317 N. Cruse Ave., Suite 201
Helena, MT 59601
406.449.2013
www.mosaicarch.com

ADDENDUM NO: 02

DATE: **Thursday – November 13, 2026**

PROJECT: **MSU Hamilton Hall Life Safety System Improvements** Bozeman, Montana

ARCHITECT: Mosaic Architecture, 317 N. Cruse Ave., Suite 201

TO: All plan holders of record

The above-numbered solicitation is amended as set forth below. Bidders/Offerors must acknowledge receipt of this amendment prior to the hour and date specified for receipt of bids/proposals, by completing the addendum acknowledgement on the form titled "Bid Proposal".

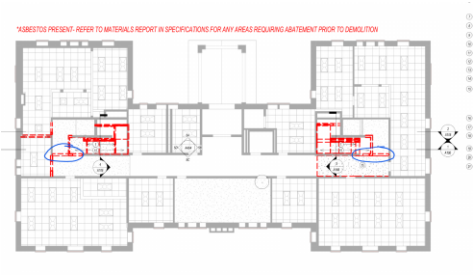
BID DATE CHANGE:

1. **Bid date changed until closing time of 2:00 p.m. on December 2, 2026.**
2. Note: Since bid date has been moved all questions should be sent prior to November 18, 2026. Addendum # 3 will be issued November 19, 2026. With Thanksgiving holiday the following week, we will not be able to issue another addendum prior to bid day.

GENERAL QUESTIONS AND RESPONSES:

1. Question: Are the laser engraved panels shown on Sheet A407 provided by the Contractor. Response: Yes, these custom fabricated panels will be hardwood veneer plywood and stained to match all casework (white oak). A704 has some more details on how they mount and the layout. The final image will be coordinated and provided during submittals.
2. Question: Some wall types call for metal studs, are there metal studs in the project? Response: It is Contractor's option to use metal or wood studs.
3. Question: What is the wall finish being removed at note 16 on 3/A102. Response: Remove wall material down to existing studs.
4. Question: Per Detail 5/102, the door at the base of the 2nd floor stairs is to be removed. However, on 2/A102, that same door is to be salvaged and reinstalled. Response: Door will be removed. Door schedule shows this door being a new door.
5. Question: Detail 6/A102 has a note 15 on a wall similar to 3/A102. 3/A102 wall is called out to have the finish removed and prepped for new wall finish. 6/A102 is calling for the same wall to have the gypsum removed. Response: Remove wall material down to existing studs.

6. Question: There are two demo lines that show up on 1/A102 that are not shown on 2/A102; however, they look like wall or soffit lines. Response: The lines in question are soffits.

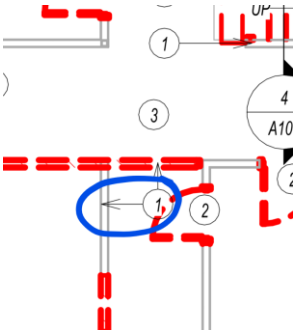


7. Question: General Note 2 on the demo plans state to “see civil drawings for site demolition.” However, no civil plans exist. Response: No site demolition is required.

8. Question: General Note 9 on the demo plans states that the floor structure is potentially a concrete slab. However, the structural plans have diagonal planking called out as the structure. Response: There are no concrete slabs structures.

9. Question: Per the walk through all flooring is to be demoed, however it is not clear on demolition plans. Response: All flooring is to be removed on 3rd and 4th floors.

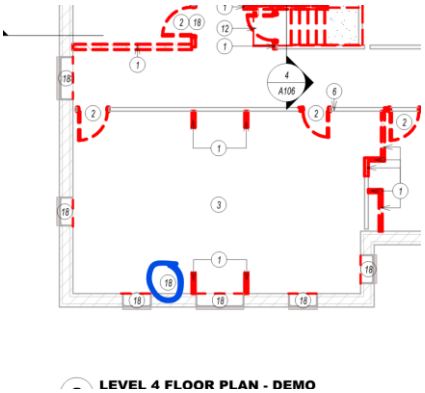
10. Question: On level 3, Sheet A103, there is a keynote 1 wall demo clout that doesn’t appear to be demoed on Sheets A103 and A113. Response: Wall is to remain, no demolition required.



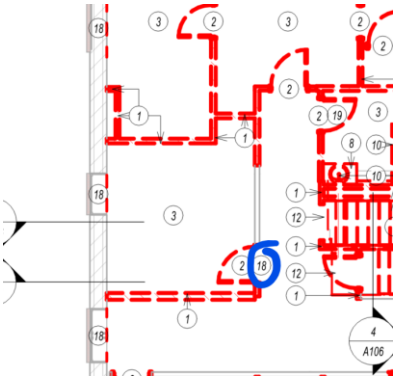
11. Question: What is the wall finish being removed at keynote 16 on A103. Response: Remove wall material down to existing studs.



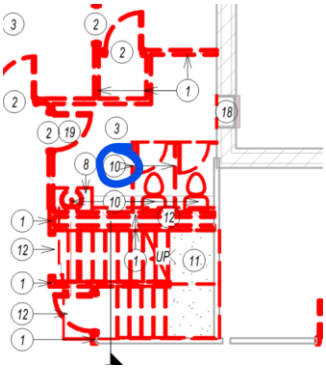
12. Question: Sheet 2/A104 is there an additional window interior/exterior that requires the additional keynote 8 callout or is it a duplicate callout 18. Response: Omit the callout 18 mark.



13. Question: Sheet 2/A104 is highlighted keynote 18 supposed to be keynote 21. Response: Yes, should be keynote 21.



14. Question: Sheet 2/A104 is the highlighted keynote 10 supposed to be keynote 9. Response: Yes, should be keynote 9.



15. Question: Sheets 1/A103 and 1/A103 are the highlighted assemblies supposed to be keynote 15 gypsum ceiling demolition? The same instance occurs for two closets on 1/A104. Response: Yes, should be keynote 15 removals of gypsum ceilings.



16. Question: Detail 4/A105 calls out keynote 17 however that same space on details calls out keynote 12. Please verify keynote 17 on 4/A105 is supposed to be keynote 12. Response: Yes, should be keynote 12.

17. Question: Are alternates/substitutions to the current furniture specification and design allowed for bidding. Response: Basis of Design/Approved Equals: The specified products establish the basis of design and the required standards for design, quality, dimensions, fit, finish, functionality, durability, warranty, and performance.

    Approved equal or alternate products may be submitted for consideration, including those not currently in the State Contract, provided they meet or exceed the basis-of-design requirements. Proposed equals shall be clearly identified and accompanied by sufficient product information to demonstrate compliance.

    All substitutions are subject to review and approval by the Owner and/or Architect. The Owner's group has also spent the time selecting fabrics, finishes and colors from industry standards and use across furniture brands. The bidders should try to keep these elements to the specified types. If there are deviations, those would be at the bidder's risk for acceptance during submittal reviews as well. The Owner reserves the right to reject any proposed alternate that does not meet the established design intent or the required aesthetic, functional, quality, or performance standards. Approval of an alternate does not relieve the contractor of responsibility for providing all required furniture, finishes, accessories, installation, and coordination necessary for a complete and functional install.

18. Clarification: All flooring is to be replaced per the finish schedules on Sheets A701, A702, A703. Updated General Notes: This is an existing building which has seen many years of different remodels. Some areas of subflooring may be required to be replaced because of hazardous materials (see specifications for report) or replacement because of damage to the deck during removal of finishes. All sub-flooring is required to meet specifications of cleanliness and acceptable for new finishes and product manufacturer's installation and warranty requirements.

19. Question: On Sheet S101 near the west stair there is a (2) 2 x 12 header shown as a dashed line. Is this structural member to be removed? The same occurrence near the east stair does not show it dashed. Response: The beams should be shown dashed in both locations, indicating removal. They will be replaced by new steel beams shown on S111.

20. Question: Sheet S103 calls out an existing beam to be cut and supported by a new beam on the East stair but doesn't show it on the West stair. Is this required on the West side? Response: Our best understanding of the existing conditions right now is that the two stair configurations are different. What is shown currently is correct and should be used for estimating.
21. Question: Detail 2/S401 calls out LSTA12 at underside of joists. The detail makes it look like this is supposed to be a~30" strap. Should this be an LSTA30? Response: This strap can remain a LSTA12 but only (2) bays of blocking are required.

ARCHITECTURAL:

DRAWING CHANGES:

1. **Sheet A003 –** See revised signage plan.
2. **Sheets A1117 and A118** – See attached for existing window sizes. These sizes will be used for bidding window shades.

MECHANICAL/PLUMBING:

PRIOR APPROVALS:

1. Approved: Specification 23 0548 – Vibration and Seismic: Mason Industries.
2. Approved: Specification 23 0548 – Vibration and Seismic: Vibro-Acoustics.
3. Approved: Specification 23 3300 – Air Duct Accessories: Pottorff.
4. Approved: Specification 23 3300 – Air Duct Accessories: Sheet Metal Connectors.
5. Approved: Specification 23 3300 – Air Duct Accessories: Young Regulator.
6. Approved: Specification 23 3113 – Metal Ducts: OMNI Duct.
7. Approved: Specification 23 3113 – Metal Ducts: Western Spiral.
8. Approved: Specification 23 7200 – Air to Air Energy Recovery Equipment: American Aldes.
9. Approved: Specification 23 8216.14 – Electric Resistance Air Coils: Neptronic/Thermolec.
10. Approved: Specification 23 8125 – Ductless Split-Systems (-40 F Operation): Hitachi.
11. Approved: Specification 23 8231 – Hot Water Wall Heaters: Sigma.
12. Approved: Specification 23 2116 – Expansion Tanks: Grundfos.
13. Approved: Specification – Gravity Ventilators: ACME.
14. Approved: Specification – Gravity Ventilators: Loren Cook.
15. Approved: Venting Material: Security Chimney's (Duravent).

CONTRACTOR CLARIFICATION:

1. Question: Specification Section 23 8219 lists a salt-spray requirement for fan coils. Is this requirement accurate? Response: No, salt-spray resistant coating is not accurate for this project. It will be removed from section 23 8219.

SPECIFICATION CHANGE:

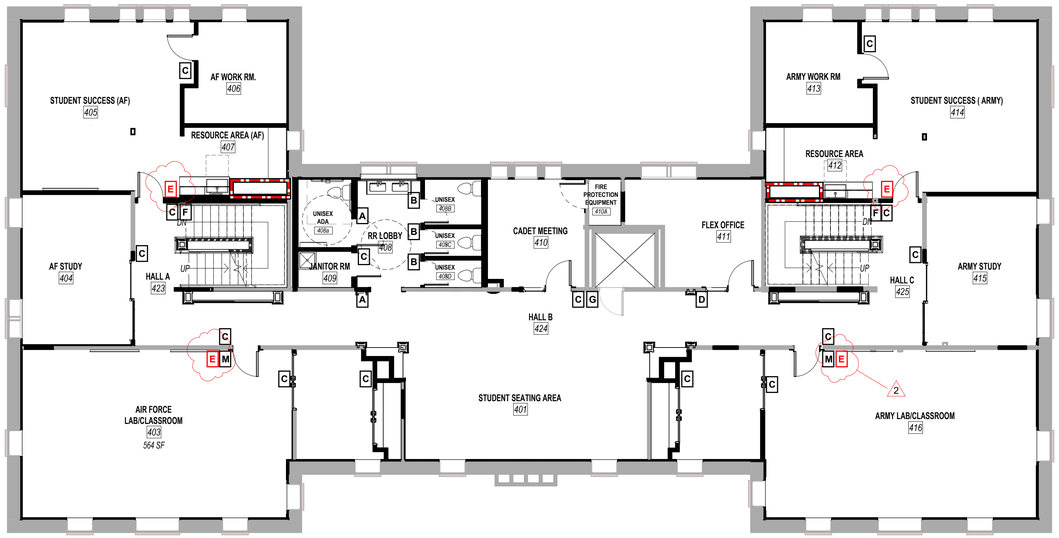
1. Specification Section 23 2116 – Hydronic Piping Specialties, 2.02, B – Added expansion tank information to the specification.

ELECTRICAL:

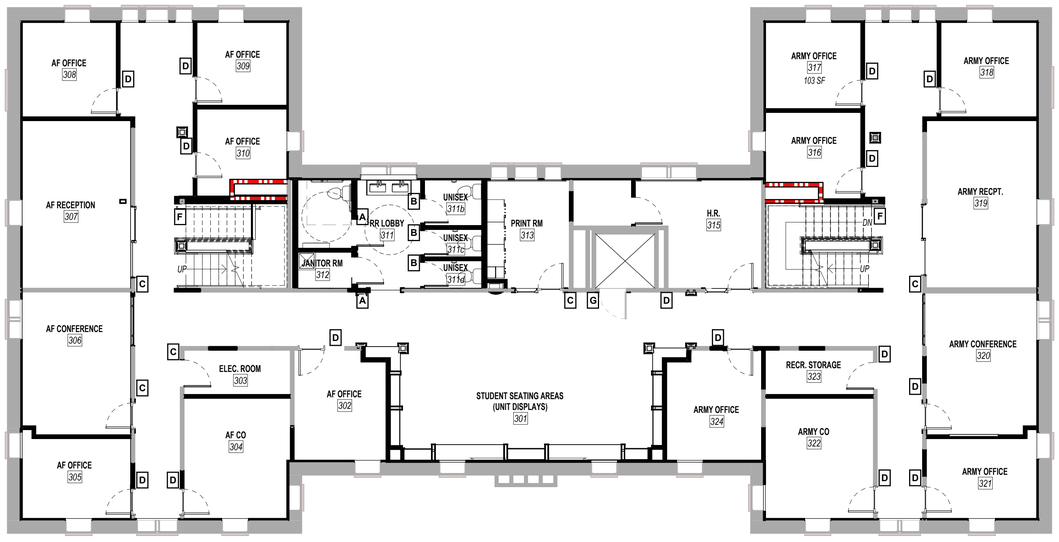
DRAWING CHANGES:

1. **Sheet EL000** – See revised prior approvals.
2. **Sheet EL601** – Corrected typo error in Luminaire schedule.

END OF ADDENDUM 02



4 LEVEL 4 - CADET LEVEL - SIGNAGE
1/8" = 1'-0"



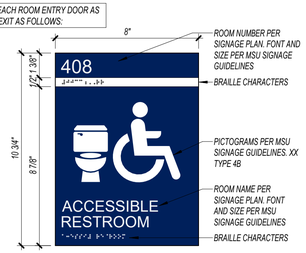
3 LEVEL 3 - CADRE LEVEL - SIGNAGE
1/8" = 1'-0"

ROOM SIGNAGE

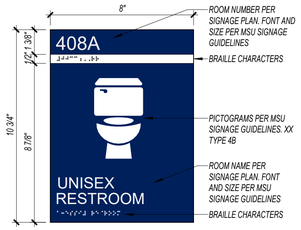
1. SEE SPECIFICATIONS FOR SPECIFIC SIGNAGE DETAILS, DIMENSIONS, FONT, COLORS, MATERIALS, ETC.
2. ALL SIGNAGE INDICATED BELOW SHALL COMPLY WITH ICC A117.1.
3. LOCATE ROOM SIGN ADJACENT TO LATCH SIDE OF DOOR, 60 INCHES ABOVE FINISH FLOOR TO CENTERLINE OF SIGN. PROVIDE 18" X 18" CLEAR FLOOR SPACE CENTERED ON TACTILE CHARACTERS.

PROVIDE SIGN AT EACH ROOM ENTRY DOOR AS NOTED AND EACH EXIT AS FOLLOWS:

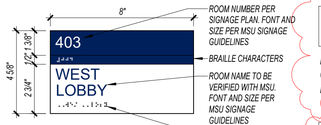
A — UNISEX HC RESTROOM



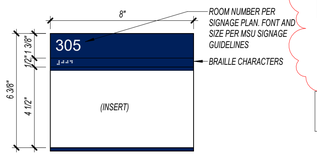
B — UNISEX RESTROOM



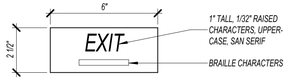
C — PERMANENT FUNCTION ROOMS



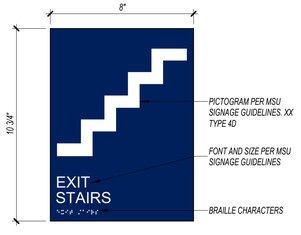
D — LABELED INSERT ROOMS



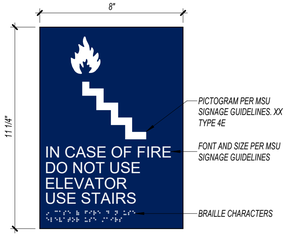
E — EXIT



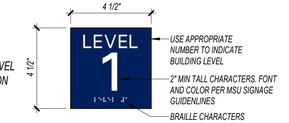
F — EXIT STAIR



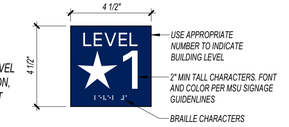
G — DO NOT USE ELEVATOR



H — ELEVATOR LEVEL IDENTIFICATION (NOT USED)



J — ELEVATOR LEVEL IDENTIFICATION, LEVEL OF EXIT (NOT USED)



K — FIRE ALARM CONTROL PANEL (NOT USED)

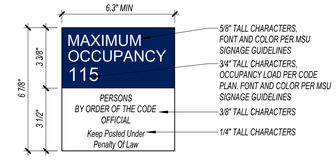


L — FIRE SPRINKLER ROOM (NOT USED)



M — ASSEMBLY ROOM

EVERY ROOM OR SPACE THAT IS AN ASSEMBLY OCCUPANCY HAVING AN OCCUPANT LOAD OF 50 OR MORE SHALL HAVE THE OCCUPANT LOAD OF THE ROOM OR SPACE POSTED IN A CONSPICUOUS PLACE, NEAR THE MAIN EXIT.



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LICENSED ARCHITECT
NICHOLAUS DIGIRA
NO. 15977
STATE OF MONTANA

A/E# 2023-02-29
MSU 23-0925

MSU - HAMILTON HALL LIFE SAFETY SYSTEM IMPROVEMENTS

MSU, HAMILTON HALL BUILDING ID 301
765 W GARFIELD ST, BOZEMAN, MT 59717

100% CONSTRUCTION DOCUMENTS

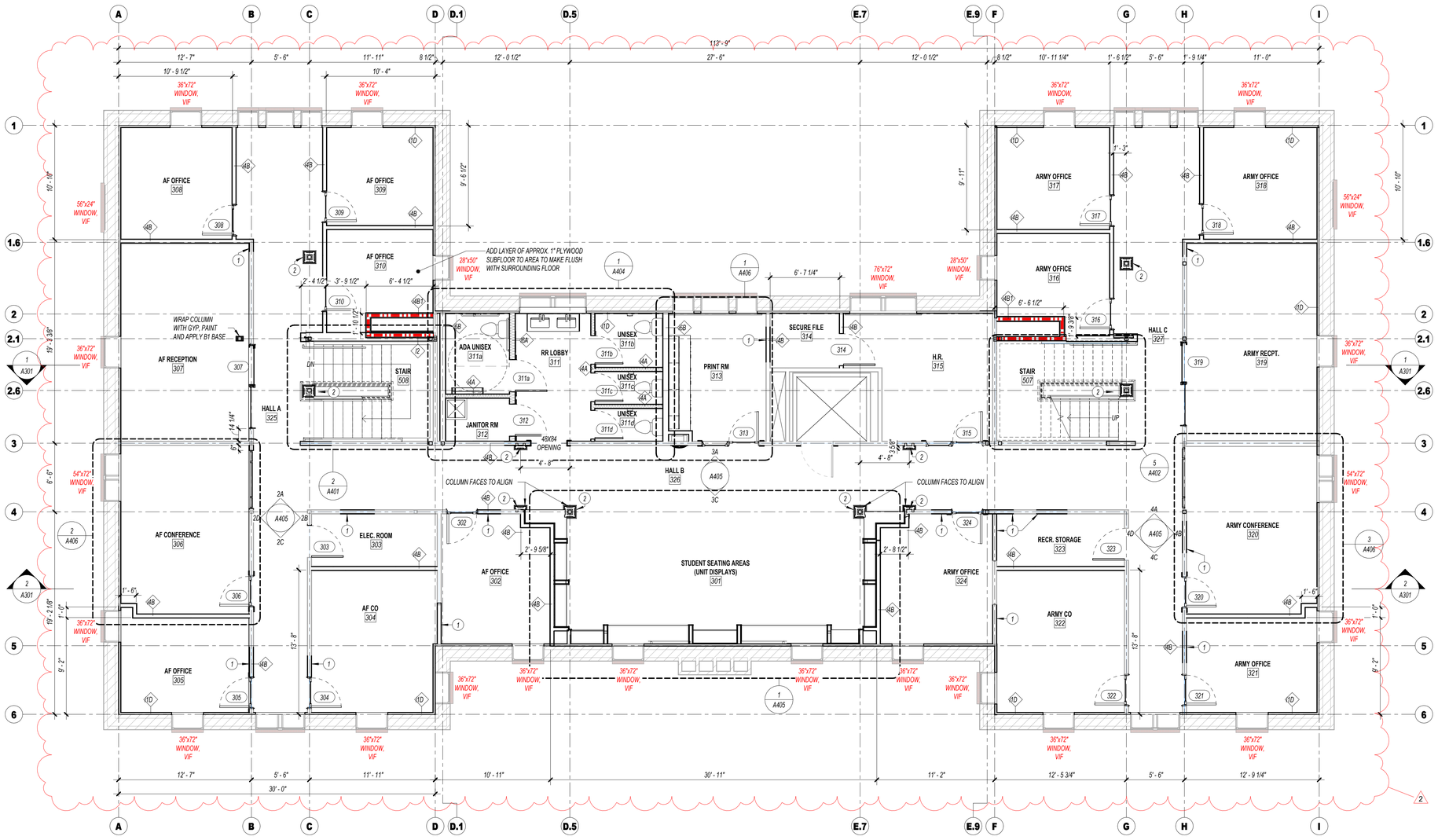
Revisions

No.	Date	Description
2	11/12/2026	ADDENDUM 2

10.16.2026

SIGNAGE PLANS

A003



1 LEVEL 3 - CADRE LEVEL
3/16" = 1'-0"

LINEWORK LEGEND

NEW CONSTRUCTION

EXISTING ELEMENTS TO REMAIN

GENERAL FLOOR PLAN NOTES

1. DIMENSIONS ARE TO FACE OF STUD, EXISTING WALL FINISH, MASONRY, OR DOOR/WINDOW OPENINGS. DIMENSIONS OF EXISTING CONSTRUCTION ARE NOT SHOWN ON DRAWINGS - VERIFY DIMENSIONS OF ALL EXISTING CONSTRUCTION IN THE FIELD. DIMENSIONS TO OPENINGS ARE NOMINAL. VERIFY ALL OPENINGS WITH ROUGH OPENING REQUIREMENTS.
2. ALL DOOR OPENINGS PERPENDICULAR TO A WALL ARE 4" TO THE WALL FRAMING UNO.
3. EXISTING CONSTRUCTION TO REMAIN SHOWN SHADED, NEW CONSTRUCTION SHOWN SOLID.
4. SEE SHEET A-002 FOR WALL TYPES. IN AREAS WITH SUSPENDED ACOUSTICAL TILE CEILINGS, GYPSUM WALL BOARD MAY BE TERMINATED 6" ABOVE THE CEILING. IN AREAS WITH EXPOSED STRUCTURE CONTINUE GYPSUM BOARD TO UNDERSIDE OF STRUCTURE.
5. VERIFY EXISTING WALL CONSTRUCTION.
6. ALL EGRESS DOORS SHALL BE READILY OPERABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.

DRAWING KEYNOTES

1. NEW WALL TO ALIGN WITH EXISTING
2. ARCHITECTURAL COLUMN - **TYPE A** - SEE 5 / A708
3. ARCHITECTURAL COLUMN - **TYPE B** - SEE 5 / A708

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Revisions

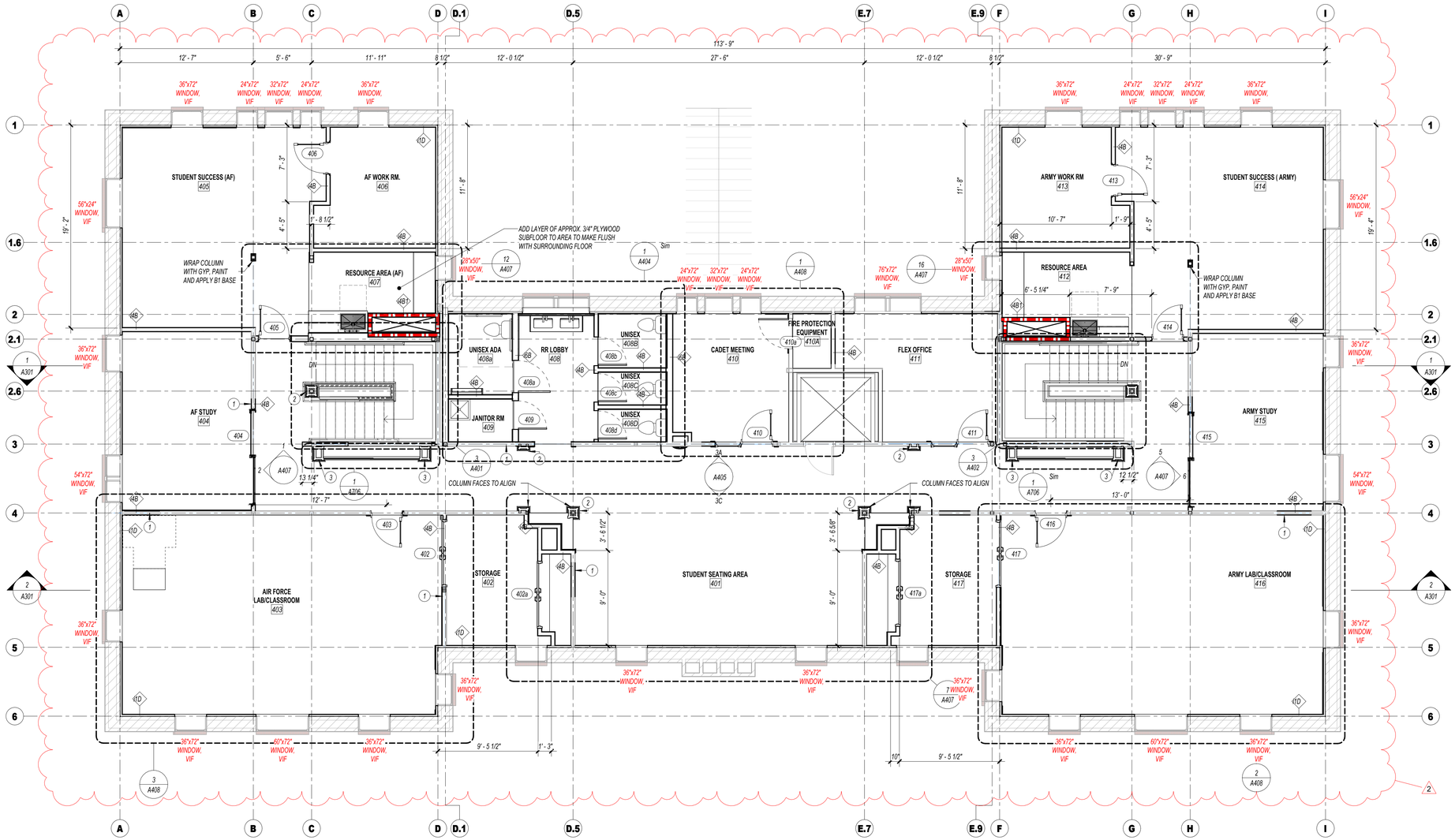
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2	11/12/2026	ADDENDUM 2

10.16.2026

FLOOR PLAN - 3RD

A113

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1 LEVEL 4 - CADET FLOOR PLAN

3/16" = 1'-0"

LINEWORK LEGEND

NEW CONSTRUCTION

EXISTING ELEMENTS TO REMAIN

GENERAL FLOOR PLAN NOTES

1. DIMENSIONS ARE TO FACE OF STUD, EXISTING WALL FINISH, MASONRY, OR DOOR/WINDOW OPENINGS. DIMENSIONS OF EXISTING CONSTRUCTION ARE NOT SHOWN ON DRAWINGS - VERIFY DIMENSIONS OF ALL EXISTING CONSTRUCTION IN THE FIELD. DIMENSIONS TO OPENINGS ARE NOMINAL. VERIFY ALL OPENINGS WITH ROUGH OPENING REQUIREMENTS.
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Revisions

No.	Date	Description
2	11/12/2026	ADDENDUM 2

10.16.2026

FLOOR PLAN - 4TH

A114

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SECTION 23 2116
HYDRONIC PIPING SPECIALTIES

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes special-duty valves and specialties for the following:
   1. Hydronic specialty valves.
   2. Air-control devices.
   3. Strainers.
   4. Connectors.

B. Related Requirements:
   1. Section 23 0500 "General Provisions of HVAC" for expansion fittings and loops.
   2. Section 23 0519 “Meters and Gauges for HVAC piping” for meters and gauges.
   3. Section 23 0553 “Identification for HVAC Piping and Equipment” for identification requirements.
   4. Section 23 0716 “HVAC Equipment and Piping Insulation” for insulation requirements.

1.02 SUBMITTALS

A. See Section 23 0000 “General Requirements of HVAC” for submittal requirements.

1.03 QUALITY ASSURANCE

A. ASME Compliance: Safety valves and pressure vessels shall bear the appropriate ASME label. Fabricate and stamp air separators and expansion tanks to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.

PART 2 - PRODUCTS

2.01 HYDRONIC SPECIALTY VALVES

A. Bronze, Calibrated-Orifice, Balancing Valves:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Bell & Gossett; a Xylem brand.
      b. Flow Design, Inc.
      c. Nexus Valve, Inc.
      d. TACO Comfort Solutions, Inc.
   2. Body: Bronze, ball or plug type with calibrated orifice or venturi.
   3. Ball: Brass or stainless steel.
   4. Plug: Resin.
   5. Seat: PTFE.
   6. End Connections: Threaded or socket.
   7. Pressure Gage Connections: Integral seals for portable differential pressure meter.
   8. Handle Style: Lever, with memory stop to retain set position.
   9. CWP Rating: Minimum 125 psig.
   10. Maximum Operating Temperature: 250 deg F.

B. Diaphragm-Operated Safety Valves: ASME labeled.
   1. Body: Bronze or brass.
   2. Disc: Glass and carbon-filled PTFE.
   3. Seat: Brass.

4. Stem Seals: EPDM O-rings.
5. Diaphragm: EPT.
6. Wetted, Internal Work Parts: Brass and rubber.
7. Inlet Strainer: Stainless steel, removable without system shutdown.
8. Valve Seat and Stem: Noncorrosive.
9. Valve Size, Capacity, and Operating Pressure: Comply with ASME Boiler and Pressure Vessel Code: Section IV, and selected to suit system in which installed, with operating pressure and capacity factory set and field adjustable.

C. Automatic Flow-Control Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Flow Design, Inc.
   b. Nexus Valve, Inc.
2. Body: Brass or ferrous metal.
3. Piston and Spring Assembly: Stainless steel, tamper proof, self-cleaning, and removable.
4. Combination Assemblies: Include bonze or brass-alloy ball valve.
5. Identification Tag: Marked with zone identification, valve number, and flow rate.
6. Size: Same as pipe in which installed.
7. Performance: Maintain constant flow, plus or minus 5 percent over system pressure fluctuations.
8. Minimum CWP Rating: 175 psig.
9. Maximum Operating Temperature: 200 deg F.

2.02 AIR-CONTROL DEVICES

A. Manual Air Vents:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Armstrong Pumps, Inc.
   b. Bell & Gossett; a Xylem brand.
   c. Hoffman Specialty.
   d. TACO Comfort Solutions, Inc.
2. Body: Bronze.
3. Internal Parts: Nonferrous.
4. Operator: ½" ball valve.
5. Inlet Connection: NPS 1/2.
6. Discharge Connection: 12" long x NPS ¼" OD soft copper on outlet.
7. CWP Rating: 150 psig.
8. Maximum Operating Temperature: 225 deg F.

B. Expansion Tanks:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. AMTROL, Inc.
   b. Armstrong Pumps, Inc.

c. Bell & Gossett; a Xylem brand.
d. TACO Comfort Solutions, Inc.
e. Wessels.
f. Grundfos
2. ASME Welded steel Tank with 125 psig working pressure, 240F operating temperature, and replaceable heavy butyl rubber diaphragm.
3. See drawings for size and capacity.

2.03 STRAINERS

A. Y-Pattern Strainers:
1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
2. End Connections: Threaded ends for NPS 2 and smaller; flanged ends for NPS 2-1/2 and larger.
3. Strainer Screen: Stainless-steel, 40-mesh strainer, or perforated stainless-steel basket.
4. CWP Rating: 125 psig.

B. Pressure Range:
1. 5 – 55 PSI

2.04 CONNECTORS

A. Stainless-Steel Bellow, Flexible Connectors:
1. Body: Stainless-steel bellows with woven, flexible, bronze, wire-reinforcing protective jacket.
2. End Connections: Threaded or flanged to match equipment connected.
3. Performance: Capable of 3/4-inch misalignment.
4. CWP Rating: 150 psig.
5. Maximum Operating Temperature: 250 deg F.

PART 3 - EXECUTION

3.01 VALVE APPLICATIONS

A. Install shutoff-duty valves at each branch connection to supply mains and at supply connection to each piece of equipment.

B. Install balancing valves at each branch connection to return main. See drawings for type.

C. Install balancing valves in the return pipe of each heating or cooling terminal. See drawings for type.

D. Install check valves at each pump discharge and elsewhere as required to control flow direction.

E. Install safety valves at hot-water generators and elsewhere as required by ASME Boiler and Pressure Vessel Code. Install drip-pan elbow on safety-valve outlet and pipe without valves to the outdoors; pipe drain to nearest floor drain or as indicated on Drawings. Comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1, for installation requirements.

3.02 HYDRONIC SPECIALTIES INSTALLATION

A. Install manual air vents at high points in piping, at heat-transfer coils, and elsewhere as required for system air venting.

B. Install piping from air separator to expansion tank with a 2 percent upward slope toward tank.

C. Install in-line air separators in pump suction. Install drain valve on air separators NPS 2 and larger.

D. Use manual vent for initial fill to establish proper water level in tank.
1. Install tank fittings that are shipped loose.

2. Support tank from floor or structure above with sufficient strength to carry weight of tank, piping connections, fittings, plus tank full of water. Do not overload building components and structural members.

E. Install expansion tanks on the floor. Vent and purge air from hydronic system, and ensure that tank is properly charged with air to suit system Project requirements.

END OF SECTION

PROJECT INFORMATION

MSU - Hamilton Hall Life Safety System Improvements . Lighting

MSU, HAMILTON HALL
101 HAMILTON HALL, BOZEMAN, MT 59717
A/E# 2023-02-29 MSU 23-0925

100% Construction Documents

Date Issued | 10.16.2026
Project Engineer | Andrew Moore

Issue

PROJECT 3D VIEW





SHEET INDEX & REVISION HISTORY

Sheet	Sheet Name	Rev.	Description	Date
EL000	LIGHTING INDEX			
EL102	LEVEL 2 LIGHTING DEMO PLAN			
EL105	LEVEL 3 LIGHTING DEMO PLAN			
EL107	LEVEL 4 LIGHTING DEMO PLAN			
EL109	ATTIC LIGHTING DEMO PLAN			
EL113	LEVEL 2 LIGHTING PLAN			
EL114	LEVEL 2 LIGHTING CEILING PLAN			
EL115	LEVEL 3 LIGHTING PLAN			
EL116	LEVEL 3 LIGHTING CEILING PLAN			
EL117	LEVEL 4 LIGHTING PLAN			
EL118	LEVEL 4 LIGHTING CEILING PLAN			
EL601	LUMINAIRE & LIGHTING EQUIPMENT SCHEDULES			
EL602	LIGHTING CONTROL ONE-LINE			

GENERAL NOTES

The symbols and abbreviations list on this sheet is a comprehensive standard guide intended for general use on all projects. Therefore, not all symbols and abbreviations contained in this list are necessarily used on this project and should be used for clarification only.

1. The EC may submit substitution requests for prior approval no less than 10 days prior to bid date. Blacksheep separates prior approval packages for luminaires & controls. The EC shall break out separate line items for each to prevent'lockout' of pricing respective to this project.

2. Submittals shall be provided by the installer for Blacksheep review and approved prior to ordering.

3. It is the responsibility of the EC & GC to schedule the following milestones with the lighting designer, no less than 1 week prior to the requested date.

   A. Rough-in inspection - prior to drywall/finish work.

   B. Punch list/Aiming - once artwork and furniture is installed. If a punch list is required prior to the site being ready for aiming, additional construction administration cost (an additional site visit) will be incurred to the project.

   C. Programming - to be scheduled first with the factory authorized representative, and then coordinated with Blacksheep for oversight & design intent.

ABBREVIATIONS

A, AMP	Ampere	LV	Low Voltage
AIC	Amps Interrupting Capacity	LVR	Low Voltage Relay
AC	Alternating Current	MCB	Main Circuit Breaker
AFCI	Arc-Fault Circuit Interrupter	MDP	Main Distribution Panel
AFF	Above Finished Floor	MFGR	Manufacturer
AFG	Above Finished Grade	MIN	Minimum
ATS	Automatic Transfer Switch	MLO	Main Lug Only
AV	Audio Visual	MSB	Main Switchboard
AWG	American Wire Gauge	MV	Medium Voltage
BAS	Building Automation System	N	Neutral
BTU	British Thermal Units	(N)	New
C, CDT	Conduit	NA, N/A	Not Applicable
CB	Circuit Breaker	NEMA	National Electrical Manufacturer Association
CKT	Circuit		
CL	Centerline	N.C.	Normally Closed
CLG	Ceiling	N.O.	Normally Open
CO	Carbon Monoxide	NTS	Not to Scale
C.O.	Conduit Only	OCPD	Overcurrent Protective Device
CT	Current Transformer	P	Poles
CU	Copper	PB	Pullbox
DDC	Digital Data Control	PH	Phase
DWG	Drawing	PNL	Panelboard
(E)	Existing	POE	Power Over Ethernet
E.C.	Electrical Contractor	PWR	Power
ELEC	Electric / Electrical	RECPT	Receptacle
EM	Emergency	RS	Rigid Steel
EMT	Electrical Metallic Tubing	SD	Smoke Detector
EQ	Equal	SHT	Sheet
FA	Fire Alarm	SOH	Standard Outlet Height
FACP	Fire Alarm Control Panel	SP	Spare
FBO	Furnished by Others	SPEC	Specification
FLA	Full Load Amps	SPD	Surge Protective Device
FSD	Fire Smoke Damper	SS	Surge Supression
G, GND	Ground	SW	Switch
G.C.	General Contractor	SWBD	Switchboard
GEN	Generator	SWGR	Switchgear
GFCI	Ground-Fault Circuit Interrupter	TEMP	Temporary
HP	Horse Power	TVSS	Transient Voltage Surge Suppressor
IBEC	Installed by Electrical Contractor	TYP	Typical
IG	Isolated Ground	UG	Underground
J, JB	Junction Box	UON	Unless Otherwise Noted
KV	Kilovolt	UPS	Uninterruptible Power Supply
KVA	Kilovolt Ampere	V	Voltage
KW	Kilowatt	VA	Volt Amperes
KWH	Kilowatt Hour	W	Watt
LCP	Lighting Control Panel	WD	Warm Dim or Water Detector
LTG	Lighting	WP	Weatherproof
		XFMR	Transformer

SYMBOL LEGEND

Symbols listed below are for reference and for the use in understanding the design intent. Not all symbols listed below are necessarily used elsewhere in the construction documents. Cabling information is for reference only; All devices need to be assessed on an individual basis. Halftone symbols represent scope that is not included in the construction documents.

Electrical

- NEMA 5-15R / 5-20R, Mounted Vertically, Non-Essential Power
- NEMA 5-15R / 5-20R, Mounted Horizontally, Non-Essential Power
- NEMA 5-15R Quadruplex
- Unfilled = Protected by GFCI Breaker; Filled = GFCI Receptacle
- Unfilled = Weatherproof Receptacle; Filled = Weatherproof Receptacle, In-Use
- Red = Essential Power; Blue = Optional Standby Power
- Half-Switched Receptacle; '+_-' Indicates Height AFF
- NEMA 6-XOR, 250V, 2-Pole; Number Indicates Amperage (i.e., 2 = 20A)
- NEMA 14-XOR, 250/125V, 2-Pole w/ Neutral; Number Indicates Amperage
- NEMA 15-XOR, 250V, 3-Pole; Number Indicates Amperage
- NEMA L6-XOR, 250V, 2-Pole; Number Indicates Amperage
- NEMA L14-XOR, 250/125V, 2-Pole w/ Neutral; Number Indicates Amperage
- NEMA L15-XOR, 250V, 3-Pole; Number Indicates Amperage
- Electrical Provision or Equipment Connection Provision
- Electrical Floor Receptacle, Flush Mounted
- Junction Box, Mounted Above Accessible Ceiling
- Junction Box, Recessed Wall Mounted
- Junction Box, Flush Floor Mounted
- Wiremold Power Outlet Strip
- Non-Fused Disconnect Switch, Surface Mounted
- Fused Disconnect Switch, Surface Mounted
- Panelboard, Flush Mounted
- Panelboard, Surface Mounted
- Push Button | EPO = Emergency Power Off
- Manual Motor Start / Switch
- Inverter

Fire & Life Safety

- Smoke Detector
- Combination Smoke/CO Detector
- Heat Detector
- Carbon Monoxide Detector
- Gas Detector
- Horn Strobe
- Strobe
- Sprinkler Flow Switch
- Tamper Switch

Lighting Luminaires

- Ceiling Mounted
- Wall Mounted
- Uplight | In-Grade
- Recessed Downlight | Round or Square
- Pendant | Round or Square
- Wall Mounted Linear
- Linear LED
- Linear LED Vertical | Recessed or Surface
- Linear | Recessed
- Linear | Surface
- Linear | Suspended
- Track & Track Heads
- Monopoint | Ceiling or Wall Mounted
- Exit Sign | Ceiling Mounted; Shade Denotes Face Read; Arrow Denotes Directional Sign
- Exit Sign | Wall Mounted; Shade Denotes Face Read; Arrow Denotes Directional Sign
- Half Switch Receptacle | For System Control Only
- Floor Half Switch Receptacle | For System Control Only

Lighting Control

- Lighting Control Panel
- Lighting Control Dimming Panel
- Vive Hub
- Lighting/Shade Keypad
- Occupancy Sensor
- Dimmer
- Remote Dimmer - 3-Way
- Switch
- Remote Switch - 3-Way
- Non-Controlled Dimmer/Switch (Provided by the EC)
- Power Pack

Communications | Audio | Video

- Cabling Enclosure
- Data Outlet
- Wireless Access Point
- Demarcation - Phone / Data Service
- Satellite Dish Location
- Touch Panel
- Control RF Gateway
- Control System Integration Wiring
- Television
- Projector
- Aux Input Location
- Backbox
- Speaker
- Subwoofer
- Soundbar - LR / LCR / Center
- Doorbell
- Remote Control
- Equipment Rack

Security & Surveillance

- Security Panel
- Security Keypad
- Cellular Communicator
- RF Receiver
- RF Repeater
- Door / Window Contact Sensor
- Motion Detector
- Glass Break Sensor
- Interior Siren
- Sewage Ejector Interface
- Water / Flood Sensor
- Low Temperature Sensor
- Wireless Flood / Low Temp Sensor
- Water Shutoff Valve
- Surveillance Camera

Access Control

- Access Control Panel
- Access Control Interface
- Access Control Lock

General Drawing Symbols

- Callout View Tag
- Elevation Tag
- Section Head & Tail
- Keynote Tag
- Mechanical Equipment Tag w/ Circuit ID
- Electrical Equipment Tag
- Luminaire Tag
- Luminaire Zone (Room # Zone#)
- Luminaire Power Panel Feed (Refer to Electrical Engineering drawings)
- Technology Tag w/ Cable ID

Prior Approvals

In addition to the basis of design luminaires, the following packages submitted to the Engineer are approved for luminaires:

1. Northern Rockies Agency (NRA)
2. The MH Companies

Note: Control system packages that differ from the basis of design will not be accepted.

Note: The Engineer is approving the line of luminaires submitted as an equal, and reserves the right to make additional comments on products during the submittal review.

A2

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MONTANA
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A/E# 2023-02-29
MSU 23-0925

MSU - Hamilton Hall Life Safety System Improvements

MSU, HAMILTON HALL
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100% Construction Documents

Revisions

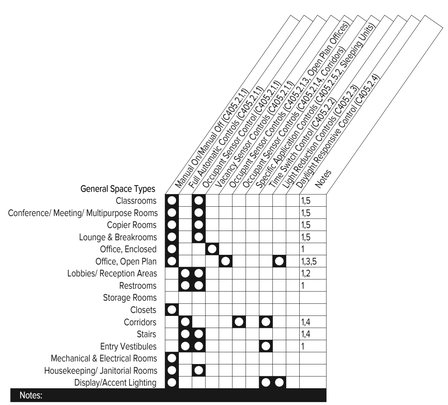
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A2	11.12.2026	Addendum #2

10.16.2026

LIGHTING INDEX

EL000

Lighting Control Sequence of Operations



Notes:

1. Occupancy Sensing Function shall turn all lighting in zone to 50% intensity or less within 20 minutes after all occupants have left the space.
2. Time of Day function shall be programmed to shut off lighting when space is not scheduled to be occupied. Factory
   On-Site Programming shall be coordinated with MSU representative to determine schedule.
3. The controls shall be configured so that general lighting can be controlled separately in control zones with floor areas
   not greater than 600sf within the open plan office space (C405.2.1.3.1).
4. Occupancy Sensor controls in corridors shall uniformly reduce lighting power to an unoccupied setpoint not more than 50% of full power within 20 minutes after all occupants have left the space (C405.2.1.4).
5. Occupancy Sensing Function shall be configured to have Partial On (80%), with Manual Control On as Full On.
6. Per IECC exceptions (C405.2.4: Exceptions: 3), Daylight Responsive Controls are not required for this building.

IECC 2024 Energy Compliance Table:

Whole Building Method - Total Building Energy Compliance Calculation

Area	SF	Calc Multiplier	Allowable Load (W)
Level 3 Lighting Plan	4545	0.7	3181.5
Level 4 Lighting Plan	4685	0.7	4279.5
Attic	2959	0.7	3071.3

Total Calculated Allowable Load (W) : 10532.3
Total Designed Load (W) : 7951

Luminaires

Type	Description	Manufacturer	Model	Qty.	CCT	CRI	Optic	Dimming	Wattage	Lumens	Efficacy	Remarks
EX1	Edge-lit Recessed Ceiling Mounted Exit Sign - Single Face	Acuity Brands - Lithonia	LRP-W-1-RC-XX-120/277	12	NA	NA	NA	NA	2 VA	0 lm	NA	EC to select directional indicators based on annotation on Lighting Plan.
EX2	Edge-lit Recessed Ceiling Mounted Exit Sign - Double Face	Acuity Brands - Lithonia	LRP-W-2-RW-XX-120/277	2	NA	NA	NA	NA	2 VA	0 lm	NA	EC to select directional indicators based on annotation on Lighting Plan.
EX3	Emergency Exit Combo Sign w/ High-Output Dual Emergency Lights	Acuity Brands - Lithonia	LHQM-S-W-RG-MVOLT-HO/ ELMRE-LP220L-T	2	NA	NA	NA	NA	3 VA	0 lm	NA	
P01	120" Suspended Direct Linear	Xico LED	NSQ95-P-10-ACL-E1-90-30-ONBB-DLAM-500-NN-NN-1CH-UNV-RD-FD01-DJ-RCW25-P48W	6	3000K	90	Lambertian	0-10V	28 VA	5000 lm	175 lm/W	Align final suspension length with acoustic ceiling.
R01	24" x 24" Edge-lit Recessed Flat Panel	Acuity Brands - Lithonia	CPX-2X2-3200LM-90CRI-30K-SWL-MIN1-ZT-MVOLT	13	3000K	90	Lambertian	0-10V	30 VA	3200 lm	113 lm/W	
R02	12" Recessed Linear Wallwasher	Lightheaded	MMD-10-T-05-SS-LWW-30-9002-RM-DRM-M10-S-120-MMD-10-T-FP	23	3000K	90	Wallwash	ELV	20 VA	2200 lm	110 lm/W	
R03	2" Round Trimless Millwork Wall Wash Downlight	Acuity Brands - Gotham	ICO2BEVADJ-30-15-WR-30D-MVOLT-UGZ-90CRI-ICAT	21	3000K	90	35°	ELV	20 VA	1500 lm	75 lm/W	Paint downlight trim to match ceiling.
R04	Decorative Drop Lens Downlight	DMF Lighting	MD-1500-93-30-GA-O-M4TRSWHDCC	38	3000K	90	50°	0-10V	20 VA	1500 lm	75 lm/W	
R05	2x4 Flat Panel	Acuity Brands - Lithonia	CPX-2X4-xxxxLM-90CRI-30K-SWL-MIN1-ZT-MVOLT	52	3000K	90	Lambertian	0-10V	30 VA	3200 lm	113 lm/W	
S01	4' Back of House Strip Light	Acuity Brands - Lithonia	CSS-L48-AL03-MVOLT-MIN10-ZT-35K-80BRI	3	3500K	80	Lambertian	0-10V	33 VA	4000 lm	120 lm/W	
S02	T-Grid Compatible 10' Surface Mounted Linear with Glare Control	Xico LED	MSL-RT-6-CAE-OMBBK-S90-30-DLAM-500-UNV-FMD-FD01-NN-NN-T3	8	3000K	90	Lambertian	0-10V	33 VA	300 lm	150 lm/W	
S03a	4' Ceiling Surface Mounted Linear Luminaire - Stairwell	Xico LED	NSQ95-4-ACL-E1-90-30-ONBB-DLAM-500-UNV-FD01-SM1-SSMB	4	3000K	90	Lambertian	0-10V	14 VA	2000 lm	142 lm/W	
S03b	6' Ceiling Surface Mounted Linear Luminaire - Stairwell	Xico LED	NSQ95-6-ACL-E1-90-30-ONBB-DLAM-500-UNV-FD01-SM1-SSMB	8	3000K	90	Lambertian	0-10V	21 VA	3000 lm	142 lm/W	
S05a	Suspended Strip Light - Attic	Acuity Brands - Lithonia	CLX-L48-5000LM-SEF-FDL-MVOLT-GZ1-35K-90CRI-WH-ZACVH M100	14	3500K	90	Lambertian	0-10V	31 VA	5000 lm	161 lm/W	EC to set selectable CCT at 3500K.
W01	4' Wall Mounted Linear Luminaire - Stairwell	Xico LED	NSQ95-W-4-ALC-E1-90-30-ONBB-DA5025-1000-IA6040-500-1CH-UNV-FD01-WM-WM2W	4	3000K	90	Asymmetric	0-10V	42 VA	6000 lm	142 lm/W	

Linear Luminaires

Type	Description	Manufacturer	Model	CCT	CRI	Optic	Dimming	Watts/Ft.	Lumens/Ft.	Efficacy	Remarks
L01	45degree Adjustable Linear Channel with Tape Light - Linear Cove Lighting	Diode LED	Tape : DI-24V-STMLT-30-CSTM_ Channel : DI-CPCHB-45-FRT-CSTM_	3000K	90	Wide	ELV	3 VA	300 lm	90 lm/W	Provide remote driver #DI-ODX-24V120W-J and adjustable rotating mount clip.
L02	Recessed Linear Channel with Tape Light	Diode LED	Tape : DI-24V-STMLT-30-CSTM_ Channel : DI-CPCHB-SL-CSTM_	3000K	90	Asym.	ELV	3 VA	300 lm	90 lm/W	Provide remote driver #DI-ODX-24V120W-J.

Notes:
1. EC to provide a complete, working system including all accessories such as end caps, mounting brackets, remote transformers & lenses.

Lighting Control Devices

Type	Manufacturer	Model	Description	Remarks
CS1	Lutron	MRF2S-6ANS-WH	Maestro RF One Zone 6A Control Switch	Confirm finish prior to ordering.
D1	Lutron	MRF2S-6ELV-120-WH	Maestro RF One Zone ELV Dimmer	Confirm finish prior to ordering.
DS1	Lutron	MRF2S-8SD010-WH	Maestro 0-10V RF One Zone Dimmer w/ Integral Occupancy Sensor	Confirm finish prior to ordering.
HUB1-SM	Lutron	HJS-1-SM	Vive Wireless Hub without BACnet, Surface Mount.	
INV	Emergi-Lite	EMIU-1500-4	1500W High-Capacity Mini Inverter w/ 4 Outputs	
OS1	Lutron	LRF2-OCR2B-P-WH	Vive Ceiling Mount Wireless Occupancy Sensor	
OS3	Lutron	LRF2-OKLB-P-WH	Vive Corner Mount Wireless Occupancy Sensor	
OS5	Lutron	LOS-WDT-500-WH	Dual Technology Wall Mount Occupancy Sensor, Wired	
P4	Lutron	PJL-3BRL-GWH-L01	PICO Keypad, 3 Button with Raise/Lower and Light Icon, 1 Column, Wired (Power)	Confirm finish prior to ordering.
P5	Lutron	PJL-2B-GWH-L01	PICO Keypad, 2 Button, 1 Column, Wired (Power)	Confirm finish prior to ordering.
PP-PH	Lutron	RMJS-PNE-DV	Vive PowPak Phase Select Dimming Module	
PP-PHEM	Lutron	RMJS-PNE-DV-EM	Vive Emergency PowPak Phase Select Dimming Module	
RMJS	Lutron	RMJS-OT-DV	Vive PowPak Wired Occupancy Transmitter	

Notes:
1. EC to provide a complete, working system.
2. EC shall bid & install the controls scope of this project from factory shop drawings.
3. Coordinate keypad & dimmer finishes with Architect through submittal, prior to ordering.

Emergency Inverter Panel Schedule || INV

Manufacturer: Emergi-Lite
Model: EMIU-1500-4
Location: Electrical Room 303
Fed From: C3

Notes: Refer to Electrical Engineer's drawings for more information on feed from panel C3, #C3-36.

Circuit	Circuit Description	Type	Trip	Pole	A		B		Pole	Trip	Type	Circuit Description	Circuit
1	Levels 2 & 3 West Emergency Lighting...		20 A	1	592 VA	679 VA			1	20 A		Level 4 & Attic East Emergency Lighting...	2
3	Level 4 & Attic West Emergency Lightin...		20 A	1			544 VA	302 VA	1	20 A		Levels 2 & 3 East Emergency Lighting...	4
				Total Load:	1271 VA		846 VA						
				Total Current:	11 A		7 A						

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Revisions

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LUMINAIRE & LIGHTING EQUIPMENT SCHEDULES

EL601