

ABBREVIATIONS	
AB	ABOVE
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
BEL	BELOW
BHP	BRAKE HORSEPOWER
CLG	CEILING
CONN	CONNECT, CONNECTIONS
DB	DRY BULB
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EA	EACH, EXHAUST AIR
EFF	EFFICIENCY
EL	ELEVATION
ENT	ENTERING
FF	FINISHED FLOOR
FL	FLOOR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
HP	HORSEPOWER
HZ	HERTZ (CYCLES PER SECOND)
KW	KILOWATTS
LVG	LEAVING
MBH	THOUSANDS OF BTU PER HOUR
MER	MECHANICAL EQUIPMENT ROOM
MFR	MANUFACTURER
NO.	NUMBER
OA	OUTSIDE AIR
OAI	OUTSIDE AIR INTAKE
PH	PHASE
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RPM	ROTATIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
TYP	TYPICAL
ΔT	TEMPERATURE DIFFERENCE IN °F.
\square	SQUARE FEET
V	VOLTS
WB	WET BULB

DUCTWORK LEGEND		
SYMBOL	ABBREV	DESCRIPTION
	N	NECK SIZE
	VD	VOLUME DAMPER
	MD	MOTORIZED DAMPER
	FC	FLEXIBLE CONNECTION
		RISE OR DROP IN THE DIRECTION OF AIR FLOW
		CEILING SUPPLY AIR DEVICE
		CEILING RETURN OR EXHAUST AIR DEVICE
	AL	ACOUSTICAL LINING
		SIDE CONNECTED SUPPLY, RETURN OR EXHAUST AIR DEVICE
	FD	FIRE DAMPER
	BS	BOTTOM SPLIT SIZE
	TS	TOP SPLIT SIZE
	EQS	EQUAL SPLIT
	TV	TURNING VANES
		THERMOSTAT
		OCCUPANCY SENSOR

EQUIPMENT TAGS	
TAGNO	DESCRIPTION
EF-1	EXHAUST FAN

"X" PREFIX DENOTES EXISTING EQUIPMENT

DRAWING LIST	
M-001	MECHANICAL LEGENDS, ABBREVIATIONS, NOTES AND SCHEDULE
M-101	MECHANICAL FIRST AND SECOND FLOOR NEW WORK
M-301	MECHANICAL DETAILS
M-401	MECHANICAL SPECIFICATIONS SHEET 1 OF 2
M-402	MECHANICAL SPECIFICATIONS SHEET 2 OF 2

GENERAL NOTES:

- ALL WORK SHALL BE PERFORMED BY PROFESSIONALS IN THE FIELD AND COMPLY WITH THE APPLICABLE REGULATIONS OF DECODEP, DOB, OSHA AND OWNER'S WORK RULES.
- ALL NOTES PROVIDED IN THESE DOCUMENTS ARE PART OF THE CONTRACT AND CARRY EQUAL VALUE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS AND BE RESPONSIBLE TO ARRANGE AND SECURE ALL NECESSARY INSPECTIONS.
- ONLY EXPERIENCED CONTRACTORS MAY BID OR PERFORM THE WORK INCLUDED IN THIS PROJECT. PROOF OF EXPERIENCE SHALL BE REQUIRED PRIOR TO ISSUANCE OF ANY CONTRACT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, MATERIALS AND ITEMS PERFORMED BY ANY SUBCONTRACTORS. PLANNED LIST OF SUBCONTRACTORS SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND APPROVAL. NO SUBCONTRACTOR SHALL PERFORM WORK ON SITE WITHOUT A REPRESENTATIVE OF THE PRIME CONTRACTOR HOLDER, OR HIS DESIGNATED REPRESENTATIVE ON SITE.
- THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, STANDARD FORM OF THE AMERICAN INSTITUTE OF ARCHITECTS, CURRENT EDITION, SHALL APPLY TO ALL WORK IN THIS CONTRACT, EXCEPT AS SPECIFICALLY MODIFIED BY THESE NOTES OR ADDITIONAL CONDITIONS IN THE CONTRACT DOCUMENTS.
- PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL FURNISH A CONSTRUCTION SCHEDULE SHOWING THE CHRONOLOGICAL PHASES OF HIS WORK, AND ALL RELATED WORK FOR THE COMPLETION OF THE PROJECT. THIS SCHEDULE SHALL INDICATE ALL ORDERING LEAD TIME, LENGTH OF TIME FOR EACH PHASE, ITS START AND COMPLETION, WITH A PROJECTED COMPLETION DATE. INITIAL SCHEDULE SHALL BE SUBMITTED WITHIN TWO WEEKS AFTER THE NOTICE OF AWARD, AND UPDATED EVERY TWO MONTHS THEREAFTER.
- ALL WORK PERFORMED BY THE CONTRACTOR/SUB-CONTRACTORS SHALL CONFORM TO THE REQUIREMENTS OF MUNICIPAL, LOCAL OR FEDERAL AND STATE LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.
- CONTRACTOR SHALL SOLELY BE RESPONSIBLE FOR JOBSITE SAFETY AND SHALL ARRANGE WORK IN SUCH A MANNER TO PROVIDE FOR SAFE ACCESS FOR OWNER INSPECTION OF ALL WORK.
- ANY FORCED STOPPAGE OF WORK BY THE OWNER OR AGENCY DUE TO NONCOMPLIANCE FOR SAFETY, ACCESS, MATERIAL OR WORK PRACTICE SHALL NOT BE CAUSE FOR CLAIM BY THE CONTRACTOR.
- THE CONTRACT DOCUMENTS GENERALLY SHOW THE WORK REQUIRED TO COMPLETE THE SCOPE OF WORK REQUIRED. IT SHALL NOT BE RESPONSIBLE TO NOTE EVERY DETAIL OR PRODUCT THAT CAN BE REASONABLY ASSUMED AS COMMON KNOWLEDGE TO EXPERT AND EXPERIENCED CONTRACTORS IN THE FIELD.
- THE TERMS "PROVIDE" OR "FURNISH AND INSTALL" SHALL INCLUDE ALL LABOR, MATERIALS, DEVICES, WIRING, RIGGING, SUPPORTS, DELIVERY ETC. THAT WOULD BE NECESSARY TO PROVIDE FOR A FULLY FUNCTIONAL DEVICE AS INDICATED.
- ALL MATERIAL SHALL BE NEW, REBUILT OR REFURBISHED MATERIALS SHALL BE REJECTED.
- ALL MATERIALS, TOOLS, TRUCKS ETC. SHALL BE STORED IN AREAS DESIGNATED BY THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCT STORAGE CONDITIONS AND SECURITY.
- ALL WORK SHALL BE PERFORMED WITH MINIMAL INTERRUPTION TO THE OWNER. ANY WORK REQUIRING UTILITY SHUTDOWN, OR OTHER DISRUPTION SHALL NOT BE DONE WITHOUT OWNER APPROVAL. CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST 2 WEEKS IN ADVANCE OF ANY SUCH INTERRUPTION. AT TIME OF SHUTDOWN, COORDINATE WITH OWNER.
- THE CONTRACTOR SHALL FURNISH ALL EQUIPMENT, MATERIALS, SHOP DRAWINGS, AND PERFORMANCE INFORMATION ON ALL PRODUCTS FOR OWNER APPROVAL. ALL PRODUCTS INSTALLED WITHOUT APPROVAL SHALL BE AT RISK. OWNER APPROVAL SHALL BE LIMITED TO THAT THE PRODUCT COMPLIES WITH THE SPECIFICATIONS OR EXPECTED PERFORMANCE. ACTUAL PERFORMANCE TO THE LIMITS DEFINED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL PROVIDE INSTRUCTION TO THE OWNER FOR ALL EQUIPMENT SUPPLIED AND INSTALLED UNDER THIS CONTRACT, INCLUDING ANY WORK PERFORMED BY SUBCONTRACTORS.
- THE CONTRACTOR IS RESPONSIBLE TO CONFIRM AND COORDINATE JOBSITE DIMENSIONS THAT AFFECT THE ERECTION OR OPERATION OF SYSTEMS, AS INTENDED BY THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL ENSURE INSTALLED EQUIPMENT MAINTAINS ADEQUATE CLEARANCES FOR OPERATIONAL ACCESS AND SERVICE, AND HE SHALL MAINTAIN ANY CLEARANCES REQUIRED BY ALL APPLICABLE CODES.
- THE CONTRACTOR SHALL MAKE ALL REQUIRED ARRANGEMENTS FOR DELIVERY OF EQUIPMENT AND/OR MATERIALS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CHECK THE RULES AND REGULATIONS GOVERNING WORK ON THE PREMISES.
- THE CONTRACTOR, HIS SUBCONTRACTORS, AND ANY OTHER CONTRACTOR INVOLVED IN THIS PROJECT SHALL TAKE NOTE THAT ANY COST CAUSED BY DEFECTIVE OR ILL-TIMED WORK, AS A RESULT OF, BUT NOT LIMITED TO INFERIOR WORKMANSHIP OR MATERIALS, IMPROPER SCHEDULING OR DELINQUENT ORDERING SHALL BE BORNE BY THE PARTY RESPONSIBLE THEREFORE.
- ALL CONTRACTORS SHALL BE RESPONSIBLE TO REMOVE ALL RUBBISH AND WASTE MATERIALS. AT THE END OF EACH WORK DAY THE PROJECT SITE SHALL BE LEFT IN A SAFE AND BROOM CLEANED CONDITION.
- CONTRACTORS SHALL SUBMIT ALL FABRICATION SHOP DRAWINGS AND FIXTURE CUTS TO OWNER FOR APPROVAL. ALL SHOP DRAWINGS AND CUTS SIGNED "APPROVED" SHALL SUPERSEDE ORIGINATING DRAWINGS IN DESIGN APPEARANCE ONLY. CONTRACTORS SHALL ASSUME RESPONSIBILITY FOR ERRORS IN THEIR DRAWINGS.
- CONTRACTORS SHALL PROPERLY PROTECT THE BUILDING AND ANY ADJOINING PROPERTY OR WORK AND ANY DAMAGE TO THE SAME CAUSED BY HIS WORK OR WORKMEN MUST BE MADE GOOD WITHOUT DELAY. PATCHING AND REPLACING OF DAMAGED WORK SHALL BE DONE BY THE CONTRACTOR WHO IS RESPONSIBLE FOR THE DAMAGE.
- ONCE WORK HAS STARTED THE CONTRACTOR SHALL REMAIN ON SITE FOR THE DURATION UNTIL PROJECT COMPLETION. ANY ABSENCE FROM THE JOBSITE WITHOUT OWNER KNOWLEDGE SHALL BE CAUSE FOR DELAY AND THE CONTRACTOR SUBJECT TO POSSIBLE BACK CHARGES.
- ALL ACCEPTANCE TESTING SHALL BE WITNESSED BY THE OWNER OR THE OWNER'S REPRESENTATIVE.

- THE CONTRACTOR SHALL MAINTAIN THE WORK AREA IN A STATE FREE FROM HAZARDS AND A NEAT AND CLEAN CONDITION AT THE END OF EACH WORKDAY. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS, FOLLOW SAFE WORKING PRACTICES, AND MAINTAIN THE SITE AND ADJACENT AREAS SAFE FOR WORKERS AND FACILITY EMPLOYEES. JOB BOX SAFETY MEETING SHALL BE HELD EVERY WEEK.
- ALL MATERIALS, TOOLS, TRUCKS ETC. SHALL BE STORED IN AREAS DESIGNATED BY THE OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PRODUCT STORAGE CONDITIONS AND SECURITY. THE OWNER SHALL NOT BE RESPONSIBLE FOR ANY OF THE CONTRACTORS SHIPPING, DELIVERY OR OFFLOADING.
- ALL WORK BY THE CONTRACTOR SHALL BE GUARANTEED FOR A PERIOD OF FIVE YEARS FROM THE DATE OF ACCEPTANCE. THIS GUARANTEE SHALL INCLUDE ALL WORK PERFORMED BY ANY AND ALL OF HIS SUBCONTRACTORS. THE PRIME CONTRACTOR SHALL MAKE GOOD ON ALL SUBCONTRACTOR WORK DURING THIS PERIOD.
- PREPARE AND FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
- IT IS A VIOLATION OF STATE LAW TO FOR ANY PERSON OR PERSONS TO ALTER THESE PLANS. ANY MODIFICATIONS SHALL BE UNDER THE DIRECTION OF A LICENSED ENGINEER.

DEMOLITION NOTES:

- PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, STORAGE FACILITIES, SERVICES AND SUPERVISION NECESSARY FOR THE DEMOLITION WORK AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN.
- ALL EXISTING EQUIPMENT, MATERIALS AND WORK SHALL BE PROTECTED FROM DAMAGE DURING DEMOLITION. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE OCCURRING FROM HIS WORK.
- ALL WORK SHALL BE EXECUTED IN AN ORDERLY AND CAREFUL MANNER WITH DUE CONSIDERATION FOR PUBLIC SAFETY AND IN CONFORMANCE WITH OSHA REGULATIONS.
- CONTRACTOR SHALL PROVIDE BARRIERS TO PREVENT DUST, ODORS, DIRT AND DEBRIS FROM MIGRATING TO AREAS NOT AFFECTED BY THIS WORK.
- REMOVAL OF ANY MATERIAL AND EQUIPMENT SHALL INCLUDE ALL ASSOCIATED ITEMS SUCH AS FASTENERS, SUPPORTS, CONDUIT, FLASHING, ADHESIVE, ETC.
- REMOVE DEBRIS AS IT ACCUMULATES. DO NOT STORE OR PERMIT DEBRIS TO ACCUMULATE ON SITE. IF THE CONTRACTOR FAILS TO REMOVE DEBRIS PROMPTLY OR PROPERLY, THE OWNER SHALL REMOVE IT AT THE CONTRACTOR'S EXPENSE.
- EXISTING EQUIPMENT OR MATERIALS NOT SHOWN TO BE RE-USED BY OWNER, OR NOT SHOWN ON THE DRAWINGS TO BE RETAINED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PREMISES.
- PRIOR TO SUBMISSION OF BID, THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE THE EXISTING CONDITIONS AND SHALL INCLUDE ALL COSTS FOR REMOVALS IN THE CONTRACT. THESE COSTS SHALL INCLUDE WORK DESCRIBED HEREIN AND/OR SHOWN ON THE DRAWINGS WITH ALLOWANCES FOR UNFORESEEN FIELD CONDITIONS. NO CLAIMS FOR ADDITIONAL WORK ASSOCIATED WITH DEMOLITION WILL BE ACCEPTED, EXCEPT IN SPECIFIC CASES CONSIDERED JUSTIFIABLE BY THE ENGINEER.
- TAKE POSSESSION AND REMOVE FROM THE PREMISES ALL ABANDONED MATERIALS AND EQUIPMENT UNLESS OTHERWISE REQUESTED BY THE OWNER, IN WHICH CASE REMOVE WITHOUT DAMAGE ALL SUCH EQUIPMENT AND DELIVER TO OWNER WITHIN BUILDING AT LOCATION DESIGNATED BY THE OWNER.
- ALL CHARGES ASSOCIATED WITH TESTING, FILING, DISPOSAL, PREPARATION AND SUBMISSION OF ALL REQUIRED DOCUMENTATION SHALL BE INCLUDED IN THE CONTRACTOR'S BID. ALL REQUIRED FORMS, RECORDS, TEST, DISPOSAL AND TRANSPORTATION COSTS AND THE LIKE SHALL BE INCLUDED IN THE CONTRACTOR'S PROPOSAL AND SUBMITTED TO OWNER. NO ADDITIONAL COSTS SHALL BE PAID TO THE CONTRACTOR BECAUSE OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THE ABOVE.
- CONTRACTOR TO CAP ALL DUCTWORK AND PIPING WHICH IS TO BE ABANDONED IN PLACE.
- ALL DUCTWORK IS SHOWN DIAGRAMMATICALLY, CONTRACTOR TO FIELD VERIFY.

DUCTWORK NOTES

- THE MATERIALS, THICKNESS AND CONSTRUCTION OF SHEET METAL DUCTS SHALL PROVIDE STRUCTURAL STRENGTH AND DURABILITY. DUCTS SHALL BE CONSTRUCTED, BRACED AND REINFORCED IN ACCORDANCE WITH LOW PRESSURE AND HIGH PRESSURE DUCT STANDARDS OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA), LATEST EDITION IN PRINT OR IN ACCORDANCE WITH THE FUNDAMENTALS VOLUME BOOK OF THE AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS (ASHRAE), LATEST EDITION IN PRINT.
- DUCTS SHALL BE SUBSTANTIALLY SUPPORTED. HANGERS AND BRACKETS FOR SUPPORTING DUCTS SHALL BE OF METAL. HANGERS SHALL HAVE SUFFICIENT STRENGTH AND DURABILITY AND SUFFICIENT RESISTANCE TO THE CORROSIVE EFFECTS OF THE ATMOSPHERE TO WHICH THEY WILL BE EXPOSED. TO PROPERLY AND SAFELY SUPPORT THE DUCTWORK, HANGERS SHALL NOT BE USED IN DIRECT CONTACT WITH A DISSIMILAR METAL THAT WOULD CAUSE GALVANIC ACTION IN THE HANGER, DUCT, FASTENINGS OR STRUCTURE.
 - HANGERS SHALL CONFORM TO THE FOLLOWING MINIMUM REQUIREMENTS:
 - HANGERS SHALL BE FASTENED TO THE SIDES OF DUCT. FOR DUCTS OVER 48 INCHES WIDE, HANGERS SHALL TURN UNDER DUCT AT LEAST TWO INCHES AND SHALL BE FASTENED TO THE BOTTOM AS WELL AS TO THE SIDES.
 - FOR DUCTS WITH A CROSS-SECTIONAL AREA OF TWO SQUARE FEET OR LESS, HANGERS SHALL BE CONSTRUCTED OF AT LEAST ONE INCH BY 1/16 INCH STEEL STRAP.
 - FOR DUCTS WITH A CROSS SECTIONAL AREA OVER TWO SQUARE FEET, HANGERS SHALL BE CONSTRUCTED OF THREADED STEEL ROD (MINIMUM 1/2-DIAMETER) WITH STEEL SINGLE TRAPEZE SUPPORTS.
- DUCTS AND ALL PARTS OF THE DUCT SYSTEM SHALL BE SUBSTANTIALLY SUPPORTED AND SECURELY FASTENED TO THE STRUCTURAL MEMBERS OF THE BUILDING WITH APPROVED DEVICES OF NONCOMBUSTIBLE MATERIAL DESIGNED TO CARRY THE REQUIRED LOADS. THE USE OF EXPANSION BOLTS IN CINDER CONCRETE IS PROHIBITED. CONNECTIONS SHALL NOT IMPAIR THE EFFECTIVENESS OF THE FIRE PROTECTION OF STRUCTURAL MEMBERS.
- DUCTS SHALL NOT BE HUNG FROM OR SUPPORTED BY SUSPENDED CEILINGS.

FAN SCHEDULE

TAG	SERVICE	LOCATION	TYPE	AIR FLOW, CFM	ESP, IN. WG	DRIVE TYPE	SOUND DATA, SONES	MOTOR DATA			MANUFACTURER	MODEL NO.	WEIGHT, LBS	REMARKS
								HP (W)	RPM	V/PHZ				
EF/1	BATHROOM	FIRST FLOOR	CEILING	50	0.5	DIRECT	2	14.4	828	208/60/3	GREENHECK	SP-AP0511W	50	SEE 1 THROUGH 6
EF/2	BATHROOM	FIRST FLOOR	CEILING	50	0.5	DIRECT	2	14.4	828	208/60/3	GREENHECK	SP-AP0511W	50	SEE 1 THROUGH 6

REMARKS

- PROVIDE SHOP DRAWINGS INCLUDING FAN CURVES.
- FANS SHALL BE AMCA RATED FOR SOUND AND PERFORMANCE.
- FURNISH AND INSTALL VARI-GREEN EC MOTOR WITH VARI-GREEN DAIL CONTROL MOUNTED AND WIRED ON EXTERIOR OF FAN HOUSING WITH HUMIDITY CONTROL. PROVIDE WIRED AND MOUNTED JUNCTION BOX.
- PROVIDE BACKDRAFT DAMPER.
- PROVIDE (5) YEAR WARRANTY ON PARTS AND LABOR.
- ALTERNATE MANUFACTURERS: TWIN CITY FANS, NEW YORK BLOWER, COOK.

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NO.	ISSUED FOR BID	DATE
1	ISSUED FOR BID	03/17/2023

NO.	REVISION	DATE

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER ANY ITEM ON THIS DRAWING AND/OR RELATED SPECIFICATION. ALL ALTERATIONS MUST BE MADE IN COMPLIANCE WITH THE NEW YORK STATE EDUCATION LAW. THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS HEREON ASSUMES NO RESPONSIBILITY FOR ANY SUCH ALTERATION OR REUSE WITHOUT HIS WRITTEN CONSENT.

CLIENT:

SUNY PURCHASE COLLEGE

PROJECT TITLE:

**SUNY PURCHASE APARTMENT
REPAIR ALUMNI VILLAGE
INTERIOR RENOVATIONS OF THE
COMMONS APARTMENTS
10.1 (ADA COMPLIANT) & 10.3**

DRAWING TITLE:

**MECHANICAL LEGENDS,
ABBREVIATIONS, NOTES AND
SCHEDULE**

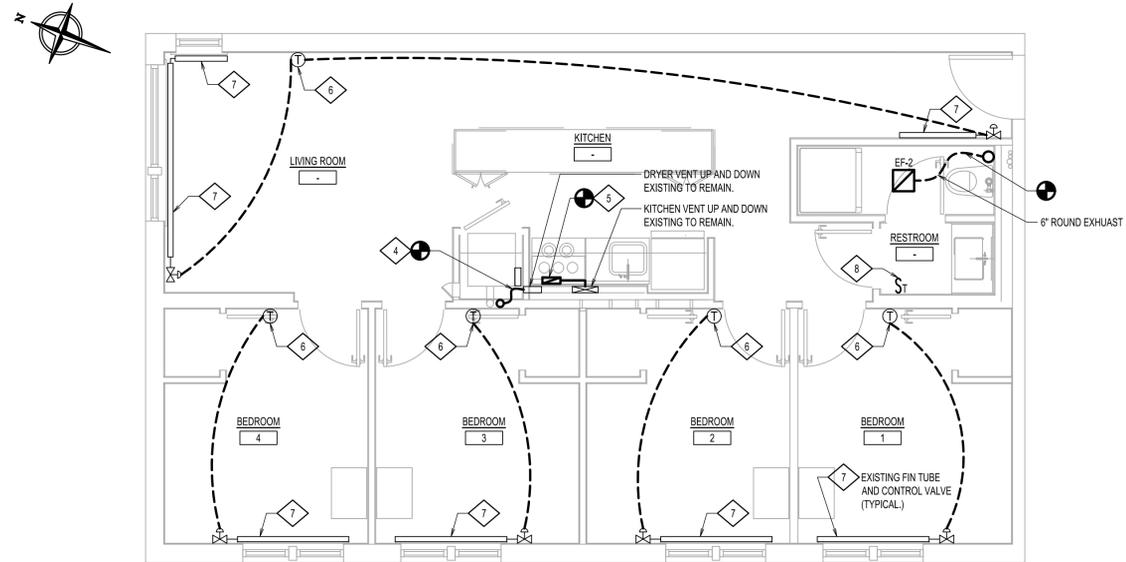
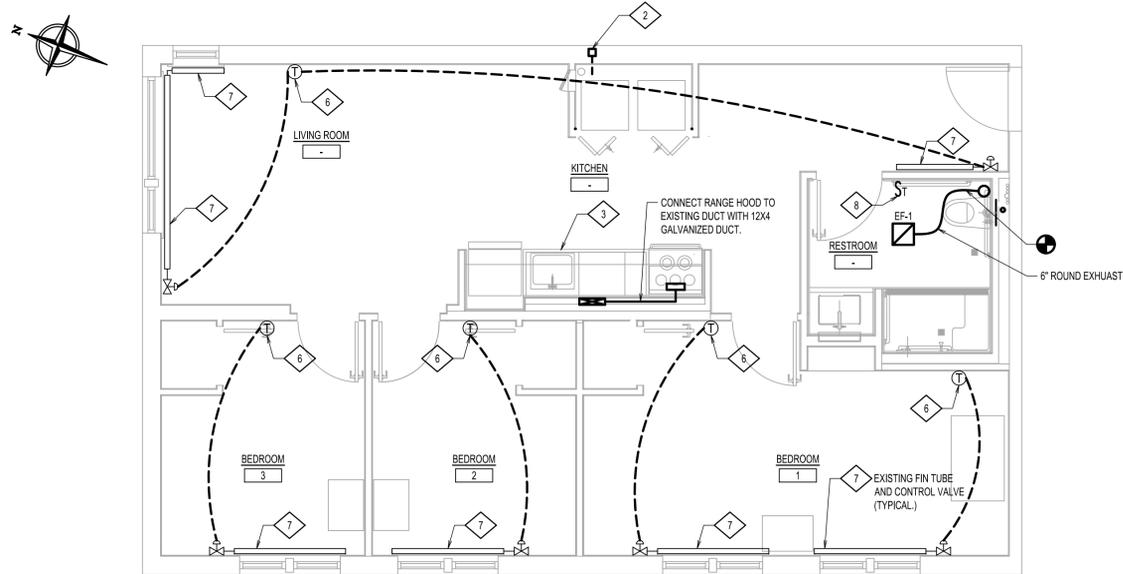
DRAWN BY:	SCALE:	AS NOTED
DESIGNED BY:	DATE:	11-29-22
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DRAWING NO.:	M-001.00	
SHEET:	1 OF 5	

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NOTES

1. REFER TO DRAWING M-001 FOR MECHANICAL LEGENDS, ABBREVIATIONS, NOTES AND SCHEDULE.
2. PROVIDE NEW 6" SIDE WALL PAINTED DRYER VENT WITH BACK DRAFT DAMPER WITH 6" RIGID GALVANIZED CONNECTION TO DRYER.
3. CONNECT NEW KITCHEN EXHAUST HOOD TO EXISTING DUCT.
4. CONNECT NEW ELECTRIC DRYER TO EXISTING DRYER VENT WITH 6" RIGID GALVANIZED DUCT.
5. CONNECT NEW KITCHEN EXHAUST HOOD TO EXISTING DUCT.
6. PROVIDE HONEYWELL 7 DAY PROGRAMMABLE HEATING ONLY THERMOSTAT. CONFIRM CONTROL VALVE VOLTAGE. THERMOSTAT TO BE TH115-A-120S OR APPROVED EQUAL.
7. REMOUNT EXISTING ENCLOSURES FOR EXISTING FIN TUBE.
8. WALL SWITCH FOR EXHAUST FAN. REFER TO ELECTRICAL DRAWINGS FOR INFORMATION. DRYER AND HOOD EXHAUST SHALL HAVE SMOOTH INNER WALLS AND BE AIR TIGHT.



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1	ISSUED FOR BID	03/17/2023
NO.	REVISION	DATE

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SEAL:

CLIENT:
SUNY PURCHASE COLLEGE

PROJECT TITLE:
SUNY PURCHASE APARTMENT REPAIR ALUMNI VILLAGE INTERIOR RENOVATIONS OF THE COMMONS APARTMENTS 10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:
MECHANICAL FIRST AND SECOND FLOOR NEW WORK

DRAWN BY:	SCALE:	AS NOTED
DESIGNED BY:	DATE:	11-29-22
CHECKED BY:	PROJECT NO.:	10652

PLOT DATE/TIME:
3/17/2023 3:52:16 PM

DRAWING NO.:

M-101.00

SHEET:
2 OF 5

23 00 01 GENERAL STANDARDS

- A. GENERAL:
 - 1. NOT WITHSTANDING ANYTHING TO THE CONTRARY CONTAINED WITHIN THE CONTRACT DOCUMENTS, ALL MECHANICAL WORK UNDER THIS PROJECT SHALL BE IN ACCORDANCE WITH THE CONTRACT DRAWINGS, SPECIFICATIONS, DETAILS, GENERAL NOTES, ADDENDA, ETC. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCY PRIOR TO SUBMITTING PROPOSAL.
 - 2. EACH BIDDER SUBMITTING HIS PROPOSAL SHALL EXAMINE ALL CONTRACT DOCUMENTS INCLUDING DRAWINGS, SPECIFICATIONS, ADDENDA, ETC. RELATING TO THIS WORK AND VERIFY ALL GOVERNING CONDITIONS AT THE JOB SITE AND SHALL BECOME FULLY INFORMED AS TO THE EXTENT AND CHARACTER FOR OF THE WORK REQUIRED AND ITS RELATION TO OTHER WORK. NO CONSIDERATION WILL BE GRANTED FOR ANY ALLEGED MISUNDERSTANDING OF THE MATERIALS TO BE FURNISHED OR WORK TO BE DONE, IT BEING UNDERSTOOD THAT THE SUBMISSION OF A PROPOSAL IS AN AGREEMENT TO ALL ITEMS AND CONDITIONS REFERRED TO HEREIN OR INDICATED ON THE ACCOMPANYING DRAWINGS.
 - 3. ALL DUCTWORK, PIPING, ETC. INDICATED ON DRAWINGS ARE DIAGRAMMATIC AND DUE TO CLARITY ISSUES, ETC., THE CONTRACT DOCUMENTS MAY NOT SHOW ALL PIPING AND DUCTWORK RUNS, OFFSETS, DROPPING AND RISING OF RUNS, ETC. AS MAY BE NECESSARY.
 - 4. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROLS, FOR ALL EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS AS REQUIRED AND WHATEVER ADDITIONAL TASKS AS MAY BE REQUIRED FOR THE SPECIFIED EQUIPMENT AND SYSTEMS TO BE COMPLETE IN EVERY RESPECT AND FULLY FUNCTIONAL. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER, PRIOR TO SUBMITTING A PROPOSAL.
 - 5. WHERE DUE TO UNION REGULATIONS OR TRADE AGREEMENTS, IF ANY OF THE WORK SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN IS NOT CONSIDERED "WORK INCLUDED", THIS CONTRACTOR SHALL SUB-CONTRACT THE WORK IN QUESTION, BUT THIS CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE COMPLETE INSTALLATION.
- B. STANDARDS AND CODES:
 - 1. BUILDING CODE OF NEW YORK STATE
 - 2. EXISTING BUILDING CODE OF NEW YORK STATE
 - 3. RESIDENTIAL CODE OF NEW YORK STATE
 - 4. MECHANICAL CODE OF NEW YORK STATE
 - 5. FUEL GAS CODE OF NEW YORK STATE
 - 6. PLUMBING CODE NEW YORK STATE
 - 7. FIRE CODE OF NEW YORK STATE
 - 8. ENERGY CONSERVATION AND CONSTRUCTION CODE OF NEW YORK STATE
 - 9. NATIONAL ELECTRIC CODE
 - 10. FEDERAL, STATE AND LOCAL CODES HAVING JURISDICTION
 - 11. ASHRAE STANDARDS AS APPLICABLE
 - 12. SMACNA STANDARDS AS APPLICABLE
 - 13. NFPA STANDARDS AS APPLICABLE
 - 14. BUILDING STANDARDS AND REQUIREMENTS
- C. EXAMINATION OF EXISTING CONDITIONS:
 - 1. BEFORE SUBMITTING PROPOSALS BIDDERS SHALL VISIT THE SITE AND CAREFULLY EXAMINE THOSE PORTIONS OF THE BUILDING AFFECTED BY THIS WORK SO AS TO FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THE WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH EXAMINATION BEEN MADE, AS DETERMINED BY THE ARCHITECT, WILL NOT BE RECOGNIZED.
- D. PERMITS AND CERTIFICATES:
 - 1. THIS CONTRACTOR SHALL GIVE NECESSARY NOTICES, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK, AND PAY ALL FEES REQUIRED.
- E. SUBMITTALS:
 - 1. SUBMIT COORDINATED SHOP DRAWINGS, (CONTRACTOR SHALL SUBMITTING SHOP DRAWINGS ELECTRONICALLY IN PDF FORMAT, AFTER ENGINEERS REVIEW ONE COPY WILL BE RETURNED TO YOU IN PDF FORMAT). UNLESS OTHER WISE NOTED. MATERIAL AND EQUIPMENT REQUIRING SHOP DRAWING SUBMITTALS SHALL INCLUDE BUT NOT BE LIMITED TO, ALL PIPING MATERIALS AND ACCESSORIES, HANGERS AND SUPPORT INCLUDING VIBRATION ISOLATION EQUIPMENT, SHEET METAL STANDARDS, INSULATION (ALL TYPES), DAMPERS (ALL TYPES), ALL DUCTWORK ACCESSORIES, GRILLES, REGISTERS AND DIFFUSERS, INSTRUMENTATION, CONTROL DIAGRAMS AND SEQUENCE OF OPERATION, COORDINATED LAYOUT DRAWINGS, AS-BUILT DRAWINGS, WARRANTIES AND GUARANTEES, CERTIFICATIONS, BALANCING AND TEST REPORTS, AND OPERATING AND MAINTENANCE MANUALS.
 - 2. SHOP DRAWINGS SHOWING MANUFACTURER'S PRODUCT DATA SHALL CONTAIN DETAILED DIMENSIONAL DRAWINGS, ACCURATE AND COMPLETE DESCRIPTION OF MATERIALS OF CONSTRUCTION, MANUFACTURER'S PUBLISHED PERFORMANCE CHARACTERISTICS AND CAPACITY RATINGS (PERFORMANCE DATA, ALONE, IS NOT ACCEPTABLE), ELECTRICAL REQUIREMENTS AND WIRING DIAGRAMS. DRAWINGS SHALL CLEARLY INDICATE LOCATION (TERMINAL BLOCK OR WIRE NUMBER), VOLTAGE AND FUNCTION FOR ALL FIELD TERMINATIONS, AND OTHER INFORMATION NECESSARY TO DEMONSTRATE COMPLIANCE WITH ALL REQUIREMENTS OF CONTRACT DOCUMENTS.
 - 3. FURNISH SHOP DRAWING SUBMITTALS SHOWING DETAILS OF PIPING CONNECTIONS TO ALL HVAC EQUIPMENT. IF CONNECTION DETAILS ARE NOT SUBMITTED AND CONNECTIONS ARE FOUND TO BE INSTALLED INCORRECTLY IN THE FIELD, THIS CONTRACTOR SHALL REINSTALL THEM WITHIN THE ORIGINAL CONTRACT PRICE.
 - 4. ALL PIPING, DUCTWORK AND EQUIPMENT LAYOUT SHALL BE SUBMITTED ON SCALE 3/8" = 1'-0" DRAWINGS, AND SHALL BE COORDINATED AND STAMPED BY ALL TRADES. SHOP DRAWINGS SHALL SHOW LOCATION OF ALL EXISTING AND NEW EQUIPMENT, EXISTING WORK AND NEW WORK.
 - 5. SUBMIT COMPACT DISC (CD) "AS-BUILT" RECORD DRAWINGS FOR BUILDING FILES AT COMPLETION OF THE PROJECT, TO INCLUDE DUCTWORK, PIPING, AND EQUIPMENT DRAWINGS. SCALE 3/8"=1'-0".
- F. SUBSTITUTIONS:
 - 1. CONTRACTOR'S SUBSTITUTION OF PRODUCTS OTHER THAN THOSE LISTED CAN BE SUBMITTED; HOWEVER, SUBMITTALS WITH MANUFACTURERS NOT ACCEPTABLE TO CONSULTANTS MAY BE REJECTED WITHOUT COMMENT.
 - 2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS FOR PIPING, DUCTWORK, CONTROLS, ACCESSORIES, APPURTENANCES, ETC., REQUIRED FOR THE APPROVED SUBSTITUTED EQUIPMENT.
 - 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS FOR CHANGES TO OTHER TRADES SUCH AS ELECTRICAL, ETC. REQUIRED FOR THE APPROVED SUBSTITUTED EQUIPMENT.
 - 4. ANY OWNER CONSULTANT COSTS MADE NECESSARY BY CONTRACTOR REVISIONS OR SUBSTITUTIONS SHALL BE BORNE TO THE CONTRACTOR. THIS INCLUDES ADDITIONAL FILING, EXPEDITING, PRINTING AND ENGINEERING COSTS.

- G. SPECIAL REQUIREMENTS:
 - 1. IDENTIFY EQUIPMENT CONTROLS AND SENSORS WITH LAMINATED PLASTIC NAMEPLATES EQUAL TO SETON NAME PLATE CORP., STYLE M4564 ENGRAVED SETONPLY NAMEPLATE.
 - H. SCAFFOLDING AND RIGGING:
 - 1. CONTRACTOR SHALL FURNISH AND INSTALL ALL SCAFFOLDING, RIGGING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY ONTO THE PREMISES OF ALL MATERIALS FURNISHED AND/OR INSTALLED UNDER THIS SECTION OF THE SPECIFICATIONS AND REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
 - I. CLEAN UP:
 - 1. CONTRACTOR SHALL MAINTAIN CONSTRUCTION SITE IN A CLEAN AND ORDERLY CONDITION AND SHALL REMOVE ALL TRASH FROM THE PREMISES ON A DAILY BASIS AND PRIOR TO ACCEPTANCE OF THE WORK, AS DIRECTED BY THE OWNER.
 - J. GUARANTEE:
 - 1. THE CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL WORK INSTALLED WILL BE FREE FROM ANY AND ALL DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK. THIS GUARANTEE SHALL INCLUDE ALL WORK BY ANY AND ALL OF THEIR SUBCONTRACTORS. THE PRIME CONTRACTOR SHALL MAKE GOOD ON ALL SUBCONTRACT WORK DURING THIS PERIOD.
- 23 00 02 SCOPE OF WORK**
- A. WORK INCLUDED
 - 1. WORK UNDER THIS DIVISION SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE MECHANICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - 2. PREPARE AND SUBMIT COORDINATED SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS TO THE OWNER.
 - a. WHERE CONFLICTS OCCUR, REQUEST CLARIFICATION THROUGH THE ENGINEER. COORDINATE ALL WORK OF THIS DIVISION WITH THE WORK OF ALL OTHER TRADES.
 - 3. THE MECHANICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH WORK OF ALL OTHER TRADES AS REQUIRED.
 - a. MECHANICAL CONTRACTOR SHALL COORDINATE ALL WORK TO AVOID INSTALLATION OF ALL PIPING, DUCTWORK, EQUIPMENT, ETC. ABOVE ELECTRICAL SWITCHBOARDS, PANELBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC. PER NEC 110.26.
 - 4. SUBMIT MANUFACTURER'S SUBMITTAL SHEETS AS SPECIFIED WITHIN THE CONTRACT DOCUMENTS.
 - a. HIGHLIGHT ALL APPLICABLE MATERIAL AND DATA.
 - b. NON-APPLICABLE MATERIAL AND DATA SHALL BE STRUCK PRIOR TO SUBMITTAL.
 - 5. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS DIVISION.
 - 6. ARRANGE FOR ALL INSPECTIONS AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
 - a. FURNISH ALL AFFIDAVITS OF INSTALLATION OF EQUIPMENT AND COMPLETION OF WORK AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION
 - 7. PROTECT, TEST, BALANCE, CLEAN, ADJUST AND GUARANTEE ALL OF THE WORK OF THIS DIVISION TO OPERATE SAFELY, PROPERLY AND CONTINUOUSLY.
 - 8. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS, AND MANUALS.
 - 9. FURNISH AND INSTALL HANGERS, SUPPORTS, PIPING, DUCTWORK, EQUIPMENT AND CONDUIT INSTALLED UNDER THE WORK OF THIS DIVISION.
 - 10. FURNISH AND INSTALL INSULATION FOR EQUIPMENT, PIPING, DUCTWORK CONDUIT AND ACCESSORIES INSTALLED UNDER THE WORK OF THIS DIVISION.
 - a. CONTRACTOR SHALL REPAIR ALL EXISTING EQUIPMENT, PIPE AND DUCT INSULATION DAMAGED OR REMOVED DUE TO WORK PERFORMED UNDER THIS CONTRACT.
 - 11. MAINTAIN ALL EXISTING MECHANICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATIONS DURING THE PROGRESS OF THE WORK, INCLUDING PROVIDING ALL TEMPORARY PIPING, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED.
 - 12. DEMOLISH AND REMOVE EXISTING DUCTWORK, EQUIPMENT AND ACCESSORIES AS SHOWN ON THE DRAWINGS AND ANY OTHER ABANDONED ITEMS OR EQUIPMENT FOUND EVEN THOUGH NOT SHOWN ON THE DRAWINGS.
 - 13. FURNISH AND INSTALL ALL EQUIPMENT, COMPONENTS AND APPURTENANCES FOR EXHAUST AIR SYSTEMS INCLUDING VOLUME DAMPERS, AIR OUTLETS, AND DUCTWORK.
 - 14. FURNISH AND INSTALL EXHAUST AIR DUCT SYSTEMS WITH AIR DEVICES, MANUAL DAMPERS AND ACCESSORIES.
 - 15. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROLS, FOR ALL EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS AS REQUIRED AND WHATEVER ADDITIONAL TASKS AS MAY BE REQUIRED FOR THE SPECIFIED EQUIPMENT AND SYSTEMS TO BE COMPLETE IN EVERY RESPECT AND FULLY FUNCTIONAL. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER, PRIOR TO SUBMITTING A PROPOSAL. THE CONTROLS SHALL INCLUDE, BUT ARE NOT LIMITED TO:
 - a. LINE VOLTAGE THERMOSTAT
 - b. CONDUIT
 - c. CONTROL WIRING
 - 1) ALL LINE VOLTAGE AND LOW VOLTAGE CONTROL WIRING SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.
 - a) ALL POWER REQUIRED FOR INDIVIDUAL STAND-ALONE CONTROLS INCLUDING: CONTROLLERS, CONTROL VALVES, DAMPER ACTUATORS, ETC. SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR INCLUDING ALL REQUIRED TRANSFORMERS, ETC.
 - b) ALL EXPOSED CONDUIT SHALL BE RUN IN EMT BY MECHANICAL OR SUBCONTRACTORS.
 - c) ALL CONDUIT IN FREEZERS SHALL BE STAINLESS STEEL.
 - d) CONDUIT IN INACCESSIBLE SPACES ABOVE FREEZER AND CEILINGS MAY BE INSTALLED IN GREENFIELD.

- 16. PROVIDE BALANCING OF AIR SIDE SYSTEMS SPECIFIED HEREIN.
 - a. SUPPLY ALL BALANCING EQUIPMENT ETC. AS NECESSARY FOR THE AIRSIDE AND WATERSIDE SYSTEMS
 - b. FURNISH COMPLETE REPORTS OF BALANCING
- 23 05 00 COMMON WORK FOR HVAC SYSTEMS**
- A. HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT
 - 1. PIPE HANGERS AND SUPPORTS SHALL BE WROUGHT IRON ASTM B31.1 EQUAL TO "GRINNELL." HANGER RODS SHALL BE GALVANIZED STEEL, ASTM A575 EQUAL TO GRINNELL.
 - 2. FURNISH AND INSTALL PIPE STANDS, SUPPORTS, HANGERS AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS.
 - 3. SELECT AND SIZE PIPE HANGERS AND SUPPORTS IN COMPLIANCE WITH THE LATEST EDITION OF MSS MANUALS. SP-58, SP-69 AND SP-89.
 - 4. FURNISH AND INSTALL VIBRATION ISOLATION HANGERS AND SUPPORT EQUAL TO AMBER BOOTH TYPE BSR FOR ALL PIPING OVER ONE INCH DIAMETER IN THE EQUIPMENT ROOMS AND FOR 50 FEET FROM THE EQUIPMENT CONNECTION.
 - 5. SUBMIT SHOP DRAWINGS.
 - 6. ALL HANGERS SHALL BE ICC-ES CERTIFIED.
 - B. HANGERS AND SUPPORTS FOR HVAC DUCTWORK AND EQUIPMENT
 - 1. STANDARDS
 - a. LATEST SMACNA HVAC DUCT CONSTRUCTION STANDARDS: CHAPTER 4 – HANGERS & SUPPORTS
 - 2. GENERAL
 - a. FURNISH AND INSTALL HANGING AND SUPPORT SYSTEMS FOR SHEET METAL DUCTS AS SPECIFIED IN THE LATEST SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
 - b. FURNISH AND INSTALL HANGING AND SUPPORT SYSTEMS FOR SHEET METAL DUCTS INSTALLED IN NEW YORK OF THE TYPE AND SIZE LISTED IN THE SCHEDULES
 - c. WALL AND FLOOR FIRE STOP: INTUMESCENT FIRE BARRIER FOR ALL DUCTWORK, INSULATED AND UNINSULATED, ASTM E-119, ASTM E-814, UL 1479, NFPA 101, NEG. MANUFACTURER & MODEL NO. 3M, CAULK: CP 25 NS, CP 25 S/L, WRAP/STRIP: FS-195, COMPOSITE SHEET: CS-195
 - 3. EXECUTION
 - a. SUPPORT EACH DUCT INDEPENDENTLY.
 - b. SUPPORT DUCTS USING METAL HANGERS AND BRACKETS. HANGERS SHALL HAVE SUFFICIENT STRENGTH AND DURABILITY AND SUFFICIENT RESISTANCE TO THE CORROSIVE EFFECTS OF THE ATMOSPHERE TO WHICH THEY WILL BE EXPOSED, AND TO PROPERLY AND SAFELY SUPPORT THE DUCTWORK. HANGERS SHALL NOT BE USED IN DIRECT CONTACT WITH A DISSIMILAR METAL THAT WOULD CAUSE GALVANIC ACTION IN THE HANGER, DUCT, FASTENINGS OR STRUCTURE.
 - c. SUPPORT SUBSTANTIALLY AND SECURELY FASTEN ALL DUCTS AND ALL PARTS OF THE DUCT SYSTEM TO THE STRUCTURAL MEMBERS OF THE BUILDING, WITH APPROVED DEVICES OF NONCOMBUSTIBLE MATERIAL DESIGNED TO CARRY THE REQUIRED LOADS. THE USE OF EXPANSION BOLTS IN CINDER CONCRETE IS PROHIBITED. CONNECTIONS SHALL NOT IMPAIR THE EFFECTIVENESS OF THE FIRE PROTECTION OF STRUCTURAL MEMBERS.
 - d. INSTALL SLEEVES AND SEAL ANNULAR SPACE BETWEEN SLEEVE AND BARE DUCT OR INSULATED DUCT, WHERE DUCTS PASS THROUGH FLOORS AND WALLS, WITH NON-COMBUSTIBLE MATERIAL TO PREVENT THE PASSAGE OF FLAME AND SMOKE.
 - 4. DUCT HANGER AND SUPPORTS (NEW YORK)
 - a. DUCT CROSS-SECTIONAL AREA, SQ. FT: 2 OR LESS: MIN. STRAP SIZE, IN: 1 X 1/16, MAX. HANGER SPACING, FT: 6
- 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC**
- A. INSTRUMENTATION AND CONTROL DEVICES FOR HVAC
 - 1. AUTOMATIC CONTROLS: THE AUTOMATIC CONTROLS SHALL BE STAND ALONE.
 - 2. THE INTENT OF THIS SECTION IS TO DESCRIBE THE FUNCTIONAL CONTROL OF ALL MECHANICAL EQUIPMENT, SYSTEMS, AND DEVICES OF THE PROJECT. THE CONTRACTOR SHALL DESIGN THE AUTOMATIC CONTROL SYSTEM AND SHALL FURNISH AND INSTALL AS REQUIRED ALL NECESSARY CONTROL COMPONENTS INCLUDING, BUT NOT LIMITED TO: CONTROL WIRING, CONTACTORS, RELAYS, THERMOSTATS, ELECTRICAL TIMERS ETC., TO ACHIEVE THE DESIRED OPERATION FOR MECHANICAL SYSTEMS
 - 3. PROVIDE ON-THE-JOB TRAINING TO THE OWNER'S OPERATING PERSONNEL.
 - 4. FURNISH SIX (6) COPIES OF A COMPLETE INSTRUCTION MANUAL INCLUDING OPERATING INSTRUCTIONS, AS-BUILT DRAWINGS, SPECIFICATION DATA SHEET AND MAINTENANCE SCHEDULE.
 - 5. INSTALL THE ELECTRICAL COMPONENTS FOR THE AUTOMATIC CONTROLS IN ACCORDANCE WITH:
 - a. THE LATEST NATIONAL ELECTRIC CODE (NEC).
 - 6. ALL CONTROL WIRING IN EXPOSED AREAS TO BE WITHIN METAL CONDUIT
 - 7. SUBMITTALS
 - a. TECHNICAL BULLETINS AND CATALOG DATA FOR ALL EQUIPMENT AND SYSTEM COMPONENTS. CLEARLY IDENTIFY, BY USE OF SYMBOL OR TAG NUMBER, THE SERVICE OF EACH ITEM. ALL IRRELEVANT INFORMATION SHALL BE MARKED OUT LEAVING ONLY PERTINENT DATA.
 - b. SHOP DRAWINGS
 - c. SYSTEM BLOCK DIAGRAM SHOWING QUANTITY AND LOCATION OF CPU, OPERATOR CONSOLE EQUIPMENT, DDCS, FIELD EQUIPMENT PANELS AND MAJOR SYSTEM COMPONENTS.
 - d. CONTROL DIAGRAMS FOR ALL SYSTEMS CONTROLLED. CONTROLS SHALL BE SHOWN ON SYSTEM FLOW DIAGRAMS.
 - e. POWER WIRING DIAGRAMS AND ELECTRICAL REQUIREMENTS.
 - f. DETAILED BILL OF MATERIALS.

1	ISSUED FOR BID	03/17/2023
NO.	REVISION	DATE

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER ANY ITEM ON THIS DRAWING AND/OR RELATED SPECIFICATION. ALL ALTERATIONS MUST BE MADE IN COMPLIANCE WITH THE NEW YORK STATE EDUCATION LAW. THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS HEREON ASSUMES NO RESPONSIBILITY FOR ANY SUCH ALTERATION OR REUSE WITHOUT HIS WRITTEN CONSENT.

SEAL

CLIENT:

SUNY PURCHASE COLLEGE

PROJECT TITLE:

SUNY PURCHASE APARTMENT REPAIR ALUMNI VILLAGE INTERIOR RENOVATIONS OF THE COMMONS APARTMENTS 10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:

MECHANICAL DETAILS

DRAWN BY:	SE	SCALE:	AS NOTED
DESIGNED BY:	ABD	DATE:	11-29-22
CHECKED BY:	ABD	PROJECT NO.:	10652
PLOT DATE/TIME:	3/17/2023 3:52:39 PM		

DRAWING NO.:
M-301.00

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23 00 01 GENERAL STANDARDS

- A. GENERAL:
1. NOT WITHSTANDING ANYTHING TO THE CONTRARY CONTAINED WITHIN THE CONTRACT DOCUMENTS, ALL MECHANICAL WORK UNDER THIS PROJECT SHALL BE IN ACCORDANCE WITH THE CONTRACT DRAWINGS, SPECIFICATIONS, DETAILS, GENERAL NOTES, ADDENDA, ETC. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCY PRIOR TO SUBMITTING PROPOSAL.
2. EACH BIDDER SUBMITTING HIS PROPOSAL SHALL EXAMINE ALL CONTRACT DOCUMENTS INCLUDING DRAWINGS, SPECIFICATIONS, ADDENDA, ETC. RELATING TO THIS WORK AND VERIFY ALL GOVERNING CONDITIONS AT THE JOB SITE AND SHALL BECOME FULLY INFORMED AS TO THE EXTENT AND CHARACTER FOR OF THE WORK REQUIRED AND ITS RELATION TO OTHER WORK. NO CONSIDERATION WILL BE GRANTED FOR ANY ALLEGED MISUNDERSTANDING OF THE MATERIALS TO BE FURNISHED OR WORK TO BE DONE, IT BEING UNDERSTOOD THAT THE SUBMISSION OF A PROPOSAL IS AN AGREEMENT TO ALL ITEMS AND CONDITIONS REFERRED TO HEREIN OR INDICATED ON THE ACCOMPANYING DRAWINGS.
3. ALL DUCTWORK, PIPING, ETC. INDICATED ON DRAWINGS ARE DIAGRAMMATIC AND DUE TO CLARITY ISSUES, ETC., THE CONTRACT DOCUMENTS MAY NOT SHOW ALL PIPING AND DUCTWORK RUNS, OFFSETS, DROPPING AND RISING OF RUNS, ETC. AS MAY BE NECESSARY.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROLS, FOR ALL EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS AS REQUIRED AND WHATEVER ADDITIONAL TASKS AS MAY BE REQUIRED FOR THE SPECIFIED EQUIPMENT AND SYSTEMS TO BE COMPLETE IN EVERY RESPECT AND FULLY FUNCTIONAL. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER, PRIOR TO SUBMITTING A PROPOSAL.
5. WHERE DUE TO UNION REGULATIONS OR TRADE AGREEMENTS, IF ANY OF THE WORK SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN IS NOT CONSIDERED "WORK INCLUDED", THIS CONTRACTOR SHALL SUB-CONTRACT THE WORK IN QUESTION, BUT THIS CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE COMPLETE INSTALLATION.
B. STANDARDS AND CODES:
1. BUILDING CODE OF NEW YORK STATE
2. EXISTING BUILDING CODE OF NEW YORK STATE
3. RESIDENTIAL CODE OF NEW YORK STATE
4. MECHANICAL CODE OF NEW YORK STATE
5. FUEL GAS CODE OF NEW YORK STATE
6. PLUMBING CODE NEW YORK STATE
7. FIRE CODE OF NEW YORK STATE
8. ENERGY CONSERVATION AND CONSTRUCTION CODE OF NEW YORK STATE
9. NATIONAL ELECTRIC CODE
10. FEDERAL, STATE AND LOCAL CODES HAVING JURISDICTION
11. ASHRAE STANDARDS AS APPLICABLE
12. SMACNA STANDARDS AS APPLICABLE
13. NFPA STANDARDS AS APPLICABLE
14. BUILDING STANDARDS AND REQUIREMENTS
C. EXAMINATION OF EXISTING CONDITIONS:
1. BEFORE SUBMITTING PROPOSALS BIDDERS SHALL VISIT THE SITE AND CAREFULLY EXAMINE THOSE PORTIONS OF THE BUILDING AFFECTED BY THIS WORK SO AS TO FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THE WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH EXAMINATION BEEN MADE, AS DETERMINED BY THE ARCHITECT, WILL NOT BE RECOGNIZED.
D. PERMITS AND CERTIFICATES:
1. THIS CONTRACTOR SHALL GIVE NECESSARY NOTICES, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENTS HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK, AND PAY ALL FEES REQUIRED.
E. SUBMITTALS:
1. SUBMIT COORDINATED SHOP DRAWINGS, (CONTRACTOR SHALL SUBMITTING SHOP DRAWINGS ELECTRONICALLY IN PDF FORMAT, AFTER ENGINEERS REVIEW ONE COPY WILL BE RETURNED TO YOU IN PDF FORMAT). UNLESS OTHER WISE NOTED. MATERIAL AND EQUIPMENT REQUIRING SHOP DRAWING SUBMITTALS SHALL INCLUDE BUT NOT BE LIMITED TO, ALL PIPING MATERIALS AND ACCESSORIES, HANGERS AND SUPPORT INCLUDING VIBRATION ISOLATION EQUIPMENT, SHEET METAL STANDARDS, INSULATION (ALL TYPES), DAMPERS (ALL TYPES), ALL DUCTWORK ACCESSORIES, GRILLES, REGISTERS AND DIFFUSERS, INSTRUMENTATION, CONTROL DIAGRAMS AND SEQUENCE OF OPERATION, COORDINATED LAYOUT DRAWINGS, AS-BUILT DRAWINGS, WARRANTIES AND GUARANTEES, CERTIFICATIONS, BALANCING AND TEST REPORTS, AND OPERATING AND MAINTENANCE MANUALS.
2. SHOP DRAWINGS SHOWING MANUFACTURER'S PRODUCT DATA SHALL CONTAIN DETAILED DIMENSIONAL DRAWINGS, ACCURATE AND COMPLETE DESCRIPTION OF MATERIALS OF CONSTRUCTION, MANUFACTURER'S PUBLISHED PERFORMANCE CHARACTERISTICS AND CAPACITY RATINGS (PERFORMANCE DATA, ALONE, IS NOT ACCEPTABLE), ELECTRICAL REQUIREMENTS AND WIRING DIAGRAMS. DRAWINGS SHALL CLEARLY INDICATE LOCATION (TERMINAL BLOCK OR WIRE NUMBER), VOLTAGE AND FUNCTION FOR ALL FIELD TERMINATIONS, AND OTHER INFORMATION NECESSARY TO DEMONSTRATE COMPLIANCE WITH ALL REQUIREMENTS OF CONTRACT DOCUMENTS.
3. FURNISH SHOP DRAWING SUBMITTALS SHOWING DETAILS OF PIPING CONNECTIONS TO ALL HVAC EQUIPMENT. IF CONNECTION DETAILS ARE NOT SUBMITTED AND CONNECTIONS ARE FOUND TO BE INSTALLED INCORRECTLY IN THE FIELD, THIS CONTRACTOR SHALL REINSTALL THEM WITHIN THE ORIGINAL CONTRACT PRICE.
4. ALL PIPING, DUCTWORK AND EQUIPMENT LAYOUT SHALL BE SUBMITTED ON SCALE 3/8" = 1'-0" DRAWINGS, AND SHALL BE COORDINATED AND STAMPED BY ALL TRADES. SHOP DRAWINGS SHALL SHOW LOCATION OF ALL EXISTING AND NEW EQUIPMENT, EXISTING WORK AND NEW WORK.
5. SUBMIT COMPACT DISC (CD) "AS-BUILT" RECORD DRAWINGS FOR BUILDING FILES AT COMPLETION OF THE PROJECT, TO INCLUDE DUCTWORK, PIPING, AND EQUIPMENT DRAWINGS. SCALE 3/8"=1'-0".
F. SUBSTITUTIONS:
1. CONTRACTOR'S SUBSTITUTION OF PRODUCTS OTHER THAN THOSE LISTED CAN BE SUBMITTED; HOWEVER, SUBMITTALS WITH MANUFACTURERS NOT ACCEPTABLE TO CONSULTANTS MAY BE REJECTED WITHOUT COMMENT.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS FOR PIPING, DUCTWORK, CONTROLS, ACCESSORIES, APPURTENANCES, ETC., REQUIRED FOR THE APPROVED SUBSTITUTED EQUIPMENT.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS FOR CHANGES TO OTHER TRADES SUCH AS ELECTRICAL, ETC. REQUIRED FOR THE APPROVED SUBSTITUTED EQUIPMENT.
4. ANY OWNER CONSULTANT COSTS MADE NECESSARY BY CONTRACTOR REVISIONS OR SUBSTITUTIONS SHALL BE BORNE TO THE CONTRACTOR. THIS INCLUDES ADDITIONAL FILING, EXPEDITING, PRINTING AND ENGINEERING COSTS.

- G. SPECIAL REQUIREMENTS:
1. IDENTIFY EQUIPMENT CONTROLS AND SENSORS WITH LAMINATED PLASTIC NAMEPLATES EQUAL TO SETON NAME PLATE CORP., STYLE M4564 ENGRAVED SETONPLY NAMEPLATE.
H. SCAFFOLDING AND RIGGING:
1. CONTRACTOR SHALL FURNISH AND INSTALL ALL SCAFFOLDING, RIGGING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY ONTO THE PREMISES OF ALL MATERIALS FURNISHED AND/OR INSTALLED UNDER THIS SECTION OF THE SPECIFICATIONS AND REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
I. CLEAN UP:
1. CONTRACTOR SHALL MAINTAIN CONSTRUCTION SITE IN A CLEAN AND ORDERLY CONDITION AND SHALL REMOVE ALL TRASH FROM THE PREMISES ON A DAILY BASIS AND PRIOR TO ACCEPTANCE OF THE WORK, AS DIRECTED BY THE OWNER.
J. GUARANTEE:
1. THE CONTRACTOR GUARANTEES BY HIS ACCEPTANCE OF THE CONTRACT THAT ALL WORK INSTALLED WILL BE FREE FROM ANY AND ALL DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE OF WORK. THIS GUARANTEE SHALL INCLUDE ALL WORK BY ANY AND ALL OF THEIR SUBCONTRACTORS. THE PRIME CONTRACTOR SHALL MAKE GOOD ON ALL SUBCONTRACT WORK DURING THIS PERIOD.
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A. WORK INCLUDED
1. WORK UNDER THIS DIVISION SHALL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE MECHANICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
2. PREPARE AND SUBMIT COORDINATED SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS TO THE OWNER.
a. WHERE CONFLICTS OCCUR, REQUEST CLARIFICATION THROUGH THE ENGINEER. COORDINATE ALL WORK OF THIS DIVISION WITH THE WORK OF ALL OTHER TRADES.
3. THE MECHANICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH WORK OF ALL OTHER TRADES AS REQUIRED.
a. MECHANICAL CONTRACTOR SHALL COORDINATE ALL WORK TO AVOID INSTALLATION OF ALL PIPING, DUCTWORK, EQUIPMENT, ETC. ABOVE ELECTRICAL SWITCHBOARDS, PANELBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC. PER NEC 110.26.
4. SUBMIT MANUFACTURER'S SUBMITTAL SHEETS AS SPECIFIED WITHIN THE CONTRACT DOCUMENTS.
a. HIGHLIGHT ALL APPLICABLE MATERIAL AND DATA.
b. NON-APPLICABLE MATERIAL AND DATA SHALL BE STRUCK PRIOR TO SUBMITTAL.
5. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS DIVISION.
6. ARRANGE FOR ALL INSPECTIONS AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
a. FURNISH ALL AFFIDAVITS OF INSTALLATION OF EQUIPMENT AND COMPLETION OF WORK AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION
7. PROTECT, TEST, BALANCE, CLEAN, ADJUST AND GUARANTEE ALL OF THE WORK OF THIS DIVISION TO OPERATE SAFELY, PROPERLY AND CONTINUOUSLY.
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a. CONTRACTOR SHALL REPAIR ALL EXISTING EQUIPMENT, PIPE AND DUCT INSULATION DAMAGED OR REMOVED DUE TO WORK PERFORMED UNDER THIS CONTRACT.
11. MAINTAIN ALL EXISTING MECHANICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATIONS DURING THE PROGRESS OF THE WORK, INCLUDING PROVIDING ALL TEMPORARY PIPING, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED.
12. DEMOLISH AND REMOVE EXISTING DUCTWORK, EQUIPMENT AND ACCESSORIES AS SHOWN ON THE DRAWINGS AND ANY OTHER ABANDONED ITEMS OR EQUIPMENT FOUND EVEN THOUGH NOT SHOWN ON THE DRAWINGS.
13. FURNISH AND INSTALL ALL EQUIPMENT, COMPONENTS AND APPURTENANCES FOR EXHAUST AIR SYSTEMS INCLUDING VOLUME DAMPERS, AIR OUTLETS, AND DUCTWORK.
14. FURNISH AND INSTALL EXHAUST AIR DUCT SYSTEMS WITH AIR DEVICES, MANUAL DAMPERS AND ACCESSORIES.
15. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROLS, FOR ALL EQUIPMENT SPECIFIED IN THE CONTRACT DOCUMENTS AS REQUIRED AND WHATEVER ADDITIONAL TASKS AS MAY BE REQUIRED FOR THE SPECIFIED EQUIPMENT AND SYSTEMS TO BE COMPLETE IN EVERY RESPECT AND FULLY FUNCTIONAL. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER, PRIOR TO SUBMITTING A PROPOSAL. THE CONTROLS SHALL INCLUDE, BUT ARE NOT LIMITED TO:
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b) ALL EXPOSED CONDUIT SHALL BE RUN IN EMT BY MECHANICAL OR SUBCONTRACTORS.
c) ALL CONDUIT IN FREEZERS SHALL BE STAINLESS STEEL.
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a. SUPPLY ALL BALANCING EQUIPMENT ETC. AS NECESSARY FOR THE AIRSIDE AND WATERSIDE SYSTEMS
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5. SUBMIT SHOP DRAWINGS.
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B. HANGERS AND SUPPORTS FOR HVAC DUCTWORK AND EQUIPMENT
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2. GENERAL
a. FURNISH AND INSTALL HANGING AND SUPPORT SYSTEMS FOR SHEET METAL DUCTS AS SPECIFIED IN THE LATEST SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
b. FURNISH AND INSTALL HANGING AND SUPPORT SYSTEMS FOR SHEET METAL DUCTS INSTALLED IN NEW YORK OF THE TYPE AND SIZE LISTED IN THE SCHEDULES
c. WALL AND FLOOR FIRE STOP: INTUMESCENT FIRE BARRIER FOR ALL DUCTWORK, INSULATED AND UNINSULATED, ASTM E-119, ASTM E-814, UL 1479, NFPA 101, NEG. MANUFACTURER & MODEL NO. 3M, CAULK: CP 25 NS, CP 25 S/L, WRAP/STRIP: FS-195, COMPOSITE SHEET: CS-195
3. EXECUTION
a. SUPPORT EACH DUCT INDEPENDENTLY.
b. SUPPORT DUCTS USING METAL HANGERS AND BRACKETS. HANGERS SHALL HAVE SUFFICIENT STRENGTH AND DURABILITY AND SUFFICIENT RESISTANCE TO THE CORROSIVE EFFECTS OF THE ATMOSPHERE TO WHICH THEY WILL BE EXPOSED, AND TO PROPERLY AND SAFELY SUPPORT THE DUCTWORK. HANGERS SHALL NOT BE USED IN DIRECT CONTACT WITH A DISSIMILAR METAL THAT WOULD CAUSE GALVANIC ACTION IN THE HANGER, DUCT, FASTENINGS OR STRUCTURE.
c. SUPPORT SUBSTANTIALLY AND SECURELY FASTEN ALL DUCTS AND ALL PARTS OF THE DUCT SYSTEM TO THE STRUCTURAL MEMBERS OF THE BUILDING, WITH APPROVED DEVICES OF NONCOMBUSTIBLE MATERIAL DESIGNED TO CARRY THE REQUIRED LOADS. THE USE OF EXPANSION BOLTS IN CINDER CONCRETE IS PROHIBITED. CONNECTIONS SHALL NOT IMPAIR THE EFFECTIVENESS OF THE FIRE PROTECTION OF STRUCTURAL MEMBERS.
d. INSTALL SLEEVES AND SEAL ANNULAR SPACE BETWEEN SLEEVE AND BARE DUCT OR INSULATED DUCT, WHERE DUCTS PASS THROUGH FLOORS AND WALLS, WITH NON-COMBUSTIBLE MATERIAL TO PREVENT THE PASSAGE OF FLAME AND SMOKE.
4. DUCT HANGER AND SUPPORTS (NEW YORK)
a. DUCT CROSS-SECTIONAL AREA, SQ. FT: 2 OR LESS: MIN. STRAP SIZE, IN: 1 X 1/16, MAX. HANGER SPACING, FT: 6
23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC
A. INSTRUMENTATION AND CONTROL DEVICES FOR HVAC
1. AUTOMATIC CONTROLS: THE AUTOMATIC CONTROLS SHALL BE STAND ALONE.
2. THE INTENT OF THIS SECTION IS TO DESCRIBE THE FUNCTIONAL CONTROL OF ALL MECHANICAL EQUIPMENT, SYSTEMS, AND DEVICES OF THE PROJECT. THE CONTRACTOR SHALL DESIGN THE AUTOMATIC CONTROL SYSTEM AND SHALL FURNISH AND INSTALL AS REQUIRED ALL NECESSARY CONTROL COMPONENTS INCLUDING, BUT NOT LIMITED TO: CONTROL WIRING, CONTACTORS, RELAYS, THERMOSTATS, ELECTRICAL TIMERS ETC., TO ACHIEVE THE DESIRED OPERATION FOR MECHANICAL SYSTEMS
3. PROVIDE ON-THE-JOB TRAINING TO THE OWNER'S OPERATING PERSONNEL.
4. FURNISH SIX (6) COPIES OF A COMPLETE INSTRUCTION MANUAL INCLUDING OPERATING INSTRUCTIONS, AS-BUILT DRAWINGS, SPECIFICATION DATA SHEET AND MAINTENANCE SCHEDULE.
5. INSTALL THE ELECTRICAL COMPONENTS FOR THE AUTOMATIC CONTROLS IN ACCORDANCE WITH:
a. THE LATEST NATIONAL ELECTRIC CODE (NEC).
6. ALL CONTROL WIRING IN EXPOSED AREAS TO BE WITHIN METAL CONDUIT
7. SUBMITTALS
a. TECHNICAL BULLETINS AND CATALOG DATA FOR ALL EQUIPMENT AND SYSTEM COMPONENTS. CLEARLY IDENTIFY, BY USE OF SYMBOL OR TAG NUMBER, THE SERVICE OF EACH ITEM. ALL IRRELEVANT INFORMATION SHALL BE MARKED OUT LEAVING ONLY PERTINENT DATA.
b. SHOP DRAWINGS
c. SYSTEM BLOCK DIAGRAM SHOWING QUANTITY AND LOCATION OF CPU, OPERATOR CONSOLE EQUIPMENT, DDCS, FIELD EQUIPMENT PANELS AND MAJOR SYSTEM COMPONENTS.
d. CONTROL DIAGRAMS FOR ALL SYSTEMS CONTROLLED. CONTROLS SHALL BE SHOWN ON SYSTEM FLOW DIAGRAMS.
e. POWER WIRING DIAGRAMS AND ELECTRICAL REQUIREMENTS.
f. DETAILED BILL OF MATERIALS.

Table with 3 columns: NO., REVISION, DATE. Row 1: 1, ISSUED FOR BID, 03/17/2023

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER ANY ITEM ON THIS DRAWING AND/OR RELATED SPECIFICATION. ALL ALTERATIONS MUST BE MADE IN COMPLIANCE WITH THE NEW YORK STATE EDUCATION LAW. THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS HEREON ASSUMES NO RESPONSIBILITY FOR ANY SUCH ALTERATION OR REUSE WITHOUT HIS WRITTEN CONSENT.

CLIENT:
SUNY PURCHASE COLLEGE

PROJECT TITLE:
SUNY PURCHASE APARTMENT REPAIR ALUMNI VILLAGE INTERIOR RENOVATIONS OF THE COMMONS APARTMENTS 10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:
MECHANICAL SPECIFICATIONS SHEET 1 OF 2

Table with 3 columns: DRAWN BY, DESIGNED BY, CHECKED BY, SCALE, DATE, PROJECT NO. Values: SE, ABD, ABD, AS NOTED, 11-29-22, 10652

PLOT DATE/TIME: 3/17/2023 3:52:59 PM

DRAWING NO: M-401.00

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- g. OWNER'S MANUALS
 - h. PROVIDE MAINTENANCE MANUAL TO SERVE AS TRAINING AND REFERENCE MANUAL FOR ALL ASPECTS OF DAY-TO-DAY MAINTENANCE AND MAJOR SYSTEM REPAIRS.
 - i. PROVIDE PROGRAMMING MANUAL TO SERVE AS TRAINING AND REFERENCE MANUAL FOR ALL ASPECTS OF SYSTEM PROGRAMMING.
8. ACCEPTANCE TESTING
- a. SUBMIT FOR APPROVAL, A DETAILED ACCEPTANCE TEST PROCEDURE DESIGNED TO DEMONSTRATE COMPLIANCE WITH CONTRACTUAL REQUIREMENTS.
9. OPERATIONS AND MAINTENANCE TRAINING
- a. PROVIDE TECHNICAL REPRESENTATIVES OF THE MANUFACTURER TO INSTRUCT OPERATING PERSONNEL IN THE OPERATION AND MAINTENANCE OF THE DDC, FOR A MINIMUM OF FIVE (5) 8-HOUR DAYS.

COORDINATION WITH CEILING AND STRUCTURE, PIPING, LIGHTING AND OTHER TRADES. FURNISH AND INSTALL ADDITIONAL DUCTWORK FOR FIELD COORDINATION AS REQUIRED

23 33 00 HVAC DUCT ACCESSORIES

- A. DUCT ACCESSORIES
1. VOLUME DAMPERS:
 - a. GALVANIZED STEEL: PER SMACNA "LOW VELOCITY MANUAL", EXCEPT PROVIDE BEARING AT ONE END OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW AT OTHER END. FOR INSULATED DUCTS, FURNISH AND INSTALL 2" HANDLE EXTENSION TO CLEAR INSULATION. INSTALL WITH LEVERS ACCESSIBLE. BALANCING DAMPERS SHALL BE THE OPPOSED BLADE TYPE.
 - 1) DAMPERS LESS THAN 9 IN. IN HEIGHT SHALL BE OPPOSED MULTIBLADE TYPE WITH AXIS PARALLEL TO SHORT DIMENSION OF DUCT.
 - 2) THE USE OF SINGLE BLADE, SHOP FABRICATED DAMPERS IS NOT PERMITTED.
 - b. SPLITTER DAMPERS:
 - 1) FABRICATE SPLITTER DAMPERS OF DOUBLE THICKNESS SHEET METAL TO STREAMLINE SHAPE, MINIMUM 18 GAUGE.
 - 2) ¼ INCH DIAMETER STEEL ADJUSTING ROD EXTENDING THROUGH SIDE OF DUCT.
 - 3) METAL GROMMET AND THUMB SCREW LOCK.
 2. INDOOR FLEXIBLE CONNECTIONS: NEOPRENE COATED GLASS FIRE RETARDANT FABRIC, 30 OZ. PER SQ. YD. WITH SEWED AND CEMENTED SEAMS, SIMILAR TO VENT FABRICS.

23 36 00 AIR OUTLETS AND INLETS

- A. REFER TO AIR OUTLET SCHEDULE ON DRAWINGS FOR SIZES, PERFORMANCE, ACCESSORIES, MANUFACTURER AND MODEL NUMBERS. TESTING AGENCY QUALIFICATIONS: AN NRTL
- B. STANDARDS.
1. DESIGN AND PERFORMANCE OF AIR DEVICES SHALL COMPLY WITH APPLICABLE PROVISIONS OF THE AIR DIFFUSION COUNCIL STANDARDS AND RECOMMENDATIONS.
 2. MANUFACTURER SHALL CERTIFY CATALOG PERFORMANCE DATA AND ENSURE CORRECT APPLICATION OF AIR OUTLET TYPES.
 3. ASHRAE: AMERICAN SOCIETY OF HEATING, REFRIGERATING, & AIR CONDITIONING ENGINEERS
 4. SMACNA: SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
- C. CHECK LOCATION OF OUTLETS AND MAKE NECESSARY ADJUSTMENT IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY AND LIGHTING ARRANGEMENT.
- D. INSTALL ALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S PRINTED INSTRUCTIONS.

23 31 00 HVAC DUCTS AND CASINGS

- A. DUCTWORK
1. EXCEPT AS OTHERWISE NOTED, ALL DUCTWORK AND OTHER SHEET METAL WORK SHALL BE IN ACCORDANCE WITH LATEST EDITION OF SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC (SMACNA). "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL AND ADC AND TMA FLEXIBLE DUCT PERFORMANCE STANDARDS.(EXCEPT AS OTHERWISE NOTED), ALL DUCTWORK AND OTHER SHEET METAL WORK SHALL BE IN ACCORDANCE WITH LATEST EDITION OF SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC (SMACNA).
 2. WHEN MAKING OFFSETS AND TRANSFORMATIONS NECESSARY TO ACCOMMODATE STRUCTURAL CONDITIONS, PRESERVE FULL CROSS-SECTIONAL AREA OF DUCTWORK SHOWN ON DRAWINGS.
 3. GAUGE OF METAL:
 - a. GALVANIZED SHEET METAL DUCTS: MINIMUM SHEET METAL GAUGE, EXCEPT AS OTHERWISE NOTED IN CONTRACT DOCUMENTS, SHALL BE AS PER RECOMMENDED GUIDELINES OF THE LATEST EDITION OF SMACNA HVAC DUCT CONSTRUCTION STANDARDS OR THE AUTHORITY HAVING JURISDICTION.
 4. EXCEPT AS OTHERWISE NOTED, MINIMUM SHEET METAL REINFORCEMENT UNLESS OTHERWISE NOTED, SHALL BE AS PER RECOMMENDED GUIDELINES OF THE LATEST EDITION OF SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
 5. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE AND MECHANICAL CODE OF NEW YORK
 - a. LOW PRESSURE DUCT SYSTEMS:
 - 1) 2 IN. W.G. OR LESS
 - a) ALL LONGITUDINAL AND TRANSVERSE JOINTS AND SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), OR MASTIC-PLUS-EMBEDDED FABRIC SYSTEMS, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - b) THE USE OF TAPES, FOR SEALING DUCTWORK, IS NOT ACCEPTABLE.
 6. ALL DUCTWORK SHALL BE CONSTRUCTED AND SEALED IN ACCORDANCE WITH THE LATEST EDITIONS OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS"

DUCT CONSTRUCTION CLASS, IN. W.G.	STATIC PRESSURE RATING, IN. W.G.	SMACNA LEAKAGE CLASS, CFM/100 SQ. FT. POS. OR NEG.	SEAL CLASS
2 IN.	OVER 1 TO 2 IN.	6	A

7. SEALING REQUIREMENTS:
- a. SEAL CLASS
 - 1) "A": ALL TRANSVERSE JOINTS LONGITUDINAL SEAMS AND DUCT WALL PENETRATIONS.
8. CONSTRUCTION:
- a. NO SHARP METAL EDGES SHALL EXTEND INTO AIR STREAMS.
9. JOINTS:
- a. LONGITUDINAL LOCK SEAMS SHALL BE DOUBLE-LOCKED AND FLATTENED TO MAKE TIGHT JOINTS.
 - b. MAKE TRANSVERSE JOINTS, FIELD CONNECTIONS, COLLAR ATTACHMENTS AND FLEXIBLE CONNECTIONS TO DUCTS AND EQUIPMENT WITH SHEET METAL SCREWS OR BOLTS AND NUTS. DO NOT USE RIVETS AND STAPLES.
10. PREFABRICATED TRANSVERSE DUCT JOINTS:
- a. TRANSVERSE JOINTS IN GALVANIZED SHEET METAL DUCTWORK MAY BE MADE WITH GALVANIZED GASKETED FRAME AND ANGLE DUCT JOINT SYSTEM BY DUCTMATE, TDF, TDC OR APPROVED EQUAL. ANGLES SHALL BE AT LEAST 20 GAUGES. PREFABRICATED TRANSVERSE DUCT JOINTS SHALL NOT BE USED FOR DUCT 16 GA. AND HEAVIER, NOR FOR DUCT 23 GA. OR LIGHTER.
11. ELBOWS AND BENDS:
- a. USE SQUARE THROAT ELBOWS, UNLESS OTHERWISE NOTED, AS THE FIRST SUPPLY AND RETURN ELBOW FROM EQUIPMENT CONNECTION, WHEREVER ELSE THEY ARE SHOWN ON CONTRACT DRAWINGS AND WHEN SPACE DOES NOT PERMIT THE USE OF RADIUS ELBOWS. WHEN THE USE OF SQUARE THROAT ELBOWS IS NECESSARY, ELBOWS SHALL BE CONSTRUCTED WITH DOUBLE THICKNESS TURNING VANES. SECURELY FASTEN VANES TO RUNNERS FOR QUIET, VIBRATION FREE OPERATION. TRAILING EDGES ARE NOT ACCEPTABLE.
12. ALL OPEN END DUCTS SHALL HAVE 18 GAUGE X ¾ IN. MESH WMS.
13. DUCTWORK MATERIAL:
- | DUCT MATERIAL | SPECIFICATION | SERVICE |
|------------------|--|--|
| GALVANIZED STEEL | ASTM A527 WITH ASTM A525 ZINC COATING DESIGNATIONS G90 | ALL SYSTEMS EXCEPT AS LISTED BELOW OR AS NOTED ON CONTRACT DRAWINGS. |
14. CONTRACTOR TO ALLOW FOR ADDITIONAL DUCTWORK REQUIRED FOR CONNECTIONS TO UNIT.

1	ISSUED FOR BID	03/17-2023
NO.	REVISION	DATE

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SEAL:

CLIENT:

SUNY PURCHASE COLLEGE

PROJECT TITLE:

SUNY PURCHASE APARTMENT
REPAIR ALUMNI VILLAGE
INTERIOR RENOVATIONS OF THE
COMMONS APARTMENTS
10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:

MECHANICAL SPECIFICATIONS
SHEET 2 OF 2

DRAWN BY: SE SCALE: AS NOTED

DESIGNED BY: ABD DATE: 11-29-22

CHECKED BY: ABD PROJECT NO: 10652

PLOT DATE/TIME: 3/17/2023 3:53:14 PM

DRAWING NO: M-402.00

SHEET: 5 OF 5

PLUMBING LEGEND	
	SANITARY OR WASTE ABOVE FLOOR (SAN. OR W.)
	SANITARY OR WASTE BELOW FLOOR (SAN. OR W.)
	COLD WATER (C.W.)
	HOT WATER (H.W.)
	HOT WATER RECIRCULATION (H.W.R.)
	VENT PIPING (V.)
	EXISTING SANITARY OR WASTE ABOVE FLOOR (SAN. OR W.)
	EXISTING SANITARY OR WASTE BELOW FLOOR (SAN. OR W.)
	EXISTING COLD WATER (C.W.)
	EXISTING HOT WATER (H.W.)
	EXISTING HOT WATER RECIRCULATION (H.W.R.)
	EXISTING VENT PIPING (V.)
	TO BE REMOVED
	CONNECT NEW PIPING TO EXISTING
	POINT OF DISCONNECTION
	CAP
	DIRECTION ARROW
	PIPE DROP / DN
	PIPE RISE / UP
	BOTTOM TAKE-OFF
	BALL VALVE
	CHECK VALVE
	GATE VALVE
	BREAK
	CLEANOUT (CO)
A.F.F.	ABOVE FINISHED FLOOR
ASSY	ASSEMBLY
CISP	CAST IRON SOIL PIPE
DN	DOWN
G.P.F.	GALLONS PER FLUSH
G.P.M.	GALLONS PER MINUTE
H.C.	HANDICAPPED
HVAC	HEATING VENTING AIR CONDITION
LAV.	LAVATORY
MECH	MECHANICAL
RM	ROOM
SCHED	SCHEDULE
SPEC	SPECIFICATIONS
TYP	TYPICAL
WHA	WATER HAMMER ARRESTOR
WTR	WATER
W.C.	WATER CLOSET

GENERAL PLUMBING NOTES:

- ALL WORK SHALL BE GOVERNED BY THE N.Y.C. BUILDING CODE, LATEST EDITION, AND ALL REQUIREMENTS SPECIFIED IN THE CODE SHALL BE ADHERED TO AS IF THEY WERE CALLED FOR, OR SHOWN ON THE DRAWINGS. THIS SHALL NOT BE CONSTRUED TO MEAN THAT ANY REQUIREMENTS SET FORTH ON THE DRAWINGS MAY BE MODIFIED BECAUSE THEY ARE MORE STRINGENT THAN THE CODE REQUIREMENTS OR BECAUSE THEY ARE NOT SPECIFICALLY REQUIRED BY CODE.
- VERIFY ALL EXISTING CONDITIONS COVERING OR AFFECTING THE WORK AND PIPE ROUTING, OBTAIN AND VERIFY ALL DIMENSIONS TO ENSURE ITS PROPER STRENGTH, FIT AND LOCATION. VISIT EXISTING SITE TO BECOME FAMILIAR WITH ITS CONSTRUCTION REQUIREMENTS, REPORT TO THE ENGINEER ANY AND ALL CONDITIONS WHICH MAY INTERFERE WITH AND OTHERWISE AFFECT OR PREVENT THE PROPER EXECUTION AND COMPLETION OF THE WORK.
- ANY EXISTING CONSTRUCTION, INCLUDING FIREPROOFING, SUSPENDED CEILINGS AND/OR FINISHES DISTURBED AS A RESULT OF THIS CONTRACT SHALL BE REPLACED AS REQUIRED TO THE SATISFACTION OF THE ENGINEER.
- EXISTING CONSTRUCTION NOT UNDERGOING ALTERATION IS TO REMAIN UNDISTURBED. WHERE SUCH CONSTRUCTION IS DISTURBED AS A RESULT OF THE OPERATIONS OF THIS CONTRACT, IT SHALL BE REPAIRED OR REPLACED AS REQUIRED BY AND TO THE SATISFACTION OF THE ENGINEER.
- COORDINATE FOR EASE AND RAPIDITY OF CONSTRUCTION, THE WORK OF OTHER TRADES. ALL SLOTS, SLEEVES, AND/OR OTHER OPENINGS TO BE COORDINATED AND SET BEFORE CLOSING OPENINGS AND TO MAINTAIN REQUIRED CEILING HEIGHTS.
- EACH CONTRACTOR SHALL PROVIDE ALL THE NECESSARY SUPPORT, BRACING SHORING, ETC. (TEMPORARY AND/OR PERMANENT) OF BOTH NEW AND EXISTING CONSTRUCTION AS REQUIRED FOR THE SAFE DEMOLITION OF THE SPACE.
- MATERIALS, EQUIPMENT AND SYSTEMS INSTALLED SHALL MEET ALL PERTINENT REQUIREMENTS OF NEW YORK STATE BUILDING CODES, NEW YORK CITY BUILDING CODES, NATIONAL FIRE PROTECTION ASSOCIATION, FEDERAL REGULATIONS, OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA) AND ANY NATIONALLY RECOGNIZED APPROVAL AGENCIES AS WELL AS APPLICABLE LOCAL CODE AND REGULATIONS.
- DURING CONSTRUCTION OPERATIONS "BUSINESS AS USUAL" IS TO BE MAINTAINED THROUGHOUT THE BUILDING. THEREFORE THE CONSTRUCTION TECHNIQUES, TIME OF CONSTRUCTION, TEMPORARY PARTITIONS AND PROTECTION METHODS SHALL SAFELY ALLOW FOR THIS REQUIREMENT.
- FINAL CLEAN-UP (BROOM CLEAN) AND THE REMOVAL OF ALL DEBRIS ON A DAILY BASIS SHALL BE INCLUDED AS PART OF THE CONTRACT. CONTRACTOR IS SPECIFICALLY DIRECTED TO THE REQUIREMENT THAT IS MANDATORY TO MINIMIZE ALL DUST.
- DIELECTRIC FITTINGS SHALL BE INSTALLED BETWEEN DISSIMILAR METALS.
- ALL NEW WATER PIPING SHALL BE INSULATED.
- PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL PLUMBING FIXTURE AND RELATED PIPING. PLUMBING FIXTURES ARE REFER TO ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE SELECTION.

COORDINATED SHOP DRAWING NOTE:

IT SHALL BE THE RESPONSIBILITY OF THE GC, MC, PC, EC AND FPC, TO PREPARE COORDINATED SHOP DRAWINGS PRIOR TO SUBMISSION TO DESIGN ENGINEER'S FOR APPROVAL. COORDINATED SHOP DRAWINGS SHALL BE ALL ENCOMPASSING AND SHALL INCLUDE BUT NOT BE LIMITED TO PIPING, CONDUITS, DUCTWORK, ROUTING, INVERT, SIZES SHOWN TO SCALE. ALL CONFLICTS SHALL BE RESOLVED TO THE BEST OF THE CONTRACTOR'S ABILITIES PRIOR TO SUBMISSION FOR ENGINEER REVIEW. THE FOLLOWING SHALL BE THE PROCESS FOR COORDINATED SHOP DRAWINGS.

MECHANICAL CONTRACTOR SHALL PREPARE A SHOP DRAWING INDICATING ALL DUCTWORK AND PIPING WITH THE PROPER INVERTS AND SIZES SHOWN TO SCALE. THE MC WILL THEN SEND THEIR DRAWINGS TO THE PC FOR PUTTING ON PLUMBING PIPING.

PLUMBING CONTRACTOR SHALL DRAFT ALL PROPOSED PLUMBING PIPING DIRECTLY ON THE MC PREPARED SHOP DRAWING. IF ANY CONFLICTS CANNOT BE RESOLVED INTERNALLY WITHIN PC OFFICE, THEY SHALL BE RETURNED BACK TO MC FOR FURTHER COORDINATION. THIS PROCESS SHALL REPEAT AS NEEDED WITH DUCTWORK AND PIPING MODIFICATIONS AS NEEDED TO CLEAR ALL POTENTIAL CONFLICTS.

ONCE NO CONFLICTS EXIST, THE COORDINATED SHOP DRAWING SHALL BE RELEASED TO THE ELECTRICAL CONTRACTOR. THE EC SHALL DRAFT ONTO THE COORDINATED SET, THEIR CONDUITS AND PIPING AT PROPER INVERT ELEVATION. ONCE AGAIN, ALL CONFLICTS THAT CANNOT BE HANDLED INTERNALLY BY THE EC, SHALL BE PASSED ALONG TO THE PC AND MC. THIS PROCESS SHALL BE REPEATED AS NEEDED WITH DUCTWORK AND PIPING MODIFICATIONS AS NEEDED TO CLEAR ALL POTENTIAL CONFLICTS.

ONCE NO CONFLICTS EXIST, THE COORDINATED SHOP DRAWINGS SHALL BE RELEASED TO THE FIRE PROTECTION CONTRACTOR. THE FPC SHALL DRAFT ONTO THE COORDINATED SET THEIR PIPING AND APPURTENANCES. ALL POTENTIAL CONFLICTS THAT CANNOT BE HANDLED INTERNALLY BY THE FPC, SHALL BE PASSED ALONG TO THE PC, MC AND EC. THIS PROCESS SHALL BE REPEATED AS NEEDED WITH DUCTWORK AND PIPING MODIFICATIONS AS NEEDED TO CLEAR ALL POTENTIAL CONFLICTS.

ONCE COORDINATED SHOP DRAWINGS ARE COMPLETE BY ALL SUB-CONSULTANTS AND CONTRACTORS, THE COORDINATED SHOP DRAWINGS SHALL BE SIGNED BY ALL RESPECTIVE DRAFTERS, AND ONLY THEN CAN THE COORDINATED SHOP DRAWINGS BE SUBMITTED TO THE DESIGN ENGINEER FOR REVIEW AND APPROVAL.

QUESTIONS FROM EACH TRADES FOR CLARIFICATIONS ARE ENCOURAGED TO BE ASKED DIRECTLY TO THE DESIGN ENGINEER. ANY PHONE CONVERSATIONS HAD SHALL BE FOLLOWED UP WITH A CONFIRMATION EMAIL C'ING THE PROPER CHAIN OF COMMAND INCLUDING BUT NOT LIMITED TO GC AND ARCHITECT.

PLUMBING FIXTURE SCHEDULE						
	FIXTURE	MODEL NUMBER	TRIM	FLOW CONTROL GPM/GPF	TRAP SIZE	REMARKS
P-1	WATER CLOSET	AMERICAN STANDARD HADERA FLOWISE NO. 3465, 128 FLOOR MOUNT ELONGATED BOTTOM OUTLET, TOP SPUD, WHITE	SLOAN SOLIS DUAL FLUSHOMETER, MODEL #8111-1.6/1.1, SENSOR ACTIVATED, SOLAR POWERED, CHROME PLATED	1.6 / 1.6 GPF	INTEGRAL	PROVIDE AMERICAN STANDARD MODEL #9605.100 OPEN FRONT SEAT, LESS COVER AND ZURN NO. Z1214 OUTLET FITTING
P-2	LAVATORY	AMERICAN STANDARD STUDIO UNDERCOUNTER SINK, VITREOUS CHINA, WHITE	AMERICAN STANDARD MONTERREY FAUCET, MODEL # 6500.140, WIDESPREAD, TWO HANDLE, 4" WRIST BLADE HANDLES, DECK MOUNTED 4" CENTERS, 3 HOLE FAUCET, PROVIDE 0.5 GPM FLOW RESTRICTOR IN BASE, CHROME PLATED	0.5 GPM	1-1/4"x1-1/2"C.P. CAST BRASS "P" TRAP	PROVIDE MCGUIRE #201 TRAP, 1149-WC BRASS FLAT GRID STRAINER, 2127 NIPPLE.
P-3	SHOWER SYSTEM	MOEN MODEL NO. T9342 SHOWER SYSTEM WITH HAND HELD SPRAY, LEVER DIVERTER WITH VOLUME CONTROL, PRESSURE BALANCE MIXING VALVE, INTEGRAL STOPS, IN-LINE VACUUM BREAKER, 1.5 FLOW RATE	SHOWER TRENCH DRAIN WITH 2" DRAIN OUTLET.	1.5 GPM	---	ALL SHOWER ENCLOSURES TO BE PROVIDED WITH SHOWER TRENCH DRAINS. COORDINATE THE EXACT LOCATION OF TRENCH DRAIN WITH THE ARCHITECTURAL LAYOUT.
P-4	KITCHEN SINK	KOHLER STRIVE MODEL #K-6286, UNDERMOUNT SINGLE-BOWL SINK, STAINLESS STEEL, PROVIDE MODEL #K-8801 DRAIN AND STRAINER	MOEN MODEL #CA87094, SINGLE LEVER HANDLE, HIGH ARC PULLDOWN FAUCET,	1.5 GPM	1-1/2"x2"C.P. CAST BRASS "P" TRAP	MCGUIRE#201 TRAP, 155-WC OFFSET DRAIN, 2127 NIPPLE, H71LK SUPPLY.

PLUMBING INSULATION SCHEDULE			
INSULATE THE FOLLOWING:			
1. HOT WATER PIPING			
2. COLD WATER PIPING			
3. LAVATORY TRAP AND WATER SUPPLIES			
INSULATION PRODUCTS AND INSTALLATION SHALL COMPLY WITH ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE.			
HOT WATER PIPING INSULATION SHALL BE PERFORMED, SNAP-ON FIBERGLASS INSULATION WITH PAINTABLE WHITE KRAFT OR ALUMINUM FOIL JACKET.			
DOMESTIC COLD WATER PIPING INSULATION SHALL BE SIMILAR TO HOT WATER WITH VAPOR BARRIER.			
INSULATION THICKNESS SCHEDULE			
SERVICE	INSULATION THICKNESS FOR PIPE SIZES*		
	1" AND LESS **	1-1/4" TO 2"	3" TO 4"
DOMESTIC COLD WATER (CW)	1"	1"	1"
DOMESTIC HOT WATER (HW)	1"	1"	1"

* BASIS R4
 ** RUNOUTS AS DEFINED BY ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE CAN BE 1/2" THICK UP TO 140° F. 3/4" OVER 140° F.
 *** INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INH SF·F

PIPING SHALL BE INSULATED IN CONFORMANCE WITH SECTION 504.5 OF THE NYCECC

FIXTURE CONNECTION SCHEDULE					
ABBREV	DESCRIPTION	SOIL	VENT	COLD WTR	HOT WTR
P-1	WC - FLOOR MOUNTED WATER CLOSET	4"	2"	1-1/4"	-
P-2	LAV - LAVATORY	1-1/2"	1-1/2"	1/2"	1/2"
P-3	SHOWER STALL	2"	2"	1/2"	1/2"
P-4	SINK	1-1/2"	1-1/2"	1/2"	1/2"

*ALL EXPOSED PLUMBING PIPING SHALL BE CHROME PLATED.
 *REFER TO ARCHITECTURAL CONTRACT DRAWINGS FOR PLUMBING FIXTURE SELECTION.

DRAWING LIST	
DRAWING NUMBER	DRAWING LIST
P-001.00	PLUMBING LEGENDS, NOTES, ABBREVIATIONS, AND SCHEDULE
P-101.00	PLUMBING FIRST FLOOR DEMOLITION PLAN AND RISERS
P-102.00	PLUMBING SECOND FLOOR NEW WORK PLAN AND RISERS
P-201.00	PLUMBING FIRST FLOOR NEW WORK PLAN AND RISERS
P-202.00	PLUMBING SECOND FLOOR NEW WORK PLAN AND RISERS
P-301.00	PLUMBING DETAILS
P-401.00	PLUMBING SPECIFICATIONS

1	ISSUED FOR BID	03/17/2023
NO.	REVISION	DATE

IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER ANY ITEM ON THIS DRAWING AND/OR RELATED SPECIFICATION. ALL ALTERATIONS MUST BE MADE IN COMPLIANCE WITH THE NEW YORK STATE EDUCATION LAW. THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS HEREON ASSUMES NO RESPONSIBILITY FOR ANY SUCH ALTERATION OR REUSE WITHOUT HIS WRITTEN CONSENT.

CLIENT:
SUNY PURCHASE COLLEGE

PROJECT TITLE:
SUNY PURCHASE APARTMENT REPAIR ALUMNI VILLAGE INTERIOR RENOVATIONS OF THE COMMONS APARTMENTS 10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:
PLUMBING LEGENDS, ABBREVIATIONS, NOTES, SCHEDULE AND DETAILS

DRAWN BY:	SCALE:	AS NOTED
DESIGNED BY:	DATE:	10-04-22
CHECKED BY:	PROJECT NO.:	10652

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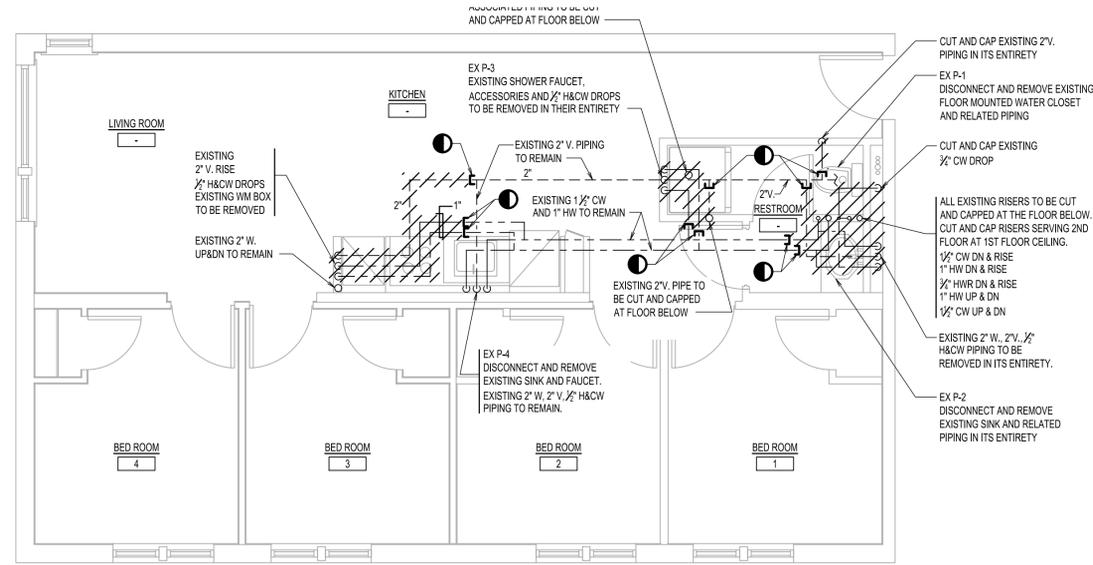
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P-001.00

SHEET: 1 OF 7

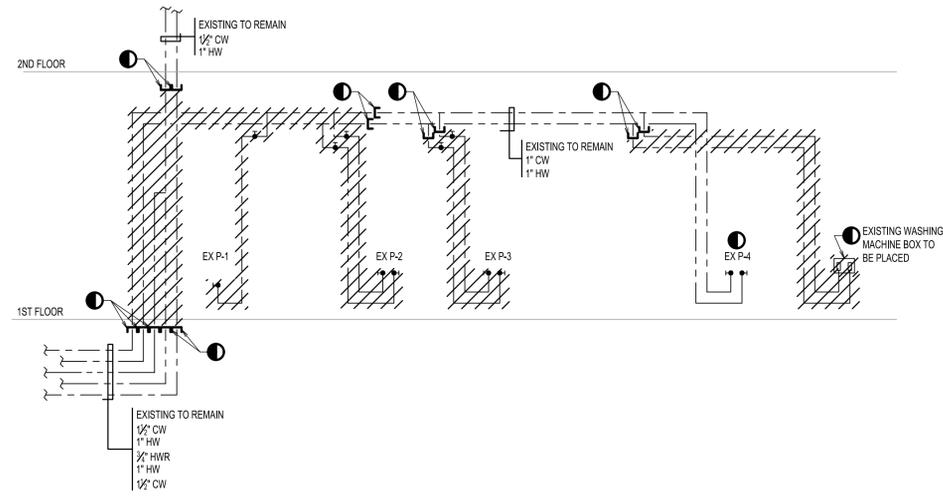
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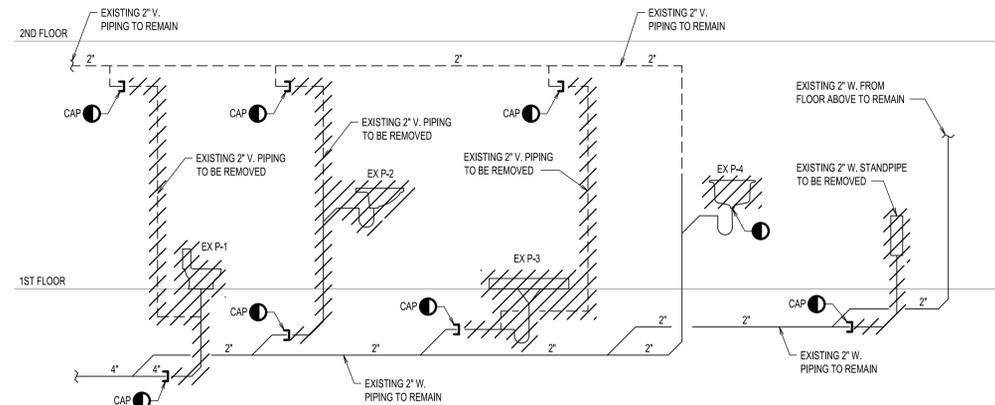
PLUMBING FIRST FLOOR DEMOLITION PLAN

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



PARTIAL DOMESTIC WATER RISER DIAGRAM

NOT TO SCALE



PARTIAL SANITARY RISER DIAGRAM

NOT TO SCALE

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SEAL:

CLIENT:

SUNY PURCHASE COLLEGE

PROJECT TITLE:

SUNY PURCHASE APARTMENT REPAIR ALUMNI VILLAGE INTERIOR RENOVATIONS OF THE COMMONS APARTMENTS 10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:

PLUMBING FIRST FLOOR DEMOLITION AND RISER DIAGRAMS

DRAWN BY:	SE	SCALE:	AS NOTED
DESIGNED BY:	AO	DATE:	10-04-22
CHECKED BY:	AO	PROJECT NO.:	10652

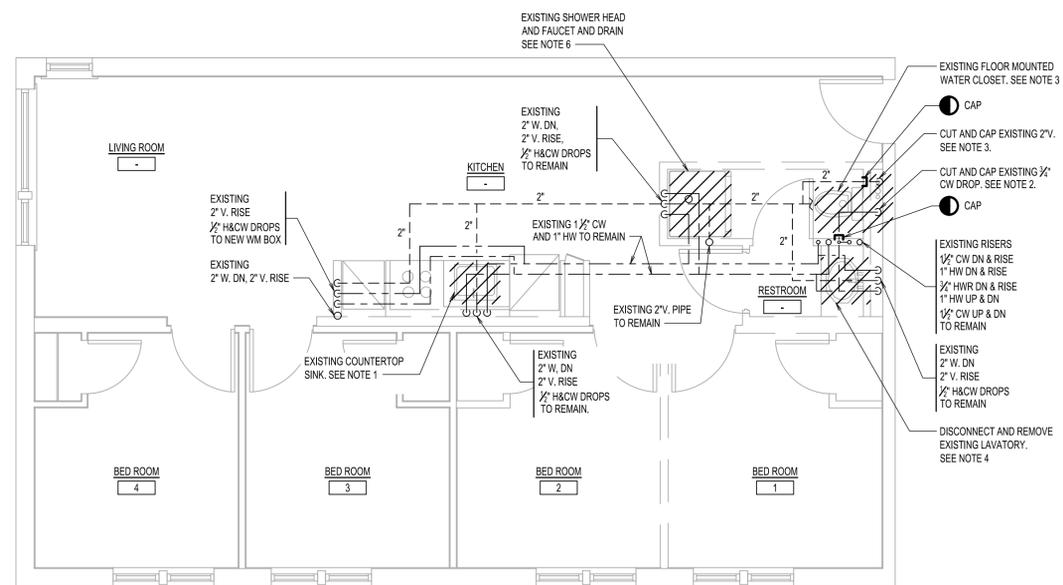
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DRAWING NO.: P-101.00

SHEET: 2 OF 7

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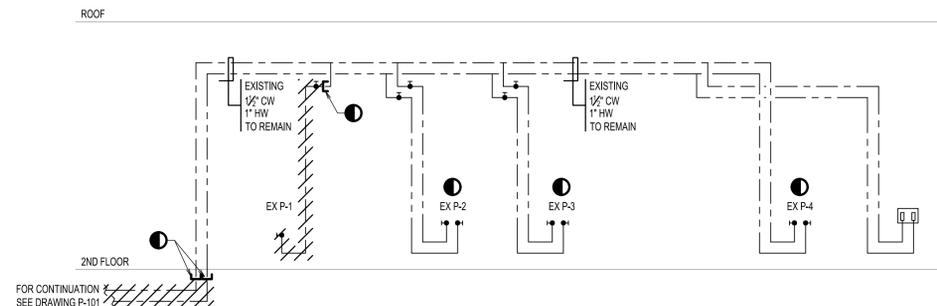




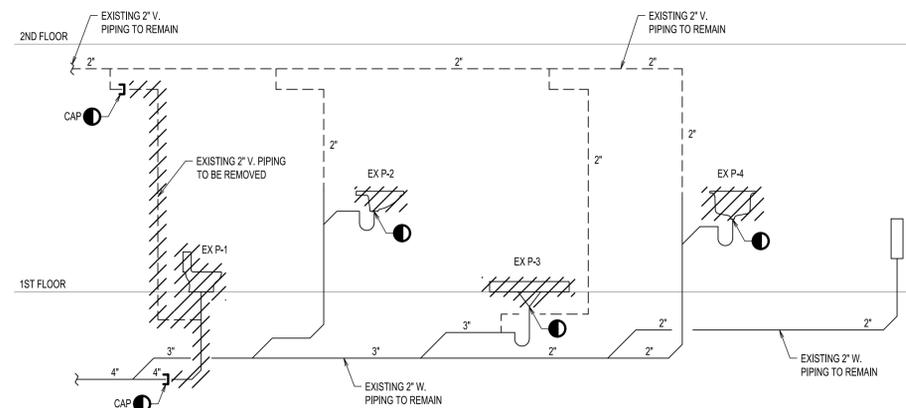
PLUMBING SECOND FLOOR DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

NOTES:

- DISCONNECT AND REMOVE EXISTING COUNTERTOP SINK AND FAUCET. PREP EXISTING 2" W. AND 1/2" H&CW PIPING FOR CONNECTION OF NEW COUNTERTOP SINK. FOR ADDITIONAL INFORMATION SEE NEW WORK PLAN.
- DISCONNECT AND CAP EXISTING 1/2" CW PIPE TO WATER CLOSET BACK TO MAIN.
- DISCONNECT AND CAP EXISTING 2" V. PIPE AT CEILING.
- DISCONNECT AND REMOVE EXISTING FLOOR MOUNTED WATER CLOSET, 4" S. AT CEILING OF FLOOR BELOW, 2" V. AT CEILING AND 1/2" CW PIPING AT CEILING. PREP EXISTING 4" S. AND 2" V. PIPING FOR CONNECTION OF NEW WATER CLOSET. FOR ADDITIONAL INFORMATION SEE NEW WORK PLAN.
- DISCONNECT AND REMOVE EXISTING COUNTERTOP LAVATORY AND FAUCET. EXISTING 2" W., 2" V., 1/2" H&CW DROPS TO REMAIN. PREP EXISTING 2" W., 2" V., 1/2" CW PIPING FOR CONNECTION TO NEW COUNTERTOP LAVATORY AND FAUCET. FOR ADDITIONAL INFORMATION SEE NEW WORK PLAN.
- EXISTING SHOWER HEAD, FAUCET AND ACCESSORIES TO BE REMOVED IN THEIR ENTIRETY. EXISTING 2" W., 2" V., 1/2" H&CW PIPING TO REMAIN AND PREPARED FOR NEW CONNECTION. FOR ADDITIONAL INFORMATION SEE NEW WORK PLAN.



PARTIAL DOMESTIC WATER RISER DIAGRAM
NOT TO SCALE



PARTIAL SANITARY RISER DIAGRAM
NOT TO SCALE

1	XXX	00-00-00
NO.	REVISION	DATE

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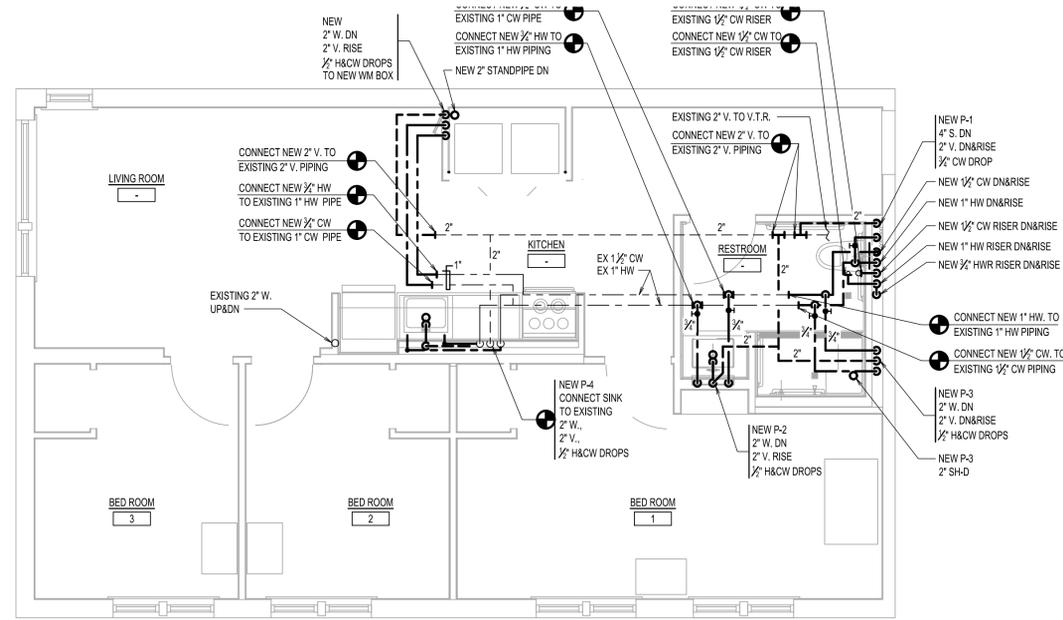
CLIENT:
SUNY PURCHASE COLLEGE

PROJECT TITLE:
SUNY PURCHASE APARTMENT REPAIR ALUMNI VILLAGE INTERIOR RENOVATIONS OF THE COMMONS APARTMENTS 10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:
PLUMBING SECOND FLOOR DEMOLITION AND RISER DIAGRAMS

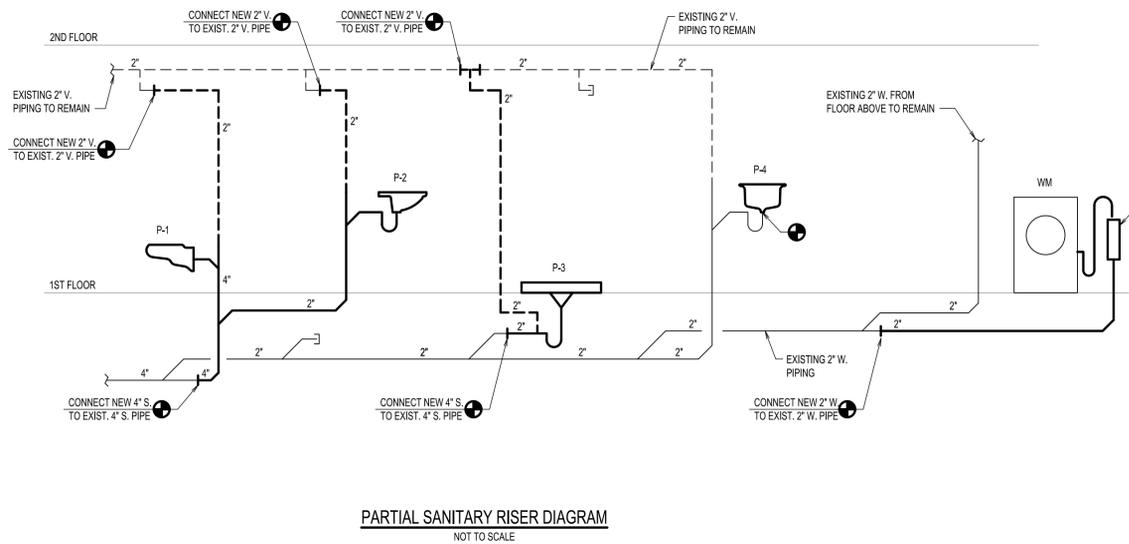
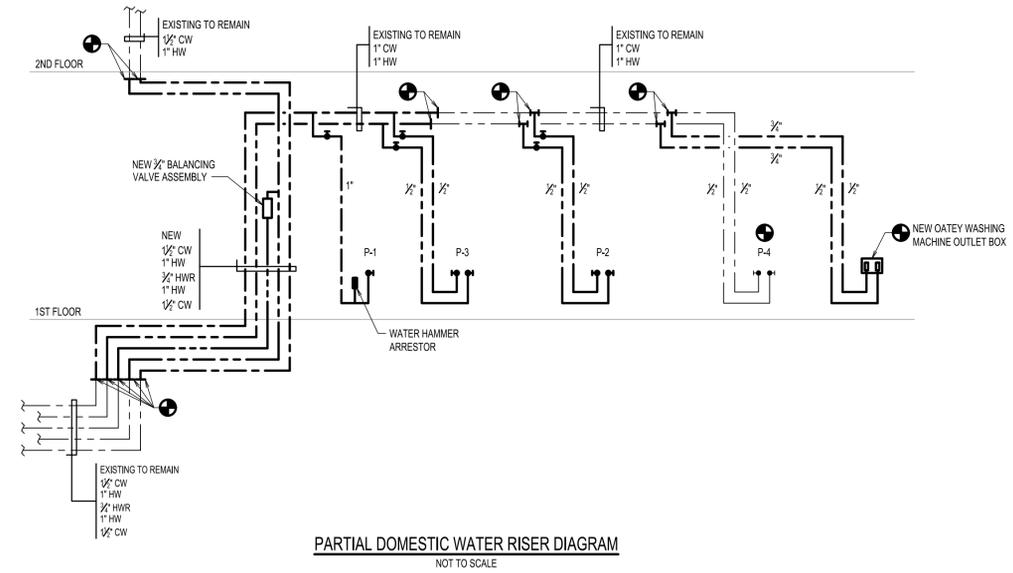
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DESIGNED BY:	AD	DATE:	00-00-00
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PLOT DATE/TIME:	3/17/2023 3:55:58 PM		
DRAWING NO.:	P-102.00		
SHEET:	3 OF 7		

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PLUMBING FIRST FLOOR NEW WORK PLAN

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



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CLIENT:

SUNY PURCHASE COLLEGE

PROJECT TITLE:

**SUNY PURCHASE APARTMENT
REPAIR ALUMNI VILLAGE
INTERIOR RENOVATIONS OF THE
COMMONS APARTMENTS
10.1 (ADA COMPLIANT) & 10.3**

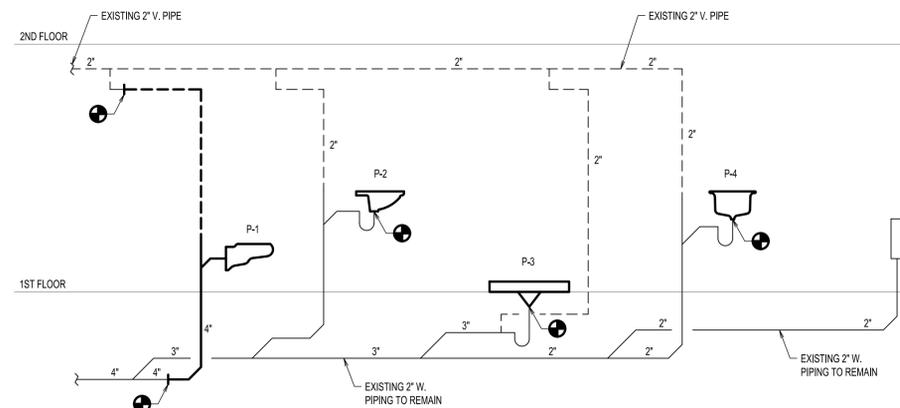
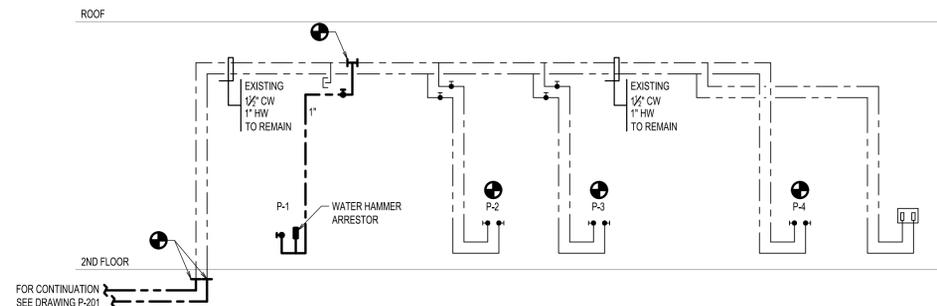
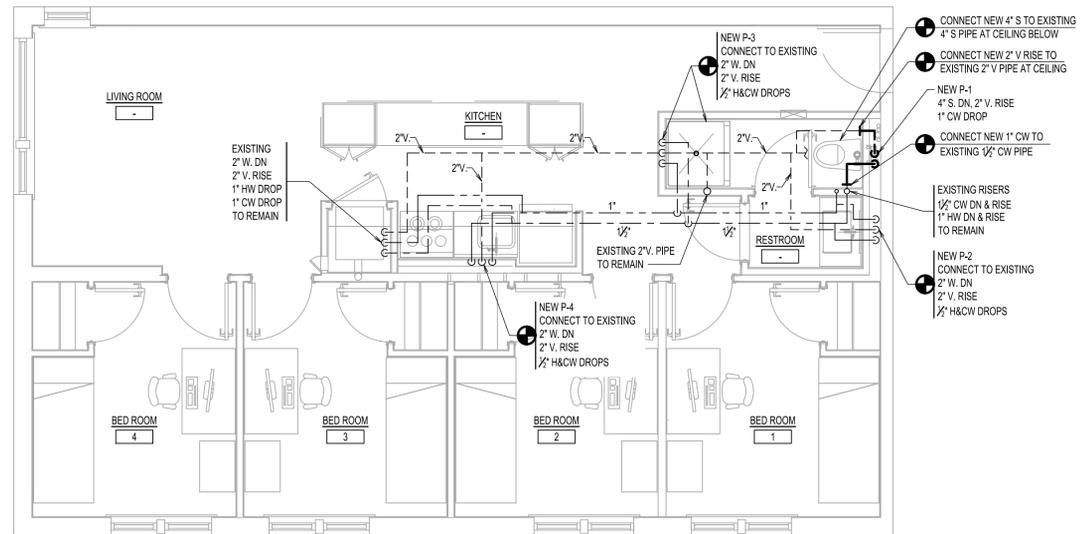
DRAWING TITLE:

**PLUMBING FIRST FLOOR NEW
WORK AND RISER DIAGRAMS**

DRAWN BY:	SE	SCALE:	AS NOTED
DESIGNED BY:	AD	DATE:	10-04-22
CHECKED BY:	AD	PROJECT NO.:	10652
DATE/TIME:	3/17/2023 3:56:12 PM		
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SHEET:	4 OF 7		

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DRAWING TITLE:
PLUMBING SECOND FLOOR NEW WORK PLAN AND RISER DIAGRAMS

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DESIGNED BY:	AD	DATE:	00-00-00
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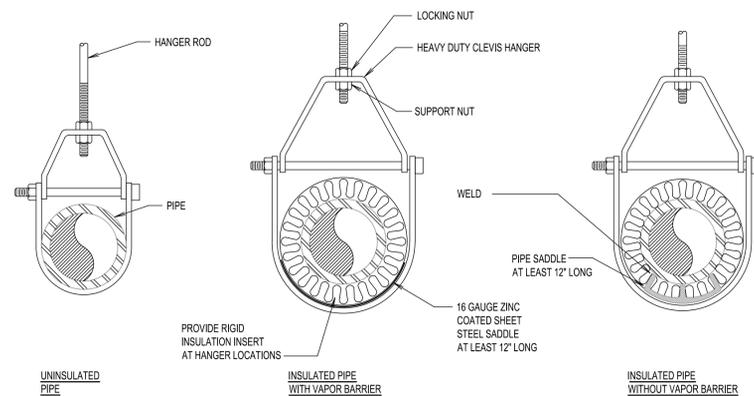
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P-202.00

SHEET:
5 OF 7

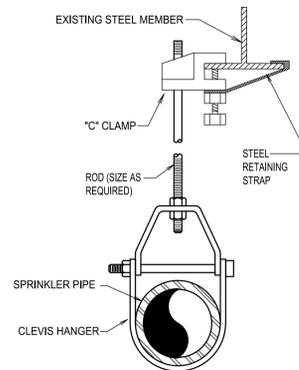
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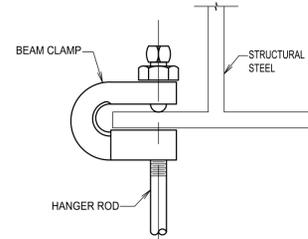
TYPICAL CLEVIS HANGER PIPE SUPPORT DETAIL

NOT TO SCALE



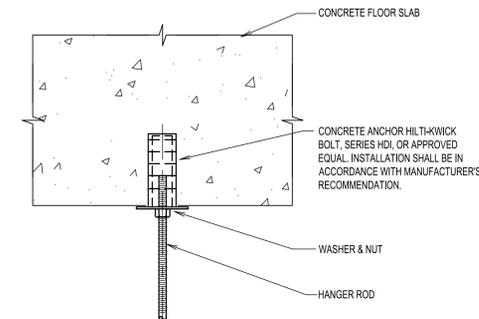
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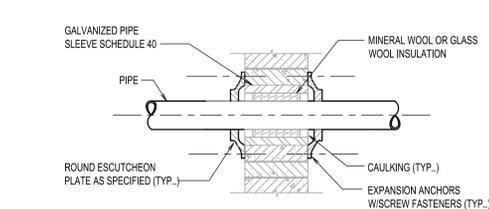
ATTACHMENT TO STEEL BEAM

NOT TO SCALE



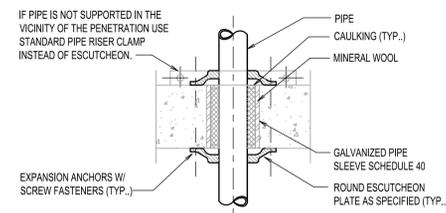
TYPICAL ATTACHMENT TO SLAB

NOT TO SCALE



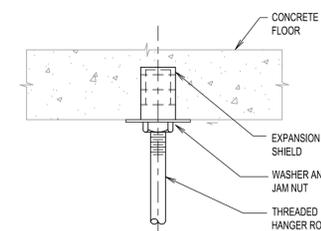
PIPE PENETRATION IN INTERIOR PARTITION DETAIL

NOT TO SCALE



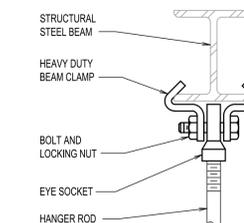
PIPE PENETRATION IN FLOOR SLAB DETAIL

NOT TO SCALE



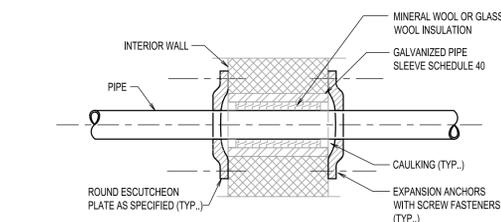
TYPICAL EXPANSION SHIELD

NOT TO SCALE



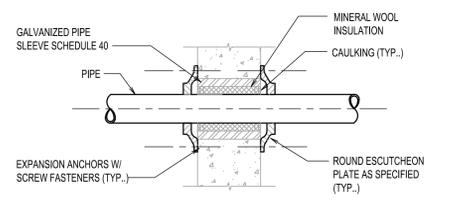
ATTACHMENT TO STEEL BEAM

NOT TO SCALE



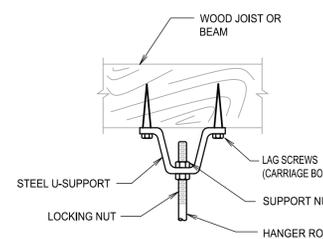
PIPE PENETRATION IN INTERIOR WALL DETAIL

NOT TO SCALE



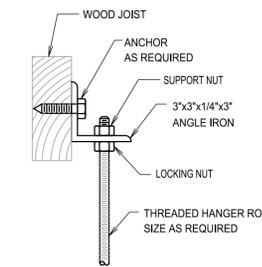
PIPE PENETRATION IN INTERIOR FIRE WALL DETAIL

NOT TO SCALE



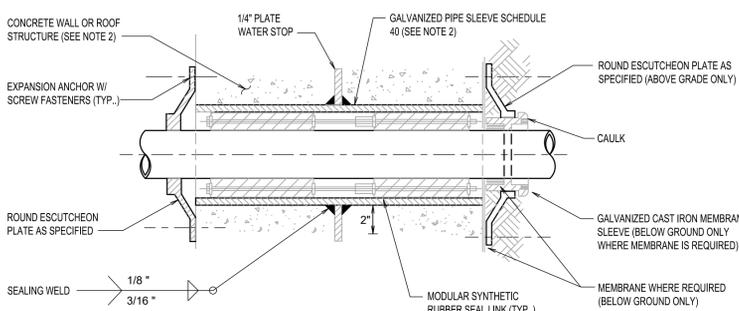
ATTACHMENT TO WOOD JOISTS

NOT TO SCALE



TYPICAL PIPE HANGER SUPPORT FROM WOOD JOISTS

NOT TO SCALE



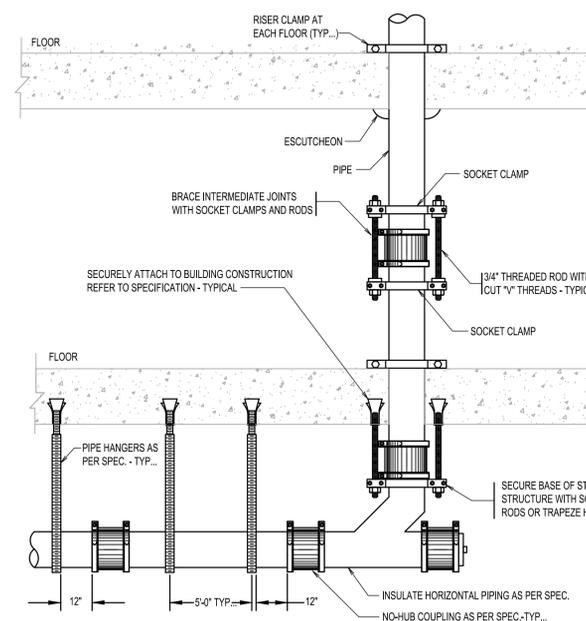
PIPE PENETRATION IN INTERIOR WALL OR ROOF DETAIL

NOT TO SCALE

PIPE SLEEVE DATA - INTERIOR WALLS AND FLOORS	
CARRIER PIPE NOMINAL SIZE (IN.)	SLEEVE SCHEDULE 40 PIPE NOM. SIZE (IN.)
3/4	2
1	3
1 1/2	4
2	4
2 1/2	6
3	6
4	8
6	10
8	12
10	14

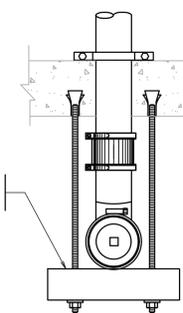
NOTES:

1. THE TYPES AND LOCATIONS OF PIPE PENETRATIONS SHALL BE BASED ON PIPING LAYOUT SHOWN ON PLANS AND SECTIONS.
2. FOR FLASHING DETAILS SEE ARCHITECTURAL DRAWINGS.
3. REINFORCING BARS SHALL NOT BE IN CONTACT WITH PIPE SLEEVE.
4. WELDING SYMBOLS SHALL BE ACCORDING TO AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).
5. ALL STEEL HARDWARE SHALL BE HOT-DIPPED GALVANIZED.



NO HUB PIPE BRACING FOR VERTICAL PIPING

NOT TO SCALE



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SUNY PURCHASE APARTMENT REPAIR ALUMNI VILLAGE INTERIOR RENOVATIONS OF THE COMMONS APARTMENTS 10.1 (ADA COMPLIANT) & 10.3

DRAWING TITLE:
PLUMBING DETAILS

DRAWN BY:	SE	SCALE:	AS NOTED
DESIGNED BY:	AO	DATE:	10-04-22
CHECKED BY:	AO	PROJECT NO.:	10652
PLOT DATE/TIME:	3/17/2023 3:56:36 PM		

DRAWING NO.: **P-301.00**
SHEET: 6 OF 7

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PLUMBING SPECIFICATIONS

22000 GENERAL PROVISIONS FOR PLUMBING WORK

- A. INSTALL ALL WORK IN FULL ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODE REQUIREMENTS.
- B. ALL WORK, EQUIPMENT AND MATERIALS UNDER THIS DIVISION SHALL MEET THE APPROVAL OF ALL STATE AND LOCAL AGENCIES HAVING JURISDICTION, AND SHALL COMPLY STRICTLY WITH ALL APPLICABLE CODES, REQUIREMENTS OF THE ABOVE SHALL TAKE PRECEDENCE OVER PLANS AND SPECIFICATIONS.
- C. THE PLUMBING CONTRACTOR WILL BE RESPONSIBLE FOR MATERIAL AND WORKMANSHIP UNTIL COMPLETION AND FINAL ACCEPTANCE BY THE OWNER. REPLACE ANY DAMAGED, LOST OR STOLEN EQUIPMENT OR MATERIALS AT NO ADDITIONAL COST TO THE OWNER.
- D. SHOULD ANY AMBIGUITIES OR DISCREPANCIES BE FOUND ON THE DRAWINGS OR IN THE SPECIFICATIONS, OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, THEN THE ARCHITECT SHALL INTERPRET THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
- E. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, UNLESS NOTED OTHERWISE.
- F. BEFORE SUBMITTING BID, VISIT THE SITE AND EXAMINE ALL ADJOINING WORK AND CONDITIONS ON WHICH THIS WORK IS IN ANY WAY DEPENDENT, INCLUDING BUT NOT LIMITED TO, MEANS OF MATERIALS STORAGE AND ACCESS, SPACE LIMITATIONS AND PARKING FACILITIES. REPORT ANY DISCREPANCIES TO THE OWNER.
- G. PROVIDE ALL LABOR, MATERIALS, APPLIANCES, TOOLS, SERVICES, RIGGING, SCAFFOLDING, HOISTING, SUPPORT AND SUPERVISION FOR FURNISHING AND INSTALLING ALL PLUMBING WORK AS SHOWN ON THE CONTRACT DRAWINGS AND SPECIFIED HEREIN.
- H. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ARE INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF PIPING, EQUIPMENT AND FITTINGS. THE DRAWINGS SHOW THE VARIOUS EQUIPMENT AND PIPING SYSTEMS SCHEMATICALLY. NO ADDED COMPENSATION WILL BE PERMITTED FOR VARIATIONS DUE TO FIELD CONDITIONS. IT IS NOT THE INTENT FOR THE DRAWINGS TO SHOW, OR THE SPECIFICATIONS TO DESCRIBE, COMPLETE DETAILS OF EVERY COMPONENT OF THE SYSTEMS. FURNISH AND INSTALL ALL WORK IN ACCORDANCE WITH STANDARDS OF GOOD PRACTICE AND PROVIDE ALL REQUIRED APPURTENANCES AND ACCESSORIES FOR COMPLETE AND OPERATIONAL SYSTEMS.
- I. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS. WHERE HEADROOM AND SPACE CONDITIONS APPEAR INADEQUATE, ARCHITECT SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION.
- J. ALL WORK, EQUIPMENT AND MATERIALS UNDER THIS DIVISION SHALL MEET THE APPROVAL OF ALL STATE AND LOCAL AGENCIES HAVING JURISDICTION, AND SHALL COMPLY STRICTLY WITH ALL APPLICABLE CODES, REQUIREMENTS OF THE ABOVE SHALL TAKE PRECEDENCE OVER PLANS AND SPECIFICATIONS.
- K. SUBMIT A GUARANTEE TO THE ARCHITECT STATING THAT ALL PORTIONS OF THE WORK ARE IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS. GUARANTEE ALL WORK AGAINST FAULTY AND IMPROPER MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER. EXCEPT THAT WHERE GUARANTEES OR WARRANTIES FOR LONGER TERMS ARE SPECIFIED ELSEWHERE IN THE SPECIFICATIONS, SUCH LONGER TERM SHALL APPLY.
- L. COORDINATE SPACE REQUIREMENTS WITH OTHER TRADES TO ASSURE THAT ALL MATERIALS CAN BE INSTALLED IN THE SPACE ALLOTTED.
- M. FURNISH AND SET ALL SLEEVES REQUIRED FOR THE WORK OF THIS DIVISION. COORDINATE INSTALLATION WITH THE GENERAL CONTRACTOR.
- N. COORDINATE WITH THE ARCHITECT BEFORE DISCONNECTING ANY EXISTING BUILDING SERVICES.
- O. THE BUILDING WILL BE OCCUPIED AND REMAIN OPERATIONAL DURING THE WORK OF THIS CONTRACT. COORDINATE WORK SCHEDULE WITH THE ARCHITECT AND FACILITY TO MINIMIZE DISRUPTION TO THE OCCUPANTS.
- P. THE PLUMBING CONTRACTOR SHALL SUBMIT FOR REVIEW, SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT FURNISHED AND INSTALLED UNDER THIS CONTRACT.
- Q. DURING THE PROGRESS OF THE WORK, THE PLUMBING CONTRACTOR SHALL MAKE A RECORD OF ALL CHANGES BY WHICH THE ACTUAL INSTALLATION DIFFERS FROM THE CONTRACT DRAWINGS.
- R. AT THE COMPLETION OF CONSTRUCTION THE PLUMBING CONTRACTOR SHALL PREPARE AND DELIVER TO THE FACILITY A SOFT COPY TRANSFER FILE SHAREFILE ALL AS-BUILTS, OPERATING AND MAINTENANCE INSTRUCTION MANUALS, WIRING DIAGRAMS AND VALVE CHARTS COVERING ALL EQUIPMENT INCLUDED IN THIS CONTRACT. THE ARCHITECT AND ENGINEER SHALL BE COPIED ON THIS TRANSMISSION.
- S. INSTALLATION OF ACCESS DOORS WILL BE BY THE GENERAL CONTRACTOR.

22010 OPERATION, TESTING AND MAINTENANCE OF PLUMBING

- A. GENERAL TESTING
 - A.1 CONTRACTOR SHALL NOTIFY ARCHITECT, FACILITY AND ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE OF STARTING ANY TESTS. NO TESTS SHALL BE PERFORMED UNTIL ACKNOWLEDGMENT OF NOTIFICATION AND APPROVAL HAS BEEN RECEIVED FROM ALL PARTIES.
 - A.2 AFTER THE ENTIRE INSTALLATION HAS BEEN COMPLETED, ALL REQUIRED ADJUSTMENTS TO EQUIPMENT, INSTRUMENTS, GAUGES, BALANCING VALVES, AIR VENTS, AUTOMATIC CONTROLS, PUMPS, ETC. SHALL BE MADE UNTIL ALL PERFORMANCE REQUIREMENTS ARE MET.
 - A.3 TESTING, ADJUSTING AND BALANCING REPORTS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW.
 - A.4 ANY DAMAGE RESULTING FROM TESTS SHALL BE REPAIRED OR REPLACED, AND THE TESTS SHALL BE REPEATED UNTIL THE PARTICULAR SYSTEM AND COMPONENT PARTS THEREOF RECEIVE THE APPROVAL OF THE ARCHITECT.
 - A.5 IN ADDITION TO THE TESTS SPECIFIED HEREIN, CONTRACTOR SHALL PERFORM ANY AND ALL OTHER TESTS THAT MAY BE REQUIRED BY THE LOCAL MUNICIPALITY OR OTHER GOVERNING BODY, BOARD OR AGENCY HAVING JURISDICTION.
 - A.6 ALL HYDRONIC PIPING SYSTEMS SHALL BE HYDROSTATICALLY TESTED PRIOR TO APPLICATION OF INSULATION TO A PRESSURE OF 1-1/2 TIMES THE SYSTEM WORKING PRESSURE (NOT TO EXCEED THE RATED WORKING PRESSURE OF THE PIPING SYSTEM, FITTINGS AND PACKAGED EQUIPMENT CONNECTED TO SAME) FOR A PERIOD OF AT LEAST 24 HOURS. GASKET SHALL BE TIGHTER "Y" SEAL OR APPROVED EQUIVALENT, WITH BLACK MOLDED NEOPRENE AS THE SOLE ELASTOMER. WHERE THIS TYPE OF JOINT IS USED, THE PIPE SHALL HAVE MODIFIED HUBS TO PROVIDE A POSITIVE SEAL AND PLAIN ENDS IN LIEU OF BEADED SPIGOTS. THE FINAL JOINT SHALL BE LEAK TIGHT AT 10 DEGREE DEFLECTION.
 - A.7 WATER SYSTEMS SHALL BE BALANCED TO ACHIEVE THE FLOW RATES INDICATED ON THE DRAWINGS FOR PUMPS, ETC. TO WITHIN 10% OF DESIGN FLOW. TEST WATER PIPING AT 1-1/2 TIMES THE STATIC WATER PRESSURE FOR TWO HOURS. IN THE EVENT THAT NEW WATER PIPING CANNOT BE ISOLATED, THE ENTIRE SYSTEM SHALL BE TESTED AT NORMAL OPERATING PRESSURE.
 - A.8 ENTIRE DRAINAGE SYSTEM SHALL BE TESTED HYDRO-STATICALLY. IF TESTED AS A COMPLETE UNIT, SYSTEM SHALL BE FILLED WITH WATER TO OVERFLOWING. TEST PRESSURE AT ANY POINT IN THE SYSTEM SHALL NOT BE ALLOWED TO EXCEED THE EQUIVALENT OF A 100 FOOT COLUMN OF WATER. IF TESTED IN SECTIONS, EACH SECTION SHALL BE FILLED TO OVERFLOWING TO A HEIGHT OF AT LEAST 10 ABOVE SECTION UNDER TEST.
 - A.9 NO LEAKS WILL BE REPAIRED DURING THE PERIOD OF TEST, BUT WILL BE IMMEDIATELY REPAIRED THEREAFTER, AND THE TEST REPEATED UNTIL NO LEAKS APPEAR WITHIN THIS TEST PERIOD.
 - A.10 WHEN ALL PLUMBING FITURES ARE CONNECTED TO THE DRAINAGE AND WATER SUPPLY SYSTEMS, THE TRAPS OF SAME HAVE BEEN FILLED WITH WATER (SEALED), AND THE FITURES THOROUGHLY CLEANED AND MADE READY FOR SERVICE, THERE SHALL BE APPLIED A FINAL SMOKE TEST WITH SMOKE OF

HEAVY QUALITY AND FULL VOLUME GIVING A FULL EMISSION OF SMOKE THROUGH ALL OF THE VENT LINES ABOVE THE ROOF. ALL IN COMPLIANCE WITH THE INSPECTION REQUIREMENTS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION.

B. EQUIPMENT TESTS

- B.1 DEMONSTRATE THAT ALL EQUIPMENT AND APPARATUS FULFILL THE REQUIREMENTS OF THE SPECIFICATIONS. ALL EQUIPMENT SHALL BE OPERATED AND TESTED FOR RATED CAPACITIES AND SPECIFIED CHARACTERISTICS. VOLTAGE AND AMPERAGE READINGS SHALL BE TAKEN ON ALL ELECTRIC MOTORS.
- C. AFTER LEAKAGE TESTS ARE COMPLETE, CLEAN ALL PIPING AND EQUIPMENT OF ALL FOREIGN SUBSTANCES INSIDE AND OUT BEFORE BEING PLACED IN OPERATION.
- D. WATER AND SANITARY DRAINAGE PIPING SYSTEMS SHALL BE FILLED WITH CLEAN WATER WITH A CHEMICAL DETERGENT. CLEANING PROCESS SHALL HAVE A DURATION OF 8 HOURS, FOLLOWING A COMPLETE DRAINING AND RINSE OF THE CLEANING SOLUTIONS FROM THE SYSTEMS, CLEAN AND CHECK ALL TRAPS, OUTLETS AND EXPOSED PIPING. IF IT IS IMPRACTICAL TO ISOLATE THE NEW SECTION OF PIPING INSTALLED, FLUSHING THE SYSTEM FROM THE FURTHER FITTURE SHALL BE SUFFICIENT.
- E. STERILIZATION OF DOMESTIC WATER SYSTEMS SHALL BE ACCOMPLISHED BY USE OF WATER-CHLORINE SOLUTION CONTAINING AT LEAST 50 PPM OF CHLORINE FOR A PERIOD OF AT LEAST 24 HOURS, OR 200 PPM OF CHLORINE FOR A PERIOD OF AT LEAST THREE HOURS. ALL VALVES SHALL BE OPERATED WHILE PIPING IS FILLED WITH THE STERILIZING AGENT. STERILIZATION AND FLUSHING SHALL BE REPEATED IF NECESSARY. IF IT IS IMPRACTICAL TO ISOLATE THE NEW SECTION OF PIPING INSTALLED, FLUSHING THE SYSTEM FROM THE FURTHER FITTURE SHALL BE SUFFICIENT.
- F. SPECIALTY SYSTEMS SUCH AS DEIONIZED AND REVERSE OSMOSIS WATER SHALL BE CLEANED AND TESTED IN ACCORDANCE WITH MANUFACTURERS WRITTEN INSTRUCTIONS. IF NO WRITTEN INSTRUCTIONS OR RECOMMENDATIONS ARE PROVIDED BY THE MANUFACTURER, CONTRACTOR SHALL PROVIDE CLEANING AND TESTING WITH INDUSTRY STANDARD GOOD PRACTICE FOR SPECIFIC WATER TYPES INCLUDING BUT NOT LIMITED TO RESISTIVITY AND CONDUCTIVITY TESTING WITH SPECIAL INSTRUMENTATION.
- G. IN THE EVENT THAT THE PROJECT WORK IS SUBJECT TO FREEZING CONDITIONS, THE SYSTEMS SHALL BE COMPLETELY DRAINED OF ALL WATER, INCLUDING TRAPS AND MISCELLANEOUS EQUIPMENT AFTER CLEANING, TESTING, FLUSHING, AND STERILIZATION HAS BEEN COMPLETED AND ACCEPTED.
- H. AFTER COMPLETION OF ALL WORK AND ALL TESTS AND AT SUCH TIME AS DESIGNATED BY THE ARCHITECT, PROVIDE THE NECESSARY SKILLED PERSONNEL TO DEMONSTRATE THE ENTIRE INSTALLATION TO THE OWNER'S PERSONNEL FOR A PERIOD OF 8 HOURS.
- I. DURING THE OPERATING PERIOD, FULLY INSTRUCT THE OWNER'S REPRESENTATIVE IN THE COMPLETE OPERATION, ADJUSTMENT AND MAINTENANCE OF THE ENTIRE INSTALLATION.

22050 SELECTIVE DEMOLITION FOR PLUMBING

- A. CUTTING AND PATCHING REQUIRED FOR THE WORK OF THIS CONTRACT SHALL BE PROVIDED BY THE PLUMBING CONTRACTOR.
- B. IN GENERAL, PENETRATIONS THROUGH CONCRETE WALLS AND SLABS SHALL BE CORE DRILLED.
- C. PLUMBING CONTRACTOR SHALL CUT AND PATCH EXISTING PAVEMENT AND STREET SURFACES THAT ARE REMOVED OR DAMAGED FOR THE EXECUTION OF THE WORK. ALL PATCHING SHALL MATCH EXISTING CONDITIONS.
- D. ALL AREAS AND SURFACES THAT ARE PATCHED SHALL MATCH EXISTING ADJACENT FINISHES. WHERE A PAINTED WALL OR CEILING IS DISTURBED AND IS PATCHED, THE ENTIRE WALL OR CEILING MUST BE REPAINTED. EXISTING CEILING TILES, BOARDS, GRIDS, ETC. THAT HAVE BEEN DAMAGED, STAINED, OR MARKED SHALL BE REPLACED WITH NEW MATERIALS EQUIVALENT TO THE EXISTING.
- E. THE PLUMBING CONTRACTOR SHALL BE AWARE THAT ALL CUTTING AND PATCHING OF ROOFING REQUIRED BY THE WORK OF THIS CONTRACT SHALL BE INCLUDED IN THE BID PRICE AND SHALL BE PERFORMED BY A ROOFING CONTRACTOR WHO IS LICENSED BY THE ROOFING MANUFACTURER, SO AS TO MAINTAIN ROOFING WARRANTIES.
- F. PROVIDE ALL EXCAVATION, BACKFILLING, AND RESTORATION BOTH OUTSIDE AND INSIDE THE BUILDING REQUIRED TO PROPERLY INSTALL THE WORK UNDER THIS CONTRACT. THE CONTRACTOR SHALL COMPLY WITH UTILITY MARK-OUT REQUIREMENTS (NEW YORK STATE INDUSTRIAL CODE 53), INCLUDING CONTACTING LOCAL UTILITY COMPANIES TO MARK AND LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ALSO COMPLY WITH OSHA REQUIREMENTS.
- G. PROVIDE, CONTINUE AND MAINTAIN PUMPING AND DEWATERING FOR THE INSTALLATION AND PROTECTION OF THE WORK, INCLUDING KEEPING FREE OF WATER ANY AREAS THAT MAY INTERFERE WITH THE EXECUTION OF THE CONTRACT WORK.

22051 COMMON ELECTRICAL REQUIREMENTS FOR PLUMBING EQUIPMENT

- A. ELECTRICAL POWER WIRING, EXCEPT THAT FURNISHED AS AN INTEGRAL PART OF FACTORY ASSEMBLED EQUIPMENT OR AS OTHERWISE SPECIFIED HEREIN WILL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, (UNLESS OTHERWISE NOTED, ALL CONTROL WIRING SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR.)
- B. INSTALLATION OF MOTOR STARTERS WILL BE BY THE ELECTRICAL CONTRACTOR.
- C. THE ELECTRICAL CONTRACTOR WILL FURNISH AND INSTALL ALL LINE VOLTAGE TIME CLOCKS, START/STOP SWITCHES AND EMERGENCY STOP SWITCHES, UNLESS OTHERWISE NOTED.

220516 EXPANSION FITTINGS AND LOOPS FOR PLUMBING PIPING

- A. PROVISIONS SHALL BE MADE FOR EXPANSION AND CONTRACTION OF THE PIPING SYSTEMS TO PREVENT EXCESSIVE STRESSES ON PIPING AND EQUIPMENT. ALL REQUIRED ANCHORS, GUIDES, EXPANSION LOOPS, FLEXIBLE CONNECTORS, ETC. SHALL BE PROVIDED.
- B. JOINTS IN CAST IRON PIPE SHALL BE MADE BY THE USE OF A POSITIVE ONE PIECE DOUBLE SEAL ELASTOMER. EXTRA HEAVY COMPRESSION TYPE GASKET CONFORMING TO ASTM C-554. GASKET SHALL BE TIGHTER "Y" SEAL OR APPROVED EQUIVALENT, WITH BLACK MOLDED NEOPRENE AS THE SOLE ELASTOMER. WHERE THIS TYPE OF JOINT IS USED, THE PIPE SHALL HAVE MODIFIED HUBS TO PROVIDE A POSITIVE SEAL AND PLAIN ENDS IN LIEU OF BEADED SPIGOTS. THE FINAL JOINT SHALL BE LEAK TIGHT AT 10 DEGREE DEFLECTION.
- C. JOINTS BETWEEN CAST IRON AND STEEL OR OTHER THREADED PIPING SHALL BE CAULKED. THE ENDS OF SCREWED PIPING SHALL HAVE A RING OR COUPLING SCREWED ON TO FORM A SPOUT. FOR CONNECTIONS BETWEEN LEAD AND CAST IRON PIPE, EXTRA HEAVY CAST BRASS FERULLES SHALL BE USED WITH A WEPED SOLDER JOINT TO LEAD PIPE AND CAULKED INTO HUB OF CAST IRON PIPE.
- D. JOINTS IN THREADED PIPES SHALL BE MADE UP WITH PIPE TAPE. ENDS OF PIPE SHALL BE REAMED FREE FROM BURRS AND THE THREADS SHALL BE CLEAN, CUT AND TAPERED. THREAD CEMENT AND CAULKING SHALL NOT BE USED. GRAPHITE UNDER BE APPLIED TO THREADS OF CLEAN-OUT AND DRAIN PLUGS.

220517 SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

- A. SLEEVES FOR PIPES PASSING THROUGH MASONRY FLOORS, WALLS, AND PARTITIONS SHALL BE SCHEDULE 40 BLACK STEEL PIPE.

- B. SLEEVES FOR PIPES PASSING THROUGH NON-MASONRY FLOORS, WALLS AND PARTITIONS SHALL BE 22-GAUGE GALVANIZED STEEL.
- C. SLEEVES IN EXTERIOR FOUNDATION WALLS SHALL BE WATERPROOF UNK SEAL OR APPROVED EQUIVALENT.
- D. SLEEVES IN FIRE-RATED WALLS AND FLOORS SHALL BE FIRE-RATED UNK SEAL OR APPROVED EQUIVALENT.
- E. ACCEPTABLE FIRE STOP MATERIALS SHALL INCLUDE FIBERFRAX FURY PYTE AS MANUFACTURED BY FIBERS DIVISION OF CARBORUNDUM CO., FIRE STOP SYSTEM, AS MANUFACTURED BY DOW CORNING CORP., OR APPROVED EQUIVALENT.
- F. FIRE STOPS SHALL CONFORM TO ASTM E-814, UL-1479, AND ULCS-115M, AND SHALL BE RATED FOR 1/2 TO 3 HOURS DEPENDING ON THE RATING OF THE PENETRATED MATERIAL. FIRE STOPS SHALL ALSO CONFORM TO ASTM E-84 FOR FLAME SPREAD AND SMOKE CONTRIBUTED, AND SHALL BE UL LISTED FOR USE IN THROUGH-PENETRATION FIRE STOP SYSTEM.
- G. PROVIDE SLEEVES AND SEALS FOR ALL PIPE PENETRATIONS THROUGH FLOORS, CEILINGS AND WALLS. SLEEVES SHALL BE SET FLUSH WITH FINISHED WALL SURFACES, BUT EXTENDING 2-INCH ABOVE FINISHED FLOORS. THE OPEN SLEEVE SPACE SHALL BE PACKED WITH NON-COMBUSTIBLE MATERIALS. SLEEVES SHALL HAVE A MAXIMUM INTERNAL DIAMETER 1-INCH LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE OR PIPE INSULATION PASSING THROUGH THEM, AS APPLICABLE. THE ANNULAR SPACE OUTSIDE THE SLEEVES SHALL BE PATCHED TO MATCH THE EXISTING SURFACES. SEALS FOR SLEEVES IN FIRE RATED WALLS SHALL BE FIRE RATED. SEALS FOR SLEEVES IN FOUNDATION WALLS SHALL BE WATERPROOF. PROVIDE ESCUTCHEONS FOR ALL SLEEVES. EXPOSED ESCUTCHEONS SHALL BE CHROMIUM-PLATED BRASS.
- H. SAFE OFF ALL OPENINGS AROUND PIPE PENETRATIONS THROUGH WALLS, FLOORS, CEILINGS, ETC.
- I. PROVIDE FIRE STOPS AT ALL PENETRATIONS THROUGH FIRE RATED WALLS, PARTITIONS, CEILINGS, FLOORS, AND ROOFS.

220523 GENERAL DUTY VALVES FOR PLUMBING PIPING

- A. ALL PIPING CONNECTIONS TO EQUIPMENT SHALL BE PROVIDED WITH SHUTOFF VALVES. SCREEN UNIONS OR FLANGED CONNECTIONS SHALL BE INSTALLED IN PIPING AT ALL CONNECTIONS TO COOLS, CONTROL VALVES, AND ALL EQUIPMENT.
- B. BRANCH PIPING SHALL BE CONTROLLED WITH VALVES WHERE CONNECTED TO SUPPLY MAINS.

220529 HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

- A. PROVIDE HANGERS AND SUPPORTS FOR ALL PIPING AND EQUIPMENT. PIPING SUPPORTS SHALL COMPLY WITH MSS SP-49 STANDARDS.
- B. ALL EQUIPMENT, PIPING, ETC. SHALL BE MOUNTED OR SUSPENDED TO MINIMIZE VIBRATION TRANSMISSION. PROVIDE ISOLATION PADS, RUBBER WEDGES, SPRING WEDGES, SEISMIC RESTRAINTS, ETC. AS CALLED FOR ON THE DRAWINGS AND AS REQUIRED TO CONTROL VIBRATION AND MOVEMENT OF PIPING AND EQUIPMENT.
- C. PROVIDE ANCHORS AND GUIDES FOR PIPING WHERE REQUIRED TO CONTROL MOVEMENT.
- D. HANGING MATERIALS SHALL HAVE A SAFETY FACTOR OF 5 BUILT-IN AND BE DESIGNED AND ARRANGED TO MINIMIZE VIBRATION.
- E. PROVIDE SEPARATE SUPPORTS FOR ALL BRANCHES, NO BRANCH TWO FEET IN LENGTH OR OVER SHALL BE INSTALLED WITHOUT AN APPROVED HANGER. PROVIDE HANGERS AT ALL JOINT CONNECTIONS.
- F. ALL FLOOR MOUNTED EQUIPMENT SHALL BE MOUNTED ON 4-INCH HIGH CONCRETE HOUSEKEEPING PADS OVER THE COMPLETE AREA OF THE EQUIPMENT PLUS A MINIMUM OF 6 INCHES ON EACH SIDE OF THE EQUIPMENT. CONCRETE SHALL BE MINIMUM 3000 PSI STRENGTH WITH WIRE MESH REINFORCEMENT.
- G. PIPING WITHIN 25 FEET OF ALL EQUIPMENT THAT IS SUPPORTED BY VIBRATION ISOLATORS SHALL BE SUPPORTED WITH STEEL SPRING AND RUBBER-IN-SHEAR TYPE VIBRATION ISOLATORS, WITH A MINIMUM OF 1-INCH STATIC DEFLECTION.
- H. ALL SUPPORTS SHALL BE METALLIC.
- I. PIPE HANGERS FOR PIPES UP TO 5/8 INCH SHALL BE ADJUSTABLE CLEVIS TYPE.
- J. PIPING INSTALLED ON ROOFS SHALL BE SUPPORTED BY FACTORY MANUFACTURED FREESTANDING PIPE SUPPORTS AS MANUFACTURED BY MIRO INDUSTRIES, OR APPROVED EQUIVALENT.
- K. UNLESS OTHERWISE NOTED ON DRAWINGS, EQUIPMENT SUPPORT CURBS SHALL BE PREFABRICATED GALVANIZED STEEL AS MANUFACTURED BY TTY CURB, OR APPROVED EQUIVALENT.
- L. SUPPLEMENTARY STEEL SUPPORTS SHALL BE PROVIDED WHERE REQUIRED TO SPAN BUILDING FRAMING IN ORDER TO ADHERE TO MAXIMUM HANGER SPACING.
- M. PIPING SUPPORT SPACING AND HANGER ROD SIZE FOR STEEL AND COPPER PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

PIPE SIZE	MAXIMUM HANGER SPACING	MINIMUM ROD SIZE
1" AND SMALLER	6'-0"	3/8"
1-1/4" TO 2"	8'-0"	3/8"

- N. PIPING SUPPORT SPACING AND HANGER ROD SIZE FOR CAST IRON PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

PIPE SIZE	MAXIMUM HANGER SPACING	MINIMUM ROD SIZE
1" AND SMALLER	5'-0"	3/8"
1-1/4" TO 2"	5'-0"	1/2"
2-1/2" TO 3-1/2"	5'-0"	5/8"
4" TO 6"	5'-0"	3/4"

- O. INSTALL BUILDING ATTACHMENTS WITHIN CONCRETE SLABS OR ATTACH TO STRUCTURAL STEEL. SPACE ATTACHMENTS WITHIN MAXIMUM PIPING SPAN LENGTH INDICATED. INSTALL ADDITIONAL ATTACHMENTS AT CONCENTRATED LOADS, INCLUDING VALVES, FLANGES, GUIDES, STRAINERS, AND EXPANSION JOINTS, AND AT CHANGES IN DIRECTION OF PIPING.
- P. PIPING AND EQUIPMENT SHALL BE SUPPORTED FROM BUILDING STEEL FRAMING WHERE EVER POSSIBLE. WHERE NOT POSSIBLE, CONCRETE EXPANSION SHIELDS MAY BE USED IN STONE CONCRETE, BUT THE MAXIMUM HANGER SPACING SHALL BE 1/2 THAT INDICATED IN THE PREVIOUS TABLE. EXPANSION SHIELDS SHALL NOT BE USED IN CINDER CONCRETE.
- Q. VERTICAL LINES SHALL BE ADEQUATELY SUPPORTED AT THEIR BASES EITHER BY A SUITABLE HANGER PLACED IN THE HORIZONTAL LINE NEAR THE RISER OR BY A BASE FITTING SET ON A PEDESTAL OR FOUNDATION, AND AT EVERY FLOOR WITH RISER CLAMP. IN ADDITION, SWAY BRACING SHALL BE PROVIDED ON ALL VERTICAL IN-HUB PIPE LINES GREATER THAN 10" IN HEIGHT.
- R. NO PIPING OR EQUIPMENT SHALL BE HUNG FROM OTHER PIPING OR EQUIPMENT.

220548 VIBRATION AND SEISMIC CONTROLS FOR PLUMBING PIPING AND EQUIPMENT

- A. PROVIDE VACUUM BREAKERS ON ALL SUBMERGED AND/OR THERMALLY SUBMERGED WATER INLETS, AND ON ALL OUTLETS WITH HOSE THREAD. VACUUM BREAKERS SHALL BE FULL SIZE OF PIPE.
- B. SHOCK ABSORBERS SHALL BE INSTALLED ON ALL PIPING SYSTEMS TO ELIMINATE PULSATIONS AND VIBRATIONS.
- C. SHOCK ABSORBERS SHALL BE JAY R SWITH OR EQUAL AND SHALL BE INSTALLED AT END OF RUN FOR BOTH HOT AND COLD WATER LINES.
- D. SHOCK ABSORBERS SHALL BE INSTALLED AT ALL BRANCH PIPING WHERE FLUSH VALVE ACTUATION OR JANITORS FAUCETS ARE INSTALLED. THE SHOCK ABSORBER

SHALL BE INSTALLED BETWEEN THE LAST TWO FIXTURES AND SHALL BE MADE ACCEPTABLE VIA AN ACCESS DOOR OR INSTALLATION ABOVE HUNG CEILING.

220553 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

- A. PIPE IDENTIFICATION MARKERS SHALL BE PLASTIC WITH SERVICE AND FLOW DIRECTION INDICATED.
- B. EQUIPMENT NAMEPLATES SHALL BE LAMINATED PLASTIC WITH 3/16-4/8 INCH HIGH LETTERING.
- C. NAMEPLATE NOMENCLATURE SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
- D. IDENTIFY ALL PIPING THAT IS ACCESSIBLE FOR SERVICING WITH PLASTIC IDENTIFICATION MARKERS. COLOR SCHEME AND SIZES SHALL BE IN ACCORDANCE WITH ANSI STANDARD A13.1.
- E. LOCATE MARKERS AT EACH VALVE, EACH BRANCH OR RISER TAKEOFF, EACH PASSAGE THROUGH WALLS, FLOORS OR CEILINGS AND AT 25-FOOT INTERVALS ON STRAIGHT RUNS OF PIPE.
- F. ALL VALVES WILL BE TAGGED AND A CORRESPONDING CHART BE DELIVERED TO THE OWNER PRIOR TO FINAL PAYMENT.

220574 FACILITY DRAINAGE PIPING CLEANOUTS

- A. CLEANOUTS SHALL BE PROVIDED AND EXTENDED THROUGH WALLS AND FLOORS WHERE NECESSARY. AT ALL CHANGES OF DIRECTION, AT THE END OF ALL HORIZONTAL DRAINS, AND AT ALL TRAPS.
- B. CLEANOUTS SHALL BE SAME SIZE AS PIPE UP TO 4-INCH AND 1/2 PIPE SIZE, BUT NOT LESS THAN 4-INCH. FOR LARGER PIPE.
- C. CLEANOUTS BELOW FLOORS SHALL BE EXTENDED WITH LONG RADIUS FITTINGS TO THE SURFACE OF THE FLOOR. CLEANOUT FITTINGS SHALL BE A DUCCO COATED, CAST IRON, EXTENSION FERULE WITH CUT-OFF RINGS, AND BRONZE, COUNTERSUNK CLEANOUT PLUG. CAST IRON COVER HOUSING SHALL BE ADJUSTABLE FOR VARYING FLOOR THICKNESS. BRONZE COVER SHALL BE TRACTOR TYPE, HEAVY DUTY, SCORATED, AND SECURED BY WANDALPROOF SCREWS.
- D. CLEANOUTS SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION AND SHALL BE PER LOCAL AND STATE PLUMBING CODES.

220700 PLUMBING INSULATION

- A. ALL INSULATION SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS, AS TESTED BY PROCEDURE ASTM E-84, NFPA 225, AND UL 723, NOT EXCEEDING A "FLAME SPREAD" OF 25, AND "SMOKE DEVELOPED" OF 50.
- B. INSULATION SHALL BE APPLIED ONLY BY QUALIFIED INSULATING MECHANICS AFTER THE PIPING SYSTEMS HAVE BEEN PRESSURE TESTED AND ACCEPTED AS TIGHT BY THE ARCHITECT.
- C. PROVIDE INSULATION FOR PIPING, FITTINGS AND VALVES AS SPECIFIED BELOW. INSULATION SHALL BE PERFORMED FIBERGLASS PIPE INSULATION AS MANUFACTURED BY KNAUF, OR APPROVED EQUIVALENT.

220719 PLUMBING PIPING INSULATION

- A. COOLING COIL CONDENSATE DRAIN PIPING
 - A.1 ALL COOLING COIL CONDENSATE DRAIN PIPING SHALL BE INSULATED.
 - A.2 THE INSULATION SHALL BE A MINIMUM OF 1-INCH THICK, AND HAVE A THERMAL CONDUCTIVITY OF NO MORE THAN 0.28 BTU-IN/HR-FT² OF AT 75 OF MEAN TEMPERATURE.
 - A.3 THE INSULATION SHALL HAVE A FACTORY APPLIED ALL SERVICE VAPOR BARRIER JACKET OF KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED. THE LONGITUDINAL LAP SHALL BE FURNISHED WITH SELF-SEALING ADHESIVE.
 - A.4 ARMARLEX OR SIMILAR PIPE INSULATION IS DEEMED ACCEPTABLE FOR CONDENSATE DRAINAGE PIPING IF MEETING THERMAL CONDUCTIVITIES LISTED ABOVE.
- B. DOMESTIC HOT AND COLD WATER PIPING
 - B.1 ALL DOMESTIC COLD WATER, HOT WATER AND RETURN PIPING SHALL BE INSULATED.
 - B.2 THE INSULATION SHALL HAVE A FACTORY APPLIED ALL SERVICE VAPOR BARRIER JACKET OF KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED. THE LONGITUDINAL LAP SHALL BE FURNISHED WITH SELF-SEALING ADHESIVE.
 - B.3 THE INSULATION SHALL BE A MINIMUM OF 1-INCH THICK, AND HAVE A THERMAL CONDUCTIVITY OF NO MORE THAN 0.28 BTU-IN/HR-FT² OF.
 - B.4 PROVIDE INSULATION/PROTECTION FOR ALL EXPOSED PIPING ASSOCIATED WITH HANDICAP LAVATOIRES.

C. FITTINGS AND VALVES

- D.1 ALL VALVES AND FITTINGS SHALL BE INSULATED AND COVERED WITH PRE-MOLDED PVC JACKETING, WHITE IN COLOR, WITH INSERTS OF MATERIAL TO MATCH THE PIPE INSULATION. FITTING COVERS SHALL BE PROTO COPORATION, OR APPROVED EQUIVALENT.
- D.2 INSERT MATERIAL SHALL HAVE A THERMAL CONDUCTIVITY OF 0.28 BTU-IN/HR-FT² OF AT 75 OF MEAN TEMPERATURE.
- D.3 CLOSURE SHALL BE WITH MATCHING PVC TAPE.
- D.4 ANY PIPING INSTALLED IN UNHEATED SPACE SHALL BE PROVIDED WITH 1-1/2 INCH THICK INSULATION AND SHALL BE PROVIDED WITH HEAT TRACE. COORDINATION HEAT TRACE WITH ELECTRICAL CONTRACTOR.
- E. ANY PIPING INSTALLED IN AREAS SUBJECT TO AND EXPOSED TO WEATHER, SHALL BE PROVIDED WITH 2-INCH THICK INSULATION AND SHALL PROVIDED WITH HEAT TRACE. COORDINATION HEAT TRACE WITH ELECTRICAL CONTRACTOR. IN ADDITION TO THE INSULATION, CONTRACTOR SHALL PROVIDE PVC PIPE AND FITTING COVERS THROUGHOUT THE ENTIRE EXPOSED RUN AND SHALL PROVIDE IDENTIFICATION LABELS ON EXTERIOR OF PIPE.
- F. EXCEPT AS INDICATED OTHERWISE HEREIN, PIPE, FITTING AND VALVE INSULATION, ADHESIVES AND FASTENERS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS.
- G. ALL PIPE INSULATION, JACKETS, FACINGS, VAPOR BARRIERS AND FINISHES SHALL BE CONTINUOUS AND SEALED THROUGH FLOOR AND WALL SLEEVES, HANGERS, SUPPORTS AND ATTACHMENTS.
- H. WHERE PLANS INDICATE THAT PIPING & TO BE BURIED BELOW SLABS, INSULATED PIPING ASSEMBLY SHALL BE INSTALLED WITHIN A PVC SLEEVE.
- I. STRAINERS, EXPANSION JOINTS AND OTHER SPECIALTIES REQUIRING PERIODIC SERVICING OR INSPECTION SHALL BE PROVIDED WITH INSULATION COVERS, REMOVABLE AND REPLACEABLE WITHOUT DAMAGING INSULATION, VAPOR BARRIERS OR FINISHES.
- J. INSULATION ON HOT PIPES SHALL BE PROTECTED FROM HANGERS, GUIDES AND ROLLERS BY PIPE SADDLES FILLED WITH PIPE INSULATION OR INSULATING CEMENT.
- K. INSULATION ON COLD PIPES SHALL BE PROTECTED FROM HANGERS, GUIDES AND ROLLERS BY A 180 DEGREE GALVANIZED STEEL SHIELD ON THE OUTSIDE OF THE INSULATION AND VAPOR BARRIER. A HALF-SECTION OF WATERPROOF, CALCIUM SILICATE, HIGH DENSITY INSULATION OF THE SAME THICKNESS AS THE PIPE INSULATION, AND FULL LENGTH OF THE SHIELD, SHALL BE USED TO SUPPORT THE WEIGHT OF THE PIPE AT THE SHIELD. SHIELDS SHALL BE OF SUFFICIENT LENGTH TO ALLOW FOR THE MAXIMUM PIPE MOVEMENT AND HANGER LOAD AT THE SPECIFIED HANGER SPACING.
- L. INSULATE EACH PIPE INDIVIDUALLY.

221000 PLUMBING PIPING

A. PIPING SCHEDULES

- A.1 PIPING MATERIALS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:
 1. SERVICE MATERIAL WEIGHT TYPE GAS INSIDE BUILDING STEEL ASTM A-83 SCHEDULE 40 BLACK GAS OUTSIDE BUILDING, ABOVE GROUND LESS THAN 3" DIAMETER STEEL, ASTM A-54 SCHEDULE 40 HOT DIPPED GALVANIZED SUMP PUMP EJECTOR MAINS STEEL, ASTM-55 SCHEDULE 40 HOT DIPPED GALVANIZED SANITARY, WASTE, VENT AND ROOF DRAINAGE BURIED CAST IRON HUB ASTM A-74 SERVICE WEIGHT HUB AND SPIGOT SANITARY, WASTE, VENT AND ROOF DRAINAGE ABOVE GRADE CAST IRON ASTM A-886 SERVICE WEIGHT NO HUB DOMESTICATED WATER ABOVE GRADE COPPER ASTM B-88 TYPE 1 HARD DOMESTIC WATER BELOW GRADE 2" AND UNDER COPPER ASTM B-88 TYPE 1 SOFT EQUIPMENT AND CONDENSATE DRAINS COPPER ASTM-88 TYPE 1 HARD.
 2. FITTING MATERIALS AND JOINT TYPE SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

- B. SERVICE MATERIAL WEIGHT TYPE GAS INSIDE BUILDING, 4" AND LESS DIAMETER MALLEABLE IRON SCHEDULE 40 SCREWED GAS OUTSIDE BUILDING, ABOVE GROUND 3" DIAMETER AND LARGER SEAMLESS STEEL SCHEDULE 40 WELDED SUMP PUMP EJECTOR MAINS GALVANIZED MALLEABLE IRON SCHEDULE 40 SCREWED SANITARY, WASTE, VENT AND ROOF DRAINAGE BURIED CAST IRON HUB ASTM A-74 SERVICE WEIGHT HUB AND SPICOT WITH NEOPRENE GASKETS SANITARY, WASTE, VENT AND ROOF DRAINAGE ABOVE GRADE CAST IRON ASTM A-886 SERVICE WEIGHT NO HUB DOMESTIC WATER ABOVE GRADE WROUGHT COPPER ASTM B-16.22 STANDARD LEAD FREE SOLDER ASTM B32 ASTM B613 DOMESTIC WATER BELOW GRADE 2" AND UNDER WROUGHT COPPER ASTM B-16.23 STANDARD BRAZED EQUIPMENT AND CONDENSATE DRAINS WROUGHT COPPER ASTM B-16.24 STANDARD LEAD FREE SOLDER ASTM B32 ASTM B613.
- C. PIPING SHALL BE INSTALLED CONCEALED IN AREAS HAVING HUNG CEILING AND/OR FURRED SPACES UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
- D. PIPING SHALL NOT BE INSTALLED OVER CONTROL PANELS, SWITCHBOARDS, OR OTHER ELECTRICAL EQUIPMENT UNLESS APPROVED BY THE ARCHITECT, WHERE APPROVAL IS GIVEN, PROVIDE DRIP PANS AND SHIELDS TO PROTECT THE ELECTRICAL EQUIPMENT.
- E. CHANGES IN DIRECTION OF PIPING SHALL BE MADE BY APPROPRIATE USE OF WYES, LONG SWEEP QUARTER, BIGHTH, OR SIXTEEN BENDS OR LONG TURN TEE-WYE FITTINGS, EXCEPT THAT SHORT TURN FITTINGS MAY BE USED FOR CHANGES FROM HORIZONTAL TO VERTICAL IN THE DIRECTION OF FLOW.
- F. CHANGES IN PIPE SIZE SHALL BE MADE WITH REDUCING FITTINGS OR SHOULDER TYPE REDUCERS. ALL PIPING SHALL BE LAID TRUE TO LINE AND GRADE AS SHOWN ON THE DRAWING AND IN SUCH MANNER THAT A TRUE AND EVEN SURFACE AT THE INVERT IS MADE OVER ALL JOINTS AND THROUGHOUT THE ENTIRE LENGTH OF THE DRAIN.
- G. VERTICAL REERS SHALL BE STRAIGHT AND PLUMB WITHOUT OFFSETS, EXCEPT WHERE SPECIFICALLY SHOWN ON DRAWING OR WHERE FIELD CONDITIONS REQUIRE OFFSETS. SUCH OFFSETS SHALL, WHERE POSSIBLE, BE MADE AT AN ANGLE OF 45 DEGREES TO THE HORIZONTAL. BRANCH CONNECTIONS TO VERTICAL REERS SHALL BE WITH WYE FITTINGS AND BIGHTH OR SIXTEEN BENDS OR TEE-WYE FITTINGS. TEES SHALL NOT BE USED.
- H. PROVIDE DIELECTRIC FITTINGS WHERE PIPING AND/OR EQUIPMENT OF DISSIMILAR METALS ARE CONNECTED.
- I. BRANCHES SHALL BE TAKEN OFF MAINS WITH ELBOWS TO PROVIDE FOR EXPANSION AND CONTRACTION. IN GENERAL, BRANCH PIPING SHALL BE TAKEN OFF THE TOP OF THE MAINS WHERE PRACTICAL.

221000 FACILITY SANITARY SEWAGE

- A. INSTALL CAST-IRON SOIL PIPING ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK", CHAPTER IV, "INSTALLATION OF CAST IRON SOIL PIPE AND FITTINGS."
- B. ALL HORIZONTAL SANITARY PIPING SHALL BE RUN ON A UNIFORM GRADE WITH THE MINIMUM PITCH AS REQUIRED BY CODE. PIPING SHALL BE RUN AT A UNIFORM PITCH AND AS STRAIGHT AS POSSIBLE.
- C. MAINTAIN VENT BRANCHES ABOVE FITTURES IN SUCH MANNER AS TO PRECLUDE THE POSSIBILITY OF VENTS ACTING AS WASTE PIPES. SHOULD LATER BECOME OBSTRUCTED, VENTS SHALL BE GRADED TO DRIP BACK TO A STACK SO AS TO PREVENT ACCUMULATION OF WATER OR SCALE IN BRANCHES. VENT LINES SHALL BE FREE FROM DROPS OR SACS.
- D. WHERE VENT PIPES CONNECT TO A HORIZONTAL SOIL OR WASTE PIPE, THE FITTING SHALL BE TAKEN OFF ABOVE THE CENTER LINE OF THE PIPE AND SHALL RISE VERTICALLY, OR AT AN ANGLE OF 45 DEGREES TO THE VERTICAL, BEFORE OFFSETTING HORIZONTALLY OR CONNECTING TO OTHER VENT LINES. OFFSETS IN VENT STACKS AND DRY WASTE OR DRY SOIL STACKS SHALL BE AT 45 DEGREES. WHERE THIS IS NOT POSSIBLE, THE OFFSET AND ALL OF THE STACK ABOVE THE OFFSET SHALL BE GALVANIZED STEEL PIPE. WHERE POSSIBLE, THE BOTTOM OF VENTS SHALL BE CONNECTED TO THE WASTE OF A FITTURE IN SUCH A MANNER THAT THE BEND IN THE VENT LINE WILL RECEIVE THE WASH OF THE FITTURE. BRANCH CONNECTIONS TO VENT STACKS MAY BE WITH TEE FITTINGS.
- E. TRAPS FOR FLOOR DRAINS SHALL BE DEEP SEAL TYPE.
- F. ALL PLUMBING TRAPS THAT ARE SUBJECT TO EVAPORATION SHALL BE PROVIDED WITH A TRAP PRIMER IN ACCORDANCE WITH ONE OF THE FOLLOWING THREE TYPES AND LOCATIONS.
 - F.1 TRAPS ADJACENT TO FAST CLOSING DEVICES SUCH AS JANITORS SINKS OF WATER CLOSETS SHALL BE OF THE POTABLE WATER SUPPLIED TRAP ASSE 1018 LISTED TYPE PPP P2-930 OR APPROVED EQUAL.
 - F.2 TRAPS ADJACENT TO SINKS/LAVATOIRES SHALL BE OF THE WASTE WATER SUPPLIED TRAP ASSE 1044 LISTED TYPE JAY R SWITH PRIMEZE 2698 OR APPROVED EQUAL.
 - F.3 TRAPS NOT ADJACENT TO ANY PLUMBING FITTURES LISTED ABOVE SHALL BE OF THE ELECTRONIC POTABLE WATER SUPPLIED TRAP ASSE 1044 LISTED TYPE PPP P101 (X) OR APPROVED EQUAL.

REQUIRED SUBMITTALS - DIVISION 22:

- 22 01 00 OPERATION AND MAINTENANCE OF PLUMBING
- 22 05 05 SELECTIVE DEMOLITION FOR PLUMBING
- 22 05 17 SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING
- 22 05 18 ESCUTCHEONS FOR PLUMBING PIPING
- 22 0529 GENERAL-DUTY VALVES FOR PLUMBING PIPING, BALL CHECK, BPP
- 22 0529 HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIP
- 22 05 33 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
- 22 07 19 PLUMBING PIPING INSULATION
- 22 10 00 PLUMBING PIPING AND EQUIPMENT
- 22 11 18 SHOP DRAWINGS AND AS-BUILTS
- 22 11 19 PLUMBING SPECIALTIES
- 22 40 00 PLUMBING FITTURES