Installation, Operation & Maintenance Manual DataSafe™ HX Front Terminal Battery Cabinets

Publication No. US-HXFTCAB-IM-001 July 2009

This manual provides instructions regarding safety, storage, installation, operation and maintenance. Failure to observe the precautions as presented may result in injury or loss of life.

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www.enersys.com

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1. INTRODUCTION

DataSafe™ HX Front Terminal Battery Cabinets are shipped partially assembled, internally pre-wired and come standard with an over current breaker. Each cabinet is designed to accommodate various DataSafe HX Front Terminal battery sizes and configurations. The removable hinged front doors and removable rear cover also allow for easier battery access. Maintenance rear covers are not needed since all batteries come with nylon straps for easier lifting and moving. Refer to the battery layout drawings and schematics at the end of this manual. Consult the EnerSys® Publication No.US-HX16-IOM Battery Operation and Maintenance Manual for complete instructions.

These battery systems are Hi-Pot tested to UL standards at the factory prior to shipment. All system settings are also adjusted at this time according to the specification sheet. Sales support for future equipment or upgrades is provided by our regional sales staff and qualified representatives. All technical questions and service issues should be directed to our service center 1-800-423-9602. This is a 24-hour, 7 day service number. After normal working hours, please leave a detailed message with your phone number on the voice mail system and a qualified service representative will contact you as quickly as possible.

2. PRECAUTIONS

⚠ **It is very important to read, understand and follow the instructions in this manual. Also note all SAFETY PRECAUTIONS before beginning the installation of this system.**

⚠ **Consult the EnerSys Publication No. US-HX16-IOM Battery Operation and Maintenance Manual for important battery information.**

⚠ **Battery cabinet systems are very heavy. Total weight can exceed 8,900 lbs, while single cabinets can weigh up to 5,400 lbs. Use at least 3 people when unloading and setting equipment in place.**

⚠ **It is imperative that only qualified personnel work on this system and installation, maintenance or upgrades be performed with insulated tools and equipment.**

⚠ **When installing this battery system, follow all applicable federal, state and local regulations and industry guidelines to insure a proper installation.**

⚠ **DC power and battery supplies are dangerous and have extremely high short circuit currents. Severe burns or death can result from a system short. They also can leak potentially explosive gas (hydrogen). Never enclose batteries or battery cabinets in a sealed air tight room.**

⚠ **Jewelry and watches must be removed prior to installing or servicing this system.**

⚠ **Do not smoke or present flame near or around any battery cabinet system.**

⚠ **Never leave a panel off or door open and unattended.**

3. INSPECTION UPON RECEIPT OF GOODS

3.1 General

Special precautions and care have been taken to ensure the cabinet system arrives safe and undamaged. However, upon receipt, you should inspect the entire shipment, including the crate and any boxes for evidence of damage that may have occurred during transit.

3.2 Visible Damage

It is the responsibility of the person receiving the shipment to inventory and fully inspect all materials against the bill of lading or way bill IMMEDIATELY, while the carrier representative is still present. Ensure that all items are accounted for, including number of skids and quantity of boxes. Also note any visible external damage that may have occurred during transit. Make all applicable notations on the delivery receipt before signing and file a damage report with the carrier.

3.3 Concealed Damage

Within 30 days of receipt, unpack the cabinet system and check for any concealed damage. Check the materials received against the detailed packing list to verify the quantity and the condition as complete and satisfactory.

Note any damage to the internal packaging, then request an inspection by the carrier and file a concealed damage claim. If there is a material shortage, contact your EnerSys® representative or call the corporate number listed on the back of this manual.

Please contact your shipping company for all shipping damage. EnerSys is not responsible for any shipping damage.

3.4 Return of Damaged Goods

A RMA number must be obtained before returning equipment to EnerSys. Contact your EnerSys representative or call the corporate number listed on the back of this manual.

4. SYSTEM OVERVIEW

The enclosed cabinet systems provide the necessary DC backup power required in UPS applications. Over-current breaker/fuse protection is supplied. DC connections are front accessible and made via terminal blocks and/or mechanical lugs. Refer to the drawings and schematics at the end of this manual for these connections. There are 3 holes per polarity on the breaker to accept 250-500 MCM cable. It is highly recommended to run 3 runs of smaller cable into the cabinets and breakers because of tight bend radius requirements in the cabinets; i.e. 3 each 250 MCM cables paralleled for an 800 Amp breaker.

During normal conditions the UPS supplies the load power and the necessary power required to keep the batteries at the proper float voltage. Verify that the charger is set to charge parameters within the approved float voltage range of the batteries, refer to EnerSys Publication No. US-HX16-IOM Battery Operation and Maintenance Manual.

When AC fails, the batteries discharge in order to provide the necessary backup power. It is the responsibility of the customer to make sure the batteries are not discharged below the battery manufacturer's recommendations. Always recharge batteries per the EnerSys Publication No.US-HX16-IOM Battery Operation and Maintenance Manual. Batteries will be damaged if not recharged right away. See the UPS or DC system manual for more information.

5. GENERAL SYSTEM SPECIFICATIONS

5.1 DC Output Characteristics

- **Voltage:** (UPS Application) 120 to 480 VDC Nominal
- **Breaker:** Standard
- **Fuse Type:** Not standard, consult factory. If a fuse is provided, it is only to be replaced by a factory service technician.

CAUTION! Fire Hazard Warning:
Replace only with same type and rating of fuses supplied with the system.

- **Wire Size and Type:** Per NEC and/or local building and electrical codes.
- **Disconnect:** If a fuse has been provided in lieu of a breaker inside the cabinet, a disconnecting method must be provided per NEC code. This may be a fuse switch or circuit breaker. Size accordingly.

5.2 Batteries

- **Type**: Valve Regulated Lead Acid (VRLA), sealed, non-spillable.
- **Voltage**: 16 Volt DC Nominal.
- **Only cabinets with flame retardant batteries are suitable for computer room use!**

5.3 Grounding

- All grounding should be derived from the main building ground source.
- **Note**: All cabinet systems require grounding.

5.4 Environmental Conditions

The cabinet configuration nomenclature refers to “X wide” x “Y high”, this is the number of battery jars per shelf and the number of shelves high. For example: a 6x5 cabinet has 6 battery jars per shelf and the cabinet is 5 shelves high. The 16HX800F and 16HX925F 6x5 and 6x4 cabinet systems are divided into (2 ea.) 3x5 or 3x4 cabinets, one “Right” and one “Left”, to keep the weight of each cabinet below 5,500 lbs. Breakers can be located at the “Top” or “Side” of the cabinet and the dimensions vary accordingly.

Cabinet Dimensions:
16HX800F and 16HX925F
6x5, Top Breaker is 50.0” Wide x 31.5” Deep* x 84.0” High
6x4, Top Breaker is 50.0” Wide x 31.5” Deep* x 72.0” High
6x5, Side Breaker is 60.75” Wide x 31.5” Deep* x 72.0” High
16HX550F
6x5, Top Breaker is 32.0” Wide x 31.5” Deep* x 84.0” High
6x4, Top Breaker is 32.0” Wide x 31.5” Deep* x 72.0” High
6x5, Side Breaker is 42.5” Wide x 31.5” Deep* x 72.0” High

* All depth dimensions are of the cabinet only. The breaker handle extends from the front of the cabinet 2.25"; consider this distance when calculating aisle space in front of the cabinet. For mounting hole dimensions, please refer to the cabinet layout drawing at the end of this manual. Also included with each order is a floor template to mark anchor locations per cabinet.

Cabinet Weights: (Assembled)

16HX925F	VDC
6x5, Top Breaker is 8,960 lbs.	480
6x4, Top Breaker is 7,448 lbs.	384
6x5, Side Breaker is 8,960 lbs.	480
16HX800F	
6x5, Top Breaker is 8,500 lbs.	480
6x4, Top Breaker is 7,000 lbs.	384
6x5, Side Breaker is 8,500 lbs.	480
16HX550F	
6x5, Top Breaker is 5,250 lbs.	480
6x4, Top Breaker is 4,400 lbs.	384
6x5, Side Breaker is 5,250 lbs.	480

- **Temperature:** Normal operating temperatures are between 68ºF -77ºF. **Note:** Batteries typically should be at 77ºF for optimum battery life and performance.
- **Ventilation/Cooling:** Provided through ventilation slots in the rear panel, bottom panel, front door and top of cabinet, thus providing a chimney effect for natural convection cooling. If local codes require forced air exhaust, unused covers serve as conduit entry or duct work entry points.
- **Clearance:** A minimum of four inches is required in both the front and the rear of the cabinet. This refers to obstruction of ventilation only. Clearance around cabinet sides is suggested by NEC and local codes.

CAUTION! Explosion/Fire Hazard Warning:
Batteries can generate potentially explosive gas (hydrogen).
Never enclose batteries or battery cabinets in a sealed, airtight room.

6. INSTALLATION PRODEDURES

BEFORE PROCEEDING WITH INSTALLATION READ THE FOLLOWING:

6.1 Preparation

6.1.1 Necessary Equipment and Tools

- Rigging tools for moving cabinets. Narrow pallet jack and forklift of 5,500 lbs. capacity.
- Heavily insulated assortment of hand tools.
- Digital Voltmeter

6.1.2 Equipment Inspection

Remove the packaging material from the cabinet and inspect for any concealed shipping damage that may have been overlooked upon receipt of goods. Use the packing list to verify the system has all components and cables for installation.

6.1.3 Safety Precautions

DC VOLTAGE WARNING!
Hazardous DC Voltages are present in the battery cabinet. This hazard will always be present, even when the battery system is off-line. Accidental short circuit of the positive and negative terminals will cause tremendous currents to flow resulting in severe burns, fire and possible death. Use extreme caution!

IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS!!

- **All disconnecting means should be in the open/off position before servicing.**
- **All installation drawings and schematics should be reviewed and clearly understood before hooking up this system.**
- **Only qualified DC power technicians or electricians should attempt to work on and install this equipment.**
- **All jewelry, rings and watches should be removed when working on this equipment.**
- **All tool handles and shafts must be heavily insulated.**
- **Do not rest any tools or loose cables on top of batteries.**
- **Make sure all connections are properly torqued and secure. Torque values are provided on battery label.**
- **Do not smoke or present flames near or around any battery system.**
- **Always wear safety glasses and gloves and use insulating mats to stand on when working on this system.**
- **Do not allow bare skin to come into contact with battery cabinet, as this could result in an electrical shock.**
- **Do not install any cable terminations until it has been verified that such a termination will not create a short circuit.**

7. INSTALLATION STEPS

7.1 Cabinet Location

Prior to installation, verify floor loading requirements and all applicable codes pertaining to the related equipment. Environmental conditions should also be reviewed. Proper ventilation and cooling must be adequate for optimum battery life and performance. A clearance of 4" is recommended at the front and rear of the cabinet. This refers to obstruction of ventilation only. Clearance around the cabinet sides should be as suggested by NEC and local codes. Ambient temperature should be between 68ºF -77ºF.

7.2 Cabinet Mounting

1. Remove any remaining packaging materials (cardboard, plastic).
2. Remove the kick plate from the base of the cabinet. Save this kick plate for re-installation later.
3. Unbolt the cabinet from the pallet. Remove the cabinets from the pallet using a forklift rated for at least 5,500 lbs.
4. The battery cabinet is equipped with narrow pallet jack or forklift access openings in the front and rear of the cabinet. Move the equipment into the desired location and set in place.
   Note: When applicable, the cabinet labeled "Left" has the breaker and those cabinets should be paired with any of the "Right" labeled cabinets.

5. In order to meet Zone 4 requirements, refer to the Zone 4 ANCHORING drawings included with this manual. The following steps detail the necessary actions to be taken to meet Zone 4 mounting requirements.
6. On the floor, mark the location of the 6 mounting holes found at the bottom of the cabinet legs.
7. Use the floor template or hole location drawing provided with each shipment to mark holes for anchors. Use ½" or 13mm anchors. Install anchors per manufacturer's instructions.
8. Move the cabinet into place, align holes, check levelness, and tighten hardware. **Note:** Should any drilling be performed on this equipment, make sure all exposed batteries and connections are completely covered using insulated type mats. Prevent dust from entering cabinets and clear any debris that has collected.
9. Once the cabinet is anchored to the floor, remove and discard the two shipping diagonals from the front of the cabinet.
10. Re-install the front kick plate on the cabinet.
11. Install the front doors on the cabinet.
12. If multiple battery cabinets are installed, repeat above steps. Check height and levelness with adjoining cabinets.

7.3 DC Connections

CAUTION!
PLEASE READ ALL SAFETY INSTRUCTIONS BEFORE PROCEEDING.

1. Open the cabinet door and check for any noticeable problems or damage that may have occurred during shipment. Remove the cardboard box from the cabinet (right cabinet in a dual cabinet system). Use the packing list to verify all bus bars, cables, battery covers and hardware required for assembly is available.
2. Review the installation drawing and schematic diagram included in this manual. Cables and bus bars have been left off in the battery string for safety and will need to be installed later.
3. Connect main cables to the circuit breaker, when applicable, inside the cabinet from the UPS or charger source. All cables should be sized per NEC and any other local codes pertaining to this equipment. A common size for an 800 amp breaker is (3 ea) 250 MCM cables per polarity through the adjacent cabinet top knockouts. Refer to the UPS or charger manual for wiring external batteries. **Note:** Make sure charging source is disconnected before making these connections; also verify the battery cabinet is turned off.
4. Connect the battery interconnect bus bars that were left off during shipment and install as shown on the installation drawing included in this manual. Torque connections properly. Torque values are provided on battery label.
5. Install plastic covers onto batteries. Some covers have been notched for locations with bus bars and/or cables in upward orientation.

7.4 Grounding

Ground the battery cabinet to the main building ground. A ground stud inside the cabinet is provided for this. In dual cabinet strings on the 16HX800F/16HX925Fs, a bare copper bus bar is supplied and to be installed between the tops of the battery cabinets. Threaded holes are provided in the cabinets for easy connection of the bus bar. Make sure a clean ground is present before bolting down bus bar.

7.5 System Operation

Refer to the UPS or charger manual for start up and operation of system.

8. SYSTEM MAINTENANCE

CAUTION!
PLEASE READ ALL SAFETY PRECAUTIONS BEFORE PROCEEDING

8.1 Blown Fuse Replacement

If a fuse has blown in the system, contact an authorized factory technician to replace it.

CAUTION! Fire Hazard Warning:
Replace only with same type and rating of fuses supplied with the system.

8.2 Battery Replacement Steps

Servicing of batteries should be performed or supervised by personnel knowledgeable about batteries and the required precautions. When replacing batteries, replace with the same type and number of batteries.

CAUTION!
Do not dispose of batteries in a fire. The batteries may explode.

Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.

A battery can present a risk of electrical shock and high short-circuit current. The following precautions should be observed when working on batteries:

- Remove jewelry, rings, watches or other metal objects.
- Use tools with insulated handles.
- Wear rubber gloves and boots. Wear safety glasses.
- Do not lay tools or metal parts on top of batteries.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- Determine if the battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).

1. Prepare the new battery for installation. Check to make sure the battery is the same type and amp-hour rating. Measure the battery voltage to make sure it is 16.98V or above. Use a non-metallic brush or scotch brite pad to clean the terminals. Apply a light coat of No-ox grease to the terminal to avoid corrosion.
2. Disconnect the charger or UPS from the battery string by opening the breaker.
3. Remove the center jumper on the battery string to reduce the voltage. If replacing all batteries, continue reducing the voltage in this manner.
4. Disconnect the interconnect bus bars and/or cables from the battery to be replaced.
5. Remove the old battery.
6. Install the new battery. Make sure the new battery is installed the same way regarding polarity orientation and verify with drawing.

7. Reconnect bus bars and/or cables to the battery. Make sure connections are properly torqued. Torque values are provided on the battery label.
8. Reconnect the center jumper. Make sure connections are properly torqued. Torque values are provided on the battery label.
9. Check voltage at terminal block.
10. Close breaker when ready. If your model has a disconnect with an exterior handle to the door, close and latch the door first before closing the breaker.

9. WARRANTY RELATED MAINTENANCE

1. The purchaser (user) shall give freshening charges to the battery a minimum of every six (6) months for Lead-Calcium batteries after shipment from the factory and until final installation. Refer to the installation and maintenance instructions for maximum storage intervals.

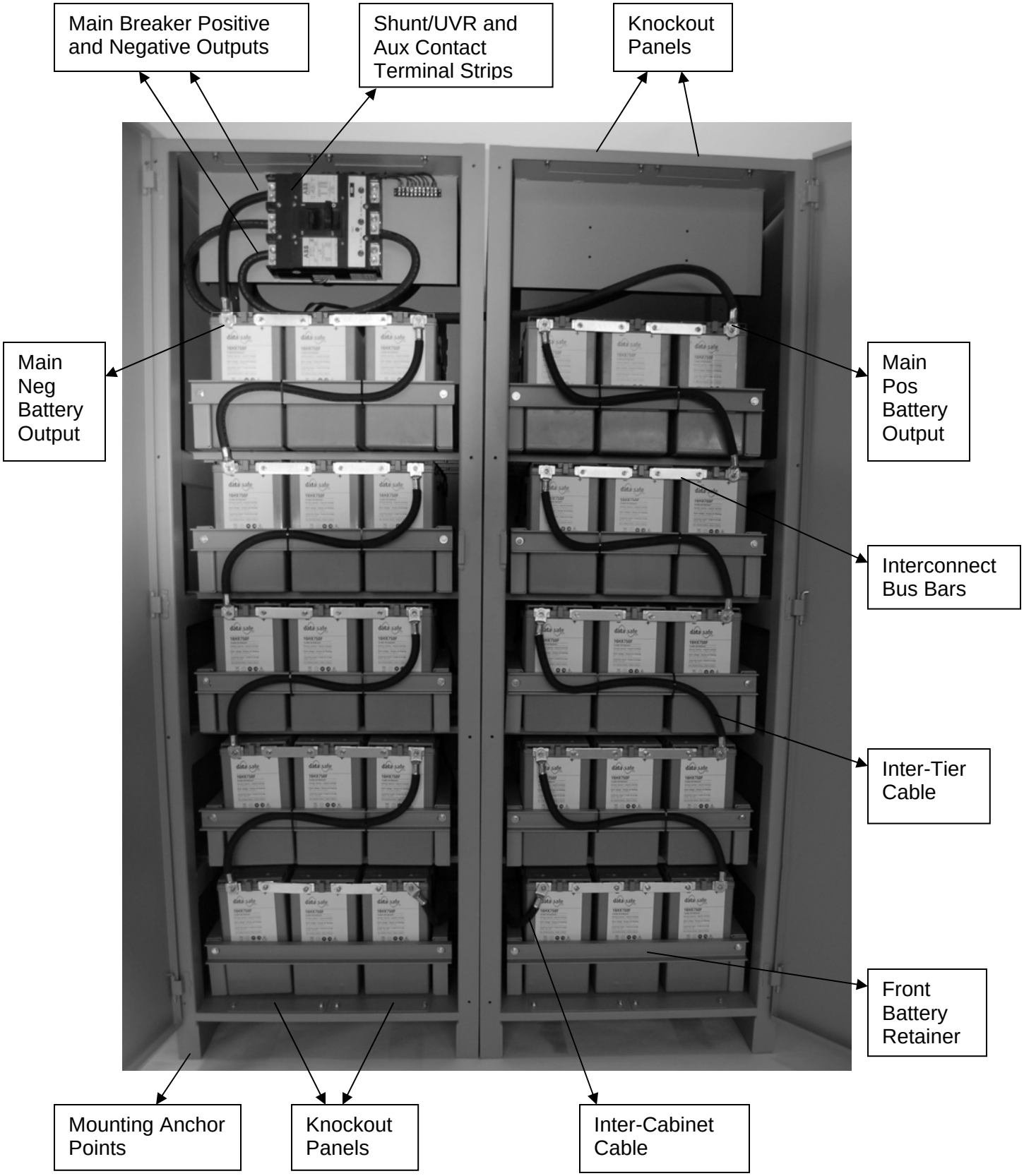
2. At least once every twelve (12) months, purchaser (user) must take readings and record information per the EnerSys® installation/maintenance instructions. These records must be maintained for warranty claim purposes. If warranty records are not kept, the warranty shall be null and void.

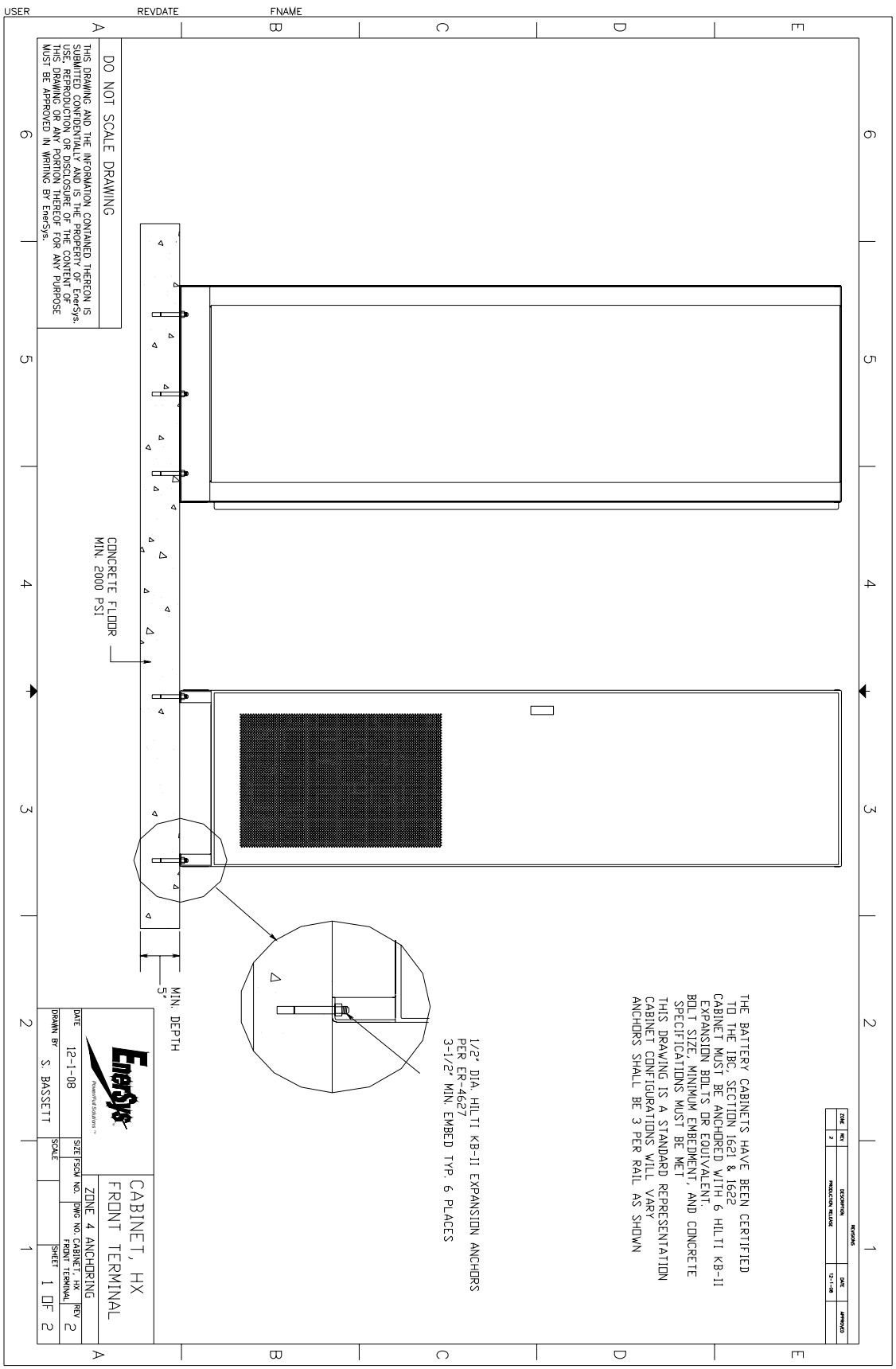
3. Parallel strings should be limited to five (5) strings, except with an expressed written consent from EnerSys headquarters in Reading, PA.

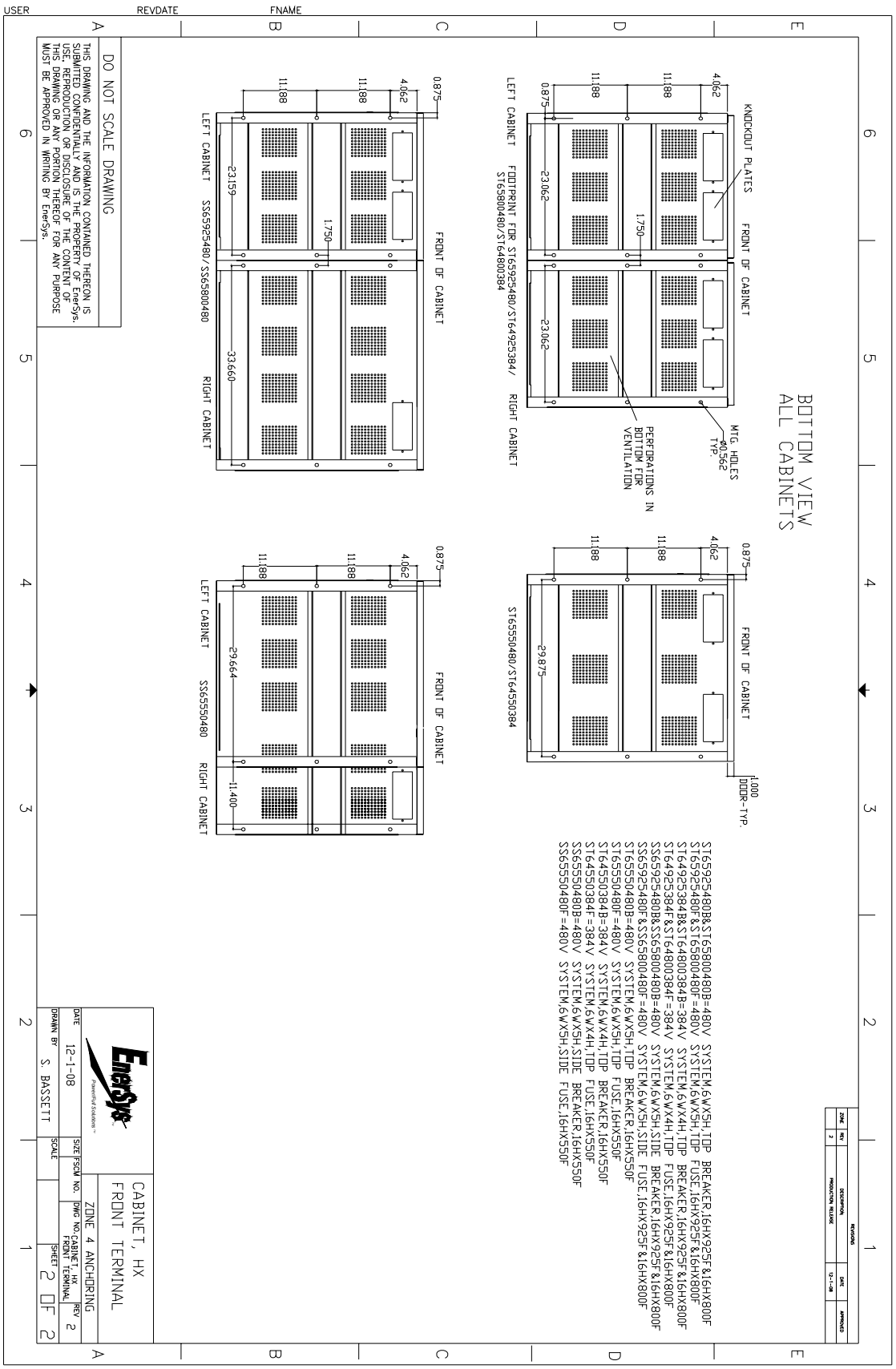
4. Movement of batteries from original point of installation shall immediately void the product warranty, except with the expressed written consent from EnerSys headquarters in Reading, PA.

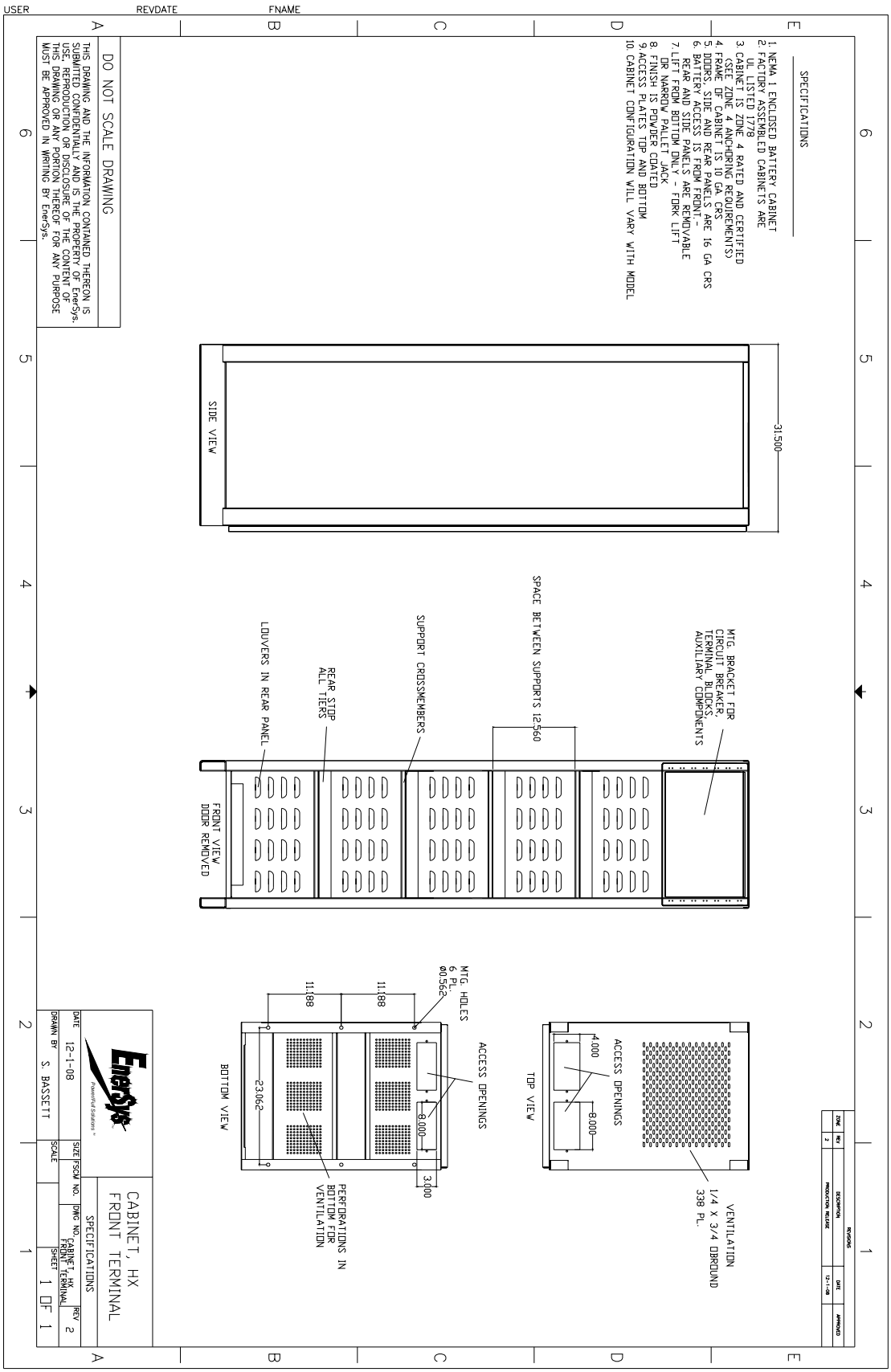
5. Any storage shall be in a dry area having ambient temperature of 77º F (25° C), or less, and in accordance with EnerSys published installation, operation and maintenance instructions. Failure to follow EnerSys published guidelines and/or instructions may invalidate the product warranty, at the sole discretion of EnerSys.

10. DRAWINGS/SCHEMATICS




USER
REVDATE
FNAME
DO NOT SCALE DRAWING
THIS DRAWING AND THE INFORMATION CONTAINED THEREON IS SUBMITTED CONFIDENTIALLY AND IS THE PROPERTY OF EnerSys. USE, REPRODUCTION OR DISCLOSURE OF THE CONTENT OF THIS DRAWING OR ANY PORTION THEREOF FOR ANY PURPOSE MUST BE APPROVED IN WRITING BY EnerSys.
CONCRETE FLOOR
MIN. 2000 PSI
MIN. DEPTH
5"
1/2" DIA. HILTI KB-II EXPANSION ANCHORS
PER ER-4627
3-1/2" MIN. EMBED TYP. 6 PLACES
THE BATTERY CABINETS HAVE BEEN CERTIFIED
TO THE IBC, SECTION 1621 & 1622
CABINET MUST BE ANCHORED WITH 6 HILTI KB-II
EXPANSION BOLTS OR EQUIVALENT.
BOLT SIZE, MINIMUM EMBEDMENT, AND CONCRETE
SPECIFICATIONS MUST BE MET
THIS DRAWING IS A STANDARD REPRESENTATION
CABINET CONFIGURATIONS WILL VARY
ANCHORS SHALL BE 3 PER RAIL AS SHOWN
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RELEASE
12-1-08
DATE
12-1-08
DRAWN BY
S. BASSETT
SIZE
SCALE
FSCM NO.
DWG NO. CABINET, HX FRONT TERMINAL
REV
2
SHEET
1 OF 2
CABINET, HX
FRONT TERMINAL
ZONE 4 ANCHORING


BOTTOM VIEW
ALL CABINETS
KNOCKOUT PLATES
FRONT OF CABINET
LEFT CABINET
FOOTPRINT FOR ST6592548O/ST6492538O4/
ST6580480/ST6480384
RIGHT CABINET
PERFORATIONS IN BOTTOM FOR VENTILATION
MTG. HOLES Ø0.562 TYP.
4.062
11.188
0.875
23.062
1.750
LEFT CABINET SS6592548O/SS6580480
RIGHT CABINET
23.159
33.660
ST6555048O/ST6455038
29.875
1.000 DOOR-TYP.
LEFT CABINET SS6555048O
RIGHT CABINET
29.664
11.400
ST6592548O&ST6580048OB=480V SYSTEM,6WX5H,TDP BREAKER,16HX925F&16HX800F
ST6592548O&ST6580048OF=480V SYSTEM,6WX5H,TDP FUSE,16HX925F&16HX800F
ST6492538&ST6480038&B=384V SYSTEM,6WX4H,TDP BREAKER,16HX925F&16HX800F
ST6492538&ST6480038&F=384V SYSTEM,6WX4H,TDP FUSE,16HX925F&16HX800F
SS6592548O&SS6580048OB=480V SYSTEM,6WX5H,SIDE BREAKER,16HX925F&16HX800F
SS6592548O&SS6580048OF=480V SYSTEM,6WX5H,SIDE FUSE,16HX925F&16HX800F
ST6555048OB=480V SYSTEM,6WX5H,TDP BREAKER,16HX550F
ST6555048OF=480V SYSTEM,6WX5H,TDP FUSE,16HX550F
ST6455038&B=384V SYSTEM,6WX4H,TDP BREAKER,16HX550F
ST6455038&F=384V SYSTEM,6WX4H,TDP FUSE,16HX550F
SS6555048OB=480V SYSTEM,6WX5H,SIDE BREAKER,16HX550F
SS6555048OF=480V SYSTEM,6WX5H,SIDE FUSE,16HX550F
ZONE
REV
2
DESCRIPTION
PRODUCTION RELEASE
DATE
12-1-08
APPROVED
DO NOT SCALE DRAWING
THIS DRAWING AND THE INFORMATION CONTAINED THEREON IS SUBMITTED CONFIDENTIALLY AND IS THE PROPERTY OF EnerSys. USE, REPRODUCTION OR DISCLOSURE OF THE CONTENT OF THIS DRAWING OR ANY PORTION THEREOF FOR ANY PURPOSE MUST BE APPROVED IN WRITING BY EnerSys.
DATE 12-1-08
DRAWN BY S. BASSETT
SIZE
SCALE
FSCM NO.
DWG NO. CABINET, HX FRONT TERMINAL
REV 2
SHEET 2 OF 2
CABINET, HX
FRONT TERMINAL
ZONE 4 ANCHORING
USER
REVDATE
FNAME


USER
REVDATE
FNAME
SPECIFICATIONS
1. NEMA 1 ENCLOSED BATTERY CABINET
2. FACTORY ASSEMBLED CABINETS ARE UL LISTED 1778
3. CABINET IS ZONE 4 RATED AND CERTIFIED (SEE ZONE 4 ANCHORING REQUIREMENTS)
4. FRAME OF CABINET IS 10 GA CRS
5. DOORS, SIDE AND REAR PANELS ARE 16 GA CRS
6. BATTERY ACCESS IS FROM FRONT - REAR AND SIDE PANELS ARE REMOVABLE
7. LIFT FROM BOTTOM ONLY - FORK LIFT OR NARROW PALLET JACK
8. FINISH IS POWDER COATED
9. ACCESS PLATES TOP AND BOTTOM
10. CABINET CONFIGURATION WILL VARY WITH MODEL
DO NOT SCALE DRAWING
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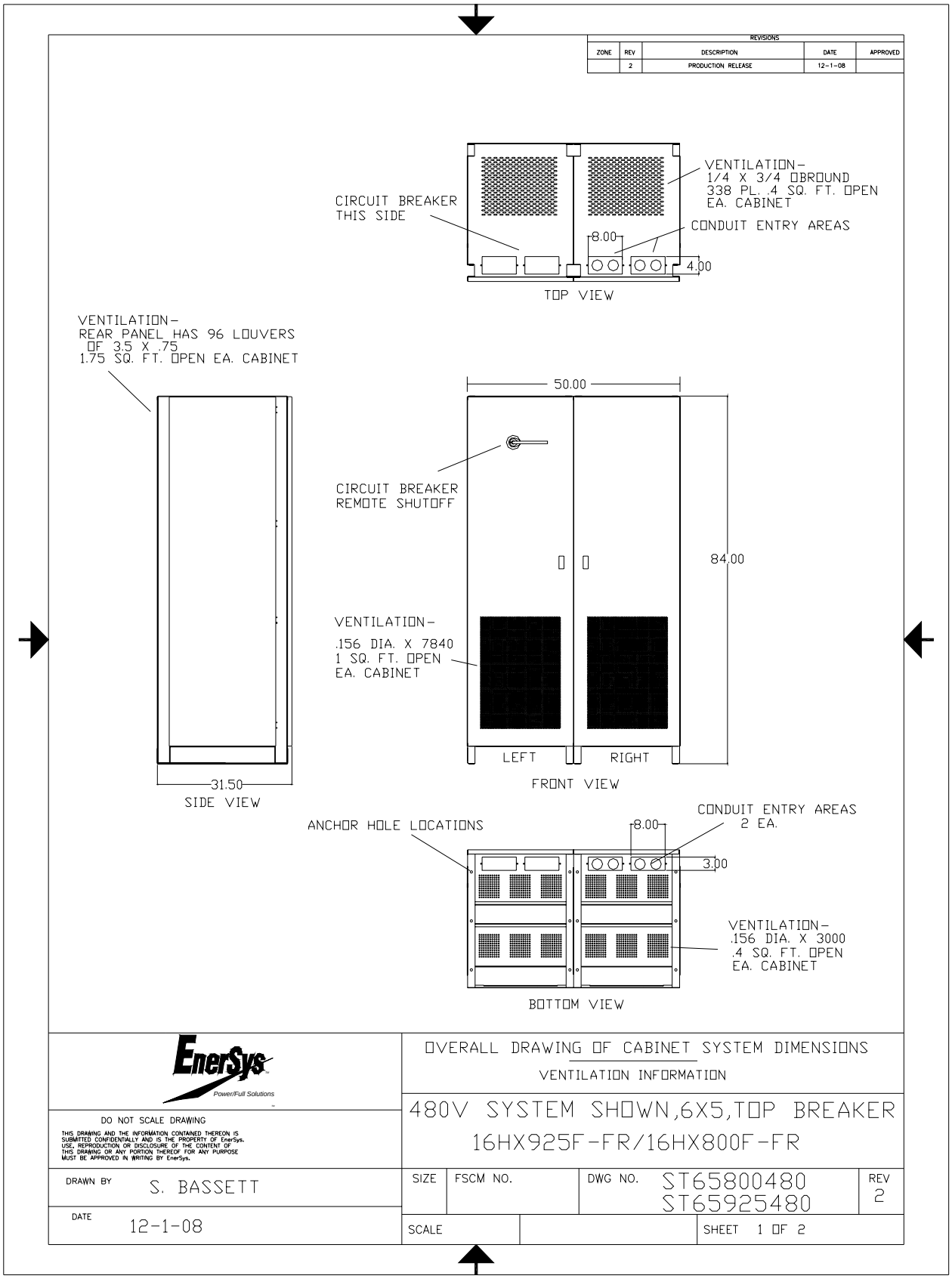
SIDE VIEW
31.500
SPACE BETWEEN SUPPORTS 12.560
MTG. BRACKET FOR CIRCUIT BREAKER, TERMINAL BLOCKS, AUXILIARY COMPONENTS
SUPPORT CROSSMEMBERS
REAR STOP ALL TIERS
LOUVERS IN REAR PANEL
FRONT VIEW DOOR REMOVED
TOP VIEW
ACCESS OPENINGS
4.000
8.000
VENTILATION 1/4 X 3/4 DBROUND 338 PL.
BOTTOM VIEW
MTG. HOLES 6 PL. Ø0.362
11.188
11.188
ACCESS OPENINGS
8.000
3.000
23.062
PERFORATIONS IN BOTTOM FOR VENTILATION
ZONE
REV.
DESCRIPTION
DATE
APPROVED
1
2
PRODUCTION RELEASE
12-1-08
CABINET, HX
FRONT TERMINAL
SPECIFICATIONS
DATE
12-1-08
DRAWN BY
S. BASSETT
SIZE
FSCM NO.
SCALE
DWG NO.
CABINET, HX FRONT TERMINAL
REV
2
SHEET
1 OF 1


REVISIONS
ZONE | REV | DESCRIPTION | DATE | APPROVED
2 | PRODUCTION RELEASE | 12-1-08
CIRCUIT BREAKER THIS SIDE
VENTILATION- 1/4 X 3/4 GROUND 338 PL. .4 SQ. FT. OPEN EA. CABINET
CONDUIT ENTRY AREAS
8.00
4.00
TOP VIEW
VENTILATION- REAR PANEL HAS 96 LOUVERS OF 3.5 X .75 1.75 SQ. FT. OPEN EA. CABINET
50.00
CIRCUIT BREAKER REMOTE SHUTOFF
84.00
VENTILATION- .156 DIA. X 7840 1 SQ. FT. OPEN EA. CABINET
LEFT
RIGHT
FRONT VIEW
31.50
SIDE VIEW
ANCHOR HOLE LOCATIONS
CONDUIT ENTRY AREAS 2 EA.
8.00
3.00
VENTILATION- .156 DIA. X 3000 .4 SQ. FT. OPEN EA. CABINET
BOTTOM VIEW
EnerSys
Power/Full Solutions
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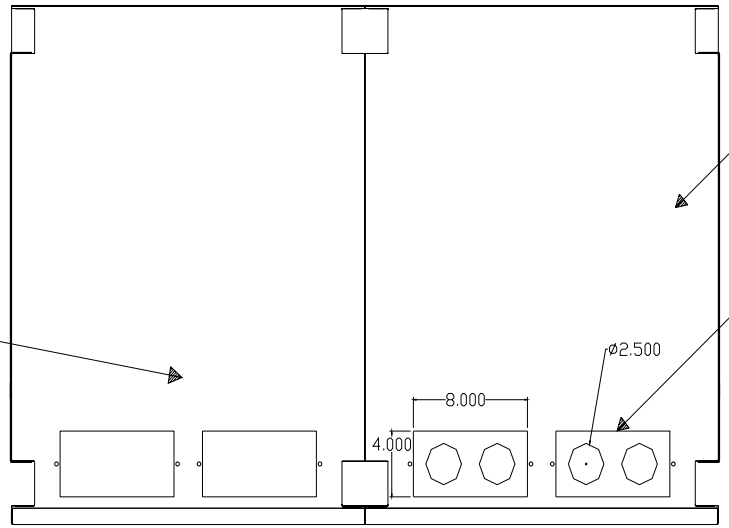
OVERALL DRAWING OF CABINET SYSTEM DIMENSIONS
VENTILATION INFORMATION
480V SYSTEM SHOWN,6X5,TOP BREAKER
16HX925F-FR/16HX800F-FR
DRAWN BY S. BASSETT
DATE 12-1-08
SIZE | FSCM NO. | DWG NO. ST65800480 ST65925480 | REV 2
SCALE | SHEET 1 OF 2

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	2	PRODUCTION RELEASE	12-1-08	

CABLE/CONDUIT ENTRY DETAILS

VENTILATION NOT SHOWN



POWER CABLE ENTRY IN TO RIGHT CABINET ONLY

CIRCUIT BREAKER LOCATED IN LEFT CABINET

UP TO 2 EA. 2.5" CONDUITS ARE ABLE TO ENTER FROM TOP

UP TO 4 EA. 500 MCM THHN COPPER CABLES ALLOWED PER 2.5" EMT PER NEC

FOR EASE OF INSTALLATION USE OF MULTIPLE 250 MCM'S IS RECOMMENDED

TOP VIEW

1 STRING WITH 2 HALVES SIDE BY SIDE

DO NOT SCALE DRAWING

EnerSys Power-Full Solutions™

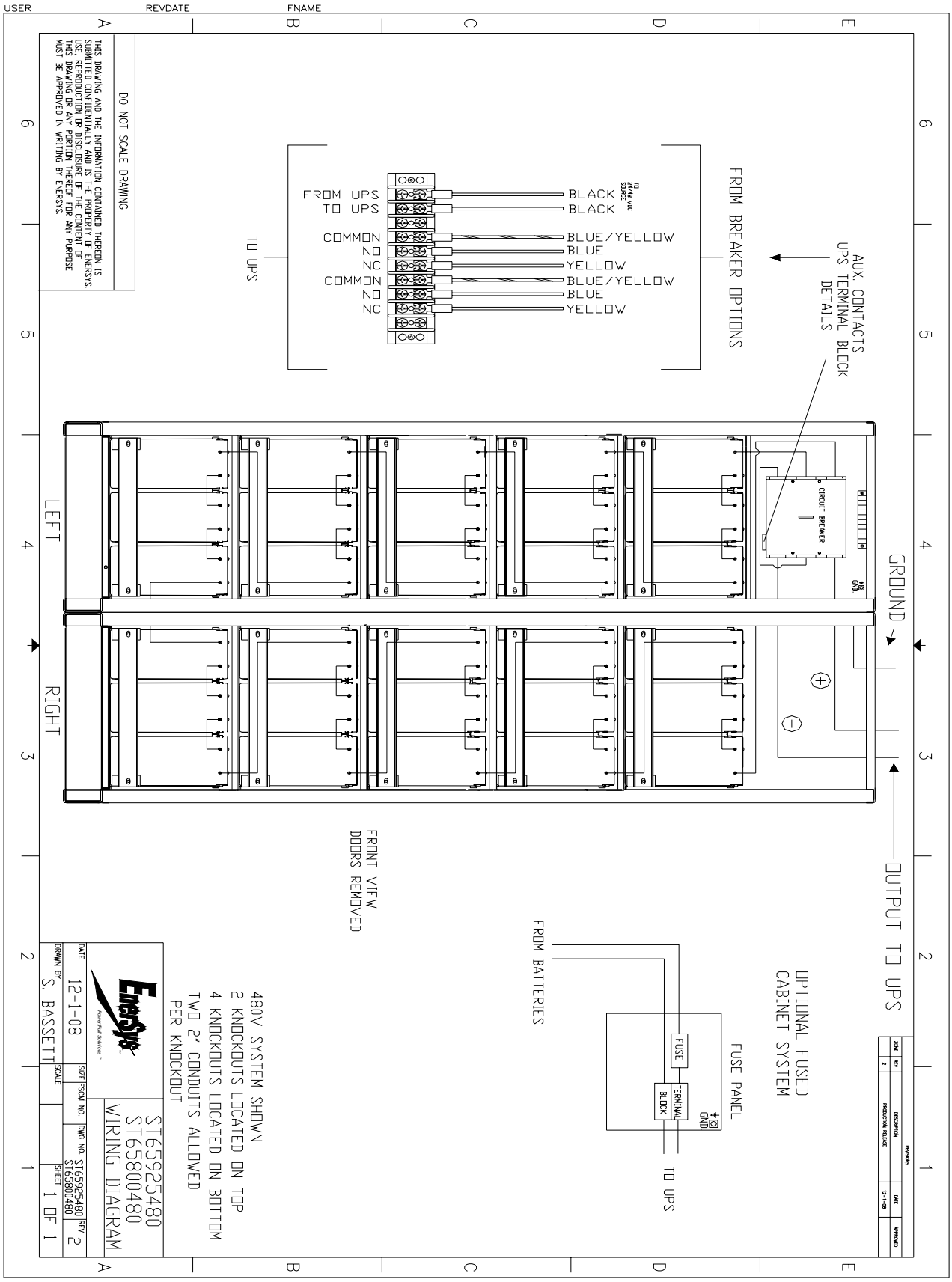
480V SYSTEM SHOWN

16HX925F-FR/16HX800F-FR

DATE	SIZE	FSCM NO.	DWG NO.	REV
12-1-08			ST65925480 ST65800480	2
DRAWN BY S. BASSETT	SCALE		SHEET 2 OF 2	

FNAME REVDATE USER

Publication No. US-HXFTCAB-IM-001
July 2009


USER
REVDATE
FNAME
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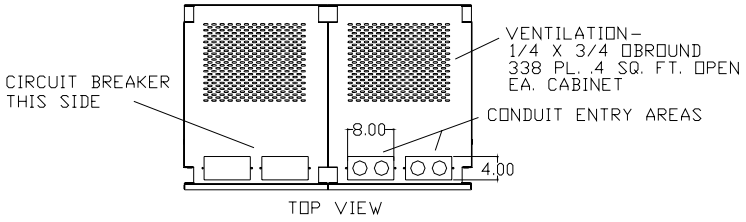
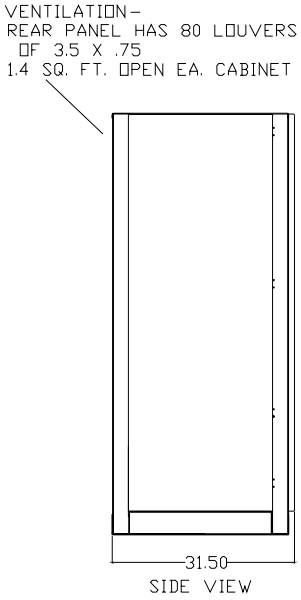
DO NOT SCALE DRAWING
FROM UPS
TO UPS
COMMON
NO
NC
COMMON
NO
NC
BLACK
BLACK
BLUE/YELLOW
BLUE
YELLOW
BLUE/YELLOW
BLUE
YELLOW
TO UPS
FROM BREAKER OPTIONS
AUX. CONTACTS
UPS TERMINAL BLOCK
DETAILS
CIRCUIT BREAKER
#8 GND
GROUND
LEFT
RIGHT
OUTPUT TO UPS
FRONT VIEW
DOORS REMOVED
FROM BATTERIES
OPTIONAL FUSED
CABINET SYSTEM
FUSE PANEL
FUSE
TERMINAL BLOCK
#8 GND
TO UPS
480V SYSTEM SHOWN
2 KNOCKOUTS LOCATED ON TOP
4 KNOCKOUTS LOCATED ON BOTTOM
TWO 2" CONDUITS ALLOWED
PER KNOCKOUT
ST65925480
ST65800480
WIRING DIAGRAM
DATE 12-1-08
DRAWN BY S. BASSETT
SCALE
SIZE FSCM NO.
DWG NO. ST65925480
REV 2
SHEET 1 OF 1
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RELEASE
12-1-08
REVISIONS

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	2	PRODUCTION RELEASE	12-1-08	



TOP VIEW



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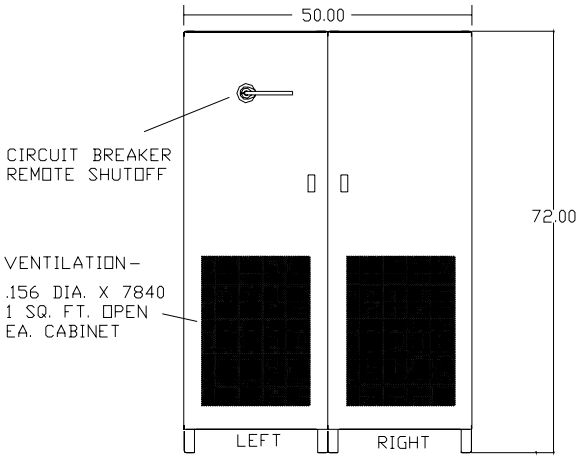
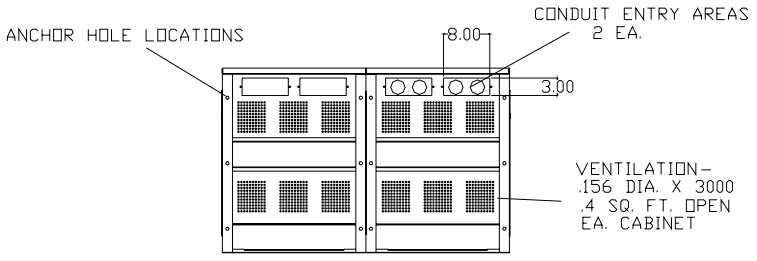


FRONT VIEW



BOTTOM VIEW

EnerSys
Power/Full Solutions

DO NOT SCALE DRAWING

DRAWN BY S. BASSETT

DATE 12-1-08

OVERALL DRAWING OF CABINET SYSTEM DIMENSIONS

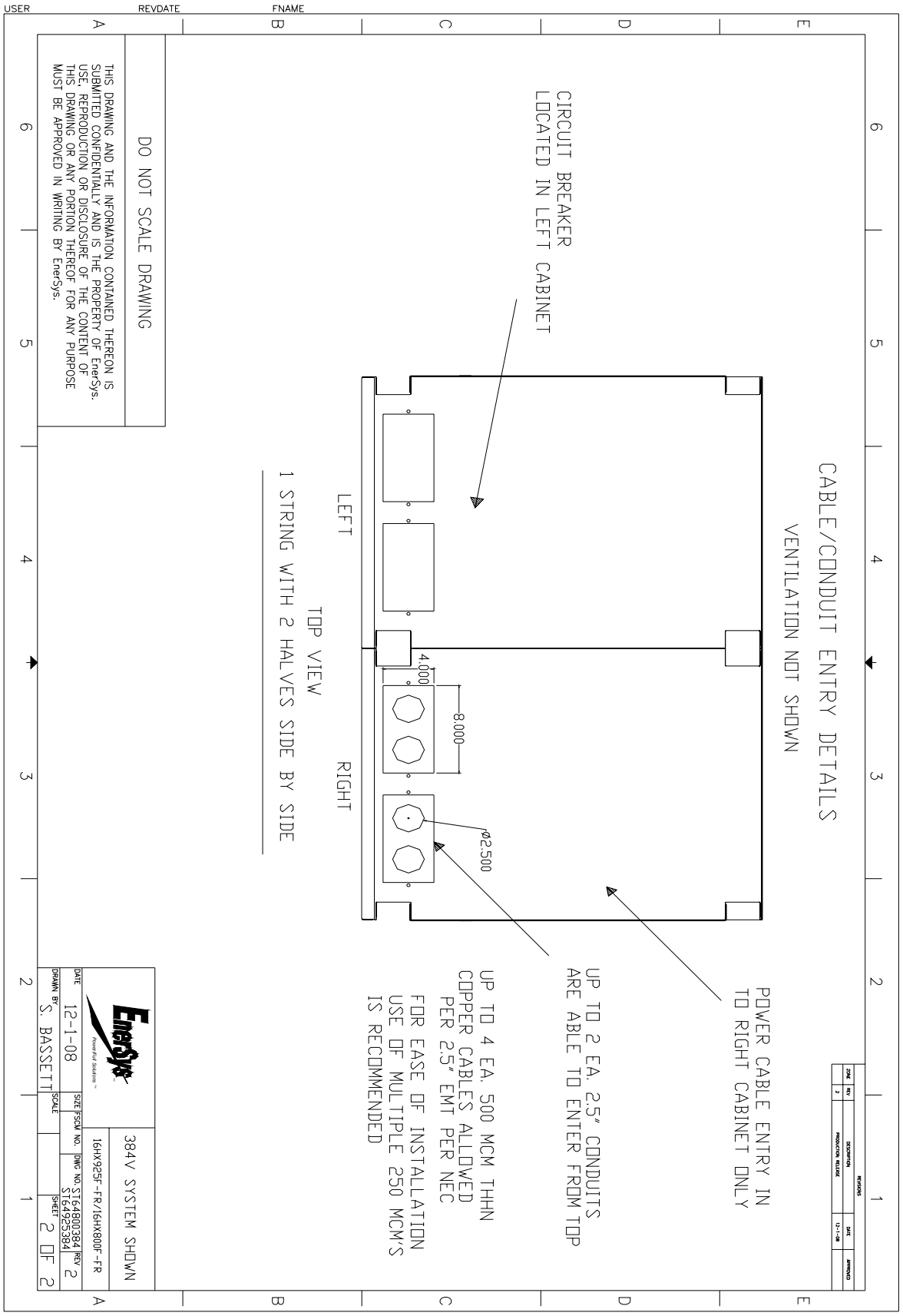
VENTILATION INFORMATION

384V SYSTEM SHOWN,6X4,TOP BREAKER
16HX925F-FR/16HX800F-FR

SIZE	FSCM NO.	DWG NO.	REV
		ST64800384 ST64925384	2

SCALE

SHEET 1 OF 2


CABLE/CONDUIT ENTRY DETAILS
VENTILATION NOT SHOWN
CIRCUIT BREAKER
LOCATED IN LEFT CABINET
LEFT
RIGHT
TOP VIEW
1 STRING WITH 2 HALVES SIDE BY SIDE
4.000
8.000
Ø2.500
POWER CABLE ENTRY IN
TO RIGHT CABINET ONLY
UP TO 2 EA. 2.5" CONDUITS
ARE ABLE TO ENTER FROM TOP
UP TO 4 EA. 500 MCM THHN
COPPER CABLES ALLOWED
PER 2.5" EMT PER NEC
FOR EASE OF INSTALLATION
USE OF MULTIPLE 250 MCM'S
IS RECOMMENDED
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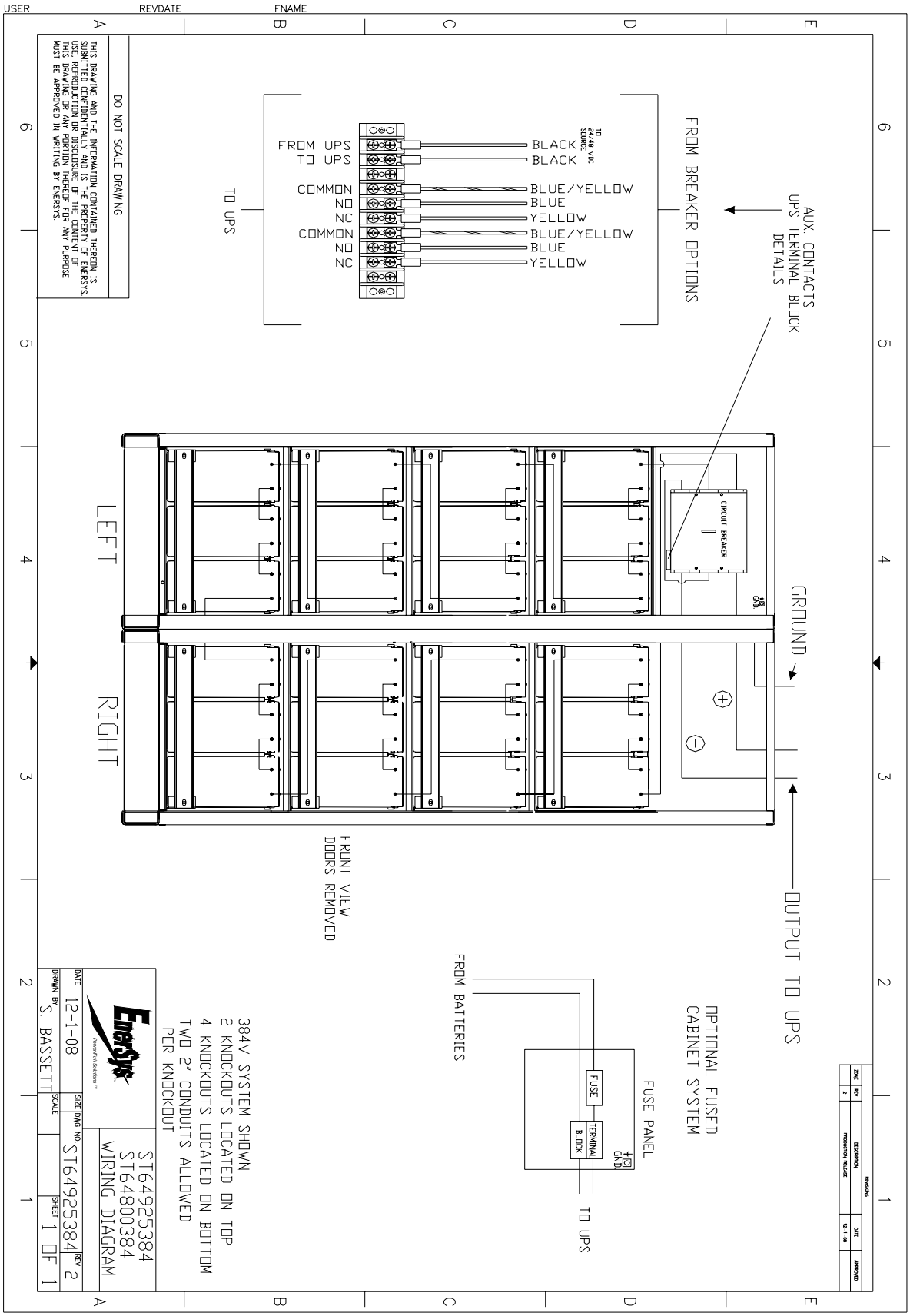
384V SYSTEM SHOWN
16HX925F-FR/16HX800F-FR
DWG NO. ST64800384 REV 2
ST64925384
SHEET 2 OF 2
DRAWN BY S. BASSETT
DATE 12-1-08
SCALE
SIZE FSCM NO.
REVISIONS
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RELEASE
12-1-08


USER
REVDATE
FNAME
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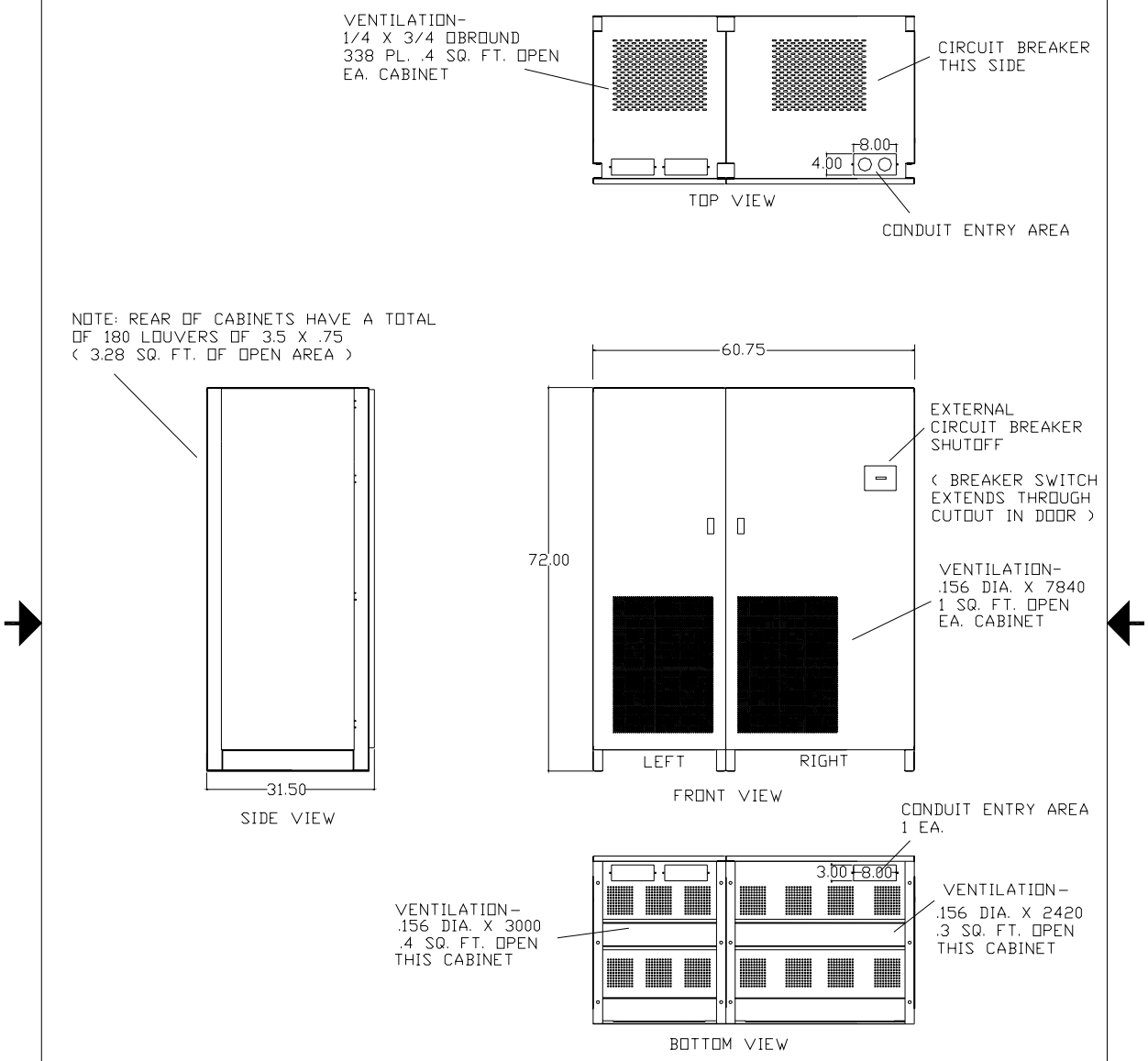
AUX. CONTACTS
UPS TERMINAL BLOCK
DETAILS
FROM BREAKER OPTIONS
TO UPS
FROM UPS
TO UPS
COMMON
NO
NC
COMMON
NO
NC
BLACK
BLACK
BLUE/YELLOW
BLUE
YELLOW
BLUE/YELLOW
BLUE
YELLOW
TO 24-48 VDC SOURCE
CIRCUIT BREAKER
GND
GROUND
OUTPUT TO UPS
LEFT
RIGHT
FRONT VIEW
DOORS REMOVED
OPTIONAL FUSED
CABINET SYSTEM
FUSE PANEL
FUSE
TERMINAL BLOCK
GND
TO UPS
FROM BATTERIES
384V SYSTEM SHOWN
2 KNOCKOUTS LOCATED ON TOP
4 KNOCKOUTS LOCATED ON BOTTOM
TWO 2" CONDUITS ALLOWED
PER KNOCKOUT
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RELEASE
12-1-08
REVISIONS
DATE
12-1-08
DRAWN BY
S. BASSETT
SCALE
SIZE
DWG. NO.
ST64925384
REV
2
SHEET
1 OF 1
ST64925384
ST64800384
WIRING DIAGRAM

USER REVDATE FNAME

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	2	PRODUCTION RELEASE	12-1-08	



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Power/Full Solutions

DO NOT SCALE DRAWING

DRAWN BY S. BASSETT

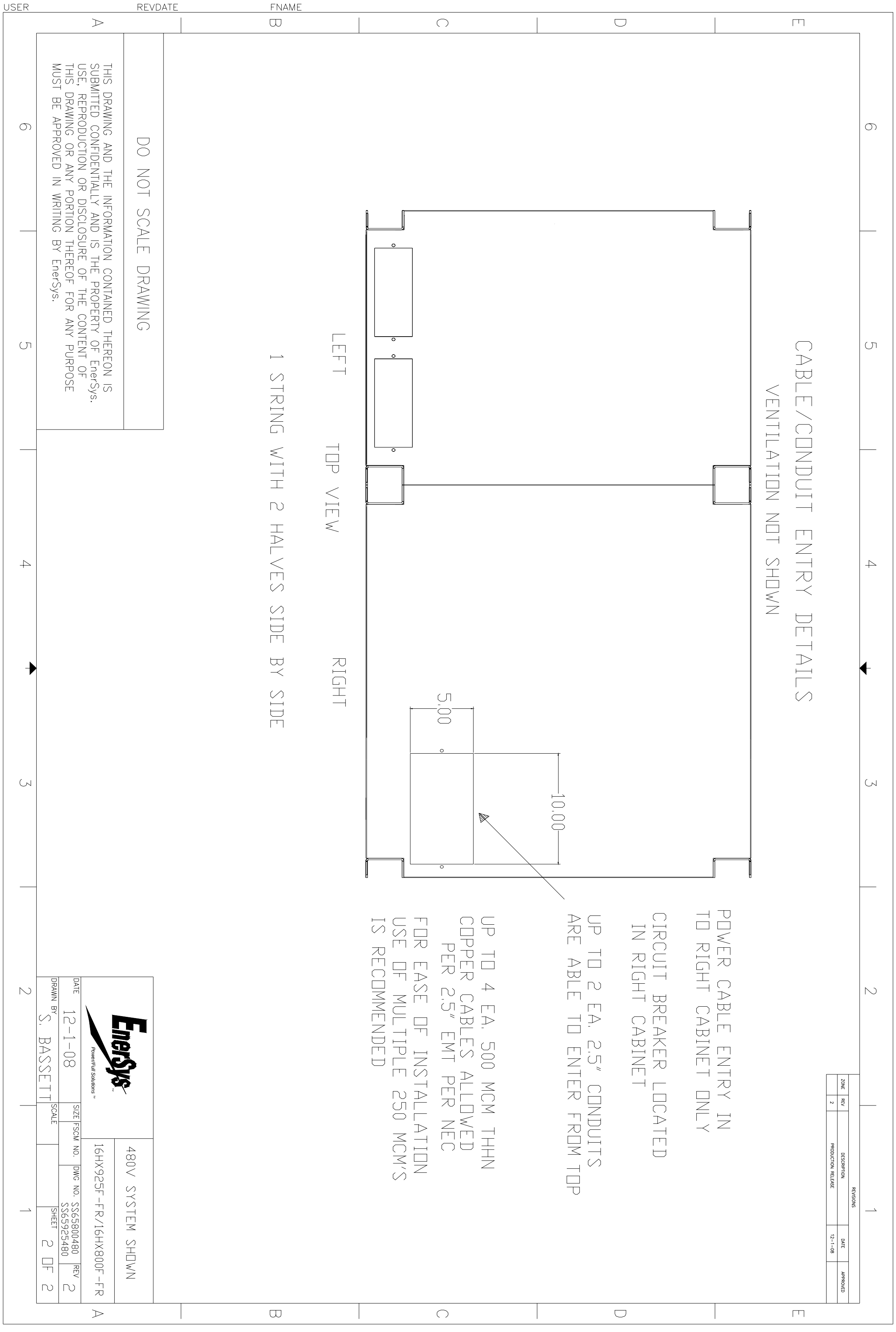
DATE 12-1-08

OVERALL DRAWING OF CABINET SYSTEM DIMENSIONS
VENTILATION INFORMATION

480V SYSTEM SHOWN,6X5,SIDE BREAKER
16HX925F-FR/16HX800F-FR

SIZE	FSCM NO.	DWG NO.	REV
		SS65800480 SS65925480	2

SCALE | SHEET 1 OF 2


USER
REVDATE
FNAME
CABLE/CONDUIT ENTRY DETAILS
VENTILATION NOT SHOWN
LEFT
TOP VIEW
RIGHT
1 STRING WITH 2 HALVES SIDE BY SIDE
5.00
10.00
POWER CABLE ENTRY IN
TO RIGHT CABINET ONLY
CIRCUIT BREAKER LOCATED
IN RIGHT CABINET
UP TO 2 EA. 2.5" CONDUITS
ARE ABLE TO ENTER FROM TOP
UP TO 4 EA. 500 MCM THHN
COPPER CABLES ALLOWED
PER 2.5" EMT PER NEC
FOR EASE OF INSTALLATION
USE OF MULTIPLE 250 MCM'S
IS RECOMMENDED
DO NOT SCALE DRAWING
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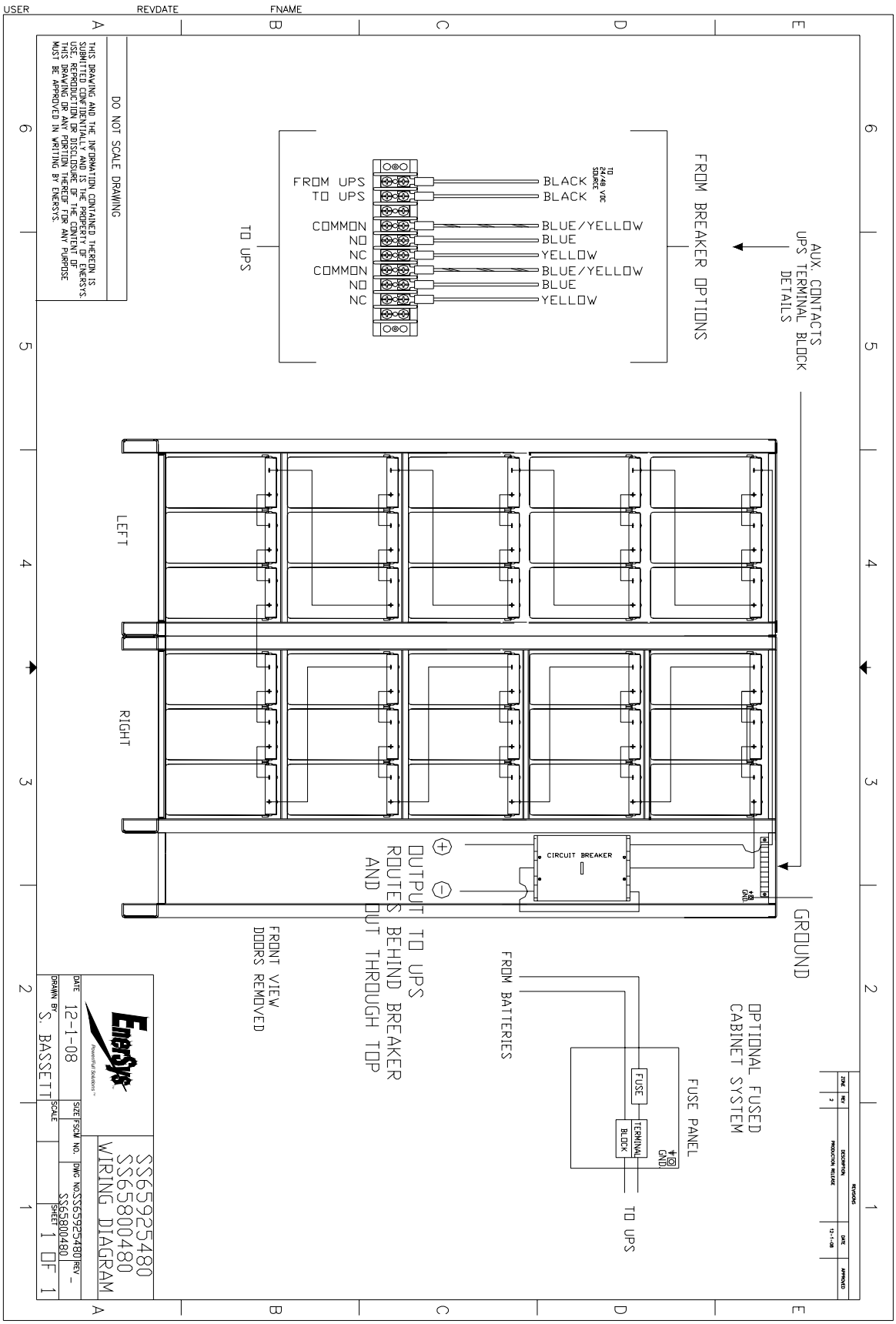
EnerSys
PowerFull Solutions
DATE 12-1-08
DRAWN BY S. BASSETT
480V SYSTEM SHOWN
16HX925F-FR/16HX800F-FR
SIZE
FSCM NO.
DWG NO. SS65800480
SS65925480
REV 2
SCALE
SHEET 2 OF 2
REVISIONS
ZONE
REV 2
DESCRIPTION PRODUCTION RELEASE
DATE 12-1-08
APPROVED


USER
REVDATE
FNAME
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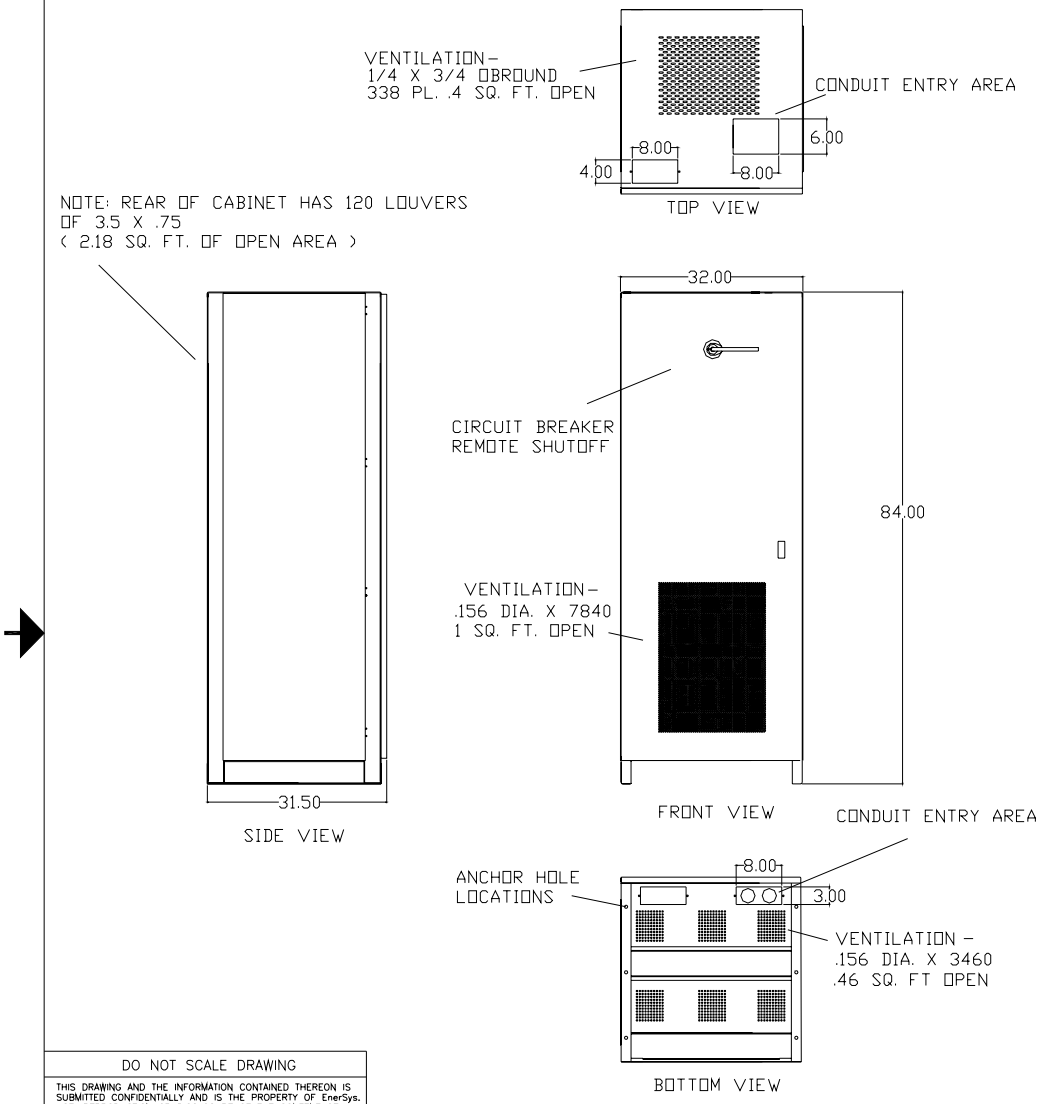
DO NOT SCALE DRAWING
FROM UPS
TO UPS
BLACK
BLACK
TO 24/48 VDC SOURCE
COMMON
NO
NC
COMMON
NO
NC
BLUE/YELLOW
BLUE
YELLOW
BLUE/YELLOW
BLUE
YELLOW
TO UPS
FROM BREAKER OPTIONS
AUX. CONTACTS
UPS TERMINAL BLOCK
DETAILS
LEFT
RIGHT
CIRCUIT BREAKER
GND
GROUND
OUTPUT TO UPS
ROUTES BEHIND BREAKER
AND OUT THROUGH TOP
FRONT VIEW
DOORS REMOVED
FROM BATTERIES
OPTIONAL FUSED
CABINET SYSTEM
FUSE PANEL
FUSE
TERMINAL BLOCK
GND
TO UPS
ZONE
REV
DESCRIPTION
DATE
APPROVED
REVISIONS
PRODUCTION RELEASE
12-1-08
DATE
12-1-08
DRAWN BY
S. BASSETT
SIZE
SCALE
FSCM NO.
DWG NO
SS659254801
SS658004801
REV
-
SHEET
1 OF 1
SS659254801
SS658004801
WIRING DIAGRAM

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	2	PRODUCTION RELEASE	12-1-08	

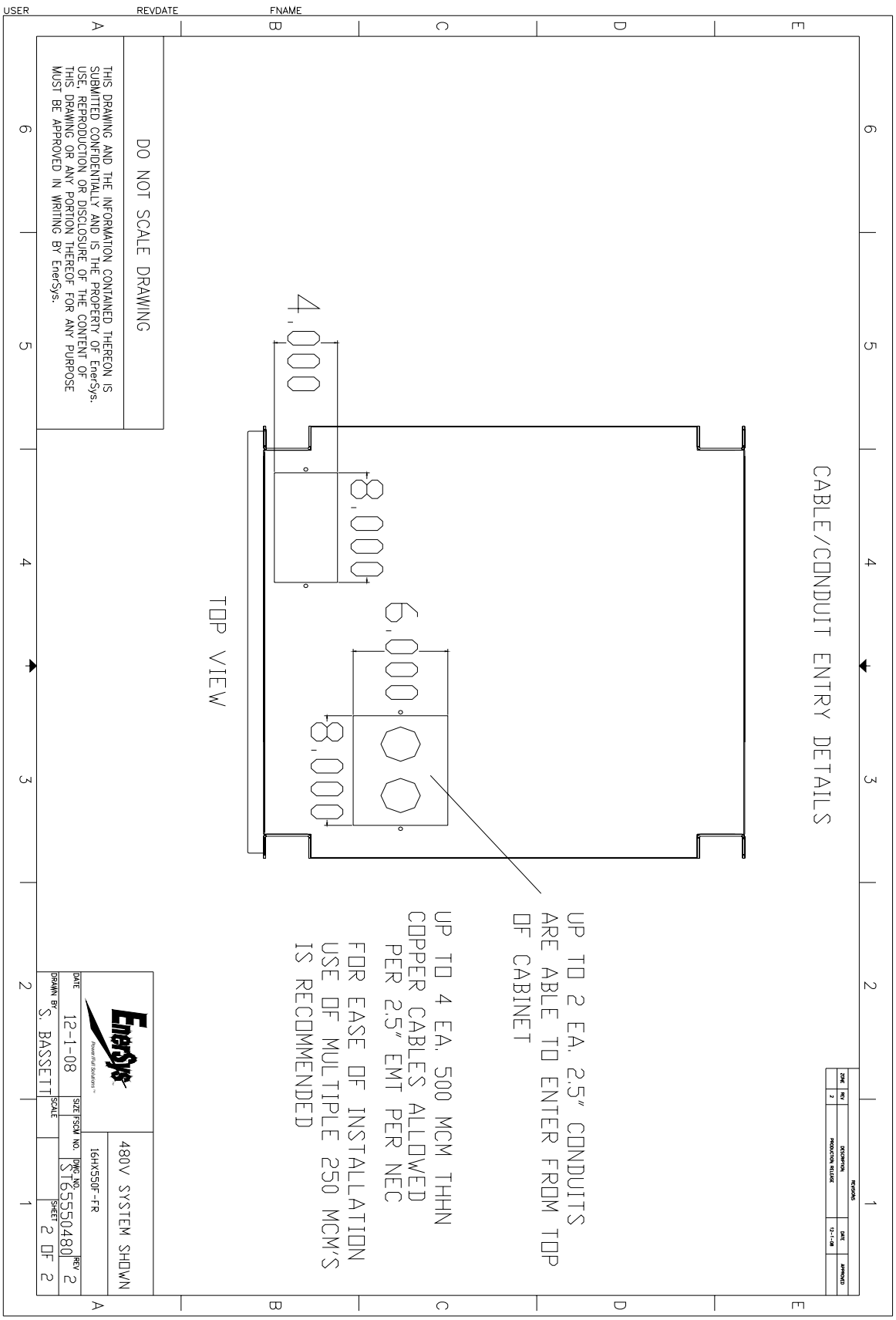


EnerSys
Power/Full Solutions℠

OVERALL DRAWING OF CABINET SYSTEM DIMENSIONS
VENTILATION INFORMATION

480V SYSTEM SHOWN,6X5,TOP BREAKER
16HX550F-FR

DRAWN BY	SIZE	FSCM NO.	DWG NO.	REV
S. BASSETT			ST65550480	2
DATE 12-1-08	SCALE		SHEET 1 OF 2	


USER
REVDATE
FNAME
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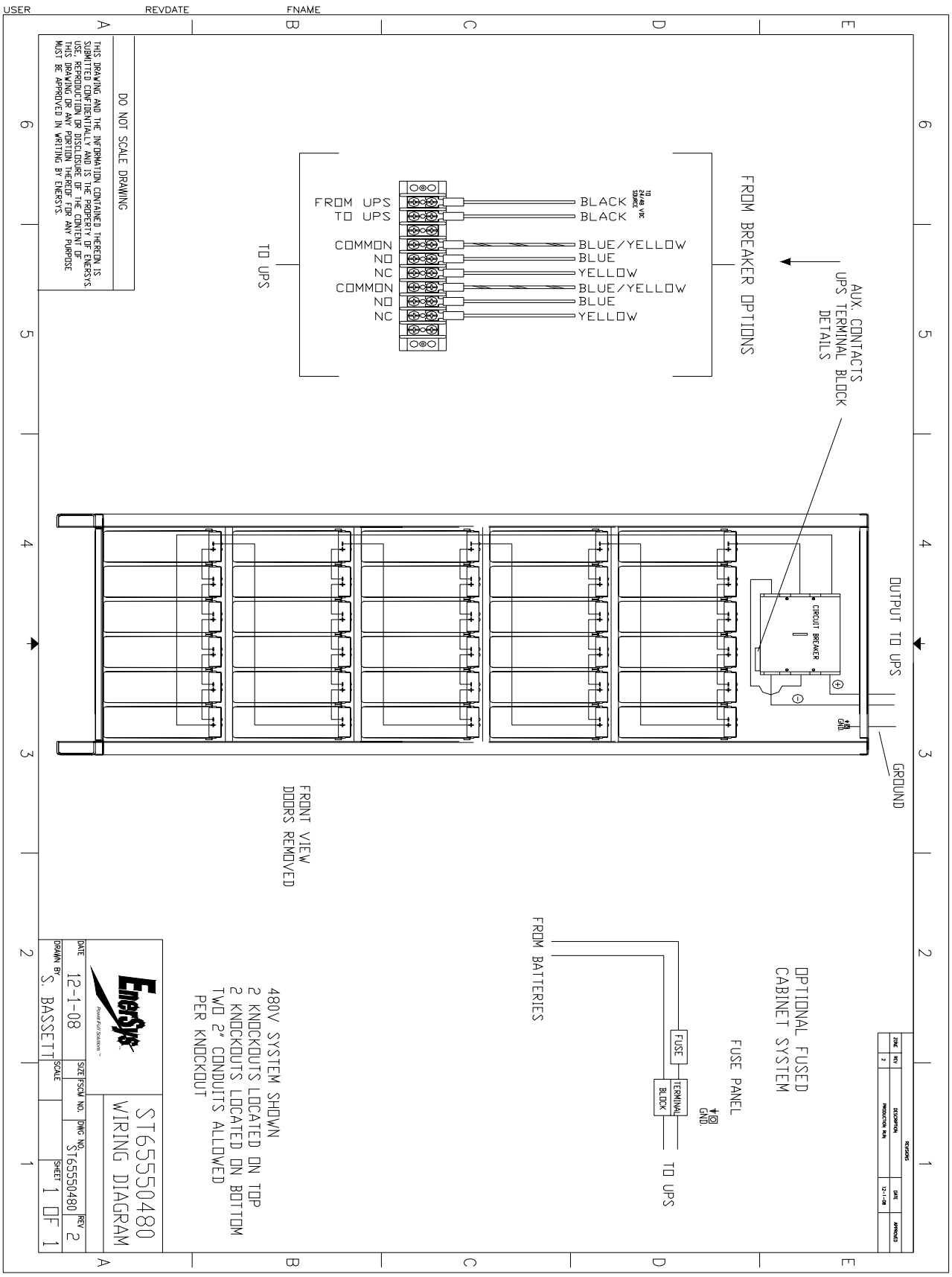
CABLE/CONDUIT ENTRY DETAILS
4.000
8.000
6.000
8.000
TOP VIEW
UP TO 2 EA. 2.5" CONDUITS ARE ABLE TO ENTER FROM TOP OF CABINET
UP TO 4 EA. 500 MCM THHN COPPER CABLES ALLOWED PER 2.5" EMT PER NEC
FOR EASE OF INSTALLATION USE OF MULTIPLE 250 MCM'S IS RECOMMENDED
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RELEASE
12-1-08
REVISIONS
480V SYSTEM SHOWN
16HX550F-FR
DATE
12-1-08
DRAWN BY
S. BASSETT
SIZE
FSCM NO.
SCALE
DWG NO.
S16550480
REV
2
SHEET
2 OF 2


USER
REVDATE
FNAME
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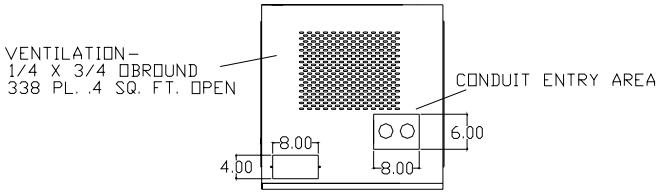
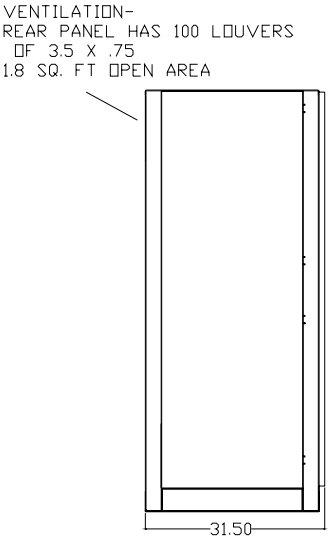
FROM BREAKER OPTIONS
TO UPS
FROM UPS
TO UPS
BLACK
BLACK
COMMON
NO
NC
COMMON
NO
NC
BLUE/YELLOW
BLUE
YELLOW
BLUE/YELLOW
BLUE
YELLOW
AUX. CONTACTS
UPS TERMINAL BLOCK
DETAILS
CIRCUIT BREAKER
OUTPUT TO UPS
GROUND
FRONT VIEW
DOORS REMOVED
FROM BATTERIES
FUSE
TERMINAL BLOCK
TO UPS
GND
OPTIONAL FUSED
CABINET SYSTEM
FUSE PANEL
480V SYSTEM SHOWN
2 KNOCKOUTS LOCATED ON TOP
2 KNOCKOUTS LOCATED ON BOTTOM
TWO 2" CONDUITS ALLOWED
PER KNOCKOUT
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RUN
12-1-08
REVISIONS
DATE
S. BASSETT
SIZE
FSCM NO.
DWG NO.
REV
ST65550480
2
SCALE
SHEET
1 OF 1
ST65550480
WIRING DIAGRAM

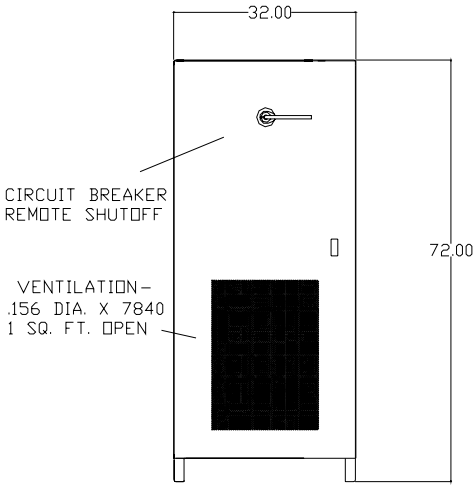
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	2	PRODUCTION RELEASE	12-1-08	



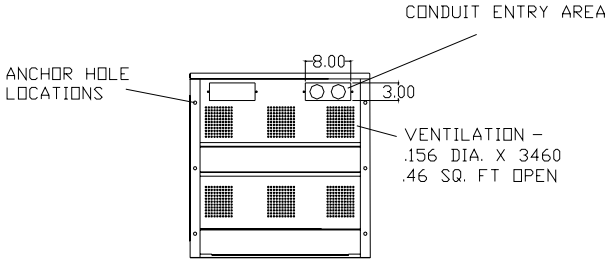
TOP VIEW



SIDE VIEW



FRONT VIEW

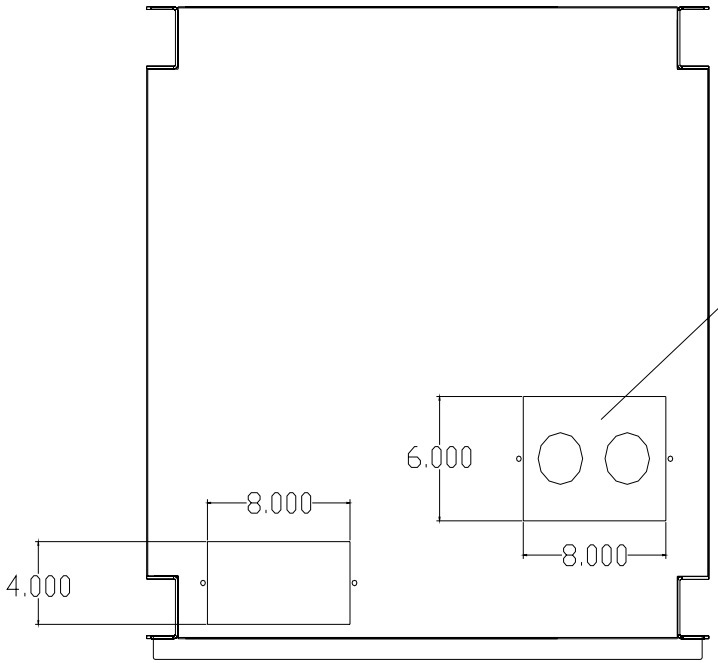


BOTTOM VIEW

EnerSys Power/Full Solutions	OVERALL DRAWING OF CABINET SYSTEM DIMENSIONS VENTILATION INFORMATION		
DO NOT SCALE DRAWING THIS DRAWING AND THE INFORMATION CONTAINED THEREON IS SUBMITTED CONFIDENTIALLY AND IS THE PROPERTY OF EnerSys. USE, REPRODUCTION OR DISCLOSURE OF THE CONTENT OF THIS DRAWING OR ANY PORTION THEREOF FOR ANY PURPOSE MUST BE APPROVED IN WRITING BY EnerSys.	384V SYSTEM SHOWN,6X4 TOP BREAKER 16HX550F-FR		
DRAWN BY S. BASSETT	SIZE	FSCM NO.	DWG NO. ST64550384 REV 2
DATE 12-1-08	SCALE		SHEET 1 OF 2

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	2	PRODUCTION RELEASE	12-1-08	

CABLE/CONDUIT ENTRY DETAILS



TOP VIEW

UP TO 2 EA. 2.5" CONDUITS ARE ABLE TO ENTER FROM TOP OF CABINET

UP TO 4 EA. 500 MCM THHN COPPER CABLES ALLOWED PER 2.5" EMT PER NEC

FOR EASE OF INSTALLATION USE OF MULTIPLE 250 MCM'S IS RECOMMENDED

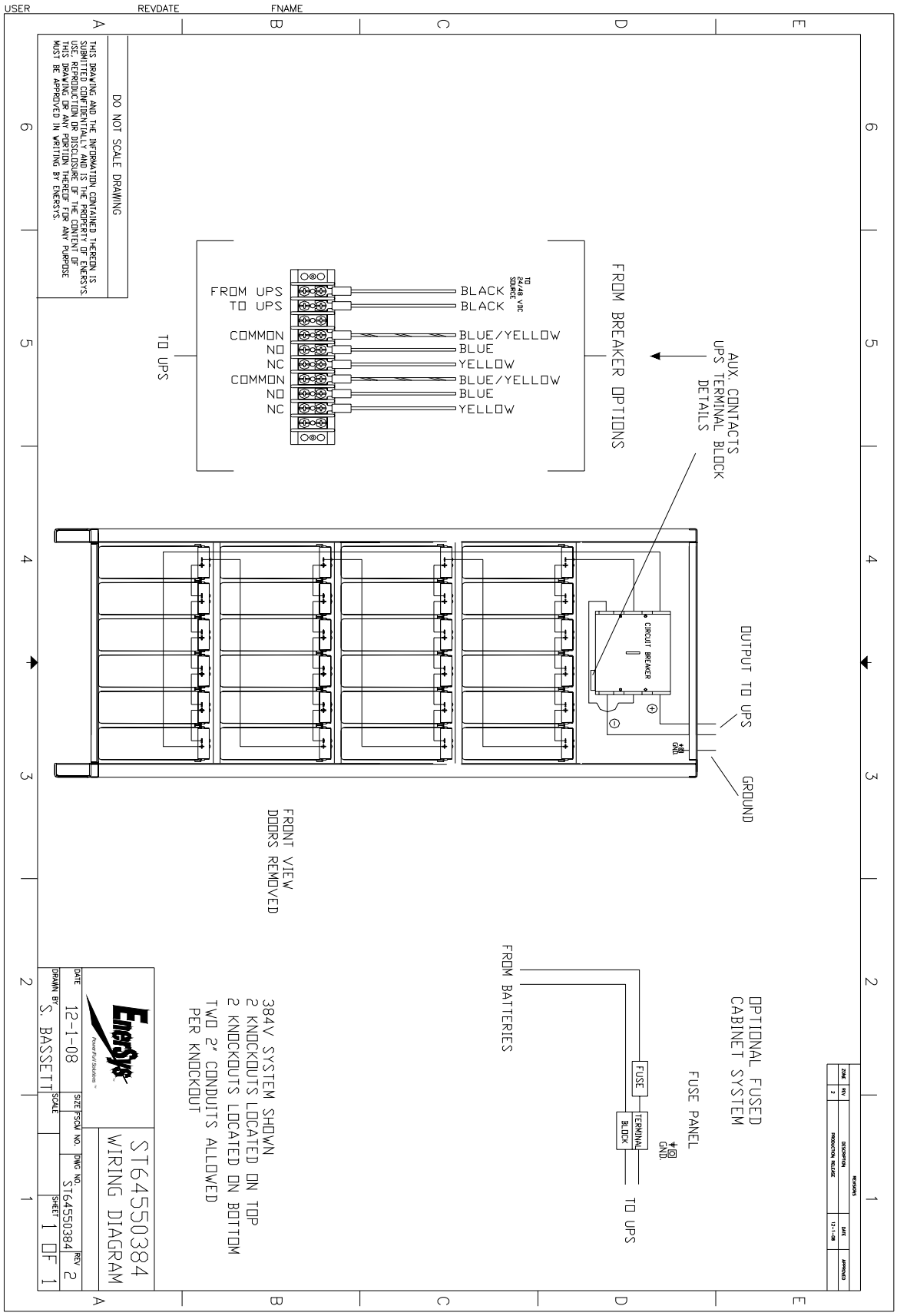
EnerSys
Powerful Solutions.

384V SYSTEM SHOWN

16HX550F-FR

DATE	SIZE	FSCM NO.	DWG NO.	REV
12-1-08			ST64550384	2

DRAWN BY	SCALE	SHEET
S. BASSETT		2 OF 2


USER
REVDATE
FNAME
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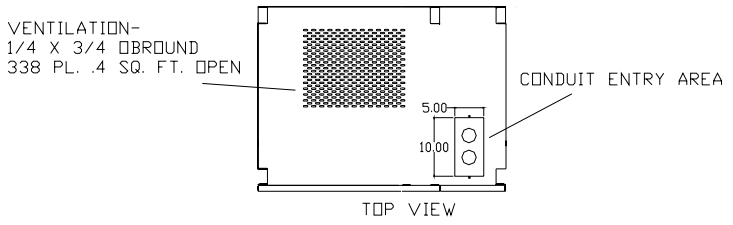
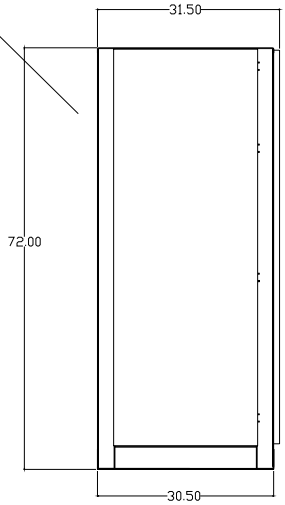
FROM UPS
TO UPS
COMMON
NO
NC
COMMON
NO
NC
BLACK
BLACK
BLUE/YELLOW
BLUE
YELLOW
BLUE/YELLOW
BLUE
YELLOW
TO 24/48 VDC SOURCE
TO UPS
FROM BREAKER OPTIONS
AUX. CONTACTS UPS TERMINAL BLOCK DETAILS
CIRCUIT BREAKER
OUTPUT TO UPS
GND
GROUND
FRONT VIEW DOORS REMOVED
FROM BATTERIES
FUSE
TERMINAL BLOCK
+
GND
TO UPS
FUSE PANEL
OPTIONAL FUSED CABINET SYSTEM
384V SYSTEM SHOWN
2 KNOCKOUTS LOCATED ON TOP
2 KNOCKOUTS LOCATED ON BOTTOM
TWO 2" CONDUITS ALLOWED PER KNOCKOUT
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RELEASE
12-1-08
REVISIONS
DATE
12-1-08
DRAWN BY
S. BASSETT
SCALE
SIZE
FSCM NO.
DWG NO.
ST64550384
REV
2
SHEET
1 OF 1
ST64550384
WIRING DIAGRAM

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	2	PRODUCTION RELEASE	12-1-08	

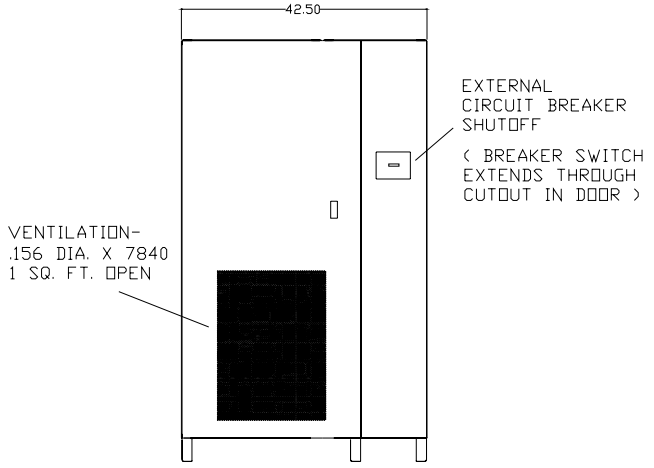


TOP VIEW

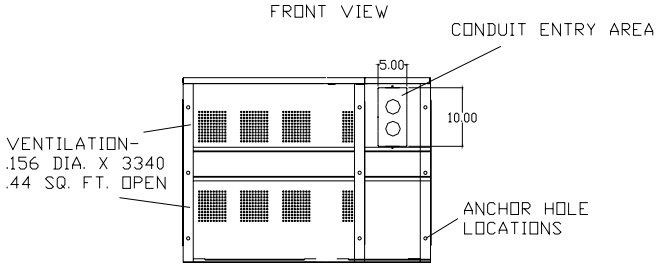
NOTE: REAR OF CABINET HAS 100 LOUVERS
OF 3.5 X .75
(1.8 SQ. FT. OF OPEN AREA)



SIDE VIEW



FRONT VIEW



BOTTOM VIEW

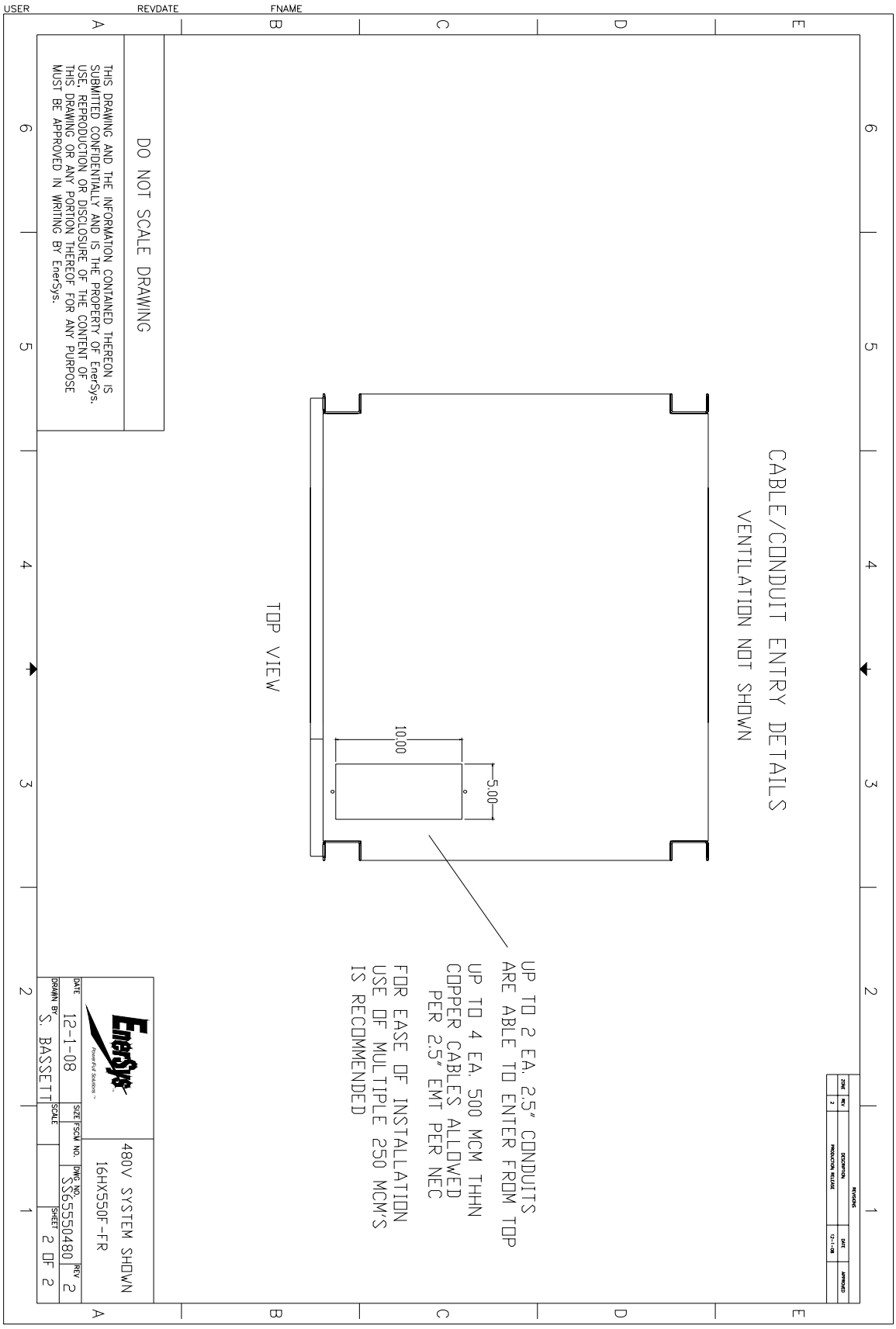
EnerSys
Power/Full Solutions

DO NOT SCALE DRAWING

OVERALL DRAWING OF CABINET SYSTEM DIMENSIONS

480V SYSTEM SHOWN,6X5,SIDE BREAKER
16HX550F-FR

DRAWN BY	SIZE	FSCM NO.	DWG NO.	REV
S. BASSETT			SS65550480	2
DATE 12-1-08	SCALE		SHEET 1 OF 2	


USER
REVDATE
FNAME
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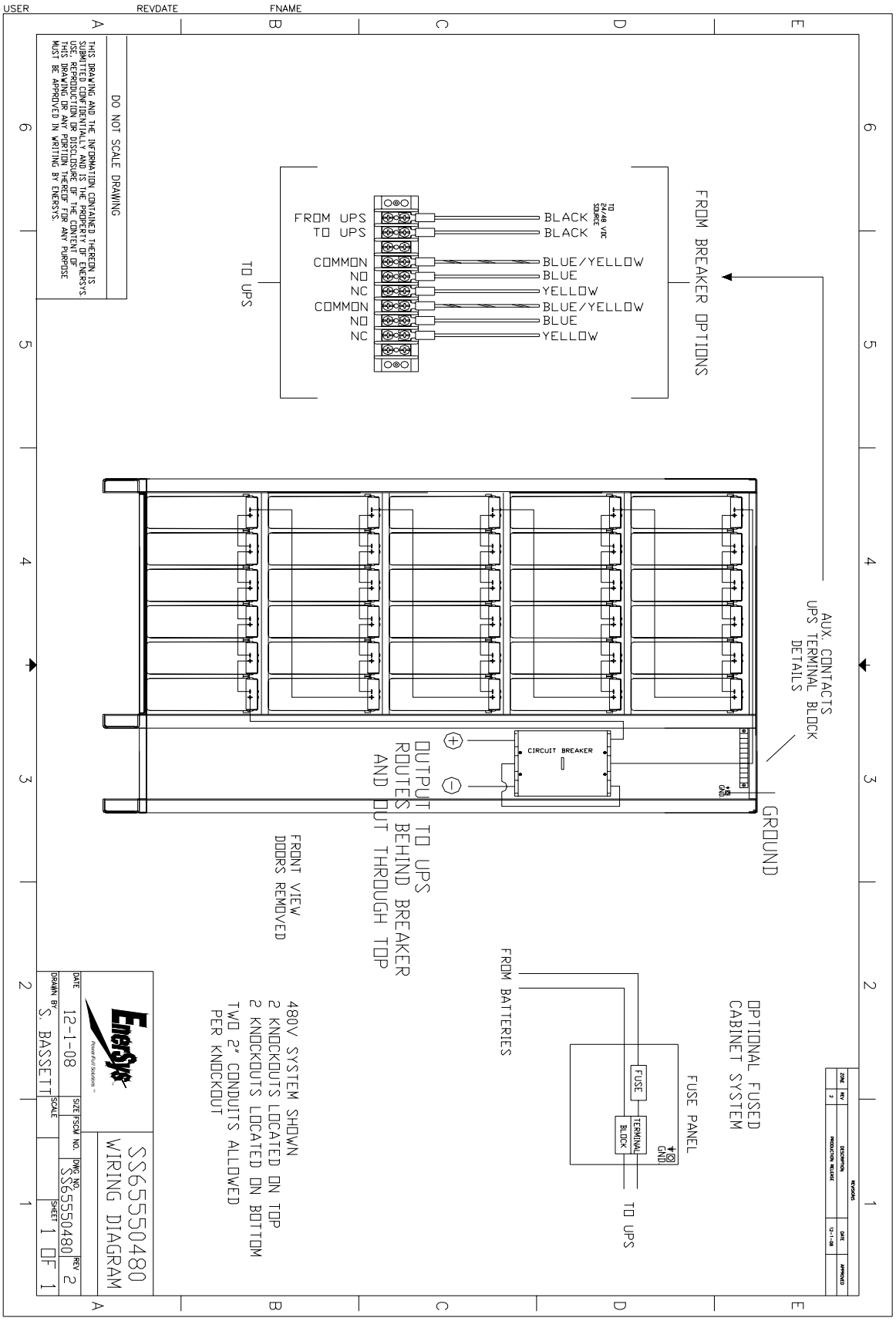
CABLE/CONDUIT ENTRY DETAILS
VENTILATION NOT SHOWN
TOP VIEW
10.00
5.00
UP TO 2 EA. 2.5" CONDUITS ARE ABLE TO ENTER FROM TOP
UP TO 4 EA. 500 MCM THHN COPPER CABLES ALLOWED PER 2.5" EMT PER NEC
FOR EASE OF INSTALLATION USE OF MULTIPLE 250 MCM'S IS RECOMMENDED
ZONE
REV
DESCRIPTION
DATE
APPROVED
2
PRODUCTION RELEASE
12-1-08
REVISIONS
480V SYSTEM SHOWN
16HX550F-FR
DRAWN BY
S. BASSETT
DATE
12-1-08
SIZE
SCALE
FSCM NO.
DWG NO.
SS6555048O
REV
2
SHEET
2 OF 2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FROM BREAKER OPTIONS
TO UPS
FROM UPS
TO UPS
BLACK
BLACK
COMMON
NO
NC
COMMON
NO
NC
BLUE/YELLOW
BLUE
YELLOW
BLUE/YELLOW
BLUE
YELLOW
TO 24/48 VDC SOURCE
AUX. CONTACTS
UPS TERMINAL BLOCK
DETAILS
CIRCUIT BREAKER
GROUND
OUTPUT TO UPS
ROUTES BEHIND BREAKER
AND OUT THROUGH TOP
FRONT VIEW
DOORS REMOVED
480V SYSTEM SHOWN
2 KNOCKOUTS LOCATED ON TOP
2 KNOCKOUTS LOCATED ON BOTTOM
TWO 2" CONDUITS ALLOWED
PER KNOCKOUT
FROM BATTERIES
OPTIONAL FUSED
CABINET SYSTEM
FUSE PANEL
FUSE
TERMINAL BLOCK
GND
TO UPS
ZONE
REV
DESCRIPTION
DATE
APPROVED
REVISIONS
2
PRODUCTION RELEASE
12-1-08
SS6555O480
WIRING DIAGRAM
DATE
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SIZE
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DWG NO.
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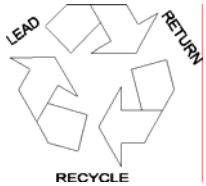
1 OF 1



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