

Technical Evaluation Report

DIVISION: 05 00 00-METALS, SECTION: 05-05-23 METAL FASTENINGS

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(Subject to Renew January 1, 2024 or next code cycle)

EVALUATION SUBJECT: 4x6 POST BASE CONNECTOR (ITEM NO. 56604)

TER-22-50045

REPORT HOLDER:The Hillman Group, Inc.
10590 Hamilton Ave.
Cincinnati, OH 45231
www.hillmangroup.com**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.**

This Product Evaluation Report is being issued in accordance with the requirements of the *International Building & Residential Codes (2012, 2015, & 2018), *California Building & Residential Codes (2019), & the *Florida Building Code Seventh Edition (2020) per FBC/IBC Section 104.11, FBC/IBC Building Ch. 16, and ASCE 7. *Note: See "Limitations & Conditions of Use" section on the last page for code applicability limitations. The product noted on this report has been tested and/or evaluated as summarized herein.

IN ACCORDANCE WITH THESE CODES EACH OF THESE REPORTS MUST BEAR THE ORIGINAL SIGNATURE & RAISED SEAL OR DIGITAL SEAL OF THE EVALUATING ENGINEER.**SUBSTANTIATING DATA:****• Product Evaluation Documents**

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

• Structural Engineering Calculations

Structural engineering calculations have been prepared which evaluate the product based on comparative and/or rational analysis to qualify the following design criteria:

- Max. allowable load rating

Calculation summary is included in this TER and appears herein. NOTE: No 33% increase in allowable stress has been used in the design of this product.

LIMITATIONS & CONDITIONS OF USE:

Use of the product(s) listed herein shall be in strict accordance with this TER 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 all applications that appear in the design schedules of this report. Any structural changes outside of the design as described herein would void this certification.

ELEVATED POST HOLDOWN FOR SOLID LAWN LUMBER:

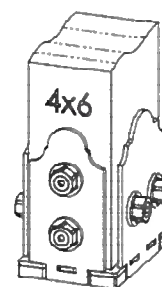
The post base architectural line has a 1/2" standoff height to reduce the potential effects of decay at post and post ends.

UNIT MATERIAL:

Powder-coated ASTM A36 steel, 0.19" thick side plates and base. See "Product Dimensions" section herein for sizing. See "Design Schedule" & Notes herein for fastener information. Contact Report Holder for further unit construction information.

TERMINOLOGY:

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

**NOTE: THE GRAPHICAL DEPICTIONS IN THIS REPORT ARE FOR ILLUSTRATIVE PURPOSES ONLY AND MAY DIFFER IN APPEARANCE.****STRUCTURAL PERFORMANCE:**

Models referenced herein are subject to the following design limitations:

**Maximum Rated Design Loads:
SEE DESIGN SCHEDULES**

- Required design loadings shall be determined separately in accordance with applicable sections of the building code(s).

- Required design loadings shall be less than or equal to the maximum allowable (ASD) loadings listed herein.

- Valid for use inside and outside the High-Velocity Hurricane Zone (HVHZ).

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July 22, 2022

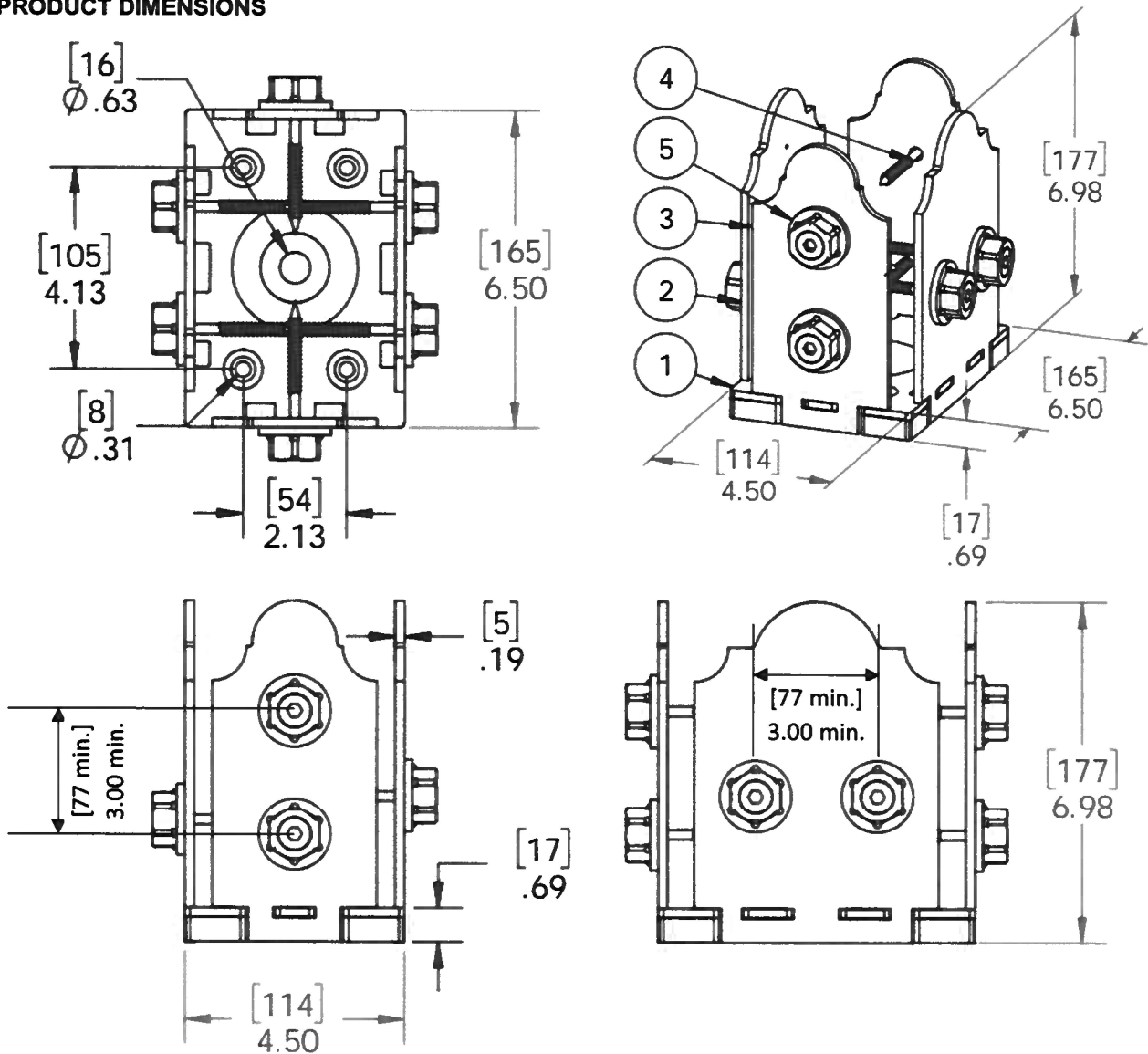
Richard Neet, P.E.

ENGINEERING EXPRESS®

FL PE # 86488, FLCA # 9885

☐ If Checked,
Certifying Engineer
PE# & CA# Appear Above**DIGITAL SEAL NOTICE:** IF THIS DOCUMENT IS DIGITALLY SIGNED, THIS SHEET IS PART OF A DIGITALLY SIGNED FILE. IT SHALL REMAIN IN DIGITAL FORMAT, SHALL BE VERIFIED BY ELECTRONIC MEANS, & PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. VISIT [ECALC.IO/DS](https://ecalculator.io/ds) FOR MORE INFORMATION.**PRINTED DOCUMENT NOTICE:** IF THIS DOCUMENT IS PRINTED & DOES NOT CONTAIN AN ENGINEER'S ORIGINAL SIGNATURE & SEAL, THIS DOCUMENT IS VOID & NOT VALID FOR USE. PHOTOCOPIES ARE NOT PERMITTED FOR USE.

PRODUCT DIMENSIONS



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	56604-10	Assembly, 4x6 Stand Off
2	2	56608-15	Plate, 6x6 Side Compression
3	2	56604-12	Plate, 4x4 Side Compression
4	8	56626	OWT Timber Screw 2-3/4"
5	8	56621	1 1/2" Hex Cap Nut (HCN)

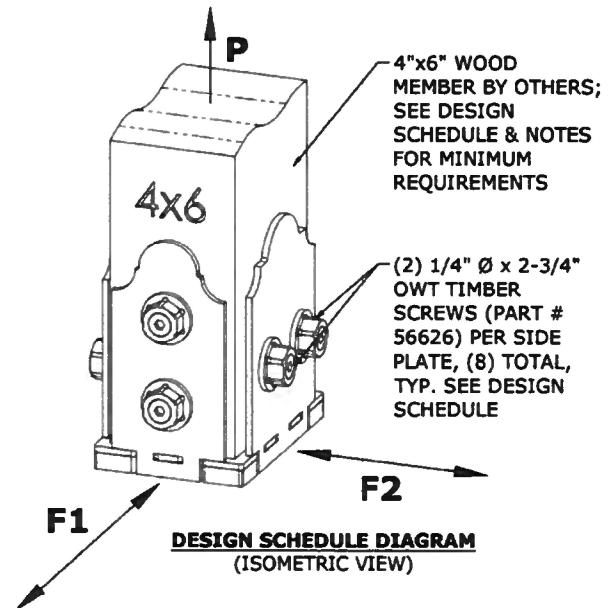
ALL DIMENSIONS ARE LISTED IN THE FOLLOWING FORMAT: INCHES [MILLIMETERS]

DESIGN SCHEDULE

Fastener Specifications	Post Size	Wood Type (Specific Gravity)	Maximum (ASD) Design Load Capacities		
			P	F1	F2
1/4" ϕ x 2-3/4" OWT Timber Screw with 1-1/2" OD Hex Cap Nut and Washer, (8) total per kit, (2) per side. See "Product Dimensions" section herein for fastener positioning. (ITEM NO.'s 56626 & 56621)	4x6	G = 0.42	1125 lb	825 lb	825 lb
		G = 0.55	1400 lb	825 lb	825 lb

DESIGN SCHEDULE NOTES:

- Maximum design connection loads were calculated per the American Wood Council National Design Specification (NDS) version as referenced in the approved FBC/IBC codes listed herein. Wood design parameters used in the calculations in this schedule are listed below:
 - Load Scenario = Single Shear
 - Load Duration Factor = 0.90
 - Wet Service Factor = 1.0
 - Temperature Factor = 1.0
 - Group Action Factor = 1.0
 - Geometric Factor = 1.0
 - Direction Of Load to Grain = 0 Deg. (End Grain Factor = 1.0)
- The maximum design connection loads were calculated for connections into wood under dry conditions, with moisture content equal to or less than 19%, and where sustained temperatures are 100°F (37.8°C) or less. The allowable loads must be adjusted by the applicable factors for wet service conditions and higher temperatures in accordance with the NDS and are not included in this certification. The maximum design loads listed may be adjusted for alternate wood design parameters by contacting Engineering Express for additional engineering or by obtaining separate certification from a registered Professional Engineer.
- Gravity (downward) loads are not considered by this evaluation. Downward forces and the system's capacity to resist said downward forces shall be determined separately based on the post type. Uplift load capacity denoted above as P.
- Each load capacity listed in the Design Schedule table above considers the respective load acting on the system by itself, not simultaneously with loading in other directions. Combining vertical and lateral loads using a unity equation is recommended for final connection capacity, as determined separately by a registered Professional Engineer.
- Design of anchor bolts and concrete footings are outside the scope of this report and certification. Anchor bolts shall be 1/4" minimum diameter (for the purposes of calculating the F1 and F2 lateral load capacities listed in the Design Schedule table). Anchor bolts to the host structure/foundation shall be designed separately by a registered Professional Engineer, who shall verify that the host structure/foundation can resist the resultant loads posed by this system.
- This schedule does not certify the integrity of any wood member (connection capacity only). All wood members shall be calculated and certified separately for maximum allowable member loads. If allowable member load is calculated to be less than the value listed in this schedule, the lesser value shall be used for maximum design load.
- This schedule assumes axial (compression or tension) member loading only. This schedule is not certified for any additional moment, torsion, or any other loads not described.
- Member types listed are nominal values. Actual member thickness for 4X members = 3.5".
- Minimum thread penetration for wood screws = actual member thickness - 3/8" (screw penetration does not include wood finishes).
- For wood types with specific gravities greater than G=0.55, use the G=0.55 tier for capacity. For wood types less than G=0.55 but greater than G=0.42, use the G=0.42 tier. Wood types with specific gravities less than 0.42 are not approved in this document.
- The effects on strength of lumber from new preservative treatments or fire-retardant treatments other than those specified under the NDS are not included in the scope of this report and certification, and shall be considered separately.
- All wood screws shall have a minimum bending yield stress (Fyb) of 70 ksi. All bolts shall have a minimum Fyb = 45 ksi.
- This product is not designed for welded or nailer applications.



IN ALL CONDITIONS IT IS THE RESPONSIBILITY OF THE PERMIT HOLDER TO ENSURE THE HOST STRUCTURE IS CAPABLE OF WITHSTANDING THE RATED GRAVITY, LATERAL, AND UPLIFT FORCES BY SITE-SPECIFIC DESIGN. NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, IS OFFERED BY ENGINEERING EXPRESS AS TO THE INTEGRITY OF THE HOST STRUCTURE TO CARRY DESIGN FORCE LOADS INCURRED BY THIS UNIT.

TERMINOLOGY, CONTINUED

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" or "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", "PE" for "Professional Engineer", "qty" for "quantity", "RTU" for "rooftop unit", "SAE" for "Society of Automotive Engineering", "SDS" for "self-drilling screws", "SMS" for "sheet metal screws", "SS" for "stainless steel", "TER" for "Technical Evaluation Report", "typ." for "typical", "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". For additional abbreviation/terminology clarifications, please contact this office.

LIMITATIONS & CONDITIONS OF USE, CONTINUED:

Use of this product shall be in strict accordance with this TER as noted herein. 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. Host structure conditions which are not accounted for in this product's respective anchor schedule shall be designed on a site-specific basis by a registered professional engineer. No evaluation is offered for the host supporting structure by use of this document; Adjustment factors noted herein and the applicable codes must be considered, where applicable. All components which are permanently installed shall be protected against corrosion, contamination, and other such damage at all times. The installer is responsible for the protection of dissimilar materials in contact. Fasteners, including washers, shall be rated for use in exterior conditions and in contact with preservative-treated wood, or, for fire-retardant-treated wood, shall be either hot-dipped zinc-coated galvanized steel, stainless steel, silicon bronze or copper. Wood screws are permitted to be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum.

Product components shall be of the material(s) specified in the manufacturer-provided product specifications. All fasteners and anchors shall be installed in accordance with the applicable provisions in the NDS and as specified herein, in addition to the anchor/fastener manufacturers' published installation instructions. Fasteners must penetrate the supporting members such that the full length of the threaded portion is embedded within the main member.

All side plates are required to be installed with full engagement of the steel flanges (lips) when connected together at the base for full capacity. (Leave 1/8" minimum length of uncovered lip past the outer steel plane surface). Use all specified fasteners. The assembly kit includes fasteners for uniform finishing. See Design Schedule Notes

This product does not provide adequate resistance for preventing members from rotating about the base or from experiencing torsion along the longitudinal axis, and therefore is not recommended for non-top-supported installations or moment connections at the base, such as fences or unbraced carports. This post base shall be used with size 4"x6" wood posts by others only.

*NOTE: State-specific building and/or residential codes referenced herein apply only when this evaluation report bears the Certifying Engineer's license information and digital or raised seal corresponding to the state in question. The Certifying Engineer shall verify that this evaluation complies with the state-specific code requirements.

This evaluation does not offer any certification to meet large missile impact debris requirements which typically are not required for this type of product. Contact Engineering Express for any reevaluation needs as designated by the Authority Having Jurisdiction.

Proj. #	Remarks	By	Checked	Date	Proj. #	Remarks	By	Checked	Date
22-50045	Initial Issue	EPR	RWN	04/19/22					
22-50045	Revise Limits & Conditions	EPR	EPR	05/26/22					