EOU Fieldhouse Climbing Center
RFP #FP-2019-02J

ISSUE DATE: September 14, 2021
PRE-BID MEETING: September 28, 2021
DUE DATE: October 12, 2021

Eastern Oregon University is seeking Proposals for the Project described below pursuant to this **REQUEST FOR PROPOSALS** ("RFP"). By submitting a Proposal, the Offeror represents that they have carefully read the terms and conditions of this RFP, including all attachments and addenda, and agrees to be bound by them.

OWNER:
Eastern Oregon University
One University Boulevard
La Grande, OR 97850

PROJECT:
Fieldhouse Climbing Center
Eastern Oregon University

OWNER CONTACT PERSON - Offerors shall submit the Proposal to:
Eastern Oregon University
Attention: Lowann Vanleuven (lvanleuven@eou.edu)
Business & Finance Manager
Facilities & Planning Office
One University Blvd.
La Grande, Oregon 97850

PROPOSAL DUE DATE AND TIME:
All Proposals must be submitted pursuant to the instructions below. The Proposal shall be emailed in searchable PDF format, to Lowann VanLeuven, lvanleuven@eou.edu, (office 541-962-3020) and must be electronically received by **3:00PM Pacific Time, October 12, 2021.** The email subject line must include "**Climbing Center: RFP #FP-2021-02J**"

Offerors should telephone and confirm electronic receipt of the email document before the time and date above. Proposals delayed or lost by email filtering systems or failures, may be considered at EOU's sole discretion.

INTRODUCTION

Eastern Oregon University (EOU), Oregon's Rural University, is seeking proposals for a turnkey climbing facility in their Fieldhouse building. The fieldhouse is a 66,201 square foot building currently under construction that will offer an indoor practice facility for the Athletics Department, academic/lab space for the Human Health and Performance Program, and house the Outdoor Adventure Program (OAP). The climbing center is approximately 67,000 cubic feet and will serve the students and staff at EOU as well as the broader community.

PROJECT DESCRIPTION & SPECIFICATIONS

This project should fulfill the following objectives:

- Develop 3,500 sq. ft. of climbing surface that will integrate with space without compromising the existing structure. The climbing walls should maximize use of the space and building height. The desired climbing surface at minimum should include:
    - Climbing terrain designed to be accessible to all ages and all abilities
    - High performance climbing wall surface/system (if available)
    - 14 climbing stations (belay bars)
    - 2 lead climbing lines
    - 1 dry tooling station
    - 600 sq. ft. of bouldering wall
    - 2 auto belay stations
    - 1 built-in crack feature or volume crack system (i.e., Wide Boyz)
    - Rappel ledge – multipitch instruction (equipped w/ 4 sets double point anchors)
    - Adequate number of monochromatic holds - at approximately 1.5 holds/sq. ft.- to cover 75% of the climbing surface using a variety of hold types including volumes and macros. EOU will furnish the remaining wall area with holds from their old climbing facility.

In addition to the climbing wall features, the proposal should include all items required for a fully functional climbing center including:

- Flooring
    - Roped Route Flooring: 5" minimum thickness high durability material that can be easily cleaned with a broom or vacuum
    - Bouldering Flooring: 10" minimum thickness. High durability tear resistant nylon covering or approved alternate material
    - Transitions between various flooring materials and mats should be conspicuous so that trip hazards are minimized

ALTERNATE 1:

Add free-standing bouldering wall at minimum of 600+ sq. ft. to center of climbing area.

- Boulder should maximize available space
- Boulder should be approximately 14' in height

- Boulder will be complete with an assortment of holds including volumes and macros at approximately 1.5 holds/sq. ft.
- Bouldering Flooring: 10" minimum thickness. High durability tear resistant nylon covering or approved alternate material
- Reduce overall roped climbing surface to under 3000 sq. ft.

ALTERNATE 2:

Reduce the overall roped and bouldering wall surface to approximately 2700 sq. ft. Retain as many elements of original bid as possible.

ALTERNATE 3:

Offer cost comparison between high performance surface and lower cost panelized (modular) system if available.

ALTERNATE 4:

Develop at minimum 3,000 sq. ft. climbing surface minus these elements from original bid:

- 1 dry tooling station
- 2 auto belay stations
- 1 built-in or volume crack feature

IMPORTANT NOTICE

It will be the responsibility of potential proposers to refer daily to the Oregon Public Universities Shared Resources website (www.orpu.org) to check for any available addenda, response to clarifying questions, cancellations or other information pertaining to this Request for Proposals ("RFP").

SELECTION PROCESS

The selection process will follow procurement per EOU Policy 3.15.01. The first step in the process is an optional pre-proposal zoom meeting for all interested parties. The pre-prosomal meeting will be held via Zoom on September 28, at 2:00 PM. Proposers can access the meeting at the following link: https://eou.zoom.us/j/9366343571. The second step in the process is this Request for Proposals (RFP). The third step in the process is the submission of Proposals by Companies who wish to and are capable of performing the services EOU needs. The fourth step is a review and ranking of the Proposals by a selection committee. The fifth step is to recommend the highest-ranking firm for selection and contract negotiations.

Along with their proposal bidders will complete and sign the Bid Schedule (Attachment 1), including deductive and additive prices for all alternates listed. Proposals that do not include the bid schedule or Proposal Content listed below will be considered Non-Responsive.

EOU will seek to negotiate a contract and fee schedule with the highest-ranking firm. If unable to reach agreement, EOU will terminate negotiations and commence negotiations with the next highest ranked firm, and so forth. See Attachment 1 for EOU's Consultant Services Agreement Template.

The EOU Public Improvement Contract and General Conditions are included in the Attachments. These will be the contract documents the EOU enters into an agreement with the successful Proposers. Proposers should review these documents ensure they are able to meet the bonding and insurance requirements.

EOU reserves the right to reject any and all Proposals, and has the right, at its sole discretion, to accept the proposal it considers the most favorable, elect to conduct interviews if deemed necessary, the right to waive minor irregularities in procedures, seek clarifications, and negotiated a final contract that is in best interest of the EOU.

PROPOSAL CONTENT

Length & Format

EOU is not interested in boilerplate information or company brochures. All firms responding to this RFP shall provide relevant information that will be useful to the selection committee. Respondents are requested to use their discretion on the number of pages for the proposals. Proposals should be prepared economically and simply, use a minimum font size of 10 point. Emphasis should be on brevity, completeness, relevance, and clarity of content.

Proposal Requirements

The proposal shall describe the company's qualifications, abilities, resources, performance examples, and other information related to the company's expertise, focusing on the company's relevant experience with higher education projects and projects of similar size. Each proposal shall include the following sections:

A. Introduction Letter 0 Points

Includes contact information for the proposed point of contact for the work and proposed project manager.

B. Team Qualifications, Understanding & Approach 10 Points

Describe your Team & subconsultants areas of expertise, qualifications, special team members, and other information that would help to characterize the firm. Provide the address of the office that will manage the contract. Other potential elements to this section include:

- A description of the company's approach and methodology and potential scope of work, providing recommended modifications or additions. Describe how the project will be managed and provide a schedule that meet EOU's requirements listed in the RFP and in a manner that provides for consistent and timely execution of the scope of work. Include coordination, sequencing, control of resources, cost control, and how the project will be kept on schedule and budget.
- A description of how the project team will interact with EOU staff and what level of support and responsiveness that will be anticipated or expected from EOU.
- Professional services philosophy and methodology toward public university or public entity projects.

C. Project Manager & Key Personnel Qualifications 15 Points

The proposal shall identify the project manager and key personnel across the team who will work on this Project. Describe their expertise, relevancy, specific responsibilities, and other information that would help characterize each key team member. Indicate which team members have worked together on

previous projects, identify their time commitment and provide their contact information. Other potential elements to this section include:

- Qualifications, registrations, certifications and Oregon licensures of all key personnel across the team. A Structural Engineer licensed in the state of Oregon is required to develop and stamp plans that can be used for permitting, and ensuring the climbing structure integrates with the building structure so as to not overload the building structure in any way.
- A description and track record of the key personnel's ability to delivery projects on time and within budget.
- Proximity of the key personnel to EOU, indicating the office location where each will perform the work.
- Client references, including name and phone number of the contact who can speak to the performance of the key personnel.

D. Proposed Scope & Fee Estimate 50 Points

The proposal shall include a fee estimate in the bid schedule for the detailed scope.

E. Relevant Project Experience & Client References (2 pages maximum) 10 Points

Briefly describe similar projects executed by your team that demonstrates recent experience in providing similar services to universities or public entities within the last 10 years. Select a maximum of three (3) Client References. For each reference, provide detailed descriptions including the name, address, and phone number of a person to contact regarding your performance on the project. When submitting projects your firm worked in an auxiliary capacity, joint venture or partnership, include the name of the lead firm.

F. Schedule 15 Points

Provide a schedule detailing important events in developing the Fieldhouse Climbing Center. These events should include, but are not limited to:

- Programming and Design
- Owner Review and Approval
- Jurisdictional Approval
- Material Procurement
- Installation

The Fieldhouse is expected to reach completion in spring/summer of 2022. The desired timeframe has the climbing center complete in time for the start of the 2022 Fall Term in September. The building will be available for installation of the climbing center in January/February 2022.

SUBMITTAL INFORMATION

All Proposals must be submitted pursuant to the instructions below. The Proposal shall be emailed in searchable PDF format, to Lowann VanLeuven, lvanleuven@eou.edu, (office 541-962-3020) and must be electronically received by **3:00PM Pacific October 12, 2021.** The email subject line must include "**Climbing Proposal: RFP #FP-2021-02J**"

Offerors should telephone and confirm electronic receipt of the email document before the time and date above. Proposals delayed or lost by email filtering systems or failures, may be considered at EOU's sole

discretion.

REIMBURSEMENT

All costs for preparing the Proposals, attendance at interviews (if applicable), and other efforts and materials in pursuit of this RFP are the responder's responsibility.

REJECTION OR ACCEPTANCE OF PROPOSALS

EOU expresses the right to:

1. Reject any and all Proposals.
2. To assign any work to any respondent that it enters into price agreement with based on EOU's discretionary determination as to which responder is best suited to perform the work.

Publishing this proposal does not commit EOU to any contract, project award, or financial obligation to any of the respondents. EOU reserves the right to use whatever means it considers appropriate and prudent when selecting which firm is selected or determining when subsequent proposals are deemed necessary.

PROTESTS

Protests are subject to and must comply with EOU Policy 3.15.01.

PUBLIC RECORDS

Any information submitted through this RFP process shall be a public record. However, during the evaluation period, the proposals shall be considered confidential information. If any proposal contains information that is considered a trade secret under ORS 192.501(2), each sheet containing proprietary information shall be marked as follows:

"This data constitutes a trade secret and shall not be disclosed except in accordance with Oregon Public Records Law, ORS chapter 192."

EOU accepts no liability for the inadvertent or unavoidable release of any confidential information submitted, and claims arising out of any public record request for such information shall be at the consultant's expense. Identifying the proposal in whole as a trade secret is not acceptable. Failure to identity a portion of the proposal as a trade secret shall be deemed a waiver of any future claim of that information as a trade secret.

TAX ID NUMBERS

Proposers must provide their Federal and State of Oregon Taxpayer ID Number.

LOCAL, STATE, AND FEDERAL

Work under this contract may be funded in part, or in its entirety, with federal, state, and EOU funds. The selected respondent(s) shall comply with all federal, state, and local laws, executive orders and ordinances applicable to work under this contract, including, without limitation to CFR 75.326-329. In addition, the responders agree to comply with: (i) Title VI of the Civil Right Act of 1964; (ii) Section V of the Rehabilitation Act of 1973, (iii) the Americans with Disabilities Act of 1991 and ORS 659.425, (iv) all regulations and administrative rules established pursuant to the foregoing laws; and (v) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules, and regulations. Responder is subject to the Oregon Worker's Compensation Law and shall comply with ORS 656.017, which requires provisions of

Worker's Compensation coverage for all employees working under any contract resulting from this RFP. The City's programs, services, employment opportunities and volunteer positions are open to all persons without regard to race, religion, color, national origin, sex, age, marital status, disability or political affiliation.

TIMELINE

Post Request For Proposals	September 14, 2021
Pre-Proposal Zoom Meeting	September 28, 2021 at 2:00 PM
Written Proposals Due	October 12, 2021 by 3:00 PM
Rank Consultants	October 14, 2021
Begin Negotiations with Highest Ranked Company	October 15, 2021

ATTACHMENTS

ATTACHMENT 1 - Bid Schedule

ATTACHMENT 2 - Fieldhouse Plans

ATTACHMENT 3 - Fieldhouse Structural Calculations - Link to Google Drive

ATTACHEMNT 4 - Sample EOU Public Improvement Contract

ATTACHMENT 5- EOU General Conditions

Attachment 1- Bid Schedule

Bidders are to complete all line items in the table below providing quantities, unit pricing and total costs. Bidder shall also complete each alternate table indicating the additive or deductive cost for each item. All overhead, profit, administrative, design, project management fees and any items not listed in the bid schedule but are required to complete the climbing center are incidental and included in the bid line items. A signature is required at the bottom of the page.

Item No.	Original Bid	Quantity	Unit	Unit Price	Total Cost
1	Climbing structure including high performance surface and bolt anchors	1	SF		
2	Belay bars	14	EA		
3	Auto belay stations	2	EA		
4	Built-in crack feature	1	EA		
5	Dry tooling station	1	EA		
6	Rappel ledge	1	EA		
7	Climbing holds		EA		
8	Roped climbing route flooring		SF		
9	Bouldering floor/mat		SF		
				TOTAL BID PRICE =	

Total Bid in Words: _____

Item No.	Additive Alternate 1 Free Standing Boulder	Quantity	Unit	Unit Price	Total Cost
1	Roped climbing structure including all elements retained from original bid design minus wall-mounted bouldering surface	1	EA		
2	Free standing boulder	1	SF		
3	Holds		EA		
4	Bouldering floor/mat		SF		
				TOTAL ALTERNATE 1 ADDITIVE PRICE =	

Total Bid in Words: _____

Item No.	Deductive Alternate 2 Reduction to 2700 sq. ft.	Quantity	Unit	Unit Price	Total Cost
1	Climbing structure including all elements retained from original bid design minus 800 sq. ft. surface	1	EA		
				TOTAL ALTERNATE 2 DEDUCTIVE PRICE =	

Total Bid in Words: _____

Item No.	Deductive Alternate 3 Panelized System	Quantity	Unit	Unit Price	Total Cost
1	Cost of panelized (modular) wall surface w/ all elements of original bid	1	EA		
				TOTAL ALTERNATE 3 DEDUCTIVE PRICE =	

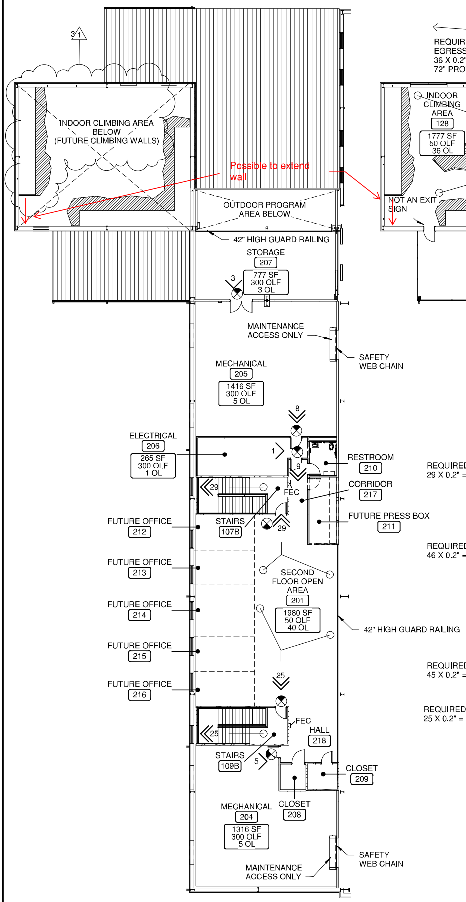
Total Bid in Words: _____

Item No.	Deductive Alternate 4 Reduction of 500 sq. ft and climbing wall elements	Quantity	Unit	Unit Price	Total Cost
1	Climbing structure including all elements retained from original bid design minus dry tooling station, built-in crack feature, and two auto belay devices	1	EA		
				TOTAL ALTERNATE 4 DEDUCTIVE PRICE =	

Total Bid in Words: _____

Signed: _____

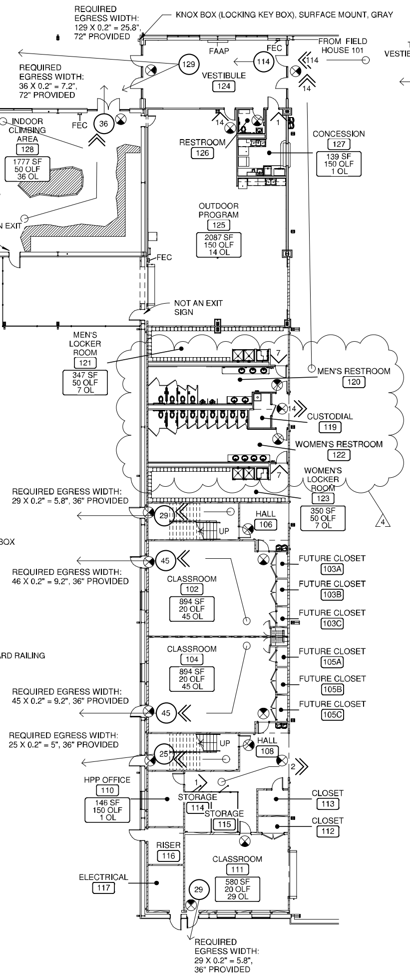
Attachment 2- Plans



CODE ANALYSIS PLAN - SECOND FLOOR

1/16" = 1'-0"

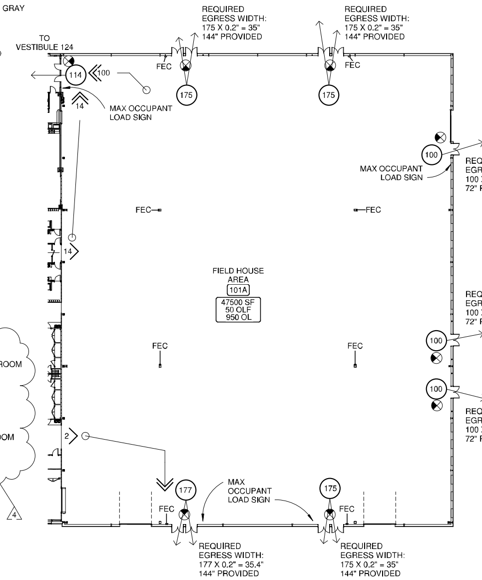
NORTH



CODE ANALYSIS PLAN - ANNEX

1/16" = 1'-0"

NORTH



CODE ANALYSIS PLAN - FIELD HOUSE

1" = 30'-0"

NORTH

LEGEND - CODE ANALYSIS

Symbol	Description
00	OCCUPANT LOAD PER ROOM
00	OCCUPANT LOAD DIRECTION OF TRAVEL
000	OCCUPANT LOAD EXITING THE BUILDING OR FLOOR ABOVE

2015 INTERNATIONAL FIRE CODE
APPENDIX B - FIRE FLOW REQUIREMENTS FOR BUILDINGS:

FIRE AREA:

BUILDING AREA:	58,860 SF
EQUIPMENT PLATFORM:	7,441 SF
COVERED EXTERIOR AREAS:	1,300 SF
AGGREGATE FIRE AREA:	67,601 SF

TABLE B105.1 – MINIMUM FIRE-FLOW & FLOW DURATION:	6,250 GPM / 4-HOURS
TABLE B105.2 – ALLOWABLE FIRE-FLOW ADJUSTMENTS:	6,250 X 25% = 1,562.5 GPM

OCCUPANT LOAD FACTORS

ASSEMBLY, W/O FIXED SEATS:	
(CHAIRS ONLY - NOT FIXED):	7 NET
STANDING SPACE:	5 NET
UNCONCENTRATED TABLES AND CHAIRS:	15 NET
BUSINESS AREA:	150 GROSS
CLASSROOM AREA:	20 NET
EXERCISE ROOMS \ LOCKER ROOMS:	50 GROSS
ACCESSORY \ STORAGE:	300 GROSS

OLF: OCCUPANT LOAD FACTOR
OL: OCCUPANT LOAD

Room Name
101
0 SF
OLF
OL

CODE ANALYSIS

2019 OREGON STRUCTURAL SPECIALTY CODE (OSSC) ANALYSIS

602.3 - CONSTRUCTION CLASSIFICATION: TYPE III-B
TYPE III CONSTRUCTION IS THAT TYPE OF CONSTRUCTION IN WHICH THE EXTERIOR WALLS ARE OF NONCOMBUSTIBLE MATERIALS, AND THE INTERIOR BUILDING ELEMENTS ARE OF ANY MATERIAL PERMITTED BY THIS CODE.

301-312 OCCUPANCY CLASSIFICATION:	A-3
903 - AUTOMATIC SPRINKLER SYSTEM:	YES, WET SYSTEM
TABLE 504.3 - ALLOWABLE BUILDING HEIGHT:	75'-0"
ACTUAL BUILDING HEIGHT:	46'-0"
TABLE 504.4 - ALLOWABLE NUMBER OF STORIES:	3
ACTUAL NUMBER OF STORIES:	1
506 – BUILDING AREA; SEE 507 "UNLIMITED AREA" CRITERIA	
507.4 – UNLIMITED AREA: A-3 OCCUPANCY, TYPE III-B CONSTRUCTION:	YES
≥ 60' PUBLIC WAYS OR YARDS ON ALL SIDES	YES

ACTUAL FLOOR AREA (GROSS; INCLUDING EXTERIOR WALLS)

MAIN FIELD HOUSE BLDG:	47,500 SF
WEST ANNEX GROUND FLOOR:	11,260 SF
*WEST ANNEX GROUND FLOOR:	7,441 SF
AGGREGATE GROSS BUILDING AREA:	66,201 SF

*NOTE: THE SECOND FLOOR IS REFERRED TO AS A MEZZANINE CONSTRUCTION DRAWINGS

508.2 - ACCESSORY OCCUPANCIES:	NO
508.3 - NON-SEPARATED OCCUPANCIES:	YES
508.4 - SEPARATED OCCUPANCIES:	NO
509 - INCIDENTAL USES:	NO
510 - SPECIAL PROVISIONS:	NO

TABLE 601 - FIRE RESISTANCE RATINGS FOR CONSTRUCTION TYPE III-B:

PRIMARY STRUCTURE:	0-HOUR
BEARING WALLS, EXTERIOR (NO EXTERIOR BEARING WALLS):	N/A
BEARING WALLS, INTERIOR:	0-HOUR
EXTERIOR NON-BEARING WALLS AND PARTITIONS:	SEE TABLE 602
NONBEARING WALLS, INTERIOR AND PARTITIONS:	0-HOUR
FLOOR CONSTRUCTION:	0-HOUR
ROOF CONSTRUCTION:	0-HOUR

TABLE 602 – FIRE RESISTANCE RATING FOR EXTERIOR WALLS
FIRE SEPARATION DISTANCE > 30' — 0-HOUR

716 - OPENING PROTECTIVES: NOT REQUIRED

TABLE 1004.5 – OCCUPANT LOAD:

FIELD HOUSE (& ROOMS THAT EXIT THROUGH FIELD HOUSE)

FIELD AREA = 47,500 SF/50 =	950
LOCKER ROOMS = 697 SF/50 =	14
GROUND FLOOR OFFICE = 146 SF/150 =	1
GROUND FLOOR STORAGE = 151 SF/300 =	1
SUBTOTAL FOR FIELD HOUSE =	966 OCCUPANTS

OVERALL BUILDING OCCUPANT LOAD

FIELD HOUSE =	966
COLLEGE CLASSROOMS = 2,368 SF/20 =	119
SECOND FLOOR OPEN AREA = 1,980 SF/50 =	40
SECOND FLOOR ACCESSORY (MECH/ELEC) = 3929 SF/300 =	14
OUTDOOR PROGRAM + CONCESSION= 2,226 SF/150 =	15
CLIMBING ROOM = 1,777 SF/50 =	36
TOTAL BUILDING OCCUPANT LOAD =	1,190 OCCUPANTS

1005 – EGRESS WIDTH FOR FIELD HOUSE PORTION OF BUILDING

TABULATED EGRESS WIDTH FROM FIELD HOUSE= 1,190 X 0.2" =	238"
ACTUAL EGRESS WIDTH FROM FIELD HOUSE =	*1,116"

*1,116" EGRESS WIDTH = 5,580 OCCUPANT EXITING CAPACITY

TABLE 1006.3.2 – 4 EXITS REQUIRED FROM FIELD HOUSE — 14 PROVIDED

TABLE 2902.1 - MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES:

4

PLUMBING FIXTURE RATIONS FOR WOMEN (W) AND MEN (M):

ASSEMBLY: (TRACK & FIELD AREA+LOCKER ROOMS+CLIMBING AREA+SECOND FLOOR) = (950+14+36+40) = 1040/2 =	520-W	520-M
OFFICES: (OFFICES+OUTDOOR PROGRAM) = (1+6+15) = 22/2 =	11-W	11-M
CLASSROOMS: 119/2 =	60-W	60-M
ACCESSORY: (MECH/ELEC+STORAGE) = (14+1) = 15/2 =	8-W	8-M

WOMEN'S PLUMBING FIXTURE COUNT	W.C.		LAV
ASSEMBLY W.C.: 520/65 =	8.00	LAV: 520/200 =	2.60
OFFICES W.C.: 11/25 =	0.44	LAV: 11/40 =	0.28
CLASSROOMS W.C.: 60/50 =	1.20	LAV: 60/50 =	1.20
ACCESSORY W.C.: 8/100 =	0.08	LAV: 8/100 =	0.08
TOTAL WOMEN'S FIXTURE COUNT:	10		5
TOTAL PROVIDED (INCLUDING 1-UNISEX RR)	10		5

MEN'S PLUMBING FIXTURE COUNT	W.C.		LAV
ASSEMBLY W.C.: 520/125 =	4.16	LAV: 520/200 =	2.60
OFFICES W.C.: 11/25 =	0.44	LAV: 11/40 =	0.28
CLASSROOMS W.C.: 60/50 =	1.20	LAV: 60/50 =	1.20
ACCESSORY W.C.: 8/100 =	0.08	LAV: 8/100 =	0.08
TOTAL MEN'S FIXTURE COUNT:	6		5
TOTAL PROVIDED:	6		5

Meier
ARCHITECTURE, INC
12 W. Kennewick Ave.,
Kennewick, WA 99336
P: 509.735.1589
F: 509.783.5075
www.meierinc.com

NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	EOU COMMENTS	5/8/2020	MCD	ETL	ETL	DRE
2	AHJ COMMENTS	6/10/2020	MCD	ETL	ETL	DRE
3	FIELD HOUSE SOUTH END REDUCTION	10/6/2020	AVR	ETL	ETL	DRE
4	AHJ COMMENTS	10/27/20	AVR	ETL	ETL	DRE

REGISTERED ARCHITECT
EDWARD T. LUEBBEN
KENNEWICK, WASHINGTON
3038
STATE OF OREGON

APPROVAL		
DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	ETL	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LA GRANDE, OR

CODE ANALYSIS

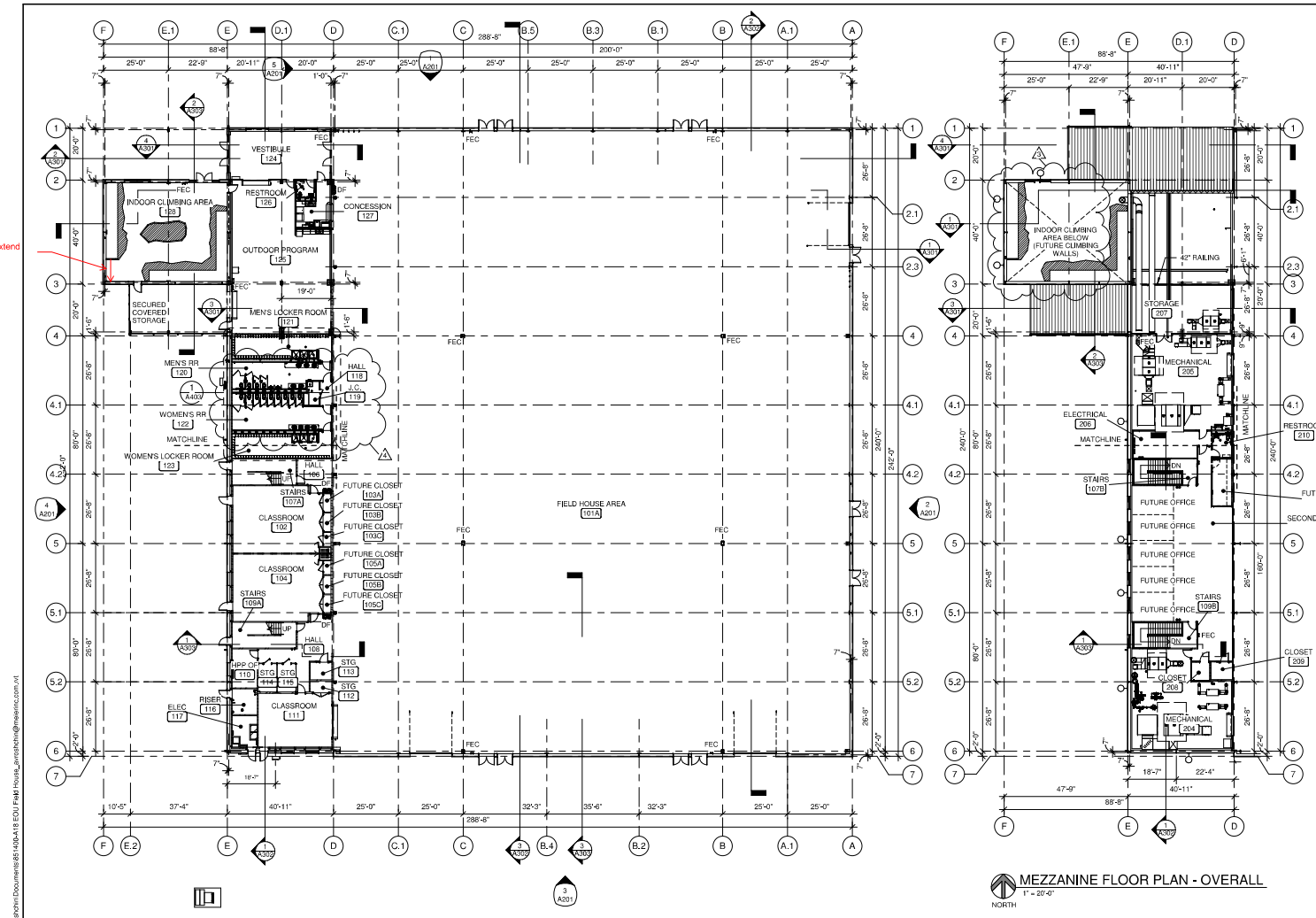
DWG. NO. T002

SCALE: As indicated

ISSUE DATE: 6/11/2020

JOB NO. 8514

REV. 4



GROUND FLOOR PLAN - OVERALL
1" = 20'-0"
NORTH

MEZZANINE FLOOR PLAN - OVERALL
1" = 20'-0"
NORTH

FLOOR PLAN NOTES

1. FOR NOTES AND LEGENDS, REFER TO **T001** AND **A001**.
2. DO NOT SCALE DRAWINGS. IF DIMENSIONAL INFORMATION IS REQUIRED, NOTIFY ARCHITECT IMMEDIATELY FOR CLARIFICATION.
3. ALL INTERIOR WALLS ARE TYPE A, UNO.
4. DOOR NUMBER IS SAME AS ROOM NUMBER THE DOOR SWINGS INTO. UNLESS NOTED OTHERWISE.
5. FURNITURE AND EQUIPMENT SHOWN HALFTONED IS NOT IN CONTRACT (NIC) AND SHOWN FOR REFERENCE ONLY.
6. PROVIDE TILE BACKER BOARD BEHIND ALL RESTROOM WALL TILE. TYP. PER CODE.
7. MOUNT FIRE EXTINGUISHER CABINETS (FEC) AT 5'-0" ABOVE FINISH FLOOR TO TOP OF CABINET.
8. ALL DOOR FRAMES ARE TO BE INSTALLED 4" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS NOTED OTHERWISE.
9. REFER TO ROOM FINISH SCHEDULE FOR INTERIOR FINISH INFORMATION.
10. CLIMBING STRUCTURES ARE SHOWN FOR REFERNCE ONLY. IT WILL BE DEVELOPED IN THE FUTURE.

FLOOR PLAN LEGEND

CLT (CROSS LAMINATED TIMBER) PANEL

MATCH LINE

Meier ARCHITECTURE INC
12 W. Kennewick Ave.,
Kennewick, WA 99336
P: 509.735.1589
F: 509.783.5075
www.meierinc.com

NO.	REVISION	DRWN	CHKD	DESGN	APPD
1	EOU COMMENTS	ETL	ETL	ETL	DRE
2	AHJ COMMENTS	MCD	ETL	ETL	DRE
3	FIELD HOUSE SOUTH END REDUCTION	AVR	ETL	ETL	DRE
4	AHJ COMMENTS	AVR	ETL	ETL	DRE

DATE
6/11/2020
8/10/2020
10/6/2020
10/27/20

REGISTERED ARCHITECT EDWARD T. LIEBSON 3038 STATE OF OREGON

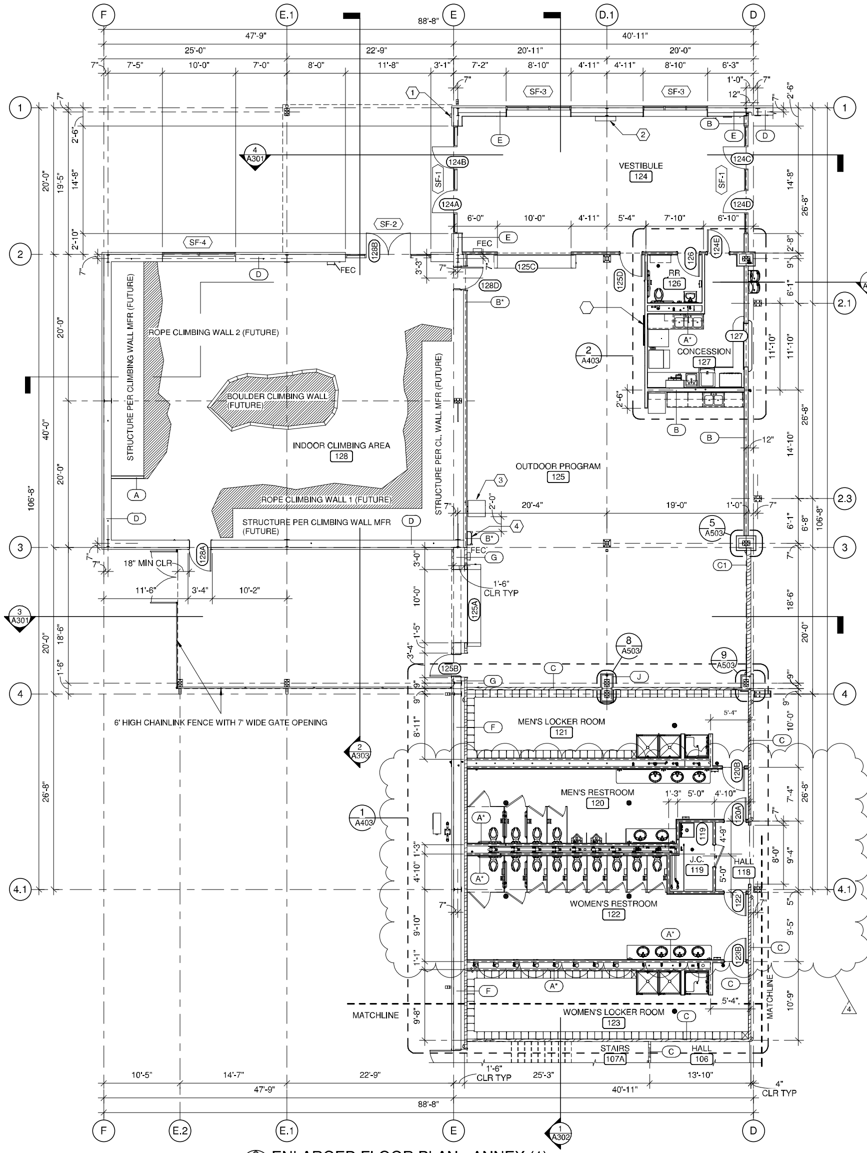
APPROVAL		
DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	DRE	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY
FIELD HOUSE
LA GRANDE, OR

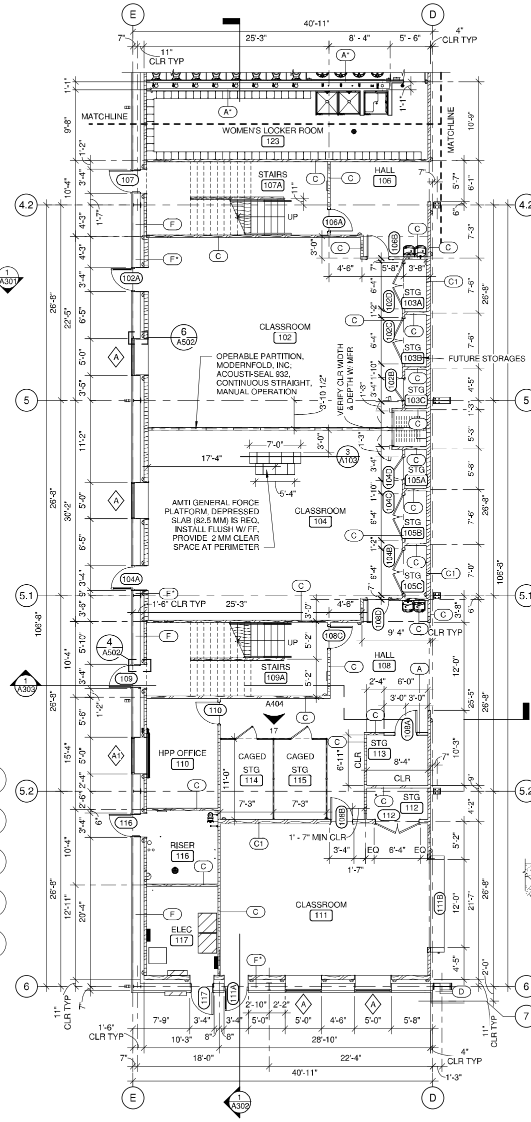
FLOOR PLANS - OVERALL

DWG. NO.
A101

SCALE: As indicated
ISSUE DATE: 6/11/2020
JOB NO. 8514
REV. 4



ENLARGED FLOOR PLAN - ANNEX (1)
1/8" = 1'-0"
NORTH



ENLARGED FLOOR PLAN - ANNEX (2)
1/8" = 1'-0"
NORTH

FLOOR PLAN NOTES

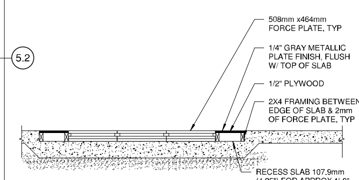
1. FOR NOTES AND LEGENDS, REFER TO **T001** AND **A001**.
2. DO NOT SCALE DRAWINGS, IF DIMENSIONAL INFORMATION IS REQUIRED & NOT FOUND, NOTIFY ARCHITECT IMMEDIATELY FOR CLARIFICATION.
3. ALL INTERIOR WALLS ARE TYPE A, UNO.
4. DOOR NUMBER IS SAME AS ROOM NUMBER THE DOOR SWINGS INTO UNLESS NOTED OTHERWISE.
5. FURNITURE AND EQUIPMENT SHOWN HALFTONED IS NOT IN CONTRACT (NIC) AND SHOWN FOR REFERENCE ONLY.
6. PROVIDE TILE BACKER BOARD BEHIND ALL RESTROOM WALL TILE, TYP.
7. MOUNT FIRE EXTINGUISHER CABINETS (FEC) AT 5'-0" ABOVE FINISH FLOOR TO TOP OF CABINET. AT GRID 5 FACE NORTH.
8. ALL DOOR FRAMES ARE TO BE INSTALLED 4" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS NOTED OTHERWISE.
9. REFER TO ROOM FINISH SCHEDULE FOR INTERIOR FINISH INFORMATION.
10. CLIMBING STRUCTURES ARE SHOWN FOR REFERNCE ONLY. IT WILL BE DEVELOPED IN THE FUTURE.

KEYNOTE LEGEND

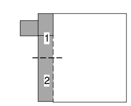
NO.	DESCRIPTION
1	KNOX BOX(LOCKING KEY BOX), SURFACE MOUNT, GRAY
2	FIRE ANNUNCIATOR PANEL
3	WASHER DRYER: GE UNITIZED SPACEMAKER STACK WASHER WITH ELECTRIC DRUER GUV27ESSMWW
4	METAL LADDER PER OSHA REQUIREMENTS, PAINT

FLOOR PLAN LEGEND

- FULL HEIGHT WALL, GROUND FLOOR TO BOTTOM OF CLT FLOOR (ALL CLT WALLS ARE FULL HEIGHT BY DEFAULT)
- MATCH LINE
- INDICATES CLT (CROSS-LAMINATED TIMBER) WALL, SEE WALL TYPES AND WALL SECTIONS FOR DETAILS
- INDICATES INSULATED METAL PANEL, SEE WALL TYPES AND WALL SECTIONS FOR DETAILS



3 FORCE PLATE SECTION
1/2" = 1'-0" REF. A103



KEY PLAN

Meier ARCHITECTURE, INC
12 W. Kennewick Ave., Kennewick, WA 99336
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www.meierinc.com

NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	EOU COMMENTS	5/8/2020	MCD	ETL	ETL	DRE
2	AHJ COMMENTS	6/10/2020	MCD	ETL	ETL	DRE
3	FIELD HOUSE SOUTH END REDUCTION	10/6/2020	AVR	ETL	ETL	DRE
4	AHJ COMMENTS	10/27/20	AVR	ETL	ETL	DRE

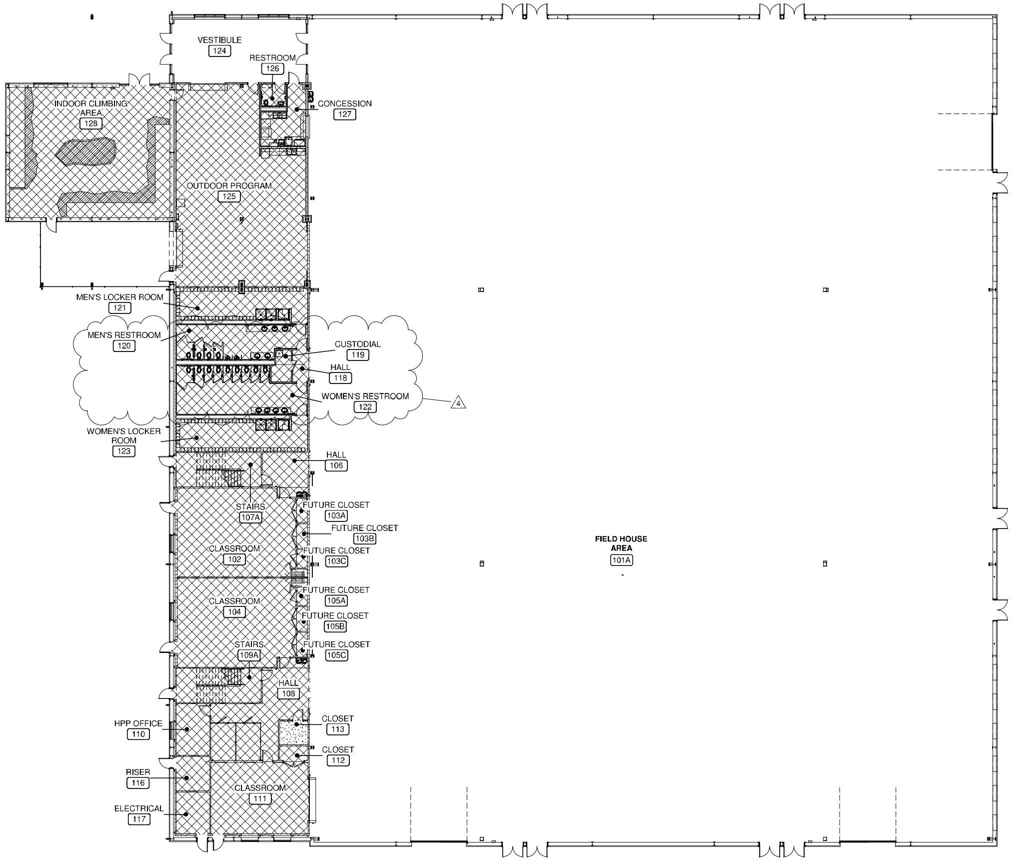
REGISTERED ARCHITECT EDWARD T. LUEBBEN KENNEWICK, WASHINGTON 3038 STATE OF OREGON

APPROVAL		
DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	DRE	04/09/2020

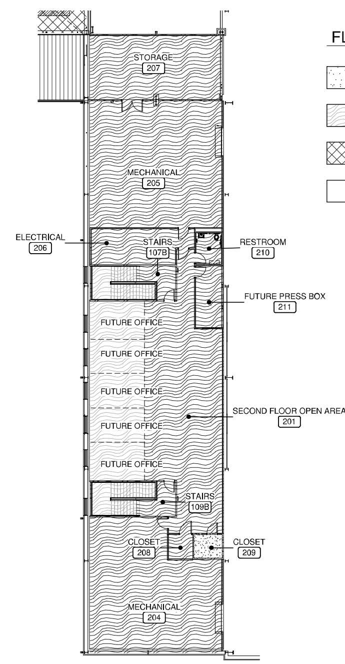
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY
FIELD HOUSE
LA GRANDE, OR

ENLARGED FLOOR PLAN - ANNEX

DWG. NO. A103
SCALE: As indicated
ISSUE DATE: 4/9/2020
JOB NO. 8514
REV. 4



GROUND FLOOR FINISH PLAN



MEZZANINE FLOOR FINISH PLAN

FLOOR FINISH NOTES

1. FOR NOTES AND LEGENDS, REFER TO **T001** AND **A001**.
2. VERIFY ALL FLOOR PATTERN LAYOUTS WITH ARCHITECT.
3. FOR CLARITY, GRID LINES ARE NOT SHOWN.
4. ALL FLOORING/COLOR TRANSITIONS, WHERE REQUIRED, SHALL BE CENTERED UNDER DOOR, UNO.
5. HEAVY LINE WEIGHT AT DOOR THRESHOLD INDICATES MATERIAL TRANSITION, TYP.
6. ALIGN ALL MATERIAL TRANSITIONS AND TILE JOINTS AS SHOWN WITH THE PATTERN AND RELATIVE TO ADJACENT ARCHITECTURAL ELEMENTS.

FLOOR FINISH LEGEND

- PLYWOOD
- CLT FLOOR
- SEALED CONCRETE
- TRACK SURFACE

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1	EOU COMMENTS	5/8/2020	MCD	ETL	ETL	DRE
2	AHJ COMMENTS	6/10/2020	MCD	ETL	ETL	DRE
3	FIELD HOUSE SOUTH END REDUCTION	10/6/2020	AVR	ETL	ETL	DRE
4	AHJ COMMENTS	10/27/20	AVR	ETL	ETL	DRE

REGISTERED ARCHITECT
EDWARD T. LUEBBEN
KENNEWICK, WASHINGTON
3038
STATE OF OREGON

APPROVAL		
DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	DRE	04/09/2020

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EASTERN OREGON UNIVERSITY
FIELD HOUSE
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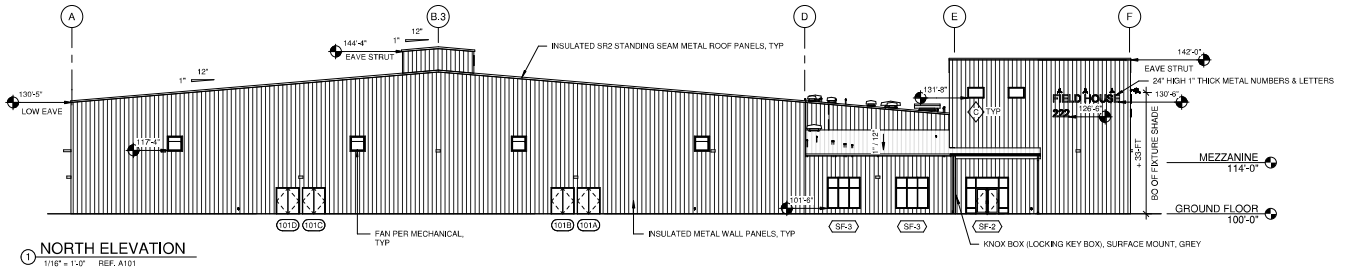
FLOOR FINISH PLAN

DWG. NO.
A109

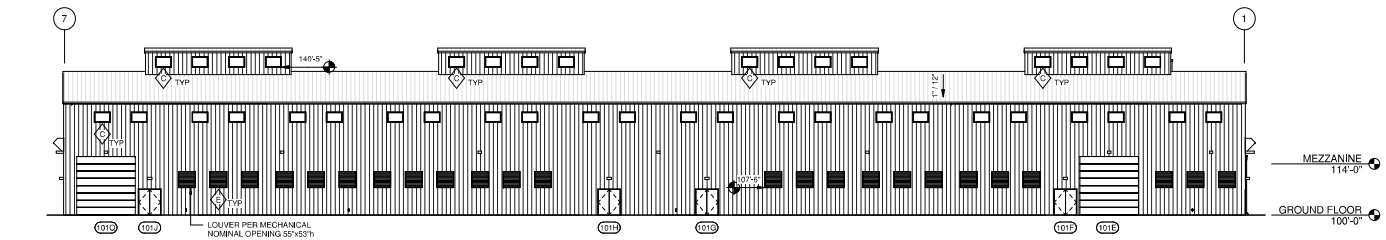
SCALE: As indicated
ISSUE DATE: 4/9/2020
JOB NO. 8514
REV. 4

10/28/2020 10:48:14 AM C:\Users\avrochin\Documents\851400-A18 EOU Field House_avrochin@meierinc.com.rvt

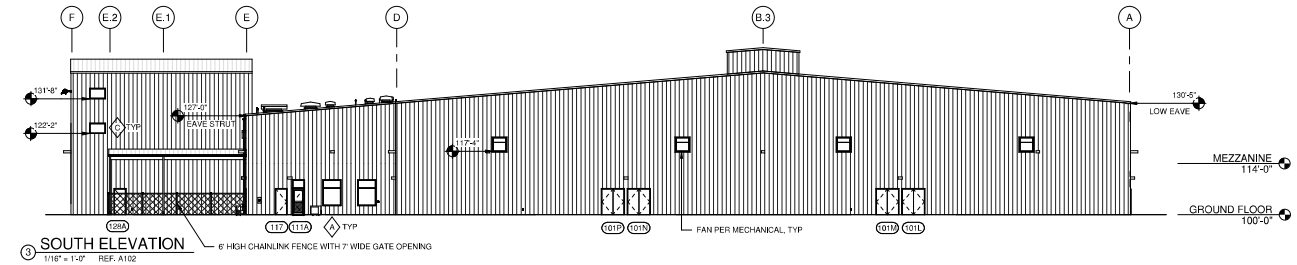
* Plan does not reflect reduced building size from value engineering, relocation of window in climbing area and reconfiguration of climbing walls.



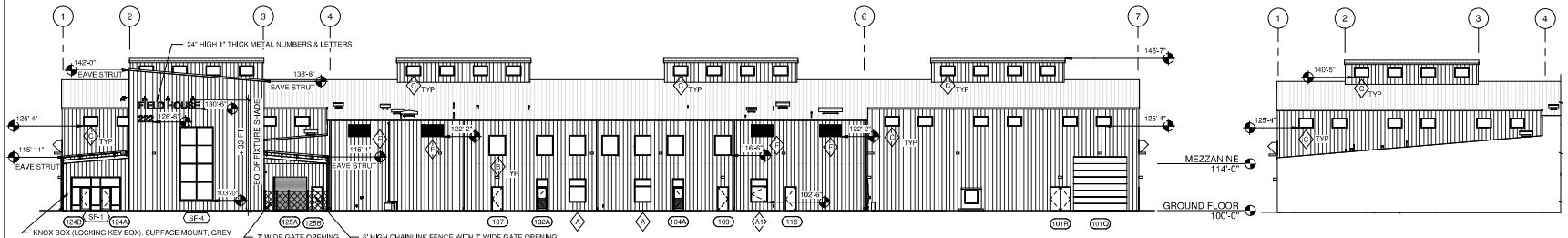
1 NORTH ELEVATION
1/16" = 1'-0" REF. A101



2 EAST ELEVATION
1/16" = 1'-0" REF. A101



3 SOUTH ELEVATION
1/16" = 1'-0" REF. A102



4 WEST ELEVATION
1/16" = 1'-0" REF. A101

5 WEST ELEVATION
1/16" = 1'-0" REF. A101

EXTERIOR ELEVATION NOTES

EXTERIOR FINISH NOTES REFER TO BUILDING.

SEE BELOW FOR EXTERIOR PAINT KEY.

EXTERIOR HM DOORS SHALL BE PAINT 1.

EXTERIOR HM FRAMES SHALL BE PAINT 1.

EXTERIOR METAL FASCIA & TRIM SHALL BE COLOR 2.

METAL INSULATED WALL PANELS SHALL BE COLOR 3 UNO ON EXT ELEVATIONS.

EXTERIOR EXPOSED FLASHING PAINT COLOR SHALL MATCH ADJACENT SURFACE.

METAL ROOF SHALL BE PREFINISHED IN COLOR 2.

ROOF TOP COWLS, AND ASSOCIATED FLASHING SHALL BE PREFINISHED IN COLOR 4.

ALL LOUVERS AND EXHAUST FANS SHALL BE COLOR 5.

ALL WINDOW FRAMES SHALL BE ALUMINUM AND IN COLOR 6.

ALL EXTERIOR EXPOSED STEEL SHALL BE PAINTED TO MATCH PAINT 7.

ALL GUTTERS AND DOWNSPOUTS SHALL BE PREFINISHED IN COLOR SELECTED BY ARCHITECT.

EXTERIOR FINISH KEY

PAINT 1: PAINT TO MATCH AWIP PVDF PEARL GREY.

PAINT 2: AWIP PVDF SLATE GREY, AW 500.

PAINT 3: AWIP PVDF PEARL GREY, AW 500.

PAINT 4: GREEN HECK "GRAY" 040, ENAMEL.

PAINT 5: GREEN HECK "TAUPE" 035, ENAMEL.

PAINT 6: KAWNEER DARK BRONZE.

PAINT 7: PAINT TO MATCH AWIP PVDF SLATE GREY.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED ARCHITECT
EDWARD T. LIEBSON
3038
STATE OF OREGON

APPROVAL		
DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	DRE	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY
FIELD HOUSE
LA GRANDE, OR

EXTERIOR ELEVATIONS

DWG. NO.
A201

SCALE: As indicated
ISSUE DATE: 4/9/2020
JOB NO. 8514
REV. 0

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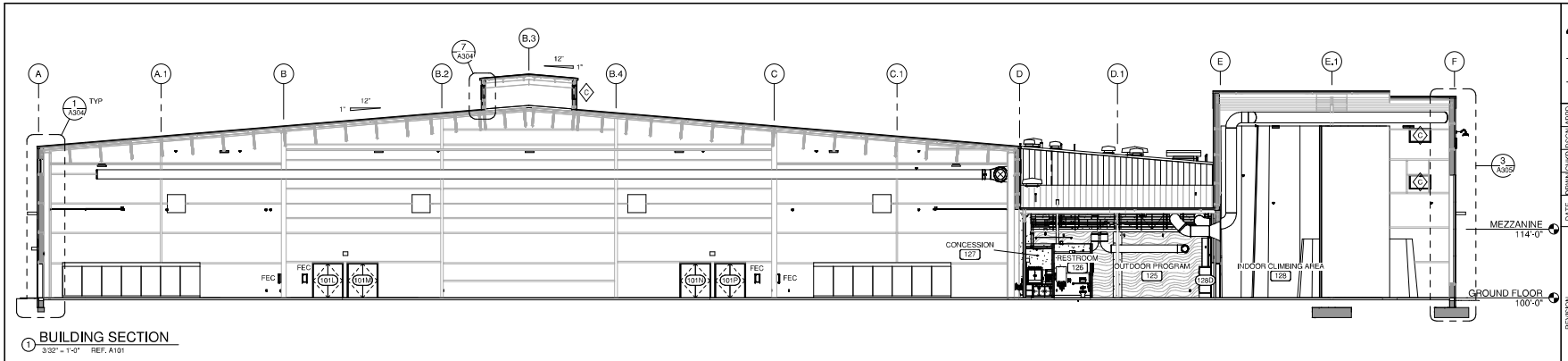
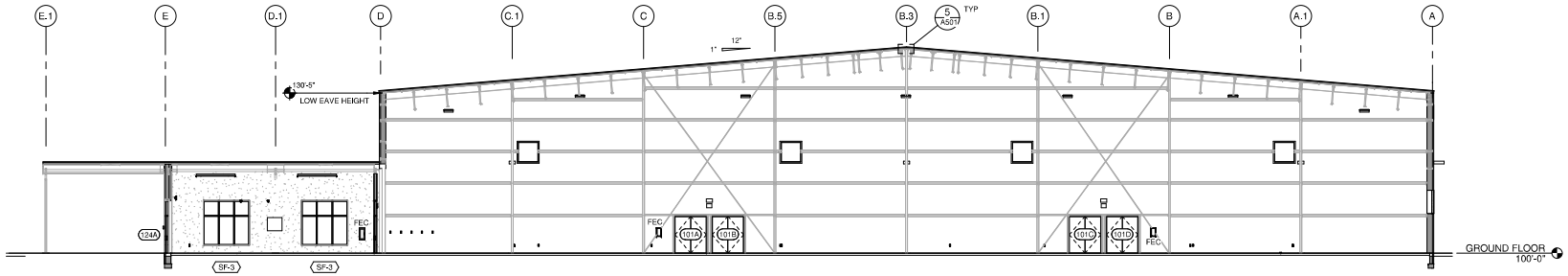
4/9/2020 4:24:41 PM

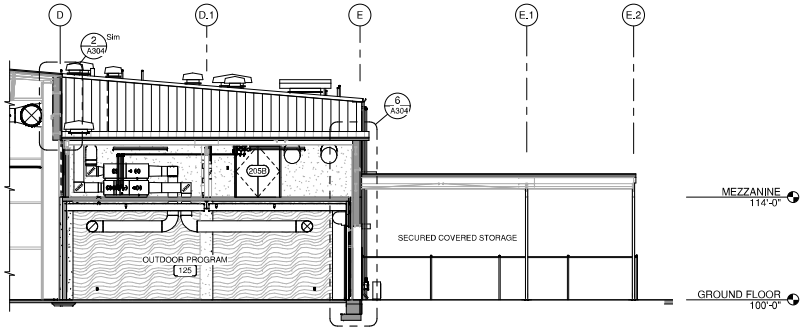
* Plan does not reflect reduced building size from value engineering, relocation of window in climbing area and reconfiguration of climbing walls.



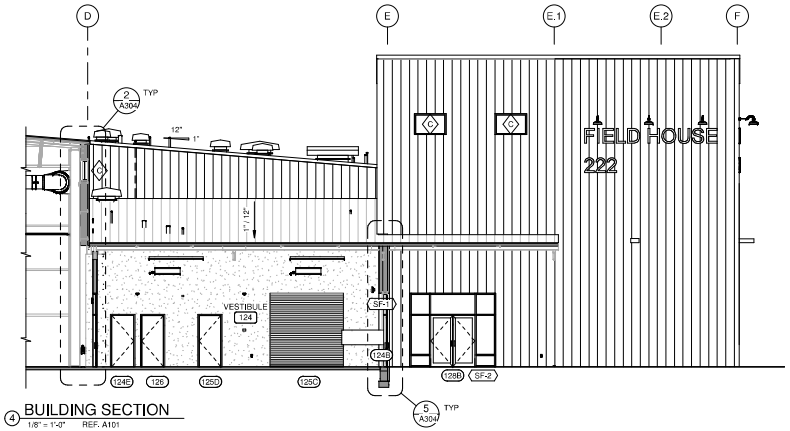
1 BUILDING SECTION
3/32" = 1'-0" REF. A101



2 BUILDING SECTION
3/32" = 1'-0" REF. A101



3 BUILDING SECTION
1/8" = 1'-0" REF. A101



4 BUILDING SECTION
1/8" = 1'-0" REF. A101

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NO.	REVISION	DATE	DRWN	CHKD	DESGN	APPD

REGISTERED ARCHITECT
EDWARD T. LIEBSON
3038
STATE OF OREGON

APPROVAL		
DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	DRE	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY
FIELD HOUSE
LA GRANDE, OR

BUILDING SECTIONS

DWG. NO.
A301

SCALE: As indicated
ISSUE DATE: 4/9/2020
JOB NO. 8514
REV. 0

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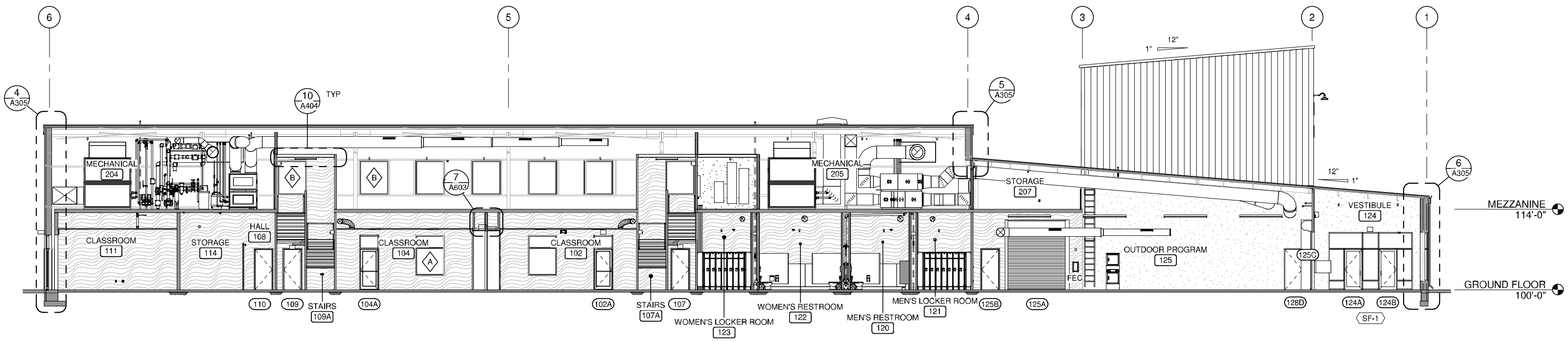
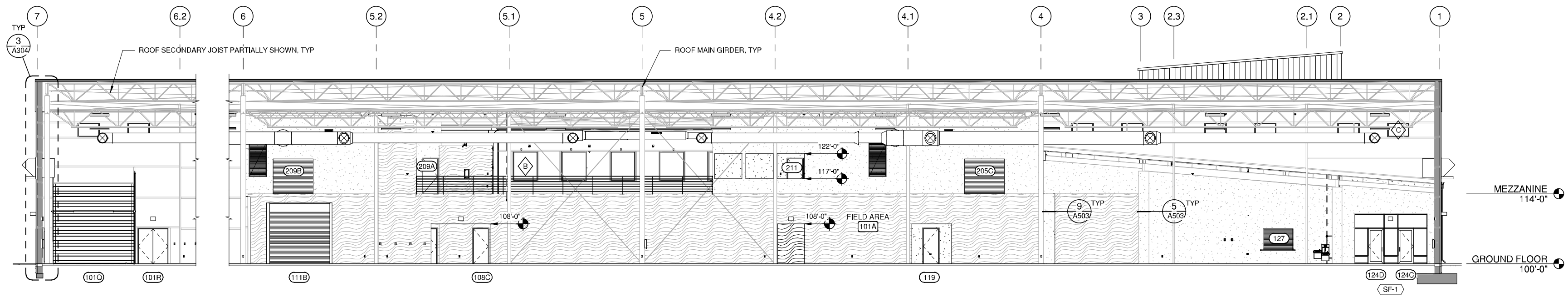
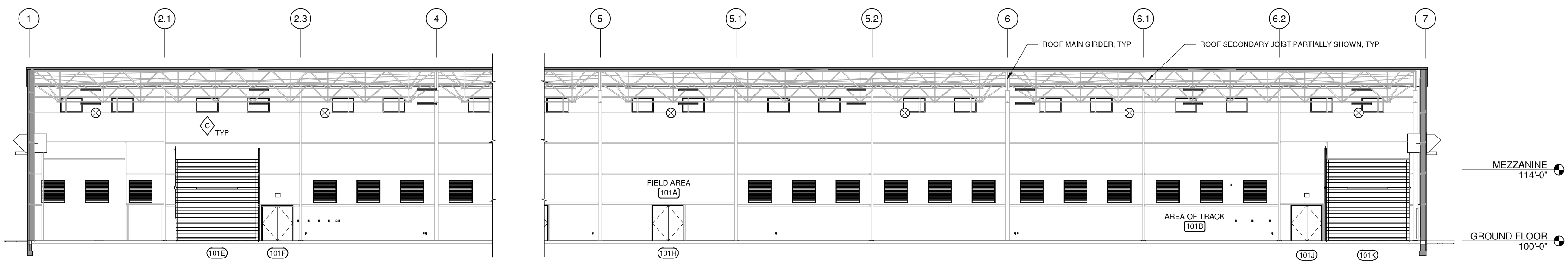
* Plan does not reflect reduced building size from value engineering, relocation of window in climbing area and reconfiguration of climbing walls.



1 BUILDING SECTION
1" = 10'-0" REF. A101



3 BUILDING SECTION
3/32" = 1'-0" REF. A101



2 BUILDING SECTION
3/32" = 1'-0" REF. A101

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REGISTERED ARCHITECT EDWARD T. LUEBBEN 3038 STATE OF OREGON

APPROVAL

DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	DRE	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY
FIELD HOUSE
LA GRANDE, OR

BUILDING SECTIONS

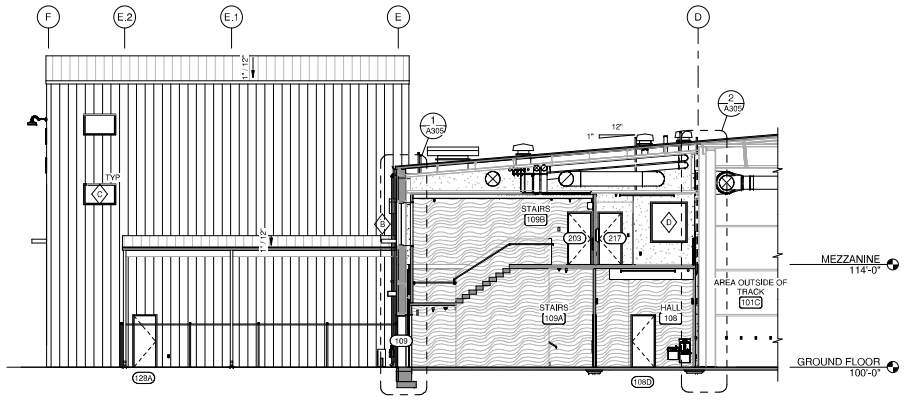
DWG. NO. A302

SCALE: As indicated

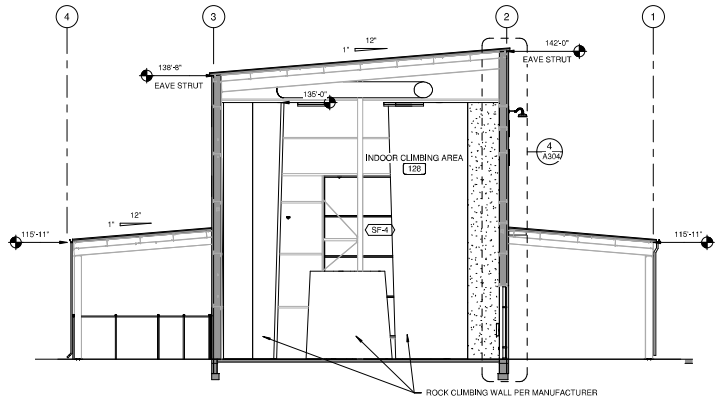
ISSUE DATE: 4/9/2020

JOB NO. 8514 REV. 0

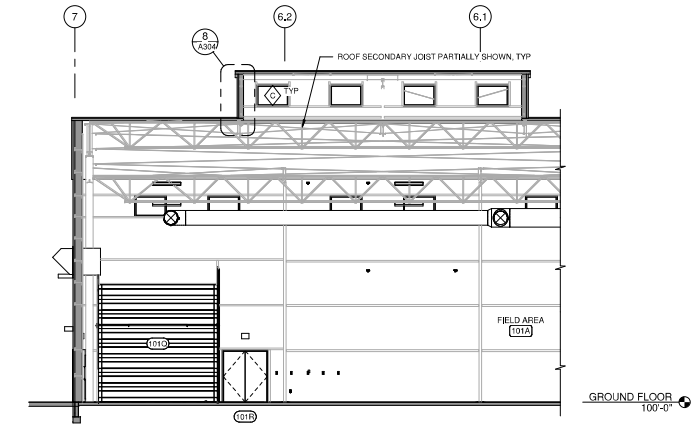
* Plan does not reflect reduced building size from value engineering, relocation of window in climbing area and reconfiguration of climbing walls.



1 BUILDING SECTION
1/8" = 1'-0" REF. A101



2 BUILDING SECTION
1/8" = 1'-0" REF. A101



3 BUILDING SECTION
1/8" = 1'-0" REF. A101

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REGISTERED ARCHITECT
EDWARD T. LIEBSON
3038
STATE OF OREGON

APPROVAL		
DRAWN	AVR	04/09/2020
DESIGN	ETL	04/09/2020
CHECKED	MCD	04/09/2020
APPROVED	DRE	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY
FIELD HOUSE
LA GRANDE, OR

BUILDING SECTIONS

DWG. NO.
A303

SCALE: 1/8" = 1'-0"
ISSUE DATE: 4/9/2020
JOB NO. 8514
REV. 0

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GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2019 EDITION OF OREGON STRUCTURAL SPECIALTY CODE (OSSC) AND LOCAL RULES/STANDARDS OF GOVERNING AGENCIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS.
3. SHOP DRAWINGS AND PRODUCT DATA SHALL BE SUBMITTED TO THE ARCHITECT OF RECORD/ENGINEER OF RECORD FOR REVIEW AFTER THE CONTRACTOR HAS REVIEWED THE DOCUMENTS FOR ACCURACY, QUANTITIES, DIMENSIONS, WEIGHTS OR GAUGES, FABRICATION PROCESSES, CONSTRUCTION METHODS, COORDINATION OF THE WORK BETWEEN TRADES, OR CONSTRUCTION SAFETY PRECAUTIONS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR; ARCHITECT OF RECORD/ENGINEER OF RECORD REVIEW IS FOR GENERAL DESIGN CONFORMANCE ONLY.
4. SHOP DRAWINGS AND PRODUCT DATA DOCUMENTS ARE NOT CONTRACT DOCUMENTS. THEIR PURPOSE IS TO DEMONSTRATE THE WAY BY WHICH THE CONTRACTOR PROPOSES TO CONFORM TO THE INFORMATION AND THE DESIGN CONCEPTS EXPRESSED IN THE CONTRACT DOCUMENTS.
5. SHOP DRAWINGS AND PRODUCT DATA THAT ARE REQUIRED, BUT NOT LIMITED TO:
   A. CONCRETE MIX DESIGN(S)
   B. CONCRETE REINFORCING AND CAST-IN-PLACE ANCHOR DRAWINGS
   C. STRUCTURAL STEEL SHOP DRAWINGS
   D. STEEL BUILDING DRAWINGS
   E. COLD FORM STEEL STUD DATA
   F. CLT PANEL DATA
6. ANY ERRORS, AMBIGUITIES, AND OMISSION IN DRAWINGS AND/OR SPECIFICATIONS SHALL BE REPORTED TO THE ENGINEER OF RECORD FOR CORRECTION BEFORE ANY PART OF THE WORK IS STARTED. SUBSTITUTION OR CHANGES WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING.
7. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF SITE CONDITIONS, INSTALLATION STANDARDS AND CONSTRUCTION CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO SHOP FABRICATION AND/OR FIELD ERECTION, WORK DONE WITHOUT THE ENGINEERS APPROVAL IS THE RESPONSIBILITY OF THE CONTRACTOR.
8. ALL SPECIAL INSPECTION AND TESTING SHALL BE PERFORMED BY AN INDEPENDENT INSPECTION AND TESTING AGENCY HIRED BY THE OWNER. CONTRACTOR TO COORDINATE WITH INSPECTION AND TESTING AGENCY FOR REQUIRED CONSTRUCTION INSPECTIONS AND MATERIAL TESTING.
9. ELEVATIONS ON THE STRUCTURAL DRAWINGS REFERENCE THE FINISHED FLOOR ELEVATION, ASSIGNED THE DATUM 100'-0".
10. THE STRUCTURAL INTEGRITY OF THIS STRUCTURE IS DESIGNED TO BE ATTAINED IN IT'S COMPLETED STATE. WHILE UNDER CONSTRUCTION, ALL TEMPORARY BRACING AND/OR SHORING REQUIRED TO MAINTAIN STABILITY PRIOR TO COMPLETION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING DESIGN AND INSTALLATION.
11. PROTECTION OF EXISTING STRUCTURES DURING THE COURSE OF THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
12. DEWATERING OF EXCAVATIONS MAY BE REQUIRED. REFER TO THE GEOTECHNICAL REPORT FOR THIS PROJECT FOR INFORMATION.
13. PRIOR TO DIGGING VERIFY LOCATION AND DEPTH OF UTILITIES AND OTHER UNDERGROUND INTERFERENCES. CALL TWO BUSINESS DAYS BEFORE YOU DIG AT 811.
14. DESIGN CRITERIA (PER 2019 OSSC AND ASCE 7-16)

   A. VERTICAL LOADS:

      a. DEAD LOADS:
         ROOF — 0 PSF + FRAMING WEIGHT
         FLOOR — FRAMING WEIGHT + MECHANICAL UNITS
      b. LIVE LOADS (IBC 1607):
         MEZZANINE — 100 PSF
         STAIRS / EXITS — 100 PSF
         ROOF LIVE LOAD — 20 PSF
      c. SNOW LOADS (IBC 1608):
         GROUND SNOW LOAD — Pg=14 PSF
         UNIFORM ROOF SNOW LOAD — Pm=20 PSF

         SNOW EXPOSURE FACTOR: — Ce=1.0
         SNOW LOAD IMPORTANCE FACTOR: — Is=1.0
         THERMAL FACTOR: — Ct=1.0

   B. LATERAL LOADS:

      a. RISK CATEGORY — III
      b. WIND DESIGN LOAD DATA:
         VELOCITY (3-SEC.-GUST) — V (ULT) = 110 MPH
         EXPOSURE — C
         INTERNAL PRESSURE COEFFICIENT — ±0.18
      c. SEISMIC DESIGN LOAD DATA:
         IMPORTANCE FACTOR — 1.25
         RHO — 1.00
         MAPPED SPECTRAL RESPONSE ACCELERATIONS:
         Ss = — 0.326
         S1 = — 0.119
         SEISMIC SITE CLASS — D
         DESIGN SPECTRAL RESPONSE COEFFICIENTS:
         Sds = — 0.335
         Sd1 = — 0.185
         SEISMIC DESIGN CATEGORY — C
         SEISMIC FORCE RESISTING SYSTEM AND RESPONSE MODIFICATION FACTOR:
         MOMENT FRAMES — R = 3.0
         NOT DETAILED FOR SEISMIC
         BRACED FRAMES — R = 3.0
         NOT DETAILED FOR SEISMIC
         CLT BEARING WALLS — R = 3.0
         WITH ASPECT RATION = 2.0
         SEISMIC RESPONSE COEFFICIENT
         Cs — 0.113
         ANALYSIS PROCEDURE:
         EQUIVALENT LATERAL FORCE PER ASCE 7-16

FOUNDATIONS

1. SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH GEOTECHNICAL REPORT (MTI FILE NUMBER B181550G DATED 5 NOVEMBER 2018), 12" OF STRUCTURAL FILL COMPACTED TO 95% BASED ON ASTM D1557 OVER 1 LAYER OF CONTECH C-200 GEOTEXTILE FABRIC.
2. FOUNDATION DESIGN BASED ON AN ALLOWABLE SOIL BEARING OF 2,000 PSF.

CONCRETE

1. CONCRETE SLABS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. ALL OTHER CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
2. CAST IN PLACE CONCRETE SHALL MEET THE FOLLOWING REQUIREMENTS:
   A. ACI 117 - STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS.
   B. ACI 301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE.
   C. ACI 302.1R - GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION.
   D. ACI 305R - HOT WEATHER CONCRETING:
   E. ACI 306 R- COLD WEATHER CONCRETING.
3. ALL CONCRETE USED IN HORIZONTAL SURFACES EXPOSED TO THE WEATHER SHALL CONTAIN AN ACCEPTABLE ADMIXTURE TO PRODUCE AIR-ENTRAINED CONCRETE WITH A TOTAL OF 4.5 PERCENT AIR CONTENT.
4. THE USE OF SUPER PLASTICIZERS AND WATER REDUCERS IS ALLOWED, BUT NOT REQUIRED. ALL ADMIXTURES SHALL BE CHLORIDE FREE.
5. UNLESS NOTED OTHERWISE, ALL CONCRETE FLAT WORK SHALL CONFORM TO THE FOLLOWING FINISHING TOLERANCES 1/8" GAP UNDER A 10'-0" STRAIGHT EDGE.
6. ALL CONCRETE FLOORS ARE TO BE WET CURED FOR 7 DAYS IMMEDIATELY AFTER PLACEMENT, AS PER THE RECOMMENDATIONS OF ACI 302.1R, UNLESS NOTED OTHERWISE.
7. ALL REINFORCING STEEL SHALL BE GRADE 60 DEFORMED BARS COMPLYING WITH ASTM SECTION A615, REINFORCING STEEL WHICH IS INDICATED ON THE PLANS AS BEING WELDED SHALL COMPLY WITH ASTM A706, AND SHALL ALSO BE DEFORMED. WELDING OF REINFORCING BARS SHALL BE PER AWS D1.4.
8. ALL DETAILING, FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL COMPLY WITH THE REQUIREMENTS OF THE ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES (ACI-SP-66).
9. REINFORCEMENT LAP HOOKS, ETC., SHALL BE PER THE REINFORCEMENT TABLE UNLESS NOTED OTHERWISE.
10. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
    A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
    B. CONCRETE EXPOSED TO EARTH OR WEATHER:
       THROUGH #18 BARS: 2"
       #5 BAR, W31 OR D31 WIRE AND SMALLER: 1 1/2"
    C. REINFORCING SHALL EXTEND TO THE END OF THE CONCRETE AND MAINTAIN THE COVER LISTED ABOVE AT THE ENDS.
11. ALL EXPOSED CORNERS OF CONCRETE SHALL BE FORMED INTO A 3/4" x 45 DEGREE CHAMFER, OR SCRIBED WITH A CONCAVE TOOLING DEVICE UNLESS NOTED OTHERWISE.
12. THOROUGHLY CLEAN FORMS AND ADJACENT SURFACES TO RECEIVE CONCRETE. REMOVE CHIPS, WOOD, SAWDUST, DIRT, OR ANY OTHER DEBRIS PRIOR TO CONCRETE PLACEMENT.
13. CLEAN REINFORCING OF LOOSE RUST, MILL SCALE, DIRT, OR ANY OTHER FOREIGN MATERIAL. ACCURATELY POSITION, SUPPORT AND SECURE REINFORCEMENT.
14. PROPORTION AND DESIGN MIXES TO RESULT IN CONCRETE SLUMP AT POINT OF PLACEMENT NOT LESS THAN 3" AND NOT MORE THAN 5" PRIOR TO SUPERPLASTICIZER. ADDITION OF WATER TO READY-MIX CONCRETE IN THE FIELD SHALL BE ALLOWED IF ON TRIP TICKET BEFORE DISCHARGE AND TESTING.
15. DEPOSIT CONCRETE IN A CONTINUOUS OPERATION UNTIL THE PLACING OF CONCRETE IS COMPLETE. IF THE POURING IS TO BE DISCONTINUOUS, CONTRACTOR SHALL USE CONSTRUCTION JOINTS, AS DETAILED ON THE DRAWINGS OR APPROVED BY THE ENGINEER.
16. UNLESS NOTED OTHERWISE, REINFORCING IS NOT TO EXTEND THROUGH CONSTRUCTION JOINTS OF FLOOR SLABS-ON-GRADE.
17. REPAIR ALL SURFACE DEFECTS INCLUDING TIE HOLES. MINOR HONEYCOMBING AND OTHER VISUAL IRREGULARITIES WITH CEMENT MORTAR. MORTAR FOR PATCHING SHALL BE THE SAME COMPOSITION AS THAT USED IN THE CONCRETE. PATCHING SHALL BE DONE AS SOON AS THE FORMS ARE REMOVED.
18. PROVIDE (1) 2'-0" LONG #4 REBAR AT ALL RE-ENTRANT CORNERS FOR SLABS, PITS, RECESSES, OR SLAB THICKNESS CHANGES IN THE TOP 1/3 OF THE SLAB-ON-GRADE.
19. GROUT MATERIAL FOR BASE PLATES, SLEEVES, AND EMBEDDED STEEL SHALL BE NONMETALLIC, NON-SHRINK, PREPACKAGED GROUT CONFORMING TO ASTM C 1107.
20. SHEET VAPOR RETARDER FOR UNDER SLABS ON GRADE SHALL BE ASTM E1745, CLASS A, 10-MIL MINIMUM THICKNESS. JOINTS SHALL BE TAPED PER MANUFACTURER'S REQUIREMENTS.

CONCRETE - POST INSTALLED ANCHORS

1. SPECIAL INSPECTIONS ARE REQUIRED PER OSSC CHAPTER 17.
2. ANCHORS SHALL BE INSTALLED IN CONCRETE THAT IS A MINIMUM OF 21 DAYS OR AS RECOMMENDED BY THE MANUFACTURER.
3. SCREW ANCHORS SHALL CONFORM TO THE FOLLOWING:
   A. SIMPSON TITEN HD, INSTALLED PER ICC-ESR 2713.
4. SUBSTITUTION OF MANUFACTURED PRODUCT IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER OF RECORD IN WRITING.
5. JAMB ANCHORS SHALL MEET THE FOLLOWING REQUIREMENTS:
   A. JAMB MEMBERS THAT ARE C12, ANCHORS SHALL BE (2) 5/8" DIA TITEN HD WITH 5 1/2" EMBEDMENT, 3 1/2" MINIMUM EDGE DISTANCE, AND 5" SPACING.
   B. JAMB MEMBERS THAT ARE C8, ANCHORS SHALL BE (2) 5/8" DIA TITEN HD WITH 4 1/2" EMBEDMENT, 2" MINIMUM EDGE DISTANCE AND 4" SPACING.
   C. ANY CONFIGURATION OTHER THAN THOSE LISTED ABOVE WILL NEED TO BE APPROVED BY THE ENGINEER OF RECORD.

ANCHOR RODS

1. ANCHOR RODS SHALL BE ASTM F1554 GRADE 55 WITH CLASS 2 THREADS, UNLESS NOTED OTHERWISE.
2. FURNISH ANCHOR RODS PREFABRICATED WITH MATCHING DOUBLE HEAVY HEX NUTS JAMMED AT THE END EMBEDDED IN CONCRETE.
3. FURNISH HARDENED PLATE WASHERS AND MATCHING HEAVY HEX NUTS FOR SECURING THE BASE PLATE TO THE ANCHOR RODS.
4. A RIGID TEMPLATE SHALL BE USED TO LOCATE ANCHOR RODS WHILE PLACING CONCRETE.
5. NO HEATING OR BENDING OF THE ANCHOR RODS IS PERMITTED.
6. HOLES IN THE BASE MATERIAL SHALL NOT BE ENLARGED BY BURNING.

STEEL

(NOTES DO NOT APPLY TO THE PRE-ENGINEERED METAL BUILDING PACKAGE.)

1. STRUCTURAL STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
   A. ALL W SHAPES SHALL CONFORM TO A992 (50 KSI)
   B. ALL PLATES, CHANNELS, ANGLES, BARS AND FLATS SHALL CONFORM TO A36 (36 KSI)
   C. ALL HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO A500, GRADE B (46 KSI)
2. ALL DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL COMPLY WITH THE REQUIREMENTS OF THE AISC LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS.
3. ALL FIELD CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER HIGH STRENGTH BOLTS (A325) UNLESS OTHERWISE NOTED ON THE DRAWING. THE MINIMUM NUMBER OF BOLTS PER CONNECTION SHALL BE TWO (2). BOLTED CONNECTIONS SHALL BE "SNUG TIGHT".
4. ERECTION AND FABRICATION SHOP DRAWINGS FOR STRUCTURAL STEEL, JOISTS, AND JOIST GIRDERS WILL BE REVIEWED BY THE ENGINEER OF RECORD PRIOR TO COMMENCING FABRICATION. ALL DRAWINGS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO BEING SUBMITTED FOR THE ENGINEER OF RECORD'S REVIEW.
5. BOLT HOLES SHALL BE BOLT DIAMETER + 1/16". BOLT END AND EDGE DISTANCES AND BOLT LENGTHS SHALL BE PER AISC, UNLESS NOTED OTHERWISE. BASE PLATE BOLT HOLES MAY BE OVERSIZED BY 1/8".
6. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROCEDURES OF THE AMERICAN WELDING SOCIETY BY AWS CERTIFIED WELDERS AND SHALL CONFORM TO AWS D1.1:2010. WELDERS PERFORMING THE WORK SHALL HAVE BEEN RE-TESTED WITHIN 6 MONTHS PRIOR TO THE START OF STEEL FABRICATION. WELDING FOR STRUCTURAL STEEL SHALL BE MADE WITH E70XX LOW HYDROGEN ELECTRODES.
7. FIELD WELDING SYMBOLS HAVE NOT NECESSARILY BEEN INDICATED ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE USE OF SHOP AND FIELD WELDING.
8. ENDS OF HOLLOW STRUCTURAL SECTION COLUMNS AND EXPOSED MEMBERS SHALL HAVE 3/16" CAP PLATES AND SEAL WELDS ALL ROUND.
9. WELDED STEEL GRATING SHALL HAVE 1 1/4" x 3/16" BEARING BARS AT 1 3/16" C/C WITH CROSS BARS AT 4" C/C. BEARING BARS SHALL CONFORM TO ASTM A-1011, MINIMUM GRADE 30.
10. HOLES SHALL NOT BE CUT THROUGH BEAMS UNLESS INDICATED OR PRE-APPROVED BY THE ENGINEER OF RECORD IN WRITING.
11. THE MINIMUM THICKNESS OF ANY GUSSET PLATE IS TO BE 3/8 INCH, UNLESS NOTED OTHERWISE.
12. IN ADDITION TO THE STANDARDS OUTLINED IN THE MANUAL FOR STEEL CONSTRUCTION, THE FOLLOWING TOLERANCES MUST ALSO BE FOLLOWED, AS OUTLINED IN AISC TECHNICAL REPORT NO. 13. SWEEP IS NOT TO EXCEED 1/4" IN A 50 FOOT BEAM LENGTH. CAMBER IS NOT TO VARY FROM THE CAMBER GIVEN ON THE DRAWING BY MORE THAN 1/4" IN A 50 FOOT BEAM. SQUARENESS IS TO BE WITHIN 18 INCHES OF EACH GIRDER END, THE FLANGE SHALL BE FREE OF CURVATURE AND NORMAL TO THE GIRDER WEB.
13. COLUMN BASE PLATES SHALL BE WITHIN 1/16 IN OF THEORETICAL ELEVATION AND BE LEVEL WITHIN 0.01 INCHES ACROSS THE PLATE LENGTH OR WIDTH.

STATEMENT OF SPECIAL INSPECTION

1. IN ACCORDANCE WITH THE 2019 OREGON STRUCTURAL SPECIALTY CODE 1704.2, THE OWNER SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK AND AS SPECIFIED BELOW. CONTRACTOR SHALL COORDINATE WITH INSPECTION AND TESTING AGENCY(S) FOR REQUIRED CONSTRUCTION INSPECTIONS AND MATERIAL TESTING. SPECIAL INSPECTION REPORTS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER AND THE AUTHORITY HAVING JURISDICTION WEEKLY FOR REVIEW.
2. STEEL: SPECIAL INSPECTION SHALL BE PER SECTION 1705.2 OF THE OSSC AND CHAPTER N OF AISC 360.
3. CONCRETE CONSTRUCTION: SPECIAL INSPECTION PER SECTION 1705.3 AND TABLE 1705.3 OF THE OSSC.
4. WOOD: SPECIAL INSPECTION
   A. PRE FABRICATED WOOD ELEMENT PER OSSC 1704.2.5.
5. SHEAR WALLS: SPECIAL INSPECTION OF SHEAR WALLS WITH CLIP SPACING OF 3' ALONG TOP AND BOTTOM OF WALLS, AND 4' ALONG VERTICAL SEAMS..
6. POST INSTALLED ANCHORS: SPECIAL INSPECTION SHALL BE BY THE ANCHORS ASSOCIATED ICC-ES ESR.
7. STRUCTURAL FILL: INSPECTION FOR FILL QUALITY AND PROPER PLACEMENT OF THE GEOTEXTILE FABRIC, AND COMPACTION TESTS, PER SECTION 1705.6 OF THE OSSC.
8. SEISMIC RESISTANCE: SPECIAL INSPECTION FOR SEISMIC RESISTANCE SHALL BE PER SECTION 1705.12 OF THE OSSC.
   A. STRUCTURAL STEEL PER AISC 341 CHAPTER J AND OSSC 1705.12.1 FOR SEISMIC DESIGN CATEGORY B-F.
   B. STRUCTURAL WOOD PER OSSC 1705.12.2 FOR SEISMIC DESIGN CATEGORY C-F
   C. COLD FORMED STEEL LIGHT FRAMED CONSTRUCTION PER OSSC 1705.12.3 FOR SEISMIC DESIGN CATEGORY C-F.
   D. ARCHITECTURAL COMPONENTS PER OSSC 1705.12.5 FOR SEISMIC DESIGN CATEGORY D-F.
   E. PLUMBING, MECHANICAL AND ELECTRICAL COMPONENTS PER OSSC 1705.12.6 FOR SEISMIC DESIGN CATEGORY C-F.
   F. STORAGE RACKS PER OSSC 1705.12.7 FOR SEISMIC DESIGN CATEGORY D-F.

STATEMENT OF STRUCTURAL OBSERVATION

1. IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE SECTION 1704.6 STRUCTURAL OBSERVATIONS SHALL BE PERFORMED BY THE STRUCTURAL ENGINEER ON SEISMIC AND WIND RESISTING ELEMENTS OF THE STRUCTURE.
2. THIS STRUCTURAL OBSERVATION IS IN ADDITION TO THE REQUIRED SPECIAL INSPECTIONS PERFORMED BY THE SPECIAL INSPECTION AND TESTING AGENCY.
3. LIST OF STRUCTURAL ITEMS REQUIRED TO BE OBSERVED BY THE STRUCTURAL ENGINEER PRIOR COVERING AT MINIMUM:
   A. CONNECTIONS OF CLT FRAMING .
   B. MOMENT FRAME AND BRACED BAY FOUNDATION ANCHORS AND REINFORCING INCLUDING HAIR PINS INTO SLAB.
   C. METAL BUILDING BRACED BAYS AND MOMENT FRAMES
4. CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER 48 HOURS IN ADVANCE WHEN THE CONSTRUCTION OF THE STRUCTURE IS AT A POINT TO BE OBSERVED.

COLD-FORMED STEEL

1. ALL METAL STUDS SHALL BE FORMED FROM CORROSION-RESISTANT STEEL, CORRESPONDING TO THE REQUIREMENTS OF ASTM C955, WITH A MINIMUM YIELD STRENGTH OF 50 KSI FOR STUDS AND TRACKS, UNLESS OTHERWISE NOTED.
2. METAL STUDS SHALL BE ATTACHED TO TOP AND BOTTOM TRACKS WITH (2) #10 SCREWS, METAL STUD MEMBERS IN CONTINUOUS CONTACT SHALL BE CONNECTED WITH #10 SCREWS AT 12" O/C MINIMUM.
3. CONTRACTOR SHALL SUBMIT A SET OF MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES FOR METAL STUD FRAMING FOR APPROVAL. DESIGN DOCUMENTS ALONG WITH THE APPROVED INSTALLATION PROCEDURES SHALL BE THE BASIS FOR ACCEPTANCE OF METAL STUD FRAMING.
4. BOTTOM TRACK SHALL BE CONNECTED TO CONCRETE FOUNDATION OR FLOORS WITH POWER ACTUATED FASTENERS AT 12" C/C. POWER ACTUATED FASTENERS SHALL BE HILTI X-U WITH 1" EMBEDMENT OR SIMPSON PDPH WITH 1" EMBEDMENT, UNLESS NOTED OTHERWISE.
5. TOP TRACK SHALL BE CONNECTED TO HOT-ROLLED STEEL FRAMING ABOVE WITH HILTI X-EDNI POWER ACTUATED FASTENERS AT 8" O/C OR (2) 2" LONG FILLET WELDS AT 16" C/C. ALL WELDS SHALL BE TOUCHED UP WITH ZINC-RICH PAINT.
6. METAL STUD WALLS ATTACHED TO THE BOTTOM OF STRUCTURAL STEEL MEMBERS SHALL USE A TOP TRACK THAT ALLOWS FOR DEFLECTION OF THE STRUCTURAL STEEL MEMBER ABOVE. TOP TRACK OF METAL STUD WALLS ATTACHED BELOW STRUCTURAL STEEL MEMBERS SHALL ALLOW FOR UP TO 1" OF VERTICAL DEFLECTION.
7. ALL METAL STUD FRAMING MEMBERS SHALL BE ZINC COATED AND BEAR PROPER IDENTIFICATION MARKINGS IN ACCORDANCE WITH SSMA STANDARDS MEETING ASTM A653.
8. LENGTH OF UNIT-READED "DRILLING" PORTION OF SELF-DRILLING SCREWS USED WITH METAL STUD FRAMING SHALL BE GREATER THAN THE COMBINED THICKNESS OF CONNECTED MATERIALS. IN ADDITION, A MINIMUM OF THREE FULL SCREW THREADS SHALL BE EXPOSED ON SCREWS INSTALLED IN METAL STUD FRAMING MEMBERS.
9. ALL STRUCTURAL MEMBERS SHALL BE INSTALLED IN ACCORDANCE WITH AMERICAN IRON AND STEEL INSTITUTE (AISI) "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION.
10. ALL FRAMING COMPONENTS SHALL BE PLUMBED, ALIGNED AND LEVELED.
11. TEMPORARY BRACING, WHERE REQUIRED, SHALL BE PROVIDED BY THE CONTRACTOR UNTIL ERECTION IS COMPLETE.
12. COMPLETE, UNIFORM AND LEVEL BEARING SUPPORT SHALL BE PROVIDED FOR THE BOTTOM TRACK.

TIMBER

1. SEE OSSC FASTENING SCHEDULE (TABLE 2304.10.1) FOR GENERAL FRAMING NAILING REQUIREMENTS AND REFER TO FRAMING NAIL SCHEDULE PROVIDED FOR NAIL REQUIREMENTS.
2. TIMBER MATERIALS SHALL CONFORM TO THE FOLLOWING GRADES UNLESS NOTED OTHERWISE:
   A. GLULAM BEAMS (GLB) SHALL BE 24F-V4 DF/DF.
   B. CROSS LAMINATED TIMBER (CLT) SHALL BE CROSSLAM CLT, GRADE V2M1.1 WITH #2 DF-L FACE LAYERS ON BOTH SIDES, OR AN EQUAL PRODUCT AS APPROVED BY THE EOR.
   C. GLULAM COLUMNS SHALL BE COMBINATION 5 DF-L.
3. ALL NAILING REQUIREMENTS LISTED ARE BASED UPON THE USE OF COMMON WIRE NAILS (NOT SINKERS, BOX, ETC.) UNLESS NOTED OTHERWISE. ALTERNATIVE NAIL TYPES OF EQUIVALENT DIAMETERS MAY BE SUBSTITUTED, WITH PRIOR APPROVAL OF THE ENGINEER OF RECORD.
4. TIMBER DESIGNATED AS TREATED SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD C2.
5. UNLESS NOTED OTHERWISE, ALL TIMBER HEADERS SHALL BE PER THE PROVIDED SCHEDULE.
6. TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE BY SIMPSON STRONG-TIE COMPANY, AS SPECIFIED IN THE LATEST EDITION OF THEIR CATALOG. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY THE MANUFACTURER. SUBSTITUTION OF MANUFACTURED PRODUCT IS PERMITTED WITH WRITTEN APPROVAL OF THE ENGINEER OF RECORD.
7. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD.
8. CLT MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH ANSI/APA PRG 320-2011, EACH MEMBER SHALL BEAR AN ANSI IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN ANSI CERTIFICATE OF CONFORMANCE. MINIMUM FB = 17000 PSI AND MINIMUM E = 1.4 X 10E6 PSI.
9. DOWELS USED AT CONNECTIONS OF WALL AND FLOOR PANELS AND AT GLB TO GLU LAM COLUMN CONNECTIONS SHALL BE GRADE 60 DEFORMED BARS COMPLYING WITH ASTM A615.

ACI	AMERICAN CONCRETE INSTITUTE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BOB	BOTTOM OF BEAM
BPP	BASE PLATE NUMBER
C/C	CENTER TO CENTER
CJ	CONSTRUCTION JOINT
CLR	CLEAR
CONC	CONCRETE
CONT	CONTINUOUS
d	PENNY (NAIL)
DIA	DIAMETER
EF	EACH FACE
EL OR ELEV	ELEVATION
EMBED	EMBEDMENT
EOD	EDGE OF DECK
EQ SP	EQUALLY SPACED
EW	EACH WAY
FT#	FOOT TYPE - NUMBER
GLB	GLUE-LAMINATED BEAM
GLC	GLUE-LAMINATED COLUMN
HSS	HOLLOW STRUCTURAL SECTION
K	KIP; KIPS
KSI	KIPS PER SQUARE INCH
LB	POUND; POUNDS
MAX	MAXIMUM
MIN	MINIMUM
OPP	OPPOSITE HAND
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
REF	REFERENCE
SCJ	SAWN CONTROL JOINT
SIM	SIMILAR
T&B	TOP AND BOTTOM
TOC	TOP OF CONCRETE
TOD	TOP OF DECK
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE

CLT PANEL

CLT DECK SPAN DIRECTION

LEGEND

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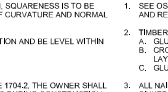
NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	FEE PHASE REVOLUTION	10/1/2020	JMM	TJS	NJK	TJS



APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

GENERAL NOTES

OWG. NO.
S001

SCALE: As indicated

ISSUE DATE: 03/19/20

JOB NO. 8514

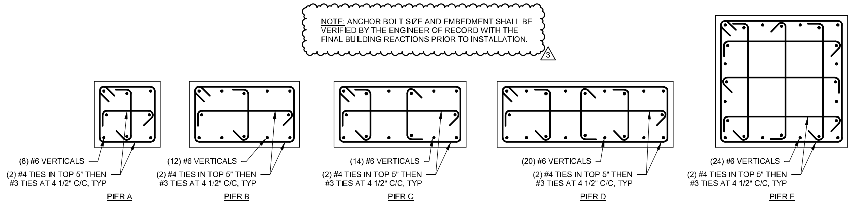
REV. 3

10/1/2020 2:42:16 PM C:\Users\jmmorey\Documents\8514\00-S1R_jmmorey5HPNZ.rvt

FOOTING SCHEDULE											
MARK	LENGTH	WIDTH	DEPTH	TOF	REINFORCING	PIER DIM "A"	PIER DIM "B"	PIER DIM "C"	DETAIL/SECTION	PIER REINFORCING	COLUMN ANCHORS
FT1-33	3'-0"	3'-0"	2'-0"	98'-0"	(4) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	1" DIA HEAVY HEX BOLT, 21" EMBED
FT1-44	4'-0"	4'-0"	2'-0"	98'-0"	(4) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT1-55	5'-0"	5'-0"	2'-0"	98'-0"	(5) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT1-66	6'-0"	6'-0"	2'-0"	98'-0"	(6) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT1-77	7'-0"	7'-0"	2'-0"	98'-0"	(7) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT1-88A	8'-0"	8'-0"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	1" DIA HEAVY HEX BOLT, 21" EMBED
FT1-88B	8'-0"	8'-0"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	2'-4"	1'-4"	7"	1/S501	PIER B	1" DIA HEAVY HEX BOLT, 21" EMBED
FT1-88C	8'-0"	8'-0"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT1-8686	8'-6"	8'-6"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S501	PIER A	1" DIA HEAVY HEX BOLT, 21" EMBED
FT2-44	4'-0"	4'-0"	2'-0"	98'-0"	(4) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	2/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT2-55	5'-0"	5'-0"	2'-0"	98'-0"	(5) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	2/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT2-66	6'-0"	6'-0"	2'-0"	98'-0"	(6) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	2/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT2-77	7'-0"	7'-0"	2'-0"	98'-0"	(7) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	2/S501	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT2-88	8'-0"	8'-0"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	2/S501	PIER A	1" DIA HEAVY HEX BOLT, 21" EMBED
FT3-8686	8'-6"	8'-6"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	2'-8"	2'-8"	7"	3/S501	PIER C	1" DIA HEAVY HEX BOLT, 21" EMBED
FT4-1313	13'-0"	13'-0"	1'-6"	98'-6"	(13) #6 EACH WAY, TOP AND BOTTOM	N/A	N/A	N/A	4/S501	N/A	1" DIA HEAVY HEX BOLT, 9" EMBED
FT5-1010	10'-0"	10'-0"	2'-0"	98'-0"	(9) #5 EACH WAY, TOP AND BOTTOM	SEE DETAIL	SEE DETAIL	SEE DETAIL	5/S501	PIER C*	1" DIA HEAVY HEX BOLT, 21" EMBED
FT6-6666	6'-6"	6'-6"	2'-0"	98'-0"	(6) #5 EACH WAY, TOP AND BOTTOM	1'-4"	2'-8"	7"	6/S501	PIER C	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT7-55	5'-0"	5'-0"	2'-0"	98'-0"	(5) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S502	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT7-99	9'-0"	9'-0"	2'-0"	98'-0"	(9) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	7"	1/S502	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT8-55	5'-0"	5'-0"	2'-0"	98'-0"	(5) #5 EACH WAY, TOP AND BOTTOM	1'-4"	2'-10"	7"	2/S502	PIER C	SEE DETAIL
FT9-1313	13'-0"	13'-0"	1'-6"	98'-6"	(13) #6 EACH WAY, TOP AND BOTTOM	N/A	N/A	N/A	3/S502	N/A	1" DIA HEAVY HEX BOLT, 9" EMBED
FT10-33	3'-0"	3'-0"	2'-0"	98'-0"	(4) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	8"	4/S502	PIER A	1" DIA HEAVY HEX BOLT, 21" EMBED
FT10-44	4'-0"	4'-0"	2'-0"	98'-0"	(4) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	8"	4/S502	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT10-55	5'-0"	5'-0"	2'-0"	98'-0"	(5) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	8"	4/S502	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT10-88	8'-0"	8'-0"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	8"	4/S502	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT10-99	9'-0"	9'-0"	2'-0"	98'-0"	(9) #5 EACH WAY, TOP AND BOTTOM	2'-8"	1'-4"	7"	4/S502	PIER C	1" DIA HEAVY HEX BOLT, 21" EMBED
FT10-4646	4'-6"	4'-6"	2'-0"	98'-0"	(5) #5 EACH WAY, TOP AND BOTTOM	1'-6"	1'-6"	9"	4/S502	PIER A	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT10-8686	8'-6"	8'-6"	2'-0"	98'-0"	(8) #5 EACH WAY, TOP AND BOTTOM	1'-4"	1'-4"	8"	4/S502	PIER A	1" DIA HEAVY HEX BOLT, 21" EMBED
FT11-99	9'-0"	9'-0"	2'-0"	98'-0"	(9) #5 EACH WAY, TOP AND BOTTOM	SEE DETAIL	SEE DETAIL	N/A	5/S502	SEE DETAIL	SEE DETAIL
FT12-66	6'-0"	6'-0"	2'-0"	98'-0"	(6) #5 EACH WAY, TOP AND BOTTOM	SEE DETAIL	SEE DETAIL	N/A	6/S502	PIER B	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED
FT13-556	5'-6"	5'-0"	2'-0"	98'-0"	(6) #5 EACH WAY, TOP AND BOTTOM	SEE DETAIL	SEE DETAIL	N/A	1/S503	PIER D	3/4" DIA HEAVY HEX BOLT, 12 1/2" EMBED

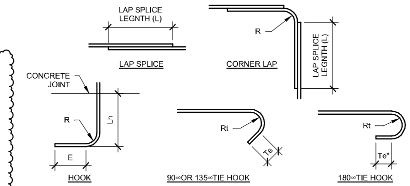
NOTE: ANCHOR BOLT SIZE AND EMBEDMENT SHALL BE VERIFIED BY THE ENGINEER OF RECORD WITH THE FINAL BUILDING REACTIONS PRIOR TO INSTALLATION. (3)

* PROVIDE CAGE CENTERED UNDER COLUMN EXTERIOR TIE 24"X 28". PROVIDE WALL REINFORCING AS REQUIRED BEYOND PEDESTAL REINFORCING (3)



NOTE: ALTERNATE TIES SO NO ADJACENT TIES HAVE 90 DEGREE HOOK ON SAME BAR.

PIER REINFORCING



BAR SIZE	LAP SPLICES	CORNERS AND HOOKS			TIES		
	$L^{1,2}$	R^{1}	$Lh^{1,3}$	E^{1}	Rt^{1}	Te^{1}	Te^{*1}
#3	17"	1 1/8"	6 5/8"	4 1/2"	3/4"	3"	2 1/2"
#4	23"	1 1/2"	8 7/8"	6"	1"	3"	2 1/2"
#5	29"	1 7/8"	11"	7 1/2"	1 1/4"	3 3/4"	2 1/2"
#6	42"	2 1/4"	13 1/4"	9"	2 1/4"	9"	3"
#7	71"	2 5/8"	19 1/4"	10 1/2"	2 5/8"	10 1/2"	3 1/2"
#8	93"	3"	22"	12"	3"	12"	4"

1. LENGTHS ARE BASED ON ACI 318-14 FOR f'c = 3000 psi.
2. LENGTHS ARE BASED ON CLASS B TENSION SPLICES, STAGGERING OF SPLICES IS NOT REQUIRED.
3. Lh = EMBEDMENT REQUIRED FOR TENSION HOOKS.

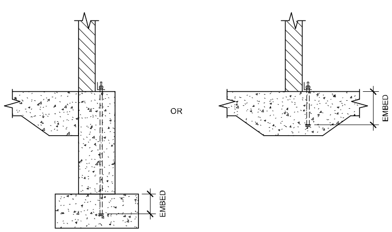
CONCRETE REINFORCING BAR SCHEDULE

KEY: HOLD-DOWN SYMBOL / HOLD-DOWN MARK (#)

MARK	HOLD-DOWN[2]	ANCHOR ROD[1]
1	LTT19	PAB5 WITH 4" EMBED
2	HTT4	PABH5 WITH 7" EMBED

NOTES: 1) EMBED DEPTHS ARE INTO FOOTING OR THICKENED SLAB.
2) PLACE HOLD-DOWN ON SIDE OF WALL WHERE NOTE IS SHOWN ON PLAN.

SHEAR WALL SCHEDULE



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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
3	FIELD HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

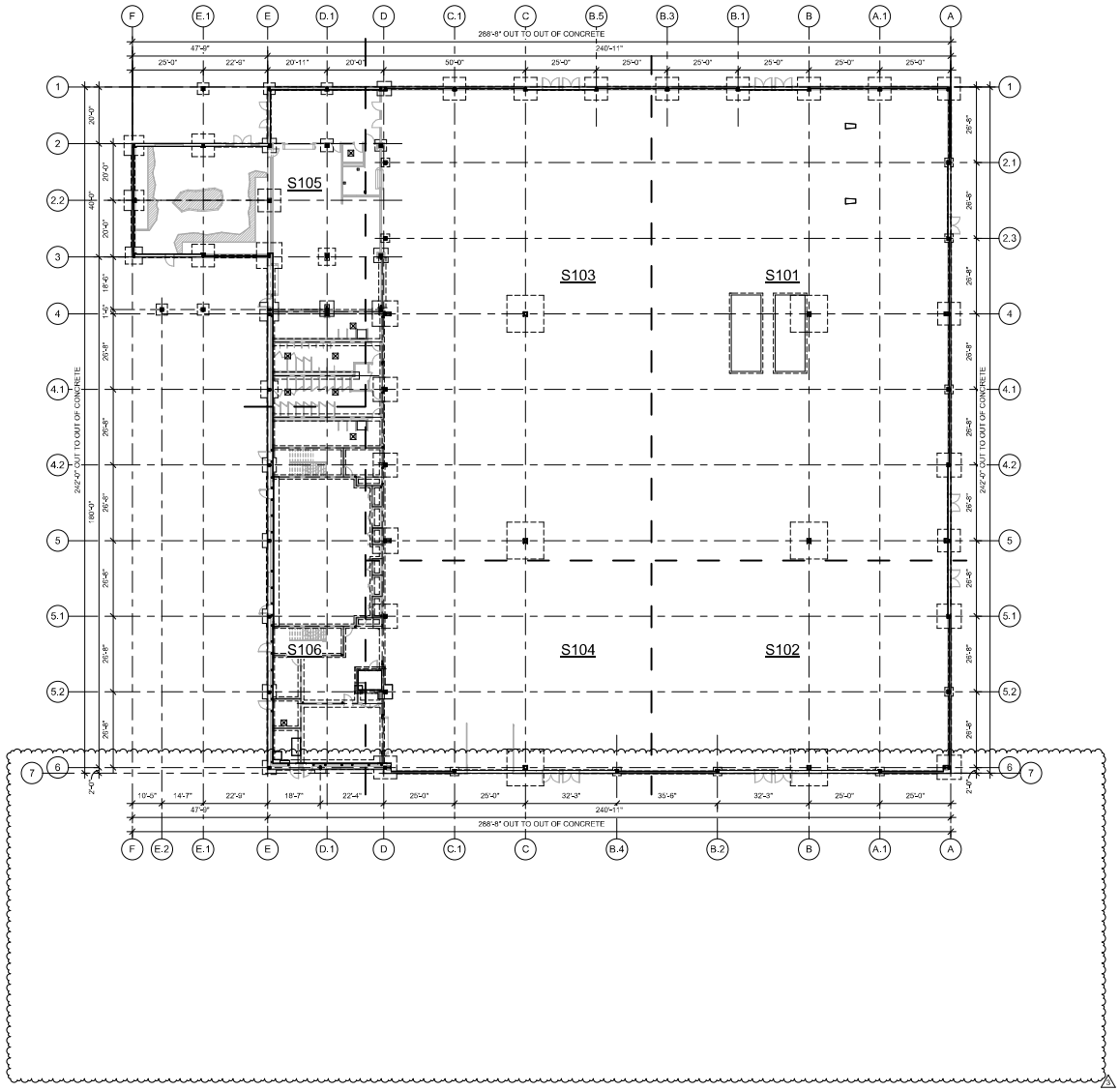
2020.10.02 17:36:26-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

SCHEDULES

DWG. NO. S002
SCALE: As indicated
ISSUE DATE: 02/14/20
JOB NO. 8514
REV. 3



OVERALL FOUNDATION PLAN

1" = 20'-0"

NORTH

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	FEDERAL HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

2020.10.02 17:36:30-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LA GRANDE, OR

OVERALL FOUNDATION PLAN

DWG. NO.

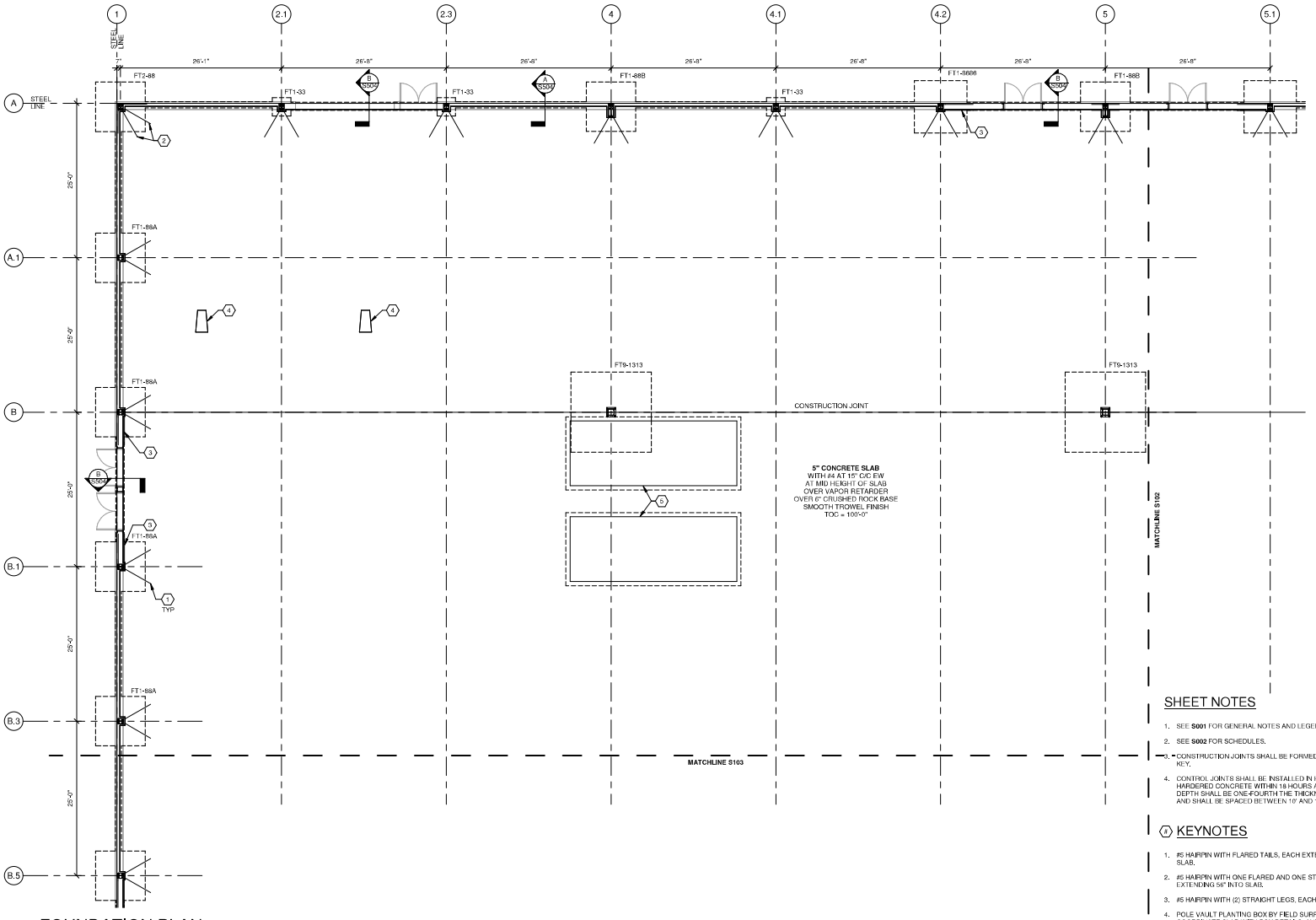
S100

SCALE: 1" = 20'-0"

ISSUE DATE: 02/20/20

JOB NO. 8514

REV. 3



FOUNDATION PLAN

1/8" = 1'-0"

NORTH

SHEET NOTES

1. SEE **S001** FOR GENERAL NOTES AND LEGEND.
2. SEE **S002** FOR SCHEDULES.
3. CONSTRUCTION JOINTS SHALL BE FORMED WITH A 2x4 SHEAR KEY.
4. CONTROL JOINTS SHALL BE INSTALLED IN HARDENED OR SEMI-HARDERED CONCRETE WITHIN 18 HOURS AFTER POUR. CUT DEPTH SHALL BE ONE-FOURTH THE THICKNESS OF THE SLAB AND SHALL BE SPACED BETWEEN 10' AND 12'-6" C/C.

⟨4⟩ KEYNOTES

1. #5 HAIRPIN WITH FLARED TAILS, EACH EXTENDING 56" INTO SLAB.
2. #5 HAIRPIN WITH ONE FLARED AND ONE STRAIGHT TAIL, EACH EXTENDING 56" INTO SLAB.
3. #5 HAIRPIN WITH (2) STRAIGHT LEGS, EACH 56" LONG.
4. POLE VAULT PLANTING BOX BY FIELD SURFACING SUPPLIER. COORDINATE SLAB WITH BOX DETAILS. AND LOCATION WITH FIELD EQUIPMENT SUPPLIER.
5. LONG JUMP PIT. COORDINATE SIZE AND LOCATION WITH FIELD EQUIPMENT SUPPLIER. THICKEN SLAB EDGES AROUND LONG JUMP PIT TO 8" THICK WITH #5 BAR AT PERIMETER OF PIT.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN APPD

2020.10.02 17:36:44-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN		04/09/2020
CHECKED		04/09/2020
APPROVED		04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LA GRANDE, OR

FOUNDATION PLAN

DWG. NO.
S101

SCALE: 1/8" = 1'-0"
ISSUE DATE: 01/30/20
JOB NO. 8514
REV. 0

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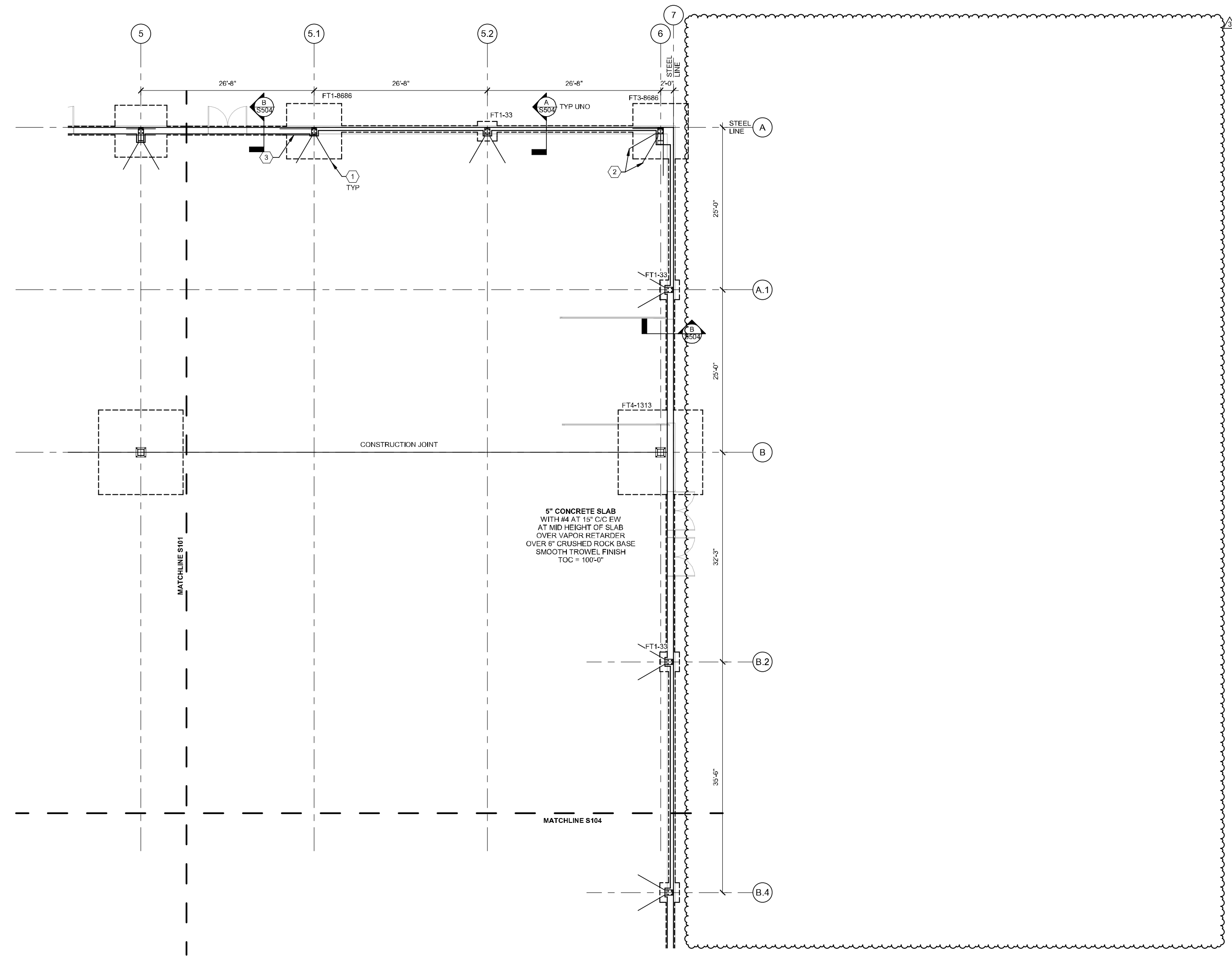

FOUNDATION PLAN
1/8" = 1'-0"
NORTH

SHEET NOTES

1. SEE **S001** FOR GENERAL NOTES AND LEGEND.
2. SEE **S002** FOR SCHEDULES.
3. CONSTRUCTION JOINTS SHALL BE FORMED WITH A 2x4 SHEAR KEY.
4. CONTROL JOINTS SHALL BE INSTALLED IN HARDENED OR SEMI-HARDENED CONCRETE WITHIN 18 HOURS AFTER POUR. CUT DEPTH SHALL BE ONE-FOURTH THE THICKNESS OF THE SLAB AND SHALL BE SPACED BETWEEN 10' AND 12'-6" C/C.

KEYNOTES

1. #5 HAIRPIN WITH FLARED TAILS, EACH EXTENDING 56" INTO SLAB.
2. #5 HAIRPIN WITH ONE FLARED AND ONE STRAIGHT TAIL, EACH EXTENDING 56" INTO SLAB.
3. #5 HAIRPIN WITH (2) STRAIGHT LEGS, EACH 56" LONG.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
3	FIELD HOUSE REDUCTION	9/30/2020	JMM	JTS	NJK	JTS

2020.10.02 17:36:52-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

FOUNDATION PLAN

DWG. NO.
S102

SCALE: 1/8" = 1'-0"
ISSUE DATE: 01/31/20
JOB NO. 8514
REV. 3

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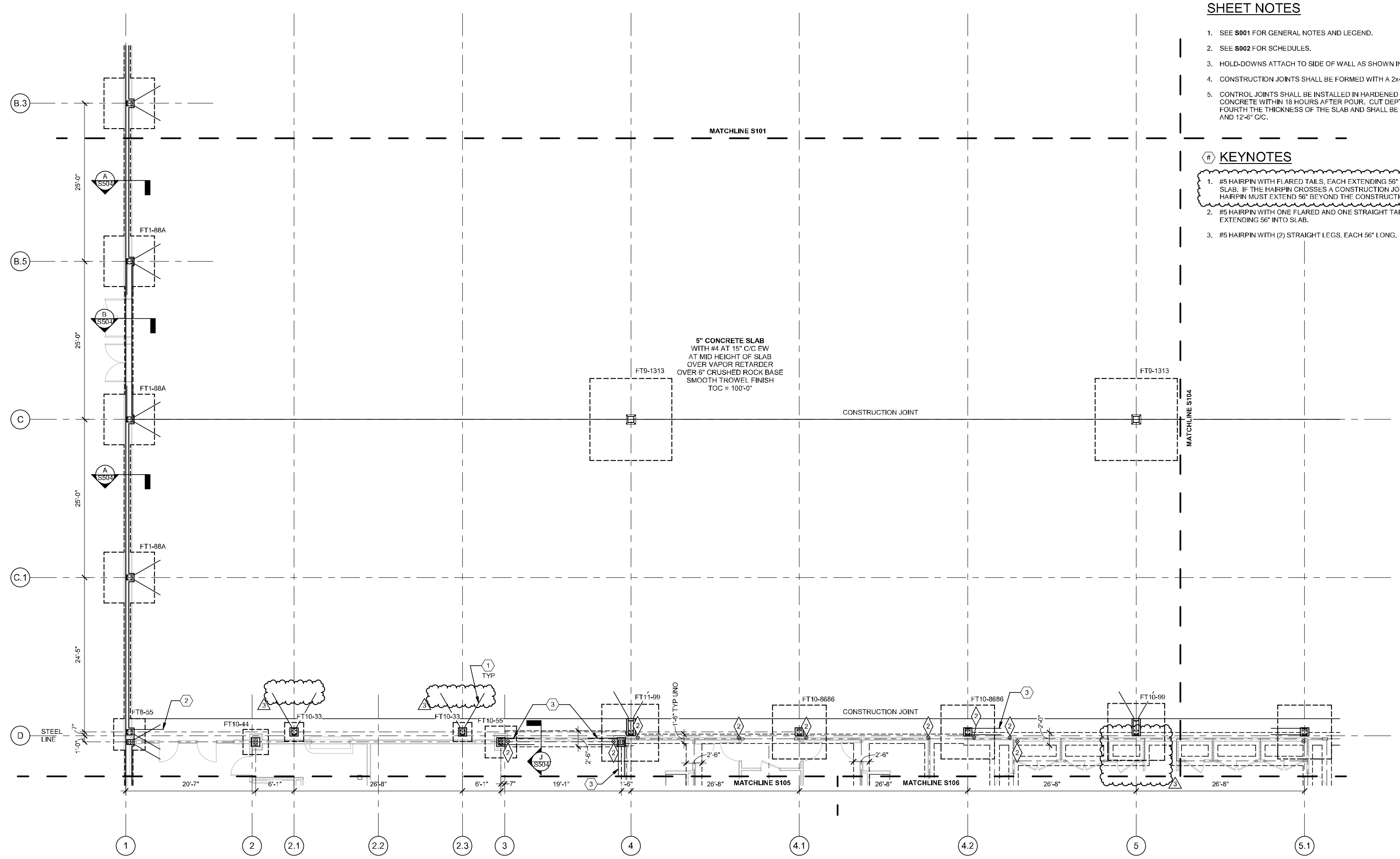

FOUNDATION PLAN
1/8" = 1'-0"
NORTH

SHEET NOTES

1. SEE **S001** FOR GENERAL NOTES AND LEGEND.
2. SEE **S002** FOR SCHEDULES.
3. HOLD-DOWNS ATTACH TO SIDE OF WALL AS SHOWN IN PLAN.
4. CONSTRUCTION JOINTS SHALL BE FORMED WITH A 2x4 SHEAR KEY.
5. CONTROL JOINTS SHALL BE INSTALLED IN HARDENED OR SEMI-HARDERED CONCRETE WITHIN 18 HOURS AFTER POUR. CUT DEPTH SHALL BE ONE-FOURTH THE THICKNESS OF THE SLAB AND SHALL BE SPACED BETWEEN 10' AND 12'-6" C/C.

KEYNOTES

1. #5 HAIRPIN WITH FLARED TAILS, EACH EXTENDING 56" INTO SLAB. IF THE HAIRPIN CROSSES A CONSTRUCTION JOINT, THE HAIRPIN MUST EXTEND 56" BEYOND THE CONSTRUCTION JOINT. 3
2. #5 HAIRPIN WITH ONE FLARED AND ONE STRAIGHT TAIL, EACH EXTENDING 56" INTO SLAB.
3. #5 HAIRPIN WITH (2) STRAIGHT LEGS, EACH 56" LONG.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
3	FIELD HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:00-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

FOUNDATION PLAN

DWG. NO. S103
SCALE: 1/8" = 1'-0"
ISSUE DATE: 01/31/20
JOB NO. 8514
REV. 3

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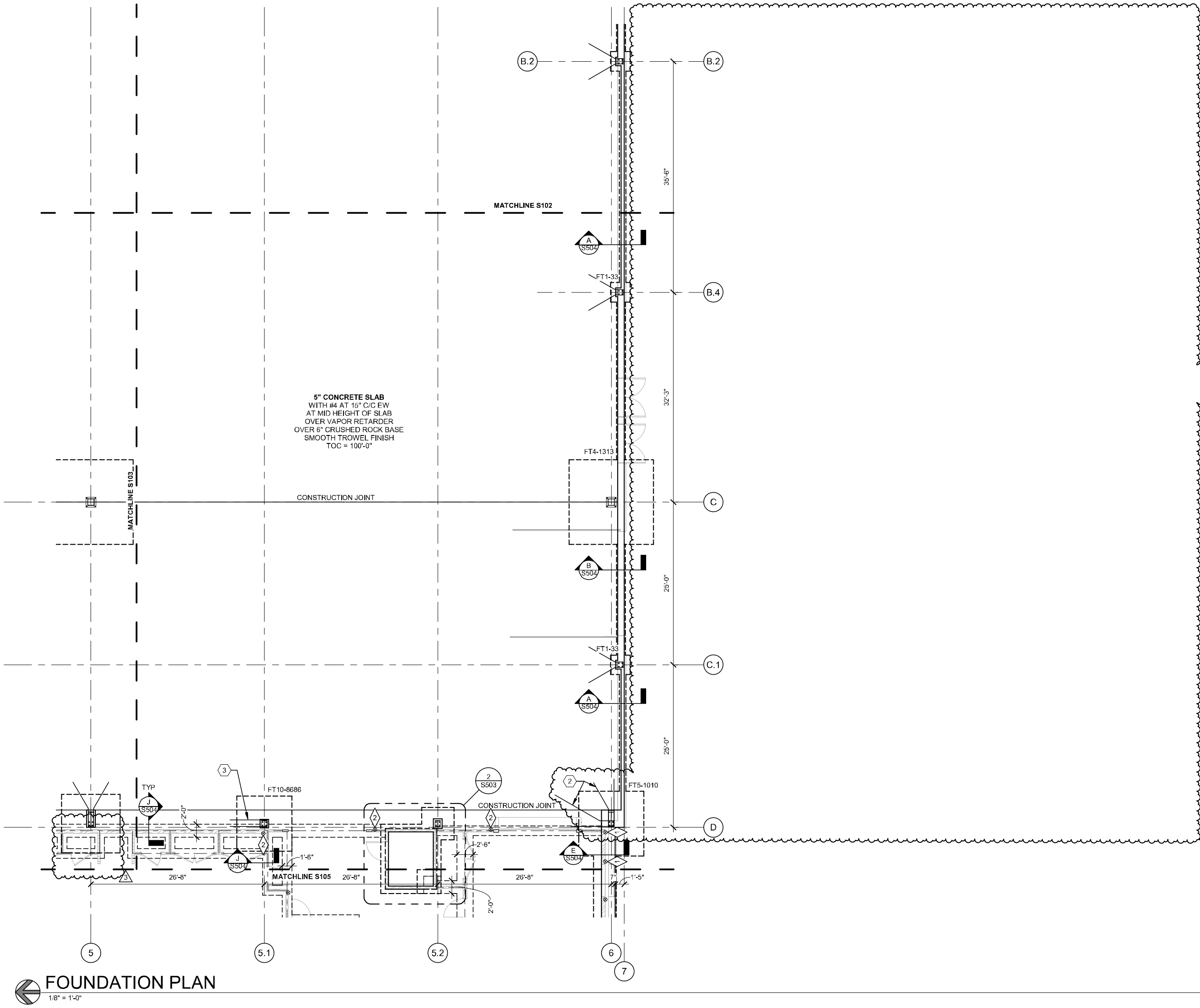

FOUNDATION PLAN

1/8" = 1'-0"

NORTH

SHEET NOTES

1. SEE **S001** FOR GENERAL NOTES AND LEGEND.
2. SEE **S002** FOR SCHEDULES.
3. HOLD-DOWNS ATTACH TO SIDE OF WALL AS SHOWN IN PLAN.
4. CONSTRUCTION JOINTS SHALL BE FORMED WITH A 2x4 SHEAR KEY.
5. CONTROL JOINTS SHALL BE INSTALLED IN HARDENED OR SEMI-HARDERED CONCRETE WITHIN 18 HOURS AFTER POUR. CUT DEPTH SHALL BE ONE-FOURTH THE THICKNESS OF THE SLAB AND SHALL BE SPACED BETWEEN 10' AND 12'-6" C/C.

KEYNOTES

1. #5 HAIRPIN WITH FLARED TAILS, EACH EXTENDING 56" INTO SLAB.
2. #5 HAIRPIN WITH ONE FLARED AND ONE STRAIGHT TAIL, EACH EXTENDING 56" INTO SLAB. IF THE HAIRPIN CROSSES A CONSTRUCTION JOINT, THE HAIRPIN MUST EXTEND 56" BEYOND THE CONSTRUCTION JOINT.
3. #5 HAIRPIN WITH (2) STRAIGHT LEGS, EACH 56" LONG.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
3	FIELD HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:08-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LA GRANDE, OR

FOUNDATION PLAN

DWG. NO. S104

SCALE: 1/8" = 1'-0"

ISSUE DATE: 01/31/20

JOB NO. 8514

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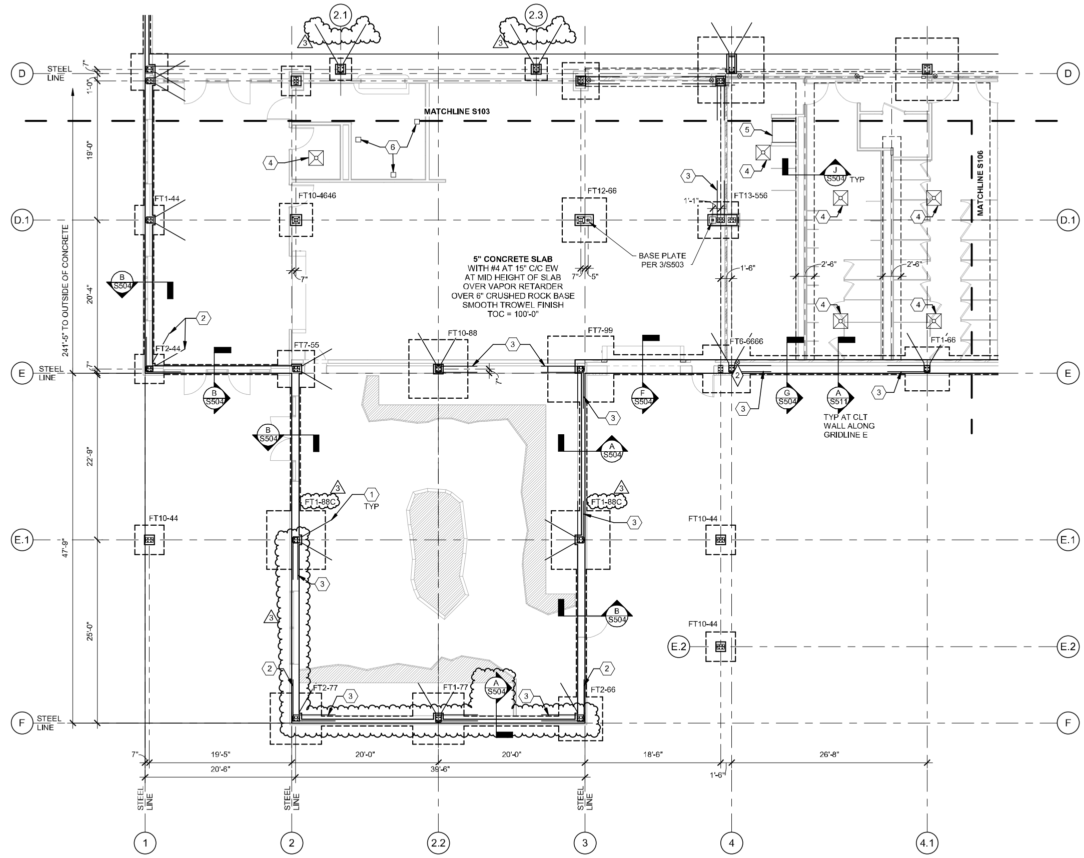

FOUNDATION PLAN

1/8" = 1'-0"

NORTH

SHEET NOTES

1. SEE **S001** FOR GENERAL NOTES AND LEGEND.
2. SEE **S002** FOR SCHEDULES.
3. HOLD-DOWNS ATTACH TO SIDE OF WALL AS SHOWN IN PLAN.
4. CONSTRUCTION JOINTS SHALL BE FORMED WITH A 2x4 SHEAR KEY.
5. CONTROL JOINTS SHALL BE INSTALLED IN HARDENED OR SEMI-HARDERED CONCRETE WITHIN 18 HOURS AFTER POUR. CUT DEPTH SHALL BE ONE-FOURTH THE THICKNESS OF THE SLAB AND SHALL BE SPACED BETWEEN 10' AND 12'-6" C/C.

KEYNOTES

1. #5 HAIRPIN WITH FLARED TAILS, EACH EXTENDING 56" INTO SLAB.
2. #5 HAIRPIN WITH ONE FLARED AND ONE STRAIGHT TAIL, EACH EXTENDING 56" INTO SLAB.
3. #5 HAIRPIN WITH (2) STRAIGHT LEGS, EACH 56" LONG.
4. FLOOR DRAIN LID TO BE SET 1/2" BELOW FINISH FLOOR. FOR 2'-0" BY 2'-0" SQUARE CENTERED AROUND FLOOR DRAIN SLOPE SURFACE OF SLAB DOWN TO LID.
5. RECESS SLAB 2" AT SHOWER, SEE **G/S503**.
6. COORDINATE INSTALLATION OF FLOOR SINKS WITH PLUMBING.

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3	FIELD HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:16-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LA GRANDE, OR

FOUNDATION PLAN

DWG. NO. S105

SCALE: 1/8" = 1'-0"

ISSUE DATE: 01/31/20

JOB NO. 8514

REV. 3

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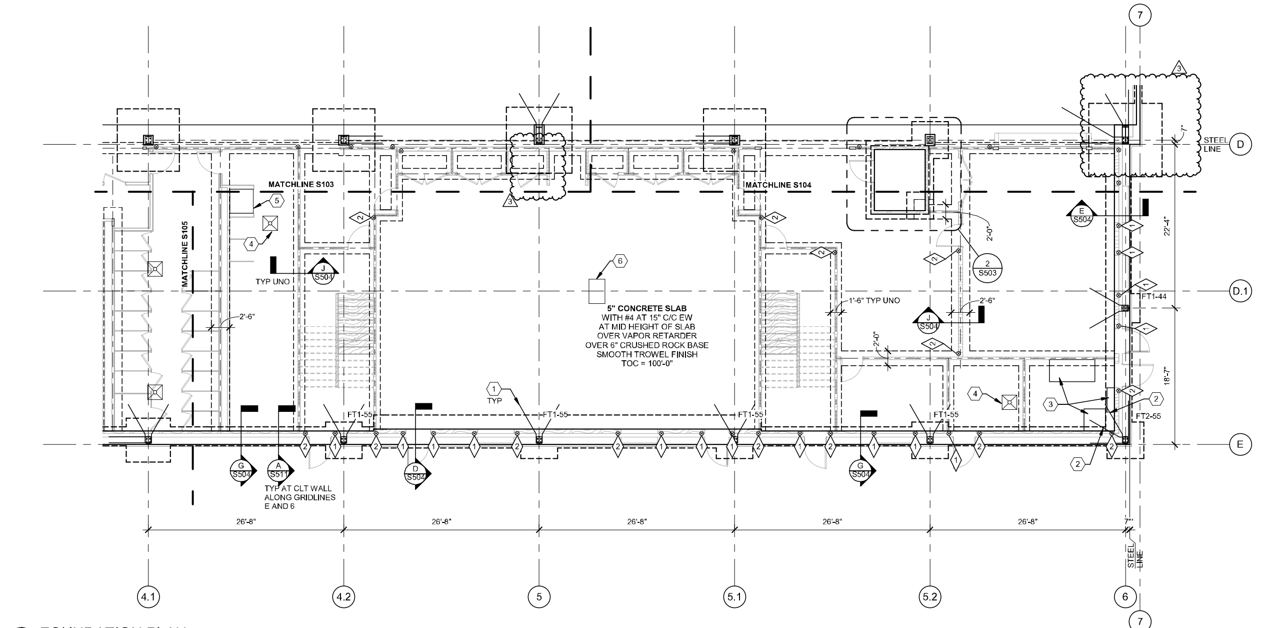

FOUNDATION PLAN

1/8" = 1'-0"

NORTH

SHEET NOTES

1. SEE **S001** FOR GENERAL NOTES AND LEGEND.
2. SEE **S002** FOR SCHEDULES.
3. HOLD-DOWNS ATTACH TO SIDE OF WALL AS SHOWN IN PLAN.
4. CONSTRUCTION JOINTS SHALL BE FORMED WITH A 2x4 SHEAR KEY.
5. CONTROL JOINTS SHALL BE INSTALLED IN HARDENED OR SEMI-HARDERED CONCRETE WITHIN 18 HOURS AFTER POUR. CUT DEPTH SHALL BE ONE-FOURTH THE THICKNESS OF THE SLAB AND SHALL BE SPACED BETWEEN 10' AND 12'-6" C/C.

KEYNOTES

1. #5 HAIRPIN WITH FLARED TAILS, EACH EXTENDING 56" INTO SLAB.
2. #5 HAIRPIN WITH ONE FLARED AND ONE STRAIGHT TAIL, EACH EXTENDING 56" INTO SLAB.
3. HOUSEKEEPING PAD PER DETAIL **4/S503.** (3)
4. FLOOR DRAIN LID TO BE SET 1/2" BELOW FINISH FLOOR. FOR 2'-0" BY 2'-0" SQUARE CENTERED AROUND FLOOR DRAIN SLOPE SURFACE OF SLAB DOWN TO LID.
5. RECESS SLAB 2" AT SHOWER, SEE **G/S503.**
6. RECESS FLOOR SECTION FOR FORCE PLATE.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
3	FIELD HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:25-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LA GRANDE, OR

FOUNDATION PLAN

DWG. NO.

S106

SCALE: 1/8" = 1'-0"

ISSUE DATE: 01/31/20

JOB NO. 8514

REV. 3

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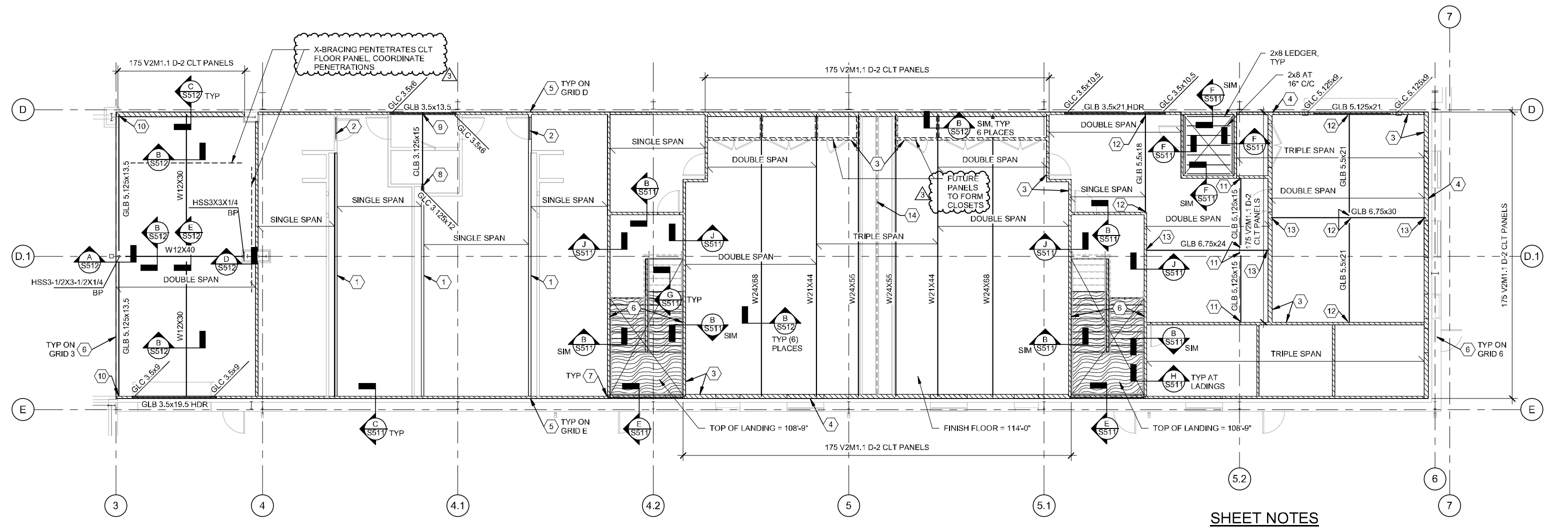
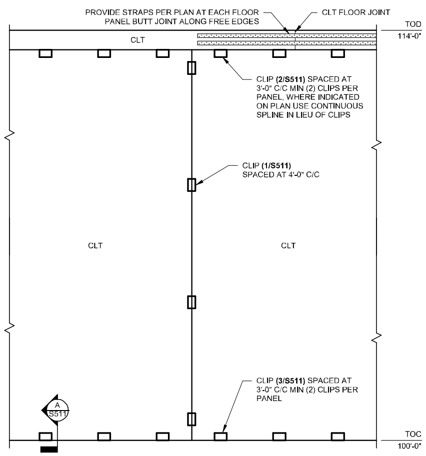


MEZZANINE FRAMING PLAN

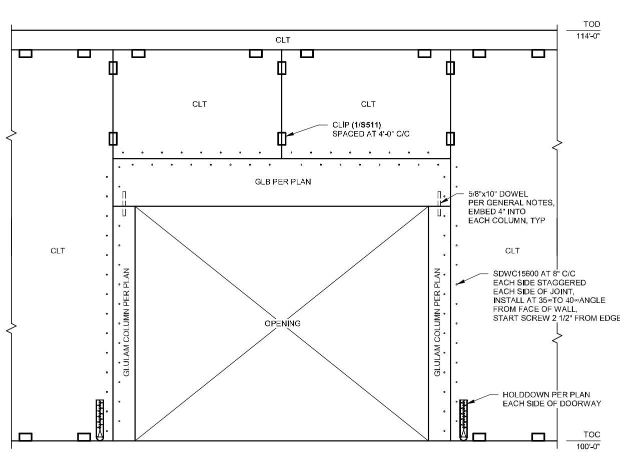
1/8" = 1'-0"

NORTH



TYPICAL CLT WALL ELEVATION

1/2" = 1'-0"



TYPICAL CLT WALL ELEVATION WITH OPENING

1/2" = 1'-0"

SHEET NOTES

1. SEE **S001** FOR GENERAL NOTES AND LEGEND.
2. SEE **S002** FOR SCHEDULES.
3. ALL CLT WALL PANELS SHALL BE 105 V2M1.1 D-2, UNO. NO PANEL SHALL BE WIDER THAN 6'-8".
4. ALL CLT FLOOR PANELS SHALL BE 175 V2M1.1 D-2.
5. CONNECT ADJECTENT FLOOR PANELS PER **F/S512.**
6. COORDINATE ALL CLT FLOOR AND WALL PENETRATIONS WITH MEP CONTRACTORS. PENETRATIONS SHALL BE LIMITED TO 24îX24î AND SHALL ONLY BE PLACED IN CLT FLOOR PANELS WITH WIDTHS OF AT LEAST 6í. PENETRATIONS SHALL NOT BE PLACED IN THE MIDDLE THIRD OF A FLOOR PANEL SPAN LENGTH, NOR WITHIN 1í OF THE PANEL END SUPPORT, AND PENETRATIONS SHALL NOT BE PLACED WITHIN THE TOP OR BOTTON 1í OF A WALL PANEL. PENETRATIONS SHALL NOT BE PLACED OUTSIDE THE MIDDLE 2í OF A PANEL WIDTH. PENETRATIONS UP TO 12îX12î SHALL BE SPACED AT LEAST THREE HOLE DIAMETERS APART. FOR PENETRATIONS LARGER THAN 12îX12î, EACH PANEL IS LIMITED TO ONE HOLE PER END OF FLOOR PANEL (UP TO 2 PENETRATIONS PER FLOOR PANEL) AND ONE PENETRATION PER WALL PANEL.
7. PENETRATIONS THROUGH CLT PANELS MAY BE FIELD-CUT OR FIELD-CORED, PROVIDED OVERCUT KERFS AT CORNERS DO NOT EXTEND MORE THAN Ωî BEYOND THE INTENDED EXTENT OF THE PENETRATION.

KEYNOTES

1. 400S162-68 AT 16" C/C. PROVIDE LATERAL BRACING EVERY 4'-0" ALONG HEIGHT.
2. (2) 600S162-54 BOX HEADER WITH (2) 400S162-68 BOXED JAMBS.
3. NO CLIPS SHALL BE VISIBLE ON CLASSROOM SIDE OF WALLS. PLACE ALL CLIPS ON BACK/OPPOSITE SIDE OF WALL.
4. USE CONTINUOUS SPLINE PER **D/S511** IN LIEU OF CLIPS AT TOD OF THE INDICATED CLASSROOM WALLS.
5. PROVIDE (2) 80" LONG CMST12 STRAPS, CENTERED ON EACH FLOOR PANEL JOINT. FASTEN EACH WITH (86) 0.148"x2.5" NAILS.
6. PROVIDE (1) 80" LONG CMST12 STRAPS, CENTERED ON EACH FLOOR PANEL JOINT. FASTEN EACH WITH (86) 0.148"x2.5" NAILS.
7. PROVIDE CORENER CLIPS PER **1/S512** WHERE THE END OF A CLT WALL BUTTS AGAINST THE FACE OF ANOTHER CLT WALL. PROVIDE CLIPS ON THE SAME SIDE OF THE TERMINATING WALL AS THE FLAT CLIPS (**1/S511**). AVOID PLACING CLIPS ON WALL FACES IDENTIFIED WITH KEYED NOTE 3. SPACE CORNER CLIPS AT 4'-0" C/C ALONG HEIGHT
8. GLB TO BEAR ON GLC. ATTACH GLC TO STEEL STUD WALL WITH #10 SCREWS AT 8" C/C ALONG HEIGHT.
9. HGUS3.25/10 HANGER.
10. HUCQ5.25/11-SDS HANGER.
11. HGU5.25-SDS HANGER.
12. HHGU5.62-SDS HANGER.
13. HHGU7.00-SDS HANGER.
14. CONTRACTOR TO SUSPEND FOLDING PARTITION WALL FROM CLT FLOOR PANEL ABOVE USING 3/8" THREADED RODS HUNG FROM SIMPSON RWV37212 ROD ANCHORS. BRACKET SPACING SHALL BE PER MANUFACTURER BUT SHALL NOT EXCEED 8'-0" C/C. ROD ANCHORS SHALL NOT BE PLACED WITHIN 3" OF A PANEL EDGE. PROVIDE A B-LINE B11 DIAGONAL (45 DEGREES) SWAY BRACE AT EACH BRACKET, ALTERNATING SIDES. SWAY BRACES SHALL BE ANCHORED TO THE UNDERSIDE OF THE CLT DECK WITH 1/4"x2 1/2" LAG SCREWS, USING SWAY BRACE CONNECTORS AVAILABLE FROM B-LINE.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
3	FIELD HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:33-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LA GRANDE, OR

MEZZANINE FRAMING PLAN

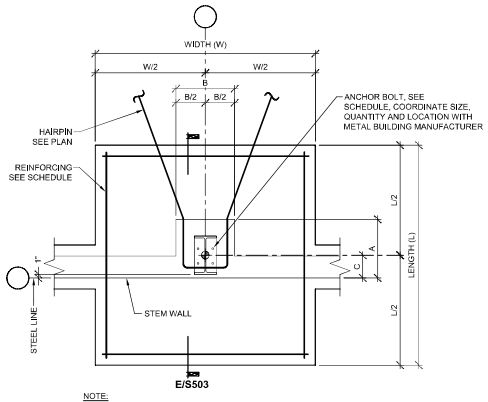
DWG. NO. S111

SCALE: As indicated

ISSUE DATE: 01/31/20

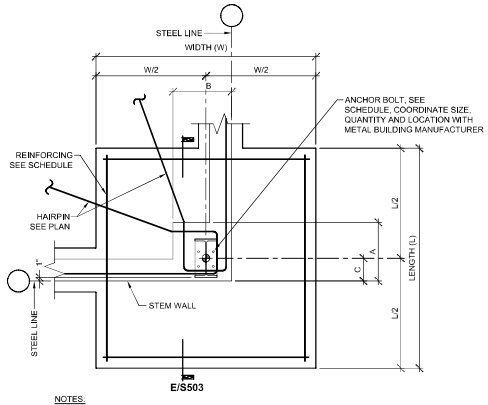
JOB NO. 8514

REV. 3



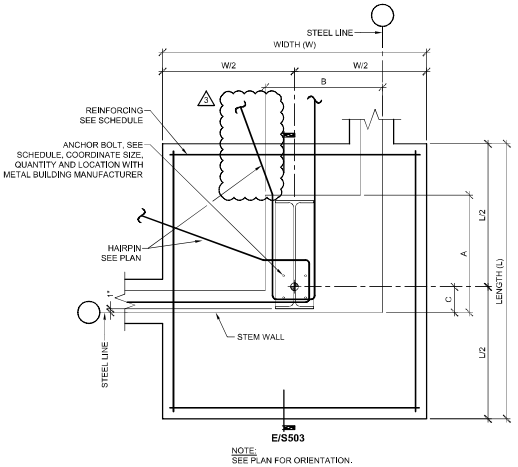
NOTE:
WHERE STEMWALL IS WIDER THAN DIMENSION "A", STILL PROVIDE REINFORCING PER **PIER A** ON **S002.**

1 DETAIL
3/4" = 1'-0" REF: S002



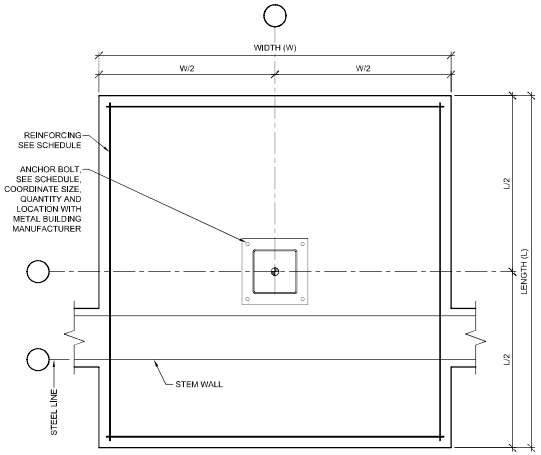
NOTES:
1. SEE PLAN FOR ORIENTATION.
2. WHERE STEMWALL IS WIDER THAN DIMENSION "A" AND OR "B", STILL PROVIDE REINFORCING PER **PIER B** ON **S002.**

2 DETAIL
3/4" = 1'-0" REF: S002

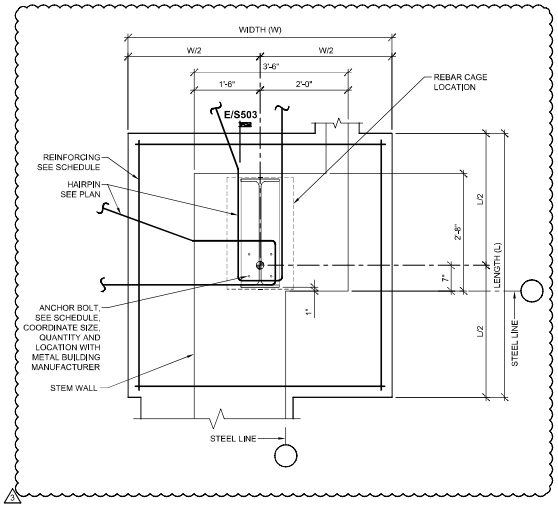


NOTE:
SEE PLAN FOR ORIENTATION.

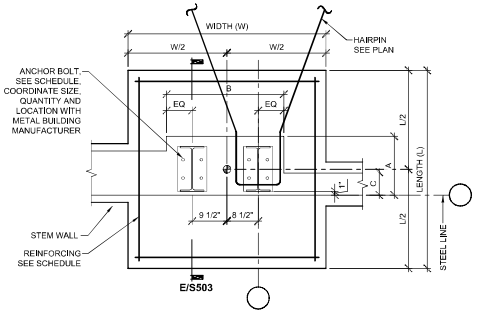
3 DETAIL
3/4" = 1'-0" REF: S002



4 DETAIL
3/4" = 1'-0" REF: S002



5 DETAIL
3/4" = 1'-0" REF: S002



6 DETAIL
3/4" = 1'-0" REF: S002

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NO.	REVISIONS	DATE	DRWN	CHKD	DESIGN	APPD
3	FIELD HOUSE REDUCTION	10/1/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:41-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

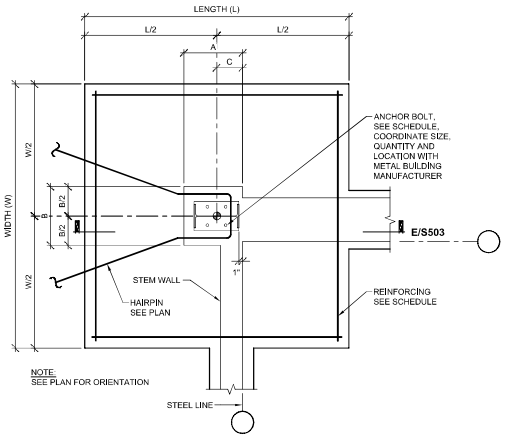
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

SECTIONS AND DETAILS

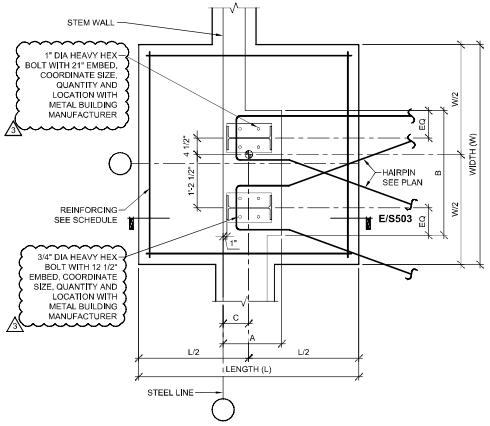
DWG. NO.
S501

SCALE: AS INDICATED
ISSUE DATE: 05/19/2020
JOB No. 8514
REV. 3

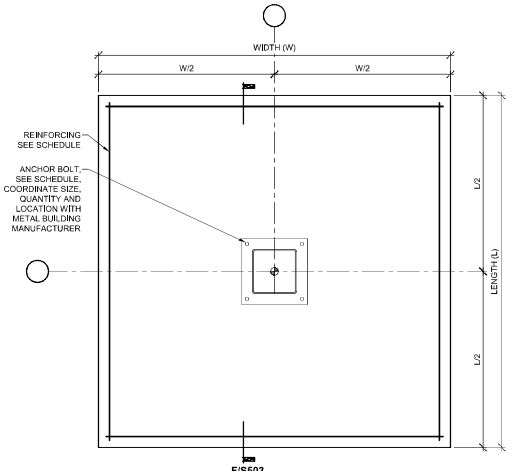
I:\PROJECTS\8500\8514 EOU Field House\DWG\8514S01S501.dwg - Oct 02, 2020-11:41 am - Joel M Morley



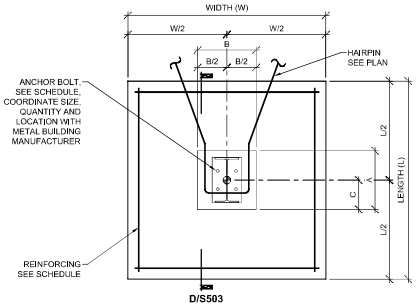
1 DETAIL
3/4" = 1'-0" REF: S002



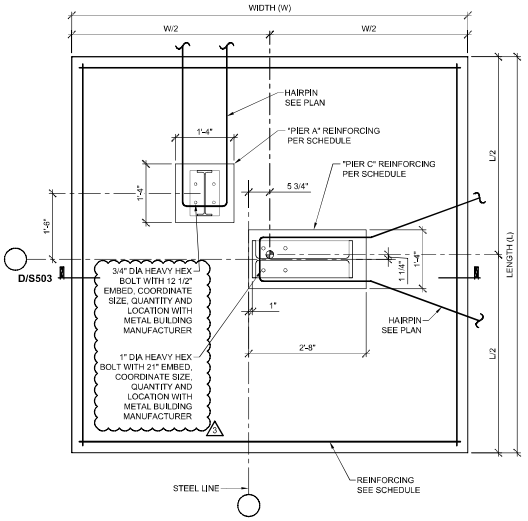
2 DETAIL
3/4" = 1'-0" REF: S002



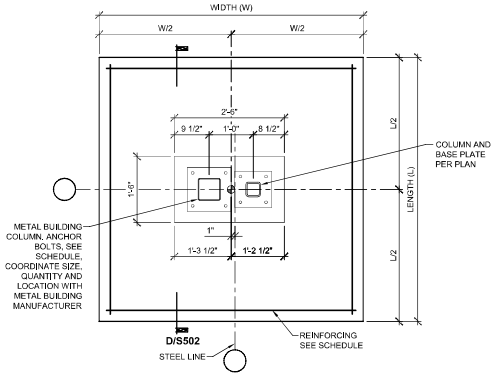
3 DETAIL
3/4" = 1'-0" REF: S002



4 DETAIL
3/4" = 1'-0" REF: S002



5 DETAIL
3/4" = 1'-0" REF: S002



6 DETAIL
3/4" = 1'-0" REF: S002

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NO.	REMARKS	DATE	DRWN	CHKD	DESIGN	APPD
3	FIELD HOUSE REDUCTION	10/7/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:50-07'00'

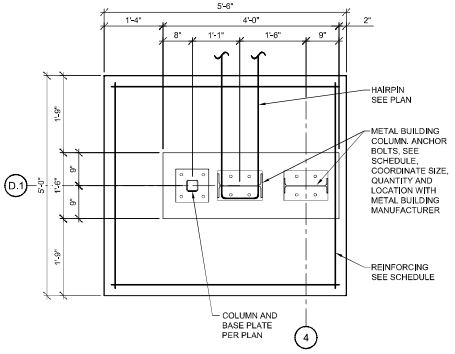
APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

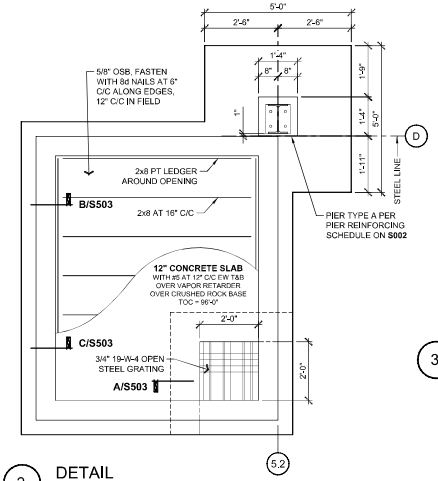
SECTIONS AND DETAILS

DWG. NO.
S502

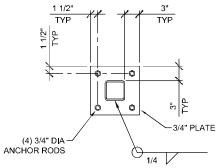
SCALE: AS INDICATED
ISSUE DATE: 05/19/2020
JOB No. 8514
REV. 3



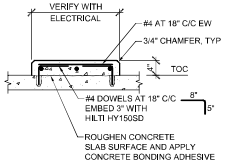
1 DETAIL
3/4" = 1'-0" REF: S002



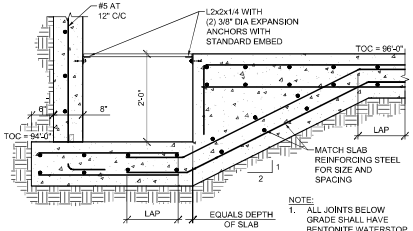
2 DETAIL
1/2" = 1'-0" REF: S002



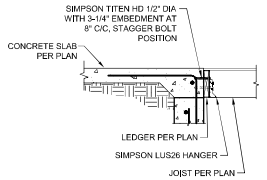
3 DETAIL
1" = 1'-0" REF: S105



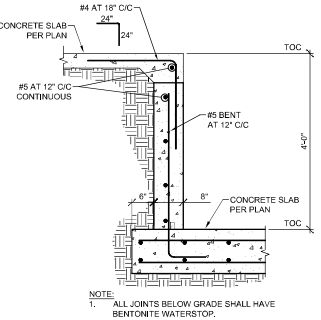
4 DETAIL
3/4" = 1'-0" REF: S106
△3



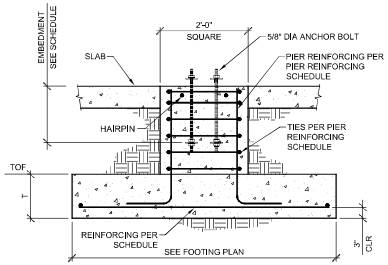
A SECTION
3/4" = 1'-0" REF: S503



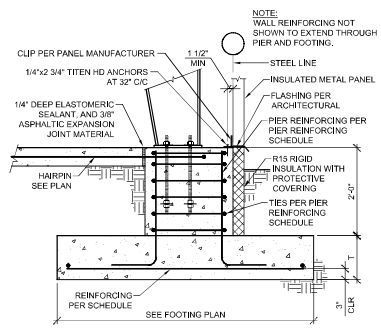
B SECTION
3/4" = 1'-0" REF: S503



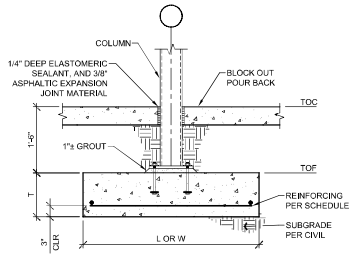
C SECTION
3/4" = 1'-0" REF: S503



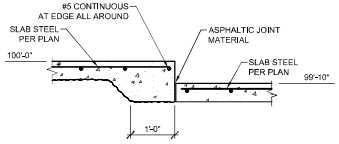
D SECTION
3/4" = 1'-0" REF: S502



E SECTION
3/4" = 1'-0" REF: S501, S502



F SECTION
3/4" = 1'-0" REF: S502



G SECTION
3/4" = 1'-0" REF: S105, S106

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NO.	REMARKS	DATE	DRAWN	CHKD	DESIGN	APVD
3	FIELD HOUSE REDUCTION	9/30/2020	JMM	JTS	NJK	JTS

2020.10.02 17:37:58-07'00'

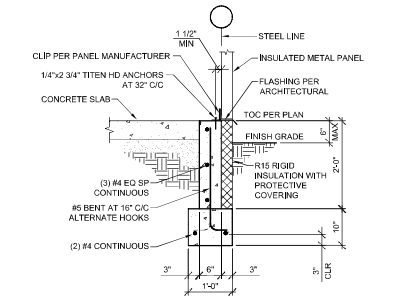
APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

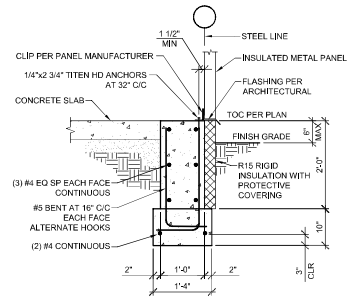
SECTIONS AND DETAILS

DWG. NO.
S503

SCALE: AS INDICATED
ISSUE DATE: 05/19/2020
JOB No. 8514
REV. 3

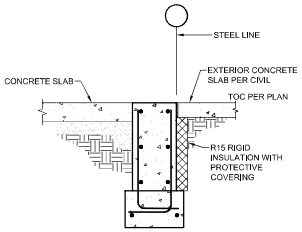


A SECTION
3/4" = 1'-0" REF: S101, S102, S103, S104, S105, S106



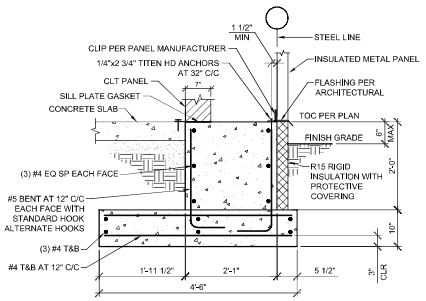
SEE SECTION **C/S504** FOR DOOR LOCATIONS.

B SECTION
3/4" = 1'-0" REF: S101, S102, S103, S104, S105, S106



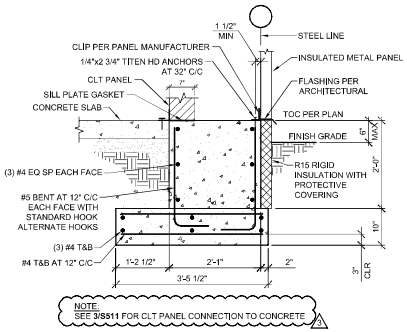
NOTE:
SEE SECTION **B/S504** FOR INFORMATION NOT SHOWN.

C SECTION
3/4" = 1'-0" REF: S106



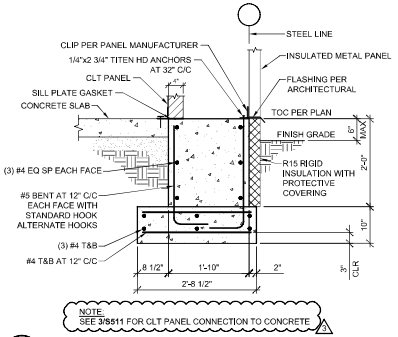
NOTE:
SEE **3/S511** FOR CLT PANEL CONNECTION TO CONCRETE 3

D SECTION
3/4" = 1'-0" REF: S104, S106



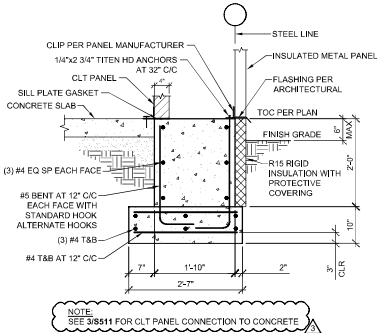
NOTE:
SEE **3/S511** FOR CLT PANEL CONNECTION TO CONCRETE 3

E SECTION
3/4" = 1'-0" REF: S105



NOTE:
SEE **3/S511** FOR CLT PANEL CONNECTION TO CONCRETE 3

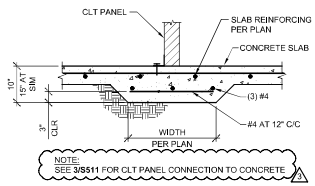
F SECTION
3/4" = 1'-0" REF: S105, S106



NOTE:
SEE **3/S511** FOR CLT PANEL CONNECTION TO CONCRETE 3

G SECTION
3/4" = 1'-0" REF: S101

H SECTION
3/4" = 1'-0" REF:



NOTE:
SEE **3/S511** FOR CLT PANEL CONNECTION TO CONCRETE 3

J SECTION
3/4" = 1'-0" REF: S103, S104, S105, S106

1 DETAIL
1" = 1'-0" REF:

2 DETAIL
1" = 1'-0" REF:

3 DETAIL
1" = 1'-0" REF:

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NO.	REVISIONS	DATE	DRWN	CHKD	DESIGN	APPD
3	FIELD HOUSE REDUCTION	10/7/2020	JMM	JTS	NJK	JTS

2020.10.02 17:38:07-07'00'

APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

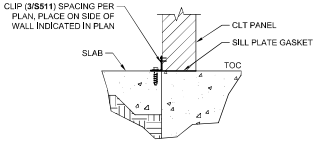
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

SECTIONS AND DETAILS

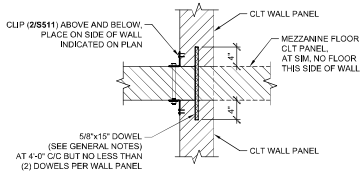
DWG. NO.
S504

SCALE: AS INDICATED
ISSUE DATE: 05/19/2020
JOB No. 8514
REV. 3

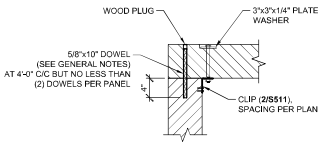
I:\PROJECTS\8500\8514 EOU Field House\DWG\8514\0S504.dwg - Oct 01, 2020- 1:57 pm - Joel M Money



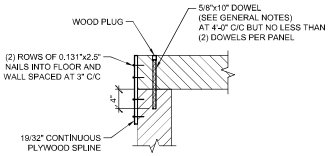
A SECTION
1" = 1'-0" REF: S105, S106



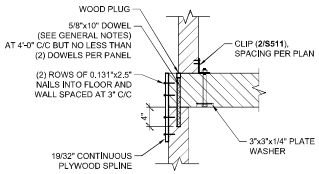
B SECTION
1" = 1'-0" REF: S111



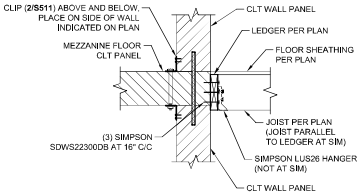
C SECTION
1" = 1'-0" REF: S111



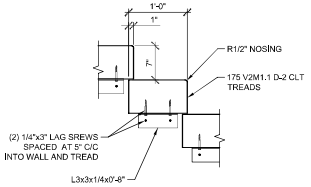
D SECTION
1" = 1'-0" REF: S111



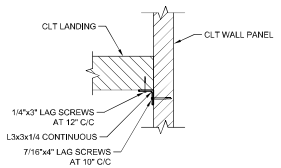
E SECTION
1" = 1'-0" REF: S111



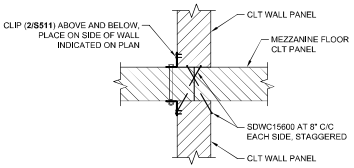
F SECTION
1" = 1'-0" REF: S111



G SECTION
1" = 1'-0" REF: S111



H SECTION
1" = 1'-0" REF: S111



J SECTION
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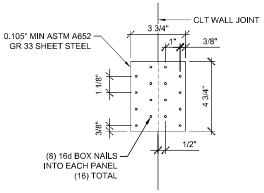

1 DETAIL
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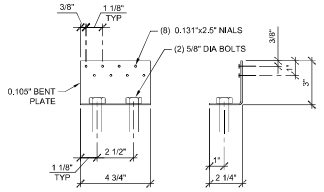

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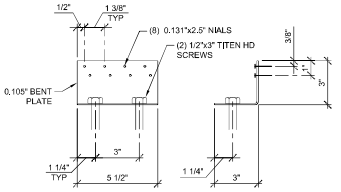


3 DETAIL
3" = 1'-0" REF: S111

Meier ENGINEERING
12 W. Kennewick Ave.
Kennewick, WA 99336
P: 509.735.1589
F: 509.783.5075
www.meierinc.com

NO.	REVISIONS	DATE	DRWN	CHKD	DESIGN	APPD

2020.10.02 17:38:15-07'00'

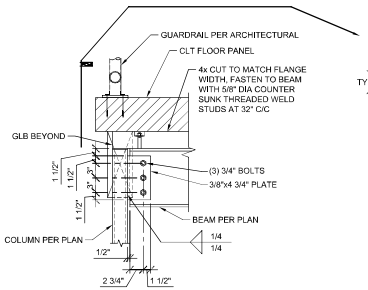
APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

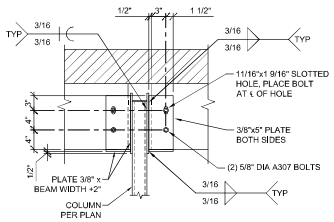
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

SECTIONS AND DETAILS

DWG. NO.
S511

SCALE: AS INDICATED
ISSUE DATE: 05/19/2020
JOB No. 8514
REV. 0





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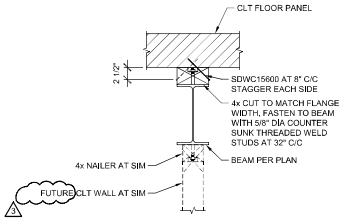

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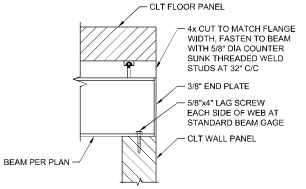

C SECTION
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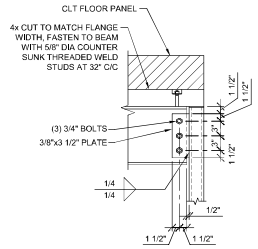

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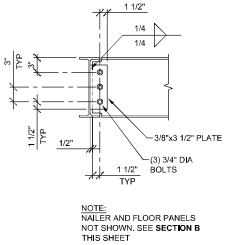
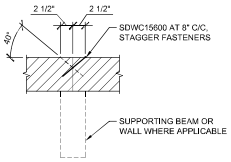


NOTE:
NAILER AND FLOOR PANELS NOT SHOWN, SEE **SECTION B** THIS SHEET

E SECTION
1" = 1'-0" REF: S111



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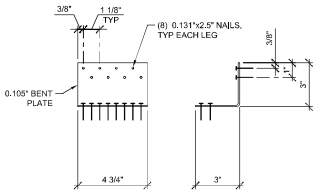


NOTE:
NAIL SPACING IS TYPICAL BOTH LEGS

1 DETAIL
3" = 1'-0" REF: S111

Meier ENGINEERING
12 W. Kennewick Ave.
Kennewick, WA 99336
P: 509.735.1589
F: 509.783.5075
www.meierinc.com

NO.	REVISIONS	DATE	DRWN	CHKD	DESIGN	APPD
3	FIELD HOUSE REDUCTION	10/7/2020	JMM	JTS	NJK	JTS

2020.10.02 17:38:23-07'00'

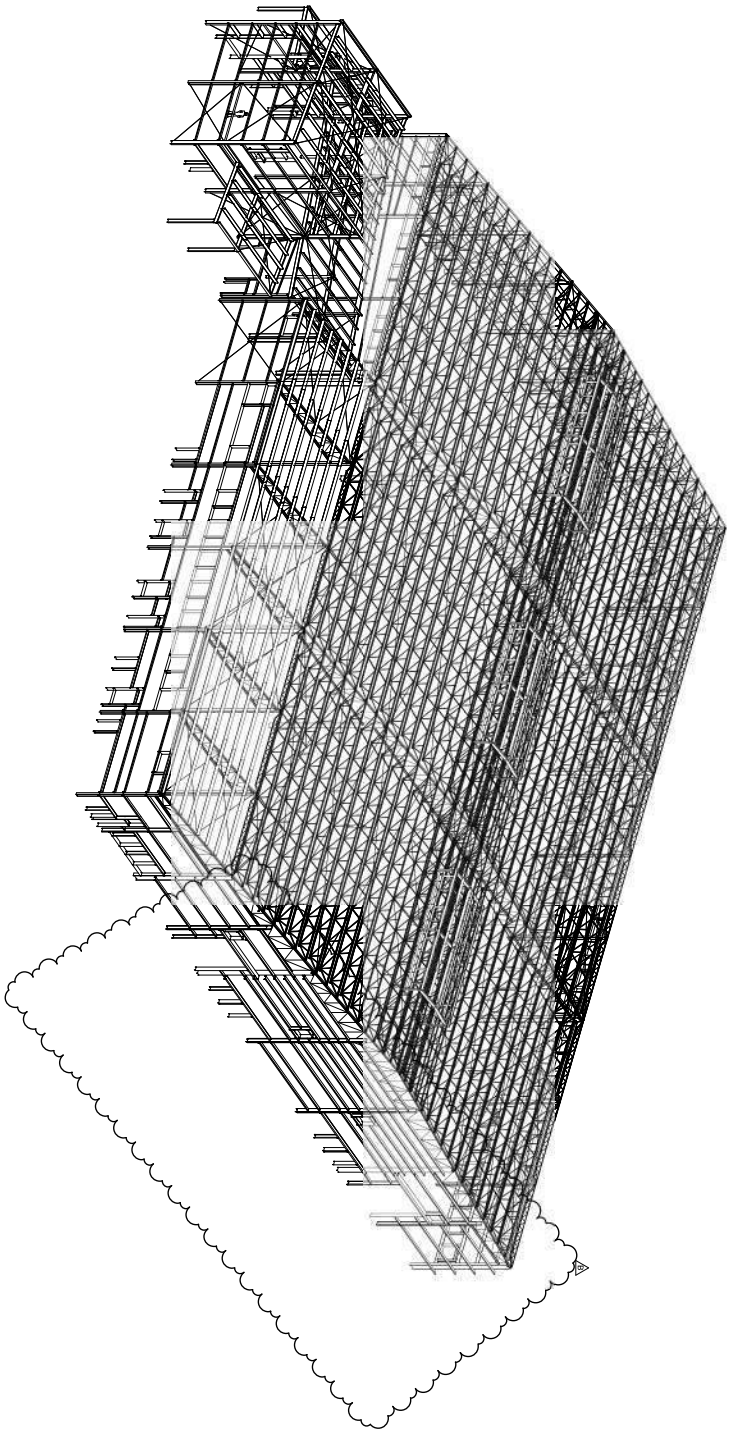
APPROVAL		
DRAWN	JMM	04/09/2020
DESIGN	TSV	04/09/2020
CHECKED	TSV	04/09/2020
APPROVED	JTS	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
LA GRANDE, OR

SECTIONS AND DETAILS

DWG. NO.
S512

SCALE: AS INDICATED
ISSUE DATE: 05/19/2020
JOB No. 8514
REV. 3



ISOMETRIC VIEW

JOB NUMBER 19170

SHEET G0.00

AISC CERTIFIED FABRICATOR

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ISOMETRIC VIEW

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	01/08/20	

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

PROFESSIONAL SEAL

1. **Design Criteria:**

A. Design and detailing services provided by GEM Buildings Inc., comply with the latest edition of the following codes and standards:

OSSC	Oregon Structural Specialty Code (2019)
MBMA	Metal Building Manufacturers Association "Metal Building Systems Manual" (2012)
AISC	American Institute of Steel Construction, "Specifications for Structural Steel" (2010), "Specifications for Structural Joints using A325 and A490 Bolts" (2009), "Code of Standard Practice for Steel Buildings & Bridges" (2010)
AISI	American Iron and Steel Institute "North American Specification for the Design of Cold-Formed Steel Structural Members" (2007)
SJI	Steel Joist Institute "Standard Specifications" (2012)

B. Design Loads:

1. Structural Framing Dead Loads:
   Field House Roof Dead Load: 8 psf
   Other Buildings Roof Dead Load: 6 psf
   (A)
2. Live Loads:
   Minimum roof live load shall be used in the absence of snow load. When snow loads do exist, the maximum of either live or snow shall be used in design.
   Roof Live Load: OSSC Section 1607.11
3. Snow Loads:
   Snow loads including drift and sliding conditions shall be determined using Chapter 7 of ASCE 7.
   Ground Snow Load: P_g = 14 psf
   Roof Snow Load: P_f = 22 psf (Field House)
   Roof Snow Load: P_f = 20 psf (Indoor Climbing Area)
   Snow Exposure: Category C
   Importance Factor: I = 1.1 (Field House) (A)
   Importance Factor: I = 1.0 (Indoor Climbing House)
   Thermal Factor: C_t = 1.0
4. Wind Loads:
   Basic Wind Speed (3 second gust): 110 mph
   Exposure Category: C
   Risk Category: III (Field House)
   Risk Category: II (Indoor Climbing Area)
   Internal Pressure Coefficient: ±0.18
5. Seismic Loads:
   Equivalent Lateral Force Analysis used in determining lateral forces from any horizontal direction.
   Seismic Parameters:
   Importance Factor: I = 1.5 (Field House) (A)
   I = 1.0 (Indoor Climbing Area)
   S_s = 0.331 S_{ds} = 0.264
   S_1 = 0.121 S_{d1} = 0.191
   Site Class = D Design Category = C
   Risk Category = III (Field House)
   Risk Category = II (Indoor Climbing Area)
   Design Base Shear = C_sW

   Seismic Force Resisting Systems:
   Moment Frames & Braced frames not detailed for seismic resistance (Field House) R = 3, Ω_0 = 3, C_d = 0.141
   Braced Frames Not Detailed for seismic resistance (Indoor Climbing Area) R = 3, Ω_0 = 3, C_d = 0.113
6. Auxiliary and Collateral Loads:
   Loads to be applied uniformly over the horizontal projected area of the structure unless specified otherwise.
   Roof Load: 5 psf
7. Lowest Anticipated Service Temperature: 60°F+
8. Special Loads:
9. Load Combinations:
   GEM Buildings Inc. shall design all primary frames and secondary members in accordance with load combinations as specified in the applicable building code.

2. **Structural Steel:**

A. Material Specifications:

1. W Shapes ASTM A992 Fy = 50 ksi Except as noted
2. Plates ASTM A36 Fy = 36 ksi Except as noted
3. Angles and Channels ASTM A36/A572 Fy = 36/50 ksi Except as noted
4. Girders and Joists ASTM A36, ASTM A242, ASTM A529, ASTM A570, ASTM A572, ASTM A588
   Chord: Fy = 50 ksi
   Webs: Fy = 36/50 ksi
5. Tubes ASTM A500 Grade B/C Fy = 46/50 ksi
6. Pipes ASTM A53 Grade B Fy = 35 ksi
7. Cold Form Light Gage ASTM A570 oxide and ASTM A653 galvanized. Fy = 55 ksi
8. Brace Cable EHS ASTM A475-72
9. Headed Stud Anchors ASTM A108
10. Deformed Bar Anchors (DBA) ASTM A496
11. Anchors Rods ASTM F1554 with Supplement S1- (Grade 36 unless noted)
12. Structural Bolts
    a. Primary Steel Connections: 3/4" diameter A325 Type N u.n.o.
    b. Light Gage Framing Connections: 1/2" diameter SAE Grade 5 u.n.o.
13. Shapes with flanges 1 1/2" thick or thicker and plates 2" thick or thicker, that are part of the SFRS shall have a minimum Charpy V-notch toughness of 20 ft-lbs at 70° F.

B. GEM Buildings Inc. is certified for AISC Standard for Steel Building Structures. GEM is an approved fabricator of structural steel- reference IAS Accreditation Listing FA-340. Fabrication complies with the latest edition of the following codes and standards:

AISC	American Institute of Steel Construction, "Specifications for Structural Steel Buildings" (2010), "Specifications for Structural Joints using A325 & A490 Bolts" (2009), "Code of Standard Practice for Steel Buildings & Bridges" (2010)
SJI	Steel Joist Institute "Standard Specification and Code of Standard Practice" (2010)
AWS	American Welding Society "Structural Welding Code" (2010)
AISI	American Iron and Steel Institute "North American Specification for the Design of Cold-Formed Steel Structural Steel Members" (2012)
MBMA	Metal Building Manufacturers Association "Metal Building Systems Manual" (2012)

C. Structural Coatings:

1. All steel surfaces receive SSPC-SP3 cleaning and a minimum of 2 dry mils rust inhibitive coating. The primer coating protects the steel for only a short period of exposure in ordinary atmospheric conditions. The fabricator does not assume responsibility for deterioration of the primer coat that may result from extended exposure to corrosive conditions more severe than ordinary atmospheric conditions, or for prolonged periods of delay storage. (AISC Code of Standard Practice 6.5)
2. Shop applied primer may not always match the color shade of members supplied by other suppliers.

D. Base Plates:
Base plates are designed for bearing on concrete which has a minimum 28 day strength of 2500 psi.

3. **Welding:**

A. Certification for Welders:
All shop and field welding shall be executed by AWS certified welders. Welding procedure, operator qualifications and welding quality standards shall be in accordance with the AWS structural welding code.

B. Electrodes for field welds:
E-70XX shall be used for all structural steel connections unless noted otherwise. E-60XX may be used for welding floor and roof deck seam attachments.

C. No welds shall be applied to high strength anchor bolts without prior approval from the GEM engineer responsible for design.

D. All welds used in members and connections in the SFRS shall be made with filler metal that can produce welds that have a minimum Charpy V-notch toughness of 20 ft-lbs @ -20° F.

E. Demand critical welds shall be made with filler metal that can produce welds that have a minimum Charpy V-notch toughness of 20 ft-lbs at -20° F and 40 ft-lbs at 70° F. Demand critical welds are noted in the details.

4. **Bolted Connections:**

A. All high strength connections utilizing A325 bolts are shear/bearing type unless noted otherwise. Bolts in these connections are to be installed and tightened to snug tight condition in accordance with AISC specifications. Snug tight is defined as the tightness that exists when all plies are in firm contact and is usually attained by a few hits of an impact wrench or the full effort of a worker using an ordinary spud wrench.

B. All bolted connections to use standard holes. Slots are not permitted Unless Noted Otherwise.

C. Threads are not required by design to be excluded from the shear plane unless specifically noted otherwise.

D. Hardened washers to be used on all oversized holes or short slots.

E. All bolts and nuts to be stored in a clean dry place.

F. GEM uses the AISC formulas for determining the required anchor rod diameters. These formulas are based on a steel-to-steel shear plane. If the foundation engineer chooses not to use an embedded shear plate to transfer the required loads to the foundation, the foundation engineer shall provide alternate details to GEM which will develop the full capacity of the anchor bolts.

G. For SFRS all bolts to be pretensioned high-strength bolts with a Class A or higher faying surface.

5. **Open Web Steel Joist and Girders:**

A. Erect all joist products and accessories in accordance with the specifications of the Steel Joist Institute.

B. The steel joist and girder supplier shall be responsible for the design of all steel joists and girders, employing the direct supervision of a licensed professional engineer.

C. Seismic loads indicated "E" or "Em" on drawings do not include 0.7 factor for ASD load combinations.

D. Camber:
All joists and girders are cambered per SJI specifications unless noted otherwise.

E. Field Modifications:
Do not modify any joist or girder, including holes through the top and bottom chords without prior written consent and direction of the GEM engineer.

F. Joist and girder chords are not designed for bending due to concentrated loads between panel points. All concentrated loads exceeding 100 lbs must be located within 4" of a joist panel point and 6" of a girder panel point. Joists and girders with loads greater than 4" or 6" respectively from a panel point and not specifically located on the drawing shall be reinforced with additional web members with the appropriate size and field welds to be determined by the GEM engineer.

G. No loads shall be supported from the joist bridging.

H. Steel Joist and Girder Coatings:

1. All steel surfaces receive preparation and paint per SJI specifications. The primer coating is to provide temporary protection to the steel joist to prevent rusting during shipping and on-site, short-term storage. The primer is not meant for extended exposure to corrosive conditions more severe than ordinary atmospheric conditions, or for prolonged periods of delay storage. (AISC Code of Standard Practice 6.5) (SJI Section 05210)
2. Shop applied primer may not always match the color shade of members supplied by other suppliers.

6. **Metal Panels:**

A. Site Storage:
Metal panels not promptly erected should be stored off the ground with one end elevated for drainage. All panels should be protected from the elements with a waterproof covering.

B. Erection:
When placing bundles of metal panels on the roof, care should be taken to avoid overloading the supporting structural members. All panels shall be placed in accordance with GEM drawings and the appropriate details. Roof panels are not to be placed on steel joist or purlins until such members have been permanently fastened and all joist bridging has been installed.

7. **Special Inspection Requirements:**

A. General:
In addition to the inspections required by Section 110 of the IBC, the owner or the registered design professional in responsible charge acting as the owner's agent shall employ one or more special inspectors who shall provide inspections during construction of the project as required in Section 1704 of the IBC. See Statement of Special Inspection for items requiring special inspection.

8. **General Notes:**

A. In case of discrepancies between GEM drawings and drawings for other trades, the GEM drawings shall govern.

B. It is the responsibility of the owner to obtain appropriate approvals and permits from any and all governmental agencies as required.

C. The supplying of engineering calculations and drawings sealed by a licensed professional engineer does not imply or constitute an agreement that GEM, or the design engineer are acting as the engineer of record or the design professional for the entire project. These documents are sealed only in reference to the components designed and furnished by GEM.

D. Foundation design or any other concrete design work is not by GEM. The foundation engineer is solely responsible for determining the applicable load combinations which will govern the design of the footings, foundations, and piers. In addition, the foundation engineer is responsible for determining the required anchor rod embedment length and all details for the transfer of all applicable shear and tension loads to the concrete footings and piers.

E. Anchor rods and any other items embedded in concrete, including but not limited to masonry fasteners and anchors are not by GEM unless specifically noted on the plans.

F. Erection shall be in accordance with the latest edition of the AISC "Code of Standard Practice for Steel Buildings and Bridges".

G. The contractor is responsible for the accurate setting of anchor rods and erection of steel in accordance with GEM drawings that are issued as "ERECTION DRAWING - ISSUED FOR CONSTRUCTION" and a numerical revision number. Temporary supports, guys, braces, false work, cribbing or other elements required for erection will be determined, furnished, and installed by the contractor. This temporary bracing must remain in place until all components including, but not limited to, purlins, girts, sheeting, uplift, and flange braces are installed and properly connected. The building shall not be considered stable until all connections are complete.

H. These contract documents represent the finished structure. They do not indicate the method of construction. The contractor shall provide all measures necessary to protect the structure, workers, and other persons during construction. Such measures shall include, but are not limited to, means and methods, bracing, shoring, forms, scaffolding, guying or other means to avoid excessive stresses and to hold structural elements in place during construction. Observation visits to the site by the Structural Engineer or structural observers shall not include inspection of the above items.

I. Observation visits to the project by an employee of GEM Buildings Inc., shall not be constituted as an inspection or approval of construction.

J. No structural change from the approved plans and specifications shall be made in the field unless written approval is obtained prior to the making of such change. Changes made without the written approval shall be the responsibility of the contractor. The condition shall be repaired or replaced as directed.

K. These drawings and all information contained herein remain the property of GEM Buildings Inc. All rights are expressly reserved and they may not be reproduced in whole or in part without the expressed written consent of GEM Buildings Inc. These drawings shall be returned to GEM Buildings Inc., at its request.

9. **Abbreviations and Plan Marks:**

AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION INC.	L	ANGLE
		LBS	POUNDS
ALT	ALTERNATE	LFRS	LATERAL FORCE RESISTING SYSTEM
AR	ANCHOR ROD(S)		
ARCH	ARCHITECT	MAX	MAXIMUM
		MBMA	METAL BUILDING MANUFACTURERS ASSOCIATION
BLDG	BUILDING		
BM	BEAM	MECH	MECHANICAL
BRBF	BUCKLING-RESTRAINED BRACED FRAME	MF	MODULAR FRAME
		MIN	MINIMUM
BRG	BEARING	MISC	MISCELLANEOUS
BS	BOTH SIDES		
BTM	BOTTOM	NIC	NOT IN CONTRACT
		NP	NO PAINT
CBL	CABLE	NS	NEAR SIDE
CL	CENTER LINE	NTS	NOT TO SCALE
CMU	CONCRETE MASONRY UNIT		
CNTR	CENTER	OC	ON CENTER
COL	COLUMN	OCBF	ORDINARY STEEL CONCENTRICALLY BRACED FRAME
CONC	CONCRETE		
CONST	CONSTRUCTION	OFP	OUTSIDE FACE OF PANEL
CONT	CONTINUOUS	OFS	OUTSIDE FACE OF STUD
		OHD	OVERHEAD DOOR
		OPNG	OPENING
DBA	DEFORMED BAR ANCHOR	OPP	OPPOSITE
DBE	DECK BEARING ELEVATION	OSMF	ORDINARY STEEL MOMENT FRAME
DET	DETAIL	OW	OPEN WEB
DIA	DIAMETER		
DIM	DIMENSION	PL	PLATE
DS	DOWNSPOUT	PLF	POUNDS PER LINEAR FOOT
DWG	DRAWING	PSF	POUNDS PER SQUARE FOOT
		PSI	POUNDS PER SQUARE INCH
EHS	EXTRA HIGH STRENGTH	PT	PAINT
ELEV	ELEVATION	PUR	PURLIN
EOD	EDGE OF DECK		
EQUIP	EQUIPMENT	REQ'D	REQUIRED
EQ	EQUAL	RFT	RAFTER
ES	EAVE STRUT	RO	ROUGH OPENING
EXIST	EXISTING		
EXP	EXPANSION	SCH	SCHEDULE
EXT	EXTERIOR	SFRS	SEISMIC FORCE RESISTING SYSTEM
		SHT	SHEET
FB	FLANGE BRACE	SIM	SIMILAR
FCA	FRICTION CLIP ANGLE	SJI	STEEL JOIST INSTITUTE
FCP	FRICTION CLIP PLATE	SL	STEEL LINE
FDN	FOUNDATION	SQ	SQUARE
FF	FINISH FLOOR	SRMSW	SPECIAL REINFORCED MASONRY SHEAR WALL
FLR	FLOOR		
FO	FRAMED OPENING	SSMF	SPECIAL STEEL MOMENT FRAME
FTG	FOOTING	SSR	STANDING SEAM ROOF
FS	FAR SIDE	STAG	STAGGERED
		STD	STANDARD
GA	GAGE	STL	STEEL
GALV	GALVANIZED		
GEM	GEM BUILDINGS INC.	T&B	TOP AND BOTTOM
GR	GRADE	TCB	TENSION CONTROL BOLT
GRD	GIRDER	THDS	THREADS
		TOC	TOP OF CONCRETE
HB	HORIZONTAL BRIDGING	TOD	TOP OF DECK
HDR	HEADER	TOF	TOP OF FLOOR
HORZ	HORIZONTAL	TOS	TOP OF STEEL
HT	HEIGHT	TOW	TOP OF WALL
HSA	HEADED STUD ANCHOR(S)	TYP	TYPICAL
HSS	HOLLOW STRUCTURAL SECTION		
		UB	UPLIFT BRACE
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS	UBC	UNIFORM BUILDING CODE
		UN	UNLESS NOTED
IFP	INSIDE FACE OF PANEL	UNO	UNLESS NOTED OTHERWISE
IFS	INSIDE FACE OF STUD		
IN	INCH	VERT	VERTICAL
INSUL	INSULATION		
INT	INTERIOR	W/	WITH
IMF	INTERMEDIATE STEEL MOMENT FRAME	W/O	WITHOUT
		WBC	WIND BRACE CLIP
		WCC	WIND COLUMN CLIP
JB	JACK BEAM	WF	WIDE FLANGE
JST	JOIST	WP	WORK POINT
		WWF	WELDED WIRE FABRIC
K	KIPS		
KLF	KIPS PER LINEAR FOOT	( )	PIECEMARK OR QUANTITY
KSF	KIPS PER SQUARE FOOT		
KSI	KIPS PER SQUARE INCH		

TABLE OF CONTENTS

PROFESSIONAL SEAL
7607PE
OREGON 11/09/2020
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/9/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5500 WWW.GEMBUILDINGS.COM

DRAWN IC | CHECKED | ENGINEER NR | DATE 01/08/20 | SCALE N.T.S.

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
COVER SHEET

AISC CERTIFIED FABRICATOR

SHEET G0.01

JOB NUMBER 19170

STATEMENT OF SPECIAL INSPECTION

1. **General Notes:**

   A. The items listed below shall be inspected in accordance with OSSC Chapter 17 and with the quality assurance inspection requirements of AISC 360 and AISC 341 as applicable by a qualified special inspector from an approved inspection agency. The inspection agency shall send copies of all structural testing and inspection reports directly to the Architect, Engineer, Contractor and Building Official. Any items which fail to comply with approved construction documents shall immediately be brought to the attention of the Contractor for correction. If discrepancies are not corrected, they shall be brought to the attention of the Building Official, Architect and Engineer prior to completion of that phase of work.

   B. Any construction material that has failed inspection shall be subject to removal and replacement.

   C. Continuous special inspection **(C)** means special inspection by the special inspector who is present in and where the work to be inspected is being performed (OSSC Section 1702). These tasks are to be performed for each joint or connection (AISC 360 N5).

   D. Periodic special inspection **(P)** means special inspection by the Special Inspector who is intermittently present where the work to be inspected has been or is being performed (OSSC Section 1702). These are items that are observed on a random basis. Operations need not be delayed pending these inspections (AISC 360 N5).

   E. The Special Inspector shall verify compliance with the details shown in the construction documents, such as floor and roof deck welding, mechanical fasteners, side seam screws or button punches; welding of anchors and studs; braces; stiffeners; member locations and proper application of joint details at each connection. Following completion of the work of other trades the Inspector shall inspect protected zones of seismic resisting frames as indicated on the drawings, that no holes and unapproved attachments were made (AISC 360-10 N5.7, N6).

   F. Fabrication:

      1. Inspection for fabrication shall be the same as steel construction inspection. Any construction or material that has failed inspection shall be subject to removal and replacement.

      2. Special inspection is not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection, provided the Fabricator complies with OSSC.

2. **Steel Construction:**

   The special Inspector is to perform the following inspections:

Special Inspection Schedule

Steel Construction			
Item	Inspection	Frequency	Reference
A. **Welding**	• Observation of welding operations and visual inspection of in-process and completed welds shall be the primary method of inspection. • Welding inspections shall be in compliance with AWS D1.1.		AISC 360 N5.4
1. Prior to Welding			
	Verify Welding Procedure Specifications (WPS's)are available	C	AISC 360 Table N5.4-1
	Verify manufacturer certifications for welding consumables are available	C	
	Material identification (type/grade)	P	
	Welder identification system (verify there is a system in place to identify the welder who has welded a joint or member)	P	
	Fit-up of groove welds: Joint geometry Joint preparation Dimensions (alignment, root opening, root face, bevel) Cleanliness (condition of steel surfaces) Tacking (tack weld quality and location) Backing type and fit (if applicable)	P	
	Configuration and finish of access holes	P	
	Fit-up of fillet welds: Dimensions (alignment, gaps at root) Cleanliness (condition of steel surfaces) Tacking (tack weld quality and location)	P	
	Check welding equipment	P	
2. During Welding			
	Use of qualified welders	P	AISC 360 Table N5.4-1
	Control and handling of welding consumables: Packaging Exposure control	P	
	No welding over cracked tack welds	P	
	Environmental conditions: Wind speed within limits Precipitation and temperature	P	
	WPS followed: Settings on welding equipment Travel speed Selected welding materials Shielding gas type/flow rate Preheat applied Interpass temperature maintained (min./max.) Proper position (F, V, H, OH)	P	
	Welding techniques: Interpass and final cleaning Each pass within profile limitations Each pass meet quality requirements	P	
3. After Welding	Perform an inspection of the following at each joint and document acceptance or rejection of welded joint or member:	C	AISC 360 Table N5.4-1
	Welds are cleaned	P	
	Size, length and location of welds	C	
	Welds meet visual acceptance criteria: Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity	C	
	Arc strikes	C	
	When welding of doubler plates, continuity plates or stiffeners been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75 mm)of the weld.	C	
	Backing removed and weld tabs removed (if required)	C	
	Repair activities	C	

	Complete Penetration Welds (CJP):
	• For structures in Risk Category III or IV - UT shall be performed on all CJP groove welds in butt, T- and corner joints, in materials 5/16 in. (8 mm) thick or greater.
	• For structures in Risk Category II, UT shall be performed on 10% of CJP groove welds in butt, T- and corner joints in material 5/16 in. (8 mm) thick or greater.
	• Seismic Force Resisting Systems identified on the drawing:
	  • With base metal thicker than 1 1/2 in. (38 mm) loaded in tension in the through-thickness direction in T- and corner joints, where connected material is greater than 3/4 in. (19 mm) and contains CJP groove welds, shall be ultrasonically tested.
	  • Magnetic particle testing shall be performed on 25% of all beam-to-column CJP groove welds.
		C	AISC 360 N5.5b
			AISC 430 J7.2b

	Fatigue: Each weld joint subject to fatigue, as noted on the drawing, and requiring weld soundness shall be established by radiographic or UT inspection.	C	AISC 360 N5.5a

Steel Construction			
Item	Inspection	Frequency	Reference
B. **High Strength Bolting**	Observation of bolting operations shall be the primary method used to confirm that the materials, procedures and workmanship incorporated in construction are in conformance with the construction documents and the provisions of the RCSC Specification.		AISC 360 N5.6
1. Prior to Bolting			
	Verify manufacturer certifications are available for fastener material	P	AISC 360 Table N5.6-1
	Fastener marked in accordance with ASTM requirements	P	
	Proper fastener selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane	P	
	Proper bolting procedure selected for joint detail	P	
	Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	P	
	Pre-installation verification testing per RCSC Specification by installation personnel observed and documented for fastener assemblies and methods used (pretension bolts only)	C	
	Proper storage provided for bolts, nuts, washers an other fastener components	P	
2. During Bolting			
	Fastener assemblies, of suitable condition, place in all holes and washers (if required) are positioned as required	P	AISC 360 Table N5.6-2
	Joint brought to the snug-tight condition	P	
	Fastener component not turned by the wrench prevented from rotating	P	
Turn-of-nut with match marking, direct-tension-indicator, twist-off-type tension control bolt	Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges.	P	
Calibrated wrench method or the turn-of-nut method without match marking	Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges.	C	
3. After Bolting			
	Document acceptance or rejection of bolted connection	C	AISC 360 Table N5.6-3
C. **Steel Elements of Composite Construction and Steel Deck**	Observation of welding operations and visual inspection of in-process and completed welds shall be the primary method to confirm that the materials, procedures and workmanship are in conformance with the construction documents. Applicable provisions of AWS D1.3 shall apply.		
1. Prior to Deck Attachment			
	Verify fastener to be used	C	
	Verify manufacturer certifications for welding consumables are available	C	
	Material identification	C	
	Verify Welding Procedure Specifications (WPS's) are available	C	
	Qualifications of welding personnel	C	
2. During Deck Installation			
	Welds completed	P	
	Fasteners installed per manufacturer recommendations	P	
3. After Deck Installation, Before Concrete Placement			
	Placement of steel deck	P	
	Welds and fasteners completely installed	P	
	Placement and installation of steel studs	P	
	Document acceptance or rejection of steel elements	C	

PROFESSIONAL SEAL
JAMES D. KNIGHT
7607PE
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A.	APPROVAL DRAWING	02/10/20
B.	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
1025 N. WALDEN LANE BRIGHAM CITY, UT 84302
(435) 723-5500 WWW.GEMBUILDINGS.COM

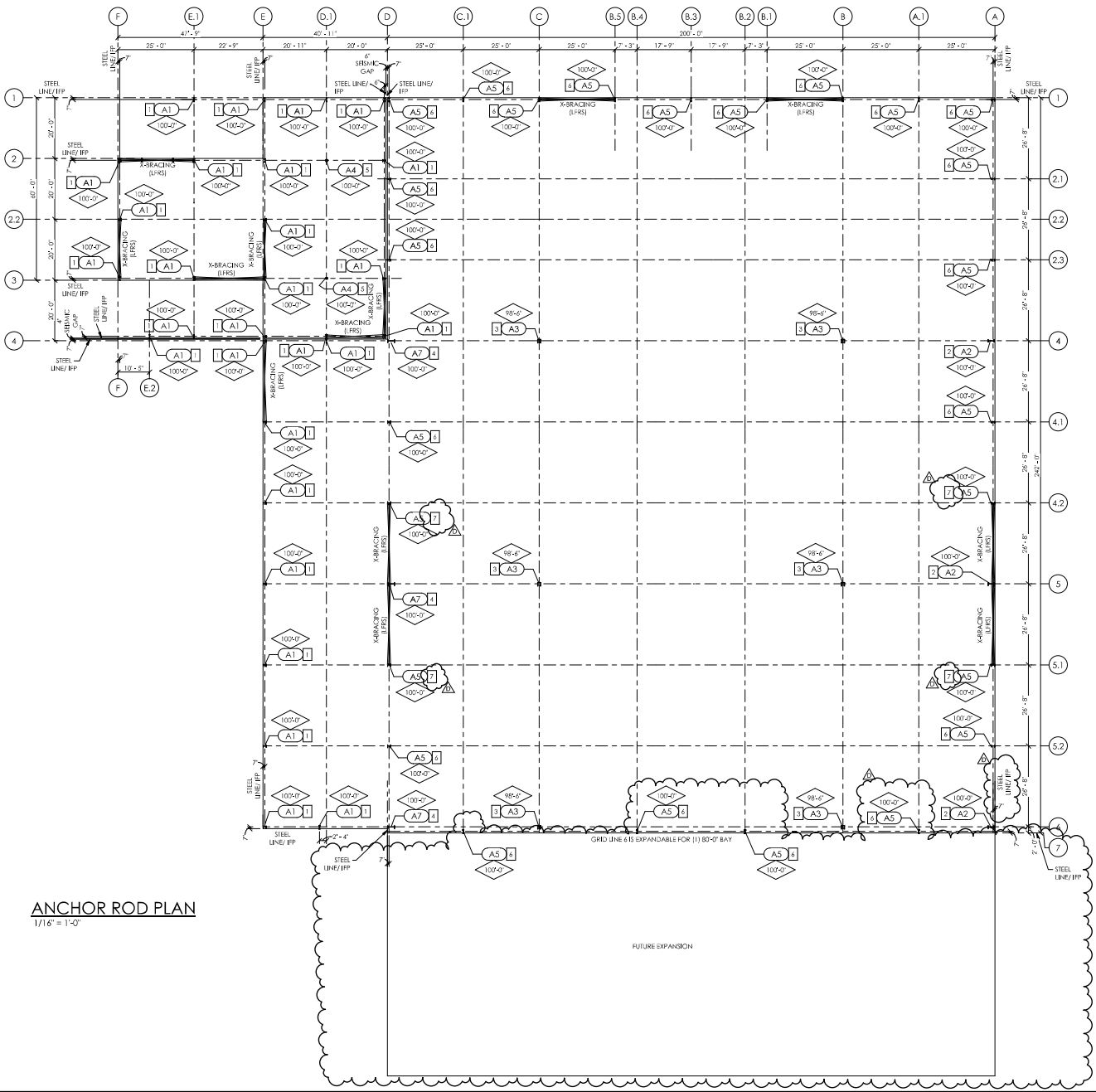
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	01/08/20	N.T.S.

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
STATEMENT OF SPECIAL INSPECTION

AISC CERTIFIED FABRICATOR

SHEET
G0.02

JOB NUMBER
19170



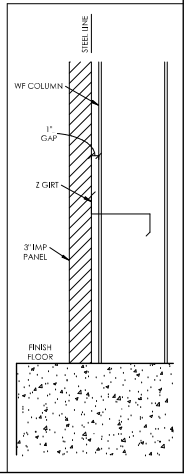
ANCHOR ROD PLAN

1/16" = 1'-0"

NOTES:

1. FINISH FLOOR ELEVATION = 100'-0" (UNLESS NOTED OTHERWISE).
2. ◇ DESIGNATES BOTTOM OF BASE PL ELEVATION.
3. ALLOW 3" PROJECTION ON ALL ANCHOR RODS. ASSUMING NO GROUT UNDER COLUMN BASE.
4. ALL ANCHOR RODS TO BE ASTM F1554 GRADE 36.
5. FOR ANCHOR ROD HOLES IN BASE PLATES USE 1/8" OVERSIZE FOR 1" DIA. ANCHOR RODS AND SMALLER. USE 3/16" OVERSIZE FOR ANCHOR RODS LARGER THAN 1" DIA. (UNLESS NOTED OTHERWISE).
6. (LFRS) LATERAL FORCE RESISTING SYSTEM.
7. SEE SHEET G1.02 FOR ANCHOR ROD PATTERNS.
8. COORDINATE FLOOR SLAB BLOCK OUT FOR BRACE GUSSETS AT BRACE FRAME COLUMNS.

NUMBER	NOMINAL BASE PL SIZE
1	PL 1/2" x 8" x 12"
2	PL 3/4" x 9" x 24"
3	PL 2 1/2" x 18" x 18"
4	PL 3/4" x 10" x 28"
5	PL 1/2" x 12" x 12"
6	PL 1/2" x 10" x 12"
7	PL 3/4" x 10" x 12"



PROFESSIONAL SEAL
JAMES D. KNIGHT
78078PE
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	11/06/19
B	APPROVAL DRAWING - REISSUED	12/13/19
C	APPROVAL DRAWING	03/20/20
D	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/9/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	11/05/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ANCHOR ROD PLAN

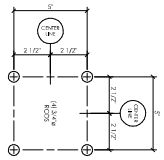
AISC CERTIFIED FABRICATOR

SHEET
G1.01

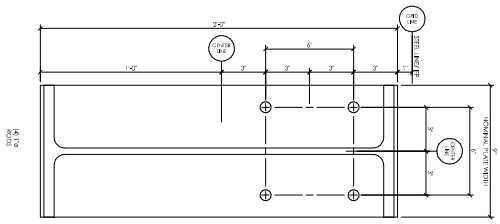
JOB NUMBER
19170

A6 NOT USED
1/4 SCALE

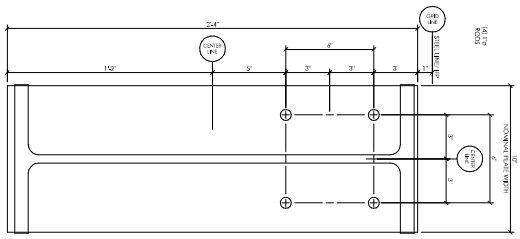
A1 ANCHOR ROD PATTERN
1/4 SCALE



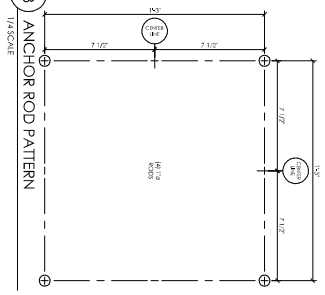
A2 ANCHOR ROD PATTERN
1/4 SCALE



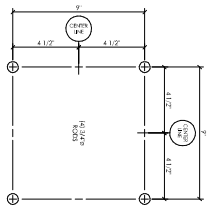
A7 ANCHOR ROD PATTERN
1/4 SCALE



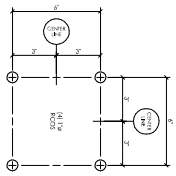
A3 ANCHOR ROD PATTERN
1/4 SCALE



A4 ANCHOR ROD PATTERN
1/4 SCALE



A5 ANCHOR ROD PATTERN
1/4 SCALE



JOB NUMBER 19170

SHEET G1.02

AISC CERTIFIED FABRICATOR

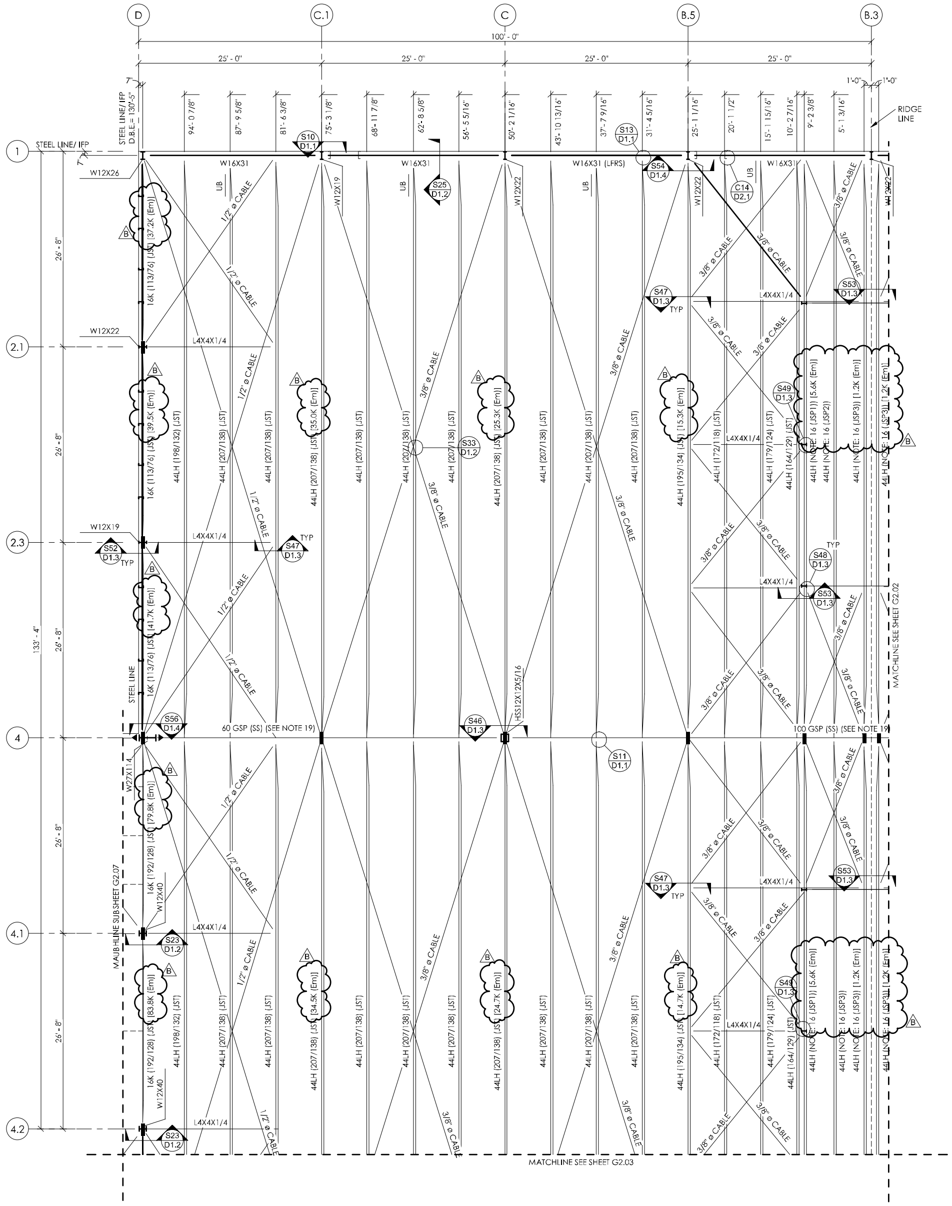
EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ANCHOR ROD PATTERNS

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	11/05/19	N.T.S.

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	11/06/19
B	APPROVAL DRAWING	02/10/20
C	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

PROFESSIONAL SEAL



ROOF FRAMING PLAN

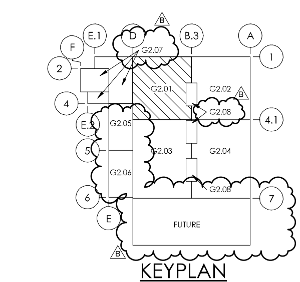
1/8" = 1'-0"

NOTES:

1. JOISTS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. (▲) INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
3. GIRDER SEAT DEPTH IS 7 1/2" DEEP.
4. GIRDER NET UPLIFT = 8.8 psf. ADDITIONAL 5.9 psf UPLIFT IN PERIMETER ZONE. PERIMETER ZONE IS 48'-2" FROM SIDEWALL AND ENDWALL.
5. ALL OPEN WEB GIRDERS ARE PARALLEL CHORD UNLESS NOTED AS SS (SINGLE SLOPE) OR DS (DOUBLE SLOPE). SEE GIRDER DEPTH TABLE FOR SS & DS GIRDERS.ALL JOISTS TO BE BOLTED WITH ONE HOLE AND ONE SLOT AT EACH END, U.N.O.
6. JOIST SEAT DEPTH IS 5" DEEP.
7. JOIST NET UPLIFT = 14.8 psf. ADDITIONAL 6.2 psf UPLIFT IN PERIMETER ZONE. PERIMETER ZONE IS 18'-3" FROM SIDEWALL AND ENDWALL.
8. SEE OPEN WEB SUPPLIER DRAWINGS FOR JOIST AND GIRDER LAYOUT, JOIST BRIDGING AND GIRDER BOTTOM CHORD BRACING LOCATIONS.
9. REFER TO THE STRUCTURAL DETAILS FOR ADDITIONAL JOIST AND GIRDER END ANCHORAGE REQUIREMENTS. PER SJI, MINIMUM END ANCHORAGE FOR ERECTION OF JOIST AND GIRDERS RESTING ON STEEL SUPPORTS SHALL BE MINIMUM OF:
   K SERIES - THE EQUIVALENT OF (2) 1/8" FILLET WELDS 1" LONG, OR WITH (2) 1/2"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
   LH SERIES - THE EQUIVALENT OF (2) 1/4" FILLET WELDS 2" LONG, OR WITH (2) 3/4"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
10. COMPLETELY INSTALL ALL BRIDGING AND CHECK THAT ALL JOIST ENDS AND GIRDER ENDS ARE PERMANENTLY ATTACHED BEFORE APPLYING ANY CONSTRUCTION LOADS TO JOIST. FAILURE TO DO SO CAN RESULT IN DEATH OR INJURY. THE CONTRACTOR SHALL PROVIDE MEANS FOR ADEQUATE DISTRIBUTION OF CONCENTRATED LOADS SO THAT THE CARRYING CAPACITY OF ANY JOIST IS NOT EXCEEDED.
11. (#K) INDICATES AXIAL LOADS DUE TO SEISMIC (E), AMPLIFIED SEISMIC (Em) OR WIND (W). LOADS DO NOT INCLUDE ASD LOAD COMBINATION FACTORS OF 0.7 OR 0.6.
12. ([#K]) INDICATES LOCATION OF ADDED POINT LOAD ON TOP CHORD OF JOIST OR GIRDER, U.N.O.
13. [X] INDICATES ADD LOAD ON JOIST. SEE JOIST LOAD NOTES. ADD LOAD INDICATES A TOTAL OF ALL CONCENTRATED LOADS THAT MAY BE PLACED AT ANY PANEL POINT ON JOIST TOP OR BOTTOM CHORD. ADDITIONAL FIELD INSTALLED WEB MEMBER MAY BE REQUIRED AT POINT LOAD LOCATIONS.
14. JOIST LL DEFLECTION TO BE LESS THAN OR EQUAL TO L/240.
15. JOIST LOADING DOES NOT INCLUDE ADDITIONAL LOADS SHOWN, U.N.O. (I.E.: SNOW DRIFT, RTU'S, PIPING, CONCENTRATED LOADING).
16. SEE SHEETS G2.11 AND G2.12 FOR JOIST LOADING NOT SPECIFIED ON PLANS.
17. (▬) INDICATES LOCATION OF TIE ANGLE. SEE DETAIL S14 ON SHEET D1.1.
18. FOR BASE PLATE WELDS, SEE DETAILS S2 & S3 ON SHEET D1.1.
19. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.

MOMENT CONNECTION SCHEDULE ▲

COLUMN AT GRID INTERSECTIONS	FIXED END M	LATERAL MOMENT	SEE CONNECTION DETAIL
LINE 4 & 6 @ LINE E	3 K-FT	33 K-FT	S6 SHEET D1.1
LINE 5 @ LINE E	8 K-FT	34 K-FT	S6 SHEET D1.1
LINE 4 & 6 @ LINE D (WEST)	247 K-FT	205 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (WEST)	302 K-FT	213 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE D (EAST)	375 K-FT	126 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (EAST)	405 K-FT	185 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE A	129 K-FT	151 K-FT	S57 SHEET D1.4
LINE 5 @ LINE A	121 K-FT	149 K-FT	S57 SHEET D1.4



KEYPLAN

PROFESSIONAL SEAL

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

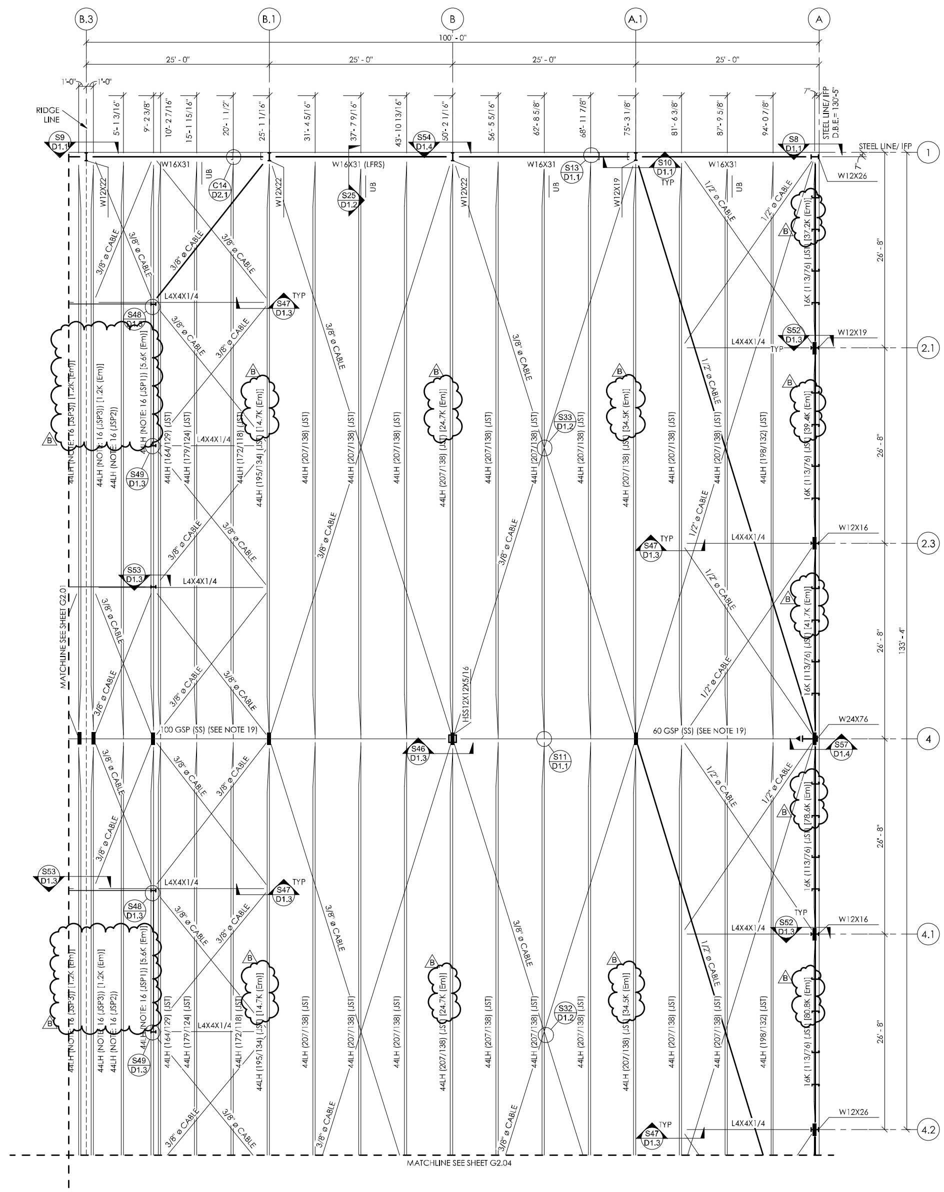
DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/10/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

AISC CERTIFIED FABRICATOR

SHEET G2.01

JOB NUMBER 19170



ROOF FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. JOISTS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. (▲) INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
3. GIRDER SEAT DEPTH IS 7 1/2" DEEP.
4. GIRDER NET UPLIFT = 8.8 psf. ADDITIONAL 5.9 psf UPLIFT IN PERIMETER ZONE. PERIMETER ZONE IS 48'-2" FROM SIDEWALL AND ENDWALL.
5. ALL OPEN WEB GIRDERS ARE PARALLEL CHORD UNLESS NOTED AS SS (SINGLE SLOPE) OR DS (DOUBLE SLOPE). SEE GIRDER DEPTH TABLE FOR SS & DS GIRDERS.ALL JOISTS TO BE BOLTED WITH ONE HOLE AND ONE SLOT AT EACH END, U.N.O.
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9. REFER TO THE STRUCTURAL DETAILS FOR ADDITIONAL JOIST AND GIRDER END ANCHORAGE REQUIREMENTS. PER SJI, MINIMUM END ANCHORAGE FOR ERECTION OF JOIST AND GIRDERS RESTING ON STEEL SUPPORTS SHALL BE MINIMUM OF:
   K SERIES - THE EQUIVALENT OF (2) 1/8" FILLET WELDS 1" LONG, OR WITH (2) 1/2"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
   LH SERIES - THE EQUIVALENT OF (2) 1/4" FILLET WELDS 2" LONG, OR WITH (2) 3/4"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
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16. SEE SHEETS G2.11 AND G2.12 FOR JOIST LOADING NOT SPECIFIED ON PLANS.
17. (▬) INDICATES LOCATION OF TIE ANGLE. SEE DETAIL S14 ON SHEET D1.1.
18. FOR BASE PLATE WELDS, SEE DETAILS S2 & S3 ON SHEET D1.1.
19. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.

MOMENT CONNECTION SCHEDULE ▲

COLUMN AT GRID INTERSECTIONS	FIXED END M	LATERAL MOMENT	SEE CONNECTION DETAIL
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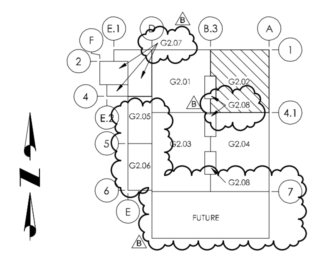

KEYPLAN

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
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(435) 723-5000 WWW.GEMBUILDINGS.COM

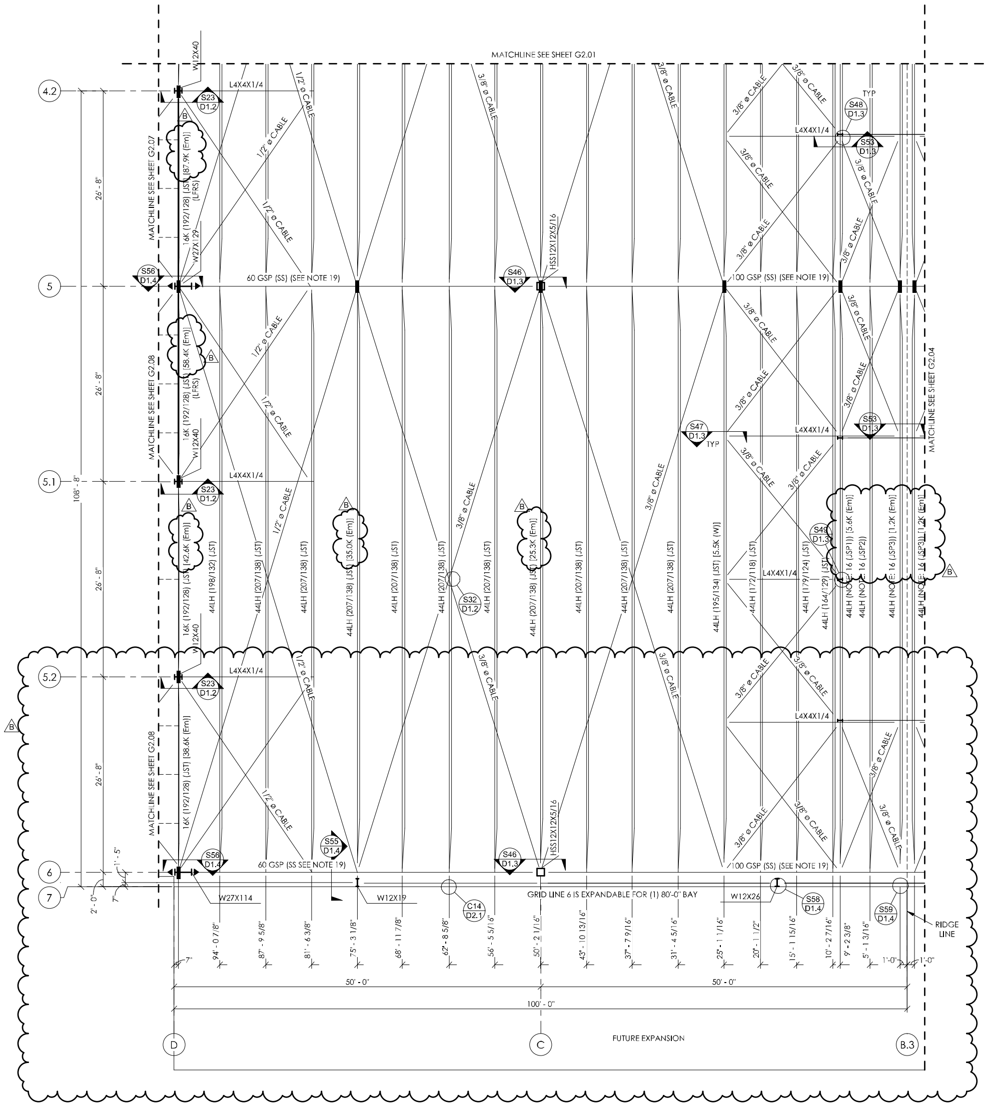
EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/10/19	As indicated

AISC CERTIFIED FABRICATOR

SHEET G2.02

JOB NUMBER 19170



ROOF FRAMING PLAN
1/8" = 1'-0"

NOTES:

1. JOISTS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. (▲) INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
3. GIRDER SEAT DEPTH IS 7 1/2" DEEP.
4. GIRDER NET UPLIFT = 8.8 psf. ADDITIONAL 5.9 psf UPLIFT IN PERIMETER ZONE. PERIMETER ZONE IS 48'-2" FROM SIDEWALL AND ENDWALL.
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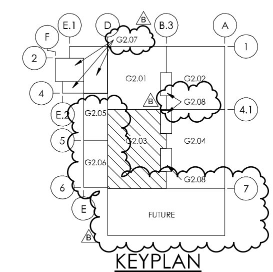
9. REFER TO THE STRUCTURAL DETAILS FOR ADDITIONAL JOIST AND GIRDER END ANCHORAGE REQUIREMENTS. PER SJI, MINIMUM END ANCHORAGE FOR ERECTION OF JOIST AND GIRDERS RESTING ON STEEL SUPPORTS SHALL BE MINIMUM OF:
   K SERIES - THE EQUIVALENT OF (2) 1/8" FILLET WELDS 1" LONG, OR WITH (2) 1/2"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
   LH SERIES - THE EQUIVALENT OF (2) 1/4" FILLET WELDS 2" LONG, OR WITH (2) 3/4"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
10. COMPLETELY INSTALL ALL BRIDGING AND CHECK THAT ALL JOIST ENDS AND GIRDER ENDS ARE PERMANENTLY ATTACHED BEFORE APPLYING ANY CONSTRUCTION LOADS TO JOIST. FAILURE TO DO SO CAN RESULT IN DEATH OR INJURY. THE CONTRACTOR SHALL PROVIDE MEANS FOR ADEQUATE DISTRIBUTION OF CONCENTRATED LOADS SO THAT THE CARRYING CAPACITY OF ANY JOIST IS NOT EXCEEDED.
11. (#K) INDICATES AXIAL LOADS DUE TO SEISMIC (E), AMPLIFIED SEISMIC (Em) OR WIND (W). LOADS DO NOT INCLUDE ASD LOAD COMBINATION FACTORS OF 0.7 OR 0.6.
12. ([#K]) INDICATES LOCATION OF ADDED POINT LOAD ON TOP CHORD OF JOIST OR GIRDER, U.N.O.
13. [X] INDICATES ADD LOAD ON JOIST. SEE JOIST LOAD NOTES. ADD LOAD INDICATES A TOTAL OF ALL CONCENTRATED LOADS THAT MAY BE PLACED AT ANY PANEL POINT ON JOIST TOP OR BOTTOM CHORD. ADDITIONAL FIELD INSTALLED WEB MEMBER MAY BE REQUIRED AT POINT LOAD LOCATIONS.
14. JOIST LL DEFLECTION TO BE LESS THAN OR EQUAL TO L/240.
15. JOIST LOADING DOES NOT INCLUDE ADDITIONAL LOADS SHOWN, U.N.O. (I.E.: SNOW DRIFT, RTU'S, PIPING, CONCENTRATED LOADING).
16. SEE SHEETS G2.11 AND G2.12 FOR JOIST LOADING NOT SPECIFIED ON PLANS.
17. (▬) INDICATES LOCATION OF TIE ANGLE. SEE DETAIL S14 ON SHEET D1.1.
18. FOR BASE PLATE WELDS, SEE DETAILS S2 & S3 ON SHEET D1.1.
19. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.

MOMENT CONNECTION SCHEDULE ▲

COLUMN AT GRID INTERSECTIONS	FIXED END M	LATERAL MOMENT	SEE CONNECTION DETAIL
LINE 4 & 6 @ LINE E	3 K-FT	33 K-FT	S6 SHEET D1.1
LINE 5 @ LINE E	8 K-FT	34 K-FT	S6 SHEET D1.1
LINE 4 & 6 @ LINE D (WEST)	247 K-FT	205 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (WEST)	302 K-FT	213 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE D (EAST)	375 K-FT	126 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (EAST)	405 K-FT	185 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE A	129 K-FT	151 K-FT	S57 SHEET D1.4
LINE 5 @ LINE A	121 K-FT	149 K-FT	S57 SHEET D1.4



KEYPLAN

PROFESSIONAL SEAL

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/10/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

AISC CERTIFIED FABRICATOR

SHEET G2.03
JOB NUMBER 19170

ROOF FRAMING PLAN

1/8" = 1'-0"

NOTES:

1. JOISTS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. (▲) INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
3. GIRDER SEAT DEPTH IS 7 1/2" DEEP.
4. GIRDER NET UPLIFT = 8.8 psf. ADDITIONAL 5.9 psf UPLIFT IN PERIMETER ZONE. PERIMETER ZONE IS 48-2" FROM SIDEWALL AND ENDWALL.
5. ALL OPEN WEB GIRDERS ARE PARALLEL CHORD UNLESS NOTED AS SS (SINGLE SLOPE) OR DS (DOUBLE SLOPE). SEE GIRDER DEPTH TABLE FOR SS & DS GIRDERS.ALL JOISTS TO BE BOLTED WITH ONE HOLE AND ONE SLOT AT EACH END, U.N.O.
6. JOIST SEAT DEPTH IS 5" DEEP.
7. JOIST NET UPLIFT = 14.8 psf. ADDITIONAL 6.2 psf UPLIFT IN PERIMETER ZONE. PERIMETER ZONE IS 18-3" FROM SIDEWALL AND ENDWALL.
8. SEE OPEN WEB SUPPLIER DRAWINGS FOR JOIST AND GIRDER LAYOUT, JOIST BRIDGING AND GIRDER BOTTOM CHORD BRACING LOCATIONS.
9. REFER TO THE STRUCTURAL DETAILS FOR ADDITIONAL JOIST AND GIRDER END ANCHORAGE REQUIREMENTS. PER SJI, MINIMUM END ANCHORAGE FOR ERECTION OF JOIST AND GIRDERS RESTING ON STEEL SUPPORTS SHALL BE MINIMUM OF:
   K SERIES - THE EQUIVALENT OF (2) 1/8" FILLET WELDS 1" LONG, OR WITH (2) 1/2"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
   LH SERIES - THE EQUIVALENT OF (2) 1/4" FILLET WELDS 2" LONG, OR WITH (2) 3/4"ø BOLTS. FINAL CONNECTION SHALL BE WELDED UNLESS SPECIFIED OTHERWISE BY THE ENGINEER OF RECORD.
10. COMPLETELY INSTALL ALL BRIDGING AND CHECK THAT ALL JOIST ENDS AND GIRDER ENDS ARE PERMANENTLY ATTACHED BEFORE APPLYING ANY CONSTRUCTION LOADS TO JOIST. FAILURE TO DO SO CAN RESULT IN DEATH OR INJURY. THE CONTRACTOR SHALL PROVIDE MEANS FOR ADEQUATE DISTRIBUTION OF CONCENTRATED LOADS SO THAT THE CARRYING CAPACITY OF ANY JOIST IS NOT EXCEEDED.
11. (#K) INDICATES AXIAL LOADS DUE TO SEISMIC (E). AMPLIFIED SEISMIC (Em) OR WIND (W). LOADS DO NOT INCLUDE ASD LOAD COMBINATION FACTORS OF 0.7 OR 0.6.
12. (↓#K) INDICATES LOCATION OF ADDED POINT LOAD ON TOP CHORD OF JOIST OR GIRDER, U.N.O.
13. (N) INDICATES ADD LOAD ON JOIST. SEE JOIST LOAD NOTES. ADD LOAD INDICATES A TOTAL OF ALL CONCENTRATED LOADS THAT MAY BE PLACED AT ANY PANEL POINT ON JOIST TOP OR BOTTOM CHORD. ADDITIONAL FIELD INSTALLED WEB MEMBER MAY BE REQUIRED AT POINT LOAD LOCATIONS.
14. JOIST LL DEFLECTION TO BE LESS THAN OR EQUAL TO L/240.
15. JOIST LOADING DOES NOT INCLUDE ADDITIONAL LOADS SHOWN, U.N.O. (I.E.: SNOW DRIFT, RTU'S, PIPING, CONCENTRATED LOADING).
16. SEE SHEETS G2.11 AND G2.12 FOR JOIST LOADING NOT SPECIFIED ON PLANS.
17. ▬ INDICATES LOCATION OF TIE ANGLE. SEE DETAIL S14 ON SHEET D1.1.
18. FOR BASE PLATE WELDS. SEE DETAILS S2 & S3 ON SHEET D1.1.
19. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.

MOMENT CONNECTION SCHEDULE ▲

COLUMN AT GRID INTERSECTIONS	FIXED END M	LATERAL MOMENT	SEE CONNECTION DETAIL
LINE 4 & 6 @ LINE E	3 K-FT	33 K-FT	S6 SHEET D1.1
LINE 5 @ LINE E	8 K-FT	34 K-FT	S6 SHEET D1.1
LINE 4 & 6 @ LINE D (WEST)	247 K-FT	205 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (WEST)	302 K-FT	213 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE D (EAST)	375 K-FT	126 K-FT	S56 SHEET D1.4
LINE 5 @ LINE A (EAST)	405 K-FT	185 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE A	129 K-FT	151 K-FT	S57 SHEET D1.4
LINE 5 @ LINE A	174 K-FT	184 K-FT	S57 SHEET D1.4

KEYPLAN

PROFESSIONAL SEAL
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
1025 N. WALERY LANE BRIGHAM CITY, UT 84302
(435) 723-5500 WWW.GEMBUILDINGS.COM

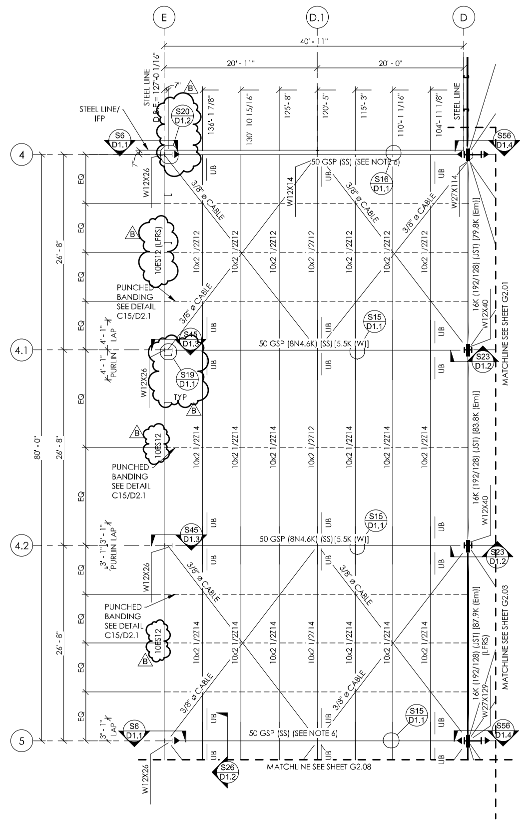
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/10/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

AISC CERTIFIED FABRICATOR

SHEET
G2.04

JOB NUMBER
19170



ROOF FRAMING PLAN

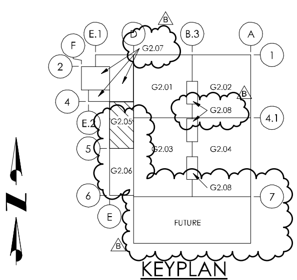
1/8" = 1'-0"

NOTES:

1. PURLINS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. ORIENT TOP FLANGE OF PURLIN TOWARDS RIDGE, U.N.O.
3. PURLIN LL DEFLECTION TO BE LESS THAN OR EQUAL TO L/240.
4. FOR BASE PLATE WELDS, SEE DETAILS S2 & S3 ON SHEET D1.1.
5. (▲) INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
6. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.
7. INDICATES AXIAL LOADS DUE TO SEISMIC (E), OR WIND (W). LOADS DO NOT INCLUDE ASD LOAD COMBINATION FACTORS OF 0.7 OR 0.6.

MOMENT CONNECTION SCHEDULE ▲

COLUMN AT GRID INTERSECTIONS	FIXED END M	LATERAL MOMENT	SEE CONNECTION DETAIL
LINE 4 & 6 @ LINE E	3 K-FT	33 K-FT	S6 SHEET D1.1
LINE 5 @ LINE E	8 K-FT	34 K-FT	S6 SHEET D1.1
LINE 4 & 6 @ LINE D (WEST)	247 K-FT	205 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (WEST)	302 K-FT	213 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE D (EAST)	375 K-FT	126 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (EAST)	405 K-FT	185 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE A	129 K-FT	151 K-FT	S57 SHEET D1.4
LINE 5 @ LINE A	121 K-FT	149 K-FT	S57 SHEET D1.4



KEYPLAN

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

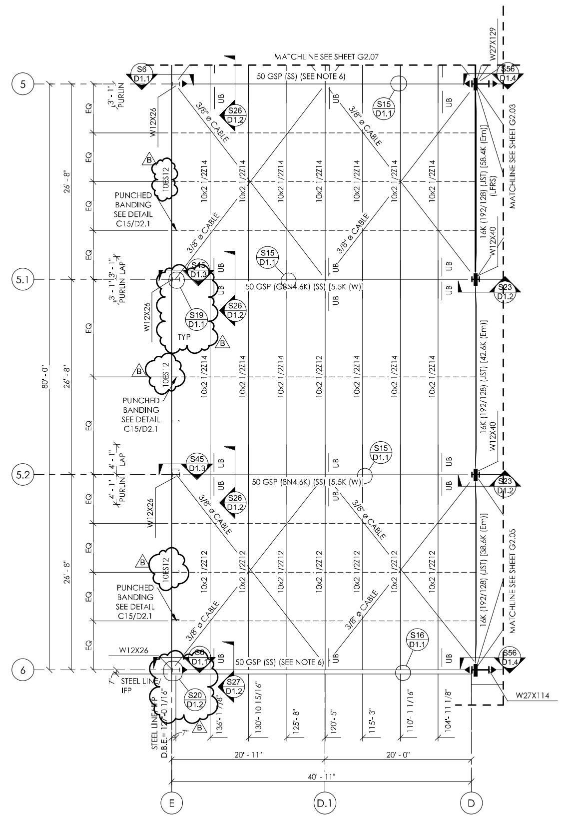
DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/10/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

AISC CERTIFIED FABRICATOR

SHEET G2.05

JOB NUMBER 19170



ROOF FRAMING PLAN

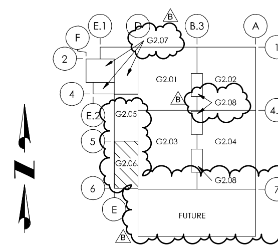
1/8" = 1'-0"

NOTES:

1. PURLINS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. ORIENT TOP FLANGE OF PURLIN TOWARDS RIDGE, U.N.O.
3. PURLIN LL DEFLECTION TO BE LESS THAN OR EQUAL TO L/240.
4. FOR BASE PLATE WELDS, SEE DETAILS S2 & S3 ON SHEET D1.1.
5. (▲) INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
6. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.
7. INDICATES AXIAL LOADS DUE TO SEISMIC (E), OR WIND (W). LOADS DO NOT INCLUDE ASD LOAD COMBINATION FACTORS OF 0.7 OR 0.6.

MOMENT CONNECTION SCHEDULE ▲

COLUMN AT GRID INTERSECTIONS	FIXED END M	LATERAL MOMENT	SEE CONNECTION DETAIL
LINE 4 & 6 @ LINE E	3 K-FT	33 K-FT	S6 SHEET D1.1
LINE 5 @ LINE E	8 K-FT	34 K-FT	S6 SHEET D1.1
LINE 4 & 6 @ LINE D (WEST)	247 K-FT	205 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (WEST)	302 K-FT	213 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE D (EAST)	375 K-FT	126 K-FT	S56 SHEET D1.4
LINE 5 @ LINE D (EAST)	405 K-FT	185 K-FT	S56 SHEET D1.4
LINE 4 & 6 @ LINE A	129 K-FT	151 K-FT	S57 SHEET D1.4
LINE 5 @ LINE A	121 K-FT	149 K-FT	S57 SHEET D1.4



KEYPLAN

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

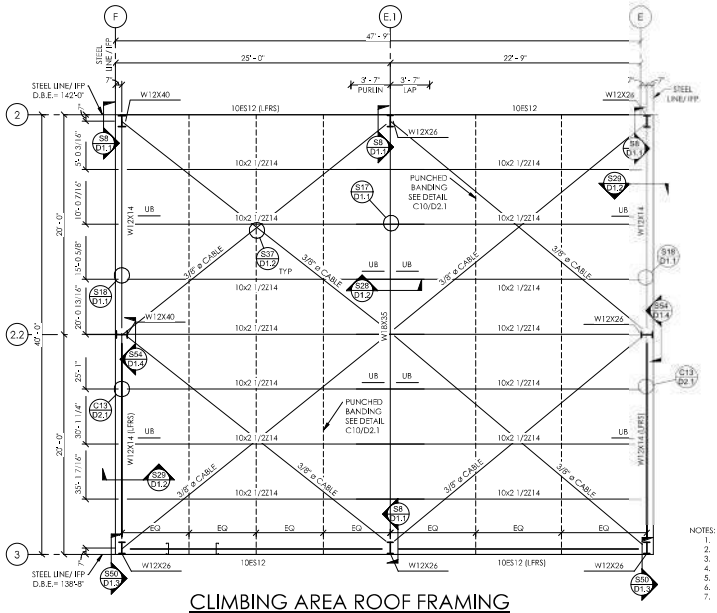
GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/10/19	As indicated

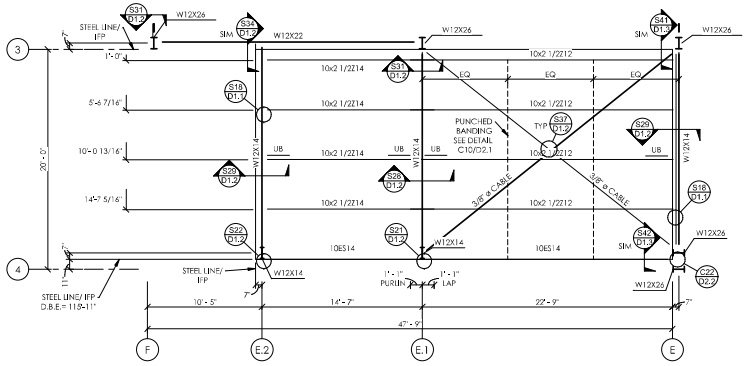
AISC CERTIFIED FABRICATOR

SHEET G2.06

JOB NUMBER 19170

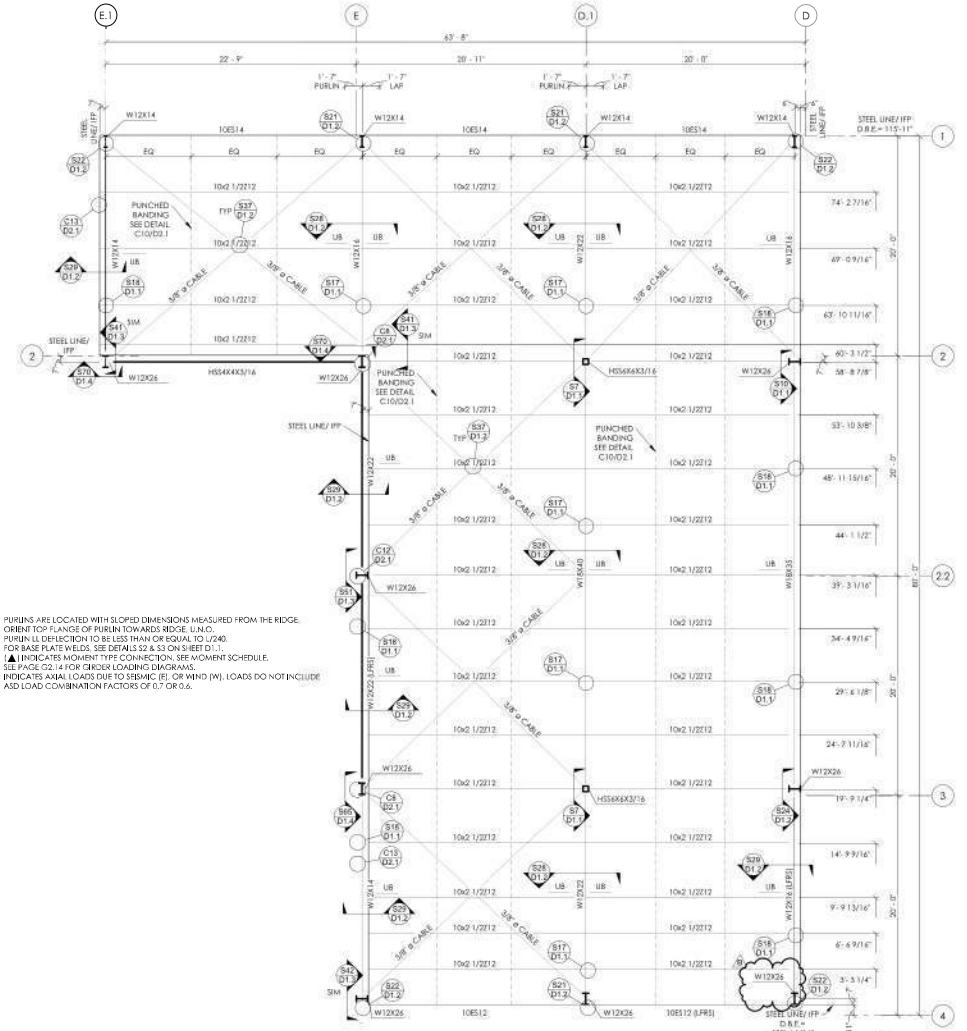


CLIMBING AREA ROOF FRAMING
3/16" = 1'-0"

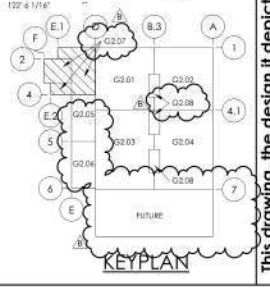


SECURED STORAGE ROOF FRAMING
3/16" = 1'-0"

NOTES:
1. PURLINS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. ORIENT TOP FLANGE OF PURLIN TOWARDS RIDGE, U.N.O.
3. PURLIN LL DEFLECTION TO BE LESS THAN OR EQUAL TO L/240.
4. FOR BASE PLATE WELDS, SEE DETAILS S2 & S3 ON SHEET D1.1.
5. ▲ INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
6. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.
7. INDICATES AXIAL LOADS DUE TO SEISMIC (E), OR WIND (W). LOADS DO NOT INCLUDE ASD LOAD COMBINATION FACTORS OF 0.7 OR 0.6.



ENTRY LOBBY ROOF FRAMING
3/16" = 1'-0"



KEYPLAN

REVISIONS

NO.	DATE
A APPROVAL DRAWING	02/10/20
B APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

PROFESSIONAL SEAL
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

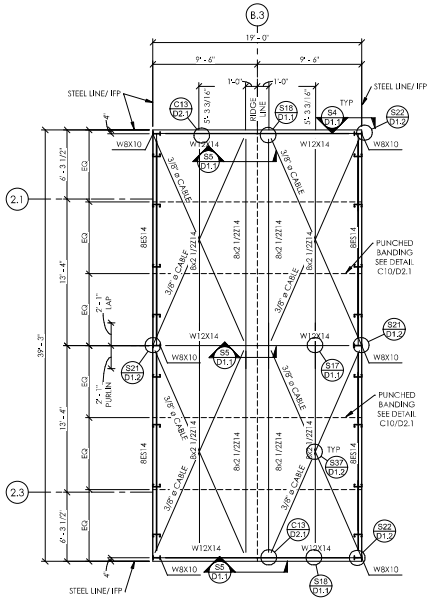
GEM BUILDINGS
1025 N. WABERY LANE BRIGHAM CITY, UT 84302
(435) 723-5500 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/18/19	As indicated

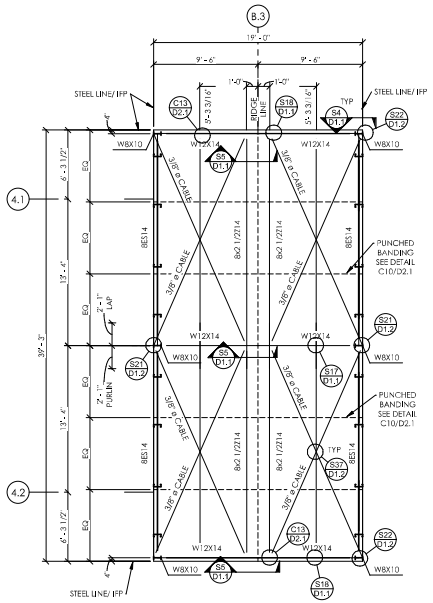
EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

AISC CERTIFIED FABRICATOR

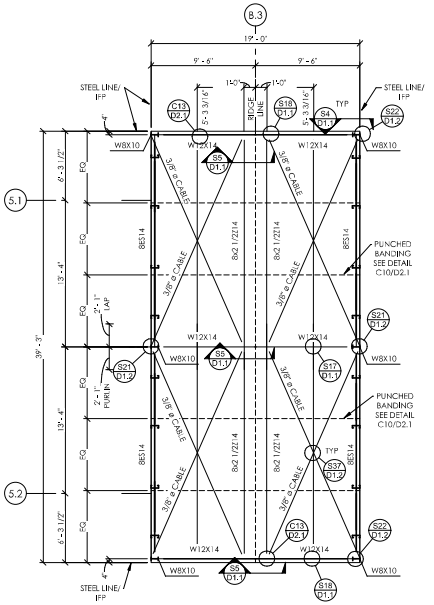
SHEET NO. G2.07
JOB NUMBER 19170



B.3/2.1-2.3
3/16" = 1'-0"

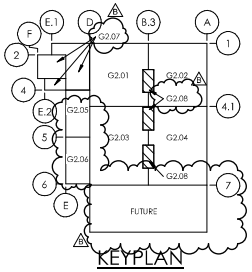


B.3/4.1-4.2
3/16" = 1'-0"



B.3/5.1-5.2
3/16" = 1'-0"

NOTES:
1. PURLINS ARE LOCATED WITH SLOPED DIMENSIONS MEASURED FROM THE RIDGE.
2. ORIENT TOP FLANGE OF PURLIN TOWARDS RIDGE, U.N.O.
3. PURLIN LL DEFLECTION TO BE LESS THAN OR EQUAL TO L/240.
4. FOR BASE PLATE WELDS, SEE DETAILS S2 & S3 ON SHEET D1.1.
5. ▲| INDICATES MOMENT TYPE CONNECTION. SEE MOMENT SCHEDULE.
6. SEE PAGE G2.14 FOR GIRDER LOADING DIAGRAMS.
7. INDICATES AXIAL LOADS DUE TO SEISMIC (E), OR WIND (W). LOADS DO NOT INCLUDE ASD LOAD COMBINATION FACTORS OF 0.7 OR 0.6.



KEYPLAN

PROFESSIONAL SEAL
JAMES D. KNIGHT
78078PE
OREGON
11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

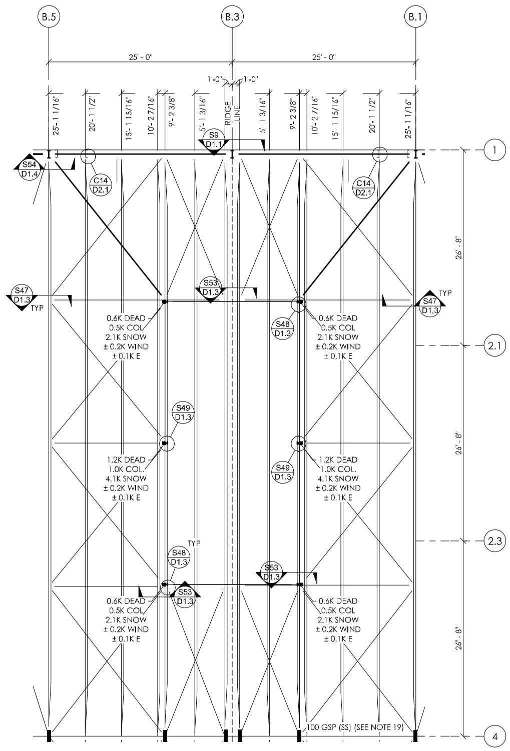
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/10/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
ROOF FRAMING PLAN

AISC CERTIFIED FABRICATOR

SHEET
G2.08

JOB NUMBER
19170



TYPICAL POINT LOADS @ PENTHOUSES

1/8" = 1'-0"

PROFESSIONAL SEAL

OREGON 11/09/2020

JAMES D. KNIGHT

EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
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B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS

1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/18/19	1/8" = 1'-0"

EASTERN OREGON FIELD HOUSE

LA GRANDE, OR

MIKE BECKER GENERAL CONTRACTORS INC.

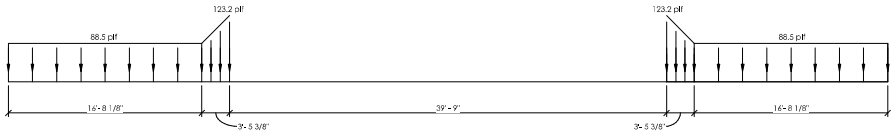
JOIST POINT LOADS

AISC CERTIFIED FABRICATOR

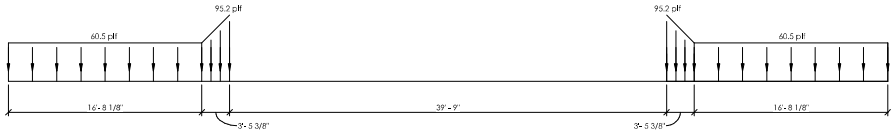
SHEET B G2.09

JOB NUMBER 19170

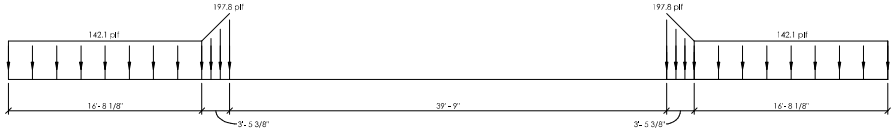
JSP1 TOTAL LOADING



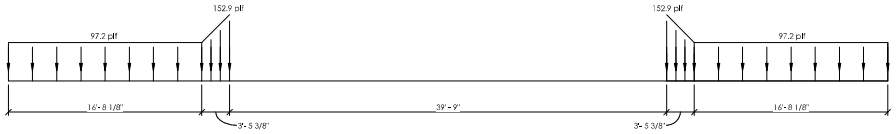
JSP1 SNOW LOADING



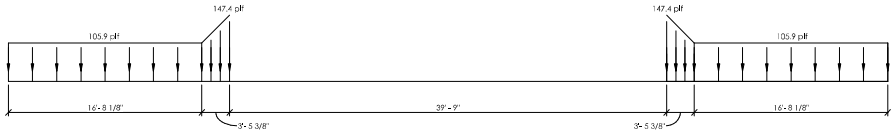
JSP2 TOTAL LOADING



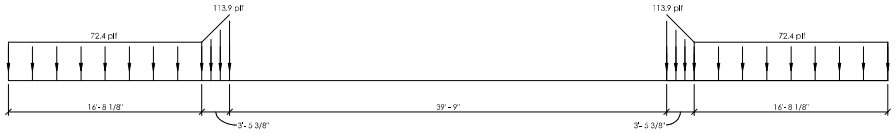
JSP2 SNOW LOADING



JSP3 TOTAL LOADING



JSP SNOW LOADING



JOIST LOADING DIAGRAMS

3/16" = 1'-0"

PROFESSIONAL SEAL
78078PE
OREGON
11/09/2020
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/9/20

GEM BUILDINGS
1025 N. WABERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/18/19	3/16" = 1'-0"

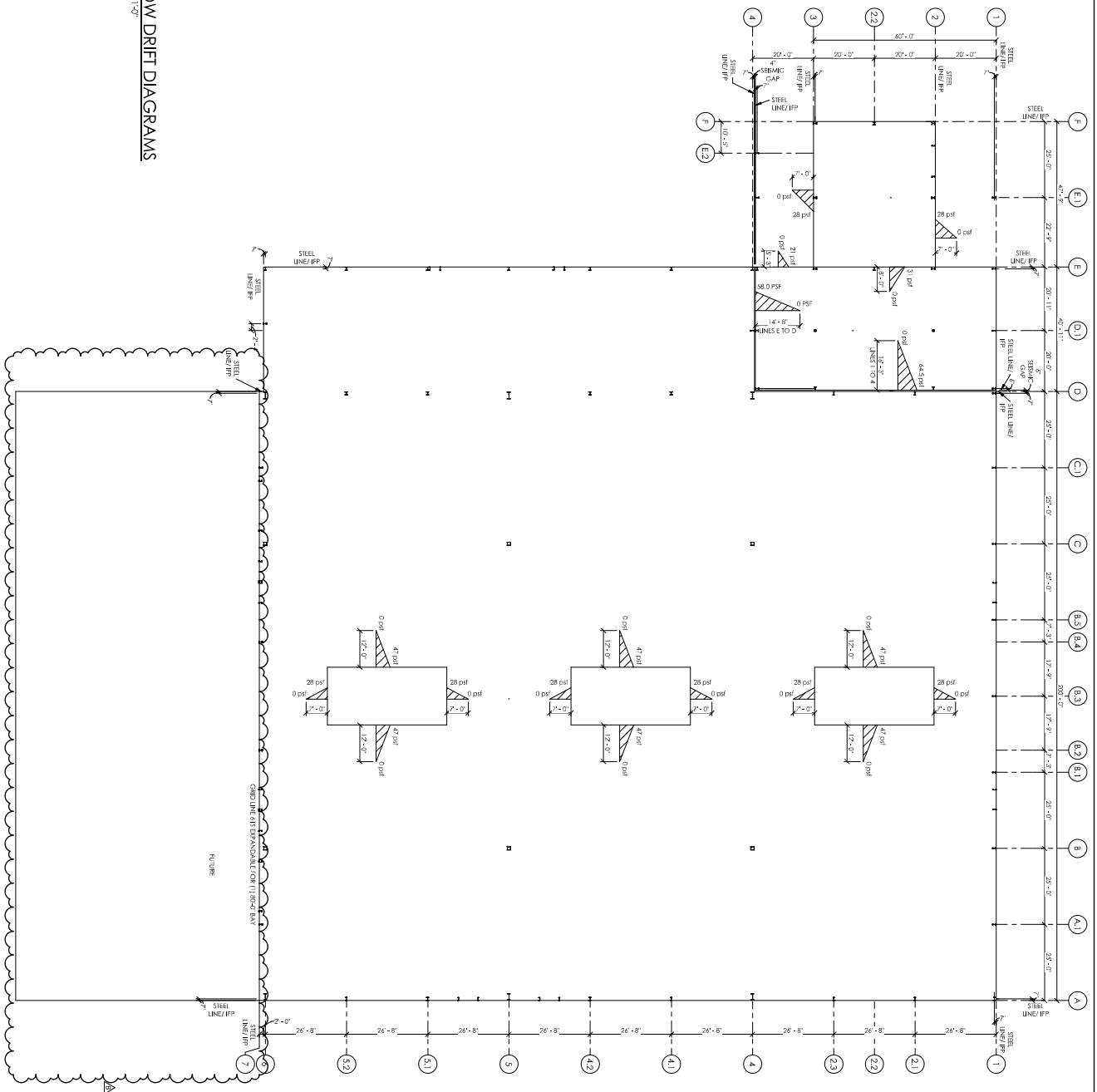
EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
JOIST LOADING DIAGRAM

AISC CERTIFIED FABRICATOR

SHEET
G2.10

JOB NUMBER
19170

SNOW DRIFT DIAGRAMS
1/16" = 1'-0"



SHEET G2.11

AISC CERTIFIED FABRICATOR

JOB NUMBER 19170

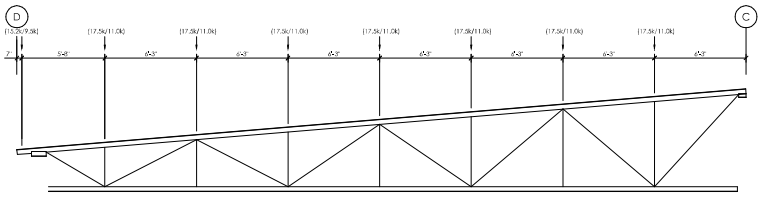
EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
SNOW DRIFT DIAGRAMS

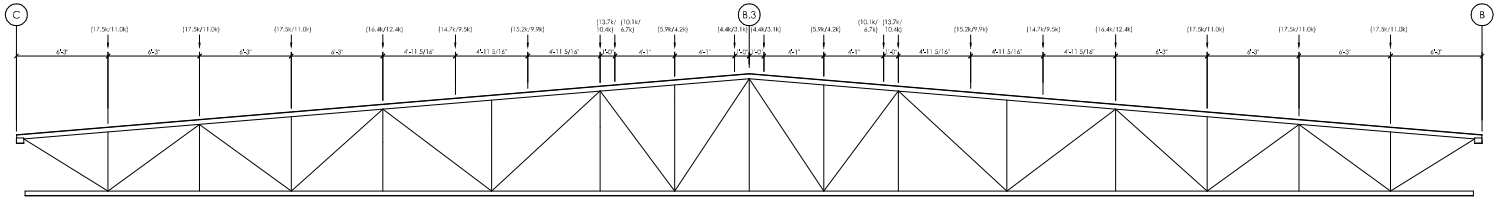
GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

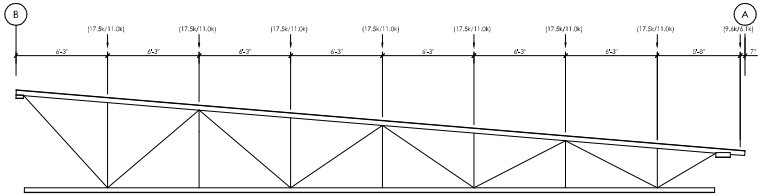
DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	01/28/20	1/16" = 1'-0"

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

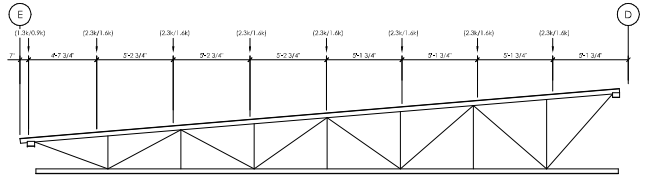
PROFESSIONAL SEAL





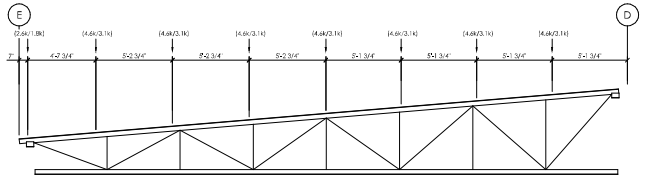


A GIRDER LOADING DIAGRAM (TOTAL LOAD/LIVE LOAD) @ GRID LINE 4, 5, AND 6 FROM LINES A TO D
1/4" = 1'-0"



GIRDER LOADING DIAGRAM (TOTAL LOAD/LIVE LOAD) @ GRID LINE 4 AND 6 FROM LINES E TO D
1/4" = 1'-0"

NOTES:
1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.



GIRDER LOADING DIAGRAM (TOTAL LOAD/LIVE LOAD) @ GRID LINE 5 FROM LINES E TO D
1/4" = 1'-0"

PROFESSIONAL SEAL
78071PE
OREGON 11/09/2020
JULY 12, 2005
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/9/20

GEM BUILDINGS™
1025 N. WABERI LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

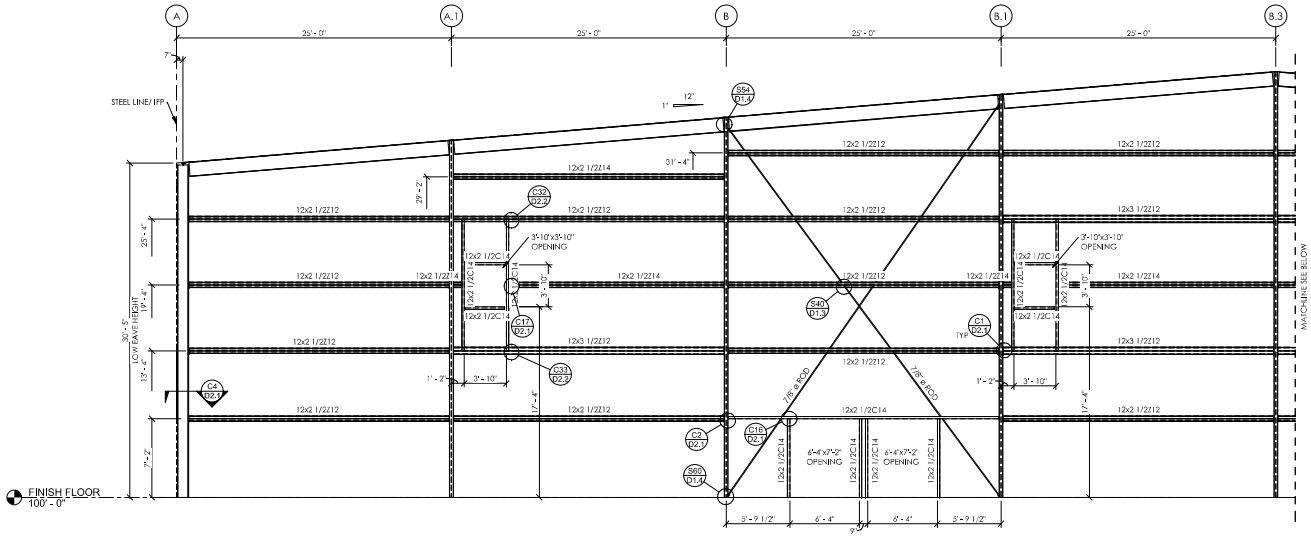
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	02/07/20	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
GIRDER LOADING DIAGRAMS

AISC CERTIFIED FABRICATOR

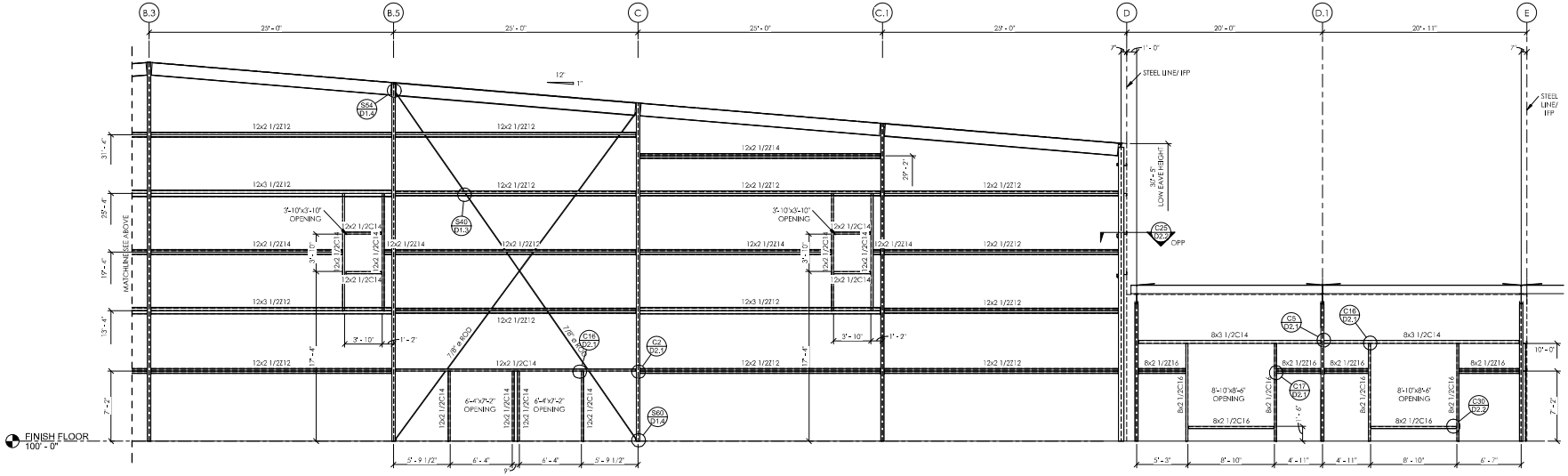
SHEET
G2.12

JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID 1

3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID 1

3/16" = 1'-0"

PROFESSIONAL SEAL
78671PE
OREGON 11/09/2020
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING-REISSUED FOR APPROVAL	03/24/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

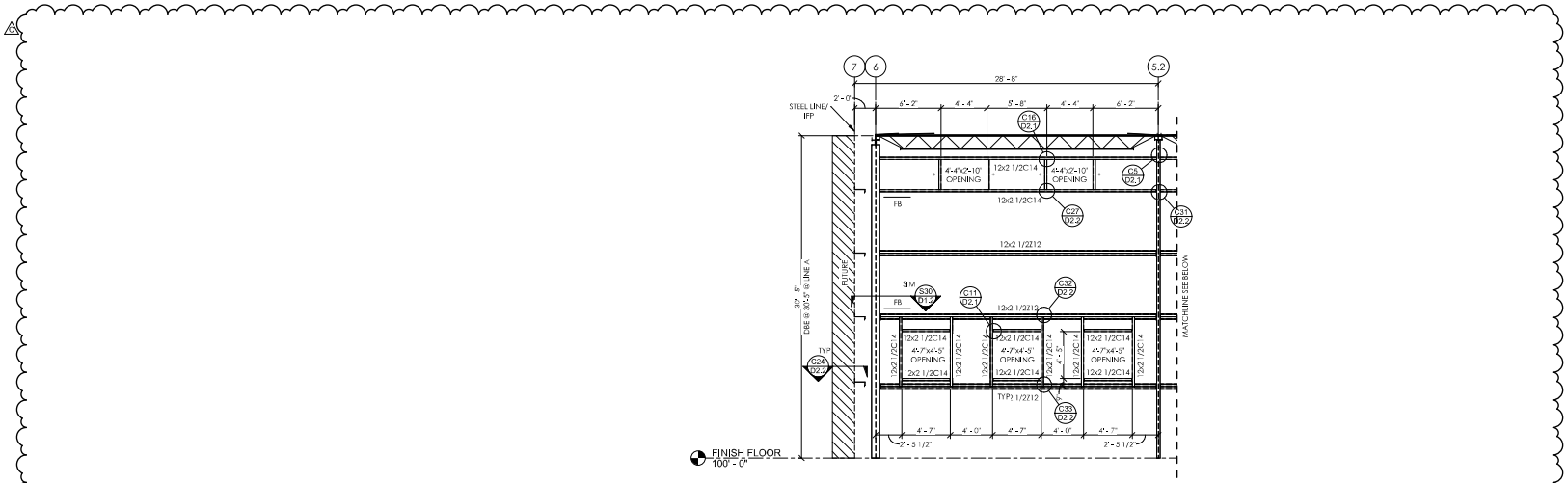
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/11/19	3/16" = 1'-0"

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATIONS

AISC CERTIFIED FABRICATOR

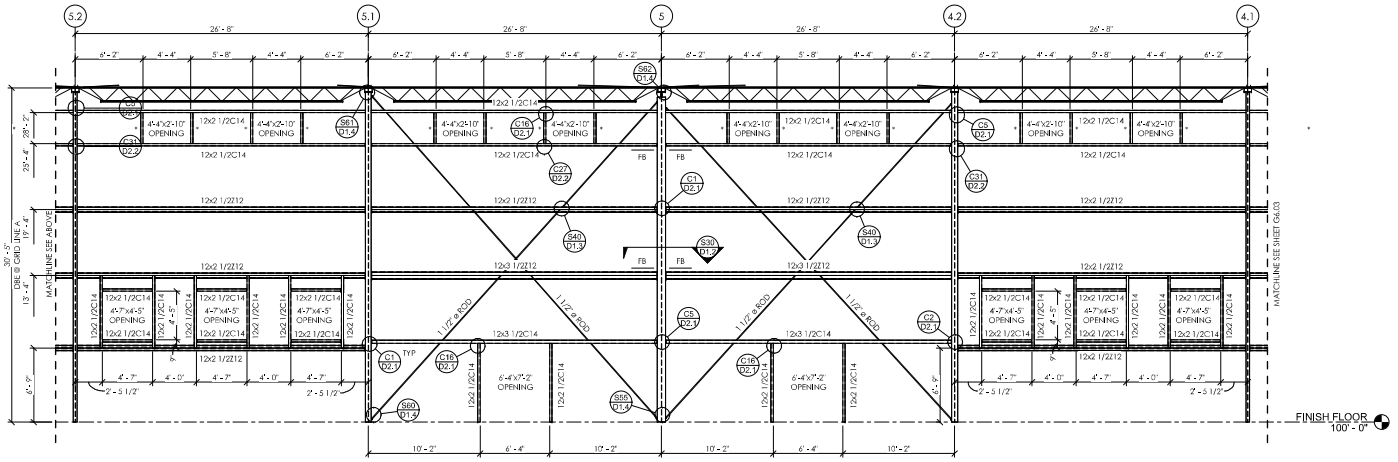
SHEET
G6.01

JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID A

3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID A

3/16" = 1'-0"

NOTES:
1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.
2. * INDICATES MEMBER IS 12x2 1/2C14 JAMB.

PROFESSIONAL SEAL
7607PE
OREGON 11/09/2020
JAMES D KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	03/24/20
C	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/9/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

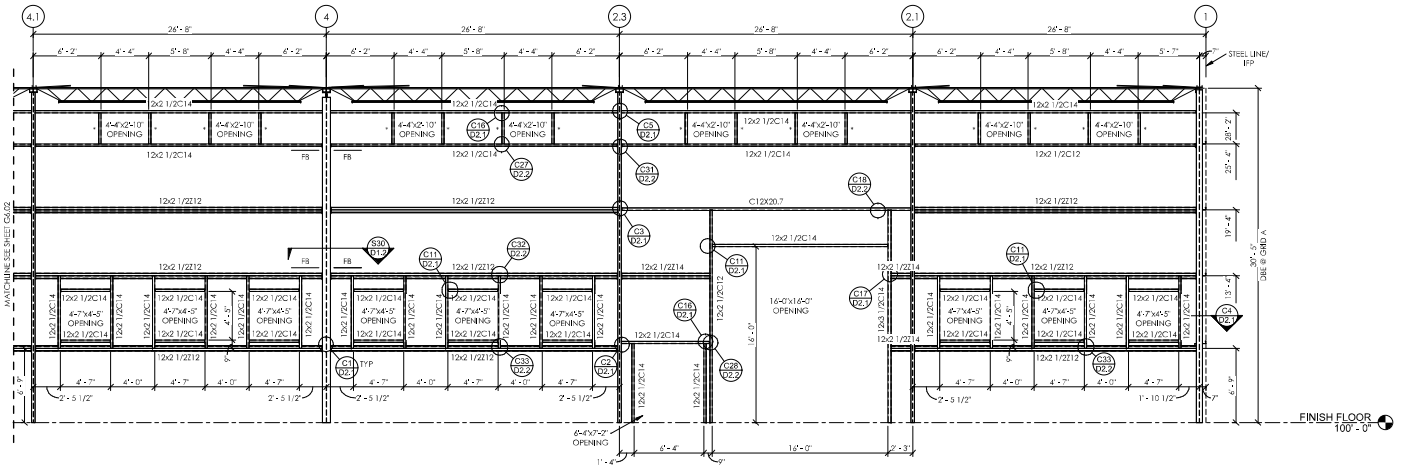
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/11/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATIONS

AISC CERTIFIED FABRICATOR

SHEET
G6.02

JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID A

3/16" = 1'-0"

NOTES:
1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.
2. * INDICATES MEMBER IS 12x2 1/2C14 JAMB.

PROFESSIONAL SEAL
JAMES D KNIGHT
78078PE
OREGON
11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING-REISSUED FOR APPROVAL	03/24/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

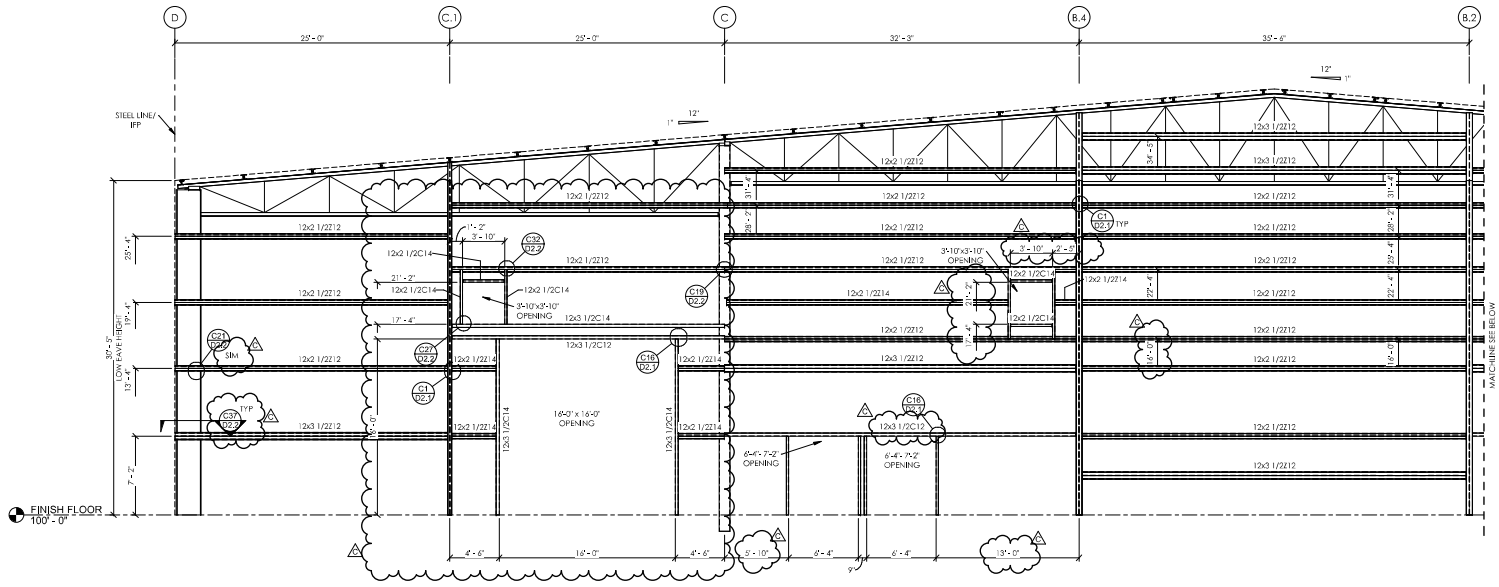
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/11/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATIONS

AISC CERTIFIED FABRICATOR

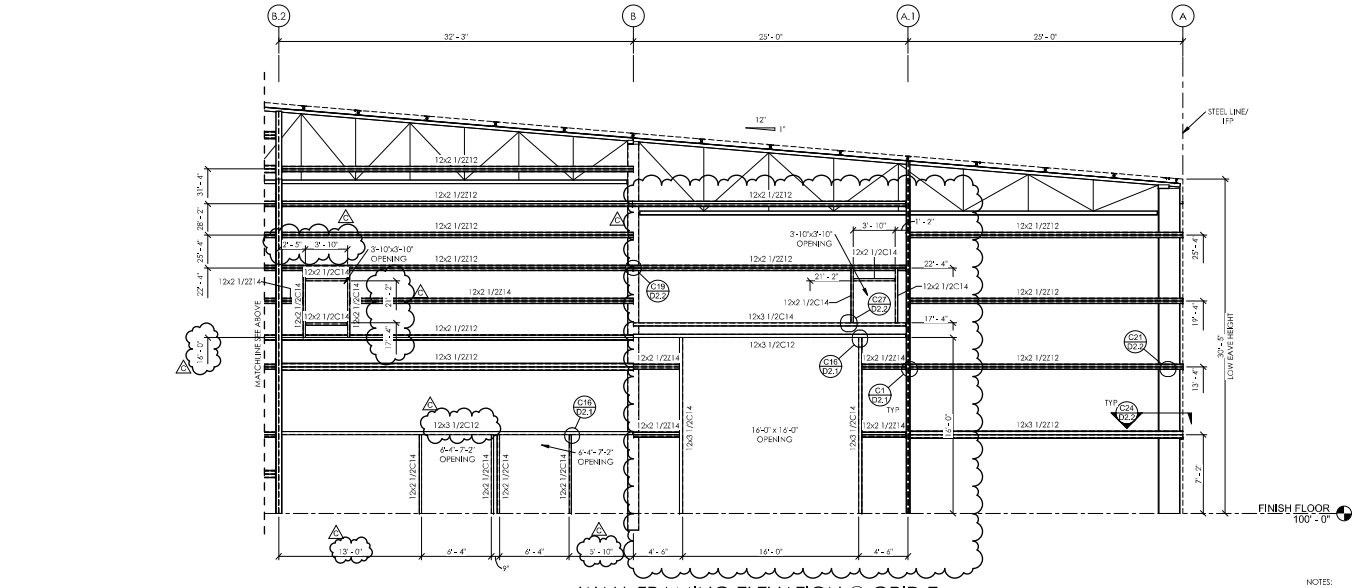
SHEET
G6.03

JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID 7

3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID 7

3/16" = 1'-0"

NOTES:
1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.
2. * INDICATES MEMBER IS 12x2 1/2C14 JAMB.

REGISTERED PROFESSIONAL ENGINEER
78677PE
OREGON | 11/09/2020
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021
PROFESSIONAL SEAL

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	03/24/20
C	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/9/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

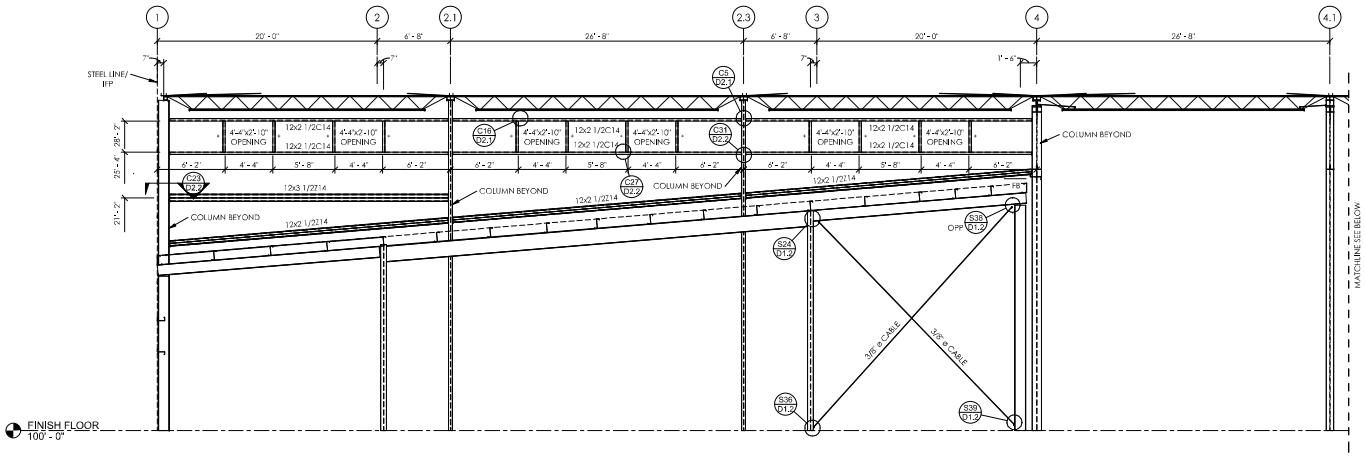
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/11/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATIONS

AISC CERTIFIED FABRICATOR

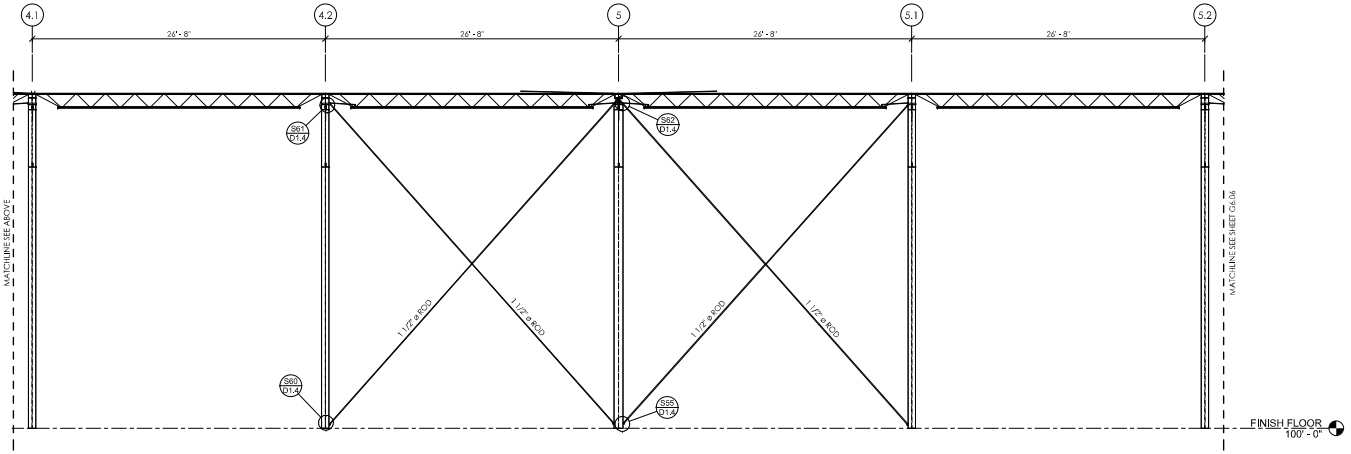
SHEET
G6.04

JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID D

3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID D

3/16" = 1'-0"

NOTES:

1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.
2. * INDICATES MEMBER IS 12x2 1/2C14 JAMB.

PROFESSIONAL SEAL
OREGON 11/09/2020
JAMES D KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING-REISSUED FOR APPROVAL	03/24/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

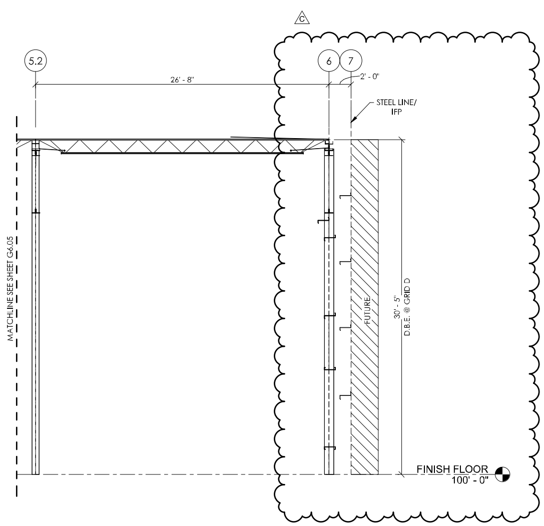
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/1/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATIONS

AISC CERTIFIED FABRICATOR

SHEET
G6.05

JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID D
3/16" = 1'-0"

NOTES:
1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.
2. * INDICATES MEMBER IS 12x2 1/2C14 JAMB.

PROFESSIONAL SEAL
EXPIRATION DATE: 06/30/2021
OREGON 11/09/2020

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	03/24/20
C	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

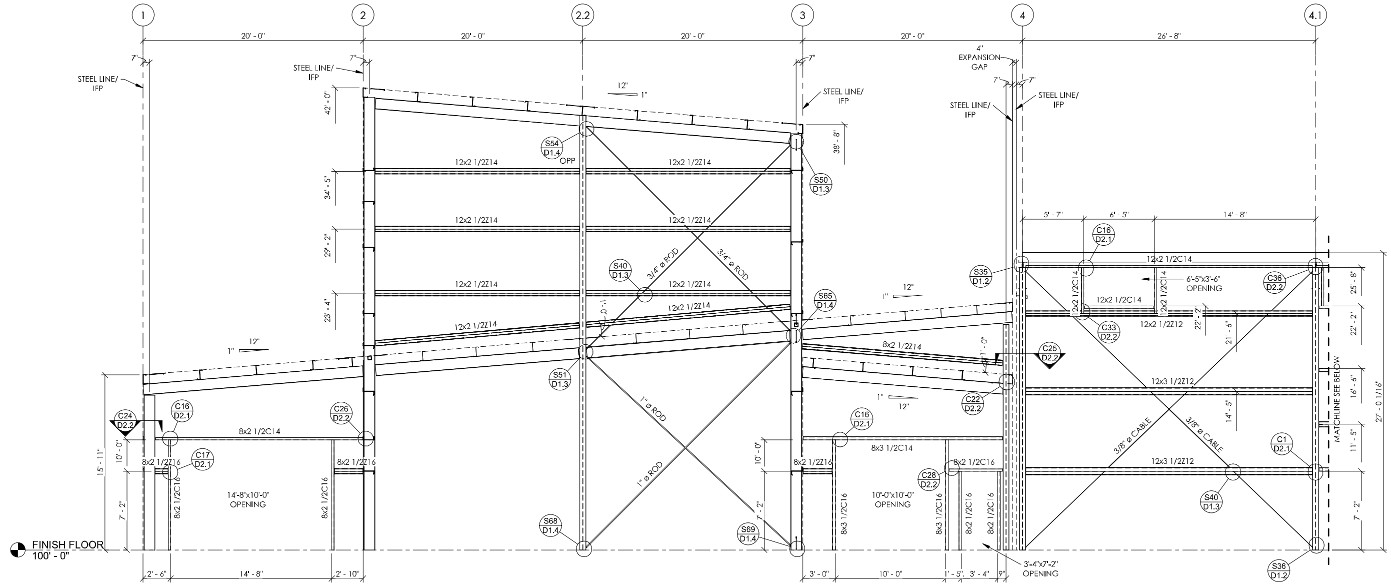
GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/11/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATIONS

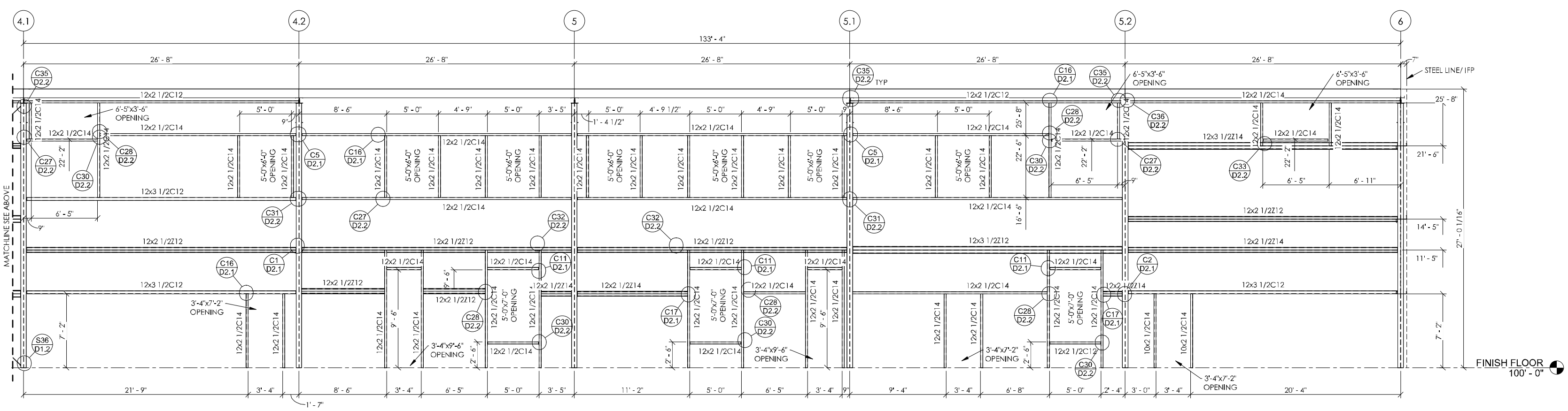
AISC CERTIFIED FABRICATOR

SHEET
G6.06
JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID E

3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID E

3/16" = 1'-0"

PROFESSIONAL SEAL

OREGON 11/09/2020 JAMES D. KNIGHT EXPIRATION DATE 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING- REISSUED FOR APPROVAL	03/24/20

GEM BUILDINGS

1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/11/19	3/16" = 1'-0"

EASTERN OREGON FIELD HOUSE

LA GRANDE, OR

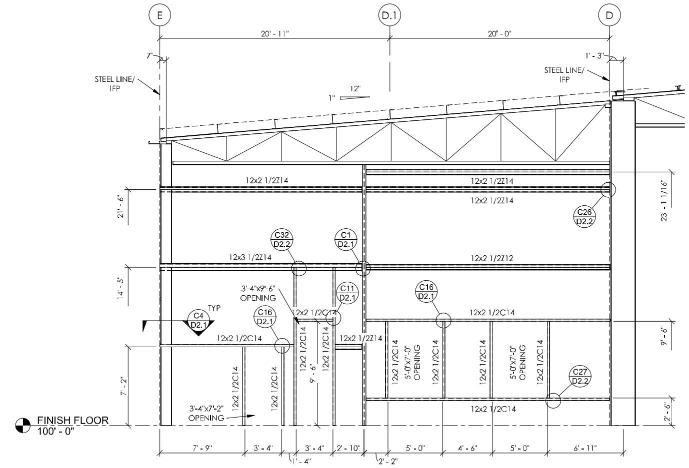
MIKE BECKER GENERAL CONTRACTORS INC.

FRAMING ELEVATIONS

AISC CERTIFIED FABRICATOR

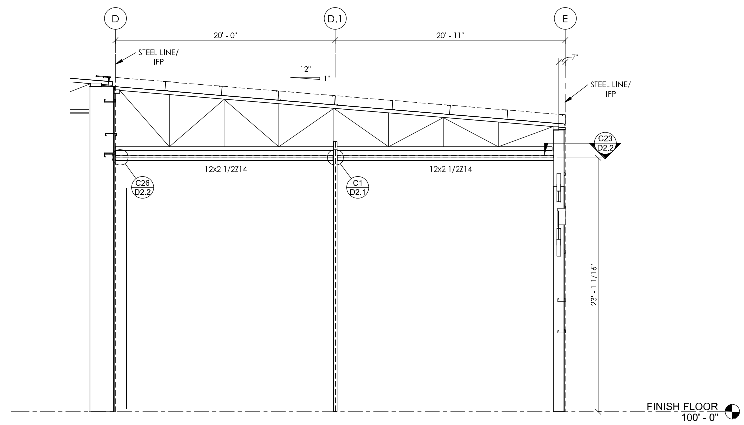
SHEET G6.07

JOB NUMBER 19170



WALL FRAMING ELEVATION @ GRID 6

3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID 4

3/16" = 1'-0"

NOTES:
1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.
2. * INDICATES MEMBER IS 12x2 1/2C14 JAMB.

PROFESSIONAL SEAL
OREGON
JAMES D. KNIGHT
EXPIRATION DATE 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING- REISSUED FOR APPROVAL	03/24/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

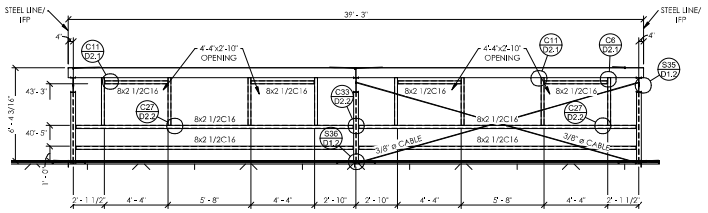
DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/11/19	As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATIONS

AISC CERTIFIED FABRICATOR

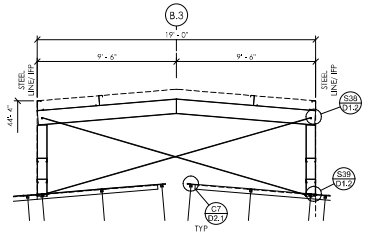
SHEET G6.08

JOB NUMBER 19170



TYPICAL PENTHOUSE SIDEWALL FRAMING

1/4" = 1'-0"



TYPICAL PENTHOUSE ENDWALL ELEVATION

1/4" = 1'-0"

PROFESSIONAL SEAL

REGISTERED PROFESSIONAL ENGINEER
78079PE
OREGON | 1/09/2020
JULY 12, 2005
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING-REISSUED FOR APPROVAL	03/24/20

GEM BUILDINGS

1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

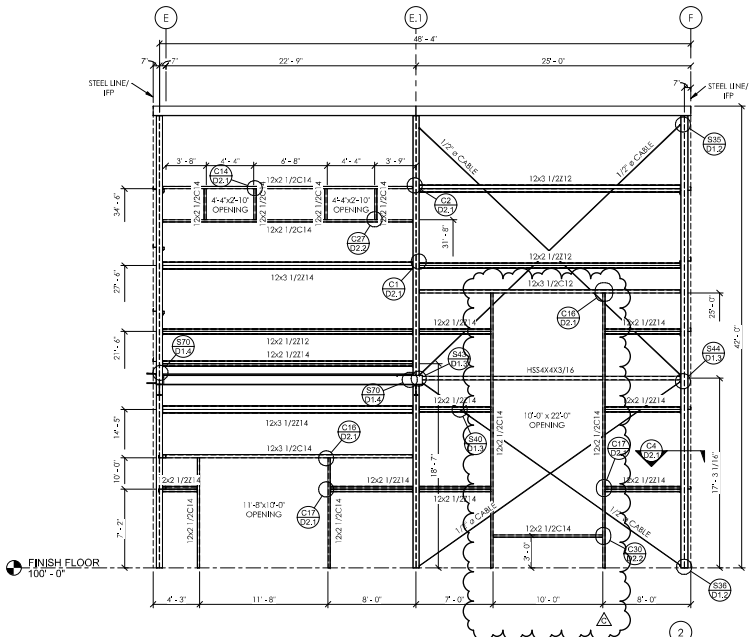
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/16/19	1/4" = 1-0"

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATION

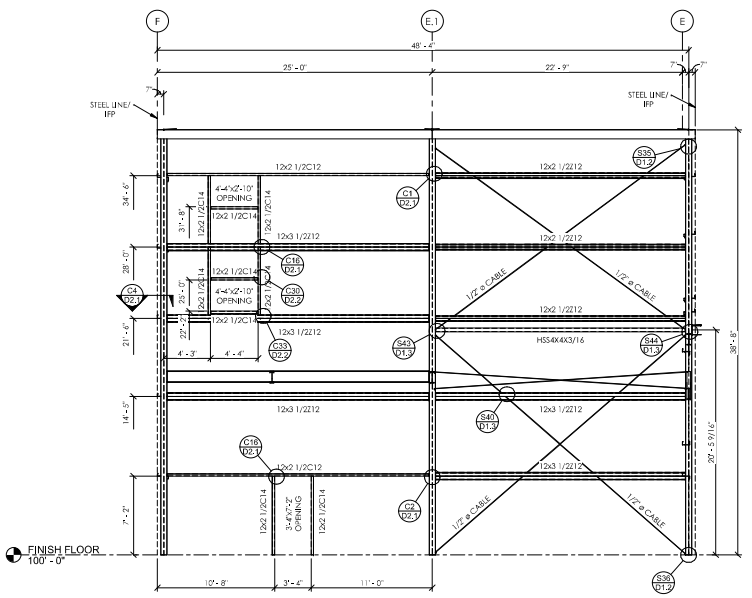
AISC CERTIFIED FABRICATOR

SHEET
G6.09

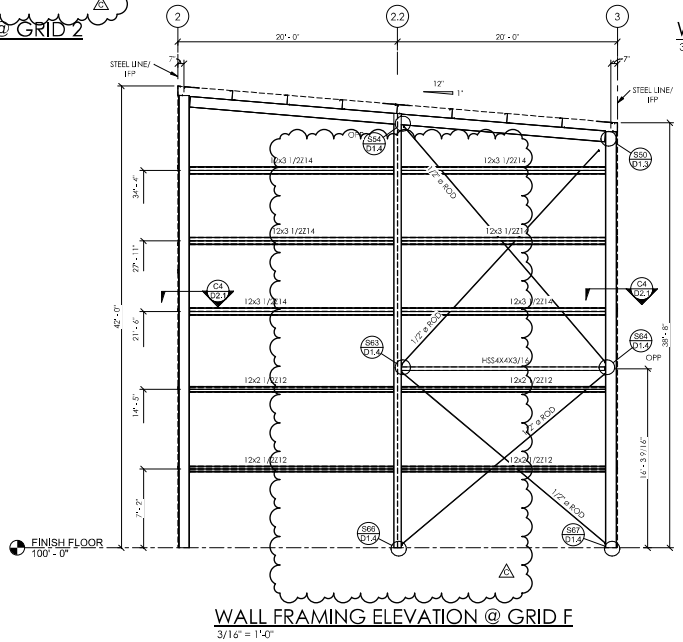
JOB NUMBER
19170



WALL FRAMING ELEVATION @ GRID 2
3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID 3
3/16" = 1'-0"



WALL FRAMING ELEVATION @ GRID F
3/16" = 1'-0"

PROFESSIONAL SEAL
OREGON 11/09/2020
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	03/24/20
C	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/9/20

GEM BUILDINGS
1025 N. WALEBY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

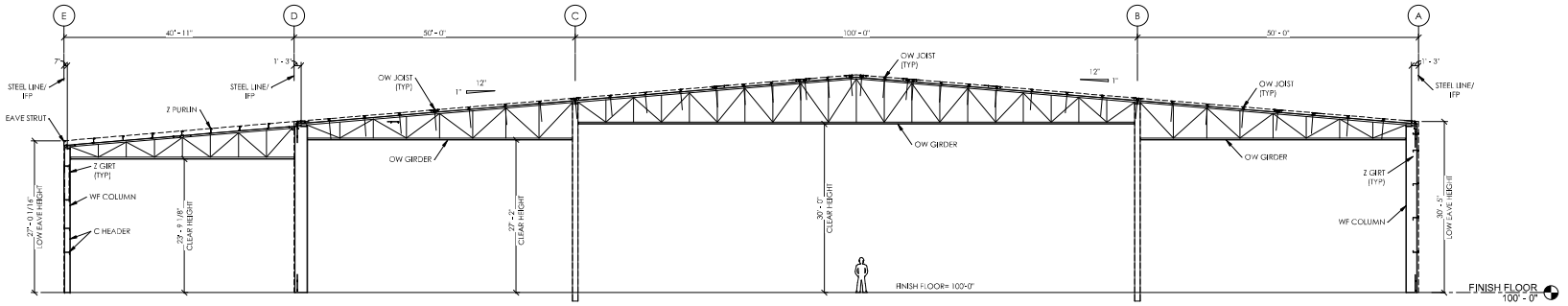
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/18/19	3/16" = 1'-0"

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
FRAMING ELEVATION

AISC CERTIFIED FABRICATOR

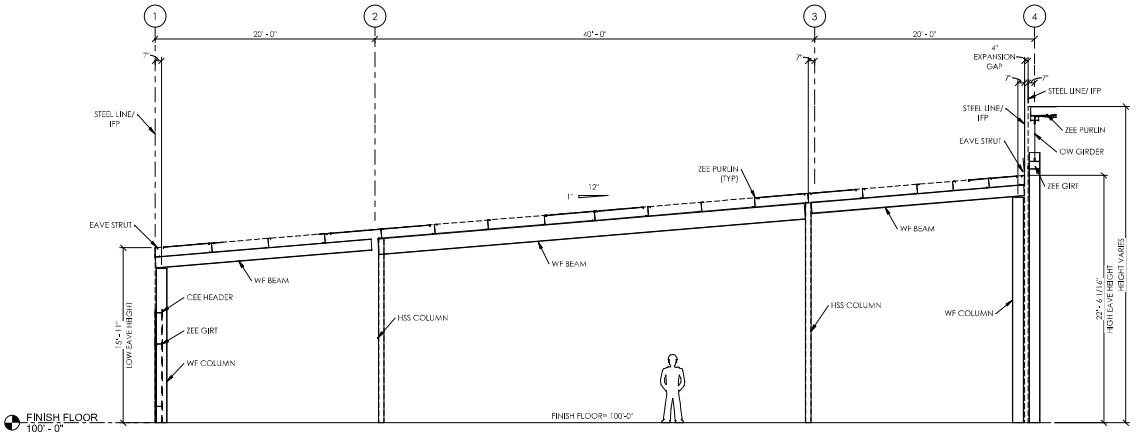
SHEET
G6.10

JOB NUMBER
19170



BUILDING CROSS SECTION @ GRID 5

1" = 10'-0"



BUILDING CROSS SECTION @ GRID D.1

3/16" = 1'-0"

NOTES:
1. OPEN WEB DRAWINGS ARE CONCEPTUAL ONLY. ACTUAL WEB MEMBER LAYOUT MAY VARY.
2. * INDICATES MEMBER IS 12x2 1/2C14 JAMB.

PROFESSIONAL SEAL
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20

GEM BUILDINGS
1025 N. WARBY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

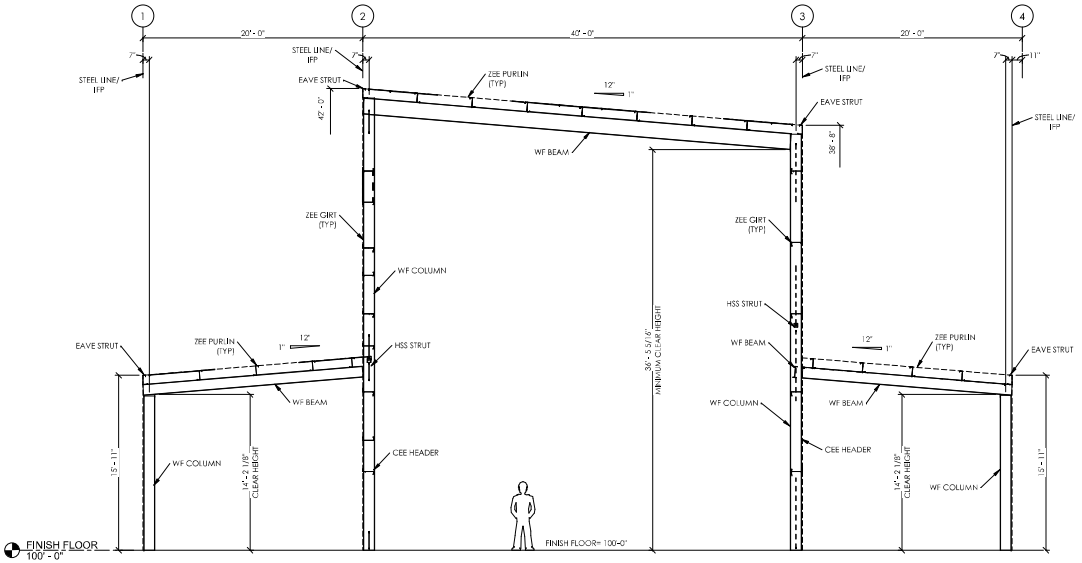
DRAWN: JC | CHECKED | ENGINEER: NR | DATE: 01/06/20 | SCALE: As indicated

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
BUILDING CROSS SECTIONS

AISC CERTIFIED FABRICATOR

SHEET
G8.01

JOB NUMBER
19170



BUILDING CROSS SECTION @ GRID E.1

3/16" = 1'-0"

PROFESSIONAL SEAL

REGISTERED PROFESSIONAL ENGINEER
JAMES D. KNIGHT
78079PE
OREGON
JULY 12, 2005
11/09/2020

EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20

GEM BUILDINGS

1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

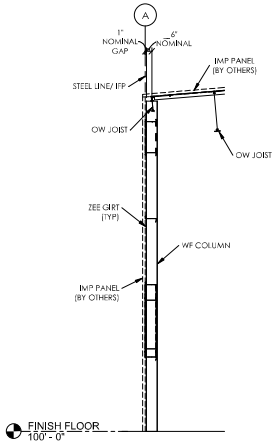
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	01/06/20	3/16" = 1'-0"

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
BUILDING CROSS SECTIONS

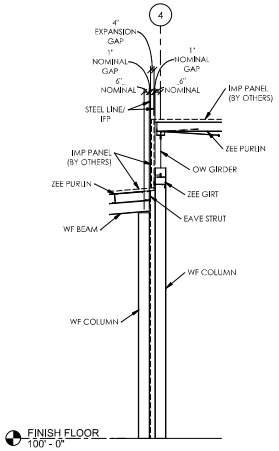
AISC CERTIFIED FABRICATOR

SHEET
G8.02

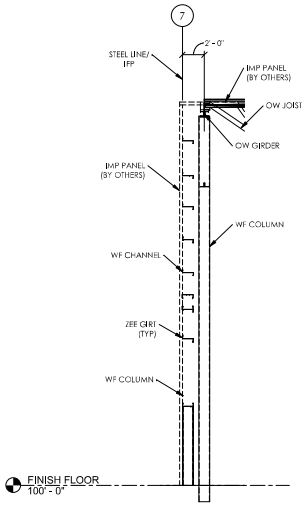
JOB NUMBER
19170



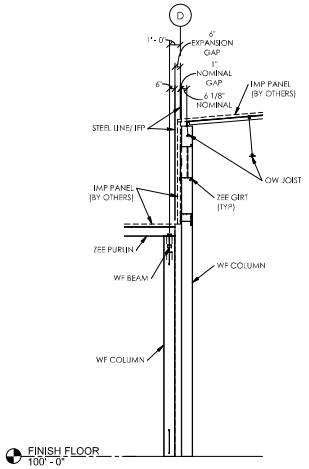
TYPICAL WALL SECTION
3/16" = 1'-0"



TYPICAL WALL SECTION ALONG GRID 4
3/16" = 1'-0"



TYPICAL WALL SECTION ALONG GRID 7
3/16" = 1'-0"



TYPICAL WALL SECTION ALONG GRID D
3/16" = 1'-0"

PROFESSIONAL SEAL
OREGON 11/09/2020
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
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GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

DRAWN: JC | CHECKED: | ENGINEER: NR | DATE: 01/06/20 | SCALE: 3/16" = 1'-0"

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
WALL SECTIONS

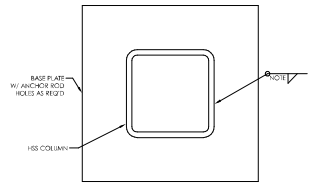
AISC CERTIFIED FABRICATOR

SHEET
G8.03

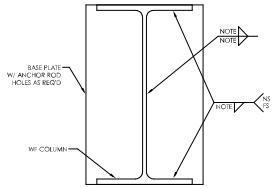
JOB NUMBER
19170

BOLT QTY. SCHEDULE	
BEAM SIZE	BOLT QTY.
W10	2
W12, W14	3
W16	4
W18	5
W21, W24	6
W27	7
W30	8
W33	9
W36	10

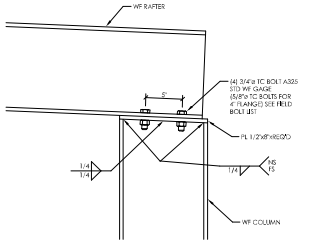
S1 BEAM TO COLUMN SCHEDULE



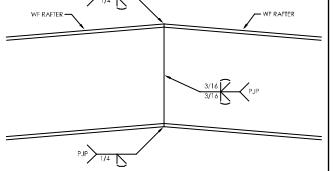
S2 BASE PLATE WELD



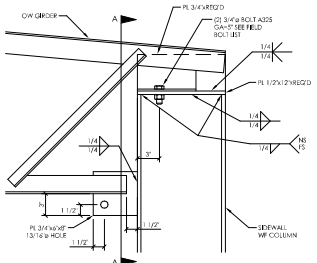
S3 BASE PLATE WELD



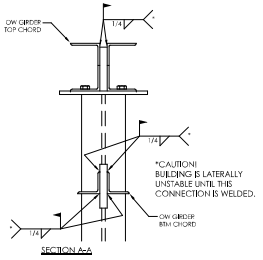
S4 RAFTER TO COLUMN

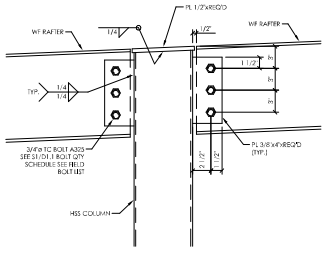


S5 RAFTER TO RIDGE

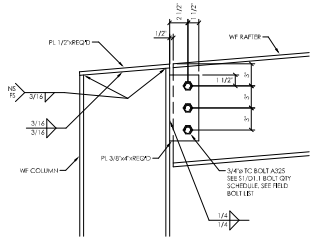


S6 GIRDER TO SIDEWALL COLUMN

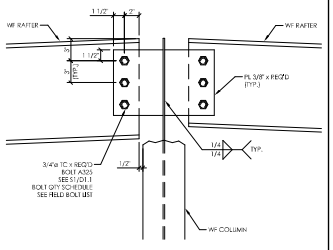




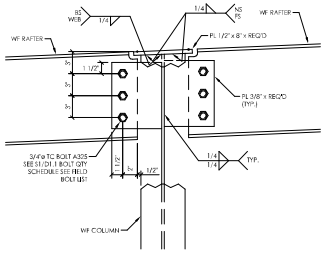
S7 WF RAFTER TO COLUMN



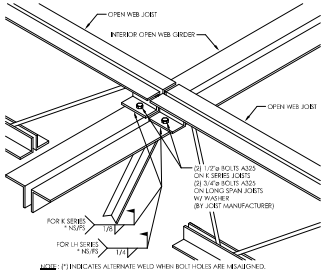
S8 WF RAFTER TO COLUMN



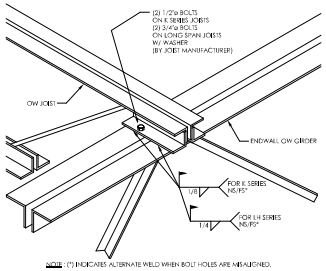
S9 ENDWALL RAFTER AT RIDGE



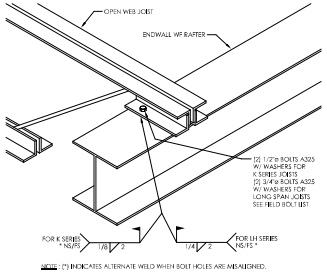
S10 WF RAFTER TO COLUMN



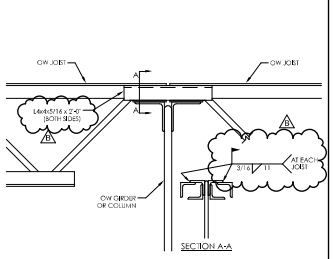
S11 JOIST TO INTERIOR GIRDER



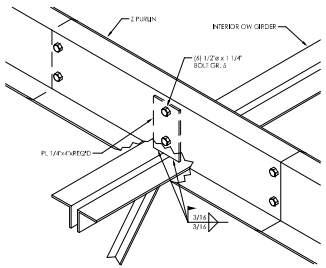
S12 JOIST TO ENDWALL GIRDER



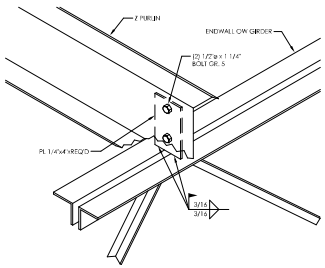
S13 JOIST TO ENDWALL RAFTER



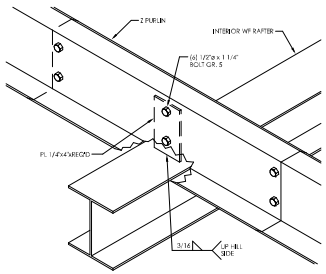
S14 TIE ANGLE @ AXIAL LOADED JOISTS



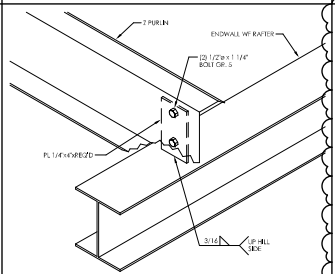
S15 Z PURLIN TO INTERIOR GIRDER



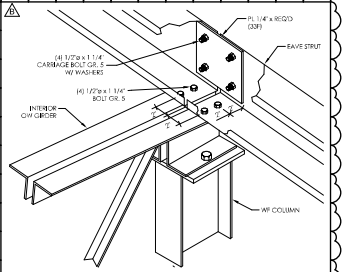
S16 Z PURLIN TO ENDWALL GIRDER



S17 Z PURLIN TO INTERIOR RAFTER



S18 Z PURLIN TO ENDWALL RAFTER



S19 EAVE STRUT TO RAFTER

PROFESSIONAL SEAL
JAMES D. KNIGHT
76877PE
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
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(435) 723-5500 WWW.GEMBUILDINGS.COM

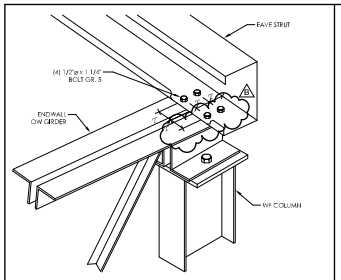
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/27/19	N.T.S.

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
STRUCTURAL DETAILS

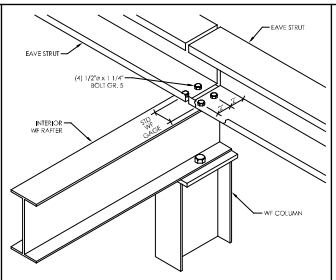
AISC CERTIFIED FABRICATOR

SHEET
D1.1

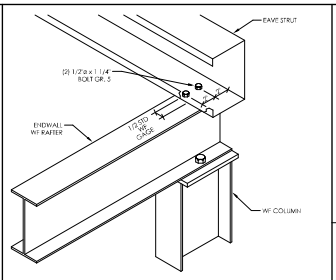
JOB NUMBER
19170



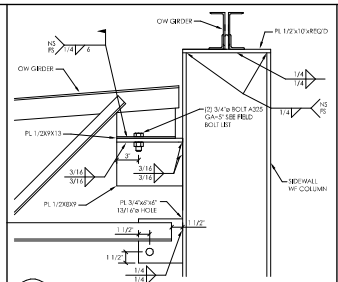
S20 EAVE STRUT TO GIRDER



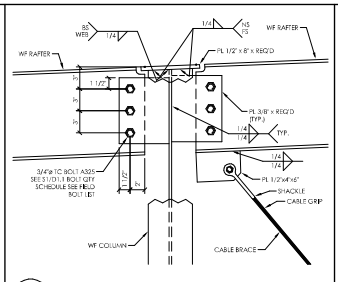
S21 EAVE STRUT TO RAFTER



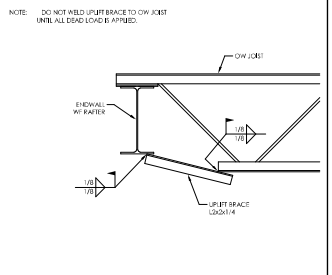
S22 EAVE STRUT TO RAFTER



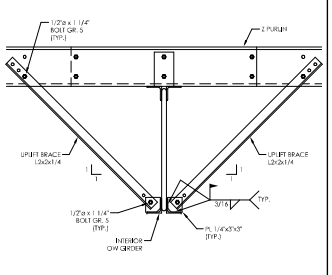
S23 GIRDER TO COLUMN CONNECTION



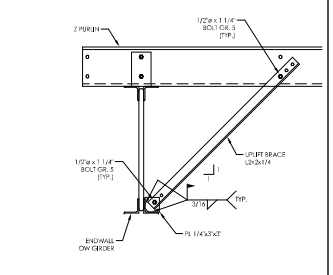
S24 WF RAFTER TO COLUMN



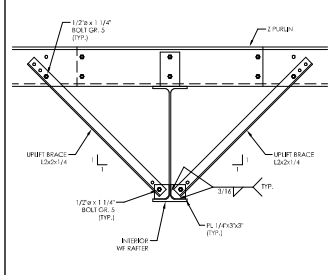
S25 UPLIFT BRACE TO JOIST



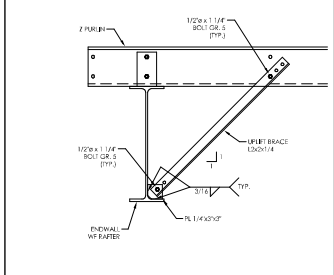
S26 UPLIFT BRACE TO Z PURLIN



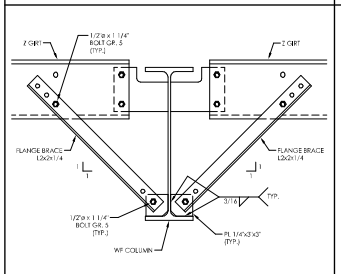
S27 UPLIFT BRACE TO Z PURLIN



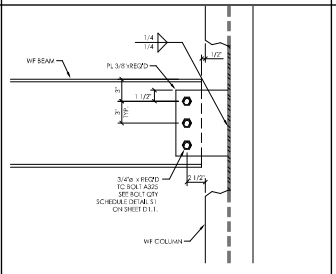
S28 UPLIFT BRACE TO Z PURLIN



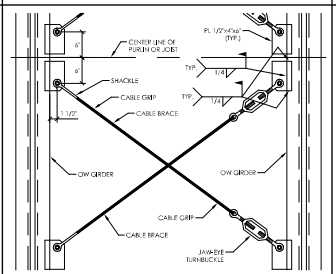
S29 UPLIFT BRACE TO Z PURLIN



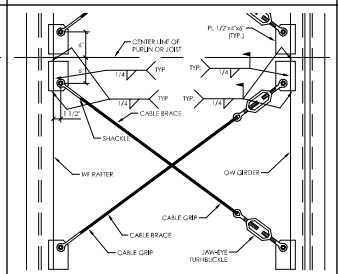
S30 FLANGE BRACE TO PARTLY OUTSET GIRT



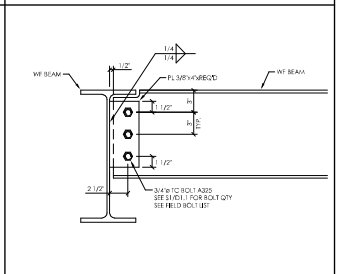
S31 WF BEAM TO COLUMN WEB



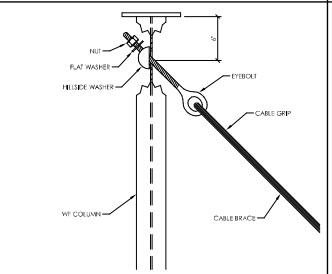
S32 CABLE BRACE TO GIRDER



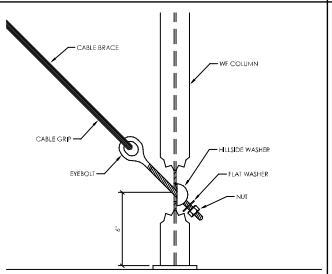
S33 CABLE BRACE RAFTER TO GIRDER



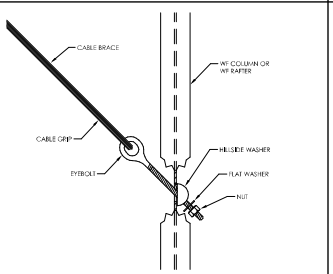
S34 BEAM TO BEAM



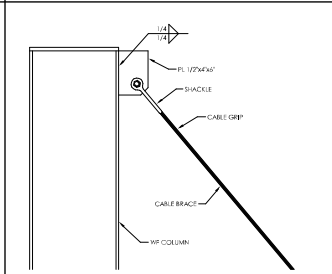
S35 CABLE BRACE @ COLUMN TOP



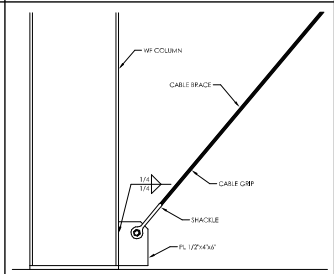
S36 CABLE BRACE @ COLUMN BASE



S37 CABLE BRACE @ COLUMN OR RAFTER



S38 CABLE BRACE @ COLUMN TOP



S39 CABLE BRACE @ COLUMN BASE

PROFESSIONAL SEAL
JAMES D. KNIGHT
76879PE
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
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B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS
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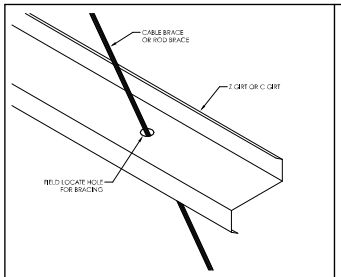
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/27/19	N.T.S.

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
STRUCTURAL DETAILS

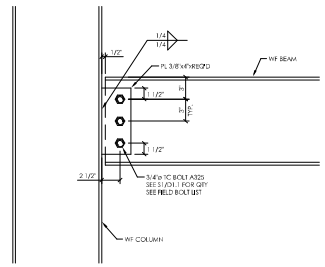
AISC CERTIFIED FABRICATOR

SHEET
D1.2

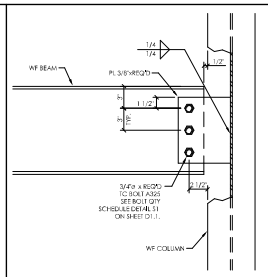
JOB NUMBER
19170



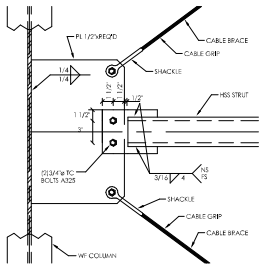
S40 BRACING THRU GIRT



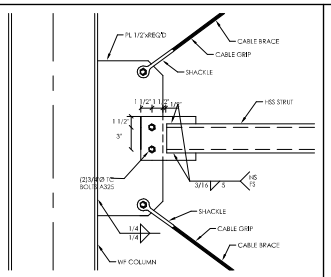
S41 BEAM TO COLUMN



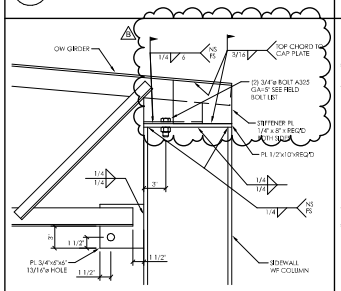
S42 WF BEAM TO COLUMN WEB



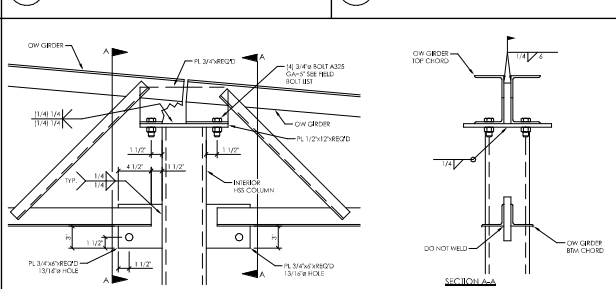
S43 HSS STRUT TO COLUMN WEB



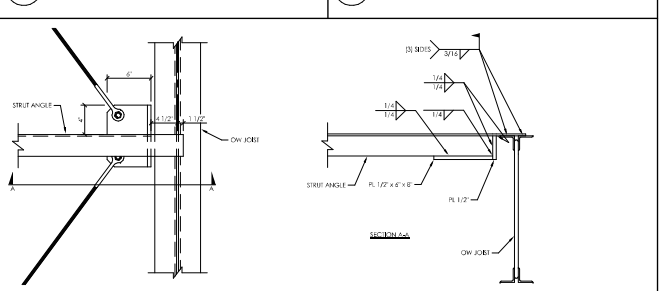
S44 HSS STRUT TO FLANGE



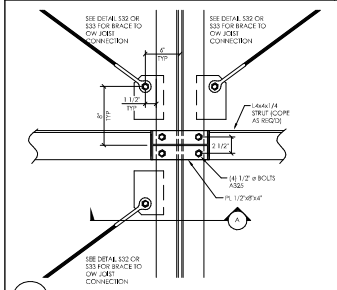
S45 GIRDER TO SIDEWALL COLUMN



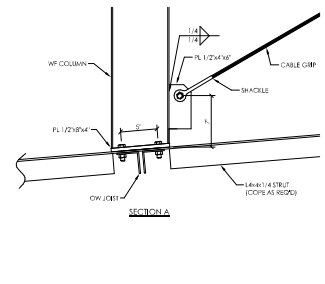
S46 GIRDER TO GIRDER TIE @ INTERIOR HSS COLUMN

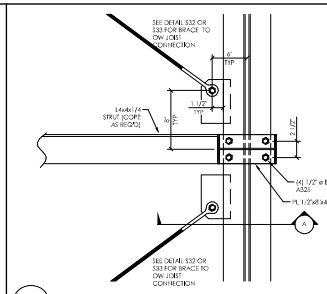


S47 ANGLE STRUT BRACE

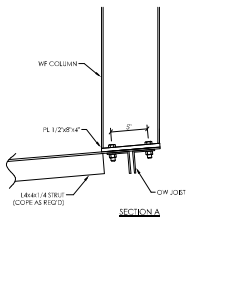


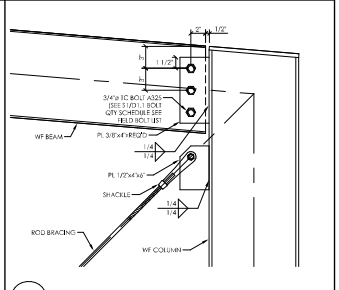
S48 STUB COLUMN TO JOIST



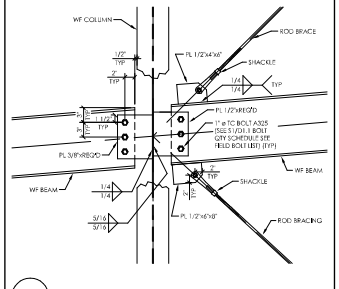


S49 STUB COLUMN TO JOIST

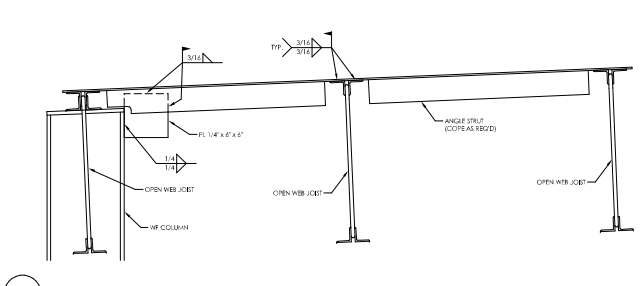




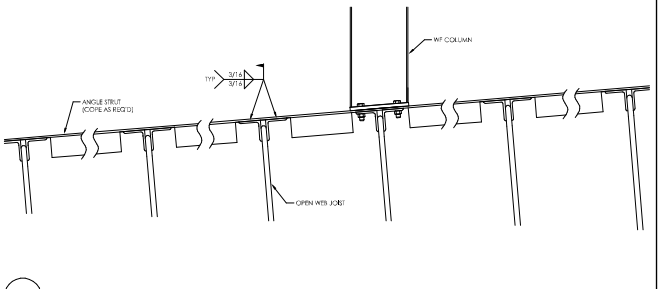
S50 WALL BRACING TO JOIST



S51 BRACING TO RAFTER



S52 ANGLE STRUT TO WIND COLUMN



S53 ANGLE STRUT BRACE

PROFESSIONAL SEAL
JAMES D. KNIGHT
76077PE
OREGON 11/09/2020
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/09/20

GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5900 WWW.GEMBUILDINGS.COM

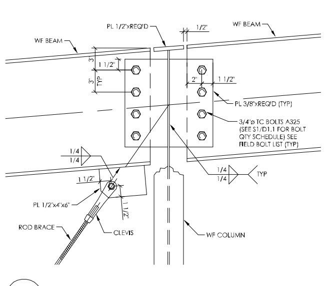
DRAWN	CHECKED	ENGINEER	DATE	SCALE
JC		NR	12/27/19	N.T.S.

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
STRUCTURAL DETAILS

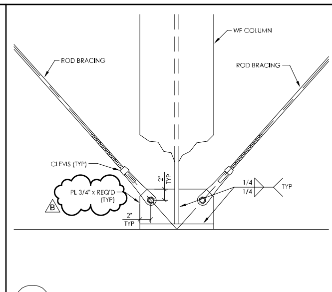
AISC CERTIFIED FABRICATOR

SHEET
D1.3

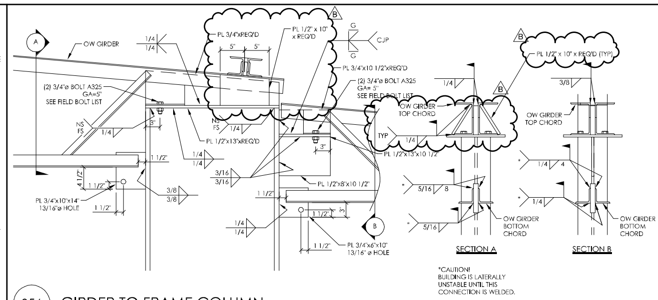
JOB NUMBER
19170



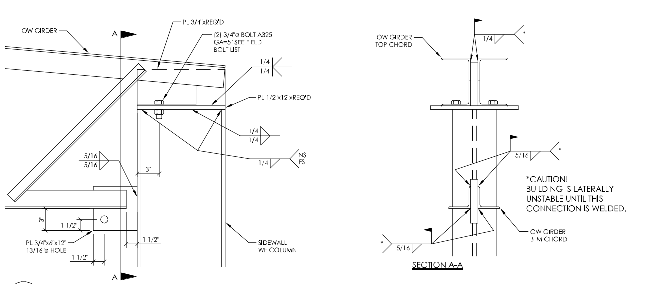
S54 ROD BRACING TO RAFTER



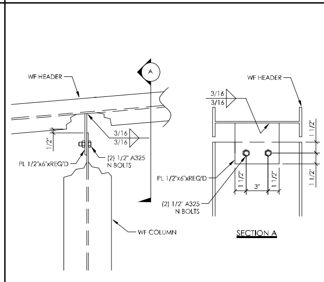
S55 ROD BRACING TO COLUMN



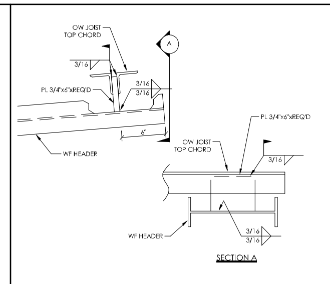
S56 GIRDER TO FRAME COLUMN



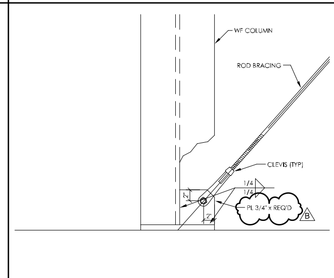
S57 GIRDER TO FRAME COLUMN



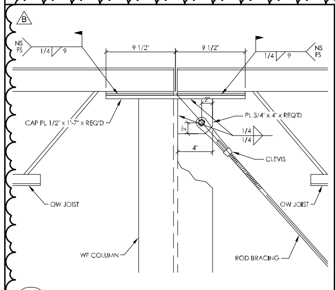
S58 COLUMN TO WF HEADER



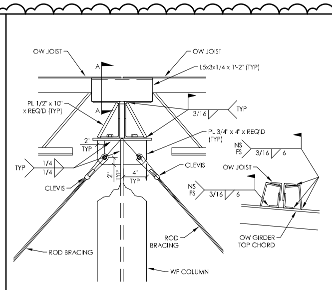
S59 HEADER TO JOIST



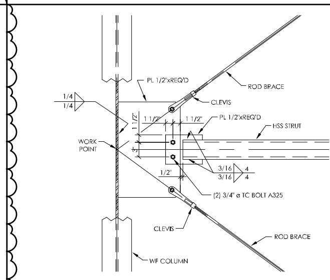
S60 ROD BRACING TO COLUMN



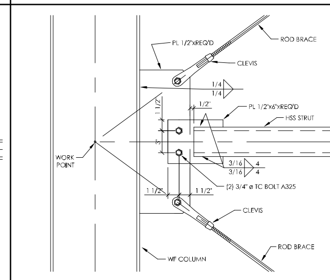
S61 ROD BRACING TO COLUMN



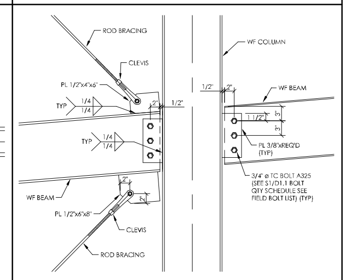
S62 ROD BRACING TO COLUMN



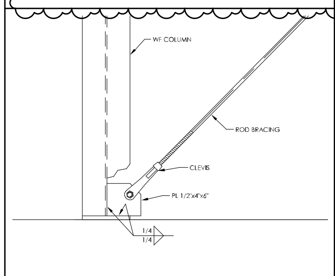
S63 BRACING TO COLUMN



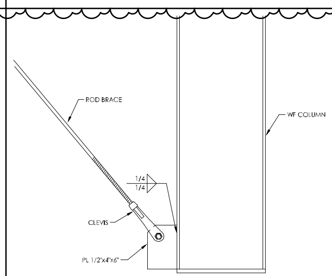
S64 BRACING TO COLUMN



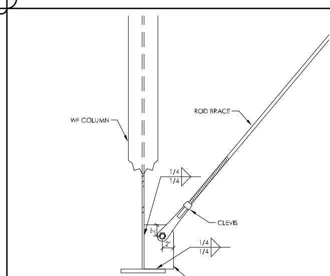
S65 BRACING TO BEAM



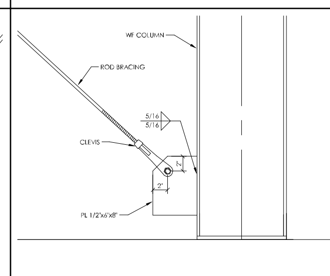
S66 BRACING TO COLUMN



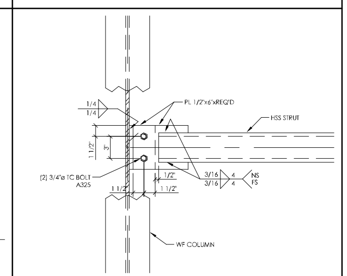
S67 ROD BRACE @ COLUMN BASE



S68 BRACING TO COLUMN



S69 BRACING TO COLUMN



S70 STRUT TO COLUMN

PROFESSIONAL SEAL

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

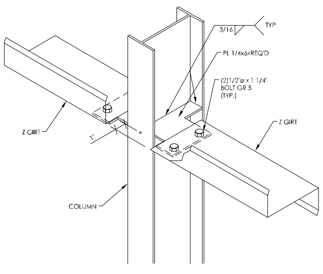
GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/27/19	N.T.S.

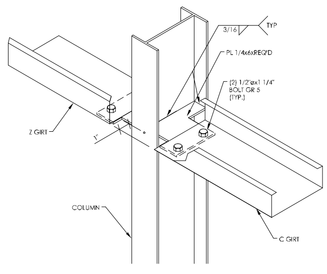
EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
STRUCTURAL DETAILS

AISC CERTIFIED FABRICATOR

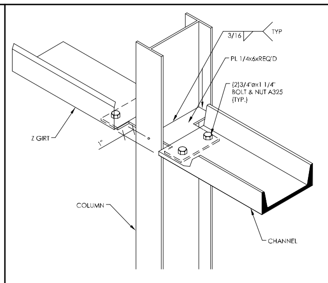
SHEET D1.4
JOB NUMBER 19170



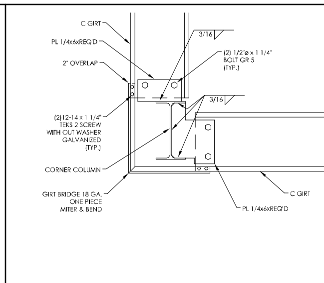
C1 PARTLY OUTSET GIRT TO COLUMN



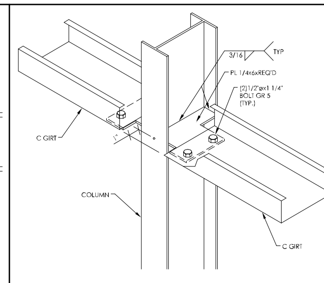
C2 PARTLY OUTSET GIRT TO COLUMN



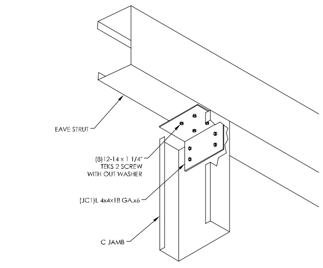
C3 PARTLY OUTSET GIRT TO COLUMN



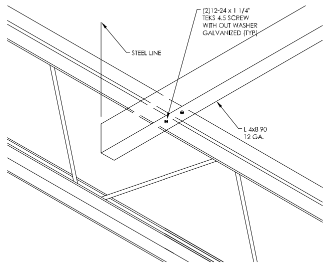
C4 GIRT BRIDGE TO GIRT



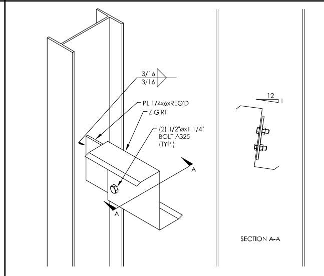
C5 PARTLY OUTSET GIRT TO COLUMN



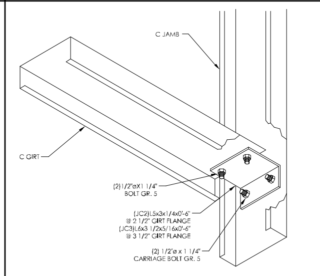
C6 C JAMB TO EAVE STRUT



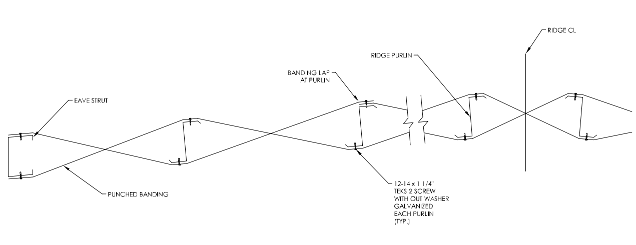
C7 SHEETING ANGLE TO JOIST



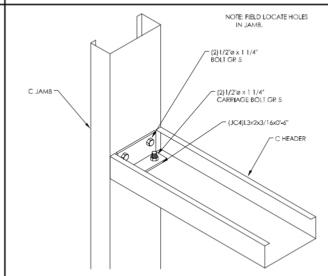
C8 PURLIN TO COLUMN



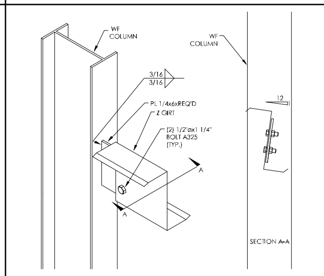
C9 C GIRT TO C JAMB



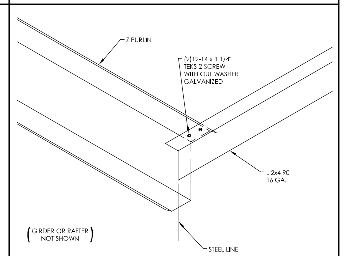
C10 PUNCHED PURLIN BANDING



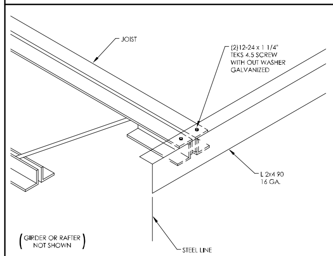
C11 C HEADER TO C JAMB



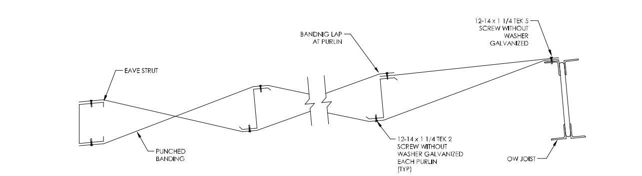
C12 PURLIN TO COLUMN



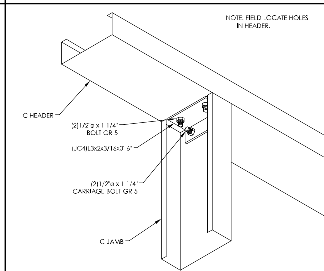
C13 SHEETING ANGLE TO PURLIN



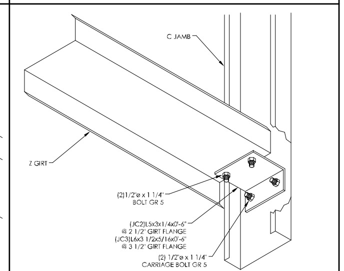
C14 SHEETING ANGLE TO JOIST



C15 PUNCHED PURLIN BANDING



C16 C JAMB TO C HEADER



C17 Z GIRT TO C JAMB

PROFESSIONAL SEAL
OREGON 11/09/2020
JULY 17, 2003
JAMES D. KNIGHT
EXPIRATION DATE: 06/30/2021

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20

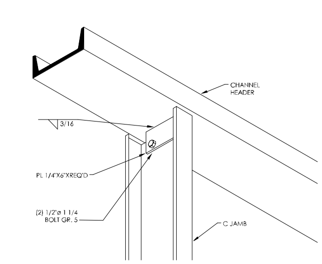
GEM BUILDINGS
1025 N. WATERY LANE BRIGHAM CITY, UT 84302
(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/27/19	N.T.S.

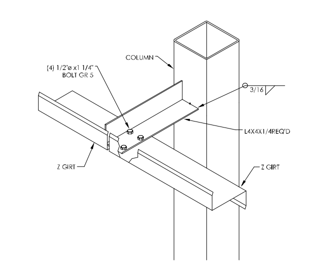
EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
COLD FORM DETAILS

AISC CERTIFIED FABRICATOR

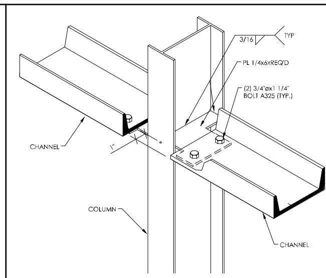
SHEET D2.1
JOB NUMBER 19170



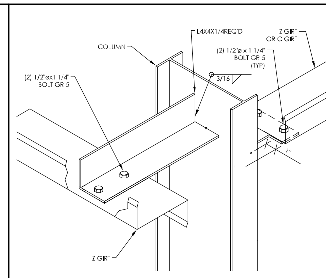
C18 C JAMB TO CHANNEL HEADER



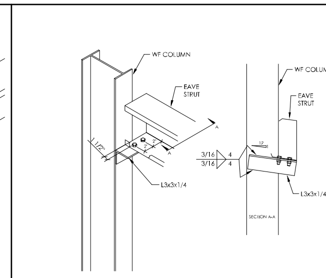
C19 PARTIALLY OUTSET GIRT TO COLUMN



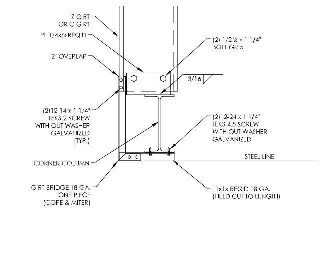
C20 PARTIALLY OUTSET GIRT TO COLUMN



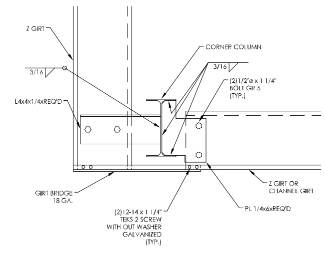
C21 PARTIALLY OUTSET GIRT TO COLUMN



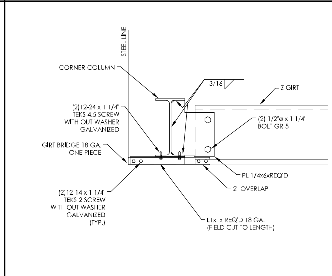
C22 GIRT BRIDGE TO GIRT



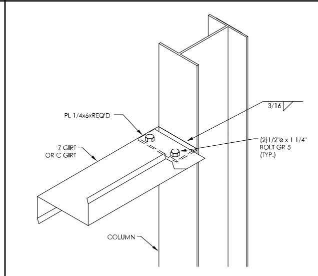
C23 GIRT BRIDGE TO GIRT



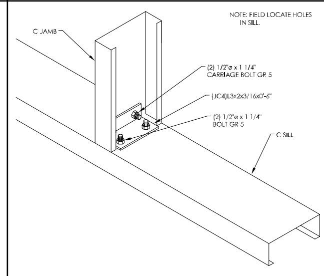
C24 GIRT BRIDGE TO GIRT



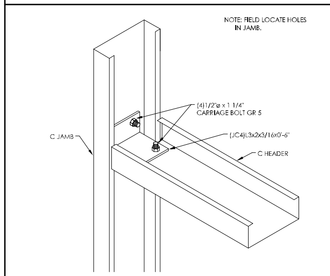
C25 GIRT BRIDGE TO GIRT



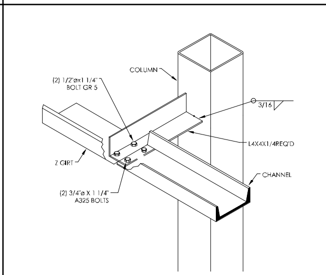
C26 OFFSET GIRT AT INSIDE CORNER



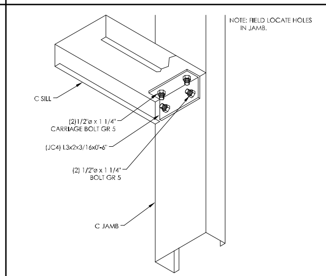
C27 C JAMB TO C SILL



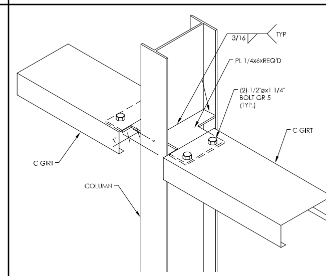
C28 C HEADER TO C JAMB



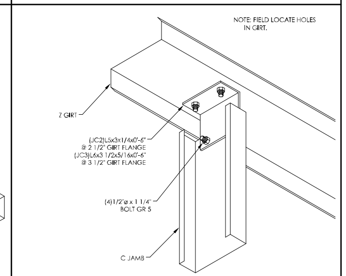
C29 PARTIALLY OUTSET GIRT TO COLUMN



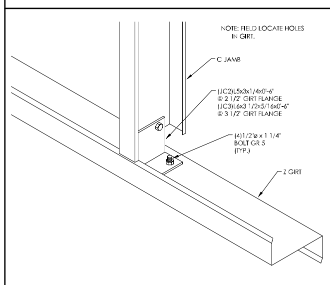
C30 C SILL TO C JAMB



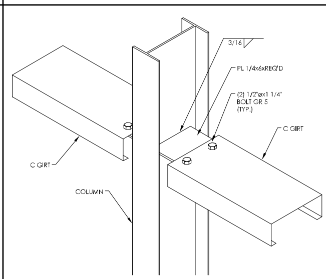
C31 PARTLY OUTSET GIRT TO COLUMN



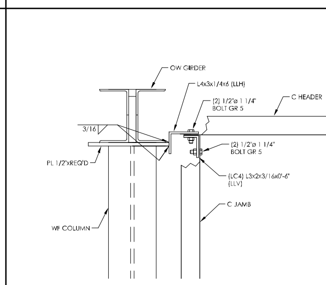
C32 C JAMB TO Z GIRT



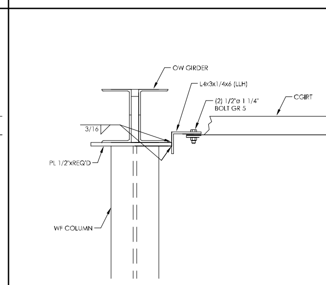
C33 C JAMB TO Z GIRT



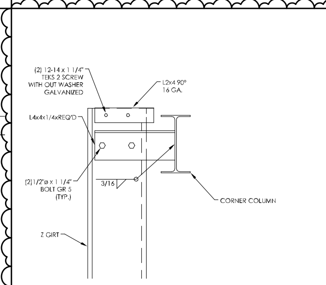
C34 FLUSH GIRT TO COLUMN



C35 JAMB TO C GIRT AT CAP PL



C36 C GIRT AT CAP PLATE



C37 GIRT BRIDGE TO GIRT

PROFESSIONAL SEAL

NO.	REVISIONS	DATE
A	APPROVAL DRAWING	02/10/20
B	APPROVAL DRAWING - REISSUED FOR APPROVAL	03/24/20
C	APPROVAL DRAWING - REISSUED FOR APPROVAL	11/6/20

GEM BUILDINGS

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(435) 723-5000 WWW.GEMBUILDINGS.COM

DRAWN	CHECKED	ENGINEER	DATE	SCALE
LC		NR	12/27/19	N.T.S.

EASTERN OREGON FIELD HOUSE
LA GRANDE, OR
MIKE BECKER GENERAL CONTRACTORS INC.
COLD FORM DETAILS

AISC CERTIFIED FABRICATOR

SHEET D2.2

JOB NUMBER 19170

*Mechanical & Plumbing Plans do not reflect relocation of window in climbing area and adjusted layout, or building value engineering changes.

GENERAL MECHANICAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 1 — ROOM NAME AND NUMBER
- 2" — PIPE SIZE TAG (DIAMETER)
- ABOVE GROUND PIPING
- 1/8" / 12" SLOPE — PIPE SLOPE TAG
- BELOW GROUND PIPING
- INVERT: -10' - 1" — PIPE INVERT ELEVATION TAG

ABBREVIATIONS

Ø	ROUND	M/A	MIXED AIR
ABV	ABOVE	MAX	MAXIMUM
AC	AIR CONDITIONING	MBH	ONE THOUSAND BTU PER HOUR
AD	AREA DRAIN	MCA	MAXIMUM CIRCUIT AMPACITY
ADD	ADDENDUM	MCF	ONE THOUSAND CUBIC FEET
AFF	ABOVE FINISHED FLOOR	MD	MOTORIZED DAMPER
AFG	ABOVE FINISHED GRADE	MECH	MECHANICAL
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	MEZZ	MEZZANINE
AI	ANALOG INPUT	MFR	MANUFACTURER
ALT	ALTERNATE	MIN	MINIMUM
AO	ANALOG OUTPUT	MIN	MINUTE
AP	ACCESS PANEL	MISC	MISCELLANEOUS
ARCH	ARCHITECT/ARCHITECTURAL	MOCP	MAXIMUM OVERCURRENT PROTECTION
BFF	BELOW FINISHED FLOOR	MS	MOP SINK
BLW	BELOW	MTR	MOTOR
BTU	BRITISH THERMAL UNITS	MU/A	MAKE-UP/AIR
BTUH	BRITISH THERMAL UNITS PER HOUR	NC	NOISE CRITERIA
CAP	CAPACITY	NC	NORMALLY CLOSED
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NUMBER
CLG	CEILING	NO	NORMALLY OPEN
CO	CLEAN OUT	NTS	NOT TO SCALE
CONC	CONCRETE	O	OXYGEN
COND	CONDENSER	O/A	OUTSIDE AIR
CONT	CONTINUED	ORD	OVERFLOW ROOF DRAIN
CW	COLD WATER	PD	PRESSURE DROP
D	DEGREE	PH	PREHEAT (COIL)
DB	DRY BULB	PH	PHASE
DCVA	DOUBLE CHECK VALVE ASSEMBLY	PIV	POST INDICATOR VALVE
DI	DIGITAL INPUT	PLBG	PLUMBING
DIA	DIAMETER	PRESS	PRESSURE
DN	DOWN	PRV	PRESSURE REDUCING VALVE
DO	DIGITAL OUTPUT	PSI	POUNDS PER SQUARE INCH
DW	DISTILLED WATER	PSIG	POUNDS PER SQUARE INCH GAUGE
EA	EACH	PWR	POWER
EAT	ENTERING AIR TEMPERATURE	R	DUCT RISER
ELEC	ELECTRICAL	R/A	RETURN AIR
EQUIP	EQUIPMENT	RCP	RADIANT CEILING PANEL
EWC	ELECTRIC WATER COOLER	RD	ROOF DRAIN
EWT	ENTERING WATER TEMPERATURE	REC	RECESSED
E/A	EXHAUST AIR	RED	REDUCER
EVAP	EVAPORATOR	RH	RELATIVE HUMIDITY
EXIST	EXISTING	RL/A	RELIEF AIR
F	DEGREES FAHRENHEIT	RM	ROOM
FCO	FLOOR CLEAN OUT	RPM	REVOLUTIONS PER MINUTE
FD	FLOOR DRAIN	RW	RAIN WATER
FD	FIRE DAMPER	S/A	SUPPLY AIR
FDV	FIRE DEPARTMENT VALVE	SAN	SANITARY
FL	FLOOR	SCCR	SHORT CIRCUIT CURRENT RATING
FLA	FULL LOAD AMPS	SD	SMOKE DAMPER
FO	FUEL OIL	SD	SMOKE DETECTOR
FOV	FUEL OIL VENT	SEC	SECOND
FOR	FUEL OIL RETURN	SEER	SEASONAL ENERGY EFFICIENCY RATIO
FOS	FUEL OIL SUPPLY	SF	SQUARE FOOT
FPM	FEET PER MINUTE	SH	SHOWER
FS	FLOOR SINK	SK	SINK
FT	FOOT/FEET	SM	SURFACE MOUNT
FTR	FIN TUBE RADIATION	SP	STANDPIPE
GAL	GALLON	SP	STATIC PRESSURE
GC	GENERAL CONTRACTOR	SS	SANITARY SEWER
GPM	GALLONS PER MINUTE	STM	STEAM
GW	GREASE WASTE	T	THERMOSTAT
HB	HOSE BIB	TD	TEMPERATURE DROP
HP	HORSE POWER	TDR	TRENCH DRAIN
HTG	HEATING	TEMP	TEMPERATURE
HTR	HEATER	TMV	THERMOSTATIC MIXING VALVE
HSPF	HEATING SEASONAL	TP	TRAP PRIMER
	PERFORMANCE FACTOR	TYP	TYPICAL
HW	HOT WATER	UG	UNDERGROUND
HYD	HYDRANT	UR	URINAL
ID	INDIRECT	VAC	VACUUM
IN	INCH	V	VENT
INV	INVERT	VAV	VARIABLE AIR VOLUME
KW	KILOWATT	VENT	VENTILATION
LAV	LAVATORY	VTR	VENT THROUGH ROOF
LB/LBS	POUND(S)	W	WASTE
LB/HR	POUNDS PER HOUR	WB	WET BULB
LAT	LEAVING AIR TEMPERATURE	WC	WATER CLOSET
LP	LOW PRESSURE	WCO	WALL CLEAN OUT
LV	LOUVER	WH	WALL HYDRANT
LWT	LEAVING WATER TEMPERATURE	WHA	WATER HAMMER ARRESTOR

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EDC	ELECTRIC DUCT COIL
ACC	AIR COOLED CONDENSER	ET	EXPANSION TANK
ACCU	AIR COOLING CONDENSING UNIT	EWH	ELECTRIC WATER HEATER
AHU	AIR HANDLING UNIT	ERV	ENERGY RECOVERY VENTILATOR
AS	AIR SEPARATOR	FC	FAN COIL
B	BOILER	FTR	FIN TUBE RADIATOR
CC	COOLING COIL	GFS	GLYCOL FEED SYSTEM
CF	CIRCULATION FAN	GI	GREASE INTERCEPTOR
CFS	CHEMICAL FEED SYSTEM	GRV	GRAVITY ROOF VENTILATOR
CH	CHILLER	HC	HEATING COIL
CRP	CONDENSATE RETURN PUMP	HP	HEAT PUMP
CS	CURRENT SENSOR	HHWP	HEATING WATER PUMP
CT	COOLING TOWER	HX	HEAT EXCHANGER
CTD	CONTINUOUS TUBULAR DIFFUSER	HRU	HEAT RECOVERY UNIT
CUH	CABINET UNIT HEATER	LV	LOUVER
CV	CONTROL VALVE	M/C	MOTOR CONTACTOR
CWP	CONDENSER WATER PUMP	PRV	POWER ROOF VENTILATOR
CHWP	CHILLED WATER PUMP	RC	ROOF COWL
DBP	DOMESTIC WATER BOOSTER PUMP	RTU	ROOFTOP UNIT
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SFM	STEAM FLOW METER
DH	DUCT HEATER	ST	STEAM TRAP
DHWP	DOMESTIC HOT WATER PUMP	STPRV	STEAM PRESSURE REDUCING VALVE
DWH	DOMESTIC WATER HEATER	UH	UNIT HEATER
EF	EXHAUST FAN	WH	WATER HEATER

PLUMBING AND PIPING SYMBOLS

- CHWR — CHILLED WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CD — CONDENSATE DRAINAGE
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- G — NATURAL GAS
- REF-L — REFRIGERANT-LIQUID
- REF-S — REFRIGERANT-SUCTION
- REF-HG — REFRIGERANT-HOT GAS
- CW — DOMESTIC COLD WATER
- HW — HOT WATER
- HW-R — HOT WATER RECIRCULATION
- V — SANITARY VENT
- SS — SANITARY SEWER
- SD — STORM DRAINAGE
- OSD — OVERFLOW STORM DRAINAGE
- STM — STEAM #
- STC — STEAM CONDENSATE
- PIPE DROP
- PIPE RISE
- PIPE TEE
- CAP
- PLUG
- REDUCING 45 DEGREE TEE
- 45 DEGREE TEE

PIPE ACCESSORY TAGS

- 2" DOM. WM — DOMESTIC WATER METER
- 2" M.CNTRL — MOTORIZED CONTROL VALVE
- 2" BALANCING — BALANCING VALVE
- 2" 3-WAY CNTRL — 3-WAY MOTORIZED CONTROL VALVE
- 2" SHUTOFF — 1/4 TURN BALL VALVE
- 2" PRV — PRESSURE REDUCING VALVE
- 2" CHECK — CHECK VALVE
- 3/8" SOLENOID — REFRIGERANT SOLENOID VALVE
- 2" TMV — 3-WAY MIXING VALVE
- 2" BUTTERFLY — BUTTERFLY VALVE

DRAIN TAGS

- FLOOR DRAIN — FD-X
- FLOOR DRAIN — FD-X
- FLOOR SINK — FS-X
- HUB DRAIN — HD-X
- AD-X — AREA DRAIN
- DD-X — DECK DRAIN
- FCD-X — FLOW CONTROL DRAIN
- SD-X — STORM DRAIN
- CD-X — COMBINATION DRAINS

PLUMBING FIXTURE TAGS

TYPE (SEE SCHEDULE); LAV-1A; 1.5 CWFU; 1.5 HWFU; FIXTURE UNITS; WATER CLOSET - WALL HUNG - ADA; LAV-1A; WC-1A; WC-1; 1 WFU; U-1; PIPE ACCESORY TAG; 4" WCO; 4" WCO

HVAC SYMBOLS

- 16"x8" — SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
- 16"/8" — OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
- 16"Ø — ROUND DUCT SIZE TAG (DIAMETER)
- S/A — SUPPLY AIR
- S-O/A — CONDITIONED OUTSIDE AIR
- O/A — OUTSIDE AIR
- R/A — RETURN AIR
- T/A — TRANSFER AIR
- E/A — EXHAUST AIR
- L/A — RELIEF AIR
- DROP — RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — ROUND SUPPLY/OUTSIDE AIR DUCT RISE
- DROP — RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
- DROP — ROUND RETURN/TRANSFER AIR DUCT RISE
- DROP — RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
- DROP — ROUND EXHAUST/RELIEF AIR DUCT RISE

GRILLES, REGISTERS & DIFFUSERS TAG

TYPE (SEE SCHEDULE)

- 3-CONE DIFFUSER — 1181 | 400 — CFM
- 22 | H-5/7/14 — NECK SIZE / MODULE SIZE
- THROW-150FPM/ 100FPM/ 50FPM — THROW PATTERN
- MAX NC RATING
- PERFORATED DIFFUSER WITH DEFLECTORS — 1177 | 300
- 1185 | 500; 18 — EGGCRATE RETURN GRILLE
- ROUND DIFFUSER WITH ADJUSTABLE PATTERNS — 1178 | 400
- LOUVERED DOUBLE DEFLECTION GRILLE — 1180 | 500
- 1184 | 500 — LOUVERED GRILLE

MECHANICAL EQUIPMENT TAGS

RTU-XX — ROOFTOP UNIT

DATA DEVICE TAGS

- SYMBOL; EQUIPMENT ID
- CARBON DIOXIDE SENSOR — CO2 | TH — RTU-XX — TEMPERATURE & HUMIDITY SENSOR
- CARBON MONOXIDE SENSOR — CO | TS — VAV-XX — TEMPERATURE SENSOR
- NITROGEN DIOXIDE SENSOR — NO2 | T — THERMOSTAT
- HUMIDITY SENSOR — HS | MS — MANUAL SWITCH
- HUMIDISTAT — H | S — SENSOR

DAMPER TAGS

- FIRE DAMPER — F
- SMOKE DAMPER — S
- MOTORIZED DAMPER — M
- B — MANUAL BALANCING DAMPER
- D — BACKDRAFT DAMPER
- C — COMBINATION FIRE/SMOKE DAMPER

PLUMBING GENERAL NOTES

1. PLUMBING FIXTURES SHALL BE INSTALLED AT HEIGHTS AND LOCATIONS SHOWN ON ARCHITECTURAL PLANS. INSTALL ACCORDING TO LOCAL BUILDING CODES AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE INSTALLATION OF THE PIPING TO ALLOW ADEQUATE CLEARANCE OF LIGHTING FIXTURES AND DUCTWORK AND TO AVOID STRUCTURAL MEMBERS AND OTHER CEILING EQUIPMENT. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES TO AVOID CONFLICTS IN THE CEILING SPACE.
3. PIPES THROUGH FIRE RATED WALLS SHALL BE CAULKED WITH FIRE STOP PER CODE.
4. RUN DOMESTIC WATER AND VENT PIPES IN CEILING SPACE UNLESS NOTED OTHERWISE. RUN WASTE PIPES BELOW FLOOR UNLESS NOTED OTHERWISE. SEE SPECIFICATIONS FOR PIPE HANGER SPACING REQUIREMENTS.
5. INSTALL WATER HAMMER ARRESTORS PER MANUFACTURER'S RECOMMENDATIONS AT ENDS OF COLD WATER & HOT WATER MAIN BRANCHES AND AT FAST-CLOSING VALVES. SHOW LOCATIONS ON RECORD DRAWINGS.
6. ALL LOCATIONS WHERE PIPES ARE INSTALLED BELOW OR THROUGH A FOOTER OR STEM WALL SHALL HAVE A SCHEDULE 40 STEEL PIPE SLEEVE 2" LARGER IN DIAMETER EXTENDING 12" BEYOND BOTH SIDES OF FOOTER/WALL. (NO EXTENSION REQUIRED FOR WATER ON INTERIOR SIDE). SEAL PENETRATIONS AS REQUIRED.
7. PROVIDE HINGED ACCESS PANELS IN GYPSUM BOARD CEILINGS (OR WALLS) TO ALLOW ACCESS TO VALVES, TRAP PRIMERS, WATER HAMMER ARRESTORS, AND OTHER DEVICES REQUIRING MAINTENANCE. ACCESS PANELS SHALL BE 12" x 12" IN LOCATIONS WHERE THE DEVICE IS DIRECTLY BEHIND THE PANEL AND WITHIN EASY REACH. ALL OTHER SITUATIONS REQUIRE A 16" x 16" MINIMUM PANEL. ACCESS PANELS IN CMU WALLS SHALL BE SIZED TO MATCH BLOCK SIZE. THE DEVICE MUST BE ACCESSIBLE FOR MAINTENANCE.
8. ALL WASTE UNDER BUILDING SHALL RUN AT A 2% MINIMUM SLOPE UNLESS OTHERWISE NOTED.
9. COORDINATE PLUMBING AND MECHANICAL PIPING WITH THE CIVIL DRAWINGS AND SITE UTILITY CONTRACTOR FOR FINAL ELEVATION AND LOCATIONS.
10. INSTALL ESCUTCHEON PLATES AT ALL WALL AND FLOOR PENETRATIONS IN FINSHED AREAS AND WHERE NOTED.
11. PAINT ALL VENT THROUGH ROOF (VTR) TERMINALS TO MATCH SURROUNDING ROOF FINISH COLOR WHERE VISIBLE FROM GROUND.

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE OREGON STRUCTURAL SPECIALTY CODE (OSSC), OREGON MECHANICAL SPECIALTY CODE (OMSC), OREGON PLUMBING SPECIALTY CODE (OPSC), OREGON FIRE CODE (OFC); THE OREGON ZERO ENERGY READY COMMERCIAL CODE (OZERCC), AND ALL OTHER LOCAL JURISDICTION REQUIREMENTS.
2. ALL DUCT AND PIPE ROUTING AND CONSTRUCTION SHOWN ON THE DRAWINGS IS DIAGRAMMATIC IN NATURE AND MAY NOT BE SHOWN IN EXACT LOCATIONS OR WITH ALL ANCILLARY ITEMS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM. CONTRACTOR SHALL COORDINATE ROUTING OF ALL DUCTWORK AND PIPING PER TYPICAL CONSTRUCTION PRACTICE IN THE MOST EFFICIENT WAY POSSIBLE WHILE ADHERING AS CLOSELY TO THE DRAWINGS AS POSSIBLE. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL INSTALLATION WITH THE WORK OF OTHER TRADES. IN THE EVENT A CONFLICT ARISES WHICH CANNOT BE RESOLVED IN THE FIELD, A REQUEST FOR INFORMATION (RFI) SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. INCLUDE PROPOSED SOLUTION AND COST/TIME IMPACT IF POSSIBLE.
3. ALL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER WITHIN STANDARD OF CARE FOR PROFESSION. ALL LABOR, MATERIAL, TOOLS, PERMITS, INSPECTIONS, TESTING, CERTIFICATION, ETC. REQUIRED FOR A COMPLETE AND SATISFACTORY INSTALLATION TO DESIGN INTENT SHALL BE FURNISHED BY CONTRACTOR. PROVIDE, AT NO ADDITIONAL COST, INCLUDING INCIDENTAL ITEMS NOT SHOWN WHEN REQUIRED FOR TYPICAL COMPLETION OF WORK.
4. SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND SHALL BE UNDERSTOOD AS ONE. IN THE EVENT OF A CONFLICT BETWEEN THE PLANS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY. IF A CONFLICT CANNOT BE RESOLVED IN THIS MANNER, IT SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION.
5. ALL EQUIPMENT WHICH IS INDICATED TO BE FURNISHED AND/OR INSTALLED BY OTHERS OR BY OWNER IS INCLUDED FOR REFERENCE ONLY UNLESS NOTED OTHERWISE. DESIGN OF MECHANICAL SYSTEMS IN THESE AREAS IS BASED ON INFORMATION AVAILABLE AT THE TIME OF DESIGN. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND VERIFYING INSTALLATION REQUIREMENTS OF THIS EQUIPMENT WITH THE APPLICABLE SUPPLIER OR THE OWNER. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
6. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF SITE CONDITIONS, INSTALLATION STANDARDS AND CONSTRUCTION CONDITIONS AND PROCEDURES. FIELD VERIFY ALL DIMENSIONS PRIOR TO SHOP FABRICATION AND/OR FIELD ERECTION. DISCREPANCIES BETWEEN SITE CONDITIONS AND THE CONSTRUCTION DOCUMENTS SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER. WORK DONE WITHOUT THE ENGINEER'S APPROVAL IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. DRAWINGS NOT BEARING THE STAMP OR SEAL AND SIGNATURE OF A REGISTERED PROFESSIONAL ENGINEER SHALL NOT BE USED FOR BIDDING OR CONSTRUCTION PURPOSES UNLESS EXPRESSLY APPROVED IN WRITING BY MEIER ARCHITECTURE•ENGINEERING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT ALL DRAWINGS AND SPECIFICATIONS BEING USED FOR BIDDING AND CONSTRUCTION PURPOSES ARE OF THE LATEST REVISION AVAILABLE AND ALL ADDENDUM DOCUMENTS HAVE BEEN INCORPORATED EITHER BY REVISION RELEASE OF DRAWINGS/SPECIFICATIONS OR ATTACHMENT OF SKETCHES OR OTHER ADDENDUM INFORMATION.
8. NOT ALL SYMBOLS OR ABBREVIATIONS INDICATED MAY BE USED ON PROJECT DRAWINGS.
9. DRAWINGS MAY BE REDUCED. VERIFY SCALE.
10 DESIGN-BUILD CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH RFP DOCUMENTS, EOU CAMPUS STANDARDS, AND OTHER CONTRACTUAL DOCUMENTS. CONTRACTOR SHALL ENSURE THAT ANY AND ALL DEVIATIONS ARE APPROVED BY THE OWNER PRIOR TO WORK.
11 THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF HVAC, PIPING AND EQUIPMENT SUPPORTS. HVAC, PIPING AND EQUIPMENT SUPPORTS THAT FALL UNDER THE REQUIREMENTS OF ASCE 7 CHAPTER 13, SEISMIC DESIGN REQUIREMENTS FOR NON STRUCTURAL COMPONENTS, SHALL BE DESIGNED AND STAMPED BY A PROFFESSIONAL ENGINEER. ENGINEERED DRAWINGS AND CALCULATIONS SHALL BE PROVIDED FOR REVIEW OF SEISMIC SUPPORTS. SEISMIC DESIGN CATEGORY IS LISTED ON S001.
12 CONTRACTOR SHALL BE RESPONSIBLE FOR RETAINING THE SERVICES OF AN APPROPRIATE COMMISSIONING AGENT AND FIRM IN ACCORDANCE WITH OREGON ZERO ENERGY READY COMMERCIAL CODE (BASED ON ASHRAE STANDARD 90.1-2016), SECTION 6.7.2.4. COMMISSIONING AGENT SHALL NOT BE AN EMPLOYEE OF THE GENERAL CONTRACTOR, THE OWNER, OR ANY SUBCONTRACTOR ASSOCIATED WITH THE PROJECT. COMMISSIONING PLAN, FUNCTIONAL TEST PLAN, AND OTHER COMMISSIONING DOCUMENTATION AND EXECUTION SERVICES SHALL BE PROVIDED TO THE SATISFACTION OF THE BUILDING OFFICIAL. PROVIDE COPIES OF ALL COMMISSIONING DOCUMENTATION TO ENGINEER FOR REVIEW PRIOR TO COMMISSIONING ACTIVITIES.
13 CHILLED WATER AND STEAM/CONDENSATE SERVICE SHALL BE PROVIDED TO THIS BUILDING FROM THE EXISTING CAMPUS CENTRAL PLANT. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CONNECTION REQUIREMENTS AT CENTRAL PLANT EQUIPMENT AND FOR INSTALLATION REQUIREMENTS FOR PIPING AND ACCESSORIES BETWEEN BUILDINGS. CHILLED WATER SERVICE: MIN 2.5", 60 GPM. CHILLED WATER SERVICE PRESSURE TO BUILDING MAY VARY, AS PUMPING SYSTEM IN BUILDING IS HYDRAULICALLY SEPARATED. SEE DIAGRAM ON M504. STEAM SERVICE: MIN 4", 30 PSIG, 2,783 LBS/HR, 227 DEG F SATURATION TEMP. CONDENSATE SERVICE: 2" MIN, 12 GPM, GRAVITY RETURN TO CENTRAL PLANT.

HVAC GENERAL NOTES

1. ALL DUCT SHALL HAVE A MINIMUM OF 1-1/2" EXTERNAL DUCT WRAP INSULATION COMPLYING WITH LOCAL ENERGY CODE UNLESS NOTED OTHERWISE. UNLESS OTHERWISE NOTED, RECTANGULAR DUCTWORK SHALL HAVE MINIMUM 1" THICK ACOUSTIC LINER. DUCT WRAP INSULATION MAY BE OMITTED IF DUCT LINER PROVIDES MINIMUM INSULATION VALUES REQUIRED BY ENERGY CODE. ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE NET INSIDE DIMENSIONS UNLESS NOTED OTHERWISE.
2. ALL JOINTS AND SEAMS ON SUPPLY, RETURN, AND EXHAUST AIR DUCTS SHALL BE SEALED PER LOCAL ENERGY CODE WITH DUCT SEALING COMPOUND.
3. PROVIDE AND INSTALL TURNING VANES IN ALL RECTANGULAR 90° ELBOWS AND TEES.
4. INSULATED FLEXIBLE DUCT MAY BE USED FOR FINAL CONNECTIONS TO CEILING DIFFUSERS AND GRILLES. FLEXIBLE DUCT RUNS SHALL BE NO LONGER THAN 6'-0" IN LENGTH. ENSURE THAT THE INSIDE RADIUS OF ALL BENDS IS EQUAL TO OR GREATER THAN 1.5 TIMES THE DUCT DIAMETER. ATTACH ALL FLEXIBLE DUCT TO RIGID DUCT OR AIR TERMINAL DEVICE USING MIN 2 SCREWS TO SECURE WIRE AND MECHANICAL BAND (PANDUIT STRAP) TO SECURE INSIDE HOUSING. DUCT TAPE MAY BE USED TO SEAL OUTER JACKETING FOR FINISH.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE INSTALLATION OF THE DUCTWORK TO ALLOW ADEQUATE CLEARANCE OF THE LIGHTING FIXTURES AND TO AVOID STRUCTURAL MEMBERS OR OTHER CEILING EQUIPMENT. THE CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES TO AVOID CONFLICTS IN THE CEILING SPACE.
6. INSTALL THERMOSTATS AT HEIGHTS INDICATED ON ELECTRICAL PLANS. INSTALL AT SAME HEIGHT AS LIGHT SWITCHES IF NOT INDICATED.
7. FIRE AND SMOKE DAMPERS SHALL BE INSTALLED PER NFPA AND ALL LOCAL CODES. PROVIDE HINGED ACCESS PANELS FOR ALL SMOKE/FIRE DAMPERS. COORDINATE LOCATION FOR FUTURE ACCESSIBILITY.
8. ALL DUCTS SHALL BE CONSTRUCTED PER SMACNA DUCT CONSTRUCTION STANDARD METAL AND FLEXIBLE 2" WC MINIMUM PRESSURE CLASS UNLESS NOTED OTHERWISE.
9. KEEP ALL DUCTS TIGHT TO BOTTOM OF STRUCTURE UNLESS NOTED OTHERWISE. WHERE CROSSOVERS OCCUR, DUCT RUNNING PARALLEL WITH JOISTS MAY BE INSTALLED ABOVE OTHER, IN JOIST SPACE. CEILING HEIGHTS DETERMINED BY ARCHITECT SHALL BE MAINTAINED.
10. CONTRACTOR SHALL ENSURE MECHANICAL SYSTEMS PERFORM AS DESCRIBED IN THE SEQUENCE OF OPERATION. SEE M701 AND M702.
11. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR LOCATIONS OF DIFFUSERS, REGISTERS, AND GRILLES.
12. PAINT ALL VISIBLE DUCTWORK THROUGH GRILLES/DIFFUSERS FLAT BLACK.
13. INSTALL TAMPER-RESISTANT REFRIGERANT SERVICE PORT CAPS AT ALL EXTERIOR REFRIGERATION EQUIPMENT THAT IS ACCESSIBLE FROM THE GROUND AND NOT WITHIN A SECURE ENCLOSURE.

DRAWING LIST

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NO	REVISION	DATE	DRWN	CHKD	DSGN	APPD

DIGITAL SIGNATURE
2020.04.09 16:13:27-07'00'

APPROVAL		
DRAWN	MAV	04/09/2020
DESIGN	MAV	04/09/2020
CHECKED	DLA	04/09/2020
APPROVED	DLA	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

GENERAL NOTES AND LEGENDS

DWG. NO. M001

SCALE: 1/8" = 1'-0"

ISSUE DATE: 04/09/2020

JOB NO. 8514 REV. 0

2019 OREGON ZERO ENERGY READY COMMERCIAL CODE (BASED ON ASHRAE 90.1-2016) REQUIREMENTS:

NOTE: THE FOLLOWING ITEMS ARE GENERAL REQUIREMENTS ONLY. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE PROVISIONS OF THE STATE ENERGY CODE REGARDLESS OF WHETHER OR NOT THE REQUIREMENTS ARE LISTED BELOW, OR IN THE DRAWINGS OR SPECIFICATIONS. THE NOTES LISTED BELOW GENERALLY ASSUME THAT THE PROJECT IS USING THE PRESCRIPTIVE COMPLIANCE PATH. FOR PROJECTS USING THE ALTERNATIVE COMPLIANCE PATH, CONSULT WITH ENGINEER FOR APPLICABLE CODE REQUIREMENTS.

VENTILATION DESIGN COMPLIANCE INFO (SECTION 6.5.3.7):

AHU-1A/1B TRACK AREA: INCLUDES ENERGY RECOVERY, COMPLIES VIA OPTION C.
AHU-2 INDOOR CLIMBING AREA: REQUIRED 595 CFM, PROVIDED 595 CFM. 100% COMPLIES VIA OPTION A.
AHU-3 OBSERVATION MEZZANINE: REQUIRED 456 CFM, PROVIDED 460 CFM. 100% COMPLIES VIA OPTION A.
AHU-4 OUTDOOR PROGRAM AREA: REQUIRED 163 CFM, PROVIDED 165 CFM. 100% COMPLIES VIA OPTION A.
AHU-5 LOCKER AND RESTROOMS: 100% OUTDOOR AIR SYSTEM, INCLUDES ENERGY RECOVERY, COMPLIES VIA OPTION C.
FC-6A/6B CLASSROOMS: INCLUDES ENERGY RECOVERY, COMPLIES VIA OPTION C.
FC-7 CLASSROOMS: INCLUDES ENERGY RECOVER, COMPLIES VIA OPTION C.

MANDATORY PROVISIONS (SECTION 6.4 AND 7.4):

1. ALL INSTALLED HVAC EQUIPMENT SHALL MEET THE MINIMUM EFFICIENCY REQUIREMENTS IN THE APPLICABLE TABLES REFERENCED BY SECTION 6.4.1.
2. THERMOSTATS AND ROOM TEMPERATURE SENSORS WHICH CONTROL BOTH HEATING AND COOLING EQUIPMENT SHALL HAVE A MINIMUM 5 DEGREE DEADBAND PER SECTION 6.4.3.1.2.
3. WHERE HEATING AND COOLING ARE CONTROLLED BY SEPARATE ZONE THERMOSTATIC CONTROLS, MECHANICAL OR ELECTRONIC INTERLOCKS SHALL BE INCLUDED WHICH PREVENT THE HEATING AND SETPOINTS FROM OVERLAPPING, PER SECTION 6.4.3.2.
4. OFF-HOUR CONTROLS SHALL BE PROVIDED PER SECTION 6.4.3.3.
5. THERMOSTATS OR CENTRAL CONTROLS SHALL HAVE ONE OF THE FOLLOWING, PER SECTION 6.4.3.3.1:
   - 5.1. AUTOMATIC SET BACK CONTROLS AND HAVE A MINIMUM SEVEN DAY CLOCK CAPABLE OF BEING SET FOR SEVEN DIFFERENT DAYS OF THE WEEK. SET BACK CONTROLS SHALL RESET HEATING TEMPERATURE BY AT LEAST 10°F AND COOLING TEMPERATURE BY AT LEAST 5°F.
   - 5.2. AN OCCUPANT SENSOR THAT IS CAPABLE OF SHUTTING THE SYSTEM OFF WHEN NO OCCUPANT IS SENSED FOR UP TO 30 MINUTES.
   - 5.3. A MANUAL TIMER CAPABLE OF OPERATING THE SYSTEM FOR UP TO 2 HOURS.
   - 5.4. INTERLOCK TO A SECURITY SYSTEM THAT SHUTS DOWN THE SYSTEM WHEN THE SECURITY SYSTEM IS ACTIVATED.
6. CONTROLS COMPLYING WITH ABOVE SHALL BE PROVIDED FOR FANS WITH MOTORS GREATER THAN 3/4 HP UNLESS INTENDED TO OPERATE CONTINUOUSLY, PER SECTION 6.4.3.4.4.
7. ALL HVAC SYSTEMS SHALL BE EQUIPPED WITH OPTIMUM START CONTROLS PER SECTION 6.4.3.3.3. AN OUTDOOR AIR TEMPERATURE SENSOR SHALL BE PROVIDED AS PART OF THE OPTIMUM START ALGORITHM.
8. OUTSIDE AIR INTAKES, EXHAUST, AND RELIEF OUTLETS SHALL BE EQUIPPED WITH MOTORIZED DAMPERS WHICH CLOSE AUTOMATICALLY WHEN THE SYSTEM IS OFF, DURING MORNING WARMUP OR COOLDOWN, OR UPON POWER FAILURE, PER SECTION 6.4.3.4.2.
   - 8.1. EXCEPTIONS:
     - 8.1.1. GRAVITY OPERATED DAMPERS ARE PERMITTED FOR EXHAUST AND RELIEF IN BUILDINGS LESS THAN 3 STORIES IN HEIGHT IF PROTECTED FROM DIRECT EXPOSURE TO WIND.
     - 8.1.2. GRAVITY OPERATED DAMPERS ARE PERMITTED FOR SYSTEMS WITH A DESIGN OUTDOOR AIR INTAKE OR EXHAUST CAPACITY OF 300 CFM OR LESS.
     - 8.1.3 TYPE I GREASE EXHAUST SYSTEMS DO NOT REQUIRE DAMPERS.
     - 8.1.4. VENTILATION AND EXHAUST SYSTEMS SERVING UNCONDITIONED SPACES DO NOT REQUIRE DAMPERS.
     - 8.1.5. MOTORIZED AND NONMOTORIZED DAMPERS SHALL HAVE A MAXIMUM LEAKAGE RATE WHEN TESTED IN ACCORDANCE WITH AMCA STANDARD 500D AT 1.0 INCH WATER COLUMN PER TABLE 6.4.3.4.3 AND PER SECTION 6.4.3.4.3 AS FOLLOWS (CLIMATE ZONE 5B):
     - 8.1.6. VENTILATION INTAKE: UNLIMITED FOR NONMOTORIZED, 10 CFM PER SQFT FOR MOTORIZED.
     - 8.1.7. EXHAUST OR RELIEF: 20 SQFT FOR NONMOTORIZED IF FEWER THAN 3 STORIES, UNLIMITED FOR NONMOTORIZED 3 STORIES AND GREATER, 10 CFM PER SQFT FOR MOTORIZED.
9. VESTIBULES AND AIR CURTAINS EQUIPPED WITH HEATING SHALL HAVE CONTROLS CONFIGURED TO SHUT OFF HEATING WHEN OUTDOOR AIR TEMPERATURE IS ABOVE 45°F. THERMOSTATS FOR SYSTEMS SERVING VESTIBULES SHALL BE CONTROLLED TO LIMIT HEATING TO MAXIMUM 60°F AND COOLING TO A MINIMUM OF 85°F, PER SECTION 6.4.3.9. EXCEPTION: VESTIBULES CONDITIONED WITH TRANSFER AIR THAT WOULD OTHERWISE BE EXHAUSTED.
10. DIRECT DIGITAL CONTROLS SHALL BE PROVIDED AND PROGRAMMED IN ACCORDANCE WITH SECTION 6.4.3.10.
11. ECONOMIZER FAULT DETECTION AND DIAGNOSTIC CONTROLS SHALL BE PROVIDED PER SECTION 6.4.3.12.
12. DUCTS SHALL BE CONSTRUCTED, SEALED AND TESTED IN ACCORDANCE WITH SECTION 6.4.4.
13. DUCTS SHALL BE INSULATED PER TABLE 6.8.2. VALUES FOR CLIMATE ZONE 5B HEATING/COOLING DUCTS:
   - 13.1. EXTERIOR: R-12
   - 13.2. UNCONDITIONED SPACE: R-6
   - 13.3. INDIRECTLY CONDITIONED SPACES (SUCH AS RETURN PLENUMS WITH EXPOSED ROOF ABOVE): R-1.9 (SUPPLY DUCTS ONLY).
14. HVAC PIPING SHALL BE THERMALLY INSULATED PER TABLES 6.8.3-1 AND 6.8.3-2, PER SECTION 6.4.4.1.3.
15. ALL SERVICE WATER HEATING EQUIPMENT SHALL COMPLY WITH THE MINIMUM EFFICIENCY REQUIREMENTS IN TABLE 7.8, PER SECTION 7.4.2.
16. SERVICE WATER HEATING PIPING SHALL BE INSULATED TO THE LEVELS SHOWN IN TABLE 6.8.3-1.
17. ALL SYSTEMS SHALL INCLUDE CONTROLS WHICH PREVENT SIMULTANEOUS HEATING AND COOLING TO SPACES PER SECTION 6.5.2.
18. SERVICE WATER HEATING SYSTEMS SHALL BE EQUIPPED WITH TEMPERATURE CONTROLS THAT ALLOW FOR STORAGE TEMPERATURE ADJUSTMENT FROM 120°F OR LOWER TO A MAXIMUM TEMPERATURE COMPATIBLE WITH THE INTENDED USE PER SECTION 7.4.4.1. EXCEPTION: WHERE MANUFACTURER'S INSTRUCTIONS REQUIRE A HIGHER TEMPERATURE TO MINIMIZE CONDENSATION AND RESULTING CORROSION.
19. PROVIDE AUTOMATIC SHUTOFF CONTROL OF HOT WATER RECIRCULATION PUMP, PER SECTION 7.4.4.2. CONTROL SHALL CONSIST OF A STANDALONE TIME CLOCK AND RETURN WATER AQUASTAT UNLESS OTHERWISE INDICATED.
20. SERVICE WATER HEATING SYSTEMS SHALL BE PROVIDED WITH A MEANS OF CONTROLLING THE MAXIMUM TEMPERATURE OF WATER DELIVERED TO LAVATORY FAUCETS IN PUBLIC FACILITY RESTROOMS TO 110°F, PER SECTION 7.4.4.3.
21. HEAT TRAPS SHALL BE PROVIDED ON WATER HEATERS AND STORAGE TANKS NOT HAVING INTEGRAL HEAT TRAPS ON THE INLET AND OUTLET AS CLOSE TO PRACTICAL TO THE TANK, PER SECTION 7.4.6.

PRESCRIPTIVE PATH PROVISIONS (SECTION 6.5 AND 7.5):

1. AIR ECONOMIZERS SHALL BE PROVIDED PER SECTION 6.5.1. EXCEPTIONS (NOT ALL ARE LISTED HERE):
   - 1.1. INDIVIDUAL FAN COOLING UNITS LESS THAN 54,000 BTUH (4.5 NOMINAL TON).
   - 1.2. SYSTEMS EXPECTED TO OPERATE FEWER THAN 20 HOURS PER WEEK
   - 1.3. COMFORT COOLING SYSTEMS WHICH EXCEED THE MINIMUM EFFICIENCY REQUIREMENT BY 59% (CLIMATE ZONE 5B).
2. AIR ECONOMIZERS SHALL BE CAPABLE OF AND CONFIGURED TO MODULATE OUTDOOR AIR AND RETURN AIR DAMPERS TO PROVIDE UP TO 100% OF DESIGN SUPPLY AIR QUANTITY AS OUTDOOR AIR, PER SECTION 6.5.1.1.1.
3. AIR ECONOMIZERS SHALL BE CAPABLE OF INTEGRATED OPERATION (REFRIGERATION SYSTEM MAY OPERATE TO SUPPLEMENT ECONOMIZER OPERATION.) PER SECTION 6.5.1.1.2 AND 6.5.1.3 AND SHALL HAVE CONTROL SIGNAL TYPES PER SECTION 6.5.1.1.3 AS APPROPRIATE TO THE SYSTEM.
4. FAN SYSTEM POWER SHALL COMPLY WITH REQUIREMENTS IN SECTION 6.5.3.1.
5. SUPPLY FANS SHALL HAVE MULTIPLE STAGES PER SECTION 6.5.3.2.1 FOR UNITS INDICATED IN TABLE 6.5.3.2.1.
6. RETURN AND RELIEF FANS SHALL HAVE THE FOLLOWING CONTROLS PER SECTION 6.5.3.2.4. EXCEPTION: FANS LESS THAN 1/2HP OR MINIMUM 4-STAGE RELIEF FANS:
   - 7.1. AIRFLOW CONTROLLED TO MAINTAIN BUILDING PRESSURE EITHER DIRECTLY OR INDIRECTLY THROUGH DIFFERENTIAL SUPPLY-RETURN AIRFLOW TRACKING. SYSTEMS WITH CONSTANT SPEED OR MULTISPEED SUPPLY FANS SHALL ALSO BE ALLOWED TO CONTROL THE RELIEF SYSTEM BASED ON OUTDOOR DAMPER POSITION.
   - 7.2. VARIABLE SPEED CONTROL THAT WILL RESULT IN TOTAL RETURN/RELIEF SYSTEM FAN DEMAND OF NO MORE THAN 30% DESIGN POWER AT 50% DESIGN FLOW.
7. FAN MOTORS WHICH ARE 1/12 HP OR GREATER AND LESS THAN 1 HP SHALL BE ELECTRONICALLY COMMUTATED MOTORS OR SHALL HAVE A MINIMUM EFFICIENCY OF 70% WHEN RATED IN ACCORDANCE WITH DOE 10 CFR 431. THESE MOTORS SHALL ALSO HAVE MEANS TO ADJUST MOTOR SPEED FOR EITHER BALANCING OR REMOTE CONTROL. BELT-DRIVE FANS MAY USE SHEAVE ADJUSTMENTS, PER SECTION 6.5.3.6 EXCEPTIONS:
   - 8.1. FANS INCLUDED AS PART OF PACKAGED EQUIPMENT WHERE THE EFFICIENCY RATING INCLUDES THE FAN.
   - 8.2. MOTORS IN THE AIRSTREAM WITHIN FAN COILS AND TERMINAL UNITS THAT OPERATE ONLY WHEN PROVIDING HEATING.
8. VENTILATION SYSTEM SHALL BE DESIGNED IN ACCORDANCE WITH ASHRAE STANDARD 62.1, STANDARD 170, OR APPLICABLE CODES OR ACCREDITATION STANDARDS, AND SHALL COMPLY WITH ONE OF THE FOLLOWING PER SECTION 6.5.3.7.
   - 8.1. DESIGN MINIMUM OUTDOOR AIR SHALL NOT EXCEED 135% OF THE REQUIRED MINIMUM OUTDOOR AIR RATE.
   - 8.2. DAMPERS, DUCTWORK, AND CONTROLS SHALL BE PROVIDED THAT ALLOW THE SYSTEM TO SUPPLY NO MORE THAN THE REQUIRED MINIMUM OUTDOOR AIR RATE WITH A SINGLE SET POINT ADJUSTMENT.
   - 8.3. THE SYSTEM INCLUDES EXHAUST AIR ENERGY RECOVERY COMPLYING WITH SECTION 6.5.6.1.
9. HYDRONIC HEATING AND COOLING SYSTEMS THAT INCLUDE THREE OR MORE CONTROL VALVES DESIGNED TO MODULATE OR STEP OPEN AND CLOSE AS A FUNCTION OF LOAD SHALL BE SERVED BY A VARIABLE FLOW SYSTEM PER SECTION 6.5.4.2.
10. CHILLED AND BOILER ISOLATION VALVES SHALL BE PROVIDED PER SECTION 6.5.4.3 FOR PLANTS WITH MULTIPLE CHILLERS OR BOILERS.
11. HYDRONIC HEATING AND COOLING SYSTEMS EXCEEDING 300,000 BTU/HR SHALL INCLUDE CONTROLS WHICH AUTOMATICALLY RESET THE SUPPLY WATER TEMPERATURE BY REPRESENTATIVE BUILDING LOADS OR OUTDOOR AIR TEMPERATURE, PER SECTION 6.5.4.4.
12. HYDRONIC SYSTEM PIPING SHALL BE DESIGNED SUCH THAT FLOWS DO NOT EXCEED THE REQUIREMENTS IN TABLE 6.5.4.6
13. CHILLED WATER COILS SHALL BE SELECTED TO PROVIDE A MINIMUM 15°F TEMPERATURE DIFFERENTIAL AND A MINIMUM LEAVING TEMPERATURE OF 57°F, PER SECTION 6.5.4.7, UNLESS AN EXCEPTION APPLIES.
14. EXTERIOR DOOR SWITCHES SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 6.5.10. DOOR SWITCHES SHALL BE PROVIDED WITH CONTROLS WHICH RESET HEATING AND COOLING SETPOINTS AS PRESCRIBED IN THE CODE. EXCEPTIONS: AUTOMATIC CLOSING DOORS, ANY SPACE WITHOUT A THERMOSTAT, ALTERATIONS TO EXISTING BUILDINGS, LOADING DOCKS.

SUBMITTALS (SECTION 6.7)

1. SUBMIT RECORD DRAWINGS TO ARCHITECT AND OWNER WITHIN 90 DAYS OF SUBSTANTIAL COMPLETION, PER SECTION 6.7.2.1.
2. SUBMIT OPERATION AND MAINTENANCE MANUALS TO ARCHITECT AND OWNER WITHIN 90 DAYS OF SUBSTANTIAL COMPLETION, PER SECTION 6.7.2.2.
3. SUBMIT AIR AND WATER BALANCING REPORTS FOR ALL ZONES AND EQUIPMENT, PER SECTION 6.7.2.3. SEE SHEET M001 NOTES.
4. SUBMIT SYSTEM COMMISSIONING INFO PER SECTION 6.7.2.4. SEE SHEET M001 NOTES.

OTHER REQUIREMENTS (SECTION 10)

1. ENERGY MONITORING DEVICES SHALL BE INSTALLED PER SECTION 10.4.5 TO MONITOR AND RECORD THE BUILDING USE OF OFFSITE UTILITY CONNECTIONS INCLUDING NATURAL GAS, DISTRICT/CAMPUS STEAM, DISTRICT/CAMPUS CHILLED WATER.

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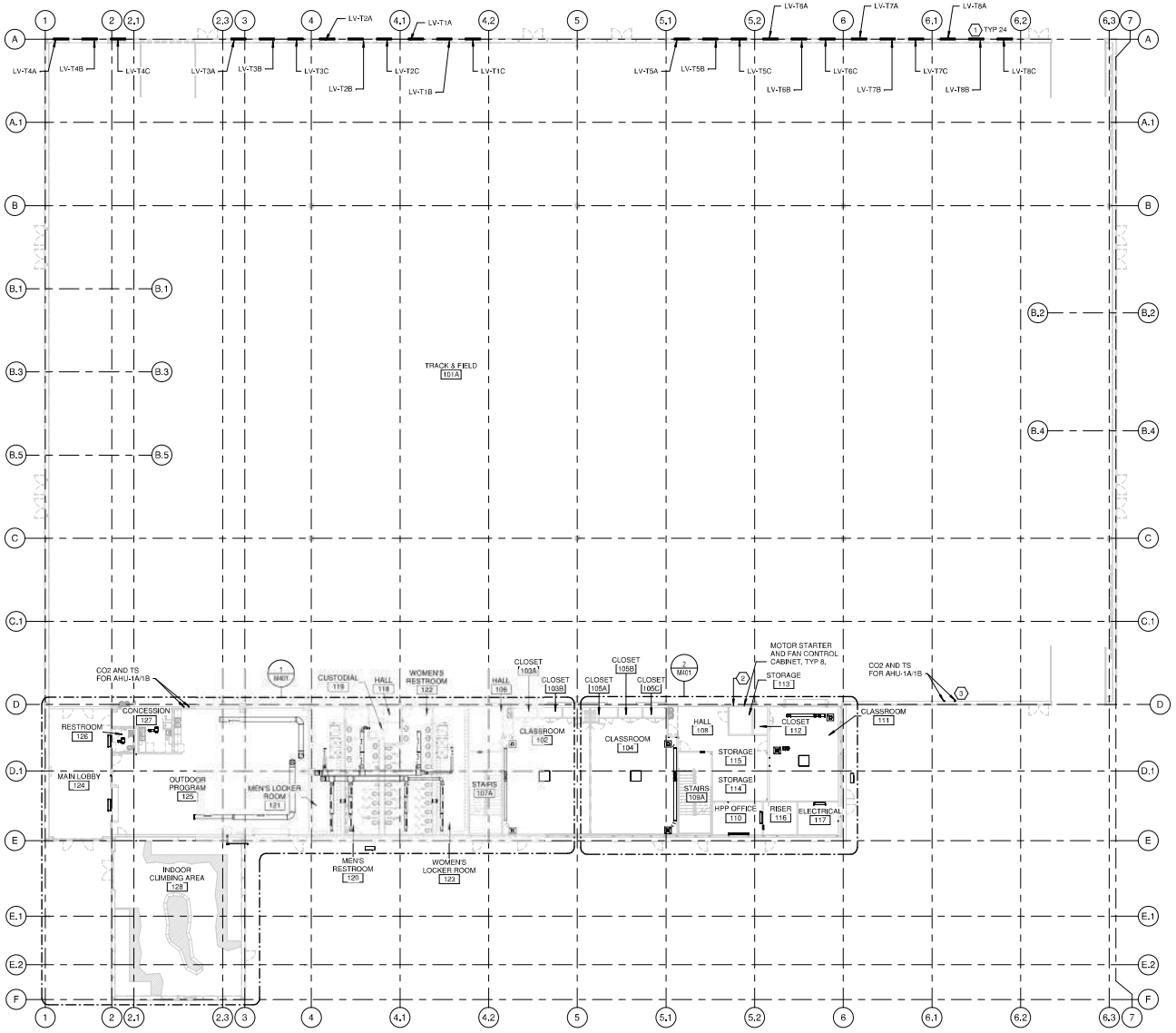
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

ENERGY CODE NOTES

DWG. NO. M002
SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0



LEVEL 1 HVAC PLAN
1/16" = 1'-0"

NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE ARCHITECTURAL ELEVATIONS FOR LOUVER MOUNTING HEIGHTS.

KEYNOTES (#)

1 SEE SHEET 1/M503 FOR CONTROL INTERLOCK WIRING DIAGRAM.
2 TRACK AREA EXHAUST FAN OVERIDE SWITCHES, SEE ELECTRICAL DRAWINGS AND DIAGRAM ON SHEET 1/M503.
3 AVERAGING TEMPERATURE AND CO2 SENSORS, TYP 2 LOCATIONS.

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LEVEL 1 HVAC PLAN

DWG. NO.
M101

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
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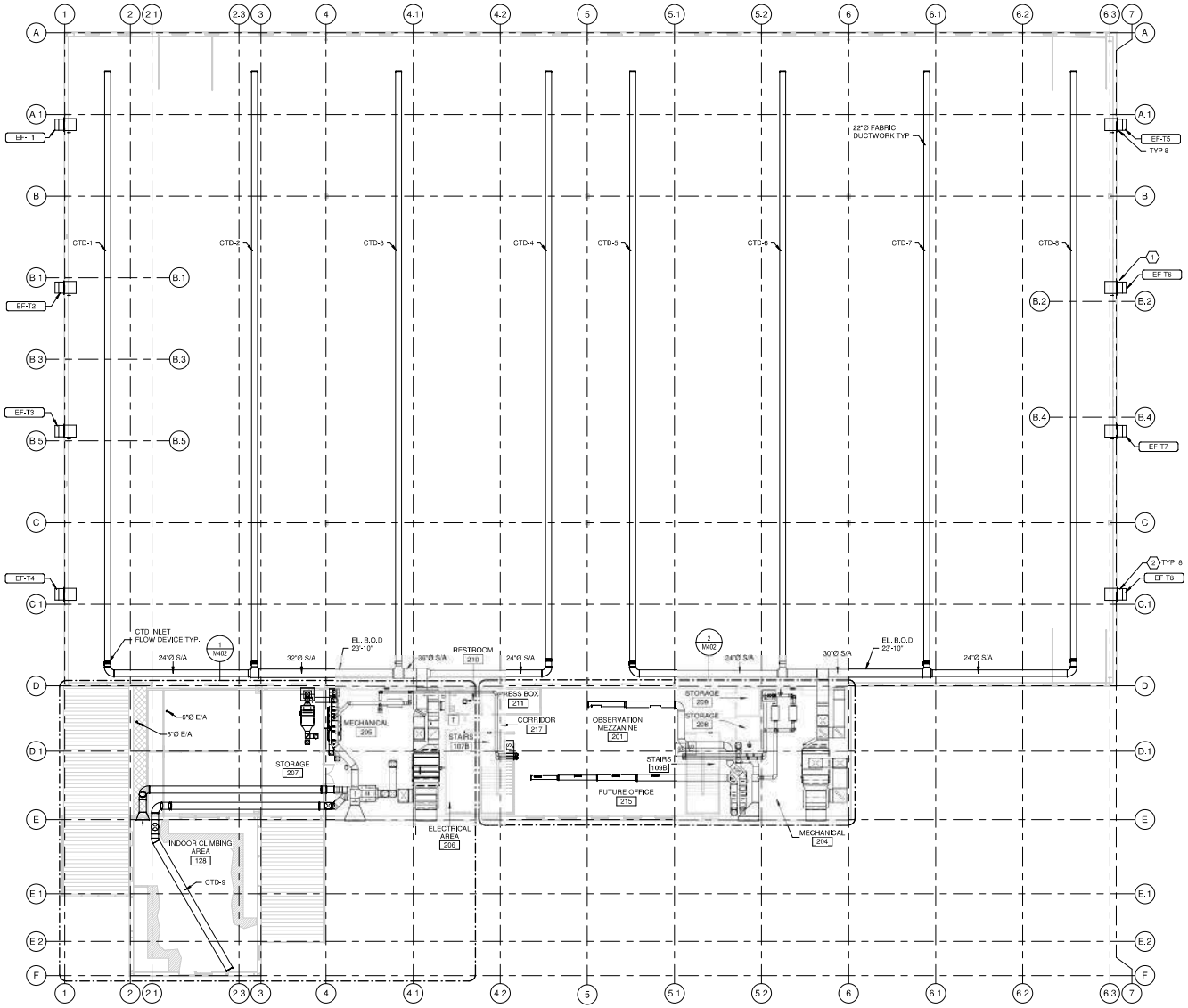

MEZZANINE HVAC PLAN
1/16" = 1'-0"
NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT OF SIDEWALL EXHAUST FANS AND LOUVERS.

KEYNOTES (F)

1 SEE DIAGRAM ON 1/M501 FOR CONTROL INTERLOCK WIRING FOR EXHAUST FANS.
2 SEE 3/M501 FOR SIDEWALL EXHAUST FAN DETAIL.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
MEZZANINE HVAC PLAN

DWG. NO.
M102

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
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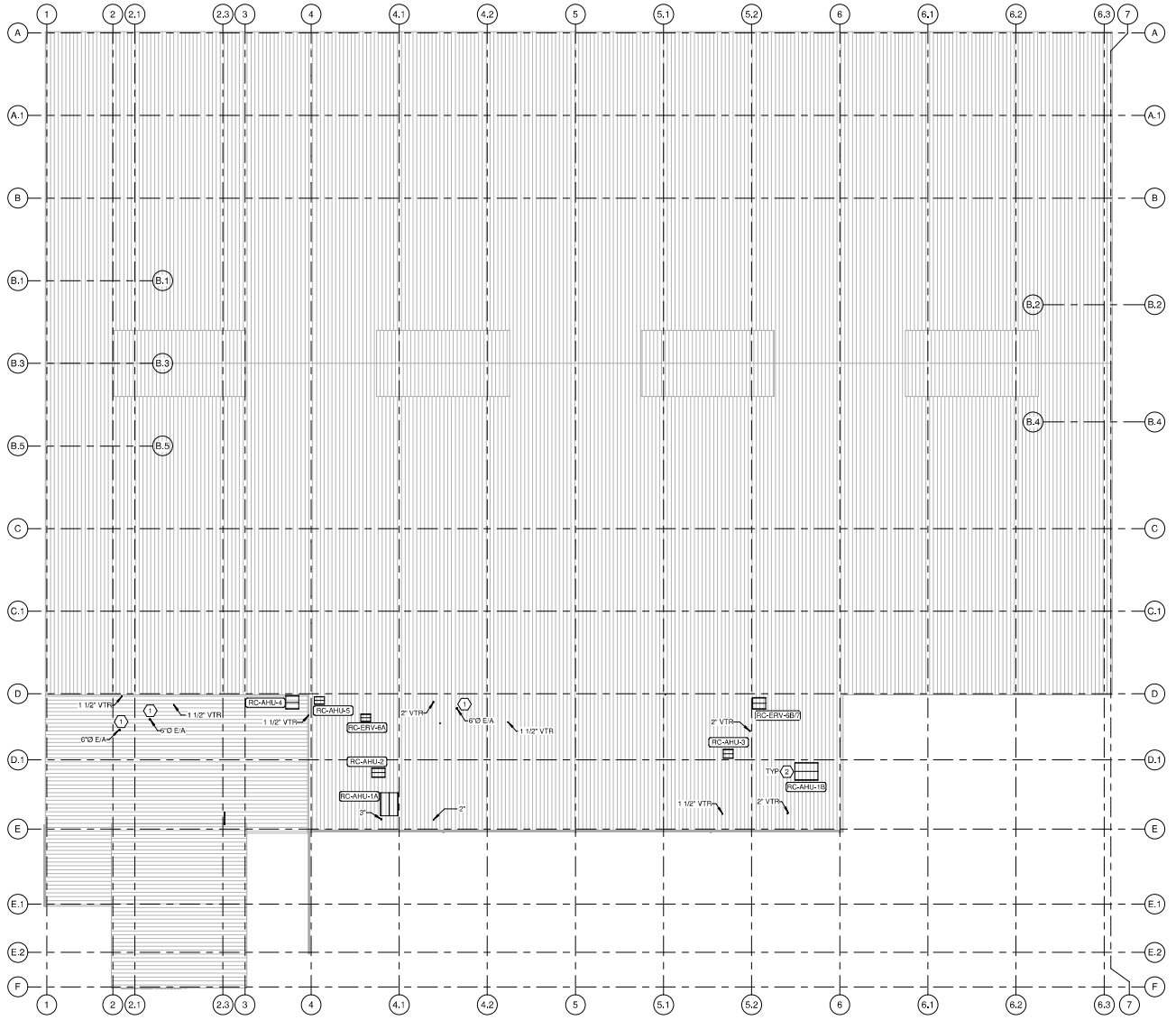

HVAC ROOF PLAN
1/16" = 1'-0"
NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.

KEYNOTES

1 INSTALL ROOF CAP PROVIDED WITH FAN. SEE M601.
2 SEE 2/M501 FOR ROOF COWL DETAIL.

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EASTERN OREGON UNIVERSITY FIELD HOUSE
HVAC ROOF PLAN

DWG. NO.
M103

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
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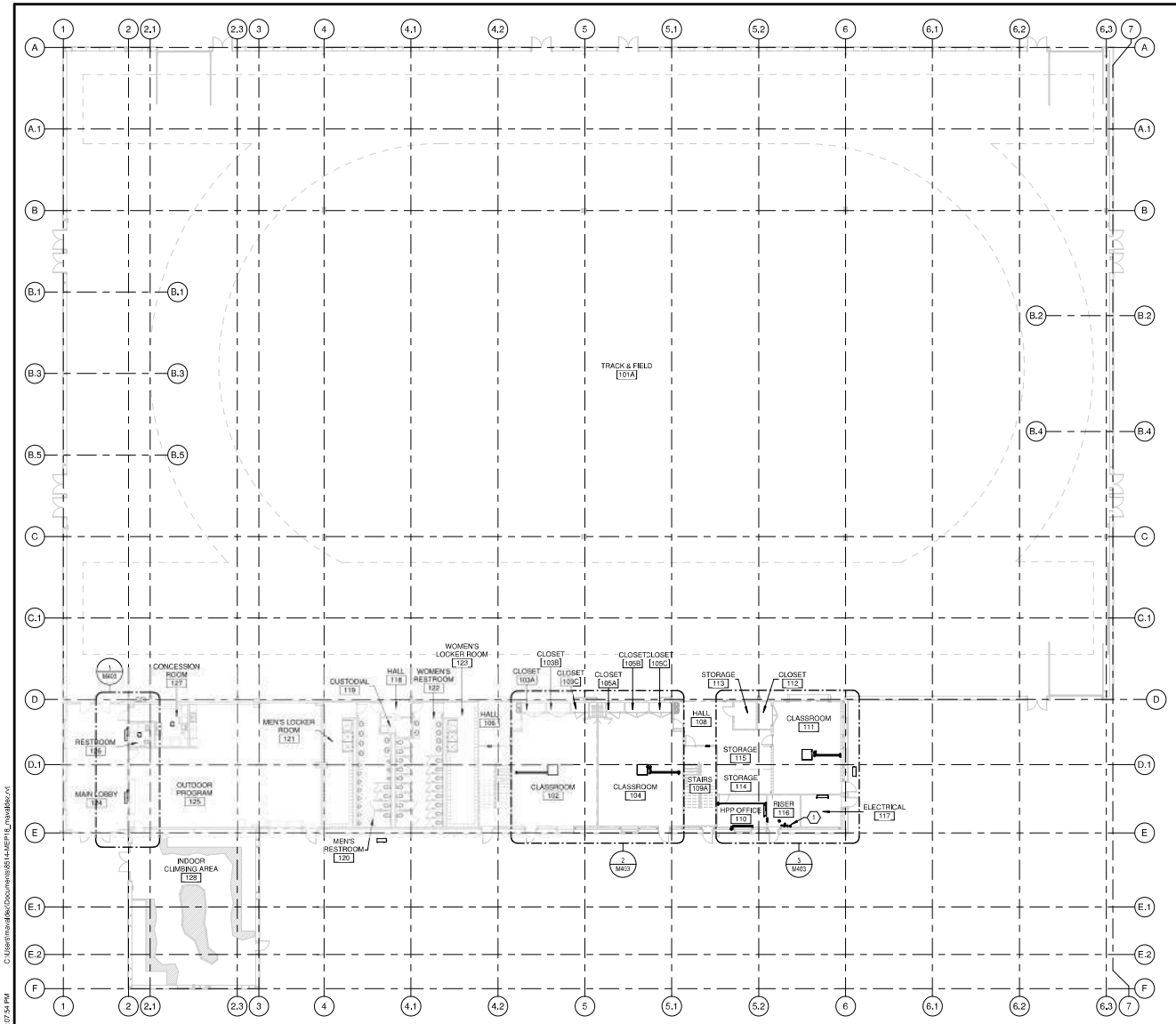

LEVEL 1 HYDRONIC PIPING PLAN
1/16" = 1'-0"

NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE 1/M504 FOR HYDRONIC SYSTEM DIAGRAM.

KEYNOTES (#)

1 2 1/2" CHWS / CHWR AND 4" STM / 2" STC BELOW GRADE. SEE CIVIL FOR CONTINUATION.

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MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

LEVEL 1 HYDRONIC PIPING PLAN

DWG. NO.
M111

SCALE: 1/16" = 1'-0"

ISSUE DATE: 04/09/2020

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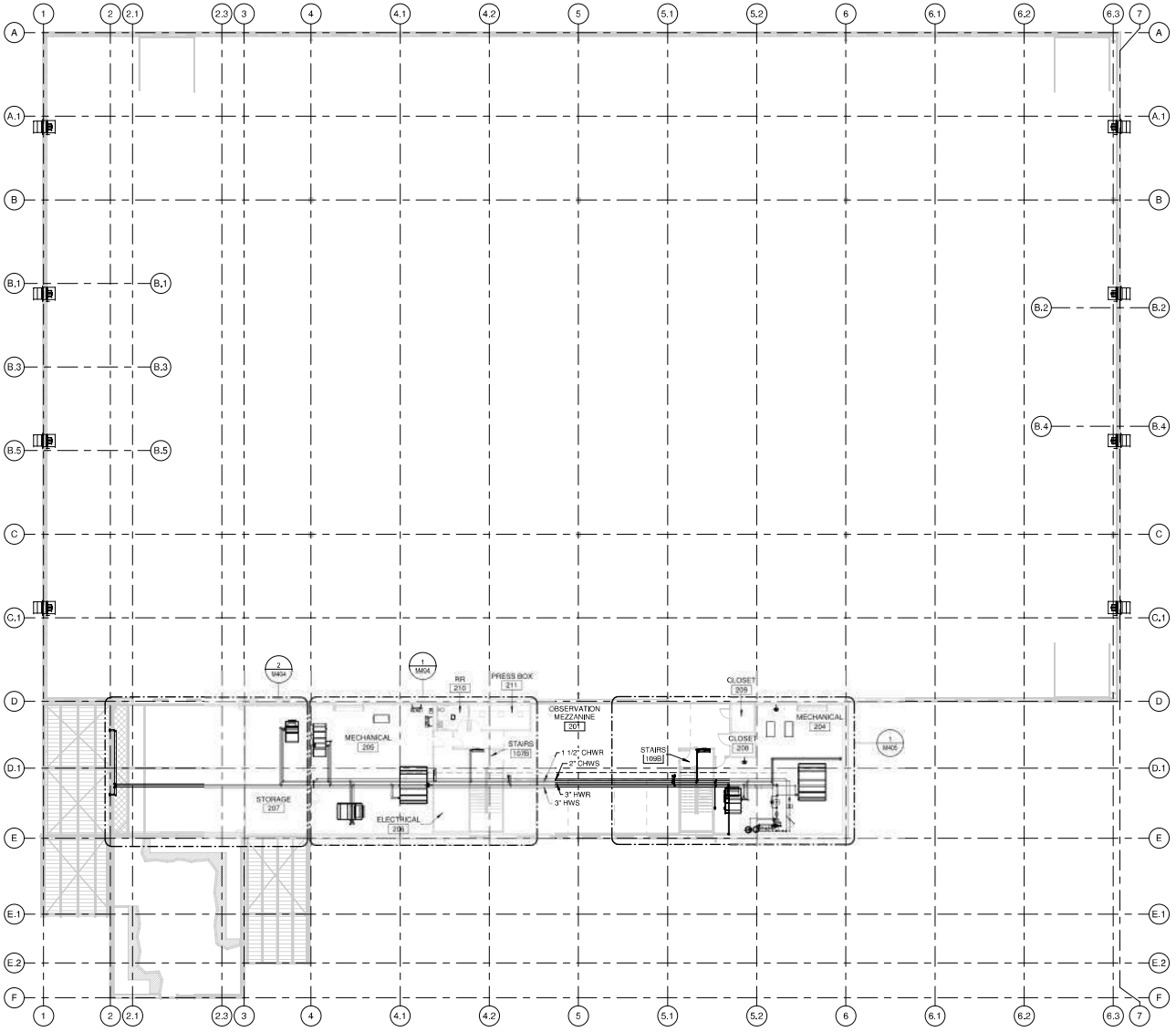

LEVEL 2 HYDRONIC PIPING PLAN
1/16" = 1'-0"

NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE 1/M504 FOR HYDRONIC SYSTEM DIAGRAM.

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LEVEL 2 HYDRONIC PIPING PLAN

DWG. NO.
M112

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
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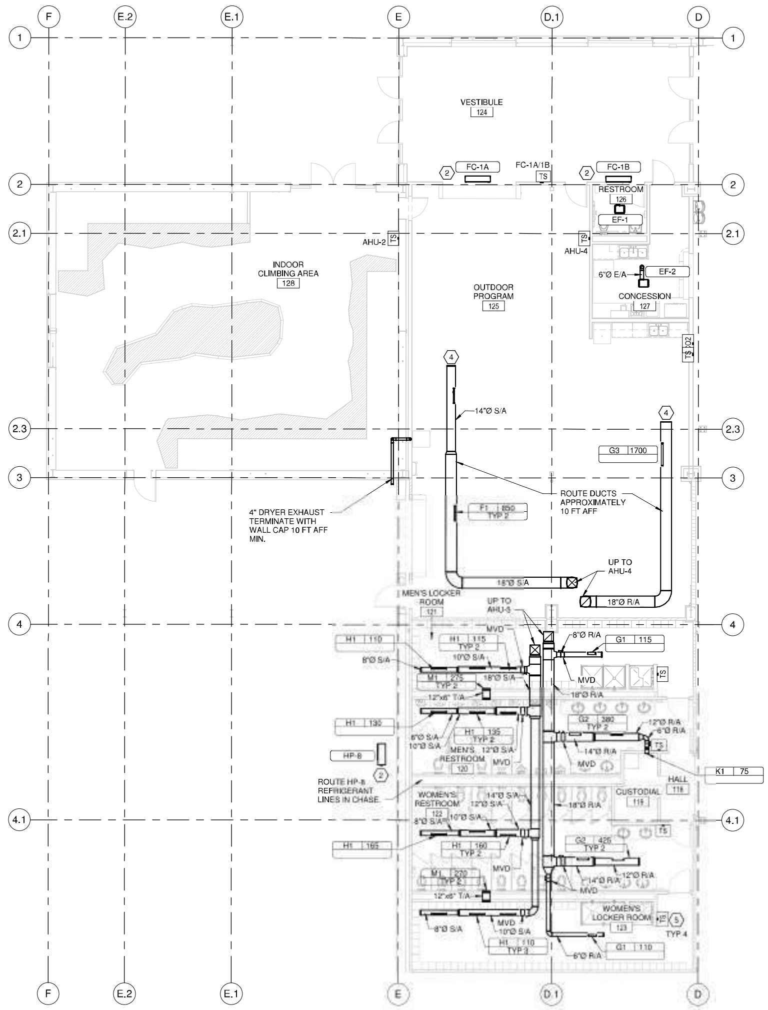
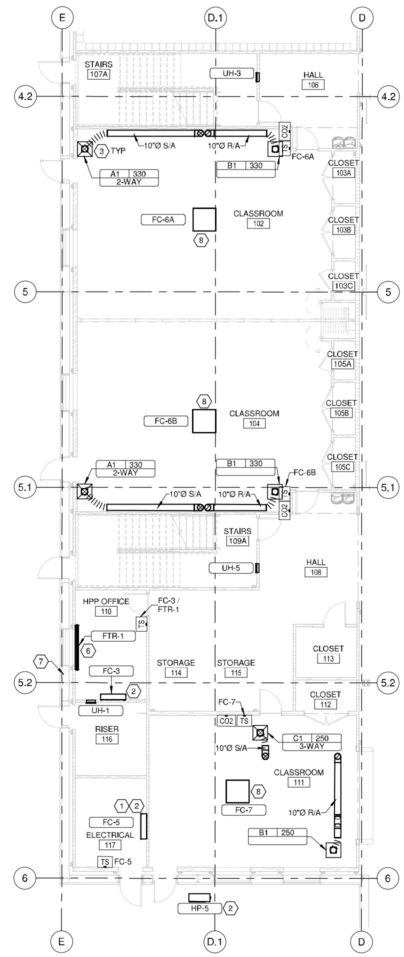


ANNEX NORTH HVAC PLAN
1/8" = 1'-0"
NORTH



ANNEX SOUTH HVAC PLAN
1/8" = 1'-0"
NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. DRYER EXHAUST DUCT SHALL BE ALUMINUM, SMOOTH INTERIOR WITH NO PROTRUSIONS OR OTHER ITEMS WHICH WILL CAUSE LINT BUILD UP. SLOPE TOWARD DISCHARGE POINT. WALL CAP TO HAVE GRAVITY BACKDRAFT DAMPER.

KEYNOTES (#)

1 PROVIDE DRIP TRAY UNDER FAN COIL, FIELD ROUTE DRAIN FROM DRIP TRAY AND CONDENSATE DRAIN TO THE EXTERIOR
2 SEE 4/M501 FOR DUCTLESS FAN COIL DETAIL.
3 SEE 1/M502 FOR DIFFUSER DETAIL.
4 DUCTWORK UNDER DECK LEVEL OF STORAGE MEZZANINE. ROUTE HORIZONTALLY.
5 AVERAGING TEMP SENSORS FOR AHU-5
6 CENTER FTR UNDER WINDOW.
7 OPERABLE WINDOW. SEE ARCHITECTURAL.
8 FIELD ROUTE CONDENSATE DRAIN TO EXTERIOR. TERMINATE 12" AFG, WITH SPLASH BLOCK.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED HVAC PLANS

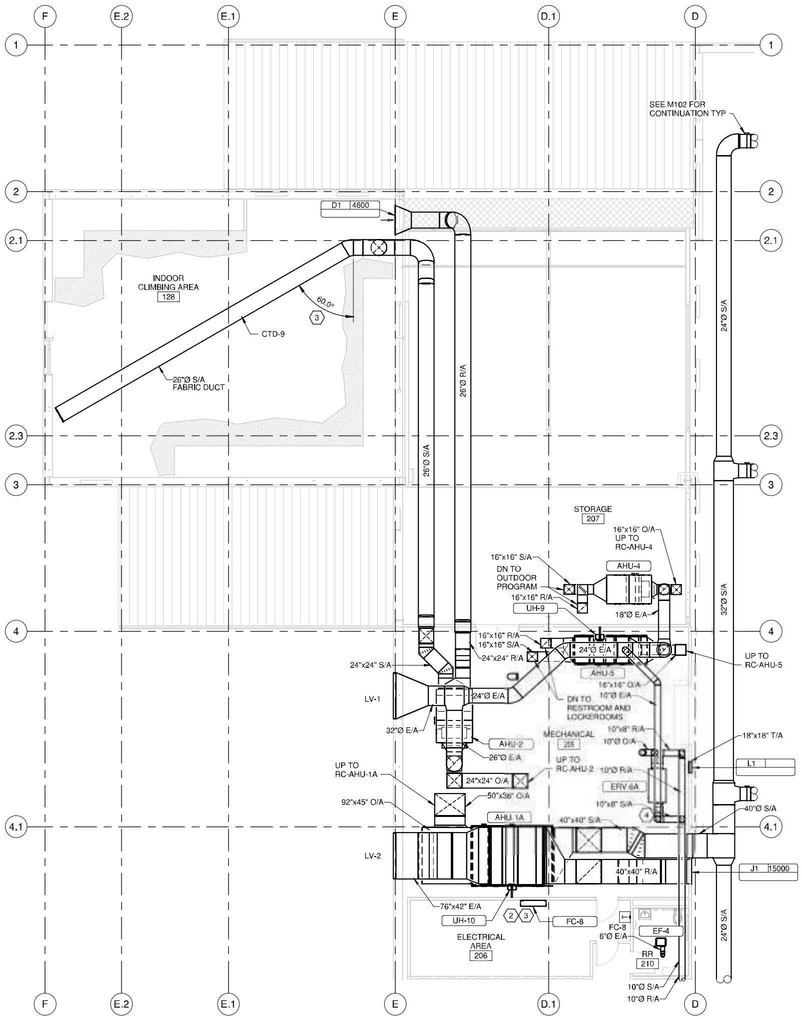
DWG. NO. M401
SCALE: 1/8" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

NOTES

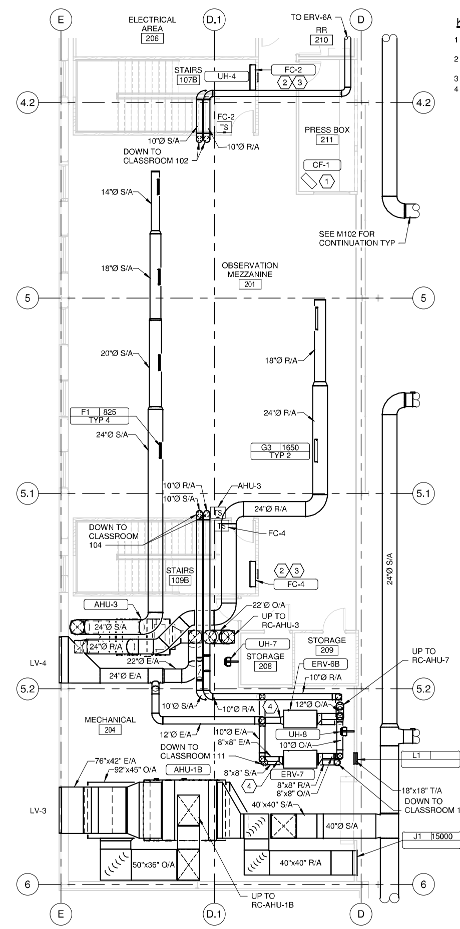
1. SEE M001 FOR GENERAL NOTES AND LEGENDS.

KEYNOTES (#)

1 CONFIRM LOCATION OF CIRCULATION FAN WITH OWNER.
2 SEE 4/M501 FOR DUCTLESS FAN COIL DETAIL.
3 ADJUST ANGLE AS NECESSARY.
4 PROVIDE BACKDRAFT DAMPERS ON ERV EXHAUST AIR DUCTS



(1) MEZZANINE NORTH HVAC PLAN
1/8" = 1'-0"
NORTH



(2) MEZZANINE SOUTH HVAC PLAN
1/8" = 1'-0"
NORTH

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED HVAC PLANS

DWG. NO.
M402

SCALE: 1/8" = 1'-0"
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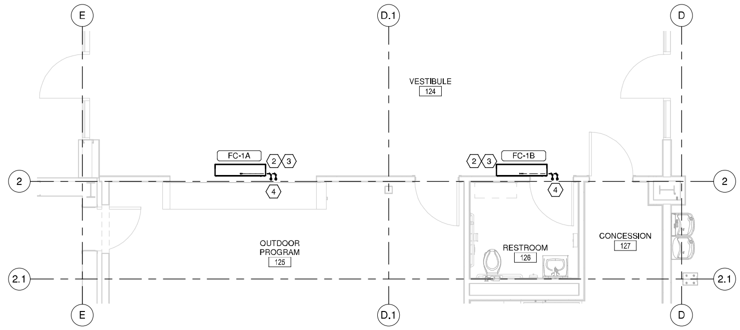
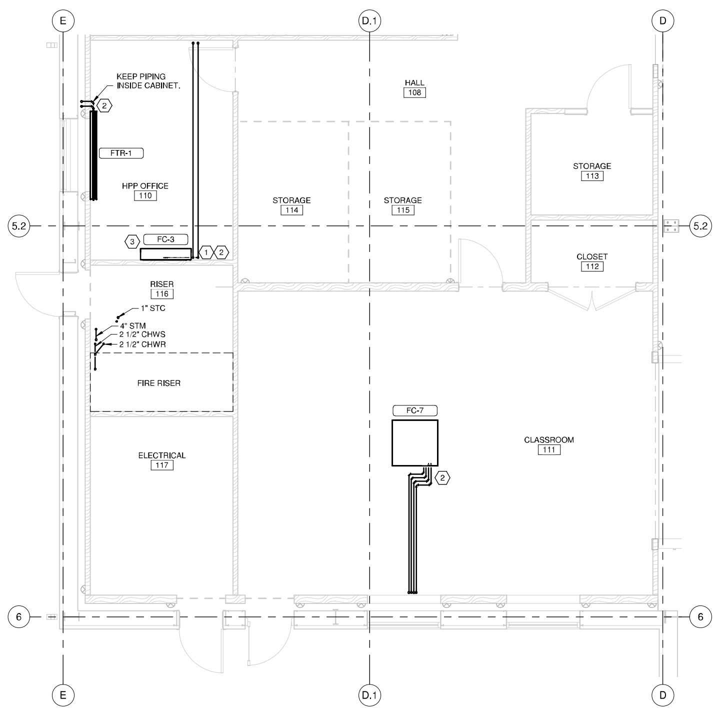


ANNEX NORTH HYDRONIC PIPING PLAN

1/4" = 1'-0"

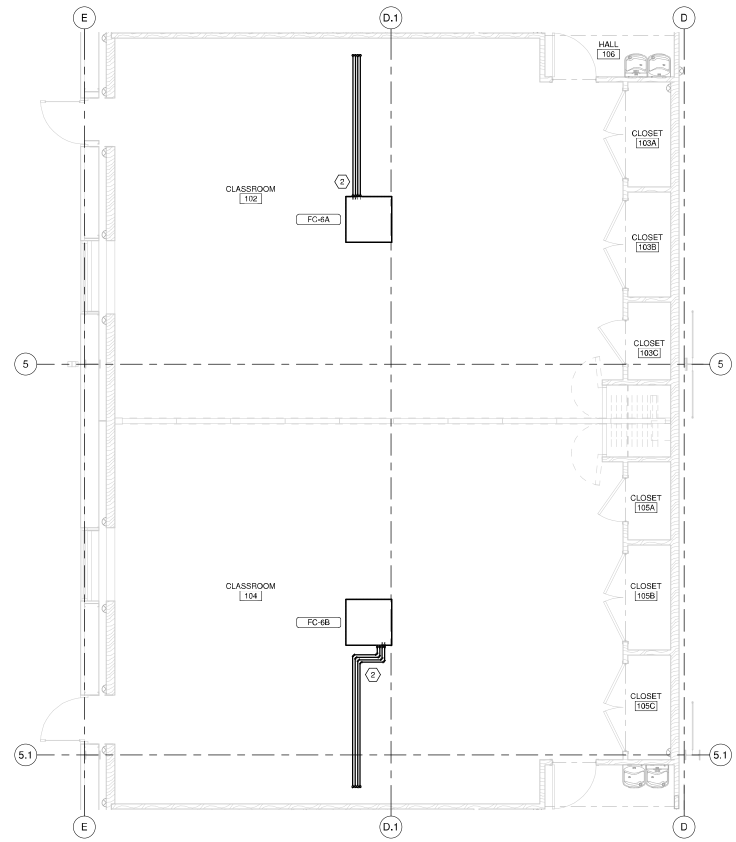
NORTH



ANNEX SOUTH HYDRONIC PIPING PLAN

1/4" = 1'-0"

NORTH



ANNEX SOUTH HYDRONIC PIPING PLAN

1/4" = 1'-0"

NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE 7/M501 AND 8/M501 FOR COIL CONNECTIONS.

KEYNOTES #

1 PROVIDE WALL COVER FOR WALL MOUNTED FAN COIL PIPING.
2 SEE M504 FOR HYDRONIC PIPING DIAGRAM FOR SIZES.
3 SEE 4/M501 FOR DUCTLESS FAN COIL DETAIL.
4 INSTALL CONTROL VALVES IN ACCESSIBLE LOCATION IN OUTDOOR PROGRAM AREA.

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DESIGN	MAV	04/09/2020
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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED HYDRONIC PLANS

DWG. NO.
M403

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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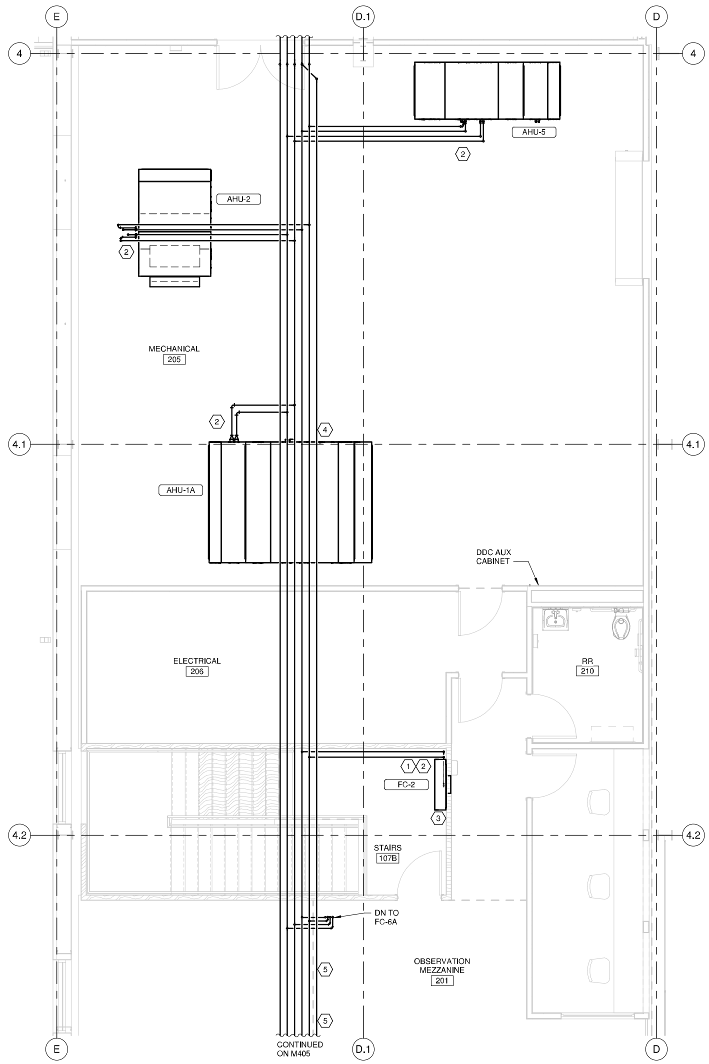
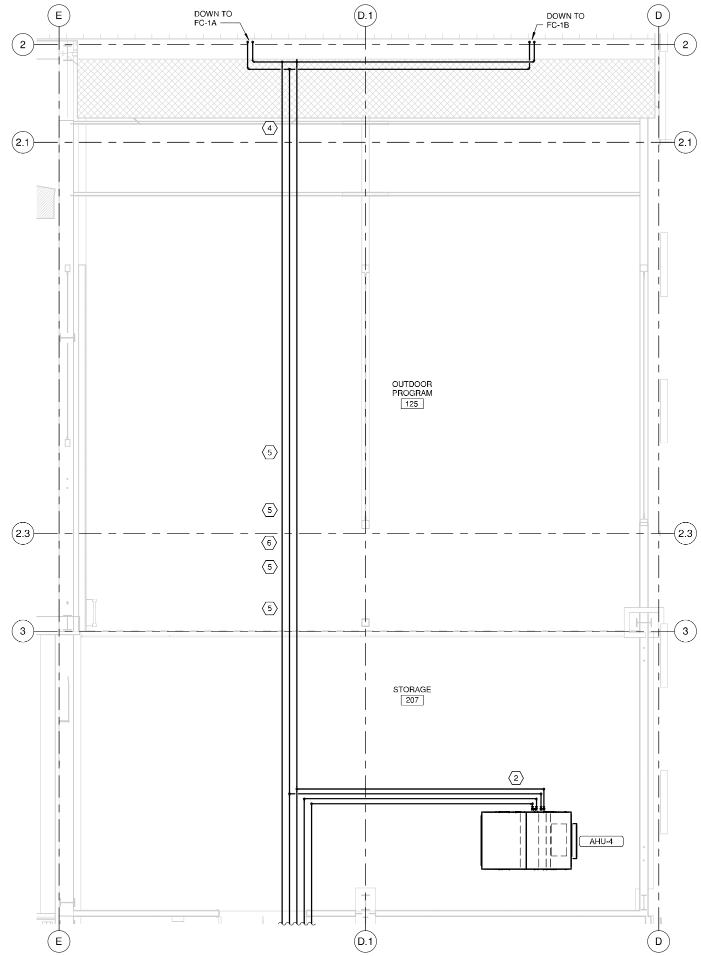


1 MEZZANINE NORTH HYDRONIC PIPING PLAN
1/4" = 1'-0"
NORTH



2 MEZZANINE NORTH HYDRONIC PIPING PLAN
1/4" = 1'-0"
NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE 7/M501 AND 8/M501 FOR COIL CONNECTIONS.

KEYNOTES #

1 PROVIDE WALL COVER FOR WALL MOUNTED FAN COIL PIPING.
2 SEE M504 HYDRONIC PIPING DIAGRAM FOR SIZES.
3 SEE 4/M501 FOR DUCTLESS FAN COIL DETAIL.
4 PIPE ANCHOR, HEATING WATER SYSTEM ONLY.
5 PIPE ALIGNMENT GUIDE, HEATING WATER SYSTEM ONLY. SEE DETAIL 5/P501.
6 BELLOWS STYLE INLINE EXPANSION ANCHOR, HEATING WATER SYSTEM ONLY. MATCH PIPE SIZE MIN 1.5" OF COMPRESSION.

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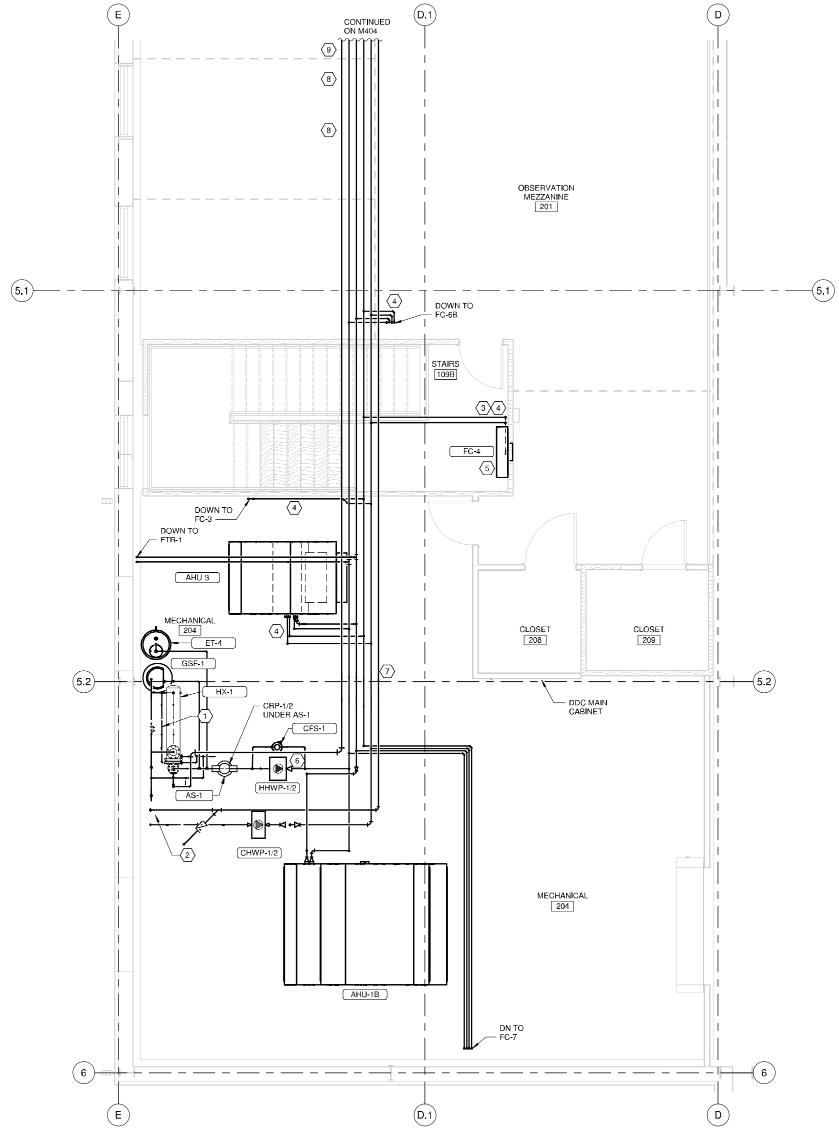

![1] MEZZANINE SOUTH HYDRONIC PIPING PLAN
1/4" = 1'-0"
NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE 7/M501 AND 8/M501 FOR COIL CONNECTIONS.
3. ALL VALVING AND CONTROL DEVICES FOR THE HYDRONIC SYSTEM INDICATED ON M502 AND M504 SHALL BE INSTALLED AT THE MEZZANINE LEVEL.

KEYNOTES

1 SEE DETAIL 1/M504 FOR STEAM HEAT EXCHANGER. ACCESSORIES AND PIPING.
2 COORDINATE STEAM, CONDENSATE, AND CHILLED WATER PIPING PENETRATIONS THROUGH FLOOR WITH STRUCTURAL ENGINEER PRIOR TO INSTALLATION.
3 PROVIDE WALL COVER FOR WALL MOUNTED FAN COIL PIPING.
4 SEE M504 FOR HYDRONIC PIPING DIAGRAM FOR SIZES.
5 SEE 4/M501 FOR DUCTLESS FAN COIL DETAIL.
6 SEE 9/M501 FOR HYDRONIC PUMP DETAIL.
7 PIPE ANCHOR, HEATING WATER SYSTEM ONLY.
8 PIPE ALIGNMENT GUIDE, HEATING WATER SYSTEM ONLY. SEE DETAIL 5/P501.
9 BELLOWS STYLE INLINE EXPANSION ANCHOR, HEATING WATER SYSTEM ONLY. MATCH PIPE SIZE MIN 1.5" OF COMPRESSION.

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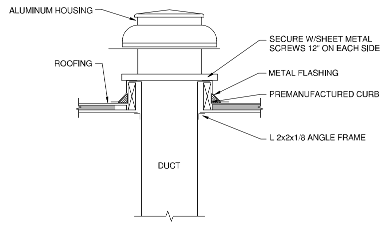
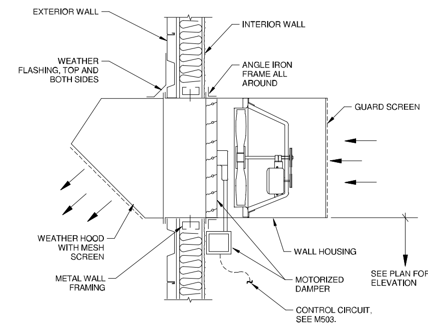
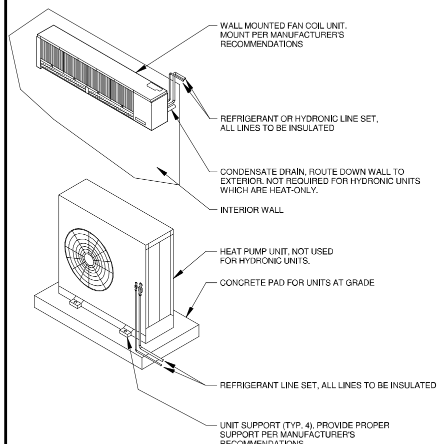
1 NOT USED
SCALE: NONE



2 ROOF COWL
SCALE: NONE

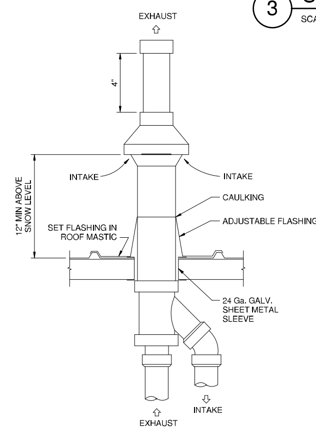


3 SIDEWALL EXHAUST FAN
SCALE: NONE

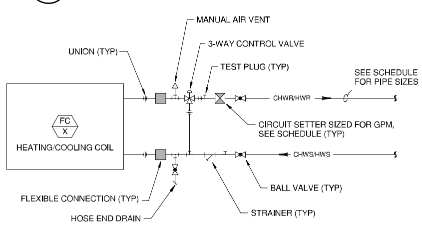


4 DUCTLESS FAN COIL
SCALE: NONE

5 NOT USED
SCALE: NONE

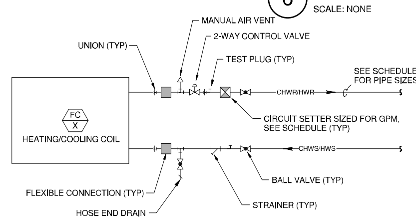


6 CONCENTRIC VENT
SCALE: NONE



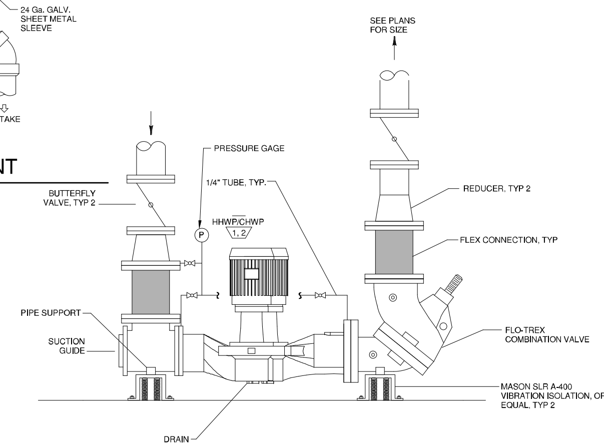
NOTE: VERIFY CONTROL VALVE PIPING ARRANGEMENT WITH CONTROL VALVE/ACTUATOR INSTALLATION INSTRUCTIONS.

7 HYDRONIC COIL PIPING DIAGRAM (3-WAY)
SCALE: NONE



NOTE: VERIFY CONTROL VALVE PIPING ARRANGEMENT WITH CONTROL VALVE/ACTUATOR INSTALLATION INSTRUCTIONS.

8 HYDRONIC COIL PIPING DIAGRAM (2-WAY)
SCALE: NONE



9 HYDRONIC DUAL ARM PUMP DETAIL
SCALE: NONE

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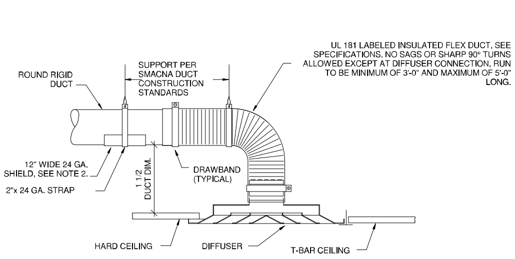
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MECHANICAL DETAILS

DWG. NO.
M501
SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

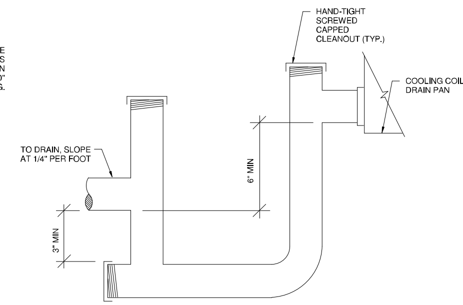


NOTES:

1. PROVIDE SUPPORT ON ALL BRANCH DUCT RUNOUTS. MINIMUM OF TWO SUPPORTS ON BRANCH DUCTS OVER 6'-0 IN LENGTH.
2. 12" WIDE 24 GA. SHIELD NOT REQUIRED ON EXPOSED UNINSULATED DUCT.

1 TYPICAL DIFFUSER CONNECTION

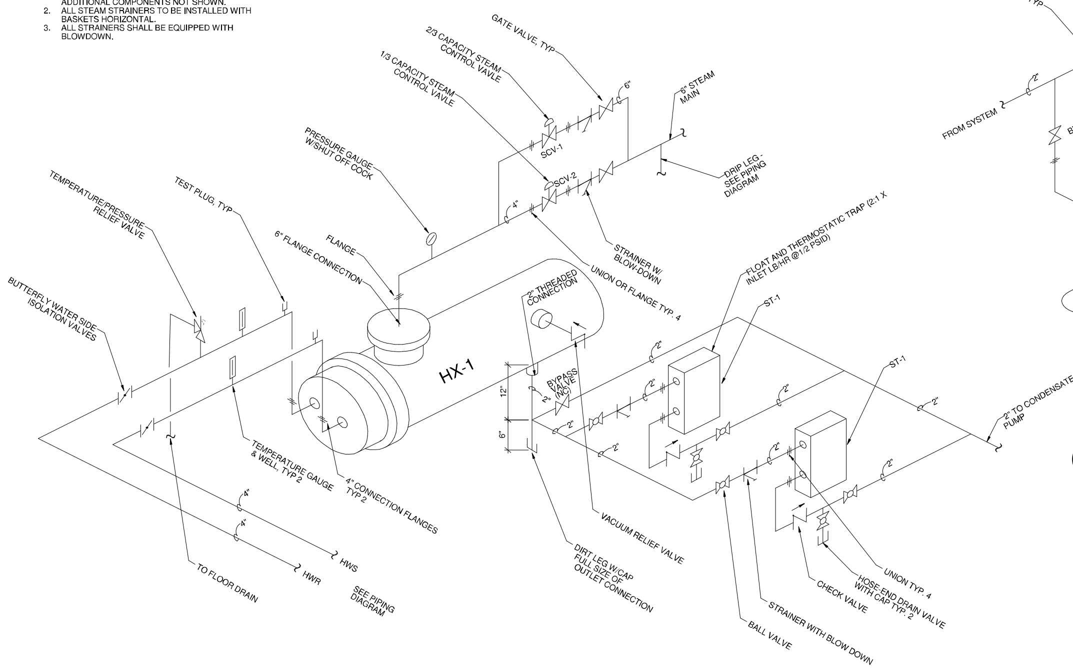
SCALE: NONE



2 TYPICAL CONDENSATE DRAIN TRAP

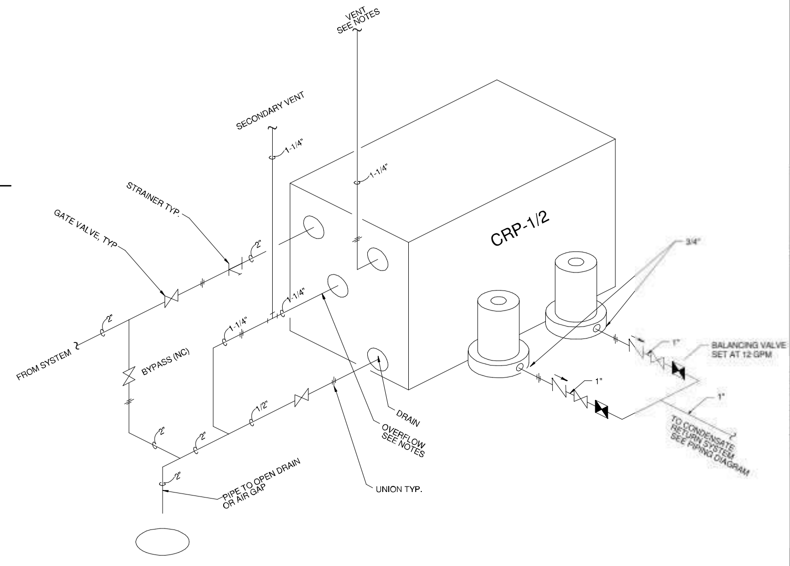
SCALE: NONE

NOTE:
1. REFER TO PIPING DIAGRAM ON M504 FOR ADDITIONAL COMPONENTS NOT SHOWN.
2. ALL STEAM STRAINERS TO BE INSTALLED WITH BASKETS HORIZONTAL.
3. ALL STRAINERS SHALL BE EQUIPPED WITH BLOWDOWN.



3 STEAM TO WATER SHELL & TUBE HEAT EXCHANGER PIPING DIAGRAM

SCALE: NONE



NOTES:
1. INSTALL FULL SIZE VENT AND SECONDARY VENT TO ATMOSPHERE.
2. INSTALL FULL SIZE OVERFLOW TO ROUTE TO MIN 12" ABOVE HIGHEST POINT IN STEAM SYSTEM AND ROUTE TO BLDG. EXTERIOR WITH TURN DOWN.

4 CONDENSATE COLLECTION SYSTEM

SCALE: NONE

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MECHANICAL DETAILS

DWG. NO.
M502
SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
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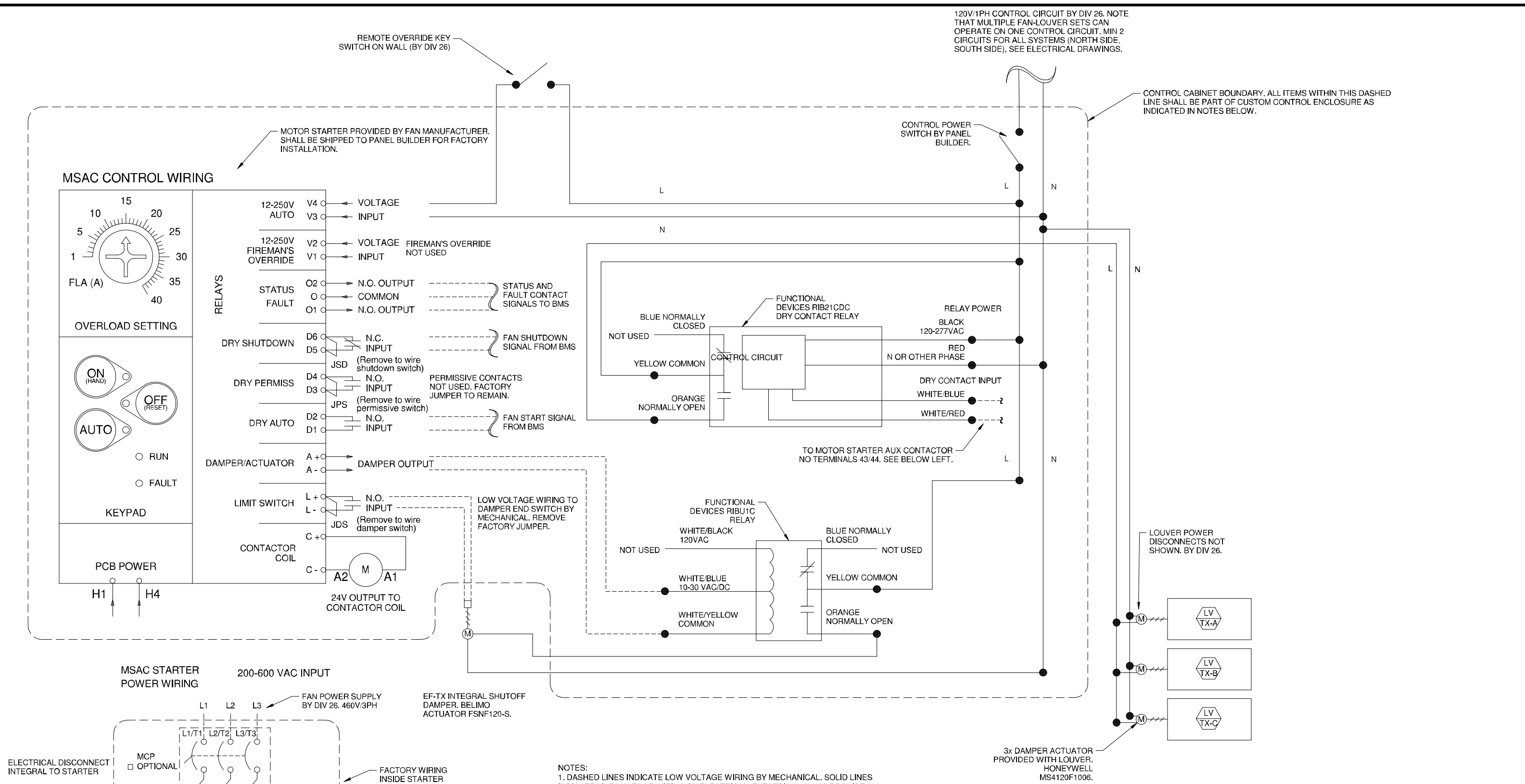

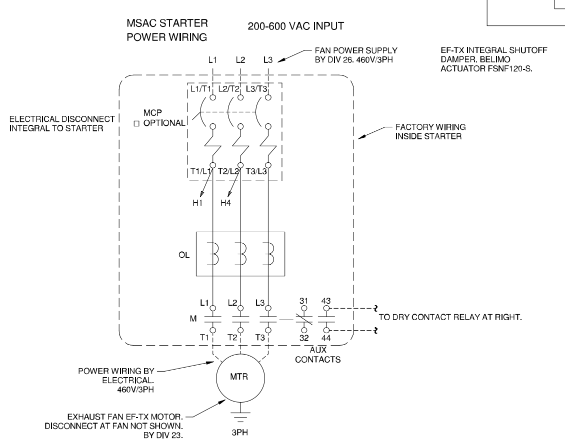

NOTES:
1. DASHED LINES INDICATE LOW VOLTAGE WIRING BY MECHANICAL. SOLID LINES INDICATE LINE VOLTAGE WIRING BY ELECTRICAL. ELECTRICAL SHALL PROVIDE ALL REQUIRED RACEWAY FOR BOTH LOW VOLTAGE AND LINE VOLTAGE WIRING. INSTALLATION SHALL COMPLY WITH LOCAL ELECTRICAL CODE.
2. THIS DETAIL IS ADAPTED FROM GREENHECK MSAC STARTER (EQUIVALENT TO FRANKLIN CONTROLS BAS STARTER) PRODUCT DATA FOR THIS PROJECT. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
3. SET STARTER DIP SWITCHES AS FOLLOWS (VERIFY WITH INSTRUCTIONS):
1 - SMARTSTART DISABLE - OFF (DEFAULT)
2 - OVERLOAD TRIP CLASS - ON (DEFAULT) (CLASS 10)
3 - FAULT RESET - OFF (AUTOMATIC RESET ATTEMPT)
4 AND 5 - ON AND OFF RESPECTIVELY (RETURN TO LAST MODE WITH 10 SECOND DELAY AFTER POWER FAILURE)
4. CONTRACTOR SHALL PROVIDE A CUSTOM CONTROL ENCLOSURE CABINET FOR EACH EXHAUST FAN EF-TX (8 TOTAL) WHICH HOUSES ALL OF THE INDICATED COMPONENTS INCLUDING MOTOR STARTER, RELAYS, ETC. ABOVE. CABINET SHALL BE PRODUCED BY A PANEL BUILDER WITH EXPERIENCE WITH SIMILAR PROJECTS AND REQUIREMENTS. CABINET ENCLOSURE SHALL CARRY A NEMA-1 RATING FOR INDOOR INSTALLATION. UNIT SHALL BE CERTIFIED AS A LISTED ASSEMBLY TO UL508A AND OTHER APPLICABLE STANDARDS, INCLUDING WITH FIELD WIRING CONNECTIONS. PANEL BUILDER SHALL PROVIDE ALL NECESSARY MOUNTING RAILS AND DEVICES, TERMINAL STRIPS AS APPROPRIATE, KEY LOCK CYLINDERS (KEYED ALIKE), CONDUIT KNOCKOUTS. WIRING WHICH ENTERS OR LEAVES THE PANEL SHALL BE TAGGED. WIRING INTERNAL TO THE PANEL IS NOT REQUIRED TO BE TAGGED. PANEL BUILDER SHALL SUBMIT SHOP DRAWINGS OF PANEL LAYOUT INCLUDING ALL COMPONENTS, INTERNAL WIRING, AND OTHER ACCESSORIES FOR APPROVAL PRIOR TO MANUFACTURE. CONTRACTOR SHALL ARRANGE FOR MOTOR STARTERS THAT ARE SHIPPED FROM FAN MANUFACTURER TO BE SHIPPED DIRECTLY TO PANEL BUILDER FOR FACTORY INSTALLATION, OR THE CUSTOM ENCLOSURE SHALL BE CONSTRUCTED TO ALLOW FOR FIELD INSTALLATION OF THE STARTER.
5. SEE SHEET M101 FOR CONTROL CABINET LOCATIONS, SEE ELECTRICAL DRAWINGS FOR CONTROL CIRCUITING AND OVERRIDE SWITCH LOCATION.

LEGEND
- - - - WIRING BY MECHANICAL
——— WIRING BY ELECTRICAL
● SPLICE/CONNECTION POINT

5 TRACK AREA EXHAUST FAN AND LOUVER CONTROL DIAGRAM (TYPICAL 8 PLACES)

SCALE: NONE

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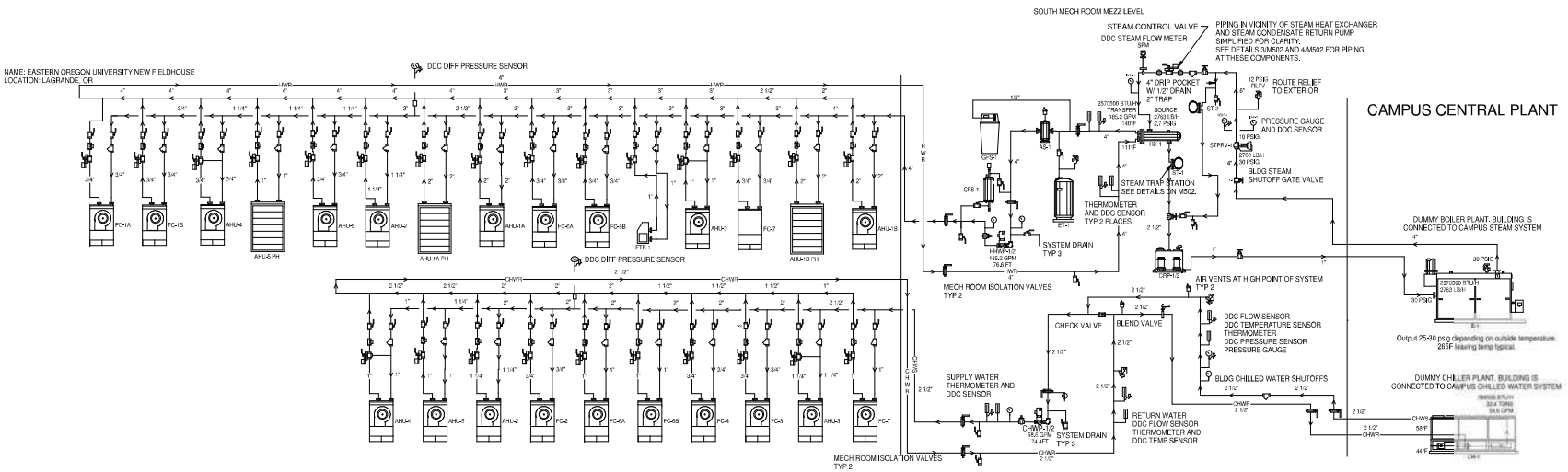
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

EXHAUST FAN AND LOUVER DIAGRAM

DWG. NO.
M503
SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0



1 HYDRONIC PIPING DIAGRAMS
NTS

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
HYDRONIC PIPING DIAGRAM

DWG. NO.
M504

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EXHAUST FAN SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	AIRFLOW (CFM)	EXT SP (IN H20)	FAN RPM	DRIVE	INLET SOUND POWER (dBA/SONES)	UNIT ELECTRICAL				ELECTRICAL DISCONNECT		STRUCTURAL/SEISMIC			ACCESSORIES/REMARKS
										VOLTS	PHASE	MOTOR HP	MOTOR RPM (FULL SPEED)	PROVIDED	TYPE	OPERATIING WEIGHT (LBS)	MOUNTING		
																	LOCATION	SECUREMENTS	
EF-T1 THRU EF-T8	GREENHECK	SBE-2H36-10	WALL MOUNT PROPELLER	FIELDHOUSE EXHAUST	12,500	0.1*	633	BELT	70 dBA	460	3	1	1725	BY MANUFACTURER^	NEMA 1 TOGGLE SWITCH NON-FUSED	417	WALL	SEE STRUCTURAL FOR FRAMING	PROVIDE GREENHECK MSAC COMBINATION MOTOR STARTER WITH DISCONNECT. INTERLOCK WITH MOTOR STARTER AND BUILDING HVAC CONTROL SYSTEM (SEE DIAGRAM ON M503 FOR CONTROLS WIRING). UL-507 OR 705 LISTED. SPARE BELT SET. EXTERIOR FLUSH WALL HOUSING WITH FAN GUARDS AND 45° WEATHERHOOD KIT WITH BIRD SCREEN. INSULATED SHUTOFF DAMPER WITH 115VAC MOTORIZED ACTUATOR WITH END SWITCHES. EXTENDED LUBE LINES. REGREASEABLE BEARINGS. WEATHERHOOD BAKED ENAMEL FINISH. COLOR TO BE SELECTED BY ARCHITECT.
EF-1	GREENHECK	SP-B110	CEILING MOUNT	RESTROOM 126	75	0.5	823	DIRECT	2.0 SONES	277	1	80 WATTS	950	BY MANUFACTURER	PLUG	14	CEILING	MANUFACTURER STANDARD	INTERLOCK WITH ROOM LIGHTS (BY ELECTRICAL). FACTORY MOUNTED AND WIRED INTERNAL SPEED CONTROLLER. UL-507 OR 705 LISTED. PAINTED METAL GRILLE OPTION. PROVIDE WALL CAP, FACTORY PAINTED COLOR TO BE SELECTED BY ARCHITECT. WITH GRAVITY BACKDRAFT DAMPER.
EF-2	GREENHECK	SP-B200	CEILING MOUNT	CONCESSIONS 127	150	0.5	968	DIRECT	3.5 SONES	115	1	172 WATTS	1100	BY MANUFACTURER	PLUG	14	CEILING	MANUFACTURER STANDARD	INTERLOCK WITH ROOM LIGHTS (BY ELECTRICAL). FACTORY MOUNTED AND WIRED INTERNAL SPEED CONTROLLER. UL-507 OR 705 LISTED. PAINTED METAL GRILLE OPTION. PROVIDE WALL CAP, FACTORY PAINTED COLOR TO BE SELECTED BY ARCHITECT. WITH GRAVITY BACKDRAFT DAMPER.
EF-3	-	-	–	-	–	–	-	-	-	-	-	-	-	-	-	-	-	-	NOT USED.
EF-4	GREENHECK	SP-B110	CEILING MOUNT	RESTROOM 210	75	0.5	823	DIRECT	2.0 SONES	277	1	80 WATTS	950	BY MANUFACTURER	PLUG	19	CEILING	MANUFACTURER STANDARD	INTERLOCK WITH ROOM LIGHTS (BY ELECTRICAL). FACTORY MOUNTED AND WIRED INTERNAL SPEED CONTROLLER. UL-507 OR 705 LISTED. PAINTED METAL GRILLE OPTION. PROVIDE 12" ROOF CURB AND ROOF CAP RCC-7, FIELD PAINT, COLOR TO BE SELECTED BY ARCHITECT. WITH GRAVITY BACKDRAFT DAMPER.

*EXTERNAL STATIC PRESSURE LISTED IS EXCLUSIVE OF STATIC PRESSURE CORRECTION CALCULATIONS APPLIED BY MANUFACTURER'S SELECTION PROGRAM FOR INCLUDED ACCESSORIES INCLUDING BACKDRAFT/SHUTOFF DAMPERS, WALL HOUSINGS, ETC. APPROPRIATE ADDITIONAL EXTERNAL STATIC PRESSURE SHALL BE SELECTED FOR FAN MANUFACTURERS WHICH DO NOT AUTOMATICALLY APPLY CORRECTION FACTORS.
^THIS DISCONNECT IS INTEGRAL TO THE FAN. ADDITIONAL DISCONNECT PROVIDED WITH MOTOR STARTER. SEE REMARKS.

LOUVER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	NOMINAL DIMENSIONS		FREE AREA (SQ FT)	AIR PRESSURE DROP (IN WG)	CFM	FREE AREA VELOCITY (FT/MIN)	OPERATOR				ACCESSORIES/REMARKS
				WIDTH (IN)	HEIGHT (IN)					VOLTS	PHASE	FLA	QTY	
LV-T1A THRU LV-T8C (24 TOTAL)	GREENHECK	EACC-601	FIELDHOUSE INTAKE	55*	53*	8.43	0.03	4,166	486	120	1	0.35	1 EA	BIRD SCREEN. HORIZONTAL AND VERTICAL SECURITY BARS. BAKED ENAMEL PAINT FINISH, COLOR TO BE SELECTED BY ARCHITECT. HONEYWELL MS4120F1006 ACTUATOR. INTERLOCK WITH FAN MOTOR STARTER AS SHOWN ON DIAGRAM ON M503. LOCAL DISCONNECT BY ELECTRICAL.
LV-1	GREENHECK	EDK-430	NORTH RELIEF/EXHAUST	77	42	12.15	0.05	7,220	587	-	-	-	-	BIRD SCREEN. BAKED ENAMEL PAINT FINISH, COLOR TO BE SELECTED BY ARCHITECT.
LV-2	GREENHECK	EDK-430	NORTH RELIEF/EXHAUST AHU-1A	77	42	12.15	0.199	15,000	1220	-	-	-	-	BIRD SCREEN. BAKED ENAMEL PAINT FINISH, COLOR TO BE SELECTED BY ARCHITECT.
LV-3	GREENHECK	EDK-430	SOUTH RELIEF/EXHAUST AHU-1B	77	42	12.15	0.199	15,000	1220	-	-	-	-	BIRD SCREEN. BAKED ENAMEL PAINT FINISH, COLOR TO BE SELECTED BY ARCHITECT.
LV-4	GREENHECK	EDK-430	SOUTH RELIEF/EXHAUST	77	42	12.15	0.01	3,300	268	-	-	-	-	BIRD SCREEN. BAKED ENAMEL PAINT FINISH, COLOR TO BE SELECTED BY ARCHITECT.

*DIMENSIONS INDICATED INCLUDE BLANK SPACE AT BOTTOM FOR ACTUATOR COMPARTMENT.

ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	NOMINAL CAPACITY (KW)	AREA SERVED	UNIT ELECTRICAL			ELECTRICAL DISCONNECT		STRUCTURAL/SEISMIC			ACCESSORIES/REMARKS
					VOLTS	PHASE	FLA	PROVIDED	TYPE	OPER WEIGHT (LBS)	MOUNTING		
											LOCATION	SECUREMENTS	
UH-1	QMARK	AWH4307F	1.50	RISER 116	277	1	5.4	BY MANUFACTURER	NON-FUSED	-	WALL SURFACE	MANUF STANDARD WALL BOX	INTEGRAL TAMPER-RESISTANT THERMOSTAT AND DISCONNECT SWITCH. WITH SURFACE WALL BOX.
UH-2	–	–	–	–	–	–	–	–	–	–	–	–	NOT USED.
UH-3	QMARK	AWH4307F	1.50	NORTH STAIR 107	277	1	5.4	BY MANUFACTURER	NON-FUSED	-	WALL SURFACE	MANUF STANDARD WALL BOX	INTEGRAL TAMPER-RESISTANT THERMOSTAT AND DISCONNECT SWITCH. WITH SURFACE WALL BOX.
UH-4	QMARK	AWH4307F	1.50	NORTH STAIR 202	277	1	5.4	BY MANUFACTURER	NON-FUSED	-	WALL SURFACE	MANUF STANDARD WALL BOX	INTEGRAL TAMPER-RESISTANT THERMOSTAT AND DISCONNECT SWITCH. WITH SURFACE WALL BOX.
UH-5	QMARK	AWH4307F	1.50	SOUTH STAIR 109	277	1	5.4	BY MANUFACTURER	NON-FUSED	-	WALL SURFACE	MANUF STANDARD WALL BOX	INTEGRAL TAMPER-RESISTANT THERMOSTAT AND DISCONNECT SWITCH. WITH SURFACE WALL BOX.
UH-6	QMARK	AWH4307F	1.50	SOUTH STAIR 203	277	1	5.4	BY MANUFACTURER	NON-FUSED	-	WALL SURFACE	MANUF STANDARD WALL BOX	INTEGRAL TAMPER-RESISTANT THERMOSTAT AND DISCONNECT SWITCH. WITH SURFACE WALL BOX.
UH-7	QMARK	MUH0571	5.00	NORTH MECHANICAL 205	277	1	11.0	BY ELECTRICAL	-	-	WALL MOUNT	MANUF STANDARD BRACKET	WALL MOUNTING BRACKET. INTEGRAL THERMOSTAT.
UH-8	QMARK	MUH0571	5.00	NORTH MECHANICAL 205	277	1	11.0	BY ELECTRICAL	-	-	WALL MOUNT	MANUF STANDARD BRACKET	WALL MOUNTING BRACKET. INTEGRAL THERMOSTAT.
UH-9	QMARK	MUH0571	5.00	SOUTH MECHANICAL 204	277	1	11.0	BY ELECTRICAL	-	-	WALL MOUNT	MANUF STANDARD BRACKET	WALL MOUNTING BRACKET. INTEGRAL THERMOSTAT.
UH-10	QMARK	MUH0571	5.00	SOUTH MECHANICAL 204	277	1	11.0	BY ELECTRICAL	-	-	WALL MOUNT	MANUF STANDARD BRACKET	WALL MOUNTING BRACKET. INTEGRAL THERMOSTAT.

CIRCULATION FAN SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	AIRFLOW (CFM)	FAN RPM	DRIVE	SOUND POWER (dBA/SONES)	UNIT ELECTRICAL				ELECTRICAL DISCONNECT		STRUCTURAL/SEISMIC			ACCESSORIES/REMARKS
									VOLTS	PHASE	MOTOR HP	MOTOR RPM (FULL SPEED)	PROVIDED	TYPE	OPERATIING WEIGHT (LBS)	MOUNTING		
																LOCATION	SECUREMENTS	
CF-1	AIR KING	9012	WALL MOUNT OSCILLATING	PRESS BOX	940	1470	DIRECT	45 dBA	120	1	1/50	1470	BY MANUFACTURER	CORD AND PLUG	6.85	WALL	MANUFACTURER STANDARD	ELECTRICAL TO PROVIDE RECEPTACLE AT FAN HEIGHT FOR POWER CONNECTION. 3-SPEED. OSCILLATION CONTROL.

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DRAWN	MAV	04/09/2020
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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MECHANICAL SCHEDULES

DWG. NO. M601
SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

ROOF COWL SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	THROAT DIMENSIONS (LENGTHxWIDTH) (INCHES)	AIR FLOW (CFM)	THROAT VELOCITY (FT/MIN)	AIR PRESSURE DROP (INCHES H2O)	OPER WEIGHT (LBS) (DOES NOT INCLUDE CURB)	ACCESSORIES/REMARKS
RC-AHU-1A	GREENHECK	FGI	AHU-1A INTAKE	36x50	15000	1200	0.19	324	GALVANIZED BIRD SCREEN. FACTORY ROOF CURB. LONG SIDE SLOPE. (MATCH PITCH OF ROOF). BAKED ENAMEL PAINT FINISH. COLOR TO BE SELECTED BY ARCHITECT. INCLUDE PAINTING ON ROOF CURB.
RC-AHU-1B	GREENHECK	FGI	AHU-1B INTAKE	36x50	15000	1200	0.19	324	GALVANIZED BIRD SCREEN. FACTORY ROOF CURB. SHORT SIDE SLOPE. (MATCH PITCH OF ROOF). BAKED ENAMEL PAINT FINISH. COLOR TO BE SELECTED BY ARCHITECT. INCLUDE PAINTING ON ROOF CURB.
RC-AHU-2	GREENHECK	FGI	AHU-2 INTAKE	18x30	3830	1021	0.137	138	
RC-AHU-3	GREENHECK	FGI	AHU-3 INTAKE	20x20	2710	976	0.125	111	
RC-AHU-4	GREENHECK	FGI	AHU-4 INTAKE	28x28	1460	268	0.01	176	
RC-AHU-5	GREENHECK	FGI	AHU-5 INTAKE	18x18	1600	711	0.067	105	
RC-ERV-6A	GREENHECK	FGI	ERV-6A INTAKE	14x14	330	242	0.008	86	
RC-ERV-6B/7	GREENHECK	FGI	ERV-6B, 7 INTAKE	14x14	580	426	0.024	86	

STEAM VALVE AND STEAM TRAP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	SERVICE	FLOW		PRESSURE DROP (PSI)	CV	SIZE	WORKING PRESSURE (PSIG)	WORKING TEMP (°F)	CONNECTION TYPE	BODY	DISK	SEAT	STEM	ACTUATOR	ACCESSORIES/REMARKS
					QTY	UNITS												
ST-1	STERLCO	FT94-8-15	FLOAT AND THERMOSTATIC TRAP	STEAM HEAT EXCHANGER RETURN	3,000	LBS/HR	0.5	-	2"	10	265	THREADED	CAST IRON	-	-	-	-	STAINLESS STEEL INTERNAL COMPONENTS. INSTALL TWO VALVES IN PARALLEL PER DETAIL X/MXXX.
ST-2	STERLCO	FT92-3-15	FLOAT AND THERMOSTATIC TRAP	STEAM CONTROL DRIP TRAP	825	LBS/HR	0.5	-	3/4"	10	265	THREADED	CAST IRON	-	-	-	-	STAINLESS STEEL INTERNAL COMPONENTS.

NOTES FOR VALVE SCHEDULE:
VALVES INDICATED IN TABLE ABOVE INCLUDE SPECIFIC ITEMS LISTED, AND DO NOT APPLY TO HYDRONIC CONTROL VALVES SELECTED BY CONTROLS SUBCONTRACTOR OR GENERAL-DUTY VALVES INDICATED ELSEWHERE IN DRAWINGS. ALL CONTROL SUBCONTRACTOR SELECTED CONTROL VALVES GENERAL-DUTY VALVES SHALL COMPLY WITH SPECIFICATIONS IN THE M700 AND P700 SERIES DRAWINGS AND SHALL BE SUITABLE FOR THE PURPOSE FOR WHICH THEY ARE INSTALLED.

STEAM HEAT EXCHANGER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	TOTAL CAPACITY (MBH)	SHELL SIDE (STEAM)				TUBE SIDE							DIMENSIONS	OPERATING WEIGHT (LBS)	ACCESSORIES/REMARKS
					PRESSURE (PSIG)	ENTERING TEMP (°F)	LEAVING TEMP (°F)	FLOW RATE (LBS/HR)	FLUID	FLOW (GPM)	NO. OF PASSES	EWT (°F)	LWT (°F)	FOULING FACTOR	VELOCITY (FT/SEC)	PRESSURE DROP (FT H2O)		
HX-1	ARMSTRONG	WS-1005-200-2 -CSSSSNN-20	SHELL AND U-TUBE	2,674	10	227	227	2,783	30% PROPYLENE GLYCOL	185.2	2	110	140	0.0005	5.0	16.170	11"DIA X 72" L	520	PROVIDE STEAM AND WATER SIDE SHUTOFF VALVES. TEMPERATURE/PRESSURE RELIEF VALVES. VACUUM RELIEF VALVE ON SHELL SIDE. PROVIDE SADDLE SUPPORT FRAME AND WALL BRACKETS. CONTRACTOR TO COORDINATE MOUNTING DISTANCE FROM WALL, PROVIDING ADDITIONAL FLOOR MOUNTED SUPPORTS AS NECESSARY. PROVIDE DDC CONTROL COMPONENTS. SEE SHEET M504. PROVIDE EXTERNAL WRAP INSULATION RATED FOR WORKING TEMPERATURE OF AT LEAST 250°F. SEE SPECIFICATIONS.

PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	MOTOR COUPLING	SEAL TYPE	DESIGN OPERATING POINT			MOTOR				ELECTRICAL DISCONNECT		STRUCTURAL/SEISMIC			VIBRATION CONTROLS		ACCESSORIES/REMARKS
							FLOWRATE (GPM)	HEAD (FT H20)	IMPELLER RPM	HP	RPM	VOLTS	PHASE	PROVIDED BY	TYPE	OPERATION WEIGHT (LBS)	MOUNTING		ISOLATOR TYPE	ISOLATOR LOCATION	
																	LOCATION	SECUREMENTS			
CHWP-1/2	ARMSTRONG	4372-1205-003.0	CHILLED WATER, BUILDING LOOP	VERTICAL INLINE DUAL-CASE	CLOSE-COUPLED	MECHANICAL CARBON-CERAMIC	60	80	3506	2x3.0	3960	460	3	ELECTRICAL	FUSED	143	WOOD FLOOR	SUPPORT FRAME	NONE	NONE	WITH FLEX CONNECTOR AND SUCTION DIFFUSER ON INLET. WITH FLEX CONNECTOR AND TRIPLE-DUTY VALVE ON OUTLET. SENSORLESS CONSTANT-PRESSURE CONTROL PACKAGE. OPEN DRIPPROOF MOTOR. BACNET MS/TP CONNECTION. COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM.
HHWP-1/2	ARMSTRONG	4372-2505-007.5	HEATING WATER, BUILDING LOOP	VERTICAL INLINE DUAL-CASE	CLOSE-COUPLED	MECHANICAL CARBON-CERAMIC	185	80	3448	2x7.5	3000	460	3	ELECTRICAL	FUSED	194	WOOD FLOOR	SUPPORT FRAME	NONE	NONE	WITH FLEX CONNECTOR AND SUCTION DIFFUSER ON INLET. WITH FLEX CONNECTOR AND TRIPLE-DUTY VALVE ON OUTLET. SENSORLESS CONSTANT-PRESSURE CONTROL PACKAGE. OPEN DRIPPROOF MOTOR. BACNET MS/TP CONNECTION. COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM.
CRP-1/2	SHIPCO	83ECCD	STEAM CONDENSATE RETURN	DUPLEX PACKAGED CONDENSATE RECEIVER AND PUMP SYSTEM	-	-	12	69.3	-	2x0.5	3500	460	3	INTEGRAL TO UNIT CONTROL PANEL	-	525 LBS INCLUDING WATER	WOOD FLOOR	-	NONE	NONE	1" NOZZLE OPTION. WITH DUPLEX CONTROL PANEL. COORDINATE CONNECTIONS TO BUILDING HVAC CONTROL SYSTEM. ROUTE VENT FROM RECEIVER ABOVE HIGHEST POINT OF STEAM SYSTEM AND TERMINATE AT EXTERIOR WITH TURN-DOWN. PROVIDE GAUGE GLASS.

DUCTLESS/MINI-SPLIT HEAT PUMP SYSTEM SCHEDULE

SYMBOL	MANUFACTURER	MODEL		CFM	NOMINAL CAPACITY (TONS)	COOLING CYCLE						HEATING CYCLE					SYSTEM ELECTRICAL					STRUCTURAL/SEISMIC			ACCESSORIES/REMARKS
		OUTDOOR UNIT	INDOOR UNIT			TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH)	EAT EVAP DRY BULB (°F)	EAT EVAP WET BULB (°F)	SEER	EAT COND DRY BULB (°F)	SENSIBLE CAPACITY (BTUH)	EAT EVAP DRY BULB (°F)	EAT EVAP WET BULB (°F)	HSPF	EAT COND DRY BULB (°F)	VOLTS	PHASE	FLA	MCA	MOCP	OPERATING WEIGHT (LBS)	MOUNTING		
																							LOCATION	SECUREMENTS	
HP/FC-5	DAIKIN	RXL24UMVJU	FTX24UVJU	643	2	21,200	16,740	80	67	20	95	24,000	70	60	10.3	47	230	1	19.290	18.9	20	OUTDOOR 130/ INDOOR 33	OUTDOOR CONC PAD INDOOR WALL BRACKET	NONE	LOW AMBIENT WIND BAFFLE. WIRED REMOTE CONTROL AND THERMOSTAT. LOCAL DISCONNECT BY ELECTRICAL. POWER FOR INDOOR UNIT FED FROM OUTDOOR UNIT. COOLING OPERATION MINIMUM AMBIENT -4F. HEATING OPERATION MINIMUM AMBIENT -13F.
HP/FC-8	DAIKIN	RXL12QMVJU9	FTX12NMVJU	434	1	10,900	9,100	80	67	20	95	13,600	70	60	12.0	47	230	1	12,400	13.0	15	OUTDOOR 70/ INDOOR 18	OUTDOOR CONC PAD INDOOR WALL BRACKET	NONE	LOW AMBIENT WIND BAFFLE. WIRED REMOTE CONTROL AND THERMOSTAT. LOCAL DISCONNECT BY ELECTRICAL. POWER FOR INDOOR UNIT FED FROM OUTDOOR UNIT. COOLING OPERATION MINIMUM AMBIENT -4F. HEATING OPERATION MINIMUM AMBIENT -13F.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MECHANICAL SCHEDULES

DWG. NO.
M602

SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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INDOOR AIR HANDLING UNIT SCHEDULE

SYMBOL	MANUFACTURER	TYPE	MODEL	DUCT CONNECTIONS	SUPPLY FAN SECTION								RETURN/EXHAUST FAN SECTION								DESIGN OSA (CFM)	HYDRONIC COOLING COIL (RATED AT CFM LISTED)										
					AIR FLOW (CFM)	EXT SP (IN WG)	FAN RPM	BHP AT DESIGN	MOTOR						AIR FLOW (CFM)	EXT SP (IN WG)	FAN RPM	BHP AT DESIGN	MOTOR							AIRFLOW (CFM)	FLUID	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH)	EAT (°FDB/ °FWB)	LAT (°FDB/ °FWB)	APD (IN WG)	FLOW (GPM)	EWT (°F)	LWT (°F)	WPD (FT H20)	BRANCH PIPE SIZE (INCHES)
									HP	RPM	FLA	VOLTS/ PH	VFD PROVIDED	DISCONNECT PROVIDED					HP	RPM	FLA	VOLTS/ PH	VFD PROVIDED	DISCONNECT PROVIDED										
AHU-1A AND 1B	KLIMOR	SINGLE ZONE VAV	EVO-S 1150	HORIZONTAL	15000	1.5	2163	2x5.4	2x7.6	2250	2x9	460/3	WITH UNIT	WITH UNIT	15000	1	2023	2x4.1	2x7.6	2250	2x9	460/3	WITH UNIT	WITH UNIT	12000	-	-	-	-	-	-	-	-	-	-
AHU-2	KLIMOR	SINGLE ZONE VAV	EVO-S 0400	HORIZONTAL	3830	1	2182	1.7	3.4	2450	3.8	460/3	WITH UNIT	WITH UNIT	3830	1.2	2078	1.4	3.4	2450	3.8	460/3	WITH UNIT	WITH UNIT	595	3830	WATER	110514	94026	78.2/63.1	55.8/53.5	0.43	14.68	44	59	1.67	2
AHU-3	KLIMOR	SINGLE ZONE VAV	EVO-S 0290	HORIZONTAL	2710	1	2359	1.4	3	2800	3.5	460/3	WITH UNIT	WITH UNIT	2710	1	2172	1.1	3	2800	3.5	460/3	WITH UNIT	WITH UNIT	460	2710	WATER	84079	78410	82.2/61.8	55.8/51.1	0.52	11.17	44	59	0.83	2
AHU-4	KLIMOR	SINGLE ZONE VAV	EVO-S 0160	HORIZONTAL	1460	0.75	2820	0.6	1.4	3400	1.6	460/3	WITH UNIT	WITH UNIT	1460	1.2	2751	0.5	1.4	3400	1.6	460/3	WITH UNIT	WITH UNIT	165	1460	WATER	37956	35523	77.4/59.9	55.2/50.7	0.47	6.3	44	56	0.61	1-1/2
AHU-5	KLIMOR	SINGLE ZONE CAV 100% OA WITH RECIRC	EVO-S 0220	HORIZONTAL	1600	0.75	2996	0.7	1.4	3400	1.6	460/3	WITH UNIT	WITH UNIT	1600	1.3	3035	0.7	1.4	3400	1.6	460/3	WITH UNIT	WITH UNIT	1600	1600	WATER	42205	38578	80.2/62.5	58.2/53.7	0.37	5.26	44	60	0.29	2

INDOOR AIR HANDLING UNIT SCHEDULE CONT.

SYMBOL	MAIN HYDRONIC HEATING COIL (RATED AT CFM LISTED)										HYDRONIC OUTDOOR AIR PREHEAT COIL (RATED AT CFM LISTED)										ENERGY RECOVERY SECTION											SINGLE POINT POWER CONNECTION				STRUCTURAL/SEISMIC			ACCESSORIES/REMARKS
	AIRFLOW (CFM)	FLUID	TOTAL CAPACITY (BTUH)	EAT (°FDB/ °FWB)	LAT (°FDB/ °FWB)	APD (IN WG)	FLOW (GPM)	EWT (°F)	LWT (°F)	WPD (FT H20)	BRANCH PIPE SIZE (INCHES)	AIRFLOW (CFM)	FLUID	TOTAL CAPACITY (BTUH)	EAT (°FDB/ °FWB)	LAT (°FDB/ °FWB)	APD (IN WG)	FLOW (GPM)	EWT (°F)	LWT (°F)	WPD (FT H20)	BRANCH PIPE SIZE (INCHES)	TYPE	CFM (INTAKE)	CFM (EXHAUST)	SUPPLY PD (IN WG)	RETURN PD (IN WG)	ELECTRICAL					VOLTS/ PH	MCA	MOCP	SCCR (kA)	OPER WEIGHT (LBS)	MOUNTING		
																												VOLTS/ PH	FLA	MCA	MOCP	DISCONNECT PROVIDED						LOCATION	SECUREMENTS	
AHU-1A AND 1B	15000	30% PROP GLYCOL	603796	58.2/ 52.8	95/66.1	0.32	41.58	140	110	10.62	2	15,000	30% PROP GLYCOL	485905	-10/ -10.2	20/14.6	0.32	33.46	140	110	7.2	2	TOTAL ENERGY WHEEL	15000	15000	0.62	0.74	460/3	0.64	1.90	6	WITH UNIT	460/3	40.15	49.15	40	5570	WOOD FLOOR	NONE	100% AIR ECONOMIZER WITH POWERED RELIEF. COORDINATE ACCESS DOOR SIDES AND DUCT CONNECTION SIDES WITH ORIENTATION OF UNITS ON PLANS. COORDINATE CONNECTIONS TO BUILDING HVAC CONTROL SYSTEM AND DAMPER ACTUATORS AND OTHER DEVICES WHICH ARE PROVIDED BY OTHERS. MERV 8 FILTERS, 120V SERVICE LIGHTS (POWER CONNECTION BY ELECTRICAL). HINGED ACCESS DOORS, SINGLE-SIDE ACCESS. AIRFLOW MEASURING STATION ON EACH DUCT CONNECTION. ERV BYPASS DAMPERS OR ERV SIZED FOR FULL ECONOMIZER FLOW. INTERNAL COMPONENT VIBRATION ISOLATION. NOTE: ALTERNATE MANUFACTURER: YTS GROUP.
AHU-2	3830	30% PROP GLYCOL	119266	57.6/ 55	86/65.2	0.21	8.21	140	110	3.47	1-1/4	-	-	-	-	-	-	-	-	-	-	NONE	-	-	-	-	-	-	-	-	-	460/3	8.55	12.35	40	2170	WOOD FLOOR	NONE	
AHU-3	2710	30% PROP GLYCOL	94269	53.2/ 50.8	85/62.9	0.21	6.49	140	110	2.78	1	-	-	-	-	-	-	-	-	-	-	NONE	-	-	-	-	-	-	-	-	-	460/3	7.68	11.38	40	1770	WOOD FLOOR	NONE	
AHU-4	1460	30% PROP GLYCOL	46364	61.1/ 58.3	90/68	0.14	3.19	140	110	2.44	3/4	-	-	-	-	-	-	-	-	-	-	NONE	-	-	-	-	-	-	-	-	-	460/3	3.60	5.20	40	1300	WOOD FLOOR	NONE	
AHU-5	1600	30% PROP GLYCOL	34190	60.5/ 55.6	80/62.7	0.06	2.35	140	110	2.09	3/4	1600	30% PROP GLYCOL	51830	-10/ -10.2	20/14.6	0.06	3.57	140	110	4.32	3/4	TOTAL ENERGY WHEEL	1600	1600	0.35	0.42	460/3	0.5	1.90	6	WITH UNIT	460/3	5.58	7.47	40	1840	WOOD FLOOR	NONE	

REGISTER/GRILLE/DIFFUSER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	STYLE	DISCHARGE PATTERN	NECK SIZE (INCHES)	FACE SIZE	MATERIAL	COLOR	MOUNTING	DAMPER	NOTE: FOR DIFFUSERS INTEGRAL TO FABRIC DUCTS, REFER TO SPECIFICATIONS AND DETAILS FOR FABRIC DUCTS. ACCESSORIES/REMARKS
A1	TITUS	TDC	CEILING SUPPLY	LOUVER-FACE DIFFUSER	ROUND NECK	2-WAY CORNER	10"Ø	24x24	STEEL	#26 WHITE	24x24 LAY-IN PANEL	NONE	PROVIDE TRANSITION FROM DUCT TO NECK SIZE IF DIFFERENT.
B1	TITUS	50R	CEILING RETURN	EGGCRATE GRILLE	1/2"x1/2"x1/2" EGGCRATE	-	10x10	24x24	ALUMINUM CORE, STEEL BORDER	#26 WHITE	24x24 LAY-IN PANEL	NONE	PROVIDE SQUARE TO ROUND TRANSITION AT GRILLE AND DUCT CONNECTION SIZE.
C1	TITUS	TDC	CEILING SUPPLY	LOUVER-FACE DIFFUSER	ROUND NECK	3-WAY	10"Ø	24x24	STEEL	#26 WHITE	24x24 LAY-IN PANEL	NONE	PROVIDE TRANSITION FROM DUCT TO NECK SIZE IF DIFFERENT.
D1	TITUS	350RS	WALL RETURN	FIXED-LOUVER GRILLE	3/4" BLADE SPACING, 35° DEFLECTION, BLADES PARALLEL TO SHORT SIDE	-	48x48	SAME AS NECK	STEEL	#26 WHITE	FLANGED FRAME, STANDARD SCREWS	NONE	PROVIDE SQUARE TO ROUND TRANSITION AT GRILLE AND DUCT CONNECTION SIZE. ORIENT WITH BLADES FACING UPWARD.
F1	TITUS	S300FL	DUCT-MOUNTED SUPPLY	FIXED-LOUVER GRILLE	3/4" BLADE SPACING, DOUBLE DEFLECTION, 35°. BLADES PARALLEL TO LONG SIDE	-	24x12	SAME AS NECK	ALUMINUM	#04 MILL FINISH	DUCT-MOUNT FRAME, STANDARD SCREWS	EXTRACTOR	INSTALL ON DUCT HORIZONTAL.
G1	TITUS	S8F	DUCT-MOUNTED RETURN/EXHAUST	PERFORATED GRILLE	3/16" HOLES ON 1/4" STAGGERED CENTERS	-	12x6	SAME AS NECK	ALUMINUM	#04 MILL FINISH	DUCT-MOUNT FRAME, STANDARD SCREWS	NONE	ORIENT FACING DIRECTION AS SHOWN ON PLANS.
G2	TITUS	S8F	DUCT-MOUNTED RETURN/EXHAUST	PERFORATED GRILLE	3/16" HOLES ON 1/4" STAGGERED CENTERS	-	18x6	SAME AS NECK	ALUMINUM	#04 MILL FINISH	DUCT-MOUNT FRAME, STANDARD SCREWS	NONE	ORIENT FACING DIRECTION AS SHOWN ON PLANS.
G3	TITUS	S8F	DUCT-MOUNTED RETURN/EXHAUST	PERFORATED GRILLE	3/16" HOLES ON 1/4" STAGGERED CENTERS	-	48x18	SAME AS NECK	ALUMINUM	#04 MILL FINISH	DUCT-MOUNT FRAME, STANDARD SCREWS	NONE	ORIENT FACING DIRECTION AS SHOWN ON PLANS.
H1	TITUS	S301FS	DUCT-MOUNTED SUPPLY	ADJUSTABLE-LOUVER GRILLE	3/4" BLADE SPACING, SINGLE DEFLECTION. BLADES PARALLEL TO SHORT SIDE	-	24x4	SAME AS NECK	ALUMINUM	#04 MILL FINISH	DUCT-MOUNT FRAME, STANDARD SCREWS	EXTRACTOR	INSTALL ON DUCT AT HORIZONTAL POSITION.
J1	TITUS	111RL	WALL RETURN	FIXED-LOUVER GRILLE	AIRFOIL BLADES, 1-1/4" BLADE SPACING, BLADES PARALLEL TO LONG SIDE	—	40x80	SAME AS NECK	ALUMINUM	#26 WHITE	FLANGED FAME, STANDARD SCREWS	NONE	PROVIDE TRANSITION AT DUCT AND GRILLE CONNECTION SIZE.
K1	TITUS	350RL	WALL EXHAUST	FIXED-LOUVER GRILLE	3/4" BLADE SPACING, 35 ° DEFLECTION, BLADES PARALLEL TO LONG SIDE	-	6x6	SAME AS NECK	STEEL	#26 WHITE	FLANGED FRAME, STANDARD SCREWS	NONE	PROVIDE SQUARE TO ROUND TRANSITION AT GRILLE AND DUCT CONNECTION SIZE.
L1	TITUS	111RL	WALL TRANSFER	FIXED-LOUVER GRILLE	AIRFOIL BLADES, 1-1/4" BLADE SPACING, BLADES PARALLEL TO LONG SIDE	-	18x18	SAME AS NECK	ALUMINUM	#26 WHITE	FLANGED FRAME, STANDARD SCREWS	NONE	PROVIDE SHEET METAL DUCT THROUGH WALL BETWEEN GRILLES.
M1	TITUS	350RL	WALL TRANSFER	FIXED-LOUVER GRILLE	3/4" BLADE SPACING, 35 ° DEFLECTION, BLADES PARALLEL TO LONG SIDE	-	18x6	SAME AS NECK	STEEL	#26 WHITE	FLANGED FRAME, STANDARD SCREWS.	NONE	ORIENT WITH BLADES FACING UPWARD. PROVIDE SHEET METAL DUCT THROUGH WALL BETWEEN GRILLES.

CHEMICAL/GLYCOL FEED SYSTEM SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	SIZE	ACCESSORIES/REMARKS
CFS-1	AXIOM	CBF-2-HP	HYDRONIC HEATING SYSTEM	2 GALLON	WITH FUNNEL PACKAGE AND VALVE PACKAGE, SECURE TO FLOOR. 200°F SERVICE TEMPERATURE.
GFS-1	AXIOM	SF100	HYDRONIC HEATING SYSTEM	55 GALLON	AUTOMATIC GLYCOL FEEDER. WITH MODEL RIA10-1-SAA LOW LEVEL ALARM PANEL WITH REMOTE MONITORING CONNECTED TO BUILDING HVAC CONTROL SYSTEM. RECEPTACLE POWER CONNECTION BY ELECTRICAL (115V 0.7 FLA).

EXPANSION TANK SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	MIN TANK ACCEPTANCE VOLUME (GALLONS)	TANK TOTAL VOLUME (GALLONS)	FACTORY PRECHARGE PRESS PSIG	STRUCTURAL/SEISMIC			ACCESSORIES/REMARKS
								FULL WEIGHT INCLUDING WATER (LBS)	MOUNTING		
									LOCATION	SECUREMENTS	
ET-4	AMTROL	200-L	HEATING WATER	FULL ACCEPTANCE BLADDER	12	53	12"	630	FLOOR	WALL STRAPS	ASME CODE CONSTRUCTION. PROVIDE AIR CHARGE ADJUSTMENT VALVE. PROVIDE SEISMIC STRAPS OR ANCHORS PER OREGON PLUMBING SPECIALTY CODE 508.2.

AIR SEPARATOR SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	PIPE CONNECTION SIZE (INCHES)	FLOW RATE (GPM)	PRESSURE DROP (FT H2O)	STRUCTURAL/SEISMIC		OPER WEIGHT (LBS)	ACCESSORIES/ REMARKS
								LOCATION	SECUREMENTS		
AS-1	SPIROTHERM	VDN400FA	HYDRONIC HEATING	COALESCING AIR AND DIRT	4	185.2	1	SUSPENDED	PIPE HANGERS	233	PROVIDE AUTOMATIC AIR PURGE VALVE AND MANUAL DIRT BLOWDOWN VALVE. FLANGED PIPE CONNECTIONS. REMOVABLE LOWER HEAD. ASME CONSTRUCTION.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
MECHANICAL SCHEDULES

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DUCTLESS HYDRONIC FAN COIL UNIT SCHEDULE

SYMBOL	MANUFACTURER	MODEL	INSTALLATION	AIR FLOW (CFM)	DESIGN OSA (CFM)	COOLING COIL											
						FLUID	TOTAL CAPACITY (BTUH)	SENSIBLE CAPACITY (BTUH)	EAT DRY BULB (°F)	EAT WET BULB (°F)	LAT DRY BULB (°F)	LAT WET BULB (°F)	EWT (°F)	LWT (°F)	FLUID PD (FT H ²0)	FLUID FLOW (GPM)	VALVE CONFIGURATION
FC-1A	MULTIAQUA	MHQWW-18-H-3	WALL MOUNT	480	NONE	NO COIL	-	-	-	-	-	-	-	-	-	-	-
FC-1B	MULTIAQUA	MHQWW-18-H-3	WALL MOUNT	480	NONE	NO COIL	-	-	-	-	-	-	-	-	-	-	-
FC-2	MULTIAQUA	MHQWW-09-H-3	WALL MOUNT	230	NONE	WATER	7,600	7,600	90	65.2	60.1	54.3	44	53.5	2.1	1.6	TWO-WAY
FC-3	MULTIAQUA	MHQWW-12-H-3	WALL MOUNT	330	NONE^	WATER	6,700	6,700	75	58.9	57.5	51.9	44	52	2.3	1.6	TWO-WAY
FC-4	MULTIAQUA	MHQWW-09-H-3	WALL MOUNT	230	NONE	WATER	7,600	7,600	90	65.2	60.1	54.3	44	53.5	2.1	1.6	TWO-WAY
FC-6A	MULTIAQUA	MHCFC4W-16-01	CEILING CASSETTE	1200	NONE*	WATER	31,400	27,200	75	62.1	55.5	53.5	44	55	13.6	5.9	TWO-WAY
FC-6B	MULTIAQUA	MHCFC4W-16-01	CEILING CASSETTE	1200	NONE*	WATER	31,400	27,200	75	62.1	55.5	53.5	44	55	13.6	5.9	TWO-WAY
FC-7	MULTIAQUA	MHCFC4W-16-01	CEILING CASSETTE	1200	NONE*	WATER	29,700	26,400	75	62.1	56.1	54	44	56	10.6	5.2	TWO-WAY

DUCTLESS HYDRONIC FAN COIL UNIT SCHEDULE (CONT)

SYMBOL	HEATING COIL								UNIT ELECTRICAL					STRUCTURAL/SEISMIC		ACCESSORIES/REMARKS
	FLUID	TOTAL CAPACITY (BTUH)	EAT DRY BULB (°F)	LAT DRY BULB (°F)	EWT (°F)	LWT (°F)	FLUID PD (FT H ²0)	FLUID FLOW (GPM)	VALVE CONFIGURATION	VOLTS	PHASE	FLA	MCA	MOCP	OPER WEIGHT (LBS)	MOUNTING LOCATION	MOUNTING SECUREMENTS	
FC-1A	30% PROP GLYCOL	20,700	70	108.7	140	114.6	2.2	1.7	TWO-WAY	120	1	0.72	0.9	1	44	WALL	MANUF. STANDARD	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.
FC-1B	30% PROP GLYCOL	20,700	70	108.7	140	114.6	2.2	1.7	TWO-WAY	120	1	0.72	0.9	1	44	WALL	MANUF. STANDARD	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.
FC-2	NO COIL	-	-	-	-	-	-	-	-	120	1	0.33	0.4	1	26	WALL	MANUF. STANDARD	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.
FC-3	NO COIL	-	-	-	-	-	-	-	-	120	1	0.33	0.4	1	28	WALL	MANUF. STANDARD	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.
FC-4	NO COIL	-	-	-	-	-	-	-	-	120	1	0.33	0.4	1	26	WALL	MANUF. STANDARD	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.
FC-6A	30% PROP GLYCOL	27,700	70	90.8	140	118.8	1.3	2.6	TWO-WAY	230	1	2.25	2.8	5	126	SUSPENDED	HANGERS	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.
FC-6B	30% PROP GLYCOL	27,700	70	90.8	140	118.8	1.3	2.6	TWO-WAY	230	1	2.25	2.8	5	126	SUSPENDED	HANGERS	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.
FC-7	30% PROP GLYCOL	27,700	70	90.8	140	118.8	1.3	2.6	TWO-WAY	230	1	2.25	2.8	5	126	SUSPENDED	HANGERS	COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. LOCAL DISCONNECT BY ELECTRICAL.

*NOTE: THIS ZONE HAS ITS OUTSIDE AIR DUCTED DIRECTLY TO THE SPACE. SEE SHEET M401 FOR AIRFLOW QUANTITY.
^NOTE: THIS ZONE IS EQUIPPED WITH NATURAL VENTILATION VIA OPERABLE WINDOW. SEE ARCHITECTURAL DRAWINGS.

HEAT/ENERGY RECOVERY VENTILATOR SCHEDULE

SYMBOL	MANUFACTURER	MODEL	TYPE	EXHAUST AIR FLOW (CFM)	INTAKE AIR FLOW (CFM)	INTAKE FAN				EXHAUST FAN				SUMMER PERFORMANCE				WINTER PERFORMANCE				UNIT ELECTRICAL					ELECTRICAL DISCONNECT		STRUCTURAL/SEISMIC		
						INCLUDED	EXT. STATIC PRESSURE (IN WC)	MOTOR HP	FAN BRAKE HP AT DESIGN	INCLUDED	EXT. STATIC PRESSURE (IN WC)	MOTOR HP	FAN BRAKE HP AT DESIGN	EXHAUST AIR TEMP (°F DB/WB)	INTAKE AIR TEMP (°F DB/WB)	TOTAL EFF (%)	CONDITIONED AIR TEMP (°F DB/WB)	EXHAUST AIR TEMP (°F DB/WB)	INTAKE AIR TEMP (°F DB/WB)	TOTAL EFF (%)	CONDITIONED AIR TEMP (°F DB/WB)*	VOLTS	PHASE	FLA	MCA	MOCP	PROVIDED	TYPE	OPER WEIGHT (LBS)	MOUNTING LOCATION	MOUNTING SECUREMENTS
ERV-6A	GREENHECK	ECV-10L-VG-FM	FIXED-PLATE TOTAL-ENERGY	330	330	YES	0.500	0.500	-	YES	0.500	0.500	-	75.0/62.1	93.0/65.1	96.7	79.7/62.2	70.0/53.7	20.0/16.4†	68.7	56.1/43.7	277	1	-	7.2	15	BY ELECTRICAL	-	439	WOOD FLOOR	NONE
ERV-6B	GREENHECK	ECV-10L-VG-FM	FIXED-PLATE TOTAL-ENERGY	330	330	YES	0.500	0.500	-	YES	0.500	0.500	-	75.0/62.1	93.0/65.1	96.7	79.7/62.2	70.0/53.7	20.0/16.4†	68.7	56.1/43.7	277	1	-	7.2	15	BY ELECTRICAL	-	439	WOOD FLOOR	NONE
ERV-7	GREENHECK	ECV-10L-VG-FM	FIXED-PLATE TOTAL-ENERGY	260	260	YES	0.300	0.500	-	YES	0.300	0.500	-	75.0/62.1	93.0/65.1	99.2	79.4/62.2	70.0/53.7	20.0/16.4†	70.2	56.9/44.2	277	1	-	7.2	15	BY ELECTRICAL	-	439	WOOD FLOOR	NONE

ACCESSORIES/REMARKS FOR ALL ERVS: INSTALL MERV 8 FILTERS ON INTAKE AND EXHAUST UPSTREAM SIDES. INSULATED LOW-LEAKAGE MOTORIZED INTAKE AND EXHAUST DAMPERS. INTERNAL MOTOR SPEED CONTROLLER. REMOTE CONTROL PANEL WITH ON/OFF STATUS LIGHT, DIRTY FILTER LIGHT, INTERLOCK TO BUILDING HVAC CONTROL SYSTEM.
†OUTSIDE INTAKE AIR TEMPERATURE IS BOOSTED FROM -10F TO INDICATED VALUE BY DUCT HEATER DH-ERV-X-O WHERE X IS THE ERV NUMBER. SEE DUCT HEATER SCHEDULE.
*CONDITIONED AIR IS TEMPERATURE CONTROLLED TO 65F BY DUCT HEATER DH-ERV-X-S WHERE X IS THE ERV NUMBER. SEE DUCT HEATER SCHEDULE.

HYDRONIC FIN TUBE RADIATOR SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SIZE				MATERIAL		ROWS	FINS PER FOOT	CAPACITY (BTUH/FT)	TOTAL CAPACITY (BTUH)	EAT DRY BULB (°F)	FLUID	FLOW (GPM)	EWT (°F)	LWT (°F)	FLUID PD (FT WG)	FINISH COLOR	ACCESSORIES/REMARKS
			ENCLOSURE LENGTH (FT)	ENCLOSURE HEIGHT (IN)	FIN SIZE (IN)	TUBE SIZE (IN)	FIN MATERIAL	TUBE MATERIAL												
FTR-1	SLANT/FIN	90-21	6	21	4.25x4.25	1"	ALUMINUM	COPPER	2	40	933	5600	65	30% PROP GLYCOL	4.0	140	137	0.06	WHITE BAKED ENAMEL	PROVIDE RETURN PIPE HANGERS AND ENCLOSURE MOUNTING HARDWARE. PROVIDE END VALVE ACCESS SECTION.

ELECTRIC DUCT HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	AIRFLOW (CFM)	DUCT SIZE		AIRFLOW VELOCITY		HEATING CAPACITY (KW)	EAT (°F DB)	LAT (°F DB)	ELECTRICAL			ELECTRICAL DISCONNECT		CONTROL	ACCESSORIES/REMARKS
				WIDTH (IN)	HEIGHT (IN)	MINIMUM (FT/MIN)	ACTUAL (FT/MIN)				VOLTS	PHASE	FLA	PROVIDED	TYPE		
DH-ERV-6A-O	GREENHECK	IDHE	330	10	10	352	475.2	3.5	-10	23.5	277	1	12.64	INTEGRAL BY MANUFACTURER	NON-FUSED	2-STAGE	PILOT LIGHTS, CONTROL TRANSFORMER WITH FUSING, NEC FUSES, THERMAL CUTOUT SWITCH, AIRFLOW PROVING SWITCH. COORDINATE CONNECTION WITH BUILDING HVAC CONTROL SYSTEM.
DH-ERV-6B-O	GREENHECK	IDHE	330	10	10	352	475.2	3.5	-10	23.5	277	1	12.64	INTEGRAL BY MANUFACTURER	NON-FUSED	2-STAGE	PILOT LIGHTS, CONTROL TRANSFORMER WITH FUSING, NEC FUSES, THERMAL CUTOUT SWITCH, AIRFLOW PROVING SWITCH. COORDINATE CONNECTION WITH BUILDING HVAC CONTROL SYSTEM.
DH-ERV-7-O	GREENHECK	IDHE	250	8	8	393	562.5	2.5	-10	21.6	277	1	9.03	INTEGRAL BY MANUFACTURER	NON-FUSED	2-STAGE	PILOT LIGHTS, CONTROL TRANSFORMER WITH FUSING, NEC FUSES, THERMAL CUTOUT SWITCH, AIRFLOW PROVING SWITCH. COORDINATE CONNECTION WITH BUILDING HVAC CONTROL SYSTEM.
DH-ERV-6A-S	GREENHECK	IDHE	330	10	10	125	475.2	1.25	56.1	68.1	277	1	4.51	INTEGRAL BY MANUFACTURER	NON-FUSED	2-STAGE	PILOT LIGHTS, CONTROL TRANSFORMER WITH FUSING, NEC FUSES, THERMAL CUTOUT SWITCH, AIRFLOW PROVING SWITCH. COORDINATE CONNECTION WITH BUILDING HVAC CONTROL SYSTEM.
DH-ERV-6B-S	GREENHECK	IDHE	330	10	10	125	475.2	1.25	56.1	68.1	277	1	4.51	INTEGRAL BY MANUFACTURER	NON-FUSED	2-STAGE	PILOT LIGHTS, CONTROL TRANSFORMER WITH FUSING, NEC FUSES, THERMAL CUTOUT SWITCH, AIRFLOW PROVING SWITCH. COORDINATE CONNECTION WITH BUILDING HVAC CONTROL SYSTEM.
DH-ERV-7-S	GREENHECK	IDHE	250	8	8	157	562.5	1	56.9	69.5	277	1	3.61	INTEGRAL BY MANUFACTURER	NON-FUSED	2-STAGE	PILOT LIGHTS, CONTROL TRANSFORMER WITH FUSING, NEC FUSES, THERMAL CUTOUT SWITCH, AIRFLOW PROVING SWITCH. COORDINATE CONNECTION WITH BUILDING HVAC CONTROL SYSTEM.

CONTINUOUS TUBULAR DIFFUSER DUCT SCHEDULE

SYMBOL	MANUFACTURER	TYPE	FABRIC TYPE	NOMINAL DIMENSIONS		AIR INLET PRESSURE (IN WG)	CFM	FABRIC COLOR	DIFFUSION OUTLETS			SUPPORT STRUCTURE		ACCESSORIES/REMARKS
				LENGTH (FT)	DIAMETER (IN)				TYPE	OUTLET LOCATIONS 1	OUTLET LOCATIONS 2	MODEL	DESCRIPTION	
CTD-1 THRU CTD-8	FABRICAIR	ROUND SINGLE DUCT	COMBI-85 NON-PERMEABLE	180	22	0.15	3750	4 BLUE 4 GOLD	FIXED ORIFICE *ORIFLOW*	TBD BY MANUFACTURER	TBD BY MANUFACTURER	TYPE 8	SINGLE H-TRACK, SEMICIRCLE HOOPS	DUCT LAYOUT AND DESIGN SHALL BE SUBMITTED BY VENDOR TO ENGINEER FOR APPROVAL. WITH ADJUSTABLE FLOW DEVICE IN DUCT INLET. ZIPPERED FITTINGS. COLOR TO BE CONFIRMED BY ARCHITECT AND OWNER.
CTD-9	FABRICAIR	ROUND SINGLE DUCT	COMBI-70 PERMEABLE	45	26	0.15	3,830	BLUE	FIXED ORIFICE *ORIFLOW*	TBD BY MANUFACTURER	TBD BY MANUFACTURER	TYPE 8	SINGLE H-TRACK, SEMICIRCLE HOOPS	

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EASTERN OREGON UNIVERSITY FIELD HOUSE
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TRACK AREA EXHAUST FANS AND VENTILATION INTAKE LOUVERS (EF-TX AND LV-TXA,B,C)

SEE THE TRACK AREA AIR HANDLING SYSTEM SEQUENCE BELOW FOR THE STEPS LEADING TO ENABLE THE TRACK AREA EXHAUST FANS AND VENTILATION INTAKE LOUVERS. EACH RESPECTIVE EXHAUST FAN EF-TX, WHERE X IS THE NUMBER 1 THROUGH 8 AS INDICATED ON DRAWINGS, AND THREE INTERLOCKED INTAKE LOUVERS (EXAMPLE, EF-T1 AND LV-T1A, T1B, AND T1C) SHALL BE CONTROLLED AS FOLLOWS. REFER TO DETAIL ON M503 FOR MORE DETAILED INFORMATION ON CONTROL COMPONENTS REFERENCED BELOW:

1. MOTOR STARTER IN AUTO (NORMAL MODE):
   1.1. A SIGNAL FROM THE HVAC CONTROL SYSTEM TO THE MOTOR STARTER BEGINS STARTUP SEQUENCE.
   1.2. MOTOR STARTER SENDS SIGNAL TO A RELAY WHICH OPENS THE SHUTOFF DAMPER LOCATED WITHIN THE EXHAUST FAN HOUSING. UPON OPENING FULLY, THE DAMPER END SWITCH CLOSES AND THE MOTOR STARTER CONTACTOR ENERGIZES THE FAN. THE AUXILIARY CONTACTOR ALSO CLOSES AND CAUSES THE LOUVER RELAY TO ENERGIZE AND OPEN THE ASSOCIATED INTAKE LOUVERS. THE LOUVERS ARE NOT EQUIPPED WITH END SWITCHES.
   1.3. UPON SUCCESSFUL FAN START, THE STATUS CONTACT ON THE MOTOR STARTER SENDS A STATUS SIGNAL TO THE HVAC CONTROL SYSTEM. AN ALARM SHALL BE GENERATED IF THE STATUS SIGNAL DOES NOT APPEAR WITHIN 60 SECONDS OF THE COMMAND BEING SENT TO START THE FAN.
   1.4. UPON A FAULT, THE MOTOR STARTER WILL AUTOMATICALLY ATTEMPT TO RESET IN RESPONSE TO THE FAULT THREE (3) TIMES, SEPARATED BY ONE (1) MINUTE ATTEMPTS. IF THE FAULT DOES NOT CLEAR, THE FAULT CONTACT ON THE MOTOR STARTER WILL SEND A FAULT SIGNAL TO THE HVAC CONTROL SYSTEM. AN ALARM SHALL BE GENERATED.
   1.5. THE REMOTE OVERRIDE KEY SWITCH CAN ALSO BE USED TO START THE FAN, HOWEVER THIS DOES NOT ROUTE THE COMMAND THROUGH THE HVAC CONTROL SYSTEM. THE HVAC CONTROL SYSTEM SHALL INDICATE AN INFORMATIONAL MESSAGE THAT THE FAN IS ON UPON RECEIVING A STATUS SIGNAL BUT NOT BEING COMMANDED BY THE CONTROL SYSTEM. KEY SWITCHES SHALL CONTROL PAIRS OF FANS ON OPPOSITE ENDS OF THE SPACE.
   1.6. FAULT ALARMS SHALL BE GENERATED THE SAME AS IF THE HVAC CONTROLS COMMAND THE FAN.
2. MOTOR STARTER IN HAND:
   2.1. UPON PLACING THE MOTOR STARTER IN HAND MODE, THE STARTUP SEQUENCE BEGINS THE SAME AS IN AUTO MODE. THE HVAC CONTROL SYSTEM SHALL INDICATE AN INFORMATIONAL MESSAGE THAT THE FAN IS ON BUT NOT BEING COMMANDED BY THE CONTROL SYSTEM.
   2.2. FAULT ALARMS SHALL BE GENERATED THE SAME AS IN AUTO MODE.
3. MOTOR STARTER OFF:
   3.1. THE MOTOR STARTER SHALL NOT REACT TO AN HVAC CONTROL SYSTEM OR REMOTE OVERRIDE KEY SWITCH SIGNAL. THE CONTROL SYSTEM SHALL INDICATE AN INFORMATIONAL MESSAGE IF THE FAN IS COMMANDED BY THE HVAC CONTROL SYSTEM AND DOES NOT PRODUCE A STATUS SIGNAL WITHIN 60 SECONDS.
4. UPON POWER FAILURE, THE MOTOR STARTER SHALL RETURN TO THE LAST MODE IT WAS IN AFTER A 10 SECOND DELAY WHEN POWER IS RESTORED, TYPICALLY, THIS WILL BE AUTO MODE. THIS SETTING IS SET AT THE MOTOR STARTER.
5. IN ALL MODES, THE HVAC CONTROL SYSTEM MAY PROHIBIT THE FAN FROM OPERATING IF THE TEMPERATURE IN THE SPACE IS BELOW 60 DEG F BY OPENING THE SHUTDOWN INPUT TO THE MOTOR STARTER. THIS PREVENTS FANS FROM BEING LEFT IN A MANUAL "ON" MODE DURING INCLEMENT WEATHER.

SINGLE-ZONE HEATING AND VENTILATING AIR HANDLERS FOR TRACK AREA (AHU-1A AND 1B)

1. THE UNITS SHALL BE CONTROLLED BY THE CENTRAL BUILDING HVAC CONTROL SYSTEM.
2. DURING OCCUPIED HOURS:
   2.1. SUPPLY FAN SHALL BE ON. THE RELIEF AIR DAMPERS SHALL BE OPEN AND THE EXHAUST FAN SHALL MODULATE WITHIN A BAND OF SPEED TO MAINTAIN A SLIGHTLY POSITIVE ZONE PRESSURE WHILE TRACKING THE SUPPLY AIR FAN.
   2.2. OUTDOOR AIR DAMPERS SHALL BE OPEN TO THE MINIMUM POSITION, UNLESS OVERRIDDEN BY ECONOMIZER COOLING DEMAND OR CO2 VENTILATION DEMAND.
   2.3. ON A CALL FOR COOLING, THE OUTDOOR AIR, RETURN, AND RELIEF DAMPERS SHALL OPERATE COORDINATELY IN THE ECONOMIZER MODE TO MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN THE OUTSIDE AIR TEMPERATURE RISES ABOVE THE RETURN AIR TEMPERATURE, OR AS OTHERWISE SET, THE OUTSIDE AIR DAMPERS SHALL RETURN TO MINIMUM POSITION, THE RETURN DAMPERS SHALL OPERATE COORDINATELY.
   2.4. ENERGY RECOVERY WHEEL:
      2.4.1. THE ENERGY RECOVERY WHEEL SHALL OPERATE WHEN IT IS ADVANTAGEOUS TO PRECONDITION THE INCOMING OUTSIDE AIR. IT SHALL MODULATE SPEED TO MAINTAIN THE DESIRED MIXED-AIR TEMPERATURE SETPOINT, DURING ECONOMIZER OPERATION, THE WHEEL SHALL BE OFF AND BYPASS DAMPERS SHALL OPEN IF UNIT IS SO EQUIPPED.
      2.4.2. PREHEAT COIL SHALL OPERATE TO MAINTAIN INCOMING SUPPLY AIR TEMPERATURE AT 20 DEG F MINIMUM. PREHEAT COIL SHALL BE DISABLED WHEN OUTDOOR AIR IS ABOVE THIS TEMPERATURE, OR DURING NO-CALL OR COOLING OPERATION, INCLUDING ECONOMIZER OPERATION.
   2.5. IF THE TEMPERATURE INSIDE THE SPACE RISES ABOVE 85 DEG F, OR AS SET, THE TRACK AREA EXHAUST FANS SHALL BE ENABLED. IF THE SPACE TEMPERATURE IS LESS THAN THE OUTDOOR AIR TEMPERATURE, THE FANS SHALL REMAIN OFF. IF THE SPACE TEMPERATURE RISES ABOVE THE OUTDOOR AIR TEMPERATURE, OR ABOVE 95 DEG F UNDER ANY CIRCUMSTANCE, THE AIR HANDLING SYSTEM SHALL MODULATE OPEN TO FULL OUTSIDE AIR MODE, AND IF THE SPACE TEMPERATURE CONTINUES TO RISE, FANS SHALL STAGE ON IN PAIRS WITH 10 MINUTES BETWEEN STAGES. SEE ABOVE FOR START SEQUENCE FOR THE TRACK AREA EXHAUST FANS AND INTAKE LOUVERS. WHEN THE SPACE TEMPERATURE DROPS BELOW 85 DEG F, OR BELOW 95 DEG F WHILE THE OUTDOOR AIR TEMPERATURE IS HIGHER THAN 95 DEG F, THE FANS SHALL STAGE OFF IN 2 MINUTE INTERVALS AND THE AIR HANDLING UNITS SHALL RETURN TO NORMAL OPERATION. IF THE SPACE TEMPERATURE DROPS BELOW 60 DEG F OR AS SET, THE HVAC CONTROL SYSTEM SHALL BREAK THE SHUTDOWN CONTACT CONNECTION ON ALL OF THE TRACK AREA EXHAUST FAN MOTOR STARTERS TO ENSURE THAT ALL FANS ARE OFF AND HAVE NOT BEEN LEFT IN MANUAL ON MODE.
   2.6. ON A CALL FOR HEATING, THE OUTSIDE AIR DAMPER SHALL MODULATE TO MINIMUM POSITION, RETURN AND RELIEF AIR DAMPERS SHALL OPERATE COORDINATELY, AND THE HYDRONIC HEATING COIL VALVE SHALL MODULATE AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE AT SETPOINT CONDITIONS.
   2.7. CO2 DEMAND CONTROL VENTILATION SHALL OPERATE AS FOLLOWS:
      2.7.1. SPACE CO2 SENSORS SHALL RESET THE MINIMUM OUTDOOR AIR DAMPER POSITION IN A LINEAR RELATIONSHIP. DURING OCCUPIED HOURS, SYSTEM SHALL PROVIDE A MINIMUM OF 10% OF DESIGN OUTSIDE AIR AT 500 PARTS PER MILLION OF CO2 OR LESS. SYSTEM SHALL PROVIDE FULL DESIGN OUTSIDE AIR (SEE EQUIPMENT SCHEDULES) AT 1,200 PARTS PER MILLION OF CO2 OR GREATER.
      2.7.2. DURING UNOCCUPIED HOURS, THE MINIMUM OUTDOOR AIR INTAKE PERCENTAGE SHALL BE 0%.
      2.7.3. CO2 DEMAND CONTROL VENTILATION SHALL BE CONFIGURED TO PREVENT MIXED-AIR TEMPERATURE FROM FALLING BELOW 45 DEG F OR AS SET, EVEN IF SPACE IS CALLING FOR ADDITIONAL VENTILATION.

3. DURING UNOCCUPIED HOURS:
   3.1. SUPPLY FAN SHALL CYCLE ON AND OFF WITH HEATING AND COOLING DEMANDS. WHEN THE SUPPLY FAN IS ON, THE RELIEF AIR DAMPERS SHALL BE OPEN AND THE EXHAUST FAN SHALL MODULATE TO MAINTAIN A SLIGHTLY POSITIVE ZONE PRESSURE, TRACKING THE SUPPLY AIR FAN.
   3.2. OUTDOOR AIR DAMPER SHALL BE CLOSED. RELIEF FAN DAMPERS CLOSED, AND RELIEF FAN OFF, UNLESS OVERRIDDEN BY ECONOMIZER COOLING DEMAND.
   3.3. THE ENERGY RECOVERY WHEEL SHALL BE OFF.
   3.4. CALLS FOR COOLING SHALL BE SATISFIED AS IN THE OCCUPIED MODE.
   3.5. CALLS FOR HEATING SHALL BE SATISFIED AS IN THE OCCUPIED MODE.
   3.6. CO2 DEMAND CONTROL VENTILATION SHALL NOT BE ACTIVE DURING UNOCCUPIED HOURS.
   3.7. NIGHT PURGE MODE SHALL OPERATE AS FOLLOWS:
      3.7.1. DURING A SET TIME, IF SPACE TEMPERATURE IS ABOVE OCCUPIED SETPOINT, AND THE OUTDOOR AIR TEMPERATURE IS BELOW SPACE TEMPERATURE, AIR HANDLING SYSTEM SHALL BE ACTIVATED AND TRACK AREA EXHAUST FANS STAGED TO PURGE SPACE WITH COOLER OUTSIDE AIR. SYSTEM SHALL DEACTIVATE WHEN NIGHT PURGE TIME HAS ELAPSED OR WHEN OUTDOOR AIR TEMPERATURE RISES ABOVE SPACE TEMPERATURE.
   3.8. MORNING WARMUP/COOLDOWN MODE SHALL OPERATE AS FOLLOWS:
      3.8.1. AS DETERMINED BY OPTIMUM START ALGORITHM, AIR HANDLING SYSTEM SHALL ACTIVATE PRIOR TO OCCUPANCY TO BRING SPACE TO OCCUPIED SETPOINT PRIOR TO OCCUPANCY. SYSTEM SHALL OPERATE IN FULL RECIRCULATION MODE DURING THIS MODE, UNLESS OVERRIDDEN BY ECONOMIZER COOLING AVAILABILITY.

4. SAFETY SEQUENCES.
   4.1. ALL SAFETY DEVICES SHALL BE HARDWIRED TO AIR HANDLING UNIT COMPONENTS TO ACCOMPLISH THE REQUIRED OPERATION TO THE EXTENT PRACTICAL.
   4.1. SMOKE DETECTORS:
      4.1.1. UNITS SHALL BE EQUIPPED WITH RETURN AIR DUCT SMOKE DETECTORS.
      4.1.2. COORDINATE SMOKE DETECTION ALARM WITH THE FIRE ALARM CONTROL PANEL ON ALL APPLICABLE UNITS. INDICATE TROUBLE AT FIRE ALARM ANNUNCIATOR PANEL.
      4.1.3. UPON SMOKE DETECTION, FANS SHALL SHUT DOWN, AND OUTSIDE AIR AND RELIEF DAMPERS CLOSED. TRACK AREA EXHAUST FANS SHALL BE SHUT DOWN AND PROHIBITED FROM OPERATING DURING A SMOKE DETECTION ALARM IN THE AIR HANDLING SYSTEM.
      4.1.4. INDICATE DUCT SMOKE DETECTOR TROUBLE AT BUILDING HVAC CONTROL SYSTEM.
   4.2. LOW MIXED-AIR TEMPERATURE:
      4.2.1. UPON DETECTION OF A LOW MIXED-AIR TEMPERATURE ENTERING THE HYDRONIC COILS (45F), THE FANS SHALL SHUT OFF AND THE OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED. THE HEATING COIL AND PREHEAT COIL VALVES SHALL BE OPEN.
      4.2.2. INDICATE ALARM AT HVAC CONTROL SYSTEM.
   4.3. HIGH STATIC PRESSURE:
      4.3.1. UPON DETECTION OF HIGH STATIC PRESSURE AT THE SUPPLY OR EXHAUST FAN OUTLET, FANS SHALL SHUT DOWN AND OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED.
      4.3.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
   4.4. LOW STATIC PRESSURE:
      4.4.1. UPON DETECTION OF LOW STATIC PRESSURE AT THE SUPPLY OR EXHAUST FAN INLET, FANS SHALL SHUT DOWN AND OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED.
      4.4.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
5. OTHER SEQUENCES AND MONITORING POINTS:
   5.1. ECONOMIZER FAULT DETECTION AND DIAGNOSTICS. EVALUATE ECONOMIZER OPERATION PER ASHRAE STANDARD 90.1-2016 SECTION 6.4.3.12. DISPLAY ALARM IN HVAC CONTROL SYSTEM IF ECONOMIZER IS NOT FUNCTIONING PROPERLY.
   5.2. AHU VFD FAULT ALARM.
   5.3. AHU VFD STATUS.
   5.4. AHU WHEEL STATUS.
   5.5. AHU TEMPERATURE AND PRESSURE READINGS.
   5.6. SINGLE-ZONE VAV FAN SPEED WITH MINIMUM STATIC PRESSURE 0.15" FOR FABRIC DUCT. UNIT SHALL VARY THE SUPPLY FAN SPEED AS REQUIRED TO SATISFY DEMANDS AND REDUCE FAN SPEED WHEN FULL FLOW IS NOT REQUIRED. DURING PERIODS OF LOW COOLING LOAD, FAN SPEED SHALL BE NO GREATER THAN 66% OF DESIGN SPEED.

SINGLE-ZONE HEATING AND COOLING AIR HANDLING UNITS WITH ECONOMIZERS AND WITHOUT ENERGY RECOVERY (AHU-2,3,4)

1. THE UNITS SHALL BE CONTROLLED BY THE CENTRAL BUILDING HVAC CONTROL SYSTEM.

2. DURING OCCUPIED HOURS:
   2.1. SUPPLY FAN SHALL BE ON. THE RELIEF AIR DAMPERS SHALL BE OPEN AND THE EXHAUST FAN SHALL MODULATE WITHIN A BAND OF SPEED TO MAINTAIN A SLIGHTLY POSITIVE ZONE PRESSURE WHILE TRACKING THE SUPPLY AIR FAN.
   2.2. OUTDOOR AIR DAMPER SHALL BE OPEN TO THE MINIMUM POSITION, UNLESS OVERRIDDEN BY ECONOMIZER COOLING DEMAND OR CO2 VENTILATION DEMAND.
   2.3. ON A CALL FOR COOLING, THE OUTDOOR AIR, RETURN, AND RELIEF DAMPERS SHALL OPERATE COORDINATELY IN ECONOMIZER MODE TO MAINTAIN SPACE TEMPERATURE AT SETPOINT. WHEN ECONOMIZER OPERATION ALONE CANNOT MAINTAIN SETPOINT CONDITIONS, THE HYDRONIC COOLING COIL SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS. WHEN THE OUTSIDE AIR TEMPERATURE RISES ABOVE THE RETURN AIR TEMPERATURE, OR AS OTHERWISE SET, THE OUTSIDE AIR DAMPERS SHALL RETURN TO MINIMUM POSITION, THE RETURN AND RELIEF AIR DAMPERS SHALL OPERATE COORDINATELY, AND THE HYDRONIC COOLING COIL SHALL OPERATE ALONE TO MAINTAIN SETPOINT CONDITIONS.
   2.4. ON A CALL FOR HEATING, THE OUTSIDE AIR DAMPER SHALL MODULATE TO MINIMUM POSITION, RETURN AND RELIEF AIR DAMPERS SHALL OPERATE COORDINATELY, AND THE HYDRONIC HEATING COIL SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE.
   2.5. CO2 DEMAND CONTROL VENTILATION SHALL OPERATE AS FOLLOWS:
      2.5.1. RETURN AIR DUCT CO2 SENSOR SHALL RESET THE MINIMUM OUTDOOR AIR DAMPER POSITION IN A LINEAR RELATIONSHIP. SYSTEM SHALL PROVIDE 10% OF DESIGN OUTSIDE AIR AT 500 PARTS PER MILLION OF CO2 OR LESS. SYSTEM SHALL PROVIDE FULL DESIGN OUTSIDE AIR (SEE EQUIPMENT SCHEDULES) AT 1,200 PARTS PER MILLION OF CO2 OR GREATER.
      2.5.2. CO2 DEMAND CONTROL VENTILATION SHALL BE CONFIGURED TO PREVENT MIXED-AIR TEMPERATURE FROM FALLING BELOW 45 DEG F OR AS SET, EVEN IF SPACE IS CALLING FOR ADDITIONAL VENTILATION.

3. DURING UNOCCUPIED HOURS:
   3.1. SUPPLY FAN SHALL CYCLE ON AND OFF WITH HEATING AND COOLING DEMANDS.
   3.2. OUTDOOR AIR DAMPER SHALL BE CLOSED, RELIEF AIR DAMPERS CLOSED AND RELIEF FAN OFF, UNLESS OVERRIDDEN BY ECONOMIZER COOLING DEMAND.
   3.3. CALLS FOR COOLING SHALL BE SATISFIED AS IN THE OCCUPIED MODE.
   3.4. CALLS FOR HEATING SHALL BE SATISFIED AS IN THE OCCUPIED MODE.
   3.5. CO2 DEMAND CONTROL VENTILATION SHALL NOT BE ACTIVE DURING UNOCCUPIED HOURS.
   3.6. NIGHT PURGE MODE SHALL OPERATE AS FOLLOWS:
      3.6.1. DURING A SET TIME, IF SPACE TEMPERATURE IS ABOVE OCCUPIED SETPOINT, AND THE OUTDOOR AIR TEMPERATURE IS BELOW SPACE TEMPERATURE, AIR HANDLING SYSTEM SHALL BE ACTIVATED TO PURGE SPACE WITH COOLER OUTSIDE AIR. SYSTEM SHALL DEACTIVATE WHEN NIGHT PURGE TIME HAS ELAPSED OR WHEN OUTDOOR AIR TEMPERATURE RISES ABOVE SPACE TEMPERATURE.
   3.7. MORNING WARMUP/COOLDOWN MODE SHALL OPERATE AS FOLLOWS:
      3.7.1. AS DETERMINED BY OPTIMUM START ALGORITHM, AIR HANDLING SYSTEM SHALL ACTIVATE PRIOR TO OCCUPANCY TO BRING SPACE TO OCCUPIED SETPOINT PRIOR TO OCCUPANCY. SYSTEM SHALL OPERATE IN FULL RECIRCULATION MODE DURING THIS MODE, UNLESS OVERRIDDEN BY ECONOMIZER COOLING AVAILABILITY.

4. SAFETY SEQUENCES.
   4.1. ALL SAFETY DEVICES SHALL BE HARDWIRED TO AIR HANDLING UNIT COMPONENTS TO ACCOMPLISH THE REQUIRED OPERATION TO THE EXTENT PRACTICAL.
      4.1.1. COORDINATE SMOKE DETECTION ALARM WITH THE FIRE ALARM CONTROL PANEL ON ALL APPLICABLE UNITS. INDICATE TROUBLE AT FIRE ALARM ANNUNCIATOR PANEL.
      4.1.2. UPON SMOKE DETECTION, FANS SHALL SHUT DOWN, AND OUTSIDE AIR AND RELIEF DAMPERS CLOSED.
      4.1.3. INDICATE DUCT SMOKE DETECTOR TROUBLE AT BUILDING HVAC CONTROL SYSTEM.
   4.2. LOW MIXED-AIR TEMPERATURE:
      4.2.1. UPON DETECTION OF A LOW MIXED-AIR TEMPERATURE ENTERING THE HYDRONIC COILS (45F), THE FANS SHALL SHUT OFF AND THE OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED. THE HEATING COIL VALVE SHALL BE OPEN.
      4.2.2. INDICATE ALARM AT HVAC CONTROL SYSTEM.
   4.3. HIGH STATIC PRESSURE:
      4.3.1. UPON DETECTION OF HIGH STATIC PRESSURE AT THE SUPPLY OR EXHAUST FAN OUTLET, FANS SHALL SHUT DOWN AND OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED.
      4.3.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
   4.4. LOW STATIC PRESSURE:
      4.4.1. UPON DETECTION OF LOW STATIC PRESSURE AT THE SUPPLY OR EXHAUST FAN INLET, FANS SHALL SHUT DOWN AND OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED.
      4.4.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
5. OTHER SEQUENCES AND MONITORING POINTS:
   5.1. ECONOMIZER FAULT DETECTION AND DIAGNOSTICS. EVALUATE ECONOMIZER OPERATION PER ASHRAE STANDARD 90.1-2016 SECTION 6.4.3.12. DISPLAY ALARM IN HVAC CONTROL SYSTEM IF ECONOMIZER IS NOT FUNCTIONING PROPERLY.
   5.2. AHU VFD FAULT ALARM.
   5.3. AHU VFD STATUS.
   5.4. AHU WHEEL STATUS.
   5.5. AHU TEMPERATURE AND PRESSURE READINGS.
   5.6. SINGLE-ZONE VAV FAN SPEED WITH MINIMUM STATIC PRESSURE 0.15" FOR FABRIC DUCT (FABRIC DUCT INCLUDED ON UNIT 2 ONLY). UNIT SHALL VARY THE SUPPLY FAN SPEED AS REQUIRED TO SATISFY DEMANDS AND REDUCE FAN SPEED WHEN FULL FLOW IS NOT REQUIRED. DURING PERIODS OF LOW COOLING LOAD, FAN SPEED SHALL BE NO GREATER THAN 66% OF DESIGN SPEED.

100% OUTDOOR AIR UNIT WITH ENERGY RECOVERY (LOCKER AND RESTROOMS AHU-5)

1. THE UNITS SHALL BE CONTROLLED BY THE CENTRAL BUILDING HVAC CONTROL SYSTEM.

2. DURING OCCUPIED HOURS:
   2.1. UNIT SHALL OPERATE IN 100% OUTSIDE AIR MODE.
   2.2. SUPPLY FAN AND EXHAUST FAN SHALL BE ON.
   2.3. OUTDOOR AIR AND EXHAUST DAMPER SHALL BE OPEN. ON A CALL FOR COOLING, THE ENERGY RECOVERY WHEEL SPEED SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE AT SETPOINT. WHEN ENERGY RECOVERY OPERATION ALONE CANNOT MAINTAIN SETPOINT CONDITIONS, THE HYDRONIC COOLING COIL SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.
   2.4. ON A CALL FOR HEATING, THE ENERGY RECOVERY WHEEL SPEED SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE AT SETPOINT. WHEN ENERGY RECOVERY OPERATION ALONE CANNOT MAINTAIN SETPOINT CONDITIONS, THE HYDRONIC HEATING COIL SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.
   2.5. PREHEAT COIL SHALL OPERATE TO MAINTAIN INCOMING SUPPLY AIR TEMPERATURE AT 20 DEG F MINIMUM. PREHEAT COIL SHALL BE DISABLED WHEN OUTDOOR AIR IS ABOVE THIS TEMPERATURE, OR DURING NO-CALL OR COOLING OPERATION.

3. DURING UNOCCUPIED HOURS:
   3.1. UNIT SHALL OPERATE IN FULL RECIRCULATION MODE DURING UNOCCUPIED HOURS EXCEPT WHEN OVERRIDDEN BY AN ECONOMIZER COOLING DEMAND.
   3.2. SUPPLY FAN AND EXHAUST FAN SHALL CYCLE ON AND OFF WITH HEATING AND COOLING DEMANDS. OUTDOOR AIR AND EXHAUST DAMPER SHALL BE CLOSED WHEN UNIT IS OFF AND OPEN WHEN UNIT IS ON.
   3.3. CALLS FOR COOLING SHALL BE SATISFIED AS IN THE OCCUPIED MODE, EXCEPT THAT UNIT SHALL OPERATE IN RECIRCULATION MODE UNLESS FREE COOLING IS AVAILABLE.
   3.4. CALLS FOR HEATING SHALL BE SATISFIED AS IN THE OCCUPIED MODE, EXCEPT THAT UNIT SHALL OPERATE IN RECIRCULATION MODE.
   3.5. NIGHT PURGE MODE SHALL OPERATE AS FOLLOWS:
      3.5.1. DURING A SET TIME, IF SPACE TEMPERATURE IS ABOVE OCCUPIED SETPOINT, AND THE OUTDOOR AIR TEMPERATURE IS BELOW SPACE TEMPERATURE, AIR HANDLING SYSTEM SHALL BE ACTIVATED TO PURGE SPACE WITH COOLER OUTSIDE AIR. ENERGY RECOVERY WHEEL SHALL BE OFF. SYSTEM SHALL DEACTIVATE WHEN NIGHT PURGE TIME HAS ELAPSED OR WHEN OUTDOOR AIR TEMPERATURE RISES ABOVE SPACE TEMPERATURE.
   3.6. MORNING WARMUP/COOLDOWN MODE SHALL OPERATE AS FOLLOWS:
      3.6.1. AS DETERMINED BY OPTIMUM START ALGORITHM, AIR HANDLING SYSTEM SHALL ACTIVATE PRIOR TO OCCUPANCY TO BRING SPACE TO OCCUPIED SETPOINT PRIOR TO OCCUPANCY. SYSTEM SHALL OPERATE IN FULL RECIRCULATION MODE DURING THIS MODE, UNLESS OVERRIDDEN BY ECONOMIZER COOLING AVAILABILITY.

4. SAFETY SEQUENCES:
   4.1. LOW MIXED-AIR TEMPERATURE:
      4.1.1. UPON DETECTION OF A LOW MIXED-AIR TEMPERATURE ENTERING THE HYDRONIC COILS (45F), THE FANS SHALL SHUT OFF AND THE OUTSIDE AIR AND EXHAUST DAMPERS SHALL BE CLOSED. THE HEATING COIL AND PREHEAT COIL VALVE SHALL BE OPEN.
   4.2. HIGH STATIC PRESSURE:
      4.3.1. UPON DETECTION OF HIGH STATIC PRESSURE AT THE SUPPLY OR EXHAUST FAN OUTLET, FANS SHALL SHUT DOWN AND OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED.
      4.3.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
   4.4. LOW STATIC PRESSURE:
      4.4.1. UPON DETECTION OF LOW STATIC PRESSURE AT THE SUPPLY OR EXHAUST FAN INLET, FANS SHALL SHUT DOWN AND OUTSIDE AIR AND RELIEF DAMPERS SHALL BE CLOSED.
      4.4.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
5. OTHER SEQUENCES AND MONITORING POINTS:
   5.1. AHU VFD FAULT ALARM.
   5.2. AHU VFD STATUS.
   5.3. AHU WHEEL STATUS.
   5.4. AHU TEMPERATURE AND PRESSURE READINGS.

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REGISTERED PROFESSIONAL ENGINEER
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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MECHANICAL SEQUENCE OF OPERATION

DWG. NO.
M701

SCALE:

ISSUE DATE: 04/09/2020

JOB NO. 8514

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HEATING AND COOLING HYDRONIC FAN COILS WITH ENERGY RECOVERY VENTILATORS (CLASSROOM AREAS FC-6A,6B,7, ERV-6A,6B,7, DH-ERV-6A,6B,7 -O, DH-ERV-6A,6B,7 -S)

1. THE UNITS SHALL BE CONTROLLED BY THE CENTRAL BUILDING HVAC CONTROL SYSTEM

2. DURING OCCUPIED HOURS:

 2.1. SUPPLY FAN OF THE FAN COIL SHALL BE ON.
 2.2. ON A CALL FOR COOLING, THE HYDRONIC COOLING COIL VALVE SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.
 2.3. ON A CALL FOR HEATING, THE HYDRONIC HEATING COIL VALVE SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.
3. DURING UNOCCUPIED HOURS:

 3.1. SUPPLY FAN OF THE FAN COIL SHALL CYCLE ON AND OFF WITH HEATING AND COOLING DEMANDS.
 3.2. CALLS FOR COOLING SHALL BE SATISFIED AS IN THE OCCUPIED MODE.
 3.3. CALLS FOR HEATING SHALL BE SATISFIED AS IN THE OCCUPIED MODE.
 3.4. CO2 DEMAND CONTROL VENTILATION SHALL NOT BE ACTIVE IN THE UNOCCUPIED MODE.

4. CO2 DEMAND CONTROL VENTILATION SHALL OPERATE AS FOLLOWS:
 4.1. SPACE CO2 SENSOR SHALL ENABLE THE ENERGY RECOVERY VENTILATOR AT 1,200 PARTS PER MILLION OF CO2 OR GREATER. SYSTEM SHALL DISABLE THE ENERGY RECOVERY VENTILATOR AT 1,000 PARTS PER MILLION OF CO2 OR LESS.
 4.2. TEMPERATURE OF THE ERV SUPPLY AIR SHALL BE MONITORED. IF THE UNIT IS ACTIVE AND THE SUPPLY AIR TEMPERATURE DROPS BELOW 60 DEG F. THE ELECTRIC DUCT HEATER ON THE SUPPLY SIDE SHALL STAGE TO MAINTAIN A DISCHARGE TEMPERATURE OF 65 DEG F. THE DUCT HEATER SHALL HAVE INTERNAL AIRFLOW PROVING INTERLOCK AND NOT OPERATE IF ERV IS NOT OPERATING.
 4.3. TEMPERATURE OF THE ERV INTAKE AIR SHALL BE MONITORED. IF THE UNIT IS ACTIVE AND THE OUTSIDE AIR TEMPERATURE DROPS BELOW 15 DEG F, THE ELECTRIC DUCT HEATER ON THE INTAKE SIDE SHALL STAGE TO MAINTAIN INCOMING AIR TEMPERATURE OF 20F TO THE ERV. THE DUCT HEATER SHALL HAVE INTERNAL AIRFLOW PROVING INTERLOCK AND NOT OPERATE IF ERV IS NOT OPERATING.
5. MORNING WARMUP/COOLDOWN SHALL OPERATE AS FOLLOWS:
 5.1. AS DETERMINED BY THE OPTIMUM START ALGORITHM. THE SYSTEM SHALL ACTIVATE TO BRING THE SPACE TO THE OCCUPIED SETPOINT JUST PRIOR TO OCCUPANCY. THE SYSTEM SHALL OPERATE AS DURING THE OCCUPIED MODE, EXCEPT THAT THE ERVs SHALL BE DISABLED DURING THIS TIME.

6. SAFETY SEQUENCES:
 6.1. ALL SAFETY DEVICES SHALL BE HARDWIRED TO UNIT COMPONENTS TO ACCOMPLISH THE REQUIRED OPERATION TO THE EXTENT PRACTICAL.
 6.2. LOW SPACE TEMPERATURE:
  6.2.1. UPON DETECTION OF A LOW MIXED-AIR TEMPERATURE ENTERING THE HYDRONIC COILS (45F), THE FANS SHALL SHUT OFF AND THE ERV SHALL BE DISABLED. THE HEATING COIL VALVE SHALL BE OPEN.
  6.2.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
  6.2.3. ERV LOW SUPPLY TEMPERATURE:
   6.2.3.1. UPON DETECTION OF A LOW SUPPLY-AIR TEMPERATURE FROM THE ERV FOR MORE THAN 15 MINUTES (45 DEG F), THE ERV SHALL BE DISABLED.
   6.2.3.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
7. OTHER SEQUENCES:
 7.1. ERV DIRTY FILTER STATUS.
 7.2. ERV INTAKE TEMPERATURE BEFORE AND AFTER HEATING COIL.
 7.3. ERV SUPPLY TEMPERATURE BEFORE AND AFTER HEATING COIL.

HEATING-ONLY FAN COILS (ENTRY LOBBY FC-1A,1B)

1. THE UNITS SHALL BE CONTROLLED BY THE CENTRAL BUILDING HVAC CONTROL SYSTEM

2. DURING ALL HOURS:

 2.1. SUPPLY FAN SHALL CYCLE ON AND OFF WITH HEATING DEMANDS.
 2.2. ON A CALL FOR HEATING, THE HYDRONIC HEATING COIL VALVE SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.

 2.3. SAFETY SEQUENCES:
  2.3.1. LOW SPACE TEMPERATURE:
   2.3.1.1. UPON DETECTION OF A LOW SPACE TEMPERATURE (35F), THE HEATING COIL VALVE SHALL BE OPEN AT ALL TIMES. THE FAN SHALL CONTINUE TO CYCLE AS NORMAL.
   2.3.1.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.
 2.4. OTHER SEQUENCES:
  2.4.1. VESTIBULE SHALL BE RESTRICTED TO 60° HEATING SETPOINT, AND HEATING SHALL BE LOCKED OUT AT OUTDOOR AIR TEMPERATURES ABOVE 45°F.

COOLING-ONLY FAN COIL FC-2,4 (STAIRWELLS)

1. THE UNITS SHALL BE CONTROLLED BY THE CENTRAL BUILDING HVAC CONTROL SYSTEM

2. DURING ALL HOURS:

 2.1. SUPPLY FAN OF THE FAN COIL SHALL CYCLE WITH COOLING DEMANDS. SUPPLY FAN OF THE FAN COIL SHALL BE OFF DURING HEATING OR NO DEMAND.
 2.2. ON A CALL FOR COOLING, THE HYDRONIC COOLING COIL VALVE SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.
 2.3. THIS AREA IS HEATED BY A STANDALONE ELECTRIC UNIT HEATER WITH INTEGRAL THERMOSTAT. SEE UNIT HEATER SEQUENCES.

3. SAFETY SEQUENCES:
 3.1. LOW SPACE TEMPERATURE:
  3.1.1. UPON DETECTION OF A LOW SPACE TEMPERATURE (50F), THE FANS SHALL SHUT OFF AND THE COOLING COIL VALVE SHALL BE OPEN AT ALL TIMES.
  3.1.2. INDICATE ALARM AT BUILDING HVAC CONTROL SYSTEM.

DUCTLESS MINI-SPLIT FAN COIL AND HEAT PUMP HP,FC-5 AND HP,FC-8 (ELECTRICAL 117 AND ELECTRICAL AREA 206)

1. THE UNIT SHALL BE CONTROLLED BY ITS OWN ONBOARD CONTROLS.

2. DURING ALL HOURS:

 2.1. SUPPLY FAN OF THE FAN COIL SHALL CYCLE WITH HEATING AND COOLING DEMANDS.
 2.2. ON A CALL FOR HEATING OR COOLING, MECHANICAL HEATING OR COOLING SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.
3. SEE ADDITIONAL SEQUENCES BELOW FOR ROOM TEMPERATURE MONITORING.

COOLING-ONLY FAN COIL FC-3 AND FIN-TUBE RADIATOR FTR-1 (HPP OFFICE)

1. THE UNITS SHALL BE CONTROLLED BY THE CENTRAL BUILDING HVAC CONTROL SYSTEM

2. DURING ALL HOURS:

 2.1. SUPPLY FAN OF THE FAN COIL SHALL CYCLE WITH COOLING DEMANDS. SUPPLY FAN OF THE FAN COIL SHALL BE OFF DURING HEATING OR NO DEMAND.
 2.2. ON A CALL FOR COOLING, THE HYDRONIC COOLING COIL VALVE SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.
 2.3. ON A CALL FOR HEATING, THE FIN TUBE RADIATOR'S HEATING COIL VALVE SHALL BE ACTIVATED AS NECESSARY TO MAINTAIN THE SPACE TEMPERATURE SETPOINT CONDITIONS.

3. SAFETY SEQUENCES:
 3.1. LOW SPACE TEMPERATURE:
  3.1.1. UPON DETECTION OF A LOW SPACE TEMPERATURE (50F), THE FANS SHALL SHUT OFF AND THE HEATING COIL VALVE SHALL BE OPEN AT ALL TIMES. THE COOLING COIL VALVE SHALL ALSO BE OPEN, HOWEVER THE FAN SHALL NOT OPERATE.
  3.1.2. INDICATE ALARM AT THE BUILDING HVAC CONTROL SYSTEM.

UNIT HEATERS

ELECTRIC UNIT HEATERS SHALL CYCLE TO MAINTAIN SETPOINT. CONTROLLED BY INTEGRAL THERMOSTAT.

EXHAUST FANS

EXHAUST FAN EF-1 SHALL BE CONTROLLED BY INTERLOCK WITH ROOM LIGHTS (BY DIV 26).
EXHAUST FAN EF-2 SHALL BE CONTROLLED BY LOCAL SWITCH (BY DIV 26).
EXHAUST FAN EF-4 SHALL SHALL BE CONTROLLED BY INTERLOCK WITH ROOM LIGHTS (BY DIV 26).

CIRCULATION FANS

CIRCULATION FANS SHALL BE MANUALLY CONTROLLED BY THE SPACE OCCUPANT.

DOMESTIC HOT WATER PUMPS

DOMESTIC HOT WATER CIRCULATION PUMPS SHALL BE ON DURING OCCUPIED HOURS AND OFF DURING UNOCCUPIED HOURS. CONTROLLED BY BUILDING HVAC CONTROL SYSTEM. AN AQUASTAT TEMPERATURE SENSOR ON THE RETURN LINE SHALL CYCLE EACH PUMP SUCH THAT THE RETURN LINE DOES NOT FALL MORE THAN 5 DEG F BELOW THE SUPPLY LINE.

DISPLAY SUPPLY AND RETURN WATER TEMPERATURE ON OPERATOR DISPLAY.

HYDRONIC HEATING PUMPS

HEATING WATER PUMP SYSTEM SHALL BE ENABLED DURING OUTDOOR AIR TEMPERATURES LESS THAN 65 DEG F. SYSTEM SHALL BE EQUIPPED WITH A WATER SENSOR WHICH DETECTS IF THE SYSTEM IS FILLED WITH FLUID PRIOR TO STARTING PUMPS. PUMPS SHALL OPERATE TO MAINTAIN DIFFERENTIAL PRESSURE IN LOOP AS SET. PUMPS SHALL OPERATE IN PARALLEL CONFIGURATION WHERE BOTH PUMPS STAGE AND VARY SPEED AS NEEDED. IF ONE PUMP FAILS, OTHER PUMP SHALL OPERATE TO MAINTAIN PRESSURE TO THE EXTENT REQUIRED WITHIN MOTOR CAPACITY. INDICATE ALARM AT CONTROL SYSTEM IF A PUMP FAILS. DIFFERENTIAL PRESSURE SENSOR SHALL BE LOCATED AT THE MOST REMOTE HEAT EXCHANGER/COIL OR THE ONE WITH THE HIGHEST PRESSURE DROP AT DESIGN CONDITIONS. DIFFERENTIAL PRESSURE SETPOINT SHALL BE RESTRICTED TO NO MORE THAN 110% OF THE VALUE NEEDED TO ACHIEVE DESIGN FLOW THROUGH THIS HEAT EXCHANGER/COIL.

HEATING WATER SUPPLY TEMPERATURE SHALL BE RESET IN A LINEAR RELATIONSHIP BASED ON OUTDOOR AIR TEMPERATURE. TEMPERATURE SHALL BE 140 DEG F AT 40 DEG F OUTDOOR AIR TEMPERATURE. TEMPERATURE SHALL BE 110 DEG F AT 65 DEG F OUTDOOR TEMPERATURE.

SYSTEM SHALL BE CONFIGURED FOR VARIABLE FLOW WITH MINIMUM FLOW OF 25% OF DESIGN.
SYSTEM SHALL RESET DIFFERENTIAL PRESSURE SETPOINT DOWNWARD UNTIL AT LEAST ONE VALVE IS WIDE OPEN. IF ADDITIONAL FLOW IS NEEDED, DIFFERENTIAL PRESSURE SETPOINT SHALL BE INCREASED.

INCLUDE HEATING WATER BUILDING LOOP FLOW METER. DISPLAY FLOW ON OPERATOR WORKSTATION.
MONITOR LEVEL OF GLYCOL FEED SYSTEM GFS-1. INDICATE ALARM AT CONTROL SYSTEM IF UNIT LEVEL IS LOW.

HYDRONIC COOLING PUMPS

CHILLED WATER PUMP SYSTEM SHALL BE ENABLED DURING OUTDOOR AIR TEMPERATURE GREATER THAN 65 DEG F. SYSTEM SHALL BE EQUIPPED WITH A WATER SENSOR WHICH DETECTS IF THE SYSTEM IS FILLED WITH FLUID PRIOR TO STARTING PUMPS. PUMPS SHALL OPERATE TO MAINTAIN DIFFERENTIAL PRESSURE IN LOOP AS SET. PUMPS SHALL OPERATE IN PARALLEL CONFIGURATION WHERE BOTH PUMPS STAGE AND VARY SPEED AS NEEDED. IF ONE PUMP FAILS, OTHER PUMP SHALL OPERATE TO MAINTAIN PRESSURE TO THE EXTENT REQUIRED WITHIN MOTOR CAPACITY. INDICATE ALARM AT CONTROL SYSTEM IF A PUMP FAILS. DIFFERENTIAL PRESSURE SENSOR SHALL BE LOCATED AT THE MOST REMOTE HEAT EXCHANGER/COIL OR THE ONE WITH THE HIGHEST PRESSURE DROP AT DESIGN CONDITIONS. DIFFERENTIAL PRESSURE SETPOINT SHALL BE RESTRICTED TO NO MORE THAN 110% OF THE VALUE NEEDED TO ACHIEVE DESIGN FLOW THROUGH THIS HEAT EXCHANGER/COIL.
CHILLED WATER SYSTEM BLENDING VALVE SHALL OPERATE TO MAINTAIN SUPPLY TEMPERATURE IN THE LOOP BY ALLOWING VARYING AMOUNTS OF WATER TO EXIT BUILDING TO THE CAMPUS CHILLED WATER RETURN SYSTEM AND TO BE MADE UP FROM THE CAMPUS CHILLED WATER SUPPLY SYSTEM.

CHILLED WATER SUPPLY TEMPERATURE SHALL BE RESET IN A LINEAR RELATIONSHIP BASED ON OUTDOOR AIR TEMPERATURE. TEMPERATURE SHALL BE 44 DEG F AT 80 DEG F OUTDOOR TEMPERATURE. TEMPERATURE SHALL BE 54 DEG F AT 65 DEG F OUTDOOR TEMPERATURE.

SYSTEM SHALL BE CONFIGURED FOR VARIABLE FLOW WITH MINIMUM FLOW OF 25% OF DESIGN.
SYSTEM SHALL RESET DIFFERENTIAL PRESSURE SETPOINT DOWNWARD UNTIL AT LEAST ONE VALVE IS WIDE OPEN. IF ADDITIONAL FLOW IS NEEDED, DIFFERENTIAL PRESSURE SETPOINT SHALL BE INCREASED.

INCLUDE CHILLED WATER BUILDING LOOP FLOW METER. DISPLAY FLOW ON OPERATOR WORKSTATION.
SEE ADDITIONAL SEQUENCES BELOW FOR CAMPUS CHILLED WATER LOOP BTU METER MONITORING.

STEAM CONDENSATE RETURN PUMPS

STEAM CONDENSATE RETURN PUMPS SHALL OPERATE BASED ON THEIR INTERNAL LEVEL CONTROL. PROVIDE ALARM STATUS FOR HIGH LEVEL AND PUMP FAILURE.

STEAM HEAT EXCHANGER

STEAM HEAT EXCHANGER SHALL BE ENABLED DURING OUTDOOR AIR TEMPERATURES LESS THAN 65 DEG F. THE HEAT EXCHANGER SHALL MODULATE STEAM FLOW TO MAINTAIN OUTLET SUPPLY WATER TEMPERATURE. IF WATER IS NOT FLOWING IN THE SYSTEM, THE STEAM CONTROL VALVE SHALL REMAIN CLOSED.

ADDITIONAL CONTROL AND MONITORING SEQUENCES

MONITOR OWNER'S DOMESTIC WATER METER AND TOTALIZE BUILDING WATER USAGE.
MONITOR OWNER'S BUILDING AND END-USE ELECTRICAL METERS AND TOTALIZE BUILDING ELECTRICITY USE AS WELL AS BY SUBCATEGORY.
MONITOR STEAM FLOW.
MONITOR CHILLED WATER FLOW FROM CAMPUS LOOP.
MONITOR HEATING WATER SYSTEM GLYCOL FEEDER LEVEL.
MONITOR ROOM TEMPERATURE OF THE FOLLOWING LOCATIONS. INDICATE ALARM AT LOW TEMPERATURE OF 45 DEG F UNLESS NOTED OTHERWISE:
RISER 116
ELECTRICAL 117
NORTH STAIR
SOUTH STAIR
NORTH MECHANICAL 205
SOUTH MECHANICAL 204
ELECTRICAL AREA 206 (INDICATE ALARM AT HIGH TEMPERATURE ABOVE 80 DEG F)

POWER FAILURE STAGING

UPON RESTORATION OF POWER, ALL SYSTEMS WHICH ARE CONNECTED TO THE HVAC CONTROL SYSTEM SHALL BE SEQUENCED TO REDUCE INITIAL DEMAND ON BUILDING ELECTRICAL SERVICE. GENERALLY, SYSTEMS SHALL BE ACTIVATED IN THIS ORDER.

1. CONTROL SYSTEMS SHALL VERIFY COMMUNICATION WITH ALL CONTROL DEVICES.
2. ACTIVATE HYDRONIC PUMPING SYSTEMS, IF OPERATING CONDITIONS ARE MET.
3. ACTIVATE STEAM HEAT EXCHANGER AND WAIT AT LEAST 2 MINUTES FOR WARMUP. AND TO WARM HYDRONIC LOOP.
4. ACTIVATE AIR HANDLING AND FAN COIL SYSTEMS IN THE FOLLOWING ORDER IF BUILDING IS IN OCCUPIED TIME, WAITING 15 SECONDS BETWEEN EACH:
 4.1. FC-1A/1B
 4.2. FC-2
 4.3. FC-3
 4.4. FC-4
 4.5. FC-6A/6B AND RESPECTIVE ERVs AND DUCT HEATERS
 4.6. FC-7 AND RESPECTIVE ERVs AND DUCT HEATERS
 4.7. AHU-2
 4.8. AHU-3
 4.9. AHU-4
 4.10. AHU-5
 4.11. AHU-1A/1B AND TRACK AREA EXHAUST FANS. IF CONDITIONS ARE MET.

INDICATE ALARM AT HVAC CONTROL SYSTEM THAT POWER FAILURE AND RESTART OCCURRED.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MECHANICAL SEQUENCE OF OPERATION

DWG. NO.
M702

SCALE:

ISSUE DATE: 04/09/2020

JOB NO. 8514

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SECTION 230000 - GENERAL HEATING, VENTILATION, AND AIR CONDITIONING REQUIREMENTS

REGULATORY REQUIREMENTS: PERFORM WORK IN ACCORDANCE WITH APPLICABLE PROVISIONS OF OREGON MECHANICAL SPECIALTY CODE, OREGON STRUCTURAL SPECIALTY CODE, OREGON PLUMBING SPECIALTY CODE, OREGON ZERO-ENERGY READY COMMERCIAL CODE (ENERGY CODE), OREGON FIRE CODE, AND ALL OTHER STATE AND LOCAL CODES AND ORDINANCES, AND ADOPTIONS THEREOF. PROVIDE MATERIALS AND LABOR NECESSARY TO COMPLY WITH RULES, REGULATIONS, AND ORDINANCES.

ALL MANUFACTURERS, PRODUCTS, FIXTURES, AND EQUIPMENT SPECIFIED ON THE DRAWINGS FORM A BASIS OF DESIGN FOR QUALITY, FEATURES, PERFORMANCE, AND APPEARANCE. SUBSTITUTIONS SHALL NOT BE PERMITTED UNLESS APPROVED IN WRITING BY THE ENGINEER.

GENERAL MATERIALS AND EQUIPMENT: PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY WITH THE CONTRACT DOCUMENTS, THAT ARE THE CURRENT PRODUCT OR MODEL LINE OF THE MANUFACTURER AND, UNLESS OTHERWISE INDICATED, NEW AND UNUSED AT THE TIME OF INSTALLATION. PROVIDE MATERIALS AND EQUIPMENT COMPLETE WITH ALL ACCESSORIES, TRIM, FINISH, SAFETY GUARDS AND OTHER DEVICES AND DETAILS NEEDED FOR A COMPLETE INSTALLATION AND FOR THE INTENDED USE AND EFFECT. WHERE AVAILABLE, PROVIDE STANDARD MATERIALS AND EQUIPMENT OF TYPES THAT HAVE BEEN PRODUCED AND USED SUCCESSFULLY IN SIMILAR SITUATIONS ON OTHER PROJECTS. WHERE MULTIPLE QUANTITIES OF A SINGLE PRODUCT, OR QUANTITIES OF SIMILAR OR RELATED PRODUCTS ARE REQUIRED, SUCH PRODUCTS SHALL BE OF A SINGLE MANUFACTURER TO THE EXTENT POSSIBLE.

INSTALLATION: COORDINATE MECHANICAL SYSTEMS, EQUIPMENT, AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS. WHERE DIMENSIONAL DISCREPANCIES EXIST, ARCHITECTURAL DRAWINGS TAKE PRECEDENCE OVER MECHANICAL DRAWINGS. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS FOLLOWING AS CLOSELY AS BUILDING CONSTRUCTION WILL PERMIT. THE MECHANICAL DRAWINGS DO NOT INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. ARRANGE WORK ACCORDINGLY AND PROVIDE OFFSETS, FITTINGS AND ACCESSORIES REQUIRED. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, UNLESS OTHERWISE INDICATED. WHERE CONCRETE HOUSEKEEPING PADS ARE INDICATED, COORDINATE SIZES AND LOCATIONS WITH ACTUAL EQUIPMENT INSTALLED. PROVIDE APPROPRIATE ANCHOR POINTS EMBEDDED IN PADS AND/OR CONCRETE FLOORS IF REQUIRED.

SECTION 230516 - EXPANSION FITTINGS AND LOOPS

INSTALL PACKLESS EXPANSION JOINTS OF TYPES AND SIZE NECESSARY TO ACCOMMODATE THERMAL EXPANSION OF PIPING. EXPANSION FITTINGS SHALL BE METAL-BELLOWS PACKLESS TYPE, OR METAL FLEXIBLE-HOSE TYPE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

INSTALL PIPE ALIGNMENT GUIDES AND ANCHORS AS NECESSARY TO GUIDE EXPANSION OF PIPING AND TO AVOID END-LOADING AND TORSION STRESS ON PIPES.

SECTION 230517 - SLEEVES AND SLEEVE SEALS

INSTALL SLEEVES AND SLEEVE SEALS WHERE PIPES PASS THROUGH PARTITION WALLS, AND CONCRETE OR CONTINUOUS LAMINATED TIMBER (CLT) FLOORS, WALLS, AND CEILINGS. (EXCEPTION: SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED HOLES IN CONCRETE. RETAIN SLEEVE SEAL SYSTEM IF OTHERWISE INDICATED BELOW.)

INSTALL SLEEVES AT ALL INTERIOR WALL PENETRATIONS AND IN CLT FLOOR SLABS AS FOLLOWS: FOR PIPING SMALLER THAN NPS 6, USE GALVANIZED-STEEL-PIPE SLEEVES COMPLYING WITH ASTM A 53, TYPE E, GRADE B, SCHEDULE 40. FOR PIPING NPS 6 AND LARGER, USE GALVANIZED-STEEL-SHEET SLEEVES FABRICATED FROM 0.0239 INCH MINIMUM THICKNESS MATERIAL, CLOSED WITH A WELDED LONGITUDINAL JOINT.

INSTALL STACK-SLEEVE FITTINGS AT ALL CONCRETE SLABS ABOVE GRADE.

INSTALL SLEEVES AT ALL CLT FLOOR SLABS, CONCRETE SLABS ON GRADE AND EXTERIOR WALL PENETRATIONS AS FOLLOWS: FOR PIPING SMALLER THAN NPS 6, USE GALVANIZED-STEEL SLEEVES COMPLYING WITH ASTM A53, SCHEDULE 40 WITH SLEEVE SEAL SYSTEM AS DESCRIBED BELOW. FOR PIPING NPS 6 AND LARGER, USE CAST-IRON SLEEVES CAST OR FABRICATED OF CAST OR DUCTILE IRON AND EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATERSTOP, WITH SLEEVE SEAL SYSTEM AS DESCRIBED BELOW.

INSTALL SLEEVE-SEAL SYSTEMS (COMPRISED OF MULTIPLE EPDM-RUBBER INTERLOCKING LINKS SHAPED TO FIT SURFACE OF PIPE, AND PRESSURE PLATE) AT ALL SLEEVES (OR CORE DRILLED HOLES) AT SLABS ON GRADE AND WALL PENETRATIONS BELOW GROUND. SLEEVES (OR CORE DRILLED HOLES) WHICH ARE TO HAVE SLEEVE-SEAL SYSTEM INSTALLED SHALL HAVE A MINMUM OF 1 INCH OF ANNULAR CLEAR SPACE AROUND THE INSTALLED PIPE. INSTALL SLEEVE SEAL SYSTEM PER MANUFACTURER'S INSTRUCTIONS.

ALL SLEEVES SHALL BE CUT FLUSH WITH SURFACES (EXCEPT FLOORS OF MECHANICAL EQUIPMENT AREAS OR OTHER WET AREAS. TRIM SLEEVES TO 2 INCHES ABOVE FINISHED FLOOR LEVEL).

GROUT SPACE OUTSIDE OF SLEEVES IN SLABS AND WALLS WITHOUT SLEEVE-SEAL SYSTEM.

WHERE PIPING PENETRATES FIRE-RATED WALLS, COMPLY WITH REQUIREMENTS IN DIVISION 7 FIRESTOPPING SECTIONS AND LOCAL BUILDING CODE FOR FIRE-RESISTANT PENETRATION ASSEMBLIES.

SECTION 230518 - ESCUTCHEONS

INSTALL ESCUTCHEONS AND FLOOR PLATES FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS. FOR NEW PIPING, USE ONE PIECE ESCUTCHEONS AND FLOOR PLATES. ALL ESCUTCHEONS AND FLOOR PLATES SHALL HAVE POLISHED, CHROME PLATED FINISH IN FINISHED AREAS AND STAMPED-STEEL FINISH IN UNFINISHED SERVICE AREAS. USE DEEP-PATTERN ESCUTCHEONS FOR INSULATED PIPING OR PIPING WITH SLEEVES PROTRUDING FROM WALL.

SECTION 230519 - METERS AND GAGES

INSTALL THERMOMETERS WITH THERMOWELLS WHERE INDICATED ON PLANS AND AS FOLLOWS:
LIQUID-IN-GLASS TYPE OR VAPOR ACTUATED DIAL-TYPE AT OUTSIDE AIR, SUPPLY AIR, RETURN AIR, AND EXHAUST AIR DUCTS, WHERE THEY CONNECT TO AIR HANDLING EQUIPMENT. LIQUID-IN-GLASS TYPE OR VAPOR ACTUATED DIAL-TYPE AT INLET AND OUTLET OF EACH HYDRONIC ZONE COIL (EXCEPT DUCTLESS FAN COILS. USE TEST PLUGS WITH SELF SEALING EPDM RUBBER INSERTS AND PROVIDE TEST PLUG GAUGE KIT FOR THESE APPLICATIONS). VAPOR ACTUATED DIAL-TYPE AT INLET AND OUTLET OF WATER SIDE OF STEAM/HOT WATER HEAT EXCHANGERS, LIQUID-IN-GLASS TYPE SHALL NOT BE PERMITTED WHERE THE VIEWING DISTANCE IS MORE THAN 5 FEET OR NOT ABLE TO BE ANGLED DIRECTLY TOWARD A TYPICAL VIEWING POSITION.

INSTALL PRESSURE GAUGES WHERE INDICATED ON PLANS AND AS FOLLOWS: DIAL-TYPE AT INLET AND OUTLET OF EACH PRESSURE REDUCING VALVE, DIAL-TYPE AT SUCTION AND DISCHARGE OF EACH HYDRONIC PUMP (EXCEPT STEAM CONDENSATE PUMPS), AND ELSEWHERE AS INDICATED. INSTALL SNUBBERS WITH BALL VALVES AT EACH PRESSURE GAUGE ATTACHMENT POINT.

INSTALL SIGHT FLOW INDICATORS WHERE INDICATED ON PLANS AND AS FOLLOWS: AT FEED PIPING THROUGH CHEMICAL BYPASS FEEDERS.

INSTALL THERMAL ENERGY METERS WHERE INDICATED ON PLANS AND AS FOLLOWS:
STEAM SERVICE INLET TO BUILDING.
STEAM CONDENSATE OUTLET FROM BUILDING.
CHILLED WATER INLET TO BUILDING.

THERMAL ENERGY METERS ONLY ARE REQUIRED TO REPORT TO BUILDING HVAC CONTROL SYSTEM AND NO LOCAL DISPLAY IS REQUIRED.

INSTALL FLOW METERS WHERE INDICATE ON PLANS AND AS FOLLOWS:
MAIN HYDRONIC PIPING ON DISCHARGE SIDE OF SYSTEM PUMP
STEAM SERVICE INLET TO BUILDING (IF FLOW CAN BE DETERMINED FROM THERMAL ENERGY METER ABOVE, AN ADDITIONAL FLOW METER IS NOT REQUIRED).
STEAM CONDENSATE OUTLET FROM BUILDING (IF FLOW CAN BE DETERMINED FROM THERMAL ENERGY METER ABOVE, AN ADDITIONAL FLOW METER IS NOT REQUIRED).

FLOW METERS ONLY ARE REQUIRED TO REPORT TO BUILDING HVAC CONTROL SYSTEM AND NO LOCAL DISPLAY IS REQUIRED.

SELECT THERMAL ENERGY METERS AND FLOW METERS WITH APPROPRIATE TYPE FOR MEDIUM IN PIPING AND APPROPRIATE RANGE FOR APPLICATION. COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM. THESE METERS MAY BE PROVIDED AS PART OF CONTROL SYSTEM INSTALLER'S SCOPE.

ALL METERS AND GAUGES SHALL READ IN IMPERIAL UNITS AND BE SELECTED WITH APPROPRIATE RANGE FOR APPLICATION.

SECTION 230523 - GENERAL-DUTY VALVES

ALL VALVES SHALL BE RATED BY THE MANUFACTURER FOR THE SERVICE PRESSURE AND PIPE CONTENTS FOR WHICH THEY ARE INSTALLED.

BALL VALVES SMALLER THAN 2-1/2" TO BE TWO-PIECE FULL-PORT BRONZE VALVES WITH BRONZE TRIM COMPLYING WITH MSS SP-110. BALL VALVES 2-1/2" AND LARGER SHALL BE IRON BALL VALVES COMPLYING WITH MSS SP-72.

BUTTERFLY VALVES SHALL BE IRON, SINGLE-FLANGE VALVES WITH EPDM SEAT AND ALUMINUM-BRONZE DISC, COMPLYING WITH MSS SP-67 TYPE I. GROOVED-END BUTTERFLY VALVES MAY BE USED ON GROOVED-END PIPING.

SWING CHECK VALVES SMALLER THAN 2-1/2" SHALL BE BRONZE BODY WITH BRONZE DISC, COMPLYING WITH MSS SP-80, TYPE 3. SWING CHECK VALVES 2-1/2" AND LARGER SHALL BE IRON BODY WITH METAL SEAT, COMPLYING WITH MSS SP-71, TYPE 1. INSTALL CHECK VALVES WITH CLOSURE CONTROL AS NEEDED FOR PIPING APPLICATION. GROOVED-END SWING CHECK VALVES MAY BE USED ON GROOVED-END PIPING.

GATE VALVES SMALLER THAN 2-1/2" SHALL BE BRONZE BODY COMPLYING WITH MSS SP-80, TYPE 1. GATE VALVES 2-1/2" AND LARGER SHALL BE IRON BODY COMPLYING WITH MSS SP-70, TYPE 1. ALL GATE VALVES SHALL HAVE RISING STEM UNLESS INSTALLATION LOCATION PROHIBITS FULL RISING STEM CLEARANCE.

FOR SHUTOFF DUTY, USE BALL, BUTTERFLY, OR GATE VALVES. BUTTERFLY VALVES USED FOR DEAD-END SERVICE SHALL BE SINGLE-FLANGE (LUG) TYPE. INSTALL CHECK VALVES AS REQUIRED TO MAINTAIN FLOW DIRECTION IN PIPES.

INSTALL CHAINWHEELS ON VALVES WHICH ARE NPS 4 AND LARGER AND GREATER THAN 96 INCHES ABOVE FLOOR. EXTEND CHAINS TO 60 INCHES ABOVE FINISHED FLOOR.

SECTION 230529 - HANGERS AND SUPPORTS

PROVIDE SHOP OR FIELD FABRICATED PIPE AND EQUIPMENT HANGER SYSTEMS AND SUPPORTS, USING FACTORY MANUFACTURED HANGER SYSTEMS, OR FIELD FABRICATED AND ENGINEERED HANGER ARRANGEMENTS, TO SUPPORT PIPING AND EQUIPMENT AS REQUIRED AND TO COMPLY WITH SEISMIC RESTRAINT REQUIREMENTS OF LOCAL BUILDING CODE. COMPLY WITH MSS SP-69 AND MSS SP-89 FOR PIPE HANGERS. COMPLY WITH ASME B31.9 FOR PIPING STRESSES, DEFLECTION, AND SLOPES ALLOWED.

SECTION 230548 - VIBRATION AND SEISMIC CONTROLS

PROVIDE ELASTOMERIC AND SPRING-MOUNTED PADS, HANGERS, AND EQUIPMENT SUPPORTS AS SHOWN ON THE DRAWINGS AND AS NEEDED TO PREVENT EXCESSIVE NOISE AND STRUCTURE-BORNE VIBRATION FROM EQUIPMENT. DESIGN AND INSTALL SEISMIC RESTRAINTS, SNUBBERS, AND OTHER ACCESSORIES TO RESTRAIN PIPING AND EQUIPMENT ACCORDING TO THE REQUIREMENTS IN ASCE 7.

SECTION 230553 - IDENTIFICATION

INSTALL ENGRAVED PLASTIC EQUIPMENT LABELS ON ALL MAJOR HVAC EQUIPMENT. EQUIPMENT LABELS SHALL HAVE WHITE TEXT ON BLACK BACKGROUND UNLESS OTHERWISE INDICATED. PROVIDE STANDARD LETTER-SIZE PAGES IN GLASS FRAMES INDICATING ALL LABELED EQUIPMENT AND SCHEDULE SHEETS WHERE EQUIPMENT IS INDICATED. INSTALL EQUIPMENT LISTS IN LOCATIONS DIRECTED BY OWNER.

INSTALL WARNING SIGNS AND LABELS AS NECESSARY TO CONVEY IMPORTANT OPERATING OR EMERGENCY INFORMATION. WARNING LABELS AND TAGS SHALL HAVE BLACK TEXT ON YELLOW BACKGROUND UNLESS OTHERWISE INDICATED.

INSTALL MANUFACTURED SELF-ADHESIVE OR PRETENSIONED PIPE LABELS ON ALL PLUMBING PIPING. PROVIDE DESCRIPTION OF PIPING SYSTEM CONTENTS AND ARROWS INDICATING NORMAL FLOW DIRECTION. MARK FLOW DIRECTION AT EACH BRANCH WHERE DIRECTION IS NOT OBVIOUS. COLORS, LETTERING SIZES, AND LABEL LOCATIONS SHALL COMPLY WITH ASME A13.1-2007.

ALL EQUIPMENT AND PIPE LABELS SHALL HAVE LETTERING SIZED APPROPRIATELY FOR VIEWING DISTANCE, BUT NO LESS THAN 1/2" HIGH.

INSTALL BRASS STAMPED OR ENGRAVED VALVE TAGS ON ALL VALVES. LABEL WITH PIPING SYSTEM ABBREVIATION AND VALVE NUMBER. PROVIDE STANDARD LETTER-SIZE PAGES IN GLASS FRAMES INDICATING ALL TAGGED VALVES, LOCATION, NORMAL VALVE POSITION (OPEN, CLOSED, OR MODULATING), AND PURPOSE OF VALVE. INSTALL EQUIPMENT LISTS IN LOCATIONS DIRECTED BY OWNER. INDICATE ALL VALVE TAG NUMBERS ON PROJECT RECORD DRAWINGS. PROVIDE ADDITIONAL SIGNS OR TAGS FOR EMERGENCY SHUTOFF OR SPECIAL USES.

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC AND PLUMBING

PERFORM TAB SERVICES USING INDUSTRY-STANDARD METHODS AND TOOLS. TAB CONTRACTOR AND SPECIALISTS SHALL BE CERTIFIED BY THE TABB, AABC, OR NEBB. PROVIDE QUALIFICATION DATA AND CERTIFIED REPORTS WHICH COMPLY WITH THE PRACTICES OF THE ACCREDITING ORGANIZATION. COMPLY WITH REQUIREMENTS IN LOCAL ENERGY CODE AND MECHANICAL CODE. AIRFLOW TOLERANCES AT INLETS AND OUTLETS SHALL BE +/- 10% OR LESS. WATER FLOW TOLERANCES SHALL BE +/- 10% OR LESS. SYSTEMS SHALL BE BALANCED AND PROCEDURES DOCUMENTED SUFFICIENTLY TO DEMONSTRATE COMPLIANCE WITH CONTRACT DOCUMENTS AND TO SUGGEST REMEDIES FOR ANY DEFICIENCIES NOTED. SUBMIT TAB REPORT TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO SUBSTANTIAL COMPLETION. TAB SUBCONTRACTOR SHALL BE ENGAGED DIRECTLY BY THE GENERAL CONTRACTOR OR THE OWNER, NOT THE HVAC&R SUBCONTRACTOR OR ANY OTHER SUBCONTRACTOR, UNLESS EITHER A) THE HVAC&R SUBCONTRACTOR IS THE PRIME CONTRACTOR FOR THE PROJECT, OR B) EXPRESSLY APPROVED IN WRITING BY THE OWNER AND THE ENGINEER.

SECTION 230713 - DUCT INSULATION

INSULATION THICKNESSES AND MATERIAL PROPERTIES SHALL COMPLY WITH ALL REQUIREMENTS IN LOCAL ENERGY CODE, UNLESS PROVISIONS IN THIS SECTION ARE MORE STRINGENT. IF THICKNESSES ARE NOT INDICATED IN ENERGY CODE, AND SYSTEM IS INDICATED TO BE INSULATED, INSTALL 1-1/2" MINIMUM THICKNESS OF EXTERNAL WRAP INSULATION FOR DUCTS INSTALLED IN UNFINISHED SPACES INDOORS.

ALL INSULATION ADHESIVES, MASTICS, ETC. SHALL BE LOW-VOC TYPE SUITABLE FOR INDOOR USE.

EXTERNAL WRAP INSULATION MAY BE OMITTED IF INTERNAL DUCT LINER PROVIDES REQUIRED INSULATION PER LOCAL ENERGY CODE. SEE SECTION 233113 - "METAL DUCTS" FOR DUCT LINER REQUIREMENTS.

DUCTWORK INSULATION (BLANKET): FLEXIBLE, MINERAL OR GLASS FIBERS BONDED WITH THERMOSETTING RESIN, MEETING ASTM C 1290, TYPE III. 'K' VALUE OF 0.27 AT 75 DEG F INSTALLED. MAXIMUM SERVICE TEMPERATURE OF 250°F

DUCTWORK INSULATION (BOARD): MINERAL OR GLASS FIBERS BONDED WITH THERMOSETTING RESIN. COMPLY WITH ASTM C 612, TYPE IA OR TYPE IB.

FACTORY INSTALLED JACKETS: FSK JACKET WITH ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCRIM WITH KRAFT-PAPER BACKING COMPLYING WITH ASTM C 1136 TYPE II. INSTALL INSULATION WITH FSK ON ALL DUCT INSULATED.

FIELD INSTALLED JACKETS:
CONCEALED, INDOORS:NONE.
EXPOSED, INDOORS: NONE.

INSTALLATION FASTENERS AND SPECIALTIES: USE FASTENERS, ADHESIVES, MASTICS, VAPOR BARRIER MATERIALS, AND SEALANTS AS RECOMMENDED BY THE INSULATION MANUFACTURER'S INSTRUCTIONS AND COMMON INDUSTRY STANDARDS. ADHESIVES SHALL NOT BE THE SOLE MEANS OF SECURING INSULATION TO DUCTWORK. USE VAPOR BARRIER MASTIC OR OTHER MATERIAL ON ALL INSULATED DUCTS WHICH OPERATE NORMALLY AT BELOW AMBIENT AT ANY TIME, INCLUDING COLD AIR SUPPLY DUCTS AND OUTDOOR AIR SUPPLY DUCTS.

INSTALL INSULATION ON THE FOLLOWING DUCT SYSTEMS: INDOOR AND OUTDOOR SUPPLY AIR AND RETURN AIR, DUCTS NOT LOCATED IN FINISHED SPACES, ALL EXHAUST DUCTS, ALL OUTDOOR AIR DUCTS. DO NOT APPLY INSULATION TO FACTORY-INSULATED FLEXIBLE DUCTS, DUCTWORK EXPOSED IN FINISHED AREAS, METAL DUCTS WITH DUCT LINER OF SUFFICIENT THICKNESS TO COMPLY WITH LOCAL ENERGY CODE, FLEXIBLE CONNECTORS, VIBRATION CONTROL DEVICES, FACTORY-INSULATED PLENUMS AND CASINGS, AND FACTORY-INSULATED ACCESS PANELS AND DOORS.

SECTION 230716 - HVAC EQUIPMENT INSULATION

INSULATION THICKNESSES AND MATERIAL PROPERTIES SHALL COMPLY WITH ALL REQUIREMENTS IN LOCAL ENERGY CODE, UNLESS PROVISIONS IN THIS SECTION ARE MORE STRINGENT.

ALL INSULATION ADHESIVES, MASTICS, ETC. SHALL BE LOW-VOC TYPE SUITABLE FOR INDOOR USE.

MINERAL FIBER BLANKET INSULATION: MINERAL OR GLASS FIBER BLANKET INSULATION, MEETING ASTM C 553 TYPE 2, WITH NO FACTORY INSTALLED JACKET. 'K' VALUE OF 0.23 AT 75 DEG F. MAXIMUM SERVICE TEMPERATURE OF 850 DEG F.

FIELD INSTALLED JACKETS:
EXPOSED, INDOORS: ALUMINUM, STUCCO-EMBOSSED WITH Z-SHAPED LOCKING SEAM. 0.024 INCH THICK. INSTALL WITH 2.5-MIL THICK POLYSURLYN MOISTURE BARRIER, AND FACTORY FABRICATED FITTING AND VALVE COVERS. FIELD FABRICATED FITTING COVERS ARE ONLY ACCEPTABLE IF FACTORY FITTING COVERS ARE NOT AVAILABLE.

INSTALLATION FASTENERS AND SPECIALTIES: USE FASTENERS, ADHESIVES, MASTICS, VAPOR BARRIER MATERIALS, AND SEALANTS AS RECOMMENDED BY THE INSULATION MANUFACTURER'S INSTRUCTIONS AND COMMON INDUSTRY STANDARDS. ADHESIVES SHALL NOT BE THE SOLE MEANS OF SECURING INSULATION TO PIPING.

INSTALL INSULATION ON THE FOLLOWING EQUIPMENT AS INDICATED:
STEAM/HOT WATER HEAT EXCHANGERS.

SECTION 230719 - HVAC PIPING INSULATION

INSULATION THICKNESSES AND MATERIAL PROPERTIES SHALL COMPLY WITH ALL REQUIREMENTS IN LOCAL ENERGY CODE, UNLESS PROVISIONS IN THIS SECTION ARE MORE STRINGENT.

ALL INSULATION ADHESIVES, MASTICS, ETC. SHALL BE LOW-VOC TYPE SUITABLE FOR INDOOR USE.

FLEXIBLE ELASTOMERIC PIPE INSULATION: CLOSED-CELL, SPONGE- OR EXPANDED-RUBBER MATERIALS. COMPLY WITH ASTM C 534, TYPE I FOR TUBULAR MATERIALS.

MINERAL FIBER PIPE INSULATION: MINERAL OR GLASS FIBER RIGID, PREFORMED PIPE INSULATION, MEETING ASTM C 547 TYPE 1, GRADE A, WITH FACTORY APPLIED ALL-SERVICE JACKET (ASJ). 'K' VALUE OF 0.23 AT 75OF. MAXIMUM SERVICE TEMPERATURE OF 850 DEG F.

FACTORY INSTALLED JACKETS:
FLEXIBLE ELASTOMERIC INSULATION: NONE.
MINERAL FIBER PIPE INSULATION: ALL SERVICE JACKET (ASJ): WHITE, KRAFT-PAPER, FIBERGLASS REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING, COMPLYING WITH ASTM C 1136, TYPE 1. INSTALL INSULATION WITH ASJ ON ALL PIPING INSULATED WITH THIS MATERIAL.

PVC CORNER ANGLES: FACTORY-FABRICATED FITTING AND VALVE COVERS. HIGH IMPACT RESISTANT, UV RESISTANT PVC COMPLYING WITH ASTM D 1784, CLASS 16354 C. FIELD FABRICATED FITTING COVERS ARE ONLY ACCEPTABLE IF FACTORY FITTING COVERS ARE NOT AVAILABLE.

FIELD INSTALLED JACKETS:
CONCEALED, INDOORS:NONE.
EXPOSED, INDOORS: NONE.

INSTALLATION FASTENERS AND SPECIALTIES: USE FASTENERS, ADHESIVES, MASTICS, VAPOR BARRIER MATERIALS, AND SEALANTS AS RECOMMENDED BY THE INSULATION MANUFACTURER'S INSTRUCTIONS AND COMMON INDUSTRY STANDARDS. ADHESIVES SHALL NOT BE THE SOLE MEANS OF SECURING INSULATION TO PIPING. USE VAPOR BARRIER MASTIC OR OTHER MATERIAL ON ALL INSULATED PIPES WHICH OPERATE NORMALLY AT BELOW AMBIENT, INCLUDING DOMESTIC COLD WATER PIPING.

INSTALL INSULATION ON THE FOLLOWING PIPING SYSTEMS AS INDICATED:
HEATING WATER PIPING: MINERAL-FIBER PIPE INSULATION WITH ALL SERVICE JACKET.
CHILLED WATER PIPING: MINERAL-FIBER PIPE INSULATION WITH ALL SERVICE JACKET.
STEAM PIPING: MINERAL-FIBER PIPE INSULATION WITH ALL SERVICE JACKET.
STEAM CONDENSATE PIPING: MINERAL-FIBER PIPE INSULATION WITH ALL SERVICE JACKET.

REFRIGERANT PIPING INSULATION: FLEXIBLE ELASTOMERIC PIPE INSULATION. INSULATE ALL SUCTION LINE PIPING. OMIT INSULATION FROM LIQUID LINE PIPING. NOTE: FOR MINI-SPLIT SYSTEMS WHICH CONTAIN EXPOSED REFRIGERANT PIPING BETWEEN THE EXPANSION DEVICE AND THE INDOOR COIL, INSULATE ALL REFRIGERANT PIPING. FACTORY-INSULATED REFRIGERANT LINE SETS MAY BE USED IN PLACE OF FIELD APPLIED INSULATION.

FINISH PIPING INSULATION AS INDICATED:
NONE FOR SERVICE AREAS, PAINTED IN FINISHED AREAS. COLOR SELECTED BY ARCHITECT.

SECTION 230923 - DIRECT-DIGITAL CONTROL (DDC) SYSTEM FOR HVAC

PROVIDE AND INSTALL A COMPLETE AND FUNCTIONAL DIRECT-DIGITAL CONTROL SYSTEM TO CONTROL HVAC AND OTHER FUNCTIONS WITHIN THE BUILDING AS INDICATED IN THE SEQUENCE OF OPERATION. CONTROLS DESIGNER SHALL BE RESPONSIBLE FOR COORDINATING AND SPECIFYING ALL DEVICES, SENSORS, SWITCHES, RELAYS, INTERFACE DEVICES, AND OTHER ACCESSORIES REQUIRED TO ACCOMPLISH DESIGN INTENT, COMPLY WITH LOCAL ENERGY CODE REQUIREMENTS, AND COMPLY WITH OWNER'S CAMPUS STANDARDS FOR CONTROLS. MECHANICAL DESIGN DRAWINGS MAY NOT INDICATE ALL ITEMS NECESSARY, AND CONTROLS DESIGNER SHALL EXAMINE MECHANICAL AND OTHER DISCIPLINE DRAWINGS THOROUGHLY TO UNDERSTAND THE SCOPE OF THE PROJECT AND THE EQUIPMENT BEING SPECIFIED. REPORT ANY DEFICIENCIES TO THE ENGINEER DURING CONTROLS SUBMITTAL PACKAGE DEVELOPMENT PROCESS.

PROVIDE A COMPLETE CONTROLS DRAWING, POINTS LIST, AND MATERIALS SUBMITTAL TO THE ENGINEER PRIOR TO PROCURING COMPONENTS FOR INSTALLATION.

CONTROLS SYSTEM FOR PROJECT BUILDING SHALL BE A JOHNSON CONTROLS SYSTEM WHICH IS COMPATIBLE WITH AND INTERCONNECTED TO OWNER'S EXISTING CAMPUS CONTROL SYSTEM. COORDINATE WITH OWNER FOR EXTERNAL CONNECTIONS.

PROVIDE AN OPERATOR WORKSTATION WITH UNINTERRUPTIBLE POWER SUPPLY, COMPUTER, AND PRINTER IN SOUTH MECHANICAL ROOM. CONTROL SYSTEM SHALL NOT RELY ON WORKSTATION FOR NORMAL FUNCTIONS. DATA TRENDING AND ARCHIVING MAY BE MAINTAINED BY OPERATOR WORKSTATION. NO SOFTWARE OR HARDWARE WITHIN CONTROL SYSTEM SCOPE SHALL REQUIRE PERIODIC PAYMENTS TO RETAIN ANY FUNCTION AVAILABLE IN PERPETUITY.

ALL BOXES, CONDUITS, RACEWAYS, AND LOW-VOLTAGE WIRING ASSOCIATED WITH CONTROL SYSTEM SHALL BE PROVIDED BY DIVISION 23 SUBCONTRACTOR, UNLESS OTHERWISE ARRANGED WITH DIVISION 26 SUBCONTRACTOR. CONTROL WIRING SHALL BE IN RACEWAY WHERE NOT CONCEALED IN A REMOVABLE ACOUSTIC CEILING, AND MAY BE ROUTED EXPOSED AT CONNECTIONS TO INTERFACE DEVICES AND EQUIPMENT, EXCEPT IN FINISHED SPACES.

COORDINATE WITH DIVISION 26 TO PROVIDE ADEQUATE POWER CONNECTIONS AND CIRCUITS TO ALL CONTROL DEVICES REQUIRING POWER. PROVIDE POWER FROM ASSOCIATED EQUIPMENT POWER CONNECTIONS WHERE POSSIBLE.

DOCUMENT TESTING, ADJUSTING, CHECKOUT, AND CALIBRATION OF ALL SENSORS, CONTROLS, AND ACCESSORIES TO ENSURE PROPER OPERATION.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

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SECTION 231123 - FACILITY NATURAL-GAS PIPING

NOTE THIS SECTION ONLY APPLIES TO NATURAL-GAS SERVICE PIPING DOWNSTREAM OF THE UTILITY-PROVIDED GAS METER AND REGULATOR, AND UP TO A MAXIMUM OF 5 FEET OUTSIDE OF THE BUILDING. FOR PIPING BEYOND THIS RANGE, REFER TO CIVIL PLANS AND SPECIFICATIONS AND REFER TO GAS UTILITY REQUIREMENTS.

INSTALL, INSPECT, AND TEST GAS PIPING AND SPECIALTIES ACCORDING TO THE REQUIREMENTS OF THE INTERNATIONAL FUEL GAS CODE, SERVING GAS UTILITY, AND AUTHORITIES HAVING JURISDICTION.

FACILITY NATURAL-GAS PIPING WITHIN THE BUILDING SHALL OPERATE AT A PRESSURE UNDER 0.5 PSIG UNLESS NOTED OTHERWISE.

FACILITY NATURAL-GAS PIPING SHALL BE ASTM A 53 BLACK STEEL, SCHEDULE TO, TYPE E OR S, GRADE B PIPING. PIPE FITTINGS SHALL BE MALLEABLE-IRON THREADED FITTINGS COMPLYING WITH ASME B16.3, CLASS 150; WROUGHT-STEEL FITTINGS COMPLYING WITH ASTM A 234 FOR BUTT WELDING OR SOCKET WELDING; OR FORGED-STEEL FLANGES AND FLANGED FITTINGS COMPLYING WITH ASME B16.5, CLASS 150. FLANGES SHALL BE THREADED OR BUTT-WELDED TO MATCH PIPE. USE ASME B16.20 METALLIC, FLAT, ALUMINUM O-RINGS AND SPIRAL-WOUND METAL GASKETS. USE STAINLESS STEEL FLANGE BOLTS BELOW GROUND AND CARBON STEEL BOLTS ABOVE GROUND.

INSTALL PIPING WITH THREADED OR STEEL PRESSURE-SEAL JOINTS FOR PIPING NPS 2 AND SMALLER, AND FLANGED OR STEEL PRESSURE-SEAL JOINTS FOR PIPING NPS 2-1/2 AND LARGER. PRESSURE SEAL FITTINGS SHALL BE EQUIPPED WITH MANUFACTURER'S RECOMMENDED SEALING ELEMENT MATERIAL FOR USE WITH NATURAL GAS.

INSTALL VALVES AS INDICATED ON PLANS AND REQUIRED BY CODE COMPLYING WITH SECTION 230523 AND WHICH ARE LISTED AND LABELED FOR NATURAL-GAS USE.

INSTALL SPECIALTIES SUCH AS REGULATORS, DIELETRIC FITTINGS, STRAINERS, FLEXIBLE APPLIANCE CONNECTORS, AND EARTHQUAKE VALVES AS REQUIRED BY THE INTERNATIONAL FUEL GAS CODE, AUTHORITIES HAVING JURISDICTION, AND AS SHOWN ON PLANS, WHICH ARE LISTED AND LABELED FOR NATURAL-GAS USE. USE THREADED CONNECTIONS FOR ITEMS NPS 2 AND SMALLER, AND FLANGED CONNECTIONS FOR ITEMS NPS 2-1/2 AND LARGER.

COORDINATE WITH SERVING GAS UTILITY FOR INSTALLATION OF GAS SERVICE METERS AND REGULATORS.

PROVIDE FACTORY-APPLIED THREE-LAYER COATING OF EPOXY, ADHESIVE, AND POLYETHYLENE TO ALL GAS PIPING LOCATED UNDERGROUND. PROVIDE JOINT COVERS WITH HEAT-SHRINKABLE PE SLEEVES FOR UNDERGROUND PIPING.

INSTALL DETECTABLE WARNING TAPE WHERE PIPING IS INSTALLED BELOW GRADE.

SUPPORT PIPING AND SPECIALTIES AS REQUIRED BY THE INTERNATIONAL FUEL GAS CODE, OR MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS IF NOT LISTED.

INSTALL PIPING BELOW BUILDING SLABS IN STEEL-PIPE CONTAINMENT CONDUIT.

PAINT EXPOSED, EXTERIOR PIPING, VALVES, AND CONTRACTOR-INSTALLED METERS, REGULATORS, AND OTHER SPECIALTIES WITH ALKYD ANTICORROSIVE METAL PRIMER AND ALKYD ENAMEL MATCHING TOPCOAT PAINTING SYSTEM. DO NOT PAINT FLEXIBLE CONNECTORS, SPECIALTIES WITH FACTORY-APPLIED ANTICORROSIVE PAINT OR COATING, OR ITEMS WHICH ARE INDICATED NOT TO BE PAINTED BY THE MANUFACTURER'S INSTRUCTIONS.

SECTION 232113 - HYDRONIC PIPING

HYDRONIC HEATING AND COOLING PIPING:

PIPING NPS 2 AND SMALLER:
TYPE L, DRAWN-TEMPER COPPER TUBING, WROUGHT-COPPER FITTINGS, AND SOLDERED JOINTS, OR COPPER-PRESSURE-SEAL FITTINGS AND PRESSURE-SEALED JOINTS.
-OR-
SCHEDULE 40 ASTM A 53 BLACK STEEL PIPE (GRADE B WITH PLAIN ENDS, WELDED OR SEAMLESS), GROOVED, MECHANICAL JOINT COUPLING AND FITTINGS, AND GROOVED MECHANICAL JOINTS, WROUGHT-STEEL FITTINGS AND WROUGHT-CAST OR FORGED-STEEL FLANGES AND FLANGE FITTINGS, OR STEEL PRESSURE-SEAL COUPLINGS AND FITTINGS AND PRESSURE-SEAL JOINTS.

PIPING NPS 2-1/2 AND LARGER:
SCHEDULE 40 ASTM A 53 BLACK STEEL PIPE (GRADE B WITH PLAIN ENDS, WELDED OR SEAMLESS), GROOVED, MECHANICAL JOINT COUPLING AND FITTINGS, AND GROOVED MECHANICAL JOINTS, WROUGHT-STEEL FITTINGS AND WROUGHT-CAST OR FORGED-STEEL FLANGES AND FLANGE FITTINGS, OR STEEL PRESSURE-SEAL COUPLINGS AND FITTINGS AND PRESSURE-SEAL JOINTS.

INSTALL DIELECTRIC FITTINGS, FLANGES, OR FLANGE KITS TO CONNECT DISSIMILAR PIPING MATERIALS.

CONDENSATE DRAIN PIPING: SCHEDULE 40 PVC PLASTIC PIPING COMPLYING WITH ASTM D 1785, AND SOCKET-TYPE FITTINGS COMPLYING WITH ASTM D 2466, WITH SOLVENT-WELEDED JOINTS.

SPECIALTIES:

SELECT AND PROVIDE BRONZE OR CAST-IRON CALIBRATED-ORIFICE BALANCING VALVES AT RETURN SIDE OF EACH COIL. SEE DETAIL SHEETS. SELECT VALVES TO PROVIDE A PRESSURE DROP OF APPROXIMATELY 5 PSIG AT DESIGN FLOW ACROSS THE VALVE. DO NOT USE LINE SIZE AS ONLY CRITERIA FOR SELECTING VALVES. PROVIDE SUBMITTAL TO ENGINEER INCLUDING FLOW AND PRESSURE DROP CURVES BASED ON MANUFACTURER'S TESTING. ALL BALANCING VALVES SHALL BE EQUIPPED WITH MEMORY STOP FUNCTION, ALLOWING VALVE TO BE CLOSED AND SET POSITION EASILY RE-ESTABLISHED. TEST PORTS SHALL BE PROVIDED UPSTREAM AND DOWNSTREAM OF EACH VALVE UNLESS INTEGRAL TO VALVE. END CONNECTIONS SHALL MATCH CONNECTED PIPING.

PROVIDE CALIBRATED BALL CONTROL VALVES COMPATIBLE WITH HVAC DDC CONTROL SYSTEM. VALVES SHALL BE BRONZE OR CAST-IRON AND SHALL BE LOCATED AT RETURN SIDE OF EACH COIL, UPSTREAM OF BALANCING VALVE. CONTROL VALVES SHALL BE SPRING CLOSED FOR COOLING AND SPRING OPEN FOR HEATING. PROVIDE 2-WAY VALVES UNLESS NOTED OTHERWISE ON SCHEDULES FOR EQUIPMENT COILS.

INSTALL CONDENSATE DRAIN TRAPS AT EACH COOLING COIL AND CONDENSING FUEL-FIRED HEATING APPARATUS OF SUFFICIENT HEIGHT AND PROPER CONFIGURATION (DRAW-THROUGH OR BLOW-THROUGH FAN) TO SEAL AGAINST NORMAL OPERATING FAN STATIC PRESSURE AT THE TRAP. INSTALL HAND-TIGHT CLEANOUT CAPS TO ALLOW FOR TRAP INSPECTION AND CLEANING.

INSTALL AIR SEPARATOR (HEATING WATER SYSTEM ONLY) IN SYSTEM PIPING AT SUCTION SIDE OF PUMP.

INSTALL BYPASS CHEMICAL FEEDER (HEATING WATER SYSTEM ONLY) ON FLOOR. PIPE WITH SHUTOFF VALVES AT INLET AND OUTLET AROUND SYSTEM HYDRONIC PUMP.

INSTALL GLYCOL FEEDER INLET QUILL IN SYSTEM PIPING AT SUCTION SIDE OF PUMP, UPSTREAM OF SYSTEM AIR SEPARATOR.

INSTALL GENERAL-DUTY VALVES COMPLYING WITH SECTION 230523 AND RATED FOR THE TEMPERATURES AND MEDIUM FOR WHICH THEY ARE INSTALLED.

SUPPORT PIPING AND SPECIALTIES AS REQUIRED BY LOCAL PLUMBING AND MECHANICAL CODE, OR MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS IF NOT LISTED.

LEAK AND PRESSURE TEST HYDRONIC PIPING AS REQUIRED BY PLUMBING AND MECHANICAL CODE AND AUTHORITIES HAVING JURISDICTION.

FINISH EXPOSED PIPING AS INDICATED:
NONE FOR SERVICE AREAS, PAINTED IN FINISHED AREAS. COLOR SELECTED BY ARCHITECT.

SECTION 232123 - HYDRONIC PUMPS

PROVIDE DUAL-CASE, CLOSE-COUPLED, IN-LINE CENTRIFUGAL PUMPS AS SCHEDULED. PUMPS SHALL BE FACTORY ASSEMBLED AND TESTED, AND SHALL HAVE IMPELLER STATICALLY AND DYNAMICALLY BALANCED. PUMP SHAFT SHALL BE STEEL WITH A COPPER-ALLOY SHAFT SLEEVE. SEAL SHALL BE A MECHANICAL CARBON-CERAMIC SEAL HELD BY A STAINLESS STEEL SPRING, AND AN EPT SECONDARY SEAL. INCLUDE SEAL FLUSH LINE WITH MANUAL FLUSH VALVE. INCLUDE WATER SLINGER ON SHAFT BETWEEN MOTOR AND SEAL. BEARINGS SHALL BE PERMANENTLY LUBRICATED BALL BEARINGS. INCLUDE A SPARE SEAL AND A VOLUTE BLANKING PLATE FOR PUMP SERVICING.

INCLUDE ANGLE-PATTERN SUCTION DIFFUSER SIZED TO SYSTEM PIPING AND PUMP INLET.

INCLUDE ANGLE-PATTERN (PREFERRED) OR STRAIGHT-PATTERN TRIPLE-DUTY (BALANCING, CHECK, AND SHUTOFF) VALVE ON PUMP OUTLET.

INCLUDE PUMP STAND TO ELEVATED UNIT FROM FLOOR AND ALLOW FOR VOLUTE DRAINAGE.

DO NOT INSTALL PUMP SUCH THAT PIPING IS SUPPORTED BY PUMP OR PUMP IS SUPPORTED BY PIPING. PUMPS AND PIPING SHALL EACH HAVE THEIR OWN MEANS OF SUPPORT.

SECTION 232213 - STEAM AND CONDENSATE PIPING

STEAM SYSTEM PIPING IS DESIGNED TO OPERATE UP TO 30 PSIG AND 265 DEG F FROM CAMPUS STEAM LOOP. NORMAL OPERATING PRESSURE DOWNSTREAM OF BUILDING PRESSURE-REDUCING VALVE IS 10 PSIG.

ALL WELDERS FOR STEAM AND CONDENSATE PIPING SHALL BE QUALIFIED TO ASME REQUIREMENTS FOR BUILDING STEAM PIPING

STEAM PIPING: SCHEDULE 40, TYPE S, GRADE B, ASTM A53 BLACK STEEL PIPE, WELDED OR SEAMLESS, CLASS 125 CAST-IRON FITTINGS, AND THREADED JOINTS FOR PIPING NPS 2 AND SMALLER. SCHEDULE 40, TYPE E, GRADE B, ASTM A53 BLACK STEEL PIPE, WELDED OR SEAMLESS, CLASS 150 WROUGHT-STEEL FITTINGS, FLANGES, AND FLANGE FITTINGS, WITH WELDED OR FLANGED JOINTS FOR PIPING NPS 2-1/2 TO NPS 12. FLANGES SHALL BE BUTT-WELD OR WELD NECK TYPE. SLIP-ON OR SOCKET-WELDED FLANGES SHALL NOT BE ACCEPTABLE.

FOR STEAM PIPING JOINTS NOT AT EQUIPMENT OR AT VALVES OR OTHER PIPE ACCESSORIES, AND DOWNSTREAM OF THE BUILDING PRESSURE REDUCING VALVE (BELOW 15 PSIG), STEEL AND STAINLESS-STEEL PRESSURE-SEAL FITTINGS ARE PERMITTED. PRESSURE SEAL FITTINGS SHALL BE EQUIPPED WITH MANUFACTURER'S RECOMMENDED SEALING ELEMENT MATERIAL FOR USE WITH STEAM. CONTRACTOR SHALL VERIFY THAT OPERATING TEMPERATURE OF STEAM SYSTEM DOES NOT EXCEED MANUFACTURER'S TEMPERATURE RATING OF PRESSURE-SEAL FITTINGS.

CONDENSATE PIPING: SCHEDULE 80, TYPE S, GRADE B, ASTM A53 BLACK STEEL PIPE, WELDED OR SEAMLESS, CLASS 125 CAST-IRON FITTINGS, AND THREADED JOINTS FOR PIPING NPS 2 AND SMALLER. SCHEDULE 80, TYPE E, GRADE B, ASTM A53 BLACK STEEL PIPE, WELDED OR SEAMLESS, CLASS 150 WROUGHT-STEEL FITTINGS, FLANGES, AND FLANGE FITTINGS, WITH WELDED OR FLANGED JOINTS FOR PIPING NPS 2-1/2 TO NPS 12. FLANGES SHALL BE BUTT-WELD OR WELD NECK TYPE. SLIP-ON OR SOCKET-WELDED FLANGES SHALL NOT BE ACCEPTABLE.

SAFETY-VALVE INLET AND OUTLET PIPING: MATCH MATERIALS AND METHODS OF CONNECTED PIPING SYSTEM, EXCEPT THAT PRESSURE-SEAL JOINTS SHALL NOT BE ALLOWED.

SPECIALTIES:
PROVIDE STEAM PRESSURE-REDUCING VALVE RATED FOR THE FULL STEAM FLOW RATE OF THE SYSTEM AS INDICATED ON THE STEAM/HOT WATER HEAT EXCHANGER SCHEDULE. VALVE SHALL BE OF THE PILOT-OPERATED DIAPHRAGM TYPE, WITH POSITIVE SHUTOFF. END CONNECTIONS SHALL BE THREADED FOR NPS 2 AND SMALLER AND FLANGED FOR LARGER VALVES. TRIM SHALL BE HARDENED STAINLESS STEEL. REPLACEABLE HEAD AND SEAT ASSEMBLY. INLET PRESSURE SHALL BE MAXIMUM OF 125 PSIG. NORMAL OUTLET PRESSURE 10 PSIG. NORMAL INLET PRESSURE 30 PSIG. PROVIDE SUBMITTAL TO ENGINEER INDICATING PRESSURE DROP CURVE AT RATED FLOW.

PROVIDE STEAM TRAPS RATED FOR THE FULL STEAM FLOW RATE OF THE SYSTEM AS INDICATED ON THE STEAM/HOT WATER HEAT EXCHANGER SCHEDULE. TRAPS FOR END-USE DEVICES SHALL BE FLOAT-AND-THERMOSTATIC TYPE. TRAPS FOR BYPASS OF END-USE DEVICES SHALL BE INVERTED BUCKET TYPE. VERIFY WITH STEAM HEAT EXCHANGER SUPPLIER. PROVIDE SUBMITTAL TO ENGINEER INDICATING PRODUCT DATA FOR EACH UNIT.

STEAM FLOW AND THERMAL ENERGY METERS SHALL BE INSTALLED AT STEAM INLET OR CONDENSATE OUTLET. METERS SHALL BE COMPATIBLE WITH DIRECT DIGITAL CONTROL SYSTEM AND SHALL COMPLY WITH SECTION 230519.

VALVES: INSTALL GENERAL-DUTY VALVES COMPLYING WITH SECTION 230523 AND RATED FOR THE TEMPERATURES AND MEDIUM FOR WHICH THEY ARE INSTALLED.

CONDENSATE RETURN PUMPS:

PROVIDE ELECTRIC, DUPLEX, AUTOMATIC STEAM CONDENSATE PUMPS AND BASIN APPROPRIATELY SIZED FOR FULL STEAM FLOW LISTED ON STEAM/HOT WATER HEAT EXCHANGER SCHEDULE. UNIT SHALL BE SINGLE-STAGE WITH A FLOOR-MOUNTED RECEIVER. ASME-RATED CONSTRUCTION. INCLUDE WATER LEVEL GAUGE AND DIAL THERMOMETER, A PRESSURE GAUGE AT PUMP DISCHARGE, A BRONZE FITTING ISOLATION VALVE BETWEEN PUMP AND RECEIVER, INLET VENT, OVERFLOW, CAST-IRON INLET STRAINER WITH VERTICAL SELF-CLEANING BRONZE SCREEN AND DIRT POCKET,AND LIFTING EYEBOLTS. PUMP SHALL INCLUDE AUTOMATIC ALTERNATING DUPLEX CONTROL PANEL. INCLUDE HIGH LEVEL AND PUMP FAILURE ALARM INTERFACE TO DIRECT DIGITAL CONTROL SYSTEM. INSTALL VENT PIPING TO OUTDOORS AND TERMINATE IN 180 DEGREE TURNDOWN ABOVE THE HIGHEST POINT OF THE STEAM SYSTEM.

FINISH EXPOSED PIPING AS INDICATED:
NONE FOR SERVICE AREAS, PAINTED IN FINISHED AREAS. COLOR SELECTED BY ARCHITECT.

SECTION 232300 - REFRIGERANT PIPING

NOTE: THIS SECTION APPLIES ONLY TO FIELD-INSTALLED REFRIGERANT PIPING FOR R-410A APPLICATIONS.

REFRIGERANT PIPING: TYPE ACR COPPER TUBING COMPLYING WITH ASTM B 280, WITH WROUGHT COPPER SOLDER FITTINGS AND BRAZED JOINTS.

SPECIALTIES: INSTALL SIGHT GLASSES IN FIELD INSTALLED LIQUID LINE PIPING UPSTREAM OF EXPANSION DEVICE. INSTALL PERMANENT FILTER-DRIERS IN FIELD INSTALLED LIQUID LINE PIPING FOR EQUIPMENT NOT EQUIPPED WITH FACTORY-INSTALLED FILTER-DRIER. DO NOT INSTALL SPECIALTIES IN FACTORY-INSTALLED REFRIGERANT PIPING, SUCH AS WITHIN PACKAGED EQUIPMENT.

FABRICATE, INSTALL, SUPPORT AND TEST IN ACCORDANCE WITH ASME B31.5: "REFRIGERANT PIPING AND HEAT TRANSFER COMPONENTS" AND ASHRAE 15: "SAFETY CODE FOR REFRIGERATION SYSTEMS". INSTALL SUPPORTS FOR PIPING AND SPECIALTIES AS REQUIRED BY THE ABOVE STANDARDS, LOCAL MECHANICAL DOE, OR MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS IF NOT LISTED.

PRESSURE TEST SUCTION LINES FOR CONVENTIONAL AIR CONDITIONING APPLICATIONS TO 300 PSIG, SUCTION LINES FOR HEAT PUMP APPLICATIONS TO 535 PSIG, AND HOT GAS AND LIQUID LINES TO 535 PSIG. VACUUM TEST REFRIGERANT PIPING AT 500 MICRONS PRIOR TO CHARGING. VACUUM MUST HOLD WITHOUT VACUUM PUMP ATTACHED FOR AT LEAST 12 HOURS.

DO NOT FIELD PAINT EXPOSED REFRIGERANT PIPING.

SECTION 232513 - WATER TREATMENT FOR CLOSED-LOOP HYDRONIC SYSTEMS

NOTE THIS SECTION APPLIES ONLY TO HEATING WATER SYSTEM. CHILLED WATER SYSTEM TREATMENT IS SUPPLIED FROM CAMPUS CENTRAL CHILLED WATER PLANT.

WATER QUALITY FOR HYDRONIC SYSTEMS SHALL MINIMIZE CORROSION, SCALE BUILDUP, AND BIOLOGICAL GROWTH FOR OPTIMUM EFFICIENCY OF HYDRONIC EQUIPMENT WITHOUT CREATING A HAZARD TO OPERATING PERSONNEL OR THE ENVIRONMENT.

BASE HVAC WATER TREATMENT ON QUALITY OF WATER AVAILABLE AT PROJECT SITE, HYDRONIC SYSTEM EQUIPMENT MATERIAL CHARACTERISTICS AND FUNCTIONAL PERFORMANCE CHARACTERISTICS, OPERATING PERSONNEL CAPABILITIES, AND REQUIREMENTS AND GUIDELINES OF AUTHORITIES HAVING JURISDICTION.

CLOSED HYDRONIC SYSTEMS SHALL HAVE THE FOLLOWING WATER QUALITIES:

1. PROPYLENE GLYCOL CONCENTRATION: 30% BY VOLUME. PROTECTS AGAINST EQUIPMENT DAMAGE (BURST PRESSURE) DOWN TO -10 DEG F.
2. PH 9.0 TO 10.5.
3. "P" ALKALINITY 100-500 PPM.
4. BORON 100-200 PPM.
5. SOLUBLE COPPER MAXIMUM 0.20 PPM.
6. TSS MAXIMUM 10 PPM.
7. AMMONIA MAXIMUM 20 PPM.
8. FREE CAUSTIC ALKALINITY MAXIMUM 20 PPM.
9. MICROBIOLOGICAL LIMITS
   - 9.1. TOTAL AEROBIC PLATE COUNT: MAX 1000 ORGANISMS/mL.
   - 9.2. TOTAL ANAEROBIC PLATE COUNT: MAX 100 ORGANISMS/Ml.
   - 9.3. NITRATE REDUCERS: MAX 100 ORGANISMS/mL.
   - 9.4. SULFATE REDUCERS: MAX ZERO ORGANISMS/mL.
   - 9.5. IRON BACTERIA: MAX ZERO ORGANISMS/mL.

BYPASS CHEMICAL FEEDERS SHALL BE STEEL WITH A CORROSION-RESISTANT EXTERIOR COATING, WITH FILL FUNNEL AND SHUTOFF VALVE IN TOP, NPS 3/4 BOTTOM INLET AND TOP SIDE OUTLET. QUARTER TURN, THREADED, OR BOLTED FILL CAP WITH GASKET SEAL AND DIAPHRAGM TO LOCK THE TOP ON THE FEEDER WHEN EXPOSED TO SYSTEM PRESSURE. SEE EQUIPMENT SCHEDULES.

AUTOMATIC GLYCOL FEED SYSTEMS SHALL HAVE A FABRICATED PLASTIC RESERVOIR FOR STORAGE AND MIXING OF SYSTEM MAKEUP FLUID. AUTOMATIC CHEMICAL INJECTION PUMP SHALL BE SELF-PRIMING, POSITIVE DISPLACEMENT TYPE RATED FOR INTENDED CHEMICAL MIXTURE. PUMP SHALL HAVE AN INTEGRAL RELIEF VALVE. PROVIDE CONNECTION TO MONITOR LOW LEVEL OF CHEMICAL CONTAINER OR PUMP FAILURE TO DIRECT DIGITAL CONTROL SYSTEM. SEE EQUIPMENT SCHEDULES. PROVIDE INJECTION QUILL FOR PIPING SIZED TO DISCHARGE AT LEAST 25% OF PIPE DIAMETER INTO SYSTEM. PROVIDE BALL VALVE AND PACKING GLAND TO SECURE QUILL AND ALLOW QUILL REMOVAL DURING SYSTEM OPERATION.

CHEMICALS SHALL BE AS RECOMMENDED BY WATER-TREATMENT TESTING SPECIALIST THAT ARE COMPATIBLE WITH PIPING SYSTEM COMPONENTS AND CONNECTED EQUIPMENT AND THAT CAN ATTAIN WATER QUALITY SPECIFIED.

PROVIDE FOUR-WEEK INTERVAL TESTING FOLLOWING SUBSTANTIAL COMPLETION DURING THE WARRANTY PERIOD TO VERIFY THAT CHEMICAL TREATMENT PROGRAM IS ADEQUATE AND MAKE ADJUSTMENTS AS NECESSARY.

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SECTION 233113 - METAL DUCTS

SHEET METAL DUCTWORK: FABRICATE SINGLE-WALL RECTANGULAR AND ROUND DUCTWORK IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARD METAL AND FLEXIBLE FOR REQUIRED STATIC-PRESSURE CLASS, +-2" W.G. DESIGN PRESSURE CLASS SHALL APPLY UNLESS INDICATED OTHERWISE. DUCT MATERIAL SHALL BE GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 653 WITH G 60 ZINC COATING.

ALL DUCTS SHALL BE CONSTRUCTED TO SMACNA SEAL CLASS A, EXCEPT FOR NEGATIVELY PRESSURIZED DUCTWORK UPSTREAM OF A FILTER.

ALL ADHESIVES, SEALANTS, MASTICS, ETC. SHALL BE LOW-VOC TYPE SUITABLE FOR INDOOR USE.

ALL AIRSTREAM SURFACES SHALL COMPLY WITH THE REQUIREMENTS OF ASHRAE 62.1.

DUCT SEALANT: WATER-BASED, NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT, SUITABLE FOR FABRICATION/INSTALLATION DETAIL, AS COMPOUNDED AND RECOMMENDED BY MANUFACTURER SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK.

FLEXIBLE DUCT LINER: FLEXIBLE, GLASS FIBER BLANKET, BONDED WITH THERMOSETTING RESIN, MEETING ASTM C 1071 AND NFPA 90A OR 90B, AIR STREAM SURFACE FACED WITH NON-ABRASIVE AND NON-ERODING SURFACE. 'K' VALUE OF 0.25 AT 75°F. MAXIMUM VELOCITY ON MAT AIR SIDE OF 5,000 FT/MIN WITHOUT EROSION. FURNISH WITH UL LISTED WATERPROOF TYPE ADHESIVE COMPLYING WITH ASTM C 916 AND NFPA 90A OR 90B. FURNISH WITH DUCT LINER GALVANIZED STEEL PIN FASTENERS. WELDED OR MECHANICALLY FASTENED.

INSTALL DUCTS WHICH ARE EXPOSED IN FINISHED SPACES WITH SEALANTS TRIMMED FLUSH WITH METAL, AND WITH SMOOTH WELDS AND SURFACES FREE OF BURRS, SHARP EDGES, AND DISCOLORATONS. PROTECT DUCTS FROM BEING DENTED, SCRATCHED, OR DAMAGED PRIOR TO INSTALLATION.

INSTALL, SUPPORT, AND LEAK TEST DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS, LOCAL MECHANICAL AND ENERGY CODE, AND AUTHORITIES HAVING JURISDICTION.

SECTION 233300 - AIR DUCT ACCESSORIES

BACKDRAFT AND PRESSURE RELIEF DAMPERS: PROVIDE DAMPERS OF MULTIPLE, PARALLEL-BLADE TYPE, GRAVITY BALANCED WITH ADJUSTABLE WEIGHTS, AND RATED FOR THE AIR VELOCITY AND SYSTEM STATIC PRESSURE IN WHICH THEY ARE INSTALLED. BLADE SEALS SHALL BE NEOPRENE OR SILICONE RUBBER. PROVIDE DAMPERS WITH INSULATED BLADES AND THERMAL BREAKS FOR DAMPERS WHICH ARE EXPOSED TO EXTERIOR AMBIENT TEMPERATURES (SUCH AS BETWEEN EXHAUST FAN DISCHARGE AND BUILDING EXTERIOR).

MANUAL BALANCING DAMPERS: PROVIDE DAMPERS OF SINGLE BLADE TYPE OR MULTI-BLADE TYPE, FACTORY FABRICATED, PROVIDE WITH INDICATING QUADRANT REGULATOR WITH LOCKING FEATURE, EXTERNALLY LOCATED AND EASILY ACCESSIBLE FOR ADJUSTMENT. CONSTRUCT OF SAME MATERIAL AS CONNECTED DUCTS.

CONTROL DAMPERS: PROVIDE DAMPERS OF SINGLE BLADE (ROUND) OR MULTIPLE- (RECTANGULAR), OPPOSED-BLADE TYPE, ELECTRICALLY ACTUATED BY A COMMON LINKAGE. DAMPERS SHALL BE CONSTRUCTED OF SAME MATERIAL AS CONNECTED DUCTS. BLADE SEALS TO BE CLOSED-CELL NEOPRENE. INSTALL ACTUATORS OF POWERED, SPRING RETURN TYPE FOR TWO-POSITION DAMPERS, AND NON-SPRING-RETURN FOR MODULATING DAMPERS AS REQUIRED BY APPLICATION UNLESS INDICATED OTHERWISE.

TURNING VANES: FACTORY-FABRICATED, CURVED BLADES OF GALVANIZED SHEET STEEL. SUPPORT WITH BARS PERPENDICULAR TO BLADES SET, AND SET INTO VANE RUNNERS SUITABLE FOR DUCT MOUNTING. SINGLE-WALL CONSTRUCTION FOR DUCTS UP TO 48 INCHES WIDE, AND DOUBLE-WALL CONSTRUCTION FOR LARGER DUCTS. INSTALL IN ALL 90° ELBOWS AND TEES (UNLESS OTHERWISE INDICATED) AND IN OTHER LOCATIONS AS SHOWN ON PLANS.

DUCT-MOUNTED ACCESS DOORS: FACTORY-FABRICATED ACCESS PANELS, CONSTRUCTED PER SMACNA STANDARDS, DOUBLE-WALL, GALVANIZED SHEET METAL WITH INSULATION FILL AND THICKNESS AS REQUIRED FOR DUCT PRESSURE CLASS.

ACCESS DOORS LESS THAN 12 INCHES SQUARE: NO HINGES AND TWO SASH LOCKS.
ACCESS DOORS UP TO 18 INCHES SQUARE: TWO HINGES AND TWO SASH LOCKS.
ACCESS DOORS UP TO 24 BY 48 INCHES: THREE HINGES AND TWO COMPRESSION LATCHES WITH INSIDE AND OUTSIDE HANDLES.
ACCESS DOORS LARGER THAN 24 BY 48 INCHES: CONTINUOUS HINGES AND TWO COMPRESSION LATCHES WITH OUTSIDE AND INSIDE HANDLES.

INSTALL DUCT ACCESS DOORS WITH SWING AGAINST NORMAL DUCT STATIC PRESSURE.

INSTALL DUCT ACCESS DOORS IN THE FOLLOWING LOCATIONS AND AS NOTED ON DRAWINGS: ON BOTH SIDES OF DUCT COILS, UPSTREAM AND DOWNSTREAM OF DUCT FILTERS (WHICH ARE NOT INTEGRAL TO AIR HANDLING EQUIPMENT), AT OUTDOOR-AIR INTAKES AND MIXED-AIR PLENUMS OUTSIDE OF AIR HANDLING UNITS, DOWNSTREAM FROM MANUAL VOLUME DAMPERS (EXCEPT FINAL AIR TERMINAL RUNOUTS), CONTROL DAMPERS, BACKDRAFT DAMPERS, AND EQUIPMENT, ADJACENT TO FIRE AND SMOKE DAMPERS TO ALLOW ACCESS FOR INSPECTION, RESETTING, AND MAINTENANCE, THROUGHOUT MAIN DUCT RUNS AT A MAXIMUM 50-FOOT SPACING TO ALLOW FOR CLEANING, UPSTREAM FROM TURNING VANES.

INSTALL DUCT ACCESS DOORS OF THE FOLLOWING SIZES UNLESS OTHERWISE NOTED ON DRAWINGS: ONE-HAND OR INSPECTION ACCESS: 8 BY 5 INCHES.
TWO-HAND ACCESS: 12 BY 6 INCHES.
HEAD AND HAND ACCESS: 18 BY 10 INCHES.
HEAD AND SHOULDERS ACCESS: 21 BY 14 INCHES.
BODY ACCESS: 25 BY 14 INCHES.
BODY PLUS LADDER ACCESS: 25 BY 17 INCHES.

LABEL ACCESS DOORS WITH LABELS SIMILAR TO THOSE IN SECTION 230553 INDICATING PURPOSE OF ACCESS DOOR.

FLEXIBLE CONNECTORS: FACTORY-FABRICATED METAL-EDGED DUCT CONNECTORS WITH A FABRIC STRIP AT LEAST 3-1/2 INCHES WIDE. PROVIDE METAL CONNECTORS COMPATIBLE WITH CONNECTED DUCTS. FOR INDOOR APPLICATIONS, FLEXIBLE CONNECTOR FABRIC SHALL BE GLASS FABRIC DOUBLE-COATED WITH NEOPRENE, AT LEAST 26 OUNCES PER SQUARE YARD, 480 POUNDS-FORCE PER INCH TENSILE STRENGTH IN THE WRAP AND 360 POUNDS-FORCE PER INCH IN THE FILLING. SERVICE TEMPERATURE RATING OF -40 TO 200 DEGREES F. FOR OUTDOOR APPLICATIONS, FABRIC SHALL BE AT LEAST 24 OUNCES PER SQUARE YARD, 530 POUNDS-FORCE PER INCH TENSILE STRENGTH IN THE WRAP AND 440 POUNDS-FORCE PER INCH IN THE FILLING. SERVICE TEMPERATURE RATING OF -50 TO 250 DEGREES F. INSTALL FLEXIBLE CONNECTORS AT DUCT CONNECTIONS TO EQUIPMENT, AND TO CONCEALED GRILLE, REGISTER, AND DIFFUSER CONNECTION POINTS AS NOTED BELOW.

FLEXIBLE DUCTWORK: ZINC-COATED SPRING STEEL HELIX PERMANENTLY BONDED TO AN INTERNAL 2-PLY VINYL-FILM LINER, WITH FACTORY APPLIED FIBERGLASS INSULATION COMPLYING WITH ASHRAE 90.1. SHEATHED WITH A SEAMLESS EXTERIOR POLYETHYLENE VAPOR BARRIER JACKET. FLEXIBLE DUCT SHALL COMPLY WITH UL 181, CLASS 1.

INSTALL FLEXIBLE DUCTWORK FOR FINAL RUNOUTS TO GRILLES, REGISTERS, AND DIFFUSERS WHICH ARE ACCESSIBLE ABOVE A REMOVABLE-TILE CEILING. FOR UNITS IN HARD-LID CEILINGS OR OTHER INACCESSIBLE LOCATIONS, USE FLEXIBLE CONNECTORS FOR FINAL CONNECTIONS. INSTALL FLEXIBLE DUCTS IN SHORTEST PRACTICAL LENGTH, BUT NO LONGER THAN 60 INCHES. DO NOT USE FLEXIBLE DUCTS TO CHANGE DIRECTION. ATTACHED FLEXIBLE DUCTS TO METAL DUCTS WITH METAL WORM-GEAR DRAW BANDS PLUS SHEET METAL SCREWS IN EXPOSED LOCATIONS, AND WITH ADHESIVE, METAL WORM-GEAR DRAW BANDS, AND SHEET METAL SCREWS IN CONCEALED LOCATIONS.

SECTION 233423 - HVAC POWER VENTILATORS

PROVIDE HVAC POWER VENTILATORS AS INDICATED ON EXHAUST FAN AND CIRCULATION FAN SCHEDULES. COORDINATE MOUNTING REQUIREMENTS WITH THE STRUCTURAL CHARACTERISTICS IN THE AREA. FOR SIDEWALL MOUNTED FANS, COORDINATE STRUCTURAL FRAMING AND SUPPORT REQUIREMENTS WITH METAL BUILDING CONTRACTOR.

INSTALL SHUTOFF AND BACKDRAFT DAMPERS ACCORDING TO EQUIPMENT SCHEDULES AND LOCAL ENERGY CODE.

PROVIDE STARTERS, DISCONNECTS, AND OTHER ACCESSORIES AS INDICATED ON EQUIPMENT SCHEDULES.

SECTION 233713 - DIFFUSERS, REGISTERS, AND GRILLES

REGISTERS, GRILLES AND DIFFUSERS: PROVIDE MANUFACTURER'S STANDARD REGISTERS, GRILLES AND DIFFUSERS WHERE SHOWN OF SIZE, SHAPE, CAPACITY AND TYPE INDICATED. CONSTRUCTED OF MATERIALS AND COMPONENTS AS INDICATED, AND WITH ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION.

SECTION 233716 - FABRIC AIR-DISTRIBUTION DEVICES

FABRIC AIR-DISTRIBUTION DEVICES SHALL BE PROVIDED IN THE TRACK AREA (AHU-1A/1B) AND THE INDOOR CLIMBING AREA (AHU-2). DUCT FABRIC SHALL BE NON-PERMEABLE WHERE USED FOR HEATING ONLY AND PERMEABLE WHEN USED FOR HEATING AND COOLING. INCLUDE NOZZLES IN FABRIC DUCT AS APPROPRIATE FOR MOUNTING HEIGHT, SPACE CONFIGURATION, HEATING OR COOLING MODE, AIR TEMPERATURE, AND OTHER SPACE CHARACTERISTICS.

FABRIC DUCTS SHALL BE CONNECTED TO METAL DUCTS WITH A ROUND PROFILE CONNECTOR AS INDICATED ON DRAWINGS.

FABRIC DUCT MANUFACTURER SHALL PROVIDE A COMPLETE SUBMITTAL PACKAGE TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR PROCUREMENT, INCLUDE ALL SELECTED OPTIONS, MOUNTING HARDWARE, LAYOUT DRAWING, COLORS SELECTED, AND ALL OTHER ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION. PROVIDE COLOR SAMPLES FOR SELECTED COLORS FOR APPROVAL PRIOR TO FABRICATION.

SECTION 234100 - PARTICULATE AIR FILTRATION

FILTER MEDIA: UNLESS OTHERWISE INDICATED ON DRAWINGS, PROVIDE FACTORY-FABRICATED, SELF-SUPPORTED PLEATED PANEL-TYPE DISPOSABLE AIR FILTERS WITH HOLDING FRAMES. FILTERS SHALL COMPLY WITH UL 900, CLASS 2. MEDIA SHALL BE COTTON AND SYNTHETIC FIBERS, COATED WITH NONFLAMMABLE ADHESIVE ATTACHING TO CARDBOARD SUPPORT FRAME. THICKNESS TO MATCH FILTER RACKS WHERE FILTERS ARE TO BE INSTALLED. FILTER ARRESTANCE SHALL BE A MINIMUM OF 85 PERCENT WHEN RATED PER ASHRAE 52.1. MERV RATING SHALL BE A MINIMUM OF 8 WHEN RATED PER ASHRAE 52.2.

FILTER HOUSINGS: FACTORY-FABRICATED AND ASSEMBLED SERVICE HOUSINGS INTENDED FOR FIELD INSTALLATION IN DUCT SYSTEMS. PROVIDE AS INDICATED ON DRAWINGS. PROVIDE ACCESS DOORS OR PANELS TO FACILITATE FILTER CHANGES.

FILTER SWITCHES: INSTALL DIRT-FILTER DIFFERENTIAL-PRESSURE SWITCHES IN ALL FILTER BANKS WHICH ARE NOT PROVIDED WITH THIS ITEM AS AN INTEGRAL PART OF AIR HANDLING EQUIPMENT. UNIT SHALL BE COMPATIBLE WITH DIRECT DIGITAL CONTROL SYSTEM.

INSTALL CLEAN FILTERS PRIOR TO TESTING, ADJUSTING, AND BALANCING. DO NOT OPERATE AIR HANDLING EQUIPMENT WITHOUT FILTERS (TEMPORARY OR PERMANENT) IN PLACE.

SECTION 235100 - BREECHINGS, CHIMNEYS, AND STACKS

PROVIDE ACCESSORIES SUCH AS TEES, ELBOWS, TERMINATIONS, ROOF FLASHINGS, STORM COLLARS, THIMBLES, AND OTHER SPECIALTIES AS REQUIRED FOR A COMPLETE INSTALLATION, USING MATERIALS LISTED FOR THE SAME ASSEMBLY.

FOR CONDENSING FUEL-FIRED APPLIANCES WHICH ARE PERMITTED BY THE MANUFACTURER TO BE VENTED WITH PLASTIC PIPE, INSTALL VENT PIPING AND TERMINATIONS ACCORDING TO THE EQUIPMENT MANUFACTURER'S INSTRUCTIONS.

SECTION 233723 - HVAC GRAVITY VENTILATORS

PROVIDE GRAVITY VENTILATORS AS INDICATED ON ROOF COWL SCHEDULE. PROVIDE WITH ROOF CURB WHICH MATCHES ROOF SLOPE DIRECTION (VERIFY SLOPE AND DIRECTION OF ROOF CURB SHORT VS. LONG SIDE).

UNIT SHALL PREVENT INGRESS OF WATER AT DESIGN AIRFLOW TO COMPLY WITH ASHRAE 62.1.

COORDINATE SIZES OF ROOF OPENING AND FRAMING SUPPORT WITH METAL BUILDING CONTRACTOR.

SECTION 235700 - HEAT EXCHANGERS FOR HVAC

SHELL-AND-TUBE HEAT EXCHANGER FOR STEAM (SHELL SIDE) AND HOT WATER (TUBE SIDE) SHALL BE INSTALLED IN MECHANICAL ROOM ON WALL AS INDICATED ON DRAWINGS. SEE EQUIPMENT SCHEDULE. PROVIDE EXTENDED SHELL OR BAFFLE CONFIGURATION IF REQUIRED TO PREVENT DAMAGE TO TUBES BY STEAM FLOW RATE OF UNIT. INSULATE HEAT EXCHANGER ACCORDING TO SECTION 230716. DO NOT COVER NAMEPLATES OF EQUIPMENT. STEAM HEAT EXCHANGER SHALL BE MOUNTED ON SADDLE SUPPORTS DESIGNED TO RESIST MOVEMENT OF HEAT EXCHANGER DURING A SEISMIC EVENT.

PROVIDE SUBMITTAL TO ENGINEER INDICATING RECOMMENDED ACCESSORIES FOR COMPLETE AND FUNCTIONAL INSTALLATION, INCLUDING SHUTOFF VALVES, PRESSURE RELIEF AND REDUCING VALVES, AND STEAM TRAPS.

ORIENT UNIT ON WALL SUCH THAT TUBES CAN BE REMOVED FOR MAINTENANCE WHILE MINIMIZING PIPING DISTURBED OR REMOVED.

INSTALL STEAM CONTROL VALVE CONNECTED TO DIRECT DIGITAL CONTROL SYSTEM. STEAM VALVE SHALL BE SUITABLE FOR FLOW, TEMPERATURE, AND PRESSURE CONDITIONS FOR WHICH IT IS INSTALLED. AND THROTTLE STEAM FLOW AS REQUIRED TO MAINTAIN HEATING WATER SYSTEM TEMPERATURE AS INDICATED IN SEQUENCE OF OPERATION.

SECTION 237219 - FIXED PLATE AIR-TO-AIR ENERGY RECOVERY UNITS

PROVIDE PACKAGED FIXED PLATE AIR-TO-AIR TOTAL-ENERGY RECOVERY UNITS AS INDICATED ON EQUIPMENT SCHEDULES. PROVIDE WITH LOW VOLTAGE CONTROLS TO ALLOW FOR CONTROL BY BUILDING HVAC CONTROL SYSTEM. UNIT SHALL BE EQUIPPED WITH INTEGRAL SUPPLY AND RETURN FANS, FILTERS AT INLETS TO BOTH CORE AIR STREAMS, AND MOTORIZED LOW-LEAKAGE SHUTOFF DAMPERS ON EXHAUST AND INTAKE AIR STREAMS AS REQUIRED BY LOCAL ENERGY CODE.

SECTION 237313.16 - INDOOR, SEMI-CUSTOM AIR-HANDLING UNITS

INDOOR SEMI-CUSTOM AIR HANDLING UNITS SHALL BE PROVIDED BASED ON INFORMATION IN THE AIR HANDLING UNIT EQUIPMENT SCHEDULE, AND VERIFIED CRITERIA FOR DESIGN PROVIDED BY ENGINEER. UNITS SHALL BE ARRANGED AS INDICATED ON DRAWINGS TO PROVIDE AIRFLOWS IN DIRECTIONS REQUIRED. ALL UNITS SHALL HAVE ACCESS PRIMARILY ON ONE SIDE AS THE OPPOSITE SIDE WILL GENERALLY BE INACCESSIBLE ONCE UNIT IS INSTALLED IN MECHANICAL ROOM.

PROVIDE SUBMITTAL ON ALL UNITS TO ENGINEER FOR APPROVAL INCLUDING CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS, RATED CAPACITIES, OPERATING CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES.

FOR FANS, INCLUDE CERTIFIED FAN PERFORMANCE CURVES WITH SYSTEM OPERATING CONDITIONS INDICATED. INCLUDE CERTIFIED FAN SOUND POWER RATINGS. INCLUDE MOTOR RATINGS, ELECTRICAL CHARACTERISTICS, AND MOTOR ACCESSORIES

FOR COILS, INCLUDE CERTIFIED COIL-PERFORMANCE RATINGS WITH SYSTEM OPERATING CONDITIONS INDICATED.

FOR ENERGY RECOVERY DEVICES, INCLUDE CERTIFIED PERFORMANCE RATINGS WITH SYSTEM OPERATING CONDITIONS INDICATED.

INCLUDE DAMPERS, INCLUDING HOUSINGS, LINKAGES, AND OPERATORS.

COORDINATE INSTALLATION OF FIELD-PROVIDED CONTROL DEVICES AND INTERFACES WITH DIRECT DIGITAL CONTROL SYSTEM AND FIELD-INSTALLED SAFETY DEVICES WITHIN CONTROLS SCOPE OF WORK.

SECTION 238126 - SPLIT-SYSTEM AIR CONDITIONERS

PROVIDE DUCTLESS MINI-SPLIT AIR CONDITIONERS AND HEAT PUMP UNITS AS INDICATED ON EQUIPMENT SCHEDULE. LOCATE EXTERIOR HEAT PUMP UNIT OUTSIDE ON GROUND. PROVIDE FIELD-FABRICATED OR FACTORY MOUNTING FRAME FOR UNITS WHICH ELEVATE THE MOUNTING HEIGHT A MINIMUM OF 12 INCHES FROM FINISHED GRADE. ALL UNITS SHALL UTILIZE R-410A REFRIGERANT.

ROUTE CONDENSATE DRAINS TO APPROPRIATE PLACE OF DISPOSAL AS NOTED ON DRAWINGS.

SECTION 238216.14 - ELECTRIC-RESISTANCE AIR COILS

PROVIDE UNITS AS INDICATED ON ELECTRIC DUCT HEATER SCHEDULE. ALL UNITS SHALL HAVE FLANGED CONSTRUCTION AND BE RATED FOR INSTALLATION IN THE DIRECTION INSTALLED. OPEN COIL ELEMENTS. COORDINATE INTERFACES TO DIRECT-DIGITAL CONTROL SYSTEMS. PROVIDE INTEGRAL AIRFLOW PROVING SWITCH AND LIMIT SWITCHES TO PREVENT UNIT OPERATION IN THE EVENT OF AN OVERHEAT CONDITION OR LOW AIRFLOW IN DUCT.

SECTION 238219 - FAN COIL UNITS

PROVIDE DUCTLESS HYDRONIC FAN COIL UNITS AS INDICATED ON EQUIPMENT SCHEDULES. COORDINATE CONNECTIONS TO BUILDING HVAC CONTROL SYSTEM. UNITS SHALL OPERATE FAN AT STAGED SPEEDS. CFM INDICATED ON EQUIPMENT SCHEDULES IS DESIGN FLOW AND THE MAXIMUM CFM THE UNIT IS INTENDED TO OPERATE AT. REFER TO SEQUENCE OF OPERATION FOR FAN CYCLING CRITERIA.

PROVIDE CONTROL VALVES AND OTHER HYDRONIC SPECIALTIES WHICH ARE COMPATIBLE WITH DIRECT DIGITAL CONTROL SYSTEM.

CONCEAL FIELD-INSTALLED VALVES AND HYDRONIC SPECIALTIES IN THE CEILING IF PRESENT, OR IN AN ADJACENT ROOM/SPACE IF THERE IS NO CEILING PRESENT.

MINIMIZE ROUTING OF PIPING OR WIRING IN FINISHED SPACES. PROVIDE LINE COVERS WHERE UNIT IS INSTALLED IN A SPACE WHERE PIPING AND WIRING CANNOT BE CONCEALED IN THE WALL (CONTINUOUS LAMINATED TIMBER WALLS).

FOR UNITS WHICH PROVIDE COOLING, ROUTE CONDENSATE DRAINS TO EXTERIOR OR APPROPRIATE PLACE OF DISPOSAL AS INDICATED ON DRAWINGS.

SECTION 238236 - FINNED-TUBE RADIATION HEATERS

PROVIDE FINNED-TUBE RADIANT HEATERS AS INDICATED ON EQUIPMENT SCHEDULES, INCLUDING ALL CASINGS, END CAPS, VALVE ACCESS PANELS AND DOORS, AS REQUIRED FOR A COMPLETE AND FUNCTIONAL UNIT. UNIT SHALL BE CENTERED UNDER WINDOW AS INDICATED ON DRAWINGS. IN THE EVENT OF A CONFLICT WITH ARCHITECTURAL ELEMENTS, APPROVAL FROM THE ARCHITECT AND ENGINEER IS REQUIRED FOR DEVIATION FROM LAYOUT.

PROVIDE CONTROL VALVES AND OTHER HYDRONIC SPECIALTIES WHICH ARE COMPATIBLE WITH DIRECT DIGITAL CONTROL SYSTEM.

CONCEAL FIELD-PROVIDED VALVES WITHIN UNIT CASING, ABOVE CEILING IF PRESENT, OR IN AN ADJACENT ROOM/SPACE IF THERE IS NO CEILING PRESENT.

SECTION 238238 - ELECTRIC UNIT HEATERS

PROVIDE PROPELLER UNIT HEATERS AND ELECTRIC WALL AND CEILING HEATERS AS INDICATED ON EQUIPMENT SCHEDULES. UNITS SHALL BE EQUIPPED WITH LOW-VOLTAGE OR LINE-VOLTAGE CONTROLS AS INDICATED ON SCHEDULES AND IN SEQUENCE OF OPERATION. PROVIDE WITH HIGH TEMPERATURE LIMIT SWITCHES.

PROVIDE EXTERNAL WALL-MOUNTED THERMOSTATS FOR UNITS NOT EQUIPPED WITH INTEGRAL THERMOSTATS.

SECTION 239119 - LOUVERS

FIXED AND OPERABLE LOUVERS SHALL BE PROVIDED AS INDICATED ON THE LOUVER SCHEDULE. FOR UNITS WITH AN INTEGRAL ACTUATOR COMPARTMENT, CONFIRM REQUIRED ROUGH-IN DIMENSIONS WITH OPENING PROVIDED. COORDINATE INSTALLATION OF LOUVERS WITH METAL BUILDING CONTRACTOR.

LOUVERS SHALL PREVENT THE INTRUSION OF WATER AT DESIGN CONDITIONS FOR INTAKE LOUVERS, AND SHALL HAVE DRAINABLE BLADES.

REFER TO SEQUENCE OF OPERATION AND DRAWINGS FOR CONTROL REQUIREMENTS OF OPERABLE LOUVERS.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
MECHANICAL SPECIFICATIONS

DWG. NO.
M705

SCALE:

ISSUE DATE: 04/09/2020

JOB NO. 8514

REV. 0

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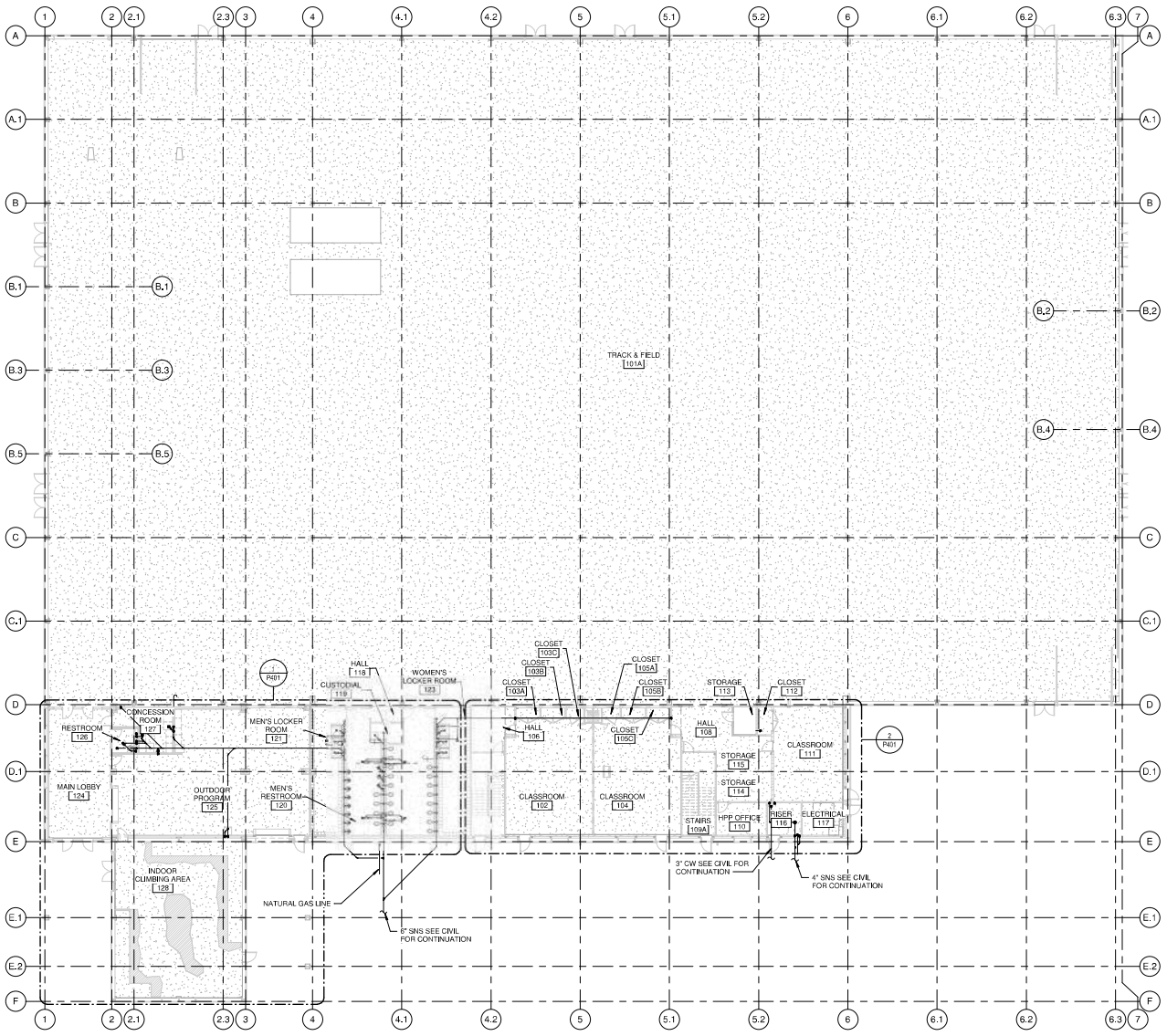

UNDERGROUND PLUMBING PLAN
1/16" = 1'-0"

NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

UNDERGROUND PLUMBING PLAN

DWG. NO.
P100

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
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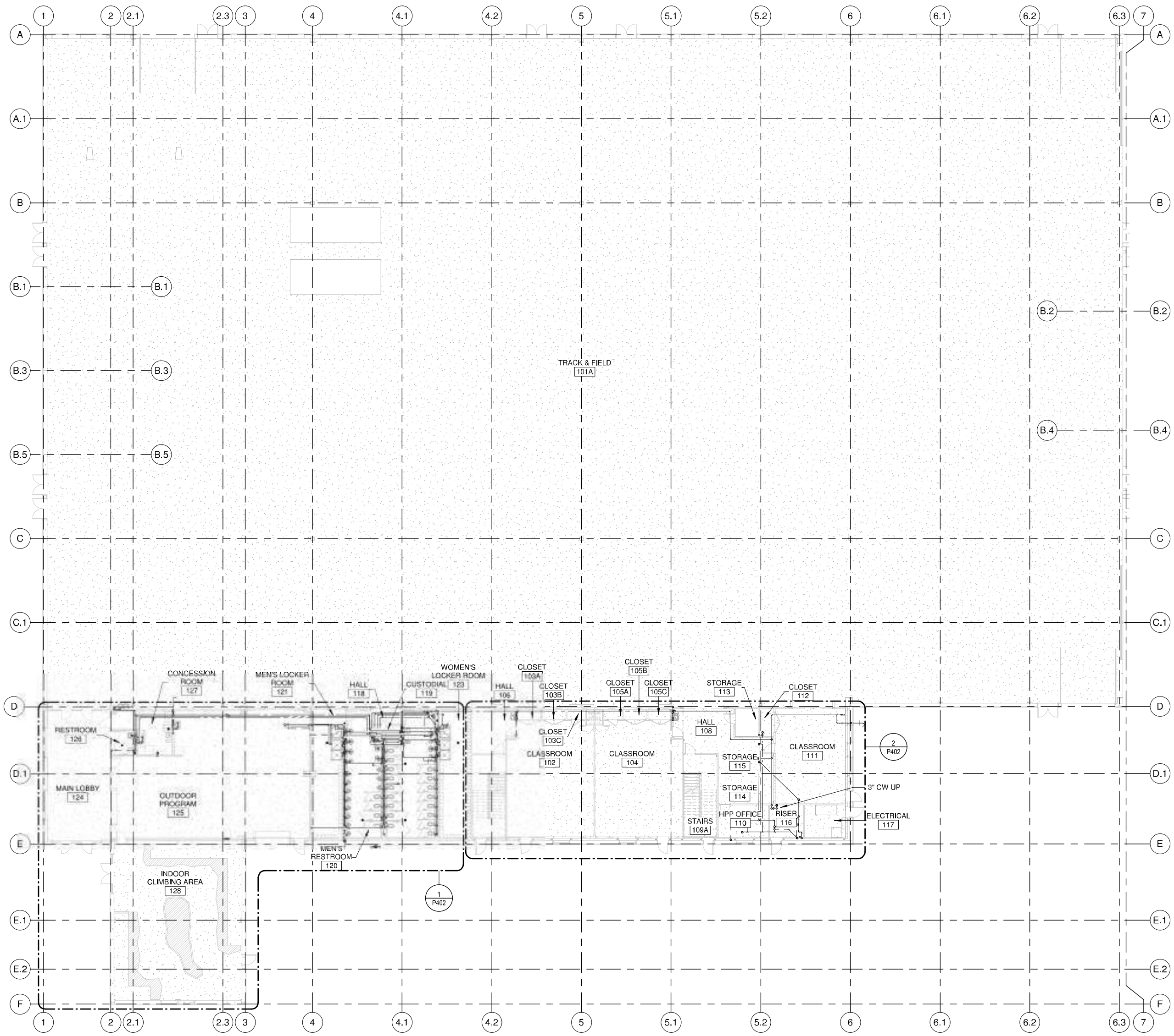

LEVEL 1 PLUMBING PLAN

1/16" = 1'-0"

NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

LEVEL 1 PLUMBING PLAN

DWG. NO.
P101

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
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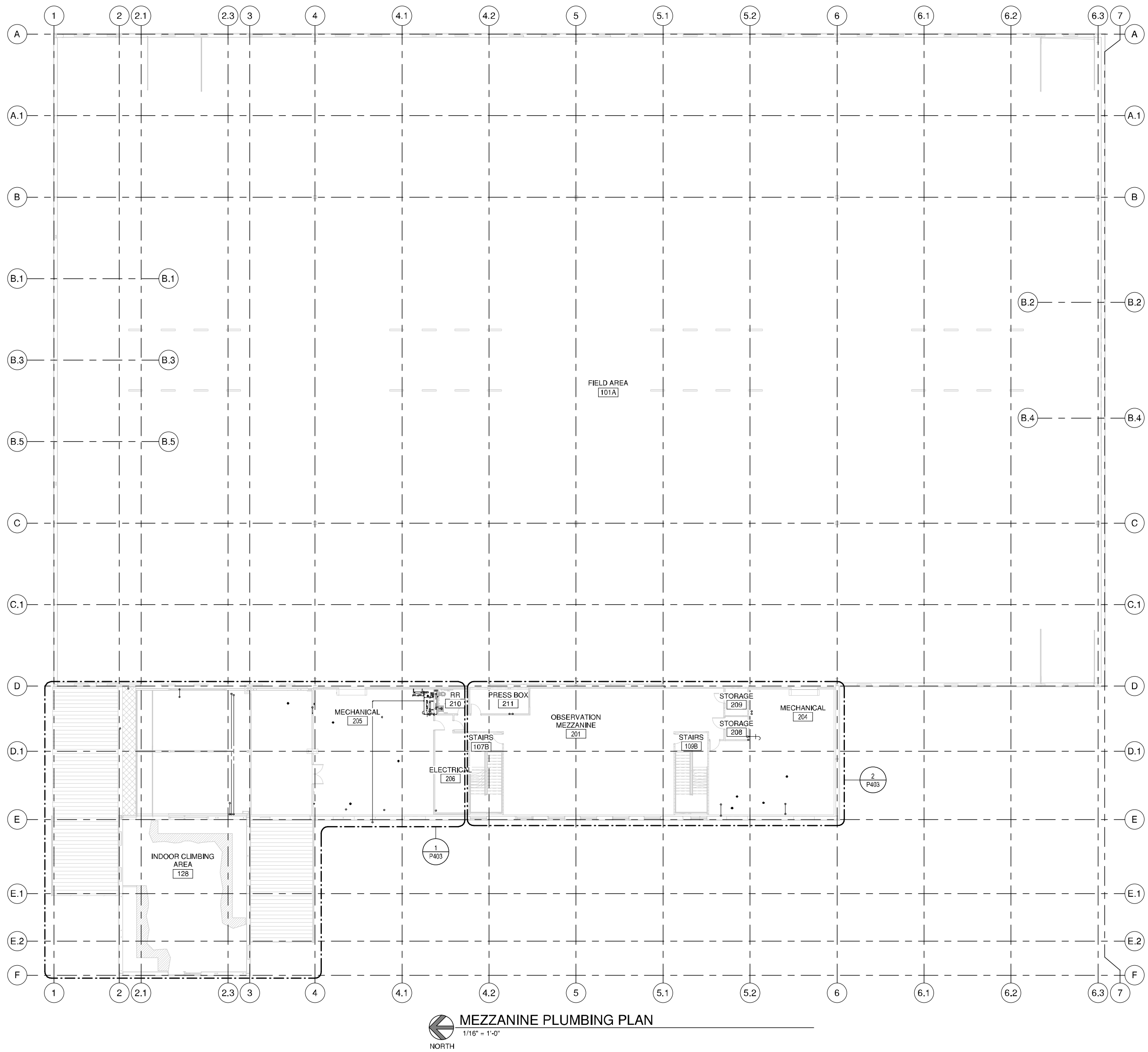

MEZZANINE PLUMBING PLAN
1/16" = 1'-0"

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MEZZANINE PLUMBING PLAN

DWG. NO.
P102

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
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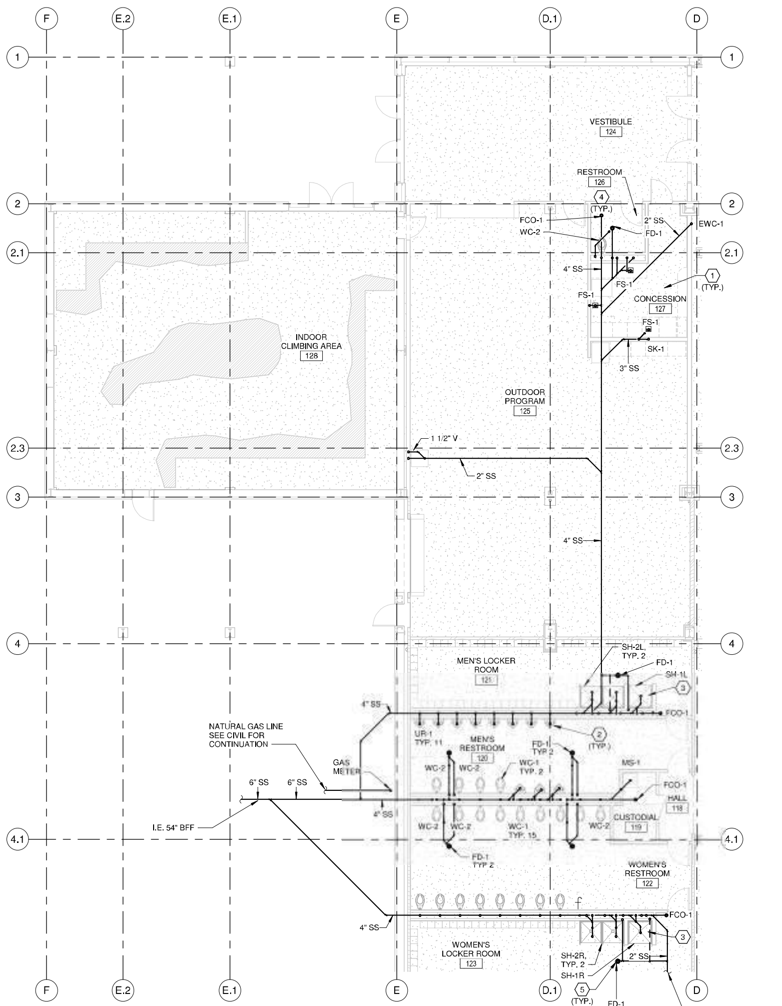
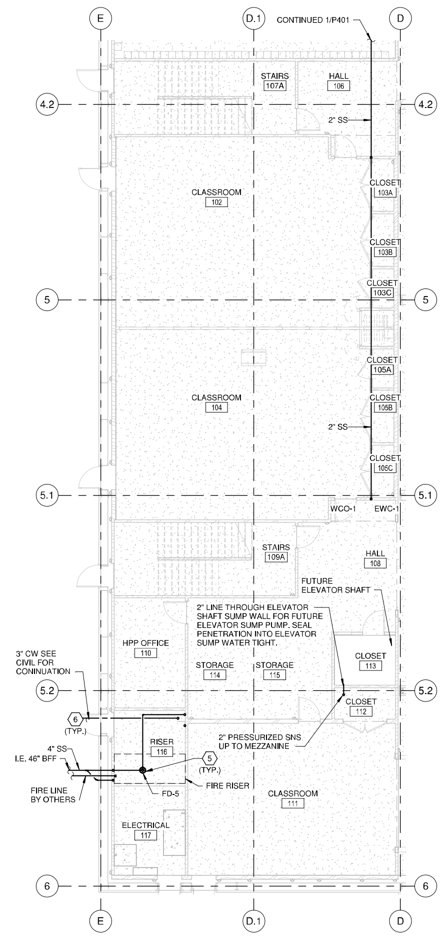


UG ANNEX NORTH PLUMBING PLAN
1/8" = 1'-0"
NORTH



UG ANNEX SOUTH PLUMBING PLAN
1/8" = 1'-0"
NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE P601 FOR MINIMUM ROUGH IN SIZES.

KEYNOTES

1. REFER TO SHEETS P402 AND A403 FOR FUTURE CONCESSION EQUIPMENT ROUGHINS.
2. COORDINATE STALL URINAL MOUNTING IN RECESSED SLAB.
3. COORINATE ADA SHOWER BASE MOUNTING IN RECESSED SLAB.
4. SEE DETAIL 2/P501 FOR FLOOR CLEANOUT DETAIL.
5. SEE DETAIL 4/P501 FOR FLOOR DRAIN TRAP PRIMER DETAIL.
6. SEE DETAILS 1/P502 AND 7/P502 FOR SERVICE RISER DETAIL.

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED UG PLUMBING PLANS

DWG. NO.
P401

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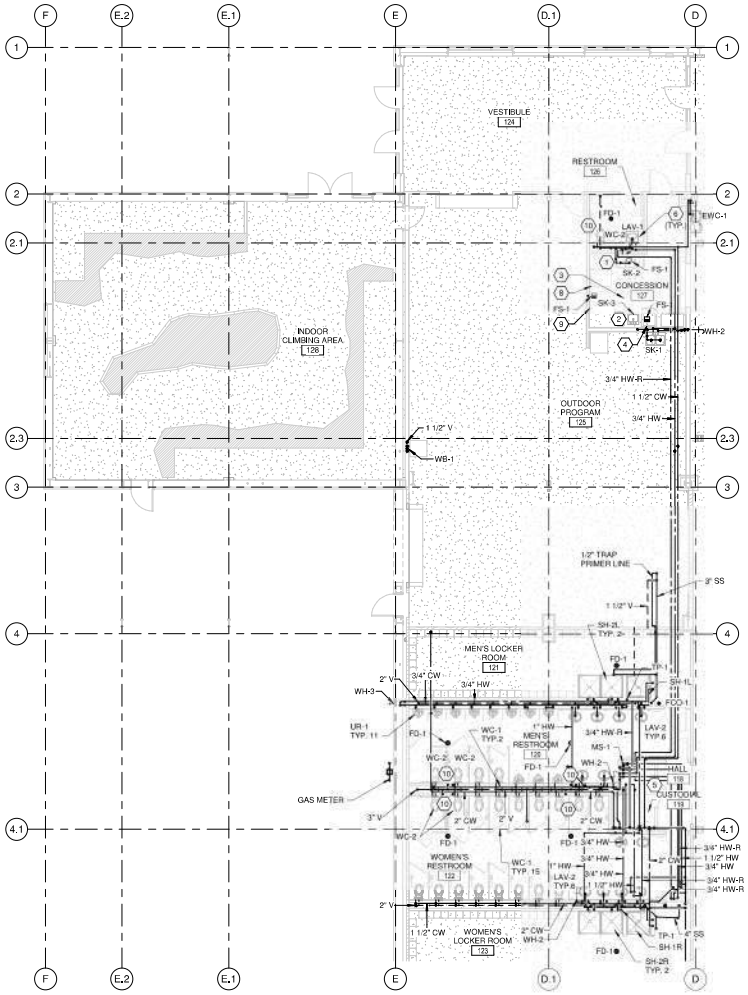
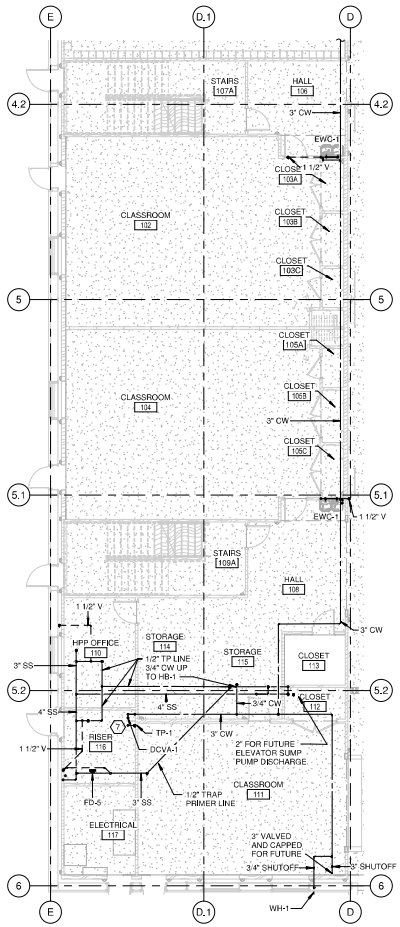


ANNEX NORTH PLUMBING PLAN

1/8" = 1'-0"

NORTH



ANNEX SOUTH PLUMBING PLAN

1/8" = 1'-0"

NORTH

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE P601 FOR MINIMUM ROUGH-IN SIZES.

KEYNOTES (#)

1 PROVIDE HW/CW ROUGH-INS WITH ANGLE STOPS AT WALL. FUTURE FIXTURE BY OWNER.
2 PROVIDE HW/CW ROUGH-INS WITH ANGLE STOPS AT WALL. CAPPED WITH ROUGH-IN. FUTURE FIXTURE BY OWNER.
3 REFER TO SHEET A493 FOR FUTURE CONCESSION AREA EQUIPMENT. PROVIDE ROUGH-INS AS REQUIRED.
4 MOUNT CB AT 18" AFF FOR FUTURE ICE MAKER.
5 SEE DETAIL 2/P502 FOR ZONE ISOLATION VALVES IN THIS AREA.
6 SEE DETAIL 7/P502 FOR LAVATORY SENSOR FAUCET WIRING AND DETAIL 3/P502 FOR LAVATORY PIPING.
7 SEE DETAIL 7/P501 FOR DOMESTIC WATER RISER DETAIL.
8 PROVIDE CW ROUGH-INS WITH ANGLE STOPS AT WALL FOR FUTURE ICE MACHINE.
9 PROVIDE CW ROUGH-INS WITH ANGLE STOPS AT WALL FOR FUTURE COFFEE MACHINE. ANGLE STOP SHALL BE MOUNTED ABOVE COUNTER SEE A403.
10 TRAP PRIMER LINE FROM FLUSH VALVE TAILPIECE.

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www.meierinc.com

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APPROVAL		
DRAWN	MAV	04/09/2020
DESIGN	MAV	04/09/2020
CHECKED	DLA	04/09/2020
APPROVED	DLA	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED PLUMBING PLANS

DWG. NO.
P402

SCALE: NOT TO SCALE

ISSUE DATE: 04/09/2020

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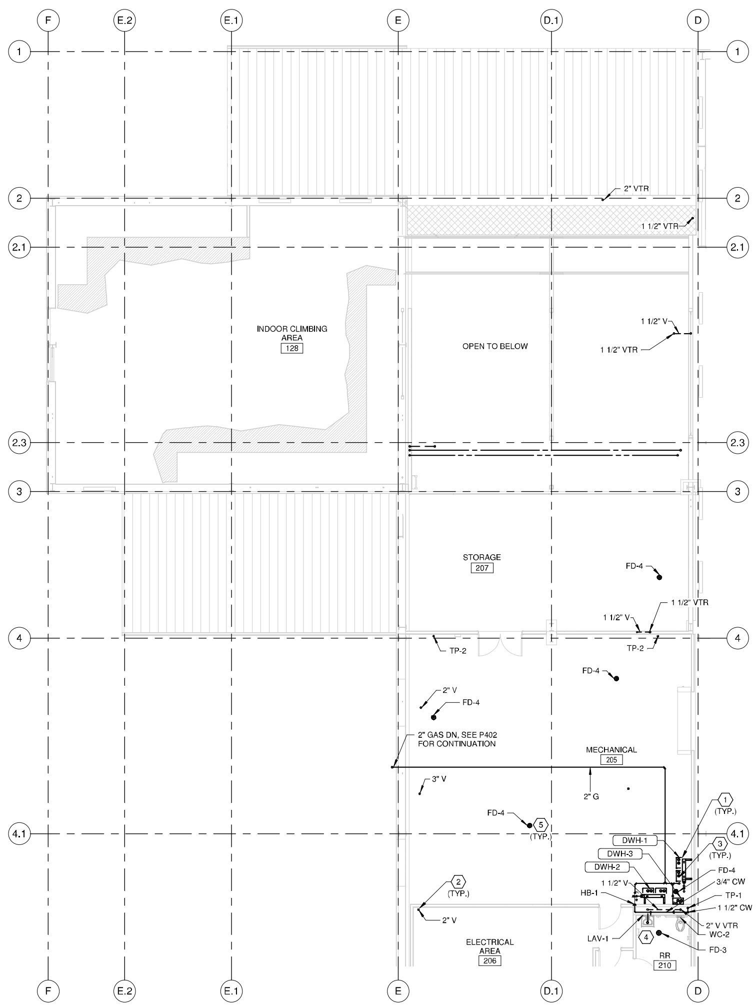
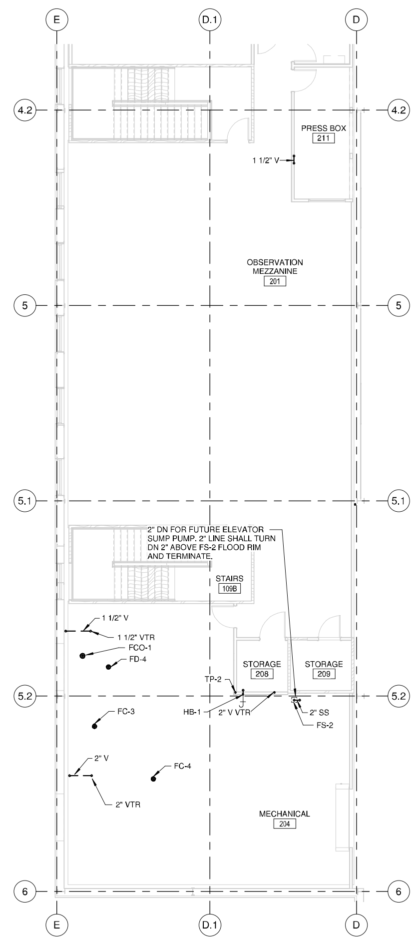


MEZZ NORTH PLUMBING PLAN

NORTH 1

1/8" = 1'-0"



MEZZ SOUTH PLUMBING PLAN

NORTH 2

1/8" = 1'-0"

NOTES

1. SEE M001 FOR GENERAL NOTES AND LEGENDS.
2. SEE 9/P502 FOR GAS PIPING DIAGRAM AND SIZES.
3. FLOOR DRAIN LOCATIONS IN MECHANICAL ROOMS SHALL BE COORDINATED WITH AIR HANDLING EQUIPMENT DRAINS AND HYDRONIC, STEAM SPECIALTY DRAINS.

KEYNOTES

1. SEE DETAIL 5/P502 FOR WATER HEATER DETAIL.
2. SEE DETAIL 4/P502 FOR VENT THROUGH ROOF DETAIL.
3. CONTRACTOR TO FIELD ROUTE VENT AND FLUE PIPES FROM WATER HEATERS PER MANUFACTURER INSTRUCTIONS TO CONCENTRIC VENT ON ROOF ABOVE.
4. SEE DETAIL 7/P502 FOR LAVATORY SENSOR FAUCET WIRING AND DETAIL 3/P502 FOR LAVATORY PIPING.
5. SEE DETAIL 8/P501 FOR CLT FLOOR DRAIN DETAIL.

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EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED MEZZ PLUMBING PLANS

DWG. NO.

P403

SCALE: NOT TO SCALE

ISSUE DATE: 04/09/2020

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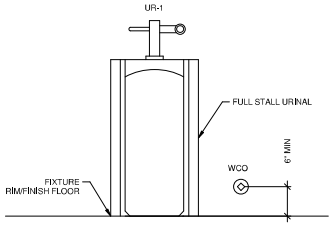
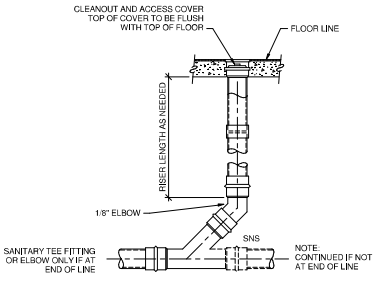
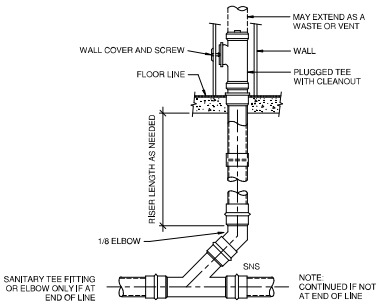


1 URINAL WCO DETAIL
SCALE: NONE



2 FLOOR CLEANOUT DETAIL
SCALE: NONE



3 WALL CLEANOUT DETAIL
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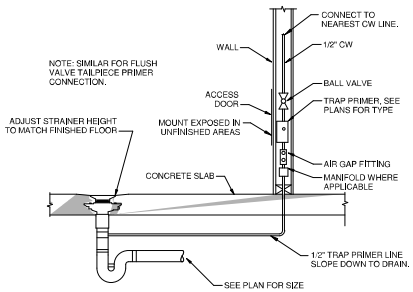

4 FLOOR DRAIN TRAP PRIMER DETAIL
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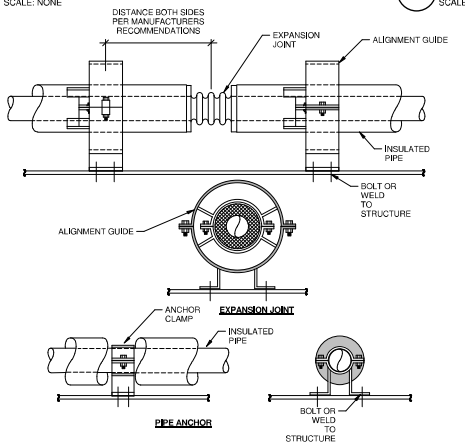
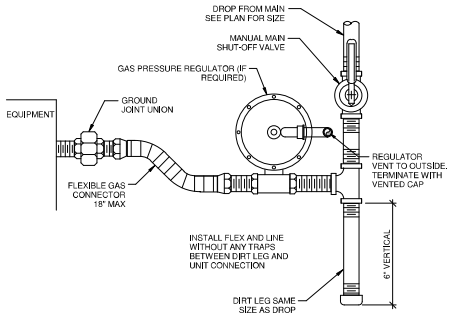


5 PIPE EXPANSION / ANCHOR
SCALE: NONE



6 TYPICAL GAS CONNECTION
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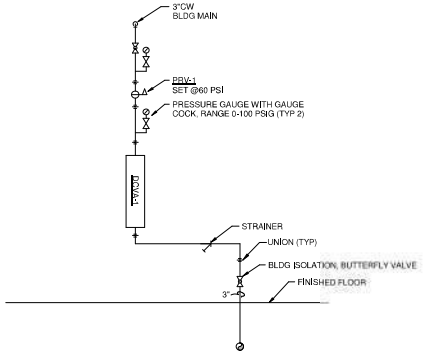

7 DOMESTIC WATER RISER DETAIL
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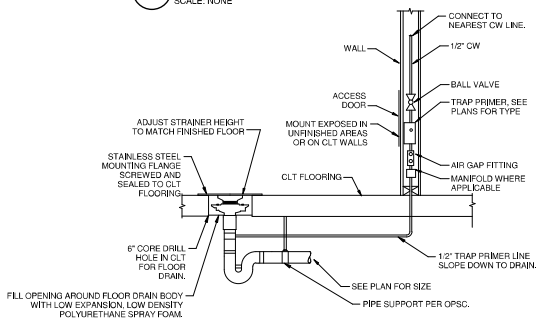

8 CLT FLOOR DRAIN DETAIL
SCALE: NONE

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MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
PLUMBING DETAILS

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P501

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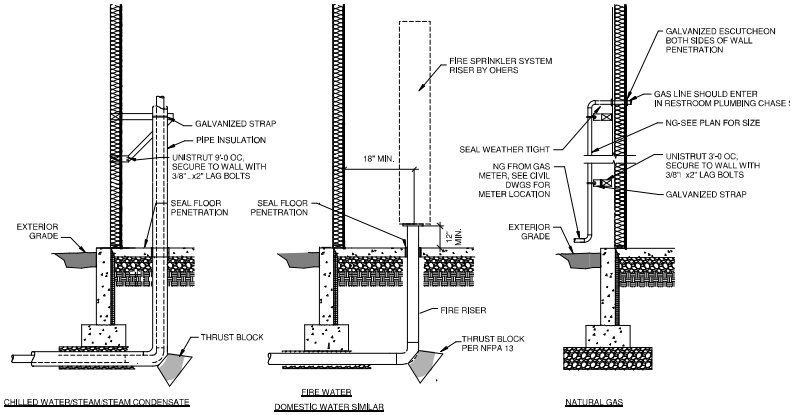
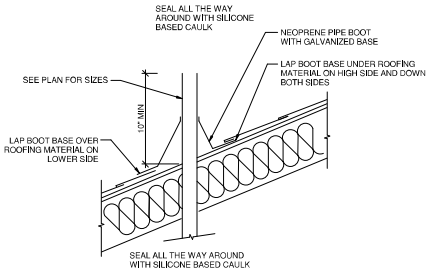


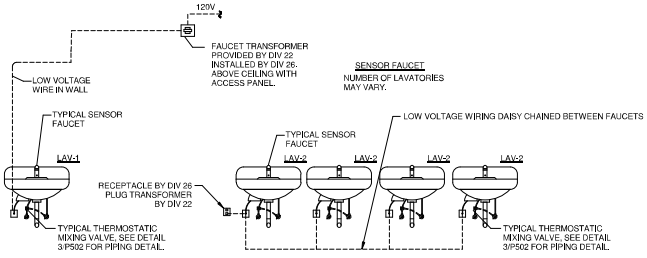
1 SERVICE RISER DETAIL

SCALE: NONE



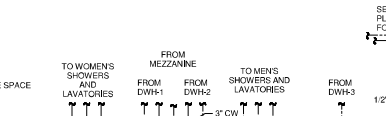
4 VENT THROUGH ROOF (VTR) DETAIL

SCALE: NONE



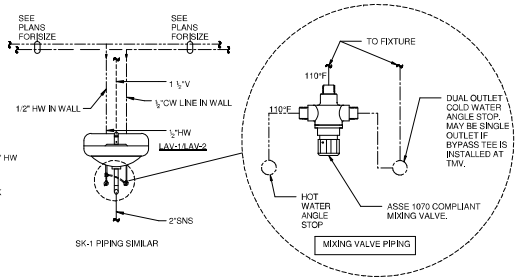
7 LAVATORY SENSOR FAUCET WIRING

SCALE: NONE



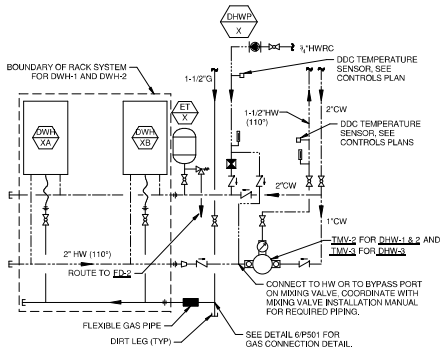
JANITOR CLOSET ZONE ISOLATION VALVES

2 SCALE: NONE



3 LAVATORY PIPING

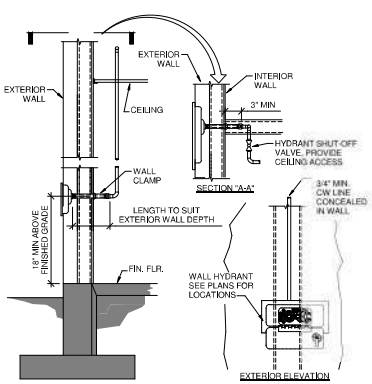
SCALE: NONE



FIELD ROUTE CONDENSATE DRAINS THROUGH ACID NEUTRALIZER THEN TO FD-2. PIPING SIMILAR FOR DWH-3, ALL WATER PIPE SIZES FOR DHW-3 (HW AND CW) SHALL BE 1", HWRC SHALL BE 3/4"

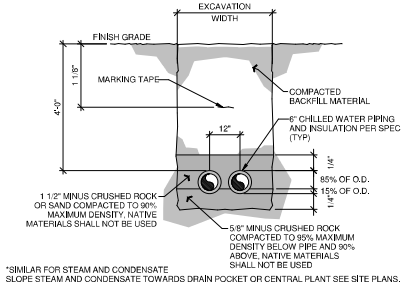
5 WATER HEATER DETAIL

SCALE: NONE



6 EXTERIOR WALL HYDRANT DETAIL

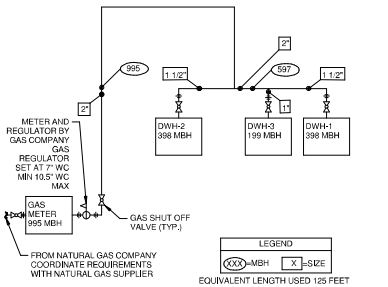
SCALE: NONE



*SIMILAR FOR STEAM AND CONDENSATE
SLOPE STEAM AND CONDENSATE TOWARDS DRAIN POCKET OR CENTRAL PLANT SEE SITE PLANS.

8 CHILLED WATER BURIED PIPING DETAIL

SCALE: NONE



9 GAS PIPING DIAGRAM

SCALE: NONE

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MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

PLUMBING DETAILS

DWG. NO. P502

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PLUMBING FIXTURE SCHEDULE

SYMBOL	MANUFACTURER	MODEL	FIXTURE	MOUNTING	HW	CW	W	V	COLOR	ACCESSORIES/REMARKS
DCVA-1	FEBCO	LF870V-OSY	DOUBLE-CHECK VALVE BACKFLOW ASSEMBLY	-	-	3"	-	-	-	ORIENT IN VERTICAL UPWARD "Z" ORIENTATION.
EWC-1	ELKAY	LZSTL8WSLK	WATER COOLER / BOTTLE FILLING STATION	WALL	-	½"	1¼"	1¼"	-	MOUNT AT ADA REQUIRED HEIGHT. ELECTRICAL TO PROVIDE GFCI-PROTECTED RECEPTACLE POWER CONNECTION (115V/1PH/5.0 FLA).
FCO-1	SIOUX CHIEF	834-4DNRB	ON-GRADE FLOOR CLEANOUT	FLOOR	-	-	SEE PLANS FOR SIZE	-	NICKEL BRONZE	FLOOR CLEANOUT SHALL BE SIZE OF CONNECTED PIPE. PROVIDE WITH BRASS SECONDARY CLOSURE PLUG. ROUND TOP.
FCO-2	SIOUX CHIEF	822-CF3DNRB	ABOVE-GRADE FLOOR CLEANOUT	FLOOR	-	-	SEE PLANS FOR SIZE	-	NICKEL BRONZE	FLOOR CLEANOUT SHALL BE SIZE OF CONNECTED PIPE. PROVIDE WITH BRASS SECONDARY CLOSURE PLUG. ROUND TOP.
FD-1	SIOUX CHIEF	832-25DNR	ON-GRADE FLOOR DRAIN	FLOOR	-	-	2"	1½"	NICKEL BRONZE	TRAP PRIMER CONNECTION. ROUND STRAINER.
FD-2	SIOUX CHIEF	832-25DNR	ON-GRADE FUNNEL FLOOR DRAIN	FLOOR	-	-	2"	1½"	NICKEL BRONZE	TRAP PRIMER CONNECTION. ROUND STRAINER. WITH 863-FN FUNNEL.
FD-3	SIOUX CHIEF	822-2DNR	ABOVE-GRADE FLOOR DRAIN	FLOOR	-	-	2"	1½"	NICKEL BRONZE	TRAP PRIMER CONNECTION. ROUND STRAINER.
FD-4	SIOUX CHIEF	822-2DNR	ABOVE-GRADE FUNNEL FLOOR DRAIN	FLOOR	-	-	2"	1½"	NICKEL BRONZE	TRAP PRIMER CONNECTION. ROUND STRAINER. WITH 863-FN FUNNEL.
FD-5	SIOUX CHIEF	832-4DIR	FLOOR DRAIN	FLOOR	-	-	4"	2"	DUCTILE IRON	6-1/2" ROUND DUCTILE IRON GRATE.
FS-1	SIOUX CHIEF	860-W3P-_2L	FLOOR SINK	FLOOR	-	-	3"	1½"	WHITE	HALF-GRATE OPTION. WITH ALUMINUM DOME BOTTOM STRAINER. PROVIDE FULL COVER ACCESSORY SIOUX CHIEF MODEL 860-WGPJ. COVER TO BE REMOVED WHEN FUTURE CONCESSION FIXTURES ARE INSTALLED.
FS-2	SIOUX CHIEF	860-W4PXL	FLOOR SINK	FLOOR	-	-	4"	2"	WHITE	WITH ALUMINUM DOME BOTTOM STRAINER. PROVIDE WITH FULL COVER ACCESSORY SIOUX CHIEF MODEL 860-WGPJ. COVER TO BE REMOVED WHEN FUTURE ELEVATOR SUMP PUMP IS INSTALLED.
HB-1	WOODFORD	26	HOSE BIBB	WALL	-	¾"	-	-	ROUGH CHROME	C INLET CODE. METAL WHEEL HANDLE OPTION. WITH INTEGRAL DOUBLE-CHECK BACKFLOW PREVENTER.
LAV-1	AMERICAN STANDARD	0355.012 LUCERNE	LAVATORY	WALL	½"	½"	1½"	1½"	WHITE	SLOAN ETF-600-BOX-BDT-CP-0.5GPM-MLM-IR-BT-FCT OPTIMA SENSOR FAUCET 90.5 GPM). FAUCET SHALL BE PROVIDED WITH HARDWIRED POWER TRANSFORMER TO BE MOUNTED IN ELECTRICAL JUNCTION BOX ABOVE CEILING WITH ACCESS DOOR (POWER CONNECTION BY DIV 26). PROVIDE WITH BELOW-DECK THERMOSATIC MIXING VALVE (ASSE 1070 COMPLIANT) SET FOR 110°F. PROVIDE CONCEALED ARM CARRIER. ELKAY OR JUST MANUFACTURING GRID DRAIN, CHICAGO OR MCQUIRE SUPPLIES AND ANGLE STOPS. INSULATED SUPPLY AND DRAIN LINE COVERS.
LAV-2	AMERICAN STANDARD	0476.028 AQUALYN	LAVATORY	COUNTER	½"	½"	1½"	1½"	WHITE	SLOAN ETF-600-PLG-BDT-CP-0.5GPM-MLM-IR-BT-FCT OPTIMA SENSOR FAUCET (0.5 GPM). PROVIDE PLUG-TYPE POWER TRANSFORMER TO BE CONNECTED AT RECEPTACLE UNDER COUNTER (POWER CONNECTION BY DIV 26). PROVIDE ONE (1) TRANSFORMER FOR EACH BANK OF LAVATORIES SERVED, FOUR(4) TOTAL THIS PROJECT. PROVIDE GANG POWER CONNECTORS FOR EACH BANK OF LAVATORIES. PROVIDE WITH BELOW-DECK THERMOSATIC MIXING VALVE (ASSE 1070 COMPLIANT) SET FOR 110°F. ELKAY OR JUST MANUFACTURING GRID DRAIN, CHICAGO OR MCQUIRE SUPPLIES AND ANGLE STOPS. INSULATED SUPPLY AND DRAIN LINE COVERS.
MS-1	AMERICAN STANDARD	7741.000 FLORWELL	SERVICE SINK	FLOOR	¾"	¾"	3"	1½"	WHITE	MOEN 8124 FAUCET, 7745.811 VINYL RIM GUARD, 7721.038 FLAT GRID DRAIN, STAINLESS STEEL WALL GUARDS, TRIPLE MOP HOOK, FAUCET HOSE WITH WALL HOOK.
PRV-1	WATTS	LFN223FS	PRESSURE REDUCING VALVE	WALL	-	3"	-	-	-	SET AT 60 PSI.
SH-1L	ACORN	SHOWER WARE 418BBF-L-W-LVR-F-MSH-FSS-SB	ADA SHOWER TRIM WALL MOUNT	WALL RECESSED	¾"	¾"	2"	1½"	SST (SEE REMARKS FOR BASE)	ACORN ENGINEERING MODEL SBADA-36-3F-OC SHOWER BASE. SEE ARCHITECTURAL DRAWINGS FOR BUILT-UP TILE WALL AND FLOOR INSTALLATION RECESS DETAILS. "HYBRID ROSE" COLOR. ADA COMPLIANT GRAB BAR, STAINLESS STEEL FOLDING SEAT, TEMPERATURE-PRESSURE BALANCING MIXING VALVE WITH LEVER HANDLE ASSE 1016 COMPLIANT. LEFT-HAND VALVE AND SEAT ORIENTATION, MULTI-STREAM SHOWER HEAD, FLOW CONTROL (2.0 GPM), WITH 24" SLIDE BAR. SHOWER CURTAIN AND ROD SPECIFIED BY ARCHITECTURAL. MOUNT SHOWER TRIM SUCH THAT SHOWER HEAD FACES SEAT.
SH-1R	ACORN	SHOWER WARE 418BBF-R-W-LVR-F-MSH-FSS-SB	ADA SHOWER TRIM WALL MOUNT	WALL RECESSED	¾"	¾"	2"	1½"	SST	SAME AS SH-1L EXCEPT WITH RIGHT-HAND VALVE AND SEAT.
SH-2L	ACORN	SHOWER WARE 418B-W-LVR-F-MSH-RD	SHOWER TRIM WALL MOUNT	WALL RECESSED	¾"	¾"	2"	1½"	SST (SEE REMARKS FOR BASE)	ACORN ENGINEERING MODEL SBIR-7236-DD-2F-OC DUAL-SHOWER BASE FOR EACH PAIR OF SH-2 LOCATIONS. "HYBRID ROSE" COLOR. PROVIDE TILING FLANGES ON LONG SIDE AND LEFT SIDE. SEE ARCHITECTURAL DRAWINGS FOR BUILT-UP TILE WALL DETAILS. TEMPERATURE-PRESSURE BALANCING MIXING VALVE WITH LEVER HANDLE ASSE 1016 COMPLIANT. MULTI-STREAM SHOWER HEAD, FLOW CONTROL (2.0 GPM), RECESSED SOAP DISH. SHOWER CURTAIN AND ROD SPECIFIED BY ARCHITECTURAL. REFER TO ARCHITECTURAL DRAWINGS FOR SHOWER PARTITIONS. MOUNT SHOWER TRIM SUCH THAT SHOWER HEAD FACES OUTWARD TOWARD CURTAIN.
SH-2R	ACORN	SHOWER WARE 418B-W-LVR-F-MSH-RD	SHOWER TRIM WALL MOUNT	WALL RECESSED	¾"	¾"	2"	1½"	SST	SAME AS SH-2L EXCEPT TILING FLANGES ON SHOWER BASE SHALL BE ON LONG SIDE AND LEFT SIDE.
SK-1	ELKAY	LRAD331965	2 COMPARTMENT SINK	COUNTER	½"	½"	2"	1½"	SST	4-HOLE DRILLING OPTION. MOEN 7430 FAUCET (2.0 GPM), LK-99 GRID DRAIN. CHICAGO OR MCGUIRE SUPPLIES AND ANGLE STOPS. PROVIDE TMV-1 MIXING VALVE ON HOT WATER SUPPLY. PROVIDE DUPLEX ANGLE STOPS AND CAP UNUSED CONNECTIONS, FOR FUTURE HOT AND COLD WATER DISPENSERS. INSULATED SUPPLY AND DRAIN LINE COVERS.
SK-2	-	-	3 COMPARTMENT SINK	FLOOR	¾"	¾"	INDIRECT VIA FS	-	-	ROUGH-IN ONLY. FUTURE FIXTURE BY OWNER. CHICAGO OR MCGUIRE SUPPLIES AND ANGLE STOPS.
SK-3	-	-	HAND WASH SINK	WALL	½"	½"	INDIRECT VIA FS	1½"	-	ROUGH-IN ONLY. FUTURE FIXTURE BY OWNER. CHICAGO OR MCGUIRE SUPPLIES AND ANGLE STOPS.
TMV-1	POWERS	LFe480-10	THERMOSTATIC MIXING VALVE (POINT OF USE)	WALL	-	-	-	-	ROUGH BRONZE	INSTALL AT FIXTURES ON THIS SCHEDULE AS INDICATED.
TMV-2	LEONARD	XL-32A-LF-BDT-IT	THERMOSTATIC MIXING VALVE (MASTER)	WALL	-	-	-	-	ROUGH BRONZE	CONNECT TO DWH-1 AND DWH-2 PER DETAIL 5 ON P502. WITH INLET AND OUTLET THERMOMETERS.
TMV-3	LEONARD	TM-26-LF-BDT-IT	THERMOSTATIC MIXING VALVE (MASTER)	WALL	-	-	-	-	ROUGH BRONZE	CONNECT TO DWH-3 PER DETAIL 5 ON P502. WITH INLET AND OUTLET THERMOMETERS.
TP-1	SIOUX CHIEF	695	TRAP PRIMER	-	-	½"	-	-	-	SEE DETAIL ON 4, 8/P502. PROVIDE DISTRIBUTOR FITTING FOR MULTIPLE-DRAIN INSTALLATIONS.
TP-2	SIOUX CHIEF	695-ES01	ELECTRONIC TRAP PRIMER	WALL SURFACE	-	½"	-	-	-	SEE DETAIL ON 4, 8/P502. PROVIDE DISTRIBUTOR FITTING FOR MULTIPLE-DRAIN INSTALLATIONS. POWER CONNECTION AND DISCONNECT BY DIV 26 (120V/1PH, 9.2 WATT).
UR-1	AMERICAN STANDARD	6400.001 STALLBROOK	URINAL	FLOOR	-	¾"	2"	1½"	WHITE	SLOAN 186 SFSM-0.5 FLUSH VALVE (0.5 GPF). COORDINATE FOR RECESSED MOUNTING IN CONCRETE FLOOR.
WB-1	SIOUX CHIEF	696G2313PF	WASHER BOX	WALL	½"	½"	2"	1½"	-	WITH WATER HAMMER ARRESTORS AND QUARTER-TURN VALVES. LEAD-FREE VALVES.
WC-1	AMERICAN STANDARD	3690.01 PRIOLO	WATER CLOSET	FLOOR	-	1½"	4"	2"	WHITE	SLOAN 111 SFSM-1.28 FLUSH VALVE (1.28 GPF). BEMIS 1655SSCT TOILET SEAT WITH SELF-SUSTAINING CHECK HINGES.
WC-2	AMERICAN STANDARD	3695.001 PRIOLO	ADA WATER CLOSET	FLOOR	-	1½"	4"	2"	WHITE	SLOAN 111 SFSM-1.28 FLUSH VALVE (1.28 GPF). BEMIS 1655SSCT TOILET SEAT WITH SELF-SUSTAINING CHECK HINGES.
WCO	SIOUX CHIEF	873 SERIES	WALL CLEANOUT	WALL	-	-	SEE PLANS FOR SIZE	-	SST	WCO SHALL BE SIZE OF CONNECTED PIPE. PROVIDE AS TEST-TEE FITTING AND INSTALL COVER AND STANDARD BRASS PLUG SPECIFIED.
WH-1	WOODFORD	B67	WALL HYDRANT EXTERIOR	WALL	-	¾"	-	-	CHROME	WITH INTEGRAL DOUBLE-CHECK BACKFLOW PREVENTER. WITH WALL BOX. VERIFY WALL THICKNESS PRIOR TO ORDERING.
WH-2	WOODFORD	B79	WALL HYDRANT INTERIOR	WALL	-	¾"	-	-	CHROME	WITH WALL BOX.
WH-3	WOODFORD	HCB67	WALL HYDRANT EXTERIOR	WALL	¾"	¾"	-	-	CHROME	WITH INTEGRAL DOUBLE-CHECK BACKFLOW PREVENTER. WITH WALL BOX. VERIFY WALL THICKNESS PRIOR TO ORDERING.
WHA	SIOUX CHIEF	650 SERIES	WATER HAMMER ARRESTORS	WALL	-	SEE NOTES	-	-	-	CONTRACTOR TO INSTALL AND SIZE PER MANUFACTURER'S RECOMMENDATIONS.

EXPANSION TANK SCHEDULE

SYMBOL	MANUF.	MODEL	SERVICE	TYPE	MIN TANK ACCEPTANCE VOLUME (GALLONS)	TANK TOTAL VOLUME (GALLONS)	FACTORY PRECHARGE PRESS PSIG	STRUCTURAL/SEISMIC			ACCESSORIES /REMARKS
								FULL WEIGHT INCLUDING WATER (LBS)	MOUNTING		
									LOCATION	SECUREMENTS	
ET-1	AMTROL	ST-5C-DD	DOMESTIC HOT WATER	DIAPHRAGM	0.9	2	55	27	PIPE MOUNTED	WALL STRAPS PER OPSC	ASME CODE CONSTRUCTION. PROVIDE AIR CHARGE ADJUSTMENT VALVE. PROVIDE SEISMIC STRAPS OR ANCHORS PER OPSC 508.2.
ET-2	AMTROL	ST-5C-DD	DOMESTIC HOT WATER	DIAPHRAGM	0.9	2	55	27	PIPE MOUNTED	WALL STRAPS PER OPSC	ASME CODE CONSTRUCTION. PROVIDE AIR CHARGE ADJUSTMENT VALVE. PROVIDE SEISMIC STRAPS OR ANCHORS PER OPSC 508.2.
ET-3	AMTROL	ST-5C-DD	DOMESTIC HOT WATER	DIAPHRAGM	0.9	2	55	27	PIPE MOUNTED	WALL STRAPS PER OPSC	ASME CODE CONSTRUCTION. PROVIDE AIR CHARGE ADJUSTMENT VALVE. PROVIDE SEISMIC STRAPS OR ANCHORS PER OPSC 508.2.

PUMP SCHEDULE

SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	DESIGN OPERATING POINT		MOTOR			ELECTRICAL DISCONNECT		ACCESSORIES/ REMARKS
					FLOWRATE (GPM)	HEAD (FT H20)	HP	VOLTS	PHASE	PROVIDED BY	TYPE	
DHWP-1	TACO	0010-SF3	DOMESTIC HOT WATER	CARTRIDGE CIRCULATOR	3	9	1/8	115	1	ELECTRICAL	PLUG	STAINLESS STEEL BODY. COMPANION FLANGE CONNECTION. COORDINATE CONNECTION TO BUILDING HVAC CONTROL SYSTEM.
DHWP-2	TACO	0010-SF3	DOMESTIC HOT WATER	CARTRIDGE CIRCULATOR	3	9	1/8	115	1	ELECTRICAL	PLUG	
DHWP-3	TACO	0010-SF3	DOMESTIC HOT WATER	CARTRIDGE CIRCULATOR	3	9	1/8	115	1	ELECTRICAL	PLUG	

GAS FIRED INSTANTANEOUS WATER HEATER SCHEDULE

SYMBOL	MANUFACTURER	MODEL	GAS INPUT (BTU/H)	GAS PRESSURE MIN (INCHES WC)	GAS PRESSURE MAX (INCHES WC)	ENTERING WATER TEMPERATURE (°F)	LEAVING WATER TEMPERATURE (°F)
DWH-1	AMERICAN WATER HEATER	MCI-CRS-22WM-N	398,000	4"	10.5"	50	110
DWH-2	AMERICAN WATER HEATER	MCI-CRS-22WM-N	398,000	4"	10.5"	50	110
DWH-3	AMERICAN WATER HEATER	MCT-199I-N	199,000	4"	10.5"	50	110

GAS FIRED INSTANTANEOUS WATER HEATER SCHEDULE (CONT.)

SYMBOL	FLOW RATE AT SET POINT (GPM)	ELECTRICAL			STRUCTURAL/SEISMIC			ACCESSORIES/REMARKS
		VOLTS	PHASE	FLA	WEIGHT (LBS)	MOUNTING		
						LOCATION	SECUREMENTS	
DWH-1	12.6	120	1	4.5	240	WALL	PER MANUFACTURER'S RECCOMENDATIONS	PROVIDE WITH VERTICAL VENT PER MANUFACTURER REQUIREMENTS. 2 RECEPTACLE POWER CONNECTIONS BY ELECTRICAL FOR EACH UNIT, UNIT IS RACKED AND TWO AMERICAN WATER HEATER MCT-199I-N LABELED AS A AND B FOR ELECTRICAL CIRCUITS.
DWH-2	12.6	120	1	4.5	240	WALL		
DWH-3	6.3	120	1	2.25	71	WALL	PER MANUFACTURER'S RECCOMENDATIONS	PROVIDE WITH VERTICAL VENT PER MANUFACTURER REQUIREMENTS.

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APPROVED	DLA	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

PLUMBING SCHEDULES

DWG. NO.
P601
SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
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SECTION 220000 - GENERAL PLUMBING REQUIREMENTS

REGULATORY REQUIREMENTS: PERFORM WORK IN ACCORDANCE WITH APPLICABLE PROVISIONS OF OREGON MECHANICAL SPECIALTY CODE, OREGON STRUCTURAL SPECIALTY CODE, OREGON PLUMBING SPECIALTY CODE, OREGON ZERO-ENERGY READY COMMERCIAL CODE (ENERGY CODE), OREGON FIRE CODE, ALL OTHER STATE AND LOCAL CODES AND ORDINANCES, AND ADOPTIONS THEREOF. PROVIDE MATERIALS AND LABOR NECESSARY TO COMPLY WITH RULES, REGULATIONS, AND ORDINANCES.

ALL PLUMBING FIXTURES AND MATERIALS WHICH ARE IN CONTACT WITH WATER FOR HUMAN CONSUMPTION OR USE SHALL COMPLY WITH ALL CODES, ORDINANCES, STANDARDS, AND REGULATIONS FOR "LEAD-FREE" DESIGNATION. LISTING SHALL BE AFFIXED PERMANENTLY TO MATERIAL OR ITEM EXCEPT FOR CONSUMABLE ITEMS SUCH AS SOLDER. LEAD-FREE SOLDER AND OTHER JOINING METHODS SHALL BE REQUIRED.

ALL MANUFACTURERS, PRODUCTS, FIXTURES, AND EQUIPMENT SPECIFIED ON THE DRAWINGS FORM A BASIS OF DESIGN FOR QUALITY, FEATURES, PERFORMANCE, AND APPEARANCE. SUBSTITUTIONS SHALL NOT BE PERMITTED UNLESS APPROVED IN WRITING BY THE ENGINEER.

GENERAL MATERIALS AND EQUIPMENT: PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY WITH THE CONTRACT DOCUMENTS, THAT ARE THE CURRENT PRODUCT OR MODEL LINE OF THE MANUFACTURER AND, UNLESS OTHERWISE INDICATED, NEW AND UNUSED AT THE TIME OF INSTALLATION. PROVIDE MATERIALS AND EQUIPMENT COMPLETE WITH ALL ACCESSORIES, TRIM, FINISH, SAFETY GUARDS AND OTHER DEVICES AND DETAILS NEEDED FOR A COMPLETE INSTALLATION AND FOR THE INTENDED USE AND EFFECT. WHERE AVAILABLE, PROVIDE STANDARD MATERIALS AND EQUIPMENT OF TYPES THAT HAVE BEEN PRODUCED AND USED SUCCESSFULLY IN SIMILAR SITUATIONS ON OTHER PROJECTS. WHERE MULTIPLE QUANTITIES OF A SINGLE PRODUCT, OR QUANTITIES OF SIMILAR OR RELATED PRODUCTS ARE REQUIRED, SUCH PRODUCTS SHALL BE OF A SINGLE MANUFACTURER TO THE EXTENT POSSIBLE.

INSTALLATION: COORDINATE MECHANICAL SYSTEMS, EQUIPMENT, AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS. WHERE DIMENSIONAL DISCREPANCIES EXIST, ARCHITECTURAL DRAWINGS TAKE PRECEDENCE OVER MECHANICAL DRAWINGS. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS FOLLOWING AS CLOSELY AS BUILDING CONSTRUCTION WILL PERMIT. THE MECHANICAL DRAWINGS DO NOT INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. ARRANGE WORK ACCORDINGLY AND PROVIDE OFFSETS, FITTINGS AND ACCESSORIES REQUIRED. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, UNLESS OTHERWISE INDICATED. WHERE CONCRETE HOUSEKEEPING PADS ARE INDICATED, COORDINATE SIZES AND LOCATIONS WITH ACTUAL EQUIPMENT INSTALLED. PROVIDE APPROPRIATE ANCHOR POINTS EMBEDDED IN PADS AND/OR CONCRETE FLOORS IF REQUIRED.

SECTION 220516 - EXPANSION FITTINGS AND LOOPS

INSTALL PACKLESS EXPANSION JOINTS OF TYPES AND SIZE NECESSARY TO ACCOMMODATE THERMAL EXPANSION OF PIPING. EXPANSION FITTINGS SHALL BE METAL-BELLOWS PACKLESS TYPE, OR METAL FLEXIBLE-HOSE TYPE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

INSTALL PIPE ALIGNMENT GUIDES AND ANCHORS AS NECESSARY TO GUIDE EXPANSION OF PIPING AND TO AVOID END-LOADING AND TORSION STRESS ON PIPES.

SECTION 220517 - SLEEVES AND SLEEVE SEALS

INSTALL SLEEVES AND SLEEVE SEALS WHERE PIPES PASS THROUGH PARTITION WALLS, AND CONCRETE OR CONTINUOUS LAMINATED TIMBER (CLT) FLOORS, WALLS, AND CEILINGS. (EXCEPTION: SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED HOLES IN CONCRETE. RETAIN SLEEVE SEAL SYSTEM IF OTHERWISE INDICATED BELOW.)

INSTALL SLEEVES AT ALL INTERIOR WALL PENETRATIONS AND IN CLT FLOOR SLABS AS FOLLOWS: FOR PIPING SMALLER THAN NPS 6, USE GALVANIZED-STEEL-PIPE SLEEVES COMPLYING WITH ASTM A 53, TYPE E, GRADE B, SCHEDULE 40. FOR PIPING NPS 6 AND LARGER, USE GALVANIZED-STEEL-SHEET SLEEVES FABRICATED FROM 0.0239 INCH MINIMUM THICKNESS MATERIAL, CLOSED WITH A WELDED LONGITUDINAL JOINT.

INSTALL STACK-SLEEVE FITTINGS AT ALL CONCRETE SLABS ABOVE GRADE.

INSTALL SLEEVES AT ALL CLT FLOOR SLABS, CONCRETE SLABS ON GRADE AND EXTERIOR WALL PENETRATIONS AS FOLLOWS: FOR PIPING SMALLER THAN NPS 6, USE GALVANIZED-STEEL SLEEVES COMPLYING WITH ASTM A53, SCHEDULE 40 WITH SLEEVE SEAL SYSTEM AS DESCRIBED BELOW. FOR PIPING NPS 6 AND LARGER, USE CAST-IRON SLEEVES CAST OR FABRICATED OF CAST OR DUCTILE IRON AND EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATERSTOP, WITH SLEEVE SEAL SYSTEM AS DESCRIBED BELOW.

INSTALL SLEEVE-SEAL SYSTEMS (COMPRISED OF MULTIPLE EPDM-RUBBER INTERLOCKING LINKS SHAPED TO FIT SURFACE OF PIPE, AND PRESSURE PLATE) AT ALL SLEEVES (OR CORE DRILLED HOLES) AT SLABS ON GRADE AND WALL PENETRATIONS BELOW GROUND. SLEEVES (OR CORE DRILLED HOLES) WHICH ARE TO HAVE SLEEVE-SEAL SYSTEM INSTALLED SHALL HAVE A MINMUM OF 1 INCH OF ANNULAR CLEAR SPACE AROUND THE INSTALLED PIPE. INSTALL SLEEVE SEAL SYSTEM PER MANUFACTURER'S INSTRUCTIONS.

ALL SLEEVES SHALL BE CUT FLUSH WITH SURFACES (EXCEPT FLOORS OF MECHANICAL EQUIPMENT AREAS OR OTHER WET AREAS. TRIM SLEEVES TO 2 INCHES ABOVE FINISHED FLOOR LEVEL).

GROUT SPACE OUTSIDE OF SLEEVES IN SLABS AND WALLS WITHOUT SLEEVE-SEAL SYSTEM.

WHERE PIPING PENETRATES FIRE-RATED WALLS, COMPLY WITH REQUIREMENTS IN DIVISION 7 FIRESTOPPING SECTIONS AND LOCAL BUILDING CODE FOR FIRE-RESISTANT PENETRATION ASSEMBLIES.

SECTION 220518 - ESCUTCHEONS

INSTALL ESCUTCHEONS AND FLOOR PLATES FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS. FOR NEW PIPING, USE ONE PIECE ESCUTCHEONS AND FLOOR PLATES. ALL ESCUTCHEONS AND FLOOR PLATES SHALL HAVE POLISHED, CHROME PLATED FINISH IN FINISHED AREAS AND STAMPED-STEEL FINISH IN UNFINISHED SERVICE AREAS. USE DEEP-PATTERN ESCUTCHEONS FOR INSULATED PIPING OR PIPING WITH SLEEVES PROTRUDING FROM WALL, FLOOR, OR CEILING.

SECTION 220519 - METERS AND GAGES:

INSTALL THERMOMETERS WITH THERMOWELLS WHERE INDICATED ON PLANS AND AS FOLLOWS: LIQUID-IN-GLASS TYPE AT INLET AND OUTLET OF WATER HEATERS, VAPOR-ACTUATED TYPE AT INLETS AND OUTLET OF WATER-TEMPERING DEVICES NOT AT POINTS OF USE AND NOT HAVING INTEGRAL THERMOMETERS, AND ELSEWHERE AS INDICATED.

INSTALL PRESSURE GAUGES WHERE INDICATED ON PLANS AND AS FOLLOWS: DIAL-TYPE AT BUILDING WATER SERVICE ENTRANCE, DIAL-TYPE AT INLET AND OUTLET OF EACH PRESSURE REDUCING VALVE, DIAL-TYPE AT SUCTION AND DISCHARGE OF EACH DOMESTIC WATER PUMP (EXCEPT SMALL HOT WATER RECIRCULATION PUMPS. USE TEST PLUGS WITH SELF SEALING EPDM RUBBER INSERTS AND PROVIDE TEST PLUG GAUGE KIT FOR THESE APPLICATIONS), AND ELSEWHERE AS INDICATED. INSTALL SNUBBERS WITH BALL VALVES AT EACH PRESSURE GAUGE ATTACHMENT POINT.

ALL METERS AND GAUGES SHALL READ IN IMPERIAL UNITS AND BE SELECTED WITH APPROPRIATE RANGE FOR APPLICATION.

SECTION 220523 - GENERAL-DUTY VALVES

ALL VALVES SHALL BE RATED BY THE MANUFACTURER FOR THE SERVICE PRESSURE AND PIPE CONTENTS FOR WHICH THEY ARE INSTALLED.

BALL VALVES SMALLER THAN 2-1/2" TO BE TWO-PIECE FULL-PORT BRONZE VALVES WITH BRONZE TRIM COMPLYING WITH MSS SP-110. BALL VALVES 2-1/2" AND LARGER SHALL BE IRON BALL VALVES COMPLYING WITH MSS SP-72.

BUTTERFLY VALVES SHALL BE IRON, SINGLE-FLANGE VALVES WITH EPDM SEAT AND ALUMINUM-BRONZE DISC, COMPLYING WITH MSS SP-67 TYPE I. GROOVED-END BUTTERFLY VALVES MAY BE USED ON GROOVED-END PIPING.

SWING CHECK VALVES SMALLER THAN 2-1/2" SHALL BE BRONZE BODY WITH BRONZE DISC, COMPLYING WITH MSS SP-80, TYPE 3. SWING CHECK VALVES 2-1/2" AND LARGER SHALL BE IRON BODY WITH METAL SEAT, COMPLYING WITH MSS SP-71, TYPE 1. INSTALL CHECK VALVES WITH CLOSURE CONTROL AS NEEDED FOR PIPING APPLICATION. GROOVED-END SWING CHECK VALVES MAY BE USED ON GROOVED-END PIPING.

GATE VALVES SMALLER THAN 2-1/2" SHALL BE BRONZE BODY COMPLYING WITH MSS SP-80, TYPE 1. GATE VALVES 2-1/2" AND LARGER SHALL BE IRON BODY COMPLYING WITH MSS SP-70, TYPE 1. ALL GATE VALVES SHALL HAVE RISING STEM UNLESS INSTALLATION LOCATION PROHIBITS FULL RISING STEM CLEARANCE.

FOR SHUTOFF DUTY, USE BALL, BUTTERFLY, OR GATE VALVES. BUTTERFLY VALVES USED FOR DEAD-END SERVICE SHALL BE SINGLE-FLANGE (LUG) TYPE. INSTALL CHECK VALVES AS REQUIRED TO MAINTAIN FLOW DIRECTION IN PIPES.

SECTION 220529 - HANGERS AND SUPPORTS

PROVIDE SHOP OR FIELD FABRICATED PIPE AND EQUIPMENT HANGER SYSTEMS AND SUPPORTS, USING FACTORY MANUFACTURED HANGER SYSTEMS, OR FIELD FABRICATED AND ENGINEERED HANGER ARRANGEMENTS, TO SUPPORT PIPING AND EQUIPMENT AS REQUIRED AND TO COMPLY WITH SEISMIC RESTRAINT REQUIREMENTS OF LOCAL BUILDING CODE. COMPLY WITH MSS SP-69 AND MSS SP-89 FOR PIPE HANGERS. COMPLY WITH ASME B31.9 FOR PIPING STRESSES, DEFLECTION, AND SLOPES ALLOWED.

INSTALL PIPE POSITIONING SYSTEMS COMPLYING WITH IAPMO PS 42 AT PLUMBING FIXTURE ROUGH-IN CONNECTIONS.

SECTION 220548 - VIBRATION AND SEISMIC CONTROLS

PROVIDE ELASTOMERIC AND SPRING-MOUNTED PADS, HANGERS, AND EQUIPMENT SUPPORTS AS SHOWN ON THE DRAWINGS AND AS NEEDED TO PREVENT EXCESSIVE NOISE AND STRUCTURE-BORNE VIBRATION FROM EQUIPMENT. DESIGN AND INSTALL SEISMIC RESTRAINTS, SNUBBERS, AND OTHER ACCESSORIES TO RESTRAIN PIPING AND EQUIPMENT ACCORDING TO THE REQUIREMENTS IN ASCE 7.

SECTION 220553 - IDENTIFICATION

INSTALL ENGRAVED PLASTIC EQUIPMENT LABELS ON ALL MAJOR PLUMBING EQUIPMENT. EQUIPMENT LABELS SHALL HAVE WHITE TEXT ON BLACK BACKGROUND UNLESS OTHERWISE INDICATED. PROVIDE STANDARD LETTER-SIZE PAGES IN GLASS FRAMES INDICATING ALL LABELED EQUIPMENT AND DRAWING SCHEDULE SHEET WHERE EQUIPMENT IS INDICATED. INSTALL EQUIPMENT LISTS IN LOCATIONS DIRECTED BY OWNER.

INSTALL WARNING SIGNS AND LABELS AS NECESSARY TO CONVEY IMPORTANT OPERATING OR EMERGENCY INFORMATION. WARNING LABELS AND TAGS SHALL HAVE BLACK TEXT ON YELLOW BACKGROUND UNLESS OTHERWISE INDICATED.

INSTALL MANUFACTURED SELF-ADHESIVE OR PRETENSIONED PIPE LABELS ON ALL PLUMBING PIPING. PROVIDE DESCRIPTION OF PIPING SYSTEM CONTENTS AND ARROWS INDICATING NORMAL FLOW DIRECTION. MARK FLOW DIRECTION AT EACH BRANCH WHERE DIRECTION IS NOT OBVIOUS. COLORS, LETTERING SIZES, AND LABEL LOCATIONS SHALL COMPLY WITH ASME A13.1-2007.

ALL EQUIPMENT AND PIPE LABELS SHALL HAVE LETTERING SIZED APPROPRIATELY FOR VIEWING DISTANCE, BUT NO LESS THAN 1/2" HIGH.

INSTALL BRASS STAMPED OR ENGRAVED VALVE TAGS ON ALL VALVES. LABEL WITH PIPING SYSTEM ABBREVIATION AND VALVE NUMBER. PROVIDE STANDARD LETTER-SIZE PAGES IN GLASS FRAMES INDICATING ALL TAGGED VALVES, LOCATION, NORMAL VALVE POSITION (OPEN, CLOSED, OR MODULATING), AND PURPOSE OF VALVE. INSTALL VALVE LISTS IN LOCATIONS DIRECTED BY OWNER. INDICATE ALL VALVE TAG NUMBERS ON PROJECT RECORD DRAWINGS. PROVIDE ADDITIONAL SIGNS OR TAGS FOR EMERGENCY SHUTOFF OR SPECIAL USES.

SECTION 220719 - PLUMBING PIPING INSULATION

INSULATION THICKNESSES AND MATERIAL PROPERTIES SHALL COMPLY WITH ALL REQUIREMENTS IN LOCAL ENERGY CODE, UNLESS PROVISIONS IN THIS SECTION ARE MORE STRINGENT. IF THICKNESSES ARE NOT INDICATED IN ENERGY CODE, AND SYSTEM IS INDICATED TO BE INSULATED, INSTALL 1/2" MINIMUM THICKNESS OF INSULATION FOR PIPING INSTALLED INDOORS.

ALL INSULATION ADHESIVES, MASTICS, ETC. SHALL BE LOW-VOC TYPE SUITABLE FOR INDOOR USE.

PIPE INSULATION: MINERAL OR GLASS FIBER RIGID, PREFORMED PIPE INSULATION, MEETING ASTM C 547 TYPE 1, GRADE A, WITH FACTORY APPLIED ALL-SERVICE JACKET (ASJ). 'K' VALUE OF 0.23 AT 75OF. MAXIMUM SERVICE TEMPERATURE OF 850 DEG F.

FACTORY INSTALLED JACKETS: ALL SERVICE JACKET (ASJ): WHITE, KRAFT-PAPER, FIBERGLASS REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING, COMPLYING WITH ASTM C 1136, TYPE 1. INSTALL INSULATION WITH ASJ ON ALL PIPING INSULATED.

PVC CORNER ANGLES: FACTORY-FABRICATED FITTING AND VALVE COVERS. HIGH IMPACT RESISTANT, UV RESISTANT PVC COMPLYING WITH ASTM D 1784, CLASS 16354 C. FIELD FABRICATED FITTING COVERS ARE ONLY ACCEPTABLE IF FACTORY FITTING COVERS ARE NOT AVAILABLE.

FIELD INSTALLED JACKETS:
CONCEALED, INDOORS:NONE.
EXPOSED, INDOORS: ALUMINUM, STUCCO-EMBOSSED WITH Z-SHAPED LOCKING SEAM. 0.024 INCH THICK. INSTALL WITH 2.5-MIL THICK POLYSURLYN MOISTURE BARRIER, AND FACTORY FABRICATED FITTING AND VALVE COVERS. FIELD FABRICATED FITTING COVERS ARE ONLY ACCEPTABLE IF FACTORY FITTING COVERS ARE NOT AVAILABLE.

INSTALLATION FASTENERS AND SPECIALTIES: USE FASTENERS, ADHESIVES, MASTICS, VAPOR BARRIER MATERIALS, AND SEALANTS AS RECOMMENDED BY THE INSULATION MANUFACTURER'S INSTRUCTIONS AND COMMON INDUSTRY STANDARDS. ADHESIVES SHALL NOT BE THE SOLE MEANS OF SECURING INSULATION TO PIPING. USE VAPOR BARRIER MASTIC OR OTHER MATERIAL ON ALL INSULATED PIPES WHICH OPERATE NORMALLY AT BELOW AMBIENT, INCLUDING DOMESTIC COLD WATER PIPING.

INSTALL INSULATION ON THE FOLLOWING PIPING SYSTEMS: DOMESTIC COLD WATER, DOMESTIC HOT AND RECIRCULATED HOT WATER, FLOOR DRAINS AND TRAPS WHICH RECEIVE CONDENSATE OR EQUIPMENT DRAIN WATER BELOW 60°F, HOT SERVICE DRAINS, AND HOT SERVICE VENTS.

FINISH PIPING INSULATION AS INDICATED:
NONE FOR SERVICE AREAS, PAINTED IN FINISHED AREAS. COLOR SELECTED BY ARCHITECT.

PLUMBING FIXTURE PROTECTIVE INSULATION COVERS: MANUFACTURED INSULATING COVERS OR ENCLOSURES DESIGNED FOR FITTING OVER EXPOSED FIXTURE STOP VALVES AND TRAPS. INSTALL ON COLD WATER AND HOT WATER SUPPLY, AND DRAIN TRAPS OF ALL FIXTURES TO BE USED BY PERSONS WITH DISABILITIES. COMPLY WITH ADA REQUIREMENTS (ICC A117.1).

SECTION 221100 - DOMESTIC WATER SYSTEM

NOTE THIS SECTION ONLY APPLIES TO DEDICATED DOMESTIC WATER SERVICE PIPING (NOT COMBINED WITH FIRE SERVICE PIPING), AND UP TO A MAXIMUM OF 5 FEET OUTSIDE OF THE BUILDING. FOR PIPING BEYOND THIS RANGE, REFER TO CIVIL PLANS AND SPECIFICATIONS. FOR FIRE SERVICE PIPING, REFER TO FIRE PROTECTION PLANS AND SPECIFICATIONS.

DOMESTIC WATER PIPING: HOT AND COLD WATER PIPING SYSTEMS UNDERGROUND SHALL BE ASTM B 88 TYPE K SOFT COPPER WATER TUBE WITH WROUGHT-COPPER SOLDER-JOINT FITTINGS AND BRAZED JOINTS OR COPPER-PRESSURE-SEAL FITTINGS AND PRESSURE-SEALED JOINTS FOR PIPING NPS 2 AND SMALLER. PIPING LARGER THAN NPS 2 SHALL BE DUCTILE IRON PIPE COMPLYING WITH AWWA C151 OR AWWA C153. DUCTILE IRON FITTINGS SHALL COMPLY WITH AWWA C110. JOINTS SHALL BE MECHANICAL-JOINT, STANDARD OR COMPACT PATTERN, OR GROOVED-JOINT CONNECTIONS.

HOT AND COLD WATER PIPING SYSTEMS ABOVEGROUND SHALL BE ASTM B 88 TYPE L HARD COPPER WATER TUBE, WITH CAST OR WROUGHT COPPER SOLDER-JOINT FITTINGS AND BRAZED JOINTS OR COPPER-PRESSURE-SEAL FITTINGS AND PRESSURE-SEALED JOINTS FOR PIPING NPS 4 AND SMALLER.

INSTALL DIELECTRIC FITTINGS AT ALL DISSIMILAR-METAL PIPING CONNECTIONS.

DOMESTIC WATER PIPING SPECIALTIES: INSTALL DOMESTIC WATER PIPING SPECIALTIES, INCLUDING, BUT NOT LIMITED TO, VACUUM BREAKERS, BACKFLOW PREVENTERS, WATER-PRESSURE REDUCING VALVES, BALANCING VALVES, TEMPERATURE-ACTUATED WATER MIXING VALVES, STRAINERS, HOSE BIBBS AND HYDRANTS, WATER HAMMER ARRESTORS, AIR VENTS, AND TRAP-SEAL PRIMER VALVES AS INDICATED ON DRAWINGS AND ACCORDING TO LOCAL PLUMBING CODE, AND MANUFACTURER'S INSTRUCTIONS, WHERE APPLICABLE.

BALANCING VALVES: SELECT AND PROVIDE BRONZE OR CAST-IRON CALIBRATED-ORIFICE BALANCING VALVES AT RETURN SIDE OF EACH HOT WATER RECIRCULATION LOOP. SEE DETAIL SHEETS. SELECT VALVES TO PROVIDE A PRESSURE DROP OF APPROXIMATELY 5 PSIG AT DESIGN FLOW ACROSS THE VALVE. DO NOT USE LINE SIZE AS ONLY CRITERIA FOR SELECTING VALVES. PROVIDE SUBMITTAL TO ENGINEER INCLUDING FLOW AND PRESSURE DROP CURVES BASED ON MANUFACTURER'S TESTING. ALL BALANCING VALVES SHALL BE EQUIPPED WITH MEMORY STOP FUNCTION, ALLOWING VALVE TO BE CLOSED AND SET POSITION EASILY RE-ESTABLISHED. TEST PORTS SHALL BE PROVIDED UPSTREAM AND DOWNSTREAM OF EACH VALVE UNLESS INTEGRAL TO VALVE. END CONNECTIONS SHALL MATCH CONNECTED PIPING.

TEST BACKFLOW PREVENTION DEVICES AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

DOMESTIC WATER PUMPS: INSTALL DOMESTIC WATER PUMPS AS INDICATED ON DRAWINGS AND PER MANUFACTURER'S INSTRUCTIONS. INSTALL UNIONS OR USE PUMP COMPANION FLANGE CONNECTIONS TO ALLOW FOR PUMP REMOVAL WITHOUT DISTURBING SURROUNDING PIPING. INSTALL CHECK VALVE IN PUMP DISCHARGE PIPING IF PUMP IS NOT EQUIPPED WITH INTEGRAL FLOW CHECK VALVE.

SUPPORT PIPING AND SPECIALTIES AS REQUIRED BY LOCAL PLUMBING CODE, OR MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS IF NOT LISTED.

PRESSURE TEST DOMESTIC WATER PIPING AS REQUIRED BY PLUMBING CODE AND AUTHORITIES HAVING JURISDICTION.

DISINFECT ALL DOMESTIC WATER PIPING AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.

FINISH EXPOSED PIPING AS INDICATED:
NONE FOR SERVICE AREAS, PAINTED IN FINISHED AREAS. COLOR SELECTED BY ARCHITECT.

SECTION 221300 - SANITARY WASTE SYSTEM

NOTE THIS SECTION ONLY APPLIES TO GRAVITY WASTE AND VENT PIPING, AND UP TO A MAXIMUM OF 5 FEET OUTSIDE OF THE BUILDING. FOR PIPING BEYOND THIS RANGE, REFER TO CIVIL PLANS AND SPECIFICATIONS.

WASTE AND VENT PIPING: ALL UNDERGROUND WASTE AND VENT PIPING SHALL BE ONE OF THE FOLLOWING:
HUBLESS CAST-IRON SOIL PIPE AND FITTINGS, CISPI OR HEAVY-DUTY HUBLESS-PIPING COUPLINGS, AND COUPLED JOINTS. PIPE AND FITTINGS SHALL COMPLY WITH ASTM A 888 OR CISPI 301. COUPLINGS SHALL COMPLY WITH ASTM C 1277 AND CISPI 310 (STANDARD COUPLINGS) OR ASTM C 1277 AND ASTM C 1540 (HEAVY-DUTY COUPLINGS). INSTALL ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK".
-OR-
SOLID-WALL, POLYVINYL CHLORIDE (PVC) TYPE PLASTIC PIPE AND FITTINGS CONFORMING TO ASTM D 2665 DRAIN, WASTE, AND VENT WITH SOLVENT CEMENTED JOINTS; PVC PLASTIC FITTING PATTERNS SHALL CONFORM TO ASTM D 2665, AND MADE TO ASTM D 3311 DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER SHALL COMPLY WITH ASTM F 656. SOLVENT CEMENT SHALL COMPLY WITH ASTM D 2564. INSTALL ACCORDING TO ASTM D 2321.

ABOVEGROUND WASTE AND VENT PIPING SHALL BE ONE OF THE FOLLOWING:
SOLID-WALL, POLYVINYL CHLORIDE (PVC) TYPE PLASTIC PIPE AND FITTINGS CONFORMING TO ASTM D 2665 DRAIN, WASTE, AND VENT WITH SOLVENT CEMENTED JOINTS; PVC PLASTIC FITTING PATTERNS SHALL CONFORM TO ASTM D 2665, AND MADE TO ASTM D 3311 DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE. ADHESIVE PRIMER SHALL COMPLY WITH ASTM F 656. SOLVENT CEMENT SHALL COMPLY WITH ASTM D 2564. INSTALL ACCORDING TO ASTM D 2665.
-OR-
HUBLESS CAST-IRON SOIL PIPE AND FITTINGS, CISPI OR HEAVY-DUTY HUBLESS-PIPING COUPLINGS, AND COUPLED JOINTS. PIPE AND FITTINGS SHALL COMPLY WITH ASTM A 888 OR CISPI 301. COUPLINGS SHALL COMPLY WITH ASTM C 1277 AND CISPI 310 (STANDARD COUPLINGS) OR ASTM C 1277 AND ASTM C 1540 (HEAVY-DUTY COUPLINGS). INSTALL ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK".

SANITARY FORCE-MAIN PIPING (FUTURE ELEVATOR SUMP PUMP DISCHARGE) SHALL BE THE FOLLOWING:
SOLID-WALL, POLYVINYL CHLORIDE (PVC) TYPE PLASTIC PIPE AND FITTINGS CONFORMING TO ASTM D1785 SCHEDULE 40 WITH SOLVENT CEMENTED JOINTS; PVC PLASTIC PATTERNS SHALL CONFORM TO ASTM D 2466 FOR SCHEDULE 40. ADHESIVE PRIMER SHALL COMPLY WITH ASTM F 656. SOLVENT CEMENT SHALL COMPLY WITH ASTM D 2564. INSTALL ACCORDING TO ASTM D 2665. INSTALL CLEANOUT AT ACCESSIBLE LOCATION WITH PLUG TO ALLOW FOR CLEANING OF FORCE MAIN PIPING FROM HIGHEST POINT TO LOWEST POINT OF SYSTEM.

SANITARY WASTE PIPING SPECIALTIES: INSTALL SANITARY WASTE AND VENT PIPING SPECIALTIES, INCLUDING, BUT NOT LIMITED TO, BACKWATER VALVES, CLEANOUTS, FLOOR DRAINS, FLOOR SINKS, FIRESTOP ASSEMBLIES, AND FLASHING MATERIALS AS INDICATED ON DRAWINGS AND ACCORDING TO LOCAL PLUMBING CODE AND MANUFACTURER'S INSTRUCTIONS, WHERE APPLICABLE.

WHERE FLOOR DRAINS OR FLOOR SINKS ARE INSTALLED IN CONTINUOUS LAMINATED TIMBER (CLT) FLOORS, PROVIDE SEALANT, COVERING, RECESSED FLANGE MOUNTING, OR OTHER INSTALLATION METHODS RECOMMENDED BY THE MANUFACTURER TO ENSURE DRAINAGE FROM THE FLUSH FLOOR LEVEL. DO NOT INSTALL DRAINS IN CLT FLOORS WITH ELEVATED LIP OR OTHER INTERFERENCE TO PROPER DRAINAGE FROM FLOOR.

DO NOT INSTALL PLASTIC SANITARY WASTE OR VENT PIPING WITHIN AIR PLENUM SPACES. USE ONLY CAST-IRON PIPING IN THESE AREAS.

SUPPORT PIPING AND SPECIALTIES AS REQUIRED BY LOCAL PLUMBING CODE, OR MSS SP-69 AND MANUFACTURER'S INSTRUCTIONS IF NOT LISTED.

PRESSURE TEST WASTE AND VENT PIPING AS REQUIRED BY PLUMBING CODE AND AUTHORITIES HAVING JURISDICTION.

FINISH EXPOSED PIPING AS INDICATED:
NONE FOR SERVICE AREAS, PAINTED IN FINISHED AREAS. COLOR SELECTED BY ARCHITECT.

SECTION 223000 - DOMESTIC WATER HEATING SYSTEMS

DOMESTIC WATER HEATERS: INSTALL FUEL-FIRED WATER HEATERS AS INDICATED ON DRAWINGS ACCORDING TO LOCAL PLUMBING CODE AND MANUFACTURER'S INSTRUCTIONS. INSTALL WITH ALL ITEMS NECESSARY FOR A COMPLETE INSTALLATION.

DOMESTIC WATER HEATER ACCESSORIES: INSTALL VACUUM RELIEF VALVE ON WATER HEATER COLD WATER INLET IF UNIT IS LOCATED ABOVE ANY HOT WATER FIXTURE OUTLETS AND DOES NOT HAVE AN INTEGRAL VACUUM RELIEF METHOD, PER LOCAL PLUMBING CODE REQUIREMENTS. INSTALL PIPING HEAT TRAPS ON WATER HEATERS NOT EQUIPPED WITH INTEGRAL HEAT TRAPS (NOT REQUIRED FOR TANKLESS UNITS). INSTALL COMBINATION TEMPERATURE-AND-PRESSURE RELIEF VALVES WITH FULL SIZE PIPING ROUTED TO APPROPRIATE PLACE OF DISCHARGE. INSTALL THERMOMETERS ON WATER HEATER INLETS AND OUTLETS AS INDICATED IN OTHER DIVISION 22 SECTIONS.

INSTALL EXPANSION TANKS IN SIZES AND TYPES INDICATED ON DRAWINGS.

SECTION 224000 - PLUMBING FIXTURES

INSTALL PLUMBING FIXTURES INDICATED ON DRAWINGS ACCORDING TO LOCAL PLUMBING AND BUILDING CODE, INCLUDING ADA REQUIREMENTS, AND FIXTURE MANUFACTURER'S INSTRUCTIONS. PROVIDE ACCESSORIES AND SPECIALTIES AS INDICATED AND AS REQUIRED FOR A COMPLETE INSTALLATION. FOR FIXTURES EQUIPPED WITH ANGLE STOP SHUTOFF SUPPLY FITTINGS, VALVES SHALL BE QUARTER-TURN TYPE WITH FLEXIBLE BRAIDED STAINLESS STEEL RISERS. LOOSE KEY OPERATION UNLESS OTHERWISE INDICATED. FOR FIXTURES INSTALLED WITH FIELD-PROVIDED TRAP, USE TWO-PIECE CAST BRASS TRAP WITH GROUND-JOINT SWIVEL ELBOW.

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NO	REVISION	DATE	DRWN	CHKD	DSGN	APPD

DIGITAL SIGNATURE
OREGON
2020.04.09 16:13:57-07'00'

APPROVAL		
DRAWN	MAV	04/09/2020
DESIGN	MAV	04/09/2020
CHECKED	DLA	04/09/2020
APPROVED	DLA	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

PLUMBING SPECIFICATION

DWG. NO.
P701

SCALE:
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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*Electrical Plans do not reflect relocation of window in climbing area and adjusted layout, or building value engineering changes.

SYMBOL	DESCRIPTION
	HIGH BAY LUMINAIRE (TYPE DENOTED)
	STRIP LIGHT (TYPE DENOTED)
	RECESSED TROFFER LUMINAIRE (TYPE DENOTED)
	PENDANT LUMINAIRE (TYPE DENOTED)
	LUMINAIRE ON (EM) LIFE SAFETY BRANCH
	EXIT SIGN (TYPE DENOTED)
T	TIMER SWITCH
LVD	LOW VOLTAGE DIMMING SWITCH
4	4-WAY SWITCH
3	3-WAY SWITCH
LVDOS	LOW VOLTAGE, OCCUPANCY SENSOR SWITCH
OS	OCCUPANCY SENSOR
LS	LIGHT SENSOR
PC	PHOTO CELL
2,K	2 POLE KEYED SWITCH
	DUPLEX RECEPT.
J	JUNCTION BOX
	DIRECT POWER CONNECTION (SEE SCHEDULES)
	240V RCPT
	FOURPLEX RCPT
xxxx	FOURPLEX RCPT, FLR MOUNTED (SEE SCHEDULE)
CLNG	DUPLEX RCPT, CLG MOUNTED
	DATA OUTLET
	DATA OUTLET, FLR MOUNTED
CLG	DATA OUTLET, CLG MOUNTED
	PANELBOARD
	POWER OR DISTRIBUTION PANEL
	PAD MOUNTED TRANSFORMER (TYPE DENOTED)
#	KEYED NOTE (SEE SCHEDULE)
#	REVISION NUMBER - SHOWN ON PLANS

LUMINAIRE IDENTIFICATION

STYLE DESIGNATION	CODE
RECESSED	R
STRIP	S
HIGH BAY	HB
WALLPACK	WP
DOWNLIGHT	D
EXIT	X
VAPOR TIGHT	VT

LUMINAIRE IDENTIFIER
STYLE DESIGNATION
HB1

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)
A	AMPERE
AC	ABOVE COUNTER OR AIR CONDITIONER
ACLG	ABOVE CEILING
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
ALT	ALTERNATE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BD	BOARD
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAB	CABINETRY
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG, CLNG	CEILING
CLT	CROSS-LAMINATED TIMBER
COMM	COMMUNICATIONS
CRP	CONDENSATE RETURN PUMP
CT	CURRENT TRANSFORMER
CTR	CENTER
CU	COPPER
DEPT	DEPARTMENT
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRIC, ELECTRICAL
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
(E)	EXISTING
FLR	FLOOR
FU	FUSE
FUDS	FUSED SAFETY DISCONNECT SWITCH
FURN	FURNISHED
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL (CONDUIT)
HADO	HANDICAP ACCESS DOOR OPENER
HP	HORSEPOWER
HTG	HEATING
HTR	HEATER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
INST	INSTALLED
J-BOX	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LT	LIGHT
LTG	LIGHTING
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MMS	MANUAL MOTOR STARTER
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OE	OVERHEAD ELECTRICAL
OESC	OREGON ELECTRICAL SPECIALTY CODE
OZERCC	OREGON ZERO ENERGY READY COMMERCIAL CODE
P	POLE
PB	PULL BOX OR PUSHBUTTON
PH	PHASE
PLD	PAD LOCK DEVICE
PNL	PANEL
POS	POINT OF SALE
PP	POWER POLE
PDZ	PRIMARY DAYLIGHT ZONE
PVC	POLYVINYL CHLORIDE (CONDUIT)
PWR	POWER
QUAN	QUANTITY
RCPT	RECEPTACLE
RM	ROOM
RSC	RIGID STEEL CONDUIT
SDZ	SECONDARY DAYLIGHT ZONE
SHT	SHEET
SPEC	SPECIFICATION
SP	SPARE
SW	SWITCH
TEL/DATA	TELEPHONE/DATA
TYP	TYPICAL
UE	UNDERGROUND ELECTRICAL
UG	UNDERGROUND
UTIL	UTILITY
V	VOLT
VA	VOLT-AMPERES
W	WATT
W/	WITH
W/O	WITHOUT
WP	WEATHERPROOF
∠	ANGLE
'	FEET
"	INCHES
#	NUMBER
Ø	PHASE

ELECTRICAL SYMBOL NOTES

THE LIGHTING FIXTURE TYPE IS INDICATED BY AN UPPER CASE LETTER. THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. THE SWITCH DESIGNATION IS INDICATED BY A LOWER CASE LETTER.

A2 12b — EXAMPLE 1: LIGHTING FIXTURE TYPE "A" IS CONNECTED TO CIRCUIT 12 AND CONTROLLED BY SWITCH "b".

E 14 — EXIT LIGHTS. STEM INDICATES WALL MOUNTING. NO STEM INDICATES CEILING MOUNTING. SHADED AREA INDICATES ILLUMINATED FACE(S). ARROW INDICATES DIRECTIONAL ARROW ON ILLUMINATED FACE(S). THE CIRCUIT DESIGNATION IS INDICATED BY A NUMBER. EXAMPLE: THE WALL MOUNTED EXIT LIGHT TYPE "E" WITH SINGLE FACE AND DIRECTIONAL ARROW IS CONNECTED TO CIRCUIT 14.

AC — DEVICES. ABOVE COUNTER DEVICES SHALL BE MOUNTED 8" ABOVE COUNTERTOP / DESK SUFACE TO CENTER OF BACKBOX UNLESS NOTED OTHERWISE.

d — THE CONTROL DEVICE DESIGNATION IS INDICATED BY A LOWER CASE LETTER. EXAMPLE: SINGLE POLE SWITCH "d" TO CONTROL LIGHTING FIXTURES INDICATED BY "d".

XX-1 — SPECIAL CONNECTIONS. THE EQUIPMENT IS INDICATED BY XX-1. SEE THE MOTOR AND EQUIPMENT SCHEDULES FOR THE LOAD DESCRIPTION AND TYPE OF CONNECTION AND CIRCUIT INFORMATION.

T-LC — TRANSFORMERS. THE TRANSFORMER TYPE IS INDICATED BY A NUMBER FOLLOWING THE UPPER CASE LETTER "T". SEE THE TRANSFORMER SCHEDULE OR THE SINGLE LINE DIAGRAM FOR THE TRANSFORMER DESCRIPTION AND REQUIREMENTS. EXAMPLE: TRANSFORMER TYPE "T-LC".

A1 — PANELBOARDS. PANELBOARD DOORS MAY BE SHOWN TO INDICATE OPENING SIDE OF RECESSED PANELBOARDS. SEE PANELBOARD IDENTIFICATION FOR DESIGNATION CODES.

SYMBOL NOTATIONS: UPPER CASE LETTERS ADJACENT TO SYMBOLS INDICATE A UNIT TYPE. SEE APPROPRIATE SCHEDULE OR SPECIFICATIONS.

A1-10 — CIRCUIT INFORMATION: CIRCUITING FOR DEVICES AND FIXTURES ARE LABELED BY PANELBOARD FOLLOWED BY A DASH AND A NUMBER. FOR EXAMPLE, PANELBOARD A1 CIRCUIT 10.

SPECIFIC CODE NOTES

1 WHERE APPLICABLE, PENETRATIONS IN WALLS REQUIRING PROTECTED OPENINGS MUST BE FIRESTOPPED WITH AN APPROVED MATERIAL.
2 CONDUITS MAY PENETRATE WALLS OR PARTITIONS, PROVIDED THEY ARE FIRE-STOPPED WHERE APPLICABLE.
3 OPENINGS FOR STEEL ELECTRICAL BOXES NOT EXCEEDING 16 SQUARE INCHES ARE PERMITTED PROVIDED OPENINGS DO NOT AGGREGATE MORE THAN 100 SQUARE INCHES FOR ANY 100 SQUARE FEET OF WALL OR PARTITION.
4 OUTLET BOXES ON OPPOSITE SIDES OF WALLS OR PARTITIONS MUST BE SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES.
5 LIGHT FIXTURES AND OTHER APPARATUS SUPPORTED BY THE ACOUSTICAL CEILING GRID MUST MEET THE REQUIREMENTS OF NEC SECTION 410.36, MEANS OF SUPPORT.
6 RECESSED LIGHTING FIXTURES INSTALLED IN FIRE RATED CEILING ASSEMBLIES SHALL BE FIRE RATED FIXTURES BEARING THE UL FIRE RATED LABEL. FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE UL FIRE RESISTANCE DIRECTORY, AND SHALL INCLUDE A FIRE RATED ENCLOSURE INSTALLED OVER THE FIXTURE THAT MEETS THE REQUIREMENTS OF THE UL FIRE RESISTANCE DIRECTORY.
7 PROVIDE COMMISSIONING OF ALL ELECTRICAL SYSTEMS (RECEPTACLES, TRANSFORMERS, MOTORS, VERTICAL AND HORIZONTAL TRANSPORTATION) AND AUTOMATIC LIGHTING CONTROL SYSTEMS WHERE REQUIRED BY LOCALLY ADOPTED ENERGY CODE. FURNISH COMMISSIONING REPORT AS PART OF CLOSEOUT DOCUMENTS ALONG WITH LIGHTING COMCHECK DOCUMENTATION AND CALCULATIONS THAT DOCUMENT ALL INTERIOR AND EXTERIOR LIGHTING AREA AND/OR SURFACE TYPES, LIGHTING POWER ALLOWANCES, AND INSTALLED DENSITIES.

SAFETY & SECURITY GENERAL NOTES

1 SAFETY & SECURITY SYSTEMS ARE DESIGN BUILD. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE SAFETY CONTRACTORS REGARDING EQUIPMENT POWER REQUIREMENTS.

SITE PLAN GENERAL NOTES

1 ALL POWER CONDUCTORS SHALL BE INSTALLED BETWEEN 24" (MINIMUM) AND 36" (MAXIMUM) BELOW FINISHED GRADE.
2 ALL COMMUNICATIONS CONDUIT AND CABLES SHALL BE INSTALLED 36" (MINIMUM) BELOW FINISHED GRADE.
3 ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM UNLESS NOTED OTHERWISE.
4 SEE CIVIL FOR UNDERGROUND RACEWAY ROUTING AND ALL VAULT, LIGHT POLE, AND UTILITY INFRASTRUCTURE LOCATIONS.

SYSTEMS GENERAL NOTES

1 SPECIAL SYSTEMS ARE DESIGN BUILD. ROUGH-IN LOCATIONS FOR DATA OUTLETS ARE SHOWN ON PLANS ONLY. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH SPECIAL SYSTEMS CONTRACTORS ON EQUIPMENT REQUIREMENTS.
2 PROVIDE (1)1-1/2" RACEWAY FOR EACH TEL/DATA OUTLET NOTED ON PLANS TO DATA ROOM.
3 CONTRACTOR SHALL COORDINATE WITH EOU ON FINAL DEVICE LOCATIONS AND DEVICE REQUIREMENTS.
4 FOR WALL AND CEILING MOUNTED DATA OUTLETS, SEE DETAILS 3 AND 4 ON SHEET E502.
5 IN AREAS WITH CLT, CONDUIT AND DATA OUTLETS SHALL BE SURFACE MOUNTED.
6 FLOOR MOUNTED DATA OUTLETS ARE LOCATED IN SAME FLOOR BOXES NOTED ON POWER PLANS IN SAME LOCATION.

GENERAL ELECTRICAL NOTES

1 ALL CONDUCTORS OPERATING AT 50 VOLTS OR GREATER SHALL BE IN RACEWAY. ALL RACEWAY WITHIN THE STRUCTURE ABOVE THE FLOOR SLAB SHALL BE METAL. RACEWAY BELOW THE FLOOR SLAB AND UNDERGROUND RACEWAY OUTSIDE THE STRUCTURE SHALL BE PVC.
2 ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN METAL RACEWAY WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES. LOW VOLTAGE CABLES MAY BE RUN IN CABLE SUPPORT HOOKS ABOVE ACCESSIBLE CEILINGS.
3 COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.
4 VERIFY LOCATIONS AND ROUGH-IN REQUIREMENTS OF ALL OWNER FURNISHED EQUIPMENT PRIOR TO ROUGH-IN.
5 CONDUIT AND WIRE SHALL NOT BE INSTALLED BELOW FLOOR SLAB UNLESS INDICATED ON PLAN BY DASHED CONDUIT.
6 CONTRACTOR SHALL BE RESPONSIBLE FOR WIRING ALL ELECTRICAL ITEMS SHOWN ON DRAWINGS.
7 CONTRACTOR SHALL INCREASE CONDUCTOR AND CORRESPONDING CONDUIT SIZE FOR VOLTAGE DROP WHERE NOMINAL LENGTH DROPS LOAD SIDE VOLTAGE BELOW VALUES OUTLINED IN ASHRAE 90.1.
8 DRAWINGS AND SPECIFICATIONS COMPLEMENT EACH OTHER - CONTRACTOR SHALL MEET REQUIREMENTS FOR BOTH DRAWINGS AND SPECIFICATIONS.

POWER GENERAL NOTES

1 ALL WIRING DEVICES AND FIXTURES SHALL BE SURFACE MOUNTED ON CLT SURFACES IN AREAS WHERE CLT IS USED.
2 WHERE CONNECTED TO A 20A. BRANCH CIRCUIT SUPPLYING AN INDIVIDUAL RECEPTACLE (SIMPLEX OR DUPLEX), THE RECEPTACLE SHALL BE RATED AT 20A.
3 PROVIDE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED AND GRADE MOUNTED ELECTRICAL EQUIPMENT. MINIMUM REQUIREMENTS: 4" HIGH CONCRETE, 4" WIDER AND 4" LONGER THAN EQUIPMENT TO BE PLACED ON IT. REFER TO STRUCTURAL DRAWINGS.
4 CIRCUIT WIRING IS NOT SHOWN EXCEPT FOR SWITCHING INTENT OF FIXTURES AND CONTROL OF DEVICES.
5 PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUITING AND SWITCHING SHOWN.
6 CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE LC2). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.
7 SEE ELECTRICAL MECHANICAL COORDINATION SCHEDULES AND MISCELLANEOUS EQUIPMENT SCHEDULE FOR CIRCUIT INFORMATION AND ADDITIONAL EQUIPMENT REQUIREMENTS.
8 LABEL ALL DEVICES SUPPLIED BY A GFCI PROTECTIVE DEVICE PER NEC.

LIGHTING GENERAL NOTES

1 ALL RECESSED LIGHTING FIXTURES IN LAY-IN CEILINGS SHALL BE INSTALLED WITH 6' LONG FLEXIBLE METAL CONDUIT.
2 ALL MOUNTING HEIGHTS FOR LIGHTING FIXTURES ARE TO THE BOTTOM OF THE FIXTURES UNLESS INDICATED OTHERWISE.
3 SEE ARCHITECTURAL EXTERIOR ELEVATIONS FOR MOUNTING HEIGHTS OF EXTERIOR LIGHTING FIXTURES UNLESS NOTED OTHERWISE.
4 CIRCUIT WIRING IS NOT SHOWN EXCEPT FOR SWITCHING INTENT OF FIXTURES AND CONTROL OF DEVICES.
5 PROVIDE PROPER NUMBER OF CONDUCTORS TO ACHIEVE CIRCUITING AND SWITCHING SHOWN.
6 CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS (SEE PANELBOARD SCHEDULE A1 FOR NORMAL POWER AND INV-1 FOR EMERGENCY POWER). BRANCH CIRCUITS SHALL BE SIZED ACCORDING TO THE CIRCUIT BREAKER RATING, UNLESS INDICATED OTHERWISE ON THE ELECTRICAL EQUIPMENT SCHEDULE.
7 IN AREAS WITH CLT IS USED, ALL DEVICES AND FIXTURES SHALL BE SURFACE MOUNTED ON CLT SURFACES UNLESS NOTED OTHERWISE.
8 COORDINATE FINAL LIGHITNG FIXTURE LOCATIONS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
9 CONTRACTOR TO COORDINATE FINAL CEILING TYPES WITH LUMINAIRES. PROVIDE ALL MOUNTING HARDWARE NECESSARY FOR A COMPLETE SYSTEM.

SINGLE LINE GENERAL NOTES

1 OVERCURRENT DEVICES OF ENTIRE DISTRIBUTION SYSTEM SHALL MEET STATED FAULT CURRENT VALUES WITH FULLY RATED EQUIPMENT.
2 CONDUCTOR LENGTHS INDICATED ON THE SINGLE LINE DIAGRAM ARE FOR FAULT CURRENT CALCULATIONS ONLY. ACTUAL LENGTH SHALL BE DETERMINED BY FIELD CONDITIONS AND ACTUAL ROUTES OF FEEDERS.
3 REFER TO SWITCHBOARD SCHEDULES AND DISTRIBUTION PANEL SCHEDULES FOR ADDITIONAL REQUIREMENTS. WHERE A DISCREPANCY EXISTS BETWEEN EQUIPMENT ON THE SINGLE LINE DIAGRAM AND THE DETAILED SCHEDULES, THE ITEM OR ARRANGEMENT WITH BETTER QUALITY, GREATER QUANTITY, OR HIGHER COST SHALL BE USED.
4 ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
5 GROUNDING ELECTRODE CONDUCTORS SIZES ARE NOT INDICATED ON THE SINGLE LINE DIAGRAM. REFER TO THE GROUNDING RISER DIAGRAM ON DRAWING E901 FOR CONNECTIONS AND CONDUCTOR SIZES.
6 FAULT CURRENT VALUES ON THE ONE-LINE DIAGRAM ARE FOR SCHEMATIC DESIGN. CONTRACTOR SHALL PROVIDE UTILITY TRANSFORMER'S AVAILABLE FAULT CURRENT AND AS BUILT SERVICE/FEEDER LENGTHS AND CONDUCTOR SIZES TO THE PARTY PERFORMING THE COORDINATION STUDY, SHORT-CIRCUIT CURRENT STUDY, AND ARC-FLASH HAZARD ANALYSIS TO ENSURE ALL ELECTRICAL GEAR IS PROPERLY SIZED FOR FAULT CURRENTS.

DRAWING LIST

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PIPING MODS & EOU COMMENTS	5/19/20	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAR 13, 2018 JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

GENERAL NOTES AND LEGEND

DWG. NO.
E001

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1

GENERAL ELECTRICAL

CODES, STANDARDS AND FEES

ALL LABOR AND MATERIALS SHALL COMPLY WITH LATEST RULES AND REGULATIONS OF THE FOLLOWING STANDARDS AND CODES:

- OREGON STRUCTURAL SPECIALTY CODE
- 2019 OREGON ZERO ENERGY READY COMMERCIAL CODE (OZERCC)
- AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS (ASHRAE) 90.1 - 2016
- EASTERN OREGON UNIVERSITY CAMPUS STANDARDS
- NATIONAL ELECTRICAL CODE
- 2017 OREGON ELECTRICAL SPECIALTY CODE (OESC)
- APPLICABLE NFPA, OSHA, IFC AND IBC PUBLICATIONS
- APPLICABLE ANSI, UL, NECA AND NEMA STANDARDS
- REQUIREMENTS OF LOCAL UTILITY

CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES REQUIRED BY ANY GOVERNMENT AGENCY HAVING JURISDICTION OVER THE WORK AND SHALL ARRANGE ALL INSPECTIONS REQUIRED BY THESE AGENCIES.

INSTALLATION AND COORDINATION

ALL WORK SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER. ALL LABOR, MATERIAL, TOOLS, PERMITS, ETC. REQUIRED FOR A COMPLETE INSTALLATION, SHALL BE FURNISHED BY THIS CONTRACTOR. COORDINATE WORK UNDER THIS DIVISION WITH ALL OTHER WORK UNDER CONTRACT, INCLUDING WORK PROVIDED BY THE OWNER'S FORCES.

THERE SHALL BE NO ADDITIONAL COST FOR CUTTING, PATCHING, WIRING, FINISHING, OR ANY OTHER WORK REQUIRED FOR RELOCATION OF WORK INSTALLED DUE TO INTERFERENCES BETWEEN WORK OF THE VARIOUS TRADES.

BY THE ACT OF SUBMITTING A BID THE CONTRACTOR SHALL BE DEEMED TO HAVE EXAMINED THE SITE AND ALL STRUCTURAL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND TO HAVE ACCEPTED EXISTING CONDITIONS AND INCLUDED ALLOWANCES FOR THEM IN THE BID. ANY CONTRADICTIONS, DISCREPANCIES OR DESIGN WORK WHICH DOES NOT MEET CODE OR WILL NOT FUNCTION AS INTENDED SHALL BE REPORTED TO THE ENGINEER IN WRITING PRIOR TO THE BID. IF CONTRACTOR DOES NOT REPORT ANY DISCREPANCIES THEN CONTRACTOR WILL BE HELD RESPONSIBLE FOR COMPLETE ELECTRICAL SYSTEM AND MAKE ANY REQUIRED CHANGES AT NO ADDITIONAL COST.

THE GENERAL ARRANGEMENT OF OUTLETS AND OTHER EQUIPMENT AS SHOWN ON THE PLANS IS DIAGRAMMATIC AND APPROXIMATELY CORRECT AS TO LOCATIONS. WHERE MINOR CHANGES ARE REQUIRED BECAUSE OF STRUCTURAL CONDITIONS OR FOR THE CONVENIENCE OF THE OWNER, SUCH CHANGES SHALL BE MADE AT THE CONTRACTORS EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURATE LOCATION OF ALL LIGHTING FIXTURES, OUTLETS, ETC. WITH RESPECT TO EQUIPMENT, DOORS, PARTITIONS, CABINETS, ETC

DRAWINGS

THE PLANS ARE INTENDED TO ONLY SHOW GENERAL LOCATIONS AND OPERATION. SPECIFIC LAYOUT AND ELECTRICAL CONNECTIONS SHALL BE DETERMINED BY THE CONTRACTOR TO CONFORM WITH INTENT OF CONTRACT DOCUMENTS. ANY PROPOSED DEPARTURES FROM THESE PLANS AND SPECIFICATIONS SHALL BE REQUESTED IN WRITING FROM THE OWNER'S REPRESENTATIVE. THE REQUEST SHALL BE MADE AS SOON AS PRACTICABLE AND WITHIN 30 DAYS AFTER CONTRACT AWARD, STATING THE REASONS FOR THE PROPOSED DEPARTURES.

LABELING

PROVIDE PHENOLIC NAMEPLATES IDENTIFYING PANELBOARDS, MOTOR CONTROLLERS, CONTROL STATIONS, SAFETY SWITCHES AND ALL ENCLOSURES THAT ARE PART OF THE ELECTRICAL SYSTEM. NAMEPLATES SHALL BE CONSTRUCTED OF 1/16-INCH THICK PLASTIC LAMINATED MATERIAL. ENGRAVE THROUGH COLORED SURFACE MATERIAL TO CONSTRASTING COLORED SUBLAYER. INDICATE IDENTIFIER, VOLTAGE AND PHASE, AND SERVING POWER SOURCE.

PROVIDE TYPED CURRENT/UPDATED PANELBOARD DIRECTORIES LOCATED IN SELF-ADHESIVE CARD HOLDER ATTACHED TO INSIDE PANEL, SQUARE D 8003115901 OR APPROVED EQUAL.

PROVIDE TYPED RECEPTACLE LABELS BY ELECTRONIC LABEL MAKER WITH BLACK-ON-CLEAR ACID FREE TAPE, BROTHER PT-H110 AND TZEAF131 RESPECTIVELY OR APPROVED EQUAL. INDICATE POWER SOURCE PANEL NAME & CIRCUIT NUMBER(S).

HOUSEKEEPING

THE CONTRACTOR SHALL CONTINUALLY REMOVE DEBRIS, CUTTINGS, CRATES, ETC. CREATED BY HIS WORK. SUCH SHALL BE DONE AT SUFFICIENT FREQUENCY TO ELIMINATE HAZARDS TO THE PUBLIC, OTHER WORKMEN AND OWNER'S EMPLOYEES. CONTRACTOR WILL REMOVE DEMOLISHED AND ABANDONED MATERIAL. IF DIRECTED BY OWNER, DESIGNATED MATERIALS WILL BE REMOVED TO A LOCATION IDENTIFIED BY THE OWNER.

FIELD TESTS AND INSPECTIONS

AFTER ELECTRICAL SYSTEM IS COMPLETE AND ALL SYSTEMS HAVE BEEN APPROPRIATELY CHECKED, CALIBRATED AND ADJUSTED, THEN CONTRACTOR SHALL INFORM THE OWNER FOR FINAL INSPECTION AND OPERATIONAL CHECK OUT. A WRITTEN REPORT OF CONDITIONS, REQUIRED CHANGES, ETC. WILL FOLLOW THE INSPECTION AND CONTRACTOR WILL MAKE CHANGES AS NECESSARY.

THE CONTRACTOR SHALL SHOW BY DEMONSTRATION IN SERVICE THAT ALL CIRCUITS, FIXTURES AND EQUIPMENT ARE IN GOOD OPERATING CONDITION.

TESTS SHALL BE SUCH THAT EACH PIECE OF CONTROL EQUIPMENT WILL FUNCTION NOT LESS THAN FIVE TIMES.

ALL DEFECTIVE MATERIAL AND WORKMANSHIP DISCLOSED AS THE RESULT OF THE TESTS GIVEN HEREIN SHALL BE CORRECTED AT NO COST TO THE OWNER.

OPERATION AND MAINTENANCE MANUAL

PROVIDE OPERATION AND MAINTENANCE MANUALS FOR TRAINING OF OWNER'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF SYSTEMS AND RELATED EQUIPMENT. PREPARE A SEPARATE CHAPTER FOR INSTRUCTION OF EACH CLASS OF EQUIPMENT OR SYSTEM. CONTRACTOR SHALL FURNISH (1) FULL SIZE COPY OF AS BUILTS.

GUARANTEE

ALL WORK AND EQUIPMENT SHALL BE FREE OF DEFECTS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE. ANY DEFECTS ARISING WITHIN THE 1-YEAR GUARANTEE PERIOD SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

BASIC MATERIALS AND METHODS

PANELBOARDS

MANUFACTURER, STYLE, ETC. AS INDICATED ON PLANS. COMPLETE WITH TYPEWRITTEN DIRECTORY, CIRCUIT BREAKERS (MULTIPLE-POLE INTERNAL TRIP), DEAD FRONT, LOCKING DOORS, UL LISTING, ETC. REFERENCE EOU CAMPUS STANDARDS FOR ADDITIONAL REQUIREMENTS. ALL PANELS SHALL BE CAPABLE OF BEING MONITORED WHERE REQUIRED PER SECTION 8.4.3 OF ASHRAE 90.1-2016.

SAFETY SWITCHES AND MOTOR STARTERS

ALL SAFETY SWITCHES (FUSED OR NON-FUSED), MOTOR STARTERS AND OTHER ELECTRICAL CONTROL EQUIPMENT SHALL BE LISTED PER THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC). REFERENCE EOU CAMPUS STANDARDS FOR ADDITIONAL REQUIREMENTS.

RACEWAY, FITTINGS, BOXES, AND SUPPORTS

GENERAL

THIS SECTION SPECIFIES ALL RACEWAYS, CONDUITS, BOXES, FITTINGS, AND SUPPORTS FOR THIS INSTALLATION. THE LISTING OF PARTICULAR EQUIPMENT AND MATERIALS SHALL NOT BE CONSTRUED AS BEING ALL THE MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THE WORK. MATERIALS NOT SPECIFICALLY CALLED OUT, BUT REQUIRED FOR A COMPLETE INSTALLATION, SHALL BE SUPPLIED BY THE CONTRACTOR.

CONDUIT

ELECTRICAL METALLIC TUBING (EMT) SHALL BE THE SAME INSIDE DIAMETER AS RIGID STEEL CONDUIT, MINIMUM SIZE 3/4 INCH. ALL CONDUIT SHALL BE GALVANIZED AND EACH LENGTH SHALL BE UL LABELED. COUPLINGS AND CONNECTORS SHALL HAVE INSULATED THROATS USING SET SCREW COUPLING OR COMPRESSION CONNECTORS: APPLETON OR EQUAL.

FLEXIBLE METALLIC TUBING SHALL BE FORMED FROM SPIRAL WOUND GALVANIZED STEEL STRIP WITH SUCCESSIVE CONVOLUTIONS SECURELY INTERLOCKED AND EACH LENGTH MARKED WITH THE UL LABEL. MINIMUM SIZE SHALL BE 3/4 INCH. CONNECTIONS TO BOXES AND EMT SHALL BE MADE WITH STANDARD COUPLINGS APPROVED FOR THE APPLICATION: OZ GEDNEY OR EQUAL.

PROVIDE A PULL STRING IN EACH EMPTY CONDUIT. EACH CONDUIT RUN SHALL HAVE AT LEAST ONE GROUND CONDUCTOR INSTALLED.

RACEWAY, FITTINGS, BOXES, AND SUPPORTS (CONT)

BOXES

OUTLET, JUNCTION AND DEVICE BOXES INSTALLED CONCEALED INDOORS SHALL BE STANDARD 14-GAUGE GALVANIZED PRESSED STEEL. ALL UNUSED KNOCKOUTS SHALL BE LEFT SEALED. MINIMUM BOX SIZE SHALL BE 4 INCHES SQUARE. BOXES INSTALLED WHERE FINAL FINISH IS TO BE PLASTER OR DRYWALL SHALL HAVE A PLASTER RING. COVERS TO BE INSTALLED ON ALL BOXES.

BOXES SHALL ACCOMMODATE THE DEVICES TO BE INSTALLED AND SHALL BE SIZED AS REQUIRED BY APPLICABLE CODES FOR NUMBER AND SIZE OF CONDUITS AND CONDUCTORS ENTERING AND LEAVING.

PULL BOXES AND JUNCTION BOXES SHALL BE INSTALLED FOR PULLING CABLE WHERE REQUIRED BY THE DRAWINGS OR TO MEET REQUIREMENTS OF THE NEC. PULL BOXES USED FOR MULTIPLE CONDUIT RUNS SHALL NOT COMBINE CIRCUITS FED FROM DIFFERENT MCCS, SWITCHBOARDS, PANELBOARDS OR SWITCHGEAR

1 FLUSH-FLOOR OUTLET BOXES SHALL BE PRESSED STEEL, 2-GANG AND FULLY ADJUSTABLE. BOXES SHALL BE SET PLUMB AND INSTALLED SUCH THAT COVER PLATE SEATS NEATLY AND FLUSH INTO FINISH FLOOR APPLICATION. BOXES TO BE EQUAL TO WIREMOLD RESOURCE RFB SERIES, NO. RFB2 WITH ALL NECESSARY AUXILIARIES.

INSTALLATION

INTERIOR CONDUITS TO BE EMT OR FLEXIBLE METALLIC CONDUIT AS ALLOWED BY THE NEC. EXTERIOR UNDERGROUND CONDUITS TO BE RIGID PVC OR PVC-COATED RIGID METALLIC CONDUIT.

RACEWAYS SHALL BE RUN CONCEALED IN OFFICE AND FINISHED AREAS. WHERE CONDITIONS DICTATE, SURFACE RACEWAY SHALL BE EMT RUN PARALLEL TO CEILING, AND VERTICAL RUNS SHALL BE PERPENDICULAR TO THE FLOOR. SUPPORT AS REQUIRED. COMPRESSION TYPE FITTINGS SHALL BE USED WITH EMT.

ALL REQUIRED PULL, JUNCTION, AND/OR SPLICE BOXES SHALL BE FURNISHED AND INSTALLED WHETHER INDICATED OR NOT.

SEAL ALL BUILDING PENETRATIONS WITH SILICONE SEALANT. WHERE CONDUITS PENETRATE A FIRE RATED WALL, FLOOR OR CEILING, THE OPENING AROUND THE CONDUIT SHALL BE SEALED WITH CAULK CP 25 OR PUTTY 303 AS MANUFACTURED BY 3M, OR EQUAL. THE INSTALLATION SHALL CONFORM TO A UL LISTED DETAIL, PER MANUFACTURER'S INSTRUCTION

CONDUCTORS

CONDUCTORS AND CABLES SHALL BE IDENTIFIED ON THE OVERALL JACKET AS TO THE MANUFACTURER'S NAME, CONDUCTOR SIZE, NUMBER OF CONDUCTORS, TYPE OF INSULATION, TYPE OF JACKET, AND VOLTAGE RATING. INFORMATION SHALL BE PRINTED EVERY THREE FEET.

FOR SIZES NO. 12 THROUGH NO. 4 CONDUCTOR INSULATION SHALL BE COLORED THE ENTIRE LENGTH; ENDS OF THE CONDUCTORS MARKED WITH COLORED TAPE IS NOT ACCEPTABLE. FOR SIZES ABOVE NO. 4 CONDUCTOR ENDS MAY BE MARKED WITH COLORED TAPE. TYPE-MC CABLE MAY BE USED WHERE PERMITTED BY CODE.

ALL 600-VOLT SINGLE CONDUCTORS, NO. 4 AND SMALLER, SHALL BE COPPER TYPE THHN/THWN, DUAL RATED, CLASS B STRANDING, PVC INSULATION WITH NYLON JACKET RATED AT 75 DEGREES C IN WET LOCATIONS, 90 DEGREES C IN DRY LOCATIONS. CONDUCTOR SIZES NO. 10 OR NO. 12 MAY BE SOLID OR STRANDED.

GROUND WIRES SHALL BE BARE OR INSULATED COPPER CONDUCTOR CLASS B STRANDING.

MINIMUM SIZE OF ALL 600 VOLT POWER WIRING TO BE NO. 12 UNLESS OTHERWISE NOTED. CONTROL WIRING FOR HVAC UNITS SHALL BE BY THE MECHANICAL CONTRACTOR UNLESS SPECIFIED OTHERWISE.

UNLESS NOTED OTHERWISE, EQUIPMENT WITH CIRCUIT AND PANEL IDENTIFICATION ARE 3 NO.12-1/2" CONDUIT.

METAL CLAD CABLE MAY BE USED AS ALLOWED BY THE NEC.

INSTALLATION

ALL POWER CONDUCTORS SHALL BE INSTALLED CONTINUOUS WITH NO SPLICES. PULL BOXES SHALL BE USED TO KEEP PULLING TENSION WITHIN ALLOWABLE LIMITS SPECIFIED BY MANUFACTURERS. USE WIRE-PULLING COMPOUND FOR INSTALLING CONDUCTORS IN CONDUIT TO LIMIT THE TENSION. PRIOR TO INSTALLING CONDUCTORS, ALL RACEWAYS SHALL BE COMPLETE AND PROTECTED FROM WEATHER. CONDUIT RUNS SHALL BE CLEANED AND SWABBED. DAMAGED CONDUCTOR INSULATION IS REQUIRED TO BE REPLACED.

AT LEAST 6 INCHES OF SLACK CONDUCTOR SHALL BE LEFT AT EACH OUTLET OR JUNCTION BOX AND 9 INCHES OF CONDUCTOR AT EACH UNCONNECTED OUTLET. TAPE FREE ENDS OF UNUSED CONDUCTORS AND COIL NEATLY IN OUTLET BOX.

GROUNDING

INSTALLATION

ALL POWER AND LIGHTING CIRCUITS SHALL HAVE A COPPER GROUND CONDUCTOR ROUTED WITH CURRENT CARRYING CONDUCTORS AND CONDUITS MAY BE USED FOR REDUNDANT GROUNDING PATH. ALL BOXES, CABINETS, AND EQUIPMENT SHALL BE BONDED TO THE GROUND CONDUCTOR. ALL METAL RACEWAYS SHALL BE BONDED TO PROVIDE A CONTINUOUS GROUND PATH BACK TO GROUND BUS. CONDUITS SHALL BE BONDED USING APPROVED GROUNDING BUSHING.

WIRING DEVICES

PRODUCTS

WIRING DEVICES SHALL BE UL LABELED FOR THE CURRENT, VOLTAGE, AND FREQUENCY SPECIFIED AND SHALL CONTAIN PROVISIONS FOR BACK WIRING AND SIDE WIRING WITH CAPTIVE BINDING SCREWS.

NON-BACKED UP DEVICES SHALL BE WHITE WHILE GENERATOR UPS BACKED UP DEVICES SHALL BE RED.

ALL DEVICES SHALL BE MOUNTED IN BOXES OF SHEET STEEL CONSTRUCTION, APPLETON TYPE OB/SB OR APPROVED EQUAL.

SNAP OR ARROWLINK CONNECT STYLE RECEPTACLES ARE ACCEPTABLE.

RECEPTACLES AND PLUGS

ALL RECEPTACLES SHALL BE GROUNDING TYPE, NEMA 5-20R, AND HEAVY DUTY INDUSTRIAL TYPE UNLESS NOTED OTHERWISE.

STANDARD RECEPTACLES EQUAL TO EATON AH5362 SERIES.

TAMPER RESISTANT RECEPTACLES EQUAL TO EATON AHTR5362 SERIES WHERE REQUIRED BY LOCAL CODE.

GROUND FAULT RECEPTACLES SHALL BE SELF TEST TYPE AND TAMPER RESISTANT, EQUAL TO EATON TRSGF20 SERIES.

WEATHER RESISTANT GROUND FAULT RECEPTACLES SHALL BE SELF TEST TYPE AND TAMPER RESISTANT, EQUAL TO EATON TWRSGF20 SERIES.

OCCUPANCY SENSOR RECEPTACLES SHALL BE HALF CONTROLED TYPE, EQUAL TO EATON 5362CH SERIES.

SWITCHES

GENERAL PURPOSE SWITCHES SHALL MATCH NON-BACKED UP RECEPTACLE COLOR, BE INDUSTRIAL GRADE AC TYPE RATED AT 20A, 120/277V AS FOLLOWS:

SINGLE-POLE TOGGLE SWITCHES EQUAL TO EATON AH1221 SERIES.

PILOT LIGHT SINGLE-POLE TOGGLE SWITCH SHALL BE RED, EQUAL TO EATON AH1221PL.

3-WAY SINGLE-POLE TOGGLE SWITCHES EQUAL TO EATON AH1223 SERIES.

4-WAY SINGLE-POLE TOGGLE SWITCHES EQUAL TO EATON AH1224 SERIES.

WIRING DEVICES (CONT)

DEVICE PLATES

DEVICE PLATES SHALL BE AS FOLLOWS:

FINISHED AREA WITH CONCEALED CONSTRUCTION - THERMOPLASTIC NYLON COLOR MATCHING WIRING DEVICE.

EXPOSED BOXES CONNECTED TO EMT RACEWAY OR STAMPED STEEL DEVICE BOXES - COVERS TO BE GALVANIZED, STAMPED STEEL, 1/2-INCH RAISED RACO 800 SERIES.

EXPOSED DEVICE BOXES CONNECTED TO RIGID STEEL CONDUIT - GALVANIZED MALLEABLE IRON.

OUTDOORS OR BELOW GRADE - CAST ALUMINUM.

1 FLOOR MOUNTED DEVICES - WIREMOLD RESOURCE RFB SERIES, NO. FPBTCGY FLANGED COVER ASSEMBLY WITH ALL NECESSARY AUXILIARIES.

PROVIDE EXTRA-DUTY DIE-CAST IN-USE WEATHERPROOF LOCKABLE COVERS FOR EXTERIOR RECEPTACLES, 4-INCH DEPTH MINIMUM, EQUAL TO INTERMATIC WP1250MVXD (SINGLE-GANG) AND WP1250MXD (DOUBLE-GANG).

INSTALLATION

UNLESS OTHERWISE INDICATED, WALL-MOUNTED RECEPTACLES AND SWITCHES SHALL BE INSTALLED IN SHEET METAL BOXES AND BE FLUSH MOUNTED.

MOUNTING HEIGHTS SHALL BE AS FOLLOWS, UNLESS OTHERWISE SPECIFIED: (FROM FINISH FLOOR TO CENTER OF DEVICE)

SWITCHES	+48"
OUTLETS	+18"

PROVIDE GFCI, WEATHER RATED, AND/OR TAMPER RESISTANT OUTLETS WHERE REQUIRED BY LOCALLY ADOPTED ELECTRICAL CODES.

LIGHTING

LIGHTING FIXTURES

FIXTURES TO BE PER FIXTURE SCHEDULE SHOWN ON PLANS.

LAMPS

LAMPS SHALL BE LED, AND RATED FOR:

INDOORS WITH THE FOLLOWING TM-30-18 CHARACTERISTICS:
- $3000K \leq CCT < 4500$
- $R_f \geq 78$
- $R_g > 100$
- $-1\% \leq R_{cs,h1} < 15\%$

OUTDOORS WITH THE FOLLOWING TM-30-18 CHARACTERISTICS:
- $4000K \leq CCT < 4500$
- $R_f \geq 70$
- $R_g > 78$
- $-12\% \leq R_{cs,h1} < 18\%$

INSTALLATION

LIGHTING FIXTURES SHALL BE SET PLUMB, SQUARE, LEVEL, AND IN ALIGNMENT AND SHALL BE SECURED IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS AND APPROVED SHOP DRAWINGS.

LIGHTING FIXTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE U.L. FIRE RESISTANCE DIRECTORY GUIDELINES FOR RECESSED LIGHTING FIXTURES.

RECESSED AND SEMI-RECESSED FIXTURES MAY BE SUPPORTED FROM SUSPENDED CEILING SUPPORT SYSTEM CEILING TEES IF THE CEILING SYSTEM SUPPORT RODS OR WIRES ARE PROVIDED AT A MINIMUM OF 4 RODS OR WIRES PER FIXTURE AND LOCATED NOT MORE THAN 6 INCHES FROM EACH CORNER OF EACH FIXTURE. SUPPORT RODS OR WIRES FOR ROUND FIXTURES OR FIXTURES SMALLER IN SIZE THAN THE CEILING GRID SHALL BE PROVIDED AT A MINIMUM OF 4 RODS OR WIRES PER FIXTURE AND LOCATED AT EACH CORNER OF THE CEILING GRID IN WHICH THE FIXTURE IS LOCATED.

FIXTURES SHALL NOT BE SUPPORTED BY CEILING ACOUSTICAL PANELS.

WHERE FIXTURES OF SIZES LESS THAN THE CEILING GRID ARE INDICATED TO BE CENTERED IN THE ACOUSTICAL PANEL, SUCH FIXTURE SHALL BE SUPPORTED INDEPENDENTLY OR WITH AT LEAST TWO 3/4-INCH SPANNING BARS AND SECURED TO THE CEILING TEES.

OCCUPANCY SENSING SYSTEM

INSTALLATION

PROPER JUDGEMENT MUST BE EXERCISED IN EXECUTING THE INSTALLATION SO AS TO ENSURE THE BEST POSSIBLE INSTALLATION IN THE AVAILABLE SPACE AND TO OVERCOME LOCAL DIFFICULTIES DUE TO SPACE LIMITATIONS OR INTERFERENCE OF STRUCTURAL COMPONENTS.

ARRANGE A PRE-INSTALLATION MEETING WITH THE MANUFACTURER'S FACTORY AUTHORIZED REPRESENTATIVE, AT THE OWNER'S FACILITY, TO VERIFY PLACEMENT OF SENSORS AND INSTALLATION CRITERIA.

LOCATE AND AIM SENSOR AS REQUIRED FOR COMPLETE AND PROPER VOLUMETRIC COVERAGE WITHIN THE RANGE OF COVERAGE(S) OF CONTROLLED AREAS PER THE MANUFACTURE'S RECOMMENDATIONS. ROOMS SHALL HAVE NINETY (90) TO ONE-HUNDRED (100) PERCENT COVERAGE TO COMPLETELY COVER THE CONTROLLED AREA TO ACCOMMODATE ALL OCCUPANCY HABITS OF SINGLE OR MULTIPLE OCCUPANTS AT ANY LOCATION WITHIN THE ROOM(S). THE LOCATIONS AND QUANTITIES OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE ONLY THE ROOMS WHICH ARE TO PROVIDED WITH SENSORS. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS, IF REQUIRED, TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE ROOM.

THE CONTRACTOR SHALL ALSO PROVIDE, AT THE OWNER'S FACILITY, THE TRAINING NECESSARY TO FAMILIARIZE THE OWNER'S PERSONNEL WITH THE OPERATION, USE, ADJUSTMENT, AND PROBLEM SOLVING DIAGNOSIS OF THE OCCUPANCY SENSING DEVICES AND SYSTEMS.

CEILING MOUNTED SENSORS SHALL BE INSTALLED IN THE CONTROLLED AREA AND BE CAPABLE OF DETECTING DOPPLER SHIFTS IN TRANSMITTED ULTRASOUND AND/OR BY DETECTING PASSIVE INFRARED HEAT CHANGES (DUAL-TECH). WHERE PLANS INDICATE SENSORS SHALL BE CAPABLE OF CORNER MOUNTING IN ORDER TO ELIMINATE DETECTING MOTION THROUGH OPEN DOORWAYS AND OUT OF THE CONTROLLED AREA, WITH READILY ACCESSIBLE, USER ADJUSTABLE CONTROLS FOR TIME DELAY AND SENSITIVITY. PROVIDE SYSTEM POWER PACKS AS SUGGESTED BY MANUFACTURER TO OPERATE WITHIN LIGHTING SYSTEM VOLTAGES SPECIFIED AND CONTROL SCHEMES INDICATED.

SWITCH-BOX OCCUPANCY SENSORS TO BE DUAL TECHNOLOGY TYPE (PASSIVE INFRARED & ULTRASONIC) WITH INTEGRAL POWER-SWITCHING CONTACTS RATED FOR 800W AT 120VAC, SUITABLE FOR FLUORESCENT LIGHT FIXTURES WITH MAGNETIC OR ELECTRONIC BALLASTS. PROVIDE DUAL RELAY UNIT FOR BI-LEVEL CONTROL WHERE INDICATED ON PLANS. INCLUDED WITH GROUND WIRE.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PIPING MODS & EOU COMMENTS	5/19/20	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAR 13, 2018 JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

GENERAL NOTES

DWG. NO. E002

SCALE: NOT TO SCALE

ISSUE DATE: 04/09/2020

JOB NO. 8514

REV. 1

FIRE ALARM SYSTEM

CONTRACTOR IS TO PROVIDE A COMPLETE DESIGN/BUILD FIRE ALARM SYSTEM. DEVICES SHOWN ARE MINIMUM REQUIRED, CONTACT LOCAL AUTHORITY HAVING JURISDICTION FOR ANY ADDITIONAL REQUIREMENTS.

FIRE ALARM SYSTEM IS TO COMPLY WITH NFPA-101 "LIFE SAFETY CODE", NFPA-5000 "BUILDING CONSTRUCTION AND SAFETY CODE", THE INTERNATIONAL BUILDING CODE, AND NFPA 72.

PROVIDE MANUALS AND SUBMITTALS IN ACCORDANCE WITH THE GENERAL CONDITIONS OF THIS CONTRACT. MANUALS ARE TO CONTAIN AS-BUILT DRAWINGS ON DISK UTILIZING AUTOCAD, SPARE PARTS LIST, OPERATING PROCEDURES, TROUBLE SHOOTING GUIDE, OPERATING SYSTEM DATA FILE PRINT OUT, OPERATING SYSTEM DATA FILE ON DISK, A ONE YEAR SERVICE PROPOSAL ON THE SYSTEM, AND A COPY OF THE COMPLETED NFPA RECORD OF COMPLETION

PROVIDE A SINGLE LINE DIAGRAM OF ACTUAL SYSTEM, TYPICAL RISER DIAGRAMS ARE NOT ACCEPTABLE, INCLUDE COMPLETE WIRING DIAGRAMS, MANUFACTURER'S ORIGINAL CATALOG DATA AND DESCRIPTIVE INFORMATION ON EACH PIECE OF EQUIPMENT TO BE USED. PROVIDE VOLTAGE DROP AND BATTERY CALCULATIONS.

SYSTEM IS TO BE TESTED AND FULLY FUNCTIONAL PRIOR TO PROJECT CLOSEOUT. PROVIDE PROTECTION AGAINST VOLTAGE TRANSIENTS AND SURGES AS REQURIED BY NFPA-72 ON ALL CIRCUITS ENTERING THE BUILDING.

SYSTEM SHALL MEET APPROVAL OF AUTHORITY HAVING JURISDICTION (AHJ), NEC AND LOCAL ORDINANCES AND REGULATIONS SHALL GOVERN UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED. EQUIPMENT, DEVICES, AND CABLE SHALL BE UL OR FACTORY MUTUAL LISTED FOR USE IN FIRE ALARM SYSTEMS.

SHOP DRAWINGS-SUBMITTALS

SUBMIT SHOP DRAWINGS AND/OR SUBMITTALS AT LEAST 2-WEEKS PRIOR TO ROUGH-IN FOR THE FOLLOWING WIRING & CABLES; RACEWAYS & BOXES; WIRING DEVICES; PANELBOARDS; TVSS, DISCONNECTS; TIMERS; CIRCUIT BREAKERS; FUSES; LIGHTS (INCLUDE BALLAST AND LAMPS); CONTACTORS (TIMER/PHOTOCELL); AND OCCUPANCY SENSORS.

ALL SHOP DRAWINGS AND/OR SUBMITTALS NOT BOUND IN DUO-TANG, MEAD OR EQUIVALENT FOLDERS, WILL BE REJECTED. SHOP DRAWINGS AND/OR SUBMITTALS SHALL, IN GENERAL, EFFECTIVELY DEMONSTRATE SYSTEM CONFORMS TO DESIGN INTENT AND SHALL INCLUDE QUALIFICATIONS OF PREPARER & DESIGNER, A COMPLETED SPECIFICATION CUT-SHEET OF ALL EQUIPMENT SHOWING FINISH, COLOR, & TRIM, ALONG WITH FABRICATION, DIMENSIONED INSTALLATION DRAWINGS, FUNCTIONAL SCHEMATIC WITH COMPREHENSIVE SEQUENCE OF OPERATION, POINT-TO-POINT WIRING DIAGRAMS, SETTING DIAGRAMS, RISER, SCHEDULES, PATTERNS, TEMPLATES AND PRODUCT/SYSTEM WARRANTY. WHERE APPLICABLE, INCLUDE CALCULATIONS FOR SUCH THINGS AS VOLTAGE DROPS, BATTERY CAPACITY VS. SYSTEM CONSUMPTION, AND THE LIKE. INSTALLATION DRAWINGS FOR LOW VOLTAGE OR SPECIAL SYSTEMS SUCH AS, FIRE ALARM, CCTV, AND/OR CLOCK/INTERCOM, SHALL BE PERFORMED WITH A COMPUTER CAD PROGRAM AND INCLUDE NO OTHER UNRELATED SYSTEM PRINTED TO MATCH PROJECT DRAWING SIZE & SCALE PER SECTION OR FLOOR.

CONTRACTOR SHALL SUBMIT COORDINATION STUDY, SHORT CIRCUIT CURRENT STUDY, AND ARC-FLASH HAZARD ANALYSIS IN THE SAME SUBMITTAL PACKAGE AS THE ELECTRICAL GEAR SUBMITTAL TO ENSURE EQUIPMENT IS SIZED PER THE FAULT CURRENTS; IF NOT, SUBMITTALS WILL BE REJECTED UNTIL ALL THE INFORMATION IS PROVIDED FOR THE REVIEW.

FURNISHED AS-BUILT DRAWINGS FOR ELECTRIC POWER SYSTEMS WITHIN 30 DAYS OF SYSTEM ACCEPTANCE PER ASHRAE 90.1-2016.

ENGINEERING SHOP DRAWING AND/OR SUBMITTAL REVIEW, SUBSEQUENT TO GENERAL CONTRACTOR'S APPROVAL, IS NOT CONDUCTED FOR THE PURPOSE OF DETERMINING THE ACCURACY AND/OR COMPLETENESS OF OTHER DETAILS SUCH AS DIMENSIONS AND QUANTITIES, OR FOR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATION OR PERFORMANCE OF EQUIPMENT OR SYSTEMS. ENGINEER'S REVIEW ONLY DETERMINES WHETHER THE SHOP DRAWING AND/OR SUBMITTAL GENERALLY COMPLY WITH THE INFORMATION OR REQUIREMENTS STATED IN THE CONTRACT DOCUMENTS. SHOP DRAWING AND/OR SUBMITTAL REVIEW BY THE ENGINEER DOES NOT GUARANTEE THAT THE CONTRACTOR WOULD PERFORM IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS. SHOP DRAWING AND/OR SUBMITTAL REVIEW BY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF ANY CONTRACT DOCUMENT REQUIREMENTS. DO NOT SUBMIT TO ENGINEER, METHODS OR MEANS OF CONSTRUCTION OR SAFETY RELATED ITEMS

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAR 15, 2005
JAMES BYRON JOHN FORD
4/9/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

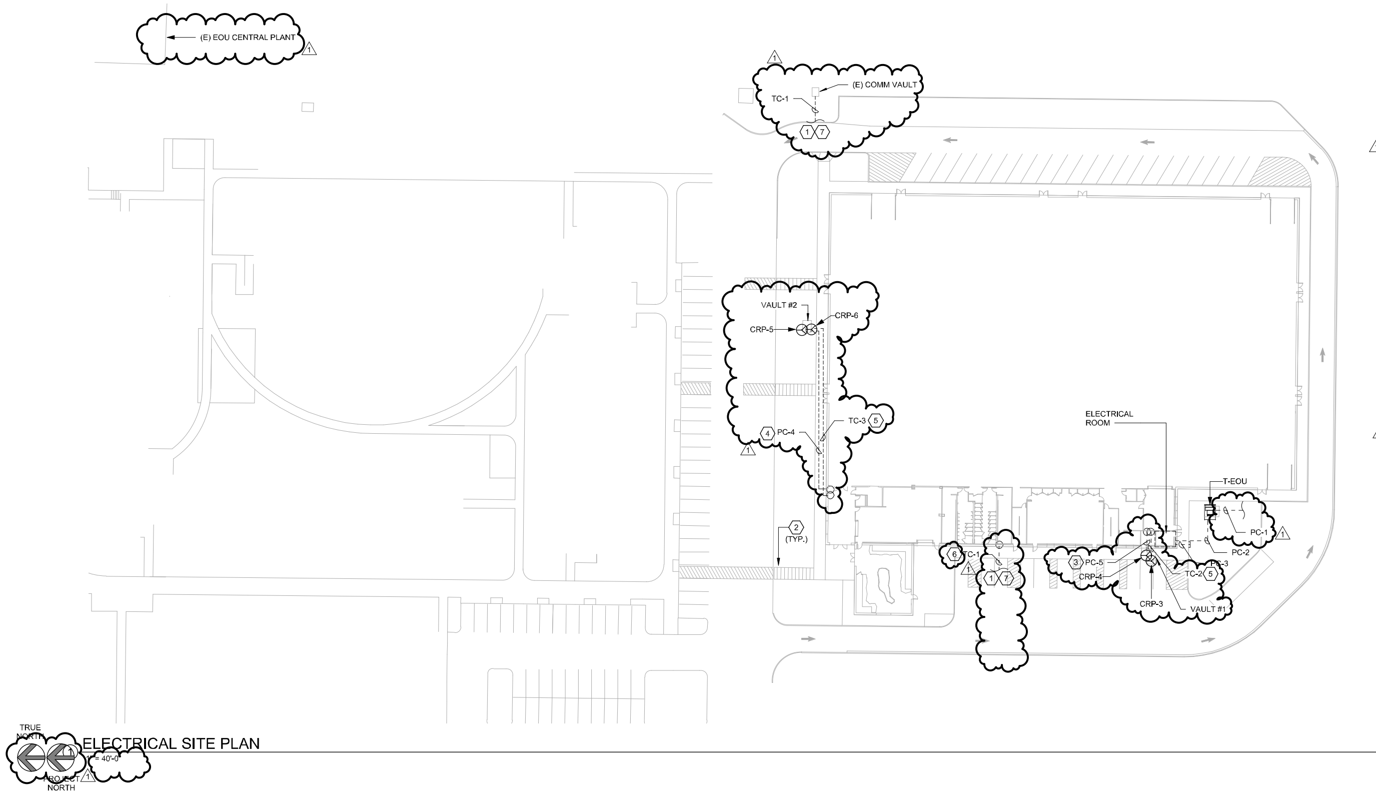
MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

GENERAL NOTES

DWG. NO.
E003

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

6/8/20 3:37:05 PM C:\Users\jblood\Documents\8514-MEP16_jblood.rvt



ELECTRICAL SITE PLAN
1" = 40'-0"

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES

1 CONTRACTOR TO PROVIDE TEL/DATA SERVICE RACEWAY TO NEAREST TELECOMMUNICATIONS VAULT PER UNIVERSITY CAMPUS STANDARDS.
2 SITE AND AREA LIGHTING INCLUDING THE STAIRS WILL BE BY OTHERS. EC SHALL COORDINATE SITE LIGHTING WITH OTHERS.
3 CONTINUES ON PARTIAL ENLARGED POWER PLAN 2 ON SHEET E502.
4 CONTINUES ON PARTIAL ENLARGED POWER PLAN 1 ON SHEET E502.
5 CONTINUES ON SHEET E401.
6 TEL/DATA SERVICE RACEWAY, SEE SHEET E401 FOR CONTINUATION.
7 TC-1, TEL/DATA SERVICE RACEWAY IS FIELD ROUTED AND SHALL NOT BE ROUTED UNDERNEATH BUILDINGS OR STRUCTURES.

SITE CONDUIT SCHEDULE

ID	QTY	SIZE (IN)	FROM	TO	CONTENTS	NOTE
PC-1	-	-	EOU CENTRAL PLANT	T-EOU	BY EOU	2
PC-2	-	-	T-EOU	CT CABINET	855A4	1
PC-3	1	3	ELECTRICAL ROOM 117	STUB UP	SPARE	
PC-4	1	3/4	PANEL A3	VAULT #2	20A3G	
PC-5	1	3/4	PANEL A3	VAULT #1	20A3G	
TC-1	3	2	(E) COMMUNICATIONS VAULT	ELECTRICAL AREA 206	SPARE(X3)	2
TC-2	2	1	VAULT #1	STUB UP - FIRE RISER ROOM	SPARE (X2)	3
TC-3	2	1	VAULT #2	STUB UP - VESTIBULE	SPARE (X2)	3

ABBREVIATIONS:
PC = POWER CONDUIT
TC = TELE/COMM CONDUIT

GENERAL NOTES:
A. PROVIDE PULL CORD AND CAP FOR ALL SPARE CONDUITS.

B. STUB-OUT CONDUITS SHALL BE CAPPED AND MARKED OR FUTURE LOCATING EFFORTS.

SPECIFIC NOTES:
1. SEE FEEDER SCHEDULE FOR CONDUIT AND CONDUCTOR SIZE, TYPE, AND QUANTITY.

2. COORDINATE WITH EOU FOR CONSTRUCTION REQUIREMENTS AND ROUTING PRIOR TO ELECTRICAL ROUGH-IN.

3. CONTROL RACEWAY FOR CONDENSATE RETURN PUMPS BY EC; CONTROL WIRING BY MC. STUB UP INTO CORRESPONDING AREAS OF BUILDING. COORDINATE WITH MECHANICAL CONTRACTOR ON FINAL LOCATIONS.

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JAMES BYRON JOHN FORD
5/19/2020

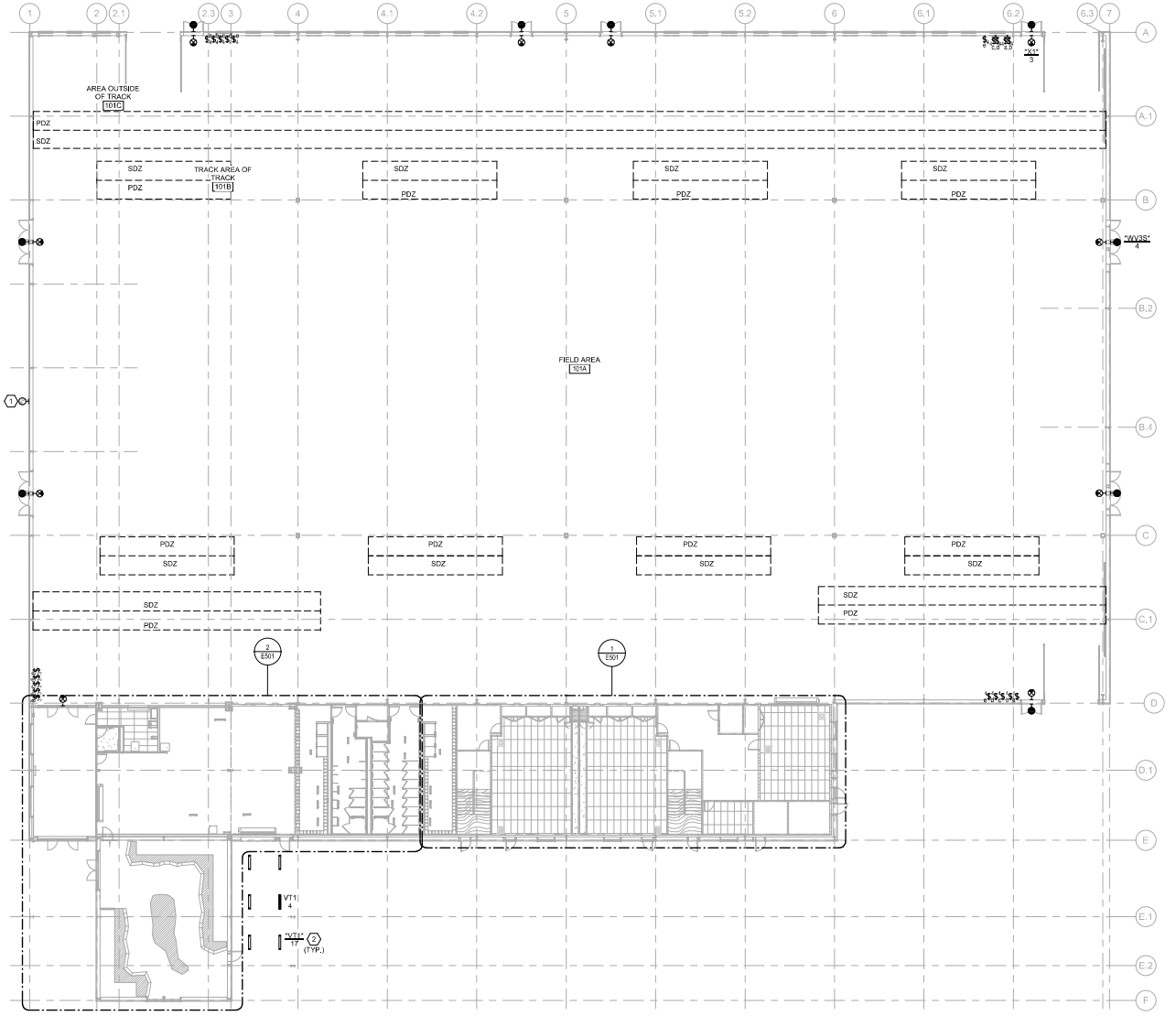
APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

SITE PLAN

DWG. NO.
E101

SCALE: 1" = 40'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1



NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES (#)

1 PHOTO CELL USED TO CONTROL ALL EXTERIOR LIGHTING FIXTURES.
2 MOUNT BOTTOM OF FIXTURE AT 12'-0" AFF.

1 GROUND FLOOR LIGHTING PLAN
1/16" = 1'-0"

PROJECT NORTH

Meier
ARCHITECTURE INC
12 W. Kennewick Ave.,
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F: 509.783.5075
www.meierinc.com

NO.	REVISION	DATE	DRWN	CHKD	DSGN APPD

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAY 15, 2008
JAMES BYRON JOHN FORD
4/9/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

GROUND FLOOR LIGHTING PLAN

DWG. NO.
E201

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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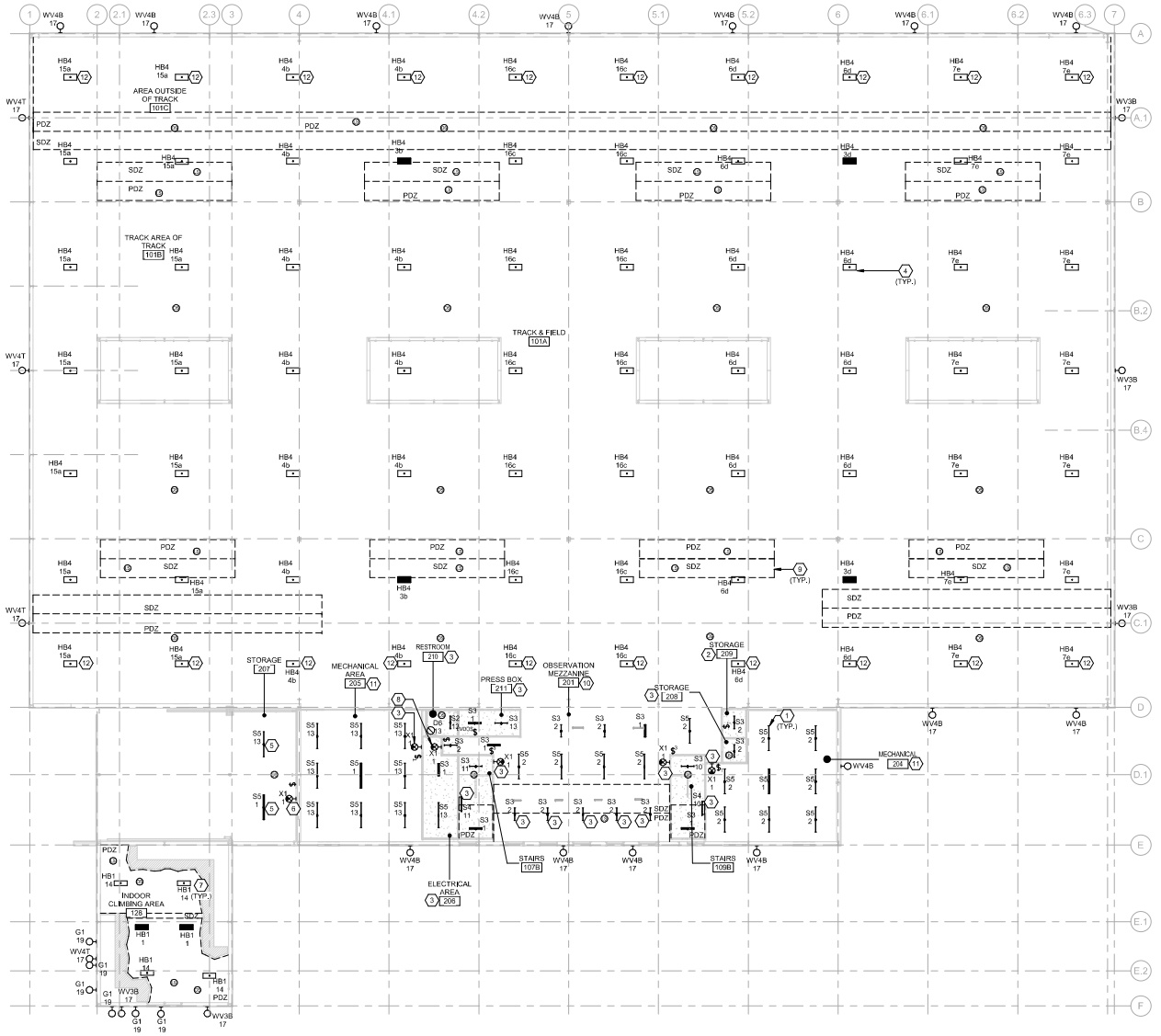

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES (#)

1 MOUNT FIXTURE AT 12'-6" AFF.
2 MOUNT FIXTURE AT 13'-0" AFF.
3 MOUNT FIXTURE AT 9'-0" AFF.
4 MOUNT FIXTURE AT 30'-0" AFF.
5 MOUNT FIXTURE AT 7'-0" AFF.
6 CENTER FIXTURE AT 7'-7" AFF.
7 MOUNT FIXTURE 36'-0" AFF.
8 MOUNT FIXTURE AT 8'-0" AFF.
9 DAYLIGHTING ZONES SHOWN HERE FOR REFERENCE TO PLACE LIGHT SENSORS. THE DAYLIGHTING ZONES ARE TECHNICALLY ON THE GROUND FLOOR AS SHOWN ON E201.
10 MOUNTING HEIGHT AT 9'-0" U.N.O.
11 COORDINATE LUMINAIRE FINAL FINAL LOCATION AROUND MECHANICAL EQUIPMENT. COORDINATE WITH MECHANICAL CONTRACTOR.
12 MOUNTING HEIGHT IS 27'-3" AFF.

1 MEZZANINE LIGHTING PLAN
1/16" = 1'-0"

PROJECT NORTH

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAY 15, 2018 JAMES BYRON JOHN FORD
4/9/2020

APPROVAL

DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MEZZANINE LIGHTING PLAN

DWG. NO.
E202

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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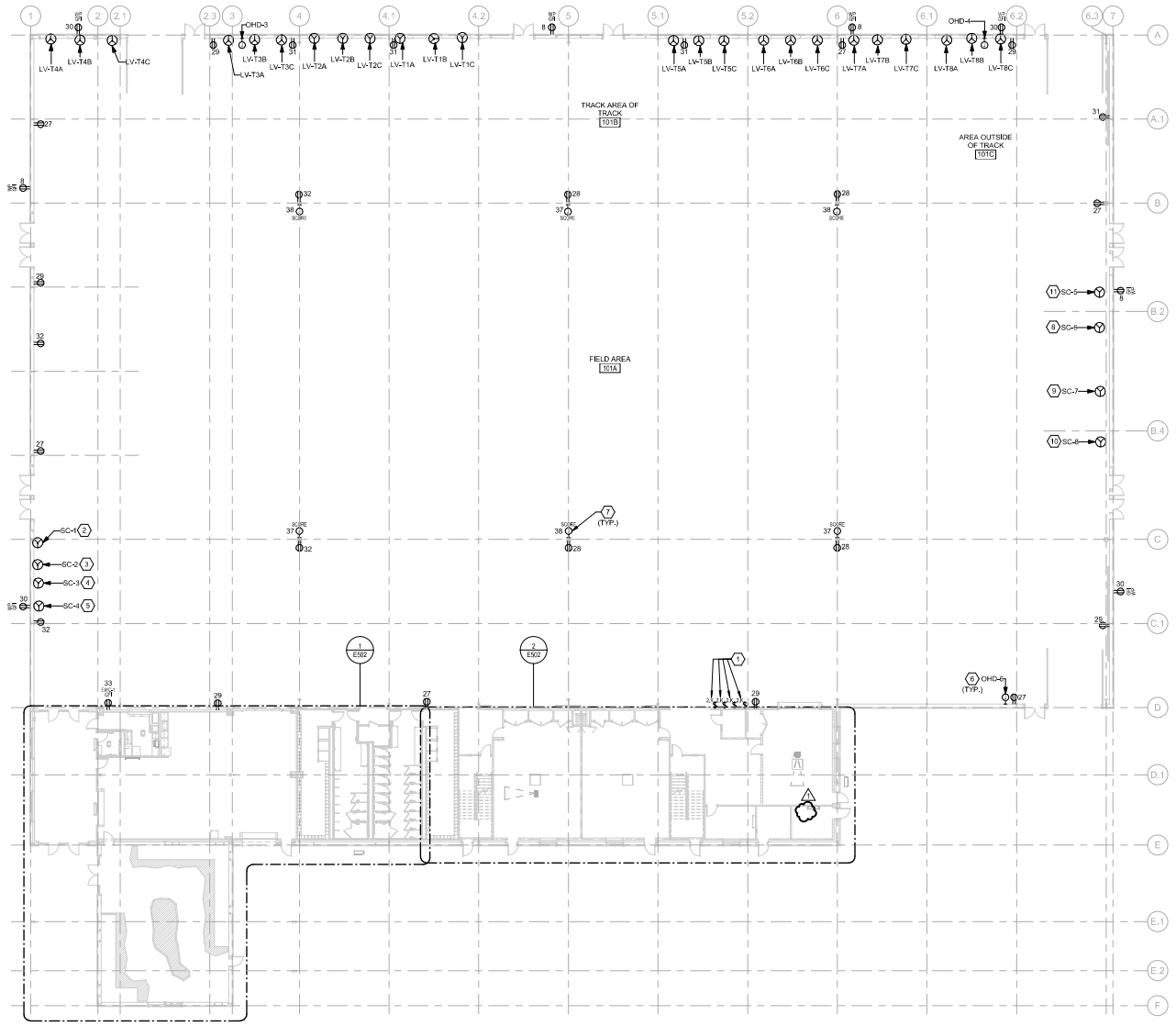

GROUND FLOOR POWER PLAN
1/16" = 1'-0"

PROJECT NORTH

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES (#)

1 KEY SWITCHES FOR EXHAUST FAN CONTROLS. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
2 STARTER CABINET FOR EF-T1. CONTINUES ON E302.
3 STARTER CABINET FOR EF-T2. CONTINUES ON E302.
4 STARTER CABINET FOR EF-T3. CONTINUES ON E302.
5 STARTER CABINET FOR EF-T4. CONTINUES ON E302.
6 MOUNT OVERHEAD DOOR JUNCTION BOX AT 48" AFF.
7 PROVIDE JUNCTION BOX AND 1-1/2" RACEWAY FOR PORTABLE SCOREBOARD AND INTERCOM SYSTEM. ROUTE RACEWAY TO ACCESSIBLE CEILING SPACE ABOVE PRESSBOX 211. COORDINATE EQUIPMENT AND DATA REQUIREMENTS PRIOR TO ROUGH-IN.
8 STARTER CABINET FOR EF-T5. CONTINUES ON E302.
9 STARTER CABINET FOR EF-T7. CONTINUES ON E302.
10 STARTER CABINET FOR EF-T8. CONTINUES ON E302.
11 STARTER CABINET FOR EF-T5. CONTINUES ON E302.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PRKNG SIGNS & EQU COMMENTS	5/19/20	AMD	PE	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAR 15, 2018
JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE
GROUND FLOOR POWER PLAN

DWG. NO.
E301

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1

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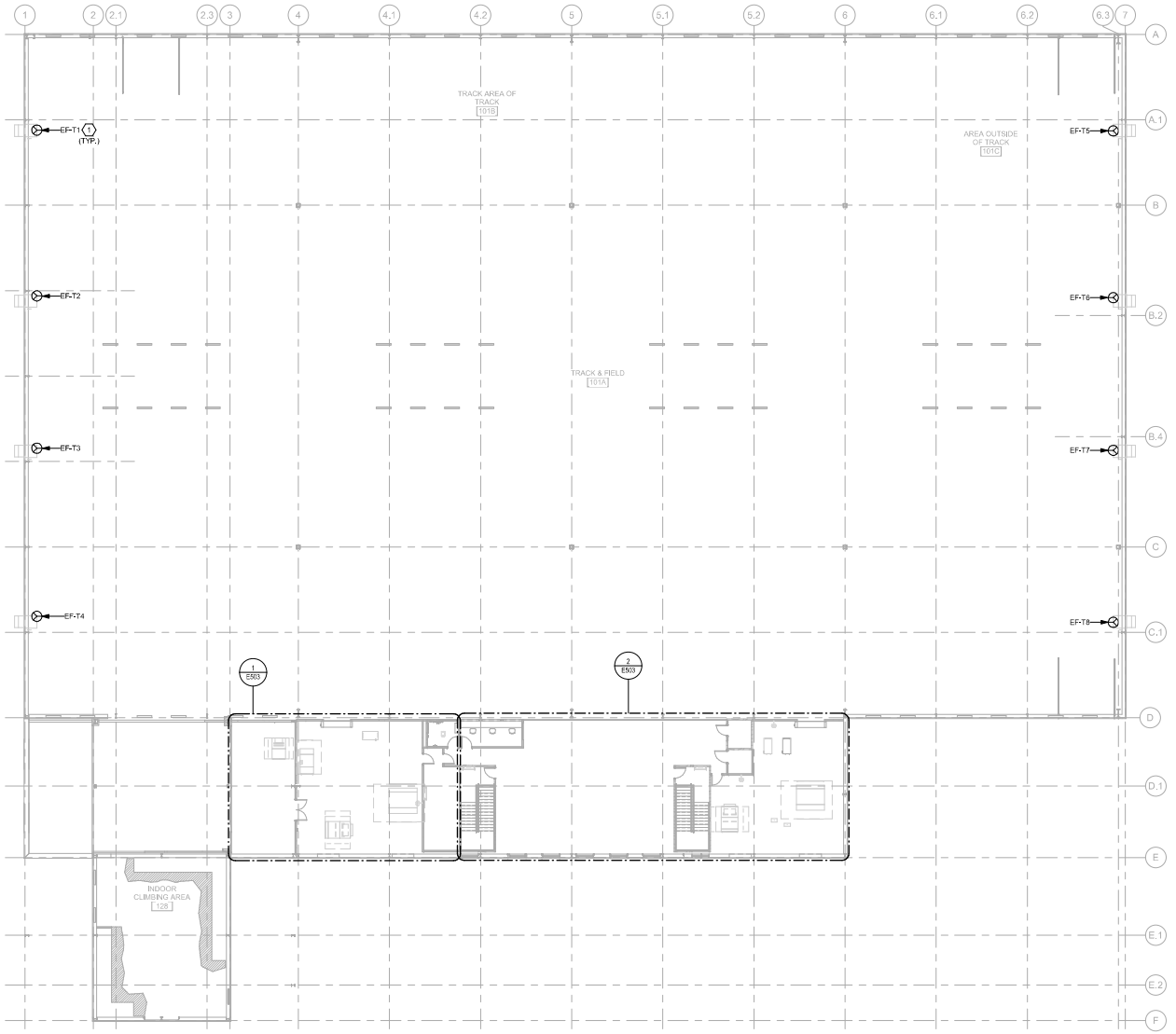

1 MEZZANINE POWER PLAN
1/16" = 1'-0"

PROJECT NORTH

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES (#)

1 CONNECTS BACK TO CORRESPONDING STARTER CABINET ON E301.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APP'D

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAR 15, 2005
JAMES BYRON JOHN FORD
4/9/2020

APPROVAL

DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MEZZANINE POWER PLAN

DWG. NO.
E302

SCALE: 1/16" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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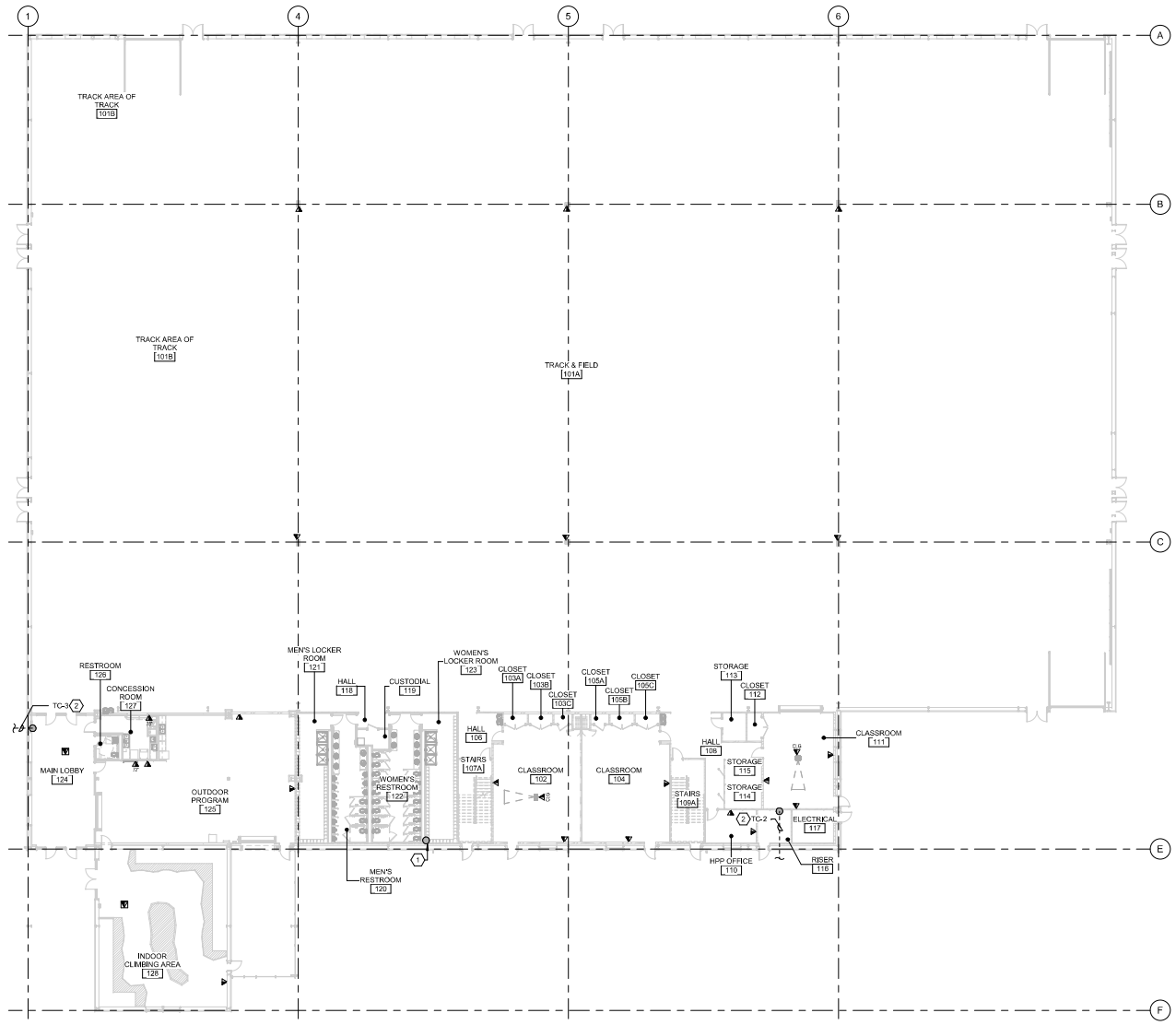

GROUND FLOOR SYSTEMS PLAN
1/16" = 1'-0"

PROJECT NORTH

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES (#)

1 TC-1, TELDATA SERVICE RACEWAY UP TO ELECTRICAL AREA 206. SEE SHEETS E101 AND E402 FOR CONTINUATION.

2 CONTROL RACEWAY FOR VAULT #1 CONDENSATE RETURN PUMP. SEE SHEET E101 FOR CONTINUATION AND ADDITIONAL REQUIREMENTS.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAR 15, 2018
JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	05/12/2020
DESIGN	AMD	05/12/2020
CHECKED	JBF	05/14/2020
APPROVED	JBF	05/19/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

GROUND FLOOR SYSTEMS PLAN

DWG. NO.
E401

SCALE: 1/16" = 1'-0"
ISSUE DATE: 05/19/2020
JOB NO. 8514
REV. 0

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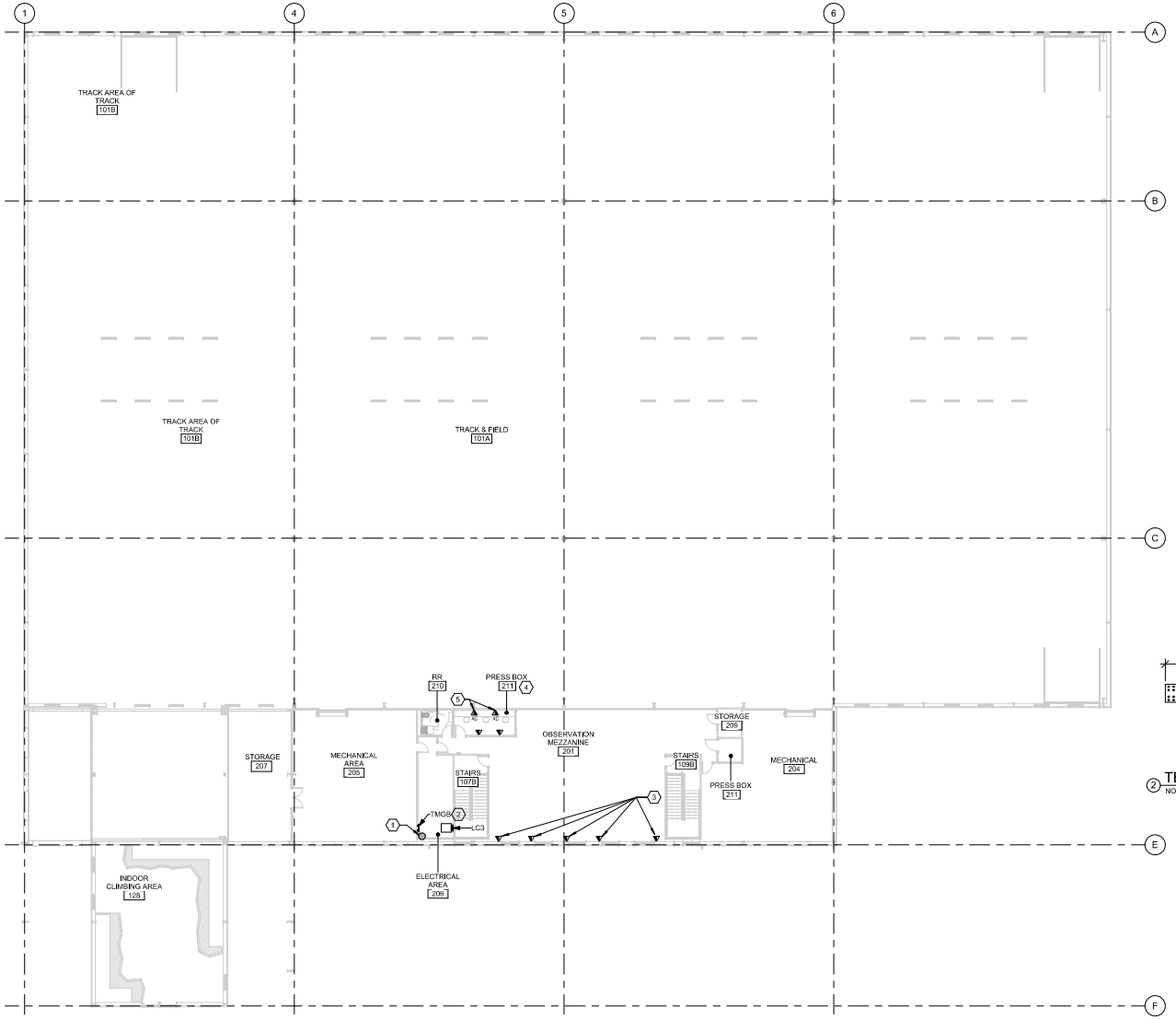
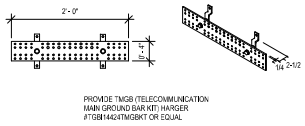


NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES (#)

1 TC-1, TEL/DATA SERVICE RACEWAY DOWN TO FLOOR BELOW, SEE SHEET E401 FOR CONTINUATION.
2 SEE DETAIL 2 ON THIS SHEET.
3 PROVIDE BLANK COVERS FOR FUTURE OUTLETS.
4 STUB (1)1-1/2" SPARE CONDUIT WITH PULL CORD FROM ELECTRICAL AREA 206 IN ACCESSIBLE CEILING SPACE.
5 LOCATE DATA OUTLET 5" ABOVE POWER RECEPTACLE.



PROVIDE TMGB (TELECOMMUNICATION MAIN GROUND BAR KIT) HARGER #TGBI14424TMGBKT OR EQUAL

2 TELECOMMUNICATION MAIN GROUND BUS BAR
NOT TO SCALE

1 MEZZNANINE SYSTEMS PLAN
1/16" = 1'-0"

PROJECT NORTH

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAR 15, 2018 JAMES BYRON JOHN FORD
5/19/2020

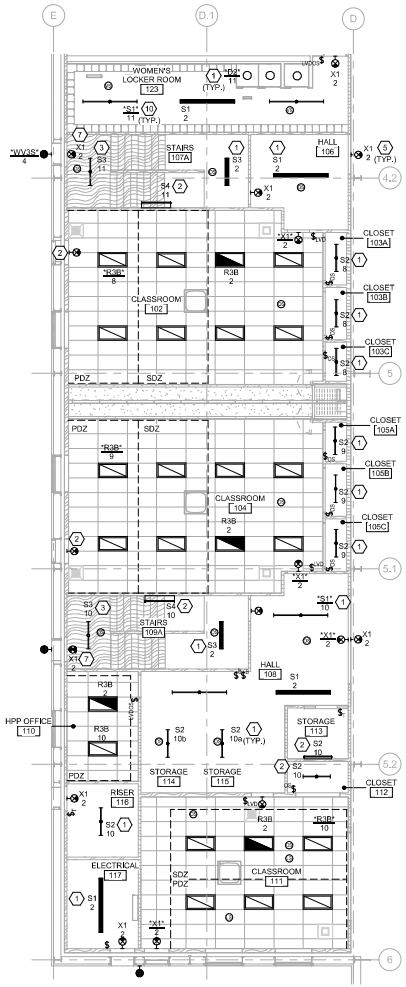
APPROVAL		
DRAWN	AMD	05/12/2020
DESIGN	AMD	05/12/2020
CHECKED	JBF	05/14/2020
APPROVED	JBF	05/19/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

MEZZANINE SYSTEMS PLAN

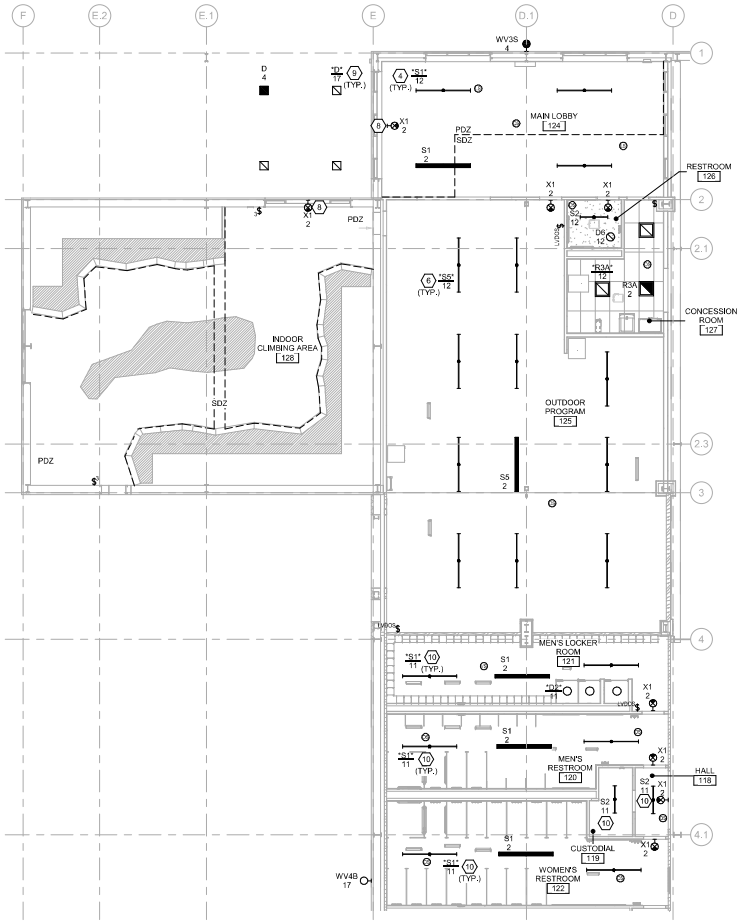
DWG. NO.
E402

SCALE: As indicated
ISSUE DATE: 05/19/2020
JOB NO. 8514
REV. 0



1 PARTIAL ENLARGED GROUND LIGHTING FLOOR PLAN
1/8" = 1'-0"

PROJECT NORTH



2 PARTIAL ENLARGED GROUND LIGHTING FLOOR PLAN
1/8" = 1'-0"

PROJECT NORTH

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES ⟨#⟩

1 MOUNTING HEIGHT IS AT 13'-6" AFF.
2 MOUNTING HEIGHT IS AT 10'-0" AFF.
3 MOUNTING HEIGHT IS AT 8'-6" AFF.
4 MOUNTING HEIGHT IS AT 15'-0" AFF.
5 MOUNT TYPE X1 AT 9'-0" AFF UNLESS NOTED OTHERWISE.
6 MOUNTING HEIGHT AT 13'-0" AFF.
7 MOUNT TOP OF FIXTURE AT 0'-3" BELOW THE CEILING.
8 CENTER FIXTURE AT 10'-6" AFF.
9 MOUNTING HEIGHT FOR THESE PENDANT FIXTURES IS AT 12'-0" AFF.
10 MOUNTING HEIGHT IS AT 10'-6" AFF.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAY 15, 2018 JAMES BYRON JOHN TORO
4/9/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED LIGHTING PLANS

DWG. NO.
E501

SCALE: 1/8" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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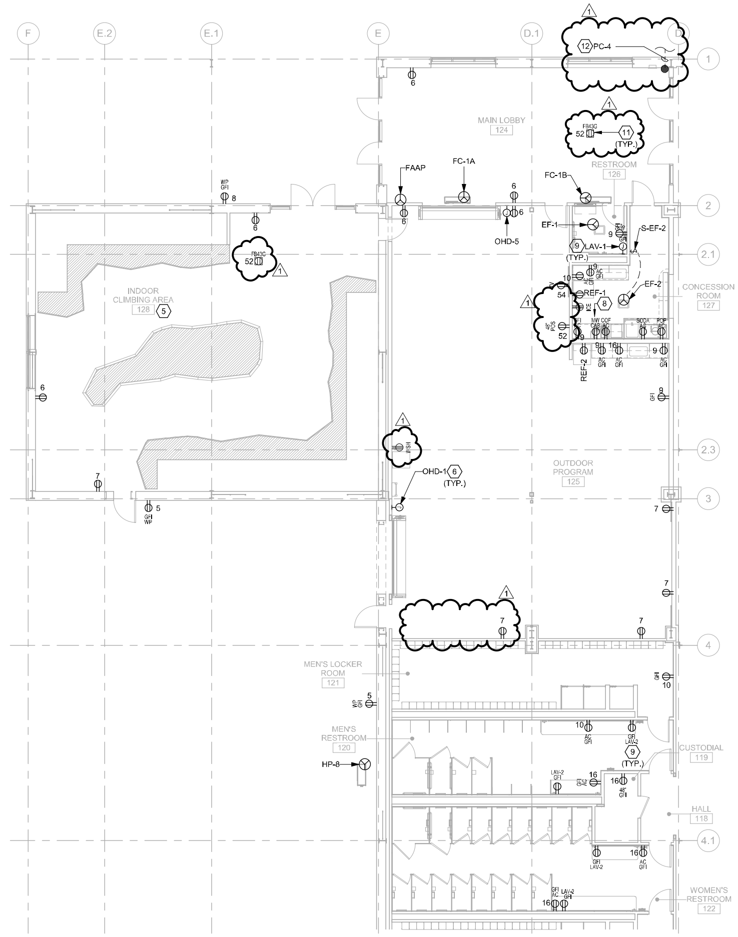
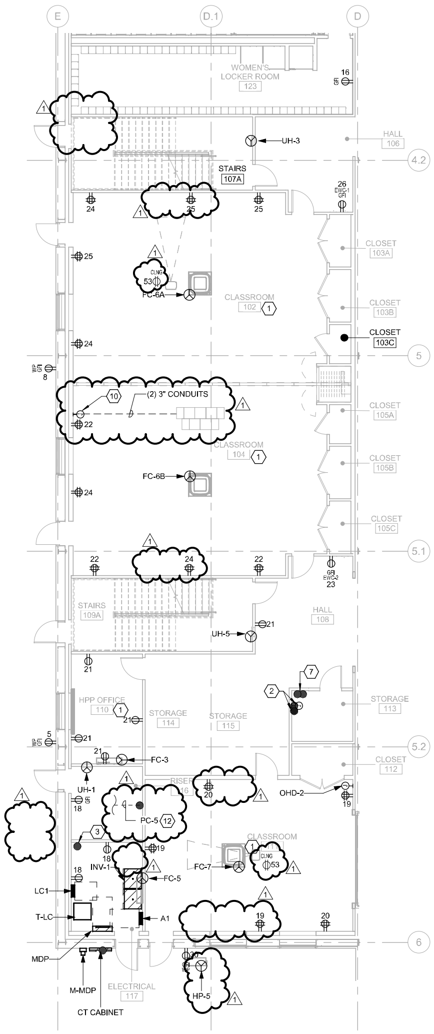


PARTIAL ENLARGED GROUND POWER FLOOR NORTH

1/8" = 1'-0"

NORTH



PARTIAL ENLARGED GROUND POWER FLOOR PLAN SOUTH

1/8" = 1'-0"

PROJECT NORTH

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES (#)

1 AT LEAST 50% OF ALL 125V, 15 AND 20 AMP RECEPTACLES IN THIS SPACE SHALL BE AUTOMATICALLY CONTROLLED VIA SPACE LIGHTING CONTROLS PER ASHRAE 90.1 SECTION 8.4.2. ALL CONTROLLED RECEPTACLES SHALL BE PERMANENTLY MARKED TO IDENTIFY IT IS CONTROLLED.

2 PROVIDE 3/4" RACEWAY FOR FUTURE SUMP PUMP POWER AND CONTROL IN ELEVATOR PIT. PROVIDE PULL STRING AND CAP CONDUIT. CONTINUES ON 2/E503.

3 STUB UP CONDUIT FOR FUTURE GENERATOR.

4 NOT USED.

5 COORDINATE FINAL OUTLET LOCATIONS WITH FINAL CLIMBING WALL CONFIGURATION PRIOR TO ROUGH-IN.

6 MOUNT OVERHEAD DOOR JUNCTION BOX AT 48" AFF.

7 SPARE CONDUIT FOR FUTURE ELEVATOR; PROVIDE PULL STRING AND CAP.

8 RECEPTACLE FOR MICROWAVE IN CABINETRY - COORDINATE WITH CABINETRY SHOP DRAWINGS BEFORE ELECTRICAL ROUGH-IN.

9 CIRCUIT LAV FAUCETS TO LC2-17 WITH 3/4"C, 3#12 AWG.

10 TWO DOUBLE GANG BOX FOR PRESSURE PLATE. ROUTE TWO 3" CONDUITS (ONE IS SPARE) FROM GANG BOXES TO PRESSURE PLATE PER MANUFACTURER'S REQUIREMENTS. CAP SPARE CONDUIT. COORDINATE WITH PRESSURE PLATE CONTRACTOR AND OTHERS.

11 SEE ELECTRICAL FLOOR BOX SCHEDULE ON THIS SHEET FOR MORE INFORMATION.

12 UP TO PANEL A3. SEE SHEET E101 FOR CONTINUATION.

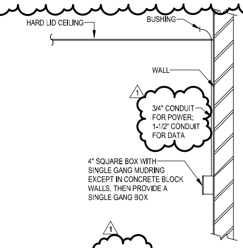
ELECTRICAL FLOOR BOX SCHEDULE

ID	DESCRIPTION	MFG	SERIES	NOTES
FB43G	4-COMPARTMENT, ON-GRADE TYPE, MULTI SOURCE DIVIDED FLOOR BOX, FULLY ADJUSTABLE, CAST METAL CONSTRUCTION, WITH 1 DUPLEX RECEPTACLE, 4-PORT DATA OUTLETS, AND FITTINGS FOR COMMUNICATIONS DEVICES.	LEGRAND WIREMOLD	RFB4	

GENERAL SCHEDULE NOTES

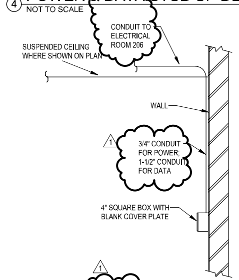
A. COORDINATE FINAL FLOOR BOX LOCATIONS WITH ARCHITECT PRIOR TO ELECTRICAL ROUGH-IN.

B. ALL FLOOR BOXES SHALL HAVE CUTOUT FLANGED COVER ASSEMBLES WITH GRAY FINISH. CONTRACTOR SHALL SUBMIT COLOR CHIPS OF ALL STANDARD FINISHES FOR ALL FLOOR BOXES AS PART OF PRODUCT DATA SUBMITTALS AND COORDINATE FINALE FINISHES WITH ARCHITECT



4 POWER & DATA STUB UP DETAIL - HARD LID

NOT TO SCALE



3 POWER & DATA STUB UP DETAIL - SUSPENDED

NOT TO SCALE

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F: 509.783.5075
www.meierinc.com

NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PIPING MODS & EOU COMMENTS	5/19/20	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON JAMES BYRON JOHN FORD 5/19/2020

APPROVAL

DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED GROUND POWER PLAN

DWG. NO. E502

SCALE: As indicated

ISSUE DATE: 04/09/2020

JOB NO. 8514

REV. 1

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NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES

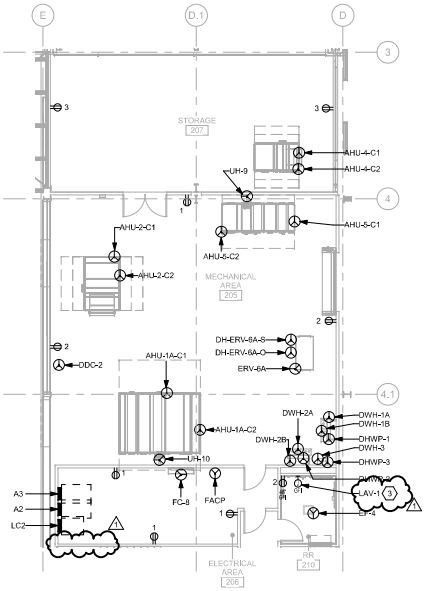
1 NOT USED.

2 OWP-1 UNIT RESERVED FOR FUTURE SUMP PUMP POWER AND CONTROLS. PROVIDE PULL STRING AND CAP CONDUIT. CONTINUES ON 2/E502.

3 CIRCUIT LAV FAUCETS TO LC2-17 WITH 3/4"C., 3#12 AWG.

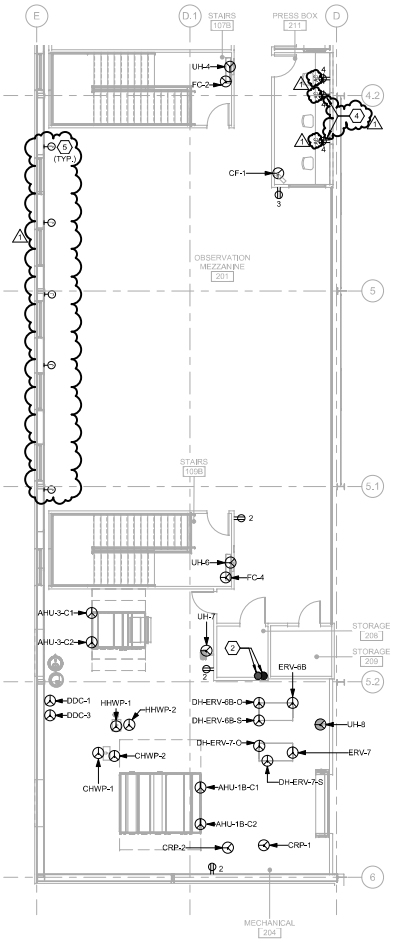
4 LOCATE RECEPTACLES AT 6" ABOVE COUNTER.

5 PROVIDE 4-SQUARE BACKBOX, 4-GANG MUD RING, BLANK COVER AND 3/4" RACEWAY UP TO PANEL LC2 FOR FUTURE OUTLETS.



1 ENLARGED MEZZANINE POWER PLAN NORTH
1/8" = 1'-0"

PROJECT NORTH



2 ENLARGED MEZZANINE POWER PLAN SOUTH
1/8" = 1'-0"

PROJECT NORTH

Meier
ARCHITECTURE + ENGINEERING
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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PRKNG BOOTH & EGG COMMENTS	5/19/20	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAR 15, 2018
JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.

EASTERN OREGON UNIVERSITY FIELD HOUSE

ENLARGED MEZZANINE POWER PLAN

DWG. NO.
E503

SCALE: 1/8" = 1'-0"
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1

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LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LENS-LOUVER	MOUNTING	LIGHT SOURCE	POWER SUPPLY	VOLT	WATT	MFR	SERIES	NOTE
D	CANOPY LED DOWNLIGHT, INTEGRAL MOTION SENSOR, WET LOCATION RATED WITH DARK BRONZE FINISH	POLYCARBONATE WITH HEAT RESISTING	PENDANT	LED 3700+lm 70+CRI 4000K	LD	277 V	27 W	UTOPIA	LSC-3G	
D2	6" DIAMETER LED DOWNLIGHT AND UL LISTED FOR WET LOCATION	FROSTED LENS	SURFACE	LED 1000+lm 90+CRI 4000K	LD1	277 V	14 W	UTOPIA	LRT6	
D6	4" DIAMETER LED DOWNLIGHT AND UL LISTED FOR WET LOCATIONS	FROSTED LENS	RECESSED	LED 1000+lm 90+CRI 4000K	LD1	277 V	11 W	UTOPIA	LAD4A	
G1	LED VAPORPROOF, TYPE V DISTRIBUTION, WITH ANGLED SHADE AND CLASSIC HOOK GOOSENECK ARM WITH PLATINUM FINISHES	CLEAR TEMPERED GLASS	WALL	LED 2700+lm 80+CRI 4000K	LD10	277 V	27 W	PEMCO	SWAN2F1X23	
HB1	SLIM HIGH BAY LED WITH ALUMINUM BODY	SMOOTH FROSTED ACRYLIC	PENDANT	LED 40000+lm 80+CRI 4000K	LD	277 V	292 W	XTRALIGHT	SHB	
HB4	SLIM HIGH BAY LED WITH ALUMINUM BODY	SMOOTH FROSTED ACRYLIC	PENDANT	LED 53000+lm 80+CRI 4000K	LD	277 V	397 W	XTRALIGHT	SHB	
R3A	2'X2' EDGE-LIT LED TROFFER	FROSTED LENS	RECESSED T-BAR	LED 4500+lm 80+CRI 4000K	LD1	277 V	36 W	UTOPIA	LSP	
R3B	2'X4' EDGE-LIT LED TROFFER	FROSTED LENS	RECESSED T-BAR	LED 5450+lm 80+CRI 4000K	LD1	277 V	46 W	UTOPIA	LSP	
S1	8' LED STRIP	ROUND FROSTED ACRYLIC	SURFACE	LED 6000+lm 80+CRI 4000K	LD	277 V	52 W	XTRALIGHT	SPS	1
S2	4' LED STRIP	ROUND FROSTED ACRYLIC LENS.	SURFACE	LED 3000+lm 80+CRI 4000K	LD	277 V	23 W	XTRALIGHT	SPS	1
S3	4' LED STRIP	ROUND FROSTED ACRYLIC LENS.	SURFACE	LED 5000lm 80+CRI 4000K	LD	277 V	42 W	XTRALIGHT	SPS	1
S4	4' LED STRIP	RIBBED LENS	SURFACE	LED 5100+lm 80+CRI 4000K	LD	277 V	43 W	XTRALIGHT	LRW	
S5	8' LED STRIP	ROUND FROSTED ACRYLIC	CABLE	LED 10000+lm 80+CRI 4000K	LD	277 V	80 W	XTRALIGHT	SPS	1
VT1	48" LED GASKET ENCLOSURE VAPORTITE, UL LISTED FOR WET LOCATION.	DEEP IMPACT RESISTANT ACRYLIC CLEAR	PENDANT	LED 7209lm 80+CRI 4000K	LD10	277 V	56 W	UTOPIA	DW-LP	
WV3B	EXTERIOR LED WALL PACK, TYPE 3 MEDIUM DISTRIBUTION, INTEGRAL MOTION SENSOR, DIE-CAST ALUMINUM HOUSING	UV STABILIZED & IMPACT RESISTANT POLYMER	EXTERIOR WALL	LED 13,500+lm 70+CRI 4000K	LD	277 V	108 W	XTRALIGHT	VNT-LED-S-01	
WV3S	EXTERIOR LED WALL PACK, TYPE 2 MEDIUM DISTRIBUTION, INTEGRAL MOTION SENSOR, DIE-CAST ALUMINUM HOUSING	UV STABILIZED & IMPACT RESISTANT POLYMER	EXTERIOR WALL	LED 3,500+lm 70+CRI 4000K	LD	277 V	28 W	XTRALIGHT	VNTW	
WV4B	EXTERIOR LED WALL PACK, TYPE 4 SHORT DISTRIBUTION, INTEGRAL MOTION SENSOR, DIE-CAST ALUMINUM HOUSING	UV STABILIZED & IMPACT RESISTANT POLYMER	EXTERIOR WALL	LED 13,700+lm 70+CRI 4000K	LD	277 V	109 W	XTRALIGHT	VNT-LED-S-01	
WV4T	EXTERIOR LED WALL PACK, TYPE 4 SHORT DISTRIBUTION, INTEGRAL MOTION SENSOR, DIE-CAST ALUMINUM HOUSING	UV STABILIZED & IMPACT RESISTANT POLYMER	EXTERIOR WALL	LED 27700+lm 70+CRI 4000K	LD	277 V	216 W	XTRALIGHT	VNT-LED-M-02	2
X1	SINGLE FACE EXIT SIGN WITH GREEN LETTERING AND ULTRA-BRIGHT LED LIGHT PIPE	--	SURFACE	LED	LS	277 V	10 W	UTOPIA	LPEC	1

DRIVER TYPES:

LS STANDARD NON-DIMMING
LD1 LED DRIVER WITH 0-10V DIMMING DOWN TO 1%
LD10 LED DRIVER WITH 0-10V DIMMING DOWN TO 10%
LD LED DRIVER WITH 0-10V DIMMING

GENERAL NOTES:

A. ALL INTERIOR AND EXTERIOR LUMINAIRES SHALL HAVE WHITE AND BRONZE FINISH RESPECTIVELY UNLESS OTHERWISE NOTED. CONTRACTOR SHALL SUBMIT COLOR CHIPS OF ALL STANDARD FINISHES FOR ALL LUMINAIRES AS PART OF PRODUCT DATA SUBMITTALS AND COORDINATE FINAL FINISHES WITH ARCHITECT.

SCHEDULE NOTES:

1. CONTRACTOR TO PROVIDE ALL MOUNTING FOR COMPLETE INSTALLATION WHERE NOTED ON PLANS. I.E. SURFACE, SUSPENDED, AND RECESSED HARD LID OR T-BAR, ETC.
2. MOUNT FIXTURE AT 10 DEGREE TILT UP FROM HORIZONTAL.

LIGHTING CONTROLS SEQUENCE OF OPERATIONS

				OCCUPANCY SENSOR				TIME CLOCK			WALL SWITCH				DAYLIGHT SENSOR					
NO	NAME	OCCUPANCY TYPE	CURFEW	VACANCY MODE (MANUAL ON)	OCCUPANCY MODE (AUTO ON)	SENSOR TIME OUT PERIOD (MINUTES)	HIGH/LOW OPERATION OCCUPIED-100% / VACANT-50%	SCHEDULED ON TIME	SCHEDULED OFF TIME	OVERRIDE SWITCH (2-HR)	ON/OFF ONLY	DIMMER SWITCH	TIMER SWITCH	KEY SWITCH	INDOOR + ON/OFF ONLY	INDOOR - DIMMING	LIGHT LEVEL MAINTAINED (AVE. FC @ 30" AFF)	EXTERIOR - ON/OFF (DUSK-2:00AM)	DESIGN FC TARGET (AVE.)	NOTES
-	EXTERIOR	EXTERIOR	X															1	1	
-	COVERED STORAGE	STORAGE	X															1	10	4
101A	TRACK & FIELD	GYMNASIUM		X		30					X					X			50	2,3
101B	TRACK AREA OF TRACK	GYMNASIUM																	50	2,3
101C	AREA OUTSIDE OF TRACK	GYMNASIUM																	50	2,3
102	CLASSROOM	CLASSROOM		X		30						X				X			45	3
103A	CLOSET	STORAGE		X		15					X								10	
103B	CLOSET	STORAGE		X		15					X								10	
103C	CLOSET	STORAGE		X		15					X								10	
104	CLASSROOM	CLASSROOM		X		30						X				X			45	3
105A	CLOSET	STORAGE		X		15					X								10	
105B	CLOSET	STORAGE		X		15					X								10	
105C	CLOSET	STORAGE		X		15					X								10	
106	HALL	CORRIDOR			X	15													10	
107A	STAIRS	CORRIDOR			X	15													20	
107B	STAIRS	CORRIDOR			X	15										X			10	
108	HALL	CORRIDOR			X	15													10	
109A	STAIRS	CORRIDOR			X	15													20	
109B	STAIRS	CORRIDOR			X	15										X			15	
110	HPP OFFICE	OFFICE		X		15						X				X		0	40	3
111	CLASSROOM	CLASSROOM		X		30						X				X			40	3
112	CLOSET	STORAGE		X		15					X								10	
113	STORAGE	STORAGE				30							X						10	
114	STORAGE	STORAGE		X		15					X								10	
115	STORAGE	STORAGE		X		15					X								10	
116	RISER	MECHANICAL				30							X						10	
117	ELECTRICAL	ELECTRICAL									X								15	
118	HALL	CORRIDOR			X	15													10	
119	CUSTODIAL	STORAGE		X		15					X								10	
120	MEN'S RESTROOM	RESTROOM			X	15													20	
121	MEN'S LOCKER ROOM	LOCKER ROOM		X		30					X								20	3
122	WOMEN'S RESTROOM	RESTROOM			X	30													20	
123	WOMEN'S LOCKER ROOM	LOCKER ROOM		X		30					X								20	3
124	MAIN LOBBY	ATRIUM			X	30										X			15	
125	OUTDOOR PROGRAM	EXERCISE AREA		X		30					X								40	
126	RESTROOM	RESTROOM			X	15													20	
127	CONCESSION ROOM	FOOD PREPARATION AREA		X		15					X								40	3
128	INDOOR CLIMBING AREA	EXERCISE AREA		X		30					X					X			50	3
201	OBSERVATION MEZZANINE	STORAGE		X		15					X					X			30	
204	MECHANICAL	MECHANICAL				30							X						40	
205	MECHANICAL AREA	MECHANICAL				30							X						35	
206	ELECTRICAL AREA	ELECTRICAL									X								20	
207	STORAGE	STORAGE		X		15					X								10	
208	STORAGE	STORAGE		X		30													8	
209	STORAGE	STORAGE				30							X						8	
210	RR	RESTROOM			X	15													20	
211	PRESS BOX	OFFICE		X		30					X								30	3

GENERAL NOTES:

A. ALL 125V, 20A RECEPTACLES IN OFFICES SHALL BE 50% CONTROLLED BY OCCUPANCY SENSORS IN THE SPACE AND THE CONTROLLED RECEPTACLES SHALL BE LABELED.

B. ASSUMING THE PATH OF EGRESS COMPLIES WITH OREGON STRUCTURAL SPECIALTY CODE 2019 WITH AN MINIMUM AVERAGE OF 1 FC ON WALKING SURFACES INSIDE THE BUILDING AND AT LEAST 0.2 FC ON THE PATH EXTERIOR TO THE BUILDING.

C. WORK PLANE FOR SPACES IS AT 2'-6" AFF UNLESS OTHERWISE NOTED.

D. CONTRACTOR TO PROVIDE ALL MOUNTING FOR COMPLETE INSTALLATION WHERE NOTED ON PLANS, I.E. SURFACE, SUSPENDED, AND RECESSED HARD LID OR T-BAR, ETC.

SCHEDULE NOTES:

1. DESIGN FC AT A WORK PLANE HEIGHT OF 0'-0".
2. LIGHTING CONTROLS FOR THESE SPACES ARE THE SAME AS RM 101A FIELD & TRACK.
3. BI-LEVEL LIGHTING CONTROL IS REQUIRED IN THIS SPACE.

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAY 15, 2018 JAMES BYRON JOHN CORD

4/9/2020

APPROVAL

DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

SCHEDULES

DWG. NO.
E801

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

6/8/20 3:58:04 PM C:\Users\jblox\Documents\8514-MEP16_jblox1.rvt

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

ELECTRICAL MECHANICAL EQUIPMENT SCHEDULE

ID	DESCRIPTION	LOCATION NO	EQUIPMENT DATA WATT	HP	FLA	MCA	MOCP	VOLT	PH	STARTER COMPONENT TYPE	FURN	INST	CONTROL DEVICE COMPONENT TYPE	FURN	INST	DISCONNECT COMPONENT TYPE	FURN	INTERLOCKED TO	CIRCUIT INFORMATION PANEL	CKT(S)	WIRE & CONDUIT SIZE	NOTES
AHU-1A	AIR HANDLING UNIT	205						480	3													SEE INDIVIDUAL CIRCUITS	2
AHU-1A-C1	AIR HANDLING UNIT SUPPLY FAN	205				40.2	49.2	480	3	FVNR	MC	MC	DDC	MC	MC	FS	MC	DDC CONTROLS	A2	7,9,11	3#6, #10G , 1"C	3
AHU-1A-C2	AIR HANDLING UNIT INTERIOR LIGHTS	205					15	120	1	-	-	-	-	-	-	NFS	MFG	-	LC2	42	2#12, #12G, 3/4"C	
AHU-1B	AIR HANDLING UNIT	204						480	3												SEE INDIVIDUAL CIRCUITS	2
AHU-1B-C1	AIR HANDLING UNIT SUPPLY FAN	204				40.2	49.2	480	3	FVNR	MC	MC	DDC	MC	MC	FS	MC	DDC CONTROLS	A2	2,4,6	3#6, #10G ,1"C	3
AHU-1B-C2	AIR HANDLING UNIT INTERIOR LIGHTS	204					15	120	1	-	-	-	-	-	-	NFS	MFG	-	LC2	46	2#12, #12G, 3/4"C	
AHU-2	AIR HANDLING UNIT	205						480	3												SEE INDIVIDUAL CIRCUITS	2
AHU-2-C1	AIR HANDLING UNIT SUPPLY FAN	205				8.6	12.4	480	3	FVNR	MC	MC	DDC	MC	MC	FS	MC	DDC CONTROLS	A2	13,15,17	3#12, #12G, 3/4"C	
AHU-2-C2	AIR HANDLING UNIT INTERIOR LIGHTS	205					15	120	1	-	-	-	-	-	-	NFS	MFG	-	LC2	43	2#12, #12G, 3/4"C	
AHU-3	AIR HANDLING UNIT	204						480	3												SEE INDIVIDUAL CIRCUITS	2
AHU-3-C1	AIR HANDLING UNIT SUPPLY FAN	204				7.9	11.4	480	3	FVNR	MC	MC	DDC	MC	MC	FS	MC	DDC CONTROLS	A2	1,3,5	3#12, #12G, 3/4"C	
AHU-3-C2	AIR HANDLING UNIT INTERIOR LIGHTS	204					15	120	1	-	-	-	-	-	-	NFS	MFG	-	LC2	47	2#12, #12G, 3/4"C	
AHU-4	AIR HANDLING UNIT	207						480	3												SEE INDIVIDUAL CIRCUITS	2
AHU-4-C1	AIR HANDLING UNIT SUPPLY FAN	207				3.6	5.2	480	3	FVNR	MC	MC	DDC	MC	MC	FS	MC	DDC CONTROLS	A2	8,10,12	3#12, #12G, 3/4"C	
AHU-4-C2	AIR HANDLING UNIT INTERIOR LIGHTS	207					15	120	1	-	-	-	-	-	-	NFS	MFG	-	LC2	45	2#12, #12G, 3/4"C	
AHU-5	AIR HANDLING UNIT	205						480	3												SEE INDIVIDUAL CIRCUITS	2
AHU-5-C1	AIR HANDLING UNIT SUPPLY FAN	205				5.6	7.5	480	3	FVNR	MC	MC	DDC	MC	MC	FS	MC	DDC CONTROLS	A2	14,16,18	3#12, #12G, 3/4"C	
AHU-5-C2	AIR HANDLING UNIT INTERIOR LIGHTS	205					15	120	1	-	-	-	-	-	-	NFS	MFG	-	LC2	44	2#12, #12G, 3/4"C	
CF-1	CIRCULATION FAN	211		0.02				120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	41	2#12, #12G, 3/4"C	
CHWP-1	CHILLED WATER PUMP	204		3				480	3	FVNR	MC	MC	DDC	MC	MC	NFS	EC	DDC CONTROLS	A3	8,10,12	3#12, #12G, 3/4"C	
CHWP-2	CHILLED WATER PUMP	204		3				480	3	FVNR	MC	MC	DDC	MC	MC	NFS	EC	DDC CONTROLS	A3	8,10,12	3#12, #12G, 3/4"C	
CRP-1	CONDENSATE RETURN PUMP	204		0.5				480	3	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	13,15,17	3#12, #12G, 3/4"C	
CRP-2	CONDENSATE RETURN PUMP	204		0.5				480	3	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	13,15,17	3#12, #12G, 3/4"C	
CRP-3	CONDENSATE RETURN PUMP	-		0.33				480	3	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	21,23,25	3#12, #12G, 3/4"C	5
CRP-4	CONDENSATE RETURN PUMP	-		0.33				480	3	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	21,23,25	3#12, #12G, 3/4"C	5
CRP-5	CONDENSATE RETURN PUMP	-		0.33				480	3	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	20,22,24	3#12, #12G, 3/4"C	5
CRP-6	CONDENSATE RETURN PUMP	-		0.33				480	3	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	20,22,24	3#12, #12G, 3/4"C	5
DDC-1	DIRECT DIGITAL CONTROL PANEL	205					20	120	1	-	-	-	DDC	MC	MC	NFS	EC	DDC CONTROLS	LC2	49	2#12, #12G, 3/4"C	
DDC-2	DIRECT DIGITAL CONTROL AUXILIARY PANEL	205					20	120	1	-	-	-	DDC	MC	MC	NFS	EC	DDC CONTROLS	LC2	51	2#12, #12G, 3/4"C	
DDC-3	DIRECT DIGITAL CONTROL WORKSTATION	204					20	120	1	-	-	-	-	-	-	RCPT	EC	DDC CONTROLS	LC1	26	2#12, #12G, 3/4"C	4
DH-ERV-6A-O	DUCT HEATER	205	3500		12.6			277	1	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A2	30	2#12, #12G, 3/4"C	
DH-ERV-6A-S	DUCT HEATER	205	1250		4.5			277	1	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A2	30	2#12, #12G, 3/4"C	
DH-ERV-6B-O	DUCT HEATER	204	3500		12.6			277	1	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	19	2#12, #12G, 3/4"C	
DH-ERV-6B-S	DUCT HEATER	204	1250		4.5			277	1	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	19	2#12, #12G, 3/4"C	
DH-ERV-7-O	DUCT HEATER	204	2500		9			277	1	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	18	2#12, #12G, 3/4"C	
DH-ERV-7-S	DUCT HEATER	204	1000		3.6			277	1	-	-	-	DDC	MC	MC	NFS	MC	DDC CONTROLS	A3	18	2#12, #12G, 3/4"C	
DHWP-1	DOMESTIC HOT WATER PUMP	205		0.13				120	1	-	-	-	-	-	-	MMS	EC	-	LC2	40	2#12, #12G, 3/4"C	
DHWP-2	DOMESTIC HOT WATER PUMP	205		0.13				120	1	-	-	-	-	-	-	MMS	EC	-	LC2	40	2#12, #12G, 3/4"C	
DHWP-3	DOMESTIC HOT WATER PUMP	205		0.13				120	1	-	-	-	-	-	-	MMS	EC	-	LC2	40	2#12, #12G, 3/4"C	
DWH-1A	DOMESTIC WATER HEATER	205			2.3			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	39	2#12, #12G, 3/4"C	
DWH-1B	DOMESTIC WATER HEATER	205			2.3			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	39	2#12, #12G, 3/4"C	

ELECTRICAL MECHANICAL EQUIPMENT SCHEDULE

ID	DESCRIPTION	LOCATION NO	EQUIPMENT DATA WATT	HP	FLA	MCA	MOCP	VOLT	PH	STARTER COMPONENT TYPE	FURN	INST	CONTROL DEVICE COMPONENT TYPE	FURN	INST	DISCONNECT COMPONENT TYPE	FURN	INTERLOCKED TO	CIRCUIT INFORMATION PANEL	CKT(S)	WIRE & CONDUIT SIZE	NOTES
DWH-2A	DOMESTIC WATER HEATER	205			2.3			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	39	2#12, #12G, 3/4"C	
DWH-2B	DOMESTIC WATER HEATER	205			2.3			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	39	2#12, #12G, 3/4"C	
DWH-3	DOMESTIC WATER HEATER	205			2.3			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	39	2#12, #12G, 3/4"C	
EF-1	EXHAUST FAN	126	80					277	1	-	-	-	SW	EC	EC	RCPT	EC	ROOM LIGHTS BY EC	A1	12	2#12, #12G, 3/4"C	
EF-2	EXHAUST FAN	127	172					120	1	-	-	-	SW	EC	EC	RCPT	EC	LOCAL SWITCH BY EC	LC2	41	2#12, #12G, 3/4"C	
EF-4	EXHAUST FAN	210	80					277	1	-	-	-	SW	EC	EC	RCPT	EC	ROOM LIGHTS BY EC	A1	13	2#12, #12G, 3/4"C	1
ERV-6A	ENERGY RECOVERY VENTILATOR	205				7.2	15	277	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	A2	26	2#12, #12G, 3/4"C	
ERV-6B	ENERGY RECOVERY VENTILATOR	204				7.2	15	277	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	A2	28	2#12, #12G, 3/4"C	
ERV-7	ENERGY RECOVERY VENTILATOR	204				7.2	15	277	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	A2	32	2#12, #12G, 3/4"C	
FC-1A	FAN COIL	124			0.3	0.4	1	120	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	24	2#12, #12G, 3/4"C	
FC-1B	FAN COIL	124			0.3	0.4	1	120	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	24	2#12, #12G, 3/4"C	
FC-2	FAN COIL	107B			0.3	0.4	1	120	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	24	2#12, #12G, 3/4"C	
FC-4	FAN COIL	109B			0.3	0.4	1	120	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	24	2#12, #12G, 3/4"C	

DISCONNECT TYPES:
FS FUSED SWITCH
MMS MANUAL MOTOR STARTER SWITCH
RCPT RECEPTACLE

CONTROL DEVICES:
DDC DIRECT DIGITAL CONTROLS
SW MANUAL SWITCH

ABBREVIATIONS:
EC ELECTRICAL CONTRACTOR
MC MECHANICAL CONTRACTOR

GENERAL SCHEDULE NOTES:

A. COORDINATE FINAL EQUIPMENT LOCATIONS AND INSTALLATION REQUIREMENTS WITH MECHANICAL CONTRACTOR(S) PRIOR TO ELECTRICAL ROUGH-IN.

B. FOR ALL EQUIPMENT NOTED WITH RECEPTACLE DISCONNECT TYPES, PROVIDE MATCHING CORD AND CAP IF NOT FURNISHED.

C. FOR DIRECT DIGITAL CONTROL INTERLOCKS, ALL LOW VOLTAGE RACEWAY, BOXES, CONDUCTORS SHALL BE BY MC AND ALL LINE VOLTAGE RACEWAY, BOXES, CONDUCTORS, AND ETC. SHALL BE BY EC. COORDINATE WITH MC.

SPECIFIC SCHEDULE NOTES:

1. PROVIDE ALL LINE VOLTAGE 3/4" RACEWAY AND #12 CONDUCTORS ASSOCIATED WITH STARTER AND FAN. SEE MECHANICAL DWG M503 FOR STARTER CABINET AND CONTROL WIRING AND CIRCUITS. LOUVER INTERLOCK RELAYS BY MC, INSTALLED BY EC REMOTE KEY SWITCHES BY EC. LINE VOLTAGE INTERLOCKS AND WIRING BY EC; LOW VOLTAGE INTERLOCKS AND WIRING BY MC.
2. EQUIPMENT REQUIRES SEVERAL CIRCUITS. SEE INDIVIDUAL CIRCUITS AND MECHANICAL DRAWINGS FOR MORE INFORMATION.
3. EQUIPMENT HAS TWO MOTORS, EACH RATED FOR 7.5 HP.
4. PROVIDE NETWORK DROP FOR COMPUTER WORKSTATION.
5. PROVIDE ADDITIONAL 1" CONTROL RACEWAY ASSOCIATED WITH DDC CONTROLS BACK TO FIELD HOUSE. COORDINATE WITH MC. CONTROL WIRING AND TERMINATIONS BY MC.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PERMIT NOTES & EQU COMMENTS	05/19/20	ABD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAR 15, 2018 JAMES BYRON FORD
5/19/2020

APPROVAL

DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

SCHEDULES

DWG. NO. E802

SCALE: NOT TO SCALE

ISSUE DATE: 04/09/2020

JOB NO. 8514

REV. 1

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(CONT) ELECTRICAL MECHANICAL EQUIPMENT SCHEDULE

ID	DESCRIPTION	LOCATION NO	EQUIPMENT DATA WATT	HP	FLA	MCA	MOCP	VOLT	PH	STARTER COMPONENT TYPE	FURN	INST	CONTROL DEVICE COMPONENT TYPE	FURN	INST	DISCONNECT COMPONENT TYPE	FURN	INTERLOCKED TO	CIRCUIT INFORMATION PANEL	CKT(S)	WIRE & CONDUIT SIZE	NOTES
EF-T1	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T4A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	2,4,6	3#12, #12G, 3/4"C	1
EF-T2	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T3A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	2,4,6	3#12, #12G, 3/4"C	1
EF-T3	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T2A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	2,4,6	3#12, #12G, 3/4"C	1
EF-T4	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T1A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	2,4,6	3#12, #12G, 3/4"C	1
EF-T5	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T8A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	1,3,5	3#12, #12G, 3/4"C	1
EF-T6	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T7A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	1,3,5	3#12, #12G, 3/4"C	1
EF-T7	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T6A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	1,3,5	3#12, #12G, 3/4"C	1
EF-T8	EXHAUST FAN	101C		1				480	3	FVNR	MFG	MFG	AC	MFG	GC	SPC	EC	LV-T5A,B,C, BLDG CONTROLS, REMOTE SWITCH, RESPECTIVE DAMPER	A3	1,3,5	3#12, #12G, 3/4"C	1
FC-3	FAN COIL	110			0.3	0.4	1	120	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	24	2#12, #12G, 3/4"C	
FC-5	FAN COIL	117				16.9	20	240	1	-	-	-	T	MC	MC	FS	EC	LOCAL T-STAT; HP-5			2#12, #12G, 3/4"C	2
FC-6A	FAN COIL	102			2.3	2.8	5	240	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	23,25	2#12, #12G, 3/4"C	
FC-6B	FAN COIL	104			2.3	2.8	5	240	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	23,25	2#12, #12G, 3/4"C	
FC-7	FAN COIL	111			2.3	2.8	5	240	1	-	-	-	DDC	MC	MC	FS	EC	DDC CONTROLS	LC1	23,25	2#12, #12G, 3/4"C	
FC-8	FAN COIL	206			12.4	13	15	240	1	-	-	-	T	MC	MC	FS	EC	LOCAL T-STAT; HP-8			2#12, #12G, 3/4"C	2
HHWP-1	HEATING WATER PUMP	204		7.5				480	3	FVNR	MC	MC	DDC	MC	MC	FS	EC	DDC CONTROLS	A3	7,9,11	3#12, #12G, 3/4"C	
HHWP-2	HEATING WATER PUMP	204		7.5				480	3	FVNR	MC	MC	DDC	MC	MC	FS	EC	DDC CONTROLS	A3	14,16	3#12, #12G, 3/4"C	
HP-5	HEAT PUMP	-				16.9	20	240	1	-	-	-	T	MC	MC	FS	EC	FC-5; LOCAL T-STAT	LC1	19,21	2#12, #12G, 3/4"C	2
HP-8	HEAT PUMP	-			12.4	13	15	240	1	-	-	-	T	MC	MC	FS	EC	FC-8; LOCAL T-STAT	LC1	20,22	2#12, #12G, 3/4"C	2
LV-T1A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T1			2#12, #12G, 3/4"C	1
LV-T1B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T1			2#12, #12G, 3/4"C	1
LV-T1C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T1			2#12, #12G, 3/4"C	1
LV-T2A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T2			2#12, #12G, 3/4"C	1
LV-T2B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T2			2#12, #12G, 3/4"C	1
LV-T2C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T2			2#12, #12G, 3/4"C	1
LV-T3A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T3			2#12, #12G, 3/4"C	1
LV-T3B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T3			2#12, #12G, 3/4"C	1
LV-T3C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T3			2#12, #12G, 3/4"C	1
LV-T4A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T4			2#12, #12G, 3/4"C	1
LV-T4B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T4			2#12, #12G, 3/4"C	1
LV-T4C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T4			2#12, #12G, 3/4"C	1
LV-T5A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T5			2#12, #12G, 3/4"C	1
LV-T5B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T5			2#12, #12G, 3/4"C	1
LV-T5C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T5			2#12, #12G, 3/4"C	1
LV-T6A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T6			2#12, #12G, 3/4"C	1
LV-T6B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T6			2#12, #12G, 3/4"C	1
LV-T6C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T6			2#12, #12G, 3/4"C	1
LV-T7A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T7			2#12, #12G, 3/4"C	1
LV-T7B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T7			2#12, #12G, 3/4"C	1
LV-T7C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T7			2#12, #12G, 3/4"C	1
LV-T8A	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T8			2#12, #12G, 3/4"C	1
LV-T8B	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T8			2#12, #12G, 3/4"C	1
LV-T8C	LOUVER	101C			0.4			120	1	-	-	-	K/SW	EC	EC	MMS	EC	EF-T8			2#12, #12G, 3/4"C	1
SC-1	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T1	LC1	5	2#12, #12G, 3/4"C	1
SC-2	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T2	LC1	5	2#12, #12G, 3/4"C	1
SC-3	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T3	LC1	5	2#12, #12G, 3/4"C	1
SC-4	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T4	LC1	5	2#12, #12G, 3/4"C	1
SC-5	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T5	LC1	6	2#12, #12G, 3/4"C	1
SC-6	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T6	LC1	6	2#12, #12G, 3/4"C	1
SC-7	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T7	LC1	6	2#12, #12G, 3/4"C	1
SC-8	STARTER CABINET	101C			6			120	1	SPP	MFG	MFG	-	-	-	NFS	EC	EF-T8	LC1	6	2#12, #12G, 3/4"C	1

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

(CONT) ELECTRICAL MECHANICAL EQUIPMENT SCHEDULE

ID	DESCRIPTION	LOCATION NO	EQUIPMENT DATA WATT	HP	FLA	MCA	MOCP	VOLT	PH	STARTER COMPONENT TYPE	FURN	INST	CONTROL DEVICE COMPONENT TYPE	FURN	INST	DISCONNECT COMPONENT TYPE	FURN	INTERLOCKED TO	CIRCUIT INFORMATION PANEL	CKT(S)	WIRE & CONDUIT SIZE	NOTES
UH-1	UNIT HEATER	116	1500		5.4			277	1	-	-	-	T	MFG	MFG	NFS	MFG	INTEGRAL T-STAT	A2	24	2#12, #12G, 3/4"C	
UH-3	UNIT HEATER	107A	1500		5.4			277	1	-	-	-	T	MFG	MFG	NFS	MFG	INTEGRAL T-STAT	A2	22	2#12, #12G, 3/4"C	
UH-4	UNIT HEATER	202	1500		5.4			277	1	-	-	-	T	MFG	MFG	NFS	MFG	INTEGRAL T-STAT	A2	23	2#12, #12G, 3/4"C	
UH-5	UNIT HEATER	109A	1500		5.4			277	1	-	-	-	T	MFG	MFG	NFS	MFG	INTEGRAL T-STAT	A2	29	2#12, #12G, 3/4"C	
UH-6	UNIT HEATER	109B	1500		5.4			277	1	-	-	-	T	MFG	MFG	NFS	MFG	INTEGRAL T-STAT	A2	25	2#12, #12G, 3/4"C	
UH-7	UNIT HEATER	204	5000					277	1	-	-	-	T	MFG	MFG	NFS	EC	INTEGRAL T-STAT	A2	20	2#10, #10G, 3/4"C	
UH-8	UNIT HEATER	204	5000					277	1	-	-	-	T	MFG	MFG	NFS	EC	INTEGRAL T-STAT	A2	27	2#10, #10G, 3/4"C	
UH-9	UNIT HEATER	205	5000					277	1	-	-	-	T	MFG	MFG	NFS	EC	INTEGRAL T-STAT	A2	21	2#10, #10G, 3/4"C	
UH-10	UNIT HEATER	205	5000					277	1	-	-	-	T	MFG	MFG	NFS	EC	INTEGRAL T-STAT	A2	19	2#10, #10G, 3/4"C	

STARTER TYPES:
FVNR FULL VOLTAGE NON-REVERSING
SPP SINGLE POINT POWER

DISCONNECT TYPES:
FS FUSED SWITCH
NFS NON-FUSED SWITCH
MMS MANUAL MOTOR STARTER SWITCH
SPC SINGLE POINT CONNECTION

CONTROL DEVICES:
AC AUTOMATIC CONTROLLER
DDC DIRECT DIGITAL CONTROLS
K/SW KEYED SWITCH
L/VT LOW VOLTAGE THERMOSTAT
T LINE VOLTAGE THERMOSTAT

ABBREVIATIONS:
EC ELECTRICAL CONTRACTOR
MC MECHANICAL CONTRACTOR
GC GENERAL CONTRACTOR
TC TEMPERATURE CONTROL
MFG MANUFACTURER

GENERAL SCHEDULE NOTES:

A. COORDINATE FINAL EQUIPMENT LOCATIONS AND INSTALLATION REQUIREMENTS WITH MECHANICAL CONTRACTOR(S) PRIOR TO ELECTRICAL ROUGH-IN.

B. FOR ALL EQUIPMENT NOTED WITH RECEPTACLE DISCONNECT TYPES, PROVIDE MATCHING CORD AND CAP IF NOT FURNISHED.

C. FOR DIRECT DIGITAL CONTROL INTERLOCKS, ALL LOW VOLTAGE RACEWAY, BOXES, CONDUCTORS SHALL BE BY MC AND ALL LINE VOLTAGE RACEWAY, BOXES, CONDUCTORS, AND ETC. SHALL BE BY EC. COORDINATE WITH MC.

SPECIFIC SCHEDULE NOTES:

1. PROVIDE ALL LINE VOLTAGE 3/4" RACEWAY AND #12 CONDUCTORS ASSOCIATED WITH STARTER AND FAN. SEE MECHANICAL DRAWINGS FOR CONTROL WIRING SCHEMATIC AS STARTER CABINET FEDS BOTH DAMPERS AND LOUVERS. PROVIDE MANUAL MOTOR STARTER SWITCH DISCONNECT FOR DAMPERS (DAMPERS NOT SHOWN ON PLAN DRAWINGS - SEE MECHANICAL DRAWINGS FOR LOCATION), 3/4" RACEWAY AND #12 CONDUCTORS BACK TO RESPECTIVE EXHAUST FAN. LOUVER INTERLOCK RELAYS BY MC; INSTALLED BY EC. REMOTE KEY SWITCHES BY EC. LINE VOLTAGE INTERLOCKS AND WIRING BY EC; LOW VOLTAGE INTERLOCKS AND WIRING BY MC.

2. OUTDOOR UNIT (HEAT PUMP) FEDS INDOOR UNIT (FAN COIL). PROVIDE 3/4" RACEWAY AND #12 CONDUCTORS BETWEEN RESPECTIVE UNITS. COORDINATE WITH MC.

Meier ARCHITECTURE INC
12 W. Kennewick Ave.,
Kennewick, WA 99336
P: 509.735.1589
F: 509.783.5075
www.meierinc.com

NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAY 15, 2008 JAMES BYRON JOHN CORD

4/9/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

SCHEDULES

DWG. NO.
E803

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 0

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NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

ELECTRICAL MISCELLANEOUS EQUIPMENT SCHEDULE

ID	DESCRIPTION	LOCATION NO	EQUIPMENT DATA WATT	HP	FLA	MCA	MOCP	VOLT	PH	STARTER COMPONENT TYPE	FURN	INST	CONTROL DEVICE COMPONENT TYPE	FURN	INST	DISCONNECT COMPONENT TYPE	FURN	INTERLOCKED TO	CIRCUIT INFORMATION PANEL	CKT(S)	WIRE & CONDUIT SIZE	NOTES
COF	COFFEE MAKER	127	1500		12.5			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	14	2#12, #12G, 3/4"C	1
ICE	ICE MACHINE	127			14.6		20	240	1	-	-	-	-	-	-	RCPT	EC	-	LC2	48,50	2#12, #12G, 3/4"C	1
MW	MICROWAVE	127	1500					120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	12	2#12, #12G, 3/4"C	1
OHD-1	OVER HEAD DOOR	125		1				240	1	-	-	-	AC	MFG	GC	FS	EC	-	LC1	8,10	2#12, #12G, 3/4"C	
OHD-2	OVER HEAD DOOR	111		0.75				240	1	-	-	-	AC	MFG	GC	FS	EC	-	LC1	7,9	2#12, #12G, 3/4"C	
OHD-3	OVER HEAD DOOR	101C		1				240	1	-	-	-	AC	MFG	GC	FS	EC	-	LC1	12,14	2#12, #12G, 3/4"C	
OHD-4	OVER HEAD DOOR	101C		1				240	1	-	-	-	AC	MFG	GC	FS	EC	-	LC1	11,13	2#12, #12G, 3/4"C	
OHD-5	OVER HEAD DOOR	125		1				240	1	-	-	-	AC	MFG	GC	FS	EC	-	LC1	16,18	2#12, #12G, 3/4"C	
OHD-6	OVER HEAD DOOR	101C		1				240	1	-	-	-	AC	MFG	GC	FS	EC	-	LC1	15,17	2#12, #12G, 3/4"C	
POP	POPCORN MAKER MACHINE	127						120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	34	2#12, #12G, 3/4"C	1
REF-1	REFRIGERATOR	127			10			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	11	2#12, #12G, 3/4"C	1
REF-2	REFRIGERATOR	125			10			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	15	2#12, #12G, 3/4"C	1
SODA	BEVERAGE DISPENSER	127			2.8			120	1	-	-	-	-	-	-	RCPT	EC	-	LC2	13	2#12, #12G, 3/4"C	1
WSH	WASHER DRYER	125					30	240	1	-	-	-	-	-	-	RCPT	EC	-	LC1	27,29	2#10, #10G, 3/4"C	

1

DISCONNECT TYPES:
FS FUSED SWITCH
RCPT RECEPTACLE

CONTROL DEVICES:
AC AUTOMATIC CONTROLLER

ABBREVIATIONS:
EC ELECTRICAL CONTRACTOR
MFG MANUFACTURER

GENERAL SCHEDULE NOTES:

A. COORDINATE FINAL EQUIPMENT LOCATIONS AND INSTALLATION REQUIREMENTS WITH OWNER AND SPECIFIED CONTRACTOR PRIOR TO ELECTRICAL ROUGH-IN.

B. FOR ALL EQUIPMENT NOTED WITH RECEPTACLE DISCONNECT TYPES, PROVIDE MATCHING CORD AND CAP IF NOT FURNISHED.

C. FOR FUSES, COORDINATE FUSE SIZE AND TYPE WITH EQUIPMENT NAME PLATE, EQUIPMENT REQUIREMENTS, AND SPECIFIED CONTRACTOR.

SPECIFIC SCHEDULE NOTES:

1. EQUIPMENT FURNISHED BY OWNER.

Meier
ENGINEERING
12 W. Kennewick Ave.,
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NO.	DATE	REVISION	DRWN	CHKD	DSGN	APPD
1	5/19/2020	CAMPUS PIPING MODS & EOU COMMENTS	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAR 13, 2018
JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

SCHEDULES

DWG. NO.
E804

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1

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NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

PANELBOARD: MDP

LOCATION: ELECTRICAL 117 **VOLTAGE:** 480Y/277 V. 3 ø 4 W.
MOUNTING: SURFACE NEMA1 **A.I.C. RATING:** 42,000 AMPS SYMMETRICAL
MAIN DEVICE: 800.0 A MCB **SPECIAL:** PROVIDE SUB-METERING PER LOCAL ENERGY CODES. PROVIDE LOCK-OUT/TAG-OUT BREAKERS CAPABLE OF LOCKING BREAKER IN "OPEN" POSITION ON ALL CIRCUITS.
BUS AMPS: 800 AMPS

LOAD DESCRIPTION	BKR	P	CKT	A		B		C		CKT	P	BKR	LOAD DESCRIPTION
PANEL LC1 VIA XFMR T-LC	200 A	2	1	41.5	13.1					2	3	125 A	PANEL A1
			3			36.0	21.2			4			
*FUTURE ELEVATOR	35 A	3	5					7.5	11.0	6			
			7	7.5	58.5					8	3	400 A	PANEL A2
			9			7.5	52.4			10			
FUTURE DEVICE	–	–	11					0.0	47.5	12			
FUTURE DEVICE	–	–	13	0.0	0.0					14	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	15			0.0	0.0			16	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	17					0.0	0.0	18	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	19	0.0	0.0					20	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	21			0.0	0.0			22	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	23					0.0	0.0	24	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	25	0.0	0.0					26	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	27			0.0	0.0			28	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	29					0.0	0.0	30	--	–	FUTURE DEVICE
	TOTAL LOAD:			120 kVA		117 kVA		66 kVA					
	TOTAL AMPS:			463 A		450.8 A		238 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
HVAC	83.7 kVA	100.0%	83.7 kVA		
RCPT	21.8 kVA	72.9%	15.9 kVA	CONNECTED LOAD:	303.2 kVA
LITES	48 kVA	125.0%	60.1 kVA	ESTIMATED DEMAND:	309.3 kVA
FIRE ALARM	1.2 kVA	100.0%	1.2 kVA	CONNECTED CURRENT:	364.6 A
MTR	61.6 kVA	103.7%	63.9 kVA	EST. DEMAND CURRENT:	372.1 A
SPEC	14.8 kVA	100.0%	14.8 kVA		
KTCH	10.8 kVA	87.9%	9.5 kVA		
HEAT	40.5 kVA	100.0%	40.5 kVA		
REDUNDANT	1.8 kVA	50.0%	0.9 kVA		

NOTES:
* BASIS OF LOAD: 20HP.

PANELBOARD: A1

LOCATION: ELECTRICAL 117 **VOLTAGE:** 480Y/277 V. 3 ø 4 W.
MOUNTING: SURFACE NEMA 1 **A.I.C. RATING:** 42,000 AMPS SYMMETRICAL
MAIN DEVICE: MLO **SPECIAL:**
BUS AMPS: 125 AMPS

LOAD DESCRIPTION	BKR	P	CKT	PHASE A [KVA]		PHASE B [KVA]		PHASE C [KVA]		CKT	P	BKR	LOAD DESCRIPTION
INV-1	15 A	3	1	2.4	1.5					2	1	20 A	LTG: RM 201,204,208-209
			3			2.4	5.3			4	1	30 A	LTG: RM 101A, 101B, 101C
			5					0.0	5.3	6	1	30 A	LTG: RM 101A, 101B, 101C
LTG: RM 101A, 101B, 101C	30 A	1	7	6.2	0.4					8	1	20 A	LTG: RM 102, 103A-103C
LTG: RM 104, 105A-105C	20 A	1	9			0.4	0.7			10	1	20 A	LTG: RM 108,110-115
LTG: RM 107A&B, 118-123	20 A	1	11					0.8	1.3	12	1	20 A	LTG, EF-1: RM 124-127
LTG, EF-4: RM 205-7,210-1	20 A	1	13	1.1	1.3					14	1	20 A	LTG: RM 128
LTG: RM 101A, 101B, 101C	30 A	1	15			6.2	6.2			16	1	30 A	LTG: RM 101A, 101B, 101C
LTG: EXTERIOR	20 A	1	17					3.6	0.0	18	1	20 A	SPARE CB
LTG: SIGN	20 A	1	19	0.2	0.0					20	1	20 A	SPARE CB
SPARE CB	20 A	1	21			0.0	0.0			22	1	20 A	SPARE CB
SPARE CB	20 A	1	23					0.0	0.0	24	1	20 A	SPARE CB
SPARE CB	20 A	1	25	0.0	0.0					26	1	20 A	SPARE CB
FUTURE DEVICE	--	--	27			0.0	0.0			28	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	29					0.0	0.0	30	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	31	0.0	0.0					32	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	33			0.0	0.0			34	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	35					0.0	0.0	36	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	37	0.0	0.0					38	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	39			0.0	0.0			40	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	41					0.0	0.0	42	–	--	FUTURE DEVICE
	TOTAL LOAD:			13 kVA		21 kVA		11 kVA					
	TOTAL AMPS:			48 A		77.6 A		40 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
LITES	45 kVA	125.0%	56.3 kVA		
MTR	0.2 kVA	112.5%	0.2 kVA	CONNECTED LOAD:	45.2 kVA
				ESTIMATED DEMAND:	56.5 kVA
				CONNECTED CURRENT:	54.4 A
				EST. DEMAND CURRENT:	68.0 A

NOTES:

PANELBOARD: A2

LOCATION: ELECTRICAL AREA 206 **VOLTAGE:** 480Y/277 V. 3 ø 4 W.
MOUNTING: SURFACE NEMA 1 **A.I.C. RATING:** 42,000 AMPS SYMMETRICAL
MAIN DEVICE: MLO **SPECIAL:** FEED THRU LUGS
BUS AMPS: 400 AMPS

LOAD DESCRIPTION	BKR	P	CKT	PHASE A [KVA]		PHASE B [KVA]		PHASE C [KVA]		CKT	P	BKR	LOAD DESCRIPTION
*AHU-3-C1 RM 204	10 A	3	1	1.7	8.9					2	3	45 A	*AHU-1B-C1 RM 204
			3			1.7	8.9			4			
			5					1.7	8.9	6			
*AHU-1A-C1 RM 205	45 A	3	7	8.9	0.8					8	3	5 A	*AHU-4-C1 RM 207
			9			8.9	0.8			10			
			11					8.9	0.8	12			
*AHU-2-C1 RM 205	10 A	3	13	1.9	1.2					14	3	7 A	*AHU-5-C1 RM 205
			15			1.9	1.2			16			
			17					1.9	1.2	18			
*UH-10 RM 205	25 A	1	19	5.0	5.0					20	1	25 A	*UH-7 RM 204
*UH-9 RM 205	25 A	1	21			5.0	1.5			22	1	15 A	*UH-3 RM 107A
*UH-4 RM 107B	15 A	1	23					1.5	1.5	24	1	15 A	*UH-1 RM 116
*UH-6 RM 109B	15 A	1	25	1.5	1.6					26	1	15 A	*ERV-6A RM 205
*UH-8 RM 204	25 A	1	27			5.0	1.6			28	1	15 A	*ERV-6B RM 204
*UH-5 RM 109A	15 A	1	29					1.5	4.8	30	1	25 A	*DH-ERV-6A-S, -6A-O
FUTURE DEVICE	--	--	31	0.0	1.6					32	1	15 A	*ERV-7 RM 204
FUTURE DEVICE	--	--	33			0.0	0.0			34	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	35					0.0	0.0	36	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	37	0.0	0.0					38	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	39			0.0	0.0			40	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	41					0.0	0.0	42	--	–	FUTURE DEVICE
	TOTAL LOAD:			58 kVA		52 kVA		47 kVA					
	TOTAL AMPS:			214 A		192.0 A		171 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
HVAC	75.2 kVA	100.0%	75.2 kVA		
MTR	43.9 kVA	105.2%	46.2 kVA	CONNECTED LOAD:	158.4 kVA
HEAT	40.5 kVA	100.0%	40.5 kVA	ESTIMATED DEMAND:	159.7 kVA
REDUNDANT	1.8 kVA	50.0%	0.9 kVA	CONNECTED CURRENT:	190.5 A
				EST. DEMAND CURRENT:	192.1 A

NOTES:
* PROVIDE LOCK-OUT/TAG-OUT BREAKERS CAPABLE OF LOCKING BREAKER IN "OPEN" POSITION.

PANELBOARD: INV-1 (1)

LOCATION: ELECTRICAL 117 **VOLTAGE:** 480Y/277 V. 3 ø 4 W.
MOUNTING: SURFACE NEMA 1 **A.I.C. RATING:** 22,000 AMPS SYMMETRICAL
MAIN DEVICE: MLO (1) **SPECIAL:** (1) BASIS OF DESIGN: POWER SENTRY EAC 3FT RATED FOR 8,000VA AND WILL INCLUDE LITHIUM ION BATTERIES.
BUS AMPS: 25 AMPS

LOAD DESCRIPTION	BKR	P	CKT	PHASE A [KVA]		PHASE B [KVA]		PHASE C [KVA]		CKT	P	BKR	LOAD DESCRIPTION
EM LTG: MEZZANINE	20 A	1	1	1.3	1.2					2	1	20 A	EM LTG: ANNEX
EM LTG: TRACK	20 A	1	3			1.9	0.5			4	1	20 A	EM LTG: EXTERIOR
SPARE CB	20 A	1	5					0.0	0.0	6	1	20 A	SPARE CB
	TOTAL LOAD:			2 kVA		2 kVA		0 kVA					
	TOTAL AMPS:			10 A		9.8 A		0 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
LITES	4.8 kVA	125.0%	6 kVA		
				CONNECTED LOAD:	4.8 kVA
				ESTIMATED DEMAND:	6 kVA
				CONNECTED CURRENT:	5.7 A
				EST. DEMAND CURRENT:	7.2 A

NOTES: (1)

PANELBOARD: A3

LOCATION: ELECTRICAL AREA 206 **VOLTAGE:** 480Y/277 V. 3 ø 4 W.
MOUNTING: SURFACE NEMA 1 **A.I.C. RATING:** 42,000 AMPS SYMMETRICAL
MAIN DEVICE: MLO **SPECIAL:**
BUS AMPS: 400 AMPS

LOAD DESCRIPTION	BKR	P	CKT	PHASE A [KVA]		PHASE B [KVA]		PHASE C [KVA]		CKT	P	BKR	LOAD DESCRIPTION
*EF-T5 - EF-T8 RM 101C	20 A	3	1	2.3	2.3					2	3	20 A	*EF-T1 - EF-T4 RM 101C
			3			2.3	2.3			4			
			5					2.3	2.3	6			
*HHWP-1 RM 204	20 A	3	7	3.0	2.7					8	3	20 A	*CHWP-1 & CHWP-2 RM 204
			9			3.0	2.7			10			
			11					3.0	2.7	12			
*CRP-1 & CRP-2 RM 204	20 A	3	13	0.6	4.6					14	2	20 A	*HHWP-2 RM 204
			15			0.6	4.6			16			
			17					0.6	3.5	18	1	20 A	*DH-ERV-7-O, DH-ERV-7-S
*DH-ERV-8B-S, -8B-O	25 A	1	19	4.8	0.6					20	3	15 A	* ‡ CRP-5 & CRP-6 - VAULT #2
* ‡ CRP-4 & CRP-3 - VAULT #1 (1)	15 A	3	21			0.6	0.6			22			
			23					0.6	0.6	24			
			25	0.6	0.0					26	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	27			0.0	0.0			28	--	–	FUTURE DEVICE (1)
FUTURE DEVICE	--	--	29					0.0	0.0	30	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	31	0.0	0.0					32	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	33			0.0	0.0			34	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	35					0.0	0.0	36	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	37	0.0	0.0					38	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	39			0.0	0.0			40	--	–	FUTURE DEVICE
FUTURE DEVICE	--	--	41					0.0	0.0	42	--	–	FUTURE DEVICE
	TOTAL LOAD:			21 kVA		17 kVA		15 kVA					
	TOTAL AMPS:			77 A		61.3 A		56 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
MTR	43.9 kVA	105.2%	46.2 kVA		
HEAT	8.3 kVA	100.0%	8.3 kVA	CONNECTED LOAD:	53.3 kVA
REDUNDANT	1.8 kVA	50.0%	0.9 kVA	ESTIMATED DEMAND:	54.6 kVA
				CONNECTED CURRENT:	64.1 A
				EST. DEMAND CURRENT:	65.7 A

NOTES:
* PROVIDE LOCK-OUT/TAG-OUT BREAKERS CAPABLE OF LOCKING BREAKER IN "OPEN" POSITION.
‡ PROVIDE GFCI TYPE BREAKER.

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NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PIPING MODS & EOU COMMENTS	5/19/20	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
MAR 13, 2018
JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

PANEL SCHEDULES

DWG. NO. E805

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

PANELBOARD: LC1

LOCATION: ELECTRICAL 117
MOUNTING: SURFACE NEMA 1
MAIN DEVICE: 400.0 A MAIN CB
BUS AMPS: 400 AMPS
VOLTAGE: 120/240 V. 1 ø 3 W.
A.I.C. RATING: 10,000 AMPS SYMMETRICAL
SPECIAL: PROVIDE SUB-METERING PER LOCAL ENERGY CODES.

LOAD DESCRIPTION	BKR	P	CKT	PHASE A [KVA]		PHASE B [KVA]		CKT	P	BKR	LOAD DESCRIPTION
PANEL LC2 ‡	225.0 A	2	1	22.6	0			2	2	200.0 A	PANEL LC3 ‡
			3			23.4	0	4			
SC-1 - SC-4: RM 101C ‡	30.0 A	1	5	2.9	2.9			6	1	30.0 A	SC-5 - SC8: RM 101C ‡
OHD-2 RM 111 ‡	20.0 A	2	7			1	1	8	2	20.0 A	OHD-1 RM 125 ‡
			9	1	1			10			
OHD-4 RM 101C ‡	20.0 A	2	11			1	1	12	2	20.0 A	OHD-3 RM 101C ‡
			13	1	1			14			
OHD-6 RM 101C ‡	20.0 A	2	15			1	1	16	2	20.0 A	OHD-5 RM 125 ‡
			17	1	1			18			
HP-5 ‡	20.0 A	2	19			1.8	1.5	20	2	15.0 A	HP-8 ‡
			21	1.8	1.5			22			
FC-6A,-6B,-7 ‡	20.0 A	2	23			0.8	0.2	24	1	15.0 A	FC-1A,-1B,-2,-3,-4 ‡
			25	0.8	0.7			26	1	20.0 A	DDC-3 RM 204
RCPT: WSH RM 125 *	30.0 A	2	27			2.6	0	28	--	–	FUTURE DEVICE
			29	2.6	0			30	--	–	FUTURE DEVICE
FUTURE DEVICE	--	–	31			0	0	32	--	–	FUTURE DEVICE
FUTURE DEVICE	--	–	33	0	0			34	--	–	FUTURE DEVICE
FUTURE DEVICE	--	–	35			0	0	36	--	–	FUTURE DEVICE
FUTURE DEVICE	--	–	37	0	0			38	--	–	FUTURE DEVICE
FUTURE DEVICE	--	–	39			0	0	40	--	–	FUTURE DEVICE
FUTURE DEVICE	--	–	41	0	0			42	--	–	FUTURE DEVICE
			TOTAL LOAD:	42 kVA		36 kVA					
			TOTAL AMPS:	346 A		300.4 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
HVAC	8.4 kVA	100.0%	8.4 kVA		
RCPT	21.8 kVA	72.9%	15.9 kVA	CONNECTED LOAD:	77.6 kVA
LITES	3 kVA	125.0%	3.8 kVA	ESTIMATED DEMAND:	71.6 kVA
FIRE ALARM	1.2 kVA	100.0%	1.2 kVA	CONNECTED CURRENT:	323.3 A
MTR	17.6 kVA	102.7%	18.1 kVA	EST. DEMAND CURRENT:	298.4 A
SPEC	14.8 kVA	100.0%	14.8 kVA		
KTCH	10.8 kVA	87.9%	9.5 kVA		

NOTES:
* PROVIDE GFCI TYPE BREAKER
‡ PROVIDE LOCK-OUT / TAG-OUT DEVICES CAPABLE OF LOCKING BREAKER IN "OPEN" POSITION.

PANELBOARD: LC2

LOCATION: ELECTRICAL AREA 206
MOUNTING: SURFACE NEMA 1
MAIN DEVICE: MLO
BUS AMPS: 250 AMPS
VOLTAGE: 120/240 V. 1 ø 3 W.
A.I.C. RATING: 10,000 AMPS SYMMETRICAL
SPECIAL:

LOAD DESCRIPTION	BKR	P	CKT	A		B		CKT	P	BKR	LOAD DESCRIPTION
RCPT: RM 205,206	20 A	1	1	0.7	1.1			2	1	20 A	RCPT: RM 201,202,204
RCPT: RM 207, 201	20 A	1	3			0.5	1.1	4	1	20 A	RCPT: RM 211
RCPT: EXTERIOR *	20 A	1	5	0.5	1.1			6	1	20 A	RCPT: RM 125, 124, 128
RCPT: RM 125, 128, 123	20 A	1	7			0.9	0.4	8	1	20 A	RCPT: EXTERIOR *
RCPT: RM 125, 127, 126 *	20 A	1	9	1.1	0.2			10	1	20 A	RCPT: RM 127, 121, 120 *
REF-1: RM 127 *	20 A	1	11			1.2	1.7	12	1	20 A	MICROWAVE RM 127 *
SODA DISPENSER RM 127	20 A	1	13	0.3	1.7			14	1	20 A	COFFEE MAKER RM 127 *
REF-2: RM 125 *	20 A	1	15			1.2	1.1	16	1	20 A	RCPT: RM 123, 120, 119 *
LAV-1-LAV-6:RESTROOMS...	20 A	1	17	0.1	0.5			18	1	20 A	RCPT: RM 117, 116
RCPT: RM 111	20 A	1	19			1.1	0.7	20	1	20 A	RCPT: RM 111
RCPT: RM 110, 108, 103A	20 A	1	21	0.9	1.1			22	1	20 A	RCPT: RM 104
EWC-2: RM 108 *	20 A	1	23			0.6	1.4	24	1	20 A	RCPT: RM 104, 102
RCPT: RM 102	20 A	1	25	1.1	0.6			26	1	20 A	EWC-1: RM 103A *
RCPT: RM 101	20 A	1	27			1.1	0.7	28	1	20 A	RCPT: RM 101
RCPT: RM 101	20 A	1	29	1.1	0.2			30	1	20 A	RCPT: EXTERIOR *
RCPT: RM 101C	20 A	1	31			0.7	0.7	32	1	20 A	RCPT: RM 101A, 101C
EWC-1: RM 101C *	20 A	1	33	0.6	1.2			34	1	20 A	POPCORN MAKER RM 127
FAAP: RM 124	20 A	1	35			0.6	0.6	36	1	20 A	FACP: RM 206
PORTABLE SCOREBOARD	20 A	1	37	1.5	1.5			38	1	20 A	PORTABLE SCOREBOARD
DWH-1A,-1B,-2A,-2B,-3 RM...	20 A	1	39			1.4	1.2	40	1	20 A	DHWP-1,-2,-3 RM 205
EF-2 & CF-1	20 A	1	41	0.3	0.5			42	1	15 A	LTG: AHU-1A-C2 RM 205
LTG: AHU-2-C2 RM 205	15 A	1	43			0.5	0.5	44	1	15 A	LTG: AHU-5-C2 RM 205
LTG: AHU-4-C2 RM 207	15 A	1	45	0.5	0.5			46	1	15 A	LTG: AHU-1B-C2 RM 204
LTG: AHU-3-C2 RM 204	15 A	1	47			0.5	1.8	48	2	20 A	ICE MACHINE RM 127 *
DDC-1 RM 204	20 A	1	49	0.7	1.8			50			
DDC-2 RM 205	20 A	1	51			0.7	0.5	52	1	20 A	RCPT: POS RM 124,128,125
PROJECTOR RM 111,102	20 A	1	53	0.7	0.6			54	1	20 A	RCPT: TV RM 125
SPARE CB	20 A	1	55			0.0	0.0	56	1	20 A	SPARE CB
SPARE CB	20 A	1	57	0.0	0.0			58	1	20 A	SPARE CB
SPARE CB	20 A	1	59			0.0	0.0	60	1	20 A	SPARE CB
SPARE CB	20 A	1	61	0.0	0.0			62	1	20 A	SPARE CB
FUTURE DEVICE	–	–	63			0.0	0.0	64	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	65	0.0	0.0			66	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	67			0.0	0.0	68	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	69	0.0	0.0			70	--	–	FUTURE DEVICE
FUTURE DEVICE	–	–	71			0.0	0.0	72	--	–	FUTURE DEVICE
			TOTAL LOAD:	23 kVA		23 kVA					
			TOTAL AMPS:	188 A		194.9 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
RCPT	21.8 kVA	72.9%	15.9 kVA		
LITES	3 kVA	125.0%	3.8 kVA	CONNECTED LOAD:	46 kVA
FIRE ALARM	1.2 kVA	100.0%	1.2 kVA	ESTIMATED DEMAND:	39.6 kVA
MTR	0.3 kVA	115.4%	0.4 kVA	CONNECTED CURRENT:	191.6 A
SPEC	8.9 kVA	100.0%	8.9 kVA	EST. DEMAND CURRENT:	164.9 A
KTCH	10.8 kVA	87.9%	9.5 kVA		

NOTES:
* PROVIDE GFCI STYLE BREAKER.
‡ CIRCUIT BREAKER IS LOCAL DISCONNECTING MEANS. PROVIDE PAD-LOCK DEVICE CAPABLE OF LOCKING BREAKER IN...

PANELBOARD: LC3

LOCATION: ELECTRICAL AREA 206
MOUNTING: SURFACE NEMA 1
MAIN DEVICE: MLO
BUS AMPS: 200 AMPS
VOLTAGE: 120/240 V. 1 ø 3 W.
A.I.C. RATING: 10,000 AMPS SYMMETRICAL
SPECIAL: RESERVED FOR TELECOMMUNICATIONS; PROVIDE INTEGRAL TYPE II TVSS.

LOAD DESCRIPTION	BKR	P	CKT	A		B		CKT	P	BKR	LOAD DESCRIPTION
FUTURE DEVICE	--	--	1	0.0	0.0			2	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	3			0.0	0.0	4	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	5	0.0	0.0			6	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	7			0.0	0.0	8	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	9	0.0	0.0			10	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	11			0.0	0.0	12	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	13	0.0	0.0			14	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	15			0.0	0.0	16	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	17	0.0	0.0			18	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	19			0.0	0.0	20	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	21	0.0	0.0			22	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	23			0.0	0.0	24	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	25	0.0	0.0			26	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	27			0.0	0.0	28	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	29	0.0	0.0			30	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	31			0.0	0.0	32	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	33	0.0	0.0			34	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	35			0.0	0.0	36	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	37	0.0	0.0			38	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	39			0.0	0.0	40	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	41	0.0	0.0			42	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	43			0.0	0.0	44	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	45	0.0	0.0			46	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	47			0.0	0.0	48	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	49	0.0	0.0			50	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	51			0.0	0.0	52	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	53	0.0	0.0			54	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	55			0.0	0.0	56	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	57	0.0	0.0			58	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	59			0.0	0.0	60	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	61	0.0	0.0			62	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	63			0.0	0.0	64	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	65	0.0	0.0			66	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	67			0.0	0.0	68	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	69	0.0	0.0			70	–	--	FUTURE DEVICE
FUTURE DEVICE	--	--	71			0.0	0.0	72	–	--	FUTURE DEVICE
			TOTAL LOAD:	0 kVA		0 kVA					
			TOTAL AMPS:	0 A		0.0 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
				CONNECTED LOAD:	0 kVA
				ESTIMATED DEMAND:	0 kVA
				CONNECTED CURRENT:	0.0 A
				EST. DEMAND CURRENT:	0.0 A

NOTES:

Meier
ARCHITECTURE • ENGINEERING
12 W. Kennewick Ave.,
Kennewick, WA 99336
P: 509.735.1589
F: 509.783.5075
www.meierinc.com

NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PIPING MODS & EOU COMMENTS	5/19/20	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER 92937PE OREGON MAR 13, 2018 JAMES BYRON JOHN FORD
5/19/2020

APPROVAL		
DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

PANEL SCHEDULES

DWG. NO. E806
SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1

5/18/2020 3:29:51 PM C:\Users\amdoctor\Documents\8514-MEP18_amdoctor.rvt

FEEDER SCHEDULE

	NOMINAL CONDUCTOR AMPACITY	CONDUIT & CONNECTORS
25A3G	30	3/4" C - 3#10, 1#10G
55A3G	55	1" C - 3#6, 1#10G
150A4G	150	2" C - 4#1/0, 1#6G
200A2G	200	2" C - 2#3/0, 1#6G
200A3G	200	2" C - 3#3/0, 1#6G (partly obscured by a revision cloud)
230A3G	230	2" C - 3#4/0, 1#4G
400A3BJ	400	2 [2" C - 3#3/0, 1#4G] (partly obscured by a revision cloud)
460A4G	460	2 [2-1/2" C - 4#4/0, 1#2G]
855A4	855	3 [3" C - 4#300]

200A 4 G — FEEDER DESIGNATION

GROUND CONDUCTORS:
( ) - NO GROUND
(G) - EQUIPMENT GND OR ISOLATED GND
(2G) - EQUIPMENT GND AND ISOLATED GND
(BJ)- SUPPLY SIDE BONDING JUMPER

SYSTEM DESCRIPTION:
(3) - 1Ø, 3W OR 3Ø, 3W
(4) - 3Ø, 4W
(5) - 3Ø, 5W (2 NEUTRALS)

CONDUCTOR AMPACITY:
(SEE FEEDER SCHEDULE)

GENERAL NOTES:

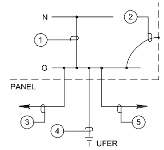
A. ALL CONDUCTOR AMPACITIES ARE BASED ON TABLE 310-15(b)(16) OF THE NEC FOR COPPER CONDUCTOR TYPE THW/THWN.

B. FEEDER SIZES SHOWN ON THE RISER DIAGRAM INDICATE FEEDER AMPACITIES AND DO NOT NECESSARILY CORRESPOND TO CIRCUIT BREAKER AMPACITIES. CERTAIN FEEDERS MAY BE SIZED FOR THE DERATION FACTORS REQUIRED BY CODE AND/OR ARE OVERSIZED FOR VOLTAGE DROP.

C. WHERE MULTIPLE CONDUITS AND CONDUCTORS ARE INDICATED FOR A SINGLE FEEDER, EACH CONDUIT SHALL CONTAIN 1 PARALLEL PHASE, NEUTRAL, AND GROUND CONDUCTORS INDICATED.

D. CONDUIT ABOVE GRADE INDOORS SHALL BE EMT. CONDUIT ABOVE GRADE OUTDOORS SHALL BE GALVANIZED IMC OR RMC. CONDUIT BELOW GRADE SHALL BE PVC WITH GALVANIZED RMC ELBOWS. CONDUIT SIZE INDICATED IS MINIMUM SIZE REGARDLESS OF CONDUIT TYPE.

E. CONDUITS SIZED LARGER THAN INDICATED SHALL BE PERMITTED FOR RUNS WITH UP TO (4) 90° ELBOWS, OR FOR PULLING LONGER RUNS.



GENERAL NOTES:
(THIS DETAIL ONLY)

A. REFER TO ELECTRICAL POWER DIAGRAM ON THIS SHEET FOR CONDUCTOR SIZES NOT SHOWN.
B. ALL POINTS OF ATTACHMENT FOR BONDING JUMPERS SHALL BE ACCESSIBLE.
C. INSTALL GROUNDING AND BONDING CONDUCTORS PER NECA-331.

SPECIFIC NOTES:
(THIS DETAIL ONLY)

1. 1#1/0 THWN CU SYSTEM BONDING JUMPER PER NEC 250.28. SIZED PER NEC T250.102(C)(1).
2. 1#1/0 THWN CU SUPPLY SIDE BONDING JUMPER. BOND TO PANEL HOUSING PER NEC 250.190 & 404.12. SIZED PER NEC T250.102(C)(1).
3. 1#2/0 THWN CU GROUNDING ELECTRODE CONDUCTOR (GEC). BOND TO BUILDING PIPING SYSTEMS AND BUILDING STEEL PER NEC 250.104. SIZED PER NEC T250.66.
4. 1#4 AWG THWN CU GEC. BOND TO BUILDING UFER GROUND PER NEC 250.52(A)(3).
5. 1#350 AWG THWN CU BONDING CONDUCTOR FOR TELECOMMUNICATIONS TO TELECOMMUNICATIONS MAIN GROUNDING BUS BAR (TMGB) PER TABLE 1 IN ANSI/TIA-607-B.

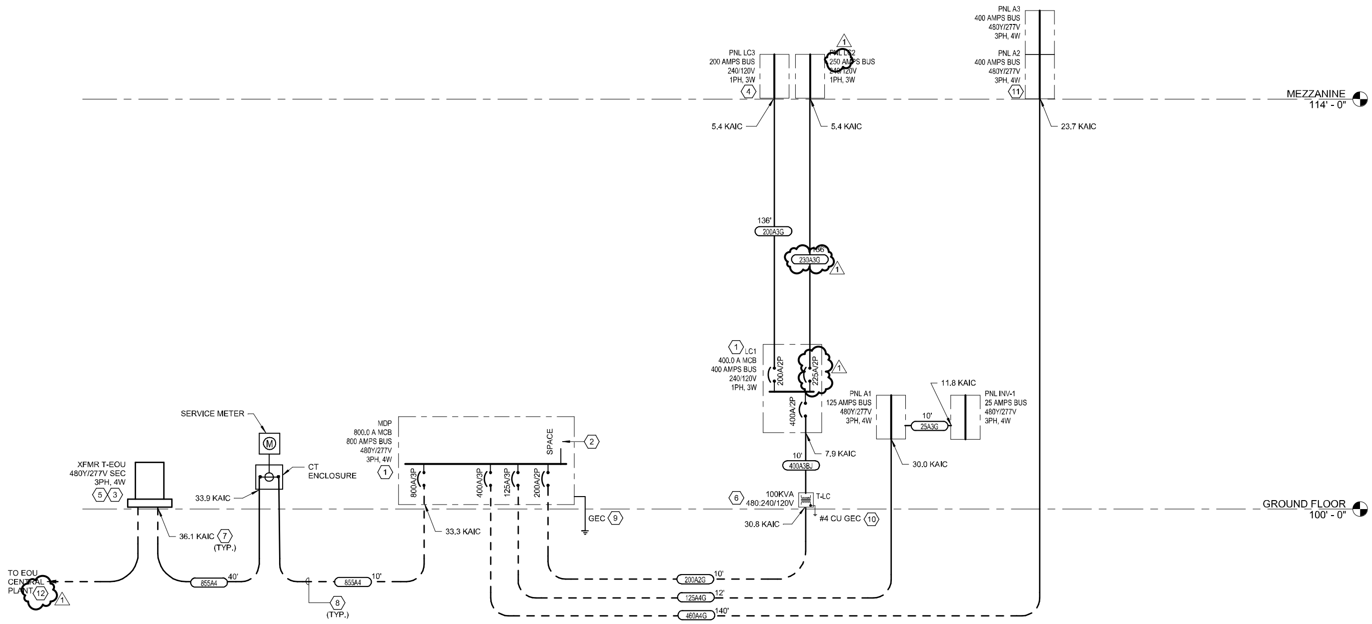
1 GROUND UFER DETAIL
NOT TO SCALE

NOTES

1 SEE E001, E002, AND E003 FOR GENERAL NOTES AND LEGEND.

KEYNOTES #

1 PROVIDE SUB METERING AS REQUIRED TO COMPLY WITH ASHRAE 90.1 SECTION 8.4.3 AND LOCAL ENERGY CODE REQUIREMENTS.
2 RESERVED FOR FUTURE ELEVATOR.
3 PADMOUNTED TRANSFORMER PROVIDED BY CENTRAL PLANT.
4 PANEL RESERVED FOR TELECOMMUNICATIONS/DATA EQUIPMENT. CONNECT GROUND BUS TO TMGB IN TELECOM AREA PER BICSI STANDARDS. PROVIDE INTEGRAL TYPE II TVSS.
5 ASSUMED UTILITY TRANSFORMER IS RATED FOR 750KVA AND IMPEDANCE OF 2.5%.
6 TRANSFORMER T-LC IS RATED FOR 100KVA AND ASSUMED IMPEDANCE OF 4.5%.
7 FAULT CURRENTS SHOWN ON ONE-LINE WERE CALCULATED USING THE INFINITE BUS METHOD WITH THE FOLLOWING ASSUMPTIONS: 750KVA UTILITY TRANSFORMER AND 2.5% IMPEDANCE.
8 UNDERGROUND FEEDER.
9 SEE DETAIL 1 ON THIS SHEET.
10 PROVIDE CONNECTION TO GROUNDING ELECTRODE SYSTEM PER NEC.
11 PROVIDE FEED THROUGH LUGS.
12 PRIMARY FEEDER TO CENTRAL PLANT BY EOU.



2 One-Line Diagram
NOT TO SCALE

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F: 509.783.5075
www.meierinc.com

NO.	REVISION	DATE	DRWN	CHKD	DSGN	APPD
1	CAMPUS PIPING MODS & EOU COMMENTS	5/15/20	AMD	PJF	AMD	JBF

REGISTERED PROFESSIONAL ENGINEER
92937PE
OREGON
JAMES BYRON JOHN FORD
05/19/2020

APPROVAL

DRAWN	AMD	04/06/2020
DESIGN	AMD	04/06/2020
CHECKED	JBF	04/07/2020
APPROVED	JBF	04/09/2020

MIKE BECKER GENERAL CONTRACTOR, INC.
EASTERN OREGON UNIVERSITY FIELD HOUSE

DIAGRAMS

DWG. NO.
E901

SCALE: NOT TO SCALE
ISSUE DATE: 04/09/2020
JOB NO. 8514
REV. 1

Attachment 3 Fieldhouse Structural Calculations Available at: https://drive.google.com/drive/folders/1yG-7U-vzTeYZ-daahhytwHz_yOuxkF1-?usp=sharing

Attachment 4 Public Improvement Contract

EASTERN OREGON UNIVERSITY
PUBLIC IMPROVEMENT CONTRACT

This Public Improvement Contract for the _____ (the "Contract"), made by and between EOU, hereinafter called OWNER, and _____ hereinafter called the CONTRACTOR (collectively the “Parties”), shall become effective on _____, or the date this Contract has been signed by all the Parties and all required EOU Administrative approvals have been obtained, whichever is later.

WITNESSETH:

Contract Price, Contract Documents and Work.

The CONTRACTOR, in consideration of the “not-to-exceed” sum of _____ (the "Contract Price"), to be paid to the CONTRACTOR by OWNER in the manner and at the time hereinafter provided, and subject to the terms and conditions provided for in the Contract Documents (as defined in the Eastern Oregon University General Conditions For Public Improvement Contracts, all of which are incorporated herein by reference, hereby agrees to perform all Work described and reasonably inferred from the Contract Documents. The Contract Price is the amount indicated in the attached email Scope of Work, dated _____.

Scope of Work:

Representatives.

CONTRACTOR has named _____ its' Authorized Representative to act on its behalf.

Unless otherwise specified in the Contract Documents, the OWNER designates _____ as its Authorized Representative in the administration of this Contract. The above-named individual shall be the initial point of contact for matters related to Contract performance, payment authorization, and to carry out the responsibilities of the OWNER.

Key Persons.

CONTRACTOR's personnel identified above shall be considered Key Persons and shall not be replaced during the project without the written permission of the Owner, which shall not be unreasonably withheld. If the CONTRACTOR intends to substitute personnel, a request must be given to the Owner at least 30 days prior to the intended time of substitution.

Contract Dates.

Upon Signatures from all Parties.

Tax Compliance.

The individual signing on behalf of CONTRACTOR hereby affirms, under penalty of perjury as provided in ORS 305.385(6), that, to the best of CONTRACTOR's knowledge, the CONTRACTOR is not in violation of any of the tax laws described in ORS 305.380(4). For purposes of this certification, "tax laws" means a state tax imposed by ORS 320.005 to 320.150 and 403.200 to 403.250, ORS Chapters 118, 314, 316, 317, 318, 321 and 323; the elderly rental assistance program under ORS 310.630 to 310.706; and local taxes administered by the Oregon Department of Revenue under ORS 305.620.

Insurance Provisions

During the term of this Contract, CONTRACTOR shall maintain in full force and at its own expense each insurance coverage or policy noted below, from insurance companies or entities with an A.M. best rating of A- or better that are authorized to transact the business of insurance and issue coverage in the State of Oregon:

A. **Workers' Compensation** – All employers, that employ subject workers who work under this Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Oregon Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its subcontractors complies with these requirements.

B. **Commercial General Liability** – CONTRACTOR shall secure Commercial General Liability insurance with a combined single limit of not less than $1,000,000.00 each occurrence/$2,000,000.00 annual aggregate for bodily injury and property damage. It shall include personal injury coverage and contractual liability coverage for the indemnity provided under this contract.

C. **Automobile Liability** – CONTRACTOR shall secure Automobile Liability insurance with a combined single limit of not less than $1,000,000.00 per occurrence, for bodily injury and property damage, including coverage for all owned, hired, or non-

owned vehicles, as applicable. This coverage may be written in combination with the Commercial General Liability insurance.

D. **Certificate of Insurance** – Prior to signature by the Owner to this Contract, CONTRACTOR shall furnish Certificates of Insurance as evidence of the insurance coverages required under this Contract. The certificate(s) shall provide that the insurance policies have been endorsed/amended so that the insurance company or companies shall give a 30 calendar day notice (without reservation) to the Owner's representative, if the applicable policy is canceled or materially changed, or if the aggregate limits have been reduced. The certificate(s) should state specifically that the insurance is provided for this Contract. Insuring companies are subject to acceptance by owner.

E. **Additional Insured's** – The Certificates of Insurance, except for Workers' Compensation, shall provide that the policies have been endorsed/amended so that, the Owner, and its institutions, officers, and employees are Additional Insured's with respect to the CONTRACTOR'S services to be provided under this Contract.

Indemnity

A. Claims for Other Than Professional Liability. CONTRACTOR shall indemnify, hold harmless and defend the Owner and its colleges and universities and any public agencies for which Services are performed under this Agreement as supplemented or amended, and their officers, agents, employees and members from and against all claims, suits, actions, losses, damages, liabilities, costs and expenses of whatsoever nature resulting from, arising out of, or relating to the activities of the CONTRACTOR or the CONTRACTOR'S, partners, joint venturers, subcontractors, officers, agents or employees acting under or pursuant to this Agreement or any supplement or amendment hereto.

B. Claims for Professional Liability. CONTRACTOR shall save, defend, indemnify and hold harmless the Owner and its colleges and universities and any public agencies for which Services are to be performed under this Contract as supplemented or amended, and their officers, agents, employees and members from and against all claims, suits or actions, losses, damages, liabilities, costs and expenses of whatsoever nature resulting from, arising out of or relating to the professional negligent acts, errors or omissions of the CONTRACTOR or its partners, joint venturers, subcontractors, officers, agents or employees acting under or pursuant to this Contract or any supplement or amendment hereto.

C. Owner Defense Requirements. Notwithstanding the foregoing defense obligations of the CONTRACTOR, neither the CONTRACTOR nor any attorney engaged by the CONTRACTOR shall defend any claim in the name of the Owner, or any of its agencies, without the prior written consent of the Owner. The Owner may, at any-time at its election assume its own defense and settlement in the

event that it determines that the CONTRACTOR is prohibited from defending the Owner, that CONTRACTOR is not adequately defending the Owner's interests, or that an important governmental principle is at issue or that it is in the best interests of the Owner to do so. The Owner reserves all rights to pursue any claims it may have against the CONTRACTOR if the Owner elects to assume its own defense.

D. Owner's Actions. Sub-sections A. and B. above do not include indemnification by the CONTACTOR of the Owner for the Owner's activities, whether related to this Agreement or otherwise.

Integration

The Contract documents constitute the entire agreement between the parties. There are no other understandings, agreements or representations, oral or written, not specified herein regarding this Contract. CONTRACTOR, by the signature below of its authorized representative, hereby acknowledges that it has read this Contract, understands it, and agrees to be bound by its terms and conditions.

In witness whereof, Eastern Oregon University executes this Contract and the CONTRACTOR does execute the same as of the day and year indicated below.

CONTRACTOR DATA:

Contractor Name and Address:

CONTRACTOR NAME: _____
CONTRACTOR FEDERAL TAX ID # _____
CONTRACTOR CCB # _____ Expiration Date:_____

[Payment information will be reported to the IRS under the name and taxpayer ID # provided above. Information must be provided prior to contract approval. Information not matching IRS records could subject Contractor to 31 percent backup withholding.]

CONTRACTOR SIGNATURE

By_____
Signature Date

_____
Print Name Title

Budgeting Index_____ Initials_____

By_____
John Garlitz, Director Date
Facilities & Planning

By _____
Lara Moore, Vice President Date
Finance & Administration

Attachment 5 EOU
General Conditions

EASTERN OREGON UNIVERSITY
GENERAL CONDITIONS
FOR PUBLIC IMPROVEMENT CONTRACTS

May 5, 2015

INSTRUCTIONS: The Eastern Oregon University (EOU) **General Conditions for Public Improvement Contracts ("EOU Public Improvement General Conditions")** apply to all designated Public Improvement contracts. Changes to the EOU Public Improvement General Conditions (including any additions, deletions or substitutions) should only be made by attaching Public Improvement Supplemental General Conditions. The text of these EOU General Conditions should not otherwise be altered.

TABLE OF SECTIONS

EASTERN OREGON UNIVERSITY GENERAL CONDITIONS FOR PUBLIC IMPROVEMENT CONTRACTS

SECTION A
GENERAL PROVISIONS

A.1 DEFINITION OF TERMS

In the Contract Documents the following terms shall be as defined below:

APPLICABLE LAWS, means federal, state and local laws, codes, rules, regulations and ordinances applicable to the Work and to the Contract.

ARCHITECT/ENGINEER, means the Person appointed by the Owner to make drawings and specifications and, to provide contract administration of the Work contemplated by the Contract to the extent provided herein or by supplemental instruction of Owner (under which Owner may delegate responsibilities to the Architect/Engineer), in accordance with ORS Chapter 671 (Architects) or ORS Chapter 672 (Engineers) and administrative rules adopted thereunder.

CHANGE ORDER, means a written order which, when fully executed by the Parties to this Contract, constitutes a change to the Contract Documents. Change Orders shall be issued in accordance with the changes provisions in Section D and, if applicable, establish a Contract Price or Contract Time adjustment. A Change Order shall not be effective until executed as a Change Order.

CLAIM, means a demand by Contract pursuant to Section D.3 for review of the denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, submitted in accordance with the requirements and within the time limits established for review of Claims in these EOU General Conditions.

CONSTRUCTION CHANGE DIRECTIVE, means a written order by the Owner to the Contractor requiring a change in the Work within the general scope of the Contract Documents, issued under the changes provisions of Section D.

CONTRACT, means the written agreement between the Owner and the Contractor comprised of the Contract Documents which describe the Work to be done and the obligations between the parties.

CONTRACT DOCUMENTS, means the Solicitation Document and addenda thereto, Instructions to Bidders, Supplemental Instructions to Bidders, the EOU Public Improvement Contract, EOU General Conditions, Supplemental General Conditions, if any, , Plans, Specifications, Construction Change Directives, the accepted Offer, Solicitation Document and addenda thereto, Instructions to Offerors, and Supplemental Instructions to Offerors.

CONTRACT PERIOD, as set forth in the Contract Documents, means the total period of time beginning with the full execution of a Contract and, if applicable, the issuance of a Notice to Proceed and concluding upon Final Completion.

CONTRACT PRICE, means the total price reflected in the Contract.

CONTRACT TIME, means any incremental period of time allowed under the Contract to complete any portion of the Work as reflected in the project schedule.

CONTRACTOR, means the Person awarded the Contract for the Work contemplated.

DAYS, are calendar days, including weekdays, weekends and holidays, unless otherwise specified.

DIRECT COSTS, means, unless otherwise provided in the Contract Documents, the cost of materials, including sales tax, and the cost of delivery; cost of labor, which shall only include the applicable prevailing wage and fringe benefit (if applicable, and if paid to or on behalf of the employee) rate plus a maximum of a 8.67% markup on the prevailing wage (but not the fringe benefit) to cover Contractor's labor burden including but not limited to social security, Medicare, unemployment insurance, workers' compensation insurance; substantiated project cost increases for specific insurance (including, without limitation, Builder's Risk Insurance and Builder's Risk Installation Floater), or bond premiums; rental cost of equipment, and machinery required for execution of the Work; and the additional costs of field personnel directly attributable to the Work; travel expense reimbursement only if specifically authorized and only to the extent allowable under the Oregon Tech EOU Contractor Travel Reimbursement Policy, hereby incorporated by reference.

FINAL COMPLETION, means the final completion of all requirements under the Contract, including Contract Closeout as described in Section K but excluding Warranty Work as described in Section I.2, and the final payment and release of all retainage, if any, released.

FORCE MAJEURE, means an act, event or occurrence caused by fire, riot, war, acts of God, nature, sovereign, or public enemy, strikes, freight embargoes or any other act, event or occurrence that is beyond the control of the party to this Contract who is asserting Force Majeure.

MWESB REPORT, means an accurate report by the Contractor to the Owner identifying all Minority, Women and Emerging Small Business (MWESB) enterprises, as those terms are defined in ORS 200.005, or as self-reporting as otherwise meeting the same requirements of ORS 200.005, receiving contracts throughout the course of the Work. An initial MWESB report is required (see section E.2.9) and MWESB Reports are required annually (see Section E.2.9) and as a condition of final payment (see Section K.1) shall include the total number of contracts and subcontracts awarded to MWESB enterprises and the dollar value of their respective contracts and subcontracts. The annual reports shall include the total number of contracts and subcontracts awarded to MWESB enterprises, the dollar value of each, and the expenditure toward each contract and subcontract during the previous twelve (12) months. The final report shall include the total number of contracts and subcontracts awarded to MWESB enterprises and the dollar value of their respective contracts and subcontracts including all Contracts and Change Orders incorporated during the course of the project.

NOTICE TO PROCEED, means the official written notice from the Owner stating that the Contractor is to proceed with the Work defined in the Contract Documents. Notwithstanding the Notice to Proceed, Contractor shall not be authorized to proceed with the Work until all initial Contract requirements, including the Contract, performance bond and payment bond, and certificates of insurance, have been fully executed and submitted to the Owner in a suitable form.

OFFER, means a bid in connection with Instructions to Bidders or a proposal in connection with a Request for Proposals, or Solicitation Document. May also be referenced as "Bid". "Quoter", or "Proposer" based on the type of Solicitation Document.

OVERHEAD, means those items which may be included in the Contractor's markup (general and administrative expense and profit) and that shall not be charged as Direct Cost of the Work, including without limitation such Overhead expenses as wages or salary of personnel above the level of foreman (i.e., superintendents and project managers), labor rates and fringe benefits above the applicable prevailing wage and fringe benefit (if applicable, and if paid to or on behalf of the employee), Contractor's labor burden for fringe benefit if paid to the employee, expenses of Contractor's offices and supplies at the job site (e.g. job trailer) and at Contractor's principal place of business and including expenses of personnel staffing the job site office and Contractor's principal place of business, and Commercial General Liability Insurance and Automobile Liability Insurance.

OWNER, means, until June 30, 2015, the State of Oregon acting by and through the Oregon State Board of Higher Education, in its own right or on behalf of Eastern Oregon University. On July 1, 2015, OWNER shall mean

Eastern Oregon University.

Owner may elect, by written notice to Contractor, to delegate certain duties to more than one party, including without limitation, to an Architect/Engineer. However, nothing in these Eastern Oregon University General Conditions is intended to abrogate the separate design professional responsibilities of Architects under ORS Chapter 671 or of Engineers under ORS Chapter 672.

PERSON, means a natural person or entity doing business as a sole proprietorship, a partnership, a joint venture, a corporation, a limited liability company or partnership, or any other entity possessing the legal capacity to contract.

PLANS, means the drawings which show the location, type, dimensions, and details of the Work to be done under the Contract.

PUNCH LIST, means the list of Work yet to be completed or deficiencies which need to be corrected in order to achieve Final Completion of the Contract.

RECORD DOCUMENT, means the as-built Plans, Specifications, testing and inspection records, product data, samples, manufacturer and distributor/supplier warranties evidencing transfer of ownership to Owner, operational and maintenance manuals, shop drawings, Construction Change Directives, MWESB Reports, correspondence, certificate(s) of occupancy, and other documents listed in Subsection B.9.1 of these ~~OUS Public Improvement~~ EOU General Conditions, recording all Services performed.

SOLICITATION DOCUMENT, means Instructions to Bidders or Offerors or a Request for Proposal or a Request of Quotes, or any other written document issued by Owner that outlines the required Specifications necessary to submit a Bid, Proposal, or other response.

SPECIFICATIONS, means any description of the physical or functional characteristics of the Work, or of the nature of a supply, service or construction item. Specifications may include a description of any requirement for inspecting, testing or preparing a supply, service or construction item for delivery and the quantities or qualities of materials to be furnished under the Contract. Specifications generally will state the results or products to be obtained and may, on occasion, describe the method and manner of doing the Work to be performed. Specifications may be incorporated by reference and/or may be attached to the Contract.

SUBCONTRACTOR, means a Person having a direct contract with the Contractor, or another Subcontractor or any tier, to perform one or more items of the Work.

SUBSTANTIAL COMPLETION, means the date when the Owner accepts in writing the construction, alteration or repair of the improvement to real property constituting the Work or any designed portion thereof as having reached that state of completion when it may be used or occupied for its intended purpose. Substantial Completion of facilities with operating systems occurs only after thirty (30) continuous Days of successful, trouble-free operation of the operating systems as provided in Section K.43.2.

SUBSTITUTIONS, means items that in function, performance, reliability, quality, and general configuration are the same or better than the product(s) specified. Substitutions also means the performance of the Work by a labor force other than what is submitted in the Offer. Approval of any substitute item shall be solely determined by the Owner. The decision of the Owner is final.

PUBLIC IMPROVEMENT SUPPLEMENTAL GENERAL CONDITIONS, means those conditions that remove from, add to, or modify these Eastern Oregon University General Conditions. Public Improvement Supplemental General Conditions may be included in the Solicitation Document or may be a separate attachment to the Contract.

WORK, means the furnishing o all materials, equipment, labor, transportation, services and incidentals necessary to successfully complete any individual item or the entire Contract and the carrying out of duties and obligations imposed by the Contract Documents.

A.2. SCOPE OF WORK

The Work contemplated under this Contract includes all labor, materials, transportation, equipment and services for, and incidental to, the completion of all construction work in connection with the project described in the Contract Documents. The Contractor shall perform all Work necessary so that the project can be legally occupied and fully used for the intended use as set forth in the Contract Documents.

A.3 INTERPRETATION OF CONTRACT DOCUMENTS

A.3.1 Unless otherwise specifically defined in the Contract Documents, words which have well-known technical meanings or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Contract Documents are intended to be complementary. Whatever is called for in one, is interpreted to be called for in all. However, in the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following descending order of precedence:

a) Change Orders and Construction Change Directives, with those of later date having precedence over those of an earlier date;
b) The Supplemental General Conditions;
c) Eastern Oregon University General Conditions;
d) The Public Improvement Contract;
e) Construction Change Directive;
f) Division One (General Requirements) of the Specifications;
g) Detailed Schedules of finishes, equipment and other items included in the Specifications;
h) Plans and Specifications (other than Division One and the Detailed Schedules to the Specifications);
i) Large-scale drawings on Plans;
j) Small-scale drawings on Plans;
k) Dimension numbers written on Plans which shall prevail and take precedence over dimensions scaled from Plans;
l) The Solicitation Document, and any addenda

A.3.2 In the case of an inconsistency between Plans and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Owner's interpretation in writing.

A.3.3 If the Contractor finds discrepancies in, or omissions from the Contract Documents, or if the Contractor is in doubt as to their meaning, the Contractor shall at once notify the Owner. Matters concerning and interpretation of requirements of the Contract Documents will be decided by the Owner, who may delegate that duty in some instances to the Architect/Engineer. Resp0nses to Contractor's requests for interpretation of Contract Documents will be made in writing by Owner (or the Architect/Engineer) within any time limits agreed upon or otherwise with reasonable promptness. Interpretations and decisions of the Owner (or Architect/Engineer) will be consistent with the intent of and reasonably inferable from the Contract Documents. Contractor shall not proceed without direction in writing from the Owner (or Architect/Engineer).

A.3.4 References to standard specifications, manuals, codes of any technical society, organization or association, to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, laws or regulations in effect in the jurisdiction where the project is occurring on the first

published date of the Solicitation Document, except as may be otherwise specifically stated.

A.4 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

A.4.1 It is understood that the Contractor, before submitting an Offer, has made a careful examination of the Contract Documents; has become fully informed as to the quality and quantity of materials and the character of the Work required; and has made a careful examination of the location and conditions of the Work and the sources of supply for materials. The Owner will in no case be responsible for any loss or for any unanticipated costs that may be suffered by the Contractor as a result of the Contractor's failure to acquire full information in advance in regard to all conditions pertaining to the Work. No oral agreement or conversation with any officer, agent, or personnel of the Owner, or with the Architect/Engineer either before or after the execution of this Contract, shall affect or modify any of the terms or obligations herein contained.

A.4.2 Should the Plans or Specifications fail to particularly describe the materials, kind of goods, or details of construction of any aspect of the Work, Contractor shall have the duty to make inquiry of the Owner and Architect/Engineer as to what is required prior to performance of the Work. Absent Specifications to the contrary, the materials or processes that would normally be used to produce first quality finished Work shall be considered a part of the Contract requirements.

A.4.3 Any design errors or omissions noted by the Contractor shall be reported promptly to the Owner, including without limitation, any nonconformity with Applicable laws.

A.4.4 If the Contractor believes that adjustments to cost or Contract Time is involved because of clarifications or instructions issued by the Owner (or Architect/Engineer) in response to the Contractor's notices or requests for information, the Contractor must submit a written request to the Owner, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) Days after receipt by Contractor of the clarifications or instructions issued. If the Owner denies Contractor's request for additional compensation, additional Contract Time, or other relief that the Contractor believes results from the clarifications or instructions, the Contractor may proceed to file a Claim under Section D.3, Claims Review process. If the Contractor fails to perform the obligations of Sections A.4.1 to A.4.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations.

A.5 INDEPENDENT CONTRACTOR STATUS

The service or services to be performed under this Contract are those of an independent contractor as defined in ORS 670.600. Contractor represents and warrants that it is not an officer, employee or agent of the Owner as those terms are used in ORS 30.265.

A.6 RETIREMENT SYSTEM STATUS AND TAXES

Contractor represents and warrants that it is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment received under this Contract. Contractor will not be eligible for any benefits from these Contract payments of federal Social Security, employment insurance, workers' compensation or the Public Employees' Retirement System, except as a self-employed individual. Unless the Contractor is subject to backup withholding, Owner will not withhold from such payments any amount(s) to cover Contractor's federal or state tax obligations.

A.7 GOVERNMENT EMPLOYMENT STATUS

A.7.1 If this payment is to be charged against federal funds, Contractor represents and warrants that it is not currently employed by the Federal Government. This does not preclude the Contractor from holding another contract with the Federal Government.

A.7.2 Contractor represents and warrants that Contractor is not an employee of the State of Oregon for purposes of performing Work under this Contract.

SECTION B
ADMINISTRATION OF THE CONTRACT

B.1 OWNER'S ADMINISTRATION OF THE CONTRACT

B.1.1 The Owner shall administer the Contract as described in the Contract Documents (1) during construction (2) until final payment is due and (3) during the one-year period for correction of Work. The Owner will act as provided in the Contract Documents, unless modified in writing in accordance with other provisions of the Contract. In performing these tasks, the Owner may rely on the Architect/Engineer or other consultants to perform some or all of these tasks.

B.1.2 The Owner will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. The Owner will not make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Owner will neither have control over or charge of, nor be responsible for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work.

B.1.3 Except as otherwise provided in the Contract Documents or when direct communications have been specifically authorized, the Owner and Contractor shall communicate with each other about matters arising out of or relating to the Contract. Communications by and with the Architect/Engineer's consultants shall be through the Architect/Engineer. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

B.1.4 Based upon the Architect/Engineer's evaluations of the Contractor's Application for Payment, or unless otherwise stipulated by the Owner, the Architect/Engineer will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

B.2 CONTRACTOR'S MEANS AND METHODS; MITIGATION OF IMPACTS

B.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures.

B.2.2 The Contractor is responsible to protect and maintain the Work during the course of construction and to mitigate any adverse impacts to the project, including those caused by authorized changes, which may affect cost, schedule, or quality.

B.2.3 The Contractor is responsible for the actions of all its personnel, laborers, suppliers, and Subcontractors on the project. The Contractor shall enforce strict discipline and good order among Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of persons who are unfit or unskilled for the tasks assigned to them.

B.3 MATERIALS AND WORKMANSHIP

B.3.1 The intent of the Contract Documents is to provide for the construction and completion in every detail of the Work described. All Work shall be performed in a professional manner and unless the means or methods of performing a task are specified elsewhere in the Contract Documents, Contractor shall employ methods that are generally accepted and used by the industry, in accordance with industry standards.

B.3.2 The Contractor is responsible to perform the Work as required by the Contract Documents. Defective Work shall be corrected at the Contractor's expense.

B.3.3 Work done and materials furnished may be subject to inspection and/or observation and testing by the Owner to determine if they conform to the Contract Documents. Inspection of the Work by the Owner does not relieve the Contractor of responsibility for the Work in accordance with the Contract Documents.

B.3.4 Contractor shall furnish adequate facilities, as required, for the Owner to have safe access to the Work including without limitation walkways, railings, ladders, tunnels, and platforms. Producers, suppliers, and fabricators shall also provide proper facilities and access to their facilities.

B.3.5 The Contractor shall furnish Samples of materials for testing by the Owner and include the cost of the Samples in the Contract Price.

B.4 PERMITS

Contractor shall obtain and pay for all necessary permits, licenses and fees, except for those specifically excluded in the Public Improvement Supplemental General Conditions, for the construction of the Work, for temporary obstructions, enclosures, opening of streets for pipes, walls, utilities, environmental Work, etc., as required for the project. Contractor shall be responsible for all violations of the law, in connection with the construction or caused by obstructing streets, sidewalks or otherwise. Contractor shall give all requisite notices to public authorities.

B.5 COMPLIANCE WITH GOVERNMENT REGULATIONS

B.5.1 Contractor shall comply with Applicable Laws pertaining to the Work and the Contract. Failure to comply with such requirements shall constitute a breach of Contract and shall be grounds for Contract termination. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with the following, as applicable:

(i) Title VI and VII of Civil Rights Act of 1964, as amended; (ii) Section 503 and 504 of the Rehabilitation Act of 1973, as amended; (iii) the Health Insurance Portability and Accountability act of 1996; (iv) the Americans with Disabilities Act of 1990, as amended; (v) ORS Chapter 659A; as amended; (Vi) all regulations and administrative rules established pursuant to the foregoing laws; and (vii) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations.

B.5.2 Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statues, rules and regulations, and

a) Contractor shall not discriminate against Disadvantaged, Minority, Women or Emerging Small Business enterprises, as those terms are defined in ORS 200.005, or a business enterprise that is owned or controlled by or at that employs a disabled veteran, as that term is defined in ORS 408.225, in the awarding of subcontracts.
b) Contractor shall maintain, in current and valid form, all licenses and certificates required by Applicable Laws or this Contract when performing the Work.

B.5.3 Unless contrary to federal law, Contractor shall certify that it shall not accept a bid from Subcontractors to perform Work as described in ORS 701.005 under this Contract unless such Subcontractors are registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time they submit their bids to the Contractor.

B.5.4 Unless contrary to federal law, Contractor shall certify that each landscape contractor, as defined in ORS 671.520(2), performing Work under this Contract holds a valid landscape contractor's license issued pursuant to ORS 671.560.

B.5.5 The following notice is applicable to Contractors who perform excavation Work. "ATTENTION: Oregon law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0010 through ORS 952-001-0090. You may obtain copies of the rules by calling the center at (503) 232-1987".

B.5.6 Failure to comply with any or all of the requirements of B.5.1 through B.5.5 shall be a breach of Contract and constitute grounds for Contract termination. Damages or costs resulting from such noncompliance shall be the responsibility of Contractor.

B.6 SUPERINTENDENCE

Contractor shall keep on the site, during the progress of the Work, a competent superintendent and any necessary assistants who shall be satisfactory to the Owner and who shall represent the Contractor on the site. Directions given to the superintendent by the Owner shall be confirmed in writing to the Contractor.

B.7 INSPECTION

B.7.1 Owner shall have access to the Work at all times.

B.7.2 Inspection of the Work will be made by the Owner at its discretion. The Owner will have authority to reject Work that does not conform to the Contract Documents. Any Work found to be not in conformance with the Contract Documents, in the discretion of the Owner, shall be removed and replaced at the Contractor's expense.

B.7.3 Contractor shall make or obtain at the appropriate time all tests, inspections and approvals of portions of the Work required by the Contract Documents or by Applicable Laws or orders of public authorities having jurisdiction. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work. The Contractor shall give the Owner timely notice of when and where tests and inspections are to be made so that the Owner may be present for such procedures. Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Owner.

B.7.4 As required by the Contract Documents, Work done or material used without required inspection or testing and/or without providing timely notice to the Owner may be ordered removed at the Contractor's expense.

B.7.5 If directed to do so any time before the Work is accepted, the Contractor shall uncover portions of the completed Work for inspection. After inspection, the Contractor shall restore such portions of Work to the standard required by the Contract. If the Work uncovered is unacceptable or was done without required testing or inspection or sufficient notice to the Owner, the uncovering and restoration shall be done at the Contractor's expense. If the Work uncovered is acceptable and was done with sufficient notice to the Owner, the uncovering and restoration will be paid for pursuant to a Change Order.

B.7.6 If any testing or inspection reveals failure of the portions of the Work to comply with Requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Owner's and Architect/Engineer's services and expenses, shall be at the Contractor's expense.

B.7.7 When the United States government participates in the cost of the Work, or the Owner has an agreement with other public or private organizations, or if any portion of the Work is being performed for a third party or in close proximity to third party facilities, representatives of these organizations shall have the right to inspect the Work affecting their interests or property. Their right to inspect shall not make them a party to the Contract and shall not interfere with the rights of the parties of the Contract. Instructions or orders of such parties shall be transmitted to the Contractor, through the Owner.

B.8 SEVERABILITY

If any provision of this Contract is declared by a court to be unenforceable, illegal, or in conflict with any law, the validity of the remaining terms and provisions shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular provision held to be invalid.

B.9 ACCESS TO RECORDS

B.9.1 Contractor shall keep, at all times on the Work site, one record copy of the complete Contract Documents, including the Plans, Specifications, Construction Change Directives and addenda, in good order and marked currently to record field changes and selections made during construction, and one record copy of Shop Drawings, Product Data, Samples and similar submittals, and shall at all times give the Owner access thereto.

B.9.2 Contractor shall retain and the Owner and its duly authorized representatives shall have access, for a period not less than ten (10) years, to all Record Documents, financial and accounting records, and other books, documents, papers and records of Contractor which are pertinent to the Contract, including records pertaining to examination, excerpts and transcripts. If for any reason, any part of the Work or this Contract shall be subject to litigation, Contractor shall retain all such records until all litigation is resolved and Contractor shall continue to provide Owner and/or its agents with full access to such records until such time as all litigation is complete and all periods for appeal have expired and full and final satisfaction of any judgment, order or decree is recorded and Owner receives a record copy of documentation from Contractor.

B.10 WAIVER

Failure of the Owner to enforce any provision of this Contract shall not constitute a waiver or relinquishment by the Owner of the right to such performance in the future nor of the right to enforce any other provision of this Contract.

B.11 SUBCONTRACTS AND ASSIGNMENT

B.11.1 Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound by the terms and conditions of these OUS Public Improvement Eastern Oregon University General Conditions, and to assume toward the Contractor all of the obligations and responsibilities which the Contractor assumes toward the Owner thereunder, unless (1) the same are clearly inapplicable to the subcontract at issue because of legal requirements or industry practices, or (2) specific exceptions are requested by Contractor and approved in writing by Owner. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with sub-subcontractors at any level.

B.11.2 At Owner's request, Contractor shall submit to Owner prior to their execution either Contractor's form of subcontract, or the subcontract to be executed with any particular Subcontractor. If Owner disapproves such form, Contractor shall not execute the form until the matters disapproved are resolved to Owner's satisfaction. Owner's review, comment upon or approval of any such form shall not relieve Contractor of its obligations under this Agreement or be deemed a waiver of such obligations of Contractor.

B.11.3 Contractor shall not assign, sell, or transfer its rights, or delegate its responsibilities under this Contract, in whole or in part, without the prior written approval of the Owner. No such written approval shall relieve Contractor of any obligations of this Contract, and any transferee shall be considered the agent of the Contractor and bound to perform in accordance with the Contract Documents. Contractor shall remain liable as between the original parties to the Contract as if no assignment had occurred.

B.12 SUCCESSORS IN INTEREST

The provisions of this Contract shall be binding upon and shall accrue to the benefit of the parties to the Contract and their respective permitted successors and assigns.

B.13 OWNER'S RIGHT TO DO WORK

Owner reserves the right to perform other or additional work at or near the project site with other forces than those of the Contractor. If such work takes place within or next to the project site, Contractor shall coordinate work with the other contractors or forces, cooperate with all other contractors or forces, carry out the Work in a way that will minimize interference and delay for all forces involved, place and dispose of materials being used so as not to interfere with the operations of another, and join the Work with the work of the others in an acceptable manner and perform it in proper sequence to that of the others. The Owner will resolve any disagreements that may arise between or among Contractor and the other contractors over the method or order of doing all work (including the Work). In case of unavoidable interference, the Owner will establish work priority (including the Work) which generally will be in the sequence that the contracts were awarded.

B.14 OTHER CONTRACTS

In all cases and at any time, the Owner has the right to execute other contracts related to or unrelated to the Work of this Contract. The Contractor of this Contract shall fully cooperate

with any and all other contractors without additional cost to the Owner in the manner described in section B.13.

B.15 GOVERNING LAW

This Contract shall be governed by and construed in accordance with the laws of the State of Oregon without regard to principles of conflict of laws.

B.16 LITIGATION

Any Claim between Owner and Contractor that arises from or relates to this Contract and that is not resolved through the Claims Review Process in Section D.3 shall be brought and conducted solely and exclusively within the Circuit Court of Marion County for the State of Oregon, provided, however, if a Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the State of Oregon. In no event shall this section be construed as a waiver by the State of Oregon on any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court. CONTRACTOR, BY EXECUTION OF THIS CONTRACT, HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF THE COURTS REFERENCED IN THIS SECTION B.15.

B.17 ALLOWANCES

B.17.1 The Contractor shall include in the Contract Price all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct.

B.17.2 Unless otherwise provided in the Contract Documents:

a) When finally reconciled, allowances shall cover the cost of the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
b) Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for state allowance amounts shall be included in the Contract Price but not in the allowances:
c) Whenever costs are more than or less than allowances, the Contract Price shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (i) the difference between actual costs and the allowances under Section B.17.2(a) and (2) changes in Contractor's costs under Section B.17.2(b).
d) Unless Owner requests otherwise, Contractor shall provide to Owner a proposed fixed price for any allowance work prior to its performance.

B.18 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

B.18.1 The Contractor shall prepare and keep current, for the Architect's/Engineer's approval (or for the approval of Owner if approval authority has not been delegated to the Architect/Engineer), a schedule and list of submittals which is coordinated with the Contractor's construction schedule and allows the Architect/Engineer reasonable time to review submittals. Owner reserves the right to finally approve the schedule and list of submittals. Submittals include, without limitation, Shop Drawings, Product Data, and Samples which are described below:

a) Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor (including any sub-subcontractor), manufacturer, supplier or distributor to illustrate some portion of the Work.
b) Product Data are illustrations, standard schedules, performance charges, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.
c) Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

B.18.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review of submittals by the Architect/Engineer is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, or for approval of safety precautions or, unless otherwise specifically stated by the Architect/Engineer, of any construction means, methods, techniques, sequences or procedures, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect/Engineer's review of the Contractor's submittals shall not relieve the Contractor of its obligations under the Contract Documents. The Architect/Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component. Informational submittals upon which the Architect/Engineer is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect/Engineer without action.

B.18.3 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect/Engineer Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect/Engineer without action.

B.18.4 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

B.18.5 The contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect/Engineer.

B.18.6 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect/Engineer's review or approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect/Engineer in writing of such deviation at the time of submittal and (i) the Architect/Engineer has given written approval to the specific deviation as a minor change in the Work, or (ii) a Change Order or Construction Change Directive has been executed by Owner authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect/Engineer's review or approval thereof.

B.18.7 In the event that Owner elects not to have the obligations and duties described under this Section B.18 performed by the Architect/Engineer, or in the event no Architect/Engineer is employed by Owner on the project, all obligations and duties assigned to the Architect/Engineer hereunder shall be performed by the Owner.

B.19 SUBSTITUTIONS

The Contractor may make Substitutions only with the consent of the Owner, after evaluation by the Owner and only in accordance with a Change Order or Construction Change Directive. Substitutions shall be subject to the requirements of the Bid documents. By making requests for Substitutions, the Contractor represents that the Contractor has personally investigated the proposed substitute product; represents that the Contractor will provide the same warranty for the Substitution that the Contractor would for the product originally specified unless approved otherwise; certifies that the cost data presented is complete and includes all related costs under this Contract including redesign costs, and waives all claims for additional costs related to the Substitution which subsequently become apparent; and will coordinate the installation of the accepted Substitution, making such changes as may be required for the Work to be completed in all respects.

B.20 USE OF PLANS AND SPECIFICATIONS

Plans, Specifications and related Contract Documents furnished to Contractor by Owner or Owner's Architect/Engineer shall be used solely for the performance of the Work under this Contract. Contractor and its Subcontractors and suppliers are authorized to use and reproduce applicable portions of such documents appropriate to the execution of the Work but shall not claim any ownership or other interest in them beyond the scope of this Contract, and no such interest shall attach. Unless otherwise indicated, all common law, statutory and other reserved rights, in addition to copyrights, are retained by Owner.

B.21 FUNDS AVAILABLE AND AUTHORIZED

If Owner fails to receive funding, appropriations, allocations or other expenditure authority as contemplated by Owner's budget and Owner determines, in its assessment and ranking of the policy objectives explicit or implicit in Owner's budget, Owner may determine it is necessary to and may terminate the Public Improvement Contract.

B.22 NO THIRD PARTY BENEFICIARIES

Owner and Contractor are the only parties to this Contract and are the only parties entitled to enforce its terms. Nothing in this Contract gives, is intended to give, or shall be construed to give or provide any benefit or right, whether directly, indirectly, or otherwise, to third persons unless such third persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of this Contract.

SECTION C
WAGES AND LABOR

C.1 MINIMUM WAGE RATES ON PUBLIC WORKS

Contractor shall comply fully with the provisions of ORS279C.800 through 279C.870. Documents establishing those conditions, as determined by the Commissioner of the Bureau of Labor and Industries (BOLI), are included as attachments to or are incorporated by reference in the Contract Documents. Pursuant to ORS 279C.830(1)(d), Contractor shall pay workers at not less than the specified minimum hourly rate of wage, and shall include the requirement in all subcontracts. If the Work is subject to both the state prevailing wage rate law and the federal Davis-Bacon Act, Contractor shall pay the higher of the applicable state or federal prevailing rate of wage. Contractor shall provide written notice to all workers of the number of hours per day and days per week such workers may be required to work.

C.2 PAYROLL CERTIFICATION AND FEE REQUIREMENTS

C.2.1 In accordance with ORS 279C.845, the Contractor and every Subcontractor shall submit written certified statements to the Owner, on the form prescribed by the Commissioner of the Bureau of Labor and Industries, certifying the hourly rate of wage paid each worker which the Contractor or the Subcontractor has employed on the project and further certifying that no worker employed on the project has been paid less than the prevailing rate of wage or less than the minimum hourly rate of wage specified in the Contract, which certificate and statement shall be verified by the oath of the Contractor or the Subcontractor that the Contractor or Subcontractor has read the certified statement, that the Contractor or Subcontractor knows the contents of the certified statement, and, that to the Contractor's or Subcontractor's best knowledge and belief, the certified statement is true. The certified statements shall set out accurately and completely the payroll records for the prior week, including the name and address of each worker, the worker's correct classification, rate of pay, daily and weekly number of hours worked, deductions made, and actual wages paid. Certified statements for each week during which the Contractor or Subcontractor has employed a worker on the project shall be submitted once a month, by the fifth business day of the following month. The Contractor and Subcontractors shall preserve the certified statements for a period of ten (10) years from the date of completion of the Contract.

C.2.2 Pursuant to ORS 279C.845(7), the Owner shall retain 25 percent of any amount earned by the Contractor on this public works project until the Contractor has filed the certified statements required by section C.2.1. The Owner shall pay to the Contractor the amount retained under this subsection with 14 days after the Contractor files the required certified statements, regardless of whether a Subcontractor has failed to file certified statements.

C.2.3 Pursuant to ORS 279C845(8), the Contractor shall retain 25 percent of any amount earned by a first-tier Subcontractor on this public works project until the first-tier Subcontractor has filed with the Owner the certified statements required by C.2.1. Before paying any amount retained under this subsection, the Contractor shall verify that the first-tier Subcontractor has filed the certified statement. Within 14 days after the first-tier Subcontractor files the required certified statement the Contractor shall pay the first-tier Subcontractor any amount retained under this subsection.

C.2.4 In accordance with statutory requirements and administrative rules promulgated by the Commissioner of the Bureau of Labor and Industries, the fee required by ORS 279C.825(1) will be paid by Owner to the Commissioner.

C.3 PROMPT PAYMENT AND CONTRACT CONDITIONS

C.3.1 As a condition to Owner's performance hereunder, the Contractor shall:

C.3.1.1 Make payment promptly, as due, to all persons supplying to Contractor labor or materials for the prosecution of the Work provided for in this Contract.

C.3.1.2 Pay all contributions or amounts due the State Industrial Accident Fund from such Contractor or Subcontractor incurred in the performance of the Contract.

C.3.1.3 Not permit any lien or claim to be filed or prosecuted against the Owner on account of any labor or material furnished. Contractor

will not assign any claims that Contractor has against Owner, or assign any sums due by Owner, to Subcontractors, suppliers, or manufacturers, and will not make any agreement or act in any way to give Subcontractors a claim or standing to make a claim against the Owner.

C.3.1.4 Pay to the Department of Revenue all sums withheld from employees pursuant to ORS 316.167.

C.3.2 As a condition to Owner's performance hereunder, if Contractor fails, neglects or refuses to make prompt payment of any claim for labor or services furnished to the Contractor of a Subcontractor by any person in connection with the project as such claim becomes due, the proper officer(s) representing the Owner may pay the claim and charge the amount of the payment against funds due or to become due Contractor under this Contract. Payment of claims in this manner shall not relieve the Contractor or the Contractor's surety from obligation with respect to any unpaid claim.

C.3.3 Contractor shall include in each subcontract for property or services entered into by the Contractor and a first-tier subcontractor, including a material supplier, for the purpose of performing a construction contract, a payment clause that obligates the Contractor to pay the first-tier Subcontractor for satisfactory performance under its subcontract within ten (10) days out of such amounts as are paid to the Contractor by the public contracting agency under this contract.

C.3.4 All employers, including Contractor, that employ subject workers who work under this contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. Contractor shall ensure that each of its Subcontractors complies with these requirements.

C.4 PAYMENT FOR MEDICAL CARE

As a condition to Owner's performance hereunder, Contractor shall promptly, as due, make payment to any person, partnership, association or corporation furnishing medical, surgical, and hospital care or other needed care and attention, incident to sickness or injury, to the employees of such Contractor, all sums of which the Contractor agrees to pay for such services and all moneys and sums which the Contractor has collected or deducted from the wages of personnel pursuant to any law, contract or agreement for the purpose of providing or paying for such services.

C.5 HOURS OF LABOR

As a condition to Owner's performance hereunder, no person shall be employed to perform Work under this Contract for more than ten (10) hours in any one day or forty (40) hours in any one week, except in cases of necessity, emergency or where public policy absolutely requires it. In such instances, Contractor shall pay the employee at least time and half pay:

a. For all overtime in excess of eight (8) a day or forty (40) hours in any one week when the work week is five consecutive days, Monday through Friday; or
b. For all overtime in excess of ten (10) hours a day or forty (40) hours in any one week when the work week is four consecutive days, Monday through Friday; and
c. For all Work performed on Saturday and on any legal holiday specified in ORS 279C.540.

This section C.5 will not apply to Contractor's Work under this Contract to the extent Contractor is currently a party to a collective bargaining agreement with any labor organization.

This section C.5 shall not excuse Contractor from completion of the Work within the time required under this Contract.

SECTION D
CHANGES IN THE WORK

D.1 CHANGES IN WORK

D.1.1 The terms of this Contract shall not be waived, altered, modified, supplemented or amended in any manner whatsoever, without prior written agreement and then only after any necessary approvals have been obtained. A Change Order is required, which shall not be effective until its execution by the parties to this Contract and all approvals required by public contracting laws have been obtained.

D.1.2 It is mutually agreed that changes in Plans, quantities, or details of construction are inherent in the nature of construction and may be necessary or desirable during the course of construction. Within the general scope of this Contract, the Owner may at any time, without notice to the sureties and without impairing the Contract, require changes consistent with this Section D.1. All changes to the Work shall be documented and Change Orders shall be executed under the conditions of the Contract Documents. Such changes may include, but are not limited to:

a) Modification of specifications and design.
b) Increases or decreases in quantities.
c) Increases or decreases to the amount of Work.
d) Addition or elimination of any Work item.
e) Change in the duration of the project.
f) Acceleration or delay in performance of Work.
g) Deductive changes.

Deductive changes are those that reduce the scope of Work, and shall be made by mutual agreement whenever feasible. In cases of suspension or partial termination under Section J, Owner reserves the right to unilaterally impose a deductive change and to self-perform such Work, for which the provisions of B.13 (Owner's Right to Do Work) shall then apply. Adjustments in compensation shall be made under the provisions of D.1.3, in which costs for deductive changes shall be based upon a Direct Costs adjustment together with the related percentage markup specified for profit, overhead and other indirect costs, unless otherwise to by Owner.

D.1.3 The Owner and Contractor agree that adjustments to or deletions from the Work shall be administered and compensated according to the following:

a) Unit Pricing: Unit pricing may be utilized at the Owner's option when unit prices or solicitation alternates were provided that established the cost for adjustments to Work, and a binding obligation exists under the Contract on the parties covering the terms and conditions of the adjustment to Work.
b) Fixed Fee: If the Owner elects not to utilize unit pricing, or in the event that unit pricing is not available or appropriate, fixed pricing may be used for adjustments to or deletions from the Work. In fixed pricing the basis of payments or total price shall be agreed upon in writing between the parties to the Contract, and shall be established before the Work is done whenever feasible. Notwithstanding the foregoing, the mark-ups set forth in D.1.3(c) shall be utilized in establishing fixed pricing, and such mark-ups shall not be exceeded. Cost and price data relating to adjustments to or deletions from the Work shall be supplied by Contractor to Owner upon request, but Owner shall be under no obligation to make such requests.
c) Time and Material: In the event that unit pricing and fixed pricing are not utilized, then adjustments to or deletions from the Work shall be performed on a cost reimbursement basis for Direct Costs. Such Work shall be compensated on the basis of the actual, reasonable and allowable cost of labor, equipment, and material furnished on the Work performed, The Contractor or Subcontractor who performs the Work shall be allowed to add

up to ten percent (10%) markup to the Direct Costs as full compensation for profit, Overhead and other indirect costs for Work performed with the Contractor's or Subcontractor's own forces:

On Labor……..15%
On Equipment……10%
On Materials……10%

Each ascending tier Subcontractor or the Contractor that did not perform the Work will be allowed a to add up to five percent (5%) supplemental markup on the Direct Costs of the Work (but not the above allowable markups) covered by a Change Order: No additional markup shall be permitted for any third tier or greater descending Subcontractor.

Example: $20,000 of Direct Costs Work performed by a 2nd Tier Subcontractor

	Markup	Allowed Total Fee Plus Markup
General Contractor	5%	$1,000.00
1st Tier Sub Contractor	5%	$1,000.00
2nd Tier Sub Contractor	10%	$22,000.00

d) Payments made to the Contractor shall be complete compensation for Overhead, profit, and all costs that were incurred by the Contractor or by other forces furnished by the Contractor, including Subcontractors, for adjustments to or deletions from the Work pursuant to a Change Order. Owner may establish a maximum cost for additional Work under this Section D.1.3, which shall not be exceed for reimbursement without additional written authorization from Owner in the form of a Change Order. Contractor shall not be required to complete such additional Work without additional authorization.

D.1.4 Any necessary adjustment of Contract Time that may be required as a result of adjustments to or deletions from the Work must be agreed upon by the parties before the start of the revised Work unless Owner authorizes Contractor to start the revised Work before agreement on Contract Time adjustment.

Contractor shall submit any request for additional compensation (and additional Contract Time if Contractor was authorized to start Work before an adjustment of Contract Time was approved) as soon as possible but no later than thirty (30) days after receipt of Owner's request for additional Work. If Contractor's request for additional compensation or adjustment of Contract time is not made within the thirty (30) day time limit, Contractor's request pertaining to that additional Work shall be barred. The thirty (30) day time limit for making requests shall not be extended for any reason, including without limitation Contractor's claimed inability to determine the amount of additional compensation or adjustment of Contract time, unless an extension is granted in writing by Owner. If the Owner denies Contractor's request for additional compensation or adjustment of Contract Time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process. No other reimbursement, compensation, or payment will be made, except as provided in Section D.1.5 for impact claims.

D.1.5 If any adjustment to Work under Section D.1.32 causes an increase or decrease in the Contractor's cost of, or the Contract Time required for the performance of any other part of the Work under this Contract, Contractor shall submit a written request to the Owner, setting forth the nature and specific extent of the request, including all time and cost impacts against the Contract as soon as possible, but no later than thirty (30) days after receipt of Owner's request for adjustments to or deletions from the Work by Contractor.

The thirty (30) day time limit applies to claims of Subcontractors, suppliers, or manufacturers who may be affected by Owner's request for adjustments to or deletions from the Work and who request additional compensation or an extension of Contract Time to perform; Contractor has responsibility for contacting its Subcontractors, suppliers, or manufacturers within the thirty (30) day time limit, and including their requests with Contractor's requests. If the request involves Work to be completed by Subcontractors, or materials to be furnished by suppliers or manufacturers, such requests shall be submitted to the Contractor in writing with full analysis and justification for the adjustments to compensation and Contract Time requested. The Contractor shall analyze and evaluate the merits of the requests submitted by Subcontractors, suppliers, and manufacturers to Contractor prior to including those requests and Contractor's analysis and evaluation of those requests with Contractor's requests for adjustments to compensation or Contract Time that Contractor submits to the Owner. Failure of Subcontractors, suppliers, manufacturers or others to submit their requests to Contractor for inclusion with Contractor's requests submitted to Owner within the time period and by the means described in this section shall constitute a waiver of these Subcontractor claims. The Owner will not consider direct requests or claims from Subcontractors, suppliers, manufacturers or others not a party to this Contract. The consideration of such requests and claims under this section does not give any Person, not a party to the Contract the right to bring a claim against Owner, whether in this claims process, in litigation, or in any dispute resolution process.

If the Owner denies the Contractor's request for adjustment to compensation or Contract Time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

D.1.6 No request or Claim by the Contractor for additional costs or an adjustment of Contract Time shall be allowed if made after receipt of final payment application under this Contract. Final payment application must be made by Contractor within the time required under Section E.6.4.

D.1.7 It is understood that changes in the Work are inherent in construction of this type. The number of changes, the scope of those changes, and the effect they have on the progress of the original Work cannot be defined at this time. The Contractor is notified that numerous changes may be required and that there will be no compensation made, unless and only to the extent otherwise provided in the Contract Documents, to the Contractor directly related to the number of changes. Each change will be evaluated FOR EXTENSION OF Contract Time and increase or decrease in compensation based on its own merit.

D.2. DELAYS

D.2.1 Delays in construction include "Avoidable Delays", which are defined in Section D.2.1.1, and "Unavoidable Delays", which are defined in Section D.2.1.2. The effect of Avoidable Delays is described in Section D.2.2 and the effect of Unavoidable Delays is described in Section D.2.3.

D.2.1.1 Avoidable Delays include any delays other than Unavoidable Delays, and include delays that otherwise would be considered Unavoidable Delays but that:

a) Could have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.
b) Affect only a portion of the Work and do not necessarily prevent or delay the prosecution of neither other parts of the Work nor the completion of the whole Work within the Contract time.
c) Do not impact activities on the accepted critical path schedule.
d) Are associated with the reasonable interference of other contractors employed by the Owner that do not necessarily prevent the completion of the whole Work within the Contract time.

D.2.1.2 Unavoidable Delays include delays other than Avoidable Delays that are:

a) To the extent caused by any actions of the Owner, or any other employee or agent of the Owner, or by separate contractor employed by the Owner.
b) To the extent caused by any site conditions which differ materially from what was represented in the Contract Documents or from conditions that would normally be expected to exist and be inherent to the construction activities defined in the Contract Documents. The Contractor shall notify the Owner immediately of differing site conditions before the area has been disturbed. The Owner will investigate the area and make a determination as to whether or not the conditions differ materially from either the conditions stated in the Contract Documents or those which could reasonably be expected in execution of this particular Contract. If Contractor and the Owner agrees that a differing site condition exists, any adjustment to compensation or Contract time will be determined based on the process set forth in Section D.1.5 for adjustments to or deletions from Work. If the Owner disagrees that a differing site condition exists and denies Contractor's request for additional compensation or Contract time, Contractor may proceed to file a Claim under Section D.3, Claims Review Process.
c) To the extent caused by Force Majeure acts, events or occurrences, that could not have been avoided by the exercise of care, prudence, foresight, and diligence on the part of the Contractor or its Subcontractors.
d) To the extent caused by adverse weather conditions. Any adverse weather conditions must be substantiated by documentary evidence that weather conditions were abnormal for the specific time period claimed, could not have been anticipated by the Contractor, and adversely impacted the project in a manner that could not be avoided by rescheduling the Work or by implementing measures to protect against the weather so that the Work could proceed. A ran, windstorm, high water, or other natural phenomenon for the specific locality of the Work, which might reasonably have been anticipated from the previous 10-ear historical records of the general locality of the Work, shall not be construed as abnormal. The parties agree that rainfall greater than the following levels cannot be reasonably anticipated:

    i. Daily rainfall equal to, or greater than, o.50 inch during a month when the monthly rainfall exceeds the normal monthly average by twenty-five percent (25%).
    ii. Daily rainfall equal to, or greater than 0.75 inch at any time.

    The Office of the Environmental Data Service of the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce nearest the project site shall be considered official agency of record for weather information.

D.2.2 Contractor shall not be entitled to additional compensation or additional Contract time for Avoidable Delays.

D.2.3 In the event of Unavoidable Delays, based on principles of equitable adjustment, Contractor may be entitled to the following:

a) Contractor may be entitled to additional compensation or additional Contract time, or both, for Unavoidable Delays described in Section D.2.1.2.(a) and (b).
b) Contractor may be entitled to additional Contract time for Unavoidable Delays described in Section D.2.1.2(c) and (d).

In the event of any requests for additional compensation or additional Contract time, or both, as applicable, arising under this Section D.2.3 for Unavoidable Delays, other than requests for additional compensation or additional Contract time for differing site conditions for which a review process is established under Section D.2.1.2 (b), Contractor shall submit a written notification of the delay to the Owner within two (2) days of the occurrence of the cause of the delay. This written notification shall state the cause of the potential delay, the project components impacted by the delay, and the anticipated additional Contract time extension or the additional compensation, or both, as applicable, resulting from the delay. Within seven (7) days after the cause of the delay has been mitigated, or in no case more than thirty (30) days after the initial written notification, the Contractor shall submit to the Owner, a complete and detailed request for additional compensation or additional Contract time, or both, as applicable, resulting from the delay. If the Owner denies Contractor's request for additional compensation or adjustment of Contract time, the Contractor may proceed to file a Claim under Section D.3, Claims Review Process.

If Contractor does not timely submit the notices required under this Section D.2, then unless otherwise prohibited by law, Contractor's Claim shall be barred.

D.3 CLAIMS REVIEW PROCESS

D.3.1 All Contractor Claims shall be referred to the Owner for review. Contractor's Claims, including Claims for adjustments to compensation or Contract time, shall be submitted in writing by Contractor to the Owner within five (5) Days after a denial of Contractor's initial request for an adjustment of Contract terms, payment of money, extension of Contract Time or other relief, provided that such initial request has been submitted in accordance with the requirements and within the time limits established in these EOU General Conditions. Within thirty (30) days after the initial Claim, Contractor shall submit to the Owner a complete and detailed description of the Claim (the "Detailed Notice") that includes all information required by Section D.3.2. Unless the Claim is made in accordance with these3 time requirements, it shall be waived by Contractor.

D.3.2 The Detailed Notice of the Claim shall be submitted in writing by Contractor and shall include a detailed, factual statement of the basis of the Claim, pertinent dates, Contract provisions which support or allow the Claim, reference to or copies of any documents which support the Claim, the dollar value of the Claim, and the Contract time adjustment requested for the Claim. If the Claim involves Work to be completed by Subcontractors, the Contractor will analyze and evaluate the merits of the Subcontractor claim prior to forwarding it and that analysis and evaluation to the Owner. The Owner will not consider direct claims from Subcontractors, suppliers, manufacturers, or others not a party to this Contract. Contractor agrees that it will make no agreement, covenant, or assignment, nor will it commit any other act that will permit or assist any Subcontractor, supplier, manufacturer, or other to directly or indirectly make a claim against Owner.

D.3.3 The Owner will review all Claims and take one or more of the following preliminary actions within ten (10) days of receipt of the Detailed Notice of a Claim: (1) request additional supporting information from the Contractor; (2) inform the Contractor and Owner in writing of the time required for adequate review and response; (3) reject the Claim in whole or in part and identify the reasons for rejection; (4) based on principles of equitable adjustment, recommend approval of all or part of the Claim; or (5) propose an alternate resolution.

D.3.4 The Owner's decision shall be final and binding on the Contractor unless appealed by written notice to the Owner within fifteen (15) days of receipt of the decision. The Contractor must present written documentation supporting the Claim within fifteen (15) days of the notice of appeal. After receiving the appeal documentation, the Owner shall review the materials and render a decision within thirty (30) days after receiving the appeal documents.

D.3.5 The decision of the Owner shall be final and binding unless the Contractor delivers to the Owner its request for mediation, which shall be a non-binding process, within fifteen (15) days of the

date of the Owner's decision. The mediation process will e considered to have commenced as of the date the Contractor delivers the request. Both parties acknowledge and agree that participation in mediation is a prerequisite to commencement of litigation of any disputes relating to the Contract. Both parties further agree to exercise their best efforts in good faith to resolve all disputes within sixty (60) days of the commencement of the mediation through the mediation process set forth herein.

In the event that a lawsuit must be filed within this sixty (60) day period in order to preserve a cause of action, the parties agree that, notwithstanding the filing, they shall proceed diligently with the mediation to its conclusion prior to actively prosecuting the lawsuit, and shall seek from the Court in which the lawsuit is pending such stays or extensions, including the filing of an answer, as may be necessary to facilitate the mediation process. Further, in the event settlements are reached on any issues through mediation, the plaintiff shall promptly cause to be entered by the Court a stipulated general judgement of dismissal with prejudice, or other appropriate order limiting the scope of litigation as provided in the settlement.

D.3.6 Should the parties arrive at an impasse regarding any Claims or disputed Claims, it is agreed that the parties shall participate in mediation as specified in Section D.3.5. The mediation process will be considered to have been commenced as of the date one party delivers to the other its request in writing to mediate. The mediator shall be an individual mutually acceptable to both parties, but in the absence of agreement each party shall select a temporary mediator and the temporary mediators shall jointly select the permanent mediator. Each party shall pay its own costs for the time and effort involved in mediation. The cost of the mediator shall be split equally between the two parties. Both parties agree to exercise their best effort in good faith to resolve all disputes in mediation. Participation in mediation is a mandatory requirement of both the Owner and the Contractor. The schedule, time and place for mediation will be mutually acceptable, or, failing mutual agreement, shall be as established by the mediator. The parties agree to comply with Owner's administrative rules governing the confidentiality of mediation, if any, and shall execute all necessary documents to give effect to such confidentiality rules. In any event, the parties shall not subpoena the mediator or otherwise require the mediator to produce records, notes or work product, or to testify in any future proceedings as to information disclosed or representations made in the course of mediation, except to the extent disclosure is required by law.

D.3.7 Unless otherwise directed by Owner, Contractor shall proceed with the Work while any Claim, or mediation or litigation arising from a Claim is pending. Regardless of the review period or the final decision of the Owner, the Contractor shall continue to diligently pursue the Work as identified in the Contract Documents. In no case is the Contractor justified or allowed to cease or delay Work, in whole or in part, without a written stop work order from the Owner.

SECTION 3
PAYMENTS

E.1 SCHEDULE OF VALUES

The Contractor shall submit, by or before the pre-construction conference, a schedule of values ("Schedule of Values") for the contracted Work. This schedule shall provide a breakdown of values for the contracted Work and will be the basis for progress payments. The breakdown shall demonstrate reasonable, identifiable, and measureable components of the Work. Unless objected to by the Owner, this schedule shall be used as the basis for reviewing Contractor's applications for payment. If objected to by Owner, Contractor shall revise the schedule of values and resubmit the same for approval of Owner.

E.2 APPLICATIONS FOR PAYMENT

E.2.1 Owner shall make progress payments on the Contract monthly as Work progresses, in accordance with the requirements of this Section E.2. Applications for payment shall be based upon estimates of Work completed and the Schedule of Values. As a condition precedent to Owner's obligation to pay, all applications for payment shall be approved by the Owner. A progress payment shall not be considered acceptance or approval of any Work or waiver of any defects therein. Owner shall pay to Contractor interest, for overdue invoices at the rate of two thirds of one percent per month on the progress payment, not including retainage, due the Contractor. Overdue invoices will be those that have not been paid within forty five (45) days from the latest of:

a) The date of the receipt of the accurate invoice;
b) The date Owner receives the correct application for payment if no invoice is received;
c) The date all goods and services have been received; or
d) The date a Claim is made certain by agreement of the parties or by operation of law.

Notwithstanding the foregoing, in instances when an application for payment is filled out incorrectly, or when there is any defect or impropriety in any submitted application or when there is a good faith dispute, Owner shall so notify the Contractor within fifteen (15) days stating the reason or reasons the application for payment is defective or improper or the reasons for the dispute. A defective or improper application for payment, if corrected by the Contractor within seven (7) days of being notified by the Owner, shall not cause a payment to be made later than specified in this section unless interest is also paid. Payment of interest will be postponed when payment on the principal is delayed because of disagreement between the Owner and the Contractor.

Owner reserves the right, instead of requiring the Contractor to correct or resubmit a defective or improper application for payment, to reject the defective or improper portion of the application for payment and pay the remainder of the application for such amounts which are correct and proper.

Owner, upon written notice to the Contractor, may elect to make payments to the Contractor only by means of Electronic funds Transfers (EFT) through Automated Clearing House (ACH) payments. If Owner makes this election, the Contractor shall arrange for receipt of the EFT/ACH payments.

E.2.2 Contractor shall submit to the Owner an application for each payment and, if required, receipts or other vouchers, showing payments for materials and labor including payments to Subcontractors. Contractor shall include in its application for payment a schedule of the percentages of the various parts of the Work completed, based on the Schedule of Values which shall aggregate to the payment application total, and shall include, on the face of each copy thereof, a certificate in substantially the following form:

"I, the undersigned, hereby certify that the above bill is true and correct, and the payment therefore, has not been received.

Signed: _____
Dated: _____ "

E.2.3 Generally, applications for payment will be accepted only for materials that have been installed. Under special conditions, applications for payment for stored materials will be accepted at Owner's sole discretion. Such a payment, if made, will be subject to the following conditions:

a) The request for stored material shall be submitted at least thirty (30) days in advance of the application for payment on which it appears. Applications for payment shall be entertained for major equipment, components or expenditures only.
b) The Contractor shall submit applications for payment showing the quantity and cost of the material stored.
c) The material shall be stored in a bonded warehouse and Owner shall be granted the right to access the material for the purpose of removal or inspection at any time during the Contract period.
d) The Contractor shall name the Owner as co-insured on the insurance policy covering the full value of the property while in the care and custody of the Contractor until it is installed. A certificate noting this coverage shall be issued to the Owner.
e) Payments shall be made for materials and equipment only. The submitted amount in the application for payment shall be reduced by the cost of transportation from the storage site to the project site and for the cost of an inspector to verify delivery and condition of the goods at the storage site. The cost of storage and inspection shall be borne solely by the Contractor.
f) Within sixty (60) days of the application for payment, the Contractor shall submit evidence of payment covering the material and/or equipment stored and of payment for the storage site.
g) Payment for stored materials and/or equipment shall in no way indicate acceptance of the materials and/or equipment or waive any rights under this Contract for the rejection of the Work or materials and/or equipment not in conformance with the Contract Documents.

E.2.4 The Owner reserves the right to withhold all or part of a payment, or may nullify in whole or part any payment previously made, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss because of:

a) Work that is defective and not remedied, or that has been demonstrated or identified as failing to conform with Applicable Laws or the Contract Documents;
b) third party claims filed or evidence reasonably indicating that such claims will likely be filed unless security acceptable to the Owner is provided by the Contractor;
c) Failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment (in which case Owner may issue checks made payable jointly to Contractor and such unpaid persons under this provision, or directly to Subcontractors and suppliers at any level under Section C.3.2.1);
d) Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
e) Damage to the Work, Owner or another contractor;
f) Reasonable evidence that the Work will not be completed within the Contract time required by the Contract, and that the unpaid balance would not be adequate to cover actual or liquidated dames for the anticipated delay;
g) Failure to carry out the Work in accordance with the Contract Documents; or
h) Assessment of liquidated damages, when withholding is made for offset purposes.

E.2.5 Subject to the provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

a) Take that portion of the Contract Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the total Contract Price allocated to that portion of the Work in the Schedule of Values, less retainage as provided in Section E.5. Pending final determination of cost to the Owner of changes in the Work, no amounts for changes in the Work can be included in applications for payment until the Contract Price has been adjusted by a Change Order;
b) Add that portion of the Contract Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner pursuant to Section E.2.3, suitably stored off the site at a location agreed upon in writing), less retainage as provided in Section E.5;
c) Subtract the aggregate of previous payments made by the Owner; and
d) Subtract any amounts for which the Owner has withheld or nullified payment as provided in the Contract Documents.

E.2.6 Contractor's applications for payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor or material supplier.

E.2.7 The Contractor warrants to Owner that title to all Work covered by an application for payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an application for payment all Work for which payments are received from the Owner shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided financing, labor, materials and equipment relating to the Work.

E.2.8 If Contractor disputes any determination by Owner with regard to any application for payment, Contractor nevertheless shall continue to expeditiously perform the Work. No payment made hereunder shall be or be construed to be final acceptance or approval of that portion of the Work to which such partial payment relates or shall relieve Contractor of any of its obligations hereunder.

E.2.9 Contractor shall submit its initial MWESB Report within ten (10) days of Contractor's execution of the Contract, or if there will be a Guaranteed Maximum Price (GMP) Amendment, then within ten (10) days of Contractor's execution of the GMP Amendment. Contractor shall submit annual MWESB Reports on June 30 of each year the Contract is active. Contracts (or GMP Amendments) first executed by Contractor within ninety (90) days before June 30 of the year of execution by Contractor may at the discretion of Owner be exempt from submitting the annual MWESB Report otherwise due on that June 30. The final MWESB Report shall be filed with the application for final payment. Timely receipt of MWESB Reports by Owner shall be a condition precedent to Owner's obligation to pay any progress payments or final payment otherwise due.

E.3 PAYROLL CERTIFICATION REQUIREMENT

Owner's receipt of payroll certification pursuant to Section C.2 of this Contract shall be a condition precedent to Owner's obligation to pay any progress payments or final payment otherwise due.

E.4 DUAL PAYMENT SOURCES

Contractor shall not be compensated for Work performed under this Contract from any state agency other than the agency that is a party to this Contract.

E.5 RETAINAGE

E.5.1 Retainage shall be withheld and released in accordance with the requirements set forth in OAR 580-063-0045, or the applicable EOU standard.

E.5.1.1 Owner may reserve as retainage from any progress payment an amount not to exceed five percent of the payment. As work progresses, Owner may reduce the amount of retainage on or may eliminate retainage on any remaining monthly Contract payments after 50 percent of the Work under the Contract is completed, if in the Owner's discretion, such Work is progressing satisfactorily. Elimination or reduction of retainage shall be allowed only upon written application by the Contractor, which application shall include written approval of Contractor's surety; except that when the Work is 97-1/2 percent completed the Owner may, at its discretion and without application by the Contractor, reduce the retained amount to 100 percent of the

value of the Work remaining to be done. Upon receipt of written application by the Contractor, Owner shall respond in writing within a reasonable time.

E.5.1.2 Contractor may request in writing:

a) To be paid amounts which would otherwise have been retained from progress payments where Contractor has deposited acceptable bonds and securities of equal value with Owner or in a custodial account or other mutually agreed account satisfactory to Owner, with an approved bank or trust company to be held in lieu of the cash retainage for the benefit of Owner;
b) For construction projects over $1,000,000, that retainage be deposited in an interest bearing account, established through the State Treasurer for state agencies, in a bank, savings bank, trust company or savings association for the benefit of Owner, with earnings from such account accruing to the Contractor; or
c) That the Owner allow Contractor to deposit a surety bond for the benefit of Owner, in a form acceptable to Owner, in lieu of all or a portion of funds retained, or to be retained. Such bond and any proceeds therefrom shall be made subject to all claims in the manner and priority as set forth for retainage.

When the Owner has accepted the Contractor's election of option (a) or (b), Owner may recover from Contractor any additional costs incurred through such election by reducing Contractor's final payment. Where the Owner has agreed to Contractor's request for option (c), Contractor shall accept like bonds from Subcontractors and suppliers on the project from which Contractor has required retainages.

E.5.1.3 The retainage held by Owner shall be included in and paid to the Contractor as part of the final payment of the Contract Price. The Owner shall pay to Contractor interest at the rate of two thirds of one percent per month on the final payment due Contractor, interest to commence forty five (45) days after the date which Owner receives Contractor's final approved application for payment and Work under the Contract has been completed and accepted and to run until the date when final payment is tendered to Contractor. The Contractor shall notify Owner in writing when the Contractor considers the Work complete and deliver to Owner its final application for payment and Owner shall, within fifteen (15) days after receiving the written notice and the application for payment either accept the Work or notify the Contractor of Work yet to be performed on the Contract. If Owner does not within the time allowed notify the Contractor of Work yet to be performed to fulfill contractual obligations, the interest provided by this subsection shall commence to run forty five (45) days after the end of the 15 day period.

E.5.1.4 Owner will reduce the amount of the retainage if the Contractor notifies the Owner that the Contractor has deposited in an escrow account with a bank or trust company, in a manner authorized by the Owner, bonds and securities of equal value of a kind approved by the Owner and such bonds and securities have in fact been deposited.

E.5.1.5 Contractor agrees that if Contractor elects to reserve a retainage from any progress payment due to any Subcontractor or supplier, such retainage shall not exceed five percent of the payment, and such retainage withheld from Subcontractors and suppliers shall be subject to the same terms and conditions stated in Subsection E.5 as apply to Owner's retainage from any progress payment due to Contractor.

E.6 FINAL PAYMENT

E.6.1 Upon completion of all the Work under this Contract, the Contractor shall notify the Owner, in writing, that Contractor has completed Contractor's obligations under the Contract and shall prepare its application requesting final payment. Upon receipt of such notice and application for payment, the Owner will inspect the Work, and, if acceptable, submit to Contractor a recommendation as to acceptance of the completed Work and the final estimate of the amount due the Contractor. If the Work is not acceptable, Owner will notify Contractor within fifteen (15) days of Contractors request for final payment. Upon approval of this final application for payment by the Owner and compliance by the Contractor with provisions in Section K, and Contractor's satisfaction of other provisions of the Contract Documents as may be applicable, the Owner shall pay to the Contractor all monies due under the provisions of these Contract Documents.

E.6.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner (1) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to the Owner, (2) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (3) consent of surety, if any, to final payment and (4), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses o furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

E.6.3 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by the payee except those previously made in writing and identified by that payee as unsettled at the time of final application for payment.

E.6.4 Contractor agrees to submit its final payment application within ninety (90) days after Substantial Completion, unless written extension is granted by Owner. Contractor shall not delay final payment application for any reason, including without limitation nonpayment of Subcontractors, suppliers, manufacturers or others not a party to this Contract, or lack of resolution of a dispute with Owner or any other person of matters arising out of or relating to the Contract. If Contractor fails to submit its final payment application within ninety (90) days after Substantial Completion, and Contractor has not obtained written extension by Owner, all requests or Claims for additional costs or an extension of Contract time shall be waived.

SECTION F
JOB SITE CONDITIONS

F.1 USE OF PREMISES

Contractor shall confine equipment, storage of materials and operation of Work to the limits indicated by Contract Documents, Applicable Laws, Permits, or directions of the Owner. Contractor shall follow the Owner's instructions regarding use of premises, if any.

F.2 PROTECTION OF WORKERS, PROPERTY AND THE PUBLIC

F.2.1 Contractor shall maintain continuous and adequate protection of all of the Work from damage and shall protect the Owner, workers and property from injury or loss arising in connection with this Contract. Contractor shall remedy acceptably to the Owner any damage, injury, or loss, except such as may be directly due to errors in the Contract Documents or caused by authorized representatives or personnel of the Owner. Contractor shall

adequately protect adjacent property as provided by law and the Contract Documents.

F.2.2 Contractor shall take all necessary precautions for the safety of all personnel on the job site or otherwise engaged in the undertaking of the Work and shall comply with the Contract Documents, best practices and all applicable provisions of federal, state and municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the Work is being performed. Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for protection of workers and the public against any hazards created by construction. Contractor shall designate a responsible employee or associate on the Work site, whose duty shall be the prevention of accidents. The name and position of the person designated shall be reported to the Owner. The Owner has no responsibility for Work site safety. Work site safety shall be the responsibility of the Contractor.

F.2.3 Contractor shall not enter upon private property without first obtaining permission from the property owner or its duly authorized representative. Contractor shall be responsible for the preservation of all public and private property along and adjacent to the Work contemplated under the Contract and shall use every precaution necessary to prevent damage thereto. In the event the Contractor damages any property, the Contractor shall at once notify the property owner and make, or arrange to make, full restitution. Contractor shall, immediately and in writing, report to the Owner, all pertinent facts relating to such property damage and the ultimate disposition of the claim for damage.

F.2.4 Contractor shall be responsible for protection of adjacent work areas including impacts brought about by activities, equipment, labor, utilities, vehicles and materials on the site.

F.2.5 Contractor shall at all times direct its activities in such a manner as to minimize adverse effects on the environment. Handling of all materials shall be conducted so no release will occur that may pollute or become hazardous.

F.2.6 In an emergency affecting the safety of life or limb or of the Work or of adjoining property, the Contractor, without special instruction or authorization from the Owner, shall act reasonably to prevent threatened loss or injury, and shall so act, without appeal, if instructed by the Owner. Any compensation claimed by the Contractor on account of emergency work shall be determined in accordance with section D.

F.2.7 Contractor shall comply with all Owner safety rules and regulations. Prior to commencement of any Work, Contractor shall be required to complete an Owner Contractor Safety Orientation and submit all Owner required safety plans.

F.3 CUTTING AND PATCHING

F.3.1 Contractor shall be responsible for coordinating all cutting, fitting, or patching of the Work to make its several parts come together properly and fit to receive or be received by Work of other Contractors or Subcontractors shown upon, or reasonably implied by, the Contract Documents.

F.3.2 Contractor shall be responsible for restoring all cut, fitted, or patched surfaces to an original condition; provided, however, that if a different condition is specified in the Contract Documents, then Contractor shall be responsible for restoring such surfaces to the condition specified in the Contract Documents.

F.4 CLEANING UP

From time to time as may be prudent or ordered by the Owner and, in any event, immediately after completion of the Work, the Contractor shall, at its own expense, clean up and remove all refuse and unused materials of any kind resulting from the Work. If Contractor fails to do so within twenty-four hours after notification by the Owner the work may be done by others and the cost charged to the Contractor and deducted from payment due the Contractor.

F.5 ENVIRONMENTAL CONTAMINATION

F.5.1 Contractor shall be held responsible for and shall indemnify, defend (with counsel of Owner's choice), and hold harmless Owner from and against any costs, expenses, damages, claims, and causes of action, (including attorney fees), or any of them, resulting from all spills, releases, discharges, leaks and disposal of environmental pollution, including storage, transportation, and handling during the performance of the Work or Contractor's obligations under the Contract which occur as a result of, or are contributed by, the negligence or actions of Contractor or its personnel, agents, or Subcontractors or any failure to perform in accordance with the Contract Documents (except to the extent otherwise void under ORS 30.140). Nothing in this section F.5.1 shall limit Contractor's responsibility for obtaining insurance coverages required under Section G.3 of this Contract, and Contractor shall take no action that would void or impair such coverages.

F.5.1.1 Contractor agrees to promptly dispose of such spills, releases, discharge or leaks to the satisfaction of Owner and regulatory agencies having jurisdiction in a manner that complies with Applicable Laws. Cleanup shall be at no cost to the Owner and shall be performed by properly qualified and, if applicable, licensed personnel.

F.5.1.2 Contractor shall obtain the Owner's written consent prior to bringing onto the Work site any (i) environmental pollutants or (ii) hazardous substances or materials, as the same or reasonably similar terms are used in any Applicable Laws. Notwithstanding such written consent from the Owner, the Contractor, at all times, shall:

a) Properly handle, use and dispose of all environmental pollutants and hazardous substances or materials brought onto the Work site, in accordance with all Applicable Laws;
b) Be responsible for any and all spills, releases, discharges, or leaks of (or from) environmental pollutants or hazardous substances or materials which Contractor has brought onto the Work site; and
c) Promptly clean up and remediate, without cost to the Owner, such spills, releases, discharges, or leaks to the Owner's satisfaction and in compliance with all Applicable Laws.

F.5.2 Contractor shall report all reportable quantity releases, as such releases are defined in Applicable Laws, including but not limited to 40 CFR Part 302, Table 302.4 and in OAR 340-1420050, to applicable federal, state, and local regulatory and emergency response agencies. Upon discovery, regardless of quantity, Contractor must telephonically report all releases to the Owner. A written follow-up report shall be submitted to Owner within 48 hours of the telephonic report. Such written report shall contain, as a minimum:

a) Description of items released (identity, quantity, manifest numbers, and any and all other documentation required by law.)
b) Whether amount of items released is EPA/DEQ reportable, and, if so, when reported.
c) Exact time and location of release, including a description of the area involved.
d) Containment procedures initiated.
e) Summary of communications about the release between Contractor and members of the press or state, local or federal officials other than Owner
f) Description of cleanup procedures employed or to be employed at the site, including disposal location of spill residue.
g) Personal injuries, if any, resulting from, or aggravated by, the release.

F.6 ENVIRONMENTAL CLEAN-UP

F.6.1 Unless disposition of environmental pollution is specifically a part of this Contract, or was caused by the Contractor (reference F.5 Environmental Contamination), Contractor shall immediately notify Owner of any hazardous substance(s) which Contractor discovers or encounters during performance of the Work required by this Contract. "Hazardous substance(s)" means any hazardous, toxic and radioactive materials and those substances defined as "hazardous substances", "hazardous materials", "hazardous wastes", "toxic substances', or other similar designations in any federal, state, or local law, regulation, or ordinance, including without limitation asbestos, polychlorinated biphenyl (PCB), or petroleum, and any substances, materials or wastes regulated by 40 CFR, Part 261 and defined as hazardous in 40 CFR S 261.3. In addition to notifying Owner of any hazardous substances(s) discovered or encountered, Contractor shall immediately cease working in any particular area of the project where a hazardous substance(s) has been discovered or encountered if continued work in such area would present a risk or danger to the health or well-being of Contractor's or any Subcontractor's work force, property or the environment.

F.6.2 Upon being notified by Contractor of the presence of hazardous substance(s) on the project site, Owner shall arrange for the proper disposition of such hazardous substance(s).

F.7 FORCE MAJEURE

A party to this Contract shall not be held responsible for delay or default due to Force Majeure acts, events or occurrences unless they could have been avoided by the exercise of reasonable care, prudence, foresight, and diligence by that party. The Owner may terminate this Contract upon written notice after determining that delay or default caused by Force Majeure acts, events or occurrences will reasonably prevent successful performance of the Contract.

SECTION G
INDEMNITY, BONDING, AND INSURANCE

G.1 RESPONSIBILITY FOR DAMAGES/INDEMNITY

G.1.1 Contractor shall be responsible for all damage to property, injury to persons, and loss, expense, inconvenience, and delay that may be caused by, or result from, the carrying out of the Work to be done under this Contract, or from any act, omission or neglect of the Contractor, its Subcontractors, employees, guests, visitors, invites and agents.

G.1.2 To the fullest extent permitted by law, Contractor shall indemnify, defend (with counsel approved by Owner) and hold harmless the Owner, Architect/Engineer, Architect/Engineer's consultants, and their respective officers, directors, agents, employees, partners, members, stockholders and affiliated companies (collectively "Indemnitees") from and against all liabilities, damages, losses, claims, expenses (including reasonable attorney fees), demands and actions of any nature whatsoever which arise out of, result from or are related to, (a) any damage, injury, loss, expense, inconvenience or delay described in this Section G.1., (b) any accident or occurrence which happens or is alleged to have happened in or about the project site or any place where the Work is being performed, or in the vicinity of either, at any time prior to the time the Work is fully completed in all respects, (c) any failure of the Contractor to observe or perform any duty or obligation under the Contract Documents which is to be observed or performed by the Contractor, or any breach of any agreement, representation or warranty of the Contractor contained in the Contract Documents or in any subcontract, (d) the negligent acts or omissions of the Contractor, Subcontractor or anyone directly or indirectly employed by them or any one of them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder (except to the extent otherwise void under ORS 30.140), and € any lien filed upon the project or bond claim in connection with the Work. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section G.1.2.

G.1.3 In claims against any person or entity indemnified under Section G.1.2 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section G.1.2 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

G.3 INSURANCE

G.c.1 Primary Coverage: Insurance carried by Contractor under this Contract shall be the primary coverage. The coverages indicated are minimums unless otherwise specified in the Contract Documents.

G.3.2 Workers' Compensation: All employers, including Contractor, that employ subject workers who work under this Contract in the State of Oregon shall comply with ORS 656.017 and provide the required Workers' Compensation coverage, unless such employers are exempt under ORS 656.126. This shall include Employer's Liability Insurance with coverage limits of not less than the minimum amount required by statute for each accident. Contractors who perform the Work without the assistance or labor of any employee need not obtain such coverage if the Contractor certifies so in writing. Contractor shall ensure that each of its Subcontractors complies with these requirements. The Contractor shall require proof of such Workers' Compensation coverage by receiving and keeping on file a certificate of insurance from each Subcontractor or anyone else directly employed by either the Contractor or its Subcontractors.

G.3.3 Builder's Risk Insurance:

G.3.3.1 Builder's Risk: During the term of this Contract, for new construction the Contractor shall obtain and keep in effect Builder's Risk insurance on an all risk forms, including earthquake and flood, for an amount equal to the full amount of the Contract, plus any changes in values due to modifications, Change Orders and loss of materials added. Such Builder's Risk shall include, in addition to earthquake and flood, theft, vandalism, mischief, collapse, transit, debris removal and architect's fees ("soft costs") associated with delay of project due to insured peril. Any deductible shall not exceed $50,000 for each loss, except the earthquake and flood deductible which shall not exceed 2 percent of each loss or $50,000, whichever is greater. The deductible shall be paid by Contractor if Contractor is negligent. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear.

G.3.3.2 Builder's Risk Installation Floater: For Work other than new construction, Contractor shall obtain and keep in effect during the term of this Contract, a Builder's Risk Installation Floater for coverage of the Contractor's labor, materials and equipment to be used for completion of the Work performed under this Contract. The minimum amount of coverage to be carried shall be equal to the full amount of the Contract. The policy will include as loss payees Owner, the Contractor and its Subcontractors as their interests may appear. Owner may waive this requirement at its sole and absolute discretion.

G.3.3.3 Such insurance shall be maintained until Owner has occupied the facility.

G.3.3.4 A loss insured under the Builder's Risk insurance shall be adjusted by the Owner and made payable to the Owner as loss payee. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner. The Owner shall have power to adjust and settle a loss with insurers.

G.3.4 General Liability Insurance:

G.3.4.1 Commercial General Liability: Upon execution of a Contract, Contractor shall obtain, and keep in effect at Contractor's expense for the term of the Contract, Commercial General Liability Insurance ("CGL") covering bodily injury and property damage in the amount of not less than $1,000,000 per claim and $2,000,000 per occurrence in a form satisfactory to Owner. This insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the indemnities provided under this Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis written on ISO Form GC 00 01 (12 04 or later) or an equivalent form approved in advance by Owner. The CGL shall provide separation of insured language.

G.3.4.2 Automobile Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Automobile Liability Insurance covering owned, and/or hired vehicles, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Contractor shall provide proof of insurance of not less than $1,000,000 per claim and $2,000,000 per occurrence. Contractor and its Subcontractors shall be responsible for ensuring that all non-owned vehicles maintain adequate Automobile Liability Insurance while on site.

G.3.4.3 Owner may adjust the insurance amounts required in Section G.3.4.1 and G.3.4.2 based upon institution specific risk assessments through the issuance of Supplemental General Conditions and a Contract.

G.3.4.4 To the extent that the Contract Documents require the Contractor to provide professional design services, design-build, or certifications related to systems, materials, or equipment, the Contractor shall (1) purchase and maintain professional liability/errors-and-omissions insurance with limits of not less than $1,000,000 for each claim and (2) cause those Subcontractors (of any tier) who are providing professional design services including any design-build services to procure and maintain professional liability/errors-and-omissions insurance with limits of not less than $1,000,000 for each claim.

G.3.4.5 "Tail" Coverage: If any of the required liability insurance is arranged on a "claims made" basis, "tail" coverage will be required at the completion of this Contract for a duration of 36 months or the maximum time period available in the marketplace if less than 36 months. Contractor shall furnish certification of "tail" coverage as described or continuous "claims made" liability coverage for 36 months following Final Completion. Continuous "claims made" coverage will be acceptable in lieu of "tail" coverage, provided its retroactive date is on or before the effective date of this Contract. Owner's receipt of the policy endorsement evidencing such coverage shall be a condition precedent to Owner's obligation to make final payment and to Owner's final acceptance of Work or services and related warranty (if any).

G.3.4.6 Umbrella Liability (if required by Owner through issuance of Supplemental General Conditions): Contractor shall obtain, at Contractor's expense, and keep in effect during the term of the Contract, Umbrella Liability Insurance over and above the general liability, automobile liability and workers' compensation coverage if required by Owner in specified limits at time of requirement

G.3.4.7 Pollution Liability (if required by Owner through issuance of Supplemental General Conditions): Contractor shall obtain, at Contractor's expense, and keep in effect during the term of the Contract, Pollution Liability Insurance in minimum amounts of $3,000,000, naming Owner as "additional insured," as noted in the "additional insured section below.

G.3.5 Additional Insured: The general liability insurance coverage, liability, umbrella, and pollution liability if required, shall include the Owner as additional insureds but only with respect to the Contractor's activities to be performed under this Contract. The additional insured endorsement for CGL insurance must be written on IS Form CG 20 10 (10 01) and CG 20 37 (10 01) , or their equivalent, but shall not use either of the following forms: CG 20 10 (10 93) or CG 20 10 (03 94).

If Contractor cannot obtain an insurer to name the Owner as additional insureds, Contractor shall obtain at Contractor's expense, and keep in effect during the term of this Contract, Owners and Contractors Protective Liability Insurance, naming the Owner as additional insureds with not less than a $2,000,000 limit per occurrence. This policy must be kept in effect for 36 months following Final Completion. As evidence of coverage, Contractor shall furnish the actual policy to Owner prior to execution of the Contract.

G.3.6 Notice of Cancellation or Change: If the Contractor receives a non-renewal or cancellation notice from an insurance carrier affording coverage required herein, or receives notice that coverage no longer complies with the insurance requirements herein, Contractor agrees to notify Owner by fax within five (5) business days with a copy of the non-renewal or cancellation notice, or written specifics as to which coverage is no longer in compliance. When notified by Owner, the Contractor agrees to stop Work pursuant to this Contract, unless all required insurance remain in effect. Any failure to comply with the reporting provisions of this insurance, except for the potential exhaustion of aggregate limits, shall not affect the coverages provided to the Owner and its institutions, divisions, officers, and employees

Owner shall have the right, but not the obligation, of prohibiting Contractor from entering the Work site until a new certificate(s) of insurance is provided to Owner evidencing the replacement coverage. The Contractor agrees that Owner reserves the right to withhold payment to Contractor until evidence of reinstated or replacement coverage is provided to Owner.

G.3.7 Certificate(s) of Insurance: As evidence of the insurance coverage required by the Contract, the Contractor shall furnish certificate(s) of insurance to the Owner prior to execution of the Contract. The certificate(s) will specify all of the parties who are additional insureds or loss payees for the contract. Insurance coverage required under this Contract shall be obtained from insurance companies or entities acceptable to the Owner and that are eligible to provide such insurance under Oregon law. Eligible insurers include admitted insurers that have been issued a certificate of authority from the Oregon Department of Consumer and Business Services authorizing them to conduct an insurance business and issue policies of insurance in the state of Oregon, and certain non-admitted surplus lines insurers that satisfy the requirements of applicable Oregon law and which are subject to approval by the Owner. The Contractor shall be financially responsible for all deductibles, self-insured retentions and/or self-insurance included hereunder. Any deductible, self-insured retention and/or self-insurance in excess of $50,000 shall be subject to approval by the Owner in writing and shall be a condition precedent to the effectiveness of any Contract.

SECTION H
SCHEDULE OF WORK

H.1 CONTRACT PERIOD

H.1.1 Time is of the essence. The Contractor shall at all times carry on the Work diligently, without delay and punctually fulfill all requirements herein. If required by the Contract Documents, Contractor shall commence Work on the site within fifteen (15) Days of Notice to Proceed, unless directed otherwise.

H.1.2 Unless specifically extended by a Change Order, all Work shall be complete by the date contained in the Contract Documents. The Owner shall have the right to accelerate the completion date of the Work, which may require the use of overtime. Such accelerated Work schedule shall be an acceleration in performance of Work under Section D.1.2 (f) and shall be subject to the provisions of Section D.1

H.1.3 The Owner shall not waive any rights under the Contract by permitting the Contractor to continue or complete in whole or in part the Work after the date described in Section H.1.2 above.

H.2 SCHEDULE

H.2.1 Contractor shall provide, by or before the pre-construction conference, the initial as-planned schedule for review and acceptance by the Owner. The submitted schedule must illustrate Work by project components, labor trades, and long lead items broken down by building and/or floor where applicable. If Owner shall so elect, Contractor shall provide the schedule in CPM format showing the graphical network of planned activities, including i) a reasonably detailed list of all activities required to complete the Work; ii) the time and duration that each activity will take to completion; and iii) the dependencies between the activities. Schedules lacking adequate detail, or unreasonably detailed, will be rejected. The schedule shall include the following; Notice to Proceed or the date the Work commences, if no Notice to Proceed is issued by Owner, Substantial Completion, and Final Completion. Schedules shall be updated monthly, unless otherwise required by the Contract Documents, and submitted with the monthly application for payment. Acceptance of the Schedule by the Owner does not constitute agreement by the Owner as to the Contractor's sequencing, means, methods, or durations. Any positive difference between the Contractor's scheduled completion and the Contract completion date is float owned by the Owner. Owner reserves the right to negotiate the float if it is deemed to be in the Owner's best interest to do so. In no case shall the Contractor make a claim for delays if the Work is completed within the Contract Time but after Contractor's scheduled completion.

H.2.2 All Work shall be completed during normal weekdays (Monday through Friday) between the hours of 7:00 am and 5:00 pm unless otherwise specified in the Contract Documents Unless otherwise specified in the Contract Documents, no Work shall be performed during the following holidays:

- New Year's Day
- Martin Luther King Day
- Memorial Day
- Independence Day
- Labor Day
- Veterans Day
- Thanksgiving Day
- Christmas Day

When a holiday falls on a Sunday, the following Monday shall be recognized as a legal holiday. When a holiday falls on Saturday, the preceding Friday shall be recognized as a legal holiday.

H.3 PARTIAL OCCUPANCE OR USE

H.3.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided such occupancy or use is consented to by public authorities having jurisdiction over the work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have reasonably accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, insurance or self-insurance, maintenance, heat, utilities, and damage to the Work, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents with respect to such portion of the Work. Approval by the Contractor to partial occupancy or use shall not be unreasonably withheld. Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work. Partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

SECTION I
CORRECTION OF WORK

I.1 CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects, and that the Work will conform to the requirements of the Contract Documents. Work failing to conform to these requirements shall be deemed defective. Contractor shall promptly remove from the premises and replace all defective materials and equipment as determined by the Owner, whether incorporated in the Work or not. Removal and replacement shall be without loss or expense to the Owner, and Contractor shall bear the cost of repairing all Work destroyed or damaged by such removal or replacement. Contractor shall be allowed a period of no longer than thirty (30) days after Substantial Completion for completion of defective (Punch list) work. At the end of the thirty day period, or earlier if requested by the Contractor, Owner shall arrange for inspection of the Work by the Architect/Engineer. Should the work not be complete, and all corrections made, the costs for all subsequent re-inspections shall be borne by the Contractor. If Contractor fails to complete the Punch List work within the thirty (30) day period, Owner may perform such work and Contractor shall reimburse Owner all costs of the same within ten (10) days after demand without affecting Contractor's obligation.

I.2 WARRANTY WORK

I.2.1 Neither the final certificate of payment nor any provision of the Contract Documents shall relieve the Contractor from responsibility for defective Work and, unless a longer period is specified, Contractor shall correct all defects that appear in the Work within a period of one year from the date of issuance of the written notice of Substantial Completion by the Owner except for latent defects which will be remedied by the Contractor at any time they become apparent. The Owner shall give Contractor notice of defects with reasonable promptness. Contractor shall perform such warranty work within a reasonable time after Owner's demand. If Contractor fails to complete the warranty work within such period as Owner determines reasonable, or at any time in the event of warranty work consisting of emergency repairs, Owner may perform such work and Contractor shall

reimburse Owner all costs of the same within ten (10) days after demand, without affecting Contractor's obligations. The Contractor shall perform the warranty Work by correcting defects within twenty-four (24) hours of notification by Owner, unless otherwise specified in the Contract Documents. Should the Contractor fail to respond within the specified response time, the Owner may, at its option, complete the necessary repairs using another contractor or its own forces. If Owner completes the repairs using Owner's own forces, Contractor shall pay Owner at the rate of one and one-half (1 ½) times the standard hourly rate of Owner's forces, plus related overhead and any direct non-salary costs. If Owner completes the repairs using another contractor, Contractor shall pay Owner the amount of Owner's direct costs billed by the other contractor for the work, plus the direct salary costs and related overhead and direct non-salary expenses of Owner's forces who are required to monitor that contractor's work. Work performed by Owner using Owner's own forces or those of another contractor shall not affect the Contractor's contractual duties under these provisions, including warranty provisions.

I.2.2 Nothing in this Section I.2provision shall negate guarantees or warranties for periods longer than one year including, without limitation, such guarantees or warranties required by other sections of the Contract Documents for specific installations, materials, processes, equipment or fixtures.

I.2.3 In addition to Contractor's warranty, manufacturer's warranties shall pass to the Owner and shall not take effect until such portion of the Work covered by the applicable warranty has been accepted in writing by the Owner.

I.2.4 The one-year period for correction of Work shall be extended with respect to portions of Work performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work, and shall be extended by corrective Work performed by the Contractor pursuant to this Section, as to the Work corrected. The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

I.2.5 Nothing contained in this Section I.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the period for correction of Work as described in this Section I.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

I.2.6 If the Owner prefers to accept the Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Price will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

SECTION J
SUSPENSION AND/OR TERMINATION OF THE WORK

J.1 OWNER'S RIGHT TO SUSPEND THE WORK

J.1.1 The Owner has the authority to suspend portions or all of the Work due to the following causes:

a) Failure of the Contractor to correct unsafe conditions;
b) Failure of the Contractor to carry out any provision of the Contract;
c) Failure of the Contractor to carry out orders;
d) Conditions, in the opinion of the Owner, which are unsuitable for performing the Work;
e) Time required to investigate differing site conditions;
f) Any reason considered to be in the public interest.

J.1.2 The Owner shall notify Contractor and the Contractor's Surety in writing of the effective date and time of the suspension, and Owner shall notify Contractor and Contractor's surety in writing to resume Work.

J.2 CONTRACTOR'S RESPONSIBILITIES

J.2.1 During the period of the suspension, Contractor is responsible to continue maintenance at the project just as if the Work were in progress. This includes, but is not limited to, protection of completed Work, maintenance of access, protection of stored materials, temporary facilities, and clean-up.

J.2.2 When the Work is recommenced after the suspension, the Contractor shall replace or renew any Work damaged during the suspension, remove any materials or facilities used as part of temporary maintenance, and complete the Work in every respect as though its prosecution had been continuous and without suspension.

J.3 COMPENSATION FOR SUSPENSION

J.3.1 Depending on the reason for suspension of the Work, the Contractor or the Owner may be due compensation by the other party. If the suspension was required due to acts or omissions of Contractor, the Owner may assess the Contractor actual costs of the suspension in terms of administration, remedial work by the Owner's forces or another contractor to correct the problem associated with the suspension, rent of temporary facilities, and other actual costs related to the suspension. If the suspension was caused by acts or omissions of the Owner, the Contractor may be due compensation which shall be defined using Section D, Changes in Work. If the suspension was required through no fault of the Contractor or the Owner, neither party shall owe the other for the impact.

J.4 OWNER'S RIGHT TO TERMINATE CONTRACT

J.4.1 The Owner may, without prejudice to any other right or remedy, and after giving Contractor seven (7) days' written notice and on opportunity to cure, terminate the Contract in whole or in part under the following conditions:

a) If Contractor should, voluntarily or involuntarily, seek protection under the United States Bankruptcy Code and Contractor as debtor-in-possession or the Trustee for the estate fails to assume the Contract within a reasonable time;
b) If Contractor should make a general assignment for the benefit of Contractor's creditors;
c) If a receiver should be appointed on account of Contractor's insolvency;
d) If Contractor should repeatedly refuse or fail to supply an adequate number of skilled workers or proper materials to carry on the Work as required by the Contract Documents, or otherwise fail to perform the Work in a timely manner;
e) If Contractor should repeatedly fail to make prompt payment to Subcontractors or for material or labor, or should disregard laws, ordinances or the instructions of the Owner; or
f) If Contractor is otherwise in breach of any part of the Contract.
g) If Contractor is in violation of Applicable Laws, either in the conduct of its business or in its performance of the Work.

J.4.2 At any time that any of the above occurs, Owner may exercise all rights and remedies available to Owner at law or in equity, and, in addition, Owner may take possession of the premises and of all materials and appliances and finish the Work by whatever method it may deem

expedient. In such case, the Contractor shall not be entitled to receive further payment until Work is completed. If the Owner's cost of finishing the Work exceeds the unpaid balance of the Contract Price, Contractor shall pay the difference to the Owner.

J.5 TERMINATION FOR CONVENIENCE

J.5.1 Owner may terminate the Contract in whole or in part whenever Owner determines that termination of the Contract is in the best interest of Owner or the public.

J.5.2 The Owner shall provide the Contractor with seven (7) days prior written notice of a termination for Owner's or for public convenience. After such notice, the Contractor shall provide the Owner with immediate and peaceful possession of the premises and materials located on and off the premises for which the Contractor received progress payment under Section E. Compensation for Work terminated by the Owner under this provision will be according to Section E. In no circumstance shall Contractor be entitled to lost profits for Work not performed due to termination.

J.6 ACTION UPON TERMINATION

J.6.1 Upon receiving a notice of termination, and except as directed otherwise by the Owner, Contractor shall immediately cease placing further subcontracts or orders for materials, services or facilities. In addition, Contractor shall terminate all subcontracts or orders to the extent they relate to the Work terminated and, with the prior written approval of the Owner, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts and orders.

J.6.2 As directed by the Owner, Contractor shall, upon termination, transfer title and deliver to the Owner all Record Documents, information, and other property that, if the Contract had been completed, would have been required to be furnished to the Owner.

J.6.3 Upon Owner's notice of termination pursuant to either Section J.4 or J.5, if Owner shall so elect, Contractor shall assign to the Owner such subcontracts and orders as Owner shall specify. In the event Owner elects to take assignment of any such subcontract or order, Contractor shall take such action and shall execute such documents as Owner shall reasonably require for the effectiveness of such assignment and Contractor shall ensure that no contractual arrangement between it and its subcontractors or suppliers of any tier or sub-tier shall prevent such assignment.

SECTION K
CONTRACT CLOSE OUT

K.1 RECORD DOCUMENTS

As a condition of final payment (refer also to section E.6), Contractor shall comply with the following: Contractor shall provide Record Documents for the entire project to Owner. Record Documents shall depict the project as constructed and shall reflect each and every change, modification, and deletion made during the construction. Record Documents are part of the Work and shall be provided prior to the Owner's issuance of final payment. Record Documents include all modifications to the Contract Documents, unless otherwise directed, and accurate MWESB Reports.

K.2 OPERATION AND MAINTENANCE MANUALS

As part of the Work, Contractor shall submit two completed operation and maintenance manuals ("O & M Manuals") for review by the Owner prior to submission of any pay request for more than 75% of the Work. Owner's receipt of the O & M Manuals shall be a condition precedent to any payment thereafter due. The O & M Manuals shall contain a complete set of all submittals, all product data as required by the specifications, training information, telephone list and contact information for all consultants, manufacturers, installer and suppliers, manufacturer's printed data, record and shop drawings, schematic diagrams of systems, appropriate equipment indices, warranties and bonds. The Owner shall review and return one O & M Manual for any modifications or adjustments required. Prior to submission of its final pay request, Contractor shall deliver two (2) complete and approved sets of O & M Manuals in paper form and one (1) complete and approved set in electronic form to the Owner and Owner's receipt of the O & M Manuals shall be a condition precedent to Owner's obligation to make final payment.

K.3 COMPLETION NOTICES

K.3.1 Contractor shall provide Owner written notice of both Substantial and Final Completion. The certificate of Substantial Completion shall state the date of Substantial Completion, the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and the time within which the Contractor shall finish all items on the Punch List accompanying the Certificate. Both completion notices must be signed and notarized by the Contractor and signed by the Architect/Engineer (if applicable) and Owner to be valid. The Owner shall provide the final signature on the notices. The notices shall take effect on the date they are signed by the Owner.

K.3.2 Substantial Completion of a facility with operating systems (e.g., mechanical, electrical, HVAC) shall be that degree of completion that has provided a minimum of thirty (30) continuous days of successful, trouble-free operations, which period shall begin after all performance and acceptance testing has been successfully demonstrated to the Owner. All equipment contained in the Work, plus all other components necessary to enable the Owner to operate the facility in the manner that was intended, shall be complete on the Substantial Completion date. The Contractor may request that a Punch List be prepared by the Owner with submission of the request for the Substantial Completion notice.

K.4 TRAINING

As part of the Work, and prior to submission of the final application for payment, the Contractor shall schedule with the Owner training sessions for all equipment and systems as required by the Contract Documents. Contractor shall schedule training sessions at least two weeks in advance of the date of training to allow Owner to provide its personnel with adequate notice. The O & M Manual shall be used as a basis for training. In addition to any off-site training required by the Contract Documents, training shall include a formal session conducted at the Work site, after the equipment and/or system is completely installed and operational in its normal operating environment.

K.5 EXTRA MATERIALS

As part of the Work, Contractor shall provide spare parts, extra maintenance materials, and other materials or products in the quantities specified in the Contract Documents prior to final payment. Delivery point for extra materials shall be designated by the Owner.

K.6 ENVIRONMENTAL CLEAN-UP

As part of the Final Completion notice, or as a separate written notice submitted with or before the notice of Final Completion, the Contractor shall notify the Owner that all environmental and pollution clean-up, remediation and closure have been completed in accordance with all Applicable Laws and pursuant to the authority of all agencies having jurisdiction, and Contractor shall provide Owner with any and all documentation related to the same, including but not limited to directives, orders, letters, certificates and permits related to or arising from such environmental pollution. The notice shall reaffirm the indemnification given under Section F.5.1 above. Contractor's completion of its obligations under this Section K.6 and Owner's receipt of documents evidencing such completion shall be a condition precedent to Owner's obligation to make final payment.

K.7 CERTIFICATE OF OCCUPANCY

Owner's receipt of an unconditioned certificate of occupancy from the appropriate state and/or local building officials shall be a condition precedent to Owner's obligation to make final payment, except to the extent failure to obtain an unconditional certificate of occupancy is due to the fault or neglect of Owner.

K.8 OTHER CONTRACTOR RESPONSIBILITIES

The Contractor shall be responsible for returning to the Owner all property of Owner issued to Contractor during construction such as keys, security passes, site admittance badges, and all other pertinent items. Upon notice from Owner, Contractor shall be responsible for notifying the appropriate utility companies to transfer utility charges from the Contractor to the Owner. The utility transfer date shall not be before Substantial Completion and may not be until Final Completion, if the Owner does not take beneficial use of the facility and Contractor's forces continue with the Work.

The Owner's property is tobacco free, drug free, and weapons free areas. Contractor shall be required to ensure that its employees, Subcontractors and agents shall comply with the Owner Drug, Tobacco and Weapon Free Camus policies, hereby incorporated by reference.

K.9 SURVIVAL

All warranty and indemnification provisions of this Contract, and all of Contractor's other obligations under this Contract that are not fully performed by the time of Final Completion or termination, shall survive Final Completion or any termination of the Contract.