

This document includes questions submitted by attendees during the live webinar, *Drive a New Path: Resisting Uplift with Structural Fasteners*, held on May 2, 2018, along with presenter responses. In some cases, duplicate questions have been combined and noted as such. Please send any additional technical questions to AskSimpson@strongtie.com.

Question	Answer
Options for Continuous Load Path Uplift Restraint (Connectors, Rods, Sheathing, Fasteners)	
<p>1 Why stud to stud connection at floors? Why can't structural sheathing do it?</p> <p><i>(similar)</i> Does a well install plywood/nailing replace the vertical fasteners?</p>	<p>There is no stud-to-stud connection using structural fasteners. Sheathing can be used for combined shear and uplift per the American Wood Council's Special Design Provisions for Wind & Seismic (SDPWS). See Section 4.4. This is available for free viewing download at www.awc.org.</p>
<p>2 Can the floor-to- floor straps be installed over the structural sheathing on the exterior?</p>	<p>Yes. And actually is most commonly installed that way. See catalog C-C-2017 page 304 footnote #6 shows that you can but must use a minimum of a 2 1/2" nail.</p>
<p>3 Instead of connecting truss to top plate and top plate to stud, is there a connector to connect stud to truss (through top plate) assuming we have a stud aligned under truss?</p>	<p>Yes, we have connectors like the H2A, MTS12, and the H10S that can accomplish this. The best information can be found in High Wind-Resistant Construction Application Guide (F-C-HWRCAG16) on page 27.</p>
<p>4 Provide cost comparison of each system?</p> <p><i>(similar)</i> What is the cost difference between this system and the typical straps.</p> <p><i>(similar)</i> WHAT IS THE RELATIVE COST OF THE THREE SYSTEMS THAT WERE MENTIONED IN THIS SEMINAR?</p> <p><i>(similar)</i> As a specifier, do you have a way to compare options for connectors from a value engineering stand point?</p>	<p>Great simple question that is difficult to give a short answer to. There are many variables that go into determining what the cost really is. The needs of the design and each particular project must be taken into account. Also each system has its own set of pro's and con's and what value one assigns to each of those is subjective. Also there is the issue of cross scope problems where one's scope savings is another's expense. Total installed cost regardless of scope should be considered. All that said the short answer when only looking at material (not including labor) is this lowest to highest: 1) Connectors 2) Rods 3) Fasteners</p>

- 5 What is the cost advantage of SDWC vs Framing angles?
It is literally about a wash. If you use the street price of a H2.5A vs the SDWC it appears to be almost twice the price. However when you include the cost of the 10 nails it takes to install a H2.5A you almost get that back. Then just the time and ease of the screw install makes the decision for the SDWC very easy.
- 6 Straps vs fasteners, which one provides the best uplift restraint?
"Best" is going to be in the 'eye of the beholder'. This is why we provided a PDF in the webinar resources called "Comparison of Methods to Resist Wind Uplift" in order to aide you in deciding what attributes of each system are the most important to you.
- 7 Bolts thru with nuts and washers instead of screws are available?
Yes, it is possible to use threaded rod with bearing plates and nuts to transfer loads from plate to plate - and we would recommend a take-up device be used to accommodate for wood shrinkage (an RTUD or ATUD model), but the SDWF-TUW will be a more cost-effective connection, especially when you consider a single person can install the screws from one level and no pre-drilling is required.

Screw Features / Installation / Applications

- 8 Does every screw require a guide?
The SDWC15600 and SDWC15450 come with a guide in the packaging. One guide in a box of 50 screws or two guides in a bucket of 500 screws. The guide helps ensure the correct angle of installation. However, many times the screw can be installed at no angle (i.e. roof member to top plate with no stud aligned below), or if an angled installation is required our details allow for a range of acceptable angles for install in case the guide is not used.
- 9 Does the required configuration change based on the roof slope. In detail B, i would guess you may have embedment issues on the right screw if roof slow is too steep. Can you speak to this? Thanks
I assume your question is related to the 2 SDWC roof to top plate connection details with Configurations A, B, C and D. Assuming the screws have full penetration from top plates to the roof truss or rafter than no, the configuration shown does not change. If the roof is stick-built we do expect that the rafters will have a birdsmouth cut.
- 10 In configuration D (screw from top) would you not be interfering with the truss connector plate and possibly compromising it?
In Configuration D for a 2 SDWC15600 screw roof member to top plate installation - if the roof member is a plated truss then we would recommend pre-drilling the truss plate to allow for the SDWC to be installed. This is the same recommendation we have when installing hangers with SDS screws to plated trusses.



Drive a New Path: Resisting Uplift with Structural Fasteners

Webinar Q&A

- 11 3 fasteners in 2x4 and 2x6 studs per face? Yes, we have installation instructions for SDWC screws through the wide face of a stud to plates using 1, 2 or 3 screws per stud. These studs can be 2x4, 2x6 or 2x8.
- 12 The slide shows the screw missing the top plate, is that ok? I believe this question was posed on the slide that shows strap chaos in one picture (where studs do not align floor to floor) and the additional picture on the page shows the SDWF coming through the floor system into the top plates below. In this picture the SDWF is not penetrating the floor truss that is continuously bearing on the wall. This is because the top and bottom plates are both 2x6 and the floor truss is 2x4 and the SDWF installed was not perfectly centered in the wall, but had the take-up washer (TUV) flush to the inside edge of the bottom plate on the floor above.
- 13 Can you use impact drivers? Answered during call explaining that yes this one of advantages for using the fasteners. Skilled labor shortage and time savings for the framers
- 14 Why not make the screw heads the same size? The SDWF fastener had to have a larger head because it requires more torque to drive the screw. The SD screws used to attach the take-up washer do not require the additional torque, and the head is sized accordingly for this and other connector applications.
- 15 What do you need 4 screws on the sill SDWF plate? One would think that 2 screws at opposite corners (if any) would be plenty to resist movement. The plate also seems very large for the amount of uplift that will most likely be controlled by the long (Floor to Floor? screws. The screws are needed to tie the TUV to the bottom plate so that when the floor system shrinks the TUV stays attached to that bottom plate to force engagement of the SDWF threads and the TUV threaded tabs. The withdrawal capacity has to work for the least dense woods we allow (SPF or HF). Fewer screws would be possible for denser material, but we have not differentiated for simplicity.
- 16 Can you use an SDWC screw with an H2.5A?
(similar) Can you combine capacities of an H2.5a clip with the single screw connection at a location? We have actually tested this and the load capacity is not better combining the SDWC screw with the H2.5A. This is because the stiffness of each connector is very different so their respective capacities are not additive. If you need more load than the single H2.5A or single SDWC screw you could use the 2 screw configurations shown in catalog C-F-2017 pages 342 and 343 to achieve your desired load. It would be a simpler and easier solution and not have any nail interference.

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| 17 | Do the screws discussed in the webinar replace the toenails in stud to plate connections? | No, the toenails or end nails in a typical stud to plate connection are the required fasteners for framing. You can find such requirements in the IRC Table R602.3(1) |
| 18 | Can this system be applied in cold form steel construction? | No - the SDWC and SDWF-TUW cannot be used in CFS construction. |
| 19 | Is it ever advised or necessary to have a second person to guide the screws through the top plate of the wall below? | It should never be necessary. One of main advantages of the screw is it can be a one person job. The only issue we've seen is when you have a condition where you are going thru a truss that has a very steep angle, the installer needs to take some care in assuring the tip of the screw gets started correctly and does not slide down the web. |
| 20 | How much of variable is acceptable for screw placement & angle for inspectors? | The installation instructions show the acceptable angle range and important end and edge distance requirements. You can download them at strongtie.com/products/fastening-systems/technical-notes/installation-detail-drawings . |
| 21 | What is e coat on the 4" screws? Are these also zinc coated? | The E-Coat on the SDWC15450 is a proprietary coating that consists of a phosphate base and an organic top coating. The coating is recognized for use in some chemically treated woods. The SDWC15600 is zinc coated with an orange topcoat and is limited to dry-service conditions. |
| 22 | What are the chances of the screws hitting the 16d sinkers? | The chances are no different than they would be for any fastener installed in a standard connector or even structural sheathing. Test setups have included the standard nails found in common framing as well. |
| 23 | Does this have any application in areas that are governed by seismic loads? And why not use a screw down from the bottom plate to a rim board and up from the top plates to a rim board? | The same capacities shown in the tables would apply to seismic loads as the duration factor for seismic is the same as that for wind (1.60). As far as applications it applicable for seismic it may be for lightly loaded shearwalls and the concentrated load capacities of the SDWF-TUW from floor to floor in conjunction with SDWC screws from stud to plate may be useful. And I assume your second question you mean for an SDWC screw to go from bottom plate down to rim board and top plates up to rim board - this is certainly possible if you have an EWP rim board. However, you would have to consider the effects of cross-grain tension if using a solid-sawn rim board; and there are floor systems that exist where you would not have a rim board at all. |



Screw System Design / Testing / Load Tables

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| 24 | Do you publish any standard use details? | Product drawings (CAD drawings) are available on the product web page at strongtie.com/mpbz |
| 25 | Can you get these same values if just a 16"x16"x12" deep isolated footing, without a slab, is used? | No. 16"x16" is the minimum size for concrete breakout. Footing design shall be by Designer for applied loads. |
| 26 | Why aren't the tables from catalog p. 341 and 342 not shown in ERE0262? | IAPMO UES ER-262 is based on Acceptance Criteria 233. This criteria does not allow for angled connections. Therefore we've used AC13 (the criteria for hurricane ties) to evaluate the SDWC for these installations. |
| 27 | What is detail and capacities for use in advanced framed walls, studs and trusses or rafters at 24" o-c, with single top plate?

<i>(similar)</i> Do you also have capacities for single top plate applications? | This question came up at the end of the webinar (at the 50:45 mark). For stud to bottom plate testing our load tables we have shown today are still applicable. At the roof level we have some testing done, but as the roof member aligns with the stud and only a single top plate exists the detailing will be different from what we have shown, and we haven't finished this test program. If you have a specific project where you would like to use the SDWC screws please call us at (800) 999-5099 to discuss. |
| 28 | Quick review of how to compute roof uplift force? | There are prescriptive tables in both the IRC and the AWC WFCM if your structure fits within the limitations of these code referenced standards. Otherwise, you would need to calculate your uplift using one of multiple methods shown in ASCE 7. Simpson Strong-Tie has a free online course at training.strongtie.com called " Wind Design with ASCE 7-10 " (course code ONL-WDAS02) that you may find helpful. |
| 29 | Are all of the 'allowable tension loads' indicated in the tables to be compared with service level wind loads? Ultimate loads from ASCE, etc. reduced down to service level? | Yes, all of the loads shown in this webinar were for ASD so you would want to use the ASD load combinations in the IBC (or ASCE 7) to calculate your wind uplift demand loads. |
| 30 | Do you need blocking at the floor to floor screws to avoid deflection between joists? | No, the screws are attached to the bottom plate of the upper wall and the top plate of the lower wall. The floor joists keep the top plate of the lower wall from bending, and the studs from the story above keep the bottom plate of the upper wall from going into bending. |

- 31 Can we use this system for a shear wall instead of the hold down system or strong rod system? We have published the concentrated load capacities of the SDWC-TUW in single or double applications. These can be used in conjunction with SDWC screws for stud to plate connections for a lightly loaded shear wall holddown. The capacities of holdowns or rod systems are much higher.
- 32 Design example Item 8. Do you take into account the lateral load when you state no screw is required? No - we are not addressing lateral loads in this example - only uplift. There will be connections required to transfer the cumulative shear load down to the foundation.
- 33 Do you have any videos of your testing of these connectors? We do not have specific video of the SDWC and SDWF testing, however we do have a good video that discusses and shows our testing program overall that you may find useful. Check it out on our YouTube channel:
https://www.youtube.com/watch?v=alH0i_NJy2s
- 34 So shear is handled by the OSB or Plywood panels? The system we showed was only for wind uplift. Shear transfer would have to be through other means and typically wood structural panels (plywood or OSB) are used for this as shear walls - and multiple connections can be used to do this at the floor to floor level (i.e. nails, screws, connectors).
- 35 Can we also use these screws for seismic use uplift in shear walls? Yes, our Fastener Catalog, C-F-2017, page 354 shows concentrated uplift capacities for one- and two-screw applications of the SDWF-TUW Floor-to-Floor Screw. This would need to be in combination with SDWC screws or metal connectors for stud-to-plate connections. The allowable loads include the duration factor of 1.6 are appropriate for wind or earthquake loading with no further increase allowed; reduce where other loads govern.
- 36 The tables show F2, what are these values? The F2 values are lateral shear capacities to transfer load perpendicular to the wall.
- 37 Are design loads screws based on testing or just NDS screw withdrawal values. The values in the load tables presented are based on testing in accordance with ICC-ES Acceptance Criteria 13.
- 38 I had a materials supplier suggest I use a series of these screws to replace an uplift anchor for a shear wall. Is this an appropriate use of these fasteners? Bryan covered this in a slide showing loads in a concentrated condition such as the end of a shearwall. In our fastener catalog C-F-2017 page 354 has details concerning this condition. So yes, if the table loads allow for your condition, it could be an alternative for you.

- 39 For top plate connection design, are you allowed to take account of the roof/roof truss Dead Load also, or only wall weight? In our example we assume the uplift reaction has already accounted for the allowable dead load reduction. So, yes, you are allowed to consider the dead load of your roof system in your design.
- 40 Is Simpson Strong-Tie going to test the SDWC screws for shear connections? Simpson Strong-Tie has already tested the SDWC for shear connections. The SDWC screw shear connection values are published generally in their evaluation report IAPMO-UES ER-262 (http://www.iapmoes.org/Documents/ER_0262.pdf), as well as for specific shear connections like ledger-to-rim-board and sole-to-rim-board applications. See strongtie.com or C-F-2017 Fastener catalog.

Canadian Use / Limit State Design

- 41 Do you have load capacity Tables based on Limit State Design?
(similar) Will the SDWC and SDWF screws be available in Canada. I do not see them in the Simpson 2018 Canadian catalogue
Simpson is currently working on creating the Limit States Design on the SDWC and SDWF. Look for the fastener addendum in the near future (sometime in 2018)
- 42 Are these specifications available for the SD (Strength Design) or LRFD methods, as for Canada? Simpson does not recommend that specifiers use the SD (Strength Design) or LRFD methods for Canada due to our different DEMAND load combination factor and the different Material Strength reduction factors. Simpson suggests that the Allowable Stress Design (ASD) method in combination with a soft conversion factor (as determined by the Specifier) for Canada be used.

Miscellaneous

- 43 Is there a list of connectors that should be used in typical houses at different wind speeds? Maybe a chart or spreadsheet?
- A simplified list of wind uplift connector options can be found in our T-C-TORNADO15 technical bulletin for strengthening a structure in tornado prone regions. It is important that you look at the limitations shown on page 1 of the bulletin. Wind pressures will vary based on multiple variables like wind speed, mean roof height, roof span, exposure category, etc.
- 44 To have stick heeled framing roof, I use a top plate above the ceiling joists and then then the rafter. What connector (strap) should I use to tie rafter to top plate to joists to wall double top plate?
- Depending on the depth of ceiling joist and uplift demand force you have you may be able to use a twist strap (LTS, MTS or HTS) to attach from the studs in the wall below directly up to the roof rafter above. If that solution does not work then it is probably best that you give us a call at (800) 999-5099 to discuss more details about your framing condition so we can help to find a good solution.
- (similar)* application for Raised plate rafters?
- 45 I envision small contractors not being as receptive to these screws. Have you found this true?
- I would assume smaller contractors would be working on single family residential. Their need for the SDWF would be limited but the SDWC screw has been well-received by this customer. The ease of installation with a drill vs hammering 10 nails into a H2.5A is an easy sell. Most of our stocking lumberyard dealers all stock this fastener now and it is one of their better sellers.