

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIMPSON STRONG-TIE COMPANY INC.
Petitioner

v.

COLUMBIA INSURANCE COMPANY
Patent Owner

Case PGR2024-00050
Patent No. 11,920,339

DECLARATION OF CHRIS HORWITZ

I, Chris Horwitz, hereby declare as follows:

1. I am currently the Director of Design Optimization and Design Engagement Consultant, Mountain U.S. Region at MiTek Inc. ("MiTek") located in Greenwood Village, Colorado. I am a licensed professional engineer in Colorado and Virginia. I hold a B.S. in Architecture from the University of Maryland – College Park, and a M.S. in structural engineering from the University of Colorado – Denver. I make this declaration in connection with the above-referenced PGR proceedings on behalf of patent owner Columbia Insurance Company.

2. I have been in my current position at MiTek since January of 2024. In my current position, I am responsible for the identification of early adopters of design-make-build

techniques, including developers, engineers, architects and general contractors. I focus on commercialization and optimized engineering design proposals and go-to-market strategies. I develop and implement sales training programs, and develop and maintain relationships with key customers, strategic accounts and business partners. I am responsible for leading the global design engagement process that allows for efficient optimization of wood framed structures to support MiTek's operating objectives. I collaborate with marketing on developing necessary documentation and sales tools to enable effective campaigns that promote greater brand awareness, customer satisfaction and loyalty, and gain market adoption.

3. Prior to my employment at MiTek I was a Structural Staff Engineer II at Kahura-Energy Project Execution in Westminster, Colorado from February, 2022 to October, 2022. In that role, I worked with clients from project initiation through completion to meet client expectations for project budgets and time schedules. I was a structural design project engineer at DCI Engineers in Denver, Colorado from August of 2019 to January of 2022. At DCI, my primary responsibility was to establish and implement appropriate and relevant design criteria and standards, plan and navigate the workflow and associated billable resources; and to analyze major structural components and systems. During my time at DCI, I had substantial exposure to Type III and Type V construction requiring the use of fire barriers.

4. I worked as structural, project engineer at EVstudio in Denver, Colorado from September of 2017 to July of 2019 where I was responsible for project designs and client management. Prior to that, I worked as an architectural designer at Case Design/Remodeling in Bethesda, Maryland.

5. During my entire career at MiTek, I have worked almost exclusively with multi-family constructions projects involving primarily or exclusively wood frame construction. A

significant number of the multi-family projects I have been involved with are Type III construction requiring exterior fire barriers and fire barriers between units. As part of my responsibilities I have become intimately familiar with the use and history of firewall hangers, specifically MiTek's FWH hangers and the products marketed and sold by Simpson. I have also become familiar with some of the historical techniques that were used in the industry prior to the introduction of the FWH series firewall hangers.

MARKET BACKGROUND

Structural Connector Market

6. Among other products, MiTek sells structural connectors for use in the construction industry. Simpson is MiTek's primary competitor in the market for structural connectors.

Two-Hour Fire Rating Firewall Hanger Market

7. The construction industry has long used hangers for connecting structural components (e.g., trusses or joists) to walls.

8. One type of wall, a firewall, is designed to retard a fire within a structure from spreading to other parts of the structure or other structures. For certain structures, such as apartment houses, condominiums, school dormitories, and hotels, referred to as Type III construction, the International Building Code requires a two-hour fire rating at exterior walls. One way of constructing a firewall to achieve a two-hour fire rating is to use two layers of 5/8-inch-thick gypsum wallboard (i.e., drywall) on both sides of a wood framed wall. Generally speaking, the drywall must extend from the foundation to the roof without substantial interruption.

9. A common problem encountered in Type III construction occurred when joists were hung at the tops of exterior wood frame walls required to function as part of a fire barrier. The floors required a minimum fire-resistance rating of one hour, while the exterior walls required a fire-resistance rating of two hours. Therefore, at the intersection of the floor to exterior wall connection, there was substantial variation from jurisdiction to jurisdiction as to which fire-resistance rating was required to satisfy the building code requirements. However, the progressing consensus became that the intersection must maintain the fire-resistance rating of two hours. In order to achieve the required fire rating, the presence of the hanger required an interruption in the two layers of 5/8-inch-thick drywall on the wood frame wall.

10. One way to remedy this problem was to cut the two layers of 5/8-inch-thick drywall on the wall frame to make room for the hanger, and then the perimeter of the drywall cut was fire taped and mudded to provide fire protection for the floor above. Yet, this approach required significant labor and made it difficult to coordinate the different construction sub-trades.

11. Other techniques existed to maintain the fire barrier requirement. These techniques typically include building a full-width rim of fire-resistant treated wood around the ends of the joists at the top of the wall in order to achieve a fire-resistance rating of two hours through char rating capacity. However, these techniques were extremely expensive themselves and highly disruptive to construction schedules, which also introduced a substantial additional cost.

EFFECT OF INTRODUCTION OF FWH

12. The introduction of the MiTek FWH fire wall hanger solved the problems, such as those described above, regarding the provision of fire barriers in Type III construction that required use of a wood frame wall to hang joists.

13. However, the most important feature of the MiTek FWH hanger was that it permitted the construction sequence to occur so that the structure could be completely framed prior to installation of the drywall. More specifically, the wood frame walls and floors could be installed without the drywall. This requires that the hangers be mounted on the wood frame walls and the joist supported by the hangers. Further, the roof can be installed and sealed against moisture prior to the introduction of drywall. After the structure has been "dried-in" by application of the roof, the drywall contractor may come in and install the drywall. This is accomplished by making a small cut in the drywall and inserting the upper edge of the drywall behind the channel-shaped portion that carries the joist and between the frame wall and the channel-shaped portion. The two layers of 5/8-inch drywall can be secured to the frame wall in a conventional manner (e.g., using nails or screws). I will hereinafter refer to this as the "FWH Method" of construction.

14. I know that Simpson released a series of joist hangers, the DU/DHU/DHUTF series, designed specifically for use on fire rated wood frame walls.

15. Unlike the FWH Series, Simpson's DU/DHU/DHUTF series cannot be installed before drywall, but must be installed after the drywall is in place.

16. Simpson followed MiTek's introduction of the FWH Series hanger by releasing a hanger that could be installed using the FWH Method.

17. At various times, each of the following Simpson hangers have competed with the FWH for use on construction projects that included the two layer of drywall firewall construction: the DG/DGB/DGH series, the DGF/DGHF/DGBF series, and the DGT series hangers. Aside from MiTek and Simpson, no other manufacturers in the structural connector

market offer a joist hanger that is designed and marketed specifically for use on 2-hour rated fire-resistive wall assemblies.

SUCCESS OF THE FWH IN THE MARKET

18. Before the introduction of Simpson's DU hanger and MiTek's FWH Series hanger, there was no market for fire wall hangers as no other competitors had developed a product specifically for this use case. Now, MiTek and Simpson compete with each other in the two-hour fire rating firewall hanger market.

19. MiTek did not have substantial experience in construction involving fire wall separation prior to introduction of the FWH Series hanger, but has achieved remarkable sales with the FWH in markets requiring fire wall separations where MiTek had not achieved significant sales previously.

MARKETING OF THE FWH

20. As seen in the attached excerpts from our website and catalog, MiTek emphasizes the FWH's ability to be installed prior to drywall in our marketing materials. See Ex. 1 (combined FWH marketing materials).

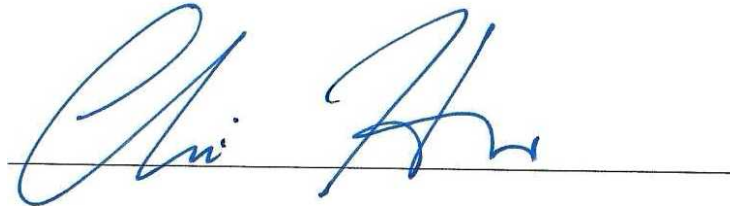
CUSTOMER RESPONSE TO THE FWH

21. In my interactions with developers, engineers, architects and general contractors, these customers have communicated the incredible savings in the installation process due to the ability of the FWH to be installed before drywall because framers did not have to return to the job after the drywall was installed which lengthened the overall cycle of the job and added costs.

22. For example, one of my customers, Joe Dunkle from Milender White Construction, has expressed that the FWH is Milender White's preferred hanger for firewall applications due to the fact that the FWH can be installed during the production framing phase of a project and before the drywall trades arrive on site. According to Mr. Dunkle, the ability to

install the FWH during the production framing phase eliminates trade sequencing issues and reduces the likelihood of delays in the construction schedule.

I declare under penalty of perjury that the foregoing is true and correct. Executed this 27th day of May, 2025.

A handwritten signature in blue ink, appearing to read "Chris Horwitz", is written over a solid horizontal line. The signature is stylized and cursive.

Chris Horwitz

EXHIBIT 1



EWP HANGERS

[Home](#) / [U.S. Products](#) / [Connectors](#) / [EWP Hangers](#) / [Fire Wall Hangers](#)

FIRE WALL HANGERS

FWH

[REFERENCE SERIES: DGHF](#)

2015, 2018 & 2021 IBC/IRC Code Compliant

The FWH Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH **before** the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts.

2 Hour Fire Rating: FWH hangers are tested per ASTM E814 standards. When installed on one side of a maximum 2 hour fire-rated wall assembly, the penetration of the MiTek FWH Fire Wall Hanger through the gypsum wallboard will not reduce the fire resistive rating of the 2 hour fire resistive assembly.

Patents: U.S. No. 11,649,626

Materials: 14 gauge

Finish: G90 galvanizing

Code Reports: [View Code Report Table](#)

OPTIONS

- [Nailer Options Table](#)
- [Specialty Options Table](#)
- [Welded Top Flange Installation](#)

TECHNICAL BULLETINS

- [Installation Instruction Sheet \(English\)](#)
- [Installation Instruction Sheet \(Spanish\)](#)
- [FWH Fire Wall Hanger Installed Over APA Rated Sheathing](#)

INSTALLATION

- Install the face of hanger flanges tight to stud wall framing.
- For wall framing, hangers do NOT need to be installed at stud locations for full design values.
- The end of the truss/joist should measure 1-5/8" from the face of the supporting wall. **See Figure 1.**
- The truss/joist should bear fully on the FWH seat with a gap no greater than 1/8" between the end of the supported member and the hanger. **See Figure 1.**

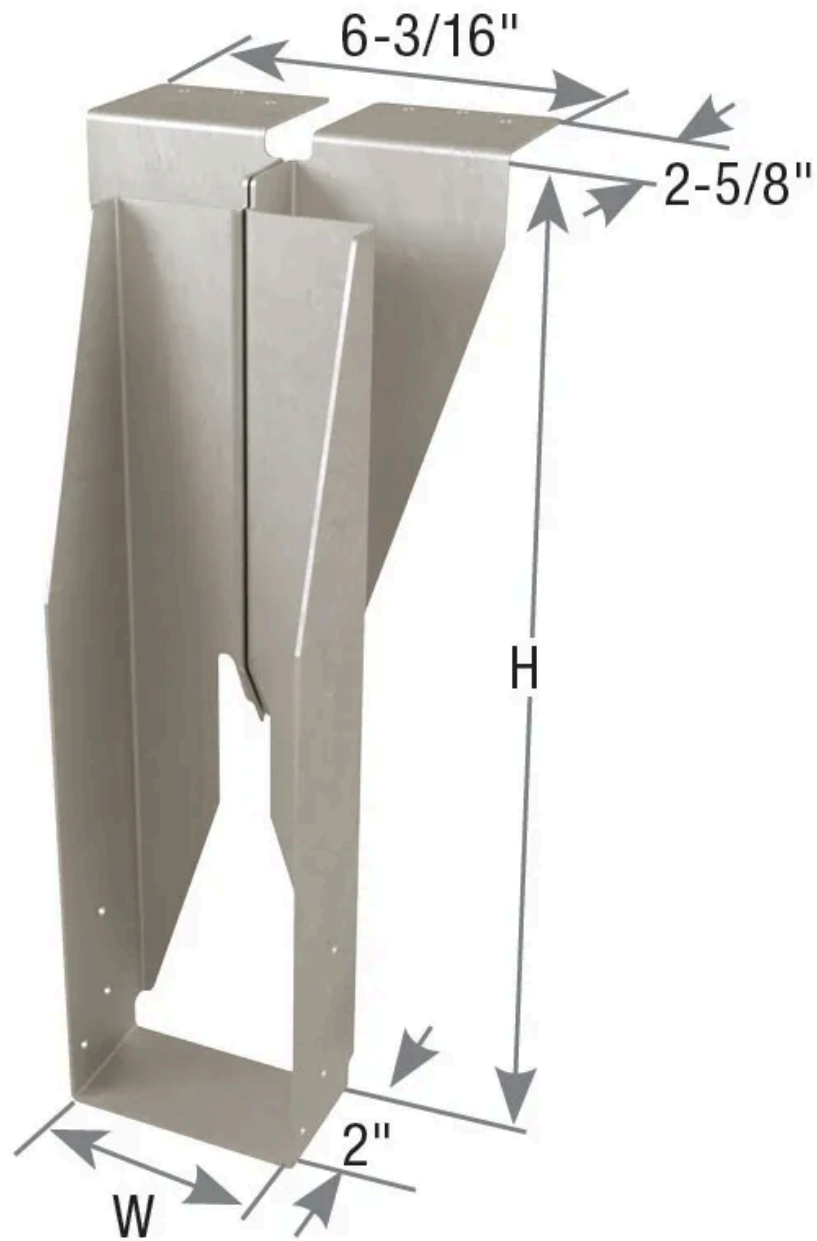
- **Gypsum Wallboard Installation** – Use the FWH-T template to slot cut the gypsum wallboard. See FWH-T Template Sequence image. Slide the gypsum wallboard into position and fasten to the framing members meeting minimum requirements specified by code.
-

Need Help or Have a Question? [Contact Customer Service](#) or Call [800-328-5934](tel:800-328-5934)

VIDEOS

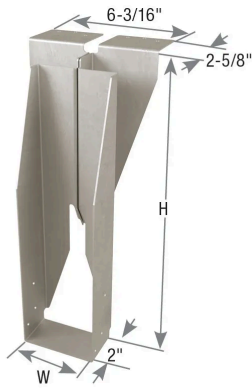
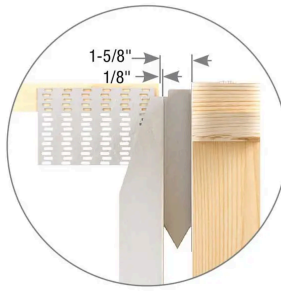
FWH FIREWALL HANGER INSTALLATION INSTRUCTIONS





FWH Fire Wall Hanger





LOAD TABLES

➤ Fastener / Allowable Load Table

Installation Type	Fastener Schedule ⁵					DF/SP Allowable Loads (Lbs.)					
	Header			Joist		Solid Sawn Header		2-Ply, 2x Wall Top Plate		2-Ply 2x Wall Top Plate with Stud Below	
	Top Qty	Face Qty	Type	Qty	Type	Download (100/115/125%)	Uplift ¹ 160%	Download (100/115/125%)	Uplift ¹ 160%	Download ² (100/115/125%)	Uplift ¹ 160%
Without 5/8" gypsum wallboard or structural sheathing	6	--	10d	6	10d x 1-1/2	2240	180	2045	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2045	380	--	--
		4								2980 ³	380
After (1) layer of 5/8" gypsum wallboard is installed	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380
After (2) layers of 5/8" gypsum wallboard are installed	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380
Two-sided after (2) layers of 5/8" gypsum wallboard are installed (min. 2x6 wall)	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380
After (1) layer of structural sheathing & (1) layer of 5/8" gypsum wallboard is installed	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380

1) Uplift Loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.

2) Allowable downloads require at least one 2x stud at each hanger location and 4 face nails into 2-ply top plate.

3) FWH 1-9/16" wide hangers have an allowable download of 2,665 lb. at 100%, 2,765 lb. at 115% and 2,830 lb. at 125%.

4) Web stiffeners are required on I-Joist applications. Install per I-Joist manufacturer specifications.

5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

[View / Download the above load table as a PDF](#)

➤ [Product / Geometry Table](#)

OPTION DETAILS:

NAILER OPTIONS TABLE

MiTek Series	Nailer Size	Fastener Schedule ⁵					DF/ SP	
		Nailer			Joist		Allowable Loads (Lbs.) ^{2,4}	
		Top Qty	Face Qty	Type	Qty	Type	Download 100%	Uplift ¹ 160%
FWH	2X	6	2	10d x 1-1/2	2	10d x 1-1/2	1845	380
	3X	6	2	10d x 1-1/2	2	10d x 1-1/2	1845	380
	(2) 2X	6	4	10d	2	10d x 1-1/2	2980 ³	380
	4X	6	4	10d	2	10d x 1-1/2	2980 ³	380

1) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.

2) Listed loads shall not be increased.

3) FWH hangers with 1-9/16" joist width have an allowable download of 2,665 lb in DF.

4) **Values in the table apply to standard top mount hangers without slope, skew or any other specialty options.**

5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long,

[View / Download the above load table as a PDF](#)

SPECIALTY OPTIONS TABLE

Option	Skewed ¹	Top Flange Offset
Range	1° to 70°	--
Allowable Loads	80% of table load on skews up to 45°. 70% of table load on skews 46° to 70°.	70% of table download. 180 lbs. Max uplift.
Ordering	Add <i>SK</i> , angle required, right (<i>R</i>) or left (<i>L</i>), and square cut (<i>SQ</i>) to product number. Ex. FWH3514_SK45R_SQ	Add <i>OS</i> , and right (<i>R</i>) or left (<i>L</i>), to product number. Ex. FWH3595_OS <i>R</i>

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.

[View / Download the above load table as a PDF](#)

WELDED TOP FLANGE INSTALLATION

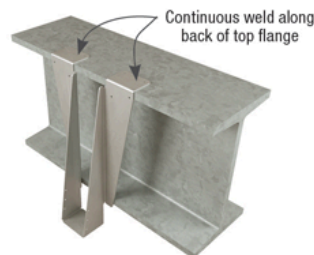
- Weld sizes and lengths shown on chart.
- Weld-on applications produce maximum allowable load listed. **Uplift loads do not apply to this application.**
- All welding should be done in accordance with the American Welding Society (AWS) Standard by a certified welder.
Caution: Welding galvanized steel may produce harmful fumes and should only be performed in well-ventilated environments.

Top Angle Weld Length Chart

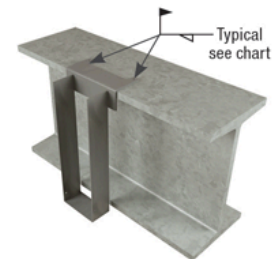
MiTek Welded Hanger Series	Weld Length
SW	3"
BPH, FWH, HBPH, PHM, SWH	4"
FWHBP, FWHFM, FWHH, KLB, KHW, PHXU	6"
KB, KGB, KHGB, KHHB, KGLS, KGLST, KGLT, KHGLS, KHGLST	8"
HLBH, KHGLT	10"

Weld shall be distributed evenly.

Top Angle Steel Gauge	Weld Size
14 - 10 gauge	1/8"
7 gauge	3/16"
3 gauge	1/4"



Typical top flange welded installation



Typical top angle welded installation

[View / Download the above load table as a PDF](#)



CODE REPORT TABLE

Mitek Stock #
FWH17118
ICC-ES
ESR-4464
Florida
FL41719
LA CITY
LABC_ESR-4464
Mitek Stock #
FWH1716
ICC-ES
ESR-4464
Florida
FL41719
LA CITY
LABC_ESR-4464
Mitek Stock #
FWH1795
ICC-ES
ESR-4464
Florida
FL41719
LA CITY
LABC_ESR-4464
Mitek Stock #

FWH20118

ICC-ES

[ESR-4464](#)

Florida

[FL41719](#)

LA CITY

[LABC_ESR-4464](#)

Mitek Stock #

FWH2014

ICC-ES

[ESR-4464](#)

Florida

[FL41719](#)

LA CITY

[LABC_ESR-4464](#)

Mitek Stock #

FWH2016

ICC-ES

[ESR-4464](#)

Florida

[FL41719](#)

LA CITY

[LABC_ESR-4464](#)

Mitek Stock #

FWH2095

ICC-ES

[ESR-4464](#)

Florida

[FL41719](#)

LA CITY

[LABC_ESR-4464](#)

Mitek Stock #

FWH210

ICC-ES

[ESR-4464](#)

Florida

[FL41719](#)

LA CITY

[LABC_ESR-4464](#)

Mitek Stock #

FWH212

ICC-ES

[ESR-4464](#)

Florida

[FL41719](#)

LA CITY

[LABC_ESR-4464](#)

Mitek Stock #

FWH23118

ICC-ES

[ESR-4464](#)

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LA CITY

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FWH2314

ICC-ES

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Mitek Stock #

FWH2316

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Mitek Stock #

FWH3524

ICC-ES

[ESR-4464](#)

Florida

FL41719
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LABC_ESR-4464
Mitek Stock #
FWH3595
ICC-ES
ESR-4464
Florida
FL41719
LA CITY
LABC_ESR-4464
Mitek Stock #
FWH-T Non-Structural: Product is not load rated and does not require code evaluation.
Mitek Stock #
FWH28
ICC-ES
ESR-4464
Florida
FL41719
LA CITY
LABC_ESR-4464

3-VIEW PRODUCT DRAWINGS

MiTek Stock #	Download or View Files			
 FWH17118	DWG	DXF	PDF	View Image

MiTek Stock #	Download or View Files			
FWH1714	DWG	DXF	PDF	View Image
FWH1716	DWG	DXF	PDF	View Image
FWH1795	DWG	DXF	PDF	View Image
FWH20118	DWG	DXF	PDF	View Image
FWH2014	DWG	DXF	PDF	View Image
FWH2016	DWG	DXF	PDF	View Image
FWH2095	DWG	DXF	PDF	View Image
FWH210	DWG	DXF	PDF	View Image
FWH212	DWG	DXF	PDF	View Image
FWH23118	DWG	DXF	PDF	View Image
FWH2314	DWG	DXF	PDF	View Image
FWH2316	DWG	DXF	PDF	View Image
FWH2318	DWG	DXF	PDF	View Image
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FWH2516	DWG	DXF	PDF	View Image
FWH2518	DWG	DXF	PDF	View Image
FWH2520	DWG	DXF	PDF	View Image



MiTek Stock #	Download or View Files			
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FWH28	DWG	DXF	PDF	View Image
FWH35118	DWG	DXF	PDF	View Image
FWH3514	DWG	DXF	PDF	View Image
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FWH3518	DWG	DXF	PDF	View Image
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FWH3522	DWG	DXF	PDF	View Image
FWH3524	DWG	DXF	PDF	View Image
FWH3595	DWG	DXF	PDF	View Image

APPLICATION DRAWINGS

MiTek Stock #	Download or View Files				
FWH17118	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH1714	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image

MiTek Stock #	Download or View Files				
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH1716	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH1795	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH20118	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2014	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image

MiTek Stock #	Download or View Files				
	Truss				
FWH2016	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
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	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH210	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH212	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				

MiTek Stock #	Download or View Files				
FWH23118	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2314	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2316	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2318	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2320	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image



MiTek Stock #	Download or View Files				
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2395	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH25118	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2514	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2516	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image



MiTek Stock #	Download or View Files				
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2518	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2520	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH2595	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
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	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image



MiTek Stock #	Download or View Files				
	Truss				
FWH35118	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH3514	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
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	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
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	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				



MiTek Stock #	Download or View Files				
FWH3520	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
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	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
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	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				
FWH3595	Dimensional	DWG	DXF	PDF	View Image
	Lumber	DWG	DXF	PDF	View Image
	I-Joist	DWG	DXF	PDF	View Image
	LVL	DWG	DXF	PDF	View Image
	Truss				



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The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH **before** the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts.

- Materials:** 14 gauge
Finish: G90 galvanizing
Options: See Specialty Options table and Nailer Options on 191
Codes: IBC, FL, LA
Patents: U.S. Patent No. 11,649,626

Installation:

- Install the face of hanger flanges tight to stud wall framing.
- For typical installations, the FWH does not need to be installed at stud locations. An increase in capacity can be achieved by installing the FWH at a stud. See the Allowable Load Table on page 195.
- The end of the truss/joist should measure 1-5/8" from the face of the supporting wall. See Figure 1.
- The truss/joist should bear fully on the FWH seat with a gap no greater than 1/8" between the end of the supported member and the hanger. See Figure 1.
- **Gypsum Wallboard Installation** – Use the FWH-T template to slot cut the gypsum wallboard. See FWH-T Installation Sequence. Slide the gypsum wallboard into position and fasten to the framing members meeting the minimum requirements specified by code.

Geometry Table

Joist Size (in)	MiTek Stock No.	Ref. No.	Dimensions (in)		Code Ref.
			W	H	
2 x 8	FWH28	--	1-9/16	7-1/8	IBC, FL, LA
2 x 10	FWH210	--	1-9/16	9-1/8	
2 x 12	FWH212	--	1-9/16	11-1/8	
1-3/4 x 9-1/2	FWH1795	--	1-13/16	9-7/16	
1-3/4 x 11-7/8	FWH17118	--	1-13/16	11-13/16	
1-3/4 x 14	FWH1714	--	1-13/16	13-15/16	
1-3/4 x 16	FWH1716	--	1-13/16	15-15/16	
2 - 2-1/8 x 9-1/2	FWH2095	--	2-1/8	9-7/16	
2 - 2-1/8 x 11-7/8	FWH20118	--	2-1/8	11-13/16	
2 - 2-1/8 x 14	FWH2014	--	2-1/8	13-15/16	
2 - 2-1/8 x 16	FWH2016	--	2-1/8	15-15/16	
2-5/16 x 9-1/2	FWH2395	--	2-3/8	9-7/16	
2-5/16 x 11-7/8	FWH23118	--	2-3/8	11-13/16	
2-5/16 x 14	FWH2314	--	2-3/8	13-15/16	
2-5/16 x 16	FWH2316	--	2-3/8	15-15/16	
2-5/16 x 18	FWH2318	--	2-3/8	17-15/16	
2-5/16 x 20	FWH2320	--	2-3/8	19-15/16	
2-1/2 x 9-1/2	FWH2595	--	2-9/16	9-7/16	
2-1/2 x 11-7/8	FWH25118	--	2-9/16	11-13/16	
2-1/2 x 14	FWH2514	--	2-9/16	13-15/16	
2-1/2 x 16	FWH2516	--	2-9/16	15-15/16	
2-1/2 x 18	FWH2518	--	2-9/16	17-15/16	
2-1/2 x 20	FWH2520	--	2-9/16	19-15/16	
3-1/2 x 9-1/2	FWH3595	--	3-9/16	9-7/16	
3-1/2 x 11-7/8	FWH35118	--	3-9/16	11-13/16	
3-1/2 x 14	FWH3514	--	3-9/16	13-15/16	
3-1/2 x 16	FWH3516	--	3-9/16	15-15/16	
3-1/2 x 18	FWH3518	--	3-9/16	17-15/16	
3-1/2 x 20	FWH3520	--	3-9/16	19-15/16	
3-1/2 x 22	FWH3522	--	3-9/16	21-15/16	
3-1/2 x 24	FWH3524	--	3-9/16	23-15/16	

New products or updated product information are designated in blue font.

2 Hour Fire-Rating

FWH hangers are tested per ASTM E814 standards. When installed on one side of a maximum 2 hour fire-rated wall assembly, the penetration of the MiTek Fire Wall Hangers through the gypsum wallboard will not reduce the fire resistive rating of the 2 hour fire resistive assembly.

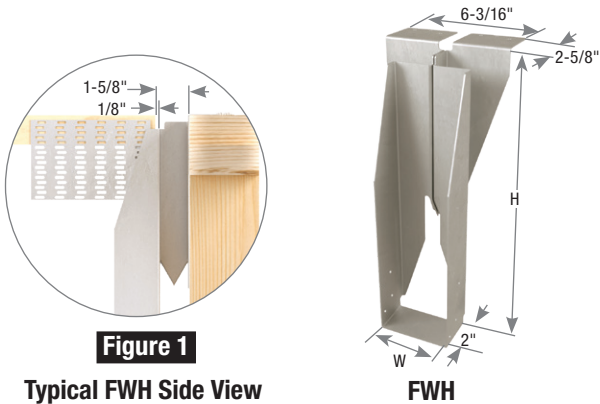
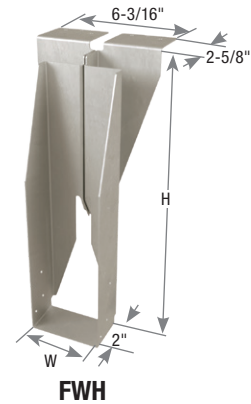
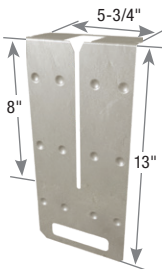
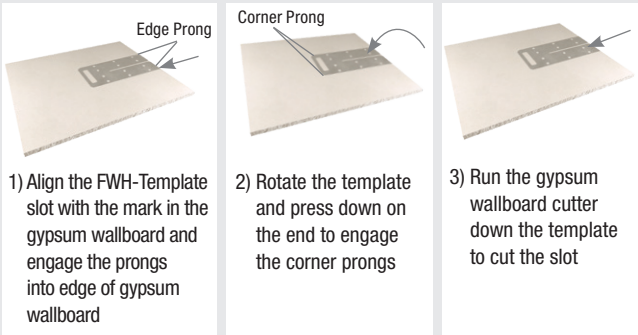


Figure 1
Typical FWH Side View

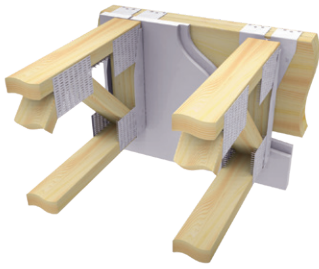


FWH-T
(must be ordered separately)

FWH-T Installation Sequence



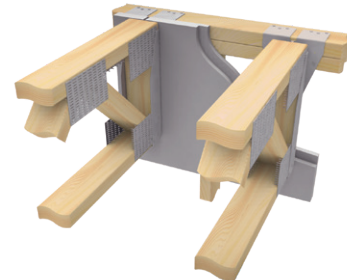
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Typical FWH
solid sawn header installation



Typical FWH
stud wall installation



Typical FWH stud wall with
(2) layers of 5/8" gypsum
wallboard installation

Fastener / Allowable Load Table

Installation Type	Fastener Schedule ⁵					DF/SP Allowable Loads (Lbs.)					
	Header			Joist		Solid Sawn Header		2-Ply, 2x Wall Top Plate		2-Ply 2x Wall Top Plate with Stud Below	
	Top Qty	Face Qty	Type	Qty	Type						
						Download (100/115/125%)	Uplift ¹ 160%	Download (100/115/125%)	Uplift ¹ 160%	Download ² (100/115/125%)	Uplift ¹ 160%
Without 5/8" gypsum wallboard or structural sheathing	6	--	10d	6	10d x 1-1/2	2240	180	2045	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2045	380	--	--
		4								2980 ³	380
After (1) layer of 5/8" gypsum wallboard is installed	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380
After (2) layers of 5/8" gypsum wallboard are installed	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380
Two-sided after (2) layers of 5/8" gypsum wallboard are installed (min. 2x6 wall)	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380
After (1) layer of structural sheathing & (1) layer of 5/8" gypsum wallboard is installed	6	--	10d	6	10d x 1-1/2	2400	180	2400	180	--	--
	6	2	10d	6	10d x 1-1/2	2625	380	2400	380	--	--
		4								2980 ³	380

- 1) Uplift Loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
- 2) Allowable downloads require at least one 2x stud at each hanger location and 4 face nails into 2-ply top plate.
- 3) FWH 1-9/16" wide hangers have an allowable download of 2,665 lb. at 100%, 2,765 lb. at 115% and 2,830 lb. at 125%.
- 4) Web stiffeners are required on I-Joist applications. Install per I-Joist manufacturer specifications.
- 5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

Nailer Options – table represents maximum allowable loads for hangers used on wood nailers. Reference page 199.

MiTek Series	Nailer Size	Fastener Schedule ⁵					DF/ SP Allowable Loads (Lbs.) ^{2,4}	
		Nailer			Joist		Download 100%	Uplift ¹ 160%
		Top Qty	Face Qty	Type	Qty	Type		
FWH	2X	6	2	10d x 1-1/2	2	10d x 1-1/2	1845	380
	3X	6	2	10d x 1-1/2	2	10d x 1-1/2	1845	380
	(2) 2X	6	4	10d	2	10d x 1-1/2	2980 ³	380
	4X	6	4	10d	2	10d x 1-1/2	2980 ³	380

- 1) Uplift loads have been increased 60% for wind or seismic loads; no further increase shall be permitted.
- 2) Listed loads shall not be increased.
- 3) FWH hangers with 1-9/16" joist width have an allowable download of 2,665 lb in DF.
- 4) Values in the table apply to standard top mount hangers without slope, skew or any other specialty options.
- 5) **NAILS:** 10d x 1-1/2 nails are 0.148" dia. x 1-1/2" long, 10d nails are 0.148" dia. x 3" long.

Specialty Options Table – Refer to Specialty Options pages 320 and 323 for additional details.

Option	Skewed ¹	Top Flange Offset
Range	1° to 70°	--
Allowable Loads	80% of table load on skews up to 45°. 70% of table load on skews 46° to 70°.	70% of table download. 180 lbs. Max uplift.
Ordering	Add <i>SK</i> , angle required, right (<i>R</i>) or left (<i>L</i>), and square cut (<i>SQ</i>) to product number. Ex. FWH3514_SK45R_SQ	Add <i>OS</i> , and right (<i>R</i>) or left (<i>L</i>), to product number. Ex. FWH3595_OS

1) Skewed hangers with skews greater than 15° may have all joist nailing on outside flange.

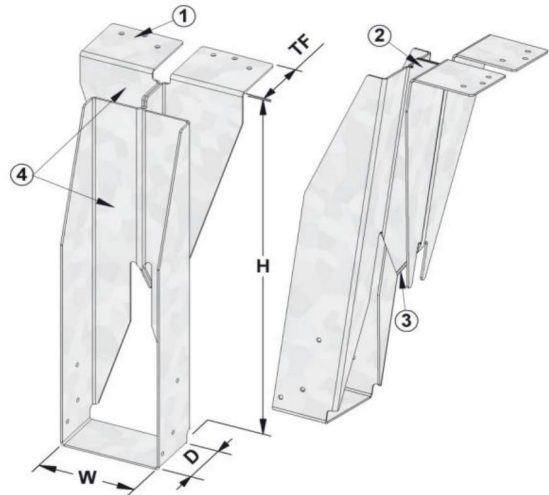
Technical Bulletin

FWH SERIES FIRE WALL HANGERS

USP's FWH Series Fire Wall Hanger is the best solution for attaching floor framing to fire rated walls in wood frame construction. The advanced design allows you to install the hangers before the drywall is attached, allowing your project to be completely framed-up and weather-tight when the drywall sheathing shows up on site.

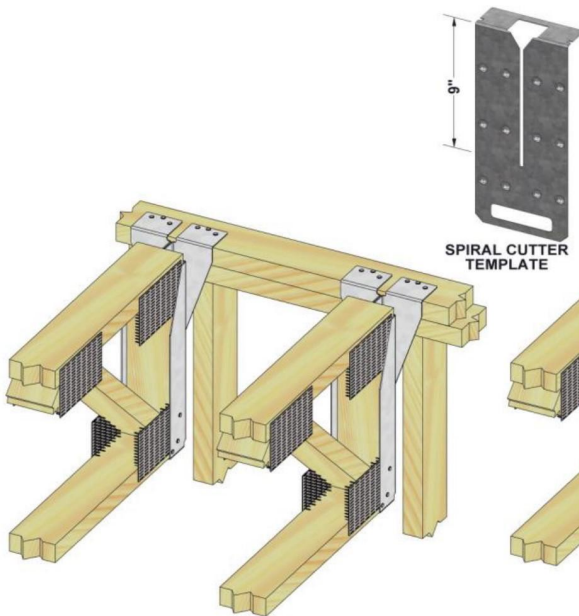
- Direct load transfer to the face of the wall framing
- Top mount hanger design installs with nails ①
- Hanger web accommodates 2-plys of 5/8" drywall ②
- Tested to the latest ICC-ES Acceptance Criteria
- Supports full table loads without drywall in place
- Allows clear access for all the construction trades without drywall interference
- Designed to support 4x2 open web trusses. Other sizes available upon request.
- Skewed option allows for the floor trusses to be at an angle up to 45° to the wall framing.
- Driving points easily mark slot locations on drywall without measuring ③
- The metal flanges of the FWH Hanger cover the drywall slot front and back ④
- Slot cutting made easy using the available Spiral Cutter Template and your drywall cut-out tool.

**AVAILABLE
SPRING 2014**

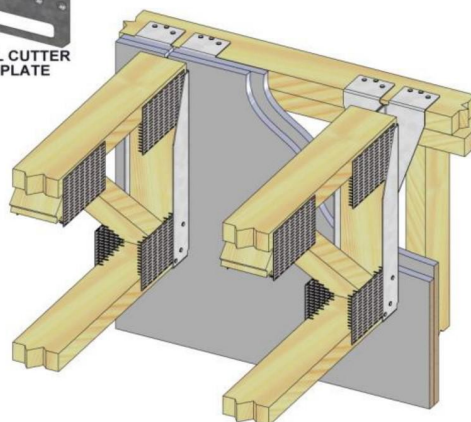


USP FWH FIRE WALL HANGER

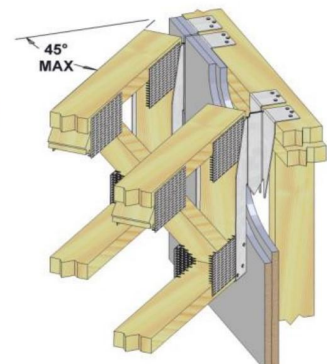
Patent Pending



FRAMING OF THE FLOOR SYSTEM IS COMPLETED BEFORE ANY OF THE DRYWALL SHEATHING IS INSTALLED



THE DRYWALL IS SLOT CUT AND INSTALLED AFTER THE BUILDING IS WEATHER TIGHT



WALL ASSEMBLY WITH SKEWED FWH FIRE WALL HANGERS
(Allowable Load Reduced 20%)

FWH Fire Wall Hanger Series

Stock No.	Steel Ga.	Dimensions (in.)				Fastener Schedule ¹					Allowable Loads (lbs.)			
		W (in)	H (in)	D (in)	T.F. (in)	Header		Joist			DF-L ³			
						Top Qty.	Face Qty.	Type	Qty.	Type	100%	115%	125%	160%
FWH35xx	14	3 5/8	14 thru 24	2	2 1/4	6	0	10d	6	10d x 1 1/2	2250	2250	2250	190

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 psi = 6.89 kPa

1 A 10d x 1 1/2 nail has a diameter of 0.148 inches (9 ga.) and length of 1 1/2 inches.

A 10d nail has a diameter of 0.148 inches and length of 3 inches

2 Uplift loads have been increased 60% for wind or seismic loads. No further increase shall be permitted.

3 Allowable downward loads are based on Douglas-Fir/Larch lumber with an F_{c-perp} = 625 psi.