# MiTek<sup>®</sup> HARDY FRAME<sup>®</sup> CATALOGUE

CANADA

Milek HARDY FRAME Leading in Lateral

HARDY AS FRAMES

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MiTek<sup>®</sup> Hardy Frame<sup>®</sup> manufactures and markets the revolutionary MiTek<sup>®</sup> Hardy Frame<sup>®</sup> Shear Wall System, and has been the leader in the prefabricated shear wall industry for over 15 years. The MiTek<sup>®</sup> Hardy Frame<sup>®</sup> system allows Building Design Professionals to economically and safely minimize wall space and maximize wall openings while resisting high wind and earthquake loads.

The MiTek<sup>®</sup> Hardy Frame<sup>®</sup> product line includes Panels and various accessory items for installation. The HFX design has been tested per the ICC-ES Acceptance Criteria AC322, and has shown to provide excellent strength, excellent stiffness, and excellent ductility.

The original MiTek<sup>®</sup> Hardy Frame<sup>®</sup> Shear Wall System was conceived and developed by Gary L. Hardy, a licensed General Contractor with over 25 years of framing experience. His vision was to develop a strong yet durable prefabricated shear wall solution that is cost effective, simple to install, and easy to inspect in order to eliminate the problems and hidden costs associated with site-built plywood shear walls.

From its inception the MiTek<sup>®</sup> Hardy Frame<sup>®</sup> Shear Wall System has proven to be the leading innovator in the prefabricated shear wall category.

- The first to be recognized by ICBO-ES and LA City
- The first to receive approval for multi-storey applications
- The first Balloon Wall application
- The first 9 inch wide Panel
- The first to be recognized to comply with the 2003 and 2006 IBC and IRC Building Codes
- The first to detail "Back-to-Back" installations

Our 9 inch Panel remains the narrowest prefabricated shear wall in the industry and we have now expanded our product line to include 15 and 21 inch widths.

MiTek<sup>®</sup> Hardy Frame<sup>®</sup> is a wholly owned subsidiary of MiTek Industries, Inc., which is part of Warren Buffett's Berkshire Hathaway, Inc. By combining our talents with MiTek's manufacturing, engineering, and software expertise, we have amassed the resources to develop and offer the best products and services for our customers.

Our mission remains to provide you with the safest and most cost-effective solutions to all of your shear and wall bracing challenges. We strive to accomplish this by adopting a process of constant improvement — continuously seeking ways to improve our operations, our products, and our services.

All of the MiTek<sup>®</sup> Hardy Frame<sup>®</sup> products are conveniently available through local lumber yards and building hardware suppliers. Please contact us today to discover how the MiTek<sup>®</sup> Hardy Frame<sup>®</sup> Shear Wall System can provide you with the Best Value solutions to your shear and wall bracing needs.

For more information, please call us at 1-800-268-3434 or visit our website at www.mitek.ca

	Table 1 - Installation on Concrete <sup>1, 2, 9</sup>														
					Seisn	nic <sup>4,5</sup>			Wind <sup>4,6</sup>						
Model Number	Net Height	HD Bolt Dia and Grade <sup>3</sup>	Factor Plane S	red In- hear, V <sup>7</sup>	Drift	at V <sup>7</sup>	Factore at	d Uplift V <sup>8</sup>	Facto Plane S	red In- Shear, V <sup>7</sup>	Drift	at V <sup>7</sup>	Factore at	ed Uplift V <sup>8</sup>	
			(lbs)	(kN)	(in)	(mm)	(lbs)	(kN)	(lbs)	(kN)	(in)	(mm)	(lbs)	(kN)	
HFX-9x79.5	79-1/2" (2,019 mm)	1 1/8" STD	1,530	6.81	0.314	7.97	23,175	103.13	1,450	6.45	0.297	7.54	21,245	94.54	
HFX-12x78		1 1/8" STD 1 1/8" HS	2,490	11.08	0.276	7.00	23,630	105.15	2,490	11.08	0.275	6.99 7.40	23,630	105.15	
		1 1/8" STD	3,110	13.84	0.324	8.23	23,440	104.31	2,795	12.44	0.291	7.40	20,560	91.49	
		1 1/8" HS	3,670	16.33	0.382	9.71	28,965	128.89	2,795	12.44	0.291	7.40	20,560	91.49	
HFX-18x78	78"	1 1/8" STD	3,975	17.69	0.241	6.12	23,170	103.11	4,020	17.89	0.243	6.17	23,500	104.58	
	(1,981 mm)	1 1/8" HS	6,070	27.01	0.369	9.37	39,590	176.18	4,795	21.34	0.291	7.40	29,060	129.32	
HFX-21x78		1 1/8″ SID	4,920	21.89	0.256	6.50	23,480	104.49	4,920	21.89	0.256	6.50	23,480	104.49	
	-	1 1/8" STD	1,213	32.37 22.21	0.302	9.71	10 700	88.07	5,343	24.00	0.291	1.40	20,940	103 57	
HFX-24x78		1 1/8" HS	9 110	40.54	0.100	7.51	39 540	175.95	8 990	40.01	0.100	7.40	38 910	173 15	
HFX-9x8	93-3/4" (2,381 mm)	1 1/8" STD	1,300	5.79	0.436	11.08	23,175	103.13	1,040	4.63	0.350	8.89	16,840	74.94	
HEY_12v8		1 1/8" STD	2,105	9.37	0.318	8.07	23,630	105.15	2,105	9.37	0.318	8.09	23,630	105.15	
111 / 12/0		1 1/8" HS	2,625	11.68	0.399	10.14	32,530	144.76	2,265	10.08	0.344	8.75	26,160	116.41	
HEX-15x8		1 1/8" STD	2,630	11.70	0.399	10.13	23,440	104.31	2,270	10.10	0.344	8.75	19,605	87.24	
	-	1 1/8" HS	2,980	13.26	0.452	11.48	27,480	122.29	2,270	10.10	0.344	8.75	19,605	87.24	
HFX-18x8	92-1/4"	1 1/8" STD	3,405	15.15	0.283	7.19	23,550	104.80	3,415	15.20	0.283	7.20	23,600	105.02	
	(2,343 1111)	1 1/8″ HS	5,410	24.07	0.452	11.48	42,680	189.93	4,115	18.31	0.344	8.75	29,595	131.70	
HFX-21x8		1 1/8" SID	4,195	18.67	0.318	8.07	23,710	105.51	4,200	18.69	0.318	8.07	23,710	105.51	
	-	1 1/0 ПЭ 1 1/8" СТП	0,910	20.32	0.432	5.00	21 015	03 52	4,510	20.07	0.344	0.70	23,740	105.33	
HFX-24x8		1 1/8" HS	7 700	3/1 27	0.197	8 70	39.540	175.02	7 720	22.07	0.220	9.30 8.75	20,070	176 55	
		1 1/8" STD	1,700	8.30	0.354	8.99	23 675	105.35	1 860	8 28	0.354	8.98	23 630	105.15	
HFX-12x9		1 1/8" HS	2,190	9.75	0.418	10.62	29,665	132.01	2.040	9.08	0.389	9.89	26,745	119.02	
	1	1 1/8" STD	2.330	10.37	0.464	11.79	23.435	104.29	1.950	8.68	0.389	9.89	18.940	84.28	
HFX-15x9		1 1/8" HS	2,560	11.39	0.511	12.97	26,455	117.72	1,950	8.68	0.389	9.89	18,940	84.28	
UEV 10v0	104-1/4"	1 1/8" STD	3,005	13.37	0.316	8.04	23,455	104.37	3,020	13.44	0.318	8.07	23,595	105.00	
NFX-10X9	(2,648 mm)	1 1/8" HS	4,840	21.54	0.511	12.97	43,330	192.82	3,680	16.38	0.389	9.89	30,015	133.57	
HEY_21v0		1 1/8" STD	3,695	16.44	0.368	9.34	23,585	104.95	3,685	16.40	0.366	9.30	23,480	104.49	
111 X-21X3		1 1/8" HS	5,085	22.63	0.511	12.97	34,415	153.15	3,875	17.24	0.389	9.89	24,895	110.78	
HFX-24x9		1 1/8" STD	4,090	18.20	0.228	5.79	21,885	97.39	4,375	19.47	0.245	6.21	23,565	104.86	
		1 1/8" HS	6,815	30.33	0.383	9.73	39,540	175.95	6,925	30.82	0.389	9.89	40,320	179.42	
HFX-12x10		1 1/8″ SID	1,545	6.88	0.360	9.13	21,340	94.96	1,670	7.43	0.389	9.88	23,625	105.13	
	-	1 1/8" HS	1,760	7.83	0.412	10.46	25,355	112.83	1,855	8.25	0.434	11.02	27,280	121.40	
HFX-15x10			2,100	9.37	0.530	14.47	25,090	112.85	1,705	7.59	0.434	11.02	18,370	01./0 81.75	
	116-1/4"	1 1/8" STD	2,240	9.97	0.070	8 88	23,000	105.00	2 710	12.09	0.434	8.88	23 505	105.00	
HFX-18x10	(2,953 mm)	1 1/8" HS	4.385	19.51	0.530	14 47	43,980	195 71	3.340	14.86	0.343	11 02	30 440	135.46	
	1 , , ,	1 1/8" STD	3.315	14.75	0.421	10.69	23,585	104.95	3.315	14.75	0.421	10.69	23.600	105.02	
HFX-21x10		1 1/8" HS	4,445	19.78	0.570	14.47	33,335	148.34	3,385	15.06	0.434	11.02	24,165	107.53	
	1	1 1/8" STD	3,780	16.82	0.259	6.59	22,615	100.64	3,945	17.56	0.270	6.87	23,720	105.55	
NFA-24X10		1 1/8" HS	6.110	27.19	0.423	10.76	39.520	175.86	6.275	27.92	0.434	11.02	40.845	181.76	

For SI: 1 inch = 25.4 mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

#### Notes:

1) Table values are based on Limit States Design (LSD) methodology and pertain to the National Building Code of Canada (NBC 2015) for installation on 3,000 psi (20 MPa) concrete.

2) For installation on nut and washers with 5,000 psi (35 MPa) minimum non-shrink grout, table values must be multiplied by 0.80.

- 3) STD indicates bolts complying with ASTM F1554 Grade 36. HS rods include, but are not limited to ASTM F1554 Grade 105, ASTM A193 Grade B7, or ASTM A354 Grade BD.
- 4) Factored In-Plane Shear, Drift, and Factored Uplift values may be linearly interpolated for intermediate heights.
- 5) Factored In-Plane Shear loads for Seismic design are limited to an effective drift ratio of 0.025h for buildings of Normal Importance, per NBC 2015 Sentence 4.1.8.13.(3), and use response modification factors Rd = 3.0 and Ro = 1.7.
- 6) Factored In-Plane Shear loads for Wind design are limited to an effective drift ratio of h/500 (at service load), per NBC 2015 Sentence 4.1.3.5.(3). Table values are for buildings of Normal Importance occupancy category.
- 7) Factored In-Plane Shear loads and corresponding Drifts assume a factored axial load of 7,500 lbs (33.4 kN). Axial load must be applied within the middle 1/3 of the Panel width or uniformly distributed across the entire Panel width.
- 8) The Factored Uplift values listed exclude any additional axial load. To determine anchor tension loads at design shear values, and including the effect of axial load, use the equations on the backside of this sheet.

9) The design of anchorage to foundation is the responsibility of EOR.

# **Product Listing**

## MiTek HARDY FRAME

	HFX Model Number	W (in)	H (in)	Depth (in)	Wt (lbs)	Minimum Screw Qty @ Top (ea)	Screw Holes Available @ Edges (ea)
	HFX-9x79.5	9	79-1/2		77	5	
. 0	HFX-12x78	12			90	6	
•	HFX-15x78	15			101	8	4
	HFX-18x78	18	78		113	10	4
1	HFX-21x78	21			133	12	
	HFX-24x78	24			148	14	
•	HFX-9x8	9	93-3/4		90	5	
	HFX-12x8	12			106	6	
	HFX-15x8	15			118	8	4
	HFX-18x8	18	92-1/4		131	10	-
	HFX-21x8	21		2 1/2	157	12	
	HFX-24x8	24		3-1/2	172	14	
	HFX-12x9	12			116	6	
	HFX-15x9	15			130	8	
0	HFX-18x9	18	104-1/4		144	10	4
0	HFX-21x9	21			175	12	
VIEW STATE	HFX-24x9	24			190	14	
	HFX-12x10	12			128	6	
	HFX-15x10	15			143	8	
Panel	HFX-18x10	18	116-1/4		158	10	5
9 in thru 24 in widths	HFX-21x10	21	]		195	12	
	HFX-24x10	24			209	14	

For SI: 1 inch = 25.4 mm, 1 lb = 4.45 N, 1 psi = 0.00689 MPa

# **Tension Formulas**

#### Equation for factored tension uplift with added factored axial load

The expressions listed below may be used to determine factored uplift tension (T) with additional factored axial load  $P_{add}$ 

HFX-9x:	T=14.02 f' <sub>c</sub> - 🔨	$196.55f'_{c}^{2} - 1.93f'_{c} (5.5 P_{add} + 2VH) - P_{add}$
HFX-12x:	T=19.82 f' <sub>c</sub> -	$392.87 \text{ f'}_{c}^2 \text{ -1.93f'}_{c} (8.5 \text{ P}_{add} + 2\text{VH}) \text{ - P}_{add}$
HFX-15x:	T=23.93 f' <sub>c</sub> -	$572.65f'_{c}^{2}$ -1.93 $f'_{c}$ (9.75 $P_{add}$ + 2VH) - $P_{add}$
HFX-18x:	T=29.73 f' <sub>c</sub> -	$883.96f'_{c}^2$ -1.93 $f'_{c}$ (12.75 $P_{add}$ + 2VH) - $P_{add}$
HFX-21x:	T=35.53 f' <sub>c</sub> -	$\sqrt{1262.57 f'_{c}^2 - 1.93 f'_{c} (15.75 P_{add} + 2VH)} - P_{add}$
HFX-24x:	T=41.33 f' <sub>c</sub> -	$\sqrt{1708.49f'_{c}^2 - 1.93f'_{c} (18.75 P_{add} + 2VH)} - P_{add}$

Variable	Description (Unit)
Т	Factored Uplift Tension (lb)
f' <sub>c</sub>	Compressive Strength of Concrete (psi)
V	Factored In-Plane Shear (lbs)
Н	Panel Height (in)
P <sub>add</sub>	Factored Vertical Load (lbs)

# **Specification Example**



#### Accessories





# **Bottom and Top Connectors**



#### **Ordering Information**

- 1) Custom heights are available not to exceed the maximum height listed for that model.
- 2) Model numbers HFX-9x79.5, HFX-12x78, HFX-15x78, HFX-18x78, HFX-21x78 and HFX-24x78 Panels come with two straps welded to the solid face.
- 3) Standard Anchor Bolts (STD) are ASTM1554 Grade 36, High Strength (HS) are ASTM A193 Grade B7.
- 4) Screws at top connection are 1/4" diameter MiTek WS Wood Screws. Use 1/4x3" (WS3) when attaching directly to the collector and 1/4x4-1/2" (WS45) when installing with a 2x filler.
- 5) 1/4" diameter edge screws to adjacent framing are required when installing fillers above greater than 1-1/2" or when specified by the Building Design Professional.

## Accessories

# Hardy Frame<sup>®</sup> HFX Template (HFXT)

- Ensures proper bolt spacing and alignment
- 16 gauge material supports weight of embed bolts
- Variety of applications
- Also available for 2x6 wall framing (HFXT-6)



# Hardy Frame<sup>®</sup> HFX Template Kit (HFXTK)





Grade 8 Hex Nut (Included with Panel) Hardened Round Washer (Included with Panel)

ALT: two SAE Washers

Hold Down Anchor

ALT: two Flat-Round Washers

 "STD" = ASTM F1554 Grade 36
 Requires HFXBB (Bolt Brace) or Plate Washers @ embed end
 "HS" = ASTM A193 Grade B7

Do not attempt to bend HS rods

1/2 x 3 x 3 Plate Washer (HFPW1-1/8)

HFXBB - Bolt Brace (Included with Kit)

• Requires 1/2 x 3 x 3 HFPW (Plate Washer) @ embed end, HFXBB (Bolt Brace) optional

Standard Grade Hex Nut minimum (Included with Kit)

Hardy Frame <sup>®</sup> HFX Template Kit Components											
			Panels								
Kit Model Number	Template (1 ea)	Bolt Brace (1 ea)	Anchor Bol	t Assembly							
			1-1/8 STD	1-1/8 HS							
HFXTK9			2								
HFXTK-HS9	HFX19	НЕХВВЭ		2							
HFXTK12			2								
HFXTK-HS12	HFXI12	HFXBB12		2							
HFXTK15			2								
HFXTK-HS15	HFXIIS	HEXBR15		2							
HFXTK18			2								
HFXTK-HS18		HEXBRIS		2							
HFXTK21	LIEVTO4		2								
HFXTK-HS21	HFX121	HFXBB21		2							
HFXTK24			2								
HFXTK-HS24	HFX124	HFXBB24		2							

#### Anchor Bolt Assemblies:

- 1-1/8 STD =  $1-1/8 \times 32^{\circ}$  ASTM F1554 Grade-36 all thread with (3) Standard Hex Nuts.
- 1-1/8 HS =  $1-1/8 \times 38$ " ASTM A193 Grade-B7 all thread with (1)
- 1/2x3x3 ASTM A36 Plate Washer & (3) Standard Hex Nuts

#### For other rod lengths contact Hardy Frames

- ) All Thread length = length of embed (le) + 12" (formboard) + 6" (Kit assembly + height above concrete)
- 2) The Hardened Round Washers for connecting the Panel base may be substituted with two SAE or two Round-Flat Washers
- 3) STD assemblies require a Hardy Frame<sup>®</sup> Bolt Brace (Minimum) double nutted at the embed end or 1/2x3x3 ASTM A36 Plate Washer
- 4) HS assemblies require 1/2x3x3 ASTM A36 Plate Washer
- (HFPW) (Minimum) and the Hardy Frame<sup>®</sup> Bolt Brace is optional
  - 5) HS all thread rods provided by Hardy Frame® are stamped on both ends

HF B7



# HFX Double Template (HFXDT) Back to Back Installations

- Locates bolts for "Back-to-Back" installation in 8" wall framing
- Large cut-outs allow concrete and mortar placement
- 14 gauge material supports weight of embed bolts

#### **Back to Back Anchorage Components**

- 4 ea. HFAB 1-1/8 (specify length and STD or HS)
- 1 ea. HFXDT Template
- 1 ea. HFXDBB Bolt Brace





**ASSEMBLY** 

# **Anchor Bolt Assemblies (HFAB)**

Hardy Frame<sup>®</sup> Anchor Bolt Assemblies (HFAB) are sold individually in lengths of 36, 48, 60 and 72 inches to provide rod lengths for various embed depths. HFABs are available in Standard Grade (STD) or High Strength Grade (HS) to meet plan specifications and in 1-1/8 inch diameters for anchoring Panels, 7/8 inch diameters for anchoring Brace Frames.

For complete structural components provided in Hardy Frame<sup>®</sup> Template Kits order the following:

#### **Panels**

- 2 each HFAB1-1/8 (Specify length and STD or HS grade)
- 1 each HFXT Template
- 1 each HFXBB Bolt Brace

Panels
HFAB1-1/8x36STD
HFAB1-1/8x48STD
HFAB1-1/8x60STD
HFAB1-1/8x72STD
HFAB1-1/8x36HS
HFAB1-1/8x48HS
HFAB1-1/8x60HS
HFAB1-1/8x72HS

# 6 1/2" 6 1/2" 6 1/2" 6 1/2" 6 1/2" 6 1/2" 9 Connects adjacent wood mudsill and stud (or Post) to Hardy Frame® Panel 9 Adjustable installation for HFBX extends up to 6 1/2" beyond face of Panel 9 There-away" tab allows installation after Panel/Frame has been set 9 Pre-punched holes for wood nailing 9 Can be screwed to Panel for additional stability

# Connectors for shear transfers and common framing applications at Hardy Frame<sup>®</sup> Panels



#### WS-1/4" x 4-1/2" Screws

For 2x filler above



#### "MP4F" Plate Connector

For filler above greater than 2x



#### "KRPS" Straps

For Portal condition with #10 self-tapping screws to Panel and 16d nails to header





Size		MiTek	Dimensions (in)		er et al 1	Factored Shear Resistance (115%) <sup>2,3,4,5</sup>		
In.	mm	Stock No.	L	SH	т	FINISN	12 Ga Steel To DF-L	12 Ga Steel To S-P-F
1/4 x 3	6.1 x 76.2	WS3	3	3/4	2	Zinc	712 Lbs	650 Lbs
							3.17 KN	2.89 kN
1/1 v / 1/2	61 v 11/ 3	W\$15	1 1/2	1-1/4	3	7inc	863 Lbs	791Lbs
1/4 A 4-1/2	0.1 X 114.5	W040	4-1/2			ZIIIC	3.84 kN	3.52 kN

1. Zinc finish = Yellow Zinc Dichromate.

2.

Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
 Factored Resistances values determined in accordance with CSA 086-14 Clause 12.11; apply modification factores K<sub>SF</sub> and K<sub>T</sub> where applicable.

where applicable.

4. Factored shear resistances assume full screw penetration into the main member.

5. Factored shear resistances for steel-to-wood connections assume a side plate tensile strength of 45 ksi (310 MPa).



		Fastener	Schedule	Facto	red Shear Re	sistance (115	%) <sup>1,2</sup>
MiTek Stock No.	Steel Gage	054	Tuno <sup>3</sup>	DF-L S-P-			P-F
		QLY	Type	Lbs	kN	Lbs	kN
MP4F	20	6	8d x 1-1/2	1,585	7.05	1,125	5.00
		·					

For SI: 1inch=25.4 mm. 1lb = 4.45 N

For SI: 1inch=25.4 mm. 1lb = 4.45 N

Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.
 Factored resistances shown are per angle.

3. Nails:  $8d \times 1-1/2$  nails are 0.131" dia.  $\times 1-1/2$ " long.

	<b>—</b>				L					$\rightarrow$
				KRP	S18 & KRPS22 5 KRPS28 12"	-1/2"				
/ 🕹	•	•	•	•			•	•	•	

	01.1	Dimen	sions (in)	Fastener S	Schedule	Factored <sup>-</sup>	Tensile Res	sistance (	115%) <sup>1</sup>
MiTek Steel	iteel	. #		16d Nails <sup>3</sup>	DF	-L	S-P-F		
Stock No.	uage	vv		Qty	Qty	Lbs	kN	Lbs	kN
KRPS18	16		18-5/16	6	6	1,375	6.12	1,185	5.27
KRPS22		1-1/2	22-5/16	0	o	1 705	7.04	1 5 2 5	6 0 2
KRPS28			28-5/16	ð	8	1,700	7.94	1,000	0.03

For SI: 1inch=25.4 mm. 1lb = 4.45 N

1. Factored resistances have been increased 15% for short-term loads such as wind and earthquake; no further increase allowed.

2. #10 Hex Head self-tapping screws with a Self Drilling (SD) point are recommended into face of Panel.

3. 16d nails are 0.162" dia. x 3-1/2" long.















**Photos** 



# **Panel Installation**

- **1.** Tilt Panel, lift over bolts and swing into the existing space
- 2. Install 2x filler at 1-1/2" gap
- 3. Connect with 1/4 x 4-1/2  $\text{MiTek}^{\textcircled{\text{$ \mathbb{R} }}}$  WS-Series Screws



# Ероху

CIA GEL7000-C epoxy has an ICC-ES evaluation report (ESR-3609) for design in seismic categories A-F for use in cracked and un-cracked concrete. The engineer of records design will take into account concrete edge distances, end distances and the amount of combined tension and shear needed to resist the forces transferring from the Hardy Frame<sup>®</sup> Shear Panel to the existing foundation.

Ероху



Thru-Bolt

New Footing Below Existing

Thru-Bolt

The design, including capacity of existing concrete and size of Bearing Plates below is determined by the engineer of record. The adjacent illustration shows installation with a Hardy Frame<sup>®</sup> Bearing Plate (HFXBP) at the underside of concrete.

# **New Footing Below**

Hardy Frame<sup>®</sup> unreinforced or reinforced anchorage solutions may be used below existing concrete or to replace existing concrete.

# **Hole Chart and Attachments**

# **Hole Chart**

An additional 1" diameter hole may be drilled in the upper half of the Panel when it is located in the hatched area.

To drill more than one hole, a larger diameter hole or a hole in a location outside of the hatched area, contact Hardy Frame<sup>®</sup>.







# **Fixture Installation**

#### 2x4 Wall Framing

- There is no "inside" or "outside face" of Hardy Frame<sup>®</sup> Panels
- Install with the cavity face of Panel oriented in the direction of the fixture to be attached
- Install 2x backing in the cavity and secure with #10 (minimum) self-tapping screws through the wood into the steel or with 1/4"WS-Series screws through pre-drilled holes in the face of Panel. Pre-drilled holes must be evenly spaced no less than 3" OC

#### 2x6 Wall Framing

- Installation of Panels are recommended to be at the inside face of a 2x6 wall to increase the concrete edge distance at the hold down anchors and to provide a 2" recess that can be used to:
  - Provide flat stud backing for surface finishes
  - Provide a thermal break in cold weather climates
  - Install a fixture at one or both faces of the wall



**Cavity Face** Panel in 2x4 framing with cavity towards outside face of wall



**Solid Face** Panel set flush to inside face of 2x6 wall

# Wood

For attaching wood, siding, drywall and other surface finishes to the Panel face #10 Flat or Wafer Head, self-tapping screws with a "Winged" self drilling (SD) point are recommended. When connecting to the edge of Panels, use a #12 diameter screw.









When attaching steel connectors (12-gage maximum) fixtures, electrical boxes, wire mesh, etc. to the Panel face #10 Hex, Flat Truss or Modified Truss Head with a Self Drilling (SD) point are recommended. When connecting to the edge of Panels, use a #12 diameter.







SELF DRILLING "SD" POINT SELF TAPPING



# **Typical Framing Details**



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# **Code Evaluations**

ICC Evaluation Service ESR-2089

# **Product Use**

The MiTek<sup>®</sup> Hardy Frame<sup>®</sup> products are designed and manufactured for the specific purposes described in this catalogue. Any changes to the products or in the installation procedures must be approved by the Building Design Professional and are the sole responsibility of the designer.

# **Quality Statement**

MiTek<sup>®</sup> Hardy Frame<sup>®</sup> warrants to its customers that its products are free from material defects of manufacture or design, and will perform in substantial accordance with published specifications, if properly used.

# Testing

MiTek<sup>®</sup> Hardy Frame<sup>®</sup> performs extensive testing on all of the MiTek<sup>®</sup> Hardy Frame<sup>®</sup> structurally rated products. All final testing is conducted by a third party testing laboratory.

# **Material**

MiTek<sup>®</sup> Hardy Frame<sup>®</sup> Panels, Brace Frames and Posts are manufactured from prime quality steel which meets the requirements of ASTM A653 SS Grade 50 steel and ASTM A36 hot-rolled steel built in at hold down connections.

# **Finish**

All galvanized steel has a minimum G60 hot-dipped galvanized zinc coating.

# **Threaded Rod/Hold Down Bolts**

Unless noted otherwise the "STD" hold downs are ASTM F1554 grade 36, and the "HS" (high strength) are ASTM A193 grade B7 or equivalent.





MiTek® Z4 Tie-Down Systems utilize CNX Cinch Nuts to compensate for wood shrinkage and building settlement that cause connections to loosen over time. The Cinch Nut uses a self-ratcheting action that permits the cinch nut to move (the rod doesn't move) or "travel" perpetually in one direction only down the rod. Available for installation with threaded rods that are 3/8 inch through 1-1/2 inch diameter in 1/8 inch increments, the CNX Cinch Nut has been code evaluated and published in ESR-2190.

- Place the specified Bearing Plate Washer onto the bottom plate of a wood framed wall.
- With the "wings" oriented downward, place Cinch Nut over the threaded rod extending from below and push down until it seats firmly on the Bearing Plate Washer.
- Install 1/4 inch diameter MiTek<sup>®</sup> Pro-Series<sup>™</sup> Screws through the wings, penetrating 1-1/2 inches (minimum) into the wood bottom plate.
- Model numbers BPW5 and BPW6 fit in-between the screws fastening the wings.
- Model numbers BPW7 (3-1/4 x 4-3/8) and larger are provided with two screw holes. Align the wing and the Bearing Plate Washer screw holes to allow installation of 1/4 inch diameter MiTek<sup>®</sup> Pro-Series<sup>™</sup> Screws.



**BPW5, BPW6** Installation



Installation



ROOF RAFTERS 8

#### MiTek<sup>®</sup> Z4 Tie-Down Systems

#### MiTek<sup>®</sup> Z4 Tie-Down **System for Lateral Load**

To resist tension loads due to overturning moments in multi-story buildings the CNX Cinch Nut is installed over a Bearing Plate Washer at each level in a fast and easy application. At the upper-most level a Cinch Nut is installed over a Bearing Plate Washer above the top plates. At walls below that bear on wood floor systems, the Cinch Nut and Bearing Plate Washer are installed over the bottom plate. Tension loads are gathered at each level and transferred into the foundation through a continuous system of Cinch Nuts, Bearing Plate Washers, threaded rods/ATRs and Couplers, all are available lines of MiTek<sup>®</sup>.

#### MiTek<sup>®</sup> Z4 Tie-Down System for Wind Uplift

For resisting roof uplift loads resulting from wind the Z4 Cinch Nut is installed over a Bearing Plate Washer above the top plates with roof framing above to create a tie-down system. Uplift forces are transferred into a continuous system of threaded rods/ATRs and Couplers that form a load path to the foundation.



# BRANDS YOU KNOW. PRODUCTS YOU TRUST. SOLUTIONS THAT PERFORM.

# MITEK<sup>®</sup> BRANDS MEAN MORE CHOICE AND VALUE FOR YOUR CUSTOMERS.

IN RESIDENTIAL CONSTRUCTION, BETTER STRUCTURES START WITH "BETTER TECHNOLOGY" SOLUTIONS. AT MITEK<sup>®</sup>, WE OFFER A FULL RANGE OF PRODUCTS AND INNOVATIONS TO HELP YOU DELIVER MORE VALUE TO YOUR CUSTOMER AT EVERY STAGE OF THE PROJECT.



MiTek HARDY FRAME Shear Wall Systems

Recognized leaders in the design and pre-fabrication of quality shear walls and moment frames for strength, versatility and performance.



**MiTek**<sup>®</sup> Structural Products

Our full line of code-approved, engineered structural connectors, anchors and software solutions backed with a srobust software selection tool, professional engineering and technical support.



MiTek Z4 Tie-Down Systems

Quality continuous Tie-Down systems that resist wind uplift and seismic overturning forces while compensating for shrinkage in multi-storey, wood-framed buildings.

#### **GIVE YOUR CLIENTS MORE CHOICE**

MiTek's innovative technology, specification tools, and strong support give your builders better choice and a better bottom line.

THE NEW STANDAR

MiTek

# **GIVE YOUR CUSTOMERS MORE CHOICE.**

WITH THOUSANDS OF CODE-APPROVED AND TIME-TESTED PRODUCTS, MITEK® GIVES YOU THE ABILITY TO OFFER YOUR CUSTOMER GREATER CHOICE AND FINANCIAL FLEXIBILITY. TO VIEW OUR PRODUCTS FOR DOCUMENTATION, ILLUSTRATIONS, LOAD RATINGS AND MORE, VISIT OUR MITEK.CA WEBSITE TO DOWNLOAD OUR FREE PRODUCT APPS.

#### The Best Designs are Built with the Best Technology

Designing for high wind and seismic loads? Start with MiTek<sup>®</sup> Hardy Frame<sup>®</sup> Special Moment Frame. Its prefabricated, pre-engineered system features MiTek's exclusive SidePlate<sup>®</sup> moment connection to maximize lateral load resistance, while minimizing the frame's column profile. MiTek<sup>®</sup> Hardy Frame<sup>®</sup> renowned performance allows for larger openings (and less required wall area), even under the toughest requirements.

#### **Experience True Support**

What sets MiTek<sup>®</sup> apart is our genuine, core passion for serving our customers, and for building trust through our uncompromising commitment to helping them succeed — immediately, and in the long run.

#### **Offer Greater Value**

We understand what it takes to make your project successful. From optimizing structural integrity and improving your workflow to minimizing jobsite downtime, our working relationship translates into real value for you and your customer.

#### **Specify MiTek Brands For a Better Build**

MiTek<sup>®</sup> brands are not only a great fit for your project, they're better for your business. On your next build, specify MiTek<sup>®</sup> Hardy Frame<sup>®</sup>, MiTek<sup>®</sup> Structural Connectors and Z4 Tie-Down Systems and give your customers a choice with greater value and a faster return.



#### **MITEK<sup>®</sup> SPECIFIER**

We're making it even easier to specify MiTek<sup>®</sup> on your next project. Start with our MiTek<sup>®</sup> Specifier Software for quick and simple product selection and documentation. Get started with a free, quick download. **Download for free at** MiTek.ca/software/specifier/



#### **MITEK® CATALOGUE APP**

The free MiTek<sup>®</sup> Catalogue app features new product and application illustrations, installation instructions, updated fastening schedules, load ratings and reference conversion. Get started with a free, quick download. Download for free at

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**GIVE YOUR CLIENTS MORE CHOICE.** MiTek's innovative technology, specification tools, and strong support give your builders better choice and a better bottom line.

# ADDITIONAL PUBLICATIONS FROM MiTek®

MiTek<sup>®</sup> Builder Products is a division of MiTek<sup>®</sup> USA, Inc. MiTek product lines include the Hardy Frame<sup>®</sup> Shear Wall system, MiTek<sup>®</sup> Structural Connectors and Z4 Tie-Down System



#### **Typical Installation Detail Sheets**

MiTek<sup>®</sup> provides the Hardy Frame<sup>®</sup> Typical Installation Details in plan format. These pages are available in ACAD or pdf; organized by anchorage, typical first floor installations and those on floor systems. Any or all of these pages may be attached to your plans as supplemental sheets or you can copy selected details as needed.



#### **Installation Guide**

The MiTek<sup>®</sup> Hardy Frame<sup>®</sup> Installation Guide was written specifically for Suppliers and Installers. This publication provides all HFX model numbers, dimensions, bolt and screw patterns, connectors, installation illustrations, attachments and information regarding Template Kit (HFXTK) and Floor to Floor Tension Connector Kit (HFTC) components.



#### MiTek<sup>®</sup> Z4 Product Catalogue

**The MiTek® Z4 product line** includes the Cinch Nut, Continuity Tie (CT) and Tension Tie (T2). The Cinch Nut is a self-ratcheting device that is designed to maintain a tight connection in the Z4 continuous "Quick Connect" rod system. The Cinch Nut, along with the CT and T2, offers more design options than any other hold down system and are rated for tension capacities that range from 5,000 to over 82,000 lbs. In addition to continuous rod applications, the T2 can be used as a hold down in conventionally framed shear walls.



#### MiTek<sup>®</sup> Structural Products Catalogue

Introducing the 2018 online catalogue featuring new structural connector products and updated technical information. Our digital version will be updated often to ensure content is always current. This catalogue is a comprehensive guide to our extensive product line featuring over 250 detailed application illustrations and detailed installation instructions, fastening schedules and load ratings. EWP and Plated Truss connectors are included. www.mitek.ca/Resources/Builder-Products/Hangers---Structural-Connectors/



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