

**Earthquake Re-inforcing – Tying mudsill to foundation  
3140 SE 45th Ave. Portland OR 97206**

Structure - Foundation consists of two structures.

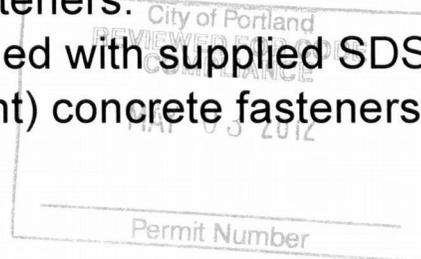
- Main house which has a basement and is therefore on the same level.
- Addition over the kitchen which is built over an 18" crawl space.

Mudsill

- There no existing fastening of the mudsill on the original and the addition.
- Plate is general flush with the foundation (concrete) and it will therefore be fastened with FPA fasteners and shimming where necessary.
- UFP plates shall be used where the mudsill is recessed from the concrete stem wall by more than  $\frac{3}{4}$ ".

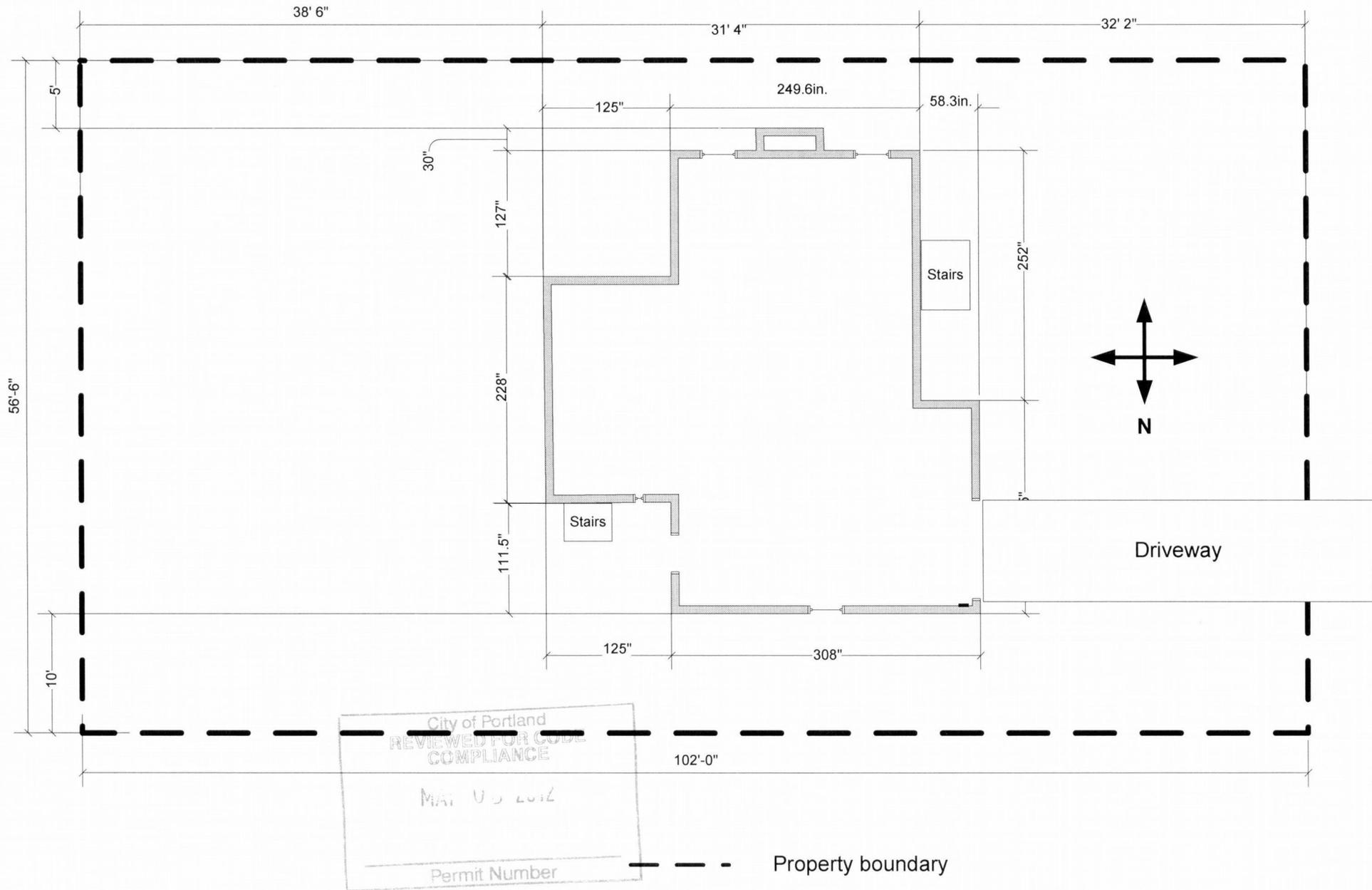
Fasteners.

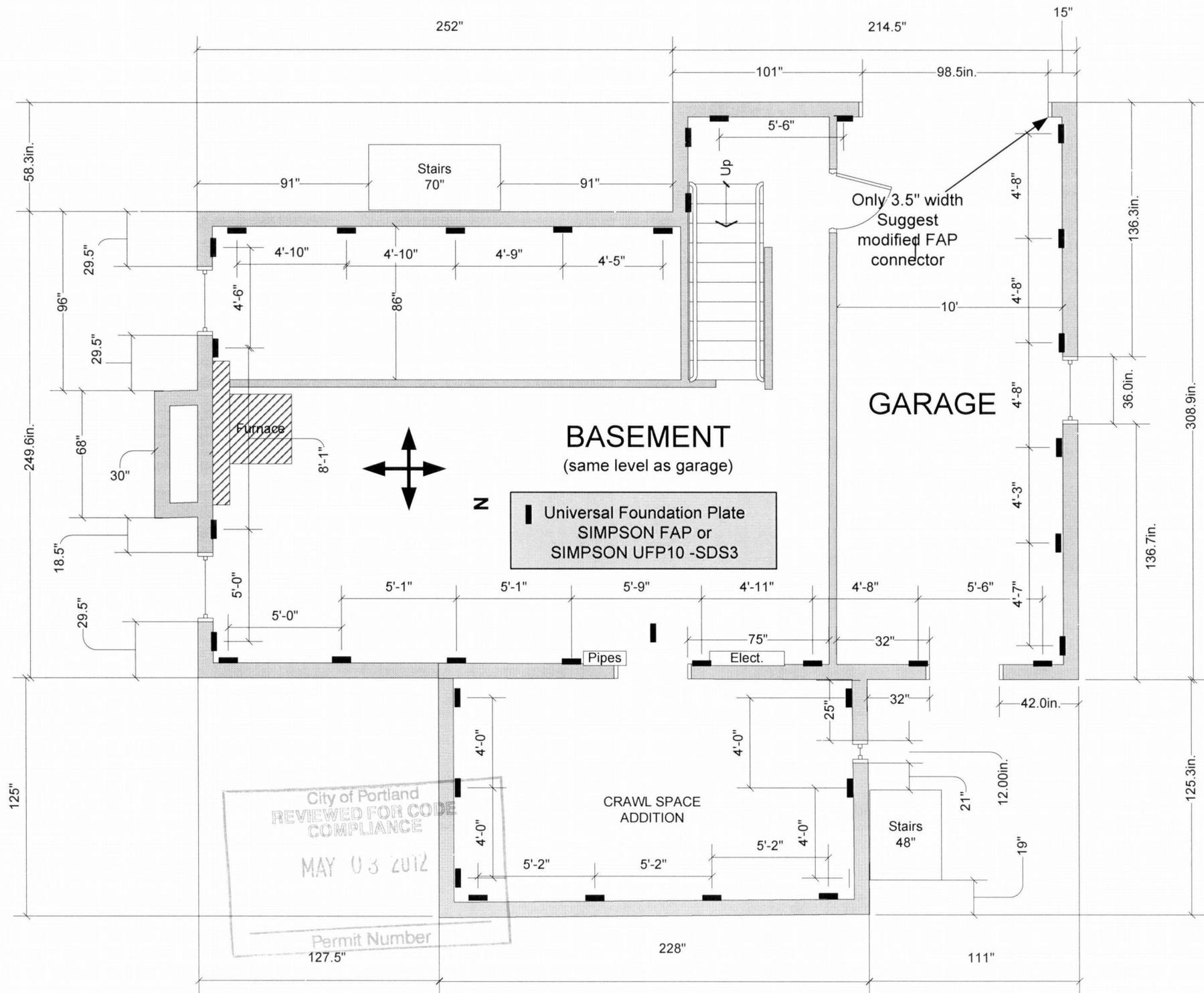
- FPA plates shall be fastened with 3" lag screws and  $\frac{1}{2}$ " x 3" TITEN HD (or equivalent) concrete fasteners.
- UFP plates shall be fastened with supplied SDS  $\frac{1}{4}$ " x 3" screws ad  $\frac{1}{2}$ " x 3" TITEN HD (or equivalent) concrete fasteners.

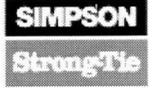


12-137279 AS 2

# Site Plan - 3140 SE 45th Ave. Portland OR 97206







### FAP/FJA/FSA Foundation Anchors

The FAP Plate connects the mudsill to the foundation, and is designed to provide lateral load resistance.

The FJA Foundation Joist Anchor nails or bolts directly into floor joists, providing a direct connection between the foundation and joist to resist uplift and lateral forces. FSA Foundation Stud Anchor nails or bolts to floor joists, or nails to the stud. Plywood sheathing may require notching with stud-to-foundation installation.

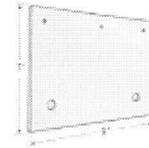
**Material:** FAP—7 gauge; all others—12 gauge

**Finish:** Galvanized. May be ordered HDG, contact [Simpson Strong-Tie](#).

See [Corrosion Information](#).

**Installation:**

- Use all specified fasteners; see [General Notes](#).



- Load Table
- Gallery of images
- Code Reports
- Drawings
- Catalog Page
- Anchoring Solutions
- Related Categories
- Help for downloads

**Gallery:**

▲ top

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FAP  
(screws not included)

FJA/FSA

Typical FAP  
Installation Foundation to  
Mudsill

Add a shim between plate and sill when space is between 3/16" and 1 1/2". When space exceeds 1 1/2" use the UFP. The shim must be fastened to the mudsill by means other than the FAP SDS wood screw.

Typical FSA  
Installation  
Foundation to  
Joist

Typical FSA  
Installation  
Foundation to  
Stud

Typical FJA Installation  
Foundation to Joist

REVIEWED FOR CODE COMPLIANCE  
 MAY 03 2012  
 Permit Number

**Load Table:** See [code report listings](#) below

▲ top

Model No.	Max Spacing to Replace Anchor Bolts		Fasteners		Allowable Loads DF/SP			
			Anchor Bolt Qty.	Dia.	Stud/Joist/Plate	(160)		
	1/2"	5/8"				Uplift	F <sub>1</sub>	F <sub>2</sub>
FAP	5 1/2'	4'	2	1/2"	3-SDS 1/4"x2 1/2" + shim thickness	—	950	365
FJA	—	—	2	1/2"	8-10dx1 1/2"	1205	185	60
					2-1/2MB	690	185	60
FSA	—	—	2	1/2"	8-10dx1 1/2"	1205	—	—
					2-1/2MB	690	—	—

1. Allowable loads have been increased 60% for wind or earthquake loading with no further increase allowed; reduce where other load durations govern.
2. For redwood mudsills, reduce F<sub>1</sub> on FAP to 840 lbs.
3. Spacing to be specified by the Designer.
4. FAP shall use 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 SDS wood screw.
6. FAP may be installed with 1/4" HDG lag bolts. Follow code requirements for predrilling.
7. NAILS: 10dx1 1/2" = 0.148" dia. x 1 1/2" long. See [other nail sizes and information](#).

**Code Reports (PDFs):**

▼ next ▲ top

LEGACY REPORTS

IAPMO ESR

ICC-ES ESR

CITY OF LOS ANGELES

STATE OF FLORIDA

ICC-ES NER

ICC-ES ER

ICC-ES ES

**FAP**

No code listing. Please [contact us](#) for test data.

**FJA**

[ESR-2616](#) / [ESR-2523](#) \*

[RR25726](#)

[FL10866](#)

**FSA**

[ESR-2616](#) / [ESR-2523](#) \*

[RR25726](#)

[FL10866](#)

\* ESR-2523 is an Index of many of Simpson Strong-Tie Stamped and Welded Cold-formed Steel Products for Wood or Cold-formed Steel Construction

**Drawings:**

To download drawings, right-click or Ctrl-click on the link, then choose "Save Target As..." ▼ next ▲ top

Download the [Simpson Strong-Tie™ AutoCad® Menu](#), which allows you to insert Ortho views directly into your AutoCAD drawing.

ORTHOGRAPHIC

PERSPECTIVE

**FAP**

FAP: [DWG](#) | [DXF](#)

FAP: [DWG](#) | [DXF](#)

**FJA**

FJA: [DWG](#) | [DXF](#)

FJA front view: [DWG](#) | [DXF](#)

FJA left view: [DWG](#) | [DXF](#)

FJA right view: [DWG](#) | [DXF](#)

FJA top view: [DWG](#) | [DXF](#)

High Wind-Resistant Construction D56: Stemwall/CrawlSpace: [DWG](#) | [DXF](#)

FJA: [DWG](#) | [DXF](#)

**FSA**

FSA: [DWG](#) | [DXF](#)

FSA front view: [DWG](#) | [DXF](#)

FSA left view: [DWG](#) | [DXF](#)

FSA right view: [DWG](#) | [DXF](#)

FSA top view: [DWG](#) | [DXF](#)

FSA To Floor Joist: [DWG](#) | [DXF](#)

FSA To Stud: [DWG](#) | [DXF](#)

**Catalog Pages (PDFs):**

▲ top

[C-2011 \(Wood Construction Connectors\), page 31](#)

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**Anchoring Solutions:**

▲ top

Refer to [Anchor Selector™ Software for ACI 318](#) for anchoring solutions.

**Related Categories:**

▲ top

[Mudsill/Foundation Retrofit Connectors](#) (Wood Construction)

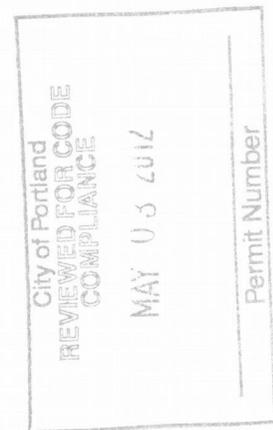
[Foundation Anchors](#) (Wood Construction)

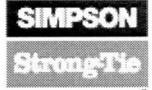
[Mudsill Anchors - Concrete or Masonry](#) (Wood Construction)

[High Wind Resistance](#) (Wood Construction)

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## UFP Universal Foundation Plate

The UFP provides a retrofit method to anchor the mudsill to the side of the foundation in applications where minimum vertical clearance exists. The UFP is also designed to perform when the mudsill is offset from the foundation up to 2 1/2" or extended beyond the foundation up to 1/2".



The UFP may be used in place of the FA, HFA and FAP connectors.

**Material:** 14 gauge.

**Finish:** Galvanized. May be ordered [HDG](#), [Contact Simpson Strong-Tie](#). See [Corrosion Information](#).

**Installation:**

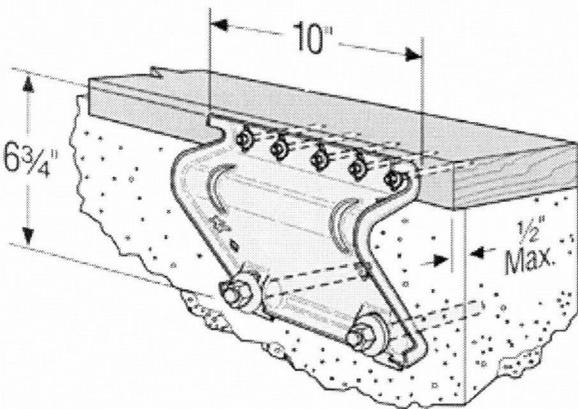
- Use all specified fasteners; see [General Notes](#).
- Loads are based on test results using Simpson Strong-Tie® SDS 1/4"x3" screws, which are supplied with the UFP10.
- Alternate lag screws will not achieve published loads.

- Load Table
- Gallery of images
- Code Reports
- Drawings
- Catalog Page
- Anchoring Solutions
- Related Categories
- Fliers
- Help for downloads

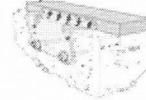
**Gallery:**

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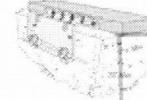
roll over images below to see larger image



UFP10 installed on a Straight Foundation with 1/2" Offset Mudsill

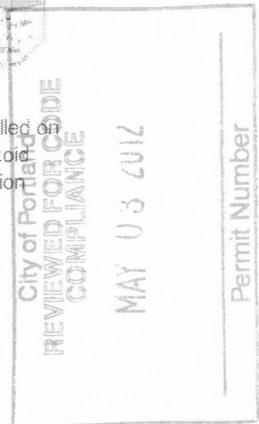


UFP10 installed on a Straight Foundation



UFP10 installed on a Trapezoidal Foundation

U.S. Patent 5,732,519



**Load Table:** See [code report listings](#) below

▲ top

Model No.	Max Spacing to replace Anchor Bolt 1/2" or 5/8" dia.	Fasteners			Allowable Load DF/SP Parallel to Plate (160)
		Anchor Bolt		Plate	
		Qty.	Dia.		
UFP10-SDS3	6'	2	1/2"	5-SDS 1/4"x3"	1340

1. Allowable loads have been increased 60% for wind or earthquake loading, with no further increase allowed. Reduce where other load durations apply.
2. Each anchor bolt requires a standard cut washer.

**Code Reports (PDFs):**

▼ next ▲ top

LEGACY REPORTS

IAPMO ESR	ICC-ES ESR	CITY OF LOS ANGELES	STATE OF FLORIDA	ICC-ES NER	ICC-ES ER	ICC-ES ES
UFP See specific model numbers for code listings.						
UFP10-SDS3 <a href="#">ESR-2616</a> / <a href="#">ESR-2523</a> * <a href="#">RR25726</a> <a href="#">FL10866</a>						

\* ESR-2523 is an Index of many of Simpson Strong-Tie Stamped and Welded Cold-formed Steel Products for Wood or Cold-formed Steel Construction

**Drawings:** To download drawings, right-click or Ctrl-click on the link, then choose "Save Target As..." ▼ next ▲ top

Download the [Simpson Strong-Tie™ AutoCad® Menu](#), which allows you to insert Orthographic views directly into your AutoCAD drawing.

	ORTHOGRAPHIC	PERSPECTIVE
UFP	None for this model	None for this model
UFP10	UFP10: <a href="#">DWG</a>   <a href="#">DXF</a> UFP10 front view: <a href="#">DWG</a>   <a href="#">DXF</a> UFP right view: <a href="#">DWG</a>   <a href="#">DXF</a>	UFP Offset Mudsill: <a href="#">DWG</a>   <a href="#">DXF</a> UFP Straight Foundation: <a href="#">DWG</a>   <a href="#">DXF</a> UFP Trapezoid Foundation: <a href="#">DWG</a>   <a href="#">DXF</a>

**Catalog Pages (PDFs):**

▲ top

[C-2011 \(Wood Construction Connectors\), page 31](#)

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**Anchoring Solutions:**

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Refer to [Anchor Selector™ Software for ACI 318](#) for anchoring solutions.

**Related Categories:**

[Mudsill/Foundation Retrofit Connectors](#) (Wood Construction)

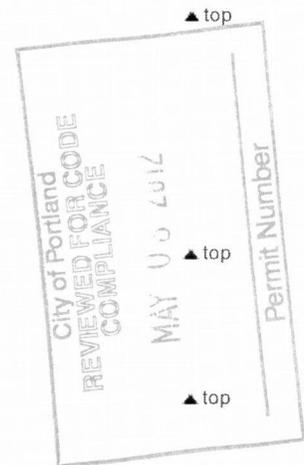
[Foundation Anchors](#) (Wood Construction)

[Mudsill Anchors - Concrete or Masonry](#) (Wood Construction)

**Fliers (PDFs):**

[Seismic Retrofit Guide](#) You can [order this flier by mail](#).

**[Need help with downloads?](#)**

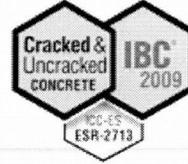




USA / Canada | Change Location...

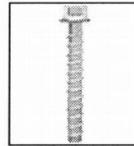
>> [Home](#) > [Products](#) > [Anchor Systems](#) > [Mechanical Anchors](#)

## TITEN HD® Heavy Duty Screw Anchor for Cracked and Uncracked Concrete



The Titen HD® anchor is a patented, high-strength screw anchor for concrete and masonry. It is designed for optimum performance in both cracked and uncracked concrete; a requirement that the 2009 IBC places on post-installed anchors. The high strength, easy to install Titen HD anchor has been tested and shown to provide outstanding performance in cracked and uncracked concrete under both static and seismic loading conditions. The self-undercutting, non-expansion characteristics of the Titen HD anchor make it ideal for structural applications, even at reduced edge distances and spacings. Recommended for permanent dry, interior non-corrosive environments or temporary outdoor applications.

### CODE LISTED FOR CRACKED CONCRETE



Titen HD®

- [Read more about Cracked Concrete](#)
- Download Free Software: Anchor Designer for ACI 318

#### CODE LISTED

[ICC-ES ESR-2713](#) (Cracked and Uncracked Concrete)  
[ICC-ES ESR-1056](#) (CMU)

### GALLERY: [roll over images below to see larger image](#)



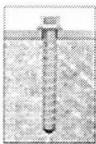
Titen HD® screw anchor  
 U.S. Patent  
 5,674,035 &  
 6,623,228



Serrated teeth on the tip of the Titen HD® screw anchor facilitate cutting and reduce installation torque.



Suitable for use in place of code anchor bolts.



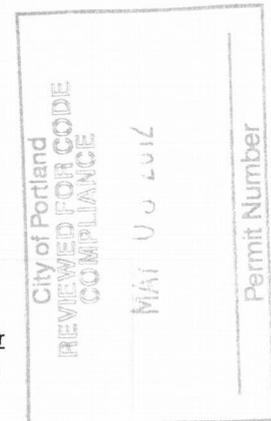
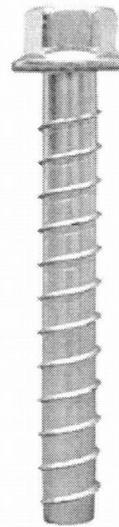
New longer 1/2" diameter Titen HD® anchors achieve sufficient embedment depth to develop tension loads equal to many Simpson Strong-Tie holdowns that specify a 5/8" diameter anchor. Testing has been conducted to assure compatibility of these holdowns' anchor holes with the 1/2" Titen HD screw anchor.



The Titen HD® screw anchor 3/4 x 6 and 3/4 x 7 (models THDT75600H and THD75700H) have a 1" section under the head that is unthreaded to allow installation into tilt-up wall braces.

### PERFORMANCE FEATURES

- Tested per AC193 to ensure outstanding performance in both cracked and uncracked concrete



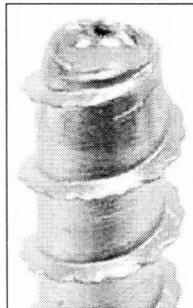
### LINKS:

- Related Product: [Titen HD® Rod Coupler](#)
- Related Product: [Titen HD® Rod Hanger](#)
- Related Product: [Titen HD® Mini](#)
- [Supplemental Information for Mechanical Anchors](#)
- [Limited Warranty Information](#)
- [Design Data for SD](#)
- [Tension and Shear Load Tables for ASD](#)
- [Load-Adjustment Factors](#)
- **NEW** [2d and 3d Drawings for Autodesk® Revit®](#)
- Documents:
  - [Anchor Catalog Section](#) (PDF)
  - **NEW** [Product Submittal Generator](#)
  - [Material Safety Data Sheet](#) (PDF)
  - [Material Safety Data Sheet en Español](#) (PDF)
  - [Material Safety Data Sheet en Français](#) (PDF)
- Fliers
  - [Titen HD® Anchor for use with Simpson](#)

- Higher load capacity and vibration resistance: Threads along the length of the anchor undercut the concrete and efficiently transfer the load to the base material.
- Vibration and shock resistance: The mechanical interlock of the threads and the ratchet teeth on the underside of the head help prevent the anchor from loosening in vibratory conditions. The Titen HD anchor has been tested to 12.6 million vibratory cycles with no performance reductions.
- Specialized heat treating process: Creates superior surface hardness at the tip to facilitate cutting, while at the same time not compromising ductility within the anchor body.
- Less spacing and edge distance required: The anchor does not exert expansion forces on the base material.
- Easy post-installation inspection: The head is stamped with the Simpson Strong-Tie® "S" sign and the anchor length in inches.

### INSTALLATION FEATURES

- No special drill bit needed: Designed to install using standard sized ANSI tolerance drill bits
- Installs with 50% less torque: Testing shows that when compared to competitors, the Titen HD requires 50% less torque to be installed in concrete.
- Hex-washer head: Requires no separate washer and provides a clean installed appearance.\*
- Removable: Ideal for temporary anchoring (e.g. formwork, bracing) or applications where fixtures may need to be moved. Re-use of the anchor to achieve listed load values is not recommended.



Serrated teeth on the tip of the Titen HD screw facilitate cutting and reduce installation torque.

\*Some jurisdictions require an additional square plate washer for sill plate applications.

### MATERIAL

Carbon steel, heat treated

### FINISH

Zinc plated or mechanically galvanized

### CODE REPORTS

- ICC-ES Evaluation Service [ESR-2713](#) (PDF) (concrete)
- ICC-ES Evaluation Service [ESR-1056](#) (CMU)
- City of Los Angeles [RR25741](#) (PDF) (concrete)
- City of Los Angeles [RR25560](#) (PDF) (CMU)
- Florida Statewide Product Approval [FL11506.7](#)
- Factory Mutual 3017082, 3035761 and 3043442

The load tables list values based upon results from the most recent testing and may not reflect those in current code reports. Where code jurisdictions

[Strong-Tie® Holdowns in Wind and Low-Seismic Regions](#) (PDF)

- [Titen HD® Anchor for Mudsill Applications](#) (PDF)
- [Anchoring Solutions for Mechanical, Electrical and Plumbing Trades](#) (PDF)

Technical Bulletins

- [Anchoring Solutions for Simpson Strong-Tie® Connectors in Wind and Low-Seismic Regions](#) (PDF)
- [Anchor Tension Loads in Masonry Chair Block](#) (PDF)
- Free Software:
  - [Anchor Designer](#)

### INSTALLATION

- [Installation Instructions](#)
  - [Fixture Hole Diameter](#)

### TEST CRITERIA

The Titen HD® anchor has been tested in accordance with ICC-ES AC193, ACI 355.2 and ICC-ES AC106 for the following:

- Static tension and shear loading in cracked and uncracked concrete
- Seismic and wind loading in cracked and uncracked concrete
- Performance in uncracked masonry

Anchor Fatigue Testing: Tested in accordance with ASTM E 488 for the effects of fatigue. 25% of the average ultimate load was applied to the anchor for 2 million cycles at a frequency of 15 Hz. Subsequent load tests showed no reduction in ultimate tension capacity.

Vibratory Load Testing: A 150 lb. concrete block was suspended from a 3/8" diameter anchor embedded at 1 1/2" and vibrated for 12.6 million cycles at a frequency of 30 Hz and an amplitude of 0.0325 inches. Subsequent load test showed no reduction in ultimate tension capacity.

Field Testing: For guidance on field testing see technical bulletin [T-SAS-THDINSP](#).

### SUGGESTED SPECIFICATIONS

Screw anchors shall have 360-degree contact with the base material and shall not require oversized holes for installation. Fasteners shall be manufactured from carbon steel, and are heat-treated. Anchors shall be zinc plated in accordance with ASTM B633 or mechanically galvanized in accordance with ASTM B695. Anchors are not to be reused after initial installation. Screw anchors shall be Titen HD® anchors from Simpson Strong-Tie, Pleasanton, CA. Anchors shall be installed per the Simpson Strong-Tie instructions for the Titen HD anchor.

\*Some jurisdictions require an additional square plate washer for sill plate applications.

### Titen HD Anchor Product Data - Zinc Plated

**A** apply, consult the current reports for applicable load values.

Size (in.)	Model No.	Drill Bit Dia. (in.)	Wrench Size (in.)	Quantity	
				Box	Carton
3/8 x 3	THD37300H	3/8	9/16	50	200
3/8 x 4	THD37400H			50	200
3/8 x 5	THD37500H			50	100
3/8 x 6	THD37600H			50	100
1/2 x 3	THD50300H	1/2	3/4	25	100
1/2 x 4	THD50400H			20	80
1/2 x 5	THD50500H			20	80
1/2 x 6	THD50600H			20	80
1/2 x 6 1/2	THD50612H			20	40
1/2 x 8	THD50800H			20	40
1/2 x 12	THD501200H			20	40
1/2 x 13	THD501300H			20	40
1/2 x 14	THD501400H			20	40
1/2 x 15	THD501500H			20	40
5/8 x 4	THD62400H	5/8	15/16	10	40
5/8 x 5	THD62500H			10	40
5/8 x 6	THD62600H			10	40
5/8 x 6 1/2	THD62612H			10	40
5/8 x 8	THD62800H	5/8	15/16	10	20
5/8 x 4	THDB62400H			10	40
5/8 x 5	THDB62500H			10	40
5/8 x 6	THDB62600H			10	40
5/8 x 6 1/2	THDB62612H			10	40
5/8 x 8	THDB62800H			10	20
3/4 x 4	THD75400H	3/4	1 1/8	10	40
3/4 x 5	THD75500H			5	20
3/4 x 6	THDT75600H			5	20
3/4 x 7	THD75700H			5	10
3/4 x 8 1/2	THD75812H			5	10
3/4 x 10	THD75100H			5	10

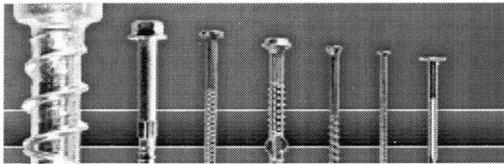
1. Zinc plating meets ASTM B633, SC1.
2. Length is measured from the underside of the head to the tip of the anchor.

**Titen HD Anchor Product Data - Mechanically Galvanized**

Size (in.)	Model No.	Drill Bit Dia. (in.)	Wrench Size (in.)	Quantity	
				Box	Carton
3/8 x 5	THD37500HMG	3/8	9/16	50	100
3/8 x 6	THD37600HMG			50	100
1/2 x 5	THD50500HMG	1/2	3/4	20	80
1/2 x 6	THD50600HMG			20	80
1/2 x 6 1/2	THD50612HMG			20	40
1/2 x 8	THD50800HMG			20	40
5/8 x 5	THD62500HMG	5/8	15/16	10	40
5/8 x 6	THD62600HMG			10	40
5/8 x 6 1/2	THD62612HMG			10	40
5/8 x 8	THD62800HMG			10	20
5/8 x 5	THDB62500HMG	5/8	15/16	10	40
5/8 x 6	THDB62600HMG			10	40
5/8 x 6 1/2	THDB62612HMG			10	40
5/8 x 8	THDB62800HMG			10	20
3/4 x 8 1/2	THD75812HMG	3/4	1 1/8	5	10
3/4 x 10	THD75100HMG			5	10

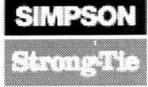
1. Mechanical galvanizing meets ASTM B695, Class 65, Type 1. Intended for some pressure-treated wood sill plate applications. Not for use in other corrosive or outdoor environments. See [guidelines page](#) for more corrosion information.

Permit Number  
 MAY 03 2012  
 REVIEWED FOR CODE COMPLIANCE



# SIMPSON STRONG-TIE FASTENING SYSTEMS

www.strongtie.com



**UPDATE** Information on this page has been updated since the printing of the C-2011 catalog. To view the specific changes made to this page in detail, visit the [Catalog Changes and Corrections](#) page.

## Strong-Drive® SDS Structural Wood Screw

The Simpson Strong-Tie® Strong-Drive® SDS screw is a 1/4" diameter high-strength structural wood screw ideal for various connector installations as well as wood-to-wood applications.

Find this fastener in the [Fastener Finder](#)

Also see:

- [Strong-Drive® SD Structural-Connector Screw](#)
- [SDW Strong-Drive® Structural Wood Screw](#)
- [Titen® Concrete and Masonry Screw](#)

Features:

- Designed for installation in Simpson Strong-Tie® structural connectors as well as wood-to-wood applications
- Available with a double-barrier coating and type 316 stainless steel
- 3/8" hex head
- Patented 4-CUT™ point (coated version) and type-17 point (stainless version) enable easy driving with no pre-drilling and minimal splitting
- Double-barrier coating provides corrosion resistance equivalent to hot-dip galvanization
- Head is stamped with the Simpson Strong-Tie "≠" sign and fastener length for easy identification after installation
- A low-speed 1/2" drill with a 3/8" hex driver is the recommended tool for installation

**Material:** Heat-treated carbon steel; Type-316 [stainless steel](#)

**STAINLESS STEEL:** The SDS Strong-Drive 1/4" wood screw line has expanded to include stainless-steel SDS screws in 1 1/2" to 3 1/2" lengths, suitable for fastening Simpson Strong-Tie stainless-steel products. Offering the same easy-driving, split-reducing installation of the standard SDS screw, these screws are made from type 316 stainless steel. The new stainless-steel SDS screws are appropriate for higher-exposure environments where maximum corrosion-resistance is required.

**Finish:** Double-barrier coating provides corrosion resistance equivalent to hot-dip galvanization.

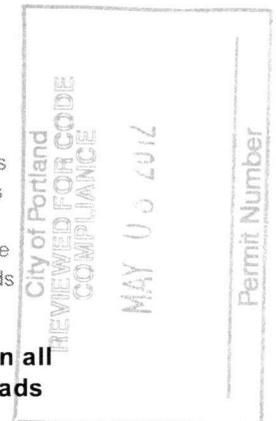
[Contact Simpson Strong-Tie](#) for product availability and ordering information.

Installation:

- [Strong-Drive Screw Installation for LVL, PSL and LSL](#)
- [Multi-Ply Wood Trusses Applications: Two-Ply 4X2 Floor Trusses](#)



- Load Tables
- Gallery of images
- Code Reports
- Drawings
- Catalog Page
- Related Categories
- Technical Bulletins
- Fliers
- Featured Literature
- Help for downloads



**Identification on all SDS screw heads**

**Lengths    Stamp**

1 1/2"

2"

2 1/2"

3"

3 1/2"

- Multi-Ply Wood Trusses Applications: Girder Trusses

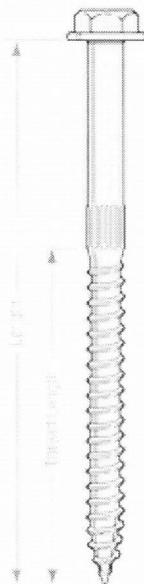
Also see Simpson Strong-Tie Connector Selector® software.



Gallery:

▲ top

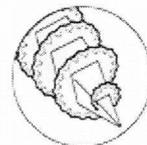
roll over images below to see larger image



  
 SDS1/4"x3"  
 US Patents 6,109,850;  
 5,897,280; 7,101,133;  
 7,832,173



Identification  
 on all SDS  
 screw heads  
 (SDS1/4"x3"  
 shown)



The 4CUT tip  
 reduces  
 installation  
 torque and  
 makes driving  
 easier.



The SDS is suitable for installing ledgers and meets the requirements of the building codes. See flier [Strong-Drive® SDS Screw For Deck Ledgers](#) for spacing and other information.

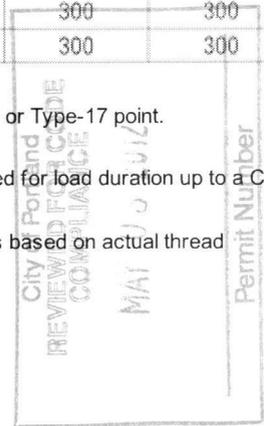
Load Tables: See [code report listings](#) below

▲ top

**Allowable Shear Loads for Steel Side-Plate Applications**

Size (in.)	Finish/ Material	Model No.	Thread Length (in.)	DF/SP Allowable Loads <sup>3</sup>			SPF/HF Allowable Loads <sup>3</sup>		
				Steel Side Plate Shear (100) <sup>1</sup>			Steel Side Plate Shear (100) <sup>1</sup>		
				16 ga	14 ga & 12 ga	10 ga or Greater	16 ga	14 ga & 12 ga	10 ga or Greater
1/4 x 1 1/2	Double-Barrier Coating	SDS25112	1	250	250	250	180	180	180
1/4 x 2		SDS25200	1 1/4	250	290	290	180	210	210
1/4 x 2 1/2		SDS25212	1 1/2	250	390	420	180	280	300
1/4 x 3		SDS25300	2	250	420	420	180	300	300
1/4 x 3 1/2		SDS25312	2 1/4	250	420	420	180	300	300
1/4 x 4 1/2		SDS25412	2 3/4	250	420	420	180	300	300
1/4 x 5		SDS25500	2 3/4	250	420	420	180	300	300
1/4 x 6		SDS25600	3 1/4	250	420	420	180	300	300
1/4 x 8		SDS25800	3 1/4	250	420	420	180	300	300
1/4 x 1 1/2	Type-316 Stainless Steel	SDS25112SS	1	250	250	250	180	180	180
1/4 x 2		SDS25200SS	1 1/4	250	290	290	180	210	210
1/4 x 2 1/2		SDS25212SS	1 1/2	250	390	420	180	280	300
1/4 x 3		SDS25300SS	2	250	420	420	180	300	300
1/4 x 3 1/2		SDS25312SS	2 1/4	250	420	420	180	300	300

1. Allowable loads for SDS screws are based on ICC-ES Code Report ESR-2236. Screws may be provided with the 4CUT™ or Type-17 point.
2. SDS screws install best with a low speed 1/2" drill with a 3/8" hex head driver.
3. Allowable loads are shown at the wood load duration factor of C<sub>D</sub> = 1.00, to interior-dry use only. Loads may be increased for load duration up to a C<sub>D</sub> = 1.60.
4. Allowable withdrawal load for DF/SP/SCL is 172 lbs./in. and for SPF/HF withdrawal is 150 lbs./in.. Total withdrawal load is based on actual thread penetration into the main member
5. LSL wood-to-wood applications that require 4 1/2", 5", 6" and 8" SDS screws are limited
6. Minimum spacing requirements are listed in ICC-ES [ESR-2236](#).



**Allowable Shear Loads for Wood Side-Plate Applications**

Size (in.)	Model No.	DF/SP Allowable Loads <sup>3,4</sup>												
		Wood Side Plate Thickness (in.)												
		½	¾	1	1 ¼	1 ½	1 ¾	2	2 ¼	2 ½	3	3 ½	4	4 ½
½ x 2	SDS25200	145	•	•	•	•	•	•	•	•	•	•	•	•
½ x 2 ½	SDS25212	165	165	170	165	•	•	190'	•	•	•	•	•	•
¾ x 3	SDS25300	165	165	170	185	195	205	280'	•	•	•	•	•	•
¾ x 3 ½	SDS25312	165	165	170	185	195	205	340'	340'	•	•	•	•	•
¾ x 4 ½	SDS25412	165	165	170	185	195	205	350'	340'	230	200	•	•	•
¾ x 5	SDS25500	165	165	170	185	195	205	350'	340'	230	230	200	•	•
¾ x 6	SDS25600	165	165	170	185	195	205	350'	340'	340'	340'	340'	230	200
¾ x 8	SDS25800	165	165	170	185	195	205	350'	340'	340'	340'	340'	230	230

Size (in.)	Model No.	SPF/HF Allowable Loads <sup>4</sup>												
		Wood Side Plate Thickness (in.)												
		½	¾	1	1 ¼	1 ½	1 ¾	2	2 ¼	2 ½	3	3 ½	4	4 ½
½ x 2	SDS25200	105	•	•	•	•	•	•	•	•	•	•	•	•
½ x 2 ½	SDS25212	130	135	130	120	•	•	135'	•	•	•	•	•	•
¾ x 3	SDS25300	130	140	140	150	150	145	200'	•	•	•	•	•	•
¾ x 3 ½	SDS25312	130	140	140	150	155	165	245'	245'	•	•	•	•	•
¾ x 4 ½	SDS25412	130	140	140	150	155	165	250'	245'	190	160	•	•	•
¾ x 5	SDS25500	130	140	140	150	155	165	250'	245'	190	190	160	•	•
¾ x 6	SDS25600	130	140	140	150	155	165	250'	245'	245'	245'	245'	190	160
¾ x 8	SDS25800	130	140	140	150	155	165	250'	245'	245'	245'	245'	195	195

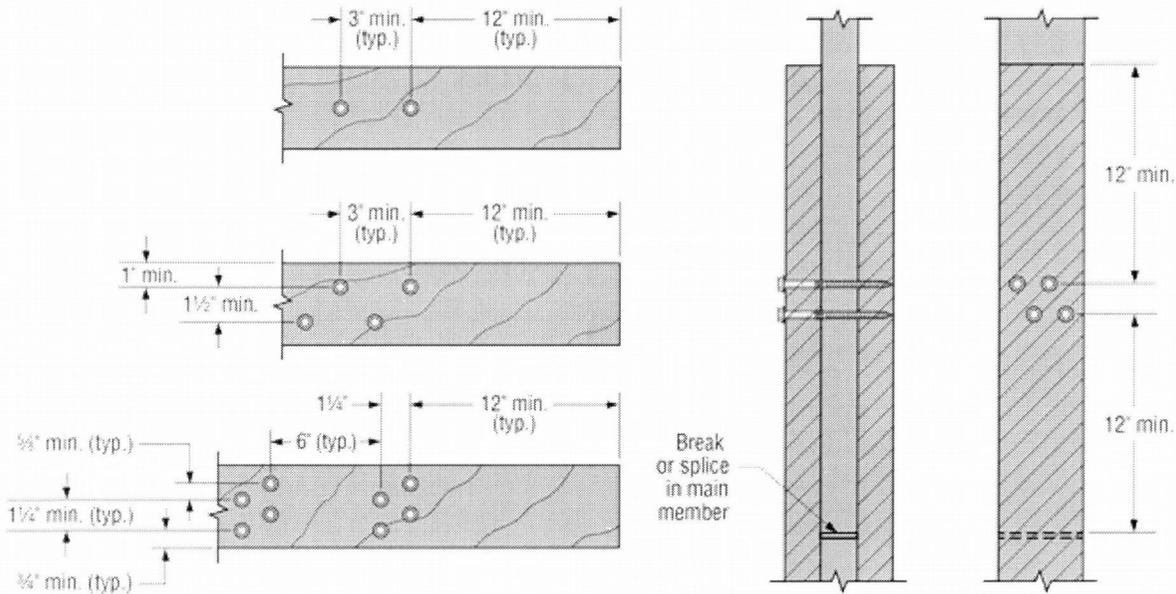
1. Noted loads are based on ICC-ES Code Report ESR-2236 and/or testing per ICC AC233 and assume a minimum main member thickness of the screw length minus the side member thickness. All other allowable loads are based on the 2005 National Design Specification (NDS) and a minimum penetration of 6D = 1.45" into the main member.
2. Values are valid for a connection involving only two members. Where the side and main members have different specific gravities, the lower values shall be used.
3. Allowable loads are also applicable to structural composite lumber (e.g., LVL, PSL, and LSL) having an equivalent specific gravity of 0.50 or greater.
4. Allowable loads are shown at the wood load duration factor of  $C_D = 1.00$ . Loads may be increased for load duration by the building code up to a  $C_D = 1.60$ . The Designer shall apply all adjustment factors required per NDS.
5. Loads are based on installation into the side grain of the wood members with the screw axis perpendicular to the wood fibers.
6. Loads apply to appropriate stainless-steel models.

**Allowable Double-Shear Loads**

Size (in.)	Model No.	Side Members	Allowable Loads (lbs.)		
			DF	SP	SPF
¾ x 3 ½	SDS25300	¾" Wood Structural Panel Rated Sheathing	355	325	305
¾ x 4 ½	SDS25412	2x Solid Sawn	395	475	335

1. Allowable loads are based on Simpson Strong-Tie® laboratory testing with a safety factor of 5 applied to the average ultimate test load.
2. Allowable loads are based on 1 1/2" thick main members and assume no gap between side and main members.
3. Allowable loads are shown at the wood load duration factor of  $C_D = 1.00$ . Loads may be increased for load duration by the building code up to a  $C_D = 1.60$ . The designer shall apply all adjustment factors required per NDS.
4. For applications with 2x side members, use allowable loads based on the lower of side member or main member species.
5. The Designer is responsible for the design of wood members.

Strong-Drive® SDS Structural Wood Screw



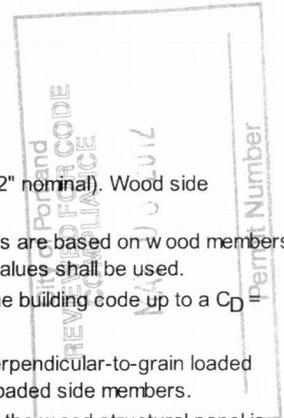
SDS Spacing Details

Typical SDS Double Shear Installation

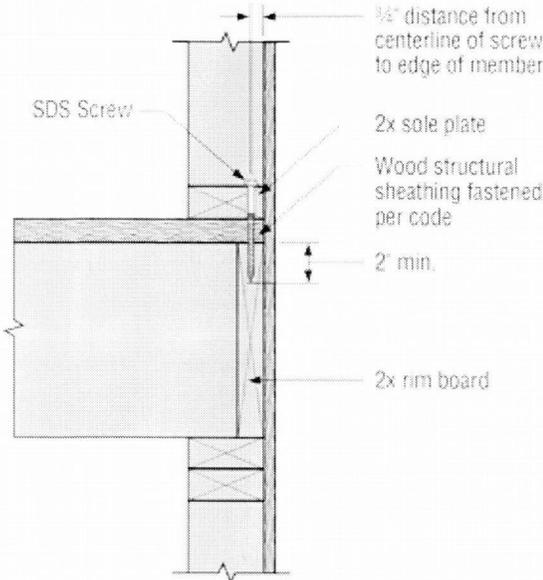
Allowable Shear loads for Installations into the Narrow Face of 2x Main Members

Size (in.)	Model No.	Side Members	Allowable Loads (lbs.)		
			DF	SP	SPF
3/4 x 3 1/2	SDS25300	3/8\" Wood Structural Panel Rated Sheathing	355	325	305
3/4 x 4 1/2	SDS25412	2x Solid Sawn	395	475	335

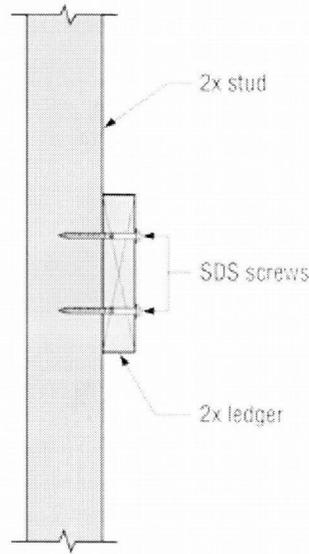
1. Allowable loads are based on testing per ICC AC233 and are limited to parallel-to-grain loaded solid sawn main members (2" nominal). Wood side members may be loaded parallel or perpendicular to grain (see footnote 4).
2. DF/SP allowable loads are based on wood members having a minimum specific gravity of 0.50, and SPF/HF allowable loads are based on wood members having a minimum specific gravity of 0.42. Where the side and main members have different specific gravities, the lower values shall be used.
3. Allowable loads are shown at the wood load duration factor of  $C_D = 1.00$ . Loads may be increased for load duration by the building code up to a  $C_D = 1.60$ .
4. Minimum spacing of fasteners is 3" o.c., minimum end distance is 3" for all parallel-to-grain loaded members, or 4" for all perpendicular-to-grain loaded members, and minimum edge distance is 3/4" for all parallel-to-grain loaded members, or 1 1/2" for perpendicular-to-grain loaded side members.
5. Screws may be installed with an intermediate layer of wood structural panel between the side and main member provided the wood structural panel is fastened to the main member per code and the minimum penetration of the screw into the main member (excluding the wood structural panel) is met.



Strong-Drive® SDS Structural Wood Screw



**Sole-Plate-to-Rim Board Assembly**

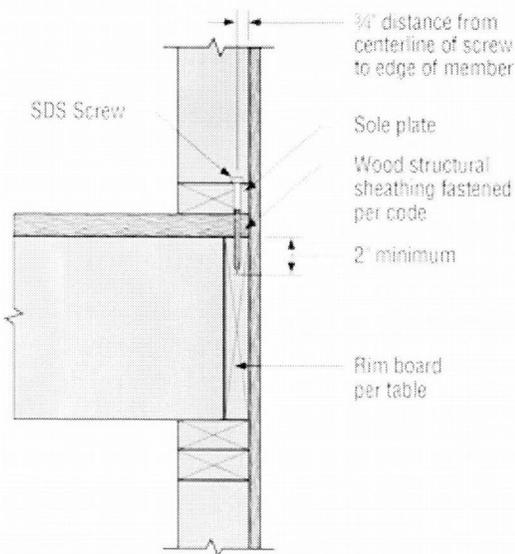


**Ledger-to-Stud Assembly**

**Allowable Shear loads for Attachment of Sole Plate to LVL or LSL Rim Board**

Size (in.)	Model No.	Side Members	Allowable Loads (lbs.)		
			DF	SP	SPF
1/4 x 3 1/2	SDS25300	3/8" Wood Structural Panel Rated Sheathing	355	325	305
1/4 x 4 1/2	SDS25412	2x Solid Sawn	395	475	335

1. Allowable loads are based on testing per ICC AC233 and are limited to parallel-to-grain loading.
2. Allowable loads are shown at the wood load duration factor of CD = 1.00. Loads may be increased for load duration by the building code up to a CD = 1.60.
3. Minimum spacing of fasteners is 6" o.c., minimum end distance is 6", and minimum edge distance is 5/8".
4. Wood structural panel up to 1 1/8" thick is permitted between the sole plate and rim board provided it is fastened to the rim board per code and the minimum penetration of the screw into the rim board is met.



**Sole-Plate-to-Rim Board Assembly**

# Property Owner Statement Regarding Construction Responsibilities

Oregon Law requires residential construction permit applicants who are not licensed with the Construction Contractors Board to sign the following statement before a building permit can be issued. (ORS 701.055 (4))

This statement is required for residential building, electrical, mechanical, and plumbing permits. Licensed architect and engineer applicants, exempt from licensing under ORS 701.010 (7), need not submit this statement. This statement will be filed with the permit.

Please check the appropriate box:

I own, reside in, or will reside in the completed structure and my general contractor is:

\_\_\_\_\_

Name

\_\_\_\_\_

CCB#

\_\_\_\_\_

Expiration Date

I will inform my general contractor that all subcontractors who work on the structure must be licensed with the Construction Contractors Board.

or

I will be performing work on property I own, a residence that I reside in, or a residence that I will reside in. If I hire subcontractors, I will hire only subcontractors licensed with the Construction Contractors Board. If I change my mind and hire a general contractor, I will select a contractor who is licensed with the CCB and will immediately give the name of the contractor to the office issuing this Building Permit.

I have read and understand the Information Notice to Homeowners About Construction Responsibilities, and I hereby certify that the information on this homeowner statement is true and accurate.

M Colleen Sullivan

Print Name of Permit Applicant

MCSullivan

Signature of Permit Applicant

5-2-12

Date

Permit #: \_\_\_\_\_

Address: \_\_\_\_\_

Issued by: \_\_\_\_\_ Date: \_\_\_\_\_





**Building Permit Application**  
**City of Portland, Oregon - Bureau of Development Services**

1900 SW 4th Avenue, Portland, Oregon 97201 • 503-823-7310 • TTY 503-823-6868 • www.portlandoregon.gov/bds

**Type of work**

- New construction       Addition/alteration/replacement  
 Demolition       Other:

**Category of construction**

- 1 & 2 family dwelling       Commercial/industrial       Accessory building  
 Multifamily       Master builder       Other:

**Job site information and location**

Job no.:      Job address: **3140 SE 45th AVE**  
City/State/ZIP: **PORTLAND OR 97206**  
Suite/bldg./apt. no.:      Project name:  
Cross street/directions to job site: **SE KELLY + SE TIBBETTS**  
Subdivision:      Lot no.      Tax map/parcel no.

**Description of work**

**Earthquake reinforcing - tying mudsill to foundation**

Reference RS / Combination      Permit no.

**Property owner**       **Tenant**

Name: **Colleen Sullivan**  
Address: **3140 SE 45th Ave**  
City/State/ZIP: **Portland OR 97206**  
Phone: **503 317 7344**      FAX:  
**Owner installation:** This installation is being made on property that I own, which is not intended for sale, lease, rent, or exchange.  
Owner signature: *[Signature]*      Date: **6-2-12**

**Contractor**

Business name:  
Address:  
City/State/ZIP:  
Phone:      FAX:  
CCB lic. no.  
Authorized signature: \_\_\_\_\_  
Print name:      Date:

**Applicant**       **Contact Person**

Business name:  
Contact name:  
Address:  
City/State/ZIP:  
Phone:      FAX:  
E-mail:  
Authorized signature: \_\_\_\_\_  
Print name:      Date:

This permit application expires if a permit is not obtained within 180 days after it has been accepted as complete.

**Office Use Only**

Permit no: \_\_\_\_\_  
Date received: \_\_\_\_\_  
By: \_\_\_\_\_

**Required Data: One and Two Family Dwelling**

Permit fees\* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

Valuation:	
Number of bedrooms:	
Number of bathrooms:	
Total number of floors:	
New dwelling area:	square feet
Garage/carport area:	square feet
Covered porch area:	square feet
Deck area:	square feet
Other structure area:	square feet

**Required Data: Commercial Use**

Permit fees\* are based on the value of the work performed. Indicate the value (rounded to the nearest dollar) of all equipment, materials, labor, overhead, and the profit for the work indicated on this application.

Valuation:	
Existing building area:	square feet
New building area:	square feet
Number of stories:	
Type of construction:	
Occupancy groups	
Existing:	
New:	

**Notice**

All contractors and subcontractors are required to be licensed with the Oregon Construction Contractors Board under ORS 701 and may be required to be licensed in the jurisdiction in which work is being performed. If the applicant is exempt from licensing, the following reasons apply.

**Statement of Fact:** I certify that the facts and information set forth in this application are true and complete to the best of my knowledge. I understand that any falsification, misrepresentation or omission of fact (whether intentional or not) in this application or any other required document, as well as any misleading statement or omission, may be cause for revocation of permit and/or certificate of occupancy, regardless of how or when discovered.

**Building Permit Fees\***

**Please refer to fee schedule**

Fees due upon application	
Amount received	
Date received	

Sub-contractor information can be faxed to 503-823-7693.