1100 Sycamore St., Suite 200
Cincinnati, OH 45202
513.984.1070

702 North Capitol Ave.
Indianapolis, IN 46204
317.636.3980
luminaut.com

LUMINAUT

Narrative

Date: July 31, 2026
Project: 24047 – NKU Civic Center Renovation
From: Jeff Fackler
Narrative: Addendum C

Drawings

L5.00 – Planting Plan

Areas previously designated as sod, shall be seeded in accordance with the revised landscape plans and specifications.
Planters shall be Owner Furnished, Owner Installed (OFOI). Contractor shall coordinate installation locations as shown on the plans.
The stone has been called out as 2-3" Commodity Slate.
Seeding notes have been revised to reflect updated timing requirements for Tall Fescue establishment.

SD100 - Existing Foundation Plan

Revise several opening dimensions.

SD110 - Existing Floor Framing Plan

Revise several opening dimensions.
Add new detail for new post structure.

S110 - First Floor Framing Plan

Add Basis of Design for grating decking at Mechanical Mezzanine.
Add additional steel reinforcement for existing concrete beam.

S301 - Addition Building Sections

Add elevation and detail for new post connection.

S513 - Framing Schedules Sections & Details

Remove decking type that is no longer in use.
Revise existing concrete column detail for additional demolition information.

D1.01 – Demolition Plan – Lower Level

Revise dimensions for concrete wall demolition openings.

D1.02 - Demolition Plan - Upper Level

Add dimensions for cutting the existing floor slab for new plumbing.

A0.50 - Overall Slab Plan - Lower Level

Revise extents of existing slab demolition and added Keynotes 6 to describe the extents.

Extend scope of hatched area with Keynote 2 for recessed area to receive geofoam and raise the floor.

A1.01 - Overall Floor Plan – Lower Level

Add note to grind the face of the existing wall to prepare for new finishes.
Add General Note to patch existing concrete floor smooth at all demolition locations.

A1.02 - Overall Floor Plan – Upper Level

Add notes and graphics to capture scope of patching the remaining penetrations in the floor slab.
Add General Note to patch existing concrete floor smooth at all demolition locations.

A1.03 - Overall Roof Plan

Revise scope of EPDM roofing to TPO roofing

A1.04 - Typical Roof Details

Revise scope of EPDM roofing to TPO roofing

A1.10 – Overall Dimension Plan – Lower Level

Revise dimension and scope of existing wall to remain.
Add General Note to patch existing concrete floor smooth at all demolition locations.

A1.11 – Overall Dimension Plan – Upper Level

Revise extents of opening by elevator.
Add General Note to patch existing concrete floor smooth at all demolition locations.

A1.41 - Overall Finish Plan - Lower Level

Change floor finish of Evidence Storage 011 to Epoxy Flooring.

A1.42 - Overall Finish Plan - Upper Level

Clarify floor finish of Mechanical Mezzanine 131 to be structural grating as defined by the structural drawings.
Revise floor finish of Stair/ Elevator 129 to be LVT 01.
Revise floor finish of Crime Lab Garage to ER-01.

A1.51 – Overall Equipment Plan – Lower Level

Add keynotes for locations of all fire extinguishers and cabinets.

A1.52 – Overall Equipment Plan – Upper Level

Add keynotes for locations of all fire extinguishers and cabinets.

A3.03 - Enlarged Exterior Building Sections-Elevations

Remove Keynotes indicating the scope of EPDM roofing.

A3.10 - Wall Sections

Revise scope of EPDM roofing to TPO roofing
Add ‘T-4’ to Large Format Tile note to clarify finish.

A3.11 - Wall Sections

Revise scope of EPDM roofing to TPO roofing.
Add ‘T-4’ to Large Format Tile note to clarify finish.

A3.20 - Enlarged Section Details

Revise note to indicate that the gutters should be fully replaced.

A3.21 - Enlarged Section Details

Revise scope of EPDM roofing to TPO roofing.

A4.20 - Finish Schedule & Transition Details

Remove the sound absorbing LVT underlayment from detail 2C/ A4.20.
Revise Finish Schedule for CO-01to be 'Exposed Concrete Floor with No Floor Finish'.
Revise Finish Schedule for tile T-03 to be new specification.
Revise Finish Schedule for tile T-03 to be new specification.

M1.02 – Upper Level - Air Distribution Plan

Add keynote included to call out spark B construction for EF-5 and EF-6 per RFI#34.

Specifications

284621 - Addressable Fire-Alarm Systems

This specification section has been added to the document set for further clarification of the division 28 scope items per RFI#48.

285500 - Emergency Responder Radio BDA System Survey

This specification section has been added to the document set for further clarification of the division 28 scope items per RFI#48.

284800 - Two-Way Emergency Communications System

This specification section has been added to the document set for further clarification of the division 28 scope items per RFI#48.

233423 - HVAC Power Ventilators

MK Plastics has been included as an acceptable alternate in the specifications per RFI #38.

Requests For Information (RFIs)

PC-0010 Division 26/Lighting manufacturers approval

For the NKU project I would like to see if Lightspec can be listed as approved controls manufacturers with Signify Interact (this is the Genlyte embedded controls option), Sensorworx- for stand alone controls and Crestron- for bacnet and touch screens. Below are websites that were sent over that will have all of the product information available.
https://www.genlyte.com/en-us/brands/signify-interact/interact-for-intelligent-buildings
https://www.sensorworx.com/
https://www.crestron.com/Products/Catalog/Lighting-and-Environmental
Fixture crosses included in the following document: https://elari.ai/project-submittal/01KX1R9KNXEWKDS29AW3327W69/view

Answer

NKU does not want a "Full Lighting Control System" on this project. They don't want a subscription based system controlling the building lighting system and would prefer whichever vendor can bid and provide controls for the building at a cost effective and user-friendly perspective.

PC-0015 UE Primary Conduit

Can you clarify intent/routing of UE primary - E0.02 implies reuse and just extension of existing conduit from existing xfmer to new xfmer location - C-1.0 shows UE pathing changing to the xfmer but has no note to indicate this on E0.02 other than an unmarked line that is the same pathing on C-1.0.

Please clarify the routing of the primary ductbank for permanent power from the existing riser pole to the new upsized transformer, as identified on drawings C1.0 & E0.02 & E0.03. Routing as shown on the Drawings C1.0 and E0.03 is different than the routing shown on Drawing E0.03.

Please clarify who is to provide cabling / conduit for the primary service to the new transformer. Drawing E0.02 states existing primary feeder and conduit to be protected and reused for new transformer-Coordinate sizes and final stub up location with new work and Duke Energy. This drawing also states to extend primary conduits for utility wiring to new transformer, coordinate with utility company. Refer to Single Line for more information. Drawing E6.00 Electrical Single Line Diagram indicated the installation of (2) 4" empty conduits in SCHEDULE 40 PVC to utility pole from new transformer, per utility company standards, refer to site.

We also have a question regarding the one-line diagram as shown on E6.00 that shows the secondary going from the transformer to the CT Compartment then to the main distribution board. Drawings E0.02 identify the ductbank running directly into the building to the distribution board.

Answer

There will be some minor rework of the primaries to extend into the new concrete pad and location. Location of existing and new transformers are very close to each other. Also, verification in the field with Duke Energy of the existing primaries to ensure there they are still in good working order will need to be done during construction. Ultimately this will need to be worked out in the field with Duke as they have final say and we cannot see the buried conduits and the condition. Please carry a value in the bid documents for this.

PC-0019 DDC Controls Manufacturer Consideration - Revised

This RFI is to see if "Reliable Controls by Core Controls" would be an acceptable DDC Controls Contractor for this project.

Reliable Controls specializes in designing and manufacturing Internet-connected building controls and building automation controls that are simple, flexible, and competitively priced. Known as direct digital controls, building automation systems, building management systems, energy management control systems, and facility management systems, the MACH-System is used to monitor and control the mechanical / HVAC and electrical / lighting equipment found in every kind of HVAC building control application. Their designs utilize the ASHRAE standard BACnet® protocol with an industry-recognized 5-year warranty.

We have been a Reliable Controls partner for over 15 yrs. We are licensed Electrical contractors specializing in HVAC DDC Controls. All our installers are licensed electricians and are employees of Core Controls. We do not sub-contract any of our work out, which results in a higher quality of installation than our competitors.

https://www.reliablecontrols.com/
https://www.reliablecontrols.com/products/controllers/
https://www.reliablecontrols.com/products/bacnet/
https://www.reliablecontrols.com/projects/

Answer

~~This is acceptable per CMTA, but this is ultimately an NKU decision.~~

NKU does not want a "Full Lighting Control System" on this project. They don't want a subscription based system controlling the building lighting system and would prefer whichever vendor can bid and provide controls for the building at a cost effective and user-friendly perspective.

PC-0027 Discontinued Tile

I'm being told that the tile was discontinued a couple of years ago. I wanted to reach out and make sure you knew which tile I was talking about specifically. I am also wondering if the remarks imply that this tile is intended to be used as a base, or as floor tile for the outdoor patio. T-03, the Mosa tile used on the outdoor patio, has been discontinued. Is there an approved alternate product or should we provide an allowance for this?

Answer

Tile T-03 has been re-specified and identified in the Finish Schedule. Please refer to the revised drawings for new designations of T-03 and new T-04 on schedule and revised sheets.

PC-0030 Finish Designation

Regarding Finish Designation CO 01: Finish Schedule notes to refer to spec, but there is no mention of sealers in the Architectural Concrete spec. There is Polished Concrete spec, but that is not on the finish schedule. Can a basis of design be added for the CO 01 Finish Designation?

Answer

The finish for CO=01 has been changed to bare concrete with no sealer. Refer to Finish Schedule for details.

PC-0034 Ductwork

We do not see a schedule of required duct materials or pressure classifications in W.G. for duct construction

Answer

Ductwork is to be constructed per SMACNA standards as listed in 233113 - Metal Ductwork Specifications. Reference RFI 20 for more information.

-Low Pressure Ductwork down stream of VAVs, and general space exhaust to be Constructed to 2" WG

-Medium Pressure Ductwork which applies to upstream of VAVs and ehxaust ductwork associated with fume exhaust to be Constructed to 4" WG.

-The Mechanical Contractor who is awarded the project shall submit a duct construction schedule prior to starting the VDC process for confirmation by the design team.

We request SMACNA pressure classes for each aspect of the various systems

Answer

Reference RFI 20 for response.

Coded note 41 on sheet M1.02 requests welded epoxy coated stainless steel. We find no specifications for this product.

Answer

Reference RFI 14 and 34 for response.

Are there any other systems that require specialty duct? For instance, Autopsy Table Exhaust, Showers, Autopsy Rooms, Chemical Storage, Lab Equipment Connections, ETC.

Answer

No specialty duct required for showers, chemical storage or lab equipment connections (when specifically for heat rejection). Reference RFI 20 for requirements for autopsy table exhaust.

Please supply connection details for connection of Venturi valves in welded lab systems. Welded, Flanged, Screwed, Banded as well as connections at Hoods.

Answer
Provide banded connection at valves and hood. Coordinate with manufacturer installation details.

Should fans EF-5 and EF-6 be spark proof? Is galvanized duct acceptable for these systems?
Answer
Yes, these fans should be spark-proof. This change will be captured in forthcoming Addendum C.

PC-0035 Irrigation plan/Erosion control Plan
Is the irrigation plan open to resizing and use of different materials if we can ensure adequate watering to all the indicated zones? We feel the system unnecessarily oversized.
Answer
The owner is open to design revisions but will need to approve any changes before execution.

Is there a spec section 3292 for turfs & grasses?
Answer
No there is not. The specifications for turfs and grasses are on the L-series drawings.

Erosion control plan does not distinguish between erosion control blanket and straw mulch. Is there any further detail for take offs?
Answer
Review the detail for Concrete Washout on C-0.4 for the extents of straw use. Everything else should be erosion control blanket. Refer to all details on C0.4.

Are there any more details on the 'Tournesol' 36" & 42" planters? Are equivalents acceptable?
Answer
We will remove the planters from the project scope. These planters will be Owner Furnished Owner Installed (OFOI).

Are the TD and PP3 tall fescue-based seed mixes shown on landscape sheet correct? They do not appear to meet the intent of the General Campus & City Notes for a native seedmix supporting 6-8 week mow cycles.
Answer
These are the NKU campus standard seed mixes. Please make a recommendation and submit for approval.

PC-0036 Conductors & Cables
Please confirm the 2 Hr. rating on conductors & cables will not be required on Emergency Feeders & Branch Circuits. See the attached spec section 26 05 19 Part 3.1 A2.a Please confirm Spec section 26 05 19 2.2 E Aluminum XHHW can be used on Feeders larger than 100 Amps.
Duke Utility Fees are not available at this time. Should there be an add allowance for these of not to include them?

Answer
The 2-hour rating needs to be met by all life safety items. It is our understanding that the electrical room is a 2-hour rated room, which suffices for Part 3.1.2 in Specification Section 26 05 19. Regarding the aluminum, the specification section allows aluminum to be used on feeders over 100 amps. However, the contractor is to follow the feeder schedule on the single-line diagram, as the feeders called out in the schedule are what the building is designed and priced off of. If the contractor wishes to submit a VE to change out some feeders to aluminum, a cost savings would need to be given back to the owner and then coordinated for acceptance by the owner. All utility fees and coordination are

to be completed by the contractor. Refer to the general requirements/notes on Sheet E0.00 and Specification Section 26 00 10. Allowances shall be coordinated with Smoot.

PC-0038 MK Plastics approved as an alternate to the Strobic fan for the high plume lab exhaust fan? Here is a link to additional information on the AXIJET. https://www.mkplastics.com/ventilation-systems/7-high-plume-dillusion-fans/3-axijet-high-plume-dilution-fan.html There is also a substitution request form in the attached documents.

Answer
MK Plastics is an acceptable alternate if they can meet the performance listed in the schedule and the specifications.

PC-0039 Plenum rated ceilings
We are bidding the plumbing for the Crime lab project, is there any plenum rated ceilings?

Answer
There are no fire-rated plenums in this project.

PC-0040 Flooring substitute Request
Substitution Request is in attached documents

Answer
Submit product cut sheets for review for substitute for 09 67 00 Fluid-Applied Flooring - Epoxy Flooring. There is nothing to review except a product name.

PC-0041 Concrete Slat wall enclosure
Concrete Slat wall enclosure. Flange-mounted to the existing concrete pad. Attached documents have been added.

Answer
It is not clear from the supplied documentation where this substitution is supposed to be applied.

PC-0042 Metal Composite Wall Panel Substitution request
Substitution request see attached documents – Petersen Pac 4000 MCMC Wall Panel

Answer
This substitution is approved for bidding.

PC-0043 Fire Alarm Specification
Can't seem to find any direct specifics or specifications on the fire alarm portion.

Answer
RFI to be answered in a future addendum.

PC-0048 Access Control Systems
I was able to review the latest addendum, but I still could not locate the information needed to prepare a complete access control equipment bid for Division 28, Section 28 16 43 – Access Control System. The main clarification we need is the intended access control platform and how the system is expected to be configured for NKU, the Crime Lab, and the Medical Examiner. Specifically, could you please provide guidance on the following? System and manufacturer
• Required access control manufacturer and platform

• Existing NKU platform and software version
• Whether this building will be added to NKU's existing enterprise system
• Whether one system will serve all occupants with separate permissions, or if multiple systems are required
• Approved manufacturers, acceptable equals, and required integrator certifications Controllers and head-end equipment
• Required controller and door-module manufacturers or models
• Panel locations and door-to-panel assignments
• Power supply, enclosure, and battery-backup requirements
• Server, appliance, virtual machine, or cloud requirements
• Software modules, licensing, and subscription requirements
• Network and cybersecurity requirements, including IP addressing and VLAN information Readers and credentials
• Reader manufacturer and model • Required reader types and quantities
• Credential technology, frequency, and format
• Existing NKU and State agency credential requirements
• Mobile credential requirements, if applicable
• Responsibility for cards, credential enrollment, and badging Any information, owner standards, existing system documentation, or additional drawings that address these items would be very helpful.

Answer
The scope of the telecom work is to install the pathways and wiring for the access control systems. The end user devices will be installed by state employees or contractors. The two state agencies will operate independent systems, and the system specifications are not being identified at this time.

PC-0051 CIP Concrete Walls
After reviewing the drawings, it appears that all cast-in-place (CIP) concrete walls will receive closed-cell spray foam, but there is still some uncertainty regarding exactly which walls require this insulation. Additionally, we were unable to determine the exact project dimensions using Eplanroom. Could you please clarify if all CIP concrete walls require foam insulation? If so, are prints with dimensions available?

Answer
The design intention is for the inside face of all exterior CIP concrete walls to receive with spray foam. The typical insulation thickness should be a minimum of 1-1/2 inches thick.

PC-0053 Epoxy Floors
The finish designation in room 116 Crime Lab Garage is noted as ER 02, which is Epoxy Resin Countertop. Should this be ER 01, Epoxy Flooring?

Answer
This is an error. The floor finish for the Crime Lab Garage should be ER-01.

PC-0054 Metal Composite Material Wall Panels
cut sheet and substitution request form for the composite panels PDF is in attachments.

Answer
This substitution is approved for bidding.

PC-0055 Follow up question to (PC-0026) Medical Examiner Questions

CM Front End Docs – BP-06 #49. BP-06 to provide and install decorative louvers (note 11 on sheet A0.03) located on the existing concrete radius wall complete. Please provide a spec/finish/thickness of the mentioned louvers.

Answer
Decorative louver wall is to be manufactured by same vendor as the 1J/ A0.03 Exterior Signage - Medical Examiner. The sign is to be manufactured of aluminum or painted steel. Architect will work with vendor to further develop the design through a delegated design process.

PC-0057 Gutters replacement
On sheet D1.03, note D55 calls for existing internal gutters to be replaced. Detail 3D - A3.20 calls for existing SS gutters to remain, "Patch and repair as neccessary." Are these gutters needing a full replacement or are we to go off detail 3D - A3.20?
Answer
The note on A3.20 is incorrect.

Are the steel angle supports located in detail 7k - A3.15 to be included in BP7 or BP5?
Answer
The steel angle supports located in detail 7k on A3.15 and any support associated with the large format tile wall pavers is to be included in BP-07 Roofing / Wall Panels.

BID-013

Q: Can you confirm scope on the Geo work outside for the mechanicals. I'm reading that we need to remove concrete and blacktop, reinstall concrete and blacktop, fill, finish grade, and seed. I'm getting push back from the geo companies and differing opinions.

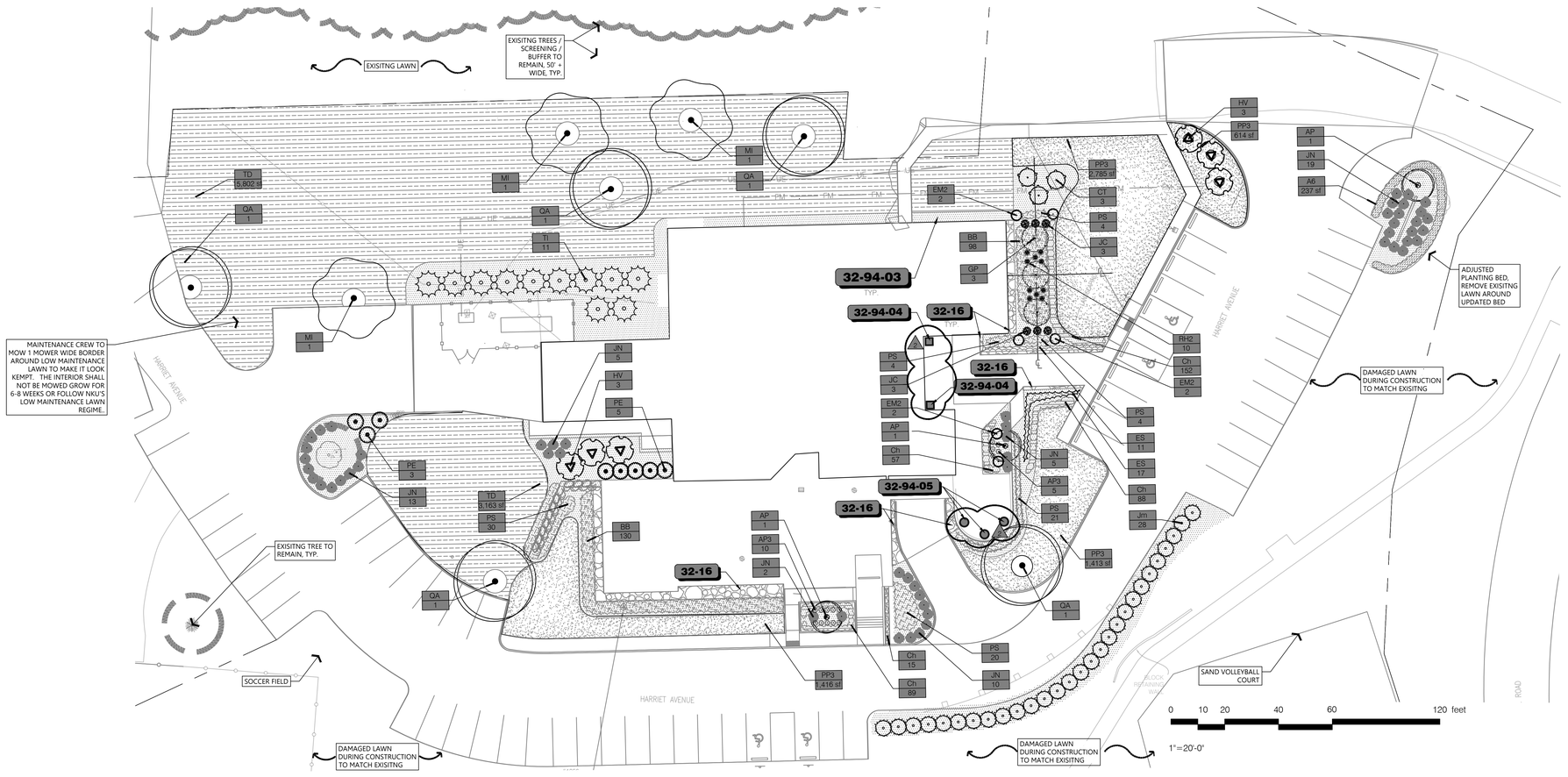
A: Bid Package – 31 Sitework / Site Demolition will be responsible for removal and disposal of site concrete and asphalt per the contract documents. BP – 31 will also be placing all new asphalt. Bid Package – 03 Concrete will be placing site concrete per the contract documents. Bid Package – 32 Landscaping will be seeding per the contract documents. The Geothermal contractor who is subcontracted in Bid Package – 23 HVAC will be responsible for any and all backfill created by the work of this trade and leveling grade back to existing conditions.

BID-014

Q: Please verify that BP7 is to remove all existing roofing, including existing standing seam panels over open purlins and supply dumpsters for all roof demo.

A: Bid Package – 07 Roofing / Metal Wall Panels to demo all existing roofing (Standing Seam and Membrane Roofing) and insulation identified in the contract documents. BP-07 is also to provide dumpsters for the removal and disposal of all roofing systems.

END OF ADDENDUM C



PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	INSTALL HEIGHT	QTY	DETAIL	REMARKS
TREES								
	AP	Acer palmatum 'Bloodgood' / Bloodgood Japanese Maple	8` Ht.	Pot		3		Full
	GP	Ginko biloba 'Upright' / Upright Ginko	2" Cal.	Pot		3		Full
	Jm	Juniperus scopulorum `Moonglow` / Moonglow Juniper	8` Ht.	Pot		28		Full to ground
	MI	Maclura pomifera inermis / Osage Orange	2" Cal.	B&B		3		Full
	OA	Quercus alba / White Oak	2.5" Cal.	B&B		5		Standard
	TI	Thuja plicata 'Spring Grove' / Spring Grove Arborvitae	6` Ht.	B&B		11		Full to ground
SHRUBS								
	CT	Cornus stolonifera ``Variegata`` / Variegated Red Twig Dogwood	4` Ht.	Pot	48"	3		Full
	HV	Hamamelis virginiana / Common Witch Hazel	6'	Pot	48"	6		Multi-stem, full
	JC	Juniperus communis 'Compressa' / Pyramidal Common Juniper	3` Ht.	Pot	36"	6		Full to ground
	JN	Juniperus sabina ``New Blue Tam`` / New Blue Tam Juniper	24" Ht.	Pot	36"	54		Full
	PE	Prunus laurocerasus / English Laurel	3` Ht.		36"	8		Full
PERENNIALS								
	AP3	Achillea millefolium 'Paprika' / Paprika Common Yarrow	1 gal.	Pot		15		Full
	EM2	Echinacea purpurea `Magnus Superior` / Magnus Superior Coneflower	1 gal.	Pot		6		Full
	RH2	Rudbeckia hirta / Black-eyed Susan	1 gal.	Pot		10		Full
SYMBOL	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	SPACING	QTY	DETAIL	REMARKS
GROUND COVERS								
	A6	Annuals na NA / NA	4"	Pot		237 sf		
	BB	Bouteloua gracilis `Blonde Ambition` / Blonde Ambition Blue Grama	1 gal.	Pot	24" o.c.	228		Full
	Ch	Carex hachijoensis `Evergold` / Evergold Japanese Sedge	1 gal.	Pot	12" o.c.	401		Full
	ES	Eragrostis spectabilis / Purple Lovegrass	1 gal.	Pot	24" o.c.	28		Full
	PS	Panicum virgatum 'Shenandoah' / Shenandoah Switch Grass	1 gal.	Pot	30" o.c.	83		Full
SOD/SEED								
	TD	%55 Tall Fescue / 205 Perrenial Rye / 25% Red Clover / Everwild Seed Mix	Seed 4	Seed 4		19,945 sf		
	PP3	80% Tall Fescue / 20% Perrenial Ryegrass / NKU Grass Seed	Sod	Sod		6,371 sf		

REFERENCE NOTES SCHEDULE

CODE	DESCRIPTION	QTY
Curbs and Gutters		
32-16	STONE, 2-3" Commodity Slate in black 4	703 sf
Planting Accessories		
32-94-03	Mulch, to match NKU campus	95.1 cy
32-94-04	Tournesol 36" Planter	3
32-94-05	42' Tournesol Circular Planter	3

REVISION SCHEDULE

REVISION	DESCRIPTION	DATE	BY
1	Changed TD, Everwild sod to seed.	7/29/2026	SDA
2	Planters to be owner furnished, owner installed.	7/29/2026	SDA
3	Stone has been called out as slate.	7/29/2026	SDA
4	Seed timing for tall fescue notes have been updated.	7/29/2026	SDA
5	Seed mixes are specified directly by NKU.	7/29/2026	SDA

GENERAL CAMPUS & CITY NOTES

1. GRASS IS A NATIVE VARIETY THAT FOLLOWS CODE AND CAMPUS GUIDELINES.
2. ALL SETBACKS ARE ABIDED BY, THE BUILDING IS A RECONSTRUCTION.
3. THE LANDSCAPE & IRRIGATION PLANS FOLLOW NKU'S LANDSCAPE PRINCIPLES BY INCORPORATING BOLD COLOR PALETTES, A DIVERSE MIX OF PLANT SPECIES, AND PRIORITIZING LOW-MAINTENANCE, NATIVE SELECTIONS. THE PLAN DEFINES SPACES THAT OFFER SHADE, MANAGE VIEWS, AND BALANCE THE EXTENSIVE USE OF CONCRETE WITH VIBRANT, SUSTAINABLE PLANTINGS. THESE INCLUDE DECIDUOUS, EVERGREEN, AND NATIVE SPECIES THAT ARE BOTH COLORFUL AND LOW MAINTENANCE, HELPING TO SOFTEN HARDSCAPE ELEMENTS, SCREEN THE MORGUE ENTRY, AND CONTRIBUTE TO A MORE ECO-FRIENDLY AND SUSTAINABLE CAMPUS ENVIRONMENT
4. THE LANDSCAPE PLAN EMPHASIZES LOW-MAINTENANCE STRATEGIES, INCLUDING NATIVE LAWN AREAS THAT SUPPORT A 6–8 WEEK MOWING CYCLE. MUCH OF THE SITE INCORPORATES XERISCAPING PRINCIPLES AND NATIVE LAWN ZONES TO FOSTER A RESILIENT AND SUSTAINABLE LANDSCAPE.

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

Project Title
NKU CIVIC CENTER

175 HARRIET AVE HIGHLAND
HIGHLAND HEIGHTS, KY 41099

Issue Date
JUNE 26, 2026

Issued for
BIDDING SET

Revision
REVISION A 7-17-26
REVISION B 7-24-26
REVISION C 7-31-26

Sheet Title
PLANTING PLAN

Project No.
2024.284

Drawn By: SBA

Reviewed By: RS

Date:

L5.00

COPYRIGHT © 2022 LUMINAUT, INC. -

PLANTING AREA AND GRADING NOTES

A. GENERAL: EXAMINE SITE AND VERIFY THAT CONDITIONS ARE SUITABLE FOR FINISH GRADING WORK, AND THAT NO DEFECTS OR ERRORS ARE PRESENT WHICH WOULD INTERFERE WITH OR CAUSE INCORRECT FINISH GRADING WORK TO OCCUR.

B. EXCESSIVE SOIL COMPACTION: VERIFY THAT THE TOPSOIL IS COMPACTED NO MORE THAN 75 PERCENT OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 1557.

C. SOIL PREPARATION: VERIFY THAT SUBSOIL RIPPING AND SOIL PREPARATION WORK IS COMPLETE.

D. NOTIFICATION OF UNSUITABLE CONDITIONS: BEFORE PROCEEDING WITH WORK, NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING OF UNSUITABLE CONDITIONS AND CONFLICTS.

E. PROTECTION OF EXISTING CONDITIONS:
1. USE EVERY POSSIBLE PRECAUTION TO PREVENT DAMAGE TO EXISTING CONDITIONS TO REMAIN SUCH AS STRUCTURES, UTILITIES, IRRIGATION SYSTEMS, PLANT MATERIALS, TREE ROOTS, AND PAVING ON OR ADJACENT TO THE SITE OF THE WORK.
2. PROVIDE BARRICADES, FENCES OR OTHER BARRIERS TO PROTECT EXISTING CONDITIONS TO REMAIN FROM DAMAGE DURING CONSTRUCTION.
3. DO NOT STORE MATERIALS OR EQUIPMENT, PERMIT BURNING, OR OPERATE OR PARK EQUIPMENT UNDER THE BRANCHES OF EXISTING PLANTS TO REMAIN.
4. SUBMIT WRITTEN NOTIFICATION OF CONDITIONS DAMAGED DURING CONSTRUCTION TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

F. FINISHED GRADE SMOOTHNESS MOCK-UP:
1. PREPARE A 20-FOOT BY 20-FOOT AREA OF FINISH GRADED SOIL REPRESENTING THE FINISHED GRADED SURFACE OF THE PLANTING AREAS.
2. LOCATE MOCKUP ON SITE IN A PROPOSED PLANTING AREA EASILY REFERENCED BY WORKERS PERFORMING FINISH GRADING OPERATIONS.
3. PROTECT ACCEPTED MOCKUP FROM PHYSICAL DAMAGE AND EROSION WITH FENCING, CANOPIES, SANDBAGS OR OTHER ACCEPTED MEANS UNTIL FINISH GRADING WORK IS COMPLETE AND ACCEPTED.
4. THE MOCK-UP MAY BE PREPARED AND REMAIN PART OF THE PERMANENT INSTALLATION IF ACCEPTABLE TO THE LANDSCAPE ARCHITECT.
5. THE ACCEPTED MOCK-UP SHALL BE THE PROJECT STANDARD FOR FINISH GRADE SMOOTHNESS.

G. ENVIRONMENTAL REQUIREMENTS:
1. DO NOT WORK SOIL WHEN MOISTURE CONTENT IS SO GREAT THAT EXCESSIVE COMPACTION WILL OCCUR, NOR WHEN IT IS SO DRY THAT DUST WILL FORM IN THE AIR OR THAT CLODS WILL NOT BREAK READILY.
2. APPLY WATER, IF NECESSARY, TO BRING SOIL TO AN OPTIMUM MOISTURE CONTENT FOR GRADING.
3. DO NOT WORK SOIL WHEN MUDDY OR FROZEN.

H. EXISTING CONDITIONS:
1. PRIOR TO WORK COMMENCEMENT REVIEW AND CLEARLY MARK IN FIELD HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING PUBLIC UNDERGROUND UTILITIES AND STRUCTURES WITH RESPECTIVE UTILITY COMPANIES.
2. PRIOR TO WORK COMMENCEMENT REVIEW AND CLEARLY MARK IN FIELD HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING PRIVATE UNDERGROUND UTILITIES AND STRUCTURES WITH THE OWNER'S REPRESENTATIVE.
3. PRIOR TO WORK COMMENCEMENT AND AFTER REVIEWING THE OWNER'S RECORD IRRIGATION DOCUMENTS, REVIEW AND CLEARLY MARK IN FIELD LOCATIONS OF HEADS, VALVE BOXES AND OTHER UNDERGROUND EQUIPMENT, MATERIALS AND STRUCTURES.

I FIELD ENGINEERING - GENERAL:
1. ESTABLISH LINES AND LEVELS, LOCATE AND LAY OUT BY INSTRUMENTATION AND SIMILAR APPROPRIATE MEANS FOR PLANTING AREA FINISH GRADES.
2. PROVIDE AS MANY GRADE STAKES AND STRING LINES AS REQUIRED TO ACHIEVE SMOOTH FINISH GRADES ACCEPTABLE TO THE LANDSCAPE ARCHITECT WITH POSITIVE SURFACE DRAINAGE.

J. SWALE FLOW LINES, BOTTOM OF SLOPES, TOP OF SLOPES AND GRADE BREAKS: INSTALL GRADE STAKES AT MAXIMUM 10 FEET ON CENTER.

K. HIGH POINTS AND LOW POINTS: PROVIDE GRADE STAKES AT HIGH POINTS AND LOW POINTS INCLUDING TOP OF BERMS, CATCH BASIN RIMS AND AREA DRAIN RIMS.

L. OPERATIONS - GENERAL:
1. GRADE SOIL SURFACE WITH SMOOTH UNIFORM SLOPE BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN, AND BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN AND EXISTING GRADES.
2. SLOPE FINISH GRADES TO DRAIN SURFACE WATER AWAY FROM BUILDINGS, WALKS, PAVING, AND OTHER STRUCTURES UNLESS INDICATED OTHERWISE.
3. SLOPE FINISH GRADES TO DRAIN SURFACE WATER TO CATCH BASINS, AREA DRAINS OR TRENCH DRAINS AS SHOWN ON THE DRAWINGS.
4. GRADE SOIL SURFACE SMOOTH TO BE FREE OF HIGH AND LOW AREAS WHICH WILL INHIBIT SURFACE DRAINAGE.
5. GRADE THE EDGES OF LAWN, GROUNDCOVER, AND OTHER GRASS AREA SOIL SURFACES ALONG STEEL HEADERS, PAVING, BANDS AND CURBS TO AN ELEVATION 1 INCH BELOW THE FINISHED SURFACE OF ADJACENT STEEL HEADERS, PAVING, BANDS AND CURBS, UNLESS INDICATED OTHERWISE.
6. GRADE THE EDGES OF SHRUB AREA AND AGGREGATE MULCH AREA SOIL SURFACES TO AN ELEVATION 4 INCHES BELOW THE FINISHED SURFACE OF ADJACENT STEEL HEADERS, PAVING, BANDS AND CURBS, UNLESS INDICATED OTHERWISE.
7. HAND-RAKE SOIL SURFACE USING SCREED BOARDS, STRING LINES AND LASER LEVELS IF REQUIRED TO ACHIEVE SMOOTH SURFACES ACCEPTABLE TO THE LANDSCAPE ARCHITECT.

M. EXCESSIVE SOIL COMPACTION:
1. TAKE PRECAUTIONS TO PREVENT SOIL FROM BECOMING COMPACTED MORE THAN 75 PERCENT AS DETERMINED BY ASTM D 1557.
2. MECHANICALLY LOOSEN EXCESSIVELY COMPACTED SOIL TO ITS FULL DEPTH AT AREAS COMPACTED MORE THAN 75 PERCENT.

N. EQUIPMENT:
1. USE EQUIPMENT OF APPROPRIATE SIZE AND TYPE TO ACHIEVE THE SCULPTURAL FORMS, PROFILES AND A SMOOTH SOIL SURFACE FREE OF HIGH AREAS, DEPRESSIONS, AND EQUIPMENT TRACKS.
2. USE EQUIPMENT OF A TYPE THAT WILL NOT CAUSE EXCESSIVE SOIL COMPACTION.

O. DEPRESSIONS AND LOOSE MATERIAL: FILL ANY DEPRESSIONS, AND REMOVE LOOSE MATERIAL TO FINISH SURFACE TRUE TO LINE AND GRADE, PRESENTING A SMOOTH AND UNYIELDING SURFACE.

P. TOLERANCES: LAWN AND GROUND COVER AREAS:
1. GRADE ON-GRADE SOIL SURFACES TO WITHIN 0.10-FOOT, OF GRADES INDICATED ON THE DRAWINGS, EXCEPT BRING SOIL SURFACE GRADES ALONG HEADERS, PAVING, CURBS, AND OTHER STRUCTURES TO WITHIN 0.01-FOOT OF GRADES INDICATED ON THE DRAWINGS.
2. TRANSITION SOIL SURFACE GRADES ALONG PAVING, CURBS, AND OTHER STRUCTURES TO AREAS OF LESS STRICT TOLERANCE OVER A 5-FOOT DISTANCE.

Q. TOLERANCES: MEADOW AREAS:
1. GRADE SOIL SURFACE TO WITHIN 0.10-FOOT OF GRADES INDICATED ON THE DRAWINGS, EXCEPT BRING SOIL SURFACE GRADES ALONG HEADERS, PAVING, CURBS, AND OTHER STRUCTURES TO WITHIN 0.01-FOOT OF GRADES INDICATED ON THE DRAWINGS.
2. TRANSITION SOIL SURFACE GRADES ALONG PAVING, CURBS, AND OTHER STRUCTURES TO AREAS OF LESS STRICT TOLERANCE OVER A 5-FOOT DISTANCE.

R. TOLERANCES: WOOD CHIP MULCH AREAS:
1. GRADE SOIL SURFACE TO WITHIN 0.10-FOOT OF GRADES INDICATED ON THE DRAWINGS, EXCEPT BRING PERIMETER SURFACE GRADES ALONG HEADERS, PAVING, CURBS, AND OTHER STRUCTURES TO WITHIN 0.01-FOOT OF GRADES INDICATED ON THE DRAWINGS.
2. TRANSITION SOIL SURFACE GRADES ALONG PAVING, CURBS, AND OTHER STRUCTURES TO AREAS OF LESS STRICT TOLERANCE OVER 5-FOOT DISTANCE.

S. ALLOWANCES: MAKE PROPER ALLOWANCES FOR SETTLEMENT, SOILS FROM PLANT PITS, AND ADDITION OF SOIL AMENDMENT.

T. ADJUSTMENTS: FINISHED GRADES:
1. PROVIDE ALLOWANCE FOR 4 DAYS OF ADJUSTMENT GRADING WORK WITH A RUBBER-TRACKED GRADING TRACTOR EQUIPMENT CAPABLE OF SMOOTHING AND SHAPING THE SURFACES OF THE LAND FORMS INDICATED ON THE DRAWINGS.
2. AFTER THE SOIL SURFACE ELEVATIONS HAVE BEEN GRADED TO BE WITHIN THE SPECIFIED TOLERANCE, PERFORM ADJUSTMENT GRADING WORK AS DIRECTED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. DO NOT RELY ON ADJUSTMENT GRADING TO BRING FINISHED GRADE ELEVATIONS TO WITHIN THE SPECIFIED TOLERANCE.

U. AESTHETIC ACCEPTANCE OF FINISH GRADING WORK:
1. UPON COMPLETION OF FINISH GRADING WORK, SCHEDULE WITH THE LANDSCAPE ARCHITECT A FIELD REVIEW TO OBTAIN AESTHETIC ACCEPTANCE OF THE COMPLETED FINISH GRADING WORK.
2. PROVIDE 3 DAYS ADVANCE WRITTEN NOTIFICATION.
3. DO NOT COMMENCE SEEDING, SODDING, OR OTHER PLANTING WORK UNTIL RECEIVING AESTHETIC ACCEPTANCE.

GENERAL NOTES

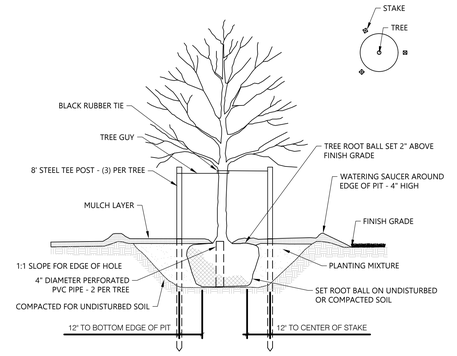
1) LOCATE AND VERIFY THE CONDITION OF EXISTING UTILITIES PRIOR TO BEGINNING SITE WORK. CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITY LOCATION SERVICES AND ANY COST INCURRED FOR BODILY INJURY AND/OR DAMAGE OF SAID UTILITIES OR OWNER'S PROPERTY.
2) CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES IDENTIFIED BETWEEN PLANS AND SITE CONDITIONS PRIOR TO STARTING WORK. CONTRACTOR SHALL BE LIABLE FOR ALL MODIFICATIONS AND DAMAGES IF WORK PROCEEDS WITHOUT SAID NOTIFICATION.
3) CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A SAFE WORK SITE, INCLUDING BUT NOT LIMITED TO PROVIDING FOR TRAFFIC CONTROL, INSTALLATION AND PLACEMENT OF FENCING AND BARRICADES, EXCAVATION AND TRENCH PROTECTION, AND COMPLIANCE WITH ALL FEDERAL AND LOCAL REGULATIONS AND CODES. ALL SAFETY EXPOSURES OR VIOLATIONS SHALL BE RECTIFIED IMMEDIATELY.
4) CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL EXISTING IMPROVEMENTS BOTH ON SITE AND ADJACENT TO THE WORK SITE AND SHALL REPAIR ANY DAMAGE CAUSED BY SAID CONTRACTOR TO THESE IMPROVEMENTS TO THE SATISFACTION OF THE OWNER.
5) CONTRACTOR SHALL NOTIFY OWNER AND LANDSCAPE ARCHITECT FORTY-EIGHT (48) HOURS PRIOR TO START OF WORK.
6) ANY ALTERNATES OR SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT FOR APPROVAL. CHANGES TO THE SCOPE OF WORK AND/OR CONTRACT DOCUMENTS RESULTING FROM THE ACCEPTANCE OF THE CONTRACTOR'S ALTERNATES AND/OR SUBSTITUTIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
7) THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A CLEAN SITE TO THE SATISFACTION OF THE OWNER. CONTRACTOR SHALL REMOVE TRASH ON A DAILY BASIS. THIS INCLUDES CONSTRUCTION RELATED DEBRIS LEFT ON ADJACENT PROPERTY, ROADS, DRIVEWAYS AND WITHIN THE CITY RIGHT OF WAY.
8) CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. ALL PERMITS AND APPROVALS REQUIRED FOR CONSTRUCTION SHALL BE PAID FOR AND OBTAINED BY THE CONTRACTOR PRIOR TO STARTING THE WORK.
9) CONTRACTOR SHALL COORDINATE WORK WITH SUBCONTRACTORS TO ACCOMPLISH THE SCOPE OF WORK AS SHOWN AND NOTED IN THE CONTRACT DOCUMENTS. CONTRACTOR SHALL COORDINATE WITH OTHER CONTRACTORS WORKING ON SITE.
10) CONTRACTOR SHALL COORDINATE STORING OF MATERIALS, PARKING OF VEHICLES, AND RESTRICTIONS OF WORK AND ACCESS WITH THE OWNER. UNDER NO CIRCUMSTANCE SHALL CONTRACTOR STORE MATERIALS OR PARK VEHICLES OR EQUIPMENT UNDER THE CANOPY OF EXISTING TREES.
11) CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND SERVICING TEMPORARY TOILET FACILITIES.
12) CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND PAYING ALL TEMPORARY UTILITIES AND SERVICES NECESSARY TO COMPLETELY INSTALL ALL WORK AS SHOWN AND NOTED IN THE CONTRACT DOCUMENTS.
13) CONTRACTOR SHALL BE RESPONSIBLE FOR THE LEGAL OFF-SITE DISPOSAL OF SURPLUS MATERIAL AND DEBRIS.
14) CONTRACTOR SHALL THOROUGHLY CLEAN THE PROJECT SITE OF ALL TRASH, REPAIR ALL DAMAGE TO FINISH GRADE, INCLUDING TAILINGS FROM EXCAVATIONS, WHEEL RUTS AND ANY SETTLING OR EROSION THAT HAS OCCURRED PRIOR TO COMPLETION UPON COMPLETION OF CONSTRUCTION AND PRIOR TO FINAL APPROVAL. ALL AREAS OF THE PROJECT SITE SHALL BE LEFT IN A NEAT AND PRESENTABLE CONDITION SATISFACTORY TO THE OWNER PRIOR TO SUBMITTAL OF FINAL PAYMENT.

GENERAL PLANTING NOTES

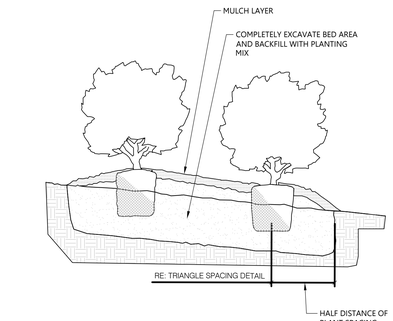
1) THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN). BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
2) THE LANDSCAPE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN FINISH GRADES AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND OWNER.
3) CONTRACTOR SHALL ENSURE THAT THE GRADE IN SOD AREAS SHALL BE 1" BELOW FINISH GRADE AFTER INSTALLING SOIL AMENDMENTS, AND 2" BELOW FINISH GRADE IN SHRUB AREAS AFTER INSTALLING SOIL AMENDMENTS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
4) INSTALL SHREDDED HARDWOOD MULCH TOPDRESSING IN ALL PLANTING BEDS (3-4" DEPTH) AND ALL TREE RINGS (3" DEPTH). DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE.
5) HYDROMULCH ALL DISTURBED AREAS OUTSIDE OF PROPERTY LIMITS (UNLESS SHOWN AS SOD)
6) THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES; PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
7) NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED. IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE DESIGNER IN WRITING (VIA PROPER CHANNELS).
8) PLANTS MAY BE INSPECTED AND APPROVED OR REJECTED ON THE JOBSITE BY THE OWNER OR OWNER'S REPRESENTATIVE.
9) THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, RESEEDING AREAS WHICH HAVE NOT GERMINATED WELL, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
10) SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL STAND OF GRASS AT NO ADDITIONAL COST TO THE OWNER.
11) TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
12) **A. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.**
13) **B. ALL HARSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.**
14) C. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. HYDROMULCH AREAS SHALL SHOW ACTIVE, HEALTHY GROWTH. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESOUNDED OR RESEED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
15) SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.
16) NKU WROTE, "TURF SEEDING CAN BE VERY SUCCESSFUL IF IT IS INSTALLED PROPERLY AND AT THE RIGHT TIME OF YEAR. DEPENDING ON THE WEATHER, THERE ARE A FEW WEEKS IN SPRING AND A FEW WEEKS IN THE FALL WHEN YOU CAN PLANT SEEDS AND GET GOOD RESULTS. WITH AN IRRIGATION SYSTEM, THIS TIMING IS EXTENDED, AND THE RESULTS MAY IMPROVE. IF IT'S TOO COLD AND WET, OR TOO HOT AND DRY, YOUR GERMINATION RESULTS WILL BE POOR. CONFIRM WITH HEAD OF LANDSCAPE AT NKU FOR PROPER COORDINATION OF SEEDING.

GENERAL LANDSCAPE NOTES

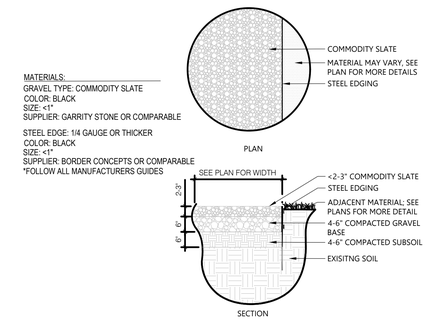
1) PLANTING SOIL MIXTURE SHALL BE ONE OF THE FOLLOWING:
2) BIDDING CONTRACTORS BE ADVISED THAT ALL NEW TREE MATERIAL IS TO BE CONTAINER GROWN, CORRESPONDING TO STATED ROOT BALL SIZES AS RECOGNIZED BY INDUSTRY STANDARDS. THIS SHALL EXCLUDE ALL B&B, MACHINE MOVED, OR TRANSPLANTED TREES FROM THE BIDDING PROCESS UNLESS OTHERWISE INDICATED ON THE PLAN. THE INSTALLATION CONTRACTOR SHALL BE PREPARED TO PROVIDE PHOTOGRAPHS OF INTENDED PLANT MATERIAL ALONG WITH SIGNED CLARIFICATION THAT PLANT MATERIAL MEETS THESE REQUIREMENTS AND THAT NO VARIATIONS OR SUBSTITUTIONS HAVE BEEN MADE.
3) THE LANDSCAPE CONTRACTOR DOING THE INSTALLATION OF THIS WORK SHALL SUBMIT TO LUMINAUT INFORMATION REGARDING SOURCING OF PLANT MATERIAL. ALL PLANT MATERIAL MUST FOLLOW THE AMERICAN STANDARD FOR NURSERY STOCK. TREE MATERIAL MEETING THE SPECIFICATIONS WILL BE TAGGED WITH A SERIALIZED LOCKING TAG AT THE NURSERY. PLANTS ARRIVING AT THE JOB SITE WITHOUT THESE TAGS WILL BE CATEGORICALLY REJECTED AT THE CONTRACTOR'S EXPENSE.
4) CONTRACTOR TO VERIFY SQUARE FOOTAGE BEFORE PLANTING. IF THE PLANTING PLAN DOES NOT AGREE WITH THE PLANT LIST, THE QUANTITIES INDICATED GRAPHICALLY ON THE PLANTING PLAN SHALL GOVERN.
5) CONTRACTOR IS RESPONSIBLE FOR THE GRADING OF PARKING LOT ISLANDS, PENINSULAS AND SETBACKS. GRADE CHANGES SHALL RANGE FROM 8" (INCH) TO 15" (INCH) ABOVE THE CURB, DEPENDING ON THE SIZE OF THE ISLAND. SELECT TOPSOIL SHALL BE USED FOR THESE BERMS. SEE PARKING ISLAND TREE DETAIL.
6) ALL DISTURBED AREAS ARE TO RECEIVE 6" (INCHES) OF TOPSOIL, TOPPED WITH MULCH, SOD, OR HYDROMULCH (DEPENDING ON THE AREA), AND IS TO BE WATERED UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
7) ALL TREES PLANTED ADJACENT TO ACCESSIBLE ROUTES AND ACCESSIBLE AREAS SHALL NOT HAVE LIMBS BELOW 80" (IN) ABOVE FINISH GRADE.



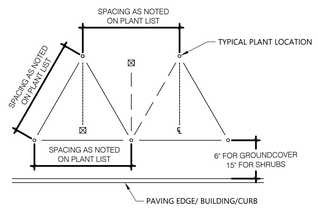
1 STANDARD TREE PLANTING
3/8" = 1'-0" 329343-03



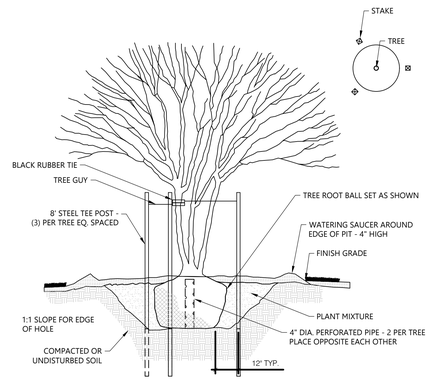
2 SHRUB/GROUNDCOVER PLANTING
1" = 1'-0" 329343-02



5 GRAVEL PATH WITH STEEL EDGE
1/2" = 1'-0" 323213-04



4 TRIANGULAR SPACING DIAGRAM
1/2" = 1'-0" 329343-05



3 MULTI-TRUNK TREE PLANTING
3/8" = 1'-0" 329343-04

COPYRIGHT © 2022 LUMINAUT, INC.

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.864.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

Project Title
NKU CIVIC CENTER

175 HARRIET AVE HIGHLAND
HIGHLAND HEIGHTS, KY 41099

Issue Date: JUNE 26, 2026
Issued for: BIDDING SET

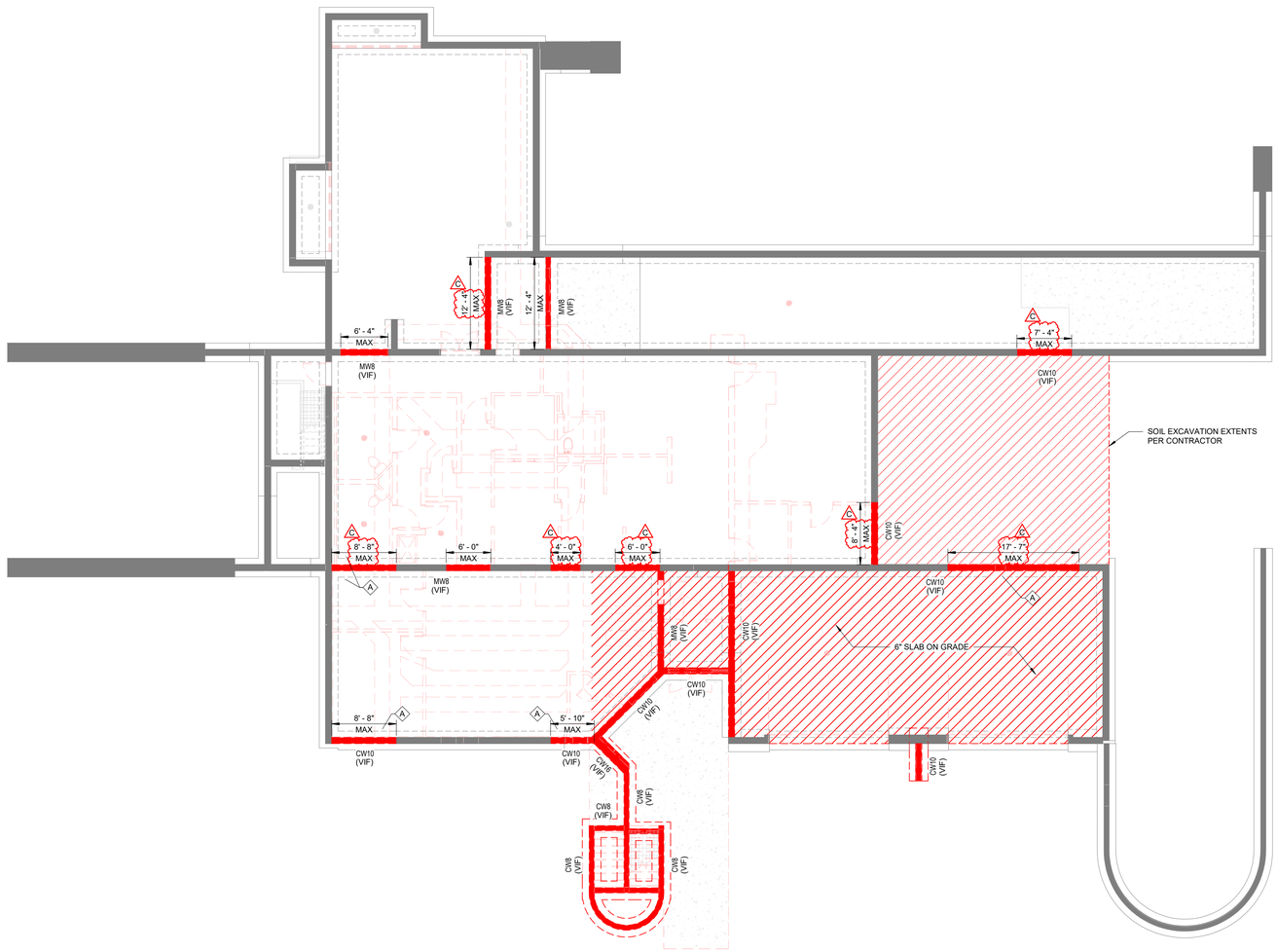
Revision
REVISION A 7-17-26
REVISION B 7-24-26
REVISION C 7-31-26

Sheet Title
PLANTING DETAILS

Project No.
2024.284

Drawn By: SBA
Reviewed By: MB
Date:

Sheet No.
L5.01



SLAB ON GRADE DEMO PLAN

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

FOUNDATION PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. TOP OF FOOTING (T/F) -2'-0", UNO.

DEMO KEYED PLAN NOTES

#	NOTE
A	TEMPORARY SHORING OF EXISTING STRUCTURE MAY BE REQUIRED FOR WALL DEMOLITION

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™

CMTA

Project Title

NKU Civic Center

175 Johns Hill Road,
Highland Heights, KY 41076

STATE OF KENTUCKY
JERICA BARLOW 41606
LICENSED PROFESSIONAL ENGINEER

Jerica Kay Barlow 01/21/2026

Issue Date: 6/26/26

Issued for: BIDDING SET

Revision

0	FOR PERMIT	01/21/2026
A	ADDENDUM A	01/17/2026
C	ADDENDUM C	07/30/2026

Sheet Title

EXISTING FOUNDATION PLAN

Project No. 24047

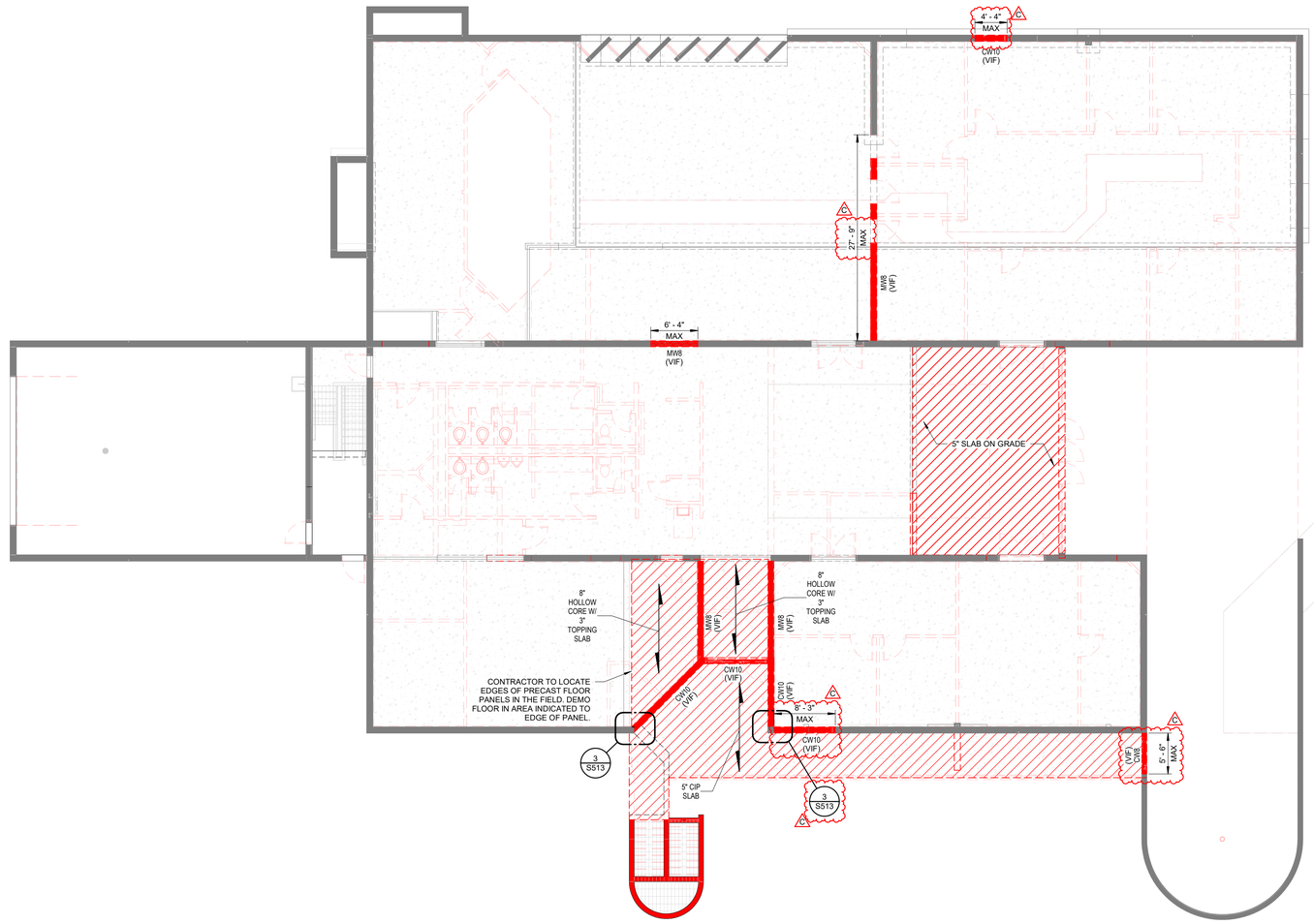
Drawn By: Author

Reviewed By: Checker

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

SD100

COPYRIGHT © 2022 LUMINAUT, INC. - 7/31/2026 8:54:58 AM - Autodesk Docs://NKU Civic Center/24047-LAS_NKU Civic Center_Structural_R24.rvt



FIRST FLOOR DEMOLITION PLAN

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

FRAMING PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV +0'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. VERIFY EQUIPMENT SIZE, WEIGHT, AND LOCATION WITH MECHANICAL CONTRACTOR.

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™
CMTA

Project Title
NKU Civic Center

175 Johns Hill Road,
Highland Heights, KY 41076

STATE OF KENTUCKY
JERICA BARLOW 41606
LICENSED PROFESSIONAL ENGINEER
Jerica Kay Barlow 01/21/2026

Issue Date: 6/26/26

Issued for: BIDDING SET

Revision

0	FOR PERMIT	01/21/2026
A	ADDENDUM A	07/17/2026
C	ADDENDUM C	07/30/2026

Sheet Title
EXISTING FLOOR FRAMING PLAN

Project No. 24047

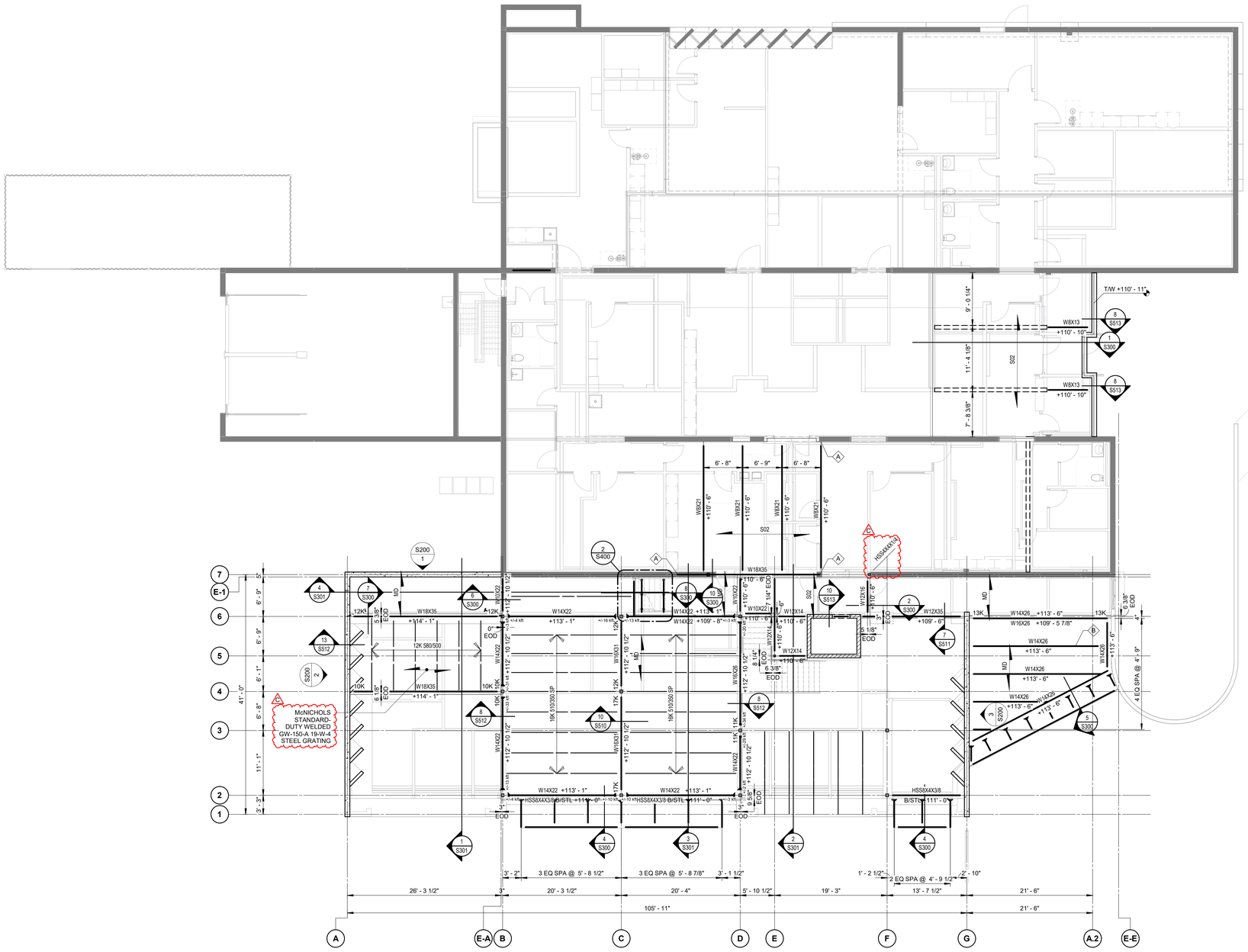
Drawn By: Author

Reviewed By: Checker

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

SD110

COPYRIGHT © 2023 LUMINAUT, INC. - 7/31/2026 8:54:56 AM - Autodesk Docs://NKU Civic Center/2024.04_NKU Civic Center_Structural_R24.rvt



NEW FLOOR FRAMING PLAN

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

FRAMING PLAN NOTES:

1. ELEVATIONS ±, ARE FROM NOMINAL FIRST FLOOR ELEV 100'-0", SEE CIVIL DRAWINGS.
2. SEE ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
3. COORDINATE DECK AND SLAB OPENINGS - EXACT SIZE AND LOCATION, WITH MECHANICAL AND PLUMBING CONTRACTOR DRAWINGS AND EQUIPMENT SUPPLIER.
4. VERIFY EQUIPMENT SIZE, WEIGHT, AND LOCATION WITH MECHANICAL CONTRACTOR.
5. ELEVATIONS INDICATE GIRDER T/STEEL, UNO.

FIRST FLOOR FRAMING PLAN NOTES

#	NOTE
A	LINTEL CONNECTION TO EXISTING CONCRETE WALL. SEE 3/S511
B	BEAM REQUIRES A 5" DIAMETER HOLE IN WEB FOR RAIN LEADER. COORDINATE EXACT LOCATION WITH MEP DRAWINGS.

FRAMING SCHEDULE INDEX

SHEET #	SCHEDULE NAME
S513	PRESPECTIVE LINTEL SCHEDULE
S513	DECK SCHEDULE
S513	SLAB ON METAL DECK SCHEDULE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU Civic Center

175 Johns Hill Road,
Highland Heights, KY 41076

STATE OF KENTUCKY
JERICA BARLOW
41606
LICENSED PROFESSIONAL ENGINEER
Jerica Kay Barlow 01/21/2026

Issue Date: 6/26/26

Issued for: BIDDING SET

Revision

0	FOR PERMIT	01/21/2026
A	ADDENDUM A	01/17/2026
C	ADDENDUM C	07/30/2026

Sheet Title
FIRST FLOOR FRAMING PLAN

Project No. 24047

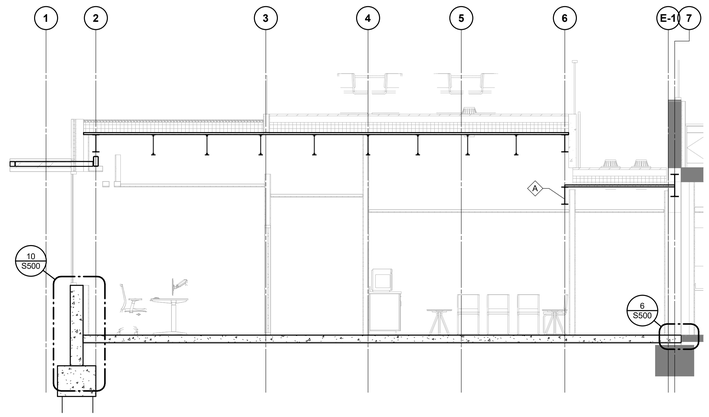
Drawn By: PSG

Reviewed By: JKB

Scale: As indicated

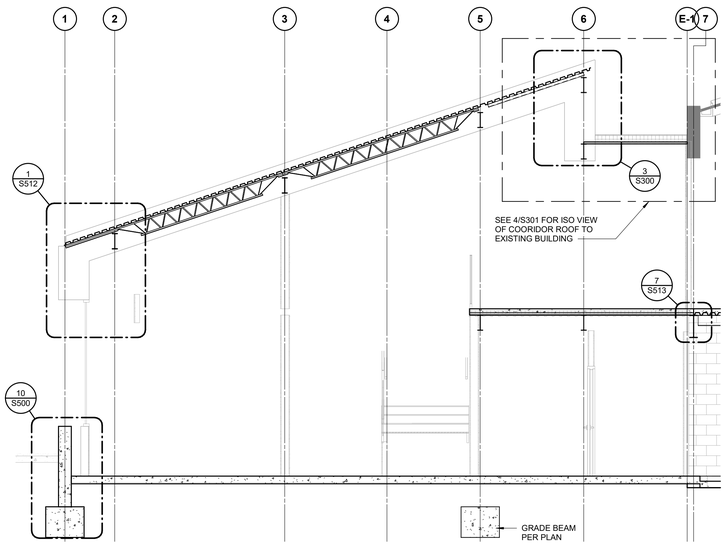
S110

COPYRIGHT © 2026 LUMINAUT, INC. - 7/21/2026 8:49:57 AM - Autodesk Docs://NKU Civic Center/24047.rvt, NKU Civic Center_Structural_R24.rvt



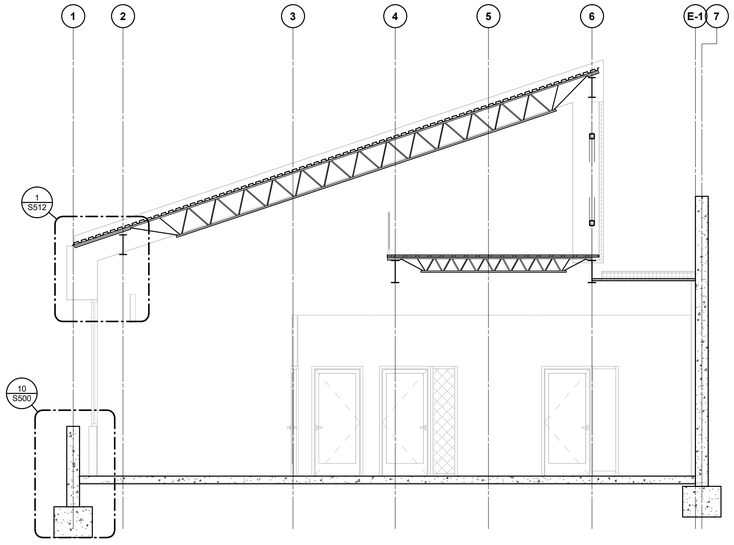
3 S301 BUILDING ADDITION SECTION @ PATIO

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



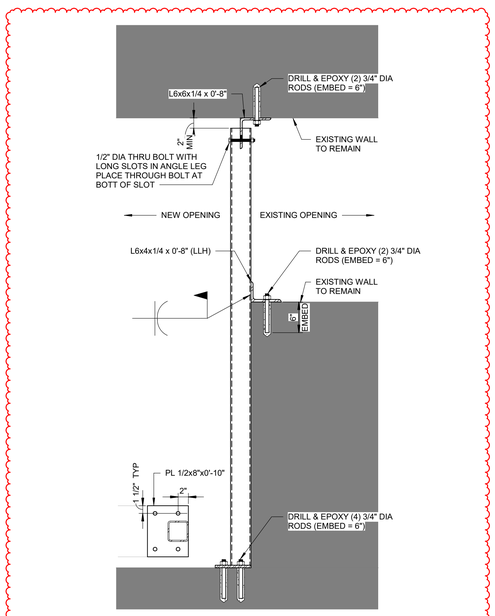
2 S301 BUILDING ADDITION SECTION @ EAST HIGH ROOF

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



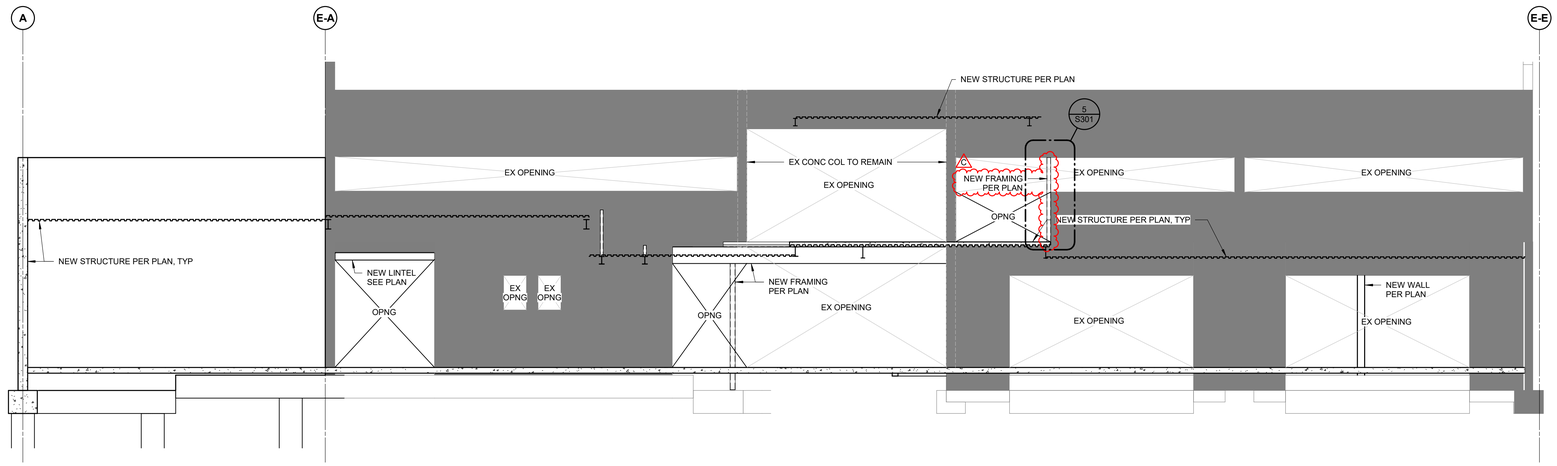
1 S301 BUILDING ADDITION SECTION @ WEST HIGH ROOF

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



C
5 S301 POST CONNECTION

SCALE: 1" = 1'-0"



4 S301 ELEVATION AT LINE E-1

SCALE: 3/16" = 1'-0"

SECTION NOTES	
#	NOTE
A	BEAM REQUIRES A 2" DIAMETER HOLE IN WEB. COORDINATE EXACT LOCATION WITH MEP DRAWINGS.

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™
CMTA

Project Title

NKU Civic Center

175 Johns Hill Road,
Highland Heights, KY 41076

STATE OF KENTUCKY
JERICA BARLOW
41606
LICENSED PROFESSIONAL ENGINEER

Jerica Kay Barlow
01/21/2026

Issue Date: 6/26/26

Issued for: BIDDING SET

Revision

0	FOR PERMIT	01/21/2026
A	ADDENDUM A	01/17/2026
C	ADDENDUM C	01/30/2026

Sheet Title

ADDITION BUILDING SECTIONS

Project No. 24047

Drawn By: TBO

Reviewed By: DJS

Scale: As indicated

S301

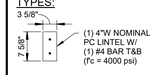
COPYRIGHT © 2023 LUMINAUT, INC. - 7:23:0208 8:54:58 AM - Autodesk Docs://NKU Civic Center/23241345_NKU Civic Center_Structural_R24.rvt

PRESCRIPTIVE LINTEL SCHEDULE

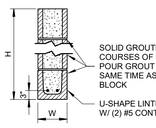
GENERAL NOTE: PROVIDE LINTELS IN THIS SCHEDULE FOR MASONRY OPENINGS WHERE SPECIFIC LINTELS (L#) ARE NOT OTHERWISE INDICATED. WHERE A SPECIFIC LINTEL (L#) IS INDICATED FOR A PARTICULAR OPENING, PROVIDE THE SPECIFIC LINTEL (L#). FOR OPENINGS BEYOND THE LIMITS AND/OR MATERIALS IDENTIFIED IN THIS SCHEDULE WHERE SPECIFIC LINTELS (L#) ARE NOT OTHERWISE INDICATED, CONTACT THE STRUCTURAL ENGINEER FOR REQUIRED LINTEL SIZE AND TYPE.

SECTION	CLEAR OPENING	TYPE	NOTES
W x 8 H (NOMINAL) CMU	UP TO 3'-4"	PLB	6", 8", 10", 12" CMU
W x 16 H (NOMINAL) CMU	>3'-4" UP TO 6'-4"	PLB	6", 8", 10", 12" CMU
W x 24 H (NOMINAL) CMU	>6'-4" UP TO 10'-4"	PLB	6", 8", 10", 12" CMU
L3 1/2 x 3 1/2 x 5/16	UP TO 4'-0"	PLC	4" MASONRY VENEER
L5 x 3 1/2 x 5/16 (LLV)	>4'-0" UP TO 6'-0"	PLC	4" MASONRY VENEER
L6 x 3 1/2 x 3/8 (LLV)	>6'-0" UP TO 8'-0"	PLC	4" MASONRY VENEER

TYPES:



PLA



PLC PLB

PRESCRIPTIVE LINTEL SCHEDULE NOTES:

1. ALL LINTELS BEAR 0'-8" ONTO SUPPORTING WALLS, UNO.
2. ALL STEEL LINTELS IN EXTERIOR WALLS SHALL BE GALVANIZED.

MASONRY REINFORCING STEEL LAP SPLICE CHART

BAR SPLICE LENGTHS

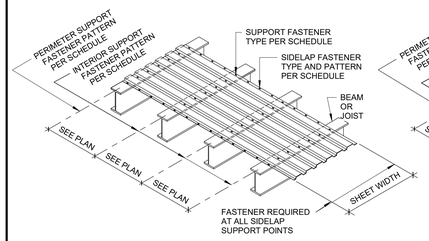
BAR	UNCOATED BARS		EPOXY-COATED BARS	
	TYPE 1.0LD	TYPE 1.5LD	TYPE 1.0LD	TYPE 1.5LD
#3	20"	36"	29"	54"
#4	26"	48"	39"	72"
#5	32"	60"	48"	90"
#6	39"	72"	58"	108"
#7	45"	84"	68"	126"
#8	52"	96"	77"	144"
#9	58"	109"	87"	164"

NOTES:

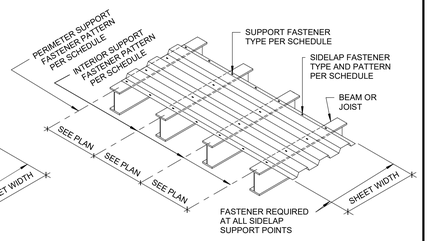
1. ALL SPLICES ARE TYPE 1.0LD, UNO.
2. BARS LARGER THAN #9 ARE REQUIRED TO BE SPLICED BY MECHANICAL CONNECTORS, UNO.
3. SPLICES BASED ON Fs = 32,000 PSI AND f'm ≥ 1500 PSI.
4. ALL BARS ARE UNCOATED, UNO.
5. USE EPOXY-COATED BARS ONLY IN PARKING STRUCTURE MASONRY WHERE SPECIFICALLY INDICATED, UNO.

DECK SCHEDULE

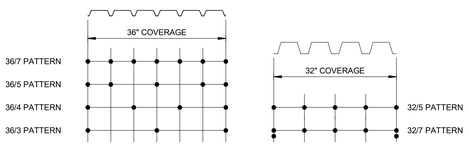
Type Mark	Thickness	Deck Gauge	Deck Type	Deck Finish	Support Fastener Type	Perimeter Support Fastener Pattern	Interior Support Fastener Pattern	Sidelap Fastener Pattern	Sidelap Fastener Type	Remarks
MD	1 1/2"	16	WR	Painted	3/4" DIA PUDDLE WELDS	36/7	36/5	3 PER SPAN	#10 TEK SCREWS	



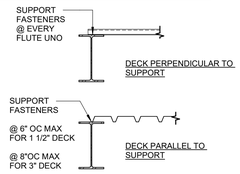
1-1/2" DECK FASTENER PATTERN DIAGRAM



3" DECK FASTENER PATTERN DIAGRAM



SUPPORT FASTENER PATTERN DEFINITION



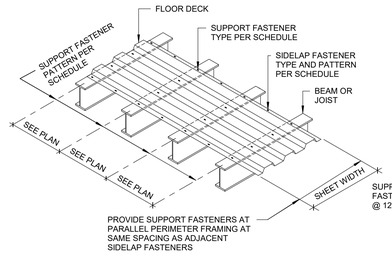
PERIMETER SUPPORT FASTENERS

NOTES:

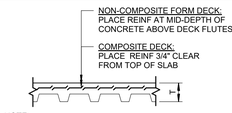
1. FASTEN THROUGH MULTIPLE SHEETS AT ALL END AND SIDE LAPS.
2. END LAPS SHALL OCCUR ONLY AT SUPPORT POINTS.
3. DECK SHALL BE INSTALLED IN A MINIMUM THREE SPAN CONDITION WHEREVER POSSIBLE. WHERE THREE SPAN CONDITION IS NOT POSSIBLE, NOTIFY STRUCTURAL ENGINEER PRIOR TO FABRICATION OF DECK SO THAT EVALUATION OF THE LESSER SPAN CONDITION(S) CAN BE PERFORMED.
4. PROVIDE 36/7 FASTENER PATTERN AT ALL BRACED FRAMES AND MOMENT FRAMES.

SLAB ON METAL DECK SCHEDULE

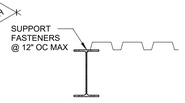
MARK	DECK HEIGHT	GAUGE	YIELD STRENGTH Fy	TYPE	FINISH	SLAB T	SLAB REINFORCING	SUPPORT FASTENER TYPE	SUPPORT FASTENER PATTERN	SIDELAP FASTENER TYPE	SIDELAP FASTENER PATTERN	BASIS OF DESIGN DECK (NOTE 6)	NOTES
S02	2"	20 GA	40 OR 50 KSI	COMPOSITE	GALV & PAINTED	5"	6x6-W1.4xW1.4 WWR	SPOT WELD	30-4	SEE NOTE 5	SEE NOTE 5	VULCRAFT 2VLI-36 OR NEW MILLENIUM 2.0CD	



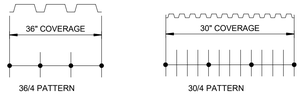
FASTENER PATTERN DIAGRAM



SLAB THICKNESS DEFINITION AND REINF PLACEMENT



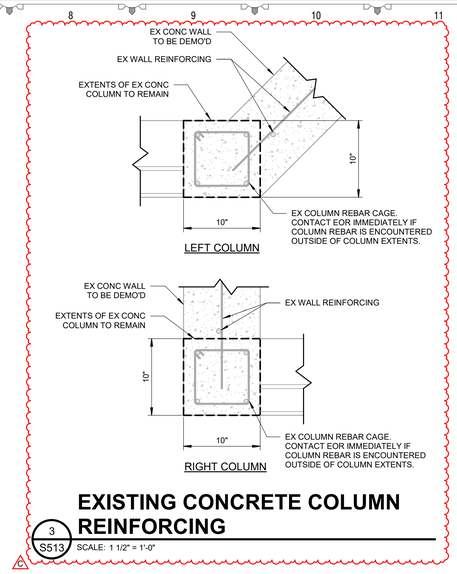
PERIMETER EDGE FASTENING



SUPPORT FASTENER PATTERN DEFINITION

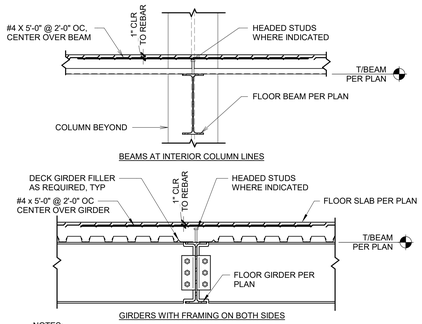
NOTES:

1. CONCRETE TO BE NORMAL WEIGHT, UNO.
2. FASTEN THROUGH MULTIPLE SHEETS AT ALL END AND SIDE LAPS.
3. END LAPS SHALL OCCUR ONLY AT SUPPORT POINTS.
4. DECK SHALL BE INSTALLED IN A MINIMUM THREE SPAN CONDITION WHEREVER POSSIBLE. WHERE THREE SPAN CONDITION IS NOT POSSIBLE, NOTIFY STRUCTURAL ENGINEER PRIOR TO FABRICATION OF DECK SO THAT EVALUATION OF THE LESSER SPAN CONDITION(S) CAN BE PERFORMED.
5. FOR DECK SPANS 5'-0" OR LESS, PROVIDE ONE SIDELAP FASTENER AT MID-SPAN OF EACH JOIST OR BEAM SPACE. FOR DECK SPANS EXCEEDING 5'-0", PROVIDE SIDELAP FASTENERS AT 3'-0" OC, MAX. USE DECK MANUFACTURER'S RECOMMENDED PUNCHED SIDELAPS FOR COMPOSITE DECK AND NON-NESTING FORM DECK,UNO. USE #10 TEK SCREWS AT DECK WITH NESTED SIDELAPS, UNO.
6. PROVIDE DECK WITH ALL PROPERTIES MEETING OR EXCEEDING THE INDICATED BASIS OF DESIGN DECK.



EXISTING CONCRETE COLUMN REINFORCING

3 S513 SCALE: 1 1/2" = 1'-0"

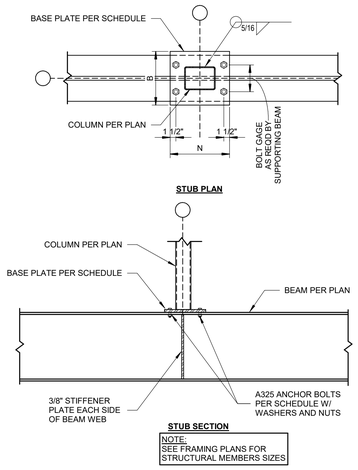


NOTES:

1. REINFORCEMENT SHOWN ON THIS DETAIL IS IN ADDITION TO ALL OTHER INDICATED REINFORCEMENT, UNO.
2. CONCRETE CONTRACTOR SHALL SECURELY CHAIR ALL REINFORCEMENT PRIOR TO CONCRETE PLACEMENT AND MAINTAIN PROPER REINFORCEMENT POSITIONING THROUGHOUT THE CONCRETE PLACEMENT.

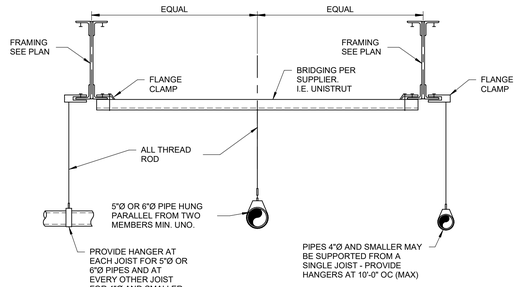
TYPICAL SOMD REINFORCING OVER INTERIOR BEAMS AND GIRDERS AT COLUMN LINES

2 S513 SCALE: 3/4" = 1'-0"



TYPICAL STUB/HANGER DETAIL

1 S513 SCALE: 3/4" = 1'-0"

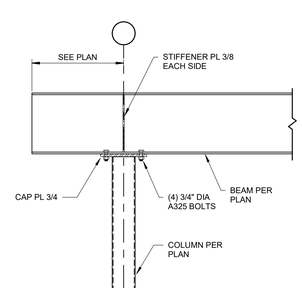


NOTES:

1. LOCATE HANGERS WITHIN 4" OF THE JOIST TOP CHORD PANEL POINTS.
2. PIPES LARGER THAN 6" SHALL BE SUBMITTED TO ENGINEER OF RECORD FOR APPROVAL. INCLUDE LOCATION OF PIPE AND PREFERRED HANGING DETAIL.
3. DESIGN OF LATERAL BRACING FOR SUSPENDED PIPES IN SEISMIC AREAS SHALL BE SUBMITTED TO ENGINEER OF RECORD FOR APPROVAL.
4. SPRINKLER PIPES SUSPENDED IN CONFORMANCE WITH THIS DETAIL WILL LIMIT THE SPRINKLER SYSTEM WEIGHT TO 3.0 PSF EQUIVALENT DISTRIBUTED LOAD.

TYP PIPE HANGER DETAIL

5 S513 SCALE: 3/4" = 1'-0"

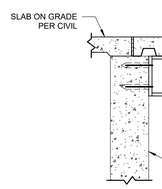


NOTES:

1. USE TYPE 1, UNO.
2. USE TYPE 2 FOR REACTIONS EXCEEDING 50K AND ALL OTHER INDICATED LOCATIONS.

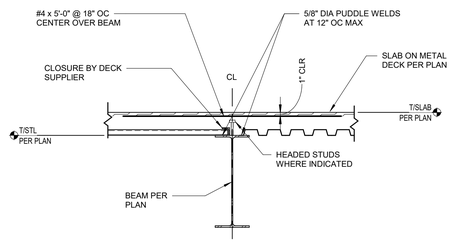
TYPICAL CANTILEVER BEAM BEARING

4 S513 SCALE: 3/4" = 1'-0"



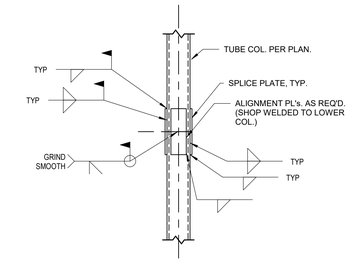
BEAM BEARING @ CONCRETE WALL

8 S513 SCALE: 3/4" = 1'-0"



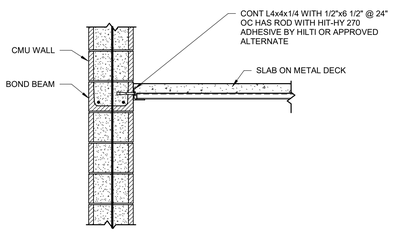
CHANGE IN FLOOR DECK SPAN DIRECTION (BEAMS)

7 S513 SCALE: 3/4" = 1'-0"



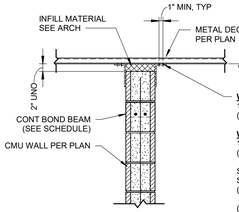
TYPICAL TUBE COLUMN SPLICE

6 S513 SCALE: 3/4" = 1'-0"



SOMD BEARING @ MASONRY WALL

10 S513 SCALE: 3/4" = 1'-0"



NOTE: AT SLABS ON METAL DECK, USE 3/16" DIA CONCRETE SCREWS IN LIEW OF INDICATED SCREWS (MIN 1" EMBEDMENT)

WALL PERPENDICULAR TO DECK FLUTES: 12GAx6"x3" (LLV) BENT PL x 1'-0", STAGGERED. (SPACING EA SIDE OF WALL PER SCHEDULE)

WALL PARALLEL TO DECK FLUTES: 12GAx6"x12" (LLH) BENT PL x 1'-0", STAGGERED. (SPACING EA SIDE OF WALL PER SCHEDULE)

SCREW TO DECK W/ 2 PAIR OF (2) #10 ICH TRAXX SELF-TAPPING SCREWS @ 6" OC AT EA BNENT PL (BY ITW BUILDEX), TIGHT TO CMU WALL

(BENT PLATES FURNISHED AND INSTALLED BY MASONRY CONTRACTOR)

CMU PARTITION WALL BRACING SCHEDULE

CMU SIZE	*INTERSECTING WALL MAX SPACING	MAX BRIDGE SPACING	RAMARKS
4"	10'-0"	4'-0"	
6"	15'-4"	6'-0"	
8"	18'-0"	6'-0"	

***NOTE**: PROVIDE BRACING AS SHOWN FOR ALL CMU PARTITION WALLS (WHICH ARE NOT OTHERWISE BRACED AT TOP) AT ALL LOCATIONS WHERE THE DISTANCE BETWEEN INTERSECTING WALLS EXCEEDS THE MAXIMUM SPACING SHOWN

TYP FULL-HEIGHT CMU PARTITION WALL BRACING (AT STEEL DECK)

9 S513 SCALE: 3/4" = 1'-0"

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™
CMTA

Project Title
NKU Civic Center

175 Johns Hill Road,
Highland Heights, KY 41076

STATE OF KENTUCKY
JERICA BARLOW 41606
LICENSED PROFESSIONAL ENGINEER
Jerica Kay Barlow 01/21/2026

Issue Date: 6/26/26

Issued for: BIDDING SET

Revision

B	FOR PERMIT	01/21/2026
C	ADDENDUM C	07/30/2026

Sheet Title
FRAMING SCHEDULES, SECTIONS, & DETAILS

Project No. 24047

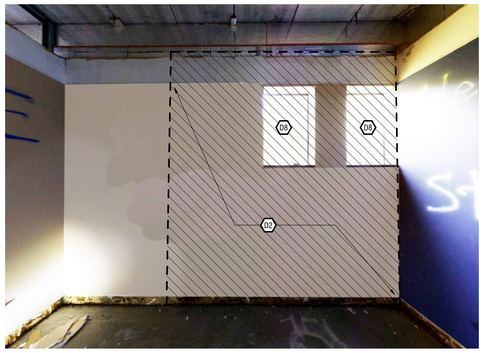
Drawn By: Author
Reviewed By: Checker
Scale: As indicated

S513

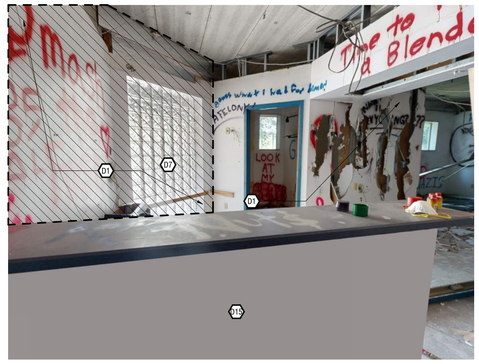
COPYRIGHT © 2023 LUMINAUT, INC. - 7/31/2026 8:55:09 AM - Autodesk Docs://NKU Civic Centre/25061445_NKU Civic Centre_Structural_R24.rvt

1L D1.01 **LOWER LEVEL DEMO - MEP RM.**
1 1/2" = 1'-0"

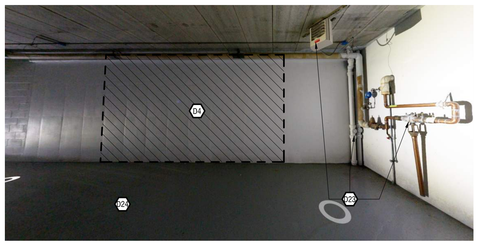
4L D1.01 **LOWER LEVEL DEMO AND FLOOR INFILL - GUN RANGE**
1 1/2" = 1'-0"



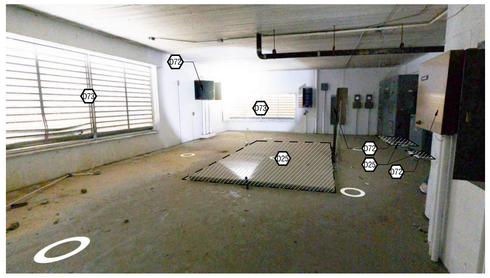
9L D1.01 **LOWER LEVEL DEMO - EXTERIOR WALL/WINDOWS**
1 1/2" = 1'-0"



13L D1.01 **LOWER LEVEL DEMO - EXTERIOR WALL/CASEWORK**
1 1/2" = 1'-0"

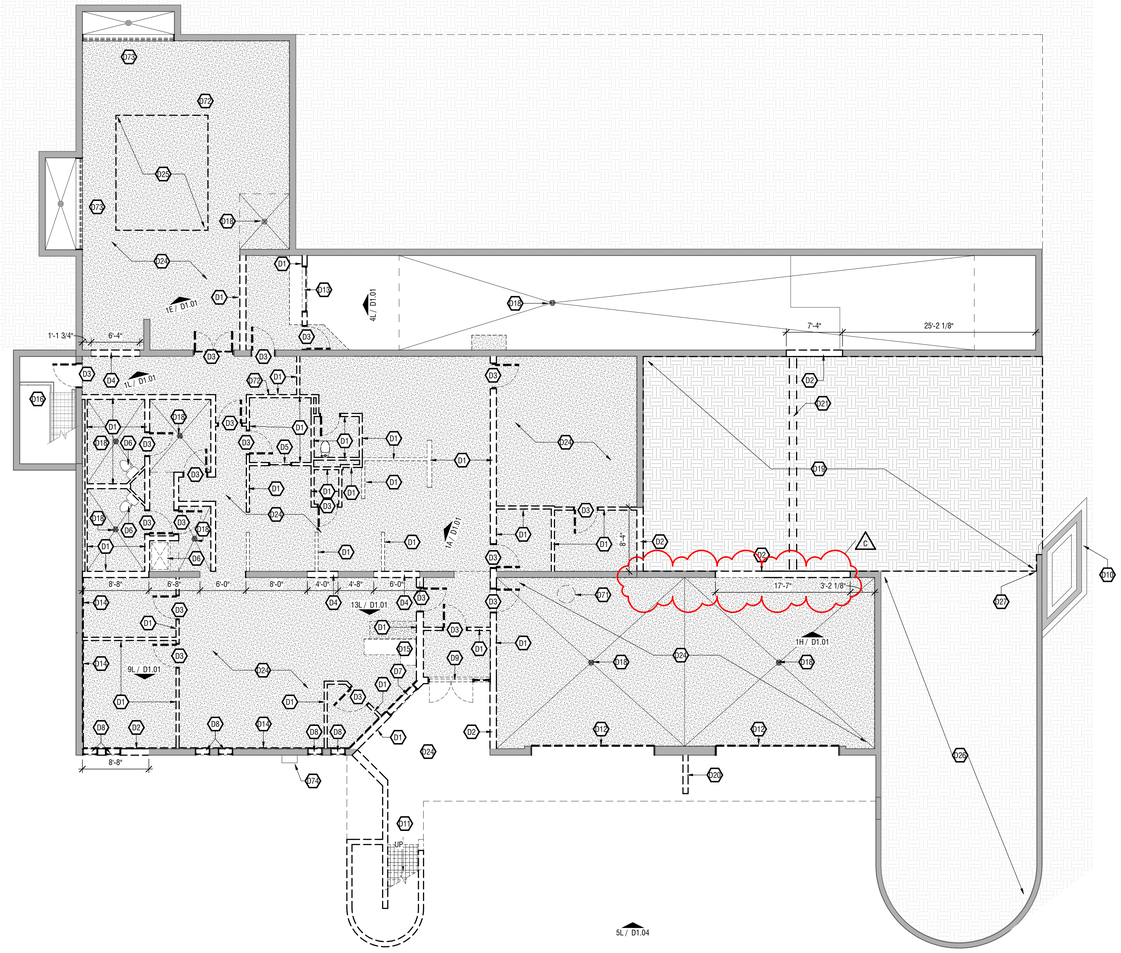


1H D1.01 **LOWER LEVEL DEMO - GARAGE FOUNDATION WALL**
1 1/2" = 1'-0"

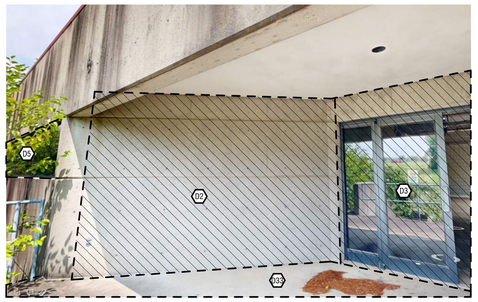


1E D1.01 **LOWER LEVEL DEMO - MECHANICAL ROOM**
1 1/2" = 1'-0"

1A D1.01 **LOWER LEVEL DEMO - INTERIOR AREA**
1 1/2" = 1'-0"

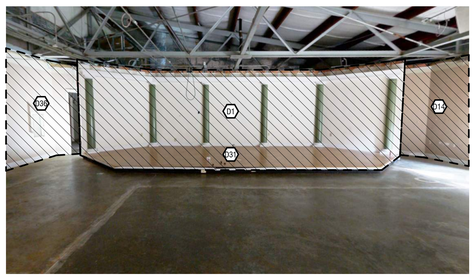

D2
D2
D2

1L D1.02 **INTERIOR WALL DEMO - UPPER LEVEL**
1 1/2" = 1'-0"



1H D1.02 **EXTERIOR WALL DEMO - UPPER LEVEL**
1 1/2" = 1'-0"

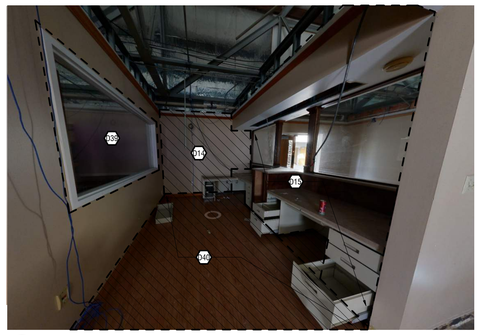
1D D1.02 **TYP INTERIOR WALL DEMO - UPPER LEVEL**
1 1/2" = 1'-0"



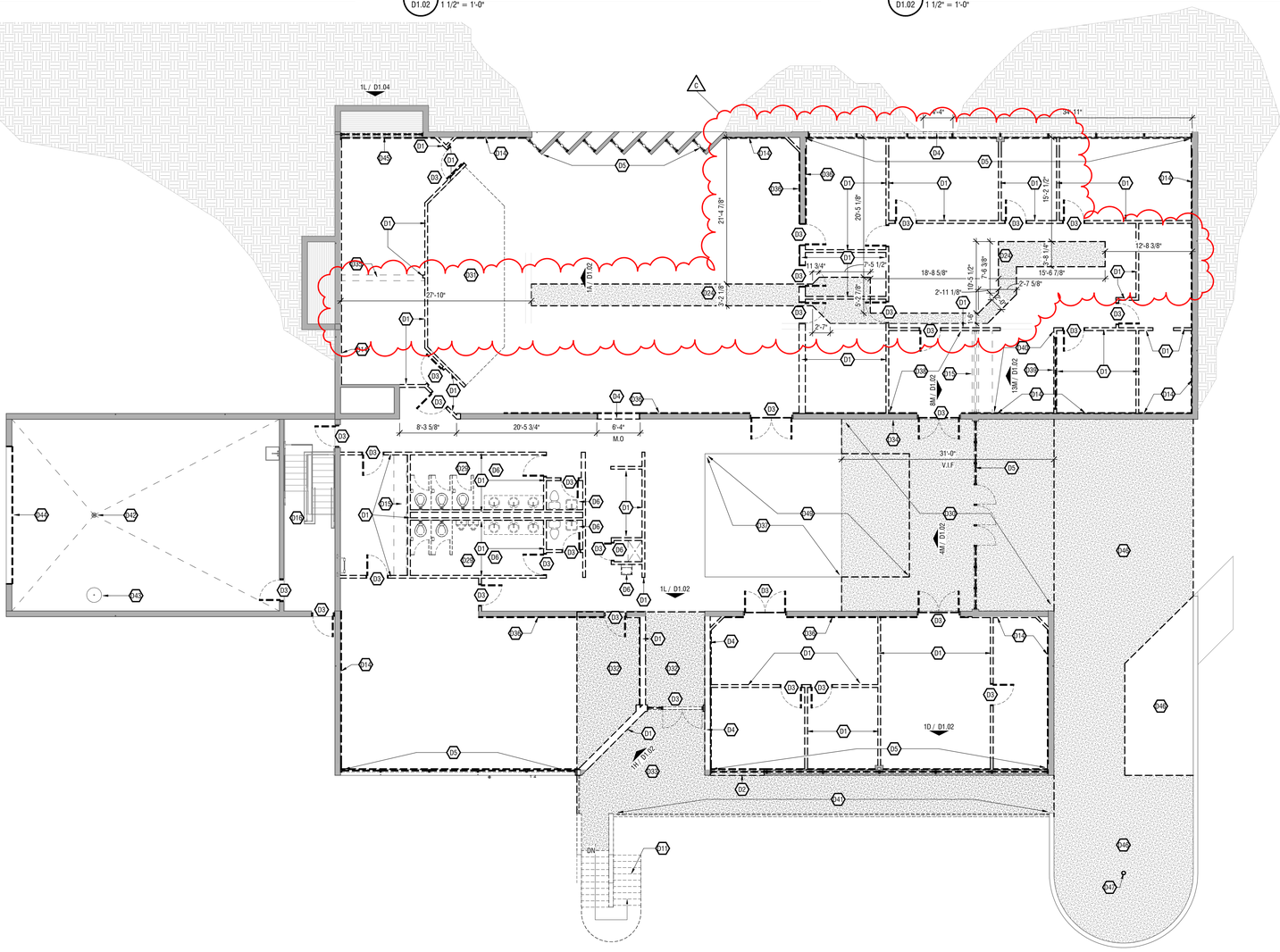
1A D1.02 **INTERIOR DEMO - STAGE REMOVAL**
1 1/2" = 1'-0"

4M D1.02 **INTERIOR SLAB DEMO EXTENTS - UPPER LEVEL**
1 1/2" = 1'-0"

8M D1.02 **CASEWORK/TILE DEMO - UPPER LEVEL**
1 1/2" = 1'-0"



13M D1.02 **CASEWORK/WOOD FLOOR DEMO - UPPER LEVEL**
1 1/2" = 1'-0"



KEYNOTES:

D1	DEMOLISH EXISTING WALL AND ASSOCIATED CONSTRUCTION COMPLETE. REMOVE ANY ASSOCIATED MECHANICAL, ELECTRICAL, AND/OR PLUMBING TO ITS SOURCE. NOTIFY ARCHITECT OF ANY CONFLICTS. PROVIDE ADEQUATE SHORING TO PRESERVE SURROUNDING CONSTRUCTION TO REMAIN.
D2	INDICATES AREA OF EXISTING WALL TO BE REMOVED FOR NEW CONSTRUCTION. REFER TO PLAN FOR OPENING SIZE.
D3	DEMOLISH EXISTING DOOR,DOOR FRAME AND ALL ASSOCIATED CONSTRUCTION COMPLETE.
D4	DEMOLISH PORTION OF EXISTING WALL TO RECEIVE NEW OPENING. REF. A6.00 FOR DOOR SCHEDULE.
D5	DEMOLISH EXTERIOR STOREFRONT AND ALL ASSOCIATED CONSTRUCTION COMPLETE. ABOVE AND BELOW STOREFRONT, DEMOLISH GYPSUM BOARD, RIGID INSULATION AND ALL ASSOCIATED CONSTRUCTION BACK TO CONCRETE WALL COMPLETE.
D6	DEMOLISH EXISTING PLUMBING FIXTURE AND ALL ASSOCIATED CONSTRUCTION COMPLETE.CAP PLUMBING TO ITS SOURCE. REFER TO PLUMBING DRAWINGS FOR MORE INFORMATION.
D11	DEMOLISH EXTERIOR CONCRETE STAIR AND ALL ASSOCIATED CONSTRUCTION COMPLETE.
D14	DEMOLISH EXISTING GYPSUM BOARD, RIGID INSULATION AND FURRING STRIPS BACK TO EXTERIOR CONCRETE WALL.
D15	DEMOLISH EXISTING MILLWORK AND ALL ASSOCIATED CONSTRUCTION COMPLETE.
D16	EXISTING METAL PAN STAIRS AND RAILINGS TO REMAIN
D17	EXISTING STRUCTURE TO REMAIN. DEMOLISH ALL SURROUNDING INSULATION AND FURRING COMPONENTS AS NOTED.
D24	PORTION OF EXISTING SLAB TO BE DEMOLISHED. REFER TO PLUMBING DRAWINGS.
D29	DEMOLISH EXISTING TOILET PARTITION, TOILET ACCESSORIES AND ALL ASSOCIATED CONSTRUCTION COMPLETE.
D30	DEMOLISH EXISTING SLAB ON GRADE BACK TO EXTERIOR FOUNDATION WALL BELOW. EXCAVATE GRADING BELOW FOR NEW WORK ON LOWER LEVEL. CONTRACTOR RESPONSIBLE FOR PROPER SHORING AND PROTECTION REQUIRED TO MAINTAIN EXISTING SURROUNDING CONSTRUCTION. PATCH AND REPAIR AS NEEDED.
D31	DEMOLISH EXISTING STAGE AND ALL ASSOCIATED CONSTRUCTION COMPLETE.
D32	DEMOLISH BAY OF PRECAST CONCRETE SLAB, HOLLOW CORE PLANKS AND TOPPING AS SHOWN. PROVIDE ADEQUATE SHORING AND PROTECTION OF SURROUNDING EXISTING TO REMAIN CONSTRUCTION. PATCH AND PREP FOR NEW SLAB. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION
D33	DEMOLISH EXTERIOR CONCRETE WALKWAY, METAL RAILING AND ALL ASSOCIATE COMPONENTS. PRESERVE AND PROTECT EXISTING CONCRETE WALLS TO REMAIN. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION
D34	DEMOLISH ALL WALL MOUNTED EQUIPMENT, TYP.
D35	DEMOLISH EXISTING CORNICE OVERHEAD
D36	DEMOLISH EXISTING GYPSUM BOARD AND FURRING STRIPS BACK TO CMU WALL.
D37	EXISTING WOOD AND CONCRETE INFILL TO BE GRINDED AND SMOOTHED TO MATCH ADJACENT CONCRETE SLAB THICKNESS.
D38	DEMOLISH EXISTING TILE FLOORING AND ASSOCIATED CONSTRUCTION COMPLETE DOWN TO EXISTING CONCRETE SLAB.
D39	DEMOLISH EXISTING STOREFRONT AND ASSOCIATED CONSTRUCTION.
D40	DEMOLISH EXISTING WOOD FLOORING AND ASSOCIATED CONSTRUCTION COMPLETE DOWN TO EXISTING CONCRETE SLAB
D41	DEMOLISH EXISTING METAL GUARDRAIL AND ASSOCIATED CONSTRUCTION COMPLETE.
D42	EXISTING FLOOR DRAIN TO REMAIN.
D43	EXISTING OIL INTERCEPTOR TO REMAIN
D44	DEMOLISH EXISTING GARAGE DOOR AND ALL COMPONENTS ASSOCIATED. EXISTING ELECTRICAL CONNECTIONS TO REMAIN FOR CONNECTION TO NEW GARAGE DOOR.
D45	REMOVE PLYWOOD AND SPRAY FOAM INFILL PANEL AT OPENING
D46	DEMOLISH EXISTING EXTERIOR CONCRETE PATIO AND WALKWAY. EXISTING RETAINING WALLS AND PLANTERS TO REMAIN.
D47	DEMOLISH EXISTING FLAG POLE AND ALL ASSOCIATED COMPONENTS.
D48	REMOVE AND SALVAGE FIRE EXTINGUISHER CABINETS, TYP
D49	DASHED LINE INDICATES SKYLIGHT ABOVE TO BE REMOVED. EXISTING CMU CURB TO REMAIN. REFER TO ROOF PLANS FOR MORE INFORMATION.
D72	REFER TO MEP FOR FULL EXTENT OF DEMOLISION OF EXISTING MEP EQUIPMENT.

GENERAL NOTES:

A. PERFORM ALL WORK UNDER ESTABLISHED PROJECT GUIDELINES.
B. CONTRACTOR SHALL BE RESPONSIBLE FOR THE OFF-SITE DISPOSAL OF ALL DEMOLITION ITEMS.
C. REMOVE ALL CONSTRUCTION DEBRIS FROM THE SITE DAILY. DO NOT ALLOW REFUSE TO BLOCK CORRIDORS, STAIRS, OR ANY OTHER TRAFFIC AREAS.
D. PROVIDE TEMPORARY FIRE AND LIFE SAFETY PROTECTION THROUGHOUT THE DURATION OF THE PROJECT.
E. PATCH AND REPAIR ALL ADJACENT SURFACES DISTURBED/DAMAGED BY CONSTRUCTION. CLEAN ALL FLOOR SURFACES OF ADHEASIVE AND/OR GROUT RESIDUE PRIOR TO INSTALLATION OF NEW SURFACING MATERIAL.
F. ANY FLOORING, CASEWORK, AND CEILING ELEMENTS THAT REMAIN, SHALL BE DEMOLISHED AS PART OF THIS PROJECT. DEMOLISH ALL WALLS, FLOORING, CASEWORK, AND CEILING ELEMENTS BACK TO CONCRETE.
G. PROTECT ADJACENT EXISTING TO REMAIN CONSTRUCTION THROUGHOUT DURATION OF PROJECT. PROVIDE SHORING, BRACING OR SUPPORT AS REQUIRED TO PREVENT MOVEMENT OR SETTLEMENT OF EXISTING CONSTRUCTION.
H. WHERE BLOCKING AND/OR ELECTRICAL WORK IS REQUIRED IN EXISTING WALL CONSTRUCTION, CONTRACTOR TO CAREFULLY CUT-OUT GYPSUM BOARD AT APPROPRIATE LOCATION.
I. REMOVE ALL EXISTING CONSTRUCTION ITEMS AND FINISHES MADE OBSOLETE BY OR IN CONFLICT WITH NEW CONSTRUCTION. VERIFY WITH ARCHITECT, IF NEEDED. REMOVE WIRING BACK TO SOURCE AT ALL OUTLETS, ETC MADE OBSOLETE BY WALL REMOVAL OR ANY OTHER NEW CONSTRUCTION.
J. REMOVE ALL ITEMS IN THEIR ENTIRETY UNLESS NOTED OTHERWISE. DESCRIPTION OF PRIMARY ITEMS TO BE REMOVED IS GENERAL IN NATURE, AND REMOVAL OF SECONDARY COMPONENTS SUCH AS BLOCKING, SUPPORTS, ANCHORS, TRIM, ADHESIVE, PIPING, WIRING, ETC. RELATED TO PRIMARY ITEMS SHALL BE INCLUDED.
K. RELOCATED ITEMS SHALL BE CLEANED AND PLACED IN STORAGE PER OWNERS DIRECTION UNTIL ITEMS ARE READY TO BE REINSTALLED. IF ITEM IS DAMAGED DURING DEMOLITION OR RELOCATION, IT SHALL BE REPAIRED WITH NEW ITEM AS APPROVED BY OWNER AT NO EXPENSE TO OWNER.
L. AT OWNERS REQUEST, SALVAGED ITEMS SHALL BE TURNED OVER TO THE OWNER OR STORED IN AN AREA DESIGNATED BY THE OWNER.
M. SEE MEP DOCUMENTS FOR EXTENT OF DEMOLITION/REMOVAL OF PIPING/DUCTWORK/ELECTRICAL THAT WILL OCCUR IN PREPARATION FOR NEW CONSTRUCTION.

DRAWING LEGEND:

- HATCHED WALL INDICATES EXISTING WALLS TO REMAIN
- SHADED AREA INDICATES NO SCOPE
- DASHED LINE INDICATES DEMOLITION
- STIPPLED SLAB INDICATED DEMOLITION

5A D1.02 **OVERALL DEMOLITION PLAN - UPPER LEVEL**
1/8" = 1'-0"

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

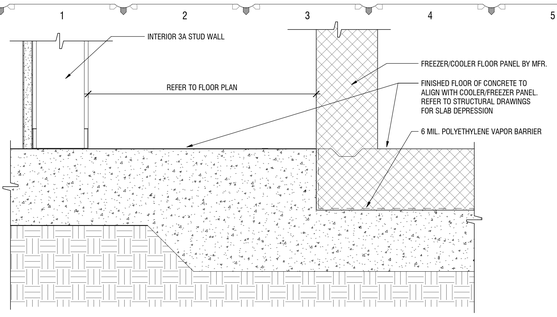
B	ISSUED FOR BID	06/26/2026
B	ADDENDUM B	07/24/2026
C	ADDENDUM C	07/31/2026

Sheet Title
DEMOLITION PLAN - UPPER LEVEL

Project No. 24047
Drawn By: MAR, OKW
Reviewed By: MJI
Scale: As indicated

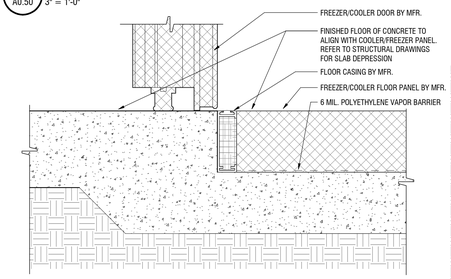
D1.02

COPYRIGHT © 2023 LUMINAUT, INC. - 7/26/2026 11:11:39 AM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A21.rvt



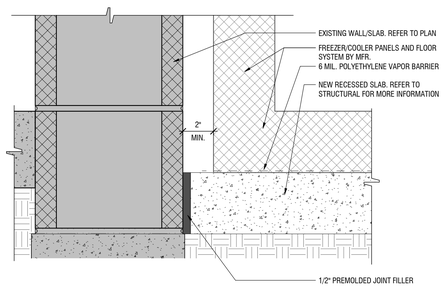
1M / A0.50 TYP DTL - COOLER FLOOR DETAIL @ WALL CAVITY

3" = 1'-0"



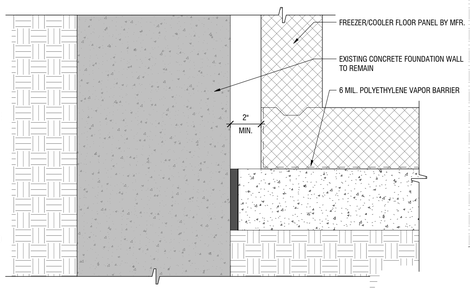
1J / A0.50 TYP DTL - COOLER FLOOR DETAIL @ DOOR

3" = 1'-0"



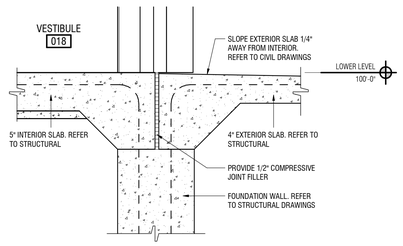
1F / A0.50 TYP DTL - COOLER FLOOR DETAIL @ EX. WALL

3" = 1'-0"



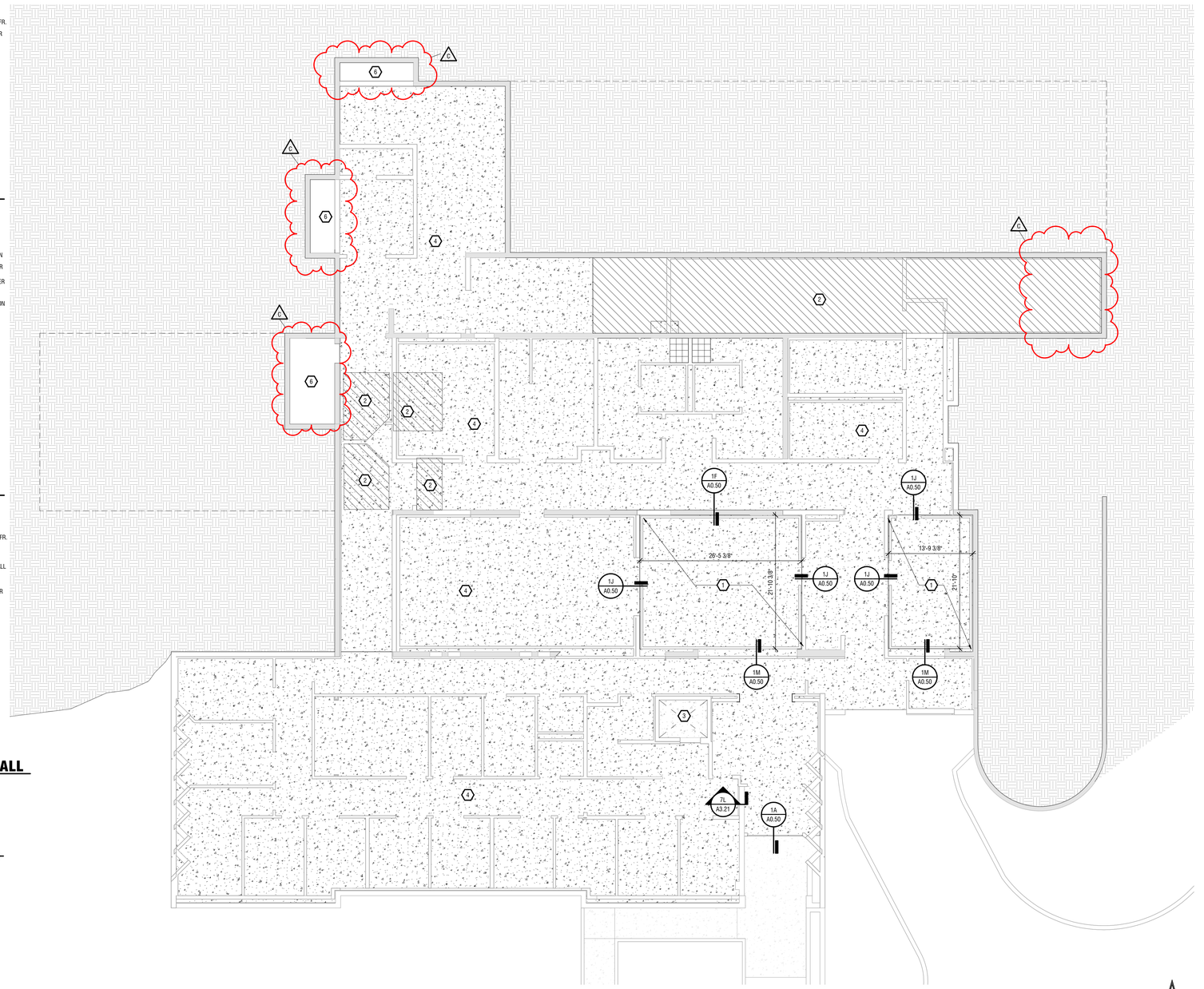
1C / A0.50 TYP DTL - COOLER FLOOR DETAIL @ EX. CN. WALL

3" = 1'-0"



1A / A0.50 DTL - SLAB TRANSITION @ ENTRY

1 1/2" = 1'-0"



5A / A0.50 OVERALL SLAB PLAN - LOWER LEVEL

1/8" = 1'-0"

KEYNOTES:

1. DEPRESSED SLAB FOR FREEZER/COOLER FLOOR SYSTEM. REFER TO DETAIL FOR MORE INFORMATION.
2. HATCHED AREA INDICATES SLAB PORTION TO RECEIVE NEW GEOFOAM INSULATION AND TOPPING SLAB TO MEET ADJACENT SLAB FLOOR ELEVATION. EXISTING PLUMBING DRAINS TO BE REMOVED AND CAPPED.
3. DEPRESSED SLAB FOR NEW ELEVATOR PIT. REFER TO VERTICAL CIRCULATION DRAWINGS FOR MORE INFORMATION
4. NEW 5" CONCRETE SLAB ON GRADE. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION
5. NEW ELEVATED 5" CONCRETE SLAB ON 1-1/2" METAL DECK. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.
6. EXISTING SLAB TO REMAIN
7. EXISTING WOOD AND CONCRETE INFILL TO BE GRINDED AND SMOOTHED TO MATCH ADJACENT CONCRETE SLAB THICKNESS.
8. ALIGN EDGE OF PLANTER WITH EXISTING EDGE OF CONCRETE WALL

GENERAL NOTES:

A. PROVIDE IN WALL BLOCKING IN ALL LOCATION TO RECEIVE WALL MOUNTED EQUIPMENT.

B. HOLD ALL DOOR AND FRAME IN MTL. STUD WALL 4" FROM ADJACENT WALL U.N.O.

C. HOLD ALL DOOR AND FRAME IN MASONRY WALL 8" FROM ADJACENT WALL U.N.O.

D. REFER EQUIPMENT PLANS ON A1.51 AND A1.52 FOR EQUIPMENT INFORMATION.

E. REFER TO MEP SHEETS FOR MECHANICAL, ELECTRICAL AND PLUMBING SCOPE.

F. REFER TO CIVIL SHEETS FOR SITEWORK AND LANDSCAPING SCOPE OF WORK.

G. REFER TO STRUCTURAL SHEETS FOR STRUCTURAL SCOPE OF WORK.

H. REFER TO FINISH PLANS ON A1.41 AND A1.42 FOR ALL INTERIOR FINISH INFORMATION.

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™

CMTA

Project Title

NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

C	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

Sheet Title

OVERALL SLAB PLAN - LOWER LEVEL

Project No. 24047

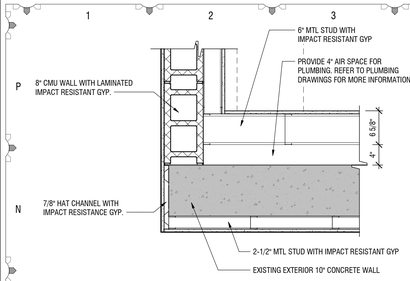
Drawn By: MAR

Reviewed By: MJI

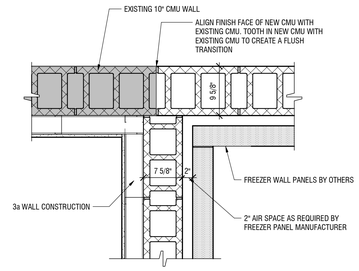
Scale: As indicated

A0.50

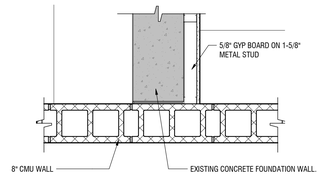
COPYRIGHT © 2003 LUMINAUT, INC. - 7/30/2026 9:47:17 AM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



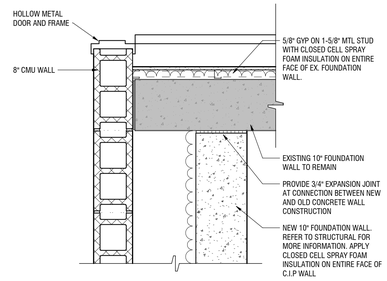
1M A1.01 DTL - ME CORRIDOR CORNER @ AUTOPSY
1" = 1'-0"



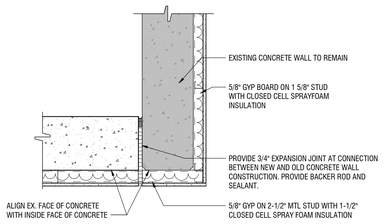
5M A1.01 DTL - CMU WALL @ AUTOPSY AND COOLER
1" = 1'-0"



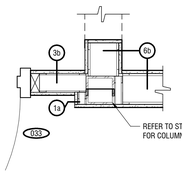
9M A1.01 DTL - CMU WALL @ FOUNDATION WALL
1" = 1'-0"



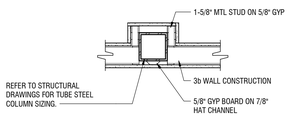
13M A1.01 DTL - CORNER CONDITION @ EVID. STOR.
1" = 1'-0"



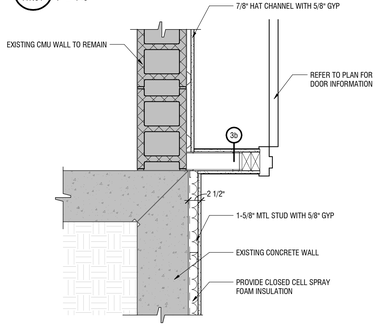
1J A1.01 DTL - ME CORRIDOR @ EXT. WALL
1" = 1'-0"



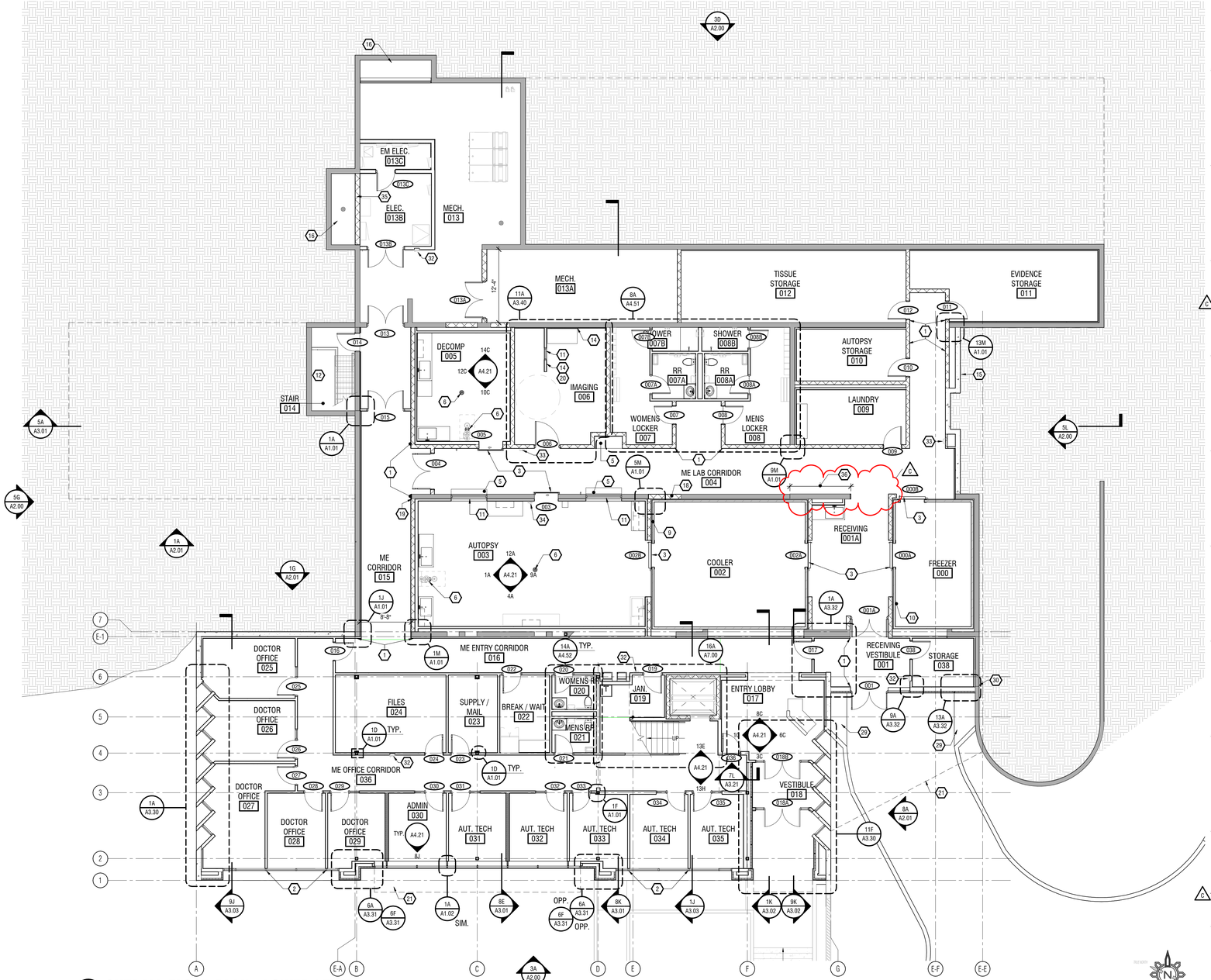
1F A1.01 DTL - COLUMN BOX-OUT @ OFFICE
1" = 1'-0"



1D A1.01 DTL - COLUMN BOX-OUT TYP.
1" = 1'-0"



1A A1.01 DTL - ME COORIDOR DOOR
1" = 1'-0"



5A A1.01 OVERALL FLOOR PLAN - LOWER LEVEL
1/8" = 1'-0"

KEYNOTES:

1 ALIGN FINISH FACE OF CONSTRUCTION

2 ALIGN CENTER OF NEW WALL WITH CENTER OF NEW STOREFRONT MULLION.

3 PROVIDE ELECTRIC SLIDING DOOR. REF. A6.00 FOR DOOR SCHEDULE. REFER SPECIFICATION FOR ADDITIONAL INFORMATION. REFER TO ELECTRICAL DRAWINGS FOR POWER.

5 PROVIDE NEW COUNTER TOP. REFER TO A8.00 MILLWORK SERIES DRAWINGS FOR ADDITIONAL INFORMATION.

6 PROVIDE FLOOR DRAIN. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.

9 PROVIDE WALK IN COOLER PANEL. REFER SPECIFICATION FOR ADDITIONAL INFORMATION.

10 PROVIDE WALK IN FREEZER PANEL. REFER SPECIFICATION FOR ADDITIONAL INFORMATION.

11 PROVIDE NEW INTERIOR STOREFRONT WINDOW. REFER TO SHEET A6.00 FOR MORE INFORMATION.

12 EXISTING METAL STAIR AND RAIL TO REMAIN. REMOVE ALL LOOSE PAINT. PRIME AND PAINT COLOR: MATTE BLACK

14 5/8" LEAD LINED GYPSUM WALL BOARD.

15 NEW FOUNDATION WALL. REFER TO STRUCTURAL DRAWINGS FOR INFORMATION

16 EXISTING AREA WELLS TO BE REUSED. CLEAN OUT DRAINS AND REPLACE COVERS AS REQUIRED. REPAINT METAL GRATE COVERS MATTE BLACK. SECURE GRATES WITH NEW MECHANICAL FASTENERS FOR SAFETY.

18 INFILL EXISTING OPENING IN CMU WALL WITH NEW CMU. TOOTH IN NEW CMU TO MATCH EXISTING BOND PATTERN.

19 TOOTH-IN NEW CMU WITH EXISTING CMU.

20 PROVIDE WALL GUARD ALONG INDICATED PORTION OF WALL; WRAP CORNER AS SHOWN. OFFSET WALL GUARD 4" OFF OF ANY OPENING. MOUNTING HEIGHT; REFER TO MANUFACTURER RECOMMENDATIONS FOR MEDICAL APPLICATIONS. BASIS OF DESIGN: INPRO / 51SS STAINLESS STEEL WALL GUARD / FINISH: #4 SATIN.

21 DASHED LINE INDICATES ROOF CANOPY. REFER TO SHEET A1.03 FOR MORE INFORMATION

29 PROVIDE GRAVEL AT GRADE FOR SITE AND OVERFLOW DRAINAGE. REFER TO CIVIL DRAWINGS FOR MORE INFORMATION.

30 NEW 3/4" EXPNASION JOINT TO REPLACE DEMOLISHED EXISTING EXPANSION JOINT. PROVIDE COMPRESSABLE CAULK JOINT AS NECESSARY.

32 SEMI-RECESSED FIRE EXTINGUISHER. REFER TO LIFE SAFETY PLANS AND SHEET A1.00 FOR MORE INFORMATION

33 WALL MOUNTED FIRE EXTINGUISHER BOX. REFER TO LIFE SAFETY PLANS AND SHEET A1.00 FOR MORE INFORMATION

34 WALL HUNG FIRE EXTINGUISHER. PROVIDE WALL ANCHORED HOOK. REFER TO LIFE SAFETY PLANS AND SHEET A1.00 FOR MORE INFORMATION

35 INFILL OPENING WITH NEW MASONRY WALL

36 GRIND FACE OF EXISTING WALL SMOOTH TO PREPARE FOR NEW WALL PROTECTION FINISHES.

GENERAL NOTES:

A. PROVIDE IN WALL BLOCKING IN ALL LOCATION TO RECEIVE WALL MOUNTED EQUIPMENT.

B. HOLD ALL DOOR AND FRAME IN MTL. STUD WALL 4" FROM ADJACENT WALL U.N.O.

C. HOLD ALL DOOR AND FRAME IN MASONRY WALL 8" FROM ADJACENT WALL U.N.O.

D. REFER EQUIPMENT PLANS ON A1.51 AND A1.52 FOR EQUIPMENT INFORMATION.

E. REFER TO MEP SHEETS FOR MECHANICAL, ELECTRICAL AND PLUMBING SCOPE.

F. REFER TO CIVIL SHEETS FOR SITEWORK AND LANDSCAPING SCOPE OF WORK.

G. REFER TO STRUCTURAL SHEETS FOR STRUCTURAL SCOPE OF WORK.

H. REFER TO FINISH PLANS ON A1.41 AND A1.42 FOR ALL INTERIOR FINISH INFORMATION.

I. PATCH THE EXISTING CONCRETE FLOOR SUBSTRATE TO PROVIDE A SMOOTH SURFACE FOR NEW FLOOR FINISHES.

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

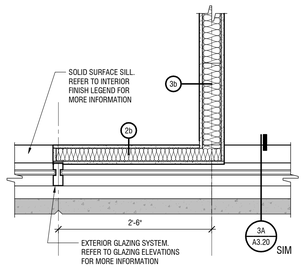
Sheet Title
OVERALL FLOOR PLAN - LOWER LEVEL

Project No. 24047

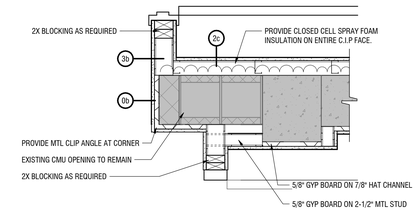
Drawn By: MAR
Reviewed By: MJI
Scale: As indicated

A1.01

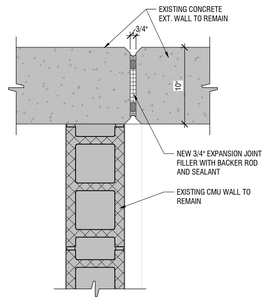
COPYRIGHT © 2023 LUMINAUT, INC. - 7/28/2026 5:06:12 PM - J:\Autodesk Docs\LUMINAUT Civic Center\24047_NKU Civic Center_A21.rvt



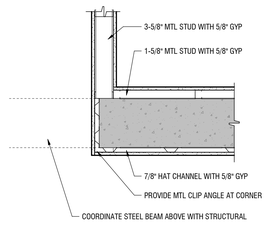
1M A1.02 DTL - MULLION EXT. CAP SIDE WALL
1" = 1'-0"



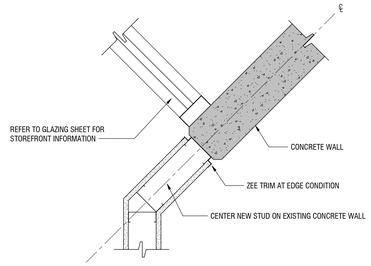
5M A1.02 DTL - CORNER @ EVID. RECP.
1" = 1'-0"



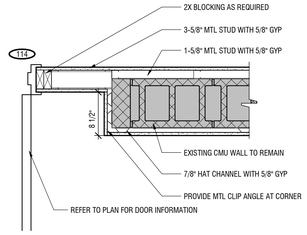
8M A1.02 DTL - EXPANSION JOINT @ GARAGE
1 1/2" = 1'-0"



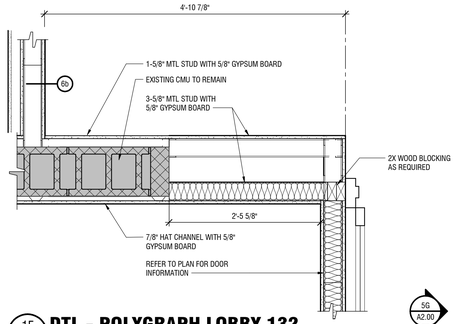
11M A1.02 DTL - BREATH ALCOHOL CORNER
1" = 1'-0"



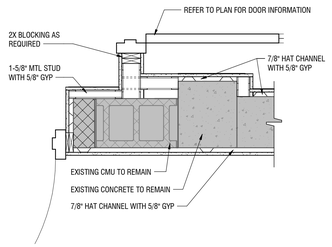
14M A1.02 DTL - EX SLAT WALL CONNECTION
1 1/2" = 1'-0"



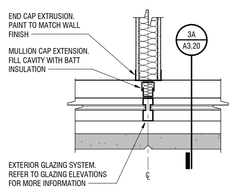
1J A1.02 DTL - SHARED CORRIDOR 128
1" = 1'-0"



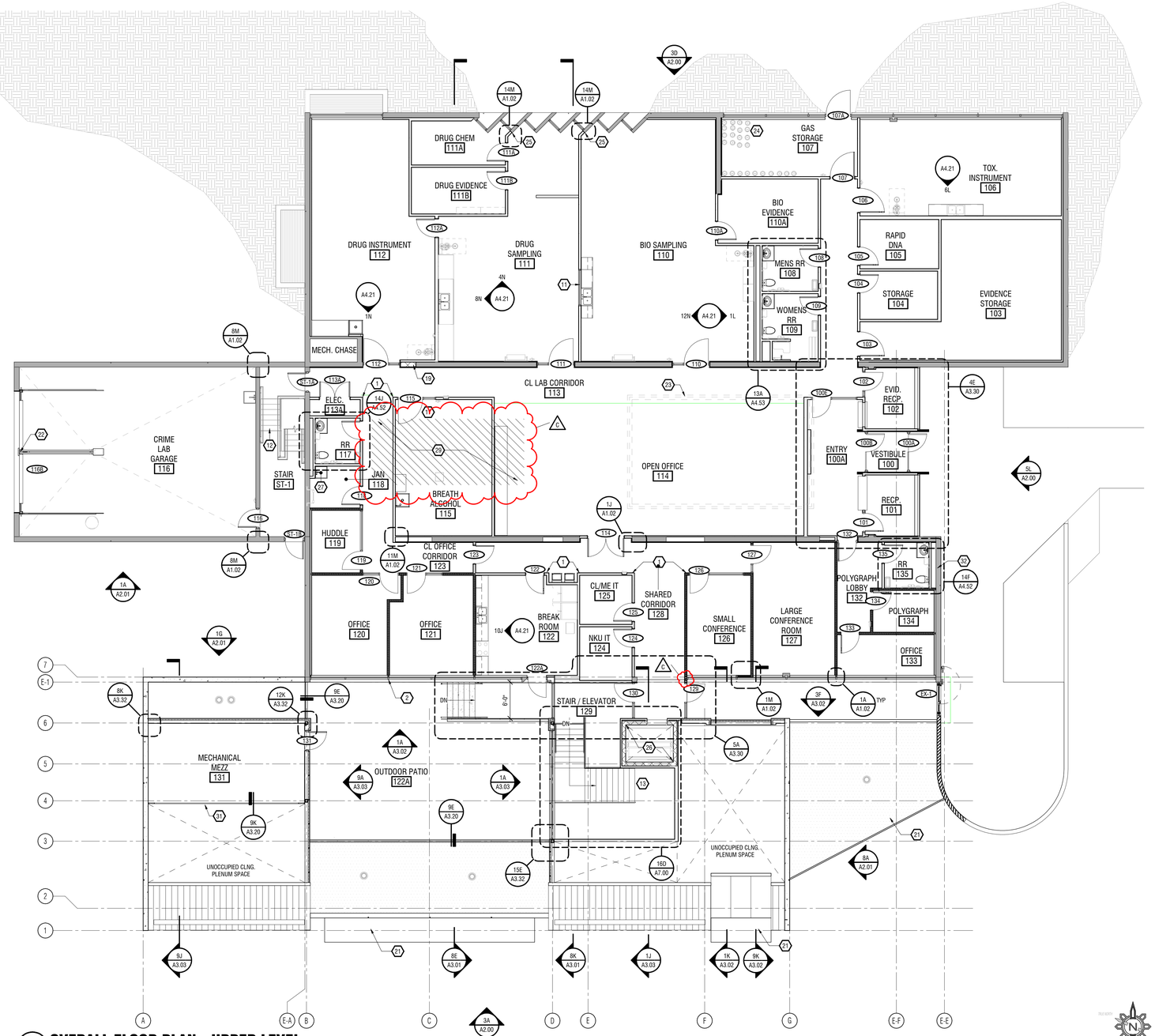
1F A1.02 DTL - POLYGRAPH LOBBY 132
1" = 1'-0"



1C A1.02 DTL - RECEPTION 102
1" = 1'-0"



1A A1.02 DTL - TYP. MULLION EXTENSION
1" = 1'-0"



5A A1.02 OVERALL FLOOR PLAN - UPPER LEVEL
1/8" = 1'-0"

KEYNOTES:

1	ALIGN FINISH FACE OF CONSTRUCTION
2	ALIGN CENTER OF NEW WALL WITH CENTER OF NEW STOREFRONT MULLION.
11	PROVIDE NEW INTERIOR STOREFRONT WINDOW. REFER TO SHEET A6.00 FOR MORE INFORMATION.
12	EXISTING METAL STAIR AND RAIL TO REMAIN. REMOVE ALL LOOSE PAINT. PRIME AND PAINT COLOR: MATTE BLACK
13	PROVIDE NEW METAL PAN STAIRS WITH WOOD TREAD INSERTS. REFER TO SHEET A7.00 FOR MORE INFORMATION.
17	PROVIDE NEW 4'-0" DOOR. REFER TO SHEET A6.00 FOR MORE INFORMATION
19	TOOTH-IN NEW CMU WITH EXISTING CMU.
21	DASHED LINE INDICATES ROOF CANOPY. REFER TO SHEET A1.03 FOR MORE INFORMATION
22	PROVIDE INSULATED PANEL GARAGE DOOR. CONTRACTOR TO VERIFY EXISTING OPENING. BASIS OF DESIGN: RAYNOR THERMASEAL TM200C FINISH: BLACK
23	NEW SKYLIGHT ABOVE. REFER TO ROOF PLAN FOR MOVE INFORMATION
24	EQUIPMENT SHOWN FOR REFERENCE. REFER TO MEP DRAWINGS FOR MORE INFORMATION.
25	CENTER NEW STUD WALL ON EXISTING ANGLED CONCRETE WALL. REFER TO DETAIL FOR MORE INFORMATION.
26	NEW HYDRAULIC ELEVATOR. REFER TO SHEET A7.01 FOR MORE INFORMATION.
27	PROVIDE MOP SINK. REFER TO "P" SERIES SHEET FOR ADDITIONAL INFORMATION
29	PATCH AND REPAIR ALL FLOOR PENETRATIONS IN THIS AREA TO PROVIDE A SMOOTH FLOOR SUBSTRATE TO PREPARE FOR NEW FINISHES
31	PROVIDE POWDER COATED MATTE BLACK ALUMINUM GUARDRAIL.
32	PROVIDE EMERGENCY KNOX BOX WITHIN EXISTING OPENING IN CONCRETE WALL FROM DEMOLISHED RECESSED WALL LIGHTING. COORDINATE WITH ARCHITECT FOR LOCATION AND SIZING.

GENERAL NOTES:

A. PROVIDE IN WALL BLOCKING IN ALL LOCATION TO RECEIVE WALL MOUNTED EQUIPMENT.

B. HOLD ALL DOOR AND FRAME IN MTL. STUD WALL 4" FROM ADJACENT WALL U.N.O.

C. HOLD ALL DOOR AND FRAME IN MASONRY WALL 8" FROM ADJACENT WALL U.N.O.

D. REFER EQUIPMENT PLANS ON A1.51 AND A1.52 FOR EQUIPMENT INFORMATION.

E. REFER TO MEP SHEETS FOR MECHANICAL, ELECTRICAL AND PLUMBING SCOPE.

F. REFER TO CIVIL SHEETS FOR SITEWORK AND LANDSCAPING SCOPE OF WORK.

G. REFER TO STRUCTURAL SHEETS FOR STRUCTURAL SCOPE OF WORK.

H. REFER TO FINISH PLANS ON A1.41 AND A1.42 FOR ALL INTERIOR FINISH INFORMATION.

I. PATCH THE EXISTING CONCRETE FLOOR SUBSTRATE TO PROVIDE A SMOOTH SURFACE FOR NEW FLOOR FINISHES.

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
A	ADDENDUM A	07/17/2026
C	ADDENDUM C	07/31/2026

Sheet Title
OVERALL FLOOR PLAN - UPPER LEVEL

Project No. 24047

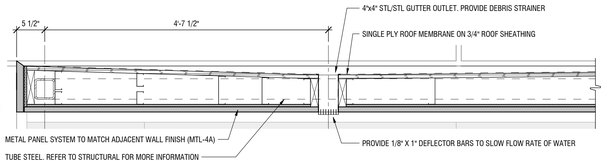
Drawn By: MAR, OKW

Reviewed By: MJI

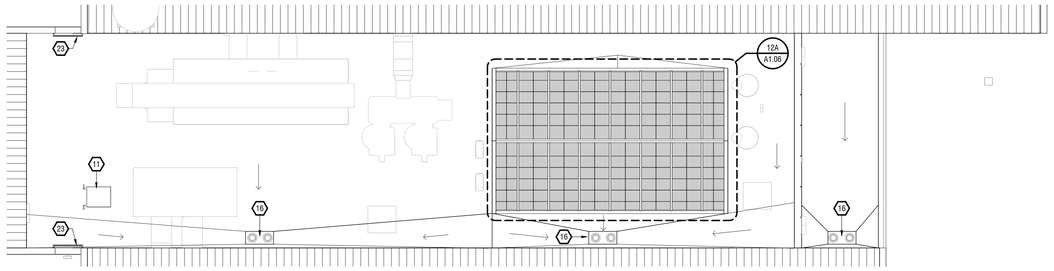
Scale: As indicated

A1.02

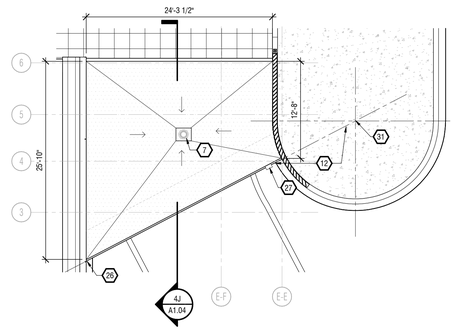
COPYRIGHT © 2023 LUMINAUT, INC. - 7/31/2026 9:36:34 AM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



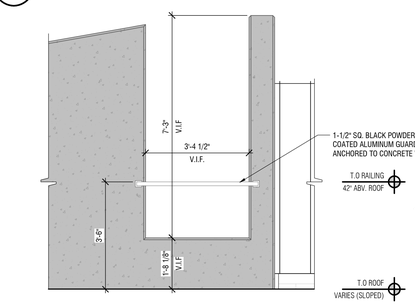
1M A1.03 ENLARGED SECTION - CANOPY GUTTER
1" = 1'-0"



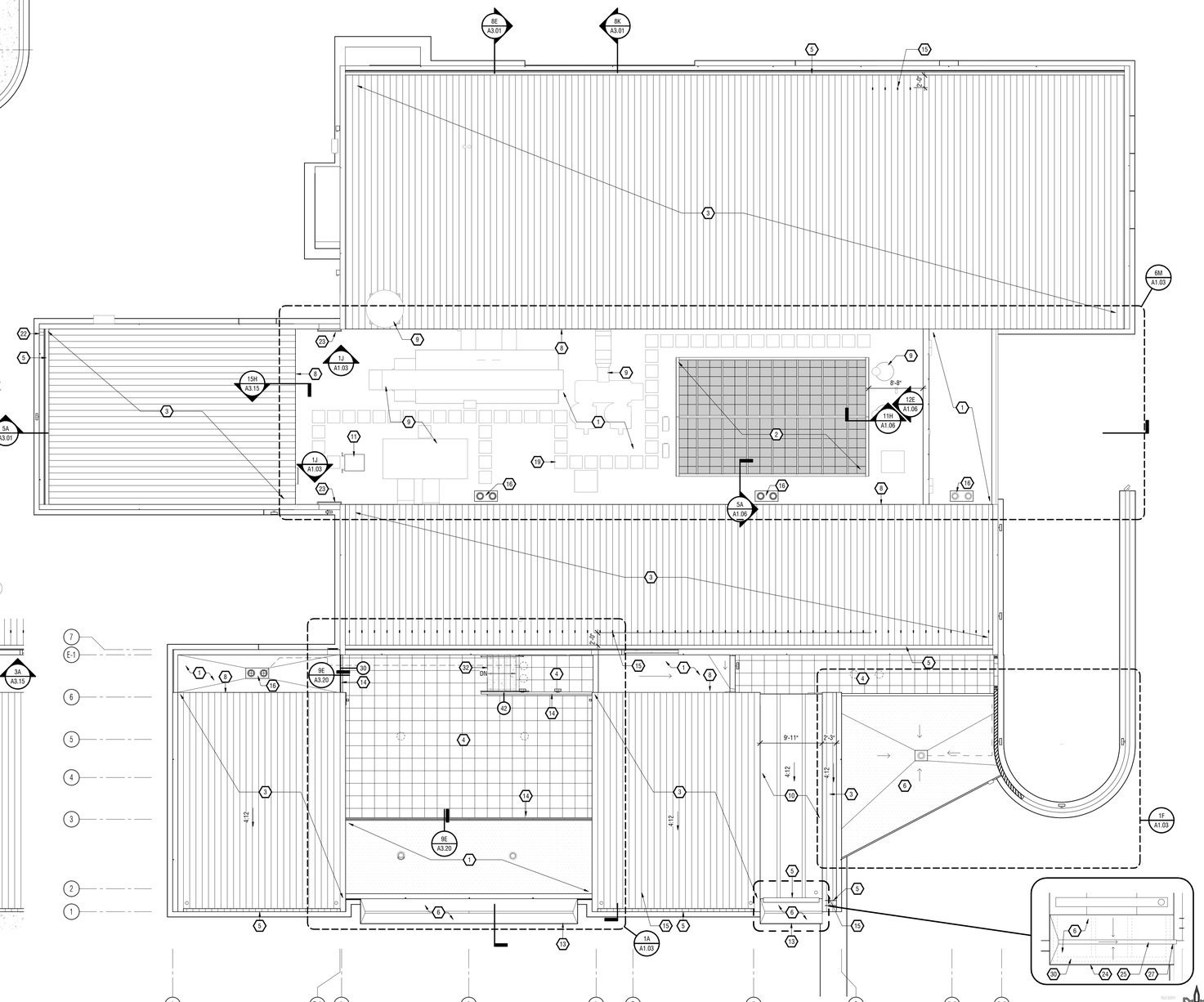
6M A1.03 ROOF PLAN - DRAINAGE PLAN (SKYLIGHT)
1/8" = 1'-0"



1F A1.03 ROOF PLAN - DROP-OFF DRAINAGE PLAN
1/8" = 1'-0"



1J A1.03 ENLARGED ELEVATION - ROOF GUARDRAIL
1/2" = 1'-0"



1A A1.03 ROOF PLAN - DRAINAGE PLAN (PATIO)
1/8" = 1'-0"

5A A1.03 OVERALL ROOF PLAN
1/8" = 1'-0"

KEYNOTES:

1. SBS TWO-PLY ROOFING
2. NEW GLAZING SKYLIGHT SYSTEM SET ON EXISTING CURBS. VERIFY EXTENTS IN FIELD.
3. STANDING SEAM METAL ROOFING SYSTEM
4. LARGE FORMAT TILE ROOF PAVER SYSTEM AND PEDESTALS OVER HYBRID 2-PLY SBS ROOFING SYSTEM.
5. SURFACE MOUNTED GUTTERS AND DOWNSPOUTS. RE: PLUMBING DWGS FOR TIE-IN TO STORM SYSTEM.
6. TPO ROOFING SYSTEM
7. PRIMARY ROOF DRAIN. REFER TO PLUMBING FOR MORE INFORMATION
8. STANDING SEAM METAL ROOFING SYSTEM MOUNTED IN VERTICAL FORMAT.
9. ROOF MOUNTED MECHANICAL EQUIPMENT. REFER TO MEP DRAWINGS FOR MORE INFORMATION.
10. METAL PANEL ROOF SYSTEM. BASIS OF DESIGN: STANDING SEAM METAL ROOF, RIBBED PANEL.
11. EXISTING ROOF HATCH AND CURB TO REMAIN. COORDINATE WITH NEW ROOF SYSTEM
12. ALIGN
13. PROVIDE NEW METAL CANOPY. METAL PANEL TO MATCH ADJACENT METAL PANEL SYSTEM AND FINISH
14. GLASS GUARDRAIL SYSTEM. REFER TO DETAILS FOR MORE INFORMATION.
15. PROVIDE SNOWGUARDS AS INDICATED ON DRAWINGS.
16. PRIMARY AND SECONDARY ROOF DRAINS. REFER TO PLUMBING DRAWINGS FOR MORE INFORMATION
18. DASHED LINE INDICATES AREA OF COMBINED OVERFLOW SCUPPER. PROVIDE BRASS LAMBS TONGUE SCUPPER.
19. ROOF WALKWAY PADS. COLOR SHALL BE IN CONTRAST TO ROOFING MEMBRANE.
20. PRIMARY ROOF DRAIN WITH ASSOCIATED OVERFLOW TRENCH TO SCUPPER. REFER TO PLUMBING DRAWINGS AND ASSOCIATED DETAILS FOR MORE INFORMATION. ROOF DRAIN TO BE FLUSH WITH FLOOR FINISH.
22. EXISTING SCUPPER TO REMAIN. COORDINATE AND REPAIR AS NECESSARY WITH NEW ROOF SYSTEM
23. 1-1/2" SQUARE BLACK POWDER COATED ALUMINUM GUARDRAIL. PROVIDE ANCHORS INTO PRE-DRILLED OPENINGS IN EX. CONCRETE WALLS. COORDINATE WITH ARCHITECT AND STRUCTURAL ENGINEER.
24. METAL FACIA TO MATCH ADJACENT METAL PANEL FINISH. REFER TO SECTION FOR MORE INFORMATION
25. SLOPE MEMBRANE ROOF TO INSET GUTTER. GUTTER TO DRAIN TO SCUPPER AND SHED WATER INTO PLANTER BELOW.
26. ALIGN EDGE OF CANOPY WITH VERTICAL FIN OF CONCRETE WALL BELOW. REFER TO ELEVATION ON SHEET A2.01
27. EXTEND GUTTER TO CREATE SCUPPER THAT EXTENDS PAST EDGE OF CANOPY TO DEFLECT WATER AWAY FROM WALKING SURFACE BELOW AND INTO PLANTING AREA.
28. 4"X4" STEEL GUTTER OUTLET. PROVIDE DEBRIS STRAINER TO SLOW FLOW RATE OF WATER.
29. GUTTER RIDGE
30. DASHED LINES INDICATE STRUCTURE WITHIN CANOPY. GUTTER TO SLOPE DOWN TO GUTTER OUTLET AVOIDING TOP OF STRUCTURE. REFER TO SECTION DETAIL.
31. CENTERPOINT OF EXISTING SEMICIRCULAR PATIO
32. DELEGATED DESIGN: (6) STEEL TUBE STAIR SUPPORTS ATTACHED TO STRINGERS.
024. METAL FACIA TO MATCH ADJACENT METAL PANEL FINISH. REFER TO SECTION FOR MORE INFORMATION

GENERAL NOTES:

A. PROVIDE MANUFACTURERS STANDARD DETAILS WHERE MECHANICAL EQUIPMENT OCCURS. COORDINATE WITH ARCHITECTURAL AND MEP.
B. SEE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL ROOF PENETRATION REQUIREMENTS.
C. PROVIDE ICE AND WATER SHIELD AT ALL OVERHANGS, (FROM EDGE OF ROOF TO 24" PAST INTERIOR LINE OF WALL), VALLEYS (3'-0" ON EACH SIDE), RIDGES (3'-0" ON EACH SIDE) AND HIPS (3'-0" ON EACH SIDE).

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

B	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

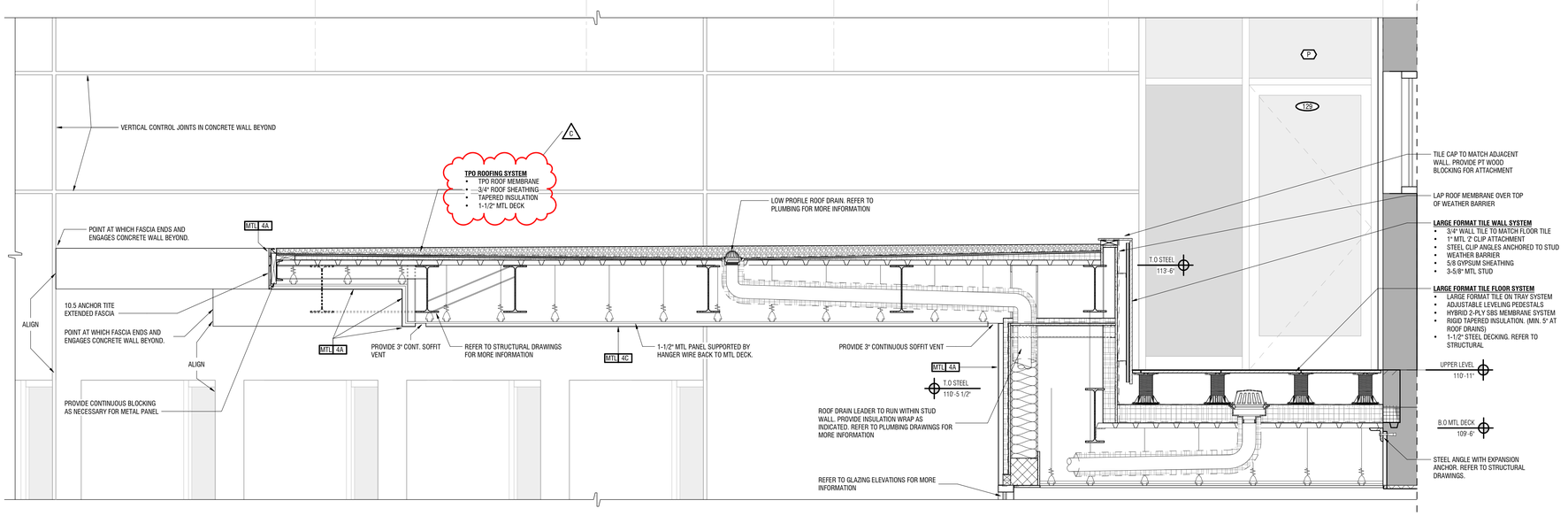
Sheet Title
OVERALL ROOF PLAN

Project No. **24047**

Drawn By: MAR
Reviewed By: MJI
Scale: As indicated

A1.03

COPYRIGHT © 2203 LUMINAUT, INC. - 7/28/2026 1:57:44 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



4J/A1.04 ENLARGED SECTION - ME DROP-OFF CANOPY

3/4" = 1'-0"

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

C	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

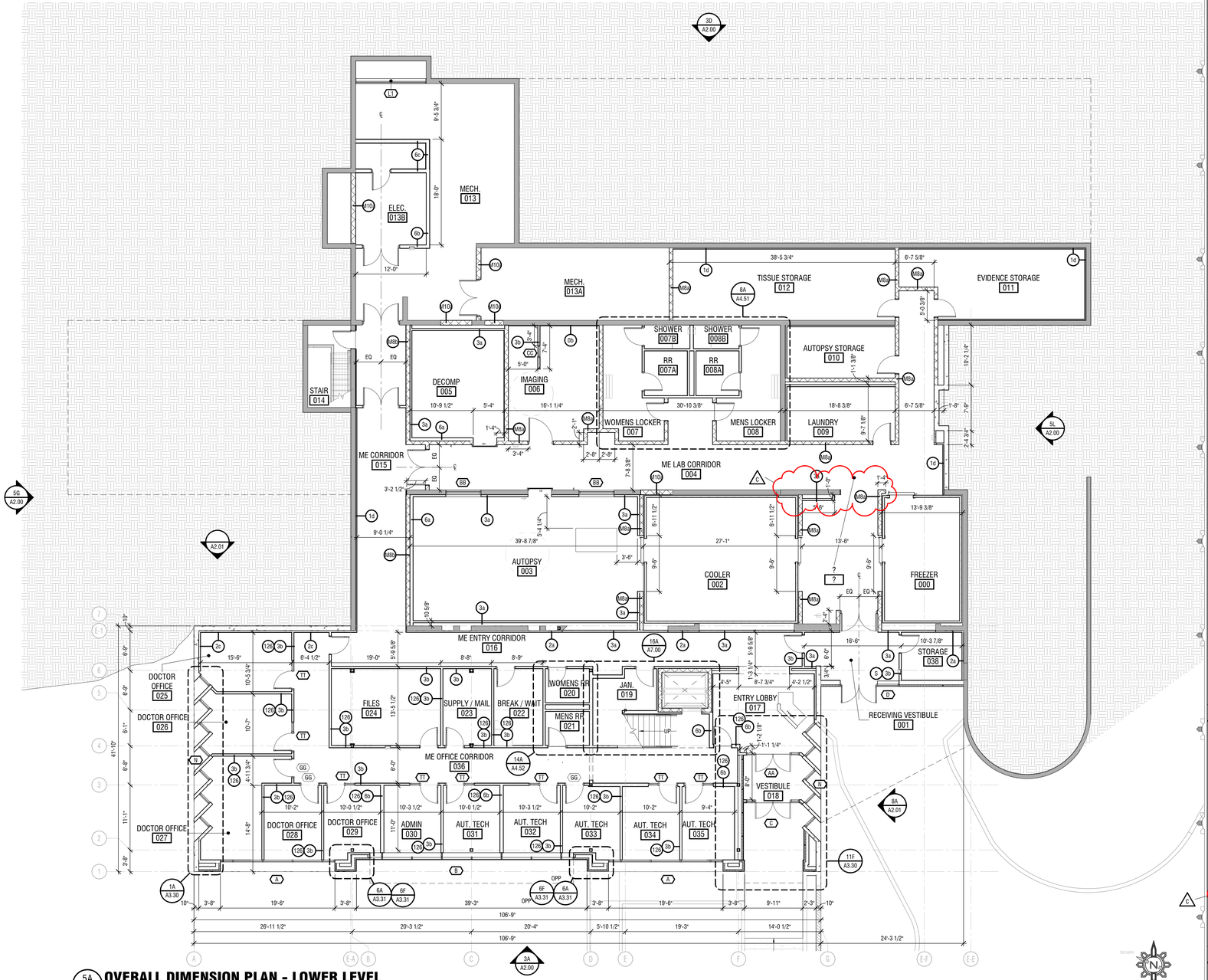
Sheet Title
TYPICAL ROOF DETAILS

Project No. 24047

Drawn By: MAR
Reviewed By: MJI
Scale: 3/4" = 1'-0"

A1.04

COPYRIGHT © 2026 LUMINAUT, INC. - 7/28/2026 1:41:19 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



5A OVERALL DIMENSION PLAN - LOWER LEVEL

A1.10 1/8" = 1'-0"

KEYNOTES:

GENERAL NOTES:

A. PROVIDE IN WALL BLOCKING IN ALL LOCATION TO RECEIVE WALL MOUNTED EQUIPMENT.

B. HOLD ALL DOOR AND FRAME IN MTL. STUD WALL 4" FROM ADJACENT WALL U.N.O.

C. HOLD ALL DOOR AND FRAME IN MASONRY WALL 8" FROM ADJACENT WALL U.N.O.

D. REFER EQUIPMENT PLANS ON A1.51 AND A1.52 FOR EQUIPMENT INFORMATION.

E. REFER TO MEP SHEETS FOR MECHANICAL, ELECTRICAL AND PLUMBING SCOPE.

F. REFER TO CIVIL SHEETS FOR SITEWORK AND LANDSCAPING SCOPE OF WORK.

G. REFER TO STRUCTURAL SHEETS FOR STRUCTURAL SCOPE OF WORK.

H. REFER TO FINISH PLANS ON A1.41 AND A1.42 FOR ALL INTERIOR FINISH INFORMATION.

I. PATCH THE EXISTING CONCRETE FLOOR SUBSTRATE TO PROVIDE A SMOOTH SURFACE FOR NEW FLOOR FINISHES.

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™
CMTA

Project Title
NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
B	ADDENDUM B	07/24/2026
C	ADDENDUM C	07/31/2026

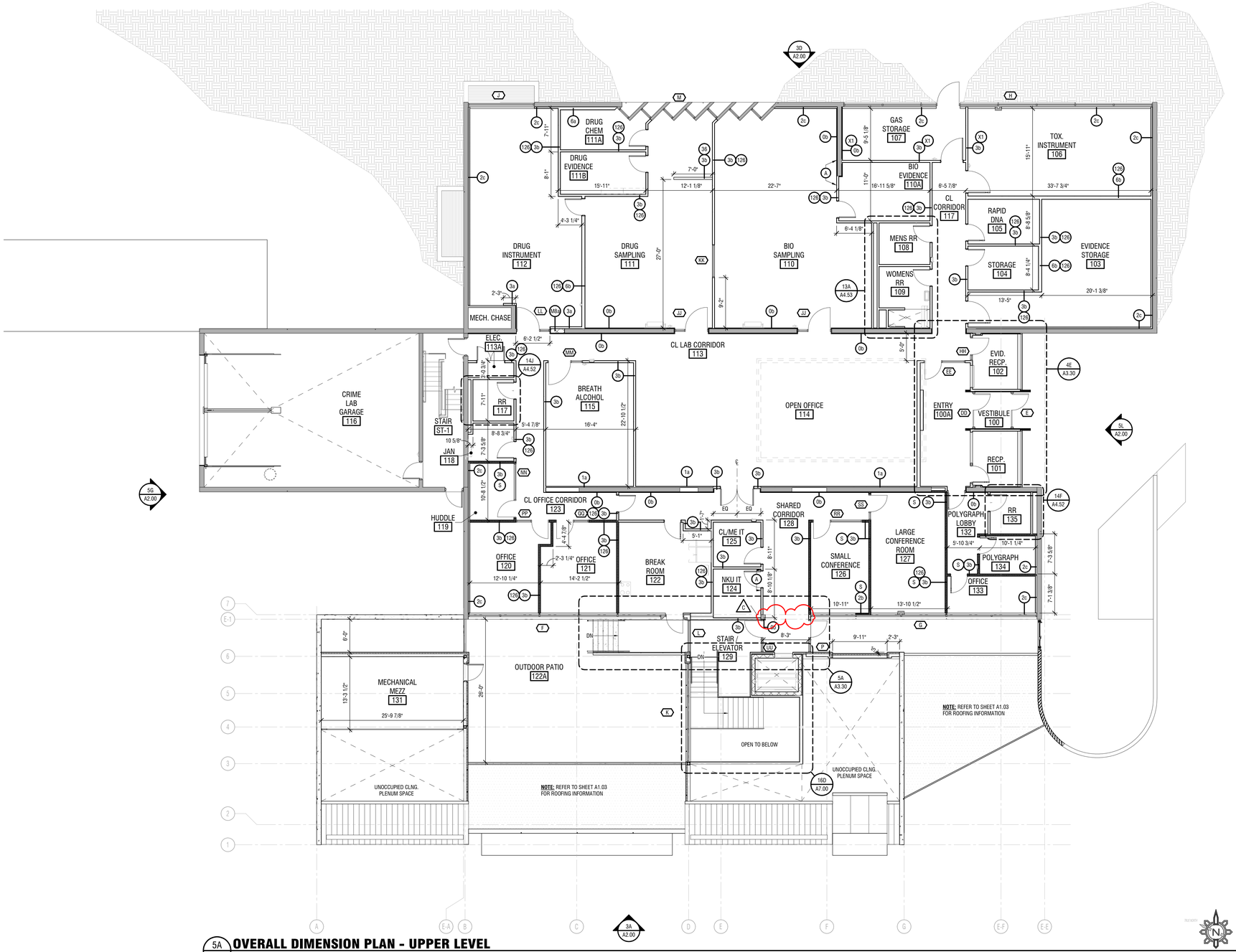
Sheet Title
OVERALL DIMENSION PLAN - LOWER LEVEL

Project No. **24047**

Drawn By: MAR, OKW
Reviewed By: MJL
Scale: As indicated

A1.10

COPYRIGHT © 2023 LUMINAUT, INC. - 7/29/2026 5:09:53 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



5A A1.11 OVERALL DIMENSION PLAN - UPPER LEVEL

1/8" = 1'-0"

KEYNOTES:

GENERAL NOTES:

A. PROVIDE IN WALL BLOCKING IN ALL LOCATION TO RECEIVE WALL MOUNTED EQUIPMENT.

B. HOLD ALL DOOR AND FRAME IN MTL. STUD WALL 4" FROM ADJACENT WALL U.N.O.

C. HOLD ALL DOOR AND FRAME IN MASONRY WALL 8" FROM ADJACENT WALL U.N.O.

D. REFER EQUIPMENT PLANS ON A1.51 AND A1.52 FOR EQUIPMENT INFORMATION.

E. REFER TO MEP SHEETS FOR MECHANICAL, ELECTRICAL AND PLUMBING SCOPE.

F. REFER TO CIVIL SHEETS FOR SITEWORK AND LANDSCAPING SCOPE OF WORK.

G. REFER TO STRUCTURAL SHEETS FOR STRUCTURAL SCOPE OF WORK.

H. REFER TO FINISH PLANS ON A1.41 AND A1.42 FOR ALL INTERIOR CONSTRUCTION.

I. PATCH THE EXISTING CONCRETE FLOOR SUBSTRATE TO PROVIDE A SMOOTH SURFACE FOR NEW FLOOR FINISHES.

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision		
C	ISSUED FOR BID ADDENDUM C	06/26/2026 07/31/2026

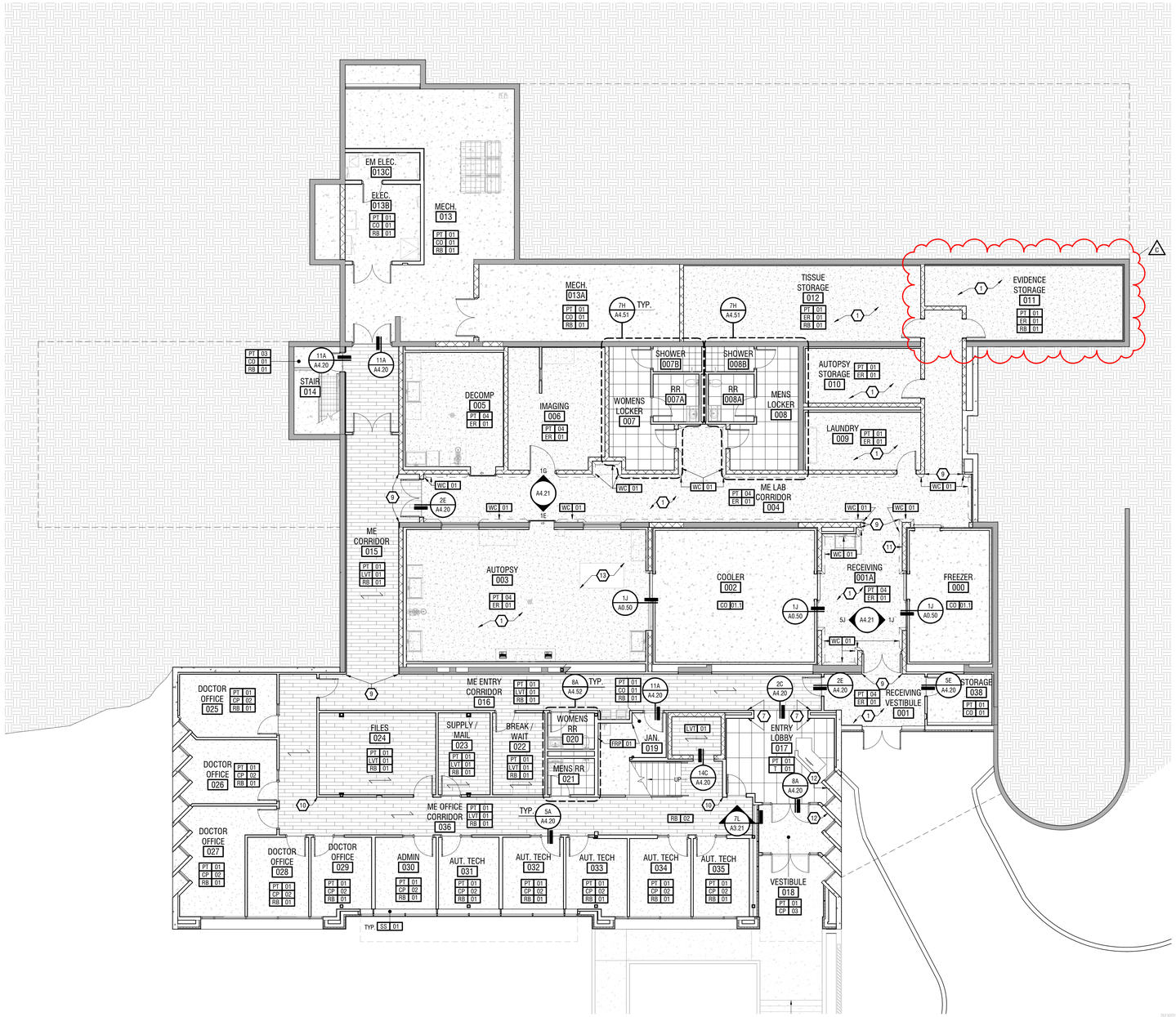
Sheet Title
OVERALL DIMENSION PLAN - UPPER LEVEL

Project No. 24047

Drawn By: MAR, OKW
Reviewed By: MJI
Scale: As indicated

A1.11

COPYRIGHT © 2023 LUMINAUT, INC. - 7/30/2026 5:34:39 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



5A OVERALL FINISH PLAN - LOWER LEVEL

A1.41 1/8" = 1'-0"

KEYNOTES:

1. EPOXY RESINOUS FLOOR WILL INCLUDE EPOXY COVE BASE SYSTEM. REFER TO TRANSITION DETAIL 1F/A6.01 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. NOT USED
3. NOT USED.
4. NOT USED.
5. INDOOR TO OUTDOOR TILE TO BE A SEAMLESS TRANSITION; TILES TO ALIGN IN COLOR, SHAPE, FINISH, AND GROUT JOINT. EXTERIOR TILE TO BE ON ELEVATED PEDESTAL SYSTEM. REFER TO DETAILS ON A4.12.
6. NOT USED.
7. REFER TO INTERIOR ELEVATIONS AND MILLWORK SERIES FOR ADDITIONAL INFORMATION REGARDING WALL CASING.
8. NOT USED.
9. PROVIDE FULL HEIGHT CORNER GUARD. BASIS OF DESIGN: INPRO - SURFACE MOUNT STAINLESS STEEL CORNER GUARD / 3" W.
10. PROVIDE FULL HEIGHT CORNER GUARD. BASIS OF DESIGN: INPRO - 150 HIGH IMPACT CORNER GUARD. COLOR: SHARKSKIN 0350 / 3" W.
11. REFER TO OVERALL FLOOR PLAN A1.01 FOR INFORMATION REGARDING WALL GUARDS.
12. DO NOT PAINT OR APPLY TILE BASE TO CONCRETE WALLS.
13. FLOOR SCALE LOCATED HERE. COORDINATE WITH FLOORING INSTALLATION.

GENERAL NOTES:

A. PROVIDE IN WALL BLOCKING IN ALL LOCATION TO RECEIVE WALL MOUNTED EQUIPMENT.

FINISH LEGEND:

NOTE: REFER TO FINISH SCHEDULE ON A4.20

ACT	ACOUSTICAL CEILING TILE
CP	CARPET
CO	CONCRETE
ER	EPOXY RESIN
FRP	FIBER REINFORCED POLYMER
LVT	LUXURY VINYL TILE
MTL	METAL PANEL
PL	PLASTIC LAMINATE
PT	PAINT
RB	RUBBER BASE
RF	RUBBER FLOOR
SF	SPECIAL FINISH
ST	QUARTZ
T	TILE
TB	TILE BASE
WD	WOOD VENEER CASEWORK FINISH
WF	WINDOW FILM

**REFER TO FINISH SPECIFICATION MANUAL FOR MORE INFORMATION

FINISH TYPE/MATERIAL

FINISH IDENTIFICATION #

DRAWING LEGEND:

- HATCHED WALL INDICATES EXISTING WALLS TO REMAIN
- HATCHED AREA INDICATES BELOW GRADE
- DASHED LINE INDICATES WALL PROTECTION

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™

CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

Sheet Title
OVERALL FINISH PLAN - LOWER LEVEL

Project No. 24047

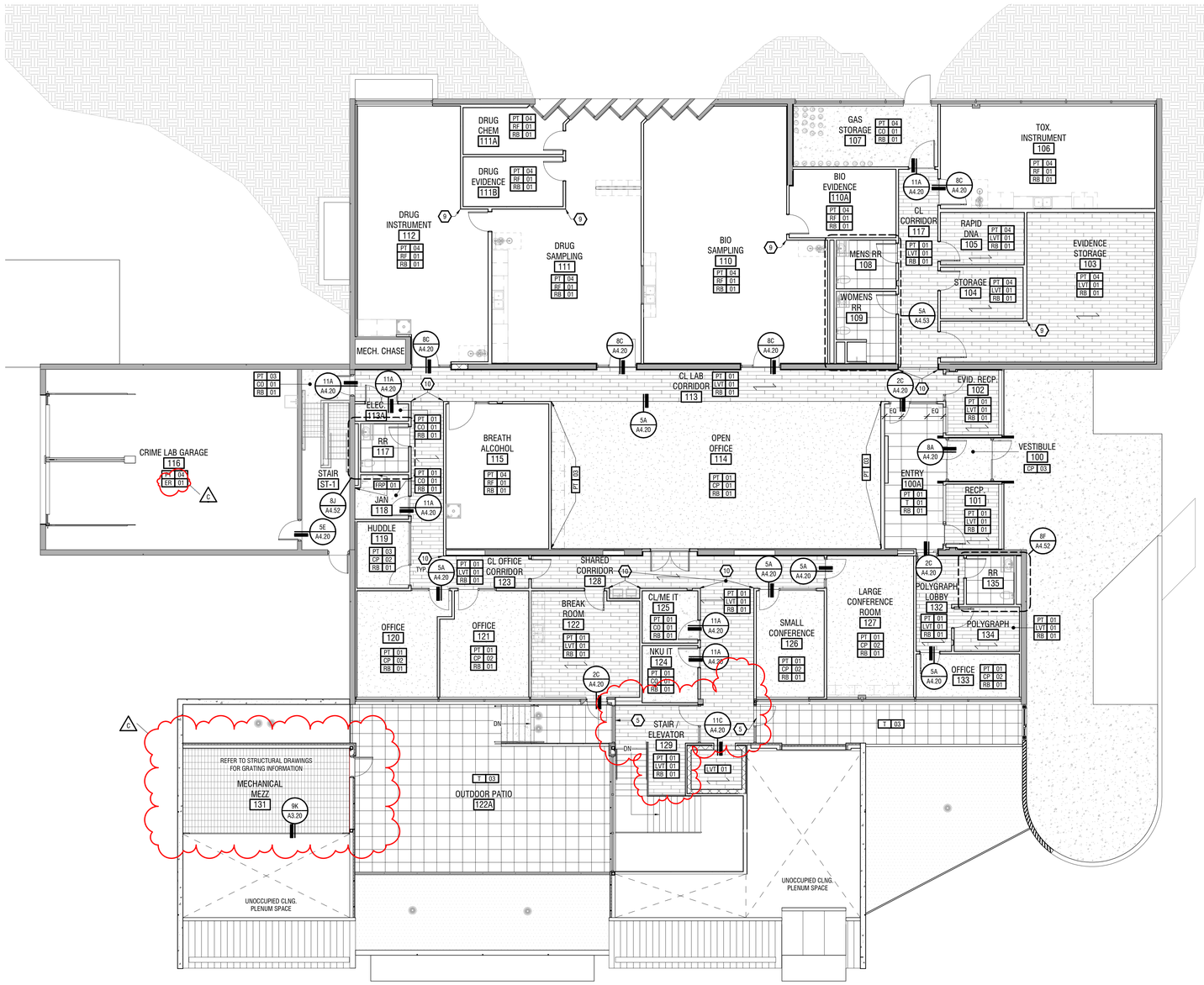
Drawn By: ARM, OKW

Reviewed By: MJI

Scale: As indicated

A1.41

COPYRIGHT © 2003 LUMINAUT, INC. - 7/28/2026 4:47:21 PM - J:\Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A21.rvt



5A / A1.42 **OVERALL FINISH PLAN - UPPER LEVEL**
1/8" = 1'-0"

KEYNOTES:

1. EPOXY RESINOUS FLOOR WILL INCLUDE EPOXY COVE BASE SYSTEM. REFER TO TRANSITION DETAIL 1F/A6.01 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. NOT USED
3. NOT USED.
4. NOT USED.
5. INDOOR TO OUTDOOR TILE TO BE A SEAMLESS TRANSITION; TILES TO ALIGN IN COLOR, SHAPE, FINISH, AND GROUT JOINT. EXTERIOR TILE TO BE ON ELEVATED PEDESTAL SYSTEM. REFER TO DETAILS ON A4.12.
6. NOT USED.
7. REFER TO INTERIOR ELEVATIONS AND MILLWORK SERIES FOR ADDITIONAL INFORMATION REGARDING WALL CASING.
8. NOT USED.
9. PROVIDE FULL HEIGHT CORNER GUARD. BASIS OF DESIGN: INPRO - SURFACE MOUNT STAINLESS STEEL CORNER GUARD / 3" W.
10. PROVIDE FULL HEIGHT CORNER GUARD. BASIS OF DESIGN: INPRO - 150 HIGH IMPACT CORNER GUARD. COLOR: SHARKSKIN 0350 / 3" W.
11. REFER TO OVERALL FLOOR PLAN A1.01 FOR INFORMATION REGARDING WALL GUARDS.
12. DO NOT PAINT OR APPLY TILE BASE TO CONCRETE WALLS.
13. FLOOR SCALE LOCATED HERE. COORDINATE WITH FLOORING INSTALLATION.

GENERAL NOTES:

A. PROVIDE IN WALL BLOCKING IN ALL LOCATION TO RECEIVE WALL MOUNTED EQUIPMENT.

FINISH LEGEND:

NOTE: REFER TO FINISH SCHEDULE ON A4.20

ACT	ACOUSTICAL CEILING TILE
CP	CARPET
CO	CONCRETE
ER	EPOXY RESIN
FRP	FIBER REINFORCED POLYMER
LVT	LUXURY VINYL TILE
MTL	METAL PANEL
PL	PLASTIC LAMINATE
PT	PAINT
RB	RUBBER BASE
RF	RUBBER FLOOR
SF	SPECIAL FINISH
ST	QUARTZ
T	TILE
TB	TILE BASE
WD	WOOD VENEER CASEWORK FINISH
WF	WINDOW FILM

**REFER TO FINISH SPECIFICATION MANUAL FOR MORE INFORMATION

FINISH TYPE/MATERIAL
FINISH IDENTIFICATION #

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN
HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026
Issued for: BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

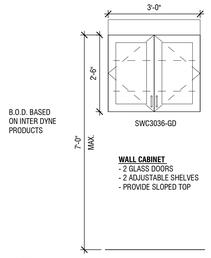
Sheet Title
OVERALL FINISH PLAN - UPPER LEVEL

Project No. 24047
Drawn By: ARM
Reviewed By: MJI
Scale: As indicated

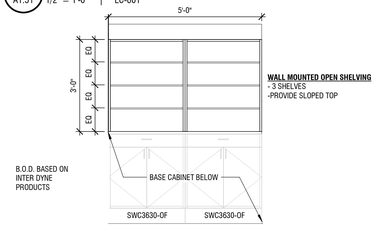
A1.42

COPYRIGHT © 2022 LUMINAUT, INC. - 7/30/2026 10:57:32 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_ASA.rvt

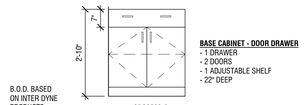
MEDICAL LAB CASEWORK ELEVATION



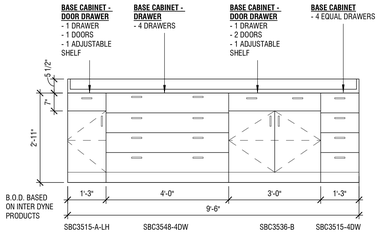
1M ELEV. - WALL CABINET
A1.51 | 1/2" = 1'-0" | LC-001



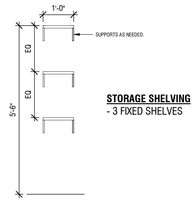
1K ELEV. - WALL MOUNTED OPEN SHELVING
A1.51 | 1/2" = 1'-0" | LC-002



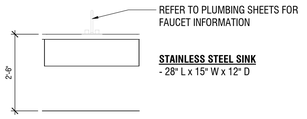
1H ELEV. - STANDING HEIGHT BASE CABINET
A1.51 | 1/2" = 1'-0" | LC-003



1E ELEV. - LONG BASE CABINET
A1.51 | 1/2" = 1'-0" | LC-004

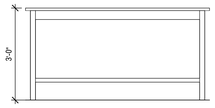


1C ELEV. - STORAGE SHELVING
A1.51 | 1/2" = 1'-0" | LC-005

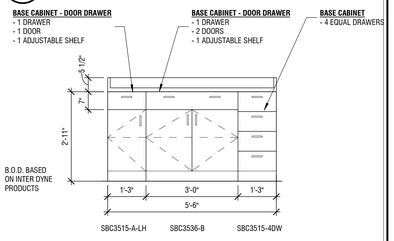


1A ELEV. - TYP. STAINLESS STEEL SINK
A1.51 | 1/2" = 1'-0"

MEDICAL LAB CASEWORK ELEVATION



5M ELEV. - ADJUSTABLE HEIGHT TABLE
A1.51 | 1/2" = 1'-0" | LC-006



5K ELEV. - LAUNDRY BASE CABINET
A1.51 | 1/2" = 1'-0" | LC-007

MEDICAL LAB CASEWORK - LOWER LEVEL

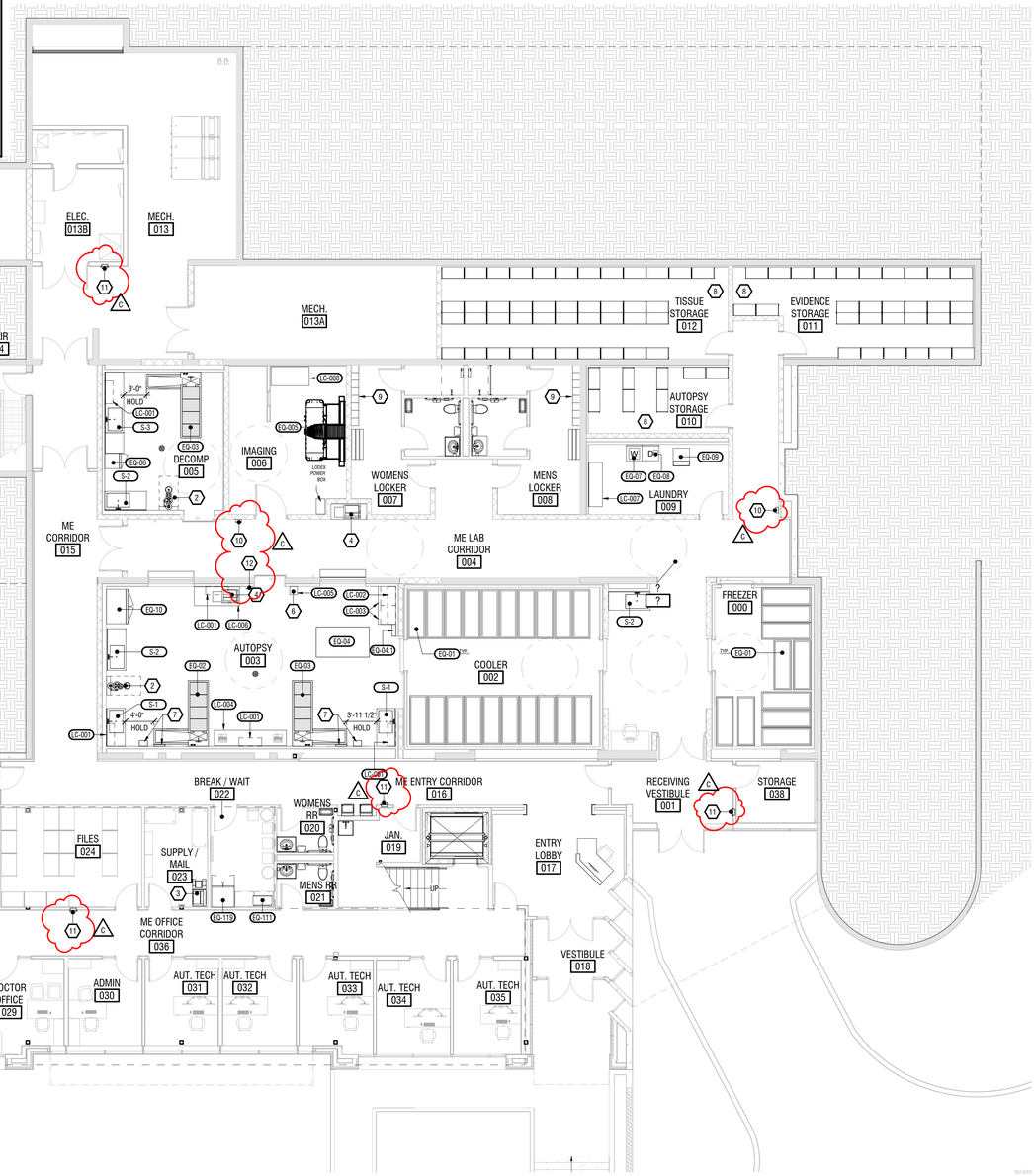
TAG	DESCRIPTION	BASIS OF DESIGN: MODEL	W	D	H	FINISH	REMARKS
LC-001	WALL MOUNTED STORAGE CABINETS WITH SWINGING GLAZED DOOR	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY BOD SWC2430-GD	3'-0"	1'-1"	2'-8"	STAINLESS STEEL	PROVIDE SST STAINLESS STEEL SLOPED TOPS TO MATCH THE WIDTH OF WALL-MOUNT CABINETS.
LC-002	WALL MOUNTED OPEN SHELVING	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	5'-0"	1'-1"	3'-0"	STAINLESS STEEL	MOUNTED ABOVE STANDING HEIGHT BASE CABINET AND COUNTER TOP.
LC-003	STANDING HEIGHT BASE CABINET	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY BOD SBC3230-B	2'-6"	2'-0"	2'-11"	STAINLESS STEEL	PROVIDE STAINLESS STEEL COUNTERTOP.
LC-004	LONG BASE CABINET	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	9'-7"	1'-10"	2'-11"	STAINLESS STEEL	PROVIDE 24" DEEP STAINLESS STEEL COUNTERTOP. PROVIDE INTEGRAL STAINLESS STEEL SIDESPLASH AND COVED BACKSPLASH.
LC-005	STORAGE SHELVING	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	1'-0"	10"	1"	STAINLESS STEEL	PROVIDE MOUNTING SUPPORTS AS NEEDED.
LC-006	ADJUSTABLE HEIGHT TABLE	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY BOD 30 IN WIDE SS COUNTERTOP W ADJ FRAME	6'-0"	2'-6"	3'-0"	STAINLESS STEEL	
LC-007	LAUNDRY BASE CABINET	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	5'-10"	1'-10"	2'-11"	STAINLESS STEEL	PROVIDE 24" DEEP STAINLESS STEEL COUNTERTOP. PROVIDE INTEGRAL STAINLESS STEEL SIDESPLASH AND COVED BACKSPLASH.
LC-008	FIXED HEIGHT TABLE	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	5'-0"	2'-6"	3'-0"	STAINLESS STEEL	

MEDICAL EQUIPMENT SCHEDULE - LOWER LEVEL

TAG	EQUIPMENT NAME	BASIS OF DESIGN: MODEL	REMARKS	Power
EQ-01	BODY TRAY	PEDIGO P172	OWNER PROVIDED. OWNER INSTALLED.	No
EQ-02	AUTOPSY TABLE	MOPEC CE SERIES L-SHAPED TABLE 1036-19R	PROVIDE INTEGRAL 24" HIGH STAINLESS-STEEL BACKSPLASH AT END OF L-SHAPE AT WALL CONDITIONS. REFER SPECIFICATION FOR ADDITIONAL INFORMATION. REFER TO ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-03	AUTOPSY TABLE	MOPEC CE SERIES L-SHAPED TABLE 1036-19L	PROVIDE INTEGRAL 24" HIGH STAINLESS-STEEL BACKSPLASH AT END OF L-SHAPE AT WALL CONDITIONS. REFER SPECIFICATION FOR ADDITIONAL INFORMATION. REFER TO ELECTRICAL AND PLUMBING DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-04	IN-FLOOR SCALE	MOPEC FLOOR SCALE WITH DIGITAL READOUT 88-150	FLUSH MOUNT. REFER ELECTRICAL AND STRUCTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-04.1	DIGITAL READOUT FOR FLOOR SCALE	MOPEC	CONTRACTOR PROVIDED AND CONTRACTOR INSTALLED. REFER M.E.P. DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-005	LODOX IMAGING	LODOX EXERO-DR	REFER ELECTRICAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-06	ULTRA-LOW FREEZER	TSX UNIVERSAL SERIES TSX400086FA	CONTRACTOR PROVIDED AND CONTRACTOR INSTALLED. REFER M.E.P. DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-07	WASHER	GENERAL ELECTRIC	CONTRACTOR PROVIDED AND CONTRACTOR INSTALLED. REFER M.E.P. DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-08	DRYER	GENERAL ELECTRIC	CONTRACTOR PROVIDED AND CONTRACTOR INSTALLED. REFER M.E.P. DRAWINGS FOR ADDITIONAL REQUIREMENTS. CONTRACTOR TO PROVIDE LONG VENT DRYER WITH INTERNAL BOOSTER FAN.	Yes
EQ-09	UNDERCOUNTER ICE MACHINE	HOSHIZAKI KM-151BAH	CONTRACTOR PROVIDED AND CONTRACTOR INSTALLED. REFER M.E.P. DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes
EQ-10	REFREGIRATOR/FREEZER	FISHER SCIENTIFIC FBG5005SA	CONTRACTOR PROVIDED AND CONTRACTOR INSTALLED. REFER M.E.P. DRAWINGS FOR ADDITIONAL REQUIREMENTS.	Yes

MEDICAL EQUIPMENT COUNTERTOP/SINK SCHEDULE - LOWER LEVEL

TAG	DESCRIPTION	BASIS OF DESIGN: MODEL	REMARKS
S-1	STAINLESS STEEL SINK IN 5'-0" STAINLESS STEEL COUNTER 30" DEEP	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	PROVIDE INTEGRAL STAINLESS STEEL SINK AND COVE BACKSPLASH.
S-2	STAINLESS STEEL SINK IN 5'-0" STAINLESS STEEL COUNTER 30" DEEP	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	PROVIDE INTEGRAL STAINLESS STEEL SINK AND COVE BACKSPLASH.
S-3	STAINLESS STEEL SINK IN 8'-0" STAINLESS STEEL COUNTER 30" DEEP	INTER DYNE SYSTEMS 304 STAINLESS FULL OVERLAY	PROVIDE INTEGRAL STAINLESS STEEL SINK AND COVE BACKSPLASH.



5A OVERALL EQUIPMENT PLAN - LOWER LEVEL
A1.51 | 1/8" = 1'-0"

KEYNOTES:

1. REFER A1.62 FOR FURNITURE PLAN AND ADDITIONAL INFORMATION.
2. PROVIDE SHOWER, INTEGRAL EYEWASH STATION AND FLOOR DRAIN. BASIS OF DESIGN BRADLEY S1931-4LL. REFER TO P-SERIES DRAWINGS FOR PLUMBING INFORMATION.
3. FREE STANDING MULTIFUNCTION COPIER. OWNER PROVIDED.REFER E-SERIES DRAWINGS FOR ELECTRICAL REQUIREMENTS.
4. COUNTERTOP MULTIFUNCTION COPIER.OWNER PROVIDED.REFER E-SERIES DRAWINGS FOR ELECTRICAL REQUIREMENTS.
5. NOT USED.
6. PROVIDE MEDICAL P.P.E STORAGE SHELVING. REFER MEDICAL LAB CASEWORK SCHEDULE FOR ADDITIONAL INFORMATION.
7. OWNER PROVIDED EQUIPMENT. REFER TO INTERIOR ELEVATION FOR ADDITIONAL INFORMATION.
8. PROVIDE STAINLESS STEEL MEDICAL EVIDENCE STORAGE SHELVING. BASIS OF DESIGN - METRO SUPER ERECTA 4-SHELF COMPLETE UNITS.
9. SOLID PLASTIC LOCKER / BASIS OF DESIGN; BRADLEY - COLOR: CHARCOAL GRAY - S215 / REFER TO ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
10. SURFACE-MOUNTED FIRE EXTINGUISHER CABINET. REFER TO A1.00 FOR FIRE EXTINGUISHER TYPES.
11. PARTIALLY-RECESSED FIRE EXTINGUISHER CABINET. REFER TO A1.00 FOR FIRE EXTINGUISHER TYPES.
12. FIRE EXTINGUISHER MOUNTED ON HOOK. REFER TO A1.00 FOR FIRE EXTINGUISHER TYPES.

GENERAL NOTES:

A. REFER TO EQUIPMENT SCHEDULE AND SPECIFICATION FOR MEDICAL EQUIPMENT MFG, SIZE AND ADDITIONAL REQUIREMENTS.

B. REFER ELECTRICAL AND PLUMBING DRAWINGS AND SPECIFICATION FOR POWER AND PLUMBING REQUIREMENTS FOR MEDICAL EQUIPMENT. INFORM ARCHITECT/ENGINEER OF ANY CONFLICT OF NEW EQUIPMENT WITH EXISTING CONDITIONS.

C. COORDINATE ALL MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS FOR OWNER PROVIDED ITEMS. REFER M.E.P. DRAWINGS FOR ADDITIONAL INFORMATION.

D. PROVIDE IN WALL BLOCKING IN ALL LOCATIONS TO RECEIVE WALL MOUNTED EQUIPMENT.

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™

CMTA

Project Title
NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

2	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

Sheet Title
OVERALL EQUIPMENT PLAN - LOWER LEVEL

Project No. 24047

Drawn By: SSS

Reviewed By: MJI

Scale: As indicated

A1.51

COPYRIGHT © 2020 LUMINAUT, INC. - 7/30/2026 6:04:51 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A2X.rvt

CRIME LAB EQUIPMENT SCHEDULE - UPPER LEVEL

TAG	EQUIPMENT NAME	BASIS OF DESIGN: MODEL	REMARKS	Power
EQ-100	GAS CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS)	EXISTING	OWNER PROVIDED. OWNER INSTALLED. REFER M.E.P. SHEETS FOR POWER AND MECH. INFORMATION.	Yes
EQ-101	GENERAL BENCHTOP FUME HOOD	KEWAUNEE VENTURI - 8' - V05F28472WX-G1.F1.SW.C.R1, VBTR012472-BK, VCEM2472	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER M.E.P. SHEETS FOR ADDITIONAL INFORMATION. FUMEHOOD CEILING ENCLOSURE HEIGHT TO BE VERIFIED IN FIELD.	Yes
EQ-102	LARGE FLAMMABLE CABINET	KEWAUNEE FLAMMABLE STORAGE CABINETS	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER M.E.P. SHEETS FOR ADDITIONAL INFORMATION.	No
EQ-103	SMALL FLAMMABLE CABINET	KEWAUNEE FLAMMABLE STORAGE CABINETS	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER M.E.P. SHEETS FOR ADDITIONAL INFORMATION.	No
EQ-104	REFRIGERATOR	FRIGIDAIRE FRU17B2JW5 / FRAE2024AW	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER E-SERIES DRAWINGS FOR ELECTRICAL REQUIREMETS.	Yes
EQ-105	SMALL LINDER COUNTER FLAMMABLE CABINET	KEWAUNEE FLAMMABLE STORAGE CABINETS	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER M.E.P. SHEETS FOR ADDITIONAL INFORMATION.	Yes
EQ-106	TOXICOLOGY INSTRUMENT	EXISTING	OWNER PROVIDED. OWNER INSTALLED. REFER M.E.P. SHEETS FOR POWER AND MECH. INFORMATION.	Yes
EQ-107	CARTS	EXISTING	OWNER PROVIDED. OWNER INSTALLED.	No
EQ-108	REFRIGERATOR/FREEZER COMBO	ROPER RT14BKXKQ00 / FRIGIDAIRE LFTR1814LW	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER E-SERIES DRAWINGS FOR ELECTRICAL REQUIREMETS.	Yes
EQ-109	BREATH ALCOHOL EQUIPMENT	EXISTING	OWNER PROVIDED. OWNER INSTALLED.	Yes
EQ-110	SINGLE DOOR FREEZER	FRIGIDAIRE FFFU13F2VW	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER E-SERIES DRAWINGS FOR ELECTRICAL REQUIREMETS.	Yes
EQ-111	MICROWAVE	GENERAL ELECTRIC	OWNER PROVIDED. CONTRACTOR INSTALLED. REFER M.E.P. SHEETS FOR ADDITIONAL INFORMATION.	Yes
EQ-112	RANGE/ OVEN	GENERAL ELECTRIC	OWNER PROVIDED. CONTRACTOR INSTALLED. REFER TO M.E.P. SHEETS FOR ADDITIONAL INFORMATION.	Yes
EQ-113	SPECTROMETER - NICOLET IS20	EXISTING	OWNER PROVIDED. OWNER INSTALLED. REFER M.E.P. SHEETS FOR POWER AND MECH. INFORMATION.	Yes
EQ-114	DRUG INSTRUMENT - UV-VIS	EXISTING	OWNER PROVIDED. OWNER INSTALLED. REFER M.E.P. SHEETS FOR POWER AND MECH. INFORMATION.	Yes
EQ-115	AIR COMPRESSOR	EXISTING	OWNER PROVIDED. OWNER INSTALLED. REFER M.E.P. SHEETS FOR POWER AND MECH. INFORMATION.	Yes
EQ-116	PAPER ROLL DISPENSER	EXISTING	OWNER PROVIDED. OWNER INSTALLED. REFER M.E.P. SHEETS FOR POWER AND MECH. INFORMATION.	No
EQ-117	BIOHAZARD WASTE DISPOSAL	EXISTING	OWNER PROVIDED. OWNER INSTALLED.	No
EQ-118	GENERAL BENCHTOP FUME HOOD	KEWAUNEE VENTURI - 4' - V05F28244BKN-G1.F1.SW.C, R1, VBTR012448-BK, VCEM2448	CONTRACTOR PROVIDED. CONTRACTOR INSTALLED. REFER M.E.P. SHEETS FOR ADDITIONAL INFORMATION. FUMEHOOD CEILING ENCLOSURE HEIGHT TO BE VERIFIED IN FIELD.	Yes
EQ-119	FRENCH DOOR REFRIGERATOR / FREEZER BOTTOM	GENERAL ELECTRIC	OWNER PROVIDED. CONTRACTOR INSTALLED. REFER TO M.E.P. SHEETS FOR ADDITIONAL INFORMATION.	Yes
EQ-120	DISHWASHER	GENERAL ELECTRIC	OWNER PROVIDED. CONTRACTOR INSTALLED. REFER M.E.P. SHEETS FOR ADDITIONAL INFORMATION.	Yes

5A / A1.52 **OVERALL EQUIPMENT PLAN - UPPER LEVEL**
1/8" = 1'-0"

KEYNOTES:

1 REFER A1.62 FOR FURNITURE PLAN AND ADDITIONAL INFORMATION.

2 PROVIDE MEDICAL EVIDENCE STORAGE SHELVING. REF. SPECIFICATION FOR ADDITIONAL INFORMATION.

3 PROVIDE SHOWER & INTEGRAL EYEWASH STATION. REFER TO P-SERIES DRAWINGS FOR PLUMBING INFORMATION.

4 OWNER PROVIDED GAS TANKS. COORDINATE M.E.P. REQUIREMENTS WITH M.E.P SHEETS.

5 PROVIDE UTILITY SINK. REFER TO P-SERIES DRAWINGS AND SPECIFICATIONS FOR PLUMBING INFORMATION.

6 FREE STANDING MULTIFUNCTION COPIER. OWNER PROVIDED. REFER E-SERIES DRAWINGS FOR ELECTRICAL REQUIREMENTS.

7 PROVIDE SAFETY EYEWASH STATION INTEGRAL IN SINK. BASIS OF DESIGN BRADLEY. REFER TO P-SERIES DRAWINGS FOR PLUMBING INFORMATION.

11 PARTIALLY-RECESSED FIRE EXTINGUISHER CABINET. REFER TO A1.00 FOR FIRE EXTINGUISHER TYPES.

12 FIRE EXTINGUISHER MOUNTED ON HOOK. REFER TO A1.00 FOR FIRE EXTINGUISHER TYPES.

GENERAL NOTES:

A. REFER TO EQUIPMENT SCHEDULE AND SPECIFICATION FOR MEDICAL EQUIPMENT MFG, SIZE AND ADDITIONAL REQUIREMENTS.

B. REFER ELECTRICAL AND PLUMBING DRAWINGS AND SPECIFICATION FOR POWER AND PLUMBING REQUIREMENTS FOR MEDICAL EQUIPMENT. INFORM ARCHITECT/ENGINEER OF ANY CONFLICT OF NEW EQUIPMENT WITH EXISTING CONDITIONS.

C. COORDINATE ALL MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS FOR OWNER PROVIDED ITEMS. REFER M.E.P. DRAWINGS FOR ADDITIONAL INFORMATION.

D. PROVIDE IN WALL BLOCKING IN ALL LOCATIONS TO RECEIVE WALL MOUNTED EQUIPMENT.

DRAWING LEGEND:

HATCHED WALL INDICATES EXISTING WALLS TO REMAIN

HATCHED AREA INDICATES BELOW GRADE

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
———
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
———
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

Sheet Title
OVERALL EQUIPMENT PLAN - UPPER LEVEL

Project No. 24047

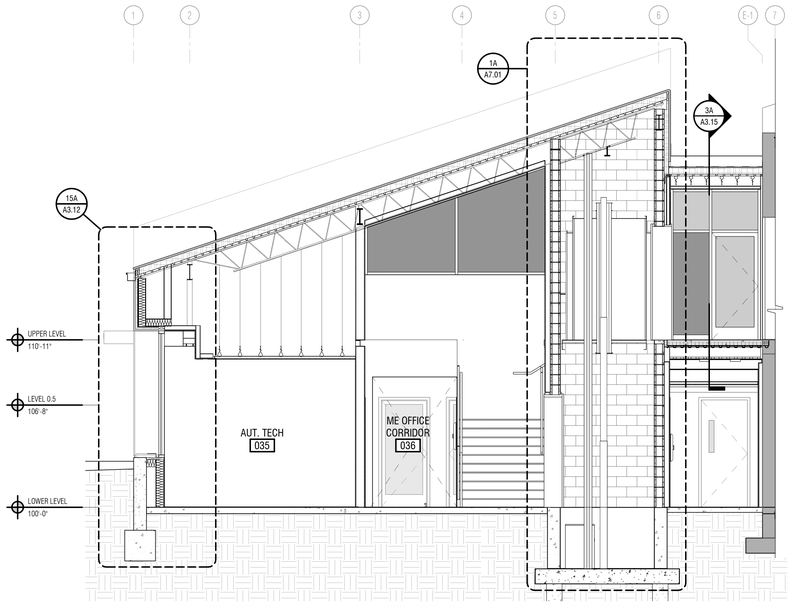
Drawn By: SSS, OKW

Reviewed By: MJI

Scale: As indicated

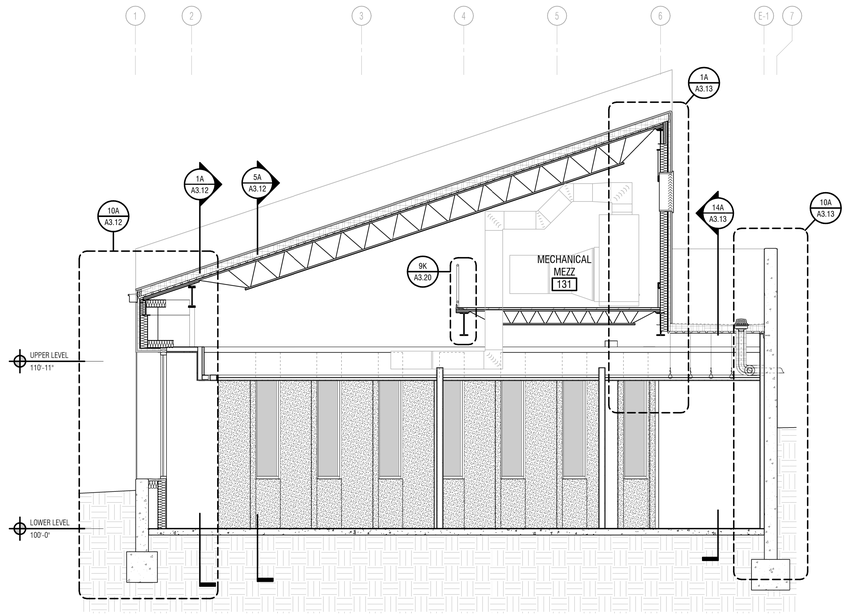
A1.52

COPYRIGHT © 2023 LUMINAUT, INC. - 7/30/2026 8:03:33 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



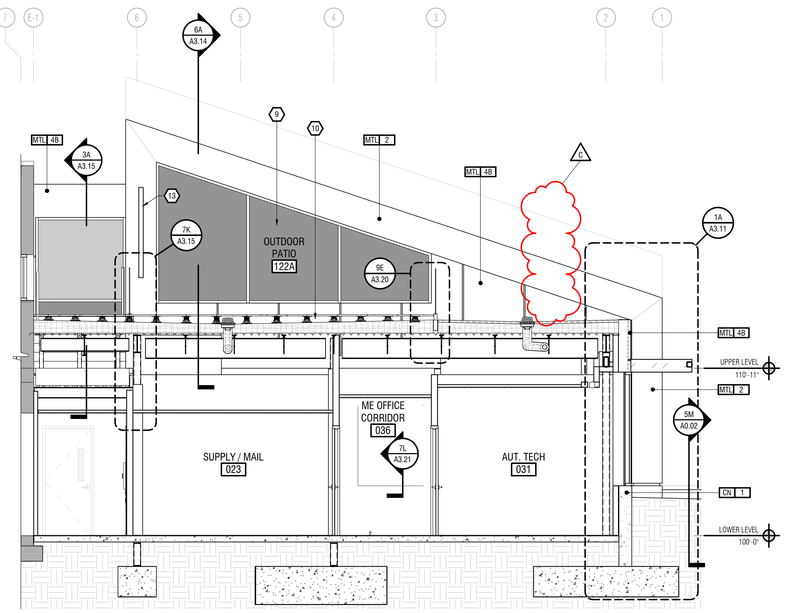
1J A3.03 ENLARGED BLDG. SECTION - ELEVATOR CORE - EAST/WEST

1/4" = 1'-0"



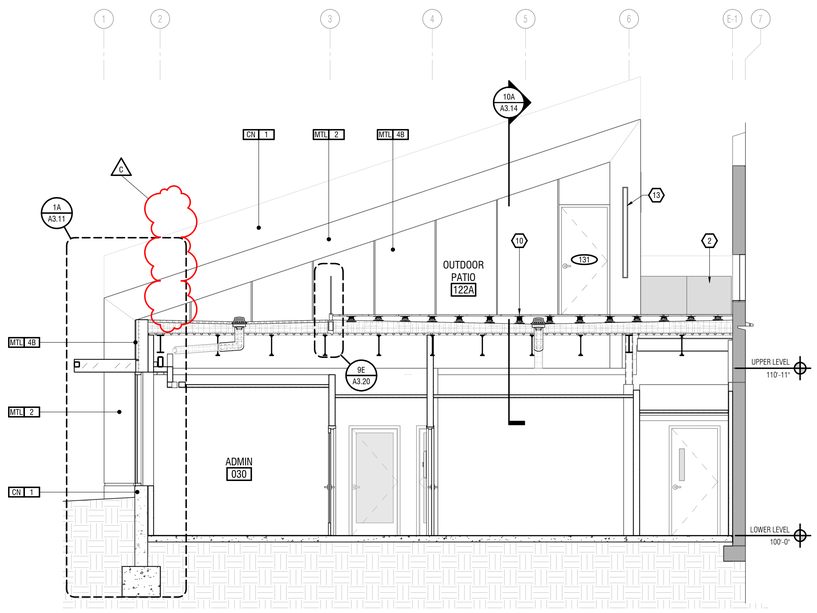
9J A3.03 ENLARGED BLDG. SECTION - MECHANICAL PLATFORM - EAST/WEST

1/4" = 1'-0"



1A A3.03 ENLARGED BLDG. SECTION - EXTERIOR PATIO (SOUTH)

1/4" = 1'-0"



9A A3.03 ENLARGED BLDG. SECTION - EXTERIOR PATIO (NORTH)

1/4" = 1'-0"

KEYNOTES:

1	MATTE BLACK POWDER COATED ALUMINUM LOUVER WALL. REFER TO SHEET A0.02 FOR MORE INFORMATION
2	TEMPERED GLASS GUARDRAIL WITH METAL TRIM AND SHOE
3	METAL PAN STAIRS WITH CONCRETE TREADS. PROVIDE LARGE FORMAT TILE RISER AND TREADS.
4	EXHAUST LOUVER FOR MECHANICAL EQUIPMENT LOCATED ON MEZZANINE. REFER TO MEP DRAWINGS FOR MORE INFORMATION. PAINT TO MATCH ADJ. METAL FINISH
5	PROVIDE EXTERIOR STOREFRONT DOOR AND SIDELIGHT. REFER TO A6.00 FOR MORE INFORMATION
6	NEW STOREFRONT GLAZING WITHIN EXISTING OPENING.
7	PROVIDE NEW STANDING SEAM METAL ROOF SYSTEM TO MATCH EXISTING ROOF PROFILE AND FINISH. ROOF SLOPE TO MATCH EXISTING ROOF SLOPE.
9	NEW STOREFRONT CLERESTORY WINDOW
10	EXTERIOR LARGE FORMAT TILE PAVER ROOF SYSTEM
11	LARGE FORMAT TILE PAVER WALL SYSTEM. ALIGN TILE JOINTS WITH ADJACENT PATIO TILE JOINTS.
12	MATTE BLACK POWDER COATED ALUMINUM RAIL. REFER TO CIVIL DRAWINGS FOR MORE INFORMATION
13	LINEAR VERTICAL EXTERIOR LIGHT. REFER TO ELECTRICAL FOR MORE INFORMATION

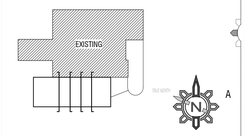
FINISH KEY:

MTL 1	STANDING SEAM METAL PANEL SYSTEM. FINISH: SLATE GRAY
MTL 2	MCM METAL PANEL SYSTEM. MATCH SLATE GRAY FINISH OF MTL-1
MTL 3	STANDING SEAM METAL PANEL SYSTEM. FINISH: MATTE BLACK
MTL 4A	MCM METAL PANEL WALL SYSTEM. FINISH: MATTE BLACK
MTL 4B	MCM METAL PANEL WALL SYSTEM. FINISH: GRAY-BROWN TONE TO MATCH EXISTING CONCRETE.
MTL 4C	MCM METAL PANEL WALL SYSTEM. FINISH: CHAMPAGNE
MTL 5	MATTE BLACK POWDER COATED METAL LOUVER SCREEN WALL
CN 1	CAST-IN-PLACE CONCRETE, ARCHITECTURAL CONCRETE, SEE SPECIFICATIONS
LT 1	LARGE FORMAT TILE WALL COVERING
GL 1	GLASS GUARDRAIL RAILING

GENERAL NOTES:

A. APPLY HEAVY DUTY CONCRETE CLEANER ON ALL EXISTING EXTERIOR CONCRETE.
B. AFTER PROPER CLEANING, SEAL ALL EXISTING AND NEW CONCRETE EXTERIOR FACADES.

KEY PLAN:



LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™

CMTA

Project Title

NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

Sheet Title

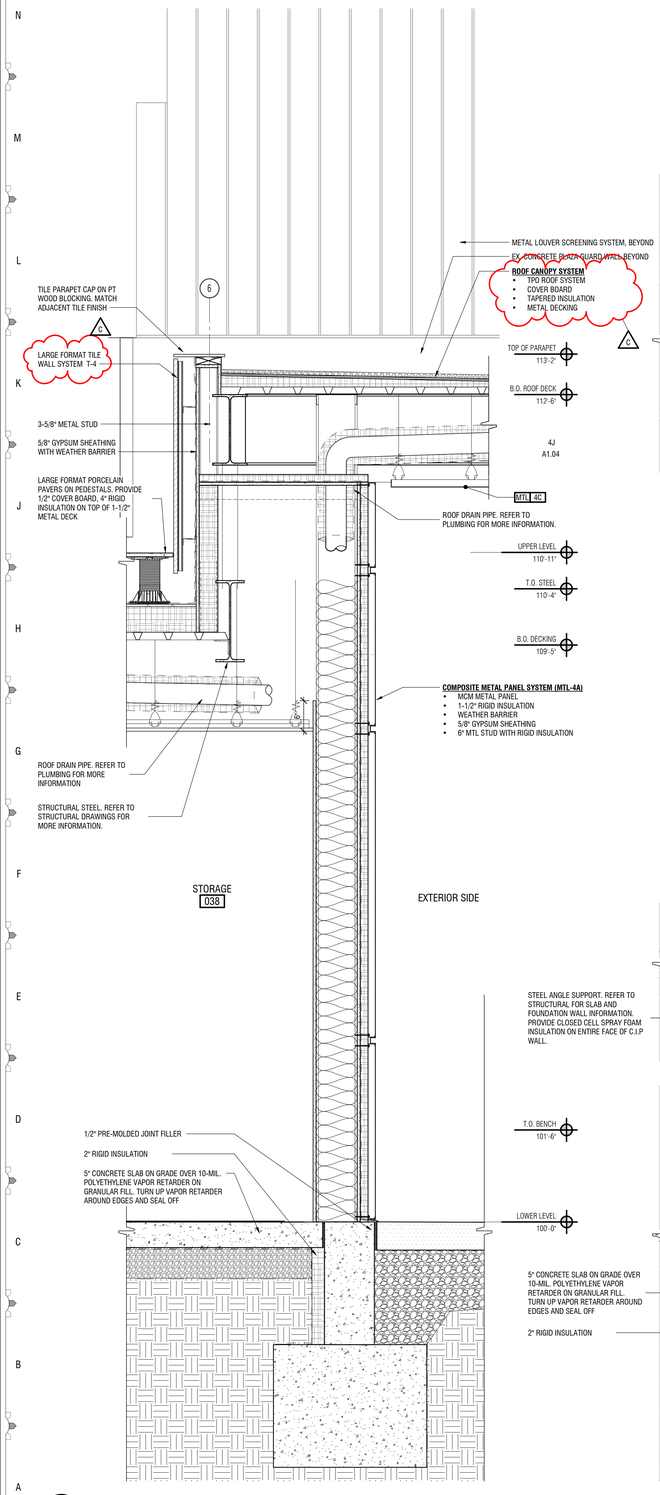
ENLARGED EXTERIOR BUILDING SECTION/ELEVATIONS

Project No. 24047

Drawn By: MAR
Reviewed By: MJI
Scale: As indicated

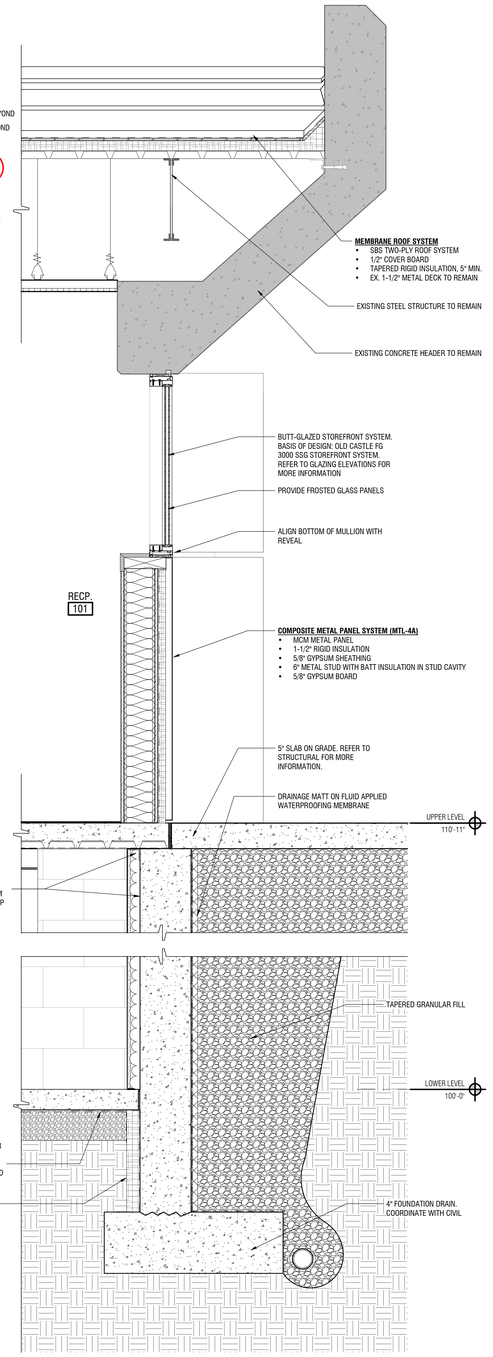
A3.03

COPYRIGHT © 2026 LUMINAUT, INC. - 7/28/2026 2:21:58 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



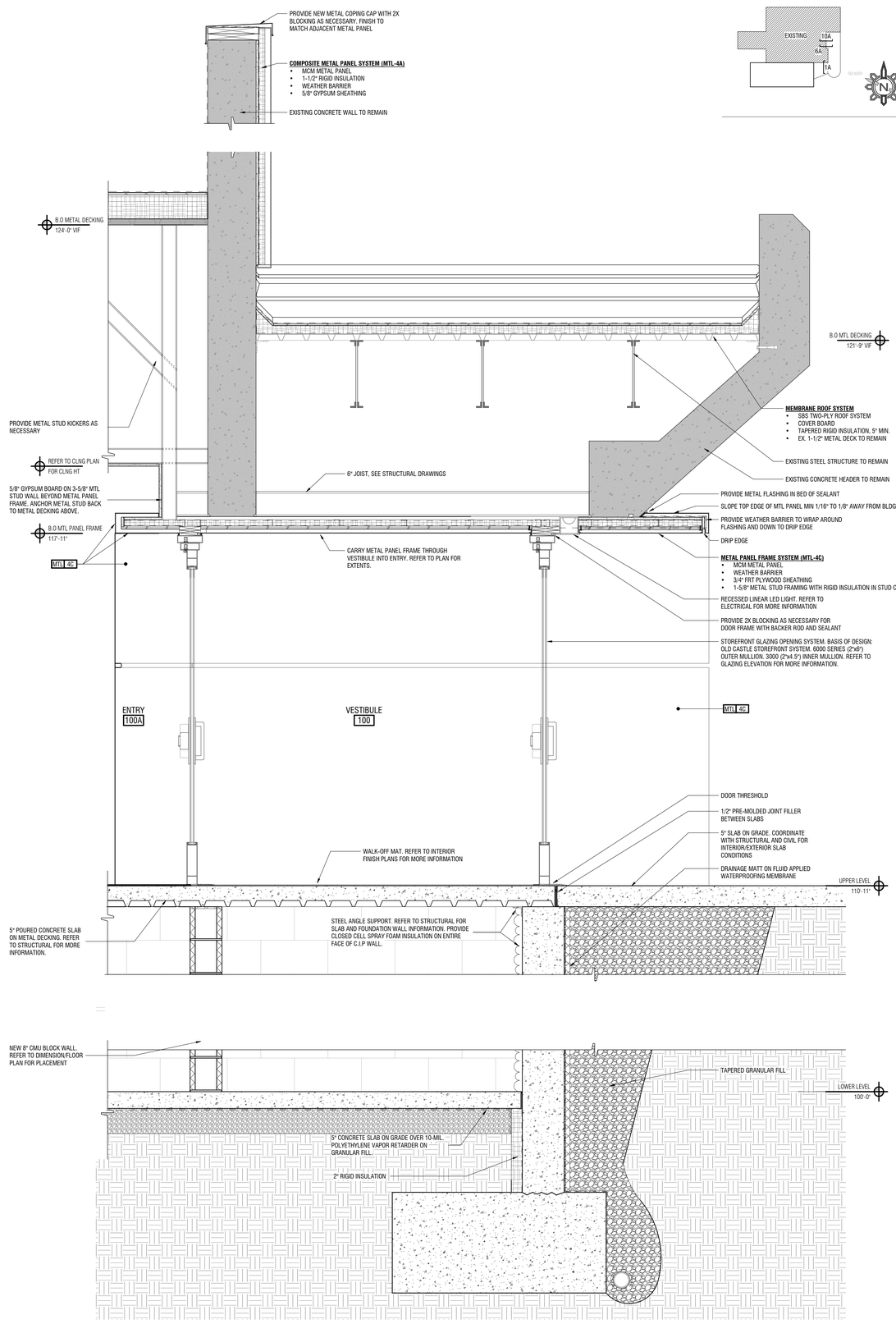
1A A3.10 WALL SECTION - DECEDANT DROP-OFF @ MTL PANEL

1" = 1'-0"



6A A3.10 WALL SECTION - SOUTH ENTRY @ CL MTL PANEL

1" = 1'-0"



10A A3.10 WALL SECTION - SOUTH ENTRY @ CRIME LAB VESTIBLE

1" = 1'-0"

KEY PLAN:

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date:
JUNE 26, 2026

Issued for:
BIDDING SET

Revision

A	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

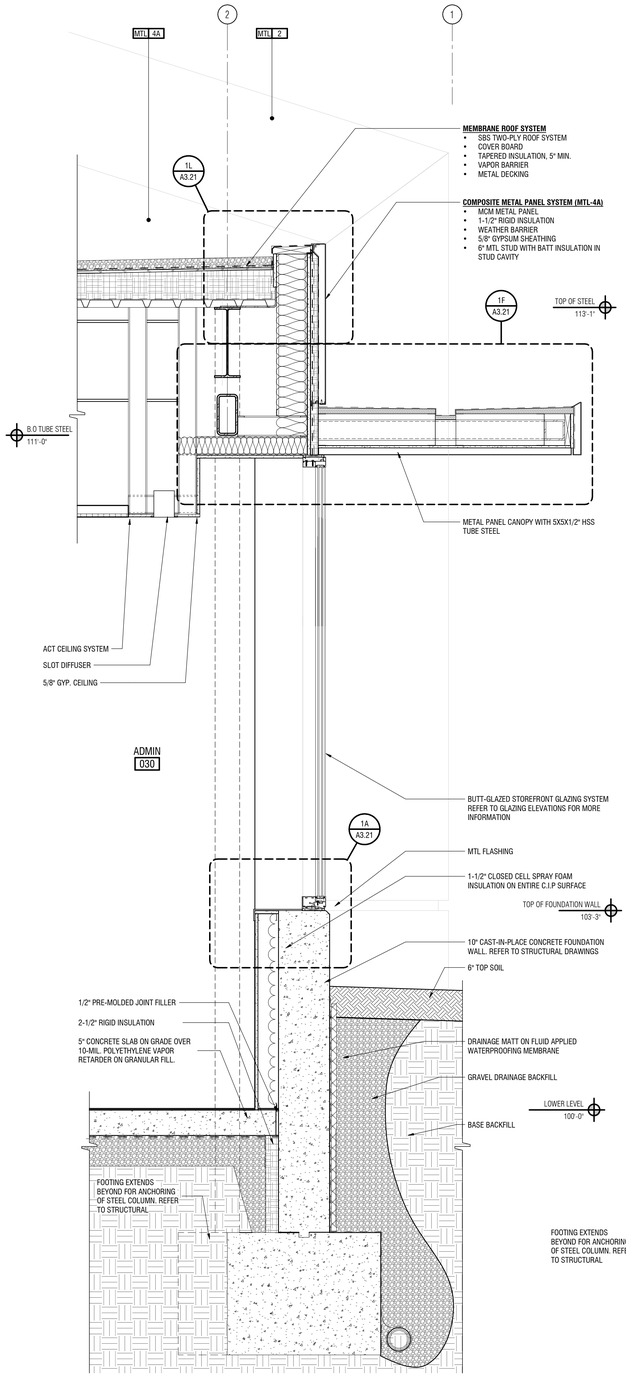
Sheet Title
WALL SECTIONS

Project No.
24047

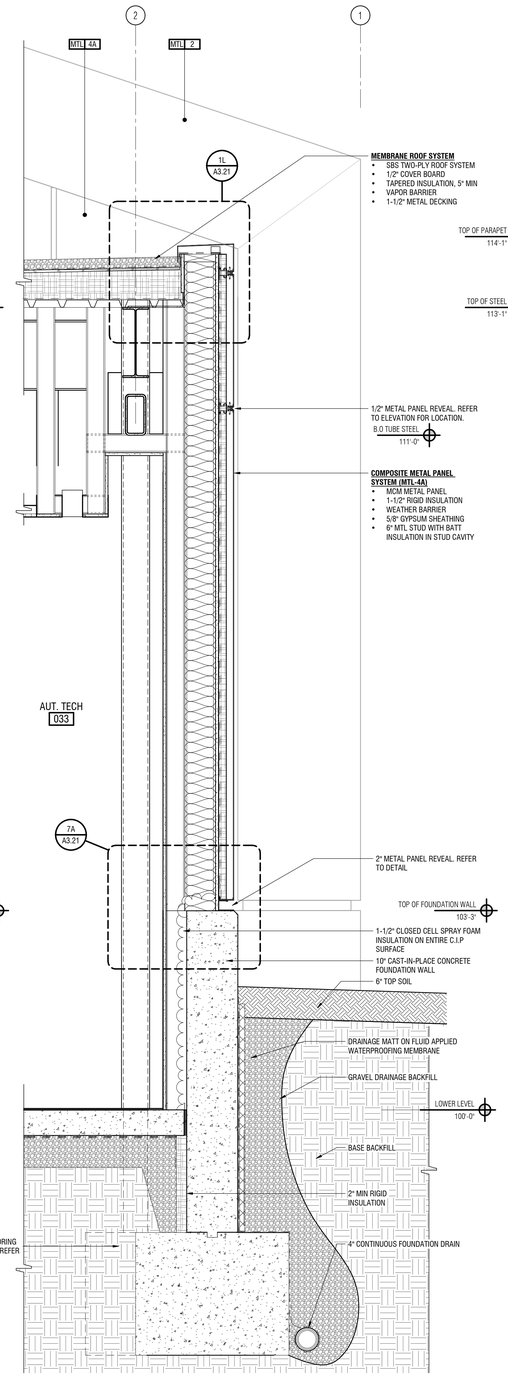
Drawn By: MAR
Reviewed By: MJI
Scale: As indicated

A3.10

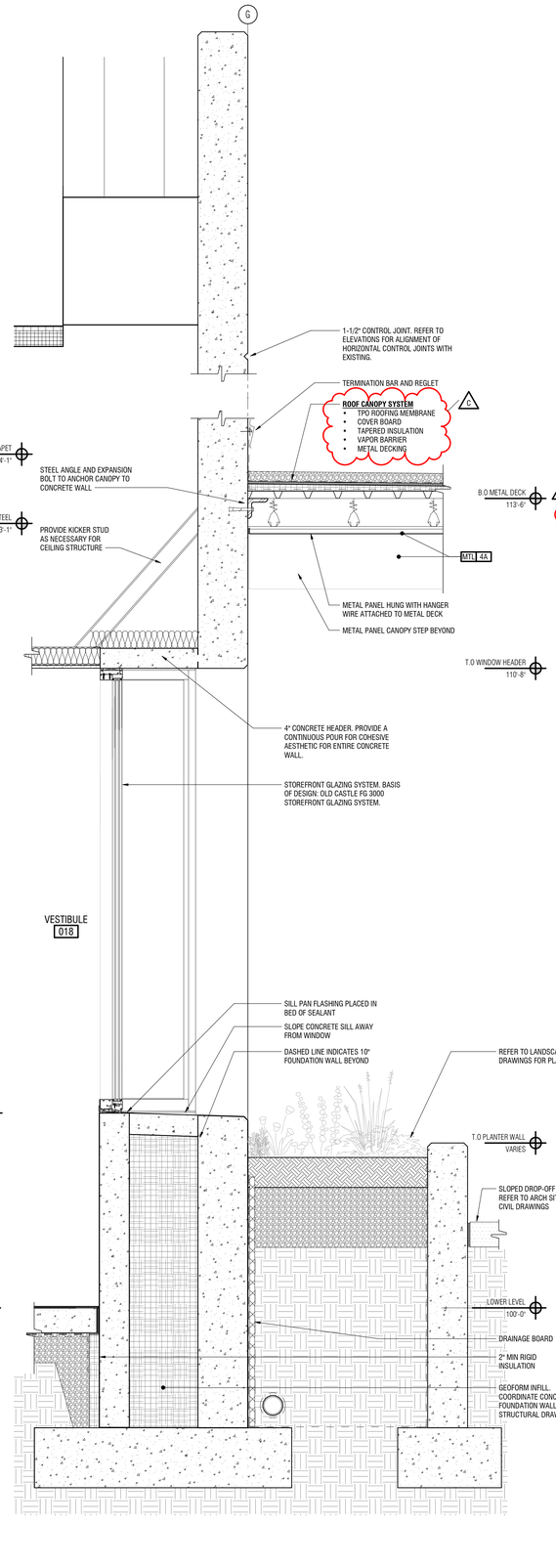
COPYRIGHT © 2023 LUMINAUT, INC. - 7/26/2026 8:47:51 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



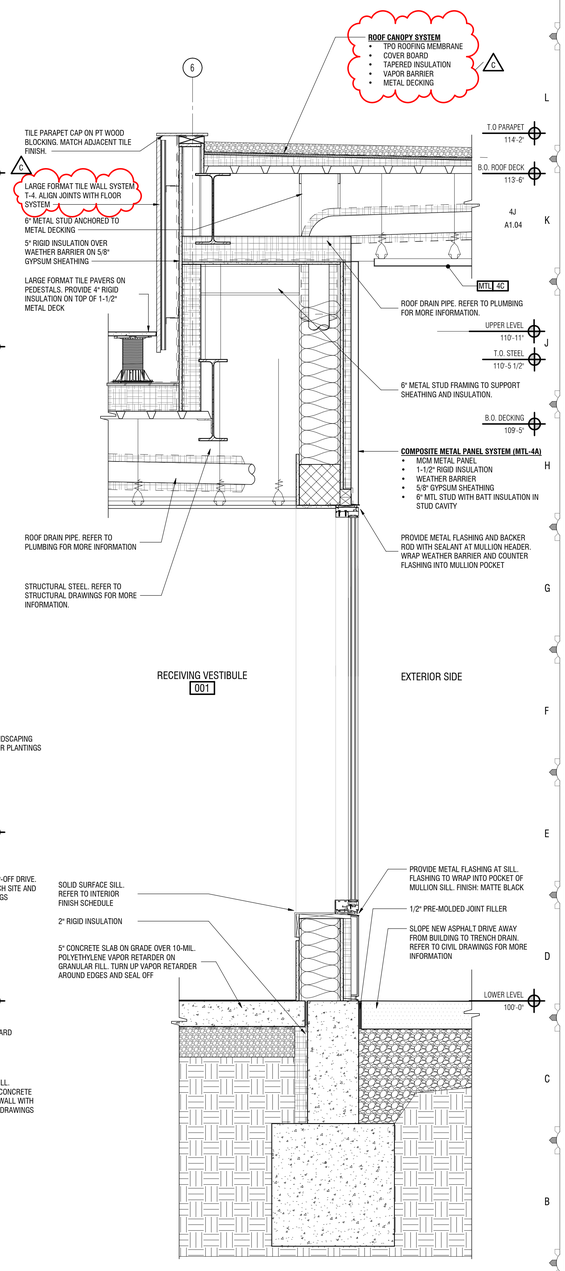
1A A3.11 **WALL SECTION - WEST ACM METAL PANEL WALL @ GLAZING**
1" = 1'-0"



6A A3.11 **WALL SECTION - WEST ACM METAL PANEL WALL**
1" = 1'-0"

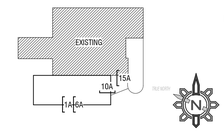


10A A3.11 **WALL SECTION - SOUTH CONCRETE WALL @ ME ENTRY**
1" = 1'-0"



15A A3.11 **WALL SECTION - DECEDANT DROP-OFF @ GLAZING**
1" = 1'-0"

KEY PLAN:



LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026
Issued for: BIDDING SET

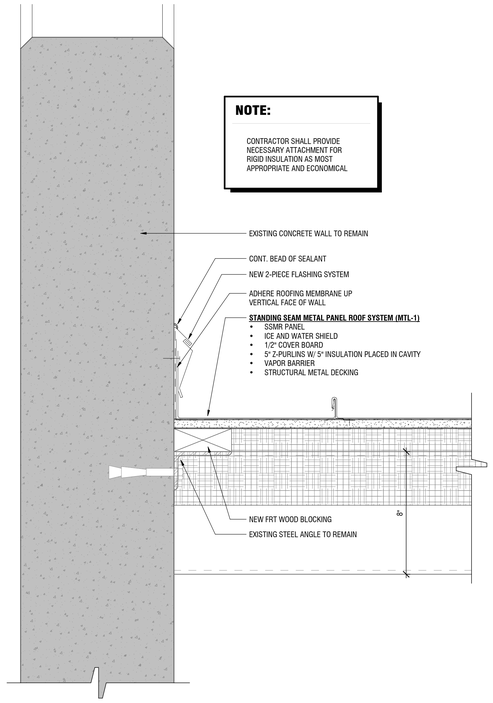
Revision
C	ISSUED FOR BID	06/26/2026
	ADDENDUM C	07/31/2026

Sheet Title
WALL SECTIONS

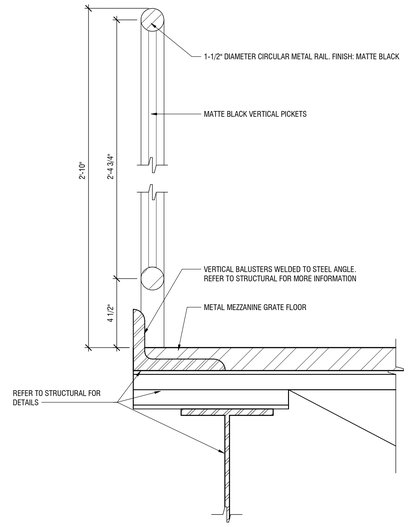
Project No. 24047
Drawn By: MAR
Reviewed By: MJI
Scale: As indicated

A3.11

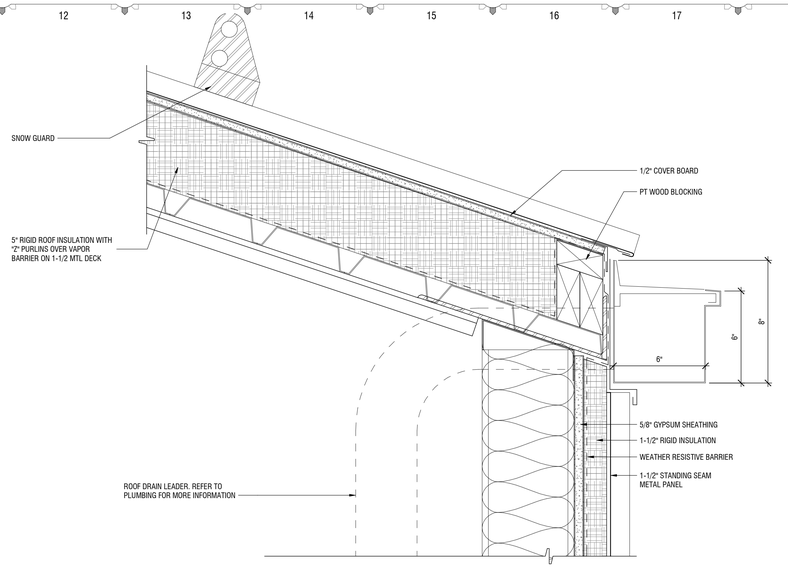
COPYRIGHT © 2022 LUMINAUT, INC. - 7/30/2026 6:23:13 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt



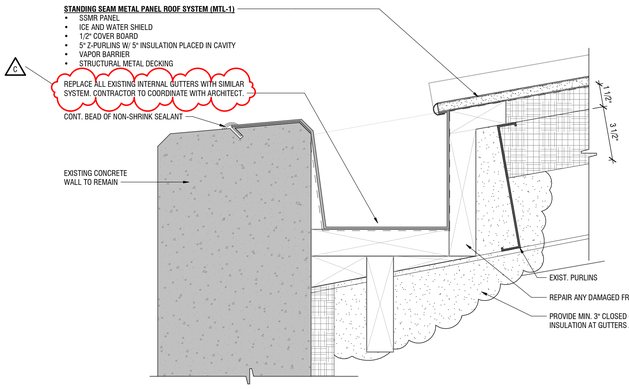
3H A3.20 DTL - NEW ROOF @ EXISTING WALL
3" = 1'-0"



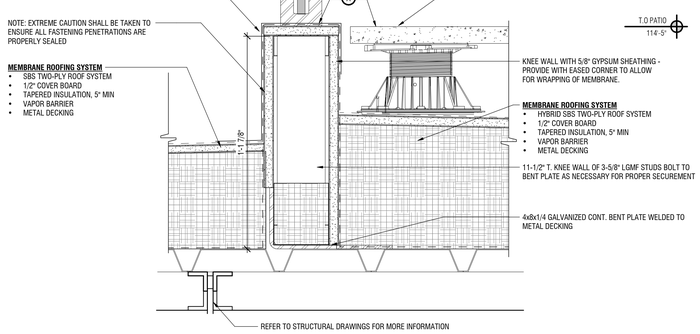
9K A3.20 DTL - MECHANICAL MEZZ. RAILING
3" = 1'-0"



14K A3.20 DTL - WEST MTL PANEL INTERNAL GUTTER
3" = 1'-0"

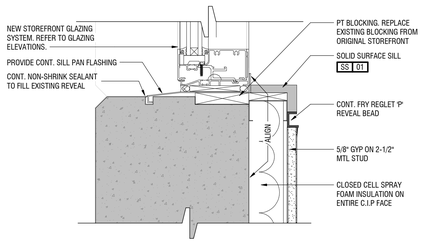


3D A3.20 DTL - INTERNAL GUTTER @ EXISTING WALL
3" = 1'-0"

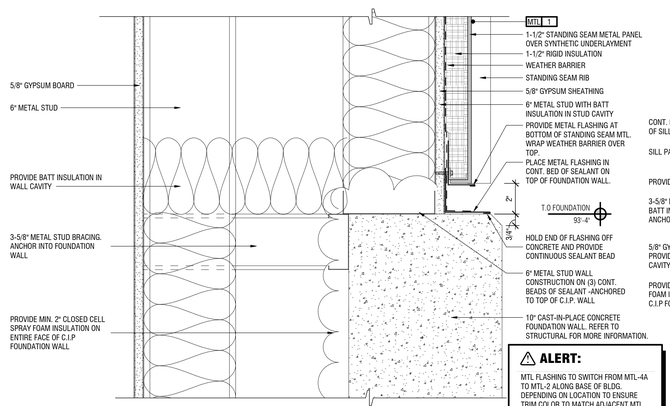


9E A3.20 DTL - GLASS RAILING @ PATIO
3" = 1'-0"

14E A3.20 DTL - WEST MTL PANEL @ GLAZING - HEADER DTL
3" = 1'-0"

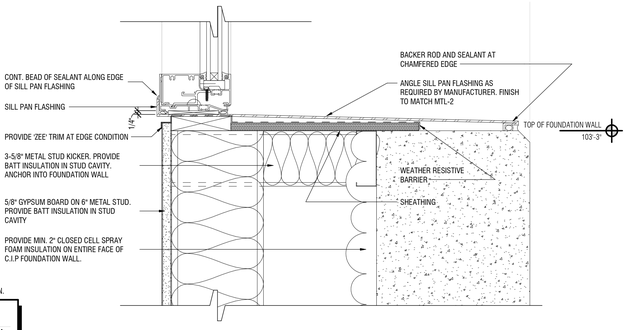


3A A3.20 DTL - RIBBON WINDOW SILL
3" = 1'-0"



⚠ ALERT:
MTL FLASHING TO SWITCH FROM MTL-4A TO MTL-2 ALONG BASE OF BLDG. DEPENDING ON LOCATION TO ENSURE TRIM COLOR TO MATCH ADJACENT MTL PANEL ABOVE.

9A A3.20 DTL - SILL @ SS MTL PANEL
3" = 1'-0"



14A A3.20 DTL - WEST MTL PANEL @ GLAZING - SILL DTL
3" = 1'-0"

COPYRIGHT © 2003 LUMINAUT, INC. - 7/28/2026 11:23:07 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

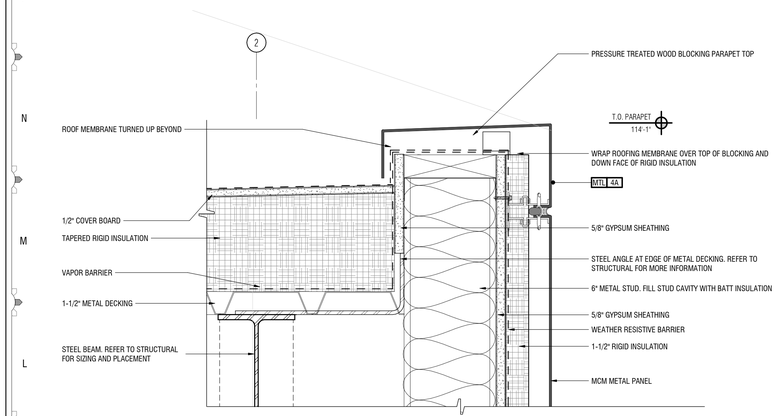
C	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

Sheet Title
ENLARGED SECTION DETAILS

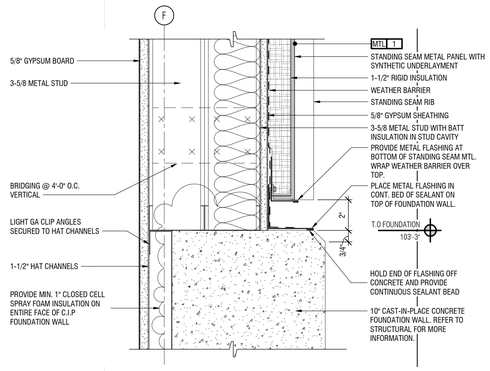
Project No. 24047

Drawn By: MAR
Reviewed By: MJI
Scale: 3" = 1'-0"

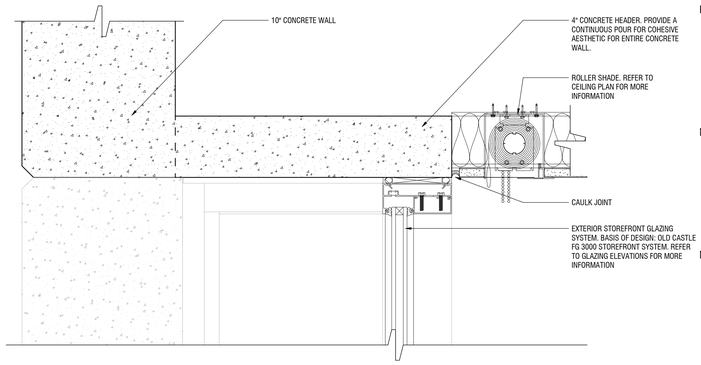
A3.20

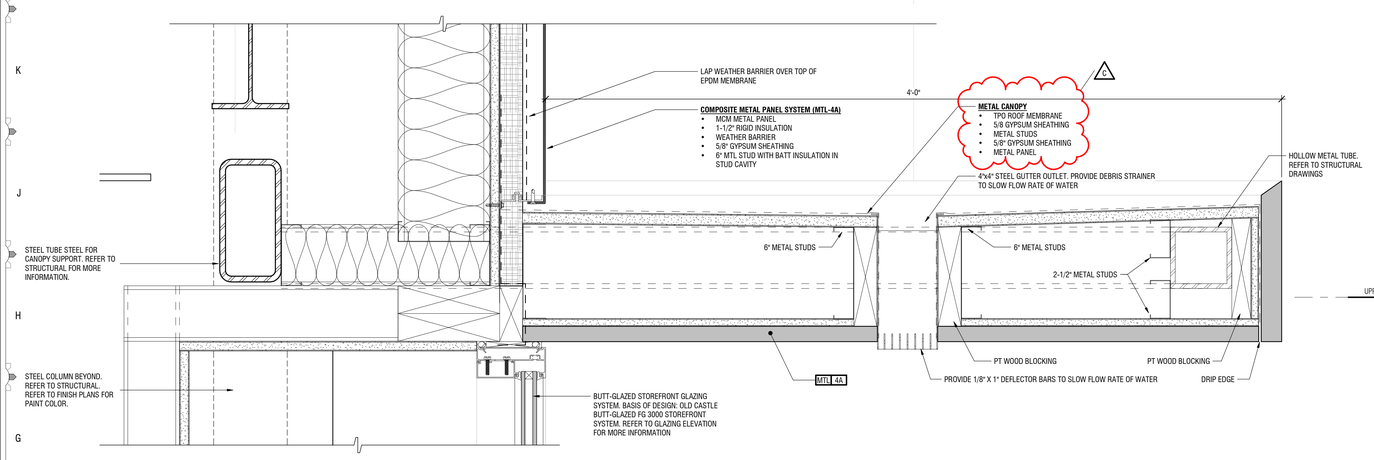


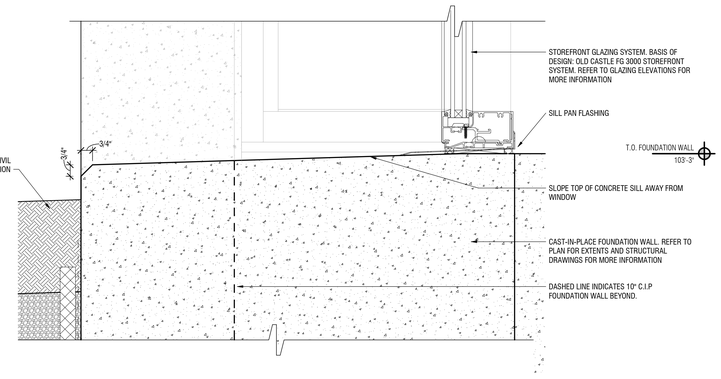
7L A3.21 **DTL - MATERIAL TRANSISTION AT VESTIBULE**
3" = 1'-0"



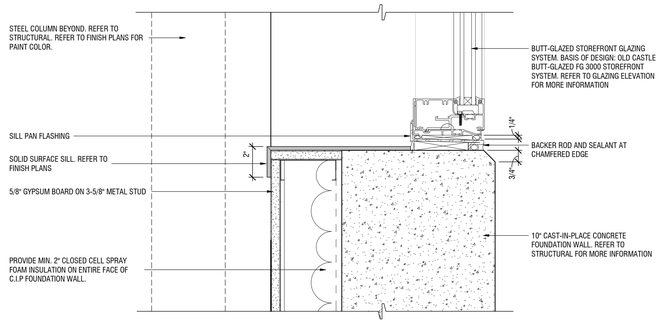
12L A3.21 **DTL - GLAZING HEADER @ CONCRETE WALL**
3" = 1'-0"



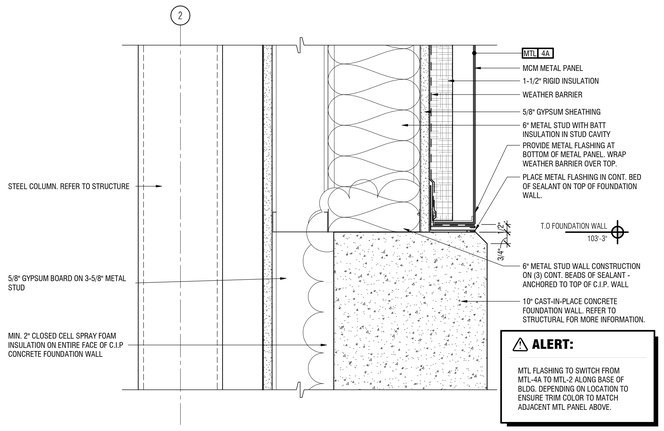




12G A3.21 **DTL - GLAZING SILL @ CONCRETE WALL**
3" = 1'-0"

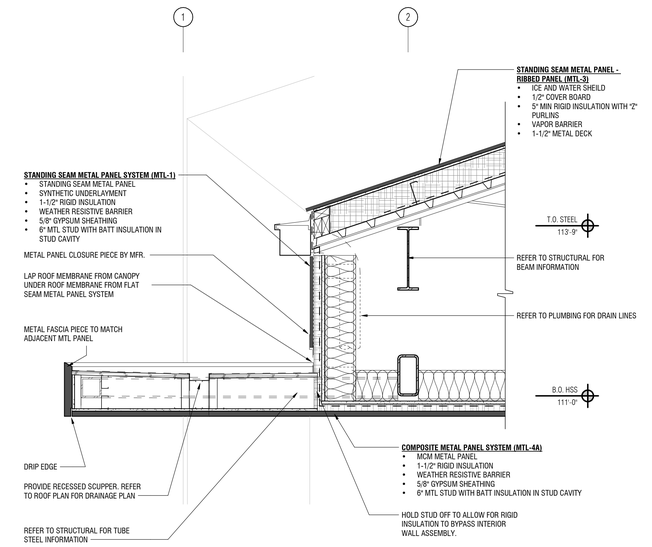


1F A3.21 **DTL - WEST ACM METAL PANEL WALL HEADER @ CANOPY**
3" = 1'-0"



1A A3.21 **DTL - WEST ACM METAL PANEL WALL GLAZING SILL**
3" = 1'-0"

7A A3.21 **DTL - WEST ACM METAL PANEL WALL SILL**
3" = 1'-0"



14A A3.21 **DTL - ME ENTRY CANOPY GUTTER DETAIL**
1" = 1'-0"

COPYRIGHT © 2022 LUMINAUT, INC. - 7/28/2026 3:44:00 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™
CMTA

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026
Issued for: BIDDING SET

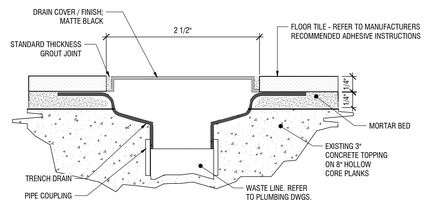
Revision

2	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

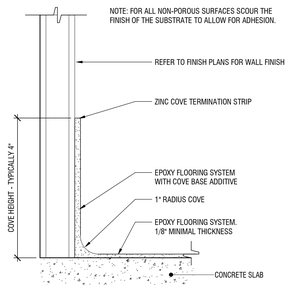
Sheet Title
ENLARGED SECTION DETAILS

Project No. 24047
Drawn By: Author
Reviewed By: Checker
Scale: As indicated

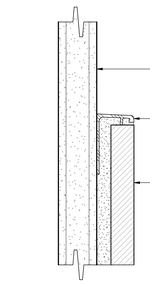
A3.21



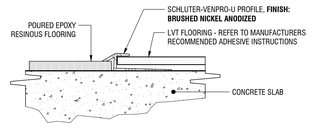
2K DRAIN DETAIL
A4.20 | 12" = 1'-0" | SHOWER 109



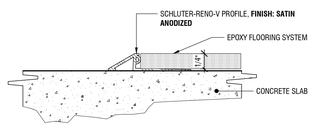
2G TRANSITION DETAIL - AT WALL
A4.20 | 12" = 1'-0" | EPOXY COVE BASE



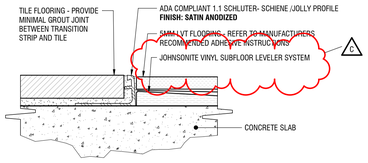
5G TRANSITION DETAIL -AT WALL
A4.20 | 12" = 1'-0" | WALL TILE EDGE CAP



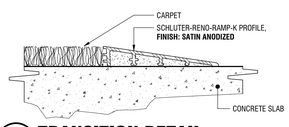
2E TRANSITION DETAIL
A4.20 | 12" = 1'-0" | EPOXY TO LVT



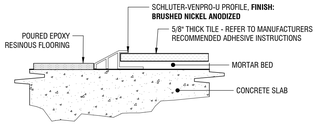
5E TRANSITION DETAIL
A4.20 | 12" = 1'-0" | CONCRETE TO EPOXY



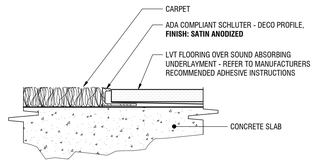
2C TRANSITION DETAIL
A4.20 | 12" = 1'-0" | TILE TO LVT



5C TRANSITION DETAIL
A4.20 | 12" = 1'-0" | CARPET TO CONCRETE



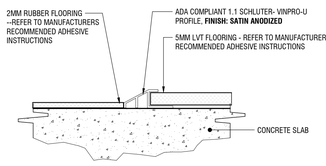
2A TRANSITION DETAIL
A4.20 | 12" = 1'-0" | EPOXY TO TILE



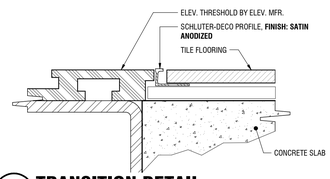
5A TRANSITION DETAIL
A4.20 | 12" = 1'-0" | CARPET TO LVT

Finish Schedule

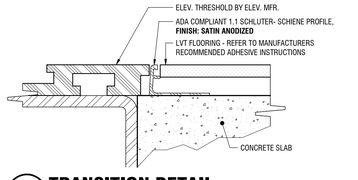
ID NO.	ITEM DESCRIPTION	SPECIFICATION	INSTALL	MANUFACTURER	SOURCE	REMARKS
ACOUSTICAL CEILING TILE						
ACT-01	TYPICAL ACT - TYPE C	2' X 2' 1935 ULTIMA HZ / 15/16" SQUARE LAY-IN / 15/16" CO-EXTRUDED CLEAN ROOM SUSPENSION SYSTEM / FINISH: STEEL	EDGE: SQUARE	ARMSTRONG COMMERCIAL CEILINGS	MEGAN C. FOULKE MCFOULKE@ARMSTRONGCEILINGS.COM	PROVIDE L-TRIM
ACT-02	TYPICAL ACT - TYPE D	2' X 2' 1490 CANYON /15/16" SQUARE LAY-IN / 15/16" PRELUDE XL SUSPENSION SYSTEM	EDGE: SQUARE	ARMSTRONG COMMERCIAL CEILINGS	MEGAN C. FOULKE MCFOULKE@ARMSTRONGCEILINGS.COM	PROVIDE L-TRIM
ACT-03	TYPE E	2' X 2' 2844 CALLA HIGH NRC/ 15/16" SQUARE LAY-IN/ 15/16" PRELUDE XL SUSPENSION SYSTEM	EDGE: SQUARE	ARMSTRONG COMMERCIAL CEILINGS	MEGAN C. FOULKE MCFOULKE@ARMSTRONGCEILINGS.COM	PROVIDE L-TRIM
CARPET						
CP-01	CARPET @ OPEN OFFICE	ARTISTRY 7803 / NIGHT SKY 3683 / SIZE: 18" X 36" / SOLUTION DYED NYLON / PATTERNED LOOP / NEXUS MODULAR BACKING / PROTEX SOIL RELEASE	ASHLAR; REFER ALSO TO J&J INSTALLATION INSTRUCTIONS	J&J FLOORING	ERIK PEDERSEN; ERIK.PEDERSEN@JJFLOORING.COM	
CP-02	CARPET @ PRIVATE OFFICES, HUDDLE ROOMS, ETC.	TECHNIQUE 7804 / NIGHT SKY 3683 / 100% ENCORE SD ULTIMA NYLON / SIZE: 18" X 36" / PATTERNED LOOP / SOLUTION DYED / NEXUS MODULAR BACKING / PROTEX SOIL RELEASE	ASHLAR; REFER ALSO TO J&J INSTALLATION INSTRUCTIONS	J&J FLOORING	ERIK PEDERSEN; ERIK.PEDERSEN@JJFLOORING.COM	
CP-03	WALKOFF CARPET TILE @ VESTIBULES	STEP AND REPEAT / ONYX 104933 / SIZE: 19.69" X 19.69" / 100% RECYCLED CONTENT YARN / TUFTED TWINED LOOP / 100% SOLUTION DYED / GLASBAC BACKING / PROTEX SOIL RELEASE	GRID; QUARTER TURN / REFER ALSO TO INTERFACE INSTALLATION INSTRUCTIONS	INTERFACE	JAE PARK; JAE.PARK@INTERFACE.COM	
CONCRETE						
CO-01	EXPOSED CONCRETE FLOOR WITH NO FLOOR FINISH	NONE				
CO-01.1	CONCRETE FLOOR @ FREEZER AND COOLER	CONCRETE FLOORING - NOT SEALED, REFER TO ARCHITECTURAL SPECIFICATIONS	POURED			
EPOXY COUNTERTOP						
EC-02	EPOXY COUNTERTOP @ LAB SPACES	DURCON / LAB-GRADE WORKSURFACE / EPOXY RESIN / COLOR: BLACK ONYX	-	DURCON / WILSONART	GARRETT VAUGHAN; GARRETT@GOVARIA.COM	
EPOXY RESIN FLOOR						
ER-01	TYPICAL EPOXY RESINOUS FLOORING	STONTEC TRF / WEARING SURFACE: DIMPLED / INTEGRAL COVE BASE / THICKNESS: 3/16" / PRIMER: STONHARD URETHANE PRIMER / BODY COAT: STONCLAD UR / UNDER COAT: BONDING COAT FOR VINYL FLAKE BROADCAST / BROADCAST: VINYL FLAKE / TOPCOAT: STONSEAL CA7 / COLOR: GLACIER PEAK	PER MANUFACTURER	STONHARD	ADAM DEATON; ADEATON@STONHARD.COM	
FRP						
FRP-01	FRP @ JANITOR/MECHANICAL	REFER TO ARCHITECTURAL SPECIFICATIONS				
LUXARY VINYL TILE						
LVT-01	TYPICAL LVT	TREELINE 5MM THICK W. 20 MIL WEAR LAYER / CAMEL V2 00713 / 7" X 48"	RUNNING BOND; REFER ALSO TO PATCRAFT INSTALLATION INSTRUCTIONS	PATCRAFT	SCOTT MARTIN; SCOTT.MARTIN@PATCRAFT.COM	
METAL						
MTL-01	METAL PANEL @ UPPER FLOOR ENTRY/VESTIBULE	REFER TO ARCHITECTURAL SPECIFICATIONS	-	-	-	
PAINT						
PT-01	TYPICAL WALL PAINT	SW 7015 / REPOSE GRAY / LATEX / EGGSHELL FINISH	-	SHERWIN WILLIAMS	KAREN GALVIN / KAREN.E.GALVIN@SHERWIN.COM / 317-714-5610	
PT-02	NOT USED	-	-	-	-	
PT-03	ACCENT WALL PAINT	SW 7665 / WALL STREET / LATEX / EGGSHELL FINISH	-	SHERWIN WILLIAMS	KAREN GALVIN / KAREN.E.GALVIN@SHERWIN.COM / 317-714-5610	
PT-03.1	WALL PAINT @ CMU	PAINT CI-OP-3A-CONCRETE/MASONRY, OPAQUE, ALKYD, 3 COAT/ COLOR: MATCH SW 7665 WALL STREET		REFER TO ARCHITECTURAL SPECIFICATIONS		
PT-04	HIGH PREFORMANCE EPOXY PAINT @ LAB SPACES	PRO INDUSTRIAL / PRE-CATALYZED WATERBASED EPOXY / COLOR: SW 7015 REPOSE GRAY / FINISH: SEMI GLOSS / K46-1150/2150 SERIES	PER MANUFACTURER	SHERWIN WILLIAMS		
PT-05	ACCENT PAINT @ WOOD CASING AND HM DOOR FRAME	SW 7020 / BLACK FOX / LATEX / SATIN FINISH	-	SHERWIN WILLIAMS	KAREN GALVIN / KAREN.E.GALVIN@SHERWIN.COM / 317-714-5610	
PLASTIC LAMINATE						
PL-01	TYPICAL LAMINATE @ RESTROOMS	FAWN CYPRESS / 820K-1C / SIZE: TYPICAL 48" X 96" X 0.35" THICK / MAX. 60" X 144" PANEL	SEAMLESS	WILSONART	LAURA SHEA / LAURASHEA@ATENAPLYWOOD.COM	
PL-02	TYPICAL LAMINATE @ BREAKROOM & OTHERS	MIDNIGHT VELVET / 15506-33 / TRACELESS FINISH / 4' x 8' SHEET SIZE	SEAMLESS	WILSONART	LAURA SHEA / LAURASHEA@ATENAPLYWOOD.COM	
PL-03	PLASTIC LAMINATE PANEL FINISH @ ELEVATOR CAB	PLASTIC LAMINATE; PITTSBURGH STEEL	VERTICAL HANG	SCHINDLER ELEVATOR / WILSONART		REFERENCE SCHINDLER COLOR CHART
RESILIENT BASE						
RB-01	TYPICAL WALL BASE	PERCEPTIONS / RECESS TOE / 4 1/4" H / COLOR: BURNT UMBER	-	JOHNSONITE BY TARKETT	LAURIE BAATZ; LAURIE.BAATZ@TARKETT.COM	
RB-02	TALL MILLWORK BASE @ LL STAIR	MILLWORK PROFILE: EXHBIT 6" H / COLOR: BURNT UMBER	-	JOHNSONITE BY TARKETT	LAURIE BAATZ; LAURIE.BAATZ@TARKETT.COM	
RUBBER FLOOR						
RF-01	TYPICAL RUBBER FLOOR @ LAB SPACES	NORAPLAN ENVIRONCARE / DRIVE IN / 7046 / SHEET SIZE: 6' X 6' / 2MM THICKNESS / SURFACE: SMOOTH	NORA HEAT WELDING ROD / COLOR: 2942 /	NORA BY INTERFACE	ROB GROM; ROB.GROM@INTERFACE.COM	
SOLID SURFACE						
SS-01	SOLID SURFACE @ WINDOW SILL	SOID SURFACE / GLACIER WHITE / SIZE: 30" X 144" / 1/2" THICK		CORIAN	HEIDI GESSNER; HEIDI.GESSNER@OVSCO.COM	
STONE						
ST-01	TYPICAL COUNTERTOP	QUARTZ / CLOUDS REST / Q4049 / 2CM THICK	-	WILSONART	TRENT MOORE; TRENTMOORE@ATENAPLYWOOD.COM	
ST-02	COUTERTOP @ BREAKROOM	QUARTZ / VERDE PEAK / Q4076 / 2CM THICK	-	WILSONART	TRENT MOORE; TRENTMOORE@ATENAPLYWOOD.COM	
TILE						
T-01	TYPICAL FLOOR TILE @ ENTRIES	KOBE CEMENT / OCEAN BLUE / SIZE: 24" X 48"	STRAIGHT STACKED / GROUT: LATICRETE / 45 RAVEN / THICKNESS: 1/8"	TILEBAR	DEE RUNDELL / DRUNDELL@TILEBAR.COM	
T-02	TYPICAL FLOOR TILE @ SHOWERS	DIGNITARY / EMINENCE GREY / SIZE: ABSTRACT / SHEET SIZE: 12" X 12" / DB10 / 5/16" THICK / FINISH: UNPOLISHED	MOSAIC; GROUT: LATICRETE / 60 DUSTY GREY	DALTILE	ROBIN BRADFORD / ROBIN.BRADFORD@DALTILE.COM	
T-03	TYPICAL TILE @ OUTDOOR PATIO	HERO SNOW PORCELAIN PAVER / 24" X 24" NOMINAL/ ON PEDESTAL SYSTEM.	STRAIGHT STACKED	ATLAS CONCORD USA	ERIKA HMUROVICH / LOUISVILLE TILE / 9906 N BY NORTHEAST BLVD, /FISHERS, IN 46037 / T: 317.694.7758	CUT FULL TILES TO PROVIDE 4" H TILE BASE. SAND CUT EDGES.
T-04	VERTICAL TILE @ OUTDOOR PATIO	HERO SNOW PORCELAIN PAVER / 24" X 48" NOMINAL	-	ATLAS CONCORD USA	-	-
T-05	FLOOR TILE @ RESTROOMS & LOCKER ROOMS	DIGNITARY / EMINENCE GREY / SIZE: 24" X 24" X 5/16" THICK / DB10 / FINISH: UNPOLISHED	STRAIGHT STACKED / GROUT: LATICRETE / 60 DUSTY GREY / THICKNESS: 1/8"	DALTILE	ROBIN BRADFORD / ROBIN.BRADFORD@DALTILE.COM	
T-06	TYPICAL WALL TILE @ SHOWERS AND RESTROOMS	DIGITAL LINEN / MODERN LINDEAR / MIDNIGHT BLUE / ML65 / SIZE: 12" X 24" X 3/8" THICK	VERTICAL STACKED / GROUT: LATICRETE / 60 DUSTY GREY / THICKNESS: 1/8"	DALTILE	ROBIN BRADFORD / ROBIN.BRADFORD@DALTILE.COM	
TILE BASE						
TB-01	TYPICAL TILE BASE	DIGNITARY / EMINENCE GREY / BULLNOSE / 3" X 24" / S-43F9	GROUT: LATICRETE / 60 DUSTY GREY / THICKNESS: 1/8"	DALTILE	ROBIN BRADFORD / ROBIN.BRADFORD@DALTILE.COM	
WALL PROTECTION						
WP-01	WALL PROTECTION	4' X 8' PALLADIUM RIGID VINYL SHEET / COLOR: TBD / REFER TO ARCHITECTURAL SPECIFICATIONS FOR INSTALLATION METHODS	VERTICAL HANG	INPRO		
WINDOW FILM						
WF-01	WINDOW FILM @ SIDE LITES	FROSTED VINYL GLASS FILM / 100% VINYL / CF11-CDP / CUSTOM GLASS FILM SUBSTRATE / BACKING; PRESSURE SENSITIVE ADHESIVE / WIDTH; 52" / PATTERN: DASH 084560 / 100% OPACITY WHITE INK	VERTICAL HUNG	DESIGNTEX	CARYL SUGDEN; CSUGDEN@DESIGNTEX.COM / TRISHA ROE KEEL; TROEKEEL@DESIGNTEX.COM	
WOOD CASEWORK						
WD-01	WOOD CABINET @ LAB SPACES	WOOD CABINET STYLE 5 — CONTEMPORARY FULL OVERLAY/ RED OAK WOOD VENEER / STAIN COLOR: WOODLAND OAK / CLEAR STANDARD FINISH		KEWAUNEE SCIENTIFIC	KEVIN BROWN; KBROWN@NYCOMINC.COM	
WD-03	WOOD SPECIES @ STAIR TREADS	RED OAK WOOD	-			
WOOD FINISH						
SF-01	WOOD GRAIN LAMINATE PANEL SYSTEM	COMPACT LAMINATE SHEET / 5' X12' / COLOR: WHITE OAK PB HONEY / FINISH: 05 TIMBERGRAIN	VERTICAL	WILSONART	LAURA SHEA / LAURASHEA@ATENAPLYWOOD.COM	FIELD CUTTING MAY BE REQUIRED. FINISH ALL EXPOSED EDGES.
WO-02	WOOD STAIN FINISH AT STAIR TREADS	TIDAL WOOD / MW 415 / REF. SPECS FOR WOOD SPECIES	-	MINWAX	-	



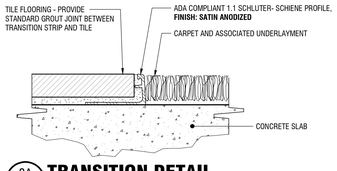
8C TRANSITION DETAIL
A4.20 | 12" = 1'-0" | LVT TO RUBBER



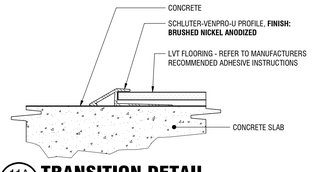
11C TRANSITION DETAIL
A4.20 | 12" = 1'-0" | ELEVATOR TO TILE



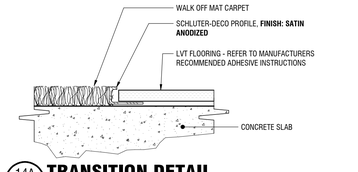
14C TRANSITION DETAIL
A4.20 | 12" = 1'-0" | ELEVATOR TO LVT



8A TRANSITION DETAIL
A4.20 | 12" = 1'-0" | TILE TO CARPET



11A TRANSITION DETAIL
A4.20 | 12" = 1'-0" | LVT TO CONCRETE



14A TRANSITION DETAIL
A4.20 | 12" = 1'-0" | LVT TO WALK OFF MAT

COPYRIGHT © 2022 LUMINAUT, INC. - 7/30/2026 8:37:17 PM - Autodesk Docs://NKU Civic Center/24047_NKU Civic Center_A24.rvt

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
———
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
———
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™ CMTA

Project Title
NKU CIVIC CENTER

175 Johns Hill Road,
Highland Heights, KY 41076

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

C	ISSUED FOR BID	06/26/2026
C	ADDENDUM C	07/31/2026

Sheet Title
FINISH SCHEDULE & TRANSITION DETAILS

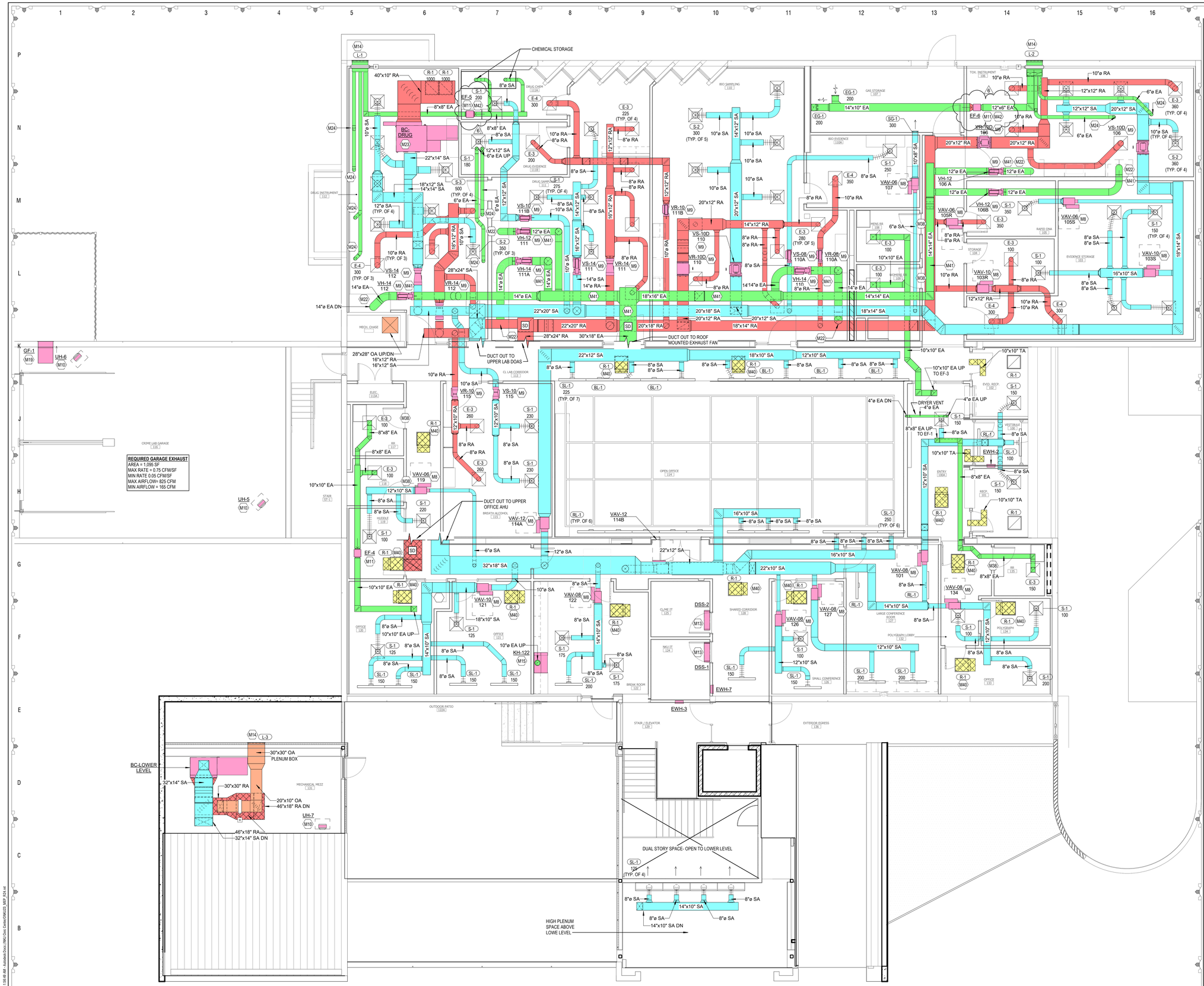
Project No. 24047

Drawn By: KRM

Reviewed By: MJI

Scale: 12" = 1'-0"

A4.20



1 M1.02 **UPPER LEVEL - AIR DISTRIBUTION PLAN**
3/16" = 1'-0"

MECHANICAL GENERAL NOTES

A. REFER TO SHEETS M0.00 FOR SYMBOLS AND ABBREVIATIONS.
B. REFER TO HYDRONIC PLANS FOR ALL EQUIPMENT SENSOR/STAT LOCATIONS.
C. PROVIDE 1/2" X 1/2" GALVANIZED STEEL WIRE MESH AT ALL OPEN ENDED RETURN DUCTS.
D. PROVIDE 1" INTERNAL DUCT LINER ON ALL TRANSFER DUCTS.
E. PROVIDE 1" INTERNAL DUCT LINER AS INDICATED ON PLAN.
F. ALL MEDIUM PRESSURE DUCT RUNOUTS TO VAV BOXES SHALL BE THE SAME SIZE AS UNIT INLET UNLESS OTHERWISE INDICATED.
G. DUCT DIMENSIONS SHOWN ARE INTERIOR DIMENSIONS (EXCLUDING INTERNAL DUCT LINING).
H. PROVIDE A MANUAL VOLUME DAMPER DOWNSTREAM OF THE BRANCH TAKEOFF. ALL MANUAL VOLUME DAMPERS SHALL BE INSTALLED WITHIN 3' OF THE BRANCH CONNECTION. REFER TO DETAIL 1 ON SHEET M4.00 FOR MORE INFORMATION.
I. INSTALL BALANCING DAMPERS WHERE INDICATED ON PLAN.
J. REFER TO DETAILS 4 -6 ON SHEET M4.00 FOR INFORMATION ON THE INSTALLATION OF AIR DEVICES.
K. REFER TO SHEET M0.50 AND M0.51 FOR AIR BALANCING STRATEGY.
L. CONTRACTOR TO MAINTAIN ALL CODE AND MANUFACTURER REQUIRED CLEARANCES. ALERT THE ENGINEER OF RECORD IF ANY CONFLICTS ARISE.
M. CONTRACTOR TO INSTALL VAV TERMINAL UNITS CONNECTED TO EXHAUST AND RETURN DUCTWORK BACKWARDS TO ALLOW FOR AIRFLOW READING AND BALANCING.

TAGGED NOTES

M8	PROVIDE VAV TERMINAL UNIT. REFER TO DETAIL 6 ON SHEET M4.01 FOR INSTALLATION INFORMATION.
M9	PROVIDE VENTURI VALVE. REFER TO DETAIL 5 ON SHEET M4.01 FOR INSTALLATION INFORMATION.
M10	PROVIDE ELECTRIC UNIT HEATER. REFER TO DETAIL 7 ON SHEET M4.01 FOR INSTALLATION INFORMATION.
M11	PROVIDE INLINE FAN. REFER TO DETAIL 1 ON SHEET M.401 FOR INSTALLATION INFORMATION.
M13	PROVIDE DUCTLESS SPLIT SYSTEM. REFER TO SHEET M4.01 DETAIL 10 FOR INSTALLATION INFORMATION.
M14	PROVIDE A WIND DRIVEN RAIN LOUVER WITH A MOTORIZED CONTROL DAMPER. REFER TO SHEET M5.01 FOR LOUVER SCHEDULE. MOTORIZED DAMPER ACTUATORS TO BE PROVIDED BY THE MECHANICAL CONTRACTOR. BEFORE PURCHASING MECHANICAL CONTRACTOR TO COORDINATE WITH THE CONTROLS CONTRACTOR. ACTUATOR TO BE 24 VOLTS.
M15	PROVIDE FIRE READY RANGE HOOD. REFER TO SHEET 4.01 DETAIL 9 FOR MORE INFORMATION.
M19	PROVIDE GARAGE EXHAUST FAN. REFER TO SHEET M4.01 DETAIL 4 FOR MORE INFORMATION.
M22	CONNECT EXHAUST DUCTWORK TO FUME HOOD.
M23	PROVIDE HORIZONTAL BLOWER COIL UNIT. REFER TO SHEET M.400 DETAIL 9 FOR MORE INFORMATION.
M24	EXTEND DUCT RUN BELOW CEILING AND CONNECT TO LAB EQUIPMENT/ CHEMICAL STORAGE WITH FLEXIBLE DUCTWORK.
M38	PROVIDE 1" UNDERCUT BELOW DOOR FOR AIR TRANSFER.
M40	INSTALL TRANSFER BOOT ON RETURN GRILLE. REFER TO DETAIL M4.00/10 FOR MORE INFORMATION.
M41	PROVIDE WELDED STAINLESS STEEL EPOXY COATED DUCTWORK TO PREVENT CORROSION.
M42	FAN TO BE SPARK B CONSTRUCTION.

LUMINAUT
1100 Sycamore Street, Suite 200
Cincinnati, Ohio 45202 - Ph: 513.984.1070
702 N. Capitol Avenue
Indianapolis, Indiana 46204
Ph: 317.636.3980
www.luminaut.com

NKU NORTHERN KENTUCKY UNIVERSITY

JQOL QUALITY OF LIFE™
CMTA A LEGENCE Company

Project Title
NKU CIVIC CENTER
175 Johns Hill Road,
Highland Heights, KY 41076

STATE OF KENTUCKY · JARED ARNOLD · 34730 · LICENSED PROFESSIONAL ENGINEER

JARED ARNOLD
LICENSE 34730
EXPIRES 06/30/2027

Issue Date: JUNE 26, 2026

Issued for: BIDDING SET

Revision

6	ISSUED FOR BID	06/26/2026
	ADDENDUM C	07/31/2026

Sheet Title
MECHANICAL AIR DISTRIBUTION - UPPER LEVEL

Project No. 24047
Drawn By: D. GREEN
Reviewed By: J. ARNOLD
Scale: 3/16" = 1'-0"

M1.02

COPYRIGHT © 2023 LUMINAUT, INC. - 7/30/2026 11:58:49 AM - Autodesk Docs://NKU Civic Center/NKUCID_M1P_R24.rvt

SECTION 23 34 23.00

HVAC POWER VENTILATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. High Plume Laboratory Exhaust Fan
2. Centrifugal roof ventilators.
3. In-line centrifugal fans.
4. Propeller fans.

B. Related Sections:
1. Section 23 05 03 “Submittals for HVAC”.

1.3 PERFORMANCE REQUIREMENTS

A. Project Altitude: Base fan-performance ratings on actual Project site elevations.

B. Operating Limits: Classify according to AMCA 99.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Also include the following:
1. Certified fan performance curves with system operating conditions indicated.
2. Certified fan sound-power ratings.
3. Motor ratings and electrical characteristics, plus motor and electrical accessories.
4. Material thickness and finishes, including color charts.
5. Dampers, including housings, linkages, and operators.
6. Roof curbs.
7. Fan speed controllers.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring Diagrams: For power, signal, and control wiring.

C. Delegated-Design Submittal: For unit hangars and supports indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
1. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
2. Design Calculations: Calculate requirements for selecting vibration isolators and for designing vibration isolation bases.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:
1. Roof framing and support members relative to duct penetrations.
2. Ceiling suspension assembly members.
3. Size and location of initial access modules for acoustical tile.
4. Ceiling-mounted items including light fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

B. Field quality-control reports.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For power ventilators to include in emergency, operation, and maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.8 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. AMCA Compliance: Fans shall have AMCA-Certified performance ratings and shall bear the AMCA-Certified Ratings Seal.

C. UL Standards:
1. Power ventilators shall comply with UL 705.

1.9 COORDINATION

A. Coordinate size and location of structural-steel support members.

B. Coordinate sizes and locations of roof curbs, equipment supports and roof penetrations with actual equipment provided.

PART 2 - PRODUCTS

2.1 HIGH PLUME LABORATORY EXHUAST FANS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Greenheck Fan Corporation.
2. Loren Cook Company.
3. Strobic Fans
4. MK Plastics

B. General
1. Base fan performance at standard conditions (density 0.075 Lb./ft3).
2. Fans selected shall be capable of accommodating static pressure and flow variations of +/-15% of scheduled values.
3. Each fan shall be direct driven in AMCA arrangement 4 according to drawings.
4. Fans to be equipped with 316 stainless steel lifting lugs for corrosion resistance.
5. Fasteners exposed to corrosive exhaust shall be 316 stainless steel.
6. Fan assembly shall be designed for a minimum of 125-mph wind loading, without the use of guy wires.

C. Corrosion Resistant Coating
1. All steel fan and system components (fan, nozzle, windband and plenum) shall be corrosion resistant coated with LabCoat™, a two-part electrostatically applied and baked, sustainable, corrosion-resistant coating system. Standard finish color to be RAL 7023, concrete grey.
2. All parts shall be cleaned and chemically prepared for coating using a multistage wash system which includes acid pickling to remove oxide, improving the coating bond to the substrate.
3. The first powder coat applied over the prepared surface shall be an epoxy primer. After application, the coating shall be heated to a gelatinous consistency (partial cure) at which time the second powder coat of polyester resin shall be electrostatically applied and then be cured simultaneously at a uniform temperature of 400°F (204°C).
4. The coating system shall not be less than a total thickness of 6 mils, shall not be affected by the UV component of sunlight (does not chalk), and have superior corrosion resistance

to acid, alkali, and solvents. Coating system shall exceed 4000-hour ASTM B117 Salt Spray Resistance.

5. Note that 10-20 mil thick wet coating systems pollute the environment (air and water), and that these manually applied coatings are not uniform over the impeller surface and can cause fan imbalance and vibration.

D. Fan Housing and Outlet
1. Fan housing to be aerodynamically designed with high-efficiency inlet, engineered to reduce incoming air turbulence.
2. Fan housing shall be centrifugal involute scroll and manufactured of welded steel allowing motor to be visually inspected without contacting or entering the contaminated airstream. Housing to be corrosion resistant coated per specification section 2.15. Arrangement 4 has fan wheel directly coupled to the motor shaft.
3. Fan housings that are fabricated of polypropylene or fiberglass that have lower mechanical properties than steel, have rough interior surfaces in which corrosive, hazardous compounds can collect, and / or which chalk and structurally degrade due to the UV component of the sunlight shall not be acceptable.
4. Exhaust fan inlet venturi to include factory supplied, non-invasive flow monitoring system with differential pressure transducer.
5. An integral fan housing drain shall be used to drain rainwater when the fan is de-energized.
6. A bolted housing access door shall be supplied for impeller inspection.
7. Fan assembly shall be AMCA type C spark resistant construction minimum or as noted on the schedule.

E. Electrical Controls
1. Fan manufacturer to include discharge nozzle blade position controller.
2. Controller to have NEMA 3R rated enclosure and factory programmed for job specific operation.
3. Controller converts pressure differential transducer signal into volume.
4. Controller operator interface with keypad navigation displays fan run status, fan volume and nozzle blade percent open position and permits adjustment to settings. Input of 2-10 VCD signal from building management system permits adjustment of discharge velocity as required.
5. Single controller capable of monitoring fan volume and adjusting nozzle damper blade position for constant discharge velocity on up to four fans simultaneously.
6. Controller to provide analog outputs for nozzle position, fan volume and alarm status.
7. Variable frequency drive, isolation damper and bypass damper actuators independently controlled through building management system.

F. Fan Impeller
1. Fan wheel shall be centrifugal, single width, single inlet, backward inclined airfoil blade design with non-stall characteristics. The wheel shall be electronically balanced both statically and dynamically exceeding AMCA Standards.
2. Fan wheel shall be manufactured of aluminum. Wheel shall be coated with 2 - 3 mils of chemically resistant Hi-Pro Polyester resin, electrostatically applied and baked. Reference specification section 2.15 for corrosion resistant coating.
3. Fan wheels that are fabricated of polypropylene or fiberglass that have lower mechanical properties than steel, and lower maximum tip speeds are not acceptable.

G. Bypass Air Plenum
1. For variable volume systems, the fan manufacturer shall provide a bypass air plenum as shown on drawings. The plenum shall be provided with bypass air damper(s) for introducing outside air at roof level upstream of the fan, complete with bypass air weatherhood and bird screen.
2. The plenum shall be constructed of welded steel and meet specification section 2.15 for corrosion resistant coating. Plenums that are fabricated of plastics or resins that are combustible and have mechanical properties less than steel shall not be acceptable.
3. The bypass air plenum shall be mounted on an insulated curb.
4. Bypass air damper(s) shall be opposed-blade design for airflow control, airfoil design, fabricated of 304 stainless steel for structural rigidity as standard. Bypass damper(s) shall have plated steel damper rods, stainless steel sleeved bearings, 301 stainless steel jamb seals and the blades shall have polymer edge seals. Damper model shall be a heavy-duty control damper. Damper blade drive linkage shall be set by manufacturer and welded to eliminate linkage slippage. All damper access and service (drive actuators) shall be performed outside of the contaminated airstream.
5. If stated in the schedule notes, an optional, integral bypass air packed acoustic attenuator fabricated of stainless steel construction shall be provided by the fan manufacturer (if shown on the drawings).
6. Fan isolation damper(s), shall be parallel-blade design, airfoil design, fabricated of steel 304 stainless steel construction for structural rigidity as standard. Damper(s) shall be coated up to 4 mils of chemically resistant Hi-Pro Polyester resin, electrostatically applied and baked. Isolation damper(s) shall have plated steel damper rods (if specified as 304 stainless steel damper, stainless steel damper rods will be provided), stainless steel sleeved bearings, 301 stainless steel jamb seals and the blades shall have polymer edge seals. Damper model shall be a heavy-duty control damper. Damper blade drive linkage shall be set by the manufacturer and welded to eliminate linkage slippage. All damper access and service (drive actuators) shall be performed outside of the contaminated airstream.
7. Isolation damper actuator shall be a 24V, two-position actuator and be factory mounted and shall be wired to a step-down transformer. Actuator and transformer are located in a weatherproof enclosure.
8. Plenum shall include a removable bypass air weatherhood that is properly sized for low inlet velocity of the bypass air, minimizing the possibility of moisture entrainment.
9. Bypass plenum to include a bypass damper with modulating actuator controlled by building management system.

H. Fan Motors and Drive
1. Motors shall be premium efficiency, standard NEMA frame, 1200, 1800 or 3600 RPM, TEFC with a 1.15 service factor. A factory-mounted NEMA 4X disconnect switch shall be provided for each fan.
2. Motor shall be manufactured to be compatible for use with a VFD. Motor shall include a motor manufacturer mounted shaft grounding brush to protect the motor bearings and dissipate voltages and currents built up on motor shaft.
3. Motor maintenance shall be limited to a period of 12 months of continuous operation. Lubrication shall be limited to the motor bearings.
4. Motor mounting shall be “C-face” and foot mounted for reduced vibration being transferred to the fan housing.

5. Drive arrangement shall be AMCA arrangement 4, utilizing a tapered bushing connecting the motor shaft to wheel.
6. Motor bearing life calculations by the motor vendor indicating motor bearing life in excess of L(10) of 100,000 hrs. at maximum operating speed for each fan class {Average life or (L-50) of 500,000 hours}
7. All non-permanently lubricated motors shall have stainless braided extended lube lines with zerk fittings.

I. Installation
1. Install fans systems as indicated on the contract drawings.
2. Fans shall be mounted on vibration isolators, furnished by the fan manufacturer, in accordance with those specified in specification section 1.4.C of this document.
3. Blower inlet shall be connected to the bypass air plenum utilizing a corrosion resistant UV inhibited flexible polymer boot, utilizing stainless steel straps, furnished by the fan manufacturer. Pipe housing drain to nearest drain.
4. Install fans in accordance with manufacturer's Installation, Operation and Maintenance manual.

2.2 CENTRIFUGAL ROOF VENTILATORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Acme Engineering & Manufacturing Corporation.
2. Breidert Air Products.
3. Greenheck Fan Corporation.
4. Loren Cook Company.

B. Housing: Provide the Following Types of Housing Design:
1. spun-aluminum, dome top and outlet baffle

C. Upblast Units: Provide spun-aluminum discharge baffle to direct discharge air upward, with rain and snow drains.

D. Hinged Subbase: Galvanized-steel hinged arrangement permitting service and maintenance.

E. Curb Seal: Provide rubber seal between fan and curb to assure proper sealing when attached to curb.

F. Fan Wheels: Aluminum hub and wheel with backward-inclined blades.

G. Accessories:
1. Variable-Speed Controller (direct drive fans): Solid-state control to reduce speed from 100 to less than 50 percent.
2. Disconnect Switch: Provide NEMA 1, nonfusible type, with thermal-overload protection factory mounted outside fan housing, factory wired through an internal aluminum conduit.
   a. For single phase fractional HP fans use a toggle type disconnect switch.
3. Bird Screens: Removable, 1/2-inch mesh, aluminum or brass wire.

4. Dampers: Parallel-blade dampers mounted in curb base with electric actuator; wired to close when fan stops. Damper motor shall be 120V/1 phase unless otherwise noted. Provide local disconnect switch

H. Roof Curbs: Provide factory fabricated roof curb by the same manufacturer as the equipment. Roof curb to be insulated.

2.3 IN-LINE CENTRIFUGAL FANS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Acme Engineering & Manufacturing Corporation.
2. Breidert Air Products.
3. Greenheck Fan Corporation.
4. Loren Cook Company.

B. Housing: Aluminum or galvanized steel housing with inlet and outlet flanges, and support bracket adaptable to floor, side wall, or ceiling mounting.

C. Direct-Drive Units: Provide ball bearing motor encased in housing so as to be out of air stream.

D. Fan Wheels: Aluminum, airfoil blades welded to aluminum hub.

E. Outlet Damper: Provide motor outlet damper as scheduled. Damper motor shall be 120V/1 phase unless otherwise noted. Provide local disconnect switch.

F. Duct Lining: Provide 1" thick, 3-lb density duct liner a minimum of 5' (five feet) up and down stream of fan.

G. Accessories:
1. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
2. Fan Guards: 1/2- by 1-inch mesh of galvanized steel in removable frame. Provide guard for inlet or outlet for units not connected to ductwork.
3. Motor Cover: Epoxy-coated steel.]

2.4 PROPELLER FANS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Acme Engineering & Manufacturing Corporation.
2. Breidert Air Products.
3. Greenheck Fan Corporation.
4. Loren Cook Company.

B. Housing: Galvanized-steel sheet with flanged edges and integral orifice ring with baked-enamel finish coat applied after assembly.

C. Steel Fan Wheel: Formed-steel blades riveted to heavy-gage steel spider bolted to cast-iron hub.

D. Fan Drive: Motor mounted in airstream, factory wired to disconnect switch located on outside of fan housing.

E. Fan Drive:
1. Resiliently mounted to housing.
2. Statically and dynamically balanced.
3. Selected for continuous operation at maximum rated fan speed and motor horsepower, with final alignment made after installation.
4. Extend grease fitting to accessible location outside of unit.
5. Service Factor Based on Fan Motor Size: 1.4.
6. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
7. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.
   a. Ball-Bearing Rating Life: ABMA 9, L10 of 100,000 hours.

F. Accessories:
1. Variable-Speed Controller (direct drive fans): Solid-state control to reduce speed from 100 to less than 50 percent.
2. Bird Screens: Provide removable bird screens, 1/2" mesh, 16-ga aluminum or brass wire.
3. Louvers: Provide matching wall louver.
4. Motor-Side Back Guard: Galvanized steel, complying with OSHA specifications, removable for maintenance.
5. Wall Sleeve: Galvanized steel to match fan and accessory size.

2.5 MOTORS

A. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 23 05 13 "Common Motor Requirements for HVAC Equipment."
1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

B. Enclosure Type: Totally enclosed, fan cooled.

C. Motors with Variable Frequency Drives: All fan motors shall be of highest efficiency possible, either Premium or High Efficiency rating. All fan motors with VFD’s must be inverter duty rated and fan manufacturer shall factory inverter balance the fan motor through the entire operating range. A/C motors shall be rated for both constant and variable speed applications.

2.6 SOURCE QUALITY CONTROL

A. Certify sound-power level ratings according to AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Factory test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Label fans with the AMCA-Certified Ratings Seal.

B. Certify fan performance ratings, including flow rate, pressure, power, air density, speed of rotation, and efficiency by factory tests according to AMCA 210, "Laboratory Methods of Testing Fans for Aerodynamic Performance Rating." Label fans with the AMCA-Certified Ratings Seal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Provide high static pressure switch in the ductwork downstream of exhaust fans greater than 3 hp. Fan shall shutdown upon detection of static pressure in excess of 2” wc.. Provide manual reset.

B. Install power ventilators level and plumb.

C. Secure roof-mounted fans to roof curbs with cadmium-plated hardware. See Section 077200 "Roof Accessories" for installation of roof curbs.

D. Ceiling Units: Suspend units from structure; use steel wire or metal straps.

E. Install units with clearances for service and maintenance.

F. Label units according to requirements specified in Section 23 05 53 "Identification for HVAC Piping and Equipment."

3.2 CONNECTIONS

A. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Section 23 33 00 "Air Duct Accessories."

B. Install ducts adjacent to power ventilators to allow service and maintenance.

C. Ground equipment according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."

D. Connect wiring according to Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.
   1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:
   1. Verify that shipping, blocking, and bracing are removed.
   2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
   3. Verify that cleaning and adjusting are complete.
   4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system.
   5. Adjust damper linkages for proper damper operation.
   6. Verify lubrication for bearings and other moving parts.
   7. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
   8. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.
   9. Shut unit down and reconnect automatic temperature-control operators.
   10. Remove and replace malfunctioning units and retest as specified above.

C. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Prepare test and inspection reports.

3.4 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Comply with requirements in Section 23 05 93 "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing procedures.

C. Lubricate bearings.

END OF SECTION 23 34 23.00

SECTION 281643

ACCESS CONTROL SYSTEM

PART 1 - GENERAL

1.1 SCOPE

A. The Work of this section includes furnishing all labor, materials, tools and equipment, for the installation of the cabling required to support the future access control system that is being provided by others.

1.2 REFERENCES AND STANDARDS

A. Work under this Section is subject to requirements of General Requirements.

B. Other applicable standards are as follows:

1. UL 294 - Access Control System Units.
2. UL 1076 - Proprietary Burglar Alarm Units and Systems.
3. FCC Rules and Regulations Part 15, Radio Frequency Devices

C. All work and materials shall conform in every detail to rules and requirements of National Fire Protection Association, State and Local Codes, and Industry Standards, and all Industry and BICSI Standards related to DATA Cabling.

D. All materials shall be listed by UL and shall bear UL label. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has, an applicable system listing and label entire system shall be so labeled.

1.3 DEFINITIONS AND ABBREVIATIONS

A. SMS – Security Management System

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. System Design drawings with cable routing, device location and labeling.

C. As built drawings showing cable pathways and routing. As built drawings to also show any changes made to original ESS drawings.

1.5 QUALITY ASSURANCE

A. Security Management System Contractor shall:

1. Have successfully completed two (2) Security Systems projects in equal magnitude of the system specified in following sections. Contractor shall be an Authorized Integrator in good standing. Proper proof of certifications will be submitted at time of Bid. Comply with all certification requirements set out as it relates to the installation of DATA cabling.

Specifically, contractor will certify DATA cabling is being installed by BICSI certified installers and installation supervised by a registered in good standing RCDD in the full-time employee of the project contractor.

1.6 GUARANTEE

A. Warranty requirements for Security Management System (SMS) shall be 1 (1) years on all parts and labor commencing on Date of Substantial Completion. Those requirements apply to all components covered in this section

PART 2 - PRODUCTS

2.1 CABLING

A. General

1. See section 270011 Communications Owner's Standards Document for access control cabling manufacturers / model numbers.
2. Cable shall be: Plenum Rated where required.

a. Reader Cable Construction: Cat6A or as recommended by system manufacturer.

3. Door Lock Power Cable

a. Provide and install as required for door hardware. Refer to Architectural Door Schedule and Door Hardware documents.
b. AWG as required based on cabling distance from the panel.

4. Door Contact / Signal Cable

a. Door Contact/Signal Cable used for monitoring purposes.
b. Construction: 22 AWG twisted, stranded, or as recommended by system manufacturer.
c. Aluminum/Mylar shield with drain wire applied over assembled conductors.

5. Request-to-Exit Motion Detector Signal Cable

a. Motion Detector Signal Cable used for monitoring purposes.
b. Construction: 20 AWG stranded or as recommended by system manufacturer.

1) Aluminum/Mylar shield with drain wire applied over assembled conductors.

PART 3 - Execution

3.1 PRE-INSTALLATION COORDINATION

A. Coordinate with Electrical Contractor (Division 260000) that:

1. Section 280000 provided pathways and equipment back boxes are completed and are coordinated with no conflicts for system installation.
2. Adequate power has been provided and properly located for security system equipment.

3. Code-complying fire alarm relays will be installed for cable termination. Fire Alarm contractor will provide relay contacts in Com Closet for connection to Access control panels. Contractor is responsible for coordination with Fire Alarm Contractor. Access control Contractor shall provide all parts and pieces including all cabling from Access control panel to Fire Alarm Contact point.
4. Coordinate scheduling of work to make sure there are no conflicts.

B. Coordinate with Door Frame supplier (Division 8):

1. Doors and door frames are properly prepared for electric locking hardware and door position switches are furnished by door type.
2. Locations of all devices prior to installation.
3. Electric door power supply locations and connections requirements.

C. At a minimum, coordinate the following with Owner:

1. Owner-provided IP addresses for SMS devices.
2. Network infrastructure requirements at SMS head-end.
3. Initial database programming.
4. Planned system downtime.
5. Programming and training for new system.

D. Coordinate with Construction Manager as required providing a fully functioning turnkey Security system.

E. Coordinate with all trades on the operation and installation of ADA entrance doors with relation to Card Readers and interconnection with door actuator plates, motor units, Fire Alarm System. Contractor will supply any and all associated timer boards or additional parts required for complete operating doors system.

3.2 INSTALLATION

A. General

1. Verify acceptance of each type of specified request-to-exit hardware for each application with local life safety code officials.
2. Provide tamper proof fasteners for all equipment in public areas. Fastener finish shall match equipment finish.
3. Maintain minimum three feet of access in front of class 1 electrical equipment.

B. Delivery, Storage, and Handling

1. Deliver products to and receive products at site under provisions of General Requirements.
2. Materials shall be stored according to manufacturer's recommendations at minimum.
3.

C. Equipment

1. Provide equipment as indicated on Drawings and specified herein. Additional specific installation requirements are as follows:
2. Cable Installation

a. Visually inspect all wire and cable for faulty insulation prior to installation.

b. Furnish and install all specified wire and cable as required for functioning SMS system.
c. Neatly lace, dress and support cabling.
d. Pull cables in accordance with cable manufacturer's recommendations and ANSI/EEE C2 Standards.

    1) Do not exceed manufacturer's recommended pulling tensions.
    2) Do not install bruised, kinked, scored, deformed, or abraded cable.
    3) Do not splice cable between indicated termination, tap, or junction points.
    4) Remove and discard cable where damaged during installation and replace it with new cable.
    5) Pull all cable by hand unless installation conditions require mechanical assistance.

e. Run all wire and cable continuous from device location to final point of termination. No mid-run cable splices shall be allowed.
f. Cables shall not be attached to existing cabling, plumbing or steam piping, ductwork, ceiling supports, or electrical or communications conduit.
g. Cable shall never be laid directly on a ceiling grid or attached in any manner to ceiling grid wires.
h. Furnish and install all cable such that ample slack is supplied at device terminating end of cable to compensate for any final field modifications at install locations.

    1) Loosely coil slack in “Figure-eight” in a manner that prevents kinking.
    2) Loop radius shall be at least 4X minimum bend radius for cable.
    3) Slack length of cable shall be 4 feet (minimum).

i. Provide code-compliant fire proofing techniques for all penetrations of fire rated partitions and slabs, where penetrations are made by or used for installation of SMS System.
j. Coordinate routing of wire and cable requiring isolation from power, radio frequency (RF), electromagnetic interference (EMI), telephone, etc. with General Contractor.
k. At no time, shall any cable be subjected to a bend less than manufacturer’s specified minimum radius.
l. Provide grommets and strain relief material where necessary to avoid abrasion of wire and excess tension on Wire and Cable.
m. Make connections with solder-less devices, mechanically and electrically secured in accordance with manufacturers’ recommendations. Wire nuts shall not be an acceptable means of connecting wire and cable.
n. Utilize conduit and cable trays and or pathways to route SMS cables from each door or device to Door Controller.
o. No A/C current-carrying conductors are allowed in same pathway as signal or low-voltage power cables.
p. Wire and cable within Door Controllers, enclosures and or other security enclosures shall be neatly installed, completely terminated, pulled tight with slack removed and routed in such a way as to allow direct, unimpeded access to equipment within enclosure. All wire and cable shall be bundled and tied. Ties shall be similar to T&B TyRap cable ties.
q. Use of electrical tape for splices and connections shall not be acceptable.
r. Make connections with solder less devices, mechanically and electrically secured in accordance with manufacturers’ recommendations. Wire nuts shall not be an acceptable means of connecting wire and cable.
s. All system cabling within vertical risers (as required) shall be bundled, wrapped and tied to structure at three-meter intervals in order to isolate it from other wire and

cable within riser. Additionally, all wire and cable within shaft shall be supported at least every two floors using Greenlee Slack Grips (Split Mesh Lace Closing) or approved equal. Provide all personnel and equipment necessary to install and support cable. All equipment shall be UL listed for application.

D. Furnish and install all SMS wire and cable including DATA cabling.

E. Provide code-compliant fire proofing techniques for all penetrations of fire rated partitions and slabs, where penetrations are made by or used for installation of SMS.

F. Label all Wire and Cable in common at both ends using a permanent method such as self-laminating cable marking tape.

1. Tags shall be attached to wire and cable nylon cable ties in an accessible location so that they can easily be read.

a. Tags shall be installed when wire and cables are installed.

2. Labeling shall be consistent with existing cable labeling system and agree with Record Documentation.

G. Place wire identification numbers at each end of conductor involved by using sleeve type, heat shrinkable markers. Markers shall be installed so as to be readable from left to right or top to bottom.

H. Coil all spare conductors in device back box, panel wire way, or top of panel where wire way is not provided. Conductors shall be neatly bundled and tagged.

I. Install integrated security and communication system in accordance with manufacturer's instructions at locations indicated on the Drawings.

J. Mount equipment plumb, level, square, and secure.

3.3 SYSTEM ACCEPTANCE

A. Final acceptance testing of Work will be coordinated and observed by Owner and or Owner representatives.

B. Prior to testing, Contractor shall submit two sets of preliminary (draft) Record Drawings to Owner. Preliminary Record Drawings are to be used by Owner to conduct system final test.

C. At completion of Work, remove all waste materials, rubbish, Contractor’s and subcontractors’ tools, construction equipment, machinery, and all surplus materials.

3.4 PROTECTION

A. Protect installed integrated security and communication system from damage during construction.

END OF SECTION

SECTION 284621 – ADDRESSABLE FIRE-ALARM SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General, Special and Supplementary Conditions, Division 01 Specification Sections, and Section 260010 "General Requirements for Electrical" apply to this Section.

1.2 SUMMARY

A. Description: This section of the specification includes the furnishing, installation, connection and testing of the microprocessor controlled, intelligent reporting fire detection equipment required to form a complete, operative, coordinated system.

B. Section Includes:

1. Analog-Addressable fire-alarm system.
2. Fire-alarm control unit (FACU).
3. Manual fire-alarm boxes.
4. System Detectors.
5. Fire-alarm notification appliances.
6. Fire-alarm annunciators.
7. Fire-alarm addressable interface devices.
8. Fire-alarm system communications.
9. Fire-alarm system accessories.
10. Fire-alarm conductors and cabling.

1.3 REFERENCES

A. Abbreviations and Acronyms

1. DACT: Digital alarm communicator transmitter.
2. FACU (FACP): Fire-alarm control unit (panel).
3. NAC: Notification Appliance Circuit
4. NICET: National Institute for Certification in Engineering Technologies.
5. NRTL: Nationally Recognized Testing Laboratory.
6. SLC: Signaling Line Circuit

B. Definitions

1. Circuit: Wire path from a group of devices or appliances to a control panel or transponder.
2. Zone: Combination of one or more circuits or devices in a defined building area

C. Reference Standards: The following publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.

1. National Electrical Contractors Association (NECA):

a. NECA 305, “Standard for Fire Alarm System Job Practices”.

1.4 COORDINATION

A. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.5 SUBMITTALS

A. Approved Permit Submittal: Submittals must be approved by authorities having jurisdiction prior to submitting them to Architect.

B. Product Data: For each type of product, including furnished options and accessories.

C. Shop Drawings: Provide for the fire alarm system.

1. Comply with recommendations and requirements in "Documentation" section of "Fundamentals" chapter in NFPA 72.
2. Include floor plans drawn to scale which clearly show locations of devices, equipment. Indicate electrical power connections, approximate location and size of conduit/wiring runs, and other information required to clearly describe the proposed system. Plans should include identification numbers and wiring connections for all equipment and devices in entire fire alarm system.
3. Include enlarged plans, drawn to a scale not less than 1/4 -inch equals 1 foot, for all equipment rooms and any fire command centers with dimensioned equipment layouts.
4. Include detailed riser diagrams based on the project floor plans, with all devices indicated along with proposed circuit routing. The conductor composition for each conduit section shall be provided. Show consecutive connections for all devices with addresses, candela ratings, and speaker wattages.
5. Provide scaled elevations, sections, and details, including critical dimensions and details of attachments to other Work.
6. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
7. Detail assembly and support requirements.
8. Annunciator panel details as required by authorities having jurisdiction.
9. Include current draw for each device submitted and the listed minimum voltage required to operate.
10. Include voltage drop calculations for notification-appliance circuits. Provide maximum allowable voltage drop for panel and for individual NAC circuits.
    a. Identify Notification Appliance Circuits (NAC) current draws and voltage drops for each circuit. Vendor must utilize the “end of line” method for voltage drop calculations. The “mid-point” method is not acceptable. In no case shall the

calculated voltage at any notification appliance fall below the minimum listed operating voltage for the devices used.

b. The voltage drop at EOL must not exceed 14% of the expected battery voltage, after the required standby time plus alarm time. Determine "worst case" voltage at far end of each NAC, by subtracting its calculated V-drop from the expected battery voltage. The result must be no less than the minimum listed operating voltage for the alarm notification appliances used. All these calculations must be placed on a dedicated sheet, for future reference by fire alarm service technicians.

11. Include battery-size calculations showing battery capacity and supervisory and alarm standby power requirements.
    a. Use manufacturer's battery discharge curve to determine expected battery voltage after specified time period of providing standby power. Then use calculated Notification Appliance Circuit current draw in the alarm mode to determine expected voltage drop at End of the Line Resistor (EOL), based on conductor resistance per conductor manufacturer's data sheet or NEC.
12. Include system response matrix showing the fire alarm system's actions (outputs) required for each type of alarm, supervisory, and trouble signal. Any non-compliant features must be fully described.
13. Include written statement from manufacturer that equipment and components have been tested as a system and comply with requirements in this Section and in NFPA 72.
14. Include performance parameters and installation details for each type of detector.
15. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
16. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.
    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Provide control wiring diagrams and show equipment required for HVAC unit shutdown on alarm and override by firefighters' smoke-evacuation system.
    c. Locate detectors in accordance with manufacturer's written instructions.
17. Include equipment rack or console layout, grounding schematic, power calculations, and single-line connection diagram.
18. Include manufacturer's detailed installation instruction for the Fire Alarm Control Panel and all duct mounted smoke detectors, flow switches, tamper switches, supervisory switches, and similar items which require mechanical installation.

D. Delegated Design: For notification appliances and detectors, in addition to submittals listed herein, indicate compliance with performance requirements and design criteria, including analysis data signed and sealed by qualified professional responsible for their preparation.

1. Drawings showing location of each notification appliance and smoke and heat detector, ratings of each, and installation details as needed to comply with listing conditions of device.
2. Design Calculations: Calculate requirements for selecting spacing and sensitivity of detection, complying with NFPA 72. Calculate spacing and intensities for strobe signals and sound-pressure levels for audible appliances.
3. Indicate audible appliances required to produce square wave signal per NFPA 72.

E. Qualification Data: For Certified System Designer, Lead Technician, and Installers including names, license numbers, and certifications as described under Quality Assurance.

F. Sample Warranty.

G. Field quality-control reports.

H. Closeout Submittals

1. Operation and Maintenance Data: For fire-alarm systems and components to include in operation and maintenance manuals.
2. In addition to items specified in Division 01 and Section 260010 " Supplemental Requirements for Electrical", include the following:
   a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
   b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
   c. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:
      1) Equipment tested.
      2) Frequency of testing of installed components.
      3) Frequency of inspection of installed components.
      4) Requirements and recommendations related to results of maintenance.
      5) Manufacturer's user training manuals.
   d. Software and Firmware Operational Documentation: Provide operating manuals and backups of software database on USB media. The database provided shall be useable by any authorized and certified distributor of the product line, and shall include all applicable passwords necessary for total and unrestricted use and modification of the database.

1.6 MAINTENANCE MATERIAL

A. Extra Stock Materials: Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: Two of each type installed in the system. Provide in a box or cabinet with compartments marked with fuse types and sizes.
2. Manual Fire Alarm Boxes: 2% of installed quantity.
3. Audible and Visual notification appliances: 1% of installed quantity for each type.
4. Addressable Detectors/Bases: 2% of installed quantity for each type.
5. Addressable Control Relays: 1% of installed quantity.
6. Monitor Modules (Addressable Interface): 1% of installed quantity.
7. Isolation Modules/Isolation Bases: 1% of installed quantity.

B. Keys and Tools: Two extra sets for access to locked or tamper-proofed components.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications

1. Manufacturer must be regularly engaged in manufacture of fire alarm systems of types, sizes, and electrical characteristics required, and whose products are Listed and Labeled.

2. Manufacturer shall maintain an authorized distributor within 100 miles of the project location which stocks a full complement of parts for all equipment to be furnished.

B. Installer Qualifications

1. Obtain certification by NRTL in accordance with NFPA 72.
2. Licensed or certified by authorities having jurisdiction to perform fire alarm installations in the specified jurisdiction.
3. Be in business a minimum of 5 continuous years with documented experience installing fire alarm systems similar in size and scope.
4. Installer must be responsible for all program changes and must be present for all testing and inspections.
5. All connections to the FACP and the system's programming shall only be done by the manufacturer, or by an authorized distributor.

C. Project Personnel Requirements: Installer must have the following certified full-time employees on staff and assigned to the project.

1. All personnel must be trained and certified by manufacturer for installation of units required for this Project.
2. System Designer: Preparation of shop drawings, cabling administration drawings, and field-testing program development by a NICET certified Level IV technician who shall be trained and certified in fire alarm system design by the approved manufacturer within the last 36 months and be licensed by the authorities having jurisdiction.
3. Lead Technician: Minimum NICET certified Level III technician who shall provide all devices, connections, and programming for the fire alarm system. Technician shall be certified by the approved manufacturer within the last 36 months and licensed by the authorities having jurisdiction. The lead technician shall be present at all times when work of this Section is performed at the project site.
4. Installer Qualifications: Any work related to this section shall be installed by personnel trained and certified by the approved manufacturer within the last 24 months.

1.8 WARRANTIES

A. Manufacturer Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship for a period of 1 year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency acceptable to the authority having jurisdiction, and marked for intended location and application.

B. All components provided shall be listed for use with the selected system.

2.2 MANUFACTURERS

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

1. Edwards EST
2. Notifier
3. Simplex

B. Being listed as an acceptable Manufacturer in no way relieves obligation of the Contractor to provide all equipment and features in accordance with these specifications.

2.3 ADDRESSABLE FIRE ALARM SYSTEM REQUIREMENTS

A. Noncoded, UL-certified, FM Global-approved, Networked analog/addressable system, with multiplexed signal transmission and voice/strobe evacuation.

B. The system shall be designed, inspected, tested and approved to provide occupant notification audibility levels of 15 dBA over ambient conditions. Design intelligibility to ensure Common Intelligibility Standard (CIS) rating of 0.7 or Sound Transmission Index of 0.5 in all areas designated on the drawings to have intelligible audio.

C. Fire Alarm System shall supervise and monitor the integrity of all sub-systems, circuits, and devices connected to the system and annunciate all system faults. All intelligent initiating, signaling, and control devices shall be individually addressed.

D. The system shall be fully programmable so that any type of input event can be correlated to any combination of output functions.

E. The fire alarm system operational priority shall ensure that life safety functions takes precedence over other activities coordinated by the system.

2.4 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Automatic sprinkler system water flow.
5. Fire standpipe system.
6. Fire-suppression/extinguishing system operation.

B. Fire-alarm signal must initiate the following actions:

1. Continuously operate alarm notification appliances, including voice evacuation.
2. Identify alarm and specific initiating device at fire-alarm control unit and any remote annunciators or network connected control panels. The system alarm LED shall flash and a local distinct audible signal in the control panel shall sound.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Unlock electric door locks in designated egress paths.

5. Release fire and smoke doors held open by magnetic door holders.
6. Switch HVAC equipment controls to fire-alarm mode.
7. Close smoke dampers in air ducts of designated air-conditioning duct systems.
8. Activate emergency lighting control.
9. Record events in system memory.
10. Record events by system printer.
11. Indicate device in alarm on graphic annunciator.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Valve supervisory switch.
2. Duct smoke detectors.
3. Device tamper.
4. Zones or individual devices have been disabled.
5. High- or low-air-pressure switch of dry-pipe or pre-action sprinkler system.
6. Elevator shunt-trip supervision for Shut-Down.
7. Elevator hoistway detectors for Recall.
8. Fire-suppression/extinguishing system trouble.

D. System Supervisory Signal Actions:

1. Identify specific device initiating the event at fire-alarm control unit and remote annunciators. The corresponding system LED shall flash and a local distinct audible signal in the control panel shall sound.
2. Record the event on system printer.
3. Transmit a supervisory signal to the remote alarm receiving station with no time delay.

E. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable device or networked panel.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal AC voltage at fire-alarm control units.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.
10. Voice signal amplifier failure.
11. Smoke Detector Contamination.
12. Hose Cabinet Door Open.

F. System Trouble Signal Actions:

1. Identify specific device initiating the event at fire-alarm control unit and remote annunciators. The system trouble LED shall flash and a local distinct audible signal in the control panel shall sound.
2. Record the event on system printer.
3. Transmit a trouble to the remote alarm receiving station after a programmable time delay of 200 seconds or as required by AHJ.

4. A trouble signal from loss of primary power shall not be transmitted unless maintained after a programmable time delay of 1 to 3 hours or as required by AHJ.
5. Fire alarm signal shall override trouble signals, but any pre-alarm trouble signal shall reappear when the panel is reset.

2.5 FIRE ALARM CONTROL PANEL (FACP)

A. General Requirements for Fire Alarm Control Panel:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with NFPA 72 and UL 864, and protected from voltage surges and line transients.

    a. System software and all control-by-event programs shall be held in nonvolatile memory, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.
    b. Include a real-time clock for time annotation of events on the event recorder and printer. Time-of-Day and date shall be retained through failure of primary and secondary power supplies.
    c. The Central Processing Unit (CPU) shall communicate with, monitor, and control all other modules within the control panel. Removal, disconnection or failure of any control panel module shall be detected and reported to the system display by the CPU.
    d. Provide communication between the FACP and intelligent detectors, addressable modules, local and remote operator terminals, remote circuit interface panels, annunciators, and other system-controlled devices.
    e. The FACP shall be listed for connection to a central-station signaling system service.
    f. The system is to have multiple access levels, so owner's authorized personnel can disable individual alarm inputs or normal system responses (outputs) for alarms, without changing the system's executive programming or affecting operation of the rest of the system. A minimum of two different password levels shall be accessible through the display interface assembly to prevent unauthorized system control or programming.

2. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.
3. The system shall perform time-based control functions including automatic changes of specified smoke detector sensitivity settings.
4. Digitized electronic signals shall employ check digits or multiple polling. In general, a single ground or open on any system signaling line circuit shall not cause system malfunction, loss of operating power, or the ability to report an alarm.
5. Loss of Power: Alarm signals arriving at the main FACP shall not be lost following a power failure (or outage) until the alarm signal is processed and recorded.

B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, three lines of 80 characters, minimum.

2. Alphanumeric Touch Keypad: Arranged to permit entry and execution of programming, display, and control commands.
3. Color coded system status LEDs. At minimum, Indicate the status of the following system parameters:
    a. System AC Power
    b. System Common Alarm
    c. System Common Trouble
    d. System Supervisory
    e. Signal Silence
4. Provide operator's interface which allows the following minimum functions. In addition, the operator's interface shall support any other functions required for system control and/or operation:
    a. Signal Silence Switch: Silenced audible signal shall resound in a time period acceptable to AHJ if the condition has not been resolved.
    b. System Reset Switch
    c. System Test Switch
    d. Panel Silence Switch
    e. Panel Lamp Test Switch
    f. System Bypass Switches: Programmable, supervised switches for fire safety function bypasses. i.e. NAC Bypass, Elevator Capture Bypass, HVAC Shutdown Defeat, Smoke Control Bypass, etc. Switch operation shall be password protected.
    g. Interface shall allow programming of the system without any external programming equipment. Systems that require the use of external programmers or change of EPROMs are not acceptable.

C. Notification-Appliance and Signaling-Line Circuits:

1. Signaling Line Circuits (SLC): NFPA, Class B.
    a. Provide a minimum of one signaling line circuit per floor.
    b. Locate end of line resistors
2. Notification Appliance Circuits (NAC): NFPA 72, Class B.
3. SLC Between Networked Panels: NFPA 72, Class X.
4. Door Hold Open control circuits: NFPA 72, Class D for fail safe operation.
5. Size each signaling line circuit and notification appliance circuit to allow a minimum additional capacity of 20%.

D. Signaling Line Circuit (SLC) Modules:

1. Power limited, capable of accommodating up to 198 addressable devices on each SLC and a minimum of 1980 initiating points per system.
2. On-board microprocessor capable of operating in a local mode in the event of a failure in the main CPU of the control panel.
3. Capable of receiving analog information from all intelligent detectors and processing the information to determine whether normal, alarm, or trouble conditions exist for specific detectors.
4. Automatically maintain detector desired sensitivity level by adjusting for the effects of environmental factors, including the accumulation of dust in each detector. Analog information may also be used for automatic detector testing and for the automatic determination of detector maintenance requirements.

E. Notification-Appliance Circuit (NAC) Modules:

1. Power limited, minimum circuit output rating: 2 Amps at 24VDC.
2. Polarized to provide for both synchronized strobes and independent horn/strobe operation over two wires.
3. Selectable as auxiliary power outputs and rated for continuous duty.

F. Network Communication

1. Provide a dedicated fiber optic TCP/IP network utilizing listed network components to interconnect multiple FACPs.
2. Synchronize panel time, signal patterns, and indicator flash rates across all panels on the network.
3. In the event of network wiring faults, each panel on the network shall re-configure into a sub-network and continue to respond to alarm events.

G. Digital, Multiplexed Voice/Alarm Signaling: Emergency communication system, integral to FACP, with master and remote microphones, zoned amplifiers, and tone generators that provide both live and pre-recorded messages.

1. Indicate number of alarm channels for automatic, simultaneous transmission of different announcements to different zones or for manual transmission of announcements by use of the microphones. Amplifiers shall comply with UL 1711. Group speakers into zones as required by building code.
    a. Allow the application of, and evacuation signal to, multiple zones and, at the same time, allow voice paging to the other zones selectively or in any combination.
    b. Programmable tone and message sequence selection.
    c. Provide standard digitally recorded messages for the following:
        1) Evacuation
        2) All Clear
        3) Weather warning
        4) Test
        5) Stand-by
    d. Generator tones to be sequenced with audio messages of type recommended by NFPA 72 and that are compatible with tone patterns of notification-appliance circuits.
2. Status Annunciator: Indicate the status of various voice/alarm speaker zones.
3. Amplifiers and tone generators shall automatically transfer to backup units, on primary equipment failure.

H. Serial Interfaces:
1. One USB port for system printer.
2. One USB or Ethernet port for on-site programming or system modification with a PC.

I. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.
3. Record events by the system printer.
4. Sound general alarm if the alarm is verified.
5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

J. Elevator Recall and Shutdown:

1. Elevator recall shall be initiated only by one of the following alarm-initiating devices:
    a. Elevator lobby detectors except the lobby detector on the designated floor.
    b. Smoke detector in elevator machine room/space or control room/space.
    c. Smoke detectors in elevator hoist way.
2. Program elevator controller to move the cars to the alternate recall floor if lobby detectors located on the designated recall floors are activated.
3. Heat Detectors or Water-flow alarm associated with sprinklers in an elevator shaft and elevator machine room shall remove power to elevators associated with the location without time delay.
    a. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

K. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to and powered by fire-alarm system.

L. Remote Smoke-Detector Sensitivity Adjustment and Testing: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out final adjusted values on system printer. The system shall also annunciate a trouble condition when any smoke detector approaches 80% of its alarm threshold due to gradual contamination, with an annunciation of the location of the smoke detector requiring service. If any specialized equipment must be used to program any function of the smoke detector devices, then one must be furnished as part of the system.

M. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station in accordance with parameters specified herein.

N. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also, print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.

O. Primary Power: Obtained from dedicated 120-V ac branch circuit and a high efficiency power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory and digital alarm communicator transmitters shall be powered by 24-V dc source.

1. Power supply modules shall have a continuous rating adequate to power all equipment and functions in full alarm continuously. All modules and drivers must be able to withstand prolonged short circuits in the field wiring, either line-to-line or line-to-ground, without damage. The power supply shall be expandable for additional notification appliance power in 3.0 Ampere increments.
2. Each system power supply shall be individually supervised.

3. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating to allow for future system expansion.
4. Install lock clips on circuit breakers in the "ON" position.

P. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch for system operation in the event of primary power source failure. Transfer from normal to auxiliary (secondary) power or restoration from auxiliary to normal power shall be automatic and shall not cause transmission of a false alarm.

1. Batteries: Maintenance-free, rechargeable, sealed, lead acid with rated lifespan of 10 years.
2. Provide sufficient capacity to operate the complete alarm system in normal, supervisory, or trouble conditions, including audible trouble signal devices, mode for a period of 24 hours. Following this period of operation on battery power, the battery shall have sufficient capacity to operate all components of the system, including all alarm notification devices in alarm mode for a period of 15 minutes. Battery capacity must include a 25% safety factor.
3. Locate batteries either within the control panel or in a separate substantial steel cabinet, finished on inside and outside with enamel paint. Provide a cylinder lock keyed to match FACP. Separate cells to prevent contact between terminals of adjacent cells and between terminals and other metal parts.
4. Battery Charger: Provide solid state automatic float type, capable of dual rate charging techniques that will recharge a fully discharged battery to a minimum 70% capacity in 12 hours or less. Locate charger within the control panel or within the battery cabinet. Provide voltmeter and ammeter to indicate battery voltage and charging current.
5. All standby batteries shall be continuously monitored by the power supply. The power supply shall be able to perform an automatic test of batteries and indicate a trouble condition if the batteries fall outside a predetermined range.

Q. Enclosure: Provide the FACP with a listed cabinet suitable for surface or semi-flush mounting. Cabinet and front shall be corrosion protected, given a rust-resistant prime coat, and manufacturer's standard finish. The door shall provide a key lock and shall include a glass or other transparent opening for viewing of all indicators. For convenience, the door may be hinged on either the right or left side (field selectable).

R. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.6 REMOTE POWER SUPPLIES

A. Stand-alone panel capable of powering a minimum of four synchronized NACs. Power limited, 24 VDC, filtered-regulated, and supervised. Configurable as a continuous 24VDC auxiliary power output.

B. Alarms from the host fire alarm control panel shall signal the NAC remote power supply panel to activate. The panel shall monitor itself and each of its NACs for trouble conditions and shall report trouble conditions to the host panel.

C. Internal Primary and Secondary power supplies: comply with performance requirements for FACP.

2.7 MANUAL FIRE ALARM BOXES

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes must be finished in red with molded, raised-letter operating instructions in contrasting color; must show visible indication of operation; and must be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type with visual indicator of operation; with screw terminals and integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control panel. When the station is operated, the handle shall lock in a manner showing visual indication of operation.
2. Station Test/Reset: Key-operated test/reset switch. Stations shall be keyed alike with the fire alarm control panel.
3. Manual pull stations that initiate an alarm condition when opening the unit are not acceptable.
4. Material: High impact Lexan Polycarbonate or Cast Metal.
5. Suitable for ambient temperatures up to 120 deg F.
6. Where required, provide weatherproof backbox and device listed for outdoor applications.

2.8 SYSTEM DETECTORS

A. General Requirements:

1. Operating Voltage: 24VDC, nominal. Two-wire type.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to FACP through a SLC.
3. Device Identification: Detectors shall permanently store an internal identifying type code that the control panel shall use to identify the type of device.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: dual LED type. LEDs shall flash under normal conditions, indicating that the device is operational and in regular communication with the control panel. The flashing mode operation of the detector LEDs shall be optional through the system field program.
7. Automatic Device Mapping: Detector address must be accessible from FACP and must be able to identify detector's location within system and its sensitivity setting.
8. Detectors shall be rated for operation in the following environment unless noted otherwise:
   a. Temperature: 32 deg F to 120 deg F
   b. Humidity: 0-93% relative humidity, non-condensing
9. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.
   a. Multiple levels of detection sensitivity for each sensor.

b. Sensitivity levels based on time of day.
c. Automatically compensate for detector sensitivity changes due to ambient conditions and dust build-up within detectors.

10. Test Means: Provide a test means whereby detectors will simulate an alarm condition and report that condition to the control panel. Such a test may be initiated at the detector itself or initiated remotely on command from the control panel when in the "test" condition.

B. Photoelectric Smoke Detector: Comply with UL 268.

1. Intelligent photoelectric smoke detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density.
2. Each detector shall utilize an environmental compensation algorithm that shall automatically adjust for background environmental conditions such as dust, temperature, and pressure.
   a. Provide a maintenance alert signal when 80% of the available compensation range has been used.
   b. Provide a dirty fault signal when 100% or greater compensation has been used.
3. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:
   a. Primary status.
   b. Device type.
   c. Present average value.
   d. Present sensitivity selected.
   e. Sensor compensation range (normal, dirty, etc.).

C. Duct Smoke Detector: Comply with UL 268A.

1. Listed for air velocity, temperature, and humidity present in specific duct application with standard Intelligent Photoelectric Detector and detector mounting base.
2. Duct Housing Enclosure: NRTL listed for use with supplied detector for smoke detection in HVAC system ducts. Provide gasketed NEMA 4X housing for harsh environments.
3. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
4. Relay Fan Shutdown: Fully programmable supervised relay rated to interrupt fan motor-control circuit.

D. Heat Detector: Comply with UL 521.

1. Heat detectors shall use an electronic sensor to measure thermal conditions caused by a fire and shall, on command from the control panel, send data to the panel representing the analog level of such thermal measurements.
2. Fixed Temperature Type: Actuated by fixed temperature of 135 deg F unless otherwise required.
3. Combination Type: Actuated by fixed temperature of 135 deg F or rate of rise that exceeds 15 deg F per minute unless otherwise required.
4. Rated for ceiling installation at a minimum of 50 ft centers and suitable for wall mount applications.

E. Multicriteria Detector
1. Integrated nuisance rejection to reduce unwanted alarms.
2. Provide independent signals to the control panel for detectors with CO sensors.

F. Detector Bases: Suitable for mounting to standard 4-inch octagon or square outlet boxes.

1. Standard Base: Twist lock, suitable for all intelligent detectors. Provided with integral terminal strips for circuit connections, rather than wire pigtails. Capable of supporting a remote alarm indicator light.
2. Relay base: Includes programmable, supervised relay, configurable for control with attached detector or from the FACP. Minimum contact rating of 1 amp at 30VDC and listed for pilot duty.
3. Sounder Base: Includes piezoelectric sounder with configurable low or high output, programmable operation, listed to UL 268. Produces Temporal Code 4 tone for CO detectors and Temporal Code 3 tone for all other detectors. or low frequency 520Hz signal tone patterns.
4. Low Frequency Sounder Base: Emits 520Hz tone as defined by NFPA 72 for sleeping areas, listed to UL 268 and UL 464.
5. Isolator Base: Includes integral isolation module.

2.9 NOTIFICATION APPLIANCES

A. General Requirements

1. Connected to system notification-appliance signal circuits, zoned as noted, equipped for mounting as indicated, and with in and out screw terminals for system connections.
2. All visual appliances shall be synchronized. Light and audible output levels shall be designed to meet ADA and NFPA requirements.
3. Audible/Visual Combination Devices shall comply with all applicable requirements for both Audible Notification and Visible Notification Appliances.
4. Devices located in a damp or wet location shall be listed for environment. Exterior mounted devices shall be provided with a weatherproof backbox.
5. Devices located in sleeping areas shall produce a low frequency alarm signal that has a fundamental frequency of 520Hz +- 10% and shall be a square wave.
6. All notification appliances shall be factory finished red unless noted otherwise on the drawings

B. Fire Alarm Audible Notification Appliances:

1. Description: Electric vibrating polarized Horns or other notification devices that cannot output voice messages.
2. Performance Criteria: Comply with UL 464.
3. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
4. Locate audible devices to provide audibility requirements of “Notification Appliances” chapter in NFPA 72.
5. Voltage: 24VDC nominal
6. Mounting: Flush mount on a standard electrical box.
7. Minimum rated sound pressure level of 85dBA at 10 feet for a thee pulse temporal pattern.

C. Fire Alarm Voice-Tone Notification Appliances:

1. Description: Notification appliances capable of outputting voice evacuation messages.
2. Performance Criteria: Comply with UL 1480.
3. Voice-tone appliances shall sound in a three-pulse temporal pattern with a minimum of two cycles preceding and following the voice message, as defined in NFPA 72.

4. Speakers for Voice Notification: Locate speakers for voice notification to provide intelligibility requirements of "Notification Appliances" and "Emergency Communications Systems" chapters in NFPA 72.
5. Speaker Operating Voltage: 25V or 70V.
6. Mounting: Flush mount on a standard electrical box.
7. Minimum rated sound pressure level of 84dBA at 10 feet for 1-watt tap.
8. Matching Transformers: Tap range at 1/4-watt, 1/2-watt, 1-watt, and 2-watt, selected to match acoustic environment of speaker location. Speakers shall be tapped at 1 watt for design purposes.

D. Fire Alarm Visible Notification Appliances: LED strobe lights with clear high impact polycarbonate lens mounted on an aluminum faceplate, complying with UL 1971. The word "FIRE" is engraved in minimum 1-inch- high letters on the housing.

1. Rated Light Output:15/30/75/110cd or 135/177/185cd, switch selectable at the device. Selected strobe rating shall be visible when the horn-strobe is in its installed position.
2. Voltage: 24VDC nominal
3. Mounting: Wall or ceiling mounted to standard electrical box unless otherwise indicated.
4. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
5. Flashing shall be in a temporal pattern, synchronized with other units. Maximum pulse duration: 2/10ths of one second.
6. Strobe Leads: Factory connected to screw terminals.

E. Bell: Vibrating under dome type with 10-inch gong, utilize a heavy-duty mechanism, polarized for supervised operation.

1. Voltage: 24VDC nominal.
2. Mounting: Semi-Flush mount on a standard electrical box.

2.10 ANNUNCIATORS

A. Fire Alarm Remote Annunciator

1. Description: Annunciator functions must match those of FACP for alarm, supervisory, and trouble indications. Manual switching functions must match those of FACP, including acknowledging, silencing, resetting, and testing.
2. Mounting: Flush cabinet, NEMA 250, Type 1.
3. Annunciator shall communicate with the fire alarm control panel via a supervised RS-485 communications loop that supports multiple annunciators and shall individually annunciate all zones in the system.
4. Display Type and Functional Performance: Large format LCD Alphanumeric display and LED indicating lights must match those of FACP. Provide manual control switches to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.
5. Power shall be supplied directly from the FACP or listed auxiliary power supply, ensuring a reliable and monitored power source.

B. Fire Alarm Graphic Annunciator Panel: Mounted in aluminum frame with nonglare, minimum 3/16-inch thick, clear acrylic cover over graphic representation of facility. Detector locations must be represented by red LED lamps. Normal system operation must be indicated by lighted, green LED. Trouble and supervisory alarms must be represented by amber LED.

1. Comply with UL 864.
2. Operating voltage must be 24 VDC provided by local battery backed up 24 V power supply provided with annunciator.
3. Include built-in voltage regulation, reverse polarity protection, RS 232/422 serial communications, and lamp test switch.
4. Semi flush mounted in NEMA 250, Type 1 cabinet, with key lock and no exposed screws or hinges.
5. Graphic representation of facility must be CAD drawing and each initiating device must be represented by LED in its actual location. CAD drawing must be at 1:100 scale or larger.
6. LED representing detector must flash two times per second while detector is in alarm.

2.11 ADDRESSABLE INTERFACE DEVICES

A. General Requirements:

1. Arrange to monitor or control one or more system components that are not otherwise equipped for addressable communication. Modules shall be used for monitoring of waterflow, valve tamper, non-addressable devices, and control of building systems.
2. All Circuit Interface Devices shall be supervised and uniquely identified by the control unit. Module identification shall be transmitted to the control unit for processing according to the program instructions.
3. Equip each module with two (2) diagnostic indicators; a green LED to confirm communications and a red LED to display active status. LEDs shall be visible through the finished cover plate. The module shall be capable of storing a unique serial number and up to 24 diagnostic codes, hours of operation, number of alarms and troubles, and time of last alarm in its memory which can be retrieved for troubleshooting.
4. Include electronic address-setting means on the module.

B. Monitor Module: Microelectronic module providing system address for alarm-initiating devices in wired applications with normally open contacts.

1. Supervision: Unless specifically noted otherwise on the drawings provide one monitor module for each sprinkler flow, tamper, and pressure switch.

C. Control Relay Module: For control of auxiliary devices or equipment.

1. Provide form C dry relay contacts rated 24VDC at 2 amps.

D. Isolation Module: For short circuit protection on signaling line circuits.

1. When a short circuit is detected, the module isolates the affected segment on the circuit, allowing the remaining devices to continue functioning.
2. Self-restoring and automatically reconnects to the circuit segment when the fault is removed.
3. SLC isolation shall be provided for each floor or protection zone of building.

2.12 DIGITAL ALARM COMMUNICATIONS

A. UL 864 listed as conforming to the requirements of NFPA 72 for Central Station connections.

B. Digital alarm communications transmitter (DACT): capable of sending system events to remote central station receivers over conventional telephone lines.

1. Dual telephone line, rotary or touch-tone-dial DACT interface to public switched telephone network

C. IP/Cellular digital alarm communications transmitter (IP DACT): capable of sending system events to compatible remote central station receivers over a cellular or IP path.
   1. UL 864 listed as conforming to the requirements of NFPA 72 for Central Station connections.
   2. TCP/IP Ethernet Communicator supporting encrypted communications.
   3. Cellular Communicator: LTE fall back cellular connection through the cellular module. Provide antenna extension kits where required to ensure a high-quality connection.

D. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture a transmission line and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If primary service is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of primary line to the remote alarm receiving station over the remaining transmission line. Transmitter shall automatically report transmission channel restoration to the central station. If service is lost on both transmission channels, transmitter shall initiate the local trouble signal.

E. Digital Data Transmission must include the following at a minimum:
   1. Address of alarm-initiating device.
   2. Address of supervisory signal.
   3. Address of trouble-initiating device.
   4. Loss of ac supply, where exceeding programmable time delay.
   5. Loss of power.
   6. Low battery.
   7. Abnormal test signal.
   8. Communication bus failure.

F. Local functions and display at the digital alarm communicator transmitter shall include the following:
   1. Supervised communications.
   2. Programmable
   3. Auxiliary relay to indicate alarm or trouble.
   4. LED display with audible trouble alarm.
   5. Manual test report function and manual transmission clear indication.
   6. Communications failure with the central station or fire-alarm control unit.

G. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.13 SYSTEM ACCESSORIES

A. Magnetic Door Holders: wall or floor mounting and complete with matching doorplate. The door portion shall have a plated steel pivot mounted armature with shock absorbing nylon bearing. Material and finish to match door hardware.
   1. Operation: Under normal conditions, the magnets shall attract and hold the door open. Upon activation of the building fire alarm system, the devices shall be de-energized, thus releasing the doors on the circuit.

2. Electromagnets: Require no more than 1 W to develop 35-lbf holding force.
3. Wall-Mounted Units: Flush mounted in a single gang electrical box unless otherwise indicated.
4. Rating: 24-V dc operating on power from the fire alarm control panel.
5. Power source shall be supervised.
6. Door hold open magnets shall be furnished with keepers, door chains, and other accessories as required to properly hold open doors as indicated on the Drawings.
7. Operation: Under normal conditions, the magnets shall attract and hold the door open. Upon activation of the building fire alarm system, the devices shall be de-energized, thus releasing the doors on the circuit.

B. Surge Suppression Devices:

1. AC circuits: UL 1449 listed, 120VAC, 20A branch circuit surge suppressor with EMI filtering. Ditek DTK-DF120S1 or equal. Shunt type devices are not permitted.
2. DC circuits: UL 497B listed, 24VDC, 5A multi stage hybrid design surge suppressor. Ditek DTK-2MHLP or equal. Devices using only MOV active elements are not permitted.

C. Remote Alarm Indicator Lights: Key type switch for testing of the annunciated device.

D. Terminal Cabinets: Steel cabinet with red finish, hinged lift-a-way cover, barrel key lock, terminal identification labels, and listed terminal blocks for up to 120 high barrier termination points. Terminal block screws shall have pressure wire connectors of the self-lifting or box lug type. Provide “FIRE ALARM TERMINAL CABINET” label in permanent lettering on the enclosure cover

E. Documentation Cabinet: Steel cabinet with red finish, hinged cover, barrel key lock, key ring hooks for spare keys, and USB storage device for backup documentation. Sized to accommodate standard 8 1/2 by 11 Operation and Maintenance manuals, As-Built Drawings, Completion Documents, and Inspection and Testing Form required by NFPA 72. Provide “SYSTEM RECORD DOCUMENTS” label in permanent lettering on the enclosure cover.

2.14 FIRE ALARM CONDUCTORS AND CABLE

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Allied Wiring and Cable
2. Belden
3. Comtran Corporation
4. General Cable
5. Honeywell Genesis
6. Radix Wire & Cable
7. Southwire
8. Superior Essex
9. West Penn Wire

B. General Requirements: NRTL listed and labeled as complying with NFPA 70, Article 760.

1. Type FPLR or FPLP, red jacket, suitable for indoor locations.
2. Type PLTC, suitable for underground or wet locations.

3. Twisted, shielded pair, low capacitance, not less than No. 18 AWG unless recommended otherwise by system manufacturer.
4. Circuit Integrity Cable: Classification CI, for power-limited fire-alarm signal service Type FPL. NRTL listed and labeled as complying with UL 1424 and UL 2196 for a two-hour rating.
5. Multiconductor Metal Clad Cable: NFPA 70, Type MC/FPLP, copper conductors, Type TFN/THHN conductor insulation, copper drain wire, steel armor with red identifier stripe, NTRL listed for fire-alarm and cable tray installation, plenum rated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

A. All equipment supplied must be specifically listed for its intended use and shall be installed in accordance with the manufacture’s recommendations. The contractor shall consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation.

B. Comply with NECA 305, NFPA 70, NFPA 72, and requirements of AHJ for installation and testing of fire-alarm equipment. Install electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

1. Devices placed in service before all other trades have completed cleanup shall be replaced.
2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

C. Securely fasten all system components to wall and ceiling assemblies using fasteners and supports rated to support the required load in accordance with Section 260500, “Supplemental Requirements for Electrical”.

1. Ceiling mounted devices shall not be supported solely by suspended ceilings.

D. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above finished floor. Locate annunciators at a height that enables easy viewing.

E. Provide additional remote NAC power supplies as required to comply with voltage drop requirements.

F. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm boxes in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

G. Notification Devices:

1. Comply with NFPA 72 and ADA criteria for strobe visual intensity, audible appliance intelligibility, and final device placement.
2. Install wall devices with entire lens between 80-inches and 96-inches above the floor but not less than 6 inches below the ceiling. Install devices on flush-mounted back boxes with the audible device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

H. End of Line (EOL) Resistors: Label devices containing end-of-line resistors with NAC panel and circuit number in such a manner that removal of the device is not required to identify the EOL device. Locate EOL devices in a readily accessible location no more than 12-feet above finished floor.

I. Smoke and Heat Detectors:

1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.
2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.
3. Smooth ceiling spacing for smoke detectors shall not exceed 30 feet except in corridors where increased spacing are allowed in accordance with NFPA 72.
4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A or Annex B in NFPA 72.
5. HVAC: Locate detectors not closer than 36 inches from diffusers or return-air openings.
6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.
7. When installed in a room, detectors shall be oriented, so their alarm light is visible from the nearest door to the corridor.
8. Unless suitably protected against dust, paint, etc., spot type smoke detectors shall not be installed until the final construction clean-up has been completed. In the event of contamination during construction, the detectors must be replaced by the contractor at no additional cost to the Owner. Covers supplied with smoke detector heads do not provide protection against heavy construction dust, spray painting, etc., and must not be used for that purpose. They are suitable only during final, minor cleanup or touchup operations.

J. Duct Smoke Detectors:

1. Provide duct smoke detectors for the following locations:

   a. At all smoke dampers.

b. At all HVAC units (AHUs, OA units, Heat Pump Units, etc) with fans greater than 2,000 CFM.
c. At each story, prior to the duct connection at a common return, for air distribution systems with a combined capacity greater than 15,000 CFM serving more than one story.
d. Additional locations required by the Building Code.

2. Comply with NFPA 72, IMC, and NFPA 90A for HVAC unit shutdown and closing of smoke dampers.
3. Install sampling tubes so they extend the full width of duct.
4. Support tubes more than 36 inches long at both ends.
5. Extend the intake tube through the far side of the duct, seal around the tube where it penetrates the duct wall and plug the end with a rubber stopper to facilitate visual inspection and intake tube cleaning.
6. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to final acceptance.
7. Locate duct detectors in a manner that provides suitable, convenient access for required periodic cleaning and calibration.
8. Comply with manufacturer's requirements for clearances from HVAC equipment and duct accessories such as humidifiers.
9. Provide number of detectors per duct in accordance with NFPA 72 requirements based on the size of the air duct, air duct configuration, air speed, and duct manufacturer's installation requirements.
10. Indicate airflow direction on the duct, adjacent to the detector, using stencil or permanent decal.
11. Provide each duct smoke detector with a remote keyed test switch and alarm indicator.

K. HVAC Unit Shutdown

1. Provide control relays for HVAC unit shutdown at the following minimum locations:

a. For all fans associated with HVAC units (including fan powered VAVs) connected to an air distribution system with a combined capacity greater than 2,000 CFM. Shut down fans upon activation of the associated smoke detector(s).
b. For all High Velocity Low Speed (HVLS) ceiling fans. Shut down fans upon activation of sprinkler system water flow alarm.

2. Comply with NFPA 72, IMC, and NFPA 90A for supervision and control of HVAC unit shutdown components.
3. All shutdown relays shall be directly controlled and monitored by the fire alarm system. Wire relays for fail safe operation.
4. The Building Automation System (BAS) shall not be used for life safety functions unless the BAS is supervised by the Fire Alarm System for off normal conditions.

L. Elevator Hoistway and Machine/Control Rooms and Spaces: Provide initiating devices and elevator controls interface to comply with NFPA 72 and ANSI A17.1 elevator code requirements for elevator recall and shutdown.

1. Coordinate initiating device temperature ratings, sensitivity settings, and location with sprinkler rating and location. Select temperature rating nominal 10 degrees F less than the adjacent fire sprinkler.

2. Ensure device operating ranges for temperature and humidity are suitable for installed environment. Do not install smoke detectors in unsprinklered elevator hoistway unless required otherwise by AHJ.

M. Addressable Interface Devices:

1. Addressable interface and control modules (used to monitor all contact type initiating devices) must be in a conditioned space, unless they are tested, listed, and marked for continuous duty across the range of temperatures and humidity expected at their installed location.
2. Sprinkler system supervisory circuits for monitoring valve position, air pressure, water temperature, pump status, etc., must cause distinct audible and visible indications at the FACP.
3. Install interface devices used to initiate emergency control functions no more than 36 inches from the component controlling the emergency control function.

N. Isolation Modules: Provide in the following locations to minimize the impact of wiring faults:
1. After each 50 initiating devices and control points on the addressable loop, or a lesser number where recommended by the manufacturer.
2. Near the point any addressable circuit extends outside the building, except for those attached to the building exterior walls and well sheltered by walkways.
3. For loops covering more than one floor, install isolator at terminal cabinet on each floor with additional isolator[s] on any floor with over 50 addresses.
4. Each isolation module must be clearly labeled, readily accessible for convenient inspection (not above a lay-in ceiling).

O. Independent fire-suppression/extinguishing systems

1. Provide interface modules and all control unit connections required to supervise fire-suppression and extinguishing system indicated on drawings.

3.3 PATHWAYS AND CONDUCTORS

A. Wiring Methods: Install all fire alarm wiring in metal conduit, minimum 3/4-inch, in accordance with Section 260533, “Raceways and Boxes for Electrical Systems” and manufacturer’s recommendations. Conceal raceway, except in unfinished spaces.

1. MC Fire Alarm cable is permitted for fire alarm wiring in concealed locations not subject to physical damage.
2. Unenclosed wiring methods may be used in accessible ceiling spaces.
3. Install plenum rated cable in environmental air spaces, including plenum ceilings.

B. Provide red finish for fire alarm raceways in assessable areas above ceilings, and exposed unfinished spaces. Match adjacent architectural finish for exposed fire alarm raceways in finished areas with red junction box covers.

C. All junction box covers shall be painted red on both sides to designate use for Fire Alarm conductors. The interior of junction boxes shall not be painted.

D. Where allowed, surface boxes shall be as manufactured by the device manufacturer for the installed device and shall match devices in size.

E. There shall be no splices in the system other than at device terminal blocks, or on terminal blocks in cabinets. "Wire nuts" and crimp splices will not be permitted. All terminal block screws shall have pressure wire connectors of the self-lifting or box lug type.

F. For underground raceways and other wet locations, provide moisture resistant PLTC cable.

G. All fire alarm and communications circuits that are run underground or beyond the building footprint shall be provided with a surge protective device at both ends of the circuit.

H. All circuits leaving the riser on each floor or building zone shall feed through a labeled terminal block in a terminal cabinet accessible from the floor.

I. T-Taps are not permitted for Class B circuits. Locate end of branch devices in a readily accessible location.

3.4 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements Door Hardware Spec. Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

B. Coordinate connections to electronic access-controlled doors with door hardware specifications and actual door hardware. Provide all connections for release of locking mechanisms in egress paths as required.

C. Verify exact connection requirements to all equipment and devices of other trades with those trades prior to ordering equipment.

D. Make addressable connections with a supervised interface device to controlled or monitored devices and systems. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

3.5 IDENTIFICATION

A. Comply with the following requirements

1. Identify system components, wiring, cabling, and terminals. Identify all fire alarm circuits at terminal and junction locations.
2. Install a nameplate on each fire alarm panel and power supply to indicate the equipment designation, panelboard and circuit number supplying the fire alarm equipment.
3. Branch circuit overcurrent protective devices powering fire alarm equipment shall be identified as FIRE ALARM CIRCUIT with a red and white engraved label permanently affixed to the equipment.
4. Provide engraved label for each remote alarm indicator.
5. Label all addressable control modules to identify their function.

B. Basic operating instructions shall be framed and permanently mounted at the FACP. (If the owner concurs, they may instead be affixed to the inside of the FACP's door.) In addition, the NFPA 72 "Record of Completion" must either be kept at the FACP, or its location shall be permanently indicated there by an engraved label. All System documentation shall be provided and housed in a Documentation Cabinet at the control panel or other approved location in accordance with NFPA 72.

3.6 GROUNDING

A. Ground FACP and surge protective devices for associated circuits in accordance with Section 260526, “Grounding and Bonding for Electrical Systems”.

B. Ground shielded cables at control panel location only. Insulate shield at device location.

3.7 FIELD QUALITY CONTROL

A. Engage factory-authorized service representative to administer and perform tests and inspections on components, assemblies, and equipment installations, including connections.

B. Coordinate all testing in occupied buildings with the owner’s representative to minimize the disturbance to the building occupants.

C. Visual Inspections: Conduct prior to testing.

1. Inspection must be based on completed record Drawings and system documentation that is required by "Completion Documents, Preparation" table in "Documentation" section of "Fundamentals" chapter in NFPA 72.
2. Comply with "Visual Inspection Frequencies" table in "Inspection" section of "Inspection, Testing and Maintenance" chapter in NFPA 72; retain "Initial/Reacceptance" column and list only installed components.

D. Preliminary Testing

1. Check all wiring for grounds, opens, and shorts, prior to termination at panels and installation of detector heads. The minimum resistance to ground or between any two conductors shall be 10 megohms, as verified with an insulation tester.
2. Ensure all devices and circuits are functioning properly in accordance with manufacturer’s requirements.

E. System Acceptance Testing: Comply with "Test Methods" table in "Testing" section of "Inspection, Testing and Maintenance" chapter in NFPA 72.

1. Test audible appliances for public operating mode in accordance with manufacturer's written instructions. Perform test using portable sound-level meter complying with Type 2 requirements in ASA S1.4 Part 1/IEC 61672-1.
2. Verify candela settings and test visible appliances for public operating mode in accordance with manufacturer's written instructions.
3. Test all site-specific software functions and provide a detailed report showing the system’s operational matrix. Each initiating device shall activate the proper response and system notification.

4. Verify all other system functions, including (where applicable) elevator capture and the control of HVAC systems, door locks, pressurization fans, fire or smoke doors/dampers/shutters, etc.
5. Verify digital communicators are on-line and tested for proper communication to the receiving station.
6. All supervised circuits must also be tested to verify proper supervision.
7. Verify the voltage drop of each NAC circuit by testing and recording the voltage at the origin and at the EOL for each NAC circuit, under battery power only.

F. Reacceptance Testing: Perform reacceptance testing to verify proper operation of added or replaced devices and appliances, software modification, or wiring modifications. Such re-testing shall be included as part of the base bid and provided at no additional cost to the Owner.

G. Final Acceptance Test: Complete record drawings and system operation matrix are required prior to scheduling final acceptance test.
1. The owner’s representative, monitoring service, and fire department shall be notified before final tests in accordance with local requirements.
2. Operate every device to verify proper operation and correct annunciation.
3. Open signaling line circuits and notification appliance circuits in at least two locations to verify proper supervision.

H. Fire-alarm system will be considered defective if it does not pass tests and inspections.

I. Factory-authorized service representative must prepare "Fire Alarm System Record of Completion" in "Documentation" section of "Fundamentals" chapter in NFPA 72 and "Inspection and Testing Form" in "Records" section of "Inspection, Testing and Maintenance" chapter in NFPA 72. Submit certified results to the AHJ, Owner, Architect, and Engineer.

J. Prepare test and inspection reports.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

B. The manufacturer's authorized representative must instruct the owner's designated employees in operation of the system, and in all required periodic maintenance. A minimum of 8 hours on-site time will be allocated for this purpose. Two copies of a written, bound summary will be provided, for future reference.

C. Training shall cover as minimum the following topics:

1. Preventive maintenance service techniques and schedules, including historical data trending of alarm and trouble records.
2. Overall system concepts, capabilities, and functions. Training shall be in depth, so that the owner shall be able to take any device out of service and return any device to service without need of Manufacturer’s approval or assistance.
3. Explanation of all control functions, including training to program and operate the system software.
4. Methods and means of troubleshooting and replacement of all field wiring devices.

5. Methods and procedures for troubleshooting the main fire alarm control panel, including field peripheral devices as to programming, bussing systems, internal panel and unit wiring, circuitry and interconnections.
6. Manuals, drawings, and technical documentation. Actual system software used for training shall be provided in digital form and shall be left with the Owner at the completion of training for the Owner's use in the future.

D. A receipt shall be obtained from the Owner that this has been accomplished, and a copy included in the close-out documents.

END OF SECTION – 284621

SECTION 284800 – TWO-WAY EMERGENCY COMMUNICATIONS SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General, Special and Supplementary Conditions, Division 01 Specification Sections, and Section 260010 “General Requirements for Electrical Systems” apply to this Section.

1.2 SUMMARY

A. Description: This section includes equipment for providing two-way emergency voice communication for elevator landings or areas of refuge.

B. Section Includes:
   1. Analog two-way emergency communications systems for rescue assistance.

1.3 REFERENCES

A. Abbreviations and Acronyms
   1. ECS: Emergency Communication System.
   2. PSTN: Public Switched Telephone Network.
   3. UPS: Uninterruptable Power Supply

B. Reference Standards
   1. Underwriters Laboratories (UL)
      a. UL 2525, “Standard for Two-Way Emergency Communications Systems for Rescue Assistance”
      b. UL 60950, “Information Technology Equipment – Safety”

1.4 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Provide the following

   1. Wiring Diagrams detailing wiring for power, signal and control differentiating clearly between manufacturer installed wiring and field installed wiring.
   2. Arrangement of Components

C. Closeout Submittals
   1. Operation and Maintenance Data: For two-way communication system to include in operation and maintenance manuals.
   2. In addition to items specified in Division 01 and Section 260010 "General Requirements for Electrical Systems", include the following:

a. Operating instructions laminated and mounted adjacent to operating console location.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:
1. Installation, configuration, setup, program and related work shall be performed by a manufacturer's authorized representative who is thoroughly trained by the manufacturer in the installation and service of the equipment provided.
2. Installer shall maintain a fully staffed and equipped service office within 100 miles of the project that regularly offers maintenance and service for systems this design and size.

1.6 WARRANTIES

A. Manufacturer Warranty: Manufacturer agrees to repair or replace system, all of its component parts, wiring, and controls that fail within specified warranty period of 3 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

B. Comply with UL 2525.

2.2 MANUFACTURERS

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

1. Alpha Refuge
2. Rath
3. Talk-a-phone

2.3 COMPONENTS

A. Master Control Unit

1. Flush mounted steel enclosure with hinged door
2. Integral monitoring panel with LEDs to provide visual indication of the following:

a. Activation status of each remote call station
b. Trouble status of each call station pathway
c. Primary and Secondary power supply status
d. Telephone connection status

3. Handset with a coiled cord and keypad.
4. Audible and Visual sounder/strobe with trouble reset switch.
5. Public Switched Telephone Network (PSTN) Interface
    a. The command unit shall be equipped with one (1) PSTN port.
    b. The PSTN port shall interface through a terminal block.
6. Equipped with analog call station ports in order to support required number of analog remote call stations.
7. Programmable through the local command unit phone.
8. Primary Power Supply: Obtained from dedicated 120-V ac branch circuit and a high efficiency power-supply module to supply 24-V dc.
9. Secondary Power Supply: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch for 4 hours of system operation in the event of primary power source failure.

B. Analog Remote Call Station

1. Vandal proof stainless steel with engraved lettering.
2. ADA compliant, flush mounted.
3. “PUSH FOR HELP” button.
4. Red LED indicators to confirm transmission of “Help Requested” signal.
5. Piezoelectric alarm.
6. Hands-free internal speaker and microphone.
7. Dual audio and visual alarms for the hearing and visually impaired.
8. Powered from master control unit unless noted otherwise.
9. Programmable with built in supervised communications and failure relay output.

C. Power Supply

1. The command unit shall be powered by a built-in Uninterruptible Power Supply (UPS).
2. Provide minimum of four hours backup time in the event of primary power source failure.
3. Each analog call station interface port shall provide power to one (1) analog call station through one (1) twisted, shielded pair

D. Signage
1. Provide code required tactile signs with raised letter and braille at each remote call station with directions for using the call stations.
2. Comply with ICC/ANSI A117.1, *Accessible and Usable Buildings and Facilities*, requirements for visual characters.

E. Cabling
1. 2-hour fire-rated circuit integrity cable or other 2-hour rated cabling system.

2.4 SYSTEM SEQUENCE OF OPERATION

A. When in use the system shall provide two-way audio communications between the Master control station unit, remote call station and/or a call to “9-1-1”. Communication at the remote call station shall be hands-free after initial contact from the area station. Call out to “9-1-1” shall be a timed occurrence when the master station has not been picked up after a call from a remote station.

B. When an emergency call is placed by the master unit, it provides the following indications at the area remote call station to assure the caller that the call is being processed. After pressing the “PUSH FOR HELP” call button:

1. Audio and visual confirmation:
   a. A “HELP REQUESTED” LED shall illuminate.
   b. An audible alarm shall sound.

C. The Master control unit allows Emergency Personnel to check status of each remote call station and to talk with each remote call station on an individual basis or all of them together.

D. A lighted green LED labeled “RESCUE SERVICES” indicates that an emergency is in progress.

E. If an emergency call is in progress, by lifting the handset on the master control unit you can automatically join the conversation. At this point you can place any or all remote call stations on hold by pushing the hold button corresponding to that unit, which will leave them talking to the called party. Or you can disconnect the called party by pressing the “DISCONNECT TO CALL SERVICES” button, which will leave you talking to the remote area unit.

F. If there is no emergency call in progress you can call into any or all remote call station by pressing the corresponding talk button to that unit.

G. By hanging up the master station you disconnect from the conversation while leaving the remote area station continuing any ongoing conversation with the called party.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elements and surfaces to receive system components for compliance with installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with Manufacturers installation and programming instructions.

B. Mount devices plumb and rigid without distortion of boxes. Ensure recessed devices are flush with wall finish and mating with back box.

C. Locate devices and signage to ensure conformance with ADA requirements.

D. Ground any cable shields at common point only at master control unit. Preserve continuity of shields at connecting points.

E. Wiring
   1. Provide telephone line from MDF DEMARC location or system PSTN interface.
   2. Monitor Integrity of all communication circuits between the remote call stations and the master control unit.

3.3 IDENTIFICATION

A. Comply with requirements in Section 260553, “Identification for Electrical Systems”

1. Identify system components, wiring, cabling, and terminals.

3.4 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

B. Electrical and mechanical tests and inspections: Perform manufacturer's recommended tests and inspections.

C. Operational Tests: After electrical circuitry has been energized, test for compliance with performance requirements:

1. Perform operational tests that include activation of each remote call stations and ensuring proper communication with master control unit.
2. Verify the call out function to “9-1-1” properly calls out after the set duration.

D. Nonconforming Work:

1. System will be considered defective if it does not pass tests and inspections.
2. Remove and replace defective units and retest.

E. Prepare and Submit test and inspection reports.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain two-way communication system.

END OF SECTION – 284800

SECTION 285500 – EMERGENCY RESPONDER RADIO BDA SYSTEM SURVEY

PART 1 GENERAL

1.01 SUMMARY

A. The purpose of this specification is to establish the requirements and standards for initial survey for public safety radio signal strength per NFPA and IFC

B. Survey should be performed after the building is substantially completed, and prior to start of installation of electrical wiring.

C. Conduct a survey using a RF Spectrum Analyzer, a calibrated, system-compatible radio or another suitable instrument with traceable certificate of calibration to analyze the RF signal strength of Emergency Responder Radio Signal into the building and determine if amplification of the signal is required. Both inbound and outbound signal strength shall be determined, measured, calculated and documented as required by code.

1.02 SURVEY CRITERIA IF REQUIRED

A. The required Public Safety Radio Signal Level inside the Owner's facility must be determined per code, ordinance or AHJ

B. Survey shall be performed by an FCC licensed technician holding a current GROL license.

1.03 REGULATIONS

A. Codes, regulations and standards referenced in the Section are:
1. NFPA 1 – The National Fire Code (including Annex O from 2009)
2. NFPA 70 – The National Electrical Code
3. IFC 510- Emergency Responder Radio Coverage
4. NFPA 101, Life Safety Code, the Ohio Building Code, and Local Code and Building Authority requirements.
5. NFPA 72 National Fire Alarm Code
6. FCC 47 CFR Private Land Mobile Radio
7. 90.219 Services-Use of Signal Boosters
8. ICC International Fire Code, Code and Commentary
9. Local or State Promulgated Fire Code
10. ADA "Americans with Disabilities Act"
11. FCC's OET 65 Standards "Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields"
12. FCC Rules Part 22, Part 90 and Part 101

13. NFPA 1221 2016 Edition
14. International Building Code 2012 / 2015 / 2018
15. UL 2524

1.04 DEFINITIONS

A. Definitions:
1. Bi-Directional Amplifier BDA: Device used to amplify band-selective or multi-band RF signals in the uplink, to the base station and in the downlink from the base station to subscriber devices for enhanced signals and improved coverage.
2. Emergency Responder Radio Coverage System: A two-way radio communication system installed to assure the effective operation of radio communications systems for fire, emergency medical services, or law enforcement agencies within a building or structure. A system used by firefighters, police, and other emergency services personnel.
3. FCC: Federal Communications Commission
4. OET 65 Standards: FCC's Bulletin 65 provides Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
5. Public Safety/First Responder: Public Safety or First Responder agencies that are charged with the responsibility of responding to emergency situations. These include, but are not limited to law enforcement departments, fire departments, and emergency medical companies.
6. RSSI: Received signal strength indicator RSSI is a measurement of the power present in a received radio signal.
7. BER: Bit Error Rate is the number of bit errors per unit time
8. GROL- FCC General Radio Operators License
9. ERRCES- Emergency Responder Radio Coverage Enhancement System
10. DAS-Distributed Antenna System

1.05 EXECUTION

A. Testing Procedures
1. Minimum Signal Strength: For testing system signal strength and quality, the testing shall be based on the. -95dBm nominal signal at 100%.
2. Spectrum Analyzer or Calibrated Handheld Radio shall be used as basis for signal measurements or other method as approved by AHJ.
3. Testing should be based on a minimum of 20 grid locations per floor OR maximum of 1600 SQ ft. areas if the floor exceeds 32,000 Sq. Ft. Also, testing should include all critical areas per NFPA. See 1.02 of this specification and NFPA 72 2013 or NFPA 1221 2016. OR per any method determined by the AHJ, local code or ordinance.
3. A minimum signal strength of -95 dBm shall be provided throughout the coverage area for both uplink and downlink by the Local Fire Department.
   a. RSSI measurement only

1.06 SURVEY SUBMITTALS

A. Submit testing data for each level of the building.

1. An RF measurement drawing of each floor of the building which indicates relative RF field strength for each frequency band of interest must be submitted to the AHJ.
2. The drawing should indicate clearly the areas that have passed or failed based on the above parameters.

END OF SECTION – 285500