

State of Utah

GARY R. HERBERT Governor

SPENCER J. COX Lieutenant Governor

Department of Administrative Services

TANI PACK DOWNING Executive Director

Division of Facilities Construction and Management JAMES R. RUSSELL Director

DFCM Addendum No. 1

November 15, 2017 Date:

To: **Pre-Qualified General Contractors**

From: Lucas Davis – DFCM Project Manager

Reference: Restroom Upgrades Phase 2 – Davis Technical College

Utah System of Technical Colleges – Kaysville, Utah

DFCM Project No. 15062220

Subject: **DFCM Addendum No. 1**

Pages Addendum Cover Sheet 1 page

> Architect's Addendum No. 1 32 pages Total 33 pages

Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.

- 1.1 **SCHEDULE CHANGES:** There are no Project Schedule changes.
- 1.2 **GENERAL ITEMS:** See attached Architect's Addendum No. 1 dated November 13, 2017.

ADDENDUM #1

TO

DAVIS TECHNOLOGY COLLEGE RESTROOM UPGRADES PHASE II DFCM PROJECT # 15062220 NOVEMBER 13, 2017

Architectural Design West Architects Scott Theobald 255 South 300 West Logan, Utah 84321 (435) 881-2312	
VBFA Engineers Mechanical / Plumbing Engineer Jed Jenkins 40 W Cache Valley Blvd Bldg. 1, Suite 2 Logan, UT 84321 (435) 752-5081	
Spectrum Engineers Electrical Engineer David Hinckley 324 South State Street, Suite 400 Salt Lake City, Utah, UT (801)) 328-5151	

This Addendum forms a part of the Contract Documents and modifies the original Bidding Drawings and Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

Except as may be otherwise described, labor and materials for the Work hereinafter specified shall conform to all requirements of the Original Specifications.

Pages in Addendum: 2

Pages of Attachments in Addendum: Mechanical (1) narrative and (2) drawings

Construction Documents Set Dated 10-12-17 is the Bid Set to be bid.

General:

AD1-G-1 Note: The current Construction Documents are dated on the cover sheet title block as being 10-12-17. See attached.

AD1-G-2. The Invitation to Bid and the Project Schedule both show the bid date to be Monday, 11/20. The SciQuest posting has the bid date as Tuesday, 11/21. The correct Bid Date is Monday November 20, 2017 @ 3:00 PM

AD1-G-3 Project Phasing: Work is to be completed as a single phase of work. No phasing required.

AD1-G-4 Will the Pre-bid sign-in sheet be posted? Yes it was posted on SciQuest.

AD1-G-5 Add Alternates. There are no Add Alternates. The reference to Set 5 as an Add Alternate is Deleted.

AD1-G-6 Is this project tax exempt? Yes, tax exempt.

ARCHITECTURAL:

AD1-A-1 Note Demolition Key Notes Sheet A-100 for division of work of Hazardous Materials Abatement and Demolition contract and GC contract.

- a. Refer to C3/A1010 Set 8 Demolition Plan: Wall shown dashed is to be removed by the mitigation contractor (not the GC).
- b. Refer to key notes 6 and 6a.: The setting condition of existing floor tile is not documented, Contractor to make best judgment as to the extent of demolition required to accommodate new floor tile installation. Coordination of GC with Mitigation contractor is recommended.

AD1-A-2 Who does the College use for maintenance on the roof? All roofing work including patching, is coordinated through Randy Mellor at DFCM.

AD1-A-3 Access Doors refer to 08311: Note Isolation valves are being added to restrooms 6, 9, 10, and 12 per mechanical addendum drawings.. Provide new access doors to accommodate new locations. Coordinate with Plumbing item AD1-M-3. Provide type to suit existing wall type. The access doors for valve boxes in Sets 6 and 12 need to be lockable utilizing DTC standard key system..

Mechanical / Plumbing

AD1-M-1 See mechanical addendum No.1 for trade names and products allowed to bid.

AD1-M-2 Are there any controls work required on this project besides reconnecting the existing controls into the replacement exhaust fans? There is no additional controls work. Only disconnecting and reconnecting to the existing controls.

AD1-M-3 Sheet P-100

- 1. Add keyed notes as shown. See attached drawing. Addendum No. 1 pdf
- 2. Remove piping and valves as shown. Prepare piping for reconnection. See attached drawing. Addendum No. 1 pdf

AD1-M-4 Sheet P-101

- 1. Add keyed notes as shown. See attached drawing Addendum No. 1 pdf.
- 2. Add piping and valves as shown. Connect to existing piping as shown. See attached drawing Addendum No. 1 pdf

<u>Electrical</u>

AD1-E-1 Provide specified lighting. Rocky Mountain Lighting or other substitutions offered may be bid as an alternate to the base bid for consideration by the Owner.

COMPONENT CHECKLIST

NONSTRUCTURAL COMPONENT CHECKLIST

ITEM DESCRIPTION	NOT REQUIRED	ON CONST. DOCUMENTS	DEFERRED SUBMITTAL	COMMENTS
Architectural Components:				
Interior Nonstructural Walls & Partitions	X	STR iĶ ∉ OUT		NA
Cantilever Elements (i.e. parapets, etc.)	Х			NA
Exterior Nonstructural Wall Elements	Х			NA
Veneer	Х			NA
Penthouses	Х			NA
Ceilings (i.e. suspended grid or hard-lid)	Х			EXISTING
Cabinets (i.e. storage cabinets, equip, etc.)	Х			NA
Access Floors	Х			NA
Storage Racks	Х			NA
Appendages & Ornamentations	Х			-NAN - NA
Signs & Billboards	Х			NA
Other:				
Other:				
MEP Components:				
Fire Sprinklers	Х			NA EXISTING
Mechanical Equipment (i.e. HVAC, fans, air handlers, boilers, furnaces, tanks, chillers, water heaters, heat exchangers, evaporators, engines, turbines, pumps, compressors, MFR equipment, etc.)	x			NA
Electrical Equipment (i.e. generators, batteries, inverters, transformers, MCC, panel boards, switch gear, cabinets, etc.)	Х			NA
Elevator & Escalator Components	Х			NA
Communication Equipment, Computers, Instrumentation, and Controls	Х			NA
Roof-mounted Chimneys, Stacks, Cooling & Electrical Towers	Х			NA
Lighting Fixtures	Χ			LIGNTING IS ALL SURFACE MOUNTED
Vibration Isolated Components	Х			NA
Piping & Conduit Systems		Х		NA
Ductwork (including in-line components)		X		
Conveyors	Х		Dans sam sam sam sam sam sam sam sam	NA
Cable Trays	Х			JA NA
Other: Alarm	Х			EXISTING
Other:			Total Control	

- 1. Deferred submittals for seismic restraint of nonstructural components must be submitted to the DFCM Building Official a minimum of two weeks prior to the planned installation in order to allow for plan review and forwarding to inspectors. In the event that the submittal is deficient additional time may become necessary.
- 2. If seismic restraints of non-structural components are installed prior to receiving DFCM approval they shall not be covered or concealed until receiving both plan review and inspection approval. Further, installers are proceeding
- 3. The requirements for seismic restraint of nonstructural components cannot be satisfied by a general reference to Design Manuals. The design professional may utilize these manuals as a basis of their design, but must provide all supporting documentation to ensure that the design conforms to the requirements of ASCE 7-10, Chapter 13.
- 4. Submittals must include details of the proposed seismic restraint of nonstructural components. These details must show specific information relating to the materials, type, size, and locations of anchorages; materials used for bracing; attachment requirements of bracing to structure and component; and locations of transverse and longitudinal sway bracing and rod stiffeners. Submittals may also require structural calculations, engineering reports, test data, and/or specifications to ensure code compliance.

DRAWING INDEX

SHEET NO.	SHEET NAME
G-001 G-002	COVER SHEET & CODE ANALYSIS GENERAL INFORMATION
	ARCHITECTURAL
A-100 A-101 A-181 A-201 A-700	DEMOLITION PLANS FLOOR PLANS- ARCHITECTURAL REFLECTED CEILING PLANS INTERIOR ELEVATIONS, DETAILS, SCHEDULES ARCHITECTURAL SPECIFICATIONS
	MECHANICAL & PLUMBIMG
M-001 M-002 M-003 M-004 M-005 M-006 M-007 M-008 M-100 M-101	MECHANICAL & PLUMBING SYMBOLS, SCHEDULES & GENERAL NOTES MECHANICAL SPECIFICATIONS MECHANICAL SPECIFICATIONS MECHANICAL SPECIFICATIONS MECHANICAL SPECIFICATIONS PLUMBING SPECIFICATIONS PLUMBING SPECIFICATIONS PLUMBING SPECIFICATIONS MECHANICAL DEMOLITION PLAN MECHANICAL PLAN

SCHEDULES AND DETAILS

PLUMBING PLANS

PLUMBING DEMOLITION PLANS

ELECTRICAL SHEET INDEX, SYMBOLS,

ELECTRICAL

P-100

P-101

	LEGEND, & GENERAL NOTES
E-100	ELECTRICAL DEMOLITION PLANS
E-101	ELECTRICAL POWER PLANS
E-181	ELECTRICAL LIGHTING PLANS
E-601	LIGHTING FIXTURE SCHEDULE
E-701	TYPICAL MOUNTING HEIGHT DETAIL
E-801	ELECTRICAL SPECIFICATIONS

CODE ANALYSIS

		APPLICABL	E 00DE9		
		Year		Year	
Inte	ernational Building Code	2015	National Electrical Code _	2011	_
Inte	ernational Mechanical Code	2015	Uniform Code for		
Inte	ernational Fuel Gas Code	2015	=	2012	_
	ernational Plumbing Code	2015	ADA Accessibility	0040	
	ernational Fire Code	2015	Guildelines	2010	_
	ernational Energy	0000			
60	nservation Code	2009	-		
A.	Occupancy and Group: B2	Y Miyad Occupa			
	Change in Use: Yes No Special Use and Occupancy (e.				
В.		j. High Rise, Covered Ma			
В.	Special Use and Occupancy (e.	j. High Rise, Covered Ma	all): N/A		
В. С.	Special Use and Occupancy (e.	j. High Rise, Covered Ma	all): N/A		

separation distance (in hours):

North: N/A South: N/A East: N/A West: N/A

- Mixed Occupancies: N/A Nonseparated Uses: N/A

Required: YES Provided: YES Type of Sprinkler System (IBC 903.3.1) NFPA 13

Requirements for the Exterior Walls based on the fire

Number of Stories: 2 Building Height: _____

Fire Resistance Rating

- Actual Area per Floor (square feet): EXISTING RESTROOM REMODELS ONLY
- Tabular Area: (table 503): N/A
- Area Modifications: N/A

a) $A_a = \{A_t + | A_t \times I_f | + | A_t \times I_s | \} I_f = | F/P - 0.25 | W/30 |$

b) Sum of the Ratio Calculations for Mixed Occupancies: N/A

<u>≤</u> 1 N/A Allowable Area

- c) Total Allowable Area for:
- 1) One Story: N/A NO CHANGE 2) Two Story: A (2) N/A - NO CHANGE
- 3) Three Story: A (3) N/A NO CHANGE
- d) Unlimited Area Building: Yes _____ No ____ Code Section: ____
- K. Fire Resistance Rating Requirements for Building Elements (hours). SEE WALL TYPES

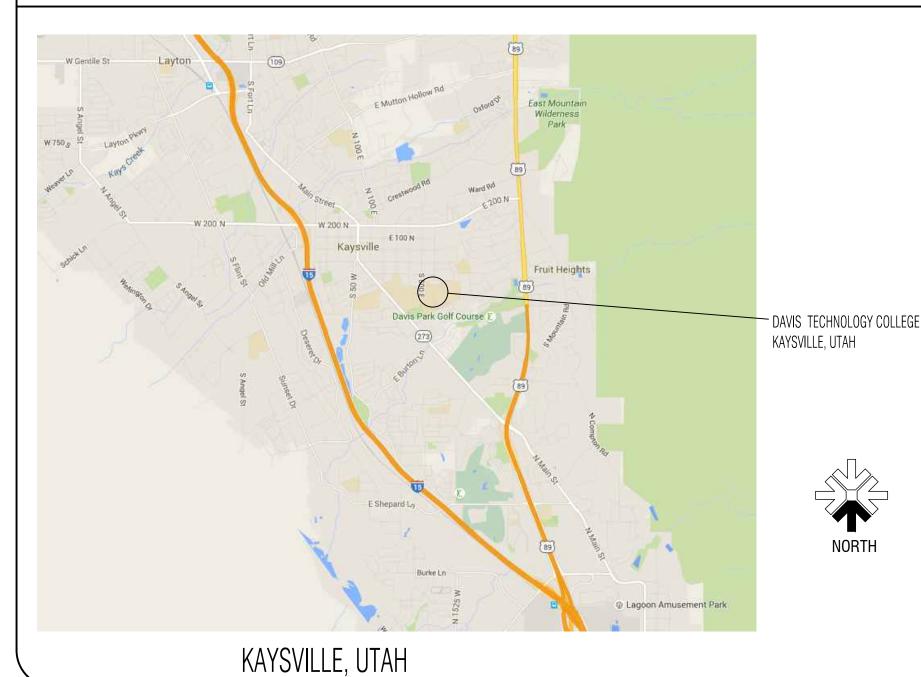
Element	Hours	Assembly Listing	Element	Hours	Assembly Listing
Exterior	1	N/A	Floors - Ceiling Floors	1	N/A
Bearing Walls		N/A	Roofs - Ceiling Roofs	1	N/A
		N/A	Exterior Doors & Windows	Ø	N/A
		N/A	Shaft Enclosures	2	N/A
Interior	1	N/A			N/A
Bearing Walls		N/A	Fire Walls	Ø	N/A
			Fire Partitions	.5 & 1	N/A
Ext Non-Bearing Walls	Ø	N/A	Smoke Partitions	Ø	N/A
Structural Frame	1	N/A			
Partitions - Permanent	Ø	N/A			
Fire Barriers	2	N/A			

- L. Design Occupant Load: N/A EXISTING TOILET ROOMS REMODELED
- M. Minimum Number of Required Plumbing Facilities: N/A
 - a) Water Closets Required (m) _____ (f) ____ Provided (m) ____ (f) ____ b) Lavatories - Required (m) _____ (f) ____ Provided (m) ____ (f) ____
- c) Bath Tubs or Showers: _____
- d) Drinking Fountains: _____ Service Sinks: ____

1) In case of conflict with the U.S. Department of Justice Federal Registers Parts I through ∇ - ADA Guidelines and specific reference to the International Building Code Accessibility Chapters, the more restrictive requirement shall govern.

- 2) Additional Code Information shall be provided at the discretion of the Building Official for Complex Buildings. Including, but not limited to:
 - a) High Rise Requirements. N/A
 - b) Atriums. N/A
 - c) Performance Based Criteria. N/A
 - d) Means or Egress Analysis. N/A
 - e) Fire Assembly Locator Sheet. N/A
 - f) Exterior and Interior Accessibility Route. N/A g) Fire Stopping, Including Tested Design Number. N/A

VICINITY MAP



DESIGN TEAM

DFCM

4110 STATE OFFICE BLDG SALT LAKE CITY,84114-1160 LUCAS DAVIS(801) 842-8210

DATC

550 EAST 300 SOUTH KAYSVILLE, UT 84037 ALAN NEAL (801)-593-2390

ARCHITECT

ARCHITECTURAL DESIGN WEST, INC. 255 SOUTH 300 WEST LOGAN, UT 84321 SCOTT THEOBALD (435) 752-7031



MECHANICAL

VAN BOERUM & FRANK ASSOCIATES, INC. 40 WEST CACHE VALLEY BLVD LOGAN, UT 84321 JED JENKINS(435) 752-5081

ELECTRICAL

SPECTRUM ENGINEERS 324 SOUTH STATE STREET, SUITE 400 SALT LAKE CITY, UTAH 84111 DAVID HINCKLEY (801) 328-5151

State of Utah - Department of Administrative Services DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT 4110 State Offece Building / Salt Lake City, Utah 84114 / 538 3018

DTECH DAVIS TECHNOLOGY COLLEGE RESTROOM REMODELS

PHASE II

DEFERRED APPROVALS

DEFERRED SUBMITTAL LIST	DATE	DEFERRED SUBMITTAL LIST	DATE
INTERIOR NONSTRUCTURAL WALLS	N/A	ELEVATOR & ESCALATOR COMPONENTS	N/A
EXTERIOR NONSTRUCTURAL WALL ELEMENTS	N/A	LIGHTING FIXTURES	N/A
VENEER	N/A	VIBRATION ISOLATION COMPONENTS	N/A
CEILINGS (SUSPENDED GRID OR HARD-LID)	NA	PIPING & CONDUIT SYSTEMS	-
CABINETS (STORAGE CABINETS, EQUIPMENT ETC.)	N/A	DUCTWORK (INCLUDING INLINE COMPONENTS	-
FIRE SPRINKLERS	TBD	CABLE TRAYS	N/A
COMPRESSORS & MFR EQUIPMENT ETC.	N/A	IRRIGATION	N/A
ELECTRICAL EQUIPMENT (GENERATORS, BATTERIES, INVERTERS, TRANSFORMERS, MCC PANEL BOARDS ETC.)	N/A	FIRE ALARM	-

THE SUBMITTALS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL FOR REVIEW WITH AN ACCOMPANIED LETTER FROM THE ARCHITECT OR ENGINEER STATING THAT THE DRAWINGS ARE IN CONFORMANCE WITH HIS DESIGN.

THE WORK RELATED TO THE DEFERRED SUBMITTALS IS NOT TO COMMENCE UNTIL THE BUILDING OFFICIAL HAS APPROVED THE SUBMITTAL. DEFERRED SUBMITTALS CAN INCLUDE SUCH THINGS AS TRUSSES, SIGNAGE, FIRE ALARMS, SEISMIC RESTRAINT PROVISIONS OF IBC 1613.1 FOR THE ELECTRICAL, PLUMBING, AND MECHANICAL SYSTEMS, DETAILS AND ENGINEERING CALCULATIONS FOR ALL NONSTRUCTURAL COMPONENTS THAT ARE PERMANENTLY ATTACHED TO STRUCTURES AND THEIR SUPPORTS AND ATTACHMENTS, AND UPON PRIOR APPROVAL ADDITIONAL BID PACKAGES.

ISSUED:

PROJECT #: 317106

CHECKED BY: THEOBALD

West | architects

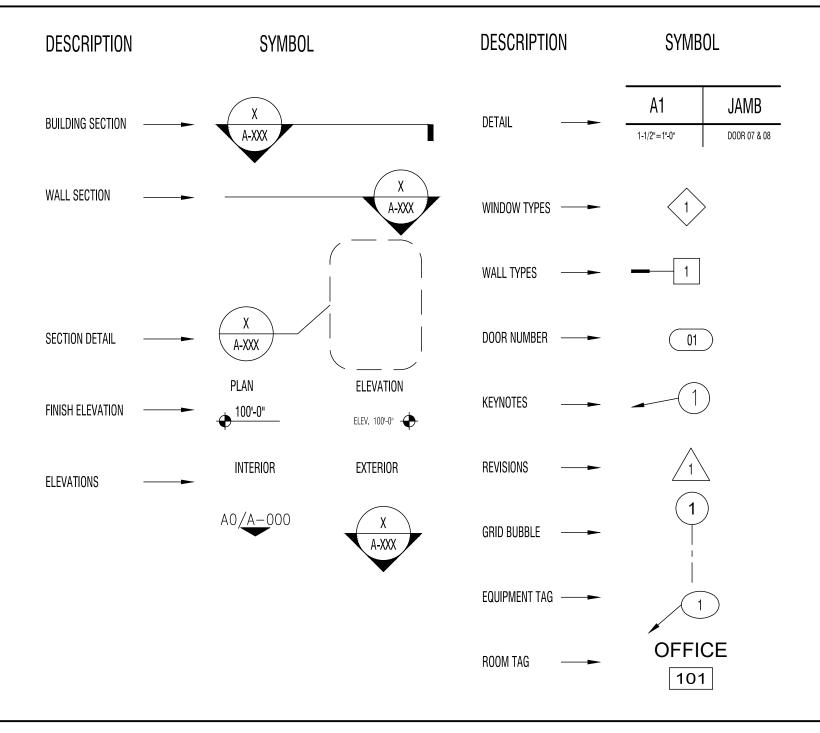
design

DFCM APPROVAL

DAVIS DTC RESTROOM UPGRADES
D TECH CAMPUS
KAYSVILLE, UTAH
DFCM PROJECT #15062220

COVER SHEET AND CODE ANALYSIS

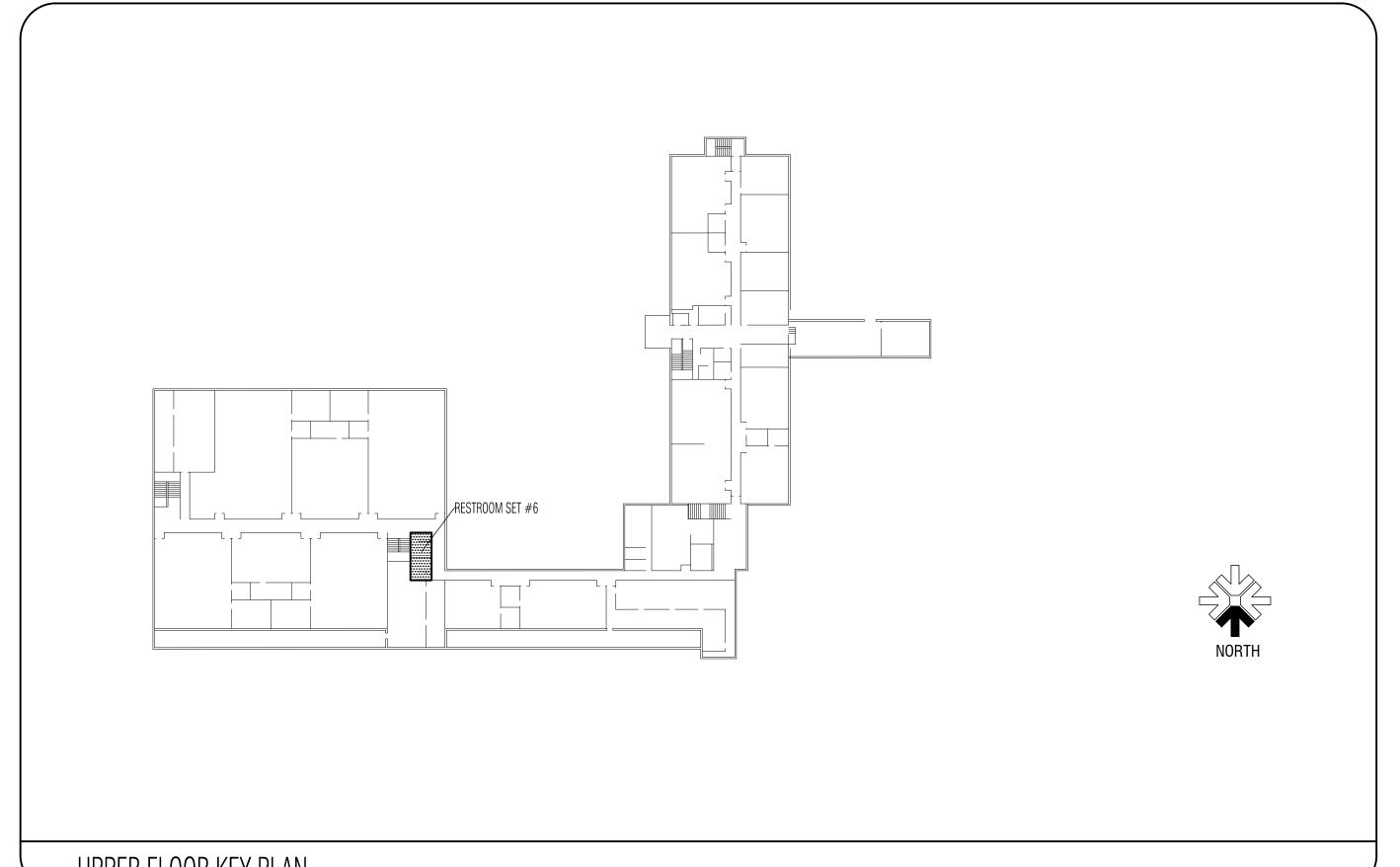
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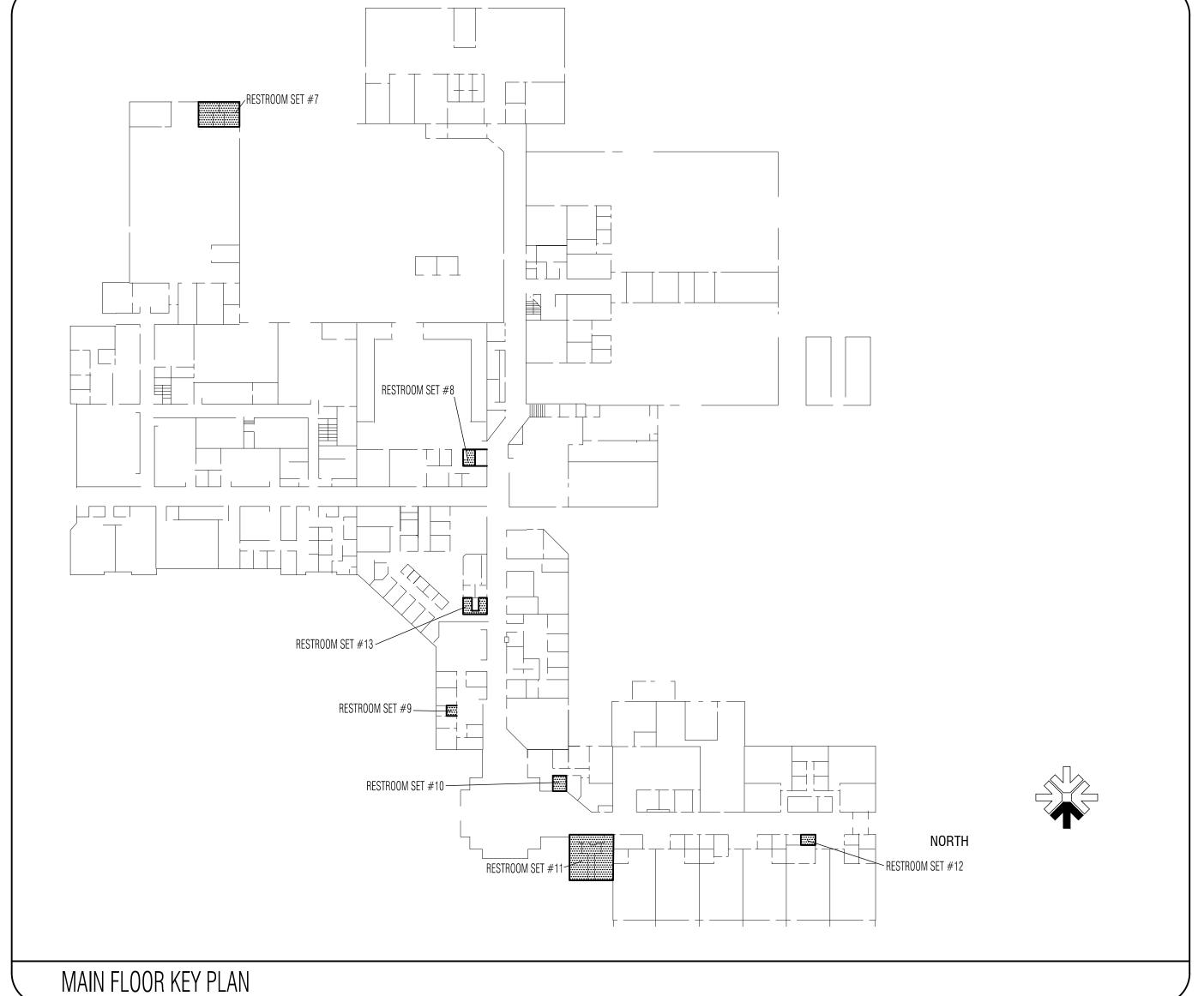
NOTICE TO BIDDERS

- 1. THIS SHEET CONTAINS A LIST OF DRAWINGS WHICH COMPRISE A FULL SET OF DRAWINGS FOR THIS PROJECT. ANY CONTRACTOR, SUBCONTRACTOR, VENDOR OR ANY OTHER PERSON PARTICIPATING IN OR BIDDING ON THIS PROJECT SHALL BE PERSON, PARTY OR ENTITY ELECTS TO SUBMIT BIDS FOR ANY PORTION, OR ALL OF THIS PROJECT, THAT PERSON, PARTY OR ENTITY SHALL BE RESPONSIBLE FOR ANY AND ALL INFORMATION CONTAINED IN THESE DRAWINGS AND SPECIFICATIONS, INCLUDING, BUT NOT LIMITED TO, ANY SUBSEQUENT ADDENDUMS OR CLARIFICATIONS THAT MAY BE ISSUED
- 2. THESE DOCUMENTS SHOW THE DESIGN INTENT. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE EVERYTHING SHOWN ON THE DRAWINGS OR SPECIFIED REGARDLESS OF WHERE IT IS SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS. FOR EXAMPLE: SOME MILLWORK DETAILS HAVE STEEL FRAMES WHICH MAY BE PROVIDED BY DIVISION 05 OR WITH THE MILLWORK AT THE CONTRACTOR'S DISCRETION, BUT IT SHALL BE PROVIDED AS PART OF THE CONTRACT
- 3. EVERYTHING CALLED FOR IN THESE DOCUMENTS SHALL BE "NEW" AND PROVIDED BY THE CONTRACTOR, SUBCONTRACTOR, VENDOR OR ANY OTHER PERSON PARTICIPATING IN OR BIDDING ON THIS PROJECT UNLESS NOTED OTHERWISE AS EXISTING (EXIST), NOT IN CONTRACT (NIC) OR FOR REFERENCE ONLY. FURNISHINGS SHALL BE FOR REFERENCE ONLY

NOT USED



UPPER FLOOR KEY PLAN



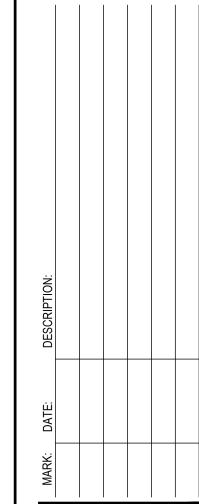
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DAVIS DTC RESTROOM UPGRADES

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KAYSVILLE, UTAH

DFCM PROJECT #15062220

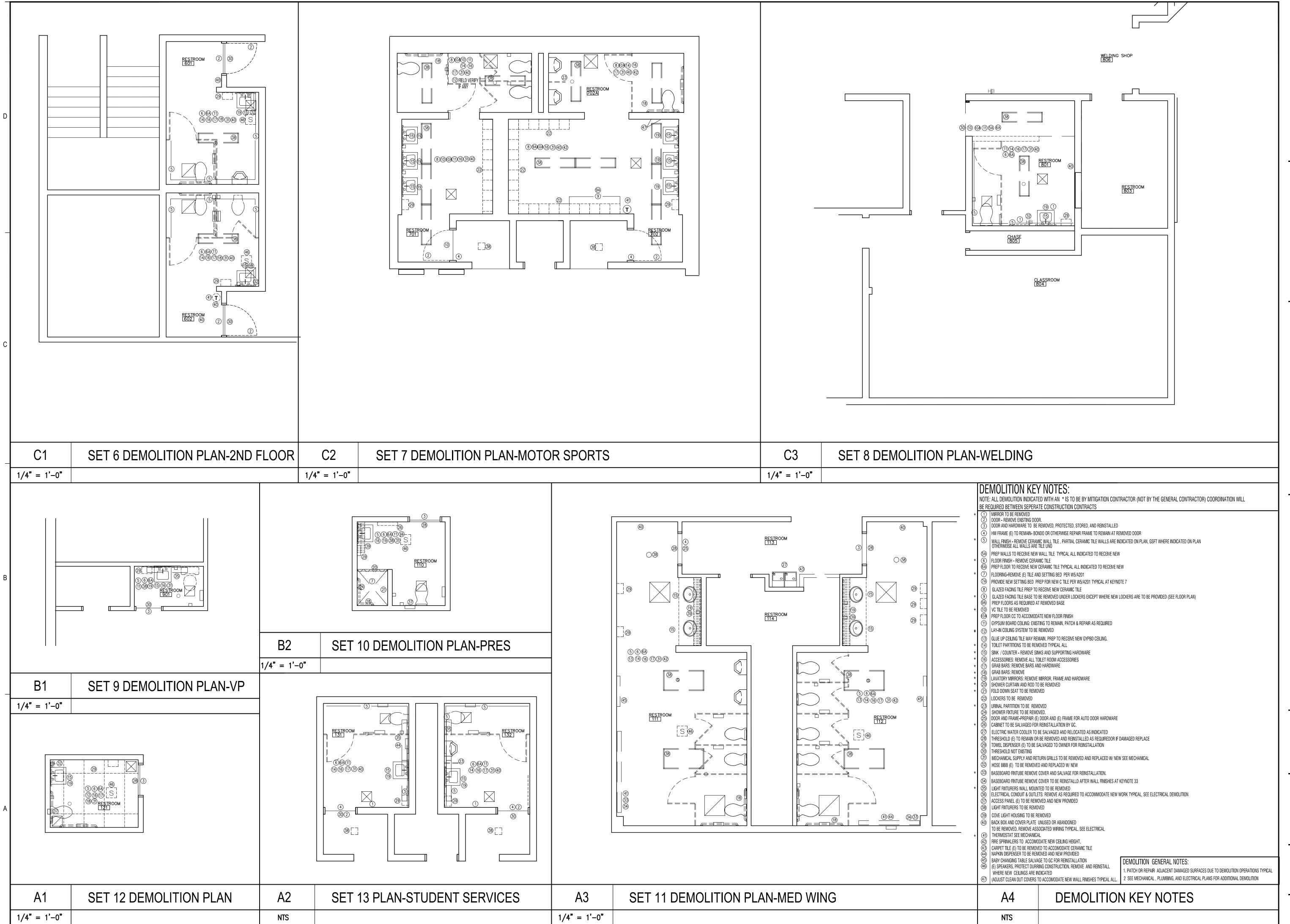


PROJECT #: 317106 DRAWN BY: WILLIAMS CHECKED BY: THEOBALD 10-12-17 ISSUED:



GENERAL INFORMATION

G-002



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DFCM APPROVAL DAVIS DTC RESTROOM UPGRADES

PHASE 2

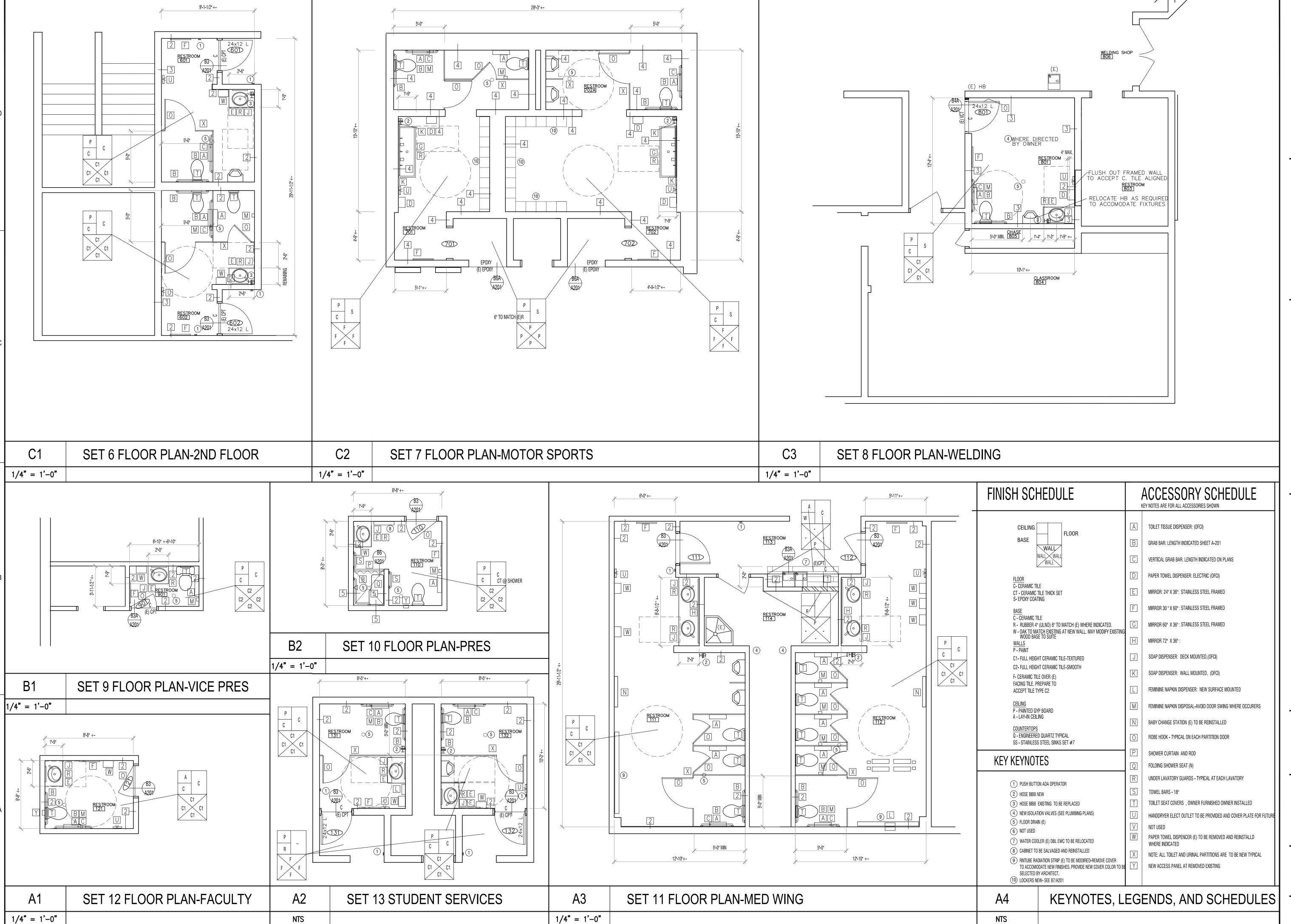
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ISSUED:



DEMOLTION PLAN

A-100



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DFCM APPROVAL

PHASE 2

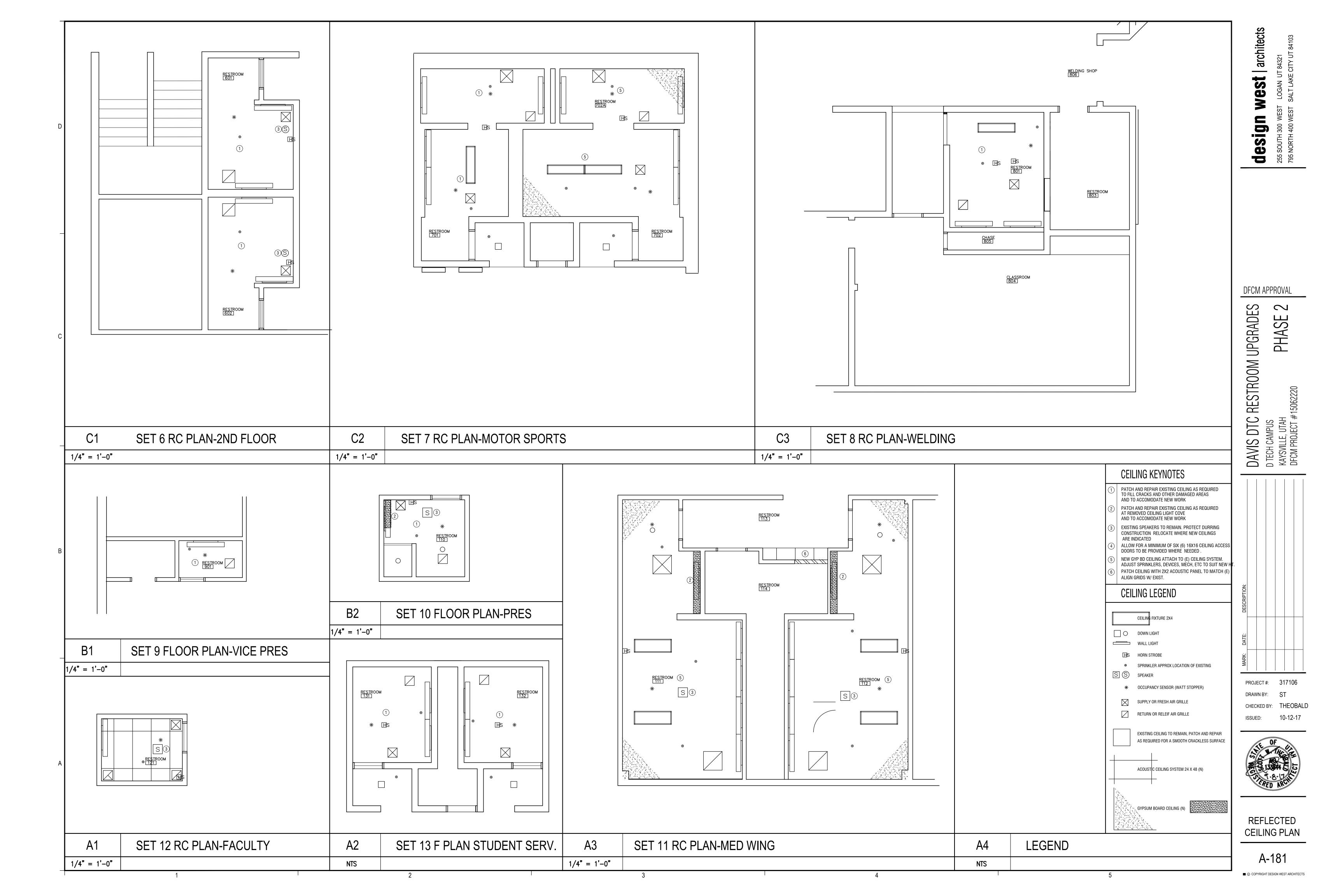
DAVIS DTC RESTROOM UPGRADES

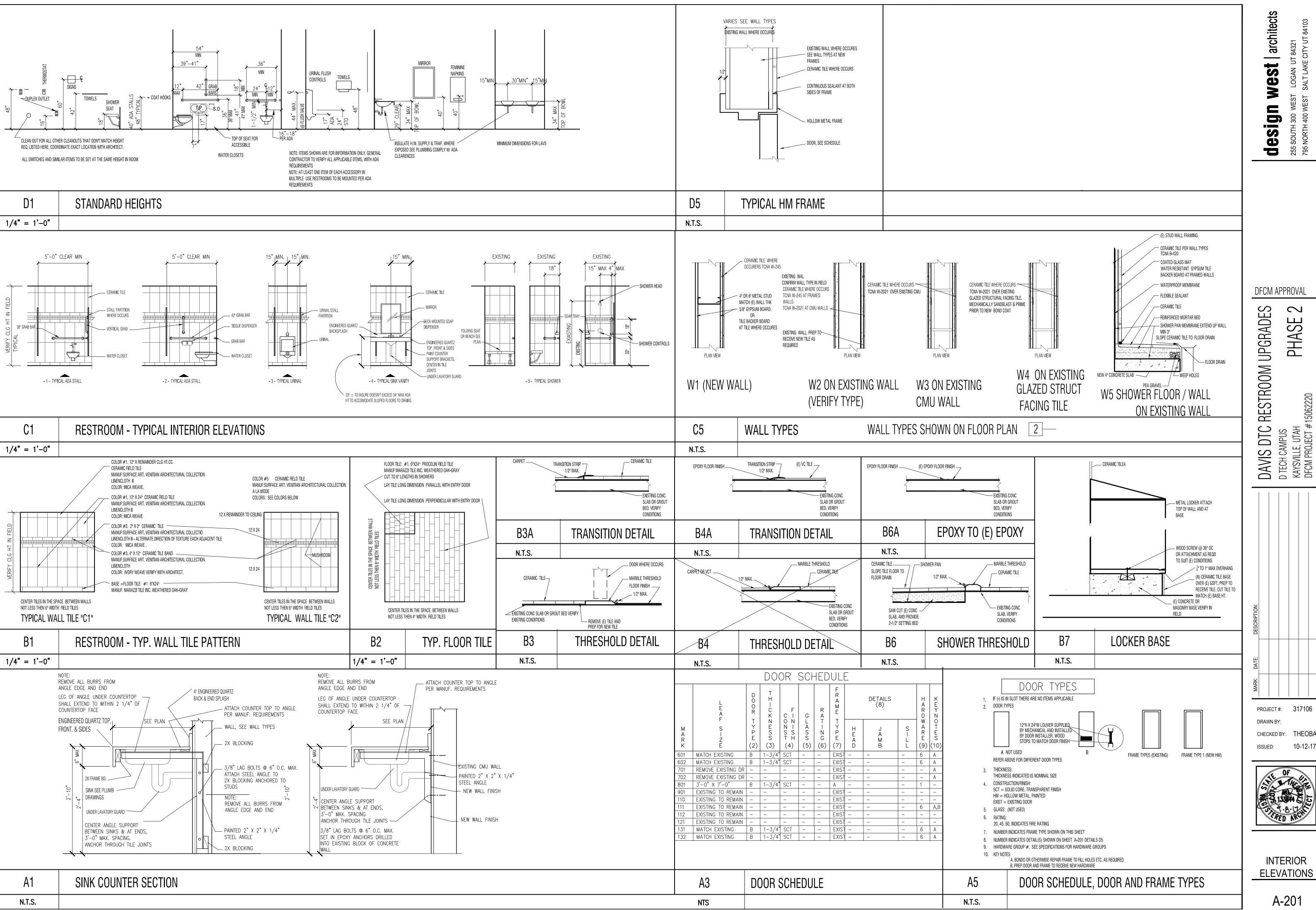
PROJECT #: 317106



FLOOR PLAN

A-101





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DFCM APPROVAL

PROJECT #: 317106 DRAWN BY:

THEOBALI CHECKED BY: ISSUED:



INTERIOR ELEVATIONS

A-201

ADDRESS: DAVIS TECHNOLOGY COLLEGE (DTC) 550 EAST 300 SOUTH KAYSVILLE, UT 84037

ARCHITECTURAL DRAWINGS PREPARED BY ARCHITECTURAL DESIGN WEST, PC 255 SOUTH 300 WEST LOGAN, UT 84321 (435) 752-7031

REMODELING OF (13) EXISTING MEN OR WOMENS RESTROOM FACILITIES THE WORK WILL BE REQUIRED TO BE COMPLETED BY SEPERATE CONTRACTS . A DEMOLITION AND MITIGATION CONTRACTOR , AND A

GENERAL CONTRACTOR. SEE DEMOLITION NOTES ON SHEET A-100 AND ALL DEMOLITION INDICATED BY SCHEDULE IS TO BE BY A SEPERATE MITIGATION CONTRACTOR (NOT BY THE GENERAL CONTRACTOR). COORDINATION WILL BE REQUIRED BETWEEN SEPERATE CONSTRUCTION CONTRACTS TO PROVIDE A COMPLETE AND FINISHED PROJECT. THE GENERAL CONTRACTOR SHALL PROVIDE OVERSITE OF THE

DEMOLITION WORK TO INSURE THE WORK SUITES THE NEEDS OF THE GC.

DUST CONTROL WILL BE THE RESPONSIBILITY OF EACH CONTRACTOR

AND PER THE CONTRACT DOCUMENTS. TEMPORARY FACILITIES INCLUDING

- DURRING WORK OF THE INDIVIDUAL CONTRACTS. CAREFULLY EXAMINE SPECIFICATIONS, AND DRAWINGS, AS WELL AS THE SITE, AND THE CONDITIONS AFFECTING THE WORK. CONTRACTOR SHALL FULLY UNDERSTAND LL PROVISIONS CONTAINED IN THESE DOCUMENTS AND AGREES TO DO ALL THAT IS
- CALLED FOR BY THEM, INCLUDING FURNISHING ALL NECESSARY LABOR AND MATERIALS TO SUPPLY AND INSTALL WORK OF EACH DIVISION OF THE WORK. OR ITEM FOR WHICH A COST IS GIVEN.
- THE STANDARD DFCM FORM LATEST EDITION, SHALL BE A PART AND CONDITION OF EACH DIVISION OF THESE SPECIFICATIONS.
- SUPPLEMENTARY GENERAL CONDITIONS

THE SUPPLEMENTARY GENERAL CONDITIONS CONTAIN CHANGES AND ADDITIONS TO THE GENERAL CONDITIONS. IN THE SUPPLEMENTARY GENERAL CONDITIONS, ANY PART OF THE GENERAL CONDITIONS MAY BE MODIFIED OR VOIDED, HOWEVER, THE UNALTERED PROVISIONS ARE TO REMAIN IN EFFECT.

- PERMITS: THE GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL OBTAIN AND APPLY FOR ALL PERMITS, LICENSES, CERTIFICATES, INSPECTIONS, AND ALL OTHER FEES REQUIRED BY LAW, BOTH PERMANENT AND TEMPORARY. MAINTAIN COPIES OF ALL PERMITS ON THE JOB SITE AT ALL TIMES.
- CHANGES FROM ORIGINAL PLANS:
- THE OWNER RESERVES THE RIGHT TO MAKE ANY DESIRED CHANGE IN PLANS AND SPECIFICATIONS AFTER THE SAME SHALL HAVE BEEN PUT UNDER CONTRACT: BUT THE CHANGE SO MADE, WITH THE PRICE TO BE ADDED OR DEDUCTED FROM THE CONTRACT PRICE, SHALL BE AGREED UPON BETWEEN THE OWNER AND THE CONTRACTOR AND ENDORSED UPON ORIGINAL CONTRACT: AND WHEN BOTH PARTIES SHALL AGREE THERETO, IT SHALL IN NO WAY INVALIDATE OR MAKE VOID THE TERM OF THE ORIGINAL CONTRACT.
- THE OWNER, WITHOUT INVALIDATING THE CONTRACT, MAY ORDER EXTRA WORK OR MAKE CHANGES BY ALTERING, ADDING TO OR DEDUCTING FROM THE WORK: THE CONTRACT SUM THEN BEING ADJUSTED ACCORDINGLY. ALL SUCH WORK SHALL BE EXECUTED UNDER THE CONDITIONS OF THE ORIGINAL CONTRACT EXCEPT THAT ANY CLAIM FOR EXTENSION OF TIME CAUSED THEREBY SHALL BE ADJUSTED AT THE TIME OF SUCH THE VALUE OF ANY SUCH WORK OR CHANGE SHALL BE DETERMINED IN ONE OR MORE OF THE FOLLOWING WAYS: CHANGE ORDER, & COSTS FOR EXTENSIONS INCLUDED IN PROPOSAL.
- BY ESTIMATE AND ACCEPTANCE IN A LUMP SUM.
- BY COST AND PERCENTAGE, OR BY COST AND FIXED FEE.
- IF THE CONTRACTOR CLAIMS THAT ANY INSTRUCTIONS BY DRAWINGS OR OTHERWISE INVOLVE EXTRA COST UNDER THIS CONTRACT, HE SHALL GIVE THE OWNER WRITTEN NOTICE THEREOF WITHIN A REASONABLE TIME AFTER THE RECEIPT OF SUCH INSTRUCTIONS, AND IN ANY EVENT, BEFORE PROCEEDING TO EXECUTE THE WORK. EXCEPT IN EMERGENCIES WHICH ENDANGER LIFE OR PROPERTY, AND THE PROCEDURE SHALL THEN BE AS PROVIDED FOR CHANGES IN THE WORK. NO SUCH CLAIM SHALL BE VALID UNLESS SO MADE.
- CLEANING: IN ADDITION TO REMOVAL OF RUBBISH AND LEAVING BUILDING BROOM CLEAN, CONTRACTOR SHALL REMOVE STAINS, SPOTS, MARKS, AND DIRT FROM DECORATED WORK, WASH CONCRETE FLOORS, AND CLEAN AND WAX ALL RESILIENT FLOORS. CLEAN ALL GLASS. CONTRACTOR SHALL COMPLY WITH ALL SPECIAL CLEANING INSTRUCTIONS IN THE SPECIFICATIONS AND/OR MANUFACTURERS INSTRUCTIONS.
- DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE COMPLIMENTARY. SPECIFIC INFORMATION MAY BE FOUND IN EITHER OR BOTH.
- WHEN A CONTRACTOR IS ALLOWED A SUBSTITUTION, HE WILL STAND THE ENTIRE EXPENSE OF THE SUBSTITUTION, INCLUDING WORK AND EXPENSES OF OTHER CONTRACTORS CAUSED BY THE SUBSTITUTION.

PECIFICATIONS |

DIVISION I - GENERAL REQUIREMENT

- I LAY OUT WORK: LOCATE ALL EXISTING UTILITY SERVICE LINES AND PROTECT THROUGHOUT CONSTRUCTION PERIOD.
- LAY OUT WORK AND BE RESPONSIBLE FOR ALL LINES. ELEVATIONS. MEASUREMENTS OF THE BUILDING, UTILITIES, AND OTHER WORK EXECUTED UNDER THE CONTRACT.
- FXAMINATION:
- ANY DISCREPANCIES, ERRORS, OR OMISSIONS DISCOVERED IN THE CONTRACT DOCUMENTS BY THE CONTRACTOR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH RELATED WORK, OTHERWISE THE CORRECTION OF SUCH ITEMS IS THE RESPONSIBILITY OF THE CONTRACTOR.
- 3. CODES AND STANDARDS
- ALL WORK, MATERIALS, AND INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH ALL CODIFIED ORDINANCES, THE APPLICABLE STATE CODE, LATEST EDITIONS.
- TEMPORARY FACILITIES: TEMPORARY OFFICE: AS REQUIRED BY CONTRACTOR.
- TEMPORARY ELECTRICAL SERVICE: POWER IS AVAILABLE ON SITE FOR USE BY THE CONTRACTOR. PROVIDE TEMPORARY LIGHTING AS REQUIRED FOR USE DURING CONSTRUCTION.
- TEMPORARY WATER SUPPLY: WATER IS AVAILABLE ON SITE FOR USE BY THE
- TEMPORARY EQUIPMENT TO MAINTAIN ADEQUATE ENVIRONMENTAL

- PROTECT MATERIALS AND FINISHES FROM DAMAGE DUE TO TEMPERATURE OR HUMIDITY, AND TO PREVENT HAZARDOUS ACCUMULATION OF DUST, FUMES, VAPORS, OR GASES. ONCE NEW SYSTEMS ARE OPERATIONAL THEY MAY BE USED FOR TEMPORARY HEATING AND COOLING ONLY IF: (1) ALL REGISTERS. DIFFUSERS, AND FILTERS ARE CLEANED AT SUBSTANTIAL COMPETITION, AND (2) WARRANTY PERIODS REMAIN UNCHANGED, STARTING FROM THE DATE OF
- E. TOILET ROOM USE IS PERMITTED PROVIDED DAILY CLEAN-UP DUE TO CONSTRUCTION OR WORKMAN USE OF FACILITIES.

SUBSTANTIAL COMPLETION.

- F. REFUSE: REMOVAL OF ALL CONSTRUCTION OR DEMOLITION REFUSE IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE LEGALLY REMOVED AND DISPOSED OF OFF SITE. DO NOT USE OWNER TRASH BINS OR CONTAINERS. SPACE WILL BE S. FINAL PAYMENT - CLOSE-OUT SUBMITTALS: SUBMIT THE FOLLOWING ITEMS TO PROVIDED FOR THE LOCATION OF A CONTRACTOR INSTALLED CONSTRUCTION DUMPSTER DURING DEMOLITION. REMOVE FROM SITE AFTER COMPLETION OF DEMOLITION. ALL DEMOLITION MATERIALS ARE TO BE REMOVED IN COVERED TRUCKS AND WATERED DOWN IF NECESSARY TO PREVENT DUST OR DEBRIS FROM BEING SCATTERED ON SITE. KEEP ROADS AND SITE FREE FROM MUD, DUST, AND SPILLAGE AT ALL TIMES.
- G. PARKING AND ROADS: USE EXISTING ROADS AND PARKING ONLY. NO PARKING WILL BE ALLOWED ON LANDSCAPED AREAS OR WALKS. WORKMAN TO PARK ON OUTER LIMIT OF LOTS.
- H. MATERIALS ACCESS AND REMOVAL FROM THE PROJECT SITE WILL BE THE CONTRACTORS RESPONSIBILITY. SUBMIT PHOTOGRAPHS OR VIDEO TAPE OF EXISTING CONDITIONS IN AREAS OF MEANS OF TRAVEL PRIOR TO COMMENCING ANY WORK AND SUBMIT TO THE ARCHITECT FOR APPROVAL. PROVIDE PROTECTION MEASURES AND OTHER MEANS OF ACCESS TO THE PROJECT WHEN APPROPRIATE TO PROTECT EXISTING BUILDING AND SITE CONDITIONS THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR ANY DAMAGED SURFACES DUE TO CONSTRUCTION OPERATIONS TO MATCH EXISTING ADJACENT CONDITIONS AT THE COMPLETION OF THE PROJECT. INCLUDING ROADS, WALKS,
- LANDSCAPING, SPRINKLERS, UTILITY SYSTEMS, DAMAGED MATERIALS OR SURFACES AND OTHER EXISTING FACILITIES DAMAGED BY CONSTRUCTION J. SAFETY AND FIRE PROTECTION IS THE RESPONSIBILITY OF THE GENERAL
- CONTRACTOR; PROVIDE THE FOLLOWING, IN ADDITION TO OTHER REQUIREMENTS OF STATE AND LOCAL AUTHORITIES.
- NOTE: THE BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. PROVIDE FOR SAFETY OF OCCUPANTS TO THE BUILDING.
- PROVIDE DUST BARRIERS IN CORRIDORS . MAINTAIN THE FIRE ALARM SYSTEM IN OPERABLE CONDITION AT ALL TIMES THE BUILDING IS OCCUPIED BY THE OWNER.
- ALLOW NO WELDING PERFORMED BY ANY CONTRACTOR OR SUBCONTRACTOR UNLESS AN APPROVED FIRE EXTINGUISHER IS IMMEDIATELY ADJACENT TO THE WORK. OBTAIN HOT WORK PERMIT FROM OWNER PRIOR TO ANY WELDING OR OTHER FLAMMABLE WORK OPERATIONS SCHEDULE
- SHUT DOWNS AFTER HOURS OR ON WEEKENDS WHERE POSSIBLE. NOTIFY THE OWNER 48 HRS IN ADVANCE OF ANY UTILITY OR SAFETY
- FIRE EXTINGUISHERS: PROVIDE TYPE ABC FIRE EXTINGUISHERS AT LOCATIONS REASONABLY EFFECTIVE IN EXTINGUISHING FIRES BY PERSONAL AT PROJECT SITE. COMPLY WITH NFPA NO 10. POST WARNING AND QUICK INSTRUCTION AT EACH EXTINGUISHER AND INSTRUCT PERSONAL ON PROPER USE. POST FIRE DEPARTMENT PHONE NUMBER ON EACH TELEPHONE AT PROJECT SITE.
- 1. SCHEDULE MEANS OF SAFETY AND FIRE PROTECTION FOR BUILDING ALL MATERIALS, AND PERSONNEL PRIOR TO START OF WORK, METHODS AND EQUIPMENT SUBJECT TO THE APPROVAL OF THE BUILDING OFFICIAL. 2. COMPLY WITH ALL APPLICABLE PROVISION OF MANUAL OF ACCIDENT
- REVENTION IN CONSTRUCTION, ISSUED BY THE ASSOCIATION OF GENERAL CONTRACTORS OF AMERICA, INC.
- K. HAZARDOUS MATERIALS: THE OWNER HAS INSPECTED THE AREA OF WORK AND DETERMINED THE SPACE TO BE CLEAN OF HAZARDOUS MATERIALS SUCH AS ASBESTOS. SHOULD ASBESTOS OR OTHER SUSPECT MATERIALS BE DISCOVERED. STOP WORK IN SUSPECT AREA AND IMMEDIATELY NOTIFY THE PROJECT MANAGER OR ARCHITECT.
- INSURANCE: THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR SHALL SECURE GENERAL LIABILITY INSURANCE AND PROTECT THE OWNER AND THE ARCHITECT FROM ANY LIABILITY WHATSOEVER FOR INJURY TO ANY PERSON OR 3. PERSONS OR PROPERTY. THE CONTRACTOR SHALL CARRY BUILDERS RISK, FIRE, AND EXTENDED COVERAGE INSURANCE ON THE PROPOSED WORK FOR 100% OF THE INSURABLE VALUE THEREOF. THE POLICY SHALL NAME THE OWNER AS INSURED. THE OWNER AND THE CONTRACTOR SHALL DISCUSS AND MUTUALLY AGREE TO THE EXTENT OF INSURANCE COVERAGE PRIOR TO SIGNING
- M. TESTING AND INSPECTIONS: THE OWNER WILL SECURE THE SERVICES OF AN INDEPENDENT TESTING AGENCY AND WILL PAY FOR THE REQUIRED AMOUNT OF SERVICES. RE-TESTING REQUIRED DUE TO NON-CONFORMANCE TO SPECIFIED REQUIREMENTS WILL BE CHARGED TO THE CONTRACTOR INCLUDING ARCHITECT/ENGINEERING TIME INVOLVED IN THE RE-TESTING AND APPROVAL
- N. GENERAL GUARANTEE: NEITHER THE FINAL CERTIFICATE OF PAYMENT NOR OCCUPANCY OF THE PREMISES BY THE OWNER SHALL RELIEVE THE CONTRACTOR OF LIABILITY WITH RESPECT TO WARRANTIES OR RESPONSIBILITY FOR FAULTY MATERIALS OR WORKMANSHIP. THE CONTRACTOR SHALL REMEDY

 A. SUBMIT FINAL PAYMENT REQUEST WITH RELEASES. TO THE SATISFACTION OF THE OWNER ANY DEFECT OR INCOMPLETE PORTION OF THE WORK WHICH SHALL APPEAR WITHIN A PERIOD OF (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. OR AS INDICATED BY SPECIFICATION. ALL WORKMANSHIP UNDER THIS CONTRACT SHALL BE BE FIRST CLASS IN ALL RESPECTS. ANY AND ALL WORKMANSHIP DEEMED UNSATISFACTORY IN THE OPINION OF THE OWNER, ARCHITECT, AND/OR THE BUILDING OFFICIAL SHALL BE MADE GOOD AT NO ADDITIONAL COST TO THE OWNER/ARCHITECT, BUILDING
- O. PROJECT DATA, SHOP DRAWINGS, SAMPLES: ARE CONSIDERED AS MEANS AND METHODS OF THE CONTRACTOR, SUBMITTED TO THE ARCHITECT FOR REVIEW AND ARE FOR THE LIMITED PURPOSE OF REVIEWING FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT. REVIEW IS SUBJECT TO COMPLIANCE WITH CONTRACT DOCUMENTS AND REQUIREMENTS OF PLANS AND SPECIFICATIONS. DETAILED DIMENSIONS AND QUANTITIES NOT CHECKED. PRIOR TO SUBMITTING FOR REVIEW APPLY CONTRACTORS STAMP AND SIGN, CERTIFYING THAT PRODUCTS AND INFORMATION IS IN ACCORDANCE WITH REQUIREMENTS OF THE WORK AND THE CONTRACT DOCUMENTS, IDENTIFY VARIATIONS FROM CONTRACT DOCUMENTS OR PRODUCT AND SYSTEM LIMITATIONS DETRIMENTAL TO SUCCESSFUL PERFORMANCE OF THE COMPLETED WORK. REVISE AND RESUBMIT SUBMITTALS AS REQUIRED. IDENTIFY ALL CHANGES MADE SINCE THE PREVIOUS SUBMITTAL. SUBMIT IN ADDITION TO THE NUMBER OF COPIES REQUIRED BY THE CONTRACTOR, COPIES THAT WILL BE RETAINED BY THE OWNER, ARCHITECT, AND ENGINEER (IF APPLICABLE). SAMPLES FOR SELECTION ARE SUBMITTED FOR AESTHETIC,

ITEMS. FULLY INSTRUCT THE OWNER'S DESIGNATED PERSONAL IN THE

OPERATION ADJUSTMENT, AND MAINTENANCE OF MECHANICAL, PLUMBING.

COLOR, OR FINISH SELECTION. SUBMIT SAMPLES OF FINISHES FROM THE FULL F. RECORD SPECIFICATIONS: MAINTAIN ONE COPY OF THE PROJECT MANUAL, RANGE OF MANUFACTURES COLORS, TEXTURE, AND PATTERNS. INCLUDING ADDENDA. MARK TO SHOW VARIATIONS IN ACTUAL WORK PERFORMED IN COMPARISON WITH THE SPECIFICATIONS AND MODIFICATIONS. P. OPERATION AND MAINTENANCE DATA: ORGANIZE AND PROVIDE ONE (1) SET OF GIVE PARTICULAR ATTENTION TO SUBSTITUTIONS, SELECTION OF OPTIONS AND OPERATING AND MAINTENANCE DATA INCLUDED INTO A HEAVY-DUTY 3-RING SIMILAR INFORMATION ON ELEMENTS THAT ARE CONCEALED OR CANNOT BE VINYL COVERED BINDERS, PROPERLY IDENTIFIED AND INDEXED. INCLUDE THE READILY DISCERNED LATER BY DIRECT OBSERVATION. NOTE RELATED RECORD FOLLOWING TYPES OF INFORMATION. MATERIAL SUPPLIERS AND PRODUCT DRAWING INFORMATION AND PRODUCT DATA. IDENTIFICATION OPERATING AND MAINTENANCE MANUALS, COPIES OF WARRANTEES, WIRING DIAGRAMS, INSPECTION PROCEDURES, AIR TEST AND UPON COMPLETION OF THE WORK, SUBMIT RECORD SPECIFICATIONS TO BALANCE REPORTS, SUB CONTRACTOR LISTING AND SIMILAR APPROPRIATE THE ARCHITECT FOR THE OWNER'S RECORDS.

- AND ELECTRICAL SYSTEMS. PROVIDE (4) ELECTRONIC COPIES OF ABOVE
- Q. PUNCH LIST/ FINAL INSPECTION: THE GENERAL CONTRACTOR SHALL PREPARE A LIST OF WORK ITEMS YET TO BE COMPLETED OR CORRECTED, COMPLETE WITH SCHEDULED DATE FOR COMPLETION. SUBMIT THIS LIST TO THE OWNERS REPRESENTATIVE FOR REVIEW AND COMMENTS. THE OWNERS REPRESENTATIVE WILL THEN AGREE TO AN APPROPRIATE TIME TO PERFORM A PRE FINAL PUNCH. LIST REVIEW. WHEN THE PUNCH LIST ITEMS HAVE BEEN CHECKED OFF BY THE CONTRACTOR AND HIS SUBCONTRACTORS WITH A COPY SUBMITTED TO THE ARCHITECT FOR REVIEW. THE OWNERS REPRESENTATIVE WILL PERFORM A FINAL INSPECTION. THE FAILURE TO INCLUDE ANY ITEM ON SUCH LISTS OR INSPECTIONS DOES NOT ALTER THE RESPONSIBILITY OF THE CONTRACTOR TO R. COMPLETE ALL THE WORK REQUIRED BY THE CONSTRUCTION DOCUMENTS.

THE ARCHITECT UPON APPLICATION FOR FINAL PAYMENT. (1) FINAL INSPECTION

REPORT. (1A) FINAL FIRE MARSHALL APPROVAL, (2) LIEN WAVERS, (3) FINAL

SCHEDULE OF VALUES, (4) MARKED-UP SET OF RECORD DOCUMENTS

(INCLUDING DRAWINGS AND SUBMITTALS), (5) EXTRA STOCK OF FINISH

SUBCONTRACTORS AND SUPPLIERS THAT PERFORMED ANY PART OF THE

PHONE NUMBER, AND NAME OF CONTACT PERSON, (8) THE PUNCH LIST OF

INCOMPLETE WORK ITEMS PREPARED AT SUBSTANTIAL COMPLETION

THE OWNER AND ARE ACCEPTABLE TO THE OWNER.

T. BASIS OF DESIGN

UTAH STATE AMENDMENTS

APPLICABLE STATE CODES PER DFC M.

FOR LOCATION INDICATED

DETERMINED BY DFCM.

ADD ALTERNATE #1: NA

ALLOWANCE # 1: NA

01700 PROJECT CLOSEOUT

INFORMATION.

MARRED EXPOSED FINISHES.

BEFORE THE CERTIFICATE WILL BE ISSUED.

REQUIREMENTS FOR FINAL ACCEPTANCE.

D. SUBMIT CONSENT OF SURETY TO FINAL PAYMENT.

TO MEASURE AND RECORD AT A LATER DATE.

OTHER IDENTIFICATION ON THE COVER.

C. RECORD DOCUMENT SUBMITTALS: DO NOT USE RECORD DOCUMENTS FOR

CONSTRUCTION PURPOSES; PROTECT FROM LOSS IN A SECURE LOCATION;

D. RECORD DRAWINGS: MAINTAIN A CLEAN, UNDAMAGED SET OF BLUE OR BLACK

PROVIDE ACCESS TO RECORD DOCUMENTS FOR THE ARCHITECT'S REFERENCE.

LINE WHITE-PRINTS OF CONTRACT DRAWINGS AND SHOP DRAWINGS. MARK-UP

THESE DRAWINGS TO SHOW THE ACTUAL INSTALLATION. MARK WHICHEVER

DRAWING IS MOST CAPABLE OF SHOWING CONDITIONS ACCURATELY. GIVE

PARTICULAR ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT

ORGANIZE RECORD DRAWING SHEETS INTO MANAGEABLE SETS, BIND WITH

DURABLE PAPER COVER SHEETS, AND PRINT SUITABLE TITLES, DATES AND

INSURANCE REQUIREMENTS.

CONTRACTS TO COMPLETE THE WORK.

A. SUBSTANTIAL COMPLETION: BEFORE REQUESTING INSPECTION FOR

CERTIFICATION OF SUBSTANTIAL COMPLETION, COMPLETE THE FOLLOWING:

IN THE APPLICATION FOR PAYMENT THAT COINCIDES WITH THE DATE

SUBSTANTIAL COMPLETION IS CLAIMED, SHOW 100 PERCENT COMPLETION

FOR THE PORTION OF THE WORK CLAIMED SUBSTANTIALLY COMPLETE.

SUBMIT SPECIFIC WARRANTIES, WORKMANSHIP BONDS, MAINTENANCE

SUBMIT RECORD DRAWINGS, MAINTENANCE MANUALS, FINAL PROJECT

COMPLETE START-UP TESTING OF SYSTEMS, AND INSTRUCTION OF THE

COMPLETE FINAL CLEAN UP. TOUCH-UP AND REPAIR AND RESTORE

B. INSPECTION PROCEDURES: ON RECEIPT OF A REQUEST FOR INSPECTION, THE

ARCHITECT WILL PROCEED OR ADVISE THE CONTRACTOR OF UNFILLED

REQUIREMENTS. THE ARCHITECT WILL PREPARE THE CERTIFICATE OF

SUBSTANTIAL COMPLETION FOLLOWING INSPECTION, OR ADVISE THE

CONTRACTOR OF CONSTRUCTION THAT MUST BE COMPLETED OR CORRECTED

THE ARCHITECT WILL PROVIDE (1) FINAL INSPECTION PER PHASE OF

CONSTRUCTION WHEN REQUESTED AND ASSURED THAT THE WORK HAS

OWNER'S PERSONNEL. REMOVE TEMPORARY FACILITIES FROM THE SITE,

ALONG WITH CONSTRUCTION TOOLS, MOCK-UPS, AND SIMILAR ELEMENTS.

AGREEMENTS, FINAL CERTIFICATIONS AND SIMILAR DOCUMENTS.

INDICATING COMPLETION DATES FOR EACH ITEM LISTED THEREIN, FINAL

WORK, INCLUDE DESCRIPTION OF RESPONSIBILITY, COMPANY NAME, ADDRESS.

PAYMENT WILL NOT BE PROCESSED UNTIL THE ABOVE ITEMS ARE RECEIVED BY

GOVERNING BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE (IBC) WITH

2. EARTHQUAKE SEISMIC ZONE - AS REQUIRED BY KAYSVILL CITY /DFCM AND IBC

BIDDING WILL BE BY DFCM THROUGH A THIRD PARTY SERVICE AS

NOTE THE PROJECT DESCRIPTION WHICH DESCRIBES MULTIPLE

MATERIALS, (6) GUARANTEES AND WARRANTEES, (7) A LIST OF ALL

H. OPERATING AND MAINTENANCE INSTRUCTIONS: ARRANGE FOR THE INSTALLER OF EQUIPMENT THAT REQUIRES REGULAR MAINTENANCE TO MEET WITH TH OWNER'S PERSONNEL TO PROVIDE INSTRUCTION IN PROPER OPERATION AND MAINTENANCE. INCLUDE A DETAILED REVIEW OF THE FOLLOWING

G. MAINTENANCE MANUALS: PROVIDE OWNER WITH THREE (3) COMPLETE

WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK

IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER, INCLUDE THE

MANUALS. ORGANIZE MAINTENANCE DATA INTO SETS OF MANAGEABLE SIZE.

BIND IN INDIVIDUAL HEAVY-DUTY 2-INCH. 3-RING VINYL-COVERED BINDERS.

MAINTENANCE MANUALS SPARE PARTS AND MATERIALS. LUBRICANTS. CONTROL SEQUENCES HAZARDS. WARRANTIES AND BONDS.

FOLLOWING INFORMATION:

EMERGENCY INSTRUCTIONS

COPIES OF WARRANTIES.

INSPECTION PROCEDURES.

FIXTURE LAMPING SCHEDULE.

RECOMMENDED "TURN AROUND" CYCLES.

SHOP DRAWINGS AND PRODUCT DATA

SPARE PARTS LIST.

WIRING DIAGRAMS.

- MAINTENANCE AGREEMENTS AND SIMILAR CONTINUING COMMITMENTS. I. AS PART OF INSTRUCTION FOR OPERATING EQUIPMENT, DEMONSTRATE THE FOLLOWING PROCEDURES: START-UP AND SHUTDOWN.
- EMERGENCY OPERATIONS. NOISE AND VIBRATION ADJUSTMENTS SAFETY PROCEDURES. J. FINAL CLEANING: EMPLOY EXPERIENCED WORKERS FOR FINAL CLEANING.
- CLEAN EACH SURFACE TO THE CONDITION EXPECTED IN A COMMERCIAL BUILDING CLEANING AND MAINTENANCE PROGRAM. COMPLETE THE FOLLOWING BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF SUBSTANTIAL COMPLETION:
- REMOVE LABELS THAT ARE NOT PERMANENT LABELS.
- ALTERNATES MAY BE ACCEPTED IN THE PRIORITIZED ORDER AS FOLLOWS. 2. CLEAN EXPOSED HARD-SURFACED FINISHES TO A DUST-FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. RESTORE REFLECTIVE SURFACES TO THEIR ORIGINAL REFLECTIVE CONDITION. LEAVE CONCRETE FLOORS BROOM CLEAN. VACUUM CARPETED SURFACES.
 - WIPE SURFACES OF MECHANICAL AND ELECTRICAL EQUIPMENT. REMOVE EXCESS LUBRICATION. CLEAN PLUMBING FIXTURES TO A SANITARY CONDITION. CLEAN LIGHT FIXTURES AND LAMPS.
 - CLEAN THE SITE OF RUBBISH, LITTER AND OTHER FOREIGN SUBSTANCES. SWEEP PAVED AREAS; REMOVE STAINS, SPILLS AND OTHER FOREIGN DEPOSITS DUE TO CONSTRUCTION OPERATIONS. RAKE GROUNDS THAT ARE NEITHER PAVED NOR PLANTED, TO A SMOOTH EVEN-TEXTURED
 - K. REMOVAL OF PROTECTION: REMOVE TEMPORARY PROTECTION AND FACILITIES
- PHOTOGRAPHS, DAMAGE OR SETTLEMENT SURVEY, AND SIMILAR RECORD L. COMPLIANCE: COMPLY WITH REGULATIONS OF AUTHORITIES HAVING JURISDICTION AND SAFETY STANDARDS FOR CLEANING. REMOVE WASTE MATERIALS FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER.

DIVISION II - SITE WORK

02070 - SELECTIVE DEMOLITION: AS REQUIRED AND AS SHOWN AND INDICATED ON DRAWINGS

SUMMARY DEMOLITION AND REMOVAL OF SELECTED PORTIONS NOTE SUMMARY OF WORK FOR MULTIPLE CONTRACTS INCLUDING DEMOLOTION AND MITIGATION OF HAZARDUS MATERIALS

COORDINATE SELECTIVE DEMOLITION SO OWNER'S OPERATIONS

- OWNER WILL OCCUPY PORTIONS OF BUILDING IMMEDIATELY ADJACENT TO SELECTIVE DEMOLITION AREA.
- BEEN SUBSTANTIALLY COMPLETED. RESULTS OF THE COMPLETED INSPECTION WILL FORM THE BASIS OF
- DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED, USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF GOVERNING REINSPECTION PROCEDURE: THE ARCHITECT WILL REINSPECT THE WORK REGULATIONS AND AS FOLLOWS NEATLY CUT OPENINGS AND HOLES PLUMB, UPON RECEIPT OF NOTICE THAT THE WORK HAS BEEN COMPLETED, EXCEPT SQUARE, AND TRUE TO DIMENSIONS REQUIRED. USE CUTTING METHODS LEAST ITEMS WHOSE COMPLETION HAS BEEN DELAYED BECAUSE OF LIKELY TO DAMAGE CONSTRUCTION TO REMAIN OR ADJOINING CONSTRUCTION. CIRCUMSTANCES ACCEPTABLE TO THE ARCHITECT. USE HAND TOOLS OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING AND CHOPPING, TO MINIMIZE DISTURBANCE OF UPON COMPLETION OF REINSPECTION, THE ARCHITECT WILL PREPARE A ADJACENT SURFACES. TEMPORARILY COVER OPENINGS TO REMAIN. CUT OR CERTIFICATE OF FINAL ACCEPTANCE, OR ADVISE THE CONTRACTOR OF DRILL FROM THE EXPOSED OR FINISHED SIDE INTO CONCEALED SURFACES TO WORK THAT IS INCOMPLETE OR OF OBLIGATIONS THAT HAVE NOT BEEN AVOID MARRING EXISTING FINISHED SURFACES. DO NOT USE CUTTING TORCHES FULFILLED BUT ARE REQUIRED FOR FINAL ACCEPTANCE. UNTIL WORK AREA IS CLEARED OF FLAMMABLE MATERIALS. AT CONCEALED SPACES, SUCH AS DUCT AND PIPE INTERIORS, VERIFY CONDITION AND IF NECESSARY, ADDITIONAL REINSPECTION WILL BE REPEATED AT THE CONTENTS OF HIDDEN SPACE BEFORE STARTING FLAME-CUTTING OPERATIONS.

WILL BE MINIMALLY DISRUPTED.

- CONTRACTORS EXPENSE. TO THE ARCHITECT AT AN HOURLY RATE OF \$160/HR PLUS ACTUAL TRAVEL EXPENSES CALCULATED WITH A 1.15 PROVIDE AND MAINTAIN TEMPORARY DUST BARRIERS DURING SELECTIVE DEMOLITION. REMOVE FROM SITE WHEN DETERMINED TO NOT BE NEEDED
- FINAL ACCEPTANCE: BEFORE REQUESTING INSPECTION FOR CERTIFICATION DETACH ITEMS FROM EXISTING CONSTRUCTION AND LEGALLY DISPOSE OF THEM OF FINAL ACCEPTANCE AND FINAL PAYMENT, COMPLETE THE FOLLOWING: OFF-SITE, UNLESS INDICATED TO BE REMOVED AND SALVAGED OR REMOVED
- CONDITIONS EXISTING AT TIME OF INSPECTION FOR BIDDING PURPOSE WILL BE B. SUBMIT A FINAL STATEMENT, ACCOUNTING FOR CHANGES TO THE MAINTAINED BY OWNER AS FAR AS PRACTICAL.

AND REINSTALLED.

- CONTRACT SUM. NOTIFY ARCHITECT OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND C. SUBMIT A COPY OF THE FINAL INSPECTION LIST STATING THAT EACH DRAWINGS BEFORE PROCEEDING WITH SELECTIVE DEMOLITION.
- HAZARDOUS MATERIALS SURVEY HAS BEEN CONDUCTED AND EFFECTED AREAS HAVE BEEN DETERMINED TO BEMITIGATED BY HAZARDOUS MATERIALS E. SUBMIT EVIDENCE OF CONTINUING INSURANCE COVERAGE COMPLYING WITH CONTRACTOR. PRIOR TO START OF GENERAL CONTRACTOR WORK.
 - IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB; IMMEDIATELY NOTIFY OWNER/ARCHITECT. UTILITY SERVICE: MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGED DURING SELECTIVE
 - OPERATIONS. MAINTAIN FIRE-PROTECTION FACILITIES IN SERVICE DURING SELECTIVE DEMOLITION OPERATIONS.
 - VERIFY THAT UTILITIES HAVE BEEN DISCONNECTED AND CAPPED.
 - WHEN UNANTICIPATED MECHANICAL, ELECTRICAL, OR STRUCTURAL ELEMENTS THAT CONFLICT WITH INTENDED FUNCTION OR DESIGN ARE ENCOUNTERED, INVESTIGATE AND MEASURE THE NATURE AND EXTENT OF CONFLICT. PROMPTLY SUBMIT A WRITTEN REPORT TO OWNER.
 - UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS EXISTING SERVICES/SYSTEMS: MAINTAIN SERVICES/SYSTEMS INDICATED TO REMAIN AND PROTECT THEM AGAINST DAMAGE DURING SELECTIVE DEMO. OPERATIONS. SERVICE/SYSTEM REQUIREMENTS: LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF INDICATED UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS SERVING AREAS TO BE SELECTIVELY DEMOLISHED.

ARRANGE TO SHUT OFF INDICATED UTILITIES WITH OWNER. IF

SERVICES/SYSTEMS ARE REQUIRED TO BE REMOVED, RELOCATED, OR

- ABANDONED, BEFORE PROCEEDING WITH SELECTIVE DEMOLITION PROVIDE TEMPORARY SERVICES/SYSTEMS THAT BYPASS AREA OF SELECTED DEMOLITION AND THAT MAINTAIN CONTINUITY OF SERVICES/SYSTEMS TO OTHER PARTS OF BUILDING.
- CUT OFF PIPE OR CONDUIT IN WALLS OR PARTITIONS TO BE REMOVED.
- CAP, VALVE, OR PLUG AND SEAL REMAINING PORTION OF PIPE OR CONDUIT
- SITE ACCESS AND TEMPORARY CONTROLS: CONDUCT SELECTIVE DEMOLITION AND DEBRIS-REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, WALKWAYS, AND OTHER ADJACENT OCCUPIED AND
- USED FACILITIES. COMPLY WITH REQUIREMENTS FOR ACCESS AND PROTECTION SPECIFIED IN DIVISION 01 SECTION "TEMPORARY FACILITIES AND CONTROLS." TEMPORARY FACILITIES: PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT

FACILITIES TO REMAIN.

- MAINTAIN FIRE WATCH AND PORTABLE FIRE-SUPPRESSION DEVICES DURING FLAME-CUTTING OPERATIONS.
- LOCATE SELECTIVE DEMOLITION EQUIPMENT AND REMOVE DEBRIS AND MATERIALS SO AS NOT TO IMPOSE EXCESSIVE LOADS ON SUPPORTING WALLS, FLOORS, OR FRAMING.
- DISPOSE OF DEMOLISHED ITEMS AND MATERIALS PROMPTLY. DISPOSAL: TRANSPORT DEMOLISHED MATERIALS OFF OWNER'S PROPERTY
- CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY SELECTIVE DEMOLITION OPERATIONS.
- RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE SELECTIVE DEMOLITION OPERATIONS BEGAN.

AND LEGALLY DISPOSE OF THEM.

DIVISION III CONCRET

- GENERAL: ALL MATERIALS TO CONFORM TO LATEST ASTM PUBLICATIONS AND TO BE INSTALLED IN ACCORDANCE WITH ACI FOR CONDITIONS INDICATED.
 - A. CONCRETE AND REINFORCING AS RECOMENDED FOR CONDITIONS INDICATED AT PLUMBING TRENCHES/SLAB INFILLS AND LOCKER BASE. B. AGGREGATE BASE: GRAVEL, MINIMUM SIZE 1", NOT MORE THAN 5% PASSING A NUMBER 200 SIEVE. REFER TO DRAWINGS FOR REQUIRED
 - THICKNESS OF BASE MATERIAL C. CLEAN CONCRETE AND ADJACENT SURFACES AT COMPLETION OF WORK.
 - DIVISION IV MASONRY (NOT USED

DIVISION V-STEEL

- A. MISC. METAL FABRICATIONS ARE AS INDICATED ON DRAWINGS, AND ARE TO BE DELIVERED TO THE JOB SITE PRIMED AND READY FOR PAINT. INCLUDE
- ALL BRACKETS AND FASTENERS REQUIRED FOR INSTALLATION. B. COUNTER TOP SUPPORT BRACKETS WHICH ARE TO TO BE INSTALLED IN CMU AND STUD WALLS ARE TO BE SUPPLIED BY THIS SECTION AND ARE TO BE DELIVERED TO THE GENERAL CONTRACTOR WHEN REQUIRED TO MEET CONSTRUCTION SCHEDULE. AND TO BE INSTALLED BY OTHER GC.
- C. FABRICATION SHALL CONFORM TO THE LATEST AISO SPECIFICATIONS. FORM WORK TRUE TO LINE AND LEVEL WITH ACCURATE ANGLES AND SURFACES. EASE EXPOSED EDGES TO A RADIUS OF APPROX 1/4" UNLESS OTHERWISE SHOWN. WELD CORNERS AND SEAMS CONTINUOUSLY, COPING CONNECTIONS UNLESS OTHERWISE INDICATED. GRIND EXPOSED WELDS 3 EA SILENCER SMOOTH AND FLUSH TO MATCH AND BLEND WITH ADJOINING SURFACES. PRIME WITH RED OXIDE PRIMER AND TOUCH-UP ON SITE AS REQUIRED.

DIVISION VI - CARPENTR'

THESE SPECIFICATIONS.

- 06100 ROUGH CARPENTRY A. FURNISH ALL LABOR, TOOLS, EQUIPMENT, AND MATERIALS TO COMPLETE WORK UNDER THIS HEADING AS INDICATED ON THE DRAWINGS AND DESCRIBED IN
- B MATERIALS: PROVIDE LUMBER AS REQUIRED
- C. SEE DRAWINGS AND NOTES AND PROVIDE BLOCKING AT DOOR HARDWARE TOILETROOM ACCESSORIES OR OTHER TYPE ITEMS AS REQUIRED. PROVIDE PLYWOOD SHEATHING (IF ANY REQUIRED)
- 06402 INTERIOR ARCHITECTURAL WOODWORK A. ENGINEERED QUARTZ COUNTERTOPS, AS MANUFACTURED BY BY HANSTONE FUSION MV 623. OR CAMBRIA. OR APPROVED EQUIVALENT B. INSTALL WORK PLUMB, LEVEL, TRUE, AND STRAIGHT WITH NO DISTORTIONS. SHIM AS REQUIRED. INSTALL WITH MINIMUM NUMBER OF JOINTS POSSIBLE USING FULL-LENGTH PIECES TO THE GREATEST EXTENT POSSIBLE. COPE AT
- INSIDE CORNERS, MITRE AT OUTSIDE CORNERS. DIVISION VI - THERMAL AND MOISTURE PROTECTION

<u>) 7500-PENETRATIONS THROUGH EXISTING ROOFING SYSTEM</u>

- PENETRATIONS THROUGH EXISTING ROOFING SYSTEMS CONSULT EXISTING ROOFING WARRANTEES TO PROVIDE PENETRATION PROTECTIONS THAT WILL NOT VOID ANY EXISTING WARRANTEES IN PLACE.
- 07901 JOINT SEALERS. A. PROVIDE SEALANTS FOR ALL INTERIOR JOINTS.
- NON SAGGING, NON-BLEEDING, NON-STAINING TYPES. C. PROVIDE FIRE SEALANTS WHERE REQUIRED AND TO MEET UL RATINGS
- D. COMPLY WITH MANUFACTURERS INSTRUCTIONS FOR PREPARATION AND APPLICATION.

E. PROVIDE MINIMUM ONE YEAR WARRANTY ON ALL SEALANTS.

DOOR FRAME WALLS (INTERIOR): ACRYLIC EMULSION LATEX ASTM C834 TO MATCH FRAME COLOR. PLUMBING FIXTURES/ CERAMIC TILE: SILICONE SEALANT ASTM C920,

TYPE S, NS, CLASS 25, TRANSLUCENT WHITE.

DIVISION VIII - DOOR FRAMES

- 08110 STEEL DOOR FRAMES A. STEEL FRAMES: FABRICATE STEEL FRAMES TO BE RIGID. NEAT IN APPEARANCE, AND FREE FROM DEFECTS, WARP, OR BUCKLE.
- PROVIDE HEAVY DUTY FRAMES FOR WOOD DOORS WITH MITRED OR COPED AND CONTINUOUSLY WELDED CORNERS, FORMED FROM 16 GAUGE THICK, STEEL SHEET.
- B. PREPARE DOORS AND FRAMES TO RECEIVE HARDWARE ACCORDING TO SDI 107.

- C. COMPLY WITH NAAMM'S "METAL FINISHES MANUAL FOR ARCHITECTURAL AND METAL PRODUCTS" FOR RECOMMENDATIONS RELATIVE TO APPLYING FINISHES.
- 1. APPLY SHOP PRIMER THAT COMPLIES WITH ANSI A224.1 08211 - FLUSH WOOD DOORS WITH HARDWOOD-VENEER FACES AND FACTORY FIT
- A. GRADE AA FACES (PREMIUM GRADE) OF PLAIN SLICED RED OAK. FIVE PLIES.
- B. FINISH AWS SYSTEM #11CATALYZED POLYURETHANE WITH OPEN GRAIN FINISH SATIN SHEEN. STAIN REQUIRED SET 2 TO MATCH EXISTING FINISHES.
- C. COMPLY WITH NFPA 80 FOR FIRE RATED DOORS.
- D. INSTALL METAL LOUVER IN DOORS SUPPLIED BY MECHANICAL WHERE INDICATED. SEE MECHANICAL . SIZE AS INDICATED
- E. WARRANTY TO BE LIFE TIME OF DOOR.
- A. WALL ACCESS DOORS NEW REPLACEMEENTS

B. TYPE: STEEL, SIZE AS REQUIRED TO REPLACE EXISTING.

- C. SINGLE LEAF, FLUSH CONSTRUCTION, CONCEALED CONTINUOUS PIANO HINGE, CAM LOCK D. STEEL DOORS FRAME: 16 GA STEEL, DOOR 20 GAGE STEEL E. PRIME COAT RUST INHIBITIVE PRIMER AND BAKED GRAY ENAMEL
- SUTIBLE FOR FIELD PAINTING. F. INSTALL WHERE INDICATED ON PLANS OR AS REQUIRED TO ACCESS EQUIPMENTAND AS PER MANUFACTURERS RECOMMENDATIONS. COORDINATE LOCATIONS WITH MECHANICAL AND EXISTING CONDITIONS.

08710 - DOOR HARDWARE

HARDWARE

- SUBMITTALS: A. HARDWARE SCHEDULE: SUBMIT PROPOSED HARDWARE SCHEDULE. COORDINATE HARDWARE WITH DOORS, FRAMES AND RELATED WORK TO ENSURE PROPER SIZE, THICKNESS, HAND, FUNCTION AND FINISH OF
- B. PRODUCT DATA: SUBMIT MANUFACTURERS TECHNICAL PRODUCT DATA FOR EACH ITEM OF HARDWARE. INCLUDE WHATEVER INFORMATION MAY BE NECESSARY TO SHOW COMPLIANCE WITH REQUIREMENTS, AND INCLUDE INSTRUCTIONS FOR INSTALLATION AND FOR MAINTENANCE OF OPERATING PARTS AND FINISH.
- C. HARDWARE SCHEDULE: SUBMIT FINAL HARDWARE SCHEDULE. COORDINATE HARDWARE WITH DOORS, FRAMES AND RELATED WORK TO ENSURE PROPER SIZE, THICKNESS, HAND, FUNCTION AND FINISH OF
- D. KEYING SCHEDULE: SUBMIT SEPARATE DETAILED SCHEDULE INDICATING CLEARLY HOW THE OWNER'S FINAL INSTRUCTIONS ON KEYING OF LOCKS HAS BEEN FULFILLED.
- E. PROVIDED QUALITY OF FINISH, INCLUDING THICKNESS OF PLATING OR COATING (IF ANY). COMPOSITION, HARDNESS AND OTHER QUALITIES COMPLYING WITH MANUFACTURER'S STANDARDS, BUT IN NO CASE LESS THAN SPECIFIED FOR THE APPLICABLE UNITS OF HARDWARE BY REFERENCED
- F. CYLINDERS TO BE FURNISHED BY OWNER INSTSTALED BY CONTRACTOR.
- A. WALL BASE COMPLYING WITH ASTM F 1861, TYPE TV THERMOPLASTIC VINYL KEY TO OWNERS EXISTING KEY SYSTEM WHERE KEYED LOCKS (VERIFY WITH OWNER) COLOR AS SELECTED BY ARCHITECT, COVE W/ TOP SET, 1/8" MIN THK, 4" HT, COILS IN LENGTHS AS STD WITH MFGR. PRE MOLDED OUTSIDE CORNERS

HARDWARE SET 1: PRIVACY DOORS. 801 US10 IVE 3 EA HINGE 5BB1 4.5X4.5 NRP 1 FA PRIVACY ND40S RHO US10 SCH 1 EA SURFACE CLOSER 4040XP EDA TBWMS US10 LCN 1 EA KICK PLATE 8400 10" X 2" LDW 612 IVE 1 EA WALL STOP WS407CCV US10 IVE 1 EA COAT AND HAT HOOK 582 (@ ADA HT) US10 IVE

SR64

- HARDWARE SET 2: (NOT USED) HARDWARE SET 3: (NOT USED)
- HARDWARE SET 4: (NOT USED) HARDWARE SET 5: (NOT USED)
- HARDWARE SET 6: AUTO OPENERS TOILET ROOM ENTRY DOORS; 111, 131, 132 , 601, 602,

3	EA	HINGE	EXISTING FRAME COND	ITION US10	IVE
1	SET	PUSH PLATE	8200 6"X16"	US10	IVE
1	EΑ	PULL PLATE	8305 8 4" X 16"	US10	IVE
1	EΑ	SURF.	4642 CS FC	US10	LCN ELEC COOR
		AUTO OPERATOR			REQD
2	EΑ	ACTUATOR WALL MTD	8310-853	US10	IVE ELEC COOR
					REQD
1	EA	KICKPLATE	8400 10" X2" LDW B4I	E 612	IVE
1	EA	WALLSTOP	WS407CCV	US10	IVE
3	EΑ	SILENCER	SR64	GRY	IVE

USER PUSHES ACTUATOR, AUTO OPERATOR OPENS DOOR. DOOR MAY BE USED

MECHANICALLY FOR PUSH/PULL OPERATION 08800-GLASS AND GLAZING. (NOT USED)

DIVISION IX - FINISHES

09255-GYPSUM BOARD.

- A. MATERIAL: UNITED STATES GYPSUM "SHEETROCK" IS STANDARD OF QUALITY. B. INTERIOR WALLS/CEILINGS: 5/8" TYPE X TAPERED EDGE.
- C. TILE BACKING PANELS TO BE 5 / 8" FIBER REINFORCED GYPSUM TILE BACKER BOARD PANELS EQUIVILENT USG FIBERROCK ASTM C1278 OR DENSSHIELD
- 1. CORNER BEADS: PERF. A-TRIM 0100 2. METAL TRIM: PERF. A-TRIM 0301.
- 3. TAPE: PERF. A-TAPE AND JOINT COMPOUND AND DWA-14 ADHESIVES.(3) COAT SYSTEM LEVEL 4 FINISH 4. INSTALLATION: IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS AND PERFORMANCE STANDARDS.
- C. FINISH LEVEL 4 WHERE EXPOSED TO VIEW. D. TEXTURE: NO APPLIED TEXTURED FINISHES

TAPE READY MIX JOINT SYSTEM.

- E. NON-LOADBEARING HOT-DIP GALVANIZED STEEL FRAMING COMPLY WITH ASTM C955 FOR CONDITIONS INDICATED. PROVIDE 20 GAUGE STUDS AT 24" O.C. FOR WALLS UNO.
- F. SUSPENDED CEILING FRAMING
- 1. TIE WIRES: ASTM A641/A641M, CLASS 1 ZINC COATING SOFT TEMPER, 0.0625-INCH DIAMETER.
- SOFT TEMPER, 0.162-INCH DIAMETER. 3. CARRYING CHANNELS: COLD ROLLED STEEL 0.0478 INCH THK,

2. WIRE HANGERS: ASTM A 641/A 641M, CLASS 1 ZINC COATING.

2 INCH DEEP. 4. FURRING CHANNELS: 3/4-INCH DEEP, COLD ROLLED CHANNELS, 0.0478 INCH THK. STEEL STUDS 0.0359 INCH THK AND DEPTH INDICATED. PULLS INCLUDING PULLS ON BOTH SIDES OF ADA DOORS. STEEL, RIGID HAT CHANNELS: 7/8 INCH DEEP, 0.0359 INCH THICK.

5. GRID SUSPENSION SYSTEM FOR INTERIOR CEILINGS: INTERLOCKING,

C. MARBLE THRESHOLDS - MATCH EXISTING COLOR, 2" WIDTH X LENGTH AS

E. PREPARE FLOORS AND WALLS AS REQUIRED FOLLOWING DEMOLITION OF

INSTALL PER TCNA (LATEST ADDITION) METHODS AS FOLLOWS

SANDBLAST (E) GSFT WALLS PRIOR TO BOND COAT APPLICATION

SHOWER ROOM FLOORS: TCNA B-420 WITH W/ SHOWER PAN, MEMBRANE,

DIRECT-HUNG SYSTEM ASTM C 645.

A. WALL AND FLOOR TILES: TO BE TO BE PORCELAIN.

SIZES INDICATED ON DRAWINGS INCLUDING

WALLS: 12"X24", 4"X12", 6"X24",AND 2"X2"

D. CERAMIC TILE CORNER SOAP TRAY IN SHOWER COMPARTMENTS.

TOILET ROOM FRAMED WALLS TONA W-245 WITH EPOXY GROUT

TOILET ROOM WALLS OVER SOLID BACKING (MASONRY) TCNA W-2021

SHOWER ROOM WALLS STUD FRAMED TCNA B-420 WITH EPOXY GROUT

B. TRIM: SCHLUTER 2.10 QUADEC-K EDGE STRIPS AT OUTSIDE CORNERS AND

EXPOSED EDGES. SATIN NICKEL ANODIZED ALUMINUM. SIZED TO MATCH TILE

F. JOINTS TO BE SET FLAT AND UNIFORM AT $\frac{3}{16}$ ". TILES MAY REQUIRE TO BE FIELD

G. LAYOUT TILES TO BE CENTERED IN ROOMS WITH MIN 4" TILE WIDTH IN ANY

H. PREPARE EXISTING SURFACES TO RECEIVE NEW TILE PER TCNA

J. CLEANING AND PROTECTION AS RECOMMENDED BY MFGR.

REQUIRED DUE TO DEMOLITION OPERATIONS

09510 - SUSPENDED ACOUSTIC CEILINGS

SITE STORAGE

B. PERFORMANCE 98233.

EXPOSED GRID SYSTEM.

SURFACE SMOOTH

OR ASSUME RESPONSIBILITY THEREOF.

C. SIZE 24" X 48" X 1" THK. WHITE

DIRECTION, REVIEW LAYOUT STRATAGY WITH ARCHITECT PRIOR TO INSTALL

RECOMENDATIONS. PATCHING AND LEVELING OF SETTING BEDS MAY BE

K. ATTIC STOCK: PROVIDE (1) BOX OF EA TYPE TILE AND DELIVER TO OWNERS ON

A. GLASS FIBER WASHABLE CEILING PANELS W/ FIBERGLASS SUBSTRATE

EQUIVILENT TO USG HALCYON HEALTHCARE ACOUSTICAL PANELS-CLIMUAPLUSS

EDGE SQUARE, SURFACE PATTERN SMOOTH ,SUSPENSION SYSTEM GASKETED IN

A. GENERAL REQUIREMENTS: PROVIDE ALL PAINTING TO COMPLETE THE WORK.

B. THE INTENT OF THESE SPECIFICATIONS IS TO PROVIDE A SATISFACTORY

SURFACES SHALL BE THOROUGHLY COVERED. IF THE NUMBER OF COATS

SPECIFIED DOES NOT ACCOMPLISH THE INTENT, THIS CONTRACTOR SHALL

C. THE WORKMANSHIP SHALL BE OF THE VERY BEST QUALITY. ALL MATERIALS

SMOOTHLY FLOWED ON WITHOUT RUNS OR SAGS. FOLLOW THE

GYPSUM STANDARD DRYWALL SYSTEMS: DTC STANDARD

COLOR NAME: NEUTRAL GROUND 973103000003158

2. FERROUS METALS: DTC STASNDARD. HM FRAMES, DOORS. COUNTER

FIRST COAT - PPG RUST INHIBITIVE METAL PRIMER. 90-912

NOTE: FIRST COAT NOT REQUIRED ON ITEMS THAT ARE SHOP

COLOR NAME: NEUTRAL GROUND 973103000003158

SHOWER AND ADJACENT CEILING PLASTER OR GYPSUM BOARD.

PRIMER- NOT REQUIRED ON EXISTING PAINTED SURFACES

2ND AND 3RD COAT-PRE CATALIZED W/B EPOXY SEMI GLOSS.

MODERATE INDUSTRIAL DUTY EPOXY SYSTEM

2.0 -4.0 MILS DRY PER COAT

VOC 2.0 -4.0 MILS DRY PER COAT.

COLOR NAME: REMATCH SANDSTROM MATCH 973103000002797

EXISTING CMU PAINTED. (2) COAT OVER EXISTING PAINT. PREPARE WALL TO

1ST COAT ARMORSEAL FLOOR-PLEX 8100, B70-8100 SERIES, 100 G/L VOC

SECOND COAT ARMORSEAL FLOOR-PLEX 8100, B70-8100 SERIES, 100 G/L

NOTE ADD H&C SHARK GRIP TO THE FINAL COAT FOR ADDED NON-SLIP

PARTITIONS, PILASTERS, AND URINAL SCREENS TO BE 3 /4" THK, URINALS TO BE

PROVIDE HEAT SINK STRIP AT BOTTOM EDGE OF HORIZONTAL SURFACES.AND

MIN 3/4" THICK DIVIDER PANELS AT TOILET COMPARTMENTS. EQUIVELENT TO

INCLUDING SELF CLOSING HINGES, LATCH AND KEEPER, COAT HOOKS (MOUNTED

AT ADA HEIGHTS WHERE REQUIRED), DOOR BUMPER, DOOR

PRIMED, NOT LESS THAT 4.5 MILS DRY FILM THICKNESS.

SECOND COAT -PPG V56-440/01DEEP RUSTIC

THIRD COAT - PPG V56-440/01DEEP RUSTIC

B-24, C-36, F-6+1/2, W-5Y+10

SECOND COAT -PPG 6-3511/05 PASTEL

THIRD COAT -PPG 6-3511/05 PASTEL

5. INTERIOR OPAQUE CONCRETE FLOOR COATING

RECEIVE PAINT AS REQUIRED.

C-1Y+2, L-2Y+4

DIVISION X - SPECIALTIES

10155-TOILET COMPARTMENTS

WALL MOUNTED.

ACCURATE FOLKSTONE GRAY #9400

B. HARDWARE AND TRIMS STAINLESS STEEL

10431-SIGNS - (PROVIDED BY OWNER.

A. SOLID PLASTIC PANEL MATERIAL WITH EASED AND

POLISHED EDGES FLOOR MOUNTED OVERHEAD BRACED.

ANTI GRIP STRIP AT TOP EDGES OF HORIZONTAL SURFACES.

MANUFACTURER'S INSTRUCTIONS FOR PRODUCT

NTERIOR: ALLOW FOR 1 COLOR PER ROOM

SECOND COAT - PPG 6-3511/05 PASTEL

THIRD COAT - PPG 6-3511/05 PASTEL

FIRST COAT - PPG PRIMER 6-2

C-1Y+2, L-2Y+4

BRACKETS.

D. PAINT SCHEDULE - COLORS PER DATC COLOR SELECTION

SHALL BE SUPPLIED UNDER ADEQUATE ILLUMINATION, EVENLY SPACED AND

APPLY ADDITIONAL COATS OF MATERIAL TO GIVE SATISFACTORY COVERAGE.

INSPECT WORK OF OTHERS PRIOR TO APPLICATION AND NOTIFY THE DESIGNER

FINISH TO ALL PARTS OF THE BUILDING SCOPE UNLESS NOTED OTHERWISE. ALL

AND CONTRACTOR OF ANY SURFACES NOT PROPERLY PREPARED FOR FINISHING

CUT TO MAINTAIN JOINT WIDTH IF TILES NOT DIMENSIONALLY STABLE.

SEE DRAWINGS FOR TYPES AND COLOR SCHEME.

EXISTING FINISHES TO ACCOMODATE NEW FINISHES.

ALL INTERNAL CORNERS ARE TO BE SILICONE JOINT6.

TOILET ROOM FLOORS THIN SET F-131

AND EPOXY GROU

9310 - CERAMIC TILE:

PROVIDE TILE AS FOLLOWS:

REQUIRED

TILE WARE SKU T100-003-BN

- PROVIDE FOR ADA ACCESS DOOR HARDWARE INCLUDING EMERGENCY ACCESS WHERE REQUIRED. "U" TYPE BRACKETS SPACED TO ANCHOR THROUGH GROUTQ JOINTS. AVOID ANCHORING DIRECT THROUGH CERAMIC TILES.
- C. HANG DOORS AND SET PARTITIONS TO BE PLUMB AND LEVEL INCLUDING ALL
- SET HINGES ON IN-SWING DOORS TO HOLD DOORS OPEN APPROX 30 DEG. FROM CLOSED POSITION. SET HINGES IN OUT-SWING DOORS TO RETURN DOORS TO FULLY CLOSED POSITION. D. PROVIDE TAMPER PROOF SCREW ATTACHMENTS. FLOORS: 6" X 24" AND 6" X 6" CUT TILES FROM 6 X 24'S @ SHOWER FLOOR. E. LOCATE STIRUP BRACKETS SO HOLES OCCURE IN TILE JOINTS (NOT IN TILE
 - 10500-METAL LOCKERS

COLOR:

MOVING PARTS.

- 1.WARDROBE LOCKERS, WELDED CONSTRUCTION AND WITH SLOPED TOPS.
- WIDTH, HEIGHT, AND DEPTH AS INDICATED LOCKERS-DBL TIER 12"W X 12"D X 72"H ON EXISTING MASONRY BASE. CONFIGURATION: SEE ABOVE COLD-ROLLED STEEL SHEETS CONSTRUCTION
- MOUNTING SURFACE MOUNTED BASE SEE ABOVE BASE HEIGHT EXISTING 4" +-SLOPED METAL WITH CLOSURES TOP RECESSED EQUIPPED FOR PADLOCK HASP LOCKING LOUVERED DOORS VENTILATION
- SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

GRAY TO MATCH EXISTING

- DEBOURGH MANUFACTURING COMPANY AS INDICATED ON DRAWINGS LIST INDUSTRIES, INC. LYON METAL PRODUCTS. INC. ASI METAL LOCKERS COLUMBIA ACCESSORIES
- COLD-ROLLED STEEL SHEET: ASTM A 366, MATTE FINISH, FASTENERS: ZINC-OR NICKEL-PLATED STEEL, SLOTLESS-TYPE EXPOSED BOLT HEADS, AND SELF-LOCKING NUTS OR LOCK WASHERS FOR NUTS ON

BODY: FORM BACKS, TOPS, BOTTOMS, SIDES, AND INTERMEDIATE

0.050" THICK STEE

- PARTITIONS FROM STEEL SHEET; FLANGED FOR DOUBLE THICKNESS AT BACK VERTICAL CORNERS. COMPLY WITH THE FOLLOWING: DOOR OUTER FACE: 14 GAUGE DOOR INNER FACE: 20 GAUGE
- 16 GAUGE VERTICAL DIVIDERS: 20 GAUGE 18 GAUGE FRAMES: FORM CHANNEL FRAMES FROM MINIMUM 16 GAUGE STEEL

SHEET: LAPPED AND WELDED AT CORNERS.

WELDED OR RIVETED TO DOOR FRAMES.

MANUFACTURES STANDARD PATTERN.

- PROVIDE RESILIENT BUMPERS TO CUSHION DOOR CLOSING. LATCH HOOKS: FORM FROM MINIMUM 0.1046-INCH- THICK STEEL;
- FRAME VENTS: FABRICATE HORIZONTAL FACE FRAMES WITH VENTS. LOUVERED VENTS: STAMPED, LOUVERED VENTS IN DOOR FACE,
- SHELVES: PROVIDE HAT SHELF, FABRICATED FROM MINIMUM 24 GAUGE, FORMED STEEL SHEET; FLANGED ON ALL EDGES. HINGES: STEEL, FULL LOOP, FIVE KNUCKLE; TIGHT PIN; MINIMUM 2 INCHES HIGH. WELD TO INSIDE OF DOOR FRAME AND ATTACH TO

DOOR WITH AT LEAST TWO FACTORY-INSTALLED FASTENERS THAT ARE

- COMPLETELY CONCEALED AND To AMPER RESISTANT WHEN DOOR IS CLOSED. PROJECTING HANDLE AND LATCH: MANUFACTURER'S STANDARD, POSITIVE AUTOMATIC, PRELOCKING, PRY-RESISTANT LATCH AND
- PULL; CHROMIUM-PLATED, HEAVY-DUTY, VANDAL-RESISTANT, LIFT-UP HANDLE, AS FOLLOWS:
- PROVIDE MINIMUM TWO-POINT LATCHING FOR EACH DOOR 42 INCHES HIGH OR LESS. A.PROVIDE STRIKE AND EYE FOR PADLOCK. PROVIDE SINGLE-POINT GRAVITY OR SPRING-ACTUATED LATCH WITH
- PADLOCK LUG. HOOKS: MANUFACTURER'S STANDARD ZINC-PLATED, BALL-POINTED STEEL. PROVIDE ONE DOUBLE-PRONG CEILING HOOK. AND NOT FEWER THAN TWO SINGLE-PRONG WALL HOOKS. ATTACH HOOKS WITH AT LEAST TWO FASTENERS.

NUMBER PLATES: MANUFACTURER'S STANDARD ETCHED, EMBOSSED,

OR STAMPED, ALUMINUM NUMBER PLATES WITH NUMERALS AT LEAST

3/8 INCH (9 MM) HIGH. NUMBER LOCKERS IN SEQUENCE IN EACH ROOM.

- ATTACH PLATES TO EACH LOCKER DOOR, NEAR TOP, CENTERED, WITH AT LEAST TWO ALUMINUM RIVETS. CONTINUOUSLY SLOPED TOPS: MANUFACTURER'S STANDARD,
- FABRICATED FROM MINIMUM 16 GAUGE STEEL SHEET, CLOSURES: VERTICAL-END TYPE. SLOPED TOP CORNER FILLERS, MITERED.
- FILLER PANELS: MANUFACTURER'S STANDARD: FABRICATED FROM MINIMUM 20 GAUGE STEEL SHEET IN AN UNEQUAL LEG ANGLE SHAPE, AND FINISHED TO MATCH LOCKERS. PROVIDE SLIP JOINT FILLER ANGLE FORMED TO RECEIVE FILLER PANEL.

BOXED END PANELS: MANUFACTURER'S STANDARD; FABRICATED

FROM MINIMUM 16 GAUGE STEEL SHEET, WITH 1-INCH-WIDE EDGE

OR RIVETS USED IN ASSEMBLY.

EXPOSED ENDS.

- DIMENSION, FINISHED TO MATCH LOCKERS, AND DESIGNED FOR CONCEALING EXPOSED ENDS OF NONRECESSED LOCKERS. ALL-WELDED CONSTRUCTION: PREASSEMBLE LOCKERS BY WELDING ALL JOINTS, SEAMS, AND CONNECTIONS, WITH NO BOLTS, SCREWS,
- GRIND EXPOSED WELDS FLUSH. PAINT LOCKER UNITS WITH TWO (2) COATS OF BAKED ENAMEL PAINT OR COLOR AS SELECTED BY THE ARCHITECT
- INSTALL METAL LOCKERS AND ACCESSORIES LEVEL, PLUMB, RIGID, AND FLUSH. ANCHOR LOCKERS TO FLOORS AND WALLS AT INTERVALS RECOMMENDED BY MANUFACTURER, BUT NOT MORE THAN 36 INCHES O.C. INSTALL ANCHORS THROUGH BACKUP REINFORCING PLATES WHERE NECESSARY TO AVOID METAL DISTORTION, USING CONCEALED FASTENERS. ATTACH SLOPING TOP UNITS TO LOCKERS, WITH CLOSURES AT

ATTACH BOXED END PANELS WITH CONCEALED FASTENERS TO CONCEAL

- EXPOSED ENDS OF NONRECESSED LOCKERS. ATTACH FINISHED END PANELS WITH FASTENERS ONLY AT PERIMETER

 - TO CONCEAL EXPOSED ENDS OF NONRECESSED LOCKERS.

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- ADJUST DOORS AND LATCHES TO OPERATE EASILY WITHOUT BINDING. VERIFY THAT INTEGRAL LOCKING DEVICES OPERATE PROPERLY.
- CLEAN INTERIOR AND EXPOSED EXTERIOR SURFACES AND POLISH STAINLESS-STEEL AND NONFERROUS-METAL SURFACES.

10801-TOILET ACCESSORIES

ACCESSORIES:

A. AMERICAN SPECIAL

- AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING ACCESSORIES THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING
- B. BOBRICK WASHROOM EQUIPMENT C. BRADELY CORP. D. GENERAL ACCESSORIES MANUFACTURING CO. E. SOLARIS PAPER UNDERLAVATORY GUARDS
- A. BROCAR PRODUCTS B. TRUEBRO EXISTING ACCESSORIES WHERE INDICATED TO BE SALVAGED ON DEMOLITION PLANS ARE TO BE REMOVED AND SALVAGED TO OWNER'S ON SITE STORAGE
- SEE DRAWINGS FOR ACCESSORY SCHEDULE LEGEND A. TOILET TISSUE DISPENSER: (OFOI) B. GRAB BARS: BOBRICK B-5806.99 SERIES LENGTH AS INDICATED C. VERTICAL GRAB BAR LENGTH INDICATED ON DRAWINGS D. PAPER TOWEL DISPENSER: (OFCI) HARDWIRED SOLARIS PAPER D68003 E. MIRROR UNIT: BOBRICK B-165 SERIES STAINLESS STEEL FRAMED MIRRORS.SIZE
- F. MIRROR 30" X 60" STAINLESS STEEL FRAMED MIRRORS G. MIRROR 60" X 36" STAINLESS STEEL FRAMED MIRRORS. H. mirror 72"X36" Field Verify Length to fit. J. SOAP DISPENSER: COUNTER MOUNTED (OFCI) PREP OF COUNTER TOPS BY
- CONTRACTOR. DEB CTF16LC K. SOAP DISPENSER: WALL MOUNTED (OFCI) L. FEMININE NAPKIN VENDOR: B-2800X2 50 SURFACE MOUNTED M FEMINIME NAPKIN DISPOSAL: B-270 SATIN STAINLESS STEEL N. BABY CHANGER (E) SALVAGED TO BE REINSTALLED O. ROBE HOOK: BOBRICK B-6827
- P. SHOWER CURTAIN ROD: B-6047 MOUNT 75" CENTER ROD AFF SHOWER CURTAIN: 100% POLYESTER WATERPROOF SHOWER WITHOUT LINER. SIM TO INTERDESIGN ZENO W/P SHOWER CURTAIN WITH HORIZONTAL MULTI COLOR STRIPED DESIGN SHOWER CURTAIN HOOKS: HEAVY DUTY POLISHED CHROME BALBEARING TYPE

WITH METAL ROLLER RINGS SIZED TO SUITE SHOWER ROD DIAMETER.

- Q. FOLDING SHOWER SEAT: FOLD DOWN TRANSFER SEAT B5181 OR FOLIVALENT. R. UNDER LAVATORY GUARDS: INSULATED PIPING COVERINGS WHITE, ANTIMICROBRIAL, MOLDED VINYL COVERING FOR SUPPLY AND DRAIN PIPING
- ASSEMBLIES INTENDED FOR USE AT ACCESSIBLE LAVATORIES TO PREVENT DIRECT CONTACT WITH BURNS FROM PIPING. PROVIDE COMPONENTS AS REQUIRED FOR APPLICATIONS INDICATED WITH FLIP TOPS AT VALVES THAT ALLOW SERVICE ACCESS
- WITHOUT REMOVING COVERINGS S. TOWEL BARS:B-530 X 18 W/ CONCEALED SCREWS. T. TOILET SEAT COVER DISPENSERS: (0F0I) U. FUTURE ELECTRIC HANDRYER (OFOI)
- W. PAPER TOWEL DISPENSER EXISTING SALVAGED TO BE REINSTALLED NOTE: TOILET AND URINAL PARTITIONS ARE ALL NEW.

V. GRAB BAR BOBRICK B-6861

IVISION X11 - FURNISHINGS

- DIVISION X111 SPECIAL CONSTRUCTION 13915 - FIRE SUPPRESSION SPRINKLING AND PIPING IT IS THE INTENT FOR THE CONTRACTOR TO MODIFY THE EXISTING SYSTEM AS
- COMPLY WITH THE AUTHORITY HAVING JURISDICTION (AHJ). NOTE: SEE GENERAL FP NOTES SHEET M-001 FOR ADDITIONAL FIRE PROTECTION COORDINATION.

REQUIRED TO PROVIDE A COMPLETE AND OPERATING SYSTEM TO MEET CODE AND

APPROVAL FROM THE ARCHITECT PRIOR TO SUBMITTING TO AUTHORITIES HAVING JURISDICTION. NFPA #13, WET PIPE, FIRE SUPPRESSION SPRINKLERS, INCLUDING

A. DESIGN SPRINKLER PIPING ACCORDING TO THE FOLLOWING AND OBTAIN

SPECIALTIES, AND AUTOMATIC SPRINKLERS. B. DESIGN FOR APPROPRIATE OCCUPANCY HAZARD CLASSIFICATIONS: MINIMUM DENSITY FOR AUTOMATIC SPRINKLER PIPING DESIGN

C. MAXIMUM PROTECTION AREA PER SPRINKLER: PER UL LISTING

EXCEPT AS MAY BE MODIFIED BY AHJ.

PIPING, VALVES, SWING PIPE TO CENTRE HEADS IN CEILING PANELS,

COMPONENTS AND INSTALLATION: CAPABLE OF PRODUCING SYSTEMS WITH 175-PSIG MINIMUM WORKING PRESSURE. UNLESS OTHERWISE INDICATED. SUBMITTALS A. PRODUCT DATA B. FIELD TESTS AND REPORTS AND CERTIFICATIONS.

ENGINEERING RESPONSIBILITY: PREPARATION OF WORKING PLANS USING

- AUTO CAD COMPATIBLE DRAWING PROGRAM, CALCULATIONS, AND FIELD TEST REPORTS BY A QUALIFIED PROFESSIONAL ENGINEER OR ENGINEERING TECHNICIAN LEVEL III. BASE CALCULATIONS ON RESULTS OF MANUFACTURER QUALIFICATIONS: FIRMS WHOSE EQUIPMENT, SPECIALTIES, AND ACCESSORIES ARE LISTED BY PRODUCT NAME AND MANUFACTURER
- APPROVAL GUIDE AND THAT COMPLY WITH OTHER REQUIREMENTS. SPRINKLER COMPONENTS: LISTING/APPROVAL STAMP, LABEL, OR OTHER MARKING BY A TESTING AGENCY ACCEPTABLE TO AHJ. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELLED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY

IN UL'S PROTECTION EQUIPMENT DIRECTORY AND FM'S FIRE PROTECTION

FIRE SPRINKLERS: UL LISTED OR FMG APPROVED WITH HEAT RESPONSIVE ELEMENT SPRINKLER FINISHES: CHROME PLATED EXTENDED COVERAGE, RAPID RESPONSE HEADS. PIPING, VALVES HOSE CONNECTIONS, ALARM DEVICES, GAUGES

ACCEPTABLE TO AHJ.

AND SEISMIC PERFORMANCE AS REQUIRED BY AHJ. PIPES AND TUBES: PIPE SHALL BE SCHEDULE 40/DYNA 40 UP TO AND INCLUDING 2" SIZE: PIPE 2-1/2" AND LARGER SHALL BE SCHEDULE 10/DYNA. NO PLAIN END, SLIP, SOCKET OR MECHANICAL TEE TYPE FITTINGS

ALLOWED. ALL FITTINGS SHALL BE THREADED OR GROOVED. CPVC

- FITTINGS SHALL NOT BE ALLOWED INSTALLATION: NO EXPOSED TO VIEW PIPING WILL BE ACCEPTABLE THIS AREA.
- DIVISION XIV CONVEYING SYSTEMS : (NOT USED) DIVISION XV - MECHANICAL/PLUMBING SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR DESIGN CRITERIA AND REQUIREMENTS OF ALL MECHANICAL AND PLUMBING. DIVISION XVI - ELECTRICAL ELECTRICAL: SEE ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR DESIGN CRITERIA AND REQUIREMENTS FOR ALL POWER AND LIGHTING.

PROJECT #: 317106 DRAWN BY: WILLIAMS CHECKED BY: THEOBALD

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10-12-17 ISSUED:

LEGEND OF MECHANICAL SYMBOLS AND ABBREVIATIONS

MECHANICAL	_		PLUMBING	
—	POSITIVE PRESSURE DUCT - RISE			FLOOR SINK
1 1 1 1 1 1 1 1 1 1	POSITIVE PRESSURE DUCT - DROP			FLOOR DRAIN
	NEGATIVE PRESSURE DUCT - RISE		FCO POOTS	FLOOR CLEAN-OUT OR CLEAN-OUT TO GRADE
	NEGATIVE PRESSURE DUCT - DROP		COTG	CHECK VALVE
	ROUND DUCT - RISE			GATE VALVE
	ROUND DUCT - DROP			GATE VALVE - NON RISING STEM
	UNDER FLOOR DUCT		0.0 GPM	CALIBRATED BALANCING VALVE
	TURNING VANES			WITH GPM INDICATED BRANCH - BOTTOM CONNECTION
12X12 200	CEILING SUPPLY DIFFUSER			BRANCH - TOP CONNECTION
\$200 \$200	CEILING RETURN REGISTER			BRANCH - SIDE CONNECTION
12X12 200	CEILING EXHAUST REGISTER, (BALANCE TO MATCH SUPPLY IF			RISE OR DROP
24X10	RETURN CFM IS NOT SHOWN) SIDEWALL SUPPLY REGISTER	TOP FIGURES INDICATE NECK SIZE. BOTTOM		RISER - DOWN (ELBOW)
200 200 24X10	SIDEWALL EXHAUST OR RETURN REGISTER	FIGURE INDICATES CFM.	o	RISER - DOWN (ELBOW)
200 12X12 200	CEILING SUPPLY DIFFUSER WITH FLEXIBLE DUCT		OVTR	VENT THRU ROOF
12X12 200	CEILING AIR GRILLE WITH FLEXIBLE DUCT		<u>Р</u>	WATER HAMMER ARRESTOR
	CEILING RETURN AIR GRILE W/ SOUND BOOT	,		INLINE PUMP
	FLEXIBLE DUCT CONNECTION			INLINE PUMP
	FLEXIBLE DUCT			CLEAN-OUT
12/8	RECTANGULAR DUCT WITH NET INSI DIMENSIONS SHOWN IN INCHES.	IDE	\	RELIEF VALVE
12Ø	ROUND DUCT WITH NET INSIDE DIME SHOWN IN INCHES.	ENSIONS		ANGLE VALVE
W	R/W=1. ROUND DUCT SIMILAR TO RE	CTANGULAR		UNION
12/12 8/8	RECTANGULAR TO RECTANGULAR O DUCT TRANSFORMATION MAXIMUM EXCEPT WHERE SHOWN OTHERWIS	15° INCLUDED ANGLE		FLEXIBLE EXPANSION JOINT
12/12 120	RECTANGULAR TO ROUND DUCT TR		H+++++	THERMOMETER - TEMP RANGE AS INDICATED
120 12/12	HIGH EFFICIENCY FITTING		Ŷ Ţ	PRESSURE GAUGE WITH SHUT-OFF COCK
<u> </u>	MANUAL VOLUME DAMPER		₩	PRESSURE GAUGE WITH PIGTAIL
FD,	FIRE DAMPER IN DUCT, W/ ACCESS F	PANEL REQD.	\	LATERAL STRAINER WITH BLOW-OFF VALVE, PROVIDE HOSE END WITH CAP WHERE DISCHARGE IS NOT PIPED TO DRAIN
FSD	COMBINATION FIRE/SMOKE DAMPER	W/ ACCESS PANEL	——————————————————————————————————————	BALL VALVE (PIPE SIZES 2" AND SMALLER) BUTTERFLY VALVE (PIPE SIZES 2-1/2" AND LARGER)
ATCD OR S	ATC DAMPER		P*	VALVE IN RISE
	4-WAY BLOW PATTERN		_	AIR VENT-MANUAL
			ə×	HOSE BIBB
				PIPE CAP
		•	<u> </u>	SENSOR
				90° ELBOW

GENERAL NOTES

DEMOLITION

BALL VALVE

1. THE FIRST 30 FEET OF EXISTING WASTE PIPING SHALL BE CLEANED AND SCOPED TO VERIFY LOCATION AND CONDITION PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLANS AND THE EXISTING CONDITIONS.

<u>SYMBOLS</u>

	1
<u>P-1</u> /	PLUMBING FIXTURES
O	POINT OF CONNECTION
M101	DETAIL TAG - TOP FIGURE IS DETAIL NO. BOTTOM FIGURE IS SHEET NO.
EF 1	EQUIPMENT IDENTIFICATION
<u></u>	KEYED NOTE IDENTIFICATION

LINETYPES

	DOMESTIC COLD WATER (DCW)
	DOMESTIC HOT WATER (DHW)
	DOMESTIC HOT WATER RETURN (DHWI
—— E(NAME) ——	EXISTING PIPING
→ (NAME) →	EXISTING PIPING TO BE REMOVED
	SEWER (BELOW GRADE)
	SEWER (ABOVE GRADE)
	VENT (SEWER)

GENERAL FP NOTES

- DRAWING SHOULD NOT BE CONSIDERED AS A SHOP DRAWING. COORDINATE ALL PIPING WITH STRUCTURAL, MECHANICAL AND
- 2. ALL HEADS SHALL BE QUICK RESPONSE TYPE.
- 3. CONTRACTOR IS TO DEVELOP SHOP DRAWINGS CONFORMING TO NFPA 13. ADDITIONAL HEADS AND/OR PIPING REQUIRED TO MEET SAID STANDARDS IS THE RESPONSIBILITY OF THE CONTRACTOR. LOCATION OF ADDITIONAL HEADS ARE TO BE COORDINATED WITH ARCHITECT AND ENGINEER AND SUBMITTED FOR THEIR REVIEW.
- 4. NO FIRE PROTECTION LINE SHALL BE DESIGNED OR INSTALLED PRIOR TO CLOSE COORDINATION WITH ALL OTHER DISCIPLINES. DUCTWORK, MECHANICAL PIPING, AND PLUMBING TAKE SPACE PRECEDENCE OVER FIRE PROTECTION PIPING. FAILURE TO COMPLY WILL RESULT IN THE FIRE PROTECTION REMOVAL ADN REINSTALLATION AT THE FIRE PROTECTION CONTRACTORS EXPENSE.
- 5. FIRE SPRINKLER CONTRACTOR TO PROVIDE DESIGN FOR OCCUPANCIES SHOWN ON THE PLAN PER NFPA 13.
- 6. FIRE SPRINKLER CONTRACTOR MAY UTILIZE EXISTING SPRINKLERS AND PIPING WHERE THEY DO NOT CONFLICT WITH OTHER TRADES CONSTRUCTION AND COMPLY WITH THE CURRENT STANDARDS.
- 7. ALL WORK DONE SHALL BE PERFORMED WITH WATER CONTROL IN MIND. CONTAINMENT OF WATER IS NECESSARY TO PREVENT WATER FROM DAMAGING SURROUNDING AREA.
- 8. ADD/RELOCATE FIRE SPRINKLER HEAD LOCATIONS FOR NEW FLOOR PLAN AND CEILING PLAN, INCLUDING CEILING HEIGHT ADJUSTMENTS. MODIFY SPRINKLER PIPING AS REQUIRED. THIS NOTE APPLIES TO ALL DRAWINGS, SEE ARCHITECTURAL DRAWINGS FOR REMODEL DETAILS.
- 9. FIRE SPRINKLERS TO BE INSTALLED TO MEET THE CURRENT NFPA-13 EDITION REQUIREMENTS.
- 10. IF MECHANICAL TEES ARE USED, THEY ARE TO BE VICTAULIC 920 OR 920N SERIES OR ENGINEER APPROVED EQUAL.
- 11. MATERIAL AND SHOP DRAWINGS OF THE REMODELED AREA ARE TO BE SUBMITTED FOR REVIEW BY THE ENGINEER.
- 12. SCHEDULE 40 OR DYNA THREAD PIPING SHALL BE USED.
- 13. SHOP DRAWINGS AND MATERIAL SUBMITTALS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO SUBMITTAL TO THE FIRE MARSHAL.
- 14. 14. A WARRANTY, FOR PRODUCT AND SYSTEM OPERATION SHALL BE PROVIDED FOR ONE YEAR, UPON SYSTEM ACTIVATION AND ACCEPTANCE.

		PLUMBING	FIX	ΓURE	SCI	HE DU	JLE ——		
SYMBOL	FIXTURE	MANUFACTURER AND MODEL NO.	COLD WATER	HOT WATER	TRAP	WASTE	∨ENT		ACCESSORIES AND REMARKS
(VC-D)	WATER CLOSET, FLUSH VALVE WALL MOUNT	AMERICAN STANDARD, AFWALL MILLENIUM FLOW WISE ELONGATED FLUSHOMETER TOILET (OR APPROVED EQUAL)			INT. ith DTC toilets pe			FIXTURE:	AFWALL MILLENIUM SIPHON JET, VITREOUS CHINA; ELONGATED TOILET WITH 1-1/2" TOF SPUD; MOEN 8310ACDF16 FLUSH VALVE; 1.6 GALLONS PER FLUSH. HARD WIRED, SENSOR OPERATED,
					·			SEAT:	BEMIS 3155-C DURAGUARD WHITE, OPEN FRONT, SOLID PLASTIC SEAT.
(C-2)	WATER CLOSET, FLUSH VALVE WALL MOUNT (ADA COMPLIANT)	AMERICAN STANDARD, AFWALL MILLENIUM FLOW WISE ELONGATED FLUSHOMETER TOILET (OR APPROVED EQUAL)	1"		INT.	3*	1-1/2*	FIXTURE:	AFWALL MILLENIUM SIPHON JET, VITREOUS CHINA; ELONGATED TOILET WITH 1-1/2" TOF SPUD; MOEN 8310ACDF16 FLUSH VALVE; 1.6 GALLONS PER FLUSH. HARD WIRED, SENSOR OPERATED,
								SEAT:	BEMIS 3155-C DURAGUARD WHITE, OPEN FRONT, SOLID PLASTIC SEAT.
€ C-3	WATER CLOSET, FLUSH VALVE FLOOR MOUNT (ADA COMPLIANT)	AMERICAN STANDARD, MEDERA FLOWISE, 16-1/2" HEIGHT ELONGATED FLUSHOMETER TOILET (OR APPROVED EQUAL)	1"		INT.	3"	1-1/2"	FIXTURE:	MADERA FLOWISH, ADA, VITREOUS CHINA; ELONGATED TOILET WITH 1-1/2" TOP SPUD; MOEN 8310ACDF16 FLUSH VALVE; 1.6 GALLONS PER FLUSH. HARD WIRED, SENSOR OPERATED,
								SEAT:	BEMIS 3155-C DURAGUARD WHITE, OPEN FRONT, SOLID PLASTIC SEAT.
₩C-4	WATER CLOSET, TANK TYPE FLOOR MOUNT (ADA COMPLIANT)	AMERICAN STANDARD, CADET PRO RIGHT HEIGHT ROUND FRONT TOILET (OR APPROVED EQUAL)	3/4"		INT.	3*	1-1/2"	FIXTURE:	215BB.104 CADET PRO, FLOOR MOUNTED, TANK TYPE, VITREOUS CHINA; ELONGATED TOILET WITH FULLY GLAZED 2-1/8" TRAP; 1.28 GALLONS PER FLUSH.
								SEAT:	BEMIS DURAGUARD WHITE, OPEN FRONT, SOLID PLASTIC SEAT.
€ C- 5	WATER CLOSET, TANK TYPE FLOOR MOUNT	AMERICAN STANDARD, MEDERA FLOWISE ELONGATED FLUSHOMETER TOILET (OR APPROVED EQUAL)	3/4*		INT.	3"	1-1/2*	FIXTURE:	MADERA FLOWISH, VITREOUS CHINA; ELONGATED TOILET WITH 1-1/2" TOP SPUD; MOEN 8310ACDF16 FLUSH VALVE; 1.6 GALLONS PER FLUSH. HARD WIRED, SENSOR OPERATED,
								SEAT:	BEMIS 3155-C DURAGUARD WHITE, OPEN FRONT, SOLID PLASTIC SEAT.
(J-1)	URINAL (ADA) FLUSH VALVE	AMERICAN STANDARD WASHBROOK FLOWISE 0.125 (OR APPROVED EQUAL) MOEN - 8316AC (OR APPROVED EQUAL)	3/4*		INT.	2*	2*	FIXTURE:	WALL HUNG, FLUSH VALVE, 0.125 GPF, WASH-DUT URINAL W/INTEGRAL FLUSHING RIM & TRAP, 3/4" TOP INLET SPUD, 2" FEMALE FLANGED DUTLET CONNECTION.
		INSTALL EXISTING FLUSH VALVE WHERE NOTED						FLUSHING DEVICE:	EXPOSED, HARD WIRED, SENSOR OPERATED, URINAL FLUSHOMETER.
[-]	LAVATORY (UNDER COUNTER, ADA COMPLIANT)	KOHLER, K-2211 (OR APPROVED EQUAL)	1/2*	1/2*	1-1/2*	1-1/2"	1-1/2"	FIXTURE	CAXTON 19X15 VITREOUS CHINA OVAL, LAVATORY WITH 4" FAUCET CENTERS, OPEN GRID STRAINER, 3/8" ANGLE SUPPLY STOPS 1-1/4" CAST BRASS CHROME P-TRAP, PROVIDE HORIZONTAL TAILPIECE FROM FIXTURE TO WALL. INSTALL P-TRAP TIGHT
	FAUCET:	MOEN, CA8301 (OR APPROVED EQUAL)						Faucet:	TO WALL. METAL CONSTRUCTION, CHROME FINISH, DECE FITTING, HARD WIRED SENSOR FAUCET, CAST BRASS SPOUT, 1.0 GPM AERATOR, 12 SECOND RUN TIME, THERMOSTATIC MIXING VALVE WITH DOUBLE CHECK VALES ON THE INLETS, ADA.
SH-D	SHOWER	SYMMONS BP-56-500-B30-V) (OR APPROVED EQUAL)	1/2*	1/2*	2*	2*	1	FIXTURE:	PACKAGED SHOWER UNIT WITH HAND SPRAY AND HOSE; TEMPTROL II PRESSURE BALANCE VALVE WITH TEMPERATURE STOP, 1.5 GPM FLOW, HAND SPRAY UNIT WITH FLEXIBLE HOSE, 30" SLIDE BAR, WALL CONNECTIN AND IN-LINE VACUUM BREAKER. SHOWER DRAIN SMITH 2005-A-U-CP, 6-INCH CHROME PLATED STRAINER, 2-INCH NO-HUB OUTLET, CAST IRON BODY.
(D-1)	FLOOR DRAIN	J.R. SMITH 2005-A-U (OR APPROVED EQUAL)			2*	2*	SEE DWG. FOR SIZE	DRAIN:	CAST-IRON BODY, FLASHING COLLAR WITH PROTECTIVE CAP A NICKEL BRONZE ADJUSTABLE STRAINER HEAD WITH SECURED SQUARE HOLE GRATE, AND TRAP GUARD INSERT.
<u>(\$-1)</u>	THREE STATION SINK (WALL MOUNTED, ADA COMPLIANT)	ELKAY, EWMA6020SACC (OR APPROVED EQUAL)	1/2*	1/2*	1-1/2*	1-1/2"	1-1/2*	FIXTURE:	EWMA6020SACC THREE STATION WALL MOUNTED WASH SINK WITH SENSOR FAUCETS. OPEN GRID STRAINER, 3/8" ANGLI SUPPLY STOPS; 1-1/4" CAST BRASS CHROME P-TRAP, PROVIDE HORIZONTAL TAILPIECE FROM FIXTURE TO WALL. INSTALL P-TRAP TIGHT TO WALL.
	FAUCET:	(QTY 3) ELKAY LKB722C (OR APPROVED EQUAL)						Faucet:	METAL CONSTRUCTION, CHROME FINISH, WALL MOUNTED FITTING, HARD WIRED SENSOR FAUCET, CAST BRASS SPOUT, 0.5 GPM AERATOR, THERMOSTATIC MIXING VALVE WITH SLOAN ETF-470A CHECK VALES ON THE INLETS, ADA.
(HB-1)	HOSE BIBB	CHICAGO 387-XKCP (OR APPROVED EQUAL)	3/4"					FIXTURE	CHICAGO 387-XKCP INSIDE SILL FITTING WALL MOUNTED, CHROME PLATED, 2 ½" METAL TEE HANDLE WITH SQUARE, TAPERE BROACH CERAMIC QUARTER-TURN CARTRIDGI ¾" MAIL THREAD OUTLET. SLIP WALL FLANGE.

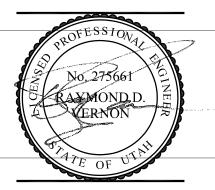
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DFCM APPROVAL

DAVIS DTC RESTROOM UPGRADES
D TECH CAMPUS
KAYSVILLE, UTAH
DFCM PROJECT #15062220

PROJECT #: 317106 DRAWN BY: LINEBACK CHECKED BY: VERNON

ISSUED:



9-15-17

SYMBOL SCHEDULE & **GENERAL NOTES**

M-001

01-230050 HVAC DESIGN CRITERIA

- A. WORK INCLUDED: FURNISH ALL LABOR, MATERIALS ,EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL HEATING, VENTILATION AND AIR CONDITIONING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
 - 1. AIR CONDITIONING AND HEATING TO EXISTING A/C UNITS AS INDICATED ON PLANS COMPLETE WITH DUCTWORK, AND CONTROLS.
- B. RELATED WORK INCLUDED IN THIS SECTION:
 - 1. FURNISHING ELECTRICAL DEVICES NECESSARY FOR MECHANICAL WORK, EXCEPT DISCONNECTS UNLESS INDICATED OTHERWISE.
 - 2. LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS INCLUDING FINAL CONNECTIONS AS INDICATED ON WIRING DIAGRAMS.
 - 3. CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS INDICATED ON WIRING DIAGRAMS.
 - F. RESPONSIBILITY FOR OBTAINING CLARIFICATION OF DISCREPANCIES BETWEEN MECHANICAL AND ELECTRICAL WORK FROM ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
 - 5. RESPONSIBILITY FOR PROPER OPERATION OF AUTOMATIC ELECTRICAL CONTROLS AND EQUIPMENT, AND OF ELECTRIC POWER DRIVEN EQUIPMENT FURNISHED UNDER THIS SECTION
- C. RELATED WORK IN OTHER SECTIONS:
 - 1. ELECTRICAL WORK AS FOLLOWS WILL BE PROVIDED UNDER ELECTRICAL DIVISION:
- D. CONDUIT FOR LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED EXCEPT CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.
- E. LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED HEREIN EXCEPT LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 15.
- F. PROVIDING DISCONNECT SWITCHES.
- G. INSTALLING ELECTRICAL DEVICES SUCH AS STARTERS AND DISCONNECTS, AND WHEN INDICATED, FURNISHING ALL SUCH DEVICES.
- H. CODES AND STANDARDS:
 - 1. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES,
 - CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
 - 2. 2015 INTERNATIONAL MECHANICAL CODE.
 3. 2015 INTERNATIONAL BUILDING CODE.
 - 4. 2015 INTERNATIONAL PLUMBING CODE.
 - 5. 2015 INTERNATIONAL ENERGY CONSERVATION CODE.
 - 2015 INTERNATIONAL FUEL AND GAS CODE.
 ASHRAE 90.1–1999.
 - 8. 2015 INTERNATIONAL ELECTRICAL CODE.

01-230051 PRODUCT HANDLING

- A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE. DURING AND AFTER INSTALLATION.
- B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

01-230052 JOB CONDITIONS

A. EXAMINATION OF SITE: EXAMINE THE SITE AND INCLUDE IN BID PROPOSAL ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.

01-230053 MISCELLANEOUS

- A. PERMIT AND FEES: ARRANGE, APPLY AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, EXAMINATIONS AND FEES OR CHARGES REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION.
- B. LOCATIONS AND ACCESSIBILITY: CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACE AVAILABLE FOR INSTALLATION OF WORK UNDER THIS SECTION. VALVES, MOTORS, CONTROLS AND OTHER DEVICES REQUIRING SERVICE, MAINTENANCE AND ADJUSTMENT SHALL BE PLACED IN FULLY ACCESSIBLE POSITIONS AND LOCATIONS. PROVIDE ACCESS DOORS WHERE REQUIRED IN DUCTWORK AND/OR CONSTRUCTION WHETHER SPECIALLY DETAILED OR NOT, AND RENDER ALL SUCH DEVICES ACCESSIBLE.
- C. SCAFFOLDING: FURNISH ALL SCAFFOLDING, RIGGING AND HOISTING AS REQUIRED FOR THE PROPER EXECUTION OF THE WORK.
- D. DRAWINGS: DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF DUCTWORK, EQUIPMENT, AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. ALL OFFSETS AND INTERFERENCES MAY NOT BE SHOWN BECAUSE OF THE SCALE OF DRAWINGS. ASSUME THE RESPONSIBILITY FOR COORDINATING THE WORK WITH ALL OTHER TRADES. WORK SPECIFIED AND NOT CLEARLY DEFINED BY THE DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO THE ENGINEER. IN THE EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ENGINEER, THEY SHALL BE MADE BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGES.
- E. ALL HVAC EQUIPMENT SHALL BE LABELED. INFORMATION ON LABELS SHALL INCLUDE; IDENTIFICATION NUMBER AND NAME SAME AS THE DRAWINGS, FLOW AND STATIC PRESSURE AND THE AREA TO WHICH THE UNIT SERVES. LABELS SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16 INCH HIGH.
- F. PROVIDE 4" MINIMUM HEIGHT CONCRETE EQUIPMENT PADS FOR ALL MAJOR MECHANICAL EQUIPMENT. EXTEND THE PAD 6 INCHES LARGER ON ALL SIDES OF THE EQUIPMENT AND PROVIDE 1: BEVELED EDGES. COAT EQUIPMENT PADS IN MECHANICAL ROOMS ABOVE THE MAIN LEVEL WITH WATER PROOF COATING PRIOR TO SETTING EQUIPMENT.

01-230550 SUBMITTALS AND O&M MANUALS

A. SHOP DRAWINGS: WITHIN 15 DAYS AFTER AWARD OF CONTRACT, AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE FABRICATED AND DELIVERED TO THE JOBSITE, SUBMIT COMPLETE SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR ENGINEER TO REVIEW IN ACCORDANCE WITH THESE SPECIFICATIONS. SHOW ALL DETAILS OF ALL DUCTWORK, AND EQUIPMENT PADS.

B. PRODUCT DATA:

- 1. SUBMIT TWO (2) COPIES OF ALL MANUFACTURER'S PRODUCT DATA SIMULTANEOUSLY WITH ALL SHOP DRAWING SUBMITTALS.
- 2. PRODUCT DATA TO INCLUDE ALL AIR CONDITIONING EQUIPMENT, HANGERS, FANS AND OTHER STANDARD ITEMS AS REQUIRED TO COMPLEMENT SHOP DRAWINGS FOR A SUBMITTAL INDICATING PRODUCTS TO BE USED ON THIS WORK.
- 3. MANUFACTURERS AND SUPPLIERS OF EQUIPMENT SHALL PROVIDE ALL DATA NECESSARY FOR COMPLIANCE WITH THE STATE OF CALIFORNIA ENERGY CONSERVATION STANDARDS. COMPLIANCE CERTIFICATION FOR ALL EQUIPMENT SHALL BE INCLUDED IN EQUIPMENT SUBMITTALS.
- C. RECORD DRAWINGS: MAINTAIN THROUGHOUT THE PROGRESS OF THE WORK PROJECT RECORD DRAWINGS AND SUBMIT TO THE OWNER.
- D. OPERATION AND MAINTENANCE MANUALS
 - 1. PROVIDE 2 HARD COPIES (1 DFCM, 1 FACILITIES OPERATIONS) OF THE O&M MANUALS FOR USE BY DTC.
 - 2. PROVIDE AN ELECTRONIC FILE OF THE COMPLETE O&M IN PDF FORMAT.
 - 3. PROVIDE BINDERS WITH EASY-VIEW FOR SIZE 8 ½ x 11 INCH SHEETS. THE FRONT COVER AND BACKBONE SHALL BE LABELED AS FOLLOWS:

OPERATING AND MAINTENANCE MANUAL FOR THE

(INSERT PROJECT NAME)

YEAR

VOLUME NO.()

(INSERT MECHANICAL ENGINEER)
MECHANICAL ENGINEER

(INSERT ARCHITECT)
ARCHITECT

- 4. PROVIDE AN INDEX SHEET TYPED ON AICO GOLD—LINE INDEXES IN THE FRONT OF THE BINDER. THE MANUAL SHALL INCLUDE THE FOLLOWING.
 - a. SYSTEM DESCRIPTIONS AND BASIS OF DESIGNb. START-UP PROCEDURE AND OPERATION OF SYSTEM
 - c. MAINTENANCE AND LUBRICATION TABLE
 - OPERATION AND MAINTENANCE BULLETINS
 - e. AUTOMATIC TEMPERATURE CONTROL SEQUENCE OF OPERATION, DESCRIPTION OF
 - OPERATION, INTERLOCK AND CONTROL DIAGRAMS, AND CONTROL PANELS.
 AIR AND WATER SYSTEM BALANCING REPORTS
 - g. SYSTEM COMMISSIONING REPORTS
 - . EQUIPMENT START-UP CERTIFICATES
- E. GUARANTEES: IN ADDITION TO EQUIPMENT WARRANTIES, FURNISH A WRITTEN GUARANTEE AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE YEAR. GUARANTEE SHALL INCLUDE REPAIR OF DAMAGE TO, OR REPLACEMENT OF, ANY PART OF EQUIPMENT OR PREMISES CAUSED BY LEAKS OR BREAKS IN PIPE OR EQUIPMENT PROVIDED UNDER THIS SECTION.

01-230553 HVAC PIPING AND EQUIPMENT IDENTIFICATION

A. PIPE IDENTIFICATION:

- LABEL AND COLOR CODE ALL PIPS WITH CONTENTS CLEARLY IDENTIFIED AND ARROW INDICATING DIRECTION OF FLOW. THIS APPLIES TO PIPING RUN ABOVE THE CEILINGS AND IN PIPE TUNNELS AS WELL AS PIPE EXPOSED IN EQUIPMENT ROOMS AND FINISHED AREAS. IDENTIFY PIPES AS THE FOLLOWING LOCATIONS.
 - a. ADJACENT TO EACH VALVE.
 - b. AT EVERY POINTS OF ENTRY AND EXIT WHERE PIPING PASSES THROUGH ALL WALL OR FLOOR.
 - c. ON EACH RISER AND JUNCTION
 d. A MAXIMUM OF EVERY FIFTY FEET (50') ON LONG CONTENTIOUS LINES FULLY EXPOSED
 - e. ADJACENT TO ALL SPECIAL FITTINGS OR DEVICES (REGULATING VALVES, ETC.).
 - CONNECTION TO EQUIPMENT.

 APPLY MARKERS SO THEY CAN BE READ FROM THE FLOOR.
- PROVIDE ALL TEMPERATURE SELF-STICKING PERMANENT LABELS AND MARKERS AS MANUFACTURED BY W.H. BRADY CO 727 WEST GLENDALE AVE, MILWAUKEE, WISCONSIN: OR SETON NAME PLATE CORP, 592 BOULEVARD, NEW HAVEN, CONNECTICUT.
- PROVIDE UNIFORM PIP COLOR—CODING THOUGHT THE CAMPUS AND MATCH NEW SYSTEMS WITH EXISTING SYSTEMS. PROVIDE BACKGROUND COLORS SHALL BE AS FOLLOWS:
- a. BLACK: DANGEROUS MATERIALS (HIGH PRESSURE STEAM, NATURAL GAS, CONDENSATE, HIGH PRESSURE REFRIGERANT, HIGH VOLTAGE, ETC.)
- D. WHITE: FIRE PROTECTION EQUÍPMENT (FIRE SPRINKLÉR WATER, FIRE PROTECTION WATER)
- WATER) c. WHITE: PROTECTIVE MATERIALS (FILTERED WATER)
- d. WHITE: SAFE MATERIALS (CHILLED WATER, COLD WATER, INSTRUMENT AIR, SANITARY SEWER, ETC.)
- . PROVIDE IDENTIFICATION LETTERS TWO INCH (2") HIGH FOR PIPES THREE INCH (3") AND LARGER, AND ONE INCH (1") HIGH FOR PIPES TWO AND ONE—HALF INCHES (2 $-\frac{1}{2}$ ") AND UNDER.
- B. DUCT IDENTIFICATION: IDENTIFICATION AND LABELING
 - 1. IDENTIFY ALL DUCTS EXPOSED IN MECHANICAL EQUIPMENT ROOM. A SAMPLE DUCT IDENTIFICATION IS AS FOLLOWS: "SUPPLY HOT DUCT—HEATING AUDITORIUM WING."

C. EQUIPMENT IDENTIFICATION

- 1. IDENTIFY ALL MECHANICAL EQUIPMENT AND ALL OTHER DEVICES WITH SIGNS MADE OF LAMINATED PLASTIC WITH ONE-EIGHT INCH (%") OR LARGER ENGRAVED LETTERS. ATTACH SIGNS SECURELY WITH RUST PROOF SCREW OR SOME OTHER PERMANENT MEANS (NO ADHESIVES).
- 2. INCLUDE THE FOLLOWING INFORMATION ON THE EQUIPMENT IDENTIFICATION SIGN: NAME OF EQUIPMENT, IDENTIFICATION ON PLANS AND SCHEDULES, DESIGN CAPACITY AND ANY OTHER IMPORTANT DATA NO INCLUDED ON FACTORY ATTACHED NAME PLATE.
- 3. ATTACH SIGNS TO EQUIPMENT SO THEY CAN BE EASILY READ. ATTACH USING SCREW OR RIVETS.
- 4. A SAMPLE IDENTIFICATION SIGN FOR EQUIPMENT IS AS FOLLOWS:

"SUPPLY FAN -AUDITORIUM F-2 CAPACITY: 49,850 CFM @ 3.5" S.P. (AT 4775 FT. ELEV.)"

"HEATING HOT WATER PUMP CLASSROOM AREA 156 GPM @ 57 FT.HEAD"

D. REMOVABLE CEILING TILE:

PROVIDE IDENTIFICATION ON THE LAY—IN TILE TEE BAR CEILING WHERE VALVES, MIXING BOXES, FIRE DAMPERS, ADJUSTMENT CONTROLS, ETC. ARE LOCATED ABOVE CEILING TILE. INDICATE THE TILE TO BE REMOVED FOR ACCESS TO A PARTICULAR ITEM.

DFCM APPROVAL

architects

SESTROOM UPGRADES

DAVIS DTC RESTR(
D TECH CAMPUS
KAYSVILLE, UTAH

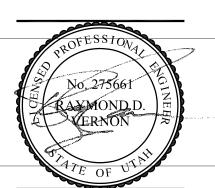
MARK: DATE: DESCRIPTION:

PROJECT #: 317106

DRAWN BY: LINEBACK

CHECKED BY: VERNON

ISSUED: 9-15-17



MECHANICAL SPECIFICATIONS

M-002

02-230548 VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT.

ALL ISOLATION MATERIALS, FLEXIBLE CONNECTORS AND SEISMIC RESTRAINTS SHALL BE OF THE SAME VENDOR AND SHALL BE SELECTED AND CERTIFIED USING PUBLISHED OR FACTORY CERTIFIED DATA. ANY VARIANCE OR NON-COMPLIANCE WITH THESE SPECIFICATION REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR IN AN APPROVED MANNER.

A. DESCRIPTION

- THE WORK IN THIS SECTION CONSISTS OF FURNISHING ENGINEERING AND MATERIALS NECESSARY FOR THE REQUIRED SEISMIC DESIGN OF SUPPORTS AND ATTACHMENTS FOR SYSTEMS AND EQUIPMENT CONTAINED HEREIN FOR THE PROJECT.
- UNLESS OTHERWISE SPECIFIED, ALL MECHANICAL, ELECTRICAL, FIRE PROTECTION AND PLUMBING EQUIPMENT, PIPE, AND DUCT SHALL BE RESTRAINED TO RESIST SEISMIC FORCES RESTRAINTS SHALL MAINTAIN EQUIPMENT, PIPING, AND DUCT WORK IN A CAPTIVE POSITION.
- THE 2009 IBC/ASCE 7-05 REQUIRES THAT MECHANICAL & ELECTRICAL COMPONENTS BE ASSIGNED A COMPONENT IMPORTANCE FACTOR. THIS IMPORTANCE FACTOR IS USED TO DETERMINE WHICH EQUIPMENT MAY OR MAY NOT BE EXEMPT FROM SEISMIC DESIGN FORCE REQUIREMENTS. THE COMPONENT IMPORTANCE FACTOR IS DETERMINED AS FOLLOWS:
 - In= 1.5 LIFE-SAFETY COMPONENT IS REQUIRED TO FUNCTION AFTER AN EARTHQUAKE. = 1.5 COMPONENT CONTAINS HAZARDOUS OR FLAMMABLE MATERIAL. = 1.5 STORAGE RACKS IN OCCUPANCIES OPEN TO THE GENERAL PUBLIC (E.G.,
 - WAREHOUSE RETAIL STORES). $I_{\rm p} = 1.0$ ALL OTHER COMPONENTS.

B. GENERAL SEISMIC DESIGN REQUIREMENTS:

- PER IBC 1613.1. THE SEISMIC RESTRAINT OF NONSTRUCTURAL COMPONENTS SHALL MEET THE REQUIREMENTS OF ASCE 7. IF THE COMPONENT IN QUESTION IS EXEMPTED BY SECTION 13.1.4 OF ASCE 7. A SUBMITTAL NOTING THAT SEISMIC RESTRAINT OF THAT PARTICULAR COMPONENT IS NOT REQUIRED.
- THE SEISMIC RESTRAINT DESIGN MUST MEET THE REQUIREMENTS LISTED IN TABLE 13.2-1 OF ASCE 7. THESE REQUIREMENTS MAY BE MET BY PROVIDING A PROJECT-SPECIFIC DESIGN PREPARED BY A REGISTERED DESIGN PROFESSIONAL IN THE STATE WERE THE PROJECT IS BEING CONSTRUCTED, AND A MANUFACTURER'S CERTIFICATION THAT THE COMPONENT IS SEISMICALLY QUALIFIÉD.
- ON PROJECTS WITH SEISMIC DESIGN CATEGORY C:
 - COMPONENTS WITH IP = 1.0 DO NOT REQUIRE SEISMIC DESIGN OR RESTRAINT.
 - DUCT: WHERE DUCT IP>1.0, BRACE ALL DUCT > 5 LB/LF PIPE: WHERE PIPE IP>1.0, BRACE ALL PIPE > 2" DIAMETER.
 - EQUIPMENT: WHERE EQUIPMENT IP>1.0, PROVIDE ANCHORAGE OR RESTRAINT DESIGN FOR ALL FLOOR. WALL MOUNTED OR SUSPENDED EQUIPMENT.

02-230548 VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT CONT'D.

- 4. ON PROJECTS WITH SEISMIC DESIGN CATEGORY D:
 - SEISMIC ANCHORAGE DESIGN IS NOT REQUIRED FOR FLOOR MOUNTED MECHANICAL ELECTRICAL, AND PLUMBING COMPONENTS WHERE I P = 1.0 AND FLEXIBLE CONNECTIONS BETWEEN THE COMPONENTS AND ASSOCIATED DUCT WORK, PIPING AND CONDUIT ARE PROVIDED, THE COMPONENTS ARE MOUNTED AT 4 FEET (1219 MM) OR LESS ABOVE A FLOOR LEVEL AND THEY WEIGH 400 POUNDS (1780 N) OR LESS.
- SEISMIC ANCHORAGE OR BRACING IS NOT REQUIRED FOR HANGING, WALL MOUNTED, AND FLEXIBLY SUPPORTED MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS THAT WEIGH 20 POUNDS (89 N) OR LESS, WHERE I P = 1.0 AND FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENTS AND ASSOCIATED DUCT WORK, PIPING AND CONDUIT.
- WHERE EQUIPMENT IP>1.0, PROVIDE ANCHORAGE OR RESTRAINT DESIGN FOR ALL FLOOR, WALL MOUNTED OR SUSPENDED EQUIPMENT.
- 7. DUCT:
 - WHERE DUCT I_p =1.0, BRACE ALL RECTANGULAR DUCT > AND EQUAL 6 SQFT, ALL ROUND DUCT > 33" DIAMETER.
 - WHERE DUCT I_D>1.0, BRACE ALL DUCT > 5 LB/LF
- - 1. WHERE PIPE $I_p=1.0$, BRACE ALL PIPE > 3" DIAMETER. b. 2. WHERE PIPE Ip>1.0, BRACE ALL PIPE > 1" DIAMETER.
- EQUIPMENT ITEMS INSTALLED IN-LINE AND RIGIDLY MOUNTED AT THE INLET AND OUTLET TO THE DUCT SYSTEM (E.G., FANS, HEAT EXCHANGERS AND HUMIDIFIERS) WITH AN OPERATING WEIGHT LESS THAN 75 POUNDS (334 N) NEED NOT BE BRACED IF THE DUCT RUN IT IS ATTACHED TO IS BRACED. EQUIPMENT WITH AN OPERATING WEIGHT GREATER THAN 75 LBS MUST BE BRACED AND SUPPORTED INDEPENDENT OF THE DUCT.
- 10. REGARDLESS OF SEISMIC DESIGN CATEGORY:
 - SEISMIC RESTRAINTS ARE NOT REQUIRED ON PIPING SUPPORTED BY INDIVIDUAL CLEVIS HANGERS WHERE THE DISTANCE, AS MEASURED FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE, IS LESS THAN 12 INCHES (305MM) FOR THE ENTIRE PIPE RUN AND THE PIPE CAN ACCOMMODATE THE EXPECTED DEFLECTIONS. TRAPEZE OR DOUBLE ROD HANGERS, WHERE THE DISTANCE FROM THE TOP OF THE TRAPEZE OR SUPPORT TO THE STRUCTURE IS LESS THAN 12 INCHES FOR THE ENTIRE RUN. HVAC DUCTS SUSPENDED FROM HANGERS THAT ARE 12 INCHES (305 MM) OR LESS IN LENGTH FROM THE TOP OF THE DUCT TO THE SUPPORTING STRUCTURE AND THE HANGERS ARE DETAILED TO AVOID SIGNIFICANT BENDING OF THE HANGERS AND THEIR CONNECTIONS. DUCT MUST BE POSITIVELY ATTACHED TO HANGER WITH MINIMUM #10 SCREWS WITHIN 2" FROM THE TOP OF THE DUCT. HANGER RODS SHALL NOT BE CONSTRUCTED IN A MANNER THAT WOULD SUBJECT THE ROD TO BENDING MOMENTS (SWIVEL, EYE BOLT, OR VIBRATION ISOLATION HANGER CONNECTION TO STRUCTURE ARE REQUIRED TO PREVENT BENDING MOMENTS WHEN UTILIZING THIS EXCLUSION). DISPLACEMENT OF THE COMPONENT SHALL NOT CAUSE DAMAGING IMPACT WITH OTHER UTILITIES OR THE STRUCTURE. FLEXIBLE CONNECTIONS ARE REQUIRED BETWEEN UNBRACED SYSTEMS AND EQUIPMENT TO ACCOMMODATE DIFFERENTIAL DISPLACEMENTS. WHERE HVAC SYSTEMS IP>1.0, THIS EXCLUSION SHALL NOT APPLY (PER ASCE 7, 13.6.7).
- 11. L. BRACE SPACING FOR LOW DEFORMABILITY PIPING AND DUCT (E.G., CAST IRON, PVC, FIBERGLASS, GLASS, ETC.) SHALL NOT EXCEED ONE HALF OF THE BRACE SPACING OF HIGH DEFORMABILITY PIPING OR DUCT.
- 12. WHEREVER SYSTEMS OR COMPONENTS ARE VIBRATION ISOLATED, SEISMIC RESTRAINTS MUST BE DESIGNED TO PREVENT SHORT CIRCUITING OF THE ISOLATION SYSTEMS.
- C. MANUFACTURER'S RESPONSIBILITIES:
 - THE FOLLOWING SEISMIC RESTRAINT MANUFACTURERS ARE ACCEPTED: INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY (ISAT), AMBER / BOOTH, MASON INDUSTRIES INC. (M.I.), KINETICS NOISE CONTROL INC. (K.N.C.), VIBRATION MOUNTING & CONTROLS, INC. (V.M.C.) AND VIBRO
- D. QUALITY CONTROL
- 1. ALL SEISMIC RESTRAINT COMPONENTS EXPOSED TO THE WEATHER SHALL BE ZINC OR CADMIUM-PLATED, EPOXY COAT OR PVC COATED, AND/OR GALVANIZED STEEL. NUTS, BOLTS AND WASHERS MAY BE ZINCELECTROPLATED. RESTRAINTS FOR OUTDOOR MOUNTED COMPONENTS SHALL PROVIDE ADEQUATE RESTRAINT FOR THE GREATER OF EITHER WIND OR SEISMIC LOADS REQUIRED BY LOCAL CODES OR WITHSTAND A MINIMUM OF 30 LB. / SQ. FT. APPLIED TO ANY EXPOSED SURFACE OF THE EQUIPMENT.
- E. SUBMITTALS
 - SUBMITTALS MUST INCLUDE SEISMIC BRACING LAYOUT DRAWINGS INDICATING THE LOCATION OF ALL SEISMIC RESTRAINTS. THE SUBMITTAL PACKAGE MUST INCLUDE SEISMIC RESTRAINT DETAILS PROVIDING SPECIFIC INFORMATION RELATING TO THE MATERIALS, TYPE, SIZE, AND LOCATIONS OF ANCHORAGES; MATERIALS USED FOR BRACING; ATTACHMENT REQUIREMENTS OF BRACING TO STRUCTURE AND COMPONENT: AND LOCATIONS OF TRANSVERSE AND LONGITUDINAL SWAY BRACING AND ROD STIFFENERS.

02-230548 VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT CONT'D.

F. VIBRATION ISOLATION PRODUCTS

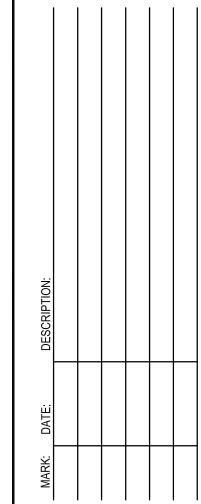
- 1. ROOFTOP UNIT CURBS AND ISOLATION SYSTEMS
 - SPECIFICATION W: NON-ISOLATED SEISMICALLY RATED ROOFTOP CURB SYSTEM THAT IS FLASHED INTO ROOFING MEMBRANE. AIR AND WATERTIGHT CURB SHALL HAVE A NEOPRENE SPONGE SEAL AT THE TOP AND BE RIGID ENOUGH PROVIDE CONTINUOUS PERIMETER SUPPORT FOR ROOFTOP UNIT. CURB MUST PROVIDE MEANS TO POSITIVELY ANCHOR TO CONCRETE DECK, OR BOLT OR WELD DIRECTLY TO STRUCTURAL STEEL TO WITHSTAND SEISMIC LOADING. CURB SHALL PROVIDE A MEANS BY WHICH CONTRACTOR SUPPLIED INSULATION MAY BE INSTALLED FOR THERMAL INSULATION AND ACOUSTIC ATTENUATION. CURBS SHALL ACCOMMODATE ROOF PITCH SHOWN ON DRAWINGS. CURB SHALL USE MINIMUM 16 GAGE GALVANIZED STEEL AND SHALL BE DESIGNED WITH CROSS-BRACING REQUIRED TO WITHSTAND THE GREATER OF SEISMIC FORCES (PARA 1.3.4.) OR WIND LOADING PER LOCAL BUILDING CODE. DESIGN MUST BE CERTIFIED BY REGISTERED PROFESSIONAL ENGINEER IN THE EMPLOY OF THE MANUFACTURER. SEISMIC CURBS SHALL BE AMBER/BOOTH TYPE RTC OR EQUAL.
 - SPECIFICATION X: AN EXTRUDED ALUMINUM RAIL BASE FOR ROOF TOP AIR CONDITIONING UNITS CONSISTING OF TOP AND BOTTOM WEATHERPROOFED ALUMINUM RAILS FOR MOUNTING BETWEEN EQUIPMENT AND ROOF CURB, INCORPORATING WIND/SEISMIC RESTRAINTS AND A CONTINUOUS AIR AND WATER SEAL WHICH IS PROTÉCTED FROM ACCIDENTAL PUNCTURE AND DIRECT SUNLIGHT BY AN ALUMINUM WEATHER SHIELD. RAILS SHALL INCORPORATE FREE STANDING, OPEN SPRING ISOLATORS (MINIMUM KX/KY OF 1.0) PROPERLY SPACED AND SIZED AROUND PERIMETER FOR THE DEFLECTION LISTED IN THE ISOLATION SCHEDULE. TO PREVENT LEAKS, RAILS SHALL BE FACTORY ASSEMBLED (TO THE LIMITS OF FREIGHT CARRIERS) AND SHIPPED AS A ONE-PIECE UNIT. WHERE SPLICED, CORNERS TO BE FACTORY ASSEMBLED. SPECIFICATION X RAILS MAY ONLY BE USED WHERE WIND/SEISMIC RESTRAINT ARE CAPABLE OF WITHSTANDING SEISMIC FORCES PER PARAGRAPH 1.3.4. SEISMIC DESIGN OF THE CURB SUPPORTING THE ISOLATION RAIL SHALL BE PROVIDED BY THE ROOF CURB MANUFACTURER. RAILS SHALL BE AMBER/BOOTH TYPE RTIR OR EQUAL.
 - SPECIFICATION Y: SEISMICALLY RATED ROOFTOP ISOLATION CURB SYSTEM THAT IS FLASHED INTO ROOFING MEMBRANE. STANDARD UNIT CURB WILL NOT BE USED. AIR AND WATERTIGHT UPPER CURB SHALL HAVE A NEOPRENE SPONGE SEAL AT THE TOP AND BE RIGID ENOUGH PROVIDE CONTINUOUS PERIMETER SUPPORT FOR ROOFTOP UNIT. THE UPPER CURB SHALL BE SUPPORTED BY TYPE C ISOLATORS WELDED OR BOLTED TO CONTINUOUS STRUCTURAL SUPPORT WHICH IS POSITIVELY ANCHORED TO CONCRETE DECK OR BOLTED OR WELDED TO THE STRUCTURE TO WITHSTAND SEISMIC LOADING. AN EPDM NYLON REINFORCED AIRTIGHT WEATHERPROOF SEAL SHALL CONSOLIDATE THE UPPER AND LOWER CURBS. WEATHERPROOF ACCESS DOORS SHALL BE PROVIDED AT EACH ISOLATOR TO ALLOW ISOLATOR ADJUSTMENT. ISOLATION CURB SHALL PROVIDE A MEANS BY WHICH CONTRACTOR SUPPLIED INSULATION MAY BE INSTALLED FOR THERMAL INSULATION AND ACOUSTIC ATTENUATION. CURBS SHALL ACCOMMODATE ROOF PITCH SHOWN ON DRAWINGS. ISOLATION CURB SHALL USE MINIMUM 16 GAGE GALVANIZED STEEL AND SHALL BE DESIGNED WITH CROSS-BRACING REQUIRED TO WITHSTAND THE GREATER OF SEISMIC FORCES (PARA 1.3.4.) OR WIND LOADING PER LOCAL BUILDING CODE. DESIGN MUST BE CERTIFIED BY REGISTERED PROFESSIONAL ENGINEER IN THE EMPLOY OF THE MANUFACTURER. ISOLATION CURBS SHALL BE AMBER/BOOTH TYPE RTIC OR EQUAL.

architects

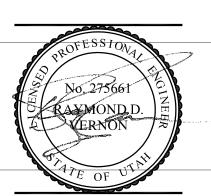
DFCM APPROVAL

UPGRADES \sim SE PHA **RESTROOM**

DIC DAVIS



PROJECT #: 317106 DRAWN BY: LINEBACK CHECKED BY: VERNON ISSUED: 9-15-17



MECHANICAL **SPECIFICATIONS**

02-230700 HVAC INSULATION

- A. THERMAL DUCT INSULATION: INSULATE ALL SUPPLY AND RETURN AIR DUCTS, UNLESS OTHERWISE SPECIFIED WITH KNAUF OR EQUAL, MICROLITE FIBERGLASS DUCT INSULATION, FOIL FACED, 3/4 LB. DENSITY, 1-1/2" THICK INSULATION WRAPPED ENTIRELY AROUND DUCT WITH JOINTS LAPPED AT LEAST 2" AND SECURED WITH 16 GAUGE GALVANIZED WIRE ON 12" CENTERS. INSULATION SHALL COVER ALL SURFACES INCLUDING STANDING SEAMS. THERMAL RESISTIVE VALUE OF DUCT WRAP SHALL BE A MINIMUM OF R-5.
- RECTANGULAR SUPPLY DUCTS AND RETURN AIR DUCTS LOCATED IN UNCONDITIONED SPACES SHALL BE LINED WITH KNAUF LINACOUSTIC OR EQUAL, 1 INCH, 1-1/2 LB, THERMAL RESISTIVE VALUE OF DUCT LINER SHALL BE A MINIMUM OF R-5. RECTANGULAR SUPPLY DUCTS AND RETURN AIR DUCTS LOCATED OUTSIDE THE BUILDING ENVELOPE SHALL BE LINED WITH KNAUF LINACOUSTIC OR EQUAL, 2 INCH, 1-1/2 LB, THERMAL RESISTIVE VALUE OF DUCT LINER SHALL BE A MINIMUM OF R-8. DENSITY COATED FIBERGLASS DUCT LINER COMPLYING WITH FRICTION CORRECTION FACTOR NOT GREATER THAN 1.1 AT A VELOCITY OF 3000 FPM. APPLY INSULATION TO INSIDE OF DUCTS WITH AN APPROVED FIRE RETARDANT ADHESIVE TO PROVIDE 100% COVERAGE AND A SMOOTH SURFACE. IN DUCTS WITH ONE SIDE MORE THAN 12", SECURE INSULATION WITH MECHANICAL FASTENERS IN ADDITION TO ADHESIVE, SPACED AT 14" CENTERS IN BOTH DIRECTIONS. MECHANICAL FASTENERS SHALL BE FLUSH WITH THE LINER SURFACE AND SHALL START WITHIN 2" OF THE LEADING EDGE OF EACH SECTION, AND WITHIN 3" OF THE LEADING EDGE OF ALL CROSS JOINTS OF THE LINER SHALL BE HEAVILY COATED WITH AN APPROVED FIRE RESISTANT ADHESIVE. THE DUCT LINER SHALL BE CUT TO ASSURE SNUG CLOSING CORNER JOINTS, THE BLACK SURFACE OF THE LINER SHALL FACE THE AIR STREAM, TRANSVERSE JOINTS SHALL BE NEATLY BUTTED AND ALL DAMAGED AREAS SHALL BE HEAVILY COATED WITH AN APPROVED ADHESIVE.
- C. ALL DUCT INSULATION SHALL HAVE AN NRC RATING OF NOT LESS THAN 0.60 AND A K FACTOR OF NOT MORE THAN 0.27. DUCT DIMENSIONS SHALL BE INCREASED 2 INCHES ON EACH SIDE FROM THOSE SHOWN ON DRAWINGS TO ACCOMMODATE INSULATION.

02-233113 METAL DUCTS

- A. PROVIDE DUCTS, PLENUMS, ACCESS DOORS, FRESH AIR INTAKES, AND EXHAUSTS AS INDICATED AND REQUIRED. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. PROVIDE PREFABRICATED SPIRAL LOCKSEAM DUCTS AND FITTINGS AND RECTANGULAR DUCTS OF GALVANIZED STEEL. ALUMINUM FLEXIBLE DUCTWORK OR GYPSUM BOARD DUCTWORK IS NOT ACCEPTABLE.
- B. ALL CONNECTIONS TO MAIN DUCTS SHALL BE MADE WITH LOW LOSS FITTINGS.
- C. FLAT DUCT SURFACES SHALL BE CRIMPED DIAGONALLY REGARDLESS OF SIZE. LONGITUDINAL JOINTS IN ALL DUCT SIZES MAY BE FLAT LOCK JOINTS. TRANSVERSE JOINTS AND INTERMEDIATE BRACING SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL OR GALVANIZED STRUCTURAL ANGLES IN ACCORDANCE WITH REQUIREMENTS OF ASHRAE GUIDE AND PUBLIC AUTHORITIES HAVING JURISDICTION.
- D. TRANSVERSE JOINTS ON ALL DUCTS SHALL BE SEALED WITH MASTIC OR TAPE.
- E. LONGITUDINAL JOINTS ON DUCTS WITH INTERNAL STATIC PRESSURES IN EXCESS OF 0.75 INCHES OF WATER PRESSURE SHALL BE SEALED WITH MASTIC OR TAPE.
- F. LOCK JOINTS SHALL BE HAMMERED TO MAKE THEM AIRTIGHT. INSIDE OF DUCT SHALL PRESENT A SMOOTH SURFACE TO FLOW AIR.
- G. CHANGES IN SIZE OF DUCTS SHALL INCREASE GRADUALLY WITH A SLOPE OF NOT MORE THAN 12 INCHES IN 5 FEET WHERE POSSIBLE, BUT NOT MORE THAN 12 INCHES IN 3 FEET IN ANY EVENT.
- H. TURNS SHALL BE MADE WITH A THROAT RADIUS OF NOT LESS THAN THE DUCT WIDTH.
- I. PLENUMS SHALL BE MADE OF 18 GAUGE GALVANIZED SHEET STEEL REINFORCED HORIZONTALLY ON A MAXIMUM OF 48" CENTERS BY 1-1/2" X 1-1/4" X 1/8" GALVANIZED ANGLES AND REINFORCED VERTICALLY BY 1-1/2" STANDING SEAMS.
- J. PRESSURE TEST AND SEAL ALL NEW AND EXISTING DUCTS IN RETROFIT AND REMODEL PROJECTS.

02-233300 AIR DUCT ACCESSORIES

- A. TURNING VANES SHALL BE FURNISHED AND INSTALLED IN ALL 90—DEGREE TURNS IN SUPPLY, RETURN, MIXED AIR AND FRESH AIR DUCTS, AND ELSEWHERE AS SHOWN ON THE DRAWINGS. MATERIAL OF TURNING VANES SHALL MATCH DUCTWORK. VANES ARE TO BE SINGLE BLADE, OF SIZE, SPACING, GAUGE, AND FABRICATION IN ACCORDANCE WITH SMACNA RECOMMENDATIONS.
- B. DAMPERS USED IN LOW VELOCITY BRANCH DUCTS TO CONTROL THE VOLUME OR AIR FLOW SHALL BE YOUNG NO. 817 VOLUME DAMPER OR EQUAL. AN OPERATING HEAD SHALL BE PLACE ON THE SIDE OF THE DUCT AND SHALL BE LOCKED IN POSITION BY A SET KEY WHERE THE DAMPER IS ACCESSIBLE. WHERE THE DAMPER IS NOT ACCESSIBLE, YOUNG NO. 817A OR 817B VOLUME CONTROL DAMPER OR EQUAL, CONSISTING OF AN END BEARING OR MITER GEAR, COUPLING, 3/8—INCH SQUARE SHAFT, AND REGULATOR FOR OPERATING THE UNIT FROM THE CEILING SHALL BE PROVIDED.
- C. USE LOCKABLE TYPE BALANCING DAMPERS.
- D. USE TURNING VANES ON ALL ELBOWS 45 DEGREE AND LARGER.
- E. PROVIDE ACCESS FOR ALL BALANCING DAMPERS, FIRE DAMPERS, ETC.
- F. CONNECT SMOKE DAMPERS TO THEE BUILDING AUTOMATION SYSTEM (BAS).

02-233400 HVAC FANS

- A. PROVIDE ADEQUATE SERVICE ACCESS OF 30 INCHES MINIMUM WITH ACCESS DOORS TO ALL FANS, MOTORS, FILTERS, COILS AND ALL COMPONENTS. PROVIDE 24" CLEARANCE AROUND ALL AIR HANDLERS. PROVIDE ADEQUATE SPACE FOR REMOVING COILS.
- B. USE FAN MOTORS WITH 1750 RPM. AVOID USING FANS WITH 3500 RPM MOTORS. PROVIDE BELT GUARS FOR ALL BELT DRIVEN EQUIPMENT.
- C. CEILING TYPE EXHAUST FANS OF SIZE AND CAPACITY SHOWN ON DRAWINGS SHALL BE FURNISHED AND INSTALLED. FANS SHALL BE DIRECT DRIVE OF RPM SHOWN AND SHALL BE COMPLETE WITH FAN HOUSING, INLET GRILLE, BACKDRAFT DAMPER AND MOTOR. AIR QUANTITIES SHALL BE CERTIFIED BY AMCA. DUCT SHALL BE EXTENDED THROUGH THE WALL AND A WALL CAP SHALL BE PROVIDED AS REQUIRED. CEILING EXHAUST FANS SHALL BE INTERLOCKED WITH THE RESTROOM LIGHTS.
-). PROVIDE ADEQUATE SERVICE ACCESS OF 30 INCHES MINIMUM WITH ACCESS DOORS TO ALL FANS, MOTORS, FILTERS, COILS AND ALL COMPONENTS. PROVIDE 24" CLEARANCE AROUND ALL AIR HANDLERS. PROVIDE ADEQUATE SPACE FOR REMOVING COILS.
- E. USE FAN MOTORS WITH 1750 RPM. AVOID USING FANS WITH 3500 RPM MOTORS. PROVIDE BELT GUARS FOR ALL BELT DRIVEN EQUIPMENT.
- F. APPROVED MANUFACTURES ARE
 - LOREN—COOK GREEN—HECK
 - 3. TWIN-CITY

02-233700 AIR OUTLETS AND INLETS

AIR DISTRIBUTION EQUIPMENT SHALL BE OF SIZES AND CAPACITIES INDICATED.

- A. REGISTERS, GRILLES, AND DIFFUSERS OF THE SIZES SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN SHALL BE FURNISHED AND INSTALLED. ALL GRILLES, DIFFUSERS, AND REGISTERS SHALL BE COMPLETE WITH FRAMES WITH RUBBER GASKETS SUITABLE FOR THE AREA AND WALL CONSTRUCTION WHERE SHOWN ON THE DRAWINGS.
- B. FINISH FOR ALL REGISTERS, DIFFUSERS, GRILLES, ETC., SHALL BE OFF—WHITE UNLESS OTHERWISE SELECTED BY THE OWNER. APPROVED MANUFACTURERS FOR ALL AIR DISTRIBUTION PRODUCTS SHALL BE PRICE INDUSTRIES, NAILOR, METAL AIR, TUTTLE & BAILEY, J&J, CARNES, HART AND COOLEY, OR ANEMOSTAT.
- C. SUPPLY AIR SHALL BE INTRODUCED INTO CONDITIONED SPACE IN SUCH A MANNER THAT CONDITIONED AIR AND ROOM AIR IS RAPIDLY AND EVENLY MIXED, RESULTING IN EQUALIZATION OF TEMPERATURE AND DRAFTLESS AIR DISTRIBUTION THROUGHOUT ZONES OF OCCUPANCY WITH TEMPERATURE DIFFERENTIALS UP TO 25 °F FOR BOTH COOLING AND HEATING AIR. QUANTITIES AND THROWS SHALL BE AS INDICATED.
- D. VELOCITY OF MOVING AIR BELOW 5 FOOT LEVEL, DURING COOLING CYCLE, SHALL NOT EXCEED LIMITS OF EITHER 50 FPM AT 1.5 °F BELOW AVERAGE ROOM TEMPERATURE OR 70 FPM AT 1 °F BELOW AVERAGE ROOM TEMPERATURE. VELOCITY OF MOVING AIR AT THE 1 FT LEVEL, DURING HEATING CYCLE, SHALL NOT BE LESS THAN 10 FPM. TEMPERATURE DIFFERENCE AT OR BELOW THE 5 FT LEVEL SHALL NOT EXCEED THE FOLLOWING: 2 °F BELOW AVERAGE ROOM TEMPERATURE AT 30 FPM, 1.5 °F BELOW AVERAGE ROOM TEMPERATURE AT 50 FPM, 1.0 °F BELOW AVERAGE ROOM TEMPERATURE AT 70 FPM. SOUND PRESSURE LEVEL IN ALL OCTAVE BANDS FOR EACH DIFFUSER SHALL NOT EXCEED NC35 NOISE CRITERIA CURVE AT TASK LEVEL WHEN UNITS OPERATE AT DESIGNED CAPACITIES.
- E. CEILING DIFFUSERS, GRILLES AND REGISTERS SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE SO THAT THEY ARE NOT DEPENDING ON THE CEILING FOR SUPPORT.
- F. CEILING DIFFUSERS MAY BE ROUND NECKED OR EQUIVALENT SIZE SQUARE NECK. PROVIDE SQUARE TO ROUND NECK ADAPTER AS NECESSARY. FLEX DUCT SHALL TYPICALLY CONNECT DIRECTLY TO THE DIFFUSER USING A 1-1/2" RADIUS FLEXIBLE DUCT ELBOW. IF SPACE DOES NOT ALLOW FOR A FULL 1-1/2" RADIUS TO BE PROVIDED, THEN A LINED SHEET METAL BOOT SHALL BE PROVIDED. THE FLEXIBLE DUCT SHALL BE CONNECTED TO THE SIDE OF THE SHEET METAL BOOT. THE FLEXIBLE DUCT SHALL NOT BE CONNECT TO THE TOP OF THE SHEET METAL BOOT.
- G. DO NOT ROUTE PIPING IN FRESH AIR INTAKE DUCTS.

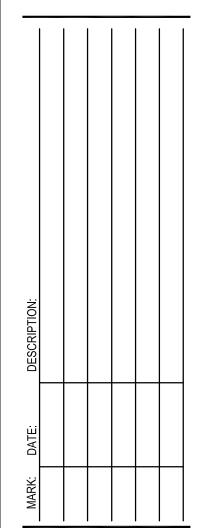
DFCM APPROVAL

architects

4

UPGRADES PHASE 2

DAVIS DTC RESTROOM
D TECH CAMPUS
KAYSVILLE, UTAH
BEGIN DEC 1177



PROJECT #: 317106

DRAWN BY: LINEBACK

CHECKED BY: VERNON

ISSUED: 9-15-17



MECHANICAL SPECIFICATIONS

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03-230500 COMMON WORK RESULTS FOR HVAC

- A. REPLACE OR REPAIR DAMAGE TO ANY EXISTING BUILDING WHERE REPAIR OR REPLACEMENT WORK IS PERFORMED BY A CONTRACTOR. PROVIDE PHOTO DOCUMENTS OF THE REMODEL AREA PRIOR TO START OF CONSTRUCTION.
- B. SCHEDULE A REPRESENTATIVE OF DTC TO BE PRESENT WHEN TEST ON HVAC SYSTEMS ARE CONDUCTED.

03-230053 INSTALLATION REQUIREMENTS

- A. PROVIDE A MINIMUM CLEARANCE OF 30" OR MORE AT ALL EQUIPMENT AND CONNECTED PIPING. CODE REQUIRED CLEARANCE SHALL TAKE PRECEDENCE.
- B. INSTALL ALL VALVES, PIPING, AND EQUIPMENT WITH CLEARANCES TO PERMIT DISASSEMBLY FOR MAINTENANCE PURPOSES.
- C. PROVIDE AMPLE SPACE IN EQUIPMENT ROOMS FOR REMOVAL OF COILS, COOLER TUBE, IMPELLERS AND MOTOR ROTORS, HEAT EXCHANGER TUBES, ETC. OFFSET PIPING DROPS TO ALLOW REMOVAL AND PROVIDE UNIONS IN PIPING WHERE PIPING IS TO BE DISCONNECTED. SHOW AND LABEL ACCESS SPACE ON CONSTRUCTION DRAWINGS.
- D. PROVIDE ACCESS DOORS FOR ALL EQUIPMENT LOCATED ABOVE INACCESSIBLE CEILINGS.
- E. INSTALL ALL SYSTEMS SUCH THAT NO EQUIPMENT, DUCTWORK, PIPING, CONDUIT, ETC. IS REQUIRED TO BE REMOVED TO SERVICE. REPAIR OR REPLACE EQUIPMENT.
- F. LOCATE LARGER DUCTWORK, PIPING, AND VAV BOXES IN THE CEILING SPACE ABOVE CORRIDORS.
 LOCATE SMALLER PIPING AND CONDUCT IN ADJACENT SPACES WHERE CEILING SPACE IN CORRIDORS
 IS LIMITED. AVOID USING PIPING TRAPEZES WHERE ACCESS TO PIPING AND CONDUIT IS LIMITED.
- G. SCHEDULE ALL UTILITY SHUTDOWNS 7 DAYS IN ADVANCE.

03-230054 DISCREPANCIES

- A. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE OWNER.
- B. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED. SEE SECTION 2.

03-230055 EQUIPMENT IDENTIFICATION

ALL MAJOR EQUIPMENT SHALL BEAR FIRMLY ATTACHED METAL NAMEPLATES WHICH STATE NAME OF MANUFACTURER, MODEL NUMBER AND ELECTRICAL DATA.

03-230056 INITIAL LUBRICATION, ADJUSTING, AND FILLING SYSTEMS

BEFORE OPERATING ANY MECHANICAL SYSTEMS, EQUIPMENT BEARINGS SHALL BE LUBRICATED AND BOLTS, PULLEYS, AND OTHER MOVING PARTS CHECKED FOR ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH MANUFACTURER'S OPERATING INSTRUCTIONS. VIBRATIONS AND NOISE SHALL BE SUPPRESSED.

03-230057 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

EQUIPMENT WILL BE PAINTED SMOOTH AND CLEAN, READY FOR PAINTERS. CLEAN ENTIRE PREMISES OF UNUSED MATERIALS, RUBBISH, DEBRIS, GREASE SPOTS AND DIRT LEFT BY SUBCONTRACTOR.

03-20058 EQUIPMENT AND MATERIAL

INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

03-230059 ACCESSIBILITY

INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR, PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED. ACCESS PANELS SHALL BE THE RESPONSIBILITY OF RESPECTIVE SUBCONTRACTORS.

03-230593 HVAC TESTING, ADJUSTING, AND BALACNING

- A. BALANCING WORK INCLUDED:
 - 1. COMPLETE TESTING AND BALANCING OF THE HVAC SYSTEM AS HEREIN SPECIFIED.
- 3. VERIFICATION OF CONDITIONS: PRIOR TO TESTING AND BALANCING, INSPECT EQUIPMENT AND MATERIALS AND ARRANGE WITH CONTRACTOR FOR SATISFACTORY CORRECTION OF ALL DEFECTS IN WORKMANSHIP AND/OR MATERIAL THAT COULD AFFECT THE WORK SPECIFIED HEREIN.
- C. PROTECTION: AS SPECIFIED HEREIN.
- D. SYSTEM OPERATION: CONTRACTOR SHALL PUT ALL PARTS OF SYSTEMS IN FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.
- E. TEST DATA: SUBMIT COPY OF TEST DATA TO OWNER ON COMPLETION OF WORK UNDER THIS SECTION.
- . TEST AND BALANCE CONTRACTOR SHALL CERTIFY IN WRITING THAT SYSTEM HAS BEEN ADJUSTED AND BALANCED AND DESIGN CONDITIONS HAVE BEEN ATTAINED IN ALL AREAS OF THE BUILDING.
- G. INSTRUMENTS: INSTRUMENTS USED BY CONTRACTOR SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.
- H. AIR DISTRIBUTION TESTING AND BALANCING:
 - TEST AND RECORD MOTOR FULL LOAD AMPERS AND RPM.
 - TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.
 - 3. ADJUST ALL SUPPLY AND RETURN AIR DUCTS TO PROPER DESIGN CFM.
 - 4. IN COOPERATION WITH THE CONTROL MANUFACTURER'S REPRESENTATIVE, THE SETTING ADJUSTMENT OF AUTOMATICALLY OPERATED CONTROLS TO OPERATE AS SPECIFIED, INDICATED AND/OR NOTED.
- WITNESS: NOTIFY OWNER IN WRITING TWO WEEKS PRIOR TO TESTING AND BALANCING OF ALL MAJOR EQUIPMENT IN ORDER TO ARRANGE THAT OWNER'S REPRESENTATIVE WILL WITNESS THE TESTS.
- J. BALANCE ALL AIR AND WATER SYSTEMS UPON COMPLETION OF WORK. APPROVED TEST BALANCE CONTRACTORS ARE: BTC SERVICES, INC., CERTIFIED TEST AND BALANCE, AND PAYSON SHEET METAL. OTHER BALANCING CONTRACTORS NEED TO BE APPROVED BY USU PRIOR TO BID.
- K. THE TEST AND BALANCING AGENT SHALL AABC OR NEBB CERTIFIED.
- THE TEST AND BALANCE REPORT SHALL BE COMPLETED, SUBMITTED, REVIEWED AND CORRECTED PRIOR TO BUILDING OCCUPANCY.
- M. THE TEST AND BALANCE AGENT SHALL BE PRESENT AT THE FINAL COMPLETION INSPECTION AND BE PREPARED TO PROVIDE RANDOM AIR BALANCE VERIFICATION TESTING.
- I. DOCUMENT MECHANICAL SYSTEM SET POINTS SUCH AS DUCT STATIC DIFFERENTIAL PRESSURE AND HYDRONIC SYSTEM FILL PRESSURE IN THE BALANCING REPORT.

03-230800 HVAC START-UP AND PERFORMANCE VERIFICATION.

- A. THE CONTRACTOR SHALL START-UP AND COMPLETELY VERIFY PERFORMANCE AND OPERATION PRIOR TO NOTIFYING THE ENGINEER OF SUBSTANTIAL COMPLETION.
- THE CONTRACTOR SHALL DEMONSTRATE AT A BARE MINIMUM IN THE PRESENCE OF THE ENGINEER:
- 1. INSTALLATION VERIFICATION
- 2. STARTUP AND CHECKOUT
 3. PERFORMANCE TESTING AND DEMONSTRATION
- 4. TRAINING 5. CLOSEOUT
- C. THE GENERAL CONTRACTOR WILL PROVIDE THE SPECIFIC SUPPORT AND DOCUMENTATION REQUIRED OF THE MECHANICAL, ELECTRICAL, PLUMBING, AND CONTROLS CONTRACTORS, DESIGNER, OWNER AND OTHER AS APPLICABLE TO ENSURE ACCEPTABLE COMMISSIONING.

03-230900 BUILDING AUTOMATION SYSTEM

- A. CONNECT ALL HVAC CONTROL SYSTEMS INTO THE CAMPUS CENTRAL AUTOMATION SYSTEM.
- B. COORDINATE ALL USER INTERFACE LAYOUT AND ALL DETAILS OF THE CONTROL SYSTEM WITH DTC FACILITIES OPERATION.
- C. VERIFY COMPLETE OPERATION OF EXISTING SYSTEMS WHERE NEW SYSTEMS CONNECT OR AFFECT AN EXISTING SYSTEM.
- D. COORDINATE THE LOCATION OF ALL CONTROLS TO AVOID CONFLICTS WITH FURNISHINGS OR USES FOR THE ROOMS IN WHICH CONTROLS ARE LOCATED.
- E. AVOID MOUNTING ANY CONTROL EQUIPMENT ON VIBRATING SURFACES.

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DFCM APPROVAL

SESTROOM UPGRADES

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DFCM PROJECT #15062220

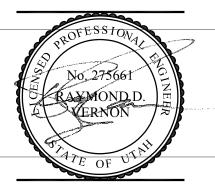
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PROJECT #: 317106

DRAWN BY: LINEBACK

CHECKED BY: VERNON

ISSUED: 9-15-17



MECHANICAL SPECIFICATIONS

M-00

01-220050 DESIGN CRITERIA

A. CODES AND STANDARDS

- ALL ITEMS INDICATED ON SITE, ARCHITECTURAL OR MECHANICAL DRAWINGS ARE TO BE PROVIDED COMPLETE FROM POINT OF CONNECTION TO FINISHED FIXTURE IN CONFORMANCE WITH ALL GOVERNING AUTHORITY REQUIREMENTS. NOTHING IN THESE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED TO PERMIT WORK IN VIOLATION OF GOVERNING CODES. REFER TO THE DFCM WEBSITE FOR THE LATEST MECHANICAL DESIGN REQUIREMENTS. DTC DESIGN REQUIREMENTS INCLUDE THE DFCM DESIGN REQUIREMENTS.
- 2. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
 - 2015 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC), TO INCLUDE APPENDIX J, ISSUED BY THE INTERNATIONAL CODE COUNCIL.
 - 2015 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), ISSUED BY THE NATIONAL FIRE PROTECTION ASSOCIATION.
 - 2015 EDITION OF THE INTERNATIONAL PLUMBING CODE (IPC), ISSUED BY THE INTERNATIONAL CODE COUNCIL.
 - 2015 EDITION OF THE INTERNATIONAL MECHANICAL CODE (IMC), ISSUED BY THE INTERNATIONAL CODE COUNCIL.
 - e. 2015 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE (IRC), ISSUED BY THE INTERNATIONAL CODE COUNCIL.
 - 2015 EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE (IECC), ISSUED BY THE INTERNATIONAL CODE COUNCIL.
 - 2015 EDITION OF THE INTERNATIONAL FUEL GAS CODE (IFGC), ISSUED BY THE INTERNATIONAL CODE COUNCIL.
- COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS.

01-220100 GENERAL REQUIREMENTS

A. THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND DIVISION 1, ARE A PART OF THIS SECTION AND THE CONTRACT FOR THIS WORK AND SHALL APPLY TO THIS SECTION AS FULLY AS IF REPEATED HEREIN.

01-220101 SCOPE OF WORK

FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL PLUMBING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

- A. WORK SPECIFIED IN THIS SECTION
 - SANITARY SOIL, WASTE AND VENT SYSTEMS.
 - 2. DOMESTIC HOT AND COLD WATER SYSTEMS.
 - DOMESTIC WATER HEATERS.
 - 4. FURNISH AND SET ALL SLEEVES FOR PIPES PASSING THROUGH WALLS AND FLOORS.
 - 5. PIPE COVERING, INSULATION AND WRAPPING.
 - 6. EXCAVATION AND BACKFILL.
 - 7. ROUGH-IN AND FINAL CONNECTIONS TO AIR CONDITIONING EQUIPMENT OF CONDENSATE DRAINS.
 - ALL PLUMBING FIXTURES. WATER HEATERS, VALVES, AND OTHER MISCELLANEOUS ITEMS OR EQUIPMENT REQUIRED FOR A COMPLETE INSTALLATION.

01-220103 PRODUCT HANDLING

- A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.
- B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER. AT NO ADDITIONAL COST TO THE OWNER.

01-220104 SUBMITTALS

- A. MANUFACTURER'S LITERATURE: WITHIN 35 DAYS AFTER AWARD OF CONTRACT AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE DELIVERED TO THE JOB SITE, SUBMIT SEVEN COMPLETE BROCHURES OF ALL MATERIALS AND EQUIPMENT, PER DIVISION 1 OF THE SPECIFICATIONS.
- B. OTHER SUBMITTALS:
- SHOP DRAWINGS.
- STERILIZATION TEST REPORT.
- 3. TEST DATA.

SETS IN BOUND BOOKLET FORM OF WRITTEN OPERATING AND MAINTENANCE INSTRUCTIONS AND BROCHURES FOR EQUIPMENT SPECIFIED IN THIS SECTION. FULLY INSTRUCT OWNER'S OPERATING

- RECORD DRAWINGS: KEEP AN ACCURATE DIMENSIONED RECORD OF AS-BUILT LOCATIONS AND ELEVATIONS, AS REFEREED TO APPROVED BASE DATUM, OF BURIED CONCEALED.
- D. OPERATION AND MAINTENANCE INSTRUCTIONS: DELIVER TO ARCHITECT TWO COMPLETE LINES, MANHOLE, CLEANOUTS, VALVES, PLUGGED TEES, CAPPED ENDS, AND OF WORK WHICH IS INSTALLED DIFFERENT FROM SHOWN IN THE PLANS.

01-220105 MISCELLANEOUS

- EXAMINATION OF THE SITE: EXERCISE CARE IN EXAMINING THE SITE AND COORDINATE ALL WORK INDICATED ON THE DRAWINGS WITH EXISTING CONDITIONS. REPORT TO ARCHITECT IN WRITING CONDITIONS THAT WILL PREVENT PROPER PROVISIONS OF THIS WORK. VERIFY DEPTH AND LOCATION OF ALL SERVICE LINES WITH SERVICING COMPANIES HAVING JURISDICTION BEFORE EXCAVATING. BY SUBMISSION OF THE BID, THE CONTRACTOR WARRANTS THAT HE HAS FAMILIARIZED HIMSELF WITH THE EXISTING CONDITIONS AND WILL PERFORM ALL WORK AS REQUIRED FOR HOOKUP AND AS REQUIRED BY THE CONTRACT DOCUMENTS AT NO ADDITIONAL.
- PERMITS AND FEES: ARRANGE AND PAY FOR ALL PERMITS, INSPECTIONS AND FEES REQUIRED BY ALL GOVERNING AGENCIES. DELIVER ALL CERTIFICATES TO OWNER THROUGH BE PAID BY THE
- SERVICE CONNECTIONS: MAKE ALL NECESSARY ARRANGEMENTS WITH APPLICABLE UTILITY COMPANY FOR CONNECTION TO EXISTING SERVICE LINES. PAY ALL FEES ASSOCIATED WITH WORK INCLUDING METERS AND HOOKUP CHARGE, UTILITY ASSESSMENT FEES, IF ANY.
- DRAWINGS: COORDINATE ALL SPACE REQUIREMENTS WITH OTHER TRADES. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT, AND OTHER ITEMS AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE.

PART 2 - PLUMBING PIPING AND PUMPS AND EQUIPMENT.

02-220000 GENERAL

- PIPE SLEEVES AND WRAPPING: PROVIDE POLISHED CHROMIUM PLATED AND BRASS SET SCREW FLANGES WHERE PLUMBING PIPING PASS THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS IN FINISHED PORTIONS OF BUILDING INCLUDING FLANGES ON PIPES AT FIXTURES. ALL SLEEVES IN CONCEALED AND EXTERIOR WALLS SHALL BE 20 GA. GALVANIZED IRON ONE INCH O.D. LARGER THAN THE PIPE, CAULKED IF BELOW GRADE IN A MOISTURE PROOF MANNER. ALL PIPES PENETRATING THROUGH FIRE WALLS AND FLOORS SHALL BE PROPERLY SAFED WITH DOW CORNING 3-6548 SILICONE RTV FOAM OR EQUAL. INSTALL PER MANUFACTURE'S DIRECTION.
- ONE MARKER SHALL BE INSTALLED AT EACH SIDE OF VALVES, SPECIAL FITTINGS AND AT BRANCH TAKE-OFF. IN FURRED SPACES INSTALL ONE BAND 2 FT ABOVE FLOOR AND 19 INCH BELOW CEILING LINE.
- MATERIALS: MATERIALS WHEN NOT OTHERWISE DEFINITELY SPECIFIED SHALL CONFORM TO THE APPLICABLE ASTM, ASME, AGA, AND ASA STANDARDS.

02-220700 PIPING INSULATION

- A. PROVIDE CONTINUOUS INSULATION AND JACKETING THROUGH HANGERS AND FLOOR AND WALL PENETRATIONS.
- PROVIDE A VALVE STEM EXTENSION TO ACCOMMODATE FULL INSULATION THICKNESS AT ALL VALVES.
- C. INSULATE ALL PIPING UNDER LAVATORIES ACCESSIBLE TO THE PHYSICALLY HANDICAPPED WITH HOT WATER SUPPLY AND 'P' TRAP PREFABRICATED INSULATION, HANDI LAV GUARD.
- D. EQUIPMENT INSULATIONS SCHEDULE
 - INSULATION MATERIALS AND THICKNESS ARE IDENTIFIED BELOW. IF MORE THAN ONE MATERIAL IS LISTED FOR A TYPE OF EQUIPMENT, SELECTION FROM MATERIALS LISTED IN CONTRACTOR'S OPTION.
 - 2. INSULATE INDOOR AND OUTDOOR EQUIPMENT IN PARAGRAPHS BELOW THAT IS NOT FACTORY INSULATED.

F. PIPING INSULATION SCHEDULE, GENERAL

- ACCEPTABLE PREFORMED PIPE AND TUBULAR INSULATION MATERIALS AND THICKNESS ARE IDENTIFIED FOR EACH PIPING SYSTEM AND PIPE SIZE RANGE. IF MORE THAN ONE MATERIALS IS LISTED FOR A PIPING SYSTEM, SELECTION FROM MATERIALS LISTED IS CONTRACTOR'S OPTION.
- 2. ITEMS NOT INSULATED: UNLESS OTHERWISE INDICATED, DO NOT INSTALL INSULATION ON THE FOLLOWING:
 - DRAINAGE PIPING LOCATED IN CRAWL SPACES.
 - UNDERGROUND PIPING.
 - CHROME-PLATED PIPES AND FITTINGS UNLESS THERE IS A POTENTIAL FOR PERSONNEL INJURY.

G. INDOOR PIPING INSULATION SCHEDULE

- DOMESTIC COLD WATER:
 - NPS 1 $-\frac{1}{2}$ AND SMALLER: INSULATION SHALL BE THE FOLLOWING:
 - a1. MINERAL-FIBER, PREFORMED PIP INSULATION, TYPE I: 1 INCH.
- 2. DOMESTIC HOT AND RE-CIRCULATED HOT WATER:
 - a. NPS 1 $-\frac{1}{2}$ AND SMALLER: INSULATION SHALL BE THE FOLLOWING:
 - a1. MINERAL-FIBER, PREFORMED PIP INSULATION TYPE i: I INCH

H. INDOOR, FIELD-APPLIED JACKET SCHEDULE

- INSTALL JACKET OVER INSULATION MATERIAL FOR INSULATION WITH FACTORY-APPLIED JACKET. INSTALL THE FIELD-APPLIED JACKET OVER THE FACTORY-APPLIED JACKET.
- 2. IF MORE THAN ONE MATERIAL IS LISTED, SELECTION FROM MATERIALS LISTED IS
- CONTRACTOR'S OPTION. 3. PIPING CONCEALED:
 - a. NONE.
- 4. PIPING, EXPOSED
 - a. PVC: 20 MILS THICK
 - b. COLOR:
 - a1. DOMESTIC WATER (HOT AND COLD AND HOT RET): GREEN PVC
 - b1 INDUSTRIAL WATER (HOT AND COLD AND HOT RET) BROWN PVC
 - c1. OTHER PIPING: WHITE PVC
 - d1. ALL OTHER EXPOSED PIPING NO IN MECHANICAL ROOMS: WHITE PVC

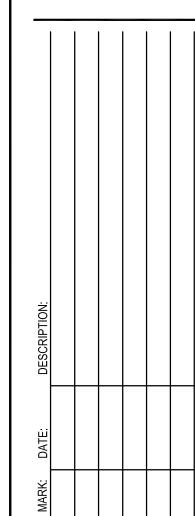
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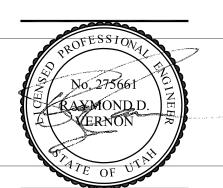
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PROJECT #: 317106 DRAWN BY: LINEBACK CHECKED BY: VERNON ISSUED: 9-15-17



PLUMBING SPECIFICATIONS

PIPE AND FITTINGS:

- A. NO PIPE OF A FOREIGN MANUFACTURER WILL BE ACCEPTABLE.
- B. ALL PIPING, FITTINGS, FLANGES, ETC. SHALL BE FREE FROM DEFECTS AND SHALL COMPLY WITH THE APPROPRIATE ASTM SPECIFICATIONS.
- C. BLACK STEEL PIPE: ASTM A53 ERW GRADE B, STANDARD WEIGHT (SCHEDULE 40) OR EXTRA STRONG (SCHEDULE 80) AS SPECIFIED.
- D. COPPER TUBING: ASTM B88, TYPE L OR K AS SPECIFIED.
- E. PVC PIPE AND FITTINGS: ASTM D1785 CLASS 150 WITH ASTM D 2853 SOLVENT CEMENT JOINTS UNLESS OTHERWISE SPECIFIED. SCHEDULE 40. PVC PLASTIC PIPE FITTINGS: ASTM F 628, SCHEDULE 40.
- F. ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC PIPE: ASTM D 2661, SCHEDULE 40, ASTM F 628, SCHEDULE 40. ABS PLASTIC PIPE FITTINGS: ASTM F 409, ACCESSIBLE AND REPLACEABLE, SOVENT CEMENT AND THREADED TYPES, DRAIN PATTERN.
- G. CAST IRON SOIL PIPE AND FITTINGS: ASTM A74
- WELDED BLACK STEEL FITTINGS: ASTM A234 GRADE B. 150-POUND FOR STANDARD WEIGHT PIPING, 300-POUND FOR EXTRA STRONG PIPING, OR OF WEIGHT OR SCHEDULE OF MATCHING PIPING.
- THREADED MALLEABLE IRON FITTINGS: ANSI B16.3, 150-POUND FOR STANDARD WEIGHT PIPING, 300-POUND FOR EXTRA STRONG PIPING, OR OF WEIGHT OR SCHEDULE OF MATCHING PIPING EITHER BLACK OR GALVANIZED TO MATCH PIPING.
- WELDED FLANGES: ASTM A181 GRADE B. 150-POUND FOR STANDARD WEIGHT PIPING. 300-POUND FOR EXTRA STRONG PIPING OR OF EQUAL WEIGHT OF CONNECTED EQUIPMENT.
- K. COPPER FITTINGS: WROUGHT COPPER, ANSI SPECIFICATION B16.22.
- DOMESTIC HOT WATER, HOT WATER RETURN, AND COLD WATER PIPING SHALL BE TYPE L HARD TEMPERED COPPER PIPE WITH WROUGHT-COPPER FITTINGS USING 95-5 SOLDER.
- M. PROVIDE WATER SERVICE PIPING FROM THE FOLLOWING:
 - 1. UNDERGROUND PIPING:
 - a. 3" AND SMALLER: TYPE K COPPER GALVANIZED STEEL.
 - b. 4" AND LARGER: DUCTILE IRON POLYETHYLENE
- O. PROVIDE WATER SERVICE PIPING WITH NO JOINTS BELOW SLAB. EXTENDED WATER PIPING ABOVE FLOOR AS NEAR THE EXTERIOR WALL AS PRACTICAL. AVOID EXTENDING WATER SERVICE PIPING TO AN INTERIOR ROOM.
- P. BALL VALVES, DOMESTIC WATER: BRONZE, FULLPORT, CLASS 150, THREADED.
 - 1. GRINNELL 3750 OR 171N
 - 2. NIBCO T-585
 - JAMESBURY 300
- Q. BALANCING COCKS 2 INCHES AND SMALLER SHALL BE CRANE NO 250 OR MILWAUKEE BUTTERBALL BB2-100 OR BB2-350 WITH MEMORY STOP.
- R. SOLDER:
 - 1 R.1. JOINTS IN COPPER PIPING ABOVE GRADE SHALL BE STAY SAFE 50 SOLDER OR 95-5 SOLDER SHALL BE SILFOS OR SILVERFLW FOR ALL REGRIGERANT PIPING JOINTS.

02-221300 SANITARY SEWERAGE

- A. PROVIDE SANITARY SEWERAGE PIPING FROM THE FOLLOWING:
 - 1. ABOVE GROUND: ALL SIZES, CAST IRON.
 - 2. BELOW SLAB: ALL SIZES. CAST IRON. PVC (SOLID CORE). ABS (SOLID CORE).
- B. PROVIDE BELL AND SPIGOT JOINTS WITH COMPRESSION GASKET OR HEAVY DUTY NO-HUB JOINTS APPROVED FOR UNDERGROUND PIPING. PROVIDE BELL AND SPIGOT JOINTS WITH COMPRESSION GASKETS OR NO-HUB JOINTS FOR ABOVE GRADE PIPING.
- C. PROVIDE VENT PIPING FROM THE FOLLOWING:
 - 1. ABOVE GROUND: ALL SIZES. CAST IRON.
 - 2. BELOW SLAB: ALL SIZES. CAST IRON. PVC (SOLID CORE). ABS (SOLID CORE).

02-221600 ROOF FLASHING

SANITARY VENT FLASHINGS: SEMCO 1100-3 OR 1100-5. WITH ONE-PIECE LEAD FLASHING AND

02-221700 PIPE SLEEVES

AT CONCRETE WALLS OR FLOORS, ADJUST-TO-CRETE, PARAMOUNT, HOLE-OUT OR SPERZEL CRETESLEEVE FLOOR SLEEVES SHALL EXTEND TO TOP OF CONCRETÉ CURBS FOR PIPING RISING THROUGH FLOORS . WALL SLEEVES SHALL BE FLUSH WITH FINISHED SURFACE. SLEEVES SHALL BE SIZED TO ALLOW 1/2 IN. CLEARANCE AROUND PIPE INSULATION. INSULATION AND COVERING SHALL BE

- B. PIPE 2 INCH AND SMALLER: GRINNEL F69, PIPE 2-1/2 INCH AND LARGER: GRINNEL F65, CONCRETE INSERTS: GRINNEL 281 ANAD 282, RISER CLAMPS FOR COPPER PIPING: GRINNEL 261P PLASTIC COATED, RISER CLAMPS FOR OTHER PIPING: GRINNERL 261.
- HANGER RODS SHALL CONFORM TO THE FOLLOWING: PIPE SIZE 2 INCH AND SMALLER: 3/8 INCH RODS, PIPE SIZE 2-1/2 INCH AND 3 INCH: 1/2 INCH RODS, PIPE SIZE 3 INCH AND LARGER: 5/8

02-224000 PLUMBING FIXTURES

- A. SEC PLANS FOR SCHEDULES.
- B. PROVIDE WATER CLOSETS, URINALS, AND LAVATORIES WITH WATER FLOW CONTROL DEVICES OF THE WATER CONSERVING TYPE.
- C. PROVIDE ONE OR MORE OF THE FOLLOWING TRAP PRIMER METHODS FOR EACH ROOM TYPE:
 - 1. TOILET ROOMS:
 - a. BARRIER TYPE FLOOR DRAIN TRAP SEAL PROTECTION DEVICE (TRAP GUARD OR SURE SEAL)
- F. DRAIN LINE CONNECTION AND PRESSURE TYPE TRAP SEAL PRIMERS ARE NOT PERMITTED.

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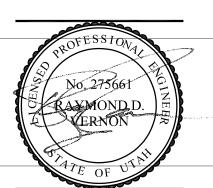
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ESTROOM B DAVIS DTC I D TECH CAMPUS KAYSVILLE, UTAH DFCM PROJECT #1

PROJECT #: 317106 DRAWN BY: LINEBACK CHECKED BY: VERNON 9-15-17 ISSUED:



PLUMBING **SPECIFICATIONS**

M-007

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COUNTERFLASHING SLEEVE.

CONTINUOUS THROUGH WALL AND FLOOR SLEEVES.

02-221900 PIPE HANGERS

- A. HANGERS SHALL BE SUPPLIED WITH FACTORY INSTALLED ISOLATION AND DI-CHROMATE FINISH.

03-220100 GENERAL REQUIREMENTS

- A. TEST AND INSPECT ALL PLUMBING INSTALLATIONS WITH A REPRESENTATIVE OF DTC PRESENT PRIOR TO BACKFILL OR ENCLOSING PLUMBING PIPING.
- B. SCHEDULE ALL UTILITY SHUTDOWNS 7 DAYS IN ADVANCE. SUBMIT WRITTEN REQUEST TO DTC PROJECT MANAGER.

03-220500 COMMON WORK RESULTS

- A. PROVIDE USA MADE PLUMBING PIPING AND FITTINGS.
- B. REFER TO DIVISION 12 FOR HANGERS AND SUPPORT, IDENTIFICATION AND TAGGING, METERS AND GAGES, VIBRATION AND SEISMIC CONTROLS, OPERATION AND MAINTENANCE MANUALS, BALANCING, AND OTHER GENERAL PIPING REQUIREMENTS.
- C. ROUTE ALL PLUMBING PIPING TO REMAIN CLEAR OF TRANSFORMER VAULTS, REFRIGERATED SPACES, WITCH ROOMS, ELEVATOR SHAFTS, ELEVATOR EQUIPMENT ROOMS, AND OTHER CRITICAL AREAS.
- D. DO NOT INSTALL DOMESTIC WATER PIPING IN OR BELOW CONCRETE SLABS (EXCEPT FOR WATER SERVICE PIPING).
- E. PLUMBING PIPING IS NOT PERMITTED IN EXTERIOR WALLS.
- F. COORDINATE SAW CUTTING, CORE DRILLING, AND OTHER WORK WITH OCCUPIED BUILDINGS TO AVOID DISRUPTIONS TO THE BUILDING OCCUPANTS PROVIDE DUST BARRIERS, NEGATIVE AIR FLOW, AND SOUND BARRIERS AS REQUIRED.
- G. PROVIDE APPROPRIATE METHOD FOR REMOVING COOLING WATER WHERE CORE DRILLING AND SAW CUTTING ARE PERFORMED TO PREVENT STAINING OF WALLS AND FLOORS.
- H. PROVIDE CLEANOUTS FOR ALL PLUMBING FIXTURES, WATER CLOSETS, WASH BASINS, URINALS, WATER COOLERS OR FOUNTAINS, MAIN SEWER LINES, LAB BENCHES, ETC.
- PIP BEDDING: PROVIDE A SAND BED WITH (6") INCHES MINIMUM COVERAGE AROUND PIPES.

 PROVIDE BACKFILL FREE OF BOULDERS LARGER THAN TWO (2") INCHES. COMPACT AND TEST ALL BACKFILL ACCORDING TO ASTM COMPACTION STANDARDS OR PROVIDE PEA GRAVEL BACK FILL.
- J. PROVIDE ACCESSIBLE PIPE CHASES WITH ADEQUATE SPACES FOR REPAIR AND MAINTENANCE.
- K. PROVIDE ACCESS TO ALL EQUIPMENT, VALVES, CONTROLS, ETC.
- L. AVOID USING ADJUSTABLE WRENCHES ON EXPOSED CHROME WORK.

03-220501 SURFACE CONDITIONS

- A. INSPECTION: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, THE ORIGINAL DESIGN, AND THE REFERENCED STANDARDS.
- B. DISCREPANCIES
 - 1. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT.
 - 2. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.
 - 3. INTERFERENCES BETWEEN INSTALLED WORK OF VARIOUS TRADES DUE TO LACK OF COORDINATION SHALL BE RESOLVED BY ARCHITECT WHOSE DECISION IS FINAL. RELOCATE OR OFFSET ANY WORK AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES AT NO EXTRA COST TO THE OWNER WHEN SO DIRECTED BY THE ARCHITECT.

03-220502 LOCATIONS AND SPACE REQUIREMENTS

- A. CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACES AVAILABLE FOR INSTALLATION OF WORK UNDER THIS DIVISION. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. WORK SPECIFIED AND NOT CLEARLY DEFINED BY DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY NECESSARY BY ARCHITECT, THEY SHALL BE MADE BY CONTRACTOR WITHOUT ADDITIONAL CHARGE PROVIDED THE CHANGE IS ORDERED BEFORE WORK IS INSTALLED AND NO EXTRA MATERIALS ARE REQUIRED. TO ARCHITECT. IN EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED
- B. VERIFY ALL SPACES, DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- C. OBTAIN ALL NECESSARY ROUGH IN DATA AND DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- D. MAINTAIN AMPLE HEADROOM CLEARANCES AND ACCESSIBILITY. MAINTAIN CEILING HEIGHTS.
- E. CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION.

03-220503 EXCAVATION AND BACKFILLING

PERFORM EXCAVATION AND BACKFILLING REQUIRED WORK UNDER THIS SECTION UNLESS OTHERWISE SPECIFIED. CONFORM TO REQUIREMENTS OF DIVISION 2, SOILS REPORT AND OF PUBLIC AUTHORITIES HAVING JURISDICTION.

03-220504 SPECIALTY ITEMS

INSTALL AS INDICATED ON THE DRAWINGS, AS HEREIN SPECIFIED, AND AS RECOMMENDED BY MANUFACTURER.

03-220505 STERILIZATION

STERILIZE EACH UNIT OF WATER SUPPLY AND DISTRIBUTION SYSTEM WITH LIQUID CHLORIDE OR HYPOCHLORIDE BEFORE ACCEPTANCE FOR OPERATION IN ACCORDANCE WITH AWWA C601, "STANDARD FOR DISINFECTING WATER MAINS" WORK SHALL BE DONE BY CONTRACTOR AND, UNLESS OTHERWISE REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION, SHALL CONFORM TO THE FOLLOWING:

A. MATERIALS

- 1. LIQUID CHLORINE: U.S. ARMY SPECIFICATION 4-1. 2. HYPOCHLORITE: LIQUID SHALL CONFORM TO FED. SPEC. O-C-11RA (INT. 4).
- 3. METHOD: AMOUNT OF CHLORINE SHALL PROVIDE A DOSAGE OF 50 PPM MINIMUM. INTRODUCE CHLORINATING MATERIALS INTO LINES AND DISTRIBUTION SYSTEM IN APPROVED MANNER. AFTER A CONTACT PERIOD OR 24 HOURS MINIMUM DURING WHICH PERIOD CHLORINE RESIDUAL SHALL BE MAINTAINED AT 5 PPM MINIMUM, FLUSH OUT SYSTEMS WITH CLEAN WATER UNTIL RESIDUAL CONTENT IS NOT GREATER THAN 0.2 PPM. FLUSH ENTIRE SYSTEM OPEN AND CLOSE VALVES IN LINES BEING STERILIZED SEVERAL TIMES DURING CONTACT PERIOD.
- C. TEST REPORTS: FURNISH ONE COPY OF TEST REPORT OF COMPLETE AND ADEQUATE STERILIZATION TO ARCHITECT BEFORE FINAL ACCEPTANCE OF WORK. CERTIFICATES SHALL BEAR SIGNATURE OF AN OFFICIAL OF LABORATORY RESPONSIBLE FOR TEST. COST OF TESTING LABORATORY SERVICES SHALL BE INCLUDED IN THIS SUBCONTRACT.

03-220506 ADJUSTING

UPON COMPLETION OF WORK AND AFTER CLEANING OF SYSTEM, FIXTURES AND EQUIPMENT, AND AUTOMATIC PARTS OF PLUMBING SYSTEM SHALL BE CAREFULLY ADJUSTED NORMAL OPERATION. ALL FLUSH VALVES AND FIXTURE STOPS SHALL BE CHECKED FOR PROPER OPERATION AND FINAL ADJUSTMENT.

03-220507 HANGERS AND SUPPORTS

HOLD HORIZONTAL PIPE RUNS FIRMLY IN PLACE USING APPROVED STEEL AND IRON HANGERS, SUPPORTS, AND/OR PIPE RESTS UNLESS OTHERWISE INDICATED. SUSPEND HANGER RODS FROM CONCRETE INSERTS OR FROM APPROVED BRACKETS, CLAMPS OR CLIPS. HANG PIPES INDIVIDUALLY OR IN GROUPS IF SUPPORTING STRUCTURE IS ADEQUATE TO SUPPORT WEIGHT OF PIPING AND FLUID. EXCEPT FOR BURIED PIPING, HANG OR SUPPORT PIPE RUNS SO THAT THEY MAY EXPAND OR CONTRACT FREELY WITHOUT STRAIN TO PIPE OR EQUIPMENT.

- 1. HORIZONTAL STEEL PIPING: PROVIDE HANGERS OR SUPPORTS EVERY 10 FT. EXCEPT EVERY 8 FT. FOR PIPING 1-1/4 IN. AND SMALLER.
- 2. HORIZONTAL COPPER TUBING: FOR 2 IN. DIAMETER AND OVER, PROVIDE HANGERS EVERY 10 FT.; FOR 1-1/2 IN. DIAMETER AND SMALLER, EVERY 6 FT.
- 3. HORIZONTAL CAST—IRON HUB AND SPIGOT PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH HUB.
- HORIZONTAL CAST—IRON NO—HUB PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH SIDE OF NO—HUB FITTINGS. PROVIDE ANTI—SEPARATION BRACING AT EACH 90 DEGREE CHANGE OF DIRECTION.
- 5. VERTICAL PIPING: SUPPORT AT FLOOR WITH IRON PIPE CLAMPS.

BRANCHES: PROVIDE SEPARATE HANGERS OR SUPPORTS FOR BRANCH LINES 6 FT. OR MORE IN

SOUND AND ELECTROLYSIS ISOLATORS: PROVIDE AT ALL HANGERS AND SUPPORTS FOR HOT AND COLD DOMESTIC WATER LINES. SECURELY ATTACH PIPE TO WALLS, STUDS, ETC. ALL SUCH PIPING ISOLATED FROM STRUCTURE BY "TRISOLATORS".

03-220800 TESTING AND COMMISSIONING

- A. ALL PLUMBING SYSTEMS SHALL BE COMMISSIONED. REFER TO PROJECT COMMISSIONING REQUIREMENTS.
- B. PERFORM TESTS TO ARCHITECT'S SATISFACTION. MAKE TESTS IN PRESENCE OF OWNER'S REP AND AT A TIME SUITABLE TO HIM IF REQUESTED. FURNISH NECESSARY LABOR AND EQUIPMENT AND BEAR COSTS FOR TESTING. COST OF REPLACING AND/OR REPAIRING DAMAGE RESULTING THERE FORM SHALL BE BORNE BY THIS CONTRACTOR. SHOULD THE CONTRACTOR REFUSE OR NEGLECT TO MAKE TESTS NECESSARY TO SATISFY THE ARCHITECT THAT REQUIREMENT OF SPECIFICATIONS AND DRAWINGS ARE MET, SUCH TESTS MAY BE MADE BY AN INDEPENDENT TESTING COMPANY AND THE CONTRACTOR CHARGED FOR ALL EXPENSES.
- C. HYDROSTATIC TESTS: MAKE BY COMPLETELY FILLING PIPING SYSTEM WITH WATER AND ELIMINATING ACCUMULATIONS OF AIR SO THAT LEAKAGE, NO MATTER HOW SMALL, WILL BE APPARENT ON TESTING GAUGE IMMEDIATELY. MAINTAIN PRESSURE UNTIL PIPE UNDER TEST HAS BEEN EXAMINED, BUT IN NO CASE LESS THAN 24 HOURS. TEST SYSTEMS AT THE FOLLOWING PRESSURE.

<u>SYSTEM</u> <u>TEST PRESSURE</u>

DOMESTIC COLD WATER 150 PSIG DOMESTIC HOT WATER 150 PSIG

- D. SANITARY SOIL, WASTE, VENT SYSTEM TESTS: BEFORE INSTALLATION OF FIXTURES, CAP END OF SYSTEM AND FILL LINES WITH WATER TO 10 FT. ABOVE THE SECTION BEING TESTED. (INCLUDING VENTS) AND ALLOW TO STAND FOR AT LEAST FIFTEEN (15) MINUTES BEFORE INSPECTION STARTS. MAKE TESTS IN SECTIONS IF NECESSARY OR CONVENIENT. HOWEVER, INCLUDE INTERCONNECTIONS BETWEEN NEW SECTIONS AND PREVIOUSLY TESTED SECTIONS IN THE NEW TEST.
- E. REPAIR ALL LEAKAGES AND RETEST AS REQUIRED

03-220508 CLEANOUTS

- A. PROVIDE CLEANOUTS WHERE INDICATED AND REQUIRED. UNLESS OTHERWISE INDICATED, CLEANOUTS SHALL BE ACCESSIBLE WITH EXTENSIONS TO GRADE, TO OUTSIDE OF BUILDINGS, OR TO FLOORS ABOVE AS INDICATED OR REQUIRED. DO NOT LOCATE CLEANOUTS IN PUBLIC LOBBIES AND PUBLIC CORRIDORS UNLESS APPROVED BY ARCHITECT.
- B. MEMBRANES: WHERE WATERPROOFING MEMBRANE OCCURS UNDER FLOOR, BRING MEMBRANE TO CLEANOUT WITHOUT PUNCTURING, AND PERMANENTLY ANCHOR TO INTEGRAL ANCHORING FLANGE WITH A HEAVY CAST—IRON CLAMPING COLLAR AND RUST—PROOFED BOLTS.
- C. COVERS: SET CLEANOUT COVERS WITH ALL FINISHED WALL, FLOOR OR GRADE. IN ALL CASES SECURELY ANCHOR BY MEANS OF INTEGRAL LUGS AND BOLTS. WHERE SURFACING MATERIAL SUCH AS RESILIENT COVERING IS SPECIFIED, ASCERTAIN THICKNESS BEING USED AND SET CLEANOUT TOP SO FINISHED FLOOR IS SMOOTH.
- D. USE ACORN 3500 THREAD COMPOUND.

03-220509 PIPE INSTALLATION

- A. MAKE PIPE RUNS STRAIGHT AND TRUE. SPRINGING OR FORCING PIPING INTO PLACE IS NOT PERMITTED. INSTALL IN MANNER TO PREVENT ANY UNDUE STRAIN ON EQUIPMENT. MAKE JOINTS SMOOTH AND UNOBSTRUCTED INSIDE AND OUT, AND REAM PIPE ENDS THOROUGHLY TO REMOVE BURRS. CONCEAL PIPING IN FINISHED PORTIONS OF THE BUILDINGS EXCEPT AS OTHERWISE DIRECTED OR INDICATED. CAP OR PLUG ENDS AND OPENINGS IN PIPE AND FITTINGS IMMEDIATELY TO EXCLUDE DIRT UNTIL EQUIPMENT IS INSTALLED OR FINAL CONNECTIONS ARE MADE.
- B. INSTALL PIPING TO CLEAR BEAMS UNLESS SLEEVING IS INDICATED. CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION. OBTAIN APPROVAL FROM ARCHITECT IF CORING OR CUTTING OF CONCRETE WORK IS NECESSARY DUE TO FAILURE TO INSTALL REQUIRED SLEEVES PRIOR TO THE TIME OF CONCRETE POUR. COST OF CORING AND CUTTING WORK SHALL BE BORNE BY THE SUBCONTRACTOR.
- C. EXPOSED PLATED OR ENAMELED PIPE: MAKE CONNECTIONS TO EQUIPMENT WITH SPECIAL CARE. SHOW NO TOOL MARKS OR THREADS.
- D. DIELECTRIC UNIONS: MAKE CONNECTIONS BETWEEN TWO DISSIMILAR METAL PIPES WITH DIELECTRIC UNIONS.
- E. UNIONS: PROVIDE A UNION ON ONE SIDE OF EACH SHUTOFF VALVE, AT BOTH SIDES OF AUTOMATIC VALVES, AT EQUIPMENT CONNECTIONS AND ELSEWHERE INDICATED OR REQUIRED, UNLESS FLANGES ARE INDICATED.
- F. FLOOR, WALL AND CEILING PLATES: PROVIDE WHERE PIPES PIERCE FINISHED SURFACES.
- G. NOISE: INSTALL SOIL, WASTE, AND WATER PIPING IN MANNER THAT PREVENTS ANY UNUSUAL NOISE FROM FLOW OF WATER UNDER NORMAL CONDITIONS.
- H. SHUTOFF VALVES: PROVIDE WHERE INDICATED AND REQUIRED FOR ADEQUATE CONTROL OF SYSTEMS AND FOR ISOLATION OF FIXTURE GROUPS AND EQUIPMENT.
- I. BURIED PIPING: INSTALL WITH MINIMUM 42 IN. COVERAGE UNLESS OTHERWISE INDICATED. LAY PIPING ACCURATELY TO GRADE WHERE INVERT ELEVATIONS ARE INDICATED. WHEN REQUIRED, PROVIDE THRUST BLOCKS PER MANUFACTURER'S RECOMMENDATIONS.
- J. EQUIPMENT AND MATERIALS: INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- K. ACCESSIBILITY: INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR. PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED.
- L. PIPE JOINTS: MAKE SCREWED JOINTS WITH A MINIMUM AMOUNT OF COMPOUND APPLIED TO THE MALE THREAD ONLY. ALL JOINTS SHALL BE MADE PER CODE REQUIREMENTS.
- M. PROVIDE PIPE ISOLATION AT ALL HANGERS FOR NON-INSULATED MATERIALS.
- N. PIPING ROUGH—IN FOR FIXTURES: SUPPORT OR SECURE TO BUILDING CONSTRUCTION OF FIRMLY ANCHORED WASTE PIPING SO THAT PIPES CANNOT BE DISPLACED. DO NOT SECURE TO WALLS. USE OF MAKESHIFT DEVICES, SUCH AS ROPE, WIRE, TAPE, ETC. IS PROHIBITED.
- O. HORIZONTAL DRAINAGE PIPING SHALL BE INSTALLED IN UNIFORM ALIGNMENT AT UNIFORM SLOPES. THE MINIMUM SLOPE OF HORIZONTAL PIPE 4" OR LARGER IN DIAMETER MAY HAVE A SLOPE OF NOT LESS THAN 1% (1/8 INCH PER FOOT). THE MINIMUM SLOPE OF HORIZONTAL PIPE LESS THAN 4" MAY HAVE A SLOPE OF NOT LESS THAN 2% (1/4 INCH PER FOOT).

DFCM APPROVAL

I UPGRADES PHASE 2

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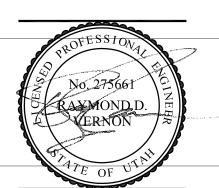
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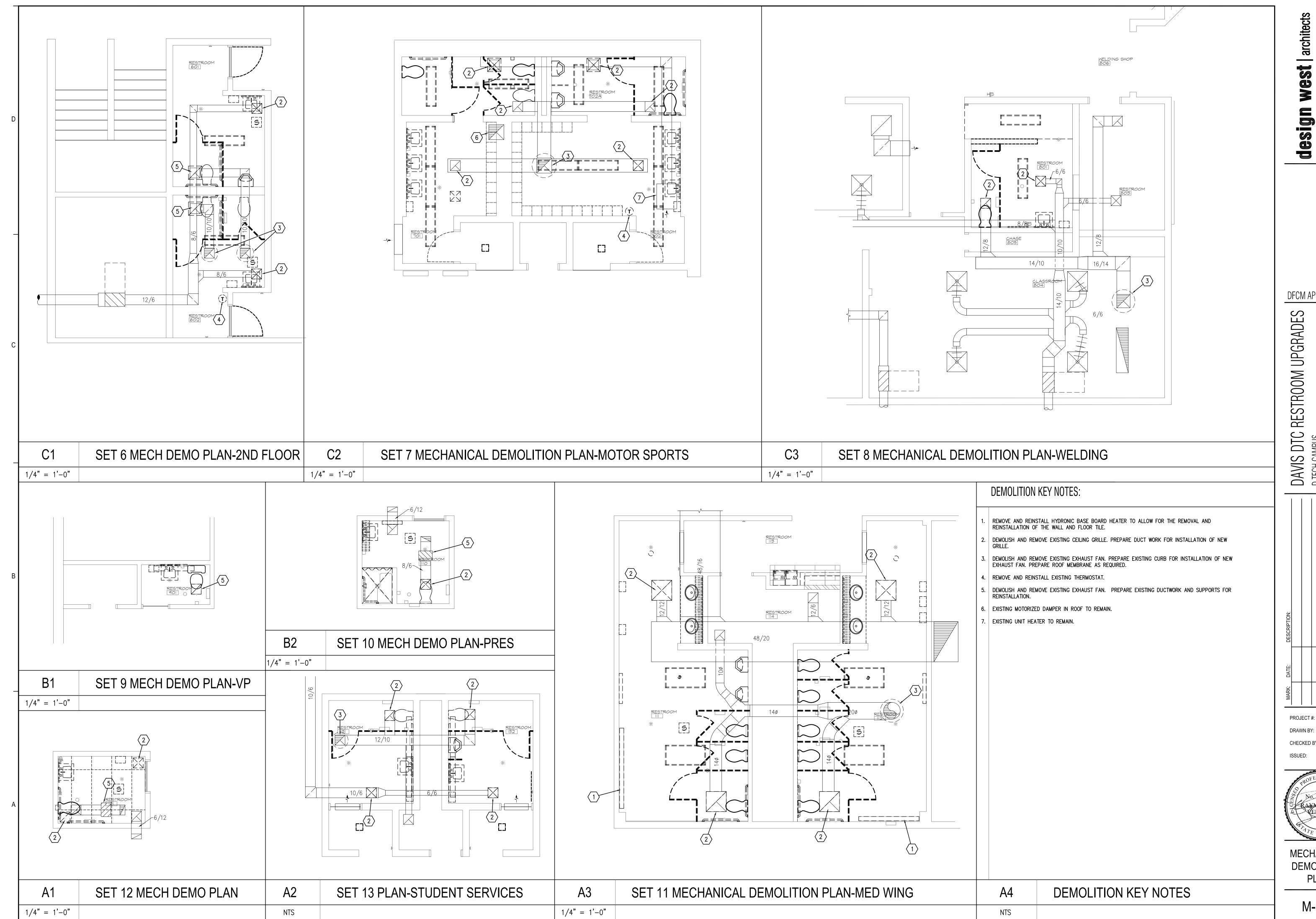
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PLUMBING SPECIFICATIONS

M-008



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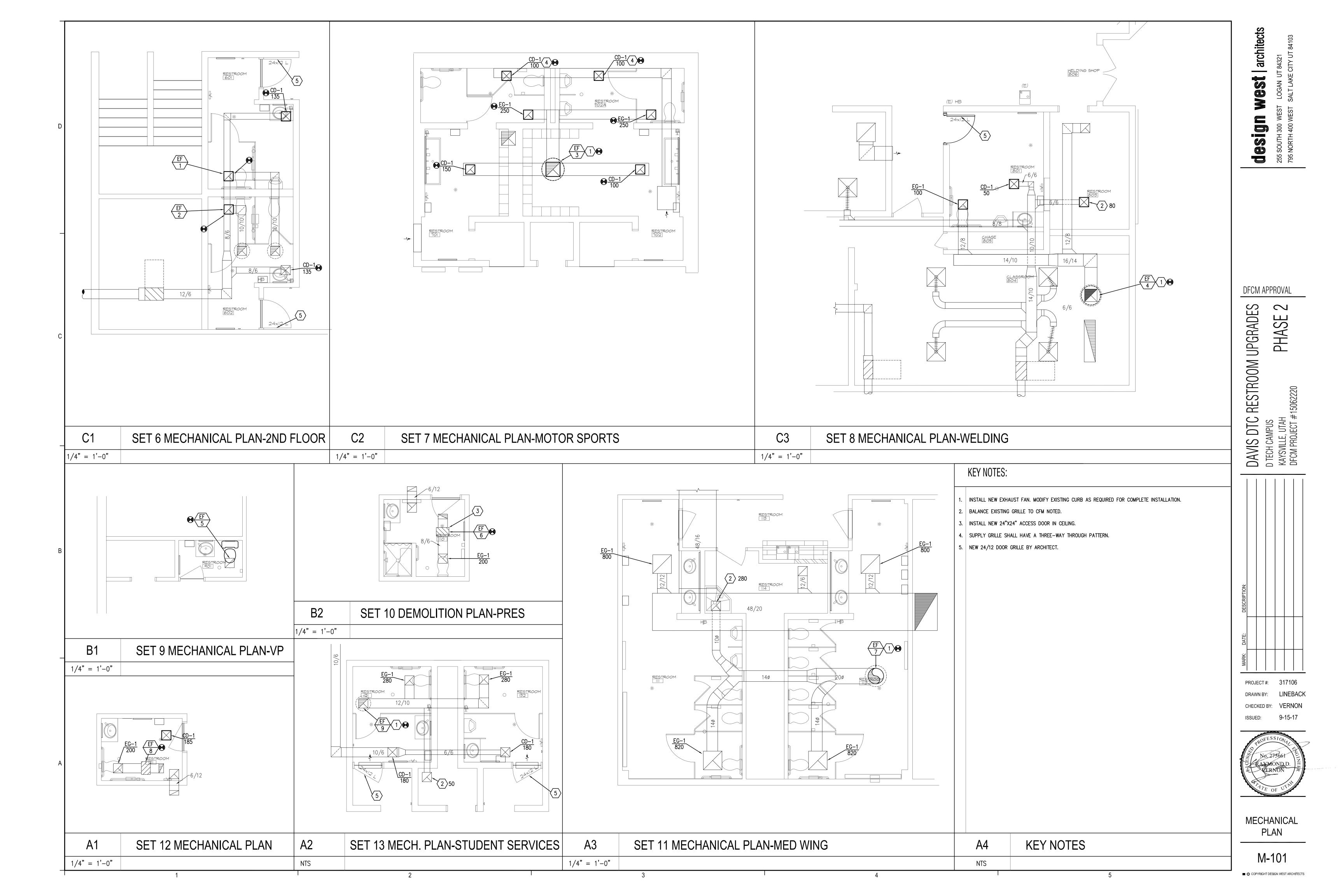
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MECHANICAL **DEMOLITION** PLAN

M-100





SCHEDULES & DETAILS

> M-601 ■ ② COPYRIGHT DESIGN WEST ARCHITECTS

					AIR	ELECTRICAL					PHYSICAL			
					MAXIMUM							LENGTH/		
	MANUFACTURER				AIRFLOW	STATIC	FAN	MOTOR	MOTOR	MOTOR		WIDTH/		
	AND	AREA			RATE	PRESSURE	SPEED	SIZE	ВНР	SPEED		HEIGHT	WEIGHT	
ID	MODEL NUMBER	SERVED	LOCATION	TYPE	(CFM)	(IN. WATER)	(RPM)	(HP)	(HP)	(RPM)	VOLT/PH/HZ	(IN)	(LBS)	NOTE
EF-1	GREENHECK SP-A390	SET 6	CEILING	BATHROOM	375	0.18	1,347	1/6	0.18	1347	115/1/60	12/14/11.25	30	(1)(3)
EF-2	GREENHECK SP-A390	SET 6	CEILING	BATHROOM	375	0.18	1,347	1/6	0.18	1347	115/1/60	12/14/11.25	30	(1)(3)
EF-3	GREENHECK G-090-VG	SET 7	ROOF	DOME	500	0.5	1,665	1/10	0.08	1665	115/1/60	22 DIA./17	35	(1)(2)
EF-4	GREENHECK G-097-A	SET 8	ROOF	DOME	200	0.75	1,644	1/4	0.09	1644	115/1/60	25 DIA./25	55	(1)(2)
EF-5	GREENHECK SP-A200	SET 9	CEILING	BATHROOM	200	0.25	862	1/10	0.06	862	115/1/60	12/14/11.25	30	(1)(3)
EF-6	GREENHECK CSP-A250	SET 10	CEILING	IN-LINE	200	0.25	947	1/10	0.06	947	115/1/60	12/14/11.25	30	(1)(3)
EF-7	GREENHECK G-183-VG	SET 11	ROOF	DOME	2,000	0.5	805	3/4	0.28	805	115/1/60	36 DIA./230	100	(1)(2)
EF-8	GREENHECK CSP-A250	SET 12	CEILING	IN-LINE	200	0.25	947	1/10	0.06	947	115/1/60	12/14/11.25	30	(1)(3)
EF-9	GREENHECK G-098-A	SET 13	ROOF	DOME	560	0.75	1,716	1/4	0.16	1716	115/1/60	25 DIA./26	60	(1)(2)

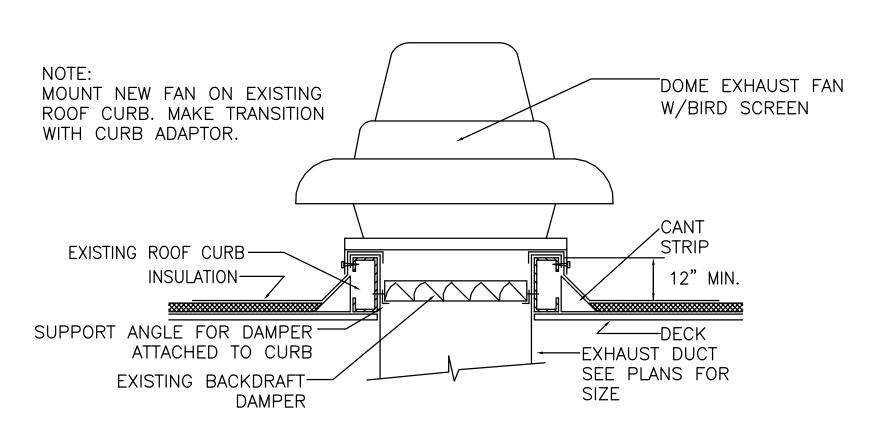
(1) ALL CAPACITIES AT 4,400 FEET ELEVATION.

(2) ROOF MOUNTED EXHAUST FAN. COMPLETE WITH NEMA PREMIUM EFFICIENT MOTOR, SPEED CONTROLLER, ROOF CURB ADAPTOR FOR MOUNTING ON EXISTING CURB,

BIRD SCREEN, INTEGRAL THERMAL OVERLOAD PROTECTION. RE-USE EXISTING DISCONNECT.

(3) CONTROLS: FAN SHALL BE RECONNECTED TO THE EXISTING FAN CONTROLS. (4) CEILING MOUNTED EXHAUST FAN COMPLETE WITH NEMA PREMIUM EFFICIENT MOTOR, SPEED CONTROLLER AND GRAVITY BACK DRAFT DAMPER.

			MAX	REGISTERS AND DIFFUSERS	
ID	MANUFACTURER	MODEL	NC	DESCRIPTION	
				PERFORATED FACE EXHAUST AIR UNIT, REMOVABLE FACE & CORE.	
:G-1	EH PRICE	PDDR	20	FRAME SHALL BE FOR SURFACE MOUNTING AS REQUIRED	
				BY CEILING TYPE. FRAMES SHALL BE 10" x 10" OR	
				12" x 12" AS REQUIRED TO FIT CEILING SPACE AVAILABLE.	
				SQUARE PLAQUE FACE CEILING DIFFUSERS. REMOVABLE FACE,	
				C.W./O.B.D. FRAME SHALL BE FOR SURFACE OR LAY-IN MOUNTING	
CD-1	EH PRICE	SPD	30	AS REQUIRED BY CEILING TYPE. LAY-IN FRAMES SHALL BE	
				24" x 24", 24" x 12" OR 12" x 12" AS REQUIRED TO FIT CEILING	
				TILE SPACE AVAILABLE.	



EXHAUST FAN DETAIL NO SCALE

DUCTWORK-FLEXIBLE CONNECTION— CENTRIFUGAL INLINE EXHAUST FAN M-601 NO SCALE

<u>FAN</u>

FLEXIBLE CONNECTION

AIR

3/8"Ø ALL THREADED STEEL RODS SUPPORT FROM

OF RODS TO SUIT SPACE

MOUNTING BRACKET—

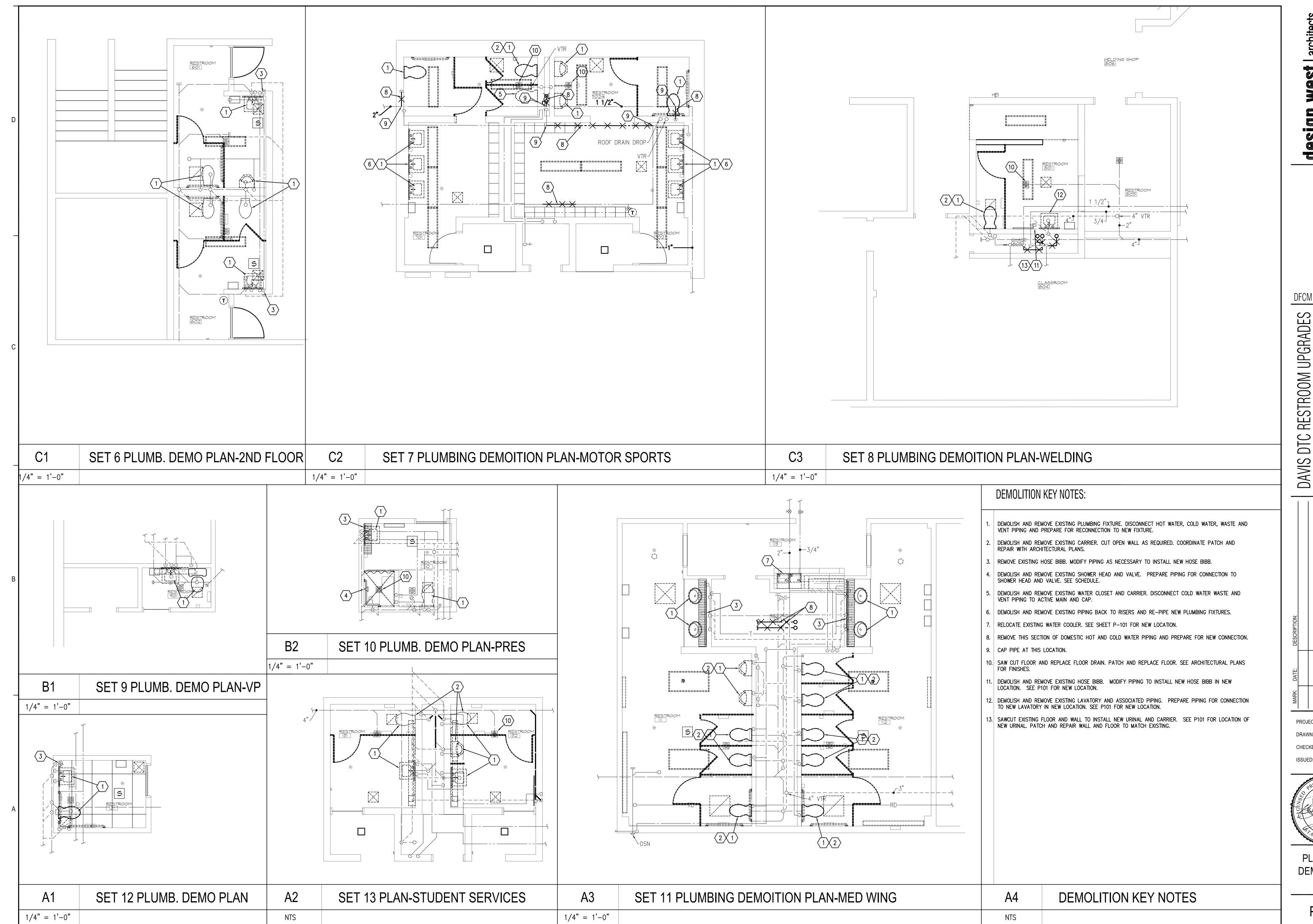
AVAILABLE

BUILDING STRUCTURE LENGTH

STEEL SPRING AND —

RUBBER IN SHEAR TYPE VIBRATION ISOLATORS

AIR FLOW



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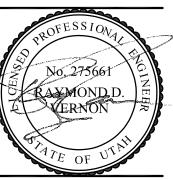
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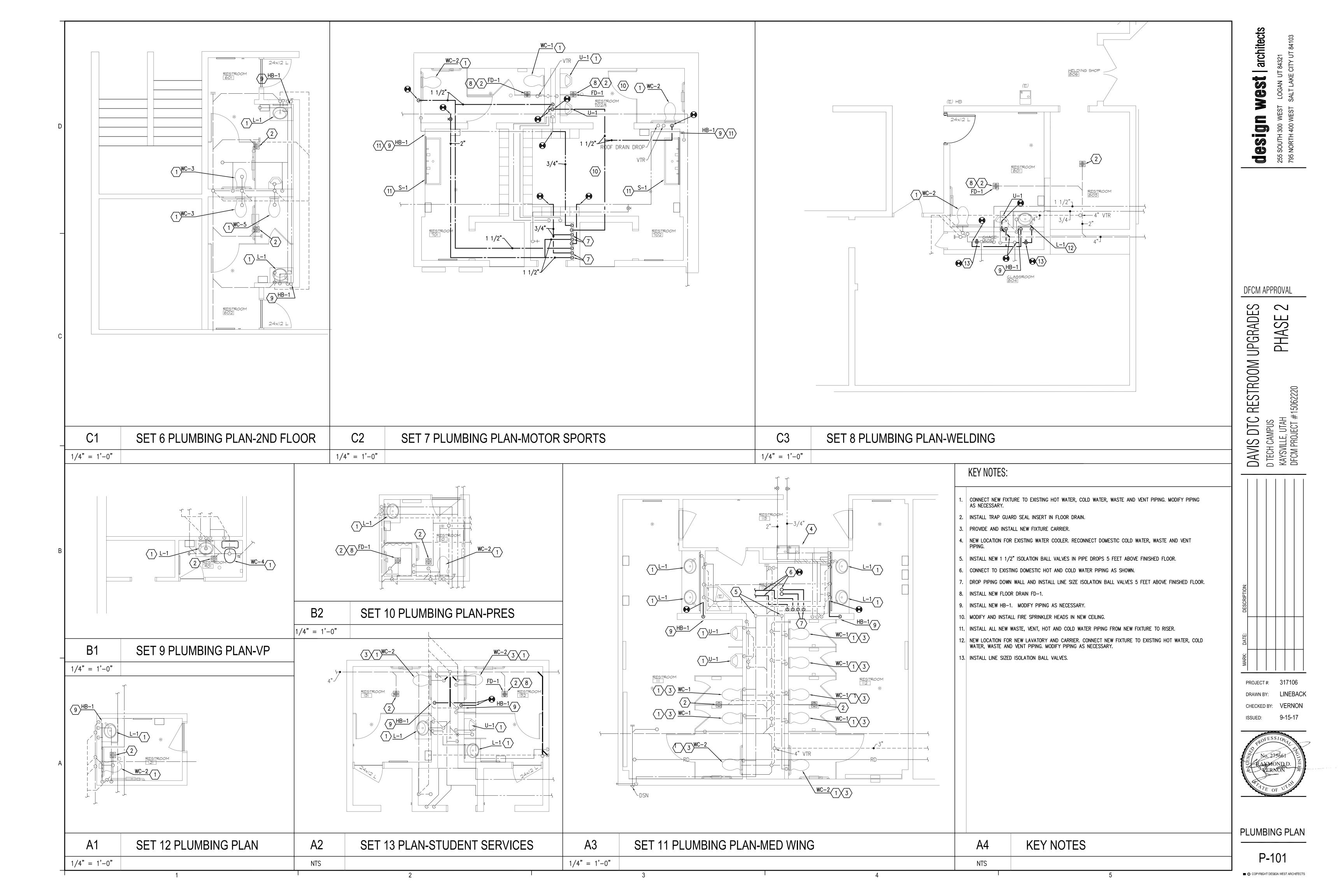
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ISSUED: 9-15-17



PLUMBING DEMOLITION PLAN

P-100



SYMBOL LEGEND

DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501

INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.

ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.

SYMBOL DESCRIPTION

\E-501/

ROOM NAME

100

REFERENCE AND LINE SYMBOLS

	SYMBOL LEGEND
SYMBOL	DESCRIPTION
ELECTRICA	AL POWER AND DISTRIBUTION
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).
Ç	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).
"1H"	PANELBOARD (ONE—LINE DIAGRAM).
225/3 "1H"	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
)225/3 "1H"	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
<u>zum</u>	PANELBOARD CABINET, FLUSH MOUNTED.
<i>TIIII</i>	PANELBOARD CABINET, SURFACE MOUNTED, 1 SECTION.
	PANELBOARD CABINET, SURFACE MOUNTED, 2 SECTION.
DP#	DISTRIBUTION PANEL OR SWITCHBOARD.
HC	ACCESSIBLE DOOR ENTRY PUSH PLATE OPERATOR.
FIRE ALAF	RM
⊠ < 75	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
75	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
▷ ⊗⊲75	ALARM, HORN/STROBE, ONE ASSEMBLY, CEILING MOUNT SUBSCRIPT INDICATES CANDELA RATING.
TECHNOLO	OGY SYSTEMS
\$ #	SPEAKER, CEILING MOUNTED.

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PERMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR

PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS". THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL SYSTEMS WHICH UTILIZE VOLTAGES OF LESS THAN 71 VOLTS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLING SYSTEMS,

	ABBREV	IATIO	ONS
	NOTE: ALL ABBREVIATI	ONS MAY	NOT BE USED.
1P	SINGLE POLE	KV	KILOVOLT
1PH 1WAY	SINGLE-PHASE ONE-WAY	KVA kVAR	KILOVOLT AMPERE KILOVOLT AMPERE
2/C	TWO-CONDUCTOR		REACTIVE
2WAY	TWO-WAY	kW	KILOWATT
3/C 3PH	THREE—CONDUCTOR THREE—PHASE	kWh LED	KILOWATT HOUR LIGHT EMITTING DIODE
3WAY	THREE-WAY	LFMC	LIQUID TIGHT FLEXIBLE
40UT	QUADRUPLE RECEPTACLE		METAL CONDUIT
4DDT	OUTLET	LFNC	LIQUID TIGHT FLEXIBLE NONMETALLIC CONDUIT
4PDT	FOUR-POLE DOUBLE THROW	LPS	LOW PRESSURE SODIUM
4PST	FOUR-POLE SINGLE	LRA	LOCKED ROTOR AMPS
4144	THROW	LTG	LIGHTING
4W 4WAY	FOUR-WIRE FOUR-WAY	LV MATV	LOW VOLTAGE MASTER ANTENNA
A	ABOVE COUNTER		TELEVISION SYSTEM
AC	ARMORED CABLE	MAX	MAXIMUM
ADA	AMERICANS WITH DISABILITIES ACT	MC MCA	METAL CLAD MINIMUM CIRCUIT AMPS
ADJ	ADJACENT	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISHED FLOOR	мсс	MOTOR CONTROL CENTE
AFG	ABOVE FINISHED GRADE	MCP	MOTOR CIRCUIT
AIC	AMPERE INTERRUPTING CAPACITY	MDP	PROTECTION MAIN DISTRIBUTION
ALUM	ALUMINUM		PANEL
AMP	AMPERE	MG	MOTOR GENERATOR
ANN AP	ANNUNCIATOR ACCESS POINT	MH MIN	MANHOLE MINIMUM
ΔI	(WIRELESS DATA)	MLO	MAIN LUGS ONLY
AR	ÀS REQUIRED Ó	MOCP	MAXIMUM OVERCURRENT
ASC	AMPS SHORT CIRCUIT	NA	PROTECTION
ATS	AUTOMATIC TRANSFER SWITCH	NC NC	NOT APPLICABLE NORMALLY CLOSED
AV	AUDIO VISUAL	NEC	NATIONAL ELECTRICAL
AWG	AMERICAN WIRE GAGE	NIENAA	CODE
BB XFMR	BUCK-BOOST TRANSFORMER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS
С	CEILING MOUNTED		ASSOCIATION
CATV	COMMUNITY ANTENNA	NFC	NATIONAL FIRE CODE
00	TELEVISION	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CB CCBA	CIRCUIT BREAKER CUSTOM COLOR AS	NIC	NOT IN CONTRACT
	SELECTED BY ARCHITECT	NL	NIGHT LIGHT
CCTV	CLOSED CIRCUIT	NO NTC	NORMALLY OPEN
CFBA	TELEVISION CUSTOM FINISH AS	NTS OC	NOT TO SCALE ON CENTER
	SELECTED BY ARCHITECT	OCP	OVER CURRENT
CF/CI	CONTRACTOR FURNISHED/	05 (0)	PROTECTION (
CF/OI	CONTRACTOR INSTALLED CONTRACTOR FURNISHED/	OF/CI	OWNER FURNISHED/ CONTRACTOR INSTALLED
01 / 01	OWNER INSTALLED	OF/OI	OWNER FURNISHED/
CKT	CIRCUIT		OWNER INSTALLED
CM CND	CONSTRUCTION MANAGER CONDUIT	OFP OH DR	OBTAIN FROM PLANS OVERHEAD (COILING)
CND	CONVENIENCE OUTLET		DOOR
COR	CONTRACTING OFFICER'S	OL	OVERLOAD
CP	REPRESENTATIVE	PB PF	PUSHBUTTON POWER FACTOR
CT	CONTROL PANEL CURRENT TRANSFORMER	PH	PHASE
CTV	CABLE TELEVISION	PNL	PANEL
CU	COPPER	PT PTZ	POTENTIAL TRANSFORM
dBA DPDT	UNIT OF SOUND LEVEL DOUBLE POLE DOUBLE	QTY	PAN/TILT/ZOOM QUANTITY
01 01	THROW	R	REMOVE
DS	DISCONNECT SWITCH	RCP	REFLECTED CEILING PLA
EA EM	EACH EMERGENCY	RMC RNC	RIGID METAL CONDUIT RIGID NONMETALLIC
EMT	ELECTRICAL METALLIC		CONDUIT
	TUBING	RPM	REVOLUTIONS PER MINU
ENT	ELECTRICAL NONMETALLIC TUBING	RR SCA	REMOVE AND RELOCATE SHORT CIRCUIT AMPS
EPO	EMERGENCY POWER OFF	SCBA	STANDARD COLOR AS
EQUIP	EQUIPMENT	C-	SELECTED BY ARCHITEC
EX F	EXISTING FURNITURE MOUNTED	SF SFBA	SQUARE FOOT (FEET) STANDARD FINISH AS
r FA	FIRE ALARM		SELECTED BY ARCHITEC
FCP	FIRE ALARM CONTROL	SPDT	SINGLE POLE, DOUBLE
FLA	PANEL FULL LOAD AMPS	SPEC	THROW SPECIFICATION
FMC	FLEXIBLE METALCONDUIT	SPST	SINGLE POLE, SINGLE
FOB	FREIGHT ON BOARD		THROW
FVNR	FULL VOLTAGE	S/S ST	START/STOP SINGLE THROW
FVR	NON-REVERSING FULL VOLTAGE REVERSING		SWITCHBOARD
G	GROUND	SWGR	SWITCHGEAR
GEN	GENERATOR CROUND FAULT CIRCUIT	TL	TWIST LOCK
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TP TP	TELEPHONE POLE TWISTED PAIR
GFP	GROUND FAULT	TTB	TELEPHONE TERMINAL
	PROTECTION		BOARD
HD HID	HEAVY DUTY	TV TVSS	TELEVISION TRANSIENT VOLTAGE
טוח	HIGH INTENSITY DISCHARGE	1 100	SURGE SUPPRESSER
HOA	HAND-OFF-AUTOMATIC	TYP	TYPICAL
HP	HORSE POWER	UF	UNDERFLOOR
HPF HPS	HIGH POWER FACTOR HIGH PRESSURE SODIUM	UGND UPS	UNDERGROUND UNINTERRUPTIBLE POWE
HV HV	HIGH VOLTAGE		SUPPLY
HZ	HERTZ	V.	VOLTS
IG IMC	ISOLATED GROUND	VA VEC /VED	VOLT AMPERE
IMC	INTERMEDIATE METAL CONDUIT	VFC/ VFD	VARIABLE FREQUENCY MOTOR CONTROLLER
IN/IS	INSULATED/ISOLATED	W/ W/O	WITH
1/0	INPUT/OUTPUT	W/O	WITHOUT
IR J–BOX	INFRARED JUNCTION BOX	WP XFMR	WEATHERPROOF TRANSFORMER
 [3]	OCHNICAN DUA	. / 31 1911 \	TIVE TO UNIVILIE

J-BOX JUNCTION BOX

ELECTRICAL SHEET INDEX SHEET NO | SHEET TITLE E-001 SHEET INDEX, SYMBOLS, GENERAL NOTES E-100 ELEC DEMO PLANS E-101 POWER PLANS E-181 LIGHTING PLANS E-601 LIGHTING FIXTURE SCHEDULE

TYPICAL MOUNTING HEIGHT DETAILS

ELECTRICAL SPECIFICATIONS

E-701

E-801

GENERAL ELECTRICAL NOTES

- CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, CATALOG NUMBER DISCREPANCIES, DISCREPANCIES BETWEEN THE EQUIPMENT SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC, SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.
- OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT AS INDICATED IN THE CONTRACT DOCUMENTS TO BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.
 - A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.
 - B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS FREIGHT ON BOARD JOB SITE AND THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.
 - C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES OF OWNER FURNISHED ITEMS AND FOR RECEIVING, UNLOADING AND HANDLING OWNER FURNISHED ITEMS AT THE SITE. THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM EXPOSURE TO THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.
- 3. EXPOSED STRUCTURE AREAS (EXCLUDING MECHANICAL, ELECTRICAL, AND COMMUNICATION SPACES): INSTALL RACEWAYS BETWEEN DECK AND STRUCTURE WHEREVER POSSIBLE IN EXPOSED STRUCTURE CEILING AREAS. ROUTE RACEWAYS IN CONCEALED AREAS WHEREVER POSSIBLE. REFER ALL CONDITIONS WHERE RACEWAYS MUST BE INSTALLED WHICH CANNOT COMPLY WITH THESE REQUIREMENTS TO THE ARCHITECT.
- SUBMITTALS: PROVIDE ORIGINAL ELECTRONIC PDF FORMAT, BOUND, BOOKMARKED (EACH SECTION AND PRODUCT), AND HIGHLIGHTED. JOB NAME AND SUBCONTRACTOR SHALL BE ON THE FRONT COVER. PREPARE INDEX OF EQUIPMENT SUBMITTED IN EACH TAB.
- REFLECTED CEILING PLANS: COORDINATE THE LOCATION OF LIGHT FIXTURES WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. REFER ALL DISCREPANCIES TO THE ARCHITECT AND ENGINEER.
- 6. ALL WORK SHALL BE DONE ACCORDING TO THE CURRENT NATIONAL ELECTRIC CODE (NEC), IBC, NFPA, AND IFC. COMPLIANCE AND FINAL APPROVAL IS SUBJECT TO THE ON SITE FIELD INSPECTION OF THE AHJ.

architects

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UPGRADE

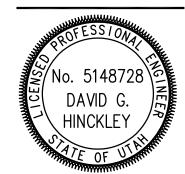
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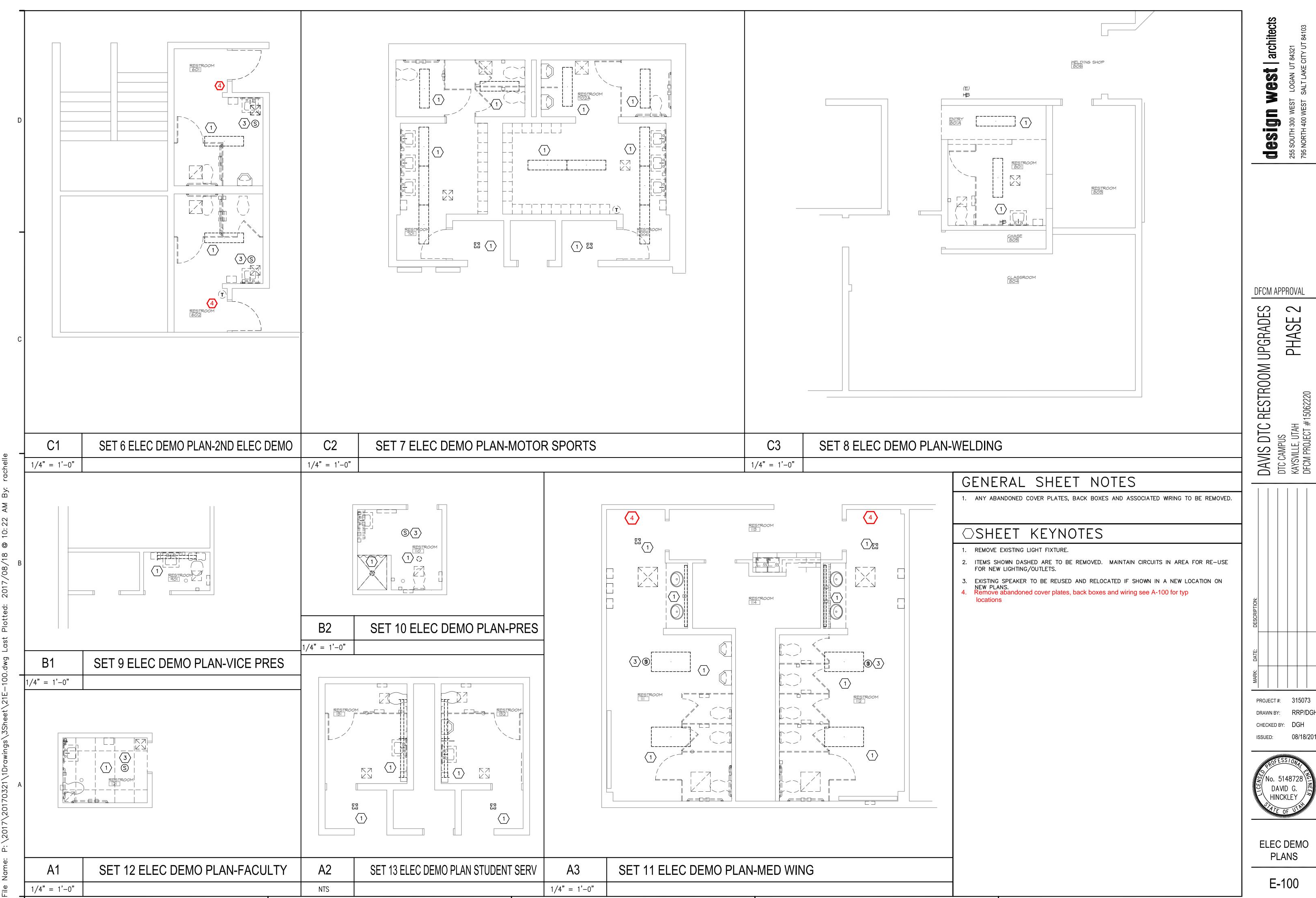
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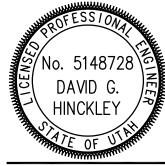
SHEET INDEX, SYMBOLS, **GENERAL NOTES**

E-001



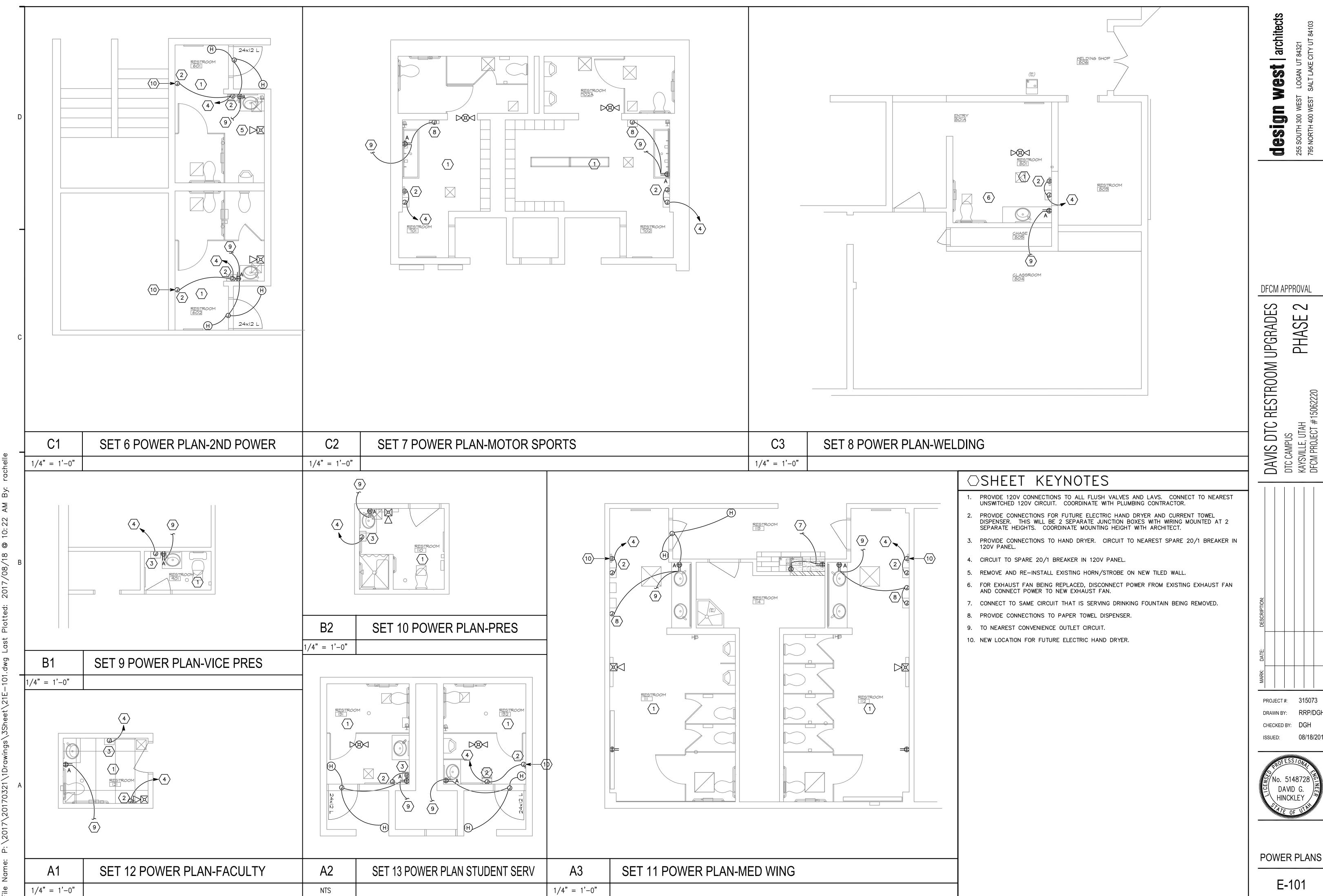
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PROJECT #: 315073



ELEC DEMO PLANS

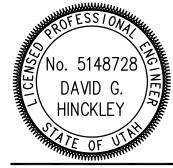
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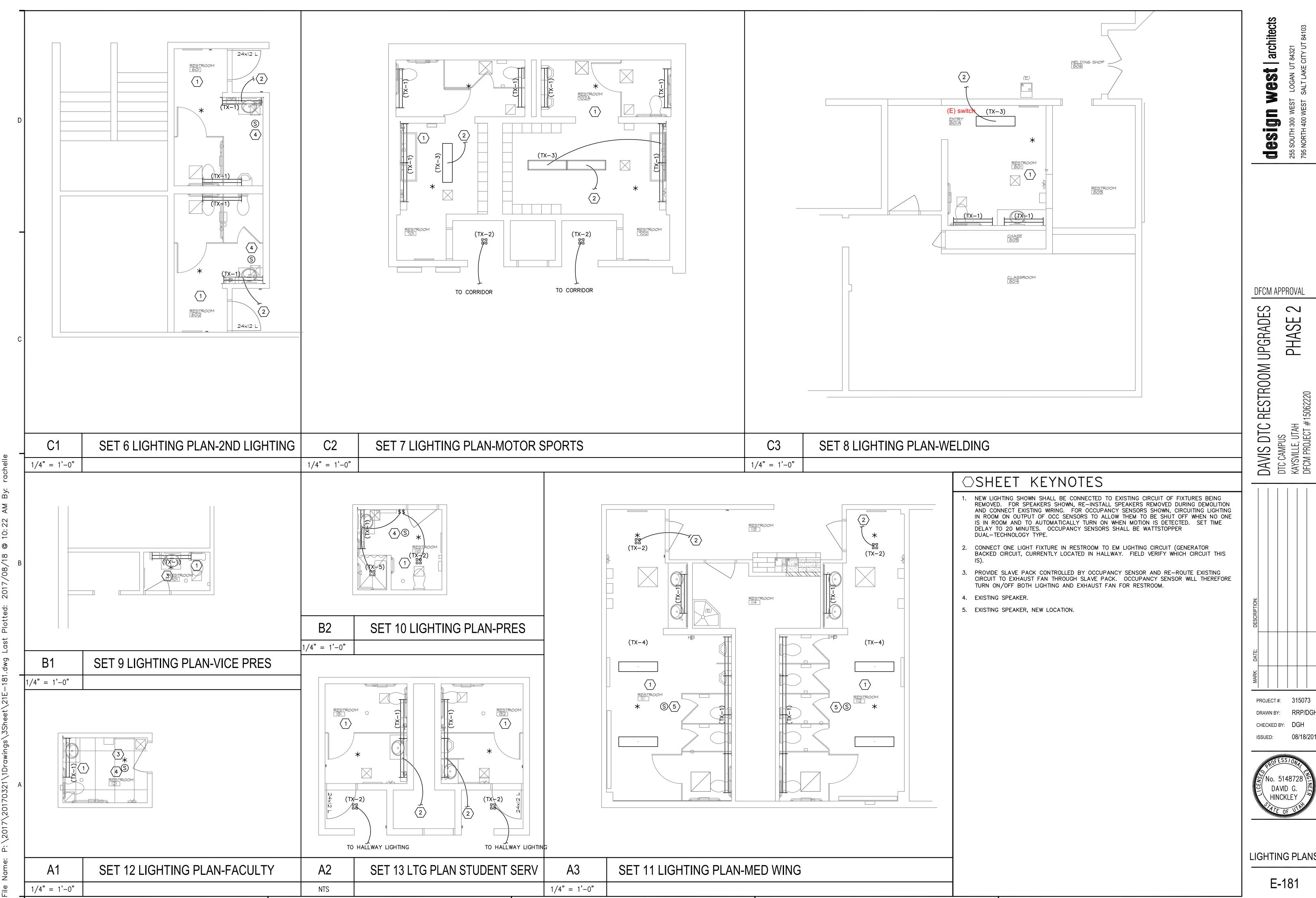
DFCM APPROVAL

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POWER PLANS

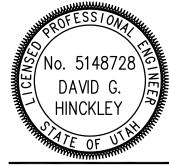
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DFCM APPROVAL

PROJECT #: 315073



LIGHTING PLANS

E-181

LIGHTING FIXTURE SCHEDULE

NOTE TO BIDDERS: COMPLY WITH SECTIONS 16511, 16521, AND 16570 OF THE SPECIFICATIONS.

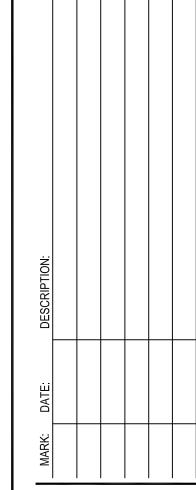
REFER TO SPECIFICATIONS FOR IMPORTANT TECHNICAL REQUIREMENTS FOR LIGHTING FIXTURES, BALLASTS, AND LAMPS. THE CATALOG NUMBERS LISTED BELOW HAVE BEEN CAREFULLY PREPARED TO ASSIST BIDDERS IN SELECTING PRODUCTS TO ACHIEVE THE DESIGN CONCEPT, HOWEVER, PRIOR TO BIDDING, EACH MANUFACTURER SHALL COMPARE THE CATALOG NUMBERS SHOWN WITH THE DESCRIPTION AND REQUIREMENTS ON THE DRAWINGS, AND SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES. SPECIFICALLY INCLUDED IN THIS EVALUATION SHALL BE THE VERIFYING OF PROPER MOUNTING KITS OR ACCESSORIES TO FACILITATE INSTALLATION AS SHOWN AT EACH LOCATION ON THE DRAWINGS. NO ALLOWANCE OR REDRESS WILL BE ALLOWED FOR DISCREPANCIES THAT WERE NOT REPORTED TO THE ARCHITECT/ENGINEER IN TIME FOR CORRECTION OR CLARIFICATION BEFORE THE BID. THE REPORTING OF ANY AMBIGUITY IS THE RESPONSIBILITY OF THE BIDDER. PROVIDE UNIT PRICES AND FIXTURE BRAND SELECTED FOR ADD/DELETE CHANGES FOR EACH FIXTURE TYPES SHOWN WITHIN 48 BUSINESS HOURS OF THE BID DATE. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY DISQUALIFY THE PRODUCTS AND EMPOWER THE ENGINEER TO DETERMINE FAIR VALUE FOR FIXTURE AND INSTALLATION CHANGES, WITHOUT FURTHER INPUT FROM THE CONTRACTOR OR INSTALLER. SUBMITTAL PACKAGE SHALL INCLUDE LAMP MANUFACTURER AND CATALOG NUMBER ON EACH FIXTURE SHEET. ON ALL PENDANT MOUNTED FIXTURES, PROVIDE A SECOND SET OF PENDANTS, OF A DIFFERENT LENGTH, AS DIRECTED BY THE ARCHITECT/ENGINEER, PROVIDED AND INSTALLED AT NO ADDITIONAL CHARGE. ALL FIXTURES SHALL BE APPROVED BY UL OR ANOTHER ACCEPTABLE TESTING LAB FOR THE PURPOSE INTENDED AND WITH THE LAMP AND BALLAST PROPOSED. CONTRACTOR ALLOWANCE PRICES ARE ACCURATE WHEN THIS JOB WAS SPECIFIED, CONTRACTOR AND ELECTRICAL DISTRIBUTOR SHALL VERIFY THIS ALLOWANCE AND REPORT ANY PROBLEMS TO THE ENGINEER BEFORE THE BID. ALLOWANCE PRICE MAY OR MAY NOT INCLUDE LAMP(S) OR FREIGHT AS NOTED, AND DO NOT INCLUDE ANY TAXES. UNIVERSAL VOLTAGE (120/277) BALLASTS REQUIRED LINESS NOTED OTHERWISE DIMENSION SEQUENCE = (LENGTH X WIDTH X DEPTH) IN INCHES

BALLASI	S REQUI	RED UNLESS NOTED OTHERWISE, DIM	ENSION SE	QUENCE = (I	LENGIH X	MID IH X DEP II	H) IN INCHES.	
		FIXTURE CHARACTERISTICS						
		BODY / AIR / MOUNTING / DOOR						
SYMBOL	MARK	LENS/LOUVER/REFLECTOR/OTHER	LAMP	WATTS	VOLTS	MANUFACTURE	R CATALOG NUMBER	NOTI
	TX	SPECIAL FIXTURES AS INDICATED.	MEET ALL	REQUIREMEN1	S OF SPE	CIFICATIONS AN	ID FIXTURE SCHEDULE. VISUAL AND	
		FINISH APPROVAL REQUIRED.						
	TX-1	WALL LED LUMINAIRE	LED	44W	277V	LEDALITE	7808-L-B-E-Q-N-04-X-E-W-4000K	
	TX-2	RECESSED DOWNLIGHT; CLEAR	LED	40W	277/120V	GOTHAM	ICO-40-20-6AR-45-277	
		ALZAK REFLECTOR, LED	840			HE WILLIAMS	LEDP60-2000-40K-CS-277	
						LIGHTOLIER	C6L1520-DL-4000K-W-CCL-P-C6L20-N-	-277
						PRESCOLITE	LF6LED-6LFLED7-40K	
						PORTFOLIO	LD6-20-D010-ERM6-840H20-6LMO-H	
						JUNO	SD6-20-40-SAQF	
	TX-3	SURFACE WRAPAROUND	LED	50W	UNV	KENNAL	MLHA12-48-R-MW-CP-45L40K	
	TX-4	2X2 RECESSED TROFFER	LED	32W	UNV	METALUX	22GR-LD4-32-F1-UNV-L840-DF22-W	
	TX-5	SHOWER LIGHT	LED	15W	UNV	PRESCOLITE	LBSLEDA10L-40K-8-WH/+JBOX/HOUSING	
						LITHONIA	FMML-13-8-40K-WL	
						HALO	SLD612-80-40-WH-UNV-JB	

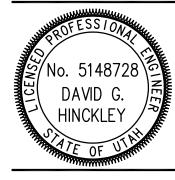
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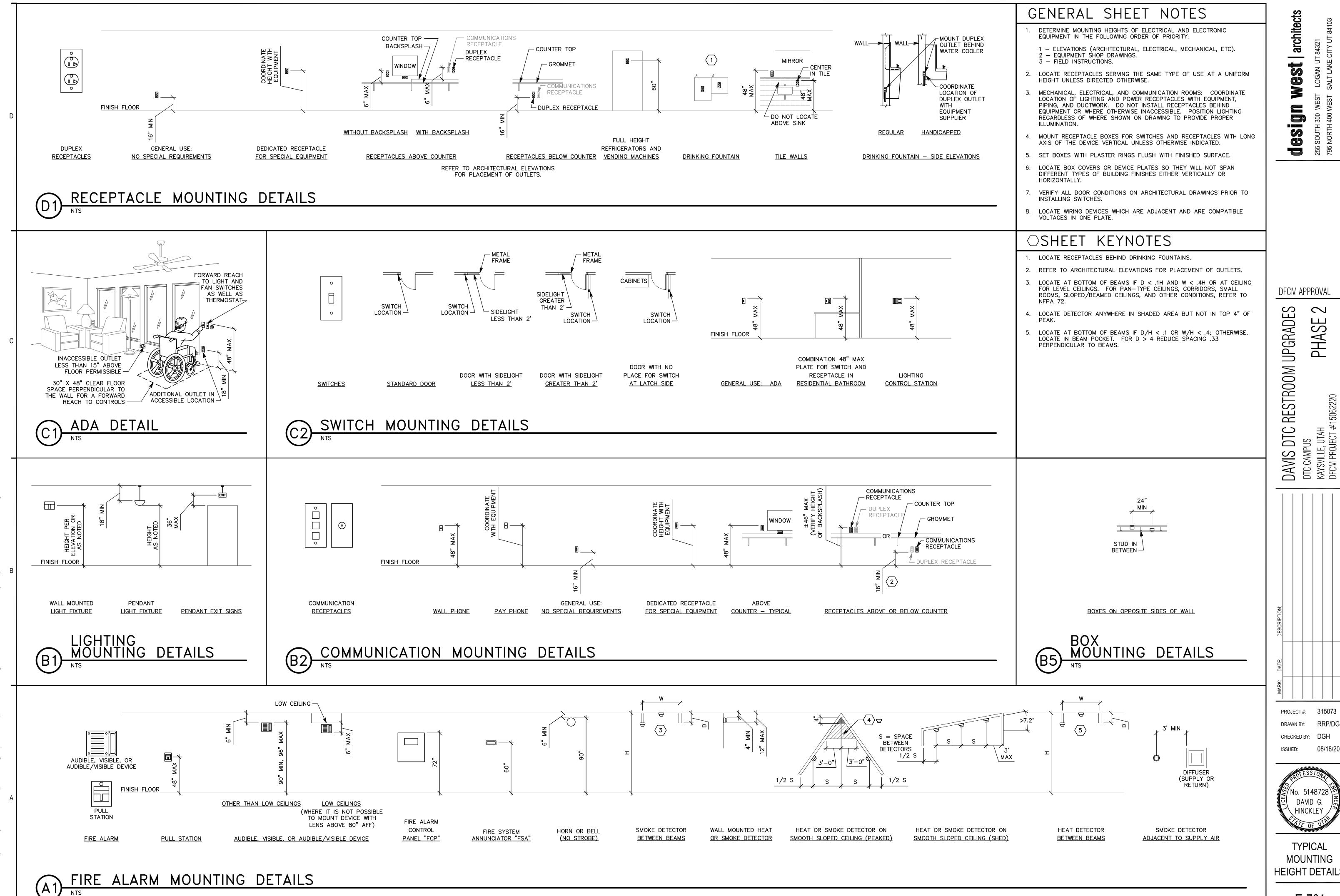


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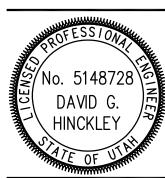
LIGHTING **FIXTURE** SCHEDULE

E-601



 \sim **PHASE**

PROJECT #: 315073



TYPICAL MOUNTING **HEIGHT DETAILS**

E-701

ELECTRICAL SPECIFICATIONS

16050 - BASIC ELECTRICAL MATERIALS AND METHODS

GENERAL

MATERIALS AND INSTALLATION SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, OTHER APPLICABLE NFPA SECTIONS, STATE AND LOCAL CODES, AND RECOGNIZED INDUSTRY STANDARDS AND PRACTICES.

LISTING AND LABELING: PROVIDE PRODUCTS THAT ARE UL LISTED AND LABELED.

NEMA COMPLIANCE: COMPLY WITH CONSTRUCTION AND INSTALLATION REQUIREMENTS OF APPLICABLE NEMA STANDARDS.

SUBMITTALS: SUBMIT PRODUCT DATA AND SHOP DRAWING ON THE FOLLOWING EQUIPMENT FOR APPROVAL:

LIGHTING FIXTURES.

PRIOR TO SUBMITTING BID, VISIT SITE TO VERIFY ALL EXISTING CONDITIONS AND ANY ITEMS THAT WILL AFFECT WORK OF THIS PROJECT. INCLUDE ALL COSTS IN BID.

MAINTAIN A SET OF REDLINED AS-BUILT DRAWINGS AND DELIVER TO OWNER UPON COMPLETION OF PROJECT.

PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE.

LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES WITHIN OR PASSING THROUGH DEMOLITION AREA AND SERVING OTHER AREAS OUTSIDE THE DEMOLITION LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE DEMOLITION LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS. COORDINATE POWER INTERRUPTIONS ONE WEEK IN ADVANCE WITH OWNER. IF POWER INTERRUPTIONS DISTURB NORMAL OPERATIONS, THEN POWER INTERRUPTIONS ARE ONLY ALLOWED DURING NON-BUSINESS OR NON-OPERATION HOURS.

SELECTIVE DEMOLITION: DEMOLISH, REMOVE, DEMOUNT, AND DISCONNECT ABANDONED ELECTRICAL MATERIALS AND EQUIPMENT INDICATED TO BE REMOVED. SALVAGE AND DELIVER TO OWNER ITEMS INDICATED TO BE SALVAGED, OTHERWISE, REMOVE FROM SITE AND LEGALLY DISPOSE OF ALL DEMOLISHED ITEMS.

PATCH AND REPAIR SURFACES THAT ARE DISTURBED OR DAMAGED AS A RESULT OF ELECTRICAL INSTALLATION. RESTORE SURFACES TO ORIGINAL CONDITION.

INSTALLATION OF FIRE-STOPPING SEALANT: INSTALL UL-LISTED SEALANT, INCLUDING FORMING, PACKING, AND OTHER ACCESSORY MATERIALS, TO FILL OPENINGS AROUND ELECTRICAL SERVICES PENETRATING FLOORS AND WALLS, TO PROVIDE FIRE-STOPS WITH FIRE-RESISTANCE RATINGS INDICATED FOR FLOOR OR WALL ASSEMBLY IN WHICH PENETRATION OCCURS. COMPLY WITH INSTALLATION REQUIREMENTS ESTABLISHED BY TESTING AND INSPECTING AGENCY.

16100 - RACEWAYS, BOXES, AND CABINETS

PRODUCTS

RIGID STEEL CONDUIT: ANSI C80.1.

INTERMEDIATE METAL CONDUIT: ANSI C80.6. PLASTIC-COATED STEEL CONDUIT AND FITTINGS: NEMA RN 1.

PLASTIC—COATED INTERMEDIATE METAL CONDUIT AND FITTINGS: NEMA RN 1.

ELECTRICAL METALLIC TUBING AND FITTINGS: ANSI C80.3 WITH SET-SCREW OR COMPRESSION-TYPE FITTINGS. CAST FITTINGS ARE NOT ALLOWED.

FLEXIBLE METAL CONDUIT: ZINC-COATED STEEL.

NONMETALLIC BOXES: NEMA OS 2.

LIQUIDTIGHT FLEXIBLE METAL CONDUIT: FLEXIBLE STEEL CONDUIT WITH PVC JACKET.

FITTINGS: NEMA FB 1, COMPATIBLE WITH CONDUIT/TUBING MATERIALS AND SUITABLE FOR USE AND LOCATION.

RIGID NONMETALLIC CONDUIT (RNC): NEMA TC 2, SCHEDULE 40 OR 80 PVC.

PVC CONDUIT AND TUBING FITTINGS: NEMA TC 3; MATCH TO CONDUIT OR CONDUIT/TUBING TYPE AND MATERIAL. OUTLET AND DEVICE BOXES: USE 1 OF THE FOLLOWING:

SHEET METAL BOXES: NEMA OS 1. CAST METAL BOXES: NEMA FB 1, TYPE FD, CAST FERALLOY BOX WITH GASKETED COVER.

EXECUTION

EXPOSED: RIGID OR INTERMEDIATE METAL CONDUIT. CONCEALED: RIGID OR INTERMEDIATE METAL CONDUIT. UNDERGROUND: RIGID NONMETALLIC CONDUIT. EXCEPT THAT WRAPPED RIGID METAL SHALL BE USED FOR BENDS GREATER THAN 22 DEGREES. PENETRATING CONCRETE FLOORS AND FOUNDATIONS: WRAPPED RIGID METAL CONDUIT. CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, OR ELECTRIC SOLENOID OR MOTOR-DRIVEN EQUIPMENT): LIQUIDTIGHT FLEXIBLE METAL CONDUIT.

BOXES AND ENCLOSURES: NEMA TYPE 3R OR TYPE 4.

ELECTRICAL SPECIFICATIONS

|16100 - RACEWAYS, BOXES, AND CABINETS

CONCEAL RACEWAYS, UNLESS OTHERWISE INDICATED, WITHIN FINISHED WALLS, CEILINGS, AND FLOORS.

INSTALL RACEWAYS LEVEL AND SQUARE AND AT PROPER ELEVATIONS. RUN PERPENDICULAR AND AT RIGHT ANGLES TO BUILDING AND STRUCTURAL ELEMENTS. RUN PARALLEL OR BANKED RACEWAYS TOGETHER, ON COMMON SUPPORTS WHERE PRACTICAL. MAKE BENDS IN PARALLEL OR BANKED RUNS FROM SAME CENTER LINE TO MAKE BENDS PARALLEL.

SUPPORT RACEWAYS AS FOLLOWS, IN COMPLIANCE WITH DIVISION 16 SECTION "SUPPORTING DEVICES": TWO SUPPORTS PER 10' RUN, WITHING 12" OF A COUPLING, FITTING OR BEND GREATER THAN 45 DEGREES, AND WITHING 12" OF EVERY BOX TO WHICH THE RACEWAY IS ENTERING OR EXITING.

RUN CONCEALED RACEWAYS WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE TYPE OF BUILDING CONSTRUCTION AND OBSTRUCTIONS, EXCEPT AS OTHERWISE INDICATED.

RACEWAYS EMBEDDED IN SLABS: INSTALL IN MIDDLE THIRD OF THE SLAB THICKNESS WHERE PRACTICAL, AND LEAVE AT LEAST 1 INCH (25 MM) CONCRETE COVER.

JOINTS AND TERMINATIONS: JOIN RACEWAYS WITH FITTINGS DESIGNED AND APPROVED FOR THE PURPOSE AND MAKE JOINTS AND TERMINATIONS TIGHT.

MAKE RACEWAY TERMINATIONS TIGHT. USE BONDING BUSHINGS OR WEDGES AT CONNECTIONS SUBJECT TO VIBRATION. USE BONDING JUMPERS WHERE JOINTS CANNOT BE MADE TIGHT. USE INSULATING BUSHINGS TO PROTECT CONDUCTORS.

INSTALL PULL WIRES IN EMPTY RACEWAYS.

PROVIDE GROUNDING CONNECTIONS FOR RACEWAY, BOXES, AND COMPONENTS AS INDICATED AND INSTRUCTED BY MANUFACTURER. TIGHTEN CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, ACCORDING TO EQUIPMENT MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTORS AND TERMINALS ACCORDING TO TIGHTENING TORQUES SPECIFIED IN UL STANDARD 486A.

16120 - WIRFS AND CABLES

PRODUCTS

WIRES AND CABLES: TYPE THHN/THWN COPPER CONDUCTOR.

STRANDED CONDUCTOR.

CONNECTORS AND SPLICES: UL-LISTED FACTORY-FABRICATED WIRING CONNECTORS OF SIZE, AMPACITY RATING, MATERIAL, AND TYPE AND CLASS FOR APPLICATION AND FOR SERVICE INDICATED. SELECT TO COMPLY WITH PROJECT'S INSTALLATION REQUIREMENTS AND AS SPECIFIED IN THE "EXECUTION" ARTICLE.

EXECUTION

M.C. CABLING MAY BE USED FOR ALL CIRCUITS. INSTALL WIRES AND CABLES AS INDICATED, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND THE NECA "STANDARD OF INSTALLATION."

PULL CONDUCTORS INTO RACEWAY SIMULTANEOUSLY WHERE MORE THAN ONE IS BEING INSTALLED IN SAME RACEWAY.

CONDUCTOR SPLICES: KEEP TO MINIMUM.

INSTALL SPLICES AND TAPES THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL.

WIRING AT OUTLETS: INSTALL WITH AT LEAST 12 INCHES (300 MM) OF SLACK CONDUCTOR AT EACH OUTLET.

CONNECT OUTLETS AND COMPONENTS TO WIRING AND TO GROUND AS INDICATED AND INSTRUCTED BY MANUFACTURER. TIGHTEN CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, ACCORDING TO EQUIPMENT MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTORS AND TERMINALS ACCORDING TO TIGHTENING TORQUES SPECIFIED IN UL STANDARD 486A.

ELECTRICAL SPECIFICATIONS

16190 - SUPPORTING DEVICES

PRODUCTS

MANUFACTURED SUPPORTING DEVICES:

RACEWAY SUPPORTS: CLEVIS HANGERS, RISER CLAMPS, CONDUIT STRAPS, THREADED C-CLAMPS WITH RETAINERS, CEILING TRAPEZE HANGERS. WALL BRACKETS, AND SPRING STEEL CLAMPS.

FASTENERS: TYPES. MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:

EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE

TOGGLE BOLTS: ALL STEEL SPRINGHEAD TYPE. POWDER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.

U-CHANNEL SYSTEMS: 16-GAGE STEEL CHANNELS, WITH 9/16-INCH- DIAMETER HOLES, AT A MINIMUM OF 8 INCHES ON CENTER. IN TOP SURFACE. PROVIDE FITTINGS AND ACCESSORIES THAT MATE AND MATCH WITH U-CHANNEL AND ARE OF THE SAME MANUFACTURE.

FABRICATED SUPPORTING DEVICES: SHOP- OR FIELD-FABRICATED SUPPORTS OR MANUFACTURED SUPPORTS ASSEMBLED FROM U-CHANNEL COMPONENTS.

STEEL BRACKETS: FABRICATED OF ANGLES, CHANNELS, AND OTHER STANDARD STRUCTURAL SHAPES. CONNECT WITH WELDS AND MACHINE BOLTS TO FORM RIGID SUPPORTS.

EXECUTION

INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC REQUIREMENTS. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER ELECTRICAL INSTALLATION.

RACEWAY SUPPORTS: COMPLY WITH THE NEC AND THE FOLLOWING **REQUIREMENTS:**

CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR SELECTION AND INSTALLATION OF SUPPORTS. STRENGTH OF EACH SUPPORT SHALL BE ADEQUATE TO CARRY PRESENT AND FUTURE LOAD MULTIPLIED BY A SAFETY FACTOR OF AT LEAST FOUR, BUT IN NO CSES SHALL BE LESS THAN 200 LBS IN THE STRENGTH OF EACH SUPPORT INSTALL INDIVIDUAL AND MULTIPLE (TRAPEZE) RACEWAY HANGERS AND RISER CLAMPS AS NECESSARY TO SUPPORT RACEWAYS. PROVIDE U-BOLTS, CLAMPS, ATTACHMENTS, AND OTHER HARDWARE NECESSARY FOR HANGER ASSEMBLY AND FOR SECURING HANGER RODS AND CONDUITS.

MISCELLANEOUS SUPPORTS: SUPPORT MISCELLANEOUS ELECTRICAL COMPONENTS AS REQUIRED TO PRODUCE THE SAME STRUCTURAL SAFETY FACTORS AS SPECIFIED FOR RACEWAY SUPPORTS. INSTALL METAL CHANNEL RACKS FOR MOUNTING CABINETS, PANELBOARDS, DISCONNECTS, CONTROL ENCLOSURES, PULL BOXES, JUNCTION BOXES, TRANSFORMERS, AND OTHER DEVICES. IN OPEN OVERHEAD SPACES, CAST BOXES THREADED TO RACEWAYS NEED NOT BE SUPPORTED SEPARATELY EXCEPT WHERE USED FOR FIXTURE SUPPORT; SUPPORT SHEET METAL BOXES DIRECTLY FROM THE BUILDING STRUCTURE OR BY BAR HANGERS. WHERE BAR HANGERS ARE USED, ATTACH THE BAR TO RACEWAYS ON OPPOSITE SIDES OF THE BOX AND SUPPORT THE RACEWAY WITH AN APPROVED TYPE OF FASTENER NOT MORE THAN 24 INCHES FROM

THE BOX. FASTENING: UNLESS OTHERWISE INDICATED, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE BUILDING STRUCTURE, INCLUDING BUT NOT LIMITED TO CONDUITS, RACEWAYS, CABLES, CABLE TRAYS, BUSWAYS, CABINETS, PANELBOARDS, TRANSFORMERS, BOXES, DISCONNECT SWITCHES, AND CONTROL COMPONENTS IN ACCORDANCE WITH THE FOLLOWING:

FASTEN BY MEANS OF WOOD SCREWS OR SCREW-TYPE NAILS ON WOOD, TOGGLE BOLTS ON HOLLOW MASONRY UNITS, CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY, AND MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL. THREADED STUDS DRIVEN BY A POWDER CHARGE AND PROVIDED WITH LOCK WASHERS AND NUTS MAY BE USED INSTEAD OF EXPANSION BOLTS AND MACHINE OR WOOD SCREWS. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

HOLES CUT TO DEPTH OF MORE THAN 1-1/2 INCHES IN REINFORCED CONCRETE BEAMS OR TO DEPTH OF MORE THAN 3/4 INCH IN CONCRETE SHALL NOT CUT THE MAIN REINFORCING BARS. FILL HOLES THAT ARE NOT USED.

ENSURE THAT THE LOAD APPLIED TO ANY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD. USE VIBRATION- AND SHOCK- RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

ELECTRICAL SPECIFICATIONS

16452 - GROUNDING

SECTION 16452 - GROUNDING

PRODUCTS

GROUNDING AND BONDING PRODUCTS: TYPES AS INDICATED. WHERE TYPES, SIZES, RATINGS, AND QUANTITIES INDICATED DIFFER FROM NEC REQUIREMENTS. THE MORE STRINGENT REQUIREMENTS AND THE GREATER SIZE, RATING, AND QUANTITY INDICATIONS GOVERN.

CONDUCTOR MATERIALS: COPPER.

EQUIPMENT GROUNDING CONDUCTOR: GREEN INSULATED.

BARE COPPER CONDUCTORS: CONFORM TO THE FOLLOWING:

SOLID CONDUCTORS: ASTM B-3. ASSEMBLY OF STRANDED CONDUCTORS: ASTM B-8. TINNED CONDUCTORS: ASTM B-33.

GROUND BUS: BARE ANNEALED COPPER BARS OF RECTANGULAR CROSS-SECTION.

BRAIDED BONDING JUMPERS: COPPER TAPE, BRAIDED FROM NO. 30-GAGE BARE COPPER WIRE AND TERMINATED WITH COPPER FERRULES.

BONDING STRAP CONDUCTOR/CONNECTORS: SOFT COPPER, 0.05 INCH THICK AND 2 INCHES WIDE, EXCEPT AS INDICATED.

CONNECTOR PRODUCTS: LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS WITH WHICH USED.

PRESSURE CONNECTORS: HIGH-CONDUCTIVITY PLATED UNITS.

BOLTED CLAMPS: HEAVY-DUTY UNITS LISTED FOR THE APPLICATION.

EXOTHERMIC WELDED CONNECTIONS: PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.

EXECUTION

EQUIPMENT GROUNDING CONDUCTOR APPLICATION: COMPLY WITH NEC ARTICLE 250 FOR SIZES AND QUANTITIES OF EQUIPMENT GROUNDING CONDUCTORS, EXCEPT WHERE LARGER SIZES OR MORE CONDUCTORS ARE INDICATED. INSTALL EQUIPMENT GROUND CONDUCTORS IN ALL FEEDER AND BRANCH CIRCUIT RACEWAYS.

SIGNAL AND COMMUNICATIONS: FOR TELEPHONE, ALARM, AND COMMUNICATION SYSTEMS, PROVIDE A #4 AWG MINIMUM GREEN INSULATED COPPER CONDUCTOR IN RACEWAY FROM THE GROUNDING ELECTRODE SYSTEM TO EACH TERMINAL CABINET OR CENTRAL EQUIPMENT LOCATION.

SEPARATELY DERIVED SYSTEMS REQUIRED BY NEC TO BE GROUNDED SHALL BE GROUNDED AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.

INSTALLATION, GENERAL: GROUND ELECTRICAL SYSTEMS AND EQUIPMENT IN ACCORDANCE WITH NEC EXCEPT WHERE GROUNDING IN EXCESS OF NEC REQUIREMENTS IS INDICATED.

ROUTE GROUNDING AND BONDING CONDUCTORS USING THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE WITHOUT OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE, EXCEPT AS INDICATED.

CONNECTIONS: MAKE CONNECTIONS IN SUCH A MANNER AS TO MINIMIZE POSSIBILITY OF GALVANIC ACTION OR ELECTROLYSIS. SELECT CONNECTORS, CONNECTION HARDWARE, CONDUCTORS, AND CONNECTION METHODS SO METALS IN DIRECT CONTACT WILL BE GALVANICALLY COMPATIBLE.

EXOTHERMIC WELDED CONNECTIONS: USE FOR CONNECTIONS TO STRUCTURAL STEEL AND FOR UNDERGROUND CONNECTIONS EXCEPT THOSE AT TEST WELLS. INSTALL AT CONNECTIONS TO GROUND RODS AND PLATE ELECTRODES. COMPLY WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS. WELDS THAT ARE PUFFED UP OR THAT SHOW CONVEX SURFACES INDICATING IMPROPER CLEANING ARE NOT ACCEPTABLE.

TIGHTEN GROUNDING AND BONDING CONNECTORS AND TERMINALS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED. TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL 486A AND UL 486B.

COMPRESSION-TYPE CONNECTIONS: USE HYDRAULIC COMPRESSION TOOLS TO PROVIDE THE CORRECT CIRCUMFERENTIAL PRESSURE FOR COMPRESSION CONNECTORS. USE TOOLS AND DIES RECOMMENDED BY THE MANUFACTURER OF THE CONNECTORS. PROVIDE EMBOSSING DIE CODE OR OTHER STANDARD METHOD TO MAKE A VISIBLE INDICATION THAT A CONNECTOR HAS BEEN ADEQUATELY COMPRESSED ON THE CONDUCTOR.

MOISTURE PROTECTION: WHERE INSULATED CONDUCTORS ARE CONNECTED TO GROUND RODS OR GROUND BUSES, INSULATE THE ENTIRE AREA OF THE CONNECTION AND SEAL AGAINST MOISTURE PENETRATION OF THE INSULATION AND CABLE.

DFCM APPROVAL

7

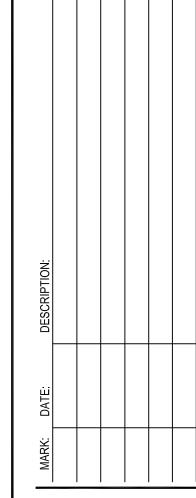
architects

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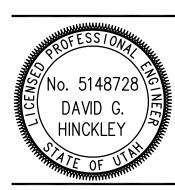
UPGRADES PHASE **RESTROOM**

DIC

AVIS



PROJECT #: 315073 DRAWN BY: CHECKED BY: DGH 08/18/2017 ISSUED:



ELECTRICAL SPECIFICATIONS

E-801



ADDENDUM

DATE: November 13, 2017

PROJECT NO: 17256

PROJECT: DATC Restroom Upgrades Phase 2

DRAWINGS

SHEET - P-100

- 1. Add keyed notes as shown. See attached drawing.
- 2. Remove piping and valves as shown. Prepare piping for reconnection. See attached drawing.

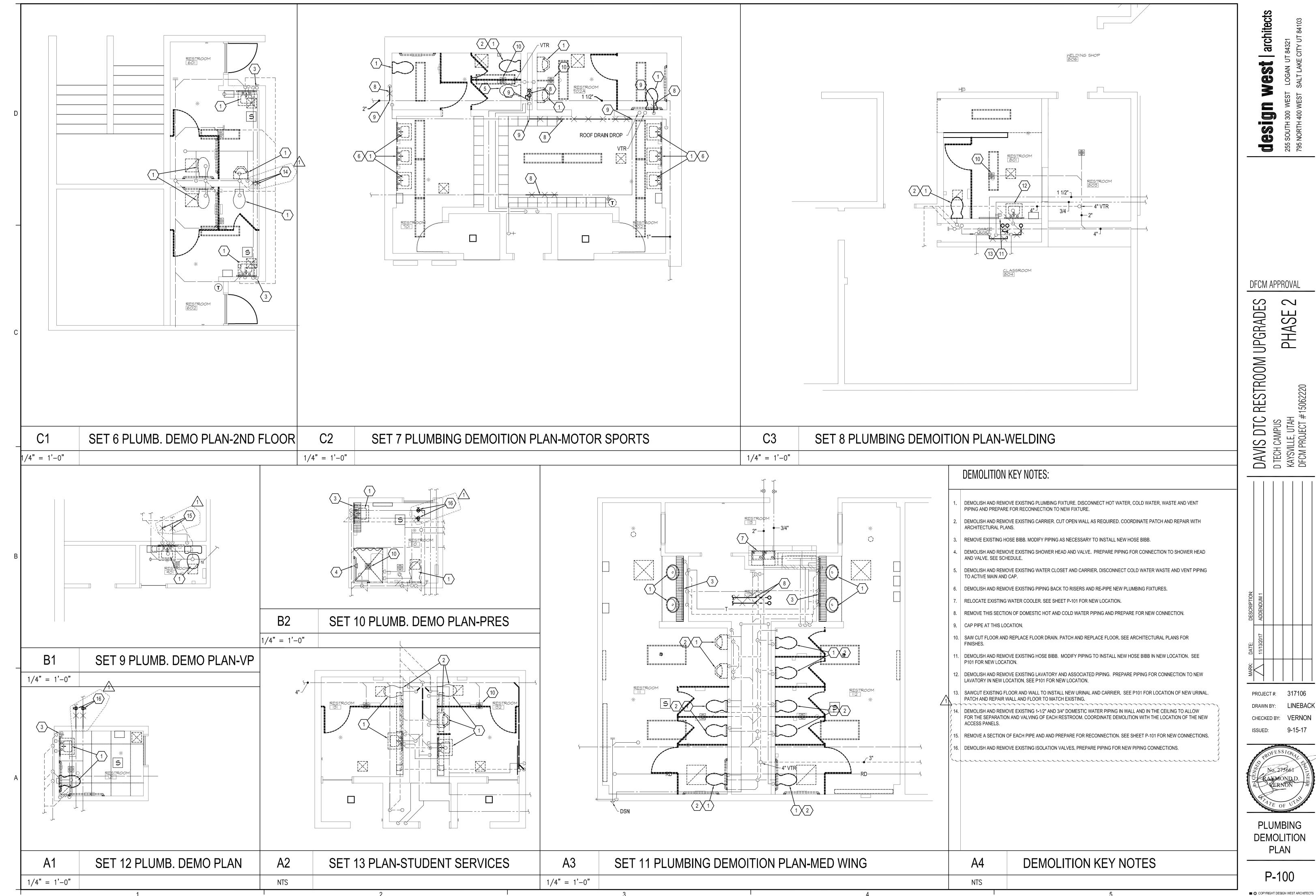
SHEET - P-101

- Add keyed notes as shown. See attached drawing.
- 2. Add piping and valves as shown. Connect to existing piping as shown. See attached drawing.

PRIOR APPROVALS

The following manufacturers, trade names and products are allowed to bid on a name brand only basis with the provision that they completely satisfy all and every requirement of the drawings, specifications and all addenda shall conform to the design, quality and standards specified, established and required for the complete and satisfactory installation and performance of the building and all its respective parts.

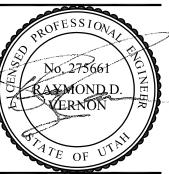
<u>ltem</u>	<u>Manufacturer</u>	<u>Comments</u>
Ceiling Exhaust Fans	Broan Commercial	Approved
Roof Mounted Exhaust Fans	Carnes	Approved
Faucets	American Standard	Approved
Flush Valves	American Standard	Not Approved
Toilet Seats	American Standard	Approved



DFCM APPROVAL

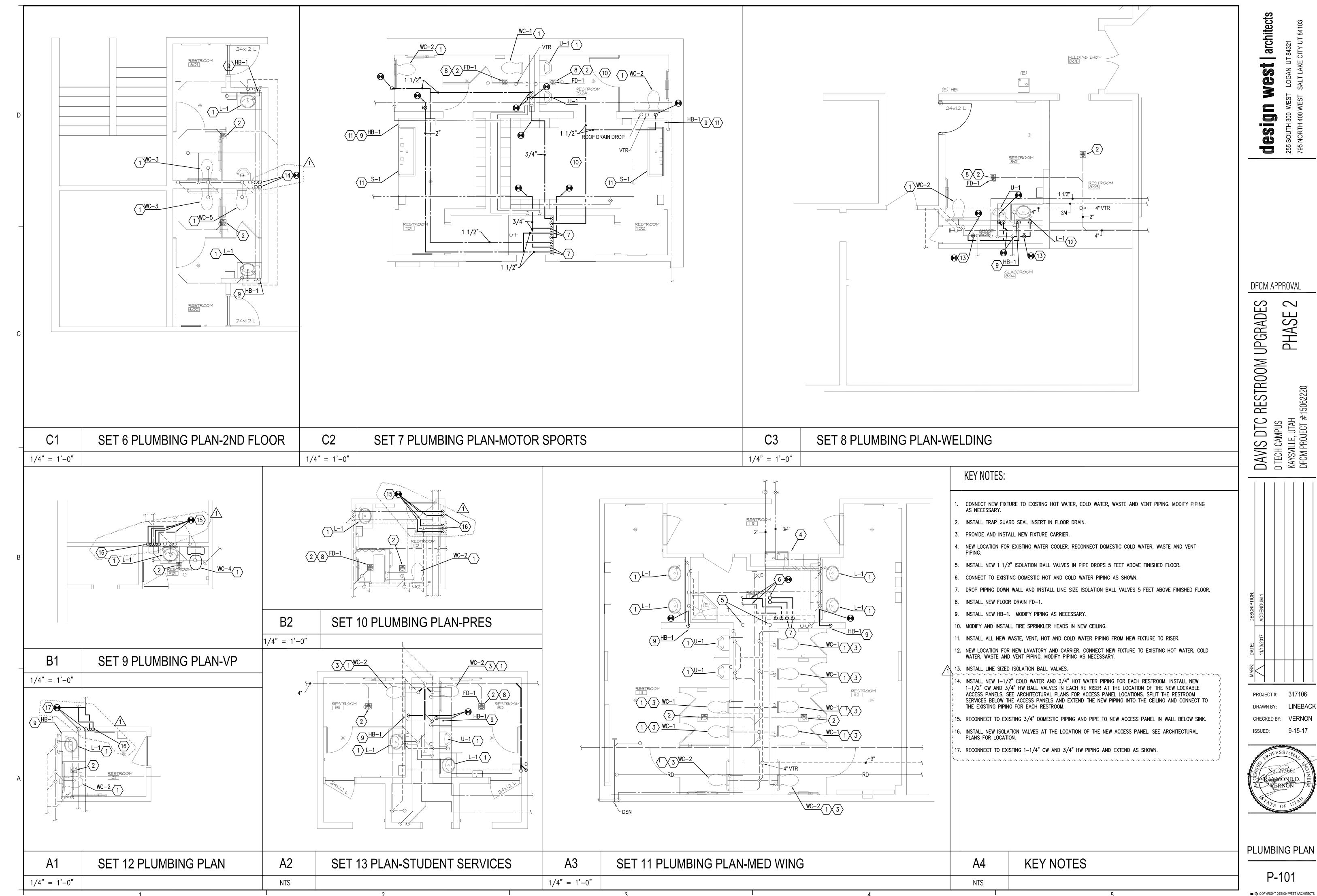
PHASE 2

PROJECT #: 317106



PLUMBING DEMOLITION PLAN

P-100



DFCM APPROVAL

PHASE 2

PROJECT #: 317106

PLUMBING PLAN

P-101