

### FA/FAP/HFA/FJA/FSA FOUNDATION ANCHORS

This series is for retrofit or new construction. These products may be used together as a system or in individual applications, designed and tested for earthquake and high wind conditions.

FA and HFA Foundation Anchors eliminate vertical drilling by nailing into the top of the mudsill. They facilitate installation when vertical space is limited, and resist forces between the foundation and mudsill. The FAP Plate connects the mudsill to the foundation. Designed to provide lateral load resistance.

FJA Foundation Joist Anchor nails or bolts directly into floor joist, and provides a direct connection between the foundation and joist. It provides uplift and lateral resistance. FSA Foundation Stud Anchor nails or bolts to floor joist, or nails to stud. Plywood shearwall may require notching with stud-to-foundation installation.

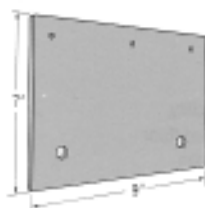
**MATERIAL:** FAP—7 gauge; all others—12 gauge

**FINISH:** Galvanized

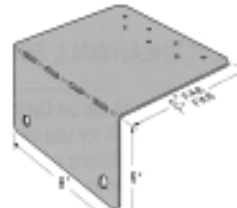
**INSTALLATION:** • Use all specified fasteners; see General Notes.

- Select and install concrete anchor bolts in accordance with the manufacturer's recommendations.
- See Epoxy-Tie and RFB, pages 32 and 33, for tested, load-rated epoxies and retrofit bolts.

**CODES:** BOCA, ICBO, SBCCI NER-469; NER-499; City of LA RR 25158 and RR 25293.



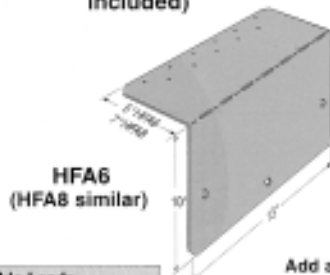
**FAP**  
(screws not included)



**FAB**  
(FA6 similar)



**FJA**  
**FSA**

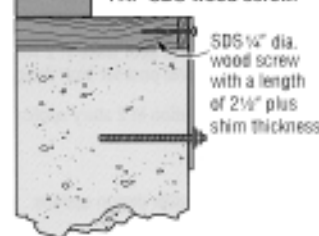


**HFA6**  
(HFA8 similar)

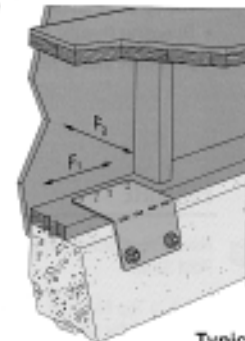
Model No.	Max Spacing to Replace Anchor Bolts		Fasteners		Uplift Avg UI	Allowable Loads						
	1/2"	3/4"	Qty	Dia		(133)		(160)				
FAP	5 1/2'	4'	2	3/8"	—	—	950	365	—	950	365	
FA6	2 1/2'	1 1/2'	2	3/8"	—	—	400	515	—	400	515	
FAB	2 1/2'	1 1/2'	2	3/8"	—	—	400	515	—	400	515	
HFA6	6'	6'	3	3/8"	—	—	1350	365	—	1400	365	
HFA8	6'	6'	3	3/8"	—	—	1350	365	—	1400	365	
FJA	—	—	2	3/8"	—	4500	1000	185	60	1205	185	60
						4500	575	185	60	690	185	60
FSA	—	—	2	3/8"	—	5233	1000	—	—	1205	—	—
						5233	575	—	—	690	—	—

1. Allowable loads have been increased 33% and 60% for earthquake or wind loading with no further increase allowed; reduce where other load durations govern.
2. For redwood mudsills, reduce F1 on HFA to 1215 lbs, and 840 lbs on FAP.
3. Use the RFB#4x6 with the Epoxy-Tie for the anchorage system.
4. FAP uses a minimum SDS wood screw length of 2 1/2" plus the shim thickness.
5. The shim must be fastened to the mudsill by means other than the FAP wood screw.
6. See page 8 for SDS wood screw information.
7. FAP may be installed with 1/2" lag bolts. Follow code requirements for predrilling.

Add a shim between plate and sill when space is between 3/8" and 1 1/2". When space exceeds 1 1/2" use the FA or HFA. The shim must be fastened to the mudsill by means other than the FAP SDS wood screw.

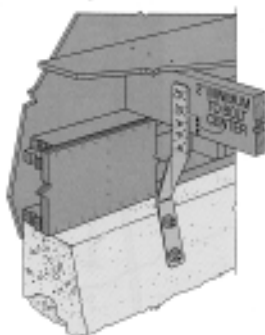


**Typical FAP Installation**  
Foundation to Mudsill

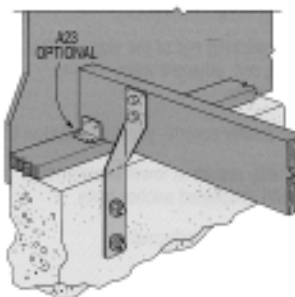


**Typical FA Installation**  
Foundation to Mudsill  
Slotted for easy bending for trapezoid foundations

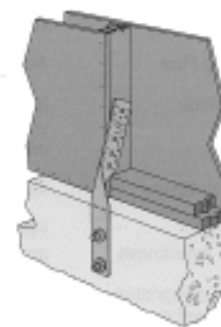
**Typical FSA Installation**  
Foundation to Joist



**Typical FJA Installation**  
Foundation to Joist



**Typical FSA Installation**  
Foundation to Stud



### Sources of Deflection at Shearwall Holdown Connections

- A. Bolt slip can occur at holdown stud bolts.
- B. Increased bolt slip can occur if oversized holes are drilled through the stud for holdown stud bolts (oversized holes are when the hole dia. is greater than the bolt dia. plus 1/16" per 1997 NDS, sec. 8.1.2.1).
- C. When a holdown is installed on only one side of the stud, an eccentricity exists during loading which can cause more movement in the shearwall system.
- D. Unrestrained anchor bolt nuts can spin loose during cyclic loading; using steel nylon locking nuts or thread adhesive may prevent nut spin.
- E. Movement can occur when nuts are not tightened enough. Retightening bolts before covering wall may prevent this.
- F. Deflection can occur in the holdown under load caused by stresses due to earthquake or high wind.
- G. Lateral displacement at the top of the wall rotates the stud around its base causing the holdown base plate to displace vertically.
- H. Wood shrinkage can occur due to drying of the sill plate, rim joist, and/or top plate; nuts may require retightening.
- I. Uplift forces on the bolts can cause localized wood crushing at bolt bearing locations. Using larger bearing plates may prevent this.
- J. Wood at the end of the studs (sill plates, rim joists, etc.) may crush under normal dead and live loading; additional compressive forces due to overturning during earthquake and high wind loads add to the deflection.

(A) (B) and (E) do not apply to the PHD series.

