

# MiTek<sup>®</sup> Z4 CATALOGUE

LIMIT STATES DESIGN



# MiTek®

## THE NEW STANDARD

At MiTek®, we believe that better processes can empower your business; and we've learned three important things over the years:

- We've learned that when people collaborate well, great things can happen – that's about both strong collaboration within your teams, and also strong collaboration between you and your customers.
- We've learned that when we build a relationship focused on growing your ability to achieve a Higher Standard of performance and success year over year, that relationship will stand the test of time. We've also learned that when we help you deliver those kinds of relevant results and value to your customers year over year, you will build a relationship that will also stand the test of time.
- We've learned that our customers are the heroes of our story, and that when we continually get that right, all our efforts will yield the best results for our relationships.

And that is The New Standard that we are talking about from MiTek® these days. It's a new standard for what you can expect in optimizing your business performance, and a new standard for what you can expect from a strong, committed relationship that works well, day after day and stands the test of time.

# CONTENTS

Product Profile .....	2
Design, Technical, and Customer Support .....	2
General Notes.....	3

## **Z4 Tie-Down System Components**

Cinch Nut (CNX).....	4
Bearing Plate Washer (BPW) .....	5
Rods (Z-Rod/ATR).....	6
Coupler (CPL).....	7
Anchor Tie (AT) .....	8
Anchor Rod Chair (ARC).....	9
Anchor Bolt Assembly .....	9

## **Wood Compression Post Capacities**

Douglas Fir-Larch .....	10
Spruce-Pine-Fir.....	10

## **Z4 Tie-Down System Installation**

Installation.....	11
Typical Elevation.....	12
Typical Details.....	13-15

## **Pre-Engineered Runs**

ONE Storey .....	16-17
TWO Storey.....	18-21
THREE Storey.....	22-26
FOUR Storey .....	27-31
FIVE Storey.....	32-39
SIX Storey.....	40-47

<b>Complementary Products .....</b>	<b>48-49</b>
-------------------------------------	--------------

Our mission is to provide the building industry with a simple, efficient, quality tie-down system with unparalleled customer service.

The MiTek Z4 Tie-Down System is used in multi-storey buildings to transfer overturning and uplift tension forces that result from seismic and wind loading, to the foundation. The CNX Cinch Nut allows for easy, fast, and dependable one-step installation. Once installed, no activation is required (set it and forget it). MiTek Z4 Tie-Down Runs are engineered for maximum material and labour efficiency to provide the most economical system in the industry.

The CNX Cinch Nut is a shrinkage take-up device that is evaluated under the IBC and the City of Los Angeles building codes. The CNX's ability to perpetually "travel" down the length of the threaded rod allows it to compensate for natural shrinkage and settlement which occurs in wood buildings, therefore keeping connections of Tie-Down Runs tight to the floor framing members for the life of the building.

The MiTek Z4 Tie-Down System with the CNX Cinch Nut is designed to limit story drifts of multi-storey buildings and eliminate additional structural damage caused by loose connections in the floor framing. The system was designed following the Northridge Earthquake when the effects of wood shrinkage, building settlement, and other building deformation were shown to be factors contributing to structural damage.

This design was the first in the industry to provide a continuous load path for uplift that perpetually adjusts its connections to the floor system as the building deforms. The MiTek Z4 Tie-Down System is engineered, tested, and code evaluated to perform. It continues to be an innovative leader in the multi-storey building industry.



## Design, Technical, and Customer Support

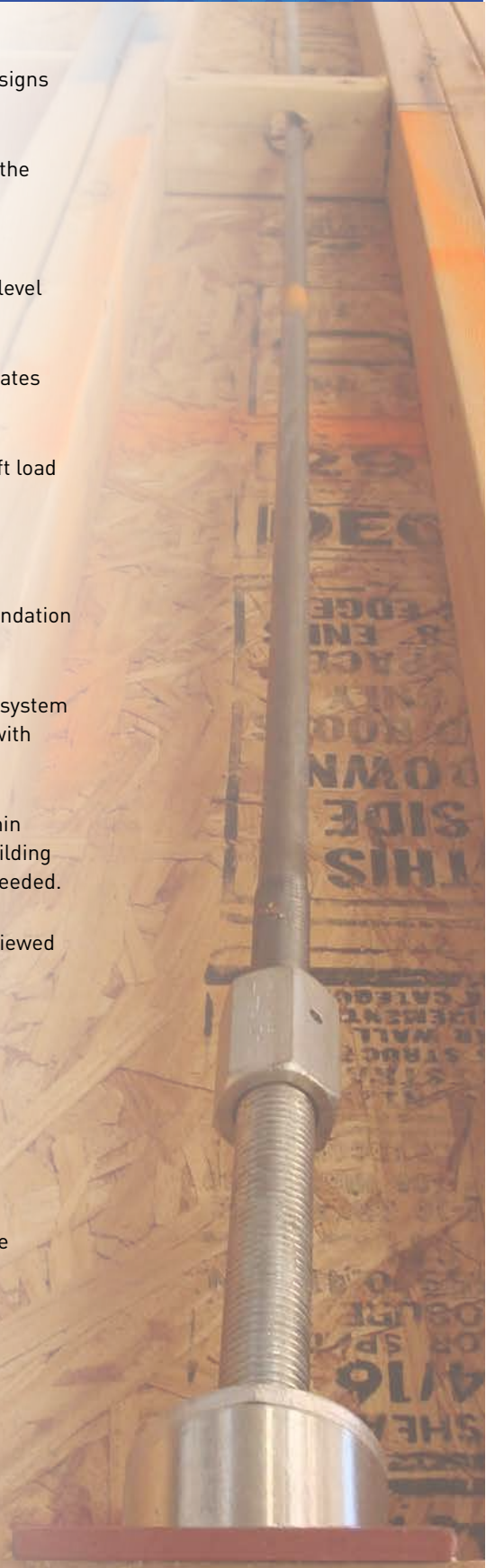
We offer comprehensive technical support, design of tie-down systems to meet engineered loads, and deliver products packaged and labelled for easy identification in the field.

1. For the Design Professional, we provide pre-engineered standard runs as well as individual component capacities to design custom runs. We also offer turnkey, sealed designs when engineered loads are provided to us.
2. Building Officials confidently accept our systems because they assemble with code evaluated components that have an ESR listing.
3. For the installer, our products arrive on time and are packaged systematically for easy identification of parts and sequence of assembly. We offer typical installation details, immediate telephone support and personal training is available from a sales or customer service representative.

**Customer support: 1-800-268-3434; Email: CA-Z4@MiTek.ca**



1. MiTek reserves the right to modify Z4 Tie-Down System specifications and designs without notification or liability for such changes.
2. All materials used in the design of MiTek Z4 Tie-Down Systems are based on the specifications provided in this catalogue. Contact MiTek Z4 Technical Support for related information.
3. Project specifications including load demand, rod elongation limits and floor level deflection limits are required prior to design of MiTek Z4 Tie-Down System.
4. Values for the products of MiTek Z4 Tie-Down System are provided in Limit States Design and in compliance with CSA Standards.
5. The MiTek Z4 Tie-Down System is designed to provide the overturning or uplift load capacity that meets the project demand. It is the responsibility of the EOR or qualified building designer to integrate the Tie-Down system designs into the structural system.
6. The design of concrete anchorage for MiTek Z4 Tie-Down Systems and all foundation designs are the responsibility of the EOR or qualified building designer.
7. The integration of the MiTek Z4 Tie-Down System into the building structural system shall be the responsibility of the EOR or qualified building designer. Consult with MiTek Z4 Technical Support for any assistance when needed.
8. Compression members and multi-ply compression member connections within the shear wall Tie-Down System shall be specified by the EOR or qualified building designer. Consult with MiTek Z4 Technical Support for any assistance when needed.
9. All final MiTek Z4 Tie-Down System design structural documents shall be reviewed and approved by the EOR or qualified building designer.
10. Deviation from the MiTek Z4 Tie-Down System construction documents is not permitted. Any field alterations in installation require consultation with MiTek Technical Service and EOR for review and approval.
11. The MiTek Z4 Tie-Down System does not require special inspection unless it is required by the local building jurisdiction.
12. Proper corrosion protection for all delivered Z4 products at the project job site shall be provided by others.



The MiTek Z4 CNX-Series Cinch Nut is a shrinkage compensating take-up device that keeps connections of Tie-Down runs tight to the floor framing members when shrinkage and compression of wood fibres occur. The Cinch Nut uses an internal self-ratcheting action that permits movement, or "travel" perpetually in one direction along the length of a threaded rod. When connected to the floor framing, the Cinch Nut travels down the Z-Rod with the building as it shrinks and compresses. The CNX Series Cinch Nut is available in 1/8 inch increments for installation with threaded rods that are 3/8 inch through 1-1/2-inch diameter.



**CNX-5**

Connecting Rod Diameter  
(1/8" Increments)  
CNX-Series Cinch Nut

**Code Reports**

1. ESR-2190
2. LA City RR 25623
3. Florida Building Code - FL 17546

## CNX-Series Advantages

1. Features perpetual ratcheting along the length of a threaded rod that is not limited like the energy stored in a spring-loaded device.
2. Simple, one-time installation that does not require pin or screw activation after the building is loaded.
3. CNX models are matched to the rod diameter specified for optimal tolerances.



**BPW-7 and Larger Installation**



**BPW-5, BPW-6 Installation**

CINCH NUT (CNX)						
Model No.	Connecting Rod Diameter <sup>3</sup> (in)	Allowable Load for CNX <sup>4</sup> (lb)	Factored Resistance <sup>5</sup>		Deflection at Allowable Load, Δ <sub>F</sub> <sup>6</sup> (in)	Travel and Seating Increment, Δ <sub>F</sub> <sup>6</sup> (in)
			(lb)	(kN)		
CNX-3	3/8	5,177	8,285	36.85	0.0157	0.029
CNX-4	1/2	9,204	14,725	65.50	0.0217	0.048
CNX-5	5/8	14,223	22,505	100.11	0.0187	0.0514
CNX-6	3/4	18,731	27,105	120.57	0.0224	0.0578
CNX-7	7/8	28,187	45,100	200.61	0.0234	0.0506
CNX-8	1	32,834	46,855	208.42	0.0241	0.0549
CNX-9	1 1/8	44,415	67,740	301.32	0.0233	0.0524
CNX-10	1 1/4	55,832	86,705	385.68	0.0287	0.0754
CNX-11	1 3/8	60,106	83,045	369.40	0.0268	0.0804
CNX-12	1 1/2	82,835	132,535	589.54	0.0361	0.0717

1. All CNX models fit within a nominal 4" wall depth.
2. CNX to be fastened to the wall plate using two (2) MiTek WS Wood Screws, minimum 1" penetration into the wood plate.
3. Thread specification for threaded rod used with CNX must be UNC Class 2A in accordance with ANSI/ASME B1.1.
4. Allowable Loads for CNX are based on testing. Tabulated Values are listed in the ICC-ES evaluation report ESR-2190.
5. Factored Resistances assume the maximum permissible F<sub>u</sub> of the threaded rod is 125,000 psi.
6. Deflection based on ASD Allowable Load testing. Deflection at Design Load can be adjusted based on the ratio of the Design Load over Allowable Load. Total CNX device deflection = Δ<sub>R</sub> + Δ<sub>F</sub> x (Demand Load / Allowable Load for CNX).

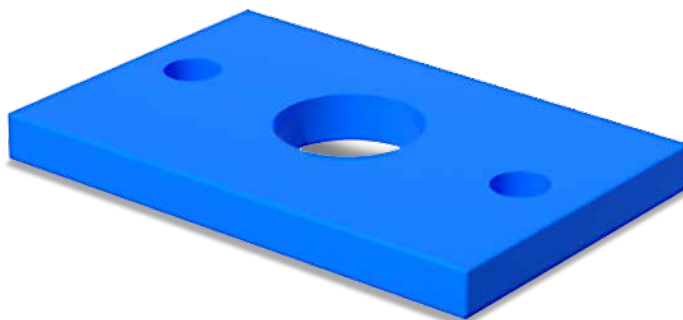
MiTek Z4 Bearing Plate Washers (BPW) are the interface between the Tie-Down System and the level of the building being anchored to the foundation. As the floor system is pulled upward by shear wall overturning forces, pressure is applied to the BPW/CNX assembly and transferred into the Z-Rod or all thread rod (ATR). The required bearing area is based on the design uplift to minimize crushing of the wood and the BPW thickness must be sufficient such that BPW flexural yielding does not limit the capacity of the system. The wood species is also a factor when sizing. The pounds per square inch (psi) of compression cannot exceed the allowable compression perpendicular to the grain of the wood species it is bearing on.

## Materials

ASTM A36

## Finish

Powder coated finish in various colours for easy identification



BPW-17-6

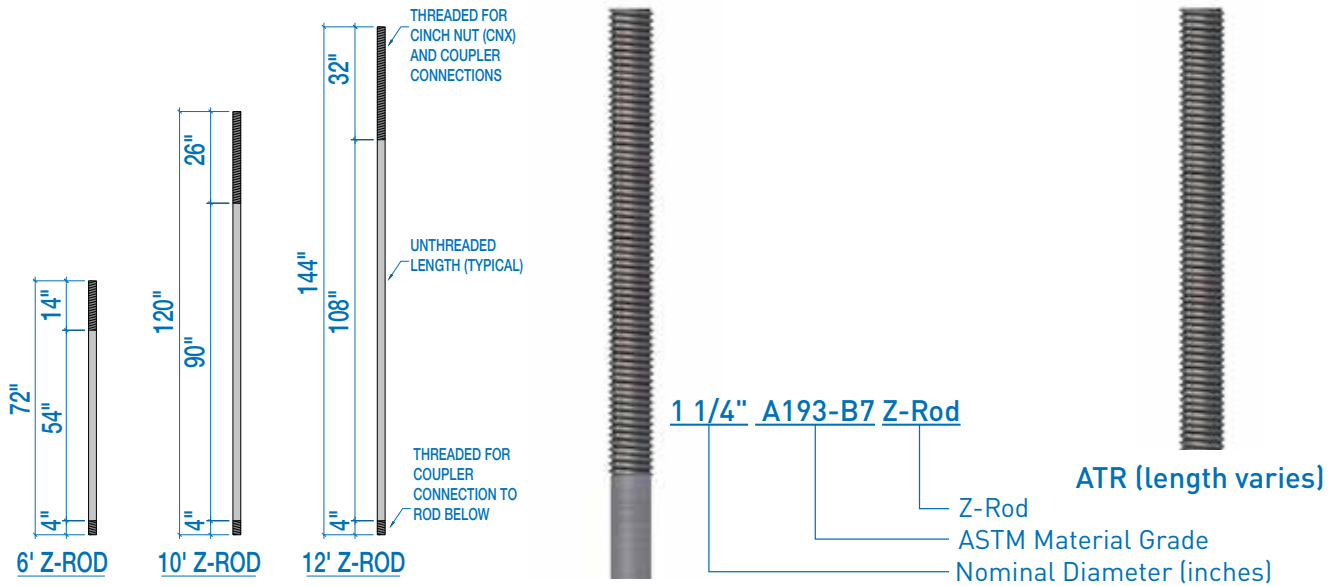
6" Nominal Wall Thickness  
Bearing Capacity based on DF-L ASD  
Bearing Plate Washer (BPW)

BEARING PLATE WASHER (BPW)										
Model Number	Dimensions (in)			Nominal Wall Depth (in)	Colour	Factored Bearing Resistance				
	Width & Length (in)	Thickness (in)	Hole Diam. (in)			D.Fir-L		S-P-F		
						(lb)	(kN)	(lb)	(kN)	
BPW-5	3 x 3	1/4	1-5/16"	4"	Brown	8,215 **	36.54 **	6,220	27.67	
BPW-6	3-1/4 x 3-3/8	3/8	1-9/16"		Red	9,720	43.24	7,360	32.74	
BPW-7	3-1/4 x 4-3/8	1/2			Yellow	13,215	58.78	10,005	44.50	
BPW-9	3-1/4 x 5	5/8			Green	15,395	68.48	11,655	51.84	
BPW-11	3-1/4 x 5-7/8	3/4			Blue	18,450	82.07	13,970	62.14	
BPW-15	3-1/4 x 7-7/8	7/8			Black	25,430	113.12	19,255	85.65	
BPW-20	3-1/4 x 10-1/4	1-1/4			White	33,725	150.02	25,535	113.59	
BPW-25	3-1/2 x 11-3/4	1-1/2			Orange	42,115	187.34	31,885	141.83	
BPW-30	3-1/2 x 14	1-3/4			Lt. Gray	50,575	224.97	38,290	170.32	
BPW-17-6	5 x 5-7/8	5/8			1-9/16"	6"	Lt. Blue	29,495	131.20	22,330
BPW-27-6	5 x 9	1		Tan			46,275	205.84	35,040	155.87
BPW-36-6	5 x 12	1-1/2	Gray	62,390			277.52	47,240	210.13	
BPW-43-6	5 x 14	1-3/4	Purple	73,130			325.30	55,370	246.30	
BPW-46-6	5 x 15	1-7/8	Pink	78,500			349.19	59,435	264.38	

- Bearing Plate Washers are fabricated from ASTM A36 steel
- Tabulated factored resistances are based on CSA O86-14 Clause 6.5.7 and CSA S16-14 Clause 13.5.
- Table values include  $K_D = 1.15$  load increase for short-term loads and Size Factor for Bearing  $K_{Zcp}$ .
- Table values assume Bearing Plate Washer installed on 2x wall plates.

\*\* Factored Bearing Resistance of BPW-5 installed on D.Fir-L wall plate is 6260 lb when used with CNX-3, 6685 lb when used with CNX-4, 7230 lb when used with CNX-5, 7780 lb when used with CNX-6.

MiTek Z4 Rod transfers load from Cinch Nuts (CNX) or standard hex nuts to the terminating structure (foundation, concrete slab, steel beam, wood beam). Rod may either be standard all threaded rod (ATR) or Z-Rod. Z-Rod are alternatives to ATR with the difference that the Z-Rod remains unthreaded except at its ends for connection assembly. In terms of engineering strength, Z-Rod and ATR of similar nominal diameter and material grade behave identically. Z-Rod lengths are currently available in 6, 10, and 12 feet segments. Both ATR and Z-Rod are available in either ASTM A36 or ASTM A193-B7 steel grades.



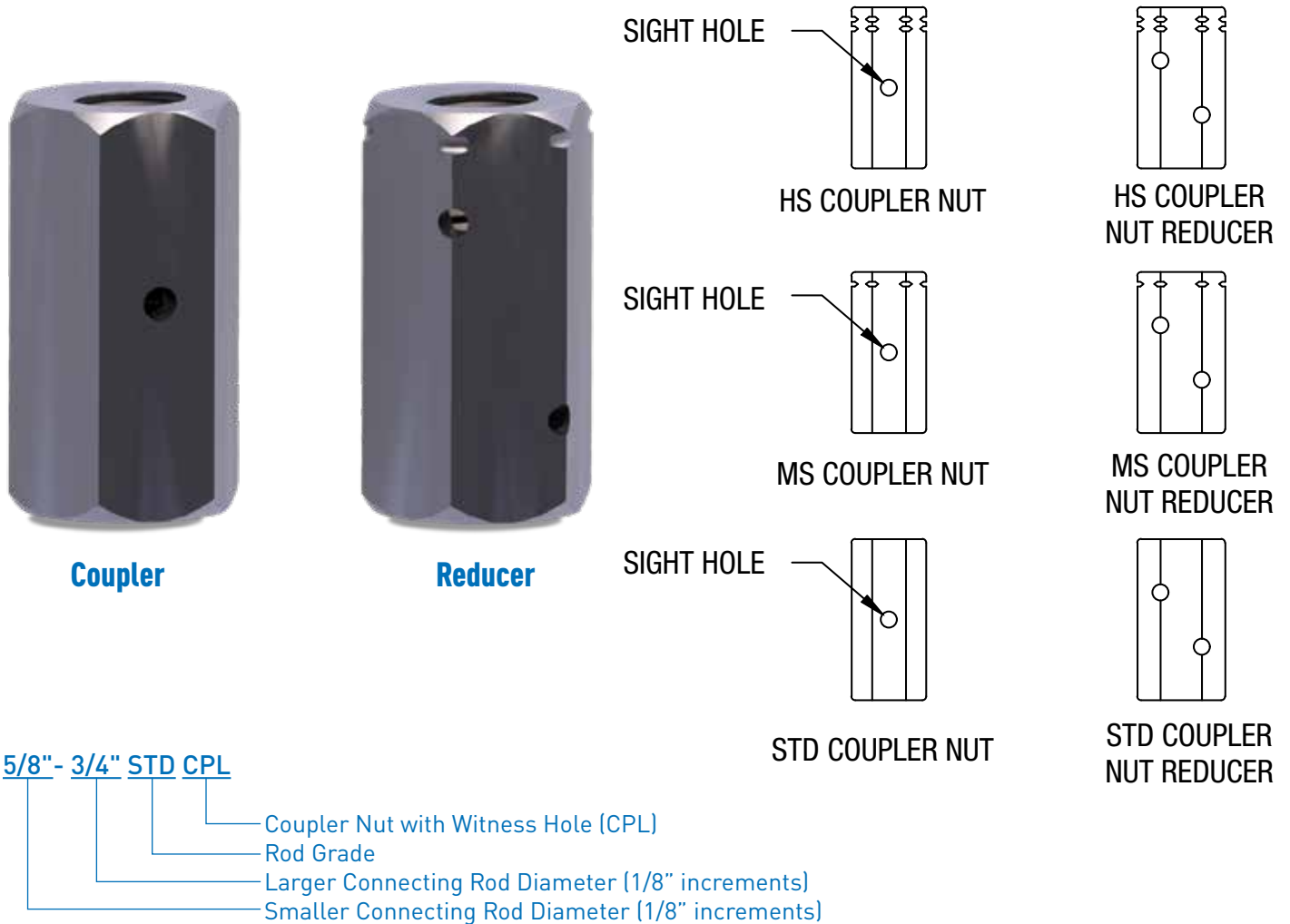
## ALL THREADED ROD (ATR) / Z-ROD

Model Number	Rod Diameter (in)	Effective Area (in <sup>2</sup> )	Factored Tensile Resistance		Model Number	Nominal Diameter (in)	Effective Area (in <sup>2</sup> )	Factored Tensile Resistance	
			(lb)	(kN)				lb	kN
3/8" A36 ATR	3/8	0.0913	3,535	15.72	3/8" A193-B7 ATR	3/8	0.0913	8,285	36.85
1/2" A36 ATR	1/2	0.1651	6,390	28.42	1/2" A193-B7 ATR	1/2	0.1651	14,725	65.50
5/8" A36 ATR 5/8" A36 Z-ROD	5/8	0.2493	9,650	42.93	5/8" A193-B7 ATR 5/8" A193-B7 Z-ROD	5/8	0.2493	23,010	102.35
3/4" A36 ATR 3/4" A36 Z-ROD	3/4	0.3652	14,135	62.88	3/4" A193-B7 ATR 3/4" A193-B7 Z-ROD	3/4	0.3652	33,135	147.39
7/8" A36 ATR 7/8" A36 Z-ROD	7/8	0.5011	19,395	86.27	7/8" A193-B7 ATR 7/8" A193-B7 Z-ROD	7/8	0.5011	45,100	200.61
1" A36 ATR 1" A36 Z-ROD	1	0.6570	25,425	113.10	1" A193-B7 ATR 1" A193-B7 Z-ROD	1	0.6570	58,905	262.02
1-1/8" A36 ATR 1-1/8" A36 Z-ROD	1-1/8	0.8294	32,095	142.77	1-1/8" A193-B7 ATR 1-1/8" A193-B7 Z-ROD	1-1/8	0.8294	74,550	331.61
1-1/4" A36 ATR 1-1/4" A36 Z-ROD	1-1/4	1.0423	40,335	179.42	1-1/4" A193-B7 ATR 1-1/4" A193-B7 Z-ROD	1-1/4	1.0423	92,040	409.41
1-3/8" A36 ATR 1-3/8" A36 Z-ROD	1-3/8	1.2528	48,485	215.67	1-3/8" A193-B7 ATR 1-3/8" A193-B7 Z-ROD	1-3/8	1.2528	111,365	495.38
1-1/2" A36 ATR 1-1/2" A36 Z-ROD	1-1/2	1.5162	58,675	261.00	1-1/2" A193-B7 ATR 1-1/2" A193-B7 Z-ROD	1-1/2	1.5162	132,535	589.54
1-3/4" A36 ATR 1-3/4" A36 Z-ROD	1-3/4	2.0523	79,425	353.30	1-3/4" A193-B7 ATR 1-3/4" A193-B7 Z-ROD	1-3/4	2.0523	180,395	802.44
2" A36 ATR 2" A36 Z-ROD	2	2.6880	104,025	462.73	2" A193-B7 ATR 2" A193-B7 Z-ROD	2	2.6880	235,620	1048.09

1. Factored tensile resistances are based on CSA S16-14 Clause 13.2 (a) (i), (iii), and Clause 13.12.1.3.
2. A36 ATR and A36 Z-ROD conform to ASTM A36, with minimum  $F_y = 43,000$  psi and  $F_u = 60,000$  psi.
3. A193-B7 ATR and A193-B7 Z-ROD conform to ASTM A193 Grade B7, with minimum  $F_y = 105,000$  psi and  $F_u = 125,000$  psi.
4. Thread specifications for threaded rod are UNC Class 2A in accordance with ANSI/ASME B1.1.



The MiTek Z4 Tie-Down System begins by connecting the first level Z-Rod or ATR to the hold down anchor in the foundation with a Coupler. At upper levels, Couplers are used to connect Z-Rods or ATRs end to end to create a continuous load path.



## Advantages

1. All Couplers have a higher capacity than those of the adjoining rods. When joining rods with different tensile strengths, the Couplers capacity is higher than the rod with the smaller strength.
2. Reducers are Couplers used to connect rods of different diameters to combine the most effective and most economical rod needed at each level.
3. Witness holes are provided to assure easy installation and inspection.

## Finish

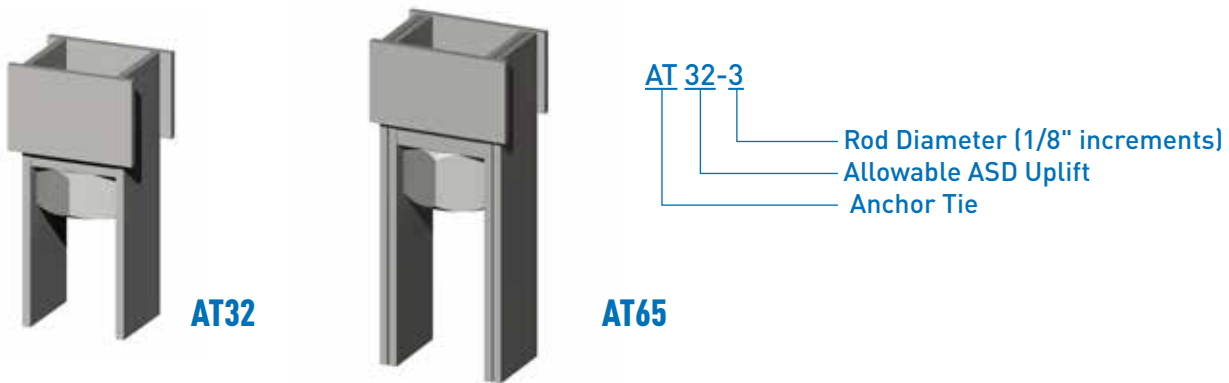
Plain Finish

## Installation

Rods to be threaded halfway into coupler from each end.

The Anchor Tie is a structural component designed for connecting Z4 Tie-Down-Runs to steel members. Anchor Ties are fabricated from ASTM Grade A36 steel plates and include a pre-welded nut, making the Tie-Down connection quick and easy. AT devices are available in 9 and 12-inch heights. Other heights available upon request. The 9-inch version with 1/4-inch plate steel legs is available for connecting 3/8" through 1-1/2" diameter threaded rods and the 12-inch version with twice the steel thickness at the legs is used for connecting up to 2" diameter rods.

Common applications include connecting to steel plates at concrete decks and steel beams where Tie-Down runs terminate. When installing at concrete decks, steel plates are designed by the Engineer of Record to resist the uplift loads. After concrete is poured, the AT is welded to the plate and a threaded rod is connected to the Anchor Tie's pre-welded nut enabling the Tie-Down Run from above to attach. Steel beam installations are designed by the EOR. The Anchor Tie is welded to the beam prior to floor framing then attachment of the threaded rod and Tie-Down Run completes the installation.



ANCHOR TIE (AT)											
Model Number	Dimensions (in)			Connecting Rod Diameter (in)	Allowable Uplift (lbs)						
	Height	Width	Depth		ASD	LSD					
AT32-3	9	3-1/2	3	3/8	32,400	48,600					
AT32-4				1/2							
AT32-5				5/8							
AT32-6				3/4							
AT32-7				7/8							
AT32-8				1							
AT32-9				1-1/8							
AT32-10				1-1/4							
AT32-11				1-3/8							
AT32-12				1-1/2							
AT65-5				11-3/4			4-1/4	3-1/2	5/8	64,800	97,200
AT65-6									3/4		
AT65-7	7/8										
AT65-8	1										
AT65-9	1-1/8										
AT65-10	1-1/4										
AT65-11	1-3/8										
AT65-12	1-1/2										
AT65-16	2										

1. Weld size to steel member below is 1/4" for AT32 and 5/16" for AT65. Weld length is 3 inches for each leg, one side for AT32 and two sides for AT65.
2. Design of the steel member below the Anchor Tie is the responsibility of the EOR.
3. All plate material is ASTM A36.
4. 16" height available.

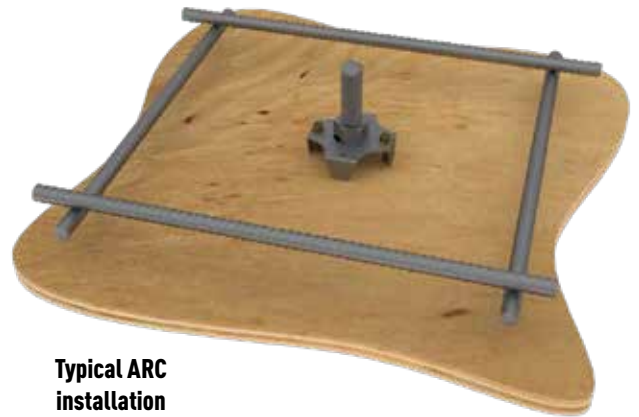
When attached to the forms, the ARC allows for easy and precise placement of anchor rods prior to pouring concrete. The “chair” and nut are pre-assembled for quick installation.

**Materials** Nut: Heavy hex; Chair: 16 gauge

**Finish** None

### Installation

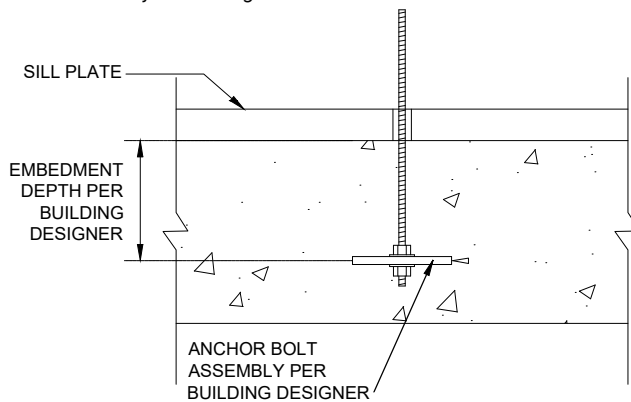
Installs with nails to formwork. Threaded rod can then be screwed into nut.



### Features

- Positive stop for threaded rod at the bottom of the nut
- Easy flow of concrete
- Nibbled out corners allow for potentially tighter positioning on inside corner of form
- 1-inch stand-off for concrete cover

Anchor bolts can be assembled from stock anchor rods, heavy hex nuts and stock anchor plate washers, or using a different size washer determined by the designer.



Concrete anchorage (anchor embedment, rod size and plate size) is specified by building designer.

### ANCHOR PLATE WASHER

Model No.	Rod Diameter (in)	Plate Washer Size (in)	Hole Size (in)
APW-4	1/2	1-1/2 x 1-1/2 x 3/8	9/16
APW-5	5/8	1-3/4 x 1-3/4 x 1/2	11/16
APW-6	3/4	2-1/4 x 2-1/4 x 1/2	13/16
APW-7	7/8	2-1/2 x 2-1/2 x 1/2	15/16
APW-8	1	3 x 3 x 5/8	1-1/16
APW-9	1-1/8	3-1/2 x 3-1/2 x 5/8	1-3/16
APW-10	1-1/4	3-1/2 x 3-1/2 x 3/4	1-5/16

1. Anchor Plate Washers are fabricated from ASTM A36 steel.

### ANCHOR ROD

Rod Diameter (in)	Anchor Rod Factored Tensile Resistance			
	A36		B7	
	lb	kN	lb	kN
1/2	5,705	25.38	11,885	52.87
5/8	9,085	40.41	18,930	84.20
3/4	13,445	59.81	28,010	124.59
7/8	18,560	82.56	38,670	172.01
1	24,350	108.31	50,730	225.66
1-1/8	30,685	136.49	63,925	284.35
1-1/4	38,960	173.30	81,165	361.04

1. Anchor Rod Factored Tensile Resistances are calculated in accordance with CSA S16-14 Clause 25.3.2.1, based on  $F_u = 60,000$  psi for A36 standard strength and  $F_u = 125,000$  psi for B7 high strength.

## FACTORED COMPRESSIVE RESISTANCE FOR D. FIR-L

Framing	No. of Studs (2x_)	Stud Location	Perp. to Grain		Parallel to Grain, Pr <sup>2,4,5</sup>									
			Qr <sup>2,3</sup>		Stud Height									
			lb	kN	8 ft (lb)	2.44 m (kN)	9 ft (lb)	2.74 m (kN)	10 ft (lb)	3.05 m (kN)	11 ft (lb)	3.35 m (kN)	12 ft (lb)	3.66 m (kN)
2x4 WALL	1	either side	5,639	25.08	4,741	21.09	3,695	16.44	2,900	12.90	2,298	10.22	1,841	8.19
	2		11,278	50.17	9,482	42.18	7,390	32.87	5,800	25.80	4,596	20.44	3,682	16.38
	3		16,918	75.25	14,223	63.27	11,085	49.31	8,700	38.70	6,894	30.67	5,523	24.57
	4		22,557	100.34	18,964	84.36	14,780	65.74	11,600	51.60	9,192	40.89	7,364	32.76
	5		28,196	125.42	23,705	105.45	18,475	82.18	14,500	64.50	11,490	51.11	9,205	40.95
	1	each side	11,278	50.17	9,482	42.18	7,390	32.87	5,800	25.80	4,596	20.44	3,682	16.38
	2		22,557	100.34	18,964	84.36	14,780	65.74	11,600	51.60	9,192	40.89	7,364	32.76
	3		33,835	150.51	28,446	126.53	22,170	98.62	17,400	77.40	13,788	61.33	11,046	49.14
	4		45,113	200.67	37,928	168.71	29,560	131.49	23,200	103.20	18,384	81.78	14,728	65.51
	5		56,392	250.84	47,410	210.89	36,950	164.36	29,000	129.00	22,980	102.22	18,410	81.89
2x6 WALL	1	either side	8,862	39.42	13,943	62.02	12,182	54.19	10,551	46.93	9,086	40.42	7,799	34.69
	2		17,723	78.84	27,886	124.04	24,364	108.38	21,102	93.87	18,172	80.83	15,598	69.38
	3		26,585	118.25	41,829	186.06	36,546	162.56	31,653	140.80	27,258	121.25	23,397	104.08
	4		35,446	157.67	55,772	248.09	48,728	216.75	42,204	187.73	36,344	161.67	31,196	138.77
	5		44,308	197.09	69,715	310.11	60,910	270.94	52,755	234.67	45,430	202.08	38,995	173.46
	1	each side	17,723	78.84	27,886	124.04	24,364	108.38	21,102	93.87	18,172	80.83	15,598	69.38
	2		35,446	157.67	55,772	248.09	48,728	216.75	42,204	187.73	36,344	161.67	31,196	138.77
	3		53,169	236.51	83,568	372.13	73,092	325.13	63,306	281.60	54,516	242.50	46,794	208.15
	4		70,893	315.35	111,544	496.17	97,456	433.51	84,408	375.47	72,688	323.33	62,392	277.53
	5		88,616	394.18	139,430	620.22	121,820	541.88	105,510	469.33	90,860	404.17	77,990	346.92

1. Factored resistances are based on CSA O86-14 Clause 6.5.6, and Clause 6.5.7.
2. Perpendicular-to-grain and parallel-to-grain values include  $K_D = 1.15$  load increase for short-term loads.
3. Perpendicular to grain values include Size Factor for Bearing  $K_{Zcp}$ .
4. Parallel to grain values assume  $K_H = 1.10$  with wall sheathing fastened to the narrow edge of the stud (fastening details to be provided by others).

5. Parallel to grain values are based on Effective Length Factor  $K_e = 1.0$ .
6. Table values are based on 2x\_ D.Fir-L No.1/No.2 solid sawn lumber.
7. Table values should be used for calculation purposes only. Exact posts location should always be determined by EOR.

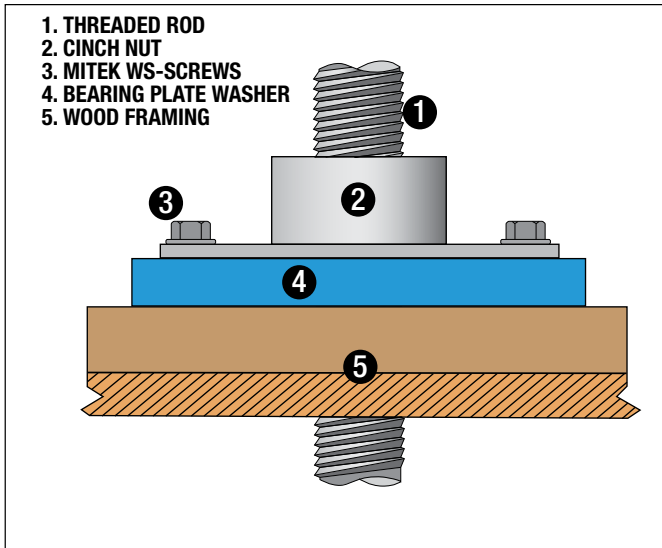
## FACTORED COMPRESSIVE RESISTANCE FOR S-P-F

Framing	No. of Studs (2x_)	Stud Location	Perp. to Grain		Parallel to Grain, Pr <sup>2,4,5</sup>									
			Qr <sup>2,3</sup>		Stud Height									
			lb	kN	8 ft (lb)	2.44 m (kN)	9 ft (lb)	2.74 m (kN)	10 ft (lb)	3.05 m (kN)	11 ft (lb)	3.35 m (kN)	12 ft (lb)	3.66 m (kN)
2x4 WALL	1	either side	4,270	18.99	4,213	18.74	3,313	14.74	2,618	11.65	2,086	9.28	1,678	7.46
	2		8,539	37.98	8,426	37.48	6,626	29.47	5,236	23.29	4,172	18.56	3,356	14.93
	3		12,809	56.98	12,639	56.22	9,939	44.21	7,854	34.94	6,258	27.84	5,034	22.39
	4		17,079	75.97	16,852	74.96	13,252	58.95	10,472	46.58	8,344	37.12	6,712	29.86
	5		21,348	94.96	21,065	93.70	16,565	73.68	13,090	58.23	10,430	46.39	8,390	37.32
	1	each side	8,539	37.98	8,426	37.48	6,626	29.47	5,236	23.29	4,172	18.56	3,356	14.93
	2		17,079	75.97	16,852	74.96	13,252	58.95	10,472	46.58	8,344	37.12	6,712	29.86
	3		25,618	113.95	25,278	112.44	19,878	88.42	15,708	69.87	12,516	55.67	10,068	44.78
	4		34,157	151.94	33,704	149.92	26,504	117.90	20,944	93.16	16,688	74.23	13,424	59.71
	5		42,697	189.92	42,130	187.40	33,130	147.37	26,180	116.45	20,860	92.79	16,780	74.64
2x6 WALL	1	either side	6,709	29.85	11,887	52.88	10,482	46.63	9,161	40.75	7,955	35.39	6,880	30.60
	2		13,419	59.69	23,774	105.75	20,964	93.25	18,322	81.50	15,910	70.77	13,760	61.21
	3		20,128	89.54	35,661	158.63	31,446	139.88	27,483	122.25	23,865	106.16	20,640	91.81
	4		26,838	119.38	47,548	211.50	41,928	186.50	36,644	163.00	31,820	141.54	27,520	122.42
	5		33,547	149.23	59,435	264.38	52,410	233.13	45,805	203.75	39,775	176.93	34,400	153.02
	1	each side	13,419	59.69	23,774	105.75	20,964	93.25	18,322	81.50	15,910	70.77	13,760	61.21
	2		26,838	119.38	47,548	211.50	41,928	186.50	36,644	163.00	31,820	141.54	27,520	122.42
	3		40,257	179.07	71,322	317.26	62,892	279.76	54,966	244.50	47,730	212.31	41,280	183.62
	4		53,676	238.76	95,096	412.01	83,856	373.01	73,288	326.00	63,640	283.08	55,040	244.83
	5		67,095	298.45	118,870	528.76	104,820	466.26	91,610	407.50	79,550	353.86	68,800	306.04

1. Factored resistances are based on CSA O86-14 Clause 6.5.6, and Clause 6.5.7.
2. Perpendicular-to-grain and parallel-to-grain values include  $K_D = 1.15$  load increase for short-term loads.
3. Perpendicular to grain values include Size Factor for Bearing  $K_{Zcp}$ .
4. Parallel to grain values assume  $K_H = 1.10$  with wall sheathing fastened to the narrow edge of the stud (fastening details to be provided by others).
5. Parallel to grain values are based on Effective Length Factor  $K_e = 1.0$ .

6. Table values are based on 2x\_ S-P-F No.1/No.2 solid sawn lumber.
7. Table values should be used for calculation purposes only. Exact posts location should always be determined by EOR.





MiTek® Z4 Tie-Down Systems utilize CNX-Series 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. Once screws are installed, system is activated. 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.

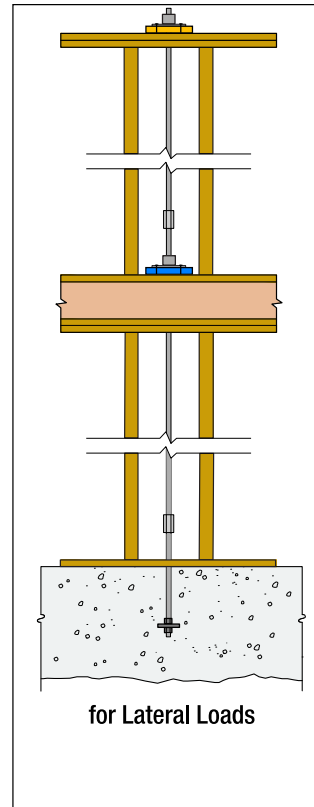
- Place the specified Bearing Plate Washer onto the bottom plate of a wood-framed wall.
- With the "wings" oriented downward, place Cinch Nut over the Threaded Rod extending from below and push down until it seats firmly on the Bearing Plate Washer.
- Install 1/4 inch diameter MiTek WS-Series screws through the wings, penetrating 1 inch (minimum) into the wood bottom plate. Do not overdrive screws, ensure Cinch Nut is level.
- Model numbers BPW-5 and BPW-6 fit in-between the screws fastening the wings.
- Model numbers BPW-7 (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 WS-Series screws.



**BPW-5, BPW-6  
Installation**

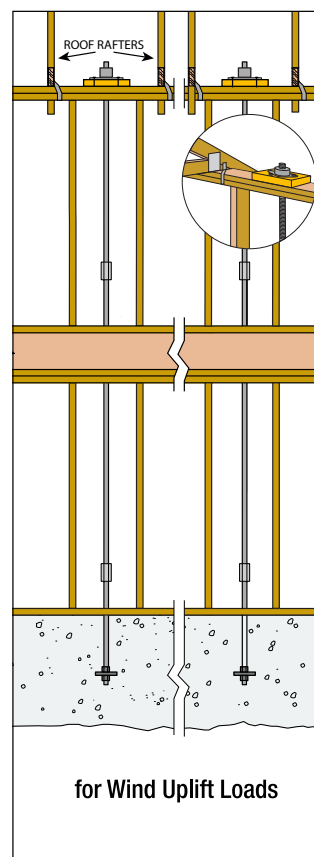


**BPW-7 and larger  
Installation**



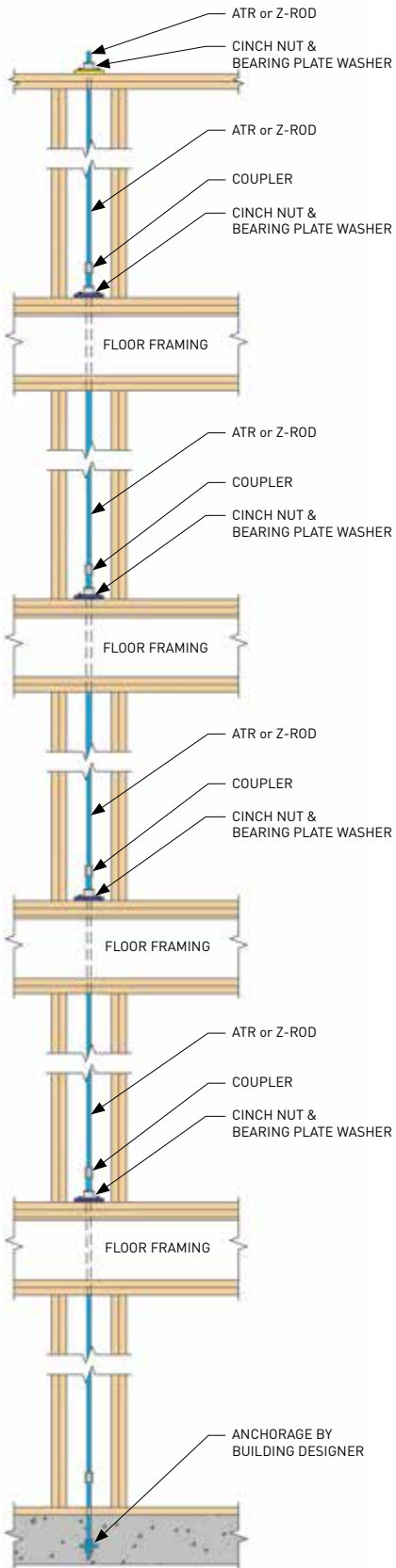
## MiTek® Z4 Tie-Down System for Lateral Loads

To resist tension loads due to overturning moments in multi-storey buildings, the CNX Cinch Nut is installed over a Bearing Plate Washer at each level in a fast and easy application. At the uppermost 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, Z-Rods/ATRs and Couplers, all available from MiTek®.



## MiTek® 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 and Couplers that form a load path to the foundation.



**SYSTEM DESCRIPTION**

MITEK ZONE FOUR (Z4) IS A CONTINUOUS ROD TIE-DOWN SYSTEM USED IN WOOD FRAMED SHEAR WALLS CONSISTING OF CINCH NUT (CNX) DEVICES, Z4 STEEL ROD (ATR AND/OR Z-ROD), AND STEEL BEARING PLATES. THE SYSTEM WILL RESIST SHEAR WALL UPLIFT WHILE COMPENSATING FOR SETTLEMENT, SHRINKAGE, AND COMPRESSION LOADING BY THE CONTINUAL DOWNWARD ACTUATION OF THE CNX DEVICES AS RECOGNIZED IN LA CITY RR 25623 AND ICC (ESR 2190) REPORTS.

**GENERAL NOTES**

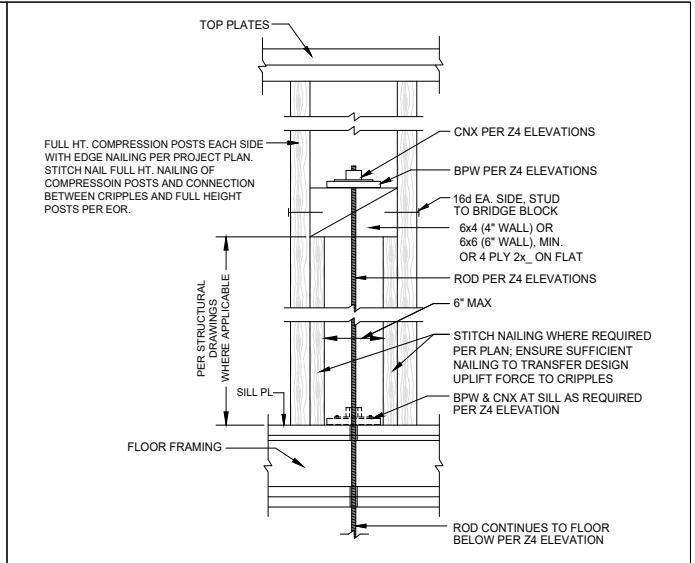
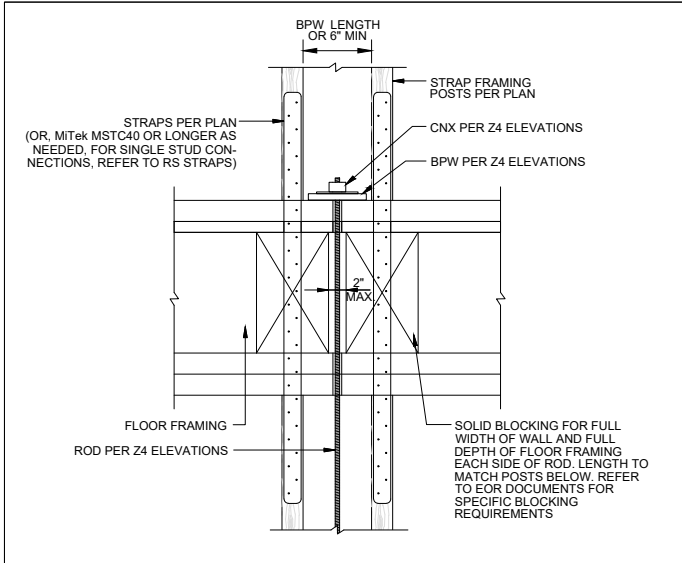
1. CINCH NUT (CNX) - SEE DETAIL 1
  - A. THE Z4 CINCH NUT IS A SHRINKAGE COMPENSATION DEVICE THAT CONNECTS THE WOOD FRAMING TO THE Z4 ROD TIE-DOWN SYSTEM. WHEN THE WOOD FRAMING SHRINKS OR SETTLES, THE CINCH NUT RATCHETS DOWN THE THREADS OF THE Z4 ROD SYSTEM TO PROVIDE PERPETUAL SHRINKAGE COMPENSATION.
  - B. CINCH NUT IS IN COMPLIANCE WITH IBC 2009, 2012, CBC 2010, 2013, 2016, LABC 2011, 2014, 2017. TESTING OF THE CNX IS IN ACCORDANCE WITH ICC-ES AC316. RESEARCH REPORT: COLA RR 25623, ICC-ES REPORT ESR-2190.
  - C. CINCH NUTS USED IN THE CONTINUOUS TIE DOWN SYSTEM ATTACH TO THE WOOD WITH (2) ¼" LAG SCREWS WITH MINIMUM WOOD PENETRATION OF 1".
2. BEARING PLATE WASHER (BPW) - SEE DETAIL 2
  - A. Z4 BEARING PLATE WASHERS MAY BE PAINTED DIFFERENT COLORS TO VISUALLY DIFFERENTIATE LOAD CAPACITIES AND IMPROVE INSTALLATION ACCURACY.
  - B. Z4 BEARING PLATE WASHERS ARE MANUFACTURED WITH ASTM A36 STEEL AND ARE REQUIRED TO BE INSTALLED TIGHT AGAINST THE WOOD TOP PLATE MEMBER.
3. COUPLING NUT - SEE DETAIL 3
  - A. SIGHT HOLES ARE INCLUDED WITH ALL Z4 COUPLER NUTS.
  - B. COUPLER REDUCING NUTS MAY BE REQUIRED AT FOUNDATION OR FLOOR TO FLOOR CONNECTIONS.
  - C. REDUCING COUPLERS SHOULD HAVE THE LARGER DIAMETER ROD FULLY SEATED FIRST, BEFORE TIGHTENING THE SMALLER ROD.
  - D. STANDARD (STD) COUPLERS CONFORM TO ASTM A-563 GRADE A, SAE GRADE 2.
  - E. MID STRENGTH (MS) COUPLERS CONFORM TO ASTM A-563 GRADE B OR SAE GRADE 5 AND ARE DIFFERENTIATED WITH A SINGLE "SAW CUT" MARKING AS INDICATED IN DETAIL 3.
  - F. HIGH STRENGTH (HS) COUPLERS CONFORM TO ASTM A-563 GRADE DH, ASTM A194-2H, OR SAE GRADE 8 AND ARE DIFFERENTIATED WITH A DOUBLE "SAW CUT" MARKING AS INDICATED IN DETAIL 3.
  - G. CONTRACTOR TO VERIFY COUPLERS ARE THREADED HALF WAY INTO COUPLER FROM EACH SIDE.
  - H. SIGHT HOLES ARE PROVIDED TO ENSURE PROPER INSTALLATION DURING INSPECTION.
4. THREADED ROD - SEE DETAIL 4
  - A. Z4 USES STANDARD GRADE AND HIGH STRENGTH Z-ROD AND/OR ALL THREAD ROD (ATR). STANDARD GRADE ROD CONFORMS WITH ASTM A36. HIGH STRENGTH ROD CONFORMS WITH ASTM A193-B7 AND IS IDENTIFIED BY RED PAINT ON THE ENDS AND CENTER WITH A STAMP LOCATED EITHER AT THE ENDS OR THE CENTER OF THE ROD.
  - B. Z4 USES UNIFORM NATIONAL COURSE (UNC) THREADS FOR THE ROD.
  - C. THREADED ROD INSTALLATION AT BOTTOM PLATE AND FLOOR FRAMING SHOULD USE OVERSIZE HOLES PER DETAIL 5 & 6. HOLES IN THE FLOOR FRAMING THAT ARE NOT OVERSIZED CAN BIND AND BOW THE ROD AS THE BUILDING SETTLES.
  - D. MAXIMUM OUT OF PLUMB FOR ROD IS 2" FOR EVERY 100" OF FLOOR HEIGHT. (SEE DETAIL 5)
  - E. 1ST FLOOR ROD CAN BE A LARGER DIAMETER THAN THE FOUNDATION ANCHOR AS THE DESIGN MAY BE CONTROLLED BY ELONGATION UNDER TENSION WHILE THE FOUNDATION ANCHOR MAY BE DESIGNED FOR TENSION ONLY.
5. COMPRESSION POSTS
  - A. ENGINEER OF RECORD (EOR) SHALL CHECK COMPRESSION POST DESIGN CAPACITY FOR CONDITIONS SUBJECT TO ADDITIONAL LOADS SUCH AS BEAM OR HEADER REACTIONS.
  - B. WHERE QUANTITY OF COMPRESSION POSTS ARE GREATER THAN THE SPACE BETWEEN ROD OR BEARING PLATE WASHER AND THE END OF THE SHEAR WALL, THE ADDITIONAL POSTS REQUIRED WILL BE ADDED TO THE OPPOSITE SIDE OF THE ROD.
  - C. COMPRESSION POST SHALL BE OF SIZE, GRADE & SPECIES SPECIFIED. POSTS NOT SPECIFIED HEREIN SHALL BE THE RESPONSIBILITY OF THE EOR.

**ABBREVIATIONS**

AB	ANCHOR BOLT	HS	HIGH STRENGTH
ATR	ALL THREAD ROD	HT.	HEIGHT
BPW	BEARING LATE WASHER	MS	MID STRENGTH
CL	CENTERLINE	MIN	MINIMUM
CNX	CINCH NUT	PL	PLATE
CONST	CONSTRUCTION	SP	SOUTHERN YELLOW PINE
CP	COMPRESSION POST(S)	SPF	SPRUCE-PINE-FIR
CPL	COUPLER	STD	STANDARD
DF	DOUGLAS-FIR LARCH	TYP	TYPICAL
DIA	DIAMETER	OC	ON CENTER
EA	EACH	U.N.O.	UNLESS NOTED OTHERWISE
EN	EDGE NAILING	UNC	UNIFORM NATIONAL COURSE
EOR	ENGINEER OF RECORD	WS	WOOD SCREW
F.F.	FINISHED FLOOR	Z4	ZONE FOUR
HF	HEM-FIR		

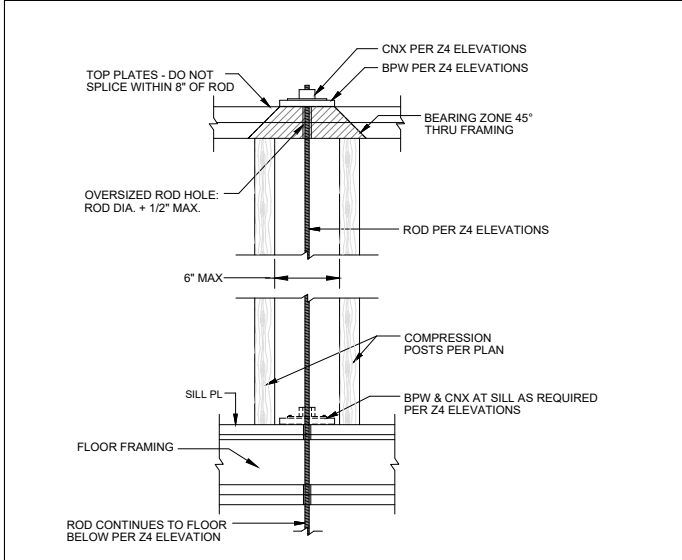






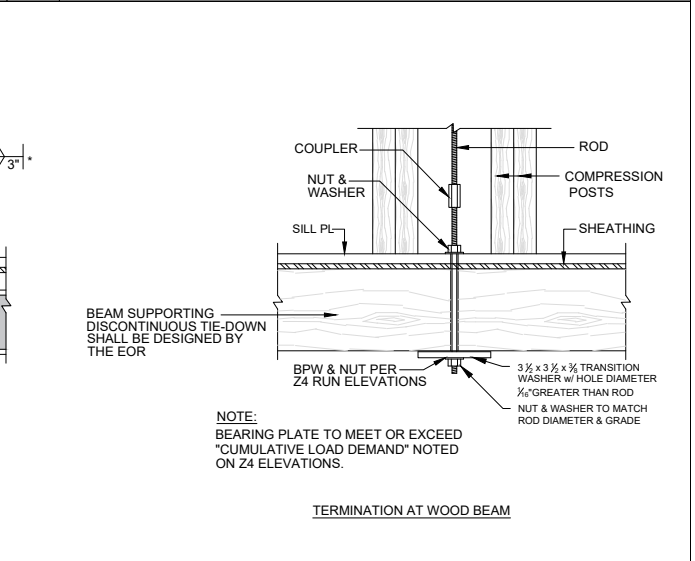
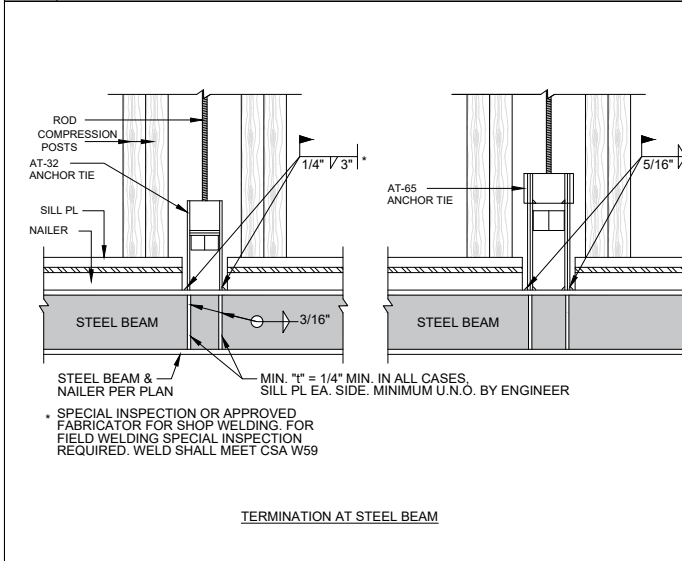
7 STRAP TERMINATION OPTION

8 BRIDGE TERMINATION AT TOP LEVEL



9 TOP PLATE TERMINATION

10 OPTIONAL ANCHOR AT BEAM



11 TERMINATION AT STEEL BEAM

12 TERMINATION AT WOOD BEAM

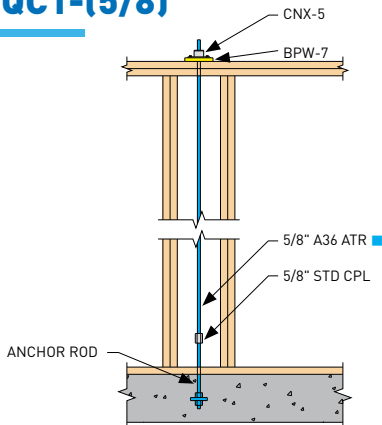
10 OPTIONAL ANCHOR AT BEAM

At MiTek, we want to offer an approach to the Designer to help with the Z4 tie-down system sizing and specification that makes sense for your project and needs. The following pre-engineered QC (Quick Connect) runs are an effective way to specify the product you want to use on your project. If some load combinations are not matching the pre-engineered runs, we can collaborate with you to find the best design.

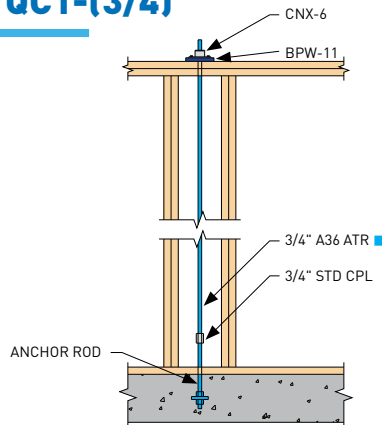
If it is preferable, the designer can provide loads and specification in the construction documents to request a deferred design approach. We would use the specified anchor diameter and tension forces for each level to determine the required component designs.

Pre-engineered runs use ATRs (All Threaded Rods) as default. Z-Rods by special request.

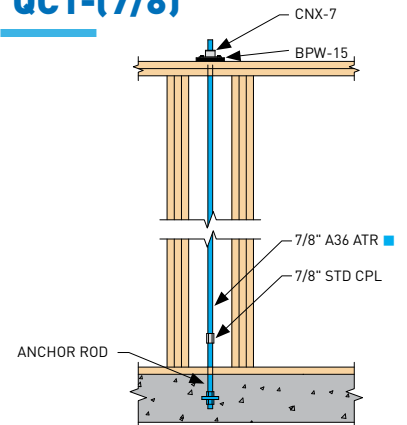
**QC1-(5/8)**



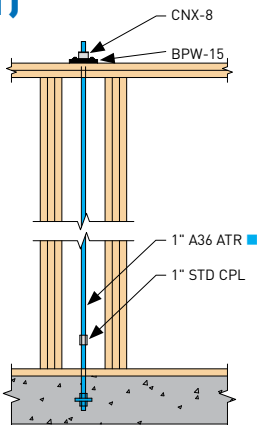
**QC1-(3/4)**



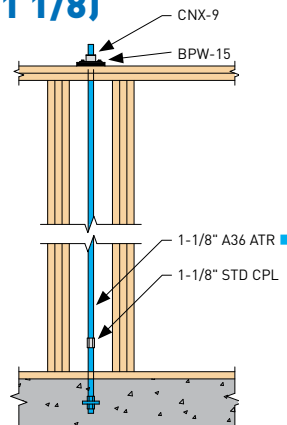
**QC1-(7/8)**



**QC1-(1)**



**QC1-(1 1/8)**



## QC1-(5/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.FIR-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
1			5/8" A36 ■	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
			8' Posts	(1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			5/8" A36 ■				

## QC1-(3/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
1			3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
			8' Posts	(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			3/4" A36 ■				

## QC1-(7/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-15					
1			7/8" A36 ■	18560 (82.6)	18560 (82.6)	18560 (82.6)	18560 (82.6)
			8' Posts	(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			7/8" A36 ■				

## QC1-(1)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-8	BPW-15					
1			1" A36 ■	24350 (108.3)	24350 (108.3)	19255 (85.7)	19255 (85.7)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			1" A36 ■				

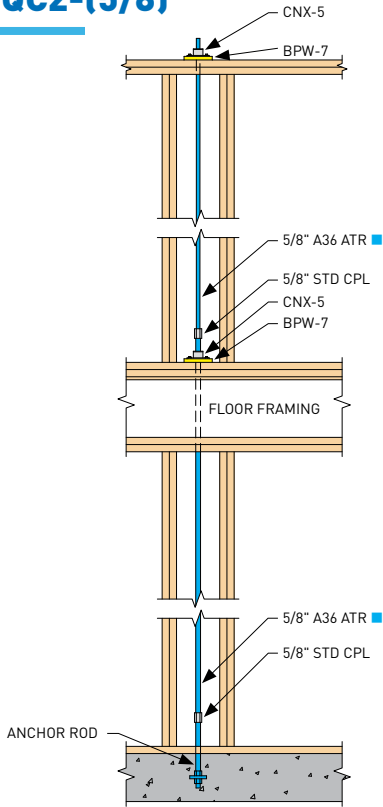
## QC1-(1-1/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-9	BPW-15					
1			1-1/8" A36 ■	25430 (113.1)	25430 (113.1)	19255 (85.7)	19255 (85.7)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			1-1/8" A36 ■				

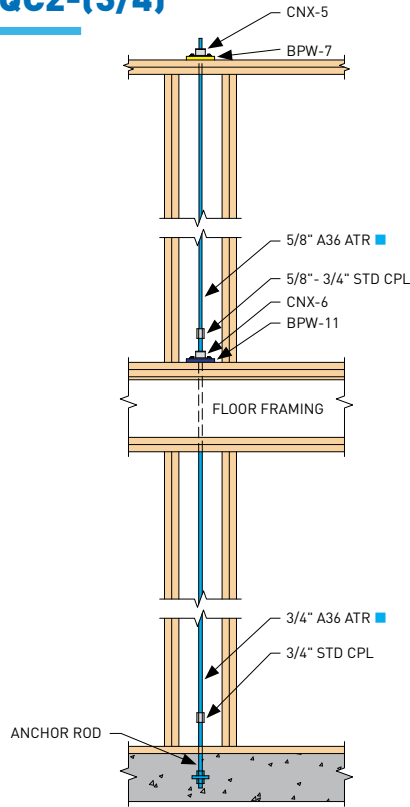
### NOTES

1. Post design is based on the cumulative tension capacity only. Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

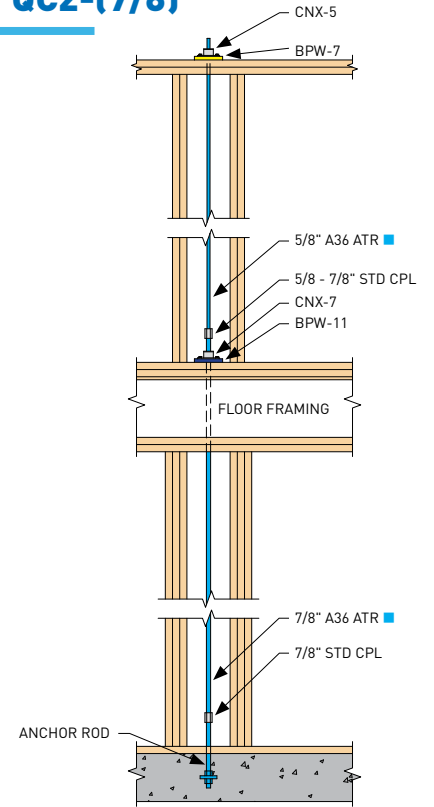
**QC2-(5/8)**



**QC2-(3/4)**



**QC2-(7/8)**





## QC2-(5/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
2	CNX-5	BPW-7	5/8" A36 ■	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
	8' Posts			(1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			5/8" A36 ■	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
	8' Posts			(1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			5/8" A36 ■				

## QC2-(3/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
2	CNX-6	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			3/4" A36 ■				

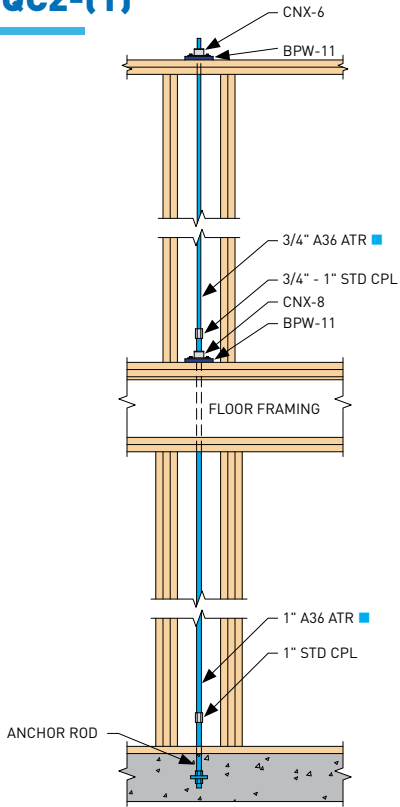
## QC2-(7/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
2	CNX-7	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			7/8" A36 ■				

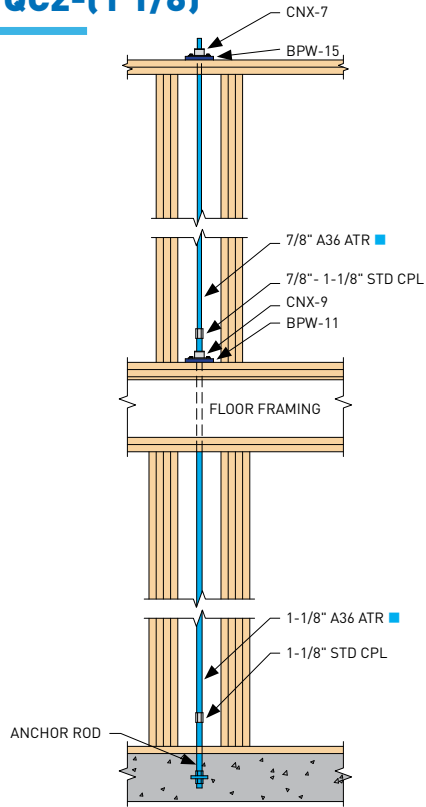
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

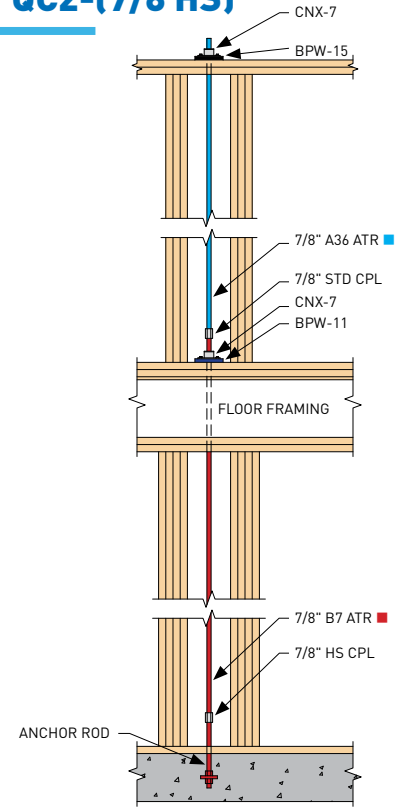
**QC2-(1)**



**QC2-(1 1/8)**



**QC2-(7/8 HS)**



## QC2-(1)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
2	CNX-8	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
			8' Posts	(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
1			1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			1" A36 ■				

## QC2-(1-1/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-15					
2	CNX-9	BPW-11	7/8" A36 ■	19395 (86.3)	19395 (86.3)	19255 (85.7)	19255 (85.7)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
			8' Posts	(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
Anchor Rod			1-1/8" A36 ■				

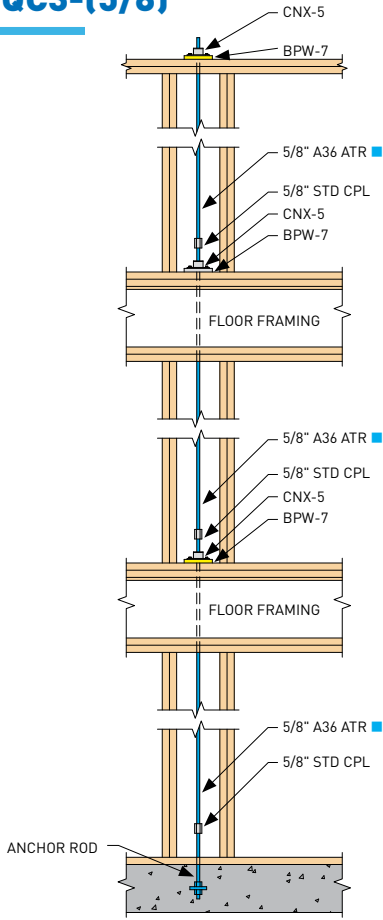
## QC2-(7/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-15					
2	CNX-7	BPW-11	7/8" A36 ■	19395 (86.3)	19395 (86.3)	19255 (85.7)	19255 (85.7)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			7/8" B7 ■	18450 (82.1)	37845 (168.3)	13970 (62.1)	33225 (147.8)
			8' Posts	(4) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
Anchor Rod			7/8" B7 ■				

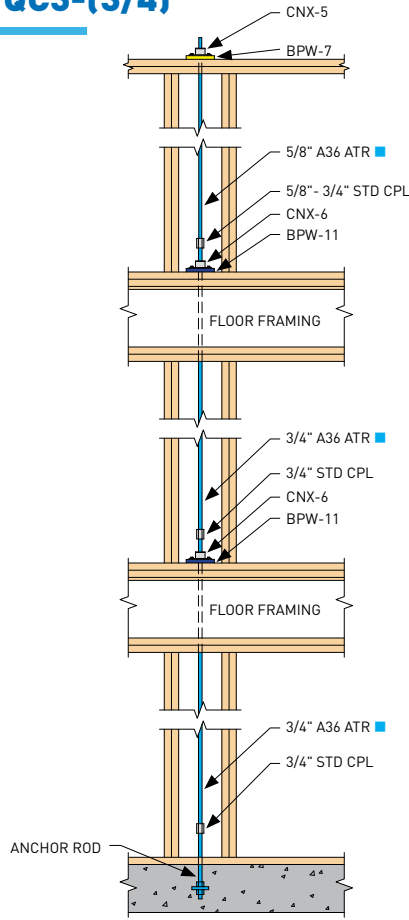
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZ<sub>cp</sub> has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor K<sub>e</sub> = 1.0, and K<sub>H</sub> = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

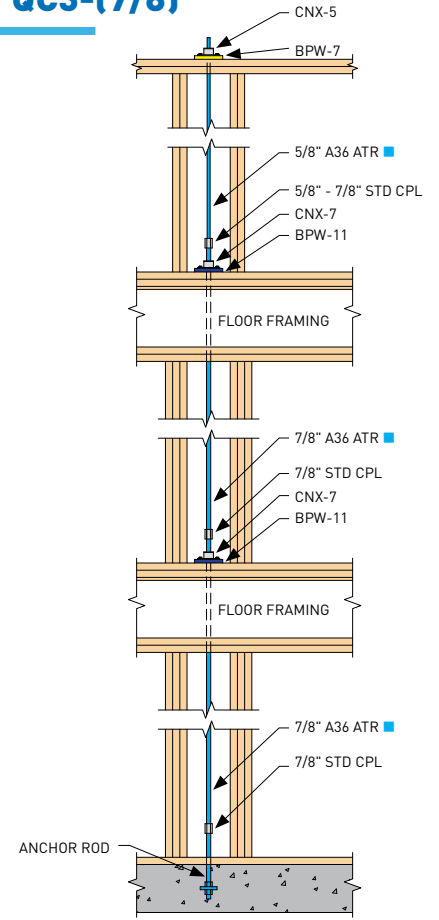
**QC3-(5/8)**



**QC3-(3/4)**



**QC3-(7/8)**





## QC3-(5/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
3	CNX-5	BPW-7	5/8" A36 ■	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
	8' Posts			(1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-5	BPW-7	5/8" A36 ■	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
	8' Posts			(1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			5/8" A36 ■	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
	8' Posts			(1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			5/8" A36 ■				

## QC3-(3/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
3	CNX-6	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			3/4" A36 ■				

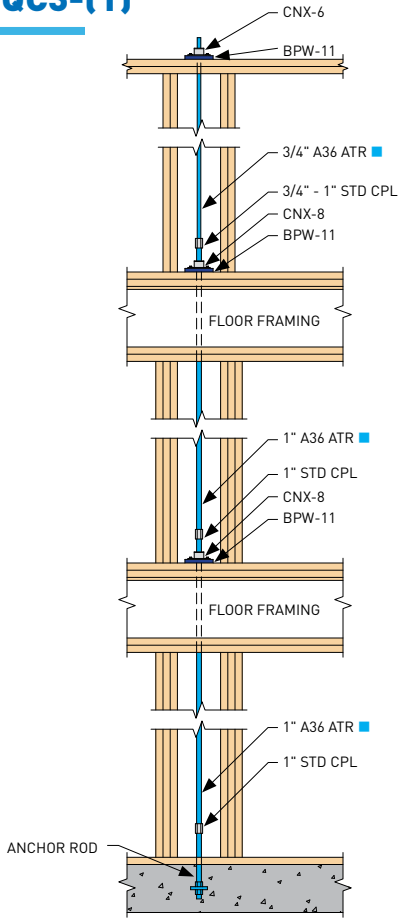
## QC3-(7/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
3	CNX-7	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			7/8" A36 ■				

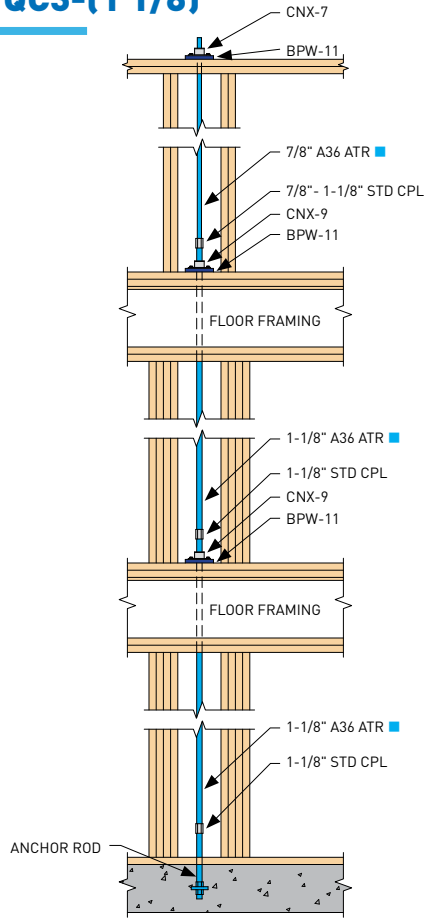
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

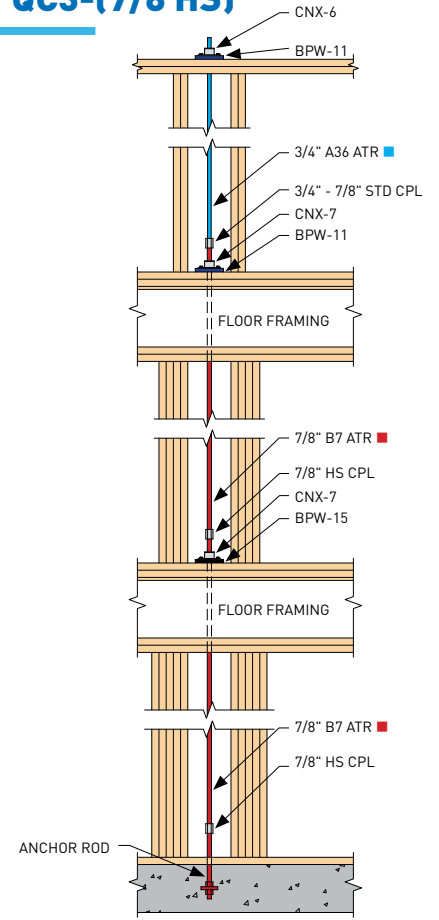
**QC3-(1)**



**QC3-(1 1/8)**



**QC3-(7/8 HS)**



## QC3-(1)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
3	CNX-8	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
2	CNX-8	BPW-11	1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			1" A36 ■				

## QC3-(1-1/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
3	CNX-9	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
2	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	27940 (124.3)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
1			1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
Anchor Rod			1-1/8" A36 ■				

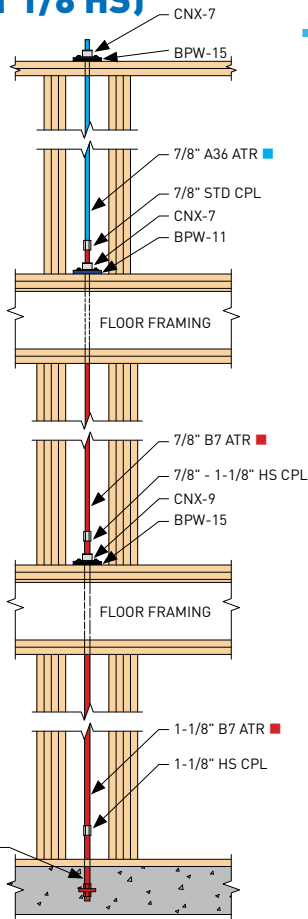
## QC3-(7/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
3	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
2	CNX-7	BPW-15	7/8" B7 ■	18450 (82.1)	32585 (144.9)	13970 (62.1)	27940 (124.3)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
1			7/8" B7 ■	25430 (113.1)	38670 (172)	19225 (85.5)	38670 (172)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
Anchor Rod			7/8" B7 ■				

### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include  $KD = 1.15$  load increase for short-term loads.
4. Size Factor for Bearing  $KZ_{cp}$  has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor  $K_e = 1.0$ , and  $KH = 1.10$  with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

## QC3-(1 1/8 HS)



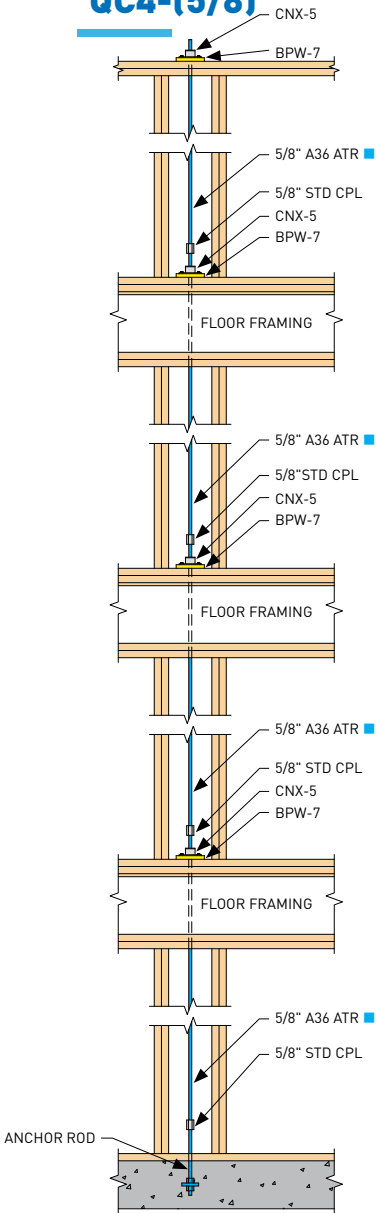
## QC3-(1 1/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-15					
3	CNX-7	BPW-11	7/8" A36	19395 (86.3)	19395 (86.3)	19255 (85.7)	19255 (85.7)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
2	CNX-9	BPW-15	7/8" B7	18450 (82.1)	37845 (168.3)	13970 (62.1)	33225 (147.8)
	8' Posts			(4) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
1			1-1/8" B7	25430 (113.1)	63275 (281.5)	19255 (85.7)	52480 (233.4)
				(4) 2x6 each side		(4) 2x6 each side	
Anchor Rod			1-1/8" B7				

### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include  $KD = 1.15$  load increase for short-term loads.
4. Size Factor for Bearing  $KZ_{cp}$  has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor  $K_e = 1.0$ , and  $KH = 1.10$  with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

## QC4-(5/8)



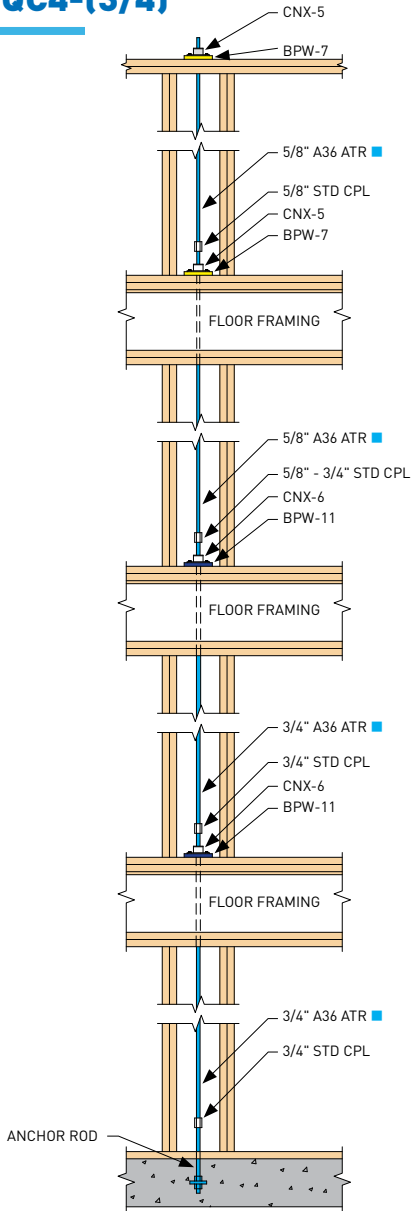
## QC4-(5/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
4	CNX-5	BPW-7	5/8" A36	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
				8' Posts (1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
3	CNX-5	BPW-7	5/8" A36	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
				8' Posts (1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-5	BPW-7	5/8" A36	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
				8' Posts (1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			5/8" A36	9085 (40.4)	9085 (40.4)	9085 (40.4)	9085 (40.4)
				8' Posts (1) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			5/8" A36				

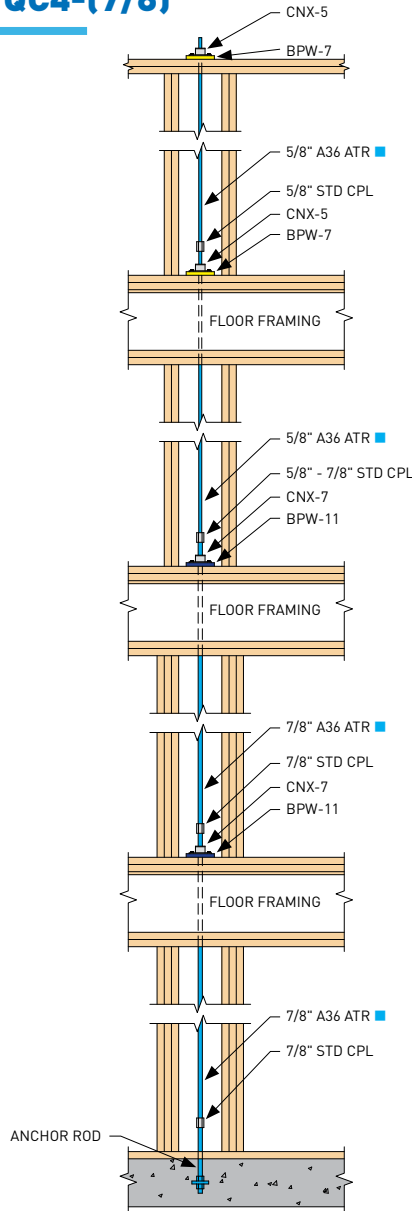
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include  $KD = 1.15$  load increase for short-term loads.
4. Size Factor for Bearing  $KZ_{cp}$  has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor  $K_e = 1.0$ , and  $KH = 1.10$  with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

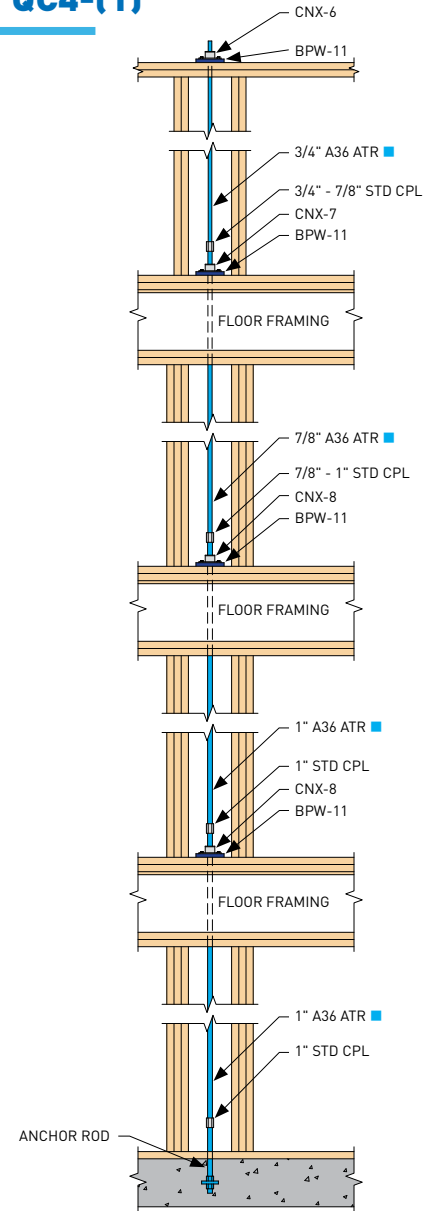
**QC4-(3/4)**



**QC4-(7/8)**



**QC4-(1)**



## QC4-(3/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
4	CNX-5	BPW-7	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
3	CNX-6	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			3/4" A36 ■				

## QC4-(7/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
4	CNX-5	BPW-7	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
3	CNX-7	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			7/8" A36 ■				

## QC4-(1)

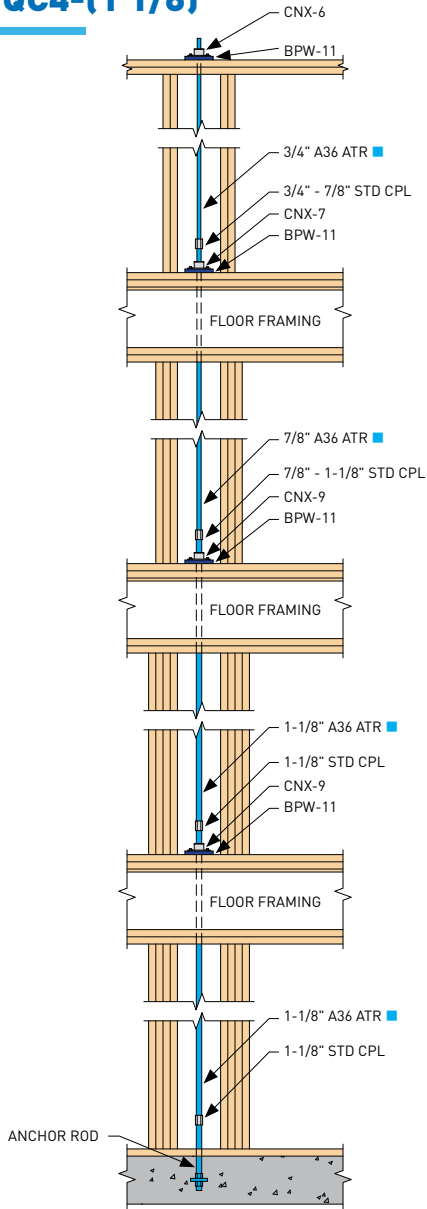
Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
4	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
3	CNX-8	BPW-11	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
2	CNX-8	BPW-11	1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			1" A36 ■				

### NOTES

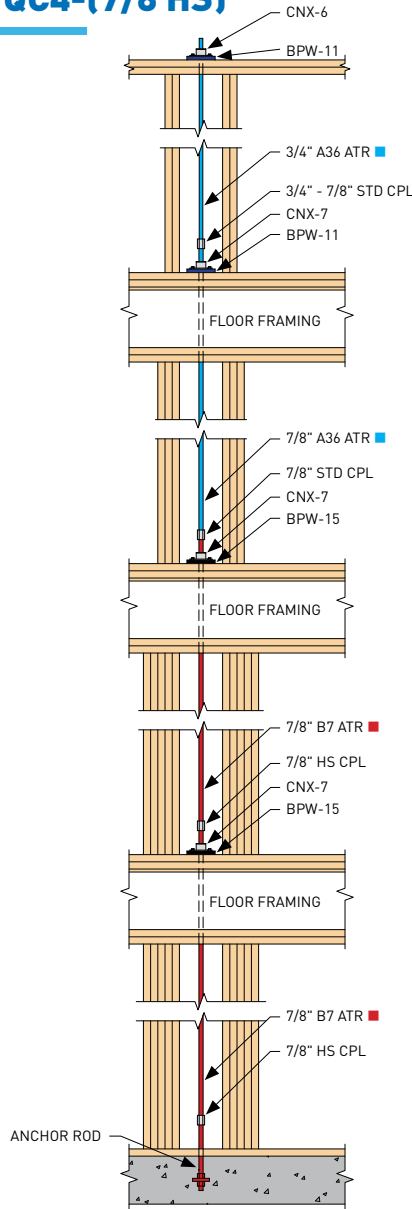
1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).



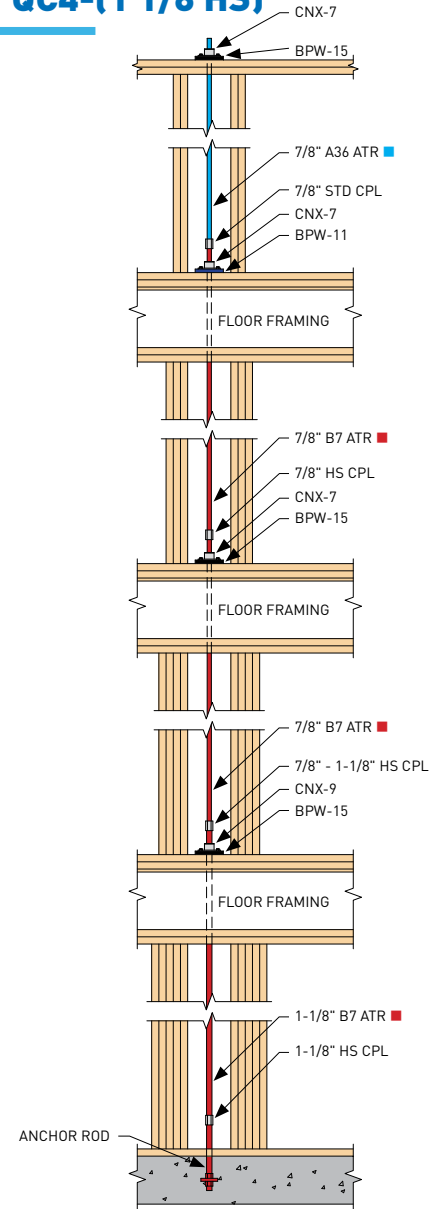
**QC4-(1 1/8)**



**QC4-(7/8 HS)**



**QC4-(1 1/8 HS)**



## QC4-(1-1/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
4	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
				(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
3	CNX-9	BPW-11	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
				(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
2	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
				(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
1			1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
				(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
Anchor Rod			1-1/8" A36 ■				

## QC4-(7/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
4	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
				(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
3	CNX-7	BPW-15	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
				(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
2	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38650 (171.9)
				(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
1			7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
				(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
Anchor Rod			7/8" B7 ■				

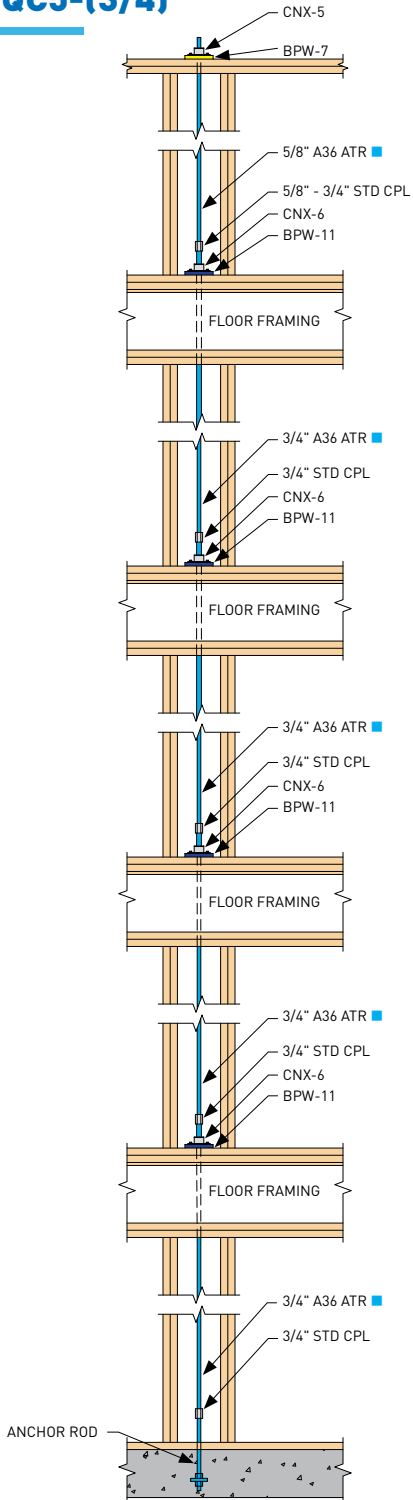
## QC4-(1-1/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-15					
4	CNX-7	BPW-11	7/8" A36 ■	19395 (86.3)	19395 (86.3)	19255 (85.7)	19255 (85.7)
				(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
3	CNX-7	BPW-15	7/8" B7 ■	18450 (82.1)	37845 (168.3)	13970 (62.1)	33225 (147.8)
				(4) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
2	CNX-9	BPW-15	7/8" B7 ■	25430 (113.1)	45100 (200.6)	19255 (85.7)	45100 (200.6)
				(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
1			1-1/8" B7 ■	25430 (113.1)	63925 (284.4)	19255 (85.7)	63925 (284.4)
				(4) 2x6 each side		(5) 2x6 each side	
Anchor Rod			1-1/8" B7 ■				

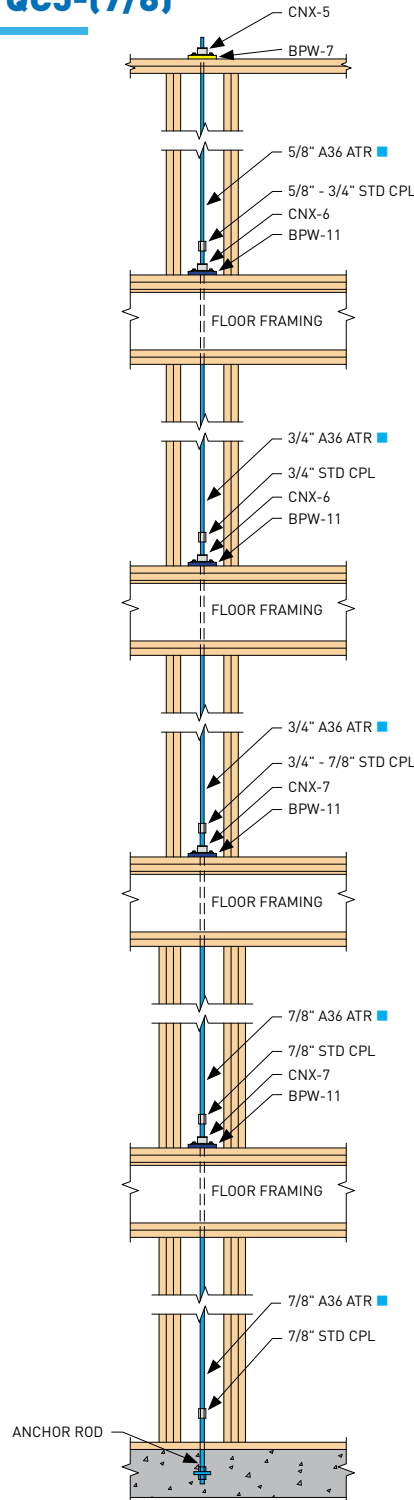
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

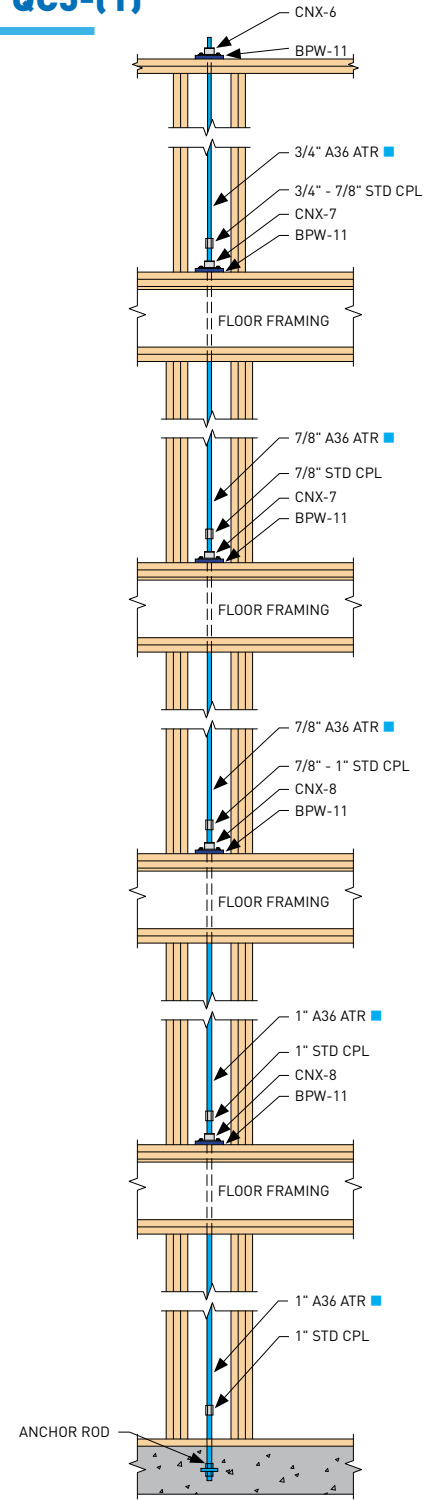
QC5-(3/4)



QC5-(7/8)



QC5-(1)



## QC5-(3/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
5	CNX-6	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
4	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
3	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			3/4" A36 ■				

## QC5-(7/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
5	CNX-6	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
4	CNX-6	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	14135 (62.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
3	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	14135 (62.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
2	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			7/8" A36 ■				

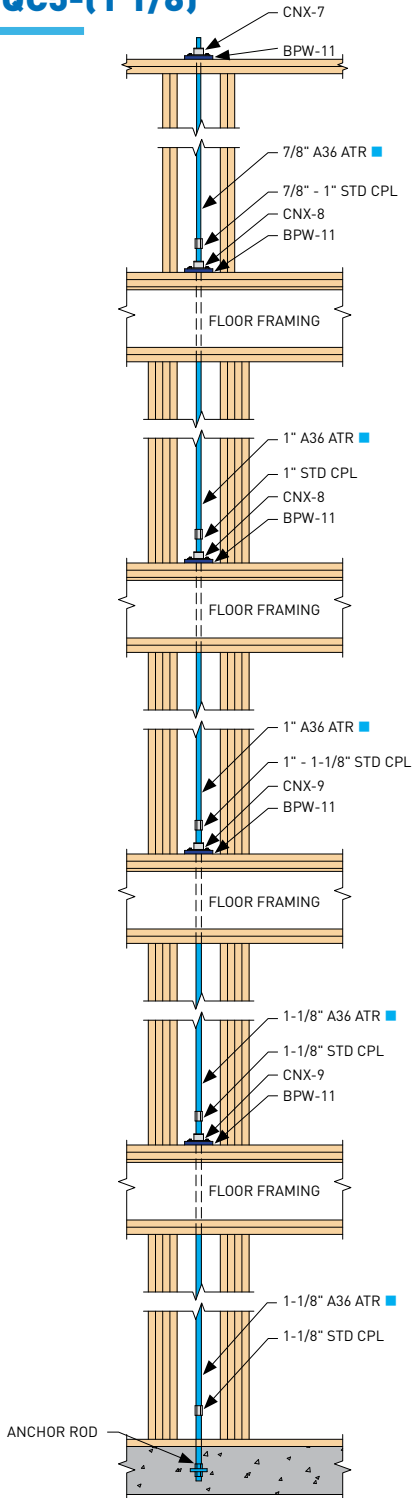
## QC5-(1)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
5	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
3	CNX-8	BPW-11	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
2	CNX-8	BPW-11	1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			1" A36 ■				

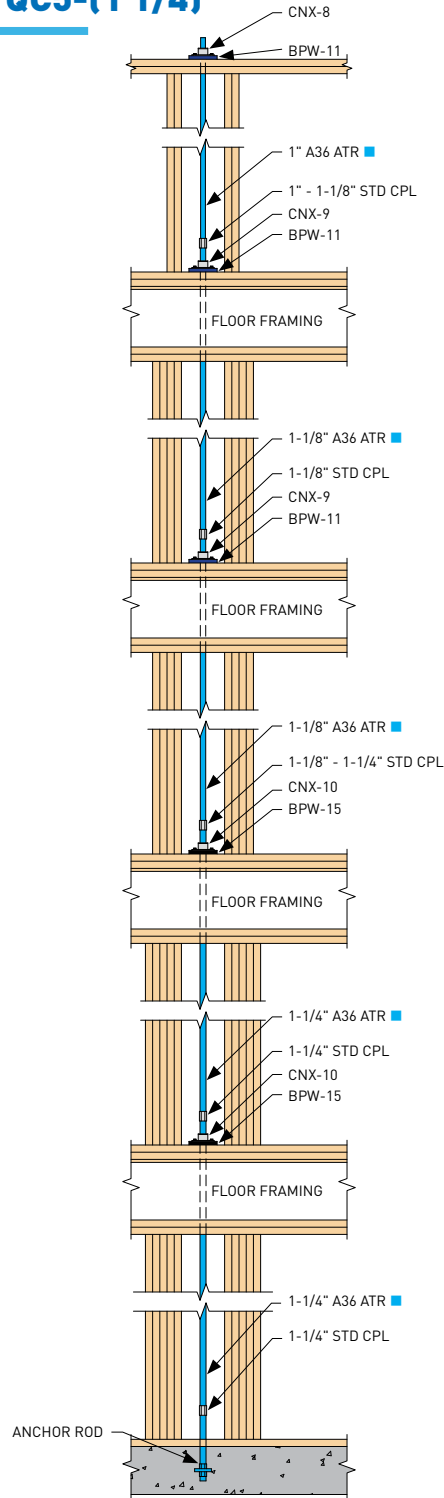
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

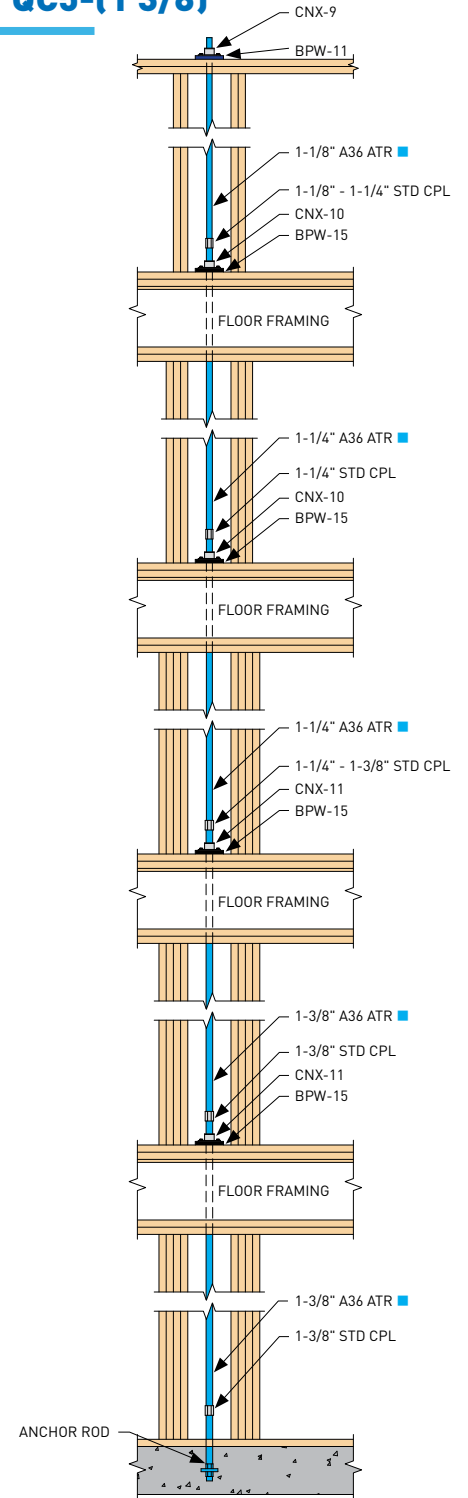
QC5-(1 1/8)



QC5-(1 1/4)



QC5-(1 3/8)



## QC5-(1 1/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
5	CNX-8	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
4	CNX-8	BPW-11	1" A36 ■	18450 (82.1)	25425 (113.1)	13970 (62.1)	25425 (113.1)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(4) 2x4 or (2) 2x6 each side	
3	CNX-9	BPW-11	1" A36 ■	18450 (82.1)	25425 (113.1)	13970 (62.1)	25425 (113.1)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(4) 2x4 or (2) 2x6 each side	
2	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
1			1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
Anchor Rod			1-1/8" A36 ■				

## QC5-(1 1/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-8	BPW-11					
5	CNX-9	BPW-11	1" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
4	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	32095 (142.8)	13970 (62.1)	27940 (124.3)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
3	CNX-10	BPW-15	1-1/8" A36 ■	18450 (82.1)	32095 (142.8)	13970 (62.1)	32095 (142.8)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
2	CNX-10	BPW-15	1-1/4" A36 ■	25430 (113.1)	38960 (173.3)	19255 (85.7)	38960 (173.3)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
1			1-1/4" A36 ■	25430 (113.1)	38960 (173.3)	19255 (85.7)	38960 (173.3)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
Anchor Rod			1-1/4" A36 ■				

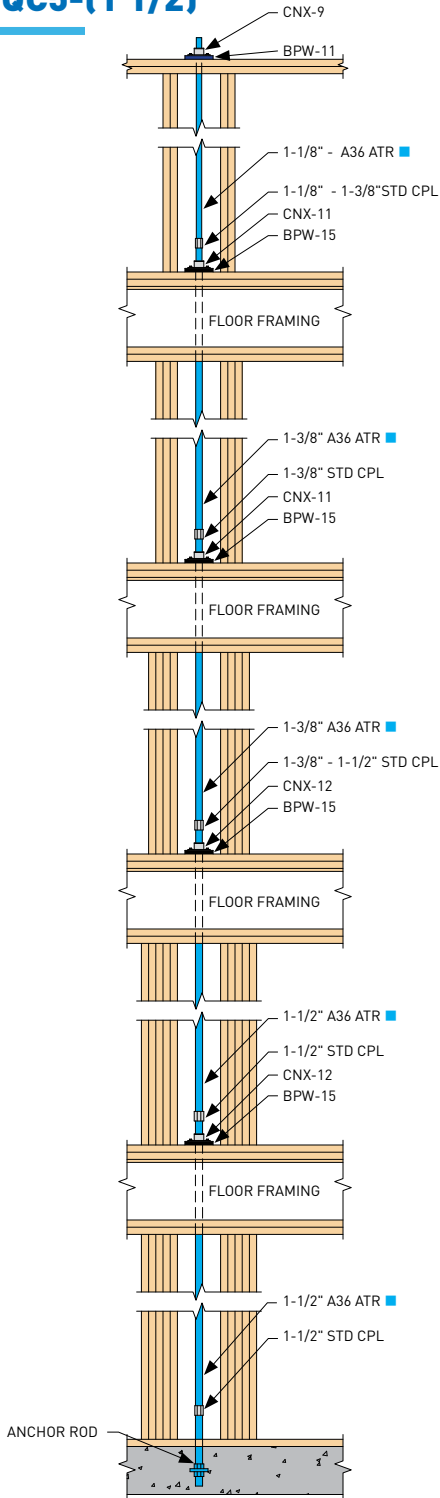
## QC5-(1 3/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-9	BPW-11					
5	CNX-10	BPW-15	1-1/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
4	CNX-10	BPW-15	1-1/4" A36 ■	25430 (113.1)	40335 (179.4)	19255 (85.7)	33225 (147.8)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
3	CNX-11	BPW-15	1-1/4" A36 ■	25430 (113.1)	40335 (179.4)	19255 (85.7)	40335 (179.4)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (4) 2x6 each side	
2	CNX-11	BPW-15	1-3/8" A36 ■	25430 (113.1)	46425 (206.5)	19255 (85.7)	46425 (206.5)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
1			1-3/8" A36 ■	25430 (113.1)	46425 (206.5)	19255 (85.7)	46425 (206.5)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
Anchor Rod			1-3/8" A36 ■				

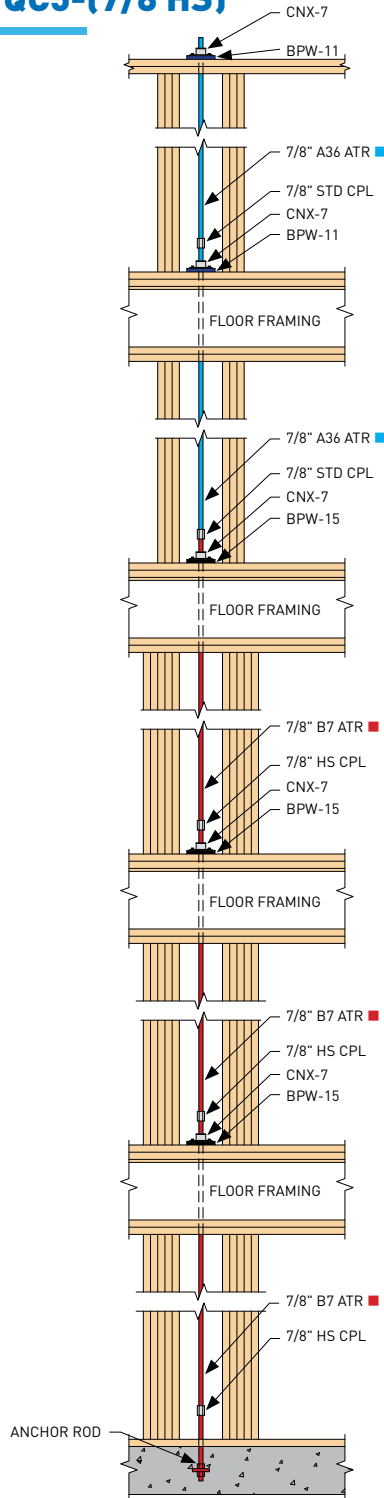
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

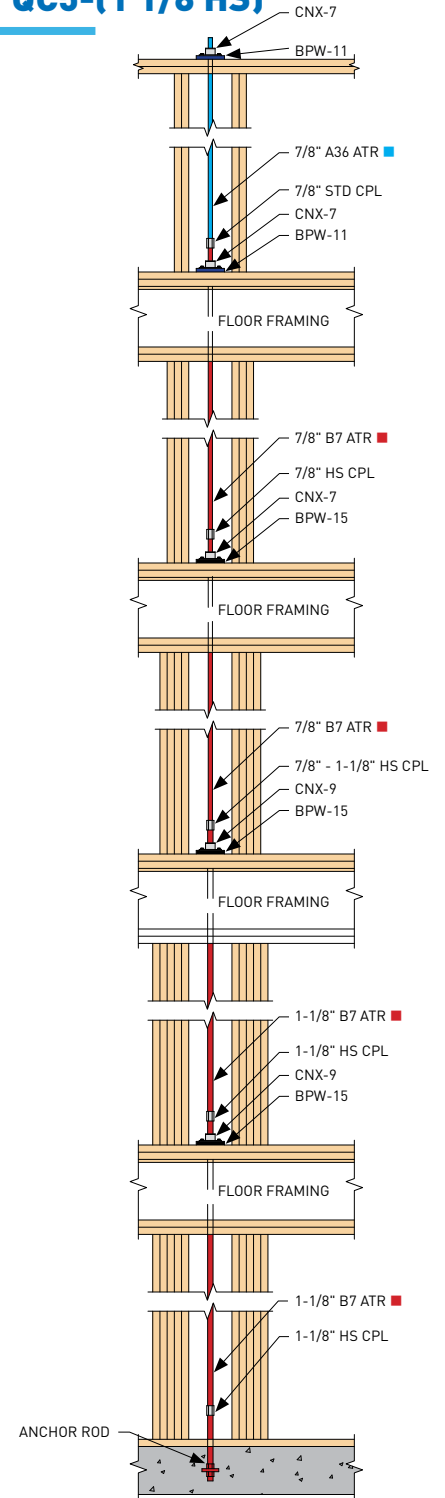
QC5-(1 1/2)



QC5-(7/8 HS)



QC5-(1 1/8 HS)





### QC5-(1 1/2)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-9	BPW-11					
5	CNX-11	BPW-15	1-1/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
4	CNX-11	BPW-15	1-3/8" A36 ■	25430 (113.1)	43880 (195.2)	19255 (85.7)	33225 (147.8)
	8' Posts			(4) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
3	CNX-12	BPW-15	1-3/8" A36 ■	25430 (113.1)	48485 (215.7)	19255 (85.7)	48485 (215.7)
	8' Posts			(4) 2x6 each side		(4) 2x6 each side	
2	CNX-12	BPW-15	1-1/2" A36 ■	25430 (113.1)	56490 (251.3)	19255 (85.7)	56490 (251.3)
	8' Posts			(5) 2x6 each side		(5) 2x6 each side	
1			1-1/2" A36 ■	25430 (113.1)	56490 (251.3)	19255 (85.7)	56490 (251.3)
	8' Posts			(5) 2x6 each side		(5) 2x6 each side	
Anchor Rod			1-1/2" A36 ■				

### QC5-(7/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
5	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-15	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
3	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
2	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
1			7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
Anchor Rod			7/8" B7 ■				

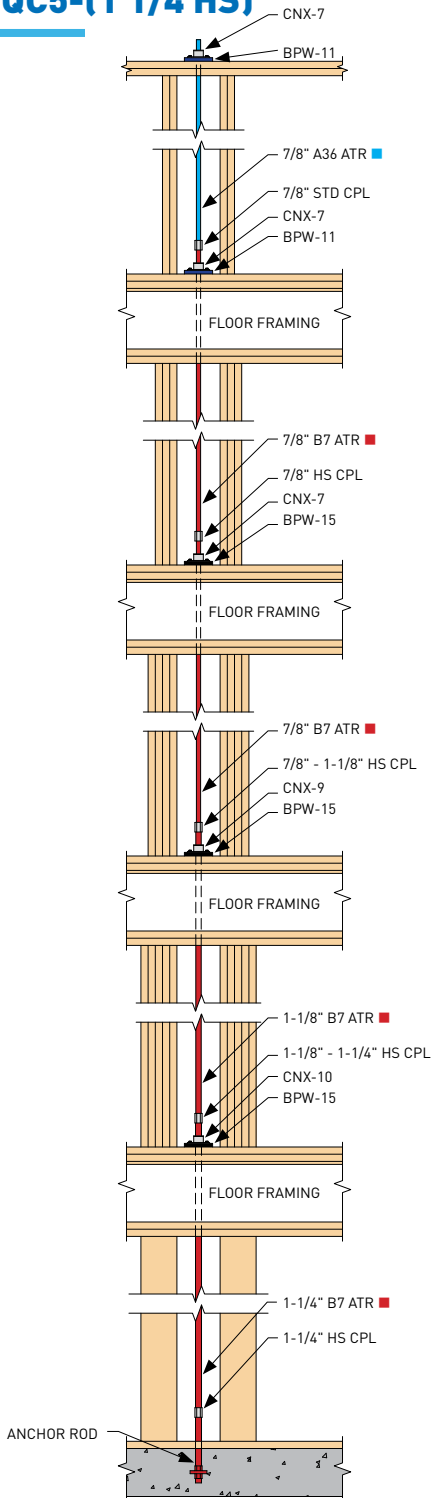
### QC5-(1 1/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
5	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-15	7/8" B7 ■	18450 (82.1)	36900 (164.1)	13970 (62.1)	27940 (124.3)
	8' Posts			(4) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
3	CNX-9	BPW-15	7/8" B7 ■	25430 (113.1)	45100 (200.6)	19255 (85.7)	45100 (200.6)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
2	CNX-9	BPW-15	1-1/8" B7 ■	25430 (113.1)	63925 (284.4)	19255 (85.7)	63925 (284.4)
	8' Posts			(4) 2x6 each side		(5) 2x6 each side	
1			1-1/8" B7 ■	25430 (113.1)	63925 (284.4)	19255 (85.7)	63925 (284.4)
	8' Posts			(4) 2x6 each side		(5) 2x6 each side	
Anchor Rod			1-1/8" B7 ■				

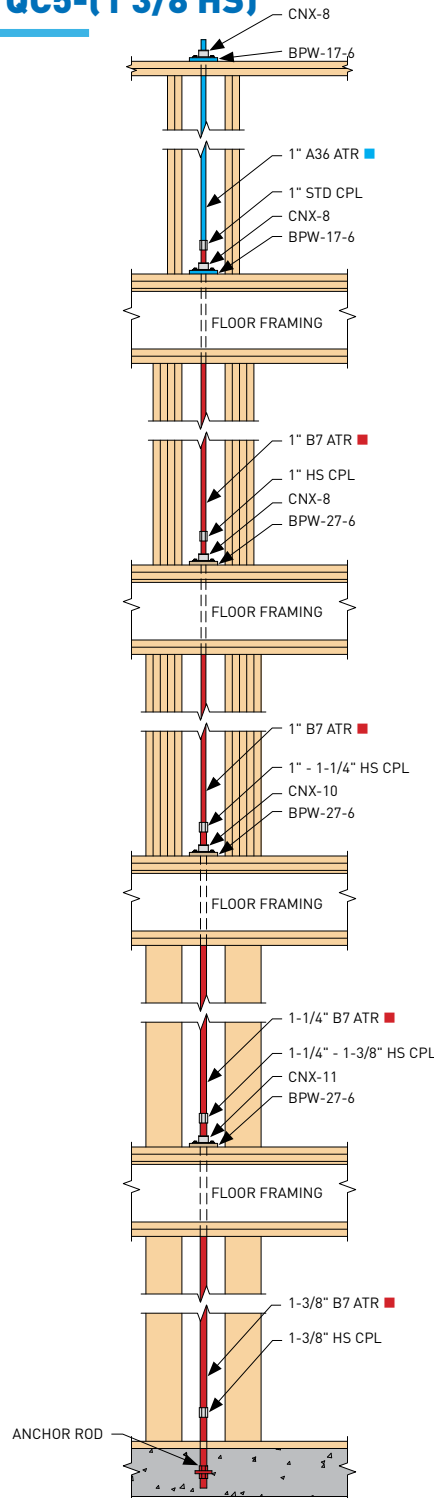
**NOTES**

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

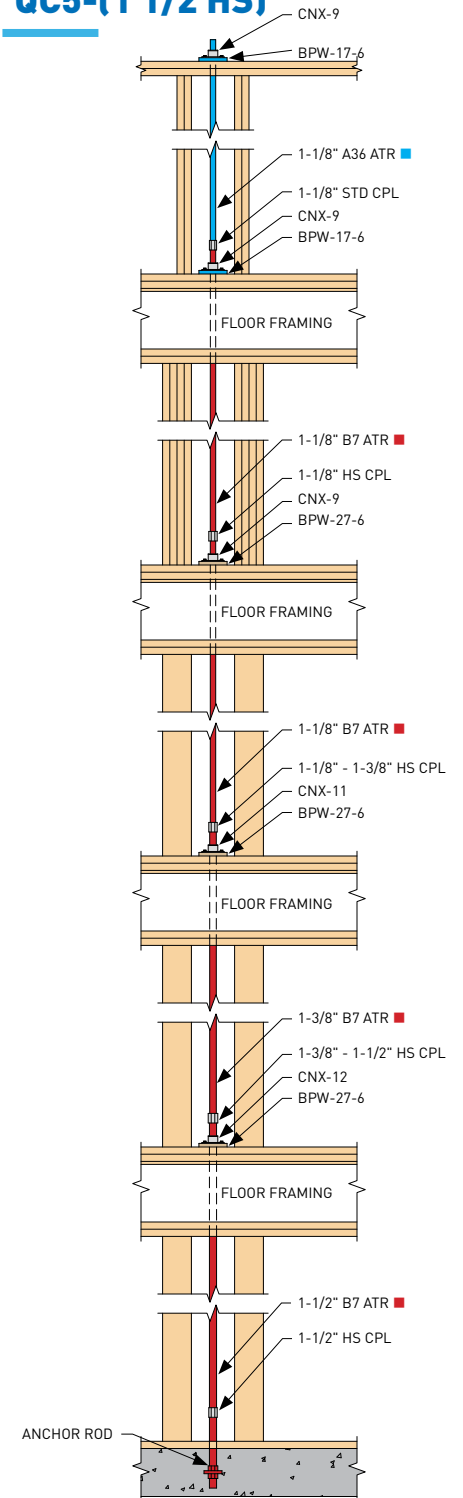
**QC5-(1 1/4 HS)**



**QC5-(1 3/8 HS)**



**QC5-(1 1/2 HS)**



**QC5-(1 1/4 HS)**

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
5	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-15	7/8" B7 ■	18450 (82.1)	36900 (164.1)	13970 (62.1)	27940 (124.3)
	8' Posts			(4) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
3	CNX-9	BPW-15	7/8" B7 ■	25430 (113.1)	45100 (200.6)	19255 (85.7)	45100 (200.6)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
2	CNX-10	BPW-15	1-1/8" B7 ■	25430 (113.1)	74550 (331.6)	19255 (85.7)	66450 (295.6)
	8' Posts			(5) 2x6 each side		(5) 2x6 each side	
1			1-1/4" B7 ■	25430 (113.1)	81165 (361)	19255 (85.7)	81165 (361)
	8' Posts			(5) 2x6 each side		-	
Anchor Rod			1-1/4" B7 ■				

**QC5-(1 3/8 HS)**

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-8	BPW-17-6					
5	CNX-8	BPW-17-6	1" A36 ■	25425 (113.1)	25425 (113.1)	22330 (99.3)	22330 (99.3)
	8' Posts			(2) 2x6 each side		(2) 2x6 each side	
4	CNX-8	BPW-27-6	1" B7 ■	29495 (131.2)	54920 (244.3)	22330 (99.3)	44660 (198.7)
	8' Posts			(4) 2x6 each side		(4) 2x6 each side	
3	CNX-10	BPW-27-6	1" B7 ■	46275 (205.8)	58905 (262)	35040 (155.9)	58905 (262)
	8' Posts			(4) 2x6 each side		(5) 2x6 each side	
2	CNX-11	BPW-27-6	1-1/4" B7 ■	46275 (205.8)	92040 (409.4)	35040 (155.9)	92040 (409.4)
	8' Posts			--		--	
1			1-3/8" B7 ■	46275 (205.8)	96720 (430.2)	35040 (155.9)	96720 (430.2)
	8' Posts			--		--	
Anchor Rod			1-3/8" B7 ■				

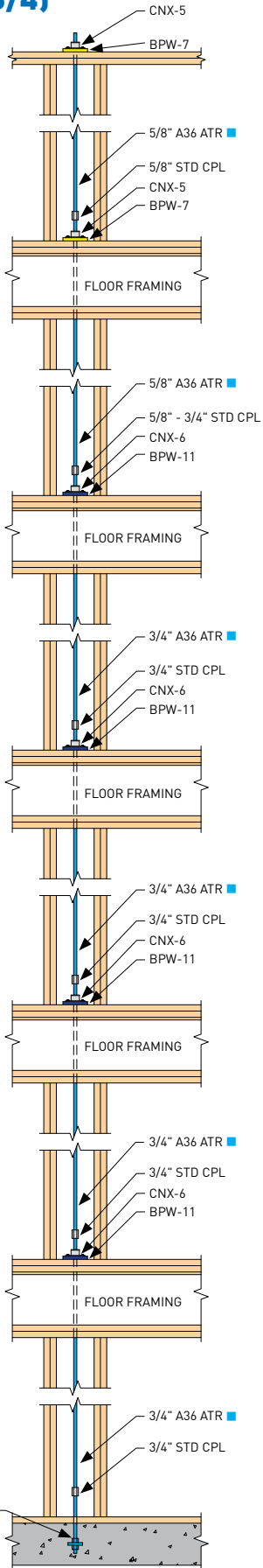
**QC5-(1 1/2 HS)**

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-9	BPW-17-6					
5	CNX-9	BPW-17-6	1-1/8" A36 ■	29495 (131.2)	29495 (131.2)	22330 (99.3)	22330 (99.3)
	8' Posts			(2) 2x6 each side		(2) 2x6 each side	
4	CNX-9	BPW-27-6	1-1/8" B7 ■	29495 (131.2)	58990 (262.4)	22330 (99.3)	44660 (198.7)
	8' Posts			(4) 2x6 each side		(4) 2x6 each side	
3	CNX-11	BPW-27-6	1-1/8" B7 ■	46275 (205.8)	74550 (331.6)	35040 (155.9)	74550 (331.6)
	8' Posts			(5) 2x6 each side		--	
2	CNX-12	BPW-27-6	1-3/8" B7 ■	46275 (205.8)	111365 (495.4)	35040 (155.9)	111365 (495.4)
	8' Posts			--		--	
1			1-1/2" B7 ■	46275 (205.8)	117690 (523.5)	35040 (155.9)	117690 (523.5)
	8' Posts			--		--	
Anchor Rod			1-1/2" B7 ■				

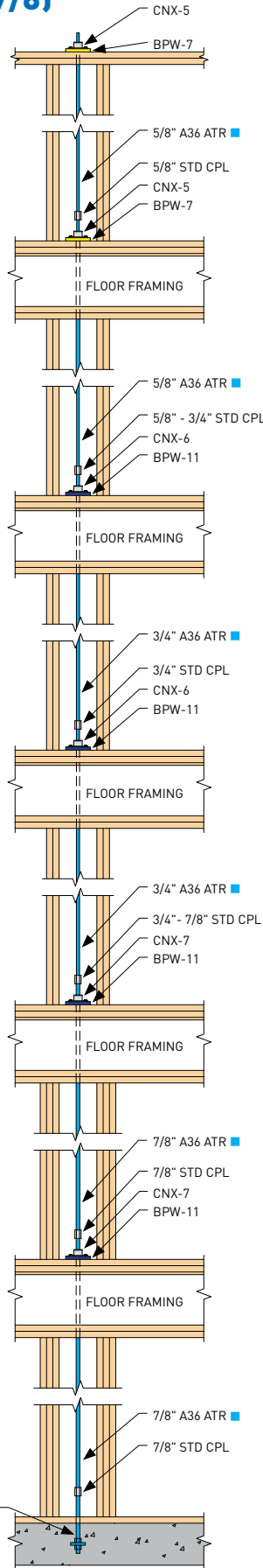
**NOTES**

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

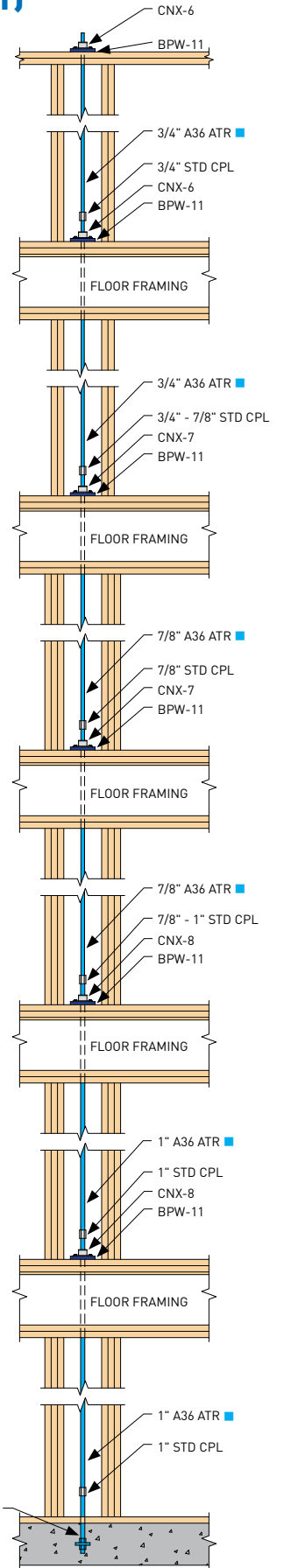
QC6-(3/4)



QC6-(7/8)



QC6-(1)



## QC6-(3/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
6	CNX-5	BPW-7	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
5	CNX-6	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
4	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
3	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
2	CNX-6	BPW-11	3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
1			3/4" A36 ■	13445 (59.8)	13445 (59.8)	13445 (59.8)	13445 (59.8)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
Anchor Rod			3/4" A36 ■				

## QC6-(7/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-5	BPW-7					
6	CNX-5	BPW-7	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
5	CNX-6	BPW-11	5/8" A36 ■	9650 (42.9)	9650 (42.9)	9650 (42.9)	9650 (42.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (1) 2x6 each side	
4	CNX-6	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	14135 (62.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
3	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	14135 (62.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
2	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			7/8" A36 ■	18450 (82.1)	18560 (82.6)	13970 (62.1)	18560 (82.6)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			7/8" A36 ■				

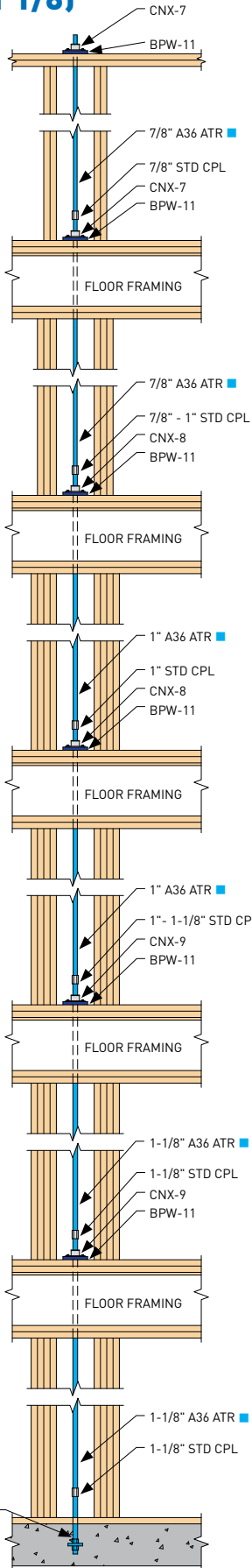
## QC6-(1)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-6	BPW-11					
6	CNX-6	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-7	BPW-11	3/4" A36 ■	14135 (62.9)	14135 (62.9)	13970 (62.1)	14135 (62.9)
	8' Posts			(2) 2x4 or (1) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
3	CNX-8	BPW-11	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
2	CNX-8	BPW-11	1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
1			1" A36 ■	18450 (82.1)	24350 (108.3)	13970 (62.1)	24350 (108.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
Anchor Rod			1" A36 ■				

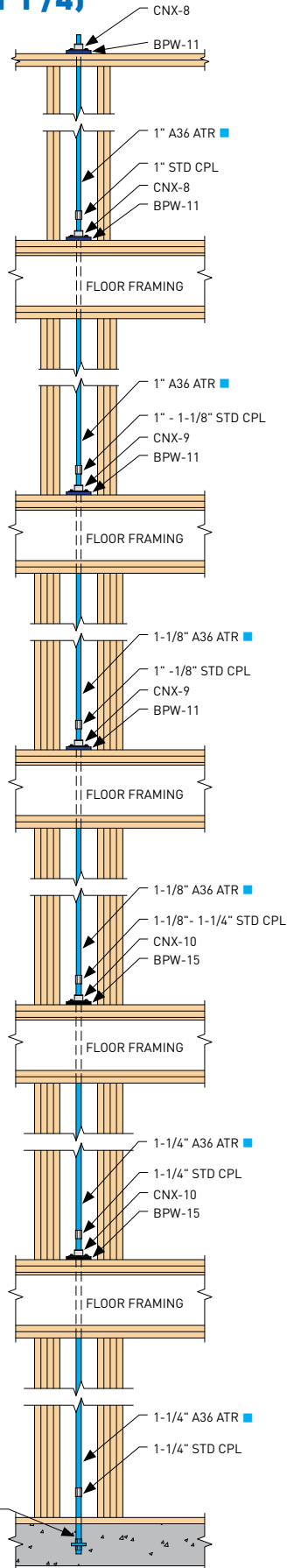
### NOTES

1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

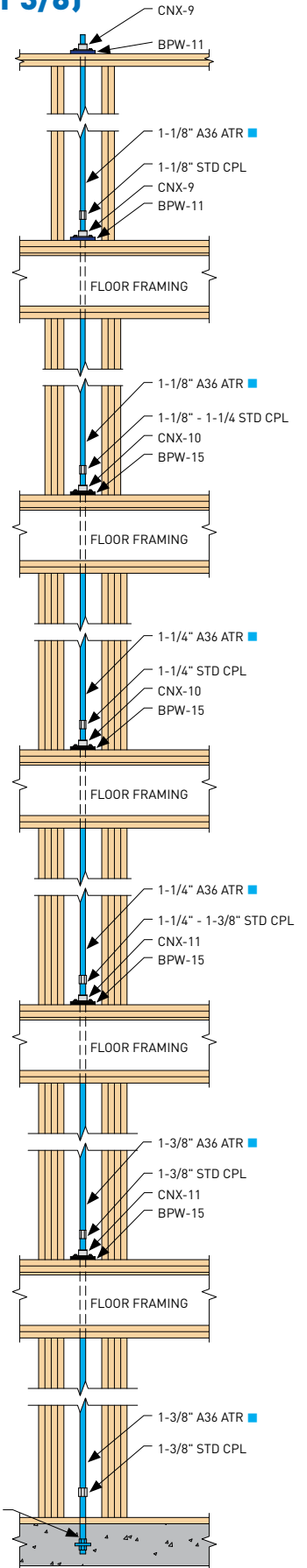
QC6-(1 1/8)



QC6-(1 1/4)



QC6-(1 3/8)



## QC6-(1 1/8)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
6	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-8	BPW-11	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
4	CNX-8	BPW-11	1" A36 ■	18450 (82.1)	25425 (113.1)	13970 (62.1)	25425 (113.1)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(4) 2x4 or (2) 2x6 each side	
3	CNX-9	BPW-11	1" A36 ■	18450 (82.1)	25425 (113.1)	13970 (62.1)	25425 (113.1)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(4) 2x4 or (2) 2x6 each side	
2	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
1			1-1/8" A36 ■	18450 (82.1)	30685 (136.5)	13970 (62.1)	30685 (136.5)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
Anchor Rod			1-1/8" A36 ■				

## QC6-(1 1/4)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-8	BPW-11					
6	CNX-8	BPW-11	1" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-9	BPW-11	1" A36 ■	18450 (82.1)	25425 (113.1)	13970 (62.1)	25425 (113.1)
	8' Posts			(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
4	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	32095 (142.8)	13970 (62.1)	32095 (142.8)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (2) 2x6 each side	
3	CNX-10	BPW-15	1-1/8" A36 ■	18450 (82.1)	32095 (142.8)	13970 (62.1)	32095 (142.8)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (2) 2x6 each side	
2	CNX-10	BPW-15	1-1/4" A36 ■	25430 (113.1)	38960 (173.3)	19255 (85.7)	38960 (173.3)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
1			1-1/4" A36 ■	25430 (113.1)	38960 (173.3)	19255 (85.7)	38960 (173.3)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
Anchor Rod			1-1/4" A36 ■				

## QC6-(1 3/8)

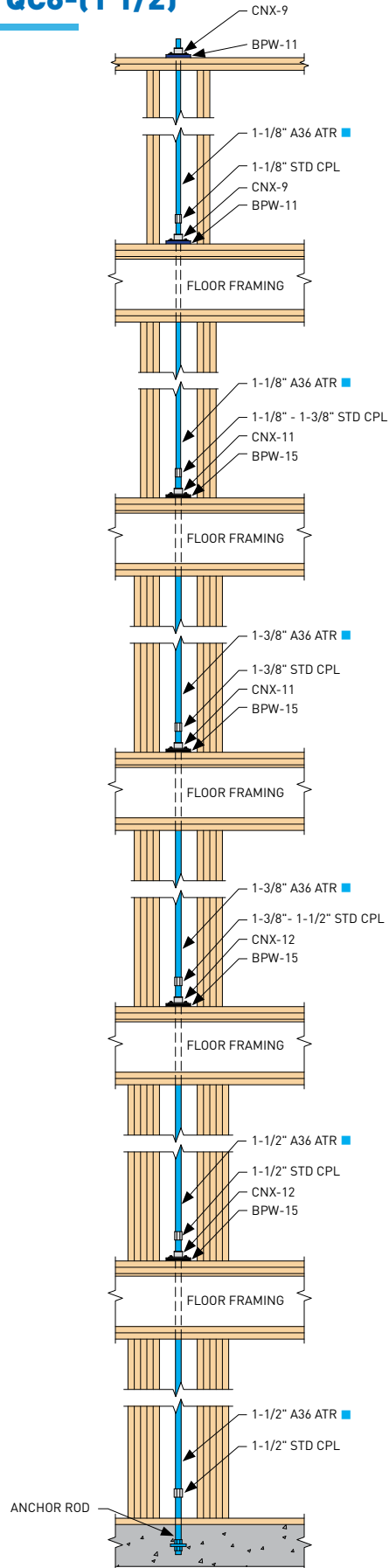
Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-9	BPW-11					
6	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
	8' Posts			(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-10	BPW-15	1-1/8" A36 ■	18450 (82.1)	32095 (142.8)	13970 (62.1)	27940 (124.3)
	8' Posts			(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
4	CNX-10	BPW-15	1-1/4" A36 ■	25430 (113.1)	40335 (179.4)	19255 (85.7)	40335 (179.4)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (4) 2x6 each side	
3	CNX-11	BPW-15	1-1/4" A36 ■	25430 (113.1)	40335 (179.4)	19255 (85.7)	40335 (179.4)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (4) 2x6 each side	
2	CNX-11	BPW-15	1-3/8" A36 ■	25430 (113.1)	46425 (206.5)	19255 (85.7)	46425 (206.5)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
1			1-3/8" A36 ■	25430 (113.1)	46425 (206.5)	19255 (85.7)	46425 (206.5)
	8' Posts			(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
Anchor Rod			1-3/8" A36 ■				

### NOTES

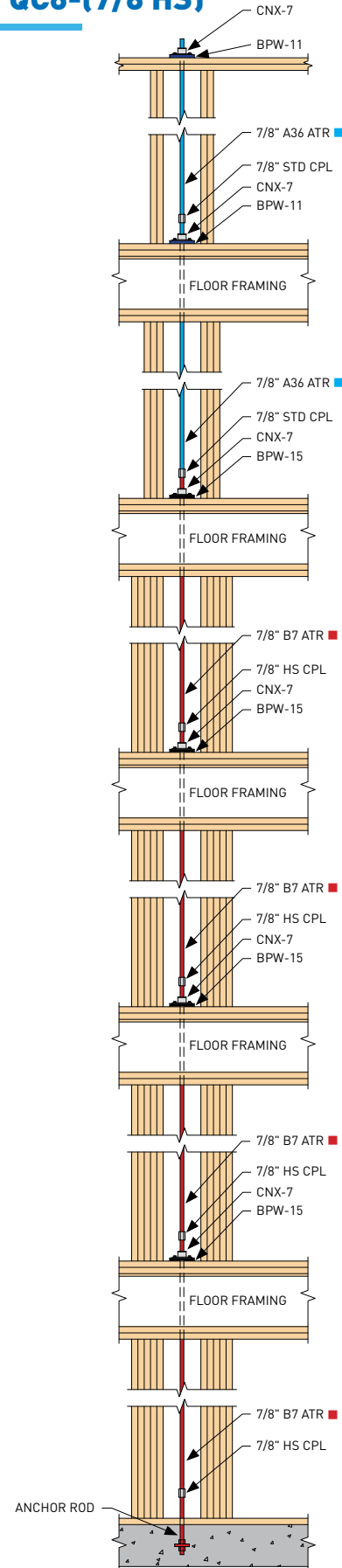
1. Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
2. Table values assume wall plates and posts to be 2x solid sawn lumber.
3. Bearing calculations include KD = 1.15 load increase for short-term loads.
4. Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
5. Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).



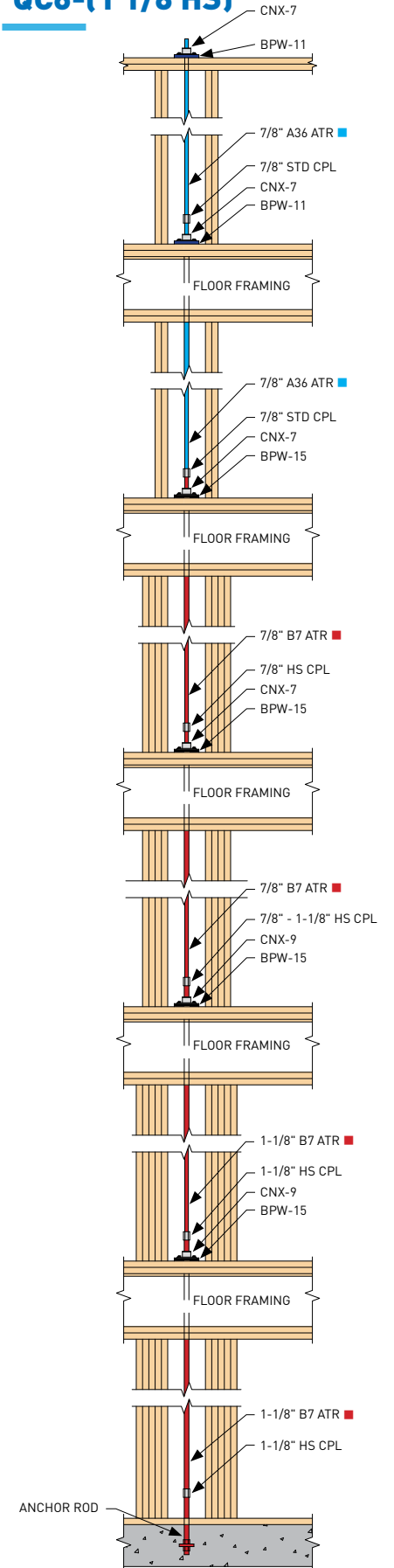
QC6-(1 1/2)



QC6-(7/8 HS)



QC6-(1 1/8 HS)



## QC6-(1 1/2)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-9	BPW-11					
6	CNX-9	BPW-11	1-1/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
			8' Posts	(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-11	BPW-15	1-1/8" A36 ■	18450 (82.1)	32095 (142.8)	13970 (62.1)	27940 (124.3)
			8' Posts	(4) 2x4 or (2) 2x6 each side		(4) 2x4 or (3) 2x6 each side	
4	CNX-11	BPW-15	1-3/8" A36 ■	25430 (113.1)	48485 (215.7)	19255 (85.7)	47195 (209.9)
			8' Posts	(3) 2x6 each side		(4) 2x6 each side	
3	CNX-12	BPW-15	1-3/8" A36 ■	25430 (113.1)	48485 (215.7)	19255 (85.7)	48485 (215.7)
			8' Posts	(3) 2x6 each side		(4) 2x6 each side	
2	CNX-12	BPW-15	1-1/2" A36 ■	25430 (113.1)	56490 (251.3)	19255 (85.7)	56490 (251.3)
			8' Posts	(4) 2x6 each side		(5) 2x6 each side	
1			1-1/2" A36 ■	25430 (113.1)	56490 (251.3)	19255 (85.7)	56490 (251.3)
			8' Posts	(4) 2x6 each side		(5) 2x6 each side	
Anchor Rod			1-1/2" A36 ■				

## QC6-(7/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
6	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
			8' Posts	(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-7	BPW-15	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
3	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
2	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
1			7/8" B7 ■	25430 (113.1)	38670 (172)	19255 (85.7)	38670 (172)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(5) 2x4 or (3) 2x6 each side	
Anchor Rod			7/8" B7 ■				

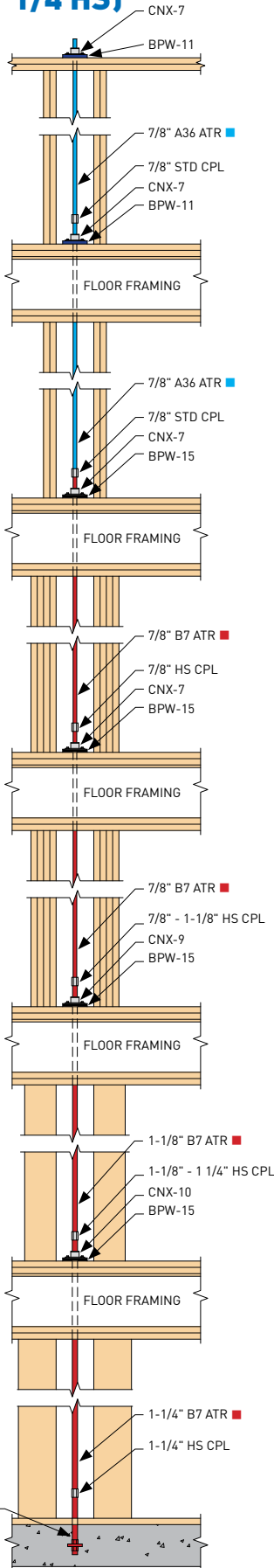
## QC6-(1 1/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
6	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
			8' Posts	(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-7	BPW-15	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	45100 (200.6)	19255 (85.7)	45100 (200.6)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
3	CNX-9	BPW-15	7/8" B7 ■	25430 (113.1)	45100 (200.6)	19255 (85.7)	45100 (200.6)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
2	CNX-9	BPW-15	1-1/8" B7 ■	25430 (113.1)	63925 (284.4)	19255 (85.7)	63925 (284.4)
			8' Posts	(4) 2x6 each side		(5) 2x6 each side	
1			1-1/8" B7 ■	25430 (113.1)	63925 (284.4)	19255 (85.7)	63925 (284.4)
			8' Posts	(4) 2x6 each side		(5) 2x6 each side	
Anchor Rod			1-1/8" B7 ■				

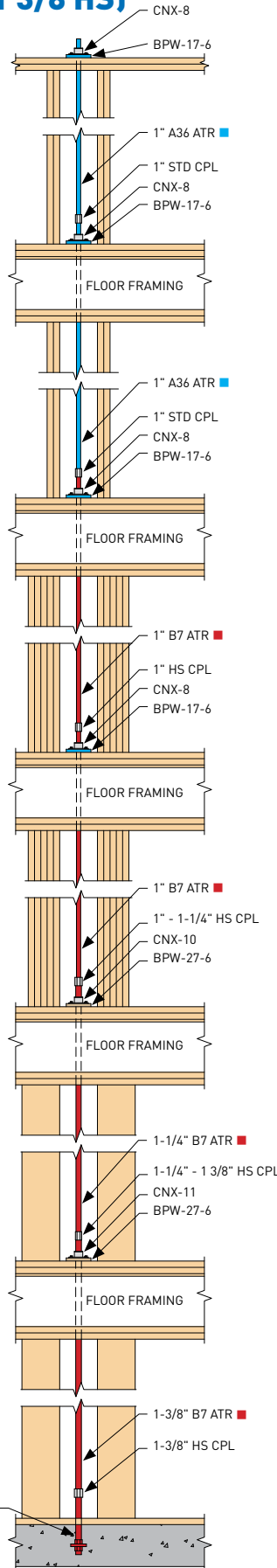
### NOTES

- Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
- Table values assume wall plates and posts to be 2x solid sawn lumber.
- Bearing calculations include KD = 1.15 load increase for short-term loads.
- Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
- Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

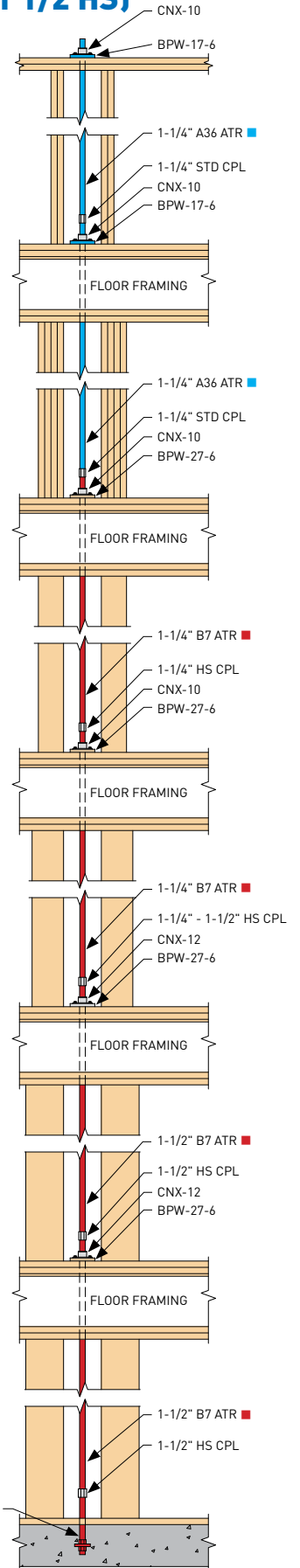
QC6-(1 1/4 HS)



QC6-(1 3/8 HS)



QC6-(1 1/2 HS)



## QC6-(1 1/4 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-7	BPW-11					
6	CNX-7	BPW-11	7/8" A36 ■	18450 (82.1)	18450 (82.1)	13970 (62.1)	13970 (62.1)
			8' Posts	(2) 2x4 or (2) 2x6 each side		(2) 2x4 or (2) 2x6 each side	
5	CNX-7	BPW-15	7/8" A36 ■	18450 (82.1)	19395 (86.3)	13970 (62.1)	19395 (86.3)
			8' Posts	(3) 2x4 or (2) 2x6 each side		(3) 2x4 or (2) 2x6 each side	
4	CNX-7	BPW-15	7/8" B7 ■	25430 (113.1)	45100 (200.6)	19255 (85.7)	45100 (200.6)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
3	CNX-9	BPW-15	7/8" B7 ■	25430 (113.1)	45100 (200.6)	19255 (85.7)	45100 (200.6)
			8' Posts	(5) 2x4 or (3) 2x6 each side		(4) 2x6 each side	
2	CNX-10	BPW-15	1-1/8" B7 ■	25430 (113.1)	74550 (331.6)	19255 (85.7)	74550 (331.6)
			8' Posts	(5) 2x6 each side		--	
1			1-1/4" B7 ■	25430 (113.1)	81165 (361)	19255 (85.7)	81165 (361)
			8' Posts	(5) 2x6 each side		--	
Anchor Rod			1-1/4" B7 ■				

## QC6-(1 3/8 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-8	BPW-17-6					
6	CNX-8	BPW-17-6	1" A36 ■	25425 (113.1)	25425 (113.1)	22330 (99.3)	22330 (99.3)
			8' Posts	(2) 2x6 each side		(2) 2x6 each side	
5	CNX-8	BPW-17-6	1" A36 ■	25425 (113.1)	25425 (113.1)	22330 (99.3)	25425 (113.1)
			8' Posts	(2) 2x6 each side		(2) 2x6 each side	
4	CNX-8	BPW-17-6	1" B7 ■	29495 (131.2)	58905 (262)	22330 (99.3)	58905 (262)
			8' Posts	(4) 2x6 each side		(5) 2x6 each side	
3	CNX-10	BPW-27-6	1" B7 ■	29495 (131.2)	58905 (262)	22330 (99.3)	58905 (262)
			8' Posts	(4) 2x6 each side		(5) 2x6 each side	
2	CNX-11	BPW-27-6	1-1/4" B7 ■	46275 (205.8)	92040 (409.4)	35040 (155.9)	92040 (409.4)
			8' Posts	--		--	
1			1-3/8" B7 ■	46275 (205.8)	96720 (430.2)	35040 (155.9)	96720 (430.2)
			8' Posts	--		--	
Anchor Rod			1-3/8" B7 ■				

## QC6-(1 1/2 HS)

Level	Cinch Nut	Bearing Plate Washer	Rod	Factored Resistance, lb (kN)			
				D.Fir-L		S-P-F	
				Level	Cumulative	Level	Cumulative
Roof	CNX-10	BPW-17-6					
6	CNX-10	BPW-17-6	1-1/4" A36 ■	29495 (131.2)	29495 (131.2)	22330 (99.3)	22330 (99.3)
			8' Posts	(2) 2x6 each side		(2) 2x6 each side	
5	CNX-10	BPW-27-6	1-1/4" A36 ■	29495 (131.2)	40335 (179.4)	22330 (99.3)	40335 (179.4)
			8' Posts	(3) 2x6 each side		(4) 2x6 each side	
4	CNX-10	BPW-27-6	1-1/4" B7 ■	46275 (205.8)	92040 (409.4)	35040 (155.9)	79700 (354.5)
			8' Posts	--		--	
3	CNX-12	BPW-27-6	1-1/4" B7 ■	46275 (205.8)	92040 (409.4)	35040 (155.9)	92040 (409.4)
			8' Posts	--		--	
2	CNX-12	BPW-27-6	1-1/2" B7 ■	46275 (205.8)	117690 (523.5)	35040 (155.9)	117690 (523.5)
			8' Posts	--		--	
1			1-1/2" B7 ■	46275 (205.8)	117690 (523.5)	35040 (155.9)	117690 (523.5)
			8' Posts	--		--	
Anchor Rod			1-1/2" B7 ■				

### NOTES

- Post design is based on the cumulative tension capacity only, Building Designer shall ensure that the wood posts are capable of resisting all load combinations.
- Table values assume wall plates and posts to be 2x solid sawn lumber.
- Bearing calculations include KD = 1.15 load increase for short-term loads.
- Size Factor for Bearing KZcp has been considered in perpendicular to grain bearing calculations.
- Parallel to grain calculations are based on Effective Length Factor Ke = 1.0, and KH = 1.10 with wall sheathing fastened to the narrow edge of the posts (fastening details to be provided by others).

## MiTek Pro Series Hex Head Structural Wood Screws

As specified on the Z4 installation details, the MiTek Pro Series Hex Head structural wood screws will assure that the different components of the Z4 system will meet the connection engineering specifications. Available in various lengths, The MiTek® Pro Series™ Hex Head is ideal for numerous framing applications including wood-to-wood and metal-to-wood connections. The Hex Head is listed under ICC-ES ESR-2761 and is code compliant to the 2015 IBC/IRC. The MiTek Pro Series Hex Head Structural Wood Screws this is the perfect complement to the Z4 system for your project.



### Features and benefits

- 0.242" diameter
- Self-drilling point
- 3/8" hex head drive
- Length identification stamp on all heads
- Quick install shear transfer connection

## MiTek Hardy Frame Shear Wall System

The Hardy Frame® Shear Wall System is the leading prefabricated shear wall in the residential and multi-family building industry. The strength, stiffness and ductility of the Hardy Frame® System enable architectural design without compromising the structural integrity. Used in combination with the MiTek Z4 Tie-Down System, this will offer a highly performant solution in designing multi-storey buildings projects.



### Features

- Easy to specify. Easy to install. Easy for the trades to work with
- Strength, Ductility and Stiffness
- C-Shape channel for insulating, installing porch lights, sockets and wood backing
- Industry Leading 9" width. Also available in 12", 15", 18", 21" & 24" widths
- Back to Back installation for double the capacity



TYPICAL  
INSTALLATION



BACK-TO-BACK  
INSTALLATION

## The First and Only Cold Formed Steel (CFS) Moment Frames

The all-new MiTek Hardy Frame® CFS Moment Frame and CFS Picture Frame are the industries first standardized, pre-engineered, pre-manufactured cold formed steel moment frames. Specifically designed for multi-storey wood-frame construction.

Lighter and less cost than structural steel moment frames, our CFS product line provides high capacities, ductility and cost economics that complete a spectrum of MiTek shear wall solutions.

Standard configurations are the Hardy Frame® CFS Moment Frame (portal applications) and the Hardy Frame CFS Picture Frame for stacking in multi-storey applications.

### Hardy Frame® CFS Moment Frame

- Similar materials and installation as Hardy Frame Panels, the industry leader for 20 years
- Available in standard designs and standard detailing
- Capacities that are equal to four or five Hardy Frame Panels of same width
- Can be installed “Back-to-Back” to double the capacity



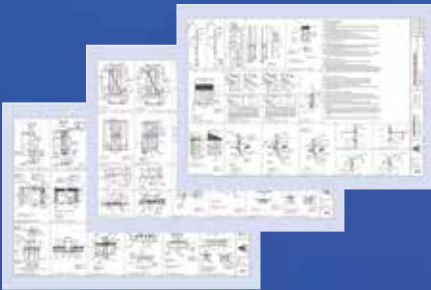
### Hardy Frame® CFS Picture Frame

- Second beam that assembles at the bottom of the Frame distributes compression over wood below to significantly reduce crushing and maintain shear capacity
- Incorporates the MiTek Z4 Continuous Tie-Down System to transfer overturning and uplift forces to the foundation
- Narrow columns (12 through 21 inches) and shallow beam depths (12 and 15 inches) enable large openings and architectural freedom
- Ships as a “knock-down” unit: easy to handle, ship and field assemble



## ADDITIONAL PUBLICATIONS FROM MiTek®

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



### Typical Installation Detail Sheets

MiTek® provides the Hardy Frame 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.



### Hardy Frame Catalogue

The MiTek® Hardy Frame® Catalogue provides complete information for Engineers, Architects and Designers to specify our shear wall system. There is a complete listing of all Panels, Brace Frames and Accessories, shear load tables, corresponding uplift and drift, pre-engineered anchorage information, specification tips, photos and Typical Installation Details. The Installation Details in the Product Catalogue conveniently match our ACad version that can be included as supplemental sheets to plan submittals.



### MiTek® Structural Connectors Product 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.

Also available in French

[www.mitek.ca/Resources/Builder-Products/Hangers---Structural-Connectors/#Catalog](http://www.mitek.ca/Resources/Builder-Products/Hangers---Structural-Connectors/#Catalog)

# MiTek® Leading in Lateral

1-800-268-3434 [www.MiTek.ca](http://www.MiTek.ca)