

### 1 AutoTight Rod Holdown System Notes

Holdown System Design:  
 1. Holdown system conforms to International Building Code (IBC) 2003, 2007, California Building Code (CBC) and 2008 Los Angeles Building Code (LABC).  
 2. Required loads and system requirements per structural plans, dated XX/XX/20XX.  
 3. Wood shrinkage is estimated at 1/4" per floor, based on structural plans wood specifications.  
 4. Drawings are not to scale. Holdown Run elevation (AT11) drawings are for location of run components only and may not reflect correct number of compression posts. Check Compression Post call outs to the right of the run elevation.  
 5. Fabrication shall meet the requirements and specifications per structural plan general notes.  
 6. Engineer of Record is to review these drawings and upon approval the drawings will replace the holdown system per structural plans, unless noted otherwise (U.N.O.).

Compression Post Notes:  
 1. Compression post shall be species, grade and size per structural plans (U.N.O.).  
 2. Compression posts and headers shall have a maximum moisture content of 19%.  
 3. Compression post or loads not specified, shall be equal to or exceed the required loads on Structural plans.  
 4. Compression post call outs on AT11 are on each side of the rod for 4x and 6x wall per holdown run and floor/level (U.N.O.).  
 5. Compression post are in addition to shearwall framing members. (U.N.O.).  
 6. Alternate compression post may be acceptable. Consult the factory for possible alternates.  
 7. Floor blocking stud lengths shall be 1/8" less than in-between floor height for shrinkage.  
 8. Compression post may be notched to exact thickness of steel bearing plate. If required, a plywood shim of the exact thickness of the steel bearing plate may be used, instead of notching. Additional compression post with required nailing shall be added, if exact notching requirements are not possible.  
 9. Cutting or notching of compression post is permitted to a depth not to exceed 25% of its width per 2008 LABC – 2308.9.10. Boring of compression post is permitted for a hole not greater than 40% of the width and no nearer than 5/8" to the edge per 2008 LABC – 2308.9.11 (these refer to the California Building Code) See applicable code.

### Anchor Bolt Embedments:

- Contractor/installer shall verify anchor bolt size, thread pitch and material for correct location per structural plans run call outs or AutoTight holdown run layout sheet(s).
- Anchor bolt shall be 6" minimum above concrete slab (U.N.O.).
- AutoTight Anchor Bolt Embedments, if used, are called out on AT12.

### Shop Drawing Disclaimer

Holdown design is by Commins Manufacturing, Inc. for the holdown system described in these shop drawings only. This design uses the construction plans and calculations provided by the Engineer of Record. No attempt has been made on the part of Commins Manufacturing, Inc. to verify the values given in the calculations or design described by the construction drawings.

The Engineer of Record is responsible for the structural design of the building and the ability of the design to transfer loads imparted to the structure by the holdown system.

### Structural Engineer of Record

Engineering Firm  
 Project Engineer  
 Address  
 City, State Zip  
 Tel:  
 Fax:  
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### Abbreviations

A.B.	Anchor bolt per plan or schedule
Alt	Alternate option
ATXX	AutoTight Take-Up Device (installed with 75 & 75-2.5 (1/2", 5/8" or 3/4" rod) 100 (7/8" or 1" rod) 125 (1 1/8" or 1 1/4" rod)
CAT	Commins AutoTight
CN(HS)	Coupler nut (HS are notched)
CNR(HS)	Coupler nut reducer (HS are notched)
Di	Diameter
DFL	Douglas Fir-Larch
HF	Hemlock Fir
HS	High strength
LXX	Bearing plate, 6x wall only
Min	Minimum
Max	Maximum
W(HS)-XX	Nut (HS have stamp grade ID)
O.C.	On center
R-XX(HS)	Threaded rod, (HS rod is black)
SPP	Spruce-Pine-Fir
STD	Standard strength (STD rod is zinc plated)
STP	Southern Yellow Pine
SXX	Bearing plate, 4x or 6x wall
Typ	Typical
U.N.O.	Unless noted otherwise
W-XX	SAE Washer

Rod, Nut & Washer Size		Washer
1/2"	-9	1-1/8"
5/8"	-10	1-1/4"
3/4"	-12	1-1/2"
7/8"	-14	1-3/4"
1"	-18	2"

### 2 Threaded Rod and AT Take-Up Device Allowable Loads

#### Table 1f

2008 City of Los Angeles Building Code (LABC)

Rod Size		Allowable Tension (lbs)						
"Diameter (inches)	Model	"Diameter & Thread"	A36 or F1554 Gr 36	A307	A449 or A325	A108-C1045	A193-B7 or F1554 Gr 105	A354-BD
3/8"	R3	3/8"-16 NC	2,400	2,490	4,970	4,970	5,180	6,215
1/2"	R4	1/2"-13 NC	4,270	4,420	8,840	8,840	9,200	11,045
5/8"	R5	5/8"-11 NC	6,670	6,900	13,810	13,810	14,380	17,255
3/4"	R6	3/4"-10 NC	9,610	9,940	19,880	19,880	20,710	24,850
7/8"	R7	7/8"-9 NC	13,080	13,530	27,060	27,060	28,190	33,825
1"	R8	1"-8 NC	17,080	17,670	35,340	35,340	36,820	44,180
1 1/8"	R9	1-1/8"-7 NC	21,620	22,370	39,140	44,730	46,590	55,915
1 1/4"	R10	1-1/4"-7 NC	26,690	27,610	48,320	55,220	57,520	69,030
1 3/8"	R11	1-3/8"-6 NC	32,300	33,410	58,470	66,820	69,600	83,530
1 1/2"	R12	1-1/2"-6 NC	38,440	39,760	69,580	79,520	82,830	99,400
1 3/4"	R14	1-3/4"-5 NC	52,310	54,120	81,180	108,240	112,750	135,295

Model Number**	Rod Diameter (Max.)	Mat.	Dimensions (Inches)	Rated Take-Up (Inches)	Allowable Load Pounds	Average Ultimate Pounds	$\Delta r$ (inches) Increment	$\Delta A$ (inches) Deflection at Allowable Load
AT4A-1.5	1/2"	Aluminum	1-1/2" Dia. H	3" 1-1/2"	7,273	24,857	0.000**	0.014
AT4A-2.5	3/4"	Aluminum	2-1/8" Dia. H	4-1/16" 2-1/2"	13,579	40,737	0.002***	0.024
AT6A-1.5	3/4"	Steel	2-1/8" Dia. H	3-3/16" 1-1/2"	16,450	50,533	0.002***	0.020
AT6A-2.5	3/4"	Steel	2-1/8" Dia. H	3-3/16" 1-1/2"	15,183	54,728	0.002***	0.032
AT 75-2.5	1"	Steel	2-1/4" Dia. H	3-1/8" 1-1/2"	25,300	78,067	0.002***	0.032
AT 100	1-1/4"	Steel	2-3/4" Dia. H	3-1/8" 1-1/2"	34,500	104,683	0.002***	0.016

### 3 Bearing Plate Schedule and Allowable Loads

#### Table 2a

2009 International Building Code IBC  
 Bearing Plate Allowable Loads  
 (13th Ed. ASD, 2005 NDS)

Bearing Plate Part #	Plate Dimensions			Hole Dia. (bolt size) (in)	Capacity DFL (lbs)	Wall Size
	Thickness (in)	Width (in)	Length (in)			
S4	3/16	2 1/2	2 1/2	3/4	4,120	4x & 6x
S4.5	5/16	2 3/4	2 3/4	3/4	5,003	
S5	1/4	3	3	3/4	5,964	
S6	1/4	3 1/4	3 1/4	3/4	7,002	
S7	3/8	3 1/2	3 1/2	3/2	7,963	
S8	3/8			4	8,281	
S10	1/2			5	10,322	
S12	5/8			6	12,360	
S14	3/4			7	13,665	
S16	1			8	15,696	
S8L	3/8	3 1/4	4	3/4	7,962	
S10L	1/2		5	3/4	10,009	
S12L	5/8		6	3/4	12,051	
S14L	3/4		7	3/4	13,373	
S16L	1		8	3/4	15,404	
S19			9	3/4	18,842	
S22	1 1/4		10	3/4	21,029	
S24			11	3/4	23,217	
S26			12	3/4	25,404	
S28	3 1/2		13	3/4	27,592	
S32			15	3/4	31,967	
S35	1 1/2		16	1 1/4	34,154	
S39			18	1 1/4	38,529	
S44			20	1 1/4	42,904	
L17	1/2	5	5 1/2	3/4	17,282	
L20	5/8	5 1/2	6	3/4	21,016	
L21		5	7	3/4	21,029	
L25	3/4	5 1/2	7 1/2	3/4	24,936	
L28		5	9	3/4	27,279	
L30	1	5 1/2	9	3/4	30,092	
L32		5	11	3/4	33,529	
SPW6				3/4	5,964	
SPW8	1/4			1	5,705	
SPW10				1 1/4	5,377	

