IFC Design Analysis

Replace Switchgear in Building 1

Architect-Engineering Services for 100% Design

Revision 01

Project Number:
WWYK200051

Work Order:
25505

Tinker Air Force Base, Oklahoma
June 8, 2026

Prepared By:

HDR Engineering, Inc.
9311 San Pedro Ave., Suite 1100
San Antonio, TX 78216

Design Professionals and Areas of Responsibility

Electrical

WWYK200051– Replace Switchgear, Bldg 1

IFC – Revision 01

TINKER AIR FORCE BASE, OKLAHOMA

Architect-Engineering Services for 100% Design Services

CLIENT PROJECT NUMBER: WWYK200051
WORK ORDER: 25505

Construction Documents
Project Manual – Issued for Construction

06/08/2026

HDR Engineering, Inc.

TPBE Firm Registration No. F-754

Contents

1 Overview 5
2 Applicable Codes and Standards 5
3 Existing Non-Conforming Conditions 7
4 Anti-Terrorism / Force Protection (AT/FP) Design 7
5 Architectural 8
6 Structural 8
6.1 Design Approach 8
6.2 General Design Parameters and Assumptions 8
6.2.1 Structural Loads 8
6.2.2 Special Inspections 9
6.2.3 Structural Observations 9
6.3 Demolition 9
6.4 Construction 9
7 Mechanical 10
8 Electrical 10
8.1 Design Approach 10
8.2 General Design Parameters and Assumptions 10
8.3 Demolition 11
8.3.1 Lighting 11
8.3.2 Power 11
8.4 Construction 12
8.4.1 Lighting 12
8.4.2 Power 12
8.5 Arc Flash Analysis 12
9 Civil 13
10 Fire Protection and Life Safety 13
10.1 Fire Protection and Life Safety Analysis Approach 13
10.2 Types of Construction 13
10.3 General Building Heights and Areas 13
10.4 Occupancy Classification 13
10.5 Passive Fire Protection 14
10.6 Interior Finishes 14
10.7 Means of Egress 14
10.7.1 Occupant Load 14
10.7.2 Dead-End Limits and Common Path of Travel 14
10.7.3 Travel Distance 15
10.7.4 Arrangement of Means of Egress 15
10.7.5 Illumination of Means of Egress 15
10.7.6 Emergency Lighting 15
10.7.7 Marking of Means of Egress 15
10.8 Fire Pumps and Water Supply 15

10.9 Fire Department Connections 16
10.10 Automatic Sprinkler and Suppression Systems Analysis 16
10.11 Standpipe Systems 16
10.12 Fire Alarm System 16
10.13 Fire Alarm Reporting System 16
10.14 Fire Department (Emergency) Vehicle Access 16
10.15 Portable Fire Extinguishers 16
11 Phasing 16

Tables

Table 10-1. Interior Finishes Requirements 14
Table 10-2. Occupancy Specific Criteria 14
Table 10-3. Maximum Allowable Dead-End Corridor Length 14
Table 10-4. Allowable Common Path of Travel Distance 15
Table 10-5. Allowable Travel Distance 15

Appendices

Appendix A: Asbestos and Lead Based Paint
Appendix B: Structural
Appendix C: Electrical
Appendix D: As-Built

Acronyms and Abbreviations

A	Amperes
AABC	Associated Air Balance Council
ACCA	Air Conditioning Contractors Association
AFB	Air Force Base
AHJ	Authorities having jurisdiction
AHU	Air handling unit
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
BTU	British thermal unit
CFM	Cubic Feet per Minute
CV	Constant volume
DB	Dry Bulb
DEG	Degrees
DoD	Department of Defense
DX	Direct expansion
EPDM	Ethylene propylene diene monomer
FDC	Fire Department Connection
FPS	Feet per Second
FT	Feet
GFCI	Ground-fault circuit interrupter
GPM	Gallons per minute
HPSB	High Performance Sustainability Building
HVAC	Heating, ventilation, and air conditioning
IBC	International Building Code
IEBC	International Existing Building Code
IN	Inches
kV	Kilovolt
kVA	Kilovolt-amps
LCCA	Life Cycle Cost Analysis
LED	Light emitting diode
MAU	Make-up air unit
MBH	1000 BTUs per Hour
MCC	Motor Control Center
MERV	Minimum efficiency reporting value
MPH	Miles per hour
N	North
NAC	Notification Appliance Circuit
NEBB	National Environmental Balancing Bureau
NEC	National Electrical Code
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
TAFB	Tinker Air Force Base
TO	Technical Order
TP	Technical Paper
TSEWG	Tri-Service Executive Working Group
UFC	Unified Facilities Criteria
V	Volt
VAV	Variable air volume

W	West
WB	Wet Bulb
WG	Water Gauge
%	Percentage
§	Subsection
°F	Fahrenheit

1 Overview

The electrical equipment on the dock under the canopied and sprinklered area will be removed and replaced. The new equipment will be phased in so as not impact building operations and such that the existing switchgear will only be shut down once it is replaced. At the project out brief provided on 20 Sept 2023; the design team provided the government with three options for siting and Cameron Twyford approved this siting approach.

Per that same out brief the team described the reasoning the equipment should not be installed outside the canopied and sprinklered area; specifically, it would drive significant fire scope. Cameron Twyford approved that reasoning and concurred with keeping the equipment under the canopy.

The design team FPE asked if the nearby WWYK160073 – Repair Fire Risers, SE Corner, BLDG1 (FSD1), B1 project would include an FDC, as that is required by code. Cameron Twyford confirmed the project includes an FDC and a hydrant within 150 ft of the FDC. Given this, fire protection scope for this project will be limited to a code check and existing sprinkler analysis.

A 1500 KVA transformer has already been installed by OG&E and will not be part of this project.

The client also requested the space be contained by floor to top panels to keep debris and dust from the area as the space is at the back of a wind tunnel. The design team will provide a space fully enclosed on four sides but with an open top as this area is covered by canopy. After original completion of this design package in April 2024, the project was never moved forward to Construction.

During design “dust off” activities in March 2026 a significant conflict was found between the originally planned egress path from Building 1, the now completed WWYK160073 Repair Fire Risers, SE Corner, BLDG1 (FSD1), and the originally scoped Switchgear Wind Screen with this project. The team presented options for resolution and held an Over-the-Shoulder Review Meeting on March 20th, 2026, to discuss with users and CE personnel. At this meeting, Ray Green, Project Execution Branch Chief for CE confirmed decision to proceed with the option to remove the Wind Screen from Project Scope.

2 Applicable Codes and Standards

Air Force Instructions

- AFI 32-10141 Planning and Programming Fire Safety Deficiency Correction Projects (15 May 2019)

Tinker AFB Standards

- TAFB Facility Standard (2026)
- TAFB Facility Standard – Mechanical Attachment C
- TAFB ES Tinker Air Force Base Electrical Standards (1 Jan 2026)

- TAFB FP Tinker Fire Protection Standards (March 2026)

National Fire Protection Association (NFPA)

- NFPA 1 Fire Code (2021)
- NFPA 13 Standard for the Installation of Sprinkler Systems (2022)
- NFPA 51B Standard for Fire Prevention During Welding, Cutting, and Other Hot Work (2019)
- NFPA 70 National Electrical Code (2026)
- NFPA 72 National Fire Alarm and Signaling Code (2022)
- NFPA 101 Life Safety Code (2026)
- NFPA 241 Standard for Safeguarding Construction, Alteration, and Demolition Operations (2022)

Unified Facilities Criteria (UFC)

- UFC 1-200-01 DoD Building Code, (17 December 2024 with Change 4)
- UFC 3-101-01 Architecture (16 Dec 2020, with Change 3, 2 Oct 2023)
- UFC 3-110-03 Roofing (1 May 2012, with Change 5, 12 Jun 2020)
- UFC 3-201-01 Civil Engineering (20 Dec 2022)
- UFC 3-301-01 Structural Engineering (11 Apr 2023, with Change 6, dated 30 Jan 2026)
- UFC 3-400-02 Design: Engineering Weather Data (20 Sep 2018)
- UFC 3-401-01 Mechanical Engineering (1 Jul 2013 with Change 1, 1 Oct 2015)
- UFC 3-410-01 Heating, Ventilating, and Air Conditioning Systems (01 Jul 2013, with Change 8, 21 Jul 2021)
- UFC 3-420-01 Plumbing Systems (1 Apr 2021)
- UFC 3-501-01 Electrical Engineering (27 Nov 2024)
- UFC 3-520-01 Interior Electrical Systems (21 January 2026 with Change 1)
- UFC 3-550-01 Exterior Electrical Power Distribution (01 November 2019 with Change 3)
- UFC 3-600-01 Fire Protection Engineering for Facilities (8 Aug 2016 with Change 6, 6 May 2021)
- UFC 3-601-02 Operation and Maintenance: Inspection, Testing and Maintenance of Fire Protection Systems (7 October 2021))
- UFC 4-010-01 DoD Minimum Antiterrorism Standards For Buildings (12 Dec 2018, with Change 2 Jul 30, 2022)
- UFC 4-020-01 Security Engineering Facilities Planning Manual (11 Sep 2008)

- UFC 4-023-07 Design to Resist Direct Fire Weapons Effects, w/ Change 1 (1 Feb 2017)

General

- ABA Architectural Barriers Act (2015)
- ACI 318-19 Building Code Requirements for Structural Concrete (2019)
- ASCE 7-22 Minimum Design Loads and Associated Criteria for Buildings and Other Structures (2022)
- ASHRAE 62.1 Ventilation for Acceptable Indoor Air Quality (2022)
- ASHRAE 90.1 Energy Standard for Building Except Low-Rise Residential Buildings (2019)
- IBC International Building Code (2024) as amended by UFC 1-200-01 (17 December 2024 with Change 4)
- IEBC International Existing Building Code (2024) as amended by UFC 1-200-01
- IMC International Mechanical Code (2021) as amended by UFC 3-410-01
- IPC International Plumbing Code (2023) as amended by UFC 3-420-01

3 Existing Non-Conforming Conditions

Currently there are no known Existing Non-Conforming Conditions.

4 Anti-Terrorism / Force Protection (AT/FP) Design

This section provides AT design criteria for this facility and summarizes how the project will comply with the minimum standards.

UFC 4-010-01 Minimum Antiterrorism Standards for Buildings apply to this project. These standards apply to DoD components, to all DoD Inhabited Buildings and high occupancy family housing, and to all inhabited tenant buildings on DoD installations.

Section 1-5.2.1 Major Investments triggers the minimum standards if the cost for the building renovation, modification, repairs, revitalizations, and restorations exceeds 50% of the replacement cost of the existing building. Per UFC 3-701-01, Replacement cost is a stand-alone cost that represents the total cost to design and construct a new facility based on current codes, UFC and other design criteria that replaces an existing facility. The replacement cost is distinctly different from the PRV. The replacement cost includes the demolition and disposal of the existing facility, hazmat removal, and special construction features such as special foundations and historic considerations. The

replacement cost generally excludes site work and utilities outside the 5-foot line except when current codes, UFC and other design criteria require utilities and site work outside the 5-foot line to be modified, replaced/modernized and/or upgraded.

The escalated estimated replacement cost for this facility is $194,003,634.00. The construction cost estimate is $2,300,847.00. The project does not exceed 50% of the escalated estimated replacement cost; therefore, the entire facility will not need to be brought up to ATFP standards.

5 Architectural

No Scope.

6 Structural

6.1 Design Approach

Design will follow requirements of UFC 3-301-01, Change 6 dated 30 Jan 2026, and Tinker AFB Standards.

Design concrete reinforced equipment pads to support new electrical switchgears. New housekeeping pads will be anchored to the existing concrete slab.

6.2 General Design Parameters and Assumptions

6.2.1 Structural Loads

Dead Loads

Dead loads will be considered resulting from fixed construction, materials, and equipment. Dead loads will be determined and applied in accordance with ASCE 7-22, and other pertinent standards and vendor-supplied information.

Live Loads

Live loads are those loads produced by the use and occupancy of the building or structure, and do not include loads such as wind/seismic loads, rain loads, flood loads, or dead loads. Minimum uniformly distributed live loads will be as required by UFC 3-301-01 Table E-1 and ASCE 7-22.

Wind Loads

Wind loads for structural design of main wind force resisting systems and components and cladding shall be determined and applied in accordance with ASCE 7-22.

Wind Speed

The minimum 3-second gust design wind speed shall be determined using the ASCE 7 Hazard Tool website. A basic wind speed of 116 mph (90 mph nominal) will be used for the project location.

Exposure Category

Building exposure classification C, as defined by ASCE 7-22, shall be used for this building.

Risk Category

Building risk category III, as defined by ASCE 7-22, shall be used for this building.

Load Combinations

Load combinations using strength level design for material strength and unity checks, and service level design analysis for foundation bearing and deflection checks as defined in ASCE 7-22.

Seismic

Seismic loads shall be determined in accordance with IBC 2024. The structure will be designed as Seismic Design Category (SDC) of “B” based on the seismic parameters defined in IBC 2024.

UFC 3-301-01 Chapter 4, Seismic Evaluation and Retrofit of Existing Buildings, references RP-10 as the applicable code for seismic evaluation and retrofit requirements. Per section 1.3 of RP-10, SDC B buildings are exempt from meeting the standards.

6.2.2 Special Inspections

Special inspections will not be required for this project in accordance with Chapter 17 of IBC 2024 since the work is considered minor in nature.

6.2.3 Structural Observations

In accordance with Section 1704.6 of IBC 2021, structural observations by a registered professional are required for this project since the structure is classified as Risk Category III.

6.3 Demolition

Remove existing steel framed gate and supports for fencing, and existing housekeeping pads below existing equipment.

6.4 Construction

Provide housekeeping pads for each new electrical switchgear.

7 Mechanical

No Scope.

8 Electrical

8.1 Design Approach

The project scope will include the replacement of 480V and 208V unit substations with 480V and 208V switchgears of the prefabricated engineering walk-in enclosure type and remote switches to control the circuit breakers. The 480V switchgear will be fed from the secondary side of the newly installed OG&E 1500 kVA transformer. The 208V switchgear will be fed via a new 500kVA step-down transformer from the new 480V switchgear. All feeders will be routed overhead. Existing feeders fed from existing 480V and 280V unit substations will be retained for reconnection to the new work.

The existing 600A panelboards, Panel B-9 (UID #1-SWGSEC-2) and existing panel "B13" (UID #1-PNL-11) located in the mechanical room are recently replaced under contract WWYK #090044 and are as part of Revision 1 of this contract. The existing 600A Panel LPO (UID #1-FA-801), located in closet within the building will be replaced with same rating as existing panelboards. The existing step-up transformer and outdated panelboard located within the mechanical room, which are fed from the existing 600A panelboard B-9 (UID #1-SWGSEC-2), will also be replaced, according to user request.

8.2 General Design Parameters and Assumptions

A 12.47kV-480Y/120V, 1500kVA OG&E transformer has been installed in preparation to provide power for these 480V and 208V switchgear replacements. There is a meter socket provided by OG&E located adjacent to the transformer. The transformer is currently not energized and safely protected with construction bollards.

Currently, the existing 480V and 208V unit substations are fed from two separated Medium Voltage feeders (15kV), which originate from Switching Station ‘A’ or Vault ‘A’. The existing 480V unit substation is rated 1600A and located within the prefabricated manufactured enclosure. The 480V unit substation has 1000kVA step-down transformer. The existing 208V unit substation is rated 1200A, which is located adjacent to the 480V unit substation. The 208V unit substation has 500kVA step-down transformer. Both unit substations are outdated and required to be upgraded to continue serving the critical loads located in building. The unit substation 208V has been offline once and was difficult to re-energize once taken offline.

All existing feeders being fed from existing 480V unit substation will remain and be reconnected to new switchgear. The two existing feeders being fed from existing 208V unit substation will have new conductors, but the conduits will remain for reconnection to new switchgear. RFI was sent for clarification of splicing allowance per Tinker Electrical Standards for these existing feeders. Per the COR, Jim Rowden, via email dated 3 Oct 2023, he approved the exception to the Tinker Electrical Standards of splicing from existing conductors. Splices are allowed to make an extension if new switchgear

replacement's location is required to line up with all existing feeders to make connection(s) to the new work.

There are existing power meter attached to existing unit substations; however, the readings are outdated. The readings were not recorded correctly. The data cannot be used for peak demand load analysis. There will not be any peak load study to reconfirm the equipment sizes as indicated per paragraph 1.3.3. COR, Jim Rowden, approved not performing the peak load study. All equipment sizes as indicated in PAA will not change and will be used for design.

All equipment indicated to be replaced will be the same ratings including branch circuit breakers as existing equipment and in the same location. All existing feeders will be re-fed to new panelboards. Per COR, Jim Rowden, designing the same rating equipment replacement is approved.

All work will be phased as follows with the 480V unit substation replaced first, then new 500kVA step-down transformer installed and then the last phase will be replacing the 208V unit substation and downstream replaced panelboards as mentioned above. All work shall be confirmed to be fully operable and returning power to connections before moving forward to next phase.

Temporary Power sources will be provided to ensure the building remains fully operational during the switch over.

8.3 Demolition

8.3.1 Lighting

Not in Scope.

8.3.2 Power

Phase I: Disconnecting and removing existing 480V unit substation, including MV feeders back to power source. Disconnecting all existing feeders being fed from the existing unit substation. Retain conductors/conduits for reconnection in new work. Provide Temporary power during equipment replacement.

Phase II: Disconnecting and removing existing 208V unit substation, including MV feeders back to panel source. Disconnecting all existing feeders being fed from the existing unit substation. Remove existing conductors/, but retain existing conduits for reconnection in new work. Provide Temporary power during equipment replacement.

Phase III: Disconnecting and removing existing 600A panelboards Panel LPO (UID #1-FA-801). Remove conductors back to panel source. Retain conduits for reconnection in new work.

Phase IV: Disconnecting and removing the existing 30kVA step-up transformer, which is fed from existing 600A panelboard B-9 (UID #1-SWGSEC-2). The step-up transformer (UID #1XFMR-2) is currently feeding 60A/480V disconnect switch for Elevator. Remove conductors and conduits back to panel B-9 (UID #1-SWGSEC-2).

Tracing all existing circuits/branch circuits/feeders and making notes for reconnection in new works.

8.4 Construction

8.4.1 Lighting

Not in Scope.

8.4.2 Power

Phase I: Providing, installing and connecting new 480V switchgear (UID-1-SWGSEC-5) to the secondary side of newly installed 1500kVA OG&E transformer. All power connections to the secondary side of the transformer will be coordinated with OG&E. There will be new overhead feeders routed to canopy and along the side of the building exterior wall to be routed to OG&E transformer. Reconnecting all existing feeders to new 480V switchgear (UID-1-SWGSEC-5). Test and ensure all existing loads return to original operation.

Phase II: Providing and installing 500kVA (480V-208V/120Y) step-down transformer and new 208V switchgear (UID-B-1-SWGSEC-3). Connecting transformer to new 480V switchgear (UID-1-SWGSEC-5).

Phase III: Providing and installing 600A panelboard, Panel LPO (UID #1-FA-801. Reconnecting all existing branch circuits to new panelboards. Providing new conductors and routing to original panel sources. Connect feeders of Panel LPO (UID #1-FA-801) to new 208V switchgear (UID-B-1-SWGSEC-3). Test and ensure all loads return to original operation.

Phase IV: Connecting existing 60A disconnect switch (480V) from elevator machine and connect to new 480V switchgear (UID-1-SWGSEC-5). Provide new branch circuit. Test and ensure the elevator machine returns to original operation.

The Contractor must provide and install galvanized steel uni-strut equipment rack for remote operational breaker panels. Contractor must verify quantify of each 208V and 480V switchgear circuit breakers. The location of the rack must be unobstructed and to be installed not higher than 6-ft from finished floor.

8.5 Arc Flash Analysis

The design provides preliminary short circuit calculations for new electrical distribution systems in the EasyPower file which will be submitted for the Contractor to perform a final power study. The final power study will be conducted by the Contractor. Arc Flash detail labeling will be required on all electrical transformers, disconnects, and distribution equipment associated with this project. All new and modified electrical panels and distribution equipment shall have Fault Current Analysis and Arc Flash Calculations performed per NFPA 70, NFPA 70E, and TAFB Base Electrical Standards. Fault Current Analysis shall be submitted for CE review and approval.

The contractor also will be required to provide field labels indicating the short fault circuit and date of the calculations on the enclosure of the new equipment in accordance with NEC 2026, Article 110.16 and 408.6(1)

9 Civil

No Scope.

10 Fire Protection and Life Safety

10.1 Fire Protection and Life Safety Analysis Approach

This project consists of relocating the fence around the existing switch gear to accommodate new switch gear and transformer.

In accordance with UFC 3-600-01 Section 2-1.20, this Scope of Work is not considered a Major Project.

The scope of work is defined as an Alteration - Level 2, per IEBC. An Alteration - Level 2 includes the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration of any system, or the installation of any additional equipment. Per NFPA 101, this work is also classified as a Modification, defined as the reconfiguration of any space; the addition, relocation or elimination of any door or window; the addition or elimination of load-bearing elements; the reconfiguration or extension of any system; or the installation of any additional equipment.

UFC 3-600-01 §34-1.2.7 states that where the building rehabilitation chapter of NFPA 101 requires newly constructed elements, components, and systems to comply with new construction requirements in this UFC (UFC 3-600-01) and NFPA 101 for New Construction. Additionally, the work must not make the building areas located outside of the work area less conforming with UFC 3-600-01 and NFPA 101 than before the Modification project was undertaken.

10.2 Types of Construction

The project includes interior work within the building but will not change the existing construction type, which is Type IV. The new construction materials will be Type IIB, non-combustible, presenting a lower hazard level than the existing construction.

10.3 General Building Heights and Areas

The project area consists of 1,010 SF. The project is under an existing canopy exterior of the building but is included within the overall building’s fire area. The project will not increase the height and fire area of the existing building. Analysis of the existing building is not within the scope of work.

10.4 Occupancy Classification

The project area is currently a Group S-1 Moderate Hazard Storage Use (Storage Occupancy) use and will remain Group S-1 Moderate Hazard Storage Use (Storage Occupancy).

10.5 Passive Fire Protection

There are no requirements for passive fire protection for this project. Existing penetration protective and sealants through fire and smoke rated barriers and walls will be maintained.

10.6 Interior Finishes

Interior finishes will be provided in accordance with Section 10.2 of NFPA 101 and the requirements of the Occupancy Specific Criteria.

Table 10-1. Interior Finishes Requirements

Occupancy	Interior Floor Finishes	Rooms and Enclosed Spaces	Exits Enclosures	Exit Access Corridors
Storage (NFPA 101: Section 42.3.3)	Class I Or Class II	Class A, Class B, Or Class C	Class A Or Class B	Class A, Class B or Class C

10.7 Means of Egress

10.7.1 Occupant Load

The project occupancy occupant load is required to be assigned to each space of a building related to that space's intended use. Per NFPA 101, section 7.3.1, the occupant load will be calculated by dividing the floor area of a space by an Occupant Load Factor (OLF) from Table 7.3.1.2 of NFPA 101, and UFC 3-600-01, Table 10-1, and occupant load should not less than that result. The occupancy load for the scope of work area is 3 people.

Table 10-2. Occupancy Specific Criteria

Use	OLF (FT2/person)
Electrical Room	500 gross

10.7.2 Dead-End Limits and Common Path of Travel

Where dead-end corridors exist, an occupant entering the corridor thinking there is an exit at the end, and finding none, is forced to retrace the path to reach an exit. The building is fully sprinklered per NFPA 101, the maximum allowable dead-end corridor length is as follows:

Table 10-3. Maximum Allowable Dead-End Corridor Length

Occupancy	Allowable Dead-End	Actual Length of Dead-End Corridor
Storage Ordinary-Hazard	100 feet	N/A

Source: NFPA 101

A common path of travel exists where occupants are required to travel a single path to reach the point at which the occupants have the choice of two or more paths of travel to remote exits. The building is fully sprinklered per NFPA 101, the allowable common path of travel distance is as follows:

Table 10-4. Allowable Common Path of Travel Distance

Occupancy	Allowable Common Path Allowed	Actual Length of Common Path
Storage Ordinary-Hazard	100 feet	52 feet 6 inches

Source: NFPA 101

10.7.3 Travel Distance

Travel distance is the distance an occupant must travel before reaching an exit or an interior fire lane. The building is fully sprinklered per NFPA, 101 the allowable travel distance is as follows:

Table 10-5. Allowable Travel Distance

Occupancy	Travel Distance Allowed	Travel Distance Path
Storage Ordinary-Hazard	400 feet	131 feet 0 inches

Source: NFPA 101

10.7.4 Arrangement of Means of Egress

Doors must provide a minimum clear width of 32 IN (NFPA 101: Section 7.2.1.2.3.2).

New corridor(s) or aisle(s) have a clear width greater than 44 IN (NFPA 101: Section 38.2.3.2). Common Path, Dead-end, and Egress Travel Distances for the work area are shown on the Life Safety Plan.

10.7.5 Illumination of Means of Egress

Overhead egress lighting currently exists. Existing egress lighting complies with NFPA 101 §7.8.

10.7.6 Emergency Lighting

Emergency lighting currently exists. Existing emergency lighting complies with NFPA 101 §7.9.

10.7.7 Marking of Means of Egress

Exits out of the scope of work area is exterior of the building and will not require an exit sign in accordance with NFPA 101 section 7.10.1.2.1.

10.8 Fire Pumps and Water Supply

Existing fire pumps and water supply will remain unaffected by this project.

10.9 Fire Department Connections

Existing Fire Department Connections will remain unaffected by this project.

10.10 Automatic Sprinkler and Suppression Systems Analysis

The building is equipped throughout with automatic sprinkler protection. The fire suppression spans overhead within the scope of work area and will not be altered since it is designed to meet an ordinary hazard.

10.11 Standpipe Systems

There are no standpipe systems for this building, and none are required by UFC 3-600-01.

10.12 Fire Alarm System

Building 1 is currently protected with a Siemens networked fire alarm and mass notification system. Adding additional fire alarm and mass notification appliances is not a part of the scope of work.

10.13 Fire Alarm Reporting System

Building 1 is currently protected with a Siemens networked fire alarm and mass notification system. The fire alarm/mass notification system transmits Alarm, Trouble and Supervisory signals to the Monaco D-21 Base-Wide Monitoring Center.

10.14 Fire Department (Emergency) Vehicle Access

Exterior fire department vehicle access remains unaffected by this project.

10.15 Portable Fire Extinguishers

Existing Portable Fire Extinguishers do not comply with NFPA 10 (2-A Extinguisher, maximum travel distance to the extinguisher of 75 feet). One Portable Fire Extinguisher will be provided as part of this SOW.

11 Phasing

Installation of the electrical equipment will be such that the facility will not lose power during normal operating hours and the existing switchgear will be shut down only once (permanently). See electrical for details.

Appendix A

Asbestos and Lead Based Paint

Roberts, Robin

From: 72 ABW/CE Asbestos-LBP <72ABW.CE.Asbestos-LBP@us.af.mil>
Sent: Monday, November 20, 2023 2:59 PM
To: Roberts, Robin; DUCK, LAURA M CIV USAF AFMC 72 ABW/CEIE
Cc: Goyette, Carmen; Holliday, Cynthia; GREEN, MICHAEL J CIV USAF AFMC 72 ABW/CEIE
Subject: RE: Important: WWYK200051 - Replace Switchgear in Bldg 1 - Request for LBP & Asbestos Report
Signed By: laura.duck.1@us.af.mil

Hello,

Mr. Green performed this inspection and did not identify any suspect asbestos materials and XRF analysis for LBP was negative. I have cc'd him as well. We do have a report but my computer has been updated and I am not able to find or provide new reports at this time. IT is helping to resolve this.

I apologize for the inconvenience but we will attempt to provide as soon as possible.

v/r,

Laura Duck
72 ABW/CEIE
Physical Scientist
Toxic Substances & Air Quality
Comm: (405) 734-3101; DSN: 884-3101

Cell: 405-200-7377**From:** Roberts, Robin <Robin.Roberts@hdrinc.com>
Sent: Monday, November 20, 2023 8:55 AM
To: DUCK, LAURA M CIV USAF AFMC 72 ABW/CEIE <laura.duck.1@us.af.mil>
Cc: Goyette, Carmen <Carmen.Goyette@hdrinc.com>; Holliday, Cynthia <Cynthia.Holliday@hdrinc.com>
Subject: [Non-DoD Source] RE: Important: WWYK200051 - Replace Switchgear in Bldg 1 - Request for LBP & Asbestos Report

Good Morning Laura,

I probably missed your email, but have you provided us with WWYK200051 - Replace Switchgear in Bldg. 1, LBP & Asbestos Report? 35% Deliverables are due today to Tinker, please reply at your earliest convenience.

Thank you.

Kindly,

Robin Roberts
D 210.841.2801 **M** 512.970.2368

hdrinc.com/follow-us

From: Roberts, Robin
Sent: Wednesday, November 8, 2023 9:03 AM
To: DUCK, LAURA M CIV USAF AFMC 72 ABW/CEIE <laura.duck.1@us.af.mil>

Cc: Goyette, Carmen <Carmen.Goyette@hdrinc.com>; Holliday, Cynthia <Cynthia.Holliday@hdrinc.com>
Subject: RE: Important: WWYK200051 - Replace Switchgear in Bldg 1 - Request for LBP & Asbestos Report

Laura,

Also, we need lead-based paint report please. Thank you.

Kindly,

Robin Roberts
D 210.841.2801 **M** 512.970.2368

hdrinc.com/follow-us

From: Roberts, Robin
Sent: Wednesday, November 8, 2023 8:58 AM
To: DUCK, LAURA M CIV USAF AFMC 72 ABW/CEIE <laura.duck.1@us.af.mil>
Cc: Goyette, Carmen <Carmen.Goyette@hdrinc.com>; Holliday, Cynthia <Cynthia.Holliday@hdrinc.com>
Subject: Important: WWYK200051 - Replace Switchgear in Bldg 1 - Request for LPB & Asbestos Report
Importance: High

Good Morning Laura,

Can you please provide to us Asbestos Report for this project?

We are in 35% and final will go to Tinker on Nov. 20th, so we would like to have a report by then please.

Thank you.

Kindly,

Robin Roberts
Administrative Project Coordinator

HDR
613 NW Loop 410, Suite 700
San Antonio, Texas 78216
D 210.841.2801 **M** 512-970-2368
robin.roberts@hdrinc.com

hdrinc.com/follow-us

This electronic transmission (and any documents accompanying it) may contain confidential communication. Unauthorized use is prohibited. If you have received this message in error, please return it immediately and delete the original.

Appendix B

Structural

PURPOSE:

Provide a structural design for equipment pads for new electrical equipment at Building 1.

REFERENCES:

1) UFC 3-301-01 - Unified Facilities Criteria: Structural Engineering, with Change 6, Dated 30 January 2026.
2) IBC 2024 - International Building Code, 2024 Edition
3) IEBC 2024 - International Existing Building Code, 2024 Edition
4) ASCE 7-22 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures
5) ACI 318-19 - Building Code Requirements for Structural Concrete

GIVEN:

1) Existing concrete compressive strength (f'c_exist): 3,000 psi
2) Existing reinforcing yield strength (fy_exist): 60 ksi
3) Existing soil bearing capacity (qu_exist): 2,000 psf
4) Existing floor slab thickness: 6"
5) Design Risk Category: III

Calculations Key:

input	Input variable or constant
output	Output variable
demand	Demand variable
capacity	Capacity value
OK	Utilization or check below unity or standard
NG	Utilization or check above unity or standard

Design Loads: Dead Loads

$\gamma_{conc} := 150\ pcf$ — Density of reinforced concrete

$\gamma_{stl} := 490\ pcf$ — Density of structural steel

$t_{slab} := 6\ in$ — Thickness of floor slab(s)

$\sigma_{DL_slab} := \gamma_{conc} \cdot t_{slab} = 75\ psf$ — Unit weight of existing concrete slab

Design Loads: Wind Loads

$V_{ult} := 116\ mph$ — Ultimate wind speed per IBC Figure 1609.3(2)

$V_{ASD} := V_{ult} \cdot \sqrt{0.6} = 89.853\ mph$ — Nominal wind speed per IBC Eq. 16-17.

$K_d := 0.85$ — Wind Directionality Factor per ASCE 7 Table 26.6-1.

$K_h := 0.85$ — Velocity pressure coefficient per ASCE 7 Table 26.10-1.

$z_g := 1246$ — Sea level height of structure (feet)

$K_e := e^{-0.0000362 \cdot z_g} = 0.956$ — Ground elevation factor per ASCE 7 Table 26.9-1 Footnote 2

$K_{zt} := 1.00$ — Topographic factor per ASCE 7 Section 26.8.2.

$q_z := 0.00256 \cdot K_h \cdot K_{zt} \cdot K_d \cdot K_e \cdot \left(\frac{V_{ult}}{mph}\right)^2 \cdot psf = 23.791\ psf$ — Velocity pressure per ASCE 7 Eq. 26.10-1.

$G_f := 0.85$ — Gust factor per ASCE 7 Section 26.11.1.

$h_{wall} := 8\ ft + 0\ in$ — Height of fence

$l_{wall_1} := 19\ ft + 10.5\ in$ — Length of fence running North/South

$l_{wall_2} := 33\ ft + 6\ in$ — Length of fence running East/West

$Height_Width_Ratio := \frac{l_{wall_1}}{h_{wall}} = 2.484$ — Height to width ratio for fence perpendicular to wind direction

$C_f := 1.40$ — Force coefficient factor per ASCE 7 Figure 29.3-1

$q_{z_screen} := q_z \cdot G_f \cdot C_f = 28.311\ psf$ — Factored design wind pressure on fence per ASCE 7 Eq. 29.4-1

Design Loads: Seismic Loads

$S_S := 0.298$

$S_1 := 0.081$

Spectral response acceleration values

$S_{DS} := 0.31$

$S_{D1} := 0.129$

Spectral response coefficients

$I_e := 1.25$

Importance factor for seismic design per ASCE 7 Table 1.5-2.

$I_p := 1.0$

Component importance factor per ASCE 7 Section 13.1.3

$C_s := 1.6 \cdot S_{DS} \cdot I_p = 0.496$

Seismic response coefficient per ASCE 7 Eq. 13.3-2

Structural Design: Existing Soil Bearing

$q_{soil} := 2000\ psf$

$P_{sw1} := 6693.68\ lbf + 2424.56\ lbf = 9118.24\ lbf$

Total weight of switchgear 1

$A_{sw1} := 93.60\ in \cdot 121.25\ in = 78.813\ ft^2$

Footprint area of switchgear 1

$\sigma_{sw1} := \frac{P_{sw1}}{A_{sw1}} = 115.695\ psf$

Bearing pressure from switchgear 1

$P_{sw2} := 7644.68\ lbf + 9613.68\ lbf + 2334.56\ lbf = 19592.92\ lbf$

Total weight of switchgear 2

$A_{sw2} := 159.60\ in \cdot 121.25\ in = 134.385\ ft^2$

Footprint area of switchgear 2

$\sigma_{sw2} := \frac{P_{sw2}}{A_{sw2}} = 145.796\ psf$

Bearing pressure from switchgear 2

$E_{v_sw1} := 0.2 \cdot S_{DS} \cdot P_{sw1} = 565.331\ lbf$

Vertical seismic component for switchgear 1

$E_{v_sw2} := 0.2 \cdot S_{DS} \cdot P_{sw2} = 1214.761\ lbf$

Vertical seismic component for switchgear 2

$E_{h_sw1} := P_{sw1} \cdot C_s = 4522.647\ lbf$

Horizontal seismic component for switchgear 1

$E_{h_sw2} := P_{sw2} \cdot C_s = 9718.088\ lbf$

Horizontal seismic component for switchgear 2

$q_{soil_net} := q_{soil} - \sigma_{DL_slab} - 6\ in \cdot \gamma_{conc} = 1850\ psf$

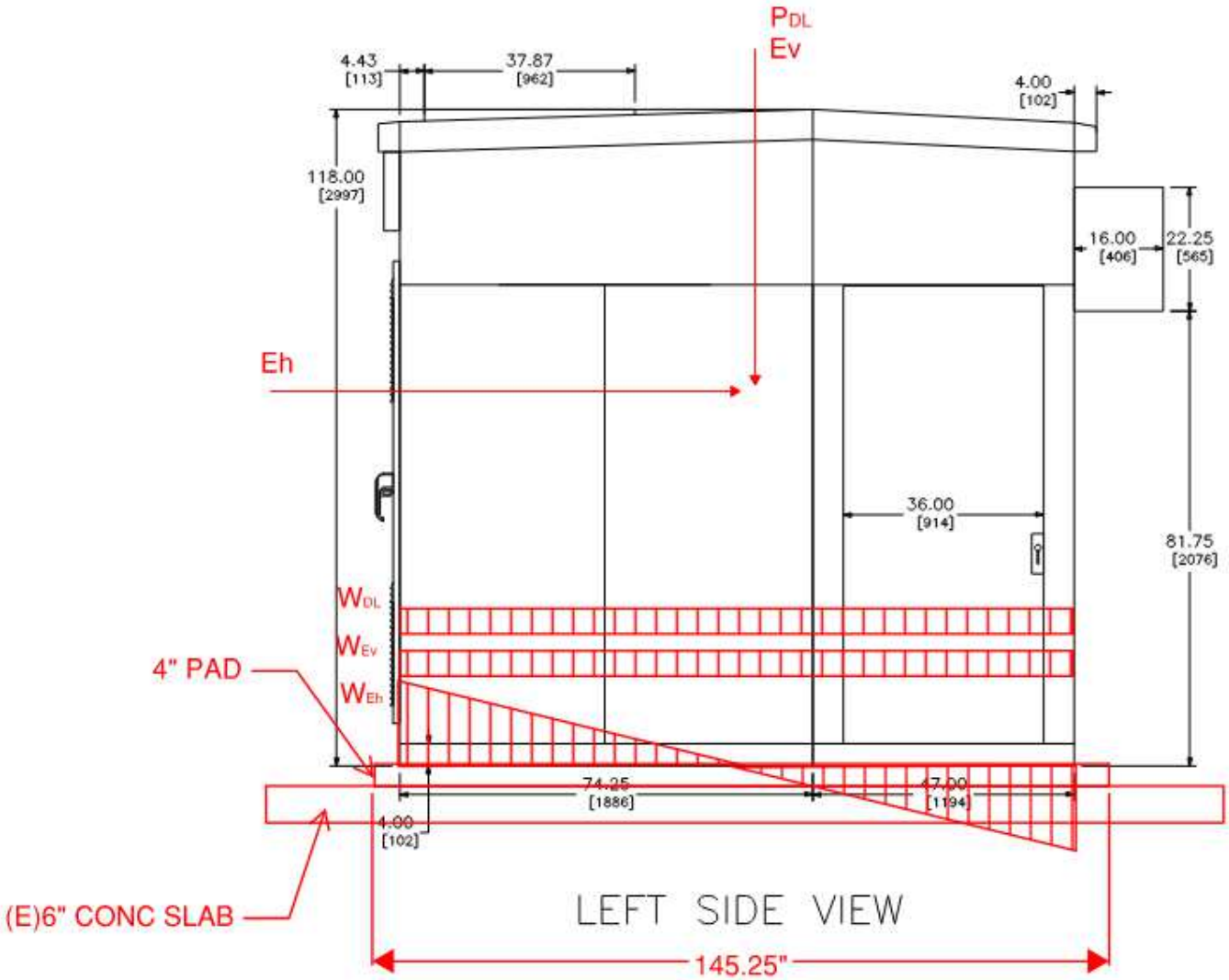
Net soil bearing capacity; 6" housekeeping pad below switchgear

$$IR_{soil_bearing} := \text{if } \frac{\max(\sigma_{sw1}, \sigma_{sw2})}{q_{soil_net}} \leq 1.0 \ \| \text{“Existing Soils are Adequate”} \ \text{else} \ \| \text{“Ground Improvements Required”} \quad = \text{“Existing Soils are Adequate”}$$

$$M_{sw_1} := E_{h_sw1} \cdot \left(\frac{118\ in}{2} + 4\ in \right) = 23743.897\ ft \cdot lbf$$

$$M_{sw_2} := E_{h_sw2} \cdot \left(\frac{118\ in}{2} + 4\ in \right) = 51019.964\ ft \cdot lbf$$

Overturning moments of switchgears



$$t_{pad_sw} := 6\ in$$

Thickness of equipment pad below switch gear

$$x_{dis} := \frac{t_{pad_sw}}{\operatorname{atan}\left(\frac{1}{2}\right)} = 12.941\ in$$

Distribution length each side of switchgear

$$R_{sw1} := \frac{M_{sw_1}}{121.25\ in + x_{dis}} = 2123.295\ lbf$$

Reaction on one side of switchgear due to overturning

$$w_{sw1} := \frac{R_{sw1}}{93.60\ in} = 272.217\ plf$$

Linear load from horizontal seismic component

$$R_{sw2} := \frac{M_{sw_2}}{121.25\ in + x_{dis}} = 4562.453\ lbf$$

Reaction on one side of switchgear due to overturning

$$w_{sw2} := \frac{R_{sw2}}{159.60\ in} = 343.042\ plf$$

Linear load from horizontal seismic component

$$w_{DL_sw1} := \frac{P_{sw1}}{2 \cdot 93.60\ in + 2 \cdot 121.25\ in} = 254.64\ plf$$

Perimeter loading of switch gear

$$w_{DL_sw2} := \frac{P_{sw2}}{2 \cdot 159.60\ in + 2 \cdot 121.25\ in} = 418.578\ plf$$

Perimeter loading of switch gear

$$w_{Ev_sw1} := \frac{E_{v_sw1}}{2 \cdot 93.60\ in + 2 \cdot 121.25\ in} = 15.788\ plf$$

Perimeter loading of vertical seismic component

$$w_{Ev_sw2} := \frac{E_{v_sw2}}{2 \cdot 159.60\ in + 2 \cdot 121.25\ in} = 25.952\ plf$$

Perimeter loading of vertical seismic component

$$w_{uf_LC8_sw1} := w_{DL_sw1} + 0.7 \cdot w_{Ev_sw1} + 0.7 \cdot w_{sw1} = 456.244\ plf$$

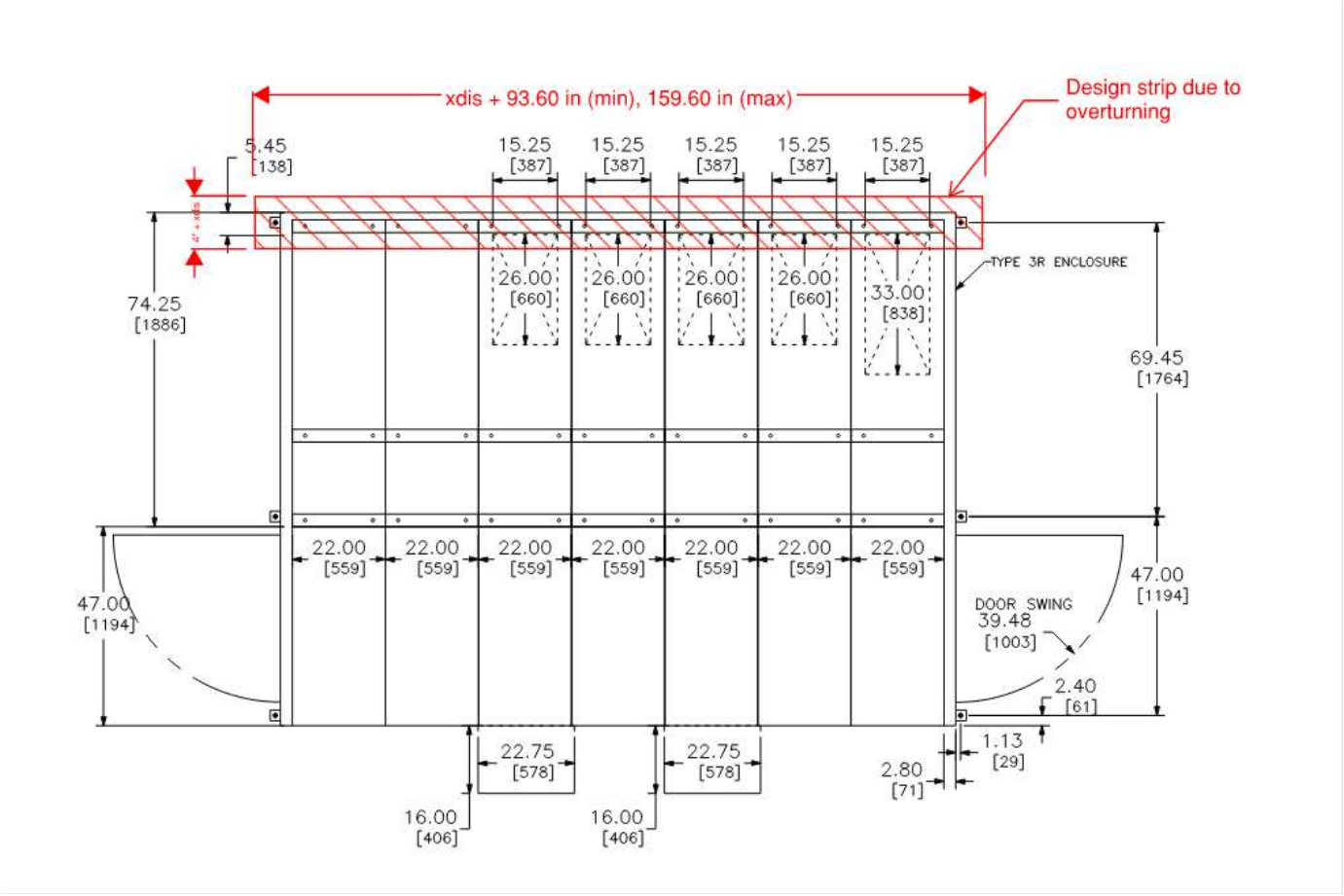
$$w_{uf_LC8_sw2} := w_{DL_sw2} + 0.7 \cdot w_{Ev_sw2} + 0.7 \cdot w_{sw2} = 676.873\ plf$$

$$w_{uf_LC8_sw1_left} := 0.6\ w_{DL_sw1} - 0.7 \cdot w_{Ev_sw1} + 0.7 \cdot w_{sw1} = 332.285\ plf$$

$$w_{uf_LC8_sw2_left} := 0.6 \cdot w_{DL_sw2} - 0.7 \cdot w_{Ev_sw2} + 0.7 \cdot w_{sw2} = 473.109\ plf$$

$$q_{s_over} := \frac{\max\left(w_{uf_LC8_sw1}, w_{uf_LC8_sw2}\right)}{t_{pad_sw} + 2 \cdot x_{dis}} = 254.769\ psf$$

Net maximum bearing pressure due to overturning moments from seismic components



Switchgear Plan

$$IR_{soil_bearing_over} := \text{if } \frac{q_{s_over}}{q_{soil_net}} \le 1.0 \text{ "Existing Soils are Adequate" else "Ground Improvements Required"} \quad = \text{"Existing Soils are Adequate"}$$

$w_{f_LC8_sw1} := 1.2 \cdot w_{DL_sw1} + w_{Ev_sw1} + w_{sw1} = 593.573$ *plf*

$w_{f_LC8_sw2} := 1.2 \cdot w_{DL_sw2} + w_{Ev_sw2} + w_{sw2} = 871.287$ *plf*

Factored loading due to overturning

$w_{f_LC8_sw1_left} := 0.9\ w_{DL_sw1} - w_{Ev_sw1} + w_{sw1} = 485.606$ *plf*

$w_{f_LC8_sw2_left} := 0.9 \cdot w_{DL_sw2} - w_{Ev_sw2} + w_{sw2} = 693.81$ *plf*

$l_{arm} := x_{dis} = 12.941$ *in*

Length of moment arm into slab

$M_{max_slab_sw} := \frac{\max\left(w_{f_LC8_sw1}, w_{f_LC8_sw2}\right) \cdot l_{arm}^{2}}{8} = 126.659$ *ft·lbf*

Maximum moment in slab

$V_{max_slab_sw} := \max\left(w_{f_LC8_sw1}, w_{f_LC8_sw2}\right) \cdot l_{arm} = 939.6$ *lbf*

Maximum shear in slab

$$S_{m_slab} := \frac{(93.60\ in + 2 \cdot x_{dis}) \cdot t_{slab}^{2}}{6} = 716.89\ in^{3}$$

$\phi_{unf} := 0.60$

Strength reduction factor for plain concrete per ACI 318 Table 21.2.1.

$f'_{c_exist} := 3000\ psi$

Compressive strength of existing concrete

$$\phi M_{n_slab} := min\left(\phi_{unf} \cdot 5 \cdot \sqrt{\frac{f'_{c_exist}}{psi}} \cdot psi \cdot S_{m_slab}, \phi_{unf} \cdot 0.85 \cdot f'_{c_exist} \cdot S_{m_slab}\right) = 9.816\ ft \cdot kip$$

Flexural capacity of slab per ACI 318 Eqs. 14.5.2.1a and 14.5.2.1b.

$$IR_{f_slab} := \frac{M_{max_slab_sw}}{\phi M_{n_slab}} = 0.013$$

$$\phi V_{n_slab} := \phi_{unf} \cdot \frac{4}{3} \cdot \sqrt{\frac{f'_{c_exist}}{psi}} \cdot psi \cdot \left((93.60\ in + 2 \cdot x_{dis}) \cdot t_{slab}\right) = 31.413\ kip$$

One-way shear capacity in plain concrete sections per ACI 318 Table 14.5.5.1.

$$IR_{v_slab} := \frac{V_{max_slab_sw}}{\phi V_{n_slab}} = 0.03$$

Check housekeeping pad thickness

$$V_{anchor} := \frac{E_{h_sw2}}{2} = 4859.044\ lbf$$

Seismic shear each side of switchgear

$$V_{anchor_base} := \frac{V_{anchor}}{3} = 1619.681\ lbf$$

Base shear per anchor

$$M_{side} := \frac{M_{sw_2}}{2} = 25509.982\ ft \cdot lbf$$

Resultant moment of each side

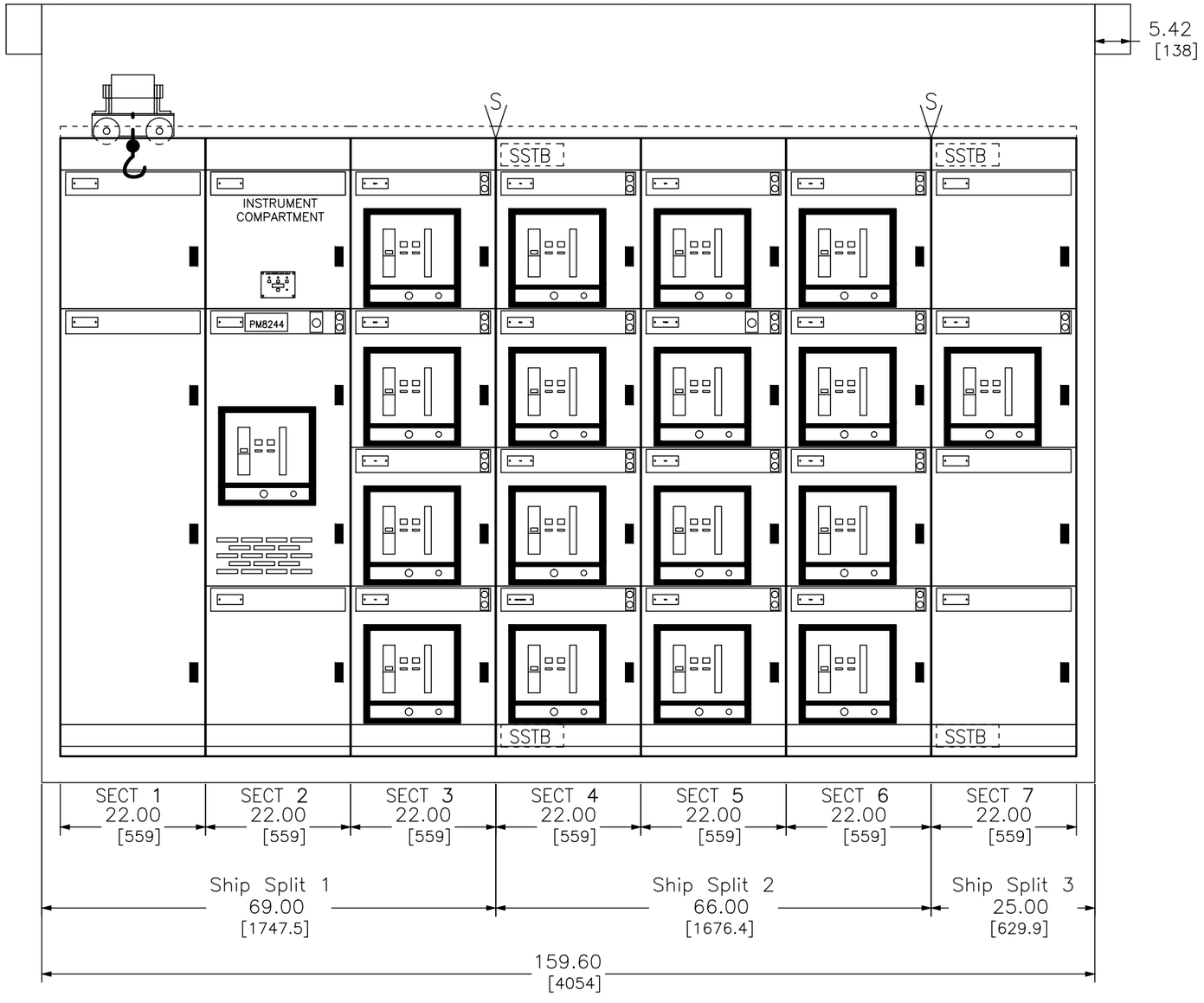
$$T_{anchor} := \frac{M_{side}}{121.25\ in} = 2524.699\ lbf$$

Uplift in rear anchors

See attached Hilti Profis design for embedment checks

STRUCTURAL CALCULATION APPENDIX A: SWITCHGEAR CUTSHEETS

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



DUAL DIMENSIONS: INCHES
MILLIMETERS

S SHIPPING SPLIT

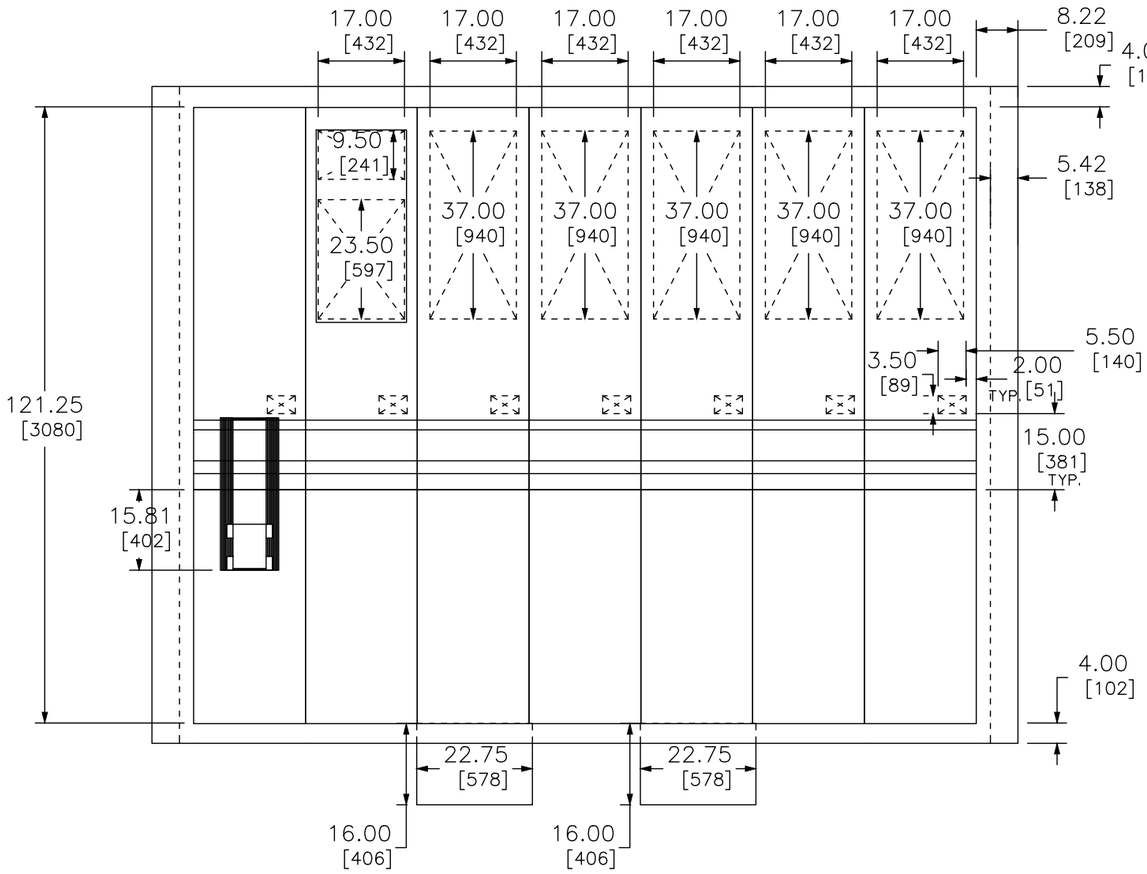
SSTB SHIPPING SPLIT TERMINALS

NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ

FRONT ELEVATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 1 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

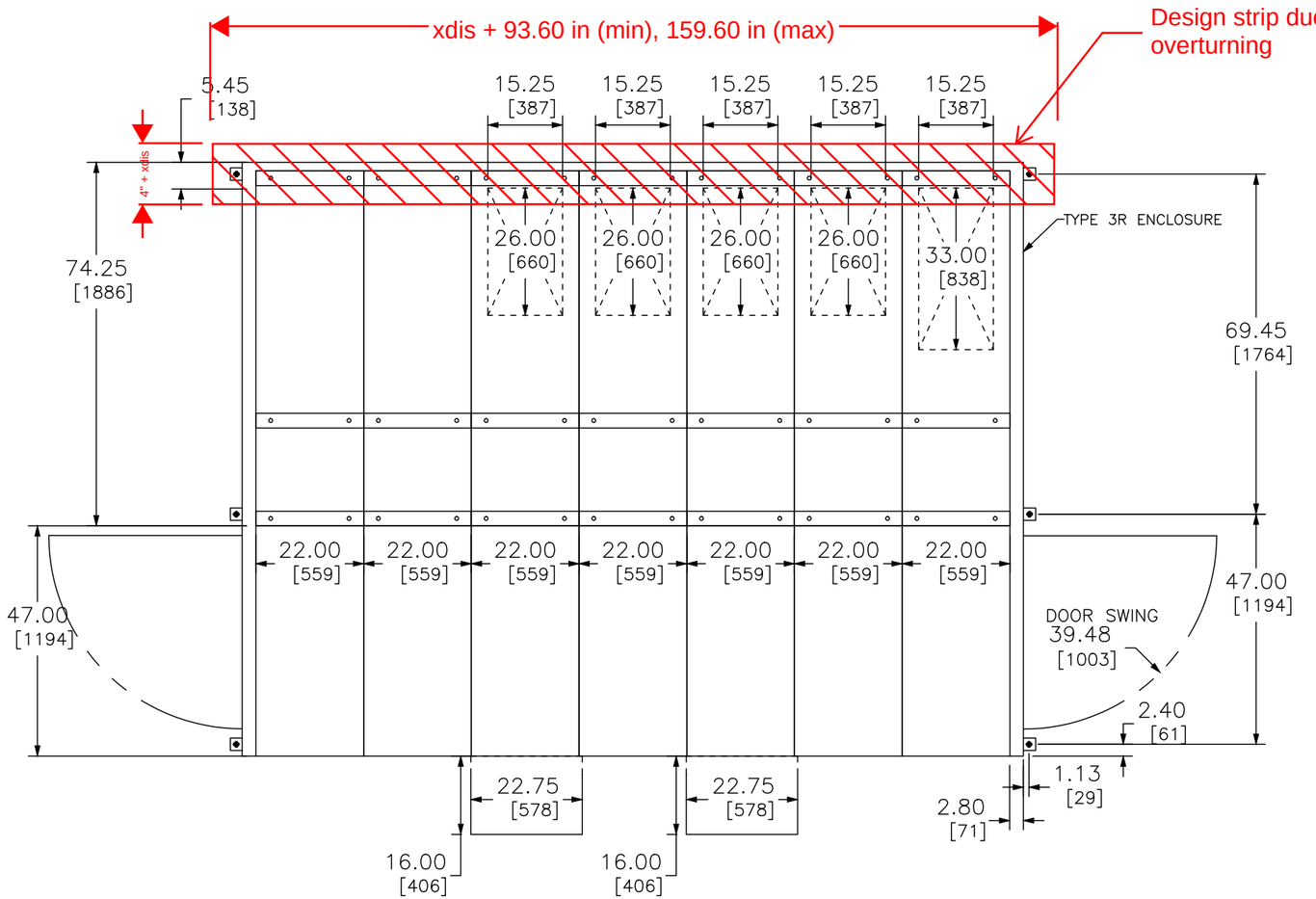


DUAL DIMENSIONS: INCHES
MILLIMETERS

TOP VIEW

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 2 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



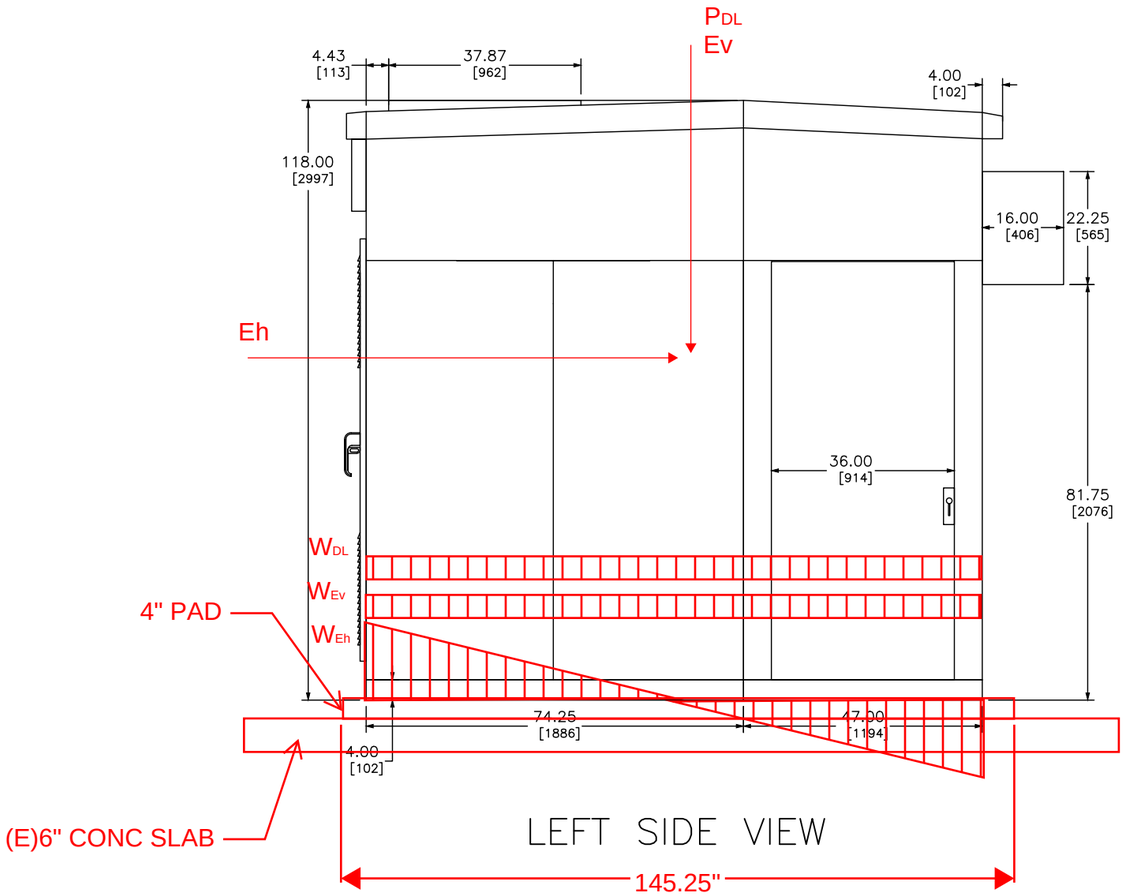
DUAL DIMENSIONS: INCHES
MILLIMETERS

FLOOR PLAN

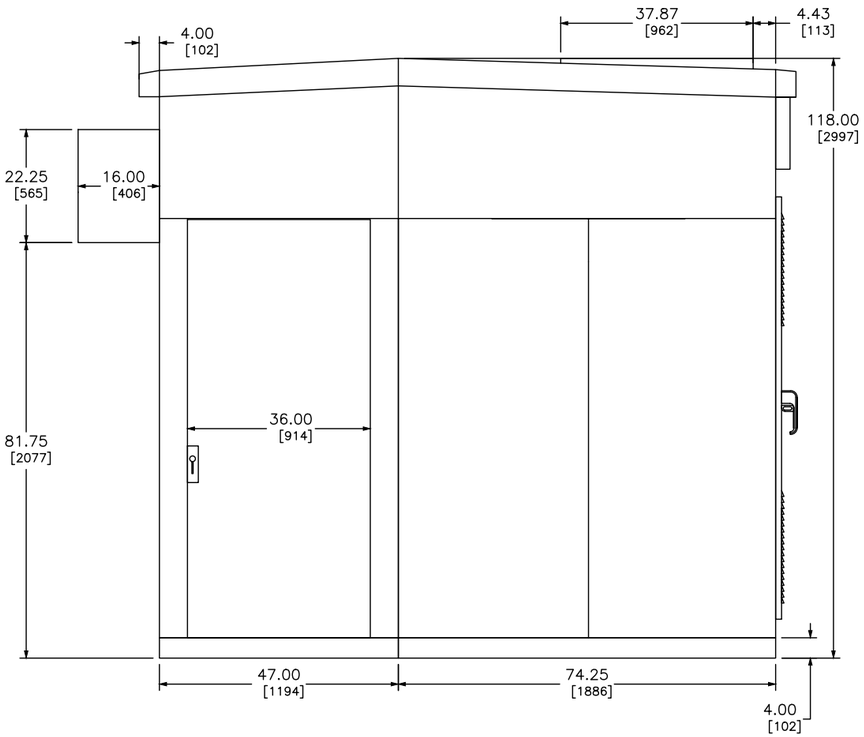
NOTE: ALL DEVICES REQUIRING DRILLING OR INSERTION IN MOUNTING PAD SUCH AS CONDUIT, ANCHORING STUDS, SLEEVE INSERTS, ETC. SHOULD BE INSTALLED BEFORE SETTING EQUIPMENT IN PLACE.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 3 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



LEFT SIDE VIEW



RIGHT SIDE VIEW

SIDE VIEWS

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	SIDE VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 4 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

GENERAL NOTES

Product Description & Rating

Power System Data

480Y/277V 3Ph 4W 60 Hz.
Solidly Grounded Neutral
Neutral 100 Percent Of Main Bus Rating
Maximum Available Fault Current (RMS): 65kA
Incoming Section Bay 2 Cable Top
Control Power: 15kVA–120V Secondary

Bus System Data

3200A Copper Bus, Silver Plated, Thermal Rated
Bus Bracing (RMS): 85kA

Enclosure Data

Enclosure Type: Outdoor Type 3R Walk–In
Exterior Paint Color: ANSI 49
Bottom Plate/Rodent Proof
Emergency Exit Light(s)
Undercoating Applied
Aisle Exhaust Fan(s)
Bus Isolation Barriers for Main Breaker(s)
Interbay Barriers, Bus Compartment
Space Heaters– NW Breaker Compartments
Space Heaters– Cable Compartments
Space Heaters– Bus Compartments
Thermostat for Space Heaters
Humidistat for Space Heaters

Estimated Shipping Weight

Ship Split 1 7644.68 LBS / 3467.57 KGS
Ship Split 2 9613.68 LBS / 4360.69 KGS
Ship Split 3 2334.56 LBS / 1058.94 KGS

Codes & Standards

Equipment built to ANSI – UL1558 Code Standards
Incoming Section Bay 2 is Suitable for use as Service Entrance when not more than 6 disconnects are provided

Product Information

Wiring

Wires shall be labeled with destination marking (point–to–point)
NOTE: When connecting cables, use 90 degree Celsius insulated conductors based on the ampacity of 75 degree Celsius conductors unless otherwise indicated by supplemental instructions.

Cable Terminations

Cable Terminations in this equipment are to be per 2020 NEC table 310.16 in accordance with 2020 NEC 110.14(C)(1) or equivalent applicable local standards.

Instruction Bulletins

Refer to 80298–156–01 Instruction Bulletin for NEMA3R installation
Refer to 80298–002–08 Instruction Bulletin for PZ4 installation

Shipping Instructions

Install 3 Pole Breakers For Shipment. Ship 6 Pole Breakers Separately.

QR Code Commercial Reference

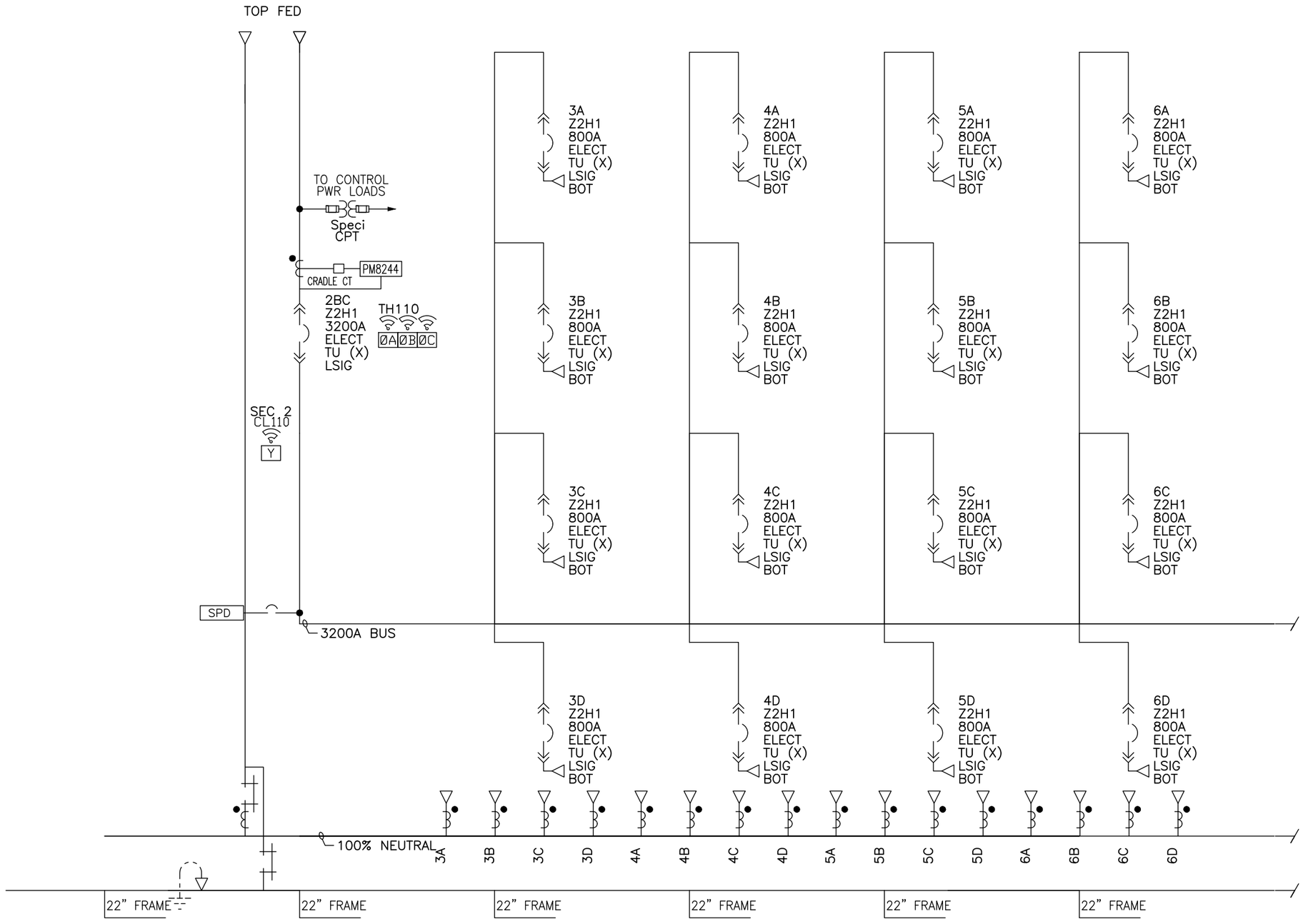
Power–Zone 4 Service Ready (LVESWGN_PZ4_SR)

Product Accessories

Modbus RS485 to Ethernet TCP – Communications Wired to Ethernet Gateway, Copper
Section Bay 2 120kA Surge Protective Device with Surge Counter
Section Bay 2 PM8244 Power Meter
Energy Reduction Maintenance Setting (ERMS) Switch(s) Included in Lineup
Overhead Breaker Lifter with Rails

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ–4848996–142441649–01	PG 5 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

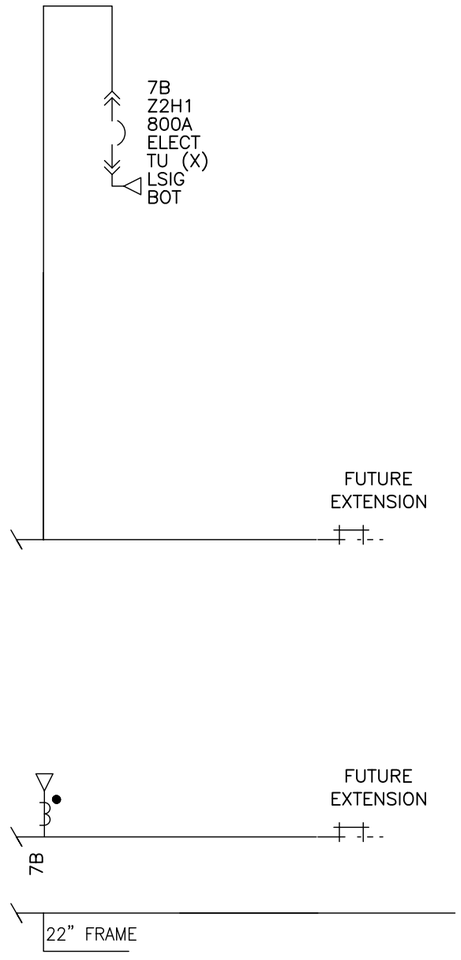


ONE LINE

NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ
REFER TO THE "GATEWAY: EcoStruxure PANEL SERVER" SECTION OF THE EcoStruxure POWER COMMISSION PROJECT REPORT FOR SENSOR RADIO FREQUENCY IDENTIFICATION INFORMATION (RFiD). TOP, BOT – INDICATES CABLE CONDUIT LOCATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q-4848996-142441649-01	PG 1 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



ONE LINE

NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ

TOP, BOT – INDICATES CABLE CONDUIT LOCATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q-4848996-142441649-01	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

POWER–ZONE 4 SWITCHGEAR – CIRCUIT BREAKER TABLE – MASTERPACT MTZ

CELL NO	BREAKER DESIGNATION ⚠1	BKR TYPE	BKR OPER	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	RATING PLUG	BKR AIC	TRIP PARAM	⚠2 LUGS PER PHASE: MECHANICAL						BREAKER AND CRADLE ACCESSORIES (NON STANDARD)
											QTY	A,B,C ⏍ SIZE	QTY	NEUT SIZE	QTY	GND SIZE	
2BC		Z2H1	ELECT	6.0X	3200A	2500A	2500A	–	65kA	LSIG	9	3/0 – 750kcmil	9	3/0 – 750kcmil	1	3/0 – 750kcmil	OF8,CE1,CT1,CD1,MCH,MX1,XF,ESM,COM,MCT,PL,PBL,D9
3A	MCC–1	Z2H1	ELECT	6.0X	800A	400A	300A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3B	Elevator	Z2H1	ELECT	6.0X	800A	400A	175A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3C	T–8	Z2H1	ELECT	6.0X	800A	400A	225A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3D	T–6	Z2H1	ELECT	6.0X	800A	400A	400A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4A	T–8	Z2H1	ELECT	6.0X	800A	400A	225A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4B	Chiller	Z2H1	ELECT	6.0X	800A	400A	400A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4C	T–8	Z2H1	ELECT	6.0X	800A	400A	200A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4D	500KVA transformer	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
5A	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
5B	T–8,9,10	Z2H1	ELECT	6.0X	800A	800A	600A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,ESM,COM,PL,PBL,D9
5C	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
5D	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
6A	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
6B	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
6C	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL

LEGEND

	STANDARD ACCESSORIES FOR MTZ
OF4	AUXILIARY CONTACTS – TYPE MTZ (STD)
UC1	ZSI SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SDE1	ELECTRICAL FAULT ALARM CONTACT (STD)
CPL	CRADLE PADLOCK ATTACHMENT (STD)
	NON–STANDARD ACCESSORIES FOR MTZ
CE(X)	CONNECTED CELL SWITCHES (X=QTY)
CT(X)	TEST CELL SWITCHES (X=QTY)
CD(X)	DISCONNECTED CELL SWITCHES (X=QTY)
COM	COMMUNICATIONS or ERMS
M2C	PROGRAMMABLE CONTACT MODULE (2 CONTACTS)
SDE2	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
RES	ELECTRICAL RESET
MN	UNDERVOLTAGE TRIP COIL
MX1	SHUNT TRIP COIL
MX2	SECOND SHUNT TRIP COIL
4P	4 POLE BREAKER

XF	SHUNT CLOSE COIL
MCH	SPRING CHARGING MOTOR
MX1C	SHUNT TRIP COIL WITH COMMS
XFC	SHUNT CLOSE COIL WITH COMMS
PF	READY TO CLOSE CONTACT
OF(X)	AUXILIARY CONTACTS (X=QTY)
EF(X)	CONNECTED AND CLOSED CONTACTS (X=QTY)
SH(X)	SHUTTERS (P=POSITION, L=LOCK PROVISION)
MCT	METERING CTS
PBL	PUSHBUTTON INTERLOCK COVER
AR	AUTOMATIC RESET
CDM	OPERATIONS COUNTER
PL	PADLOCK ATTACHMENT (REQD FOR KEYLOCK)
K	KEY INTERLOCK
CK	CRADLE KEY INTERLOCK
UC4	EXTERNAL VOLTAGE INPUTS
ESM	ERMS SWITCH MODULE
WL	MTZ BLUETOOTH AND ZIGBEE REMOVED

	MICROLOGIC (X) DIGITAL MODULES
D1	HARMONIC METER
D2	ENERGY PER PHASE
D3	OPERATION ASSISTANT
D4	RESTORATION ASSISTANT
D5	WAVEFORM CAPTURE
D6	ANSI 27/59 UNDERVOLTAGE/OVERVOLTAGE
D7	ANSI 32P REVERSE POWER
D8	GROUND FAULT ALARM
D9	ENERGY REDUCTION MAINTENANCE SETTINGS
D10	MODBUS LEGACY DATASET
D11	ANSI 81 FREQUENCY PROTECTION
D12	ANSI 67 DIRECTIONAL OVERCURRENT PROTECTION
D13	ANSI 51 IDMTL OVERCURRENT PROTECTION
D14	IEC 61850 FOR MASTERPACT MTZ

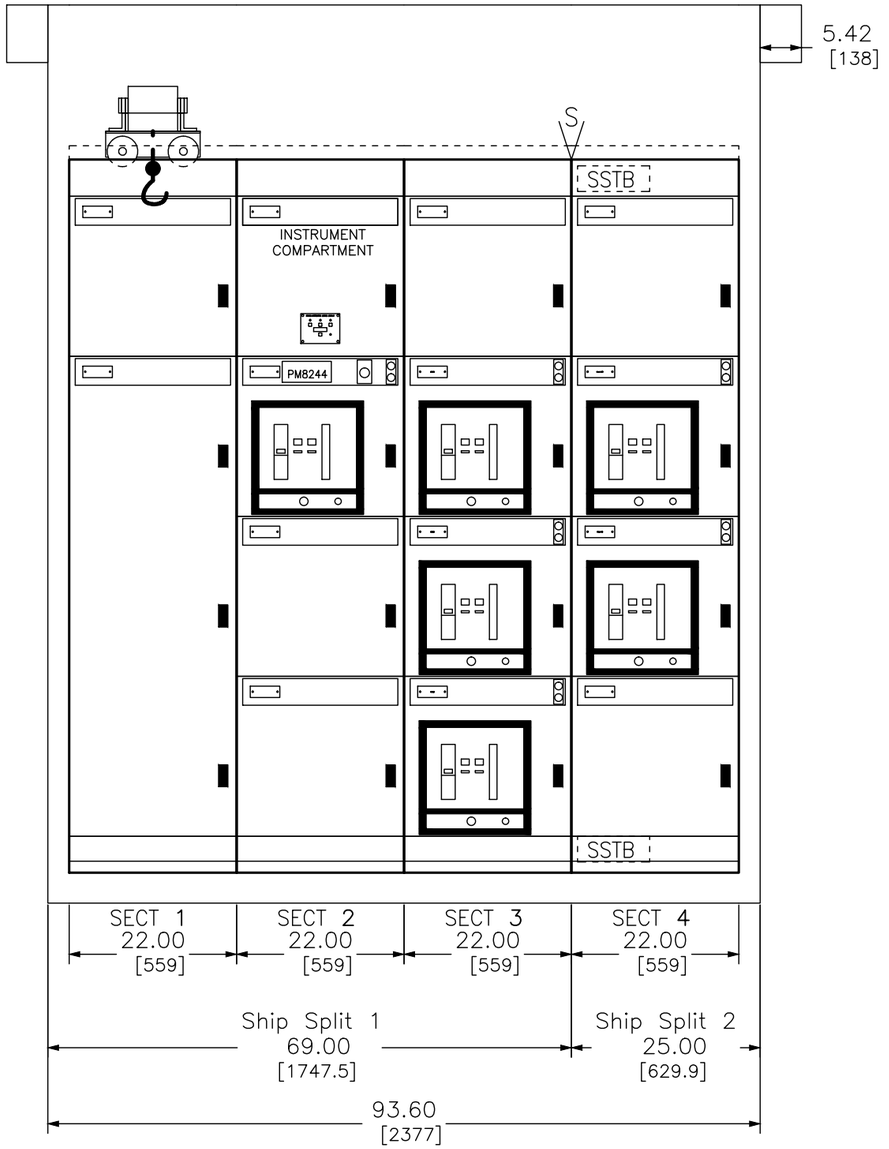
NOTES

⚠1 ENGRAVED NAMEPLATES SHALL BE WHITE BACKGROUND WITH BLACK LETTERS.

⚠2 LUG QUANTITIES ARE BASED ON COPPER CABLES.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	DEVICE TABLE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q–4848996–142441649–02	PG 1 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ

GENERAL NOTES

Product Description & Rating

Power System Data

208Y/120V 3Ph 4W 60 Hz.
Solidly Grounded Neutral (Terminated At Source)
Neutral 100 Percent Of Main Bus Rating
Maximum Available Fault Current (RMS): 65kA
Incoming Section Bay 2 Cable Top
Control Power: 10kVA–120V Secondary

Bus System Data

1600A Copper Bus, Silver Plated, Thermal Rated
Bus Bracing (RMS): 85kA

Enclosure Data

Enclosure Type: Outdoor Type 3R Walk–In
Exterior Paint Color: ANSI 49
Bottom Plate/Rodent Proof
Emergency Exit Light(s)
Undercoating Applied
Aisle Exhaust Fan(s)
Bus Isolation Barriers for Main Breaker(s)
Interbay Barriers, Bus Compartment
Space Heaters– NW Breaker Compartments
Space Heaters– Cable Compartments
Space Heaters– Bus Compartments
Thermostat for Space Heaters
Humidistat for Space Heaters

Estimated Shipping Weight

Ship Split 1 6693.68 LBS / 3036.20 KGS
Ship Split 2 2424.56 LBS / 1099.76 KGS

Codes & Standards

Equipment built to ANSI – UL1558 Code Standards
Incoming Section Bay 2 is Non–Service Entrance

Product Information

Wiring

Wires shall be labeled with destination marking (point–to–point)
NOTE: When connecting cables, use 90 degree Celsius insulated conductors based on the ampacity of 75 degree Celsius conductors unless otherwise indicated by supplemental instructions.

Cable Terminations

Cable Terminations in this equipment are to be per 2020 NEC table 310.16 in accordance with 2020 NEC 110.14(C)(1) or equivalent applicable local standards.

Instruction Bulletins

Refer to 80298–156–01 Instruction Bulletin for NEMA3R installation
Refer to 80298–002–08 Instruction Bulletin for PZ4 installation

Shipping Instructions

Install 3 Pole Breakers For Shipment. Ship 6 Pole Breakers Separately.

QR Code Commercial Reference

Power–Zone 4 Service Ready (LVESWGN_PZ4_SR)

Product Accessories

Modbus RS485 to Ethernet TCP – Communications Wired to Ethernet Gateway, Copper
(Continued on next page.)

DUAL DIMENSIONS: INCHES / MILLIMETERS

FRONT ELEVATION / GENERAL NOTES

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION & GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ–4848996–142442801–01	PG 1 OF 4 REV –

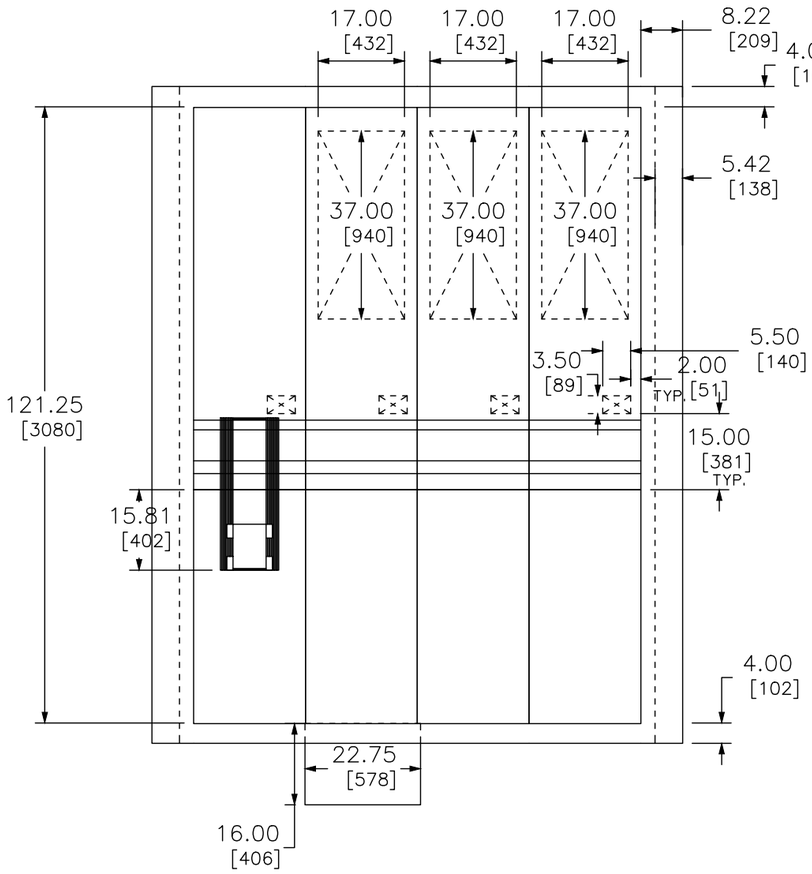
REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

GENERAL NOTES CONTINUED

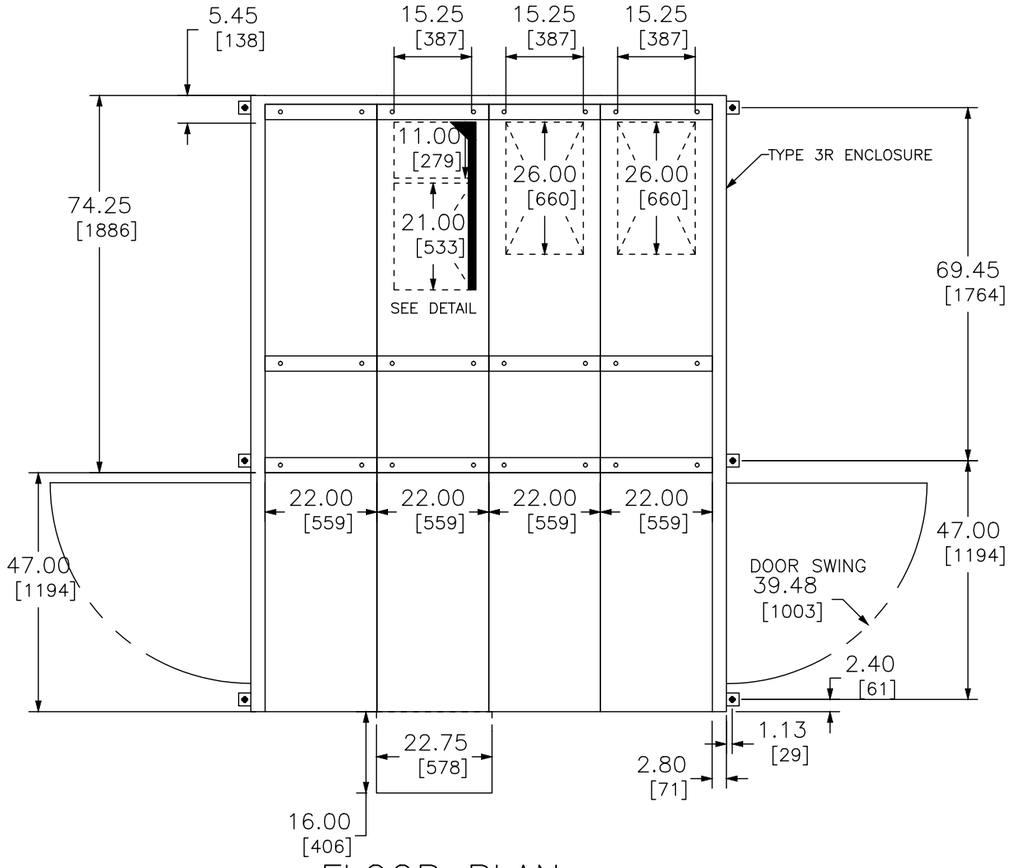
Modbus RS485 to Ethernet TCP – Communications Wired to Ethernet Gateway, Copper
24VDC Power Supply for Breaker Trip Unit Display and/or Communications
Section Bay 2 PM8244 Power Meter
Energy Reduction Maintenance Setting (ERMS) Switch(s) Included in Lineup
Overhead Breaker Lifter with Rails

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City – HDR	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION & GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	January 11 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4425191-128912057-01	PG 2 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



TOP VIEW



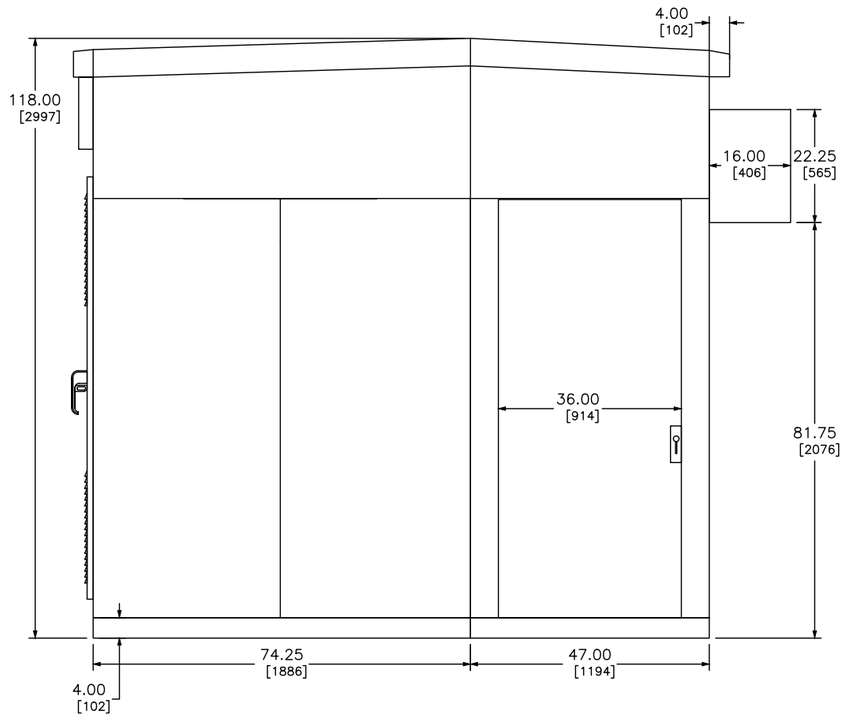
FLOOR PLAN

NOTE: ALL DEVICES REQUIRING DRILLING OR INSERTION IN MOUNTING PAD SUCH AS CONDUIT, ANCHORING STUDS, SLEEVE INSERTS, ETC. SHOULD BE INSTALLED BEFORE SETTING EQUIPMENT IN PLACE.

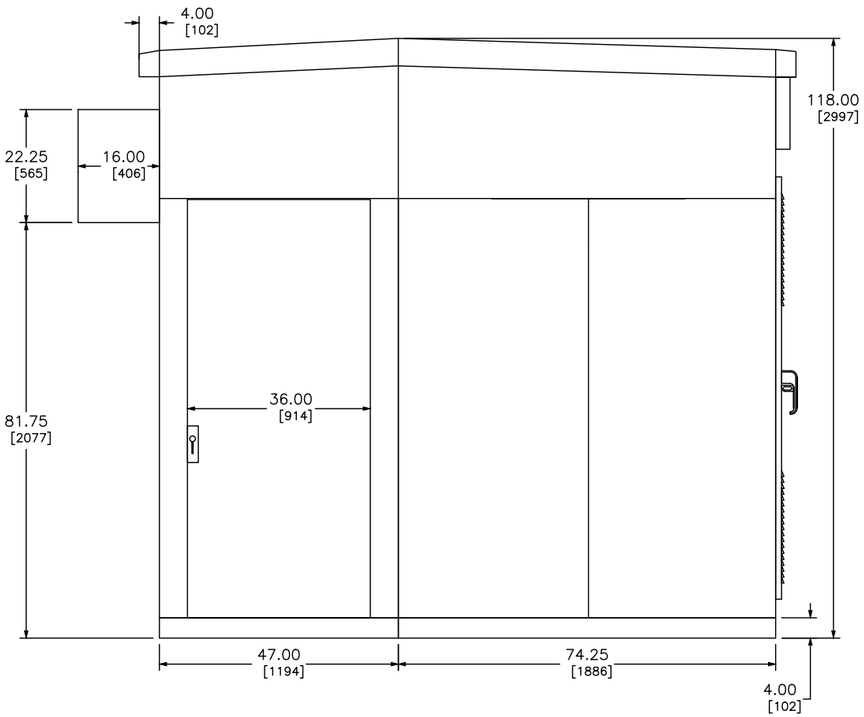
TOP VIEW / FLOOR PLAN

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City – HDR	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:			SQUARE D by Schneider Electric
DATE:	January 11 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4425191-128912057-01	PG 3 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



LEFT SIDE VIEW

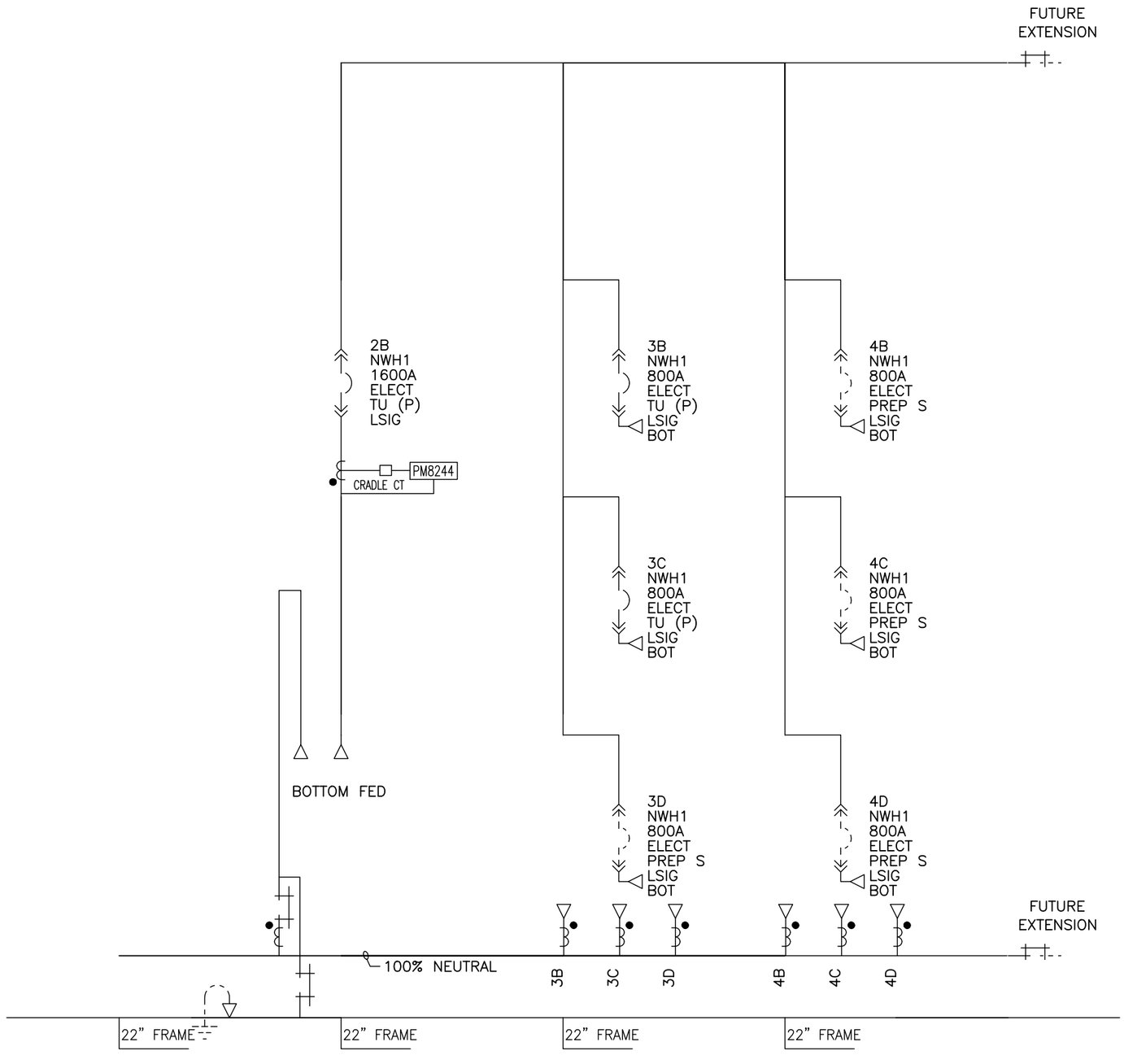


RIGHT SIDE VIEW

SIDE VIEWS

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City – HDR	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	SIDE VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	January 11 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4425191-128912057-01	PG 4 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



TOP, BOT – INDICATES CABLE CONDUIT LOCATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City – HDR	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	January 11 2024		
DRAWING STATUS:	QUOTE	DWG#	0Q-4425191-128912057-01

PG 1 OF 2 | REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

POWER–ZONE 4 SWITCHGEAR – MASTERPACT POWER CIRCUIT BREAKER TABLE

CELL NO	BREAKER DESIGNATION ⚠1	BKR TYPE	BKR OPER	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	RATING PLUG	BKR AIC	TRIP PARAM	⚠2 LUGS PER PHASE: MECHANICAL						BREAKER AND CRADLE ACCESSORIES (NON STANDARD)
											QTY	A,B,C ƒ SIZE	QTY	NEUT SIZE	QTY	GND SIZE	
2B		NWH1	ELECT	POWER MTR	1600A	1600A	1600A	A	65kA	LSIG	5	3/0 – 750kcmil	5	3/0 – 750kcmil	1	3/0 – 750kcmil	UC4,CE1,CT1,CD1,MCH,MX1,XF,COM,MCT,PL,PBL
3B	PANEL LP0	NWH1	ELECT	POWER MTR	800A	250A	225A	A	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
3C	PANEL B9	NWH1	ELECT	POWER MTR	800A	600A	600A	A	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
3D		(NWH1)	-----	(PREP SPACE)	800A	----	----	–	65kA	(LSIG)	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	CE1,CT1,CD1,MCH,MX1,XF,COM
4B		(NWH1)	-----	(PREP SPACE)	800A	----	----	–	65kA	(LSIG)	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	CE1,CT1,CD1,MCH,MX1,XF,COM
4C		(NWH1)	-----	(PREP SPACE)	800A	----	----	–	65kA	(LSIG)	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	CE1,CT1,CD1,MCH,MX1,XF,COM
4D		(NWH1)	-----	(PREP SPACE)	800A	----	----	–	65kA	(LSIG)	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	CE1,CT1,CD1,MCH,MX1,XF,COM

LEGEND

	STANDARD ACCESSORIES FOR NW/NT
OF4	AUXILIARY CONTACTS – TYPE NW NT (STD)
UC1	ZSI SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SDE1	ELECTRICAL FAULT ALARM CONTACT (STD)
CPL	CRADLE PADLOCK ATTACHMENT (STD)
	NON–STANDARD ACCESSORIES FOR NW/NT
CE(X)	CONNECTED CELL SWITCHES (X=QTY)
CT(X)	TEST CELL SWITCHES (X=QTY)
CD(X)	DISCONNECTED CELL SWITCHES (X=QTY)
COM	COMMUNICATIONS or ERMS or FDM
M2C	PROGRAMMABLE CONTACT MODULE (2 CONTACTS)
4P	4 POLE BREAKER
SDE2	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
RES	ELECTRICAL RESET
MN	UNDERVOLTAGE TRIP COIL
MX1	SHUNT TRIP COIL

MX2	SECOND SHUNT TRIP COIL
XF	SHUNT CLOSE COIL
MCH	SPRING CHARGING MOTOR
MX1C	SHUNT TRIP COIL WITH COMMS
XFC	SHUNT CLOSE COIL WITH COMMS
PF	READY TO CLOSE CONTACT
OF(X)	AUXILIARY CONTACTS (X=QTY)
EF(X)	CONNECTED AND CLOSED CONTACTS (X=QTY)
SH(X)	SHUTTERS (P=POSITION, L=LOCK PROVISION)
MCT	METERING CTS
PBL	PUSHBUTTON INTERLOCK COVER
AR	AUTOMATIC RESET
CDM	OPERATIONS COUNTER
PL	PADLOCK ATTACHMENT (REQD FOR KEYLOCK)
K	KEY INTERLOCK
CK	CRADLE KEY INTERLOCK
UC4	EXTERNAL VOLTAGE INPUTS
FDM	FRONT DISPLAY MODULE

NOTES

⚠1 ENGRAVED NAMEPLATES SHALL BE WHITE BACKGROUND WITH BLACK LETTERS.

⚠2 LUG QUANTITIES ARE BASED ON COPPER CABLES.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City – HDR	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	DEVICE TABLE
ENGR:			SQUARE D by Schneider Electric
DATE:	January 11 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q–4425191–128912057–01	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

POWER–ZONE 4 SWITCHGEAR – CIRCUIT BREAKER TABLE – MASTERPACT MTZ

CELL NO	BREAKER DESIGNATION ⚠1	BKR TYPE	BKR OPER	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	RATING PLUG	BKR AIC	TRIP PARAM	⚠2 LUGS PER PHASE: MECHANICAL						BREAKER AND CRADLE ACCESSORIES (NON STANDARD)
											QTY	A,B,C ƒ SIZE	QTY	NEUT SIZE	QTY	GND SIZE	
6D	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
7B	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL

LEGEND

	STANDARD ACCESSORIES FOR MTZ
OF4	AUXILIARY CONTACTS – TYPE MTZ (STD)
UC1	ZSI SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SDE1	ELECTRICAL FAULT ALARM CONTACT (STD)
CPL	CRADLE PADLOCK ATTACHMENT (STD)
	NON–STANDARD ACCESSORIES FOR MTZ
CE(X)	CONNECTED CELL SWITCHES (X=QTY)
CT(X)	TEST CELL SWITCHES (X=QTY)
CD(X)	DISCONNECTED CELL SWITCHES (X=QTY)
COM	COMMUNICATIONS or ERMS
M2C	PROGRAMMABLE CONTACT MODULE (2 CONTACTS)
SDE2	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
RES	ELECTRICAL RESET
MN	UNDERVOLTAGE TRIP COIL
MX1	SHUNT TRIP COIL
MX2	SECOND SHUNT TRIP COIL
4P	4 POLE BREAKER

XF	SHUNT CLOSE COIL
MCH	SPRING CHARGING MOTOR
MX1C	SHUNT TRIP COIL WITH COMMS
XFC	SHUNT CLOSE COIL WITH COMMS
PF	READY TO CLOSE CONTACT
OF(X)	AUXILIARY CONTACTS (X=QTY)
EF(X)	CONNECTED AND CLOSED CONTACTS (X=QTY)
SH(X)	SHUTTERS (P=POSITION, L=LOCK PROVISION)
MCT	METERING CTS
PBL	PUSHBUTTON INTERLOCK COVER
AR	AUTOMATIC RESET
CDM	OPERATIONS COUNTER
PL	PADLOCK ATTACHMENT (REQD FOR KEYLOCK)
K	KEY INTERLOCK
CK	CRADLE KEY INTERLOCK
UC4	EXTERNAL VOLTAGE INPUTS
ESM	ERMS SWITCH MODULE
WL	MTZ BLUETOOTH AND ZIGBEE REMOVED

	MICROLOGIC (X) DIGITAL MODULES
D1	HARMONIC METER
D2	ENERGY PER PHASE
D3	OPERATION ASSISTANT
D4	RESTORATION ASSISTANT
D5	WAVEFORM CAPTURE
D6	ANSI 27/59 UNDERVOLTAGE/OVERVOLTAGE
D7	ANSI 32P REVERSE POWER
D8	GROUND FAULT ALARM
D9	ENERGY REDUCTION MAINTENANCE SETTINGS
D10	MODBUS LEGACY DATASET
D11	ANSI 81 FREQUENCY PROTECTION
D12	ANSI 67 DIRECTIONAL OVERCURRENT PROTECTION
D13	ANSI 51 IDMTL OVERCURRENT PROTECTION
D14	IEC 61850 FOR MASTERPACT MTZ

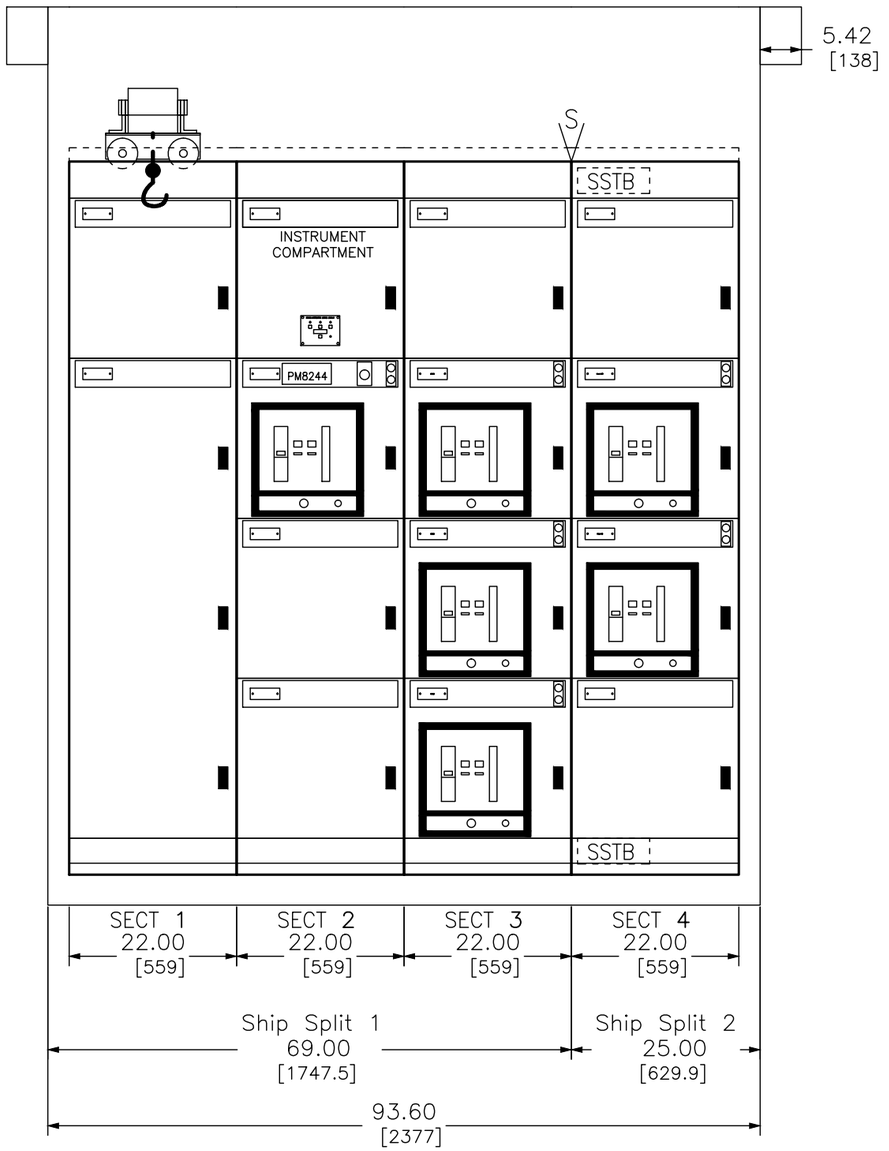
NOTES

⚠1 ENGRAVED NAMEPLATES SHALL BE WHITE BACKGROUND WITH BLACK LETTERS.

⚠2 LUG QUANTITIES ARE BASED ON COPPER CABLES.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	DEVICE TABLE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q–4848996–142441649–02	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ

GENERAL NOTES

Product Description & Rating

Power System Data

208Y/120V 3Ph 4W 60 Hz.
Solidly Grounded Neutral (Terminated At Source)
Neutral 100 Percent Of Main Bus Rating
Maximum Available Fault Current (RMS): 65kA
Incoming Section Bay 2 Cable Top
Control Power: 10kVA–120V Secondary

Bus System Data

1600A Copper Bus, Silver Plated, Thermal Rated
Bus Bracing (RMS): 85kA

Enclosure Data

Enclosure Type: Outdoor Type 3R Walk–In
Exterior Paint Color: ANSI 49
Bottom Plate/Rodent Proof
Emergency Exit Light(s)
Undercoating Applied
Aisle Exhaust Fan(s)
Bus Isolation Barriers for Main Breaker(s)
Interbay Barriers, Bus Compartment
Space Heaters– NW Breaker Compartments
Space Heaters– Cable Compartments
Space Heaters– Bus Compartments
Thermostat for Space Heaters
Humidistat for Space Heaters

Estimated Shipping Weight

Ship Split 1 6693.68 LBS / 3036.20 KGS
Ship Split 2 2424.56 LBS / 1099.76 KGS

Codes & Standards

Equipment built to ANSI – UL1558 Code Standards
Incoming Section Bay 2 is Non–Service Entrance

Product Information

Wiring

Wires shall be labeled with destination marking (point–to–point)
NOTE: When connecting cables, use 90 degree Celsius insulated conductors based on the ampacity of 75 degree Celsius conductors unless otherwise indicated by supplemental instructions.

Cable Terminations

Cable Terminations in this equipment are to be per 2020 NEC table 310.16 in accordance with 2020 NEC 110.14(C)(1) or equivalent applicable local standards.

Instruction Bulletins

Refer to 80298–156–01 Instruction Bulletin for NEMA3R installation
Refer to 80298–002–08 Instruction Bulletin for PZ4 installation

Shipping Instructions

Install 3 Pole Breakers For Shipment. Ship 6 Pole Breakers Separately.

QR Code Commercial Reference

Power–Zone 4 Service Ready (LVESWGN_PZ4_SR)

Product Accessories

Modbus RS485 to Ethernet TCP – Communications Wired to Ethernet Gateway, Copper
(Continued on next page.)

DUAL DIMENSIONS: INCHES / MILLIMETERS

FRONT ELEVATION / GENERAL NOTES

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION & GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ–4848996–142442801–01	PG 1 OF 4 REV –

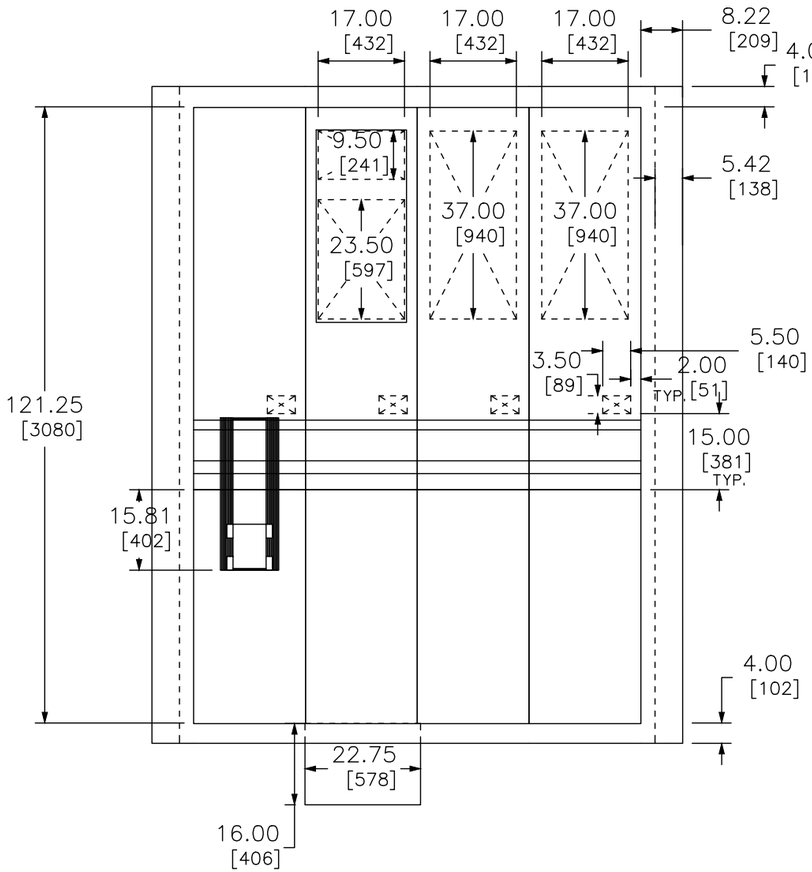
REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	-----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	-----	--	--/--/--

GENERAL NOTES CONTINUED

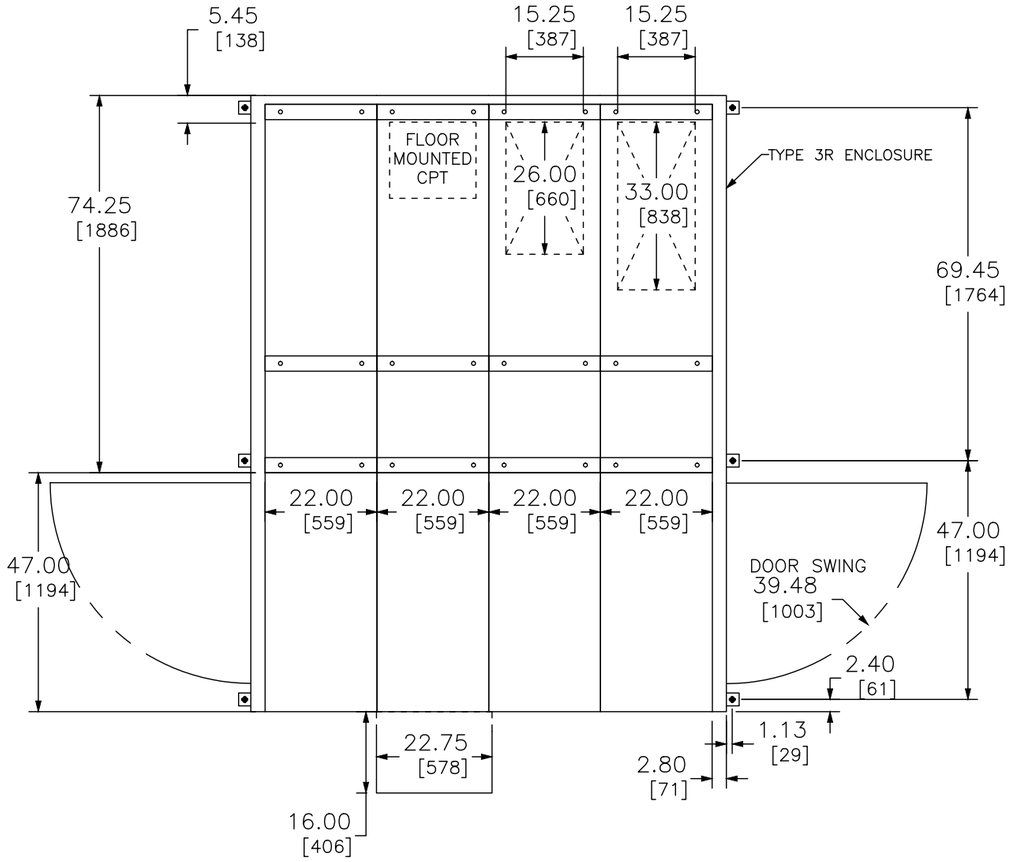
Section Bay 2 160kA Surge Protective Device with Surge Counter
Section Bay 2 PM8244 Power Meter
Energy Reduction Maintenance Setting (ERMS) Switch(s) Included in Lineup
Overhead Breaker Lifter with Rails

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION & GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142442801-01	PG 2 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



TOP VIEW



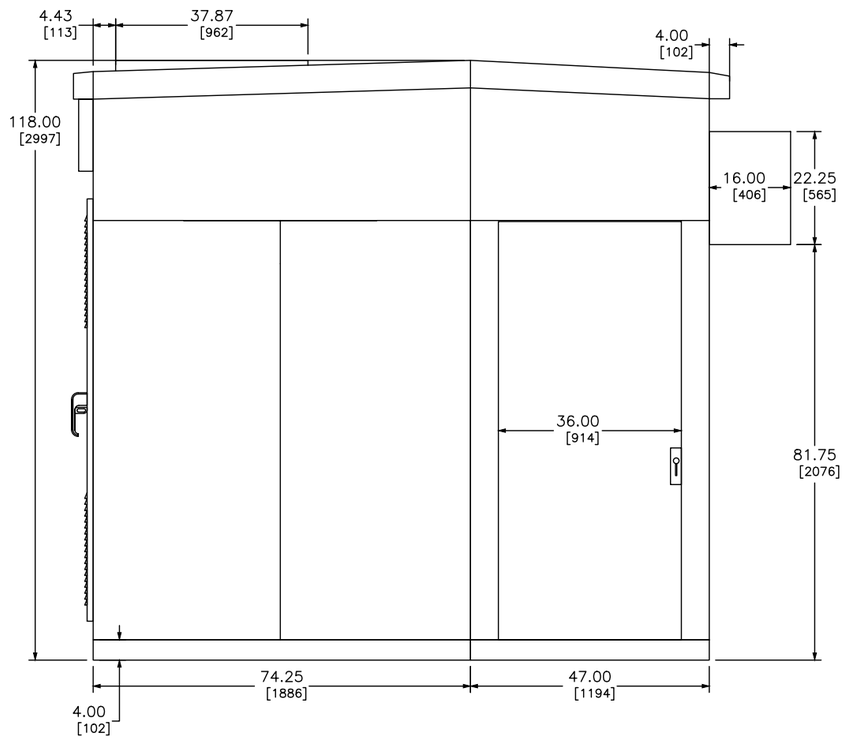
FLOOR PLAN

NOTE: ALL DEVICES REQUIRING DRILLING OR INSERTION IN MOUNTING PAD SUCH AS CONDUIT, ANCHORING STUDS, SLEEVE INSERTS, ETC. SHOULD BE INSTALLED BEFORE SETTING EQUIPMENT IN PLACE.

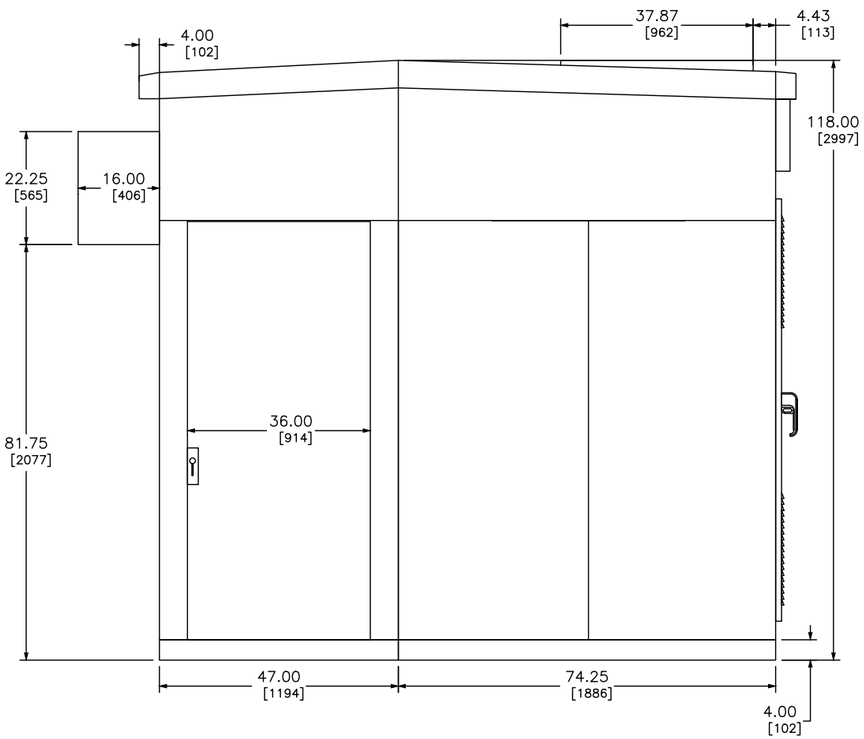
TOP VIEW / FLOOR PLAN

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142442801-01	PG 3 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



LEFT SIDE VIEW

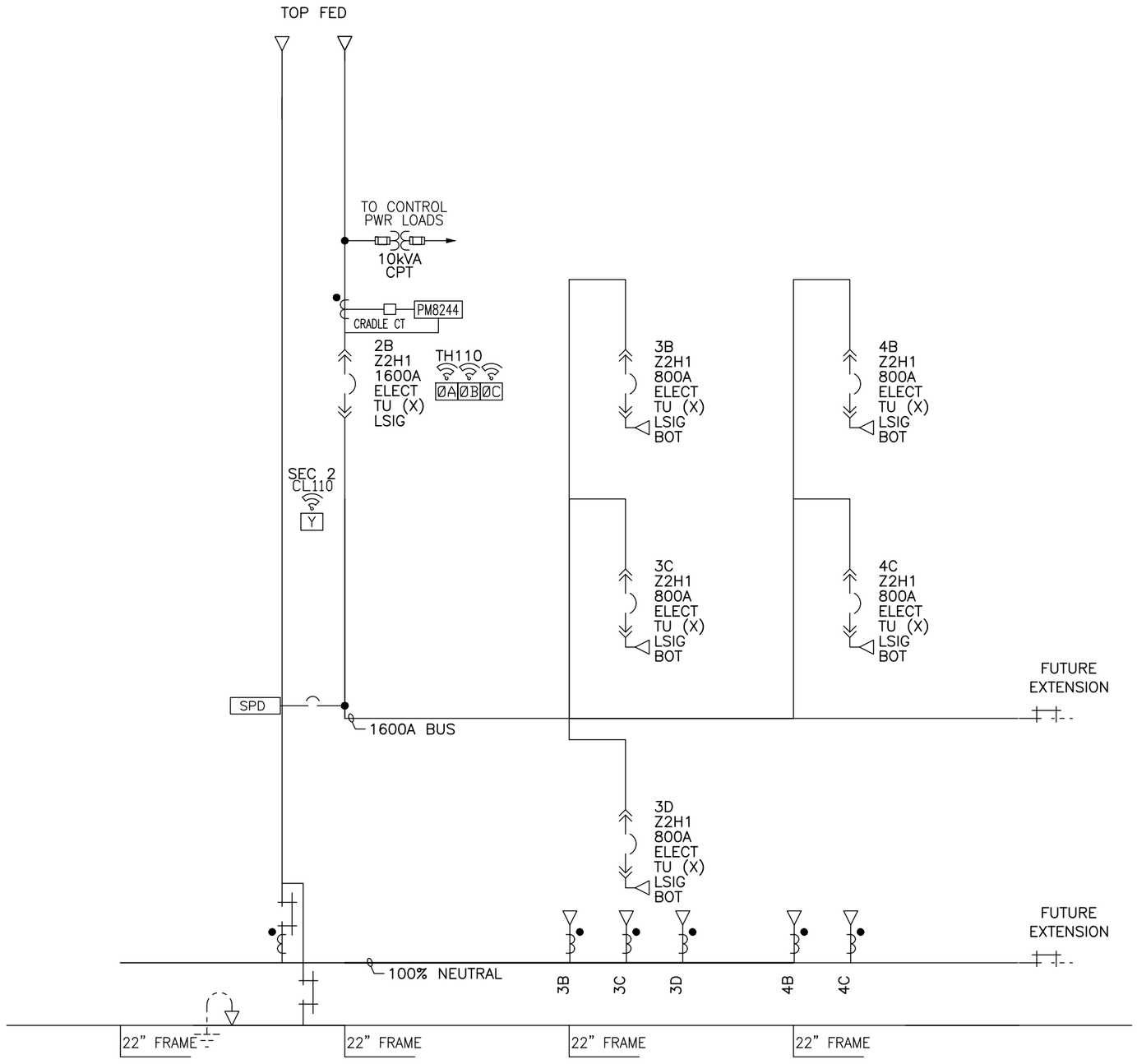


RIGHT SIDE VIEW

SIDE VIEWS

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	SIDE VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142442801-01	PG 4 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ
REFER TO THE "GATEWAY: EcoStruxure PANEL SERVER" SECTION
OF THE EcoStruxure POWER COMMISSION PROJECT REPORT
FOR SENSOR RADIO FREQUENCY IDENTIFICATION INFORMATION (RFiD). TOP, BOT – INDICATES CABLE CONDUIT LOCATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q-4848996-142442801-01	PG 1 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

POWER–ZONE 4 SWITCHGEAR – CIRCUIT BREAKER TABLE – MASTERPACT MTZ

CELL NO	BREAKER DESIGNATION ⚠1	BKR TYPE	BKR OPER	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	RATING PLUG	BKR AIC	TRIP PARAM	⚠2 LUGS PER PHASE: MECHANICAL						BREAKER AND CRADLE ACCESSORIES (NON STANDARD)
											QTY	A,B,C ℓ SIZE	QTY	NEUT SIZE	QTY	GND SIZE	
2B		Z2H1	ELECT	6.0X	1600A	1600A	1600A	–	65kA	LSIG	5	3/0 – 750kcmil	5	3/0 – 750kcmil	1	3/0 – 750kcmil	OF8,CE3,CT3,CD3,MCH,MX1,XF,ESM,COM,MCT,PL,PBL,D9
3B	SPARE	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3C	SPARE	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3D	SPARE	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4B	Panel LPO	Z2H1	ELECT	6.0X	800A	800A	600A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4C	Panel B9	Z2H1	ELECT	6.0X	800A	800A	600A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL

LEGEND

	STANDARD ACCESSORIES FOR MTZ
OF4	AUXILIARY CONTACTS – TYPE MTZ (STD)
UC1	ZSI SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SDE1	ELECTRICAL FAULT ALARM CONTACT (STD)
CPL	CRADLE PADLOCK ATTACHMENT (STD)
	NON–STANDARD ACCESSORIES FOR MTZ
CE(X)	CONNECTED CELL SWITCHES (X=QTY)
CT(X)	TEST CELL SWITCHES (X=QTY)
CD(X)	DISCONNECTED CELL SWITCHES (X=QTY)
COM	COMMUNICATIONS or ERMS
M2C	PROGRAMMABLE CONTACT MODULE (2 CONTACTS)
SDE2	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
RES	ELECTRICAL RESET
MN	UNDERVOLTAGE TRIP COIL
MX1	SHUNT TRIP COIL
MX2	SECOND SHUNT TRIP COIL
4P	4 POLE BREAKER

XF	SHUNT CLOSE COIL
MCH	SPRING CHARGING MOTOR
MX1C	SHUNT TRIP COIL WITH COMMS
XFC	SHUNT CLOSE COIL WITH COMMS
PF	READY TO CLOSE CONTACT
OF(X)	AUXILIARY CONTACTS (X=QTY)
EF(X)	CONNECTED AND CLOSED CONTACTS (X=QTY)
SH(X)	SHUTTERS (P=POSITION, L=LOCK PROVISION)
MCT	METERING CTS
PBL	PUSHBUTTON INTERLOCK COVER
AR	AUTOMATIC RESET
CDM	OPERATIONS COUNTER
PL	PADLOCK ATTACHMENT (REQD FOR KEYLOCK)
K	KEY INTERLOCK
CK	CRADLE KEY INTERLOCK
UC4	EXTERNAL VOLTAGE INPUTS
ESM	ERMS SWITCH MODULE
WL	MTZ BLUETOOTH AND ZIGBEE REMOVED

	MICROLOGIC (X) DIGITAL MODULES
D1	HARMONIC METER
D2	ENERGY PER PHASE
D3	OPERATION ASSISTANT
D4	RESTORATION ASSISTANT
D5	WAVEFORM CAPTURE
D6	ANSI 27/59 UNDERVOLTAGE/OVERVOLTAGE
D7	ANSI 32P REVERSE POWER
D8	GROUND FAULT ALARM
D9	ENERGY REDUCTION MAINTENANCE SETTINGS
D10	MODBUS LEGACY DATASET
D11	ANSI 81 FREQUENCY PROTECTION
D12	ANSI 67 DIRECTIONAL OVERCURRENT PROTECTION
D13	ANSI 51 IDMTL OVERCURRENT PROTECTION
D14	IEC 61850 FOR MASTERPACT MTZ

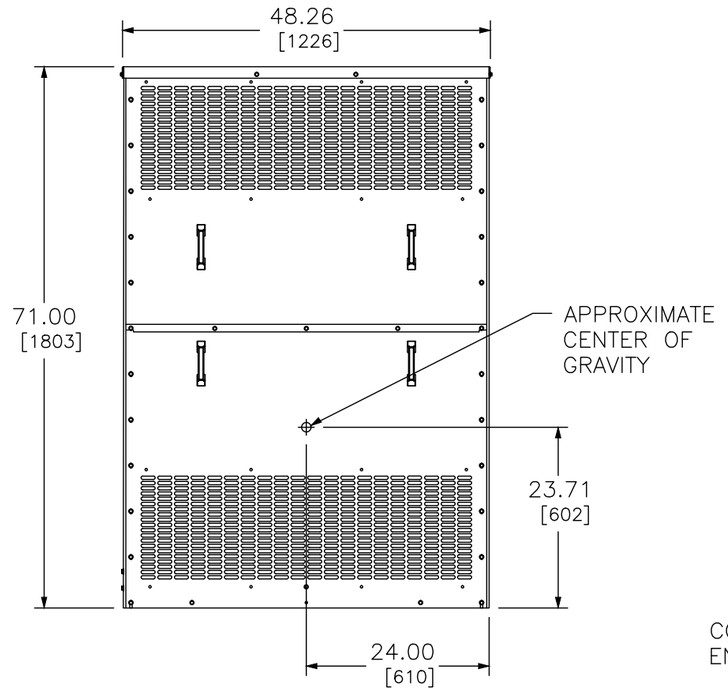
NOTES

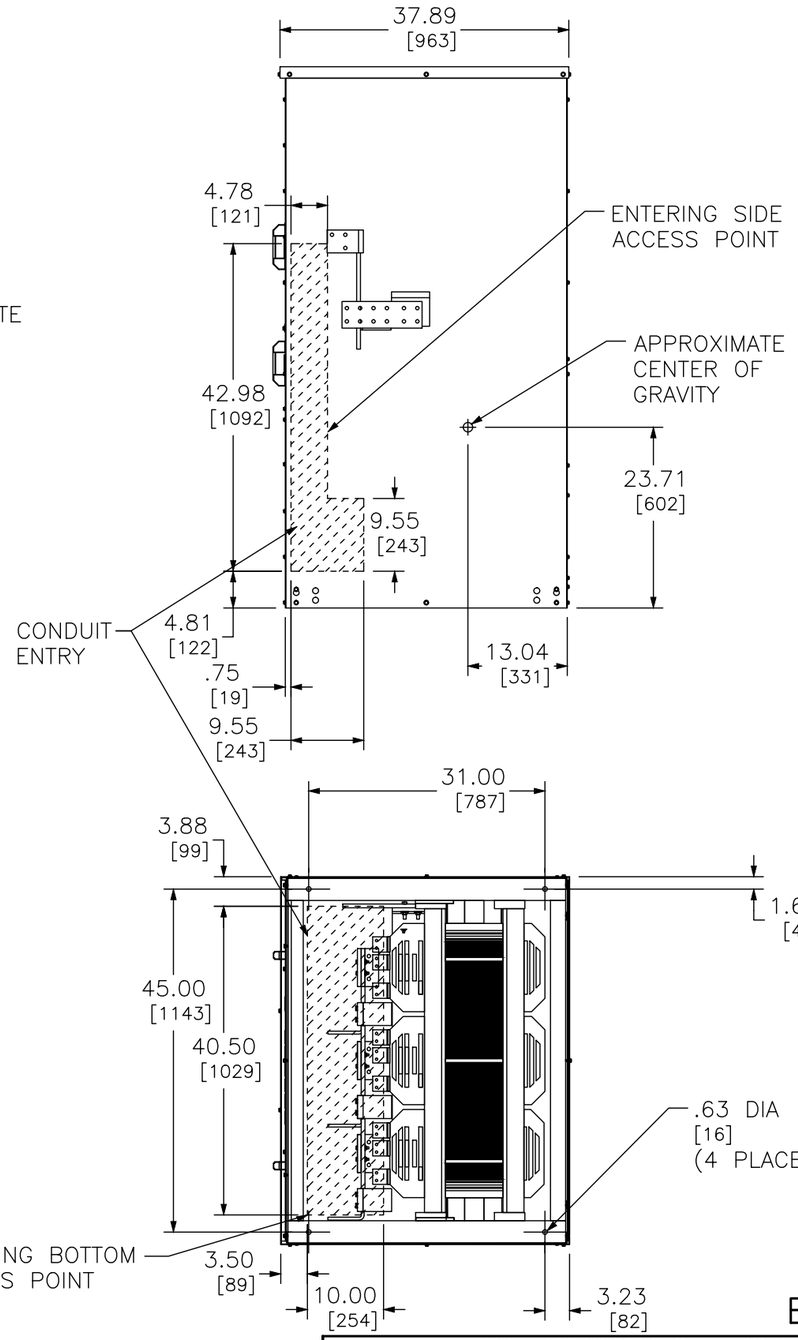
⚠1 ENGRAVED NAMEPLATES SHALL BE WHITE BACKGROUND WITH BLACK LETTERS.

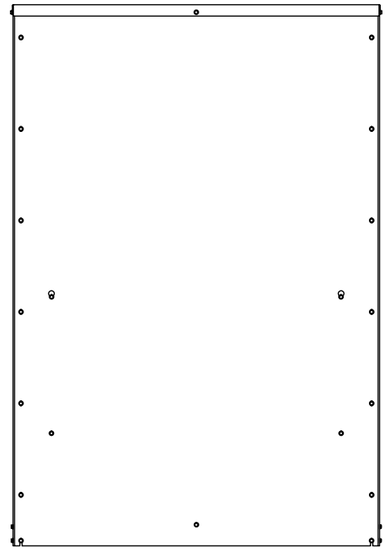
⚠2 LUG QUANTITIES ARE BASED ON COPPER CABLES.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	DEVICE TABLE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q–4848996–142442801–01	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--







SEISMIC QUALIFICATION

TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7,
THIS UNIT IS SELF CERTIFIED TO ICS ES AC156 BY SHAKE TABLE QUALIFICATION TESTING
THE ENCLOSURE ABOVE IS 30J.

NOTES:

cULus LISTED TO UL1561 AND C22. 2No47, FILE NUMBER E6868
NEMA ST–20 (2014) ROUTINE TESTS ARE COMPLETED ON ALL UNITS.
MANUFACTURED IN ISO9001 FACILITIES
GREEN PREMIUM (RoHS/REACH COMPLIANT, PRODUCT ENVIRONMENTAL PROFILE)
REGISTERED TO DOE VIA 10 CFR 429 & NRCAN
MINIMUM SIDE AND REAR CLEARANCE 1/2 INCH PER UL1561 ALCOVE TESTING.
FRONT ACCESS MUST COMPLY WITH NEC WORK SPACE REQUIREMENTS.
WIRE ACCESS SHOWN SHADED ABOVE. LOCATIONS ARE FRONT SIDES AND FRONT BOTTOM.

TRANSFORMER SPECIFICATION

500kVA 3 PHASE 60 HERTZ 54DB
PRIMARY VOLTAGE: 480V Delta, 4 – 2.5% 2+2– Taps
SECONDARY VOLTAGE: 208Y/120V
150 Deg C RISE ABOVE 40 Deg C AMBIENT
220 Deg C INSULATION SYSTEM Copper WINDING
MAXIMUM WEIGHT: 4,030 LBS
Type 1 304 Stainless Steel Painted ANSI Grey
MINIMUM EFFICIENCY 99.14% @ 35% LOADING 75 Deg C
COMPLYING WITH 10 CFR 431 (78 FR 23335–APRIL 18, 2013)

DUAL DIMENSIONS: INCHES
MILLIMETERS

EX500T68HCUSS

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	LV DISTRIBUTION TRANSFORMER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# FQ–4848996–145008387–01	PG 1 OF 1 REV –

Appendix C

Electrical

Prepared By:
Melissa Poggi
Consulting Application Engineer
melissa.poggi@se.com

Proposal Name: Test Quote

Quote Name: transformer

Proposal Number: P-250102-4948414

Quote Number: Q-6498714

Through Addenda Number: 0

Sales Representative: Melissa Poggi

Conditions of Sale

This Quotation is subject to Coordinated Project Terms. See https://www.se.com/us/en/download/document/0100PL0043/

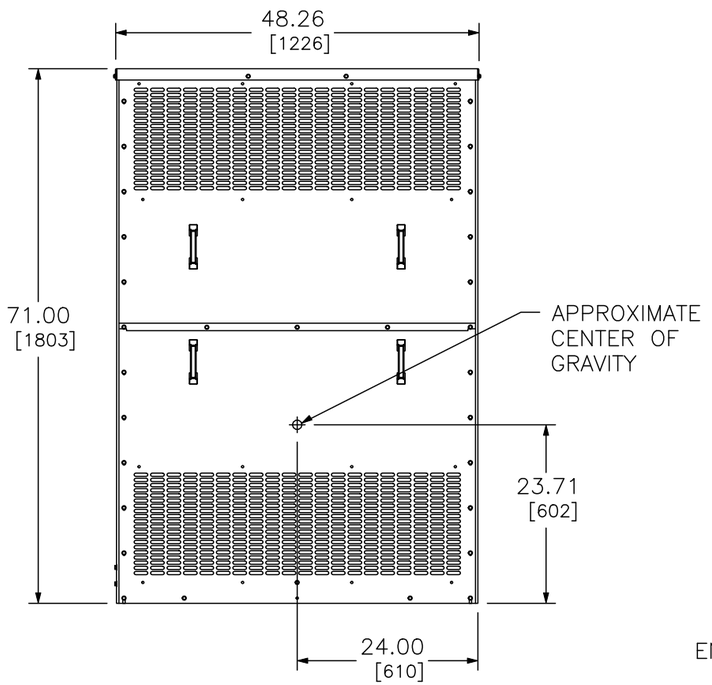
Quoted price in currencies other than U.S. Dollars is per the annual Schneider Electric exchange guidance.
Quote is valid for 30 days. Quoted lead times are approximate and subject to change.

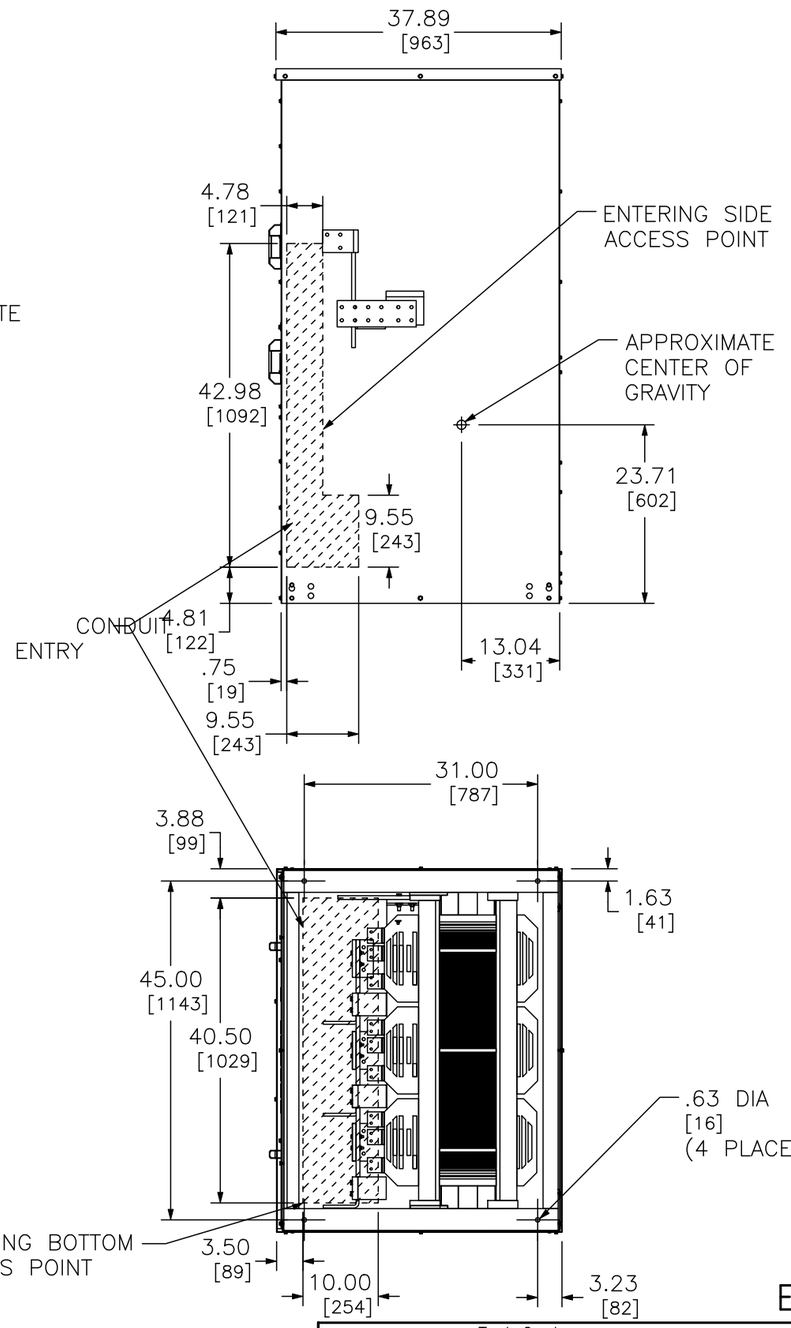
Schneider Electric reserves the right to amend, withdraw or otherwise alter this submission without penalty or charge as a result of any event beyond its control arising from or due to the current Covid-19 epidemic or events subsequent to this epidemic / pandemic including changes in laws, regulations, by laws or direction from a competent authority.

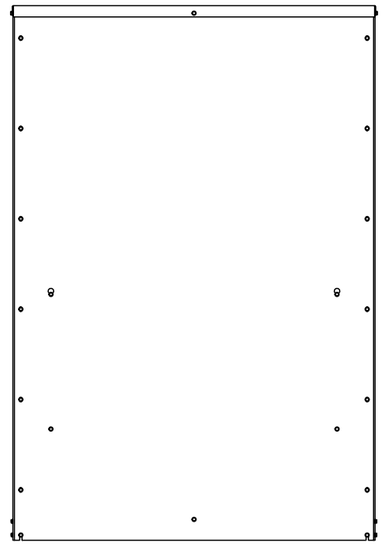
Seq #	Qty	Product Description
1	1	**Designation :** **Product Details:** 1 - EX500T68HCUSS-LV Transformer: DOE 2016 EX or EXN Transformer Type: DOE 2016 EX or EXN Transformer Rating: 500kVA Transformer Phase: Three Phase Primary Voltage: 480V Delta Secondary Voltage: 208Y/120V Transformer Taps: 4 - 2.5% 2+2- Taps Frequency: 60Hz Transformer Winding Material: Copper Sound Level: 54DB Insulation & Temperature: Class 220 (H), 150 Deg C Enclosure Material: 304 Stainless Steel Painted ANSI Grey Enclosure Type: Type 1 UL Labeled

Budgetary

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--







SEISMIC QUALIFICATION

TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7,
THIS UNIT IS SELF CERTIFIED TO ICS ES AC156 BY SHAKE TABLE QUALIFICATION TESTING
THE ENCLOSURE ABOVE IS 30J.

NOTES:

cULus LISTED TO UL1561 AND C22. 2No47, FILE NUMBER E6868
NEMA ST–20 (2014) ROUTINE TESTS ARE COMPLETED ON ALL UNITS.
MANUFACTURED IN ISO9001 FACILITIES
GREEN PREMIUM (RoHS/REACH COMPLIANT, PRODUCT ENVIRONMENTAL PROFILE)
REGISTERED TO DOE VIA 10 CFR 429 & NRCAN
MINIMUM SIDE AND REAR CLEARANCE 1/2 INCH PER UL1561 ALCOVE TESTING.
FRONT ACCESS MUST COMPLY WITH NEC WORK SPACE REQUIREMENTS.
WIRE ACCESS SHOWN SHADED ABOVE. LOCATIONS ARE FRONT SIDES AND FRONT BOTTOM.

TRANSFORMER SPECIFICATION

500kVA 3 PHASE 60 HERTZ 54DB
PRIMARY VOLTAGE: 480V Delta, 4 – 2.5% 2+2– Taps
SECONDARY VOLTAGE: 208Y/120V
150 Deg C RISE ABOVE 40 Deg C AMBIENT
220 Deg C INSULATION SYSTEM Copper WINDING
MAXIMUM WEIGHT: 4,030 LBS
Type 1 304 Stainless Steel Painted ANSI Grey
MINIMUM EFFICIENCY 99.14% @ 35% LOADING 75 Deg C
COMPLYING WITH 10 CFR 431 (78 FR 23335–APRIL 18, 2013)

DUAL DIMENSIONS: INCHES
MILLIMETERS

EX500T68HCUSS

JOB NAME:	Test Quote	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	LV DISTRIBUTION TRANSFORMER
DRAWN BY:	CAD	DRAWING TYPE:	ELEVATION VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	April 06 2026		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# FQ–6498714–212975913–01	PG 1 OF 1 REV –

Prepared By:
Melissa Poggi
Consulting Application Engineer
melissa.poggi@se.com

Proposal Name: Tinker AFB LV Distribution - Oklahoma City, OK - HDR

Quote Name: Tinker AFB LV Distribution

Proposal Number: P-240318-4362772

Quote Number: Q-4848996

Quote Date: 04/15/2024

Through Addenda Number: 0

Sales Representative: Melissa Poggi

Conditions of Sale

This Quotation is subject to Coordinated Project Terms. See https://www.se.com/us/en/download/document/0100PL0043/

Quoted price in currencies other than U.S. Dollars is per the annual Schneider Electric exchange guidance.
Quote is valid for 30 days. Quoted lead times are approximate and subject to change.

Schneider Electric reserves the right to amend, withdraw or otherwise alter this submission without penalty or charge as a result of any event beyond its control arising from or due to the current Covid-19 epidemic or events subsequent to this epidemic / pandemic including changes in laws, regulations, by laws or direction from a competent authority.

Pricing

Total DISTRIBUTOR SELL PRICE	**$2,374,180.88**

Seq #	Qty	Product Description	Price Each	Subtotal
1	1	**Designation :** **Product Details :** 1 - POWER-ZONE 4 SWITCHGEAR COMMS-LOW VOLTAGE SWITCHGEAR Lineup with MTZ Micrologic X Breakers Contact Factory for Delivery on Lineup with NEMA 3R Walkin Enclosure with Smart System Communications Network 2.0 Single Main With Feeders 480/277V,3PH-4W,60HZ 3200A Copper Main Bus Solidly Grounded Neutral 100% Neutral 65kA Maximum Available Fault Current NEMA Type 3R Outdoor Walk-in Construction ANSI 49 Exterior Color Paint Network Communications with Device Web Pages (IFE/Meter) Ethernet Modbus TCP Customer RJ45 Connection Breakers (Masterpact) on Modbus RS485 Serial Network connected to Ethernet Modbus TCP Interface All devices pre-wired and pre-tested to the customer connection Manually Operated Overhead Lifting Device Humidistat 2 Emergency/Exit Lights White Back Pans EcoStruxure Service Ready - Continuous Thermal Monitoring Universal Panel Server Special Records: TAG SP-0840 - 01 - CPT, 15kVA - ENCLOSURE OPTIONS 1 - Section(s) with no Vertical Bus 1 - 22", 3200A, Indoor Vertical Auxiliary Section 7 - 72" Deep Enclosure 7 - Bus Isolation Barriers 6 - Bus Compartment Side Barriers 7 - Bottom Plates (including Rodent Protection) 7 - Strip Heaters in Bus Compartment 7 - Strip Heaters in Cable Compartment 7 - Undercoating 5 - Section(s) with 3200A, Thermal Silver Plated Vertical Bus 6 - 22", 3200A, 4W, 100%N, Indoor Vertical Section 6 - 22" NEMA Type 3R section adder 2 - Aisle Exhaust Fan 1 - Section(s) with 1600A, Thermal Silver Plated Vertical Bus INCOMING ONE: CONNECTIONS & METERING OPTIONS Freestanding Cable Fed - Top Incoming 3200A UL Service Entrance Label 120kA Medium Exposure SPD SPD Surge Counter SPD Dry Contacts 3200A 4W Compression 2-Hole 600MCM Lugs Special Records: TAG SP-0842 - 01 - SPD, DISCONNECT - MAIN ONE: CIRCUIT BREAKER 3200A, MTZ2-32H1, Electrically Operated Main Breaker DESCRIPTION:	$1,583,347.64	$1,583,347.64

Budgetary

Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Main/Tie
Micrologic X Digital Module - ERMS
Sensor Plug Rating - 2500A
Trip Setting (Amps) - 2500
Energy Reduction Maintenance Switch - Locally Mounted
Power Meter - PM8244RD in line up with communications
Three PTs - Incoming
Special Wiring to Instrumentation Compartment - Shunt Close
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Main
Special Wiring to Instrumentation Compartment - Shunt Trip
Shunt Trip - Electrically Operated Main
Closing Coil (XF) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Open/Close Pushbutton Lock - Main
Shunt Trip Coil (MX1) 120Vac
Spring Charging Motor (MCH) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Breaker Padlock Attachment on Circuit Breaker
Breaker ID Nameplate - Main
8A Form C Contacts Auxiliary Switch
Strip Heaters in Breaker Compartment
Status Indicating Lights - Open/Close
Metering CTs
Cell - 2 BC

INCOMING 1 FEEDER BREAKERS & INSTRUMENTATION
800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: MCC-1
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 400A
Trip Setting (Amps) - 300
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 3 A
Load Side Power Direction - Cable (Bottom)

Budgetary

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Elevator
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 400A
Trip Setting (Amps) - 175
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 3 B
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: T-8
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 400A
Trip Setting (Amps) - 225
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 3 C
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated

Budgetary

Feeder Breaker
DESCRIPTION: T-6
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 400A
Trip Setting (Amps) - 400
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 3 D
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: T-8
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 400A
Trip Setting (Amps) - 225
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 4 A
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker

Budgetary

DESCRIPTION: Chiller
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 400A
Trip Setting (Amps) - 400
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 4 B
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: T-8
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 400A
Trip Setting (Amps) - 200
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 4 C
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: 500KVA transformer

Budgetary

Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 4 D
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Spare
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 5 A
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: T-8,9,10
Micrologic X Unit (6.0X), LSIG

Budgetary

Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Micrologic X Digital Module - ERMS
Sensor Plug Rating - 800A
Trip Setting (Amps) - 600
Energy Reduction Maintenance Switch - Locally Mounted
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 5 B
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Spare
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 5 C
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker

Budgetary

DESCRIPTION: Spare
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 5 D
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Spare
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 6 A
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Spare

Budgetary

Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 6 B
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Spare
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 6 C
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Spare
Micrologic X Unit (6.0X), LSIG

Budgetary

Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 6 D
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Spare
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
1C Connected, 1C Test, 1C Disconnected Cell Switch Assembly
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 7 B
Load Side Power Direction - Cable (Bottom)

LINEUP WATT LOSSES
Estimated Equipment Watts Loss (Fully Loaded) for AC Calculation is 6912 Watts.
Note: For Watts Loss values on equipment with

Budgetary

breakers or sections loaded at less than
full load, consult product catalog for
derating watts loss or further analysis
options.
1 - SRVRECSRVREADYLABR-Service Ready Onsite Labor

1 - ESPPLUSALLIPROV-EAA Provisioning per asset

Seq #	Qty	Product Description	Price Each	Subtotal
2	1	**Designation :** **Product Details :** 1 - POWER-ZONE 4 SWITCHGEAR COMMS-LOW VOLTAGE SWITCHGEAR Lineup with MTZ Micrologic X Breakers Contact Factory for Delivery on Lineup with NEMA 3R Walkin Enclosure with Smart System Communications Network 2.0 Single Main With Feeders 208/120V,3PH-4W,60HZ 1600A Copper Main Bus Solidly Grounded Neutral 100% Neutral 10KVA Control Power Transformer 65kA Maximum Available Fault Current NEMA Type 3R Outdoor Walk-in Construction ANSI 49 Exterior Color Paint Network Communications with Device Web Pages (IFE/Meter) Ethernet Modbus TCP Customer RJ45 Connection Breakers (Masterpact) on Modbus RS485 Serial Network connected to Ethernet Modbus TCP Interface All devices pre-wired and pre-tested to the customer connection Manually Operated Overhead Lifting Device Humidistat 2 Emergency/Exit Lights White Back Pans EcoStruxure Service Ready - Continuous Thermal Monitoring Universal Panel Server Special Records: TAG SP-0840 - 01 - CPT, 15kVA - TAG TR-117260-1 - 01 - Relocate CPT 7.5 - 15kVA - ENCLOSURE OPTIONS 1 - Section(s) with no Vertical Bus 1 - 22", 1600A, Indoor Vertical Auxiliary Section 4 - 72" Deep Enclosure 4 - Bus Isolation Barriers 3 - Bus Compartment Side Barriers 4 - Bottom Plates (including Rodent Protection) 4 - Strip Heaters in Bus Compartment 4 - Strip Heaters in Cable Compartment 4 - Undercoating 3 - Section(s) with 1600A, Thermal Silver Plated Vertical Bus 3 - 22", 1600A, 4W, 100%N, Indoor Vertical Section 3 - 22" NEMA Type 3R section adder 1 - Aisle Exhaust Fan INCOMING ONE: CONNECTIONS & METERING OPTIONS Freestanding Cable Fed - Top Incoming Non-Service Entrance 160kA Medium Exposure SPD	$724,819.26	$724,819.26

Budgetary

SPD Surge Counter
SPD Dry Contacts
1600A 4W Mechanical 1-Hole Lugs

MAIN ONE: CIRCUIT BREAKER
1600A, MTZ2-16H1, Electrically Operated Main Breaker
DESCRIPTION:
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Main/Tie
Micrologic X Digital Module - ERMS
Sensor Plug Rating - 1600A
Trip Setting (Amps) - 1600
Energy Reduction Maintenance Switch - Locally Mounted
Power Meter - PM8244RD in line up with communications
Three PTs - Incoming
Special Wiring to Instrumentation Compartment - Shunt Close
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Main
Special Wiring to Instrumentation Compartment - Shunt Trip
Shunt Trip - Electrically Operated Main
Closing Coil (XF) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Open/Close Pushbutton Lock - Main
Shunt Trip Coil (MX1) 120Vac
Spring Charging Motor (MCH) 120Vac
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Breaker Padlock Attachment on Circuit Breaker
Breaker ID Nameplate - Main
8A Form C Contacts Auxiliary Switch
Strip Heaters in Breaker Compartment
Status Indicating Lights - Open/Close
Metering CTs
Cell - 2 B

INCOMING 1 FEEDER BREAKERS & INSTRUMENTATION
800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: SPARE
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder
Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation

Budgetary

Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 3 B
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: SPARE
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 3 C
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: SPARE
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 800
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches

Budgetary

Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 3 D
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Panel LPO
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 600
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac
8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 4 B
Load Side Power Direction - Cable (Bottom)

800A, MTZ2-08H1, Electrically Operated Feeder Breaker
DESCRIPTION: Panel B9
Micrologic X Unit (6.0X), LSIG
Communications Module & Wiring - Feeder Modbus RS485 Serial Communication to Breaker/Cradle
Sensor Plug Rating - 800A
Trip Setting (Amps) - 600
Special Wiring to Instrumentation Compartment - Shunt Close
Breaker ID Nameplate - Feeder
Special Wiring to Instrumentation Compartment - Cell Switches
Shunt Close - Electrically Operated Feeder
Shunt Trip - Electrically Operated Feeder
Special Wiring to Instrumentation Compartment - Shunt Trip
Spring Charging Motor (MCH) 120Vac
Breaker Padlock Attachment on Circuit Breaker
800A, 4W, Mechanical 1-Hole Lugs
Open/Close Pushbutton Lock - Feeder
Shunt Trip Coil (MX1) 120Vac
3C Connected, 3C Test, 3C Disconnected Cell Switch Assembly
Special Wiring to Instrumentation Compartment - Auxiliary Switches
Closing Coil (XF) 120Vac

Budgetary

8A Form C Contacts Auxiliary Switch
Status Indicating Lights - Open/Close
Strip Heaters in Breaker Compartment
Cell - 4 C
Load Side Power Direction - Cable (Bottom)

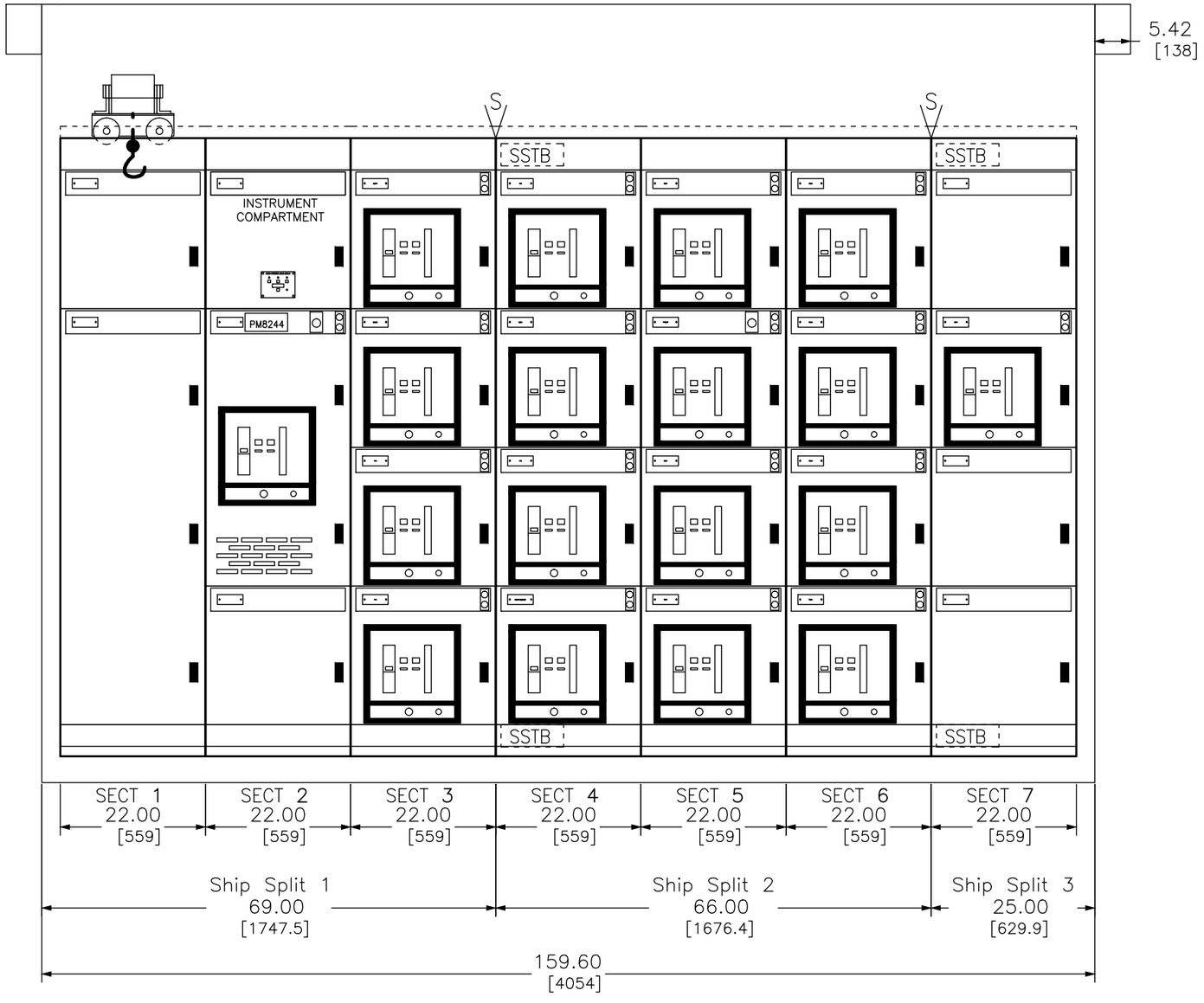
LINEUP WATT LOSSES
Estimated Equipment Watts Loss (Fully Loaded)
for AC Calculation is 1963 Watts.
Note: For Watts Loss values on equipment with
breakers or sections loaded at less than
full load, consult product catalog for
derating watts loss or further analysis
options.
1 - SRVRECSRVREADYLABR-Service Ready Onsite Labor

1 - ESPPLUSALLIPROV-EAA Provisioning per asset

Seq #	Qty	Product Description	Price Each	Subtotal
3	1	**Designation :** **Product Details :** 1 - EX500T68HCUSS-LV Transformer: DOE 2016 EX or EXN Transformer Type: DOE 2016 EX or EXN Transformer Rating: 500kVA Transformer Phase: Three Phase Primary Voltage: 480V Delta Secondary Voltage: 208Y/120V Transformer Taps: 4 - 2.5% 2+2- Taps Frequency: 60Hz Transformer Winding Material: Copper Sound Level: 54DB Insulation & Temperature: Class 220 (H), 150 Deg C Enclosure Material: 304 Stainless Steel Painted ANSI Grey Enclosure Type: Type 1 UL Labeled	$66,013.98	$66,013.98

Budgetary

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



DUAL DIMENSIONS: INCHES
MILLIMETERS

S SHIPPING SPLIT

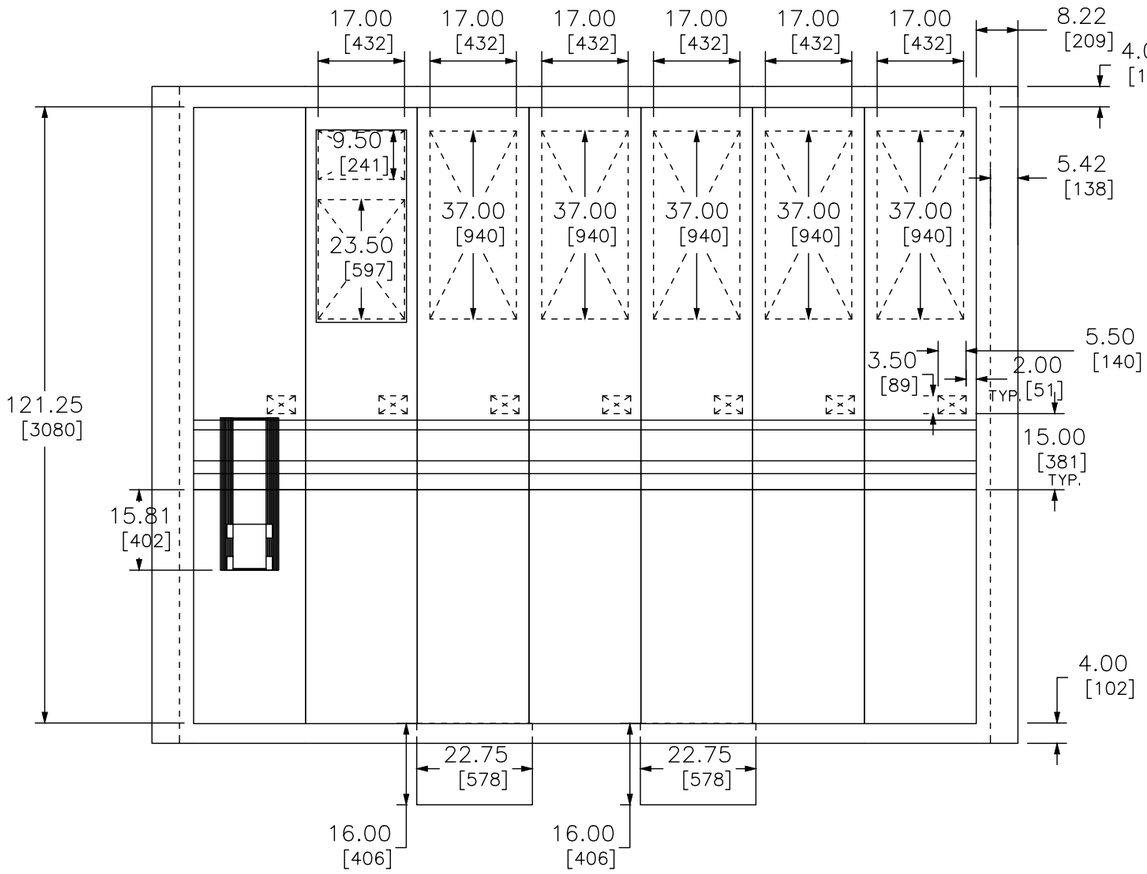
SSTB SHIPPING SPLIT TERMINALS

NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ

FRONT ELEVATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 1 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

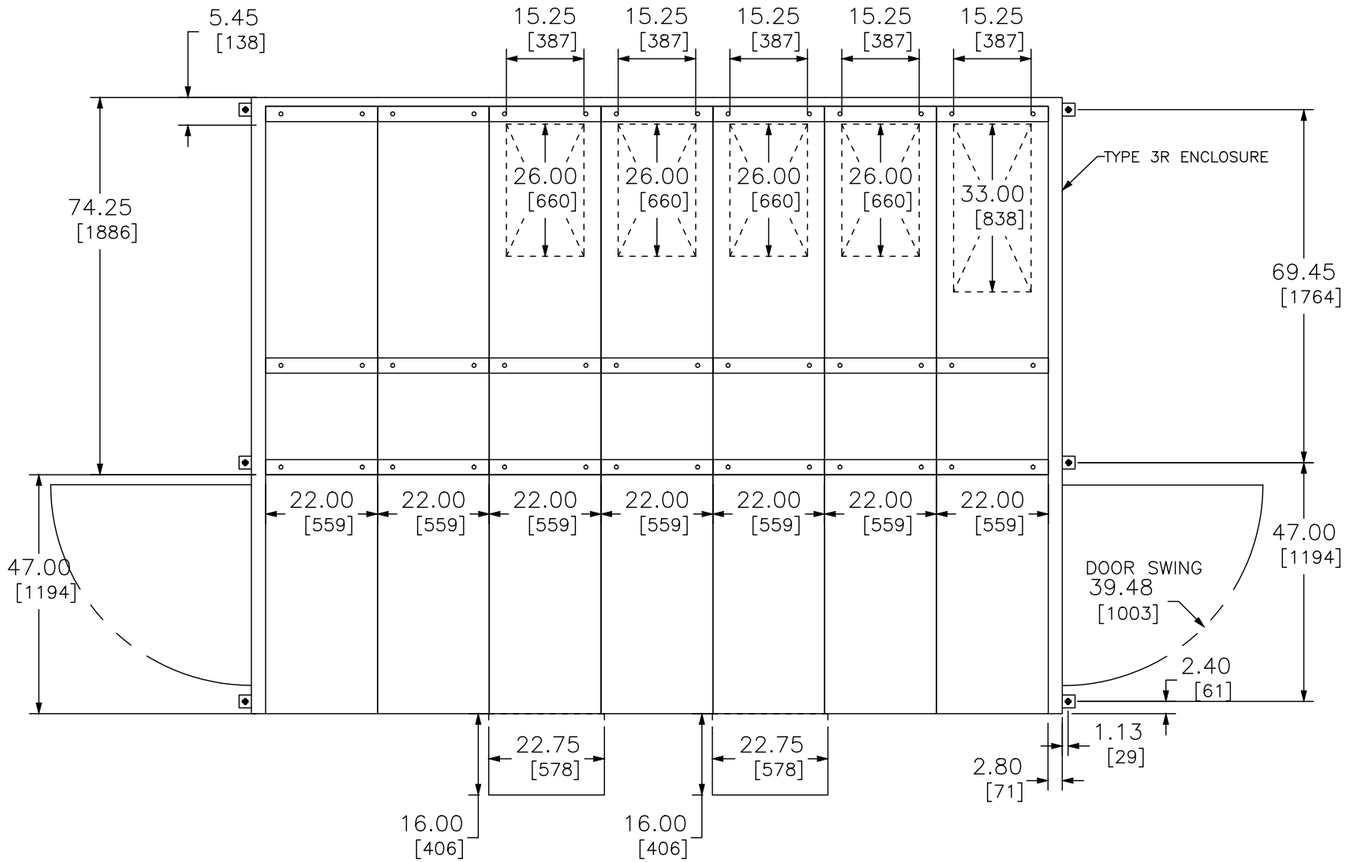


DUAL DIMENSIONS: INCHES
MILLIMETERS

TOP VIEW

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 2 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



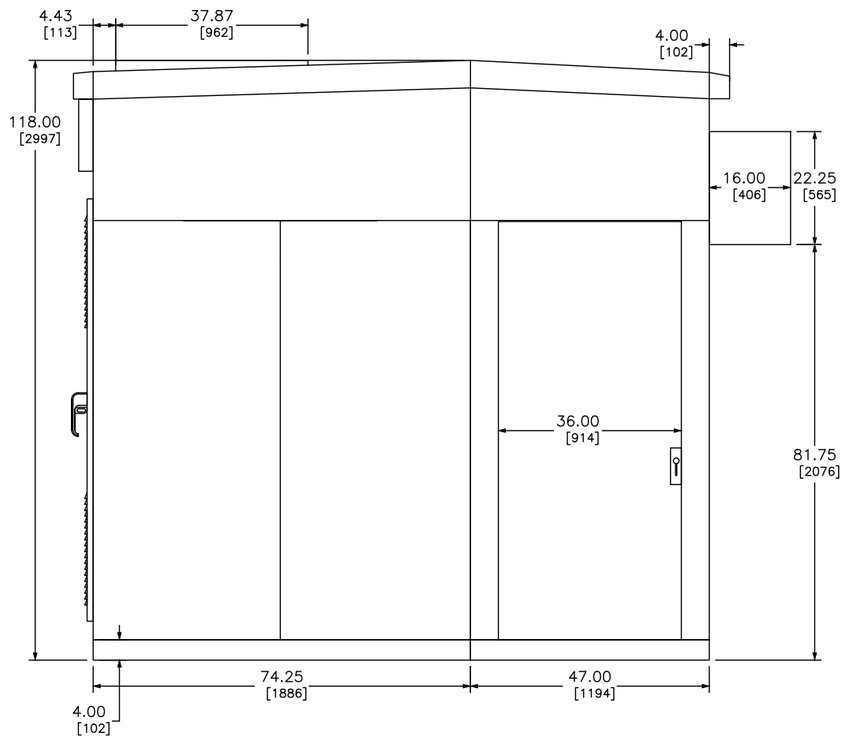
DUAL DIMENSIONS: INCHES
MILLIMETERS

NOTE: ALL DEVICES REQUIRING DRILLING OR INSERTION IN MOUNTING PAD SUCH AS CONDUIT, ANCHORING STUDS, SLEEVE INSERTS, ETC. SHOULD BE INSTALLED BEFORE SETTING EQUIPMENT IN PLACE.

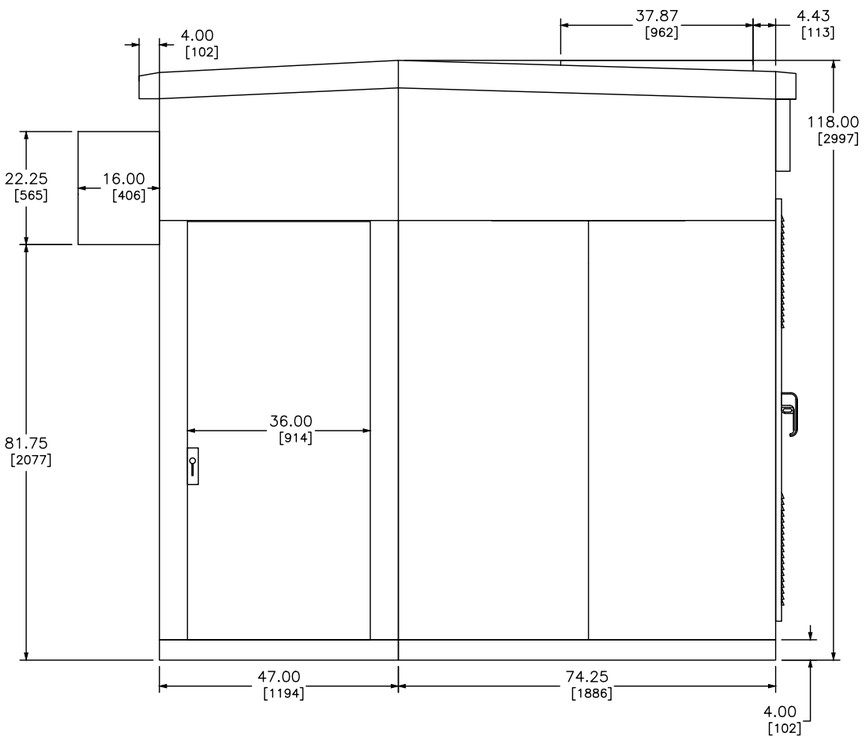
FLOOR PLAN

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 3 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



LEFT SIDE VIEW



RIGHT SIDE VIEW

SIDE VIEWS

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	SIDE VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142441649-01	PG 4 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

GENERAL NOTES

Product Description & Rating

Power System Data

480Y/277V 3Ph 4W 60 Hz.
Solidly Grounded Neutral
Neutral 100 Percent Of Main Bus Rating
Maximum Available Fault Current (RMS): 65kA
Incoming Section Bay 2 Cable Top
Control Power: 15kVA–120V Secondary

Bus System Data

3200A Copper Bus, Silver Plated, Thermal Rated
Bus Bracing (RMS): 85kA

Enclosure Data

Enclosure Type: Outdoor Type 3R Walk–In
Exterior Paint Color: ANSI 49
Bottom Plate/Rodent Proof
Emergency Exit Light(s)
Undercoating Applied
Aisle Exhaust Fan(s)
Bus Isolation Barriers for Main Breaker(s)
Interbay Barriers, Bus Compartment
Space Heaters– NW Breaker Compartments
Space Heaters– Cable Compartments
Space Heaters– Bus Compartments
Thermostat for Space Heaters
Humidistat for Space Heaters

Estimated Shipping Weight

Ship Split 1 7644.68 LBS / 3467.57 KGS
Ship Split 2 9613.68 LBS / 4360.69 KGS
Ship Split 3 2334.56 LBS / 1058.94 KGS

Codes & Standards

Equipment built to ANSI – UL1558 Code Standards
Incoming Section Bay 2 is Suitable for use as Service Entrance when not more than 6 disconnects are provided

Product Information

Wiring

Wires shall be labeled with destination marking (point–to–point)
NOTE: When connecting cables, use 90 degree Celsius insulated conductors based on the ampacity of 75 degree Celsius conductors unless otherwise indicated by supplemental instructions.

Cable Terminations

Cable Terminations in this equipment are to be per 2020 NEC table 310.16 in accordance with 2020 NEC 110.14(C)(1) or equivalent applicable local standards.

Instruction Bulletins

Refer to 80298–156–01 Instruction Bulletin for NEMA3R installation
Refer to 80298–002–08 Instruction Bulletin for PZ4 installation

Shipping Instructions

Install 3 Pole Breakers For Shipment. Ship 6 Pole Breakers Separately.

QR Code Commercial Reference

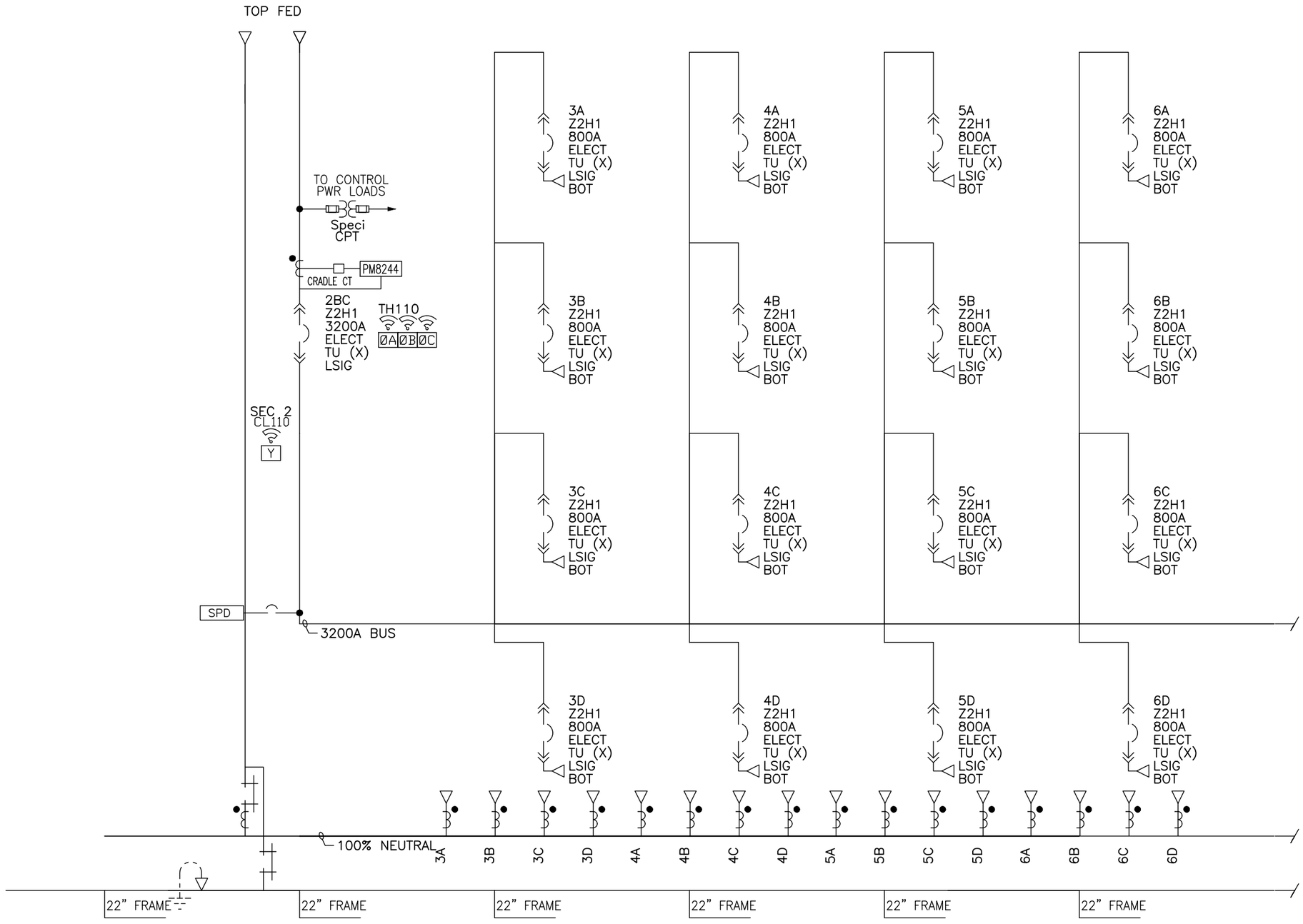
Power–Zone 4 Service Ready (LVESWGN_PZ4_SR)

Product Accessories

Modbus RS485 to Ethernet TCP – Communications Wired to Ethernet Gateway, Copper
Section Bay 2 120kA Surge Protective Device with Surge Counter
Section Bay 2 PM8244 Power Meter
Energy Reduction Maintenance Setting (ERMS) Switch(s) Included in Lineup
Overhead Breaker Lifter with Rails

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ–4848996–142441649–01	PG 5 OF 5 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

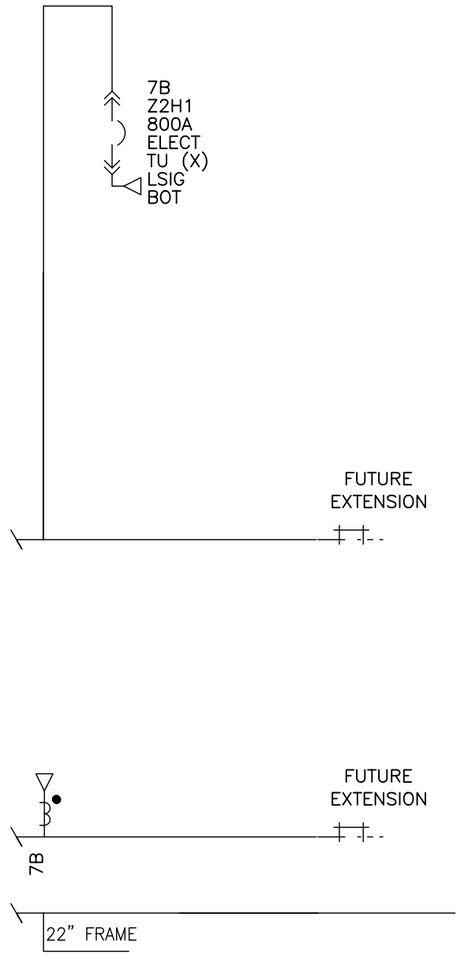


ONE LINE

NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ
REFER TO THE "GATEWAY: EcoStruxure PANEL SERVER" SECTION OF THE EcoStruxure POWER COMMISSION PROJECT REPORT FOR SENSOR RADIO FREQUENCY IDENTIFICATION INFORMATION (RFiD). TOP, BOT – INDICATES CABLE CONDUIT LOCATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q-4848996-142441649-01	PG 1 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



ONE LINE

NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ

TOP, BOT – INDICATES CABLE CONDUIT LOCATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q-4848996-142441649-01	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

POWER–ZONE 4 SWITCHGEAR – CIRCUIT BREAKER TABLE – MASTERPACT MTZ

CELL NO	BREAKER DESIGNATION ⚠1	BKR TYPE	BKR OPER	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	RATING PLUG	BKR AIC	TRIP PARAM	⚠2 LUGS PER PHASE: MECHANICAL						BREAKER AND CRADLE ACCESSORIES (NON STANDARD)
											QTY	A,B,C ⏍ SIZE	QTY	NEUT SIZE	QTY	GND SIZE	
2BC		Z2H1	ELECT	6.0X	3200A	2500A	2500A	–	65kA	LSIG	9	3/0 – 750kcmil	9	3/0 – 750kcmil	1	3/0 – 750kcmil	OF8,CE1,CT1,CD1,MCH,MX1,XF,ESM,COM,MCT,PL,PBL,D9
3A	MCC–1	Z2H1	ELECT	6.0X	800A	400A	300A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3B	Elevator	Z2H1	ELECT	6.0X	800A	400A	175A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3C	T–8	Z2H1	ELECT	6.0X	800A	400A	225A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3D	T–6	Z2H1	ELECT	6.0X	800A	400A	400A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4A	T–8	Z2H1	ELECT	6.0X	800A	400A	225A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4B	Chiller	Z2H1	ELECT	6.0X	800A	400A	400A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4C	T–8	Z2H1	ELECT	6.0X	800A	400A	200A	–	65kA	LSIG	1	3/0 – 750kcmil	1	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4D	500KVA transformer	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
5A	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
5B	T–8,9,10	Z2H1	ELECT	6.0X	800A	800A	600A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,ESM,COM,PL,PBL,D9
5C	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
5D	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
6A	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
6B	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
6C	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL

LEGEND

	STANDARD ACCESSORIES FOR MTZ
OF4	AUXILIARY CONTACTS – TYPE MTZ (STD)
UC1	ZSI SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SDE1	ELECTRICAL FAULT ALARM CONTACT (STD)
CPL	CRADLE PADLOCK ATTACHMENT (STD)
	NON–STANDARD ACCESSORIES FOR MTZ
CE(X)	CONNECTED CELL SWITCHES (X=QTY)
CT(X)	TEST CELL SWITCHES (X=QTY)
CD(X)	DISCONNECTED CELL SWITCHES (X=QTY)
COM	COMMUNICATIONS or ERMS
M2C	PROGRAMMABLE CONTACT MODULE (2 CONTACTS)
SDE2	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
RES	ELECTRICAL RESET
MN	UNDERVOLTAGE TRIP COIL
MX1	SHUNT TRIP COIL
MX2	SECOND SHUNT TRIP COIL
4P	4 POLE BREAKER

XF	SHUNT CLOSE COIL
MCH	SPRING CHARGING MOTOR
MX1C	SHUNT TRIP COIL WITH COMMS
XFC	SHUNT CLOSE COIL WITH COMMS
PF	READY TO CLOSE CONTACT
OF(X)	AUXILIARY CONTACTS (X=QTY)
EF(X)	CONNECTED AND CLOSED CONTACTS (X=QTY)
SH(X)	SHUTTERS (P=POSITION, L=LOCK PROVISION)
MCT	METERING CTS
PBL	PUSHBUTTON INTERLOCK COVER
AR	AUTOMATIC RESET
CDM	OPERATIONS COUNTER
PL	PADLOCK ATTACHMENT (REQD FOR KEYLOCK)
K	KEY INTERLOCK
CK	CRADLE KEY INTERLOCK
UC4	EXTERNAL VOLTAGE INPUTS
ESM	ERMS SWITCH MODULE
WL	MTZ BLUETOOTH AND ZIGBEE REMOVED

	MICROLOGIC (X) DIGITAL MODULES
D1	HARMONIC METER
D2	ENERGY PER PHASE
D3	OPERATION ASSISTANT
D4	RESTORATION ASSISTANT
D5	WAVEFORM CAPTURE
D6	ANSI 27/59 UNDERVOLTAGE/OVERVOLTAGE
D7	ANSI 32P REVERSE POWER
D8	GROUND FAULT ALARM
D9	ENERGY REDUCTION MAINTENANCE SETTINGS
D10	MODBUS LEGACY DATASET
D11	ANSI 81 FREQUENCY PROTECTION
D12	ANSI 67 DIRECTIONAL OVERCURRENT PROTECTION
D13	ANSI 51 IDMTL OVERCURRENT PROTECTION
D14	IEC 61850 FOR MASTERPACT MTZ

NOTES

⚠1 ENGRAVED NAMEPLATES SHALL BE WHITE BACKGROUND WITH BLACK LETTERS.

⚠2 LUG QUANTITIES ARE BASED ON COPPER CABLES.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	DEVICE TABLE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q–4848996–142441649–02	PG 1 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

POWER–ZONE 4 SWITCHGEAR – CIRCUIT BREAKER TABLE – MASTERPACT MTZ

CELL NO	BREAKER DESIGNATION ⚠1	BKR TYPE	BKR OPER	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	RATING PLUG	BKR AIC	TRIP PARAM	⚠2 LUGS PER PHASE: MECHANICAL						BREAKER AND CRADLE ACCESSORIES (NON STANDARD)
											QTY	A,B,C ƒ SIZE	QTY	NEUT SIZE	QTY	GND SIZE	
6D	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL
7B	Spare	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE1,CT1,CD1,MCH,MX1,XF,COM,PL,PBL

LEGEND

	STANDARD ACCESSORIES FOR MTZ
OF4	AUXILIARY CONTACTS – TYPE MTZ (STD)
UC1	ZSI SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SDE1	ELECTRICAL FAULT ALARM CONTACT (STD)
CPL	CRADLE PADLOCK ATTACHMENT (STD)
	NON–STANDARD ACCESSORIES FOR MTZ
CE(X)	CONNECTED CELL SWITCHES (X=QTY)
CT(X)	TEST CELL SWITCHES (X=QTY)
CD(X)	DISCONNECTED CELL SWITCHES (X=QTY)
COM	COMMUNICATIONS or ERMS
M2C	PROGRAMMABLE CONTACT MODULE (2 CONTACTS)
SDE2	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
RES	ELECTRICAL RESET
MN	UNDERVOLTAGE TRIP COIL
MX1	SHUNT TRIP COIL
MX2	SECOND SHUNT TRIP COIL
4P	4 POLE BREAKER

XF	SHUNT CLOSE COIL
MCH	SPRING CHARGING MOTOR
MX1C	SHUNT TRIP COIL WITH COMMS
XFC	SHUNT CLOSE COIL WITH COMMS
PF	READY TO CLOSE CONTACT
OF(X)	AUXILIARY CONTACTS (X=QTY)
EF(X)	CONNECTED AND CLOSED CONTACTS (X=QTY)
SH(X)	SHUTTERS (P=POSITION, L=LOCK PROVISION)
MCT	METERING CTS
PBL	PUSHBUTTON INTERLOCK COVER
AR	AUTOMATIC RESET
CDM	OPERATIONS COUNTER
PL	PADLOCK ATTACHMENT (REQD FOR KEYLOCK)
K	KEY INTERLOCK
CK	CRADLE KEY INTERLOCK
UC4	EXTERNAL VOLTAGE INPUTS
ESM	ERMS SWITCH MODULE
WL	MTZ BLUETOOTH AND ZIGBEE REMOVED

	MICROLOGIC (X) DIGITAL MODULES
D1	HARMONIC METER
D2	ENERGY PER PHASE
D3	OPERATION ASSISTANT
D4	RESTORATION ASSISTANT
D5	WAVEFORM CAPTURE
D6	ANSI 27/59 UNDERVOLTAGE/OVERVOLTAGE
D7	ANSI 32P REVERSE POWER
D8	GROUND FAULT ALARM
D9	ENERGY REDUCTION MAINTENANCE SETTINGS
D10	MODBUS LEGACY DATASET
D11	ANSI 81 FREQUENCY PROTECTION
D12	ANSI 67 DIRECTIONAL OVERCURRENT PROTECTION
D13	ANSI 51 IDMTL OVERCURRENT PROTECTION
D14	IEC 61850 FOR MASTERPACT MTZ

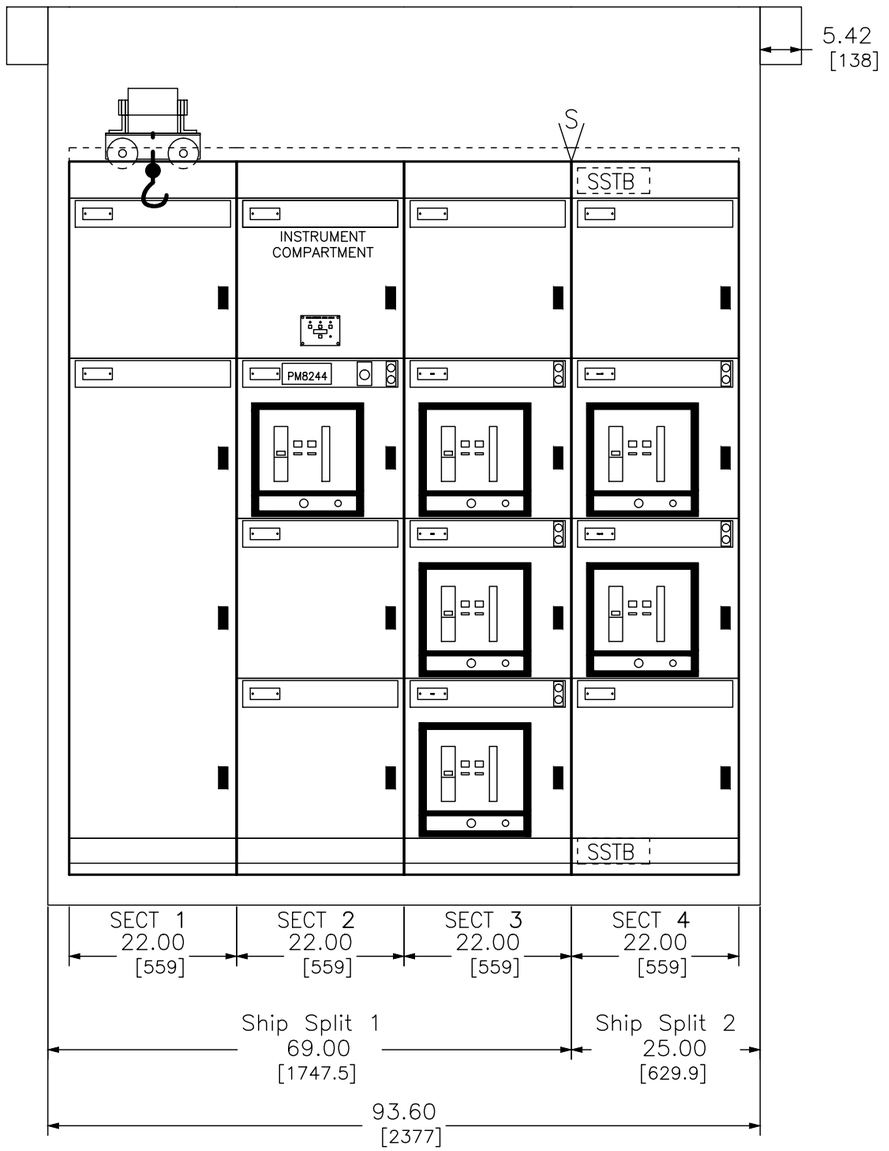
NOTES

⚠1 ENGRAVED NAMEPLATES SHALL BE WHITE BACKGROUND WITH BLACK LETTERS.

⚠2 LUG QUANTITIES ARE BASED ON COPPER CABLES.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	DEVICE TABLE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q–4848996–142441649–02	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ

GENERAL NOTES

Product Description & Rating

Power System Data

208Y/120V 3Ph 4W 60 Hz.
Solidly Grounded Neutral (Terminated At Source)
Neutral 100 Percent Of Main Bus Rating
Maximum Available Fault Current (RMS): 65kA
Incoming Section Bay 2 Cable Top
Control Power: 10kVA–120V Secondary

Bus System Data

1600A Copper Bus, Silver Plated, Thermal Rated
Bus Bracing (RMS): 85kA

Enclosure Data

Enclosure Type: Outdoor Type 3R Walk–In
Exterior Paint Color: ANSI 49
Bottom Plate/Rodent Proof
Emergency Exit Light(s)
Undercoating Applied
Aisle Exhaust Fan(s)
Bus Isolation Barriers for Main Breaker(s)
Interbay Barriers, Bus Compartment
Space Heaters– NW Breaker Compartments
Space Heaters– Cable Compartments
Space Heaters– Bus Compartments
Thermostat for Space Heaters
Humidistat for Space Heaters

Estimated Shipping Weight

Ship Split 1 6693.68 LBS / 3036.20 KGS
Ship Split 2 2424.56 LBS / 1099.76 KGS

Codes & Standards

Equipment built to ANSI – UL1558 Code Standards
Incoming Section Bay 2 is Non–Service Entrance

Product Information

Wiring

Wires shall be labeled with destination marking (point–to–point)
NOTE: When connecting cables, use 90 degree Celsius insulated conductors based on the ampacity of 75 degree Celsius conductors unless otherwise indicated by supplemental instructions.

Cable Terminations

Cable Terminations in this equipment are to be per 2020 NEC table 310.16 in accordance with 2020 NEC 110.14(C)(1) or equivalent applicable local standards.

Instruction Bulletins

Refer to 80298–156–01 Instruction Bulletin for NEMA3R installation
Refer to 80298–002–08 Instruction Bulletin for PZ4 installation

Shipping Instructions

Install 3 Pole Breakers For Shipment. Ship 6 Pole Breakers Separately.

QR Code Commercial Reference

Power–Zone 4 Service Ready (LVESWGN_PZ4_SR)

Product Accessories

Modbus RS485 to Ethernet TCP – Communications Wired to Ethernet Gateway, Copper
(Continued on next page.)

DUAL DIMENSIONS: INCHES / MILLIMETERS

FRONT ELEVATION / GENERAL NOTES

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION & GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ–4848996–142442801–01	PG 1 OF 4 REV –

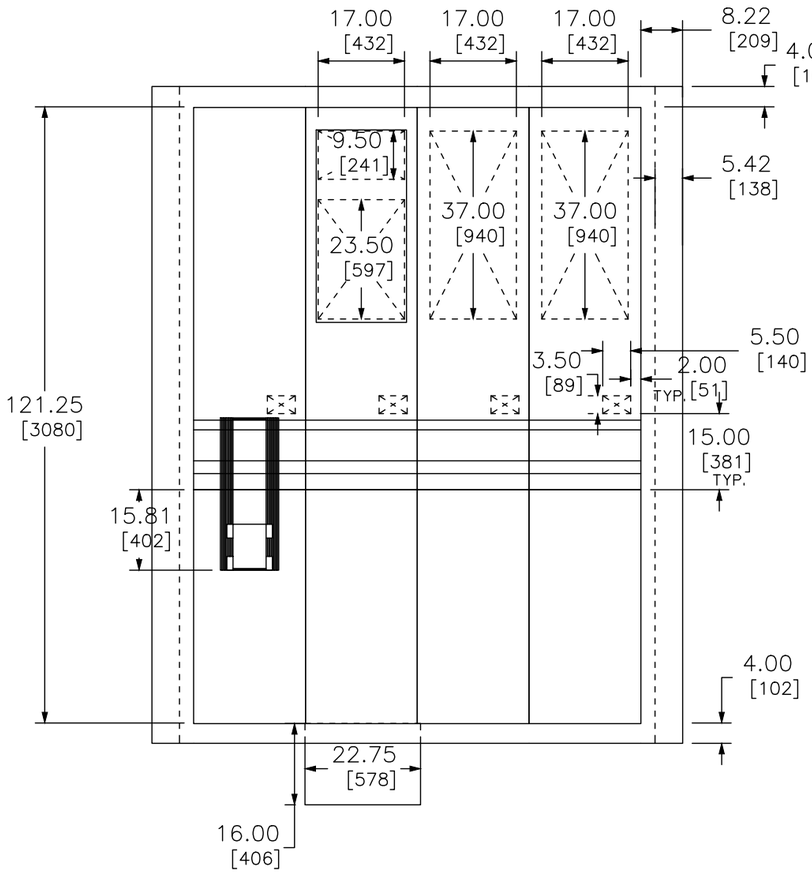
REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	-----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	-----	--	--/--/--

GENERAL NOTES CONTINUED

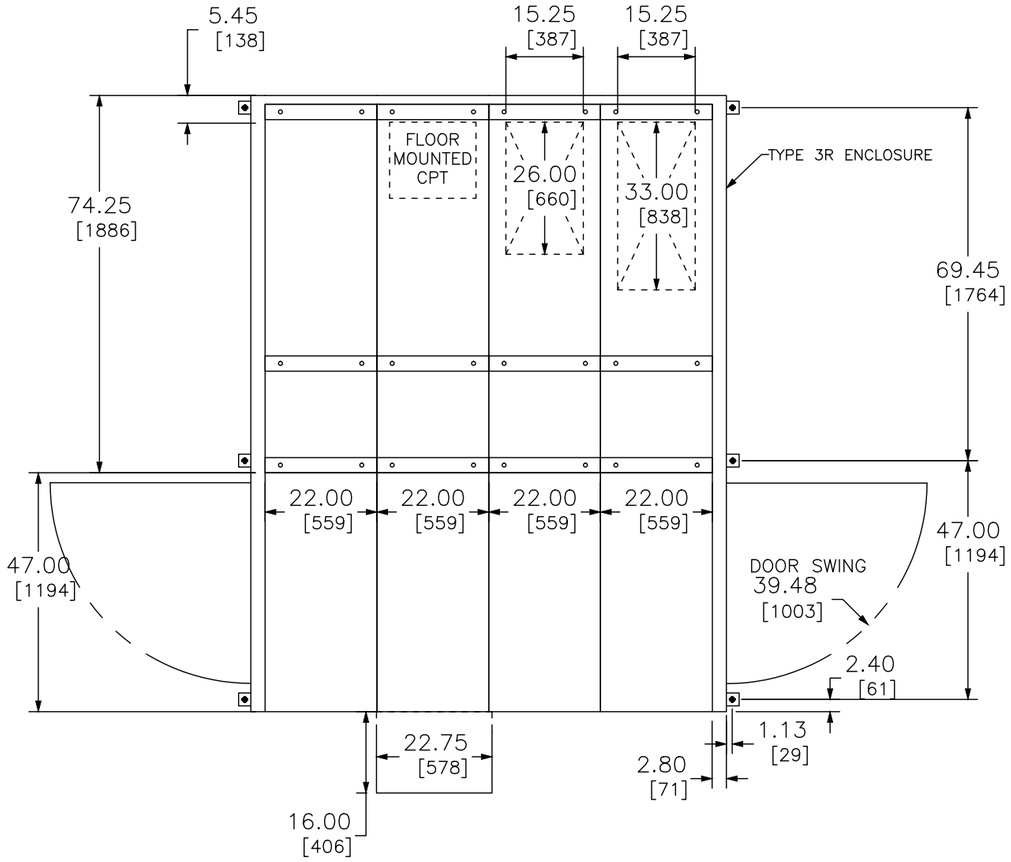
Section Bay 2 160kA Surge Protective Device with Surge Counter
Section Bay 2 PM8244 Power Meter
Energy Reduction Maintenance Setting (ERMS) Switch(s) Included in Lineup
Overhead Breaker Lifter with Rails

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION & GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142442801-01	PG 2 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



TOP VIEW



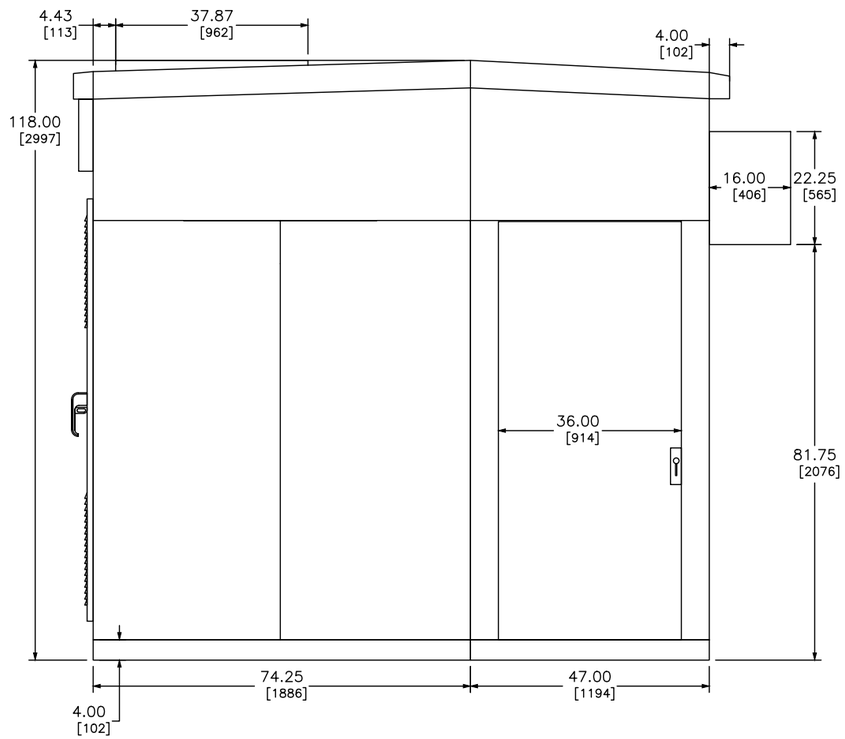
FLOOR PLAN

NOTE: ALL DEVICES REQUIRING DRILLING OR INSERTION IN MOUNTING PAD SUCH AS CONDUIT, ANCHORING STUDS, SLEEVE INSERTS, ETC. SHOULD BE INSTALLED BEFORE SETTING EQUIPMENT IN PLACE.

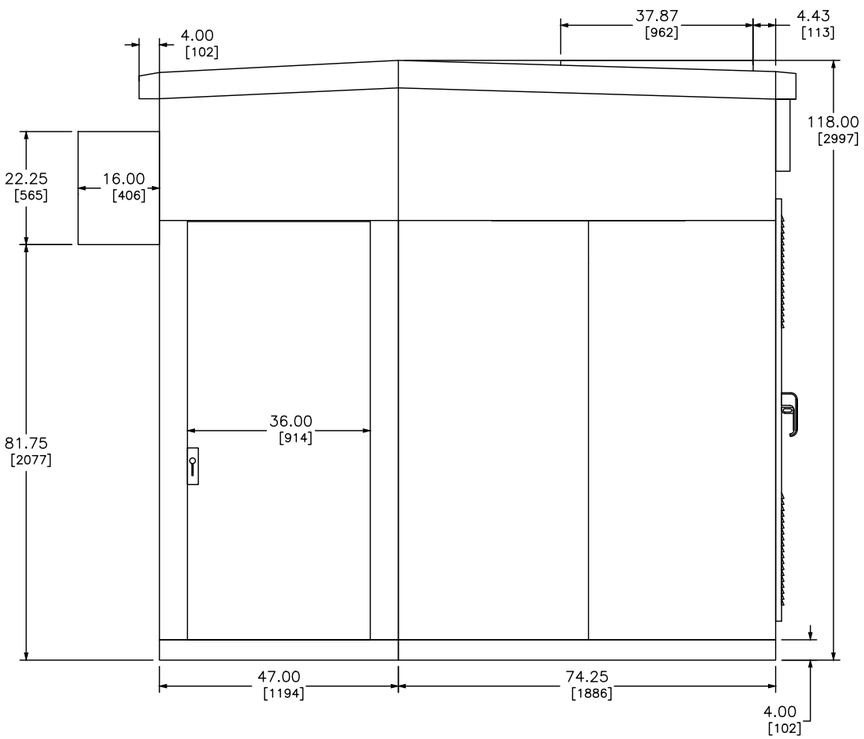
TOP VIEW / FLOOR PLAN

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142442801-01	PG 3 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



LEFT SIDE VIEW

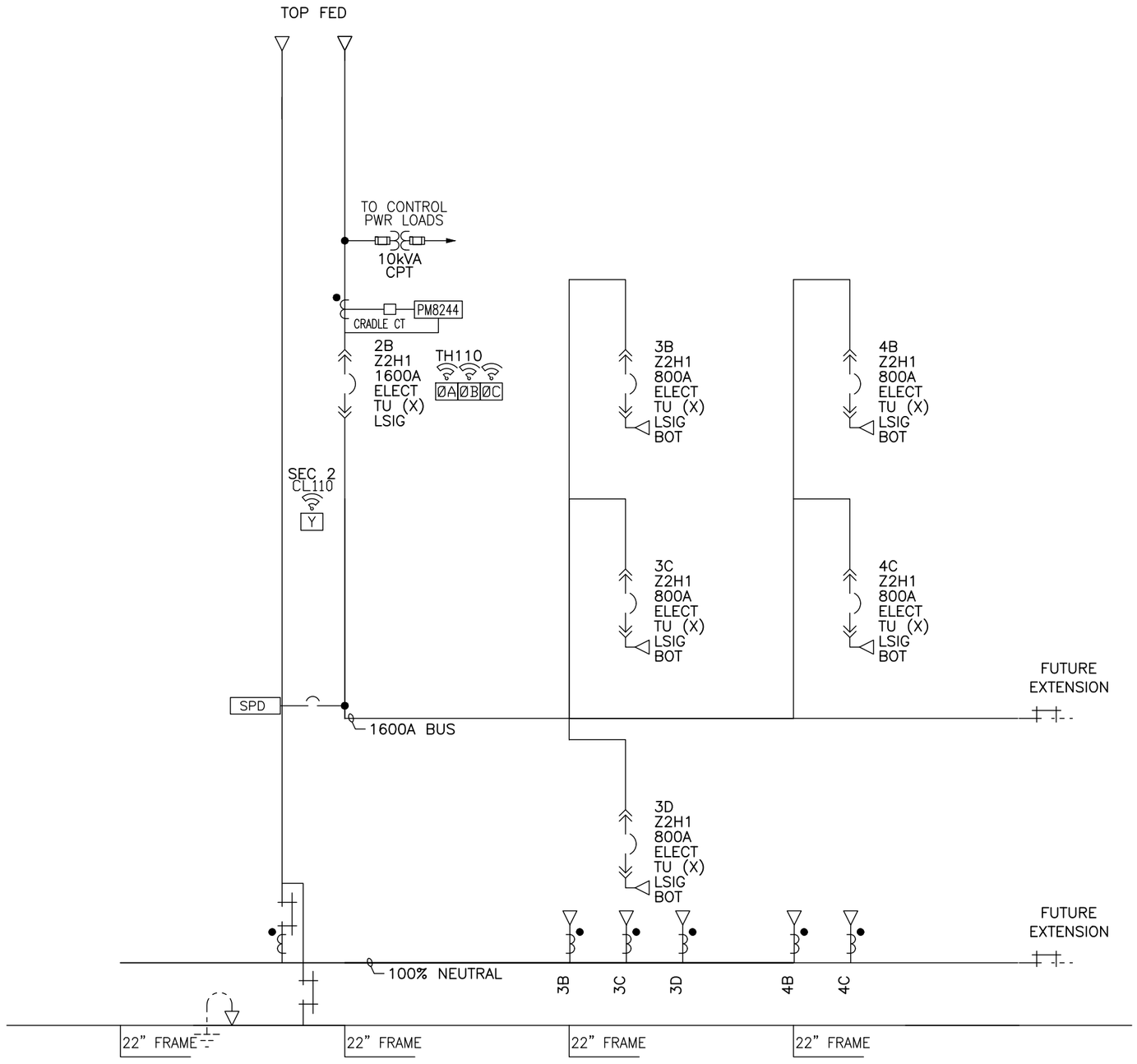


RIGHT SIDE VIEW

SIDE VIEWS

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	SIDE VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# FQ-4848996-142442801-01	PG 4 OF 4 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--



NOTE: ALL MASTERPACT BREAKERS ARE TYPE MTZ
REFER TO THE "GATEWAY: EcoStruxure PANEL SERVER" SECTION
OF THE EcoStruxure POWER COMMISSION PROJECT REPORT
FOR SENSOR RADIO FREQUENCY IDENTIFICATION INFORMATION (RFiD). TOP, BOT – INDICATES CABLE CONDUIT LOCATION

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q-4848996-142442801-01	PG 1 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

POWER–ZONE 4 SWITCHGEAR – CIRCUIT BREAKER TABLE – MASTERPACT MTZ

CELL NO	BREAKER DESIGNATION ⚠1	BKR TYPE	BKR OPER	BREAKER TRIP UNIT	FRAME SIZE	SENSOR PLUG	TRIP SETTING	RATING PLUG	BKR AIC	TRIP PARAM	⚠2 LUGS PER PHASE: MECHANICAL						BREAKER AND CRADLE ACCESSORIES (NON STANDARD)
											QTY	A,B,C ℓ SIZE	QTY	NEUT SIZE	QTY	GND SIZE	
2B		Z2H1	ELECT	6.0X	1600A	1600A	1600A	–	65kA	LSIG	5	3/0 – 750kcmil	5	3/0 – 750kcmil	1	3/0 – 750kcmil	OF8,CE3,CT3,CD3,MCH,MX1,XF,ESM,COM,MCT,PL,PBL,D9
3B	SPARE	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3C	SPARE	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
3D	SPARE	Z2H1	ELECT	6.0X	800A	800A	800A	–	65kA	LSIG	3	3/0 – 750kcmil	3	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4B	Panel LPO	Z2H1	ELECT	6.0X	800A	800A	600A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL
4C	Panel B9	Z2H1	ELECT	6.0X	800A	800A	600A	–	65kA	LSIG	2	3/0 – 750kcmil	2	3/0 – 750kcmil	–	–	OF8,CE3,CT3,CD3,MCH,MX1,XF,COM,PL,PBL

LEGEND

	STANDARD ACCESSORIES FOR MTZ
OF4	AUXILIARY CONTACTS – TYPE MTZ (STD)
UC1	ZSI SECONDARIES (STD)
UC2	MODIFIED DIFFERENTIAL GROUND FAULT (STD)
UC3	24VDC POWER SUPPLY (STD)
SDE1	ELECTRICAL FAULT ALARM CONTACT (STD)
CPL	CRADLE PADLOCK ATTACHMENT (STD)
	NON–STANDARD ACCESSORIES FOR MTZ
CE(X)	CONNECTED CELL SWITCHES (X=QTY)
CT(X)	TEST CELL SWITCHES (X=QTY)
CD(X)	DISCONNECTED CELL SWITCHES (X=QTY)
COM	COMMUNICATIONS or ERMS
M2C	PROGRAMMABLE CONTACT MODULE (2 CONTACTS)
SDE2	ADDITIONAL ELECTRICAL FAULT ALARM CONTACT
RES	ELECTRICAL RESET
MN	UNDERVOLTAGE TRIP COIL
MX1	SHUNT TRIP COIL
MX2	SECOND SHUNT TRIP COIL
4P	4 POLE BREAKER

XF	SHUNT CLOSE COIL
MCH	SPRING CHARGING MOTOR
MX1C	SHUNT TRIP COIL WITH COMMS
XFC	SHUNT CLOSE COIL WITH COMMS
PF	READY TO CLOSE CONTACT
OF(X)	AUXILIARY CONTACTS (X=QTY)
EF(X)	CONNECTED AND CLOSED CONTACTS (X=QTY)
SH(X)	SHUTTERS (P=POSITION, L=LOCK PROVISION)
MCT	METERING CTS
PBL	PUSHBUTTON INTERLOCK COVER
AR	AUTOMATIC RESET
CDM	OPERATIONS COUNTER
PL	PADLOCK ATTACHMENT (REQD FOR KEYLOCK)
K	KEY INTERLOCK
CK	CRADLE KEY INTERLOCK
UC4	EXTERNAL VOLTAGE INPUTS
ESM	ERMS SWITCH MODULE
WL	MTZ BLUETOOTH AND ZIGBEE REMOVED

	MICROLOGIC (X) DIGITAL MODULES
D1	HARMONIC METER
D2	ENERGY PER PHASE
D3	OPERATION ASSISTANT
D4	RESTORATION ASSISTANT
D5	WAVEFORM CAPTURE
D6	ANSI 27/59 UNDERVOLTAGE/OVERVOLTAGE
D7	ANSI 32P REVERSE POWER
D8	GROUND FAULT ALARM
D9	ENERGY REDUCTION MAINTENANCE SETTINGS
D10	MODBUS LEGACY DATASET
D11	ANSI 81 FREQUENCY PROTECTION
D12	ANSI 67 DIRECTIONAL OVERCURRENT PROTECTION
D13	ANSI 51 IDMTL OVERCURRENT PROTECTION
D14	IEC 61850 FOR MASTERPACT MTZ

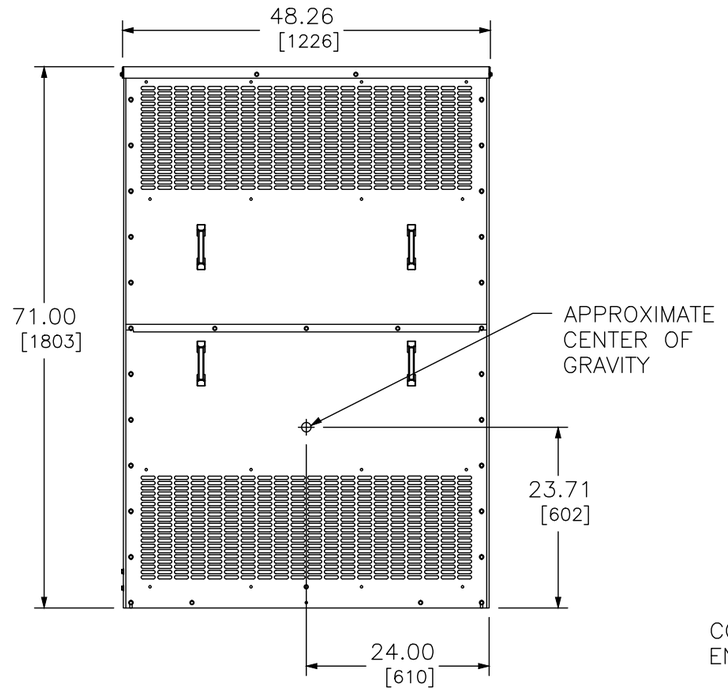
NOTES

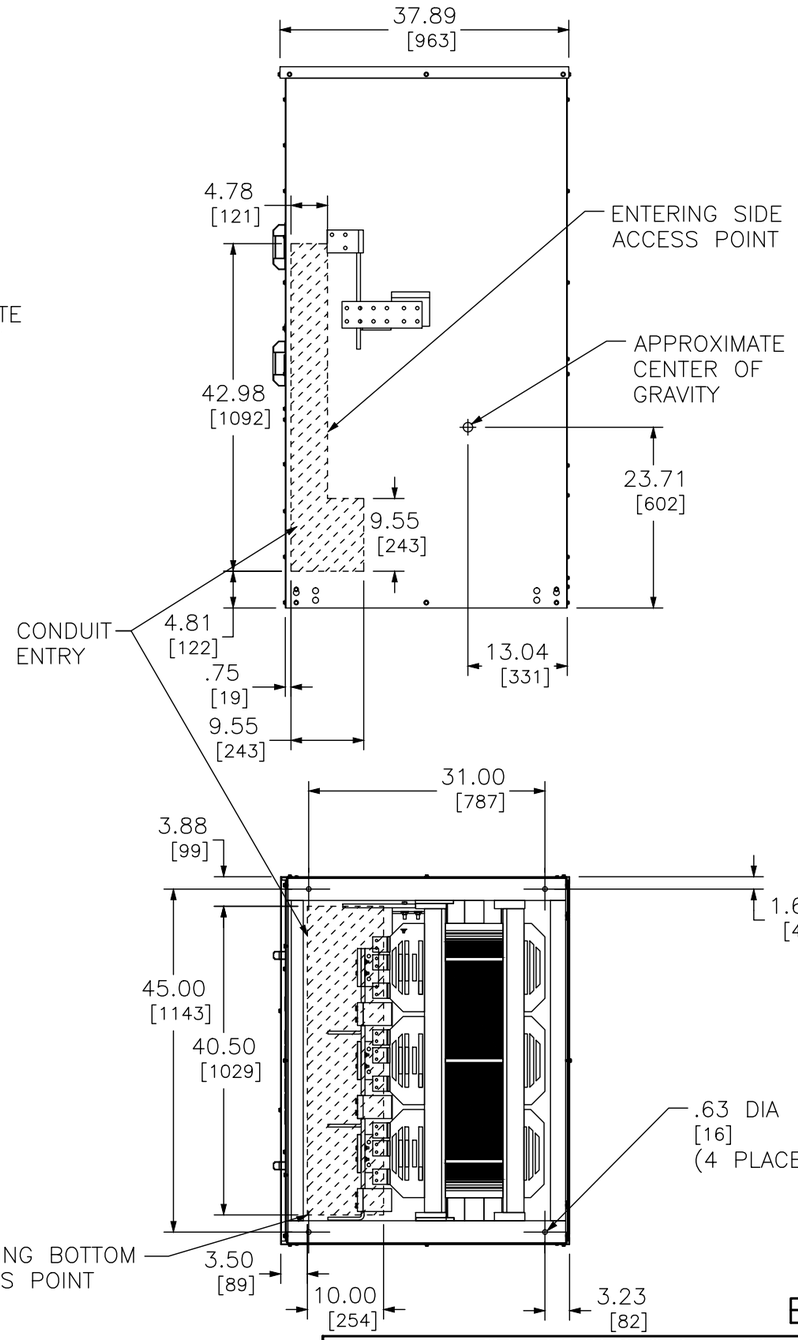
⚠1 ENGRAVED NAMEPLATES SHALL BE WHITE BACKGROUND WITH BLACK LETTERS.

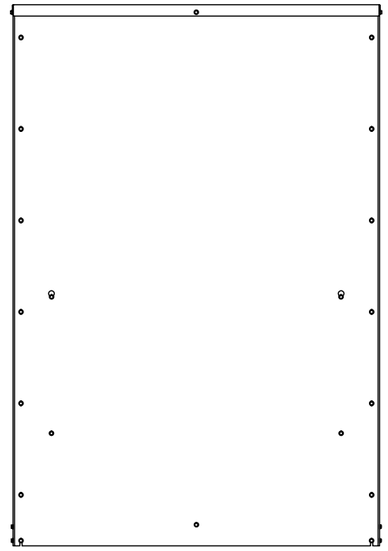
⚠2 LUG QUANTITIES ARE BASED ON COPPER CABLES.

JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	PZ4 Switchgear
DRAWN BY:	(Q2C)	DRAWING TYPE:	DEVICE TABLE
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE	DWG# 0Q–4848996–142442801–01	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--







SEISMIC QUALIFICATION

TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7,
THIS UNIT IS SELF CERTIFIED TO ICS ES AC156 BY SHAKE TABLE QUALIFICATION TESTING
THE ENCLOSURE ABOVE IS 30J.

NOTES:

cULus LISTED TO UL1561 AND C22. 2No47, FILE NUMBER E6868
NEMA ST–20 (2014) ROUTINE TESTS ARE COMPLETED ON ALL UNITS.
MANUFACTURED IN ISO9001 FACILITIES
GREEN PREMIUM (RoHS/REACH COMPLIANT, PRODUCT ENVIRONMENTAL PROFILE)
REGISTERED TO DOE VIA 10 CFR 429 & NRCAN
MINIMUM SIDE AND REAR CLEARANCE 1/2 INCH PER UL1561 ALCOVE TESTING.
FRONT ACCESS MUST COMPLY WITH NEC WORK SPACE REQUIREMENTS.
WIRE ACCESS SHOWN SHADED ABOVE. LOCATIONS ARE FRONT SIDES AND FRONT BOTTOM.

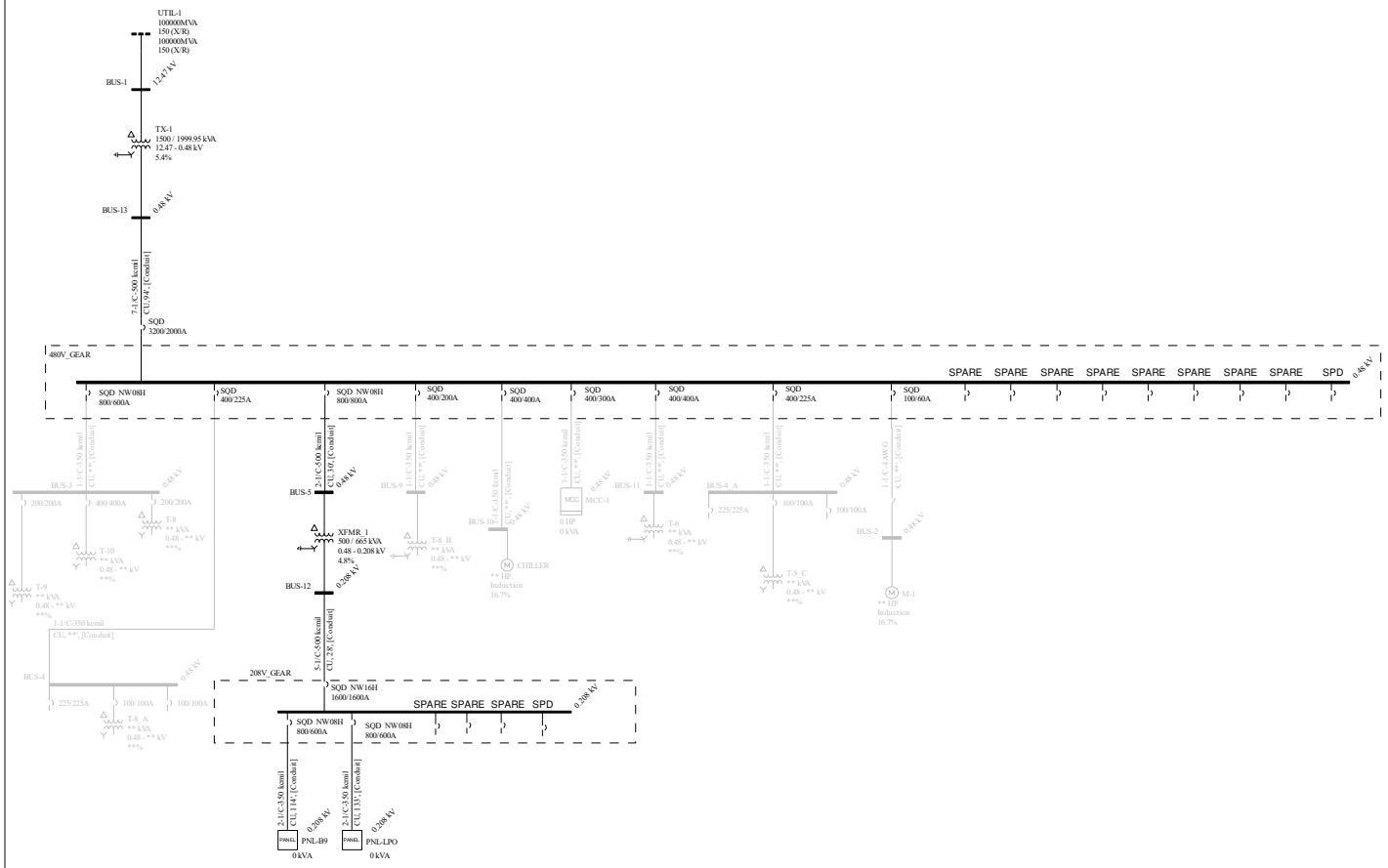
TRANSFORMER SPECIFICATION

500kVA 3 PHASE 60 HERTZ 54DB
PRIMARY VOLTAGE: 480V Delta, 4 – 2.5% 2+2– Taps
SECONDARY VOLTAGE: 208Y/120V
150 Deg C RISE ABOVE 40 Deg C AMBIENT
220 Deg C INSULATION SYSTEM Copper WINDING
MAXIMUM WEIGHT: 4,030 LBS
Type 1 304 Stainless Steel Painted ANSI Grey
MINIMUM EFFICIENCY 99.14% @ 35% LOADING 75 Deg C
COMPLYING WITH 10 CFR 431 (78 FR 23335–APRIL 18, 2013)

DUAL DIMENSIONS: INCHES
MILLIMETERS

EX500T68HCUSS

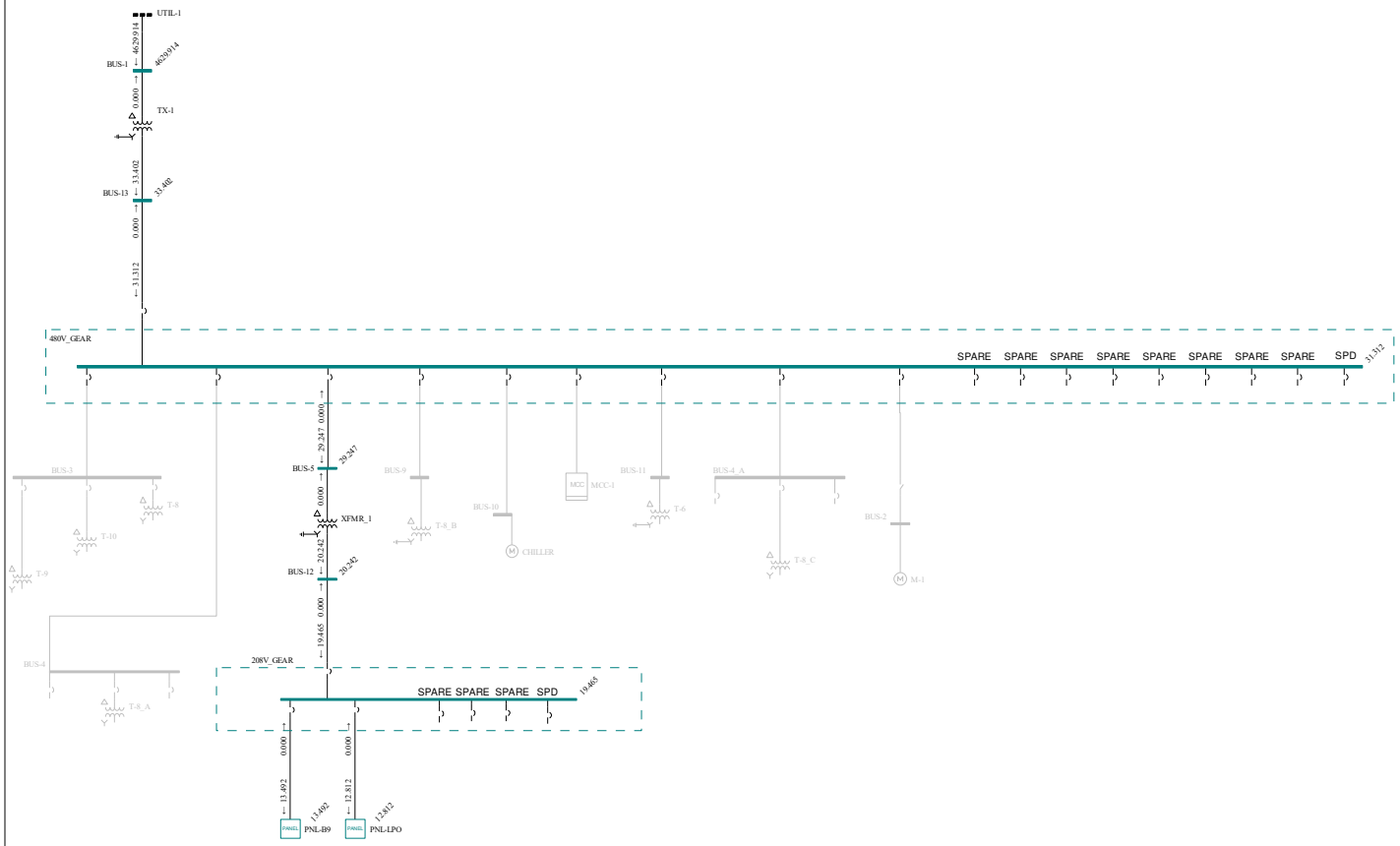
JOB NAME:	Tinker AFB LV Distribution – Oklahoma City, OK – H	EQUIPMENT DESIGNATION:	
JOB LOCATION:		EQUIPMENT TYPE:	LV DISTRIBUTION TRANSFORMER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	April 15 2024		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# FQ–4848996–145008387–01	PG 1 OF 1 REV –



WWYK200051 REPLACE SWITCHGEAR

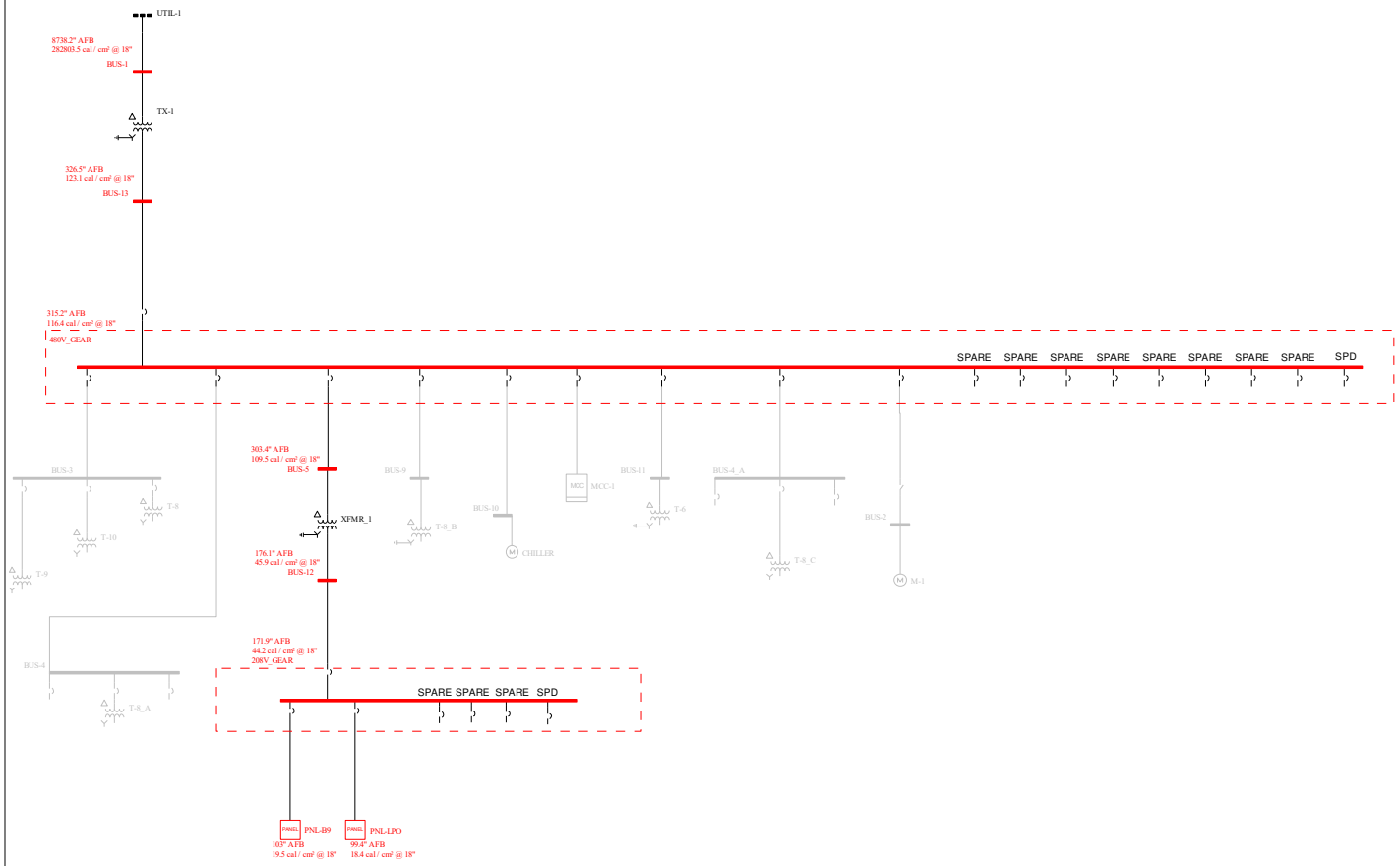
Prepared By: MGC
Checked By: KTL

Printed by EasyPower



HDR	**WWYK200051 REPLACE SWITCHGEAR**
	Prepared By: MGC **Checked By: KTL**

Printed by EasyPower



WWYK200051 REPLACE SWITCHGEAR

Prepared By: MGC
Checked By: KTL

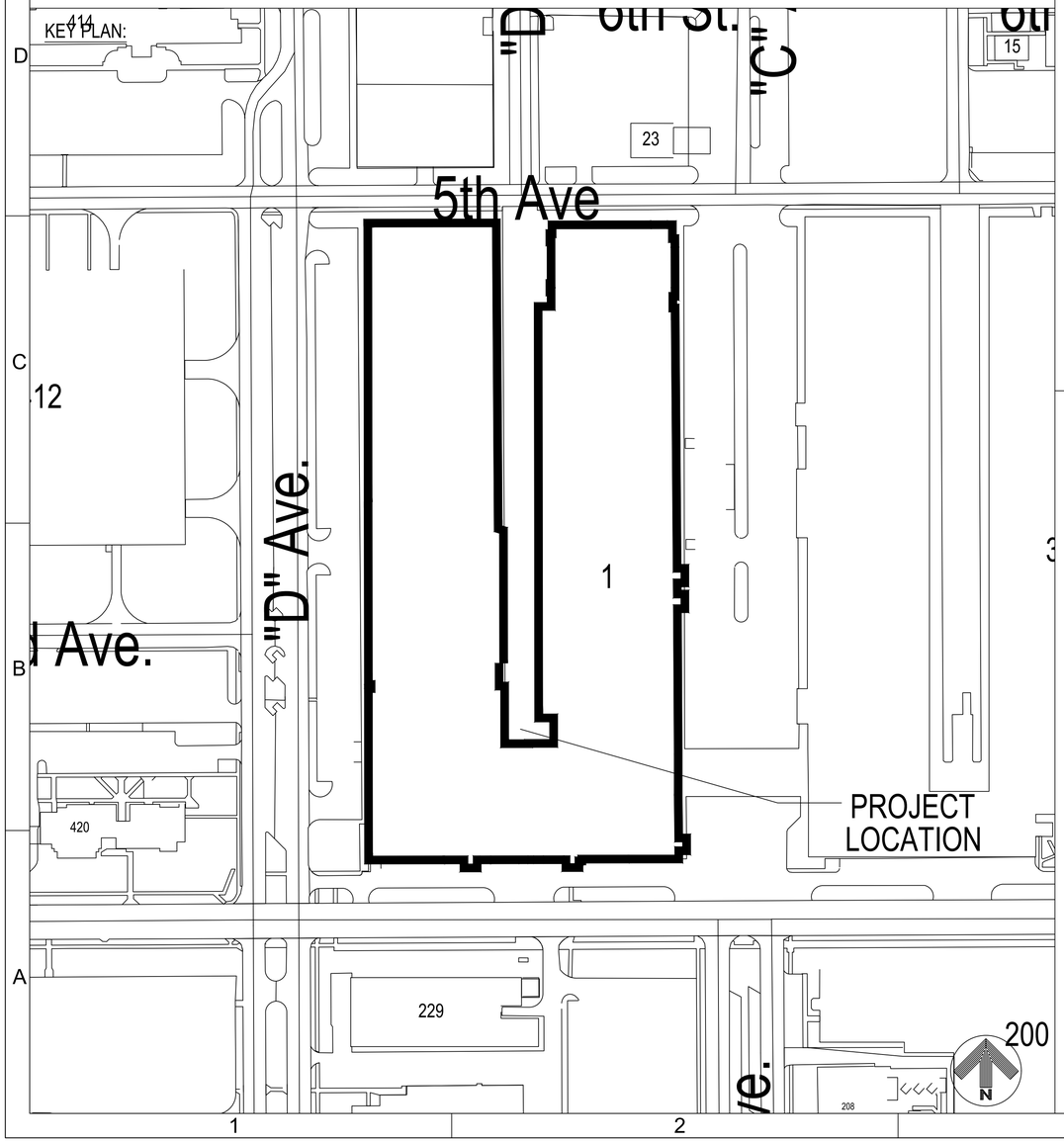
Printed by EasyPower

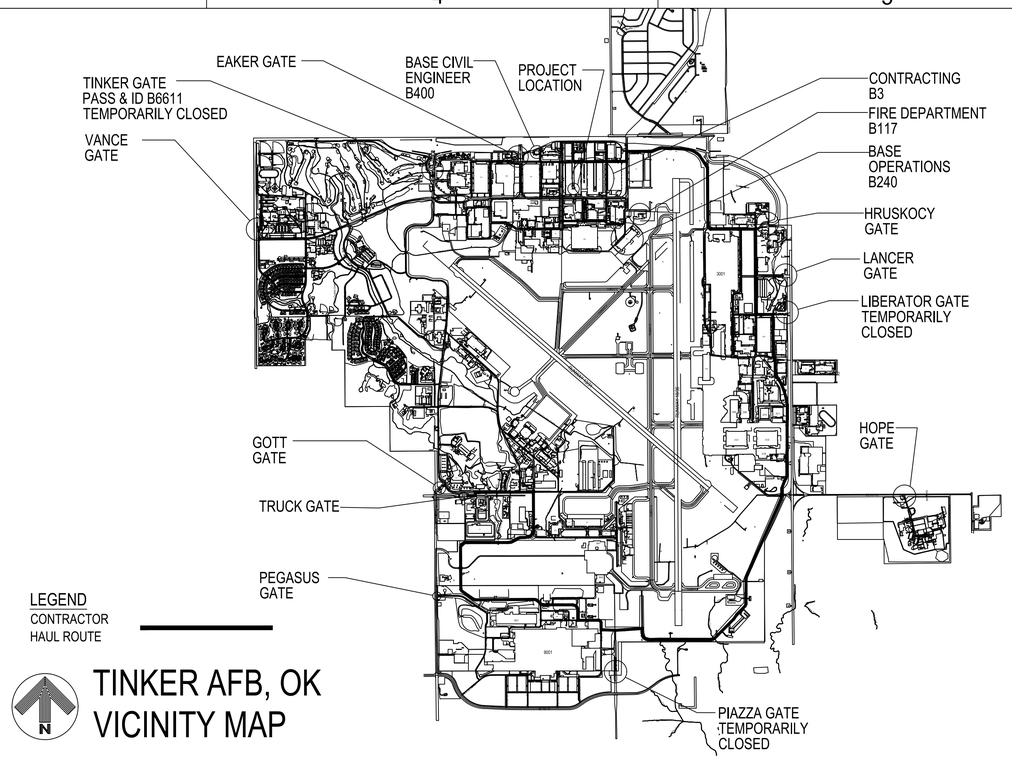
Appendix D

As-Built

WWYK160073
REPAIR FIRE RISER
SE CORNER,
BUILDING 1 (FSDI)

KEY PLAN:





TINKER AFB, OK
VICINITY MAP

GENERAL NOTES:

1. BRAND NAMES: REFERENCE TO SPECIFIC BRAND NAMES OR COMPANIES IS FOR THE PURPOSE OF ESTABLISHING MINIMUM QUALITY STANDARDS, IDENTIFICATION AND GUIDANCE AND IS NOT INTENDED TO LIMIT SELECTION OF OTHER MANUFACTURERS THAT ARE EQUAL OR EXCEED THE SPECIFIED ITEMS IN TERMS OF PHYSICAL PROPERTIES, INCLUDING, COLOR RANGE, FINISH, DURABILITY, APPEARANCE, PERFORMANCE CHARACTERISTICS, AND OTHER FACTORS. OTHER PRODUCTS, MATERIALS, COLORS AND SYSTEMS, MAY BE SUBMITTED FOR EVALUATION AND APPROVAL/DISAPPROVAL BY THE CONTRACTING OFFICER.
2. THIS SET OF CONSTRUCTION DOCUMENTS SHALL BE CONSIDERED AS A WHOLE IN THAT THE GENERAL CONTRACTOR AND ALL THE SUB-CONTRACTORS ARE RESPONSIBLE FOR THE INFORMATION PRESENTED ON ALL SHEETS ON THE SET OF DRAWINGS AND ALL SECTIONS OF THE SPECIFICATIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR ERECTING ALL CONSTRUCTION FENCING AND BARRICADES AS REQUIRED TO PROTECT CONSTRUCTION MATERIAL AND TO PREVENT ANY UNAUTHORIZED PERSONNEL FROM ENTERING THE CONSTRUCTION SITE.
4. ANY DAMAGE TO THE EXISTING GROUNDS OR FACILITIES CAUSED BY CONSTRUCTION TRAFFIC OR ANY CONSTRUCTION OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR TO MATCH OR EXCEED EXISTING CONDITIONS AT NO ADDITIONAL COST TO THE GOVERNMENT.
5. ALL WORK NOTED & LOCATED IN THESE DOCS SHALL BE UNDERSTOOD BY THE CONTRACTOR TO REQUIRE ALL NEW LABOR & MATERIALS UNLESS SPECIFICALLY NOTED TO BE "EXISTING" OR "BY OTHERS".

PROJECT DRAWING INDEX

SEQ.	SHT.	SHEET TITLE
		GENERAL
1	G-101	GENERAL NOTES & VICINITY MAP
		DISCIPLINE
2	C-101	CIVIL SITE/UTILITY IMPROVEMENTS
3	FP-101	PARTIAL FIRE PROTECTION PLAN, B1
4	AME-101	ARCHITECTURAL, MECHANICAL, ELECTRICAL FOR NEW FIRE RISER ROOM
5	FP-201	PARTIAL FIRE PROTECTION PLAN, B1

SIGNATURES

CORROSION ENGINEER: (CECE)	DATE:
CE OPERATIONS: (CECO)	DATE:
ZONE MANAGER:	DATE:
CONSTRUCTION MANAGEMENT: (CECE)	DATE:
FIRE DEPARTMENT: (CEFT)	DATE:
SAFETY:	DATE:
INDUSTRIAL HYGIENE:	DATE:
ENVIRONMENTAL:	DATE:
ASBESTOS EVALUATION:	DATE:
COMMUNICATIONS: (COMM)	DATE:
USING AGENCY:	DATE:
REVIEWED BY:	DATE:
REVIEWED BY:	DATE:
DESIGN MANAGER: (CECE)	DATE:
CHIEF DESIGN BRANCH: (CECE)	DATE:
CHIEF ENGINEER DIR: (CECE)	DATE:
BASE CIVIL ENGINEER: (CE)	DATE:

AS RECORDED
Date Mar 18th, 2024

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35% DESIGN

PROJECT INFORMATION
WWYK160073
REPAIR FIRE RISER
SE CORNER,
BUILDING 1 (FSDI)
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION
1	6/13/2022	CHANGES TO ANSWER RFI 1
2	12/1/2022	ADDITION OF NEW FIRE RISER ROOM
3	12/06/2022	CIVIL AND ELECTRICAL REVISION

MANAGEMENT INFORMATION

ISSUE DATE:	8/13/2021
DESIGN GROUP:	SRM
DESIGNED BY:	K LEE
DRAWN BY:	K LEE
CHECKED BY:	R LANE
DESIGN FILE LOCATION:	Engr\Design\2010s\2016\20160073\0_Support\0_3_Drawings\Model

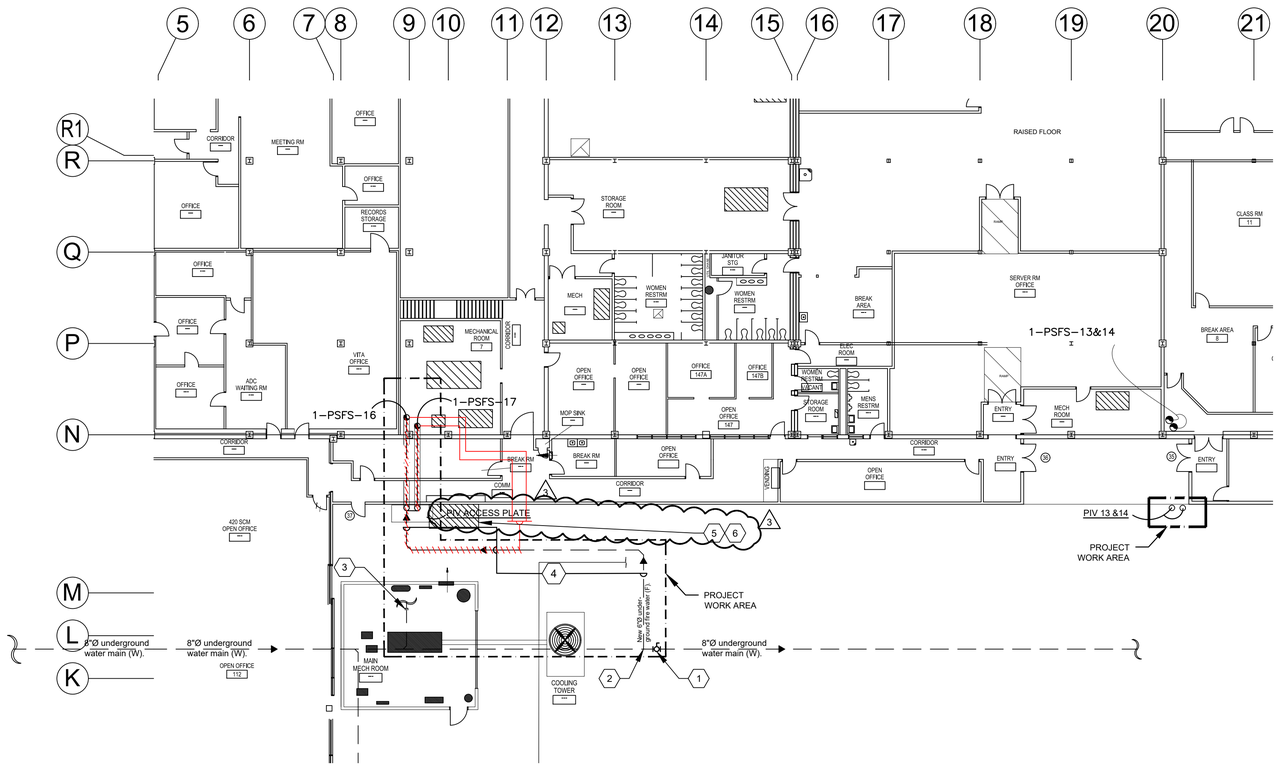
SHEET TITLE
GENERAL NOTES
AND
VICINITY MAP

SHEET NUMBER
G-101
SHEET 01 OF 05

GENERAL NOTES:	
1.	CONTRACTOR SHALL FIELD VERIFY AND CONFIRM THE LOCATION OF EXISTING UTILITIES BEFORE ENGAGING IN CONSTRUCTION WORK.
2.	CONTRACTOR SHALL PROVIDE SIGNS AND BARRIERS FOR PEDESTRIAN PROTECTION AT THE FACILITY DURING CONSTRUCTION.

SYMBOL LEGEND:	
— — F — —	NEW UNDERGROUND FIRE PIPING.
—— —— ——	EXISTING UNDERGROUND WATER/FIRE PIPING.
-X- -X- -X-	THE EXISTING UNDERGROUND FIRE PIPING TO BE DISCONNECTED FROM PIV 16 & 17 AND FROM THE EXISTING 8"Ø MAIN WATER LINE. BOTH ENDS CAPPED AND PIPE ABANDONED IN PLACE.
- - - - - - - -	WORK AREA BOUNDARY

KEY NOTES:	
1	THE EXISTING 8-INCH SHUT OFF VALVE TO BE THE POINT OF DEMARCATION FOR OCWUT CONTROL.
2	NEW 8-INCH REDUCING TEE IN EXISTING 8-INCH WATER LINE TO THE NEW 6-INCH WATER SUPPLY.
3	TEMPORARILY REMOVE THE SUPPORT FOR THE BACKFLOW PREVENTER IN ORDER TO SAW CUT THE FLOOR AND CAP THE EXISTING 6"Ø WATER SUPPLY LINE MIDWAY BETWEEN THE CHILLER AND THE MECHANICAL ROOM WALL. THE SMALL RUN UNDER THE CHILLER SHALL BE ABANDONED IN PLACE.
4	FURNISH AND INSTALL NEW 6"Ø UNDERGROUND FIRE WATER PIPE ROUTE IN ACCORDANCE WITH CURRENT NFPA 24 TO FEED THE EXISTING POST INDICATOR VALVES PIV 16 & PIV 17. CONNECT TO THE EXISTING 8"Ø UNDERGROUND WATER MAIN LINE ON THE EXTERIOR OF THE BUILDING AS SHOWN. ALL PIPING USED IN NEW FIRE SERVICE LINES SHALL BE IN ACCORDANCE WITH CURRENT NFPA 24 PARAGRAPH 10.1.1, 10.1.2, OR 10.1.3.
5	LOCATION OF STRUCTURAL I BEAM.
6	DEMOLISH ADDITIONAL PCC SLAB AND SAND FILL UNDERNEATH. WHEN REPLACING THE SLAB, BLOCK OUT AROUND I BEAM, FILL SEPARATELY.



1 / C-101 CIVIL UTILITY IMPROVEMENTS FOR B1
SCALE: 1/16" = 1' - 0"

AS RECORDED
Date Mar 18th, 2024

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35% DESIGN

PROJECT INFORMATION
WWYK160073
REPAIR FIRE RISER,
SE CORNER, BUILDING 1 (FSD1)
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION
1	6/13/2022	CHANGES TO ANSWER RFI 1
2	12/06/2022	CIVIL REVISION

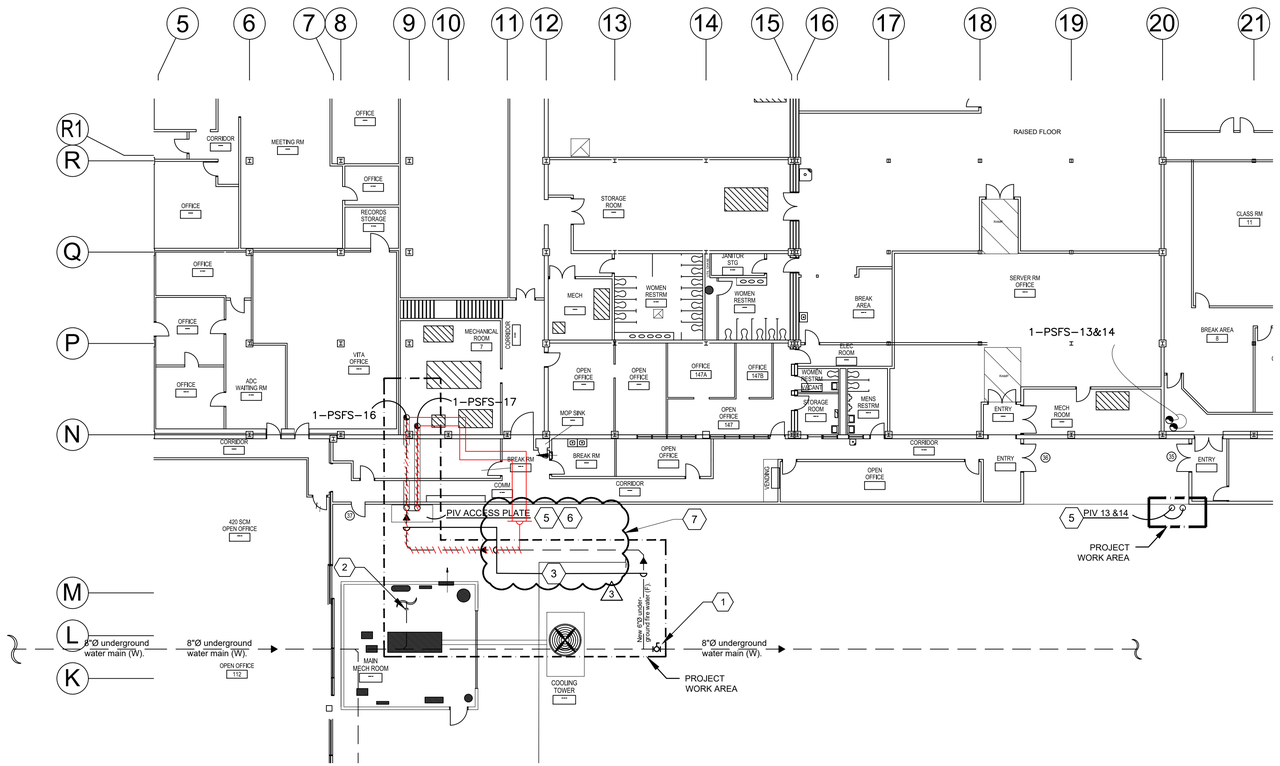
MANAGEMENT INFORMATION

ISSUE DATE:	8/14/2021
DESIGN GROUP:	THDR SRM
DESIGNED BY:	L. RODRIGUEZ
DRAWN BY:	K. LEE
CHECKED BY:	R. LANE
DESIGN FILE LOCATION:	\Engr\Design\2010s\2016\20160073\0_Support\0_3_Drawings

SHEET TITLE
CIVIL SITE | UTILITY IMPROVEMENTS

SHEET NUMBER
1 C-101

SHEET 02 OF 05



N

1 / FP-101 PARTIAL FIRE PROTECTON PLAN FOR B1

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

GENERAL NOTES:

1.	SAFETY DEFICIENCIES IN EXISTING FACILITIES: EXISTING FACILITIES REQUIRING CORRECTION OF ANY FIRE SAFETY DEFICIENCY SHALL COMPLY WITH AIR FORCE INSTRUCTION 32-10141 (3 MARCH 2011) - PLANNING AND PROGRAMMING FIRE SAFETY DEFICIENCY CORRECTION PROJECTS.
2.	THE DRAWINGS, NOTES AND SPECIFICATIONS FOR THE WORK AREA ARE INTENDED TO PROVIDE GENERAL GUIDELINES AND REQUIREMENTS FOR THE NECESSARY REMOVAL, REPLACEMENT, RELOCATION AND REPAIR WORK WITHIN THE WORKING AREA FOR FIRE PROTECTION.
3.	DURING THE BIDDING PERIOD, EACH BIDDING CONTRACTOR SHALL VISIT THE SITE AND FACILITY TO DETERMINE THE EXISTING CONDITIONS INVOLVED IN AND EXPECTED BY THE WORK INDICATED BY ALL CONTRACT DOCUMENTS. CONTRACTOR'S FAILURE TO REASONABLE DETERMINE AND/OR ANTICIPATE THE EFFECT OF EXISTING CONDITIONS AND THE WORK INVOLVED THEREBY SHALL NOT BE JUSTIFICATION FOR ADDITIONAL COMPENSATION.
4.	THE EXISTING WET PIPE FIRE SUPPRESSION SYSTEM WILL REMAIN IN USE AFTER REPAIRS TO THE THE EXISTING PSFS 16 AND PSFS 17 RISERS AND RELOCATION OF THE UNDERGROUND PIPING CONNECTIONS IN THE WORK AREA.
5.	SHUT OFF WATER SERVING PIV 13, 14, 16, AND 17 BEFORE STARTING ANY REPAIRS.
6.	EXISTING PIPING, HYDRANT, GASKETS, AND FITTINGS SHALL BE CLEANED AND INSPECTED IN ACCORDANCE WITH CURRENT NFPA 25 FOR ANY DAMAGE BEFORE PROCEEDING IN REPAIR WORK. THE CONTRACTOR SHALL NOTIFY THE GOVERNMENT FOR ANY CHANGE.
7.	THE CONTRACTOR SHALL DEMOLISH AND REPLACE COMPLETELY THE FIRE-SUPPRESSION DELUGE VALVE, PRESSURE GAUGES, PRESSURE REDUCING VALVE, CHECK VALVE, FLOW SWITCH, PRESSURE RELIEF VALVE, INSPECTOR TEST VALVES, AUXILIARY DRAIN VALVE AND AIR COMPRESSOR FOR DRY PIPE SYSTEM COMPLETELY FOR RISERS PSFS 16 AND PSFS 17.
8.	BACKFILL MATERIAL SHALL BE TAMPED IN LAYERS OR IN PUDDLES UNDER AND AROUND PIPES TO PREVENT SETTLEMENT OR LATERAL MOVEMENT AND SHALL CONTAIN NO ASHES, CINDERS, REFUSE, ORGANIC MATTER, OR OTHER CORROSIVE MATERIALS. ROCKS SHALL NOT BE USED FOR BACKFILL.
9.	AFTER COMPLETION OF WORK, THE CONTRACTOR SHALL PROVIDE A HYDROSTATIC TEST IN ACCORDANCE WITH CURRENT NFPA 25 PARAGRAPH 10.10.2.2.

APPLICABLE CODES AND STANDARDS:

FIRE PROTECTION:

- NFPA 1	FIRE CODE
- NFPA 13	STANDARD FOR THE INSTALLATION OF AUTOMATIC SPRINKLER PROTECTION
- NFPA 24	STANDARD FOR INSTALLATION OF PRIVATE FIER SERVICE MAINS AND THEIR APPURTENANCES
- NFPA 25	STANDARD FOR THE INSPECTION , TESTING, AND MAINTENANCE OF WATER - BASED FIRE PROTECTION SYSTEMS
- NFPA 51B	STANDARD FOR FIRE PREVENTION DURING WELDING, CUTTING, AND OTHER HOT WORK
- NFPA 72	NATIONAL FIRE ALARM CODE
- NFPA 241	STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERNATION, AND DEMOLITION OPERATIONS
- UFC 3-600-01	FIRE PROTECTION ENGINEERING FOR FACILITIES (8 AUG 2016, WITH CHANGE 2).
- UFC 3-601-02	OPERATION AND MAINTENANCE: INSPECTION, TESTING AND MAINTENANCE OF FIRE PROTECTION SYSTEMS (8 SEP. 2010).
- UFC 4-021-01	DESIGN AND O&M: MASS NOTIFICATION SYSTEMS (9 APR., 2008, WITH CHANGE 1).

SYMBOL LEGEND:

— — F — —	NEW UNDERGROUND FIRE PIPING.
— — — —	EXISTING UNDERGROUND WATER/FIRE PIPING.
-X- -X- -X-	THE EXISTING UNDERGROUND FIRE PIPING TO BE DISCONNECTED FROM PIV 16 & 17 AND FROM THE EXISTING 8"Ø MAIN WATER LINE. BOTH ENDS CAPPED AND PIPE ABANDONED IN PLACE.
- - - - - -	WORK AREA BOUNDARY

KEY NOTES:

1	THE EXISTING 8-INCH SHUT OFF VALVE TO BE THE POINT OF DEMARCATION FOR OCWUT CONTROL.
2	TEMPORARILY REMOVE THE SUPPORT FOR THE BACKFLOW PREVENTER IN ORDER TO SAW CUT THE FLOOR AND CAP THE EXISTING 6"Ø WATER SUPPLY LINE MIDWAY BETWEEN THE CHILLER AND THE MECHANICAL ROOM WALL. THE SMALL RUN UNDER THE CHILLER SHALL BE ABANDONED IN PLACE.
3	FURNISH AND INSTALL NEW 6"Ø UNDERGROUND FIRE WATER PIPE ROUTE IN ACCORDANCE WITH CURRENT NFPA 24 TO FEED THE EXISTING POST INDICATOR VALVES PIV 16 & PIV 17. CONNECT TO THE EXISTING 8"Ø UNDERGROUND WATER MAIN LINE ON THE EXTERIOR OF THE BUILDING AS SHOWN. ALL PIPING USED IN NEW FIRE SERVICE LINES SHALL BE IN ACCORDANCE WITH CURRENT NFPA 24 PARAGRAPH 10.1.1.1, 10.1.1.2, OR 10.1.1.3.
4	NOT USED.
5	DEMOLISH AND REPLACE IN KIND POST INDICATOR VALVES PIV 13, AND PIV 14.
6	DEMOLISH IN KIND POST INDICATOR VALVES PIV 16, AND PIV 17.
7	SEE AME-101 FOR ADDITIONAL DETAILS.

AS RECORDED

Date Mar 18th, 2024

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE

TINKER AFB, OK

35% DESIGN

PROJECT INFORMATION:

WWYK160073
REPAIR FIRE RISER,
SE CORNER, BUILDING 1 (FSD1)

TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION
1	6/13/2022	CHANGES TO ANSWER RFI 1
2	12/06/2022	CIVIL AND ELECTRICAL REVISION

MANAGEMENT INFORMATION

ISSUE DATE: 4/14/2021
DESIGN GROUP: THDR SRM
DESIGNED BY: S. TAWFIK
DRAWN BY: S. TAWFIK
CHECKED BY: A. ARMSTRONG
DESIGN FILE LOCATION:
\Engr\Design\2010s\2016\20160073\0_Support\0_3_Drawings

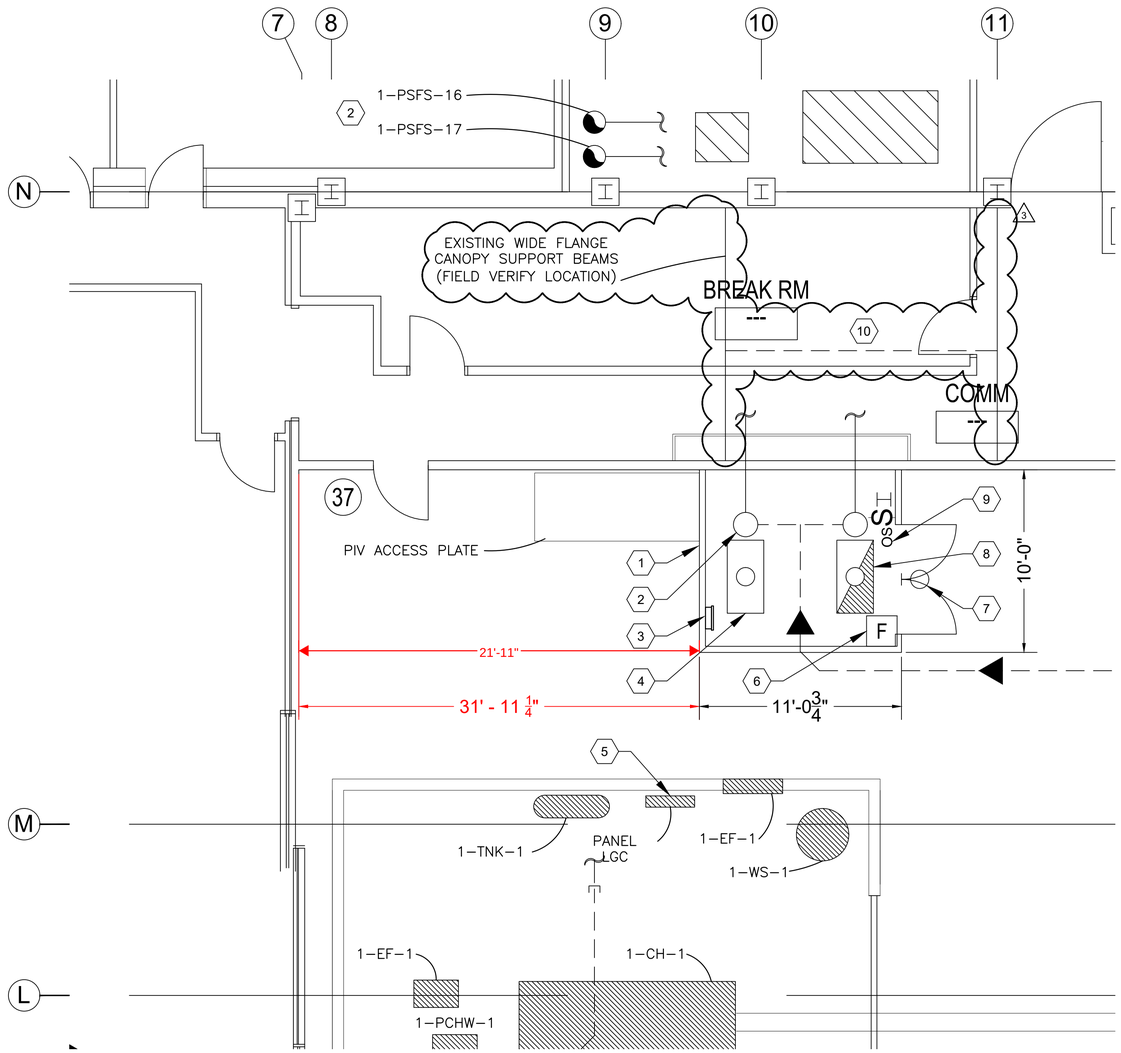
SHEET TITLE:

PARTIAL FIRE PROTECTION PLAN, B1

SHEET NUMBER

1 FP-101

SHEET 03 OF 05



N

1
AME-101

PARTIAL FIRE PROTECTON PLAN FOR B1

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

GENERAL NOTES:	
1.	DIMENSIONS ARE APPROXIMATE. VERIFY ALL DIMENSIONS IN THE FIELD AND COORDINATE WITH THE PRE-FABRICATE WALL PANEL MANUFACTURER PRIOR TO ORDERING.

SYMBOL LEGEND:	
— — —	EXISTING / NEW UNDERGROUND WATER / FIRE PIPING.

KEY NOTES:	
1	NEW FIRE RISER ROOM FROM PRE-FABRICATED WALL PANELS.
2	DEMOLISH ALL COMPONENTS OF THE FIRE RISERS (PSFS-16 AND PSFS-17) IN THE MECHANICAL ROOM. REPLACE IN-KIND ALL RISER COMPONENTS IN THE NEW FIRE FIRE RISER ROOM. SEE DRAWING FP-501 FOR THE LIMITS OF MOVED ITEMS.
3	INSTALL TRANE MODEL UHAA15xxx 1.5kW ELECTRIC UNIT HEATER OR SIMILAR IN THE NEW FIRE RISER ROOM.
4	2' X 4' LED CABLE SUSPENDED COLUMBIA LIGHTING LLHV4-40H-WST-EU-LHVQM10 VOLTAGE - 120
5	ELECTRICAL PANEL LCG
6	FIRE ALARM PULL STATION
7	EXTERNAL LED WALL LUMINAIRE MANUFACUTURER - LITHONIA LIGHTING, CATALOG NUMBER - TWH-LED 30C 1000 40K T3M MVOLT PE DDBXD, TYPE - LED, LUMENS - 4000, VOLTAGE - 120.
8	2' X 4' LED CABLE SUSPENDED COLUMBIA LIGHTING LLHV4-40H-WST-EU-LHVQM10-LL14 VOLTAGE - 120
9	OCCUPANCY SENSOR MANUFACTURER - LUTRON, CATALOG NUMBER - LOS-CDT-2000-WH
10	INSTALL NEW FIRE PROTECTION BEAM SUPPORTS.

AS RECORDED

Date Mar 18th, 2024

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35% DESIGN

PROJECT INFORMATION
WWYK160073
REPAIR FIRE RISER,
SE CORNER, BUILDING 1 (FSD1)
TINKER AIR FORCE BASE, OKLAHOMA

MANAGEMENT INFORMATION
ISSUE DATE: 12/6/2022
DESIGN GROUP: THDR SRM
DESIGNED BY: THDR GROUP
DRAWN BY: A. ARMSTRONG
CHECKED BY: A. ARMSTRONG
DESIGN FILE LOCATION:
\Engr\Design\2010s\2016\201600730_Support\0_3_Drawings

REVISIONS

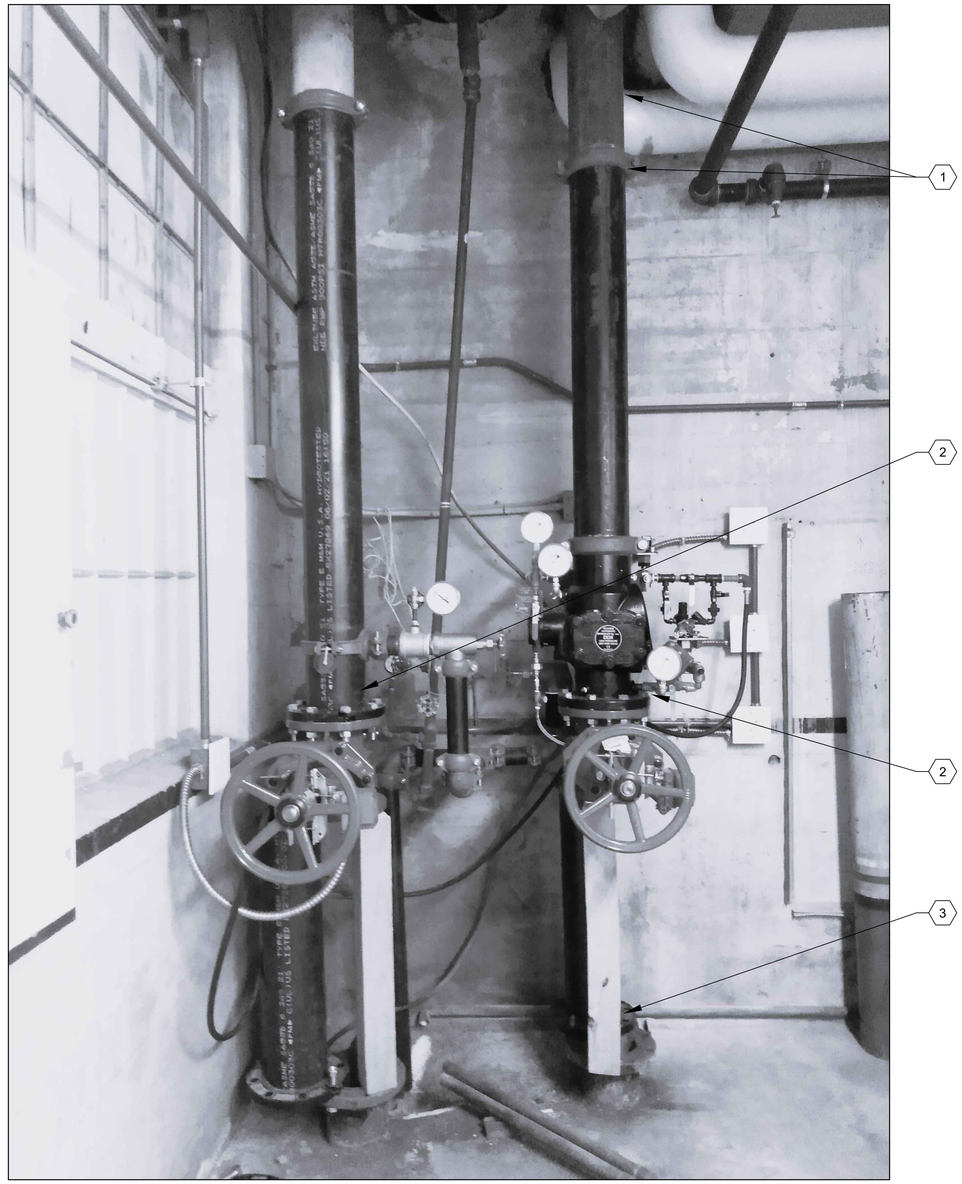
MARK	DATE	DESCRIPTION
1	12/06/2022	CIVIL AND ELECTRICAL REVISION

SHEET TITLE
ARCHITECTURAL, MECHANICAL, ELECTRICAL FOR NEW FIRE RISER ROOM

SHEET NUMBER
AME-101

SHEET 04 OF 05

KEY NOTES:	
1	TIE NEW PIPING FROM THE NEW FIRE RISER ROOM TO THE EXISTING PIPING IN THE MECHANICAL ROOM ABOVE THE EXISTING COUPLING.
2	REMOVE THE FIRE RISERS, TAMPER SWITCHES, AND OTHER ASSOCIATED ITEMS FROM THE UPPER COUPLING (NOTE 1) TO THE FLOOR FLANGE (NOTE 3). REINSTALL COMPLETE ASSEMBLY TO THE NEW FIRE RISER ROOM ON THE DOCK. SEE DRAWING AME-101.
3	CAP AND SEAL THE FLANGES AT THE FLOOR PENETRATION. ABANDON-IN-PLACE THE EXISTING UNDERFLOOR FIRE LINES.



1 / FP-501 FIRE RISER DETAIL
SCALE: N/A

AS RECORDED
Date Mar 18th, 2024

AIR FORCE MATERIEL COMMAND
72 ABW CIVIL ENGINEER DIRECTORATE
TINKER AFB, OK

35% DESIGN

PROJECT INFORMATION
WWYK160073
REPAIR FIRE RISER,
SE CORNER, BUILDING 1 (FSD1)
TINKER AIR FORCE BASE, OKLAHOMA

REVISIONS

MARK	DATE	DESCRIPTION

MANAGEMENT INFORMATION

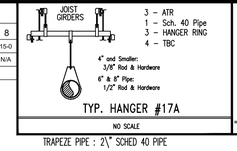
ISSUE DATE:	12/20/2022
DESIGN GROUP:	THDR SRM
DESIGNED BY:	THDR GROUP
DRAWN BY:	A. ARMSTRONG
CHECKED BY:	A. ARMSTRONG
DESIGN FILE LOCATION:	\Engr\Design\2010s\2016\2016007\30_Support\0_3_Drawings

SHEET TITLE
FIRE RISER DETAIL

SHEET NUMBER
FP-501

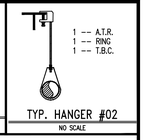
SHEET 05 OF 05

Maximum Distance Between Hangers (ft-in.)									
	1	1 1/4	1 1/2	2	2 1/2	3	4	6	8
Steel pipe except threaded lightwall	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
Threaded lightwall steel pipe	12-0	12-0	12-0	12-0	12-0	12-0	N/A	N/A	N/A



TYP. HANGER #17A

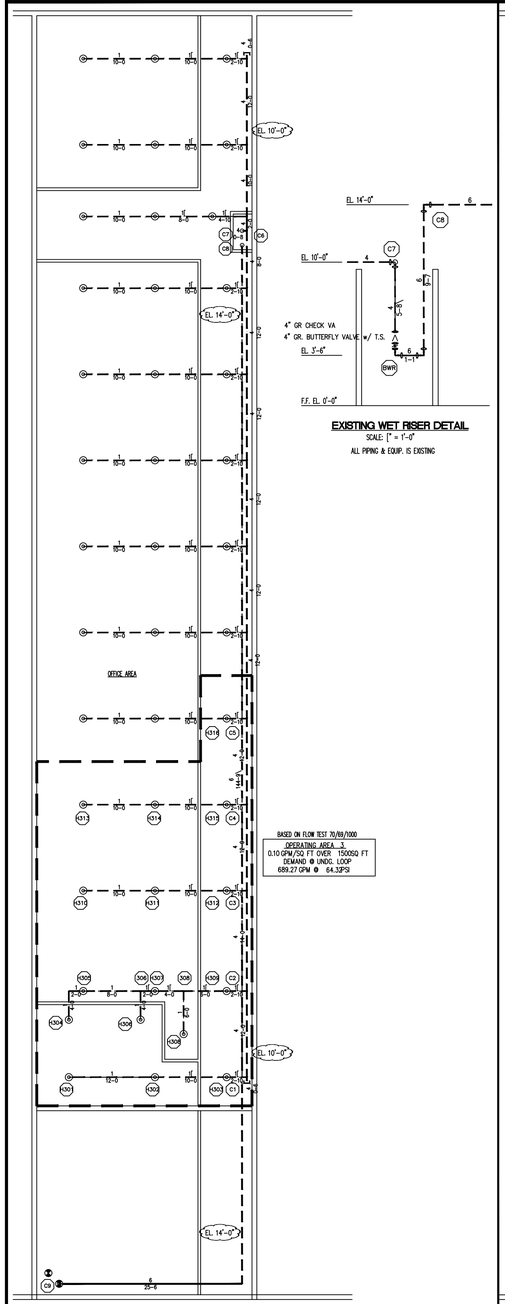
NO SCALE



TYP. HANGER #02

NO SCALE

TRAPEZE PIPE : 2½" SCHED 40 PIPE

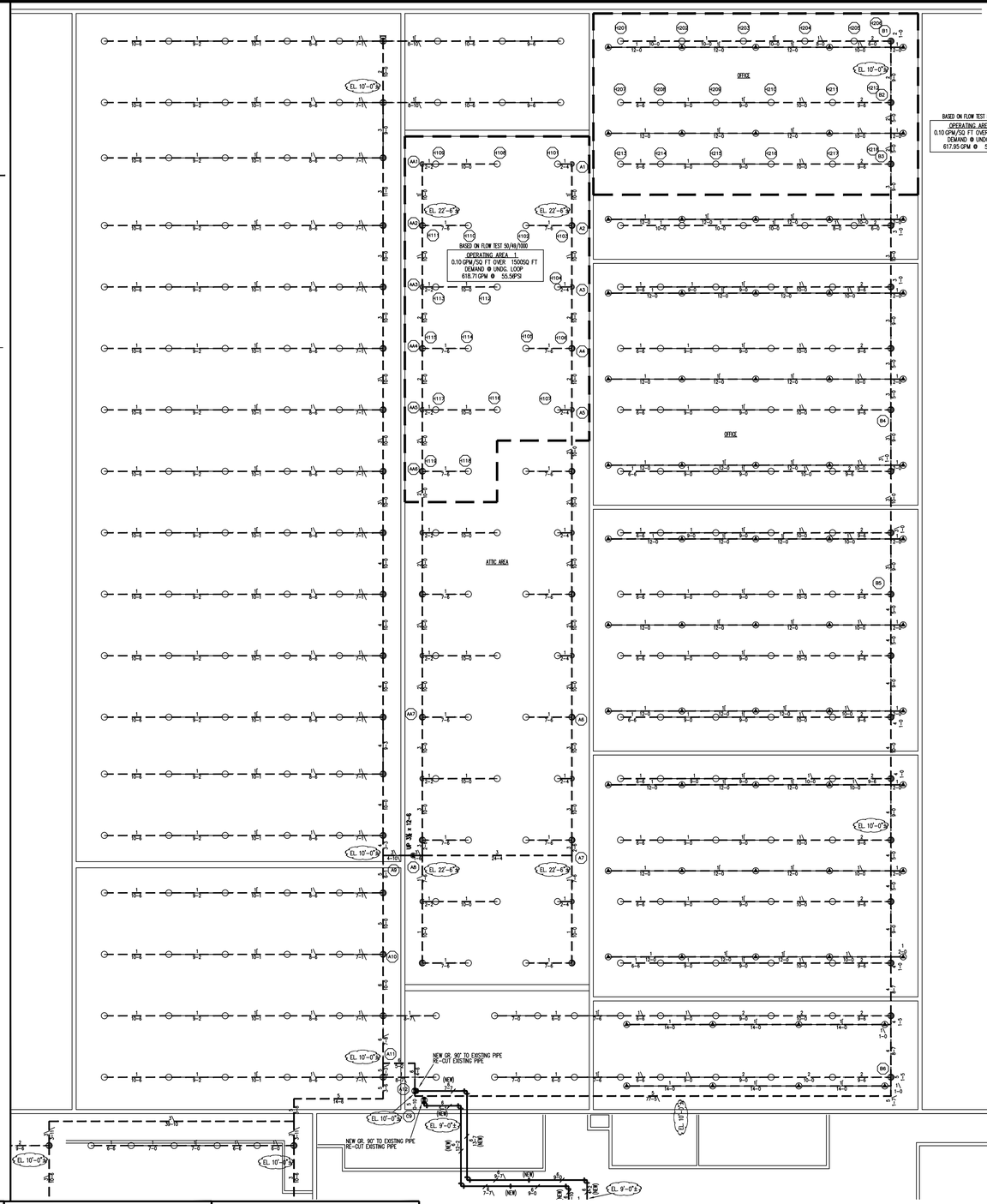


WET SYSTEM:
ALL PIPING AND EQUIPMENT IS EXISTING U.N.O.

EXISTING WET RISER DETAIL

SCALE: 1" = 1'-0"

ALL PIPING & EQUIP. IS EXISTING

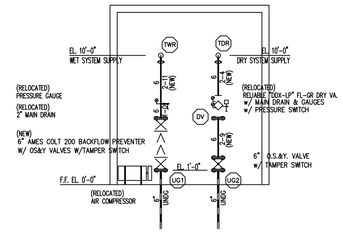


DRY SYSTEM:
ALL PIPING AND EQUIPMENT IS EXISTING U.N.O.
NEW HANGERS TO BE SPACED PER NFPA-13

EXISTING PIPE

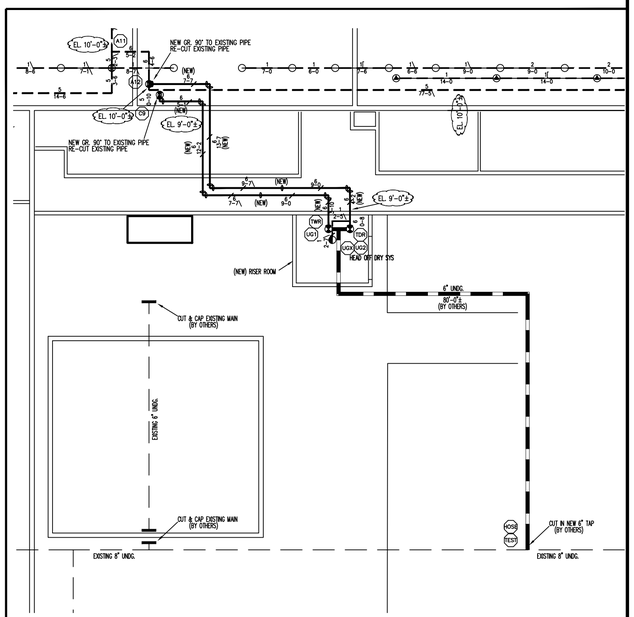
NEW PIPE

BASED ON FLOW TEST 50/49/1000
OPERATING AREA 2
0.10 GPM/SQ FT OVER 1500SQ FT
DEMAND @ UNDG. LOOP
617.95 GPM @ 56.13PSI



NEW RISER ROOM RISER DETAIL

SCALE: 1" = 1'-0"



NEW UNDG. PLAN

DESIGN CRITERIA:

CURRENT SYSTEM ANALYSIS PLAN
PER NFPA-13, 2016 EDITION, LIGHT HAZARD:
0.10 GPM/SQ. FT. FOR 1950 SQ. FT. + 100 GPM FOR HOSES.

MECH. / ELEC. / JANITOR ROOMS:
SPACED PER NFPA-13, 2016 EDITION, ORDINARY HAZARD

PIPE TYPE:

NEW PIPING:
ALL PIPING TO BE BLACK SCHED 40

EXISTING PIPING:
ALL PIPING IS BLACK SCHED 40

CONSTRUCTION:

EXISTING STEEL BEAM, JOIST CONSTRUCTION

WET SYSTEM KEY PLAN:
NO SCALE

DRY SYSTEM KEY PLAN:
NO SCALE

AS RECORDED
Date Mar 18th, 2024

NORTH

OKLAHOMA FIRE PROTECTION
405-613-1414
INSTALLATION INSPECTIONS SERVICE MAINTENANCE REPAIRS

PO BOX 8129
MOORE, OK. 73153
PH: (405) 613-1414
FAX: (405) 635-9721
LICENSE. #440649

NICET CERTIFIED
Brian Skalla
NICET IV 102668

General Notes

– Oklahoma Fire Protection shall install a complete fire sprinkler system per UFC 3-600-01, 2016 / N.F.P.A 13 2016 ED. / A.H.J.
– All existing systems are hydraulically calculated.
– All fittings to be 125 lbs. class.
– All materials shall be listed and approved for fire protection use.
– All underground work is provided and installed by others.

6. The F.D.C. is to be within 100'-0" of a fire hydrant.
8. All hangers to be spaced per NFPA-13.
9. All heads with 30° of diffusers to be Intermediate temperature.
10. All elevations are noted on the section and plan view this sheet.
11. All ceiling heights, pendent head locations and room names are noted on the reflected ceiling plan this sheet.

Symbols

Symbol	Description
○	Hydraulic Reference Points
[18 mg] / ℄	Elev. Below Top of Steel
[8-#3] EL.	Elev. Above Finished Floor
+ (TOS 20-0	Elev. of Top of Steel
⟨20⟩	Ceiling Height
⟋⟍	Denotes Hanger Location
o	Rise up or down

INSPECTOR'S CHECKLIST

Number of Sprinklers

Total This Sheet: 1					Total This Job: 1	
Sym.	Quant.	SIN #	Temp.	K#	Description	
◎	–	–	–	5.6	EXISTING RECESSED CHROME PENDENT (WET SYSTEM)	
○	–	–	–	5.6	EXISTING BRASS UPRIGHT	
ⓐ	–	–	–	5.6	EXISTING RECESSED CHROME PENDENT (DRY SYSTEM)	
◐	1	V3402	200°	8.0	(NEW) TYL-QR QR, BRASS UPRIGHT	
◀	11	RA1435	155°	5.6	TYFB 56" QR, BRASS HOR. SIDEWALL	

GRAPHIC SCALE: 0 8 16

Contract No. 21-596

Drawn By B&K

Scale 1/8" = 1'-0"

Date 9-20-2023

Approval By AHJ

Revisions:	Date:
ADDED HANGER LOCATIONS / DETAILS	1-31-2024

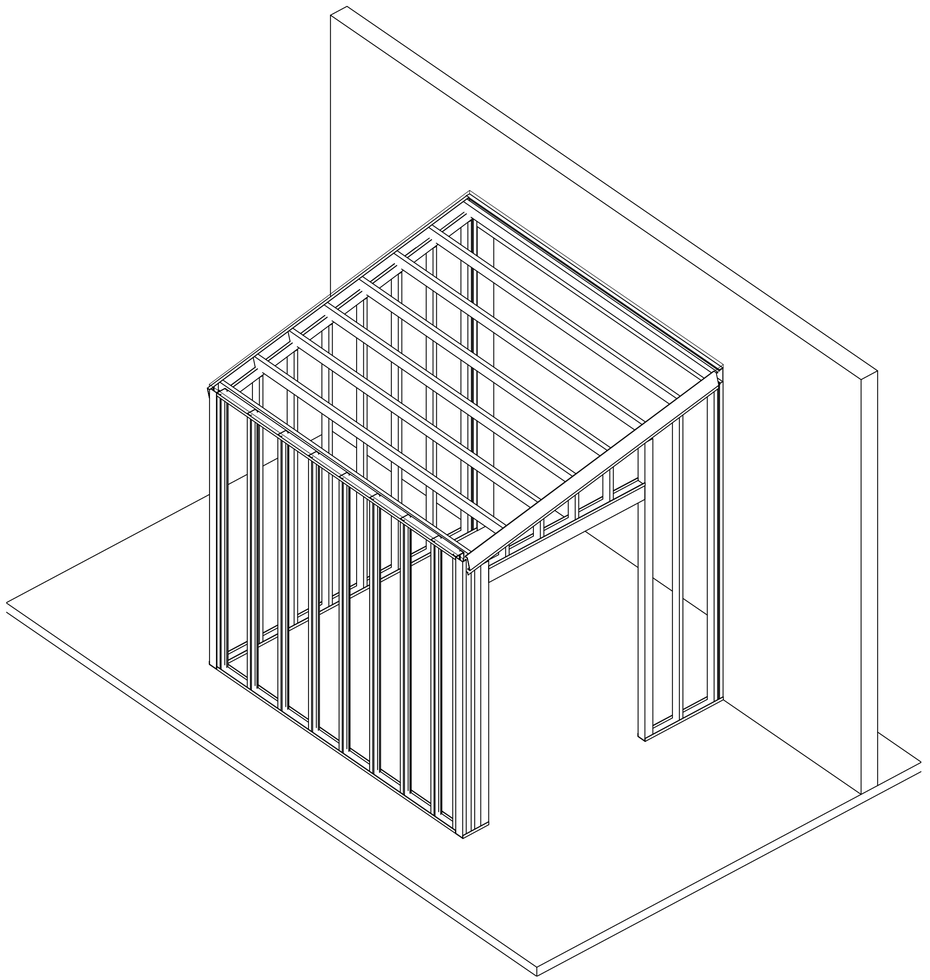
Job:
TAFB – BLDG. 1 (WWYK160073)
REPAIR FIRE RISER (SE CORNER)
RISERS #16 & #17
TINKER AIR FORCE BASE, OK

Contractor:
NATIVE STAR GROUP
2350 S. MIDWEST BLVD.
MIDWEST CUTY, OK 73110

SHEET 1 OF 1

Fire Riser Building

Tinker Airforce Base,
Oklahoma City, OK 73145



CFMF Design Loads:

Codes:
2018 International Building Code
ASCE7-16 Minimum Design Loads for Buildings
2016 AISI Cold Form Framing Standards

Wall Stud Deflection Criteria:
All Walls: L/360
(0.42 x wind load is used for deflection calculations
per IBC Table 1604.3 footnote f.)

Design Loads
Roof Dead Load: 15psf
Balanced Roof Snow Load: 7psf + Drift

Design Wind Load
Ultimate Wind Speed: 109 mph
Exposure Type: B
Risk Category: II

Design Component and Cladding Wind Pressures (Ult.):

Eff. Area=50SF	Walls	Parapets
Zone 4:	18psf	36psf
Zone 5:	20psf	40psf

Notes: 1/3 span used as minimum effective area per ASCE7
Corner zone = area within 4ft of a corner

AS RECORDED
Date Mar 18th, 2024

Drawing List

Sheet Number	Sheet Name
CF0.1	Title Page
CF1.0	Floor Plan & Elevations
CF2.0	Typical Details
CF2.2	Typical Details
CF3.0	Sections & Opening Details

HOFFMAN CONSULTANTS
4180 44th Street SE - Suite G
Kentwood, Michigan 49512
p. (616) 827.1586
www.hoffmanconsultants.com
STRUCTURAL ENGINEERING & DETAILING
© Hoffman Consultants

HALL Construction Inc.

Fire Riser Building
Tinker Airforce Base,
Oklahoma City, OK 73145

DESCRIPTION: FOR APPROVAL
DATE: 12-07-2023

SEAL:

FOR APPROVAL NOT FOR CONSTRUCTION

TITLE: Title Page

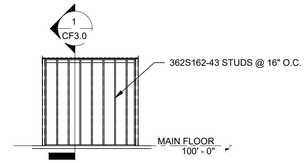
DRAFTER: PM CHECKER: BG ENGINEER: PM/HK
DATE PLOTTED: 3/19/2024 8:07:20 AM

FILE NUMBER : 23866

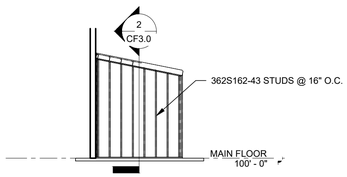
DRAWING NUMBER : CF0.1

GENERAL SHEET NOTES:

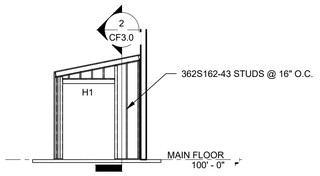
1. HILTI X-U CONCRETE MIN. EMBEDMENT: 1.00" MIN., U.N.O.
2. HILTI X-U STEEL MIN. EMBEDMENT:
   STEEL THICKNESS < 3/4": FULL THICKNESS
   STEEL THICKNESS ≥ 3/4": 3/8"
3. COLD FORMED STEEL STRENGTH REQUIREMENTS:
   33 MIL (20 GAGE) SHALL BE Fy = 33KSI
   43 MIL (18 GAGE) SHALL BE Fy = 33KSI
   54 MIL (16 GAGE) SHALL BE Fy = 50KSI
   68 MIL (14 GAGE) SHALL BE Fy = 50KSI
   97 MIL (12 GAGE) SHALL BE Fy = 50KSI
   118 MIL (10 GAGE) SHALL BE Fy = 50KSI
4. FASTEN SHEATHING TO STUDS, TOP & BOTTOM TRACKS (NOT DEFLECTION TRACK) @ 12" O.C. MAX., U.N.O.
5. HEADER, SILL AND JAMB MEMBERS SHALL NOT BE SPLICED, PROVIDE CONTINIOUS
6. DOUBLE STUDS, AND STUD/TRACK COMBINATIONS SHALL BE ANCHORED TOGETHER w/ (2) #8 SCREWS @ 24" O.C.
7. TRACKS ARE TO BE FASTENED TO BOTH FLANGES OF EACH STUD WITH MINIMUM #8 SCREWS U.N.O.



C CF1.0 CF1.0 East Elevation
SCALE: 1/8" = 1'-0"

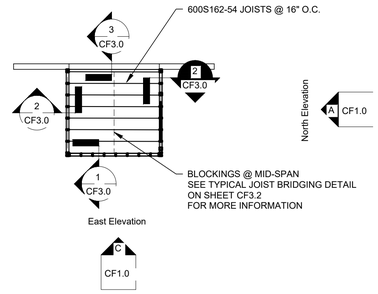


B CF1.0 CF1.0 South Elevation
SCALE: 1/8" = 1'-0"



A CF1.0 CF1.0 North Elevation
SCALE: 1/8" = 1'-0"

CF1.0 B South Elevation



North Elevation A CF1.0

N Floor Plan
SCALE: 1/8" = 1'-0"

AS RECORDED
Date Mar 18th, 2024

HOFFMAN CONSULTANTS
4180 44th Street SE - Suite G
Kentwood, Michigan 49512
p. (616) 827 1586
www.hoffmanconsultants.com
STRUCTURAL ENGINEERING & DETAILING
© Hoffman Consultants

HALL Construction Inc.

Fire Riser Building

Tinker Airforce Base,
Oklahoma City, OK 73145

DATE	DESCRIPTION
12-07-2023	FOR APPROVAL

SEAL:

FOR APPROVAL NOT FOR CONSTRUCTION

TITLE: Floor Plan & Elevations

DATE PLOTTED: 3/19/2024 8:07:21 AM
DRAFTER: PM CHECKER: BG ENGINEER: PM/HK

FILE NUMBER : 23866

DRAWING NUMBER : CF1.0

GENERAL SHEET NOTES:

1. HILTI X-U CONCRETE MIN. EMBEDMENT: 1.00" MIN., U.N.O.
2. HILTI X-U STEEL MIN. EMBEDMENT:
   STEEL THICKNESS < 3/4": FULL THICKNESS
   STEEL THICKNESS ≥ 3/4": 3/8"
3. COLD FORMED STEEL STRENGTH REQUIREMENTS:
   33 MIL (20 GAGE) SHALL BE Fy = 33KSI
   43 MIL (18 GAGE) SHALL BE Fy = 33KSI
   54 MIL (16 GAGE) SHALL BE Fy = 50KSI
   68 MIL (14 GAGE) SHALL BE Fy = 50KSI
   97 MIL (12 GAGE) SHALL BE Fy = 50KSI
   118 MIL (10 GAGE) SHALL BE Fy = 50KSI
4. FASTEN SHEATHING TO STUDS, TOP & BOTTOM TRACKS (NOT DEFLECTION TRACK) @ 12" O.C. MAX., U.N.O.
5. HEADER, SILL AND JAMB MEMBERS SHALL NOT BE SPLICED, PROVIDE CONTINIOUS
6. DOUBLE STUDS, AND STUD/TRACK COMBINATIONS SHALL BE ANCHORED TOGETHER w/ (2) #8 SCREWS @ 24" O.C.
7. TRACKS ARE TO BE FASTENED TO BOTH FLANGES OF EACH STUD WITH MINIMUM #8 SCREWS U.N.O.

AS RECORDED
Date Mar 18th, 2024

HOFFMAN CONSULTANTS
4180 44th Street SE - Suite G
Kentwood, Michigan 49512
p. (616) 827 1586
www.hoffmanconsultants.com
STRUCTURAL ENGINEERING & DETAILING
© Hoffman Consultants

HALL Construction Inc.

Fire Riser Building

Tinker Airforce Base,
Oklahoma City, OK 73145

DATE	DESCRIPTION
12-07-2023	FOR APPROVAL

SEAL:

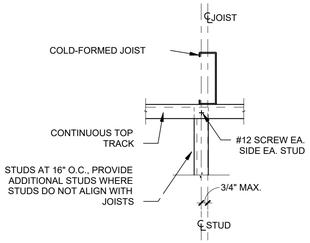
FOR APPROVAL NOT FOR CONSTRUCTION

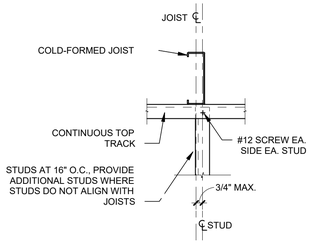
TITLE: Typical Details

DATE PLOTTED: 3/19/2024 8:07:22 AM
DRAFTER: PM CHECKER: BG ENGINEER: PM/HK

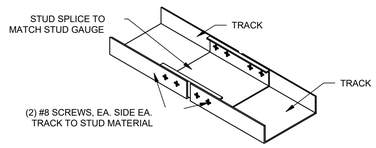
FILE NUMBER : 23866

DRAWING NUMBER : CF2.0

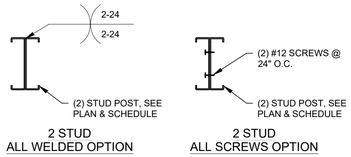




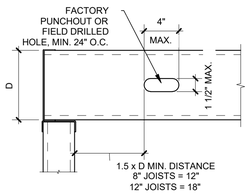
Joist Bearing Tolerances
SCALE: N.T.S.



Typical Track Splice Detail
SCALE: N.T.S.



Double Stud Connection Detail
SCALE: N.T.S.

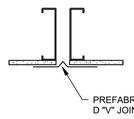


Joist Punchout Requirements
SCALE: N.T.S.

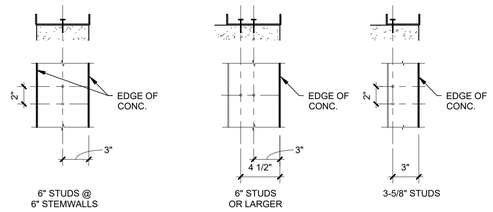
GYPSUM BOARD CONTROL JOINT NOTES (PER ASTM C840)

PROVIDE CONTROL JOINTS AS REQ'D. BELOW:
WALLS: MAX. 30'-0" O.C.
CEILING: MAX. 50'-0" O.C. WITH PERIMETER RELIEF
MAX. 50'-0" O.C. WITHOUT PERIMETER RELIEF

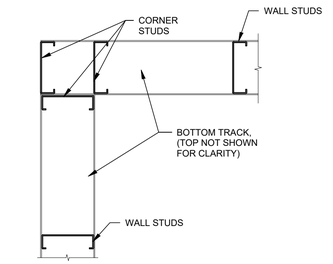
PROVIDE DOUBLE FRAMING MEMBERS @ JOINTS, TYP.



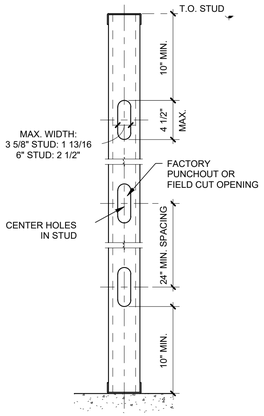
Gypsum Board Control Joint
SCALE: N.T.S.



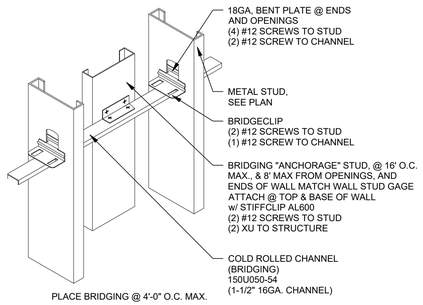
Minimum Edge Distances
SCALE: N.T.S.



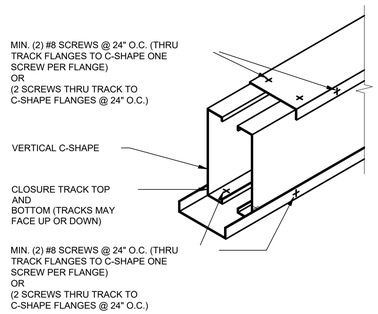
Typical Corner Framing Detail
SCALE: N.T.S.



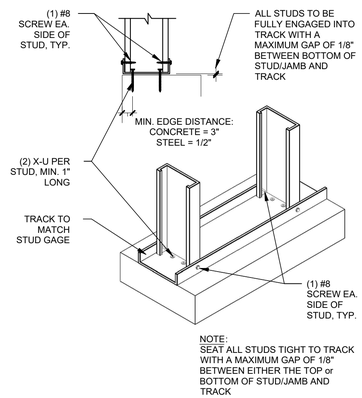
Bearing Stud Punchout Requirements
SCALE: N.T.S.



Bearing Wall Channel Bridging Detail
SCALE: N.T.S.



Typical Header Assembly
SCALE: N.T.S.

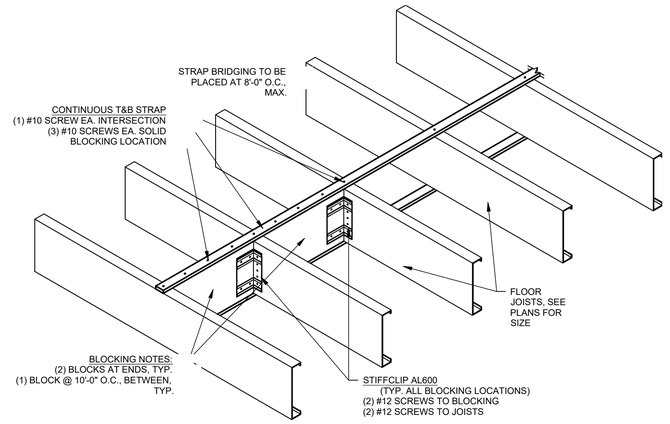


NOTE:
SEAT ALL STUDS TIGHT TO TRACK WITH A MAXIMUM GAP OF 1/8" BETWEEN EITHER THE TOP or BOTTOM OF STUD/JAMB AND TRACK

Typical Stud to Track Connection Detail
SCALE: N.T.S.

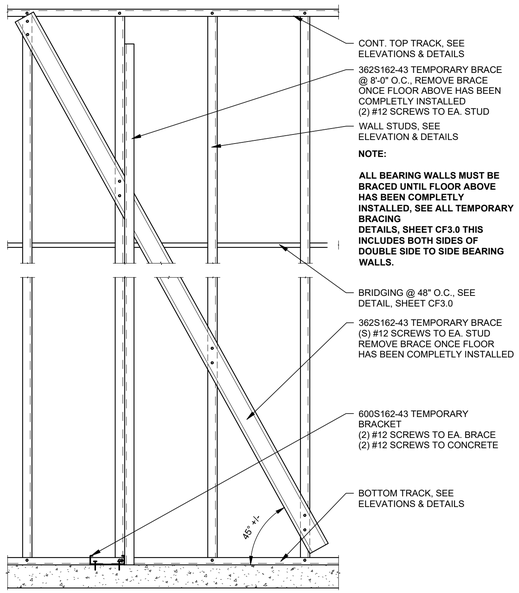
GENERAL SHEET NOTES:

1. HILTI X-U CONCRETE MIN. EMBEDMENT: 1.00" MIN., U.N.O.
2. HILTI X-U STEEL MIN. EMBEDMENT:
   STEEL THICKNESS < 3/4": FULL THICKNESS
   STEEL THICKNESS ≥ 3/4": 3/8"
3. COLD FORMED STEEL STRENGTH REQUIREMENTS:
   33 MIL (20 GAGE) SHALL BE Fy = 33KSI
   43 MIL (18 GAGE) SHALL BE Fy = 33KSI
   54 MIL (16 GAGE) SHALL BE Fy = 50KSI
   68 MIL (14 GAGE) SHALL BE Fy = 50KSI
   97 MIL (12 GAGE) SHALL BE Fy = 50KSI
   118 MIL (10 GAGE) SHALL BE Fy = 50KSI
4. FASTEN SHEATHING TO STUDS, TOP & BOTTOM TRACKS (NOT DEFLECTION TRACK) @ 12" O.C. MAX., U.N.O.
5. HEADER, SILL AND JAMB MEMBERS SHALL NOT BE SPLICED, PROVIDE CONTINIOUS
6. DOUBLE STUDS, AND STUD/TRACK COMBINATIONS SHALL BE ANCHORED TOGETHER w/ (2) #8 SCREWS @ 24" O.C.
7. TRACKS ARE TO BE FASTENED TO BOTH FLANGES OF EACH STUD WITH MINIMUM #8 SCREWS U.N.O.



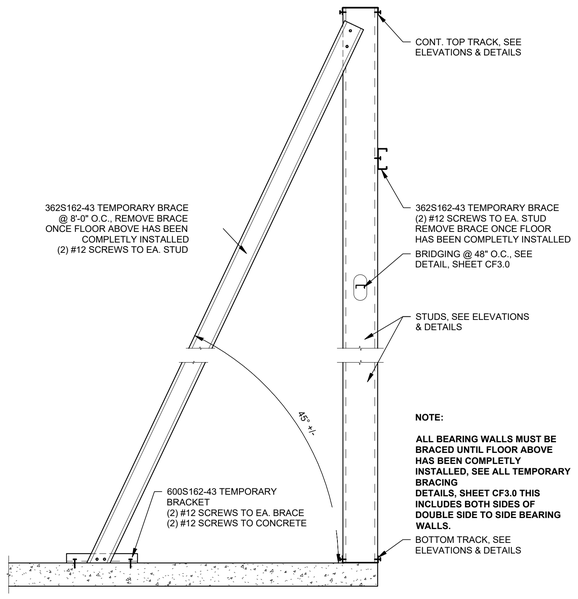
Typical Joist Bridging Detail

SCALE: N.T.S.



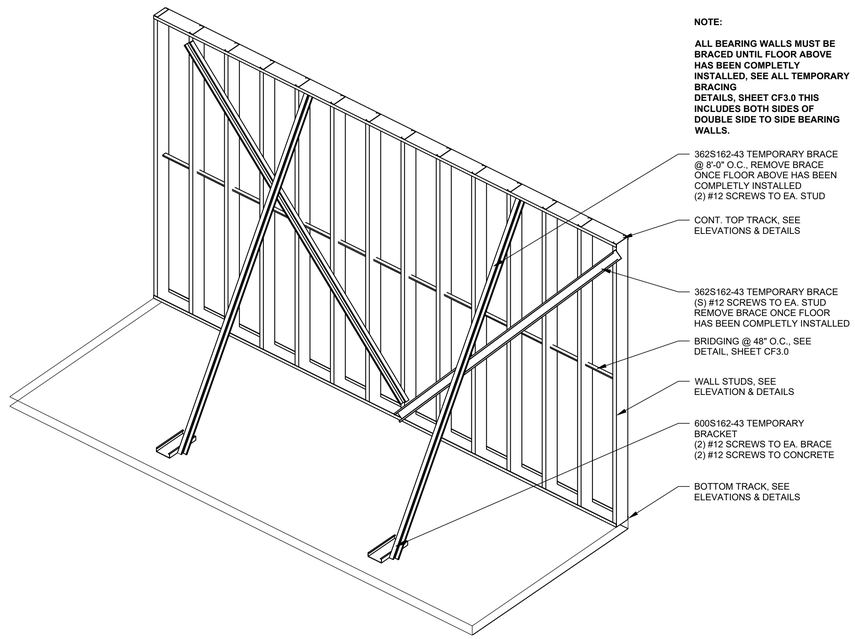
Temporary Bracing Side Detail

SCALE: N.T.S.



Temporary Bracing Detail

SCALE: N.T.S.



Temporary Bracing Isometric

SCALE: N.T.S.

AS RECORDED
Date Mar 18th, 2024

HOFFMAN CC SULTANTS
4180 44th Street SE - Suite G
Kentwood, Michigan 49512
p. (616) 827 1586
www.hoffmanconsultants.com
STRUCTURAL ENGINEERING & DETAILING
© Hoffman Consultants

HALL Construction Inc.

Fire Riser Building

Tinker Airforce Base,
Oklahoma City, OK 73145

DESCRIPTION	DATE
FOR APPROVAL	12-07-2023

SEAL:

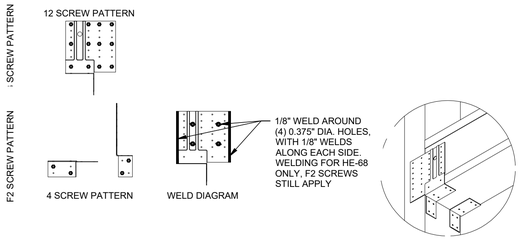
FOR APPROVAL NOT FOR CONSTRUCTION

TITLE: Typical Details

DATE PLOTTED: 3/19/2024 8:07:24 AM
DRAFTER: Author CKER: Checker EER: Designer

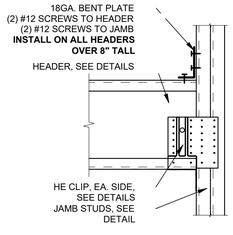
FILE NUMBER : 23866

DRAWING NUMBER : CF2.2



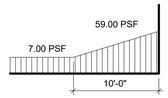
HE Screw Patterns

SCALE: N.T.S.



Header Stability Clip

SCALE: N.T.S.



Snow Drift Load

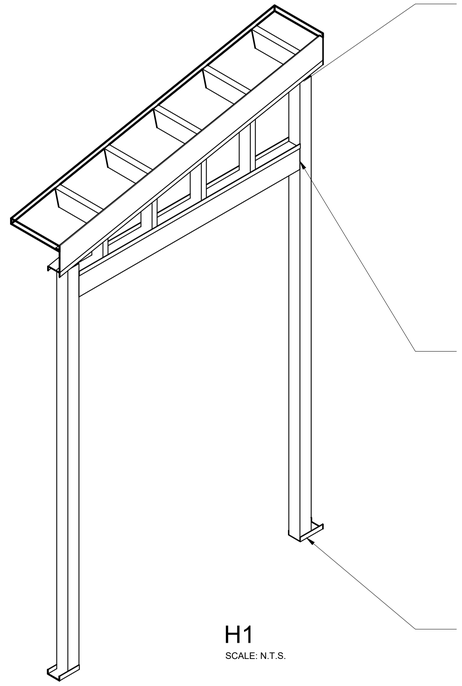
SCALE: N.T.S.

GENERAL SHEET NOTES:

1. HILTI X-U CONCRETE MIN. EMBEDMENT: 1.00" MIN., U.N.O.
2. HILTI X-U STEEL MIN. EMBEDMENT:
   STEEL THICKNESS < 3/4": FULL THICKNESS
   STEEL THICKNESS ≥ 3/4": 3/8"
3. COLD FORMED STEEL STRENGTH REQUIREMENTS:
   33 MIL (20 GAGE) SHALL BE Fy = 33KSI
   43 MIL (18 GAGE) SHALL BE Fy = 33KSI
   54 MIL (16 GAGE) SHALL BE Fy = 50KSI
   68 MIL (14 GAGE) SHALL BE Fy = 50KSI
   97 MIL (12 GAGE) SHALL BE Fy = 50KSI
   118 MIL (10 GAGE) SHALL BE Fy = 50KSI
4. FASTEN SHEATHING TO STUDS, TOP & BOTTOM TRACKS (NOT DEFLECTION TRACK) @ 12" O.C. MAX., U.N.O.
5. HEADER, SILL AND JAMB MEMBERS SHALL NOT BE SPLICED, PROVIDE CONTINIOUS
6. DOUBLE STUDS, AND STUD/TRACK COMBINATIONS SHALL BE ANCHORED TOGETHER w/ (2) #8 SCREWS @ 24" O.C.
7. TRACKS ARE TO BE FASTENED TO BOTH FLANGES OF EACH STUD WITH MINIMUM #8 SCREWS U.N.O.

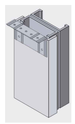
HOFFMAN CONSULTANTS
4180 44th Street SE - Suite G
Kentwood, Michigan 49512
p. (616) 827 1586
www.hoffmanconsultants.com
STRUCTURAL ENGINEERING & DETAILING
© Hoffman Consultants

LEAVE TEMPORARY BRACING IN PLACE FOR ALL LOAD BEARING STUD WALLS UNTIL ALL SHEATHING IS BUILT
SEE TEMPORARY BRACING DETAILS ON SHEET CF2.2

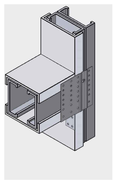


H1

SCALE: N.T.S.

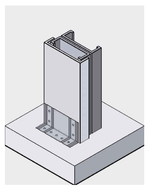


STIFFCLIP AL362
(2) #12 SCREWS TO JAMB
(2) #12 SCREWS TO CONT. TOP TRACK
BEND ONCE TO MATCH SLOPE



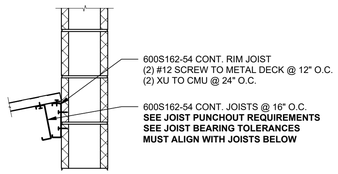
BOX HEADER:
(2) 600S162-54 + (2) 362T125-43

STIFFCLIP HE-43, 50 KSI
(4) #10 F2 SCREWS
(12) #10 F3 SCREWS

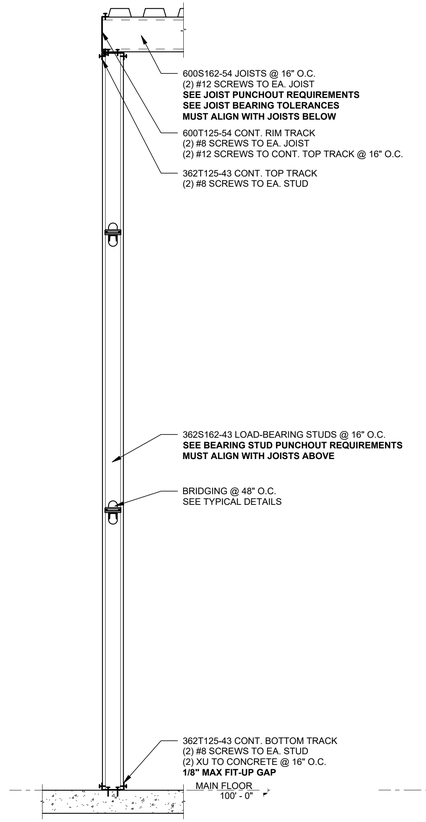


JAMB:
(2) 362S162-43
(1) 362T125-43

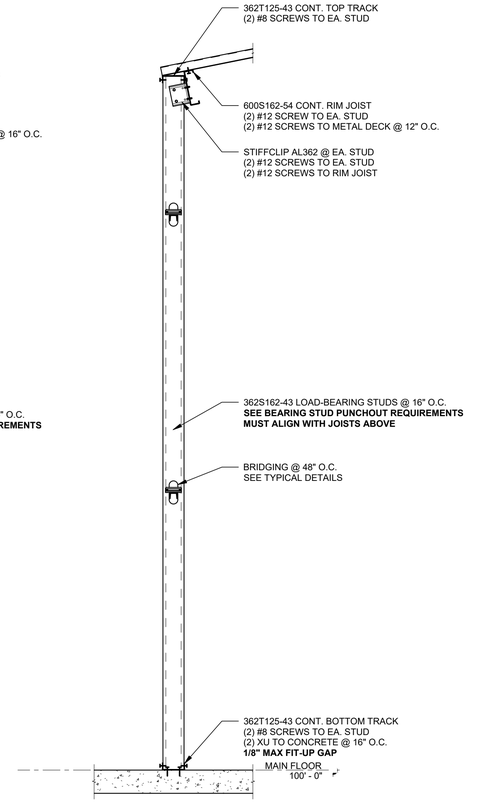
STIFFCLIP AL362
(2) #12 SCREWS TO JAMB
(2) XU TO CONCRETE



3 CF3.0 CF1.0 Section @ Building Connection
SCALE: 1" = 1'-0"



2 CF3.0 CF1.0 Section @ North/South Wall
SCALE: 1" = 1'-0"



1 CF3.0 CF1.0 Section @ East Wall
SCALE: 1" = 1'-0"

AS RECORDED
Date Mar 18th, 2024

HALL Construction Inc.

Fire Riser Building

Tinker Airforce Base,
Oklahoma City, OK 73145

DATE	DESCRIPTION
12-07-2023	FOR APPROVAL

SEAL:

FOR APPROVAL NOT FOR CONSTRUCTION

TITLE: Sections & Opening Details

DATE PLOTTED: 3/19/2024 8:07:25 AM
DRAFTER: PM CHECKER: BG ENGINEER: PM/HK

FILE NUMBER : 23866

DRAWING NUMBER : CF3.0

9311 San Pedro Ave., Suite 1100
San Antonio, TX 78216-5507
(210) 841-2800

hdrinc.com
© 2026 HDR, Inc., all rights reserved