



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP-0756

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: ABB

Manufacturer's Technical Representative: Dhirendra Tiwari

Mailing Address: 41 Woodford Ave, Plainville, CT 06062

Telephone: (860) 747-7935

Email: Dhirendra.Tiwari@us.abb.com

Product Information

Product Name: Emergency and Standby Power Systems

Product Type: Automatic Transfer Switches

Product Model Number: RB4 and RB5 Product Lines

General Description: Automatic Bypass Transfer Switches that provide manual / automatic power switching from a primary power source to a backup power source.

Mounting Description: Rigid, Floor Mounted

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: W.E. GUNDY & ASSOCIATES INC.

Contact Person: Travis Soppe

Mailing Address: P.O. Box 9121, Boise, ID 83707

Telephone: (208) 342-5989

Email: tsoppe@wegai.com

Title: President





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

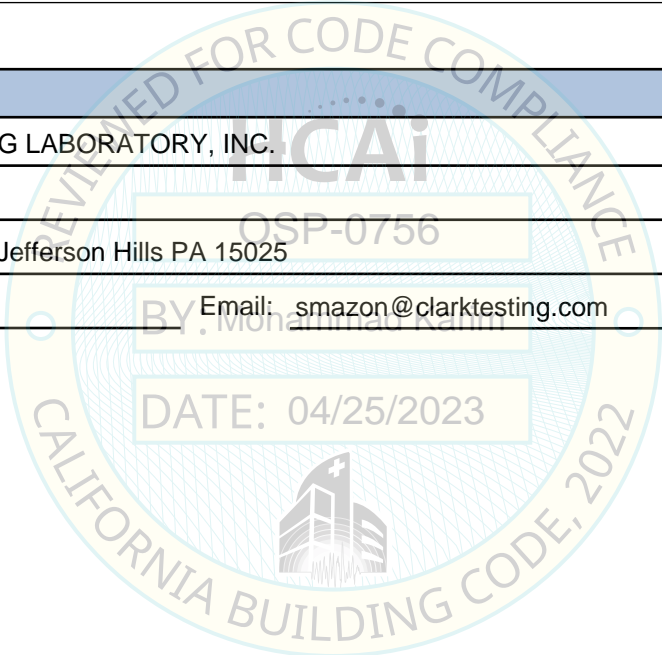
Company Name: W.E. GUNDY & ASSOCIATES INC.
Name: Travis Soppe California License Number: S6115
Mailing Address: P.O. Box 9121, Boise, ID 83707
Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Certification Method

GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
 Other (Please Specify): _____

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.
Contact Person: Suzanne Mazon
Mailing Address: 1801 Route 51, Jefferson Hills PA 15025
Telephone: (412) 387-1001 Email: smazon@clarktesting.com





**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.50 for SDS = 2.0 at z/h = 1 and 1.13 for SDS = 2.5 at z/h = 0

SDS (Design spectral response acceleration at short period, g) = 2.0 at z/h = 1 and 2.5 at z/h = 0

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

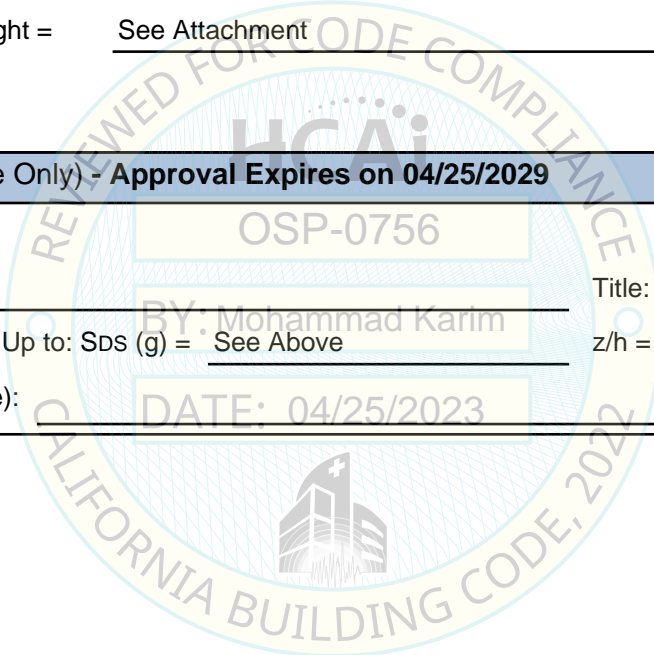
Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment



HCAI Approval (For Office Use Only) - Approval Expires on 04/25/2029

Date: 4/25/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

Condition of Approval (if applicable): DATE: 04/25/2023



ABB, INC. ATS BYPASS CERTIFIED PRODUCT LINE MATRICES



| ID/Catalog Number | Ampere rating | NEMA Rating | Equipment Dimensions (in) | | | Weight (lbs) | Representative UUT |
|--------------------------------------|---------------|-------------|---------------------------|-------------|-------------|--------------|--------------------|
| | | | Width | Depth | Height | | |
| Table 1: R4B ATS Product Line | | | | | | | |
| ZTX, ZTG(D)(C), ZTS(D)(C) Series | 100 - 1200 | 1 | 36.0 | 38.0 - 52.0 | 92.0 - 94.0 | 1550 - 1850 | extrapolated |
| ZSBD120WS1S5TBXX4X | 800 - 1200 | 1 | 36.0 | 38.0 | 92.0 | 1728 | UUT-1 |
| ZTX, ZTG(D)(C), ZTS(D)(C) Series | 100 - 1200 | 3R/4/5/12 | 40.0 | 42.0 - 57.0 | 94.0 - 96.0 | 1845 - 2310 | interpolated |
| ZSBD120WSDS5TBXX4X | 800 - 1200 | 3R/4/5/12 | 40.0 | 56.0 | 96.0 | 2310 | UUT-2 |
| Table 2: R5B ATS Product Line | | | | | | | |
| ZTX, ZTG(D)(C), ZTS(D)(C) Series | 1000 - 3000 | 1 | 45.0 - 46.0 | 68.0 | 77.0 | 3020 - 3500 | interpolated |
| ZSBO300WS1L6TBXXXX | 1000 - 3000 | 1 | 45.0 | 68.0 | 77.0 | 3490 | UUT-4 |
| ZTX, ZTG(D)(C), ZTS(D)(C) Series | 1000 - 3000 | 3R/4/5/12 | 45.0 - 46.0 | 68.0 - 71.0 | 77.0 | 3240 - 3820 | interpolated |
| ZSBD300WS3L6TBXXXX | 1000 - 3000 | 3R/4/5/12 | 45.0 | 68.0 | 77.0 | 3820 | UUT-3 |

Notes:

¹ All components are manufactured by ABB. The part numbers listed uniquely identify the type of component, manufacturer, and material of construction for each sub-component within the tested units.

² Enclosures are constructed of welded carbon steel

³ The ZTX/ZTG/ZTS(D) series products are represented with the following ID numbers:
 ZTX - ZXxxxxxxxxxxxxxxxx
 ZTG(D)(C) - ZGxxxxxxxxxxxxxxxx
 ZTS(D)(C) - ZSxxxxxxxxxxxxxxxx

⁴ The ZTX/ZTG(D)/ZTS(D) automatic transfer switches (ATS) are of nearly identical construction with minor differences listed below:
 ZXBO(D) - ZTX standard bypass open or delayed transition
 ZXDO(D) - ZTX dual withdrawable bypass open or delayed transition
 ZGBO(D)(C) - ZTG standard bypass open or delayed or closed transition
 ZGDO(D)(C) - ZTG dual withdrawable bypass open or delayed or closed transition
 ZSBO(D)(C) - ZTS standard bypass open or delayed or closed transition
 ZSDO(D)(C) - ZTS dual withdrawable bypass open or delayed or closed transition

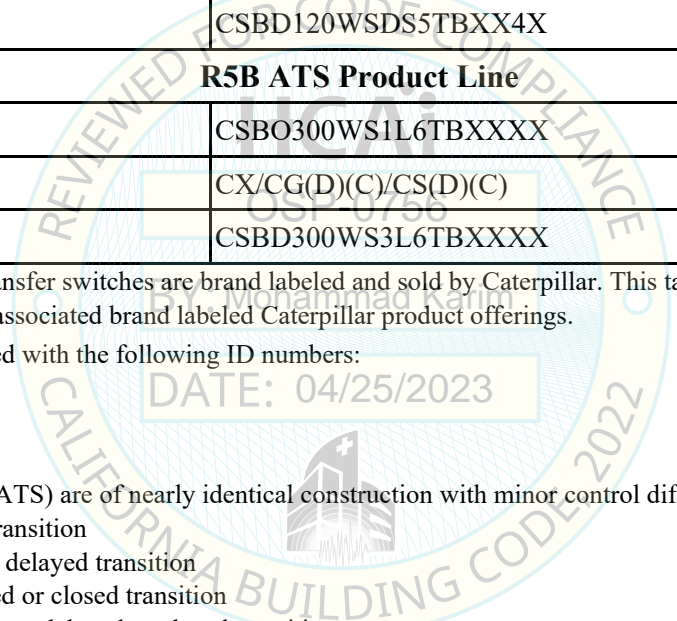
ABB INC. ATS BYPASS BRANDED PRODUCT LINE SEISMIC CERTIFICATION MATRICES



| ABB Identification | Caterpillar Identification | Representative UUT |
|-----------------------------|----------------------------|--------------------|
| R4B ATS Product Line | | |
| ZSBD120WS1S5TBXX4X | CSBD120WS1S5TBXX4X | UUT-1 |
| ZTX/ZTG(D)(C)/ZTS(D)(C) | CX/CG(D)(C)/CS(D)(C) | interpolated |
| ZSBD120WSDS5TBXX4X | CSBD120WSDS5TBXX4X | UUT-2 |
| R5B ATS Product Line | | |
| ZSBO300WS1L6TBXXXX | CSBO300WS1L6TBXXXX | UUT-4 |
| ZTX/ZTG(D)(C)/ZTS(D)(C) | CX/CG(D)(C)/CS(D)(C) | interpolated |
| ZSBD300WS3L6TBXXXX | CSBD300WS3L6TBXXXX | UUT-3 |

Note: The seismically certified ABB Inc. automatic transfer switches are brand labeled and sold by Caterpillar. This table provides the link between the seismically certified ABB Automatic Transfer Switch product line and the associated brand labeled Caterpillar product offerings.

- 1) The CX/CG(D)/CS(D) series products are represented with the following ID numbers:
 CX - CXxxxxxxxxxxxxxxxx
 CG(D)(C) - CGxxxxxxxxxxxxxxxx
 CS(D)(C) - CSxxxxxxxxxxxxxxxx
- 2) The CX/CG(D)/CS(D) automatic transfer switches (ATS) are of nearly identical construction with minor control differences listed below:
 CXBO(D) - CX standard bypass open or delayed transition
 CXDO(D) - CX dual withdrawable bypass open or delayed transition
 CGBO(D)(C) - CG standard bypass open or delayed or closed transition
 CGDO(D)(C) - CG dual withdrawable bypass open or delayed or closed transition
 CSBO(D)(C) - CS standard bypass open or delayed or closed transition
 CSDO(D)(C) - CS dual withdrawable bypass open or delayed or closed transition
- 3) Controllers in CAT brand label units have an added, "-CAT", extension in the part ID.



ABB, INC. ATS BYPASS CERTIFIED SUBCOMPONENT MATRICES



| Identification Number | Manufacturer | Description | Weight (lbs) | Representative UUT |
|-----------------------|--------------|-------------|--------------|--------------------|
|-----------------------|--------------|-------------|--------------|--------------------|

Table 3: R4B ATS Product Line Subcomponents

| Switch / Power Panel | | | | |
|-------------------------------------|-----|---------------------------------|-----|--------------|
| OXB1200U3E4QBY | ABB | R4B Switch 3P | 72 | extrapolated |
| OXB1200U3O4QBY | | R4B Switch 4P (Overlap Neutral) | 83 | extrapolated |
| OXB1200U3S4QBY | | R4B Switch 4P | 83 | UUT-1/UUT-2 |
| Bus Structure | | | | |
| OXYB1200TU4CU | ABB | R4B Bus 3 Pole | 260 | extrapolated |
| OXYB1200TU4CU | | R4B Bus 4 Pole | 310 | UUT-1/UUT-2 |
| Control Panel and Controller | | | | |
| OXYJ2 | ABB | R4B 3P & 4P | 66 | UUT-1/UUT-2 |
| OXCO1 ¹ | | Controller | 2 | UUT-1/UUT-2 |

Table 4: R5B ATS Product Line Subcomponents

| Switch / Power Panel | | | | |
|-----------------------------|-----|-------------------------------------|--------|--------------|
| 2TFC360012R1001 | ABB | ATSE / MTSE Panel 3P Open | 2676 | extrapolated |
| 2TFC360012R1003 | | ATSE / MTSE Panel 3P Delayed/Closed | 2690 | extrapolated |
| 2TFC360012R1002 | | ATSE / MTSE Panel 4P Open | 2896 | UUT-4 |
| 2TFC360012R1004 | | ATSE / MTSE Panel 4P Delayed | 2910 | UUT-3 |
| Bus Structure | | | | |
| 2TFR360297A1806 | ABB | 750MCM (1600-4000A) | 467 | UUT-4 |
| 2TFR360297A18XX | | 500 to 750MCM (1600-4000A) | 88-511 | Interpolated |
| 2TFR360297A1808 | | 750MCM (1600-4000A) | 511 | UUT-3 |
| Controller | | | | |
| OXCO1 ¹ | ABB | Controller | 2 | UUT-3/UUT-4 |

Notes:
¹ OXCO1 is the primary controller identification number representative of the OXAMI1-L2, OXBMI1-L2, OXAMI1-L3, OXBMI1-L3, OXAMI1-L4, OXBMI1-L4 controller configurations with varied software.

UUT-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor mounted with (4) ½" diameter grade 5 bolts



| | |
|--|--|
| Manufacturer: ABB, Inc. | Test Location: Clark Testing (Pittsburgh, PA) |
| Component: R4B ATS Bypass | Test Date: August 2022 |
| Model Number: ZSBD120WS1S5TBXX4X | Report Number: JID 22-00885 REV.1 |
| UUT Function: Manual/Automatic power switching from utility to emergency power | |
| UUT Description: 1200A 4-Pole Automatic Transfer Switch with OXB1200U3E4QBY power panel, OXYJ2 control panel, and OXCO1 HMI in a NEMA 1 enclosure | |

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|-----|------|
| | Width | Depth | Height | FB | SS | V |
| 1,728 | 36 | 38 | 92 | 7.7 | 7.9 | 31.1 |

SEISMIC TEST PARAMETERS

| Building Code / Test Criteria | S _{DS} (g) | z / h | I _p | A _{FLX-H} (g) | A _{RIg-H} (g) | A _{FLX-V} (g) | A _{RIg-V} (g) |
|-------------------------------|---------------------|-------|----------------|------------------------|------------------------|------------------------|------------------------|
| CBC 2022 / ICC-ES AC156 | 2.00 | 1.0 | 1.5 | 3.20 | 2.40 | -- | -- |
| | 2.50 | 0.0 | 1.5 | -- | -- | 1.67 | 0.67 |

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT-2

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor mounted with (4) ½" diameter grade 5 bolts



| | |
|---|--|
| Manufacturer: ABB, Inc. | Test Location: Clark Testing (Pittsburgh, PA) |
| Component: R4B ATS Bypass | Test Date: August 2022 |
| Model Number: ZSD120WSDS5TBXX4X | Report Number: JID 22-00885 REV.1 |
| UUT Function: Manual/Automatic power switching from utility to emergency power | |
| UUT Description: 1200A 4-Pole Automatic Transfer Switch with OXB1200U3E4QBY power panel, OXYJ2 control panel, and OXCO1 HMI in a NEMA 3R enclosure | |

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|-----|--------|
| | Width | Depth | Height | FB | SS | V |
| 2,310 | 40 | 56 | 96 | 16.8 | 8.7 | >33 Hz |

SEISMIC TEST PARAMETERS

| Building Code / Test Criteria | S _{DS} (g) | z / h | I _p | A _{FLX-H} (g) | A _{RIg-H} (g) | A _{FLX-V} (g) | A _{RIg-V} (g) |
|-------------------------------|---------------------|-------|----------------|------------------------|------------------------|------------------------|------------------------|
| CBC 2022 / ICC-ES AC156 | 2.00 | 1.0 | 1.5 | 3.20 | 2.40 | -- | -- |
| | 2.50 | 0.0 | 1.5 | -- | -- | 1.67 | 0.67 |

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test.

UUT-3

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor mounted with (4) ½" diameter grade 5 bolts



| | |
|---|--|
| Manufacturer: ABB, Inc. | Test Location: Clark Testing (Pittsburgh, PA) |
| Component: R5B ATS Bypass | Test Date: August 2022 |
| Model Number: ZSBD300WS3L6TBXXXX | Report Number: JID 22-00885 REV.1 |
| UUT Function: Manual/Automatic power switching from utility to emergency power | |
| UUT Description: 3000A 4-Pole Automatic Transfer Switch with 2TFC360012R1004 delayed transition power panel and OXCO1 HMI in a NEMA 3R enclosure | |

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|-----|------|
| | Width | Depth | Height | FB | SS | V |
| 3,820 | 45 | 68 | 77 | 10.3 | 8.0 | 28.8 |

SEISMIC TEST PARAMETERS

| Building Code / Test Criteria | S _{DS} (g) | z / h | I _p | A _{FLX-H} (g) | A _{RIG-H} (g) | A _{FLX-V} (g) | A _{RIG-V} (g) |
|-------------------------------|---------------------|-------|----------------|------------------------|------------------------|------------------------|------------------------|
| CBC 2022 / ICC-ES AC156 | 2.00 | 1.0 | 1.5 | 3.20 | 2.40 | -- | -- |
| | 2.50 | 0.0 | 1.5 | -- | -- | 1.67 | 0.67 |

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test. Seismic enhancements made to the test units shall be incorporated into the production units.

UUT-4

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



Mounting Details: Rigid floor mounted with (4) ½" diameter grade 5 bolts



| | |
|---|--|
| Manufacturer: ABB, Inc. | Test Location: Clark Testing (Pittsburgh, PA) |
| Component: R5B ATS Bypass | Test Date: August 2022 |
| Model Number: ZSBO300WS1L6TBXXXX | Report Number: JID 22-00885 REV.1 |
| UUT Function: Manual/Automatic power switching from utility to emergency power | |
| UUT Description: 3000A 4-Pole Automatic Transfer Switch with 2TFC360012R1002 open transition power panel and OXCO1 HMI in a NEMA 1 enclosure | |

UUT PROPERTIES

| Weight (lb) | Dimensions (inches) | | | Natural Frequency (Hz) | | |
|-------------|---------------------|-------|--------|------------------------|-----|------|
| | Width | Depth | Height | FB | SS | V |
| 3,490 | 45 | 68 | 77 | 13.7 | 9.6 | 12.3 |

SEISMIC TEST PARAMETERS

| Building Code / Test Criteria | S _{DS} (g) | z / h | I _p | A _{FLX-H} (g) | A _{RIG-H} (g) | A _{FLX-V} (g) | A _{RIG-V} (g) |
|-------------------------------|---------------------|-------|----------------|------------------------|------------------------|------------------------|------------------------|
| CBC 2022 / ICC-ES AC156 | 2.00 | 1.0 | 1.5 | 3.20 | 2.40 | -- | -- |
| | 2.50 | 0.0 | 1.5 | -- | -- | 1.67 | 0.67 |

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 test. Seismic enhancements made to the test units shall be incorporated into the production units.