

EVALUATION SUBJECT: KD1750 SOUND LVL. 2 ALUMINUM ENCLOSURE & QUALIFYING**FL# 28906.3 & 28906.4****REPORT HOLDER:**DISCOVERY ENERGY, LLC.
200 TWIN OAKS ROAD
KOHLER, WI 53044, USA**KOHLER®****SCOPE OF EVALUATION (compliance with the following codes):**

THIS IS A STRUCTURAL (WIND) PERFORMANCE EVALUATION ONLY. NO ELECTRICAL OR TEMPERATURE PERFORMANCE RATINGS OR CERTIFICATIONS ARE OFFERED OR IMPLIED HEREIN. UNDER NO CIRCUMSTANCE DOES THIS PERFORMANCE EVALUATION GUARANTEE, IMPLY, OR STATE PERFORMANCE OF THE UNIT IS MAINTAINED DURING OR AFTER A DESIGN EVENT.

This Performance Evaluation is being issued in accordance with the requirements of the **Florida Building Code Eighth Edition (2023)** per ASCE 7, FBC Building Ch. 16, FBC Building Sections 104.11, 453.25.5 & 1522.2, FBC Existing Building Sections 707.1 & 707.2, FBC Mechanical 301.15, FBC Residential M1202.1 & M1301.1, FS 471.025. The product noted in this report has been tested and/or evaluated as summarized herein.

This Performance Evaluation is also in accordance with the requirements of the Florida Department of Business and Professional Regulation (Florida Building Commission) Rule Chapter 61G20-3.005 F.A.C., for statewide acceptance per Method 1 (d). Re-evaluation of the product shall be required following the pertinent Florida Building Code or ASCE Standard modifications or revisions. The product noted in this report has been tested and/or evaluated as summarized herein.

SUBSTANTIATING DATA:**• Product Evaluation Documents (Test Reports)**

Substantiating documentation has been submitted to provide this performance evaluation and is summarized in the sections below.

Test Reports: i4190.01-109-18-r0, tests by Intertek.

• Structural Engineering Calculations and Testing

Product testing and structural engineering calculations have been prepared which evaluate the product based on comparative analysis (per FBC Building Section 1709.5.1) to qualify the following design criteria:

- Maximum Missile Impact Rating per TAS 201 – Level “E”
- Maximum Cyclic Wind Pressures per TAS 203 & Table 1625.4, as shown under the “Structural Performance” section on this page.

Summary is included in this performance evaluation and appears herein.

LIMITATIONS & CONDITIONS OF USE:

Use of the product(s) listed herein shall be in strict accordance with this performance evaluation as noted herein and manufacturer-provided model specifications. Installation shall conform to the minimum standards stated in the referenced building code(s) in addition to the specifications and limitations stated herein. See herein for complete limitations & conditions of use.

OPTIONS:

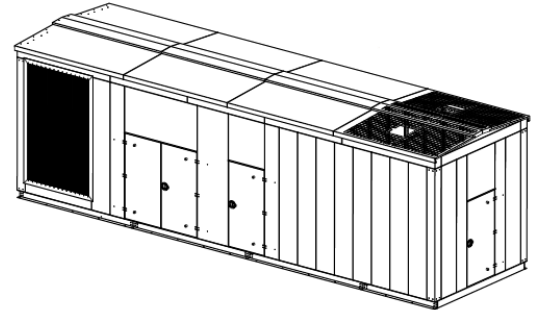
This evaluation is valid for the models described herein. This evaluation includes standard product only. Contact Kohler for Engineering Special (ES) orders. Any structural changes outside of the design as described herein would void this certification.

UNIT CASING MATERIALS:

1/8" Al 5052-H32 top panel. 1/8" Al 5052-H32 for side panels and 1/4" steel ASTM A36 for bottom skids, secured with 3/16" rivets grade 51, M6 bolts class 5.8, and M8-M16 bolts class 8.8 (see dimensional drawing for specific locations). Contact Report Holder for further unit construction information.

TERMINOLOGY:

See herein for definitions of terms and abbreviations used in this evaluation.



NOTE: THE GRAPHICAL DEPICTIONS IN THIS EVALUATION ARE FOR ILLUSTRATIVE PURPOSES ONLY AND MAY DIFFER IN APPEARANCE.

STRUCTURAL PERFORMANCE:

Models referenced herein are subject to the following design limitations:
Rated for HVHZ (High-Velocity Hurricane Zone) & Non-HVHZ Applications
Missile speed 80 ft/s
Risk Category III / IV

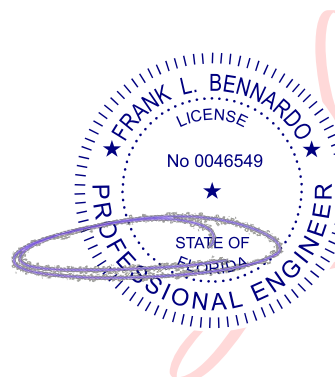
Maximum Allowable (ASD)
Cyclic Wind Pressures
Wall Panels/Doors/Louvers: ± 39 psf
Roof Panels: ± 60 psf

Maximum Missile
Impact Rating:
Missile Level “E”

VISIT [ECALC.IO/KOHLER](https://ecalc.io/kohler)
FOR MORE INFORMATION AND
DEVIATIONS TO THIS EVALUATION OR
SCAN THE QR CODE TO THE RIGHT >



Engineer Signature & Seal:



Digitally signed
by Frank
Bennardo
Date:
2024.07.02
13:55:25 -04'00'

July 1, 2024

Frank Bennardo, P.E.
ENGINEERING EXPRESS®
FL PE #0046549 FLCA #9885

EVALUATION SUMMARY

Engineering Express has reviewed the design requirements per the Florida Building Code Eighth Edition (2023) and ASCE 7 for the structural integrity of the above-referenced Kohler sound aluminum housing unit with steel skid to withstand a Missile Level "E" for Risk Category III/ IV Structures and the cyclic pressures stated herein. This performance evaluation certifies the enclosures listed herein for cyclic wind loading and large missile impact only. The analysis forming the basis of this certification includes the unit framing and housing only and requires that a permanent near-grade (non-rooftop) attachment to a concrete or metal host structure as certified/verified by others. Steel skid tie-down anchor locations shall conform to specifications stated in the respective "Uniform (Static) Wind Loading" performance evaluation for the enclosure model in question. Additionally, the unit shall not be installed in a location susceptible to channeling effects for use upwind obstacles. It shall be the installer's responsibility to ensure: the criteria for the unit housing integrity, as listed above, is applicable for use at the location of installation, the mounting method meets or exceeds the requirements of the local code, and is approved by the appropriate local authority before installation.

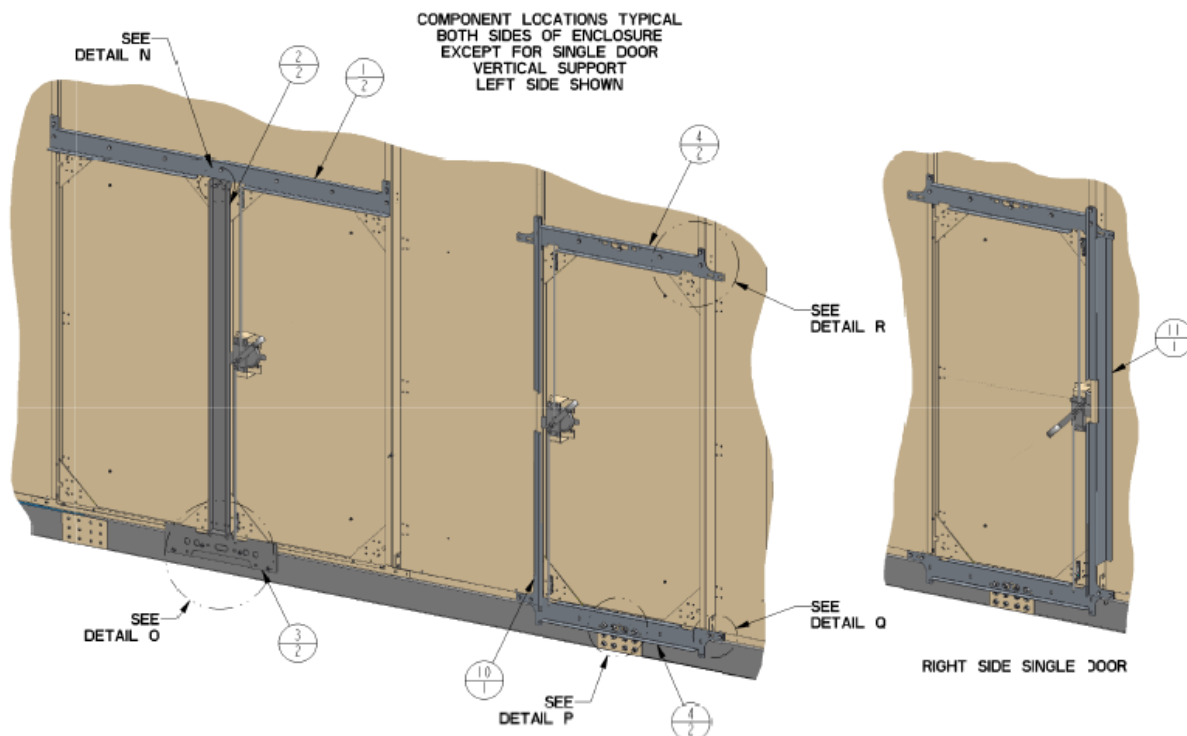
This certification is intended to certify the structural capacity and integrity of the structural framing members, wall and roof sheet metal skins, generator skid and internal structural connections only for the Sound Aluminum Enclosure (and qualifying models) stated herein to resist missile level "E" and the stated maximum cyclic pressures. Design of the generator itself, mechanical designs, energy/electrical criteria, generator slab support, anchorage and tie-down method accompanying components and all non-structural items shall be verified by others and outside the scope of this certification. Upon the prepared test program, review of the results shown on the provided test reports, and comparative analysis to the tested enclosures referenced in the test reports, this engineer has concluded that the aluminum housing enclosure provides adequate resistance to the specified missile impact and cyclic loads.

All installation work shall follow the minimum requirements of the Florida Building Code Eighth Edition (2023) and the respective "Uniform (Static) Wind Loading" performance evaluation for the enclosure model in question, in addition to any additional site-specific requirements for tie-down certification which is not included in this report. Except as expressly provided herein, no additional affirmations are intended.

The enclosure's deformation after a design event is a serviceability element; testing showed that deformations are present; however, those did not cause the equipment to detach, dislodge, or otherwise separate from the assembly. Moreover, no critical component limit was reached due to the acting distortion.

RETROFIT TO ALUMINUM ENCLOSURE

The enclosures listed herein shall be retrofitted per the retrofit drawings referenced in the "Enclosure Models Included" section. The Details shown in this section are for reference only and do not depict all required retrofits.



ATTACH TRUSS SUPPORT ON BOTH SIDES OF ALL HEAVY GAUGE SUPPORT TRUSSES AS SHOWN

18/32 18/32 5/16

22/24 24/24

DETAIL Y

STANDARD DOOR WITH FULL STEEL AT ALL LOCATIONS

27/20 14/20 10/18 28/112 23/20

ADD SPACERS BEHIND ROD GUIDE TOP AND BOTTOM

PLACE STEEL DOOR GUSSET BEHIND EXISTING DOOR GUSSET. INSTALL INSERTS INTO THE STEEL GUSSET FOR ROD GUIDE MOUNTING

DETAIL S
TYPICAL
SGL & DBL DOOR

2212 1106 177

9/6

SEE DETAIL Y

INTAKE LOUVER FRONT



ITEM	PART NO	QTY	DESCRIPTION
			BRACING, HURRICANE RATED ENCL
1	114040248XX	2	SUPPORT, DBL DOOR, UPPER
2	114040249XX	2	SUPPORT, DBL DOOR
3	114040250XX	2	SUPPORT, DBL DOOR
4	114040246XX	5	SUPPORT, SGL DOOR
5	114040259XX	16	SUPPORT, ROOF
6	11404010000	4	SUPPORT ASSY, LOUYER
7	114040252XX	18	SPACER, HURRICANE RATED ENC
8	114040253XX	2	SPACER, HURRICANE RATED ENC
9	114040254XX	6	SUPPORT, LOUVER FIN
10	114040256XX	1	SUPPORT, SGL DOOR
11	114040257XX	2	SUPPORT, SGL DOOR
12	114040258XX	1	SUPPORT, SGL DOOR
13	GM106342	2	DECAL, HURRICANE RATED ENCLOSURE
14	GM106712	2	DECAL, BRACKET INSTRUCTION
15	GM11040-4	19	INSERT, THREADED M8-1.25
16	GM11040-6	20	INSERT, THREADED M5-0.8
17	M6921-08025-SS	8	SCREW, HEX FLANGE (M8-1.25 X 25MM)
18	M6921-08030-60	93	SCREW, HEX FLANGE (M8-1.25 X 30MM)
19	M6923-08-80	146	NUT, HEX 8MM
20	M7985A-05030-20	20	SCREW, PAN HEAD MACHINE
21	M933-12035-60	4	SCREW, HEX CAP
22	SA11939	40	SCREW, DRILL, 1/4-14, HEX HD
23	SA32977	28	WASSET, DOOR
24	SA33851	40	WASHER, RUBBER BONDED
25	X-25-38	72	WASHER, PLAIN, .406 ID X 1.25 IN. OD
26	X-25-45	102	WASHER, PLAIN, .203 ID X .75 IN. OD
27	X-400-207	20	SPACER, .344 ID X .625 OD X .5 IN.
28	X-781-23	214	RIVET, POP, .187 IN.

ENCLOSURE MODELS INCLUDED

GENERATOR	ENCLOSURE TYPE	ENCLOSURE DRAWING NUMBER	REVISION & DATE	RETROFIT DRAWING NUMBER	REVISION & DATE	TEST REPORT
KD800 KD900 KD1000	KD800-1000 Sound Level 2 Aluminum Enclosure	114010035XX-TA2	Rev H – 03/18/19	114120130XX-KA1	Rev 0 - 01/23/19	QUALIFIED UNDER COMPARATIVE ANALYSIS
		114010035XX-TA3				
		114010035XX-TA4				
		114010035XX-TA5				
		114010035XX-TA6				
		114010035XX-TA7				
		114010035XX-TA8				
KD1250A KD1350 KD1500 KD1600 KD1750	KD1250A-1750 Sound Level 2 Aluminum Enclosure	114010204XX-KA1	Rev E - 2/7/18	114120130XX-KA2	Rev 0 - 1/23/19	i4190.01-109-18-r0
		114010204XX-KA2	Rev E - 2/7/18	114120130XX-KA2	Rev 0 - 1/23/19	QUALIFIED UNDER COMPARATIVE ANALYSIS
		114010204XX-KA3				
		114010204XX-KA4				
		114010204XX-KA5				
		114010204XX-KA6				
		114010204XX-KA7				
		114010204XX-KA8				
		114010204XX-KA9				
		114010204XX-KA10				

TESTED UNIT

Unit models listed above were evaluated and compared using enclosure KD1750 and its respective test reports mentioned. Enclosures share identical constructions, and dimensions (height, width, and depth) are equal to or less than the tested model.

TEST REPORTS UTILIZED

Design and certification of the unit cabinetry for impact and cyclic ratings are approved through: Intertek Report #: i4190.01-109-18-r0
Tested according to TAS201-94 & TAS203-94.

REMAINDER OF PAGE INTENTIONALLY LEFT BLANK

TERMINOLOGY

The following abbreviations may appear in this report: "Addtl." for "additional", "AHJ" for "Authority Having Jurisdiction", "alum" for "aluminum", "ASCE" for "American Society of Civil Engineers", "ASD" for "Allowable Stress Design", "ASTM" for "American Society for Testing and Materials", "EA." for "each", "E.D." for edge distance, "EDDS" for "extra deep drawing steel", "e.g." for "*exempli gratia*" or "for example", "equiv." for "equivalent", "FBC" for "Florida Building Code", "FEA" for "Finite Element Analysis", "FLCA" for "Florida Certificate of Authorization", "FS" for "Florida Statutes", "Fu" for "ultimate tensile strength" or "ultimate tensile stress", "Fy" for "yield strength" or "yield stress", "GA" for "gauge", "GR." or "Gr." for "grade", "HVAC" for "heating, ventilation, and air conditioning", "HVHZ" for "High-Velocity Hurricane Zone", "i.e." for "*id est*" or "in other words", "in" for "inch", "lb" for "pound (force)", "max." for "maximum", "min." for "minimum", "mm" for "millimeter", "NTS" for "not to scale", "O.C." for "on center", "OD" for "outer diameter", "pcf" for "pounds (force) per cubic foot", "PE" for "Professional Engineer", "qty" for "quantity", "SAE" for "Society of Automotive Engineering", "SMS" for "sheet metal screws", "SS" for "stainless steel", "TER" for "Technical Evaluation Report", "typ." for "typical", "ult" for "ultimate loads", "U.N.O." for "unless noted otherwise", "UTS" for "ultimate tensile strength" or "ultimate tensile stress", "WLL" for "working load limit", "w/o" for "without", "YS" for "yield strength" or "yield stress", "#" for "number", "&" for "and", and "Ø" for "diameter". Please visit ecalculator.io/glossary for additional abbreviation clarifications.

Note: The term "Thru-Bolt" or through bolt, if used herein, refers to a bolt passing through the member(s) in contact and is fastened by a nut at the end opposite the screw head. Nut shall be equivalent to or exceed the strength of the bolt U.N.O. Nut shall be sized to accommodate the same nominal diameter as the bolt U.N.O. See diagram above-right for a sample thru-bolt configuration.

Note: For instances herein which list material specifications as "[material type] or stronger":

U.N.O. herein, the term "stronger" refers to a material with a UTS value equal to or greater than the UTS value of the stated material type. Consult appropriate literature for established material UTS values.

Note: Equivalent steel gauge thicknesses as used in this evaluation, U.N.O., are as follows:
22 GA (.030"), 20 GA (.036"), 18 GA (.048"), 16 GA (.060"), 14 GA (.075"), 12 GA (.098").

LIMITATIONS & CONDITIONS OF USE, CONTINUED

Host Structure: The supporting host structure shall be designed to resist all superimposed loads as determined by others on a site-specific basis as may be required by the Authority Having Jurisdiction. No evaluation is offered for the host supporting structure by use of this document.

Production Drawings: The following drawings shall be accessible if required for a full permit application to be submitted to the Authority Having Jurisdiction in conjunction with this performance evaluation:

- Electrical schematic(s)
- Final assembly drawings and parts lists sufficient to detail primary components, operator controls, and their locations
- Complete set of mechanical drawings for all machined parts
- Complete part specifications (including manufacturer's model numbers, size, ratings, etc.) for all purchased parts
- Specification sheets for all parts/components
- Drawings showing all construction details
- Product label drawing(s) showing all required marking information. The label drawing shall show the proposed label location on the equipment and artwork showing the manufacturer's name, address, model and serial numbers, equipment ratings, warning markings.

Drawing and Change Control: The manufacturer shall establish a system of product configuration control that shall allow no unauthorized changes to the product. Changes to critical documents, identified in this performance evaluation, must be reported to, and authorized by, this office prior to implementation for production.

Survivability: Evaluation reports are valid for a newly installed unit and do not include certification of the product beyond a design event or if impacted by any debris. Inspections shall be implemented annually by the end user and after every named storm. All fasteners and cabinet components are to be verified, and all damaged, loose, corroded and/or broken fasteners and cabinet components shall be replaced to ensure structural integrity against hurricane wind forces. Contact this office for any reevaluation needs or as designated by the Authority Having Jurisdiction.

Durability: Components or component assemblies shall not deteriorate, crack, fail, or lose functionality due to galvanic corrosion or weathering. All supporting components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. Each component or component assembly shall be supported and oriented in its intended installation position. All exposed plastic components shall be certified to resist sunlight exposure as specified by ASTM B117, or ASTM G155 in Broward or Miami-Dade counties.

Extent of Certification: Certification pertains to the overall structural integrity of the unit components listed within the evaluation as required by code, subject to the limitations and criteria stated herein. Operability during or after a design event is not included in this certification. Water infiltration is outside the bounds of this certification. No other certifications are intended other than as described herein. This evaluation alone does not offer any evaluation for large missile impact debris or cyclic wind requirements unless specifically stated herein.

Proj. #	Remarks	By	Checked	Date	Proj. #	Remarks	By	Checked	Date
20-28222	Prev. Submittal (R2)	CCB	RWN	02/18/21	23-68500	Change Address	MARH	ER/RN	06/21/24
23-68500	2023 FBC Update	EPR	EPR	10/23/23					