER STRIPS.

PROVIDE UNIT WITH ECONOMIZER TO FULLY MODULATE MIXING DAMPERS (0-100%). THE UNIT SHALL BE PROVIDED WITH BAROMETRIC RELIEF, MINIMUM OUTSIDE AIR SETTING. THE ECONOMIZER SHALL BE CONTROLLED BY SOLID STATE ENTHALPY CONTROLS INSTALLING IN THE FACTORY AND ADJUSTED BY THE CONTRACTOR IN THE FIELD.

PROVIDE UNIT WITH LOW-AMBIENT CONTROLS DOWN TO 0 DEGREES F.

PROVIDE PROGRAMMABLE ELECTRONIC TYPE THERMOSTAT WITH SEVEN DAY SCHEDULING, MANUAL CHANGEOVER, SWITCHING SUB-BASE, AND MULTI STAGE AS REQUIRED TO MATCH THE COOLING/HEATING STAGES.

DETECTORS SHALL BE WIRED INTO THE UNIT SHUT DOWN CIRCUIT AND SHALL SHUT DOWN THE ROOFTOP UNIT UPON DETECTION OF SMOKE.

UNIT SHALL BE SUPPLIED WITH SINGLE POINT POWER CONNECTION

15856.17 - METHOD OF INSTALLATION
INSTALL UNITS AS INDICATED, AND IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

DUCTWORK & ACCESSORIES

RECTANGULAR SHEETMETAL DUCTWORK

FURNISH AND INSTALL ALL GALVANIZED SHEET METAL DUCTWORK AND HOUSINGS AS SHOWN ON THE DRAWINGS. ALL DUCTWORK SHALL BE IN CONFORMANCE WITH CURRENT SMACNA STANDARDS RELATIVE TO GAUGE, BRACING, JOINTS, ETC. REINFORCE ALL HOUSINGS AND DUCTWORK OVER 30" WITH 1-1/4" ANGLES NOT LESS THAN 5'-6" ON CENTER, AND CLOSER IF REQUIRED FOR SUFFICIENT RIGIDITY TO PREVENT VIBRATION. SUPPORT HORIZONTAL DUCTWORK FROM STRAP IRON HANGERS ON CENTERS NOT TO EXCEED 8'-0". DO NOT SUPPORT CEILING GRID, CONDUITS, PIPES, EQUIPMENT, ETC. FROM DUCTWORK.

DUCTWORK SHALL BE ASTM G90 GALVANIZED STEEL: ASTM A525, LOCK-FORMING QUALITY, 1.25 OZ. ZINC COATED EACH SIDE.

ALL OFFSETS OF 45 DEGREES OR MORE SHALL HAVE AIRFOIL TYPE TURNING VANES OF SAME GAUGE AS DUCTWORK AND SHALL BE RIGIDLY FASTENED WITH GUIDES AND PINS. VANES IN DUCTWORK OVER 30" DEEP SHALL BE INSTALLED IN MULTIPLE SECTIONS WITH VANES NOT OVER 30" LONG AND SHALL NE RIGIDLY FASTENED.

ALL FANS, BLOWERS, UNITS, ETC., SHALL BE CONNECTED TO DUCTWORK WITH NEOPRENE COATED GLASS CLOTH CANVAS CONNECTIONS, DURO-DYNE, ELGEN, VENTFABRIC OR EQUAL. ALL CANVAS CONNECTIONS SHALL HAVE A FLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPED RATING NOT HIGHER THAN 50.

ROUND SPIRAL DUCTWORK

ALL ROUND SPIRAL DUCTWORK SHALL BE MANUFACTURED BY A COMPANY WHO HAS HAD THE MANUFACTURE OF SPIRAL DUCT AS ITS PRINCIPAL BUSINESS FOR AT LEAST 10 YEARS. MANUFACTURERS: SEMCO, UNITED OR WESCO. IF PRESSURE CLASS IS NOT INDICATED THE DUCTWORK SHALL BE CONSTRUCTED TO 2" W.G. PRESSURE CLASS.

LOW PRESSURE (DUCT PRESSURE CLASS UP TO AND INCLUDING 2" W.G.), FITTINGS 24" IN DIAMETER AND LESS SHALL BE PREFABRICATED, SPOT WELDED AND INTERNALLY SEALED. FITTINGS LARGER THAN 24" IN DIAMETER SHALL BE CONTINUOUSLY WELDED. FITTING GAUGE SHALL BE 22 GAUGE FOR 36" FITTINGS AND UNDER, 20 GAUGE FOR ALL LARGER SIZES. ALL 90 DEGREE TEE'S SHALL BE CONICAL TYPE. SEAL LONGITUDINAL AND TRANSVERSE DUCTWORK JOINTS AIRTIGHT WITH HEAVY LIQUID SEALANT APPLIED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. PROVIDE GAUGE THICKNESS IN MEDIUM PRESSURE (DUCT PRESSURE CLASS 2.1" TO 6" W.G.) DUCTWORK AS RECOMMENDED BY SMACNA.

DUCTWORK SHALL BE ASTM G90 GALVANIZED STEEL: ASTM A525, LOCK-FORMING QUALITY, 1.25 OZ. ZINC COATED EACH SIDE.

FLEXIBLE DUCT

LOW PRESSURE (DUCT PRESSURE CLASS UP TO 2" W.G.) AND MEDIUM PRESSURE (DUCT PRESSURE CLASS 2.1" TO 6" W.G.) FLEXIBLE DUCT SHALL BE FLEXMASTER TYPE 8, THERMAFLEX TYPE GKM, OR EQUAL. DUCT SHALL HAVE FIRE RETARDANT POLYETHYLENE PROTECTIVE VAPOR BARRIER. DUCT SHALL BE UL 181 LISTED, CLASS I, ACOUSTICAL INSULATED. INSULATION SHALL BE 1-1/2" (R-4.2) FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL HAVE CP E LINER WITH STEEL WIRE HELIX MECHANICALLY LOCKED OR PERMANENTLY BONDED TO THE LINER. FLEXIBLE DUCT RUNS SHALL NOT EXCEED 5 FEET IN LENGTH, AND SHALL BE INSTALLED STRAIGHT AS POSSIBLE AVOIDING TIGHT TURNS. FLEXIBLE DUCTS SHALL BE SUPPORTED WITH NOT LESS THAN 1" WIDE, 16 GAUGE STEEL STRAPS, THE USE OF WIRE FOR SUPPORT OF FLEXIBLE DUCTS WILL NOT BE ALLOWED.

ACCESS DOORS IN DUCTS AND HOUSINGS

ALL DUCTS AND HOUSINGS SHALL HAVE HINGED ACCESS DOORS FOR ACCESS TO ALL AUTOMATIC DAMPERS, TEMPERATURE SENSING ELEMENTS, CONTROL DEVICES, FIRE DAMPERS, DAMPER ACTUATORS, AIR FILTERS AND ALL OTHER ITEMS WITHIN THE DUCTWORK OR HOUSING WHICH REQUIRES INSPECTION, SERVICE OR ADJUSTMENT.

ALL ACCESS DOORS SHALL BE SANDWICH TYPE CONSTRUCTION WITH INSULATION BETWEEN THE OUTER AND INNER SHEET METAL PANELS. FRAME SHALL BE MINIMUM 22 GAUGE GALVANIZED STEEL WITH SEAL. DOORS SHALL BE HINGED AND MINIMUM 22 GAUGE GALVANIZED STEEL WITH 1" THICK FIBER GLASS INSULATION. ACCESS DOORS SHALL BE RATED FOR 2" W.G. STATIC PRESSURE MINIMUM. DOORS SHALL BE GASKETED WITH NEOPRENE OR SPONGE RUBBER GASKETS. FOAM PLASTIC GASKET WILL NOT BE ACCEPTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ACCESS DOOR LOCATIONS REGARDLESS OF NOTATIONS ON DRAWINGS. MINIMUM ACCESS DOOR SIZE SHALL BE 12"x18" IF NOT SHOWN ON THE DRAWINGS. WHERE THE DUCTWORK WILL NOT ACCEPT THIS SIZE, THE ACCESS DOOR SHALL BE AS LARGE AND THE DUCTWORK DIMENSIONS WILL ALLOW.

ALL ACCESS DOORS IN DUCTWORK FOR ACCESS TO FIRE DAMPERS, MOTOR OPERATED CONTROL DAMPERS, OR COUNTERBALANCED DAMPERS SHALL HAVE VIEW PORTS OF WIRE-GLASS OR PLEXIGLASS. THE ACCESS DOORS SHALL BE GASKETED AIRTIGHT WITH AN AREA OF NOT LESS THAN 25 SQ. INCHES FOR OBSERVATION OF DAMPERS.

HINGES SHALL BE CONTINUOUS ALUMINUM PIANO TYPE, 1 CAM LATCH FOR DOORS UNDER 14"x14". DOORS 14"x14" AND ABOVE SHALL HAVE 2 CAM LATCHES MINIMUM.

FIRE DAMPERS

PROVIDE FIRE DAMPERS WHERE SHOWN ON THE DRAWINGS, AND AS REQUIRED BY CODE ENFORCING AUTHORITY. DAMPER RATINGS SHALL BE AS REQUIRED TO MAINTAIN THE FIRE AND/OR SMOKE RATINGS NOTED ON THE ARCHITECTURAL DRAWINGS. FIRE DAMPERS SHALL CONFORM TO NFPA-90A AND UBC STANDARD 43-7 WITH RECOMMENDED STEEL SLEEVES, 165 DEGREE FUSIBLE LINK, SPRING CATCHES AND NON-CORROSIVE BEARINGS. DAMPERS SHALL BE UL LISTED, MANUFACTURED BY RUSKIN, GREENHECK, AIR BALANCE OR UNITED INDUSTRIES. PROVIDE ACCESS DOOR AT ALL FIRE DAMPER LOCATIONS AS SPECIFIED ABOVE.

BALANCING DAMPERS

PROVIDE BALANCING DAMPERS WHERE SHOWN ON THE DRAWINGS AND WHEREVER NECESSARY FOR COMPLETE CONTROL OF AIRFLOW. WHERE ACCESS TO DAMPERS THROUGH A HAVD CEILING IS REQUIRED, COORDINATE ACCESS DOOR LOCATION WITH ARCHITECT, OR AT CONTRACTORS OPTION, A YOUNG'S REGULATOR CONCEALED VOLUME DAMPER WITH EXTENSION ROD AND CEILING OPERATOR MAY BE USED. COORDINATE CEILING OPERATOR LOCATION WITH THE ARCHITECT. SPLITTER DAMPERS SHALL BE CONTROLLED BY LOCKING QUADRANTS; PROVIDE YOUNG REGULATOR OR VENTLOK END BEARINGS FOR DAMPER ROD. VOLUME DAMPERS SHALL BE OPPOSED BLADE INTERLOCKING TYPE, FACTORY MADE BY RUSKIN, APC, AIR BALANCE, OR APPROVED EQUIVALENT. OUTSIDE AIR DAMPERS SHALL BE RUSKIN MODEL CD-50, GREENHECK AIR BALANCE OR APPROVED EQUAL. PROVIDE FLEXMASTER MODEL STO OR EQUAL 45 DEGREE RECTANGULAR/ROUND SIDE TAKE-OFF FITTING WITH MODEL SLBO DOUBLE BEARING DAMPER WITH INSULATION BUILD OUT FOR ALL ROUND DUCTWORK BRANCH TAKEOFFS TO INDIVIDUAL AIR DEVICES.

METHOD OF INSTALLATION

COMPLY WITH ALL THE MANUFACTURER'S BEST INSTALLATION RECOMMENDATIONS AND INSTRUCTIONS FOR ALL DUCTWORK AND ACCESSORIES.

FURNISH AND INSTALL ROOF CURBS FOR ALL ROOF MOUNTED DUCTWORK AND ACCESSORIES. SECURELY ANCHOR ROOF CURB TO ROOF STRUCTURE. SECURELY ANCHOR DUCTWORK AND ACCESSORIES TO ROOF CURB. COORDINATE FLASHING AND COUNTERFLASHING WITH ROOFING INSTALLER FOR WATERTIGHT INSTALLATION.

DUCTS SHALL BE CONSTRUCTED, SEALED AND MADE AIR TIGHT FOR PRESSURES INDICATED ON THE DRAWINGS. IF PRESSURE CLASS IS NOT INDICATED ON THE DRAWINGS, THE DUCTS SHALL BE SEALED TO 2" W.G. PRESSURE CLASS. ALL DUCTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA.

PROVIDE OPENINGS IN DUCTWORK TO ACCOMMODATE THERMOMETERS, SENSORS AND CONTROLLERS. PROVIDE PITOT TUBE OPENING FOR TESTING SYSTEMS, COMPLETE WITH METAL CAN WITH SPRING DEVICE OR SCREW TO ENSURE AGAINST AIR LEAKAGE.

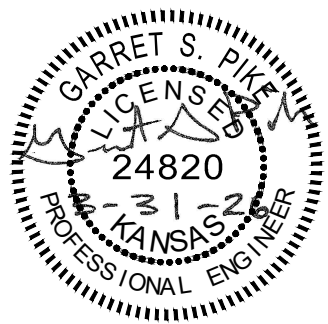
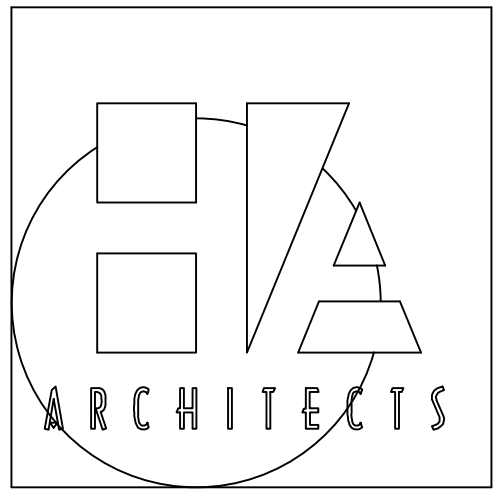
LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES TO THE GREATEST EXTENT POSSIBLE.

THE INTERIOR OF ALL DUCTS AND BOOTS THAT CAN BE SEEN THROUGH GRILLES, REGISTERS, AND DIFFUSERS SHALL BE COATED WITH FLAT BLACK PAINT.

THE SPACE BETWEEN FIRE DAMPER SLEEVE AND THE BUILDING CONSTRUCTION SHALL BE TIGHTLY SEALED OFF WITH GALVANIZED STEEL ANGLE FRAME (NOT LESS THAN 10 GAUGE) ON EACH SIDE OF THE OPENING. SECURELY ATTACH ANGLES TO FIRE DAMPER SLEEVE AND TO THE BUILDING CONSTRUCTION TO COMPLY WITH UL AND NFPA REQUIREMENTS FOR FIRE DAMPER INSTALLATION.

EACH FIRE DAMPER SHIPMENT SHALL INCLUDE THE MANUFACTURER'S UL INSTALLATION INSTRUCTIONS. ALL FIRE DAMPERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S UL INSTALLATION INSTRUCTIONS.

WHERE EXPOSED DUCTWORK PASSES THROUGH NON FIRE-RATED WALLS THE SPACE BETWEEN THE DUCT AND THE OPENING SHALL BE CLOSED WITH A COMPACTED FILL OF 3/4 LB DENSITY FIBERGLASS. PROVIDE AND INSTALL SHEET METAL COLLAR OF NOT LESS THAN 20 GAUGE PAINT-GRIP TYPE GALVANIZED SHEET METAL ON ALL SIDES OF THE DUCTWORK. OVERLAP THE OPENING AND DUCTWORK BU 1-1/2" ON ALL SIDES. SEAL COLLARS AROUND DUCTWORK AND OPENING WITH SILICONE ELASTOMERIC SEALANT.



HANNEY & ASSOCIATES, ARCHITECTS
1726 South Hillside, Wichita, Kansas, 67211
Phone (316) 683-8965
Fax (316) 684-1441
www.haarchitects.com

2026
SEDGWICK COUNTY - EMS POST 1
3099 West 13th Street North
Wichita, Kansas



DRAWINGS ISSUED		
NO.	DATE	ITEM ISSUED
6	6/14/26	REVISIONS
5	3/31/26	PERMIT
4	2/16/26	CHECK SET
3	1/19/26	CHECK SET

ELECTRICAL SPECIFICATIONS

BASIC ELECTRICAL REQUIREMENTS

DRAWINGS AND SPECIFICATIONS
THE CONTRACT DRAWINGS FOR DIVISION 16 WORK ARE IN PART SCHEMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL LAYOUT, DESIGN AND ARRANGEMENT. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN THE LAYOUT OF HIS WORK AND SHALL CONSULT GENERAL INTENT CONSTRUCTION DRAWINGS, STRUCTURAL DRAWINGS, MECHANICAL DRAWINGS AND ALL OTHER DRAWINGS FOR THIS PROJECT TO DETERMINE ALL CONDITIONS AFFECTING THE DIVISION 16 WORK.

WHERE SPECIFIC DETAILS AND DIMENSIONS FOR DIVISION 16 WORK ARE NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL TAKE MEASUREMENTS AND MAKE LAYOUTS AS REQUIRED FOR THE PROPER INSTALLATION OF THE WORK AND COORDINATION WITH ALL OTHER WORK ON THE PROJECT. IN CASE OF ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE SPECIFICATIONS THAT HAVE NOT BEEN CLARIFIED BY ADDENDUM PRIOR TO BIDDING, IT SHALL BE ASSUMED BY THE SIGNING OF THE CONTRACT THAT THE HIGHER COST IS INCLUDED IN THE CONTRACT PRICE.

WORK INCLUDED
THIS WORK SHALL INCLUDE ALL PLANT, LABOR, MATERIAL AND EQUIPMENT AS REQUIRED TO FURNISH AND INSTALL DIVISION 16 WORK INCLUDING DEMOLITION AS SHOWN ON THE DRAWINGS AND AS HEREINAFTER SPECIFIED. FURNISH AND INSTALL ALL MATERIALS, EQUIPMENT, DEVICES AND ACCESSORIES NOT SPECIFICALLY CALLED FOR BY ITEM BUT THAT ARE NECESSARY TO PROVIDE THE REQUIREMENTS IN OPERATION AND FUNCTION THAT IS ESTABLISHED BY THE DESIGN AND BY THE EQUIPMENT SPECIFIED.

WORK TO INCLUDE THE PROCUREMENT OF AND PAYMENT OF ALL PERMITS AND LICENSES REQUIRED FOR THE PERFORMANCE OF THE WORK. WORK TO INCLUDE ALL FEES AND DIRECT EXPENSES INVOLVED IN ANY INSPECTIONS REQUIRED FOR THE PROJECT. ALL SCAFFOLDS, STAGING, RUNWAYS AND EQUIPMENT REQUIRED FOR THE PERFORMANCE OF THE WORK, THE REMOVAL FROM THE PREMISES, AS IT ACCUMULATES, OF ALL DIRT AND REFUSE RESULTING IN THE PERFORMANCE OF THE WORK.

PROTECTION AND DUST CONTROL
THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION TO PREVENT DAMAGE TO ADJACENT AREAS, EQUIPMENT, OR FURNISHINGS; TO PREVENT ACCIDENTAL INJURY TO THE BUILDING OCCUPANTS AND THE PUBLIC; TO PREVENT THE SPREADING OF DUST, DIRT, DEBRIS, AND MOISTURE FROM GETTING ON OR IN THE BUILDING OCCUPANTS FURNISHINGS OR EQUIPMENT.

EXISTING CONDITIONS
EACH BIDDER SHALL INSPECT THE SITE AS REQUIRED FOR KNOWLEDGE OF EXISTING CONDITIONS AND FAILURE TO OBTAIN SUCH KNOWLEDGE SHALL NOT RELIEVE THE SUCCESSFUL BIDDER OF THE RESPONSIBILITY TO MEET THE EXISTING CONDITIONS IN PERFORMING THE WORK UNDER THE CONTRACT.

WHERE EXISTING POWER, LIGHTING OR CONTROL CIRCUITRY IS BROKEN BY REMOVAL OF EXISTING DEVICES, EQUIPMENT OR FIXTURES, OR BY DEMOLITION WORK, CUTTING OR REMOVAL OF EXISTING BUILDING CONSTRUCTION, AND WHERE THE EXISTING CIRCUITRY IS REQUIRED BY REMAINING DEVICES OR EQUIPMENT TO STAY IN SERVICE, THEN THE CIRCUITRY SHALL BE COMPLETED AS REQUIRED BY JOB CONDITIONS.

MATERIAL AND MANUFACTURE
ALL MATERIAL AND EQUIPMENT SHALL BE NEW EXCEPT AS STATED OTHERWISE; SHALL BE OF THE BEST QUALITY AND DESIGN; SHALL BE FREE FROM DEFECTS AND IMPERFECTIONS AND SHALL HAVE MARKINGS OR A NAMEPLATE IDENTIFYING THE MANUFACTURER AND PROVIDING SUFFICIENT REFERENCE TO ESTABLISH QUALITY, SIZE AND CAPACITY.

SUBSTITUTIONS
ALL PRODUCTS PROPOSED FOR USE, INCLUDING THOSE SPECIFIED BY REQUIRED ATTRIBUTES AND PERFORMANCE, SHALL REQUIRE APPROVAL BY THE ENGINEER BEFORE BEING INCORPORATED INTO THE WORK.

WHERE THE PHRASE "OR EQUAL" OR "APPROVED EQUAL" OCCURS IN THE CONTRACT DOCUMENTS, DO NOT ASSUME THAT MATERIALS, EQUIPMENT OR METHODS WILL BE APPROVED AS EQUAL UNLESS THE ITEM HAS BEEN SPECIFICALLY APPROVED FOR THIS WORK BY THE ENGINEER/ARCHITECT.

SAFETY REGULATIONS
ALL DIVISION 16 WORK SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE AND GOVERNING SAFETY REGULATIONS OF THE OCCUPATIONAL AND SAFETY HEALTH ACT.

CODES, ORDINANCES, REGULATIONS AND U.L. APPROVAL
ALL DIVISION 16 WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL APPLICABLE CODES, ORDINANCES AND REGULATIONS INCLUDING THE CURRENT RULES AND REGULATIONS OF THE NATIONAL ELECTRICAL CODE, THE NATIONAL FIRE PROTECTION ASSOCIATION, OSHA AND ALL STATE AND LOCAL LAWS, CODES AND ORDINANCES.

FIXTURES, APPLIANCES, EQUIPMENT AND MATERIALS WHICH ARE SUBJECT TO UNDERWRITERS LABORATORY TESTS SHALL BEAR SUCH APPROVAL.

OPENINGS IN FIRE RATED ASSEMBLIES
WHERE OPENINGS ARE MADE, OR LEFT DUE TO CONSTRUCTION THROUGH FIRE RATED ASSEMBLIES FOR CONDUIT OR PIPES, FOR SLEEVES CONTAINING CABLE OR WIRE, AND OPEN CONDUITS THROUGH FIRE RATED ASSEMBLIES THE AREA AROUND THE OPENINGS, SLEEVES AND CONDUITS SHALL BE FILLED WITH CHASE TECHNOLOGY CORP. HCTCP-855 OR DOW CORNING #3-6548 RTV SILICONE OR APPROVED EQUAL, FIRE RESISTANT FOAM SEALANT AS APPROVED BY THE AUTHORITY HAVING JURISDICTION

ROOF PENETRATIONS
ALL OPENINGS IN THE ROOF FOR ELECTRICAL CONDUITS SHALL BE MADE WEATHER AND WATER TIGHT USING "STONEMAN" MULTI-FLASH OR VERSA-FLASH SEAMLESS FLASHING ASSEMBLY FOR CONDUIT THROUGH 2" DIAMETER. CONDUIT SIZES OVER 2" DIAMETER SHALL HAVE PITCH POCKETS FILLED WITH PITCH AND GALVANIZED DRIP SHIELD INSTALLED AROUND CONDUITS. THE DRIP SHIELD SHALL COMPLETELY COVER THE PITCH POCKET.

EXCAVATION AND BACK FILLING
PERFORM ALL EXCAVATING AND BACK FILLING FOR THE CONSTRUCTION AND INSTALLATION OF THE WORK INCLUDED UNDER THIS DIVISION. LINES SHALL BE USED TO LAYOUT THE TRENCHES FOR ALL UNDERGROUND WORK. TRENCHES CLOSE TO WALLS, FOUNDATIONS, AND COLUMNS SHALL NOT BE EXCAVATED WITHOUT PRIOR CONSULTATION WITH THE ENGINEER/ARCHITECT.

ALL EXCAVATIONS SHALL BE PROPERLY PROTECTED BY THE NECESSARY BRACING AND TIMBERS TO PREVENT ANY CAVE-INS OR INJURY TO ADJACENT IMPROVEMENTS.

CUT AND REPLACE ALL EXISTING WALKS, ROADS, STREET PAVEMENT, CURBS, STEPS, RETAINING WALLS AND MISCELLANEOUS WORK REQUIRED FOR INSTALLATION OR WORK UNDER THIS DIVISION.

THE BACK FILLING OF TRENCHES SHALL BE CARRIED OUT AS RAPIDLY AS THE FINISHED WORK IS APPROVED AND WILL PERMIT. THE TRENCH SHALL BE BACK FILLED IN LAYERS NOT TO EXCEED 6" WITH GOOD SELECTED DRY EARTH THOROUGHLY TAMPED WITH A PNEUMATIC TAMPER. AFTER BACK FILLING, ALL SURPLUS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.

SHOP DRAWINGS AND SAMPLES
SUBMIT FOR APPROVAL SIX (6) SETS OF MANUFACTURER'S SHOP DRAWINGS OF ALL MAJOR ITEMS OF EQUIPMENT AND ALL ITEMS REQUIRING COORDINATION BETWEEN CONTRACTORS. ACCEPTANCE OF THE WORK SHALL BE SUBJECT TO THE ENGINEERS/ARCHITECTS APPROVAL OF SHOP DRAWINGS, PRODUCT DATA AND SAMPLES. SHOP DRAWINGS SHALL INCLUDE MANUFACTURERS DETAIL DRAWINGS OF EQUIPMENT AND MATERIAL AND CONTRACTORS SHOP DETAILS FOR INSTALLATION OF MATERIAL AND EQUIPMENT. DESCRIPTIVE LITERATURE SHALL INCLUDE CATALOG DATA COVERING DESIGN, SIZE AND CAPACITY OF MATERIAL AND EQUIPMENT. SUBMITTALS SHALL INCLUDE THE MANUFACTURERS MODEL NUMBER, CAPACITY, PERFORMANCE DATA, ELECTRICAL CHARACTERISTICS, ETC., ALL CLEARLY SHOWN AND MARKED FOR THE SPECIFIC ITEM OF EQUIPMENT BEING FURNISHED ON THIS PROJECT.

RECORD DRAWINGS
THE CONTRACTOR SHALL KEEP DAY-TO-DAY RECORD OF ALL CHANGES OR VARIATIONS MADE FROM THE CONTRACT DOCUMENTS AND AT THE END OF THE PROJECT SHALL PROVIDE THE OWNER/ARCHITECT/ENGINEER WITH REPRODUCIBLE SETS AS REQUESTED.

WIRING OF MECHANICAL EQUIPMENT
FURNISH AND INSTALL ALL POWER WIRING, AND ALL CONTROL AND INTERLOCK WIRING OF ALL UNITS, PUMPS, FANS, WATER HEATERS, ETC. CONNECT PER MANUFACTURER'S WIRING DIAGRAMS. FURNISH AND INSTALL ALL NECESSARY DISCONNECT SWITCHES REQUIRED. AFTER INSTALLATION OF THE CONTROL INTERLOCK WIRING, THE CONTRACTOR SHALL VERIFY THAT EACH MOTOR LOAD HAS THE

CORRECT PHASE ROTATION. THIS CONTRACTOR SHALL VERIFY THE ACTUAL WIRE SIZING AMPS FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. ELECTRICAL INSTALLATION SHALL BE BASED ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE WIRE AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS. PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT SHALL BE FURNISHED WITHOUT EXTRA COST TO THE CONTRACT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL CHANGES TO BE MADE IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES THAT THE IMPACT ON FEEDERS, PANELS, FUSE AND BREAKER SIZES CAN BE CHECKED PRIOR TO THE INSTALLATION.

WIRING OF THERMOSTATS AND TEMPERATURE CONTROLS
FURNISH AND INSTALL ALL POWER WIRING, AND ALL CONTROL AND INTERLOCK WIRING OF ALL THERMOSTATS AND TEMPERATURE CONTROL DEVICES INCLUDING NIGHTSTATS, TIME SWITCHES, OVERRIDE TIMERS, ETC. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAM.

TELEPHONE SYSTEM PROVISIONS
PROVIDE AND INSTALL 1"x1"x3/4" PLYWOOD ON WALL FOR TELEPHONE EQUIPMENT AT LOCATION SHOWN ON THE DRAWINGS. PROVIDE AND INSTALL FLUSH MOUNTED TELEPHONE OUTLET BOXES WITH 3/4" CONDUIT STUB UP CONCEALED TO ACCESSIBLE CEILING SPACE AT LOCATIONS AS SHOWN ON THE DRAWINGS. PROVIDE AND INSTALL 20A, 120V DUPLEX DEDICATED RECEPTACLE FOR TELEPHONE SYSTEM OR AS REQUIRED BY THE TELEPHONE COMPANY.

DATA SYSTEM PROVISIONS
PROVIDE AND INSTALL FLUSH MOUNTED DATA OUTLET BOXES WITH 3/4" CONDUIT STUB UP CONCEALED TO ACCESSIBLE CEILING SPACE AT LOCATIONS AS SHOWN ON THE DRAWINGS.

ADJUSTING ALIGNING AND TESTING
ALL ELECTRICAL EQUIPMENT ON THIS PROJECT FURNISHED UNDER THIS DIVISION AND ALL ELECTRICAL EQUIPMENT FURNISHED BY OTHERS SHALL BE ADJUSTED, ALIGNED AND TESTED FOR PROPER OPERATION BY THE ELECTRICAL CONTRACTOR. COMPLETE WIRING CIRCUITS SHALL BE FREE FROM SHORT CIRCUITS. ALL MOTORS SHALL BE VERIFIED FOR PROPER PHASE ROTATION. THE CONTRACTOR SHALL PROVIDE TEST DATA READINGS AS REQUESTED OR AS NOTED. THE CONTRACTOR SHALL HAVE THE FOLLOWING READILY ACCESSIBLE AT ALL TIMES DURING THIS PROJECT: A TRUE RMS READING VOLTMETER, A TRUE RMS READING AMMETER, AND A MEGGER INSULATION RESISTANCE METER.

OPERATION AND MAINTENANCE INSTRUCTIONS
SUBMIT TO THE ARCHITECT THREE COPIES EACH OF MATERIAL FOR MAINTENANCE AND OPERATION INSTRUCTION MANUALS, APPROPRIATELY BOUND INTO MANUAL FORM INCLUDING APPROVED COPIES OF THE FOLLOWING, REVISED IF NECESSARY TO SHOW SYSTEM AND EQUIPMENT AS ACTUALLY INSTALLED: MANUFACTURERS CATALOG SHEETS, WIRING DIAGRAMS, MAINTENANCE INSTRUCTIONS, OPERATING INSTRUCTIONS, PARTS LIST. CONTRACTOR SHALL ALSO PROVIDE ADEQUATE VERBAL INSTRUCTIONS OF SYSTEM OPERATION TO OWNER'S REPRESENTATIVE AT THE TERMINATION OF THE WORK.

STARTUP OF SYSTEMS
PRIOR TO STARTUP OF THE ELECTRICAL SYSTEMS, THE CONTRACTOR SHALL CHECK ALL COMPONENTS AND DEVICES, LUBRICATE ITEMS ACCORDINGLY, AND TIGHTEN ALL SCREWED AND BOLTED CONNECTIONS. ADJUST TAPS ON EACH TRANSFORMER FOR RATED SECONDARY VOLTAGE. CHECK SERVICE ENTRANCE VOLTAGE, GROUNDING CONDITIONS, GROUNDING RESISTANCE AND PROPER PHASING. BALANCE SINGLE PHASE LOADS AT EACH PANELBOARD, REDISTRIBUTING BRANCH CIRCUIT CONNECTIONS UNTIL BALANCE IS ACHIEVED. AFTER ALL SYSTEMS HAVE BEEN INSPECTED AND ADJUSTED, CONFIRM ALL OPERATING FEATURES REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND MAKE FINAL ADJUSTMENTS AS NECESSARY.

GUARANTEE
GUARANTEE AGAINST WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL PAYMENT. GUARANTEE SHALL INCLUDE MATERIAL TO BE REPLACED AND ALL LABOR REQUIRED.

ELECTRICAL IDENTIFICATION

DESCRIPTION OF WORK
PROVIDE AND INSTALL REQUIRED IDENTIFICATION FOR THE SYSTEMS AND EQUIPMENT SHOWN ON THE DRAWINGS AND/OR SPECIFIED.

UNDERGROUND PLASTIC LINE MARKER: MANUFACTURERS STANDARD PERMANENT, BRIGHT-COLORED, CONTINUOUS-PRINTED PLASTIC TAPE, FOR DIRECT BURIAL SERVICE; MINIMUM 6" WIDE X 4 MILS THICK. PRINTING TO INDICATE TYPE OF SERVICE CABLE, WITH LARGE (MINIMUM 2-1/2") HIGH LETTERS.

CABLE/CONDUCTOR IDENTIFICATION BANDS: MANUFACTURERS STANDARD VINYL SELF-ADHESIVE SELF LAMINATING CABLE/CONDUCTOR MARKERS, WRAP AROUND TYPE; PRE-NUMBERED PLASTIC COATED, OR WRITE-ON TYPE WITH CLEAR PLASTIC SELF-ADHESIVE COVER FLAP, LETTERING TO SHOW CIRCUIT IDENTIFICATION. SIMILAR TO PANDUIT "INSTACODE" OR ACCEPTED EQUIVALENT BY T&B OR TYTON.

SELF-ADHESIVE PLASTIC SIGNS: MANUFACTURERS STANDARD, SELF ADHESIVE, PRE-PRINTED, FLEXIBLE VINYL SIGNS FOR OPERATIONAL INSTRUCTIONS OR WARNINGS.

DANGER SIGNS: MANUFACTURERS STANDARD "DANGER" SIGNS, BAKED ENAMEL FINISH ON 20 GAUGE STEEL; STANDARD RED, BLACK AND WHITE GRAPHICS.

RACEWAYS

DESCRIPTION OF WORK
INSTALLATION OF RACEWAY SYSTEMS FOR ALL WORK IN DIVISION 16 INCLUDING REQUIRED FITTINGS AND SUPPORTS.

ALL CONDUCTORS SHALL BE INSTALLED IN METALLIC CONDUIT UNLESS SPECIFIED.

PRODUCTS
ALL CONDUIT SHALL BE ELECTRICAL METALLIC TUBING (EMT), EXCEPT CONDUIT LARGER THAN 4" DIAMETER, CONDUIT OUTDOORS OR IN WET OR DAMP LOCATIONS, OR IN NEC CLASSIFIED HAZARDOUS LOCATIONS, CONDUIT IN EARTH OR BELOW GRADE, AND EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS OR SPECIFIED OTHERWISE.

ELECTRICAL METALLIC TUBING TO BE THREADLESS, STEEL TYPE CONFORMING TO ANSI STANDARD C80.3, NEC 348, AND UL 797, GALVANIZED INSIDE AND OUT.

ALL EMT FITTINGS TO BE COMPRESSION TYPE UNLESS OTHERWISE NOTED.

ALL UNDERGROUND CONDUIT SHALL BE RIGID. ENCASE EACH UNDERGROUND CONDUIT IN CONCRETE AS INDICATED ON THE DRAWINGS.

SHORT SECTIONS OF FLEXIBLE CONDUIT (GREENFIELD) SHALL BE USED FROM JUNCTION OR OUTLET BOXES TO LIGHTING FIXTURES AS PERMITTED BY THE NATIONAL ELECTRICAL CODE. CONNECTIONS FROM OUTLET BOXES ABOVE CEILINGS TO FLUORESCENT FIXTURES RECESSED IN CEILING SHALL BE MADE WITH FLEXIBLE METALLIC STEEL CONDUIT NOT TO EXCEED 6 FEET IN LENGTH. FINAL CONNECTIONS TO MOTORS, TRANSFORMERS, AND TO ANY PIECE OF EQUIPMENT THAT WILL TRANSMIT MOTION, NOISE OR VIBRATION, SHALL BE FLEXIBLE METAL CONDUIT. FLEXIBLE CONDUIT SHALL NOT BE INSTALLED OUTDOORS OR IN DAMP LOCATIONS. ALL FLEXIBLE CONDUIT IN DENTAL SPACE SHALL BE HCF TYPE.

LIQUID TIGHT FLEXIBLE STEEL CONDUIT SHALL BE USED WHEN MAKING CONNECTIONS IN THE FOLLOWING CONDITIONS: EXPOSED TO LIQUIDS, EXPOSED TO VAPORS, EXPOSED TO SUNLIGHT.

INSTALLATION
CONDUITS SHALL BE RUN PARALLEL AND PERPENDICULAR TO BUILDING LINES AND SHALL BE RUN AGAINST THE STRUCTURE IN A NEAT WORKMANLIKE MANNER.

CONDUIT SHALL BE INSTALLED CONCEALED ABOVE SUSPENDED CEILINGS OR CONCEALED IN WALLS OR FLOORS WHEREVER POSSIBLE. CONDUIT SHALL BE INSTALLED TO CLEAR ALL OPENINGS, DEPRESSIONS, PIPES, DUCTS, REINFORCING STEEL, ETC. ALL CONDUIT SHALL BE RAN OVERHEAD. CONDUIT SHALL BE RAN CONTINUOUS BETWEEN CONNECTIONS TO OUTLET BOXES AND CABINETS WITH MINIMUM POSSIBLE NUMBER OF BENDS. RADIUS OF BENDS SHALL BE AS LONG AS POSSIBLE AND NEVER SHORTED THAN THE CORRESPONDING TRADE ELBOW. LONG RADIUS ELBOWS SHALL BE USED WHERE NECESSARY. CONDUITS SHALL BE SECURELY FASTENED IN PLACE WITH APPROVED STRAPS, HANGERS AND STEEL SUPPORTS AS REQUIRED. SINGLE CONDUITS FOR FEEDERS SHALL BE HUNG WITH MALLEABLE SPLIT RING HANGERS WITH ROD AND TURNBUCKLE SUSPENSION FROM INSERTS SPACED NOT OVER 10 FEET APART FROM CONSTRUCTION ABOVE. GROUPS OF HORIZONTAL FEEDER CONDUITS SHALL BE CLAMPED TO UNISTRUT STEEL CHANNELS AND SUSPENDED FROM INSERTS NOT SPACED OVER 10 FEET APART IN CONSTRUCTION ABOVE. HORIZONTAL FEEDER CONDUITS SHALL BE CLAMPED TO

STRUCTURAL STEEL MEMBERS ATTACHED TO THE STRUCTURE. CABLE CLAMPS SHALL BE INSTALLED FOR SUPPORT OF VERTICAL FEEDERS WHERE REQUIRED. CONDUIT SUPPORTS SHALL BE ADDED WITHIN 12" AT ONE END OF ALL BENDS. CONDUIT SHALL NOT BE SUSPENDED FROM SUSPENDED CEILING COMPONENTS.

CONDUIT ENDS SHALL BE REAMED BEFORE INSTALLATION AND ALL CONDUIT SHALL BE THOROUGHLY CLEANED BEFORE INSTALLATION AND KEPT CLEAN AFTER INSTALLATION. PLUG CONDUIT AND BOXES AS REQUIRED DURING CONSTRUCTION TO KEEP CONDUIT CLEAN.

CONDUIT SHALL BE OF AMPLE SIZE TO PULL CONDUCTORS AND NOT SMALLER THAN THE CODE REQUIRED. MINIMUM SIZE CONDUIT SHALL BE 1/2" FOR THIS PROJECT.

WHERE BUILDING EXPANSION JOINTS ARE SHOWN ON THE DRAWINGS PROVIDE PROPER CONDUIT EXPANSION FITTING.

CONDUIT SEALS SHALL BE INSTALLED ON ALL CONDUITS PASSING FROM NON-COOLED TO COOLED SPACES AND IN ALL CONDUIT PENETRATIONS OF FREEZER AND COOLER WALLS. SEALS SHALL CONSIST OF PLIABLE COMPOUND RATED FOR -20 DEGREES F. TO 100 DEGREES F. FURNISH AND INSTALL THE NECESSARY JUNCTION BOXES, COUPLINGS, SUPPORTS, ADAPTERS, ETC. TO FORM A COMPLETE ASSEMBLY.

INSTALL A PULL WIRE IN EACH EMPTY CONDUIT WHICH IS LEFT BY THE CONTRACTOR.

ALL CONDUITS AND/OR SURFACE RACEWAYS SHALL BE PAINTED WHERE INSTALLED EXPOSED IN FINISHED SPACES. PAINTING OF SURFACE RACEWAYS SHALL BE AS DIRECTED BY THE ENGINEER/ARCHITECT.

CONDUCTORS (LOW VOLTAGE, 600 VOLTS)

DESCRIPTION OF WORK
FURNISH AND INSTALL 600 VOLT CONDUCTORS AND ASSOCIATED SPLICES, CONNECTORS AND TERMINATION'S FOR LIGHTING, POWER AND AUXILIARY SYSTEMS AS SHOWN ON THE CONTRACT DOCUMENTS.

MATERIAL
98% CONDUCTIVITY COPPER. NEC TYPE THHN/THWN (90 C DRY/75 C WET) WITH UL LABEL. ALL CONDUCTORS TO BE IN CONDUIT.

SINGLE CONDUCTOR, STRANDED (ALL SIZES), SOFT ANNEALED COPPER CONDUCTORS WITH 600 VOLT THERMOPLASTIC INSULATION AND NYLON JACKET.

WIRE SMALLER THAN #12 GAUGE SHALL NOT BE USED UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS OR IN THESE SPECIFICATIONS.

WIRE INSULATION SHALL BE COLOR COATED AS FOLLOWS OR PER LOCAL ORDINANCES:
120/240V - A-BLACK, B-RED, C-ORANGE, NEUTRAL-WHITE, G-GREEN
120/208V - A-BLACK, B-RED, C-BLUE, NEUTRAL-WHITE, G-GREEN
277/480V - A-BROWN, B-ORANGE, C-YELLOW, NEUTRAL-GRAY, G-GREEN

BLACK INSULATION IS ACCEPTABLE FOR #8 WIRE AND LARGER. CONDUCTOR ENDS SHALL BE WRAPPED WITH COLORED TAPE AS INDICATED ABOVE.

IF NO WIRE SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE #12 AWG WIRE AND A 20A CIRCUIT BREAKER. CONTROL WIRING SHALL HAVE 600V INSULATION AND BE OF THE PROPER TYPE, SIZE AND NUMBER REQUIRED TO ACCOMPLISH SPECIFIED FUNCTION.

INSTALLATION
ALL WIRING SHALL BE INSTALLED IN APPROVED RACEWAYS OR ENCLOSURES. WIRE IN CONDUIT SHALL RAN CONTINUOUS WITHOUT SPLICES OR TAPS. ALL SPLICES OR TAPS SHALL OCCURS IN APPROVED BOXES AND ENCLOSURES AND SHALL BE KEPT TO A MINIMUM, AND SHALL BE MADE WITH APPROVED SOLDERLESS CONNECTIONS. ALL SPLICES, TAPS AND JOINTS SHALL BE INSULATED PER THE NATIONAL ELECTRICAL CODE. ALL MATERIALS USED TO TERMINATE, SPLICE OR TAP CONDUCTORS SHALL BE DESIGNED FOR, PROPER SIZE FOR, AND UL LISTED FOR THE SPECIFIC APPLICATION AND CONDUCTORS INVOLVED, AND SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, USING THE MANUFACTURER'S RECOMMENDED TOOLS.

WHERE WIRE IS TO BE INSTALLED, BUT THE CONNECTION IS INDICATED "FUTURE" OR "BY OTHERS", THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 3 FEET OF "PIGTAIL" AT THE BOX. TAPE ALL CONDUCTOR ENDS AND COVER THE BOX.

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 2%. ALL BRANCH CIRCUITS SHALL HAVE EQUIPMENT GROUNDING CONDUCTOR'S AND SHALL BE SIZED PER NEC TABLE 250-95.

OUTLET BOXES, JUNCTION BOXES AND WIRING BODIES/GUTTERS

DESCRIPTION OF WORK
FURNISH AND INSTALL OUTLET BOXES, FLOOR BOXES, PULL BOXES, JUNCTION BOXES AND WIRING GUTTERS AS SHOWN ON THE CONTRACT DOCUMENTS OR AS REQUIRED.

OUTLET/JUNCTION BOXES
PROVIDE WIRING DEVICES, FIXTURES AND SPECIAL SYSTEM DEVICES WITH OUTLET BOX. USE GALVANIZED STEEL BOXES CONFORMING TO UL STANDARD 514A FOR CONCEALED AND EXPOSED DRY LOCATIONS. ALL BOXES SHALL HAVE MATCHING COVER PLATES.

USE 1/16" THICK STEEL BOXES AND COVERS OF FORM AND DIMENSION ADAPTED TO ITS SPECIFIC USE AND LOCATION, KIND OF FIXTURE OR DEVICE TO BE USED AND NUMBER, SIZE AND ARRANGEMENT OF CONNECTION CONDUITS AND NUMBER OF WIRES IN OUTLET, ALL IN ACCORDANCE WITH THE NEC. ALL BOXES SHALL BE SET IN WALLS, COLUMNS, FLOORS, OR CEILINGS SO AS TO BE FLUSH WITH THE FINISHED SURFACE AND BE ACCURATELY SET AND RIGIDLY SECURED IN POSITION. PROVIDE PLASTER RINGS, EXTENSION RINGS AND MASONRY RINGS AS REQUIRED FOR FLUSH MOUNTING.

LARGE PULL BOXES
FURNISH PULL, TAP AND CABLE SUPPORT BOXES REQUIRED BY THE NEC FOR EXCESSIVE NUMBER OF 90 DEGREE CONDUIT BENDS, CONDUIT TAPS AND CABLE SUPPORTS.

BOX CONSTRUCTION PER NEC AND CONFORMING TO UL STANDARD #50. BOX TO BE MANUFACTURED WITH MINIMUM 12 GAUGE GALVANIZED STEEL.

PROVIDE SEPARATE PULL BOX FOR EACH FEEDER.

BOXES LOCATED IN DAMP OR WET LOCATIONS SHALL BE WELDED CONSTRUCTION AND FINISHED WHITE INSIDE AND GRAY OUTSIDE WITH WATERPROOF PAINT. PROVIDE GASKETED DOOR AND CORNERS. PROVIDE RAIN DRIP SHIELDS. BOXES SHALL CARRY NEMA 3R (WEATHERPROOF) OR NEMA 4 (WATERTIGHT) LABELS AS SPECIFIED.

CONDUIT BODIES
CONDUIT BODIES SHALL BE INSTALLED TO PROVIDE EASE OF CONDUCTORS AND TO PROVIDE NEAT APPEARANCE TO CONDUIT INSTALLATION, AND AS SHOWN ON THE DRAWINGS. CONDUIT BODIES SHALL BE CONSTRUCTED OF MALLEABLE IRON OR COPPER FREE ALUMINUM CASTINGS. BODIES SHALL BE FINISHED WITH STANDARD DURABLE EXTERIOR COATINGS OF MANUFACTURER SPECIFIED. PROVIDE ROLLERS IN TYPE "C" AND TYPE "LB" BODIES, 1-1/4" SIZE AND LARGER. PROVIDE GASKETED PLATED STEEL OR MALLEABLE IRON COVERS.

GUTTERS (WIREWAYS)
8"x8" AND SMALLER - USE STANDARD ASSEMBLE CONSISTING OF CODE GAGE GALVANIZED OR PAINTED STEEL AND COMBINATION HINGED/SCREWED COVERS.

SURFACE METAL RACEWAYS
WHERE INDICATED ON THE DRAWINGS, WIRING SHALL BE RUN IN EXPOSED METAL RACEWAYS, COMPLETE WITH OUTLET BOXES AND FITTINGS. ALL CIRCUITS RUN IN SURFACE METAL RACEWAYS SHALL HAVE GROUND CONDUCTOR WITH GREEN INSULATION SIZED PER NEC, BUT NOT SMALLER THAN #12 AWG SCREW CONNECTED TO EACH OUTLET BOX.

PANELBOARDS

DESCRIPTION OF WORK
PROVIDE AND INSTALL LIGHTING AND POWER PANEL BOARDS, RATED FOR 600 VOLTS OR LESS, AS SPECIFIED HEREIN AND AS SHOWN OR INDICATED ON THE DRAWINGS AND SCHEDULES.

SUBMITTALS
PROVIDE SHOP DRAWINGS FOR EACH PANELBOARD. INCLUDE INDIVIDUAL DIAGRAM OF EACH PANELBOARD SHOWING ALL SPECIFIED REQUIREMENTS. IN ADDITION, SUBMITTALS SHALL INDICATE OVERALL PANELBOARD DIMENSIONS, INTERIOR DIMENSIONS, BUS CONFIGURATION, WIRE GUTTER DIMENSIONS, SHORT CIRCUIT RATING PANELBOARD AND OVERCURRENT DEVICES.

STANDARDS
CONSTRUCT PANELBOARDS IN ACCORDANCE WITH THE LATEST ADDITION OF THE FOLLOWING STANDARDS:
UL STANDARDS NO. 50, 67, 98, 489, AND 493
NEMA PUBLICATION PB-1
NEC ARTICLE 384

PANELBOARD ASSEMBLY SHALL BE UL LABELED, AND LABELED AS SERVICE ENTRANCE EQUIPMENT WHERE USED FOR THAT PURPOSE.

16134.04 - BASIC PANELBOARD CONSTRUCTION
PANELBOARDS TO BE SAME MANUFACTURER AS OTHER DISTRIBUTION EQUIPMENT

PANELBOARDS, BUSSING AND OVERCURRENT DEVICE SHALL HAVE INTEGRATED EQUIPMENT FAULT RATING EQUAL TO OR GREATER THAN THE AVAILABLE FAULT CURRENT.

BUSSING SHALL BE 98% CONDUCTIVITY COPPER SIZED TO NEC AND NEMA STANDARDS.

NEUTRAL BUSSES SHALL BE COPPER AND SIZED FOR 100% ON THE SAME BASIS AS PHASE BUSSING AS DESCRIBED AND INSULATED FROM THE CABINET.

PROVIDE 100% CAPACITY CONTINUOUS COPPER GROUND BUS IN EACH PANEL CABINET. GROUND BUSSES SHALL BE BOLTED TO THE CABINET UNLESS SPECIFIED TO BE ISOLATED

FURNISH PANELBOARDS WITH VOLTAGE, CURRENT, SHORT CIRCUIT RATING, SIZE AND MOUNTING AS INDICATED ON THE DRAWINGS AND SCHEDULES. IF THE DRAWINGS DO NOT STATE THE INTERRUPT RATING IT SHALL BE 100,000AIC.

POWER DISTRIBUTION PANELBOARDS (1200A AND SMALLER)
POWER DISTRIBUTION PANELS TO BE SQUARE-D TYPE I-LINE OR APPROVED EQUAL. CIRCUIT BREAKERS SHALL BE BOLT-ON, THERMAL-MAGNETIC TYPE, QUICK-MAKE, QUICK-BREAK, ENCLOSURE COMPENSATED, OF SINGLE CONSTRUCTION, TRIP FREE ON FAULTS, THERMAL-INVERSE TIME DELAY ELEMENT AND MAGNETIC INSTANTANEOUS TRIP COIL IN EACH UNGROUNDED PHASE CONDUCTOR, OR APPROVED (4) FOUR FUNCTION SOLID STATE TRIP UNIT. THE (4) FOUR FUNCTION SOLID STATE TRIP UNIT SHALL INCLUDE LONG TIME DELAY, SHORT TIME DELAY, INSTANTANEOUS AND GROUND FAULT.

AT A MINIMUM GROUND FAULT PROTECTION OF EQUIPMENT SHALL BE PROVIDED FOR SOLIDLY GROUNDED WYE ELECTRICAL SERVICES FOR EACH SERVICE DISCONNECT RATED FOR 1000 AMPERES OR MORE PER NEC 230.

PANEL CABINETS SHALL BE CODE GAUGE GALVANIZED STEEL BOXES WITH TURNED EDGES, REMOVABLE BARRIERS, WIRE GUTTERS ON ALL SIDES AND KNOCKOUTS FOR CONDUIT CONNECTIONS. CABINETS SHALL HAVE ONE PIECE FRONTS AND SHALL HAVE HINGED KEY LOCKING DOORS.

LIGHTING AND APPLIANCE PANELBOARDS
LIGHTING AND APPLIANCE PANELBOARDS SHALL BE SQUARE-D TYPE NQOD OR NEHB OR APPROVED EQUAL. PANELBOARDS SHALL BE DESIGNED AS SHOWN ON THE DRAWINGS. NUMBER AND SIZE OF CIRCUIT BREAKERS IN EACH PANELBOARD SHALL BE AS SCHEDULED ON THE DRAWINGS.

BREAKERS SHALL BE THERMAL MAGNETIC TYPE, QUICK MAKE, QUICK BREAK, ENCLOSURE COMPENSATED, OF SINGLE CONSTRUCTION. TWO OR THREE POLE BREAKERS, WHERE CALLED FOR, SHALL BE SINGLE UNIT COMMON TRIP. BREAKERS SHALL BE BOLT-ON TYPE.

CABINETS SHALL BE CONSTRUCTED OF ONE PIECE CODE GAUGE GALVANIZED STEEL THE MOUNTING STUDS AND KNOCKOUTS FOR CONDUIT CONNECTIONS AS REQUIRED. FRONTS SHALL BE ONE PIECE ON CODE GAUGE FURNITURE STEEL WITH ADJUSTABLE FASTENERS AND RECESSED DOORS FITTED WITH CONCEALED HINGES, FLUSH CATCH AND LOCK. CABINETS SHALL BE SURFACE OR FLUSH MOUNTED AS INDICATED ON THE DRAWINGS. ALL FRONTS AND ALL SURFACE MOUNTED CABINETS SHALL HAVE RUSTPROOF PRIME COAT AND 2 FINISHED COATED OF ENAMEL OR LAQUER.

ALL BRANCH CIRCUITS TO PANELBOARDS SHALL BE CONNECTED IN A MANNER SO THAT LOADS ARE BALANCED OVER EACH PHASE AS EQUALLY AS POSSIBLE. THE BACK DOOR SHALL BE FITTED WITH A GLASS OR PLASTIC COVERED TYPEWRITTEN SCHEDULE IDENTIFYING ALL BRANCH CIRCUITS.

BREAKERS USED AS SWITCHES FOR 120 OR 277 VOLT CIRCUITS SHALL BE APPROVED FOR THE PURPOSE AND AND MARKED "SWB".

BREAKERS USED FOR PROTECTION OF HVAC EQUIPMENT SHALL BE HACR TYPE.

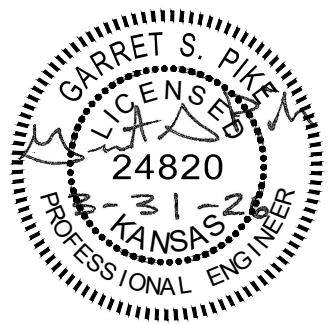
IDENTIFICATION
PERMANENTLY ATTACH NAMEPLATES AND CIRCUIT NUMBERS TO EACH PANEL

PROVIDE EACH PANELBOARD WITH NAMEPLATE SHOWING PANEL DESIGNATION, VOLTAGE RATING AND PHASE.

LABEL SHALL BE ENGRAVED LAMINATED-PLASTIC NAMEPLATE. NAMEPLATES SHALL BE BLACK WITH 1/4" HIGH WHITE LETTERS UNLESS OTHERWISE SPECIFIED.

INSTALLATION
MOUNT PANELBOARDS SECURELY TO BUILDING STRUCTURE WITH 3/8" MINIMUM DIAMETER GALVANIZED BOLTS AND INSERTS NUMBERED AS REQUIRED FOR THE SIZE OF THE PANEL, BUT NOT LESS THAN 4. MOUNT PANELBOARDS WITH CENTERLINE 4'-6" APPROXIMATELY ABOVE FINISHED FLOOR WITH THE TOP A MAXIMUM OF 74" AFF. WHERE PANELS OF DIFFERENT HEIGHTS ARE MOUNTED ADJACENT, INSTALL THE TOP PANEL TRIM AT THE SAME HEIGHT ABOVE THE FLOOR. CLOSE ALL UNUSED OPENINGS.

MOUNT FEEDER PANELBOARDS TALLER THAN 66" ON 4" HIGH 2500# CONCRETE PAD AND BOLT TO THE WALL AND THE PAD WITH 1/2" DIAMETER BOLTS AND INSERTS.



HANNEY & ASSOCIATES, ARCHITECTS
1726 South Hillside, Wichita, Kansas, 67211
Phone (316) 683-8965
Fax (316) 684-1441
www.haarhitects.com

2026
SEDGWICK COUNTY - EMS POST 1
3099 West 13th Street North
Wichita, Kansas



DRAWINGS ISSUED		
NO.	DATE	ITEM ISSUED
6	6/14/26	REVISIONS
5	3/31/26	PERMIT
4	2/16/26	CHECK SET
3	1/15/26	CHECK SET
2	12/19/25	CHECK SET
1	12/12/25	CHECK SET

COMPUTER DRAWING	
------------------	--

DATE: JANUARY 2026	
DRAWN BY:	CHECKED BY:
CH, TH, FH, TB	MH
SHEET	
E4.0	
OF 1	SHEETS

PIKE
consulting engineers
mechanical | electrical | plumbing
316.215.7025 | www.pikeengineers.com

SWITCHES & RECEPTACLES

DESCRIPTION OF WORK
WIRING DEVICES, PLATES AND INSTALLATION.

DEVICES
FURNISH AND INSTALL DEVICES AND ASSOCIATED DEVICE PLATES AS SHOWN ON THE DRAWINGS. ALL OUTLETS AND SWITCHES SHALL BE OF THE SAME MANUFACTURER. COLORS OF SWITCHES AND RECEPTACLES SHALL BE AS REQUESTED BY THE ARCHITECT.

STANDARD RECEPTACLES, UNLESS OTHERWISE NOTED, SHALL BE 3 WIRE GROUNDED TYPE, NEMA CONFIGURATION 5-20R, DUPLEX RECEPTACLE RATED AT 20 AMPS AT 125VAC. RECEPTACLES TO COMPLY WITH UL STANDARD 498 AND FEDERAL SPECIFICATION W-C-596. PASS AND SEYMOUR #5352.

GROUND-FAULT INTERRUPTER (GFCI) RECEPTACLES: UL STANDARD 943, "GROUND FAULT INTERRUPTERS," FEED-THROUGH TYPE, WITH INTEGRAL NEMA 5-20R DUPLEX RECEPTACLE. ARRANGE THE GFCI RECEPTACLE TO PROTECT CONNECTED DOWNSTREAM RECEPTACLES ON THE SAME CIRCUIT AS SHOWN OR AS REQUIRED. PASS AND SEYMOUR #2091.

PENDENT CORD/CONNECTOR DEVICES: MATCHING, LOCKING TYPE, PLUG AND RECEPTACLE BODY CONNECTOR, NEMA LS-20P AND LS-20R, HEAVY DUTY GRADE UNLESS OTHERWISE SPECIFIED.

CORD AND PLUG SETS: MATCH VOLTAGE AND CURRENT RATINGS AND THE NUMBER OF CONDUCTORS TO THE REQUIREMENTS OF THE EQUIPMENT BEING CONNECTED. THE CORD SHALL BE RUBBER INSULATED, STRANDED COPPER CONDUCTORS, WITH TYPE SOW-A JACKET.

SNAP SWITCHES: QUIET TYPE A.C. SWITCHES, LISTED AND LABELED TO COMPLYING WITH UL STANDARD 20 "GENERAL USE SNAP SWITCHES", AND FEDERAL SPECIFICATION W-5-896.

SINGLE POLE SWITCH: PASS AND SEYMOUR #20AC1

THREE WAY SWITCH: PASS AND SEYMOUR #20AC3

KEY SWITCH: PASS AND SEYMOUR #20AC1-L

DIMMER SWITCH: PASS AND SEYMOUR #91581

PILOT LIGHT SWITCH: PASS AND SEYMOUR #20AC1-RPL

WHERE INDICATED ON THE PLANS PROVIDE PILOT LIGHT WITH THE ABOVE SNAP SWITCHES. PILOT LIGHT SHALL AND SWITCH TO BE INSTALLED IN A TWO GANG PLATE WITH FLUSH NEON PILOT LIGHT FOR 125 OR 227 VOLT OPERATION AS APPLICABLE, WITH A RED PLASTIC JEWEL LENS.

DEVICE PLATES

FURNISH AND INSTALL ALL DEVICE COVER PLATES, 0.1" THICK SMOOTH PLASTIC COVER PLATES. VERIFY COLOR AND MATERIAL WITH THE ARCHITECT BEFORE INSTALLATION. SWITCH PLATES IN UNFINISHED ROOMS SHALL BE STAMPED STEEL PLATES, CADMIUM PLATED.

DEVICE PLATE SHALL BE MANUFACTURED BY THE DEVICE MANUFACTURER WHERE APPLICABLE.

FURNISH WEATHER PROOF DEVICES WITH INDIVIDUAL GASKETED ALUMINUM OR STAINLESS STEEL COVERS.

MULTI-OUTLET ASSEMBLIES

COMPLY WITH STANDARD UL-5 "SURFACE METAL RACEWAYS AND FITTINGS".

COMPONENTS OF ASSEMBLIES: PRODUCTS OF A SINGLE MANUFACTURER DESIGNED TO BE USED TOGETHER TO PROVIDE A COMPLETE MATCHING ASSEMBLY OF RACEWAYS AND RECEPTACLES.

RACEWAY MATERIAL: METAL WITH MANUFACTURERS STANDARD CORROSION RESISTANT FINISH.

WIRE:NO. 12 AWG MINIMUM.

INSTALLATION

INSTALL DEVICES VERTICAL 48" AFF FOR SWITCHES AND 18" AFF FOR RECEPTACLES UNLESS OTHERWISE SHOWN. DEVICES SHALL BE INSTALLED PLUMB AND SECURE ON ALL SIDES. INSTALL RECEPTACLES WITH GROUND SLOT DOWN.

DISCONNECTS (MOTOR, CIRCUIT, AND SEPARATE CIRCUIT BREAKERS)

DESCRIPTION OF WORK

FURNISH AND INSTALL SAFETY SWITCHES, DISCONNECTS AND SEPARATELY MOUNTED ENCLOSED CIRCUIT BREAKERS RATED TO 1200 AMPERES, 600 VOLTS AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

STANDARDS

UL STANDARD 98

NEMA STANDARD KS1-1983 FOR ENCLOSED SWITCHES

NEMA AB1-1996 FOR MOLD CASE CIRCUIT BREAKERS AND SWITCHES

DISCONNECT SWITCHES

DISCONNECT SWITCHES SHALL BE HEAVY DUTY, RATED FOR 250 OR 600 VOLTS AS REQUIRED.

SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK OPERATION AND HORSEPOWER RATED. THE OPERATING HANDLE SHALL BE INTERLOCKED WITH THE SWITCH DOOR TO PREVENT OPENING OF THE DOOR WITH THE SWITCH CLOSED. PROVIDE MECHANICAL OVERRIDE FOR AUTHORIZED PERSONNEL TO OPEN THE SWITCH DOOR WITHOUT OPERATING THE SWITCH HANDLE.

SWITCHES SHALL BE FUSIBLE OR NON-FUSIBLE AS SHOWN. FURNISH ONE TIME, DUAL ELEMENT, CLASS KS, REJECTION TYPE FUSES FOR EACH FUSIBLE POSITION, RATING AS SHOWN. FURNISH 3 SPARE FUSES FOR EACH RATING.

FUSIBLE SWITCHES LARGER THAN 600 AMPS SHALL BE SUITABLE FOR CLASS L FUSES. FUSES SERVING PREDOMINANTLY MOTOR OR TRANSFORMER LOADS SHALL BE DUAL ELEMENT, TIME DELAY TYPE, OTHERWISE NON-TIME DELAY FAST ACTING TYPE IS REQUIRED. FUSES SHALL BE CURRENT LIMITING WITH 200,000AIC.

FURNISH SOLID NEUTRAL FOR EACH SWITCH BEING INSTALLED IN A CIRCUIT WHICH INCLUDES A NEUTRAL CONDUCTOR. FURNISH A GROUNDING PAD FOR CONNECTION OF CIRCUIT GROUND WIRES.

PROVIDE MECHANICAL LUGS AND POWER DISTRIBUTION CONNECTORS FOR NUMBER, SIZE, AND MATERIAL OF CONDUCTORS AS INDICATED ON THE DRAWINGS.

THE DISCONNECT SWITCH SHALL BE FURNISHED WITH PROVISIONS FOR LOCKING WITH A PADLOCK. ENCLOSURES FOR SWITCHES TO BE NEMA 1, GENERAL PURPOSE INDOOR, OR NEMA 3R OR 4 FOR OUTDOOR LOCATIONS, WATERTIGHT.

SEPARATELY MOUNTED CIRCUIT BREAKERS

FURNISH AND INSTALL SEPARATELY MOUNTED CIRCUIT BREAKERS FOR OVERCURRENT PROTECTION OF FEEDERS AND BRANCH CIRCUITS WHERE SHOWN ON THE DRAWINGS.

CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC, MOLDED CASE TYPE, RATED FOR 600 VOLTS. THE INTERRUPT RATING SHALL BE AS SHOWN OR ON THE DRAWINGS. IF NO INTERRUPT RATINGS ARE SHOWN ON THE DRAWINGS THEY SHALL BE RATED FOR 100,000AIC.

ENCLOSURES FOR INDIVIDUAL CIRCUIT BREAKERS TO BE NEMA 1, GENERAL PURPOSE INDOOR, OR NEMA 3R OR 4 FOR OUTDOOR LOCATIONS, WATERTIGHT.

GROUNDING

DESCRIPTION OF WORK

THIS SECTION INCLUDES GROUNDING OF ELECTRICAL SYSTEMS AND EQUIPMENT AND BASIC REQUIREMENTS FOR GROUNDING FOR PROTECTION OF LIFE, EQUIPMENT, CIRCUITS, AND SYSTEMS.

STANDARDS

NFPA 70, ARTICLE 250 - GROUNDING

IEEE STANDARD 142 (GREEN BOOK)

ELECTRICAL SYSTEM AND EQUIPMENT GROUNDING

ALL PRODUCTS SHALL BE UL LISTED AND LABELED.

BOND THE GROUND MAIN SERVICE NEUTRAL, CABINETS, EQUIPMENT, CONDUITS, ETC., PER LATEST EDITION OF THE NEC AND AS SHOWN ON THE DRAWINGS, AND SPECIFIED HEREIN.

GROUND CONDUCTORS SHALL BE 98% CONDUCTIVITY COPPER. OTHER CONDUCTOR REQUIREMENTS

SHALL BE THE SAME AS DESCRIBED FOR LOW VOLTAGE, 600 VOLT, CONDUCTORS AND SPECIFIED HEREIN.

ALL CONDUIT SYSTEMS, BOXES, ELECTRICAL EQUIPMENT, ENCLOSURES, MOTOR FRAMES, ETC., SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC, LOCAL AUTHORITIES AND AS SPECIFIED.

A SEPARATE EQUIPMENT GROUND CONDUCTOR SHALL BE INSTALLED INSIDE OF EACH CONDUIT RUN FOR GROUNDING ALL CIRCUITS ABOVE 48 VOLTS. THE METALLIC CONDUIT SHALL NOT BE USED AS A GROUNDING CONDUCTOR.

GROUND WIRE SIZE THRU #10 SHALL BE STRANDED COPPER, GREEN TYPE THHN 75 DEGREES C INSULATION. GROUND WIRES SIZED #8 AND LARGER SHALL BE STRANDED COPPER, TYPE TWHN OR THW WITH GREEN INSULATION OR GREEN TRACER.

GROUNDING CONDUCTORS IN CONTACT WITH EARTH SHALL BE SOLID BARE TINNED COPPER.

NO ELECTRICAL SYSTEM NEUTRAL SHALL BE USED AS A EQUIPMENT GROUND.

GROUND WIRES SHALL BE RAN CONTINUOUS FROM TERMINATION POINT TO TERMINATION POINT WITHOUT SPLICES.

ALL OUTLET BOXES AND JUNCTION BOXES, DISCONNECTS, ETC., SHALL BE GROUNDED. THE GROUND WIRE TERMINAL OF EACH DEVICE SHALL BE CONNECTED TO THE GROUND CONDUCTOR.

ALL METAL ENCLOSURES FOR ELECTRICAL DISTRIBUTION AND CONTROLS, ALL METAL EQUIPMENT SUPPORTS FOR ELECTRICAL CONTROLS AND ALL SIMILAR ITEMS SHALL BE CONNECTED TO THE GROUND SYSTEM.

FLEXIBLE CONDUIT SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH THE NEC.

ALL FLEXIBLE CONDUITS WITH CIRCUITS CONTAINING AN AMPACITY GREATER THAN 20 AMPS SHALL INCLUDE A GROUND WIRE AS WELL AS ANY FLEXIBLE CONDUIT OVER 6 FEET IN LENGTH.

LUMINAIRES

DESCRIPTION OF WORK

THIS SECTION SPECIFIES MATERIALS USED FOR LIGHTING LUMINAIRES, THEIR INSTALLATION AND LAMPING. SPECIFIC LUMINAIRE TYPES ARE SPECIFIED BY CATALOG NUMBER IN THE LUMINAIRE (LIGHTING) SCHEDULE ON THE DRAWINGS.

LUMINARIES

FURNISH LUMINARIES AS SHOWN ON THE DRAWINGS IN THE LUMINAIRE (LIGHTING) SCHEDULE. THIS SHALL INCLUDE ALL LAMPS, MATERIAL AND LABOR TO SECURELY HANG FIXTURES, CLEAN THEM AND MAKE THEM COMPLETE AND READY FOR USE. ALL FIXTURES SHALL INCLUDE ALL NECESSARY ACCESSORIES REQUIRED.

VERIFY EXACT TYPE CEILING AND RECESSING DEPTH OF RECESSED LUMINARIES AND FURNISH SPECIFIC MOUNTING TRIMS AND ACCESSORIES REQUIRED.

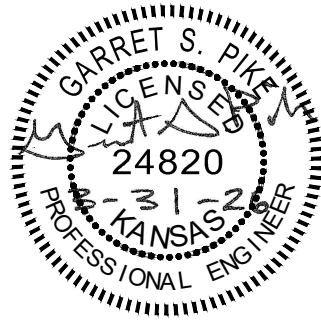
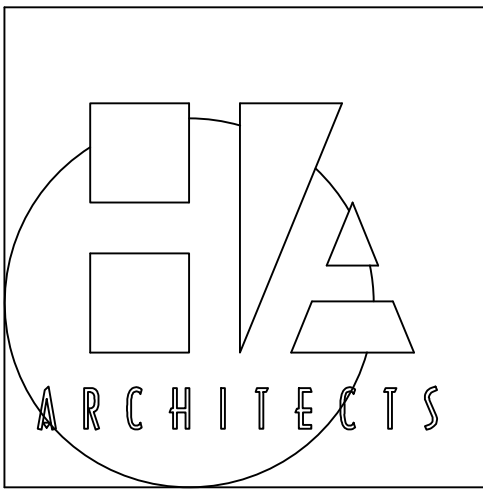
VERIFY PROPER VOLTAGE FOR EACH LUMINAIRE.

LUMINAIRE INSTALLATION

SUPPORT LUMINARIES FROM STRUCTURAL MEMBERS OF BUILDING, INDEPENDENT FROM THE CEILING. SUPPORT GRID TYPE LUMINARIES FROM THE CEILING. ARRANGE WITH THE CEILING CONTRACTOR FOR EXTRA SUPPORT. PROVIDE ONE SUPPORT AT EACH CORNER OF 2'x4' AND LARGER LUMINARIES, AND ONE AT EACH END AT OPPOSITE CORNERS OF 1'x4' AND 2'x2' FIXTURES

PROVIDE DEVICES FOR SECURING LUMINAIRE TO CEILING GRID TO COMPLY WITH ARTICLE 410-16C OF THE NATIONAL ELECTRICAL CODE (EARTHQUAKE CLIPS).

LIGHT FIXTURES SHOWN ON THE DRAWINGS REPRESENT GENERAL ARRANGEMENTS ONLY. REFER TO THE ARCHITECTURAL DRAWINGS FOR MORE EXACT LOCATIONS. COORDINATE LOCATION WITH ALL OTHER TRADES BEFORE INSTALLATION TO AVOID CONFLICTS. LIGHT FIXTURES LOCATIONS IN MECHANICAL ROOMS SHALL BE COORDINATED WITH FINAL INSTALLED PIPING AND DUCTWORK LAYOUTS.



HANNEY & ASSOCIATES, ARCHITECTS
1726 South Hillside, Wichita, Kansas, 67211
Phone (316) 683-8965
Fax (316) 684-1441
www.haarchitects.com

2026
SEDGWICK COUNTY - EMS POST 1
3099 West 13th Street North
Wichita, Kansas



DRAWINGS ISSUED		
NO.	DATE	ITEM ISSUED
6	6/14/26	REVISIONS
5	3/31/26	PERMIT
4	2/16/26	CHECK SET
3	1/19/26	CHECK SET
2	12/19/25	CHECK SET
1	12/12/25	CHECK SET

COMPUTER DRAWING	
------------------	--

DATE: JANUARY 2026	
DRAWN BY: CH, TH, FH, TB	CHECKED BY: MH
SHEET	
E4.1	
OF 1	SHEETS

PIKE
consulting engineers
mechanical | electrical | plumbing
316.215.7025 | www.pikeengineers.com

PLUMBING SPECIFICATIONS

FIRE SPRINLER SYSTEM

DESCRIPTION OF WORK
FURNISH ALL DESIGN, LABOR, MATERIALS, FABRICATION, EQUIPMENT AND SERVICES NECESSARY TO PROVIDE A COMPLETE AND OPERATIONAL AUTOMATIC FIRE SPRINKLER SYSTEM AS SPECIFIED HEREIN AND AS REQUIRED FOR SATISFACTORY OPERATION OF THE SYSTEM.

THE SPRINKLER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF NFPA. THIS REQUIREMENT DOES NOT RELIEVE THE CONTRACTOR FROM MEETING THE REQUIREMENTS SET BY FACTORY MUTUAL IF FACTORY MUTUAL IS LISTED ON THE ARCHITECTURAL CODE PLAN. ALL FLOW INDICATORS, GONGS, HORNS, ETC. SHALL BE INCLUDED AS PART OF THIS CONTRACT.

FIRE PROTECTION SYSTEM SHALL BE "WET-PIPE" SYSTEM EMPLOYING AUTOMATIC SPRINKLERS ATTACHED TO A PIPING SYSTEM CONTAINING WATER AND CONNECTED TO A WATER SUPPLY SO THAT WATER DISCHARGES IMMEDIATELY FROM SPRINKLERS OPEN BY FIRE.

FEES AND PERMITS
THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, LICENSES AND INSPECTIONS NECESSARY IN CONJUNCTION WITH THIS WORK. IN ADDITION, THE CONTRACTOR SHALL PAY FOR ALL TAP FEES AND EQUIPMENT COSTS ASSOCIATED WITH THE FIRE SPRINKLER SYSTEM.

PROTECTION OF WORK
THE SPRINKLER CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS REQUIRED TO PROTECT HIS WORK AS WELL AS THE WORK OF OTHER TRADES AGAINST ANY DAMAGE.

SUBMITTALS AND APPROVALS
ALL MATERIAL SUBMITTED SHALL BE CONTAINED IN BROCHURE TYPE BINDERS, CLEARLY LABELED AND IDENTIFIED. EACH SUBMITTAL SHALL BE COMPLETE WITH ALL ITEMS LISTED IN SCHEDULE FORM, SHOWING TYPE, MANUFACTURER, CATALOG NUMBER, FINISH SHOP DRAWINGS OR DESCRIPTIVE LITERATURE FOR THE PURPOSE OF IDENTIFYING THE EQUIPMENT AND ENGINEERS REFERENCE NUMBER. FAILURE TO COMPLY WITH THESE REQUIREMENTS WILL RESULT IN RETURN OF SUBMITTAL FOR RESUBMISSION.

CONTRACTOR SHALL SUBMIT SCALED LAYOUT DRAWINGS INCLUDING, BUT NOT LIMITED TO, HEAD LOCATIONS, PIPE SIZES, LOCATIONS, ELEVATIONS, AND SLOPES OF HORIZONTAL RUNS, WALL AND FLOOR PENETRATIONS, AND CONNECTIONS. INDICATE INTERFACE AND SPATIAL RELATIONSHIPS BETWEEN PIPING AND PROXIMATE EQUIPMENT. SHOP HANGER LOCATIONS. PLANS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR HEAD LOCATIONS APPROVAL.

AT PROJECT CLOSEOUT PROVIDE THREE (3), 1/8" PER FOOT SCALED, DIMENSIONED, RECORD DRAWINGS TO THE ARCHITECT/ENGINEER OF INSTALLED FIRE PROTECTION PIPING AND EQUIPMENT.

THE SPRINKLER SYSTEM SHALL BE A COMPLETE SYSTEM AS REQUIRED BY LOCAL AUTHORITIES. ALL WIRING REQUIRED FOR THE SYSTEM SHALL BE PROVIDED BY THE ELECTRICAL AND/OR FIRE ALARM CONTRACTOR. COORDINATE ALL WIRING REQUIREMENTS WITH THE ELECTRICAL AND/OR FIRE ALARM CONTRACTOR. SUBMIT TO THE AGENCY HAVING JURISDICTION FOR APPROVAL. SUBMIT ONE APPROVED COPY, BEARING STAMP AND/OR SIGNATURE OF AGENCY HAVING JURISDICTION, BEFORE PROCEEDING WITH THE INSTALLATION.

SUBMIT CERTIFICATION UPON COMPLETION OF FIRE PROTECTION PIPING WORK WHICH INDICATES THAT WORK HAS BEEN TESTED IN ACCORDANCE WITH NFPA 13 AND NFPA 14, AND ALSO THAT THE SYSTEM IS OPERATIONAL, COMPLETE AND HAS NO DEFECTS.

THE CONTRACTOR SHALL ALSO SUBMIT THE DRAWINGS TO THE OWNERS INSURANCE COMPANY, FOR REVIEW, COMMENT AND APPROVAL.

CODES AND ORDINANCES
THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS, REGULATIONS, CODES, ORDINANCE, RULING OF FIRE UNDERWRITERS REQUIREMENTS, NFPA, AND FACTORY MUTUAL APPLICABLE TO THIS CLASS OR WORK. FURTHERMORE, THEY SHALL INCLUDE BUT SHALL NOT BE LIMITED TO, CODED LISTED IN OTHER SECTIONS OF THESE SPECIFICATIONS.

PROVIDE FIRE PROTECTION PRODUCTS IN ACCORDANCE WITH UL STANDARDS. EACH PRODUCT INSTALLED SHALL HAVE A UL LABEL.

INSTALL FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH LOCAL REGULATIONS OF THE FIRE DEPARTMENT OR FIRE MARSHAL. COMPLY WITH LOCAL FIRE DEPARTMENT/MARSHAL REGULATIONS FOR SIZES, THREADING AND ARRANGEMENT OF CONNECTIONS FOR FIRE DEPARTMENT EQUIPMENT TO STANDPIPE SYSTEMS.

QUALIFICATION OF SPRINKLER CONTRACTOR
FIRE PROTECTION WORK SHALL BE INSTALLED BY A FIRM WITH AT LEAST 5 YEARS OF SUCCESSFUL INSTALLATION EXPERIENCE ON PROJECTS WITH THE FIRE PROTECTION WORK SIMILAR TO THAT REQUIRED FOR PROJECT BY A QUALIFIED CONTRACTOR (SPRINKLER FITTER OR PER JURISDICTIONAL DICTATES). THE SPRINKLER CONTRACTOR'S DESIGN SHALL BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE PROJECT.

THE CONTRACTOR SHALL GUARANTEE ALL FIRE PROTECTION WORK AGAINST DEFECT DUE TO FAULTY WORKMANSHIP OR MATERIAL AND THAT ALL PIPING IS FREE FROM FOREIGN MATERIAL, OBSTRUCTIONS, HOLES OR BREAKS OF ANY NATURE. THE CONTRACTOR GUARANTEES THE PROPER CIRCULATION AND DRAINAGE OF EACH PIPING SYSTEM. UPON WRITTEN NOTICE FROM THE ARCHITECT/ENGINEER/OWNER, THE CONTRACTOR SHALL PROMPTLY REMEDY, WITHOUT COST TO THE OWNER, ANY DEFECTS OCCURRING WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.

TESTING AND FLUSHING SYSTEM
ALL PIPING SHALL BE HYDROSTATICALLY TESTED FOR A PERIOD OF TWO (2) HOURS AT NOT LESS THAN 200PSI PRESSURE. IF LEAKS APPEAR, LINES SHALL BE DRAINED, LEAKS REPAIRED AND TEST REPEATED AT NO COST TO THE OWNER. NO PIPING SHALL BE CONCEALED IN ANY MANNER BEFORE TESTING IS APPROVED.

TESTS SHALL BE MADE IN THE PRESENCE OF AN INSPECTOR FROM THE AUTHORITY HAVING JURISDICTION. THE OWNER SHALL BE NOTIFIED OF TIME OF ALL TESTS IN ADVANCE OF THE DATE.

EQUIPMENT AND MATERIALS
ALL MATERIALS AND EQUIPMENT FURNISHED AS PART OF THIS CONTRACT SHALL BE UL LISTED, FACTORY MUTUAL APPROVED AND IN COMPLIANCE WITH APPLICABLE PROVISIONS OF THE NFPA.

SPRINKLER HEADS
UNLESS OTHERWISE INDICATED, SPRINKLER HEADS SHALL MATCH EXISTING.

TEMPERATURE RATING OF FUSIBLE PLUG OR LINK SPRINKLERS SHALL BE APPROPRIATE FOR THE AMBIENT CONDITIONS IN THE IMMEDIATE AREAS.

SPARE HEADS
CONTRACTOR SHALL FURNISH 6 SPARE SPRINKLER HEADS IDENTICAL TO EACH TYPE INSTALLED.

SPARE SPRINKLER HEADS SHALL BE MOUNTED IN EMERGENCY SPRINKLER CABINET. CABINET SHALL BE LOCATED IN THE MECHANICAL ROOM HOUSING SPRINKLER RISER. SEE DRAWINGS FOR LOCATION OF DRAWING.

PIPING
PIPE AND FITTINGS SHALL BE OF NOMINAL DIAMETER AS DESIGNED, WITH INNER AND OUTER SURFACES CONCENTRIC, SMOOTH INSIDE, STRAIGHT, FREE FROM WELD FLAWS, BUSTERS OR OTHER DEFECTS. EACH LENGTH OF PIPE AND EACH FITTING SHALL HAVE CAST, STAMPED OR INDELIBLY MARKED ON IT THE MAKERS MARK OR NAME AND THE WEIGHT AND QUALITY OF THE PRODUCT WHERE SUCH MARKING IS REQUIRED BY THE APPROVED STANDARD THAT APPLIES. NO WELDING OF SPRINKLER PIPING WILL BE PERMITTED, EXCEPT IN ACCORDANCE WITH NFPA 13.

PIPE ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL CONFORMING TO ASTM DESIGNATION A-120 OR A-53 OR APPROVED EQUAL COUPLINGS WITH ROLL-GROOVED END ASTM A135 SCHEDULE 10 PIPE.

UNLESS SPECIFIED ELSEWHERE ALL PIPING 2" AND SMALLER SHALL BE SCREWED AND ALL PIPING 2-1/2" AND LARGER SHALL BE WELDED. ALL WELDING SHALL BE IN ACCORDANCE WITH NFPA AND SHALL COMPLY WITH SECTION II, PART C, ASME BOILER AND PRESSURE VESSEL CODE.

AT THE CONTRACTOR'S OPTION, AND WITH THE APPROVAL OF THE AGENCIES HAVING JURISDICTION, VICTAULIC STYLE 75, OR APPROVED EQUAL COUPLINGS WITH GROOVED END PIPE MAY BE USED.

PIPING ACCESSORIES
SCREWED FITTINGS SHALL BE 175 WWG PSI WORKING PRESSURE CAST IRON CONFORMING TO FEDERAL SPECIFICATION WW-P-501.

FLANGED FITTINGS SHALL BE 175 WWG PSI WORKING PRESSURE CAST IRON, CONFORMING TO FEDERAL SPECIFICATION A-21.10 WITH DRILLING TO MATCH ANSI SPECIFICATION B-16.2.

WELDING FLANGES SHALL BE FORGED STEEL, WELDING NECK TYPE CONFORMING TO ANSI SPECIFICATION B-16.1, FOR COLD WATER WORKING PRESSURE OF 175 WWG PSI.

GASKETS SHALL BE FULL FACE, 1/16" THICK, GRAPHOIL COMPOSITION, UNION CARBIDE OR APPROVED EQUAL.

DESIGN AND CALCULATION
CONTRACTOR SHALL PERFORM NECESSARY CALCULATIONS REQUIRED FOR PROPER DESIGN AND INSTALLATION OF THE SPRINKLER SYSTEM FOR THE ENTIRE BUILDING (EXISTING AND ADDITION) AND SUBMIT PE STAMPED DRAWINGS TO THE CITY. ALL DESIGN CALCULATIONS AND LAYOUT OF HE SPRINKLER SYSTEM NETWORK SHALL BE BASED ON THE SPECIFICATIONS AND ACCOMPANYING DRAWINGS. REQUEST FOR HVAC DUCT AND EQUIPMENT RELOCATIONS. RELOCATIONS SHALL BE SUBMITTED TO THE ENGINEER ONE WEEK BEFORE THE BID OPENING DATE. NO SPRINKLER PIPE PENETRATION WILL BE ALLOWED THROUGH HVAC DUCT SYSTEM.

SIAMESE CONNECTIONS
CONTRACTOR SHALL PROVIDE SIAMESE TYPE CONNECTION THROUGH EXTERIOR BUILDING WALL WHERE SHOWN ON THE PLANS. COORDINATE THE EXACT LOCATION, PIPE THREADS AND FITTINGS WITH THE LOCAL FIRE DEPARTMENT TO ENSURE EXACT MATCH.

MISCELLANEOUS EXECUTION
ALL PIPING SHALL BE INSTALLED WITHIN 6" OF THE STRUCTURE. OFFSET AROUND OBSTACLES AS NECESSARY AND RETURN PIPING TO WITHIN 6" OF THE STRUCTURE AS CLOSE TO OFFSET AS POSSIBLE WHERE PRACTICAL WITHOUT TRAPPING PIPING AND CRATING NEED FOR ADDITIONAL DRAINS AND FUTURE MAINTENANCE. BRANCH PIPING SHALL BE RUN BETWEEN CONCRETE STEM OR STEEL JOISTS IN ROOMS WITHOUT CEILINGS.

SPRINKLER HEADS SHALL BE INSTALLED IN THE CENTER OF CEILING TILES.

PLUMBING

DESCRIPTION OF WORK
PROVIDE AND INSTALL ALL PLUMBING EQUIPMENT AND ACCESSORIES AS SPECIFIED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

REGULATORY REQUIREMENTS
THE ENTIRE PLUMBING INSTALLATION SHALL COMPLY FULLY WITH THE REQUIREMENTS OF ALL APPLICABLE STATE AND LOCAL LAWS, CODES AND ORDINANCES.

THE WORK SHALL ALSO COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA), THE [INTERNATIONAL CODE (IPC)], THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE ENVIRONMENTAL PROTECTION AGENCY (EPA).

GUARANTEE
THE CONTRACTOR SHALL GUARANTEE ALL PLUMBING WORK AGAINST ANY DEFECTS DUE TO FAULTY WORKMANSHIP OR MATERIAL AND THAT ALL PIPING IS FREE FROM FOREIGN MATERIAL, OBSTRUCTIONS, HOLES OR BREAKS OF ANY NATURE. THE CONTRACTOR GUARANTEES THE PROPER CIRCULATION AND/OR DRAINAGE OF FLUID IN EACH PIPING SYSTEM. UPON WRITTEN NOTICE FROM THE ARCHITECT OR OWNER, THE CONTRACTOR SHALL PROMPTLY REMEDY, WITHOUT COST TO THE OWNER, ANY DEFECTS OCCURRING WITHIN A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE.

CLEANING AND DISINFECTING
PIPING SYSTEMS SHALL BE CLEANED AND DISINFECTED AS HEREINAFTER SPECIFIED. ALL EQUIPMENT, TEMPORARY PIPING, CHEMICALS, ETC., AS REQUIRED TO BE FURNISHED BY THE CONTRACTOR.

DOMESTIC WATER SYSTEMS (COLD AND HOT WATER): ALL SYSTEM PIPING AND EQUIPMENT SHALL BE THOROUGHLY AND COMPLETELY FLUSHED WITH COLD CITY WATER. COMPLETELY DRAIN THE SYSTEMS AND FILL WITH A SOLUTION CONTAINING NOT LESS THAN 50 PPM AVAILABLE CHLORINE. COMPLETELY RELIEVE THE ENTIRE SYSTEM OF AIR. ALL THE SOLUTION TO STAND FOR 24 HOURS AND THEN DRAIN AND FOLLOW WITH A CLEAR WATER FLUSH UNTIL CHLORINE RESIDUAL IS LOWERED TO INCOMING CITY WATER LEVEL.

PIPING INSULATION
PROVIDE AND INSTALL ALL PIPING INSULATION AS SPECIFIED IN SECTION 15260 OF THESE SPECIFICATIONS.

PIPING INSTALLATION
GENERAL: ALL PIPING SHALL BE CLEANED THOROUGHLY PRIOR TO INSTALLATION, AND ENDS OF PIPE SHALL BE REAMED AND ALL BURRS REMOVED. PIPING SHALL BE CUT ACCURATELY TO MEASUREMENTS TAKEN ON THE JOB. PIPING SHALL BE INSTALLED WITH ADEQUATE CLEARANCE FOR INSTALLATION OF COVERINGS WHERE REQUIRED, AND SHALL NOT BE SPRUNG OR BENT. ALL PIPING SHALL BE NEATLY ALIGNED, SECURELY CONNECTED, AND WELL SUPPORTED FROM THE BUILDING STRUCTURE WITH HANGERS AS REQUIRED. ALL PIPES PASSING THROUGH CEILINGS, FLOORS, OR WALLS OF FINISHED SPACES SHALL BE PROVIDED WITH CHROMIUM PLATED ESCUTCHEONS. PIPES PASSING THROUGH FLOORS SHALL BE RUN FREE, USING PIPE SLEEVES, AND SHALL NOT BE GROUTED IN PLACE UNLESS REQUIRED FOR STRUCTURAL FIRE INTEGRITY. PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES WHEREVER POSSIBLE. SEE SECTION 15510 FOR ADDITIONAL REQUIREMENTS.

HANGERS: SEE SECTION 15140 FOR SUPPORTS AND ANCHORS.

SOIL AND WASTE PIPE: ALL SOIL AND WASTE PIPE SHALL BE GRADED TO A UNIFORM SLOPE OF NOT LESS THAN 1/8" PER FOOT FOR PIPING 4" AND LARGER, AND NOT LESS THAN 1/4" PER FOOT FOR PIPING 3" AND SMALLER. LAY PIPE AT UNIFORM SLOPE, FREE FROM SAGS, WITH HUB END UP STREAM. SUPPORT AT EACH JOINT. ALL CHANGES IN DIRECTION FROM HORIZONTAL TO VERTICAL, AT FIXTURE BRANCHES AND OTHER BRANCH CONNECTIONS SHALL BE MADE WITH SANITARY "TEE'S" OR SHORT SWEEP "ELLS". ALL CHANGES IN DIRECTION FROM VERTICAL TO HORIZONTAL OR IN THE HORIZONTAL SHALL BE MADE WITH LONG RADIUS FITTINGS, LONG SWEEPING "ELLS", COMBINATION "Y" FITTINGS, OR 45 DEGREE "ELLS" AND "Y" FITTINGS. UNDERGROUND PIPE SHALL BE INSTALLED WITH THE BARREL OF THE PIPE ON FIRM, SOLID EARTH FOR ITS ENTIRE LENGTH, AND HOLES SHALL BE EXCAVATED FOR PIPE BELLS. PIPING SHALL BE RAN IN STRAIGHT LINE AND GRADED UNIFORMLY TO LINE WITH BATTEN BOARDS SET NOT OVER 24'-0" APART. OPEN ENDS OF PIPE SHALL BE CLOSED WITH A STOPPER WHEN PIPE LAYING IS NOT IN PROGRESS. SOIL AND WASTE LINES SHALL BE LOCATED IN GENERAL AS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY EXACT PIPE LOCATIONS TO MAINTAIN PROPER CLEARANCE AND TO INSURE DRAINAGE.

PLUMBING VENT: ALL PLUMBING VENTS SHALL BE CONNECTED AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE INSTALLATION, AND SHALL BE EXTENDED FULL SIZE THROUGH THE ROOF LINE. VENTS PASSING THROUGH THE ROOF SHALL BE MINIMUM 3" SIZE. VENT CONNECTIONS SHALL BE INSTALLED ON ALL FIXTURES AND EQUIPMENT CONNECTED TO SOIL AND WASTE PIPING, AND ALL FLOOR DRAINS SHALL BE VENTED OR CONNECTED TO A VENT LINE AS SHOWN ON THE DRAWINGS.

DOMESTIC WATER: ALL HOT AND COLD WATER SUPPLY PIPING SHALL BE ARRANGED TO DRAIN AT THE LOWEST POINT IN EACH SYSTEM. ALL SUPPLY PIPES TERMINATIONS AT VALVES OR FIXTURES SHALL BE PROVIDED WITH ENCLOSED PIPE AIR CHAMBERS, FULL SIZE OF THE SUPPLY PIPE AND MINIMUM 18" LONG, TO PREVENT WATER HAMMER. AT LEAST ONE PIPE UNION SHALL BE INSTALLED ADJACENT TO ALL VALVES, AT CONNECTION POINTS OF EACH PIECE OF EQUIPMENT, AND ELSEWHERE IN THE SYSTEM REQUIRED FOR MAINTENANCE. ALLOWANCE SHALL BE MADE FOR EXPANSION AND CONTRACTION WHERE REQUIRED BY THE INSTALLATION. WHERE PIPING OCCURS IN EXTERIOR WALLS, PIPING SHALL BE HELD AS CLOSE AS POSSIBLE TO THE INTERIOR FACE OF THE WALL. INSTALL INSULATION BATT OR OTHER INSULATION (R-8 MINIMUM) BETWEEN PIPING AND EXTERIOR WALL FACE.

NATURAL GAS: ALL NATURAL GAS PIPING SHALL BE PITCHED, AND ACCESSIBLE DRIP PIPES SHALL BE INSTALLED AT THE LOW POINTS. BRANCHES SHALL TAKE OFF FROM THE TOP OR SIDES OF CONNECTING PIPES, TO PREVENT ACCUMULATION OR WATER IN THE BRANCHES. ALL GAS PIPING VALVES AND UNIONS SHALL BE FULLY ACCESSIBLE. NO GAS PIPING SHALL BE INSTALLED BELOW THE BASE SLAB.

FLOOR DRAINS
FLOOR DRAINS SHALL BE AS SCHEDULED ON THE DRAWINGS. IF NOT SCHEDULED ON THE DRAWINGS PROVIDE SIOUX CHIEF MODEL 863-42NR OR EQUAL J.R. SMITH, WADE, ZURN OR JOSAM. PROVIDE EACH DRAIN THAT DOES NOT HAVE AN INTEGRAL "P" TRAP WITH A CAST IRON "P" TRAP CONNECTING

PIPING: BLOCK OUT FLOOR PRIOR TO POURING IF CONCRETE AND THEN LEVEL FLOOR DRAIN AFTER POUR IS SET, REMOVE FORMS AND GROUT HOLE LEVEL. SEE ARCHITECTURAL PLANS FOR FLOOR DRAIN TOP ELEVATIONS AND FLOOR DRAINAGE.

CLEANOUTS
PROVIDE CLEANOUTS FULL SIZE OF SOIL PIPE UP TO AND INCLUDING 4" I.D. PROVIDE CLEANOUTS AS BASE OF STACKS, END OF SEWER MAIN AND AT ELBOWS OVER 45 DEGREES AND IN ANY HORIZONTAL RUN OF PIPING EXCEEDING 100 FEET IN 50 FOOT INTERVALS. BLOCK OUT FLOOR PRIOR TO POURING OF CONCRETE AND THEN LEVEL CLEANOUT AFTER POUR IS SET, REMOVE FORMS AND GROUT HOLE LEVEL. INSTALL CLEANOUTS SO THEY ARE ACCESSIBLE BY EXTENDING THEM THROUGH WALLS, FLOORS, ABOVE OR TO OUTSIDE OF BUILDING AS REQUIRED. CLEANOUTS SHALL BE AS FOLLOWS:

WALL TYPE FINISHED AREAS: J.R. SMITH 4532 CAST IRON CLEANOUT "T" WITH CLEANOUT PLUG AND STAINLESS STEEL ACCESS COVER.

WALL TYPE UNFINISHED AREAS: J.R. SMITH 4512 CAST IRON CLEANOUT TEE WITH COUNTERSUNK PLUG.

FLOOR TYPE HARD FLOORING AREAS: J.R. SMITH 4023 WITH ROUND NICKEL BRONZE SCORIATED COVER.

FLOOR TYPE CARPET AREAS: J.R. SMITH 4023-X WITH NICKEL BRONZE TOP AND CARPET CLAMP.

EQUIVALENTS: WADE, ZURN OR JOSAM

WALL HYDRANTS AND HOSE BIBBS:
WOODFORD #65 FREEZEPROOF WITH VACUUM BREAKER. EQUAL WADE, ZURN OR J.R. SMITH.

EXPOSED INTERIOR HOSE BIBBS: CHICAGO #952 OR T&S BRASS #B720 WITH CHROME PLATED BRASS BODY, 3/4" SCREWED INLET, 3/4" HOSE THREAD OUTLET, SCREW ON VACUUM BREAKER, WHEEL HANDLE AND COMPOSITE DISC.

SHOCK ABSORBERS
PROVIDE JOSAM ABSORBOTRON SHOCK ABSORBERS OR APPROVED EQUAL ON ALL PLUMBING FIXTURE BATTERIES WHERE SHOWN ON THE DRAWINGS SIZED IN ACCORDANCE WITH THE PLUMBING AND DRAINAGE INSTITUTE "STANDARD P.D.I. WH201". IF NO ARRESTORS ARE SCHEDULED OR SHOWN, PROVIDE AND SIZE A ARRESTOR WITHIN 20 FEET OF THE END OF EACH DOMESTIC HOT AND COLD WATER PIPING BRANCH. EQUIVALENT SHOCK ABSORBERS BY ZURN, WADE, SIOUX CHIEF OR J.R. SMITH.

PLUMBING FIXTURES
PROVIDE PLUMBING FIXTURES AS SHOWN ON THE DRAWINGS AND AS SPECIFIED COMPLETE INCLUDING PIPING AND CONNECTIONS. CHINA FIXTURES SHALL BE OF BEST GRADE VITREOUS WARE, WITHOUT PIT HOLES OR BLEMISHES AND OUTLINES SHALL BE TRUE. THE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PIECE WHICH IN HIS OPINION IS FAULTY. FIXTURES FITTING AGAINST WALLS SHALL HAVE GROUND BACKS. EXPOSED PIPING AND FITTINGS SHALL BE CHROME PLATED.

SET FIXTURES TRUE AND LEVEL WITH ALL NECESSARY SUPPORTS FOR FIXTURES INSTALLED BEFORE PLASTERING IS DONE. NIPPLES THROUGH WALL TO FIXTURE CONNECTION SHALL BE CHROME PLATED BRASS. THE CONTRACTOR MAY USE COPPER STUBOUTS TO STOPS UNDER LAVATORIES PROVIDED DEEP ESCUTCHEONS ARE USED AND NO COPPER IS VISIBLE IN LIEU OF CHROME NIPPLES.

SUPPLIES AND STOPS: DEARBORN FIGURE NO. 2700CW 1/2" COMPRESSION INLET WITH ANGLE COMPRESSION STOP AND 3/8" O.D. RISERS IN LENGTH REQUIRED. PROVIDE DEEP CHROME PLATED BRASS ESCUTCHEONS.

TRAPS: DEARBORN #F5S10 (1-1/2") AND/OR #F5S07 (1-1/4") CAST BRASS BODY WITH CLEAN-OUT "P" TRAP. PROVIDE DEEP CHROME PLATED BRASS ESCUTCHEON WITH SET SCREW.

FAUCETS AND TRIM WITH DRINKING WATER SHALL MEET OR EXCEED THE SAFE WATER DRINKING ACT (SWDA) LEAD FREE STANDARDS OF ANSI/NSF STANDARD 61, SECTION 9.

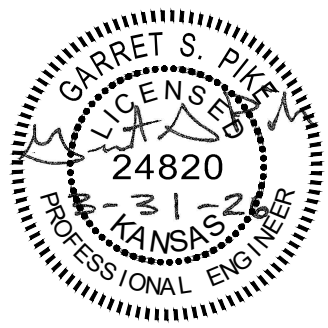
LAVATORY DRAINS SHALL BE GRID TYPE CHROME PLATED 17 GAUGE BRASS BASKET STRAINER AND STRAINER BODY WITH 1-1/2"x4" LONG SEAMLESS TAILPIECE AND CAST BRASS LOCK AND COUPLING NUTS BY EBC, ELJER, KOHLER OR MCGUIRE.

SINK DRAINS SHALL BE BASKET TYPE WITH CHROME PLATED FORGED BRASS BASKET STRAINER AND STRAINER BODY WITH 1-1/2"x4" LONG SEAMLESS TAILPIECE AND CAST BRASS LOCK AND COUPLING NUTS BY EBC, ELJER, KOHLER OR MCGUIRE.

HANDICAP INSULATION KITS FOR LAVATORIES AND SINKS, INCLUDING OFFSET DRAIN AND CONTINUOUS WASTE COVERS WHERE REQUIRED BY BROCAR, MCGUIRE, PLUMBEREX "PRO-2000", TRAP-WRAP OR TRU-BRO.

PLUMBING VALVES
REFERENCE SECTION 15515 FOR GATE VALVES, BALL VALVES, GLOBE VALVES, CHECK VALVES, STRAINERS AND UNIONS.

GAS COCKS: SIZE 2-1/2" AND SMALLER SHALL BE HOMESTEAD #611, SCREWED IRON BODY WITH BRASS TRIM AND FLAT HEAD. GAS COCKS 3" AND LARGER SHALL BE HOMESTEAD #612 FLANGED SEMI-STEEL BODY WITH IRON TRIM AND SQUARE HEAD. APPROVED MCDONALD, ROCKWELL-NORDSTROM OR DEZURIK.



HANNEY & ASSOCIATES, ARCHITECTS
1726 South Hillside, Wichita, Kansas, 67211
Phone (316) 683-8965
Fax (316) 684-1441
www.haarhitects.com

2026
SEDGWICK COUNTY - EMS POST 1
3099 West 13th Street North
Wichita, Kansas



DRAWINGS ISSUED		
NO.	DATE	ITEM ISSUED
6	6/14/26	REVISIONS
5	3/31/26	PERMIT
4	2/16/26	CHECK SET
3	1/15/26	CHECK SET
2	12/19/25	CHECK SET
1	12/12/25	CHECK SET

COMPUTER DRAWING	

DATE: JANUARY 2026	
DRAWN BY:	CHECKED BY:
CH, TH, FH, TB	MH
SHEET	
P5.0	
OF 1	SHEETS