

ATTN: Blikir, Inc.

RE: Blikir RCP-2 Solar Carport

This letter addresses the structural performance of the Blikir, Inc. RCP-2 Solar Carport (henceforth “Carport” or “RCP-2”). The Carport is a proprietary carport kit consisting of galvanized steel posts, beams, and connections, supporting solar panels. Post connections to concrete footings are included, but the footings themselves are to be supplied by the purchaser, according to the guidelines provided in the attachment.

Solar panels are supported by IronRidge XR-100 aluminum rails and secured to the rails with IronRidge CAMO-01-M1 Hidden End Clamps. The XR-100 rails are bolted to IronRidge LFT-03 Slotted L-Foot brackets with IronRidge BHW-TB-02-A1 T-Bolts. The L-Foot Brackets are bolted to the top of the carport framing members with 3/8” diameter bolts. Loads on connections and rails are within the allowable limits set forth by the manufacturer for spans of 6’. Refer to manufacturer’s tables for more information. Use of alternative rails or connections must be approved by a licensed engineer.

This carport frame system has been analyzed under the following codes and standards:

- International Building Code (2012, 2015, 2018, 2021)
- ASCE (7-10, 7-16)

Analysis under these codes was performed using the following design parameters:

- Risk Category I
- Wind Design Parameters
 - Wind Flow: Clear and Obstructed
 - Enclosure: Open
 - $K_d = 0.85$
 - $G_f = 0.85$
 - $K_{zt} = 1.0$
- Snow Design Parameters
 - Partially Exposed
 - Unheated Structure
 - Slippery Roof Surface
- Seismic Design Parameters
 - Site Class D
 - Short Period (S_s): 3.73
 - 1 Second Period (S_1): 2.48
 - Structure Type: Steel Moment Frame



The carport frame is designed and certified to resist the maximum wind speed, ground snow, and seismic category combinations in Table 1.

TABLE 1: Maximum Wind and Ground Snow Loads

| Max Load | Exposure Category | | | Column Type | Bolt Type | Seismic Design Category A or B | | Seismic Design Category C - F ¹ | |
|-------------------|-------------------|------|------|-------------|-----------|-------------------------------------|---------------------------------------|--|-------------------------------------|
| | B | C | D | | | Anchor Type | Minimum Embedment (in) ^{2,3} | Anchor Type | Minimum Embedment (in) ³ |
| Wind (mph) | 92 | 75 | 68 | | | | | | |
| Ground Snow (psf) | 29.8 | 29.8 | 33.1 | STD | Gr. 8 | KB-TZ2 3/4x6 | 3.75 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.41 |
| | 43.9 | 43.9 | 48.8 | HD | Gr. 9 | HIT-HY 200-R V3 + HAS-V-36 3/4"x10" | 6.177 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.57 |
| Wind (mph) | 116 | 95 | 86 | | | | | | |
| Ground Snow (psf) | 29.8 | 29.8 | 33.1 | STD | Gr. 8 | KB-TZ2 3/4x6 | 3.75 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.41 |
| | 43.2 | 43.2 | 47.9 | HD | Gr. 9 | HIT-HY 200-R V3 + HAS-V-36 3/4"x10" | 6.256 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.57 |
| Wind (mph) | 140 | 115 | 104 | | | | | | |
| Ground Snow (psf) | 27.5 | 27.5 | 30.6 | STD | Gr. 8 | KB-TZ2 3/4x8 | 4.75 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.41 |
| | 40.9 | 40.9 | 45.5 | HD | Gr. 9 | HIT-HY 200-R V3 + HAS-V-36 3/4"x10" | 6.453 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.57 |
| Wind (mph) | 165 | 135 | 123 | | | | | | |
| Ground Snow (psf) | 23.8 | 23.8 | 26.5 | STD | Gr. 8 | KB-TZ2 3/4x8 | 4.75 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.41 |
| | 37.2 | 37.2 | 41.3 | HD | Gr. 9 | HIT-HY 200-R V3 + HAS-V-36 3/4"x10" | 6.61 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.57 |
| Wind (mph) | 189 | 155 | 141 | | | | | | |
| Ground Snow (psf) | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | 33.1 | 33.1 | 36.8 | HD | Gr. 9 | HIT-HY 200-R V3 + HAS-V-36 3/4"x10" | 6.846 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.57 |
| Wind (mph) | 215 | 176 | 160 | | | | | | |
| Ground Snow (psf) | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| | 23.8 | 23.8 | 26.5 | HD | Gr. 9 | HIT-HY 200-R V3 + HAS-V-36 3/4"x10" | 7.28 | HIT-HY 200-R V3 + HAS-V-36 3/4"x16" | 11.57 |

Notes:

1. Seismic design category E and F may require additional site specific analysis. Confirm with local jurisdictions prior to installation.
2. Proper installation of expansion anchors, requires that holes are drilled 1 inch deeper than the minimum embedment listed.
3. Proper installation of HAS-V-36 anchors, requires that holes are drilled 0.5 inches deeper than the minimum embedment listed.