ADDENDUM NO. 3

Date Issued: October 11, 2024

PROJECT NUMBER:	10-19202-00
PROJECT NAME:	Jennings Community Center
CLIENT NAME:	City of Jennings
PREPARED BY:	KAI Design 2060 Craigshire Dr, St. Louis, MO 63146

I. *This Addendum modifies the Contract Documents and is hereby made a part of the Proposal, Bidding and Contract Documents.*

II. *Bidders must acknowledge receipt of this Addendum in the Bid Proposal Form. Failure to do so may subject Bidder to disqualification.*

III. *All incidental work necessitated by this addendum as required to properly complete the work shall be included in the Bids, even though not specifically stated in the Addendum.*

GENERAL INFORMATION

TITLE	DESCRIPTION OF CHANGES
	Added Bidder RFI Log.

PROJECT MANUAL UPDATES

SECTION #	DESCRIPTION OF CHANGES
27 15 13	Removed requirement for Computer-based Cable Management System.

DRAWING UPDATES

SHEET #	DESCRIPTION OF CHANGES
E001	Deleted symbols for receptacles on emergency power from the Legend.
E101	Revised design for utility power equipment and feeders per AMEREN's requirements.
E201	Revised all receptacles indicated as emergency to standard symbols. Added 20A, 120V circuit for access control system panel in IT room 214. Added one general purpose receptacle and fed receptacles from circuit P2-19 in Mechanical Room 222.
E501	Revised Detail 9 to include cables for data outlets in scope. Replaced CAT 5 cable with CAT 6 cable in Details 2 and 6.
E604	Added 20A, 120V circuit for access control system panel in panel P2.
E701	Added exterior disconnect switch and meter box per AMEREN's requirements.

END OF DOCUMENT

City of Jennings
Community Center Project
Pre-Bid RFI Log

RFI #	Description	Response	Addenda #
001	Given the past information regarding the city and issues with funding previous projects. Can the city provide information regarding the status of the funding for the project and would they be willing to put funds for this project into an escrow account to ensure funding is in place thru the entirety of the project.	See email dated 9/30/24 from City of Jennings Finance Director with balance in bond account and copy of Declaration of Trust. The funds from the bond can only be used for this project.	2
002	Is the pedestrian bridge weathering steel or does the bridge have a galvanized steel finish? The specs call out both.	The bridge is weathering steel. The galvanizing reference is for the form deck used for the concrete deck.	2
003	Wanting to have the following companies approved as alternate providers for the pedestrian bridge, and I can send backups as needed: a. True North Steel b. Contech Engineering c. Pioneer Bridges	The listed manufacturers are acceptable as long as the product meets the specification.	2
004	Specs call out 4.5” storefront while the details show 6”, please confirm.	The storefront system should be 4.5".	2
005	can the QCP requirement for the cabinets be waived on this project?	Recommend maintaining the requirement for AWI Quality Certification Program.	2
006	Would the engineer be willing to waive the AISC requirements found under Structural Steel Framing 05 12 00 Quality Assurance 1.7 “A” & “B”?	The requirement for AISC certification will remain for the fabricator, in 1.7 A, but be waived for the erector, in 1.7 B. In lieu of this certification, the erector will be required to show a minimum of 2 years experience erecting PEMB's of a similar sie and complexity (for company and lead foreman or supervisor on site), as well as provide other relevant certifications or qualifications that demonstrate a company's capability without the specific AISC requirement.	3
007	Substitution request to use Elite Storage Products LLC to division 10 lockers.	Proposed product is not accepted.	3
008	The fire alarm specification lists Notifier by Honeywell. Are any other brands allowed? If so, would we be able to submit on the brand Gamewell-FCI by Honeywell as an equal?	Equal equipment is allowed. System must meet the criteria established in Section 28 46 21.11.	3
009	Substitution request to use Taraflex Sports flooring.	Proposed product is not accepted.	3
010	AS-402 shows a Pre-Engineered Canopy. What kind of roofing is to be installed here? The details do not show any enlarged walls sections. The canopy cut says "pre-engineered roof" and does not indicate "RF-1" on the exterior materials legend.	Manufacturer's standard metal roof is acceptable for the pre-engineered canopy.	3
011	Is it acceptable to construct cabinetry to AWI standards in lieu of having a supplier that is AWI certified?	Recommend keeping the AWI certification	3
012	Page 741 (27 15 13-7) states in section 2.6 that a computer based cable management system is to be provided. This is ridiculous (and expensive) for this size of a project so can you please ask if this is an actual requirement?	Computer based cable management system is not required. Delete Paragraph 2.6 in Section 27 15 13.	3
013	Drawing E20, Note 1 states to install cabling for cameras. E501, detail 1 states to provide cabling for WAP's. However, E501, Detail 9 states "Cables to patch panel (by others)." Please ask for clarification on the cabling scope.	Contractor is to furnish and install the cabling for cameras, WAPs, data outlets.	3
014	Drawing E Details 2 & 6 states to provide Cat 5 cable. This is certainly a mistake so please ask for clarification on the cable type/specification.	Use Cat 6 cable.	3
015	Who will be responsible for providing and installing the Access Control head end?	The Owner and their supplier will provide and install the Access Control devices	3
016	Who will be responsible for providing and installing the Access Control door devices?	The Owner and their supplier will provide and install the Access Control devices	3
017	Will a P8 pilaster be needed at the interior column pads on column line CCD? The top of footing on detail 6/S300 shows 99’-0” and the top of the P8 pilaster shows 99’-0”.	Yes, a pilaster is required. The top of all footings = 96’- 6” per Foundation Plan Note 3 on S-200. Therefore T/P8 = 99’- 0” and bottom of P8 = T/Ftg = 96’- 6”. At CCD-CC4 and CCD-CC5, the P8 pilaster will be placed monolithic with the Grade Beam detailed on 6/S-300.	3
018	What size are the concrete pilasters at the canopy on detail 8/S300?	Design intent shown on 5/AS-402. Pilaster size to coordinate with final column design from canopy provider.	3
019	Can you also clarify where the LVT is to be used. It is listed on the Finish Schedule, but I couldn’t find it on the plan.	No LVT-1 flooring is shown on finish plan.	3
020	Please verify the elevations of Lime Stabilization for the proposed building. Finish floor of 510.0 with 6” slab and 8” of base rock puts dirt subgrade at 508.84. We would be removing some of the lime stabilization.	The top of the lime stabilization under the Community Center shall be 508.83' and the top of the lime stabilization under the future City Hall shall be 508.33'. The bottom elevations of the Lime Stabilization remain the same as shown on plan sheet C2.0; i.e. 506.5' for the Community Center and 505.5' for the future City Hall.	3
021	Detail 7-A541 shows a multiple piece built up Z system on top of the PEMB purlin. Please advise if the interior liner panel can be applied to the bottom of the purlin and the insulation installed in the purlin cavity as traditionally constructed in a PEMB.	Alternate assembley is not accepted. Follow details on the documents.	3
022	What kind of stone is desired in the gravel borders?	Provide Iron Mountain Trap Rock, 1" to 3".	3
023	Who is HVAC controls contractor for this project? I was unable to find anybody listed in the specifications.	Controls are by the RTU manufacturer, refer to specification section 237415.13 article 2.12 and part 3 execution.	3
024	Who is responsible for providing smoke detectors for the RTU’s?	Smoke detectors are indicated in the RTU airflow/controls schematic drawings. The Contractor can determine how Electrical and/or Mechanical sub will provide, mount and wire these.	3
025	Will you provide a HVAC insulation specification?	Please refer to specification section 200700 for insulation for Div 21, 22 & 23.	3
026	The fire alarm spec section looks to be exclusive to Notifier. The Sprinkler spec has 3 different manufacturers. Can you clarify if Notifier is a basis of design for fire alarm and alternate equal options will be acceptable?	Equal equipment is allowed. System must meet the criteria established in Section 28 46 21.11.	3
027	Can you confirm the quantity of horizontal wall girts in the typical building section? See 3/A-311 wall section which shows two intermediate horizontal PEMB girts. We are trying to determine the amount of cold formed metal framing track. Is our guess of 2 girts and 6 pieces of track correct?	The number of girts is up to the PEMB manufacturer.	3
028	075423 Spec, paragraph 2.2.A. States the membrane to meet ASTM D6878 but to be Fabric backed. ASTM 6878 is associated with standard membrane and not fabric backed membranes. Is Fabric Backed material desired, or can this be clarified? There is also no mention of fabric backed adhesives within paragraph 2.3.	Fleece backed membrane is required. The adhesive is the contractor's choice of products recommended for the system by the membrane manufacturer.	3

City of Jennings
Community Center Project
Pre-Bid RFI Log

RFI #	Description	Response	Addenda #
029	The spec mentions a logistics plan in a couple spots, but I can't find the plan. In the past I've seen it in the spec, after the Navigate scope of work section. Can you point me in the right direction?	Disregard, there is no site logistics plan. GC to develop plan. Contractor shall have full use of Project site for construction operations during construction period.	3
030	Will the $300,000 Scope Coordination and Unknown Site Conditions allowance amount be considered in the MBE / WBE calculations?	Per 002113, #17, MBE and WBE percentages are "measured by percentage of the dollar value of all work on the contract". Take $ value of MBE divided by total contract amount (same for WBE).	3
031	C2.0 and C3.0 show additional disturbed area to the west that is not shown on C2.1. What is the extent of erosion control required at these locations?	Provide the same level of protection as would be expected for sewer installation. The length of time of the construction of the sewer is assumed to be brief. Once the pipe is placed and properly backfilled, seed to provide a cover crop until final seeding can occur.	3
032	Will there be gas accommodations to the future building?	No accommodations will be included in this project to extend gas service for the future building.	3
033	Is the entire site to be surrounded with temporary fencing? If so, what type of material and height?	Yes, per section 015000, paragraph 2.1.	3
034	Is a temporary construction entrance, washdown station and concrete waste management area required? If so, what are the requirements?	Temporary construction entrance is up to GC and their site logistics plan, but I don't know how you can get to the temporary construction parking and keep the streets clean (per 002413, #22) without one. You must have a plan for washing out concrete trucks per your SWPPP plan.	3
035	Any existing water taps are assumed to have been previously destroyed, correct?	Correct.	3
036	Are we required to supply chrome plated shovels for the ground-breaking ceremony?	No. If needed, Navigate will provide.	3
037	Are the bollards, if any, to have plastic covers?	Plastic bollard covers are not required.	3
038	The scope of work portion of the bid documents mention the creation of overlay drawings for MEP/FP scopes. Since these systems are part of a plan and spec job with engineering already being done, has the design team created overlay drawings to coordinate their documents? Did the design team draw their systems as in a 3D modeling software?	The contract documents require The Contractor to generate a coordination drawing set based upon the sub-contractor's fabrication layouts. This would include Structural, Architectural, Ductwork, Plumbing, Fire Protection and Electrical trades. Several of these trades may vary from the as-designed documents.	3
039	Is anyone aware of private utilities in this area? Since there is not any building located here for the Owner, is there any requirement to repair private utilities that may be encountered?	All known utilities have been shown on the plans. It is not anticipated that any active private utilities will be discovered. Also, the Contractor is responsible for locating all public and private utilities.	3
040	Can the permanent HVAC system be used for cooling/heating during construction, if an extended warranty is purchased and if filter changes are provided?	Section 002413, #69 says this will not be allowed. Section 015000, 2.3 also discusses. In the past, we have allowed when GC comes up with an acceptable plan for using the permanent system, subject to approval by Navigate and mechanical engineer, including use and change of proper filters, extended warranty. Depending on system, we typically require 100% outside air (to eliminate dust contamination) and no return air.	3
041	Specs call for three mobilizations for the asphalt work. Is there any reasoning for this? We can do this operation in a single lift. Please advise	There are two separate mix designs for the base and surface courses of the asphalt pavement. The asphalt cannot be placed in a single lift. However, it could be placed in a single day if the contractor is proficient. The plans and specs call for a prime coat, MoDOT BP-1 base course and MoDOT BP-2 surface course. If the contractor prefers, we would allow MoDOT Black Base with a BP-1 surface course and no prime coat.	3
042	The documents state the fire alarm and fire protection permits will be procured by Jennings. Do we need to get any fire building permit from Riverview Fire or will Jennings take care of that? Sometimes there are permits the subs have to pull and some that the general contractor have to pull in addition to the sub ones, so I just want to make sure we have the appropriate permit fees included in the right spot.	The project is in the North County Fire and Rescue Fire Protection District. They are waiving their permit fees since it is a City of Jennings project.	3
		Shaded = Response issued in previous Addendum.	

SECTION 27 15 13 - COMMUNICATIONS COPPER HORIZONTAL CABLING

PART 1 GENERAL

1.1 SUMMARY

A Section Includes:

1. Category 6 UTP cable.
2. Twisted pair cable hardware, including plugs and jacks.
3. Multiuser telecommunications outlet assembly.
4. Cabling identification products.
5. Source quality control requirements for UTP cable.

1.2 DEFINITIONS

A Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.

B EMI: Electromagnetic interference.

C FTP: Shielded twisted pair.

D F/FTP: Overall foil screened cable with foil screened twisted pair.

E F/UTP: Overall foil screened cable with unscreened twisted pair.

F IDC: Insulation displacement connector.

G LAN: Local area network.

H Jack: Also commonly called an "outlet," it is the fixed, female connector.

I Plug: Also commonly called a "connector," it is the removable, male telecommunications connector.

J RCDD: Registered Communications Distribution Designer.

K Screen: A metallic layer, either a foil or braid, placed around a pair or group of conductors.

L Shield: A metallic layer, either a foil or braid, placed around a pair or group of conductors.

M S/FTP: Overall braid screened cable with foil screened twisted pair.

N S/UTP: Overall braid screened cable with unscreened twisted pairs.

O UTP: Unscreened (unshielded) twisted pair.

1.3 COPPER HORIZONTAL CABLING DESCRIPTION

A Horizontal cabling system shall provide interconnections between Distributor A, Distributor B, or Distributor C, and the equipment outlet, otherwise known as "Cabling Subsystem 1," in the telecommunications cabling system structure. Cabling system consists of horizontal cables, intermediate and main cross-connects, mechanical terminations, and patch cables used for horizontal-to-horizontal cross-connection.

1. TIA-568-C.1 requires that a minimum of two equipment outlets be installed for each work area.
2. Horizontal cabling shall contain no more than one transition point or consolidation point between the horizontal cross-connect and the telecommunications equipment outlet.
3. Bridged taps and splices shall not be installed in the horizontal cabling.

B A work area is approximately 100 sq. ft., and includes the components that extend from the equipment outlets to the station equipment.

C The maximum allowable horizontal cable length is 295 feet. This maximum allowable length does not include an allowance for the length of 16 feet to the workstation equipment or in the horizontal cross-connect.

1.4 ACTION SUBMITTALS

A Product Data: For each type of product.

B Shop Drawings: Reviewed and stamped by RCDD.

1. Electronic copy of labeling schedules.
2. Cabling administration Drawings and printouts.
3. Wiring diagrams and installation details of telecommunications equipment, to show location and layout of telecommunications equipment, including the following:
4. Telecommunications rooms plans and elevations.
5. Telecommunications pathways.
6. Telecommunications system access points.
7. Telecommunications grounding system.
8. Telecommunications conductor drop locations.
9. Typical telecommunications details.

C UTP cable testing plan.

D Field Quality-Control Submittals:

1. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A Maintenance Data: For cabling and connectors to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.

1. Layout Responsibility: Preparation of Shop Drawings, cabling administration Drawings, and field testing program development by an RCDD.
2. Installation Supervision: Installation shall be under the direct supervision of Level 2 Installer, who shall be present at all times when Work of this Section is performed at Project site.

B Testing Agency Qualifications: Testing agency must have personnel certified by BICSI on staff.

1. Testing Agency's Field Supervisor: Currently certified by BICSI as an RCDD.

1.7 DELIVERY, STORAGE, AND HANDLING

A Visually Inspect cables upon receipt at Project site.

1. Test each pair of twisted pair cable for open and short circuits.

1.8 PROJECT CONDITIONS

A Environmental Limitations: Do not deliver or install cables and connecting materials until wet work in spaces is complete and dry.

1.9 COORDINATION

A Coordinate layout and installation of telecommunications pathways and cabling with Owner's telecommunications and LAN equipment and service suppliers.

1.10 REFERENCE STANDARDS

A TIA-569 - Telecommunications Pathways and Spaces; 2019e, with Addendum (2022).

B TIA-606 - Administration Standard for Telecommunications Infrastructure; 2021d.

C TIA-607 - Generic Telecommunications Bonding and Grounding (Earthing) for Customer Premises; 2019d, with Addendum (2021).

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A General Performance: Horizontal cabling system shall comply with transmission standards in TIA-568-C.1, when tested according to test procedures of this standard.

B Telecommunications Pathways and Spaces: Comply with TIA-569-D.

C Grounding: Comply with TIA-607-B.

2.2 GENERAL CABLE CHARACTERISTICS

A Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with the applicable standard and NFPA 70 for the following types:

1. Communications, Plenum Rated:
2. Type CMP complying with UL 1685 or Type CMP in listed plenum communications raceway or Type CMP in listed cable routing assembly.
3. Type CM, Type CMG, Type CMP, Type CMR, or Type CMX in metallic conduit installed according to NFPA 70, Article 300.22, "Wiring in Ducts, Plenums, and Other Air-Handling Spaces."
4. Communications, Non-Plenum Rated:
5. Type CMR complying with UL 1666 and ICEA S-103-701.
6. Type CMP or Type CMR in listed plenum or riser communications raceway.
7. Type CMP or Type CMR in metallic conduit installed according to NFPA 70, Article 300.22, "Wiring in Ducts, Plenums, and Other Air-Handling Spaces."

B Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 50 450 or less.

C RoHS compliant.

2.3 CATEGORY 6 UTP CABLE

A Description: Four-pair, balanced-twisted pair cable, with internal spline, certified to meet transmission characteristics of Category 6 UTP cable at frequencies up to 250 MHz.

B 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. Belden Inc.
2. Berk-Tek, a Leviton Company.
3. Mohawk; a division of Belden Networking, Inc.
4. Superior Essex Inc.; subsidiary of LS Corp.

C Standard: Comply with NEMA WC 66/ICEA S-116-732 and TIA-568-C.2 for Category 6 cables.

D Conductors: 100-ohm, 23 AWG solid copper.

E Shielding/Screening: Unshielded twisted pairs (UTP) Shielded twisted pairs (FTP) Screened twisted pairs (F/UTP) Screened and shielded twisted pairs (F/FTP).

F Cable Rating: Plenum.

G Jacket: Blue thermoplastic.

2.4 TWISTED PAIR CABLE HARDWARE

A Description: Hardware designed to connect, splice, and terminate twisted pair copper communications cable.

B 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. Belden Inc.
2. Berk-Tek, a Leviton Company.
3. Leviton Manufacturing Co., Inc.
4. Mohawk; a division of Belden Networking, Inc.
5. Superior Essex Inc.; subsidiary of LS Corp.

C General Requirements for Twisted Pair Cable Hardware:

1. Comply with the performance requirements of Category 5e, Category 6 and Category 6A.
2. Comply with TIA-568-C.2, IDC type, with modules designed for punch-down caps or tools.
3. Cables shall be terminated with connecting hardware of same category or higher.

D Source Limitations: Obtain twisted pair cable hardware from single source from single manufacturer.

E Connecting Blocks:

1. 110-style IDC for Category 5e.
2. 66-style IDC for Category 5e.
3. 110-style IDC for Category 6.
4. 110-style IDC for Category 6A.
5. Provide blocks for the number of cables terminated on the block, plus 25 percent spare, integral with connector bodies, including plugs and jacks where indicated.

F Cross-Connect: Modular array of connecting blocks arranged to terminate building cables and permit interconnection between cables.

1. Number of Terminals per Field: One for each conductor in assigned cables.

G Patch Panel: Modular panels housing numbered jack units with IDC-type connectors at each jack location for permanent termination of pair groups of installed cables.

1. Features:
2. Universal T568A and T568B wiring labels.
3. Labeling areas adjacent to conductors.
4. Replaceable connectors.
5. 24 or 48 ports.
6. Construction: 16-gauge steel and mountable on 19-inch equipment racks.
7. Number of Jacks per Field: One for each four-pair cable indicated

H Patch Cables: Factory-made, four-pair cables in 48-inch lengths; terminated with an eight-position modular plug at each end.

1. Patch cables shall have bend-relief-compliant boots and color-coded icons to ensure performance. Patch cables shall have latch guards to protect against snagging.
2. Patch cables shall have color-coded boots for circuit identification.

I Plugs and Plug Assemblies:

1. Male; eight position; color-coded modular telecommunications connector designed for termination of a single four-pair, 100-ohm, unshielded or shielded twisted pair cable.
2. Standard: Comply with TIA-568-C.2.
3. Marked to indicate transmission performance.

J Jacks and Jack Assemblies:

1. Female; eight position; modular; fixed telecommunications connector designed for termination of a single four-pair, 100-ohm, unshielded or shielded twisted pair cable.
2. Designed to snap-in to a patch panel or cover plate.
3. Standard: Comply with TIA-568-C.2.

K Cover Plate:

1. Two port, vertical single gang cover plates designed to mount to single gang wall boxes.
2. Metal Cover Plate: Stainless steel complying with requirements in Section 26 05 33 "Raceway and Boxes for Electrical Systems."
3. For use with snap-in jacks accommodating any combination of twisted pair, optical fiber, and coaxial work area cords.
4. Flush mounting jacks, positioning the Patch Cable at a 45-degree angle.

L Legend:

1. Machine printed, in the field, using adhesive-tape label.
2. Snap-in, clear-label covers and machine-printed paper inserts.

2.5 MULTIUSER TELECOMMUNICATIONS OUTLET ASSEMBLY (MUTOA)

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. Belden, Inc.
2. Chatsworth Products, Inc.
3. Ortronics, Inc.
4. Siemon Co. (The).

B Description: MUTOAs shall meet the requirements of "Twisted Pair Cable Hardware" Article.

1. Number of Terminals per Field: One for each conductor in assigned cables.
2. Number of Connectors per Field:
3. One Insert number for each four-pair unshielded or shielded twisted-pair cable indicated.

4. One Insert number for each four-pair unshielded or shielded twisted-pair group of indicated cables, plus 25 percent spare positions.
5. Mounting: Recessed in ceiling, Wall, Desk, Furniture.
6. NRTL listed as complying with UL 50 and UL 1863.
7. Label shall include maximum length of work area cords, based on TIA-568-C.1.
8. When installed in plenums used for environmental air, NRTL listed as complying with UL 2043.

2.6 IDENTIFICATION PRODUCTS

A Comply with TIA-606-B and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

2.7 SOURCE QUALITY CONTROL

A Testing Agency: Engage a qualified testing agency to evaluate cables.

B Factory test cables on reels according to TIA-568-C.1.

C Factory test twisted pair cables according to TIA-568-C.2.

D Cable will be considered defective if it does not pass tests and inspections.

E Prepare test and inspection reports.

PART 3 EXECUTION

3.1 WIRING METHODS

A Routing:

1. Install cables in raceways and cable trays, except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces, attics, and gypsum board partitions where unenclosed wiring method may be used. Conceal raceway and cables, except in unfinished spaces.
2. Install plenum cable in environmental air spaces, including plenum ceilings.
3. Comply with requirements for raceways and boxes specified in Section 27 05 28 "Pathways for Communications Systems."
4. Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

B Wiring within Enclosures: Bundle, lace, and train cables within enclosures. Connect to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools. Install conductors parallel with or at right angles to sides and back of enclosure.

3.2 INSTALLATION OF PATHWAYS

A Comply with requirements for demarcation point, cabinets, and racks specified in Section 27 11 00 "Communications Equipment Room Fittings."

B Comply with Section 27 05 36 "Cable Trays for Communications Systems."

C Drawings indicate general arrangement of pathways and fittings.

3.3 INSTALLATION OF TWISTED-PAIR HORIZONTAL CABLES

A Comply with NECA 1 and NECA/BICSI 568.

B General Requirements for Cabling:

1. Comply with TIA-568-C.0, TIA-568-C.1, and TIA-568-C.2.
2. Comply with BICSI's "Information Transport Systems Installation Methods Manual (ITSIMM), Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section.
3. Install 110-style IDC termination hardware unless otherwise indicated.
4. Do not untwist twisted pair cables more than 1/2 inch from the point of termination to maintain cable geometry.
5. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
6. MUTOA shall not be used as a cross-connect point.
7. Consolidation points may be used only for making a direct connection to equipment outlets:
8. Do not use consolidation point as a cross-connect point, as a patch connection, or for direct connection to workstation equipment.
9. Locate consolidation points for twisted-pair cables at least 49 feet from communications equipment room.
10. Cables may not be spliced. Secure and support cables at intervals not exceeding 60 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
11. Install lacing bars to restrain cables, prevent straining connections, and prevent bending cables to smaller radii than minimums recommended by manufacturer.
12. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI Information Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Cable Termination Practices" Section. Use lacing bars and distribution spools.
13. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
14. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
15. In the communications equipment room, install a 10-foot-long service loop on each end of cable.
16. Pulling Cable: Comply with BICSI Information Transport Systems Installation Methods Manual, Ch. 5, "Copper Structured Cabling Systems," "Pulling and Installing Cable" Section. Monitor cable pull tensions.

C Open-Cable Installation:

1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
2. Suspend twisted pair cabling, not in a wireway or pathway, a minimum of 8 inches above ceilings by cable supports not more than 60 inches apart.
3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.

D Installation of Cable Routed Exposed under Raised Floors:

1. Install plenum-rated cable only.
2. Install cabling after the flooring system has been installed in raised floor areas.
3. Coil cable 6 feet Insert size long not less than 12 inches Insert size in diameter below each feed point.

E Group connecting hardware for cables into separate logical fields.

F Separation from EMI Sources:

1. Comply with recommendations from BICSI's "Telecommunications Distribution Methods Manual" and TIA-569-D for separating unshielded copper communication cable from potential EMI sources, including electrical power lines and equipment.
2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
3. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches.
4. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
5. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.
6. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
7. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches.
8. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
9. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.
10. Separation between communications cables in grounded metallic raceways, power lines, and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
11. Electrical Equipment Rating Less Than 2 kVA: No requirement.
12. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
13. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
14. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.
15. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 5 inches.

3.4 GROUNDING

A Comply with requirements in Section 27 05 26 "Grounding and Bonding for Communications Systems" for grounding conductors and connectors.

B Install grounding according to the "Grounding, Bonding, and Electrical Protection" chapter in BICSI's "Telecommunications Distribution Methods Manual."

C Comply with TIA-607-B and NECA/BICSI-607.

D Locate grounding bus bar to minimize the length of bonding conductors. Fasten to wall, allowing at least a 2-inch clearance behind the grounding bus bar. Connect grounding bus bar to suitable electrical building ground, using a minimum No. 4 AWG grounding electrode conductor.

E Bond metallic equipment to the grounding bus bar, using not smaller than a No. 6 AWG equipment grounding conductor.

3.5 IDENTIFICATION

A Identify system components, wiring, and cabling complying with TIA-606-B. Comply with requirements for identification specified in Section 27 05 53 "Identification for Communications Systems."

1. Administration Class: Class 1 Class 2 Class 3 Class 4.
2. Color-code cross-connect fields and apply colors to voice and data service backboards, connections, covers, and labels.

B Paint and label colors for equipment identification shall comply with TIA-606-B for Class 2 Class 3 Class 4 level of administration, including optional identification requirements of this standard.

C Cable Schedule: Install in a prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.

D Cabling Administration Drawings: Show building floor plans with cabling administration-point labeling. Identify labeling convention and show labels for telecommunications closets, terminal hardware and positions, horizontal cables, work areas and workstation terminal positions, grounding buses and pathways, and equipment grounding conductors.

E Cable and Wire Identification:

1. Label each cable within 4 inches of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
2. Each wire connected to building-mounted devices is not required to be numbered at the device if wire color is consistent with associated wire connected and numbered within panel or cabinet.
3. Label each terminal strip, and screw terminal in each cabinet, rack, or panel.
4. Individually number wiring conductors connected to terminal strips, and identify each cable or wiring group, extended from a panel or cabinet to a building-mounted device, with the name and number of a particular device.
5. Label each unit and field within distribution racks and frames.
6. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and -connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.

F Labels shall be preprinted or computer-printed type, with a printing area and font color that contrast with cable jacket color but still comply with TIA-606-B requirements for the following:

1. Cables use flexible vinyl or polyester that flexes as cables are bent.

3.6 FIELD QUALITY CONTROL

A Tests and Inspections:

1. Visually inspect jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA-568-C.1.
2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
3. Test twisted pair cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not cross-connection.
4. Test instruments shall meet or exceed applicable requirements in TIA-568-C.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.

B Data for each measurement shall be documented. Data for submittals shall be printed in a summary report that is formatted similarly to Table 10.1 in BICSI's "Telecommunications Distribution Methods Manual," or shall be transferred from the instrument to the computer, saved as text files, printed, and submitted.

C Nonconforming Work:

1. End-to-end cabling will be considered defective if it does not pass tests and inspections.
2. Remove and replace cabling where test results indicate that they do not comply with specified requirements.
3. All test results must show PASS. PASS* test results will NOT be accepted.

D Collect, assemble, and submit test and inspection reports.

END OF SECTION 27 15 13

--This page intentionally left blank--

GENERAL NOTES

GENERAL ELECTRICAL NOTES:
NOT ALL SYMBOLS AND ABBREVIATIONS APPEARING HEREIN NECESSARILY APPLY TO THESE PLANS AND SPECIFICATIONS. THESE GENERAL NOTES APPLY TO ALL ELECTRICAL DRAWINGS. INSTALLATION SHALL COMPLY WITH THE 2017 NATIONAL ELECTRICAL CODE AND 2018 INTERNATIONAL ENERGY CONSERVATION CODE.

WIRING & RACEWAYS:
MINIMUM CONDUIT SIZE IS 3/4" AND MINIMUM CONDUCTOR SIZE IS #12 AWG UNLESS OTHERWISE NOTED.

PROVIDE DEDICATED NEUTRAL FOR EACH BRANCH CIRCUIT IN MULTI-WIRE HOMERUNS.

ALL RACEWAYS AND CABLES SHALL CONTAIN A GREEN INSULATED COPPER GROUNDING CONDUCTOR.

THE MAXIMUM NUMBER OF CURRENT CARRYING CONDUCTORS IN ANY ONE CONDUIT SHALL BE LIMITED TO SIX.

IN LIGHTING CIRCUITS, THE NEUTRAL SHALL BE CONSIDERED A CURRENT CARRYING CONDUCTOR.

OUTLET AND JUNCTION BOXES SHALL NOT BE INSTALLED IN A MANNER SIDE BY SIDE OR BACK TO BACK THAT WILL IMPACT SMOKE TIGHT BARRIERS, SOUND TRANSITION, ETC.

FOR ABOVE NON-ACCESSIBLE HARD CEILING AREAS, LOCATE JUNCTION BOXES OUTSIDE NON-ACCESSIBLE AREA, OR PROVIDE ACCESS PANEL IN CEILING.

MOUNTING HEIGHTS FOR CEILING MOUNTED FIXTURES OR DEVICES ARE TO BOTTOM OF FIXTURES OR DEVICES, AND MOUNTING HEIGHTS FOR WALL MOUNTED FIXTURES OR DEVICES ARE TO CENTER LINE OF OUTLET BOXES, UNLESS OTHERWISE NOTED.

NO DUCT OR LIQUID PIPING SHALL PASS OVER OR THROUGH ANY ELECTRICAL SPACE OR ROOM AS DEFINED BY NEC ARTICLE 110.

PROVIDE SHUNT TRIP CIRCUIT BREAKERS FOR ALL EQUIPMENT AND RECEPTACLES UNDER KITCHEN HOOD AS REQUIRED BY NEC FOR DISCONNECTING POWER DURING FIRE SUPPRESSION ACTIVATION.

PROVIDE VFD CABLE BETWEEN VFDs AND THE MOTORS SERVED.

ALL CONDUCTORS INDICATED ON DRAWINGS SHALL BE COPPER.

LIGHTING NOTES:
COORDINATE LIGHT FIXTURE MOUNTING HARDWARE WITH ARCHITECTURAL RCP PRIOR TO ORDERING.

STRUCTURAL COORDINATION:
DETERMINE SIZE AND LOCATION OF STRUCTURAL MEMBERS, FOOTINGS, AND OPENINGS FROM STRUCTURAL DRAWINGS.

DO NOT SUSPEND POINT LOADS FROM STEEL ROOF DECK, INCLUDING HANGERS FOR CEILINGS, PIPES, DUCTS, CONDUIT, EQUIPMENT, ETC. TRADE CONTRACTOR INSTALLING SUCH LOADS SHALL ENGINEER AND PROVIDE SUB-FRAMING AND BRACING TO TRANSFER SUCH LOADS TO PRIMARY FRAMING SUPPORTING ROOF DECK, AT TRADE CONTRACTOR'S EXPENSE.

NO CONDUITS OR SLEEVES SHALL PENETRATE FOOTINGS.

ARCHITECTURAL COORDINATION:
DETERMINE WALL AND DOOR LOCATIONS, DOOR SWINGS, CEILING TYPES, AND EXACT LOCATIONS OF CEILING MOUNTED ELECTRICAL COMPONENTS FROM ARCHITECTURAL DRAWINGS.

REFER TO ARCHITECTURAL REFLECTED CEILING ELEVATION PLANS FOR EXACT LOCATION AND MOUNTING LOCATIONS OF ALL LIGHT FIXTURES. REFER TO THE ARCHITECTURAL PLANS AND ELEVATIONS, INCLUDING MILLWORK ELEVATIONS, FOR DETAILED LOCATIONS OF ELECTRICAL, TELEPHONE/COMMUNICATION, AND POWER OUTLETS.

MEP COORDINATION:
SEE THE MECHANICAL AND PLUMBING PLANS FOR EXACT LOCATIONS OF THE MECHANICAL AND PLUMBING EQUIPMENT.

COORDINATE ALL EQUIPMENT CONNECTIONS WITH EQUIPMENT BEING SUPPLIED AND INSTALLED BY OWNER, OWNER'S VENDOR, OR OTHER DIVISIONS PRIOR TO INSTALLATION OF ELECTRICAL CONNECTIONS, INCLUDING MANUFACTURER'S RECOMMENDED WIRING AND CIRCUIT BREAKER, VOLTAGE, PHASE, AMPACITY, HORSEPOWER, ETC. IF THE EQUIPMENT SUBMITTED IS DIFFERENT THAN THE BASIC OF DESIGN, THE CONTRACTOR SHALL ADJUST WIRING AND OVERCURRENT PROTECTION SIZE AS NECESSARY.

PRIOR TO ROUGH IN, COORDINATE THE INSTALLATION OF EQUIPMENT WITH THE MANUFACTURER'S INSTALLATION AND MAINTENANCE REQUIREMENTS.

CONTRACTOR SHALL VERIFY THE QUANTITY AND LOCATION OF ALL MOTORIZED FIRE/SMOKE DAMPERS AND CONNECT THEM TO THE FIRE ALARM SYSTEM OR THE 120 VOLT DISTRIBUTION SYSTEM DEPENDING ON THE VOLTAGE OF THE MOTOR. IF 120V OPERATED, CONNECT TO THE NEAREST 120 VOLT BRANCH CIRCUIT IN THE AREA. CONTRACTOR SHALL CONNECT THE FIRE/SMOKE DAMPER CONTROL CIRCUIT TO THE FIRE SYSTEM AS REQUIRED.

CONTRACTOR SHALL VERIFY THE QUANTITY AND LOCATION OF ALL MOTORIZED DOORS AND SHALL CONNECT THEM TO THE NEAREST 120 VOLT BRANCH PANEL, 3/4" CONDUIT WITH PULLSTRING AND BACK BOXES SHALL BE FURNISHED AND INSTALLED AS REQUIRED FOR THE PUSH PLATE OPERATORS, CARD READERS AND KEYPADS. MOUNT PER ADA.

CONTRACTOR SHALL VERIFY THE QUANTITY AND LOCATION OF ALL MECHANICAL EQUIPMENT REQUIRING 120 VOLT CONTROL POWER AND SHALL CONNECT THEM TO THE NEAREST 120 VOLT PANEL UNLESS INDICATED OTHERWISE.

ABBREVIATIONS

AF	ARC FAULT CIRCUIT INTERRUPTING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ARCH	ARCHITECTURAL
ASYM	ASYMMETRICAL
A/V	AUDIO VISUAL
BAS	BUILDING AUTOMATION SYSTEM
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
COMM	COMMUNICATIONS
CONSTR	CONSTRUCTION
CONTR	CONTRACTOR
DIST	DISTRIBUTION
DT	DUST TIGHT
DWG	DRAWING
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
FA	FIRE ALARM
FC	FLEXIBLE CONDUIT
FDR	FEEDER
FIXT	FIXTURE
FLUOR	FLUORESCENT
FO	FIBER OPTIC
FTL	FEED THROUGH LUGS
G	GROUND
GF	GROUND FAULT CIRCUIT INTERRUPTING
H	HOT (UNSWITCHED)
HID	HIGH INTENSITY DISCHARGE
HTR	HEATER
HVAC	HEATING, VENTING, AIR CONDITIONING
IG	ISOLATED GROUND
INCD	INCANDESCENT
JB	JUNCTION BOX
LS	LIFE SAFETY
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
MTD	MOUNTED
N	NEUTRAL
NC	NORMALLY CLOSED
NF	NON FUSED
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OL	OVERLOAD
OH	OVERHEAD
PA	PUBLIC ADDRESS
PB	PULLBOX
PH	PHASE
PR	PAIR
PTZ	PAN-TILT-ZOOM
PWR	POWER
QTY	QUANTITY
RECP	RECEPTACLE
REQD	REQUIRED
RI	ROUGH-IN RAINTIGHT
SCTY	SECURITY
SECT	SECTION
SFL	SUB FEED LUGS
SHT	SHEET
SN	SOLID NEUTRAL
ST	SHUNT TRIP
SURF	SURFACE
SW	SWITCH
SYMM	SYMMETRICAL
SYS	SYSTEMS
TEL	TELEPHONE
TELECOM	TELECOMMUNICATIONS
TR	TAMPER RESISTANT
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
VD	VOLTAGE DROP
VFD	VARIABLE FREQUENCY DRIVE
VT	VAPOR TIGHT
WP	WEATHERPROOF
XFMR	TRANSFORMER
XFR	TRANSFER
XP	EXPLOSION PROOF

LIGHTING FIXTURES

- LED RECESSED CAN LIGHT
- LED RECESSED CAN LIGHT WITH EMERGENCY DRIVER
- LED PENDANT LINEAR LIGHT FIXTURE
- LED RECESSED LINEAR LIGHT FIXTURE
- LED PENDANT STRIP LIGHT
- LED 2'X4' LAY-IN TROFFER
- LED 2'X2' LAY-IN TROFFER
- SHADED FIXTURE = PROVIDED WITH EMERGENCY DRIVER
- BATTERY PACK WITH HEADS, 8'-0" AFF
- REMOTE EMERGENCY HEAD, 8'-0" AFF
- FLOODLIGHT / SPOTLIGHT: ARROW = AIM DIRECTION
- ROADWAY/PARKING STANDARD
- POST TOP STANDARD
- BUILDING MOUNTED WALLPACK
- LIGHTING TRACK WITH FIXTURES
- DOCK LIGHT, 6'-0" AFF
- STEP / AISLE LIGHT
- CEILING / PENDANT MOUNTED EXIT SIGN
- END / BACK MOUNTED EXIT SIGN, 8'-0" AFF
- SHADING = ILLUMINATED FACE OF SIGN
- ARROW = EXIT SIGN DIRECTIONAL
- WALL / BACK MOUNTED EXIT SIGN WITH EMERGENCY HEADS, 8'-0" AFF

SUBSCRIPTS: FTA 1b = TYPE FTA, CKT 1, CONTROL ZONE b

RECEPTACLES / OUTLETS

- DUPLEX RECEPTACLE, 1'-6" AFF
- SINGLE RECEPTACLE, 1'-6" AFF
- QUADRAPLEX RECEPTACLE, 1'-6" AFF
- SPECIAL RECEPTACLE, 1'-6" AFF
- CLOCK RECEPTACLE / HANGER, 7'-0" AFF
- SWITCHED DUPLEX RECEPTACLE, 1'-6" AFF
- DUPLEX CEILING RECEPTACLE
- POWER POLE WITH RECEPTACLE(S)
- FLOOR RECESSED DUPLEX RECEPTACLE
- FLOOR RECESSED SINGLE RECEPTACLE
- FLOOR RECESSED QUADPLEX RECEPTACLE
- FLOOR RECESSED DUPLEX RECEPTACLE / TELEPHONE / DATA

DISTRIBUTION EQUIPMENT

- PANEL BOARD
- MINI POWER CENTER
- SB — SWITCHBOARD / UNIT SUBSTATION
- VFD — VARIABLE FREQUENCY DRIVE
- T — TRANSFORMER
- M — UTILITY METER

GROUNDING / LIGHTNING PROTECTION

- WELDED CONNECTION
- BOLTED CONNECTION
- GROUND ROD, WELDED CONNECTION
- AIR TERMINAL (LIGHTNING ROD)
- GROUNDING RECEPTACLE
- TELCOM GROUNDING BUS, 1'-6" AFF

SWITCHES / CONTROLS

- $ 2b — TOGGLE SWITCH, 3'-10" AFF: b = CONTROL ZONE, 2 = TWO POLE, 3 = THREE WAY, 4 = FOUR WAY, LV = LOW VOLTAGE, K = KEY OPERATED, P = PILOT LIGHT, M = MANUAL STARTER
- D Fb — DIMMER, 3'-10" AFF: b = CONTROL ZONE, F = FLUORESCENT DIMMER
- M — OCCUPANCY SENSOR/SWITCH, 3'-10" AFF: b = CONTROL ZONE, 2 = DUAL RELAY
- (M) — OCCUPANCY SENSOR, CEILING MOUNTED b = CONTROL ZONE
- TIMER SWITCH, 3'-10" AFF
- TIME SWITCH
- PUSHBUTTON / CONTROL STATION, 3'-10" AFF EPO = EMERGENCY POWER OFF
- P — PHOTOELECTRIC CELL, 8'-0" AFG
- CONTACTOR, 5'-0" AFF
- MOTOR STARTER, 5'-0" AFF: 0 = NEMA SIZE
- MOTOR STARTER / DISCONNECT SWITCH, 5'-0" AFF: 30 = SWITCH AMP RATING, (12) = FUSE AMP RATING, 0 = NEMA SIZE
- MOTOR STARTER / CIRCUIT PROTECTOR, 5'-0" AFF: 100 = FRAME SIZE, (70) = TRIP RATING, 1 = NEMA SIZE
- FUSED DISCONNECT SWITCH, 5'-0" AFF: 30 = SWITCH AMP RATING (15) = FUSE AMP RATING
- NON-FUSED DISCONNECT SWITCH, 5'-0" AFF: 30 = SWITCH AMP RATING
- CIRCUIT BREAKER, 5'-0" AFF: 30 = TRIP RATING

RACEWAYS / WIRING

- CONDUIT / CABLE EXPOSED
- CONDUIT / CABLE BELOW RAISED FLOOR
- CONDUIT / CABLE UNDERGROUND
- CONDUIT / CABLE BELOW FLOOR / IN WALL
- CONDUIT / CABLE ABOVE CEILING / IN WALL
- CONDUIT / CABLE TURNING UP
- CONDUIT / CABLE TURNING DOWN
- CONDUIT CAPPED
- LP1-2,4,6 — HOMERUN: LP1 = PANEL DESTINATION, 2,4,6 = CIRCUITS
- J — JUNCTION BOX
- JUNCTION BOX, CEILING MOUNTED
- PB — PULL BOX
- CABLE TRAY
- BUSWAY OR WIREWAY
- DUCTBANK
- M H — MAN HOLE/HAND HOLE

ONE LINE DIAGRAMS

- TRANSFORMER
- CURRENT TRANSFORMER (CT)
- POTENTIAL TRANSFORMER (PT)
- PANEL
- DISCONNECT SW: 30 = AMP RATING
- FUSE: 20 = AMP RATING
- MOLDED CASE CIRCUIT BREAKER: 20 = TRIP RATING
- DRAWOUT CIRCUIT BREAKER: 30 = TRIP RATING
- W — KILOWATT HOUR DEMAND METER
- ST — SHUNT TRIP
- GF — GROUND FAULT RELAY
- GFP — GROUND FAULT PROTECTION
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSION
- ATS — AUTOMATIC TRANSFER SWITCH
- LIGHTNING ARRESTER
- VM AM — VOLTMETER / AMMETER
- VS AS — VOLTMETER SWITCH/AMMETER SWITCH
- 30 / 20 — PLUG-IN DISCONNECT SWITCH, FUSED: 30 = SWITCH AMPERE RATING, 20 = FUSE AMPERE RATING
- MOTOR STARTER: 0 = STARTER SIZE
- ALT — ALTERNATING MOTOR CONTROLLER

TELECOMMUNICATIONS

- TTB — TELEPHONE TERMINAL BOARD
- TELEPHONE TERMINAL CABINET
- DATA WALL OUTLET, 1'-6" AFF SINGLE DATA JACK WITH HOMERUN TO IT ROOM
- DATA WALL OUTLET, 1'-6" AFF TWO DATA JACKS WITH HOMERUN TO IT ROOM
- DATA FLOOR SURFACE MOUNTED (POKE-THROUGH ASSEMBLY) TWO DATA JACKS WITH HOMERUN TO IT ROOM
- POWER POLE WITH DEVICE(S) WITH HOMERUN TO IT ROOM
- CEILING MOUNTED DATA DROP TWO DATA JACKS WITH HOMERUN TO IT ROOM
- W — CEILING MOUNTED WIRELESS ACCESS POINT DATA DROP WITH HOMERUN TO IT ROOM

SUBSCRIPTS: W = WALL MOUNT 3'-10" AFF, CT = MOUNT ABOVE COUNTERTOP, 3'-8" AFF

EQUIPMENT

- MECHANICAL EQUIPMENT - MOTOR: NUMBER INDICATES HP RATING
- # — MECHANICAL CABINET HEATER: NUMBER INDICATES kW RATING
- GENERATOR
- M — DEVICE FURNISHED WITH EQUIPMENT
- M — CORD / PLUG CONNECTED EQUIPMENT
- XXX / XXX — MECHANICAL EQUIPMENT DESIGNATION
- XXXXX — JSN EQUIPMENT DESIGNATION

FIRE ALARM / MASS NOTIFICATION / PA

- FACP — FIRE ALARM CONTROL PANEL
- FAAN — FIRE ALARM ANNUNCIATOR PANEL
- RPS — FIRE ALARM REMOTE POWER SUPPLY
- RTS — FIRE ALARM REMOTE TEST STATION
- IPGSM — FIRE ALARM COMMUNICATOR
- ACU — MASS NOTIFICATION LOCAL OPERATING CONSOLE
- LOC — MASS NOTIFICATION AUTONOMOUS CONTROL UNIT
- V — BELL, VIBRATING, 6'-8" AFF
- HORN / SPEAKER, WALL MOUNTED 6'-8" AFF
- 75 — DUAL FIRE ALARM / ALERT DEVICE COMBINATION AUDIBLE / VISUAL DEVICE, WALL MOUNTED 6'-8" AFF CANDELA = 75cd, UNLESS OTHERWISE NOTED
- c — DUAL FIRE ALARM / ALERT VISUAL DEVICE WALL MOUNTED 6'-8" AFF CANDELA = 75cd, UNLESS OTHERWISE NOTED
- STROBE ONLY FIRE ALARM / ALERT VISUAL DEVICE WALL MOUNTED 6'-8" AFF CANDELA = 75cd, UNLESS OTHERWISE NOTED
- P — MANUAL PULLSTATION, 3'-10" AFF
- TS — TAMPER SWITCH
- FS — FLOW SWITCH
- SD — SMOKE DETECTOR
- DD — AIR DUCT SMOKE DETECTOR
- RATE OF RISE HEAT DETECTOR
- FIXED TEMP HEAT DETECTOR
- SPRINKLER VALVE FLOW SWITCH
- SPRINKLER VALVE TAMPER SWITCH
- EOL — END OF LINE DEVICE
- DOOR HOLD / RELEASE DEVICE
- J — FIRE SERVICE TELEPHONE JACK, 3'-10" AFF
- REMOTE ALARM INDICATING AND TEST SWITCH
- S — SPEAKER, CEILING MOUNTED, FLUSH
- A — AMPLIFIER

ACCESS CONTROL / SECURITY / IDS

- CCTV CAMERA, 8'-0" AFF
- CR — CARD READER, 3'-10" AFF
- ES — ELECTRIC STRIKE
- DC — DOOR CONTROLLER PANEL
- GB — BREAK GLASS SENSOR
- IR — PASSIVE IR INTRUSION DETECTOR
- M — MAGNETIC DOOR CONTACT
- PP — PUSH PLATE TO OPEN DEVICE, 3'-10" AFF
- BMS — BALLANCED MAGNETIC SWITCH
- M — CEILING MOTION DETECTOR
- RM — REFRIGERATOR MONITOR
- AD — ARM DISARM PANEL 3'-10" AFF
- KP — KEYPAD, 3'-10" AFF
- T — TOUCH SENSE BAR, 3'-10" AFF
- DURESS PUSHBUTTON, UNDER COUNTER
- PS — POWER SUPPLY, 3'-10" AFF
- LP — LOCK POWER SUPPLY, 3'-10" AFF
- CONTROL PANEL, 3'-10" AFF
- TV — CCTV MONITOR
- CCTV ,MULTIPLEXER
- VCR — CCTV EVENT RECORDER

MISCELLANEOUS SYSTEMS

- EQUIPMENT RACK
- M — MICROPHONE OUTLET, 1'-6" AFF
- PUBLIC ADDRESS PUSHBUTTON, 3'-10" AFF
- V — VOLUME / CHANNEL SELECTOR, 3'-10" AFF
- S — WALL MOUNTED SPEAKER, 7'-0" AFF
- (S) — SOUND MASKING SPEAKER
- MASTER CLOCK
- SINGLE FACE CLOCK, 7'-0" AFF: A = ANALOG, D = DIGITAL
- DOUBLE FACE CLOCK, 7'-0" AFF: A = ANALOG, D = DIGITAL
- P — PROGRAM CLOCK / INTERCOM, 7'-0" AFF
- PROGRAM BELL, 7'-0" AFF
- P — PROGRAM BUZZER, 7'-0" AFF
- BUZZER SWITCH
- B — DOOR BUZZER, 7'-0" AFF
- I — INTERCOM STATION, 3'-10" AFF
- ANTENNA, EXTERIOR ROOF MOUNTED
- TV — CABLE TELEVISION OUTLET, 1'-6" AFF
- CABLE SPLITTER

Table 3.2

ELECTRTICAL SYSTEM COMPONENTS
EARTHQUAKE LOAD RESISTANCE

Occupancy Category (III) — Seismic Design Category (D)

LISTING OF EQUIPMENT AND SYSTEM COMPONENTS	ANCHORAGE TO FLOORS, ROOFS, ETC. (See Note 1 below)		SWAY BRACING (See Note 1 below)		LOCATION OF PROFESSIONALLY SEALED ANCHORAGE AND SWAY BRACING DETAILS		COMMENTS
					ON CONST. DOCUMENTS	SUNSEQUENT SUBMITTAL Separate Permit & Plans (See Note 2 below)	
	Not Provided For Project	Provided For Project	Not Provided For Project	Provided For Project	Not Provided For Project		
FIRE PROTECTION, DETECTION & ALARM EQUIPMENT & SYSTEM COMPONENTS; FIRE ALARM PANEL		X	X			X	
EMERGENCY OR STANDBY EQUIP. AND SYSTEM COMPONENTS; EGRESS LIGHTING FIXTURES		X	X		E-501; DET 7,8		
OTHER EQUIPMENT & SYSTEM COMPONENTS NEEDED FOR CONTINUED OPERATION OF OCCUPANCY CATEGORY III FACILITIES OR WHOSE FAILURE COULD IMPAIR THEIR CONTINUED OPERATION							3
OTHER GENERAL EQUIPMENT & SYSTEM COMPONENTS MAIN SWITCHBOARD DISTRIBUTION PANELS LIGHTING FIXTURES		X X X	X X X		E-501; DET 7,8	X X	1, 2

Notes:
1. It is the basic intent of this Code Block to declare whether or not anchorage and sway bracing is being provided on the project. If so, to declare whether or not the details are shown on the plans or will be shown on a subsequent submission. If seismic restraint of a component is not required by code this should be stated in comments. If seismic restraint, which is not required by code, is being provided due to owner/designer requirements this should also be stated in the commentys.
2. Plans signed and sealed by a Missouri Professional Engineer along with a separate permit application need to be submitted to the County a minimum of two weeks prior to the planned installation to allow for plan review and distribution to the inspector. Additional time may be needed if such submissions are deficient.

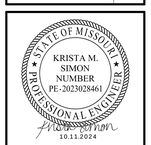
Comments:
1. Light fixtures less than 20 pounds not part of stand-by or emergency lighting system powered with flexible cable less than 3 feet, fixture shall be mechanically attached to ceiling grid.
2. Pendant type fixtures do not require sway bracing when it can swing at an angle of 45 degrees from vertical without impacting other components.
3. Category of equipment not applicable to project.

KAI
2060 Craigshire Road
Saint Louis, MO 63146
T. 314.241.8188
F. 314.241.0125
www.kai-db.com
Missouri State Certificate of Authority #2018003897

[dtls]

CITY CENTER PROJECT
COMMUNITY CENTTER
2315 ADA WORTLEY AVENUE
ST. LOUIS MO 63136

BID SET



ISSUE MARK	DATE	DESCRIPTION
1	10/11/24	Addendum 3

ISSUE DATE 09/17/24
PROJECT NO. 10-19202.00
DRAWN BY: BA
REVIEWED BY: HP

ORIGINAL SHEET SIZE IS 30" x 42"

SHEET TITLE
ELECTRICAL GEN NOTES LEGEND AND ABBREVIATIONS

SHEET NO.
E001

NEW KEYED NOTES

1. INSTALL FIXTURE 10' FROM THE CENTER OF SIGN AT AN ANGLE OF 40 DEGREES.
2. MONUMENT SIGN LIGHTING TO BE CONTROLLED VIA PHOTOCELL.
3. STUB UP CONDUITS IN IT ROOM 214.
4. REFER TO ONE LINE DIAGRAM FOR FEEDER SIZES.
5. 3" CONDUIT STUB-UP FOR FUTURE EV CHARGING.
6. MV SWITCH, BY AMEREN, REQUIRES 10' CLEARANCE IN FRONT OF THE DOORS, WHICH ARE LOCATED ON THE FRONT AND BACK OF THE MV SWITCH.
7. EQUIPMENT PAD PROVIDED BY AMEREN, INSTALLED BY THE CONTRACTOR.
8. 2#10,1#10G,3/4"C.
9. 2#8,1#8G,1"C.
10. MAIN DISCONNECT SWITCH WITH AMEREN METER BOX.
11. PAD MOUNTED TRANSFORMER, BY AMEREN, REQUIRES 10' CLEARANCE IN FRONT OF THE DOORS, WHICH ARE LOCATED ON THE FRONT AND BACK OF THE TRANSFORMER.
12. ELECTRICAL MANHOLE PROVIDED BY AMEREN, INSTALLED BY THE CONTRACTOR.
13. LOCATION OF FUTURE PAD MOUNTED TRANSFORMER.
14. STUB-UP CONDUITS AT FUTURE PMT LOCATION.

GENERAL NOTE:

1. UNDERGROUND CONDUIT IS REPRESENTED DIAGRAMMATICALLY. CONTRACTOR SHALL ROUTE THE CONDUIT TO SUIT FIELD CONDITIONS.

COMMUNITY CENTER

SWALE

(2) 5" EMPTY CONDUITS. FOR AMEREN MV FEEDERS.

(2) 4" C FOR FIBER AND DATA. COORDINATE EXACT LOCATION OF UTILITY WITH CIVIL PLANS.

30/2/3R
LIFT STATION MP2-32,34

ADA WORTLEY ST.

BERKAY RD.

1 ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"

KEYPLAN

2060 Craigshire Road
Saint Louis, MO 63146
T. 314.241.8188
F. 314.241.0125

www.kai-db.com
Missouri State Certificate of Authority #2018003897

CITY CENTER PROJECT
COMMUNITY CENTTER
2315 ADA WORTLEY AVENUE
ST. LOUIS MO 63136

BID SET

STATE OF MISSOURI
KRISTA M. SIMON
NUMBER PE-2023028461
PROFESSIONAL ENGINEER
10.11.2024

ISSUE: MARK	DATE	DESCRIPTION
1	10/11/24	Addendum 3

ISSUE DATE 09/17/24
PROJECT NO. 10-19202.00
DRAWN BY: BA
REVIEWED BY: HP

ORIGINAL SHEET SIZE IS 30" x 42"
SHEET TITLE
ELECTRICAL SITE PLAN

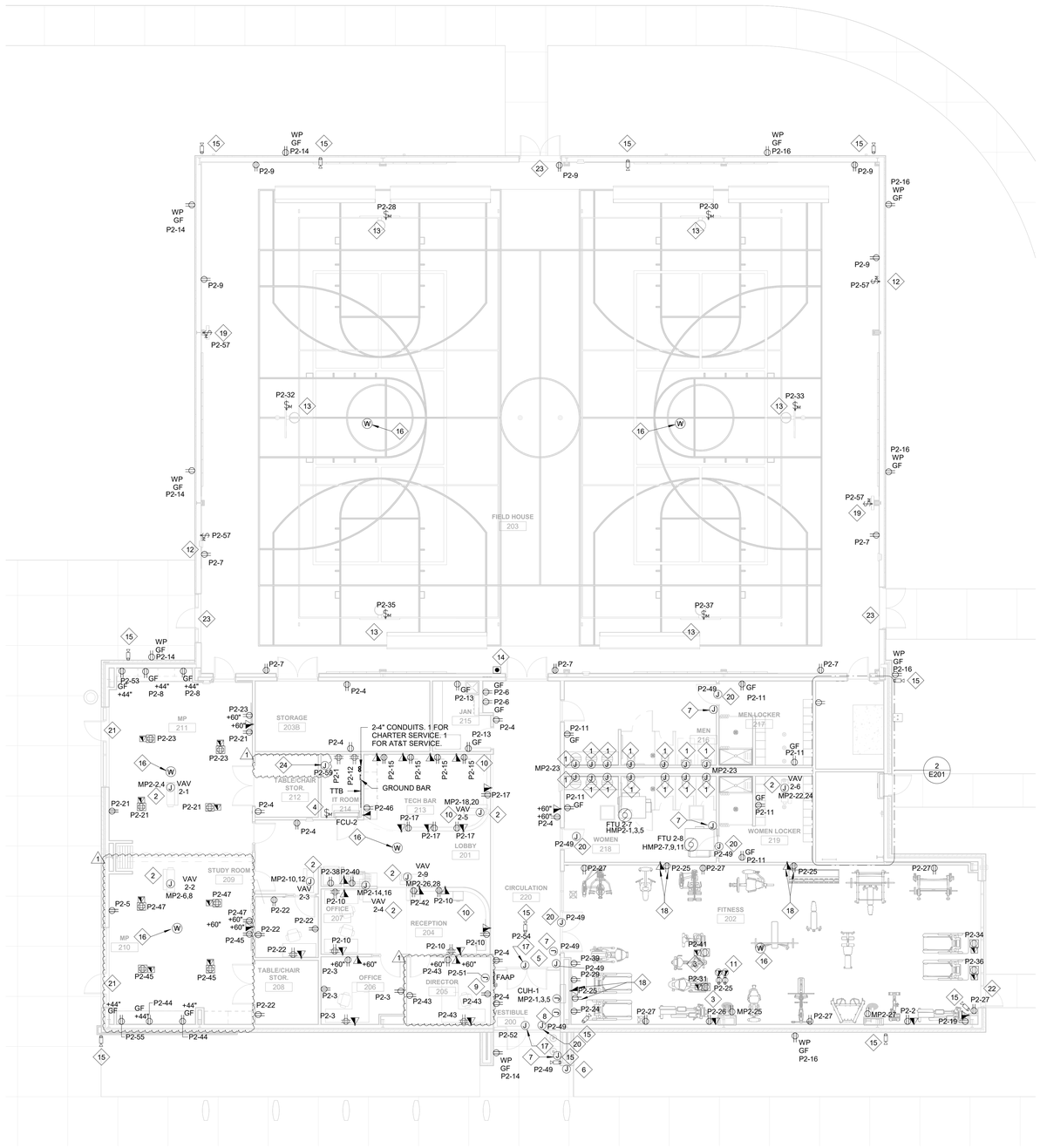
SHEET NO.
E101

POWER GENERAL NOTES

A INSTALL ROUGH-IN AS REQUIRED AT DOORS. COORDINATE WITH DOOR HARDWARE SUPPLIER AND SECURITY SYSTEMS INSTALLER.

NEW KEYED NOTES

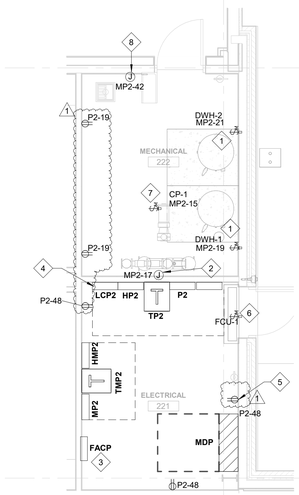
1 JUNCTION BOX FOR PLUMBING FIXTURE, HARDWIRED CONNECTION.
2 JUNCTION BOX FOR POWER CONNECTION TO VAV. COORDINATE CONNECTION REQUIRED WITH MECHANICAL. SEE VAV CIRCUITING SCHEDULE, THIS SHEET, FOR CIRCUITS. TYPICAL AT ALL VAV LOCATIONS.
3 FLOOR BOXES IN FITNESS AREA ARE FOR EXERCISE EQUIPMENT. VERIFY EQUIPMENT REQUIREMENTS AND EXACT LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.
4 EQUIPMENT MOUNTED DISCONNECT SWITCH. COORDINATE WITH MECHANICAL PRIOR TO INSTALL.
5 JUNCTION BOX FOR ADA PUSH BUTTON. COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL DRAWINGS.
6 JUNCTION BOX FOR ADA PUSH BUTTON. COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL DRAWINGS.
7 JUNCTION BOX FOR CARD READER. COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL DRAWINGS.
8 JUNCTION BOX FOR DUAL ADA PUSH BUTTON. COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECTURAL DRAWINGS.
9 FLUSH MOUNTED JUNCTION BOX FOR CONNECTION OF FAAP. COODRINATE EXACT LOCATION WITH FIRE ALARM VENDOR PRIOR TO ROUGH IN.
10 PROVIDE ROUGH IN AT WALL FOR DEVICES IN DESK AND ROUTE THROUGH MILLWORK.
11 CEILING MOUNTED FOR TV MONITORS.
12 FOR ELECTRONIC SCOREBOARD. COORDINATE MOUNTING HEIGHT AND LOCATION WITH EQUIPMENT VENDOR.
13 FOR POWERED BASKETBALL GOAL. COORDINATE LOCATION WITH EQUIPMENT VENDOR.
14 CONTROLS FOR POWERED BASKETBALL GOALS. COORDINATE CONTROL TYPE, LOCATION, AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
15 PROVIDE CAT6 CABLE BETWEEN EACH CAMERA AND THE SYSTEM CONTROL PANEL LOCATED IN THE IT ROOM. COORDINATE EXACT LOCATION WITH THE OWNER AND EXACT REQUIREMENTS WITH THE SECURITY SYSTEM INSTALLER. PROVIDE 10 FEET OF EXTRA CABLE IN THE IT ROOM AND 4 FEET OF EXTRA CABLE AT THE CAMERA LOCATION.
16 PROVIDE POWER FOR POE WIRELESS ACCESS POINT AS REQUIRED. COORDINATE REQUIREMENT WITH LOW VOLTAGE CONTRACTOR.
17 JUNCTION BOX FOR AUTO OPERATOR DOOR. FIELD VERIFY EXACT LOCATION.
18 FOR TV MONITOR., COORDINATE HEIGHT WITH ARCHITECTURAL DRAWINGS.
19 FOR SHOT CLOCK. COORDINATE LOCATION WITH EQUIPMENT VENDOR.
20 FOR DOOR POWER SUPPLY, COORDINATE LOCATION WITH EQUIPMENT VENDOR.
21 PROVIDE 1" EMPTY CONDUIT WITH PULL STRING FROM DOOR HEAD TO ABOVE ACCESSIBLE CEILING.
22 PROVIDE 1" EMPTY CONDUIT WITH PULL STRING FROM DOOR HEAD TO WITHIN 12" OF THE STRUCTURE.
23 PROVIDE 1" EMPTY CONDUIT WITH PULL STRING FROM DOOR HEAD TO 10'-0" AFF.
24 FLUSH MOUNTED JUNCTION BOX FOR CONNECTION OF ACCESS CONTROL SYSTEM PANEL. COORDINATE EXACT REQUIREMENTS AND LOCATION WITH ACCESS CONTROL VENDOR PRIOR TO ROUGH IN.



1 COMMUNITY CENTER - POWER PLAN
SCALE: 1/8" = 1'-0"

NEW KEYED NOTES

1 CONNECTION FOR GAS WATER HEATER. COORDINATE EXACT REQUIREMENTS WITH PLUMBING PRIOR TO INSTALL.
2 JUNCTION BOX FOR BACKFLOW PREVENTER 120V CONNECTION. COORDINATE WITH PLUMBING PRIOR TO INSTALL.
3 FLUSH MOUNTED JUNCTION BOX FOR CONNECTION OF FACP. COORDINATE EXACT REQUIREMENTS AND LOCATION WITH FIRE ALARM VENDOR PRIOR TO ROUGH IN.
4 LIGHTING CONTROL PANEL "LCP2". FURNISH AND INSTALL A nLIGHT RELAY PANEL #ARP INTENC08 8SPRMVOLT HLK SM DTC.
5 CONTROL PANEL FOR EXTERIOR RECEPTACLE "RCP2". FURNISH AND INSTALL A nLIGHT RELAY PANEL #ARP INTENC08 8SPRMVOLT HLK SM DTC.
6 FCU POWERED VIA SINGLE POINT CONNECTION AT CU-1 ON ROOF. COORDINATE WITH MECHANICAL.
7 DISCONNECT SWITCH FOR PLUMBING EQUIPMENT. COORDINATE WITH PLUMBING PRIOR TO INSTALL.
8 JUNCTION BOX FOR THE IRRIGATION SYSTEM CONTROL PANEL.



2 COMMUNITY CENTER - POWER PLAN
SCALE: 1/4" = 1'-0"

KEYPLAN

2060 Craigshire Road
Saint Louis, MO 63146
T. 314.241.8188
F. 314.241.0125
www.kai-db.com
Missouri State Certificate of Authority #2018003897

CITY CENTER PROJECT
COMMUNITY CENTTER
2315 ADA WORTLEY AVENUE
ST. LOUIS MO 63136

BID SET

KRISTA M. SIMON NUMBER PE-2023028461 PROFESSIONAL ENGINEER STATE OF MISSOURI
10.11.2024

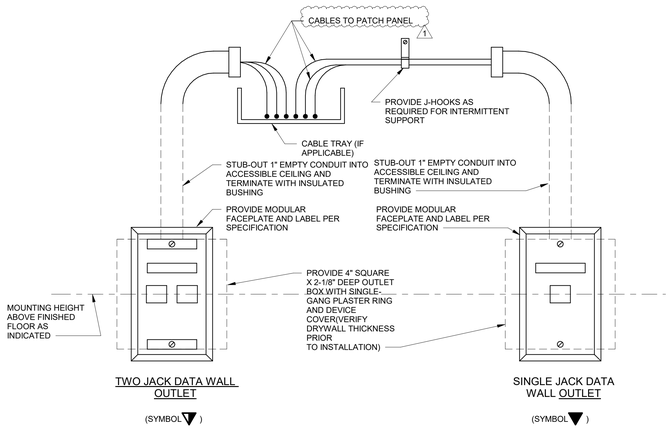
ISSUE: MARK	DATE	DESCRIPTION
1	10/11/24	Addendum 3

ISSUE DATE 09/17/24
PROJECT NO. 10-19202.00
DRAWN BY: BA
REVIEWED BY: HP

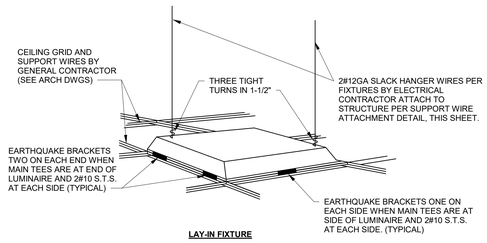
ORIGINAL SHEET SIZE IS 30" x 42"

SHEET TITLE
COMMUNITY CENTER - POWER PLAN

SHEET NO.
E201



9 DATA OUTLET DETAILS
SCALE: N.T.S.

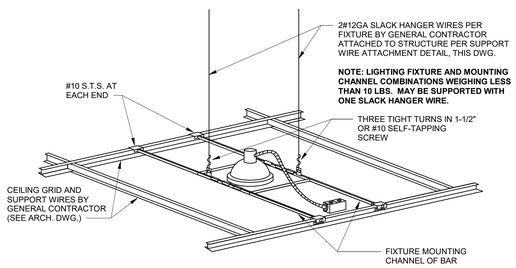


LAY-IN FIXTURE

DETAIL NOTES:

1. ATTACH ALL LIGHTING FIXTURES TO CEILING GRID RUNNERS TO RESIST HORIZONTAL FORCE EQUAL TO THE WEIGHT OF THE FIXTURES.
2. FLUSH OR RECESSED LIGHTING FIXTURES WEIGHING LESS THAN 56 POUND MAY BE SUPPORTED DIRECTLY ON THE RUNNERS OF A HEAVY DUTY GRID SYSTEM BUT, IN ADDITION, THEY MUST HAVE A MINIMUM OF TWO 12GA SLACK SAFETY WIRES ATTACHED TO FIXTURES AT DIAGONAL CORNERS AND ANCHORED TO STRUCTURE ABOVE. ALL 4'X4' LIGHTING FIXTURES MUST HAVE SLACK SAFETY WIRES AT EACH CORNER.
3. FLUSH OR RECESSED LIGHTING FIXTURES WEIGHING 56 POUNDS OR MORE MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR TAUT 12GA WIRES, EACH ATTACHED TO FIXTURE AND TO STRUCTURE ABOVE, REGARDLESS OF TYPE OF CEILING GRID SYSTEM USED.
4. THE FOUR TAUT 12GA WIRES, INCLUDING THEIR ATTACHMENT TO STRUCTURE ABOVE MUST BE CAPABLE OF SUPPORTING FOUR TIMES THE WEIGHT OF THE UNIT.
5. FIXTURES SUPPORTED ON INTERMEDIATE DUTY GRID SYSTEMS MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR TAUT 12GA WIRES, EACH ATTACHED TO FIXTURE OR TERMINAL AND TO STRUCTURE ABOVE.
6. SUPPORT SURFACE MOUNTED LIGHTING FIXTURES BY AT LEAST TWO POSITIVE DEVICES WHICH SURROUND CEILING RUNNER AND WHICH ARE EACH SUPPORTED FROM STRUCTURE ABOVE BY A 12GA WIRE. SPRING CLIPS OR CLAMPS THAT CONNECT ONLY THE RUNNER ARE NOT ACCEPTABLE.
7. PROVIDE ADDITIONAL SUPPORTS WHEN LIGHTING FIXTURES ARE 8 FEET OR LONGER.
8. SUPPORT PENDANT MOUNTED LIGHTING FIXTURES DIRECTLY FROM STRUCTURE ABOVE WITH HANGER WIRE OR CABLES PASSING THROUGH EACH PENDANT HANGER AND CAPABLE OF SUPPORTING FOUR TIMES THE WEIGHT OF THE FIXTURE. SPECIAL DETAILS ARE NECESSARY FOR THIS CONDITION AT THE CEILING GRID.

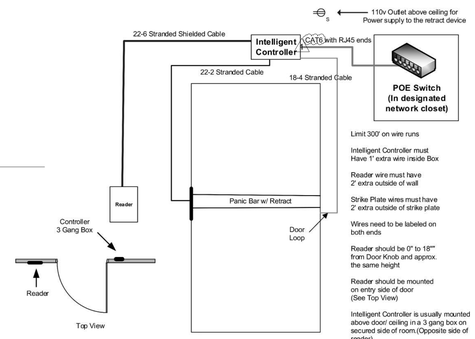
8 SEISMIC MOUNTING DETAIL - RECESSED TROFFER
SCALE: N.T.S.



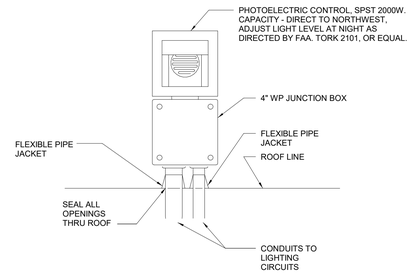
RECESSED DOWNLIGHT

7 SEISMIC MOUNTING DETAIL - RECESSED DOWNLIGHT
SCALE: N.T.S.

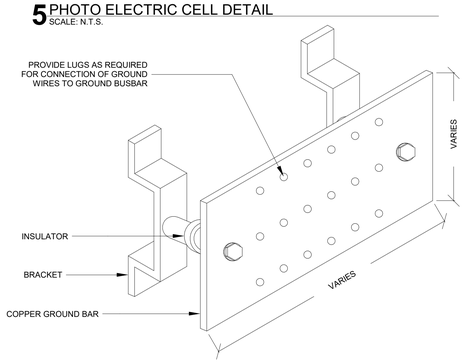
Single Door with Concealed Strike/
with Intelligent controller and DPS



6 TYPICAL CARD READER DETAIL FOR DOOR WITH PANIC DEVICE
SCALE: N.T.S.

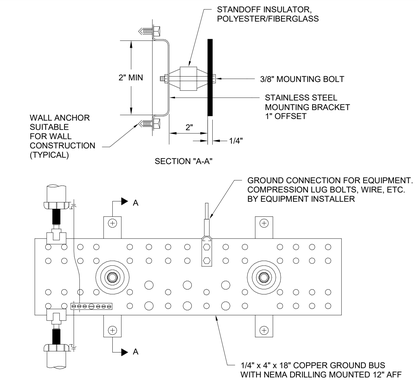


5 PHOTO ELECTRIC CELL DETAIL
SCALE: N.T.S.



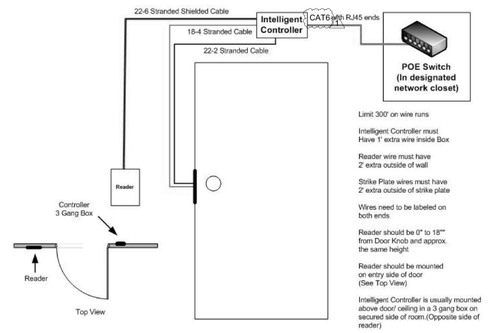
NOTES:
1. 1MGB 4" X 20" BUSBAR CPI PART #40153-020 TO BE INSTALLED IN MDF.
2. INSTALL GROUND BUSBAR A MINIMUM OF 18" AFF WITH 6" CLEAR ON ALL SIDES.
3. E.C TO INSTALL COMPLETE TELECOMMUNICATIONS GROUNDING SYSTEM WITH (1) GROUND BAR FOR EACH IDF.

4 TELECOMMUNICATION GROUND BUSBAR DETAIL
SCALE: N.T.S.

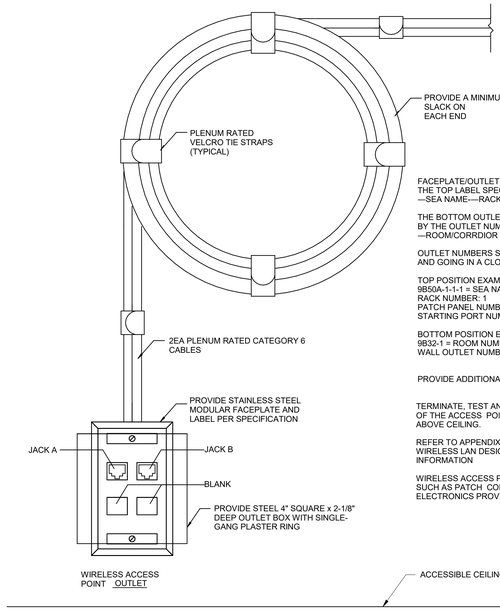


3 GROUND BAR DETAIL
SCALE: N.T.S.

Single Door with Concealed Strike/
with Intelligent controller and DPS



2 TYPICAL CARD READER DETAIL FOR DOOR
SCALE: N.T.S.



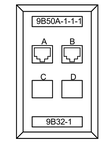
FACEPLATE/OUTLET LABELING MATRIX:
THE TOP LABEL SPECIFIES THE LOCATION WHERE THE OUTLET IS TERMINATED INSIDE THE SEA.
—SEA NAME—RACK NUMBER—PATCH PANEL NUMBER—STARTING PORT NUMBER

THE BOTTOM OUTLET SPECIFIES THE ROOM/CORRIDOR NUMBER WHERE THE OUTLET IS LOCATED FOLLOWED BY THE OUTLET NUMBER INSIDE THE SAME ROOM/CORRIDOR.
—ROOM/CORRDIOR NUMBER– WALL OUTLET NUMBER

OUTLET NUMBERS SHALL BE LABELED LEFT TO RIGHT STARTING AT DRAWING NORTH ON THE FLOOR PLANS AND GOING IN A CLOCKWISE DIRECTION.

TOP POSITION EXAMPLE:
9B50A-1-1-1 = SEA NAME: 9B50A
RACK NUMBER: 1
PATCH PANEL NUMBER: 1
STARTING PORT NUMBER: 1

BOTTOM POSITION EXAMPLE:
9B32-1 = ROOM NUMBER: 9B32
WALL OUTLET NUMBER: 1



PROVIDE ADDITIONAL DESIGNATION AS A WIRELESS DROP

TERMINATE, TEST AND STORE SLACK AT THE LOCATION OF THE ACCESS POINT. MOUNT STEEL BOX TO WALL ABOVE CEILING.

REFER TO APPENDIX C, AFMSA SECOND GENERATION WIRELESS LAN DESIGN CRITERIA, FOR ADDITIONAL INFORMATION

WIRELESS ACCESS POINT AND ALL OTHER EQUIPMENT SUCH AS PATCH CORDS, ENCLOSURES AND NETWORK ELECTRONICS PROVIDED BY OWNER.

1 ACCESS POINT CABLING ENCLOSURE DETAIL
SCALE: N.T.S.

KAI
2060 Craigshire Road
Saint Louis, MO 63146
T. 314.241.8188
F. 314.241.0125
www.kai-db.com
Missouri State Certificate of Authority #2018003897

[dtls]

CITY CENTER PROJECT
COMMUNITY CENTTER
2315 ADA WORTLEY AVENUE
ST. LOUIS MO 63136
BID SET

STATE OF MISSOURI
KRISTA M. SIMON NUMBER PE-2023028461
PROFESSIONAL ENGINEER
10.11.2024

ISSUE:		
MARK	DATE	DESCRIPTION
1	10/11/24	Addendum 3

ISSUE DATE 09/17/24
PROJECT NO. 10-19202.00
DRAWN BY: BA
REVIEWED BY: HP

ORIGINAL SHEET SIZE IS 30" x 42"
SHEET TITLE
ELECTRICAL DETAILS

SHEET NO.
E501

PANELBOARD: MP2 — **LOCATION: ELECTRICAL ROOM 221**

TYPE: LIGHTING & APPLIANCE
SERVICE: 208Y/120V, 3PH, 4W
MAINS: 150A MCB
CABINET: NEMA 1
MOUNTING: SURFACE

CKT	TRIP	POLE	LOAD DESCRIPTION	CKT KVA	KVA PH-A	KVA PH-B	KVA PH-C	CKT KVA	LOAD DESCRIPTION	POLE	TRIP	CKT
1	30	3	CUH - 1	2.11	3.36			1.25	VAV 2-1	2	15	2
3	-	-	-	2.11		3.36		1.25	-	-	-	4
5	-	-	-	2.11			3.36	1.25	VAV 2-2	2	15	6
7	25	2	CU-1	1.60	2.85			1.25	-	-	-	8
9	-	-	-	1.60		2.10		0.50	VAV 2-3	2	15	10
11	15	2	CU-2	0.94			1.44	0.50	-	-	-	12
13	-	-	-	0.94	1.94			1.00	VAV 2-4	2	15	14
15	20	1	CP-1	0.18		1.18		1.00	-	-	-	16
17	20	1	BACKFLOW PREVENTER	0.18			1.43	1.25	VAV 2-5	2	15	18
19	20	1	DWH-1	0.20	1.45			1.25	-	-	-	20
21	20	1	DWH-2	0.20		0.70		0.50	VAV 2-6	2	15	22
23	20	1	PLUMBING FIXTURES	0.72			1.22	0.50	-	-	-	24
25	20	1	OSCILLATING FAN FITNESS RM	1.18	2.18			1.00	VAV 2-9	2	15	26
27	20	1	OSCILLATING FAN FITNESS RM	1.18		2.18		1.00	-	-	-	28
29	20	1	SPARE	0.00			1.18	1.18	EXHAUST FAN TK-1	1	20	30
31	20	1	SPARE	0.00	2.50			2.50	SANITARY LIFT PUMP STATION	2	40	32
33	20	1	SPARE	0.00		2.50		2.50	-	-	-	34
35	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	36
37	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	38
39	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	40
41	20	1	SPARE	0.00			0.72	0.72	IRRIGATION CONTROL PANEL	1	20	42
43	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	44
45	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	46
47	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	48
49	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	50
51	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	52
53	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	54
55	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	56
57	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	58
59	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	60
			TOTAL CONNECTED PHASE KVA:		14.26	12.00	9.34					
			TOTAL CONNECTED KVA:		35.61							
			DEMAND OR DESIGN KVA:		30.54							
			FUTURE KVA:		0.00							
			TOTAL DEMAND OR DESIGN KVA:		30.54							
			DEMAND OR DESIGN AMPERES:		84.76							

AMPERES INTERRUPTING RATING: 10,000

PANELBOARD: P2 (2 SECTIONS) — **LOCATION: ELECTRICAL ROOM 221**

TYPE: LIGHTING & APPLIANCE
SERVICE: 208Y/120V, 3PH, 4W
MAINS: 150A MCB
CABINET: NEMA 1
PROVIDE SUB-FEED LUGS.
MOUNTING: SURFACE

CKT	TRIP	POLE	LOAD DESCRIPTION	CKT KVA	KVA PH-A	KVA PH-B	KVA PH-C	CKT KVA	LOAD DESCRIPTION	POLE	TRIP	CKT
1	20	1	RECS IT RM 214	0.36	1.56			1.20	REC FITNESS 202	1	20	2
3	20	1	RECS RM 206	0.90		2.34		1.44	RECS RM 200, 201, 203B, 212	1	20	4
5	20	1	RECS RM 210, 211	0.18			1.68	1.50	GFCI REC WATER COOLER 201	1	20	6
7	20	1	RECS RM 203	0.90	1.44			0.54	GFCI REC 215	1	20	8
9	20	1	RECS RM 203	0.90		2.34		1.44	RECS RM 204, 207	1	20	10
11	20	1	RECS RM 216, 218	1.26			1.62	0.36	RECS IT RM 214	1	20	12
13	20	1	REC GFCI RM 215	0.36	1.26			0.90	WP GFCI EXT RECS	1	20	14
15	20	1	RECS RM 213	0.72		1.62		0.90	WP GFCI EXT RECS	1	20	16
17	20	1	RECS RM 213	0.72			0.92	0.20	RCP2	1	20	18
19	20	1	REC FITNESS 202	1.20	1.74			0.54	ROOFTOP GFCI RECS	1	20	20
21	20	1	IN FLOOR REC RM 211	1.16		2.24		1.08	RECS RM 206, 209, 209	1	20	22
23	20	1	MONITOR RM 211	1.00			2.20	1.20	REC FITNESS 202	1	20	24
25	20	1	TV MONITORS RM 202	1.50	2.70			1.20	REC FITNESS 202	1	20	26
27	20	1	RECS FITNESS 202	1.32		2.69		1.37	BB GOAL FIELD HOUSE 203	1	20	28
29	20	1	REC FITNESS 202	1.20			2.57	1.37	BB GOAL FIELD HOUSE 203	1	20	30
31	20	1	FLOOR REC FITNESS 202	1.20	2.57			1.37	BB GOAL FIELD HOUSE 203	1	20	32
33	20	1	BB GOAL FIELD HOUSE 203	1.37		2.57		1.20	REC FITNESS 202	1	20	34
35	20	1	BB GOAL FIELD HOUSE 203	1.37			2.57	1.20	REC FITNESS 202	1	20	36
37	20	1	BB GOAL FIELD HOUSE 203	1.37	2.57			1.20	REFRIGERATOR	1	20	38
39	20	1	REC FITNESS 202	1.20		2.40		1.20	COPY MACHINE	1	20	40
41	20	1	REC FITNESS 202	1.20			2.40	1.20	PRINTER	1	20	42
43	20	1	RECS DIRECTOR OFFICE 205	0.90	1.44			0.54	MP COUNTER RM 210	1	20	44
45	20	1	MP TABLES RM 210	0.90		1.48		0.50	REC TECH BAR 213	1	20	46
47	20	1	MP TABLES RM 210	1.00			1.90	0.90	RECS RM 221	1	20	48
49	20	1	CARD READERS, ADA ACCESS	1.20	1.70			0.50	FACP	1	20	50
51	20	1	FAAP	0.50		1.50		1.00	MOTORIZED DOOR VEST, 200	1	20	52
53	20	1	MICROWAVE	1.20			2.20	1.00	MOTORIZED DOOR VEST, 200	1	20	54
55	20	1	MICROWAVE	1.20	1.20			0.00	SPARE	1	20	56
57	20	1	SCOREBOARDS & SHOT CLOCKS	0.60		0.60		0.00	SPARE	1	20	58
59	20	1	ACCESS CONTROL SYSTEM PANEL	0.50			0.50	0.00	SPARE	1	20	60
61	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	62
63	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	64
65	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	66
67	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	68
69	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	70
71	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	72
73	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	74
75	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	76
77	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	78
79	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	80
81	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	82
83	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	84
			TOTAL CONNECTED PHASE KVA:		18.18	10.78	10.56					
			TOTAL CONNECTED KVA:		56.51							
			DEMAND OR DESIGN KVA:		37.36							
			FUTURE KVA:		0.00							
			TOTAL DEMAND OR DESIGN KVA:		37.36							
			DEMAND OR DESIGN AMPERES:		103.79							

AMPERES INTERRUPTING RATING: 10,000

HMP2 — **LOCATION: ELECTRICAL ROOM 221**

TYPE: LIGHTING & APPLIANCE
SERVICE: 480Y/277V, 3PH, 4W
MAINS: 400A MLO
CABINET: NEMA 1
MOUNTING: SURFACE

CKT	TRIP	POLE	LOAD DESCRIPTION	CKT KVA	KVA PH-A	KVA PH-B	KVA PH-C	CKT KVA	LOAD DESCRIPTION	POLE	TRIP	CKT
1	20	3	FTU 2-7	3.83	18.09			14.26	TMP2	3	20	2
3	-	-	-	3.00		15.00		12.00	-	-	20	4
5	-	-	-	3.00			12.34	9.34	-	-	20	6
7	40	3	FTU 2-8	9.25	9.25			0.00	SPACE	-	-	8
9	-	-	-	8.00		8.00		0.00	SPACE	-	-	10
11	-	-	-	8.00			8.00	0.00	SPACE	-	-	12
13	125	3	RTU-1	31.15	53.29			22.14	RTU-2	3	100	14
15	-	-	-	31.15		53.29		22.14	-	-	-	16
17	-	-	-	31.15			53.29	22.14	-	-	-	18
19	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	20
21	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	22
23	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	24
25	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	26
27	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	28
29	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	30
31	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	32
33	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	34
35	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	36
37	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	38
39	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	40
41	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	42
			TOTAL CONNECTED PHASE KVA:		80.63	76.30	73.63					
			TOTAL CONNECTED KVA:		230.56							
			DEMAND OR DESIGN KVA:		177.74							
			FUTURE KVA:		0.00							
			TOTAL DEMAND OR DESIGN KVA:		177.74							
			DEMAND OR DESIGN AMPERES:		213.79							

AMPERES INTERRUPTING RATING: 35,000

PANELBOARD: HP2 — **LOCATION: ELECTRICAL ROOM 221**

TYPE: LIGHTING & APPLIANCE
SERVICE: 480Y/277V, 3PH, 4W
MAINS: 200A MLO
CABINET: NEMA 1
MOUNTING: SURFACE

CKT	TRIP	POLE	LOAD DESCRIPTION	CKT KVA	KVA PH-A	KVA PH-B	KVA PH-C	CKT KVA	LOAD DESCRIPTION	POLE	TRIP	CKT
1	20	1	LIGHTING SITE	1.57	19.75			18.18	TP2	3	70	2
3	20	1	LIGHTING SITE	1.00		20.78		19.78	-	-	-	4
5	20	1	LIGHTING SITE	0.38			18.93	18.56	-	-	-	6
7	20	1	LCP2	0.72	0.72			0.00	SPARE	1	20	8
9	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	10
11	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	12
13	20	1	SPARE	0.00	0.14			0.14	LIGHTING - BUILDING EXTERIOR	1	20	14
15	20	1	SPARE	0.00		3.28		3.28	LIGHTING - 200-202, 203B-219, 221	1	20	16
17	20	1	SPARE	0.00			3.54	3.54	LIGHTING - 203	1	20	18
19	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	20
21	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	22
23	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	24
25	20	1	SPARE	0.00	0.00			0.00	SPARE	1	20	26
27	20	1	SPARE	0.00		0.00		0.00	SPARE	1	20	28
29	20	1	SPARE	0.00			0.00	0.00	SPARE	1	20	30
31	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	32
33	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	34
35	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	36
37	-	-	SPACE	0.00	0.00			0.00	SPACE	-	-	38
39	-	-	SPACE	0.00		0.00		0.00	SPACE	-	-	40
41	-	-	SPACE	0.00			0.00	0.00	SPACE	-	-	42
			TOTAL CONNECTED PHASE KVA:		20.61	24.85	22.47					
			TOTAL CONNECTED KVA:		67.14							
			DEMAND OR DESIGN KVA:		50.10							
			FUTURE KVA:		0.00							
			TOTAL DEMAND OR DESIGN KVA:		50.10							
			DEMAND OR DESIGN AMPERES:		60.26							

AMPERES INTERRUPTING RATING: 35,000

KAI
2060 Craigshire Road
Saint Louis, MO 63146
T. 314.241.8188
F. 314.241.0125
www.kai-db.com
Missouri State Certificate of Authority #2018003897

[dtls]

CITY CENTER PROJECT
COMMUNITY CENTTER
2315 ADA WORTLEY AVENUE
ST. LOUIS MO 63136
BID SET

STATE OF MISSOURI
KRISTA M. SIMON
NUMBER PE-2023026461
PROFESSIONAL ENGINEER
10.11.2024

ISSUE:

MARK	DATE	DESCRIPTION
1	10/11/24	Addendum 3

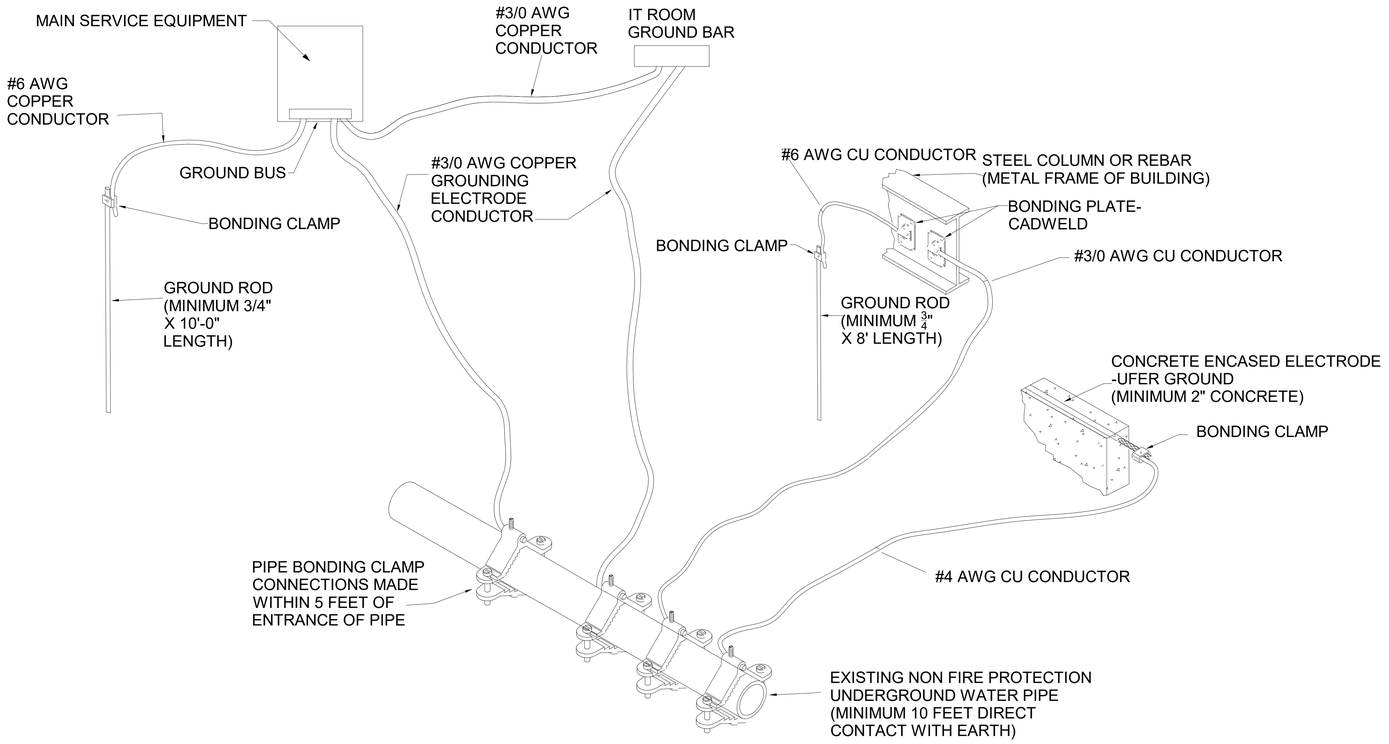
ISSUE DATE: 09/17/24
PROJECT NO.: 10-19202.00
DRAWN BY: BA
REVIEWED BY: HP

ORIGINAL SHEET SIZE IS 30" x 42"

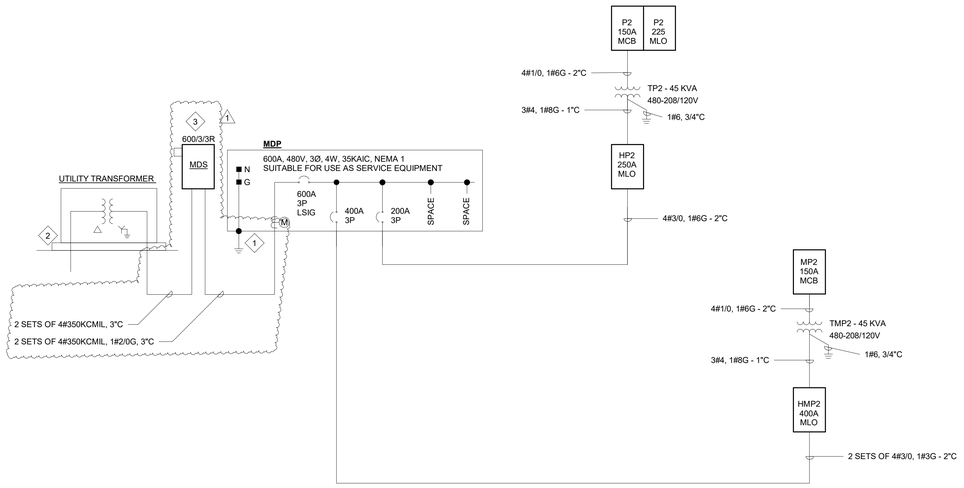
SHEET TITLE
COMMUNITY CENTER ELECTRICAL PANEL SCHEDULES

SHEET NO.
E604

10/10/2024 6:25:19 PM Autodesk Docs://10-19202_Jennings_City_Hall_And_Community_Center/10-19202_E_Jennings_CH_&_CC.rvt



2 TYPICAL GROUNDING SYSTEM DETAIL-
SCALE: N.T.S.



1 COMMUNITY CENTER - ONE-LINE DIAGRAM
SCALE: N.T.S.

KEYED NOTES

1 CONNECT TO ALL AVAILABLE ELECTRODE GROUNDING CONDUCTORS, INCLUDING COLD WATER PIPE.
2 PROVIDE UNDERGROUND CONDUIT PER ELECTRICAL UTILITY STANDARD. COORDINATE ALL REQUIREMENTS WITH AMEREN MO.
3 MAIN DISCONNECT SWITCH WITH AMEREN METER BOX, INSTALLED OUTDOORS ON THE ELECTRICAL ROOM EXTERIOR WALL, AT PANEL MDP LOCATION. METER EQUIPMENT INCLUDING CTs, PTs, METER, WILL BE PROVIDED BY AMEREN, INSTALLED AND CONNECTED BY THE ELECTRICAL CONTRACTOR.

2060 Craigshire Road
Saint Louis, MO 63146
T. 314.241.8188
F. 314.241.0125
www.kai-db.com
Missouri State Certificate of Authority #2018003897

CITY CENTER PROJECT
COMMUNITY CENTTER
2315 ADA WORTLEY AVENUE
ST. LOUIS MO 63136

BID SET

KRISTA M. SIMON NUMBER PE-2023028461 PROFESSIONAL ENGINEER STATE OF MISSOURI
10.11.2024

ISSUE

MARK	DATE	DESCRIPTION
1	10/11/24	Addendum 3

ISSUE DATE 09/17/24
PROJECT NO. 10-19202.00
DRAWN BY: BA
REVIEWED BY: HP

ORIGINAL SHEET SIZE IS 30" x 42"

SHEET TITLE
ONE-LINE DIAGRAM

SHEET NO.
E701