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pproval Drawing Pac age

Factory Order #:

/ /

ansas City S

Distributor:
ri Davis Company

Contractor / Installer:
Facilities anagement

Consulting ngineer:
ochner

David Farmer
Sales Representative

regory al er
Project anager
North merican Operating Division

gregory.wal er schneider electric.com

a e the most of your energy[s]

Schneider Electric

JCSBC

Submittal Comments

Date: 05-25-2012

Job Name: Docking State Office Building (PARTIAL)

Factory Order #: 29528680

Contractor Name: Facilities Management

☐ **Approval**
> Release all manufacture
No re-submittal required

☐ **Rejected**
> No release
Re-submit all

☐ **Approved as Noted**
> Release all for manufacture.
Make necessary changes, show
Changes on construction Drawings

☐ **Partial Approval**
Revise and Resubmit
> Release approved sections for manufacture
Re-submit rejected section

The following information is pertinent with the return of this submittal. Please initial the applicable items that you have reviewed and have determined to be correct.

_____ > Lug sizes

_____ > Top or bottom entry for all equipment

_____ > Shipping splits

_____ > Nameplate information

_____ > Orientation of breakers

_____ > Wire sizes

_____ > Amperages of all bus and breakers

_____ > Surface or flush for panels

_____ > Size of all equipment

_____ > AIC ratings

_____ > Copper or aluminum bus

Customer Comments/Rejected Items:

Contractors Signature or Stamp:

_____

Schneider Electric

JCSBC
2-2-16
Att.9Db.--002

Approval Drawings

This Approval Drawing Package is submitted as our interpretation of the contract drawings and/or the specifications for this job.

It is the obligation of the electrical contractor and reviewing engineer to determine that the item quantities and accuracy of this submittal is correct as required for the job. Any inaccuracies or deviations must be addressed with Schneider Electric before release to manufacturing. Any releases of material to manufacturing by the above parties constitute an acceptance of the accuracy of the submittal. Any changes after release will be viewed as a change order, subject to pricing changes.

Please take the time to review this package for accuracy to prevent any after-shipment problems. This will allow the job to be shipped correctly and prevent any delay in energization.

Schneider Electric

Table of Contents

METAL-CLAD SWITCHGEARS

PRIMARY FOR CIRCUIT #9

PRIMARY FOR CIRCUIT #10

SUBSTATION TRANSFORMERS

Trans. for Circuit #9

Trans. for Circuit #10

SWITCHBOARDS

480 VOLT SWITCHBOARD

SWITCHBOARD H3

CONTROL CENTER NO 1 SWB

BUS CONNECT TO SWB SBDC1

LOW VOLTAGE MOTOR CONTROL CENTER

MCC #2

MCC #2 EM

BUSWAYS

PANELBOARDS

LOW VOLTAGE TRANSFORMERS

SERVICES

Item No.	Qty.	Catalog Number / Details

METAL-CLAD SWITCHGEARS

001-00 1 **Designation:** PRIMARY FOR CIRCUIT #9
Fully-Assembled MV MetalClad Swgr
Metal Clad Switchgear > 1000 Volts
---

3 Section Line-up
MASTERCLAD Switchgear Assembly
Consisting of the following:
Network Communications Only
RS485 Modbus Comms Wired Out
1 Set of Certified Test Reports included with Final Drawings
Label Requirements: UL
Outdoor, Non Walk-in (Type 3R)
With Front and Rear Access
Rear Door Type 3R with Padlock Provisions

If Customer Witness Testing Required, must add in separately from this Bill of Material and price in at Standard Square D daily rate.

General Equipment Ratings

Frequency: 60 Hertz
Impulse Withstand Voltage (BIL): 95kV
Maximum Bus Continuous Current: 1200A
Maximum Short Circuit Current: 25kA (RMS Symmetrical)
Maximum Voltage: 15kV
Nominal System Voltage: 13.2/7.62kV, 3 Phase, 3 Wire, Solidly Grounded Wye
One-Minute Withstand Voltage: 36kV RMS

General Structure Information

1200A Silver Plated Copper Main Bus
120VAC Receptacle and Incandescent Light (per section)
9080G Compression Type Terminal Blocks
Auxilary Control Power: Customer 120VAC
Breaker Close Control Power: Square D Supplied 120VAC
Breaker Trip Control Power: Square D Supplied 120VAC
Bus Bracing: 50kA (RMS Symmetrical)
Bus Supports: Epoxy (Std)
Exterior Paint Color: ANSI #49, Medium Gray
Ground Bus: Copper, Unplated (Std)
Lug Type: Supplied by Customer
Square D Resistor Type lamps, (2) per cell
1 - Breaker Lift Truck
1 - Electric racking motor accessory w/ 50 ft. cord, requires 120Vac or optional CPT & recepticle
1 - Test Jumper, 14 ft. cable only
LV Panels Painted White

Item No.	Qty.	Catalog Number / Details

Dimensions:
Width of Lineup: 97.00" 2464mm
Height @ Highest Point: 109.00" 2769mm
Depth @ Base: 99.00" 2515mm
Depth @ Roof: 109.10" 2771mm
Approximate Weight: 9777 lb 4444 kg

Special Features or TAG Items (per line-up)

If Special Features are included in this Bill of Material, they will NOT appear on the Front-Elev or One-line Drawing and may alter the final layout and dimensions.

Detailed Bill of Material

This Metal Clad Switchgear shall be depicted in the attached drawing and shall including the following:

SECTION # 1, UPPER, AUX. - VOLT XFMR

1 - VT Drawer with (2) VTs, (2) Primary Fuses per VT
1 - 10kVA, Single Phase CPT

SECTION # 1, LOWER, MAIN - MAIN BKR

1 - 15kV Max. Voltage, 500MVA, 1200A, Vacuum Breaker Type: VR-15050-12
1 - 18kV Distribution Class Lightning Arrester, 3 Phase Set
3 - Single Ratio 1200:5 CT - Standard Accuracy - Model 780 - Set#1
1 - Breaker Control Switch 1t,1c (Std)
1 - MOC Switch Supplying 10 Additional Contacts (5a, 5b)
1 - TOC Switch Supplying 10 Additional Contacts (5a, 5b)
1 - Capacitor-Trip Device, (20-Second Charge)
1 - Capacitor Trip (20 Second) for Transformer Diff Relay w/ 120VAC Control
1 - Relay, 11, SEL, 551C
1 - Relay, 87T, SEL, 387
1 - Transformer Differential Lockout Relay - 86T-5 Deck

SECTION # 2, METERING - WESTAR

1 - 1200A Space Only for Metering Section (36"W)
1 - Provisions Only for Mounting 3 Bar Type CT's

SECTION # 3, TRANSITION -

1 - 22" Wide Transition w/3" Throat to other Square D MV Equip

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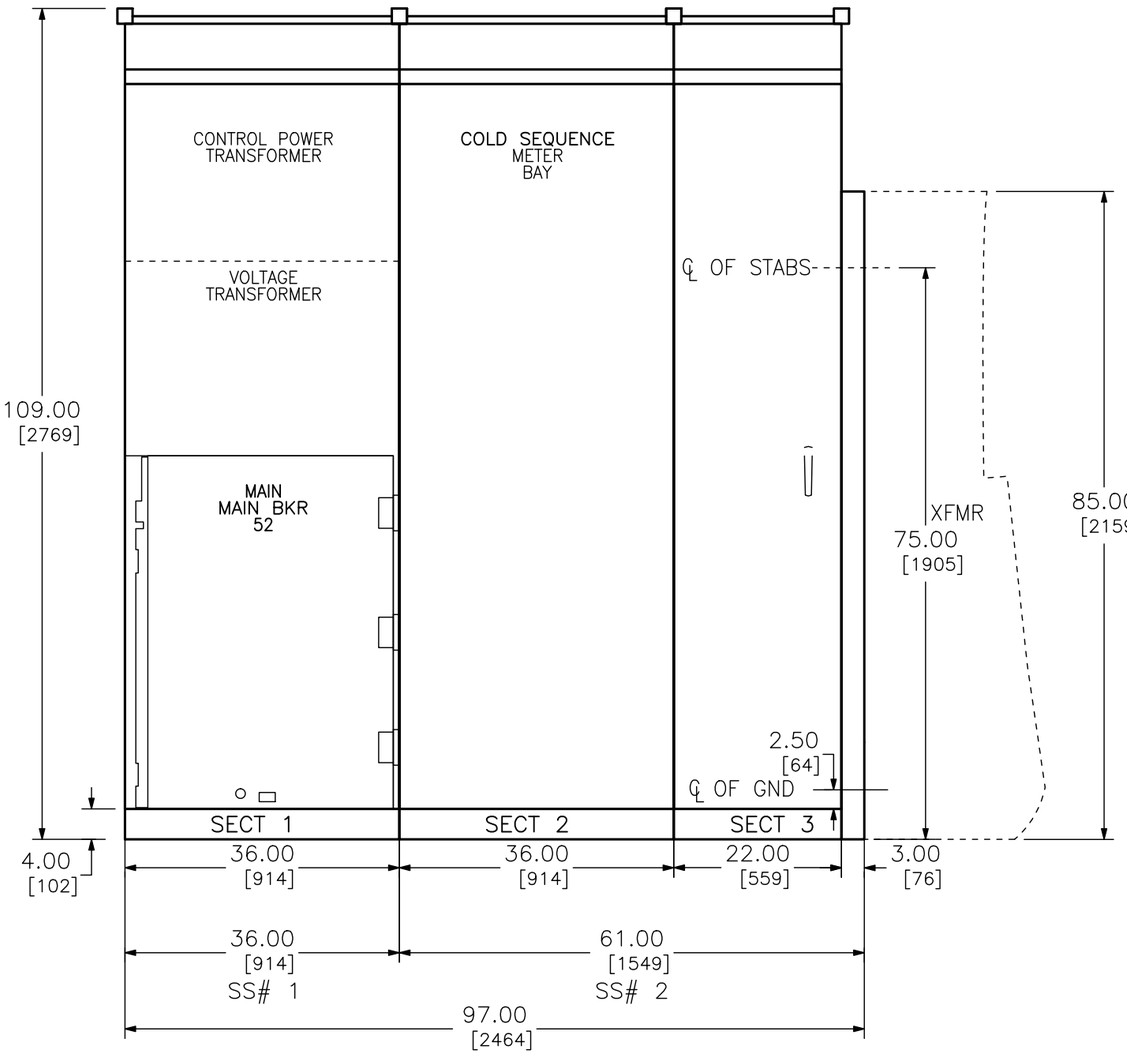

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #9**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680-1**

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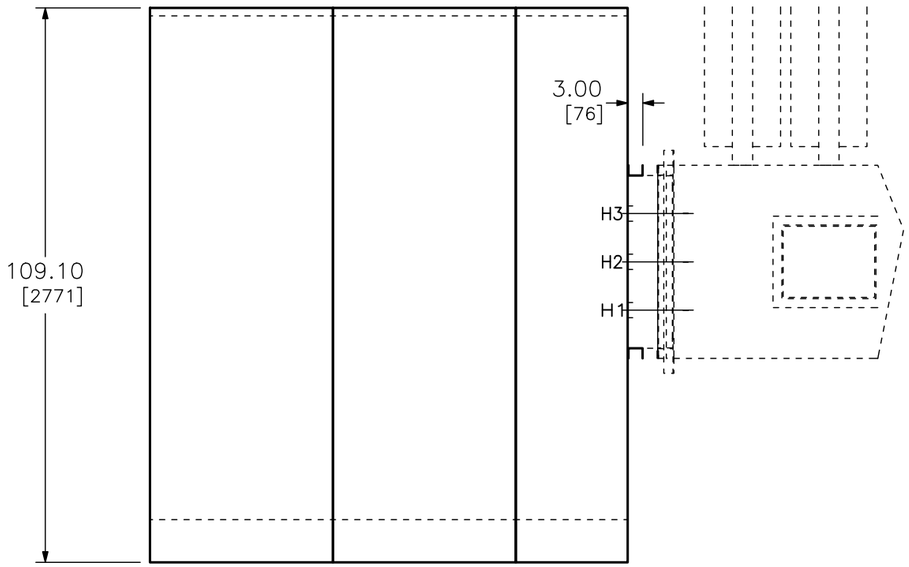
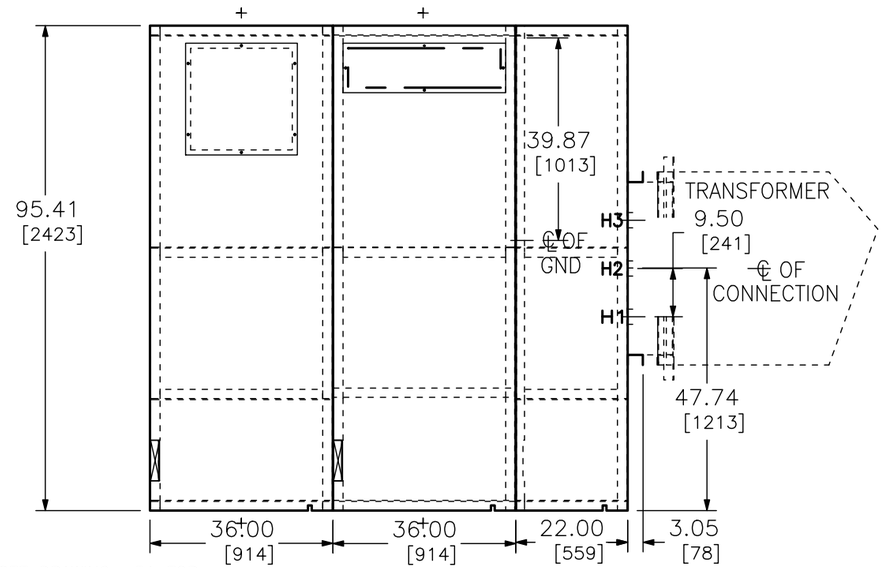


TOP VIEW



SEE DRAWING –51 FOR INSTALLATION–FOUNDATION REQUIREMENTS

FLOOR PLAN

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #9**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680–2**

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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GENERAL NOTES:

PRODUCT DESCRIPTION AND RATINGS:

POWER SYSTEM DATA:

13200 VOLTS, 3 PHASE, 3 WIRE WYE SOLIDLY GROUNDED
95 KV BIL, 60 HERTZ FREQUENCY

BUS SYSTEM DATA:

1200 AMPERES, SILVER PLATED COPPER, EPOXY INSULATED
MAIN BUS BRACED FOR 50KA RMS SYMMETRICAL.
EPOXY STAND–OFF INSULATORS
GLASS POLYESTER BETWEEN SECTION BUS BARRIER
BREAKER BUSHINGS IN CELL ARE POLYESTER
BARE COPPER GROUND BUS

ENCLOSURE DATA:

TYPE 3R OUTDOOR, NON WALK–IN CONSTRUCTION
ANSI #49 FINISH, PROCEDURES: ZINC PHOSPHATE WITH NON–CHROMIC SEAL,
RUST INHIBITED TREATMENT WITH BAKED POLYESTER COATING.
REAR ACCESS BY PADLOCKABLE TYPE 3R DOOR
WHITE INTERIOR LOW VOLTAGE PANELS

HANDLING:

SWITCHGEAR SECTIONS ARE FURNISHED WITH FOUR LIFTING
LUGS. A CRANE SHALL BE USED WITH A SLING AND A SPREADER BAR.

SWITCHGEAR SHIPPING WEIGHT WITH BREAKERS INSTALLED:

SHIPPING SPLIT 1 WEIGHT: 7798 LBS 3545 KG
SHIPPING SPLIT 2 WEIGHT: 1979 LBS 900 KG

BREAKER WEIGHT:

1200A, 380 LBS 173KG

CODE STANDARDS:

ANSI, NEMA, UL

PRODUCT INFORMATION:

WIRING:

CONTROL WIRING IS # 14 AWG, TYPE SIS
CURRENT CIRCUIT WIRING IS # 12 AWG, TYPE SIS

WIRE LABELING:

WIRES SHALL BE LABELED WITH DESTINATION MARKING (ORIGIN–DESTINATION)

TERMINATIONS:

UNINSULATED RING TYPE LUGS SHALL BE USED (WHERE APPLICABLE) ON ALL LOW VOLTAGE SCREW/STUD TERMINALS.
TERMINAL BLOCKS ARE SQUARE D COMPRESSION SOLDERLESS BOX LUGS (TYPE GR6).
SQUARE D COMPRESSION BOX LUGS (TYPE 9080GR6) TERMINAL BLOCKS FOR ALL COMMUNICATIONS TERMINATIONS
WHEN REQUIRED.

BREAKER SPECIFICATION:

BREAKER TYPE IS SERIES 5 – VACUUM
BREAKER RATING: 15.0KV/25KA
CLOSE CONTROL POWER IS 120VAC BY SQUARE D
TRIP CONTROL POWER IS 170VDC BY CTU
MOC PROVISIONS

RELAY REQUIREMENTS:

RELAYS REQUIREMENTS PER QUOTE
RELAYS FURNISHED WITH RS–485 AND MODBUS PROTOCOL

OPTIONS/ACCESSORIES:

GENERAL OPTIONS:

NETWORK COMMUNICATIONS ONLY
RS485 MODBUS COMMS WIRED OUT
TRACEABILITY LABEL REQUIRED
AUXILIARY CONTROL POWER 120VAC BY CUSTOMER

LIST OF MISC. ACCESSORIES:

SHORTING TERMINAL BLOCKS FOR ALL CT CIRCUITS
STRIP HEATERS WITH THERMOSTAT
DUPLEX RECEPTACLE
LIGHT & SWITCH
BREAKER LIFT TRUCK
BREAKER TEST JUMPER (14FT)
1 SET OF CERTIFIED TEST REPORTS
AS BUILT "DXF" DRAWINGS ON DISK

LIST OF MISC. STRUCTURE OPTIONS:

SPECIAL FEATURES–(OVERAL DIMENSIONS ARE SUBJECT TO CHANGE.)

IF SPECIAL FEATURES ARE INCLUDED IN THIS BILL OF MATERIAL, THEY WILL NOT APPEAR ON THE FRONT– ELEV OR ONE– LINE DRAWING AND MAY ALTER THE FINAL LAYOUT AND DIMENSIONS.

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #9**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	GENERAL NOTES
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680–3**

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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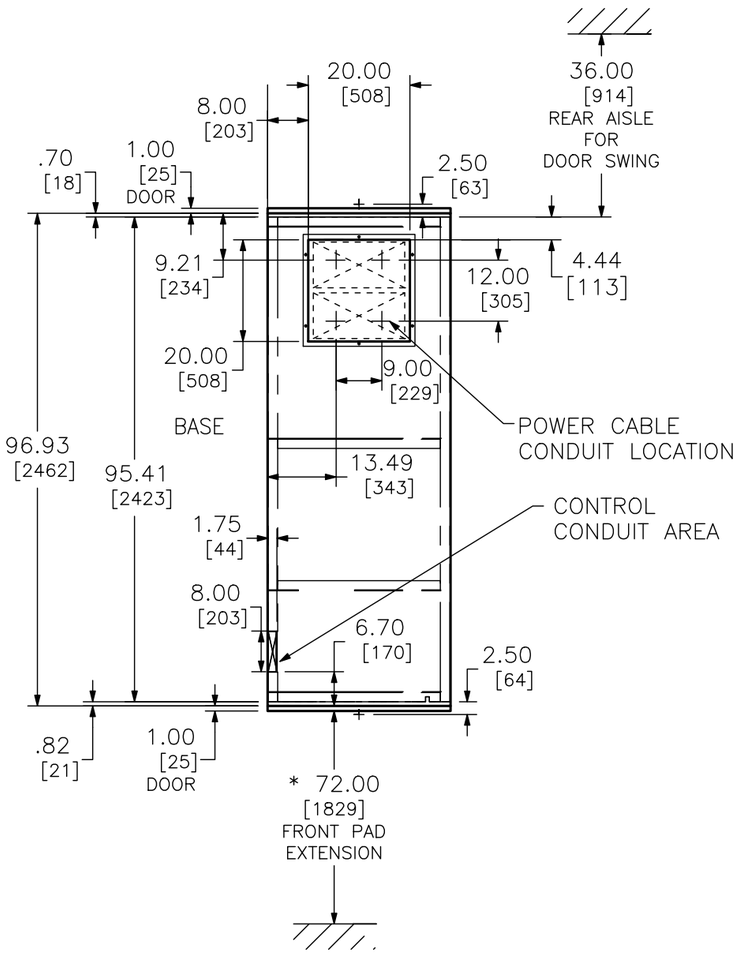
INSTALLATION–FOUNDATION REQUIREMENTS

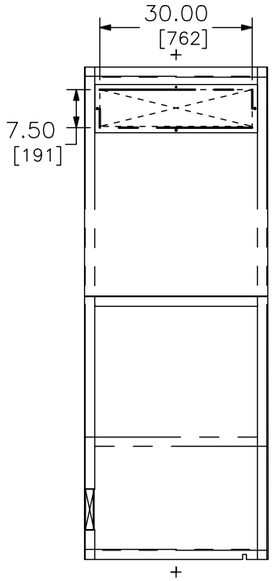
* LIFT TRUCK IS REQUIRED, 72.00 [1829] FRONT PAD EXTENSION REQUIRED.
THE SWITCHGEAR MUST BE INSTALLED ON A FLAT, LEVEL SURFACE.
SQUARE D RECOMMENDS INSTALLING THE SWITCHGEAR ON A CONCRETE PAD LEVELED TO 1/8 [3] IN ANY SQUARE YARD.

THE CONCRETE PAD SHOULD EXTEND 72.00 [1829]. IN FRONT OF THE SWITCHGEAR FOR MOVEMENT OF THE BREAKER LIFT TRUCK. THE REAR OF THE PAD SHOULD EXTEND A MINIMUM OF 12.00 [309]. TO ALLOW SPACE FOR THE ANCHOR BOLTS.

A MINIMUM OF 36.00 [914] IS NECESSARY ON THE RIGHT END FACING THE FRONT OF THE LINE–UP. THIS SPACE IS NECESSARY FOR DOOR CLEARANCE WHEN REMOVING THE CIRCUIT BREAKERS.

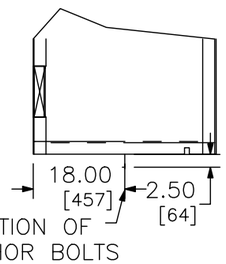


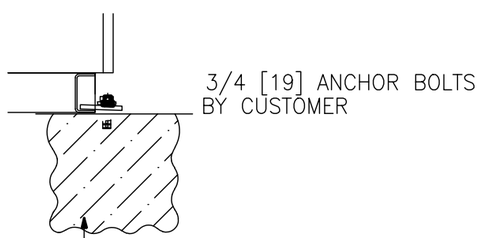
FLOOR PLAN



FOR TIE AND 36.00 [914]
METERING SECTION

RECOMMENDED BASE CHANNEL MOUNTING





CONCRETE CUT AWAY VIEW OF THE 72.00 [1829] PAD EXTENSION

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #9**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	DETAIL VIEW
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680–51**

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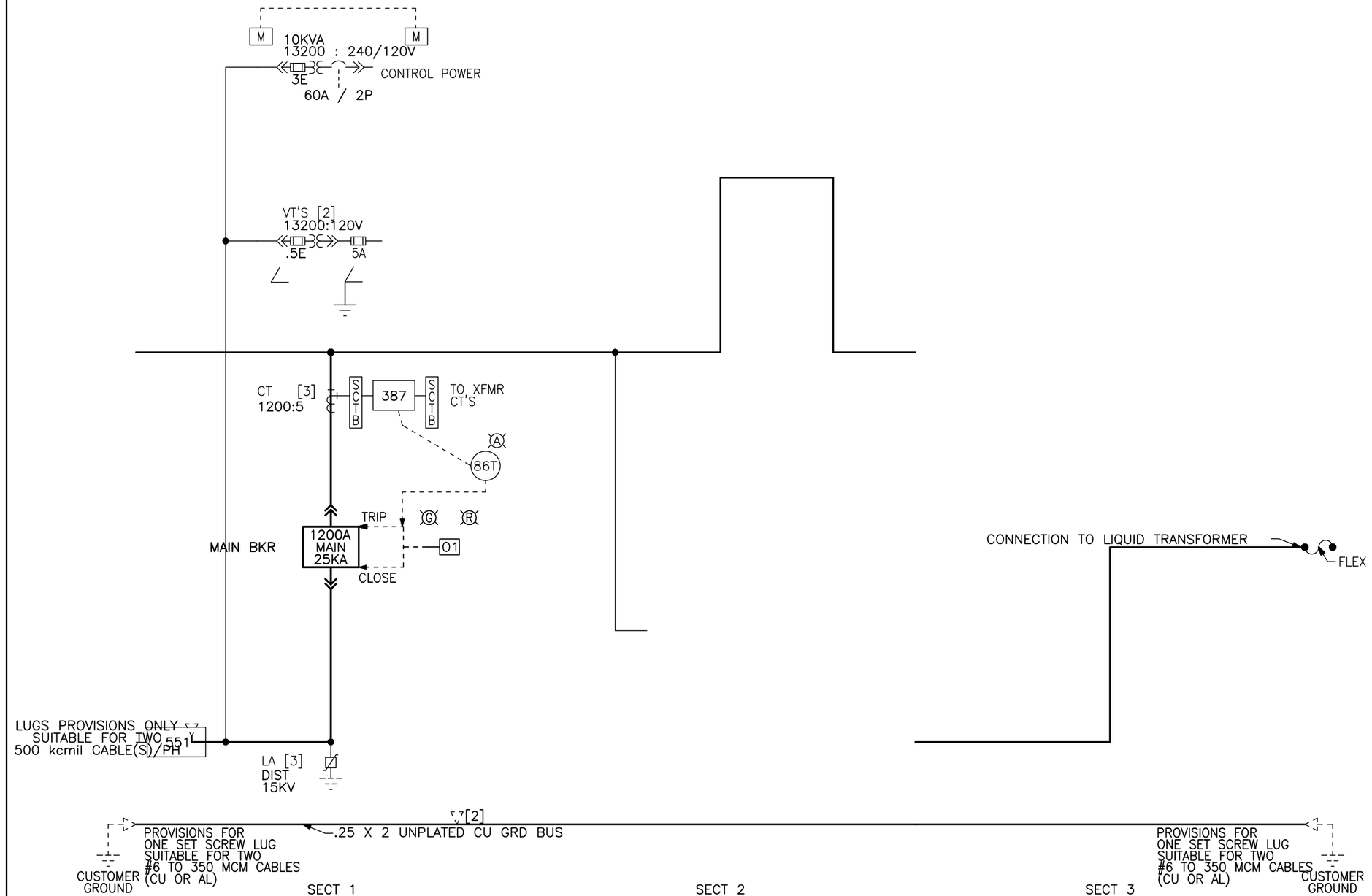

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #9**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**029528680-1** PG 1 OF 1 REV –

JCSBC
2-2-16
Att.9Db.--011

Item No.	Qty.	Catalog Number / Details
003-00	1	**Designation:** PRIMARY FOR CIRCUIT #10 Fully-Assembled MV MetalClad Swgr Metal Clad Switchgear > 1000 Volts --- 3 Section Line-up MASTERCLAD Switchgear Assembly Consisting of the following: Network Communications Only RS485 Modbus Comms Wired Out 1 Set of Certified Test Reports included with Final Drawings Label Requirements: UL Outdoor, Non Walk-in (Type 3R) With Front and Rear Access Rear Door Type 3R with Padlock Provisions If Customer Witness Testing Required, must add in separately from this Bill of Material and price in at Standard Square D daily rate. General Equipment Ratings --- Frequency: 60 Hertz Impulse Withstand Voltage (BIL): 95kV Maximum Bus Continuous Current: 1200A Maximum Short Circuit Current: 25kA (RMS Symmetrical) Maximum Voltage: 15kV Nominal System Voltage: 13.2/7.62kV, 3 Phase, 3 Wire, Solidly Grounded Wye One-Minute Withstand Voltage: 36kV RMS General Structure Information --- 1200A Silver Plated Copper Main Bus 120VAC Receptacle and Incandescent Light (per section) 9080G Compression Type Terminal Blocks Auxilary Control Power: Customer 120VAC Breaker Close Control Power: Square D Supplied 120VAC Breaker Trip Control Power: Square D Supplied 120VAC Bus Bracing: 50kA (RMS Symmetrical) Bus Supports: Epoxy (Std) Exterior Paint Color: ANSI #49, Medium Gray Ground Bus: Copper, Unplated (Std) Lug Type: Supplied by Customer Square D Resistor Type lamps, (2) per cell 1 - Electric racking motor accessory w/ 50 ft. cord, requires 120Vac or optional CPT & recepticle 1 - Test Jumper, 14 ft. cable only LV Panels Painted White Dimensions: Width of Lineup: 97.00" 2464mm Height @ Highest Point: 109.00" 2769mm Depth @ Base: 99.00" 2515mm Depth @ Roof: 109.10" 2771mm Approximate Weight: 9777 lb 4444 kg

Item No.	Qty.	Catalog Number / Details

Special Features or TAG Items (per line-up)

If Special Features are included in this Bill of Material, they will NOT appear on the Front-Elev or One-line Drawing and may alter the final layout and dimensions.

Detailed Bill of Material

This Metal Clad Switchgear shall be depicted in the attached drawing and shall including the following:

SECTION # 1, TRANSITION -

1 - 22" Wide Transition w/3" Throat to other Square D MV Equip

SECTION # 2, METERING - WESTAR

1 - 1200A Space Only for Metering Section (36"W)
1 - Provisions Only for Mounting 3 Bar Type CT's

SECTION # 3, UPPER, AUX. -

1 - VT Drawer with (2) VTs, (2) Primary Fuses per VT
1 - 10kVA, Single Phase CPT

SECTION # 3, LOWER, MAIN - MAIN BKR

1 - 15kV Max. Voltage, 500MVA, 1200A, Vacuum Breaker Type: VR-15050-12
1 - 18kV Distribution Class Lightning Arrester, 3 Phase Set
3 - Single Ratio 1200:5 CT - Standard Accuracy - Model 780 - Set#1
1 - Breaker Control Switch 1t,1c (Std)
1 - MOC Switch Supplying 10 Additional Contacts (5a, 5b)
1 - TOC Switch Supplying 10 Additional Contacts (5a, 5b)
1 - Capacitor-Trip Device, (20-Second Charge)
1 - Capacitor Trip (20 Second) for Transformer Diff Relay w/ 120VAC Control
1 - Relay, 11, SEL, 551C
1 - Relay, 87T, SEL, 387
1 - Transformer Differential Lockout Relay - 86T-5 Deck

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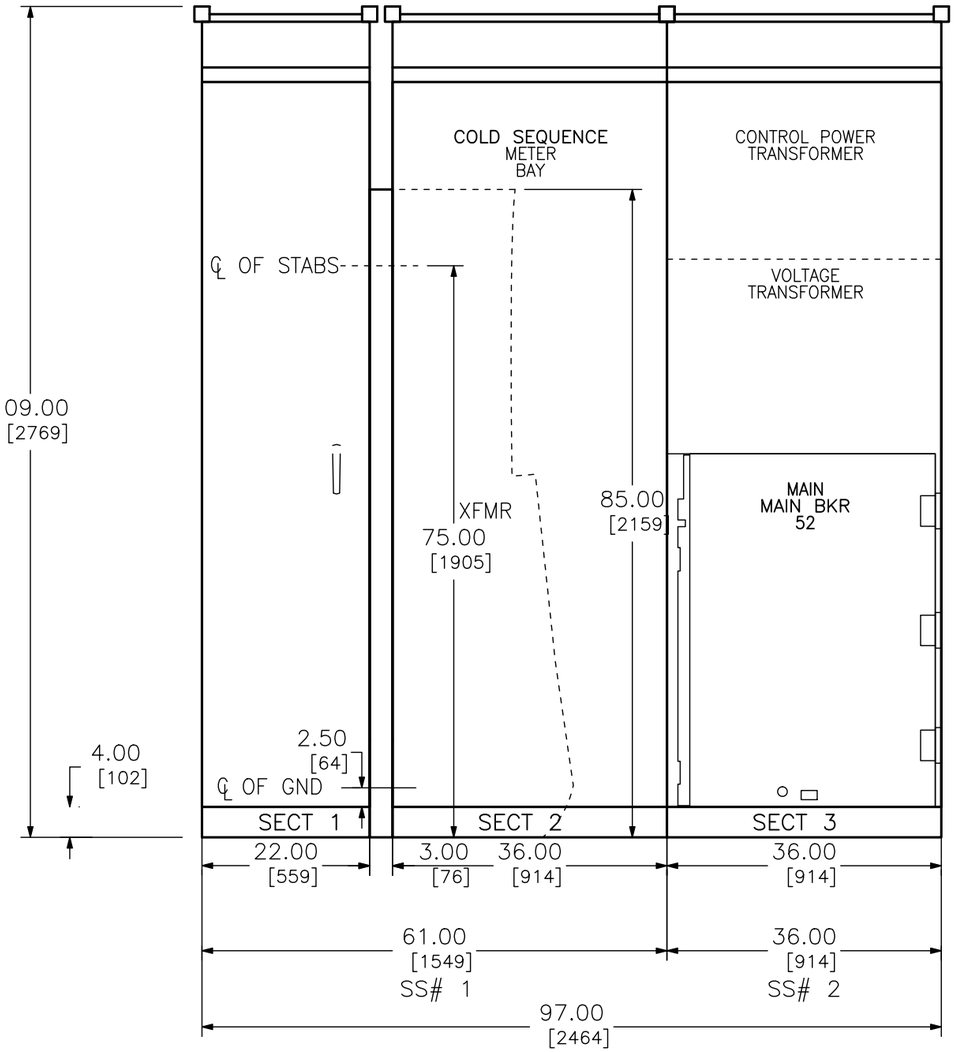

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #10**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680-1** PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE
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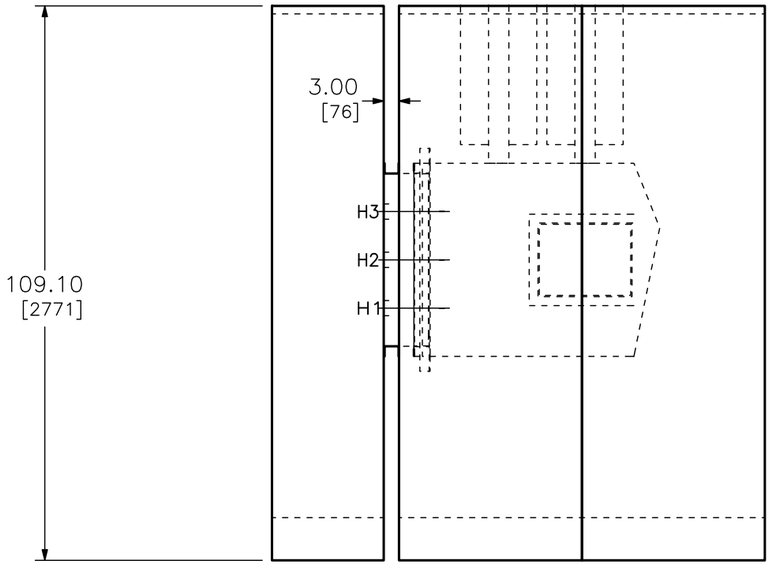
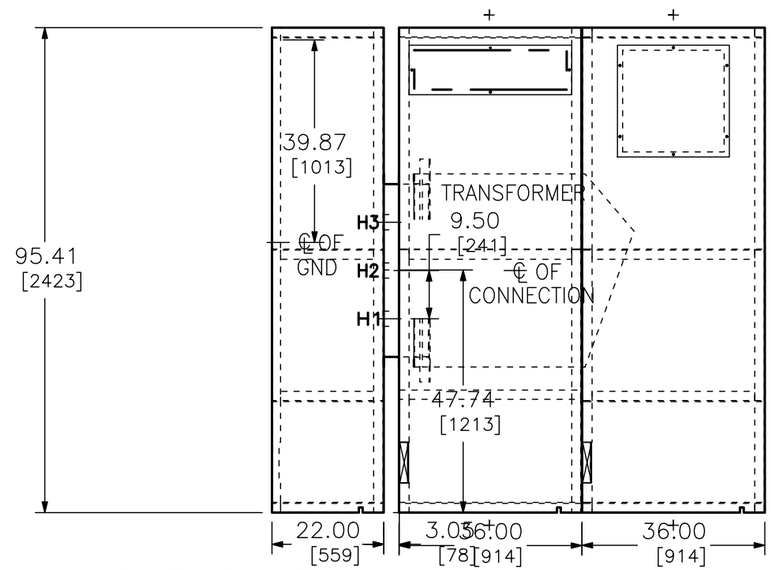


TOP VIEW



SEE DRAWING –51 FOR INSTALLATION–FOUNDATION REQUIREMENTS

FLOOR PLAN

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #10**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	TOP VIEW/FLOOR PLAN
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680–2**

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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GENERAL NOTES:

PRODUCT DESCRIPTION AND RATINGS:

POWER SYSTEM DATA:

13200 VOLTS, 3 PHASE, 3 WIRE WYE SOLIDLY GROUNDED
95 KV BIL, 60 HERTZ FREQUENCY

BUS SYSTEM DATA:

1200 AMPERES, SILVER PLATED COPPER, EPOXY INSULATED
MAIN BUS BRACED FOR 50KA RMS SYMMETRICAL.
EPOXY STAND–OFF INSULATORS
GLASS POLYESTER BETWEEN SECTION BUS BARRIER
BREAKER BUSHINGS IN CELL ARE POLYESTER
BARE COPPER GROUND BUS

ENCLOSURE DATA:

TYPE 3R OUTDOOR, NON WALK–IN CONSTRUCTION
ANSI #49 FINISH, PROCEDURES: ZINC PHOSPHATE WITH NON–CHROMIC SEAL,
RUST INHIBITED TREATMENT WITH BAKED POLYESTER COATING.
REAR ACCESS BY PADLOCKABLE TYPE 3R DOOR
WHITE INTERIOR LOW VOLTAGE PANELS

HANDLING:

SWITCHGEAR SECTIONS ARE FURNISHED WITH FOUR LIFTING
LUGS. A CRANE SHALL BE USED WITH A SLING AND A SPREADER BAR.

SWITCHGEAR SHIPPING WEIGHT WITH BREAKERS INSTALLED:

SHIPPING SPLIT 1 WEIGHT: 5479 LBS 2490 KG
SHIPPING SPLIT 2 WEIGHT: 4298 LBS 1954 KG

BREAKER WEIGHT:

1200A, 380 LBS 173KG

CODE STANDARDS:

ANSI, NEMA, UL

PRODUCT INFORMATION:

WIRING:

CONTROL WIRING IS # 14 AWG, TYPE SIS
CURRENT CIRCUIT WIRING IS # 12 AWG, TYPE SIS

WIRE LABELING:

WIRES SHALL BE LABELED WITH DESTINATION MARKING (ORIGIN–DESTINATION)

TERMINATIONS:

UNINSULATED RING TYPE LUGS SHALL BE USED (WHERE APPLICABLE) ON ALL LOW VOLTAGE SCREW/STUD TERMINALS.
TERMINAL BLOCKS ARE SQUARE D COMPRESSION SOLDERLESS BOX LUGS (TYPE GR6).
SQUARE D COMPRESSION BOX LUGS (TYPE 9080GR6) TERMINAL BLOCKS FOR ALL COMMUNICATIONS TERMINATIONS
WHEN REQUIRED.

BREAKER SPECIFICATION:

BREAKER TYPE IS SERIES 5 – VACUUM
BREAKER RATING: 15.0KV/25KA
CLOSE CONTROL POWER IS 120VAC BY SQUARE D
TRIP CONTROL POWER IS 170VDC BY CTU
MOC PROVISIONS

RELAY REQUIREMENTS:

RELAYS REQUIREMENTS PER QUOTE
RELAYS FURNISHED WITH RS–485 AND MODBUS PROTOCOL

OPTIONS/ACCESSORIES:

GENERAL OPTIONS:

NETWORK COMMUNICATIONS ONLY
RS485 MODBUS COMMS WIRED OUT
TRACEABILITY LABEL REQUIRED
AUXILIARY CONTROL POWER 120VAC BY CUSTOMER

LIST OF MISC. ACCESSORIES:

SHORTING TERMINAL BLOCKS FOR ALL CT CIRCUITS
STRIP HEATERS WITH THERMOSTAT
DUPLEX RECEPTACLE
LIGHT & SWITCH
LIFT TRUCK NEEDED FOR REMOVAL OF BREAKER FROM THE CELL.
BREAKER TEST JUMPER (14FT)
1 SET OF CERTIFIED TEST REPORTS
AS BUILT "DXF" DRAWINGS ON DISK

LIST OF MISC. STRUCTURE OPTIONS:

SPECIAL FEATURES–(OVERAL DIMENSIONS ARE SUBJECT TO CHANGE.)

IF SPECIAL FEATURES ARE INCLUDED IN THIS BILL OF MATERIAL, THEY WILL NOT APPEAR ON THE FRONT– ELEV OR ONE– LINE DRAWING AND MAY ALTER THE FINAL LAYOUT AND DIMENSIONS.

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #10**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	GENERAL NOTES
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680–3**

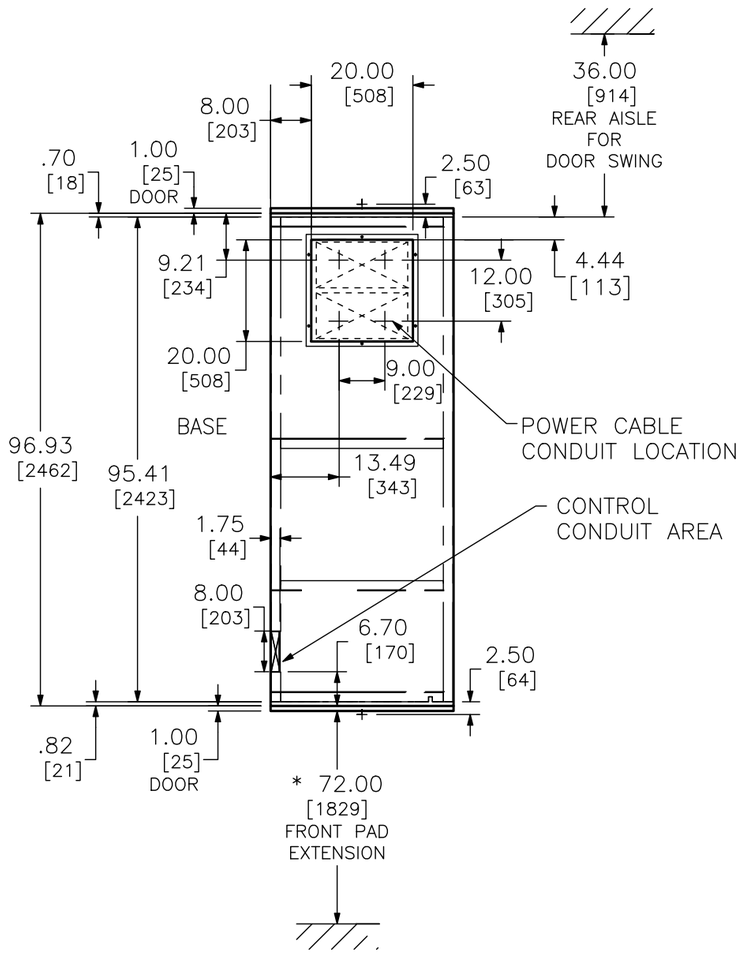
REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
–	----	--	--/--/--	–	----	--	--/--/--	–	----	--	--/--/--

INSTALLATION–FOUNDATION REQUIREMENTS

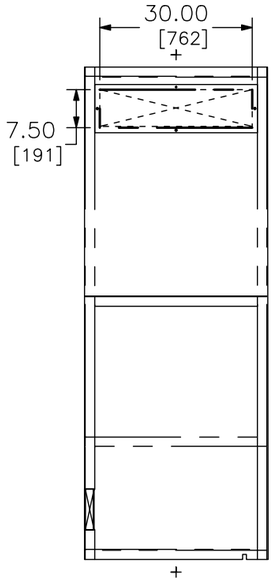
* LIFT TRUCK IS REQUIRED, 72.00 [1829] FRONT PAD EXTENSION REQUIRED.
THE SWITCHGEAR MUST BE INSTALLED ON A FLAT, LEVEL SURFACE.
SQUARE D RECOMMENDS INSTALLING THE SWITCHGEAR ON A CONCRETE PAD LEVELED TO 1/8 [3] IN ANY SQUARE YARD.

THE CONCRETE PAD SHOULD EXTEND 72.00 [1829]. IN FRONT OF THE SWITCHGEAR FOR MOVEMENT OF THE BREAKER LIFT TRUCK. THE REAR OF THE PAD SHOULD EXTEND A MINIMUM OF 12.00 [309]. TO ALLOW SPACE FOR THE ANCHOR BOLTS.

A MINIMUM OF 36.00 [914] IS NECESSARY ON THE RIGHT END FACING THE FRONT OF THE LINE–UP. THIS SPACE IS NECESSARY FOR DOOR CLEARANCE WHEN REMOVING THE CIRCUIT BREAKERS.

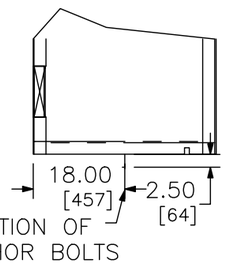


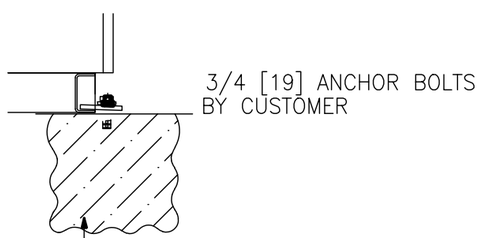
FLOOR PLAN



FOR TIE AND 36.00 [914]
METERING SECTION

RECOMMENDED BASE CHANNEL MOUNTING



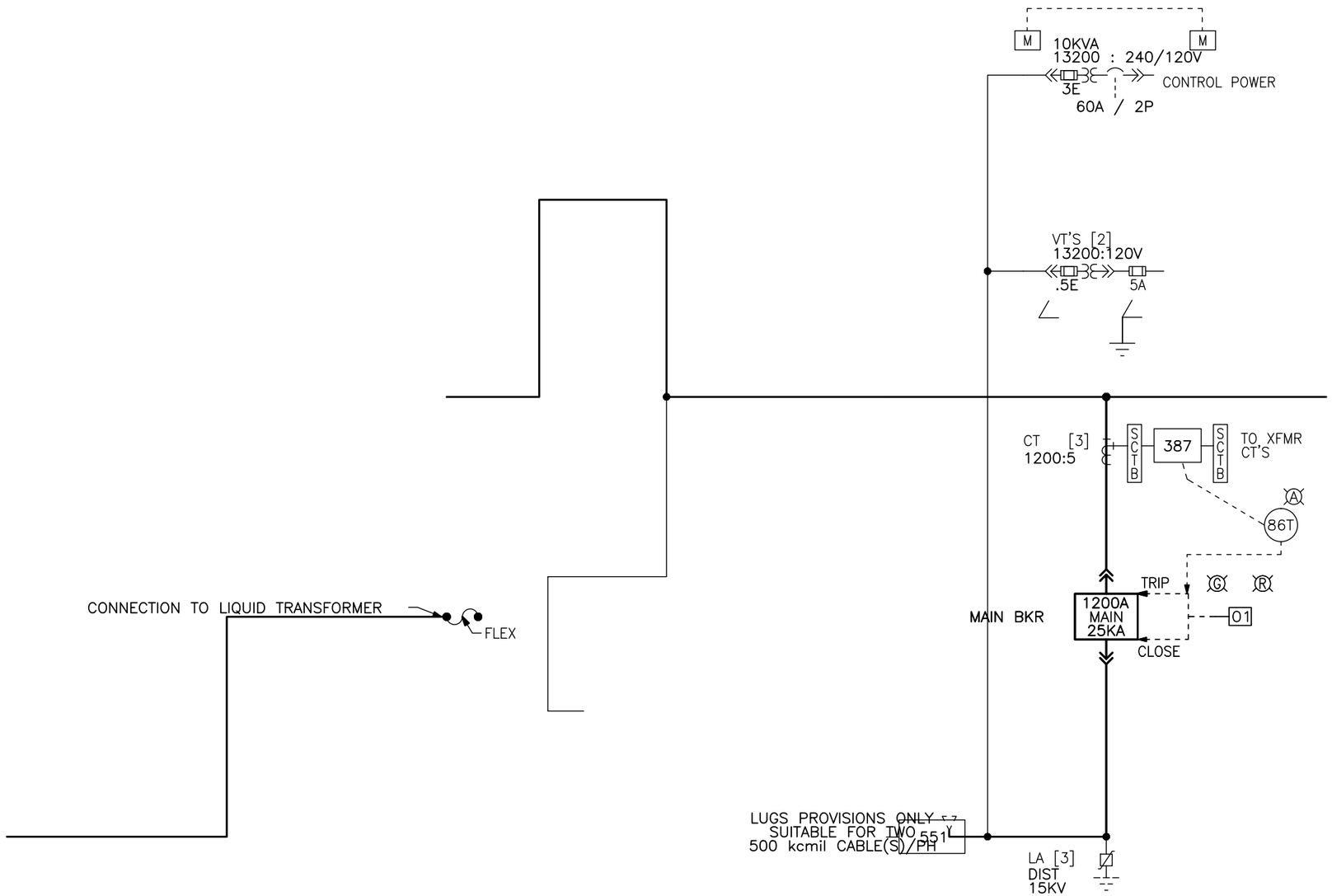


CONCRETE CUT AWAY VIEW OF THE 72.00 [1829] PAD EXTENSION

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #10**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	DETAIL VIEW
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**F29528680–51**

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



JOB NAME:	DOCKING STATE OFFICE BU	EQUIPMENT DESIGNATION:	**PRIMARY FOR CIRCUIT #10**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MASTERCLAD SWITCHGEAR
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:	----		
DATE:	MAY 25, 2012		
DRAWING STATUS:	QUOTE **NOT FOR CONSTRUCTION**	DWG#	**029528680-1** PG 1 OF 1 REV –

MASTERCLAD™ Medium Voltage
Metal-Clad Switchgear with
Type VR Vacuum Circuit Breakers

The Reliability of a Quality Design

SQUARE D
GROUPE SCHNEIDER

MASTERCLAD™ VACUUM METAL-CLAD SWITCHGEAR

As a leading manufacturer of electrical distribution equipment for over ninety years, Square D has long had a reputation for quality, service and technical innovation. Today, as a major switchgear manufacturer in the international marketplace, Square D continues to lead the industry with ISO 9001 certification. Along with high-quality equipment, we offer an engineering and support staff that is considered the best in the industry.

MASTERCLAD switchgear components include available state-of-the-art electronics like POWERLOGIC power monitoring and control systems, digital microprocessor-based protective relays and SY-MAX PLC-based automatic throwover systems.

The Reliability of a Quality Design

The quality of Square D MASTERCLAD™ medium voltage metal-clad switchgear stems from a design and manufacturing process that focuses on long-term switchgear performance with the highest degree of reliability.

Reliable performance and safety is enhanced by the rugged construction of MASTERCLAD switchgear. Each switchgear assembly consists of individually grounded, compartmentalized steel structures (with -gauge barriers between vertical sections and major parts of each primary circuit) to protect operating personnel.

Based on specific customer application needs, Square D engineers and technicians select the appropriate standard sections and bus configurations, with the ability to customize where needed. After the specified circuit breakers, instrument and control power transformers, relays, meters and other components are selected and approved, all are factory-assembled, wired and tested as a complete assembly. This testing is performed to insure reliability by energizing the control circuits and verifying the specified sequence of operation for each metal-clad switchgear project along with the ANSI C37.20.2 Production Tests.

MASTERCLAD Vacuum Switchgear

Ratings:

- 4.76-15 kV (to 13.8 kV nominal)
- 1200-3000 Amperes
- 250-1000 MVA Interrupting Capacity
- 60 and 95 kV BIL
- Indoor and Outdoor Enclosures

Standard Features:

Metal-Clad Switchgear as defined by ANSI C37.20.2 includes:

- Removable (Drawout) Circuit Breaker
- Fully Compartmented Construction
- Grounded Metal Barriers Enclose all Live Parts
- Automatic Shutters
- Insulated Bus
- Mechanical Interlocks
- Disconnect Type Voltage Transformers—CPT and VTs
- Grounded Breaker Truck in and between Test/Disconnected and Connected Positions
- Low Voltage Instrument/ Control Compartment Isolated from Primary Voltage areas

Applications

MASTERCLAD medium voltage switchgear is used in a wide variety of switching, control and protective applications including electric utility generation and distribution systems, industrial plants, commercial buildings, hospitals, municipal pumping stations, wastewater treatment plants, transportation systems, and pipeline stations. Transformers, motors, generators, capacitors, distribution lines, and feeder circuits are protected by this class of switchgear. Significantly, most of the MASTERCLAD switchgear specified for these applications is relied upon to provide the critical main service entrance protection and controls.

Standardization

Standardization of the design incorporates a series of basic modular units, control packages, and instrumentation. For most switchgear ratings, circuit configurations and functions, one basic size unit is used. These features provide application flexibility, versatility, efficiency and economy in minimizing engineering time to plan and lay out the switchgear.

Front view with lower breaker installed.

SQUARE D COMPANY REGISTERED TO ISO 9001 CERTIFICATE NO. A2211

Square D Metal-Clad Switchgear is designed and manufactured in a facility that is Quality Systems Registered by Underwriters Laboratories, Inc. to ISO 9001.

Features and Benefits

Long Life/Minimum Maintenance

Reliability is the main priority. The VR vacuum circuit breakers are designed for long life. The interrupter's copper-chromium contacts, hermetically sealed for life in a vacuum, are protected from external atmospheric influences. Dust, moisture, and all other possible contaminants are sealed out. This state-of-the-art vacuum interrupter design is capable of 20-100 full fault interruptions (varies by rating).

The high dielectric strength of the vacuum environment allows a very short clearing time during fault interruption to limit the energy dissipated into the arc. Total fault clearing time is less than 3 cycles and contact travel is only 3/8 to 1/2 inch, depending on the ratings of the circuit breaker. The short stroke produces less mechanical shock to the operating mechanism.

For evaluation of wear on the main contacts over the life of the circuit breaker, contact erosion indication is provided on each interrupter pole assembly.

Together with a total commitment to quality, these features provide long life with high reliability.

Safety Barriers and Interlocks

Full compartmentalization is supplied with primary functions separated by grounded metal barriers. All bussing is insulated and live parts are not exposed. Safety interlocks work with the breaker racking system. These protective features furnish integrity to the equipment and provide safety for operating personnel.

Floor Space Economy and Application Flexibility

The two tier configuration permits feeder breakers to be stacked two high to save valuable floor space, or stacked one high combined with auxiliary units for the ultimate in application flexibility.

Convenient Handling

The VR breaker is a horizontal drawout type designed to provide long life, reduced maintenance and ease of handling. The breaker truck has wheels for easy movement into a lower cell (indoor switchgear) without use of any lifting device. A lifting truck is provided for installation of a breaker into an upper cell. Typical breaker weight is 350-480 lbs.

Comprehensive Test Program

A comprehensive design testing program has been performed by Square D development engineers. The switchgear and breakers are designed and tested in accordance with all applicable ANSI Standards C37.04, C37.06, C37.09 and C37.20.2. The switchgear and breakers meet the requirements of ANSI, IEEE, NEMA, and generally exceed IEC standards.

Rear view/termination compartment with incoming line and load bus runbacks.

Hinged Front Door

Relays and metering instruments are mounted on the doors in standardized arrangements to satisfy customer requirements. Each breaker compartment door provides a racking access port to allow moving the circuit breaker to or from the connected position with the door closed. (Option for single full-height door with "one-high" construction.)

Horizontal Drawout Circuit Breaker

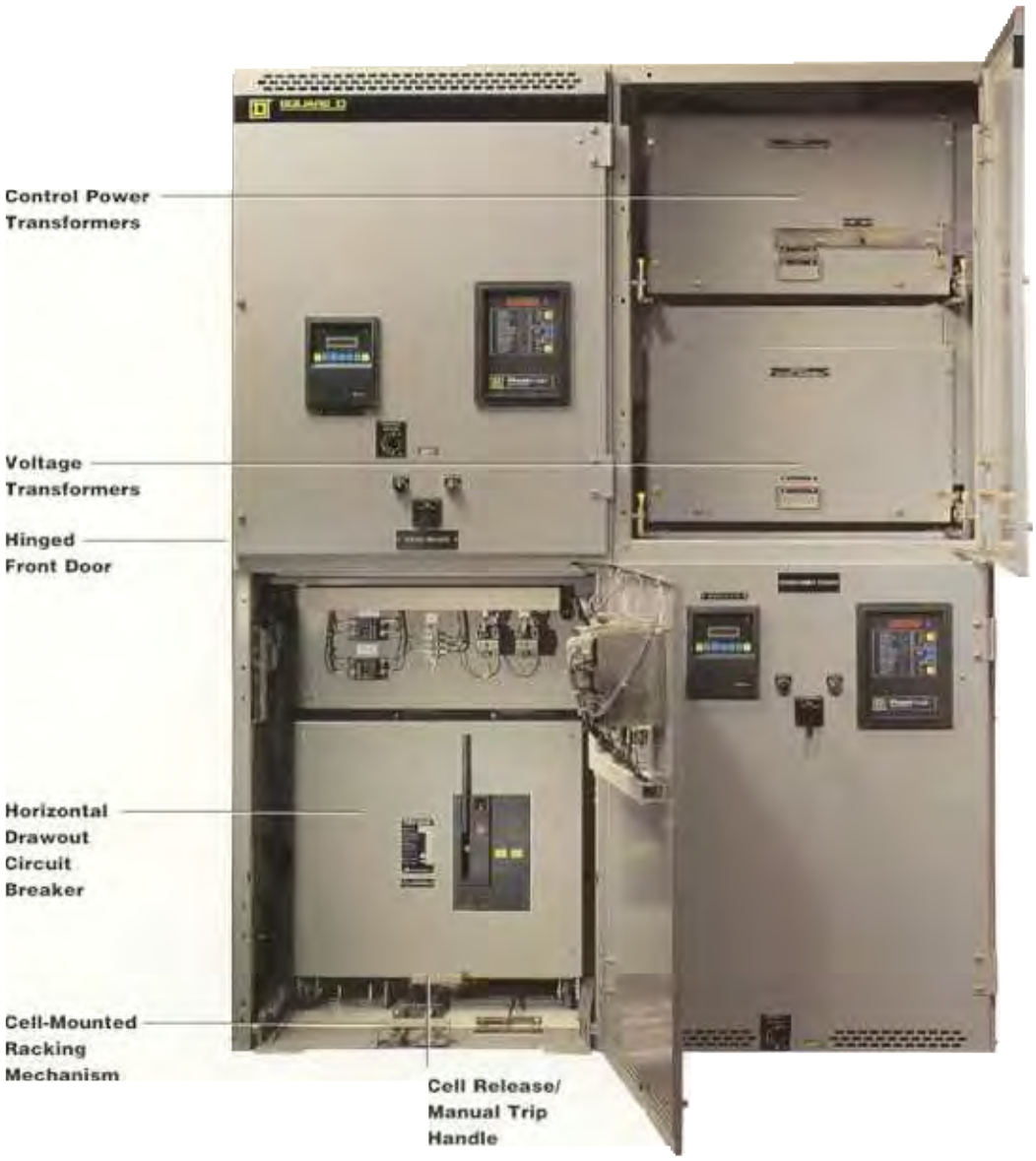
VR vacuum circuit breakers utilize the horizontal drawout design. Test/disconnected and connected positions are provided.

Control Power Transformers

Control power transformers rated up to 15 kVA are drawer mounted and can be completely withdrawn from the front of the switchgear for ease of maintenance. A secondary circuit breaker mechanical interlock is provided and must be opened before the transformer can be withdrawn for access to primary fuses.

Voltage Transformers

Front accessible, drawer mounted voltage transformers can be completely withdrawn on extension rails. For operator safety, the voltage transformers are disconnected and grounded during movement to the withdrawn position.



Racking System

The high quality gear-driven racking mechanism is center-mounted on the cell floor, providing balanced movement of the breaker between cell positions. The racking system is coordinated with safety interlocks to prevent movement of the breaker unless main contacts are in the open position.

Racking access port with front door closed.

SQUARE D COMPANY REGISTERED TO ISO 9001

Square D Metal-Clad Switchgear is designed and manufactured in a facility that is Quality Systems Registered by Underwriters Laboratories, Inc. to ISO 9001.

Cable Space

Top or bottom power cable entry space is provided. The quantity of cable termination devices and space for surge arresters vary with the ratings of breakers selected for each vertical section.

Compartment Barriers

Grounded metal barriers separate the main compartments—breaker, main bus, cable, instrument/relay (low voltage area), and auxiliary (VT and/or CPT).

Main Bus and Insulation

Main bus and runbacks are insulated with a track-resistant, flame retardant epoxy coating by the fluidized bed process. Bus support standoff insulators are glass polyester at 5 kV and porcelain at 15 kV. Bus joints are insulated by vinyl boots. Access covers are provided for main bus inspection from front and rear.

Main Bus Barriers

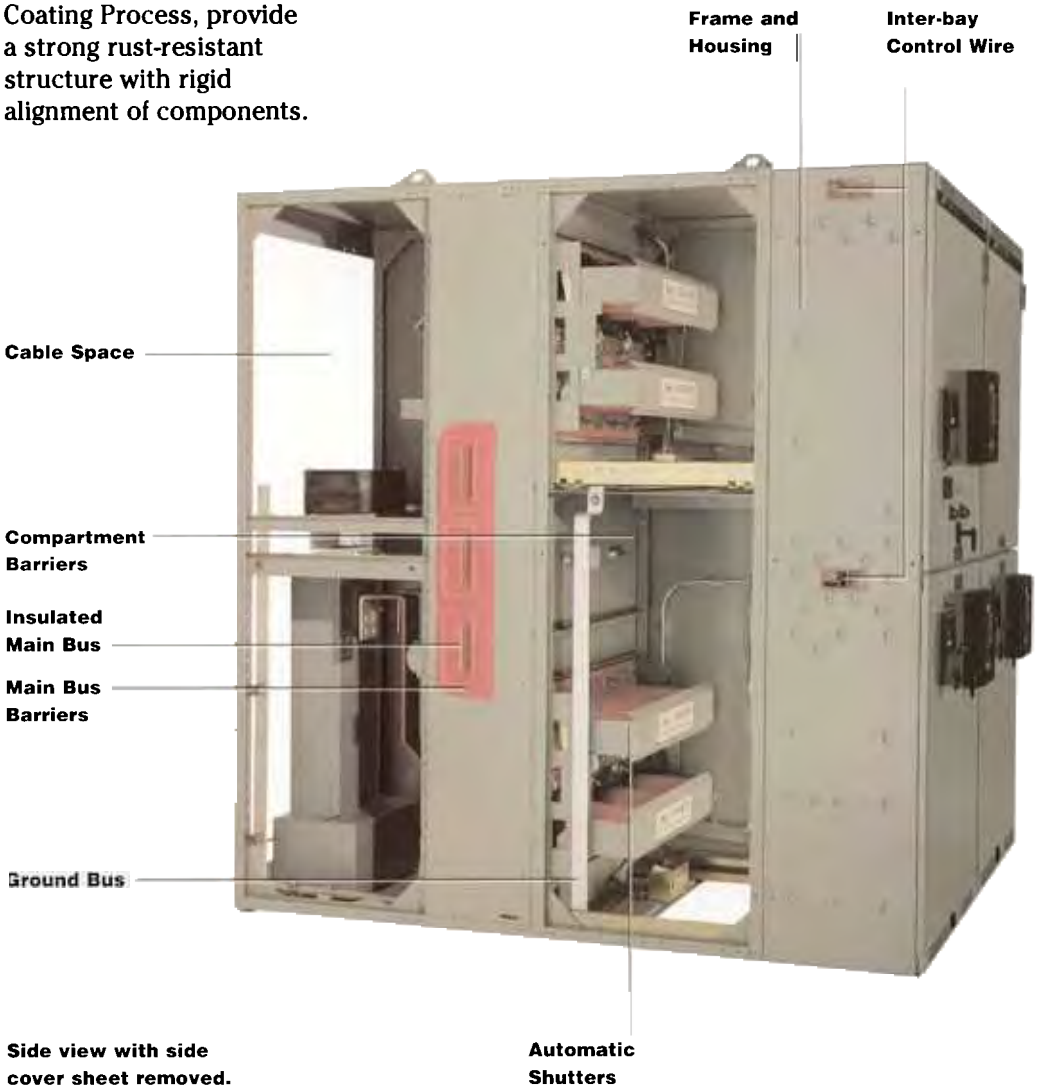
Main bus barriers between bays are track-resistant, flame retardant glass polyester. Optional porcelain inserts are available with the glass polyester barriers.

Automatic Shutters

When the breaker is withdrawn from the connected position, the racking mechanism linkage positively rotates the grounded metal shutters into a position which covers the energized components.

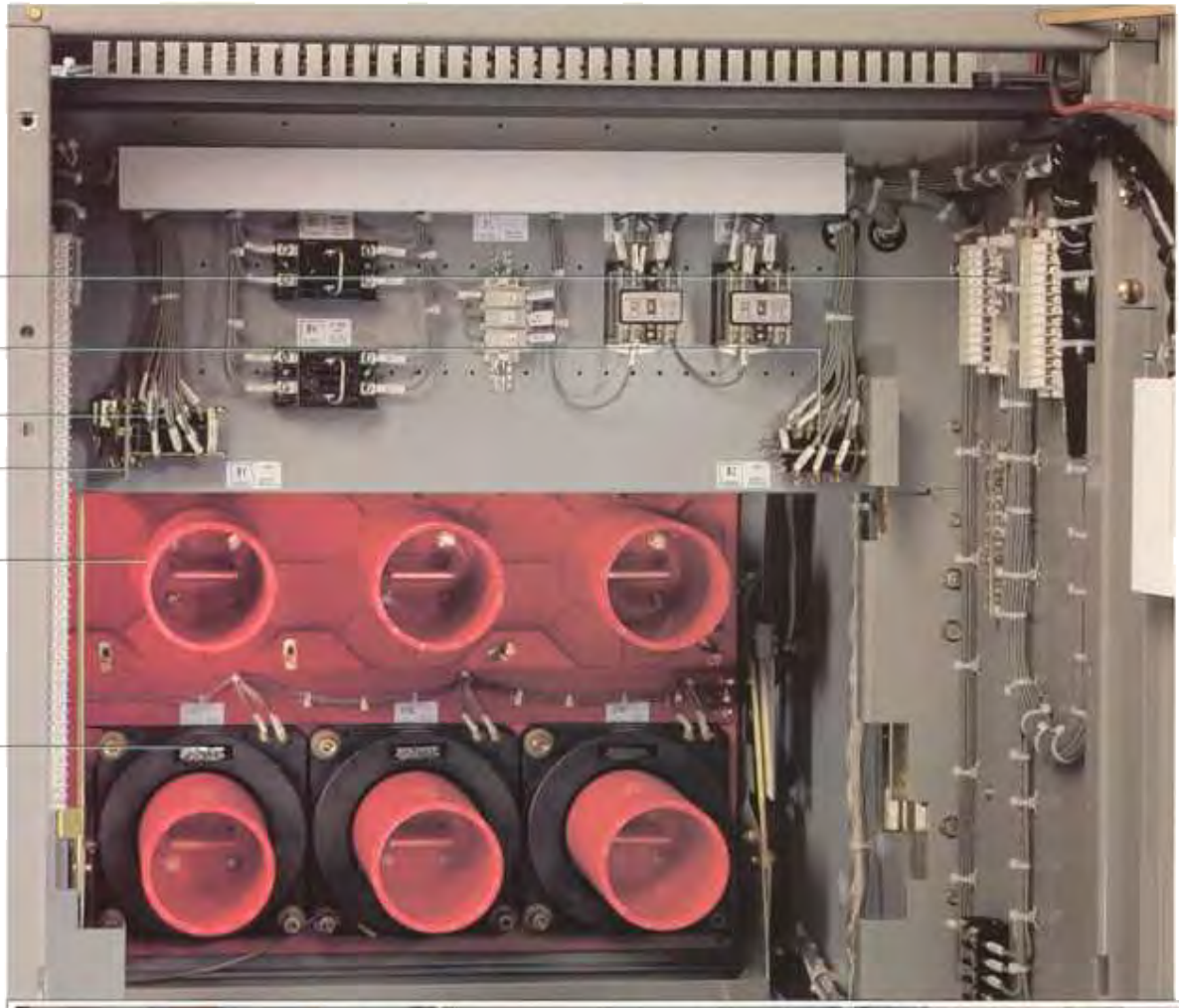
Frame and Housing

Precision-formed steel frames and inner panels, painted by the superior TGIC Polyester Powder Coating Process, provide a strong rust-resistant structure with rigid alignment of components.



Side view with side cover sheet removed.

MASTERCLAD™ BREAKER COMPARTMENT FEATURES



Breaker Compartment Floor Details (Highlighted View)

SQUARE D COMPANY REGISTERED TO ISO 9001 CERTIFICATE NO. A2211

Square D Metal-Clad Switchgear is designed and manufactured in a facility that is Quality Systems Registered by Underwriters Laboratories, Inc. to ISO 9001.

Control Wiring

All secondary/control wiring, including terminal blocks, CT shorting blocks, and other devices are located in the instrument compartment at the front of each breaker section, isolated from the primary voltage areas. Each section has provisions for control wiring entry from top or bottom.

Cell Switch—T-O-C

(Optional) Stationary-mounted switch, 6 or 10 contacts, provides electrical indication of the position of the circuit breaker in the cell—connected position or test/disconnected position.

Auxiliary Switch—M-O-C

(Optional) Stationary-mounted switch, 6 or 10 contacts, maintains the same position as the breaker-mounted auxiliary switch—indicating breaker open or breaker closed.

Current Transformers
(Mounted behind shutters)

Bushing type current transformers are front accessible—located behind the shutters (shown in open position*, in photo at left) and mounted on the primary insulating bushings. Space will permit one or two current transformers on both sides of each circuit breaker—up to four total with ANSI standard relay accuracy class rating; two maximum with higher relay accuracies.

Secondary Control Receptacle

Self-aligning receptacle automatically engages the control plug when circuit breaker is racked to the connected position.

Auxiliary Switch Actuator

Operates M-O-C Auxiliary Switch when the circuit breaker is in the connected position and in the test position (unless otherwise specified).

Breaker Alignment Rails

The breaker cell has slotted alignment rails which capture the breaker rail rollers on each side of the breaker to provide assurance of breaker alignment with the cell. Note that the rail rollers are side-mounted and different from the wheels on the breaker truck.

Breaker Removal Latch Cam

Prevents removal of circuit breaker until handle at bottom front of circuit breaker is pulled by the operator.

Primary Insulating Bushings/Stationary Main Contacts
(Shown with current transformers)

Standard glass polyester (or optional porcelain) insulating bushings are used to support the primary stationary disconnect main contacts. The same bushings provide insulated mounting provisions for the current transformers.

Spring Discharge Interlocks

Both opening and closing springs are automatically discharged when circuit breaker is removed from the compartment. Racking arm operates linkage on bottom of breaker.

Breaker Rating Block

Prevents insertion of a breaker with lower rating, either MVA or continuous ampacity, than the compartment is designed to accept.

Breaker Position Indicator

The breaker position, either "connected" or "test/disconnected," is shown by the rotation of a colored indicator wheel driven by the racking mechanism and clearly visible with the cell front door either open or closed.

Locking Provisions

The safety shutters may be locked closed by padlocking (1 or 2) or by key interlock to prevent installation of a circuit breaker when required by customer maintenance procedures.

Racking Trip

Maintains breaker trip position during racking between test and connected positions. Racking arm operates linkage on bottom of breaker.

**Note: Shown with shutter barrier removed and shutters in the open position for illustrative purposes only. If access to current transformers is required, the switchgear must be de-energized before the shutters are moved to the open position.*

The VR circuit breaker with the Type RI advanced design motor-charged stored energy mechanism is a model of reliability with simplicity—virtually maintenance free. With an operating life exceeding the ANSI test requirements, the RI mechanism with synchronizing crossbar is electrically and mechanically trip-free. An integral handle (non-removable) is provided for manual charging and slow-closing during testing.

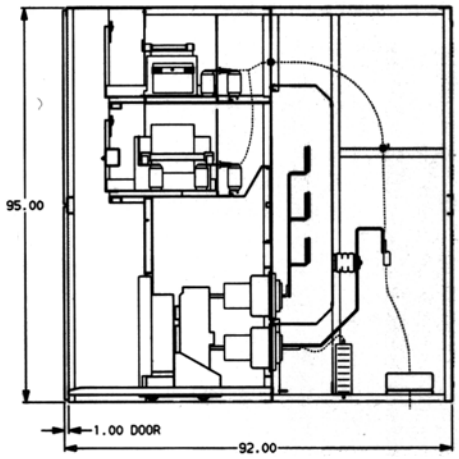
The VR is completely tested and certified to all applicable ANSI circuit breaker standards.

The vacuum interrupters of the VR circuit breaker are mounted in high-strength, molded glass-reinforced polyester insulation/support housings. The molded housings position the bus runbacks for precise alignment. The completed pole units are bolted directly to the breaker truck. The inherent rigidity and mechanical strength of this circuit breaker design complement the operating mechanism, resulting in high endurance and reliability.

VR Circuit Breaker with Front Cover Removed

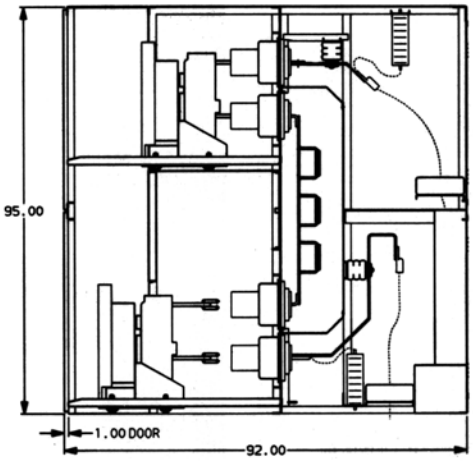
VR Circuit Breaker Rear View

36"w Sections with Standard Dimensions

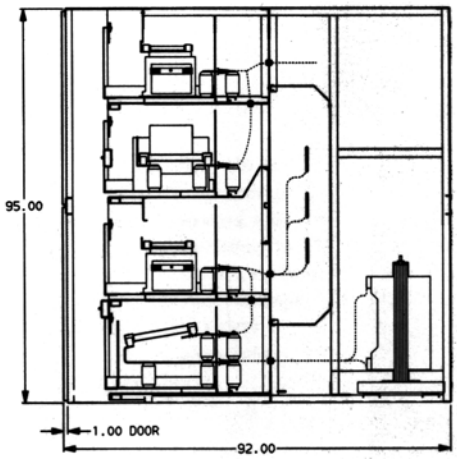


One high (main or feeder) arrangement with auxiliary drawout units behind the relay/meter door.

Note: For 3000A applications, the compartment above the 3000A breaker is blank except for relays, control switches, and other instruments.

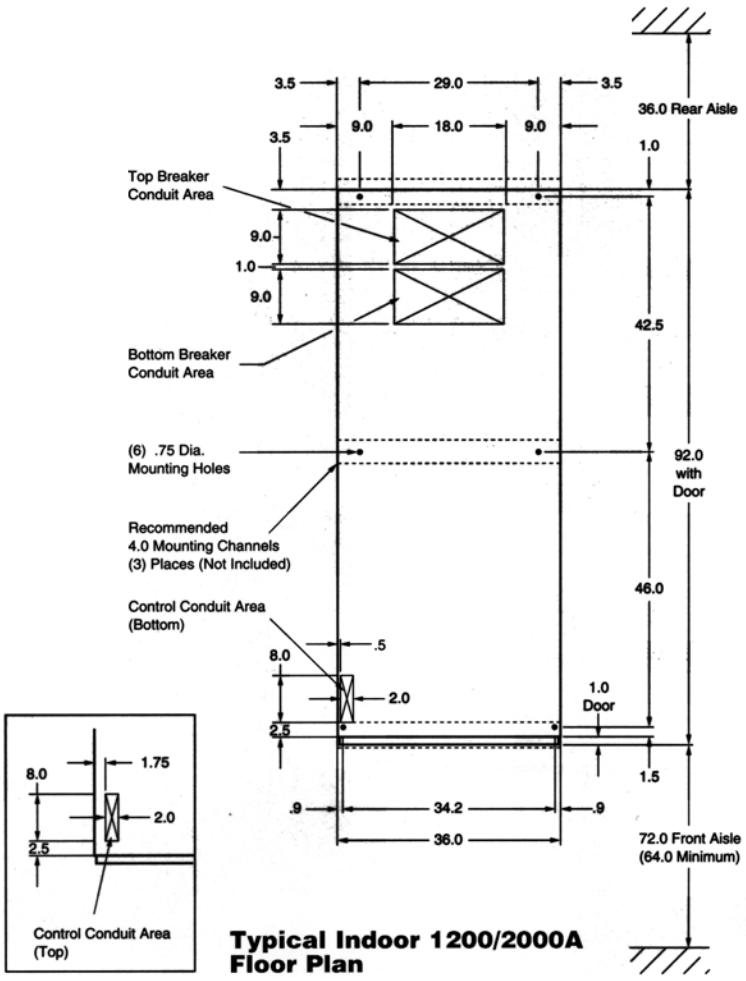


Two high feeder section arrangement—1200/1200A or 1200/2000A. Top or bottom cable entry.



Auxiliary section with up to four drawout units—VTs, CPT (to 15 kVA), primary fuse truck for (rear) fixed-mtd. CPT to 50 kVA-1Ø; 45 kVA-3Ø.

	Weights
Section, (less bkr):	2000 lbs
1200A Breaker:	360 lbs
2000A Breaker:	410 lbs
3000A Breaker:	480 lbs



Typical Indoor 1200/2000A Floor Plan

SQUARE D COMPANY REGISTERED TO ISO 9001

Square D Metal-Clad Switchgear is designed and manufactured in a facility that is Quality Systems Registered by Underwriters Laboratories, Inc. to ISO 9001.

Do Not Use for Construction. Dimensions are in Inches.

Circuit Breaker Ratings Data Chart

Type of Breaker	Nominal Rating: Three Phase MVA	Nominal Rating: Voltage kV–rms	Rated Cont. Current 60 Hertz Amps.–rms	Rated Voltages: Max. Voltage kV–rms	Rated Voltages: Range Factor K	Rated Voltages: Min. Voltage kV–rms	Insulation Level Rated Withstand: Low Freq. kV–rms	Insulation Level Rated Withstand: Impulse 1.2x50μS kV–Crest②	Interrupting Ratings① Amps. – Symmetrical: Max. kV Amps.–rms③	Interrupting Ratings① Amps. – Symmetrical: Nom. kV Amps.–rms	Interrupting Ratings① Amps. – Symmetrical: Min. kV Amps.–rms	Asym-metrical Rating Factor④	Short Time Rating 3 Sec. Amps.–rms	Close & Latch Rating Amps.–rms⑤	Inter-rupting Time Cycles
VR-05025-12	250	4.16	1200	4.76	1.24	3.85	19	60	29,000	33,200	36,000	1.2	36,000	58,000	3
VR-05025-20	250	4.16	2000	4.76	1.24	3.85	19	60	29,000	33,200	36,000	1.2	36,000	58,000	3
VR-05025-30*	250	4.16	3000	4.76	1.24	3.85	19	60	29,000	33,200	36,000	1.2	36,000	58,000	3
VR-05035-12	350	4.16	1200	4.76	1.19	4.0	19	60	41,000	46,900	49,000	1.2	49,000	78,000	3
VR-05035-20	350	4.16	2000	4.76	1.19	4.0	19	60	41,000	46,900	49,000	1.2	49,000	78,000	3
VR-05035-30*	350	4.16	3000	4.76	1.19	4.0	19	60	41,000	46,900	49,000	1.2	49,000	78,000	3
VR-08050-12	500	7.20	1200	8.25	1.25	6.6	36	95	33,000	37,800	41,000	1.2	41,000	66,000	3
VR-08050-20	500	7.20	2000	8.25	1.25	6.6	36	95	33,000	37,800	41,000	1.2	41,000	66,000	3
VR-08050-30*	500	7.20	3000	8.25	1.25	6.6	36	95	33,000	37,800	41,000	1.2	41,000	66,000	3
VR-15050-12	500	13.8	1200	15.0	1.30	11.5	36	95	18,000	19,500	23,000	1.2	23,000	37,000	3
VR-15050-20	500	13.8	2000	15.0	1.30	11.5	36	95	18,000	19,500	23,000	1.2	23,000	37,000	3
VR-15050-30*	500	13.8	3000	15.0	1.30	11.5	36	95	18,000	19,500	23,000	1.2	23,000	37,000	3
VR-15075-12	750	13.8	1200	15.0	1.30	11.5	36	95	28,000	30,400	36,000	1.2	36,000	58,000	3
VR-15075-20	750	13.8	2000	15.0	1.30	11.5	36	95	28,000	30,400	36,000	1.2	36,000	58,000	3
VR-15075-30*	750	13.8	3000	15.0	1.30	11.5	36	95	28,000	30,400	36,000	1.2	36,000	58,000	3
VR-15100-12	1000	13.8	1200	15.0	1.30	11.5	36	95	37,000	40,200	48,000	1.2	48,000	77,000	3
VR-15100-20	1000	13.8	2000	15.0	1.30	11.5	36	95	37,000	40,200	48,000	1.2	48,000	77,000	3
VR-15100-30*	1000	13.8	3000	15.0	1.30	11.5	36	95	37,000	40,200	48,000	1.2	48,000	77,000	3

* Availability to be announc

① For interrupting current ratings at operating voltages other than those listed, use the following formula:

$$I_{op} = \frac{V_{max}}{V_{op}} \times I_{Vmax}$$

The calculated current should not exceed the maximum interrupting current rating, Imax:

$$I_{max} = K \times I_{Vmax}$$

② These values apply with circuit breaker in or out of enclosure.

③ Rated Short Circuit Current (at rated Max kV).

④ Rating factor is based on breaker speed from initiation of trip signal to contact parting, allowing for 1/2 cycle relay time. To obtain the asymmetrical current interrupting capacity of the breaker, multiply the symmetrical current by 1.2.

⑤ Close and Latch Rating (Momentary) Amps rms = (1.6K) (Rated Short Circuit Current). Additional Close and Latch Rating in kA Crest = (2.7K) (Rated Short Circuit Current).

Breaker Identification

General

The (indoor) (outdoor non-walk-in) (outdoor walk-in) Metal-Clad Switchgear described in this specification is intended for use on a (2400) (4160) (4800) (6900) (13800) volt 3-phase (3) (4) wire (grounded) (ungrounded) 60 Hertz system. The switchgear shall be rated (4160) (7200) (13800) nominal volts and have VR horizontal drawout circuit breakers.

The switchgear and circuit breakers, individually and as a unit, shall have a BIL (impulse) rating of (60) (95) kV. The momentary rating of the switchgear bus shall be equal to the close and latch rating of the circuit breakers. The entire switchgear assembly including circuit breakers, meters, relays, etc., shall be completely factory tested and the circuit breakers of like ratings shall be interchangeable.

Applicable Standards

The switchgear covered by this specification shall be designed, tested, and assembled in accordance with the applicable standards of ANSI/IEEE and NEMA.

Stationary Structure

The switchgear shall consist of __ sections including __ breaker compartments and __ auxiliary compartments assembled to form a rigid, self-supporting, completely enclosed structure providing steel barriers between sections. The sections are divided by metal barriers into the following separate compartments: circuit breaker, instrument, main bus, auxiliary device, and cable. Each section may have up to two breaker compartments.

Circuit Breaker Compartment

Each circuit breaker cell compartment shall be designed to house a VR horizontal drawout (4160) (7200) (13800) volt vacuum circuit breaker. The stationary primary disconnecting contacts are to be silver-plated copper and mounted within glass polyester support bushings. The movable contacts and springs shall be mounted on the circuit breaker element for ease of inspection/maintenance.

Entrance to the stationary primary disconnecting contacts shall be automatically covered by metal shutters when the circuit breaker is withdrawn to the test or disconnected positions or removed from the circuit breaker compartment.

The metal shutters shall be operated by direct mechanical linkage to the floor-mounted racking mechanism. Extend a ground bus into the circuit breaker compartment to automatically ground the breaker frame when in the test and connected positions with high-current spring type grounding contacts located on the breaker chassis. Slotted guide rails for positioning the circuit breaker and all other necessary hardware are to be an integral part of the circuit breaker compartment. The circuit breaker rail rollers shall be held captive on both top and bottom by the slotted guide rails to provide assurance of breaker alignment with the cell, while preventing vertical movement of the breaker truck during normal operation and under short circuit conditions. A breaker position indicator ("connected" or "test/disconnected") shall be driven by the racking mechanism and be visible with the front door either open or closed. Blocking devices shall interlock breaker frame sizes to prevent installation of a lower ampere rating or interrupting capacity element into a compartment designed for one of a higher rating. It shall be possible with indoor or outdoor walk-in switchgear to install a circuit breaker into a bottom compartment without use of a transport truck or lift device.

Cable Compartment

(Clamp type cable lugs) (Potheads) (Cable terminators) shall be furnished as shown on plans. The copper ground bus shall extend through this compartment for the full length of the switchgear.

Main Bus Compartment

The main bus is to be rated (1200) (2000) (3000) amperes and be fully insulated for its entire length with an epoxy coating by the fluidized bed process. The conductors are to be (aluminum with tin-plated joints) (copper with silver-plated joints) and be of a bolted (not welded) design. Access to this compartment is gained from the front or rear of the structure by removing a steel barrier. Bus support standoff insulators shall be glass polyester at 5kV and porcelain at 15kV. Bus joints shall be insulated with vinyl boots.

Doors and Panels — Indoor and Outdoor

Relays, meters, control switches, etc., shall be mounted on a formed front-hinged panel for each circuit breaker compartment. In addition, outdoor sections, NEMA 3R non-walk-in, have full-height weatherproof front door with 3-point latch. Indoor sections to be furnished with two screw-removable rear panels. Outdoor sections to be furnished with full-height rear-hinged panels.

Circuit Breakers

The VR circuit breakers shall be rated (4160) (7200) (13800) nominal volts, 60 Hertz, (1200) (2000) (3000) amperes and an interrupting class rating of (250) (350) (500) (750) (1000) MVA with one vacuum interrupter per phase. Breakers of equal rating shall be completely interchangeable. The circuit breaker shall be operated by means of a stored energy mechanism which is normally charged by a universal motor, but can also be charged by the integral handle for manual emergency closing or testing. The closing speed of the moving contacts is to be independent of both the control voltage and the operator. Provide a full front shield on the breaker. Positive contact secondary disconnect shall be through automatic self-aligning, self-engaging type plug and contact arrangement. Provision shall be made for control power plug to be manually connected in test position. A minimum of 4 auxiliary contacts (2a, 2b) shall be provided for external use. Provisions shall be made for (6) (10) additional cell-mounted auxiliary contacts (M-O-C type) (and) (T-O-C type) for external use.

An interlocking system shall be provided to make it impossible to rack a closed circuit breaker to or from any position. An additional interlock shall automatically discharge the stored-energy operating mechanism springs upon removal of the breaker from the compartment.

The circuit breaker control voltage shall be:

(48) (125) (250) volts DC

(120) (230) volts AC

Instrument Transformers

Current transformers: each breaker compartment shall have provision for front-accessible mounting of up to four current transformers per phase, two on bus side and two on cable side of circuit breaker. The current transformer assembly shall be insulated for the full voltage rating of the switchgear. Relaying and metering accuracy shall conform to ANSI standards.

Voltage transformers are drawout mounted with primary current-limiting fuses and shall have ratio as indicated. The transformers shall have mechanical rating equal to the momentary rating of the circuit breakers and shall have metering accuracy per ANSI standards.

Control Wiring

The switchgear shall be wired with Type SIS #14 AWG, except #12 AWG for current transformers wiring. The switchgear shall be provided with terminal blocks for outgoing control connections.

Finish

After pretreatment to form a primer coating of zinc phosphate on the metal, finish coating shall be an electrostatically applied TGIC polyester powder paint. The process shall be designed to withstand at least 2500 hours of salt spray as tested per ASTM B-117 and ASTM D-1654. Switchgear finish to be light gray ANSI #61.

Accessories

Standard accessories shall be furnished with the switchgear, including:

Manual charging/slow close handle (on front of each breaker.)

Manual racking crank handle (one per lineup.)

Optional Accessories: Test cabinet, test cable with jack and plug, 5th wheel, breaker lift truck*, manual ground and test unit (MGTU), automatic/electrically-operated ground and test unit (AGTU), and remote racking motor.

For further information about Square D MASTERCLAD Switchgear with Vacuum or SF_6 Circuit Breakers, contact your nearby Square D sales office. They are conveniently located in over 200 cities throughout the world to serve you.

**The lift truck is provided for indoor and outdoor walk-in switchgear with upper compartment breaker cells. The lift truck is also provided for all outdoor non-walk-in switchgear to install breakers over the base channels.*

Item No.	Qty.	Catalog Number / Details

SUBSTATION TRANSFORMER

002-00 1

Designation: Trans. for Circuit #9
CLASS 7240 UNIT SUBSTATION XFMR
SQUARE D SECONDARY UNIT SUBSTATION

LIQUID FILLED:: LESS FLAMMABLE SEED OIL
3750 KVA rated
PRIMARY VOLT: 13200 DELTA
95 KV BIL
SECONDARY VOLT: 480Y/277
30 KV BIL
STANDARD 60 HERTZ
IMPEDANCE: 5.75% +/- 7.5% TOLERANCE
CONDUCTOR: COPPER WINDINGS
TEMP: 120 DEGREES INSULATION CLASS
65 RISE OVER 30 AVG - 40 MAX AMB
TAPS: 2-2.5% FCAN, 2-2.5% FCBN
ALTITUDE: STD. 3300 FEET MAXIMUM
64 DB SOUND LEVEL

MODIFICATIONS:

KNAN-FUTURE FORCED AIR LESS FANS WINDING TEM
FAN CONTROL SWITCH - MANUAL/AUTO/OFF
DIAL TYPE THERMOMETER WITH CONTACTS
LIQUID LEVEL GAUGE
PRESSURE VACUUM GAUGE W/BLEEDER
DRAIN VALVE WITH SAMPLER DEVICE
PRESSURE RELIEF VALVE
PRESSURE RELIEF DIAPHRAGM
WINDING TEMP. INDICATOR WITH CONTACTS
NEMA 3R CONTROL BOX WITH FAN PACKAGE
FILL VALVE
NITROGEN TEST PORT
ALUMINUM TRANSFORMER NAMEPLATE
UL LISTING
PAINT COLOR ANSI 49
STANDARD EFFICIENCY

HIGH VOLTAGE TERMINATIONS:

SIDEWALL MOUNTED ON LEFT (SEGMENT-2)
CONNECTION TO MASTERCLAD
NO SURGE ARRESTERS

LOW VOLTAGE TERMINATIONS:

SIDEWALL MOUNTED ON RIGHT (SEGMENT-4)
CONNECTION TO BUSWAY (I-LINE) -
5000 AMP 4 POLE COPPER
PORCELAIN LOW VOLTAGE BUSHINGS
TIN-PLATED COPPER BUSHING CONDUCTOR

Item No.	Qty.	Catalog Number / Details

TRANSFORMER TESTS:

RATIO TEST
POLARITY TEST
PHASE RELATION TEST
NO-LOAD LOSS TEST
EXCITATION CURRENT TEST
IMPEDANCE VOLTAGE TEST
LOAD LOSS TEST
APPLIED POTENTIAL TEST
INDUCED POTENTIAL TEST
LEAK TEST
POWER FACTOR TEST
RESISTANCE MEASUREMENT TEST
INSULATION RESISTANCE TEST
TEST REPORT REQUIRED (STD FORMAT)
FACTORY QC IMPULSE TEST HV ONLY
DESIGNATION ON TEST REPORT

NOTES:

SPECIFICATION ON RECORD

STANDARDS: ANSI 57 SERIES
SECONDARY FLEX CONNECTORS TO BE SHIPPED
WITH THE LOW VOLTAGE SWITCHGEAR.

SPECIAL PRICING:

5000:5 CTs on secondary spades wired to s/b
FACTORY QUOTE: 120503TC1

Revision (03102012/04012012)

Item No.	Qty.	Catalog Number / Details
004-00	1	**Designation:** Trans. for Circuit #10 CLASS 7240 UNIT SUBSTATION XFMR SQUARE D SECONDARY UNIT SUBSTATION ---------- LIQUID FILLED:: LESS FLAMMABLE SEED OIL 3750 KVA rated PRIMARY VOLT: 13200 DELTA 95 KV BIL SECONDARY VOLT: 480Y/277 30 KV BIL STANDARD 60 HERTZ IMPEDANCE: 5.75% +/- 7.5% TOLERANCE CONDUCTOR: COPPER WINDINGS TEMP: 120 DEGREES INSULATION CLASS 65 RISE OVER 30 AVG - 40 MAX AMB TAPS: 2-2.5% FCAN, 2-2.5% FCBN ALTITUDE: STD. 3300 FEET MAXIMUM 64 DB SOUND LEVEL MODIFICATIONS: ---------- KNAN-FUTURE FORCED AIR LESS FANS WINDING TEM FAN CONTROL SWITCH - MANUAL/AUTO/OFF DIAL TYPE THERMOMETER WITH CONTACTS LIQUID LEVEL GAUGE PRESSURE VACUUM GAUGE W/BLEEDER DRAIN VALVE WITH SAMPLER DEVICE PRESSURE RELIEF VALVE PRESSURE RELIEF DIAPHRAGM WINDING TEMP. INDICATOR WITH CONTACTS NEMA 3R CONTROL BOX WITH FAN PACKAGE FILL VALVE NITROGEN TEST PORT ALUMINUM TRANSFORMER NAMEPLATE UL LISTING PAINT COLOR ANSI 49 STANDARD EFFICIENCY HIGH VOLTAGE TERMINATIONS: ---------- SIDEWALL MOUNTED ON RIGHT (SEGMENT-4) CONNECTION TO MASTERCLAD NO SURGE ARRESTERS LOW VOLTAGE TERMINATIONS: ---------- SIDEWALL MOUNTED ON LEFT (SEGMENT-2) CONNECTION TO BUSWAY (I-LINE) - 5000 AMP 4 POLE COPPER PORCELAIN LOW VOLTAGE BUSHINGS TIN-PLATED COPPER BUSHING CONDUCTOR

Item No.	Qty.	Catalog Number / Details

TRANSFORMER TESTS:

RATIO TEST
POLARITY TEST
PHASE RELATION TEST
NO-LOAD LOSS TEST
EXCITATION CURRENT TEST
IMPEDANCE VOLTAGE TEST
LOAD LOSS TEST
APPLIED POTENTIAL TEST
INDUCED POTENTIAL TEST
LEAK TEST
POWER FACTOR TEST
RESISTANCE MEASUREMENT TEST
INSULATION RESISTANCE TEST
TEST REPORT REQUIRED (STD FORMAT)
FACTORY QC IMPULSE TEST HV ONLY
DESIGNATION ON TEST REPORT

NOTES:

SPECIFICATION ON RECORD

STANDARDS: ANSI 57 SERIES
SECONDARY FLEX CONNECTORS TO BE SHIPPED
WITH THE LOW VOLTAGE SWITCHGEAR.

SPECIAL PRICING:

5000:5 CT's on secondary spades wired to s/b
FACTORY QUOTE: 120503ct1

Revision (03102012/04012012)

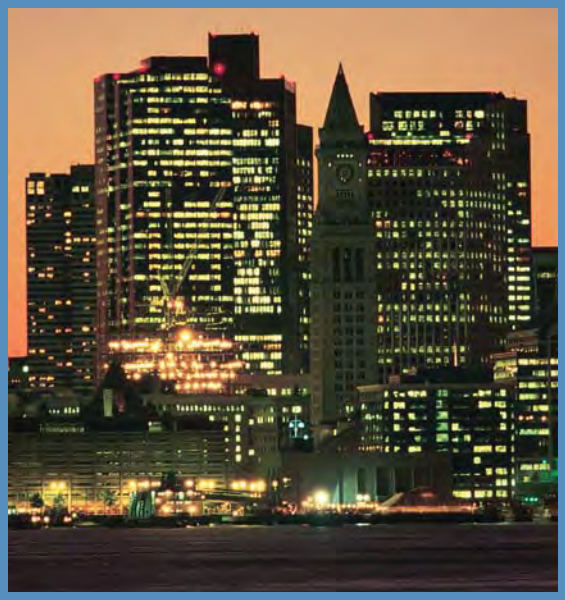
Substation

Small Power Transformers
225-20,000 kVA
2.5 kV through 69 kV primary voltage
120V through 34.5 kV secondary voltage

a brand of Schneider Electric

SQUARE D

RELIABLE AND LONG-LASTING



Substation Transformers

Schneider Electric is a recognized market leader, offering a full range of distinctively Square D®-designed transformer products such as the liquid-filled substation transformer. Like all of our transformers, it is manufactured in ISO-registered facilities that use the industry's leading manufacturing technology, ensuring products of the highest quality and performance.

At Schneider Electric, we are committed to excellence. Our substation transformers are built and tested to stringent Square D brand specifications, and meet or exceed applicable ANSI/IEEE, CSA and NEMA standards. These transformers may be UL, cUL or FM labeled upon request.

Medium-Voltage, Liquid-Filled

Substation transformers are medium-voltage, liquid-filled, world-class power distribution transformers. Substation transformers use a choice of either mineral oil, silicone or less-flammable seed-oil based fluid.

For more information about substation transformers or other products, please visit www.us.SquareD.com or call 1-888-SquareD.

Efficient and Dependable

Liquid-filled substation transformers deliver unrivaled reliability and high efficiency. These long-lasting transformers provide the dependability, rugged construction and space-saving, energy-saving economy needed for primary or secondary distribution systems.

Rugged Design

Liquid-filled substation transformers provide excellent mechanical strength. The core, made of high-grade, grain-oriented, silicon steel laminations, has high-magnetic permeability. Magnetic flux density is kept well below the saturation point. The core construction includes step-lap mitered joints, ensuring that core losses, excitation currents and noise levels are kept to a minimum.

Varied Applications

Liquid-filled substation transformers are used in a wide variety of commercial and industrial applications. They are commonly used in medium-voltage unit substations in indoor or outdoor applications. They are also used in stand-alone applications in primary or secondary distribution systems.

Environmental Information

These transformers are offered with a choice of one of three different fluids, including mineral oil (biodegradable oil for outdoors), silicone fluid (dimethyl polysiloxane) or less-flammable seed-oil based fluid. When flammability is a concern, silicone or less-flammable seed-oil based fluid are generally used. Less-flammable seed-oil based fluid is used when any insulating fluid spill could require expensive cleanup procedures.

The sealed-tank construction of these transformers makes them suitable for less-than-ideal environments.

Liquid-Filled Substation Transformer Ratings

225–20,000 kVA (fan cooling allows higher kVA ratings)
Primary voltages: 2.5 kV through 69 kV
Secondary Voltages: 120 V through 34.5 kV
120°C insulation temperature limit
ISO 9001 registered
Optional UL and cUL certification
Optional factory mutual listing

Special Design Options

Special sound requirements
Special altitude requirements
Retrofit designs
Higher efficiency requirements
Special ambient conditions
55/65°C rise
Intertaire® positive pressure nitrogen gas system
Conservator (expansion tank) liquid preservation system
Load tap changers

Applicable Standards

IEEE C57.12.00™
Standard general requirements for liquid-immersed distribution, power and regulating transformers.

ANSI C57.12.10
Standard for transformers 230 kV and below 833/958 through 8333/10 417 kVA, single-phase, and 750/862 through 60 000/80 000/100 000 kVA, three-phase without load tap changing; and 3750/4687 through 60 000/80 000/ 100 000 kVA with load tap changing.

IEEE C57.12.70™
Terminal markings and connections for distribution and power transformers.

ANSI C57.12.28
Switchgear and transformers, pad-mounted equipment — enclosure integrity.

IEEE C57.12.80™
Standard terminology for power and distribution transformers (ANSI).

IEEE C57.12.90™
Test code for liquid-immersed distribution power, and regulating transformers and guide for short-circuit testing of distribution and power transformers (ANSI).

IEEE C57.105™
Guide for application of transformer connections in three-phase distribution systems (ANSI).

IEEE C57.109™
Guide for liquid-immersed transformer through-fault-current duration (ANSI).

IEEE C57.111™
Guide for acceptance of silicone insulating fluid and its maintenance in transformers.

IEEE C57.121™
Guide for acceptance and maintenance of less flammable hydrocarbon fluid in transformers.

CSA-C88
Power transformers and reactors.

CSA-C50
Insulating oils — electrical for transformers and switches.

1-888-SQUARED
www.us.SquareD.com

Schneider Electric – North American Operating Division

1415 S. Roselle Road
Palatine, IL 60067
Tel: 847-397-2600
Fax: 847-925-7500

Standard Transformer Ratings, Primary Voltage Class 2.3–46 kV, 65 °C Rise, 30 °C Ambient

kVA Self-Cooled	Secondary Voltage			
	208Y/120 V	240 V Delta	480Y/277 V 480 V Delta 600 V Delta	4160Y/2400 V 4160 V Delta 2400 V Delta
225	X	X	X	X
300	X	X	X	X
500	X	X	X	X
750	X	X	X	X
1000	X	X	X	X
1500	X	X	X	X
2000		X	X	X
2500		X	X	X
3000			X	X
3750			X	X
5000			X	X
7500				X
10,000				X
12,000				X
15,000				X
20,000				X

The above combinations are based on standard designs. Voltages above 35 kV and KVA ratings above 10,000, or other than standard designs may place further restrictions on the availability of voltage and kVA combinations. Consult the factory for final determination.

Forced Air Cooling kVA Capacity

- 15% added kVA capacity for units with an ONAN rating of 225–2000 kVA
- 25% added kVA capacity for units with an ONAN rating of 2500–10,000 kVA
- 33% added kVA capacity for units with an ONAN greater than 10,000 kVA

Audible Sound Levels

kVA Rating	Decibels (dB)	kVA Rating	Decibels (dB)
225	55	3000	63
300	55	3750	64
500	56	5000	66
750	58	7500	67
1000	58	10,000	68
1500	60	12,000	69
2000	61	15,000	70
2500	62	20,000	71

System Voltages and Transformer BIL Ratings

Nominal System Voltage (kV)	Standard and Optional Transformer BIL Ratings										
	30	45	60	75	95	110	125	150	200	250	350
1.2	S	1									
2.5		S	1								
5.0			S	1							
8.7				S	1						
15.0					S	1					
25.0							S	1			
34.5							2	S	1		
46.0									2	S	
69.0										2	S

S = Standard value.

1 = Optional higher levels where exposure to overvoltage occurs and improved protective margins are required.

2 = Lower levels where protective characteristics of applied surge arresters have been evaluated and found to provide appropriate surge protection.

Performance Data

Typical Performance Data					Regulation			
kVA	%IZ	%IR	%IX	X/R	1.0 PF	0.9 PF	0.8 PF	0.7 PF
225	4.00	1.02	3.87	3.79	1.10	2.65	3.17	3.50
300	4.00	0.90	3.90	4.33	0.98	2.56	3.09	3.44
500	4.50	1.03	4.38	4.25	1.13	2.90	3.50	3.88
750	5.75	0.91	5.68	6.24	1.07	3.40	4.21	4.75
1000	5.75	0.78	5.70	7.30	0.94	3.30	4.13	4.67
1500	5.75	0.69	5.71	8.27	0.86	3.23	4.07	4.62
2000	5.75	0.76	5.70	7.50	0.92	3.28	4.11	4.66
2500	5.75	0.60	5.72	9.53	0.76	3.15	4.00	4.57
3000	5.75	1.13	5.64	4.99	1.29	3.58	4.36	4.87
3750	5.75	1.09	5.65	5.18	1.20	3.51	4.30	4.82
5000	5.50	0.78	5.44	6.98	0.99	3.66	4.61	5.23
7500	6.50	0.73	6.46	8.85	0.98	3.87	4.90	5.58
10000	6.50	0.72	6.46	8.97	0.96	3.86	4.89	5.57

Standard % Impedance (500 kVA and below)

kVA	Typical	Optional Range
225	4.00	3.00–5.50
300	4.00	3.00–5.50
500	4.50	3.50–5.50
750–5000	5.75	5.00–8.00

Standard % Impedance (750 kVA and above)

High Voltage BIL (kV)	Low Voltage Below 2400 V	Low Voltage 2400 V and Above	Optional Range
45–110	5.75[1]	5.5 [2]	5.00–8.00
125–150	6.75	6.5	5.00–8.00
200	7.25	7.0	6.50–8.00
250	7.75	7.5	6.50–8.00
350	—	8.0	—

1 For transformers greater than 5000 kVA, this impedance is 6.75%.

2 For transformers greater than 5000 kVA, this impedance is 6.50%.

Loading

Liquid-filled substation transformers are designed to operate at rated load with rated voltage and frequency applied in “usual service” conditions. It is possible to carry overloads without loss of life expectancy. The following table shows the permissible overloads that may be carried without loss of transformer life expectancy only if occurring once in any 24-hour period given a 65 °C rise transformer in a 30 °C ambient.

ANSI/IEEE Loading Guide

Daily loads above rating to give normal life expectancy. Following and followed by a constant load of:

Peak Load Time (hours)	Times Rated kVA		
	90%	70%	50%
0.5	1.80	2.00	2.00
1	1.56	1.78	1.88
2	1.38	1.54	1.62
4	1.22	1.33	1.38
8	1.11	1.17	1.20

Typical Performance Data: High Voltage—15 kV Class; Low Voltage—600 V Class

kVA	No Load Losses (Watts)	Full Load Losses (Watts)	Total Losses (Watts)	Efficiency						
				133%	125%	100%	75%	50%	25%	Maximum
225	370	2300	2670	98.54	98.61	98.83	99.02	99.17	99.09	99.19 @ 40% load
300	490	2700	3190	98.70	98.76	98.95	99.12	99.23	99.13	99.24 @ 45% load
500	610	5160	5770	98.56	98.63	98.86	99.07	99.25	99.26	99.30 @ 35% load
750	880	6820	7700	98.72	98.78	98.98	99.17	99.32	99.31	98.35 @ 35% load
1000	1290	7820	9110	98.88	98.93	99.10	99.25	99.36	99.29	99.37 @ 40% load
1500	1810	10400	12210	99.00	99.05	99.19	99.32	99.42	99.35	99.42 @ 40% load
2000	1670	15210	16880	98.94	98.99	99.16	99.32	99.46	99.48	99.50 @ 35% load
2500	2700	15000	17700	99.13	99.17	99.30	99.41	99.49	99.42	99.49 @ 40% load
3000	4000	34000	38000	98.42	98.50	98.75	98.98	99.17	99.19	99.23 @ 35% load
3750	5000	39000	44000	98.54	98.61	98.84	99.05	99.22	99.21	99.26 @ 35% load
5000	8000	39000	47000	98.86	98.91	99.07	99.21	99.30	99.17	99.30 @ 45% load
7500	10000	55000	65000	98.94	98.99	99.14	99.28	99.37	99.29	99.38 @ 40% load
10000	13000	72000	85000	98.96	99.01	99.16	99.29	99.38	99.30	99.39 @ 40% load

Heat Contribution

Heat contribution is the heat a transformer may contribute to its environment. This may represent additional air conditioning burden in summer months, or may be used in calculating heating requirements during winter months. This heat is the result of transformer losses and is a function, in part, of loading. The following table demonstrates the effect of loading on heat contribution.

Typical Heat Contribution: High Voltage—15 kV Class; Low Voltage—600 V Class

kVA	% Load	BTU/Hour	kVA	% Load	BTU/Hour
225	25	1755	2500	25	12420
	50	3230		50	22030
	75	5680		75	38035
	100	9120		100	60445
	125	13540		125	89260
	133	15160		133	99830
300	25	2250	3000	25	20920
	50	3980		50	42690
	75	6860		75	78970
	100	10895		100	129770
	125	16080		125	195080
	133	17895		133	219050
500	25	3185	3750	25	25400
	50	6490		50	50370
	75	11995		75	91990
	100	19705		100	150260
	125	29620		125	225180
	133	33255		133	252665
750	25	4460	5000	25	35645
	50	8830		50	60620
	75	16105		75	102240
	100	26295		100	160505
	125	39400		125	235420
	133	44205		133	262910
1000	25	6075	7500	25	45890
	50	11080		50	81110
	75	19430		75	139800
	100	31110		100	221975
	125	46130		125	327630
	133	51645		133	366390
1500	25	8400	10000	25	59765
	50	15060		50	105865
	75	26160		75	182705
	100	41700		100	290275
	125	61675		125	428580
	133	69005		133	479330
2000	25	8950			
	50	18690			
	75	34920			
	100	57645			
	125	86860			
	133	97585			

Item No.	Qty.	Catalog Number / Details

SWITCHBOARDS

007-00 1

Designation: 480 VOLT SWITCHBOARD
SQUARE D CUSTOM QED SWITCHBOARD
QED Switchboard

Square D Power Style Custom Switchboard
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
Source Description - Main-Tie-Main
System Ampacity - 5000A
Bussing - Copper Plated with Silver
Neutral Bus - 100%
Max Available Fault Current (RMS) - 100kA
Enclosure - Type 1
Accessibility: Front and Rear
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Rear Hinged Door(s) with Locking Provisions
Optional Copper Ground Bus
Barriers between Sections - Steel
Lineup 1 BTU: 38986
Transparent Ready - Network Communications Only
Auto Throw-over System
Transparent Ready - Modbus TCP - Ethernet Copper
. Standard Main-Tie-Main
100 Base T Copper Hub System
. Transition Delay - 2 (SEC)
. Source Loss Delay - 3 (SEC)
. Utility Stabilization Delay - 10 (SEC)
. Transition Type - Open
. Automatic Retransfer Switch
. Preferred Source Selector
. Touchscreen HMI
Certified Test Report Required
Specials: MIMIC BUS - TAPED
Special MIMIC BUS - TAPED #: WEB TAG

Dimensions
---
3 - 48" Wide Section(s)
6 - 36" Wide Section(s)
9 - 48" Deep Enclosure(s)
Dimensions: 360.00" W X 48" Max D X 91.5" H
Approximate Weight: 9602.00

Item No.	Qty.	Catalog Number / Details

Incoming Requirements

Suitable for Use As Service Entrance -
Incoming One
Entry Point: Section 1, Through the Top
Copper Busway, Qwik-Flange
Front to Rear ABCN
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter
Circuit Monitor - CM4000T
3 CTs Circuit Monitor - 3 phase 4 wire wye
480Y/277
Circuit Monitor Display - Liquid Crystal
Ethernet Communications Card
Specials: 5000:5 CTs ahead of main
Special 5000:5 CTs ahead of main #: 5652005

Suitable for Use As Service Entrance -
Incoming Two
Entry Point: Section 9, Through the Top
Copper Busway, Qwik-Flange
Front to Rear NCBA
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter
Circuit Monitor - CM4000T
Circuit Monitor Display - Vacuum Fluorescent
3 CTs Circuit Monitor - 3 phase 4 wire wye
480Y/277
Specials: 5000:5 CTs ahead of main
Special 5000:5 CTs ahead of main #: 5652005

Mains
---
1 - 5000AF/5000AT 100% 3 Pole Stored Energy,
Fixed Mounted Circuit Breaker, ANSI:
Type NW
Device Associated to Incoming One
1 - 5000AF/5000AT 100% 3 Pole Stored Energy,
Fixed Mounted Circuit Breaker, ANSI:
Type NW
Device Associated to Incoming Two
Common Main Features:
Ammeter Trip Unit, Long Time, Short Time,
Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Auxiliary Switches 8A-8B
Overcurrent Trip Switch 1A/1B Form C
Contact (SDE)
Second Shunt Trip without Communications -
120Vac
Padlock Attachment
Shunt Trip without Communications - 120Vac
Contact Wear Indication - Visual
Spring Charging Motor - 120Vac
Shunt Close without Communications - 120Vac

Item No.	Qty.	Catalog Number / Details

Ties
---
1 - 5000AF/5000AT 100% 3 Pole Stored Energy, Fixed Mounted Circuit Breaker, ANSI: Type NW
Ammeter Trip Unit, Long Time, Instantaneous
Circuit Breaker Modbus Communications Wired
Auxiliary Switches 8A-8B
Overcurrent Trip Switch 1A/1B Form C Contact (SDE)
Second Shunt Trip without Communications - 120Vac
Padlock Attachment
Shunt Trip without Communications - 120Vac
Contact Wear Indication - Visual
Spring Charging Motor - 120Vac
Shunt Close without Communications - 120Vac

Feeders

Devices Associated to Main 1:

1 - 2500AS/2500AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL
Ammeter Trip Unit, Long Time, Short Time, Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Copper Busway, Qwik-Flange
Left to Right ABCN
Padlock Attachment for P or R-frame
1 - 1200AT 480V 80% Rated 3 Pole UL, Group Mounted Basic Electronic Trip Prepared Space: Type PL
1 - 2000AS/2000AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL
Ammeter Trip Unit, Long Time, Short Time, Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Copper Busway, Qwik-Flange
Left to Right ABCN
Padlock Attachment for P or R-frame
Power Meter - PM-850RD
3 CTs Power Meter - 3 phase 4 wire wye 480Y/277

Devices Associated to Main 2:

2 - 2500AS/2500AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL
Power Meter - PM-850RD
3 CTs Power Meter - 3 phase 4 wire wye 480Y/277
1 - 2500AS/2500AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL

Item No.	Qty.	Catalog Number / Details

Common Feeder Features:
Ammeter Trip Unit, Long Time, Short Time, Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Copper Busway, Qwik-Flange
Left to Right ABCN
Padlock Attachment for P or R-frame

Item No.	Qty.	Catalog Number / Details
008-00	1	**Designation:** SWITCHBOARD H3 SQUARE D CUSTOM QED SWITCHBOARD QED Switchboard --- Square D Power Style Custom Switchboard Designed and Tested in accordance with: UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2 System Voltage - 480Y/277V 3Ph 4W 60Hz Source Description - Main is Remote System Ampacity - 2500A Bussing - Copper Plated with Silver Neutral Bus - 100% Max Available Fault Current (RMS) - 100kA Enclosure - Type 1 Accessibility: Front Only Exterior Paint Color - ANSI 49 Ground Lug provided for each device Optional Copper Ground Bus Lineup 1 BTU: 8888 Dimensions --- 2 - 36" Wide Section(s) 2 - 36" Deep Enclosure(s) Dimensions: 72.00" W X 36" Max D X 91.5" H Approximate Weight: 1575.00 Incoming Requirements --- UL Dead Front Entry Point: Left of Lineup, Through the Top Copper Busway, Qwik-Flange Left to Right NCBA Feeders --- Devices Associated with Remote Main: 4 - 100AT 480V 80% Rated 3 Pole UL, Group Mounted Thermal Magnetic Prepared Space: Type HL 1 - 200AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JL 1 - 250AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JL 1 - 30AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type HL 1 - 600AT 480V 80% Rated 200 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type LI

Item No.	Qty.	Catalog Number / Details
009-00	1	**Designation:** CONTROL CENTER NO 1 SWB SQUARE D CUSTOM QED SWITCHBOARD QED Switchboard --- Square D Power Style Custom Switchboard Designed and Tested in accordance with: UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2 System Voltage - 480Y/277V 3Ph 4W 60Hz Source Description - Main is Remote System Ampacity - 2500A Bussing - Copper Plated with Silver Neutral Bus - 100% Max Available Fault Current (RMS) - 65kA Enclosure - Type 1 Accessibility: Front Only Exterior Paint Color - ANSI 49 Ground Lug provided for each device Optional Copper Ground Bus Lineup 1 BTU: 15438 Dimensions --- 4 - 36" Wide Section(s) 4 - 36" Deep Enclosure(s) Dimensions: 144.00" W X 36" Max D X 91.5" H Approximate Weight: 3440.00 Incoming Requirements --- UL Dead Front Entry Point: Left of Lineup, Through the Top Copper Busway, Qwik-Flange Front to Rear ABCN Feeders --- Devices Associated with Remote Main: 6 - 600AT 480V 80% Rated 3 Pole UL, Group Mounted Basic Electronic Trip Prepared Space: Type MJ 3 - 600AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MJ 1 - 500AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MJ
010-00	1	CUSTOM BUS CONNECTION CUSTOM CONNECTION TO CC1

Item No.	Qty.	Catalog Number / Details
021-00	1	**Designation:** BUS CONNECT TO SWB SBDC1 STAND ALONE AUXILIARY SECTION Stand Alone Auxiliary Section --- Square D Power Style Auxiliary Section Designed and Tested in accordance with: UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2 System Voltage - 480Y/277V 3Ph 4W 60Hz System Ampacity - 2000A Bussing - Copper Plated with Silver Max Available Fault Current (RMS) - 18kA Enclosure - Type 1 Accessibility: Front Only Exterior Paint Color - ANSI 49 Ground Lug provided for each device Optional Copper Ground Bus Lineup 1 BTU: 4522 Specials: incom to 2000a cu busway Specials: delete lugs Specials: bottom load lugs Special incom to 2000a cu busway #: 5654934 Special delete lugs #: 5654934 Special bottom load lugs #: 5654934 Dimensions --- 1 - 24" Wide Section(s) 1 - 36" Deep Enclosure(s) Dimensions: 24.00" W X 36" Max D X 91.5" H Approximate Weight: 530.00 Incoming Requirements --- UL Dead Front Entry Point: Left of Lineup Through the Top Connection Type: Cable Outgoing Requirements --- Connection Type: Cable
022-00	1	SPARE PARTS

POWER-STYLE® QED Switchboards

Setting standards for today,
building foundations for tomorrow

SQUARE D
Schneider Electric

With a tradition of distinction

SQUARE D® POWER-STYLE® Switchboards set the standard for the system solutions of today and those of tomorrow

These **quality** products are built according to your specifications in strict adherence to NEC, NEMA and UL standards at factories certified to ISO 9002 quality standards. The **versatility** in our switchboard design helps you meet and exceed today's complex electrical distribution requirements. Features include front or rear accessibility, fixed or drawout construction, and individually or group-mounted circuit breakers or fusible switches. POWER-STYLE switchboards are also designed with **durability** in mind. Sturdy frames and standard bolted base channels all contribute to durability.

Quality, versatility and durability also define our SPEED-D® ready-to-assemble switchboards. Living up to its name, the SPEED-D line offers shipment of service section switchboards that's measured in days, not weeks.

One of the most important advantages you'll see in SQUARE D switchboards is our focus on system solutions. Our switchboards are designed to maximize the capabilities of our overcurrent protection devices, metering options and other switchboard accessories.

We also offer power monitoring and communications systems as simple or complex as your application requires. You can choose to communicate with a single PC, multiple PCs or over the Internet, using our Transparent Ready™ Internet communications system. Start with a simple monitoring and communications system and expand as your power system grows.

Our focus on customer needs does not stop here. SQUARE D Services offers a complete line of solutions through our national network of service locations. We can offer comprehensive solutions related to new installation, maintenance and testing services.

With Square D/Schneider Electric you can create an efficient electrical distribution system that meets your needs today, while building a foundation for the future. This is the SQUARE D difference.

We have an efficient solution designed to meet your needs

	Commercial	Industrial
QED-S	Office buildings Strip malls Retail stores Grocery stores Nursing homes Hospitals	Automotive plants Paper mills Manufacturing facilities Refineries Textile plants Pharmaceuticals
QED-2	Office buildings Strip malls Retail stores Grocery stores Nursing homes Hospitals	Automotive plants Paper mills Manufacturing facilities Refineries Textile plants Pharmaceuticals
QED-6	Universities Public buildings Communication Centers High-rise offices Hospitals	Automotive plants Manufacturing facilities Refineries Textile plants Chemical plants Pharmaceuticals Semiconductor manufacturing

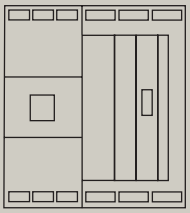
Standards

The POWER-STYLE QED switchboards in this brochure are designed, manufactured and tested to meet the latest revisions of the following appropriate standards.

UL 50	Enclosures for Electrical Equipment
UL 98	Enclosed and Deadfront Switches
UL 489	Molded Case Circuit Breakers
UL 891	Deadfront Switchboards
UL 943	Ground Fault Circuit Interrupters
UL 977	Fused Power Circuit Devices
UL 1053	Ground Fault Sensing and Relaying Equipment
NEC Article 834	Switchboards
NFPA 70	National Electrical Code® (NEC®)
ANSI/IEEE C12.1	Code for Electricity Metering
ANSI C39.1	Electrical Analog Indicating Instruments
ANSI C57.13	Instrument Transformers
NEMA AB 1	Molded Case Circuit Breakers and Molded Case Switches
NEMA PB 2	Switchboards

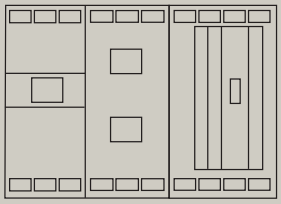
Federal Specifications

W-C-375B/GEN	Molded Case Circuit Breakers
W-C-870	Fuseholders
W-S-865	Enclosed Knife Switch



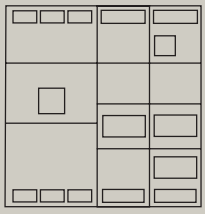
QED-S switchboard

Front accessible, group-mounted panels to 2,500 A



QED-2 switchboard

Individually mounted mains to 5,000 A, distribution sections to 4,000 A, group-mounted to 1,200 A



QED-6 switchboard

Individually mounted mains to 5,000 A, front and rear access with dedicated loadside cable entry

POWER-STYLE® QED-2

POWER-STYLE QED-2 switchboards are designed to distribute electrical power and give you economies of floor space without compromising performance or versatility. They provide circuit breaker or fusible overcurrent protection for services rated to 5,000 A with a maximum voltage of 600 VAC or 250 VDC. QED-2 switchboards can be used as service entrance equipment or as distribution centers in commercial, industrial or institutional applications. For additional flexibility, they can be customized to meet your specific application requirements.

A Solid Foundation

QED-2 switchboards are available as single or multiple mains or as distribution sections. Individually mounted mains use SQUARE D P- and R-frame electronic or MICROLOGIC® molded case circuit breakers through 2,500 A, MASTERPACT® NW two-step stored energy electronic trip circuit breakers, circuit breakers for fixed or drawout applications through 5,000 A and fusible switches through 5,000 A.

Efficient Distribution Options

QED-2 distribution sections include both I-LINE circuit breaker and QMB fusible switch group-mounted panels. With I-LINE plug-on circuit breaker construction, the line end of the circuit breaker plugs directly onto the I-LINE panel bus assembly. This design allows you to quickly install and wire circuit breakers from the fronts of the switchboard. In addition, I-LINE circuit breakers are keyed to mounting slots in the support pan for automatic alignment and faster installation. I-LINE switchboard sections are available in single- or double-row construction.

High Ampacities

If you require higher feeder ampacities, QED-2 switchboards are available with individually mounted branch devices up to 4,000 A. They include both thermal-magnetic and electronic trip molded case circuit breakers or BOLT-LOC Type BP fusible switches. For equipment ground fault protection, you can use electronic trip circuit breakers or fusible switches with the Type GC equipment ground fault system. With QED-2 switchboards, you can also specify options such as automatic throw-over systems.

QED-2 combination section

Features

- Front accessible load connections
- Front and rear alignment standard
- Switchboard fed by cable, busway, transformer, QED switchboard or other
- Switchboard ratings through 5000 A, 200kA; higher amperages available
- Thermal-magnetic, electronic, MICROLOGIC® or stored energy fix- and drawout-mounted circuit breaker mains and feeders
- Fix-mounted fusible switch mains and feeders
- Group-mounted circuit breaker and fusible switch mains and feeders
- Main devices in six sub-division or single main configurations
- Main and branch devices in single section configuration
- Main lugs in separate section in line-up or behind devices
- Group-mounted mains and branches
- Thermal-magnetic and electronic circuit breakers with standard, high, extra-high or current limiting capability
- Exclusive MICROLOGIC trip circuit breakers, 80% or 100% rated
- Zone selective interlocking on MICROLOGIC® circuit breakers, group-mounted 100 A/250 A thermal-magnetic circuit breakers with add-on ground fault and bolted pressure fusible switches
- POWERLOGIC® system customer metering including custom communications capability and interwiring
- All options available on circuit breakers and fusible switches
- Custom engineering including main-tie-mains, multiple sets of through bus, reduced heights and engineered houses
- Optional start-up service and training

Options

Hot and cold sequence utility metering, customer metering and the POWERLOGIC monitoring and control system, equipment ground fault protection, automatic throw-over systems, transfer switches and zone selective interlocking.

QED-2 switchboards provide versatility and performance for today's complex commercial, industrial and utility applications.

Solutions for Maximum Flexibility...

If you're looking for an overcurrent device to meet your specific application, no one matches the selection found in the POWER-STYLE® QED switchboard family. All QED switchboards feature a choice of molded case circuit breakers or fusible switches.

You can select thermal-magnetic, current limiting, electronic or MICROLOGIC® circuit breakers in a configuration designed to meet your specific needs. The unique I-LINE construction from Square D/ Schneider Electric, for example, gives you the capacity of group mounting circuit breakers (up to 1,200 A) for faster installation, mounting flexibility and efficient use of space. You can also select individually mounted circuit breakers rated up to 5,000 A in fixed or drawout construction.

You can further enhance the flexibility of POWER-STYLE QED switchboards with other options, such as equipment ground fault protection with MICROLOGIC® electronic trip circuit breakers or BOLT-LOC Type BP switches with the TYPE GC equipment ground fault system. On 100 A and 250 A circuit breakers, an equipment ground fault module is available with two levels of protection to give you the backup protection you need for power-critical operations.

POWER-STYLE® QED Metering Options

MICROLOGIC Trip Units

POWERLOGIC Circuit Monitor

Utility metering

You can see versatility in the number and types of metering options available for the POWER-STYLE® QED switchboard family. They include customer metering featuring the advanced capabilities of the POWERLOGIC® monitoring and control system and MICROLOGIC® trip units. Utility metering options are also available to meet local utility requirements.

Customer Metering from A to Z.

The POWERLOGIC system provides over 50 meter values, which can be displayed locally on multiple POWERLOGIC circuit monitors or remotely on personal computers. On-board event and data logging, waveform capture and automated controls are also provided by the POWERLOGIC system. Now Square D/Schneider Electric not only offers the toughest switchboard in the industry, but the smartest one as well!

Effective electrical distribution is more than just the transmission of power. Capturing, understanding and managing power information can substantially increase your system efficiency and lower life cycle costs.

These trip units provide advanced functionality such as communications interfaces, POWERLOGIC power metering, and local/remote monitoring capability, which allows for integration and coordination of your electrical system. With the appropriate MICROLOGIC trip unit, you can:

- Communicate with breakers
- Gather power information and energy usage patterns
- Monitor events and deviations from the norm
- Remotely control breakers for better process loading
- Perform predictive maintenance

Because the trip units, which offer increasing levels of functionality, are interchangeable, you can upgrade equipment easily as your needs expand.

Utility Metering.

Square D/Schneider Electric provides utility current transformer (UCT) metering compartments to meet your local utility specifications. The UCT compartment has either single- or double-hinged doors with sealable hasps and screws. UCTs are available in full-height (90") or half-height (45") compartments. Depending upon your utility's requirements, we will provide either hot sequence CT compartments (metering ahead of the main disconnect) or cold sequence CT compartments (metering on the load side of the main disconnect).

POWER-STYLE® QED Selection Information

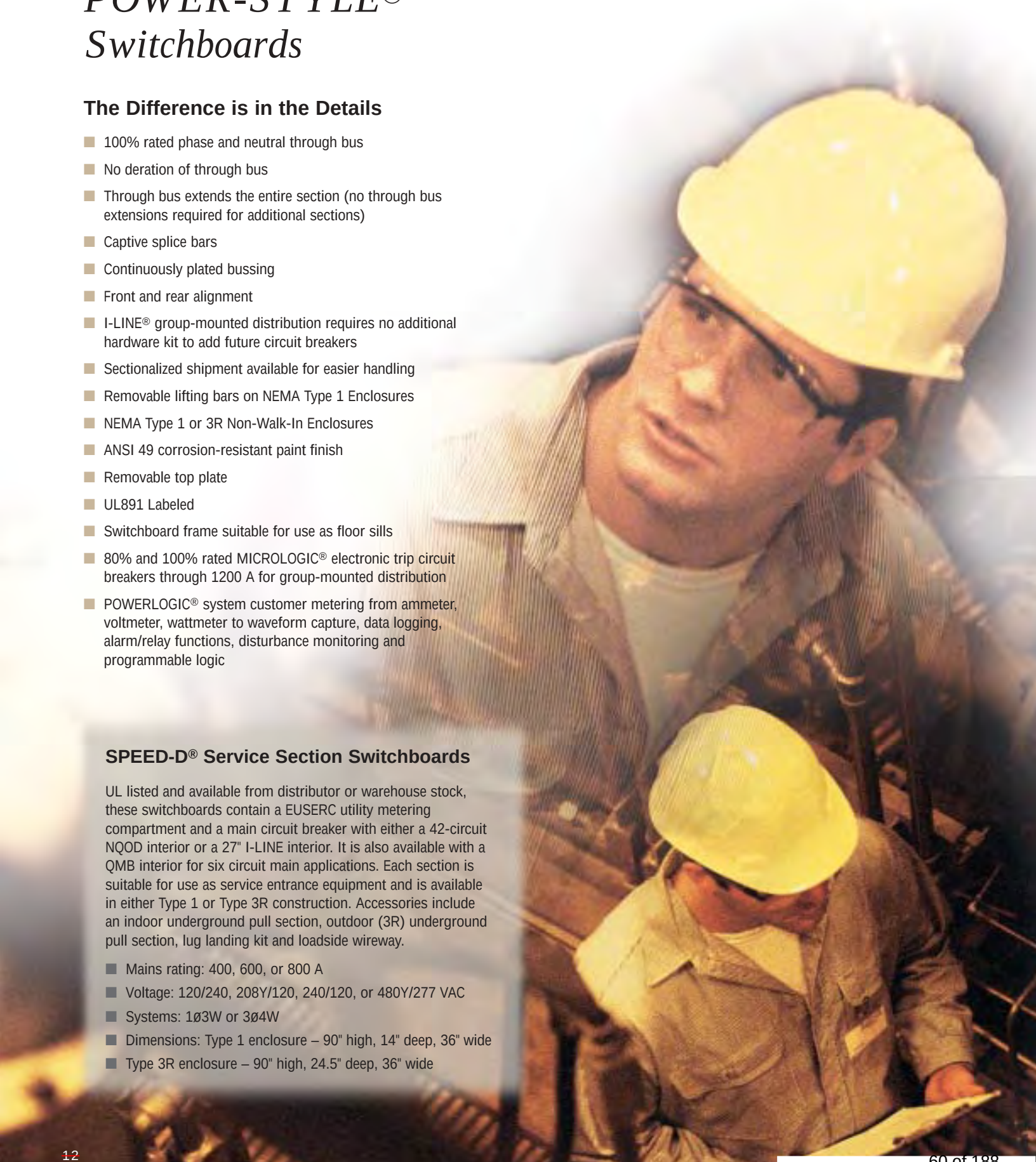
	QED-S		QED-2		QED-6	
RATING	**RATING**		**RATING**		**RATING**	
400-4000 A		✓		✓		✓
400-5000 A				✓		✓
6000 A				✓		
INCOMING						
CABLE		✓		✓		✓
BUSWAY				✓		✓
TRANSFORMER				✓		✓
THROUGH BUS TO QED				✓		
MAIN DEVICE						
Individual Fixed						
BOLTED PRESSURE SWITCH	4000 A	✓	5000 A	✓		
THERMAL-MAGNETIC CIRCUIT BREAKER	2500 A	✓	2500 A	✓	2500 A	✓
ELECTRONIC CIRCUIT BREAKER	2500 A	✓	2500 A	✓	2500 A	✓
MICROLOGIC® CIRCUIT BREAKER	2500 A	✓	2500 A	✓		
STORED ENERGY	4000 A	✓	5000 A	✓	5000 A	✓
Individual Drawout						
MASTERPACT NW CIRCUIT BREAKER			5000 A	✓	5000 A	✓
Group						
THERMAL-MAGNETIC CIRCUIT BREAKER (I-LINE)	1200 A	✓	1200 A	✓		
ELECTRONIC CIRCUIT BREAKER (I-LINE)	1200 A	✓	1200 A	✓		
MICROLOGIC CIRCUIT BREAKER (I-LINE)	1200 A	✓	1200 A	✓		
FUSIBLE SWITCH (QMB)	1200 A	✓	1200 A	✓		
FEEDER						
Individual Fixed						
BOLTED PRESSURE SWITCH	4000 A	✓	4000 A	✓		
THERMAL-MAGNETIC CIRCUIT BREAKER	2500 A	✓	2500 A	✓	1200 A	✓
ELECTRONIC CIRCUIT BREAKER	2500 A	✓	2500 A	✓		
MICROLOGIC CIRCUIT BREAKER	2500 A	✓	2500 A	✓	1200 A	✓
STORED ENERGY CIRCUIT BREAKER	4000 A	✓	4000 A	✓		
Individual Drawout						
MASTERPACT® NT CIRCUIT BREAKER					1200 A	✓
MASTERPACT NW CIRCUIT BREAKER			4000 A	✓		
Group						
THERMAL-MAGNETIC CIRCUIT BREAKER (I-LINE)	1200 A	✓	1200 A	✓		
ELECTRONIC CIRCUIT BREAKER (I-LINE)	1200 A	✓	1200 A	✓		
MICROLOGIC CIRCUIT BREAKER (I-LINE)	1200 A	✓	1200 A	✓		
FUSIBLE SWITCH (QMB)	1200 A	✓	1200 A	✓		
UTILITIES						
SELECTED		✓				
ALL				✓		
CUSTOMER METERING						
POWER METER (A, V, W, COMM.)		✓		✓		✓
CIRCUIT MONITOR (A, V, W, WAVEFORM, COMM.)		✓		✓		✓
ACCESS						
FRONT		✓		✓		
FRONT & REAR		✓		✓		
COMPARTMENTALIZATION						
CIRCUIT BREAKER						✓
BUSSING						✓
LOAD LUGS						✓
OPTIONS						
SELECTED		✓				
ALL				✓		
ENGINEERING						
STANDARD		✓				
CUSTOM				✓		

You can create an efficient electrical distribution system that meets your needs today, while building a foundation for the future. This is the SQUARE D difference.

POWER-STYLE®
Switchboards

The Difference is in the Details

- 100% rated phase and neutral through bus
- No deration of through bus
- Through bus extends the entire section (no through bus extensions required for additional sections)
- Captive splice bars
- Continuously plated bussing
- Front and rear alignment
- I-LINE® group-mounted distribution requires no additional hardware kit to add future circuit breakers
- Sectionalized shipment available for easier handling
- Removable lifting bars on NEMA Type 1 Enclosures
- NEMA Type 1 or 3R Non-Walk-In Enclosures
- ANSI 49 corrosion-resistant paint finish
- Removable top plate
- UL891 Labeled
- Switchboard frame suitable for use as floor sills
- 80% and 100% rated MICROLOGIC® electronic trip circuit breakers through 1200 A for group-mounted distribution
- POWERLOGIC® system customer metering from ammeter, voltmeter, wattmeter to waveform capture, data logging, alarm/relay functions, disturbance monitoring and programmable logic



SPEED-D® Service Section Switchboards

UL listed and available from distributor or warehouse stock, these switchboards contain a EUSERC utility metering compartment and a main circuit breaker with either a 42-circuit NQOD interior or a 27" I-LINE interior. It is also available with a QMB interior for six circuit main applications. Each section is suitable for use as service entrance equipment and is available in either Type 1 or Type 3R construction. Accessories include an indoor underground pull section, outdoor (3R) underground pull section, lug landing kit and loadside wireway.

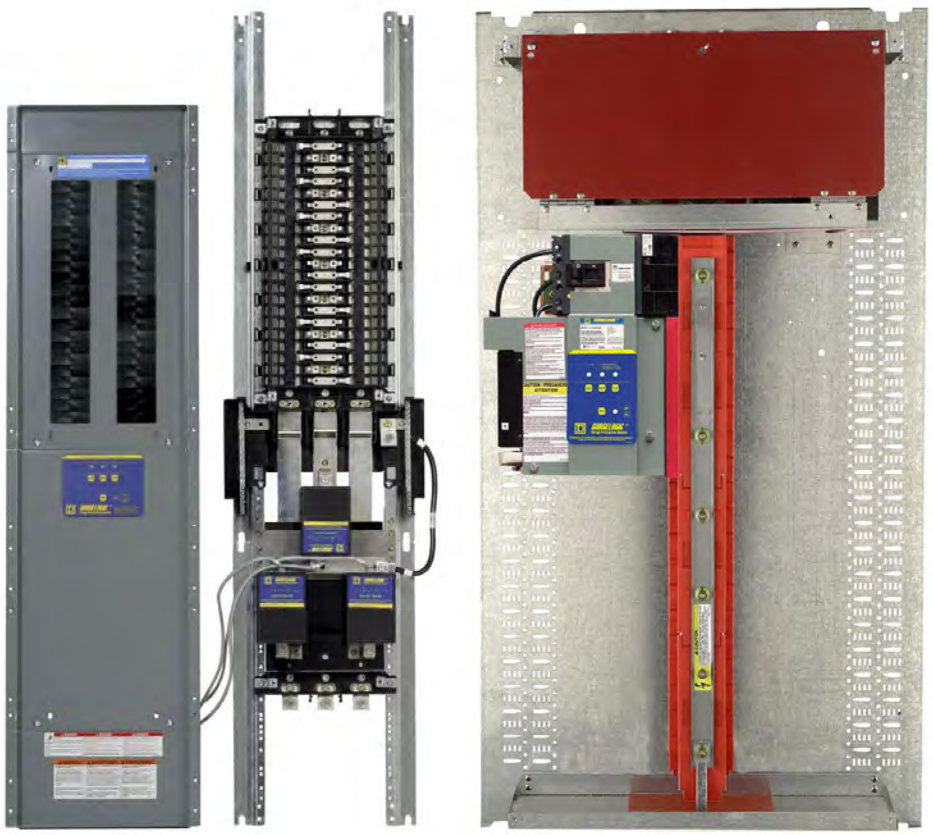
- Mains rating: 400, 600, or 800 A
- Voltage: 120/240, 208Y/120, 240/120, or 480Y/277 VAC
- Systems: 1Ø3W or 3Ø4W
- Dimensions: Type 1 enclosure – 90" high, 14" deep, 36" wide
- Type 3R enclosure – 90" high, 24.5" deep, 36" wide

SQUARE D
Schneider Electric

Internal Modular SPDs

Square D Internally Mounted Surge Protective Devices

Square D™ brand Surgelogic™ internal modular Surge Protective Devices (SPDs) deliver specification grade performance for service entrance or critical branch panel applications. This multi-phase system provides suppression for all critical modes inside electrical equipment and shorter lead lengths with superior SPD performance.



SQUARE D™

by Schneider Electric

Internal Modular SPDs Features

Internal panel modular Surge Protective Devices (SPDs) provide superior design and service life for a wide variety of commercial, industrial, or institutional applications. Square D brand SurgeLogic SPDs offer first-rate performance and surge suppression for demanding service entrance applications or as part of a suppression network. The robust modular construction reduces possible down time and maintenance costs.

Superior Performance

Surgelogic SPDs utilize a high-energy suppression circuit that provides 10 modes of suppression from 120,000 to 480,000 peak Amps of surge current rating per phase. Modular SPDs feature circuity that provides not only transient surge suppression, but also noise filtration.

Installation

Integral solutions come professionally pre-wired into electrical gear and panels from the factory insuring short lead lengths and high performance. All units are tested at the factory before delivery to their final destination, maintaining Square D brand's high standard of quality. There is also no need for additional enclosures or installation labor costs.

Warranty

Surgelogic internal modular SPDs have a 10-year warranty.

FEATURES	ADVANTAGES	BENEFITS
Integral to electrical gear and panels	SPDs are professionally installed inside electrical gear and panels	Delivers high levels of SPD performance and saves on enclosure and installation expenses
120,000 to 480,000 Amp Capacity (depending on model)	Longer service life and suppression against high-energy lightning strikes	High performance surge suppression even in severe electrical conditions
EMI/RFI Noise Rejection	Increased transient suppression	Improves surge suppression to the equipment
Advanced Diagnostics	Allows for online testing of the suppressor's functionality	Provides immediate response if suppressor is damaged
Suppression Status Alarms	Allows multiple methods of alarm notification	Provides immediate notification through audible, visual and remote signaling if reduced suppression occurs
Coordinated Fuse Technology	Coordinated fusing allows disconnection methods for thermal and high-current events	Provides premium surge suppression while managing both thermal and high-current end-of-life events

Schneider Electric USA, Inc. 1751 S. 4800 W., Salt Lake City, UT 84104, USA Telephone: (801)-977-9009 Fax: (801)-977-0200 www.surgelogic.com

Document Number 9990-0116C March 2011 bw

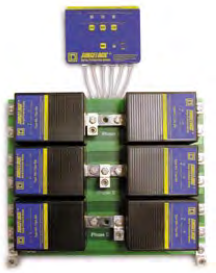
Internal Modular SPDs
Features (continued)

NQ/NF Panelboard

NQ and NF panelboards are primarily used for lighting and power distribution up to 600 Amps. These panelboards, following the 2008 National Electric Code changes, provide electrical capacity up to 84 circuit breakers. Both types of panels are designed with 200% rated copper neutrals for non-linear loads. (NQ max volts 240 Vac, NF max volts 600/347 Vac)

SPD available surge current ratings: 120, 160, 240 kA

QED Switchboard



QED Switchboards are made for use as service entrance equipment or as distribution centers in commercial, institutional, and industrial applications. QEDs are extremely versatile providing front accessible load connections with multiple breaker and fusible switch options. QEDs enable easy access to power monitoring equipment such as products from our PowerLogic™ brand. (Max volts 600 Vac, max current 4,000 Amps)

SPD available surge current ratings:
120, 160, 240, 320, 480 kA

Internal SPDs

Performance

Surge Current Rating per Phase	Up to 480kA
Short Circuit Current Rating	200kA
Modes of Protection	10
Fusing	Individually fused MOVs
Thermal Fusing	Yes
Ocercurrent Fusing	Yes
Filtering	Yes
Operating Frequency	50/60 Hz

Mechanical Description

Connection Method	#10-#2 AWG Terminals
Mounting Method/Circuit Type	Parallel
Operating Altitude	Sea Level-12,000' (3,658 m)
Storage Temperature	-40˚ F (-40˚ C) to 149˚ F (65˚ C)
Operating Temp.	-4˚ F (-20˚ C) to 149˚ F (65˚ C)
LCD Operating Temp.	32˚ F (0˚ C) to 149˚ F (65˚ C)
Operating Humidity	0 to 95% non-condensing

Diagnostics

Push to test diagnostic switches, red and green status LEDs per phase (internal redundant status LEDs are green), module status LEDs per mode, dry contacts, audible alarm with disable switch, surge counter.

Options

- Remote monitor

Safety and Performance

cULus Listed per UL1449 3rd Edition Type 2 SPD, UL 1283 5th Ed., and CAN/CSA C22.2 No. 8-M1986.

Complies with UL 96A 12th Ed. Master Label requirements for Lighting Protection Systems

Internal Modular SPDs
Features (continued)

Power-Zone™ Switchgear

The Square D brand Power-Zone 4 low voltage metal-enclosed drawout switchgear is designed to provide superior electrical distribution and power quality management. Power-Zone 4 switchgear is designed to deliver maximum uptime, system selectivity, and ease of maintenance. All of these features are packed into one of the smallest footprints available for low voltage drawout switchgear. (Max volts 600 Vac, max current 5,000 Amps)

SPD available surge current ratings:
120, 160, 240, 320, and 480 kA

QMB Panelboard

When specifications or electrical codes call for a fusible panelboard, the QMB family offers superior performance and time-saving installation features. The reliability of the QMB panelboard makes it the product of choice for large commercial and industrial applications. (Max volts 600 Vac, max current 400 Amps)

SPD available surge current ratings: 120, 160, 240 kA

Motor Control Center

The feature-rich modular design minimizes space and maximizes ease-of-use and accessibility of motor control devices. The Model 6 MCC has integrated industry-leading components into the smallest and one of the most flexible footprints possible to meet industry's power, control, and automation needs. (Max volts 480 Vac, max current 2,500 Amps)

SPD available surge current ratings: 120, 160, 240 kA

Busway

Square D brand I-Line™ Busway is engineered to replace old cable and conduit systems. This next-generation power distribution system is loaded with exceptional features, including a 200% neutral and a 100% isolated ground path. (Max volts 600 Vac, max current 5,000 Amps)

SPD available surge current ratings: 120, 160, 240 kA

Internal Modular SPDs Specifications

Voltage	Surge Current per Phase	Modes of Protection	Configuration	Model Number	MCOV	I_n	VPR L-N	VPR L-G	VPR L-L	VPR N-G
120/240V	120kA	6	1 Ø, 3-wire+G	TVS1IMA12_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	120kA	10	3 Ø, Wye, 4-wire+G	TVS2IMA12_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	120kA	10	3 Ø, Wye, 4-wire+G	TVS4IMA12_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	120kA	10	3 Ø, Wye, 4-wire+G	TVS8IMA12_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	160kA	6	1 Ø, 3-wire+G	TVS1IMA16_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	160kA	10	3 Ø, Wye, 4-wire+G	TVS2IMA16_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	160kA	10	3 Ø, Wye, 4-wire+G	TVS4IMA16_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	160kA	10	3 Ø, Wye, 4-wire+G	TVS8IMA16_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	240kA	6	1 Ø, 3-wire+G	TVS1IMA24_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	240kA	10	3 Ø, Wye, 4-wire+G	TVS2IMA24_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	240kA	10	3 Ø, Wye, 4-wire+G	TVS4IMA24_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	240kA	10	3 Ø, Wye, 4-wire+G	TVS8IMA24_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	320kA	6	1 Ø, 3-wire+G	TVS1IMA32_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	320kA	10	3 Ø, Wye, 4-wire+G	TVS2IMA32_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	320kA	10	3 Ø, Wye, 4-wire+G	TVS4IMA32_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	320kA	10	3 Ø, Wye, 4-wire+G	TVS8IMA32_	420V	20kA	1500V	1500V	2500V	1500V
120/240V	480kA	6	1 Ø, 3-wire+G	TVS1IMA48_	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	480kA	10	3 Ø, Wye, 4-wire+G	TVS2IMA48_	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	480kA	10	3 Ø, Wye, 4-wire+G	TVS4IMA48_	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	480kA	10	3 Ø, Wye, 4-wire+G	TVS8IMA48_	420V	20kA	1500V	1500V	2500V	1500V

■ 208Y/120 series also applies to the following voltage 220Y/127 ▲ 480Y/277 series also applies to the following voltages 380Y/220, 400Y/230, and 415Y/240

Voltage	Surge Current per Phase	Modes of Protection	Configuration	Model Number	MCOV	I_n	VPR L-N	VPR H-N	VPR L-G	VPR H-G	VPR L-L	VPR H-L	VPR N-G
240/120HLD	120kA	10	3 Ø, HLD*, 4-wire+G	TVS3IMA12_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	160kA	10	3 Ø, HLD*, 4-wire+G	TVS3IMA16_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	240kA	10	3 Ø, HLD*, 4-wire+G	TVS3IMA24_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	320kA	10	3 Ø, HLD*, 4-wire+G	TVS3IMA32_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	480kA	10	3 Ø, HLD*, 4-wire+G	TVS3IMA48_	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V

Model numbers not recognized as line items in Schneider Electric ordering system until a suffix code is applied
*HLD = High-leg delta

MODEL NUMBER SUFFIX CODES

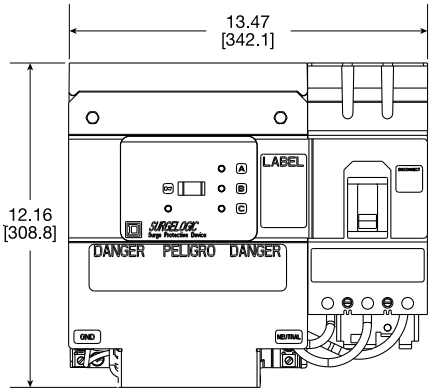
P NQ/NF panelboard *(Not available in 320 and 480 kA)*
B QED switchboard
Z PZ3/PZ4 switchgear *(Not available in TVS1 or TVS3)*
Q QMB switchboard *(Not available in 320 and 480 kA)*
M Motor Control Center *(Not available in 320 and 480 kA)*
O OEM kit *(Not available in 320 and 480 kA)*

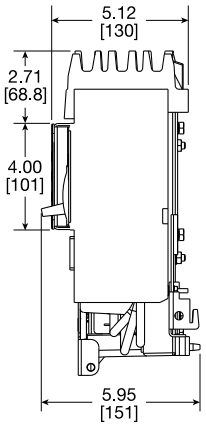
SPD OPTIONS

Remote Monitor TVS12RMU

Internal Modular SPDs
Features (continued)

I-Line™ Panelboard





The Square D brand I-Line power distribution panel is extremely versatile. It is used to feed NQ, NQOD, and NF lighting and appliance panelboards. I-Line panelboards can also feed large motors and temperature control systems. Interiors accept plug-on or bolt-on branch circuit breakers. (Max volts 600 Vac, max current 1,200 Amps)

SPD available surge current ratings: 120, 160, 240 kA

Voltage	Surge Current per Phase	Modes of Protection	HL Breaker I-Line SPD Model Number	FI Breaker I-Line SPD Model Number	MCOV	I_n	VPR L-N	VPR L-G	VPR L-L	VPR N-G
120/240V	120kA	6	HL1IMA12C	FI1IMA12C	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	120kA	10	HL2IMA12C	FI2IMA12C	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	120kA	10	HL4IMA12C	FI4IMA12C	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	120kA	10	N/A	FI8IMA12C	420V	20kA	1500V	1500V	2500V	1500V
120/240V	160kA	6	HL1IMA16C	FI1IMA16C	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	160kA	10	HL2IMA16C	FI2IMA16C	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	160kA	10	HL4IMA16C	FI4IMA16C	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	160kA	10	N/A	FI8IMA16C	420V	20kA	1500V	1500V	2500V	1500V
120/240V	240kA	6	HL1IMA24C	FI1IMA24C	150V	20kA	700V	800V	1200V	700V
208Y/120V ■	240kA	10	HL2IMA24C	FI2IMA24C	150V	20kA	700V	800V	1200V	700V
480Y/277V ▲	240kA	10	HL4IMA24C	FI4IMA24C	320V	20kA	1200V	1200V	2000V	1200V
600Y/347V	240kA	10	N/A	FI8IMA24C	420V	20kA	1500V	1500V	2500V	1500V

■ 208Y/120 series also applies to the following voltage 220Y/127 ▲ 480Y/277 series also applies to the following voltages 380Y/220, 400Y/230, and 415Y/240

Voltage	Surge Current per Phase	Modes of Protection	HL Breaker I-Line SPD Model Number	FI Breaker I-Line SPD Model Number	MCOV	I_n	VPR L-N	VPR H-N	VPR L-G	VPR H-G	VPR L-L	VPR H-L	VPR N-G
240/120HLD	120kA	10	HL3IMA12C	FI3IMA12C	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	160kA	10	HL3IMA16C	FI3IMA16C	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V
240/120HLD	240kA	10	HL3IMA24C	FI3IMA24C	150V	20kA	700V	1200V	800V	1200V	1200V	1500V	700V

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Document Number 9990-0116C March 2011 bw

Power quality monitoring and analysis with reliability

PowerLogic® CM4000 series
circuit monitors

Buildings Industry Data Center

SQUARE D

by Schneider Electric

Intelligent metering and control devices

Whether in offices, classrooms, operating rooms, or on the factory floor, reliable electrical power is crucial to your business. The PowerLogic® CM4250 and CM4000T circuit monitors apply the latest IEEE and IEC power quality standards and provide multiple levels of information on power quality events, helping you pinpoint the source of problems. The CM4000 series circuit monitors are more than just advanced power quality monitors; they are also accurate energy monitors that can measure and record energy usage for all utilities. Flexible I/O for pulse counting, shift energy logging, and energy trending and forecasting are just a few of the features designed to help you manage and reduce total energy costs.

Typical applications

Measure and control energy costs

> Verify utility bills; participate in utility rate reduction programs

> Reveal energy waste and inefficiencies to reduce energy consumption

> Verify savings that result from equipment upgrades, energy efficiency programs, or performance contracts

> Perform demand and power factor control to reduce demand charges

> Allocate or sub-bill energy costs to departments, processes, or tenants

> Measure all utilities (water, air, gas, electric, etc.) and optimize energy procurement

Improve power quality and reliability

> Receive early warning of impending problems that could lead to equipment problems or downtime

> Diagnose and isolate the cause of power quality-related equipment or process problems

> Verify reliable operation of power distribution and mitigation equipment

> Proactively assess power quality trends and conditions to identify vulnerabilities

> Baseline power quality conditions and verify improvements as a result of equipment upgrades

Optimize equipment use

> Prolong asset life by balancing loading, and measuring and reducing harmonics and other factors that cause heating and shorten equipment life.

> Maximize the use of existing capacity and avoid unnecessary capital purchases by understanding loading and identifying spare capacity on existing equipment

Features

> Advanced metering for energy, demand, and power values

> Class 0.2s revenue accuracy

> Energy trending and forecasting

> Expandable onboard memory for logging, events, waveforms and more

> Extensive power quality information including sag/swell and transient detection

> Setpoint driven event recording and alarms via e-mail

> Ethernet communications option

> Web-enabled access to information (with Ethernet option)

> Flexible I/O for status monitoring, total utilities monitoring, and control

Power quality monitoring and analysis

CM4000 series circuit monitors provide accurate and fast alarm detection and multiple levels of information on each power quality event to help you pinpoint the source of a problem, including:

> Power quality and alarm summary and trending: provides an indication of system health over time

> Disturbance direction detection: determine the source of a disturbance by indicating whether it originated upstream or downstream of the meter

> High-speed transient detection (CM4000T)

- At 83,333 samples-per-second; captures true deviation extremes
- Captures impulsive transients shorter than 1 microsecond in duration
- Calculates transient stress and quantifies by magnitude/duration.

> Harmonic power flows: helps determine the source of harmonic currents

> Flicker measurement and trending (CM4000T): measures, trends voltage flicker according to IEC 61000-4-15 standard

> Interharmonics measurement (CM4250): measures interharmonics that can adversely affect equipment

> Waveshape alarm: detects and captures sub-cycle events that do not exceed the thresholds of sag/swell alarms such as capacitor switching transients and sub-cycle transfer switch operations

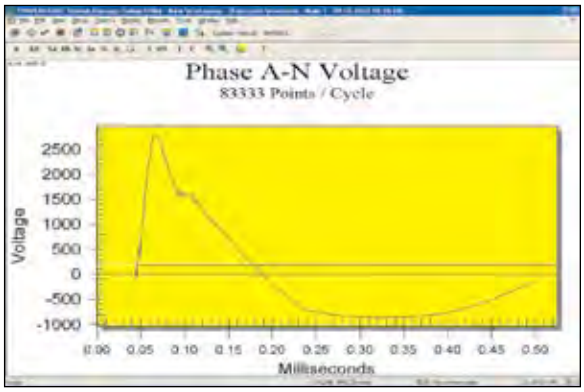
> 100 ms event recording

- Records 100 ms average values, for up to 5 minutes, for per-phase amps, volts, kW, kVAR, power factor, freq; triggered by alarm or relay
- Characterizes motor starts, generator startups and shock loads, transformer energizing, cold load pickup, and transfer switch operation

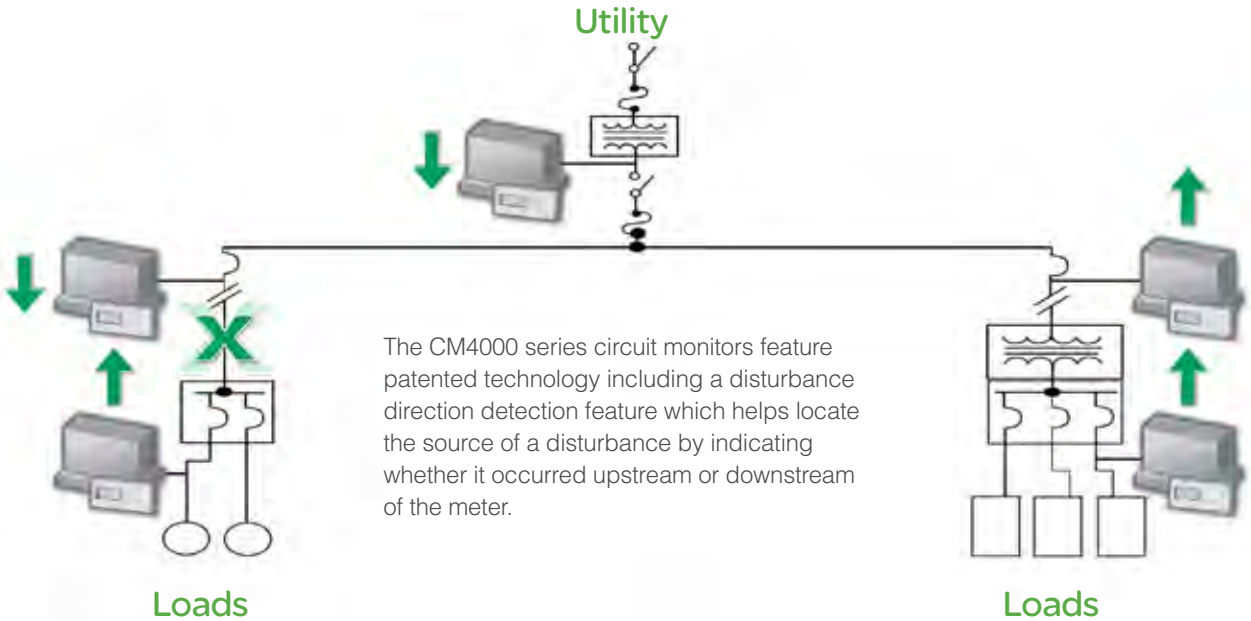
> Cycle-by-cycle event recording: logs cycle-by-cycle values for eight current and voltage channels; triggered by alarm or relay

> EN50160 evaluation: ten power quality categories based on EN50160 standard

The circuit monitor produces an overall Power Quality Index, and one for each category to indicate system health over time.



At 83,333 samples per cycle (at 60 Hz), The CM4000T captures the true extremes of a transient.



The CM4000 series circuit monitors feature patented technology including a disturbance direction detection feature which helps locate the source of a disturbance by indicating whether it occurred upstream or downstream of the meter.

Circuit monitor instrumentation

The circuit monitor is a true rms meter capable of exceptionally accurate measurement of highly nonlinear loads. A sophisticated sampling technique enables accurate, true rms measurement through the 255th harmonic. Over 50 metered values plus extensive minimum and maximum data can be viewed on the display or remotely using software.

Real-Time Readings	Energy Readings
• Current (per phase, N, G, 3-Phase)	• Accumulated Energy, Real
• Voltage (L–L, L–N, N–G, 3-Phase)	• Accumulated Energy, Reactive
• Real Power (per phase, 3-Phase	• Accumulated Energy, Apparent
• Reactive Power (per phase, 3-Phase	• Bidirectional Readings
• Apparent Power (per phase, 3-Phase	• Reactive Energy by Quadrant
• Power Factor (per phase, 3-Phase	• Incremental Energy
• Frequency	• Conditional Energy
• Temperature (internal ambient)	
• THD (current and voltage)	
• K-Factor (per phase)	
Demand Readings	**Power Analysis Values**
• Demand Current (per phase present, 3-Phase average)	• Crest Factor (per phase)
• Demand Voltage (per phase present, 3-Phase average)	• Displacement Power Factor (per phase, 3-Phase)
• Average Power Factor (3-Phase total)	• Fundamental Voltages (per phase)
• Demand Real Power (per phase present, peak)	• Fundamental Currents (per phase)
• Demand Reactive Power (per phase present, peak)	• Fundamental Real Power (per phase)
• Demand Apparent Power (per phase present, peak)	• Fundamental Reactive Power (per phase)
• Coincident Readings	• Harmonic Power Flow
• Predicted Power Demand	• Unbalance (current and voltage);
	• Phase Rotation
	• Harmonic Magnitudes and Angles (per phase)
	• Sequence Components

Energy measurement and trending

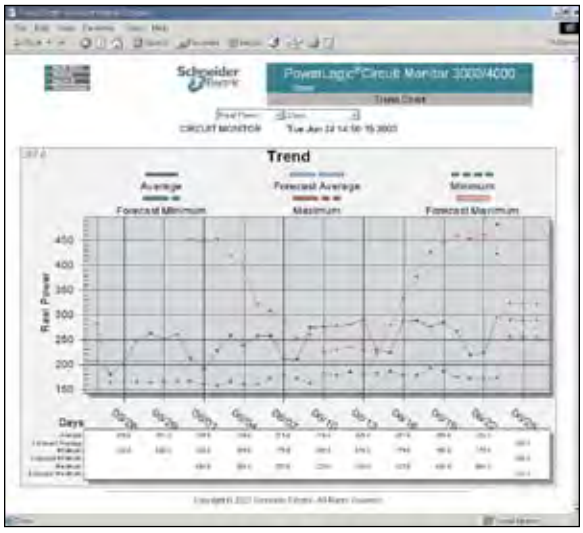
Revenue accurate — Meets IEC 62053-22 and -23, and ANSI C12.20 class 0.2 accuracy standards.

> Accumulates energy in signed (bidirectional) and unsigned (absolute) modes.

> Conditional energy accumulation lets you turn energy accumulation ON or OFF in response to an external command or a digital input state change.

> Energy trends show past performance and forecast usage so you can base purchasing decisions on actual load profiles, negotiate better utility rates, and avoid unnecessary peak demand penalties.

> Shift energy log tracks energy cost per production unit for up to three shifts.



The circuit monitor trends energy and demand info and forecasts usage to help predict future performance. Trend data can be viewed on an ECC web page (above) or in System Manager software.

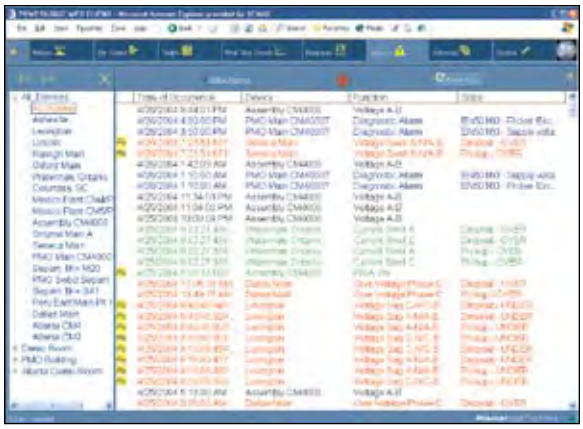
Data and event logging

> 32 MB of standard non-volatile memory (expandable to 64 MB) to capture billing data, events, and waveforms with data gaps.

> Fourteen data log files; user can select the quantities and log interval for each.

> Factory default logs begin logging on power up.

> Additional logs stored in non-volatile memory include energy logs, alarm log, waveform logs, min/max logs, and maintenance log.



When viewed in System Manager software, the circuit monitors' on-board alarms provide a wealth of information and links to event-triggered waveforms.

Setpoint driven alarms

> Over 70 pre-defined alarms

> Factory default alarms enabled on power up

> Send alarms via e-mail (with Ethernet option)

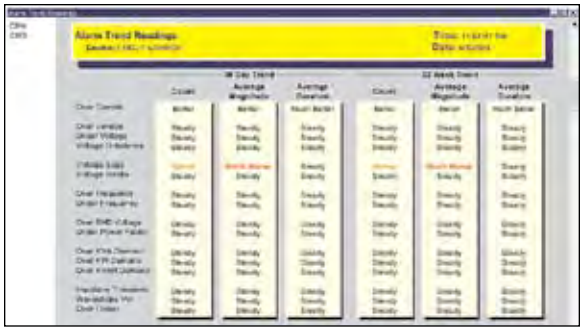
> Alarms can be configured to turn on a digital output or operate a relay output; trigger a waveform capture, data log entry, 100 ms recording, or cycle-by-cycle recording

> Alarm summary log tracks alarm activity for over 15 alarm categories and trends it over time

> Indicates if an alarm is occurring more or less frequently by placing it in one of five groups: much worse, worse, stable, better, and much better

> Patented alarm setpoint learning feature allows a circuit monitor to learn the normal operating ranges for specified alarm quantities and recommend alarm setpoints

> Create summary alarms by combining alarms using Boolean logic (AND, OR, etc.)



The circuit monitor's alarm trend log indicates whether alarm conditions are improving, holding steady, or becoming worse.

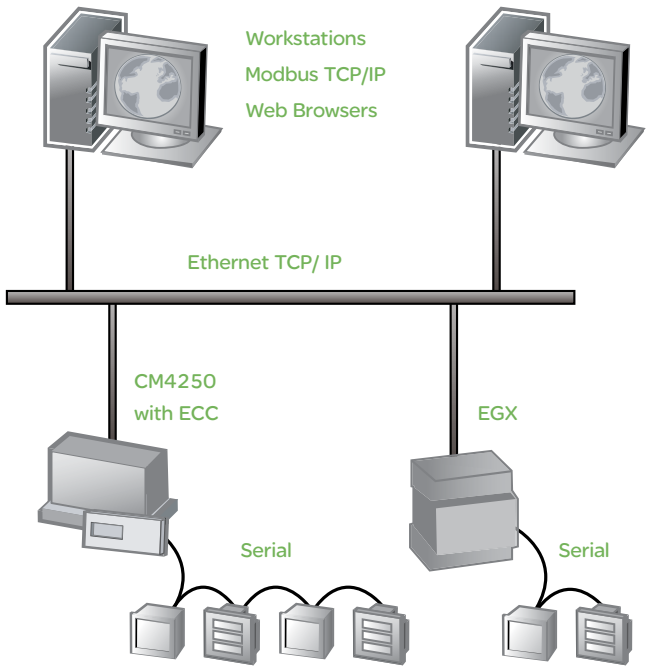
Wiring connections

> Accepts standard CT and PT inputs

> No PTs needed for systems up to 600 V ac (CM4000T) or 690 V ac (CM4250)

> Supports 3- and 4-wire Wye, and - 3 and 4-wire Delta system types

> Wiring diagnostics test helps diagnose CT/PT wiring errors



Communications

> Standard RS-485 and RS-232 Modbus slave ports

> Optional Ethernet card (ECC21) with RS-485 Modbus master port

> 10 Mbaud or 100 Mbaud Ethernet; UTP or fiber

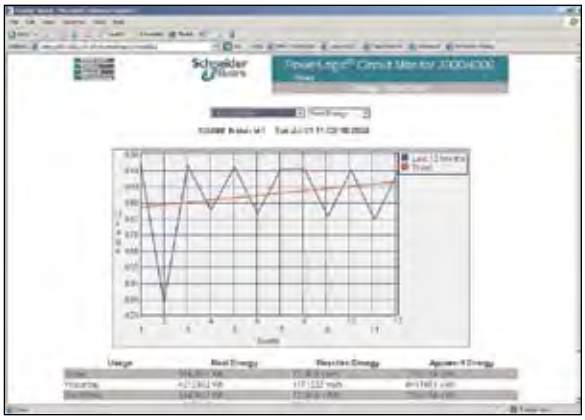
> Gateway functionality; daisy-chain 31 devices to RS-485 port

> Alarm notification via e-mail for up to 15 users

> 10 user-customizable web pages

> Interval energy logging and viewing via web page

> Simultaneous communication on all comm ports.



Customizable web pages

> Browser access to real-time web pages (with optional ECC card); no special software required.

> Use the default web pages, or replace them with up to 10 custom pages.

> View information from the circuit monitor and from devices connected to the circuit monitor's serial master port.

Remote display options (CMDLC and CMDVF)

> 4-line display, backlit liquid crystal display (LCD)

> High visibility vacuum fluorescent display (VFD)

Downloadable firmware

> Download firmware updates over any communications port

> Keep the circuit monitor up-to-date with the latest features

Metering Specifications	
Current Inputs (each channel)	
Current range	0–10 A
Nominal current CT (secondary 5)	1 or 5 A
Voltage Inputs (each channel)	
Voltage range	1–690 L-L (CM4250), 1–600 L-L (CM4000T); 400 L-N
Nominal voltage PT (secondary),	100, 110, 115, 120 V
Frequency Range	40–70 Hz, 350–450 Hz
Harmonic Response	
Frequency 40-70 Hz	Up to 255th harmonic
Frequency 350-450 HZ	Up to 31st harmonic
Standard Data Update Rate	1 second
Accuracy	
Current (measured) Phase and Neutral:	± (0.04% of reading + 0.025% full scale) (Full scale = 10A)
Voltage	± (0.04% of reading + 0.025% full scale) (Full scale: CM4250 = 690 V; CM400T = 600 V)
Total power: Real, Reactive, Apparent:	0.075% of reading + 0.025% of full scale
True Power Factor	±0.002 from 0.5 leading to 0.5 lagging
Energy and Demand	ANSI C12.20 0.2 Class, IEC 62053-22 and -23 Class 0.2 S
Frequency:	
50/60 Hz	±0.01 Hz at 40-70 Hz
400 Hz	±0.10 Hz at 350-450 Hz
Clock/Calendar (at 25 C)	Less than ±1.5 seconds in 24 hours (1 ms resolution)
Metering Input Electrical Specifications	
Current Inputs	
Nominal	5.0 A rms
Metering Over-range	10 A maximum
Overcurrent withstand	
Continuous	40 A rms (CM4250); 15 A rms (CM4000T)
100 A rms	10 seconds in 1 hour
500 A rms	1 second in 1 hour
Input Impedance	Less than 0.1 Ohm
Burden	Less than 0.15 VA
Analog-to-digital converter	
CM4250	16 bit resolution
CM4000T	14 bit resolution
Anti-Aliasing Filters (CM4250)	50dB attenuation at ½ sample rate
Voltage Inputs	
Nominal full scale	
CM4250	400 V ac line-to-neutral; 690 line-to-line
CM4000T	347 line-to-neutral; 600 line-to-line
Metering Over-range	50%
Input Impedance	CM4250: greater than 5 MΩ
	CM4000T: greater than 2 MΩ (L-L); 1 MΩ (L-N)
Measurement overvoltage capacity	
CM4250:	CAT IV – up to 2000 m; CAT III – 2000–3000 m
CM4000T	CAT II up to 2000 m
Control Power Input Specifications	
AC Control Power	
Operating Input Range	90-305 V ac
Burden, maximum	50 VA
Frequency Range	45-67 Hz, 350-450 Hz
Isolation	2400 V, 1 minute
Ride-through on power loss	0.1 second at 120 V ac
DC Control Power	
Operating Input Range	100-300 V dc
Burden, maximum	30 W maximum
Isolation	
CM4250	3400 V dc, 1 minute
CM4000T	3250 V dc, 1 minute
Ride-through on power loss	0.1 second at 120 V dc
Overvoltage category	II per IEC 1010-1, second edition

Environmental Speciifications	
Operating Temperature	
Meter/Optional Modules CM4250	CM4250: -13° F to 167°F (-25 to 75° C) CM4000T: -13° F to 149°F (-25 to 65° C)
Remote display	VFD model is -4° F to 158°F (-20 to 70° C) LCD model is -4° F to 140°F (-20 to +60° C
Nominal voltage PT (secondary)	100, 110, 115, 120 V
Storage Temperature	
Meter and optional modules	-40° F to 185°F (-40 to +85° C) (ADD standard)
Remote display	VFD model is -40° F to 185°F (-40 to 85° C)
	LCD model is -22° F to 176°F (-30 to +80° C)
Humidity rating	5 - 95% relative humidity (non-condensing) at 104°F (40° C)
Pollution degree	II per IEC 1010-1
Altitude range	CM4250: 0 to 3,000 m (10,000 ft) CM4000T: 0 to 2,000 m (6561 ft)
Physical Specifications	
Weight (without modules)	1.9 kg (4.2 lb)
Dimensions	see installation bulletin
Regulatory/Standards Compliance	
Electromagnetic Interference	
Radiated emissions	CM4250: FCC Part 15 Class A/EN55011 Class A; CM4000T: FCC Part 15 Class A/CE Heavy Industrial
Conducted emissions	CM4250: FCC Part 15 Class A/EN55011 Class A CM4000T: FCC Part 15 Class A/CE Heavy Industrial Electrostatic discharge (air discharge): IEC 1000-4-2 level 3
Immunity to electrical fast transient	IEC 1000-4-4 level 3
Immunity to surge	IEC 1000-4-5 level 4 (up to 6 kv) on voltage inputs
Voltage dips and interrupts (CM4250)	IEC 1000-4-11
Conducted immunity	IEC 1000-4-6 Level 3
Dielectric withstand	UL 508, CSA C22.2-14-M1987, EN 61010
Immunity to radiated fields	IEC 61000-4-3
IEC 6100-4-8	Magnetic fields 30 A/m
Product Standards	
USA	UL 508,
Canada	CSA C22.2-2-4-M1987
Europe	CE per low voltage directive EN 61010
Listings	CUL and UL Listed 18X5 Ind Cont. Eq.
KYZ Specifications	
Load voltage	240 V ac, 300 V dc maximum
Load current	100mA maximum at 77°F (25° C)
ON resistance	35 Ω maximum
Leakage current	0.03 µA (typical)
Turn On/Off time	3 ms
Input or output isolation	3750 V rms

Series 4000 circuit monitor with optional I/O card and I/O extender modules

Inputs and outputs

> Flexible I/O options provide up to 25 digital and analog I/O points in a single circuit monitor

- Bring in compensated pulse inputs from other utility meters to monitor and reduce total utilities cost
- Incorporate Utility curtailment signals directly to your meter
- Determine the status of loads (on/off) on your system with respect to the peak demand periods
- Shed non-essential loads while maintaining critical processes and lighting requirements
- Two Card slots can each support an I/O Card (IOC44) with:
- Four digital inputs (1ms time stamps), and three 10-amp relays,1 solid-state output

> Optional Extender Module (IOX) supports up to 8 digital I/O modules or 4 digital and 4 analog I/O:

- Digital inputs 120, 240 Vac or 3-32 Vdc
- Digital outputs 120, 240 Vac or 60, 200 Vdc
- Analog inputs 0-5 Vdc, 4-20 mA
- Analog outputs 4-20 mA
- One standard KYZ output

Features	CM4250	CM4000T
Metering		
Power, energy, and demand	◣	◣
Accuracy IEC Class	0.2 s	0.2 s
Accuracy ANSI Class	12.2	12.2
Anti-aliasing filters	◣	
Power quality		
Sag/swell, harmonics monitoring	◣	◣
Transient detection rate	30.77kHz	5MHz
Sampling rate (at 50 Hz)	512	100,000/512
Sampling rate (at 60 Hz)	512	83,333/512
Disturbance direction detection	◣	◣
Flicker measurement		◣
Interharmonics	◣	
Logging and Recording		
Memory standard/optional	16 MB/32MB	16 MB/32MB
Min/max, historical, waveform logging	◣	◣
Energy trending and forecasting	◣	◣
Optional GPS time synchronization	◣	◣
Alarming and Control		
High-speed alarms with log	◣	◣
Alarm triggered data logs and control	◣	◣
Alarm setpoint learning	◣	◣
Alarms via e-mail	w/ECC21	w/ECC21
Programmable math/logic functions	◣	◣
Communications and I/O		
Onboard Ethernet	w/ECC21	w/ECC21
10 customizable web pages	w/ECC21	w/ECC21
RS485, RS232 ports	◣	◣
Flexible I/O with 1 ms time stamps	◣	◣

Please contact your local sales representative for ordering information.

Visit www.PowerLogic.com for more information on other PowerLogic® products, applications and system solutions.

Schneider Electric - North American Operating Division

295 Tech Park Drive
LaVergne, TN 37086
Toll Free: 1-866-466-7627
Fax: 250-652-0411
www.PowerLogic.com

Printed on recylced paper

Document #3000BR0913 August 2009

Masterpact® NW ANSI-Rated Low Voltage Power Circuit Breakers

Full-featured Performance

To best meet the needs of today's ANSI market, the new Masterpact NW line also boasts the following attributes:

- Complete product offering through 200kAIR without fuses
- 800A to 5000A frames available
- Rated for all AC voltage systems through 635V
- ANSI short-time withstand ratings up to 100K amperes
- Four racking positions – connected, test, disconnected, removed – with status indicator on cradle
- Simple, visual contact wear indicators
- Meets ANSI standard C37.13 and UL1066
- Full complement of field installable devices
- Four interchangeable trip unit families to choose from
- Powerlogic® power metering and monitoring capabilities available in advanced trip units
- Most common relay functions as defined by ANSI C37.2 and C37.90 integrated into circuit breaker

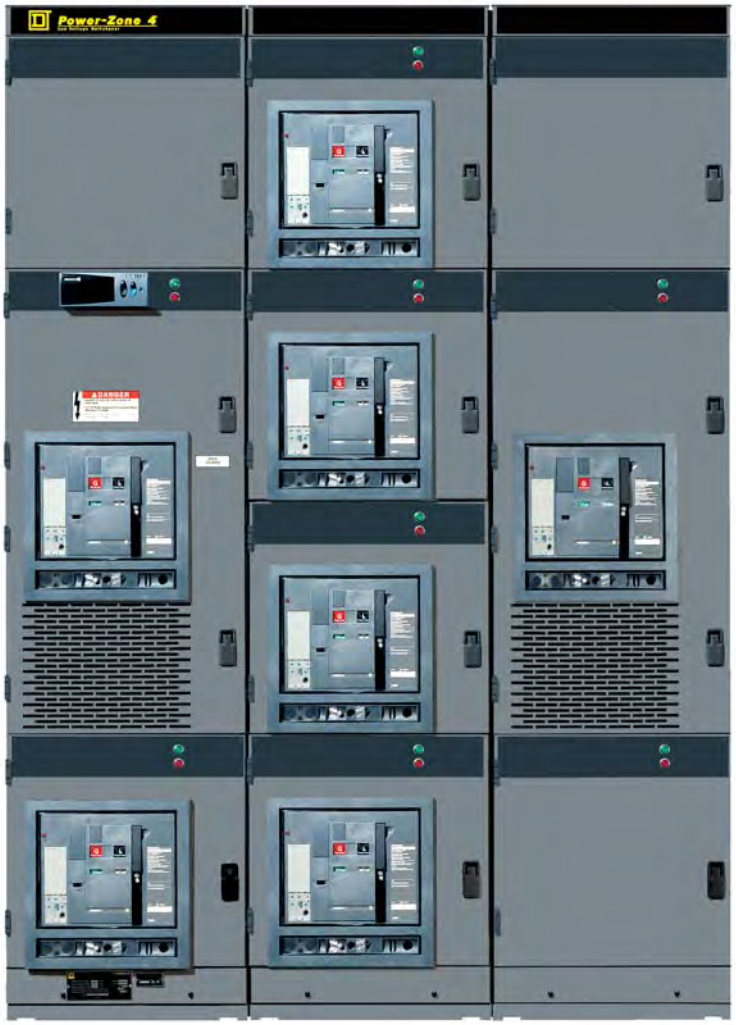
Global Markets

To help customers with their global strategies, the Masterpact NW Circuit Breaker is also available to meet IEC 60947-2 and UL489 standards. The design philosophy of the Masterpact NW Circuit Breaker is to optimize the circuit breaker for the application. Whatever the customer's application, the new circuit breaker provides unsurpassed performance, in the smallest available package, tested to the appropriate standard.

The Dependable, "Smart" Solution

The increasing demand for electrical system uptime and reliability has made more effective, dependable circuit protection a must. The next generation of low voltage Masterpact Power Circuit Breakers from Square D employ the latest technology to maximize electrical system performance. They offer the proven reliability you've come to expect from the Masterpact name with improved functionality and major new design and operational features.

Masterpact® NW ANSI-Rated Low Voltage Power Circuit Breakers



Long, Reliable Operation

The new and improved Masterpact NW Power Circuit Breakers meet or exceed all of the rigorous design and testing standards required by ANSI. They offer short-time withstand ratings up to 100,000 amperes and interrupting ratings up to 200,000 amperes – without fuses – to prevent unnecessary outages and ensure continuity of service. Indeed, their state-of-the-art thermoset composite resin construction provides higher electrical ratings than traditional metal-frame breakers in a smaller, lighter, easier-to-install package. They have been tested to meet ANSI endurance levels without the allowed intermediate maintenance.

Onboard Intelligence

A range of Micrologic® Trip Units is available to make the breakers "smarter." These units provide the advanced functionality, such as a communications interface and power metering and monitoring capability, which allow for integration and coordination of your electrical system. With the appropriate Micrologic Trip Unit, you can communicate with breakers, gather power information, monitor events and remotely control breakers based on predetermined conditions – all of which can lead to substantial savings in electrical system operating costs.

The new and improved Masterpact NW Power Circuit Breakers meet or exceed all of the rigorous design and testing standards required by ANSI.

Simplified Maintenance

Masterpact Power Circuit Breakers and accessories are field maintainable. Using a simple racking mechanism, you can crank out breakers and inspect and replace parts on site (Refer to installation instructions for more details on installation). Because trip units are inter-changeable and plug into breakers, it's also easy to upgrade breaker functions over time.

Ratings for ANSI-Rated Masterpact® NW Low Voltage Circuit Breakers

Masterpact Circuit Breakers			800				1600				2000			3200			4000		5000	
Rated Current per ANSI C37 and UL 1066			800A				1600A				2000A			3200A			4000A		5000A	
Type of Circuit Breaker			**NW N1**	**NW H1**	**NW H2**	**NW L1**	**NW N1**	**NW H1**	**NW H2**	**NW L1**	**NW H1**	**NW H2**	**NW L1**	**NW H1**	**NW H2**	**NW L1**	**NW H2**	**NW L1**	**NW H2**	**NW L1**
Interrupting Rating (kAIR RMS)	ac 50/60Hz	254V	42	65	85	200	42	65	85	200	65	85	200	65	85	200	85	200	85	200
		508V	42	65	85	200	42	65	85	200	65	85	200	65	85	200	85	200	85	200
		635V	42	65	85	130	42	65	85	130	65	85	130	65	85	130	85	130	85	130
Short-time Withstand Current	ac 50/60Hz	1s	42	65	85	30	42	65	85	30	65	85	30	65	85	100	85	100	85	100
Close and Latch Ratings (kA RMS)	ac 50/60Hz		42	65	40	25	42	65	40	25	65	40	25	65	40	40	85	40	85	40
Breaking Time			25-30 ms with no intentional delay (9 ms for L1 type)																	
Closing Time			65-80 ms																	
Sensor Rating (A)			**100-250**		**400-800**		**100-250**		**400-1600**		**100-250**	**400-2000**		**1200-3200**			**2000-4000**		**2000-5000**	
Endurance Rating with No Maintenance	Mechanical		12,500				12,500				10,000			10,000	5000		5000		5000	
	Electrical		2800				2800				1000			1000	1000		1000		1000	

Ratings for ANSI-Rated Masterpact® NW Switches

MASTERPACT Switches			NW HA	NW HA	NW HA	NW HA	NW HA	NW HA
Short-time Withstand Current	ac 50/60Hz	1s	65	65	65	65	85	85
Breaking Capacity with External Relay (kA RMS) Maximum Time Delay 500 ms	ac 50/60Hz	635V	65	65	65	65	85	85

Altitude Correction Factors per ANSI C37.20.2.7.1.3	**≤6600 ft. (2000 m)**	**8500 ft. (2600 m)**	**13000 ft. (3900 m)**
Voltage	1.00	0.95	0.80
Current	1.00	0.99	0.96

With low voltage Masterpact NW Power Circuit Breakers, you get all of the traditional ANSI power breaker attributes – plus the proven track record for expertise in circuit protection and low voltage electrical distribution only Square D can offer. For more information about our Masterpact offering, call your local Square D sales office or nearby Square D authorized distributor. You can also visit our web site at www.SquareD.com

Visit the Square D web site at www.SquareD.com

Micrologic® Trip Units

Making Circuit Breakers Smarter

The “brains” behind the new Square D® line of low voltage Masterpact® Power Circuit Breakers and Power-Zone® 4 Switchgear is a new family of Micrologic Trip Units. These interchangeable, microprocessor-controlled, plug-in devices provide the next generation of protection, measurement and control functions, delivering not only greater electrical system safety but also improved system integration and coordination.

A Wide Range of Trip Unit Options

The upgraded Micrologic Trip Unit family includes four models, with varying levels of functionality. The simplest units provide basic overcurrent protection including long-time and instantaneous adjustments for overloads and short circuits. More advanced units offer more sophisticated functions such as short-time and ground-fault protection also allowing for zone selective interlocking with down-stream circuit breakers. They also incorporate a variety of communications options and Powerlogic® Power Metering and monitoring capabilities – right inside the circuit breaker.

With the more advanced trip units, you can use a network to communicate with breakers, gather power information and energy usage patterns, monitor events and remotely control breakers for increased efficiency and savings. The breakers become part of an integrated, coordinated electrical system.

Micrologic® Trip Units

Upgrading Is Easy

The new Micrologic® trip units make adding functionality, literally, a snap. They plug directly into Masterpact® NW Power Circuit Breakers and can be installed quickly and easily on site (Refer to installation instructions for more details on installation). We also made the units completely inter-changeable for added flexibility, to reduce your spare parts inventory and to protect against breaker obsolescence.

The new Micrologic® trip units make adding functionality, literally, a snap.

Choose the Model that Meets Your Needs

To offer you the maximum flexibility in product selection, the Micrologic family consists of four models with progressively increasing levels of functionality.

Micrologic 3.0 and 5.0

- Basic circuit protection including long-time, instantaneous and optional short-time adjustments

Micrologic 3.0A, 5.0A and 6.0A

- Long-time, instantaneous and optional short-time adjustments
- Integrated ammeter and phase loading bar graph
- LED trip indication
- Zone selective interlocking with downstream breakers
- Optional ground-fault protection
- Optional Modbus® communications interface

Micrologic 5.0P and 6.0P

- Long-time, instantaneous and short-time adjustments
- Advanced relay protection (current imbalance, under/over voltage, etc.)
- Inverse Definite Minimum Time Lag (IdmtL) long-time delay curve shaping for improved coordination
- Basic power monitoring and metering functions
- Standard Modbus® communication interface compatible with Powerlogic® installations
- GF alarm is standard on both 5.0P and 6.0P; 6.0P adds Ground-fault protection for equipment

Micrologic 5.0H and 6.0H

- All 5.0P and 6.0P series functions
- Enhanced monitoring and metering capabilities
- Basic power quality (harmonic) measurement
- Waveform capture

Micrologic® Trip Units

	Standard		Ammeter			Power		Harmonic	
Features	**3.0**	**5.0**	**3.0A**	**5.0A**	**6.0A**	**5.0P**	**6.0P**	**5.0H**	**6.0H**
True RMS Sensing	X	X	X	X	X	X	X	X	X
LI	X		X						X
LSI		X		X	X	X	X	X	X
Instantaneous OFF		X		X	X	X	X	X	X
LSIG/Ground-fault Trip					X		X		X
Ground-fault Alarm (No Trip) (2)						X		X	
Ground-fault Trip and Programmable Alarm (2)							X		X
Adjustable Rating Plugs	X	X	X	X	X	X	X	X	X
LED – Long-time Pickup	X	X	X	X	X	X	X	X	X
LED Trip Indication			X	X	X	X	X	X	X
Digital Ammeter			X	X	X	X	X	X	X
Phase Loading Bar Graph			X	X	X	X	X	X	X
Zone Selective Interlocking (ZSI)			X	X	X	X	X	X	X
Communications			O	O	O	X	X	X	X
LCD Dot Matrix Display						X	X	X	X
Advanced User Interface						X	X	X	X
Protective Relay Functions						X	X	X	X
Thermal Imaging	X	X	X	X	X	X	X	X	X
Neutral Protection (1)						X	X	X	X
Contact Wear Indication						X	X	X	X
Waveform Capture								X	X
Incremental Fine Tuning of Settings						X	X	X	X
Selectable Long-time Delay Bands (IdmtL)						X	X	X	X
Power Measurement						X	X	X	X
Power Quality Measurements								X	X

(1) Requires neutral current transformer X = Standard features O = Available option
(2) Requires M2C/M6C programmable contact module for the GF alarm

Micrologic Trip Units are the intelligence behind a coordinated electrical distribution system that delivers improved operating efficiency and extended equipment life. For more information about the new Micrologic family, call your local Square D sales office or nearby authorized distributor. You can also visit our web site at www.SquareD.com.

Visit the Square D web site at www.SquareD.com

Item No.	Qty.	Catalog Number / Details

LOW VOLTAGE MOTOR CONTROL CENTER

011-00 1

Designation: MCC #2
Model 6 LVMCC
Model 6 MCC - Industrial Package

System Voltage: 480Y/277V 3PH 4W 60Hz
Max Available Fault Current (RMS) - 42kA
Control Power - 120Vac
General Purpose Type 1 Enclosure
1/4" x 1" Horizontal Ground Bus, Tin Plated Copper
Class 1 Type B Wiring
20" Deep Construction
42kA Bus Withstand Rating
600A Tin Plated Copper Horizontal Bus
Vertical Ground Bus, Tin Plated Copper
White Interior
Neutral Bus Maximum Drops per Lineup
Master Nameplate Engraved with White Surface/Black Letters
Standard Exterior Paint ANSI 49
Equipment Mounting Height 72"
Manual Vertical Bus Shutters
Fishtape Barrier
Certified Test Report
Unit Nameplate Engraved with White Surface/ Black Letters
Rodent Barriers
Engineered To Order (ETO)
5 - Section(s) with 300A Tin Plated Copper Vertical Bus

DIMENSIONS AND WEIGHT

Dimensions: 100.00"W X 20"D X 94.5"H
Approximate Weight: 3750.00 lbs / 1701.00 kgs

INCOMING

Incoming Connection: Cable

MAIN

Main Lugs Top Entry 600A
Neutral Lug Termination

Item No.	Qty.	Catalog Number / Details

FULL VOLTAGE NON-REVERSING STARTERS
---
7 - 10 HP NEMA Size 1 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 150VA
2 - 150 HP NEMA Size 5 FVNR Starter w/Circuit Breaker
Motor Circuit Protector
Control Power Transformer 150VA
1 - 50 HP NEMA Size 3 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 300VA
1 - 25 HP NEMA Size 2 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 300VA
1 - 15 HP NEMA Size 2 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 300VA
2 - 5 HP NEMA Size 1 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 150VA
1 - 1.5 HP NEMA Size 1 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 150VA
1 - 1 HP NEMA Size 1 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 150VA
1 - 3/4 HP NEMA Size 1 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 150VA
1 - 1/2 HP NEMA Size 1 FVNR Starter w/Circuit Breaker
Electronic Motor Circuit Protector
65kA Interrupting Rating
Control Power Transformer 150VA

COMMON FULL VOLTAGE NON-REVERSING FEATURES

#16 AWG MTW Control Wire
Control Transformer Tap
Motor On LED Pilot Light Red Push-to-Test
22mm XB5 Pilot Devices
Hand-Off-Auto Selector Switch
1 NO & 1 NC Auxiliary Electrical Interlocks
Overload Alarm Contact Normally Open Isolated
Elapsed Time Meter
Motor Logic Feature Based Overload
4 Additional Unwired Terminal Points

Item No.	Qty.	Catalog Number / Details
		FEEDERS --- 2 - Compac 6 Circuit Breaker Branch Feeder 30A 65kA Interrupting Rating 3 - Compac 6 Circuit Breaker Branch Feeder 20A 65kA Interrupting Rating 1 - Compac 6 Circuit Breaker Branch Feeder 50A 65kA Interrupting Rating
		MISCELLANEOUS DEVICES --- 1 - 3" Configured Space 1 - 6" Configured Space

“Plant Drawings To Be Submitted Later”

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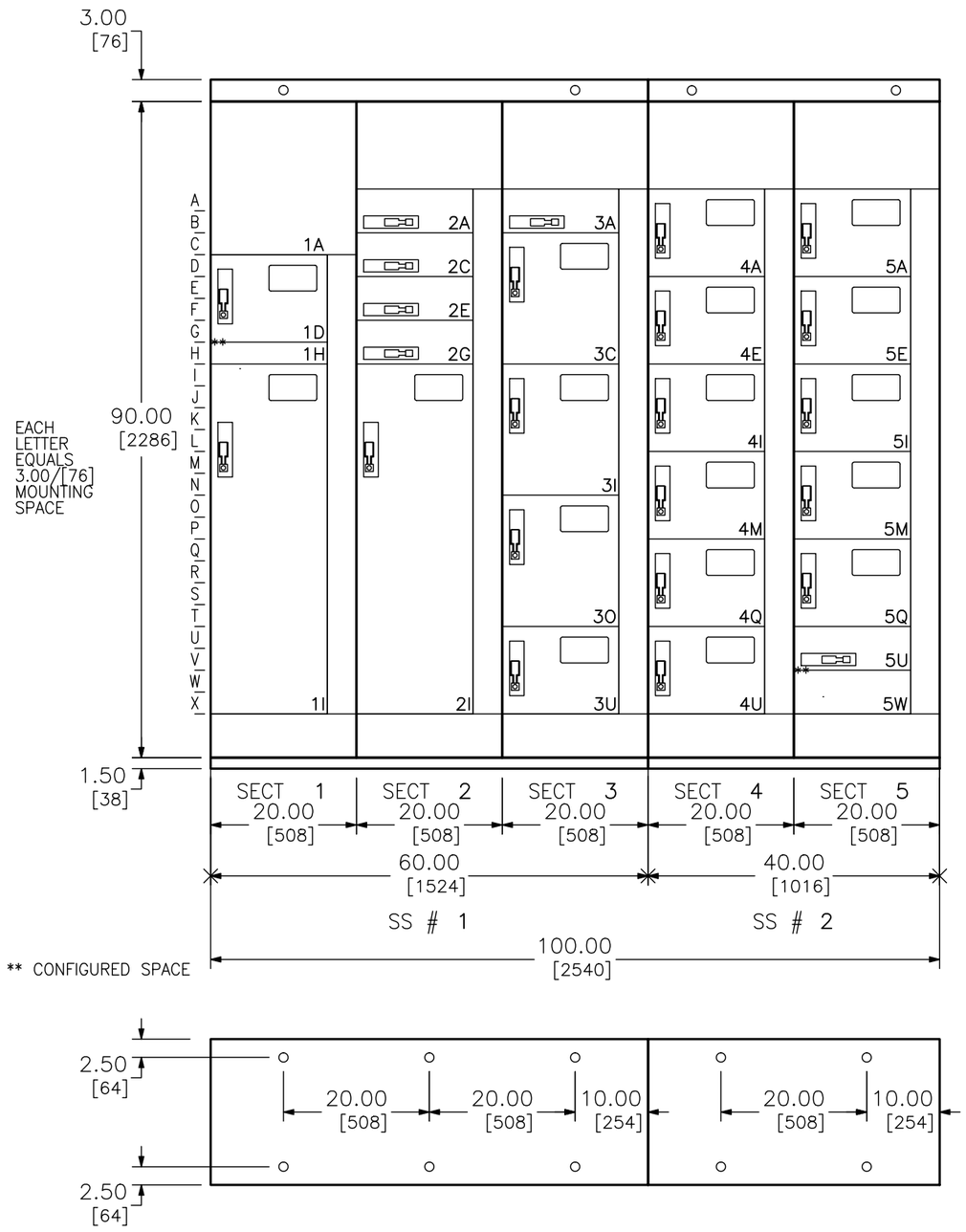

ANCHOR DETAIL

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**MCC #2**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	**F29528680-01**

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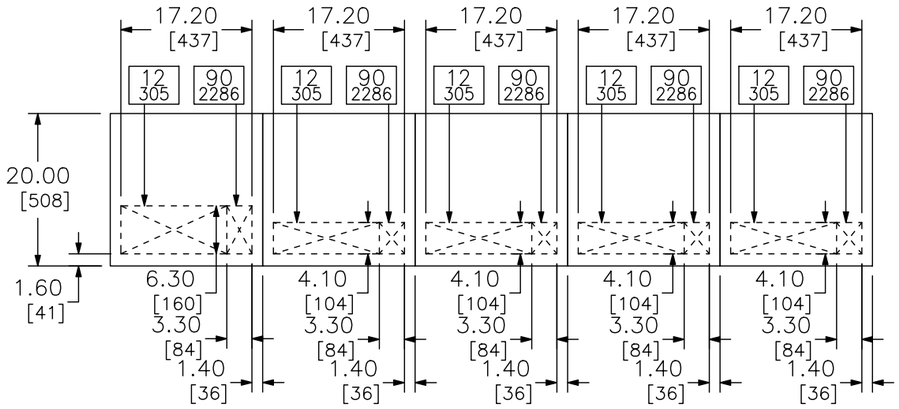
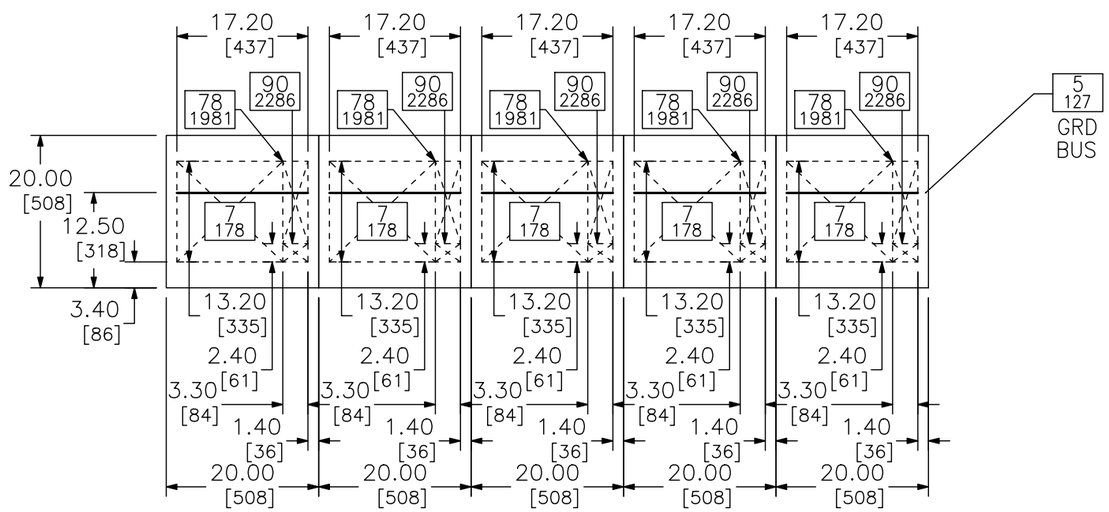


TOP VIEW



FLOOR VIEW

CROSSED AREA REPRESENTS CONDUIT ENTRY AREA. NUMBERS IN BOXES INDICATE VERTICAL CLEARANCE TO NEAREST OBSTRUCTION.

DUAL DIMENSIONS: INCHES MILLIMETERS

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GENERAL NOTES

Class 1 Type B Wiring

PRODUCT DESCRIPTION AND RATINGS

POWER SYSTEM DATA:

480Y/277V 3PH 4W 60Hz
SHORT CIRCUIT RATING: 42kA
POWER ENTERS: Main Lug Top Section 1
CONTROL POWER: 120Vac

BUS SYSTEM DATA:

MAIN HORIZONTAL BUS: 600 Amp Copper/Tin Plated / 1.5"
BUS BRACING: 42kA
VERTICAL BUS: 300 Amp Tin Plated Copper
NEUTRAL BUS: 100 Percent Neutral
HORIZONTAL GROUND BUS: .25" X 1.0" (6.35mm X 25.4mm) Tin Plated Copper
Units Securely Grounded To Structure

ENCLOSURE DATA:

ENCLOSURE TYPE: 20" DEEP Type 1
EXTERIOR COLOR: Electrodeposition Finish ANSI 49 Medium Light Grey
INTERIOR COLOR: Electrodeposition Finish White

STRUCTURE MODIFICATIONS:

Ground Bus Lug : Main Section
Rodent Barriers 1,5
Manual Bus Shutters 1,2,3,4,5
Fishtape Barriers 1,2,3,4,5
Copper Vertical Ground Bus 1,2,3,4,5
Master Nameplate 1
Neutral Bus Drop 2,3,4,5

EQUIPMENT WEIGHT:

SHIPPING SPLIT # 1: 2250.00 Lbs. (1020.60 Kg.)
SHIPPING SPLIT # 2: 1500.00 Lbs. (680.40 Kg.)
TOTAL LINEUP WEIGHT (APPROX): 3750.00 Lbs. (1701.00 Kg.)

PRODUCT ACCESSORIES:

Certified Test Report

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DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# F29528680-01	PG 3 OF 3 REV –

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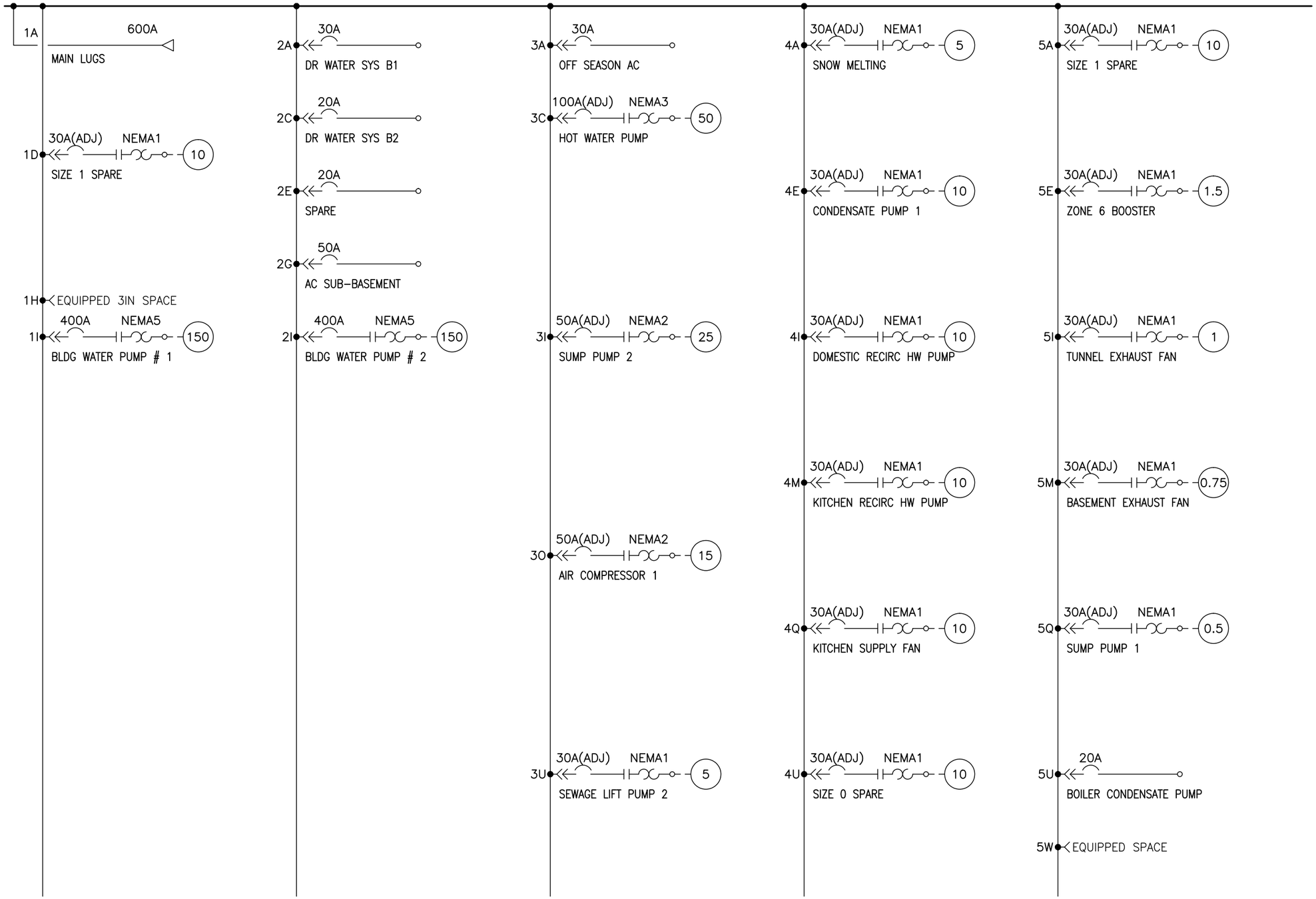

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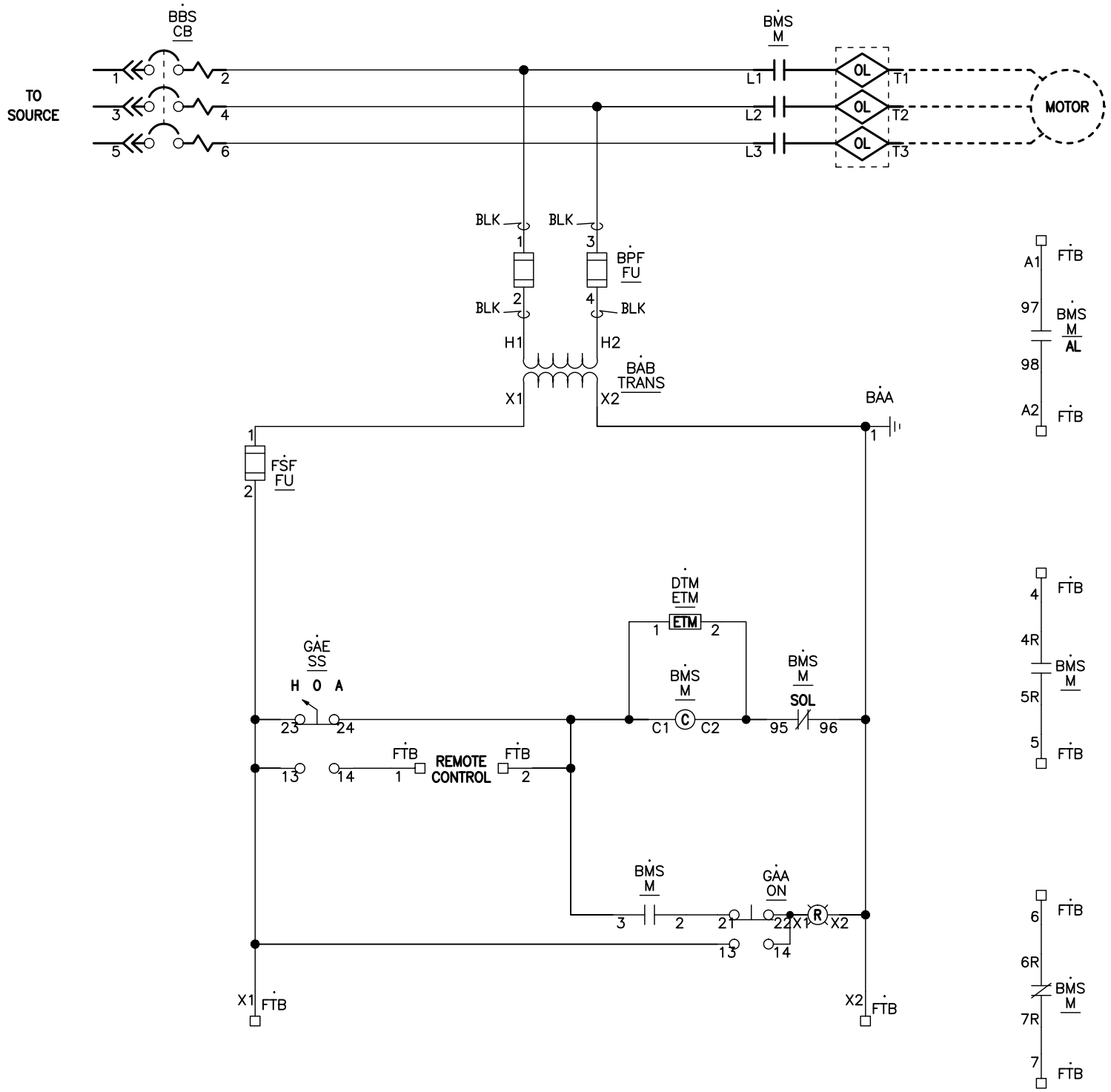

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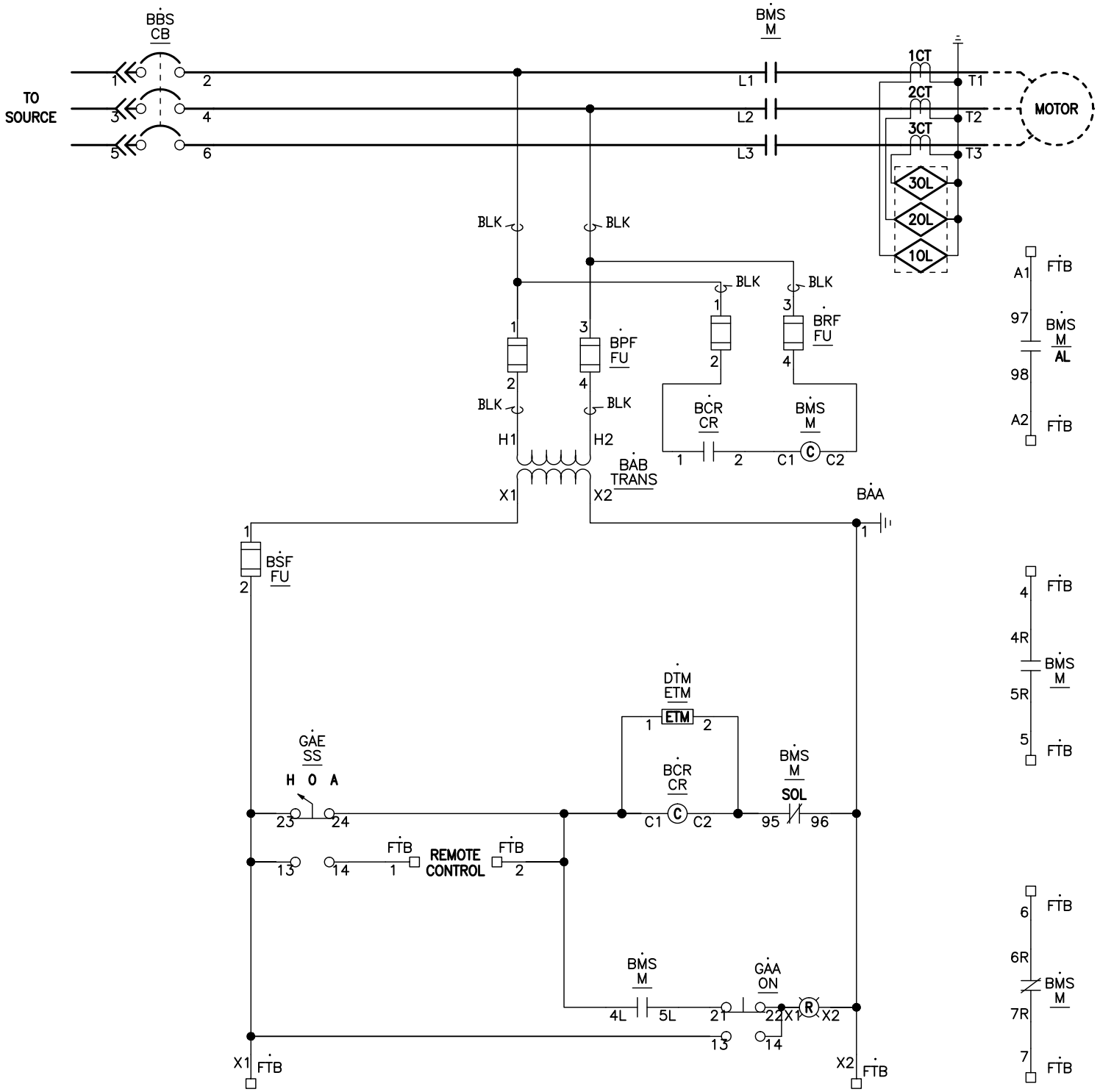

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DATE:	May 25 2012		
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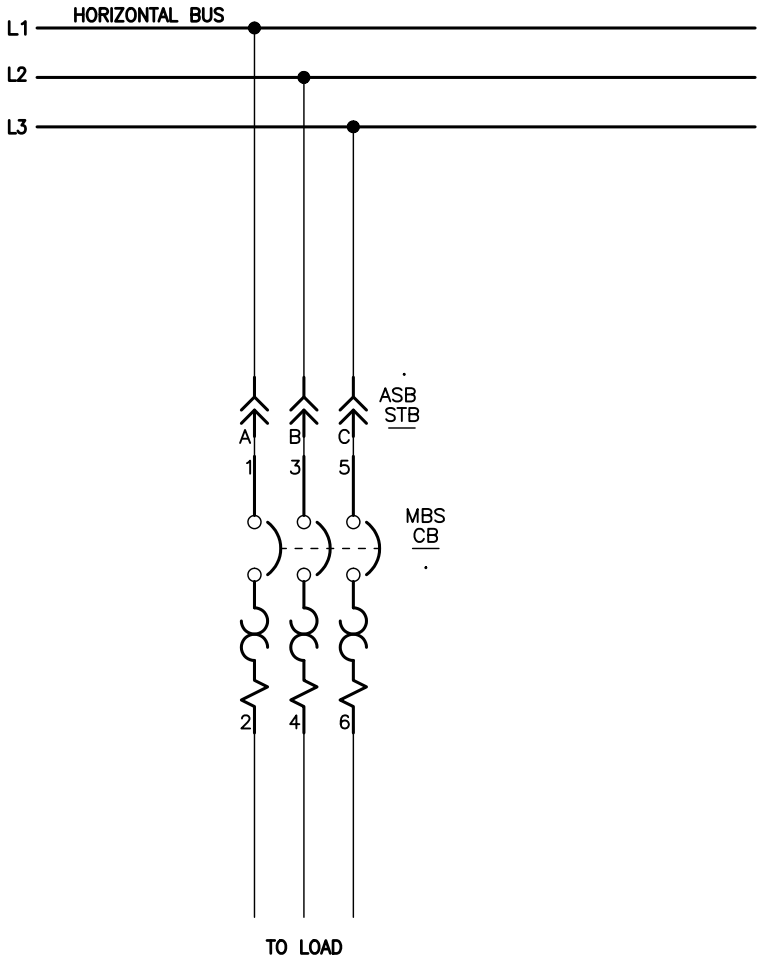

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DATE:	May 25 2012		
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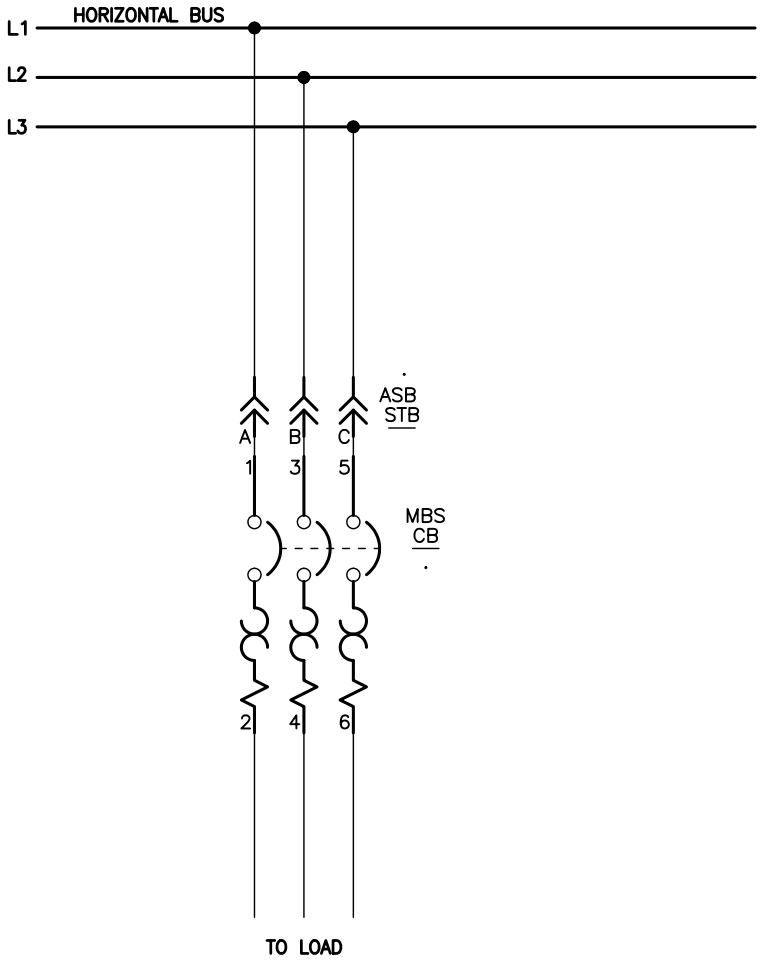

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DATE:	May 25 2012		
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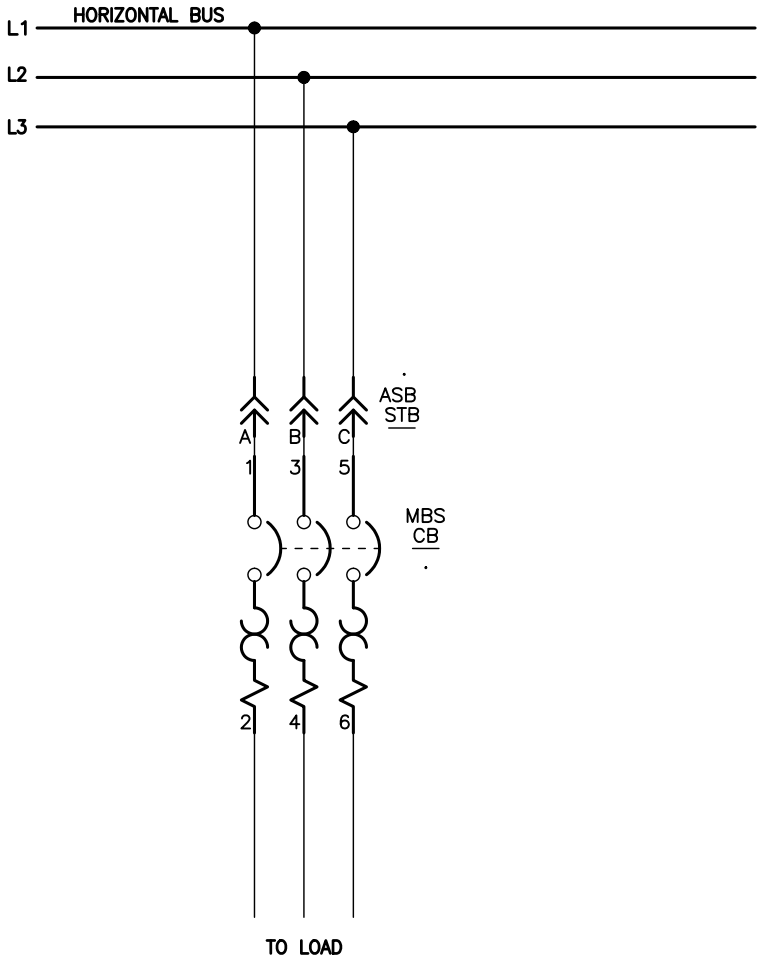

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DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-05	PG 1 OF 1 REV –

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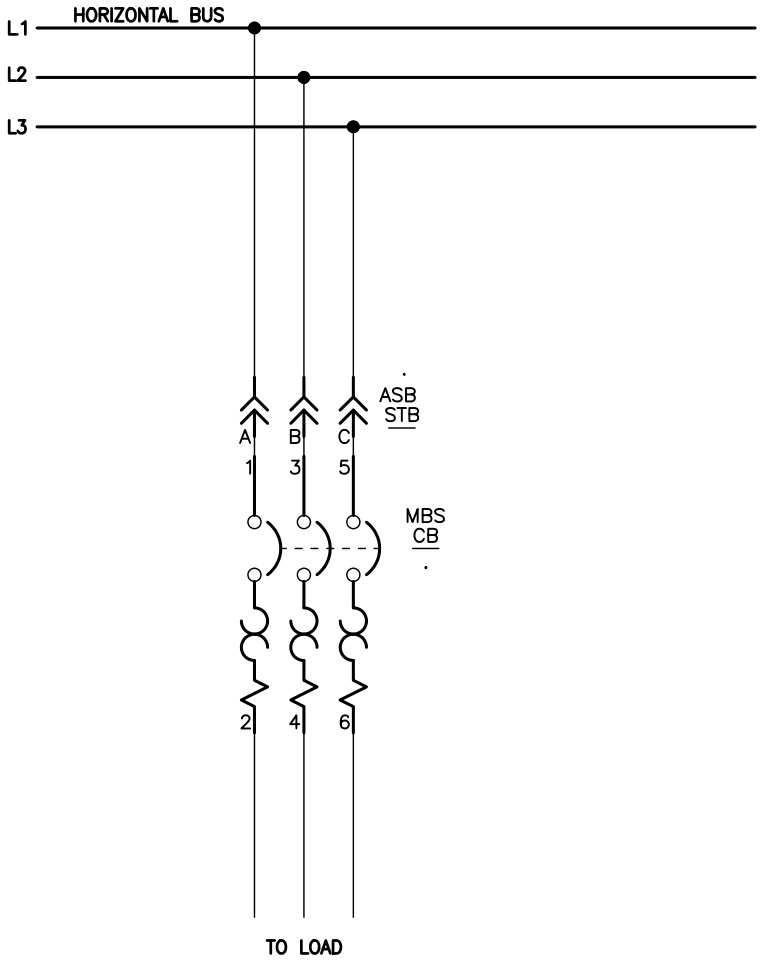

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-06	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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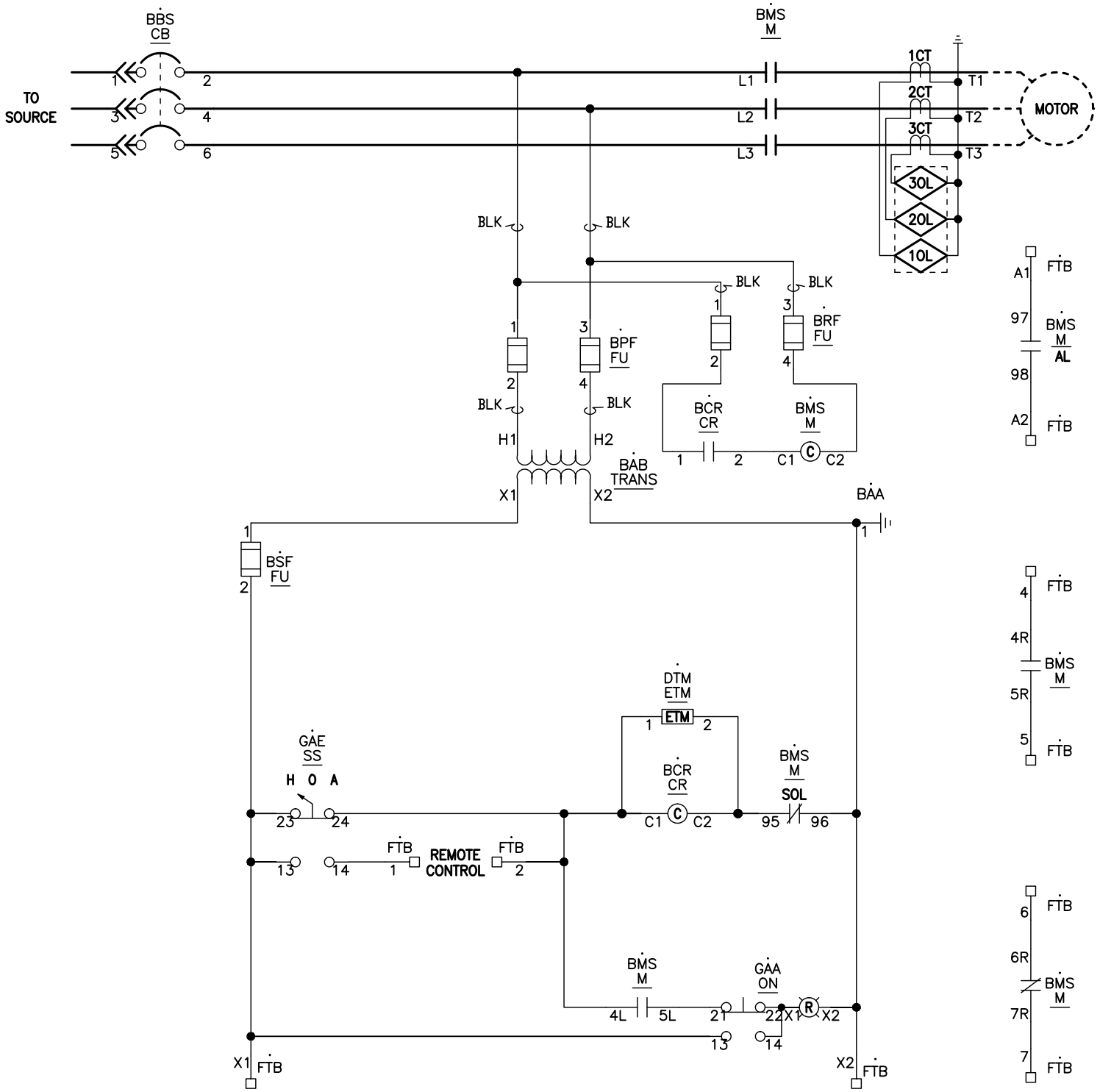
16M



DRAWING IS NOT COMPLETE AND IS FOR QUOTATION PURPOSES ONLY.

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-07	PG 1 OF 1 REV –

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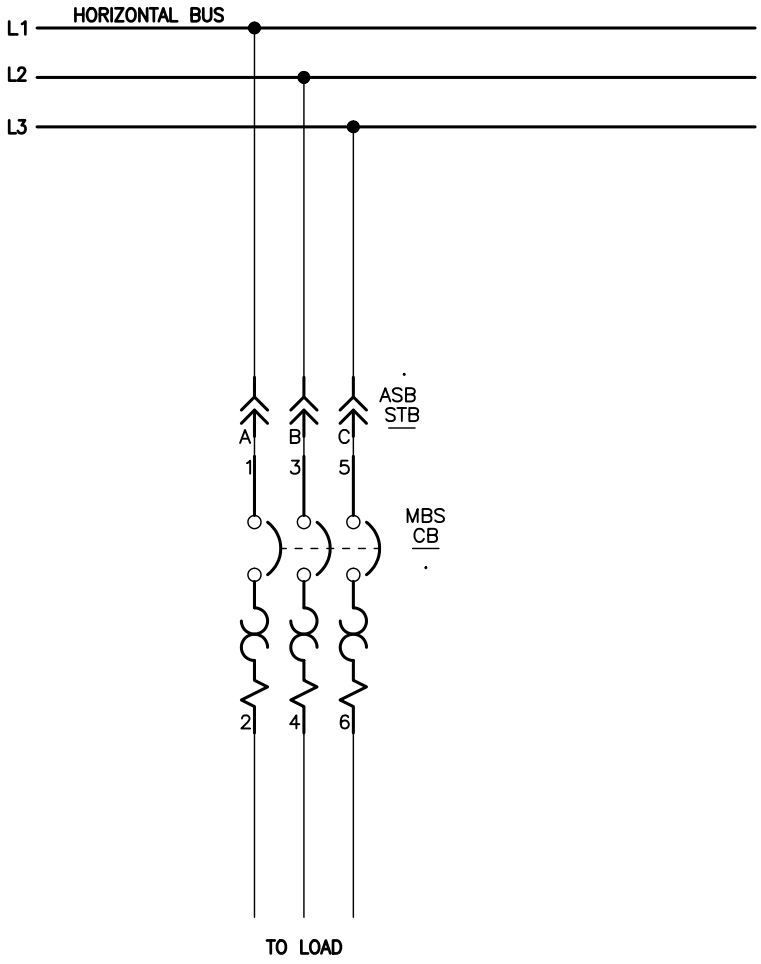

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-08	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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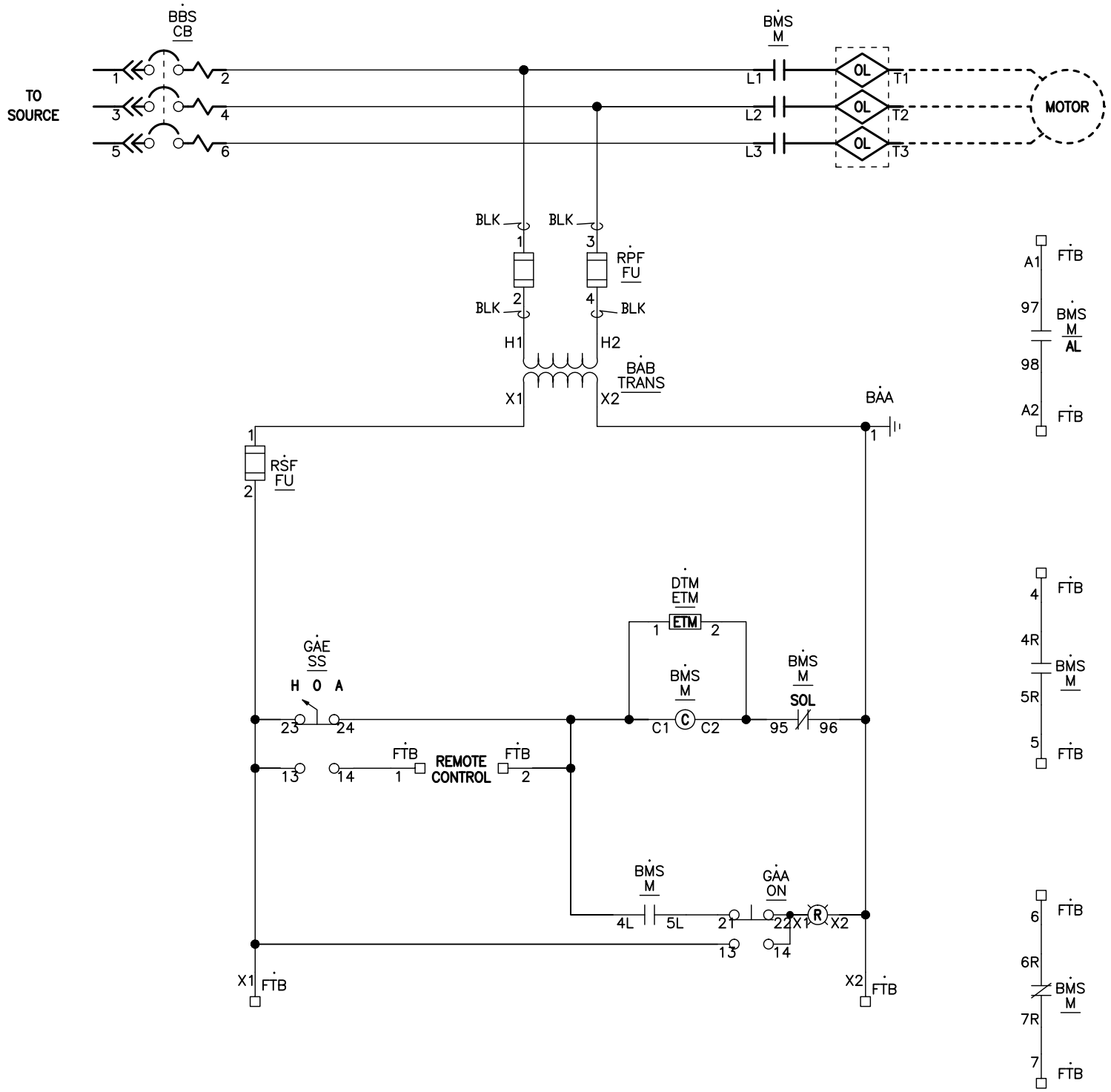
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-09	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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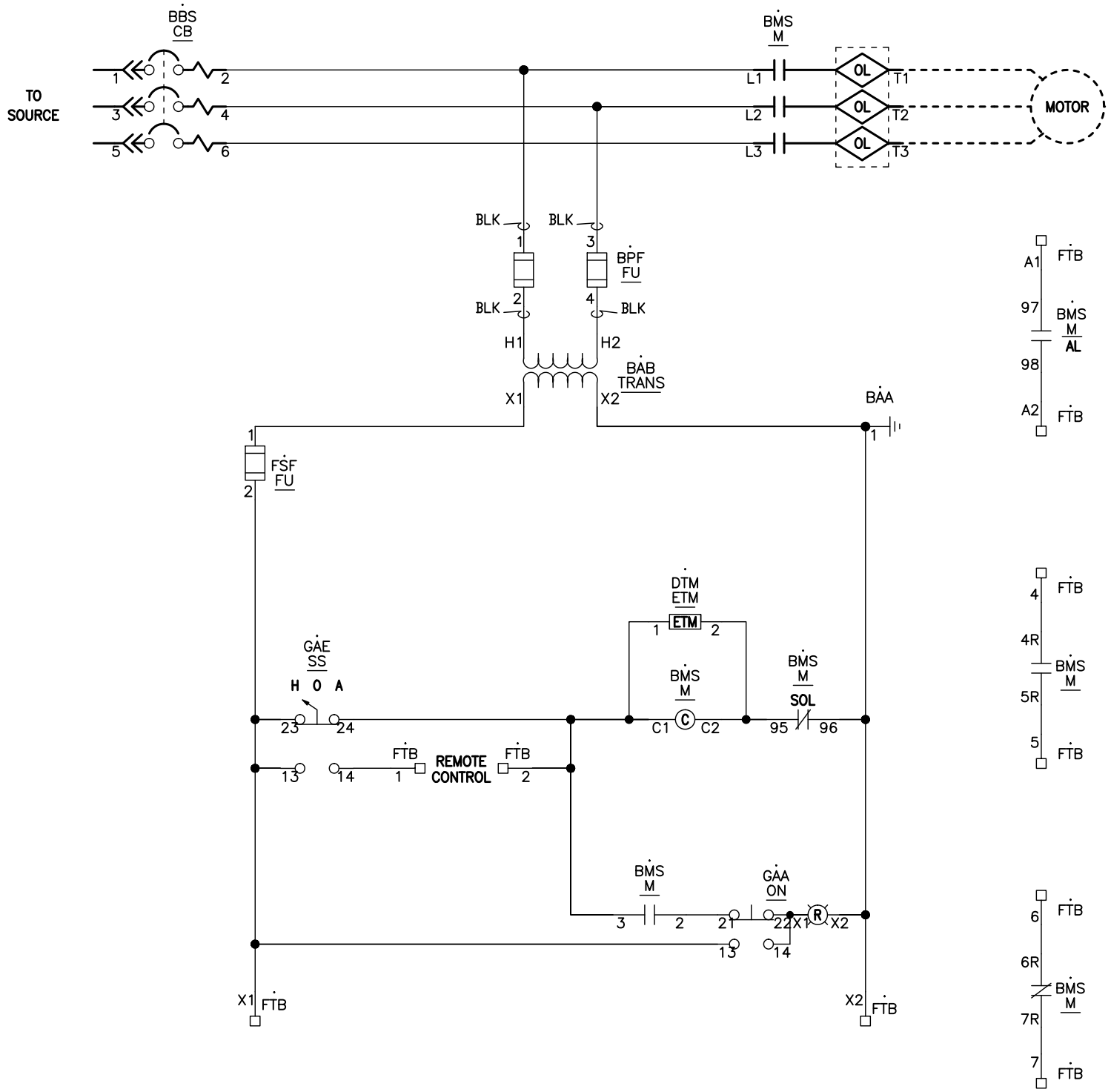
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-10	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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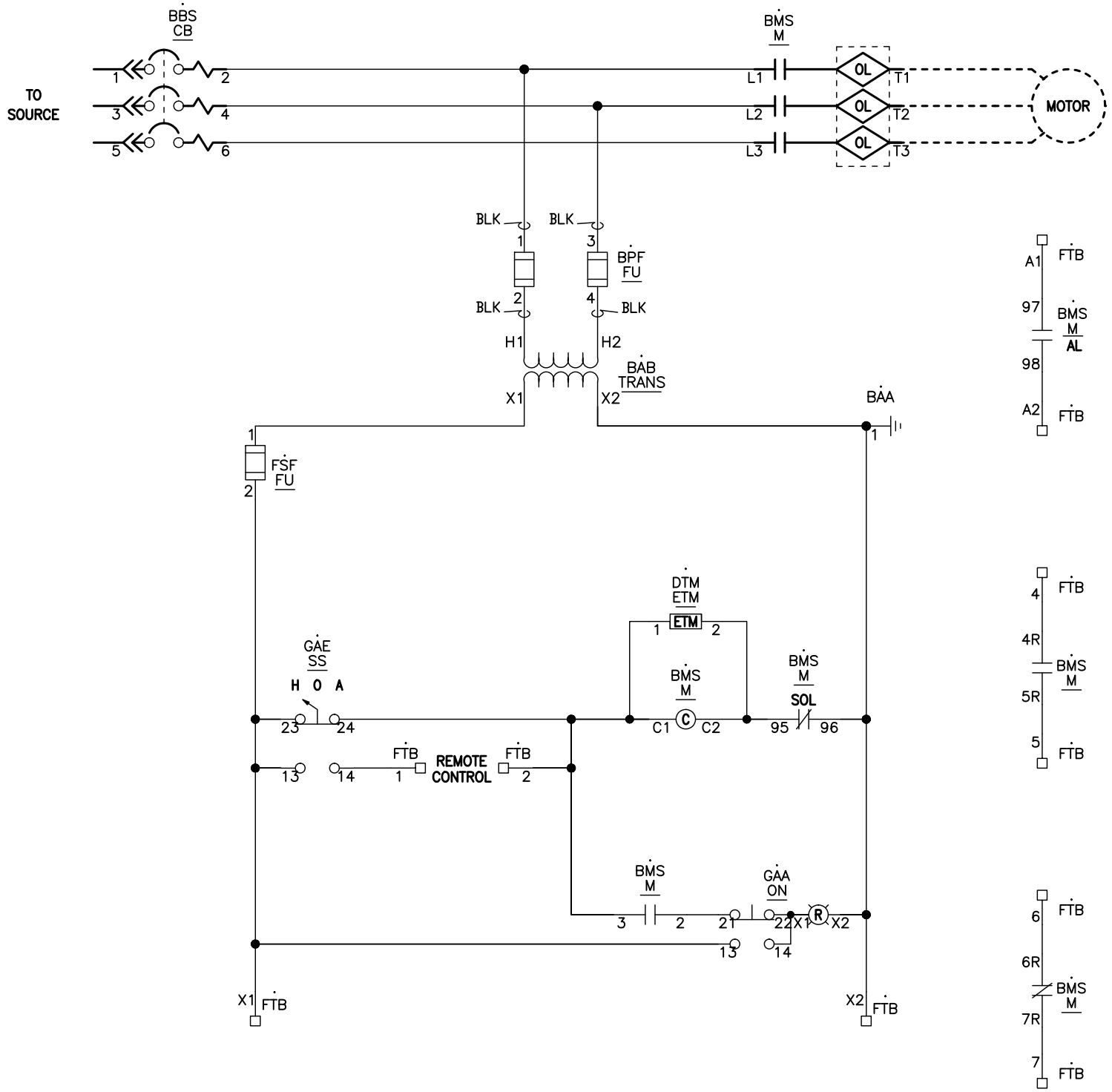
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-11	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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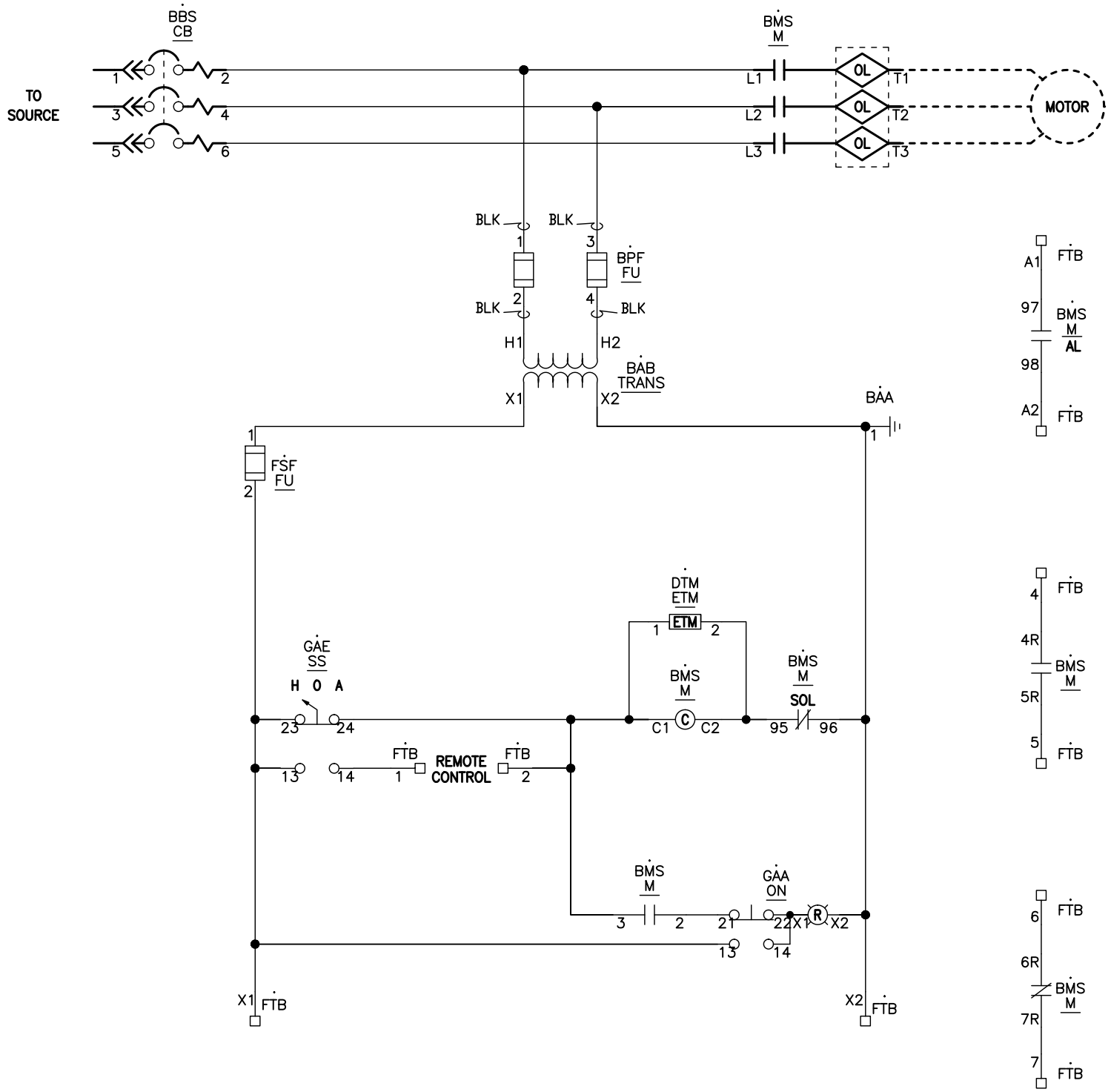
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-12	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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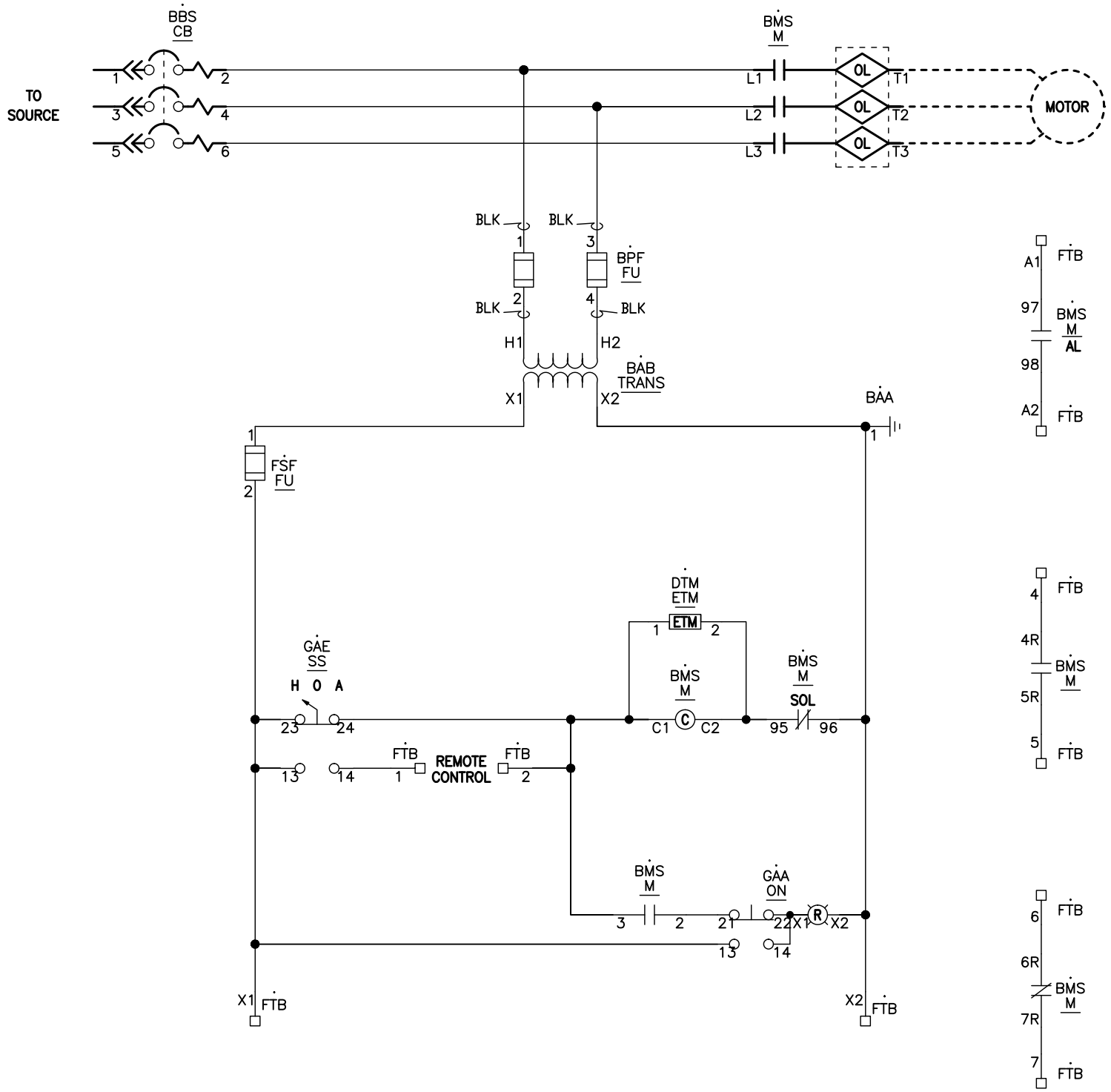
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-13	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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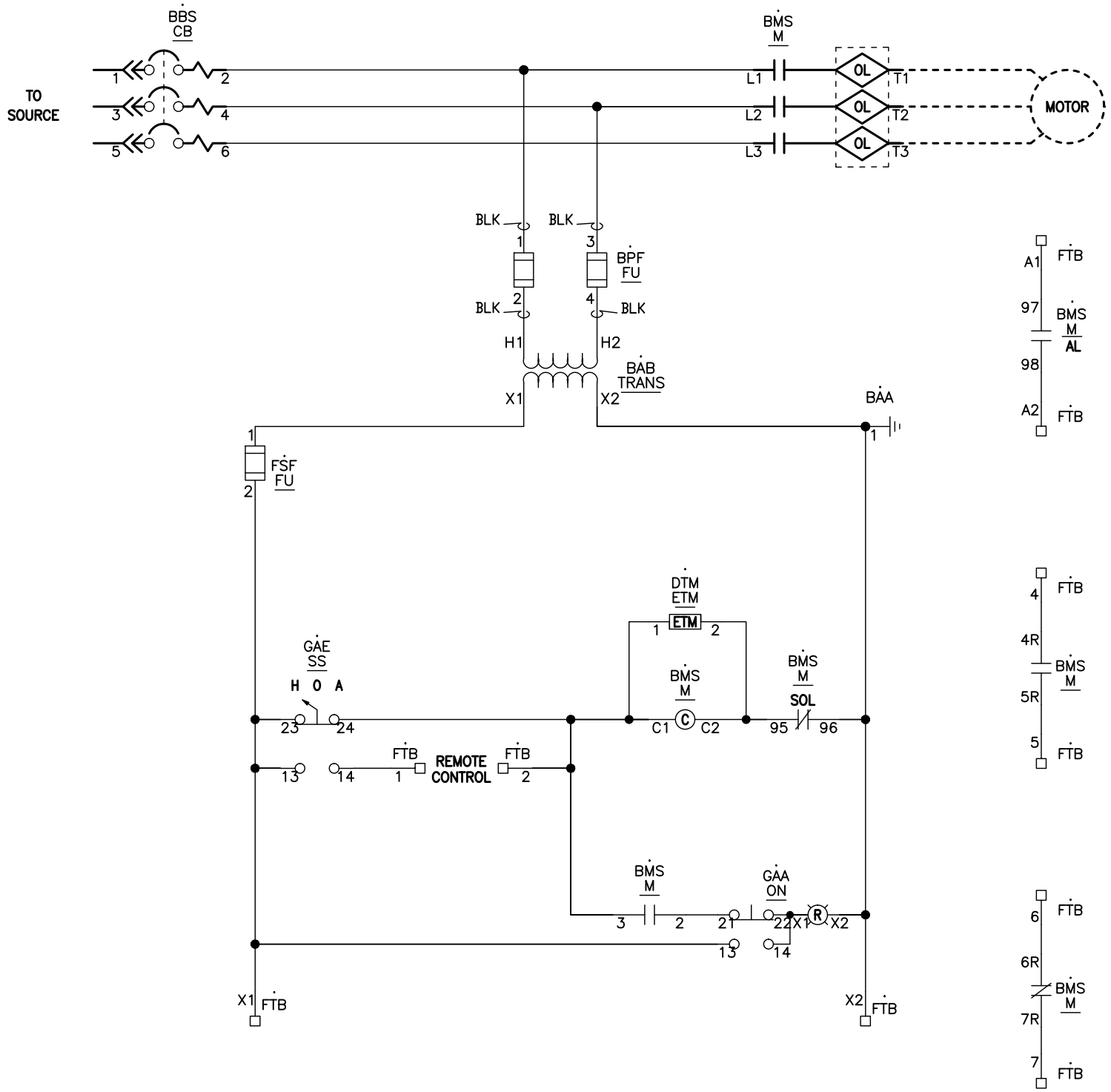
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-14	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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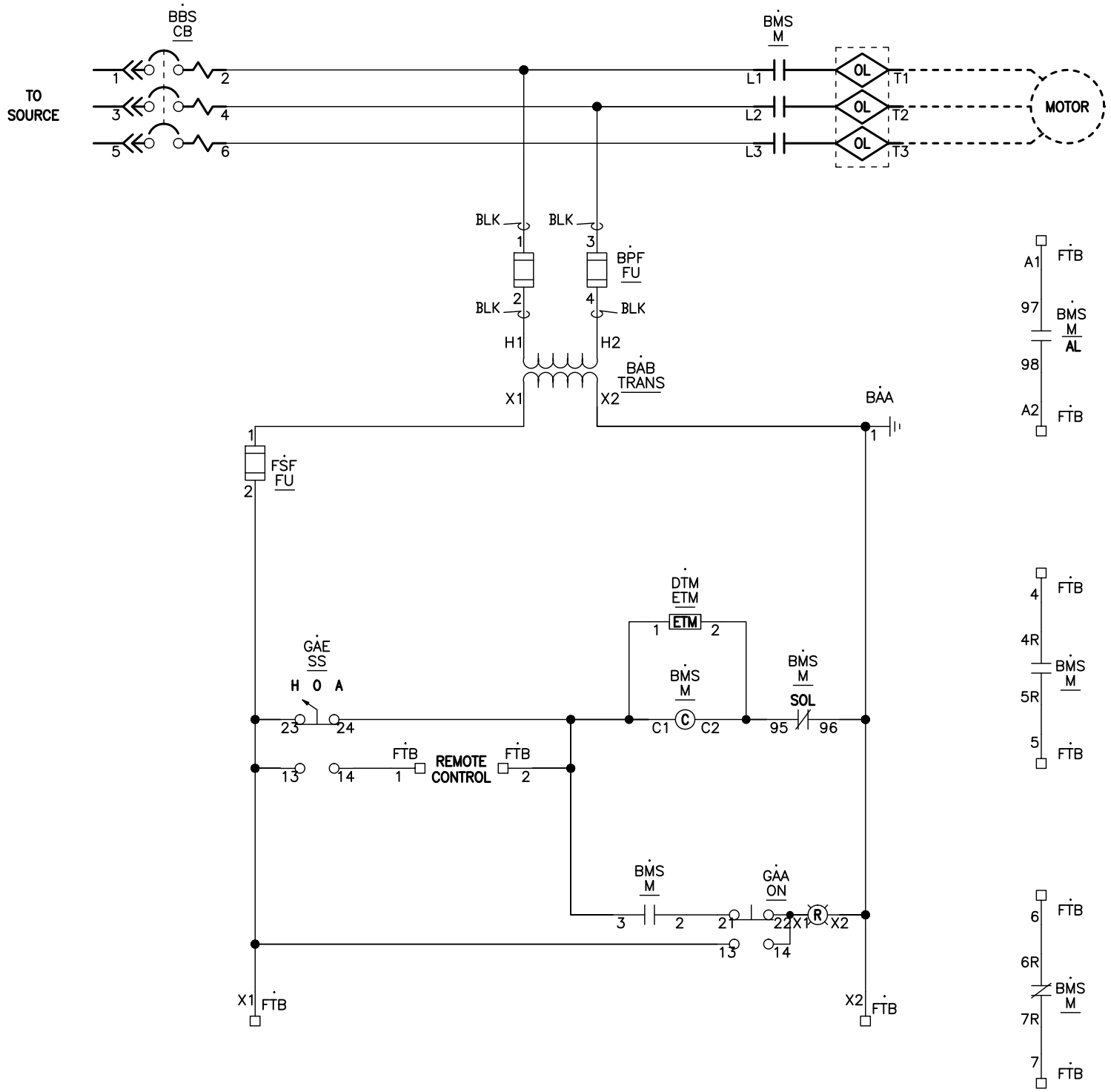
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-15	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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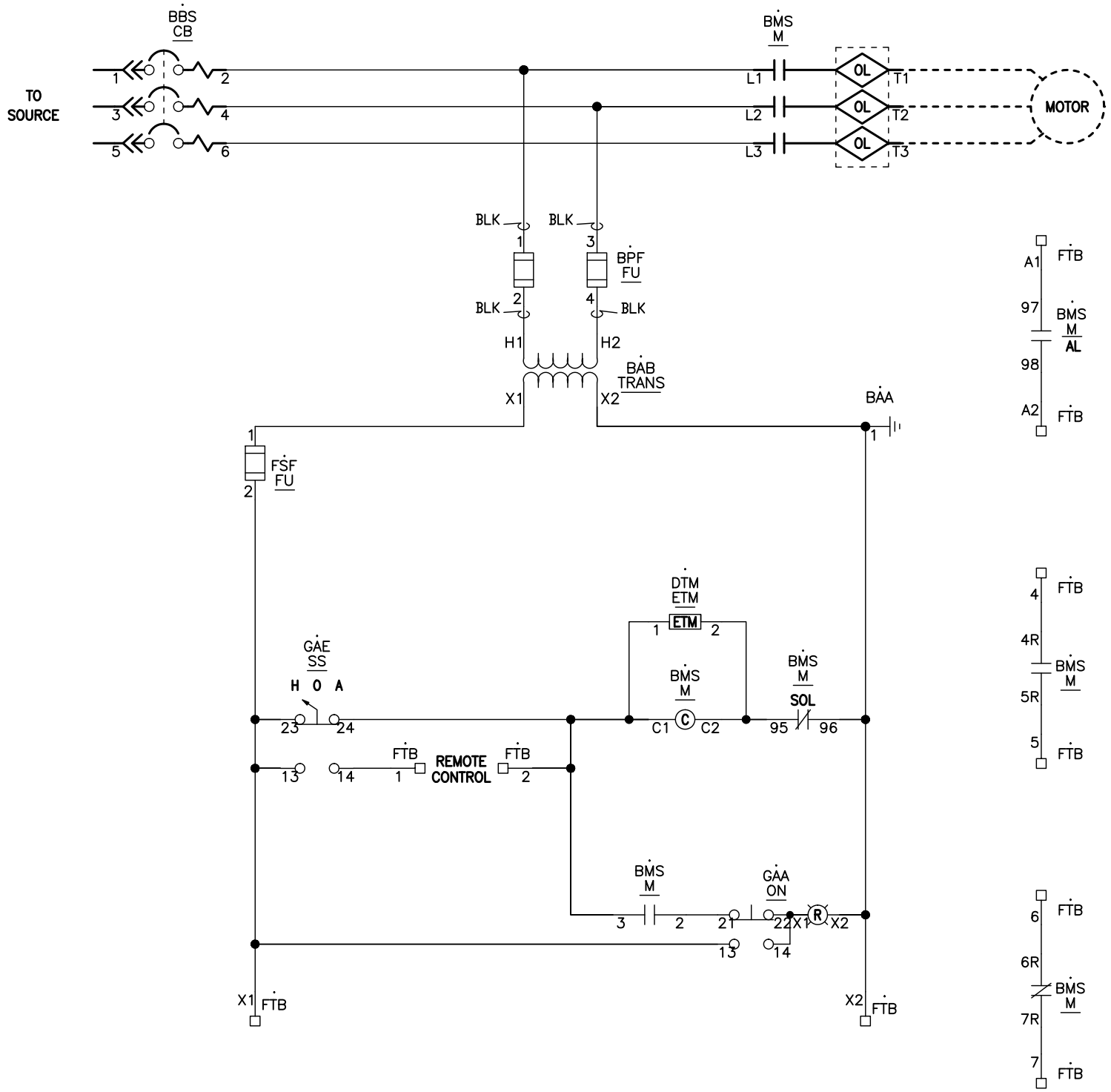
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-16	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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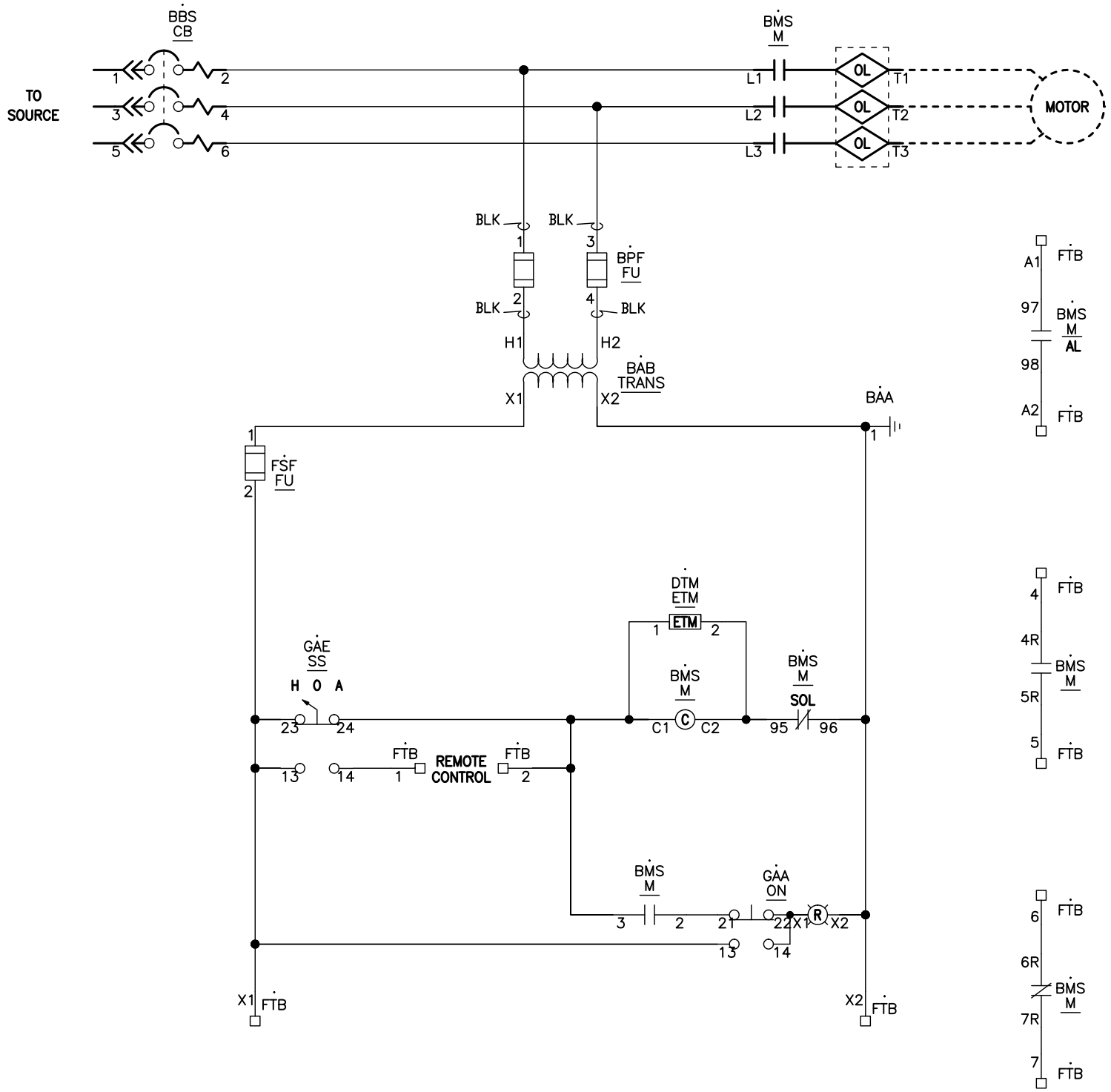
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-17	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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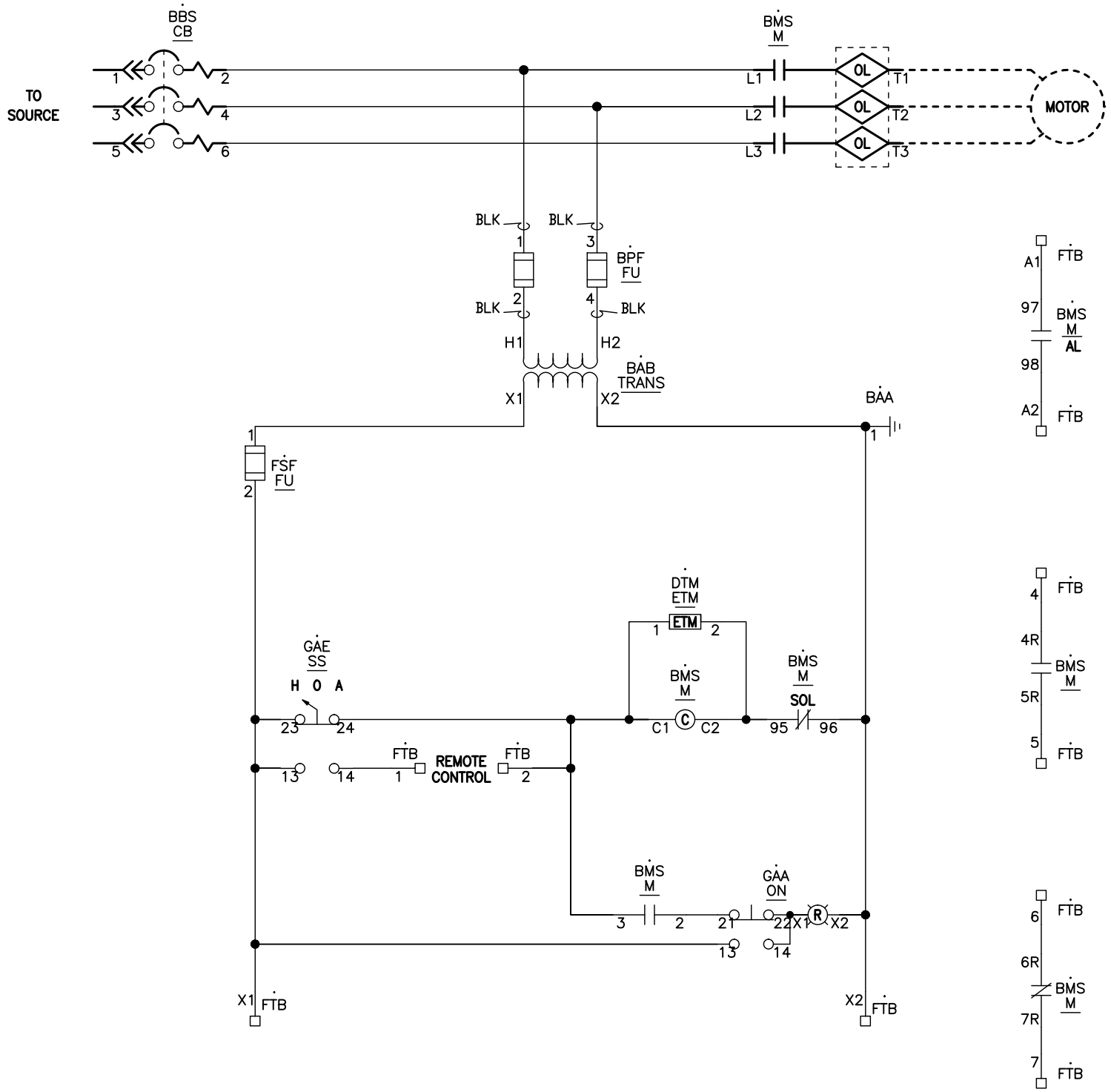
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-18	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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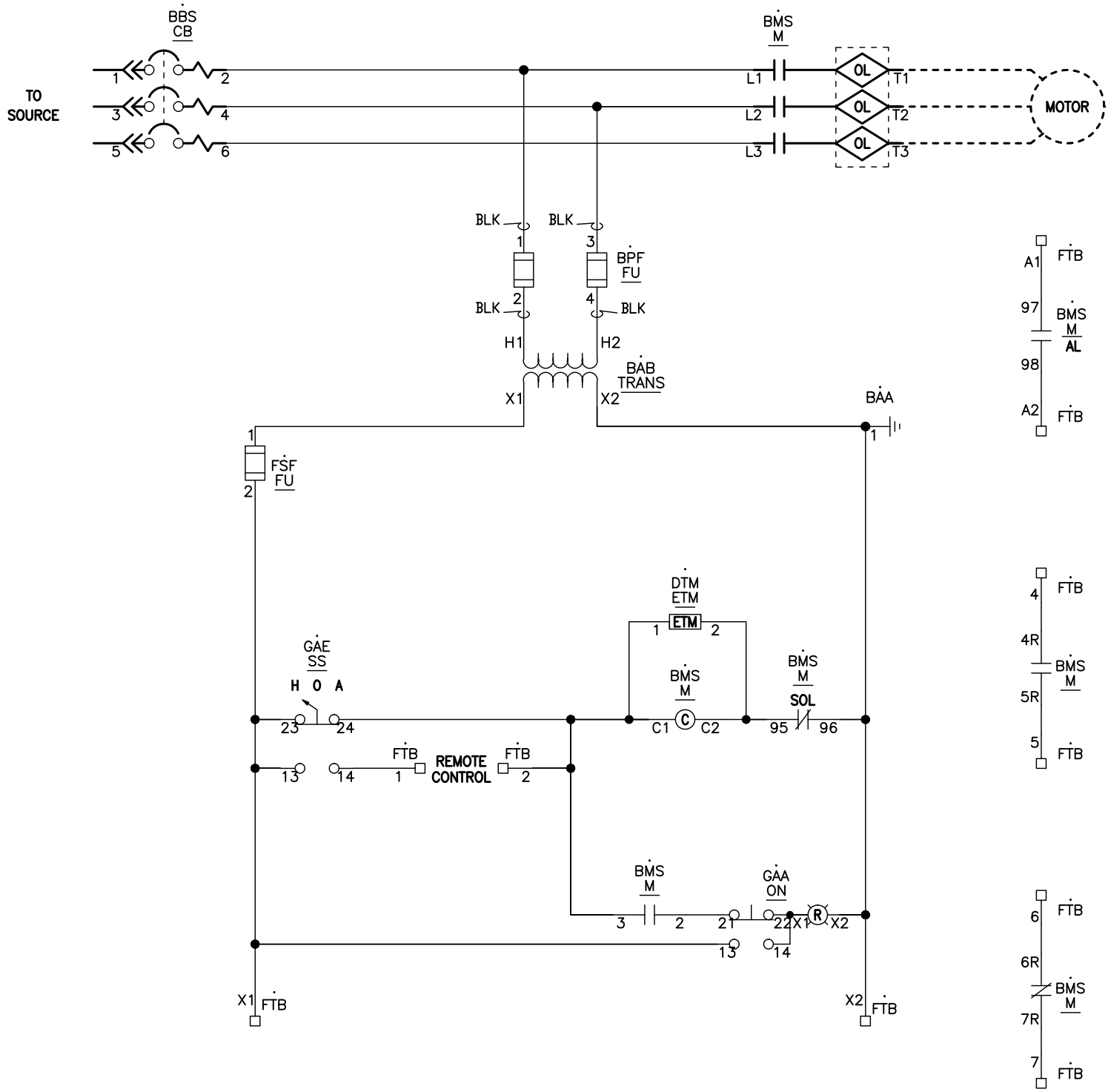
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-19	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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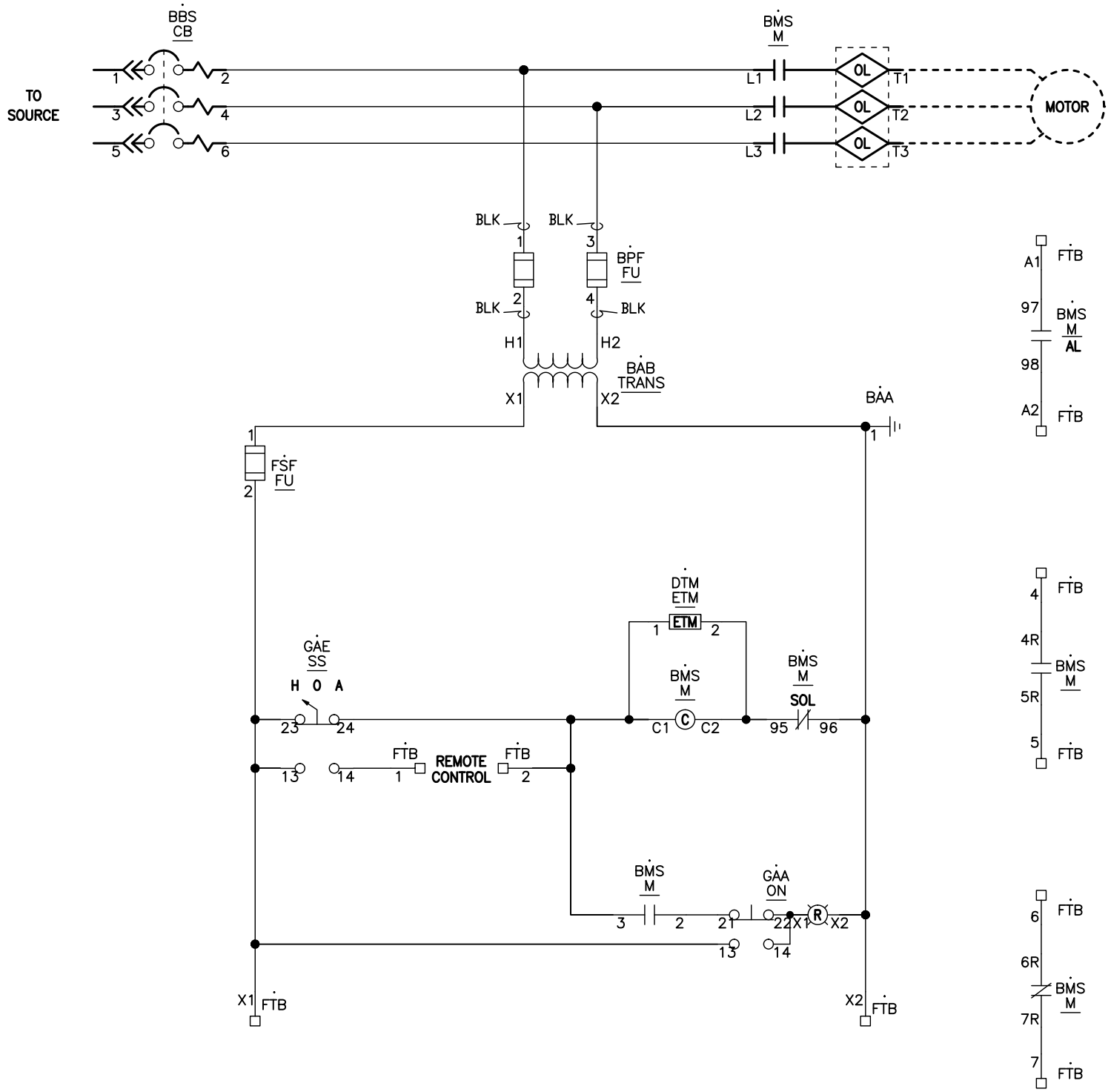
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-20	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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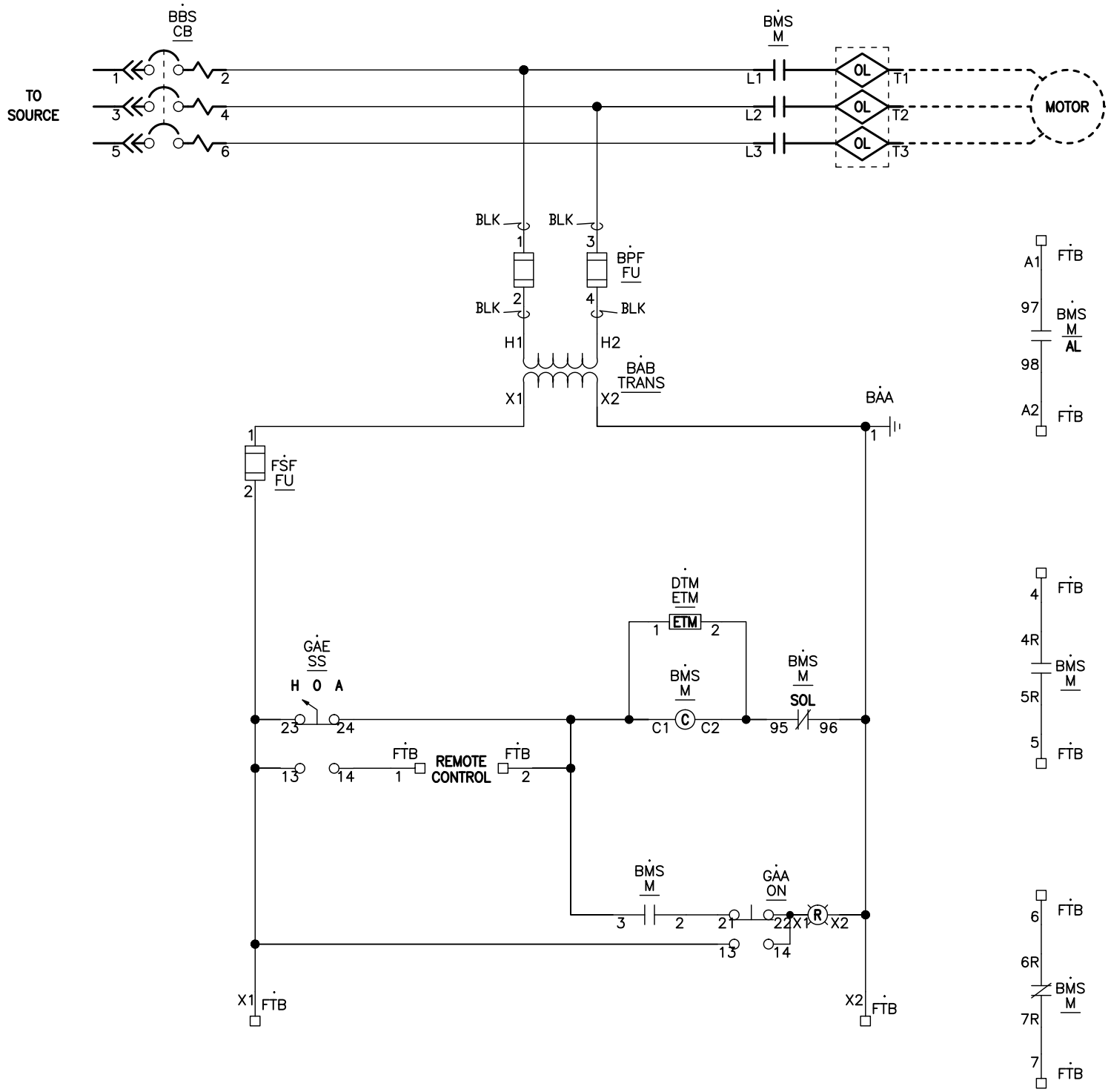
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-21	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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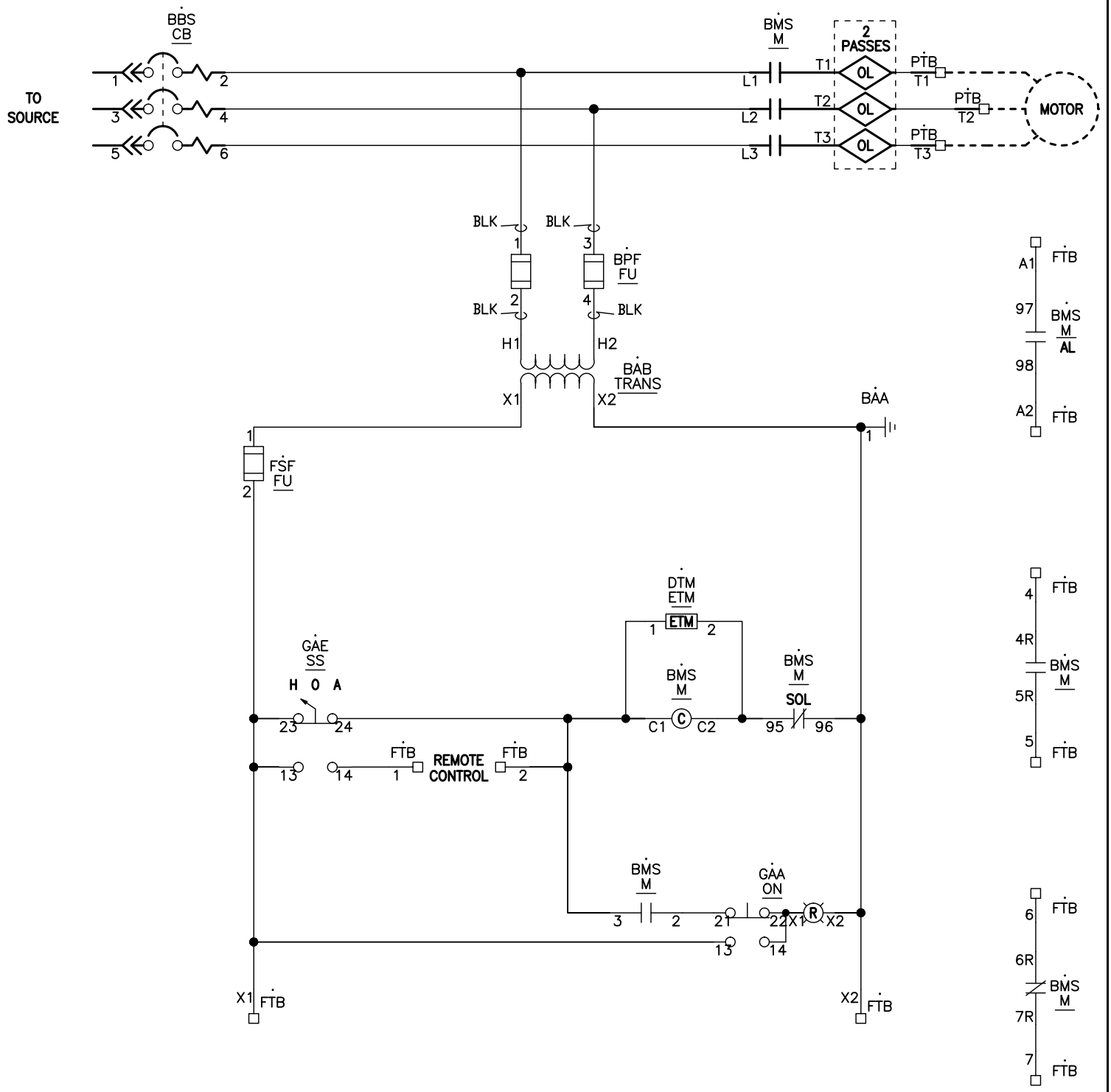
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-22	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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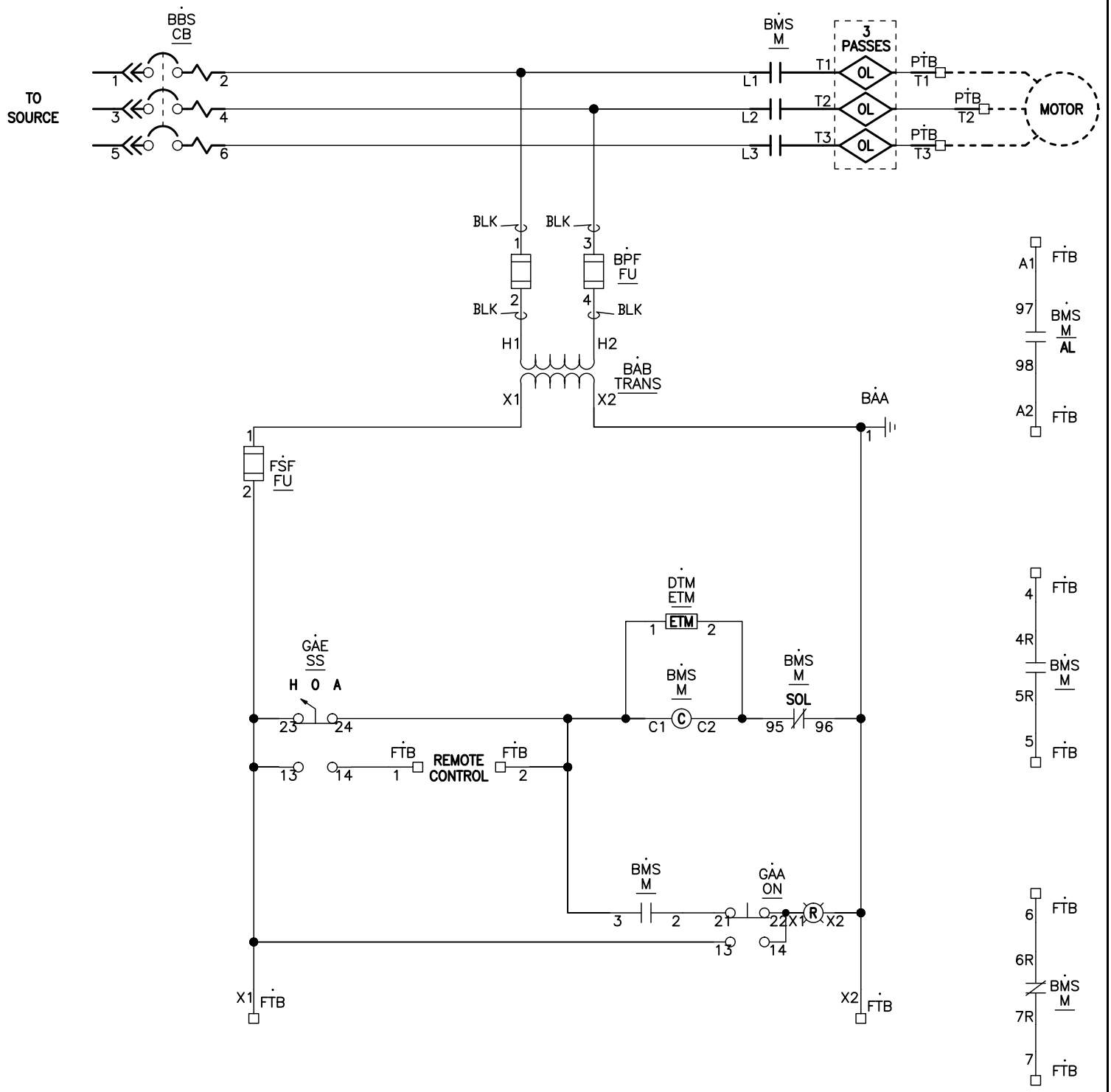
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-23	PG 1 OF 1 REV –

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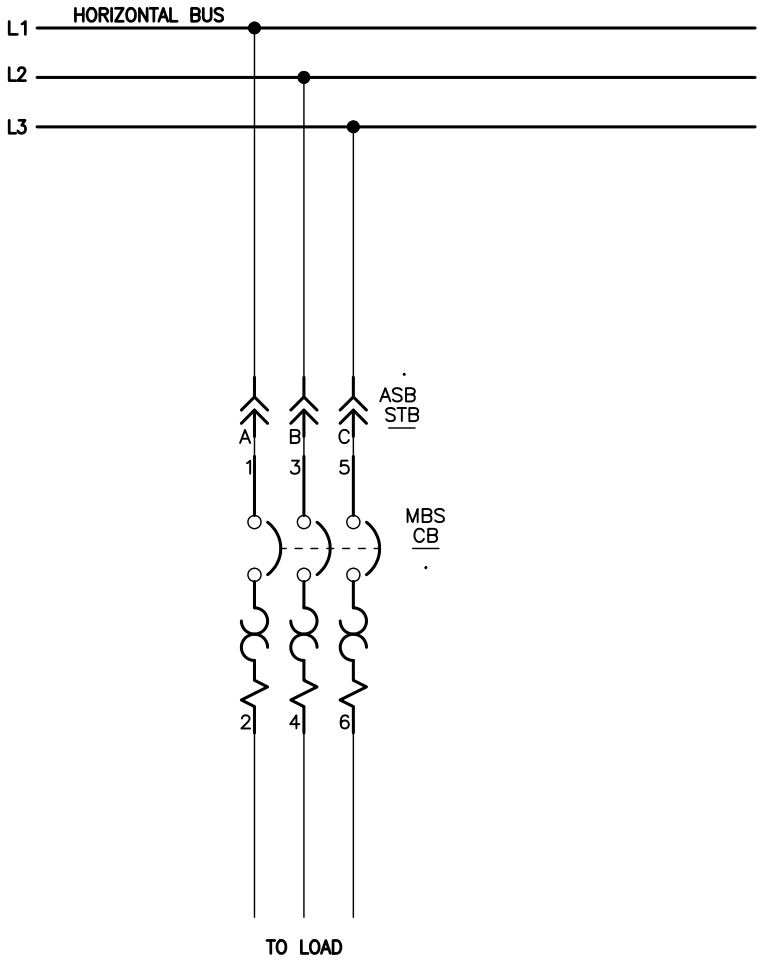

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-24	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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UNIT LOC	NAMEPLATE DESIGNATION (WHITE SURFACE/BLACK LETTERS)	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	FUSE SIZE PRI	FUSE SIZE SEC	INTERLOCKS NO	INTERLOCKS NC	PILOT DEVICE FEATURES 22 mm– XB5 LED ON LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED OFF LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED ADDL P/L	PILOT DEVICE FEATURES 22 mm– XB5 LED SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
1A	MAIN LUGS	MAIN LUGS															SOLID NEUTRAL	
1D	SIZE 1 SPARE	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--01
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
1H		SPACE																
1I	BLDG WATER PUMP # 1	FVNR	NEMA 5	150	LA 400	**400**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--02
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR LOGIC O/L NEMA SIZE 5, N.O. ISOLATED AUX O/L CONTACTS	
2A	DR WATER SYS B1	6" BRANCH BKR			HJ 150	**30**											14–3/0AWG 1 LUG/PH, 80% RATED	E29528680--03
2C	DR WATER SYS B2	6" BRANCH BKR			HJ 150	**20**											14–3/0AWG 1 LUG/PH, 80% RATED	E29528680--04
2E	SPARE	6" BRANCH BKR			HJ 150	**20**											14–3/0AWG 1 LUG/PH, 80% RATED	E29528680--05
2G	AC SUB–BASEMENT	6" BRANCH BKR			HJ 150	**50**											14–3/0AWG 1 LUG/PH, 80% RATED	E29528680--06
2I	BLDG WATER PUMP # 2	FVNR	NEMA 5	150	LA 400	**400**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--07
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR LOGIC O/L NEMA SIZE 5, N.O. ISOLATED AUX O/L CONTACTS	
3A	OFF SEASON AC	6" BRANCH BKR			HJ 150	**30**											14–3/0AWG 1 LUG/PH, 80% RATED	E29528680--08
3C	HOT WATER PUMP	FVNR	NEMA 3	50	HJ 150	**ADJ 100**	CONTROL TRANSFORMER	300	1.60	3.20	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--09
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 3,	
3I	SUMP PUMP 2	FVNR	NEMA 2	25	HJ 150	**ADJ 50**	CONTROL TRANSFORMER	300	1.60	3.20	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, 6" UNIT EXT, CLASS 10/20 O/L (SELECTABLE),	E29528680--10
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 2,	
																	N.O. ISOLATED AUX O/L CONTACTS	
UNIT LOC	NAMEPLATE DESIGNATION	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	PRI	SEC	NO	NC	ON LIGHT	OFF LIGHT	ADDL P/L	SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
									FUSE SIZE		INTERLOCKS		PILOT DEVICE FEATURES 22 mm– XB5			LED		

MCC NAMEPLATE – MCC #2
(WHITE SURFACE/BLACK LETTERS)

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	UNIT INFORMATION
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	I29528680–01

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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UNIT LOC	NAMEPLATE DESIGNATION	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	FUSE SIZE PRI	FUSE SIZE SEC	INTERLOCKS NO	INTERLOCKS NC	PILOT DEVICE FEATURES 22 mm– XB5 LED ON LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED OFF LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED ADDL P/L	PILOT DEVICE FEATURES 22 mm– XB5 LED SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
3O	AIR COMPRESSOR 1	FVNR	NEMA 2	15	HJ 150	**ADJ 50**	CONTROL TRANSFORMER	300	1.60	3.20	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, 6" UNIT EXT, CLASS 10/20 O/L (SELECTABLE),	E29528680--11
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 2,	
																	N.O. ISOLATED AUX O/L CONTACTS	
3U	SEWAGE LIFT PUMP 2	FVNR	NEMA 1	5	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--12
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L SIZE 00C,	
4A	SNOW MELTING	FVNR	NEMA 1	5	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--13
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L SIZE 00C,	
4E	CONDENSATE PUMP 1	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--14
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
4I	DOMESTIC RECIRC HW PUMP	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--15
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
4M	KITCHEN RECIRC HW PUMP	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--16
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
4Q	KITCHEN SUPPLY FAN	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--17
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
4U	SIZE 0 SPARE	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--18
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
5A	SIZE 1 SPARE	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--19
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
UNIT LOC	NAMEPLATE DESIGNATION	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	PRI	SEC	NO	NC	ON LIGHT	OFF LIGHT	ADDL P/L	SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
									FUSE SIZE		INTERLOCKS		PILOT DEVICE FEATURES 22 mm– XB5			LED		

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**MCC #2**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	UNIT INFORMATION
ENGR:			by Schneider Electric
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	**I29528680–01**

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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UNIT LOC	NAMEPLATE DESIGNATION	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	FUSE SIZE PRI	FUSE SIZE SEC	INTERLOCKS NO	INTERLOCKS NC	PILOT DEVICE FEATURES 22 mm– XB5 LED ON LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED OFF LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED ADDL P/L	PILOT DEVICE FEATURES 22 mm– XB5 LED SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
5E	ZONE 6 BOOSTER	FVNR	NEMA 1	1.5	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--20
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L SIZE 00B,	
5I	TUNNEL EXHAUST FAN	FVNR	NEMA 1	1	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--21
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L SIZE 00B,	
5M	BASEMENT EXHAUST FAN	FVNR	NEMA 1	0.75	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--22
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L SIZE 00B W/2 PASSES,	
5Q	SUMP PUMP 1	FVNR	NEMA 1	0.5	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--23
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L SIZE 00B W/3 PASSES,	
5U	BOILER CONDENSATE PUMP	6" BRANCH BKR			HJ 150	**20**											14–3/0AWG 1 LUG/PH, 80% RATED	E29528680--24
5W		SPACE																
UNIT LOC	NAMEPLATE DESIGNATION	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	PRI	SEC	NO	NC	ON LIGHT	OFF LIGHT	ADDL P/L	SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
									FUSE SIZE		INTERLOCKS		PILOT DEVICE FEATURES 22 mm– XB5			LED		

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	UNIT INFORMATION
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	I29528680–01

Item No.	Qty.	Catalog Number / Details
012-00	1	**Designation:** MCC #2 EM Model 6 LVMCC Model 6 MCC - Industrial Package ---------- System Voltage: 480Y/277V 3PH 4W 60Hz Max Available Fault Current (RMS) - 42kA Control Power - 120Vac General Purpose Type 1 Enclosure 1/4" x 1" Horizontal Ground Bus, Tin Plated Copper Class 1 Type B Wiring 20" Deep Construction 42kA Bus Withstand Rating 600A Tin Plated Copper Horizontal Bus Vertical Ground Bus, Tin Plated Copper White Interior Neutral Bus Maximum Drops per Lineup Master Nameplate Engraved with White Surface/Black Letters Standard Exterior Paint ANSI 49 Equipment Mounting Height 72" Manual Vertical Bus Shutters Fishtape Barrier Certified Test Report Unit Nameplate Engraved with White Surface/ Black Letters Rodent Barriers Engineered To Order (ETO) 2 - Section(s) with 300A Tin Plated Copper Vertical Bus DIMENSIONS AND WEIGHT ---------- Dimensions: 40.00"W X 20"D X 94.5"H Approximate Weight: 1500.00 lbs / 680.40 kgs INCOMING ---------- Incoming Connection: Cable MAIN ---------- Main Lugs Top Entry 600A Neutral Lug Termination FULL VOLTAGE NON-REVERSING STARTERS ---------- 1 - 50 HP NEMA Size 3 FVNR Starter w/Circuit Breaker Control Power Transformer 300VA 1 - 5 HP NEMA Size 1 FVNR Starter w/Circuit Breaker Control Power Transformer 150VA 1 - 15 HP NEMA Size 2 FVNR Starter w/Circuit Breaker Control Power Transformer 300VA 3 - 10 HP NEMA Size 1 FVNR Starter w/Circuit Breaker Control Power Transformer 150VA

Item No.	Qty.	Catalog Number / Details

COMMON FULL VOLTAGE NON-REVERSING FEATURES

Electronic Motor Circuit Protector
#16 AWG MTW Control Wire
Control Transformer Tap
65kA Interrupting Rating
Motor On LED Pilot Light Red Push-to-Test
22mm XB5 Pilot Devices
Hand-Off-Auto Selector Switch
1 NO & 1 NC Auxiliary Electrical Interlocks
Overload Alarm Contact Normally Open Isolated
Elapsed Time Meter
Motor Logic Feature Based Overload
4 Additional Unwired Terminal Points

FEEDERS
---
1 - Compac 6 Circuit Breaker Branch Feeder
40A
65kA Interrupting Rating

MISCELLANEOUS DEVICES
---
1 - 27" Configured Space
1 - 18" Configured Space

“Plant Drawings To Be Submitted Later”

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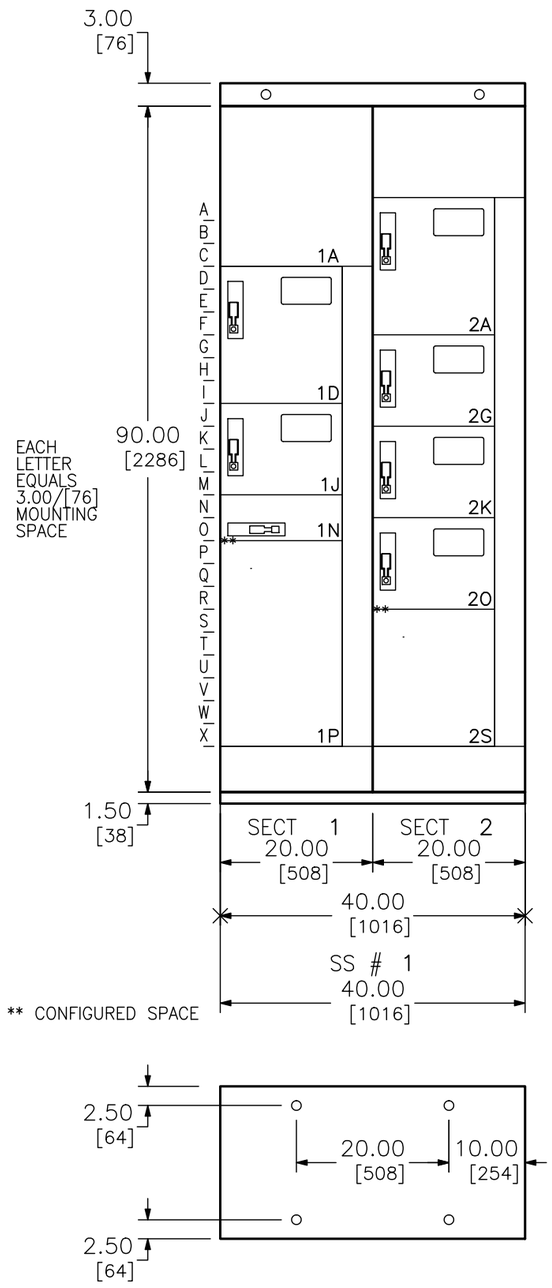

ANCHOR DETAIL

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**MCC #2 EM**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	**F29528680-01**

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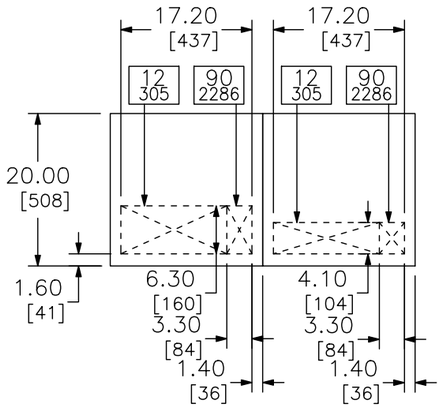
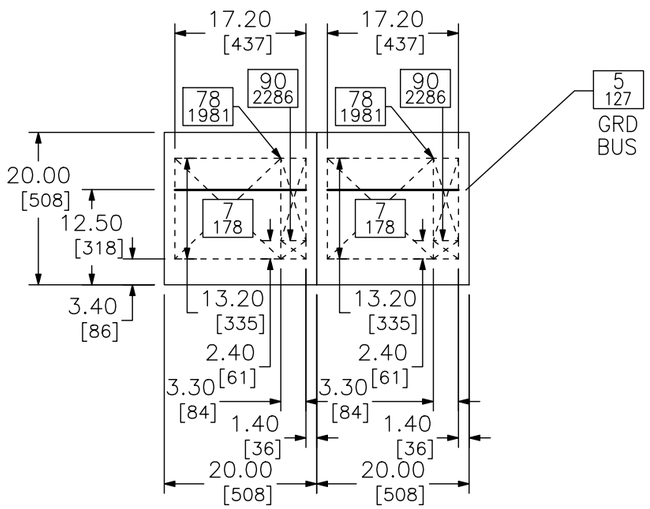


TOP VIEW



FLOOR VIEW

CROSSED AREA REPRESENTS CONDUIT ENTRY AREA. NUMBERS IN BOXES INDICATE VERTICAL CLEARANCE TO NEAREST OBSTRUCTION.

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**MCC #2 EM**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	**F29528680-01**

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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GENERAL NOTES

Class 1 Type B Wiring

PRODUCT DESCRIPTION AND RATINGS

POWER SYSTEM DATA:

480Y/277V 3PH 4W 60Hz
SHORT CIRCUIT RATING: 42kA
POWER ENTERS: Main Lug Top Section 1
CONTROL POWER: 120Vac

BUS SYSTEM DATA:

MAIN HORIZONTAL BUS: 600 Amp Copper/Tin Plated / 1.5"
BUS BRACING: 42kA
VERTICAL BUS: 300 Amp Tin Plated Copper
NEUTRAL BUS: 100 Percent Neutral
HORIZONTAL GROUND BUS: .25" X 1.0" (6.35mm X 25.4mm) Tin Plated Copper
Units Securely Grounded To Structure

ENCLOSURE DATA:

ENCLOSURE TYPE: 20" DEEP Type 1
EXTERIOR COLOR: Electrodeposition Finish ANSI 49 Medium Light Grey
INTERIOR COLOR: Electrodeposition Finish White

STRUCTURE MODIFICATIONS:

Ground Bus Lug : Main Section
Rodent Barriers 1,2
Manual Bus Shutters 1,2
Fishtape Barriers 1,2
Copper Vertical Ground Bus 1,2
Master Nameplate 1
Neutral Bus Drop 2

EQUIPMENT WEIGHT:

SHIPPING SPLIT # 1: 1500.00 Lbs. (680.40 Kg.)
TOTAL LINEUP WEIGHT (APPROX): 1500.00 Lbs. (680.40 Kg.)

PRODUCT ACCESSORIES:

Certified Test Report

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**MCC #2 EM**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	**F29528680-01**

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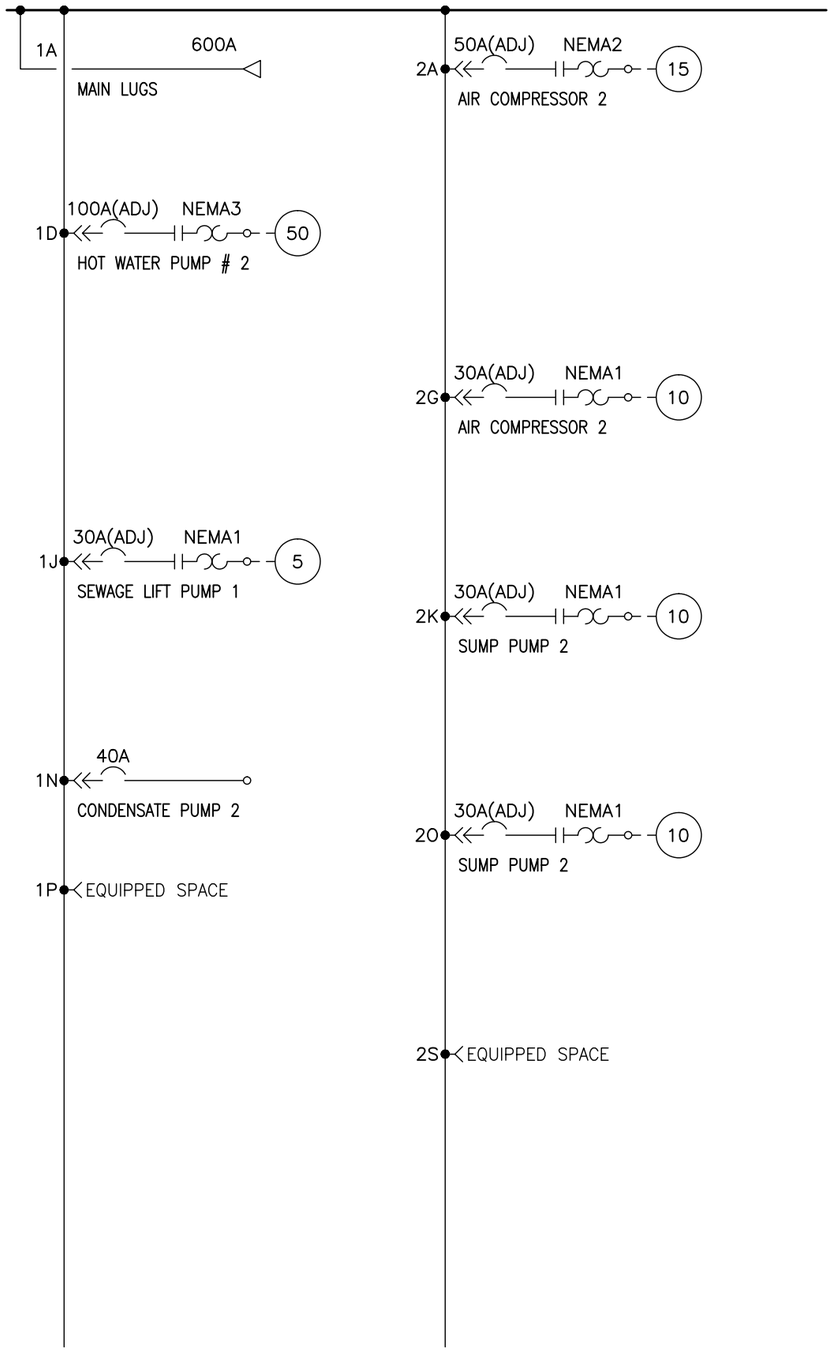

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**MCC #2 EM**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	**029528680-01**

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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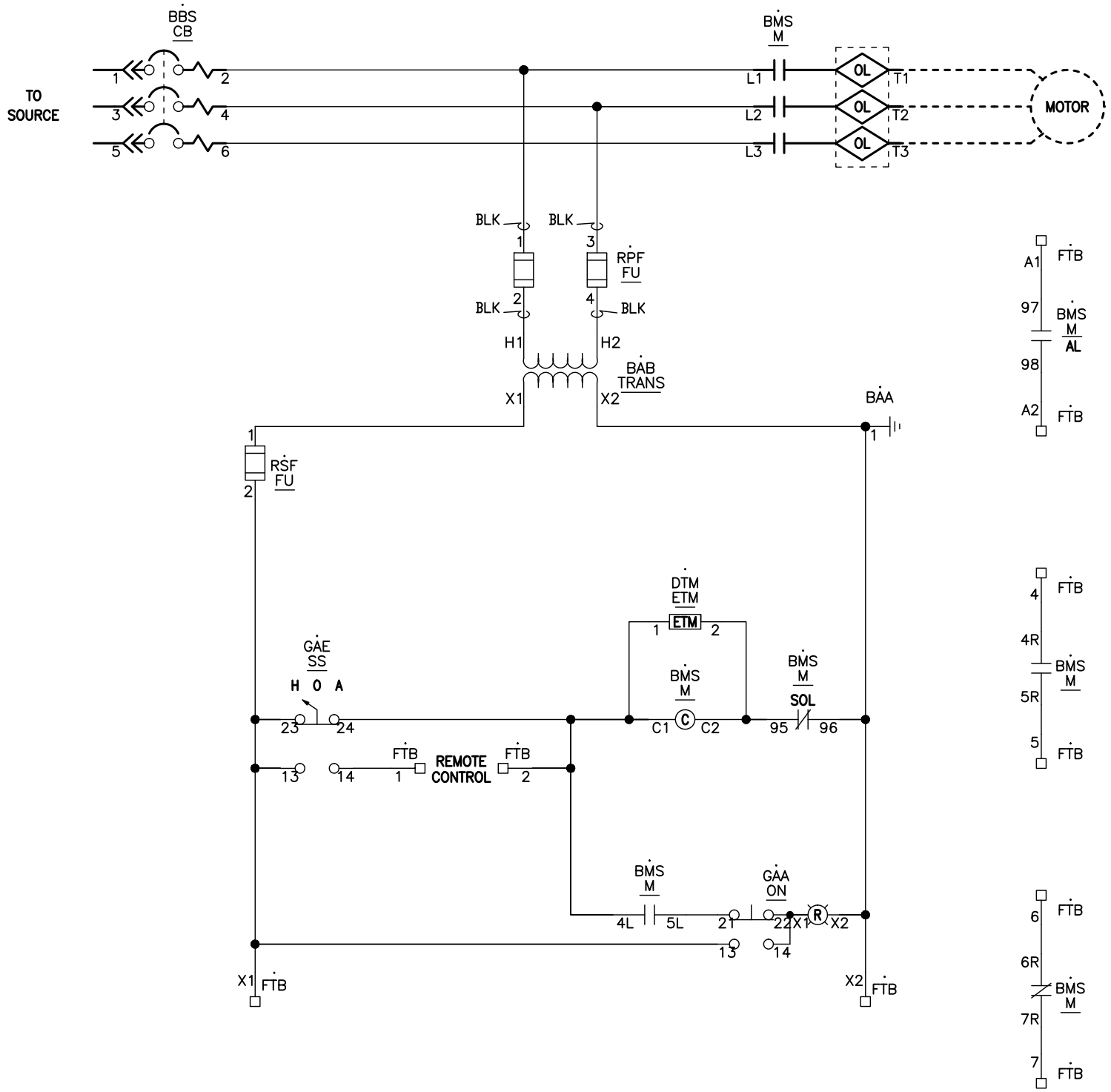
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2 EM
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-01	PG 1 OF 1 REV –

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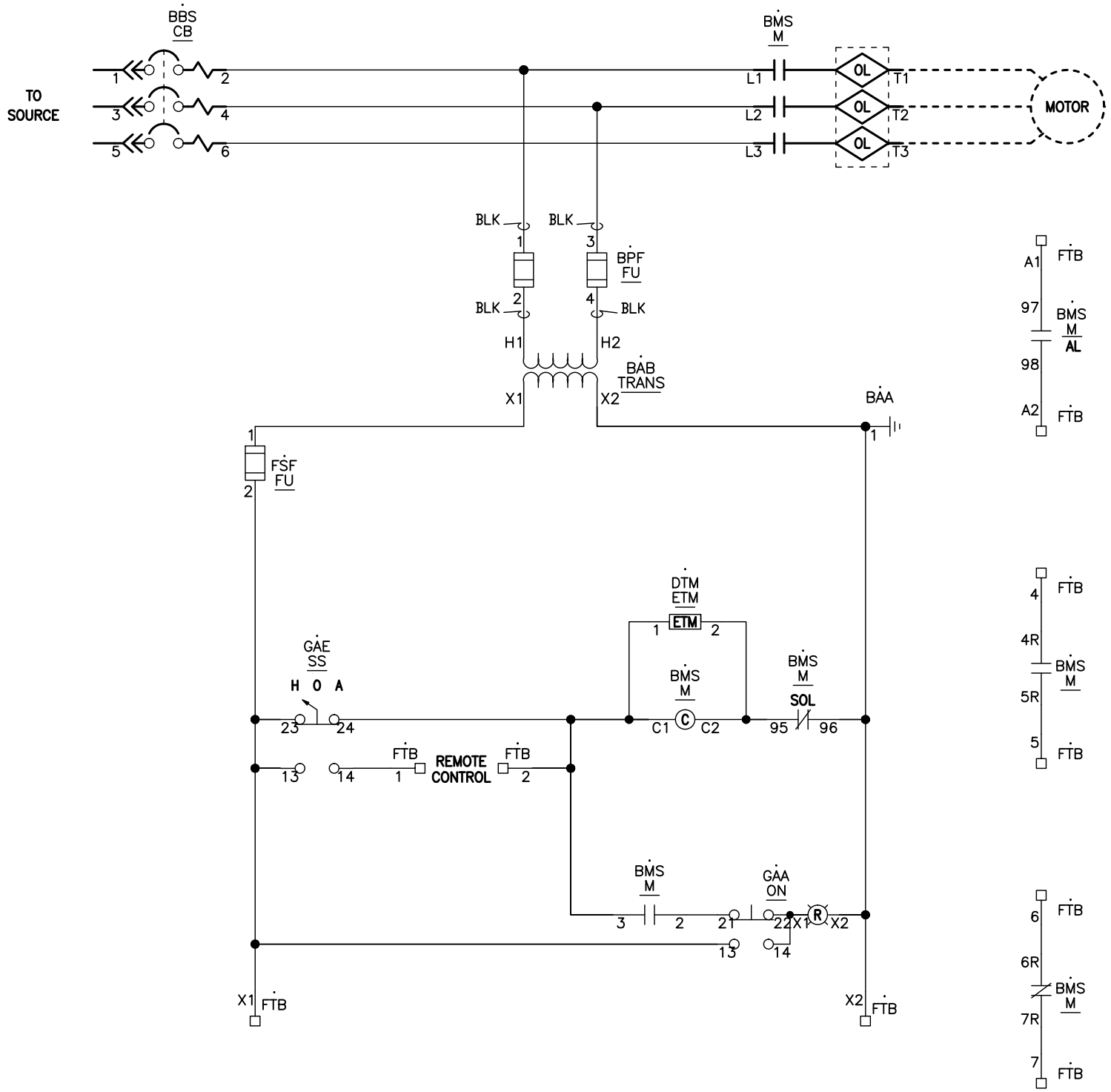

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2 EM
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-02	PG 1 OF 1 REV –

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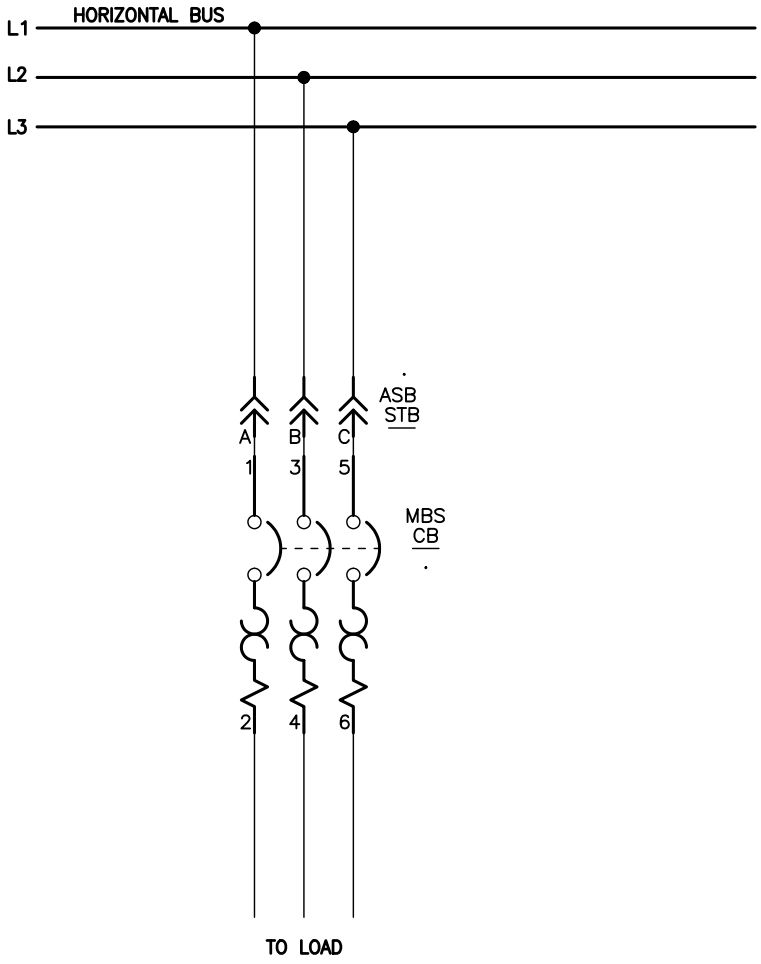

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2 EM
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-03	PG 1 OF 1 REV –

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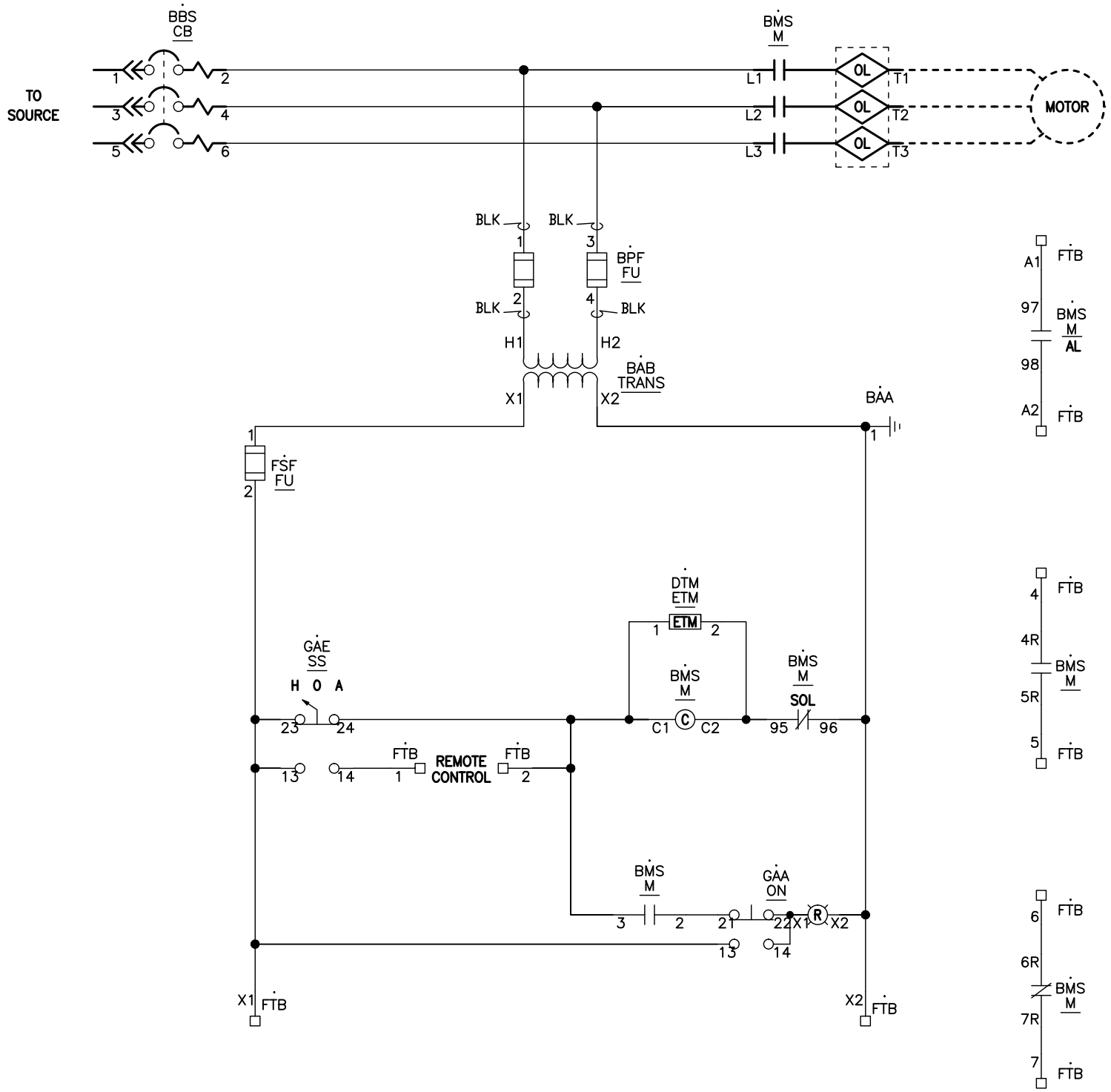

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2 EM
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-04	PG 1 OF 1 REV –

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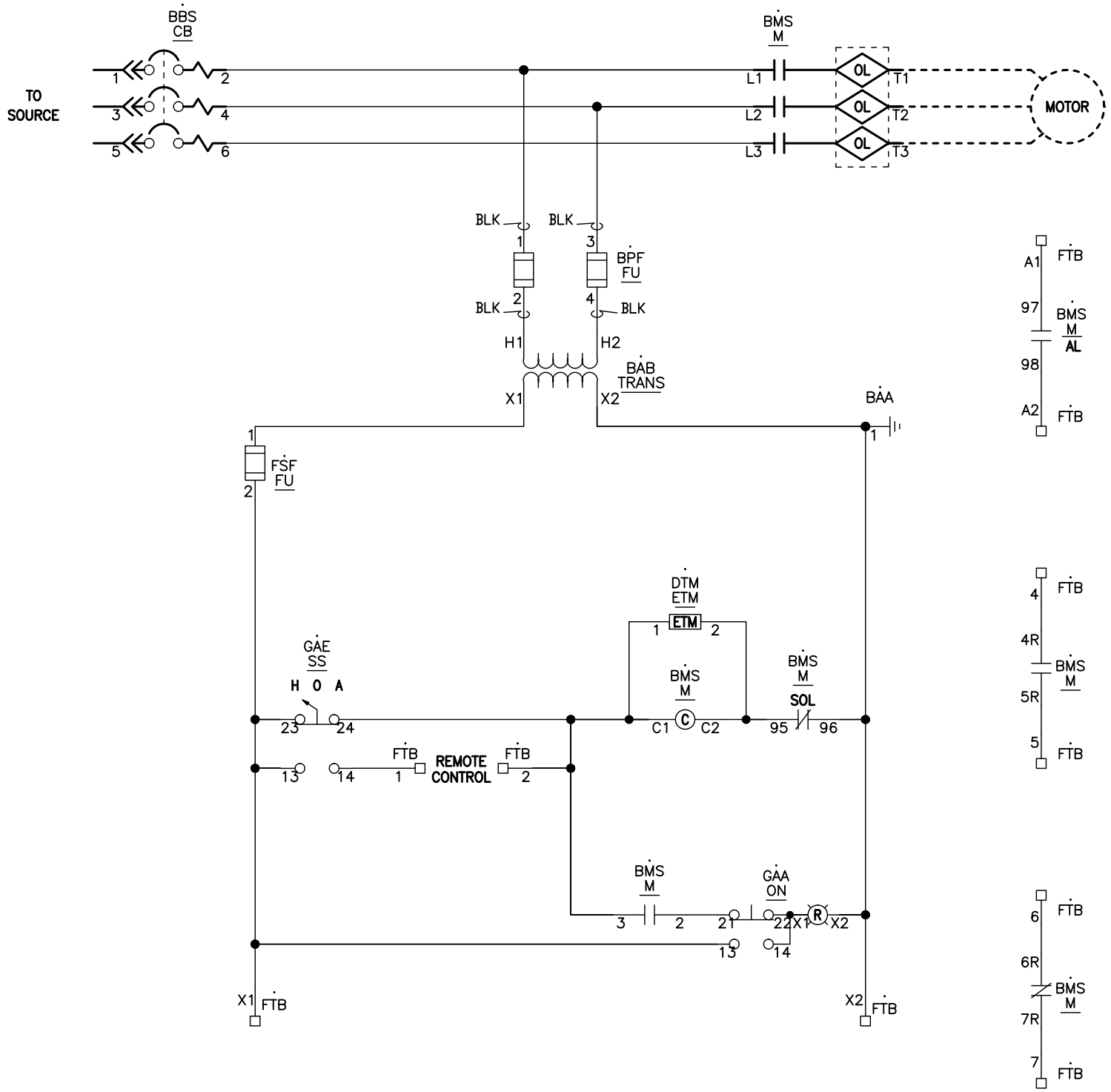

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2 EM
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-05	PG 1 OF 1 REV –

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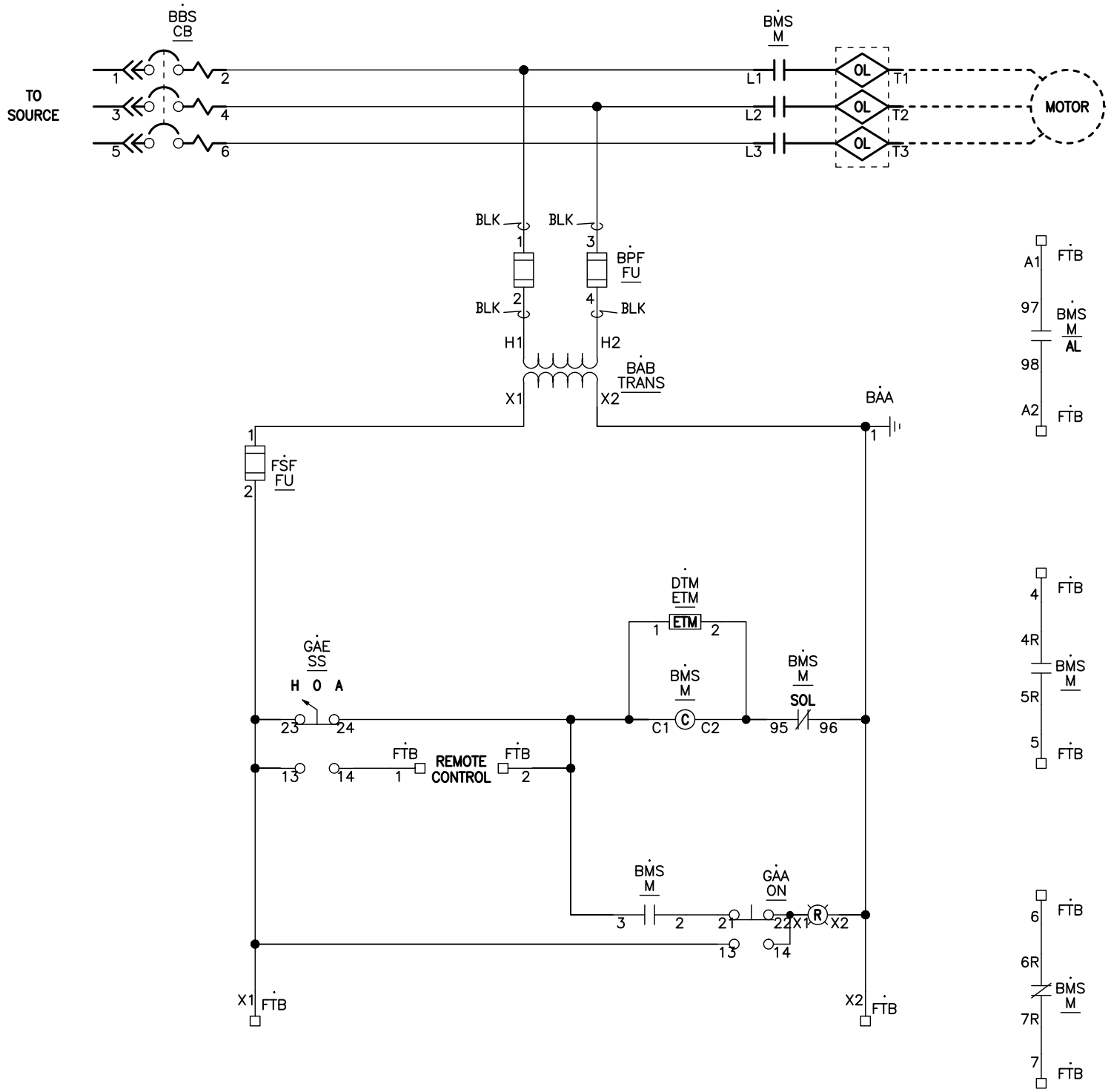

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2 EM
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-06	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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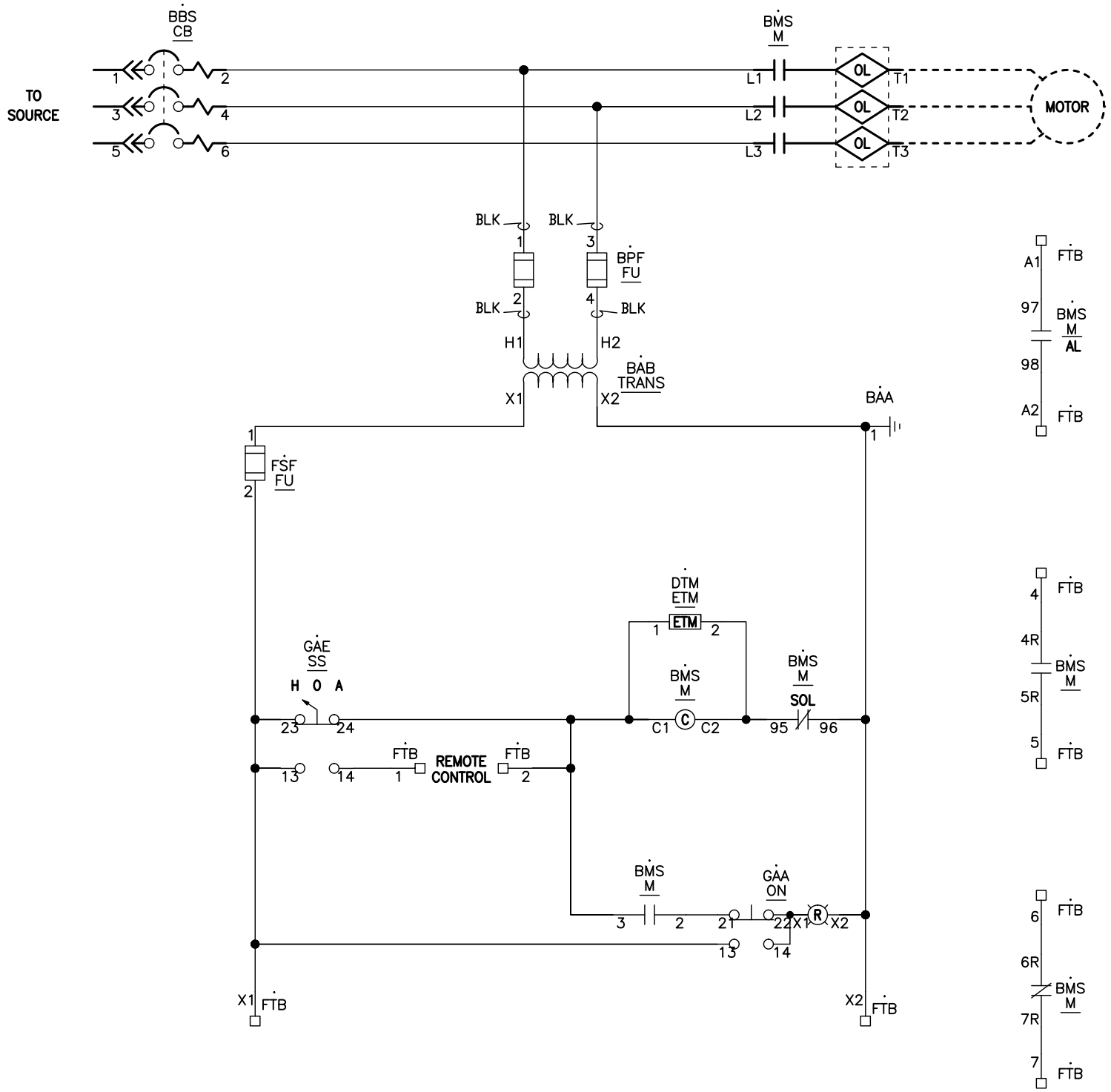
16M



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	MCC #2 EM
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEMENTARY
ENGR:			
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG# E29528680-07	PG 1 OF 1 REV –

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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UNIT LOC	NAMEPLATE DESIGNATION (WHITE SURFACE/BLACK LETTERS)	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	FUSE SIZE PRI	FUSE SIZE SEC	INTERLOCKS NO	INTERLOCKS NC	PILOT DEVICE FEATURES 22 mm– XB5 LED ON LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED OFF LIGHT	PILOT DEVICE FEATURES 22 mm– XB5 LED ADDL P/L	PILOT DEVICE FEATURES 22 mm– XB5 LED SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
1A	MAIN LUGS	MAIN LUGS															SOLID NEUTRAL	
1D	HOT WATER PUMP # 2	FVNR	NEMA 3	50	HJ 150	**ADJ 100**	CONTROL TRANSFORMER	300	1.60	3.20	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--01
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 3,	
1J	SEWAGE LIFT PUMP 1	FVNR	NEMA 1	5	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--02
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L SIZE 00C,	
1N	CONDENSATE PUMP 2	6" BRANCH BKR			HJ 150	**40**											14–3/0AWG 1 LUG/PH, 80% RATED	E29528680--03
1P		SPACE																
2A	AIR COMPRESSOR 2	FVNR	NEMA 2	15	HJ 150	**ADJ 50**	CONTROL TRANSFORMER	300	1.60	3.20	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, 6" UNIT EXT, CLASS 10/20 O/L (SELECTABLE),	E29528680--04
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 2,	
																	N.O. ISOLATED AUX O/L CONTACTS	
2G	AIR COMPRESSOR 2	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--05
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
2K	SUMP PUMP 2	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--06
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
2O	SUMP PUMP 2	FVNR	NEMA 1	10	HJ 150	**ADJ 30**	CONTROL TRANSFORMER	150	1.00	1.60	1	1	RED PTT			HOA SS	#16 AWG MTW CONTROL WIRE, 4 ADDITIONAL UNWIRED TERMINALS, CLASS 10/20 O/L (SELECTABLE),	E29528680--07
																	CNTRL TRANSFORMER TAPS, ETM, MOTOR CIRCUIT PROTECTOR, MOTOR LOGIC O/L NEMA SIZE 1,	
2S		SPACE																
UNIT LOC	NAMEPLATE DESIGNATION	UNIT TYPE	SIZE	HP	FRAME AMPS	TRIP AMPS	CONTROL SOURCE	VA	PRI	SEC	NO	NC	ON LIGHT	OFF LIGHT	ADDL P/L	SS / PB	OTHER UNIT FEATURES	ELEMENTARY #
									FUSE SIZE		INTERLOCKS		PILOT DEVICE FEATURES 22 mm– XB5			LED		

MCC NAMEPLATE – MCC #2
(WHITE SURFACE/BLACK LETTERS)

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**MCC #2 EM**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	MODEL 6 MOTOR CONTROL CENTER
DRAWN BY:	(Q2C)	DRAWING TYPE:	UNIT INFORMATION
ENGR:			by Schneider Electric
DATE:	May 25 2012		
DRAWING STATUS:	QUOTE	DWG#	**I29528680–01**

Equipment downtime isn't an option.

Model 6 Motor Control Centers deliver quality performance and reliability.

Model 6
Motor Control Centers

SQUARE D
by Schneider Electric

Make the most of your energy℠

Schneider Electric

Plug in to a smarter power source.

Designed and manufactured to tackle the toughest power and process control challenges, the Square D Model 6 Motor Control Center (MCC) features innovations that provide unmatched performance, high reliability and low maintenance. The Model 6 MCC integrates industry-leading components into the most flexible and smallest footprint possible to meet your power, control and automation needs. Model 6 MCC provides superior performance and reliable operation with enhanced safety features.

Reliable for reduced downtime

Reliable.

- Developed using Six Sigma methodology
- Integral bus system provides withstand ratings of up to 100kA and is verified and listed by UL per applicable standards
- Field proven, the exclusive frame profile provides a strong, durable structure that protects the internal power, control and automation components in the most severe applications
- The Square D Model 6 MCC reflects our commitment to manufacture the highest quality motor control center with the structural dependability to meet years of demanding service requirements

Innovative.

- Customer-driven features for improved usability
- Compatible with a wide range of Schneider Electric components including Powerpact® Motor Circuit Protectors, TeSys® T Motor Management Controllers and Altivar® AC Drives
- Available as an “intelligent” solution: pre-wired distributed I/O or with network protocol per the customer’s specification
- “Controller Inside” programmable card on Altivar AC Drive allows PLC “on board” the drive

Straightforward.

- Power of information is secure and simple to integrate
- Industry-exclusive, full-depth vertical wireway
- Horizontal bus located at the top of the structure for easy installation, inspection and maintenance without the need to remove units
- Captive horizontal splice bars to prevent bar loss and make connecting sections quick and simple
- AC drive programming includes a “Simply Start” menu with macro configurations for simple and fast commissioning
- Twin-handle cam mechanism works with the unit’s “hook and hang” feature to provide proper stab alignment and allow for easy installation and removal of units

A solid foundation.

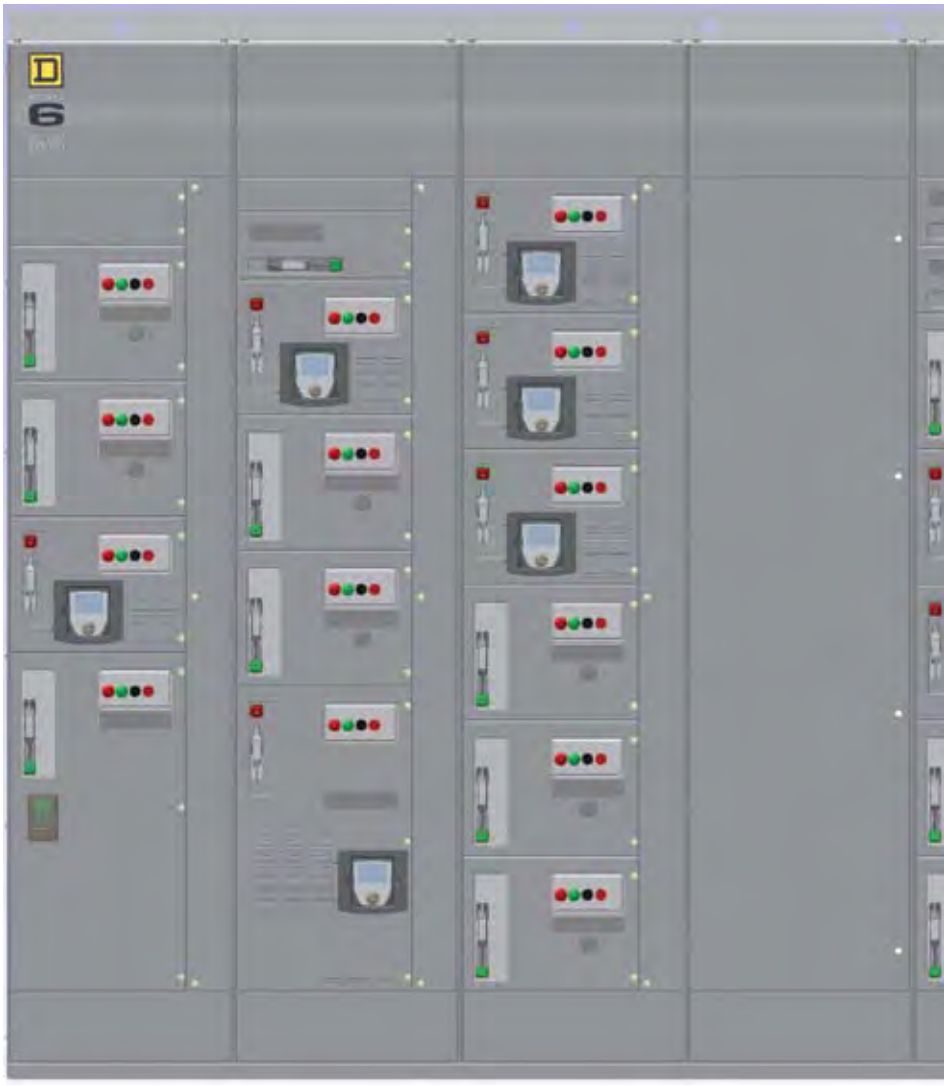
The Square D Model 6 MCC enclosure is specially engineered to deliver years of rugged, dependable service. Designed and manufactured to tackle the toughest power and process control challenges, the Model 6 Motor Control Center features the innovations to provide unmatched performance.

Frame

The vertical section is made from a welded side-frame assembly formed from 12-gauge steel. Internally reinforcing structural parts enables the enclosure to meet or exceed all applicable codes and standards

Corner Channels

This exclusive profile provides greater cross-sectional area and eliminates alignment issues during installation. Corner channels increase front-to-back stability and rigidity ensuring that plug-in units can be removed and installed after years of service.



Tie Channels

Increased joining surface area maintains critical alignment and lateral rigidity to ensure secure door closure and reduced installation time.

Midshelf Supports

Robust midshelf supports more effectively transfer the weight of the plug-in unit to the Square D Model 6 MCC structure. An increased rear-support angle transfers the stress associated with unit removal and installation, enhancing the structural integrity of the section.

Sliding Horizontal Bus Barriers

The sliding panel design provides easy access to the horizontal bus so preventative maintenance is quicker and easier. Using a non-conductive material enhances operator safety when performing predictive maintenance. An integrated track system means you do not need to remove the panels to splice or inspect the horizontal bus connections.

Automatic Bus Shutter

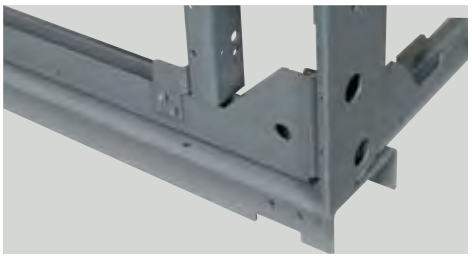
Ideal for vertical bus and unit stab connection applications, its simple, logical design automatically opens and closes for convenient insertion or removal of motor control center units. Placing the actuating parts outside of the bus area reduces wear and shutter jamming – a common problem with “sliding” designs.

Shrouded Power Stabs

Protects the power stabs against damage during unit maintenance and provides a self-aligning system for installation of units and connection to the vertical bus.

Cast Metal Handle

An industry-exclusive feature, more rugged than composites, the metal handle clearly indicates disconnect status, including a “tripped” circuit breaker, for added safety.

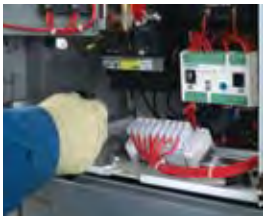


Seismic Certification

Square D Model 6 MCCs that are seismically certified have been qualified to the site-specific seismic requirements of the listed model building codes and/or standards. Seismic capacity is determined from triaxial shake test results as defined in the International Code Counsel Evaluation Service (ICC ES) Acceptance Criteria for Seismic Qualification Testing of Nonstructural Components (AC156).

The power and control you need. Where and how you need it.

Whether your installation features small motors and tight spaces or large motors and rows of machinery, the Square D Model 6 MCC can accommodate the starters and electrical distribution devices you need – as well as the automation and monitoring your application demands.



PowerPact® Electronic Motor Circuit Protector

Delivers more reliable start-ups, better protection for your equipment and a complete adjustment range for your motor starters. Its new, unique design allows the motor circuit protector to be customized to the inrush characteristics of the motor and enables a fully National Electrical Code® (NEC) compliant installation.

TeSys® T Motor Management Controller

Optimizes performance and reliability to help reduce cost and increase efficiency. TeSys T utilizes the latest protection technology and is compatible with all existing industrial communication protocols. This advanced motor management controller offers the greatest degree of flexibility for selecting the amount of motor protection and control you require.

Altivar® AC Drive

Industrial class features and the latest drive technology in a modular unit that maximizes uptime and saves space. The compact design is ideal for commercial and industrial applications.

Masterpact® Circuit Breaker

Industry leading capabilities in a small, flexible footprint. Masterpact circuit breakers in Square D Model 6 MCC's provide unmatched performance, high reliability and low maintenance. To enhance operator safety, a through-the-cover design provides visible and physical access to all breaker controls and indicators without opening doors or removing covers.

PowerLogic® Circuit Monitor

Replacing a variety of meters, relays, transducers and other components. This multifunctional digital metering and monitoring device displays metered values plus extensive min/max, alarm and analog/digital input, and other key data for local viewing.

The right information. At the right time.

Intelligent motor control center – Square D Model 6 *i*MCC

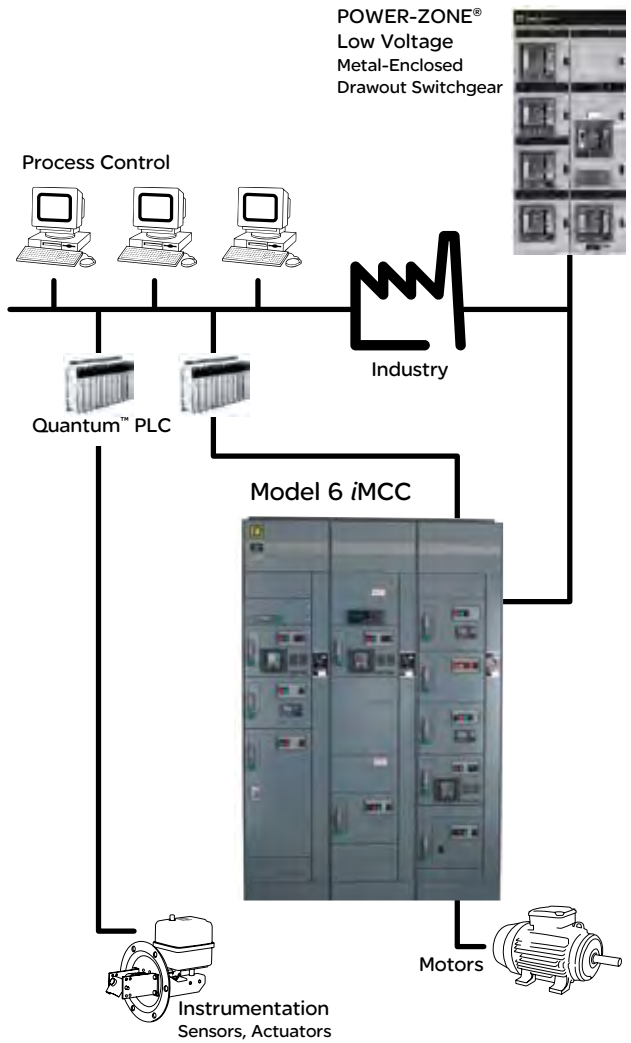
Streamline troubleshooting and maximize uptime by incorporating “intelligent” components and cabling solutions into your motor control center.

Collaborative process and production control

Access the information you need in real time, anywhere, anytime. Designed to work on open network protocols, the Square D Model 6 MCC allows you to monitor AC drive parameters, view full voltage starter status, spot abnormal conditions immediately and quickly diagnose equipment failures from any networked computer.

Communication protocols available: CANopen, DeviceNet™, Ethernet, Modbus® and PROFIBUS

Connect to your network control system and communicate with every unit in the *i*MCC regardless of your communication protocol. Monitor each motor and load and know exactly what’s going on at all times so you can respond to impending problems before they happen.



Communications.

Advancements in system designs and the intelligence of diagnostics opens a whole new world to communication beyond basic start and stop functions. Control automation trends dictate that more intelligence is distributed on the plant floor. The traditional operator interface now has more processing power and provides business information on the enterprise level.

Take the next step to a quality MCC.

Whatever your requirements for a motor control center are, we have a solution to meet your needs. For more information on how our motor control centers can deliver a quality solution that truly fits your business, visit www.us.SquareD.com or call 1-888-SquareD.

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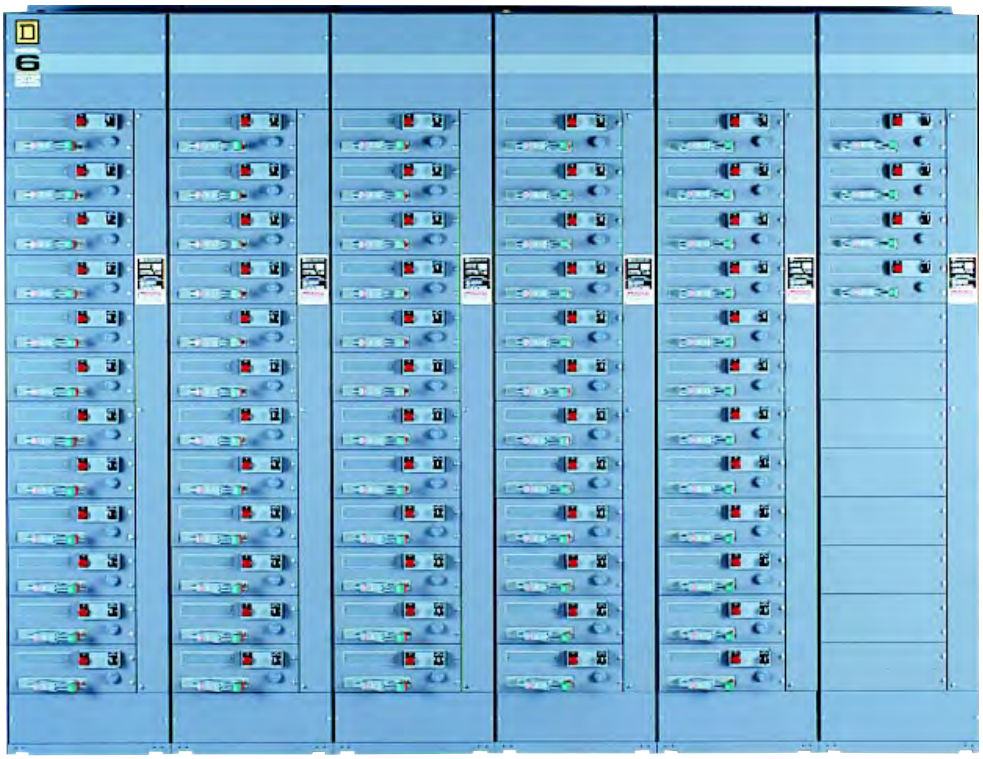
Document Number 8998BR9701R3/08

06-08

Class 8998

Model 6 Motor Control Center
COMPAC™ 6 Units



- **NEMA Rated Type S, Size 1 FVNR**
- ***Application Rated* through 10 hp FVR; 25 hp FVNR**
- **Up To Twelve Units Per Section**
- **65k AIR at 480V with MAG-GARD® Circuit Breaker**
- **100k AIR at 600V Fusible**
- **Class J Fusible Branches, Up To 100A**
- **New Technology GJL Circuit Breaker**
- **MOTOR LOGIC™ Solid-State Overload Relay**
- **Installed in Any Model 6 MCC Location**
- **SPEED-D® Service on Basic Unit with Most Options**
- **UL Listed; CSA and NOM certified**

Space-Saving COMPAC 6 Model 6 Motor Control Center Units

A wide range of optional six-inch COMPAC™ 6 units is now available for the Model 6 Motor Control Center (MCC) family.

Users with large quantities of motors rated at 25 hp or less can greatly reduce MCC floor space requirements. COMPAC 6 units are also ideal for users faced with upgrading existing MCCs where no space exists to add additional structures. Up to twelve COMPAC 6 units can be installed in a vertical section. No special structure modifications are required; all COMPAC 6 units may be used in existing Model 6 MCCs without location restrictions.

Careful attention to the unit layout has ensured maximum user accessibility to key internal components such as power fuses, overloads, and field control and power wiring terminations. All components are front accessible with the unit installed.

Each unit may be quickly and easily removed for maintenance by removing the field power wiring terminations, pulling the control wiring terminal block apart, and sliding the unit out of the structure.

When no internal control power transformer is required, optional components may be installed in the rear of the unit. Provisions are included for the user to easily mount a standard DIN rail for this purpose. OEMs and system integrators will appreciate this feature.

All combination circuit breaker units use a new GJL instantaneous trip circuit breaker; combination starter and branch fusible units use a new Class J fusible switch. Refer to table 2 for unit interrupting ratings.

The COMPAC 6 NEMA rated unit is based on the time-proven Type S NEMA rated Size 1 full voltage non-reversing starter. Combination starter units are available with either a new GJL high performance circuit breaker or a new compact Class J fusible switch.

Units accept a wide range of options including up to four Telemecanique heavy duty, 22 mm pilot devices on the local operator control panel. This panel, attached by two semi-captive screws, is easily removed for better accessibility to interior components. Field control wiring is terminated to the front-accessible, pull-apart, fifteen point terminal block.

Model 6 Motor Control Center
COMPAC™ 6 Units

▼ **COMPAC 6 combination fusible starter units** use Class J fuses only, and are short circuit rated for 100,000 amperes for all distribution systems at 600 volts or less.

▲ **COMPAC 6 fusible branch units** are available in 30, 60, and 100 ampere Class J frame sizes. Class J fuse clips include an integral fuse puller.

▼ **COMPAC 6 *application-rated* combination starter units** use a Telemecanique D-line contactor.

Full voltage non-reversing combination *application-rated* starters are available for motors in standard duty applications through 25 hp at 480 volts.

Full voltage reversing combination *application-rated* starters are available for motors in standard duty applications through 10 hp at 480 volts.

All **COMPAC** 6 *application-rated* units must be selected based on motor nameplate full load amperes.

▼ **COMPAC 6 NEMA rated combination starter units** are also available with the new MOTOR LOGIC™ solid-state overload relay. MOTOR LOGIC overload relays are ambient insensitive and provide phase loss and phase unbalance protection. Customer connections are terminated to factory-supplied terminal blocks conveniently located next to the vertical wireway. Refer to table 1 for range of motor sizes.

Table 1: MOTOR LOGIC Overload Range

Range (Amperes)	Horsepower			
	208 V	240 V	480 V	600 V
2–6	0.75–1	0.75–1	1.5–3	2–3
3–9	1.5	1.5–2	—	5
6–18	2–3	3	5–7.5	7.5–10
9–27	5	5–7.5	10	—

Table 2: Interrupting Ratings

Voltage	Disconnect	Rating
208–480	GJL MAG-GARD Combination Starter	65k AIR
	Fusible (Class J) Combination Starter or Branch	100k AIR
600	Fusible (Class J) Combination Starter or Branch	100k AIR

Reference Publications

- Model 6 Instruction Bulletin 8998IM9201
- MCC Starter Units MOTOR LOGIC Solid-State Overload Relay Instruction Bulletin Addendum 8998IM9502
- COMPAC 6 Unit Instruction Bulletin Addendum 8998IM9501
- MOTOR LOGIC Instruction Bulletin 30072-013-29
- Class 0580 GJL MAG-GARD Circuit Breaker Data Sheet 0580HO9501

Printed in USA
Order No. 8998HO9503 June 1995 20M DL 5/95

SQUARE D
GROUPE SCHNEIDER

Item No.	Qty.	Catalog Number / Details

BUSWAYS

005-00 1 **Designation:** BUSDUCT TRANSFORMER T-9
I-LINE BUSWAY
I-LINE BUSWAY
CONSISTING OF
5000 AMP SILVER PLATED COPPER
480Y/277V 3 PHASE 4 WIRE 60 HZ
WITH COPPER INTEGRAL GROUND
150K AMPS RMS SYMMETRICAL SHORT CIRCUIT RATING

OUTDOOR SEGMENT OF RUN CONSISTING OF:
---
119 FEET OF OUTDOOR FEEDER BUSWAY
1 FLANGED END
7 90 DEGREE ELBOWS
1 BUSSED TRANSFORMER CONNECTION
2 WALL / FLOOR FLANGES
25 FIXED HANGERS

006-00 1 **Designation:** BUSDUCT TRANSFORMER T-10
I-LINE BUSWAY
I-LINE BUSWAY
CONSISTING OF
5000 AMP SILVER PLATED COPPER
480Y/277V 3 PHASE 4 WIRE 60 HZ
WITH COPPER INTEGRAL GROUND
150K AMPS RMS SYMMETRICAL SHORT CIRCUIT RATING

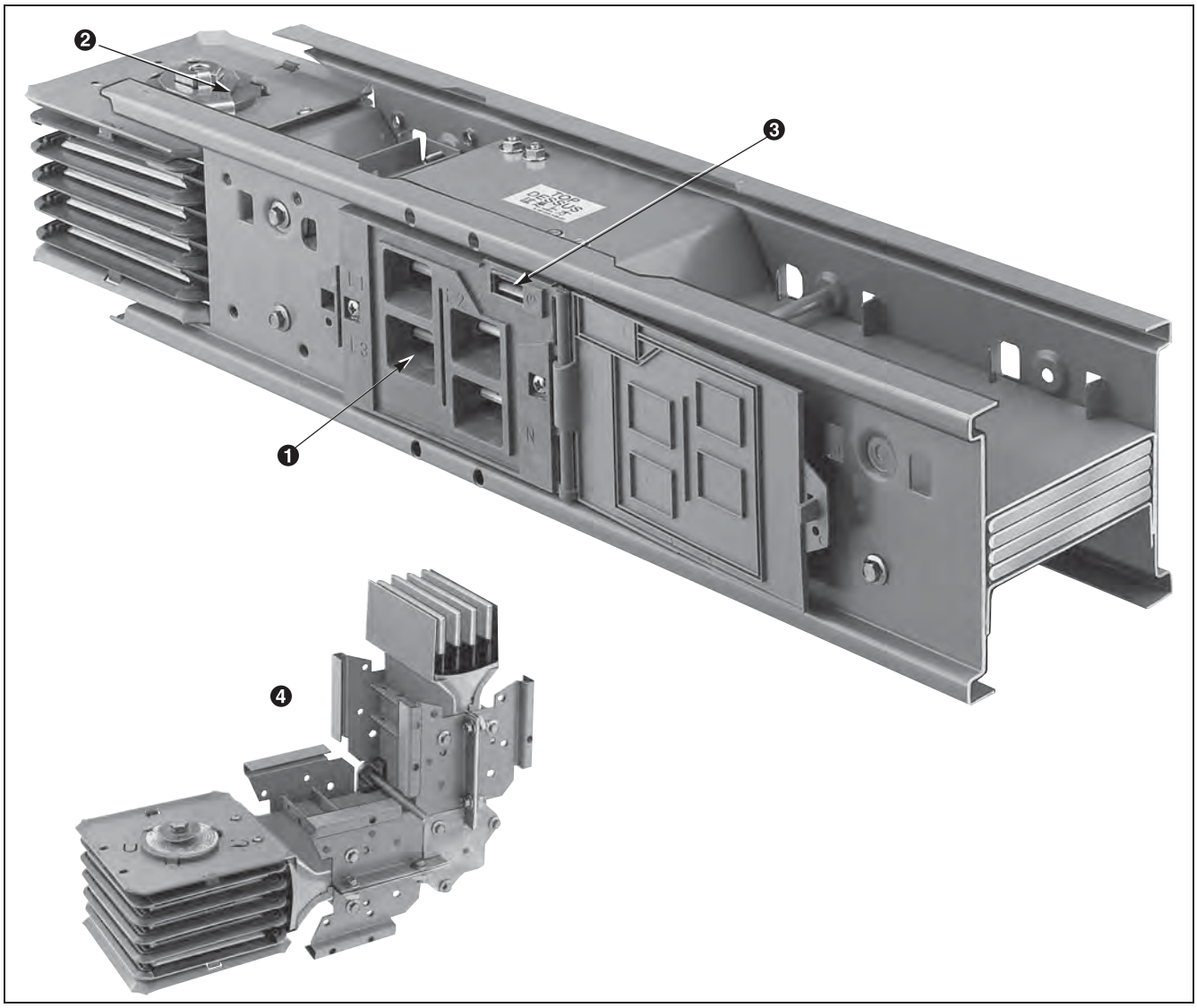
OUTDOOR SEGMENT OF RUN CONSISTING OF:
---
129 FEET OF OUTDOOR FEEDER BUSWAY
1 FLANGED END
7 90 DEGREE ELBOWS
1 BUSSED TRANSFORMER CONNECTION
2 WALL / FLOOR FLANGES
27 FIXED HANGERS

028-00 1 **Designation:** BUS TO CONTROL CENTER 1
I-LINE BUSWAY
I-LINE BUSWAY
CONSISTING OF
2500 AMP SILVER PLATED COPPER
480Y/277V 3 PHASE 4 WIRE 60 HZ
WITH COPPER INTEGRAL GROUND
100K AMPS RMS SYMMETRICAL SHORT CIRCUIT RATING

INDOOR SEGMENT OF RUN CONSISTING OF:
---
200 FEET OF INDOOR FEEDER BUSWAY
2 QWIK FLANGES
6 90 DEGREE ELBOWS
29 FIXED HANGERS
6 WALL FLANGES
2 ASSEMBLY TOOLS

Item No.	Qty.	Catalog Number / Details
029-00	1	**Designation:** BUSRUN TO SBDC1 I-LINE BUSWAY I-LINE BUSWAY CONSISTING OF 2000 AMP SILVER PLATED COPPER 480Y/277V 3 PHASE 4 WIRE 60 HZ WITH COPPER INTEGRAL GROUND 100K AMPS RMS SYMMETRICAL SHORT CIRCUIT RATING INDOOR SEGMENT OF RUN CONSISTING OF: ---------- 32 FEET OF INDOOR FEEDER BUSWAY 2 QWIK FLANGES 2 90 DEGREE ELBOWS 6 FIXED HANGERS 2 WALL FLANGES 1 ASSEMBLY TOOL
030-00	1	SQUARE D SERVICES BUSDUCT MEASUREMENT
031-00	1	**Designation:** BUSDUCT FEED TO SWB H3 I-LINE BUSWAY I-LINE BUSWAY CONSISTING OF 2500 AMP SILVER PLATED COPPER 480Y/277V 3 PHASE 4 WIRE 60 HZ WITH COPPER INTEGRAL GROUND 100K AMPS RMS SYMMETRICAL SHORT CIRCUIT RATING INDOOR SEGMENT OF RUN CONSISTING OF: ---------- 32 FEET OF INDOOR FEEDER BUSWAY 2 QWIK FLANGES 2 90 DEGREE ELBOWS 6 FIXED HANGERS 2 WALL FLANGES 2 ASSEMBLY TOOLS
032-00	2	CF2525G10ST
033-00	2	ACF13EC BUSWAY END CLOSURE
035-00	1	ES142604

Plug-In Busway 800–5000 A



1. Molded plug-in opening insulator—adds insulation and support at plug-in contact area.
2. EZ Joint Pak connector assembly—includes like-phase connector on higher ampere ratings with more than one conductor per phase (plug-in bus only).
3. Ground jaw for plug-in unit—has a “blow-on” design similar to phase jaw connection.
4. Fittings—includes elbows, tees, and flanged ends that are easily removed and refitted with the use of our EZ Joint Pak assembly without disturbing adjacent lengths.

NOTES:

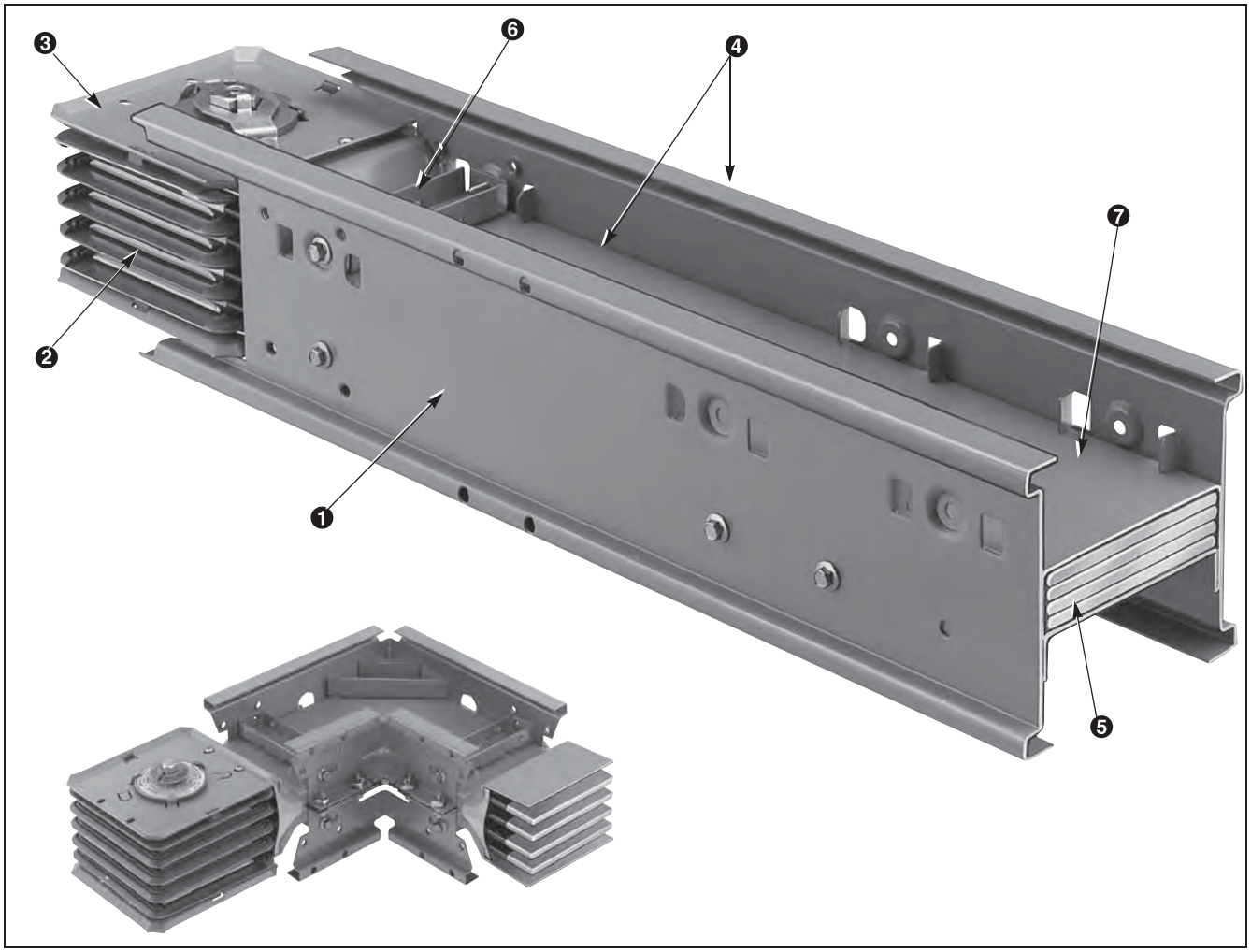
— Internal barriers are standard on both feeder and plug-in busway. All interior spaces are barriered to stop hot gases.

— Hangers fit both feeder and plug-in busway without blocking access to openings.

— I-Line plug-in units (15–1600 A) fit both original and I-Line II busway.

— I-Line II plug-in busway with sandwich construction also includes features depicted for feeder style on page 17.

Indoor Feeder Busway 800–5000 A

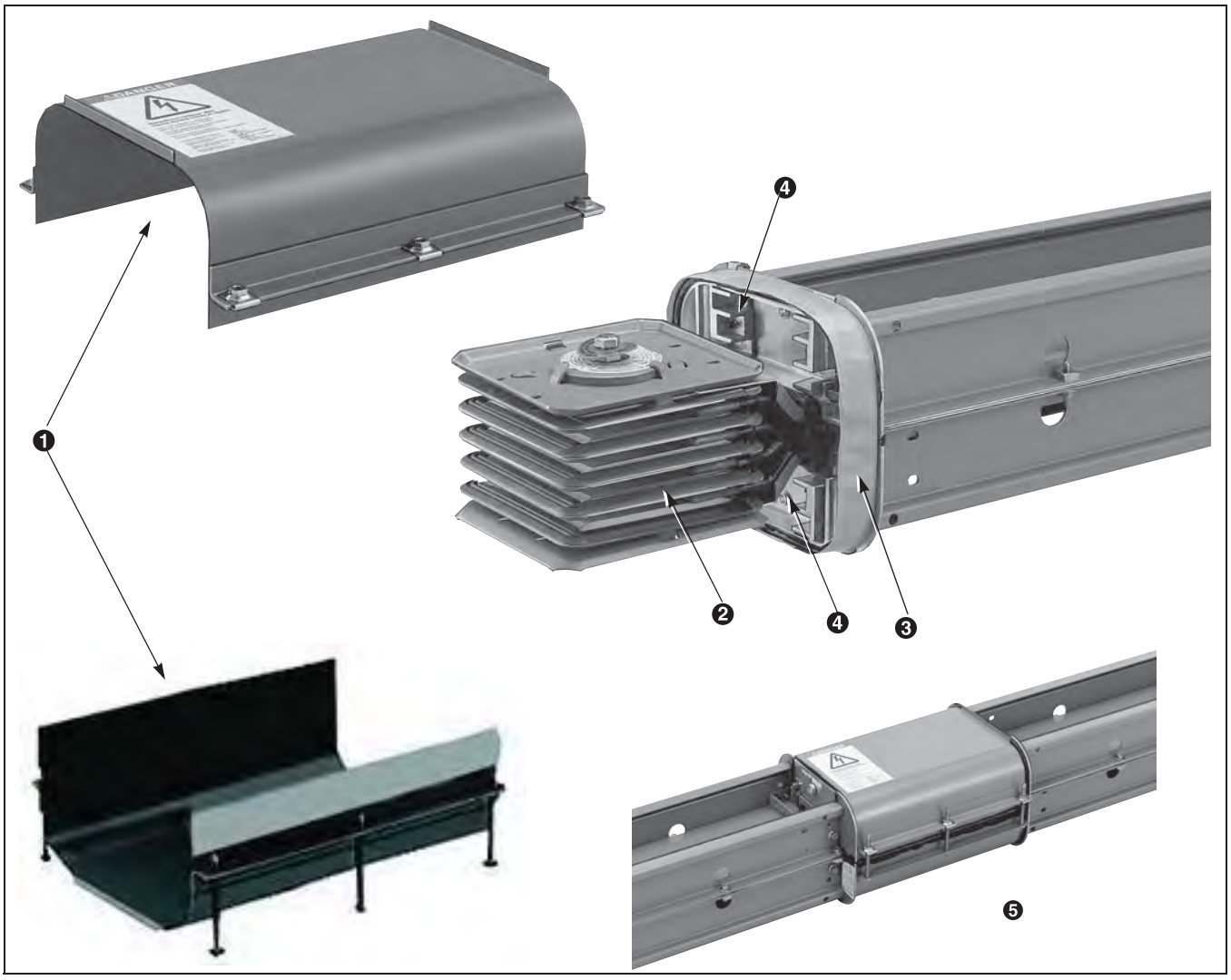


1. Steel housing channels—provides mechanical strength.
2. Molded extra-strength glass fiber interphase barriers.
3. EZ Joint Pak connector assembly—removable for isolation or maintenance. Includes Visi-Tite bolt.
4. Steel/aluminum housing—reduces hysteresis and eddy current losses on feeder and plug-in busway.
5. Plated aluminum or copper bus bars.
6. Surge clamps for added short circuit strength.
7. Integral Ground Bus (IGB) —two, 1/16-inch thick aluminum bus bar. Also serves as top and bottom housing.

NOTES:

— Polyester powder paint process—Provides lasting uniform performance.
— Housing sizes—the same for I-Line II feeder and plug-in busway. Same accessories fit both.
— Insulation— Class B rated (130 °C (266 °F) vendor certified) insulation.
— Optional Fiberglass tape and epoxy resin—improves short circuit strength (Type AFH2/CFH2).

Outdoor Feeder Busway 800–5000 A



1. Joint covers— two-piece joint cover with quick-fasten nut for speedy installation of the busway.
2. EZ Joint Pak—same joint pack used on our indoor I-Line II busway is continued in our Outdoor Feeder design.
3. Flanged collar—simple installation of the joint covers is assisted by a smooth flange surface with the joint sealant strip factory installed. Removal of the sealant's protective paper covering and installation of the joint covers with the quick fasten nut, seal the joint from contamination by water.
4. Removable drain plug—outdoor feeder design includes removable drain plugs to allow condensation to escape from the joints. These drain plugs should be removed only as described in the installation instructions for outdoor feeder busway.
5. Completed joint—assembled joint with all installation activities complete.

NOTE: Supports are required on 5 ft (152 cm) centers for vertical or horizontal mounting. Normally, the support for outdoor busway is in the form of a T-stand type device, which is customer supplied. However, hangers are available from Schneider Electric when drop rods can be utilized.

Cross Sections—Plug-In and Indoor Feeder Lengths

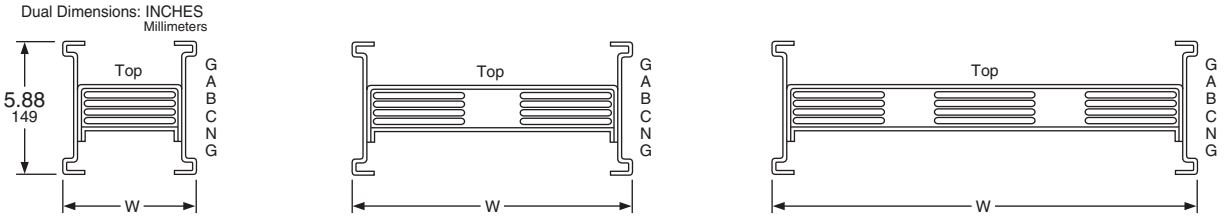


Figure A **Figure B** **Figure C**

Cross Sections—Fittings and All Outdoor Feeder

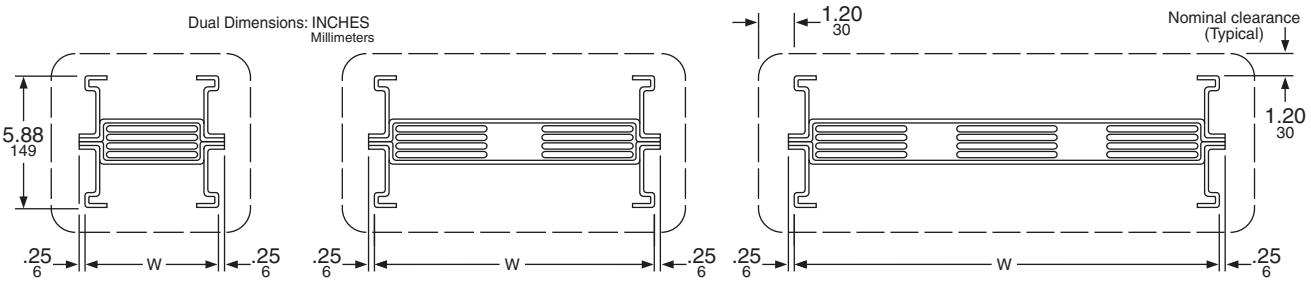


Figure A **Figure B** **Figure C**

Note: Dotted line indicates the profile of the joint covers for Outdoor Feeder busway. The profile for indoor fittings is the same as the busway itself.

Cross-Sections–Aluminum Content and Weight

Ampere Rating	W		Fig.	Bus Bars Per Phase		Weights—Feeder				Weights—Plug-In			
						3-Pole		4-Pole		3-Pole		4-Pole	
	IN	mm		IN	mm	Lb/Ft	Kg/M	Lb/Ft	Kg/M	Lb/Ft	Kg/M	Lb/Ft	Kg/M
800	4.34	110	A	One – .25 x 3.00	One – 6 x 76	9.1	13.5	10.0	14.9	11.2	16.7	12.1	18.0
1000	5.34	136	A	One – .25 x 4.00	One – 6 x 102	10.1	15.0	11.3	16.8	12.2	18.2	13.4	19.9
1200	6.34	161	A	One – .25 x 5.00	One – 6 x 127	11.1	16.5	12.5	18.6	13.2	19.6	14.6	21.7
1350	7.34	186	A	One – .25 x 6.00	One – 6 x 152	12.1	18.0	13.8	20.5	14.2	21.1	15.9	23.7
1600	8.84	225	A	One – .25 x 7.50	One – 6 x 191	13.8	20.5	15.8	23.5	15.9	23.7	17.9	26.6
2000	12.72	323	B	Two – .25 x 4.50	Two – 6 x 114	19.1	28.4	22.5	33.5	21.2	31.5	24.6	36.6
2500	16.22	412	B	Two – .25 x 6.00	Two – 6 x 152	22.1	32.9	26.7	39.7	24.2	36.0	26.8	39.9
3000	18.72	475	B	Two – .25 x 7.50	Two – 6 x 191	25.1	37.3	30.6	45.5	27.2	40.5	32.7	48.7
3200	25.1	638	C	Three – .25 x 6.00	Three – 6 x 152	29.1	43.3	35.4	52.6	31.2	46.4	35.5	52.8
4000	25.60	650	C	Three – .25 x 6.50	Three – 6 x 165	33.9	50.4	40.4	60.1	36.0	53.6	42.5	63.2

Cross-Sections–Copper Content and Weight

Ampere Rating	W		Fig.	Bus Bars Per Phase		Weights—Feeder				Weights—Plug-In			
						3-Pole		4-Pole		3-Pole		4-Pole	
	IN	mm		IN	mm	Lb/Ft	Kg/M	Lb/Ft	Kg/M	Lb/Ft	Kg/M	Lb/Ft	Kg/M
800	3.84	98	A	One – .25 x 2.50	One – 6 x 64	12.1	18.0	14.6	21.7	14.2	21.1	16.7	24.8
1000	4.34	110	A	One – .25 x 3.00	One – 6 x 76	13.8	20.5	16.7	24.9	15.9	23.7	18.8	28.0
1200	5.34	136	A	One – .25 x 4.00	One – 6 x 102	16.8	25.0	20.8	31.0	18.9	28.1	22.9	34.1
1350	5.84	148	A	One – .25 x 4.50	One – 6 x 114	18.3	27.2	22.8	33.9	20.4	30.4	24.9	37.1
1600	6.74	171	A	One – .25 x 5.40	One – 6 x 137	21.1	31.4	27.5	40.9	23.2	34.5	29.6	44.0
2000	7.84	199	A	One – .25 x 6.50	One – 6 x 165	24.3	36.2	30.8	45.8	26.4	39.3	32.9	49.0
2500	12.72	323	B	Two – .25 x 4.50	Two – 6 x 114	38.7	57.6	47.7	71.0	40.8	60.7	49.8	74.1

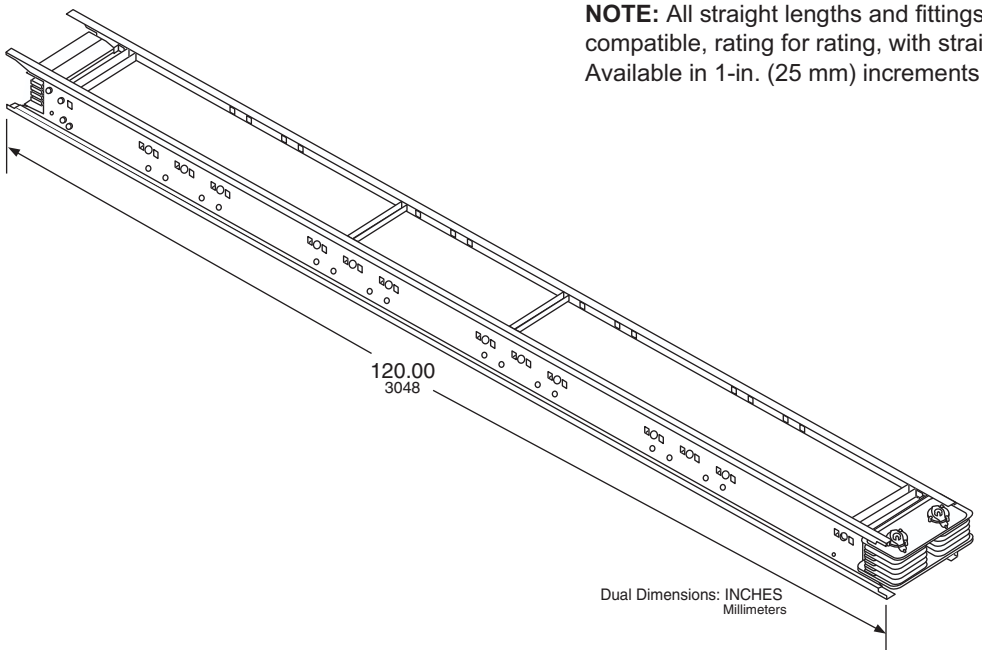
NOTE: For required wall and floor openings, refer to page 60.

Cross-Sections–Copper Content and Weight *(continued)*

Ampere Rating	W		Fig.	Bus Bars Per Phase		Weights—Feeder				Weights—Plug-In			
						3-Pole		4-Pole		3-Pole		4-Pole	
	IN	mm		IN	mm	Lb/Ft	Kg/M	Lb/Ft	Kg/M	Lb/Ft	Kg/M	Lb/Ft	Kg/M
3000	15.22	387	B	Two – .25 x 5.00	Two – 6 x 127	42.7	63.5	51.7	76.9	44.8	65.2	53.8	80.1
3200	16.22	412	B	Two – .25 x 6.00	Two – 6 x 152	48.9	72.7	60.2	89.5	55	81.8	62.3	92.7
4000	23.60	599	C	Three – .25 x 4.50	Three – 6 x 114	59.1	87.9	72.6	108.0	61.2	91.1	74.7	111.2
5000	25.10	638	C	Three – .25 x 6.00	Three – 6 x 152	72.6	108.0	90.6	134.8	74.7	111.2	92.7	137.9

NOTE: For required wall and floor openings, refer to page 60.

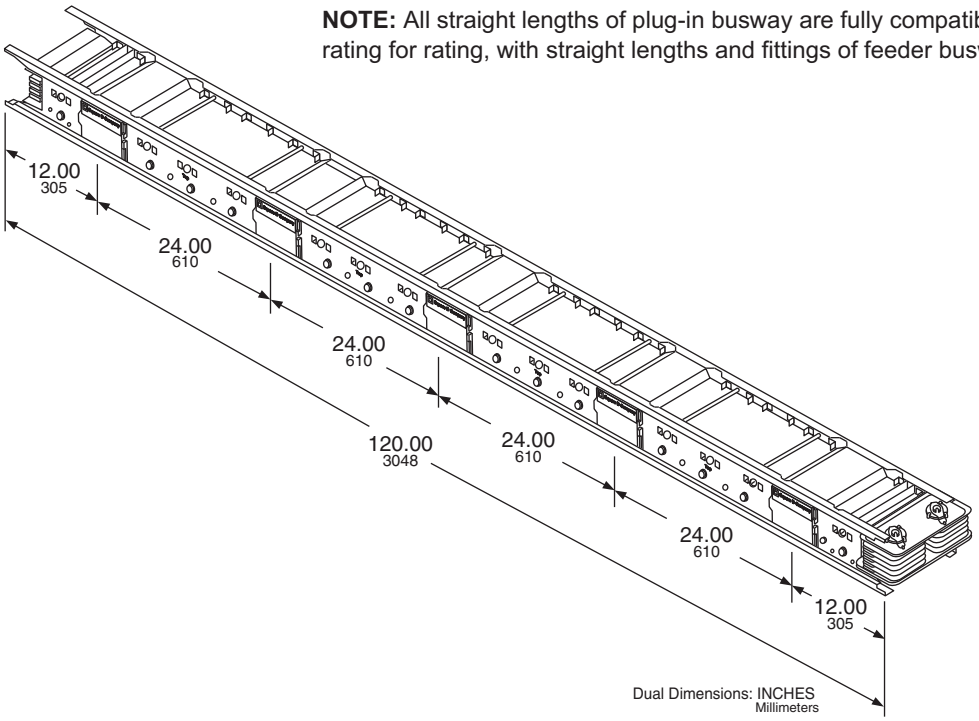
Straight Lengths—Feeder



NOTE: All straight lengths and fittings of feeder busway are fully compatible, rating for rating, with straight lengths of plug-in busway. Available in 1-in. (25 mm) increments from 16–120 in. (406–3048 mm).

Straight Lengths—Plug-In (Indoor Only)

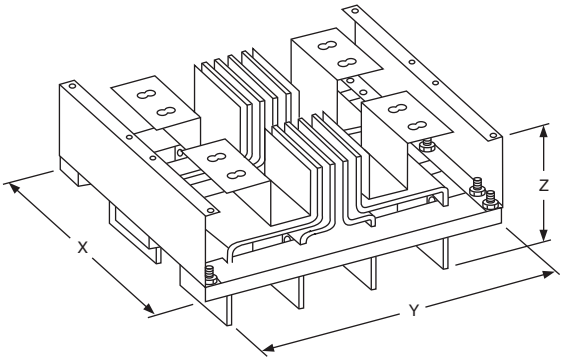
NOTE: All straight lengths of plug-in busway are fully compatible, rating for rating, with straight lengths and fittings of feeder busway.

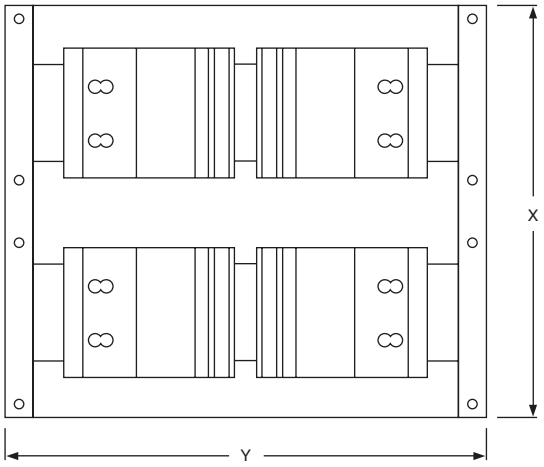


Straight Lengths-Catalog No. Suffix

Catalog Number Suffix	-10ST	-8ST	-6ST	-4ST
Standard Lengths–Feet	10 ft	8 ft	6 ft	4 ft
Standard Lengths–Meters	3.05 m	2.44 m	1.83 m	1.219 m
Number of Plug-In Openings	10	8	6	4

Qwik Flange (Indoor Only)





Qwik Flange–Catalog Number Suffix -QF

Amperage Ratings		Density Ratings		X				Y		Z	
				3-Pole		4-Pole					
Aluminum	Copper	Aluminum	Copper	IN	mm	IN	mm	IN	mm	IN	mm
—	800	—	—	10.50	207	10.50	207	16.26	413	7.50	190
800	1000	—	600	10.50	207	10.50	207	16.26	413	7.50	190
1000	1200	600	800/1000	10.50	207	10.50	207	16.26	413	7.50	190
—	1350	—	—	10.50	207	10.50	207	16.26	413	7.50	190
1200	—	800	1200	10.50	207	10.50	207	16.26	413	7.50	190
—	1600	—	1350	10.50	207	10.50	207	16.26	413	7.50	190
1350	—	1000	—	10.50	207	10.50	207	16.26	413	7.50	190
—	2000	1200	1600	10.50	207	10.50	207	16.26	413	7.50	190
1600	—	1350	—	10.50	207	10.50	207	16.26	413	7.50	190
2000	2500	1600	2000	14.34	364	14.34	364	16.26	413	7.50	190
2500	—	2000	—	17.84	453	17.84	453	16.26	413	7.50	190
—	3000	—	2500	16.84	428	16.84	428	16.26	413	7.50	190
—	3200	—	3000	17.84	453	17.84	453	16.26	413	16.26	413
3000	—	2500	—	20.34	517	20.34	517	16.26	413	7.50	190
—	4000	—	3200	25.22	641	25.22	641	16.26	413	7.50	190
3200	—	3000	—	26.72	679	26.72	679	16.26	413	7.50	190
4000	—	—	—	27.22	691	27.22	691	16.26	413	7.50	190
—	5000	—	4000	26.72	679	26.72	679	16.26	413	7.50	190

Dual Dimensions: INCHES
Millimeters

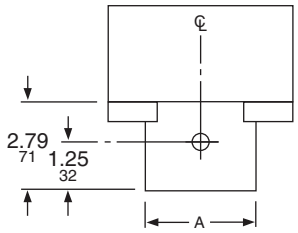


Figure 1

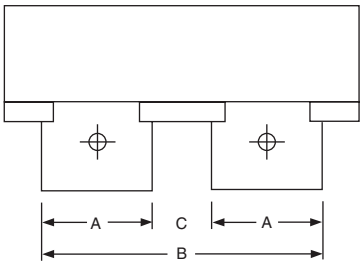


Figure 2

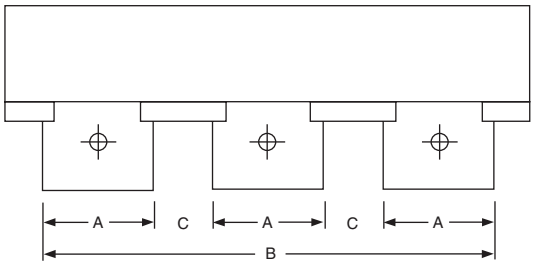


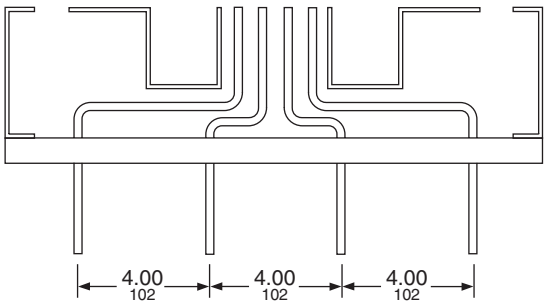
Figure 3

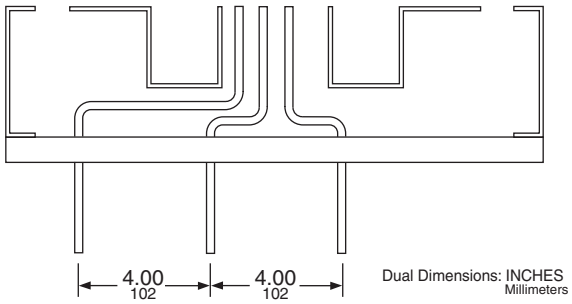
Aluminum Qwik Flange–Application Data

Aluminum Ampere Rating	Fig.	A		B		C	
		IN	mm	IN	mm	IN	mm
800	1	3.00	76	—	—	—	—
1000	1	4.00	102	—	—	—	—
1200	1	5.00	127	—	—	—	—
1350	1	6.00	152	—	—	—	—
1600	1	7.50	191	—	—	—	—
2000	2	4.50	114	11.38	289	2.38	60
2500	2	6.00	152	14.88	378	2.88	73
3000	2	7.50	191	17.38	441	2.38	60
3200	3	6.00	152	23.76	604	2.88	73
4000	3	6.50	165	24.26	616	2.38	60

Copper Qwik Flange–Application Data

Copper Ampere Rating	Fig.	A		B		C	
		IN	mm	IN	mm	IN	mm
800	1	2.50	64	—	—	—	—
1000	1	3.00	76	—	—	—	—
1200	1	4.00	102	—	—	—	—
1350	1	4.50	114	—	—	—	—
1600	1	5.40	137	—	—	—	—
2000	1	6.50	165	—	—	—	—
2500	2	4.50	114	11.38	289	2.38	60
3000	2	5.00	127	13.88	353	3.88	86
3200	2	6.00	152	14.88	378	2.88	73
4000	3	4.50	114	22.26	565	4.38	111
5000	3	6.00	152	23.76	604	2.88	73



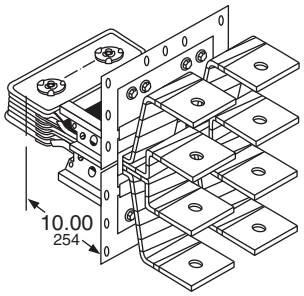


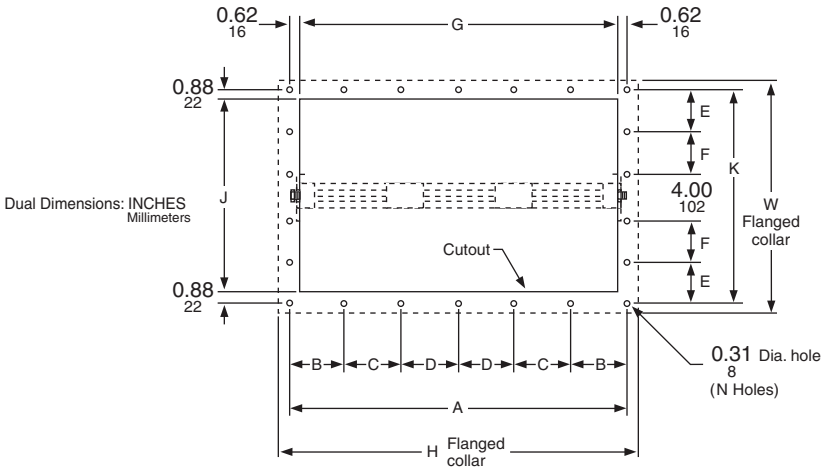
Dual Dimensions: INCHES
Millimeters

Quick flanges and closing plates are typically shipped with the switchboard/switchgear. The quick flange closing plate closes the gap between the busway and the top of the gear. If a separate quick flange or closing plate kit is needed, the catalog numbers can be created by adding the suffix "QF" or "CP" respectively to the prefix of the busway being installed. For example: AF2530G**QF** or CF2312G**CP**.

NOTE: Refer to “Detail of Phase Bussing Connections in a Switchboard” on page 71.

Flanged End





Flanged End: Catalog Number Suffix–10 FEB

Flanged Collar Hole Location and Spacing

Ampere Rating		N Holes	Hole Location and Spacing													
			A		B		C		D		K		E		F	
Aluminum	Copper		IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
—	800	10	6.38	162	3.19	81	—	—	—	—	11.75	296	3.88	98	—	—
800	1000	10	6.38	162	3.19	81	—	—	—	—	11.75	296	3.88	98	—	—
—	1200	10	7.00	178	3.50	89	—	—	—	—	11.75	296	3.88	98	—	—
1000	1350	10	8.00	203	4.00	102	—	—	—	—	11.75	296	3.88	98	—	—
1200	—	10	9.00	229	4.50	114	—	—	—	—	11.75	296	3.88	98	—	—
1350	1600	10	10.00	254	5.00	127	—	—	—	—	11.75	296	3.88	98	—	—
1600	2000	16	12.88	327	4.25	108	—	—	—	—	17.75	451	3.46	88	3.42	87
2000	2500	16	14.88	378	5.00	127	—	—	—	—	17.75	451	3.46	88	3.42	87
2500	3000	18	18.88	480	4.75	121	4.69	119	—	—	17.75	451	3.46	88	3.42	87
—	3200	18	18.88	480	4.75	121	4.69	119	—	—	17.75	451	3.46	88	3.42	87
3000	—	20	21.75	552	4.38	111	4.37	111	—	—	17.75	451	3.46	88	3.42	87
3200	—	22	27.75	705	4.62	117	4.63	118	4.63	118	17.75	451	3.46	88	3.42	87
4000	4000	22	27.75	705	4.62	117	4.63	118	4.63	118	17.75	451	3.46	88	3.42	87
—	5000	22	27.75	705	4.62	117	4.63	118	4.63	118	17.75	451	3.46	88	3.42	87

Flanged Collar and Cutout Dimensions

Ampere Rating		L		H		W				G		J	
						3-Pole		4-Pole					
Aluminum	Copper	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
—	800	10.00	254	7.38	187	12.82	326	13.18	335	5.12	130	10.00	254
800	1000	10.00	254	7.38	187	12.82	326	13.18	335	5.12	130	10.00	254
—	1200	10.00	254	8.00	203	12.82	326	13.18	335	5.76	145	10.00	254
1000	1350	10.00	254	9.00	229	12.82	326	13.18	335	6.75	171	10.00	254

Flanged Collar and Cutout Dimensions *(continued)*

Ampere Rating		L		H		W				G		J	
						3-Pole		4-Pole					
Aluminum	Copper	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm	IN	mm
1200	—	10.00	254	10.00	254	12.82	326	13.18	335	7.76	196	10.00	254
1350	1600	10.00	254	11.00	279	12.82	326	13.18	335	8.75	222	10.00	254
1600	2000	10.00	254	13.88	352	18.82	478	19.18	487	11.63	295	16.00	406
2000	2500	10.00	254	15.88	403	18.82	478	19.18	487	13.63	346	16.00	406
2500	3000	10.00	254	19.88	505	18.82	478	19.18	487	17.63	448	16.00	406
—	3200	10.00	254	19.88	505	18.82	478	19.18	487	17.63	448	16.00	406
3000	—	10.00	254	22.75	578	18.82	478	19.18	487	20.50	521	16.00	406
3200		10.00	254	28.75	730	18.82	478	19.18	487	26.50	673	16.00	406
4000	4000	10.00	254	28.75	730	18.82	478	19.18	487	26.50	673	16.00	406
—	5000	10.00	254	28.75	730	18.82	478	19.18	487	26.50	673	16.00	406

Dual Dimensions: INCHES
Millimeters

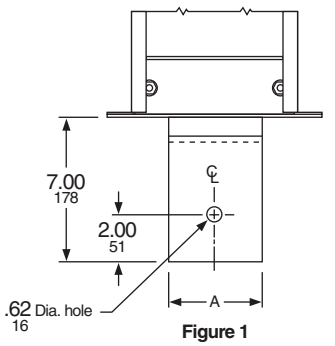


Figure 1

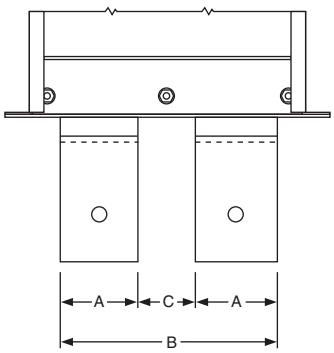


Figure 2

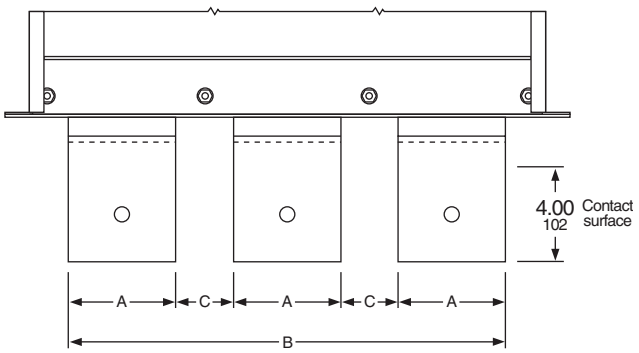


Figure 3

Aluminum Flanged End–Application Data

Aluminum Ampere Rating	Fig.	A		B		C	
		IN	mm	IN	mm	IN	mm
800	1	3.00	76	—	—	—	—
1000	1	4.00	102	—	—	—	—
1200	1	5.00	127	—	—	—	—
1350	1	6.00	152	—	—	—	—
1600	1	7.50	191	—	—	—	—
2000	2	4.50	114	11.38	289	2.38	60
2500	2	6.00	152	14.88	378	2.88	73
3000	2	7.50	191	17.38	441	2.38	60
3200	3	6.50	165	24.26	616	2.38	60
4000	3	6.50	165	24.26	616	2.38	60

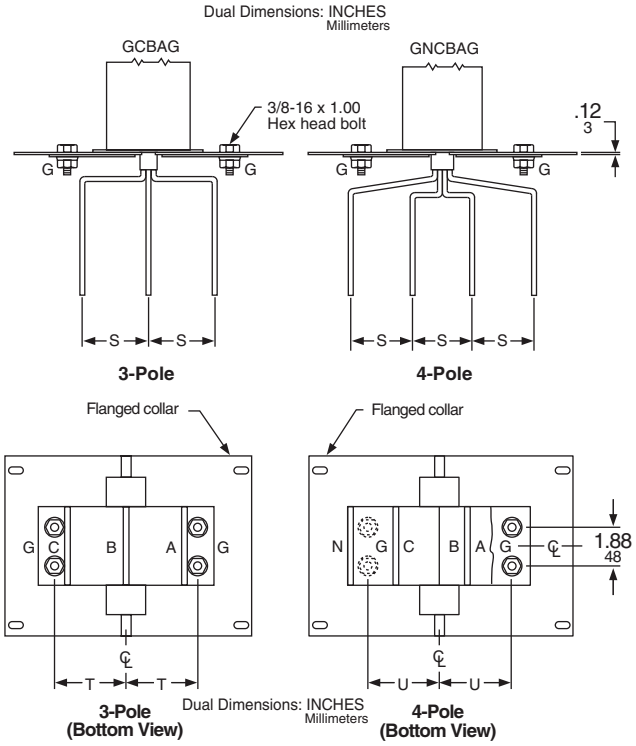
Copper Flanged End–Application Data

Copper Ampere Rating	Fig.	A		B		C	
		IN	mm	IN	mm	IN	mm
800	1	2.50	64	—	—	—	—
1000	1	3.00	76	—	—	—	—
1200	1	4.00	102	—	—	—	—
1350	1	4.50	114	—	—	—	—
1600	1	5.40	137	—	—	—	—
2000	1	6.50	165	—	—	—	—
2500	2	4.50	114	11.38	289	2.38	60
3000	2	5.00	127	13.88	353	3.88	99
3200	2	6.00	152	14.88	378	2.88	73
4000	3	4.50	114	22.26	565	4.38	111
5000	3	6.00	152	23.76	604	2.88	73

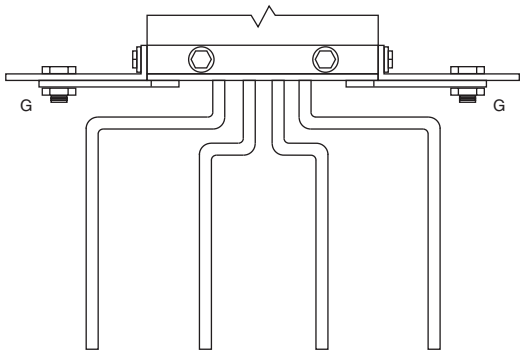
Flanged End-Flanged Collar Hole Location and Spacing

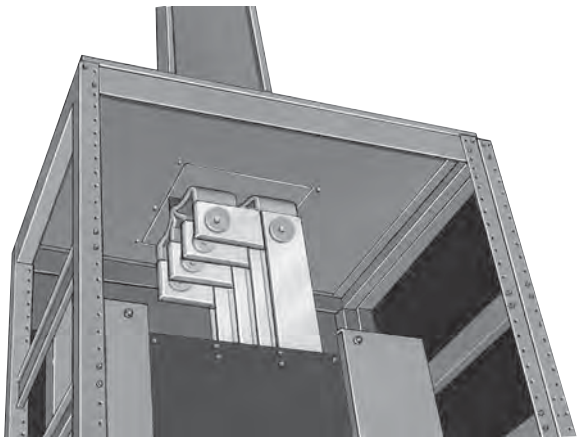
Ampere Rating		S		T		U	
Aluminum	Copper	IN	mm	IN	mm	IN	mm
—	800	3.00	76	3.62	92	3.81	97
800	1000	3.00	76	3.62	92	3.81	97
—	1200	3.00	76	3.62	92	3.81	97
1000	1350	3.00	76	3.62	92	3.81	97
1200	—	3.00	76	3.62	92	3.81	97
1350	1600	3.00	76	3.62	92	3.81	97
1600	2000	3.00	76	6.62	169	6.81	173
2000	2500	5.00	127	6.62	169	6.81	173
2500	3000	5.00	127	6.62	169	6.81	173
3000	—	5.00	127	6.62	169	6.81	173
—	3200	5.00	127	6.62	169	6.81	173
3200	—	5.00	127	6.62	169	6.81	173
4000	4000	5.00	127	6.62	169	6.81	173
—	5000	5.00	127	6.62	169	6.81	173

NOTE: Refer to “Detail of Phase Bussing Connections in a Switchboard” on page 71.



Qwik Flange and Flanged End Termination Details





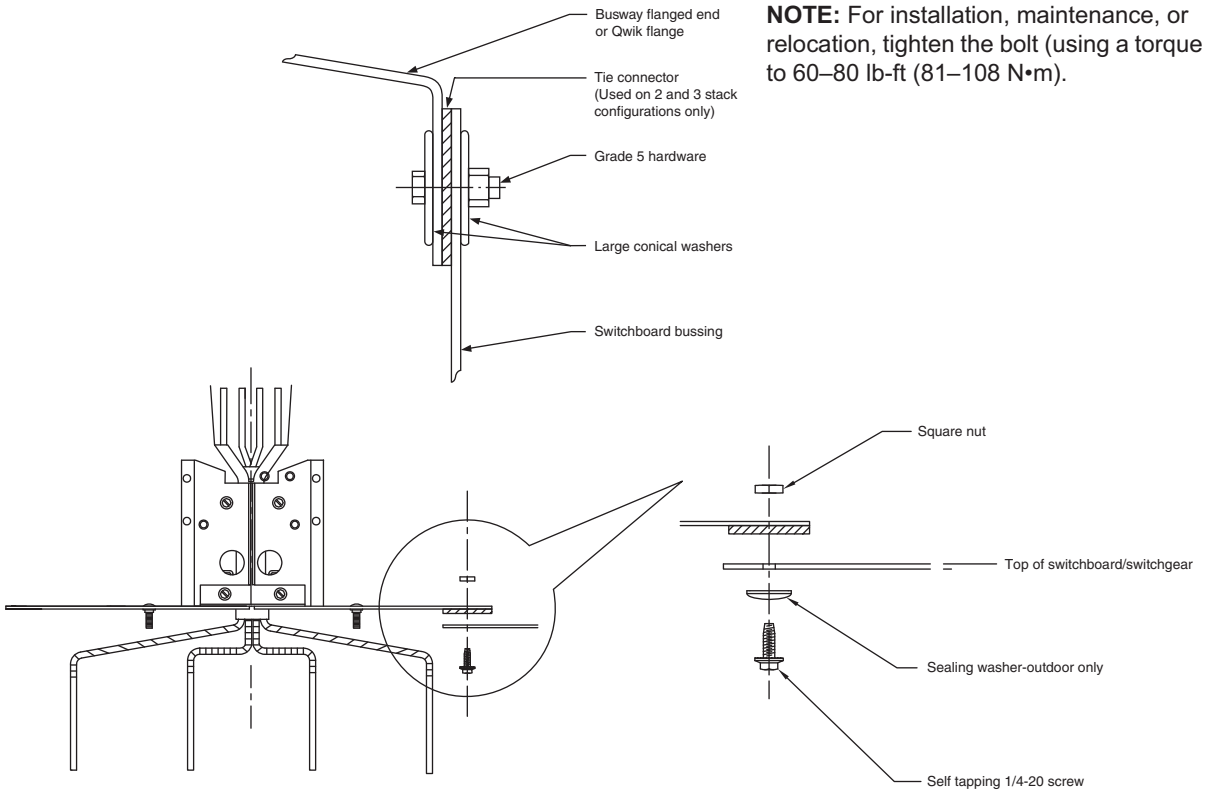
CAUTION

HAZARD OF EQUIPMENT DAMAGE

Improper contact pressure can cause overheating and equipment failure. Use 3-inch (76 mm) conical washers and Grade 5 hardware to ensure proper contact pressure.

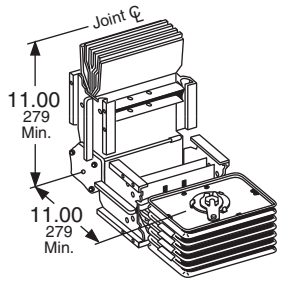
Failure to follow this instruction can result in equipment damage.

Detail of Phase Bussing Connections in a Switchboard

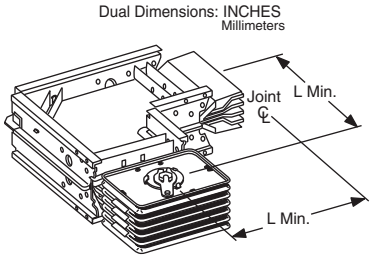


NOTE: For installation, maintenance, or relocation, tighten the bolt (using a torque wrench) to 60–80 lb-ft (81–108 N•m).

Elbows



Edgewise: Catalog Number Suffix–LEM11



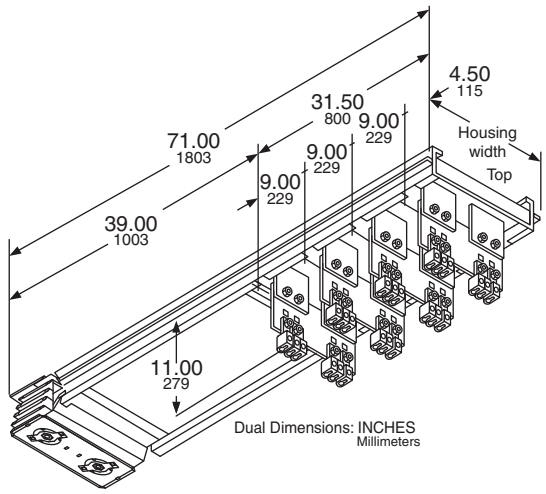
Flatwise

Flatwise: Catalog Number Suffix–LFM

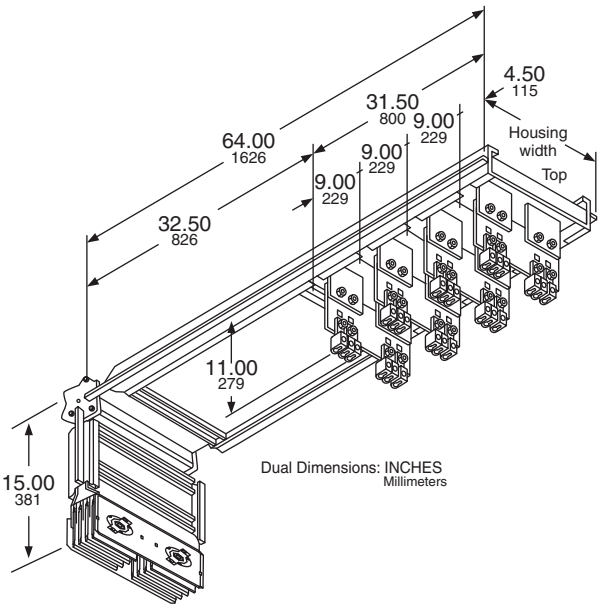
Flatwise Elbows–Application Data

Ampere Rating		L		Catalog Number Suffix
Aluminum	Copper	IN	mm	
—	800	11.00	279	-LFM11
800	1000	11.00	279	-LFM11
1000	1200	12.00	305	-LFM12
1200	1350	12.00	305	-LFM12
—	1600	12.00	305	-LFM12
1350	2000	13.00	330	-LFM13
1600	—	13.00	330	-LFM13
2000	2500	15.00	381	-LFM15
—	3000	16.00	406	-LFM16
2500	—	17.00	432	-LFM17
	3200	17.00	432	-LFM17
3000	—	18.00	457	-LFM18
3200	—	21.00	533	-LFM21
—	4000	21.00	533	-LFM21
—	5000	21.00	533	-LFM21
4000	—	22.00	559	-LFM22

Transformer Tap (One 3Ø Transformer)



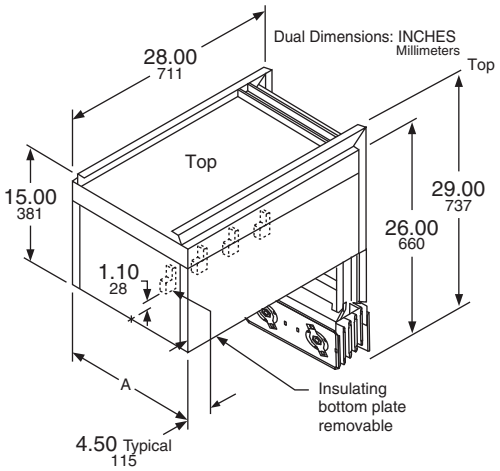
Catalog Number Suffix—71 SF



Catalog Number Suffix—79 LESFS15T64

Service entrance devices can be ordered with an indoor type joint pack for those applications where the service head is outdoors and penetrates a wall such that the first joint is indoors. **Service entrance devices come standard with an outdoor type joint pack.**

Service Head Vertical



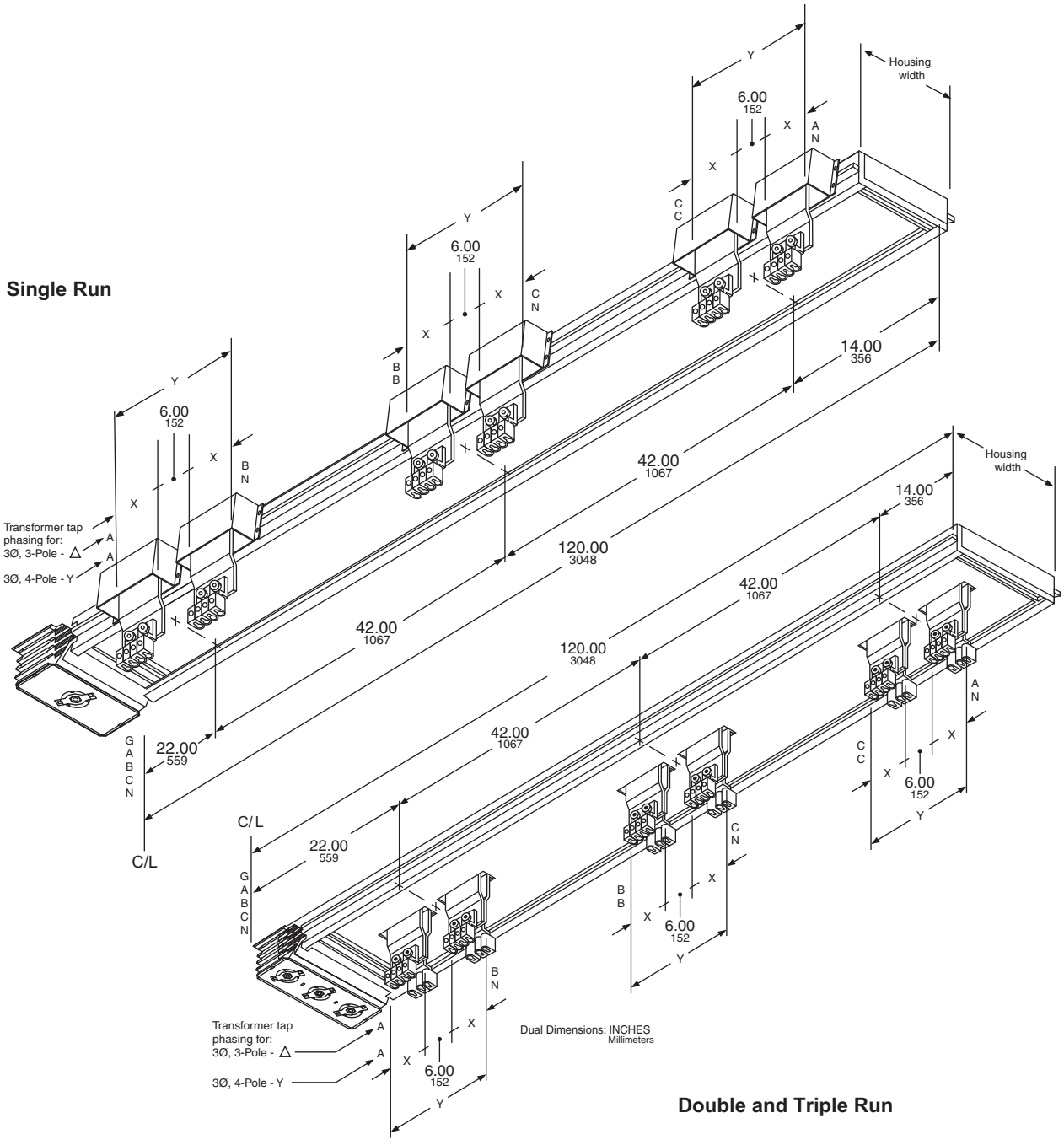
Service Head Vertical—Lug Specifications

Ampere Rating	A	Lugs Per Phase and Neutral 1/0-600 kcmil	Ground Lugs #6-300 kcmil
800	Housing Width Plus 2.23 / 57	2	2
1000		3	3
1200		4	3
1350		4	3
1600		4	4
2000		5	5
2500		7	6
3000		8	7
3200		9	8
4000		10	9
5000		13	11

NOTES: Other lengths available. Contact your local Schneider Electric representative.

1. Vertical service heads must be braced or supported near top, to withstand weight of cables, ice, wind, etc.
2. Refer to NEC Article 230.24 for required clearance of service drops over roof overhang or the ground.

Transformer Tap (Three 1Ø Transformers)

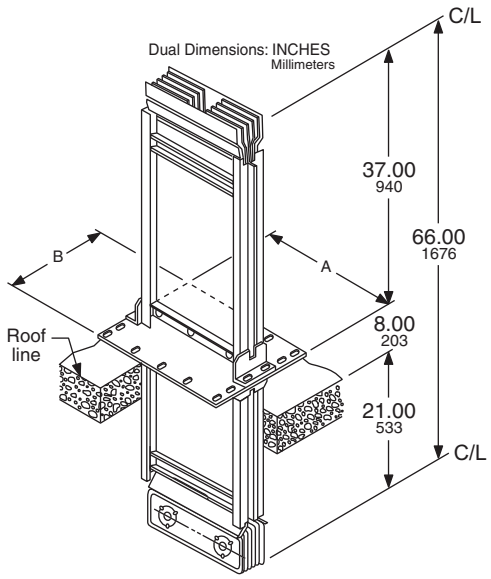


Catalog Number Suffix—TTF

Transformer Tap—Dimensions and Lug Specifications

Ampere Rating		X		Y		Lugs Per Phase and Neutral 1/0-600 kcmil	Ground Lugs #6-300 kcmil
Aluminum	Copper	IN	mm	IN	mm		
—	800	2.50	63	16.00	406	2	2
800	1000	3.00	76	16.50	419	2	2
1000	1200	4.00	102	17.50	444	3	3
—	1350	4.50	114	18.00	457	4	3
1200	—	5.00	127	18.50	470	4	3
—	1600	5.40	137	18.90	480	4	4
1350	—	6.00	152	19.50	495	4	3
—	2000	6.50	165	20.00	508	5	5
1600		7.50	190	21.00	533	4	4
2000	—	4.50	114	15.00	381	5	5
—	2500	4.50	114	15.00	381	7	6
2500	—	6.00	152	18.00	457	7	6
—	3000	5.00	127	16.00	406	8	7
3000	—	7.50	191	21.00	533	8	7
3200	3200	6.00	152	18	457	9	8
—	4000	4.50	114	15.00	381	10	9
4000	—	6.50	165	19.00	483	10	9
—	5000	6.00	152	18.00	457	13	11

Straight Length with Flanged Collar



Catalog Number Suffix—66 FCS37B29

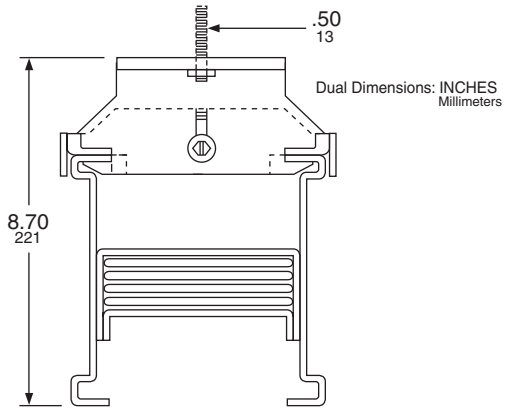
Straight Length with Flanged Collar—Dimensions

Ampere Rating		A		B★	
Aluminum	Copper	IN	mm	IN	mm
—	800	9.38	238	13.18	335
800	1000	9.38	238	13.18	335
—	1200	11.00	279	13.18	335
1000	1350	11.00	279	13.18	335
1200	—	12.00	305	13.18	335
1350	1600	13.00	330	13.18	335
1600	2000	15.88	403	19.18	487
2000	2500	17.88	454	19.18	487
2500	3000	21.88	556	19.18	487
—	3200	21.88	556	19.18	487
3000	—	24.75	629	19.18	487
3200	—	30.75	781	19.18	487
4000	4000	30.75	781	19.18	487
—	5000	30.75	781	19.18	487

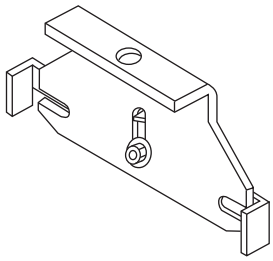
★ 4-Pole dimensions. For 3-Pole dimensions subtract .32.

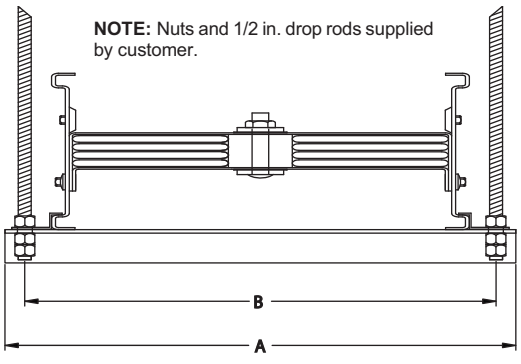
NOTE: Other lengths and configurations available. Contact your local Schneider Electric representative for assistance.

Horizontal Flatwise Hanger



NOTE: Nuts and 1/2 in. (13 mm) drop rods supplied by customer.





NOTE: Nuts and 1/2 in. drop rods supplied by customer.

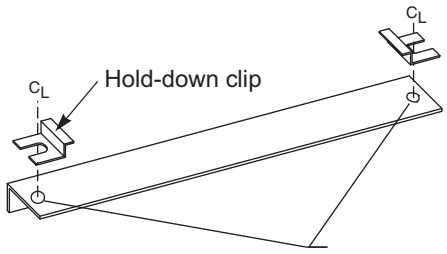
NOTE: See the hanger spacing installation requirements in “Hanger Spacing” on page 37.

Hanger (Horizontal Flatwise)—Catalog Numbers

Ampere Rating		Catalog Number
Aluminum	Copper	
—	800	HF-38-F
800	1000	HF-43-F
1000	1200	HF-53-F
—	1350	HF-58-F
1200	—	HF-63-F
—	1600	HF-67-F
1350	—	HF-73-F
—	2000	HF-78-F
1600	—	HF-88-F

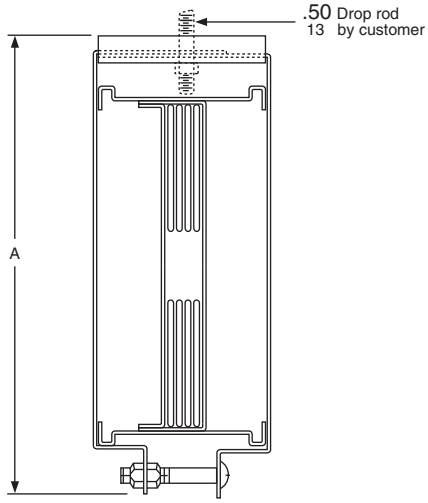
Hanger (Horizontal Flatwise)—Catalog Numbers and Dimensions

Ampere Rating		Catalog Number	A		B	
Aluminum	Copper		IN	mm	IN	mm
2000	2500	HF-13-F	16.22	412	14.72	374
—	3000	HF-15-F	18.72	475	17.22	437
2500	3200	HF-16-F	19.72	501	18.22	463
3000	—	HF-19-F	22.22	564	20.72	526
—	4000	HF-24-F	27.10	688	25.60	650
3200	5000	HF-25-F	28.60	726	27.10	688
4000	—	HF-26-F	29.10	739	27.60	701

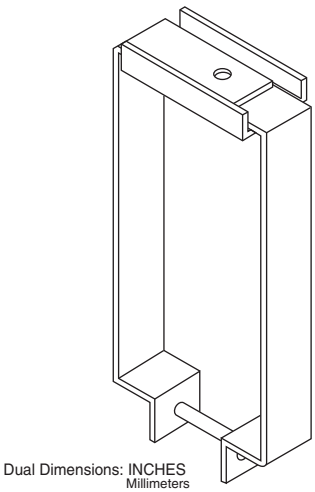


NOTE: Hold-down clips may be ordered separately (catalog no. 45110-200-01). Two are required for each hanger. Please contact your local Schneider Electric representative.

Horizontal Edgewise Hanger



Dual Dimensions: INCHES
Millimeters

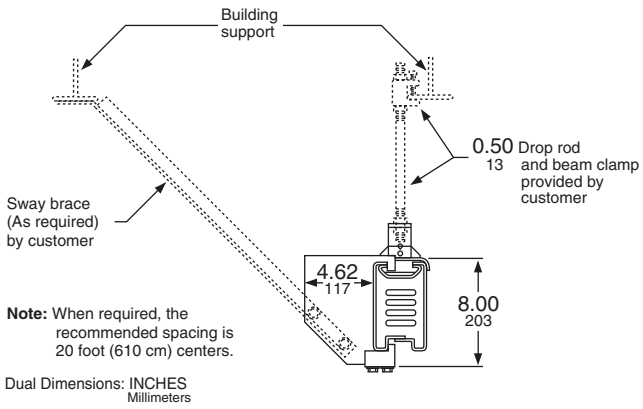


Dual Dimensions: INCHES
Millimeters

Hanger (Horizontal Edgewise)—Dimensions and Catalog Numbers

Ampere Rating		A		Catalog Number
Aluminum	Copper	IN	mm	
800	800	8.36	212	HF-43-E
—	1000	8.36	212	HF-43-E
1000	1200	9.86	250	HF-58-E
—	1350	9.86	250	HF-58-E
1200	1600	10.86	276	HF-67-E
1350	2000	11.86	301	HF-78-E
1600	—	13.86	339	HF-88-E
2000	2500	17.24	438	HF-13-E
—	3000	19.74	501	HF-15-E
2500	3200	20.74	527	HF-16-E
3000	—	24.12	613	HF-19-E
—	4000	28.12	714	HF-24-E
3200/4000	5000	29.62	752	HF-26-E

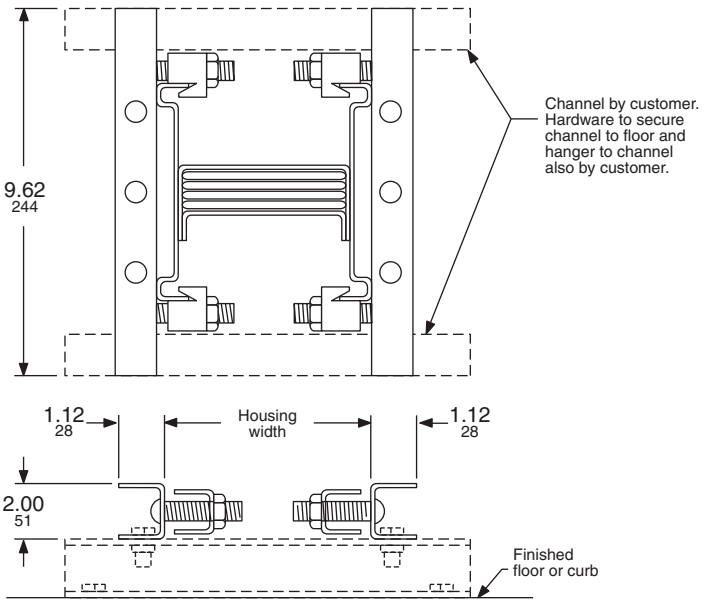
Sway Brace Collar



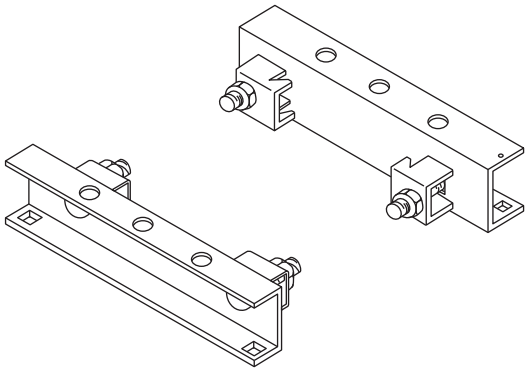
Catalog Number HP-1-SBC

Sway braces are used when only one side of the busway is heavily loaded with tap-off units or when other factors could cause possible swaying of the busway.

Vertical Fixed Hanger



Hanger–Vertical Fixed

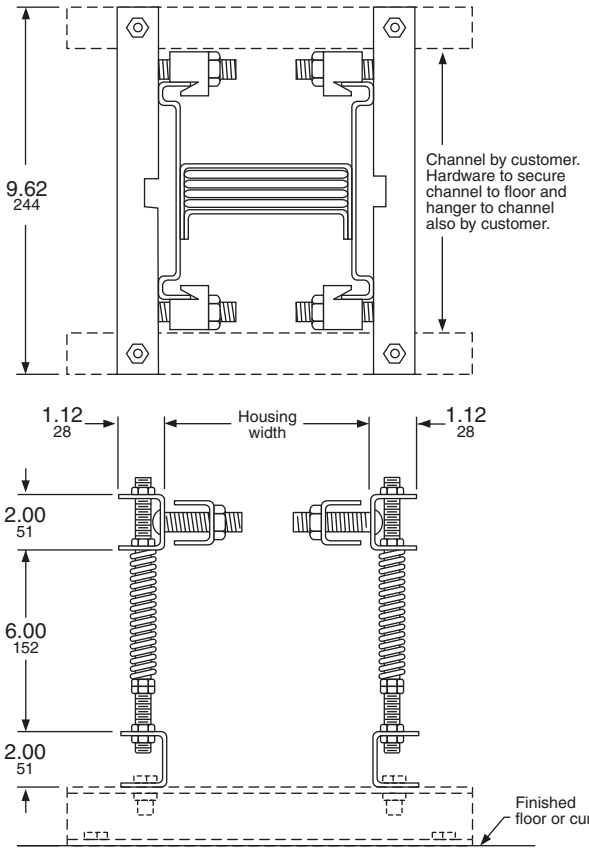


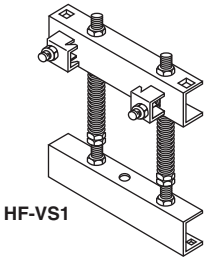
Catalog Number HF-V

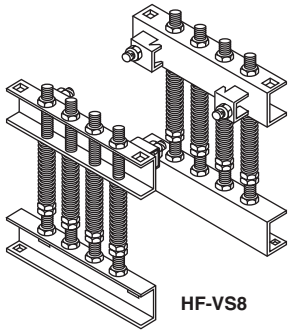
Note: Allow 13.25 inches (337 mm) above curb or floor to ℄ of joint for proper installation of tie channel cover.

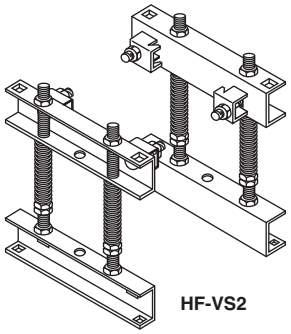
Dual Dimensions: INCHES
Millimeters

Vertical Spring Hanger









Note: Allow 21 inches (533 mm) above curb or floor to ℄ of joint for proper installation of tie channel cover.

Dual Dimensions: INCHES
Millimeters

NOTE: Check with spring hanger instruction bulletin no. 45123-930-01 for common notes.

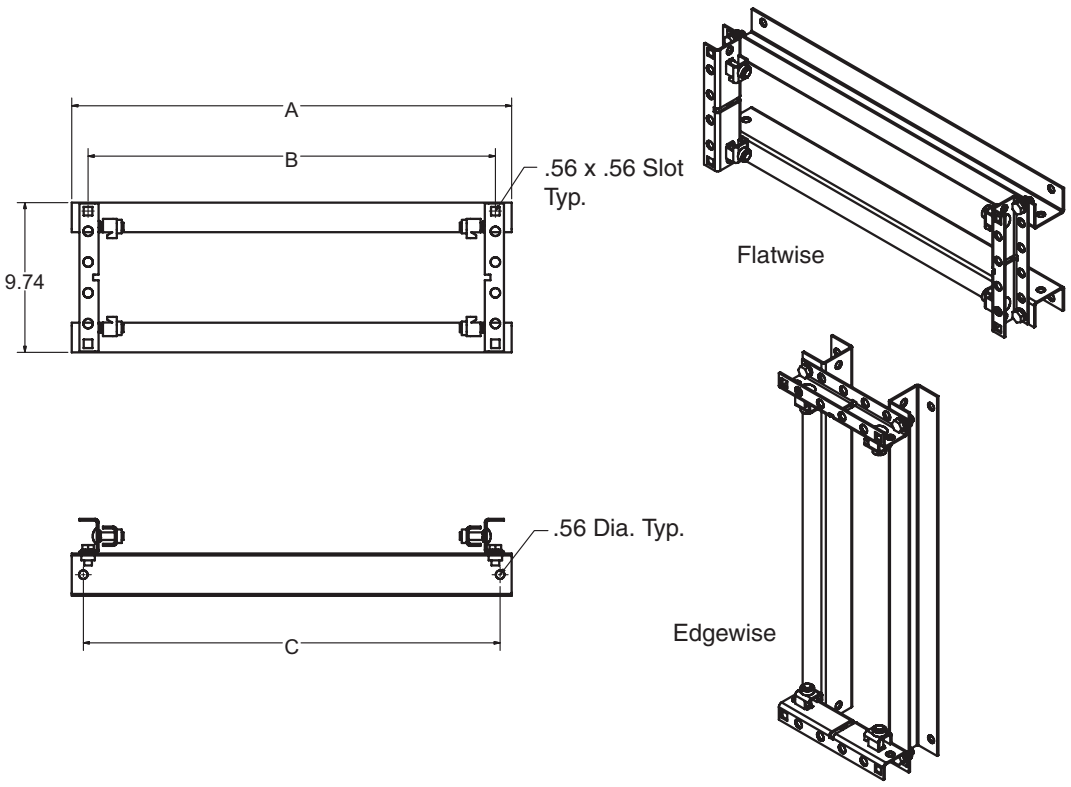
Vertical Spring Hanger—Catalog Numbers

Ampere Rating				Housing Reference	Catalog Number
Thermal		Density Rated			
Aluminum	Copper	Aluminum	Copper		
—	800	—	—	3.84	HFVS1
800	1000	—	600	4.34	HFVS1
—	1200	—	800/1000	5.34	HFVS1
1000	—	600	—	5.34	HFVS1
1200	—	800	—	6.34	HFVS1
1350	—	1000	—	7.34	HFVS1
—	—	1200	—	7.84	HFVS1
1600	—	1350	—	8.84	HFVS1
—	1350	—	—	5.84	HFVS2
—	—	—	1200	6.34	HFVS2
—	1600	—	1350	6.74	HFVS2
—	2000	—	1600	7.84	HFVS2
2000	—	1600	—	12.72	HFVS2
2500	—	2000	—	16.22	HFVS2

Vertical Spring Hanger—Catalog Numbers *(continued)*

Ampere Rating				Housing Reference	Catalog Number
Thermal		Density Rated			
Aluminum	Copper	Aluminum	Copper		
—	2500	—	2000	12.72	HFVS8
—	3000	—	2500	15.22	HFVS8
—	3200	—	3000	16.22	HFVS8
3000	—	2500	—	18.72	HFVS8
—	4000	—	3200	23.60	HFVS8
3200	5000	3000	4000	25.10	HFVS8
4000	—	—	—	25.60	HFVS8

Horizontal Seismic Hanger

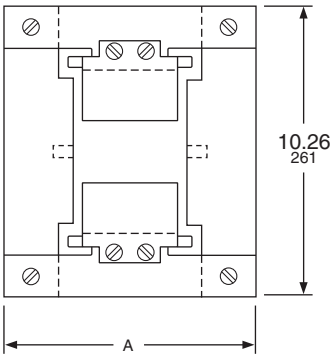


Horizontal Seismic Hanger—Dimensions

Ampere Rating (A)		Catalog Number	A		B		C	
Aluminum	Copper		IN	mm	IN	mm	IN	mm
—	800	HF38SH	7.34	186	5.22	133	5.84	148
800	1000	HF43SH	7.84	199	5.72	145	6.34	161
1000	1200.	HF53SH	8.84	225	6.72	171	7.34	186
—	1350	HF58SH	9.34	237	7.22	183	7.84	199
1200	—	HF63SH	9.84	250	7.72	196	8.34	212
—	1600	HF67SH	10.24	260	8.12	206	8.74	222
1350	—	HF73SH	10.84	275	8.72	221	9.34	237
—	2000	HF78SH	11.34	288	9.22	234	9.84	250
1600	—	HF88SH	12.34	313	10.22	260	10.84	275
2000	2500	HF13SH	16.22	412	14.10	358	14.72	374
—	3000	HF15SH	18.72	475	16.60	422	17.22	437
2500	3200	HF16SH	19.72	501	17.60	447	18.22	463
3000	—	HF19SH	22.22	564	20.10	511	20.72	526
3200	5000	HF25SH	28.60	726	26.48	673	27.10	688
—	4000	HF24SH	27.10	688	24.98	634	25.60	650
4000	—	HF26SH	29.10	739	26.98	685	27.60	701

NOTE: For seismic applications, seismic hangers must be used for horizontally-mounted busway. Standard vertical hangers should be used for vertically-mounted busway.

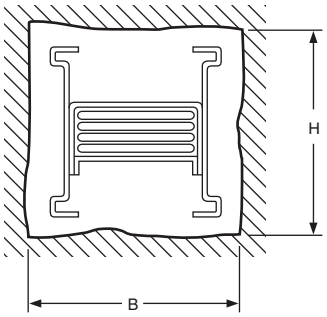
Wall and Floor Flange



Four-Piece Closing Plate for Finished Look

Wall and Floor Flange—Dimensions and Catalog Numbers

Ampere Rating		A		Catalog Number
Aluminum	Copper	IN	mm	
—	800	8.32	211	ACF-38-WF
800	1000	8.82	224	ACF-43-WF
1000	1200	9.82	249	ACF-53-WF
—	1350	10.32	262	ACF-58-WF
1200	—	10.82	275	ACF-63-WF
—	1600	11.22	285	ACF-67-WF
1350	—	11.82	300	ACF-73-WF
—	2000	12.32	313	ACF-78-WF
1600	—	13.32	338	ACF-88-WF
2000	2500	17.20	437	ACF-13-WF
—	3000	19.70	500	ACF-15-WF
2500	3200	20.70	526	ACF-17-WF
3000	—	23.20	589	ACF-19-WF
—	4000	28.08	713	ACF-24-WF
—	3200	20.7	526	ACF-17-WF
3200	5000	29.58	751	ACF-25-WF
4000		30.08	764	ACF-26-WF



Dual Dimensions: INCHES
Millimeters

Required Wall / Floor Opening

Wall and Floor Flange—Dimensions

Ampere Rating		Indoor Str. Lnth.		Outdoor Str. Lnth.		Fl. End		Flatwise Elbow★							Edgewise Elbow★						
								H	Wall Thickness						B	Wall Thickness					
Aluminum	Copper	B	H	B	H	B	H		4	8	12	16	20	24		4	8	12	16	20	24
—	800	6	8	8	9	10	15	8	9	11	13	15	17	19	6	12	14	16	18	20	24
800	1000	6	8	9	9	10	15	8	10	12	14	16	18	20	6	12	14	16	18	20	22
1000	1200	7	8	10	9	11	15	8	12	14	16	18	20	22	7	12	14	16	18	20	22
—	1350	8	8	10	9	12	15	8	12	14	16	18	20	22	8	12	14	16	18	20	22
1200	—	8	8	11	9	13	15	8	13	15	17	19	21	23	8	12	14	16	18	20	22
1350	1600	9	8	12	9	14	15	8	14	16	18	20	22	24	9	12	14	16	18	20	22
—	2000	10	8	12	9	17	21	8	15	17	19	21	23	25	10	12	14	16	18	20	22
1600	—	11	8	13	9	17	21	8	17	19	21	23	25	27	11	12	14	16	18	20	22
2000	2500	15	8	17	9	19	21	8	22	24	26	28	30	32	15	12	14	16	18	20	22
—	3000	17	8	20	9	23	21	8	26	28	30	32	34	36	17	12	14	16	18	20	22
2500	3200	18	8	21	9	23	21	8	27	29	31	33	35	37	18	12	14	16	18	20	22
3000	—	21	8	23	9	26	21	8	31	33	35	37	39	41	21	12	14	16	18	20	22
—	4000	26	8	28	9	32	21	8	37	39	41	43	45	47	26	12	14	16	18	20	22
3200	5000	27	8	30	9	32	21	8	40	42	44	46	48	50	27	12	14	16	18	20	22
4000	—	28	8	30	9	32	21	8	40	42	44	46	48	50	28	12	14	16	18	20	22

★ Wall thickness is in inches. To convert to millimeters, multiply the thickness in inches by 25.4.

Item No.	Qty.	Catalog Number / Details

PANELBOARDS

013-00 1

Designation: PANEL # 3
NQ MB Panel (Interior)
NQ Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz SCCR: 22kA
Fully Rated
Suitable For Use As Service Entrance UL
Single Main: 400A/3P LA Circuit Breaker
Incoming Conductors: 1 - #1 - 600,(2)#1 - 250 kcml
AL Ground Bar
Bus: Copper: Silver/Tin Plated
30 Circuit Interior
Type 1Box: 86H x 20W x 5.75D
Incoming: Bottom Trim: Surface - Hinged
Box Cat No: MH86 Front Cat No: NC86VSHR
Ref. Drawing: PBA710HR
Feeders:
1 - Sub-Feed One: 175A/3P QD
1 - 50A/3P QOB-VH
18 - 20A/1P QOB-VH Prepared Space
1 - 60A/3P QOB-VH
1 - 150A/3P QOB-VH
Optional Features:
Standard Panel (Box Ahead),Standard Solid Neutral,Standard Ground Bar
Branch User Placement
Standard Nameplate:
Color: White Surface / Black Letters

014-00 1

Designation: LCUS # 1
I-Line MB Panel (Interior)
I-Line Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz SCCR: 65kA
Fully Rated
Suitable For Use As Service Entrance UL
Single Main: 1200A/3P PG Circuit Breaker
Incoming Conductors: 1 - (4) 3/0 - 500kcmil
AL Ground Bar
Bus: Copper: Tin Plated
108" of Mounting Inches
Type 1Box: 86H x 44W x 9.5D
Incoming: Bottom Trim: Four-Piece Surface
Box Cat No: HC4486DB Front Cat No: HCR86TS
Ref. Drawing: PBA414 Type: HCR-U
Feeders:
1 - 50A/3P HG
2 - 50A/3P HG ST
1 - 300A/3P LH
3 - 90A/3P HG ST
1 - 100A/3P QG
6 - 225A/3P QG
1 - 250A/3P JG
Optional Features:
Standard Panel (Box Ahead),Standard Solid Neutral,Standard Ground Bar,Mains and Feeders Mechanically Restrained
Standard Nameplate:
Color: White Surface / Black Letters

I-Line Power Panelboards

Our I-Line® power distribution panel is the most versatile on the market. It's used to feed NQ and NF lighting and appliance panelboards. I-Line panelboards can also feed large motors and HVAC systems.

Features

- 600Vac, 250Vdc maximum
- 1200A main circuit breaker or main lugs
- 1200A maximum branch circuit breaker
- 200,000A SCCR when using current limiting main or branch circuit breakers
- Fully rated and series rated systems available
- Interiors available in plated copper or aluminum bus
- Suitable for use as service entrance equipment
- Complete line of UL/cUL listed interiors with 200% rated neutrals for non-linear loads
- Sub-feed or through-feed lugs through 1200A
- Interiors accept plug-on thermal magnetic or solid state branch circuit breakers
- Interior, front and most circuit breakers only require a screwdriver for installation
- Branch circuit breaker mounting not restricted by location on bus stack
- Capable of mounting 15A branch circuit breaker across from or next to a 1200A branch circuit breaker
- Branch circuit breakers have no loose mounting hardware and install in as little as 20 seconds with only a screw driver
- Branch circuit breakers are simple to rearrange in the field, limited restrictions on mounting locations
- 100,000A – 240,000A field installable plug-in TVSS units
- Available with or without door, or with hinged trim
- Broad range of field installable kits available from stock

Factory Options

- Split bus bar
- Sub-feed/thru-feed lugs through 1200A
- Optional 200% rated neutrals through 1200A
- Thermal-mag or solid state circuit breakers
- Plated copper or aluminum bus
- Optional customer metering with PowerLogic® power meters or circuit monitors
- Plug-in TVSS modules
- 100,000A – 240,000A plug-in TVSS
- Door in door or hinged trim
- Six circuit QO 240V plug-in distribution module
- Ground fault protection available on main or branch circuit breakers
- Current density-rated panelboard bus

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NQ Lighting Panelboards

Developed with electrical contractor input, the NQ family of lighting and appliance panelboards sets new standards for ease of installation and durability. Plus, new design innovations increase the availablity of these panelboards by offering complete ready to install products.

Features

- 240Vac, 48Vdc maximum
- 600A maximum main circuit breakers or main lugs
- 150A maximum branch circuit breakers
- 10,000A through 200,000A SCCR
- Both fully rated and series rated systems are available
- Interiors are field convertible to top or bottom feed
- Interiors are available in plated copper or aluminum bus
- Interiors accept both bolt-on and plug-on branch circuit breakers
- Complete line of UL/cUL listed interiors with 200% rated neutrals for non-linear loads
- Suitable for use as service entrance equipment
- 20" wide trims and boxes common for NQ and NF panelboards
- Mono-flat® or hinged trims

Factory Options

- 1P3W or 3P4W – 600A main lugs and main breaker panelboards
- Sub-feed and thru-feed lugs
- Sub-feed circuit breakers
- Optional 200% rated neutrals up to 400A
- Split bus bars
- TVSS
  - 100,000A – 240,000A surge current rating
  - All voltage systems
- Lighting contactors
- Customer equipment space

"Ready-to-Install" Panels and Kits Available from Stock

- 100A – 600A MLO 1P3W and 3P4W Interiors
- NEMA 1 and 3R/12 enclosures
- 100A – 400A main circuit breaker kits
- TVSS interiors
  - 120,000A or 160,000A surge current ratings
- 100A – 400A sub-feed and thru-feed lugs
- Sub-feed circuit breaker kits
  - 1 – 225A sub-feed circuit breaker per 225A panelboard
  - 2 – 225A sub-feed circuit breakers per 400A panelboard
- 200% neutral kits up to 400A
- Copper neutrals and equipment ground bars

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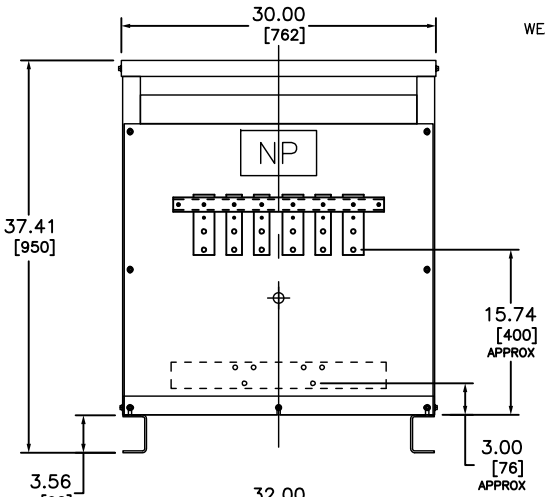
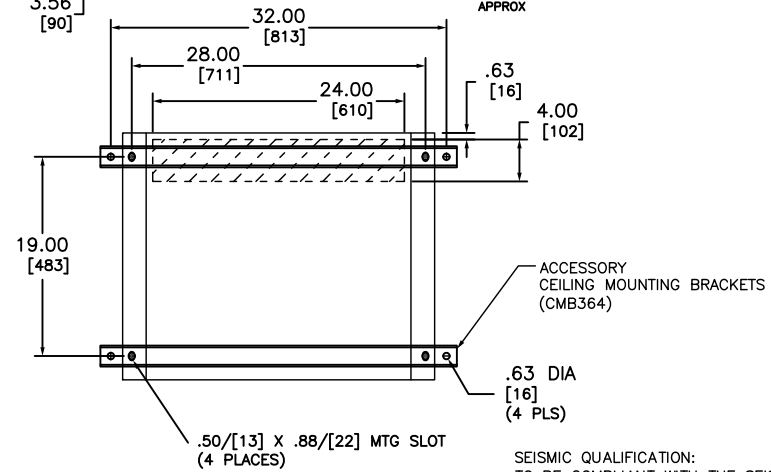
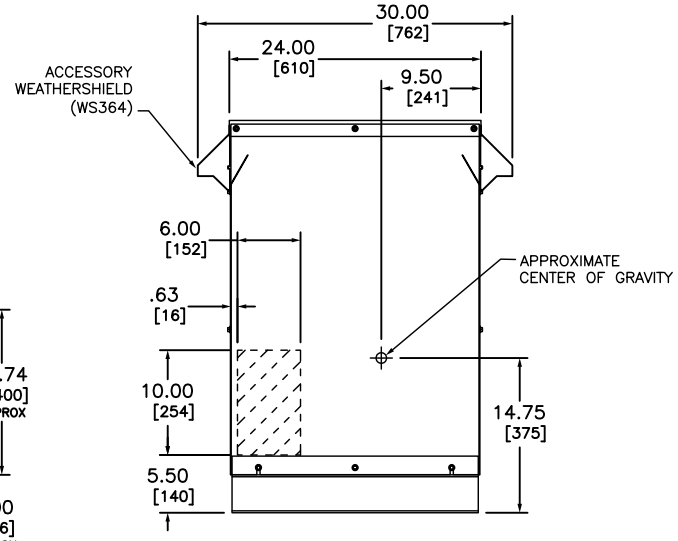
Item No.	Qty.	Catalog Number / Details

LOW VOLTAGE TRANSFORMERS

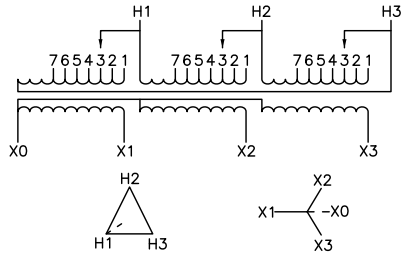
015-00	1	EE112T3HCU Transformer Dry Type 112.5kVA 480D208Y
016-00	1	DASKP250 LUG KIT
017-00	1	DASKS400 LUG KIT
018-00	1	EE300T3HCU Transformer Dry Type 300kVA 480D208Y120
019-00	1	DASKP1000 LUG KIT
020-00	1	DASKS1200 LUG KIT







IN EACH PHASE CONNECT TO TAPS	
PRIMARY VOLTS	2–2.5% FCAN 4–2.5% FCBN
504	1
492	2
480	3
468	4
456	5
444	6
432	7



TRANSFORMER SPECIFICATIONS:

112.5 KVA 3Ø 60 HZ
PRIMARY VOLTAGE 480 DELTA
SECONDARY VOLTAGE 208Y/120
150°C RISE ABOVE 40°C AMBIENT
220°C INSULATION SYSTEM
COPPER WINDINGS
APPROXIMATE WEIGHT: 755 LBS
GUARANTEED SOUND LEVEL: 50 dB
EFFICIENCY @35%: 98.2% AVG. CONFORMS TO NEMA TP 1 – 2002 AND CSA C802.2

SEISMIC QUALIFICATION:
TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7, THIS UNIT HAS BEEN QUALIFIED BY SHAKE TABLE TESTING THROUGH SELF CERTIFICATION TO ICC ES AC156. CONTACT YOUR LOCAL SCHNEIDER ELECTRIC/SQUARE D REPRESENTATIVE FOR RELATED QUESTIONS.

NOTES:
1) cULus LISTED (MEETING UL 1561 AND CSA C22.2)
2) NEMA 2 VENTILATED ENCLOSURE
   ENCLOSURE RATED FOR NEMA 3R WHEN OPTIONAL WEATHERSHIELD ACCESSORY IS INSTALLED.
3) MINIMUM CLEARANCE OF 3.00[76] BETWEEN VENT OPENINGS, WALL OR OTHER OBSTRUCTION
4) SHADED AREAS DENOTE CUSTOMER CONDUIT ENTRANCE LOCATIONS, AVAILABLE BOTH SIDES AND BOTTOM

DUAL DIMENSIONS: INCHES / MILLIMETERS

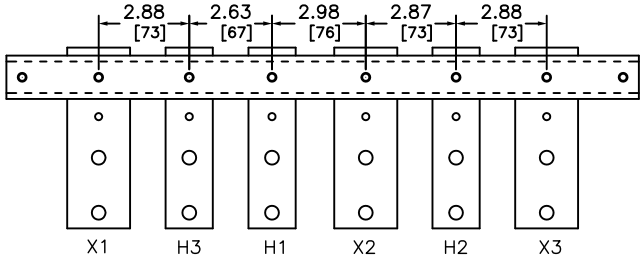
LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY–TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE,112.5 kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

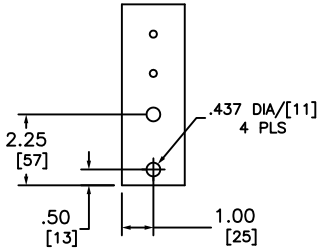
SQUARE D
Schneider Electric

DWG# NO. 6312–0016

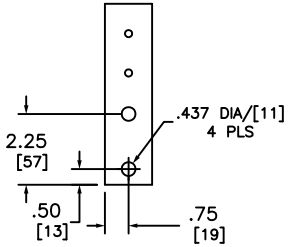
OCTOBER 2006

SHEET 1 OF 2





X TERMINAL DETAIL



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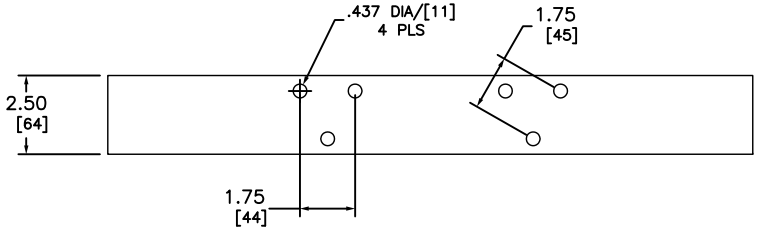


XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES
MILLIMETERS

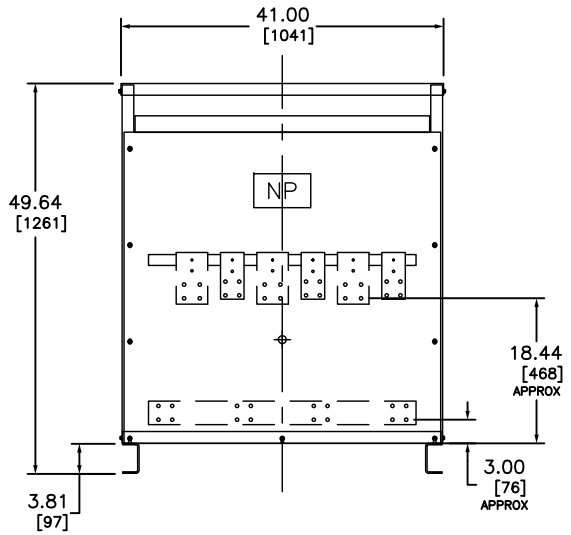
LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE,112.5 kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

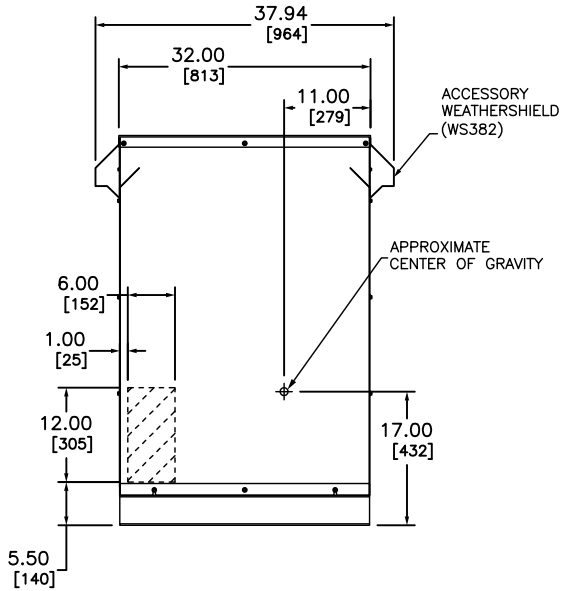
SQUARE D
Schneider Electric

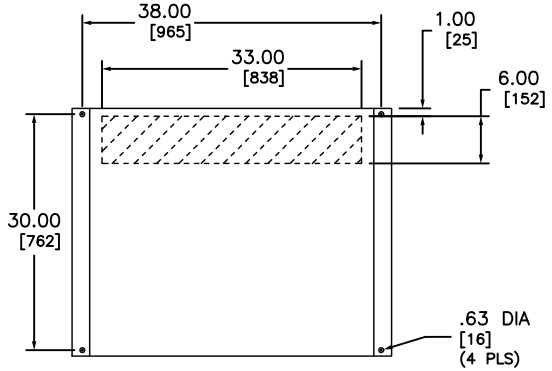
DWG# NO. 6312-0016

OCTOBER 2006

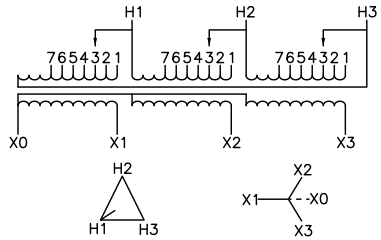
SHEET 2 OF 2







IN EACH PHASE CONNECT TO TAPS	
PRIMARY VOLTS	2–2.5% FCAN 4–2.5% FCBN
504	1
492	2
480	3
468	4
456	5
444	6
432	7



TRANSFORMER SPECIFICATIONS

300 KVA 3Ø 60 HZ
PRIMARY VOLTAGE 480 DELTA
SECONDARY VOLTAGE 208Y/120
150°C RISE ABOVE 40°C AMBIENT
220°C INSULATION SYSTEM
COPPER WINDINGS
APPROXIMATE WEIGHT: 1535 LBS
GUARANTEED SOUND LEVEL: 55 dB
EFFICIENCY @35%: 98.6% AVG. CONFORMS TO NEMA TP 1 – 2002 AND CSA C802.2

NOTES:
1) cULus LISTED (MEETING UL 1561 AND CSA C22.2)
2) NEMA 2 VENTILATED ENCLOSURE
   ENCLOSURE RATED FOR NEMA 3R WHEN OPTIONAL WEATHERSHIELD ACCESSORY IS INSTALLED.
3) MINIMUM CLEARANCE OF 3.00[76] BETWEEN VENT OPENINGS, WALL OR OTHER OBSTRUCTION
4) SHADED AREAS DENOTE CUSTOMER CONDUIT ENTRANCE LOCATIONS, AVAILABLE BOTH SIDES AND BOTTOM

SEISMIC QUALIFICATION:
TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7, THIS UNIT HAS BEEN QUALIFIED BY SHAKE TABLE TESTING THROUGH SELF CERTIFICATION TO ICC ES AC156. CONTACT YOUR LOCAL SCHNEIDER ELECTRIC/SQUARE D REPRESENTATIVE FOR RELATED QUESTIONS.

DUAL DIMENSIONS: INCHES / MILLIMETERS

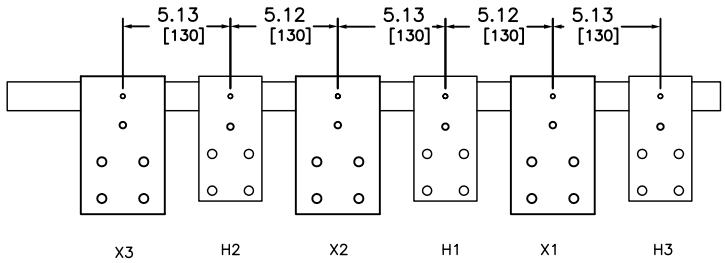
LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY–TYPE TRANSFORMER
CATALOG NO EE300T3HCU
3 PHASE, 300kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

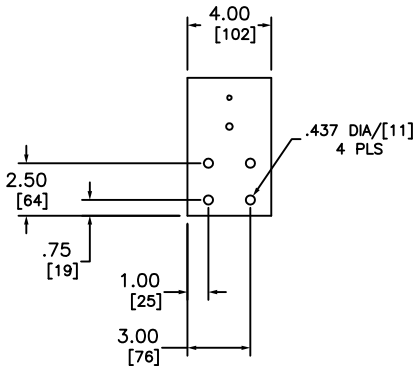
SQUARE D
Schneider Electric

DWG# NO. 6312–0019

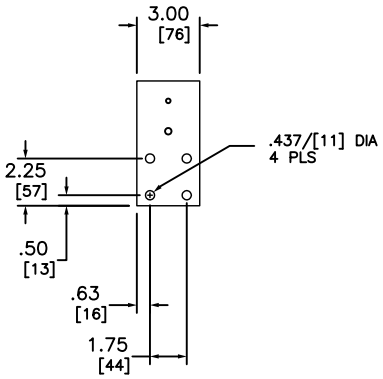
1JUN2011 REV B

SHEET 1 OF 2

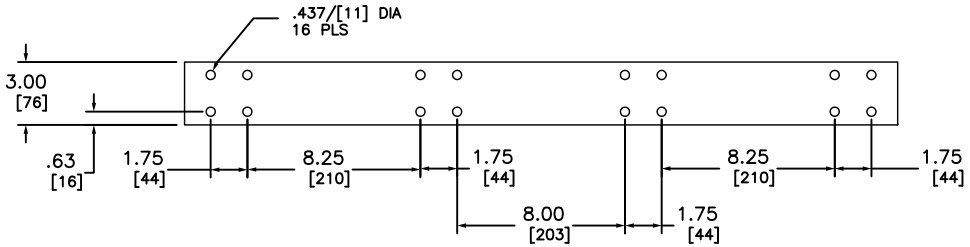




X TERMINAL DETAIL



H TERMINAL DETAIL



XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES
MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY–TYPE TRANSFORMER
CATALOG NO EE300T3HCU
3 PHASE, 300kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

DWG# NO. 6312–0008

1JUN2011 REV B

SHEET 2 OF 2

Energy Efficient Transformers

Low Voltage General Purpose
Dry Type

Class 7400

a brand of Schneider Electric

SQUARE D

Product Description

Key Features of the Square D® Energy Efficient Dry-Type Transformers

- Smaller total area used, with 3 in. (76 mm) clearance from ventilated openings instead of 6 in. (152 mm), reducing the distance from the wall to the front of the device by 3 in. (76 mm)
- Terminals are sized to handle lug kits that are coordinated with other Square D® products, increasing the ease of installation when used with other Square D equipment
- Increased wiring compartments provide a bending radius for 250% primary cables and multiple feeds on the secondary
- All units have 200% neutral to allow customers to feed standard and non-linear panels
- 220 °C UL Listed insulation system
- Decreased weight for easier handling of units

Energy Policy Act

The Energy Policy Act of 2005 declared the following information regarding low voltage dry-type distribution transformers:

The efficiency of a low voltage dry-type distribution transformer manufactured on or after January 1, 2007 shall be the Class I Efficiency Levels for distribution transformers specified in Table 4-2 of the *Guide for Determining Energy Efficiency for Distribution Transformers,* published by the National Electrical Manufacturers Association® (NEMA® TP-1—2002).

Schneider Electric introduced the first TP1-compliant low voltage dry-type distribution transformers in December 1998. With the 2005 Energy Act, Schneider Electric is expanding its offering of TP-1-compliant products by launching a new line of TP-1 qualified transformers.

NATURAL RESOURCES CANADA

Natural Resources Canada declared the following information regarding dry-type transformers and the energy performance test procedure:

Dry-Type Transformers

The Office of Energy Efficiency (OEE) of Natural Resources Canada (NRCan) has amended Canada's Energy Efficiency Regulations to require Canadian dealers to comply with minimum energy performance standards for dry-type transformers imported or shipped inter-provincially for sale or lease in Canada.

These regulations and subsequent amendments were published in the *Canadian Gazette Part 1* in May 2006.

Energy Performance Test Procedure

The Canadian Standards Association standard CAN/CSA-C802.2-00, *Minimum Efficiency Values for Dry-Type Transformers*, is the test procedure for transformers under regulation.

The test procedure is the same as that in the National Electrical Manufacturers Association (NEMA TP-1—1996), *Guide for Determining Energy Efficiency for Distribution Transformers* and associated document TP-2—1998, *Standard Test Method for Measuring the Energy Consumption of Distribution Transformers*, in the United States.

General Information

Saving Money by Saving Energy

Minimum efficiencies have been established for each size of transformer, and extensive design, testing, and manufacturing time has been spent to ensure each transformer meets or exceeds these efficiencies.

Surveys show that typical loading of low voltage dry-type transformers on a 24-hour average basis is only 35% of full-load rating. At such loading levels, Square D® Lean Power™ Energy Efficient Transformers manufactured by Schneider Electric provide the best combination of optimal performance and superior quality.

The Square D Energy Efficient transformer offering includes all of the popular options including low temperature rise, 115 °C and 80 °C, and aluminum or copper windings. These transformers are part of a complete line of Lean Power products from Schneider Electric. Our power conservation, management and monitoring products, systems, and services help to reduce energy consumption in business and industry environments.

Table 1: Transformer Efficiency Levels

Single-Phase		Three-Phase	
kVA	**% Efficiency**	**kVA**	**% Efficiency**
15.0	97.7	15.0	97.0
25.0	98.0	30.0	97.5
37.5	98.2	45.0	97.7
50.0	98.3	75.0	98.0
75.0	98.5	112.5	98.2
100.0	98.6	150.0	98.3
167.0	98.7	225.0	98.5
250.0	98.8	300.0	98.6
333.0	98.9	500.0	98.7
—	—	750.0	98.8
—	—	1000.0	98.9

Temperature: 75 °C, 35% of full-load capacity

Three-phase energy efficient transformer (top cover, and all panels removed)

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Wire Range Part Numbers and Lug Kits

New primary and secondary mechanical lug kits from Schneider Electric can be coordinated with standard wire ranges for primary Square D® circuit breakers, safety switches, and panelboards. Refer to the Tables 23–27 for a listing of mechanical lug kits and wire ranges. Also, refer to catalog no. 7400CT0501 for information regarding lug kit selection and conductor and mounting hardware torque requirements.

Table 23: Primary Mechanical Lug Kits

Part Number	Lugs per Kit	Wire Range (Aluminum or Copper)	Cap Screws		Handles Same Standard Wire Range[1]	
			Quantity	Size	Square D Circuit Breaker Frame	Square D Safety Switch Amperage Rating
DASKP100	3	1/0–14 STR.[2]	3	1/4 x 1 in	F-Frame, G-Frame Powerpact® Q [3], Powerpact H	100 A
DASKP250	3	350 kcmil–6 STR.	3	1/4 x 1 in	Powerpact Q [4], Powerpact J	200 A
DASKP400	3	600 kcmil–4 STR. (2) 250 kcmil–1/0 STR.[5]	3	1/4 x 1 ¾ in	Q4-Frame, L-Frame (400 A)	400 A
DASKP600	6	600 kcmil–4 STR. (2) 250 kcmil–1/0 STR.[5]	6	1/4 x 1 ¾ in	L-Frame (600 A)	600 A
DASKP1000	9	600 kcmil–2 STR.	9	3/8 x 2 in	Powerpact M	800 A
DASKP1200	12	600 kcmil–2 STR.	12	3/8 x 2 in	Powerpact P	1200 A

1 Does not handle the full range of safety switches, but is acceptable since extra capacity is for voltage drop. Normally, this is not an issue because of the National Electrical Code (NEC) for primary protection distance on transformers.

2 STR. = Strand

3 Handles through 1/0, not 300 kcmil

4 Does not handle 8–14 STR

5 7400DASKP400 and 7400DASKP600 require two (2) wires per lug

Table 24: Secondary Mechanical Lug Kits

Part Number	Lugs per Kit	Wire Range (Aluminum or Copper)	Cap Screws		Handles Same Standard Wire Range [1]			Bonding Lugs	
			Qty.	Size	Square D Circuit Breaker Frame (Molded Case Switches)	Panelboards: -Main Lugs Main - Circuit Breaker	Safety Switch Amp. Rating	Lugs per Kit	Wire Range (Aluminum or Copper)
DASKS100	5	1/0–14 STR.[2]	6	1/4 x 1 in	F-Frame G-Frame Powerpact Q [3]	100 A NQOD 100 A I-Line®	100 A	1	2–14 STR.
DASKS250	5	350 kcmil–6 STR.	6	1/4 x 1 in	Q-Frame [4] Powerpact J	225 A NQOD 250 A NF 225 A I-Line	200 A	1	2–14 STR.
DASKS400	5	600 kcmil–4 STR. (2) 250 kcmil–1/0 STR.[5]	6	1/4 x 1 ¾ in	Q4-Frame L-Frame (400 A)	400 A NQOD [6] 400 A NF [6] 400 A I-Line	400 A	1	1/0–14 STR.
DASKS600	10	600 kcmil–2 STR.	11	1/4 x 1 ¾ in	L-Frame (600 A)	600 A NQOD (Main Lug Only) 600 A NF [6] 600 A I-Line	600 A	1	250 kcmil–6 STR.
DASKS1000	15	600 kcmil–2 STR.	16	3/8 x 2 in	Powerpact M	600 A NQOD (Main Breaker Only) 800 A NF 800 A I-Line	800 A	1	250 kcmil–6 STR.
DASKS1200	20	600 kcmil–2 STR.	21	3/8 x 2 in	Powerpact P	1200 A I-Line	1200 A	1	250 kcmil–6 STR.
DASKS2000	25	600 kcmil–2 STR.	26	3/8 x 2 in	—	—	—	1	350 kcmil–6 STR.

1 Does not handle the full range of safety switches, but is acceptable since extra capacity is for voltage drop. Normally, this is not an issue because of the NEC for primary protection distance on transformers.

2 STR. = Strand

3 Handles through 1/0 not 300 kcmil

4 Does not handle 8–14 STR

5 7400DASKS400 allows for two conductors (2) wire range supplied

6 (2) 250 kcmil not 300 kcmil (Main Lug) - (1) 600 kcmil not 750 kcmil (Main Lug)

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Item No.	Qty.	Catalog Number / Details

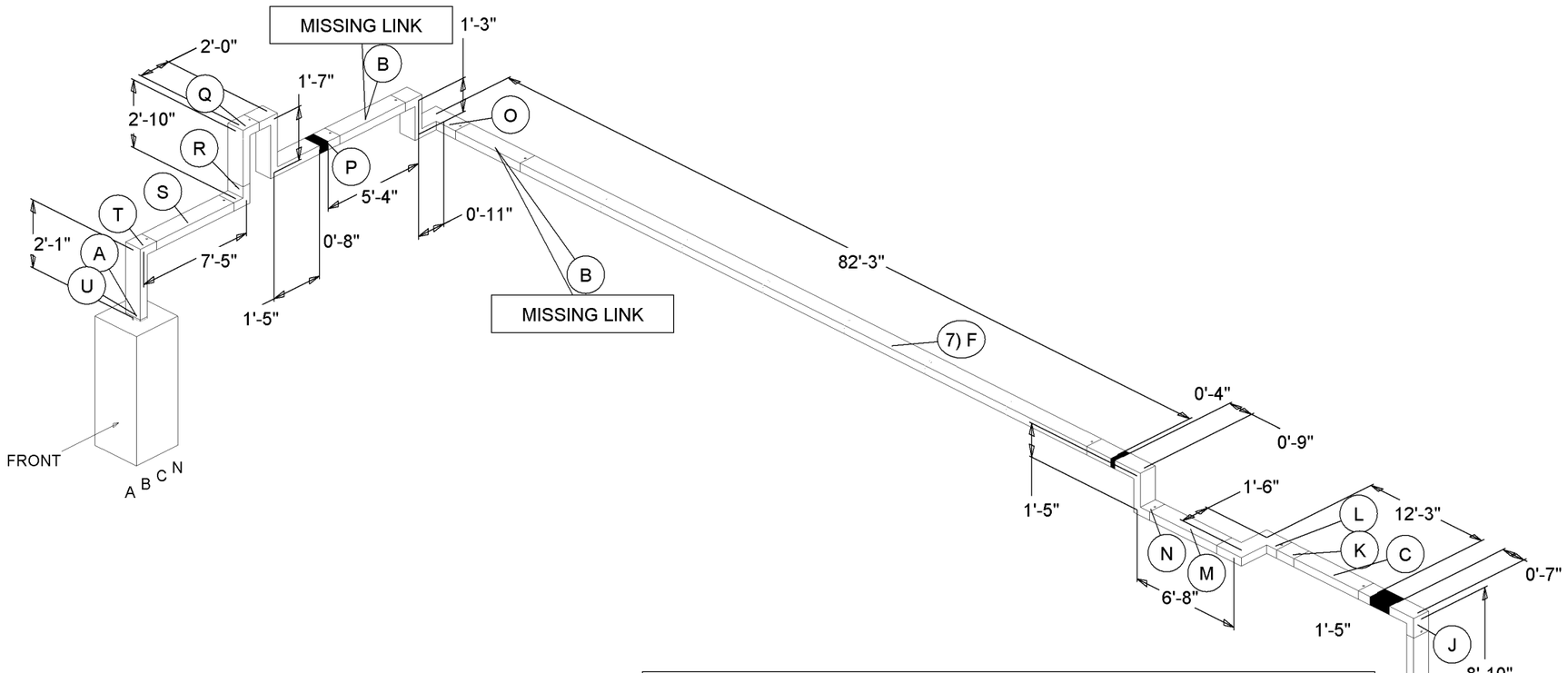
SERVICES

023-00	1	SPECIAL SERVICES
034-00	1	**Designation:** 225 SQDSERVICE1.. Startup Services - Straight Time CONSISTING OF Square D will perform the Scope of Work per Square D document number 0180IB0001 R5/01 "Square D Services Procedures for Startup and Commissioning of Electrical Equipment". Work will be performed during Straight Time (any scheduled 8 hour period between 06:00 and 18:00 hours Monday thru Friday) It is estimated that the service will be performed using one technician with all equipment and tests performed in immediate succession, unless otherwise specified. If equipment is not available or prepared to be tested in the number of days specified, additional travel and expense charges may apply. For each hour that SDS is delayed at the job site due to the unavailability of the equipment for any reason, a charge at the applicable T&M rates will be added to the invoice. Startup scope of work includes Square D technician supervision during energization of equipment. Quoted price is based on energization during final day of inspection and testing. If additional trip is required in order to provide energization supervision, additional travel, expense and labor charges will apply. To schedule date for start of work, call: 1-888-SQUARED Square D services must be contacted prior to 2 weeks from required date of service to avoid additional charges. Rev: 051207 Formal test report will be provided upon completion of the startup services. Jobsite Distance up to 100 miles Services will make up to 1 Trip to the Job Site General Info I-Line Busway Designation:BUSDUCT TRANSFORMER T-9 Quantity:1 Standard Inspection & Testing

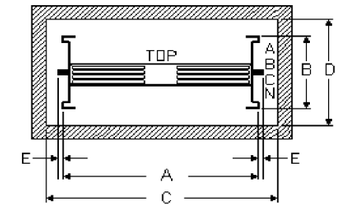
Item No.	Qty.	Catalog Number / Details
		I-Line Busway Designation:BUSDUCT TRANSFORMER T-10 Quantity:1 Standard Inspection & Testing
		I-Line Busway Designation:BUS TO CONTROL CENTER 1 Quantity:1 Standard Inspection & Testing
		I-Line Busway Designation:BUSRUN TO SBDC1 Quantity:1 Standard Inspection & Testing
		I-Line Busway Designation:BUSDUCT FEED TO SWB H3 Quantity:1 Standard Inspection & Testing
		MetalClad Swgr (leg) Designation:PRIMARY FOR CIRCUIT #9 Quantity:1 Standard Inspection & Testing
		MetalClad Swgr (leg) Designation:PRIMARY FOR CIRCUIT #10 Quantity:1 Standard Inspection & Testing
		Substation Transformer Designation:Trans. for Circuit #9 Quantity:1 Standard Inspection & Testing
		Substation Transformer Designation:Trans. for Circuit #10 Quantity:1 Standard Inspection & Testing
		Switchboards Designation:480 VOLT SWITCHBOARD Quantity:1 Standard Inspection & Testing
		Switchboards Designation:SWITCHBOARD H3 Quantity:1 Standard Inspection & Testing
		Switchboards Designation:CONTROL CENTER NO 1 SWB Quantity:1 Standard Inspection & Testing
		LV Motor Control Centers Designation:MCC #2 Quantity:1 Standard Inspection & Testing
		LV Motor Control Centers Designation:MCC #2 EM Quantity:1 Standard Inspection & Testing

Item No.	Qty.	Catalog Number / Details
		Special Pricing Description:START-UP Quantity:1 ID:DAVID FARMER

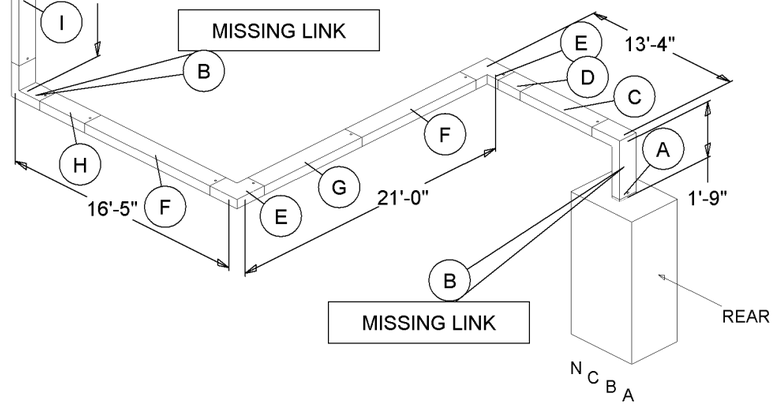
REV	DESCRIPTION	BY	DATE	REV	DESCRIPTION	BY	DATE	REV	DESCRIPTION	BY	DATE



2500 AMP COPPER
CROSS-SECTION AND
REQUIRED WALL OPENING



A = 12.72 in. / 323 mm
B = 5.88 in. / 149 mm
C = 15.00 in. / 381 mm
D = 8.00 in. / 203 mm
E = .25 in / 6 mm *
* (E applies to outdoor and fittings only)



COMPONENT INFORMATION

ITEM	QTY	CATALOG NUMBER	DESCRIPTION
A	2	CF2525GGCP	QF CLOSING PLATE
B	4	MISSING LINK	EDGEWISE ELBOW
C	2	CF2525GG8ST	STRAIGHT
D	1	CF2525GG30ST	STRAIGHT
E	2	CF2525GG30LFS15B15	FLATWISE ELBOW
F	9	CF2525GG10ST	STRAIGHT
G	1	CF2525GG102ST	STRAIGHT
H	1	CF2525GG43ST	STRAIGHT
I	1	CF2525GG76ST	STRAIGHT
J	1	CF2525GG45LES34B11	EDGEWISE ELBOW
K	1	CF2525GG26ST	STRAIGHT
L	1	CF2525GG48OFS15O18B15	FLATWISE OFFSET ELBOW
M	1	CF2525GG54ST	STRAIGHT
N	1	CF2525GG69OES41O17B11	EDGEWISE OFFSET ELBOW
O	1	CF2525GG60LFLE	SPECIAL TRIPLE ELBOW
P	1	CF2525GG67OES13O19B35	EDGEWISE OFFSET ELBOW
Q	1	CF2525GG34LES23B11	EDGEWISE ELBOW
R	1	CF2525GGLEM11	EDGEWISE ELBOW
S	1	CF2525GG67ST	STRAIGHT
T	1	CF2525GG35LES24B11	EDGEWISE ELBOW
U	1	CF2525GGJP	JOINT PACK
V	25	HF13F	HANGER
W	6	ACF13WF	WALL FLANGE
X	2	AT2	ASSEMBLY TOOL

GENERAL NOTES

PRODUCT DESCRIPTION AND RATINGS

EQUIPMENT RATING:
480Y/277 VOLTS - 3 PHASE, 4 WIRE - 50% COPPER GROUND
BUS SYSTEM DATA:
2500 AMPERE COPPER
100000 AMPERE SHORT CIRCUIT RATING (FEEDER)
ENCLOSURE DATA:
ANSI 49 PAINT

PRODUCT INFORMATION

- DIMENSIONS TO CENTERLINE OF BUSWAY JOINT
- DOT DESIGNATES BOLT END OF BUSWAY LENGTHS AND FITTINGS
- OVERALL LENGTH IS ADJUSTABLE ± 1/8" AT EACH JOINT
- COMPONENTS WILL BE BUILT IN INCREMENTS OF WHOLE INCHES

STORAGE, INSTALLATION, AND MAINTENANCE

REFER TO NEMA STANDARDS PUBLICATION GUIDE BU 1.1-2005 FOR PRACTICAL INFORMATION CONTAINING INSTRUCTIONS FOR THE PROPER HANDLING, INSTALLATION, OPERATION AND MAINTENANCE OF BUSWAY AND ASSOCIATED FITTINGS RATED 600 VOLTS OR LESS. ONE COPY OF THE NEMA PUBLICATION WILL BE SUPPLIED WITH THE BUSWAY ISOMETRIC DRAWING(S).

JOB NAME: STATE OF KANSAS DOCKING BUILDING	EQUIPMENT DESIGNATION: CONTROL CENTER 1 BUSWAY
JOB LOCATION: TOPEKA, KS	EQUIPMENT TYPE: I LINE II BUSWAY
DRAWN BY: JLJ	DRAWING TYPE: ISOMETRIC
ENGR: JLJ	SQUARE D Schneider Electric
DATE: 10/22/12	
DRAWING STATUS: RECORD	DWG #: 29528680-028-01 PG: 1 OF: 1 REV: 2

JCSBC
2-2-16
Att.9Db.--189

REV	DESCRIPTION	BY	DATE	REV	DESCRIPTION	BY	DATE	REV	DESCRIPTION	BY	DATE

GENERAL NOTES

PRODUCT DESCRIPTION AND RATINGS

EQUIPMENT RATING:
480Y/277 VOLTS - 3 PHASE, 4 WIRE - 50% GROUND
BUS SYSTEM DATA:
2500 AMPERE COPPER
100000 AMPERE SHORT CIRCUIT RATING (FEEDER)
ENCLOSURE DATA:
ANSI 49 PAINT

PRODUCT INFORMATION

- DIMENSIONS TO CENTERLINE OF BUSWAY JOINT
- DOT DESIGNATES BOLT END OF BUSWAY LENGTHS AND FITTINGS
- OVERALL LENGTH IS ADJUSTABLE ± 1/8" AT EACH JOINT
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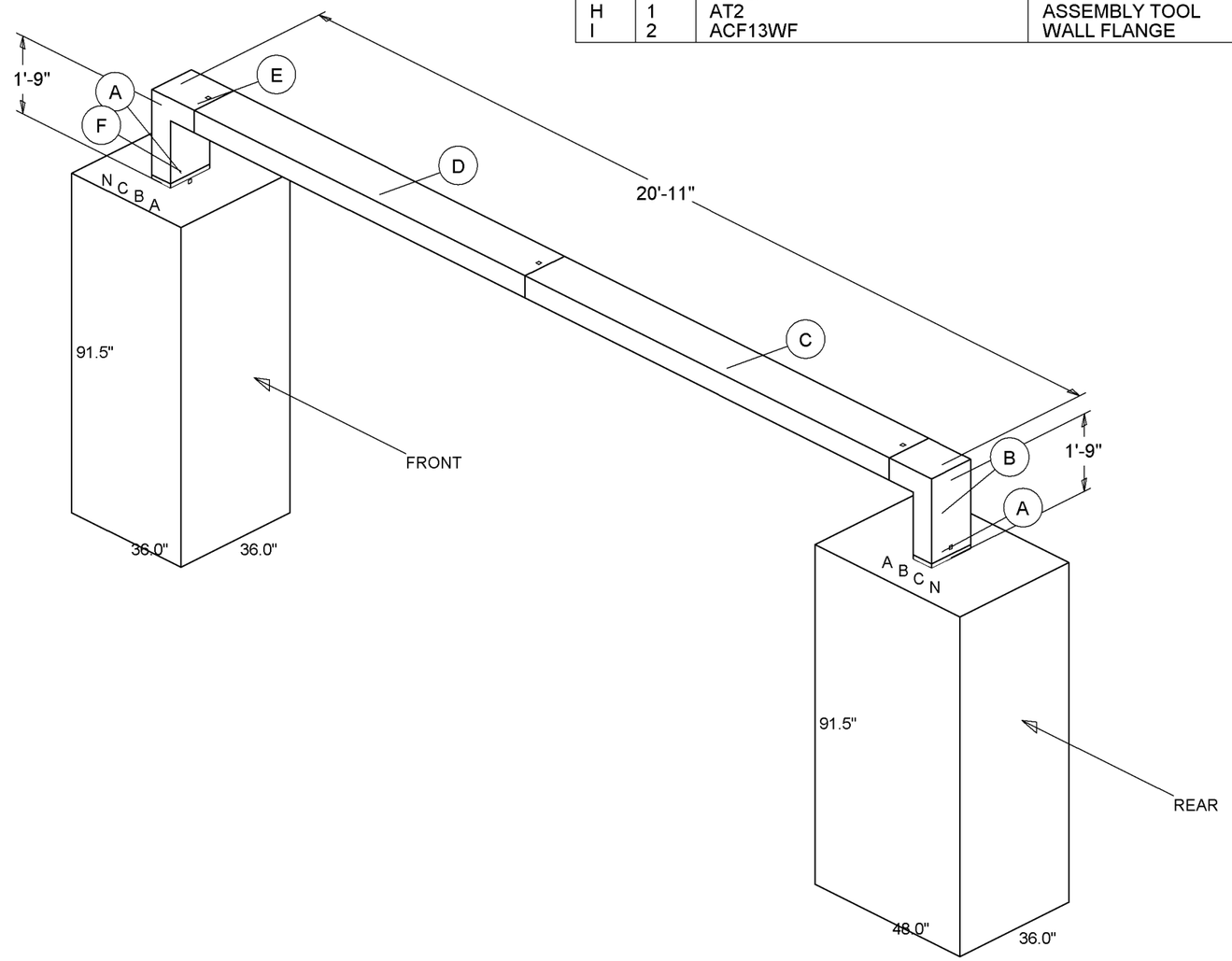
STORAGE, INSTALLATION, AND MAINTENANCE

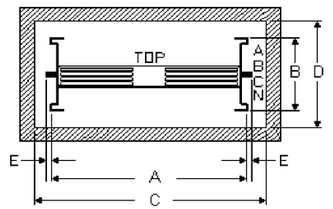
REFER TO NEMA STANDARDS PUBLICATION GUIDE BU 1.1-2005 FOR PRACTICAL INFORMATION CONTAINING INSTRUCTIONS FOR THE PROPER HANDLING, INSTALLATION, OPERATION AND MAINTENANCE OF BUSWAY AND ASSOCIATED FITTINGS RATED 600 VOLTS OR LESS. ONE COPY OF THE NEMA PUBLICATION WILL BE SUPPLIED WITH THE BUSWAY ISOMETRIC DRAWING(S).

COMPONENT INFORMATION

ITEM	QTY	CATALOG NUMBER	DESCRIPTION
A	2	CF2525GGCP	QF CLOSING PLATE
B	1	CF2525GG31LES11B20	EDGEWISE ELBOW
C	1	CF2525GG10ST	STRAIGHT
D	1	CF2525GG109ST	STRAIGHT
E	1	CF2525GG31LES20B11	EDGEWISE ELBOW
F	1	CF2525GGJP	JOINT PACK
G	3	HF13F	HANGER
H	1	AT2	ASSEMBLY TOOL
I	2	ACF13WF	WALL FLANGE



2500 AMP COPPER
CROSS-SECTION AND
REQUIRED WALL OPENING



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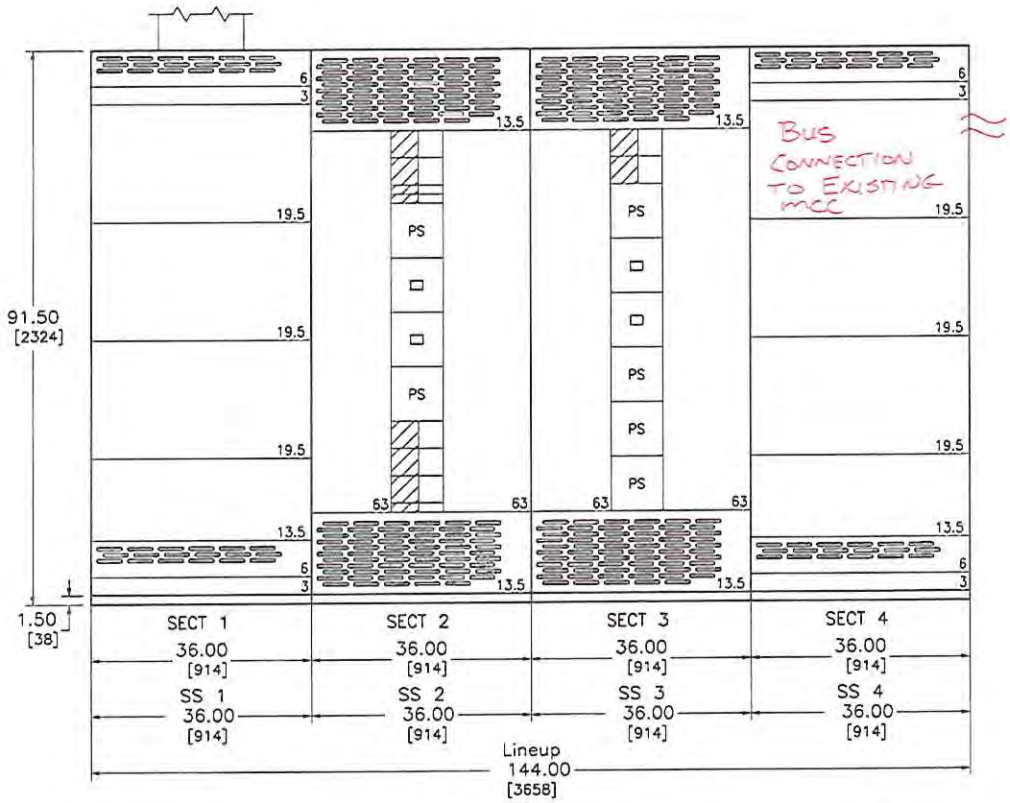
C = 15.00 in. / 381 mm
D = 8.00 in. / 203 mm
E = .25 in / 6 mm *
* (E applies to outdoor and fittings only)

JOB NAME: STATE OF KANSAS DOCKING BUILDING	EQUIPMENT DESIGNATION: H3 BUSWAY
JOB LOCATION: TOPEKA, KS	EQUIPMENT TYPE: I LINE II BUSWAY
DRAWN BY: JLJ	DRAWING TYPE: ISOMETRIC
ENGR: JLJ	SQUARE D Schneider Electric
DATE: 10/22/12	
DRAWING STATUS: RECORD	DWG #: 29528680-031-01 PG: 1 OF: 1 REV: 2

JCSBC
2-2-16
Att.9Db.--190

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

T-bus 19.5 in | T-bus 19.5 in | T-bus 19.5 in | T-bus 19.5 in



ENGLISH DIMENSIONS: INCHES

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION VIEW
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG#	F29528680-01

PG 1 OF 3 | REV -

REV	DESCRIPTION	BY	DATE
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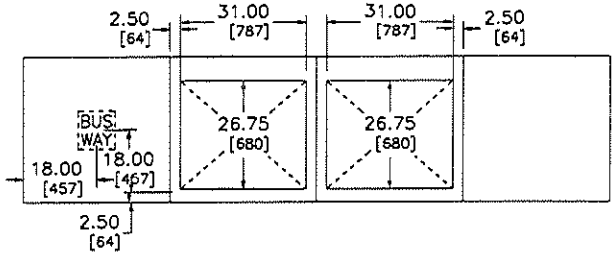
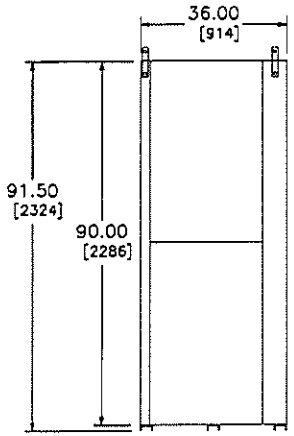
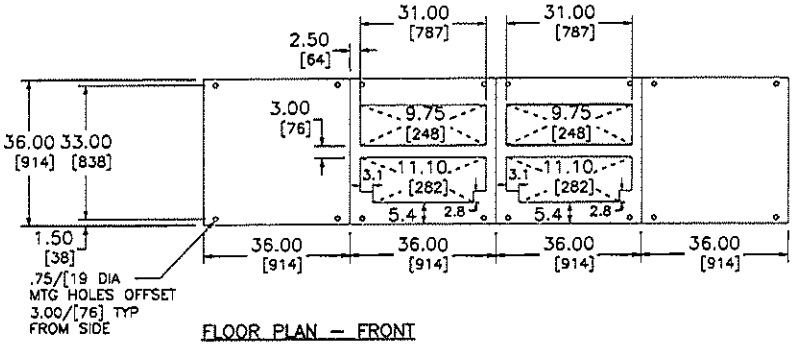


TOP VIEW – FRONT



LEFT SIDE VIEW



FLOOR PLAN – FRONT

ENGLISH DIMENSIONS: INCHES

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(02C)	DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG#	F29528680-01

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

SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

480Y/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 65kA RMS
Incoming Section 1 Busway Through the Top Left of Lineup

Bus System Data

2500A Silver Plated Copper Main Bus
(4) .25x2.00 IN/6x51 mm Cu Bus Bar Per Phase/Neutral
(1) .25x1.75 IN/6x44 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers & Lifting Assemblies

Estimated Shipping Weight

Shipping Split 1 660.00 lbs / 299.38 kgs
Shipping Split 2 1020.00 lbs / 462.67 kgs
Shipping Split 3 1100.00 lbs / 498.96 kgs
Shipping Split 4 660.00 lbs / 299.38 kgs
Complete Lineup 3440.00 lbs / 1560.38 kgs

Code Standards

U.L. Deadfront

Rating Nameplates

ST1- Deadfront- Section Bus 2500A
ST2- Deadfront- Section Bus 2500A
ST3- Deadfront- Section Bus 2500A
ST4- Deadfront- Section Bus 2500A

PRODUCT INFORMATION

Wiring

All wiring to be Machine Tool Wire type

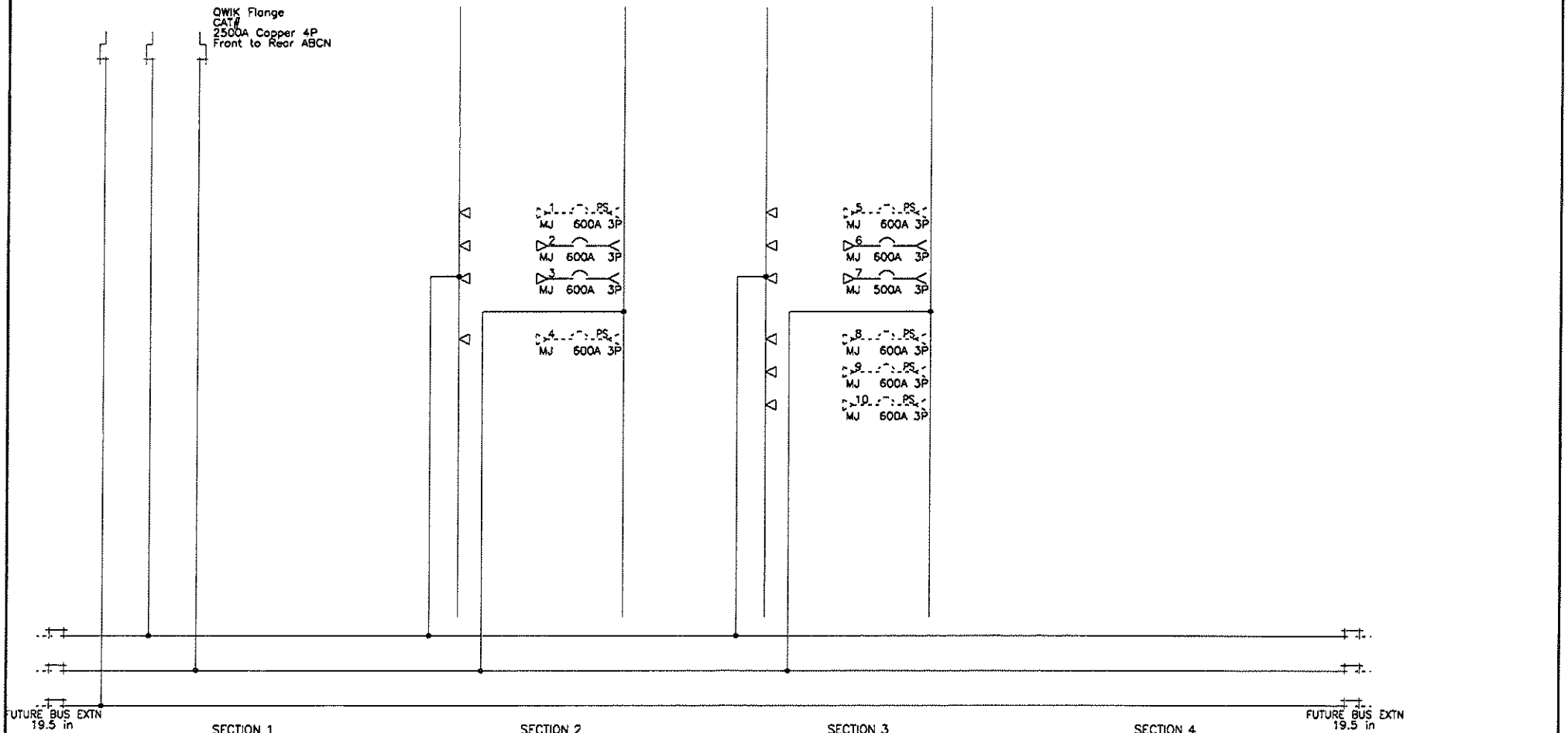
Instruction Bulletins

Reference 80043-055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

Product Accessories/Options

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	GENERAL NOTES
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG#	F29528680-01 PG 3 OF 3 REV -

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



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE	DWG#	029528680-01

PG 1 OF 2 | REV -

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

POWER STYLE QED-2 SWITCHBOARD

SECT NO	CKT NO	GMD HEIGHT	DEVICE/FRAME RATING	TRIP AMP	FUSE/ TRIP	#P	DESIGNATION	N/P	LUG INFORMATION				ACCESSORIES
									QTY	PHASE WIRE RANGE	QTY	NEUT. WIRE RANGE	
1	--	--	Incoming Connection	--	--	--	-	--	--	Busway	--	--	
2	1	9 in	MJ (PS)	(600A)	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
2	2	9 in	MJ	600A	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
2	3	9 in	MJ	600A	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
2	4	9 in	MJ (PS)	(600A)	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
3	5	9 in	MJ (PS)	(600A)	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
3	6	9 in	MJ	600A	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
3	7	9 in	MJ	500A	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
3	8	9 in	MJ (PS)	(600A)	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
3	9	9 in	MJ (PS)	(600A)	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	
3	10	9 in	MJ (PS)	(600A)	--	3P		No	3	3/0 - 500 kcmil	2	4/0 - 500kcmil	

LEGEND
No Accessories

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	SCHEDULE
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE	DWG#	029528680-01

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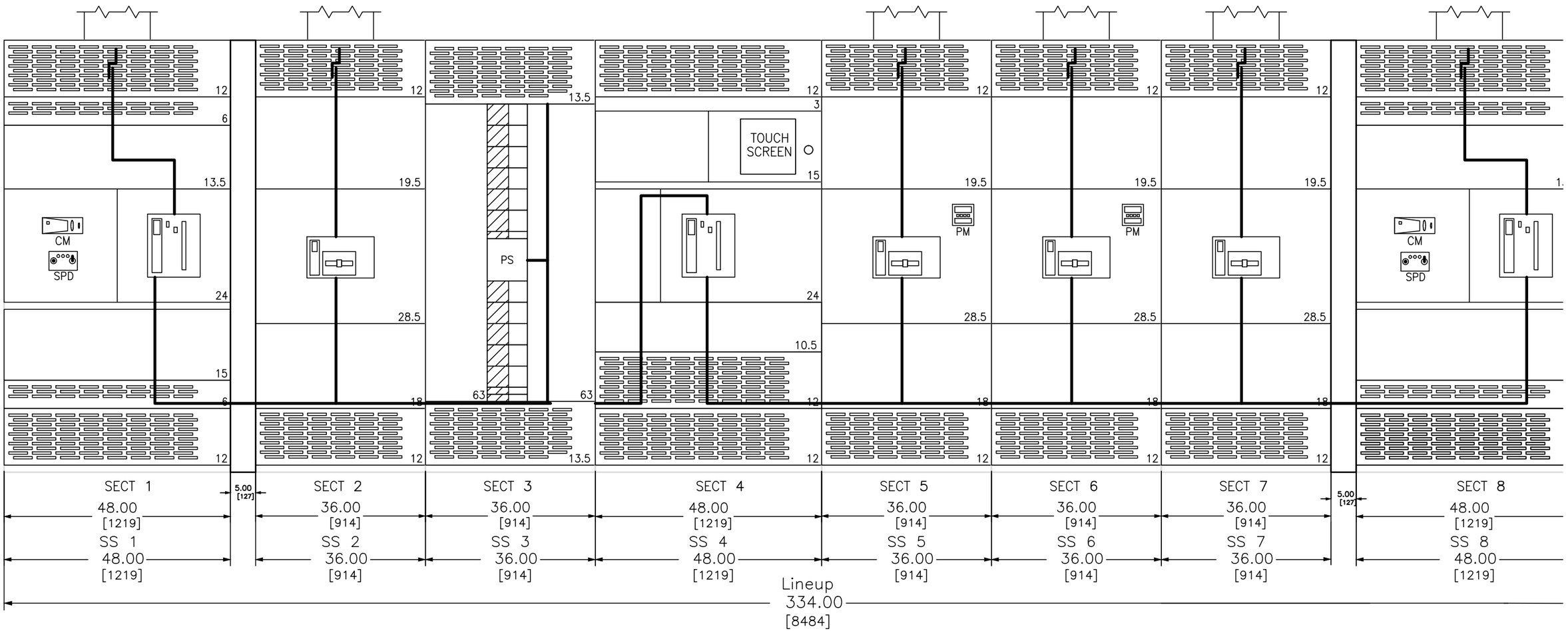

DUAL DIMENSIONS: INCHES
MILLIMETER

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**480 VOLT SWITCHBOARD**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	MATTHEW DOLLIVER	DRAWING TYPE:	ELEVATION VIEW
ENGR:	MTD		
DATE:	SEPTEMBER 20, 2012		
DRAWING STATUS:	RECORD	DWG#	**F29528680-007-01**

JCSBC
2-2-16
Att.9Db.--196

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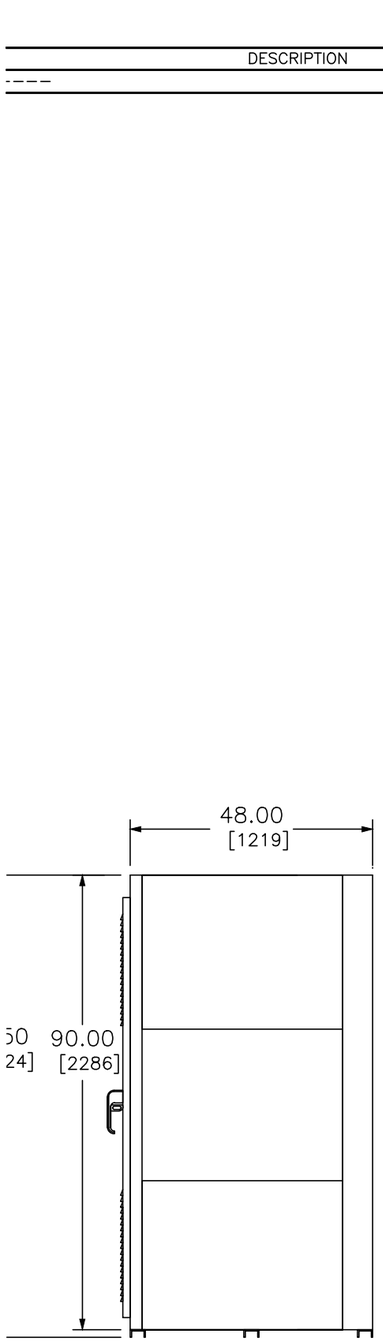
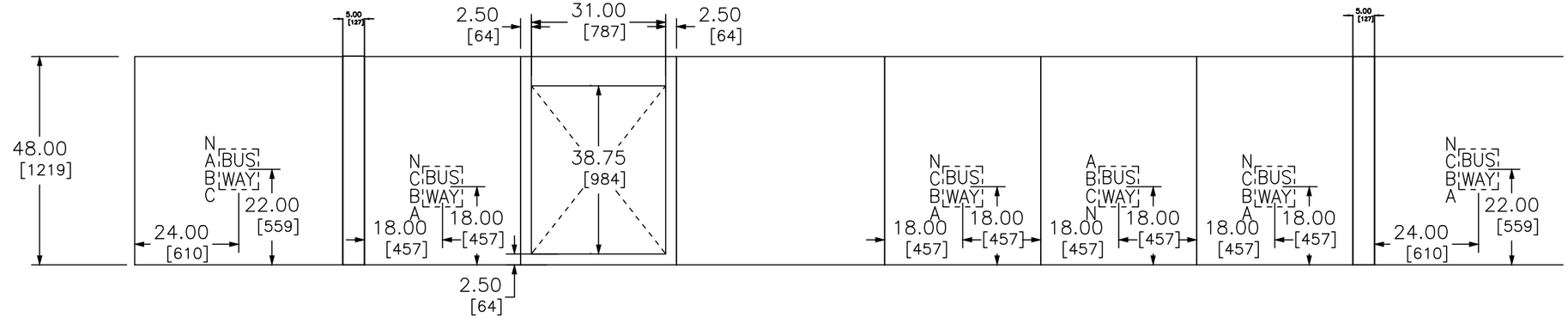
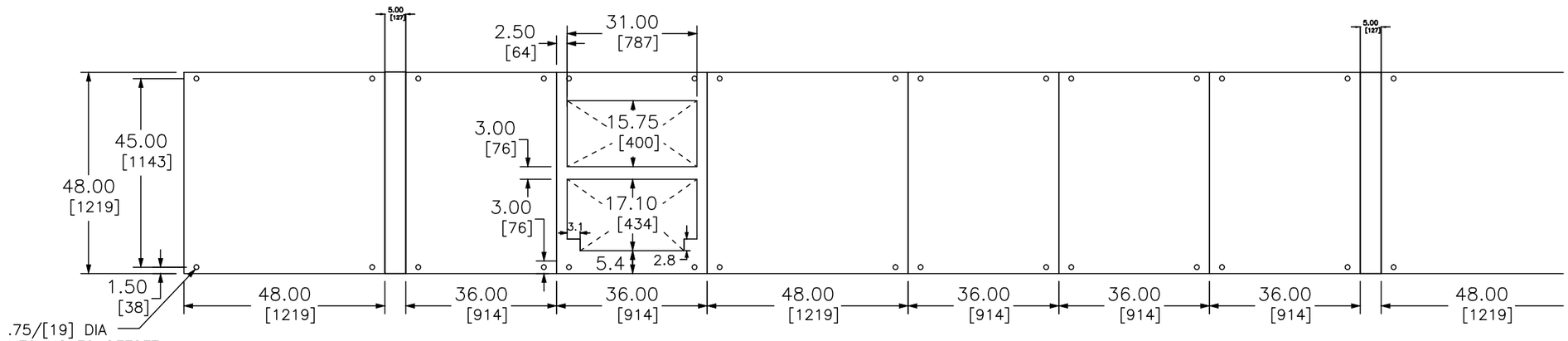


LEFT SIDE VIEW



TOP VIEW – FRONT



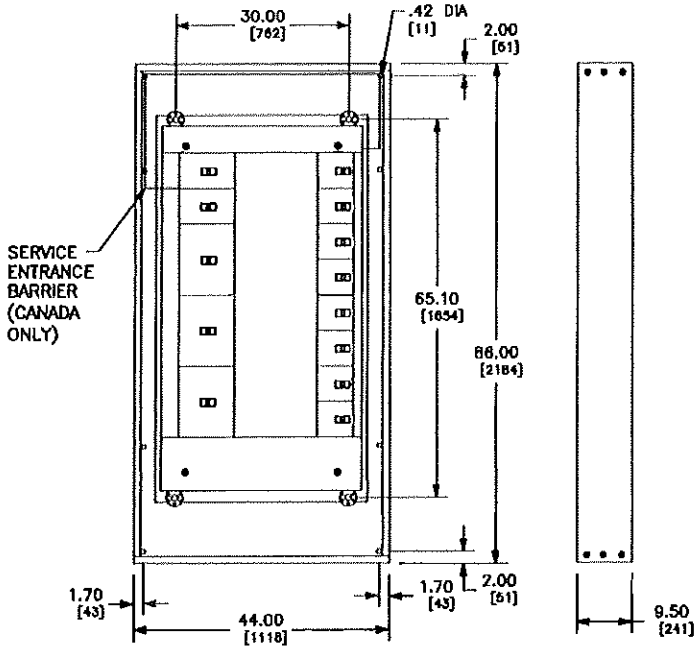
DUAL DIMENSIONS: INCHES
MILLIMETER

FLOOR PLAN – FRONT

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	480 VOLT SWITCHBOARD
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	MATTHEW DOLLIVER	DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
ENGR:	MTD		
DATE:	SEPTEMBER 20, 2012		
DRAWING STATUS:	RECORD	DWG# F29528680-007-01	PG 2 OF 3

JCSBC
2-2-16
Att.9Db.--197

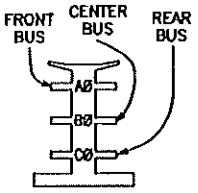
REV	DESCRIPTION	BY	DATE
–	----	--	--/--/--



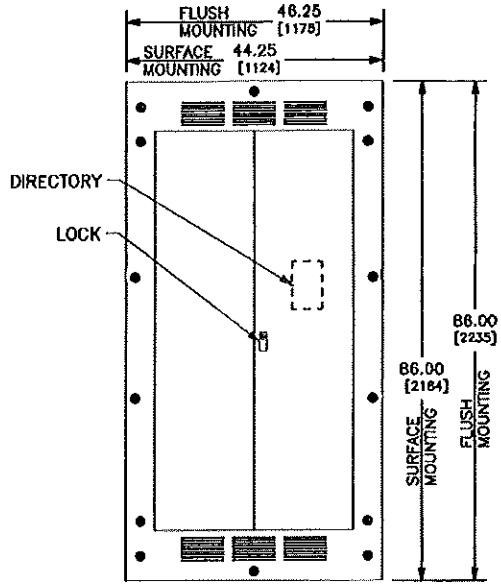
TYPICAL BOX WITH INTERIOR

TYPICAL BOX SIDE VIEW

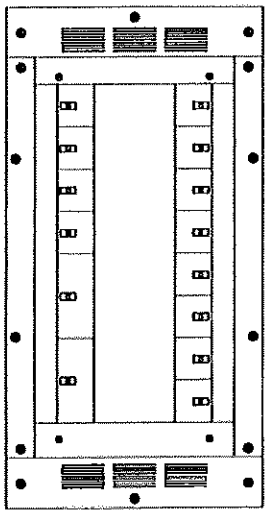
TYPICAL MOUNTING OF DG, DJ, DL, FA, FC, FD, FG, FH, FI, FJ, FK, FY, HD, HG, HJ, HL, JD, JG, JJ, JL, KA, KC, KH, KI, LA, LC, LE, LH, LI, LX, LXI, MA, ME, MH, MG, MJ, MX, NA, NC, NE, NX, PG, PJ, PK, PL, Q2, Q2H, Q2-H, QB, QD, QG, QJ, QO, RG, RJ, RK OR RL BREAKERS



BRANCH CONNECTION PHASING IS DETERMINED BY CIRCUIT BREAKER SELECTION



TYPICAL FRONT



TYPICAL FRONT
(4 PIECE TRIM – NO DOOR)

I-LINE HCR-U PANELBOARDS MEET THE APPLICABLE REQUIREMENTS OF UL AND CSA.

BOX: CODE GAUGE GALVANIZED STEEL WITH REMOVABLE BLANK ENDWALLS.

FRONT: CODE GAUGE STEEL, GRAY BAKED ENAMEL FINISH ELECTRODEPOSITED OVER CLEANED PHOSPHATIZED STEEL.

LOCK: (COVERS WITH DOORS) HAVE 3 POINT ESCUTCHEON FLUSH LOCK WITH NSR-251 KEY.

FOR NEMA TYPE 3R ENCLOSURE, PLEASE REFER TO PBA 416.

* 15.00/[381] OF MOUNTING SPACE IS TAKEN UP BY THE BACK FED MAIN PLUG-ON LUG KIT FOR 100% RATED, OR NA, NC, NE, NX, RG, RJ, OR RL MAIN CIRCUIT BREAKER LEAVING 93.00/[2362] OF BRANCH CIRCUIT BREAKER MOUNTING SPACE.

* 9.00/[229] OF MOUNTING SPACE IS TAKEN UP BY THE BACK FED PLUG-ON LUG KIT FOR 80% RATED, OR MG, MJ, PG, PJ, OR PL MAIN CIRCUIT BREAKER LEAVING 99.00/[2514] OF BRANCH CIRCUIT BREAKER MOUNTING SPACE.

REFER TO DP CATALOG CLASS 2110 FOR ADDITIONAL INFORMATION

DUAL DIMENSIONS: INCHES / MILLIMETERS

MAXIMUM MLO OR BF-MCB AMPERE RATING	BRANCH BREAKER MOUNTING SPACE (INCHES)
1200	108 *

JOB NAME:	---	EQUIPMENT DESIGNATION:	--- L.C.U.S.-1
JOB LOCATION:	---	EQUIPMENT TYPE:	I-LINE HCR-U MLO OR BF-MCB
DRAWN BY:	---	DRAWING TYPE:	---
ENGR:	---		
DATE:	MAY 2010		
DRAWING STATUS:	---	DWG# PBA414	PG 01 OF 01 REV –

SQUARE D
Schneider Electric

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

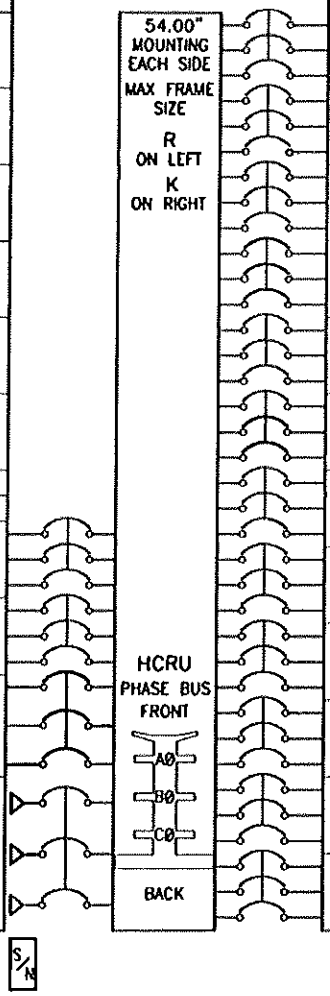
PHYSICAL DATA CONTINUED

ALUMINUM GROUND BAR
MAINS AND FEEDERS
MECHANICALLY RESTRAINED
Standard Nameplate
COLOR: White Surface / Block Letters

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	LCUS # 1
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			SQUARE D by Schneider Electric
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 2 OF 2 REV -

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

CKT NO	ACCESSORIES	TYPE	RATING AMP/P	PHASE BUS CONN
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	1.50" BLANK			
	1.50" BLANK			
1		HG	50/3	ABC
3	ST 120Vac	HG	50/3	ABC
5		LH	300/3	ABC
	BRANCH MOUNTED MAIN	PG	14 1200/3	ABC



PHASE BUS CONN	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
ABC	50/3	HG	ST 120Vac	2
ABC	90/3	HG	ST 120Vac	4
ABC	90/3	HG	ST 120Vac	6
ABC	90/3	HG	ST 120Vac	8
ABC	100/3	QG		10
ABC	225/3	QG		12
ABC	225/3	QG		14
ABC	225/3	QG		16
ABC	225/3	QG		18
ABC	225/3	QG		20
ABC	225/3	QG		22
ABC	250/3	JG		24

S/N

PHYSICAL DATA

UL Service Entrance
ENCLOSURE Type 1
Four-Piece Surface
FRONT CAT#: HCR86TS
BOX CAT#: HC4486DB
DIMENSIONS:
86"H x 44"W x 9.5"D
WIRE BENDING SPACE:
TOP - 12.4
BOTTOM - 16.3
LEFT SIDE - 12.5
RIGHT SIDE - 5.2
PBA: 414
BUSSING: Copper
Tin Plated
OPTIONAL FEATURES:
Aluminum Solid Neutral
(Continued on next page.)

ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Ampacity: 1200A
65kA SYMS. SCCR
MAIN: MAIN BREAKER PG 1200A
ACC:
Bottom FEED
65kA AIR
INCOMING CONDUCTORS(S) PER NEC:
(4) 3/0 - 500kcmil
BRANCH MOUNTING TYPE: PLUG-ON

----------BRANCH SUMMATION----------

1 - 50A/3P HG
1 - 300A/3P LH
1 - 100A/3P QG
1 - 250A/3P JG
2 - 50A/3P HG ST
3 - 90A/3P HG ST
6 - 225A/3P QG

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	LCUS # 1
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# 029528680-01	PG 1 OF 2 REV -

JCSBC
2-2-16
Att.9Db.--200

REV	DESCRIPTION	BY	DATE
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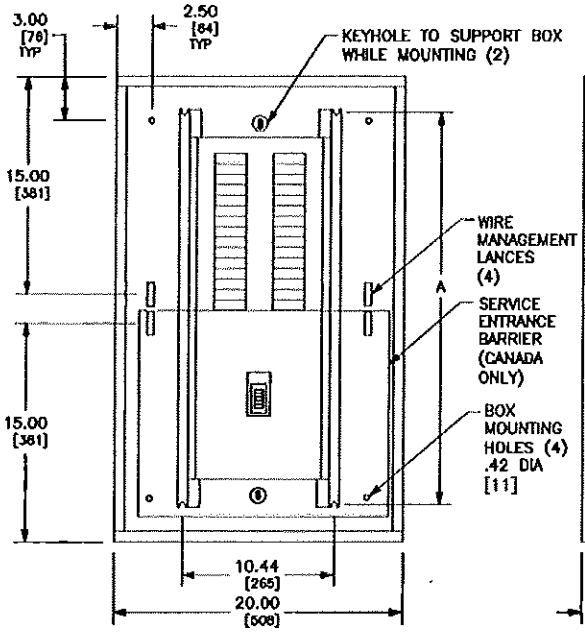
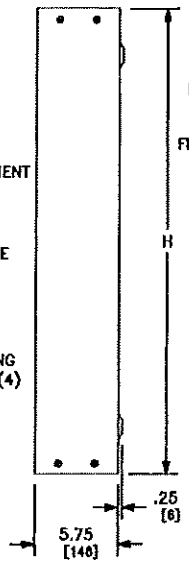
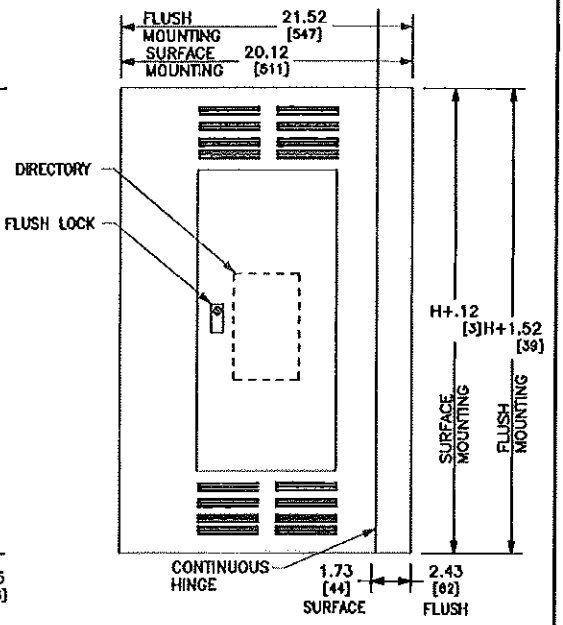


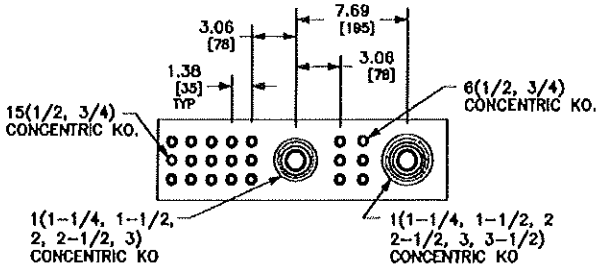
TYPICAL BOX WITH INTERIOR



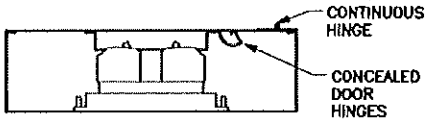
TYPICAL BOX SIDE VIEW



TYPICAL FRONT



ENDWALL WITH KNOCKOUTS
(OTHER ENDWALL IS BLANK)



TYPICAL MOUNTING OF QO, QOB BREAKERS

REFER TO DP CATALOG CLASS 1640 FOR ADDITIONAL INFORMATION

FOR TYPE 3R APPLICATIONS USE IN CONJUNCTION WITH PBA711

NQ PANELBOARDS MEET THE APPLICABLE REQUIREMENTS OF UL AND CSA.

BOX: CODE GAUGE GALVANIZED STEEL. ONE ENDWALL IS BLANK, THE OTHER HAS KNOCKOUTS.

FRONT: GRAY BAKED ENAMEL FINISH ELECTRODEPOSITED OVER CLEANED PHOSPHATIZED STEEL. FRONT IS VENTED AND MOUNTS TO ENCLOSURE WITH SCREWS. DOOR HINGES ARE CONCEALED.

LOCK: FLUSH LOCK WITH BRUSHED STAINLESS STEEL ESCUTCHEON. NSR-251 KEY.

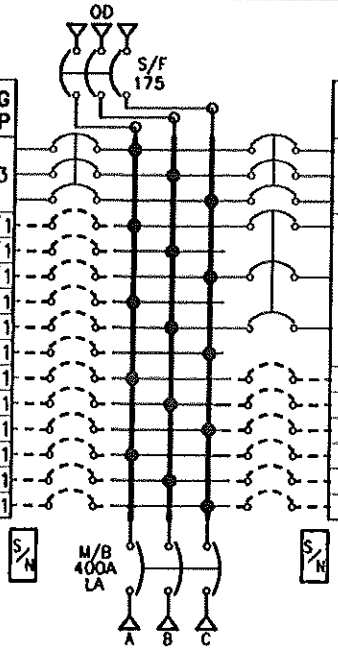
DUAL DIMENSIONS: INCHES / MILLIMETERS

MAXIMUM LA/LH MAIN BREAKER AMPERE RATING	MAXIMUM NUMBER OF CIRCUITS	H IN	H MM	A IN	A MM
400A	30 & 42	62.00	1575	57.00	1448
	54	68.00	1727	63.00	1600
	72	74.00	1880	69.00	1753
	84	80.00	2032	75.00	1905
400A FEED THRU LUGS	30 & 42	68.00	1727	63.00	1600
	54	74.00	1880	69.00	1753
	72	80.00	2032	75.00	1905
	84	80.00	2032	75.00	1905
400A WITH SUB FEED BREAKERS	30 & 42	88.00	2184	81.00	2057

JOB NAME:	---	EQUIPMENT DESIGNATION:	--- PANEL #3
JOB LOCATION:	---	EQUIPMENT TYPE:	NQ MCB 400A TYPE 1 HINGED
DRAWN BY:	---	DRAWING TYPE:	---
ENGR:	---		SQUARE D Schneider Electric
DATE:	MAY 2010		
DRAWING STATUS:	---	DWG# PBA710HR	PG 01 OF 01 REV —

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

CKT NO	ACCESSORIES	TYPE	RATING AMP/P
1		QOB-VH	50/3
3			
5			
7	PREPARED SPACE	QOB-VH	20/1
9	PREPARED SPACE	QOB-VH	20/1
11	PREPARED SPACE	QOB-VH	20/1
13	PREPARED SPACE	QOB-VH	20/1
15	PREPARED SPACE	QOB-VH	20/1
17	PREPARED SPACE	QOB-VH	20/1
19	PREPARED SPACE	QOB-VH	20/1
21	PREPARED SPACE	QOB-VH	20/1
23	PREPARED SPACE	QOB-VH	20/1
25	PREPARED SPACE	QOB-VH	20/1
27	PREPARED SPACE	QOB-VH	20/1
29	PREPARED SPACE	QOB-VH	20/1



RATING AMP/P	TYPE	ACCESSORIES	CKT NO
60/3	QOB-VH		2
			4
			6
150/3	QOB-VH		8
			10
			12
			14
			16
			18
20/1	QOB-VH	PREPARED SPACE	20
20/1	QOB-VH	PREPARED SPACE	22
20/1	QOB-VH	PREPARED SPACE	24
20/1	QOB-VH	PREPARED SPACE	26
20/1	QOB-VH	PREPARED SPACE	28
20/1	QOB-VH	PREPARED SPACE	30

PHYSICAL DATA

UL Service Entrance
ENCLOSURE Type 1
Surfoce – Hinged
FRONT CAT#: NC86VSHR
BOX CAT#: MH86
DIMENSIONS:
86"H x 20"W x 5.75"D
WIRE BENDING SPACE:
TOP – 11
BOTTOM – 15.43
SIDE – 5.9
PBA: 710HR
BUSSING: Copper
Silver/Tin Plated
OPTIONAL FEATURES:
BRANCH USER PLACEMENT
Aluminum Solid Neutrol
ALUMINUM GROUND BAR
Standard Nameplate
COLOR: White Surfoce / Black Letters

ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Ampacity: 400A
22kA SYMS. SCCR
MAIN: MAIN BREAKER LA 400A
ACC:
Bottom FEED
42kA AIR
INCOMING CONDUCTORS(S) PER NEC:
#1 – 600,(2)#1 – 250 kcml
BRANCH MOUNTING TYPE: BOLT-ON

----------BRANCH SUMMATION----------

1 – 175A/3P QD
18 – 20A/1P-PS QOB-VH
1 – 150A/3P QOB-VH
1 – 50A/3P QOB-VH
1 – 60A/3P QOB-VH

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	PANEL # 3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	NQ (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# 029528680-01	PG 1 OF 1 REV –

JCSBC
2-2-16
Att.9Db.--202

REV	DESCRIPTION	BY	DATE
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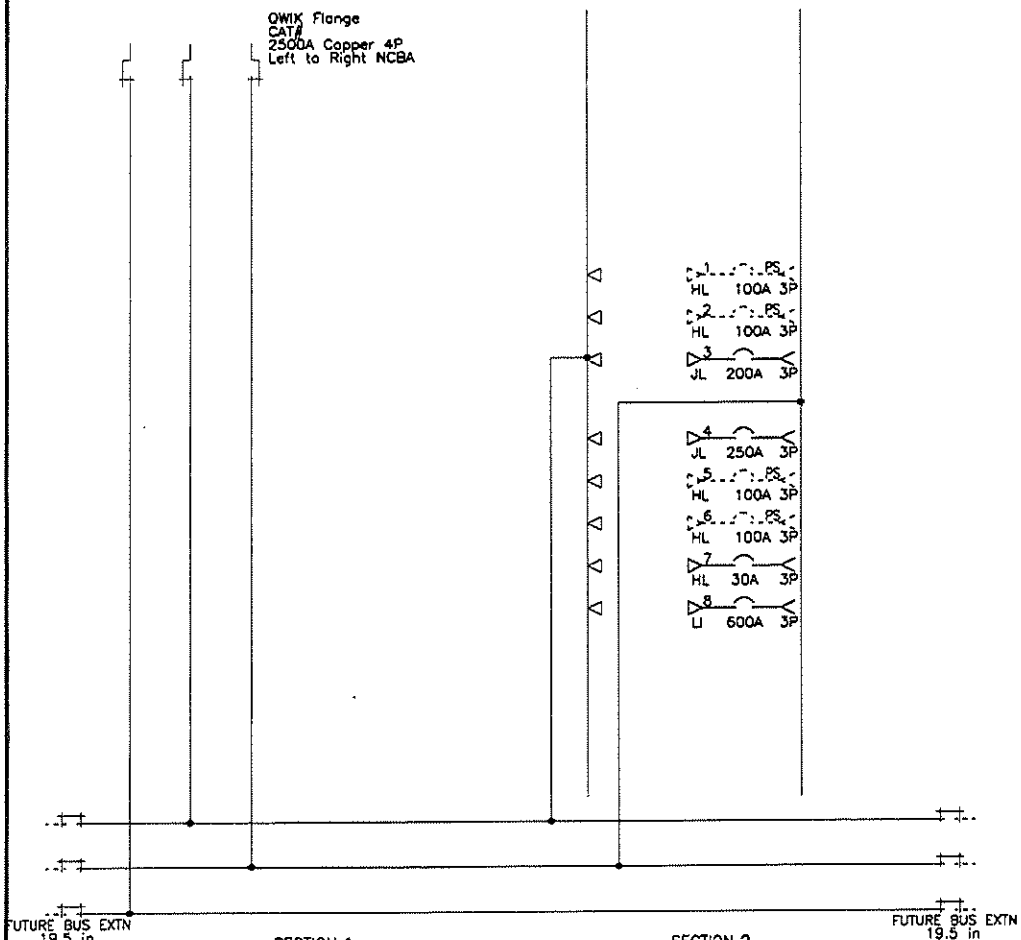


JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 1 OF 2 REV -

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

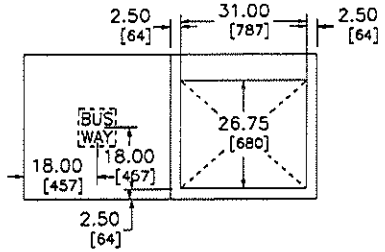
POWER STYLE QED-2 SWITCHBOARD

SECT NO	CKT NO	GMD HEIGHT	DEVICE/FRAME RATING	TRIP AMP	FUSE/ TRIP	#P	DESIGNATION	N/P	LUG INFORMATION				ACCESSORIES
									QTY	PHASE WIRE RANGE	QTY	NEUT. WIRE RANGE	
1	--	--	Incoming Connection	--	--	--	--	--	--	Busway	--	--	
2	1	4.5 in	HL (PS)	(100A)	--	3P		No	1	#14 - 3/0 AWG	1	#14 - 1/0 AWG	
2	2	4.5 in	HL (PS)	(100A)	--	3P		No	1	#14 - 3/0 AWG	1	#14 - 1/0 AWG	
2	3	4.5 in	JL	200A	--	3P		No	1	3/0 - 350 kcmil	1	#6 - 350 kcmil	
2	4	4.5 in	JL	250A	--	3P		No	1	3/0 - 350 kcmil	1	#6 - 350 kcmil	
2	5	4.5 in	HL (PS)	(100A)	--	3P		No	1	#14 - 3/0 AWG	1	#14 - 1/0 AWG	
2	6	4.5 in	HL (PS)	(100A)	--	3P		No	1	#14 - 3/0 AWG	1	#14 - 1/0 AWG	
2	7	4.5 in	HL	30A	--	3P		No	1	#14 - 3/0 AWG	1	#14 - 1/0 AWG	
2	8	7.5 in	LI	600A	--	3P		No	2	4/0 - 500kcmil	2	250 - 600 kcmil	

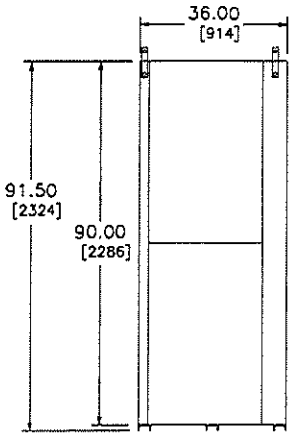
LEGEND
No Accessories

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	SCHEDULE
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 2 OF 2 | REV -

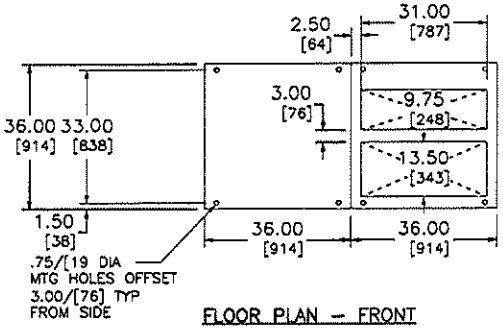
REV	DESCRIPTION	BY	DATE
-	----	--	--/--/--



TOP VIEW – FRONT



LEFT SIDE VIEW

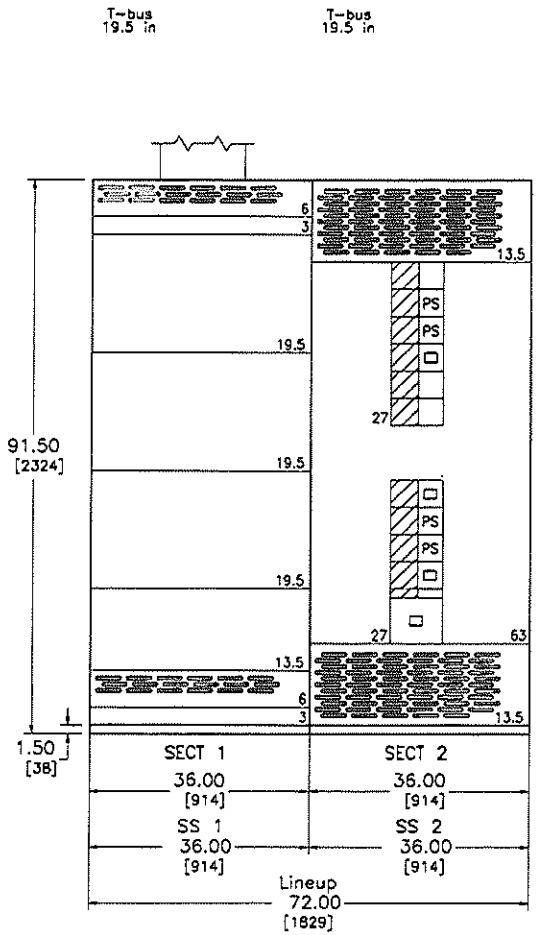


FLOOR PLAN – FRONT

ENGLISH DIMENSIONS: INCHES

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG#	F29528680-01 PG 2 OF 2 REV -

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



SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

480Y/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 100kA RMS
Incoming Section 1 Busway Through the Top Left of Lineup

Bus System Data

2500A Silver Plated Copper Main Bus
(4) .25x2.00 IN/6x51 mm Cu Bus Bar Per Phase/Neutral
(1) .25x1.75 IN/6x44 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers & Lifting Assemblies

Estimated Shipping Weight

Shipping Split 1 660.00 lbs / 299.38 kgs
Shipping Split 2 915.00 lbs / 415.04 kgs
Complete Lineup 1575.00 lbs / 714.42 kgs

Code Standards

U.L. Deadfront

Rating Nameplates

ST1- Deadfront- Section Bus 2500A
ST2- Deadfront- Section Bus 2000A

PRODUCT INFORMATION

Wiring

All wiring to be Machine Tool Wire type

Instruction Bulletins

Reference 80043-055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

Product Accessories/Options

ENGLISH DIMENSIONS: INCHES

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION VIEW
ENGR:			
DATE:	May 15 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG#	F29528680-01

SQUARE D

Docking State Office Building

Approval Drawings

Square D Factory Order #:

29528680

Date 7/27/2012

Distributor:
Kriz Davis Company

Consulting Engineer:
Lochner - Larry Stoss

Manufacturer:
Schneider Electric / Square D

Sales Office:
Lenexa, KS

Sales Engineer:
David Farmer

Project Manager:
Greg Walker
gregory.walker@schneider-electric.com
913.307.5872

X	Approval		Record		Revision		Operations and Maintenance Manual

Equipment Included

Switchboard H3
Switchboard Control Center No 1
Panel LCUS # 1
Panel # 3
112.5 kVA & 300kVA Transformers

LOCHNER

PROJECT NO. 10050480
DATE 7/28/12
BY LWS
FOR HWL

- [X] NO EXCEPTIONS TAKEN
- [ ] MAKE CORRECTIONS NOTED
- [ ] AMEND AND RESUBMIT
- [ ] REJECTED-SEE REMARKS

NOTE: REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM THE CONTRACT REQUIREMENTS OR FOR ANY DEFICIENCIES OF EQUIPMENT, WORK OR MATERIALS.

JCSBC
2-2-16
Att.9Db.--207

Q2C Number: 29528680	Quote Number: 8	Change Order Rev Number: 6
Project Name: DOCKING STATE OFFICE BUILDING		Quote Name: CHANGE TO SWBD H3 & CC1

Item No.	Qty.	Catalog Number / Details
008-00	1	**Designation: SWITCHBOARD H3**

SQUARE D CUSTOM QED SWITCHBOARD
QED Switchboard

Square D Power Style Custom Switchboard
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
Source Description - Main is Remote
System Ampacity - 2500A
Bussing - Copper Plated with Silver
Neutral Bus - 100%
Max Available Fault Current (RMS) - 100kA
Enclosure - Type 1
Accessibility: Front Only
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Optional Copper Ground Bus
Lineup 1 BTU: 8888

Dimensions
---
2 - 36" Wide Section(s)
2 - 36" Deep Enclosure(s)
Dimensions: 72.00" W X 36" Max D X 91.5" H
Approximate Weight: 1650.00

Incoming Requirements

UL Dead Front
Entry Point: Left of Lineup, Through the Top
Copper Busway, Qwik-Flange
Front to Rear ABCN

Feeders

Devices Associated with Remote Main:

3 - 100AT 480V 80% Rated 3 Pole UL, Group Mounted Thermal Magnetic Prepared Space: Type HL
1 - 200AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JL
2 - 800AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type PL
1 - 600AT 480V 80% Rated 200 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type LI
1 - 30AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type HL
1 - 250AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JL

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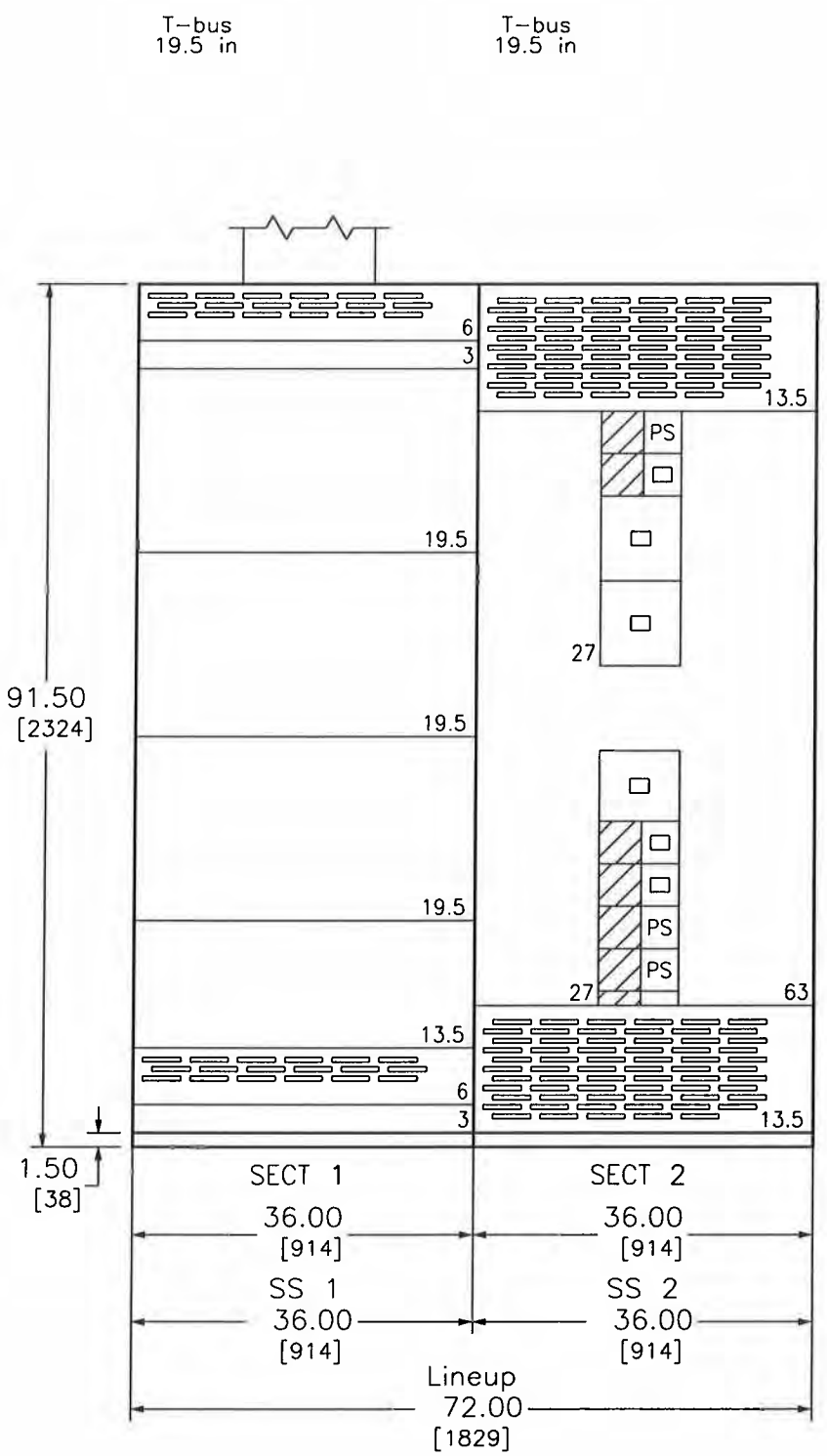


SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

480Y/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 100kA RMS
Incoming Section 1 Busway Through the Top Left of Lineup

Bus System Data

2500A Silver Plated Copper Main Bus
(4) .25x2.00 IN/6x51 mm Cu Bus Bar Per Phase/Neutral
(1) .25x1.75 IN/6x44 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers & Lifting Assemblies

Estimated Shipping Weight

Shipping Split 1 660.00 lbs / 299.38 kgs
Shipping Split 2 990.00 lbs / 449.06 kgs
Complete Lineup 1650.00 lbs / 748.44 kgs

Code Standards

U.L. Deadfront

Rating Nameplates

ST1– Deadfront– Section Bus 2500A
ST2– Deadfront– Section Bus 2000A

PRODUCT INFORMATION

Wiring

All wiring to be Machine Tool Wire type

Instruction Bulletins

Reference 80043–055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

Product Accessories/Options

ENGLISH DIMENSIONS: INCHES

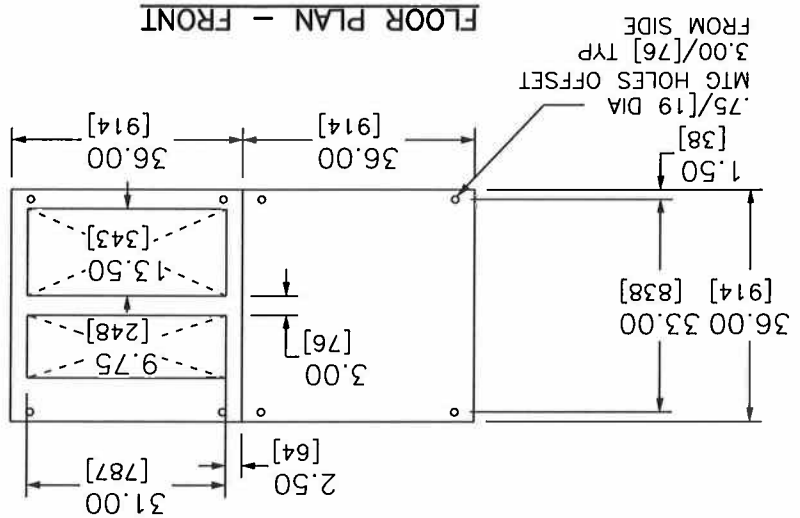
JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# F29528680-01	PG 1 OF 2 REV –

JOB NAME:	DOCKING STATE OFFICE BUILDING	NOT FOR CONSTRUCTION
JOB LOCATION:	TOPEKA KS	DRAWING STATUS: QUOTE
DRAWN BY:	(02C)	
ENGR:		
DATE:	July 27 2012	

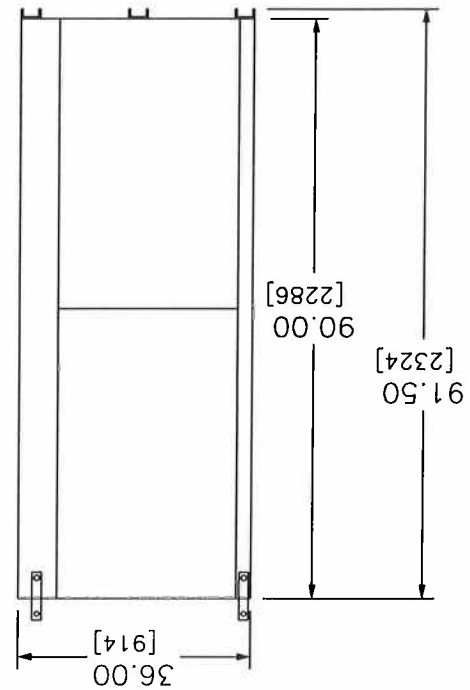
EQUIPMENT DESIGNATION:	**SWITCHBOARD H3**	DWG# F29528680-01	PG 2 OF 2	REV –
EQUIPMENT TYPE:	QED Switchboard			
DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN	SQUARE D by Schneider Electric		

ENGLISH DIMENSIONS: INCHES

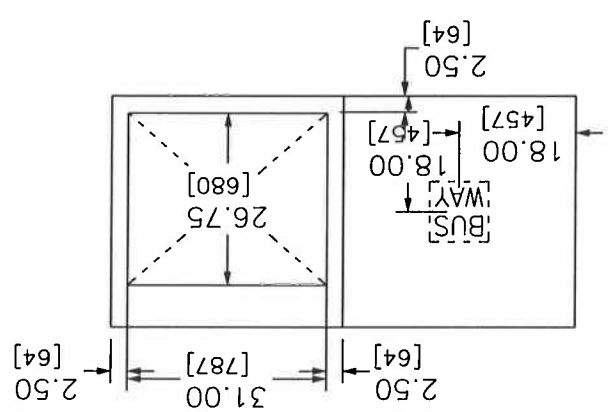
FLOOR PLAN – FRONT



LEFT SIDE VIEW



TOP VIEW – FRONT



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REV	DESCRIPTION	BY	DATE	-	----	--	--/--/--	-	----	--	--/--/--
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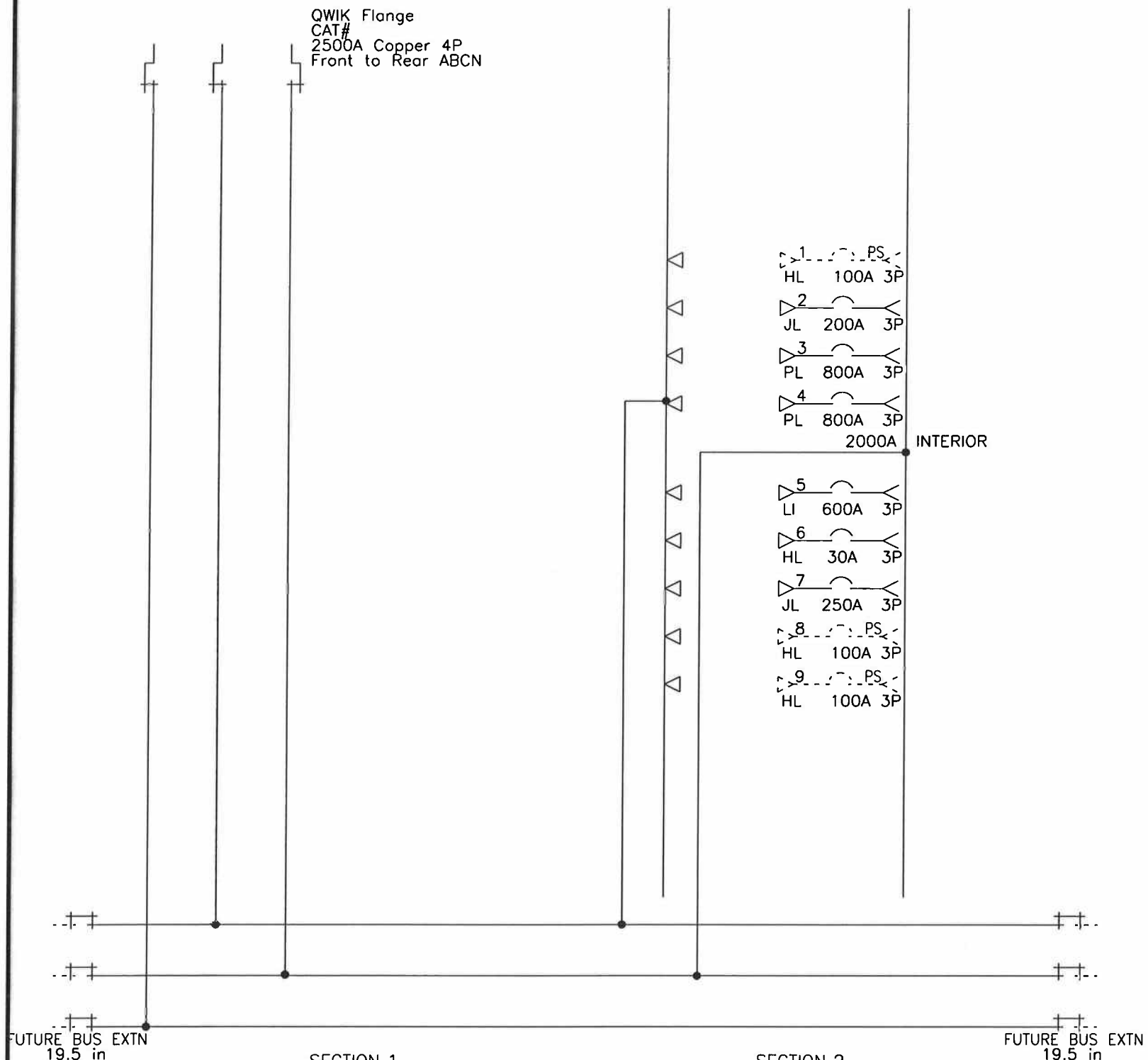
Att.9Db.--211



JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**SWITCHBOARD H3**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 1 OF 2 REV -

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--	–	----	--	--/--/--
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Att.9Db.--212

POWER STYLE QED-2 SWITCHBOARD

SECT NO	CKT NO	GMD HEIGHT	DEVICE/FRAME RATING	TRIP AMP	FUSE/ TRIP	#P	DESIGNATION	N/P	LUG INFORMATION				ACCESSORIES
									QTY	PHASE WIRE RANGE	QTY	NEUT. WIRE RANGE	
1	–	–	Incoming Connection	–	–	–	–	–	–	Busway	–	–	
2	1	4.5 in	HL (PS)	(100A)	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	2	4.5 in	JL	200A	–	3P		No	1	3/0 – 350 kcmil	1	#6 – 350 kcmil	
2	3	9 in	PL	800A	–	3P		No	3	3/0 – 500 kcmil	3	250 – 600 kcmil	
2	4	9 in	PL	800A	–	3P		No	3	3/0 – 500 kcmil	3	250 – 600 kcmil	
2	5	7.5 in	LI	600A	–	3P		No	2	4/0 – 500kcmil	2	250 – 600 kcmil	
2	6	4.5 in	HL	30A	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	7	4.5 in	JL	250A	–	3P		No	1	3/0 – 350 kcmil	1	#6 – 350 kcmil	
2	8	4.5 in	HL (PS)	(100A)	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	9	4.5 in	HL (PS)	(100A)	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	

LEGEND	
	No Accessories

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	SCHEDULE
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 2 OF 2 REV –

Q2C Number: 29528680	Quote Number: 8	Change Order Rev Number: 6
Project Name: DOCKING STATE OFFICE BUILDING		Quote Name: CHANGE TO SWBD H3 & CC1

Item No.	Qty.	Catalog Number / Details
009-00	1	**Designation: CONTROL CENTER NO 1 SWB**

SQUARE D CUSTOM QED SWITCHBOARD
QED Switchboard

Square D Power Style Custom Switchboard
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
Source Description - Main is Remote
System Ampacity - 2500A
Bussing - Copper Plated with Silver
Neutral Bus - 100%
Max Available Fault Current (RMS) - 65kA
Enclosure - Type 1
Accessibility: Front Only
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Optional Copper Ground Bus
Lineup 1 BTU: 15438

Dimensions
---
4 - 36" Wide Section(s)
4 - 36" Deep Enclosure(s)
Dimensions: 144.00" W X 36" Max D X 91.5" H
Approximate Weight: 3661.00

Incoming Requirements

UL Dead Front
Entry Point: Left of Lineup, Through the Top
Copper Busway, Qwik-Flange
Front to Rear ABCN

Feeders

Devices Associated with Remote Main:

6 - 600AT 480V 80% Rated 3 Pole UL, Group Mounted Basic Electronic Trip Prepared Space: Type MJ
3 - 600AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MJ
1 - 500AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MJ
1 - 1200AT 480V 80% Rated 65 kA 3 Pole UL, Fixed Mounted Electronic Trip Circuit Breaker: Type PJ

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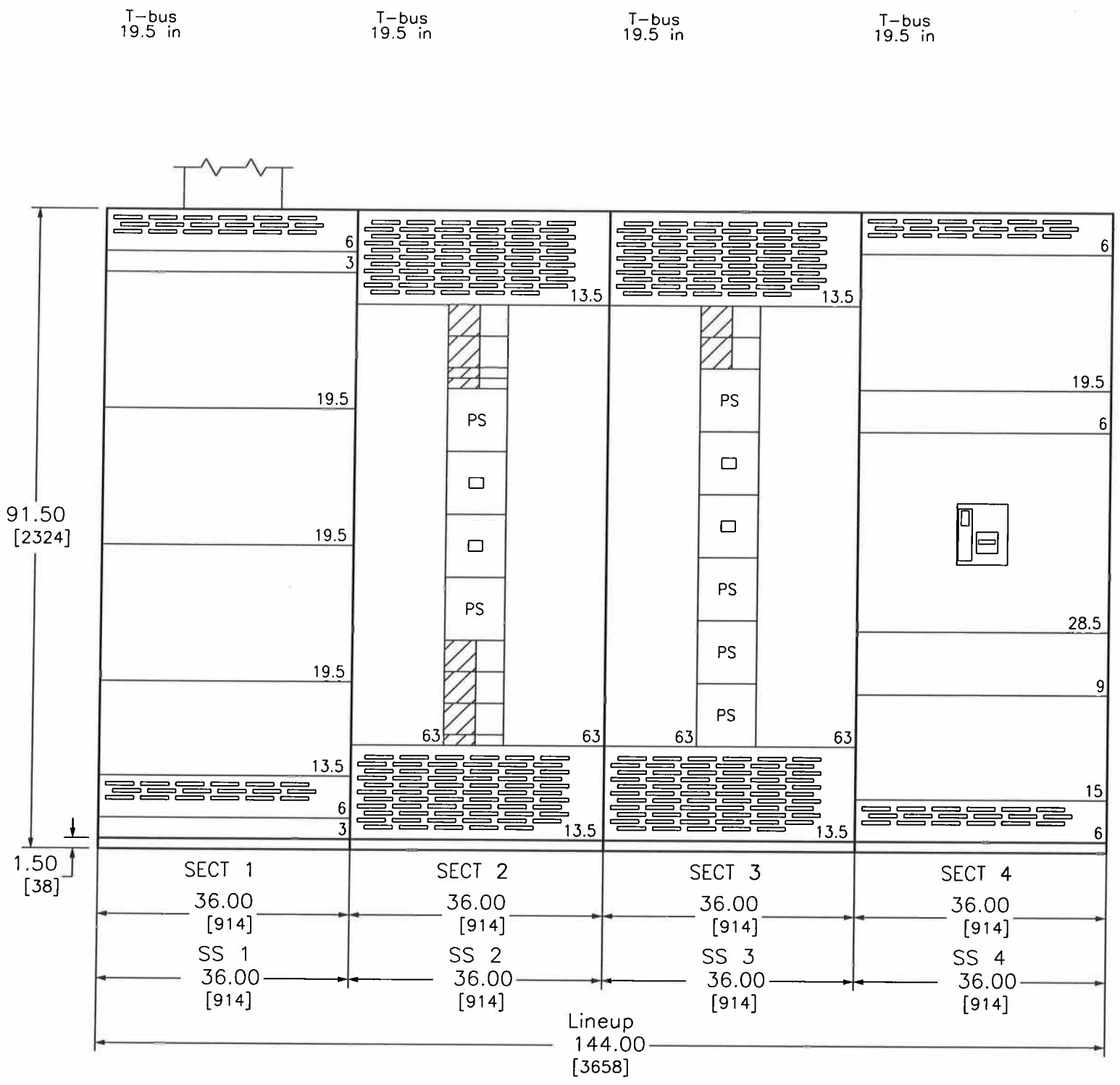
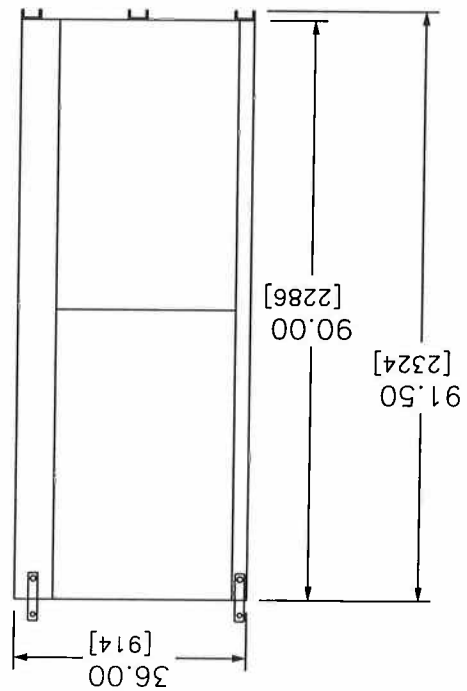
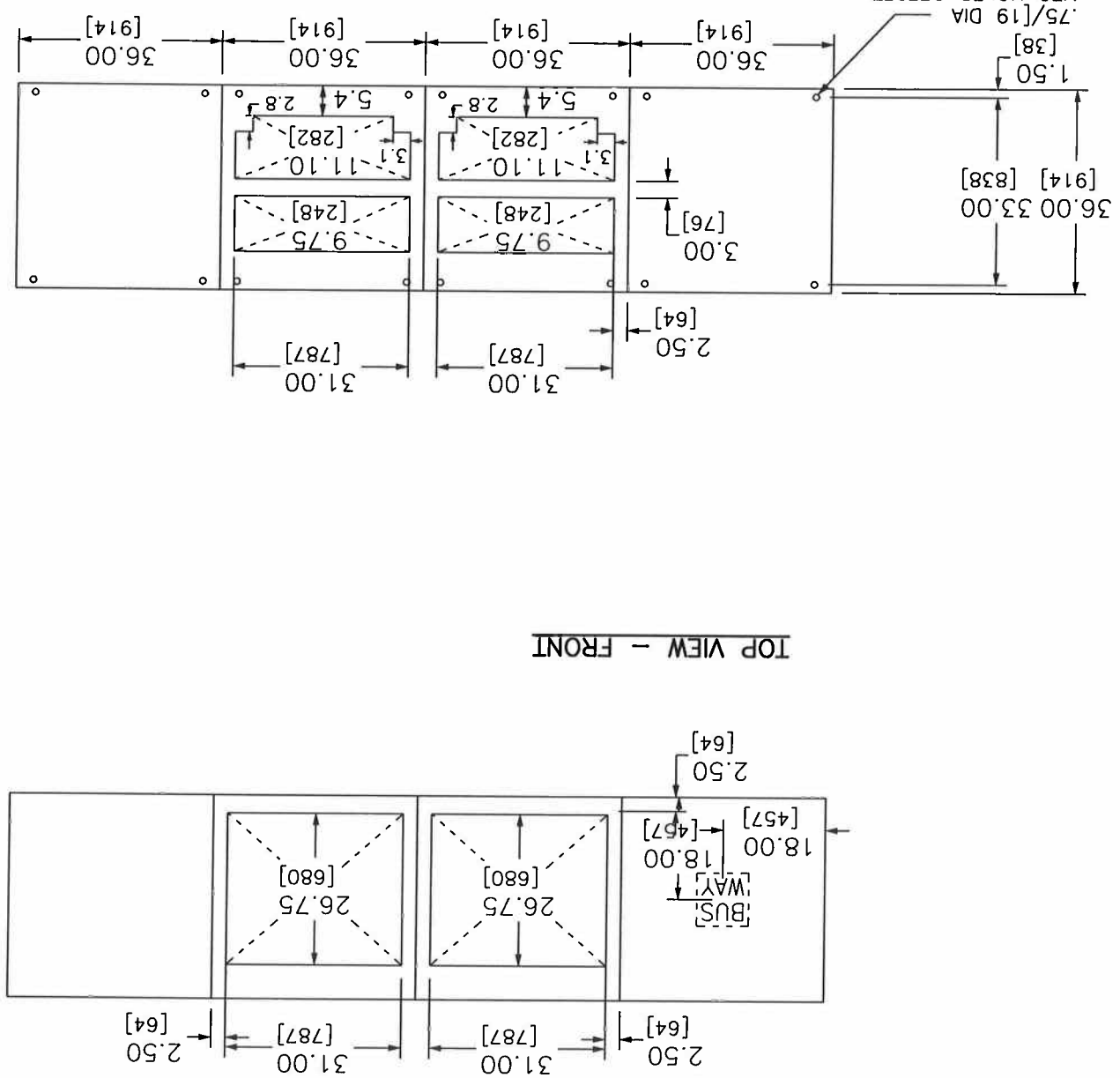


ENGLISH DIMENSIONS: INCHES

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	ELEVATION VIEW
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# F29528680-01	PG 1 OF 3 REV -



LEFT SIDE VIEW



FLOOR PLAN – FRONT

TOP VIEW – FRONT

ENGLISH DIMENSIONS: INCHES

JOB NAME:	DOCKING STATE OFFICE BUILDING
JOB LOCATION:	TOPEKA KS
DRAWN BY:	(02C)
ENGR:	
DATE:	July 27 2012
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION
EQUIPMENT DESIGNATION:	**CONTROL CENTER NO 1 SWB**
EQUIPMENT TYPE:	QED Switchboard
DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
SQUARE D by Schneider Electric	
DWG# F29528680-01	PG 2 OF 3 REV –

REV	DESCRIPTION	BY	DATE
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REV	DESCRIPTION	BY	DATE	-	----	--	--/--/--	-	----	--	--/--/--
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SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

480Y/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 65kA RMS
Incoming Section 1 Busway Through the Top Left of Lineup

Bus System Data

2500A Silver Plated Copper Main Bus
(4) .25x2.00 IN/6x51 mm Cu Bus Bar Per Phase/Neutral
(1) .25x1.75 IN/6x44 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers & Lifting Assemblies

Estimated Shipping Weight

Shipping Split 1 660.00 lbs / 299.38 kgs
Shipping Split 2 1020.00 lbs / 462.67 kgs
Shipping Split 3 1100.00 lbs / 498.96 kgs
Shipping Split 4 881.00 lbs / 399.62 kgs
Complete Lineup 3661.00 lbs / 1660.63 kgs

Code Standards

U.L. Deadfront

Rating Nameplates

ST1- Deadfront- Section Bus 2500A
ST2- Deadfront- Section Bus 2500A
ST3- Deadfront- Section Bus 2500A
ST4- Deadfront- Section Bus 1200A

PRODUCT INFORMATION

Wiring

All wiring to be Machine Tool Wire type

Instruction Bulletins

Reference 80043-055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

Product Accessories/Options

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	GENERAL NOTES
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# F29528680-01	PG 3 OF 3 REV -

REV	DESCRIPTION	BY	DATE
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		-	-----

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Att.9Db.--217

QWIK Flange
CAT#
2500A Copper 4P
Front to Rear ABCN

1 PS MJ 600A 3P
2 MJ 600A 3P
3 MJ 600A 3P
2500A INTERIOR
4 PS MJ 600A 3P

5 PS MJ 600A 3P
6 MJ 600A 3P
7 MJ 500A 3P
2500A INTERIOR
8 PS MJ 600A 3P
9 PS MJ 600A 3P
10 PS MJ 600A 3P

Custom Bus Connection
to existing ITE MCC

11
1200A Trip
3P
PJ 1200A

FUTURE BUS EXTN
19.5 in

SECTION 1

SECTION 2

SECTION 3

SECTION 4

FUTURE BUS EXTN
19.5 in

JOB NAME:	DOCKING STATE OFFICE BUILDING
JOB LOCATION:	TOPEKA KS
DRAWN BY:	(Q2C)
ENGR:	
DATE:	July 27 2012
DRAWING STATUS:	QUOTE

EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
EQUIPMENT TYPE:	QED Switchboard
DRAWING TYPE:	ONE LINE
	SQUARE D by Schneider Electric
DWG#	029528680-01

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

JCSBC
2.216
Att.9Db.--218

POWER STYLE QED–2 SWITCHBOARD

SECT NO	CKT NO	GMD HEIGHT	DEVICE/FRAME RATING	TRIP AMP	FUSE/ TRIP	#P	DESIGNATION	N/P	LUG INFORMATION				ACCESSORIES
									QTY	PHASE WIRE RANGE	QTY	NEUT. WIRE RANGE	
1	–	–	Incoming Connection	–	–	–	–	–	–	Busway	–	–	
2	1	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
2	2	9 in	MJ	600A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
2	3	9 in	MJ	600A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
2	4	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	5	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	6	9 in	MJ	600A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	7	9 in	MJ	500A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	8	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	9	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	10	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
4	11	–	PJ 1200A	1200A	–	3P		No					

LEGEND	
	No Accessories

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	**CONTROL CENTER NO 1 SWB**
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED Switchboard
DRAWN BY:	(Q2C)	DRAWING TYPE:	SCHEDULE
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 2 OF 2 REV –

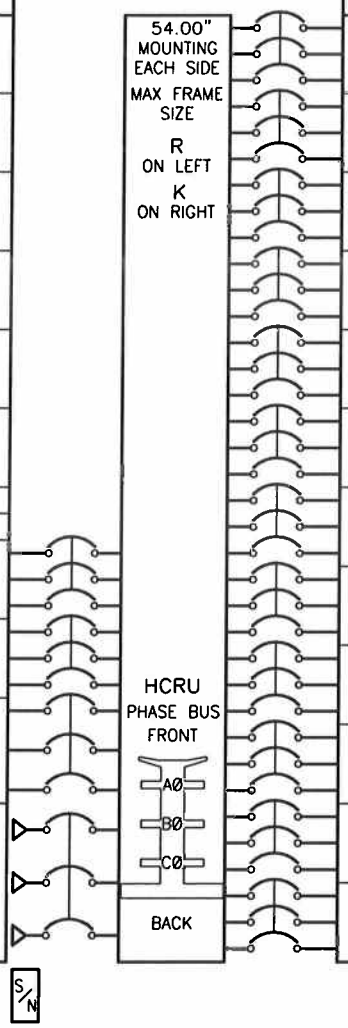
Q2C Number: 29528680 **Quote Number:** 8 **Change Order Rev Number:** 6
Project Name: DOCKING STATE OFFICE BUILDING **Quote Name:** CHANGE TO SWBD H3 & CC1

Item No.	Qty.	Catalog Number / Details
014-00	1	**Designation: LCUS # 1**

I-Line MB Panel (Interior)
I-Line Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz SCCR: 65kA
Fully Rated
Suitable For Use As Service Entrance UL
Single Main: 1200A/3P PG Circuit Breaker
Incoming Conductors: 1 - (4) 3/0 - 500kcmil
Bus: Copper: Tin Plated
CU Ground Bar
108" of Mounting Inches
Type 1Box: 86H x 44W x 9.5D
Incoming: Bottom Trim: Surface - Hinged
Box Cat No: HC4486DB Front Cat No: HC4486TSHR
Ref. Drawing: PBA414HR Type: HCR-U
Feeders:
1 - 50A/3P HG
2 - 50A/3P HG ST
1 - 300A/3P LH
3 - 90A/3P HG ST
1 - 100A/3P QG
6 - 225A/3P QG
1 - 250A/3P JG
Optional Features:
Standard Panel (Box Ahead),Copper Solid Neutral,Copper Ground Bar,Mains and Feeders Mechanically Restrained
Standard Nameplate:
Color: White Surface / Black Letters

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

CKT NO	ACCESSORIES	TYPE	RATING AMP/P	PHASE BUS CONN
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	1.50" BLANK			
	1.50" BLANK			
1		HG	50/3	ABC
3	ST 120Vac	HG	50/3	ABC
5		LH	300/3	ABC
	BRANCH MOUNTED MAIN	PG	1200/3	ABC



PHASE BUS CONN	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
ABC	50/3	HG	ST 120Vac	2
ABC	90/3	HG	ST 120Vac	4
ABC	90/3	HG	ST 120Vac	6
ABC	90/3	HG	ST 120Vac	8
ABC	100/3	QG		10
ABC	225/3	QG		12
ABC	225/3	QG		14
ABC	225/3	QG		16
ABC	225/3	QG		18
ABC	225/3	QG		20
ABC	225/3	QG		22
ABC	250/3	JG		24

S/N

PHYSICAL DATA

UL Service Entrance
ENCLOSURE Type 1
Surface – Hinged
FRONT CAT#: HC4486TSHR
BOX CAT#: HC4486DB
DIMENSIONS:
86"H x 44"W x 9.5"D
WIRE BENDING SPACE:
TOP – 12.4
BOTTOM – 16.3
LEFT SIDE – 12.5
RIGHT SIDE – 5.2
PBA: 414HR
BUSSING: Copper
Tin Plated
OPTIONAL FEATURES:
Copper Solid Neutral
(Continued on next page.)

ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Ampacity: 1200A
65kA SYMS. SCCR
MAIN: MAIN BREAKER PG 1200A
Bottom FEED
65kA AIR
INCOMING CONDUCTORS(S) PER NEC:
(4) 3/0 – 500kcmil
BRANCH MOUNTING TYPE: PLUG-ON
----------BRANCH SUMMATION----------

1 – 50A/3P HG	2 – 50A/3P HG ST
1 – 300A/3P LH	3 – 90A/3P HG ST
1 – 100A/3P QG	6 – 225A/3P QG
1 – 250A/3P JG	

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	LCUS # 1
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# 029528680-01	PG 1 OF 2 REV -

JCSBC
2-2-16
Att.9Db.--220

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

PHYSICAL DATA CONTINUED

Copper GROUND BAR
MAINS AND FEEDERS
MECHANICALLY RESTRAINED
Standard Nameplate
COLOR: White Surface / Black Letters

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	LCUS # 1
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 2 OF 2 REV -

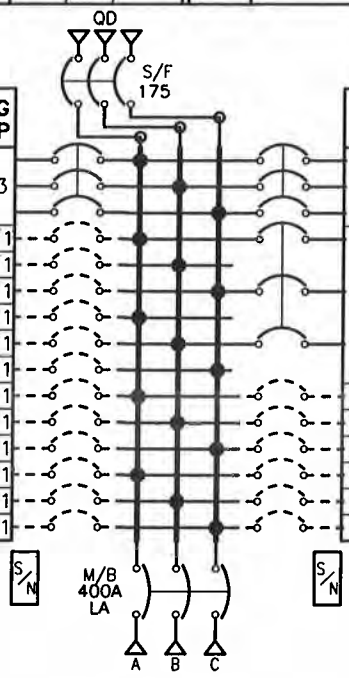
JCSBC
2-2-16
Att.9Db.--221

Q2C Number: 29528680	Quote Number: 8	Revision Number: 0
Project Name: DOCKING STATE OFFICE BUILDING		Quote Name:

Item No.	Qty.	Catalog Number / Details
013-00	1	**Designation: PANEL # 3**

NQ MB Panel (Interior)
NQ Panelboard
Consisting of
208Y/120V 3Ph 4W 60Hz SCCR: 22kA
Fully Rated
Suitable For Use As Service Entrance UL
Single Main: 400A/3P LA Circuit Breaker
Incoming Conductors: 1 - #1 - 600,(2)#1 - 250 kcml
Bus: Copper: Silver/Tin Plated
CU Ground Bar
30 Circuit Interior
Type 1Box: 86H x 20W x 5.75D
Incoming: Bottom Trim: Surface - Hinged
Box Cat No: MH86 Front Cat No: NC86VSHR
Ref. Drawing: PBA710HR
Feeders:
1 - Sub-Feed One: 175A/3P QD
1 - 50A/3P QOB-VH
18 - 20A/1P QOB-VH Prepared Space
1 - 60A/3P QOB-VH
1 - 150A/3P QOB-VH
Optional Features:
Standard Panel (Box Ahead),Copper Solid Neutral,Copper Ground Bar
Branch User Placement
Standard Nameplate:
Color: White Surface / Black Letters

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



CKT NO	ACCESSORIES	TYPE	RATING AMP/P
1		QOB-VH	50/3
3			
5			
7	PREPARED SPACE	QOB-VH	20/1
9	PREPARED SPACE	QOB-VH	20/1
11	PREPARED SPACE	QOB-VH	20/1
13	PREPARED SPACE	QOB-VH	20/1
15	PREPARED SPACE	QOB-VH	20/1
17	PREPARED SPACE	QOB-VH	20/1
19	PREPARED SPACE	QOB-VH	20/1
21	PREPARED SPACE	QOB-VH	20/1
23	PREPARED SPACE	QOB-VH	20/1
25	PREPARED SPACE	QOB-VH	20/1
27	PREPARED SPACE	QOB-VH	20/1
29	PREPARED SPACE	QOB-VH	20/1

RATING AMP/P	TYPE	ACCESSORIES	CKT NO
60/3	QOB-VH		2
			4
			6
150/3	QOB-VH		8
			10
			12
			14
			16
			18
20/1	QOB-VH	PREPARED SPACE	20
20/1	QOB-VH	PREPARED SPACE	22
20/1	QOB-VH	PREPARED SPACE	24
20/1	QOB-VH	PREPARED SPACE	26
20/1	QOB-VH	PREPARED SPACE	28
20/1	QOB-VH	PREPARED SPACE	30

PHYSICAL DATA

UL Service Entrance
ENCLOSURE Type 1
Surface - Hinged
FRONT CAT#: NC86VSHR
BOX CAT#: MH86
DIMENSIONS:
86"H x 20"W x 5.75"D
WIRE BENDING SPACE:
TOP - 11
BOTTOM - 15.43
SIDE - 5.9
PBA: 710HR
BUSSING: Copper
Silver/Tin Plated
OPTIONAL FEATURES:
BRANCH USER PLACEMENT
Copper Solid Neutral
Copper GROUND BAR
Standard Nameplate
COLOR: White Surface / Black Letters

ELECTRICAL DATA

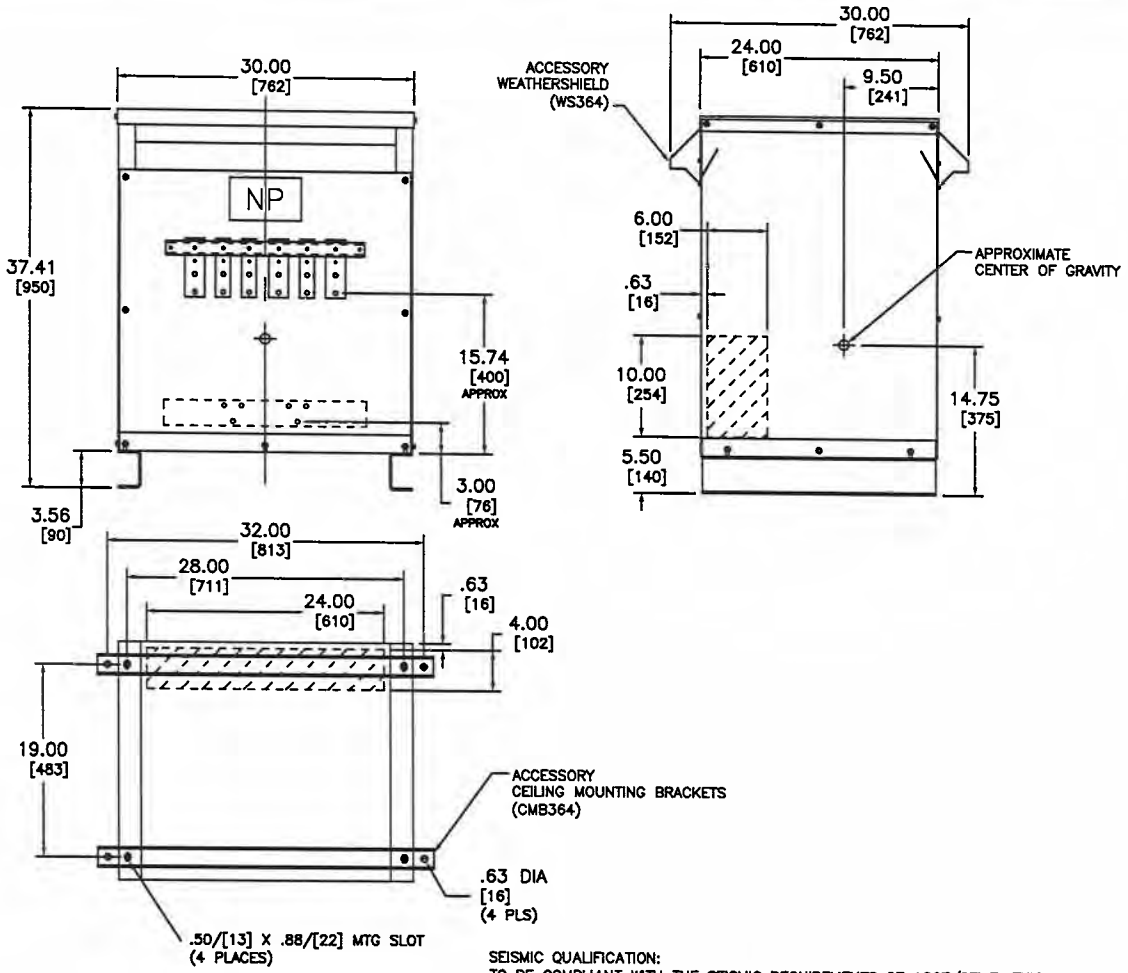
SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Ampacity: 400A
22kA SYMS. SCCR
MAIN: MAIN BREAKER LA 400A
Bottom FEED
42kA AIR
INCOMING CONDUCTORS(S) PER NEC:
#1 - 600,(2)#1 - 250 kcmil
BRANCH MOUNTING TYPE: BOLT-ON
----------BRANCH SUMMATION----------
1 - 175A/3P QD
18 - 20A/1P-PS QOB-VH
1 - 150A/3P QOB-VH
1 - 50A/3P QOB-VH
1 - 60A/3P QOB-VH

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	PANEL # 3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	NQ (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			SQUARE D by Schneider Electric
DATE:	July 27 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# 029528680-01	PG 1 OF 1 REV -

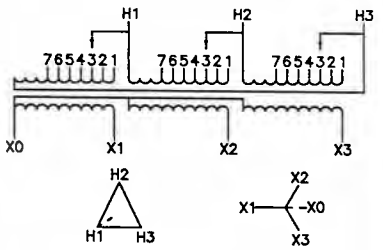
JCSBC
2-2-16
Att.9Db.--223

Q2C Number: 29528680	Quote Number: 8	Revision Number: 0
Project Name: DOCKING STATE OFFICE BUILDING		Quote Name:

Item No.	Qty.	Catalog Number / Details
015-00	1	**EE112T3HCU** Transformer Dry Type 112.5kVA 480D208Y
016-00	1	DASKP250 PRIMARY LUG KIT
017-00	1	DASKS400 SECONDARY LUG KIT
018-00	1	**EE300T3HCU** Transformer Dry Type 300kVA 480D208Y120
019-00	1	DASKP1000 PRIMARY LUG KIT
020-00	1	DASKS1200 SECONDARY LUG KIT



IN EACH PHASE CONNECT TO TAPS	
PRIMARY VOLTS	2–2.5% FCAN 4–2.5% FCBN
504	1
492	2
480	3
468	4
456	5
444	6
432	7



TRANSFORMER SPECIFICATIONS:

112.5 KVA 3Ø 60 HZ
PRIMARY VOLTAGE 480 DELTA
SECONDARY VOLTAGE 208Y/120
150°C RISE ABOVE 40°C AMBIENT
220°C INSULATION SYSTEM
COPPER WINDINGS
APPROXIMATE WEIGHT: 755 LBS
GUARANTEED SOUND LEVEL: 50 dB
EFFICIENCY @35%: 98.2% AVG. CONFORMS TO NEMA TP 1 – 2002 AND CSA C802.2

NOTES:
1) cULus LISTED (MEETING UL 1561 AND CSA C22.2)
2) NEMA 2 VENTILATED ENCLOSURE ENCLOSURE RATED FOR NEMA 3R WHEN OPTIONAL WEATHERSHIELD ACCESSORY IS INSTALLED.
3) MINIMUM CLEARANCE OF 3.00[76] BETWEEN VENT OPENINGS, WALL OR OTHER OBSTRUCTION
4) SHADED AREAS DENOTE CUSTOMER CONDUIT ENTRANCE LOCATIONS, AVAILABLE BOTH SIDES AND BOTTOM

SEISMIC QUALIFICATION:
TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7, THIS UNIT HAS BEEN QUALIFIED BY SHAKE TABLE TESTING THROUGH SELF CERTIFICATION TO ICC ES AC156. CONTACT YOUR LOCAL SCHNEIDER ELECTRIC/SQUARE D REPRESENTATIVE FOR RELATED QUESTIONS.

DUAL DIMENSIONS: INCHES / MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE,112.5 kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

DWG# NO. 6312-0016

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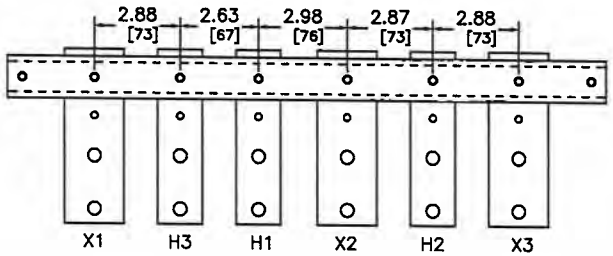
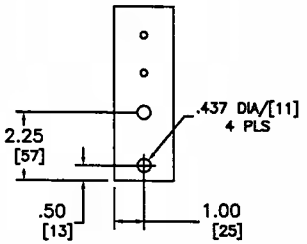
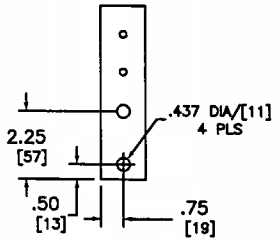
SHEET 1 OF 2





X TERMINAL DETAIL



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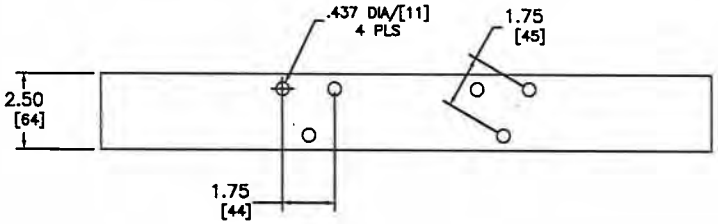

XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES
MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE,112.5 kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

DWG# NO. 6312-0016

OCTOBER 2006

SHEET 2 OF 2

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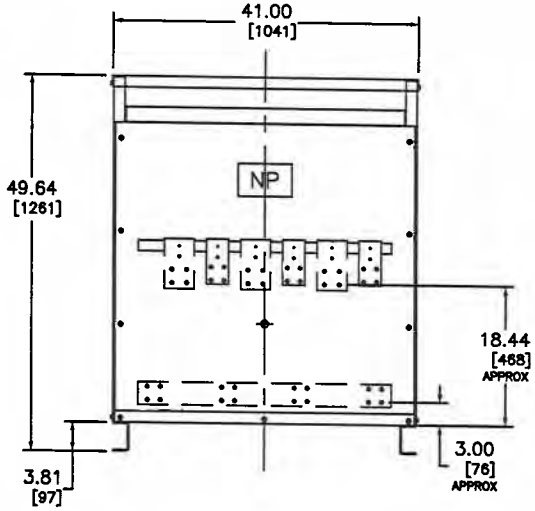
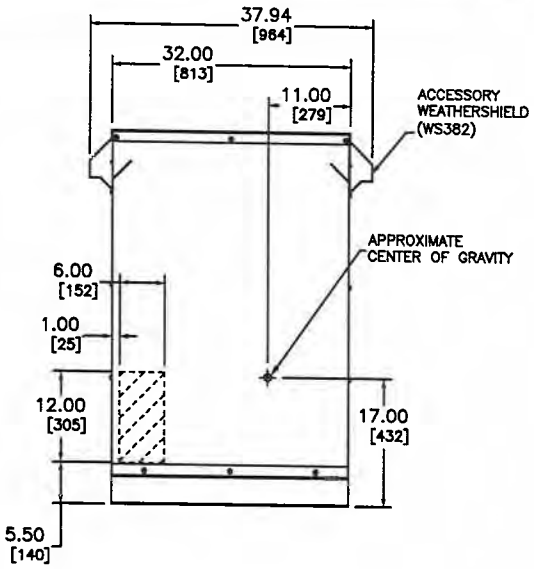
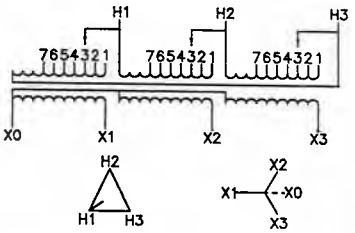
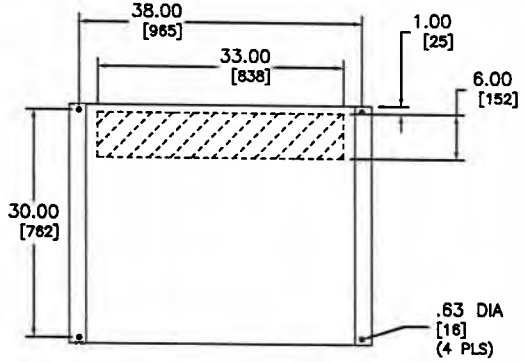




IN EACH PHASE CONNECT TO TAPS	
PRIMARY VOLTS	2–2.5% FCAN 4–2.5% FCBN
504	1
492	2
480	3
468	4
456	5
444	6
432	7





TRANSFORMER SPECIFICATIONS

300 KVA 3Ø 60 HZ
PRIMARY VOLTAGE 480 DELTA
SECONDARY VOLTAGE 208Y/120
150 °C RISE ABOVE 40°C AMBIENT
220 °C INSULATION SYSTEM
COPPER WINDINGS
APPROXIMATE WEIGHT: 1535 LBS
GUARANTEED SOUND LEVEL: 55 dB
EFFICIENCY @35%: 98.6% AVG. CONFORMS TO NEMA TP 1 – 2002 AND CSA C802.2

NOTES:
1) cULus LISTED (MEETING UL 1561 AND CSA C22.2)
2) NEMA 2 VENTILATED ENCLOSURE ENCLOSURE RATED FOR NEMA 3R WHEN OPTIONAL WEATHERSHIELD ACCESSORY IS INSTALLED.
3) MINIMUM CLEARANCE OF 3.00[76] BETWEEN VENT OPENINGS, WALL OR OTHER OBSTRUCTION
4) SHADED AREAS DENOTE CUSTOMER CONDUIT ENTRANCE LOCATIONS, AVAILABLE BOTH SIDES AND BOTTOM

SEISMIC QUALIFICATION:
TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7, THIS UNIT HAS BEEN QUALIFIED BY SHAKE TABLE TESTING THROUGH SELF CERTIFICATION TO ICC ES AC156. CONTACT YOUR LOCAL SCHNEIDER ELECTRIC/SQUARE D REPRESENTATIVE FOR RELATED QUESTIONS.

DUAL DIMENSIONS: INCHES MILLIMETERS

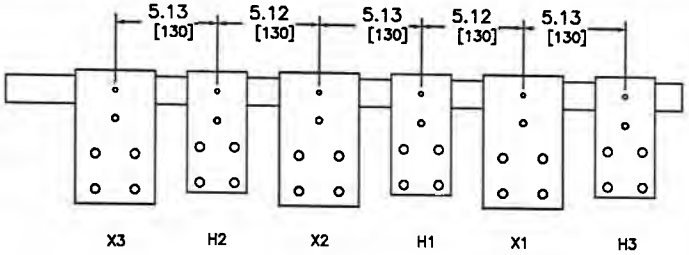
LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY–TYPE TRANSFORMER
CATALOG NO EE300T3HCU
3 PHASE, 300kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

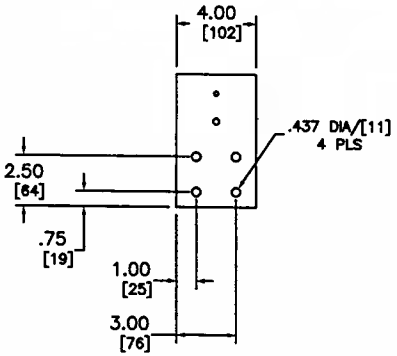
SQUARE D
Schneider Electric

DWG# NO. 6312–0019

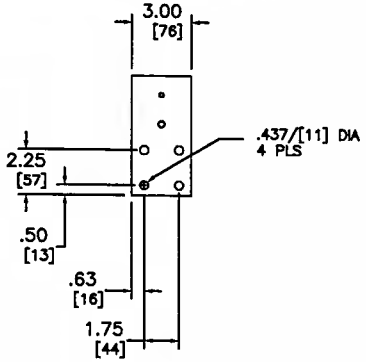
1JUN2011 REV B

SHEET 1 OF 2

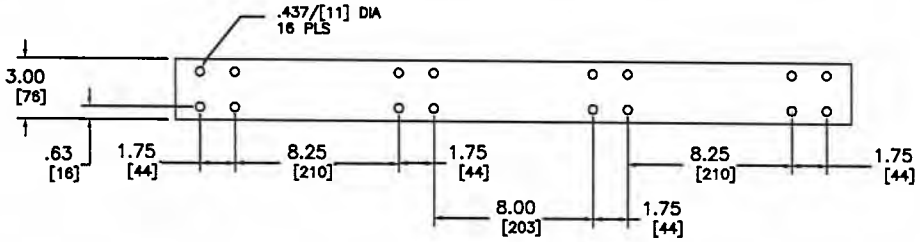




X TERMINAL DETAIL



H TERMINAL DETAIL



XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE300T3HCU
3 PHASE, 300kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

DWG# NO. 6312-0008

1JUN2011 REV B

SHEET 2 OF 2

JCSBC
2-2-16
Att.9Db.--228

SQUARE D

Docking State Office Building

Approval Drawings

Square D Factory Order #:

29528680

Date: 6/26/2012

LOCHNER

PROJECT NO. 10050480
DATE 7/12/12
BY LWS
FOR HWL

- ☐ NO EXCEPTIONS TAKEN
- ☒ MAKE CORRECTIONS NOTED
- ☐ AMEND AND RESUBMIT
- ☐ REJECTED-SEE REMARKS

NOTE: REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM THE CONTRACT REQUIREMENTS OR FOR ANY DEFICIENCIES OF EQUIPMENT, WORK OR MATERIALS.

Distributor:
Kriz Davis Company

Consulting Engineer:
Lochner - Larry Stoss

Manufacturer:
Schneider Electric / Square D

Sales Office:
Lenexa, KS

Sales Engineer:
David Farmer

Project Manager:
Greg Walker
gregory.walker@schneider-electric.com
913.307.5872

See comments in the following sections. HWL

X	**Approval**		**Record**		**Revision**		**Operations and Maintenance Manual**

Equipment Included

Switchboards: Main 480V Switchboard, Switchboard H3, Control Center No 1 Switchboard
Panelboards: Panel LCUS # 1, Panel # 3
Transformers: 112 & 300 kVA

Q2C Number: 29528680	**Quote Number:** 8	**Revision Number:** 0
Project Name: DOCKING STATE OFFICE BUILDING		**Quote Name:**

Item No.	Qty.	Catalog Number / Details
007-00	1	**Designation: 480 VOLT SWITCHBOARD**

SQUARE D CUSTOM QED SWITCHBOARD
QED Switchboard

Square D Power Style Custom Switchboard
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
Source Description - Main-Tie-Main
System Ampacity - 5000A
Bussing - Copper Plated with Silver
Neutral Bus - 100%
Max Available Fault Current (RMS) - 100kA
Enclosure - Type 1
Accessibility: Front and Rear
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Rear Hinged Door(s) with Locking Provisio
Optional Copper Ground Bus
Barriers between Sections - Steel
Lineup 1 BTU: 38986
Transparent Ready - Network Communicat
Only
Auto Throw-over System
Transparent Ready - Modbus TCP - Ether
Copper
. Standard Main-Tie-Main
100 Base T Copper Hub System
. Transition Delay - 2 (SEC)
. Source Loss Delay - 3 (SEC)
. Utility Stabilization Delay - 10 (SEC)
. Transition Type - Open
. Automatic Retransfer Switch
. Preferred Source Selector
. Touchscreen HMI
Certified Test Report Required
Specials: MIMIC BUS - TAPED
Special MIMIC BUS - TAPED #: WEB TAG

LOCHNER
PROJECT NO. 10050480
DATE 7/12/12
BY LWS
FOR HWL
☐ NO EXCEPTIONS TAKEN
☒ MAKE CORRECTIONS NOTED
☐ AMEND AND RESUBMIT
☐ REJECTED-SEE REMARKS
NOTE: REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM THE CONTRACT REQUIREMENTS OR FOR ANY DEFICIENCIES OF EQUIPMENT, WORK OR MATERIALS.

Delete section to left of Tie Breaker.

Dimensions
---
3 - 48" Wide Section(s)
6 - 36" Wide Section(s)
9 - 48" Deep Enclosure(s)
Dimensions: 360.00" W X 48" Max D X 91.5" H
Approximate Weight: 9602.00

Incoming Requirements

Suitable for Use As Service Entrance -
Incoming One
Entry Point: Section 1, Through the Top
Copper Busway, Qwik-Flange
Front to Rear ABCN
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter
Circuit Monitor - CM4000T
3 CTs Circuit Monitor - 3 phase 4 wire wye
480Y/277

Q2C Number: 29528680 **Quote Number:** 8 **Revision Number:** 0
Project Name: DOCKING STATE OFFICE BUILDING **Quote Name:**

Item No.	Qty.	Catalog Number / Details

Circuit Monitor Display - Liquid Crystal
Ethernet Communications Card
Specials: 5000:5 CTs ahead of main
Special 5000:5 CTs ahead of main #: 5652005

Suitable for Use As Service Entrance -
Incoming Two
Entry Point: Section 9, Through the Top
Copper Busway, Qwik-Flange
Front to Rear NCBA
SPD with Surge Rating 240kA
SPD Dry Contacts
Includes Surge Counter
Circuit Monitor - CM4000T
Circuit Monitor Display - Vacuum Fluorescent
3 CTs Circuit Monitor - 3 phase 4 wire wye
480Y/277
Specials: 5000:5 CTs ahead of main
Special 5000:5 CTs ahead of main #: 5652005

Mains
---
1 - 5000AF/5000AT 100% 3 Pole Stored Energy,
Fixed Mounted Circuit Breaker, ANSI:
Type NW
Device Associated to Incoming One
1 - 5000AF/5000AT 100% 3 Pole Stored Energy,
Fixed Mounted Circuit Breaker, ANSI:
Type NW
Device Associated to Incoming Two
Common Main Features:
Ammeter Trip Unit, Long Time, Short Time,
Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Auxiliary Switches 8A-8B
Overcurrent Trip Switch 1A/1B Form C
Contact (SDE)
Second Shunt Trip without Communications -
120Vac
Padlock Attachment
Shunt Trip without Communications - 120Vac
Contact Wear Indication - Visual
Spring Charging Motor - 120Vac
Shunt Close without Communications - 120Vac

Ties
---
1 - 5000AF/5000AT 100% 3 Pole Stored Energy,
Fixed Mounted Circuit Breaker, ANSI:
Type NW
Ammeter Trip Unit, Long Time,
Instantaneous
Circuit Breaker Modbus Communications
Wired
Auxiliary Switches 8A-8B
Overcurrent Trip Switch 1A/1B Form C
Contact (SDE)
Second Shunt Trip without Communications
- 120Vac
Padlock Attachment
Shunt Trip without Communications - 120Vac
Contact Wear Indication - Visual
Spring Charging Motor - 120Vac
Shunt Close without Communications -

Q2C Number: 29528680	Quote Number: 8	Revision Number: 0
Project Name: DOCKING STATE OFFICE BUILDING		Quote Name:

Item No.	Qty.	Catalog Number / Details

120Vac

Feeders

Devices Associated to Main 1:

1 - 2500AS/2500AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL
Ammeter Trip Unit, Long Time, Short Time, Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Copper Busway, Qwik-Flange
Left to Right ABCN
Padlock Attachment for P or R-frame
1 - 1200AT 480V 80% Rated 3 Pole UL, Group Mounted Basic Electronic Trip Prepared Space: Type PL
1 - 2000AS/2000AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL
Ammeter Trip Unit, Long Time, Short Time, Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Copper Busway, Qwik-Flange
Left to Right ABCN
Padlock Attachment for P or R-frame
Power Meter - PM-850RD
3 CTs Power Meter - 3 phase 4 wire wye 480Y/277

Devices Associated to Main 2:

2 - 2500AS/2500AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL
Power Meter - PM-850RD
3 CTs Power Meter - 3 phase 4 wire wye 480Y/277
1 - 2500AS/2500AT 480V 100% Rated 100 kA 3 Pole UL, Fixed Mounted Micrologic Circuit Breaker: Type RL
Common Feeder Features:
Ammeter Trip Unit, Long Time, Short Time, Instantaneous, Ground Fault
Circuit Breaker Modbus Communications Wired
Copper Busway, Qwik-Flange
Left to Right ABCN
Padlock Attachment for P or R-frame

SQUARE D
by Schneider Electric

Job Name:	DOCKING STATE OFFICE BUILDING	Square D Quotation #:	29528680
Job Location:	TOPEKA, KS	Quotation Revision #:	
		Sales Contact:	DAVID FARMER
		Sales Contact Location:	436
Purchaser:	KRIZ-DAVIS COMPANY 56530	Customer:	STATE OF KANSAS DIV OF PURCHASES
Purchaser PO #:		Customer PO #:	
User:	STATE OF KANSAS DIV OF PURCHASES	Architect:	STATE OF KANSAS DIV OF PURCHASES
User Location:		Cons. Engineer:	
Drawing Status:	APPROVAL		

TABLE OF CONTENTS

SQUARE D FACTORY ORDER NUMBER: 29528680-007

Equipment Designation	Equipment Type	Drawing Type	Drawing Number	Page	Revision Level
480 VOLT SWITCHBOARD	QED Switchboard	ELEVATION VIEW	F29528680-007-01	1	-
		SIDE, TOP VIEW & FLOOR PLAN	F29528680-007-01	2	-
		GENERAL NOTES	F29528680-007-01	3	-
		ONE LINE	029528680-007-01	1	-
			029528680-007-01	2	-
			029528680-007-01	3	-
		SCHEDULE	029528680-007-01	4	-
		PLC SEQUENCE OF OPERATIONS	T29528680-007-AX	-	-

REV	DESCRIPTION	BY	DATE
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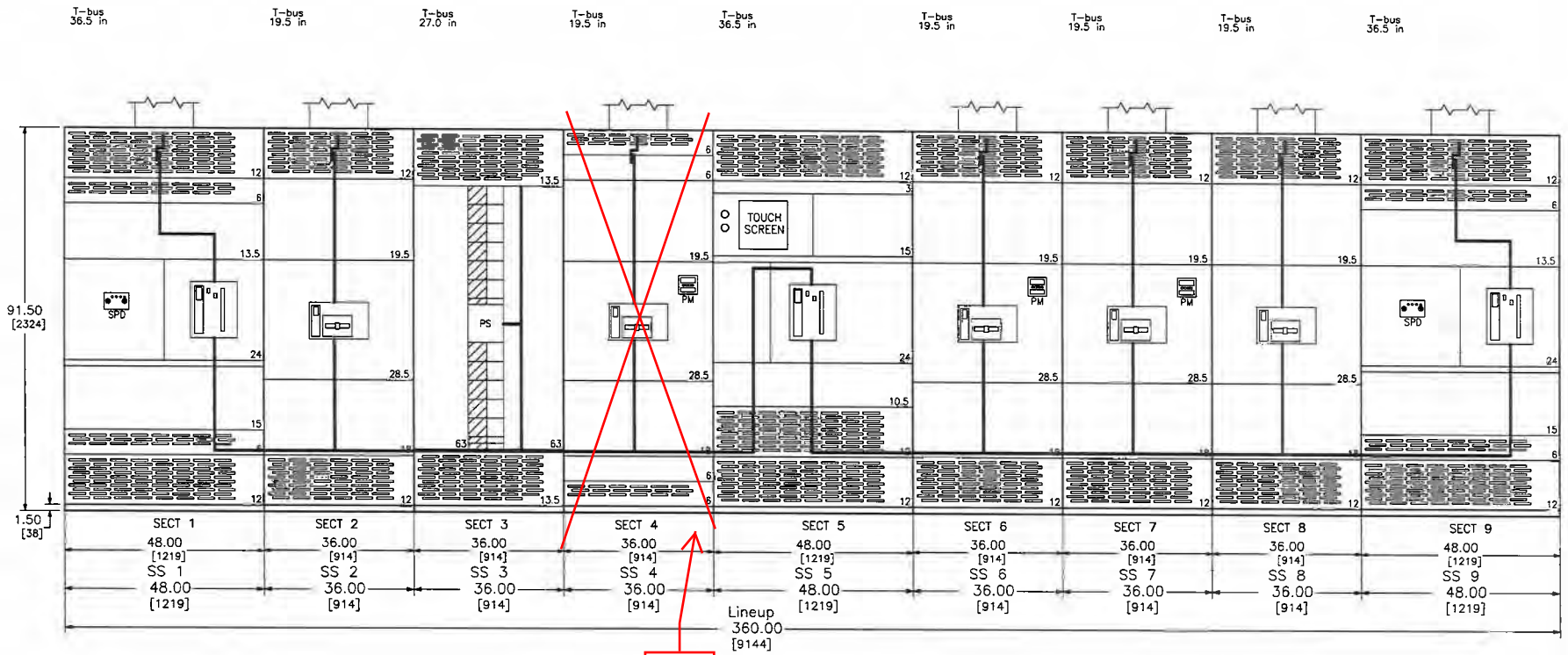

DUAL DIMENSIONS: INCHES MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	480 VOLT SWITCHBOARD
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	ELEVATION VIEW
ENGR:	MTD		
DATE:	JUNE 12, 2012		
DRAWING STATUS:	APPROVAL	DWG# F29528680-007-01	PG 1 OF 3 REV –

REV	DESCRIPTION	BY	DATE
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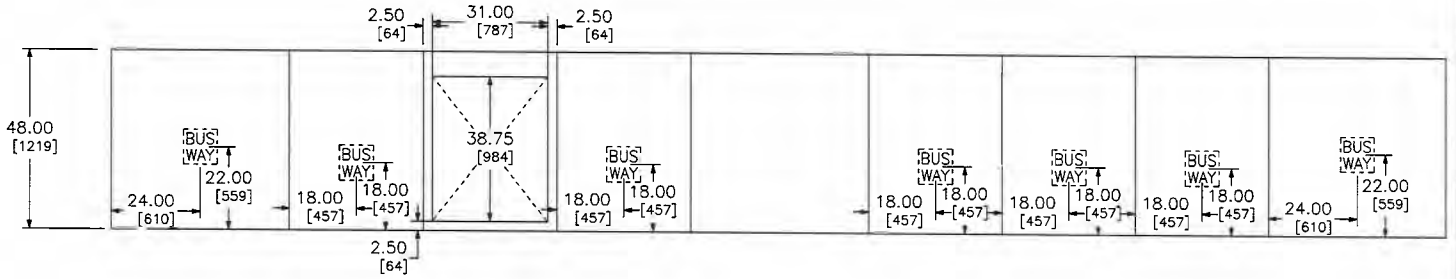
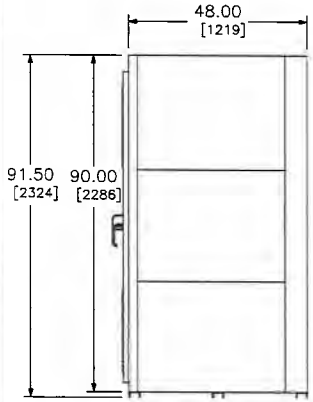
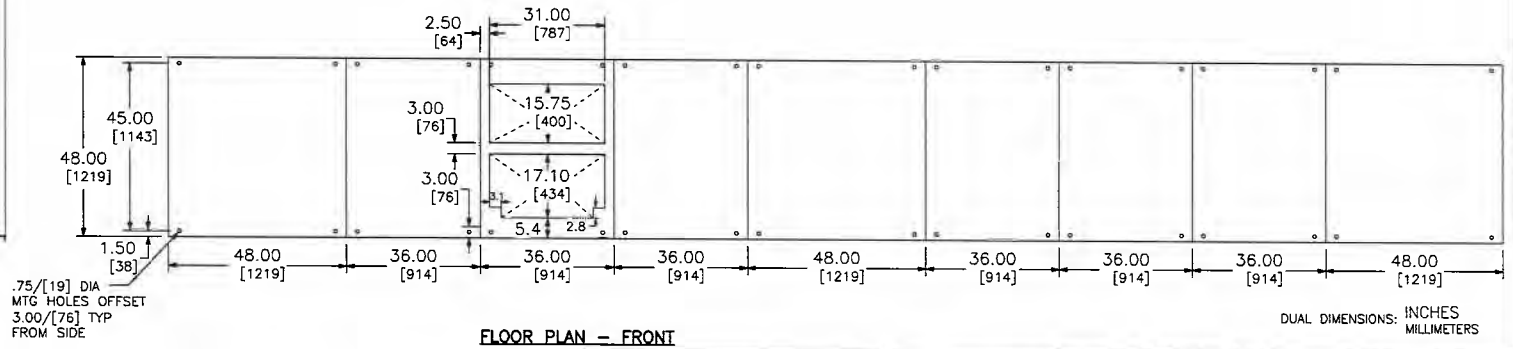


TOP VIEW – FRONT



LEFT SIDE VIEW



FLOOR PLAN – FRONT

DUAL DIMENSIONS: INCHES MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	480 VOLT SWITCHBOARD
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
ENGR:	MTD		
DATE:	JUNE 12, 2012		
DRAWING STATUS:	APPROVAL	DWG# F29528680-007-01	PG 2 OF 3 REV –

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

SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

480Y/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 100kA RMS
Incoming Section 1 Busway Through the Top
Incoming Section 9 Busway Through the Top

Bus System Data

5000A Silver Plated Copper Main Bus
(8) .25x2.00 IN/6x51 mm Cu Bus Bar Per Phase/Neutral
(1) .25x2.25 IN/6x57 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing
Exterior Paint Color: ANSI 49
Mimic Bus: Black Tape
Front & Rear Accessibility Required
Handling: Rollers
Hinged Rear Door w/ Lock Provision (Customer to Provide padlock)
Steel Section Barriers

Estimated Shipping Weight

Shipping Split 1 1351.00 lbs / 612.81 kgs
Shipping Split 2 885.00 lbs / 401.44 kgs
Shipping Split 3 1075.00 lbs / 487.62 kgs
Shipping Split 4 885.00 lbs / 401.44 kgs
Shipping Split 5 1400.00 lbs / 635.04 kgs
Shipping Split 6 885.00 lbs / 401.44 kgs
Shipping Split 7 885.00 lbs / 401.44 kgs
Shipping Split 8 885.00 lbs / 401.44 kgs
Shipping Split 9 1351.00 lbs / 612.81 kgs
Complete Lineup 9602.00 lbs / 4355.47 kgs

Code Standards

U.L. Deadfront and suitable for use as Service Entrance
when not more than six (6) disconnecting means are provided.

Rating Nameplates

ST1– Service Entrance – Section Bus 5000A
ST2– Deadfront– Section Bus 2500A
ST3– Deadfront– Section Bus 3000A
ST4– Deadfront– Section Bus 2000A
ST5– Deadfront– Section Bus 5000A
ST6– Deadfront– Section Bus 2500A
ST7– Deadfront– Section Bus 2500A
ST8– Deadfront– Section Bus 2500A
ST9– Service Entrance – Section Bus 5000A

PRODUCT INFORMATION

Wiring

All wiring to be Machine Tool Wire type

Instruction Bulletins

Reference 80043-055 For Handling, Installation,
Anchoring, Inspection And Maintenance Information

Product Accessories/Options

Autotransfer System with Open Transition
- Automatic Retransfer
- Preferred Source

Certified Test Report
24V Trip Unit Display Power
Network Comms Only – Modbus TCP – Ethernet Copper
Customer Ethernet Network – 10/100Mb Copper

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	480 VOLT SWITCHBOARD
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	GENERAL NOTES
ENGR:	MTD		
DATE:	JUNE 12, 2012		
DRAWING STATUS:	APPROVAL	DWG#	F29528680-007-01 PG 3 OF 3 REV -

REV	DESCRIPTION	BY	DATE
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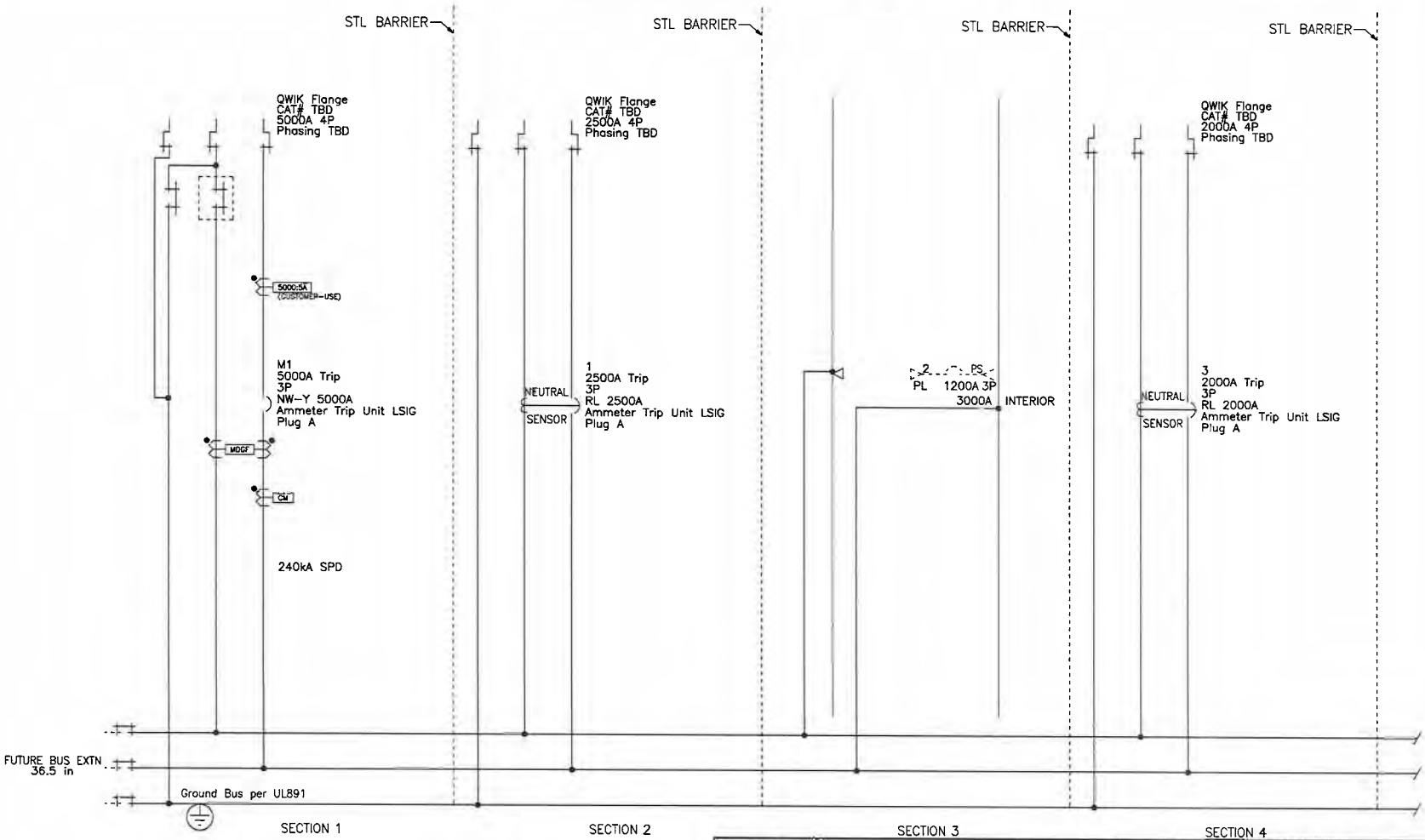

JOB NAME:	DOCKING STATE OFFICE BUILDING
JOB LOCATION:	TOPEKA KS
DRAWN BY:	CAD
ENGR:	MTD
DATE:	JUNE 12, 2012
DRAWING STATUS:	APPROVAL

EQUIPMENT DESIGNATION:	480 VOLT SWITCHBOARD
EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWING TYPE:	ONE LINE
DWG#	029528680-007-01

PG 1 OF 4 | REV -

REV	DESCRIPTION	BY	DATE
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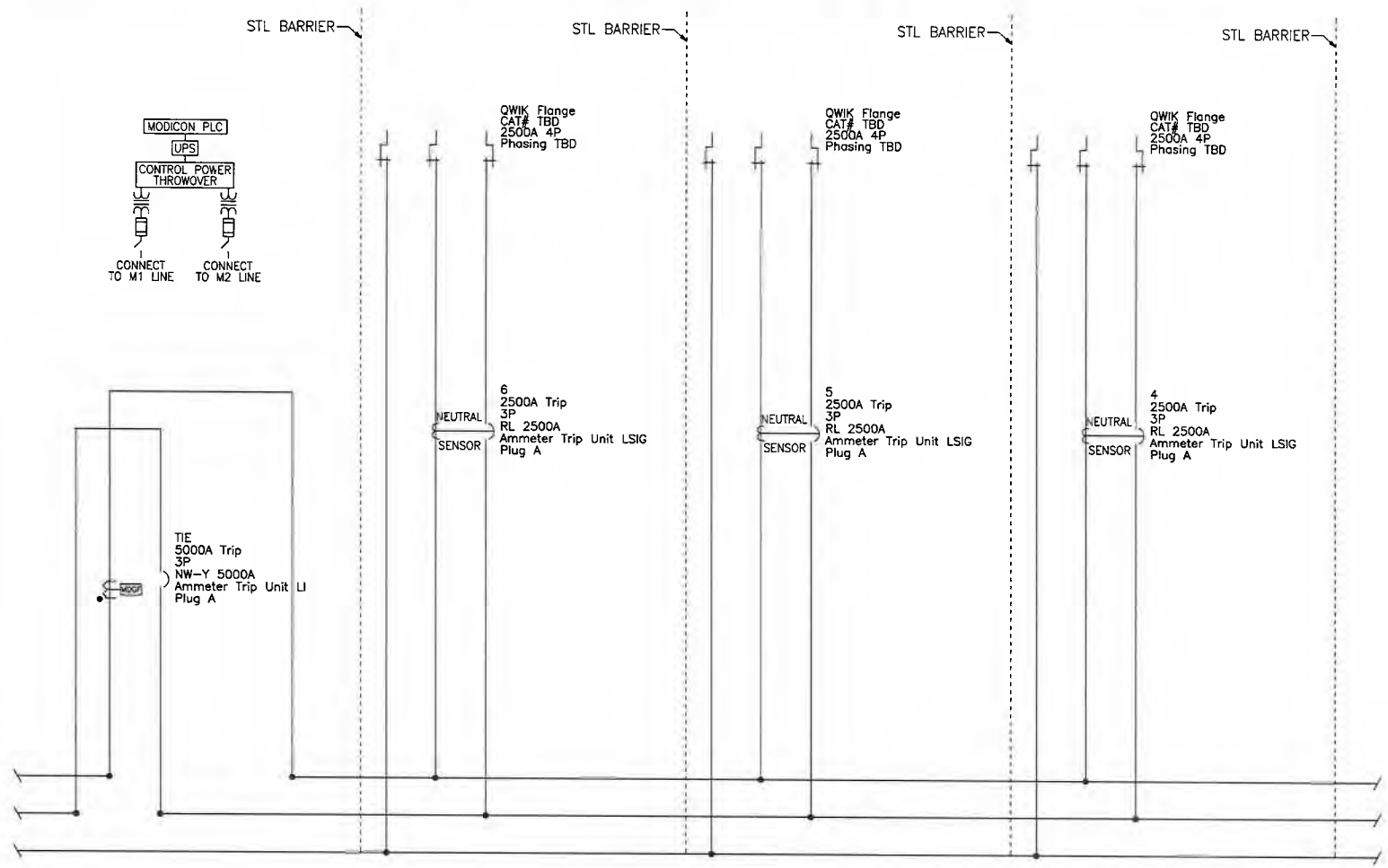

JOB NAME:	DOCKING STATE OFFICE BUILDING
JOB LOCATION:	TOPEKA KS
DRAWN BY:	CAD
ENGR:	MTD
DATE:	JUNE 12, 2012
DRAWING STATUS:	APPROVAL

EQUIPMENT DESIGNATION:	480 VOLT SWITCHBOARD
EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWING TYPE:	ONE LINE

DWG# 029528680-007-01 | PG 2 OF 4 | REV -

REV	DESCRIPTION	BY	DATE
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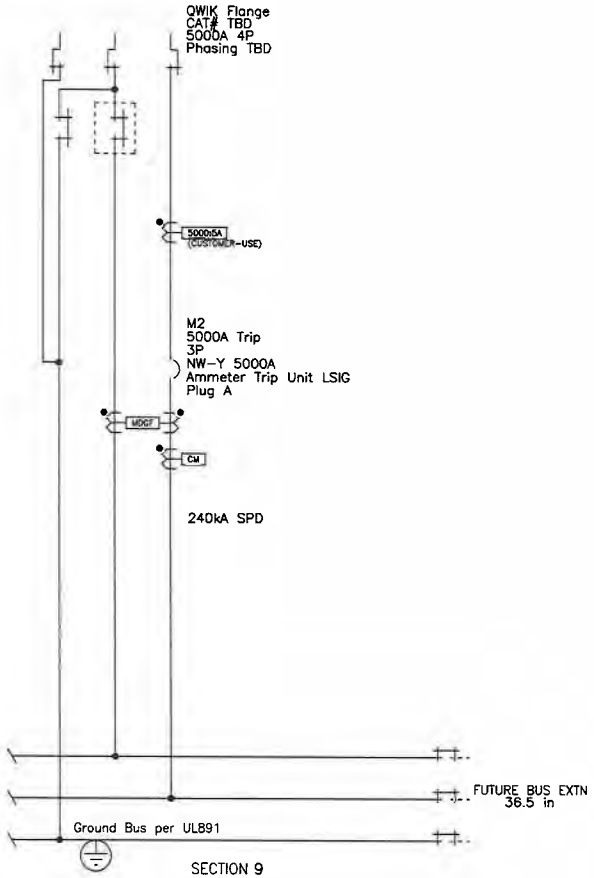

JOB NAME: DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION: 480 VOLT SWITCHBOARD
JOB LOCATION: TOPEKA KS	EQUIPMENT TYPE: QED SWITCHBOARD
DRAWN BY: CAD	DRAWING TYPE: ONE LINE
ENGR: MTD	
DATE: JUNE 12, 2012	
DRAWING STATUS: APPROVAL	DWG# 029528680-007-01 PG 3 OF 4 REV -

JCSBC
2-2-16
Att.9Db.--239

REV	DESCRIPTION	BY	DATE
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POWER STYLE QED-2 SWITCHBOARD

SECT NO	CKT NO	GMD HEIGHT	DEVICE/FRAME RATING	TRIP AMP	FUSE/ TRIP	#P	DESIGNATION	N/P	LUG INFORMATION				ACCESSORIES
									QTY	PHASE WIRE RANGE	QTY	NEUT. WIRE RANGE	
1	M1	–	NW 5000A Plug A	5000A	A–LSIG	3P	MAIN 1	No	–	Busway	–	Busway	PLC,COM,SDE1,OF8,UC2,MCH,MX1,MX2,XF,PLA,CCT,ECC
1	M1	–	–	–	–	–	–	–	–	–	–	–	CM,SPD
2	1	–	RL2500A Plug A 100%	2500A	A–LSIG	3P	2500A FUTURE BUSDUCT	No	–	–	–	–	GF,COM,PLA
3	2	9 in	PL (PS)	(1200A)	–	3P	PREPARED I–LINE SPACE	No	4	3/0 – 500 kcmil	4	3/0 – 500kcmil	
4	~~3~~	~~–~~	~~RL2000A Plug A 100%~~	~~2000A~~	~~A–LSIG~~	~~3P~~	~~SWITCHBOARD SBDC 1~~	No	–	–	–	–	GF,COM,PLA
5	TIE	–	NW 5000A Plug A	5000A	A–LI	3P	T.E	No	–	–	–	–	PLC,COM,SDE1,OF8,UC2,MCH,MX1,MX2,XF,PLA
6	6	–	RL2500A Plug A 100%	2500A	A–LSIG	3P	SWITCHBOARD H3	No	–	–	–	–	GF,COM,PLA
7	5	–	RL2500A Plug A 100%	2500A	A–LSIG	3P	CONTROL CENTER NO. 1	No	–	–	–	–	GF,COM,PLA
8	4	–	RL2500A Plug A 100%	2500A	A–LSIG	3P	FUTURE 2500A BUSDUCT	No	–	–	–	–	GF,COM,PLA
9	M2	–	NW 5000A Plug A	5000A	A–LSIG	3P	MAIN 2	No	–	Busway	–	Busway	PLC,COM,SDE1,OF8,UC2,MCH,MX1,MX2,XF,PLA,CCT
9	M2	–	–	–	–	–	–	–	–	–	–	–	CM,SPD

LEGEND	
CCT	(3) 5000:5A CT's (Customer–use)
CM	Circuit Monitor CM4000T
COM	Communications
ECC	Ethernet Communications Card
GF	Ground Fault
MCH	Spring Charging Motor
MX1	Shunt Trip
MX2	Shunt Trip Second
OF8	8 Form C Breaker Aux Contacts
PLA	Padlock Attachment–Fixed
PLC	PLC Autotransfer Scheme
PM	Power Meter PM850RD
SDE1	Over Current Trip Switch
SPD	Surge Protection Device
UC2	Modified Differential Ground Fault
XF	Closing Coil

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	480 VOLT SWITCHBOARD
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	SCHEDULE
ENGR:	MTD		
DATE:	JUNE 12, 2012		
DRAWING STATUS:	APPROVAL	DWG# 029528680–007–01	PG 4 OF 4 REV –

Q2C Number: 29528680	**Quote Number:** 8	**Revision Number:** 0
Project Name: DOCKING STATE OFFICE BUILDING		**Quote Name:**

Item No.	Qty.	Catalog Number / Details
008-00	1	**Designation: SWITCHBOARD H3**

SQUARE D CUSTOM QED SWITCHBOARD
QED Switchboard

Square D Power Style Custom Switchboard
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NE[illegible]
System Voltage - 480Y/277V 3Ph 4W 60I
Source Description - Main is Remote
System Ampacity - 2500A
Bussing - Copper Plated with Silver
Neutral Bus - 100%
Max Available Fault Current (RMS) - 100
Enclosure - Type 1
Accessibility: Front Only
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Optional Copper Ground Bus
Lineup 1 BTU: 8888

LOCHNER
PROJECT NO. 10050480
DATE 7/12/12
BY LWS
FOR HWL
[X] NO EXCEPTIONS TAKEN
[ ] MAKE CORRECTIONS NOTED
[ ] AMEND AND RESUBMIT
[ ] REJECTED-SEE REMARKS
NOTE: REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM THE CONTRACT REQUIREMENTS OR FOR ANY DEFICIENCIES OF EQUIPMENT, WORK OR MATERIALS.

Dimensions
---
2 - 36" Wide Section(s)
2 - 36" Deep Enclosure(s)
Dimensions: 72.00" W X 36" Max D X 91.5" H
Approximate Weight: 1575.00

Incoming Requirements

UL Dead Front
Entry Point: Left of Lineup, Through the Top
Copper Busway, Qwik-Flange
Left to Right NCBA

Feeders

Devices Associated with Remote Main:

4 - 100AT 480V 80% Rated 3 Pole UL, Group Mounted Thermal Magnetic Prepared Space: Type HL
1 - 200AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JL
1 - 250AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type JL
1 - 30AT 480V 80% Rated 100 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type HL
1 - 600AT 480V 80% Rated 200 kA 3 Pole UL, Group Mounted Thermal Magnetic Circuit Breaker: Type LI

SQUARE D

by Schneider Electric

Job Name:	DOCKING STATE OFFICE BUILDING	Square D Quotation #:	29528680
Job Location:	TOPEKA, KS	Quotation Revision #:	
		Sales Contact:	DAVID FARMER
		Sales Contact Location:	436
Purchaser:	KRIZ-DAVIS COMPANY 56530	Customer:	STATE OF KANSAS DIV OF PURCHASES
Purchaser PO #:		Customer PO #:	
User:	STATE OF KANSAS DIV OF PURCHASES	Architect:	STATE OF KANSAS DIV OF PURCHASES
User Location:		Cons. Engineer:	
Drawing Status:	APPROVAL		

TABLE OF CONTENTS

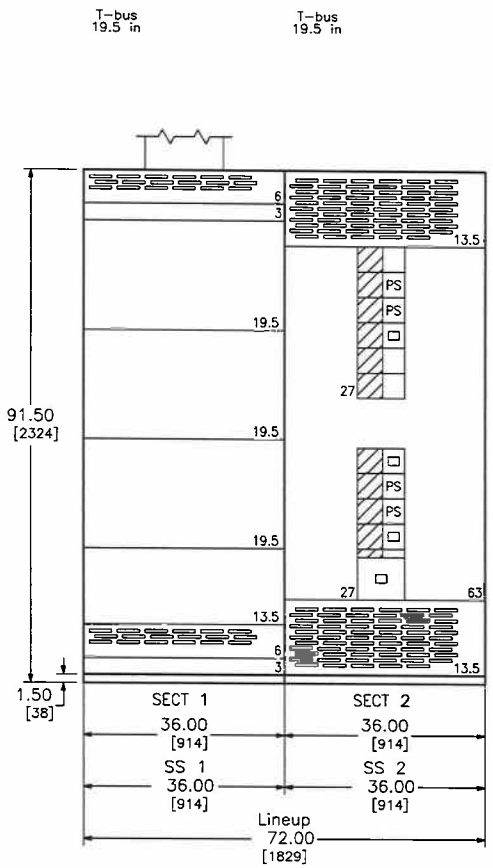
SQUARE D FACTORY ORDER NUMBER: 29528680-008

Equipment Designation	Equipment Type	Drawing Type	Drawing Number	Page	Revision Level
SWITCHBOARD H3	QED Switchboard	GENERAL NOTES	F29528680-008-01	1	–
		SIDE, TOP VIEW & FLOOR PLAN	F29528680-008-01	2	–
		ONE LINE	029528680-008-01	1	–
		SCHEDULE	029528680-008-01	2	–

These products are manufactured in a facility which is quality systems registered by Underwriters Laboratories to ISO 9000

JCSBC
2-2-16
Att.9Db.--242

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



SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

480Y/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 100kA RMS
Incoming Section 1 Busway Through the Top Left of Lineup

Bus System Data

2500A Silver Plated Copper Main Bus
(4) .25x2.00 IN/6x51 mm Cu Bus Bar Per Phase/Neutral
(1) .25x1.75 IN/6x44 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers & Lifting Assemblies

Estimated Shipping Weight

Shipping Split 1 660.00 lbs / 299.38 kgs
Shipping Split 2 915.00 lbs / 415.04 kgs
Complete Lineup 1575.00 lbs / 714.42 kgs

Code Standards

U.L. Deadfront

Rating Nameplates

ST1- Deadfront- Section Bus 2500A
ST2- Deadfront- Section Bus 2000A

PRODUCT INFORMATION

Wiring

All wiring to be Machine Tool Wire type

Instruction Bulletins

Reference 80043-055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

Product Accessories/Options

DUAL DIMENSIONS: INCHES / MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	GENERAL NOTES
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG# F29528680-008-01	PG 1 OF 2 REV -

REV	DESCRIPTION	BY	DATE
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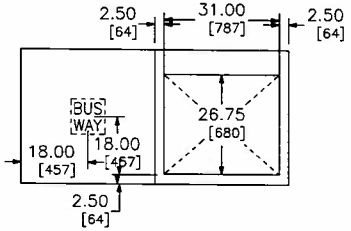
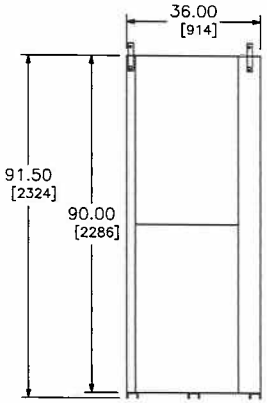
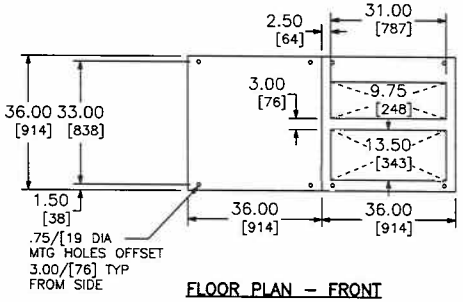


TOP VIEW – FRONT



LEFT SIDE VIEW



FLOOR PLAN – FRONT

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG# F29528680-008-01	PG 2 OF 2 REV –

REV	DESCRIPTION	BY	DATE
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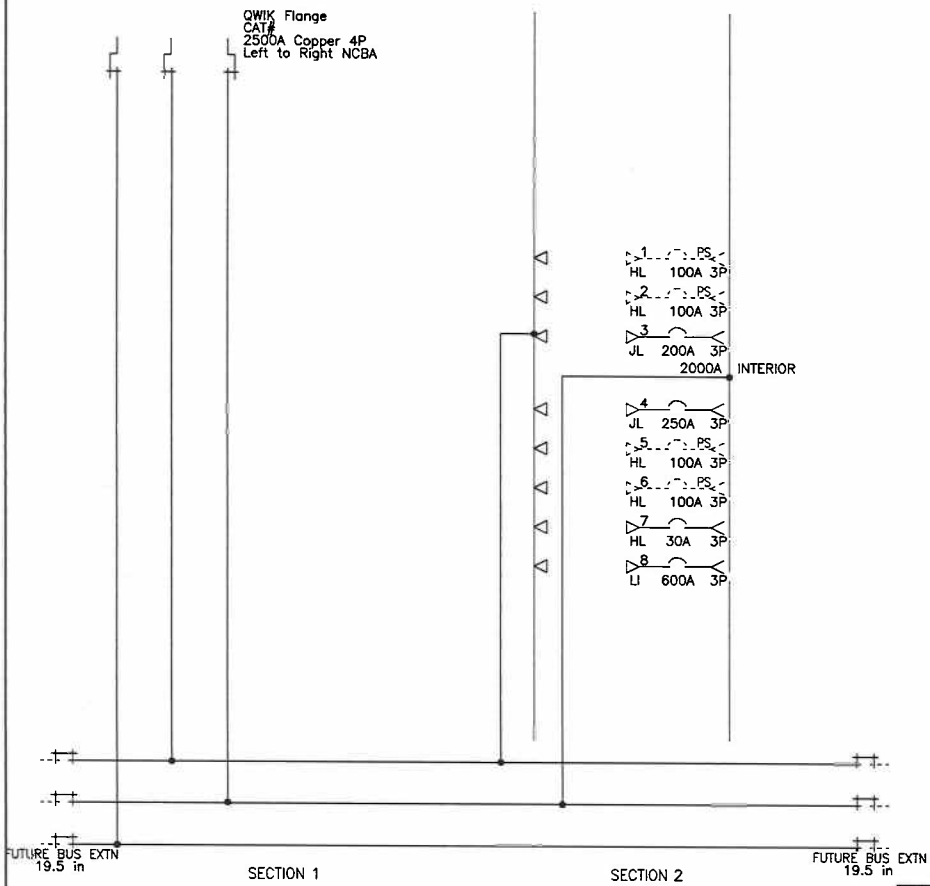

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	SWITCHBOARD H3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG# 029528680-008-01	PG 1 OF 2 REV -

REV	DESCRIPTION	BY	DATE
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POWER STYLE QED-2 SWITCHBOARD

SECT NO	CKT NO	GMD HEIGHT	DEVICE/FRAME RATING	TRIP AMP	FUSE/ TRIP	#P	DESIGNATION	N/P	LUG INFORMATION				ACCESSORIES
									QTY	PHASE WIRE RANGE	QTY	NEUT. WIRE RANGE	
1	–	–	Incoming Connection	–	–	–	–	–	–	Busway	–	–	
2	1	4.5 in	HL (PS)	(100A)	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	2	4.5 in	HL (PS)	(100A)	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	3	4.5 in	JL	200A	–	3P		No	1	3/0 – 350 kcmil	1	#6 – 350 kcmil	
2	4	4.5 in	JL	250A	–	3P		No	1	3/0 – 350 kcmil	1	#6 – 350 kcmil	
2	5	4.5 in	HL (PS)	(100A)	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	6	4.5 in	HL (PS)	(100A)	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	7	4.5 in	HL	30A	–	3P		No	1	#14 – 3/0 AWG	1	#14 – 1/0 AWG	
2	8	7.5 in	LI	600A	–	3P		No	2	4/0 – 500kcmil	2	250 – 600 kcmil	

LEGEND	
	No Accessories

JOB NAME:	DOCKING STATE OFFICE BUILDING
JOB LOCATION:	TOPEKA KS
DRAWN BY:	CAD
ENGR:	JL
DATE:	MAY 30, 2012
DRAWING STATUS:	APPROVAL

EQUIPMENT DESIGNATION:	SWITCHBOARD H3
EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWING TYPE:	SCHEDULE
DWG#	029528680-006-01

Q2C Number: 29528680	**Quote Number:** 8	**Revision Number:** 0
Project Name: DOCKING STATE OFFICE BUILDING		**Quote Name:**

Item No.	Qty.	Catalog Number / Details
009-00	1	**Designation: CONTROL CENTER NO 1 SWB**

SQUARE D CUSTOM QED SWITCHBOARD
QED Switchboard

Square D Power Style Custom Switchboard
Designed and Tested in accordance with:
UL 891/NATIONAL ELECTRIC CODE/NEMA PB-2
System Voltage - 480Y/277V 3Ph 4W 60Hz
Source Description - Main is Remote
System Ampacity - 2500A
Bussing - Copper Plated with Silver
Neutral Bus - 100%
Max Available Fault Current (RMS) - 65k/
Enclosure - Type 1
Accessibility: Front Only
Exterior Paint Color - ANSI 49
Ground Lug provided for each device
Optional Copper Ground Bus
Lineup 1 BTU: 15438

LOCHNER
PROJECT NO. 10050480
DATE 7/12/12
BY LWS
FOR HWL
[X] NO EXCEPTIONS TAKEN
[ ] MAKE CORRECTIONS NOTED
[ ] AMEND AND RESUBMIT
[ ] REJECTED-SEE REMARKS
NOTE: REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM THE CONTRACT REQUIREMENTS OR FOR ANY DEFICIENCIES OF EQUIPMENT, WORK OR MATERIALS.

Dimensions
---
4 - 36" Wide Section(s)
4 - 36" Deep Enclosure(s)
Dimensions: 144.00" W X 36" Max D X 9
Approximate Weight: 3440.00

Incoming Requirements

UL Dead Front
Entry Point: Left of Lineup, Through the Top
Copper Busway, Qwik-Flange
Front to Rear ABCN

Feeders

Devices Associated with Remote Main:

6 - 600AT 480V 80% Rated 3 Pole UL, Group Mounted Basic Electronic Trip Prepared Space: Type MJ
3 - 600AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MJ
1 - 500AT 480V 80% Rated 65 kA 3 Pole UL, Group Mounted Basic Electronic Trip Circuit Breaker: Type MJ

SQUARE D

by Schneider Electric

Job Name:	DOCKING STATE OFFICE BUILDING	Square D Quotation #:	29528680
Job Location:	TOPEKA, KS	Quotation Revision #:	
		Sales Contact:	DAVID FARMER
		Sales Contact Location:	436
Purchaser:	KRIZ-DAVIS COMPANY 56530	Customer:	STATE OF KANSAS DIV OF PURCHASES
Purchaser PO #:		Customer PO #:	
User:	STATE OF KANSAS DIV OF PURCHASES	Architect:	STATE OF KANSAS DIV OF PURCHASES
User Location:		Cons. Engineer:	
Drawing Status:	APPROVAL		

TABLE OF CONTENTS

SQUARE D FACTORY ORDER NUMBER: 29528680-009

Equipment Designation	Equipment Type	Drawing Type	Drawing Number	Page	Revision Level
CONTROL CENTER NO 1 SWB	QED Switchboard	ELEVATION VIEW	F29528680-009-01	1	–
		SIDE, TOP VIEW & FLOOR PLAN	F29528680-009-01	2	–
		GENERAL NOTES	F29528680-009-01	3	–
		ONE LINE	029528680-009-01	1	–
		SCHEDULE	029528680-009-01	2	–

REV	DESCRIPTION	BY	DATE
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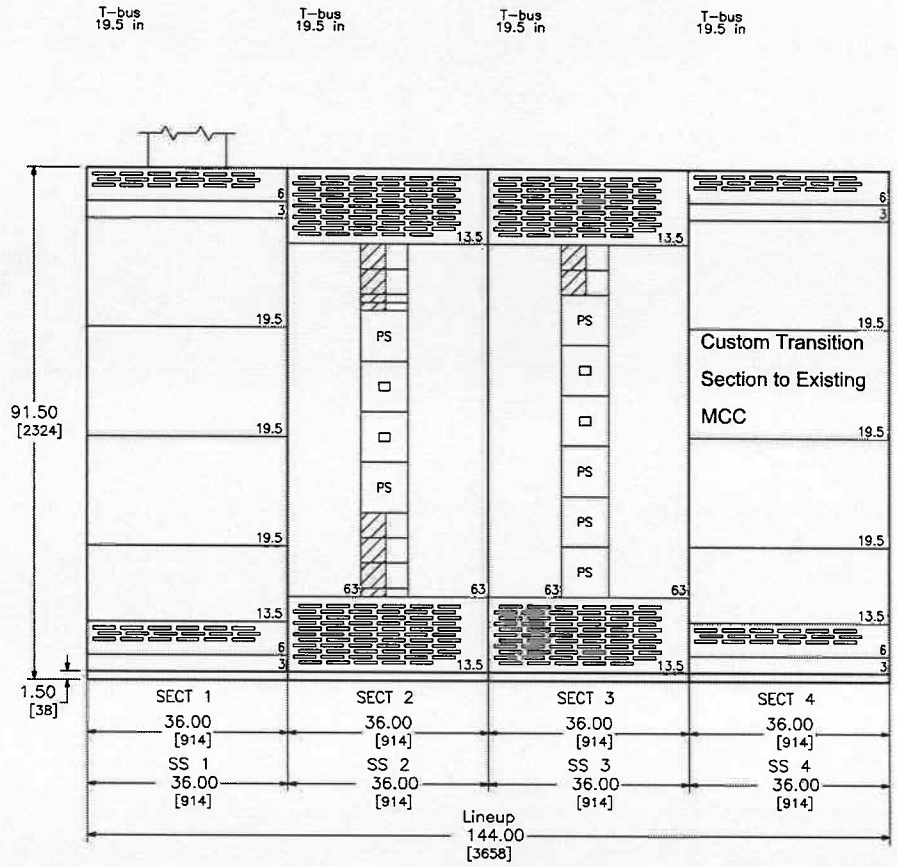

DUAL DIMENSIONS: INCHES MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	ELEVATION VIEW
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG#	F29528680-009-01

PG 1 OF 3 REV -

REV	DESCRIPTION	BY	DATE
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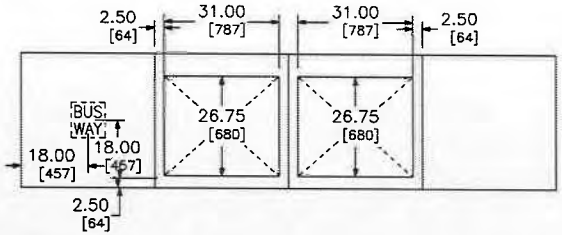
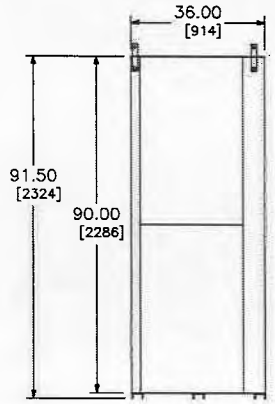
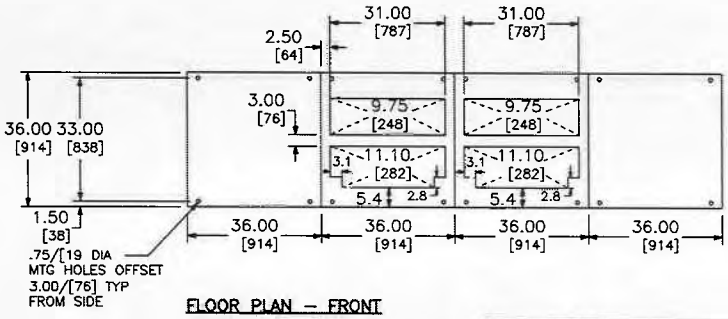


TOP VIEW – FRONT



LEFT SIDE VIEW



FLOOR PLAN – FRONT

DUAL DIMENSIONS: INCHES
MILLIMETERS

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	SIDE, TOP VIEW & FLOOR PLAN
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG#	F29528680-009-01

PG 2 OF 3 REV -

JCSBC
2-2-16
Att.9Db.--250

REV	DESCRIPTION	BY	DATE	-	----	--	--/--/--	-	----	--	--/--/--
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SWITCHBOARD GENERAL NOTES

PRODUCT DESCRIPTION & RATINGS

Power System Data

480Y/277V 3Ph 4W 60Hz / 3 Phase Wye
Solidly Grounded
System Short Circuit Current Rating: 65kA RMS
Incoming Section 1 Busway Through the Top Left of Lineup

Bus System Data

2500A Silver Plated Copper Main Bus
(4) .25x2.00 IN/6x51 mm Cu Bus Bar Per Phase/Neutral
(1) .25x1.75 IN/6x44 mm Cu Ground Bus

Enclosure Data

Type 1 Free Standing
Exterior Paint Color: ANSI 49
Front Accessibility Only Required
Handling: Rollers & Lifting Assemblies

Estimated Shipping Weight

Shipping Split 1 660.00 lbs / 299.38 kgs
Shipping Split 2 1020.00 lbs / 462.67 kgs
Shipping Split 3 1100.00 lbs / 498.96 kgs
Shipping Split 4 660.00 lbs / 299.38 kgs
Complete Lineup 3440.00 lbs / 1560.38 kgs

Code Standards

U.L. Deadfront

Rating Nameplates

ST1– Deadfront– Section Bus 2500A
ST2– Deadfront– Section Bus 2500A
ST3– Deadfront– Section Bus 2500A
ST4– Deadfront– Section Bus 2500A

PRODUCT INFORMATION

Wiring

All wiring to be Machine Tool Wire type

Instruction Bulletins

Reference 80043–055 For Handling, Installation, Anchoring, Inspection And Maintenance Information

Product Accessories/Options

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	GENERAL NOTES
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG#	F29528680-009-01 PG 3 OF 3 REV -

REV	DESCRIPTION	BY	DATE
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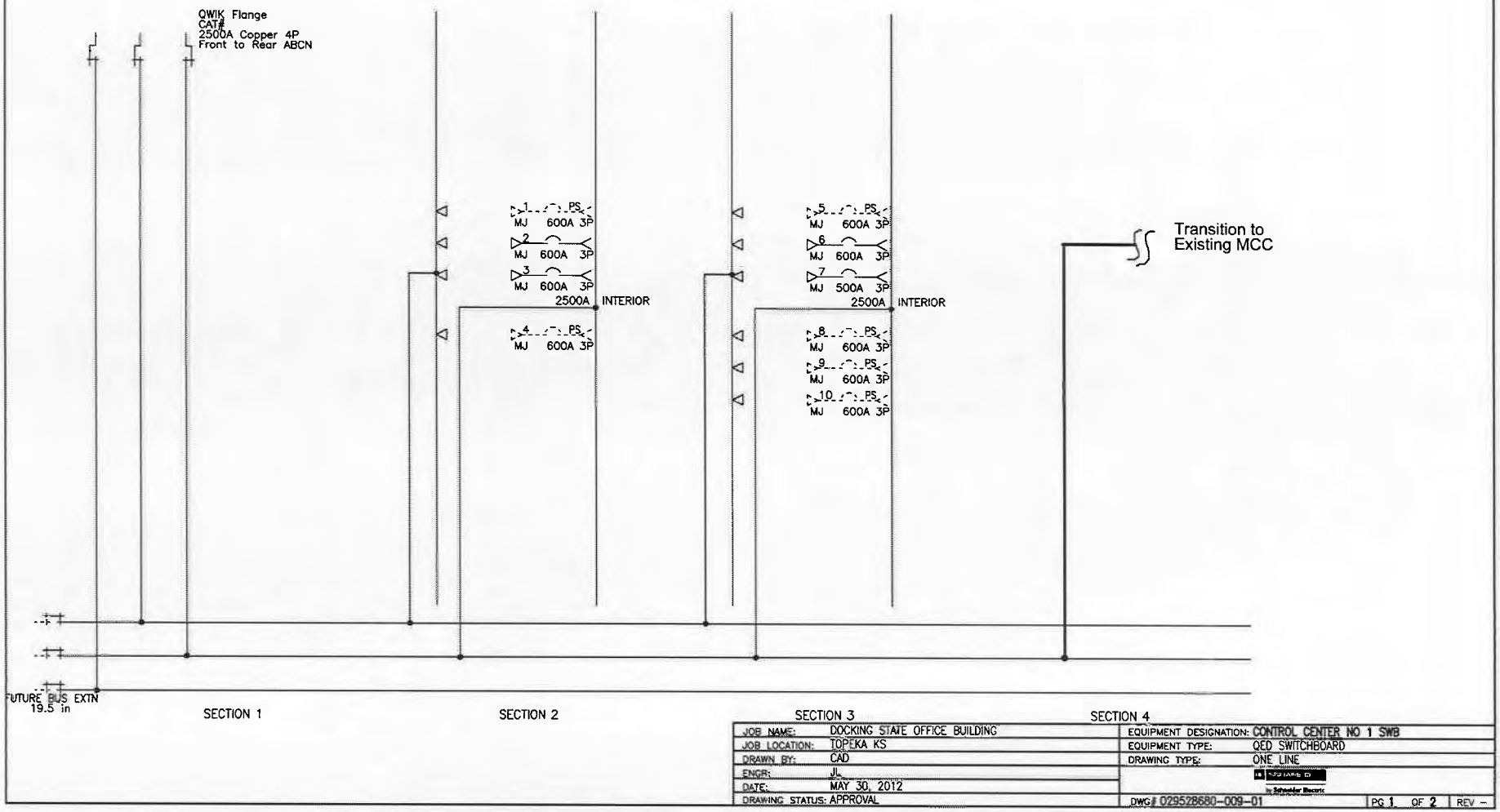

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	ONE LINE
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG#	029528680-009-01

PG 1 OF 2 | REV -

REV	DESCRIPTION	BY	DATE
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POWER STYLE QED-2 SWITCHBOARD

SECT NO	CKT NO	GMD HEIGHT	DEVICE/FRAME RATING	TRIP AMP	FUSE/ TRIP	#P	DESIGNATION	N/P	LUG INFORMATION				ACCESSORIES
									QTY	PHASE WIRE RANGE	QTY	NEUT. WIRE RANGE	
1	–	–	Incoming Connection	–	–	–	–	–	–	Busway	–	–	
2	1	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
2	2	9 in	MJ	600A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
2	3	9 in	MJ	600A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
2	4	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	5	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	6	9 in	MJ	600A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	7	9 in	MJ	500A	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	8	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	9	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	
3	10	9 in	MJ (PS)	(600A)	–	3P		No	3	3/0 – 500 kcmil	2	4/0 – 500kcmil	

LEGEND	
	No Accessories

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	CONTROL CENTER NO 1 SWB
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	QED SWITCHBOARD
DRAWN BY:	CAD	DRAWING TYPE:	SCHEDULE
ENGR:	JL		
DATE:	MAY 30, 2012		
DRAWING STATUS:	APPROVAL	DWG#	029528680-009-01 PG 2 OF 2 REV –

Q2C Number: 29528680	Quote Number: 8	Revision Number: 0
Project Name: DOCKING STATE OFFICE BUILDING		Quote Name:

Item No.	Qty.	Catalog Number / Details
014-00	1	**Designation: LCUS # 1** I-Line MB Panel (Interior) I-Line Panelboard Consisting of 208Y/120V 3Ph 4W 60Hz SCCR: 65kA Fully Rated Suitable For Use As Service Entrance UL Single Main: 1200A/3P PG Circuit Breake Incoming Conductors: 1 - (4) 3/0 - 500kcm AL Ground Bar Bus: Copper: Tin Plated 108" of Mounting Inches Type 1Box: 86H x 44W x 9.5D Incoming: Bottom Trim: Four-Piece Surfac Box Cat No: HC4486DB Front Cat No: HC Ref. Drawing: PBA414 Type: HCR-U Feeders: 1 - 50A/3P HG 2 - 50A/3P HG ST 1 - 300A/3P LH 3 - 90A/3P HG ST 1 - 100A/3P QG 6 - 225A/3P QG 1 - 250A/3P JG Optional Features: Standard Panel (Box Ahead),Standard Solid Neutral,Standard Ground Bar,Mains and Feeders Mechanically Restrained Standard Nameplate: Color: White Surface / Black Letters
026-00	1	**Designation:** LCUS # 1 HC4486DB (Box) I-Line Standard TYPE 1 Box 86 H
027-00	1	**Designation:** LCUS # 1 HCR86TS (Trim) Four-Piece Surface 86"H

LOCHNER

PROJECT NO. 10050480
DATE 7/12/12
BY LWS
FOR HWL

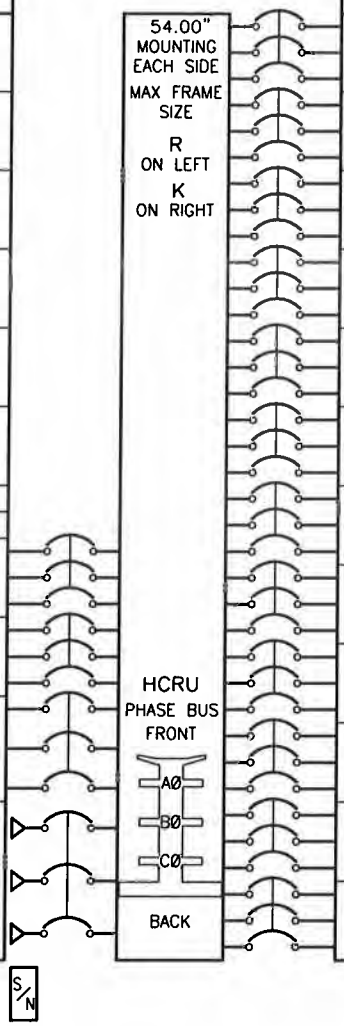
☐ NO EXCEPTIONS TAKEN
☒ MAKE CORRECTIONS NOTED
☐ AMEND AND RESUBMIT
☐ REJECTED-SEE REMARKS

NOTE: REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM THE CONTRACT REQUIREMENTS OR FOR ANY DEFICIENCIES OF EQUIPMENT, WORK OR MATERIALS.

1. There are no time-current curves included with this submittal.
2. LCUS#1 has an Aluminum Neutral which is supposed to be copper per project specification.
3. Panel #3 has an Aluminum Ground bar and an Aluminum Neutral which is supposed to be copper per project specification

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

CKT NO	ACCESSORIES	TYPE	RATING AMP/P	PHASE BUS CONN
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	4.50" BLANK			
	1.50" BLANK			
	1.50" BLANK			
1		HG	50/3	ABC
3	ST 120Vac	HG	50/3	ABC
5		LH	300/3	ABC
	BRANCH MOUNTED MAIN	PG	1200/3	ABC



PHASE BUS CONN	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
ABC	50/3	HG	ST 120Vac	2
ABC	90/3	HG	ST 120Vac	4
ABC	90/3	HG	ST 120Vac	6
ABC	90/3	HG	ST 120Vac	8
ABC	100/3	QG		10
ABC	225/3	QG		12
ABC	225/3	QG		14
ABC	225/3	QG		16
ABC	225/3	QG		18
ABC	225/3	QG		20
ABC	225/3	QG		22
ABC	250/3	JG		24

PHYSICAL DATA

UL Service Entrance
ENCLOSURE Type 1
Four-Piece Surface
FRONT CAT#: HCR86TS
BOX CAT#: HC4486DB
DIMENSIONS:
86"H x 44"W x 9.5"D
WIRE BENDING SPACE:
TOP - 12.4
BOTTOM - 16.3
LEFT SIDE - 12.5
RIGHT SIDE - 5.2
PBA: 414
BUSSING: Copper
Tin Plated
OPTIONAL FEATURES:
Aluminum Solid Neutral
(Continued on next page.)

ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Ampacity: 1200A
65kA SYMS. SCCR
MAIN: MAIN BREAKER PG 1200A
Bottom FEED
65kA AIR
INCOMING CONDUCTORS(S) PER NEC:
(4) 3/0 - 500kcmil
BRANCH MOUNTING TYPE: PLUG-ON
----------BRANCH SUMMATION----------

1 - 50A/3P HG	2 - 50A/3P HG ST
1 - 300A/3P LH	3 - 90A/3P HG ST
1 - 100A/3P QG	6 - 225A/3P QG
1 - 250A/3P JG	

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	LCUS # 1
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			SQUARE D by Schneider Electric
DATE:	June 26 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# 029528680-01	PG 1 OF 2 REV -

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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PHYSICAL DATA CONTINUED

ALUMINUM GROUND BAR
MAINS AND FEEDERS
MECHANICALLY RESTRAINED
Standard Nameplate
COLOR: White Surface / Black Letters

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	LCUS # 1
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	I-Line (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			SQUARE D by Schneider Electric
DATE:	June 26 2012		
DRAWING STATUS:	QUOTE	DWG# 029528680-01	PG 2 OF 2 REV –

Q2C Number: 29528680 **Quote Number:** 8 **Revision Number:** 0
Project Name: DOCKING STATE OFFICE BUILDING **Quote Name:**

Item No.	Qty.	Catalog Number / Details
013-00	1	**Designation: PANEL # 3** NQ MB Panel (Interior) NQ Panelboard Consisting of 208Y/120V 3Ph 4W 60Hz SCCR: 22kA Fully Rated Suitable For Use As Service Entrance UL Single Main: 400A/3P LA Circuit Breaker Incoming Conductors: 1 - #1 - 600,(2)#1 - 250 kcml ~~AL~~ Ground Bar Bus: Copper: Silver/Tin Plated 30 Circuit Interior Type 1Box: 86H x 20W x 5.75D Incoming: Bottom Trim: Surface - Hinged Box Cat No: MH86 Front Cat No: NC86VSHR Ref. Drawing: PBA710HR Feeders: 1 - Sub-Feed One: 175A/3P QD 1 - 50A/3P QOB-VH 18 - 20A/1P QOB-VH Prepared Space 1 - 60A/3P QOB-VH 1 - 150A/3P QOB-VH Optional Features: Standard Panel (Box Ahead),Standard Solid Neutral,Standard Ground Bar Branch User Placement Standard Nameplate: Color: White Surface / Black Letters
024-00	1	**Designation:** PANEL # 3 MH86 (Box) NQ Standard TYPE 1 Box 86 H
025-00	1	**Designation:** PANEL # 3 NC86VSHR (Trim) Trim Surface Hinged 86"H

Copper Ground Bar

REV	DESCRIPTION	BY	DATE	–	----	--	--/--/--
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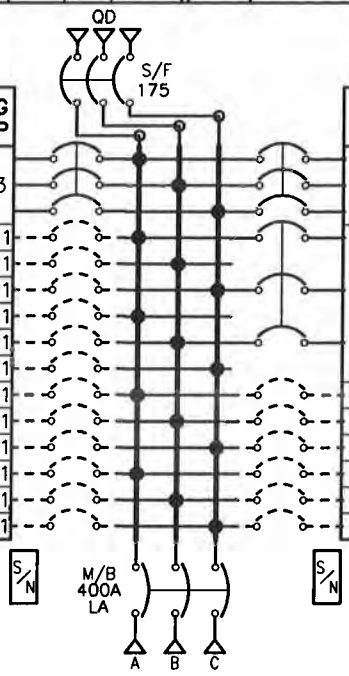
CKT NO	ACCESSORIES	TYPE	RATING AMP/P	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
1		QOB-VH	50/3	60/3	QOB-VH		2
3							4
5							6
7	PREPARED SPACE	QOB-VH	20/1	150/3	QOB-VH		8
9	PREPARED SPACE	QOB-VH	20/1				10
11	PREPARED SPACE	QOB-VH	20/1				12
13	PREPARED SPACE	QOB-VH	20/1				14
15	PREPARED SPACE	QOB-VH	20/1				16
17	PREPARED SPACE	QOB-VH	20/1				18
19	PREPARED SPACE	QOB-VH	20/1	20/1	QOB-VH	PREPARED SPACE	20
21	PREPARED SPACE	QOB-VH	20/1	20/1	QOB-VH	PREPARED SPACE	22
23	PREPARED SPACE	QOB-VH	20/1	20/1	QOB-VH	PREPARED SPACE	24
25	PREPARED SPACE	QOB-VH	20/1	20/1	QOB-VH	PREPARED SPACE	26
27	PREPARED SPACE	QOB-VH	20/1	20/1	QOB-VH	PREPARED SPACE	28
29	PREPARED SPACE	QOB-VH	20/1	20/1	QOB-VH	PREPARED SPACE	30



PHYSICAL DATA

UL Service Entrance
ENCLOSURE Type 1
Surface – Hinged
FRONT CAT#: NC86VSHR
BOX CAT#: MH86
DIMENSIONS:
86"H x 20"W x 5.75"D
WIRE BENDING SPACE:
TOP – 11
BOTTOM – 15.43
SIDE – 5.9
PBA: 710HR
BUSSING: Copper
Silver/Tin Plated
OPTIONAL FEATURES:
BRANCH USER PLACEMENT
~~Aluminum~~ Solid Neutral
~~ALUMINUM~~ GROUND BAR
Standard Nameplate
COLOR: White Surface / Black Letters

Copper Neutral and Ground Bar.

ELECTRICAL DATA

SYSTEM: 208Y/120V 3Ph 4W 60Hz
System Ampacity: 400A
22kA SYMS. SCCR
MAIN: MAIN BREAKER LA 400A
Bottom FEED
42kA AIR
INCOMING CONDUCTORS(S) PER NEC:
#1 – 600,(2)#1 – 250 kcmil
BRANCH MOUNTING TYPE: BOLT-ON
----------BRANCH SUMMATION----------
1 – 175A/3P QD
18 – 20A/1P-PS QOB-VH
1 – 150A/3P QOB-VH
1 – 50A/3P QOB-VH
1 – 60A/3P QOB-VH

JOB NAME:	DOCKING STATE OFFICE BUILDING	EQUIPMENT DESIGNATION:	PANEL # 3
JOB LOCATION:	TOPEKA KS	EQUIPMENT TYPE:	NQ (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY:	(Q2C)	DRAWING TYPE:	ONE LINE DIAGRAM
ENGR:			SQUARE D by Schneider Electric
DATE:	June 26 2012		
DRAWING STATUS:	QUOTE NOT FOR CONSTRUCTION	DWG# 029528680-01	PG 1 OF 1 REV –

JCSBC 2-2-16
Att.9Db.--258

Q2C Number: 29528680	Quote Number: 8	Revision Number: 0
Project Name: DOCKING STATE OFFICE BUILDING		Quote Name:

Item No.	Qty.	Catalog Number / Details
015-00	1	**EE112T3HCU** Transformer Dry Type 112.5kVA 480D208Y
016-00	1	DASKP250 PRIMARY LUG KIT
017-00	1	DASKS400 SECONDARY LUG KIT
018-00	1	**EE300T3HCU** Transformer Dry Type 300kVA 480D208Y120
019-00	1	DASKP1000 PRIMARY LUG KIT
020-00	1	DASKS1200 SECONDARY LUG KIT

LOCHNER

PROJECT NO. 10050375

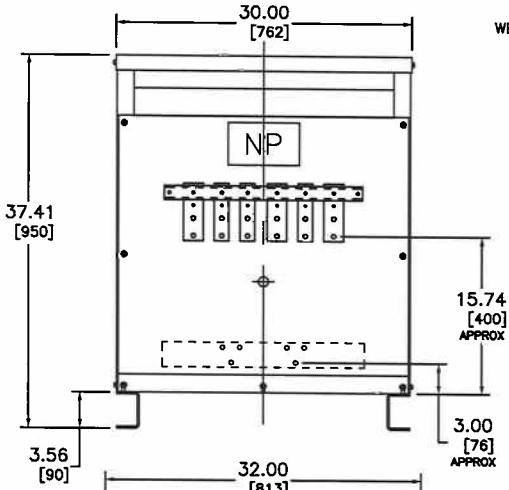
DATE 7/12/12 X NO EXCEPTIONS TAKEN

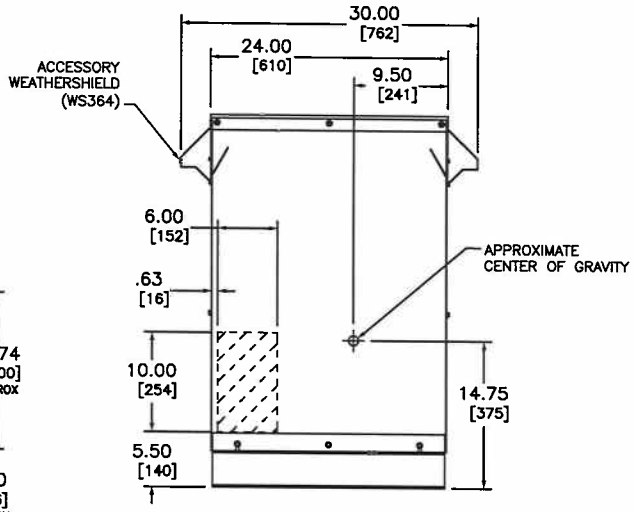
BY LWS ☐ MAKE CORRECTIONS NOTED

FOR HWL ☐ AMEND AND RESUBMIT

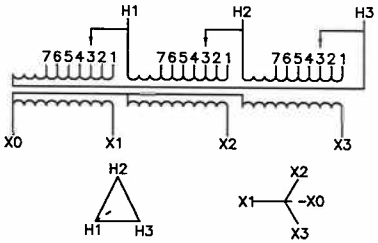
☐ REJECTED-SEE REMARKS

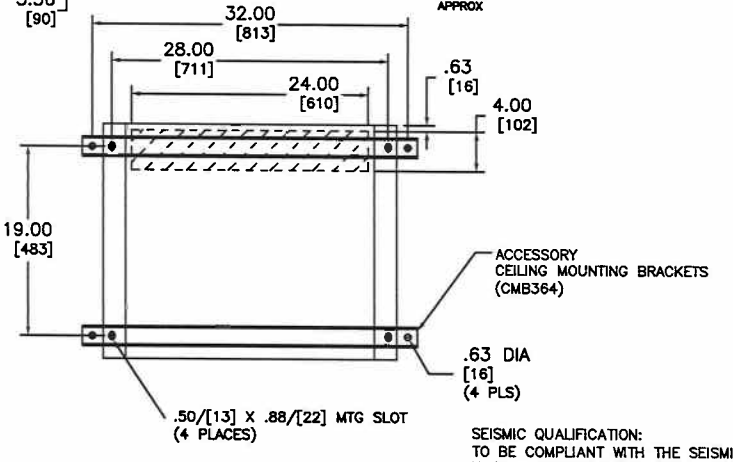
NOTE: REVIEW DOES NOT RELIEVE THE CONTRACTOR FROM ANY RESPONSIBILITY FOR ERRORS OR DEVIATIONS FROM THE CONTRACT REQUIREMENTS OR FOR ANY DEFICIENCIES OF EQUIPMENT, WORK OR MATERIALS.





IN EACH PHASE CONNECT TO TAPS	
PRIMARY VOLTS	2–2.5% FCAN 4–2.5% FCBN
504	1
492	2
480	3
468	4
456	5
444	6
432	7





TRANSFORMER SPECIFICATIONS:

112.5 KVA 3Ø 60 HZ
PRIMARY VOLTAGE 480 DELTA
SECONDARY VOLTAGE 208Y/120
150°C RISE ABOVE 40°C AMBIENT
220°C INSULATION SYSTEM
COPPER WINDINGS
APPROXIMATE WEIGHT: 755 LBS
GUARANTEED SOUND LEVEL: 50 dB
EFFICIENCY @35%: 98.2% AVG. CONFORMS TO NEMA TP 1 – 2002 AND CSA C802.2

NOTES:
1) cULus LISTED (MEETING UL 1561 AND CSA C22.2)
2) NEMA 2 VENTILATED ENCLOSURE ENCLOSURE RATED FOR NEMA 3R WHEN OPTIONAL WEATHERSHIELD ACCESSORY IS INSTALLED.
3) MINIMUM CLEARANCE OF 3.00[76] BETWEEN VENT OPENINGS, WALL OR OTHER OBSTRUCTION
4) SHADED AREAS DENOTE CUSTOMER CONDUIT ENTRANCE LOCATIONS, AVAILABLE BOTH SIDES AND BOTTOM

SEISMIC QUALIFICATION:
TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7, THIS UNIT HAS BEEN QUALIFIED BY SHAKE TABLE TESTING THROUGH SELF CERTIFICATION TO ICC ES AC156. CONTACT YOUR LOCAL SCHNEIDER ELECTRIC/SQUARE D REPRESENTATIVE FOR RELATED QUESTIONS.

DUAL DIMENSIONS: INCHES / MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY–TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE,112.5 kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

DWG# NO. 6312–0016

OCTOBER 2006

SHEET 1 OF 2

JCSBC
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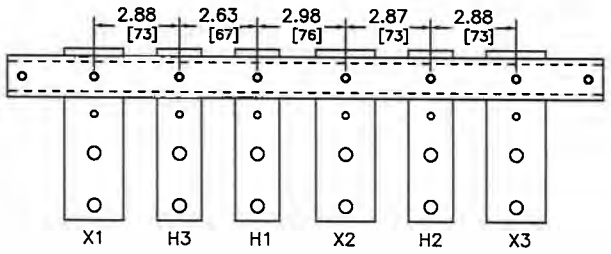
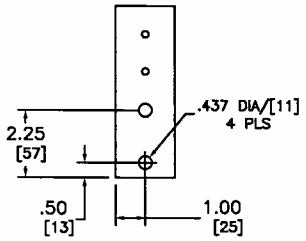
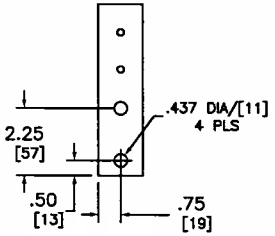
Att.9Db.--260

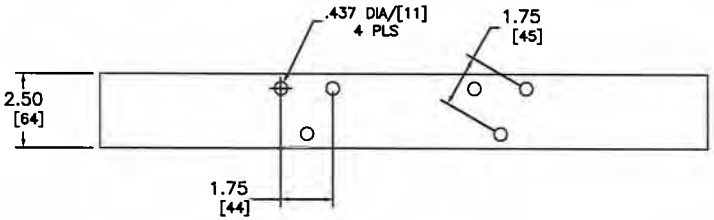




X TERMINAL DETAIL



H TERMINAL DETAIL



XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES
MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE,112.5 kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

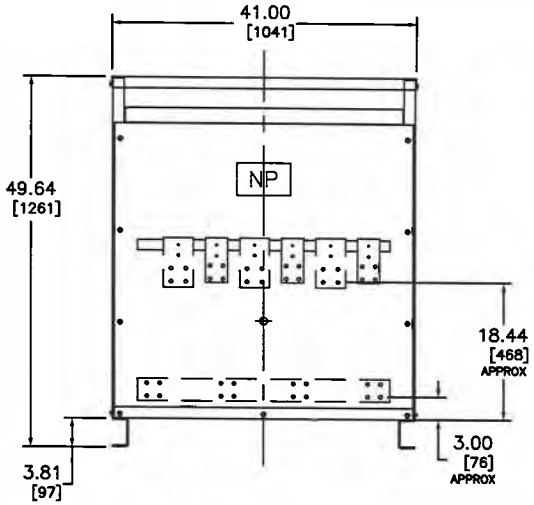
SQUARE D
Schneider Electric

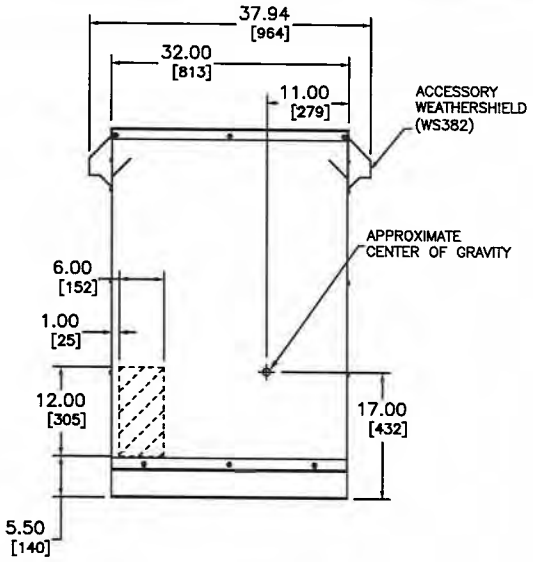
DWG# NO. 6312-0016

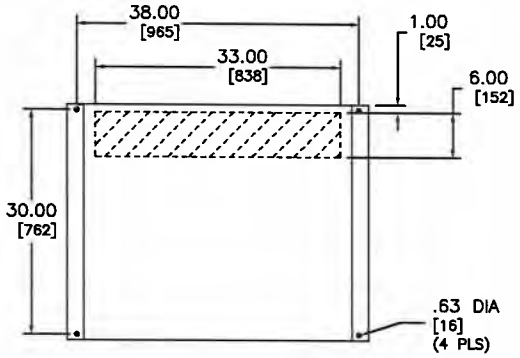
OCTOBER 2006

SHEET 2 OF 2

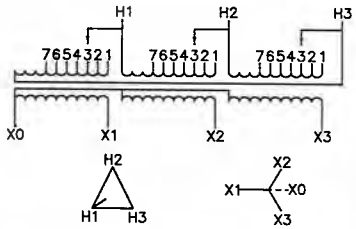
JCSBC
2-2-16
Att.9Db.--261







IN EACH PHASE CONNECT TO TAPS	
PRIMARY VOLTS	2–2.5% FCAN 4–2.5% FCBN
504	1
492	2
480	3
468	4
456	5
444	6
432	7



TRANSFORMER SPECIFICATIONS

300 KVA 3Ø 60 HZ
PRIMARY VOLTAGE 480 DELTA
SECONDARY VOLTAGE 208Y/120
150°C RISE ABOVE 40°C AMBIENT
220°C INSULATION SYSTEM
COPPER WINDINGS
APPROXIMATE WEIGHT: 1535 LBS
GUARANTEED SOUND LEVEL: 55 dB
EFFICIENCY @35%: 98.6% AVG. CONFORMS TO NEMA TP 1 – 2002 AND CSA C802.2

NOTES:
1) cULus LISTED (MEETING UL 1561 AND CSA C22.2)
2) NEMA 2 VENTILATED ENCLOSURE
ENCLOSURE RATED FOR NEMA 3R WHEN OPTIONAL WEATHERSHIELD ACCESSORY IS INSTALLED.
3) MINIMUM CLEARANCE OF 3.00[76] BETWEEN VENT OPENINGS, WALL OR OTHER OBSTRUCTION
4) SHADED AREAS DENOTE CUSTOMER CONDUIT ENTRANCE LOCATIONS, AVAILABLE BOTH SIDES AND BOTTOM

SEISMIC QUALIFICATION:
TO BE COMPLIANT WITH THE SEISMIC REQUIREMENTS OF ASCE/SEI 7, THIS UNIT HAS BEEN QUALIFIED BY SHAKE TABLE TESTING THROUGH SELF CERTIFICATION TO ICC ES AC156. CONTACT YOUR LOCAL SCHNEIDER ELECTRIC/SQUARE D REPRESENTATIVE FOR RELATED QUESTIONS.

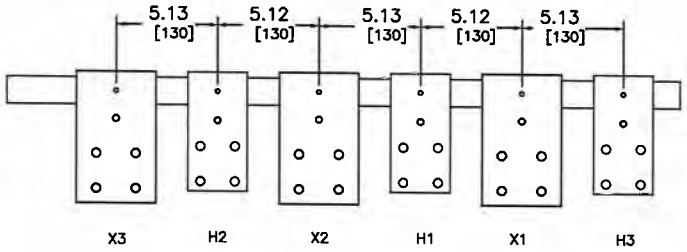
DUAL DIMENSIONS: INCHES MILLIMETERS

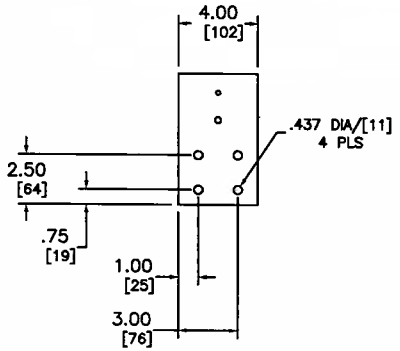
LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY–TYPE TRANSFORMER
CATALOG NO EE300T3HCU
3 PHASE, 300kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

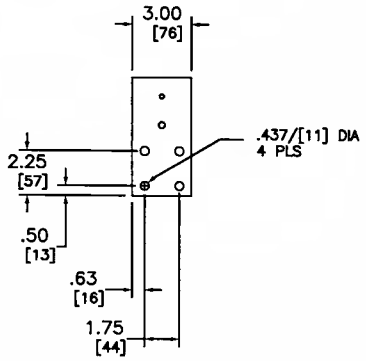
DWG# NO. 6312–0019

1JUN2011 REV B

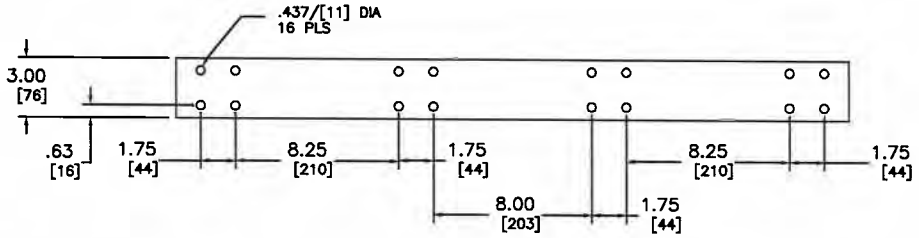




X TERMINAL DETAIL



H TERMINAL DETAIL



XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES
MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY–TYPE TRANSFORMER
CATALOG NO EE300T3HCU
3 PHASE, 300kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

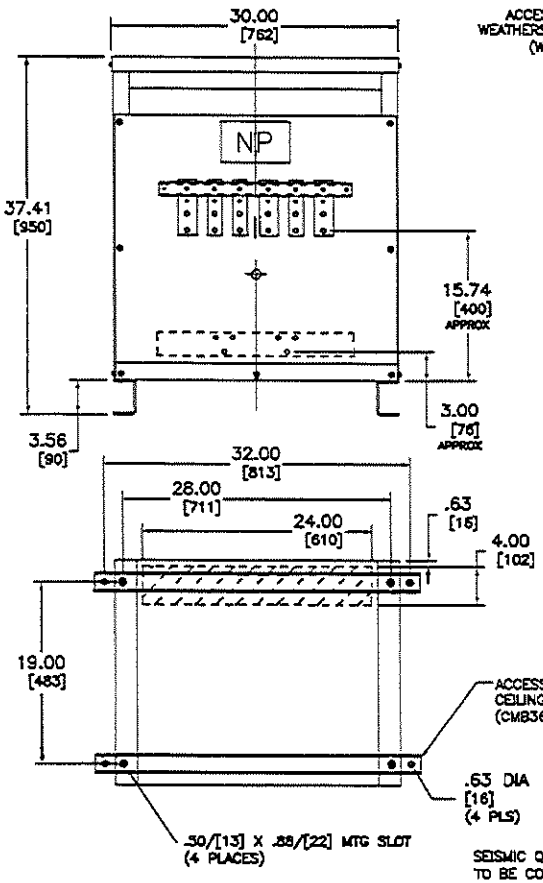
SQUARE D
Schneider Electric

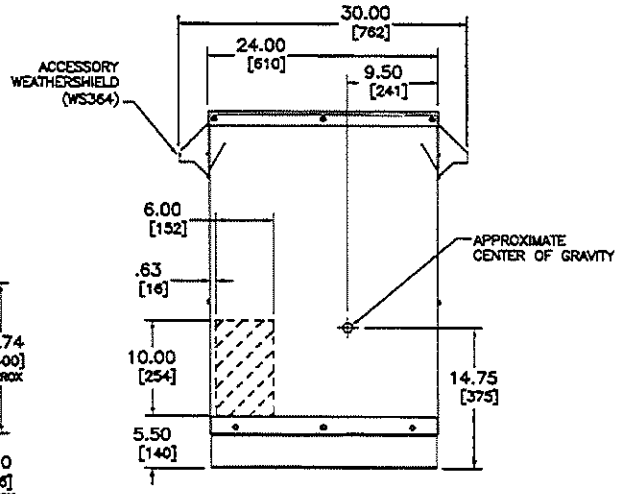
DWG# NO. 6312–0008

1JUN2011 REV B

SHEET 2 OF 2

JCSBC
2-2-16
Att.9Db.--263





IN EACH PHASE CONNECT TO TAPS	
PRIMARY VOLTS:	2-2.5% FCAN 4-2.5% FCBN
504	1
492	2
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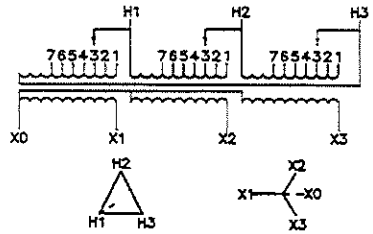

TRANSFORMER SPECIFICATIONS:
112.5 KVA 3Ø 60 HZ
PRIMARY VOLTAGE 480 DELTA
SECONDARY VOLTAGE 208Y/120
150°C RISE ABOVE 40°C AMBIENT
220°C INSULATION SYSTEM
COPPER WINDINGS
APPROXIMATE WEIGHT: 735 LBS
GUARANTEED SOUND LEVEL: 50 dB
EFFICIENCY @35%: 98.2% AVG. CONFORMS TO NEMA TP 1 – 2002 AND CSA C802.2

NOTES:
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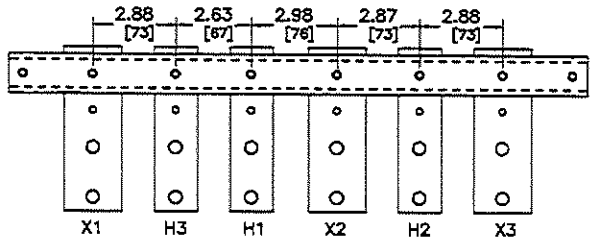
DUAL DIMENSIONS: INCHES / MILLIMETERS

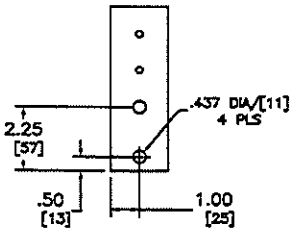
LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE 112.5 KVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

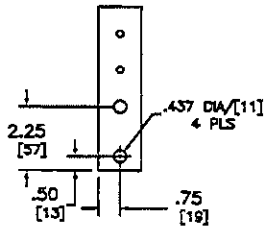
DWG# NO. 6312-0016

OCTOBER 2006

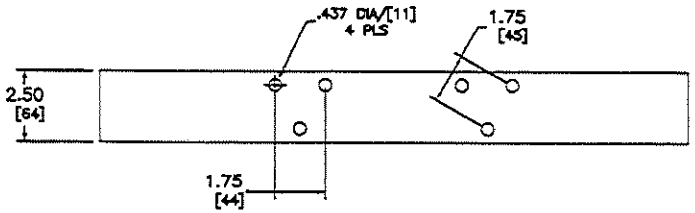




X TERMINAL DETAIL



H TERMINAL DETAIL



XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES / MILLIMETERS

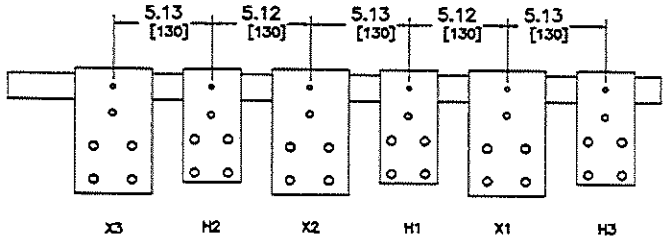
LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE112T3HCU
3 PHASE 112.5 kVA, CU
PRIMARY 480 DELTA, SECONDARY 208Y/120

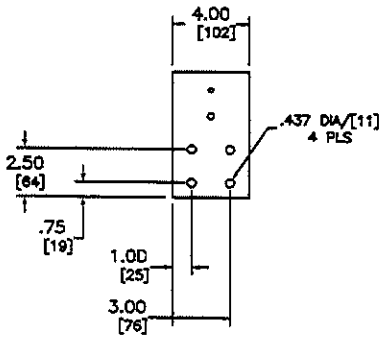
SQUARE D
Schneider Electric

DWG# NO. 6312-0016

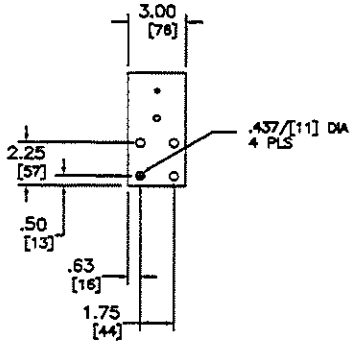
OCTOBER 2006

SHEET 2 OF 2





X TERMINAL DETAIL



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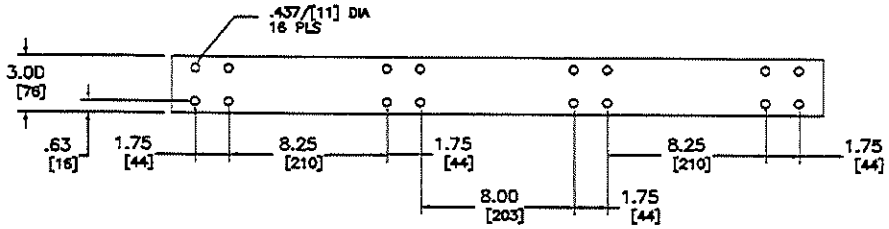

XO TERMINAL DETAIL

DUAL DIMENSIONS: INCHES / MILLIMETERS

LOW VOLTAGE ENERGY EFFICIENT, TP1
DRY-TYPE TRANSFORMER
CATALOG NO EE300T3HCU
3 PHASE, 300kVA, CU
PRIMARY 480 DELTA ,SECONDARY 208Y/120

SQUARE D
Schneider Electric

DWG# NO. 6312-0008

1JUN2011 REV B

SHEET 2 OF 2