# **Parkhill**

	TO:	ALL PLANHOLDERS	ALCAN DEC
	FROM:	Parkhill	
NO: 003	PROJECT NAME Permian Basin ( and Economic D Building - Midlar Library Sciences Campus of UTPI	E: University of Texas UTPB) Center for Energy Diversification (CEED) nd Campus & Dunagan S Building on the Odessa B	
	PROJECT NO.:	03.9006.20	4/0/2020
	DATE:	January 6, 2022	1/6/2022

Attention of all Prospective Proposers/Plan Holders is directed to the following modifications to the referenced Drawings and associated Appendix. This Addendum becomes a part of the Contract Documents and modifies the original Contract Documents dated <u>November 2021</u> as noted below:

This Addendum consists of 8 pages and the attachments:

Project Manual: Section 00 42 00 Proposal Form, Section 01 23 00 Alternates, Section 04 26 13 Masonry Veneer, Section 05 50 00 Metal Fabrications, Section 07 73 43 Wage Determination, Section 08 71 00 Door Hardware, Section 08 88 36.71 Switchable Glass, Section 09 72 00 Wall Coverings, and Section 09 91 23 Interior Painting.

CEED Building Drawings: G-001, A-101, A-103, A-110, A-111, A-131, A-132, A-141, A-399, A-400, A-401, A-403, A-410, A-511, A-521, and A-601, E-101, E-111, E-121, E-131, E-132, E-401, E-501, P-101, P-111, M-111, M-501, SC-001, SC-111C, SC-112C, SC-301, SC-302.

Dunagan Library Drawings: G-001, A-102, A-110, A-132, A-400, A-401, A-511, A-601, E-121, E-122, E-131, E-132, E-401, E-501, P-111, SC-001, SC-111L, SC-112L, SC-301, SC302.

#### PROJECT MANUAL:

- I. CHANGES TO PROJECT MANUAL
  - 1. SECTION 00 42 00 PROPOSAL FORM
    - a. ADD Section 00 42 00 in its entirety as attached in this Addendum.
  - 2. SECTION 01 20 00 PRICE AND PAYMENT PROCEDURES
    - Part 1.6 of Section 01 20 00 conflicts with Section 01 23 00 of the specifications.
      Proposers are to strike all of Part 1.6 in its entirety and refer to Section 01 23 00 for all Alternates to the Project Scope.
  - 3. SECTION 01 23 00 ALTERNATES
    - a. REMOVE and REPLACE Section 01 23 00 in its entirety as attached in this Addendum.
  - 4. SECTION 04 26 13 MASONRY VENEER
    - a. ADD Section 04 26 13 in its entirety as attached in this Addendum.

- 5. SECTION 05 50 00 METAL FABRICATIONS
  - a. REMOVE and REPLACE Section 05 50 00 in its entirety as attached in this Addendum.
- 6. SECTION 07 24 13 POLYMER-BASED EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)
  - a. REMOVE Section 07 24 13 in its entirety.
- 7. SECTION 08 71 00 DOOR HARDWARE
  - a. REMOVE and REPLACE Section 08 71 00 in its entirety as attached in this Addendum.
- 8. SECTION 08 88 36.71 SWITCHABLE GLASS
  - a. REMOVE and REPLACE Section 08 88 36.71 in its entirety as attached in this Addendum.
- 9. SECTION 09 72 00 WALL COVERINGS
  - a. REMOVE and REPLACE Section 09 72 00 in its entirety as attached in this Addendum.
- 10. SECTION 09 91 23 INTERIOR PAINTING
  - a. REMOVE and REPLACE Section 09 91 23 in its entirety as attached in this Addendum.
- II. CHANGES TO DRAWINGS:

## CEED BUILDING

- 11. SHEET G-001 COVER SHEET & INDEX
  - a. REMOVE and REPLACE Sheet G-001 in its entirety as attached in this Addendum.
    - 1) Added new sheet
    - 2) Marked adjusted sheets
- 12. SHEET A-101 DEMOLITION FLOOR PLAN- AREA A
  - a. REMOVE and REPLACE Sheet A-101 in its entirety as attached in this Addendum.
    - 1) REVISED SAW CUTS AND PROVIDED ADDITIONAL DIMENSIONS
- 13. SHEET A-103 DEMOLITION REFLECTIVE CEILING PLAN- AREA A
  - a. REMOVE and REPLACE Sheet A-103 in its entirety as attached in this Addendum.
    1) REVISED AREAS OF WORK
- 14. SHEET A-110 OVERALL FLOOR PLAN
  - a. REMOVE and REPLACE Sheet A-110 in its entirety as attached in this Addendum.
    1) MISSING ROOM NAMES AND NUMBERS ADDED FOR CLARITY
- 15. SHEET A-111 ANNOTATED/DIMENSIONAL FLOOR PLAN- AREA A
  - a. REMOVE and REPLACE Sheet A-111 in its entirety as attached in this Addendum.
    - 1) ADDITIONAL WALL TAGS AND DOOR PROVIDED
      - a. CLARIFY exterior wall infill is to be masonry in lieu of EIFS

- 16. SHEET A-131 REFLECTED CEILING PLAN- AREA A
  - a. REMOVE and REPLACE Sheet A-101 in its entirety as attached in this Addendum.
    - 1) GENERAL NOTES ADJUSTED.
    - 2) ADDITIONAL CEILING TAGS PROVIDED
    - 3) ADDITIONAL DIMENSIONS PROVIDED
- 17. SHEET A-132 REFLECTED CEILING PLAN- AREA B
  - a. REMOVE and REPLACE Sheet A-132 in its entirety as attached in this Addendum.
    - 1) ADDED MISSING SEAL
    - 2) ADJUSTED DETAILS
- 18. SHEET A-141 ROOF PLAN
  - a. ADD Sheet A-141 in its entirety as attached in this Addendum.
    - 1) REPAIR ROOF AS A RESULT OF MECHANICAL WORK
- 19. SHEET A-399 EQUIPMENT MASTER CHART
  - a. REMOVE and REPLACE Sheet A-399 in its entirety as attached in this Addendum.
    - 1) LASER CUTTER MODEL NUMBER AND DIMENSIONS UPDATED
    - 2) ADDED MATERIALS CABINET
    - 3) UPDATED 3D PRINTER DIMENSIONS
- 20. SHEET A-400 ENLARGED PLAN AND ELEVATIONS
  - a. REMOVE and REPLACE Sheet A-400 in its entirety as attached in this Addendum.
    - 1) OMIT EQUPMENT F01
    - 2) ADDED DIMENSIONS
    - 3) ADDED FLOOR DETAILS
    - 4) WALL SYSTEMS ADDED AND ADJUSTED
    - 5) ADJUSTED EQUIPMENT
- 21. SHEET A-401 ENLARGED PLAN AND ELEVATIONS
  - a. REMOVE and REPLACE Sheet A-401 in its entirety as attached in this Addendum.
    - 1) REVISED EQUIPMENT CHART
- 22. SHEET A-403 ENLARGED PLAN, ELEATIONS, AND EQUIPMENT SCHEDULE
  - a. REMOVE and REPLACE Sheet A-403 in its entirety as attached in this Addendum.
    - 1) UPDATED EQUIPMENT CHART
    - 2) ADDED EQUIPMENT TO PLAN
    - 3) UPDATED DOOR NUMBER
    - 4) ADJUSTED DOOR HEIGHT IN ELEVATION
- 23. SHEET A-410 ENLARGED PLAN, ELEVATIONS, & EQUIP SCHED
  - a. REMOVE and REPLACE Sheet A-410 in its entirety as attached in this Addendum.
    - 1) RELOCATED ELECTRICAL PANEL
    - 2) ADJUSTED MILLWORK
    - 3) ADJUSTED DEPTH OF ELEVATION
    - 4) ADDED WALL SYSTEM IN FRONT OF GLAZING IN KITCHEN PREP AREA

- 5) PROVIDED ADDITIONAL MATERIAL TAGS AND DIMENSIONS FOR CLARITY
- 6) ADDED FIRE EXTINGUISHER
- 24. SHEET A-511 MILLWORK DETAILS AND CASEWORK LEGEND
  - a. REMOVE and REPLACE Sheet A-511 in its entirety as attached in this Addendum.
    - 1) ADJUSTED DETAIL
    - 2) ADDED GENERAL NOTE
- 25. SHEET A-521 DETAILS AND MILLWORK SECTION
  - a. REMOVE and REPLACE Sheet A-521 in its entirety as attached in this Addendum.
    - 1) PROVIDED ADDITIONAL DETAILS E3, E4
    - 2) REVISED DETAILS C1,C5
      - a. Replaced CMU infill with Gyp Board on metal studs
      - b. Added Gyp Board furring on 1 <sup>1</sup>/<sub>2</sub>" metal studs
- 26. SHEET A-601 ALUMINUM FRAME TYPES
  - a. REMOVE and REPLACE Sheet A-601 in its entirety as attached in this Addendum.
    - 1) ADJUSTED GLAZING HEIGHT
    - 2) ADJUSTED DOOR SCHEDULE
    - 3) ADDED MISSING SEAL
- 27. SHEET E-101- ELECTRICAL DEMOLITION PLAN
  - a. REMOVE and REPLACE Sheet E-101 in its entirety as attached in this Addendum.
    - 1) ADDED DEMOLITION ALTERNATE #1
    - 2) REMOVE HATCHING AND ADDED DEMO NOTE TO CORRIDOR
    - 3) MOVED KEYNOTES
- 28. SHEET E-111 LIGHTING PLAN AREA A
  - a. REMOVE and REPLACE Sheet E-111 in its entirety as attached in this Addendum.
    - 1) MODIFIED TITLE FOR ALTERNATE #1.
    - 2) ADDED KEYNOTES.
    - 3) REMOVED HATCHING AND ADDED KEYNOTE TO CORRIDOR.
- 29. SHEET E-121 POWER PLAN AREA A
  - a. REMOVE and REPLACE Sheet E-121 in its entirety as attached in this Addendum.
    - 1) ADDED KEYNOTES.
    - 2) ADDED DOOR HARDWARE JUNCTION BOXES AND CIRCUITS.
    - 3) ADDED POWER FOR NEW EQUIPMENT.
    - 4) MOVED RECEPTACLES.
    - 5) MODIFIED GENERAL NOTES.
    - 6) MODIFIED EQUIP ELECTRICAL SCHEDULE.
- 30. SHEET E-131 FIRE ALARM PLAN AREA A
  - a. REMOVE and REPLACE Sheet E-131 in its entirety as attached in this Addendum.
    - 1) ADDED KEYNOTES, GENERAL NOTES.
    - 2) ADDED CARD READERS AND J BOX FOR DOOR SENSORS.

- 3) MODIFIED SHEET NAME.
- 31. SHEET E-132 POWER AND COMMUNICATIONS PLAN AREA B
  - a. REMOVE and REPLACE Sheet E-132 in its entirety as attached in this Addendum.
    - 1) REMOVED CARD READERS.
    - 2) MODIFIED KEYNOTES.
    - 3) MODIFIED SHEET NAME.
- 32. SHEET E-401 ELECTRICAL ENLARGED PLANS
  - a. REMOVE and REPLACE Sheet E-401 in its entirety as attached in this Addendum.
    - 1) MODIFIED SCHEDULES.
    - 2) ADDED J BOXES AND CIRCUITS.
    - 3) MOVED PANEL FS.
- 33. SHEET E-501 ELECTRICAL RISER DIAGRAM AND DETAILS
  - a. REMOVE and REPLACE Sheet E-501 in its entirety as attached in this Addendum.
    - 1) ADDED SPARES, CIRCUITS, SPACES TO PANEL SCHEDULES.
    - 2) MODIFIED RISER KEYNOTES.
    - 3) MODIFIED K-RATING FOR DTT-TFS(NEW) ON TRANSFORMER SCHEDULE.
- 34. SHEET P-101 PLUMBING DEMOLITION PLAN AREA A
  - a. REMOVE and REPLACE Sheet P-101 in its entirety as attached in this Addendum.
    - 1) Refer to sheet for additional saw-cutting of slab for new sink in Maker Space 1324.
    - 2) Note stating 'NO WORK REQUIRED IN RESTROOMS' for Restrooms 1212 & 1214.
- 35. SHEET P-111 PLUMBING PLAN AREA A
  - a. REMOVE and REPLACE Sheet P-111 in its entirety as attached in this Addendum.
    - 1) Refer to sheet for the addition of a new sink in Marker Space and plumbing required.
    - 2) Note #9, stating that 'ISLAND SINKS ARE SPECIFIED IN THE LAB CASEWORK SPEC'.
- 36. SHEET M-111 MECHANICAL FLOOR PLAN AREA A
  - a. REMOVE and REPLACE Sheet M-111 in its entirety as attached in this Addendum.
    - 1) Refer to sheet for the relocation of EF-7 and EF-9.
    - 2) The addition of EF-10 to serve the new laser cutter in Maker Space 1324.
    - 3) The shifting of KHEF-1 to avoid the parapet wall on the roof.
    - 4) Keyed Note #7 is for Alternate #4 reference.
- 37. SHEET M-501 MECHANICAL DETAILS AND SCHDULES
  - a. REMOVE and REPLACE Sheet M-501 in its entirety as attached in this Addendum.
    - 1) The change in CFM of EF-9.
    - 2) The addition of EF-10 to the schedule.
    - 3) The addition of Addison MAU's to the list of equivalent manufacturers in the MAKE-UP AIR SCHEDULE (note #1.)
    - 4) The correct Alternate number for the replacement of the gas boiler: Alternate #4.

- 38. SHEET SC-001 LEGENDS AND NOTES SECURITY
  - a. REMOVE and REPLACE Sheet SC-001 in its entirety as attached in this Addendum.1) Sheet SC-302 added to set.
- 39. SHEET SC-111C CEED FIRST FLOOR PLAN AREA A SECURITY
  - a. REMOVE and REPLACE Sheet SC-111C in its entirety as attached in this Addendum.
    - 1) Card Reader locations adjusted per Security meeting on 12/15/2021.
- 40. SHEET SC-112C CEED FIRST FLOOR PLAN AREA B SECURITY
  - a. REMOVE and REPLACE Sheet SC-112C in its entirety as attached in this Addendum.
    - 1) Card Reader locations adjusted per Security meeting on 12/15/2021.
- 41. SHEET SC-301 DOOR ELEVATION DETAILS SECURITY
  - a. REMOVE and REPLACE Sheet SC-301 in its entirety as attached in this Addendum.
    - 1) Door elevation details added (Details 5, 7, and 9).
    - 2) Added Note to Detail 6.
- 42. SHEET SC-302 DOOR ELEVATION DETAILS SECURITY
  - a. ADD Sheet SC-302 in its entirety as attached in this Addendum.
    - 1) Added new sheet for additional door elevation details.

# DUNAGAN LIBRARY

- 43. SHEET G-001 COVER SHEET & INDEX
  - a. REMOVE and REPLACE sheet G-001 in its entirety as attached in this Addendum.
    - 1) Added new sheet
    - 2) Marked adjusted sheets
- 44. SHEET A-102—FIRST FLOOR DEMILITION PLAN AREA B
  - a. REMOVE and REPLACE Sheet A-012 in its entirety as attached in this Addendum.
    - 1) ADDED MISSING SAWCUTS
    - 2) ADDED DIMENSIONS
- 45. SHEET A-110 OVERALL FLOOR PLAN
  - a. ADD Sheet A-110 in its entirety as attached in this Addendum.
- 46. SHEET A-132 FIRST FLOOR REFLECTED CEILING PLAN AREA B
  - a. REMOVE and REPLACE Sheet A-101 in its entirety as attached in this Addendum.
    - 1) ADJUSTED CEILING
- 47. SHEET A-400 ENLARGED FLOOR PLAN, ELEVATIONS, AND SCHEDULE
  - a. REMOVE and REPLACE Sheet A-101 in its entirety as attached in this Addendum.
    - 1) ADDED PLAN DETAILS
    - 2) ADJUSTED KEYNOTES
    - 3) ADDED MATERIAL TAGS
    - 4) ADJUSTED WALL TAGS

- 48. SHEET A-401 ENLARGED FLOOR PLAN, ELEVATIONS, AND SCHEDULE
  - a. REMOVE and REPLACE Sheet A-101 in its entirety as attached in this Addendum.
    - 1) ADDED PLAN DETAILS
    - 2) ADDED KEYNOTES
    - 3) ADJUSTED CASEWORK
    - 4) ADJUSTED WALL TAGS
- 49. SHEET A-511 MILLWORK DETAILS AND CASEWORK LEGEND
  - a. REMOVE and REPLACE Sheet A-511 in its entirety as attached in this Addendum.
    - 1) ADDED DETAIL E5
- 50. SHEET A-601 DEMOLITION FLOOR PLAN- AREA A
  - a. REMOVE and REPLACE Sheet A-101 in its entirety as attached in this Addendum.
    - 1) ADDED PLAN DETAILS
    - 2) ADJUSTED DOOR SCHEDULE
    - 3) ADDED MISSING SEAL
- 51. SHEET E-121 ELECTRICAL POWER PLAN AREA A
  - a. REMOVE and REPLACE Sheet E-121 in its entirety as attached in this Addendum.
    - 1) MODIFY GENERAL NOTES.
- 52. SHEET E-122 ELECTRICAL POWER PLAN AREA B
  - a. REMOVE and REPLACE Sheet E-122 in its entirety as attached in this Addendum.
    - 1) ADDED J BOX AND CIRCUITS.
    - 2) REMOVED RECEPTACLES.
    - 3) ADDED KEYNOTES.
- 53. SHEET E-131 ELECTRICAL FIRE ALARM AREA A
  - a. REMOVE and REPLACE Sheet E-131 in its entirety as attached in this Addendum.
    - 1) ADDED CR AND J BOXES.
    - 2) ADDED AND MODIFIED KEYNOTES.
    - 3) MODIFIED GENERAL NOTES.
- 54. SHEET E-132 ELECTRICAL FIRE ALARM AREA B
  - a. REMOVE and REPLACE Sheet E-132 in its entirety as attached in this Addendum.
    - 1) ADDED CR AND J BOXES.
    - 2) ADDED AND MODIFIED KEYNOTES.
- 55. SHEET E-401 ELECTRICAL ENLARGED PLANS
  - a. REMOVE and REPLACE Sheet E-401 in its entirety as attached in this Addendum.
    - 1) ADDED NOTES.
    - 2) MODIFIED EQUIPMENT ELECTRICAL SCHEDULE.
- 56. SHEET E-501 SCHEDULES AND RISER DIAGRAM
  - a. REMOVE and REPLACE Sheet E-501 in its entirety as attached in this Addendum.
    - 1) MODIFIED KEYNOTES.

- 2) MODIFIED K-RATING FOR DTT-FS ON TRANSFORMER SCHEDULE.
- 3) ADD MECHANICAL EQUIPMENT SCHEDULE.
- 4) MODIFIED PANEL SCHEDULE 1LM.
- 57. SHEET P-111 PLUMBING PLANS FIRST FLOOR AREA A
  - a. REMOVE and REPLACE Sheet P-111 in its entirety as attached in this Addendum.
    - 1) Refer to sheet for relocation of FS-1 closer to the sink.
    - 2) The addition of water and sewer piping to serve the pitcher rinser.
- 58. SHEET SC-001 LEGENDS AND NOTES SECURITY
  - a. REMOVE and REPLACE Sheet SC-001 in its entirety as attached in this Addendum.
    - 1) Sheet SC-302 added to set.
- 59. SHEET SC-111L LIBRARY FIRST FLOOR PLAN AREA A SECURITY
  - a. REMOVE and REPLACE Sheet SC-111L in its entirety as attached in this Addendum.
    - 1) Card Reader locations adjusted per Security meeting on 12/15/2021.
    - 2) Removed unused notes.
- 60. SHEET SC-112L LIBRARY FIRST FLOOR PLAN AREA B SECURITY
  - a. REMOVE and REPLACE Sheet SC-112L in its entirety as attached in this Addendum.
    - 1) Card Reader locations adjusted per Security meeting on 12/15/2021.
- 61. SHEET SC-301 DOOR ELEVATION DETAILS SECURITY
  - a. REMOVE and REPLACE Sheet SC-301 in its entirety as attached in this Addendum.
    - 1) Door elevation details added (Details 5, 7, and 9).
    - 2) Added Note to Detail 6.
- 62. SHEET SC-302 DOOR ELEVATION DETAILS SECURITY
  - a. ADD Sheet SC-302 in its entirety as attached in this Addendum.
    - 1) Added new sheet for additional door elevation details.

END OF ADDENDUM NO. 003

## DOCUMENT 00 42 00 - PROPOSAL FORM

Date: \_\_\_\_\_ 20

The University of Texas Permian Basin 4901 E University Blvd Odessa, Texas 79762 Attn: Elsa Montalvo, Director of Purchasing

Dear Ms. Montalvo:

2:1365 112 0F

01/06/2022

The undersigned, having carefully examined the specifications, drawings, and related documents entitled:

#### RENOVATIONS TO: THE CENTER FOR ENERGY AND ECONOMIC DIVERSIFICATION (CEED BUILDING) MIDLAND, TEXAS, AND THE J. CONRAD DUNAGAN LIBRARY ODESSA, TEXAS

all as prepared by Parkhill - 1700 West Wall Street, Suite 100, Midland, Texas 79701; 432.697.1447, as well as having (as an option) attended a pre-proposal conference and made an on-site inspection of the premises and all other conditions affecting the cost and/or execution of the work, proposes to furnish all materials, labor, and equipment necessary to complete the work in accordance with said documents, of which this bid is a part, for the following sum:

- I. BASE PROPOSAL: \_\_\_\_\_ Dollars (\$\_\_\_\_\_)
- II. ALTERNATE #1 PROPOSAL (CEED Building West Wing Finishes):

Dollars (\$\_\_\_\_\_

III. ALTERNATE #2 PROPOSAL (CEED Building Glass Privacy System):\_\_\_\_\_

Dollars (\$\_\_\_\_\_

IV. ALTERNATE #3 PROPOSAL (Additional Ceiling Replacement in Dunagan Library):\_\_\_\_\_

Dollars (\$\_\_\_\_\_

V. ALTERNATE #4 PROPOSAL (CEED Building Boiler Replacement):\_\_\_\_\_

Dollars (\$\_\_\_\_\_

TOTAL PROPOSAL INCLUDING BASE AND ALTERNATES:

\_\_\_\_\_Dollars (\$\_\_\_\_\_\_)

(Note: All amounts shall be shown in both written and figure form. In case of discrepancy between the written amount and the figure, the written amount will govern. For alternates, check whether it is an add, deduct or no change.)

We have included, in the Proposal sum, all applicable taxes and all contingency allowances described in Section 01 20 00 "Price and Payment Procedures."

The undersigned acknowledges receipt of \_\_\_\_\_addenda to the Drawings and Project Manual as follows:

<u>No.</u>	Date	No.	Date	No.	Date
No.	Date	No.	Date	No.	Date

(The Proposer is to fill in I.D. Number and date of each thereby acknowledging receipt of Addenda).

If awarded the contract, the undersigned agrees to commence work under this contract on or before a date to be specified in Written Notice to Proceed. The Proposer agrees to substantially complete each major component as notated by the Proposer below:

CEED Building: Within \_\_\_\_\_\_ (Proposer to fill in days) calendar days from said commencement date, unless modified by change order.

Dunagan Library: Within \_\_\_\_\_\_ (Proposer to fill in days) calendar days from said commencement date, unless modified by change order.

Note that the Owner considers the greater of the two calendar times above shall suffice as the ultimate calendar duration time.

Proposer acknowledges that there will not be liquidated damages assessed per day for each day the substantial completion of this project extends beyond the stipulated substantial completion date.

If notified of the acceptance of this bid within 30 days of the time set for the opening of proposals, Proposer agrees within 10 days of notification, to execute a contract in the form of the Owner's Contract as stipulated in the Request for Proposal for the above work, for the above stated compensation.

Upon acceptance of this Proposal by Owner, Contractor shall furnish, at the time of the signing of the Contract, a PERFORMANCE BOND AND LABOR/MATERIAL PAYMENT BOND, in the amount of 100 percent of the Contract Price. Surety shall meet requirements specified in the Owner/Contractor Agreement.

It is understood that the Owner reserves the right to accept or reject any and all Proposals and to waive all formalities in accordance with State Law and the terms of the Standard Uniform General Conditions as included in the Project Manual. Proposer shall consider this Proposal Form as the instrument of Pricing and Delivery Proposal with Execution of Offer in accordance with Section 4.1.2.1 of the RFP.

ATTACHMENTS: As required in the Request for Proposal, Proposers enclosed wherein, the following:

- A. Qualifications: Criteria on Respondent's Abilities (in accordance with Section 3 of the RFP).
- B. Letter of intent from a surety company indicating your firm's ability to bond for the entire construction cost of the project (in accordance with Section 3.2.2 of the RFP).
- C. Historically Underutilized Business (HUB) Subcontracting Plan (in accordance with Section 1.13 of the RFP).

Respectfully Submitted,	
By:	
Title:	
Business Address with Zip Code	(SEAL: If Proposal is by Corporation)
Telephone Number with Area Code	
FAX Number with Area Code	
Fill in the applicable information:	
A Corporation, chartered in the State of	
Authorized to do business in the State of Texas.	
A Partnership, composed of	, and
and	
An Individual operating under the name of	

Corporate Seal:

# END PROPOSAL FORM

# SECTION 00 73 43 - WAGE RATE REQUIREMENTS

#### PART 1 - GENERAL

#### 1.1 WAGE RATE ESTABLISHMENT



- 01/06/2022
- A. Pursuant to Chapter 2258, Texas Government Code, all contractors and any subcontractor involved in the construction of a public work project shall pay not less than the prevailing rates as per diem wages in the locality at the time of construction to all laborers, workmen and mechanics employed by them in the execution of this contract.
- B. The contractor shall forfeit as a penalty to the Owner, \$60.00 for each laborer, workman, or mechanic employed for each calendar day, or portion thereof, such laborer, workman, or mechanic is paid less than the said stipulated rates for any work done under this contract by him, or by any subcontractor under him.
- C. Nothing herein contained, however, shall be construed to prohibit the payment of more than the prevailing rate of wages to any laborer, workman, or mechanic employed on the work.
- D. Attention is called to the fact that there must be paid on this project not less than the general prevailing rates which have been established by the Owner, and verified by the Contractor as indicated in the Schedule at the end of this document.
- E. The General Prevailing Rate for overtime shall be 1-1/2 times the scheduled rate on an hourly basis.

#### 1.2 POSTING WAGE RATES

A. Minimum Wage Rates shall be posted on job site in a conspicuous place open for inspection by all workmen.

#### 1.3 EMPLOYEE CLAIMS

A. Any employee who alleges that he has not been paid the minimum wage rate may file a written claim with the Owner.

#### 1.4 PAYMENT OF EMPLOYEES AND PAYROLL RECORDS

- A. The Contractor and each subcontractor shall pay each of his employees engaged to perform work under this contract in full (less mandatory legal deductions) not less than once a week.
- B. Payment is to be in cash or check readily payable without discount. If payment is by cash, obtain the signature of the employee verifying the payroll period, total hours worked, rate per hour, total wages earned and the date received.
- C. Attach one copy of cash payment verification to payroll records.
- D. The Contractor and each subcontractor engaged at the site of the work shall prepare and maintain weekly payroll reports certified to be correct.
- E. Payroll records shall contain the name, social security number, classification, rate per hour, hours worked each day, including regular hours and overtime hours.

# 1.5 PAYROLL RECORDS

A. Payroll records shall be made available upon request for inspection by the Architect or by a designated representative of the Owner to ascertain compliance with the minimum wage scale provision of this contract.

#### 1.6 WAGE RATE SCHEDULE

A. See attached 2020 Hourly MSA Wages, issued by the Texas Workforce Commission.

# PART 2 - PRODUCTS (NOT USED)

# PART 3 - EXECUTION (NOT USED)

# END OF SECTION

2020 Hourly Mean MSA	Nages	
SOC	SOC Title	Odessa
"00-000"	Total, All Occupations	\$24.41
"11-0000"	Management Occupations	\$54.24
"11-1011"	Chief Executives	\$108.48
"11-1021"	General and Operations Managers	\$55.93
"11-1031"	Legislators	\$0.00
"11-2011"	Advertising and Promotions Managers	\$0.00
"11-2021"	Marketing Managers	\$57.19
"11-2022"	Sales Managers	\$63.74
"11-2030"	Public Relations and Fundraising Managers	\$45.54
"11-3010"	Administrative Services and Facilities Managers	\$56.82
"11-3021"	Computer and Information Systems Managers	\$60.37
"11-3031"	Financial Managers	\$72.18
"11-3051"	Industrial Production Managers	\$68.56
"11-3061"	Purchasing Managers	\$53.15
"11-3071"	Transportation, Storage, and Distribution Managers	\$47.54
"11-3111"	Compensation and Benefits Managers	\$0.00
"11-3121"	Human Resources Managers	\$57.40
"11-3131"	Training and Development Managers	\$0.00
"11-9013"	Farmers, Ranchers, and Other Agricultural Managers	\$0.00
"11-9021"	Construction Managers	\$53.82
"11-9031"	Education and Childcare Administrators, Preschool and Daycare	\$18.40
"11-9032"	Education Administrators, Kindergarten through Secondary	\$0.00
"11-9033"	Education Administrators, Postsecondary	\$57.15
"11-9039"	Education Administrators, All Other	\$0.00
"11-9041"	Architectural and Engineering Managers	\$84.26
"11-9051"	Food Service Managers	\$25.51
"11-9071"	Gambling Managers	\$0.00
"11-9081"	Lodging Managers	\$24.92
"11-9111"	Medical and Health Services Managers	\$50.48
"11-9121"	Natural Sciences Managers	\$0.00
"11-9131"	Postmasters and Mail Superintendents	\$0.00
"11-9141"	Property, Real Estate, and Community Association Managers	\$24.40
"11-9151"	Social and Community Service Managers	\$30.33
"11-9161"	Emergency Management Directors	\$0.00
"11-9171"	Funeral Home Managers	\$0.00
"11-9198"	Personal Svc Mgrs, AO; Entertainment & Rec Mgrs, Ex Gambling; & Mgrs, AO	\$44.97
"13-0000"	Business and Financial Operations Occupations	\$35.87
"13-1011"	Agents and Business Managers of Artists, Performers, and Athletes	\$0.00
"13-1020"	Buyers and Purchasing Agents	\$29.82
"13-1031"	Claims Adjusters, Examiners, and Investigators	\$36.59
"13-1032"	Insurance Appraisers, Auto Damage	\$0.00
"13-1041"	Compliance Officers	\$26.94
"13-1051"	Cost Estimators	\$30.65
"13-1071"	Human Resources Specialists	\$28.34
"13-1075"	Labor Relations Specialists	\$0.00
"13-1081"	Logisticians	\$39.36
"13-1111"	Management Analysts	\$64.61
"13-1121"	Meeting, Convention, and Event Planners	\$21.39
"13-1131"	Fundraisers	\$26.59
"13-1141"	Compensation, Benefits, and Job Analysis Specialists	\$0.00
"13-1151"	Training and Development Specialists	\$32.09
"13-1161"	Market Research Analysts and Marketing Specialists	\$29.41
"13-1198"	Project Management Specs & Business Operations Specs, AO	\$36.95
"13-2011"	Accountants and Auditors	\$40.20
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"13-2020"	Property Appraisers and Assessors	\$27.37
"13-2031"	Budget Analysts	\$33.91
"13-2041"	Credit Analysts	\$0.00
"13-2052"	Personal Financial Advisors	\$0.00
"13-2053"	Insurance Underwriters	\$0.00
"13-2061"	Financial Examiners	\$0.00
"13-2071"	Credit Counselors	\$0.00
"13-2072"	Loan Officers	\$41.43
"13-2081"	Tax Examiners and Collectors, and Revenue Agents	\$0.00
"13-2082"	Tax Preparers	\$0.00
"13-2098"	Fin & Investment Analysts, Fin Risk Specs, & Fin Specs, AO	\$42.77
"15-0000"	Computer and Mathematical Occupations	, \$35.08
"15-1211"	Computer Systems Analysts	\$39.50
"15-1212"	Information Security Analysts	\$49.90
"15-1221"	Computer and Information Research Scientists	\$0.00
"15-1231"	Computer Network Support Specialists	\$24 56
"15-1232"	Computer User Support Specialists	\$20.03
"15-1241"	Computer Network Architects	\$44.29
"15-1244"	Network and Computer Systems Administrators	\$39.18
"15-1245"	Database Administrators and Architects	\$35.10
"15_1251"	Computer Programmers	\$27.51
"15-1251	Software Developers and Software Quality Assurance Analysts and Testers	\$12.21
"15-1250	Web Developers and Digital Interface Designers	\$45.21 \$25.40
"15 1200"	Computer Occupations All Other	\$23.43
15-1299	Actuaries	\$49.20 \$0.00
15-2011 "15-2021"	Actualles	\$0.00 \$0.00
15-2021 "15-2021"	Mathematicalis	\$0.00 \$0.00
15-2031	Statisticione	\$0.00 \$0.00
15-2041	Sidusticidus Data Scientista and Mathematical Science Occupations, All Other	\$0.00 ¢0.00
13-2096	Architecture and Engineering Occupations, All Other	\$0.00
17-0000	Architecture and Engineering Occupations	\$44.00 ¢0.00
17-1011	Architects, Except Landscape and Navai	\$0.00
17-1012	Lanoscape Architects	\$0.00
17-1021		\$0.00
17-1022	Surveyors	\$0.00
17-2011	Aerospace Engineers	\$0.00
17-2021	Agricultural Engineers	\$0.00 \$0.00
17-2031	Bioengineers and Biomedical Engineers	\$0.00 \$0.00
17-2041	Chemical Engineers	\$0.00 ¢47.07
17-2051	Civil Engineers	\$47.97
17-2061	Computer Hardware Engineers	ŞU.UU
17-2071	Electrical Engineers	\$50.45
17-2072	Electronics Engineers, Except Computer	\$49.00
17-2081	Environmental Engineers	\$0.00
"17-2111"	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	\$53.47
17-2112	Industrial Engineers	\$45.67
17-2121	Marine Engineers and Naval Architects	\$0.00
"17-2131"	Materials Engineers	\$0.00
"17-2141"	Michanical Engineers	\$41.62
"17-2151"	Mining and Geological Engineers, including Mining Safety Engineers	\$0.00
"17-2161"	Nuclear Engineers	\$0.00
1/-21/1"	Petroleum Engineers	\$65.96
1/-2199"	Engineers, All Other	\$67.01
"17-3011"	Architectural and Civil Drafters	\$23.90
"1/-3012"	Electrical and Electronics Drafters	\$0.00
"1/-3013"	iviechanical Dratters	\$30.23
"1/-3019"	Dratters, All Other	\$0.00
"17-3021"	Aerospace Engineering and Operations Technologists and Technicians	\$0.00

"17-3022"	Civil Engineering Technologists and Technicians	\$23.05
"17-3023"	Electrical and Electronic Engineering Technologists and Technicians	\$30.39
"17-3024"	Electro-Mechanical and Mechatronics Technologists and Technicians	\$0.00
"17-3025"	Environmental Engineering Technologists and Technicians	\$0.00
"17-3026"	Industrial Engineering Technologists and Technicians	\$41.36
"17-3027"	Mechanical Engineering Technologists and Technicians	\$0.00
"17-3031"	Surveying and Mapping Technicians	\$18.21
"17-3098"	Calibration Technols & Techs & Engrng Technols & Techs, Ex Drafters, AO	\$24.82
"19-0000"	Life, Physical, and Social Science Occupations	\$32.34
"19-1011"	Animal Scientists	\$0.00
"19-1012"	Food Scientists and Technologists	\$0.00
"19-1013"	Soil and Plant Scientists	\$0.00
"19-1021"	Biochemists and Biophysicists	\$0.00
"19-1022"	Microbiologists	\$0.00
"19-1023"	Zoologists and Wildlife Biologists	\$0.00
"19-1029"	Biological Scientists. All Other	\$0.00
"19-1031"	Conservation Scientists	\$0.00
"19-1032"	Foresters	\$0.00
"19-1041"	Epidemiologists	\$0.00
"19-1042"	Medical Scientists. Except Epidemiologists	\$0.00
"19-1099"	Life Scientists. All Other	\$0.00
"19-2011"	Astronomers	\$0.00
"19-2012"	Physicists	\$0.00
"19-2021"	Atmospheric and Space Scientists	\$0.00
"19-2031"	Chemists	\$37.15
"19-2032"	Materials Scientists	\$0.00
"19-2041"	Environmental Scientists and Specialists Including Health	\$34.85
"19-2042"	Geoscientists Excent Hydrologists and Geographers	\$70.71
"19-2043"	Hydrologists	\$0.00
"19-2099"	Physical Scientists All Other	\$0.00 \$0.00
"19-3011"	Francists	\$0.00 \$0.00
"19-3022"	Survey Researchers	\$0.00 \$0.00
"19-3031"	Clinical Counseling and School Psychologists	\$0.00
"19-3032"	Industrial-Organizational Psychologists	\$0.00
"19-3039"	Psychologists All Other	\$0.00
"19-3041"	Sociologists	\$0.00
"19-3051"	Urban and Regional Planners	\$0.00
"19-3091"	Anthropologists and Archeologists	\$0.00
"19-3092"	Geographers	\$0.00
"19-3093"	Historians	\$0.00
"19-3094"	Political Scientists	\$0.00
"19-3099"	Social Scientists and Related Workers. All Other	\$0.00
"19-4010"	Agricultural and Food Science Technicians	\$0.00
"19-4021"	Biological Technicians	\$0.00
"19-4031"	Chemical Technicians	\$27.12
"19-4042"	Environmental Science and Protection Technicians, Including Health	\$0.00
"19-4045"	Geological and Hydrologic Technicians	\$23.40
"19-4051"	Nuclear Technicians	\$0.00
"19-4061"	Social Science Research Assistants	\$0.00
"19-4071"	Forest and Conservation Technicians	\$0.00
"19-4092"	Forensic Science Technicians	\$0.00
"19-4099"	Life, Physical, and Social Science Technicians, All Other	\$0.00
"19-5011"	Occupational Health and Safety Specialists	\$34.52
"19-5012"	Occupational Health and Safety Technicians	\$24.11
"21-0000"	Community and Social Service Occupations	\$22.68
"21-1012"	Educational, Guidance, and Career Counselors and Advisors	\$28.24
"21-1013"	Marriage and Family Therapists	\$0.00
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"21-1015"	Rehabilitation Counselors	\$0.00
"21-1018"	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	\$24.73
"21-1019"	Counselors, All Other	\$0.00
"21-1021"	Child, Family, and School Social Workers	\$0.00
"21-1022"	Healthcare Social Workers	\$29.79
"21-1023"	Mental Health and Substance Abuse Social Workers	\$0.00
"21-1029"	Social Workers, All Other	\$0.00
"21-1091"	Health Education Specialists	\$0.00
"21-1092"	Probation Officers and Correctional Treatment Specialists	\$27.10
"21-1093"	Social and Human Service Assistants	\$0.00
"21-1094"	Community Health Workers	\$0.00
"21-1099"	Community and Social Service Specialists, All Other	\$14.92
"21-2011"	Clergy	\$0.00
"21-2021"	Directors, Religious Activities and Education	\$0.00
"21-2099"	Religious Workers, All Other	\$0.00
"23-0000"	Legal Occupations	\$37.19
"23-1011"	Lawyers	\$63.29
"23-1012"	Judicial Law Clerks	\$0.00
"23-1021"	Administrative Law Judges, Adjudicators, and Hearing Officers	\$0.00
"23-1022"	Arbitrators, Mediators, and Conciliators	\$0.00
"23-1023"	Judges, Magistrate Judges, and Magistrates	\$0.00
"23-2011"	Paralegals and Legal Assistants	\$19.47
"23-2093"	Title Examiners, Abstractors, and Searchers	\$0.00
"23-2099"	Legal Support Workers, All Other	\$0.00
"25-0000"	Education, Training, and Library Occupations	\$24.37
"25-1011"	Business Teachers, Postsecondary	\$0.00
"25-1021"	Computer Science Teachers, Postsecondary	\$0.00
"25-1022"	Mathematical Science Teachers, Postsecondary	\$0.00
"25-1031"	Architecture Teachers, Postsecondary	\$0.00
"25-1032"	Engineering Teachers, Postsecondary	\$0.00
"25-1041"	Agricultural Sciences Teachers, Postsecondary	\$0.00
"25-1042"	Biological Science Teachers, Postsecondary	\$0.00
"25-1043"	Forestry and Conservation Science Teachers, Postsecondary	\$0.00
"25-1051"	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	\$0.00
"25-1052"	Chemistry Teachers, Postsecondary	\$0.00
"25-1053"	Environmental Science Teachers, Postsecondary	\$0.00
"25-1054"	Physics Teachers, Postsecondary	\$0.00
"25-1061"	Anthropology and Archeology Teachers, Postsecondary	\$0.00
"25-1062" "25-1062"	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	\$0.00
"25-1063" "25-1063"	Economics Teachers, Postsecondary	\$0.00
"25-1064" "25-1065"	Geography Teachers, Postsecondary	\$0.00
25-1065	Political Science Teachers, Postsecondary	\$0.00
25-1066	Psychology Teachers, Postsecondary	\$0.00
"25-1067"	Sociology Teachers, Postsecondary	\$0.00
25-1009	Social Sciences Teachers, Posisecondary, All Other	\$0.00 ¢0.00
25-1071	Nursing Instructors and Teachers, Postsecondary	\$0.00 ¢0.00
25-1072	Nursing instructors and reachers, possecondary	\$0.00 ¢0.00
20-1081 "25-1082"	Library Science Teachers, Postsecondary	\$0.00 \$0.00
23-1002 "25-1111"	Criminal Justice and Law Enforcement Teachers, Postsecondary	\$0.00 \$0.00
20-1111 "25 1112"	Law Taachars, Bestessandary	\$0.00 \$0.00
2J-1112"	Law reduiers, rusiseluridary Social Work Teachers, Postsecondary	ο.00 \$0.00
2J-1113 "25 1121"	Art Drama and Music Teachers Destaceandary	\$U.UU ¢0.00
2J-1121 "25 1122"	Air, Didilid, diu Music redchers, rosisecolludiy	\$U.UU ¢0.00
2J-1122 "25_1122"	Communications reachers, rosisecondary English Language and Literature Teachers, Postsocondary	\$0.00 ¢0.00
25-1125 "25-112 <i>1</i> "	English Language and Literature Teachers, Postsetonidary	ο.00 \$0.00
2J-1124 "25_1125"	History Teachars, Dostacondary	ου.υυ \$0.00
23-1123	Thistory Teachers, Postsecondary	ŞU.UU

"25-1126"	Philosophy and Religion Teachers, Postsecondary	\$0.00
"25-1192"	Family and Consumer Sciences Teachers, Postsecondary	\$0.00
"25-1193"	Recreation and Fitness Studies Teachers, Postsecondary	\$0.00
"25-1194"	Career/Technical Education Teachers, Postsecondary	\$0.00
"25-1199"	Postsecondary Teachers, All Other	\$0.00
"25-2011"	Preschool Teachers, Except Special Education	\$26.02
"25-2012"	Kindergarten Teachers, Except Special Education	\$0.00
"25-2021"	Elementary School Teachers, Except Special Education	\$0.00
"25-2022"	Middle School Teachers, Except Special and Career/Technical Education	\$0.00
"25-2023"	Career/Technical Education Teachers, Middle School	\$0.00
"25-2031"	Secondary School Teachers, Except Special and Career/Technical Education	\$0.00
"25-2032"	Career/Technical Education Teachers, Secondary School	\$0.00
"25-2051"	Special Education Teachers, Preschool	\$0.00
"25-2052"	Special Education Teachers, Kindergarten and Elementary School	\$0.00
"25-2057"	Special Education Teachers, Middle School	\$0.00
"25-2058"	Special Education Teachers. Secondary School	\$0.00
"25-2059"	Special Education Teachers, All Other	\$0.00
"25-3011"	Adult Basic Ed, Adult Secondary Ed, & ESL Instructors	\$0.00
"25-3021"	Self-Enrichment Teachers	\$19.43
"25-3031"	Substitute Teachers. Short-Term	\$0.00
"25-3097"	Tutors and Teachers and Instructors. All Other	\$0.00
"25-4011"	Archivists	\$0.00
"25-4012"	Curators	\$0.00
"25-4013"	Museum Technicians and Conservators	\$0.00
"25-4022"	Librarians and Media Collections Specialists	\$28.22
"25-4031"	Library Technicians	\$0.00
"25-9021"	Earm and Home Management Educators	\$0.00
"25-9031"	Instructional Coordinators	\$30.84
"25-9044"	Teaching Assistants. Postsecondary	\$0.00
"25-9045"	Teaching Assistants, Except Postsecondary	\$0.00
"25-9099"	Educational Instruction and Library Workers All Other	\$12.78
"27-0000"	Arts, Design, Entertainment, Sports, and Media Occupations	\$23.05
"27-1011"	Art Directors	\$0.00
"27-1012"	Craft Artists	\$0.00
"27-1013"	Fine Artists Including Painters Sculptors and Illustrators	\$0.00
"27-1014"	Special Effects Artists and Animators	\$0.00
"27-1019"	Artists and Related Workers All Other	\$0.00
"27-1021"	Commercial and Industrial Designers	\$0.00
"27-1022"	Eashion Designers	\$0.00
"27-1023"	Floral Designers	\$13.50
"27-1024"	Granhic Designers	\$21.97
"27-1025"	Interior Designers	\$0.00
"27-1026"	Merchandise Displayers and Window Trimmers	\$0.00 \$0.00
"27-1027"	Set and Exhibit Designers	\$0.00 \$0.00
"27-1029"	Designers All Other	\$0.00 \$0.00
"27-2011"	Actors	\$0.00
"27-2011	Producers and Directors	\$0.00 \$0.00
"27-2012	Athletes and Snorts Competitors	\$0.00 \$0.00
"27-2021	Coaches and Scouts	\$0.00 \$0.00
"27-2022	Umpires Referees and Other Sports Officials	\$0.00 \$0.00
"27-2023	Dancers	\$0.00 ¢0.00
"27-2032"	Choreographers	\$0.00 ¢0.00
"27_20/1"	Music Directors and Composers	\$0.00 ¢0.00
"27_2042"		\$0.00 \$74.22
27-2042 "27-2090"	Miscellaneous Entertainers and Performers. Sports and Pelated Workers	ې۲4.32 در ۵۸
"27-2030	Broadcast Announcers and Padio Disc Jockows	\$0.00 \$1 <i>1 1C</i>
"27-3011	News Analysts Reporters and Journalists	ې14.40 دم مم
21-3023	news Analysis, reporters, and journalists	ŞU.UÇ

"27-3031"	Public Relations Specialists	\$27.09
"27-3041"	Editors	\$0.00
"27-3042"	Technical Writers	\$0.00
"27-3043"	Writers and Authors	\$0.00
"27-3091"	Interpreters and Translators	\$0.00
"27-3092"	Court Reporters and Simultaneous Captioners	\$0.00
"27-3099"	Media and Communication Workers, All Other	\$0.00
"27-4011"	Audio and Video Technicians	\$0.00
"27-4012"	Broadcast Technicians	\$0.00
"27-4014"	Sound Engineering Technicians	\$0.00
"27-4021"	Photographers	\$0.00
"27-4031"	Camera Operators, Television, Video, and Film	\$0.00
"27-4032"	Film and Video Editors	\$0.00
"27-4098"	Lighting Techs & Media & Communication Equipment Wkrs, AO	\$0.00
"29-0000"	Healthcare Practitioners and Technical Occupations	\$38.04
"29-1011"	Chiropractors	\$0.00
"29-1021"	Dentists, General	\$95.45
"29-1022"	Oral and Maxillofacial Surgeons	\$0.00
"29-1029"	Dentists, All Other Specialists	\$0.00
"29-1031"	Dietitians and Nutritionists	\$33.86
"29-1041"	Optometrists	\$0.00
"29-1051"	Pharmacists	\$67.32
"29-1071"	Physician Assistants	\$55.47
"29-1081"	Podiatrists	\$0.00
"29-1122"	Occupational Therapists	\$39.59
"29-1123"	Physical Therapists	\$37.25
"29-1124"	Radiation Therapists	\$0.00
"29-1125"	Recreational Therapists	\$0.00
"29-1126"	Respiratory Therapists	\$0.00
"29-1127"	Speech-Language Pathologists	\$38.47
"29-1128"	Exercise Physiologists	\$0.00
"29-1129"	Therapists, All Other	\$0.00
"29-1131"	Veterinarians	\$60.03
"29-1141"	Registered Nurses	\$33.25
"29-1151"	Nurse Anesthetists	\$0.00
"29-1161"	Nurse Midwives	\$0.00
"29-1171"	Nurse Practitioners	\$51.87
"29-1181"	Audiologists	\$0.00
"29-1211"	Anesthesiologists	\$0.00
"29-1215"	Family Medicine Physicians	\$0.00
"29-1216"	General Internal Medicine Physicians	\$0.00
"29-1218"	Obstetricians and Gynecologists	\$0.00
"29-1221"	Pediatricians, General	\$0.00
"29-1223"	Psychiatrists	\$0.00
"29-1228"	Physicians, All Other; and Ophthalmologists, Except Pediatric	\$0.00
"29-1248"	Surgeons, Except Ophthalmologists	\$0.00
"29-1292"	Dental Hygienists	\$37.44
"29-1298"	Acupuncturists & Healthcare Diagnosing or Treating Practnrs, AO	\$0.00
"29-2010"	Clinical Laboratory Technologists and Technicians	\$26.26
"29-2031"	Cardiovascular Technologists and Technicians	\$0.00
"29-2032"	Diagnostic Medical Sonographers	\$33.91
"29-2033"	Nuclear Medicine Technologists	\$0.00
"29-2034"	Radiologic Technologists and Technicians	\$29.11
"29-2035"	Magnetic Resonance Imaging Technologists	\$0.00
"29-2040"	Emergency Medical Technicians and Paramedics	\$20.09
"29-2051"	Dietetic Technicians	\$0.00
"29-2052"	Pharmacy Technicians	\$18.66

"29-2053"	Psychiatric Technicians	\$0.00
"29-2055"	Surgical Technologists	\$24.09
"29-2056"	Veterinary Technologists and Technicians	\$14.93
"29-2057"	Ophthalmic Medical Technicians	\$0.00
"29-2061"	Licensed Practical and Licensed Vocational Nurses	\$22.51
"29-2081"	Opticians, Dispensing	\$17.59
"29-2091"	Orthotists and Prosthetists	\$0.00
"29-2092"	Hearing Aid Specialists	\$0.00
"29-2098"	Medical Dosimetrists, Medical Recrds Specs, & Health Technols & Techs, AO	\$19.41
"29-9091"	Athletic Trainers	\$0.00
"29-9092"	Genetic Counselors	\$0.00
"29-9098"	Health Info Technols, Med Regs, Surg Assts&Health Practners&Tech Wkrs, AO	\$0.00
"31-0000"	Healthcare Support Occupations	\$13.71
"31-1120"	Home Health and Personal Care Aides	\$0.00
"31-1131"	Nursing Assistants	\$14.20
"31-1132"	Orderlies	\$12.75
"31-1133"	Psychiatric Aides	\$0.00
"31-2011"	Occupational Therapy Assistants	\$0.00
"31-2012"	Occupational Therapy Aides	\$0.00
"31-2021"	Physical Therapist Assistants	\$33.88
"31-2022"	Physical Therapist Aides	\$11.28
"31_9011"	Massage Therapists	\$0.00
"31-9091"	Dental Assistants	\$17.62
"31-9092"	Medical Assistants	\$18.86
"31-9092"	Medical Fauinment Prenarers	\$0.00 \$0.00
"31-9094"	Medical Transcriptionists	\$18.36
"31_9095"	Dharmacy Aides	0.01¢
"21 0006"	Votorinary Accistants and Laboratory Animal Carotakors	\$0.00 \$0.00
"21_9090 "21_9097"	Phlabotomists	\$0.00 \$0.00
"21 0000"	Healtheare Support Workers All Other	\$0.00 \$0.00
"22 0000"	Protective Service Occupations	\$0.00 \$0.00
"22 1011"	First Line Supervisors of Correctional Officers	\$0.00 \$0.00
"22 1012"	First-Line Supervisors of Police and Detectives	\$0.00 \$41.07
"22 1021"	First-Line Supervisors of Findighting and Devention Workers	\$41.07 \$0.00
"22 1000"	Missellaneous First Line Supervisors, Dretestive Service Workers	\$0.00 \$0.00
"22 2011"	Firefighters	\$0.00 \$0.00
"22 2021"	Fire Inspectors and Investigators	\$0.00 \$0.00
55-2021 "22 2022"	Fire Inspectors and Investigators	\$0.00
33-2022		\$0.00 ¢0.00
33-3011	Ballills	\$0.00
33-3012	Correctional Officers and Jaliers	\$0.00 ¢22.01
33-3021	Detectives and Criminal Investigators	\$32.01
33-3031	Fish dhu Game Wardens	\$0.00
33-3041	Parking Enforcement Workers	\$0.00
"33-3051" "22.2052"	Police and Sheriff's Patrol Ufficers	\$29.33
33-3052	Transit and Railroad Police	\$0.00
"33-9011"	Animal Control Workers	\$0.00
"33-9021"	Private Detectives and Investigators	\$0.00
"33-9032"	Security Guards	\$16.64
"33-9091"	Crossing Guards and Flaggers	\$0.00
"33-9092" "22.0002"	Liteguards, Ski Patrol, and Other Recreational Protective Service Workers	\$0.00
"33-9093"	Transportation Security Screeners	\$0.00
"33-9098" "25 2000"	School Bus Monitors and Protective Service Workers, All Other	\$13.37
"35-0000"	Food Preparation and Serving Related Occupations	\$11.78
"35-1011"	Chefs and Head Cooks	\$30.89
"35-1012"	First-Line Supervisors of Food Preparation and Serving Workers	\$17.92
"35-2011"	Cooks, Fast Food	\$10.69
"35-2012"	Cooks, Institution and Cafeteria	\$12.45

"35-2014"	Cooks, Restaurant	\$13.12
"35-2015"	Cooks, Short Order	\$0.00
"35-2019"	Cooks, All Other	\$0.00
"35-2021"	Food Preparation Workers	\$12.37
"35-3011"	Bartenders	\$10.47
"35-3023"	Fast Food and Counter Workers	\$11.59
"35-3031"	Waiters and Waitresses	\$9.08
"35-3041"	Food Servers, Nonrestaurant	\$9.77
"35-9011"	Dining Room and Cafeteria Attendants and Bartender Helpers	\$10.59
"35-9021"	Dishwashers	\$11.84
"35-9031"	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	\$10.15
"35-9099"	Food Preparation and Serving Related Workers, All Other	\$16.88
"37-0000"	Building and Grounds Cleaning and Maintenance Occupations	\$14.51
"37-1011"	First-Line Supervisors of Housekeeping and Janitorial Workers	\$25.57
"37-1012"	Supervisors of Landscaping, Lawn Service & Groundskeeping Workers	\$21.73
"37-2011"	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	\$14.83
"37-2012"	Maids and Housekeeping Cleaners	\$11.57
"37-2019"	Building Cleaning Workers, All Other	\$0.00
"37-2021"	Pest Control Workers	\$0.00
"37-3011"	Landscaping and Groundskeeping Workers	\$16.48
"37-3012"	Pesticide Handlers, Sprayers, and Applicators, Vegetation	\$0.00
"37-3013"	Tree Trimmers and Pruners	\$0.00
"37-3019"	Grounds Maintenance Workers, All Other	\$0.00
"39-0000"	Personal Care and Service Occupations	\$13.29
"39-1013"	First-Line Supervisors of Gambling Services Workers	\$0.00
"39-1098"	Suprs of Personal Syc & Entertainment & Rec Wkrs. Ex Gambling Sycs	\$21.09
"39-2011"	Animal Trainers	\$0.00
"39-2021"	Animal Caretakers	\$16.36
"39-3011"	Gambling Dealers	\$0.00
"39-3012"	Gambling and Sports Book Writers and Runners	\$0.00
"39-3019"	Gambling Service Workers, All Other	\$0.00
"39-3021"	Motion Picture Projectionists	\$0.00
"39-3031"	Ushers, Lobby Attendants, and Ticket Takers	\$15.22
"39-3091"	Amusement and Recreation Attendants	\$10.82
"39-3092"	Costume Attendants	\$0.00
"39-3093"	Locker Room, Coatroom, and Dressing Room Attendants	\$0.00
"39-3099"	Entertainment Attendants and Related Workers, All Other	\$0.00
"39-4011"	Embalmers	\$0.00
"39-4021"	Funeral Attendants	\$0.00
"39-4031"	Morticians Undertakers and Funeral Arrangers	\$0.00
"39-5011"	Barbers	\$0.00
"39-5012"	Hairdressers Hairstylists and Cosmetologists	\$10.00
"39-5091"	Makeun Artists, Theatrical and Performance	\$0.00
"39-5092"	Manicurists and Padicurists	\$0.00
"39-5093"	Shamponers	\$0.00 \$0.00
"39-5094"	Skincare Specialists	\$0.00
"39-6011"	Baggage Porters and Bellhons	\$0.00
"39-6012"	Concierges	\$0.00 \$0.00
"39-7010"	Tour and Travel Guides	\$0.00 \$0.00
"39-9011"	Childcare Workers	\$0.00 \$12.49
"39-9031"	Exercise Trainers and Group Fitness Instructors	¢16 07
"39-9032"	Recreation Workers	¢12 00
"39-9041"	Residential Advisors	¢17 //6
"39_90941	Crematory Operators and Personal Care and Service Workers All Other	γ12.40 ¢0.00
"/1_0000"	Sales and Related Occupations	20.00 622 /0
	Saics and Nelaicu Occupations First-Ling Supervisors of Retail Salos Morkers	Ş∠S.49 ¢D0 €1
+1-1011 "41 1012"	First Line Supervisors of Non-Detail Sales Workers	\$28.01 \$42.00
41-1012	FILST-LITE SUPERVISOIS OF NOT-RELATI SALES WORKERS	Ş42.09

"41-2011"	Cashiers	\$12.90
"41-2012"	Gambling Change Persons and Booth Cashiers	\$0.00
"41-2021"	Counter and Rental Clerks	\$20.47
"41-2022"	Parts Salespersons	\$16.90
"41-2031"	Retail Salespersons	\$15.18
"41-3011"	Advertising Sales Agents	\$0.00
"41-3021"	Insurance Sales Agents	\$25.46
"41-3031"	Securities, Commodities, and Financial Services Sales Agents	\$52.76
"41-3041"	Travel Agents	\$0.00
"41-3091"	Sales Reps of Svcs, Ex Advertising, Insurance, Fin Svcs & Travel	\$33.96
"41-4011"	Sales Rep., Wholesale & Manufacturing, Technical & Scientific Products	\$45.78
"41-4012"	Sales Rep., Wholesale & Manufacturing, Except Tech. & Scientific Products	\$41.78
"41-9011"	Demonstrators and Product Promoters	\$14.46
"41-9012"	Models	\$0.00
"41-9021"	Real Estate Brokers	\$0.00
"41-9022"	Real Estate Sales Agents	\$25.44
"41-9031"	Sales Engineers	\$50.34
"41-9041"	Telemarketers	\$0.00
"41-9091"	Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	\$0.00
"41-9099"	Sales and Related Workers, All Other	\$19.08
"43-0000"	Office and Administrative Support Occupations	\$19.17
"43-1011"	First-Line Supervisors of Office and Administrative Support Workers	\$27.90
"43-2011"	Switchboard Operators, Including Answering Service	\$0.00
"43-2021"	Telephone Operators	\$0.00
"43-2099"	Communications Equipment Operators, All Other	\$0.00
"43-3011"	Bill and Account Collectors	\$22.51
"43-3021"	Billing and Posting Clerks	\$19.52
"43-3031"	Bookkeeping, Accounting, and Auditing Clerks	\$21.06
"43-3041"	Gambling Cage Workers	\$0.00
"43-3051"	Payroll and Timekeeping Clerks	\$19.46
"43-3061"	Procurement Clerks	\$17.36
"43-3071"	Tellers	\$15.07
"43-3099"	Financial Clerks, All Other	\$0.00
"43-4011"	Brokerage Clerks	\$0.00
"43-4021"	Correspondence Clerks	\$0.00
"43-4031"	Court, Municipal, and License Clerks	\$16.14
"43-4041"	Credit Authorizers, Checkers, and Clerks	\$0.00
"43-4051"	Customer Service Representatives	\$17.63
"43-4061"	Eligibility Interviewers, Government Programs	\$0.00
"43-4071"	File Clerks	\$14.67
"43-4081"	Hotel, Motel, and Resort Desk Clerks	\$12.39
"43-4111"	Interviewers, Except Eligibility and Loan	\$0.00
"43-4121"	Library Assistants, Clerical	\$13.49
"43-4131"	Loan Interviewers and Clerks	\$21.52
"43-4141"	New Accounts Clerks	\$17.52
"43-4151"	Order Clerks	\$17.81
"43-4161"	Human Resources Assistants, Except Payroll and Timekeeping	\$21.02
"43-4171"	Receptionists and Information Clerks	\$14.75
"43-4181"	Reservation and Transportation Ticket Agents and Travel Clerks	\$0.00
"43-4199"	Information and Record Clerks, All Other	\$15.31
"43-5011"	Cargo and Freight Agents	\$0.00
"43-5021"	Couriers and Messengers	\$12.67
"43-5031"	Public Safety Telecommunicators	\$0.00
"43-5032"	Dispatchers, Except Police, Fire, and Ambulance	\$19.74
"43-5041"	Meter Readers, Utilities	\$0.00
"43-5051"	Postal Service Clerks	\$23.08
"43-5052"	Postal Service Mail Carriers	\$24.79

"43-5053"	Postal Service Mail Sorters, Processors, and Processing Machine Operators	\$0.00
"43-5061"	Production, Planning, and Expediting Clerks	\$25.86
"43-5071"	Shipping, Receiving, and Inventory Clerks	\$19.67
"43-5111"	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	\$0.00
"43-6011"	Executive Secretaries and Executive Administrative Assistants	\$28.05
"43-6012"	Legal Secretaries and Administrative Assistants	\$18.26
"43-6013"	Medical Secretaries and Administrative Assistants	\$16.93
"43-6014"	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	\$17.57
"43-9021"	Data Entry Keyers	\$13.89
"43-9022"	Word Processors and Typists	\$0.00
"43-9031"	Desktop Publishers	\$0.00
"43-9041"	Insurance Claims and Policy Processing Clerks	\$0.00
"43-9051"	Mail Clerks and Mail Machine Operators, Except Postal Service	\$12.21
"43-9061"	Office Clerks, General	\$18.19
"43-9071"	Office Machine Operators, Except Computer	\$0.00
"43-9081"	Proofreaders and Copy Markers	\$0.00
"43-9111"	Statistical Assistants	\$0.00
"43-9199"	Office and Administrative Support Workers, All Other	\$18.32
"45-0000"	Farming, Fishing, and Forestry Occupations	\$0.00
"45-1011"	First-Line Supervisors of Farming, Fishing, and Forestry Workers	\$0.00
"45-2011"	Agricultural Inspectors	\$0.00
"45-2021"	Animal Breeders	\$0.00
"45-2041"	Graders and Sorters, Agricultural Products	\$0.00
"45-2091"	Agricultural Equipment Operators	\$0.00
"45-2092"	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	\$0.00
"45-2093"	Farmworkers, Farm, Ranch, and Aquacultural Animals	\$0.00
"45-2099"	Agricultural Workers, All Other	\$0.00
"45-4011"	Forest and Conservation Workers	\$0.00
"45-4022"	Logging Equipment Operators	\$0.00
"45-4023"	Log Graders and Scalers	\$0.00
"45-4029"	Logging Workers, All Other	\$0.00
"47-0000"	Construction and Extraction Occupations	\$24.02
"47-1011"	First-Line Supervisors of Construction Trades and Extraction Workers	\$36.36
"47-2011"	Boilermakers	\$0.00
"47-2021"	Brickmasons and Blockmasons	\$0.00
"47-2022"	Stonemasons	\$0.00
"47-2031"	Carpenters	\$22.31
"47-2041"	Carpet Installers	\$0.00
"47-2042"	Floor Layers, Except Carpet, Wood, and Hard Tiles	\$0.00
"47-2043"	Floor Sanders and Finishers	\$0.00
"47-2044"	Tile and Stone Setters	\$0.00
"47-2051"	Cement Masons and Concrete Finishers	\$18.80
"47-2053"	Terrazzo Workers and Finishers	\$0.00
"47-2061"	Construction Laborers	\$19.71
"47-2071"	Paving, Surfacing, and Tamping Equipment Operators	\$21.74
"47-2072"	Pile Driver Operators	\$0.00
"47-2073"	Operating Engineers and Other Construction Equipment Operators	\$24.20
"47-2081"	Drywall and Ceiling Tile Installers	\$0.00
"47-2111"	Electricians	\$23.75
"47-2121"	Glaziers	\$17.96
"47-2131"	Insulation Workers, Floor, Ceiling, and Wall	\$20.93
"47-2132"	Insulation Workers, Mechanical	\$0.00
"47-2141"	Painters, Construction and Maintenance	\$18.56
"47-2142"	Paperhangers	\$0.00
"47-2151"	Pipelayers	\$0.00
"47-2152"	Plumbers, Pipefitters, and Steamfitters	\$23.10
"47-2161"	Plasterers and Stucco Masons	\$0.00

"47-2171"	Reinforcing Iron and Rebar Workers	\$0.00
"47-2181"	Roofers	\$0.00
"47-2211"	Sheet Metal Workers	\$22.57
"47-2221"	Structural Iron and Steel Workers	\$0.00
"47-2231"	Solar Photovoltaic Installers	\$0.00
"47-3011"	HelpersBrickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	\$0.00
"47-3012"	HelpersCarpenters	\$0.00
"47-3013"	HelpersElectricians	\$0.00
"47-3014"	HelpersPainters, Paperhangers, Plasterers, and Stucco Masons	\$0.00
"47-3015"	HelpersPipelayers, Plumbers, Pipefitters, and Steamfitters	\$17.27
"47-3016"	HelpersRoofers	\$0.00
"47-3019"	Helpers, Construction Trades, All Other	\$19.37
"47-4011"	Construction and Building Inspectors	\$27.20
"47-4021"	Elevator and Escalator Installers and Repairers	\$0.00
"47-4031"	Fence Erectors	\$0.00
"47-4041"	Hazardous Materials Removal Workers	\$0.00
"47-4051"	Highway Maintenance Workers	\$19.44
"47-4061"	Rail-Track Laying and Maintenance Equipment Operators	\$0.00
"47-4071"	Septic Tank Servicers and Sewer Pipe Cleaners	\$19.76
"47-4090"	Miscellaneous Construction and Related Workers	\$0.00
"47-5011"	Derrick Operators, Oil and Gas	\$20.84
"47-5012"	Rotary Drill Operators, Oil and Gas	\$29.85
"47-5013"	Service Unit Operators, Oil and Gas	\$23.32
"47-5022"	Excavating and Loading Machine and Dragline Operators, Surface Mining	\$22.19
"47-5041"	Continuous Mining Machine Operators	\$0.00
"47-5044"	Loading and Moving Machine Operators, Underground Mining	\$0.00
"47-5051"	Rock Splitters, Quarry	\$0.00
"47-5071"	Roustabouts, Oil and Gas	\$21.48
"47-5081"	HelpersExtraction Workers	\$19.54
"47-5097"	Earth Drillers, Ex Oil&Gas & Explosives Wkrs, Ordnance Handls & Blasters	\$24.34
"47-5098"	Underground Mining Machine Operators and Extraction Workers, All Other	\$24.91
"49-0000"	Installation, Maintenance, and Repair Occupations	\$24.81
"49-1011"	First-Line Supervisors of Mechanics, Installers, and Repairers	\$37.43
"49-2011"	Computer, Automated Teller, and Office Machine Repairers	\$20.69
"49-2021"	Radio, Cellular, and Tower Equipment Installers and Repairers	\$0.00
"49-2022"	Telecommunications Equipment Installers & Repairers, Exc. Line Installers	\$29.26
"49-2091"	Avionics Technicians	\$0.00
"49-2092"	Electric Motor, Power Tool, and Related Repairers	\$0.00
"49-2093"	Electrical and Electronics Installers & Repairers, Transport. Equipment	\$0.00
"49-2094"	Electrical and Electronics Repairers, Commercial and Industrial Equipment	\$24.78
"49-2095"	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	\$0.00
"49-2096"	Electronic Equipment Installers and Repairers, Motor Vehicles	\$0.00
"49-2097"	Audiovisual Equipment Installers and Repairers	\$0.00
"49-2098"	Security and Fire Alarm Systems Installers	\$0.00
"49-3011"	Aircraft Mechanics and Service Technicians	\$0.00
"49-3021"	Automotive Body and Related Repairers	\$21.52
"49-3022"	Automotive Glass Installers and Repairers	\$0.00
"49-3023"	Automotive Service Technicians and Mechanics	\$24.19
"49-3031"	Bus and Truck Mechanics and Diesel Engine Specialists	\$27.33
"49-3041"	Farm Equipment Mechanics and Service Technicians	\$0.00
"49-3042"	Mobile Heavy Equipment Mechanics, Except Engines	\$27.97
"49-3043"	Rail Car Repairers	\$0.00
"49-3051"	Motorboat Mechanics and Service Technicians	\$0.00
"49-3052"	Motorcycle Mechanics	\$22.73
"49-3053"	Outdoor Power Equipment and Other Small Engine Mechanics	\$21.06
"49-3091"	Bicycle Repairers	\$0.00
"49-3092"	Recreational Vehicle Service Technicians	\$0.00

"49-3093"	Tire Repairers and Changers	\$15.15
"49-9011"	Mechanical Door Repairers	\$0.00
"49-9012"	Control and Valve Installers and Repairers, Except Mechanical Door	\$23.98
"49-9021"	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$24.22
"49-9031"	Home Appliance Repairers	\$0.00
"49-9041"	Industrial Machinery Mechanics	\$25.84
"49-9043"	Maintenance Workers, Machinery	\$24.01
"49-9044"	Millwrights	\$0.00
"49-9045"	Refractory Materials Repairers, Except Brickmasons	\$0.00
"49-9051"	Electrical Power-Line Installers and Repairers	\$24.83
"49-9052"	Telecommunications Line Installers and Repairers	\$0.00
"49-9061"	Camera and Photographic Equipment Repairers	\$0.00
"49-9062"	Medical Equipment Repairers	\$17.85
"49-9063"	Musical Instrument Repairers and Tuners	\$0.00
"49-9064"	Watch and Clock Repairers	\$0.00
"49-9069"	Precision Instrument and Equipment Repairers, All Other	\$0.00
"49-9071"	Maintenance and Repair Workers, General	\$19.91
"49-9081"	Wind Turbine Service Technicians	\$0.00
"49-9091"	Coin, Vending, and Amusement Machine Servicers and Repairers	\$0.00
"49-9092"	Commercial Divers	\$0.00
"49-9094"	Locksmiths and Safe Repairers	\$19.65
"49-9095"	Manufactured Building and Mobile Home Installers	\$0.00
"49-9096"	Riggers	\$19.79
"49-9097"	Signal and Track Switch Repairers	\$0.00
"49-9098"	HelpersInstallation, Maintenance, and Repair Workers	\$15.87
"49-9099"	Installation, Maintenance, and Repair Workers, All Other	\$18.28
"51-0000"	Production Occupations	\$26.22
"51-1011"	First-Line Supervisors of Production and Operating Workers	\$40.69
"51-2011"	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	\$0.00
"51-2021"	Coil Winders, Tapers, and Finishers	\$0.00
"51-2028"	Electrical, etc., assemblers, except coil winders, tapers, and finishers	\$19.35
"51-2031"	Engine and Other Machine Assemblers	\$0.00
"51-2041"	Structural Metal Fabricators and Fitters	\$20.07
"51-2051"	Fiberglass Laminators and Fabricators	\$0.00
"51-2090"	Miscellaneous Assemblers and Fabricators	\$18.85
"51-3011"	Bakers	\$15.02
"51-3021"	Butchers and Meat Cutters	\$15.62
"51-3022"	Meat, Poultry, and Fish Cutters and Trimmers	\$0.00
"51-3023"	Slaughterers and Meat Packers	\$0.00
"51-3091"	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	\$0.00
"51-3092"	Food Batchmakers	\$0.00
"51-3093"	Food Cooking Machine Operators and Tenders	\$0.00
"51-3099"	Food Processing Workers, All Other	\$16.18
"51-4021"	Extruding & Drawing Machine Setters, Operators, & Tenders, Metal & Plastic	\$0.00
"51-4022"	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	\$0.00
"51-4023"	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	\$19.76
"51-4031"	Cutting, Punching & Press Machine Setters, Oper. & Tenders, Metal & Plastic	\$19.08
"51-4032"	Drilling & Boring Machine Tool Setters, Oper., and Tenders, Metal & Plastic	\$0.00
"51-4033"	Grind., Lap., Polish. & Buff. Mach. Tool Set., Oper. & Tend., Met. & Plast.	\$18.91
"51-4034"	Lathe & Turning Machine Tool Setters, Operators, & Tenders, Metal & Plastic	\$0.00
"51-4035"	Milling & Planing Machine Setters, Operators, & Tenders, Metal & Plastic	\$0.00
"51-4041"		\$24.63
"51-4051"	Metal-Refining Furnace Operators and Tenders	\$0.00
"51-4052"	Pourers and Casters, Metal	\$0.00
"51-4061" "54_4062"	IVIODEI IVIAKERS, METAL AND PLASTIC	\$0.00
"51-4062" "54_4074"	Patternmakers, Metal and Plastic	\$0.00
"51-40/1"	Foundry Mold and Coremakers	Ş0.00

"51-4072"	Molding, Coremaking & Casting Machine Set., Oper. & Tend., Metal & Plastic	\$0.00
"51-4081"	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$17.59
"51-4111"	Tool and Die Makers	\$24.16
"51-4121"	Welders, Cutters, Solderers, and Brazers	\$28.87
"51-4122"	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	\$0.00
"51-4191"	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	\$0.00
"51-4192"	Layout Workers, Metal and Plastic	\$0.00
"51-4193"	Plating Machine Setters, Operators, and Tenders, Metal and Plastic	\$0.00
"51-4194"	Tool Grinders, Filers, and Sharpeners	\$0.00
"51-4199"	Metal Workers and Plastic Workers, All Other	\$0.00
"51-5111"	Prepress Technicians and Workers	\$0.00
"51-5112"	Printing Press Operators	\$0.00
"51-5113"	Print Binding and Finishing Workers	\$0.00
"51-6011"	Laundry and Dry-Cleaning Workers	\$14.00
"51-6021"	Pressers, Textile, Garment, and Related Materials	\$11.02
"51-6031"	Sewing Machine Operators	\$12.17
"51-6041"	Shoe and Leather Workers and Repairers	\$0.00
"51-6051"	Sewers, Hand	\$0.00
"51-6052"	Tailors, Dressmakers, and Custom Sewers	\$0.00
"51-6061"	Textile Bleaching and Dyeing Machine Operators and Tenders	\$0.00
"51-6062"	Textile Cutting Machine Setters. Operators. and Tenders	\$0.00
"51-6063"	Textile Knitting and Weaving Machine Setters. Operators, and Tenders	\$0.00
"51-6064"	Textile Winding, Twisting & Drawing Out Machine Setters, Oper. & Tenders	\$0.00
"51-6091"	Extruding & Forming Machine Set., Oper. & Tend., Synthetic & Glass Fibers	\$0.00
"51-6092"	Fabric and Apparel Patternmakers	\$0.00
"51-6093"	Upholsterers	\$0.00
"51-6099"	Textile, Apparel, and Furnishings Workers, All Other	\$0.00
"51-7011"	Cabinetmakers and Bench Carpenters	\$17.00
"51-7021"	Furniture Finishers	\$0.00
"51-7032"	Patternmakers. Wood	\$0.00
"51-7041"	Sawing Machine Setters, Operators, and Tenders, Wood	\$0.00
"51-7042"	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	\$0.00
"51-7099"	Woodworkers. All Other	\$0.00
"51-8012"	Power Distributors and Dispatchers	\$0.00
"51-8013"	Power Plant Operators	\$0.00
"51-8021"	Stationary Engineers and Boiler Operators	\$0.00
"51-8031"	Water and Wastewater Treatment Plant and System Operators	\$0.00
"51-8091"	Chemical Plant and System Operators	\$0.00
"51-8092"	Gas Plant Operators	\$0.00
"51-8093"	Petroleum Pump System Operators, Refinery Operators, and Gaugers	\$34.91
"51-8099"	Plant and System Operators, All Other	\$0.00
"51-9011"	Chemical Equipment Operators and Tenders	\$0.00
"51-9012"	Sep., Filtering, Clarifving, Precipitating, Still Mach, Set., Oper, & Tend.	\$0.00
"51-9021"	Crushing, Grinding, and Polishing Machine Setters. Operators, and Tenders	\$0.00
"51-9022"	Grinding and Polishing Workers, Hand	\$0.00
"51-9023"	Mixing and Blending Machine Setters, Operators, and Tenders	\$23.35
"51-9031"	Cutters and Trimmers, Hand	\$0.00
"51-9032"	Cutting and Slicing Machine Setters. Operators, and Tenders	\$0.00
"51-9041"	Extruding, Forming, Pressing & Compacting Machine Setters, Oper. & Tenders	\$15.50
"51-9051"	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	\$0.00
"51-9061"	Inspectors, Testers, Sorters, Samplers, and Weighers	\$40.88
"51-9071"	Jewelers and Precious Stone and Metal Workers	\$0.00
"51-9081"	Dental Laboratory Technicians	\$0.00
"51-9082"	, Medical Appliance Technicians	\$0.00
"51-9083"	Ophthalmic Laboratory Technicians	\$11.75
"51-9111"	Packaging and Filling Machine Operators and Tenders	\$17.08
"51-9123"	Painting, Coating, and Decorating Workers	\$0.00

"51-9124"	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	\$18.74
"51-9141"	Semiconductor Processing Technicians	\$0.00
"51-9151"	Photographic Process Workers and Processing Machine Operators	\$0.00
"51-9161"	Computer Numerically Controlled Tool Operators	\$25.00
"51-9162"	Computer Numerically Controlled Tool Programmers	\$35.56
"51-9191"	Adhesive Bonding Machine Operators and Tenders	\$0.00
"51-9192"	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	\$0.00
"51-9193"	Cooling and Freezing Equipment Operators and Tenders	\$0.00
"51-9194"	Etchers and Engravers	\$0.00
"51-9195"	Molders, Shapers, and Casters, Except Metal and Plastic	\$0.00
"51-9196"	Paper Goods Machine Setters, Operators, and Tenders	\$0.00
"51-9197"	Tire Builders	\$0.00
"51-9198"	HelpersProduction Workers	\$16.18
"51-9199"	Production Workers, All Other	\$17.52
"53-0000"	Transportation and Material Moving Occupations	\$22.27
"53-1041"	Aircraft Cargo Handling Supervisors	\$0.00
"53-1047"	Suprs of Trans & Material Moving Wkrs, Ex Aircraft Cargo Handling Suprs	\$36.56
"53-2011"	Airline Pilots, Copilots, and Flight Engineers	\$0.00
"53-2012"	Commercial Pilots	\$0.00
"53-2021"	Air Traffic Controllers	\$0.00
"53-2022"	Airfield Operations Specialists	\$0.00
"53-2031"	Flight Attendants	\$0.00
"53-3011"	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	\$0.00
"53-3031"	Driver/Sales Workers	\$18.84
"53-3032"	Heavy and Tractor-Trailer Truck Drivers	\$24.28
"53-3032"	Light Truck Drivers	\$20.05
"53-3052"	Bus Drivers Transit and Intercity	\$0.00
"53-3058"	Passanger Vehicle Drivers Excent Rus Drivers Transit and Intercity	\$0.00
"53-3099"	Motor Vehicle Operators All Other	\$0.00
"53-4011"	Locomotive Engineers	\$0.00 \$0.00
"53_/013"	Rail Vard Engineers Dinkey Operators and Hostlers	\$0.00 \$0.00
"53-4022"	Railroad Brake, Signal, and Switch Operators and Locomotive Firers	\$0.00 \$0.00
"53-4022 "53-4031"	Railroad Conductors and Vardmasters	\$0.00 \$0.00
"53-4041"	Subway and Streetcar Operators	\$0.00 \$0.00
"53-5011"	Sailors and Marine Oilers	\$0.00 \$0.00
"53-5011 "53-5021"	Cantains Mates and Pilots of Water Vescels	\$0.00 \$0.00
"53-5021 "53-5022"	Motorboat Operators	\$0.00 \$0.00
"53-5022 "53-5031"	Shin Engineers	\$0.00 \$0.00
"52_6011"	Ship Lighters Bridge and Lock Tenders	\$0.00 \$0.00
"53_6021"	Darking Attendants	\$0.00 \$0.00
"52 6021"	Automotive and Watercraft Service Attendants	\$0.00 \$12.42
"53-60/1"	Traffic Technicians	\$12.43
"52 6051"		\$0.00 \$0.00
"E2 6061"	Descender Attendents	\$0.00 \$0.00
"52 6009"	Aircraft Service Attendents and Transportation Workers, All Other	\$0.00 \$0.00
"E2 7011"	Convoyor Operators and Tenders	\$0.00 \$0.00
55-7011 "F2 7021"	Conveyor Operators and Tenders	\$0.00 \$21.00
55-7021 "F2 7021"	Dradge Operators	\$31.00
33-7031 "E2 70E1"	Inductrial Truck and Tractor Operators	\$0.00 \$22.00
55-7051 "E2 7061"	Cleaners of Vehicles and Equipment	\$22.00 \$1E.49
55-7001 "F2 7062"	Laborers and Freight Stock, and Material Mayors, Hand	\$15.40 619.21
J3-7002 "52 7062"	Lauviers and Freight, Stock, and Malerial Movers, Hand	\$18.31
"52 7064"	Machine reducts and Onbediets	\$U.UU
J3-7004 "E2 706E"	rauneis allu Paunageis, Hallu Stockare and Order Eillare	ŞU.UU
53-705 "E2 7071"	Stuckets dilu Uluer Fillers	\$18.81
25-7071 "F2 7072"	Gas compressor and Gas Pumping Station Operators	ŞU.UU
53-7072 "F2 7072"	Pump Operators, Except Weilnead Pumpers	\$18.30
53-7073	weinead Pumpers	\$26.91

"53-7081"	Refuse and Recyclable Material Collectors	\$17.53
"53-7121"	Tank Car, Truck, and Ship Loaders	\$0.00
"53-7199"	Material Moving Workers, All Other	\$0.00

#### SECTION 04 26 13 - MASONRY VENEER

# PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Brick.
  - 2. Mortar materials.
  - 3. Ties and anchors.
  - 4. Embedded flashing.
- B. Products Installed but not Furnished under This Section:
  - 1. Cast-stone trim in masonry veneer.
  - 2. Stone trim units in unit masonry.
  - 3. Steel lintels in masonry veneer.
  - 4. Steel shelf angles for supporting masonry veneer.

#### 1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For each type and color of the following:
  - 1. Clay face brick.
  - 2. Mortar. Make Samples using same sand and mortar ingredients to be used on Project.

## 1.4 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.



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#### 1.5 FIELD CONDITIONS

- A. Protection of Masonry: During construction, cover tops of veneer, projections, and sills with waterproof sheeting at end of each day's Work. Cover partially completed masonry when construction is not in progress.
  - 1. Extend cover a minimum of 24 inches down face of veneer, and hold cover securely in place.
- B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry. Immediately remove grout, mortar, and soil that come in contact with masonry.
  - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
  - 2. Protect sills, ledges, and projections from mortar droppings.
  - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
  - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
  - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 degrees F and higher and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602.

# PART 2 - PRODUCTS

## 2.1 SOURCE LIMITATIONS

- A. Obtain exposed masonry units from single source.
- B. For exposed masonry units, obtain each color and grade from single source with resources to provide materials of consistent quality in appearance and physical properties.

## 2.2 BRICK

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units.
  - 1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
  - 2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including corners, movement joints, bond beams, sashes, and lintels.

- B. Clay Face Brick: Facing brick complying with ASTM C216, Grade SW MW or SW, Type FBX.
  - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
    - a. Acme Brick Company.
    - b. Belden Brick Company (The).
    - c. Boral Bricks, Inc; Boral Limited.
    - d. Endicott Clay Products Co.
    - e. General Shale Brick.
    - f. Glen-Gery Corporation.
  - 2. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested in accordance with ASTM C67.
  - 3. Efflorescence: Provide brick that has been tested in accordance with ASTM C67 and is rated "not effloresced."
  - 4. Surface Coating: Brick with colors or textures produced by application of coatings withstand 50 cycles of freezing and thawing in accordance with ASTM C67 with no observable difference in the applied finish when viewed from 10 ft. or have a history of successful use in Project's area.
  - 5. Application: Use where brick is exposed unless otherwise indicated.
  - 6. Where shown to "match existing," provide clay face brick matching color range, texture, and size of existing adjacent brickwork.
  - 7. Color and Texture: Match Existing.

#### 2.3 MORTAR MATERIALS

- A. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- B. Water: Potable.

## 2.4 TIES AND ANCHORS

- A. General: Ties and anchors extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.
- B. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
  - 1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch diameter, hot-dip galvanized steel wire.
  - 2. Tie Section: Triangular-shaped wire tie made from 0.187-inch diameter, wire.

## 2.5 EMBEDDED FLASHING

- A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:
  - 1. Copper: ASTM B370, Temper H00, cold-rolled copper sheet, 16 oz./sq. ft. weight or 0.0216-inch thick.
  - 2. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 ft. Provide splice plates at joints of formed, smooth metal flashing.

- 3. Fabricate through-wall metal flashing embedded in masonry from copper, with ribs at 3-inch intervals along length of flashing to provide an integral mortar bond.
- 4. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
- 5. Fabricate through-wall flashing with drip edge unless otherwise indicated. Fabricate by extending flashing 1/2-inch out from wall, with outer edge bent down 30 degrees and hemmed.
- 6. Fabricate through-wall flashing with sealant stop unless otherwise indicated. Fabricate by bending metal back on itself 3/4-inch at exterior face of wall and down into joint 1/4-inch to form a stop for retaining sealant backer rod.
- 7. Fabricate metal drip edges for sawtooth metal flashing from plain metal flashing of same metal as sawtooth flashing and extending at least 3 inches into wall with hemmed inner edge to receive sawtooth flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam sheds water.
- 8. Fabricate metal drip edges from stainless steel. Extend at least 3 inches into wall and 1/2-inch out from wall, with outer edge bent down 30 degrees and hemmed.
- 9. Fabricate metal sealant stops from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4-inch and down into joint 1/4-inch to form a stop for retaining sealant backer rod.
- 10. Fabricate metal expansion-joint strips from copper to shapes indicated.
- 11. Solder metal items at corners.

1.

- B. Flexible Flashing: Use the following unless otherwise indicated:
  - Copper Fabric Flashing: 5 oz./sq. ft. self-adhesive copper sheet bonded between 2 layers of glass-fiber cloth. Use only where flashing is fully concealed in masonry.
    - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Advanced Building Products Inc.
      - 2) Hohmann & Barnard, Inc.
      - 3) STS Coatings, Inc.
      - 4) Wire-Bond.
      - 5) York Manufacturing, Inc.
- C. Drainage Plane Flashing: Fabricate from elastomeric membrane and drainage membrane to shapes indicated, including weep tabs, termination bar and drip edge. Provide flashing materials as follows:
  - 1. Fabricate continuous flashings in sections 60 inches long, minimum.
  - 2. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.

## PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 INSTALLATION, GENERAL

- A. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- B. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- C. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
- D. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.
- E. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested in accordance with ASTM C67. Allow units to absorb water so they are damp but not wet at time of laying.

## 3.3 TOLERANCES

- A. Dimensions and Locations of Elements:
  - 1. For dimensions in cross section or elevation, do not vary by more than plus 1/2-inch or minus 1/4-inch.
  - 2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2-inch.
  - 3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4-inch in a story height or 1/2-inch total.
- B. Lines and Levels:
  - 1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4-inch in 10 ft., or 1/2-inch maximum.
  - 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8-inch in 10 ft., 1/4-inch in 20 ft., or 1/2-inch maximum.
  - 3. For vertical lines and surfaces, do not vary from plumb by more than 1/4-inch in 10 ft., 3/8-inch in 20 ft., or 1/2-inch maximum.
  - 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8-inch in 10 ft., 1/4-inch in 20 ft., or 1/2-inch maximum.
  - 5. For lines and surfaces, do not vary from straight by more than 1/4-inch in 10 ft., 3/8-inch in 20 ft., or 1/2-inch maximum.

- 6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4-inch in 10 ft., or 1/2-inch maximum.
- 7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16-inch except due to warpage of masonry units within tolerances specified for warpage of units.
- C. Joints:
  - 1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8-inch, with a maximum thickness limited to 1/2-inch.
  - 2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8-inch.
  - 3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8-inch or minus 1/4-inch.
  - 4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8-inch.
  - 5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16-inch from 1 masonry unit to the next.

# 3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Stopping and Resuming Work: Stop Work by stepping back units in each course from those in course below; do not tooth. When resuming Work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

## 3.5 MORTAR BEDDING AND JOINTING

- A. Lay masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- B. Lay hollow brick with face shells fully bedded in mortar and with head joints of depth equal to bed joints. At starting course, fully bed entire units, including area under cells.
  - 1. At anchors and ties, fully bed units and fill cells with mortar as needed to fully embed anchors and ties in mortar.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
  - 1. For glazed masonry units, use a nonmetallic jointer 3/4-inch or more in width.

#### 3.6 ANCHORED MASONRY VENEERS

- A. Anchor masonry veneers to wall framing with masonry-veneer anchors to comply with the following requirements:
  - 1. Fasten screw-attached anchors through sheathing to wall framing with metal fasteners of type indicated. Use 2 fasteners unless anchor design only uses 1 fastener.
  - 2. Embed tie sections in masonry joints.
  - 3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
  - 4. Space anchors as indicated, but not more than 18 inches o.c. vertically and 24 inches o.c. horizontally, with not less than 1 anchor for each 2 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 8 inches, around perimeter.
  - 5. Space anchors as indicated, but not more than 16 inches o.c. vertically and 25 inches o.c. horizontally, with not less than 1 anchor for each 3.5 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 36 inches, around perimeter.
  - 6. Space anchors as indicated, but not more than 18 inches o.c. vertically and horizontally. Install additional anchors within 12 inches of openings and at intervals, not exceeding 24 inches, around perimeter.
- B. Provide not less than 1-inch of airspace between back of masonry veneer and face of sheathing.
  - 1. Keep airspace clean of mortar droppings and other materials during construction. Bevel beds away from airspace, to minimize mortar protrusions into airspace. Do not attempt to trowel or remove mortar fins protruding into airspace.

## 3.7 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete to comply with the following:
  - 1. Provide an open space not less than 1 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
  - 2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
  - 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

#### 3.8 EXPANSION JOINTS

- A. General: Install expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form expansion joints as follows:
  - 1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.
  - 2. Build flanges of factory-fabricated, expansion-joint units into masonry.

- 3. Build in compressible joint fillers where indicated.
- 4. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8-inch for installation of sealant and backer rod specified in Section 07 92 00 "Joint Sealants."
- C. Provide horizontal, pressure-relieving joints by either leaving an airspace or inserting a compressible filler of width required for installing sealant and backer rod specified in Section 07 92 00 "Joint Sealants," but not less than 3/8-inch.
  - 1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

## 3.9 LINTELS

- A. Install steel lintels where indicated.
- B. Provide offset angle supports where indicate and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are indicated without structural steel or other supporting lintels.
- C. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

# 3.10 FLASHING, WEEP HOLES, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
  - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
  - 2. Extend flashing through veneer, across airspace behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under water-resistive barrier, lapping at least 4 inches. Fasten upper edge of flexible flashing to sheathing through termination bar.
  - 3. At lintels and shelf angles, extend flashing 6 inches minimum, to edge of next full unit at each end. At heads and sills, extend flashing 6 inches minimum, to edge of next full unit and turn ends up not less than 2 inches to form end dams.
  - 4. Interlock end joints of sawtooth sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Section 07 92 00 "Joint Sealants" for application indicated.
  - 5. Install metal drip edges and sealant stops with sawtooth sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Section 07 92 00 "Joint Sealants" for application indicated.
  - 6. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2-inch back from outside face of wall, and adhere flexible flashing to top of metal drip edge.
- 7. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2-inch back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.
- 8. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- C. Install reglets and nailers for flashing and other related construction where they are indicated to be built into masonry.
- D. Install weep holes in veneers in head joints of first course of masonry immediately above embedded flashing.
  - 1. Use specified weep/cavity vent products to form weep holes.
  - 2. Use wicking material to form weep holes above flashing under brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.
  - 3. Space weep holes 24 inches o.c. unless otherwise indicated.
  - 4. Space weep holes formed from plastic tubing or wicking material 16 inches o.c.
  - 5. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.
  - 6. Trim wicking material flush with outside face of wall after mortar has set.
- E. Place cavity drainage material in airspace behind veneers to comply with configuration requirements for cavity drainage material in "Accessories" Article.
- F. Install vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent products or open-head joints to form vents.
  - 1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

# 3.11 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as Work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
  - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
  - 2. Test cleaning methods on sample wall panel; leave 1/2 of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
  - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
  - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.

- 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
- 6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

# 3.12 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry Work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
  - 1. Crush masonry waste to less than 4 inches in each dimension.
  - 2. Mix masonry waste with at least 2 parts of specified fill material for each part of masonry waste.
  - 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

# END OF SECTION

# SECTION 05 50 00 - METAL FABRICATIONS

# PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Steel framing and supports for operable partitions.
  - 2. Steel tube reinforcement for low partitions.
  - 3. Steel framing and supports for mechanical and electrical equipment.
  - 4. Steel framing and supports for applications where framing and supports are not specified in other Sections.
  - 5. Prefabricated building columns.
- B. Products furnished, but not installed, under this Section include the following:
  - 1. Loose steel lintels.
  - 2. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
  - 3. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.
- C. Related Requirements:
  - 1. Division 01 Specification Sections apply to Work of this Section.
- 1.2 COORDINATION
  - A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with 1 another.
  - B. Coordinate installation of metal fabrications that are anchored to or that receive other Work. Furnish setting Drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

# 1.3 ACTION SUBMITTALS

- A. Shop Drawings: Show fabrication and installation details. Include Plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for the following:
  - 1. Steel framing and supports for operable partitions.
  - 2. Steel tube reinforcement for low partitions.
  - 3. Steel framing and supports for mechanical and electrical equipment.
  - 4. Steel framing and supports for applications where framing and supports are not specified in other Sections.
  - 5. Prefabricated building columns.
- B. Delegated-Design Submittal: For operable partition support system, including analysis data signed and sealed by the qualified professional Engineer responsible for their preparation.



#### 1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional Engineer's experience with providing delegated-design engineering services of the kind indicated, including documentation that Engineer is licensed in the jurisdiction in which Project is located.
- B. Welding certificates.

#### 1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following:
  - 1. AWS D1.1, "Structural Welding Code Steel."

#### 1.6 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

# PART 2 - PRODUCTS

### 2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Recycled Content of Steel Products: Postconsumer recycled content plus 1/2 of preconsumer recycled content not less than 25 percent.
- C. Steel Plates, Shapes, and Bars: ASTM A36/A3.
- D. Stainless Steel Sheet, Strip, and Plate: ASTM A240M or ASTM A666, Type 304.
- E. Stainless Steel Bars and Shapes: ASTM A276, Type 304.

# 2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
  - 1. Provide stainless steel fasteners for fastening stainless steel .
  - 2. Use adhesive to install stainless steel sheet in kitchen in recommended by manufacturer in lieu of fasteners.
- B. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, ASTM F593; with hex nuts, ASTM F594; and, where indicated, flat washers; Alloy Group 1.
- C. Post-Installed Anchors: Torque-controlled expansion anchors.
  - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

#### 2.3 MISCELLANEOUS MATERIALS

- A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
  - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

#### 2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32-inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing Work.
- D. Form exposed Work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- J. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

#### 2.5 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.

- 1. Fabricate units from slotted channel framing where indicated.
- 2. Furnish inserts for units installed after concrete is placed.
- C. Fabricate supports for operable partitions from continuous steel beams of sizes recommended by partition manufacturer with attached bearing plates, anchors, and braces as recommended by partition manufacturer. Drill or punch bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.
- D. Galvanize miscellaneous framing and supports where indicated.
- E. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

### 2.6 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

# PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
  - 1. Cast Aluminum: Heavy coat of bituminous paint.
  - 2. Extruded Aluminum: Two coats of clear lacquer.

#### 3.2 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to, and rigidly brace from, building structure.
- C. Support steel girders on solid grouted masonry, concrete, or steel pipe columns. Secure girders with anchor bolts embedded in grouted masonry or concrete or with bolts through top plates of pipe columns.
  - 1. Where grout space under bearing plates is indicated for girders supported on concrete or masonry, install as specified in "Installing Bearing and Leveling Plates" Article.
- D. Install pipe columns on concrete footings with grouted baseplates. Position and grout column baseplates as specified in "Installation of Bearing and Leveling Plates" Article.
  - 1. Grout baseplates of columns supporting steel girders after girders are installed and leveled.

#### 3.3 INSTALLATION OF BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with shrinkage-resistant grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

#### 3.4 REPAIRS

- A. Touchup Painting:
  - 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
    - a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
  - 2. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 09 91 23 "Interior Painting."

#### END OF SECTION

# SECTION 08 71 00 – DOOR HARDWARE

#### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes: Finish Hardware for door openings, except as otherwise specified herein.
  - 1. Door hardware for steel (hollow metal) doors.
  - 2. Door hardware for aluminum doors.
  - 3. Door hardware for wood doors.
  - 4. Door hardware for other doors indicated.
  - 5. Keyed cylinders as indicated.
- B. Related Sections:
  - 1. Division 01 Specification Sections apply to Work of this Section.
  - 2. Section 06 10 00 "Rough Carpentry."
  - 3. Section 08 11 13 "Hollow Metal Doors and Frames."
  - 4. Section 08 14 16 "Flush Wood Doors."
  - 5. Division 26 "Electrical."
  - 6. Division 28 "Electronic Safety and Security."
- C. References: Comply with applicable requirements of the following standards. Where these standards conflict with other specific requirements, the most restrictive shall govern.
  - 1. Builders Hardware Manufacturing Association (BHMA).
  - 2. NFPA 101 Life Safety Code.
  - 3. NFPA 80 -Fire Doors and Windows.
  - 4. ANSI-A156.xx- Various Performance Standards for Finish Hardware.
  - 5. UL10C Positive Pressure Fire Test of Door Assemblies.
  - 6. ANSI-A117.1 Accessible and Usable Buildings and Facilities.
  - 7. DHI /ANSI A115.IG Installation Guide for Doors and Hardware.
  - 8. ICC International Building Code.
- D. Intent of Hardware Groups:
  - 1. Should items of hardware not definitely specified be required for completion of the Work, furnish such items of type and quality comparable to adjacent hardware and appropriate for service required.
  - 2. Where items of hardware aren't definitely or correctly specified, are required for completion of the Work, a written statement of such omission, error, or other discrepancy to be submitted to Architect, prior to date specified for receipt of Bids for clarification by addendum; or, furnish such items in the type and quality established by this Specification, and appropriate to the service intended.
- E. Allowances:
  - 1. Refer to Division 01 for allowance amount and procedures.
- F. Alternates
  - 1. Refer to Division 01 for Alternates and procedures.

#### 1.2 SUBSTITUTIONS

A. Comply with Division 01.



# 1.3 SUBMITTALS

- A. Comply with Division 01.
- B. Special Submittal Requirements: Combine submittals of this Section with Sections listed below to ensure the "design intent" of the system/assembly is understood and can be reviewed together.
- C. Product Data: Manufacturer's Specifications and technical data including the following:
  - 1. Detailed Specification of construction and fabrication.
  - 2. Manufacturer's installation instructions.
  - 3. Wiring diagrams for each electric product specified. Coordinate voltage with electrical before submitting.
  - 4. Submit 6 copies of catalog cuts with hardware schedule.
  - 5. Provide 9001-Quality Management and 14001-Environmental Management for products listed in Materials Section 2.2
- D. Shop Drawings Hardware Schedule: Submit 6 complete reproducible copy of detailed hardware schedule in a vertical format.
  - 1. List groups and suffixes in proper sequence.
  - 2. Completely describe door and list architectural door number.
  - 3. Manufacturer, product name, and catalog number.
  - 4. Function, type, and style.
  - 5. Size and finish of each item.
  - 6. Mounting heights.
  - 7. Explanation of abbreviations and symbols used within schedule.
  - 8. Detailed wiring diagrams, specially developed for each opening, indicating all electric hardware, security equipment and access control equipment, and door and frame rough-ins required for specific opening.
- E. Templates: Submit templates and "reviewed Hardware Schedule" to door and frame supplier and others as applicable to enable proper and accurate sizing and locations of cutouts and reinforcing.
  - 1. Templates, wiring diagrams and "reviewed Hardware Schedule" of electrical terms to electrical for coordination and verification of voltages and locations.
- F. Samples: (If requested by the Architect).
  - 1. 1 sample of Lever and Rose/Escutcheon design, (pair).
  - 2. 3 samples of metal finishes.
- G. Contract Closeout Submittals: Comply with Division 01 including specific requirements indicated.
  - 1. Operating and maintenance manuals: Submit 3 sets containing the following.
    - a. Complete information in care, maintenance, and adjustment, and data on repair and replacement parts, and information on preservation of finishes.
    - b. Catalog pages for each product.
    - c. Name, address, and phone number of local representative for each manufacturer.
    - d. Parts list for each product.
  - 2. Copy of final hardware schedule, edited to reflect, "As installed".
  - 3. Copy of final keying schedule.
  - 4. As installed "Wiring Diagrams" for each piece of hardware connected to power, both low voltage and 110 volts.
  - 5. One set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

# 1.4 QUALITY ASSURANCE

- A. Comply with Division 01.
  - 1. Statement of qualification for distributor and installers.
  - 2. Statement of compliance with regulatory requirements and single source responsibility.
  - 3. Distributor's Qualifications: Firm with 3 years' experience in the distribution of commercial hardware.
    - a. Distributor to employ full time Architectural Hardware Consultants (AHC) for the purpose of scheduling and coordinating hardware and establishing keying schedule.
    - b. Hardware Schedule shall be prepared and signed by an AHC.
  - 4. Installer's Qualifications: Firm with 3 years experienced in installation of similar hardware to that required for this Project, including specific requirements indicated.
  - 5. Regulatory Label Requirements: Provide testing agency label or stamp on hardware for labeled openings.
    - a. Provide UL listed hardware for labeled and 20-minute openings in conformance with requirements for class of opening scheduled.
    - b. Underwriters Laboratories requirements have precedence over this Specification where conflict exists.
  - 6. Single Source Responsibility: Except where specified in hardware schedule, furnish products of only 1 manufacturer for each type of hardware.
- B. Review Project for extent of finish hardware required to complete the Work. Where there is a conflict between these Specifications and the existing hardware, notify the Architect in writing and furnish hardware in compliance with the Specification unless otherwise directed in writing by the Architect.

# 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packing and Shipping: Comply with Division 01.
  - 1. Deliver products in original unopened packaging with legible manufacturer's identification.
  - 2. Package hardware to prevent damage during transit and storage.
  - 3. Mark hardware to correspond with "reviewed hardware schedule".
  - 4. Deliver hardware to door and frame manufacturer upon request.
- B. Storage and Protection: Comply with manufacturer's recommendations.

# 1.6 PROJECT CONDITIONS

- A. Coordinate hardware with other Work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security, and similar requirements indicated, as necessary for the proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents.
- B. Review Shop Drawings for doors and entrances to confirm that adequate provisions will be made for the proper installation of hardware.

#### 1.7 WARRANTY

Β.

- A. Refer to Conditions of the Contract.
  - Manufacturer's Warranty:
  - 1. Closers: 10 years.
    - 2. Exit Devices: 5 years.
    - 3. Locksets & Cylinders: 3 years.
    - 4. All other Hardware: 2 years.

### 1.8 OWNER'S INSTRUCTION

A. Instruct Owner's personnel in operation and maintenance of hardware units.

### 1.9 MAINTENANCE

- A. Extra Service Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 01 Closeout Submittals Section.
  - 1. Special Tools: Provide special wrenches and tools applicable to each different or special hardware component.
  - 2. Maintenance Tools: Provide maintenance tools and accessories supplied by hardware component manufacturer.
  - 3. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage and protection of extra service materials.
- B. Maintenance Service: Submit for Owner's consideration maintenance service agreement for electronic products installed.

# PART 2 - PRODUCTS

# 2.1 MANUFACTURERS

A. The following manufacturers are approved subject to compliance with requirements of the Contract Documents. Approval of manufacturers other than those listed shall be in accordance with Division 01.

Item:	Manufacturer:	Approved:
Hinges	Stanley	Bommer, McKinney
Continuous Hinges	Stanley	Select, ABH
Locksets	Best 45H Series	Building Standard No Substitution
Cylinders	Best CoreMax 7 Pin S	FIC – Building Standard No Substitution
Exit Devices	Precision 2000 Series -	- Building Standard No Substitution
Closers	Best HD8000 Series -	Building Standard No Substitution
Access Control System	By Owner	
Protection Plates	Trimco	Burns, Hiawatha
Overhead Stops	Dorma	ABH, Trimco
Door Stops	Trimco	Burns, DCI
Flush Bolts	Trimco	ABH, Burns, DCI

### 2.2 MATERIALS

- A. Hinges:
  - 1. Template screw hole locations.
  - 2. Minimum of 2 permanently lubricated non-detachable bearings.
  - 3. Equip with easily seated, non-rising pins.
  - 4. Sufficient size to allow 180-degree swing of door.
  - 5. Furnish hinges with 5 knuckles and concealed bearings.
  - 6. Provide hinge type as listed in schedule.
  - 7. Furnish 3 hinges per leaf to 7-foot 6-inch height. Add 1 for each additional 30 inches in height or fraction thereof.
  - 8. Tested and approved by BHMA for all applicable ANSI Standards for type, size, function and finish.
  - 9. UL10C listed for Fire rated doors.
- B. Geared Continuous Hinges:
  - 1. Tested and approved by BHMA for ANSI A156.26-1996 Grade 1.
  - 2. Anti-spinning through fastener.
  - 3. UL10C listed for 3-hour fire rating.
  - 4. Non-handed.
  - 5. Lifetime warranty.
  - 6. Provide Fire Pins for 3-hour fire ratings.
  - 7. Sufficient size to permit door to swing 180 degrees.
- C. Mortise Type Locks and Latches:
  - 1. Tested and approved by BHMA for ANSI A156.13, Series 1000, Operational Grade 1, Extra-Heavy Duty, Security Grade 2 and be UL10C.
  - 2. Furnish UL or recognized independent laboratory certified mechanical operational testing to 4 million cycles minimum.
  - 3. Provide 9001-Quality Management and 14001-Environmental Management.
  - 4. Fit ANSI A115.1 door preparation.
  - 5. Functions and design as indicated in the hardware groups.
  - 6. Solid, 1-piece, 3/4-inch throw, anti-friction latchbolt made of self-lubricating stainless steel.
  - 7. Deadbolt functions shall have 1-inch throw bolt made of hardened stainless steel.
  - 8. Latchbolt and Deadbolt are to extend into the case a minimum of 3/8-inch when fully extended.
  - 9. Auxiliary deadlatch to be made of 1-piece stainless steel, permanently lubricated.
  - 10. Provide sufficient curved strike lip to protect door trim.
  - 11. Lever handles must be of forged or cast brass, bronze or stainless steel construction and conform to ANSI A117.1. Levers that contain a hollow cavity are not acceptable.
  - 12. Lock shall have self-aligning, thru-bolted trim.
  - 13. Levers to operate a roller bearing spindle hub mechanism.
  - 14. Mortise cylinders of lock shall have a concealed internal setscrew for securing the cylinder to the lockset. The internal setscrew will be accessible only by removing the core, with the control key, from the cylinder body.
  - 15. Spindle to be designed to prevent forced entry from attacking of lever.
  - 16. Provide locksets with 7-pin removable and interchangeable core cylinders.
  - 17. Each lever to have independent spring mechanism controlling it.
  - 18. Core face must be the same finish as the lockset.

- D. Exit Devices with Weatherized True Architectural Finish 626W:
  - 1. Exit devices to meet or exceed BHMA for ANSI 156.3, Grade 1.
  - 2. Exit devices to be tested and certified by UL or by a recognized independent laboratory to meet or exceed the following:
    - a. Mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.
    - b. BHMA 156.3 A156.18 Salt Spray Certified 600 Hours 3 X Standard.
    - c. MIL-STD-810G 509.6 Salt Fog Certified.
    - d. MIL-STD-810G 510.6 Sand & Dust Certified.
    - e. MIL-STD-810G 521.4 Icing/Freezing Rain Certified.
  - 3. Exit devices chassis to be investment cast steel, zinc dichromate.
  - 4. Exit devices to have stainless steel deadlocking  $\frac{3}{4}$ " through latch bolt.
  - 5. Exit devices to be equipped with sound dampening on touchbar.
  - 6. Non-fire rated exit devices to have cylinder dogging.
  - 7. Non-fire rated exit devices to have 1/4-inch minimum turn hex key dogging.
  - 8. All Exterior components of the exit device including the active case cover, touch bar, device channel, slide channel fillers, vertical rods, latch covers and device end cap, shall be constructed of a brass base metal then plated in a double dip 2-step process of satin nickel and chrome.
  - 9. Exit device shall be available with options of WTS Weatherized touch bar switch and WALW Weatherized Exit alarm (hardwired).
  - 10. Additional non-weatherized electrified options are compatible with the 626W. Non-weatherized options are not recommended for harsh environments.
  - 11. Touchpad to be "T" style constructed.
  - 12. Touchbar assembly on wide style exit devices to have a 1/4-inch clearance to allow for vision frames.
  - 13. All exposed exit device components to be of architectural metals and "true" architectural finishes.
  - 14. Provide strikes as required by application.
  - 15. Fire exit hardware to conform to UL10C and UBC 7-2. UL tested for Accident Hazard.
  - 16. The strike is to be black powder coated finish.
  - 17. Exit devices to have field reversible handing.
  - 18. Provide heavy duty vandal resistant lever trim with heavy duty investment cast stainless steel components and extra strength shock absorbing overload springs. Lever shall not require resetting. Lever design to match locksets and latchsets.
  - 19. Provide 9001-Quality Management and 14001-Environmental Management.
  - 20. Vertical Latch Assemblies to have gravity operation, no springs.
  - 21. Approved Manufacturers:
    - a. The following manufacturers will be approved contingent on meeting or exceeding the above performance criteria:
      - 1) Precision with 626W finish, Manufactured by Stanley Security Solutions.
- E. Cylinders:
  - 1. Provide the necessary cylinder housings, collars, rings & springs as recommended by the manufacturer for proper installation.
  - 2. Provide the proper cylinder cams or tail piece as required to operate all locksets and other keyed hardware items listed in the hardware sets.
  - 3. Coordinate and provide as required for related Sections.

# F. Surface Door Closers:

1.

- Manufacturers; Surface Mounted:
  - a. Best by Dormakaba USA, Inc.
- 2. Rack and Pinion Aluminum Surface Closers (Heavy Duty HD8000):
  - a. Provide Full Rack and Pinion type closer constructed of R14 High Silicon Aluminum Alloy, or equal, to exceed the ANSI/BHMA A156.4 Grade 1 requirements.
  - b. Provide closers tested and approved for UL10C for positive pressure; UL228 &CAN/ULC-S133.
  - c. Provide closers that conform to ANSI/ICC A117.1 and ADA requirements for barrier-free accessibility.
  - d. Closer shall be available with heavy-duty arms and knuckles/elbows.
  - e. Closer shall have maximum 2-7/16-inch case projection with non-ferrous cover.
    - 1) Closer cover to be:
      - (a) Plastic (default).
      - (b) Oversized Plastic.
      - (c) Metal.
      - (d) Lead Lined.
    - 2) Closer cover finish to be:
      - (a) Painted.
      - (b) Plated.
      - (c) RAL Custom Color Powder Coated.
  - f. Provide closers with all-weather hydraulic fluid.
  - g. Provide closers with separate adjusting valves for closing and latching speeds, as well as advanced backcheck and delayed action.
  - h. Provide closers with Delayed Action and/or Advanced Backcheck where noted in hardware sets.
  - i. Provide adapter plates, shim spacers and blade stop spacers as required by frame and door conditions.
  - j. Mount closers on non-public side of door and stair side of stair doors, unless otherwise noted in hardware sets.
  - k. Closers shall be non-handed and multi-sized as noted in hardware sets. When specific sized closers are required provide:
    - 1) Size 1 through 6 to meet barrier-free ADA requirements HD8016.
    - Size 5 through 6 +50% power over size 6 to meet PT4C requirements
      HD8056.
- G. Door Stops: Provide a floor or wall stop for every opening as listed in the hardware sets.
  - 1. Wall stop and floor stop shall be cast bronze, brass or stainless steel.
    - 2. Provide fastener suitable for wall construction.
    - 3. Coordinate reinforcement of walls where wall stop is specified.
    - 4. Provide dome stops where wall stops are not practical. Provide spacers or carpet riser for floor conditions encountered.
- H. Over Head Stops: Provide a Surface mounted or concealed overhead when a floor or wall stop cannot be used or when listed in the hardware set.
  - 1. Concealed overhead stops shall be heavy duty bronze or stainless steel.
  - 2. Surface overhead stops shall be heavy duty bronze or stainless steel.
- I. Push Pull Bars: Provide ANSI J504, .1" Dia. Pull and push bar model and series as listed in hardware set. Provide proper fasteners for door construction.

- J. Kickplates: Provide with 4 beveled edges ANSI J102, 10 inches high by width less 2 inches on single doors and 1-inch on pairs of doors. Furnish oval-head countersunk screws to match finish.
- K. Mop plates: Provide with 4 beveled edges ANSI J103, 4 inches high by width less 1-inch on single doors and 1-inch on pairs of doors. Furnish oval-head countersunk screws to match finish.
- L. Door Bolts: Flush bolts for wood or metal doors.
  - 1. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 25 for hollow metal label doors.
  - 2. Provide a set of Automatic bolts, Certified ANSI/BHMA 156.3 Type 27 at wood label doors.
  - 3. Manual flush bolts, Certified ANSI/BHMA 156.16 at openings where allowed local authority.
  - 4. Provide Dust Proof Strike, Certified ANSI/BHMA 156.16 at doors with flush bolts without thresholds.
- M. Coordinator and Brackets: Provide a surface mounted coordinator when automatic bolts are used in the hardware set.
  - 1. Coordinator, Certified ANSI/BHMA A1156.3 Type 21A for full width of the opening.
  - 2. Provide mounting brackets for soffit applied hardware.
  - 3. Provide hardware preparation (cutouts) for latches as necessary.
- N. Power Supply: Provide power supply for (MLR) Electric Latch Retraction exit devices.
  - 1. Provide the appropriate necessary control module to operate the number of MLR exit devices used at each opening. The Control Module shall include a Time delay Feature, variable (0-4 minutes) latch retraction period in response to a momentary input.
  - 2. UL Listed for class II output.
  - 3. Include circuit breakers for protection of motherboard.
  - 4. 115 or 230 Volt user selectable switch, with AC input= 115 Volt at 1 Amp.
  - 5. Control module shall include Fire alarm terminal and Auxiliary contacts for remote signaling.
  - 6. Optional card for Battery Backup (BT) power tap module to operate a Card reader or when MLR devices require battery backup (Lead Acid Batteries are not included and is to be furnished by others).
  - 7. Precision RPSMLR Series with the required modules.
- O. Quick Connect Power Transfer: Power transfer device shall be a steel housing and flexible tube. Secure and inconspicuous channel is to bring power from the frame to the door.
  - 1. Precision EPT-12C
  - 2. Tube shall contain 12 Wire bundle with Stanley Quick Connect Connectors one 4 wire connector consisting of two 18AWG wires and 2 24AWG wires and one 8 wire connector with 8 24AWG wires.
- P. Power Supply: Dormakaba DKPS-2A Series UL Listed, Field Selectable 12VDC or 24VDC output. The power supply will specifically designed to support electric locks and access controls. The power supply uses 115 VAC at 800mA input. The power shall be able to be expanded to 4 station controls. The filtered and regulated output power is field selectable for 12 or 24 VDC.
  - 1. Fire Alarm/Life Safety emergency release included in power supply.
  - 2. Available options for multiple door options 4 or more control stations, Adjustable Time delay relay, Battery charging, Battery Back up.

- Q. Door Position Switch: Provide door position switch for door status monitoring as indicated in hardware sets.
  - 1. At all fired rated doors the door and frames, position switch preparation will be provided by the door and frame manufacturer or by an authorized label service agent.
- R. Quick Connect plug-in connectors: Stanley quick connect plug-in must be used with a combination of the following components to work as a complete plug and play system.
  - 1. Best locks series 45HW, 45HM, 8KW, 9KW, 9KM.
  - 2. To include Quick connectors to Best lock products Suffix "C" Example (45HW-7DEL14H DS C).
  - 3. Precision Exit Devices 2000 Series, DE, DS, TS, TDS, LDS, ELR.
  - 4. To include Quick connectors to Precision Electric Exit device products Prefix "C". Example (C ELR 2108 x V4908A TS).
  - 5. Precision 12 Conductor Electric Power Transfer EPT-12C.
  - 6. Stanley 12 Hinges Conductor Hinge CECB179-12C.
- S. Quick Connect Wire Harnesses: The Quick Connect wire harness shall have of one 4-wire connector and one 8-wire connector. The 4-wire connector has two 18AWG and two 24AWG wires. The 8-wire connector has eight 24AWG wires Stanley quick connect wire harnesses are available in various length's, 3-inch, 6-inch, 12-inch, 26-inch, 32-inch, 38-inch, 44-inch, 50-inch, and 192-inch.
  - 1. Wire Harness that is terminated at both ends is specified as WH-size (Example WH-3).
  - 2. Wire Harness that is terminated at 1 end with exposed pin head at the other is specified as WH-size P (Example WH-3P).
  - 3. Wire Harness 6-inch terminated at 1 end with bray leads on the other is specified as WH-6E.

Notes: The wire harnesses with suffix "E" has brae wire ends, is used to connect the quick connect harness to a hardwired connection.

Wire harnesses of different lengths may be combined to form a desired length.

The maximum size hole needed to pass through the quick connect plug is 1-inch.

- T. Seals: All seals shall be finished to match adjacent frame color. Seals shall be furnished as listed in schedule. Material shall be UL listed for labeled openings.
- U. Weatherstripping: Provide at head and jambs only those units where resilient or flexible seal strip is easily replaceable. Where bar-type weatherstrip is used with parallel arm mounted closers install weatherstrip first.
  - 1. Weatherstrip shall be resilient seal of silicone.
  - 2. UL10C Positive Pressure rated seal set when required.
- V. Door Bottoms/Sweeps: Surface mounted or concealed door bottom where listed in the hardware sets.
  - 1. Door seal shall be resilient seal of nylon brush.
  - 2. UL10C Positive Pressure rated seal set when required.
- W. Thresholds: Thresholds shall be heavy duty cast aluminum beveled type with maximum height of 1/2-inch for conformance with ADA requirements. Furnish as specified and per details. Provide fasteners and screws suitable for floor conditions.
- X. Silencers: Furnish silencers on all interior frames, 3 for single doors, 2 for pairs. Omit where any type of seals occur.

# 2.3 FINISH

- A. Designations used in Schedule of Finish Hardware 3.05, and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18 including coordination with traditional U.S. finishes shown by certain manufacturers for their products.
- B. Powder coat door closers to match other hardware, unless otherwise noted.
- C. Aluminum items shall be finished to match predominant adjacent material. Seals to coordinate with frame color.

#### 2.4 KEYS AND KEYING

- A. Provide keyed brass construction cores and keys during the construction period. Construction control and operating keys and core shall not be part of the Owner's permanent keying system or furnished in the same keyway (or key section) as the Owner's permanent keying system. Permanent cores and keys (prepared according to the accepted keying schedule) will be furnished to the Owner.
- B. Cylinders, removable and interchangeable core system: Best CORMAX<sup>TM</sup> Patented 7-pin.
- C. Permanent keys and cores: Stamped with the applicable key mark for identification. These visual key control marks or codes will not include the actual key cuts. Permanent keys will also be stamped "Do Not Duplicate."
- D. Transmit Grand Masterkeys, Masterkeys and other Security keys to Owner by Registered Mail, return receipt requested.
- E. Furnish keys in the following quantities:
  - 1. 1 each Grand Masterkeys.
  - 2. 4 each Masterkeys.
  - 3. 2 each Change keys each keyed core.
  - 4. 15 each Construction Masterkeys.
  - 5. 1 each Control keys.
- F. The Owner, or the Owner's agent, will install permanent cores and return the construction cores to the Hardware Supplier. Construction cores and keys remain the property of the Hardware Supplier.
- G. Keying Schedule: Arrange for a keying meeting, and programming meeting with Architect Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying and programming complies with Project requirements. Furnish 3 typed copies of keying and programming schedule to Architect.

# PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Verification of conditions: Examine doors, frames, related items and conditions under which Work is to be performed and identify conditions detrimental to proper and or timely completion.
  - 1. Do not proceed until unsatisfactory conditions have been corrected.

# 3.2 HARDWARE LOCATIONS

- A. Mount hardware units at heights indicated in the following publications except as specifically indicated or required to comply with the governing regulations.
  - 1. Recommended Locations for Builder's Hardware for Standard Steel Doors and Frames, by the Door and Hardware Institute (DHI).
  - 2. Recommended locations for Architectural Hardware for flush wood doors (DHI).
  - 3. WDMA Industry Standard I.S.-1A-04, Industry Standard for Architectural wood flush doors.

### 3.3 INSTALLATION

- A. Install each hardware item per manufacturer's instructions and recommendations. Do not install surface mounted items until finishes have been completed on the substrate. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- B. Conform to local governing agency security ordinance.
- C. Install Conforming to ICC/ANSI A117.1 Accessible and Usable Building and Facilities.
  - 1. Adjust door closer sweep periods so that from the open position of 70 degrees, the door will take at least 3 seconds to move to a point 3 inches from the latch, measured to the landing side of the door.
- D. Installed hardware using the manufacturers fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use "Riv-Nuts" or similar products.

### 3.4 FIELD QUALITY CONTROL AND FINAL ADJUSTMENT

- A. Contractor/Installers, Field Services: After installation is complete, Contractor shall inspect the completed door openings on site to verify installation of hardware is complete and properly adjusted, in accordance with both the Contract Documents and final Shop Drawings.
  - 1. Check and adjust closers to ensure proper operation.
  - 2. Check latchset, lockset, and exit devices are properly installed and adjusted to ensure proper operation.
    - a. Verify levers are free from binding.
    - b. Ensure latchbolts and dead bolts are engaged into strike and hardware is functioning.
  - 3. Report findings, in writing, to architect indicating that all hardware is installed and functioning properly. Include recommendations outlining corrective actions for improperly functioning hardware if required.

# 3.5 FIELD QUALITY CONTROL AND FINAL ADJUSTMENT

- A. Contractor/Installers, Field Services: After installation is complete, Contractor shall inspect the completed door openings on site to verify installation of hardware is complete and properly adjusted, in accordance with both the Contract Documents and final Shop Drawings.
  - 1. Check and adjust closers to ensure proper operation.
  - 2. Check latchset, lockset, and exit devices are properly installed and adjusted to ensure proper operation.
    - a. Verify levers are free from binding.
    - b. Ensure latchbolts and dead bolts are engaged into strike and hardware is functioning.
  - 3. Report findings, in writing, to architect indicating that all hardware is installed and functioning properly. Include recommendations outlining corrective actions for improperly functioning hardware if required.

#### 3.6 SCHEDULE OF FINISH HARDWARE

#### Manufacturer List

Code	Name
BE	Best Access Systems
BY	By Related Section
DM	Dorma Door Controls
IS	Ilco Storefront
NA	National Guard
PR	Precision
RC	RCI
ST	Stanley
TR	Trimco

#### **Option List**

Code	Description
1/4-20-2" COMBO	1/4-20 X COMBO MS/ANCHOR (SS)
1-3/4"	1-3/4" Thick Doors
24V	24V Solenoid (Std)
4	1-3/4" Door Thickness
7/8"LTC	7/8" Lip-To-Center Strike
B4E-HEAVY-KP	BEVELED 4 EDGES - KICK PLATES
С	QUICK CONNECT WIRING OPTION
С	Quick Connect Wiring System
CA-03	Cylinder Attachment Kit (Rim/SVR Device)
CORMAX PATENTED	Cormax Patented Keying
KEYING	
CSK	COUNTER SINKING OF KICK and MOP PLATES

Code	Description
DA AVB	Del. Action & Adv. Variable Backcheck
DP80	DP80 Drop Plate
EPT Prep	EPT Prep (full mortise)
FL	Fire Exit Hardware
MLR	MOTORIZED LATCH RETRACTION
Ν	Thru-Bolt w/ Flow-Thru
RP	RINGS-RIM CYLINDER
RQE	REQUEST TO EXIT
TS	TOUCHBAR MONITORING SWITCH
DOW	DOOR OPENING WIDTH
DOH	DOOR OPENING HEIGHT
LDH	LESS DOOR HEIGHT
LDW	LESS DOOR WIDTH

## **Finish List**

Code	Description
26D	Satin Chrome
626	Satin Chromium Plated
626W	Weatherized Satin Chrome
630	Satin Stainless Steel
689	Aluminum Painted
710CU	CuVerro Steralloy
AL	Aluminum
GREY	Grey
WHITE	White

#### Hardware Sets

# Set #1

# Doors: CEED 1314A

3	Butt Hinge	CB179 4.5" x 4.5" NRP	26D	ST
1	Lockset	45H-7R3H PATD CORMAX PATENTED KEYING	626	BE
1	Kick Plate	KO050 10" x 2" LDW x B4E x CSK	630	TR
1	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
1	Wall Bumper	1270CX	626	TR
3	Silencer	1229A	GREY	TR

# Set #2

Doors: Dunagan 010, 140A, 140B, 140D

3	Butt Hinge	CB168 4.5" x 4.5"	26D	ST
1	Lockset	45H-7R3H PATD CORMAX PATENTED KEYING	626	BE
1	Kick Plate	KO050 10" x 2" LDW x B4E x CSK	630	TR
1	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR

1 3	Wall Bumper Silencer	1270CX 1229A	626 GREY	TR TR
Set i	#3			
Doo	rs: Dunagan 138, 138A			
1	Continuous Hinge	661HD UL x 1" LDH	AL	ST
1	Lockset	45H-7R3H PATD CORMAX PATENTED KEYING	626	BE
1	Wall Bumper	1270CX	626	TR
3	Silencer	BY FRAME MFG		BY
Set ;	#4			
Doo	rs: Dunagan 142			
1	Continuous Hinge	661HD UL x 1" LDH	AL	ST
1	Lockset	45H-7R3H PATD CORMAX PATENTED KEYING	626	BE
1	Overhead Stop	910 S Series	626	DM
3	Silencer	BY FRAME MFG		BY
Set :	#5 _ Existing CR Retrofi			
Doo	rs: Dunagan 140C	L Contraction of the second		
3	Butt Hinge	CB179 4.5" x 4.5" NRP	26D	ST
1	Lockset	45H-7D3H PATD CORMAX PATENTED KEYING	626	BE
1*	Electric Strike	2164	630	DM
1	Closer	HD8016 SPA DA AVB	689	BE
1	Kick Plate	KO050 10" x 2" LDW x B4E x CSK	630	TR
1	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
1	Wall Bumper	1270CX	626	TR
1*	Motion Sensor	DX3336-010	BLK	DM
1*	Position Switch	9540	WHITE	RC3
	Silencer	1229A	GREY	TR

Door normally closed and locked. Presentation of authorized credential unlatched electric strike for door to swing freely and open. Mechanical key unlocks door to retract latch and open the door. Free egress at all times. Motion senor for request to exit from interior of room shunting door position switch forced entry alarm.

#### Set #6

Doors: CEED 1422B

3	Butt Hinge	CB179 4.5" x 4.5" NRP	26D	ST
1	Lockset	45H-7D3H PATD CORMAX PATENTED KEYING	626	BE
1	Closer	HD8016 SDS DA AVB	689	BE
1	Kick Plate	KO050 10" x 2" LDW x B4E x CSK	630	TR
1	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
1	Floor Stop	7280 630		TR
1	Smoke Seal	5075 CL @ Head & Jambs		NA

#### Set #7

~ ~ ~ ~						
Doo	Doors: Dunagan 100DB					
3	Butt Hinge	CB168 4.5" x 4.5" NRP	26D	ST		
1*	Power Transfer	EPT-12C		PR		
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V C CORMAX	626	BE		
		PATD KEYING RQE				

1	Closer	HD8016 SPA DA AVB	689	BE
1	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
1	Kick Plate	KO050 10" x 2" LDW x B4E x CSK	630	TR
1	Wall Bumper	1270CX	626	TR
3	Silencer	1229A	GREY	TR
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Thru Door Harness	WH- (As Required) P		ST
1*	Position Switch	9540	WHITE	RC
NOT	TT. D		DOD 1/1	· 1

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

# Set #8

D00	rs: CEED 1324B, E11			
1*	Continuous Hinge	661HD UL - EPT Prep x 1" LDH	AL	ST
1*	Power Transfer	EPT-12C		PR
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V C CORMAX	626	BE
		PATD KEYING RQE		
1	Closer	HD8016 SDST DA AVB	689	BE
3	Silencer	BY FRAME MFG		BY
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	Thru Door Harness	WH- (As Required) P		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Position Switch	9540	WHITE	RC

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times. If scheduling of access is required, access control to manage controlled access times.

#### Set #9

Doors: CEED X1316B					
1*	Continuous Hinge	661HD UL - EPT Prep x 1" LDH	AL	ST	
1*	Power Transfer	EPT-12C		PR	
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V C CORMAX	626	BE	
		PATD KEYING RQE			
1	Closer	HD8016 AF80P DA AVB	689	BE	
1	Wall Bumper	1270CX	626	TR	
3	Silencer	BY FRAME MFG		BY	
1*	Proximity Reader	5395R		RC	
1*	Power Supply	DKPS-2A		RC	
1*	<b>Termination Harness</b>	WH-6E		ST	
1*	EPT Thru Wall Harness	WH-192P		ST	
1*	Thru Door Harness	WH- (As Required) P		ST	
1*	Position Switch	9540	WHITE	RC	

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

#### Set #10

Doors: Dunagan 100DC

1*	Continuous Hinge	661HD UL - EPT Prep x 1" LDH	AL	ST
1*	Power Transfer	EPT-12C		PR
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V C CORMAX	626	BE
		PATD KEYING RQE		
1	Closer	HD8016 SISJH DA AVB DP80	630	BE
1	Weatherstrip	By Frame Mfg.		BY
1	Brush Sweep W/ Drip	C627 A FATT x NDW		NA
1	Saddle Threshold	425 HD x DOW x S.S. 1/4-20-2" Combo	AL	NA
1*	Position Switch	9540	WHITE	RC
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Thru Door Harness	WH- (As Required) P		ST
NOT	ו 11 1			· 1

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

#### Set #11

Doors: CEED 1412B, 1422A ST Butt Hinge CB168 4.5" x 4.5" 26D 3 1\* Power Transfer EPT-12C PR Electromechanical Lock 45HW-7DEU3H PATD 24V C CORMAX 1\* 626 BE PATD KEYING RQE HD8016 SISH DA AVB 1 Closer 689 BE KM050 6" x 1" LDW x B4E x CSK Mop Plate 630 TR 1 Kick Plate KO050 10" x 2" LDW x B4E x CSK 1 630 TR 3 Silencer 1229A GREY TR 1\* Proximity Reader 5395R RC Power Supply 1\* DKPS-2A RC 1\* Termination Harness WH-6E ST 1\* EPT Thru Wall Harness WH-192P ST 1\* Thru Door Harness WH- (As Required) P ST 1\* 9540 **Position Switch** WHITE RC NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

#### Set #12

Door	rs: CEED 1412A			
6	Butt Hinge	CB168 4.5" x 4.5"	26D	ST
1*	Power Transfer	EPT-12C		PR
1	Semi-Auto Flushbolt	3825L	630	TR
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V 7/8"LTC C CORMAX	626	BE
		PATD KEYING		
2	Closer	HD8016 SISH DA AVB	689	BE
2	Kick Plate	KO050 10" x 1" LDW x B4E x CSK	630	TR
2	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
1	Astragal	By Door Mfg.		BY
2	Silencer	BY FRAME MFG		BY

1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Thru Door Harness	WH- (As Required) P		ST
2*	Position Switch	9540	WHITE	RC
NOT		d and latahad Daan contact signals doon status	DOE arrital	ai a

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

#### Set #13

Doors: CEED E1410, E1412, E1422A, E1422B, 106

6	Butt Hinge	CB168 4.5" x 4.5" NRP	26D	ST
1*	Power Transfer	EPT-12C		PR
1	Semi-Auto Flushbolt	3825L 630		TR
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V 7/8"LTC C CORMAX	626	BE
		PATD KEYING		
2	Closer	HD8016 SISH DA AVB	689	BE
2	Kick Plate	KO050 10" x 1" LDW x B4E x CSK	630	TR
2	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
1	Astragal	By Door Mfg.		BY
2	Silencer	1229A	GREY	TR
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Thru Door Harness	WH- (As Required) P		ST
2*	Position Switch	9540	WHITE	RC

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

#### Set #14

Doo	rs: CEED 1324A			
6	Butt Hinge	CB168 4.5" x 4.5" NRP	26D	ST
1*	Power Transfer	EPT-12C		PR
1	Semi-Auto Flushbolt	3825L 630		TR
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V 7/8"LTC C CORMAX	626	BE
		PATD KEYING		
2	Closer	HD8016 SDST DA AVB	689	BE
2	Kick Plate	KO050 10" x 1" LDW x B4E x CSK	630	TR
2	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
2	Wall Bumper	1270CX	626	TR
1	Astragal	By Door Mfg.		BY
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Thru Door Harness	WH- (As Required) P		ST
2*	Position Switch	9540	WHITE	RC

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

#### Set #15

Doors: CEED 1316A

6	Butt Hinge	CB168 4.5" x 4.5" NRP	26D	ST
1*	Power Transfer	EPT-12C		PR
1	Semi-Auto Flushbolt	3825L 630		TR
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V 7/8"LTC C CORMAX	626	BE
		PATD KEYING		
1	Closer	HD8016 SDST DA AVB	689	BE
2	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
2	Kick Plate	KO050 10" x 1" LDW x B4E x CSK	630	TR
2	Wall Bumper	1270CX	626	TR
1	Astragal	By Door Mfg.		BY
2	Silencer	1229A	GREY	TR
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Thru Door Harness	WH- (As Required) P		ST
2*	Position Switch	9540	WHITE	RC
NOT	F: Door normally close	d and latched Door contact signale door status	ROF switch	cional

NOTE: Door normally closed and latched. Door contact signale door status. RQE switch signals authorized egress. Entry by key or approved credential. Free egress at all times.

# Set #16

Doors: CEED 105

1*	Continuous Hinge	661HD UL - EPT Prep x 1" LDH	AL	ST
1	Continuous Hinge	661HD UL x 1" LDH	AL	ST
1*	Power Transfer	EPT-12C		PR
1	Flush Bolt	IL1880-1-96-AL		IS
1*	Electromechanical Lock	45HW-7DEU3H PATD 24V 7/8"LTC C CORMAX	626	BE
		PATD KEYING		
2	Closer	HD8016 SISJH DA AVB DP80	630	BE
1	Weatherstrip	By Frame Mfg.		BY
1	Astragal	By Door Mfg.		BY
1	Security Astragal	1390 SP 95 1/8"		NA
2	Brush Sweep W/ Drip	C627 A FATT x NDW		NA
1	Meeting Stile Seal	By Alum. Door Mfg.		BY
1	Saddle Threshold	425 HD x DOW x S.S. 1/4-20-2" Combo	AL	NA
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
1*	Termination Harness	WH-6E		ST
1*	EPT Thru Wall Harness	WH-192P		ST
1*	Thru Door Harness	WH- (As Required) P		ST
2*	Position Switch	9540	WHITE	RC
Set i	#17			
Doo	rs: CEED E1410A			

8	Butt Hinge	CB168 4.5" x 4.5" NRP	26D	ST
2*	Power Transfer	EPT-12C		PR
1	Removable Mullion	FLKR822	689	PR
1*	Exit Device	C FL MLR TS 2102 1-3/4"	626W	PR

1*	Exit Device	C FL MLR TS 2103 1-3/4" CA-03	626W	PR
2	Rim Cylinder	12E-72 PATD CORMAX PATENTED KEYING RP	626	BE
2	Door Pull	AP334 24" 4 N	710CU	TR
2	Closer	HD8016 SDST DA AVB	689	BE
2	Mop Plate	KM050 6" x 1" LDW x B4E x CSK	630	TR
2	Kick Plate	KO050 10" x 2" LDW x B4E x CSK	630	TR
1	Smoke Seal	5075 CL @ Head & Jambs		NA
1	Mullion Seal	5100S-96 96"		NA
1*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
2*	Termination Harness	WH-6E		ST
2*	EPT Thru Wall Harness	WH-192P		ST
2*	EPT to Device	WH-6		ST
2*	Position Switch	9540	WHITE	RC

NOTE: Door normally closed and latched. Door contact signale door status. TS switch signals authorized egress. Entry by key or approved credential. Free egress at all times. 120VAC Required.

Set a	# <b>18</b>			
200 2*	Continuous Hingo	661UD III EDT Drop v 1" I DU	ΔŢ	٢т
∠ · ⊃*	Continuous Tinige	EDT 12C	AL	
2	Power Transfer	EP1-12C		PK
1	Removable Mullion	FLKR822	689	PR
1*	Exit Device	C FL MLR TS 2103 1-3/4" CA-03	626W	PR
1*	Exit Device	C FL MLR TS 2102 1-3/4"	626W	PR
2	Rim Cylinder	12E-72 PATD CORMAX PATENTED KEYING RP	626	BE
2	Door Pull	AP334 24" 4 N	710CU	TR
2	Closer	HD8016 SISJH DA AVB DP80	630	BE
1	Mullion Seal	5100S-96 96"		NA
1	Meeting Stile Seal	By Alum. Door Mfg.		BY
2	Silencer	BY FRAME MFG		BY
2*	Proximity Reader	5395R		RC
1*	Power Supply	DKPS-2A		RC
2*	Termination Harness	WH-6E		ST
2*	EPT Thru Wall Harness	WH-192P		ST
2*	EPT to Device	WH-6		ST
2*	Position Switch	9540	WHITE	RC
NOT			• • •	•

NOTE: Door normally closed and latched. Door contact signale door status. TS switch signals authorized egress. Entry by key or approved credential. Free egress at all times. 120VAC Required.

#### Set #19

Doo	Doors: Dunagan 100D, 100DA			
1*	Proximity Reader	5395R	RC	
1	All Hrdwr by Door Mfr.	ALL HARDWARE BY DOOR MFR.	BY	

# Set #20 - Could Not Find

Doors: 1324E 1

NO HARDWARE

#### Set #21

Do	ors: 022, 022A, 022C, E0	4, E104A, ESW02A						
1*	Position Switch	9540	WHITE	RC				
Set	#22 - Maglocks							
Doors: CEED E04, X1420 Dunagan X008A, 008B, X03								
1*	Maglock	EML320	626	DM				
1*	Motion Sensor	DX3336-010	BLK	DM				
1*	Proximity Reader	5395R		RC				
1*	Push Button	908		RC				
2*	Position Switch	9540	WHITE	RC				

Maglocks only permissible per life safety requirements. AHJ approval may be required for maglock application. Push button mounted on egress side of door for emergency deactivation of maglock.

# Set #23 – Existing CR Retrofit Electric Strike Only Full Size Proximity Reader

Doors: CEED X134, X1414A

1*	Electric Strike	2164 630		DM
1*	Proximity Reader	5395R		RC
1*	Motion Sensor	DX3336-010	BLK	DM
1*	Position Switch	9540	WHITE	RC
_				

Door normally closed and locked. Presentation of authorized credential unlatched electric strike for door to swing freely and open. Mechanical key unlocks door to retract latch and open the door. Free egress at all times.

# Set #24 – Existing CR Retrofit Electric Strike Only Mullion Size Proximity Reader

Doors: E05

Electric Strike	2164 630		DM
Proximity Reader	6005R		RC
Motion Sensor	DX3336-010	BLK	DM
Position Switch	9540	WHITE	RC
	Electric Strike Proximity Reader Motion Sensor Position Switch	Electric Strike2164630Proximity Reader6005RMotion SensorDX3336-010Position Switch9540	Electric Strike2164630Proximity Reader6005RMotion SensorDX3336-010Position Switch9540BLK

Door normally closed and locked. Presentation of authorized credential unlatched electric strike for door to swing freely and open. Mechanical key unlocks door to retract latch and open the door. Free egress at all times.

#### Set #25 – Add Card Reader Only Doors: F20

D0015. E20									
1*	Proximity Reader	5395R							RC
1*	Motion Sensor	DX3336-010						BLK	DM
1*	Position Switch	9540						WHITE	RC
D				<b>.</b>		1			

Proximity reader added to existing maglock system. Position switch and motion sensor to be provided only is existing is not in functional state.

Set #	<b>26 – MISC.</b>					
D001	Doors: E20					
100	Prox Cards		RC			
1	Training & Software	BLK	DM			

\*Require electrical coordination.

#### SECTION 08 88 36.71 - SWITCHABLE GLASS

# PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes switchable glass.
- B. Related Requirements:
  - 1. Division 01 Specification Sections apply to Work of this Section.
  - Section 08 80 00 "Glazing" for glass other than switchable glass.
  - 3. Division 26 "Electrical" for coordination of high- and low-voltage services to switchable glazing.

#### 1.2 DEFINITIONS

A. Glass Thickness: Indicated by thickness designations in inches in accordance with ASTM C1036.

#### 1.3 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.
- B. Coordination of Switchable Glass:
  - 1. Manufacturer to verify that existing framing to receive switchable glass complies with manufacturer's written installation requirements prior to Bidding.
  - 2. Provide grounding for metal glazing framing components.
  - 3. Comply with manufacturer's guidelines for measurements of openings and glass.
  - 4. Coordinate wiring paths with doors, windows, storefront, glazing channels, and other glazing components to ensure wiring integrity, and structural and waterproof integrity of framing.

# 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For switchable glass. Provide elevations of installations. Indicate joint sizes , locations and sizes of cutouts.
  - 1. Include wiring diagrams, locations of electrical components, switching configurations, and control sequence.
  - 2. Include grounding of metal glazing framing.
  - 3. Include field measurements.

# 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect switchable glass and glazing materials in accordance with manufacturer's written instructions and requirements in glazing publications.
- B. Retain packaging and sequencing numbers for switchable glass units.



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#### 1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install switchable glass until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels.
- B. Field Measurements: Verify actual dimensions of openings and construction contiguous with switchable glass by field measurements before fabrication.

# 1.7 WARRANTY

- A. Warranty for Switchable Glass: Manufacturer's standard warranty against glass failure and defects.
  - 1. Warranty Period: Five years from date of substantial completion.

# PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- Basis-of-Design Product: Subject to compliance with requirements, provide Pulp Studio, Inc.; SwitchLite<sup>™</sup> or comparable product by 1 of the following:
  - 1. Smart Glass Systems, Inc.
  - 2. Smartint, Inc.
- B. Source Limitations for Glass: Obtain each type of switchable glass from single source from single manufacturer.
- C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer, for each product and installation method.

# 2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed glazing systems shall withstand normal thermal movement and impact loads (where applicable) without failure, including loss or glass breakage attributable to defective manufacture, fabrication, or installation; deterioration of glazing materials; or other defects in construction.
- B. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design switchable glass.
- C. Structural Performance: Interior glass installed with unsupported edges adjacent to walking surfaces shall withstand the following design loads within limits and under conditions indicated:
  - 1. Differential deflection of adjacent unsupported edges shall not exceed glass thickness when subjected to 50 lbf/ft. applied horizontally to 1 panel at any point up to 42 inches above the adjacent walking surface.
  - 2. Base design on thickness at thinnest part of the glass.
- D. Switchable Glass Performance Criteria: For clear laminated switchable glass in accordance with ASTM D1003 and ASTM D1044.
  - 1. Photometric Characteristics, On Mode:
    - a. Light Transmission: 75 percent, within 3 percent.
    - b. Transmission Haze: 6.5 percent, within 2 percent.

- c. Clarity: 99 percent, within 1 percent.
- d. Residual haze and slight image distortion are inherent to switchable glass and are not considered defects.
- 2. Photometric Characteristics, Off Mode:
  - a. Light Transmission: 75 percent, within 3 percent.
  - b. Transmission Haze: Greater than 94 percent.
- 3. Switching Response Time: 1/1000 second for off-to-on and for on-to-off switching.
- E. Safety Glazing: SGCC certified and labeled compliant with ANSI 97.1 and CAT II ASTM C1172.

### 2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with written instructions of glass product manufacturers, GANA's "Laminated Glazing Reference Manual," and GANA's "Glazing Manual" unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
- B. Safety Glazing Labeling: Where safety glazing is indicated, provide glazing with certification label by SGCC or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass lites in thicknesses as needed to comply with requirements indicated.
- D. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with requirements indicated. Where heat-strengthened glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with requirements indicated. Where fully tempered glass is indicated, provide fully tempered float glass.

#### 2.4 SWITCHABLE GLASS

- A. Switchable Glass: Laminated safety glass with switchable liquid crystal interlayer, complying with ASTM C1172, and with electrical components complying with UL 508 and UL 244A.
  - 1. Glass: Clear float glass, ASTM C1306, Type I, Quality-Q3, Class I.
  - 2. Edges:
    - a. Top and bottom edge protection and polished vertical edges at interior butt-glazed applications.
    - b. Four-sided edge protection at exterior and interior 4-side-captive glazing applications, except provide polished vertical edge where exterior sealed butt glazing is indicated.
- B. Certified compliant with UL 962.

# 2.5 ELECTRICAL COMPONENTS FOR SWITCHABLE GLASS

- A. Switchable Glass Power Requirements: 100 V ac, 50 to 60 Hz, 1.2 W/sq. ft.
- B. Transfer Leads: Supplied with switchable glass.
- C. Inline Transformer: As provided by switchable glazing manufacturer, as recommended by manufacturer for application indicated, and per accepted Shop Drawings.

- D. Power Transfer Box: Surface-mounted termination point and switching device as provided by switchable glazing manufacturer.
  - 1. Power Characteristics: 100 V ac, 50 to 60 Hz.
  - 2. Capacity: One power transfer box per of 400-sq. ft. switchable glass.
  - 3. Ganging: Control multiple power transfer boxes with single switch, in accordance with switching requirements on Drawings and in accepted Shop Drawings.
- E. Timer Control: Where indicated, provide timer system preventing switchable glass from remaining in clear state for more than 72 hours. Program translucent state periods as directed by Owner.

# 2.6 GLAZING MATERIALS, GENERAL

- A. Glazing Sealants, Tapes, and Miscellaneous Glazing Materials: As specified in Section 08 80 00 "Glazing."
  - 1. Colors: As selected by Architect from manufacturer's full range.

# 2.7 GLAZING SEALANTS FOR SWITCHABLE GLASS

- A. Glazing Sealant for Glazing Channels: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 50, Use NT.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Dow Corning Corporation; 795 or comparable product.
  - 2. Color: As selected by Architect.
  - 3. VOC Content: Sealant shall have a VOC content of 250 g/L or less.
- B. Glazing Sealant for Butt Joints: Neutral-curing silicone glazing sealant complying with ASTM C920, Type S, Grade NS, Class 50, Use NT.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Dow Corning Corporation; 795 or comparable product.
  - 2. Color: As selected by Architect.
  - 3. VOC Content: Sealant shall have a VOC content of 250 g/L or less.

# 2.8 FABRICATION OF SWITCHABLE GLAZING UNITS

- A. Fabrication: Factory fabricate switchable glazing units.
  - 1. Fabricate glazing units to fit openings and sizes indicated on Drawings.
    - a. Fabricate cutouts for notches and holes in glazing units without marring visible surfaces. Locate and size cutouts to fit closely around penetrations.
    - b. Provide bite, edge clearances and joint sizes indicated on Drawings.
  - 2. Grind smooth and polish butt-glazed edges.
  - 3. Bent Glass: Factory bent to radius indicated.
- B. Fabrication Tolerances: Face dimension and squareness shall not vary more than 1/16inch, measured in accordance with ASTM C1036.

# 2.9 SOURCE QUALITY CONTROL AND SPG CERTIFICATION OF SWITCHABLE GLASS

- A. Serialization: Provide unique serial number to be used for unit identification throughout certification process and for historical archive of unit performance.
- B. Liquid-Crystal Film Inspection Parameters:
  - 1. Visual Inspection: Inspect on a light table prior to placing into production.

- 2. ITO Resistance Verification: Conductive coating where electrodes are applied is verified to be within the desired operating range before the material is used in production.
- 3. High-Voltage Test: Film is tested for a short duration, 130 percent of the normal operating voltage, to check for issues that would otherwise result in premature failure.
- 4. Dimensional Verification: Prior to lamination, log and verify that dimensions of film are within defined tolerance.
- C. Assembled Unit Quality Control Inspection Parameters:
  - 1. Cycle Test: Cycle each piece of glass 10,000 times to ensure proper switching.
  - 2. Burn-in Test:
    - a. Energize each piece of glass at a specified operating voltage for minimum of 24 hours.
    - b. Measure and verify temperature of glass at end of burn-in test to ensure that it falls within an acceptable range.
  - 3. Visual Inspection: Inspect glass with and without power for operation and defects.
  - 4. Haze: Take and record haze measurements every 20 inches along each panel.
  - 5. Light Transmission: Take and record light transmission measurements every 20 inches along each panel.
  - 6. Clarity: Take and record clarity measurements every 20 inches along each panel.
  - 7. Resistance: Take and record a resistance measurement across glass leads.
  - 8. Operating Current: Measure, record, and verify panel's operating voltage and current draw. Ensure that current measured falls within specified voltage range necessary for panel's size.
  - 9. Insulation Resistance test: Test insulation of finished panel at 1,440 V ac to ensure that glass is not a shock hazard.
  - 10. Verify Dimensions: Completed panel dimensions to be within 1/16-inch of specified dimensions.
  - 11. SGCC Testing: Perform weekly sample tests to ensure that laminate performs in accordance with safety guidelines.
- D. SPG Certification:
  - 1. Verify that measured values from previous stages of quality control comply with standards set forth in SPG certification standards.

# PART 3 - EXECUTION

# 3.1 EXAMINATION

- A. Examine switchable glass and the following conditions affecting performance of the Work:
  - 1. Ensure that glazing channels, storefront framing, and doors receiving switchable glass are erected, secured, and prepared in accordance with manufacturer's written instructions, approved Shop Drawings, and Drawings.
  - 2. Verify that wiring paths are prepared and clear.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate orientation of outer surfaces as indicated on Drawings. Label or mark units as needed so that surface orientation is readily identifiable. Do not use materials that leave visible marks in the completed Work.

# 3.3 INSTALLATION OF SWITCHABLE GLASS

- A. General: Set glass lites with proper orientation so that each outer surface faces the direction indicated on Drawings.
- B. Glazing: Comply with instructions in "Sealant Glazing (Wet)" Article and with manufacturer's written instructions.
- C. Wiring: Comply with Division 26 requirements, electrical Drawings, and manufacturer's written instructions. Exercise caution to prevent excess voltage applied to glass.
- D. Joints: Space joints straight. Avoid glass-to-glass contact.
- E. Butt Joints: Seal butt joints in accordance with GANA's "Glazing Manual."

### 3.4 GLAZING, GENERAL

- A. Switchable Glass: Install glazing as specified in Section 08 80 00 "Glazing."
- B. Comply with combined written instructions of manufacturers of glass, gaskets, sealants, tapes, and other glazing materials unless more stringent requirements are indicated, including those in referenced glazing publications.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.
- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is more than 50 inches.
  - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances, and to comply with system performance requirements.
  - 2. Provide 1/8-inch- minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and in accordance with requirements in referenced glazing publications.

#### 3.5 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants smooth.

### 3.6 CLEANING AND PROTECTION

- A. Immediately after installation, remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, glass becomes contaminated, remove contaminating substances immediately as recommended in writing by glass manufacturer.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces not more than 4 days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

### 3.7 SWITCHABLE GLASS SCHEDULE

- A. Switchable Glass Type SWG-1: Interior Lite.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Pulp Studio, Inc.; SwitchLite<sup>TM</sup>, SWG-1 or comparable product.
  - 2. Installation: Four-side captive.
  - 3. Color: Clear.
  - 4. Joint Sealant Color: As selected by Architect.
- B. Insulating Switchable Glass Type SWG-2: Typical.
  - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Pulp Studio, Inc.; SwitchLite<sup>TM</sup>, SWG-2 or comparable product.
  - 2. Exterior Lite: Clear glass with soft-coat low-E coating on second surface.
  - 3. Switchable Interior Lite: SWG-1 as indicated in Part 2.

# END OF SECTION

#### SECTION 09 72 00 - WALL COVERINGS

# PART 1 - GENERAL

### 1.1 SUMMARY

- A. Section Includes:
  - 1. Vinyl Wallcovering.
  - 2. Magnetic Receptive Dry Erase Wallcovering.
- B. Related Requirements:
  - 1. Division 01 Specification Sections apply to Work of this Section.

### 1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

# 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include data on physical characteristics, durability, fade resistance, and fire-test-response characteristics.
- B. Samples for Verification: For each type of wall covering and for each color, pattern, texture, and finish specified, full width by 36 inches long in size.
  - 1. Wall-Covering Sample: From same production run to be used for the Work, with specified treatments applied.
    - a. Show complete pattern repeat.
- C. Product Schedule: For wall coverings.

#### 1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each wall covering, for tests performed by a qualified testing agency.

#### 1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For wall coverings to include in maintenance manuals.

#### 1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same production run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Wall-Covering Materials: For each type, color, texture, and finish, full width by length to equal to 5 percent of amount installed.



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# 1.7 QUALITY ASSURANCE

- A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for installation.
  - 1. Build mockups for each type of wall covering on each substrate required. Comply with requirements in ASTM F1141 for appearance shading characteristics.
  - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
- B. Manufacturer Qualifications: A qualified manufacturer that is certified for chain of custody by an FSC-accredited certification body.

### 1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install wall coverings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, Work above ceilings is complete, and HVAC system is operating and maintaining ambient temperature and humidity conditions at levels intended for occupants after Project completion during the remainder of the construction period.
  - 1. Wood-Veneer Wall Coverings: Condition spaces for not less than 48 hours before installation.
- B. Lighting: Do not install wall covering until lighting that matches conditions intended for occupants after Project completion is provided on the surfaces to receive wall covering.
- C. Ventilation: Provide continuous ventilation during installation and for not less than the time recommended by wall-covering manufacturer for full drying or curing.
- D. Deliver presentation wallcoverings to the project site in unbroken and undamaged originial factory packaging and clearly labeled with the manufacturer's identification label, quality or grade, and lot number.
- E. Store materials in a clean, dry storage area with temperature maintained above 55 degrees F with normal humidity.
- F. Store materials within original packaging to prevent damage.

# 1.9 WARRANTY

A. Submit manufacturer's limited 10 year written warranty against manufacturing defects.
#### PART 2 - PRODUCTS

#### 2.1 Fire-Test-ResponsPERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates in accordance with test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
  - 1. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
    - a. Flame-Spread Index: 25 or less.
    - b. Smoke-Developed Index: 450 or less.
  - 2. Fire-Growth Contribution: No flashover and heat and smoke release when tested in accordance with NFPA 265 and NFPA 286.

#### 2.2 VINYL WALL COVERING

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. MDC.

- B. Description: Provide vinyl products in rolls from same production run and complying with the following:
  - 1. FS CCC-W-408D for Type II, Medium Duty.
- C. Total Weight: 20 oz, per linear yd., excluding coatings.
- D. Width: 54 inches or 60 inches available.
- E. Backing: Osnaburg fabric.
  - 1. Fiber Content: Polycotton.
- F. Repeat: Random.
- G. Mildew Resistance: Rating of zero or 1 when tested in accordance with ASTM G21.
- H. Colors, Textures, and Patterns: Custom graphics to be designed by Parkhill and approved by Owner.

#### 2.3 MAGNETIC RECEPTIVE DRY ERASE WALLCOVERING

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
  - 1. Koroseal | Walltalkers | Mag-Rite 48.
- B. Description: Provide vinyl products in rolls from same production run and complying with the following:
  - 1. Woven backed, ferrous sheet bonded with white pigmented vinyl and capped with semi-gloss, dry erase film.
  - 2. Total Width: 47/48-inch.
  - 3. Laminate Thickness: 26 mills average.
  - 4. Fabric: Woven.
  - 5. Flammability Testing Class A: Pass.
  - 6. Repeat: Random.

C. Trim & Tray:

a.

- 1. J Cap Wallcovering Trim: JC12-00.
  - Clear satin, anodized aluminum, low profile trim.
    - 1) Use as few of pieces as possible for longer runs. Shorter runs shall be installed with a single piece where applicable.
- 2. Quantum Mag Tray: Aluminum blade style marker and eraser tray with magnetic backing:
  - a. Finish: White powder coated aluminum.
  - b. Length: 4-foot length.

#### 2.4 ACCESSORIES

- A. Adhesive: Mildew-resistant, nonstaining, strippable adhesive, for use with specific wall covering and substrate application indicated and as recommended in writing by wall-covering manufacturer.
- B. Primer/Sealer: Mildew resistant, complying with requirements in Section 09 91 23 "Interior Painting" and recommended in writing by primer/sealer and wall-covering manufacturers for intended substrate.
- C. Seam Tape: As recommended in writing by wall-covering manufacturer.

#### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates and installation conditions to ensure surface conditions meet or exceed a Level 4 finish, per GA-214-M-97: Recommended Levels of Gypsum Board Finish, and permanent lighting should be installed and operational.
- B. Test substrate with suitable moisture meter and verify that moisture content does not exceed 4 percent.
- C. Verify substrate surface is clean, dry, smooth, structurally sound, and free from surface defects and imperfections that would show through the finished surface.
- D. Evaluate all painted surfaces for the possibility of pigment bleed-through.
- E. Notify the contractor and architect in writing of any conditions detrimental to the proper and timely completion of the installation.
- F. Beginning of installation means acceptance of surface conditions.

#### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, and mildew.
- C. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.
  - 1. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
  - 2. Gypsum Board: Apply primer/sealer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.

- 3. Painted Surfaces:
  - a. Check for pigment bleeding. Apply primer/sealer to areas susceptible to pigment bleeding as recommended in writing by primer/sealer manufacturer.
  - b. Sand gloss, semigloss, and eggshell finishes with fine sandpaper.
- D. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.
- E. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

#### 3.3 INSTALLATION OF WALL COVERING

- A. Comply with wall-covering manufacturers' written installation instructions applicable to products and applications indicated.
- B. Acclimate wallcovering in the area of installation a minimum of 24 hours before installation.
- C. Examine all materials for pattern, color, quantity and quality, as specified for the correct location prior to cutting.
- D. Primer: Use a quality pigmented acrylic wallcovering primer.
- E. Adhesive: Apply a uniform coat of heavy-duty pre-mixed clay-based or extra strength clear wallcovering adhesive.
- F. Cut wall-covering strips in roll number sequence. Change the roll numbers at partition breaks and corners.
- G. Install strips in same order as cut from roll.
  - 1. For solid-color, even-texture, or random-match wall coverings, reverse every other strip.
- H. Install dry erase wallcovering sheets in exact order as they are cut from bolt. Reverse hang alternate strips (except lined products). Do not crease or bend the wallcovering when hanging.
- I. Install dry erase wallcovering horizontally using a level line.
- J. Using a level or straight edge, double cut the seam with a seam cutting tool (Ex: Double Sea-Cutter or Swedish Knife). Do not score drywall or plasterboard when cutting material.
- K. When covering the entire wall, seam the material out of the main writing and viewing areas of the wall.
- L. Apply wallcovering to the substrate using a wallcovering smoother, wrapped with a soft cloth, to remove air bubbles. Do not use sharp edged smoothing tools. Smooth material on the wall from the middle to the outside edge.
- M. Remove excess adhesive immediately after the wallcovering is applied. Clean entire surface with a warm mild soap solution, and clean soft cloths. Rinse thoroughly with water and let dry before using. Change water often to maintain water clarity.
- N. Stop installation of material that is questionable in appearance and notify the manufacturer's rep for an inspection.
- O. Install wall covering without lifted or curling edges and without visible shrinkage.
- P. Match pattern 72 inches above the finish floor.
- Q. Install seams vertical and plumb at least 6 inches from outside corners and 6 inches from inside corners unless a change of pattern or color exists at corner. Horizontal seams are not permitted.
- R. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without overlaps or gaps between strips.
- S. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.

#### 3.4 CLEANING

- A. Remove excess adhesive at seams, perimeter edges, and adjacent surfaces.
- B. Use cleaning methods recommended in writing by wall-covering manufacturer.
- C. Replace strips that cannot be cleaned.
- D. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

#### END OF SECTION

#### SECTION 09 91 23 - INTERIOR PAINTING

#### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
  - 1. Surface preparation and the application of paint systems on the following interior substrates: 01/06/2022
    - a. Concrete masonry units (CMU).
    - b. Steel.
    - c. Cast iron.
    - d. Galvanized metal.
    - e. Aluminum (not anodized or otherwise coated).
    - f. Gypsum board.
    - g. Spray-textured ceilings.
- B. Related Requirements:
  - 1. Division 01 Specification Sections apply to Work of this Section.
  - 2. Section 09 91 13 "Exterior Painting" for surface preparation and the application of paint systems on exterior substrates.

#### 1.2 DEFINITIONS

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523, a matte flat finish.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, a high-side sheen flat, velvet-like finish.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523, an eggshell finish.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523, a satin-like finish.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523, a semi-gloss finish.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523, a gloss finish.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- C. Product List: For each product indicated, include the following:
  - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
  - 2. VOC content.



#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
  - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Handling: Deliver products to Project site in an undamaged condition in manufacturer's original sealed containers, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Packaging shall bear the manufacturer¢s label with the following information:
  - 1. Product name and type (description).
  - 2. Batch date.
  - 3. Color number.
  - 4. VOC content.
  - 5. Environmental handling requirements.
  - 6. Surface preparation requirements.
  - 7. Application instructions.
- B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 degrees F.
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 degrees F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 degrees F above the dew point; or to damp or wet surfaces.

- C. Lead Paint: It is not expected that lead paint will be encountered in the Work.
  - 1. If suspected lead paint is encountered, do not disturb; immediately notify Architect and Owner.
- D. Lead Paint: Lead paint may be present in buildings and structures to be painted. A report on the presence of lead paint is on file for review and use. Examine report to become aware of locations where lead paint is present.
  - 1. Do not disturb lead paint or items suspected of containing hazardous materials except under procedures specified.
  - 2. Perform preparation for painting of substrates known to include lead paint in accordance with EPA Renovation, Repair and Painting Rule and additional requirements of authorities having jurisdiction.

#### PART 2 - PRODUCTS

#### 2.1 PAINT, GENERAL

- A. Standards: Provide products that comply with Manufacturers Premium 1<sup>st</sup> Quality standards indicated and like VOC limits.
- B. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with 1 another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. Colors: As indicated in a color schedule.

#### 2.2 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
  - 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
  - 2. Testing agency will perform tests for compliance with product requirements.
  - 3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the 2 paints are incompatible.

#### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers. Where acceptability of substrate conditions is in question, apply samples and perform in-situ testing to verify compatibility, adhesion, and film integrity of new paint application.
  - 1. Report, in writing, conditions that may affect application, appearance, or performance of paint.
- B. Substrate Conditions:
  - 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
    - a. Concrete: 12 percent.
    - b. Masonry (Clay and CMU): 12 percent.
    - c. Wood: 15 percent.
    - d. Gypsum Board: 12 percent.
    - e. Plaster: 12 percent.
  - 2. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
  - 3. Plaster Substrates: Verify that plaster is fully cured.
  - 4. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected; application of coating indicates acceptance of surfaces and conditions.

#### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  - 1. SSPC-SP 2, "Hand Tool Cleaning."
  - 2. SSPC-SP 3, "Power Tool Cleaning."
  - 3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
  - 4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- H. Aluminum Substrates: Remove loose surface oxidation.

#### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  - 1. Paint the following Work where exposed in equipment rooms:
    - a. Equipment, including panelboards and switch gear.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Tanks that do not have factory-applied final finishes.
    - Paint the following Work where exposed in occupied spaces:
      - a. Equipment, including panelboards.
      - b. Uninsulated metal piping.
      - c. Uninsulated plastic piping.
      - d. Pipe hangers and supports.
      - e. Metal conduit.
      - f. Plastic conduit.
      - g. Other items as directed by Architect.
  - 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

2.

#### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

#### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect Work of other trades against damage from paint application. Correct damage to Work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

#### 3.6 INTERIOR PAINTING SCHEDULE

- A. CMU Substrates:
  - 1. Latex System:
    - a. Block Filler: Block filler, latex, interior/exterior: S-W PrepRite Block Filler, B25W25, at 100 to 200 sq. ft. per gal.
    - b. Intermediate Coat: Latex, interior, matching topcoat.
    - c. Topcoat: Latex, interior, flat (Gloss Level 1): S-W ProMar 200 Zero VOC Latex Flat, B30-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
    - d. Topcoat: Latex, interior, low sheen (Gloss Level 2): S-W ProMar 200 Zero VOC Latex Low Sheen Enamel, B24-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
    - e. Topcoat: Latex, interior, eggshell (Gloss Level 3): S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series, at 4.0 mils wet, 1.7 mils dry, per coat.
    - f. Topcoat: Latex, interior, semi-gloss (Gloss Level 4): S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series, at 4.0 mils wet, 1.6 mils dry, per coat.
    - g. Topcoat: Latex, interior, gloss (Gloss Level 5): S-W ProMar 200 Latex Gloss, B11-2200 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
  - 2. Water-Based Light Industrial Coating System:
    - a. Block Filler: Block filler, latex, interior/exterior: S-W PrepRite Block Filler, B25W25, at 100 to 200 sq. ft. per gal.
    - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    - c. Topcoat: Light industrial coating, interior, water based, eggshell (Gloss Level 3): S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

- d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5): S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
- 3. Concrete Stain System (Water-based):
  - a. First Coat: S-W H&C Concrete Stain Solid Color Water Based, at 50 to 300 sq. ft. per gal.
  - b. Second Coat: S-W H&C Concrete Stain Solid Color Water Based, at 50 to 300 sq. ft. per gal.
- B. Metal Substrates (Aluminum, Steel, Galvanized Steel):
  - 1. Latex System:
    - a. Prime Coat: Primer, rust-inhibitive, water based: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10 mils wet, 2.0 to 4.0 mils dry.
    - b. Intermediate Coat: Water-based acrylic, interior, matching topcoat.
    - c. Topcoat: Water-based acrylic, semi-gloss (Gloss Level 5): S-W Pro Industrial Acrylic Semi-Gloss Coating, B66-650 Series, at 2.5 to 4.0 mils dry, per coat.
    - d. Topcoat: Water-based acrylic, gloss (Gloss Level 6): S-W Pro Industrial Acrylic Gloss Coating, B66-660 Series, at 2.5 to 4.0 mils dry, per coat.
  - 2. Water-Based Dry-Fall System:
    - a. Top Coat: Dry-fall latex, flat: S-W Pro Industrial Waterborne Acrylic Dryfall Flat, B42-80 Series, at 6.0 mils wet, 1.7 mils dry.
    - b. Top Coat: Dry-fall latex, eggshell: S-W Pro Industrial Waterborne Acrylic DryFall Eg-Shel, B42-2 Series, at 6.0 mils wet, 1.9 mils dry.
    - c. Top Coat: Dry-fall latex, semi-gloss: S-W Pro Industrial Waterborne Acrylic DryFall Semi-Gloss, B42-80 Series, at 5.8 mils wet, 2.3 mils dry.
  - 3. Water-Based Light Industrial Coating System:
    - a. Prime Coat: Primer, rust-inhibitive, water based: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
    - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
    - c. Topcoat: Light industrial coating, interior, water based, eggshell (Gloss Level 3): S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K45-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
    - d. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5): S-W Pro Industrial Pre-Catalyzed Water Based Epoxy, K46-151 Series, at 4.0 mils wet, 1.5 mils dry, per coat.
  - 4. Acrylic/Alkyd System:
    - a. Prime Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series, at 5.0 to 10.0 mils wet, 2.0 to 4.0 mils dry.
    - b. Intermediate Coat: Water-based acrylic-alkyd, interior, matching topcoat.
    - c. Topcoat: Water-based acrylic-alkyd, semi-gloss, interior: S-W ProMar 200 Waterbased Acrylic-Alkyd Semi-Gloss, B34-8200 Series, at 4.0 mils wet, 1.7 mils dry, per coat.
    - d. Topcoat: Water-based acrylic-alkyd, gloss, interior: S-W ProMar 200 Waterbased Acrylic-Alkyd Gloss, B35-8200 Series, at 4.0 mils wet, 1.7 mils dry, per coat.

#### END OF SECTION

# THE UNIVERSITY OF TEXAS PERMIAN BASIN **CENTER FOR ENERGY AND ECONOMIC** DIVERSIFICATION **CEED BUILDING RENOVATIONS** N 1310 FM 1788 Midland, Texas 79707





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1. A	Iternate No. <0>01: CEED Building Office Wing Renovation.: Base Bid: All conditions noted in area call out to remain as-is in lieu

1.	Alternate No. <0>01: CEED Building Office Wing Renovation.:
	A. Base Bid: All conditions noted in area call out to remain as-is in lieu of Work
	indicated on Drawings A101 DEMOLITION FLOOR PLAN I-111 FINISH FLOOR
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	B. Alternate: Remove and replace flooring, finishes, ceilings, and lighting. Salvage
	and reinstall mechanical diffusers. Work is as indicated on Drawings A-101
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	WALL FINISH ALT. 01, E111 LIGHTING PLAN - AREA A.
2.	Alternate No. <0>02: CEED Building Glass Privacy System:
	A. Base Bid: Provide Manual Roller shades as indicated on Drawings I-001-
	INTERIOR LEGENDS & ABBREVIATIONS, I-121WALL FINISH PLAN- AREA A
	and as specified in Section 12 24 13 "Roller Window Shades."
	B. Alternate 02A: Provide switchable smart glass as indicated on Drawings A-101
	DEMOLITION FLOOR PLAN-AREA A, A-111 ANNOTATED/DIMENSIONAL
	FLOOR PLAN- AREA A, I-121- WALL FINISH PLAN- AREA A, E-121 POWER
	PLAN AREA-A and as specified in Section 08 88 36.71 "Switchable Glass."
	C. Alternate 02B: Provide Power Roller shades in lieu of manual roller shades as
	indicated on Drawing I-001 INTERIOR LEGENDS & ABBREVIATIONS, E-121
	POWER PLAN AREA-A and as specified in Section 12 24 13 "Roller Window
	Shades."
3.	Alternate No. <0>03: Dunagan Library Ceilings:
	A. Base Bid: Existing ceilings in areas noted within Alt 03 area call-out on sheet
	A-104-FIRST FLOOR DEMOLITION REF CEILING PLAN to remain as is and no
	be demolished.
	B. Alternate: Remove and replace existing ceiling system as indicated on Drawings
	A-104 FIRST FLOOR DEMOLITION REF CEILING PLAN, A-132 FIRST FLOOR
	REFLECTED CEILING PLAN- AREA B, and E-112 ELECTRICAL LIGHTING
	PLAN and as specified in Section 02 41 19 "Selective Demolition", Section 09 51











# LEGEND



CENTER/

1 653 S





# D5 UTPB SIGNAGE "EXHIBIT A"

NUMBER	ROOM NAME	SIGN TYPE	MESSAGE	REMARK
101	Room			
101	Room			
102	RECEPTION			
101A	SBDC SUITE			
102	OFFICE			
104	OFFICE			
106	OFFICE			
108	FILES			
110	OFFICE			
112				
114	OFFICE			
118	OFFICE			
120	OFFICE			
202	AUDITORIUM			
202-A	STORAGE			
202-B	ELECT			
204	EQUIPMENT			
206	BOARD ROOM			
206-A	STORAGE			
208	SERVING			
∠10  210_Δ				
210-A	FREEZER COOLER			
210-F	RESTROOM			
I210-H	RESTROOM			
212	WOMEN RR			
214	MEN RR			
216	JANITOR'S RM			
217	Room			
218	Room			
301	BUSINESS & INDUSTRY INCUBATOR			
302	OFFICE			
1303				
1304				
1305				
1307	OFFICE			
1308	OFFICE			
1309	OFFICE			
1310	OFFICE			
1311	PRINTER			
1312	ELECT			
1314	MBA EXEC CLASSROOM			
314A	CHAIR STORAGE			
1316	MULTIPURPOSE WET TEACHING LAB			
1318				
1322				
1324	MAKER SPACE SUITE			
1324				
324B	OFFICE			
1324C	OFFICE			
1324D	OFFICE			
1324E	OFFICE			
1324F	OFFICE			
333	STOR			
410	TWEI PROCESS ROOM			
1412	TEXAS WATER AND ENERGY INSTITUTE LAB			
412				
414				
418				
420	FLECT			
422	ADVANCED MANUFACTURING CENTER/ MAKER SPACE			
422A	AMC MANAGER			
422B	ELECT			
422C	TELE			
1	CORRIDOR			
2	CORRIDOR			
43	CORRIDOR			
BL	CORRIDOR			
Ľ	CORRIDOR			
R	CORRIDOR			

A1 / A-111

A1 / A-112















A DMENSIONS ARE TO FACE OF STUD, CAUL, OR CENTERLINE OF STRUCTURES.   CAT1 COORDINATE WITH MEP DRAWINGS FOR LOCATIONS OF FRATURES.   CAT1 COORDINATE WITH MEP DRAWINGS FOR LOCATIONS OF FRATURES.   CAT2 COORDINATE WITH MEP DRAWINGS SHALL BEF 34. SHEET BY ARE PROTECTIC   DENOISER AND ARCHITECT. C. CONTRACTIONS AND FOOL PRATURES.   CAT2 C. CONTRACTOR ELEXATIONS AND FOOL PRATURES.   DENOISER AND ARCHITECT. C. CONTRACTIONS AND FOOL PRATURES.   EXISTING TO REMAIN C. CONTRACTIONS AND FOOL PRATURES.   EXISTING TO REMAIN C. CONTRACTIONS AND FOOL PRATURES.   DENOTES SOUND INSULATION C. CONTRACTIONS AND FOOL PRAST ACCOUNCIL GRALLES AND CO	_	LEGE	END		GE	NERAL NOTES
ACT 1       ACT 1         ACT 1       ACT 1         ACT 1       ACT 2         ACT 2       Contract Contend Contract Contend Contract Contract Cont			GYPSUM WALL BOARD CEILING		А. В.	DIMENSIONS ARE TO FACE OF STUD, CMU, OR CENTERLINE OF STRUCTURE UNO. COORDINATE WITH MEP DRAWINGS FOR LOCATIONS OF FIXTURES. LOCATE AS SHOWN ON ARCHITECTURAL PLANS AND DETAILS. NOTIFY
ACT 2 ACT 2 EXISTING TO REMAIN EXISTING CONDITION AS A RESULT OF CONSTRUCTION. EXISTING CONSTRUCTED BY: (#) — — — — — — — — — — — — — — — — — — —			ACT 1		C. D.	ARCHITECT OF CONFLICTS PRIOR TO CONSTRUCTION. FINAL SPRINKLER HEAD LOCATIONS SHALL BE SET BY FIRE PROTECTION ENGINEER AND APPROVED BY ARCHITECT. CENTER DEVICES, SPRINKLER HEADS, ETC. IN CEILING TILES UNO.
<ul> <li>EXISTING TO REMAIN</li> <li>DENOTES SOUND INSULATION</li> <li>1'X 4' LIGHT FIXTURE (EXISTING)</li> <li>1'X 4' LIGHT FIXTURE (EXISTING)</li> <li>1'X 4' LIGHT FIXTURE (EXISTING)</li> <li>2'X 4' LIGHT FIXTURE (DEMO)</li> <li>RETURN AIR GRILL (EXISTING)</li> <li>2'X 4' LIGHT FIXTURE (DEMO)</li> <li>RETURN AIR GRILL (EXISTING)</li> <li>2'X 4' LIGHT FIXTURE (DEMO)</li> <li>RETURN AIR GRILL (EXISTING)</li> <li>2'X 4' LIGHT FIXTURE (DEMO)</li> <li>RETURN AIR GRILL (EXISTING)</li> <li>2'X 4' LIGHT FIXTURE (DEMO)</li> <li>RETURN AIR GRILL (EXISTING)</li> <li>2'X 4' LIGHT FIXTURE (DEMO)</li> <li>RETURN AIR GRILL (EXISTING)</li> <li>RETURN AIR GRILL (DEMO)</li> <li>RETURN AIR GRILL (DEMO)</li> <li>RETURN AIR GRILL (DEMO)</li> <li>RETURN AIR GRILL (EXISTING)</li> <li>RETURN AIR GRILL (DEMO)</li> <li>RETURN AIR GRILL</li></ul>			ACT 2		E. F.	CEILING HEIGHTS SHALL BE 9' - 4" ABOVE FINISHED FLOOR UNO. REFER TO INTERIOR ELEVATIONS AND ROOM FINISH SCHEDULE FOR ADDITIONAL INFORMATION CONCERNING HEIGHTS, CEILING MATERIALS AND FURRED CEILINGS.
EXISTING TO REMAIN       H.       REMOVE AND REPLACE CEILING AS NECESSARY FOR FIRE SPRINKLER INSTALLATION REPLACE ADDRORE REPLACE CEILING AS NECESSARY FOR FIRE SPRINKLER INSTALLATION REPLACE ADDRORE REPLACE CEILING AS A RESULT OF CONSTRUCTION.            •••••••••••••••••••••••••••••			EXISTING TO REMAIN		G.	AT LOCATIONS OF PERFORATED RETURN AIR GRILLES, WIRING, CABLING, ETC. TO BE HELD CLEAR OF OPEN LINE OF SIGHT THROUGH GRILLE. IN CASES WHERE THIS IS UNAVOIDABLE, ITEMS VISIBLE ABOVE GRILLE ARE TO BE PAINTED FLAT BLACK.
DENOTES SOUND INSULATION         1'X 4' LIGHT FIXTURE (EXISTING)       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII			EXISTING TO REMAIN		H.	REMOVE AND REPLACE CEILING AS NECESSARY FOR FIRE SPRINKLER INSTALLATION REPAIR AND/OR REPLACE CEILINGS AS REQUIRED TO EXISTING CONDITION AS A RESULT OF CONSTRUCTION.
1*X4*LIGHT FIXTURE (EXISTING) 1 × X4*LIGHT FIXTURE (DEMO)   2*X4*LIGHT FIXTURE (EXISTING) 2 × X4*LIGHT FIXTURE (DEMO)   RETURN AIR GRILL (EXISTING) 1 RETURN AIR GRILL (DEMO)   SUPPLY GRILL (EXISTING) 1 SUPPLY GRILL (DEMO)   PROJECTOR (EXISTING) 1 PROJECTOR (DEMO)   PROJECTOR (EXISTING) 2 PROJECTOR (DEMO)   SPEAKER (EXISTING) 9 PROJECTOR (DEMO)   NOT IN SCOPE REMOVE CELLING PANELS AND			DENOTES SOUND INSULATION			
2 X 4' LIGHT FIXTURE (EXISTING) 2' X 4' LIGHT FIXTURE (DEMO)   RETURN AIR GRILL (EXISTING) RETURN AIR GRILL (DEMO)   Image: SUPPLY GRILL (EXISTING) Image: SUPPLY GRILL (DEMO)   Image: PROJECTOR (EXISTING) Image: SPEAKER (DEMO)   Image: SPEAKER (EXISTING) Image: SPEAKER (DEMO)   Image: Not IN SCOPE Image: Remove celling panels and Grild in its entirety			1' X 4' LIGHT FIXTURE (EXISTING)	[ ] 1' X 4' LIGHT FIXTURE (DEMO)		
RETURN AIR GRILL (EXISTING) RETURN AIR GRILL (DEMO)   SUPPLY GRILL (EXISTING) SUPPLY GRILL (DEMO)   PROJECTOR (EXISTING) PROJECTOR (DEMO)   PROJECTOR (EXISTING) PROJECTOR (DEMO)   SPEAKER (EXISTING) SPEAKER (DEMO)   NOT IN SCOPE REMOVE CEILING PANELS AND CRIDIN ITS ENTIRETY			2' X 4' LIGHT FIXTURE (EXISTING)	2' X 4' LIGHT FIXTURE (DEMO)		
Image: Supply GRILL (EXISTING)       Image: Supply GRILL (DEMO)       AS INDICATED BY: Image: AS INDI			RETURN AIR GRILL (EXISTING)	RETURN AIR GRILL (DEMO)	KF.	YNOTES
PROJECTOR (EXISTING)       PROJECTOR (DEMO)       220 GYP BD 320 MTL STUD         SPEAKER (EXISTING)       SPEAKER (DEMO)       WTL STUD         NOT IN SCOPE       REMOVE CEILING PANELS AND GRID IN ITS ENTIRETY       VEXTOR IN SCOPE			SUPPLY GRILL (EXISTING)	SUPPLY GRILL (DEMO)	AS INI 42	DICATED BY: # GYP FUR DOWN TO HOUSE FIRE SUPPRESSION SYSTEM - PER DETAIL D4/A-521
Image: SPEAKER (EXISTING)       Image: SPEAKER (DEMO)         Image: Not in scope       Image: Speaker (DEMO)         Image: Speaker (DEMO)       Image: Speaker (DEMO) </th <th></th> <th></th> <th>PROJECTOR (EXISTING)</th> <th>PROJECTOR (DEMO)</th> <th>220 320</th> <th>GYP BD MTL STUD</th>			PROJECTOR (EXISTING)	PROJECTOR (DEMO)	220 320	GYP BD MTL STUD
NOT IN SCOPE REMOVE CEILING PANELS AND GRID IN ITS ENTIRETY		O	SPEAKER (EXISTING)	() SPEAKER (DEMO)		
			NOT IN SCOPE	REMOVE CEILING PANELS AND GRID IN ITS ENTIRETY		







	KEY	Manufacturer/Model	Size (L/D/H)"	Weight (Ibs	) FLOOR/BEN CH	Power (Volt/Hz/Ph)	Data Exhaust	Gas (outlet type)	Water	Drain to	Vibration Isolation	Specified by	Provided by	Installed by	<u>New, Existing, or</u> <u>Future</u>	Remarks
Multipurpose Wet Teaching Lab	W/01	Air Vacuum water and drain	72"37 7"v50"	600	Floor	115V 10A 1 150W 50/60Hz	No Yes	NG	Ves	Tank		Parkhill	Contractor	Contractor	New	
Gas Safety Cabinet	W01	Design Basis: Safety Equipment 7300	36"x18"x75"	-	Floor	As required for exhaust	6" Stainless Ste		163	Tank	-	A/E	Contractor	Contractor	New	Multiple separate chambers- 2-3 chambers, exhaust. SS ductir
Worktable Furnace (Option 1)	W03	Nabertherm LT 9/13 High temperature	18"x22.5"x21"	_	Bench	240V-3000Watts (standard NEMA plug)	Hot air expelled fr - rear wall of furnac	om e to -			_	Owner	Owner	Owner	Existing	Verify options with end user
		Muttle Furnace with C450 Controller				, , , , , , , , , , , , , , , , , , ,	room									
Advanced Manufacturing Center Compact CNC	M01	Tormach/PCNC440	42"x36"x72"	600	Floor	Single Phase 115 Vac, 50/60HZ, 15A	Yes -	-		-	_	Owner	Owner	Vendor	Future	
Desktop CNC Milling Machine	M02	Bantam Tools	19.8"x20.9"x19.4"	-	Bench	100-240 V AC 50/60Hz 350W	No -	-	-	-	-	Owner	Owner	Vendor	Future	
CNC Master	M03	Barron Mill	42"x42"x72"	800lbs	Floor	2HP 208,220-240vac Single Phase, VFY w/ Owner-Contact Engineer	Yes -	-	-	-	-	Owner	Owner	Vendor	Future	Multiple options- Verify with owner
Glove Box	M04	Design Basis: Genesis VAC 109035	72.5"x33.5"x70.5"	800lbs	Floor	115V or 230V, 50-60HZ operation, VFY w/Owner- Contact Engineer	Yes 4" Snorkel	-	-	-	-	Owner	Owner	Owner	Future	
3D Metal Printer	M05	Markfordged Metal X1	22.7"x18.4"x44.1"	160	Floor	100-120/200-240VAC (12A/6A), IEC 60320 type C20	WiFi	-	-	-	-	Owner	Owner	Vendor	Existing	Multiple options- Verify with owner
Metal Printer Wash-1	M05b	Markforged Wash-1	24"x27"x42"	300	Floor	110-120 VAC single phase, 11A/1320W peak draw	- external	-	Yes	VFY	-	Owner	Owner	Vendor	Existing	
Metal Printer Furnace	M05c	Markforged Sinter-1	54"x32"x60"	772	Floor	200-240V, Single Phase-6kVA(30A FLA)-MOCP=40A, VFY w/Owner- Contact Engineer	- external (100-1500	FM) Argon, Argon/Hydrogen mix	-	-	-	Owner	Owner	Vendor	Existing	
3D Printer	M06	Stratasys/ Fortus 380mc	51"x35.5"x78.1"	1325	Floor	208VAC 3PH, 50/60Hz 18A	Yes -	-	-	-	-	Owner	Owner	Vendor	Existing	
Carbon Fiber 3D Printer	M07	Markforged/Mark2	23"x13"x14"	35	Bench	100-240 VAC, 150 W (2Apeak)	Yes -	-	-	-	-	Owner	Owner	Vendor	Existing	
Manufacturing Workstation (3D Printer)	M08	Makerbot/Method X	17.2"x16.3"x25.6"	65	Bench	100-240V, 8.1A-3.4A, 50/60Hz (800 W Max)	Yes -	-	-	-	-	Owner	Owner	Vendor	Existing	
3D Printer	M09	Stratasys J826	40.9"x 31.1"x 51.6"	851	Floor	100-200V, 50-60Hz, 7A 1PH; 200-240V, 50-60Hz 3.5A 1PH	Yes 4"	-	-	-	-	Owner	Owner	Vendor	Existing	
	Nuosa 2		20.4 X 25.2 X 43.3	335	FIOOT		(2) 4" ports (500C	FM NEX O such as Analytic st				Owner	Owner	Vendor	Existing	
Laser Cutter	MIU		44"X36"X39"	325	Floor	110V/10A; 220-240V/ 5A	Yes @6" static pressu	re) VFY- Contact Architect	-	-	-	Owner	Owner	Vendor	Existing	
Vacuum Forming Machine	M11 M12	Formech/686	34"x25.5"x48" [+21"x15"x11" Pump Box] 37.8"x76"x46.9"	573.2	Floor	208V-230V, 3 wire, 2PH+Ground (8KW consumption)		-	Yes	Basin	-	Owner	Owner	Vendor	Future	
Injection Molding Machine	M13	MPM/Mini-jector Model #55P	VFY w/ Owner- Contact Architect	-	Floor	230V 1/3PH; (19.5-22.15A consumption)		-	-	-	-	Owner	Owner	Vendor	Future	Cut sheet does not specify size
High Temperature Chamber Furnace	M14	Carbolite/ HTF1710-230SN	22.3"x32.6"x33.5"	293.2	Bench	230V 1PH, 32A		-	-	-	-	Owner	Owner	Vendor	Future	
Gravity Convection Incubator	M15	Thermo Scientific 3525A	17.5"x18"x23"	90	Bench	240V 50/60Hz, 100w; 4.2A	<u> </u>	-	-	-	-	Owner	Owner	Vendor	Future	
Worktable	M10	Existing	24"x24"	-	Floor	110	Yes -	-	-	-	-	Owner	Owner	Owner	Existing	
Universal Testing Machine	T01	Instron/68TM-5	30"x28"x86"	340	Small Table	100-240V/12A/47-63Hz 1Ph	Yes -	-	-	-	-	Owner	Owner	Vendor	Future	
Testing Machine Torsion Add-on	T02	Instron/2.0 Kit	Contact Architect	-	UTM	120-240V/?A/47-63Hz 1 Ph		-	-	-	-	Owner	Owner	Vendor	Future	Mounts to testing Machine
Testing Machine Accessories	T03	Instron Accessories	VFY w/Owner- Contact Architect	-	UTM	-		-	-	-	-	Owner	Owner	Vendor	Future	Mounts to testing Machine
Testing Machine Accessories	T04	Instron/ 5895	44.5 x30.5 x109.2 Small	-	Cabinet	Assumed no additional power, VFY w/Owner- Contact Engineer		-	-	-	-	Owner	Owner	Vendor	Future	Accessories to be placed in lockable cabinet
Electric Dynamic Test Instrument	T06	Instron E3000	28"x18"x68"	628	Floor	200-240 VAC 16A 1PH 50/60Hz	Yes -	-	-	-	-	Owner	Owner	Vendor	Future	
Impact Drop Tower System Melt Flow Testers	T07	Instron/9450	40"x34"x107"	1212	Floor	200-240V/16A/50-60hz 1Ph 115-230V/9A/50-60Hz	Yes -	72.5psi compressed air	-	-	-	Owner	Owner	Vendor	Future	Owner to verify options
High Resolution Atomic Force Microscope	T09	AFM Workshop/ HR AFM	9"x11"x20"	243	Isolation	110-220V/3A/60Hz 1Ph	Yes -					Owner	Owner	Vendor	New	Glass box and slab isolation table to be owner provided as we
Optical Microscope	T10	VFY w/Owner- Contact Architect	VFY w/Owner- Contact Architect	-	I able Bench	VFY w/Owner- Contact Engineer		-	-	-	-	Owner	Owner	Vendor	Future	Microscope not yet selected- Assumed typical power and small s
Handheld 3D Scanner	T11	Artec/Space Spider	7.5"x5.5"x5.1"	1.8	Shelf	USB port on Computer		-	-	-	-	Owner	Owner	Owner	Future	
Mounted Infrared Camera	T12	Fluke/ RSE 300 Kevence/ LK-G3000	3.3"x3.3"x6.5"	2.2	Cabinet	120V/5A, VFY w/Owner- Contact Engineer	Yes -	-	-	-	-	Owner	Owner	Owner	Future	To be stored in lockable cabinet
Probe Coordinate Measuring Machine	T14	Keyence/XM Series	23.62"x11.81"x7.87"	105	Cabinet	120-240V/2A/50-60Hz	Yes -	-	-	-	-	Owner	Owner	Owner	Future	
Handheld Measurement Device	T15	_	handheld	_	Cabinet	_		-	_	_	_	Owner	Owner	Owner	Future	Small device to be stored in lockable cabinet- VFY w/Owner- Cor
Taxaa Watar and Energy Institute Lab																Architect
	001	TPD	Divided 500 horrel tanks sutside assured	4					Truck			Owner	Ourpor	Ourpor	New	These are suitaide the scene of this preject
	QUI			- u	-	-		-	Pump from	- -	-	Owner	Owner	Owner	Inew	
	Q02	IBD	12' diameter x 15' tall	-	-	-		-	Q22	Iruck	-	Owner	Owner	Owner	New	I o be located by owner- not part of contract
Inductiove Couples Plama-Optical Emission Spectroscopy	Q03	Thermo Scientific/ ICAP 7400	33"x30"x25"	188	Bench	200-240V (20A) Nema plug and rec: (L6-20P;L6-20R)	Wifi 5" 500-600CFM fre	e air Argon tank adjacent	Q03C	-	-	Owner	Owner	Vendor	Existing	Refernece Site Prep Checklist- Available from upon request
Spectroscopy Computer (Data Station)	Q03B	Auto Sampler	19.5"x14.5"x21.25" VFY w/Owner- Contact Architect	-	Bench	(4) 110V	Yes -	-	-	-	-	Owner	Owner	Vendor	Existing	
Spectroscopy Chiller	Q03C	Thermo Scientific	VFY w/Owner- Contact Architect	VFY	Floor	VFY w/Owner- Contact Architect		-	-	SS	-	Owner	Owner	Vendor	Existing	Existing to be relocated- Verify systems and contact architect
Total Organic Carbon Analyzer	Q04	Shimadzu/ TOC-L	19"x13.5"x26"	77	Bench	110 V (#2LB5-3), VFY w/Owner- Contact Architect	Wifi -	Zero Air (Compressed Air)	-	-	-	Owner	Owner	Vendor	Existing	
Total Organic Carbon Analyzer Auto Sampler	Q04B	Shimadzu/TOC-L/ASI-L	19.5"x14.5"x21.25"	31	Bench	Comes from TOC-L (Q04)		-	-	-	-	Owner	Owner	Vendor	Existing	See Site Prep Checklist
Ion Chromatography System	Q05	Thermo Scientific/ Dionex Aquion	8.8"x21"x22.1"+ (48"X30" Clear floor space)	54	Bench	110 V (#2LB5-29)	Wifi -	-	DI	-	-	Owner	Owner	Vendor	Existing	Refernece Site Prep Checklist
Ion Chromatography System Auto Sampler (AS-DV)	Q05B	Thermo Scientific/ Dionex Aquion Auto	17.5"x21"x9"	51	Bench	110 V		-	-	-	-	Owner	Owner	Vendor	Existing	
					Vibration											
Scanning Electron Microscope	Q06	Thermo Scientific/ Prisma E	35x50x64.6	-	Bench if testing	230 V – 50/60 Hz #Single phase EMO box"	Wifi -	-	-	-	Yes	Owner	Owner	Vendor	Existing	Provide Plex Case around, can case move with micrcope? What the amperage and NEMA Plug type required?
Pacticulant	007	Mucomotor			warrants	Potten						Owner	Owner	Vandar	Eviating	
Fourier Transform Infrared Spectroscopy	Q07 Q08	Agilent Tech	Small	-	Bench	110 V			-	-	-	Owner	Owner	Vendor	Existing	
Ultraviolet-Visible Spectrophotometer	Q09	Agilent Tech/ UV Vis Spectroscopy	19.5"x14.5"x21.25" (39.5"x39.5")	80	Bench	110 V (#2LB5-26)		-	-	-	-	Owner	Owner	Vendor	Existing	Refernece Site Prep Checklist
pH meter	Q10	Mettler Toledo	Small plus workspace (39.5"x39.5")	-	Bench	110 V (#2LB5-9)		-	-	-	-	Owner	Owner	Vendor	Existing	
Density Meter	Q12	Mettler Toledo	Small plus workspace (78.75"x39.5")	-	Bench	110 V (#2LB5-25)		-	-	-	-	Owner	Owner	Vendor	Existing	
Refrigerator	Q13	Fisher	Double refrigerator	-	Bench	115V 60HZ		-	-	-	-	Owner	Owner	Vendor	Existing	
Oven	Q14	Thermo	22.2"x25.2"x32.3", VFY w/Owner- Contac Architect		Bench	240 V (#2LB5-10,12), VFY w/Owner- Contact Architect	VFY w/Owner- Cor	-	-	-	-	Owner	Owner	Vendor	Existing	Existing to be relocated- Verify systems and contact architect
Microscope	Q15	Laxco	Small plus workspace (78.75"x39.5")	-	Bench	110 V(2LB5-9)		-	-	-	-	Owner	Owner	Vendor	Existing	
Centrifuge	Q18 Q17	Fisher	Small plus workspace (78.75 x39.5 ) Small plus workspace (78.75"x39.5")	-	Bench	- 110 V		-	-	-	-	Owner	Owner	Vendor	Existing	
Workstation (4)	Q18	Dell	Desktop Computer	-	Bench	110 V	Yes -	-	-	-	-	Owner	Owner	Vendor	-	
Furne Hand	001		TOD		Floor		VFY w/Owner- Co	itact	VFY w/Owner-	VFY w/Owner-		0	Demen	Daman	Neur	Europe based for DAE. Noteda to be usuified with sum or
	QZI		עסו	-	FIOOI	VFY W/Owner-Contact Architect	Architect	VFY W/Owner-Contact Archited	Contact Architect	Contact Architect	-	Owner	Donor	Donor	INEW	Fume nood for DAF- needs to be verified with owner.
Dissolved Air Flotation	Q22	Ripple 3	14'x6'-9"x8'-1"	4050	Floor	480VAC 3PH, 60Hz, 60Amps by XRI	VFY w/Owner- Con	tact 80PSI Compressed Air	8.0GPH/30ps	.i -	_	Donor	Donor	Donor	New	Donated equipment- VFY Systems needed with Owner/Dono
Chemical pumps	Q22B	By XRI	VFY w/Owner- Contact Architect			110 V		-	-	-	-	Donor	Donor	Donor	New	Donated equipment- VFY Systems needed with Owner/Dono
Input/Output Pumps	Q22C	By XRI	VFY w/Owner- Contact Architect			480VAC 3PH, 60Hz, 60Amps by XRI		-	-	-	-	Donor	Donor	Donor	New	Donated equipment- VFY Systems needed with Owner/Dono
Corrrosive Substances Cabinet	Q23	Fume Hood, VFY w/Owner- Contact	VFY w/Owner- Contact Architect	-	Floor	VFY w/Owner- Contact Architect	- VFY w/Owner- Cor Architect	NA	NA	NA	NA	Owner	Owner	Contractor	Existing	Assumed to be relocated existing equipment, VFY w/Owner- Cor
Maker Space	· · · · · · · · · · · · · · · · · · ·													-		
3D Printer 3D Printer	F07	Luizbot TAZ Pro	33"x28"x21" 33"x28"x21"	46	Bench	100VAC-240VAC, 50-60Hz, 3.2A 100VAC-240VAC, 50-60Hz, 3.2A	USB -	-	-	-	-	Owner Owner	Owner Owner	Owner Owner	New New	Potential VE to Workhorse
	F08	Prusa i3MK3s+	21"x21"x19"	44	Bench	240W Custom PS, works with typ outlet	Yes -	-		-	-	Owner	Owner	Owner	New	
3D Printer					Damah								Owner	Owner	Now	work an and a dia cont
3D Printer 3D Printer	F10	Formlabs Form 3	16°X15°X21°	39	Bench	100-240 VAC, 2.5 A 50/60 Hz, 22000	Yes -	- FM	-	-	-	Owner	Owner	Owner	INEW	work space adjacent
3D Printer 3D Printer Laser Cutter	F10 F12	Formlabs Form 3 Universal Laser/VLS 6.75	16"x15"x21" 44"x36"x39"	39 325	Floor	110V/10A; 220-240V/ 5A	Yes - Yes (2) 4" ports (500C @6" static pressu	FM re) VFY- Contact Architect	-	-	-	Owner	Owner	Vendor	Existing	











	SPECI	ALTY	EQUIPMENT AMO
	ID	COUNT	MANUFACTURER/MODE
1	ADVANCED	MANUFA	ACTURING CENTER/ MAKE
$\overline{\langle}$	M01		Compact CNC/ Tormach
	M02	5	Bantam Tools/ Desktop CN Milling Machine
	M03	1	CNC Master/Barron Mill
	M04	1	Glove box
	M05	1	Markfordged/Metal X 1
	M05b	1	Markfordged/ Wash-11
	M05c	1	Markfordged/Sinter-1
	M06	1	Strastasys/Fortus 380mc
	M07	1	Markforged/Mark 2
	M08	5	Makerbot/Method X
<u>```</u>	M09	1	Stratasys J826
$\nearrow$	(M09a)	1	Stratasys J826
	M10	1	Universal Laser/PLS 6.75
	M11	1	Personal Waterjet
	M12	1	Vacuum Forming Machine/'Formech/686
	M13	1	Injection Molding/ MPM/ Mini-jector Model #55P
	M14	1	Furnace/ Carbolite/HTF1710-230SN
	M15	1	Gravity Convection Incubato Termo Scientific/3625A-1
	M16	1	Handheld Devices
	M17	5	Worktable
	T01	1	INSTRON/68TM-5
	T02	1	INSTRON/2.0 KIT
	T03	1	Instron/ Accessories
	T04	1	Instron/ 5985
	T05	1	Instron
	T06	1	Instron/E3000
	T07	1	Instron/ 9450
	T08	1	Instron/MF 20
	T09	1	AFM Workshop / HR AFM
	T10	1	Optical Microscope
	T11	1	Artec/ Space Spider
	T12	1	Fluke/RES 300
	T13	1	Keyence/ LK-g3000
	T14	1	Keyence/ XM Series
	T15	1	Handheld Measurement De









	SPECI	ALTY EQUIPMENT TWEI LAB
ID	COUNT	MANUFACTURER/MODEL
TEXAS I	WATER ANI	D ENERGY INSTITUTE LAB
Q03	1	THERMO SCIENTIFIC / ICAP 7400
Q03b	1	THERMO SCIENTIFIC / ICAP 7400
Q03c	1	THERMO SCIENTIFIC / ICAP 7400
Q04	1	SHIMADZU / TOC-L
Q04b	1	SHIMADZU / TOC-L
Q05	1	THERMO SCIENTIFIC / DIONEX ACQUION
Q05b	1	THERMO SCIENTIFIC / DIONEX ACQUION
Q06	1	THERMO SCIENTIFIC / PRISMA E
Q07	1	MYCOMETER
Q08	1	AGILENT TECH
Q09	1	AGILENT TECH / UV VIS SPECTROSCOPY
Q10	1	PH Meter-METTLER TOLEDO
Q11	3	Analytical Balance- METTLER TOLEDO
Q12	1	Density Meter- METTLER TOLEDO
Q14	1	THERMO OVEN
Q15	1	LAXCO
Q16	1	TITRATION UNIT
Q17	1	FISHER
Q18	4	DELL
Q24	1	CORROSIVE SUBSTANCES CABINET

SPEC	CIALTY	EQUIPMENT TWEI PROCESS F
ID	COUNT	MANUFACTURER/MODEL
TWEI PI	ROCESS R	ООМ
TWEI PI Q13	ROCESS R	OOM FISHER REFRIGERATOR











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	SPEC		EQUIPMENT MAKER SP
	ID	COUNT	MANUFACTURER/MODEL
	MAKER	SPACE	
(	F07	1	Dremel 3D Printing
$\geq$	F07W	1	Dremel 3D Printing
	F08	2	Ultimaker S5 3D Printer
(	F10	1	FORMLABS FORM 3
$\geq$	F12	1	Laser Cutter
	F13	1	Desktop CNC
(			
Γ		$\langle \mathcal{A} \rangle$	$ \  \  \  \  \  \  \  \  \  \  \  \  \ $

















IEDU	EDULE A											
	DOOR	НМ				FRAM	ИЕ /	T		DETAILS®		
		CONST				CONST4	017E5					DEMARKS7
			DOURTIPE	KATING	GLAZING		SIZE					REWARKS
· - 0"	3' - 0" > 9' - 0"	ALUM	D		G04	ALUM	/		31/A-601	B1/A-601	A1/A-601	
' - 0"	3'-0" ( 9'-0" 2	HMPF	A		-	HM01	(	E	E1/A-601	D1/A-601	$\sim$	
' - 0"	3' - 0" / 9' - 0" /	ALUM	D		G02	ALUM		V E	31/A-601	B1/A-601	A2/A-601)	ALT NO. 2
' - 0"	( 7' - 0" /	SCTF	A			HM01	5 7/8"	( C	C2/A-601	B2/A-601	<	
' - 0"	1' - 6" 9' - 0"	SCTF	C		-	HM02	(	E	E2/A-601	D2/A-601	/	ACCESS CONTROL
' - 0"	3' - 0" (9' - 0"	SCTF	B		-	HM01	(	E	E2/A-601	D2/A-601	Ž	ACCESS CONTROL
' - 0"	9' - 0"	ALUM	В		G14	ALUM		E	31/A-601	B1/A-601	A2/A-601)	ACCESS CONTROL
' - 0"	3' - 0" > 9' - 0"	SCTF	B		-	HM01	/	<b>}−</b> C	C2/A-601	B2/A-601		ACCESS CONTROL
' - 0"	( 7' - 0" 2	SCTF	A			HM01	8 1/4" (	C	C2/A-601	B2/A-601	$\overline{\langle}$	ACCESS CONTROL
' - 0"	7' - 0"	SCTF	B			HM01	8 1/4"	V C	C2/A-601	B2/A-601		
' - 0"	7' - 0"	HMPF	A			HM02	7"	C	C2/A-601	B2/A-601		
' - 0"	Z'~0"	SCTF	A			HM01	5 7/8"			$\sim$		ACCESS CONTROL
3 5/8"	8' - 10"	ALUM	С		G02	ALUM			$\smile$	$\smile$		ACCESS CONTROL
' - 0"	7' - 0"	SCTF	A			HM01	5 7/8"					ACCESS CONTROL
' - 0"	7' - 0"	SCTF	A			HM01	5 7/8"					ACCESS CONTROL







- THE USE OF OCCUPANCY SENSORS, PROVIDE THE NUMBER OF SENSORS AND LOCATE THE UNITS AS REQUIRED FOR COMPLETE ROOM COVERAGE. CONNECT THE UNITS SUCH THAT DETECTION OF OCCUPANCY FROM EITHER CONJUNCTION WITH OCCUPANCY SENSORS, CONNECT THE SWITCHES TO
- RECESSED DOWN LIGHT FIXTURES INSTALLED IN LAY-IN CEILINGS SHALL BE PROVIDED WITH ADJUSTABLE T-BAR ATTACHMENT ARMS MANUFACTURED
- MODIFICATION NECESSARY TO FACILITATE THE INSTALLATION OF THE NEW













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### KEY NOTES AS INDICATED BY: #

 PROVIDE POWER TO PORTABLE WHEELCHAIR LIFT. COORDINATE ELECTRICAL REQUIREMENT WITH MANUFACTURER.
 NO SPECIFICATION ELECTRICAL WORK IN AREA B WITH THE EXCEPTION OF ANY MODIFICATION NECESSARY TO FACILITATE THE INSTALLATION OF THE NEW SPRINKLER SYSTEM. PROVIDE A 20A,120V CIRCUIT TO FLOW SWITCH AND TAMPER SWITCH FROM AN AVAILABLE 20A SPARE/SPACE IN NEAREST

120V PANEL. PROVIDE (2) #12 AWG + #12 GND IN 3/4" CONDUIT. COORDINATE ALL REQUIREMENT WITH FIRE PROTECTION DRAWINGS.



		AIVIC				CAL 3	CHEDULE (S	$\mathbf{D} = \mathbf{N} \mathbf{O} \mathbf{I} = \mathbf{I} \mathbf{a} \mathbf{Z} \mathbf{j}$	$\backslash$			
MARK	EquipmentDescription	VOLTAGE	PHASE POLES	PANEL	BREAKER		CONDUCTOR	CONNECTION TYPE	NOTES			
M01	TORMACH/PCNC440	120 V	1 1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	( NEMA 5-15R )	PROVIDE RECEPTACLE ON CORD REEL.			
M02	BANTAM TOOL/DESKTOP CNC MILLING MACHINE.	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R				
M03	CNC MASTER/ BARRON MILL	240 V	1 2	MC	30 A	1"	(2) #10 AWG + #10 GND	NEMA L6-30R	PROVIDE RECEPTACLE ON CORD REEL.(SEE NOTE ६)			
M04	GLOVE BOX	120 V	1 1	PF (E)	20 A	1"	(2)#12 AWG +#12 GND	JUNCTION BOX	SEE NOTE 5	17		
M05	MARKFORGED/METAL X1	120 V	1 1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	NEMA'5-15R	PROVIDE GFCI CIRCUIT BREAKER IN SOURCE PANEL, (SEE NOTE 5)			
M05B	METAL PRINTER WASH	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NÉMA 5-20Ŕ	PROVIDE GFCI CIRCUIT BREAKER IN SOURCE PANEL, (SEE NOTE 5)	$\left  \right\rangle$		
M05C	SINTER-1	240 V	1 2	MC	60 A	{ 1"	(2) #4 AWG + #10 GND	60A, 240V, 2P DISCONNECT SWITCH	SEE NOTE 5			
M06	STRASTASYS/FORTUS 380MC	208 V	3 3	PF (E)	20 A	3/4"	(3) #10 AWG + #10 GND	30A, 240V, 3P DISCONNECT	PROVIDE UNISTRUT SUPPORT FOR DISCONNECT SWITCH.			
M07	MARKFORGED/MARK2	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R				
M08	MARKERBOT/METHOD X	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R				
M09	DIY PRINTER	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R		ľ		
M10	UNIVERSAL LASER/PLS 6.75	120 V	1 1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-15R		$\mathbb{N}$		
M11	WAZER WATERJET	120 V	1 1	PF (E)	20 A	1"	(2) #10 AWG + #10 GND	NEMA 5-20R				
M12	FORMECH/686	240 V	1 2	MC	45 A	1"	(2) #6 AWG + #10 GND	60A, 240V, 2P DISCONNECT SWITCH		$\langle$		
M13	MPM/MINI-JECTOR MODEL #55P	240 V	1 2	MC	30 A	3/4"	(2) #10 AWG + #10 GND	30A, 240V, 2P DISCONNECT SWITCH	SEE NOTE 5.	K		
M14	CARBOLITE/HTF1710-230SN	240 V	1 2	MC	40 A	1"	(2) #8 AWG + #10 GND	60A, 240V, 2P DISCONNECT SWITCH		7		
M15	TERMO SCIENTIFIC/3625A-1	240 V	1 2	MC	15 A	3/4"	(2) #12 AWG + #12 GND	NEMA 6-15R				
T01	INSTRON/68TM-5	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R				
T02	INSTRON/2.0 KIT	120 V	1 1	PF (E)	20 A	3/4"	(2) #10 AWG + #10 GND	NEMA 5-20R	SEE NOTE 5.			
T03	INSTRON/ACCESSORIES	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R	SEE NOTE 5.			
T04	INSTRON/5985	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R	SEE NOTE 5.	] Г		
T05	INSTRON	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R	SEE NOTE 5.			
T06	INSTRON/E3000	240 V	1 2	MC	15 A	3/4"	(2) #12 AWG + #12 GND	NEMA L6-20R		1 –		
T07	INSTRON/9450	240 V	1 2	MC	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA L6-20R		1 –		
T08	INSTRON/MF 20	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R		-		
T09	AFM WORKSHOP/ HR AFM	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R		]  -		
T10	AFM WORKSHOP/ HR AFM	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R	SEE NOTE 5.	-		
T11	ARTEC/SPACE SPIDER	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R		]  -		
T12	FLUKE/RES 300	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R	SEE NOTE 5.			
T13	KEYENCE/LK-g3000	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R		-		
T14	KEYENCE/XM SERIES	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R		-		
T15	HANDHELD MEASUREMENT DEVICE	120 V	1 1	PF (E)	20 A	3/4"	(2) #12 AWG + #12 GND	NEMA 5-20R		]  -		

NOTES:

COORDINATE WITH EQUIPMENT MASTER CHART ON SHEET A-399 IN ARCHITECTRUAL PACKAGE FOR EQUIPMENT DETAILS AND ELECTRICAL INFORMATION. COORDINATE EXACT POWER REQUIREMENT, RECEPTACLE NEMA CONFIGURATION TYPE (AND MOUNTING HEIGHT), DISCONNECT TYPT/SIZE AND FEEDER SIZES FOR ALL EQUIPMENT NOTED ON THIS SCHEDULE WITH EQUIPMENT PROVIDER. FOR EXISTING EQUIPMENT, TO BE RELOCATED IN RENOVATED AREAS, CONTRACTOR TO FIELD VERIFY EXACT POWER REQUIREMENT (INCLUDING RECPTACLE/DISCONNECT TYPE/SIZE, CIRCUIT BREAKER SIZE/TYPE, FEEDER SIZE) PRIOR TO ORDER AND INSTALL. COORDINATE EXACT EQUIPMENT LOCATION WITH ARCHITECTURAL PLANS. PROVIDE RECEPTACLE WITH STAINLESS STEEL FACE PLATES IN ALL LABS.

FOR ALL RECEPTACLES IN LAB AREA OR WITHIN 6' FROM WATER SOURCE, PROVIDE GFCI CIRCUIT BREAKER IN SOURCE PANEL. VERIFY WITH UTPB EXACT POWER REQUIREMENT PRIOR TO RECEPTACLE PURCHASE AND CIRCUITING. REFER TO POWER REQUIEMENT FOR EXHAUST FAN ASSOCIATED WITH FUME HOOD ON MECHNICAL EQUIPMENT ELECTRICAL SCHEDULE.



MARK	VOLTAGE	PHASE	POLE	PANEL	BREAKER	CONDUIT	CONDUCTOR	DISCONNECT	LOAD	NOTE
B-1	120 V	1	1	PD	15 A	3/4"	(2) #12 AWG + #12 GND	0 A	1470 VA	1,3
EF-1	120 V	1	1	PD	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	1470 VA	1,2
EF-2	120 V	1	1	PD	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	1470 VA	1,2
EF-3	120 V	1	1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	1470 VA	1,2
EF-4	120 V	1	1	CA	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	1470 VA	1,2
EF-5	120 V	1	1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	450 VA	1,2
EF-6	120 V	1	1	CA	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	450 VA	1,2
EF-7	120 V	1	1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	1470 VA	1,2
EF-8	120 V	1	1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	1470 VA	1,2
EF-9	120 V	1	1	PF (E)	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	450 VA	1,2
EF-10	120 V	1	1	MC	15 A	3/4"	(2) #12 AWG + #12 GND	30 A	1470 VA	1,2
(HEF-1	480 V	1	1	LF (E)	15 A	1"	(3) #10 AWG + #10 GND	30 A	1260 VA	1,2,5
MAU-1	480 V	1	1	EB (E)	25 A	1"	(3) #10 AWG + #10 GND	30 A	7200 VA	1,4,5

#### PROVIDE EQUIPMENT WITH A SINGLE THROW TOGGLE SWITCH. PROVIDE EQUIPMENT WITH NEMA 3R DISCONNECT SWITCH. FOR AUTOMATIC SHUTOFF OF UNIT AS REQUIRED.

								<u></u>			
KITCHEN EQUIPMENT ELECTRICAL SCHEDULE $\frac{4}{7}$											
MARK	EQUIPMENT DESCRIPTION	VOLTAGE	Panel	PHASE	Connection Type	BREAKER	CONDUCTOR	CONDUIT	LOAD		
101	WALK-IN COOLER	208 V	FS		JUNCTION BOX	30A	(2) #10 AWG + #10 GND	1"	3536 VA		
101A	COOLER REMOTE UNIT	✓ 120 V	<b>F</b> \$		NEMA 5-15R	∽ 15À ∕ ́	(2) #12 AWG + #12 GND	3/4"	200 VA		
102	FREEZER, REACH-IN	120 V	FS	1	NEMA 5-15R	15A	(2) #12 AWG + #12 GND	3/4"	1872 VA		
103	STACKABLE SQUARE CUBER	120 V	K FS	$\sqrt{1}$	NEMA 5-20R人	204	(2) #12 AWG + #12 GND	/ 3/4"	1323 VA		
104	GRIDDLE STAND REFRIGERATOR	120 V	FS		NEMA 5-15R	15A	(2) #12 AWG + #12 GND	3/4"	360 VA		
105	SANDWICH UNIT REFRIGERATOR	120 V	FS	1	NEMA 5-15R	15A	(2) #12 AWG + #12 GND	3/4"	720 VA		
106	UNDERCOUNTER REFRIGERATOR	120 V	FS	1	NEMA 5-15R	15A	(2) #12 AWG + #12 GND	3/4"	360 VA		
110	COFFEE/TEA BREWER	208 V	FS	1	NEMA 6-30R	30A	(2) #10 AWG + #10 GND	1"	2796 VA		
203	FRYER-40LB	120 V	FS	1	NEMA 5-15R	20A	(2) #12 AWG + #12 GND	3/4"	600 VA		
204	MICROWAVE OVEN	208 V	FS	1	NEMA 6-40R	40A	(2) #8 AWG + #10 GND	1"	6200 VA		
402	COFFEE/TEA BREWER	208 V	FS	1	NEMA 6-30R	30A	(2) #10 AWG + #10 GND	1"	3000 VA		
POS	POINT OF SALE/CASH REGISTER	120 V	FS	1	NEMA 5-15R	20A	(2) #12 AWG + #12 GND	3/4"	1000 VA		



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# GENERAL NOTES

- A. THE INFORMATION CONTAINED ON THIS DRAWING AND THE INFORMATION CONTAINED ON THE OTHER POWER SHEETS AS WELL AS THE FOOD SERVICE DRAWINGS SHALL JOINTLY DEMONSTRATE THE REQUIREMENTS OF THE PROJECT. ROVIDE OPERATION OF THE SHUNT TRIP BREAKER (TO OPEN) FOR ALL В. BREAKERS SERVING ELECTRICAL CIRCUITS LOCATED UNDERNEATH THE KITCHEN HOODS. CONNECT TO DE-ENERGIZE UPON THE OPERATION OF THE HOOD SUPPRESSION SYSTEM. CONNECT GAS SOLENOID TO CLOSE VALVE UPON INITIATION. PROVIDE LOCAL DISCONNECTS FOR ALL EQUIPMENT THAT IS PROVIDED С. WITH DIRECT CONNECTION (NON-PLUG RECEPTACLE). ANY DISCONNECTS THAT ARE PROVIDED IN AREAS SUBJECT TO MOISTURE (I.E. DISHWASHING AREAS) SHALL BE STAINLESS STEEL AND RATED FOR NEMA 4X. PROVIDE 120V POWER FOR EACH HOOD SUPPRESSION SYSTEM AND D.
  - EXTEND AND CONNECT TO THE BUILDING FACP UPON ACTIVATION. REFER TO THE KITCHEN EQUIPMENT DRAWINGS AND SPECIFICATIONS FOR SPECIFIC DETAILS REGARDING ELECTRICAL CONNECTIONS, DEVICES, DISCONNECTS AND LOAD INFORMATION. ALL 120V, 20A DUPLEX RECEPTACLES LOCATED IN THE KITCHEN, SERVING AREA AND DISHWASHING AREA SHALL BE GFCI TYPE.
  - PROVIDE FOR ALL INTERLOCKING REQUIREMENTS TO ACCOMPLISH THE CONTROLS SEQUENCE INDICATED. IN THE EVENT THAT NOT ALL SERVING LINES ARE INCLUDED IN THE PROJECT, PROVIDE FOR THE INSTALLATION AND ROUGH-IN OF ALL
  - CONDUITS AND BOXES AS REQUIRED TO FACILITATE FUTURE INSTALLATION. REFER TO FOOD SERVICE DRAWINGS FOR SPECIFIC LOCATIONS WITH WEATHER-PROOF COVERS FOR CONVENIENCE RECEPTACLES.

#### **KEY NOTES** AS INDICATED BY: (#)

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- RELOCATED EXISTING ELECTRICAL EQUIPMENT. PROVIDE 4" CONCRETE HOUSEKEEPING PAD FOR EXISTING TRANSFORMER TO BE RELOCATED HERE.
- REFER TO RISER DIAGRAM ON SHEET E-501 FOR MORE DETAILS. SUSPENDED TRANSFORMER. SUPPORT TRANSFORMER FROM
- STRUCTURE ABOVE. REFER TO AMC EQUIPMENT ELECTRICAL SCHEDULE FOR OUTLET AND FEEDER SIZES OF EQUIPMENT IN THIS ROOM. REFER TO KITCHEN EQUIPMENT ELECTRICAL SCHEDULE FOR OUTLET
- AND FEEDER SIZES OF EQUIPMENT IN THIS ROOM. PROVIDE STAINLESS STEEL FACE PLATE FOR RECEPTACLE. (TYPICAL FOR ALL RECEPTACLES IN THE LAB.)
- PROVIDE A STAINLESS STEEL WIREMOLD RACEWAY (LEGRAND SERIES S4000 RACEWAY OR APPROVED EQUAL) WITH RECEPTACLE TYPES NOTED IN WALL BACK SPLASH. COORDINAE WIREMOLD ELEVATION
- WITH ARCHITECTURAL PLANS. PROVIDE DATA OUTLETS ON WIREMOLD WHERE REQUIRED. COORDINATE WITH ARCHITECTURAL SCHEDULE ON SHEET A-399 AND TECHNOLOGY PACKAGE.

PROVIDE AND INSTALL A DUCT-MOUNTED SMOKE DETECTOR ON THE RETURN SIDE OF THE UNIT. EXTEND AND CONNECT TO FACP AND COORDINATE WITH MECHANICAL

#### COORDINATE WITH EQUIPMENT MASTER CHART ON SHEET A-399 IN ARCHITECTRUAL PACKAGE FOR EQUIPMENT DETAILS AND ELECTRICAL INFORMATION. COORDINATE EXACT POWER REQUIREMENT, RECEPTACLE NEMA CONFIGURATION TYPE (AND MOUNTING HEIGHT), DISCONNECT TYPT/SIZE AND FEEDER SIZES FOR ALL EQUIPMENT NOTED ON THIS SCHEDULE WITH EQUIPMENT PROVIDER. FOR EXISTING EQUIPMENT, TO BE RELOCATED IN RENOVATED AREAS, CONTRACTOR TO FIELD











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# GENERAL NOTES

# A. REFER TO GENERAL NOTES ON P-501.

# KEY NOTES

- 1 REMOVE FIXTURE AND ASSOCIATED PIPING. CAP WASTE LINE BELOW GRADE AND WATER PIPING ABOVE CEILING. PATCH SLAB TO MATCH
- EXISTING.
- RELOCATE AIR COMPRESSOR AND DRYER TO MECHANICAL ROOM. REMOVE ALL ASSOCIATED COMPRESSED AIR PIPING IN THIS AREA.
   SAW-CUT FLOOR FOR INSTALLATION OF NEW SEWER PIPING. PATCH TO

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MATCH EXISTING.4 DISCONNECT EXISTING RO LINE PREPARE TO RECONNECT TO NEW COFFEE MAKER.









# GENERAL NOTES

A. REFER TO GENERAL NOTES ON P-501. B. INSTALL WATER AND WASTE PIPING TO EVERY FUMEHOOD AS SHOWN. COORDINATE PIPING CONNECTIONS WITH MANUFACTURER.

#### KEY NOTES

- 1 CONNECT NEW 4" SEWER LINE TO END OF EXISTING SEWER LINE. 2 RELOCATED AIR COMPRESSOR. COORDINATE LOCATION WITH EXISTING
- EQUIPMENT IN MECHANICAL ROOM. PIPE AS SHOWN. 3 1/2" CW LINE DOWN IN WALL TO SERVE ICE MACHINE.
- 4 3/4" GAS LINE DOWN TO RANGE.
- 5 ROUTE 3/4" WATER LINES DOWN IN WALL AND OVER TO ISLAND SINKS AS SHOWN. 6 ROUTE NEW 1/2" RO LINE DOWN NEXT TO SINK. INSTALL SPIGOT NEXT TO
- SINK. 7 ROUTE 3/4" COMPRESSED AIR LINE DOWN FROM ABOVE. COORDINATE
- EQUIPMENT CONNECTION WITH OWNER. INSTALL SHUT-OFF VALVE. PROVIDE COMPRESSED AIR DROP. ROUTE COMPRESSED AIR DROP TO 8
- 4'-0" A.F.F., PROVIDE WITH 3/4"SHUT-OFF VALVE AND QUICK DISCONNECT. 1 (9) INSTALL STUDOR VENT ON ISLAND SINK. NOTE: ISLAND SINKS ARE SPECIFIED IN THE LAB CASEWORK SPEC.
- 10 1/2" CW LINE DOWN IN WALL TO SERVE FUME HOOD. ROUTE 2" DRAIN LINE IN WALL AS REQUIRED TO AVOID FOOTING. ADJUST
- LOCATION AS REQUIRED. PROVIDE A FREE STANDING 18-GAUGE STAINLESS STEEL ONE COMPARTMENT COMMERCIAL SINK WITH 24" x 24" x 12" BOWL. PROVIDE
  - WITH WALL MOUNTED FAUCET WITH 8" CENTERS AND 12" GOOSENECK












- A. REFER TO GENERAL NOTES ON M-501.B. EVERY WHERE THERE IS A NEW ROOF PENETRATION FOR AN EXHAUST
- FAN OR KITCHEN EQUIPMENT, SPUD BACK 3'-0" AND REPLACE ROOFING SYSTEM WITH LIKE SYSTEM TO MATCH EXISTING ADJACENT CONDITION AND WARRANTY.
- KEEP ALL ROOF MOUNTED EQUIPMENT A MINIMUM OF 10' AWAY FROM EDGE OF ROOF.

### KEY NOTES

- AS INDICATED BY: (#)----
- VAV BOXES TO BE RE-USED.
   REFER TO LASER EXHAUST DUCTWORK DETAIL ON M-501 FOR DUCTWORK
- CONNECTIONS REQUIREMENTS TO LASER CUTTER. 3 ON AHU-3, REPLACE EXISTING MERV-8 BAG FILTERS WITH NEW MERV-13
- BAG FILTERS.
  ROUTE 10"Ø DUCT DOWN FROM EXHAUST FAN TO FUME HOOD. TRANSITION TO OPENING OF FUME HOOD AS REQUIRED.
- 5 ROUTE 6"Ø DUCT DOWN FROM EXHAUST FAN TO METAL PRINTER
   5 FURNAGE CONNECT TO 4" EXHAUST OPENING OF METAL FURNAGE
- FURNACE. CONNECT TO 4" EXHAUST OPENING OF METAL FURNACE. CONNECT NEW DUCTWORK TO EXISTING VAV BOX.
- FOR ALTERNATE #4, CONNECT NEW BOILER TO EXISTING PIPING. RECONNECT EXISTING PIPING, WIRING, AND VENTING AS REQUIRED.
  - 8 CONNECT CHEMICAL STORAGE CABINET TO EXHAUST FAN WITH 6"Ø STAINLESS STEEL DUCT.
    9 IN THESE AREA, REPLACE EXISTING DIFFUSER WITH NEW ONE SCHEDULED. RE-CONNECT TO EXISTING DUCTWORK. BALANCE TO CFM
  - SHOWN.
    10 ROUTE 6"Ø DUCT DOWN FROM EXHAUST FAN TO SAFETY CABINET. KEEP EXHAUST FAN A MINIMUM OF 10' AWAY FROM EDGE OF ROOF.
  - 11 PROVIDE AND INSTALL FABRIC DUCT SOX. SIZE DUCT FOR 1,900 CFM OF EVENLY DISTRIBUTED AIRFLOW. FABRIC DUCT WILL BE APPROXIMATLEY 15' HIGH.
  - 12 INSTALL A 20"Ø (OR 20x20) RIGID SECTION OF DUCT ON VAV BOX. TAP OFF OF RIGID SECTION WITH 8"Ø RUN-OUT TO SERVE OFFICE. TRANSITION TO FABIC DUCT AFTER RUN-OUT. SIZE FABRIC DUCT FOR 1,800 CFM.





AIR DISTRIBUTION SCHEDULE			
DESCRIPTION	INSTALLATION TYPE	MANUFACTURER	MODEL NO.
CE, FIXED AIR PATTERN, STEPPED WITH 4-CONES, SQUARE FACE AND WN ON DRAWINGS.	LAY-IN/SURFACE MOUNT	NAILOR	RNS
24" NOMINAL FACE, STEEL BORDER WITH ALUMINUM 1/2"x1/2"x1/2" DRAWINGS.	LAY-IN/SURFACE MOUNT	NAILOR	61EC

AIR DEVICES SCHEDULED TO BE MANUFACTURED BY NAILOR. PRICE, TITUS, AND RUSKIN ARE CONSIDERED EQUIVALENT MANUFACTURERS

PROVIDE MANUAL BALANCING DAMPERS AT EACH SUPPLY AND EXHAUST AIR DUCT TAP, INSTALL MBD AT MAIN DUCT TAP.

R SCHEDULE {ALTERNATE #4}								
AIR		ELECTRIC		<i>-</i>	WEIGHT,			
IZES	VOLTAGE	PHASE	FLA		LBS	WANUFACTURER		
"	120 V	1Ø			700	LOCHINVAR	PBN1300	

	EXHAUST FAN SCHEDULE											
		ESD (in			ELECTRI	CAL	WEIGHT					
	TYPE CFM		DRIVE	W.G.)	POWER - HP	VOLTAGE	PHASE	METHOD OF CONTROL	LBS	MANUFACTURER	MODEL NO	
	VENT SET	600 CFM	BELT	0.6"	1/2	120 V	1Ø	HOOD SWITCH	223	COOK	100 CPSLES-3	
	VENT SET	600 CFM	BELT	0.6"	1/2	120 V	1Ø	HOOD SWITCH	223	COOK	100 CPSLES-3	
	VENT SET	500 CFM	BELT	6"	1/2	120 V	1Ø	HOOD SWITCH	433	COOK	200 CPSLES-3	
	VENT SET	600 CFM	BELT	0.6"	1/2	120 V	1Ø	HOOD SWITCH	223	COOK	100 CPSLES-3	
3	DOWNBLAST	150 CFM	DIRECT	0.3"	1/20	120 V	1Ø	SWITCH	20	COOK	70C15DH	
	DOWNBLAST	200 CFM	DIRECT	0.4"	1/20	120 V	1Ø	CONTINUOUS	25	COOK	90C15DH	
	VENT SET	600 CFM	BELT	0.6"	1/2	120 V	1Ø	HOOD SWITCH	223	COOK	100 CPSLES-3	
	VENT SET	600 CFM	BELT	0.6"	1/2	120 V	1Ø	HOOD SWITCH	223	COOK	100 CPSLES-3	
	DOWNBLAST	{125 CFM}	DIRECT	0.3"	1/20	120 V	1Ø	CONTINUOUS	20	COOK	70C15DH	
	VENT SET	500 CFM	> BELT	6"	1/2	120 V	1Ø	HOOD SWITCH	433	COOK	200 CPSLES-3	

1. FANS ARE SCHEDULED TO BE MANUFACTURED BY GREENHECK. TWIN CITY AND COOK ARE CONSIDERED EQUIVALENT MANUFACTURERS.

5. FAN SELECTIONS SHALL BE SUBMITTED TO ALLOW FOR A MINIMUM +/- 10% IN SCHEDULED EXTERNAL STATIC AND CFM WITHIN THE PARAMETERS OF THE SCHEDULED

	HEN I	HOOE	) SCH	IEDULE				
,	LENGTH, INCHES	WIDTH, INCHES	HEIGHT, INCHES	FILTERS	INCANDESCENT LIGHTS (QUANITY)	WEIGHT	MANUFACTURER	MODEL NUMBER
	120"	54"	24"	6 BAFFLES	3	325	LARKIN	EO-FPSP

3. PROVIDE HOOD WITH A COMPLETE AND OPERATING WET CHEMICAL FIRE SUPPRESSION SYSTEM CONFORMING TO THE LATEST NFPA STANDARD AND PROVIDE FILLER PANELS AS

EXHAUST FAN SCHEDULE							
		ELECT	RICAL	WEIGHT			
FAN MOTOR POWER - HP	VOLTAGE	PHASE	METHOD OF CONTROL	LBS	MANUFACTURER	MODEL NO	
10	480 V	30	MANUAL SWITCH	170	COOK	165V7B	

1. FANS ARE SCHEDULED TO BE MANUFACTURED BY COOK. PENN BARRY AND GREENHECK ARE CONSIDERED EQUIVALENT MANUFACTURERS

3. PROVIDE LABELED SWITCHES FOR HOOD SYSTEMS. SAME WALL SWITCH SHALL OPERATE BOTH SUPPLY AND EXHAUST FAN FOR EACH HOOD. PROVIDE ALL NECESSARY

6. FAN SELECTIONS SHALL BE SUBMITTED TO ALLOW FOR A MINIMUM +/- 10% IN SCHEDULED EXTERNAL STATIC AND CFM WITHIN THE PARAMETERS OF THE SCHEDULED MOTOR HP.

	M	AKE-UI	P AIR UN	IIT SC	HEDUI	E					
	COOI	LING		HEATING ELECTRICAL							
OR ER -	MINIMUM SENSIBLE CAPACITY, MBH	MINIMUM TOTAL CAPACITY, MBH	HEATING TYPE	MINIMUM INPUT, MBH	MINIMUM OUTPUT, MBH	VOLTAGE	PHASE	MCA/MOCP	WEIGHT, LBS	MANUFACTURER	MODEL NO.
	58	78	NATURAL GAS	141.8	114.9	460 V	3Ø	17/25	921	AAON	RQ-006-3-FA09-574
			$\wedge$								

FANS SCHEDULED TO BE MANUFACTURED BY AAON. GREENHECK, CAPTIVAIRE, AND ADDISON ARE CONSIDERED EQUIVALENT MANUFACTURERS

PROVIDE LABELED SWITCHES FOR HOOD SYSTEMS. SAME WALL SWITCH SHALL OPERATE BOTH SUPPLY AND EXHAUST FAN FOR EACH HOOD. PROVIDE ALL NECESSARY COMPONENTS TO OPERATE FANS SHALL HAVE VIBRATION ISOLATION ON MOTOR, MOTORIZED INLET DAMPER AT UNIT, HIGH EFFICIENCY MOTORS, AND GRIP NOTCH BELTS. LOCAL DISCONNECT SWITCH AT UNITS TO BE SUPPLIED





5		6
	LEGEN	D
	œ	WALL MOUNTED CARD READER
ALLIC DATA, SIGNALING AND POWER CONDUCTORS FOR ENCE AND POLE/TOWER MOUNTED DEVICES/SENSORS	OP	DOOR POSITION SENSOR
AVE SURGE SUPPRESSORS WITH MANUFACTURER IENDED GROUNDING AT BOTH THE DEVICE AND	REX	REQUEST TO EXIT. (REX) (BY DIV 08)
		ELECTRIFIED DOOR HARDWARE WITH REMOTE LOCKDOWN
AL SURGE SUPPRESSORS WITH MANUFACTURER	X SC301	DOOR/OPENING CALLOUT REFER TO DESIGNATED DETAIL
IENDED GROUNDING.		INTERIOR DOME CAMERA WITH A MINIMUM 2MP (1080P)
CONTRACTOR NOTES:		RESOLUTION UNLESS OTHERWISE NOTED.
CAL CONTRACTOR IS RESPONSIBLE TO PROVIDE THE ING FOR SECURITY INFRASTRUCTURE: CONDUIT, SLEEVES, ND FLOOR BOXES. REFER TO ELECTRICAL AND MMUNICATIONS DRAWINGS.		EXISTING SURVEILLANCE CAMERA. FIELD VERIFY LOCATION, MANUFACTURER, MODEL, ACCESSORIES AND VIEW WITH THE OWNER.
VIDE AND INSTALL WALL MOUNTED ¾" FIRE RETARDANT WOOD FOR ALL SECURITY PANEL LOCATIONS. APPLY TE OR LIGHT COLORED PAINT TO ALL SIDES OF PLYWOOD		INTERIOR WIDE ANGLE IP DOME CAMERA WITH A MINIMUM 8MP RESOLUTION UNLESS OTHERWISE NOTED. PROVIDE ENVIRONMENTALLY CONTROLLED ENCLOSURE.
OR TO INSTALLATION. (BY ELECTRICAL CONTRACTOR, OR DESIGNATED BY C.M.) ER TO ARCHITECTURAL DRAWINGS TO COORDINATE WALL		8MP RESOLUTION UNLESS OTHERWISE NOTED. PROVIDE ENVIRONMENTALLY CONTROLLED ENCLOSURE.
CABINETRY BOX LOCATIONS.		EXTERIOR DOME CAMERA WITH A MINIMUM 2MP (1080P) RESOLUTION UNLESS OTHERWISE NOTED. PROVIDE
BOXES INSTALLED FOR SECURITY SHALL HAVE CONDUITS TALLED FROM BACK BOX TO NEAREST ACCESSIBLE CEILING CE AT A POINT THAT ALLOWS ADEQUATE VERTICAL WORK DM.		ENVIRONMENTALLY CONTROLLED ENCLOSURE.
CTOR SHALL PROVIDE RACEWAY INSTALLATION IN A R THAT WILL PROTECT ALL SECURITY CABLING FROM IICAL DAMAGE. INSTALL CONDUITS FOR SECURITY WITH ADIUS BENDS AND BUSHED ENDS.		
E DEDICATED RECEPTACLE CIRCUITS LOCATED ON OR ACH EQUIPMENT RACK LOCATED IN THE SECURITY ROOMS. AWINGS FOR EXACT LOCATIONS.		
CTOR SHALL INSTALL A TIED OFF NYLON PULL STRING IN		
ATION:		
AY ALL BOXES AND CONDUIT FOR SECURITY WITH A		
TINCTIVE COLOR FOR EASY IDENTIFICATION. COLOR SHALL DIFFERENT FROM OTHER TRADES.		
	ABBRE	
	AC: APS:	ACCESS CONTROL ACCESS CONTROL SYSTEM POWER SUPPLY
TE LOCAL AREA	AFF:	ABOVE FINISHED FLOOR
RING	BACS:	BUILDING ACCESS CONTROL SYSTEM
TELEPHONE POTS	CPU:	CENTRAL PROCESSING UNIT
	CR:	
	DGP: DVR:	DATA GATHERING PANEL DIGITAL VIDEO RECORDER
	DIV 01:	GENERAL REQUIREMENTS
	DIV 08:	OPENINGS ELEVATORS
	DIV 26:	ELECTRICAL
	DIV 27:	COMMUNICATIONS
	FOV:	DOOR POSITION SENSOR FIELD OF VIEW - CAMERA PICTURE
	EPSS:	ELECTRONIC PHYSICAL SECURITY SYSTEM
	GB:	
	KVM:	KEYBOARD-VIDEO-MOUSE SWITCH
	KP:	INTRUSION DETECTION KEYPAD
	LPR:	
	MD:	MOTION DETECTOR
<sup>©</sup> PATCH PANEL <sup>©</sup>	MP:	MEGAPIXEL - CAMERA RESOLUTION
	OFCI:	NETWORK VIDEO RECORDER OWNER FURNISHED. CONTRACTOR INSTALLED
	OFOI:	OWNER FURNISHED, OWNER INSTALLED
SWITCH	PoE:	POWER OVER ETHERNET
	PP:	TELECOMMUNICATIONS PATCH PANEL
	TR:	TELECOMMUNICATIONS ROOM <idf-mdf></idf-mdf>
	UPS:	TRANSFER CONTROL/INTERNET PROTOCOL
	UTP:	UNSHIELDED TWISTED PAIR
	VMS:	VIDEO MANAGEMENT SYSTEM
	SC-001	
	SC-111C	CEED - FIRST FLOOR PLAN - AREA A - SECURITY CEED - FIRST FLOOR PLAN - AREA B - SECURITY
	SC-111L	LIBRARY - FIRST FLOOR PLAN - AREA A - SECURITY
	SC-112L	LIBRARY - FIRST FLOOR PLAN - AREA B - SECURITY
	SC-301 SC-302	DOOR ELEVATIONS - SECURITY DOOR ELEVATIONS - SECURITY
	+	
	SC-401	GENERAL DETAILS - SECURITY
EXISTING SECURITY RACK/CABINET		













- 1.) FIELD VERIFY ALL EXISTING AND PROPOSED CONDITIONS PRIOR TO DEMO
- 2.) EXISTING TELECOM ROOM AND ACTIVE EQUIPMENT SHALL REMAIN ACTIVE AND PROTECTED FROM DUST, DEBRIS OR LOSS OF POWER FOR THE
- 3.) EXISTING OSP FIBER AND COPPER CABLE IN EXISTING TELECOM ROOM IS CRITICAL INFRASTRUCTURE SERVING UTPB ENGINEERING BUILDING AND WAGNER PERFORMING ARTS CENTER AND SHALL REMAIN PROTECTED AND UNDISTURBED FOR THE DURATION OF THE RENOVATION.
- 4.) EXISTING COMMUNICATIONS AND SYSTEM CABLING SERVING OTHER SPACES OUTSIDE OF CONSTRUCTION AREA SHALL NOT BE DAMAGED DURING DEMO.
- AND THROUGH THE DURATION OF CONSTRUCTION, DAMAGED CABLING SHALL BE REPLACED, TERMINATED, TESTED AND LABELED.
- PASSING THROUGH AREA OF DEMOLITION PRIOR TO DEMO PHASE.
- 7.) REMOVE ALL ABANDONED CABLING IN EXISTING TELECOM SPACE AND ABOVE ACCESSIBLE CEILING THROUGHOUT RENOVATED SPACE AS REQUIRED PER
- 8.) REPLACE, TERMINATE, LABEL AND TEST ANY CABLING THAT IS DAMAGED

- 12.) FRAME AND FINISH OPENING FOR ALL CONDUIT SLEEVES AND CABLE TRAY
- 13.) J-HOOKS SHALL ONLY BE USED AT ACCESSIBLE CEILING LOCATIONS. CABLE
- 14.) COORDINATE WITH UTPB PRIOR TO REMOVAL AND STORAGE OF ALL UTPB

![](_page_112_Picture_16.jpeg)

![](_page_112_Picture_23.jpeg)

![](_page_112_Picture_24.jpeg)

![](_page_113_Figure_0.jpeg)

KEYED NOTES: (SECURE SIDE) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26) (3)UNSECURE SIDE)  $\langle 2 \rangle$  CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)  $\langle 4 \rangle$  $\langle 3 \rangle$  ELECTRIFIED STRIKE LOCK WITH LATCHBOLT PLAN VIEW MONITOR AND LATCHBOLT STRIKE MONITOR. (BY DIV 08)  $\langle 4 \rangle$  ELECTRIFIED EXIT DEVICE ON SECURE SIDE. (BY  $\left< 1 \right>$ DIV 08) ~(2) ----<u>}\_====</u>= (5) SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR CARD READER. (BY DIV 26) Fillse Ceiling MOUNT CARD READER ON UNSECURE SIDE 42"  $\langle 7 \rangle$  $\langle 6 \rangle$  AFF AND 6" OPTIMUM FROM DOOR. INFRARED REX ON SECURE SIDE. DIRECT  $\overline{(7)}$  SENSOR AWAY FROM THRESHOLD TO DETER UNDER-DOOR SPOOF ATTACKS. UNSECURE SIDE COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS.  $\langle 3 \rangle$  $\sqrt{5}$  $\langle \langle 6 \rangle \rangle$  $\langle 8 \rangle$ ELECTRIC STRIKE, EXIT DEVICE, PIR REX & CARD READER FINISHED FLOOR 2 ELECTRIC STR SCALE: NOT TO SCALE **ELEVATION VIEW KEYED NOTES:**  $\sqrt{1}$  $\langle 4 \rangle \langle 7 \rangle$ ---<u>-</u>----- $\langle 1 \rangle$  3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)  $\langle 2 \rangle$  CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED NEAR DOOR ABOVE ACCESSIBLE CEILING (BY DIV 26) SUP. `~\_\_\_\_\_UNP (3) CONCEALED DOOR POSITION SENSOR. PROVIDE 3/4"Ø <u>PLAN VIEW</u> CONDUIT AND REQUIRED FRAME AND PATHWAY PREPARATION. (1) $\langle 4 \rangle$  POWER TRANSFER FOR WIRE ROUTING TO J-BOX. (BY ----<u>-</u> DIV 08) \_\_\_\_\_ (5) PROVIDE 3/4"Ø CONDUIT, REQUIRED FRAME, AND PATHWAY PREPARATION FOR WIREWAY THROUGH DOOR.  $\sqrt{3}$  $\left< 5 \right>$  $\langle 3 \rangle$  $\langle 6 \rangle$  FAIL SECURE ELECTRIFIED LOCKSET. (BY DIV 08)  $\langle 7 \rangle$  SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR EXTERIOR CARD READER. (BY DIV 26)  $\langle 8 \rangle$  SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR INTERIOR CARD READER. (BY DIV 26)  $\langle 4 \rangle$  $\langle 4 \rangle ||$ <u>(6)</u>  $\langle 6 \rangle$  $\langle 7 \rangle$  $\sqrt{8}$ (9) MOUNT CARD READER 42" AFF AND 6" OPTIMUM FROM \_\_\_\_^a a<u>–––––</u>––– DOOR. ((9)) (10) COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS.  $\langle 9 \rangle$ (10)-FINISHED FLOOR **ELEVATION VIEW** DOUBLE SIDED CARD READER DOUBLE DOOR SCALE: NOT TO SCALE **KEYED NOTES:**  $\langle 1 \rangle$  <sup>3</sup>/<sub>4</sub>"Ø CONDUIT TO ACCESSIBLE CEILING  $\langle 4 \rangle$  $\langle 4 \rangle$ FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26) | /---/(9)) UNSECURE SIDE  $\langle 2 \rangle$  CONCEALED 6" X 8" X 4" COVERED JUNCTION  $\sqrt{3}$  $\overline{3}$ BOX LOCATED NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)  $\overline{6}$ ----- $\langle 3 \rangle$  CONCEALED DOOR POSITION SENSOR.  $\left( 1 \right)$  $\langle 2 \rangle$ SECURE SIDE PROVIDE <sup>3</sup>/<sub>4</sub>"Ø CONDUIT AND REQUIRED FRAME AND PATHWAY PREPARATION. PLAN VIEW (4) STANDARD LOCKSET. (BY DIV 08)  $\langle 1 \rangle$  $\overline{(5)}$  COORDINATE WITH DIVISION 08 DOOR AND ----HARDWARE SPECIFICATIONS/DRAWINGS.  $\langle 3 \rangle$ SECURE SIDE SECURE SIDE <u>/</u>8 ((9)) 5 FINISHED FLOOR 8 DOUBLE MONITORED DOOR SCALE: NOT TO SCALE ELEVATION VIEW

![](_page_113_Figure_5.jpeg)

![](_page_114_Figure_0.jpeg)

3	4	5	6
KEYED NOTES:	—————————————————————————————————————	KEYED NOTES:	
(1) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL		(1) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)	SECURE SIDE
		2 CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED	UNSECURE SIDE 3 9
NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)	GLASS WALL	$\frac{3}{3}$ POWER TRANSFER FOR WIRE ROUTING TO J-BOX. (BY DIV 08)	$\langle 10 \rangle$
3 DOOR MONITOR SWITCH. PROVIDE 3/4"Ø CONDUIT AND REQUIRED FRAME AND PATHWAY PREPARATION.	UNSECURE SIDE PLAN VIEW	4 PROVIDE 3/4"Ø CONDUIT, REQUIRED FRAME, AND PATHWAY PREPARATION FOR WIREWAY THROUGH DOOR.	PLAN VIEW
4 PROVIDE REQUIRED FRAME AND PATHWAY PREPARATION FOR		5 ELECTRIFIED LOCKSET WITH LATCHBOLT MONITOR AND REX	
DIV 08)		MAG LOCK POWER AND ACTIVATE REX INPUT ON THE DGP. CONNECT LATCHBOLT SWITCH TO DGP DOOR POSITION	
> PROVIDE 3/4"Ø CONDUIT, REQUIRED FRAME, AND PATHWAY PREPARATION FOR WIREWAY THROUGH DOOR.	FALSE CEILING	INPUT.	
		AND AWAY FROM DOOR THRESHOLD. THE REX CONTACTS SHALL DISCONNECT MAG LOCK POWER.	
LATCHBOLT STRIKE LOCK WITH LATCHBOLT MONITOR AND LATCHBOLT STRIKE MONITOR. (BY DIV 08)		SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR CARD READER. (BY DIV 26)	
$\rangle$ RP15 CARD READER MOUNTED TO FRAME ON UNSECURE SIDE.		8 MOUNT CARD READER 42" AFF AND 6" OPTIMUM FROM DOOR.	
SPECIFICATIONS/DRAWINGS.			3 5 7
		(10) COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS AS WELL AS THE AHJ.	
SINGLE FRAME MOUNTED CARD READER DOOR W/ ELECT		SINGLE EGRESS DOOR WITH CARD READER AND	
SCALE: NOT TO SCALE	<u>ELEVATION VIEW</u>	SCALE: NOT TO SCALE	ELEVATION VIEW
EYED NOTES:		KEYED NOTES:	
> 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND		$\frac{1}{3/4} O CONDUIT TO ACCESSIBLE CEILING$	
CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED	UNSECURE SIDE	LOCATION. (BY DIV 26)	
NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)		(2) CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)	
ELECTRIFIED STRIKE LOCK WITH LATCHBOLT MONITOR AND LATCHBOLT STRIKE MONITOR. (BY DIV 08)	PLAN VIEW	3 CONCEALED DOOR POSITION SENSOR. PROVIDE 3/4"Ø	SECURE SIDE 1 2 PLAN VIEW
> ELECTRIFIED EXIT DEVICE ON SECURE SIDE. (BY DIV 08)	$\langle 1 \rangle$ $\langle 2 \rangle$	PREPARATION.	$\langle 1 \rangle$ $\langle 2 \rangle$
SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR CARD READER. (BY DIV 26)		$\langle 4 \rangle$ EXIT DEVICE. (BY DIV 08) $\langle 5 \rangle$ STANDARD CYLINDER W/ KEY OVERRIDE OR BLANK ON	
OPTIMUM FROM DOOR.		UNSECURE SIDE AS REQUIRED. (BY DIV 08)	
> INFRARED REX ON SECURE SIDE. DIRECT SENSOR AWAY FROM THRESHOLD TO DETER UNDER-DO0R SPOOF ATTACKS.		SPECIFICATIONS/DRAWINGS.	
COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS.			
			(SECURE SIDE)
5 SINGLE DOOR WITH ELECTRIC STRIKE, EXIT DEVICE, PIR I	REX & CARD READER <u>ELEVATION VIEW</u>	6 SINGLE MONITORED DOOR	ELEVATION VIEW
SCALE: NOT TO SCALE		SCALE: NOT TO SCALE	
		KEYED NOTES:	$\sim$ $\langle 1 \rangle$ $\sim$ $\sim$
		(1) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)	
		2 CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED	
		(BY DIV 26)	
		\3> MAGNETIC LOCK WITH INTEGRATED DOOR POSITION/BOND SENSOR. (BY DIV 08)	PLAN VIEW
			(1) $(2)$
		PREPARATION FOR WIREWAY THROUGH DOOR.	
		<ul> <li>(6) ELECTRIFIED EXIT DEVICE WITH INTEGRAL REX SWITCH. (BY DIV 08) WIRE DPDT CONTACTS TO DISCONNECT LOCK POWER AND ACTIVATE REX.</li> </ul>	
		7 SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR CARD	(9) (5) $(3)(3)$ $(5)(3)$ $(5)$
		READER. (BY DIV 26) $\langle 8 \rangle$ MOUNT CARD READER ON UNSECURE SIDE 42" AFF AND 6"	
		FROM THRESHOLD TO DETER UNDER-DOOR SPOOF ATTACKS. WIRE DPDT CONTACTS TO DISCONNECT LOCK POWER AND	
		ACTIVATE DGP REX INPUT. $\langle 10 \rangle$ COORDINATE WITH DIVISION 08 DOOR AND HARDWARF	
		SPECIFICATIONS/DRAWINGS.	
NOT USED		OUBLE MAGNETIC LOCK DOOR	ELEVATION VIEW
SCALE: NOT TO SCALE		SCALE: NOT TO SCALE	

![](_page_114_Figure_11.jpeg)

![](_page_115_Picture_0.jpeg)

BASIN	

	G-011 G-021 G-022 G-101	SYMBOLS, LEGENDS & ABBREVIATIONS ACCESSIBILITY STANDARDS ACCESSIBILITY STANDARDS CODE INFORMATION
	<b>ARC</b> A-001	HITECTURAL ARCHITECTURAL/ INTERIOR LEGENDS
	A-002 A-101 A-102 A-103 A-104 (A-110 A-111	INTERIOR PARTITION SCHEDULE FIRST FLOOR - DEMOLITION PLAN - AREA A, AD 003 FIRST FLOOR - DEMOLITION PLAN - AREA B, AD 003 FIRST FLOOR - DEMOLITION REF CEILING PLAN - AREA A FIRST FLOOR - DEMOLITION REF CEILING PLAN - AREA B OVERALL FLOOR PLAN, AD 003 FIRST FLOOR - OVERALL FLOOR PLAN - AREA A
	A-112 A-131 A-132 A-400 A-401 A-511 A-521 A-601	FIRST FLOOR - OVERALL FLOOR PLAN - AREA B FIRST FLOOR - REFLECTED CEILING PLAN - AREA A FIRST FLOOR - REFLECTED CEILING PLAN - AREA B, AD 003 ENLARGED FLOOR PLAN, ELEVATIONS AND SCHEDULE, AD 003 ENLARGED FLOOR PLAN, INT ELEVATIONS AND SCHEDULE, AD 003 MILLWORK DETAIL & CASEWORK LEGEND, AD 003 MILLWORK SECTIONS AND DETAILS DOOR, GLAZING, AND FRAMING SCHEDULES AND DETAILS, AD 003
	INTE	RIOR
	I-001 I-111 I-112 I-121 I-122 I-131 I-132	INTERIOR LEGENDS & ABBREVIATIONS, AD 003 FIRST FLOOR - FLOOR FINISH PLAN - AREA A, AD 003 FIRST FLOOR - FLOOR FINISH PLAN - AREA B FIRST FLOOR - WALL FINISH PLAN - AREA A FIRST FLOOR - WALL FINISH PLAN - AREA B FIRST FLOOR - FURNITURE PLAN - AREA A FIRST FLOOR - FURNITURE PLAN - AREA B
	PLU	MBING
<u> </u>	(P-111 P-501	PLUMBING PLANS - FIRST FLOOR - AREA A, AD 003
	MEC	HANICAL
	M-101 M-111 M-501	MECHANICAL DEMOLITION PLAN - FIRST FLOOR MECHANICAL PLAN - FIRST FLOOR MECHANICAL DETAILS AND SCHEDULES
	ELEC	CTRICAL
1	E-001 E-101 E-102 E-111 E-112 E-121 E-122 E-131 E-132	ELECTRICAL ABBREAVIATIONS, LEGEND, AND DETAILS ELECTRICAL DEMOLITION PLAN - AREA A ELECTRICAL DEMOLITION PLAN - AREA B ELECTRICAL LIGHTING PLAN - AREA A ELECTRICAL LIGHTING PLAN - AREA B ELECTRICAL POWER PLAN - AREA A, AD 003 ELECTRICAL POWER PLAN - AREA B, AD 003 ELECTRICAL FIRE ALARM - AREA B, AD 003
~ ~ ~	E-401 E-501	ELECTRICAL ENLARGED PLANS, AD 003 SCHEDULES AND RISER DIAGRAM, AD 003
	FIRE	PROTECTION
	F-111	FIRE PROTECTION PLAN
	AUD	IOVISUAL
	AVI-001 AVI-112L AVI-132L AVI-301 AVI-302 AVI-303 AVI-401	LEGEND AND NOTES - AV INFRASTRUCTURE LIBRARY - FIRST FLOOR PLAN - AREA B - AV INFRASTRUCTURE LIBRARY - FIRST FLOOR RCP - AREA B - AV INFRASTRUCTURE ONE - LINE DIAGRAM - AV SYSTEMS ONE - LINE DIAGRAM - AV SYSTEMS ONE - LINE DIAGRAM - AV SYSTEMS GENERAL DETAILS - AV INFRASTRUCTURE
	СОМ	
	T-001 T-111L T-112L T-301 T-302 T-401	LEGEND AND NOTES - COMMUNICATIONS LIBRARY - FIRST FLOOR PLAN - AREA A - COMMUNICATIONS LIBRARY - FIRST FLOOR PLAN - AREA B - COMMUNICATIONS LIBRARY -FIRST FLOOR EXISTING TELECOM ROOM - COMMUNICAT LIBRARY - FIRST FLOOR IDF ROOM - COMMUNICATIONS GENERAL DETAILS - COMMUNICATIONS
	SEC	
<u>/1</u>	SC-001 SC-111L SC-112L SC-301 SC-302 SC-401	LEGEND AND NOTES - SECURITY, AD 003 LIBRARY - FIRST FLOOR PLAN - AREA A - SECURITY, AD 003 LIBRARY - FIRST FLOOR PLAN - AREA B - SECURITY, AD 003 DOOR ELEVATION DETAILS - SECURITY, AD 003 DOOR ELEVATION DETAILS - SECURITY, AD 003 GENERAL DETAILS - SECURITY
		1

SHEET INDEX

G-001 COVER SHEET & INDEX. AD 003

GENERAL  $\sim$ 

1.	Alterna	ate No. <0>01: CEED Building Office Wing Renovation.:
	Α.	Base Bid: All conditions noted in area call out to remain as-is in lieu of W
		indicated on Drawings A101 DEMOLITION FLOOR PLAN I-111 FINISH
		PLAN- AREA A & I-121 WALL FINISH PLAN AREA A .
	В.	Alternate: Remove and replace flooring, finishes, ceilings, and lighting. S
		and reinstall mechanical diffusers. Work is as indicated on Drawings A-1

SCHEDULE OF ALTERNATES

	and reinstall mechanical diffusers. Work is as indicated on Drawings A-101
	DEMOLITION FLOOR PLAN AREA A, A103 DEMOLITION REF CEILING PLAN
	A-111 ANNOTATED/ DIMENSIONAL FLOOR PLAN AREA A, A131 -
	REFLECTED CEILING PLAN -FIRST FLOOR- AREA A, I-141 FLOOR AND
	WALL FINISH ALT. 01, E111 LIGHTING PLAN - AREA A.
2.	Alternate No. <0>02: CEED Building Glass Privacy System:
	A. Base Bid: Provide Manual Roller shades as indicated on Drawings I-001-
	INTERIOR LEGENDS & ABBREVIATIONS, I-121WALL FINISH PLAN- AREA A
	and as specified in Section 12 24 13 "Roller Window Shades."
	B. Alternate 02A: Provide switchable smart glass as indicated on Drawings A-101
	DEMOLITION FLOOR PLAN-AREA A, A-111 ANNOTATED/DIMENSIONAL
	FLOOR PLAN- AREA A, I-121- WALL FINISH PLAN- AREA A, E-121 POWER
	PLAN AREA-A and as specified in Section 08 88 36.71 "Switchable Glass."
	C. Alternate 02B: Provide Power Roller shades in lieu of manual roller shades as
	indicated on Drawing I-001 INTERIOR LEGENDS & ABBREVIATIONS, E-121
	POWER PLAN AREA-A and as specified in Section 12 24 13 "Roller Window
	Shades."
3.	Alternate No. <0>03: Dunagan Library Ceilings:
	A. Base Bid: Existing ceilings in areas noted within Alt 03 area call-out on sheet
	A-104-FIRST FLOOR DEMOLITION REF CEILING PLAN to remain as is and no
	be demolished.
	B. Alternate: Remove and replace existing ceiling system as indicated on Drawings
	A-104 FIRST FLOOR DEMOLITION REF CEILING PLAN, A-132 FIRST FLOOF

![](_page_115_Picture_9.jpeg)

![](_page_116_Picture_0.jpeg)

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A1 FIRST FLOOR - DEMOLITION PLAN - AREA A

 $\overline{\mathbf{1}}$ 

NORTH

### GENERAL NOTES

- A. ISOLATE AREAS OCCUPIED BY OWNER OR PUBLIC WITH DUST BARRIERS DURING DEMOLITION AND CONSTRUCTION. EXTEND BARRIERS FROM FLOOR TO DECK AND WALL TO WALL.
  B. PRIOR TO BEGINNING DEMOLITION, SURVEY FACILITY AND NOTIFY ARCHITECT IN WRITING OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THOSE SHOWN ON DRAWINGS.
  C. DEMOLITION WORK INCLUDES, BUT IS NOT LIMITED TO, THOSE ITEMS NOTED. OTHER ITEMS OF MINOR NATURE MAY EXIST WHICH ARE NOT SPECIFICALLY NOTED ON DRAWINGS ARE TO BE REMOVED AS
- REQUIRED TO PROVIDE ACCESS OR ALLOW ALTERATIONS FOR WORK TO PROCEED.D. REMOVE FLOOR FINISH AND ADHESIVES IN AFFECTED AREAS AS REQUIRED.
- E. WHERE DEMOLITION EXPOSES SUBSTRATES TO RECEIVE FINISH MATERIALS, PROPERLY REMOVE EXISTING MATERIALS AS REQUIRED AND PREP TO RECEIVE NEW FINISHES.
- F. PROVIDE MEASURES TO PROTECT MATERIAL INDICATED TO REMAIN DURING CONSTRUCTION.
- G. PATCH AND REPAIR ADJACENT SURFACES TO MATCH EXISTING WHERE REQUIRED DUE TO DEMOLITION.
  H. OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO IMPROVEMENTS
- REMOVED DURING CONSTRUCTION. COORDINATE WITH OWNER PRIOR TO BEGINNING OF PROJECT FOR ITEMS TO BE SALVAGED. COORDINATE DEMOLITION WORK WITH MECHANICAL, ELECTRICAL AND
- PLUMBING DRAWINGS. J. EXISTING CONDITIONS REMAINING ARE TO BE PROTECTED DURING CONSTRUCTION. DAMAGE OCCURRING DURING CONSTRUCTION SHALL
- BE REPAIRED TO MATCH ORIGINAL CONDITION.
   K. VERIFY WITH OWNER FINAL DISPOSITION OF SALVAGED MATERIAL OR EQUIPMENT REMOVED DURING CONSTRUCTION.

# DEMOLITION NOTES

- AS INDICATED BY: #\_\_\_\_\_ 901 REMOVE DOOR(S) AND FRAME
- 902 REMOVE WALL; INDICATED AS DASHED PROTECT STRUCTURE903 CREATE OPENING
- 906 REMOVE FLOORING, BASE AND FINISHES
- 918 REMOVE DESK
  924 REMOVE APPROXIMATELY 12" OF CONCRETE AS REQUIRED FOR PLUMBING AND ELECTRICAL REPLACEMENT

## LEGEND

![](_page_116_Picture_20.jpeg)

![](_page_117_Figure_0.jpeg)

- A. ISOLATE AREAS OCCUPIED BY OWNER OR PUBLIC WITH DUST BARRIERS DURING DEMOLITION AND CONSTRUCTION. EXTEND BARRIERS FROM FLOOR TO DECK AND WALL TO WALL. B. PRIOR TO BEGINNING DEMOLITION, SURVEY FACILITY AND NOTIFY ARCHITECT IN WRITING OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THOSE SHOWN ON DRAWINGS. C. DEMOLITION WORK INCLUDES, BUT IS NOT LIMITED TO, THOSE ITEMS NOTED. OTHER ITEMS OF MINOR NATURE MAY EXIST WHICH ARE NOT SPECIFICALLY NOTED ON DRAWINGS ARE TO BE REMOVED AS REQUIRED TO PROVIDE ACCESS OR ALLOW ALTERATIONS FOR WORK TO PROCEED.
- REMOVE FLOOR FINISH AND ADHESIVES IN AFFECTED AREAS AS D REQUIRED. E. WHERE DEMOLITION EXPOSES SUBSTRATES TO RECEIVE FINISH
- MATERIALS, PROPERLY REMOVE EXISTING MATERIALS AS REQUIRED AND PREP TO RECEIVE NEW FINISHES. PROVIDE MEASURES TO PROTECT MATERIAL INDICATED TO REMAIN F.
- DURING CONSTRUCTION. PATCH AND REPAIR ADJACENT SURFACES TO MATCH EXISTING WHERE G. REQUIRED DUE TO DEMOLITION.
- OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO IMPROVEMENTS H. REMOVED DURING CONSTRUCTION. COORDINATE WITH OWNER PRIOR TO BEGINNING OF PROJECT FOR ITEMS TO BE SALVAGED.
- COORDINATE DEMOLITION WORK WITH MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. EXISTING CONDITIONS REMAINING ARE TO BE PROTECTED DURING J.
- CONSTRUCTION. DAMAGE OCCURRING DURING CONSTRUCTION SHALL BE REPAIRED TO MATCH ORIGINAL CONDITION. K. VERIFY WITH OWNER FINAL DISPOSITION OF SALVAGED MATERIAL OR EQUIPMENT REMOVED DURING CONSTRUCTION.

# **DEMOLITION NOTES**

- AS INDICATED BY: 🛛 🗰 🛏 901 REMOVE DOOR(S) AND FRAME
- 902 REMOVE WALL; INDICATED AS DASHED PROTECT STRUCTURE
- 906 REMOVE FLOORING, BASE AND FINISHES 915 RETROFIT GLAZING W/ EXIT DOOR
- 924 REMOVE APPROXIMATELY 12" OF CONCRETE AS REQUIRED FOR PLUMBING AND ELECTRICAL REPLACEMENT

LEGEND

![](_page_117_Picture_19.jpeg)

![](_page_117_Picture_20.jpeg)

![](_page_118_Figure_0.jpeg)

	Nama		MESSAGE	BEWARKS
	Ivanie	SIGNTIFE	WESSAGE	INLIMANNO
	STAIR 3			
	VEST			
	VEST			
	LARGE LECTURE HALL			
	EXISTING TIERED LECTURE HALL			
	VEST.			
	STOR.			
	STOR.			
	COMMONS			
	STOR.			
	FOOD SERVICE COFFEE SHOP VENUE			
	STORAGE			
	MAIN MECH			
	PREP			
	ELEV			
	CORR.			
	PRIMARY STUDENT COMMONS SEATING			
	INNOVATION SUITE AND FABRICATION LAB			
	LECTURE AND EVENT SPACE W/ SEATING			
	FLAT SEMINAR ROOM			
	SUP. STOR			
	STAFE BREAK			
	DIR. ASST.			
	DIR. OFFICE			
	eSPORTS			
	EXISTING			
	EXISTING			
	PROGRAM DIRECTOR OFFICE			
	INNOVATION FACULTY			
	IDF			
	GROWTH/STAFF			
_	MULTIPURPOSE CLASSROOM			
	EXISTING			
	EXISTING			
	Room			
	CORR 120			
	CUST			
	MEN RR			
	WOMEN RR			
	RR			
	MEN RR			
	WOMEN RR			
	STAIR 2			
	STAIR 1			

- A. REFER TO ACCESSIBILITY STANDARDS SHEETS FOR TYPICAL MOUNTING

![](_page_118_Figure_8.jpeg)

- SPECIAL CONDITIONS INDICATED (MULTIPLE SPECIAL CONDITIONS

![](_page_118_Figure_11.jpeg)

LEVEL 2 ALTERATION RECONFIGURATION IS EXCLUSIVELY THE RESULT OF COMPLIANCE WITH THE ACCESSIBILITY REQUIREMENTS

![](_page_118_Picture_14.jpeg)

GE IN

NOTED.

![](_page_118_Picture_21.jpeg)

![](_page_118_Picture_22.jpeg)

![](_page_119_Figure_0.jpeg)

- A. DIMENSIONS ARE TO FACE OF STUD, CMU, OR CENTERLINE OF STRUCTURE UNO.
- COORDINATE WITH MEP DRAWINGS FOR LOCATIONS OF FIXTURES. LOCATE AS SHOWN ON ARCHITECTURAL PLANS AND DETAILS. NOTIFY ARCHITECT OF CONFLICTS PRIOR TO CONSTRUCTION.
- FINAL SPRINKLER HEAD LOCATIONS SHALL BE SET BY FIRE PROTECTION ENGINEER AND APPROVED BY ARCHITECT. CENTER DEVICES, SPRINKLER HEADS, ETC. IN CEILING TILES UNO.
- CEILING HEIGHTS SHALL BE 9' 0" ABOVE FINISHED FLOOR UNO. REFER TO INTERIOR ELEVATIONS AND ROOM FINISH SCHEDULE FOR
- ADDITIONAL INFORMATION CONCERNING HEIGHTS, CEILING MATERIALS AND FURRED CEILINGS. AT LOCATIONS OF PERFORATED RETURN AIR GRILLES, WIRING, CABLING, G.
- ETC. TO BE HELD CLEAR OF OPEN LINE OF SIGHT THROUGH GRILLE. IN CASES WHERE THIS IS UNAVOIDABLE, ITEMS VISIBLE ABOVE GRILLE ARE TO BE PAINTED FLAT BLACK. PROVIDE AND INSTALL WALL MOUNTED 3/4" AC GRADE FIRE RESISTANT H. PLYWOOD IN ALL COMMUNICATIONS ROOMS AND CLOSETS ON ALL WALLS. APPLY INTUMESCENT COATING TO BOTH SIDES OF PLYWOOD,
- ENSURE FIRE RESISTANT STAMP IS VISIBLE FOR INSPECTION ON EACH SHEET OF PLYWOOD. INTUMESCENT COATING SHALL BE IBC / NFPA CODE COMPLIANT, IN ACCORDANCE WITH UL 263 AND ASTM E119, TO MEET 1 OR 2 HOUR FIRE PROTECTION REQUIREMENT. REFERENCE COMMUNICATIONS ROOM DETAILS." FIRE RETARDANT PLYWOOD IN ALL
- COMMUNICATIONS ROOMS AND CLOSETS ON ALL WALLS. APPLY FIRE RETARDANT FLAT WHITE PAINT BOTH SIDES OF THE PLYWOOD AND LEAVING THE FIRE RETARDANT STAMP UNDISTURBED.

# **KEY NOTES**

- AS INDICATED BY: 🗍 🗕 🗕 37 INSTALL INFILL PANEL IN LIEU OF 12" X 48" EXIST LIGHT FIXTURE 39 N.I.C.; RETAIN AS-IS 41 REPAINT
- 94 PROJECTION SCREEN, REF. AVI DOCUMENTS 95 PROJECTOR, REF AVI DOCUMENTS

# LEGEND

	GYPSUM WALL BOARD CEILING
	ACT-1 CEILING
	ACT-2 CEILING
	ACT-3 CEILING
	EXIST DXF GRID TO REMAIN; REPAD W/ NEW TYPE ACP-1 F
	DENOTES SOUND INSULATION
	WOOD CEILING
-	12" X 24" LIGHT FIXTURE (EXISTING TO REMAIN)
	12" X 24" LIGHT FIXTURE (NEW)
	12" X 48" LIGHT FIXTURE (EXISTING TO REAMAIN)
	12" X 48" LIGHT FIXTURE (NEW)
	24" X 48" LIGHT FIXTURE (EXISTING TO REMAIN)
0	CAN LIGHT FIXTURE (EXISTING)
	RAIL LIGHT FIXTURE (EXISTING)
0	LA2 (ORANGE LINEAR PENDANT LIGHT
	ACCESS DOOR (EXISTING)
	RETURN AIR GRILL (EXISTING)
	SUPPLY GRILL (EXISTING)
	SUPPLY GRILL (EXISTING)
	PROJECTOR (EXISTING)
Ø	SPEAKER (EXISTING)
	NOT IN SCOPE

![](_page_119_Picture_17.jpeg)

![](_page_120_Figure_0.jpeg)

![](_page_120_Figure_1.jpeg)

	I&F LAB ENLARGED FLOOF
54	1/4" = 1'-0"

	KEY	Manufacturer/Model	Size (L/D/H)"	Weight (lbs)	Location	Power (Volt/Hz/Ph)	Data	Specified by	Provided by	Installed by	<u>New, Existing,</u> or Future	Remarks
Innovation Suite and Fabricat	ion Lab								1			
Dye-sublimation Inkjet Printer	F01	Epson SureColor F9370	103"x27"x53"	639	Floor	110-120V or 200-240V/ 50-60Hz; 2 outlets	Yes	Owner	Owner	Owner	New	
Printer Ink	F02	Epson SureColor F9370	Appx 24" tall?	-	Lockable Cabinet?	-		Owner	Owner	-	New	
Computer stations	F03	TBD	24x24x24	-	Bench	Тур	Yes	Owner	Owner	Owner	New	
32" Computer Monitor	F05	TBD	32" diagonal			110V	??	Owner	Owner	Owner	New	
3D Scanner	F06	Peel 3D, Peel 2	6"x7"x10"	-		VFY w/ Owner- Cotact Architect		Owner	Owner	Owner	New	
3D Printer	F07	Lulzbot TAZ Pro	33"x28"x21"	46	Bench	100VAC-240VAC, 50-60Hz, 3.2A	USB	Owner	Owner	Owner	New	Potential VE to Workhc
3D Printer	F08	Prusa i3MK3s+	21"x21"x19"	44	Bench	240W Custom PS, works with typ outlet	Yes	Owner	Owner	Owner	New	
Media Drying Rack	F09	Caster Bottomed 2D/ DR-46-40	VFY w/ Owner- Cotact Architect	-	Floor	-		Owner	Owner	Owner	New	
3D Printer	F10	Formlabs Form 3	16"x15"x21"	39	Bench	100-240 VAC, 2.5 A 50/60 Hz, 220W	Yes	Owner	Owner	Owner	New	work space adjacen

![](_page_120_Picture_5.jpeg)

- OVHD-MOUNTED ALUM ROD MOTORIZED SECURITY GRILLE W/LOCK; TRACK

- OVHD CABLE-SUSPENDED POWER & DATA PORT HUBS, REF. ELECTRICAL

- 96 PROVIDE 4" X 4" PLYWOOD BACKING PANELS AS SPECIFIED FOR SCREEN

R PLAN

![](_page_120_Picture_21.jpeg)

![](_page_121_Figure_0.jpeg)

evation	<ul> <li>A. REFER TO ACCESSIBILITY STANDARDS SHEETS FOR TYPICAL MOUNTIL LOCATIONS.</li> <li>B. ALL INTERIOR WALLS ARE A6a UNLESS NOTED OTHERWISE. REFER TO SHEET A-002 FOR INTERIOR PARTITION SCHEDULE.</li> <li>C. REFERENCE SHEET I-001 FOR MATERIAL LEGEND.</li> <li>D. REFERENCE SHEET I-001 FOR MATERIAL LEGEND.</li> <li>E. ALL KITCHEN EQUIPMENT TO BE CONTRACTOR FURNISHED/ CONTRACTOR INSTALLED (CF/CI).</li> </ul> <b>KEY NOTES</b> As INDICATED BY: # 15 UTPB E-SPORTS FULL-HEIGHT WALL GRAPHICS APPLIQUE W/WALL-MOUNTED SIGNAGE; REF. INTERIORS 21 FULL-HEIGHT MAGNETIC DRY-ERASE FILM APPLIQUE ON WALL; ADD CLARIDGE ALUM MARKET TRAY RAIL, REF. INTERIORS 22 FLAT SCREEN DISPLAYS; SIZE/TYPE TBD 54 OPEN-CUBBY REINFORCED SHELVING 80 ALIGN TO EXISTING MILLWORK GRID EDGE	
	90 FOWERED COFFEE TABLES, NIC 90 CAN LIGHTING ABOVE THE SECTIONAL SEATING AREA/LOUNGE 91 PROVIDE 4" X 4" PLYWOOD BACKING PANELS AS SPECIFIED FOR SCREE MOUNTING 323 PLYMD, REF TELECOMMUNICATIONS DRAWING FOR EXACT LOCATION 124 DOOR, AS SCHED 125 WALL SHALL RECEIVE LEVEL 4 WALL FINISH; REF SPECIFICATIONS 128 PROVIDE EDGE TRIM PIECE 129 60 BASE, AS SCHED 120 CG1 CORNER GUARD, REF INTERIORS 130 MILLWORK 130 800 REF ELECT 141 800 REF ELECT	∃N —_{{{
	P CR - S Elevation	(i
	<complex-block></complex-block>	
Sdutt     State	Elec Conn Connection Height Cold Water Size Cold Water Size Hot Water Connection Height Hot Water Connection Height Direct Waste Size Indirect Waste Size BTUH BTUH	
0 A         0 W         115 V         1         60 Hz         NEMA 5-15P           8 A         0.5         115 V         1         60 Hz         NEMA 5-15P           9 A         1/3         115 V         1         60 Hz         NEMA 5-15P           12 A         1323 W         115 V         1         60 Hz         NEMA 5-15P           7 A         3/4         115 V         1         60 Hz         NEMA 5-15P           3 A         0.25         115 V         1         60 Hz         NEMA 5-15P	0"       1/2"       0"       3/4"       0"         6' - 5 7/8"             1' - 0"             0"       1/2"       0"       3/4"       0"         6"         3/4"       0"         6"         3/4"       0"         1' - 0"          0.0 Btu/h	
30 A       4700 W       208 V       1       60 Hz       NEMA 6-30         0 A       0 W       0 V       0       0 Hz       Image: Constraint of the const	4"       Image: Constraint of the second secon	
0 A       0 W       115 V       1       60 Hz       NEMA 5-15P         11 A       1320 W       120 V       1       60 Hz       NEMA 5-15P         1       1320 W       120 V       1       60 Hz       NEMA 5-15P         1       1       10 V       1       60 Hz       NEMA 5-15P         1       1       1       1       1       1         1       1       1       1       1       1       1         1       1       1       1       1       1       1       1         1       1       1       1       1       1       1       1       1       1         1	0" $3/8"$ 0" $3/4"$ 0"         0" $3/4"$ 0"          0" $3/4"$ 0"          0"                0"                 1/2"       0"       1/2"       0"       1 1/2"       -1' - 0"           1/2"       0"       1/2"       0"       1 1/2"       -1' - 0"           1"       0"       1"       0"       1       2"       0"           1"       0"       1"       0"       1       1" </td <td></td>	

6' - 1 37/64"

![](_page_121_Picture_6.jpeg)

![](_page_122_Figure_0.jpeg)

![](_page_123_Figure_0.jpeg)

![](_page_123_Figure_1.jpeg)

![](_page_123_Figure_2.jpeg)

![](_page_123_Picture_3.jpeg)

![](_page_124_Figure_0.jpeg)

![](_page_124_Figure_1.jpeg)

RECEPTACLE PANEL IN ELECTRICAL ROOM. PROVIDE 2#12, #12G IN 3/4"C.

GROUNDING CONDUCTOR FROM DUNAGAN LIBRARY MAIN BUILDING

MAIN TELECOMMUNICATION BUS BAR IN DUNAGAN MDF ROOM USING

MORE DETAILS.

CONTRACTOR TO PROVIDE AN INSULATED AND STRANDED #4/0AWG COPPER

GROUNDING BUS BAR IN MAIN ELECTRICAL ROOM AND CONNECT TO EXISTING

EXOTHERMIC WELD. REFER TO LIBRARY TECH/COMM. DRAWING "T-001" FOR

![](_page_124_Picture_3.jpeg)

![](_page_125_Figure_0.jpeg)

![](_page_125_Figure_1.jpeg)

### KEY NOTES AS INDICATED BY: (#)---

- 1. TYPICAL FLOOR BOX COMBINATION OF DATA AND POWER. PROVIDE (1) 1" CONDUIT FOR UNDERSLAB POWER CONDUIT. PROVIDE CONTROL CONDUIT TO AN ACCESSIBLE LOCATION ABOVE CEILING. COORDINATE DATA DROP DETAILS WITH TECHNOLOGY PLANS. REFER TO AV PACKAGE FOR QUANTITY OF PORTS FOR DATA AND AV OUTLETS AND ASSOCIATED CONDUIT SIZES. TYPICAL TV RECEPTACLE. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS WITH ARCHITECTURAL AND "AV" PACKAGE. CONTRACTOR TO CLEAR THE SPACE FOR NEW EQUIPMENT. COORDINATE NEW EQUIPMENT LOCATION WITH EXISTING SPACE AND EXISTING EQUIPMENT IN THE ROOM TO PROVIDE ELECTRICAL WORKING CLEARANCE REQUIRED BY NEC. IN CASE OF TRANSFORMER AND PANEL BEING LOCATED BELOW EXISTING PIPING ROUTED ABOVE, CONTRACTOR SHALL PROVIDE A METAL SHEET DRIP PAN BELOW EXISTING PIPING ROUTED. REFER TO SHEET E-501 FOR ELECTRICAL RISER DIAGRAM AND 4 PANEL/TRASFORMER SCHEDULES. NEW 100A/3P/480V DISCONNECT. REFER TO RISER DIAGARM E-501 FOR MORE DETAIL. EXISTING FLOOR MOUTNED OUTLET TO REMAIN. CEILING MOUNTED RECEPTACLE FOR NEW PROJECTOR. COORDINATE EXACT LOCATION WITH LIBRARY AV PACKAGE. JUNCTION BOX FOR POWER TO PROJECTOR SCREEN. COORDINATE ALL POWER AND CONTROL REQUIREMENT WITH PROJECTOR SCREEN PROVIDER AND LIBRARY AV PACKAGE. RECEPTACLE FOR AV MILLWORK RACK. COORDINATE EXACT LOCATION WITH AV PACKAGE. 10. RECEPTACLE FOR AV WALL PLATE. COORDINATE EXACT LOCATION WITH AV PACKAGE. JUNCTION BOX FOR POWER TO OVERHEAD DOOR. COORDINATE EXACT 11. POWER AND CONTROL REQUIREMENTS WITH OVERHEAD DOOR PROVIDER. 12. JUNCTION BOX FOR POLE WITH HARDWIRE POWER (QUAD) AND DATA WORKSTATION. COORDINATE DATA REQUIEMENT WITH TECHNOLOGY PACKAGE. 13. TYPICAL FLOOR BOX FOR POWER. PROVIDE (1) 1" CONDUIT FOR UNDERSLAB POWER CONDUIT. PROVIDE CONTROL CONDUIT TO AN ACCESSIBLE LOCATION ABOVE CEILING. EXTENT TO CONNECT TO EXISTING RECEPTACLE BRANCH CIRCUIT BREAKER 14. SERVING THIS AREA (EXISTING PANEL "1LA", "1LB" OR "1LC"; FIELD VERIFY). JUNCTION BOX FOR POWER TO UPS FEEDING 3-D PRINTERS. PROVIDE CYBER 15. POWER UPS WITH MINIMUM (8) OUTPUT 5-20R RECEPTACLES (1500VACP1500AVR-CP1500C OR APPROVED EQUAL BY OWNER) AND BATTERY BACKUP TO SUPPORT 3-D PRINTERS PRINT WORK IN CASE OF POWER OUTAGE. COORDINATE BATTERY RUN-TIME REQUIREMENT WITH
- UTPB. JUNCTION BOX FOR POWER TO UPS FEEDING 3-D PRINTERS ON THIS COUNTER. PROVIDE CYBER POWER UPS WITH MINIMUM (2) OUTLET 5-20R 16. RECEPTACLES AND BATTERY BACK UP. COORDINATE BATTERY RUN-TIME REQUIREMENT WITH UTPB. REFER TO DUNAGAN ARCHITECTURAL SHEET A-400 FOR EQUIPMENT SCHEDULE AND ELECTRICAL INFORMATION FOR EQUIPMENT IN THIS ROOM. 17 JUNCTION BOX FOR POWER TO DOOR HARDWARE. COORDINATE EXACT 18 LOCATION AND POWER REQUIREMENT WITH DOOR HARDWARE CONTRACTOR/PROVIDER AND SECURITY DRAWINGS. PROVIDE (2) #12 AWG

AND #12 GND IN 3/4" CONDUIT.

![](_page_125_Picture_7.jpeg)

![](_page_126_Figure_0.jpeg)

21 1/5/2022 10:54:16 AM

## GENERAL NOTES

- A. PROVIDE DUCT MOUNTED SMOKE DETECTORS/SAMPLING TUBES IN THE SUPPLY AIR DUCT OF ALL OF THE ROOF TOP UNITS OPERATING OVER 2000 CFM. THE CONTRACTOR SHALL FIELD VERIFY THE NUMBER AND LOCATION OF THE UNITS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
   B. CONNECT DUCT DETECTORS TO SHUT DOWN INDIVIDUAL HVAC UNIT
- UPON DETECTOR ALARM. PROVIDE FIRE ALARM CONNECTION TO SMOKE DETECTORS AND FIRE/SMOKE DAMPERS. REFER TO MECHANICAL FOR SMOKE AND FIRE/SMOKE DAMPER LOCATIONS AND SHUT DOWN FANS REGARDLESS OF UNIT CFM. REFER TO MECHANICAL EQUIPMENT ELECTRICAL SCHEDULE FOR HVAC UNITS REQUIRING DUCT
- MOUNTED SMOKE DETECTORS. C. PROVIDE INTERFACE CONNECTION FOR ALL KITCHEN HOODS TO THE NEW FIRE ALARM CONTROL PANEL TO INITIATE GENERAL ALARM UPON ACTIVATION OF ANY HOOD SUPPRESSION SYSTEM. PROVIDE ALL NECESSARY INTERFACE RELAYS AND COORDINATE FOR 120 VOLT
- POWER REQUIREMENTS AS REQUIRED.
  PROVIDE REMOTE POWER SUPPLIES AND 120 VOLT POWER FOR POWER SUPPLIES AS REQUIRED FOR PROPER OPERATION OF THE SYSTEM.
  PROVIDE 120V CONNECTION TO ALL FIRE/SMOKE DAMPERS. EXTEND AND CONNECT FIRE/SMOKE DAMPER TO FACP FOR CONTROL. CONTRACTOR SHALL PROVIDE ALL REQUIRED POWER SUPPLIES,
- CONTROL MODULES, RELAYS, WIRING AND CONDUIT.
   F. COORDINATE LOCATIONS OF ALL DEVICES PRIOR TO ROUGH-IN TO AVOID CONFLICTS WITH MILL WORK, MARKERBOARD, ETC.
   G. ELECTRICAL CONTRACTOR SHALL REFER TO "T", "SC" AND "AVI" LIBRARY DRAWINGS FOR EXACT LOCATION AND REQUIREMENTS FOR BACK BOXES, CONDUIT, PULL STRING, FLOOR BOXES, ETC ASSOCIATED WITH TECHNOLOGY, AUDIO/VIDEO AND SECURITY DEVICES/EQUIPMENT

# KEY NOTES

4.

5

SHOWN ON THOSE DRAWINGS.

- 1. NEW FIRE ALARM SPEAKER STROBE MOUNTED AT 7'-0" AFF. (TYPICAL) EXTEND AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND AND CONNECTIONS.
- 2. NEW FIRE ALARM STROBE MOUNTED AT 7'-0" AFF. (TYPICAL) EXTEND AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND AND CONNECTIONS.
- 3. NEW FIRE ALARM MANUAL PULL STATION MOUNTED AT 48" AFF. (TYPICAL) EXTEND AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND
  - AND CONNECTIONS. NEW HEAT DETECTOR, (TYPICAL) EXTEND AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND AND CONNECTIONS. INSTALL JUCTION BOX FOR CARD READER. BOX SHALL HAVE 3/4" CONDUIT INSTALLED FROM BACK BOX TO NEAREST ACCESSABLE CEILING SPACE AT A POINT THAT ALLOW ADEQUATE WORK ROOM. COORDINATE WITH DATACOM FOR EXACT LOCATION PRIOR TO ROUGH-IN. CONTRACTOR TO PROVIDE JUNCTON BOX AND 3/4" CONCUIDT FOR DOOR
  - POSITION SENSOR(S) AT THIS LOCATION. ROUTE CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. COORDINATE ALL REQUIREMENT WITH SECURITY DRAWINGS ("SC" SERIES).

![](_page_126_Picture_14.jpeg)

![](_page_127_Figure_0.jpeg)

### **KEY NOTES** AS INDICATED BY: (#)----

- NEW FIRE ALARM SPEAKER STROBE MOUNTED AT 7'-0" AFF. (TYPICAL) EXTEND 1. AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND AND CONNECTIONS.
- 2. NEW FIRE ALARM STROBE MOUNTED AT 7'-0" AFF. (TYPICAL) EXTEND AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND AND
- CONNECTIONS. NEW FIRE ALARM MANUAL PULL STATION MOUNTED AT 48" AFF. (TYPICAL) EXTEND AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND

AND CONNECTIONS.

3.

NEW HEAT DETECTOR. (TYPICAL) EXTEND AND CONNECT TO EXISTING FIRE ALARM. MATCH EXISTING BRAND AND CONNECTIONS. INSTALL JUCTION BOX FOR CARD READER. BOX SHALL HAVE 3/4" CONDUIT INSTALLED FROM BACK BOX TO NEAREST ACCESSABLE CEILING SPACE AT A POINT THAT ALLOW ADEQUATE WORK ROOM. COORDINATE WITH DATACOM FOR EXACT LOCATION PRIOR TO ROUGH-IN. CONTRACTOR TO PROVIDE JUNCTON BOX AND 3/4" CONCUIDT FOR DOOR POSITION SENSOR(S) AT THIS LOCATION. ROUTE CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. COORDINATE ALL REQUIREMENT WITH SECURITY DRAWINGS ("SC" SERIES).

![](_page_127_Picture_9.jpeg)

![](_page_128_Figure_1.jpeg)

				. •						
MARK	EQUIPMENT DESCRIPTION	VOLTAGE	PHASE	PANEL	CIRCUIT	BREAKER	CONDUCTOR	CONDUIT	Comments	NOTE
111	FREEZER REACH-IN	120 V	1	FS	1	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-15R	1,2,3,4
112	REFRIGERATOR REACH-IN BOTTOM MOUNT	120 V	1	FS	3	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-15R	1,2,3,4
113	SANITARY CUBELET ICE MACHINE/DISPENSER	120 V	1	FS	9	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-15R	1,2,3,4
114	COMBINATION CASE	120 V	1	FS	2	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-15R	1,2,3,4
115	REFRIGERATOR DISPLAY	120 V	1	FS	5	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-15R	1,2,3,4
211	MICROWAVE OVEN	208 V	1	FS	6,8	30A	(2) #10 AWG + # 10 GND	1"	NEMA 6-30R	1,2,3,4
403	TEA DISPENSER	120 V	1	FS	13	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
404	COFFEE MAKER	120 V	1	FS	14	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
404	COFFEE MAKER	120 V	1	FS	17	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
404	COFFEE MAKER	120 V	1	FS	15	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
405	TEA DISPENSER	120 V	1	FS	12	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
412	COFFEE BREWER	120 V	1	FS	11	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
413	COFFEE MACHINE	120 V	1	FS	16	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
414	ICE COOLED DROP IN DESPENSER	120 V	1	FS	7	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
415	MHG SST	120 V	1	FS	10	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-15R	1,2,3,4
AC-1	AC-1	208 V	1	1LM	74,76	15A	(2) #12 AWG + # 12 GND	3/4"	AC-1	
CD-1	CD-1	208 V	1	1LM	74,76	15	(2) #12 AWG + # 12 GND	3/4"	CD-1	
NOPOS.	POST OF SALE/ CASH REGISTER	120 V	1	FS	4	20A	(2) #12 AWG + # 12 GND	3/4"	NEMA 5-20R	1,2,3,4
1. CC 2. PR 3. FO 4. PR	ORDINATE WITH ARCHITECTURAL FOR OVIDE GFCI CIRCUIT BREAKER IN SOUF OR ALL ELECTRICAL EQUIPMENT IN KITC CEPTACLE MOUNTING HEIGHTS NOTED OVIDE POWER FROM A GFCI CIRCUIT B	EXACT LOCA CE PANEL. HEN, CONTR M SCHEULE REAKER IN T	ATION AND ACTOR TO WITH KIN HE SOUR	) HEIGHTS COORDI CHEN EQ CE PANEL	NATE EXAC	ROUGH-IN. CT POWER R ROVIDER PF	EQUIREMENT, RECEPTACL RIOR TO INSTALL.	E NEMA CO	ONFIGURATION	S AND

![](_page_128_Figure_3.jpeg)

- A. THE INFORMATION CONTAINED ON THIS DRAWING AND THE INFORMATION CONTAINED ON THE OTHER POWER SHEETS AS WELL AS THE FOOD SERVICE DRAWINGS SHALL JOINTLY DEMONSTRATE THE REQUIREMENTS OF THE PROJECT.
- B. ROVIDE OPERATION OF THE SHUNT TRIP BREAKER (TO OPEN) FOR ALL BREAKERS SERVING ELECTRICAL CIRCUITS LOCATED UNDERNEATH THE KITCHEN HOODS. CONNECT TO DE-ENERGIZE UPON THE OPERATION OF THE HOOD SUPPRESSION SYSTEM. CONNECT GAS SOLENOID TO CLOSE VALVE
- UPON INITIATION. C. PROVIDE LOCAL DISCONNECTS FOR ALL EQUIPMENT THAT IS PROVIDED WITH DIRECT CONNECTION (NON-PLUG RECEPTACLE). ANY DISCONNECTS THAT ARE PROVIDED IN AREAS SUBJECT TO MOISTURE (I.E. DISHWASHING
- AREAS) SHALL BE STAINLESS STEEL AND RATED FOR NEMA 4X. D. PROVIDE 120V POWER FOR EACH HOOD SUPPRESSION SYSTEM AND EXTEND AND CONNECT TO THE BUILDING FACP UPON ACTIVATION.
- REFER TO THE KITCHEN EQUIPMENT DRAWINGS AND SPECIFICATIONS FOR Ε. SPECIFIC DETAILS REGARDING ELECTRICAL CONNECTIONS, DEVICES, DISCONNECTS AND LOAD INFORMATION.
- ALL 120V, 20A DUPLEX RECEPTACLES LOCATED IN THE KITCHEN, SERVING F. AREA AND DISHWASHING AREA SHALL BE GFCI TYPE. G. PROVIDE FOR ALL INTERLOCKING REQUIREMENTS TO ACCOMPLISH THE
- CONTROLS SEQUENCE INDICATED. Η. IN THE EVENT THAT NOT ALL SERVING LINES ARE INCLUDED IN THE PROJECT, PROVIDE FOR THE INSTALLATION AND ROUGH-IN OF ALL CONDUITS AND BOXES AS REQUIRED TO FACILITATE FUTURE INSTALLATION.
- REFER TO FOOD SERVICE DRAWINGS FOR SPECIFIC LOCATIONS WITH WEATHER-PROOF COVERS FOR CONVENIENCE RECEPTACLES. I.

### KEY NOTES AS INDICATED BY: (#)---

- 1. COORDINATE EQUIPMENT LAYOUT SHOWN IN THIS ROOM WITH FOOD SERVICE PROVIDER AND ARCHITECTURAL PLANS.
- REFER TO SHEET E-501 FOR RISER DIAGRAM AND PANEL SCHEDULE. JUNCTION BOX FOR POWER TO SECURITY WALL FIELD. COORDINATE WITH
- LIBRARY TECHNOLOGY/COMM. DOCUMENS. RACK MOUNTED QUAD 5-20R RECEPTACLE. MOUNT AT THE BACK OF 4. OVERHEAD LADDER RACK AT 7'-6" AFF. COORDINATE EXACT LOCATION WITH
- LIBRARY TECHNOLOGY/COMM. DOCUMENTS. NEW NEMA RATED COMMUNICATIONS GROUND BUS BAR (SBB). CONNECT 5.
- TO EXISTING COMM. GROUND BUS BAR IN DUNAGAN LIBRARY MDF ROOM USING 1#3/0AWG INSULATED AND STARNDED COPPER GROUNDING CONDUCTOR VIA EXOTHERMIC WELDING. REFER TO COMMUNICATIONS PLANS "T-001" AND "T-302" FOR MORE DETAIL. JUNCTION BOX FOR POWER TO SECURITY ACCESS CONTROL PANEL. 6.
- COORDINATE EXACT LOCATION WITH DUNAGAN LIBRARY SECURITY "SC" DRAWINGS.
- 7. REFER TO KITCHEN EQUIPMENT ELECTRICAL SCHEDULE ON THIS SHEET FOR CIRCUITING INFORMATION AND OTHER DETAILS.

![](_page_128_Picture_22.jpeg)

# KITCHEN EQUIPMENT ELECTRICAL SCHEDULE

![](_page_128_Picture_26.jpeg)

NELBOARD: STRIBUTION: JPPLY FROM: DCATION:	<u>1LM</u> 208Y/120V, 3 PH (NEW) DTT-1LM MAIN MECH 011	ASE, 4 WIRE								MIN AIC RATING: <u>10000</u> MCB <u>200 A</u> ENCLOSURE: <u>NEMA 1</u> MOUNTING: <u>SURFACE</u>			
TRIP AMPS	POLES	CIRCUIT DE	SCRIPTION	Α	В	С	Α	В	С	CIRCUIT DESCRIPTION	POLES	TRIP AMPS	C
20 A	1	RECEP	TACLE	360 VA			180 VA			RECEPTACLE	1	20 A	2
20 A	1	RECEP			360 VA	190 \/A		900 VA	000 \/A		1	20 A	4
20 A	1	RECEP	TACLE	180 VA		100 VA	180 VA		900 VA	RECEPTACLE	1	20 A	8
20 A	1	RECEP	TACLE		180 VA			180 VA		RECEPTACLE	1	20 A	10
20 A	1	RECEP	TACLE			720 VA			180 VA	RECEPTACLE	1	20 A	12
20 A	1	RECEP		180 VA	0001/4		360 VA	4001/4		RECEPTACLE	1	20 A	14
20 A	1	RECEP			360 VA	540 VA		180 VA	360 VA		1	20 A	10
20 A	1	RECEP	TACLE	720 VA		040 VA	2000 VA		300 VA	RECEPTACLE	1	20 A	20
20 A	1	RECEP	TACLE		2000 VA			180 VA		RECEPTACLE	1	20 A	22
20 A		RECEP	TACLE	7001/4		360 VA	700.1/1		540 VA	RECEPTACLE	1	20 A	24
20 A	1		TACLE	720 VA	720 \/4		720 VA	360 \/A			1	20 A 20 A	26
20 A	1 1	RECEP	TACLE		120 VA	720 VA		300 VA	360 VA	RECEPTACLE	1	20 A	30
20 A	1	RECEP	TACLE	540 VA			1000 VA			RECEPTACLE FULL	1	20 A	32
20 A	1	RECEP	TACLE		180 VA			1000 VA		RECEPTACLE FULL	1	20 A	34
20 A	1	RECEP		260 1/4		180 VA	360.1/4		1000 VA	RECEPTACLE FULL	1	20 A	36
20 A 20 A	1	RECEP	TACLE	300 VA	360 VA		300 VA	360 VA			1	20 A 20 A	38 40
20 A	1	RECEP	TACLE			540 VA			1000 VA	RECEPTACLE FULL	1	20 A	42
20 A	1	RECEP	TACLE	720 VA			720 VA			RECEPTACLE	1	20 A	44
20 A		RECEP			540 VA	540.1/4		360 VA	540.1/4		1	20 A	46
20 A 20 A	1	RECEP	TACLE	540 VA		540 VA	540 VA		540 VA	RECEPTACLE	1	20 A 20 A	48 50
20 A	1	RECEP	TACLE		540 VA			360 VA		RECEPTACLE	1	20 A	52
20 A	1	RECEP	TACLE			540 VA			360 VA	RECEPTACLE	1	20 A	54
20 A	1	RECEPTA		1000 VA	1000 \/A		1000 VA	190 \/A			1	20 A	56
20 A	1	RECEPTA			1000 VA	1000 VA		100 VA	360 VA	RECEPTACLE	1	20 A	60
20 A	1	RECEP	TACLE	540 VA			360 VA			RECEPTACLE	1	20 A	62
20 A	1	RECEP	TACLE		180 VA	0001/4		1000 VA	(000)(4	RECEPTACLE FULL	1	20 A	64
20 A	1	RECEP		180 \/A		360 VA	500 \/A		1000 VA		1	20 A	66
20 A	1	RECEP	TACLE	TOUVA	360 VA			500 VA				20 A	70
20 A	1	RECEP	TACLE			540 VA	$\checkmark$		360 VA	Y YRECEPTAQLE Y	1	20 A	72
20 A	1	RECEPTA		1000 VA	0.)/A	- (	1248 VA	1040 \/A		AC-1, DC-1	2	15 A	74
20 A	1	SPA SPA	RE RF		UVA	0 VA		1248 VA	0 VA	SPARE	1	20 A	76
20 A	1	SPA	RE	0 VA			0 VA		$\langle \rangle$	A SPARE A	1	20 A	80
20 A	1	SPA	RE		0 VA			<b>O</b> ∀A		SPARE		20 A	82
20 A	1	5PA	RE			UVA			0 VA	SPARE	1	20 A	84
ASE TOTALS	LOAD	CURRENT						NOTES:					
PHASE A	16208 VA	136 A	TOTAL CONN	ECTED LOAD	)	42976 V	A	1. PROV	IDE SING	LE SECTION PANEL WITH NUMBER OF F	POLES NO	DTED.	
PHASE B	13588 VA	114 A	ESTIMATED I	EMAND LOA	D	42976 V	A			LE WITTIGOLATED GROUND.			
PHASE C	13180 VA	110 A	DEMAND LIN	E AMPS		119 A							
		$\sim$						\				$\sim$	
			MEC	HANIC/ IBER OF		QUIP	MEN	TELE	ECTR	ICAL SCHEDULE		FUSE	
$\langle$	MARK	VOLTAGE	PHASE	POLES F	ANEL	CIRCUIT	BREAK		UIT	CONDUCTOR DISC	ONNECT	SIZE	NOT
$\leq$	AC-1	208 V		2	1LM 74	4,76	15 A	3/4		(2) #12 AWG + # 12 GND	0 A	0 A	1,3
	CD-1	206 V		2		+,70	15 A			(2) #12 AWG + # 12 GND	50 A	15 A	2,3

![](_page_129_Figure_1.jpeg)

	LIGHTING FIXTURE SCHEDULE									
TYPE	ELECTRICAL DATA	MANUFACTURER	MODEL	LAMP	DESCRIPTION					
A2	277 V/1-39 VA	LITHONIA	2VTL4-48L-ADP-EZ1-LP83	LED	2'X4' VOLUMETRIC RECESSED LED TROFFER					
A2E	277 V/1-39 VA	LITHONIA	2VTL4-48L-ADP-EZ1-LP83-EL14L	LED	SAME AS TYPE "A2" EXCEPT WITH EMERGENCY BATTERY PACK.					
B1	277 V/1-40 VA	COLUMBIA	CFP14-55/41/3440/FK14	LED	1'X4' VOLUMETRIC RECESSED LED TROFFER					
B1E	277 V/1-40 VA	COLUMBIA	CFP14-55/41/3440/PLD10M/FK14	LED	SAME AS TYPE "B1" EXCEPT WITH EMERGENCY BATTERY PACK.					
C12	277 V/1-40 VA	LIGHTART	LA2-CON-CONF-4H-VC-840CK-STD-STM-WP-WH	LED	12 FEET LED SUSPENDED LINEAR FIXTURE.					
C15	277 V/1-40 VA	LIGHTART	LA2-CON-CONF-4H-VC-840CK-STD-STM-WP-WH	LED	15 FEET LED SUSPENDED LINEAR FIXTURE.					
C25	277 V/1-40 VA	LIGHTART	LA2-CON-CONF-4H-VC-840CK-STD-STM-WP-WH	LED	25 FEET SUSPENDED LINEAR FIXTURE.					
C29	277 V/1-40 VA	LIGHTART	LA2-CON-CONF-4H-VC-840CK-STD-STM-WP-WH	LED	29 FEET SUSPENDED LINEAR FIXTURE.					
D1	277 V/1-23 VA	USAI LIGHTING	B4SDF-32FC1-90-SF-BL-NC-RM-RCP-01-32FC1-UNV-D23X1-WR	LED	INFINITE COLOR 4.5" SQUARE DOWNLIGHT					
D1E	277 V/1-23 VA	USAI LIGHTING	B4SDF-32FC1-90-SF-BL-NC-RM-RCP-01-32FC1-UNV-D23X1-WR	LED	SAME AS TYPE "D1" EXCEPT WITH EMERGENCY BATTERY PACK.					
F1	277 V/1-2202 VA	MARK	MSK101 PLAN LENGTH SECTION MOUNTING ARTC RGBW 400LMF 60X60DEG DARK MHCB MVOLT FINISH DMX MOUTNING SUSPENSION POWER CANOPY COLOR	LED	INFINITE COLOR 4.5" SQUARE DOWNLIGHT					
K1	277 V/1-38 VA	COOPER	GR-W-24-4-FA-LD4-120-40-A12125-UNV-ED1D1	LED	2'X4' VOLUMETRIC RECESSED LED TROFFER FOR WET LOCATION					
K1E	277 V/1-38 VA	COOPER	GR-W-24-4-FA-LD4-120-40-A12125-UNV-ED1D1-EL14W	LED	SAME AS TYPE "K1" EXCEPT WITH EMERGENCY BATTERY PACK.					
WE	277 V/1-47 VA	LITHONIA	WST-2-10A700/40K-SR3-MVOLT-DMG-ELCW-DDBXD	LED	SAME AS TYPE W EXCEPT WITH EMERGENCY BATTERY PACK					
X	277 V/ 0-7 VA	LITHONIA	EDG\EDGR-W-1-R-EL	LED	LED EXIT SIGN WITH RED LETTERS, MAINTENANCE-FREE NICAD BATTERY AND INTEGRAL SELF TEST. LITHONIA EDG\EDGR SERIES OR APPROVED EQUAL.					

					PAN	IELB	OAR	D SC	HED	ULE				
PANE	ELBOARD:	FS									MIN AIC RATING: 10000			
DIST	RIBUTION:	208Y/12	20V. 3 PHASE, 4 WIRE								MCB 200 A			
SUPPLIFROM. DIT-FS											ENCLOSURE: <u>NEWA I</u>			
LOCA	ATION:	Space 2	<u>24</u>								MOUNTING: <u>RECESSED</u>			
C	TRIP AMPS	POLES	CIRCUIT DES	CRIPTION	Α	В	C	Α	В	C	CIRCUIT DESCRIPTION	POLES	TRIP AMPS	S C
1	20 A	1	FREEZER RI	EACH-IN	960 VA			1050 VA			COMBINATION CASE	1	20 A	2
3	20 A	1	REFRIGERATOR REA	CH-IN BOTTOM		1323 VA			1000 VA		POST OF SALE/ CASH REGISTER	1	20 A	4
5	20 A	1	REFRIGERATO	R DISPLAY			345 VA			3120 VA	MICROWAVE OVEN	2	30 A	6
7	20 A	1	ICE COOLED DROP	IN DESPENSER	0 VA			3120 VA				-		8
9	20 A	1	SANITARY CUB	ELET ICE		1323 VA			1320 VA	0.1/1	MHG SST	1	20 A	10
11	20 A		COFFEE BF				0 VA			0 VA	I EA DISPENSER	1	20 A	12
13	20 A		TEA DISPE	NSER	0 VA	0.1/1		0 VA				1	20 A	14
15	20 A		COFFEE N			0 VA			0 VA	4000 1 /1		1	20 A	16
17	20 A	1	COFFEE M	IAKER			0 VA			1680 VA	RECEPTACLE	1	20 A	18
19	20 A		RECEPT		1500 VA	0000111		360 VA	0.1/2		RECEPTACLE	1	20 A	20
21	20 A	1	RECEPTA	ACLE		3000 VA			0 VA		SPARE	1	20 A	22
23	20 A	1	SPAR	E			0 VA			0 VA	SPARE	1	20 A	24
25	20 A	1	SPAR	E	0 VA			0 VA			SPARE	1	20 A	26
27	20 A	1	SPAR	E		0 VA	0.1/4		0 VA		SPARE	1	20 A	28
29	20 A	1	SPAR	E	· / ·		0 VA			0 VA	SPARE	1	20 A	30
31	20 A	1	SPAR	E	0 VA	0.1/4		0 VA	0.1/4		SPARE	1	20 A	32
33	20 A	1	SPAR	E		0 VA	0.1/4		0 VA		SPARE	1	20 A	34
35	20 A	1	SPAR	E	0.1/4		0 VA	0.1/4		0 VA	SPARE	1	20 A	36
37	20 A	1	SPAR		0 VA	0.1/4		0 VA	0.1/4		SPARE	1	20 A	38
39	20 A	1	SPAR			UVA	0.) (A		0 VA	0.1/4	SPARE	1	20 A	40
41	20 A	1	SPAR		0.1/4		UVA	0.)/A		0 VA	SPARE	1	20 A	42
43	20 A	1	SPAR		0 VA	0.)/A		UVA	0.1/4		SPARE	1	20 A	44
45	20 A	1	SPAR			UVA	0.1/4		UVA	0.1/0	SPARE SDADE	1	20 A	40
47	20 A	1	SPAR		0.1/4		UVA	0.1/0		UVA	SPARE SDADE	1	20 A	40
49	20 A	1	SPAR		UVA	0.1/0		UVA	0.1/0			1	20 A	50
53	20 A	1	SPAN SDAD			UVA	0.1/0		UVA	0.1/0		1	20 A	54
55	20 A	1	SPAR		0.\/A		UVA	0.1/4		UVA	SPARE	1	20 A	56
57	20 A	1	SPAR	F		0.\/A			0.\/A		SPARE	1	20 A	58
59	20 A	1	SPAR	F			0.VA		0 17	0.VA	SPARE	1	20 A	60
	2077		0174	-							or yate		2071	
PHA	SE TOTALS	L	DAD CURRENT						NOTES:					
P	HASE A	699	00 VA 61 A	TOTAL CONNECT		)	20101 V	Α	1. PROV	IDE GFCI C	RCUIT BREAKERS WHERE NOTED ON	PLANS/E	QUIPMENT	
P	HASE B	796	66 VA 69 A	ESTIMATED DEM	IAND LOA	D	20101 V	Α	ELECTRICAL SCHEDULE.					
P	HASE C	514	15 VA 43 A	DEMAND LINE AN	MPS		56 A							

				TRANSFC	RMER SCHEDULE			
	MARK	SIZE (IN kVA)	PRIMARY VOLTAGE	SECONDARY VOLTAGE	MOUNTING	GROUNDING ELECTRODE CONDUCTOR SIZE	NEMA TYPE	K RATING
	(NEW) DTT-1LM	75 KVA	480 V	208 V	4" CONCRETE HOUSKEEPING PAD	#2 GND	NEMA 1	13
KEYED NOTES								
1. PROVIDE A NEW 11 EXISTING SWICHB BREAKER SHALL M (3) #2 AWG + #6 GA (3) (4) #4/0 AWG + (2) #	DOA, 3-POLE, 48 DARD. KAIC RA IATCH EXISTING ID IN 1 1/44" CON 2 GND IN 3" CO	80V CIRCUIT BF TING OF NEW ( G IN SWITCHB( DUIT.) NDUIT.	REAKER IN CIRCUIT OARD.					
NEW				2		100 A/ 3Ø, 480V		
200 A/ 3Ø, 208V 3		NEW DRY-TYPE ANSFORMER "DTT-FS"		EXI SWITCHB 480Y/27 1000	STING OARD "MSB" 7V, 3Ø, 4W A MCB	NEV DRY-T TRANSFO "DTT- (K-1	N YPE DRMER ILM" 3)	<b>∨</b> ● ]
1 1	=						-	=
┯━┛└────								

A. LIGHTED EXIT SIGNS SHALL BE CONNECTED TO THE UNSWITCHED SIDE OF THE CIRCUIT SHOWN ON PLANS.
 B. AT LOCATIONS WHERE WRAPAROUND FIXTURES ARE INSTALLED IN AREAS WITHOUT CEILINGS, PROVIDE RIGID GALVANIZED STEEL CONDUIT PENDANTS AND STEEL FRAMING CHANNEL AS REQUIRED.

![](_page_129_Figure_8.jpeg)

![](_page_129_Picture_9.jpeg)

![](_page_130_Figure_0.jpeg)

![](_page_130_Picture_1.jpeg)

A. REFER TO GENERAL NOTES ON P-501.B. REFER TO SHEET A-410 FOR KITCHEN EQUIPMENT PLAN AND LAY-OUT.

# KEY NOTES

- 1 REMOVE SINK. PREPARE PIPING FOR CONNECTION TO NEW SINK. 2 REMOVE DISHWAHSER. REMOVE ASSOCIATED PIPING BACK TO SINK.
- 3 ROUTE 3/4" INDIRECT WASTE LINE UNDERCOUNTER FROM EQUIPMENT TO FLOOR SINK.
- 4 ROUTE 2" INDIRECT WASTE LINE UNDERCOUNTER FROM SINK (911) TO FLOOR SINK. 5 NEW SINK (911), EXTEND AND CONNECT NEW WATER LINES TO EXISTING WATER SUPPLÝ LINES IN EXISTING WALL.
- 6 EXTEND AND CONNECT NEW 3" SEWER AND 1-1/2" VENT LINES TO EXISTING SEWER AND VENT LINES. 7 ROUTE NEW 1-1/2" VENT LINE UP THROUGH ROOF.
- 8 SAW-CUT SLAB FOR INSTALLSTION OF NEW SEWER PIPING. PATCH TO MATCH EXISTING.
- ROUTE 1/2" COLD WATER LINE DOWN IN WALL AND RUN UNDERGROUND OVER TO PITCHER RISER. STUB UP AND INSTALL SHUT-OFF VALVE. STUB UP 2" DRAIN LINE FOR CONNECTION TO PITCHER RISER. COORDINATE LOCATION WITH EQUIPMENT LAY-OUT. VENT P-TRAP USING AN AIR ADMITTANCE VALVE (STUDOR VALVE).

![](_page_130_Picture_14.jpeg)

![](_page_131_Figure_0.jpeg)

5		6
	LEGEN	D
	œ	WALL MOUNTED CARD READER
ALLIC DATA, SIGNALING AND POWER CONDUCTORS FOR ENCE AND POLE/TOWER MOUNTED DEVICES/SENSORS	OP	DOOR POSITION SENSOR
AVE SURGE SUPPRESSORS WITH MANUFACTURER IENDED GROUNDING AT BOTH THE DEVICE AND	REX	REQUEST TO EXIT. (REX) (BY DIV 08)
		ELECTRIFIED DOOR HARDWARE WITH REMOTE LOCKDOWN
AL SURGE SUPPRESSORS WITH MANUFACTURER	X SC301	DOOR/OPENING CALLOUT REFER TO DESIGNATED DETAIL
IENDED GROUNDING.		INTERIOR DOME CAMERA WITH A MINIMUM 2MP (1080P)
CONTRACTOR NOTES:		RESOLUTION UNLESS OTHERWISE NOTED.
CAL CONTRACTOR IS RESPONSIBLE TO PROVIDE THE ING FOR SECURITY INFRASTRUCTURE: CONDUIT, SLEEVES, ND FLOOR BOXES. REFER TO ELECTRICAL AND MMUNICATIONS DRAWINGS.		EXISTING SURVEILLANCE CAMERA. FIELD VERIFY LOCATION, MANUFACTURER, MODEL, ACCESSORIES AND VIEW WITH THE OWNER.
VIDE AND INSTALL WALL MOUNTED ¾" FIRE RETARDANT WOOD FOR ALL SECURITY PANEL LOCATIONS. APPLY TE OR LIGHT COLORED PAINT TO ALL SIDES OF PLYWOOD		INTERIOR WIDE ANGLE IP DOME CAMERA WITH A MINIMUM 8MP RESOLUTION UNLESS OTHERWISE NOTED. PROVIDE ENVIRONMENTALLY CONTROLLED ENCLOSURE.
OR TO INSTALLATION. (BY ELECTRICAL CONTRACTOR, OR DESIGNATED BY C.M.) ER TO ARCHITECTURAL DRAWINGS TO COORDINATE WALL		8MP RESOLUTION UNLESS OTHERWISE NOTED. PROVIDE ENVIRONMENTALLY CONTROLLED ENCLOSURE.
CABINETRY BOX LOCATIONS.		EXTERIOR DOME CAMERA WITH A MINIMUM 2MP (1080P) RESOLUTION UNLESS OTHERWISE NOTED. PROVIDE
BOXES INSTALLED FOR SECURITY SHALL HAVE CONDUITS TALLED FROM BACK BOX TO NEAREST ACCESSIBLE CEILING CE AT A POINT THAT ALLOWS ADEQUATE VERTICAL WORK OM.		ENVIRONMENTALLY CONTROLLED ENCLOSURE.
CTOR SHALL PROVIDE RACEWAY INSTALLATION IN A R THAT WILL PROTECT ALL SECURITY CABLING FROM IICAL DAMAGE. INSTALL CONDUITS FOR SECURITY WITH ADIUS BENDS AND BUSHED ENDS.		
E DEDICATED RECEPTACLE CIRCUITS LOCATED ON OR ACH EQUIPMENT RACK LOCATED IN THE SECURITY ROOMS. AWINGS FOR EXACT LOCATIONS.		
CTOR SHALL INSTALL A TIED OFF NYLON PULL STRING IN		
ATION:		
AY ALL BOXES AND CONDUIT FOR SECURITY WITH A		
TINCTIVE COLOR FOR EASY IDENTIFICATION. COLOR SHALL DIFFERENT FROM OTHER TRADES.		
	ABBRE	
	AC: APS:	ACCESS CONTROL ACCESS CONTROL SYSTEM POWER SUPPLY
TE LOCAL AREA	AFF:	ABOVE FINISHED FLOOR
RING	BACS:	BUILDING ACCESS CONTROL SYSTEM
TELEPHONE POTS	CPU:	CENTRAL PROCESSING UNIT
	CR:	
	DGP: DVR:	DATA GATHERING PANEL DIGITAL VIDEO RECORDER
	DIV 01:	GENERAL REQUIREMENTS
	DIV 08:	OPENINGS ELEVATORS
	DIV 26:	ELECTRICAL
	DIV 27:	COMMUNICATIONS
	FOV:	DOOR POSITION SENSOR FIELD OF VIEW - CAMERA PICTURE
	EPSS:	ELECTRONIC PHYSICAL SECURITY SYSTEM
	GB:	
	KVM:	KEYBOARD-VIDEO-MOUSE SWITCH
	KP:	INTRUSION DETECTION KEYPAD
	LPR:	
	MD:	MOTION DETECTOR
<sup>©</sup> PATCH PANEL <sup>©</sup>	MP:	MEGAPIXEL - CAMERA RESOLUTION
	OFCI:	OWNER FURNISHED. CONTRACTOR INSTALLED
	OFOI:	OWNER FURNISHED, OWNER INSTALLED
SWITCH	PoE:	POWER OVER ETHERNET
	PP:	TELECOMMUNICATIONS PATCH PANEL
	TR:	TELECOMMUNICATIONS ROOM <idf-mdf></idf-mdf>
	UPS:	TRANSFER CONTROL/INTERNET PROTOCOL
	UTP:	UNSHIELDED TWISTED PAIR
	VMS:	VIDEO MANAGEMENT SYSTEM
	SC-001	
	SC-111C	CEED - FIRST FLOOR PLAN - AREA A - SECURITY CEED - FIRST FLOOR PLAN - AREA B - SECURITY
	SC-111L	LIBRARY - FIRST FLOOR PLAN - AREA A - SECURITY
	SC-112L	LIBRARY - FIRST FLOOR PLAN - AREA B - SECURITY
	SC-301 SC-302	DOOR ELEVATIONS - SECURITY DOOR ELEVATIONS - SECURITY
	+	
	SC-401	GENERAL DETAILS - SECURITY
EXISTING SECURITY RACK/CABINET		

![](_page_131_Picture_4.jpeg)

![](_page_132_Figure_0.jpeg)

	6			
GENERAL NOTES				
1.)	FIELD VERIFY ALL EXISTING AND PROPOSED CONDITIONS PRIOR TO DE PHASE AND START OF RENOVATION.			
2.)	EXISTING TELECOM ROOM AND ACTIVE EQUIPMENT SHALL REMAIN ACT AND PROTECTED FROM DUST, DEBRIS OR LOSS OF POWER FOR THE DURATION OF THE RENOVATION.			
3.)	EXISTING OSP FIBER AND COPPER CABLE IN EXISTING TELECOM ROOM REMAIN PROTECTED AND UNDISTURBED FOR THE DURATION OF THE RENOVATION.			
4.)	EXISTING COMMUNICATIONS AND SYSTEM CABLING SERVING OTHER SERVING OTHER SERVING OF CONSTRUCTION AREA SHALL NOT BE DAMAGED DURING D			
5.)	PROTECT EXISTING CABLING FROM PHYSICAL DAMAGE PRIOR TO DEMO AND THROUGH THE DURATION OF CONSTRUCTION, DAMAGED CABLING BE REPLACED, TERMINATED, TESTED AND LABELED.			

- 6.) COORDINATE WITH UTPB ON ALL EXISTING AND ABANDONED SERVICES PASSING THROUGH AREA OF DEMOLITION PRIOR TO DEMO PHASE.
- 7.) REMOVE ALL ABANDONED CABLING IN EXISTING TELECOM SPACE AND ABOVE ACCESSIBLE CEILING THROUGHOUT RENOVATED SPACE AS REQUIRED PER NEC.
- 8.) REPLACE, TERMINATE, LABEL AND TEST ANY CABLING THAT IS DAMAGED DURING DEMO WORK.
- 9.) RELOCATE ALL EXISTING COMMUNICATIONS AND SYSTEM CABLING TO REMAIN VIA NEW J-HOOK PATHWAYS.
- 10.) UTILIZE EXISTING PATHWAYS FOR NEW AND EXISTING CABLING WHERE POSSIBLE.
- 11.) UTILIZE CONDUIT PATHWAY FROM OUTLET TO ACCESSIBLE CEILING, NO EXPOSED CABLING.
- 12.) FRAME AND FINISH OPENING FOR ALL CONDUIT SLEEVES AND CABLE TRAY PENETRATIONS THROUGH FLOORS AND WALLS. FIRE STOP ALL PENETRATIONS AFTER CABLE PLACEMENT.
- 13.) J-HOOKS SHALL ONLY BE USED AT ACCESSIBLE CEILING LOCATIONS. CABLE SHALL NOT BE EXPOSED.
- 14.) COORDINATE WITH UTPB PRIOR TO REMOVAL AND STORAGE OF ALL UTPB OWNED AND OPERATED EQUIPMENT ON SITE.

![](_page_132_Picture_14.jpeg)

![](_page_132_Picture_19.jpeg)

![](_page_132_Picture_20.jpeg)

![](_page_133_Figure_0.jpeg)

## KEYED NOTES

SECURITY SYSTEM HEAD END EQUIPMENT. HOME RUN SECURITY SYSTEM FIELD DEVICE CABLING TO THIS LOCATION.

### GENERAL NOTES

- 1.) FIELD VERIFY ALL EXISTING AND PROPOSED CONDITIONS PRIOR TO DEMO PHASE AND START OF RENOVATION.
- 2.) EXISTING TELECOM ROOM AND ACTIVE EQUIPMENT SHALL REMAIN ACTIVE AND PROTECTED FROM DUST, DEBRIS OR LOSS OF POWER FOR THE DURATION OF THE RENOVATION.
- 3.) EXISTING OSP FIBER AND COPPER CABLE IN EXISTING TELECOM ROOM SHALL REMAIN PROTECTED AND UNDISTURBED FOR THE DURATION OF THE RENOVATION.
- 4.) EXISTING COMMUNICATIONS AND SYSTEM CABLING SERVING OTHER SPACES OUTSIDE OF CONSTRUCTION AREA SHALL NOT BE DAMAGED DURING DEMO.
- 5.) PROTECT EXISTING CABLING FROM PHYSICAL DAMAGE PRIOR TO DEMOLITION AND THROUGH THE DURATION OF CONSTRUCTION, DAMAGED CABLING SHALL BE REPLACED, TERMINATED, TESTED AND LABELED.
- 6.) COORDINATE WITH UTPB ON ALL EXISTING AND ABANDONED SERVICES PASSING THROUGH AREA OF DEMOLITION PRIOR TO DEMO PHASE.
- 7.) REMOVE ALL ABANDONED CABLING IN EXISTING TELECOM SPACE AND ABOVE ACCESSIBLE CEILING THROUGHOUT RENOVATED SPACE AS REQUIRED PER NEC.
- 8.) REPLACE, TERMINATE, LABEL AND TEST ANY CABLING THAT IS DAMAGED DURING DEMO WORK.
- 9.) RELOCATE ALL EXISTING COMMUNICATIONS AND SYSTEM CABLING TO REMAIN VIA NEW J-HOOK PATHWAYS.
- 10.) UTILIZE EXISTING PATHWAYS FOR NEW AND EXISTING CABLING WHERE POSSIBLE.
- 11.) UTILIZE CONDUIT PATHWAY FROM OUTLET TO ACCESSIBLE CEILING, NO EXPOSED CABLING.
- 12.) FRAME AND FINISH OPENING FOR ALL CONDUIT SLEEVES AND CABLE TRAY PENETRATIONS THROUGH FLOORS AND WALLS. FIRE STOP ALL PENETRATIONS AFTER CABLE PLACEMENT.
- 13.) J-HOOKS SHALL ONLY BE USED AT ACCESSIBLE CEILING LOCATIONS. CABLE SHALL NOT BE EXPOSED.
- 14.) COORDINATE WITH UTPB PRIOR TO REMOVAL AND STORAGE OF ALL UTPB OWNED AND OPERATED EQUIPMENT ON SITE.
- 15.) ROUTE ALL SECURITY CABLING TO TELECOM ROOM 116 FOR HEADEND CONNECTIVITY. SEE SHEET SC-111L FOR TELECOM ROOM LOCATION.

![](_page_133_Picture_23.jpeg)

![](_page_133_Picture_30.jpeg)

![](_page_133_Picture_31.jpeg)

![](_page_134_Figure_0.jpeg)

KEYED NOTES: (SECURE SIDE) / 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26) (3)UNSECURE SIDE)  $\langle 2 \rangle$  CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)  $\langle 4 \rangle$  $\langle 3 \rangle$  ELECTRIFIED STRIKE LOCK WITH LATCHBOLT PLAN VIEW MONITOR AND LATCHBOLT STRIKE MONITOR. (BY DIV 08)  $\langle 4 \rangle$  ELECTRIFIED EXIT DEVICE ON SECURE SIDE. (BY  $\left< 1 \right>$ DIV 08) ~(2) ----<u>}\_====</u>= (5) SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR CARD READER. (BY DIV 26) Fillse Ceiling MOUNT CARD READER ON UNSECURE SIDE 42"  $\langle 7 \rangle$  $\langle 6 \rangle$  AFF AND 6" OPTIMUM FROM DOOR. INFRARED REX ON SECURE SIDE. DIRECT  $\overline{(7)}$  SENSOR AWAY FROM THRESHOLD TO DETER UNDER-DOOR SPOOF ATTACKS. UNSECURE SIDE COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS.  $\langle 3 \rangle$  $\sqrt{5}$  $\langle \langle 6 \rangle \rangle$  $\langle 8 \rangle$ ELECTRIC STRIKE, EXIT DEVICE, PIR REX & CARD READER FINISHED FLOOR 2 ELECTRIC STR SCALE: NOT TO SCALE **ELEVATION VIEW KEYED NOTES:**  $\sqrt{1}$  $\langle 4 \rangle \langle 7 \rangle$ ---<u>-</u>----- $\langle 1 \rangle$  3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)  $\langle 2 \rangle$  CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED NEAR DOOR ABOVE ACCESSIBLE CEILING (BY DIV 26) SUP. `~\_\_\_\_\_UNP (3) CONCEALED DOOR POSITION SENSOR. PROVIDE 3/4"Ø <u>PLAN VIEW</u> CONDUIT AND REQUIRED FRAME AND PATHWAY PREPARATION. (1) $\langle 4 \rangle$  POWER TRANSFER FOR WIRE ROUTING TO J-BOX. (BY ----<u>-</u> DIV 08) \_\_\_\_\_ (5) PROVIDE 3/4"Ø CONDUIT, REQUIRED FRAME, AND PATHWAY PREPARATION FOR WIREWAY THROUGH DOOR.  $\sqrt{3}$  $\left< 5 \right>$  $\langle 3 \rangle$  $\langle 6 \rangle$  FAIL SECURE ELECTRIFIED LOCKSET. (BY DIV 08)  $\langle 7 \rangle$  SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR EXTERIOR CARD READER. (BY DIV 26)  $\langle 8 \rangle$  SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR INTERIOR CARD READER. (BY DIV 26)  $\langle 4 \rangle$  $\langle 4 \rangle ||$ <u>(6)</u>  $\langle 6 \rangle$  $\langle 7 \rangle$ ×8> (9) MOUNT CARD READER 42" AFF AND 6" OPTIMUM FROM \_\_\_\_^a a<u>–––––</u>––– DOOR. ((9)) (10) COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS.  $\langle 9 \rangle$ (10)-FINISHED FLOOR **ELEVATION VIEW** DOUBLE SIDED CARD READER DOUBLE DOOR SCALE: NOT TO SCALE **KEYED NOTES:**  $\langle 1 \rangle$  <sup>3</sup>/<sub>4</sub>"Ø CONDUIT TO ACCESSIBLE CEILING  $\langle 4 \rangle$  $\langle 4 \rangle$ FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26) | /---/(9)) UNSECURE SIDE  $\langle 2 \rangle$  CONCEALED 6" X 8" X 4" COVERED JUNCTION  $\sqrt{3}$  $\overline{3}$ BOX LOCATED NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)  $\overline{6}$ ----- $\langle 3 \rangle$  CONCEALED DOOR POSITION SENSOR.  $\left( 1 \right)$  $\langle 2 \rangle$ SECURE SIDE PROVIDE <sup>3</sup>/<sub>4</sub>"Ø CONDUIT AND REQUIRED FRAME AND PATHWAY PREPARATION. PLAN VIEW (4) STANDARD LOCKSET. (BY DIV 08)  $\langle 1 \rangle$  $\overline{(5)}$  COORDINATE WITH DIVISION 08 DOOR AND ----HARDWARE SPECIFICATIONS/DRAWINGS.  $\langle 3 \rangle$ SECURE SIDE SECURE SIDE <u>/</u>8 ((9)) 5 FINISHED FLOOR 8 DOUBLE MONITORED DOOR SCALE: NOT TO SCALE ELEVATION VIEW

![](_page_134_Figure_5.jpeg)

![](_page_135_Figure_0.jpeg)

3	4	5	6
KEYED NOTES:	<u> </u>	KEYED NOTES:	
(1) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL		(1) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)	SECURE SIDE
		2 CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED	UNSECURE SIDE 3
NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)		$\frac{3}{3}$ POWER TRANSFER FOR WIRE ROUTING TO J-BOX. (BY DIV 08)	$\sqrt{5}$
3 DOOR MONITOR SWITCH. PROVIDE 3/4"Ø CONDUIT AND REQUIRED FRAME AND PATHWAY PREPARATION.	UNSECURE SIDE PLAN VIEW	4 PROVIDE 3/4"Ø CONDUIT, REQUIRED FRAME, AND PATHWAY PREPARATION FOR WIREWAY THROUGH DOOR.	PLAN VIEW
4 PROVIDE REQUIRED FRAME AND PATHWAY PREPARATION FOR FUTURE POWER TRANSFER WIREWAY THROUGH DOOR. (BY	$\langle 1 \rangle$ $\langle 2 \rangle$	5 ELECTRIFIED LOCKSET WITH LATCHBOLT MONITOR AND REX SWITCHES. (BY DIV 08) THE REX SWITCH SHALL DISCONNECT	
		MAG LOCK POWER AND ACTIVATE REX INPUT ON THE DGP. CONNECT LATCHBOLT SWITCH TO DGP DOOR POSITION	
PREPARATION FOR WIREWAY THROUGH DOOR.		6 INFRARED REX ON SECURE SIDE. AIM SENSOR AT EXIT DEVICE	
$\langle 6 \rangle$ MECHANICAL LOCKSET (BY DIV 08) $\langle 7 \rangle$ ELECTRIFIED STRIKE LOCK WITH LATCHBOLT MONITOR AND		AND AWAY FROM DOOR THRESHOLD. THE REX CONTACTS SHALL DISCONNECT MAG LOCK POWER.	
LATCHBOLT STRIKE MONITOR. (BY DIV 08) $\overline{(8)}$ RP15 CARD READER MOUNTED TO FRAME ON UNSECURE SIDE		(7) SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR CARD READER. (BY DIV 26)	9
(9) COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS		8 MOUNT CARD READER 42" AFF AND 6" OPTIMUM FROM DOOR.	
SPECIFICATIONS/DIVAWINGS.		10 COORDINATE WITH DIVISION 08 DOOR AND HARDWARE	
		SPECIFICATIONS/DRAWINGS AS WELL AS THE AHJ.	
	9		
	FINISHED FLOOR		
2 SINGLE FRAME MOUNTED CARD READER DOOR W/ ELECTI	RIC STRIKE ELEVATION VIEW	3 SINGLE EGRESS DOOR WITH CARD READER AND SCALE: NOT TO SCALE	<u>D MAG LOCK</u>
<u>KEYED NOTES:</u> (1) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND	SECURE SIDE 7 1 2 5	$\frac{\text{KEYED NOTES:}}{(1) 3/4" \emptyset \text{ CONDUIT TO ACCESSIBLE CEILING}}$	
WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)	UNSECURE SIDE	FOR PATHWAY AND WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)	
NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)		CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BX DIV 26)	UNSECURE SIDE
3 ELECTRIFIED STRIKE LOCK WITH LATCHBOLT MONITOR AND LATCHBOLT STRIKE MONITOR. (BY DIV 08)	PLAN VIEW	(BY DIV 20) (3) CONCEALED DOOR POSITION SENSOR. PROVIDE 3/4"Ø	SECURE SIDE 1 2 PLAN VIEW
(4) ELECTRIFIED EXIT DEVICE ON SECURE SIDE. (BY DIV 08)	$\langle 1 \rangle$ $\langle 2 \rangle$	PREPARATION.	$\langle 1 \rangle$ $\langle 2 \rangle$
READER. (BY DIV 26)		$\langle 4 \rangle$ EXIT DEVICE. (BY DIV 08) $\langle 5 \rangle$ STANDARD CYLINDER W/ KEY OVERRIDE OR BLANK ON	
MOUNT CARD READER ON UNSECURE SIDE 42" AFF AND 6" OPTIMUM FROM DOOR.		UNSECURE SIDE AS REQUIRED. (BY DIV 08)	
(7) INFRARED REX ON SECURE SIDE. DIRECT SENSOR AWAY FROM THRESHOLD TO DETER UNDER-DOOR SPOOF ATTACKS.		SPECIFICATIONS/DRAWINGS.	
8 COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS.			
(5) SINGLE DOOR WITH ELECTRIC STRIKE, EXIT DEVICE, PIR R SCALE: NOT TO SCALE	EX & CARD READER <u>ELEVATION VIEW</u>	6 SINGLE MONITORED DOOR SCALE: NOT TO SCALE	ELEVATION VIEW
		1) 3/4"Ø CONDUIT TO ACCESSIBLE CEILING FOR PATHWAY AND	
		WIRING TO SECURITY CONTROL LOCATION. (BY DIV 26)         (2) CONCEALED 6" X 8" X 4" COVERED JUNCTION BOX LOCATED	
		NEAR DOOR ABOVE CEILING ACCESSIBLE TO SECURE SIDE. (BY DIV 26)	
		AGNETIC LOCK WITH INTEGRATED DOOR POSITION/BOND SENSOR. (BY DIV 08)	PLAN VIEW
		(4) POWER TRANSFER FOR WIRE ROUTING TO J-BOX. (BY DIV 08)	$\frac{1}{2}$
		PREPARATION FOR WIREWAY THROUGH DOOR.	
		LLECTRIFIED EXIT DEVICE WITH INTEGRAL REX SWITCH. (BY DIV 08) WIRE DPDT CONTACTS TO DISCONNECT LOCK POWER AND ACTIVATE REX.	
		7 SINGLE GANG JUNCTION BOX AND 3/4"Ø CONDUIT FOR CARD READER. (BY DIV 26)	
		8 MOUNT CARD READER ON UNSECURE SIDE 42" AFF AND 6"	UNSECURE SIDE UNSECURE SIDE
		9 INFRARED REX ON SECURE SIDE. DIRECT SENSOR AWAY	
		WIRE DPDT CONTACTS TO DISCONNECT LOCK POWER AND ACTIVATE DGP REX INPUT.	
		(10) COORDINATE WITH DIVISION 08 DOOR AND HARDWARE SPECIFICATIONS/DRAWINGS.	
NOT USED			
(8) SCALE: NOT TO SCALE		9 SCALE: NOT TO SCALE	ELEVATION VIEW

![](_page_135_Figure_11.jpeg)