

Notice of April 8-9, 2015 meeting of the Board of Architectural and Engineering Examiners.  
Posted to the Board of Architectural & Engineering Examiners' website on March 30, 2015.



**STATE OF TENNESSEE  
DEPARTMENT OF COMMERCE AND INSURANCE  
BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
500 JAMES ROBERTSON PARKWAY  
DAVY CROCKETT TOWER  
NASHVILLE, TENNESSEE 37243  
Telephone: 615-741-3221 Fax: 615-532-9410  
Program Website: <http://www.tn.gov/regboards/ae/>**

**AGENDA**

**BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
NOTICE OF BOARD MEETING**

Davy Crockett Tower, Conference Room 1-B  
500 James Robertson Parkway  
Nashville, Tennessee 37243

**Wednesday, April 8, 2015**

**1:00 P.M. ENGINEER COMMITTEE MEETING**

CALL TO ORDER – Hal Balthrop, Chair

NEW BUSINESS

- Applications and Audits for Review, Discussion and Signature

UNFINISHED BUSINESS

- Conference Call with Joseph Tomasello, P.E., re: International Residential Code Certification (2:00)
- Revisions to Standard of Care for Fire Sprinkler System Design re: Delegated Design of Fire Sprinkler Systems
- Decoupling of experience and examination requirements for PE registration
- Correspondence from Charles Ferguson re: Aerial Adventure Courses

ADJOURNMENT

**The listed order of items and times on the agenda are subject to change, as the Board reserves the right to move to the next agenda items due to cancellations or deferrals.**

Board meetings will be conducted by permitting participation of the Board members by electronic or other means of communication if necessary. Any member participation by electronic means shall be audible to the public at the location specified above. The Department of Commerce and Insurance is committed to principles of equal access.

If you need assistance with attending this meeting due to a disability please contact the Department's ADA Coordinator at (615) 741-0481.

Davy Crockett Tower, Conference Room 1-A  
500 James Robertson Parkway  
Nashville, Tennessee 37243-1151

**Thursday, April 9, 2015**

**8:00 A.M. JOINT LANDSCAPE ARCHITECT/ARCHITECT COMMITTEE MEETING**

CALL TO ORDER – Rick Thompson, Chair

NEW BUSINESS

- New Application Forms for Early Exam Eligibility Candidates
- Report on NCARB Regional Summit
- Correspondence from Charles Ferguson re: Aerial Adventure Courses

ADJOURNMENT

**8:30 A.M. NOMINATIONS COMMITTEE MEETING**

CALL TO ORDER – Wilson Borden, Chair

NEW BUSINESS

- Discuss Nominations for Board Officers

ADJOURNMENT

**9:00 A.M. BOARD MEETING**

CALL TO ORDER – Rick Thompson, Chair

- Roll Call
- Acknowledge Guests
- Announcements
- Review Agenda for Changes and/or Additions

CONSENT AGENDA – John Cothron, Executive Director

- Minutes from February 2015 Board Meeting
- Staff Complaint Report

PROFESSIONAL SOCIETY REPORTS

LEGAL CASE REPORT – Ellery Richardson

**The listed order of items and times on the agenda are subject to change, as the Board reserves the right to move to the next agenda items due to cancelations or deferrals.**

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DIRECTOR'S REPORT – John Cothron

- Legislative Update
- Complaint Data

ENGINEER COMMITTEE REPORT – Hal Balthrop

JOINT LANDSCAPE ARCHITECT/ARCHITECT COMMITTEE REPORT – Rick Thompson

PUBLICATIONS COMMITTEE REPORT – Stephen King

UNFINISHED BUSINESS – John Cothron

- Action Items
- Proposed Rule Changes
- Qualifications-Based Selection

NEW BUSINESS

- Officer Nominations – Wilson Borden
- Correspondence from Charles Ferguson re: Aerial Adventure Courses

ADJOURNMENT

**2:00 P.M.**

**LAW AND RULES/POLICIES COMMITTEE MEETING**

CALL TO ORDER – Rick Thompson, Chair

UNFINISHED BUSINESS

- Definitions of Practice
- Proposed Comity Statute Revision

ADJOURNMENT

**2:30 P.M.**

**PUBLICATIONS COMMITTEE MEETING**

CALL TO ORDER – Stephen King, Chair

UNFINISHED BUSINESS

- Reference Manual Revisions

ADJOURNMENT

**There will be no formal hearings on Friday, April 10, 2015.**

**The listed order of items and times on the agenda are subject to change, as the Board reserves the right to move to the next agenda items due to cancelations or deferrals.**

Board meetings will be conducted by permitting participation of the Board members by electronic or other means of communication if necessary. Any member participation by electronic means shall be audible to the public at the location specified above. The Department of Commerce and Insurance is committed to principles of equal access. If you need assistance with attending this meeting due to a disability please contact the Department's ADA Coordinator at (615) 741-0481.



Thursday, January 22, 2015

Mr. John Cothron  
Executive Director  
Board of Architectural and Engineering Examiners  
500 James Robertson Pkwy  
Nashville, TN 37243-1142

**Sent Via Email: [john.cothron@tn.gov](mailto:john.cothron@tn.gov)**

**Re: Questions in Regard to Responsible Charge**

Dear Mr. Cothron:

I am writing to enlist your help to better understand how, as a licensed engineer, I can adhere to certain aspects of a relatively new International Residential Code. I find myself faced with several complexities that I can't seem to resolve. It is my hope that you can help me determine a proper perspective on these issues.

The Building Official in the Town of Collierville, Tennessee, require that a foundation be certified by a licensed engineer. The certification form is to be signed and sealed. In reviewing the language of the document, and a discussion with the Building Official, it is clear that by certifying, the engineering professional is to make his determination based on non-registered designers. I have attached correspondence and a copy of the certification.

As I understand Tennessee's ethics, the certifying engineer must take responsible charge satisfying that in his engineering judgment the foundation does indeed meet the code. Of course since this is an expense not normally seen in home building the Town of Collierville states that the certifying engineer is to rely on the work of non-registrants who make the determination whether or not the foundation meets the prescriptive requirements of the code.

To complicate matters further, the code requires that certain prescribed resistance to earthquakes be designed into the superstructure supported by this foundation. To accomplish this, Building Officials with the Town of Collierville allow non-registered designers to select prefabricated engineered panels which impart concentrated loads onto the foundation. In addition, the non-registrant designer selects the structure's bracing system, foundation and anchorage, which also affect the foundation.

The engineered prefabricated panels, such as those manufactured by Simpson Strong-tie, are not certified by an engineer registered in the State of Tennessee. These panels are, however, evaluated by the International Code Council. In the case of Simpson Strong-tie, and report their finding in a pre-certification report such as the attached ESR-1679. This is also done without a State of Tennessee registered engineer. The non-registered designers of the ICC are effectively performing the art and science of engineering of component parts of the building.

I believe there are several issues at hand with this practice and have thus far avoided this particular certification mandated by the Town of Collierville. It seems to me the code jurisdiction is presuming authority it doesn't have.

Specific, my concerns are as follows:

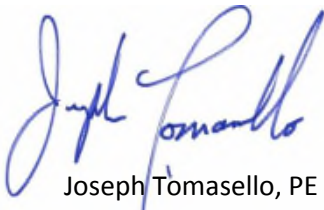
- The Collierville Engineered Footing/Foundation Form Letter considers the certification by a registrant not in responsible charge.
- The bracing system, shear walls, etc, and the foundation supporting them should be under the responsible charge of an engineer as they require both the art and science of that discipline, as opposed to the Building Official and or his inspectors.
- The Town of Collierville's Building Official is accepting prefabricated engineered shear panels without a registrant in responsible charge of the panels. Hence, the manufacturer is performing engineering within the State without a license.
- By my reasoning, determining the suitability and appropriateness of such products along with their anchorage and foundation is also the art and science of engineering and should be performed by a registered engineer.

The authority of the Town of Collierville Building Official to require foundation certifications is not being questioned. My concerns are directed towards the manner in which the issue is being approached without the engineer in responsible charge. It seems to be what some call, "rubber stamping" plans. I'd like to know if this is an ethical way to conduct my practice, I'd like to stay competitive with other engineers in the area.

With regard to practice of the art and science of engineering by out of State non-registrants, I feel that manufacturers of prefabricated portions of buildings are circumventing Tennessee law. If it is something as simple as a prefabricated shear panel, why not use a prefabricated building. It seems peculiar to me that the ICC is dictating what is acceptable under Tennessee law for equivalent elements to the prescribed elements of a building code. When a licensed engineer takes responsible charge, the public is insured that elements prescribed by agencies outside of the State are indeed compatible with building practices here in Tennessee.

Thank you for your attention. I hope you can help me resolve these issues.

Sincerely,

A handwritten signature in blue ink that reads "Joseph Tomasello". The signature is written in a cursive style with a large, looping initial "J".

Joseph Tomasello, PE  
Senior Project Engineer

## **Attachments**



January 16, 2015

Mr. Tim Pendleton  
Building Official  
Collierville Code Enforcement  
Town Hall, 500 Poplar View Parkway,  
Collierville TN 38017

**Sent Via Email:** [tpendleton@ci.collierville.tn.us](mailto:tpendleton@ci.collierville.tn.us)

**Re: Residential Building Codes**

Dear Mr. Pendleton:

I appreciate your response to my letter of January 7, 2015 (attached for reference). It seemed to clarify how the Town of Collierville viewed the issues raised. The Collierville's Foundation Certification itself is not a problem. However, it does go beyond what you seem to be indicating in your response. As a result, I still have a few issues that need further clarification.

For instance, the "Residential Engineered Footing/Foundation Form" previously discussed asks the engineer to certify that the foundation is built in "*substantial conformance with the provisions of the minimum design criteria*" found in the IRC. In addition, it also states the "*footing is capable of supporting the intended load.*" Without an in depth analysis of the load path, to make this certification would place the engineer in the position of relying on non-registrant designers to determine whether or not the foundation conforms to code. In short, the engineer is being asked to do is "rubber stamp" the work of non-registrants.

We recognized the substitution of shear wall panels as outlined in ESR-1679 such as Steel Strong-Wall but it is only applicable for the WSP Method or IBC Method 3 without analysis by a design professional. In addition, the foundation element receiving the load from the panel is outside the scope of the report. This indicates engineering by a licensed professional engineer is required shown in the following excerpt from ESR-1679:

*5.5 Design of the concrete foundation, masonry wall or foundation, or steel beam supporting the panels, and other structural elements connected to the panels, must consider the loads imposed by the panels. The design is outside the scope of this report and must comply with the applicable code.*



Thus, the footings for the panels are not prescriptive and engineering analysis is needed, he should not be relying on non-registered designers.

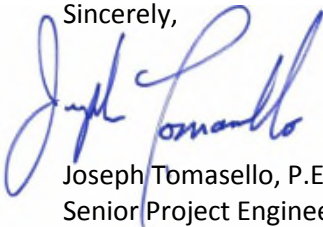
I am truly convinced that the complexity of the IRC 2012 is such that determining compliance with prescriptive requirements is the art and practice of engineering as viewed by the State Board of Architects and Engineers. For example table R602.10.3(3) is only applicable for the following conditions:

- Soil class D
- Wall height =10 feet
- 15 psf roof/ceiling dead load
- Braced wall line spacing equal to or less than 25 feet

Residential construction in our area typically exceeds 15 psf roof/ceiling dead load for roofs having slopes steeper than 7/12. This brings about further complications and computations beyond the ability of a non-registrant . The prescriptive requirements in the 2012 IRC are generally applied to regular shaped buildings which are relatively light, have shallow sloped roofs, and are small in foot print, e.g. low rectangular boxes with one or two stories. Hence, my suggestion is that all residential structures in seismic categories D<sub>0</sub>, D<sub>1</sub>, and D<sub>2</sub> should be engineered.

I'm looking forward to your response. I've copied other jurisdictions in the area hoping they too will study this issue.

Sincerely,

A handwritten signature in blue ink that reads "Joseph Tomasello". The signature is fluid and cursive, with the first name being more prominent.

Joseph Tomasello, P.E.  
Senior Project Engineer

Cc: Jim Brown ([jbrown@cityofbartlett.org](mailto:jbrown@cityofbartlett.org)), Alan Medlock ([allen.medlock@shelbycountyttn.gov](mailto:allen.medlock@shelbycountyttn.gov)), Al Bell ([a.bell@millingtontn.gov](mailto:a.bell@millingtontn.gov)), State Residential Building Code Director, Gary Farley (<mailto:gary.farley@tn.gov>)

Mr. Tomasello,

In response to your letter regarding Residential Building Codes and your questions related to the Town of Collierville enforcement methods. I am not sure of your source of information or even the basis for your letter but there are several errors and/or misunderstandings that I feel I need to respond to:

- 1) For clarity, the Town of Collierville is located within Seismic Design Category  $D_0$  with a Basic Wind Speed of 90 mph.
- 2) The "Residential Engineered Footing/Foundation Form" is not considered an equivalent to an inspection by Town staff. It is in fact a requirement in addition to the inspection performed by a Town building inspector who is certified by the State of Tennessee to perform this inspection. The form is reassurance that all aspects of the foundation have been looked at especially areas that may be out of the inspector's expertise (i.e. soils conditions, etc....).
- 3) Your comment about the "all-sheathing method" is incorrect. The Town of Collierville enforces the 2012 IRC and Section R602.10.5.4 does not exist in this code. Your quote "Where a continuously-sheathed braced wall line is used in Seismic Design Categories  $D_0$ ,  $D_1$  and  $D_2$ .... the braced wall lines shall be designed in accordance with accepted engineering practice....." appears to be from the 2009 IRC and has been removed from the 2012 IRC. Furthermore, we do not accept the continuously sheathed method unless specifically allowed by the 2012 IRC.
- 4) Your comment about the use or determination of adequacy of pre-fabricated shear panels is to be by a qualified design professional is also incorrect. If you would look at page 4, Section 5.3 of ESR-1679 (you provided), there is an exception for braced and alternate braced wall substitutions which are noted in Section 4.1.2 of this same report. Section 4.1.2 states "Steel Strong-Wall panels are permitted to replace each 4 feet of braced wall panel length specified in Section 2308.9.3 of the IBC and Section R602.10 of the IRC.....". Section R602.10, as you may be aware, is the braced wall section of the Code and defines what braced walls are and how they are to be applied. It is a prescriptive method for bracing walls of one- and two-family dwellings to resist wind and seismic loads, including Seismic Design Category  $D_0$ , **without the use of a design professional.**

I believe this answers all of the concerns you have stated and provides clarity to other designers as well.

Sincerely

Tim Pendleton



January 7, 2015

Mr. Tim Pendleton  
Building Official  
Collierville Code Enforcement  
Town Hall, 500 Poplar View Parkway,  
Collierville TN 38017

**Sent Via Email:** [tpendleton@ci.collierville.tn.us](mailto:tpendleton@ci.collierville.tn.us)

**Re: Residential Building Codes**

Dear Mr. Pendleton:

The purpose of my letter is to receive guidance and direction on what seems (to me) to conflict with the State of Tennessee Annotated Code, the duly adopted Building Code and my duties and responsibilities as a registered engineer. I have received a copy of your form PPI#02002D, titled "Residential Engineered Footing/Foundation Form" letter. I understand the form allows the home builder to engage the services of a professional engineer or architect to observe particular elements of the foundation construction and certify them to conform to the IRC 2012 for Seismic Design Category D<sub>0</sub>. It is understood that this certification is recognized by the Town of Collierville Code Enforcement as an equivalent to inspection by your Enforcement Officers. Specifically these items require certification:

- a) *"The footings were inspected for minimum depth, width & thickness as required by the prescriptive codes. The minimum depth, width & thickness observed were . . ."*
- b) *"Footing & foundations for prefabricated engineered panels were observed as being installed in the locations shown on the plans & in accordance with the manufacturer's specifications."*

It is presumed that these are prequalified engineered panels to meet the brace wall requirements of Section R602.10 similar to Hardy Frame® and Simpson Strong-Tie® Shearwalls. Furthermore, it seems the practice in the metropolitan area is to utilize continuously-sheathed braced wall lines (known locally

as "all-sheathing method"). Section R602.10.5.4 of the IRC specifically states this method of wall bracing needs evaluation by building design professionals.

The provisions state:

*Where a continuously-sheathed braced wall line is used in Seismic Design Categories Do, D<sub>1</sub> and D<sub>2</sub> or regions where the basic wind speed exceeds 100 miles per hour (45 m/s), the braced wall line shall be designed in accordance with accepted engineering practice and the provisions of the International Building Code. Also, all other exterior braced wall lines in the same story shall be continuously sheathed.*

Considering this current practice and the required professional certification by your Department, I would like to clarify your Department's position on the following:

- 1) Can we presume that when the builder does not take the option to have an engineer or architect certify the foundation, your Department has registered professional engineers or architects who can perform this function? If not, who makes the determination of adequacy, and stability? Or, is this certification required on all residential buildings and if so how does that conflict with Item 7 below?
- 2) Is your Department determining the foundation adequacy to be within the prescriptive parameters of the IRC? If not, then is this determination to be made by the certifying professional? Or, can the determination be made by the builder/owner?
- 3) Is your Department determining the adequacy and suitability of the selected prequalified manufactured shear panels? If not, then is this determination to be made by the certifying professional? Or, can the determination be made by the builder/owner?

- 4) Has your Department determined that the 'all sheathing' method does indeed meet the requirements of the appropriate sections of the IBC for all foreseen conditions? Can you provide for our use how this determination was made and parameters in which it is valid?
- 5) Is your Department determining the adequacy and appropriateness of the number, size, and configuration of anchors to the foundation and surrounding superstructure for the prequalified shear panel? If not, then is this determination to be made by the certifying professional? Or, can the determination be made by the builder/owner?
- 6) Is your Department determining the adequacy of the foundation for the prequalified shear panel? If not, then is this determination to be made by the certifying professional? Or, can the determination be made by the builder/owner? As you are aware, these panels can create uplift on the foundation and anchorage is extremely important.
- 7) Is your jurisdiction authorized to adopt a building code pursuant to TCA 68-120-101(enabling statute for State Fire Marshall to adopt building codes) that require registered professionals setting aside the exemptions in TCA §62-2-102 (statute containing exemptions from registration)? In other words, does your jurisdiction have the authority to require residential structures or part of structures to be designed by a registered engineer or architect contrary to TCA §62-2-102 which specifically excludes residential structures.

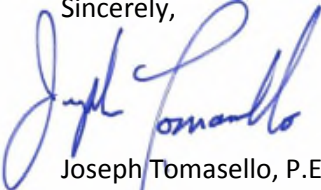
As you may already know, the ICC pre-certifies (ICC-ES Evaluation Reports) the manufactured ties, tie-downs, shear walls (brace panels), and other similar products used for Seismic Design Category D<sub>0</sub> D<sub>1</sub> D<sub>2</sub>. Each certification covers the individual product, however the determination of adequacy, suitability and installation for the intended use of the product is to be determined by a qualified design professional (engineer or architect). This means that any product not specifically designated as 'prescriptive' in the IRC requires the evaluation of a design engineer. Does the manufacturer provide a certification from a registered professional engineer stating the adequacy of his product (as installed) for the intended

purpose for each individual use? If not, why are these products included in a structure exempt from the requirements of the adopted IRC building code?

Recently local jurisdictions in the metropolitan area have adopted ICC codes which designate your jurisdiction as extremely-high/high seismic hazard. Considering the product, style and types of construction offered by most home builders today, it is my opinion many of the elements in residential construction do not fall under the prescriptive requirements of the Code and as a practical matter to require design by registered professionals for each structure.

I'm looking forward to your response. It is my hope your Department will issue a directive on which an engineer or architect can rely. Your response will determine how we view our responsibility to the community and to our clients. I've copied other jurisdictions in the area hoping to get their responses as well.

Sincerely,



Joseph Tomasello, P.E.  
Senior Project Engineer

Cc: Jim Brown ([jbrown@cityofbartlett.org](mailto:jbrown@cityofbartlett.org)), Alan Medlock ([allen.medlock@shelbycountyttn.gov](mailto:allen.medlock@shelbycountyttn.gov)), Al Bell ([a.bell@millingtontn.gov](mailto:a.bell@millingtontn.gov)), State Residential Building Code Director, Gary Farley (<mailto:gary.farley@tn.gov>)

Attachments: Residential Engineered Footing/Foundation Form Letter.  
Sample, ICC-ES Evaluation Report ESR-1679 (Simpson Strong-Tie)

Permit # _____
Lot # _____

# RESIDENTIAL

## TOWN OF COLLIERVILLE

### BUILDING DEPARTMENT

## ENGINEERED FOOTING / FOUNDATION FORM LETTER

Street Address: _____	Subdivision: _____
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This is to certify that this firm made a pre-pour inspection of the foundation system at the above location, and that, to the best of my knowledge and belief, said foundation has been built in substantial conformance with the provisions of the minimum design criteria of the currently adopted code, located in Seismic Design Category D<sub>o</sub>.

**The following conditions were observed at the time of inspection:**

- |   |  |
|---|--|
| <p><input type="checkbox"/> The weather conditions were _____ °F and<br/>Clear, Cloudy, Raining, Snowing, or<br/>Other _____</p> <p><input type="checkbox"/> The concrete slab was poured as a monolithic slab<br/>[with/without] a brickledge.</p> <p><input type="checkbox"/> The footing is supported on undisturbed bearing soil<br/>capable of supporting the intended load.</p> <p style="text-align: center;"><b>OR</b></p> <p><input type="checkbox"/> The footing is supported on properly compacted fill<br/>ground and/or is designed to support the intended load.</p> <p><input type="checkbox"/> Welded reinforced wire 6 x 6 10/10 was placed over<br/>the slab area.</p> <p style="text-align: center;"><b>OR</b></p> <p><input type="checkbox"/> Fibermesh concrete was used.</p> <p><input type="checkbox"/> The footings were inspected for minimum depth, width<br/>&amp; thickness as required by the prescriptive codes. The<br/>minimum depth, width &amp; thickness observed were<br/>_____ inches deep _____ inches wide &amp; _____ thick</p> | <p><input type="checkbox"/> The footing is reinforced with _____ lines of<br/>No. _____ horizontal reinforcing steel.</p> <p><input type="checkbox"/> No. _____ rebar is placed vertically on<br/>_____ inch centers.</p> <p><input type="checkbox"/> Termite treatment was performed by:<br/><br/>_____</p> <p><input type="checkbox"/> Grade beams were installed where required.</p> <p><input type="checkbox"/> The slab sub-grade was covered with a vapor<br/>barrier.</p> <p><input type="checkbox"/> Finish floor is _____ inches above the<br/>exterior perimeter grade.</p> <p><input type="checkbox"/> The Inspection was performed @ _____<br/>AM/PM on ____/____/20____.</p> <p><input type="checkbox"/> Footing &amp; foundations for prefabricated<br/>engineered panels were observed as being<br/>installed in the locations shown on the plans<br/>&amp; in accordance with the manufacturer's<br/>specifications.</p> |
|---|--|

\_\_\_\_\_  
Engineering Firm Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
City State Zip

*Seal  
Signature  
& Date*

**ICC-ES Evaluation Report****ESR-1679**

Reissued April 2014

*This report is subject to renewal June 1, 2015.*[www.icc-es.org](http://www.icc-es.org) | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

**DIVISION: 05 00 00—METALS****Section: 05 40 19—Cold-Formed Shear Wall Panels****DIVISION: 06 00 00—WOOD AND PLASTICS****Section: 06 12 19—Shear Wall Panels****SIMPSON STRONG-TIE COMPANY INC.**  
5956 WEST LAS POSITAS BOULEVARD  
PLEASANTON, CALIFORNIA 94588  
(800) 999-5099[www.strongtie.com](http://www.strongtie.com)**EVALUATION SUBJECT:****STEEL STRONG-WALL SSW SHEAR PANELS AND  
S/SSW SHEAR PANELS****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2012, 2009 and 2006 *International Residential Code*® (IRC)

**Property evaluated**

Structural

**2.0 USES**

The Steel Strong-Wall SSW Shear Panels and S/SSW Shear Panels are prefabricated steel shear panels designed and constructed to resist vertical (gravity) loads and to resist lateral in-plane and out-of-plane loads, resulting from wind or earthquakes, in wood or cold-formed steel light frame construction. The panels are permitted to replace each 4 feet (1219 mm) of braced wall panel length specified in Section 2308.9.3 of the IBC and Section R602.10 of the IRC, in accordance with Section 4.1.2 of this report.

**3.0 DESCRIPTION****3.1 General:**

**3.1.1 SSW Shear Panels:** SSW model information is provided in Table 1 and Figure 1 of this report. The SSW panels are designed for installation in single-story or multistory buildings of wood light frame construction, and may be stacked up to two stories when the lower story is placed on a rigid base such as a concrete foundation. Panels for stud wall heights of 10 feet (3048 mm) or less are provided with preattached vertical wood 2-by-4 studs. SSW panels for stud wall heights greater than 10 feet (3048 mm) are provided with preattached vertical wood

2-by-6 studs. Intermediate height panels are available as noted in Table 1. Model numbers with the suffix “-STK” are intended as the lower wall panel in balloon framed applications and the lower-story wall panel in two-story stacked applications.

**3.1.2 S/SSW Shear Panels:** S/SSW model information is shown in Table 2 of this report. The S/SSW panels are designed for installation in the bottom story of buildings of cold-formed steel light frame construction when placed on a rigid base, such as a concrete foundation. The S/SSW series panels are all-steel assemblies and are available with preattached, nonload-bearing, cold-formed steel studs. Intermediate heights are available as noted in Table 2. Where information is provided in this report for the “SSW” panels, the information is also applicable to “S/SSW” panels, unless otherwise noted.

**3.2 Material:**

**3.2.1 Steel Shear Panel:** The proprietary steel shear panels are described in the approved quality documentation and are formed from No. 10 gage (0.134-inch design thickness and 0.1275-inch base-metal thickness) (3.4 and 3.2 mm), zinc-coated steel sheet complying with ASTM A653, Designation SS, Grade 40, with a minimum G60 galvanized coating.

**3.2.2 Wood:** The wood studs, preattached to the SSW panels, are nominally 2-by-4 and 2-by-6 spruce-pine-fir, stud grade or better, sawn lumber with a minimum average specific gravity of 0.42.

**3.2.3 Steel Top Plate:** The proprietary steel top plate is described in the approved quality documentation and is die-formed from carbon steel complying with the product material specifications noted in the quality documentation referenced in Section 6.3 of this report.

**3.2.4 Steel Base Plate:** The proprietary steel base plate is described in the approved quality documentation, and is die-formed from structural carbon steel complying with the product material specifications noted in the quality documentation referenced in Section 6.3 of this report.

**3.2.5 Steel-STK Hold-down Element:** The proprietary hold-down element is formed from carbon steel and complies with the descriptions and product material specifications noted in the quality documentation referenced in Section 6.3 of this report.

**3.2.6 Simpson Strong-Drive® Screw (SDS):** The wood screws, supplied by Simpson Strong-Tie, are described in ICC-ES evaluation report [ESR-2236](#).

**3.2.7 Anchor Bolts and Rods:** For installations on concrete, the SSW12 panels require one 3/4-inch-diameter



(19.1 mm) headed anchor bolt, with geometries consistent with ANSI/ASME B1.1, B18.2.1 and B18.2.6, at each panel end, while the SSW15, SSW18, SSW21 and SSW24-inch panels require one 1-inch-diameter (25.4 mm) headed anchor bolt at each panel end. For installations on concrete where high-strength bolts are specified in the tables, the anchor bolts must comply with the IBC and be high-strength material with a minimum yield stress of 92,000 psi (634 MPa) and a minimum tensile strength of 120,000 psi (826 MPa).

Anchor bolts complying with ASTM A307 or F1554, Grade 36, may be substituted when substantiating calculations are submitted by a registered design professional to the building official for approval. For installations on wood floor framing or balloon framing panel-to-panel connections, bolts and/or rods must comply with ASTM A307 or F1554, Grade 36, minimum. For bolts and/or rods complying with ASTM A307 or F1554, (Grade 36), specifications may be used for the braced wall panel substitutions without substantiating calculations.

SSWAB anchor bolts comply with ASTM F1554, Grade 36. SSWAB-HS anchor bolts with a model number suffix "HS" comply with ASTM A449. SSWHSR extension rods also comply with ASTM A449.

**3.2.8 Shear Transfer Plate:** The proprietary Shear Transfer Plate is described in the approved quality documentation and is die-formed from zinc-coated steel sheet complying with the product material specifications noted in the quality documentation referenced in Section 6.3 of this report.

**3.2.9 Self-drilling Tapping Screws:** Screws supplied by Simpson are hex head, No. 14 by  $\frac{3}{4}$ -inch long (19.1 mm), self-drilling tapping screws complying with ASTM C954 and SAE Standard J78.

**3.2.10 Threaded Rod Couplers:** The proprietary  $\frac{3}{4}$ -inch (19.1 mm) or 1-inch-diameter (25.4 mm) threaded couplers are  $2\frac{1}{4}$  inches (57 mm) or  $2\frac{3}{4}$  inches (70 mm) long and have strength and ductility consistent with the connected anchor bolt grades described in Section 3.2.7 of this report.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Design:

**4.1.1 General:** The allowable strength values described in this report are reported at Allowable Stress Design (ASD) level and do not include a one-third stress increase for short-term loading. The tabulated in-plane ASD shear values provided in Table 3 (SSW) and Table 10 (S/SSW) apply to panels supported directly on normal-weight concrete foundations with minimum specified compressive strength,  $f'_c$ , of 2,500 psi (17.2 MPa). The tabulated ASD out-of-plane lateral strength values are provided in Table 4 for the SSW panels, and Table 11 for the S/SSW panels. The ASD axial strength values of the panels supported on normal weight concrete foundations are noted in Table 5 for SSW panels, and Table 12 for S/SSW panels.

The tabulated in-plane shear values shown in Table 7 apply to SSW panels installed on wood floor framing in accordance with Figure 4.

For SSW panels used in balloon framing with nominal overall heights from 15 feet to 20 feet, the tabulated in-plane ASD shear values in Table 8 of this report apply to panels installed on concrete foundations in accordance with Figure 6. Full-height studs or posts on each side of the SSW panel must be designed by the registered design professional to resist out-of-plane wind or earthquake effects.

In-plane ASD shear values for two-story stacked SSW panel applications in wood light frame construction are set forth in Table 9 of this report. Two-story stacked applications must consider the effects of cumulative overturning. A sample calculation is represented in Example 2 following the text of this report. The tabulated allowable base moments in Table 9B of this report are for panels supported directly on normal weight concrete foundations with a minimum specified compressive strength of 2,500 psi (17.2 MPa).

Applied vertical gravity loads, when used in combination with the shear loads in Tables 3 and 7 to 10 of this report, must not exceed the corresponding allowable axial loads shown in the tables or stated in the table footnotes.

Allowable ASD in-plane shear values provided in Tables 3 and 7 to 10 are applicable to both ASD basic load combinations in IBC Section 1605.3.1 and the alternative basic load combinations in IBC Section 1605.3.2.

SSW and S/SSW panels may be used as components within a seismic force-resisting system consisting of light framed load-bearing walls with wood structural panels or sheet steel panels, provided the seismic design coefficients and factors used in design conform to the following values:

SEISMIC FACTOR OR COEFFICIENT	IBC
Response Modification Coefficient	$R = 6\frac{1}{2}$
System Over-strength Factor	$\Omega_o = 3^1$
Deflection Amplification Factor	$C_d = 4$

<sup>1</sup>Where shear panels are installed in structures with flexible diaphragms, as determined in accordance with Section 12.3.1 of ASCE/SEI 7, the tabulated value of  $\Omega_o$  may be reduced in accordance with Footnote g, Table 12.2-1 of ASCE/SEI 7.

The building height is limited to a maximum of 65 feet (19.8 m) for structures located in Seismic Design Categories D, E, or F, or as limited in Table 503 of the IBC based on construction type. Panels installed in detached one- and two-family dwellings assigned to Seismic Design Categories A, B, or C, or located where the mapped short-period spectral response acceleration,  $S_s$ , is less than 0.4 g in accordance with IBC Section 1613.1, exception 1, may be designed using allowable values corresponding to wind.

Steel Strong-Wall Panels may be stacked up to two stories in wood light frame construction only as set forth in Table 9 of this report. Applications on masonry foundations or steel beams may be permitted provided calculations and construction details, substantiating the connection to and adequacy of the supporting masonry or steel member for the loads imposed by the SSW panels, are prepared and submitted by a registered design professional to the code official for approval. When panels are installed on a steel beam, the additional effects due to beam deflection must be added to the overall top-of-panel drift.

Where SSW panels, of the same height but different widths, are combined in the same wall line, design lateral loads must be proportioned based on relative panel stiffness as illustrated in Example 1 following the text of this report. Where SSW panels are combined in a wall line with other types of shear-resisting systems, design lateral loads must be proportioned based on relative stiffness. Calculations based on known stiffness of all panels must be prepared by a registered design professional and submitted to the code official for approval. Combinations with other lateral-force-resisting systems lacking known stiffness are prohibited.

Allowable shear and drift values for Steel Strong-Wall panels fabricated with heights between those listed in Table 1 and 2 of this report, must be determined by linear interpolation between the corresponding values assigned to panels with lower and higher wall heights of the same axial load.

Tension (uplift) loads to be resisted by anchorage located at each panel end, corresponding to the design shears for panels installed on concrete foundations, may be calculated using the equations shown in Figure 8 of this report. Tension (uplift) forces to be resisted by anchorage, corresponding to the design shears for panels installed on a wood first floor, may be calculated using the equation shown in the appropriate table footnote. Shear loads to be resisted by the anchorage corresponding to the design shears for the panels directly on a rigid base may be calculated by dividing the design shear by the number of anchors (two). Loads corresponding to the design shears for the panels on a wood base must be resisted using the shear transfer plate and other connections, besides the anchorage to complete the load path, based on calculations and details submitted to the code official for approval.

SSW panel wood studs may be connected to framing above to resist vertical tension (uplift) loads provided applied loads are less than or equal to the ASD stud tension loads shown in Table 6. The registered design professional must consider the effects of increased overturning and anchorage forces due to the applied uplift loads.

The concrete, wood, masonry or steel member supporting the panels and their anchorage must have adequate strength and stiffness to resist all imposed loads, including effects of SSW panel overturning. Load values shown in this report include evaluation of bearing stresses on the supporting base materials for the conditions described in this report and do not require further evaluation by the building design professional. The development of continuous load path and interconnection, including collector design, must be the responsibility of the building design professional.

**4.1.2 Braced Wall Panels:** Steel Strong-Wall panels are permitted to replace each 4 feet (1219 mm) of braced wall panel length specified in Section 2308.9.3 of the IBC and Section R602.10 of the IRC, with the following limitations: Installations on a wood floor require a minimum SSW15 panel; and two-story stacked installations require minimum SSW18 panels. The required length of bracing must be based on wood structural panel sheathing (IRC Method WSP, IBC Method 3).

**4.1.3 Anchorage to Concrete:** Figure 7 of this report provides anchorage-to-concrete details conforming to Section 1909 of the 2012 IBC or Section 1912 of the 2009 and 2006 IBC, which refers to ACI 318 Appendix D. Anchorage-to-concrete details shown in Figure 7 that are used for seismic resistance comply with the ductility requirements of ACI 318 Section D.3.3. Shear reinforcement in accordance with Figure 7 is not required for panels installed on a wood floor; interior foundation applications (panel installed away from edge of concrete); or braced wall panel applications according to the IRC and Section 2308.9.3 of the IBC. As an alternative, anchorage may be designed by a registered design professional and installed to resist tension and shear loads to accommodate the specific condition and critical load demand in accordance with Section 1909 of the 2012 IBC or Section 1912 2009 and 2006 of the IBC.

Anchorage calculations for shear resistance must be based on edge distances at the top of concrete as detailed

in the engineered drawings. Anchorage calculations for tension resistance must be based on edge distances at the embedded end of the anchor where the failure surface projects from the head of the embedded anchor to the nearest top surface of the foundation. The anchorage designs in Figure 7 of this report comply with these provisions.

Post-installed adhesive or mechanical anchors, recognized in a current ICC-ES evaluation report for installation in concrete, may be used in lieu of cast-in-place anchor bolts described in Section 3.2.7 of this report, provided calculations and details prepared by a registered design professional, proving the adequacy of the anchors to resist the imposed loads, are submitted to the code official for approval.

**4.1.4 Anchorage to Masonry:** Anchorage to masonry foundations or walls for wall panels described this report must be designed and detailed by a registered design professional in accordance with Chapter 21 of the IBC.

**4.1.5 Connection to Steel:** Connections to steel beams for wall panels described in this report must be designed and detailed by a registered design professional in accordance with Section 2204 of the IBC.

## 4.2 Installation:

**4.2.1 General:** SSW panels must be installed directly on concrete foundations, wood floor systems, masonry foundations or walls, or steel beams in accordance with the manufacturer's installation instructions, the applicable code, and this report. Installation details shown in Figures 1 through 6 of this report represent typical surrounding framing conditions and connection requirements where referenced in this report. A registered design professional must either confirm appropriateness of these details or establish specific details and specifications, in accordance with the applicable code and subject to the approval of the code official, to accommodate specific conditions and critical load combinations.

**4.2.2 Holes in the Panel and Wood Jamb Studs:** The SSW walls are prefabricated with holes in the steel panel and wood studs to allow for electrical, plumbing, and mechanical system access. In addition, the walls are prefabricated with  $\frac{1}{4}$ -inch-diameter (6.4 mm) holes for fasteners that may be used to attach adjacent elements. Additional factory-installed holes may be specified through the steel panels, but field-installed holes are not permitted. Factory-installed specified holes may be up to 2.5 inches (63.5 mm) in diameter and must be located a minimum of 22 inches (559 mm) from the base of the panel. A total of two holes may be specified with a minimum clear spacing of 4 inches (102 mm). Holes must be centered in the centermost available web member having a width of at least one and a quarter times the diameter of the hole. Additionally, holes up to  $1\frac{1}{8}$  inches (28.6 mm) in diameter may be bored through the wood studs at any location corresponding to a hole in the panel flange.

Field replacement of the pre-attached wood studs may be permitted if the replacement stud has the same or greater dimensions and if the replacement stud is attached to the panels with SDS  $\frac{1}{4}$ -inch-by- $1\frac{1}{2}$ -inch (6.4 mm by 38.1 mm) screws (described in Section 3.2.6 of this report) at each  $\frac{1}{4}$ -inch-diameter (6.4 mm) flange screw hole location. The wood studs must be spruce-pine-fir, stud grade or better. The studs must fit snugly between the top and bottom plates and along the vertical face.

**4.2.3 Installation on Concrete Foundation:** The SSW panel must be installed directly on a concrete foundation over two anchor bolts with diameters as noted in Tables 1

and 2. Templates for either interior or exterior wall applications are available from Simpson Strong-Tie to assist in the placement of the anchor bolts. The panel base plate must be secured to the anchor bolts with nuts complying with the specifications set forth for the anchor bolt grade.

**4.2.4 Installation on Masonry or Steel:** Installation on masonry walls or foundations or steel beams may be permitted, subject to approval of the code official based on calculations and details prepared by the registered design professional.

**4.2.5 Installation on Wood Floor:** Table 7 and Figure 4 of this report provide installation requirements and details. Wood Floor Connection Kits (SSW\_-1KT) are available and include installation instructions, threaded rod extensions, coupler nuts, heavy hex nuts, and a Shear Transfer Plate with No. 14 self-drilling tapping screws.

**4.2.6 Installation at Top of Wall:** The top of the SSW panel must be attached to wood top plates or a beam with Simpson Strong-Tie SDS  $\frac{1}{4}$ -inch-by- $3\frac{1}{2}$ -inch (6.4 mm by 89 mm) screws, which are recognized in ICC-ES evaluation report [ESR-2236](#). The number of wood screws for each panel must comply with Table 1 of this report. Figures 1 to 3 provide additional details.

Panels for cold-formed steel light frame construction, which utilize the S/SSW panels without wood studs, must be attached to a minimum 43-mil-thick [0.0428-inch (1.09 mm) minimum base-metal thickness] or minimum 54 mm thick [0.0538-inch (1.37 mm) minimum base-metal thickness] steel framing element, as noted in Table 10, with  $\frac{1}{4}$ -inch-diameter (6.4 mm) or No. 14 self-drilling tapping screws, described in a current ICC-ES evaluation report, with a minimum nominal shear strength ( $P_{ss}$ ) of 2,000 pounds (8896 N). The number of self-drilling tapping screws must be as noted in Table 2 of this report.

**4.2.7 Balloon Framing Installation:** The bottom SSW panel in a stacked balloon framing application must be an “-STK” model with factory-installed hold-down elements. The panels must be installed as shown in Figure 6.

**4.2.8 Two-Story Stacked Installation:** The lower-story SSW panel in a two-story stacked application must be an “-STK” model with preinstalled hold-down elements. The SSW panels must be installed in wood light frame construction as shown in Figure 5 of this report.

Two-Story Stacked Connection Kits (SSW\_-2KT) are available and include installation instructions, threaded rods, heavy hex nuts, and a Shear Transfer Plate with No. 14 self-drilling tapping screws.

### 4.3 Special Inspection:

**4.3.1 2012 IBC:** Periodic special inspection must be provided in accordance with Sections 1705.10.1 and 1705.10.2 or Sections 1705.11.2 and 1705.11.3, as applicable, with the exception of those structures that qualify under Section 1704.2, 1704.3, or 1705.3.

**4.3.2 2009 IBC:** Periodic special inspection must be provided in accordance with Sections 1706.2 and 1706.3, or Sections 1707.3 and 1707.4, as applicable, with the exception of those structures that qualify under Section 1704.1, 1704.4, or 1705.3.

**4.3.3 2006 IBC:** Periodic special inspection must be provided in accordance with Sections 1707.3 and 1707.4, with the exception of those structures that qualify under Section 1704.1, 1704.4, or 1705.3.

**4.3.4 IRC:** In jurisdictions governed by the IRC, special inspections are not required, except where an engineered

design according to Section 301.1.3 of the IRC is used. Where an engineered design is used, special inspections in accordance with Section 4.3 must be provided.

## 5.0 CONDITIONS OF USE

The SSW Shear Panels described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

**5.1** SSW shear panel sizes are limited to the widths and heights set forth in this report, including a maximum of two stories stacked for wood light frame installations and a maximum of one story for cold-formed steel light frame construction.

**5.2** ASD design loads and drifts must not exceed the allowable strength values and drifts in this report.

**5.3** Calculations and details, justifying that the panel use is in compliance with the applicable code and this evaluation report, must be submitted to the code official for approval, except for braced and alternate braced wall substitutions noted in Section 4.1.2 of this report. The calculations and details must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

**5.4** The panels must be installed in accordance with this report, the Simpson Strong-Tie Company instructions, and the building plans approved by the code official. In the event of a conflict between this report and the Simpson Strong-Tie Company instructions, this report governs.

**5.5** Design of the concrete foundation, masonry wall or foundation, or steel beam supporting the panels, and other structural elements connected to the panels, must consider the loads imposed by the panels. The design is outside the scope of this report and must comply with the applicable code.

**5.6** The panels used in exterior walls must be covered with an approved weather-resistant building envelope in accordance with the applicable code.

**5.7** The panels are fabricated at Simpson Strong-Tie Facilities in Riverside, California, Stockton, California, and McKinney, Texas, under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

**6.1** Reports of cyclic tests in accordance with the ICC-ES Acceptance Criteria for Prefabricated, Cold-formed, Steel Lateral-force-resisting Vertical Assemblies (AC322), dated January 2013.

**6.2** Structural calculations in accordance with Chapters 19, 22 and 23 of the applicable code.

**6.3** Quality documentation.

**6.4** Production drawings and details.

## 7.0 IDENTIFICATION

The SSW Shear Panels must be identified by the manufacturer's name (Simpson Strong-Tie Company, Inc.), the model number, the evaluation report number (ESR-1679). In lieu of the model number, panels fabricated with intermediate heights are identified by the next tallest standard model number followed by xH1-specified height (in inches). For example, SSW18x9xH1-103.

Combine SSW walls, of the same height but different width, along the same wall line using stiffness distribution:

**Given:**

- Seismic loading
- Concrete  $f'_c = 2,500$  psi
- Design Shear (ASD) = 4,500 lbs
- Axial load per panel = 1,000 lbs
- 9 foot foundation to plate height

**Try (1) SSW18x9 and (1) SSW21x9**

Wall Model	Allow. Shear V (from Table 3) (lbs)	Drift at Allow. V (in)	Stiffness K = Shear/Drift (lbs/in)	Relative Stiffness (RR) RR = K/ΣK
18x9	2,145	0.47	4,564	0.40
21x9	3,145	0.46	<u>6,837</u>	<u>0.60</u>
			11,401	1.00

Wall Model	Distributed Shear = V x RR (lbs)	Allow. Shear V (from Table 3) (lbs)		Drift at Design Shear = Distributed Shear / K (in)
18x9	1,800	< 2,145	OK	0.39
21x9	2,700	< 3,145	OK	0.39

**>>>> Use (1) SSW18x9 and (1) SSW21x9 along the same wall line**

For **SI**: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lb = 4.45 N, 1 psi = 6.89kPa, 1 lb/in = 0.175 N/mm.

**EXAMPLE 1—STEEL STRONG-WALL STIFFNESS DISTRIBUTION**

**Given:**

- Wind loading, Concrete  $f'_c = 2,500$  psi
- $V_{2nd\ story\ wall} = 650$  lbs
- $V_{1st\ story\ wall} = 650$  lbs
- $V_{Total} = 650\ lbs + 650\ lbs = 1,300$  lbs
- $M_{Allow} =$  Allowable ASD Base Moment (ft-lbs) (See Two-Story Stacked Table 9B)
- $V_{Allow} =$  Allowable ASD Shear Load, V (lbs) (See Two-Story Stacked Table 9A)

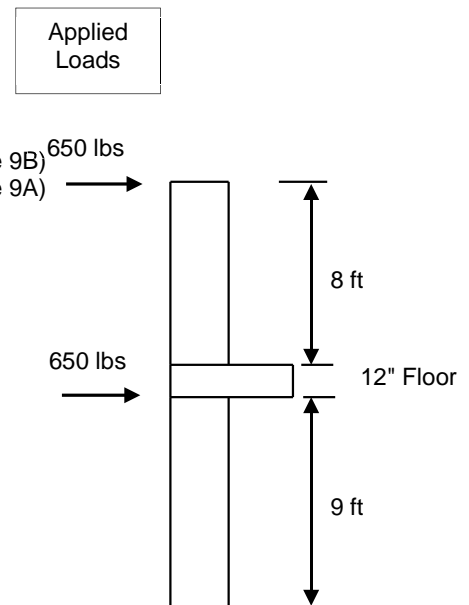
**STEP 1: Select First Story Wall**

- $M_{base} = (650\ lbs \times 18\ ft) + (650\ lbs \times 9\ ft) = 17,550$  ft-lbs
- Using First Story Wall Table 9B, select a 9-foot wall with  $M_{allow} \geq M_{base}$
- Select SSW18x9-STK
- $M_{allow} = 22,685$  ft-lbs > 17,550 ft-lbs **OK**

**STEP 2: Check Second Story Wall**

- Using the Second Story Wall Table 9A, check the capacity of an 8-foot wall with the same width as the 1st story wall selected in Step 1:
- Select SSW18x8
- $V_{allow} = 1,315$  lbs > 650 lbs **OK**

**>>>> Use SSW18x8 over SSW18x9-STK**



For **SI**: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lb = 4.45 N, 1 psi = 6.89 kPa.

**EXAMPLE 2—STEEL STRONG-WALL TWO-STORY DESIGN**



TABLE 1—SIMPSON SSW PANEL SIZES & DESCRIPTION<sup>1</sup>

SSW Model No. <sup>3</sup>	Width (in)	Height (in)	Thickness (in)	Anchor Bolts		Number of Screws in Top of Wall <sup>2</sup>	SSW -STK <sup>4</sup> Model No.
				Qty.	Dia. (in)		
SSW12x7	12	80	3½	2	¾	4	-
SSW15x7	15	80	3½	2	1	6	-
SSW18x7	18	80	3½	2	1	9	-
SSW21x7	21	80	3½	2	1	12	-
SSW24x7	24	80	3½	2	1	14	-
SSW12x7.4	12	85½	3½	2	¾	4	-
SSW15x7.4	15	85½	3½	2	1	6	-
SSW18x7.4	18	85½	3½	2	1	9	-
SSW21x7.4	21	85½	3½	2	1	12	-
SSW24x7.4	24	85½	3½	2	1	14	-
SSW12x8	12	93¼	3½	2	¾	4	-
SSW15x8	15	93¼	3½	2	1	6	SSW15x8-STK
SSW18x8	18	93¼	3½	2	1	9	SSW18x8-STK
SSW21x8	21	93¼	3½	2	1	12	SSW21x8-STK
SSW24x8	24	93¼	3½	2	1	14	SSW24x8-STK
SSW12x9	12	105¼	3½	2	¾	4	-
SSW15x9	15	105¼	3½	2	1	6	SSW15x9-STK
SSW18x9	18	105¼	3½	2	1	9	SSW18x9-STK
SSW21x9	21	105¼	3½	2	1	12	SSW21x9-STK
SSW24x9	24	105¼	3½	2	1	14	SSW24x9-STK
SSW12x10	12	117¼	3½	2	¾	4	-
SSW15x10	15	117¼	3½	2	1	6	SSW15x10-STK
SSW18x10	18	117¼	3½	2	1	9	SSW18x10-STK
SSW21x10	21	117¼	3½	2	1	12	SSW21x10-STK
SSW24x10	24	117¼	3½	2	1	14	SSW24x10-STK
SSW15x11	15	129¼	5½	2	1	6	SSW15x11-STK
SSW18x11	18	129¼	5½	2	1	9	SSW18x11-STK
SSW21x11	21	129¼	5½	2	1	12	SSW21x11-STK
SSW24x11	24	129¼	5½	2	1	14	SSW24x11-STK
SSW15x12	15	141¼	5½	2	1	6	SSW15x12-STK
SSW18x12	18	141¼	5½	2	1	9	SSW18x12-STK
SSW21x12	21	141¼	5½	2	1	12	SSW21x12-STK
SSW24x12	24	141¼	5½	2	1	14	SSW24x12-STK
SSW18x13	18	153¼	5½	2	1	9	SSW18x13-STK
SSW21x13	21	153¼	5½	2	1	12	SSW21x13-STK
SSW24x13	24	153¼	5½	2	1	14	SSW24x13-STK

For **SI**: 1 inch = 25.4 mm, 1 lb = 4.45 N.

<sup>1</sup>SSW panels are manufactured with pre-installed 2 x wood vertical studs.

<sup>2</sup>Top plate screws for the SSW panel are SDS ¼" diameter x 3½" long wood screws complying with ICC-ES Evaluation Report No. [ESR-2236](#).

<sup>3</sup>Lesser heights are available for models exceeding 80 inches tall when specified by the registered design professional. Add the suffix "X" followed by the required height H1 to the model number. Example specification SSW18x8X H1=84 inches.

<sup>4</sup>SSW -STK panels are manufactured with pre-installed hold-down elements for connection to the top wall in a Balloon Framing or Two-Story Stacked application.

TABLE 2—SIMPSON S/SSW PANEL SIZES & DESCRIPTION<sup>1</sup>

S/SSW Model No.	Width (in)	Max Height <sup>2</sup> (in)	Thickness (in)	Anchor Bolts		Number of Screws in Top of Wall <sup>3</sup>
				Qty.	Dia. (in)	
S/SSW12x7	12	80	3½	2	¾	4
S/SSW15x7	15	80	3½	2	1	6
S/SSW18x7	18	80	3½	2	1	9
S/SSW21x7	21	80	3½	2	1	12
S/SSW24x7	24	80	3½	2	1	14
S/SSW12x8X	12	97	3½	2	¾	4
S/SSW15x8X	15	97	3½	2	1	6
S/SSW18x8X	18	97	3½	2	1	9
S/SSW21x8X	21	97	3½	2	1	12
S/SSW24x8X	24	97	3½	2	1	14
S/SSW12x9X	12	109	3½	2	¾	4
S/SSW15x9X	15	109	3½	2	1	6
S/SSW18x9X	18	109	3½	2	1	9
S/SSW21x9X	21	109	3½	2	1	12
S/SSW24x9X	24	109	3½	2	1	14
S/SSW15x10X	15	121	3½	2	1	6
S/SSW18x10X	18	121	3½	2	1	9
S/SSW21x10X	21	121	3½	2	1	12
S/SSW24x10X	24	121	3½	2	1	14

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N.

<sup>1</sup>S/SSW series panels are all steel assemblies and are available with pre-attached nonload-bearing cold-formed steel studs.

<sup>2</sup>Lesser heights are available for the models ending in "X" when specified by the registered design professional. Example specification S/SSW12x9X H1=103 inches.

<sup>3</sup>Top plate screws for the S/SSW panel must be ¼" diameter or No. 14 self-tapping screws recognized in an ICC-ES evaluation report complying with the IBC, with a minimum shear strength (P<sub>ss</sub>) of 2,000 lbs.

**TABLE 3—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON SSW PANEL ON CONCRETE FOUNDATIONS<sup>1,3,4,6</sup>**

SSW Model	Allowable Axial Load <sup>2</sup> (lbs)	Seismic			Wind		
		Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear <sup>5</sup> (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear <sup>5</sup> (lbs)
SSW12x7	1,000	955	0.36	9,840	1,215	0.46	13,620
	4,000	955	0.36	9,840	1,095	0.42	11,765
	7,500	890	0.34	9,010	890	0.34	9,010
SSW15x7	1,000	1,855	0.36	15,655	1,860	0.36	15,715
	4,000	1,665	0.33	13,550	1,665	0.33	13,550
	7,500	1,445	0.28	11,340	1,445	0.28	11,340
SSW18x7	1,000	2,905	0.34	19,660	3,480	0.41	25,805
	4,000	2,905	0.34	19,660	3,250	0.38	23,135
	7,500	2,905	0.34	19,660	2,980	0.35	20,370
SSW21x7	1,000	4,200	0.32	23,755	4,440	0.34	25,710
	4,000	4,200	0.32	23,755	4,440	0.34	25,710
	7,500	4,200	0.32	23,755	4,310	0.33	24,635
SSW24x7	1,000	5,495	0.29	26,270	5,730	0.31	27,835
	4,000	5,495	0.29	26,270	5,730	0.31	27,835
	7,500	5,495	0.29	26,270	5,730	0.31	27,835
SSW12x7.4	1,000	870	0.39	9,515	1,105	0.49	13,070
	4,000	870	0.39	9,515	970	0.43	10,940
	7,500	750	0.33	7,940	750	0.33	7,940
SSW15x7.4	1,000	1,685	0.39	15,035	1,700	0.39	15,215
	4,000	1,500	0.34	12,905	1,500	0.34	12,905
	7,500	1,270	0.29	10,510	1,270	0.29	10,510
SSW18x7.4	1,000	2,700	0.37	19,475	3,255	0.44	25,790
	4,000	2,700	0.37	19,475	3,040	0.42	23,125
	7,500	2,700	0.37	19,475	2,790	0.38	20,390
SSW21x7.4	1,000	3,890	0.35	23,420	4,230	0.38	26,405
	4,000	3,890	0.35	23,420	4,230	0.38	26,405
	7,500	3,890	0.35	23,420	4,035	0.36	24,655
SSW24x7.4	1,000	5,330	0.34	27,610	5,450	0.34	28,485
	4,000	5,330	0.34	27,610	5,450	0.34	28,485
	7,500	5,330	0.34	27,610	5,450	0.34	28,485
SSW12x8	1,000	775	0.42	9,180	985	0.53	12,560
	4,000	775	0.42	9,180	865	0.47	10,550
	7,500	665	0.36	7,630	665	0.36	7,630
SSW15x8	1,000	1,505	0.42	14,515	1,530	0.43	14,835
	4,000	1,345	0.37	12,545	1,345	0.37	12,545
	7,500	1,135	0.32	10,190	1,135	0.32	10,190
SSW18x8	1,000	2,480	0.41	19,525	2,985	0.50	25,795
	4,000	2,480	0.41	19,525	2,790	0.47	23,160
	7,500	2,480	0.41	19,525	2,560	0.43	20,410
SSW21x8	1,000	3,560	0.39	23,360	3,960	0.43	27,240
	4,000	3,560	0.39	23,360	3,960	0.43	27,240
	7,500	3,560	0.39	23,360	3,700	0.41	24,660
SSW24x8	1,000	4,865	0.37	27,435	5,105	0.39	29,370
	4,000	4,865	0.37	27,435	5,105	0.39	29,370
	7,500	4,865	0.37	27,435	5,055	0.39	28,960
SSW12x9	1,000	660	0.47	8,745	840	0.60	11,915
	4,000	660	0.47	8,745	705	0.50	9,485
	7,500	505	0.36	6,380	505	0.36	6,380
SSW15x9	1,000	1,315	0.45	14,250	1,315	0.47	14,250
	4,000	1,130	0.38	11,740	1,130	0.40	11,740
	7,500	925	0.31	9,235	925	0.33	9,235
SSW18x9	1,000	2,145	0.47	18,890	2,645	0.58	25,800
	4,000	2,145	0.47	18,890	2,470	0.54	23,130
	7,500	2,145	0.47	18,890	2,265	0.50	20,370
SSW21x9	1,000	3,145	0.46	23,265	3,590	0.52	28,215
	4,000	3,145	0.46	23,265	3,530	0.51	27,490
	7,500	3,145	0.46	23,265	3,280	0.47	24,680
SSW24x9	1,000	4,285	0.44	27,210	4,605	0.47	30,150
	4,000	4,285	0.44	27,210	4,605	0.47	30,150
	7,500	4,285	0.44	27,210	4,480	0.46	28,970
SSW12x10	1,000	570	0.52	8,345	725	0.67	11,300
	4,000	570	0.52	8,345	570	0.52	8,345
	7,500	360	0.33	4,930	360	0.33	4,930
SSW15x10	1,000	1,110	0.53	13,150	1,145	0.54	13,690
	4,000	960	0.45	10,975	960	0.45	10,975
	7,500	715	0.34	7,775	715	0.34	7,775
SSW18x10	1,000	1,860	0.53	18,030	2,360	0.67	25,545
	4,000	1,860	0.53	18,030	2,215	0.63	23,095
	7,500	1,860	0.53	18,030	2,035	0.57	20,395

**TABLE 3—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON SSW PANEL ON CONCRETE FOUNDATIONS<sup>1,3,4,6</sup>**

SSW Model	Allowable Axial Load <sup>2</sup> (lbs)	Seismic			Wind		
		Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear <sup>5</sup> (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Maximum Uplift at Allowable Shear <sup>5</sup> (lbs)
SSW21x10	1,000	3,045	0.50	25,905	3,265	0.56	28,795
	4,000	3,045	0.50	25,905	3,170	0.54	27,510
	7,500	2,780	0.45	22,780	2,780	0.47	22,780
SSW24x10	1,000	3,835	0.50	27,100	4,205	0.55	30,920
	4,000	3,835	0.50	27,100	4,205	0.55	30,920
	7,500	3,790	0.49	26,660	3,790	0.49	26,660
SSW15x11	1,000	975	0.58	12,625	1,015	0.60	13,285
	4,000	815	0.48	10,135	815	0.48	10,135
	7,500	550	0.33	6,470	550	0.33	6,470
SSW18x11	1,000	1,635	0.58	17,295	2,075	0.73	24,280
	4,000	1,635	0.58	17,295	2,010	0.71	23,110
	7,500	1,635	0.58	17,295	1,730	0.61	18,645
SSW21x11	1,000	2,485	0.58	22,325	2,990	0.70	29,230
	4,000	2,485	0.58	22,325	2,785	0.65	26,220
	7,500	2,305	0.54	20,205	2,305	0.54	20,205
SSW24x11	1,000	3,475	0.57	27,055	3,845	0.63	31,285
	4,000	3,475	0.57	27,055	3,710	0.60	29,680
	7,500	3,205	0.52	24,260	3,205	0.52	24,260
SSW15x12	1,000	815	0.63	11,280	905	0.70	12,855
	4,000	690	0.53	9,245	690	0.53	9,245
	7,500	390	0.30	4,905	390	0.30	4,905
SSW18x12	1,000	1,450	0.63	16,605	1,845	0.80	23,220
	4,000	1,450	0.63	16,605	1,815	0.79	22,650
	7,500	1,435	0.62	16,380	1,435	0.62	16,380
SSW21x12	1,000	2,210	0.63	21,485	2,755	0.79	29,555
	4,000	2,210	0.63	21,485	2,420	0.69	24,335
	7,500	1,900	0.54	17,690	1,900	0.54	17,690
SSW24x12	1,000	3,150	0.63	26,710	3,540	0.71	31,575
	4,000	3,150	0.63	26,710	3,250	0.65	27,890
	7,500	2,705	0.54	21,855	2,705	0.54	21,855
SSW18x13	1,000	1,335	0.68	16,580	1,695	0.87	23,105
	4,000	1,335	0.68	16,580	1,580	0.81	20,830
	7,500	1,180	0.60	14,195	1,180	0.60	14,195
SSW21x13	1,000	1,985	0.68	20,765	2,520	0.87	29,200
	4,000	1,985	0.68	20,765	2,110	0.73	22,530
	7,500	1,555	0.53	15,300	1,555	0.53	15,300
SSW24x13	1,000	2,830	0.68	25,795	3,275	0.79	31,755
	4,000	2,830	0.68	25,795	2,860	0.69	26,165
	7,500	2,280	0.55	19,545	2,280	0.55	19,545

For **SI**: 1 inch = 25.4 mm, 1 lb = 4.45 N.

<sup>1</sup>Allowable shear loads and uplifts are applicable to installation on concrete with minimum specified compressive strength  $f'_c = 2,500$  psi. No stress increases are included.

<sup>2</sup>Allowable axial load denotes the total maximum vertical downward load permitted on the entire panel acting in combination with the shear load. No stress increases are included.

<sup>3</sup>Allowable shear, drift, and uplift values may be interpolated for intermediate height or axial loads.

<sup>4</sup>High strength anchor bolts are required unless a lower strength grade is justified by the registered design professional. Anchor bolts for the SSW12 shall be high strength when seismic shear (V) x panel height exceeds 61,600 in-lbs. Figure 7 of this report provides SSWAB anchor bolt information and anchorage solutions.

<sup>5</sup>Tabulated anchor tension (uplift) loads assume no resisting axial load. For anchor tension loads at design shear values and including the effect of axial load, refer to the equations in Figure 8 of this report. Drifts at lower design shear may be linearly reduced.

<sup>6</sup>Table 4 of this report describes allowable out-of-plane loads and Table 5 of this report describes allowable axial capacities.



TABLE 4—ALLOWABLE OUT OF PLANE LATERAL LOADS (PSF) <sup>1,3,5</sup> FOR SINGLE STORY SIMPSON SSW PANELS ON CONCRETE FOUNDATIONS							
Model Width (in.)	Allowable Axial load (lbs) <sup>2,4</sup>	Nominal Height of Panel (feet)					
		8	9	10	11	12	13
12	1,000	200	140	105	NA	NA	NA
	4,000	150	105	70	NA	NA	NA
	7,500	90	55	25	NA	NA	NA
15	1,000	165	130	100	80	70	NA
	4,000	130	95	70	50	40	NA
	7,500	95	65	45	30	15	NA
18	7,500	310	215	160	120	90	70
21	7,500	260	185	135	100	70	50
24	7,500	275	195	135	105	80	65

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N, 1 psf = 47.88 Pa.

<sup>1</sup>Out-of-plane loads shown are at ASD level in pounds per square foot (psf) of wall with no further stress increase allowed.

<sup>2</sup>Axial load denotes maximum uniformly distributed vertical downward compression load permitted on entire panel acting in combination with the out-of-plane load.

<sup>3</sup>Load considers a maximum deflection limit of h/240.

<sup>4</sup>Allowable out-of-plane loads for the 12 and 15 inch wide walls may be linearly interpolated between the axial loads shown.

<sup>5</sup>Tabulated loads apply only to single-story walls on concrete foundations.

TABLE 5—ALLOWABLE COMPRESSION CAPACITIES FOR SINGLE STORY SIMPSON SSW PANELS ON CONCRETE FOUNDATIONS (lbs) <sup>1,2,3</sup>								
Model Width (in.)	Compression Capacity with No Lateral Loads (lbs)							
	Nominal Height of Panel (feet)							
	7	7.4	8	9	10	11	12	13
12	20,200	19,000	17,200	14,500	11,800	NA	NA	NA
15	25,300	24,200	22,600	20,000	17,400	14,900	12,600	NA
18	42,500	40,400	37,500	32,900	28,400	24,100	20,200	17,200
21	43,700	41,100	37,500	32,000	26,700	22,000	18,400	15,700
24	51,600	48,800	44,800	38,700	32,900	27,400	22,900	19,500

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N, 1 psi = 6.89 kPa.

<sup>1</sup>Compression capacity is lesser of steel capacity or uniform bearing strength of concrete with a minimum specified compressive strength  $f'_c = 2,500$  psi. No stress increases are included.

<sup>2</sup>Compression capacity of wall assumes uniformly distributed concentric loading only without lateral loads present. For combined lateral and axial loading conditions, allowable in-plane or out-of-plane load tables apply.

<sup>3</sup>Tabulated loads apply only to single-story walls on concrete foundations.

TABLE 6—ALLOWABLE TENSION (UPLIFT) LOADS FOR SIMPSON SSW WOOD JAMB STUD (lbs) <sup>1,2</sup>								
Model Width (in.)	Tension (Uplift) Capacity Per Jamb Stud (lbs)							
	Nominal Height of Panel (feet)							
	7	7.4	8	9	10	11	12	13
12	1,535	1,535	1,845	2,150	2,500	NA	NA	NA
15	1,845	2,150	2,460	2,500	2,500	3,070	3,685	NA
18	1,845	1,845	2,150	2,500	2,500	3,380	3,685	3,980
21	1,845	1,845	2,150	2,500	2,500	3,070	3,685	3,980
24	1,845	1,845	2,150	2,500	2,500	3,070	3,685	3,980

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N.

<sup>1</sup>Allowable tension (uplift) load is based on capacity of the lesser of the connection between the stud and the steel panel or stud tension capacity. The capacity of SSW wall anchor bolt and anchorage to the foundation must be adequate to transfer the additional tension (uplift), as determined in accordance with Section 4.1.1 and 4.1.3 of this report. NA = not applicable.

<sup>2</sup>Loads include a 1.60 load duration increase for wood subjected to wind or earthquake. Reductions for other load durations must be taken in accordance with the IBC and NDS.

**TABLE 7—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON SSW PANEL ON 1ST STORY RAISED WOOD FLOOR SYSTEMS<sup>1,2,4,5</sup>**

Wall Model	Seismic			Wind		
	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>3</sup> (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>3</sup> (lbs)
SSW12x7	525	0.30	6,110	525	0.30	6,110
SSW15x7	1,385	0.35	11,980	1,385	0.35	11,980
SSW18x7	1,830	0.27	11,950	1,830	0.27	11,950
SSW21x7	2,100	0.21	11,015	2,100	0.21	11,015
SSW24x7	2,450	0.17	10,740	2,450	0.17	10,740
SSW12x8	450	0.36	6,105	450	0.36	6,105
SSW15x8	1,185	0.42	11,945	1,185	0.42	11,945
SSW18x8	1,570	0.33	11,950	1,570	0.33	11,950
SSW21x8	1,955	0.27	11,955	1,955	0.27	11,955
SSW24x8	2,340	0.23	11,955	2,340	0.23	11,955
SSW12x9	400	0.42	6,125	400	0.42	6,125
SSW15x9	1,050	0.47	11,945	1,050	0.47	11,945
SSW18x9	1,390	0.38	11,945	1,390	0.38	11,945
SSW21x9	1,735	0.31	11,975	1,735	0.31	11,975
SSW24x9	2,075	0.26	11,965	2,075	0.26	11,965
SSW12x10	360	0.48	6,140	360	0.48	6,140
SSW15x10	885	0.52	11,220	945	0.56	11,980
SSW18x10	1,250	0.44	11,965	1,250	0.44	11,965
SSW21x10	1,555	0.33	11,955	1,555	0.33	11,955
SSW24x10	1,860	0.30	11,950	1,860	0.30	11,950
SSW15x11	780	0.58	10,900	855	0.63	11,945
SSW18x11	1,135	0.50	11,975	1,135	0.50	11,975
SSW21x11	1,410	0.40	11,950	1,410	0.40	11,950
SSW24x11	1,690	0.34	11,970	1,690	0.34	11,970
SSW15x12	670	0.63	10,230	785	0.74	11,985
SSW18x12	1,035	0.55	11,935	1,035	0.55	11,935
SSW21x12	1,290	0.45	11,950	1,290	0.45	11,950
SSW24x12	1,545	0.38	11,960	1,545	0.38	11,960
SSW18x13	955	0.60	11,945	955	0.60	11,945
SSW21x13	1,190	0.50	11,960	1,190	0.50	11,960
SSW24x13	1,425	0.42	11,965	1,425	0.42	11,965

For **SI**: 1 inch = 25.4 mm, 1 lb = 4.45 N.

<sup>1</sup>Loads are applicable to 1st Story Raised Wood Floor installations supported on concrete or masonry foundations.

<sup>2</sup>Minimum standard strength anchor bolts required. Figure 7 of this report provides SSWAB anchor bolt information and anchorage solutions.

<sup>3</sup>Tabulated anchor tension (uplift) loads assume no resisting axial (vertical downward) load. Anchor rod tension at design shear load and including the effect of axial load may be determined using the following equation:

$$T = [(V \times h) / B] - P/2, \text{ where:}$$

T = Anchor rod tension load (lbs)

V = design shear load (lbs)

h = Strong-Wall height described in Table 1 (in)

P = applied axial load (lbs) uniformly distributed

B = Anchor bolt centerline dimension (in)

(6<sup>7</sup>/<sub>8</sub> inches for SSW12, 9<sup>1</sup>/<sub>4</sub> inches for SSW15, 12<sup>1</sup>/<sub>4</sub> inches for SSW18, 15<sup>1</sup>/<sub>4</sub> inches for SSW21, and 18<sup>1</sup>/<sub>4</sub> inches for SSW24)

<sup>4</sup>Allowable shear loads assume a maximum first floor joist depth of 12 inches. For allowable shear load with joists up to 16 inches deep, table values must be multiplied by 0.93 for SSW12x models and 0.96 for other SSW widths.

<sup>5</sup>Allowable shear loads are based on 1,000 lbs. total uniformly distributed axial load acting on the entire panel in combination with the shear load. For allowable shear loads at 2,000 lbs. uniformly distributed axial load, table values must be multiplied by 0.92 for SSW12x models, and 0.96 for other SSW widths.

**TABLE 8—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON SSW PANEL  
BALLOON FRAMING APPLICATION ON CONCRETE FOUNDATIONS<sup>1,2,4,5,6</sup>**

Nominal Wall Height (ft)	Actual Stacked SSW Height <sup>3</sup> (ft - in)	Bottom Wall SSW Model	Top Wall SSW Model	Seismic			Wind		
				Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>7</sup> (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>7</sup> (lbs)
<b>15-Inch Wide Walls</b>									
15	14 - 5 ¼	SSW15x8-STK	SSW15x7	-	-	-	705	1.00	12,465
16	15 - 6 ½	SSW15x8-STK	SSW15x8	-	-	-	645	1.06	12,105
17	16 - 5 ¼	SSW15x10-STK	SSW15x7	-	-	-	595	1.11	11,820
18	17 - 6 ½	SSW15x10-STK	SSW15x8	-	-	-	555	1.17	11,655
19	18 - 6 ½	SSW15x10-STK	SSW15x9	-	-	-	520	1.23	11,505
20	19 - 6 ½	SSW15x10-STK	SSW15x10	-	-	-	485	1.29	11,260
<b>18-Inch Wide Walls</b>									
15	14 - 5 ¼	SSW18x8-STK	SSW18x7	890	0.79	12,140	1,130	1.00	16,105
16	15 - 6 ½	SSW18x8-STK	SSW18x8	825	0.84	11,995	1,050	1.07	15,945
17	16 - 5 ¼	SSW18x10-STK	SSW18x7	770	0.89	11,890	980	1.13	15,795
18	17 - 6 ½	SSW18x10-STK	SSW18x8	-	-	-	915	1.20	15,585
19	18 - 6 ½	SSW18x10-STK	SSW18x9	-	-	-	860	1.27	15,440
20	19 - 6 ½	SSW18x10-STK	SSW18x10	-	-	-	810	1.33	15,290
<b>21-Inch Wide Walls</b>									
15	14 - 5 ¼	SSW21x8-STK	SSW21x7	1,295	0.78	14,750	1,670	1.00	20,000
16	15 - 6 ½	SSW21x8-STK	SSW21x8	1,220	0.84	14,855	1,550	1.07	19,770
17	16 - 5 ¼	SSW21x10-STK	SSW21x7	1,135	0.89	14,665	1,445	1.13	19,550
18	17 - 6 ½	SSW21x10-STK	SSW21x8	1,065	0.95	14,570	1,350	1.20	19,300
19	18 - 6 ½	SSW21x10-STK	SSW21x9	1,000	1.00	14,430	1,270	1.27	19,145
20	19 - 6 ½	SSW21x10-STK	SSW21x10	940	1.05	14,260	1,195	1.33	18,930
<b>24-Inch Wide Walls</b>									
15	14 - 5 ¼	SSW24x8-STK	SSW24x7	1,680	0.72	16,260	2,295	1.00	23,645
16	15 - 6 ½	SSW24x8-STK	SSW24x8	1,630	0.81	16,955	2,155	1.07	23,730
17	16 - 5 ¼	SSW24x10-STK	SSW24x7	1,545	0.87	17,120	2,005	1.13	23,405
18	17 - 6 ½	SSW24x10-STK	SSW24x8	1,470	0.94	17,290	1,875	1.20	23,130
19	18 - 6 ½	SSW24x10-STK	SSW24x9	1,390	1.00	17,265	1,765	1.27	22,960
20	19 - 6 ½	SSW24x10-STK	SSW24x10	1,310	1.05	17,115	1,660	1.33	22,685

For **SI**: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N.

<sup>1</sup>Allowable shear loads and anchor uplifts are applicable to installation on concrete with minimum specified compressive strength,  $f'_c = 2,500$  psi.

<sup>2</sup>Allowable shear, drift, and uplift values apply to the nominal wall heights listed and may be linearly interpolated for intermediate heights.

<sup>3</sup>Solid shim blocks (12 inches maximum) must be used to attain specified nominal wall height. Figure 6 of this report provides additional details.

<sup>4</sup>Full height studs are required for balloon framed wall installation, which must be designed for out-of-plane loads in accordance with the applicable code. Two 2x6 minimum must be placed on each side and fastened together with 10d common nails at 16 inches on center.

<sup>5</sup>Loads are based on a 1,000 lbs. total uniformly distributed axial load acting on the entire panel in combination with the shear load. For shear loads at 2,000 lbs. uniformly distributed axial load, allowable shears must be multiplied by 0.91 for SSW15x models; no reduction is required for other wall models.

<sup>6</sup>High strength anchor bolts are required unless a lower strength grade is justified by the registered design professional. Figure 7 of this report provides SSWAB anchor bolt information and anchorage solutions.

<sup>7</sup>Tabulated anchor tension (uplift) loads assume no resisting axial load. For anchor tension loads at design shear values and including the effect of axial load, refer to the equations in Figure 8 of this report. Drifts at lower design shear may be linearly reduced.

**TABLE 9—ALLOWABLE ASD IN-PLANE SHEAR (LBS) & BASE MOMENT (FT-LBS) FOR SIMPSON SSW PANEL TWO-STORY STACKED APPLICATION<sup>1,2,5</sup>**

**TABLE 9A - SECOND-STORY WALLS<sup>4,6</sup>**

Second-Story Wall Models	Seismic		Wind	
	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)
SSW15x7	600	0.21	600	0.21
SSW18x7	1,210	0.24	1,390	0.28
SSW21x7	1,735	0.23	1,815	0.24
SSW24x7	2,330	0.22	2,330	0.22
SSW15x8	550	0.26	550	0.26
SSW18x8	1,130	0.32	1,315	0.37
SSW21x8	1,625	0.30	1,715	0.32
SSW24x8	2,050	0.26	2,050	0.26
SSW15x9	510	0.31	510	0.31
SSW18x9	1,070	0.39	1,220	0.45
SSW21x9	1,520	0.36	1,520	0.36
SSW24x9	1,815	0.30	1,815	0.30
SSW15x10	470	0.37	470	0.37
SSW18x10	1,010	0.47	1,095	0.51
SSW21x10	1,365	0.39	1,365	0.39
SSW24x10	1,630	0.35	1,630	0.35
SSW15x11	440	0.43	440	0.43
SSW18x11	960	0.55	995	0.57
SSW21x11	1,235	0.46	1,235	0.46
SSW24x11	1,480	0.39	1,480	0.39
SSW15x12	405	0.50	405	0.50
SSW18x12	900	0.63	910	0.64
SSW21x12	1,130	0.52	1,130	0.52
SSW24x12	1,355	0.43	1,355	0.43
SSW18x13	830	0.68	840	0.69
SSW21x13	1,045	0.57	1,045	0.57
SSW24x13	1,250	0.48	1,250	0.48

<sup>1</sup>Two-Story Stacked wall installations must be limited to wood light frame construction and may consist of any height combination of equal width wall models listed in these tables.

<sup>2</sup>Loads are based on a 1,000 pound maximum uniformly distributed total axial load acting on the second-story panel and a 2,000 pound maximum uniformly distributed total axial load acting on the first-story panel in combination with the tabulated shear load and base moment.

<sup>3</sup>The designer must verify that the cumulative overturning moment at the base of the first-story Steel Strong-Wall does not exceed the allowable base moment capacity. Example 2 of this report provides an example procedure.

<sup>4</sup>The allowable second-story shear loads assume a maximum floor joist depth of 14". For allowable shear load with up to 18" joists, second-story shear loads must be multiplied by 0.98 for SSW15x models and by 0.94 for other SSW widths. For bottom wall shims greater than 7/8" thick, see Figure 5 of this report.

<sup>5</sup>Allowable shear, drift, and base moment values may be interpolated for intermediate heights.

<sup>6</sup>Minimum ASTM F1554 Grade 36 threaded rods are required at the second-story wall anchorage.

<sup>7</sup>High strength anchor bolts are required at the first-story wall unless a lower strength grade is justified by the registered design professional. Figure 7 of this report provides SSWAB anchor bolt information and anchorage solutions.

<sup>8</sup>Tabulated anchor tension (uplift) loads assume no resisting axial load. For anchor tension loads at design shear values and including the effect of axial load, refer to the equations in Figure 8 of this report. Drifts at lower design shear or base moment may be linearly reduced.

**TABLE 9B—FIRST-STORY WALLS<sup>3,7</sup>**

First-Story Wall Models	Seismic			Wind		
	Allowable ASD Base Moment (ft-lbs)	Drift at Allowable Base Moment (in)	Uplift at Allowable Base Moment <sup>8</sup> (lbs)	Allowable ASD Base Moment (ft-lbs)	Drift at Allowable Base Moment (in)	Uplift at Allowable Base Moment <sup>8</sup> (lbs)
SSW15x8-STK	9,665	0.35	11,385	9,665	0.35	11,385
SSW18x8-STK	19,270	0.41	19,520	22,690	0.49	24,875
SSW21x8-STK	27,665	0.39	23,360	30,775	0.43	27,240
SSW24x8-STK	37,805	0.37	27,435	39,670	0.39	29,370
SSW15x9-STK	9,490	0.37	11,130	9,490	0.38	11,130
SSW18x9-STK	18,815	0.47	18,890	22,685	0.57	24,870
SSW21x9-STK	27,585	0.46	23,265	31,310	0.52	27,970
SSW24x9-STK	37,585	0.44	27,215	40,390	0.47	30,150
SSW15x10-STK	9,225	0.45	10,755	9,225	0.45	10,755
SSW18x10-STK	18,175	0.53	18,030	22,585	0.65	24,690
SSW21x10-STK	29,750	0.50	25,905	31,485	0.55	28,210
SSW24x10-STK	37,470	0.50	27,100	40,925	0.55	30,740
SSW15x11-STK	9,025	0.50	10,475	9,025	0.50	10,475
SSW18x11-STK	17,610	0.58	17,295	22,115	0.73	23,880
SSW21x11-STK	26,765	0.58	22,325	30,860	0.67	27,355
SSW24x11-STK	37,430	0.57	27,060	40,260	0.61	30,005
SSW15x12-STK	8,675	0.57	9,990	8,675	0.57	9,990
SSW18x12-STK	17,070	0.63	16,605	21,600	0.80	23,030
SSW21x12-STK	26,015	0.63	21,490	30,195	0.73	26,475
SSW24x12-STK	37,080	0.63	26,710	39,545	0.67	29,235
SSW18x13-STK	17,050	0.68	16,580	21,155	0.85	22,315
SSW21x13-STK	25,350	0.68	20,765	29,505	0.79	25,590
SSW24x13-STK	36,140	0.68	25,790	38,795	0.73	28,450

For SI: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N, 1 ft-lb = 1.36 N-m.

**TABLE 10—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON S/SSW PANEL  
(NO WOOD STUD) ON CONCRETE FOUNDATIONS<sup>1,3,4,5,7</sup>**

S/SSW Model	Max. H (in.)	Allowable Axial Load <sup>2</sup> (lbs)	Seismic			Wind		
			Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>6</sup> (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>6</sup> (lbs)
S/SSW12x7	80	1,000	845	0.35	8,460	1,070	0.44	11,405
		4,000	845	0.35	8,460	1,060	0.44	11,265
		7,500	845	0.35	8,460	885	0.37	8,950
S/SSW15x7	80	1,000	1,645	0.34	13,340	1,810	0.38	15,135
		4,000	1,640	0.34	13,290	1,640	0.34	13,290
		7,500	1,440	0.30	11,290	1,440	0.30	11,290
S/SSW18x7	80	1,000	2,800	0.33	18,690	3,375	0.40	24,545
		4,000	2,800	0.33	18,690	3,250	0.38	23,135
		7,500	2,800	0.33	18,690	2,980	0.35	20,370
S/SSW21x7	80	1,000	4,050	0.32	22,590	4,440	0.35	25,710
		4,000	4,050	0.32	22,590	4,440	0.35	25,710
		7,500	4,050	0.32	22,590	4,310	0.34	24,635
S/SSW24x7	80	1,000	5,250	0.30	24,710	5,250	0.30	24,710
		4,000	5,250	0.30	24,710	5,250	0.30	24,710
		7,500	5,250	0.30	24,710	5,250	0.30	24,710
S/SSW12x8X	97	1,000	645	0.42	7,710	820	0.54	10,360
		4,000	645	0.42	7,710	775	0.51	9,640
		7,500	610	0.40	7,220	610	0.40	7,220
S/SSW15x8X	97	1,000	1,280	0.42	12,390	1,415	0.47	14,090
		4,000	1,250	0.41	12,025	1,250	0.41	12,025
		7,500	1,070	0.35	9,955	1,070	0.35	9,955
S/SSW18x8X	97	1,000	2,140	0.41	16,895	2,785	0.54	24,565
		4,000	2,140	0.41	16,895	2,680	0.52	23,130
		7,500	2,140	0.41	16,895	2,460	0.48	20,400
S/SSW21x8X	97	1,000	3,265	0.41	21,905	3,870	0.48	27,930
		4,000	3,265	0.41	21,905	3,765	0.47	26,790
		7,500	3,265	0.41	21,905	3,460	0.43	23,715
S/SSW24x8X	97	1,000	4,540	0.39	26,335	4,985	0.43	30,045
		4,000	4,540	0.39	26,335	4,890	0.42	29,220
		7,500	4,540	0.39	26,335	4,555	0.39	26,455
S/SSW12x9X	109	1,000	545	0.48	7,255	695	0.61	9,735
		4,000	545	0.48	7,255	605	0.53	8,210
		7,500	445	0.39	5,755	445	0.39	5,755
S/SSW15x9X	109	1,000	1,090	0.48	11,725	1,180	0.52	12,955
		4,000	1,025	0.45	10,875	1,025	0.45	10,875
		7,500	850	0.37	8,720	850	0.37	8,720
S/SSW18x9X	109	1,000	1,835	0.47	16,105	2,365	0.61	22,835
		4,000	1,835	0.47	16,105	2,365	0.61	22,835
		7,500	1,835	0.47	16,105	2,150	0.55	19,890
S/SSW21x9X	109	1,000	2,800	0.46	20,855	3,275	0.54	25,900
		4,000	2,800	0.46	20,855	3,025	0.50	23,140
		7,500	2,735	0.45	20,220	2,735	0.45	20,220
S/SSW24x9X	109	1,000	4,005	0.46	26,025	4,220	0.48	27,970
		4,000	3,950	0.45	25,540	3,950	0.45	25,540
		7,500	3,630	0.41	22,855	3,630	0.41	22,855
S/SSW15x10X	121	1,000	945	0.53	11,185	990	0.56	11,845
		4,000	835	0.47	9,645	835	0.47	9,645
		7,500	665	0.37	7,425	665	0.37	7,425
S/SSW18x10X	121	1,000	1,605	0.53	15,515	2,045	0.67	21,490
		4,000	1,605	0.53	15,515	1,960	0.64	20,225

**TABLE 10—ALLOWABLE ASD IN-PLANE SHEAR (LBS) FOR SIMPSON S/SSW PANEL (NO WOOD STUD) ON CONCRETE FOUNDATIONS<sup>1,3,4,5,7</sup>**

S/SSW Model	Max. H (in.)	Allowable Axial Load <sup>2</sup> (lbs)	Seismic			Wind		
			Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>6</sup> (lbs)	Allowable ASD Shear Load V (lbs)	Drift at Allowable Shear (in)	Uplift at Allowable Shear <sup>6</sup> (lbs)
S/SSW21x10X	121	7,500	1,605	0.53	15,515	1,715	0.56	16,890
		1,000	2,440	0.52	19,970	2,650	0.56	22,275
		4,000	2,405	0.51	19,600	2,405	0.51	19,600
		7,500	2,120	0.45	16,730	2,120	0.45	16,730
S/SSW24x10X	121	1,000	3,425	0.50	24,275	3,425	0.50	24,275
		4,000	3,160	0.46	21,875	3,160	0.46	21,875
		7,500	2,855	0.42	19,275	2,855	0.42	19,275

For **SI**: 1 inch = 25.4 mm, 1 lb = 4.45 N.

<sup>1</sup>Allowable shear loads and anchor uplifts are applicable to installation on concrete with minimum specified compressive strength  $f'_c = 2,500$  psi. No stress increases are included.

<sup>2</sup>The axial load denotes the total maximum uniformly distributed vertical downward load permitted on the entire panel acting in combination with the shear load. No stress increases are included.

<sup>3</sup>Top of panel must be connected with screws described in Table 2 of this report to a minimum 43 mil thick steel member except S/SSW18 and wider panels up to 97 inches tall must be connected to a minimum 54 mil thick steel member. When connected to a minimum 43 mil thick steel member, the maximum allowable load must be 2,720 pounds for S/SSW18, 3,625 pounds for S/SSW21, and 4,230 pounds for S/SSW24.

<sup>4</sup>Allowable shear, drift, and uplift values may be interpolated for intermediate height or axial loads.

<sup>5</sup>High strength anchor bolts are required unless a lower strength grade is justified by the registered design professional. Anchor bolts for the SSW12 shall be high strength when seismic shear (V) x panel height exceeds 61,600 in-lbs. Figure 7 of this report provides SSWAB anchor bolt information and anchorage solutions.

<sup>6</sup>Tabulated anchor tension (uplift) loads assume no resisting axial load. For anchor tension loads at design shear values and including the effect of axial load, refer to the equations in Figure 8 of this report. Drifts at lower design shear may be linearly reduced.

<sup>7</sup>Table 11 of this report describes allowable out-of-plane loads and Table 12 of this report describes allowable axial capacities.

TABLE 11—ALLOWABLE OUT OF PLANE LOADS (PSF) FOR SIMPSON S/SSW PANEL <sup>1,3</sup>				
Model Width (in.)	Allowable Axial load (lbs) <sup>2,4</sup>	Nominal Height of Panel (feet)		
		8	9	10
12	1,000	195	140	100
	4,000	145	100	70
	7,500	85	50	25
15	1,000	160	125	100
	4,000	130	95	70
	7,500	90	65	45
18	7,500	300	210	155
21	7,500	255	180	130
24	7,500	265	190	135

For **SI**: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N.

<sup>1</sup>Out-of-plane loads shown are at ASD level in pounds per square foot (psf) of wall with no further stress increase allowed.

<sup>2</sup>Axial load denotes maximum uniformly distributed vertical compression load permitted on entire panel acting in combination with the out-of-plane load.

<sup>3</sup>Load considers a maximum deflection limit of h/240.

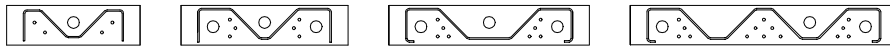
<sup>4</sup>Allowable out-of-plane loads for the 12 and 15 inch wide walls may be linearly interpolated between the axial loads shown.

TABLE 12—ALLOWABLE COMPRESSION CAPACITIES FOR SIMPSON S/SSW PANEL ON CONCRETE FOUNDATIONS (lbs) <sup>1,2</sup>				
Model Width (in.)	Compression Capacity with No Lateral Load (lbs)			
	Nominal Height of Panel (feet)			
	7	8	9	10
12	20,200	16,300	13,700	11,100
15	25,300	21,800	19,200	16,600
18	42,500	36,000	31,400	27,000
21	43,700	35,800	30,300	25,100
24	51,600	42,900	36,900	31,100

For **SI**: 1 inch = 25.4 mm, 1 foot = 305 mm, 1 lb = 4.45 N.

<sup>1</sup>Compression capacity is lesser of steel capacity or uniform bearing strength of concrete with a minimum specified compressive strength  $f'_c = 2,500$  psi. No stress increases are included.

<sup>2</sup>Compression capacity of wall assumes concentric loading only without lateral loads present. For combined lateral and axial loading conditions, allowable in-plane or out-of-plane load tables apply.



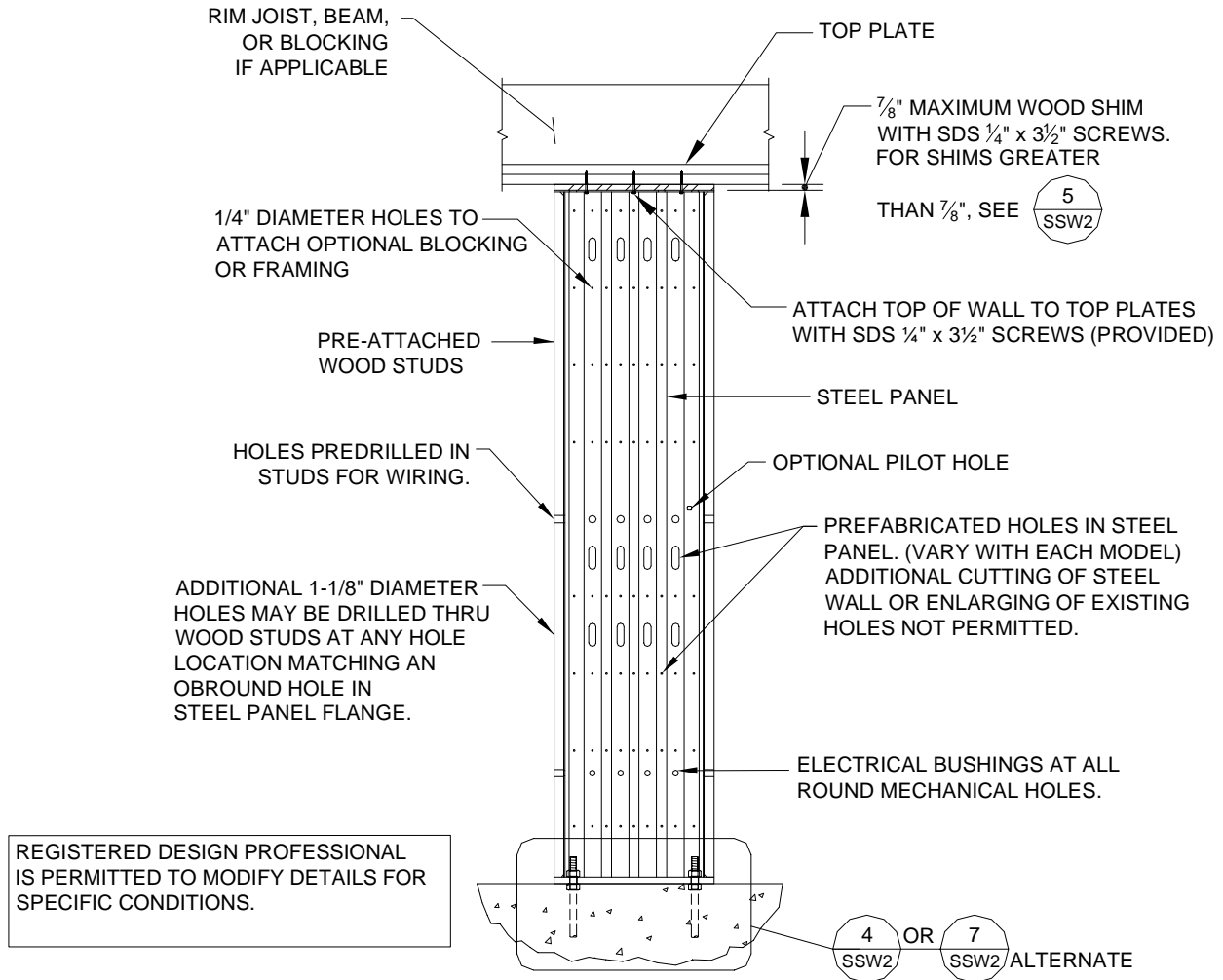
SSW12

SSW15

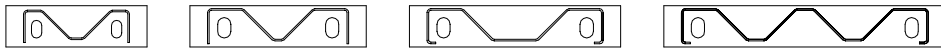
SSW18

SSW21 & 24

PLAN VIEW OF TOP PLATES (STUDS NOT SHOWN FOR CLARITY)



**SINGLE STORY SSW ON CONCRETE 2-SSW2**



SSW12

SSW15

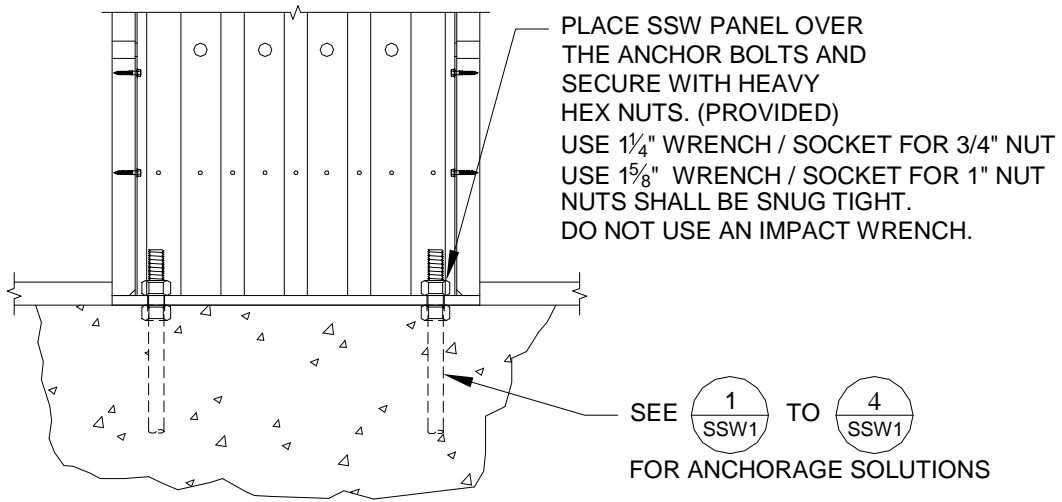
SSW18

SSW21 & 24

PLAN VIEW OF BASE PLATES (STUDS NOT SHOWN FOR CLARITY)

FIGURE 1—STEEL STRONG-WALL DETAILS (2/SSW2)

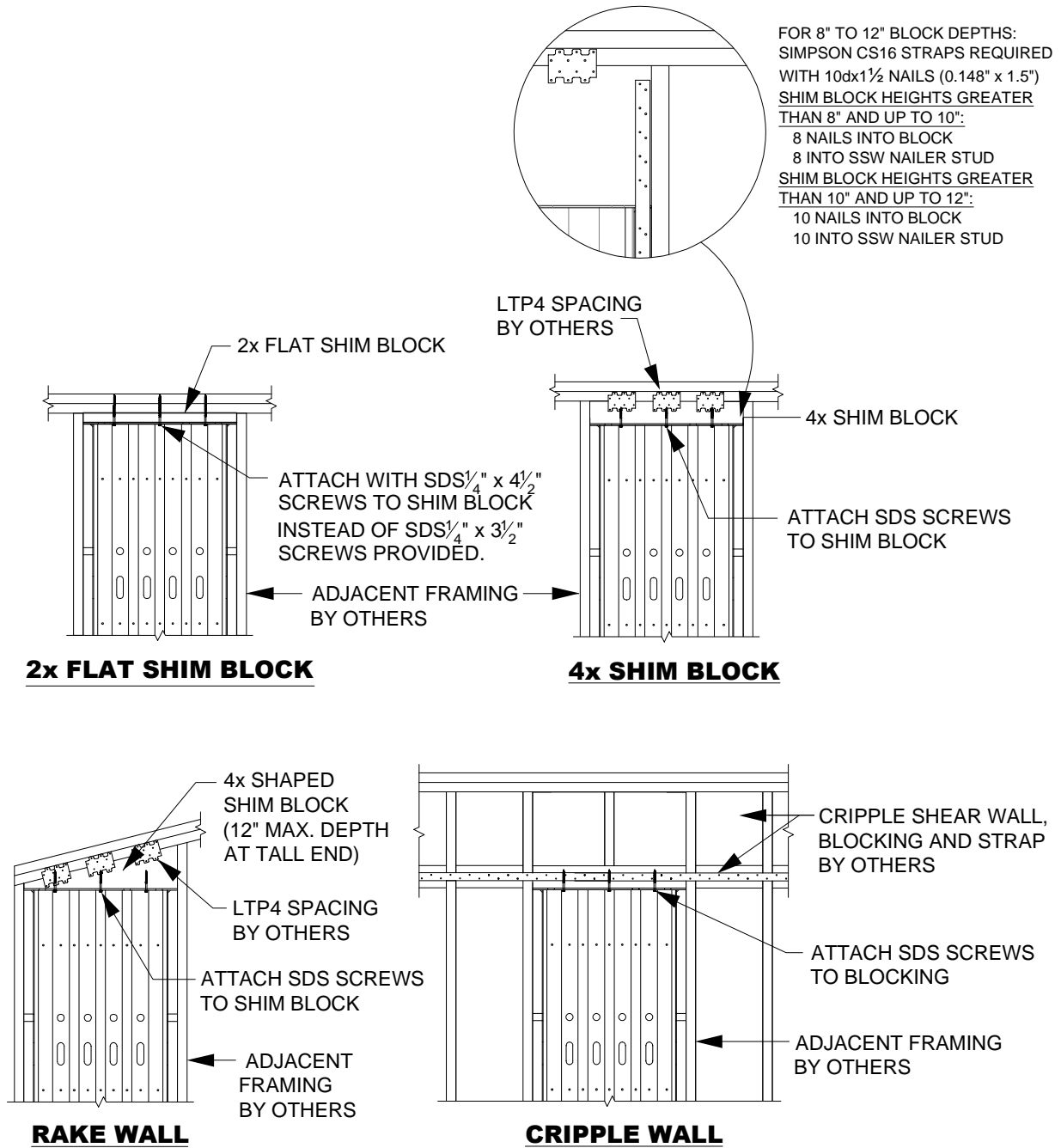




REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

**STRONG-WALL ON CONCRETE 4-SSW2**

FIGURE 1—STEEL STRONG-WALL DETAILS (Continued) (4/SSW2)



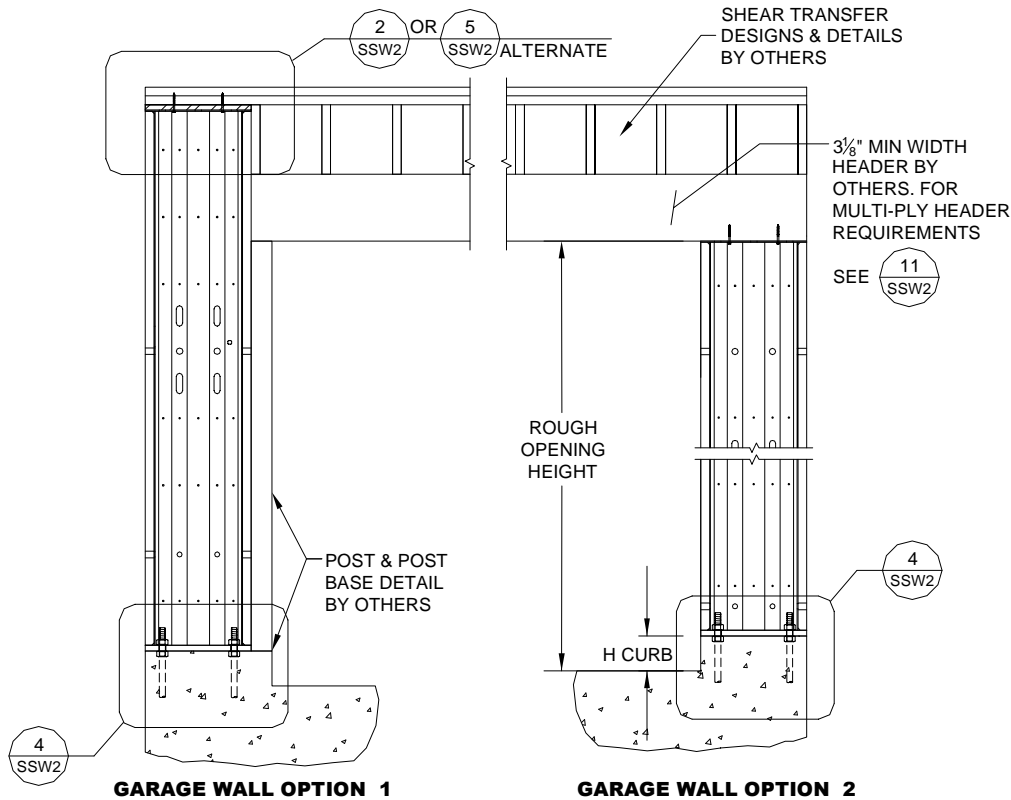
REGISTERED DESIGN PROFESSIONAL SHALL DESIGN FOR:

1. SHEAR TRANSFER
2. OUT OF PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

**TOP OF WALL HEIGHT ADJUSTMENTS 5-SSW2**

FIGURE 2—STEEL STRONG-WALL SHIM AND CRIPPLE DETAIL (5/SSW2)



**NOTE:**  
 7-FT. HIGH STEEL STRONG-WALL MODELS ARE 80", 2" TALLER THAN 7-FT. HIGH WOOD STRONG-WALL SHEARWALLS

**FOR GARAGE WALL OPTION 2**

REGISTERED DESIGN PROFESSIONAL SHALL DESIGN AND DETAIL FOR:

1. SHEAR TRANSFER
2. OUT OF PLANE LOADING EFFECT
3. INCREASED OVERTURNING AND DRIFT DUE TO ADDITIONAL HEIGHT.

**GARAGE HEADER ROUGH OPENING HEIGHT**

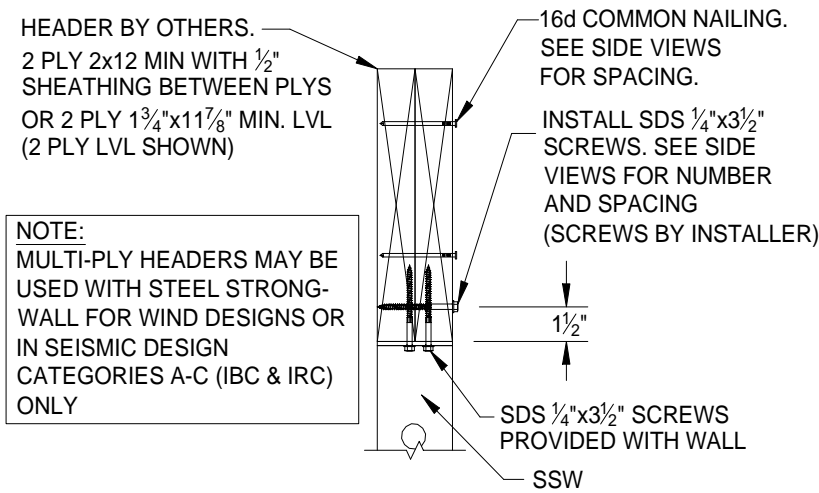
MODEL No.	H CURB	ROUGH OPENING HEIGHT
SSW12x7	5½"	7' - 1½"
SSW15x7		
SSW18x7		
SSW21x7	6"	7' - 2"
SSW24x7		
SSW12x8	5½"	8' - 2¾"
SSW15x8		
SSW18x8		
SSW21x8	6"	8' - 3¼"
SSW24x8		

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

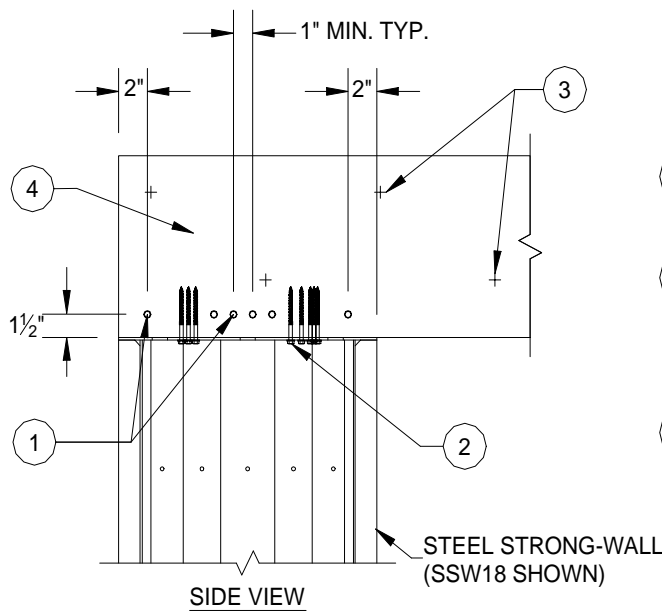
1. THE HEIGHT OF THE GARAGE CURB ABOVE THE GARAGE SLAB IS CRITICAL FOR THE ROUGH HEADER OPENING AT GARAGE RETURN WALLS.
2. SHIMS ARE NOT PROVIDED WITH STEEL STRONG-WALL.
3. FURRING ON UNDERSIDE OF GARAGE HEADER MAY BE NECESSARY FOR LESSER ROUGH OPENING HEIGHTS.

**GARAGE WALL OPTIONS 3-SSW2**

**FIGURE 3—STEEL STRONG-WALL GARAGE FRONT DETAILS (3/SSW2)**



**SSW MULTI-PLY HEADER CROSS SECTION**



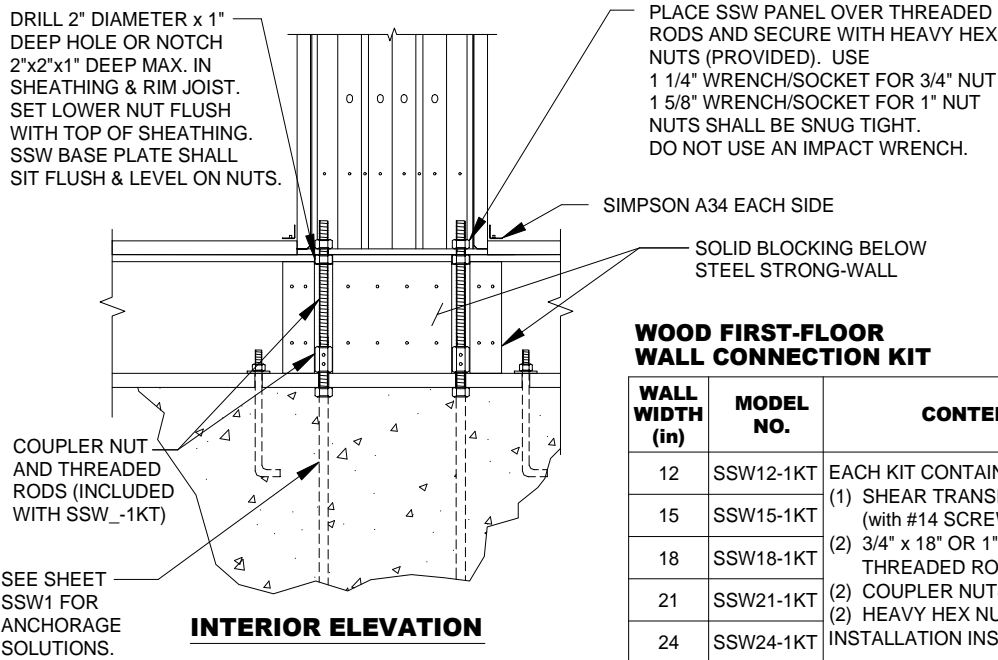
- 1 INSTALL SDS 1/4" x 3 1/2" SCREWS HORIZONTALLY THROUGH LVL OR 2x LUMBER HEADER PLYS. 4 SCREWS TOTAL FOR SSW12, 6 SCREWS TOTAL FOR SSW15, SSW18, SSW21 AND SSW24.
- 2 SDS 1/4"x3 1/2" SCREWS PROVIDED WITH WALL
- 3 FASTEN PLYS TOGETHER WITH 16d COMMON NAILS AT 16" O.C. ALONG EACH EDGE OF BEAM.
- 4 15/32" SHEATHING BETWEEN 2x HEADER PLYS SHALL MATCH HEADER DEPTH AND EXTEND FULL WIDTH OF SSW, MINIMUM.

**SSW WITH MULTI-PLY HEADER**

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

**MULTI-PLY HEADERS 11-SSW2**

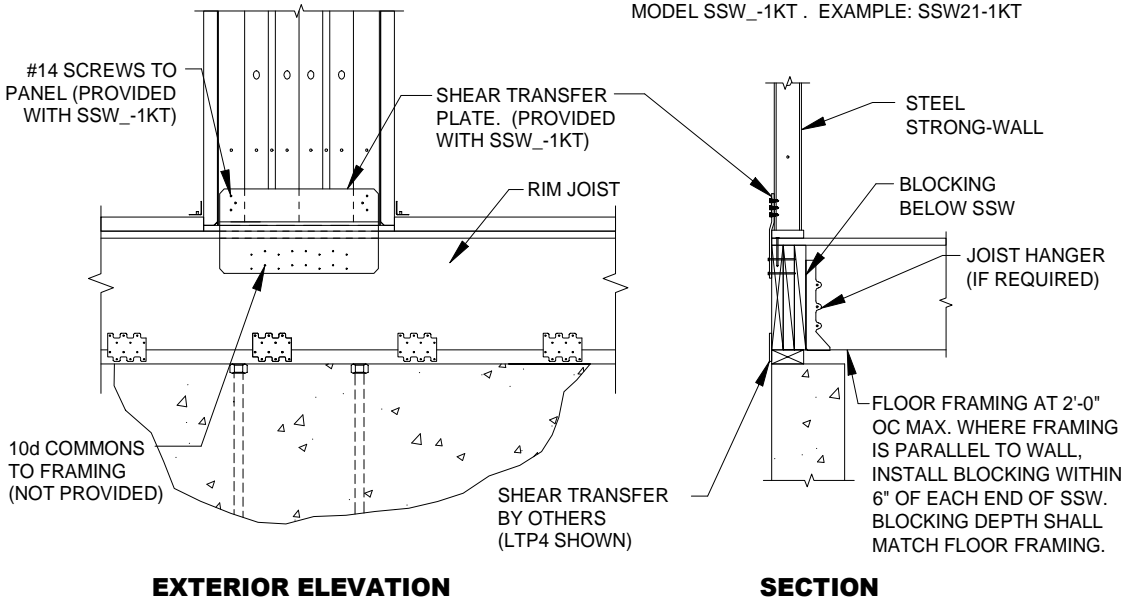
FIGURE 3—STEEL STRONG-WALL GARAGE FRONT DETAILS (Continued) (11/SSW2)





**WOOD FIRST-FLOOR WALL CONNECTION KIT**

WALL WIDTH (in)	MODEL NO.	CONTENTS
12	SSW12-1KT	EACH KIT CONTAINS: (1) SHEAR TRANSFER PLATE (with #14 SCREWS) (2) 3/4" x 18" OR 1" x 18" THREADED RODS (ASTM A36) (2) COUPLER NUTS (2) HEAVY HEX NUTS INSTALLATION INSTRUCTIONS
15	SSW15-1KT	
18	SSW18-1KT	
21	SSW21-1KT	
24	SSW24-1KT	

ORDER FIRST FLOOR CONNECTOR KIT SEPARATELY. MODEL SSW\_-1KT . EXAMPLE: SSW21-1KT

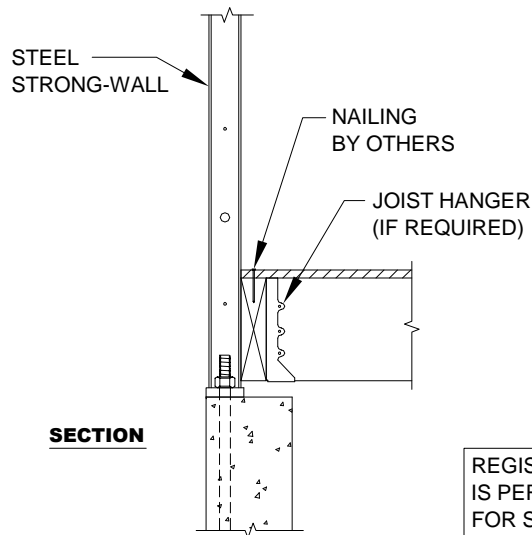
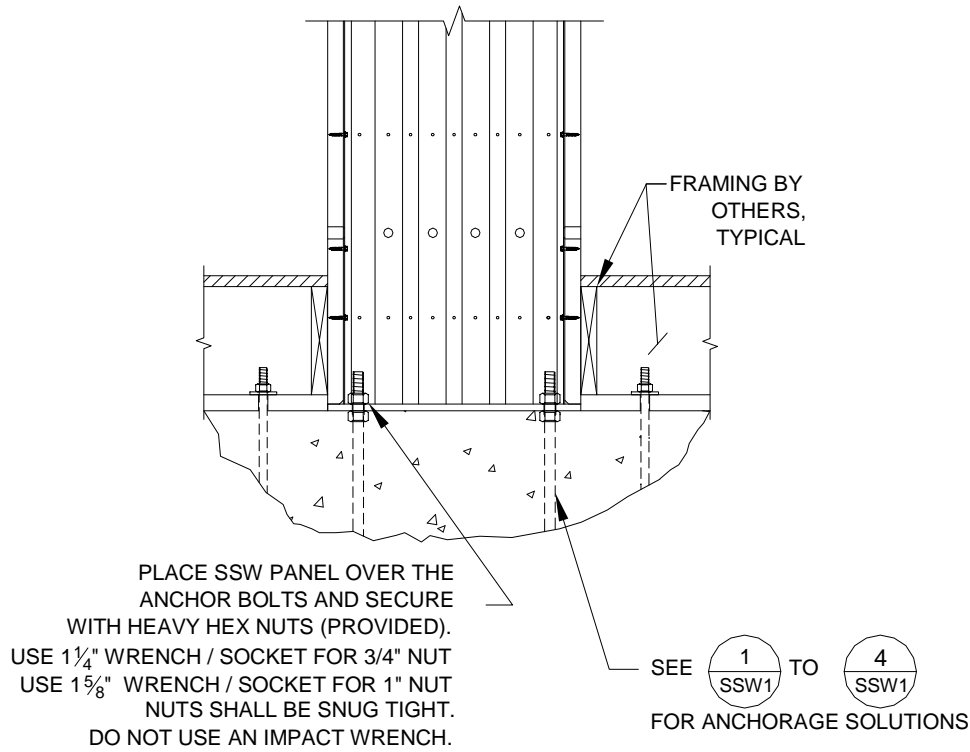


- FIRST FLOOR AT WOOD FRAMING NOTES:**
1. USE WOOD FIRST-FLOOR ALLOWABLE LOAD TABLES FOR THIS INSTALLATION.
  2. USE ALTERNATE DETAIL  TO ACHIEVE MAXIMUM ON CONCRETE ALLOWABLE LOADS.
  3. FOR TWO-STORY STACKED STEEL STRONG-WALLS WITH WOOD FIRST FLOOR, USE ALTERNATE DETAIL .
  4. REGISTERED DESIGN PROFESSIONAL SHALL DESIGN FOR SHEAR TRANSFER FROM RIM JOIST TO SILL PLATE AND SILL PLATE TO FOUNDATION.

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

**FIRST FLOOR AT WOOD FRAMING 10-SSW2**

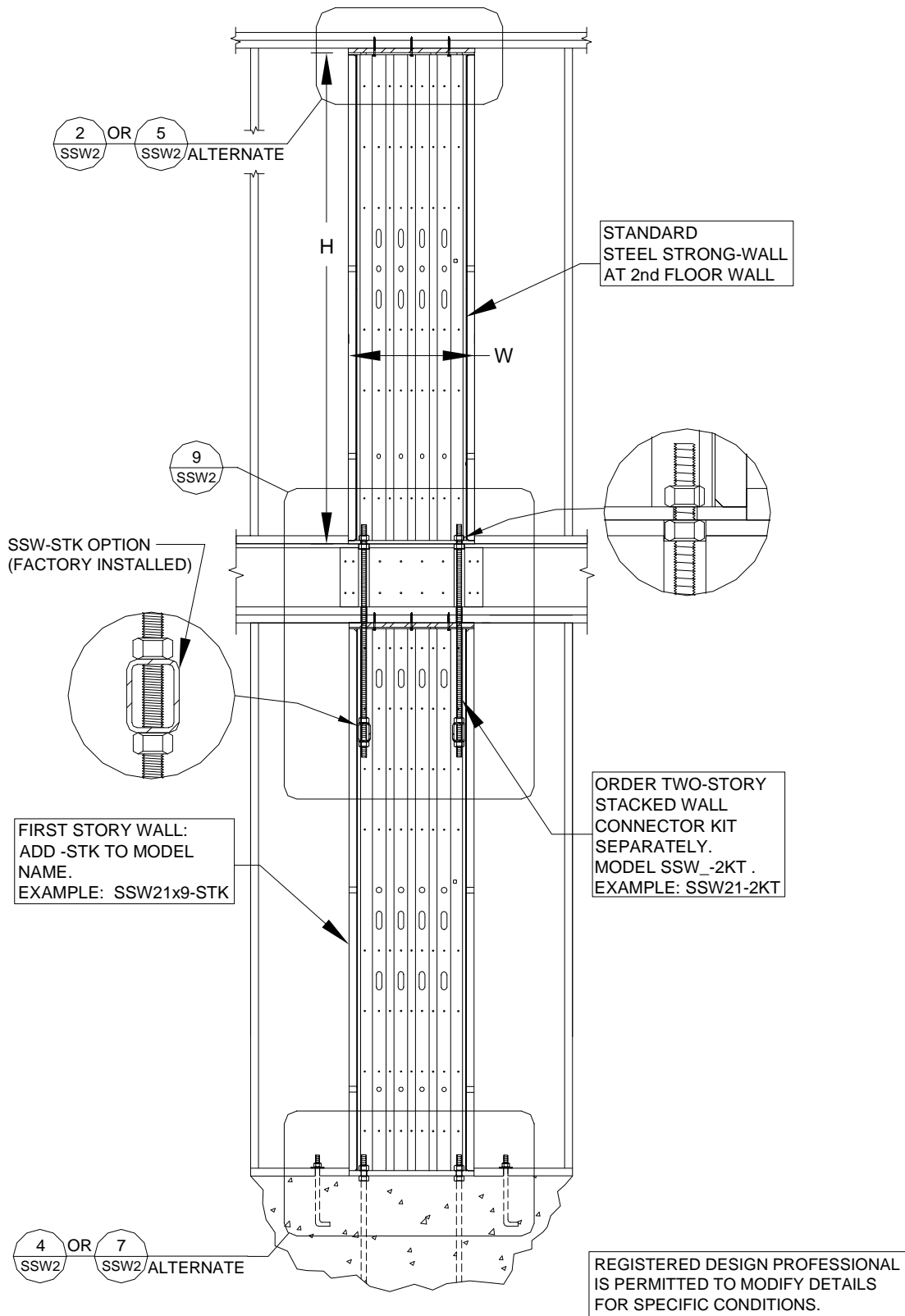
FIGURE 4—STEEL STRONG-WALL WOOD FLOOR DETAILS (10/SSW2)



REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

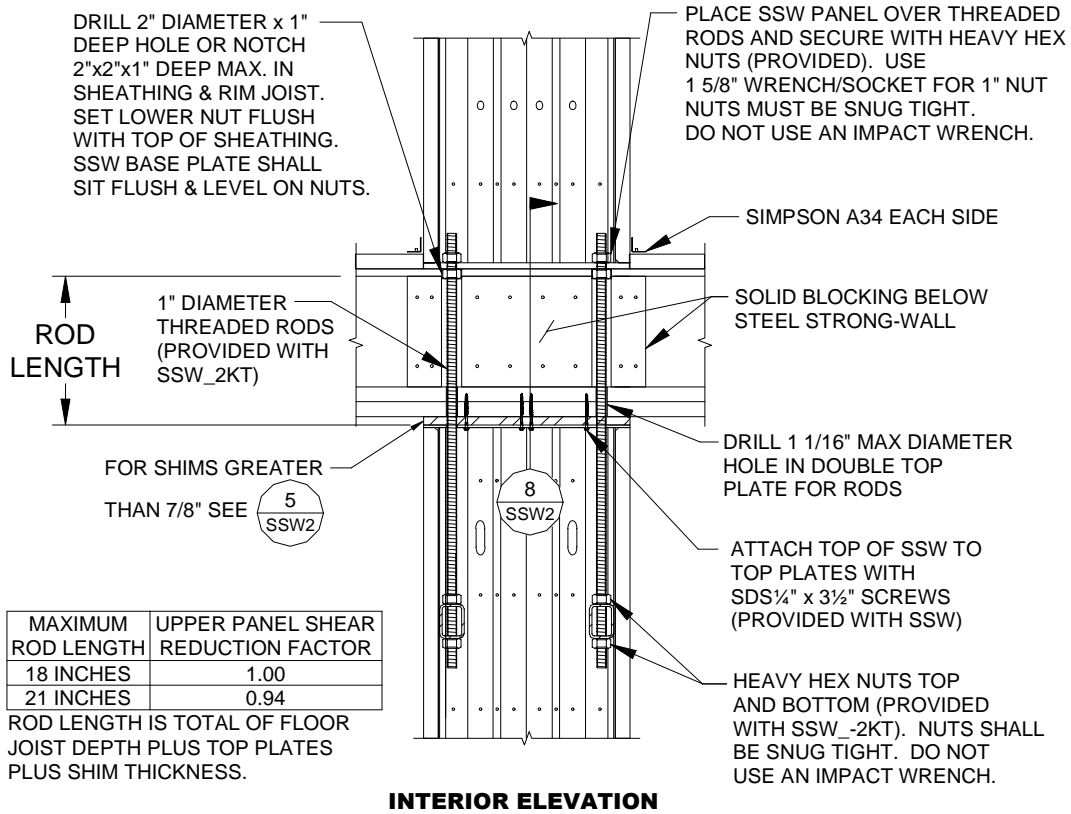
**ALTERNATE 1ST FLOOR WOOD FRAMING 7-SSW2**

**FIGURE 4—STEEL STRONG-WALL WOOD FLOOR DETAILS (Continued) (7/SSW2)**

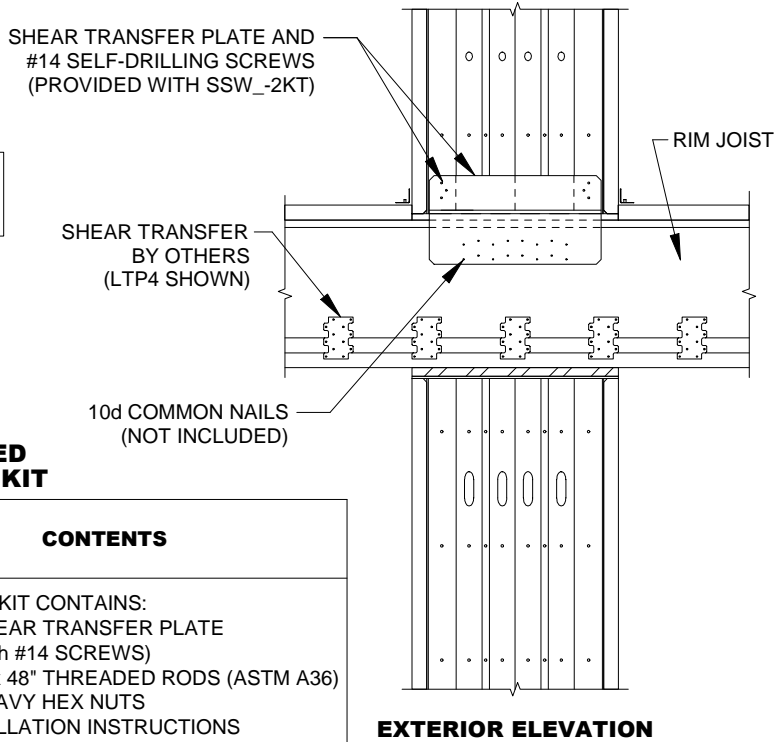


**TWO-STORY STACKED 6-SSW2**

**FIGURE 5—STEEL STRONG-WALL TWO-STORY STACKED DETAILS (6/SSW2)**



REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



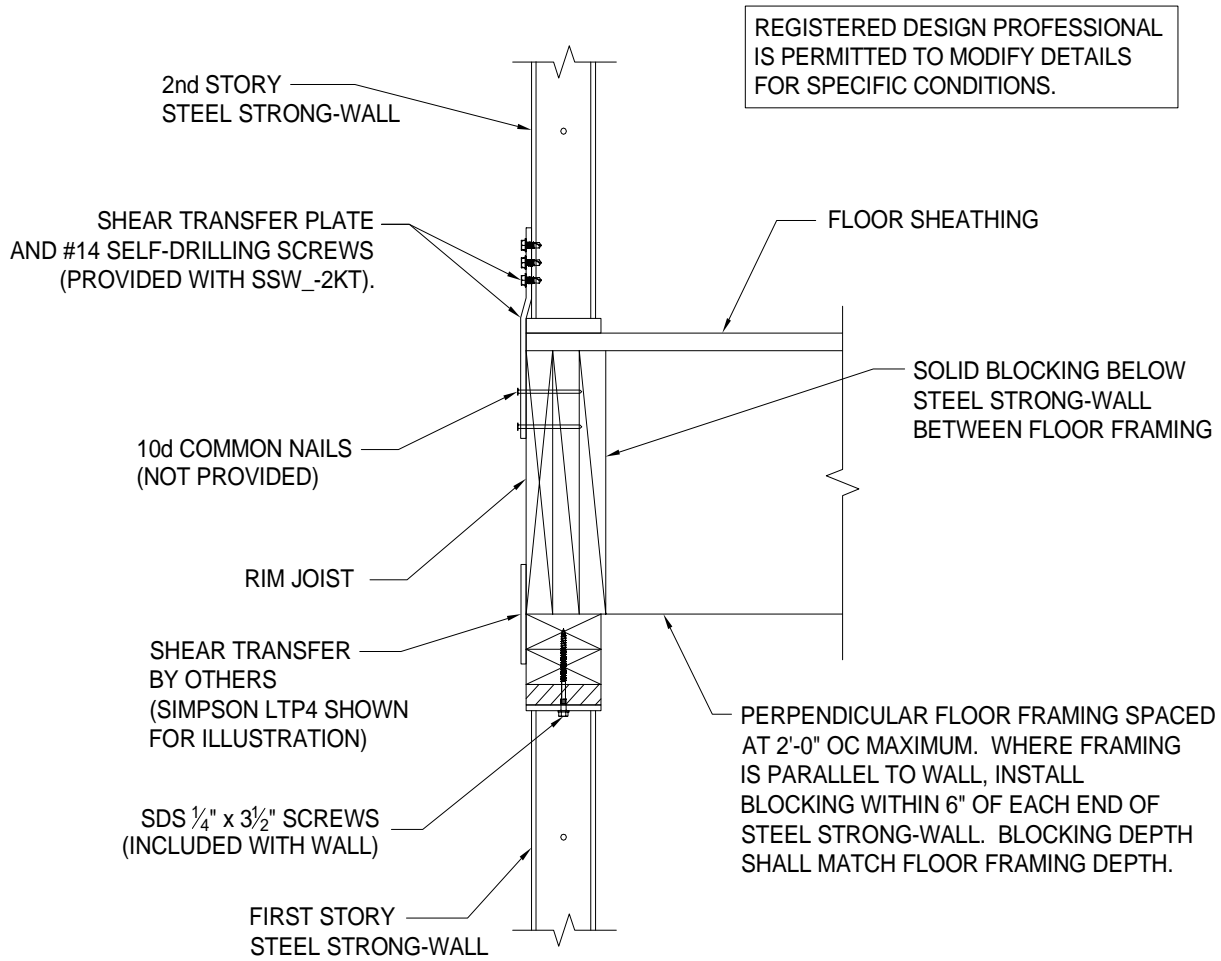
**TWO-STORY STACKED WALL CONNECTION KIT**

WALL WIDTH (in)	MODEL NO.	CONTENTS
15	SSW15-2KT	EACH KIT CONTAINS: (1) SHEAR TRANSFER PLATE (with #14 SCREWS)
18	SSW18-2KT	
21	SSW21-2KT	(2) 1" x 48" THREADED RODS (ASTM A36)
24	SSW24-2KT	(6) HEAVY HEX NUTS INSTALLATION INSTRUCTIONS

**TWO-STORY STACKED FLOOR FRAMING 9-SSW2**

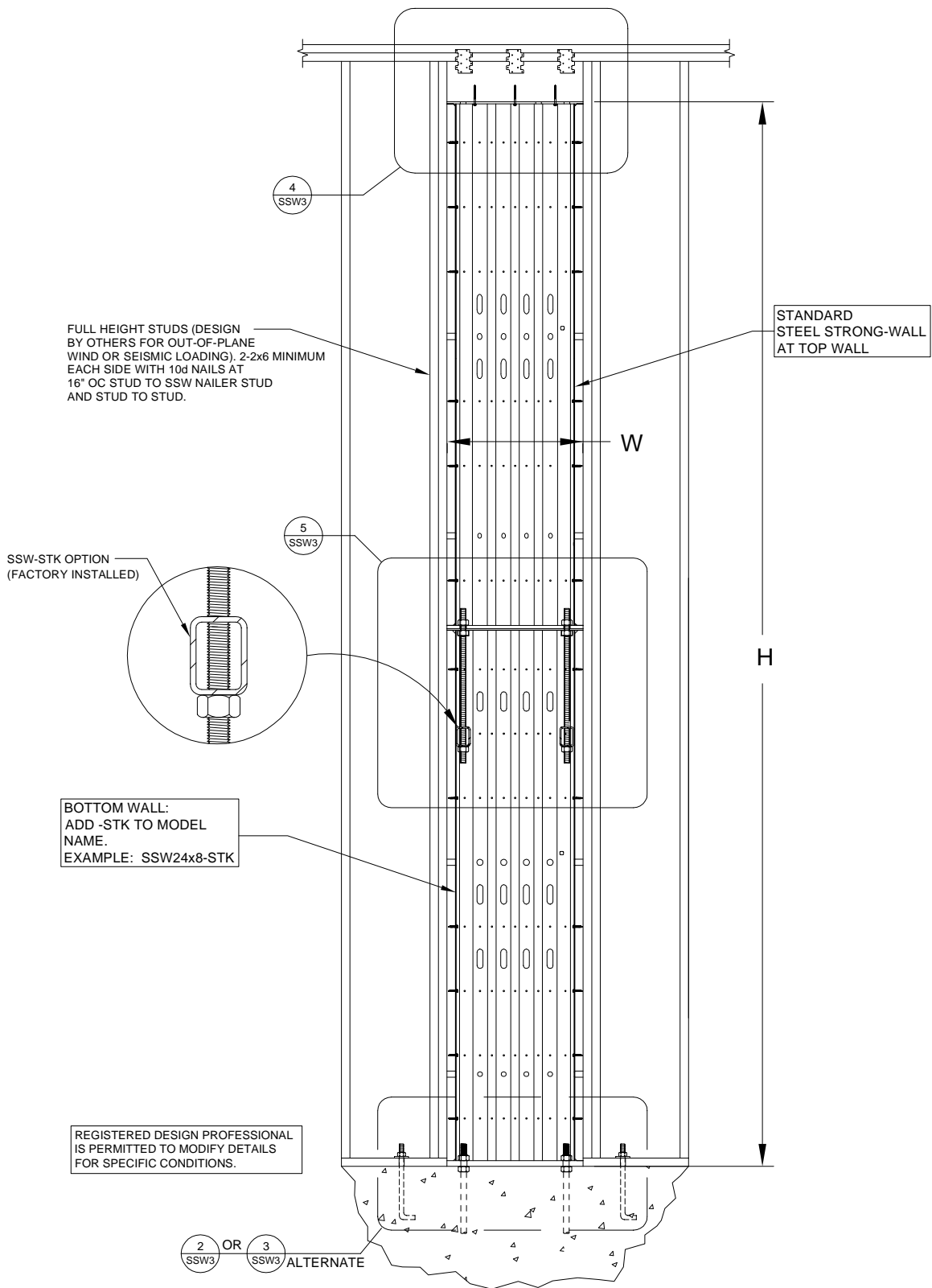
FIGURE 5—STEEL STRONG-WALL TWO-STORY STACKED DETAILS (Continued) (9/SSW2)





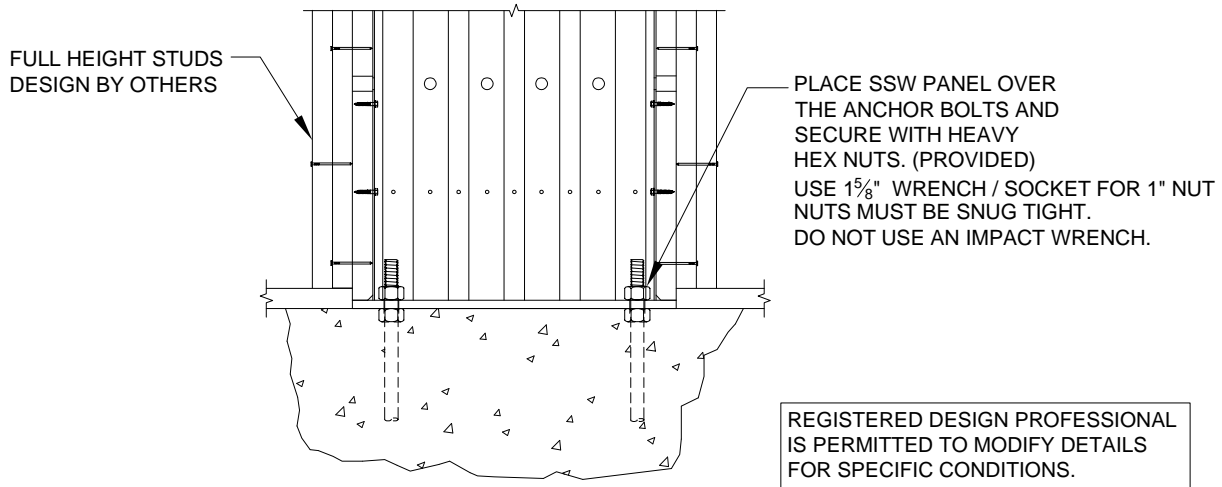
**TWO-STORY STACKED FLOOR SECTION 8-SSW2**

FIGURE 5—STEEL STRONG-WALL TWO-STORY STACKED DETAILS (Continued) (8/SSW2)

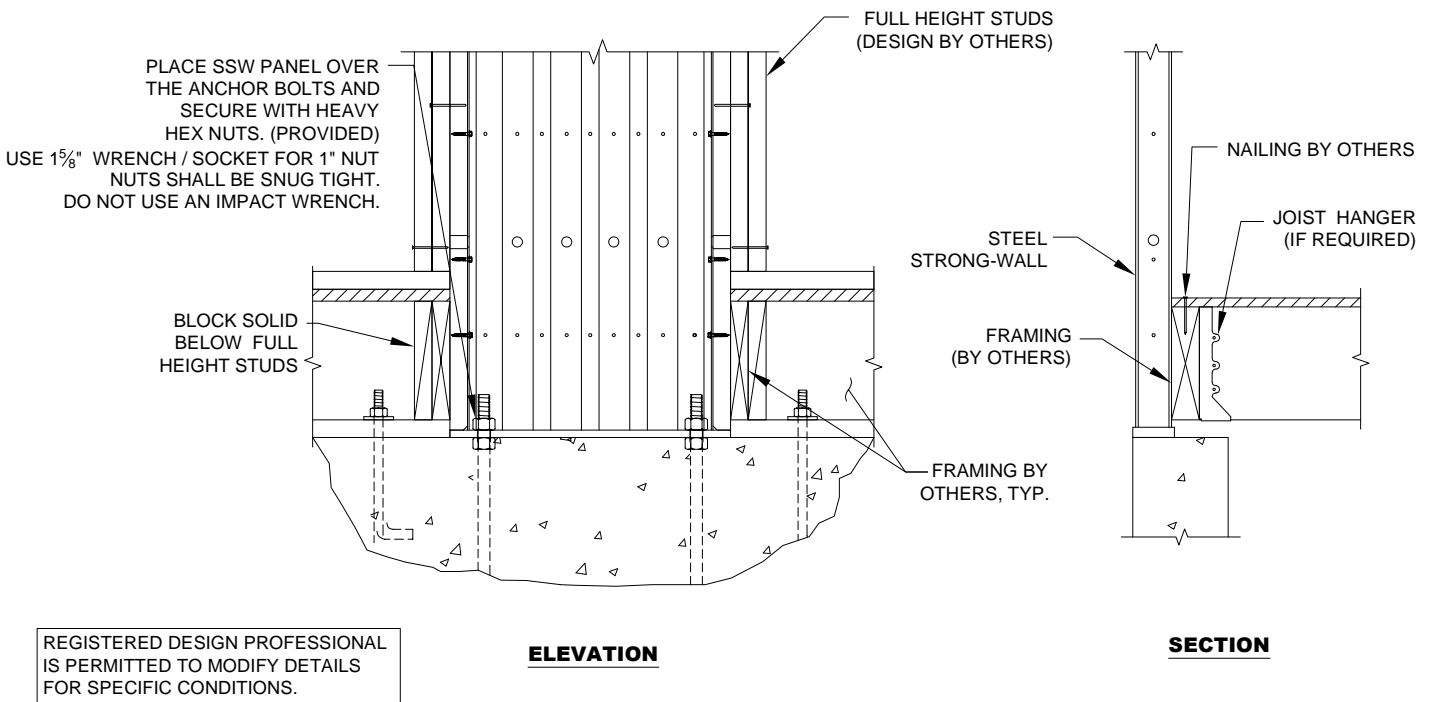


**BALLOON FRAMING 1-SSW3**

**FIGURE 6—STEEL STRONG-WALL BALLOON FRAMING DETAILS (1/SSW3)**

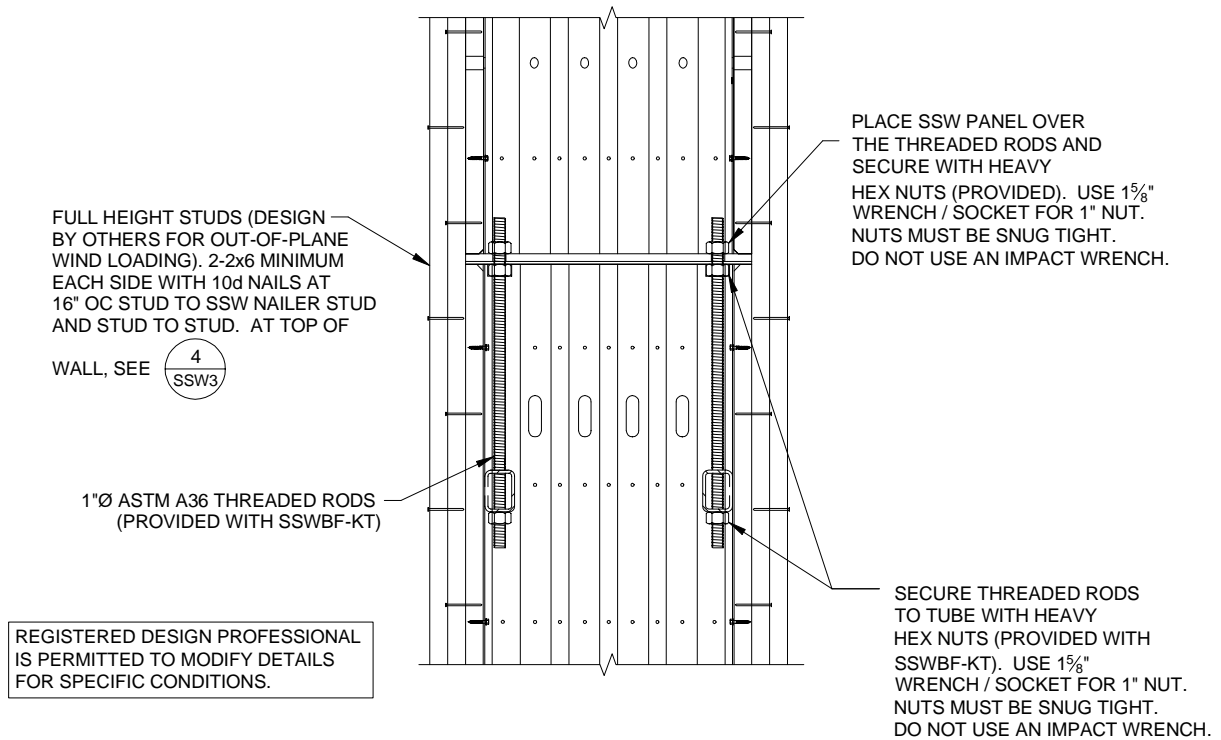


**BALLOON FRAMING BASE PLATE CONNECTION 2-SSW3**



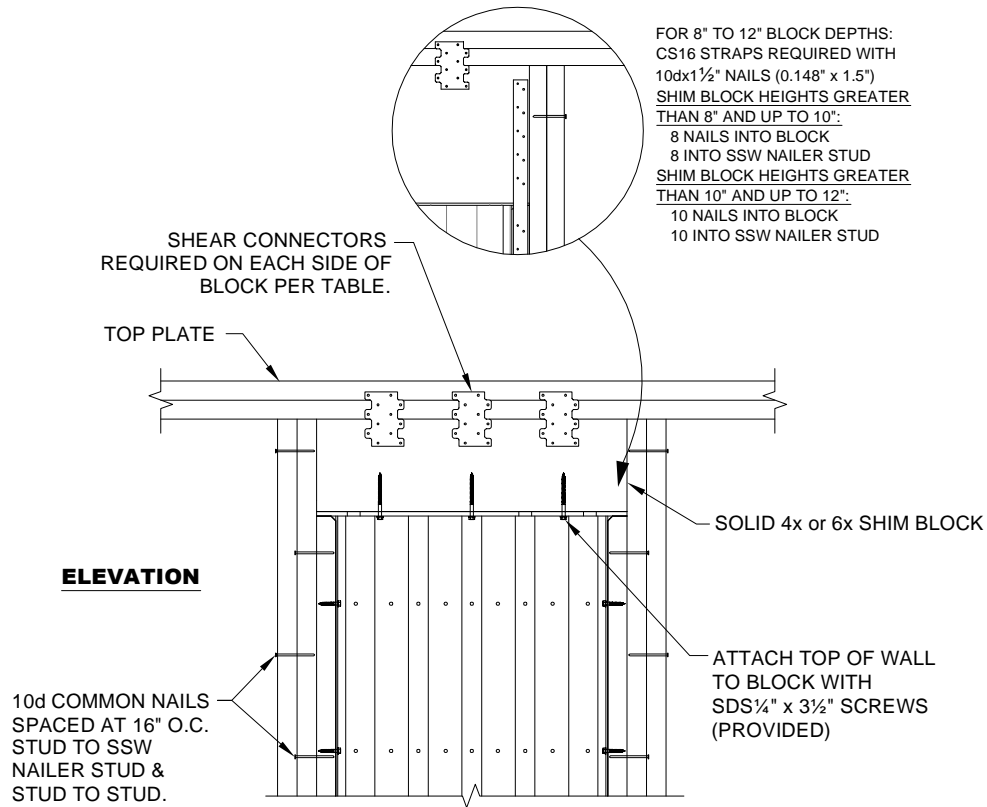
**BALLOON FRAMING AT WOOD FLOOR 3-SSW3**

FIGURE 6—STEEL STRONG-WALL BALLOON FRAMING DETAILS (Continued) (2, 3/SSW3)

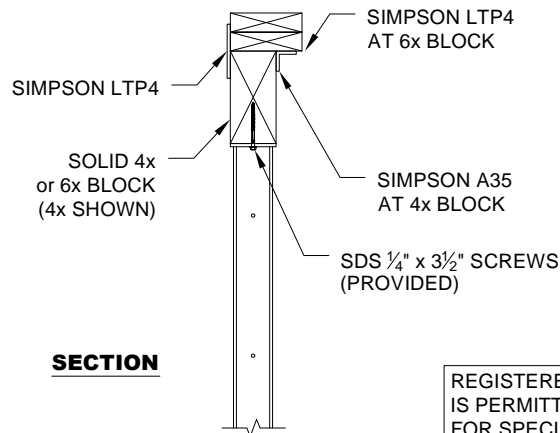


**BALLOON FRAMING WALL TO WALL CONNECTION 5-SSW3**

**FIGURE 6—STEEL STRONG WALL BALLOON FRAMING DETAILS (Continued) (5/SSW3)**



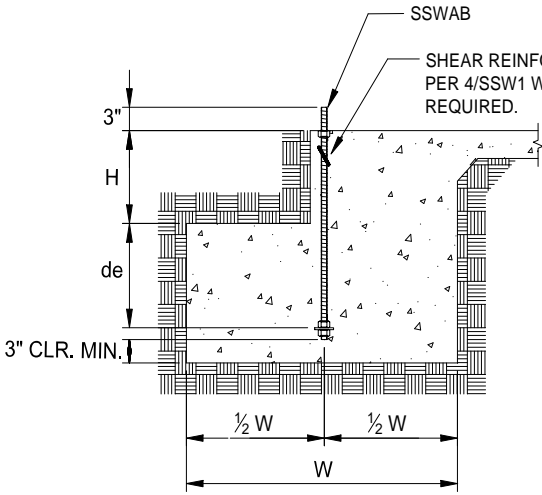
Wall Model	TOTAL CONNECTORS	BLOCK TO TOP PLATE SHEAR CONNECTORS
15" WALL	4 (2 each side)	LTP4 OR A35
18" WALL	4 (2 each side)	LTP4 OR A35
21" WALL	6 (3 each side)	LTP4 OR A35
24" WALL	6 (3 each side)	LTP4 OR A35



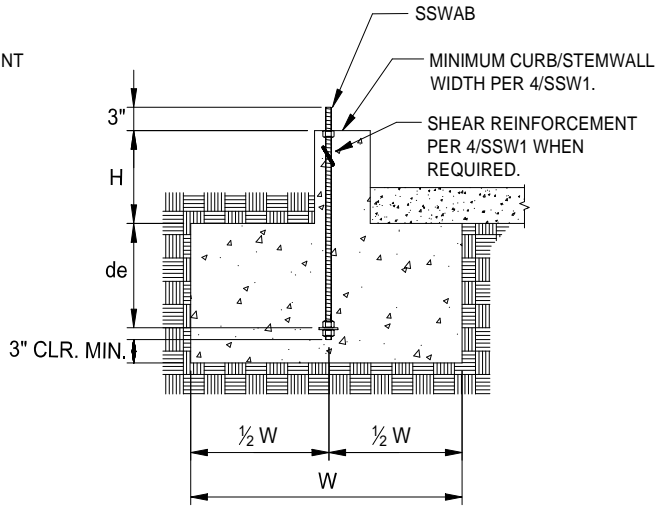
REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

**BALLOON FRAMING TOP OF WALL CONNECTION 4-SSW3**

FIGURE 6—STEEL STRONG-WALL BALLOON FRAMING DETAILS (Continued) (4/SSW3)

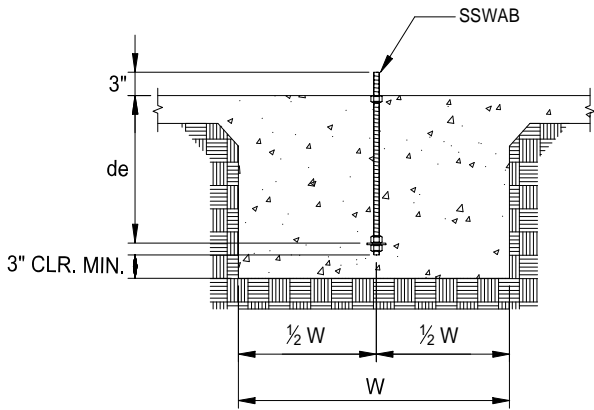


SLAB ON GRADE FOUNDATION

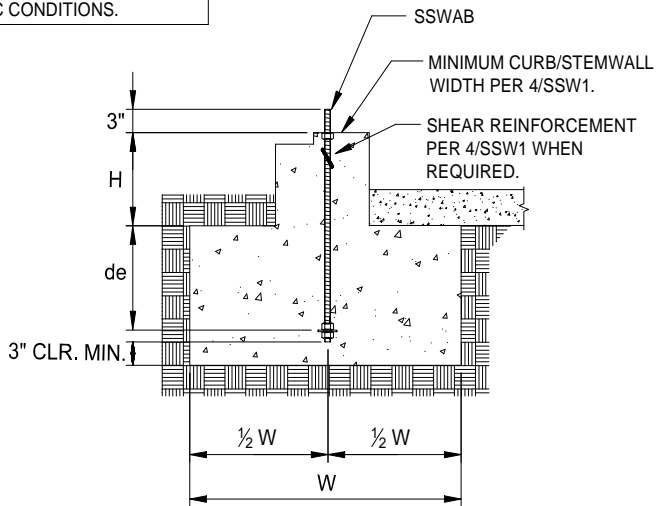


CURB OR STEMWALL FOUNDATION

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.



INTERIOR FOUNDATION



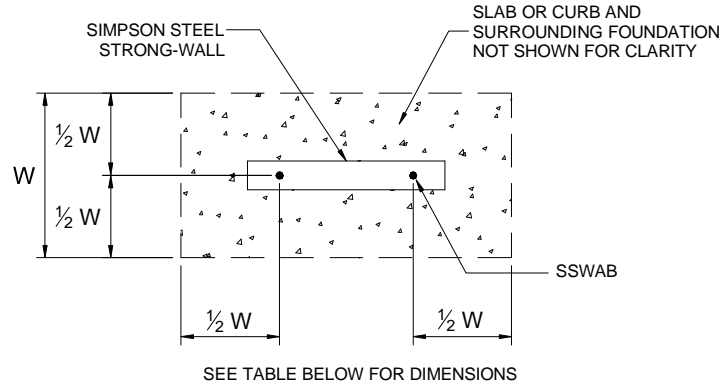
BRICK LEDGE FOUNDATION

NOTES:

1. SEE 2/SSW1 AND 3/SSW1 FOR DIMENSIONS AND ADDITIONAL NOTES.
2. SEE 4/SSW1 FOR SHEAR REINFORCEMENT WHEN REQUIRED.
3. MAXIMUM H =  $l_e - d_e$ . SEE 5/SSW1 AND 6/SSW1 FOR  $l_e$ .

ANCHORAGE - TYPICAL SECTIONS 1-SSW1

FIGURE 7—STEEL STRONG-WALL ANCHORAGE DETAILS (1/SSW1)



**FOUNDATION PLAN VIEW**

STEEL STRONG-WALL ANCHORAGE SOLUTIONS FOR 2500 PSI CONCRETE								
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	SSWAB 3/4" ANCHOR BOLT			SSWAB 1" ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)	ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)
SEISMIC	CRACKED	STANDARD	8,800	22	8	16,100	33	11
			9,600	24	8	17,100	35	12
		HIGH STRENGTH	18,500	36	12	33,000	51	17
			19,900	38	13	35,300	54	18
	UNCRAKED	STANDARD	8,800	19	7	15,700	28	10
			9,600	21	7	17,100	30	10
UNCRAKED	HIGH STRENGTH	18,300	31	11	32,300	44	15	
		19,900	33	11	35,300	47	16	
WIND	CRACKED	STANDARD	5,100	14	6	6,200	16	6
			7,400	18	6	11,400	24	8
			9,600	22	8	17,100	32	11
			11,400	24	8	21,100	36	12
		HIGH STRENGTH	13,600	27	9	27,300	42	14
			15,900	30	10	31,800	46	16
			19,900	35	12	35,300	50	17
			5,000	12	6	6,400	14	6
	UNCRAKED	STANDARD	7,800	16	6	12,500	22	8
			9,600	19	7	17,100	28	10
			12,500	22	8	21,900	32	11
			14,300	24	8	26,400	36	12
		HIGH STRENGTH	17,000	27	9	31,500	40	14
			19,900	30	10	35,300	43	15

**NOTES:**

1. ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF SSWAB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A449).
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-11 SECTION D.3.3.4.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE REGISTERED DESIGN PROFESSIONAL MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/SSW1 FOR de.

**SSWAB TENSION ANCHORAGE SCHEDULE 2,500 PSI 2-SSW1**

**FIGURE 7—STEEL STRONG-WALL ANCHORAGE DETAILS (Continued) (2/SSW1)**

STEEL STRONG-WALL ANCHORAGE SOLUTIONS FOR 3500 PSI CONCRETE								
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	SSWAB 3/4" ANCHOR BOLT			SSWAB 1" ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)	ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)
SEISMIC	CRACKED	STANDARD	9,000	20	7	15,700	29	10
			9,600	21	7	17,100	31	11
		HIGH STRENGTH	18,200	32	11	33,000	46	16
	UNCRAKED	STANDARD	8,800	17	6	15,700	25	9
			9,600	19	7	17,100	27	9
		HIGH STRENGTH	18,600	28	10	32,600	40	14
WIND	CRACKED	STANDARD	6,000	14	6	7,300	16	6
			7,300	16	6	13,500	24	8
			9,600	20	7	17,100	29	10
		HIGH STRENGTH	11,800	22	8	22,700	34	12
			13,500	24	8	27,400	38	13
			17,000	28	10	32,300	42	14
	UNCRAKED	STANDARD	19,900	32	11	35,300	45	15
			6,000	12	6	7,500	14	6
			7,500	14	6	12,800	20	7
		HIGH STRENGTH	9,600	17	6	17,100	25	9
			12,800	20	7	21,300	28	10
			14,800	22	8	26,000	32	11
16,900	24	8	31,300	36	12			
19,900	27	9	35,300	39	13			

STEEL STRONG-WALL ANCHORAGE SOLUTIONS FOR 4500 PSI CONCRETE								
DESIGN CRITERIA	CONCRETE CONDITION	ANCHOR STRENGTH	SSWAB 3/4" ANCHOR BOLT			SSWAB 1" ANCHOR BOLT		
			ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)	ASD ALLOWABLE UPLIFT (lbs)	W (in)	de (in)
SEISMIC	CRACKED	STANDARD	8,700	18	6	16,000	27	9
			9,600	20	7	17,100	29	10
		HIGH STRENGTH	17,800	29	10	32,100	42	14
	UNCRAKED	STANDARD	19,900	32	11	35,300	45	15
			9,100	16	6	15,700	23	8
		HIGH STRENGTH	9,600	17	6	17,100	25	9
WIND	CRACKED	STANDARD	17,800	25	9	32,500	37	13
			19,900	27	9	35,300	39	13
			5,400	12	6	6,800	14	6
		HIGH STRENGTH	8,300	16	6	11,600	20	7
			9,600	18	6	17,100	26	9
			11,600	20	7	21,400	30	10
	UNCRAKED	STANDARD	13,400	22	8	25,800	34	12
			17,300	26	9	31,000	38	13
			19,900	29	10	35,300	42	14
		HIGH STRENGTH	6,800	12	6	6,800	12	6
			8,500	14	6	12,400	18	6
			9,600	16	6	17,100	23	8
12,400	18	6	21,600	26	9			
14,500	20	7	26,700	30	10			
16,800	22	8	32,200	34	12			
19,900	25	9	35,300	36	12			

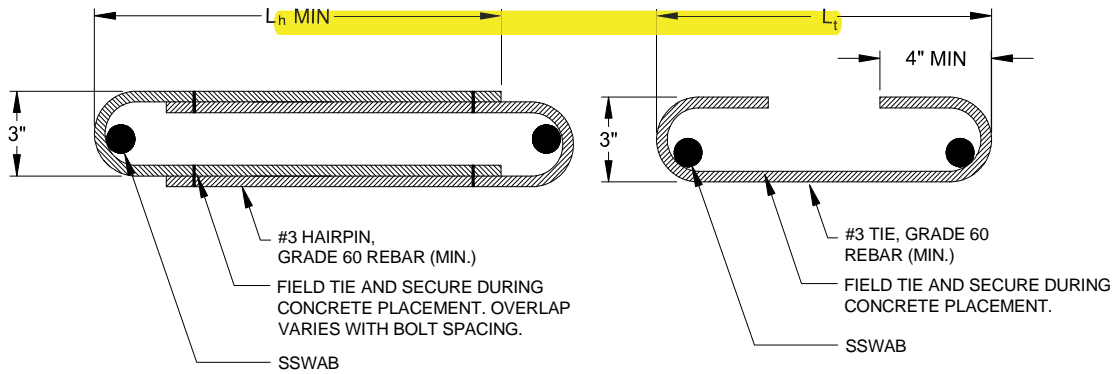
NOTES:

1. ANCHORAGE DESIGNS CONFORM TO ACI 318-11 APPENDIX D WITH NO SUPPLEMENTARY REINFORCEMENT FOR CRACKED OR UNCRACKED CONCRETE AS NOTED.
2. ANCHOR STRENGTH INDICATES REQUIRED GRADE OF SSWAB ANCHOR BOLT. STANDARD (ASTM F1554 GRADE 36) OR HIGH STRENGTH (HS) (ASTM A449).
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS. SEISMIC ANCHORAGE DESIGNS CONFORM TO ACI 318-11 SECTION D.3.3.4.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B AND DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C.
5. FOUNDATION DIMENSIONS ARE FOR ANCHORAGE ONLY. FOUNDATION DESIGN (SIZE AND REINFORCEMENT) BY OTHERS. THE REGISTERED DESIGN PROFESSIONAL MAY SPECIFY ALTERNATE EMBEDMENT, FOOTING SIZE OR ANCHOR BOLT.
6. REFER TO 1/SSW1 FOR de.

**SSWAB TENSION ANCHORAGE SCHEDULE 3,500/4,500 PSI 3-SSW1**

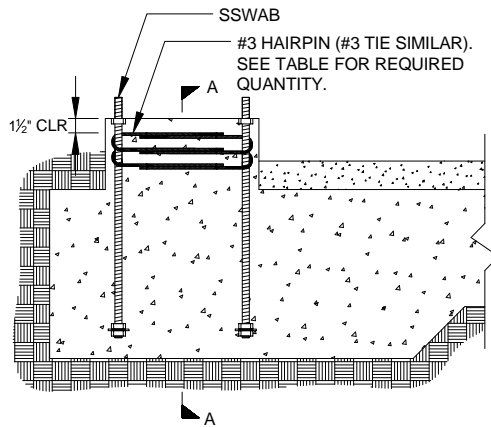
FIGURE 7—STEEL STRONG-WALL ANCHORAGE DETAILS (Continued) (3/SSW1)



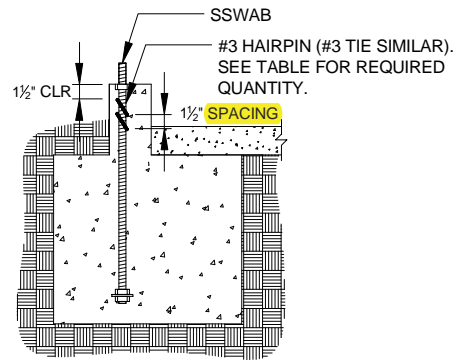


**HAIRPIN SHEAR REINFORCEMENT**

**TIE SHEAR REINFORCEMENT**



**HAIRPIN INSTALLATION**  
(GARAGE CURB SHOWN. OTHER FOOTING TYPES SIMILAR.)



**SECTION A-A**

REGISTERED DESIGN PROFESSIONAL IS PERMITTED TO MODIFY DETAILS FOR SPECIFIC CONDITIONS.

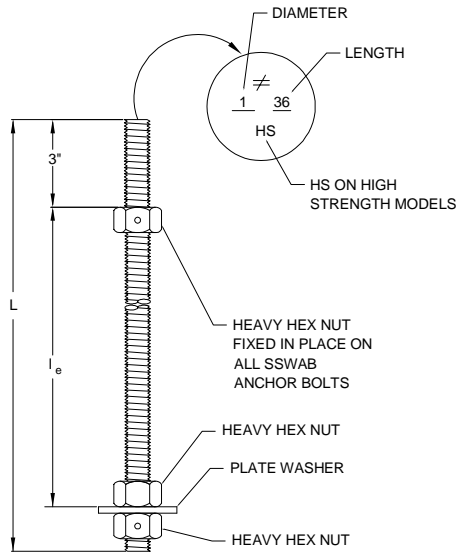
STEEL STRONG-WALL SHEAR ANCHORAGE									
MODEL	SEISMIC <sup>3</sup>			WIND <sup>4</sup>					
	L <sub>t</sub> OR L <sub>h</sub> (in.)	SHEAR REINFORCEMENT	MIN. CURB / STEMWALL WIDTH (in.)	SHEAR REINFORCEMENT	MIN. CURB / STEMWALL WIDTH (in.)	ASD ALLOWABLE SHEAR LOAD V (lbs.) <sup>6</sup>			
						6" MIN CURB / STEMWALL		8" MIN CURB / STEMWALL	
						UNCRAKED	CRACKED	UNCRAKED	CRACKED
SSW12	9	(1) #3 TIE	6	NONE REQUIRED	-	1230	880	1440	1030
SSW15	12	(2) #3 TIES	6	NONE REQUIRED	-	1590	1135	1810	1295
SSW18	14	(1) #3 HAIRPIN	8 <sup>5</sup>	(1) #3 HAIRPIN	6	HAIRPIN REINFORCEMENT ACHIEVES MAXIMUM ALLOWABLE SHEAR LOAD OF THE STEEL STRONG-WALL PANEL			
SSW21	15	(2) #3 HAIRPIN	8 <sup>5</sup>	(1) #3 HAIRPIN	6				
SSW24	17	(2) #3 HAIRPIN	8 <sup>5</sup>	(1) #3 HAIRPIN	6				

NOTES:

1. SHEAR ANCHORAGE DESIGNS CONFORM TO ACI 318-11 AND ASSUME MINIMUM  $f_c=2,500$  PSI CONCRETE. SEE DETAILS 1/SSW1 TO 3/SSW1 FOR TENSION ANCHORAGE.
2. SHEAR REINFORCEMENT IS NOT REQUIRED FOR PANELS INSTALLED ON A WOOD FLOOR, INTERIOR FOUNDATION APPLICATIONS (PANEL INSTALLED AWAY FROM EDGE OF CONCRETE), OR BRACED-WALL PANEL APPLICATIONS.
3. SEISMIC INDICATES SEISMIC DESIGN CATEGORY C THROUGH F. DETACHED 1 AND 2 FAMILY DWELLINGS IN SDC C MAY USE WIND ANCHORAGE SOLUTIONS.
4. WIND INCLUDES SEISMIC DESIGN CATEGORY A AND B.
5. MINIMUM CURB/STEMWALL WIDTH IS 6" WHEN STANDARD STRENGTH SSWAB IS USED.
6. USE (1) #3 TIE FOR SSW12 AND SSW15 WHEN THE STEEL STRONG-WALL PANEL DESIGN SHEAR FORCE EXCEEDS THE TABULATED ANCHORAGE ALLOWABLE SHEAR LOAD.
7. CONCRETE EDGE DISTANCE FOR ANCHORS MUST COMPLY WITH ACI 318-11 SECTION D.8.2.

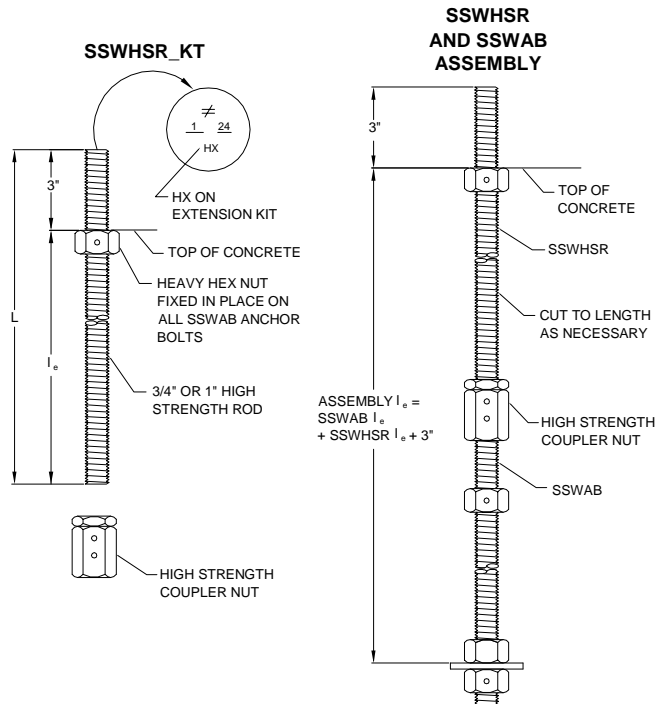
**SSWAB SHEAR ANCHORAGE 4-SSW1**

**FIGURE 7—STEEL STRONG-WALL ANCHORAGE DETAILS (Continued) (4/SSW1)**



STEEL STRONG-WALL WIDTH	MODEL NO.	DIAMETER	LENGTH	$l_e$
12" MODEL	SSWAB3/4x24	3/4"	24"	19"
	SSWAB3/4x24HS	3/4"	24"	19"
	SSWAB3/4x30	3/4"	30"	25"
	SSWAB3/4x30HS	3/4"	30"	25"
	SSWAB3/4x36HS	3/4"	36"	31"
15", 18", 21 AND 24" MODELS	SSWAB1x24	1"	24"	19"
	SSWAB1x24HS	1"	24"	19"
	SSWAB1x30	1"	30"	25"
	SSWAB1x30HS	1"	30"	25"
	SSWAB1x36HS	1"	36"	31"

**SSW ANCHOR BOLTS 5-SSW1**



SSW WIDTH	MODEL NO.	DIAMETER	TOTAL LENGTH	$l_e$
12" MODEL	SSWHR3/4-2KT	3/4"	24"	21"
	SSWHR3/4-3KT	3/4"	36"	33"
15", 18", 21 AND 24" MODELS	SSWHR1-2KT	1"	24"	21"
	SSWHR1-3KT	1"	36"	33"

**SSW ANCHOR BOLT EXTENSION 6-SSW1**

FIGURE 7—STEEL STRONG-WALL ANCHORAGE DETAILS (Continued) (5,6/SSW1)

**2.5 ksi concrete**

12 in. wall  $T = [28.1 - \sqrt{788 - 5.95(3.4P + Vh)}] - P$   
 15 in. wall  $T = [36.1 - \sqrt{1301 - 5.95(4.6P + Vh)}] - P$   
 18 in. wall  $T = [45.0 - \sqrt{2025 - 5.95(6.1P + Vh)}] - P$   
 21 in. wall  $T = [53.9 - \sqrt{2908 - 5.95(7.6P + Vh)}] - P$   
 24 in. wall  $T = [62.8 - \sqrt{3950 - 5.95(9.1P + Vh)}] - P$

**3.0 ksi concrete**

12 in. wall  $T = [33.7 - \sqrt{1135 - 7.14(3.4P + Vh)}] - P$   
 15 in. wall  $T = [43.3 - \sqrt{1874 - 7.14(4.6P + Vh)}] - P$   
 18 in. wall  $T = [54.0 - \sqrt{2916 - 7.14(6.1P + Vh)}] - P$   
 21 in. wall  $T = [64.7 - \sqrt{4187 - 7.14(7.6P + Vh)}] - P$   
 24 in. wall  $T = [75.4 - \sqrt{5688 - 7.14(9.1P + Vh)}] - P$

**4.5 ksi concrete**

12 in. wall  $T = [50.5 - \sqrt{2554 - 10.71(3.4P + Vh)}] - P$   
 15 in. wall  $T = [64.9 - \sqrt{4216 - 10.71(4.6P + Vh)}] - P$   
 18 in. wall  $T = [81.0 - \sqrt{6560 - 10.71(6.1P + Vh)}] - P$   
 21 in. wall  $T = [97.1 - \sqrt{9421 - 10.71(7.6P + Vh)}] - P$   
 24 in. wall  $T = [113.1 - \sqrt{12,797 - 10.71(9.1P + Vh)}] - P$

For SI: 1 inch = 25.4 mm, 1 kip = 4.45 kN, 1 ft-lb = 1.36 N-m

**Notes:**

- Equations may be used to calculate uplift forces at the base of first-story walls on concrete foundations.
- Equations are based on limiting concrete bearing on a 3-1/2" wide base plate at the edge of concrete.

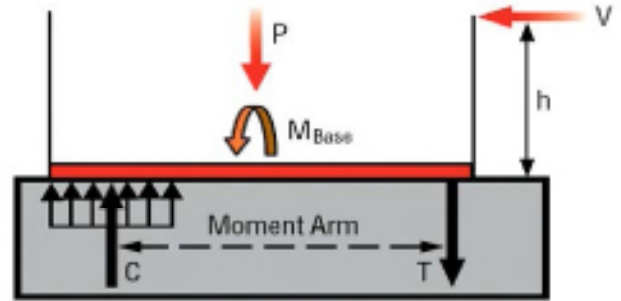
**EXAMPLE 3 (Single-Story SSW):**

**Given:**

SSW18x9 wall on 2.5 ksi concrete  
 Seismic Loading  
 Design Shear (V) = 2.0 kips < 2.15 kips (V<sub>Allowable</sub>)  
 P (Vertical Load) = 1.0 kip  
 h = wall height = 105.25"

$$T = [45.0 - \sqrt{2025 - 5.95(6.1P + Vh)}] - P$$

$$T = [45.0 - \sqrt{2025 - 5.95(6.1 \times 1 + 2.0 \times 105.25)}] - 1.0 = \underline{\underline{16.9 \text{ kips}}}$$



**FORCES AT BASE OF WALL**

T = resulting anchorage tension (uplift) force (kips)  
 V = design shear (kips)  
 P = total vertical load (kips)  
 h = wall height (inches)

For two-story stacked applications, substitute M<sub>Base</sub> for Vh:

$$Vh = M_{Base} \left( \frac{12}{1000} \right) (\text{kip-in})$$

Where M<sub>Base</sub> = Design moment at base of wall (ft-lbs)

**For SI use the following adjustments:**

V = design shear (kN) / 4.45  
 P = total vertical load (kN) / 4.45  
 h = wall height (mm) / 25.4  
 T x 4.45 = resulting anchorage tension (uplift) force (kN)

For two-story stacked applications, substitute M<sub>Base</sub> for Vh:

$$Vh = \frac{M_{Base} (\text{N-m})}{1130}$$

Where M<sub>Base</sub> = Design moment at base of wall (N-m)

**EXAMPLE 4 (2-Story Stacked SSW Condition):**

**Given:**

See Example 2 – Two Story Application.  
 SSW18x9-STK wall on 2.5 ksi concrete  
 Wind Loading  
 M<sub>Base</sub> = 17,550 ft-lbs (Moment at base of 2-story, stacked wall)  
 $Vh = 17,550 \left( \frac{12}{1000} \right) \text{kip-in} = 210.6 \text{kip-in}$   
 P (Vertical Load) = 2.0 kips

$$T = [45.0 - \sqrt{2025 - 5.95(6.1P + Vh)}] - P$$

$$T = [45.0 - \sqrt{2025 - 5.95(6.1 \times 2 + 210.6)}] - 2 = \underline{\underline{16.6 \text{ kips}}}$$

**FIGURE 8—EQUATIONS FOR CALCULATING UPLIFT FORCES AT BASE OF FIRST-STORY WALL**



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Board of Architectural and Engineering Examiners  
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Nashville, TN 37243-1142  
615-532-9410 (Fax)

## **DIVISION OF FIRE PREVENTION/CODES ENFORCEMENT PLANS REVIEW POLICY FOR REVIEW OF SPRINKLER SHOP DRAWINGS**

Pursuant to Tennessee Code Annotated, Section 62-32-112, a registered fire protection sprinkler system contractor, through its responsible managing employee, may submit shop drawings of proposed fire protection sprinkler system installations in projects whose construction plans and specifications are subject to review by the Division of Fire Prevention. After receipt of the shop drawings, the Division of Fire Prevention must review the drawings and may approve or disapprove the shop drawings.

The above-cited section is not intended to circumvent the requirement for plans prepared and sealed by registered architects and/or engineers where appropriate; rather, the section is intended to allow the sprinkler system contractor to submit shop drawings to provide for the installation of the sprinkler systems. These drawings ~~should~~ shall be coordinated with the architect or engineer of record. The architect or engineer of record ~~should~~ shall always provide the design intent of the system and ~~should~~ shall review and approve or disapprove the shop drawings submitted by the sprinkler system contractor. Attached and incorporated herein by reference is a copy of the policy of the Tennessee State Board of Architectural and Engineering Examiners which sets forth the architect's or engineer's design responsibilities concerning sprinkler drawings. The goal is for the design drawings to provide sufficient information to indicate compliance with applicable building codes and ensure that the builder or installing contractor will not be required to make design decisions. The registered architect or engineer ~~should~~ shall also provide design from the point of service—that point at which the system is dedicated solely to fire protection—to the building.

The above-cited section is also not intended to result in the fire protection sprinkler system contractor being assigned the architect's or engineer's design responsibilities concerning sprinkler drawings. The design architect or engineer shall not require the sprinkler contractor to provide shop drawings sealed by a registered engineer. The designer shall not assign the design responsibilities to the sprinkler contractor. This is not intended to prevent a fire protection sprinkler system contractor from providing design-build services.

To that end, the Division of Fire Prevention will accept shop drawings submitted by sprinkler system contractors. It will review such shop drawings and shall require the seal of a registered architect or engineer where engineering design is involved, as authorized by Tennessee Code Annotated, Section 62-32-112.

Adopted 4-10-97  
Revised and adopted \_\_\_\_\_



State of Tennessee  
Department of Commerce and Insurance  
Board of Architectural and Engineering Examiners  
500 James Robertson Parkway  
800-256-5758 615-741-3221 (Nashville Area)  
<http://www.tn.gov/regboards/ae/>

Nashville, TN 37243-1142  
615-532-9410 (Fax)

## Version 2

### **DIVISION OF FIRE PREVENTION/CODES ENFORCEMENT** **PLANS REVIEW POLICY FOR REVIEW OF SPRINKLER SHOP DRAWINGS**

~~Pursuant to Tennessee Code Annotated, Section 62-32-112, A~~ registered fire protection sprinkler system contractor registered pursuant to Tennessee Code Annotated, Title 62, Chapter 32, Part 1, through its responsible managing employee, ~~may~~ shall submit shop drawings of proposed fire protection sprinkler system installations ~~in projects whose construction plans and specifications are subject to review by the Division~~. After receipt of the shop drawings, the ~~Division~~ authority having jurisdiction (AHJ) must review the drawings and may approve or disapprove the shop drawings.

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Adopted 4-10-97

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Adopted 4-10-97

Revised and adopted \_\_\_\_\_

February 27, 2015

**Tennessee Board of Architectural and Engineering Examiners**

RE: ***Request for Opinion***

Received by A&E Board Office February 25, 2015 from:

Request from: Charles W. Ferguson  
Ferguson Architecture  
(615)-775-3189

Requester's Profession: **REGISTERED ARCHITECT**

Project in question: **SOAR Adventure Tower**  
3794 Carothers Parkway  
Franklin, Tennessee

**Request from Charles W. Ferguson to TN A&E Board is as follows:**

"Doug Bornick at Franklin Codes asked me to speak with you about the permit approval for the SOAR Adventure Tower project in Franklin. I've attached all the information provided by the vendor of the tower structure for permitting. My understanding is that the structure will be certified by a third-party (TUV Sued) that it meets all applicable regulatory requirements for this type of structure before it would be turned over to the Owner for operation. The vendor (Kristall Turm) has said that this type project is similar to a roller coaster or other amusement ride and that third-party certification is the standard procedure for approval. I know that there are other "ropes courses" that have been constructed in Tennessee but have been unable to find out what sort of documentation they had to provide in order to get a building permit. There is also a similar type course that has been constructed in Ohio and I have asked the Owner to try and get the contact information of the building officials there so that Doug can speak with them. Any help you can provide to help Doug reach a comfort level with the approval of the information being provided would be greatly appreciated as the Owner is trying to coordinate the delivery of the tower and the crew coming from Germany to do the installation in late March or April. If you have any questions, please give me a call."

**Pertinent policy of the Tennessee Board of Architectural and Engineering Examiners Sealing Manufactured Product Details, Review Letters, and Shop Drawings is as follows:**

*The design professional:*

- 1. Shall not seal a detail of a manufactured product designed by others.**  
The Adventure Tower plans submitted are not a detail of a manufactured product, but the entire structure and thus cannot be sealed by the registrant.
- 2. May seal a detail of a manufactured product if the design professional performs calculations to confirm design and re-draws detail.**

Again, the structure presented is not a detail of a manufactured product, but an entire design. With the permission of the original designer, I think this method of performing calculations and re-drawing the CD's could be used, however I don't think this is what is being requested or desired.

**3. *May incorporate a manufacturer's detail from a trusted source into a larger drawing as allowed by Rule 0120-02-08(6)(a)(5) Seals.***

Again the structure submitted is not a detail and thus is not relevant to this issue. Rule 0120-02-08(6)(a)(5) further defines these details as being "Contributions of information or predrawn detail items or detail units that are incidental to and intended to be integrated into a registrant's technical submissions are from trusted sources (including, but not limited to, manufacturers, installers, consultants, owners and contractors), are subject to appropriate review, and are then coordinated and integrated into the design by the registrant."

**4. *May seal a review letter of a manufactured product if the letter can be considered a report and includes language to define the responsibilities and limitations of the reviewing engineer.***

Again, this refers to a "manufactured product" and does not refer to an entire structural and/or architectural design.

**5. *Shall not seal a shop drawing prepared by others; may only add a shop drawing review stamp to address conformance with design intent.***

This, of course, may be done, however, it doesn't answer the Plans Reviewer's concerns of approving plans and specifications of a structure that has not been designed by an Architect or Engineer licensed in the State of Tennessee.

**6. *May not be required by the authority having jurisdiction to seal the design of a manufactured product if the design is exempted by applicable law.***

I am not aware of an applicable law that exempts the design of this structure.

It's questionable as to whether this is an issue that pertains to the Tennessee Board of Architectural and Engineering Examiners, as I am not aware that the Franklin Plans review is trying to require Mr. Ferguson to seal documents that he did not produce, nor is Mr. Ferguson wishing to do so. In making a cursory review of ASTM 2959-12 and ASTM F1193-06, it is apparent that design of the Aerial Adventure Courses "shall be manufactured and assembled in accordance with the designer/engineer specified criteria". In my opinion, it would take a legal opinion as to whether complying with the ASTM 2959-12 overcomes Tennessee requirements for licensure of Engineers and Architects.

In the A&E Board Reference Manual for Building Officials and Design Professionals, under the heading "The Requirements for Building Design" it is stated that "In general, all structures must have plans prepared by design professionals registered by the Board. Plans and specifications for all structures classified as "assembly," "educational," and "institutional" in the Standard Building Code must also be prepared by architects and engineers." Since the occupancy of this structure is classified as an Assembly Occupancy and is four stories tall, it appears that the structure in question is required to be prepared by design professionals registered by the Board.



***In my opinion, the Board's position should be that the plans for the building/structure should be prepared by design professionals registered in the State of Tennessee. I find nothing in the Reference Manual or the Rules to the contrary.***

Frank W. Wagster, AIA

Board Member (Architecture)



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## **SEALING MANUFACTURED PRODUCT DETAILS, REVIEW LETTERS, AND SHOP DRAWINGS**

The following provides the Board's policies regarding when a registrant may or may not seal a product detail, shop drawing, or review letter.

The design professional . . .

- Shall not seal a detail of a manufactured product designed by others.
- May seal a detail of a manufactured product if the design professional performs calculations to confirm design and re-draws detail.
- May incorporate a manufacturer's detail from a trusted source into a larger drawing as allowed by Rule 0120-02-.08(6)(a)(5) Seals.
- May seal a review letter of a manufactured product if the letter can be considered a report and includes language to define the responsibilities and limitations of the reviewing engineer.
- Shall not seal a shop drawing prepared by others; may only add a shop drawing review stamp to address conformance with design intent.
- May not be required by the authority having jurisdiction to seal the design of a manufactured product if the design is exempted by applicable law.

Adopted 10/10/14

## AERIAL ADVENTURE COURSES SURVEY

*We have received a question in Tennessee regarding whether a registered architect/engineer would be required to seal plans for a combination tower/ropes course (an "aerial adventure course") that is similar to an amusement ride. In this case, the tower footing is sealed by an engineer, but the tower structure itself is designed, manufactured, and installed by a company in Germany. The local jurisdiction reviewing the plans considers this an assembly occupancy, which normally requires sealed plans in our state. A third party will certify that the structure complies with the applicable ASTM standards, but the plans are not sealed. The Amusement Devices Division of our Department of Labor and Workforce Development will inspect the ride, but they do not review plans or issue building permits. How would this be handled in your state?*

### **I. Both the footing and tower must be sealed by a registrant.**

Alaska: In Alaska both [the footing and the tower] would need an Alaska stamp.

Illinois: Illinois would require a structural engineer stamp for the foundation and tower. The local code official would have to determine if a professional engineer would also be required. [IL has separate licensing for structural engineers and PEs.]

Hawaii: The foundation and structure would need to be sealed by a structural engineer in Hawaii.

North Carolina: For NC this issue came to us a couple of years ago from a request from the Dept of Insurance and Dept of Labor when it was realized that no engineers were involved with the construction of zip lines. We researched the issue and developed the attached policy that in essence dictates that PEs have to be involved with the construction of zip lines, ropes courses, rock walls, swinging bridges or any other "elevated recreational facilities."

<http://www.ncbels.org/Policies/elevatedrecfacpol.pdf>

### **II. The footing must be sealed by a registrant, but the tower, as a manufactured product, is exempt.**

Texas: In Texas, we would require the footing to be signed / sealed, but if the tower is a product, it is exempt. We do not have occupancy requirements, so that isn't a problem here.

California: We would consider anything "site-specific" incorporated into the design as requiring California licensure which would most likely include the footings, piers, structural supports, etc. that considered existing conditions into the design. The actual

structure could be designed elsewhere and considered as manufactured but this would need to be reviewed on a case by case basis.

Washington: Agrees with CA's position.

- III. **The footing must be sealed by a registrant, but the tower could either be incorporated into a registrant's design as a "manufactured product" (if not designed specifically for the location) or, if designed for the site, prepared and sealed by a registrant.**

Kentucky: The foundation/footing plans would require a Kentucky PE. The tower itself would also require a Kentucky PE but could follow a couple of different scenarios. If the tower was a "manufactured product" and not designed specifically for the location, the local KY PE could incorporate the product into the overall design and he or she would be taking responsibility for the project. If the tower is specifically designed for the site, that company would need to have a KY PE certify [i.e., prepare and seal—not just review] the design.

Once constructed our Department of Agriculture is responsible for issuing amusement ride permits and conducting inspections.

Nevada: Nevada is the same as Kentucky.

Ohio: We have not dealt with this yet, but we would handle it similar to KY.

Missouri: Missouri is the same as Kentucky.

South Dakota: South Dakota's answer is similar to KY & OH.



## John Cothron

---

**From:** Charles Ferguson <bferguson@fergusonarchitecture.com>  
**Sent:** Wednesday, February 25, 2015 8:57 AM  
**To:** John Cothron  
**Cc:** Kevin Vanderkolk  
**Subject:** FW: SOAR Adventure Tower  
**Attachments:** 2-04-Drawing KT90 stairs and footings.pdf; 01-ASTM F 2959\_12.pdf; 02-Confirmation ASTM Standard.pdf; 03-2014 SAMPLE Inspection Report.pdf; Confirmation of planned TÜV approval.pdf; KT-Tower Plan.pdf

\*\*\* This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - OIR-Security. \*\*\*

John-  
Doug Bornick at Franklin Codes asked me to speak with you about the permit approval for the SOAR Adventure Tower project in Franklin. I've attached all the information provided by the vendor of the tower structure for permitting. My understanding is that the structure will be certified by a third-party (TUV Sued) that it meets all applicable regulatory requirements for this type of structure before it would be turned over to the Owner for operation. The vendor (Kristall Turm) has said that this type project is similar to a roller coaster or other amusement ride and that third-party certification is the standard procedure for approval. I know that there are other "ropes courses" that have been constructed in Tennessee but have been unable to find out what sort of documentation they had to provide in order to get a building permit. There is also a similar type course that has been constructed in Ohio and I have asked the Owner to try and get the contact information of the building officials there so that Doug can speak with them. Any help you can provide to help Doug reach a comfort level with the approval of the information being provided would be greatly appreciated as the Owner is trying to coordinate the delivery of the tower and the crew coming from Germany to do the installation in late March or April. If you have any questions, please give me a call.  
Thanks,

Charles W. (Buddy) Ferguson, AIA  
**Ferguson Architecture**  
ph: (615) 775.3189

P.S. I'm also forwarding you an email with a couple of photographs of one of their installations.

---

**From:** Charles Ferguson  
**Sent:** Monday, February 23, 2015 10:54 AM  
**To:** Doug Bornick ([doug@franklin.tn.gov](mailto:doug@franklin.tn.gov))  
**Cc:** Kevin Vanderkolk; Jack Barrett ([jack@olympianconstruction.com](mailto:jack@olympianconstruction.com))  
**Subject:** SOAR Adventure Tower

Doug-  
Thanks for taking the time to speak with me this morning about the re-submittal for the tower. I've attached the following information provided by Kristall Turm for you to review before I make the actual re-submittal:

- ASTM F2959 which is the standard that governs aerial adventure courses
- Letter from Kristall Turm verifying that the tower will be constructed according to this standard
- Sample third-party inspection report that will be done before the Owner will be allowed to operate the course
- 3d drawing of the tower and components

As we discussed this is a "different animal" from what we are used to seeing, more akin to an amusement ride, and I'm guessing that there are other sections of the Code that apply to its review. I'll send you a second email with

photographs that they have provided of similar installations they have done. Kristall Turm will be sending a crew from Germany to do the installation and I'm sure that they would be willing to have a pre-construction conference on site to go over the details and answer any questions you have before installation begins. Again, the tower will have to pass a third-party inspection before the Owner can operate the course.

The Owner and I will be glad to meet with you to try and answer any questions after you have a chance to review this information. If it will help alleviate your concerns I'll also try and get you the contact information so you can speak with the Codes officials that reviewed / approved the installation of a similar tower that Kristall Turm recently completed in the USA.

Thanks again for your help. If you have any questions, please give me a call.

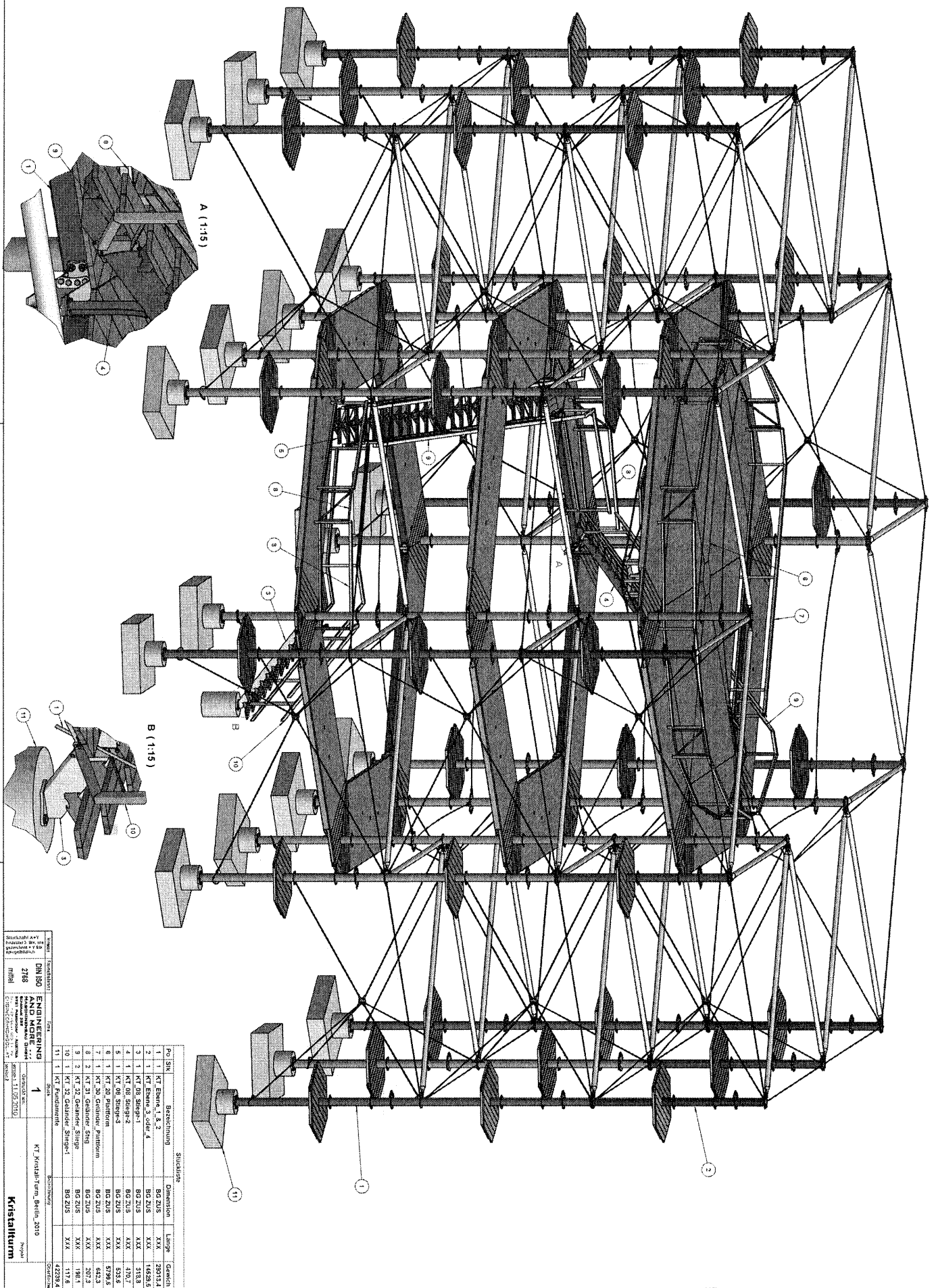
Charles W. (Buddy) Ferguson, AIA

**Ferguson Architecture**

ph: (615) 775.3189







Pos. Nr.	Bezeichnung	Stückzahl	Dimension	Large	Gewicht
1	KT Ebene 1, 8, 2	1	BG ZUS	XXX	28913,4
2	KT Ebene 3, oder 4	1	BG ZUS	XXX	14829,5
3	KT 08 Stiege-1	4	BG ZUS	XXX	318,8
4	KT 08 Stiege-2	4	BG ZUS	XXX	470,7
5	KT 08 Stiege-3	4	BG ZUS	XXX	579,5
6	KT 20 Plattform	1	BG ZUS	XXX	642,3
7	KT 20 Geländer_Straße	2	BG ZUS	XXX	207,2
8	KT 21 Geländer_Straße	2	BG ZUS	XXX	196,7
9	KT 22 Geländer_Straße	1	BG ZUS	XXX	177,8
10	KT 23 Geländer_Straße	1	BG ZUS	XXX	177,8
11	KT Fundamente	1	BG ZUS	XXX	177,8

Zeichnung: KT\_Kristall-Turm\_Berlin\_2010  
 Blatt: 1  
 Projekt: Kristallturm  
 Datum: 2010-08-10  
 Autor: thomas  
 Prüfer: thomas  
 Freigegeben: thomas  
 DIN ISO 2768  
 Maßstab: 1:100



# Standard Practice for Special Requirements for Aerial Adventure Courses<sup>1</sup>

This standard is issued under the fixed designation F2959; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This practice establishes criteria for the Design, Manufacture, Installation, Operation, Maintenance, Auditing and Major Modification of Aerial Adventure Courses manufactured after the effective date of publication of this document except as noted in 1.3.

1.2 This practice applies to the following devices when operated for concession or commercial recreation.

- 1.2.1 Zip Lines.
- 1.2.2 Ropes Courses.
- 1.2.3 Challenge Courses.
- 1.2.4 Aerial Trekking Courses.
- 1.2.5 Canopy Tours.

1.3 This practice shall not apply to the following:

1.3.1 Aerial Adventure Courses when operated exclusively under the following applications:

- 1.3.1.1 Educational curriculum.
- 1.3.1.2 Physical fitness purposes.
- 1.3.1.3 Organized competitive events.
- 1.3.1.4 Therapeutic programs.
- 1.3.1.5 Training purposes.
- 1.3.1.6 Team and confidence building.
- 1.3.1.7 Playground equipment covered by Consumer Safety Performance Specification F1487.

1.3.2 Amusement rides and devices whose design criteria are specifically addressed in another ASTM standard.

1.3.3 Portions of an Aerial Adventure Course unaffected by a major modification.

1.3.4 Upgrades to electrical wiring, electrical motors and electrical components of Aerial Adventure Courses provided the original design and safety criteria are maintained or enhanced.

1.3.5 Pre-existing designs for Aerial Adventure Courses that are installed after the publication date of this practice if the design is service proven or previously compliant as specified by 1.3.5.1.

1.3.5.1 Aerial Adventure Course designs may qualify as “previously compliant” for five years following the date of

publication of this practice. Thereafter, an Aerial Adventure Course design must qualify as “service proven” as defined in Practice F2291 or meet the requirements of this practice.

1.4 This practice includes an annex (mandatory), which provides additional information (for example, rationale, background, interpretations, drawings, commentary, and so forth) to improve the user’s understanding and application of the criteria presented in this practice. The annex information shall be interpreted as mandatory design criteria.

1.5 This practice includes an appendix (non-mandatory), which provides additional information (for example, rationale, background, interpretations, drawings, commentary, and so forth.) to improve the user’s understanding and application of the criteria presented in this practice. The appendix information shall not be interpreted as mandatory design criteria.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. Some specific hazards statements are given in Section 7 on Hazards.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>2</sup>

- F747 Terminology Relating to Amusement Rides and Devices
- F770 Practice for Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices
- F846 Guide for Testing Performance of Amusement Rides and Devices
- F893 Guide for Auditing Amusement Rides and Devices
- F1193 Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices
- F1487 Consumer Safety Performance Specification for Playground Equipment for Public Use
- F1772 Specification for Harnesses for Rescue, Safety, and Sport Activities
- F1957 Test Method for Composite Foam Hardness-Durometer Hardness

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee F24 on Amusement Rides and Devices and is the direct responsibility of Subcommittee F24.60 on Special Rides/Attractions.

Current edition approved Dec. 1, 2012. Published January 2013. DOI: 10.1520/F2959-12.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

Normen-Download-Beuth-TÜV Süd AG Verlag-KdNr. 7031496-LfNr. 6417781001-2013-11-13 16:28

F2137 Practice for Measuring the Dynamic Characteristics of Amusement Rides and Devices

F2291 Practice for Design of Amusement Rides and Devices

F2375 Practice for Design, Manufacture, Installation and Testing of Climbing Nets and Netting/Mesh used in Amusement Rides, Devices, Play Areas and Attractions

2.2 *ANSI Standards:*<sup>3</sup>

ANSI B77 Passenger Ropeways - Aerial Tramways, Aerial Lifts, Surface Lifts, Tows and Conveyors - Safety Requirements

ANSI Z359 Fall Protection Code

2.3 *European Standard:*<sup>4</sup>

EN 12277 Mountaineering equipment - Harnesses - Safety requirements and test methods

2.4 *NFPA Standard:*<sup>5</sup>

NFPA 1983 Standard on Life Safety Rope and Equipment for Emergency Services

2.5 *UIAA Standard:*<sup>6</sup>

UIAA 105 Mountaineering and Climbing Equipment: Harnesses

### 3. Terminology

3.1 Terminology shall be in accordance with Terminology F747.

### 4. Significance and Use

4.1 The rationale for developing a separate standard practice for Aerial Adventure Courses is based on the unique functional, operational and patron participation requirements when compared to amusement rides and devices.

4.2 The purpose of this practice is to provide designers, manufacturers, owners/operators and auditors with criteria and references for use in the design, manufacture, installation, operation, maintenance, auditing and major modification of aerial adventure courses.

4.3 Unless this practice expressly provides otherwise in a particular provision, the term “Aerial Adventure Course” is to be used in place of “Amusement Rides and Devices” herein.

### 5. Owner/Operator Requirements

5.1 Ownership, operation, maintenance and inspection requirements for Aerial Adventure Courses shall be in accordance with Practice F770 with the following exceptions and inclusions:

5.1.1 Substitute the word “patron” for “passenger” when used.

5.1.2 *Include in Practice F770 Section 4, Subsection 4.1.1—*The Owner/Operator shall also consider environmental condition(s) including but not limited to wind, rain, ice, and lightning when developing operating procedures.

5.1.3 *Practice F770 Section 4, Subsection 4.1—*Replace “Manufacturer” with “Designer/Engineer, Manufacturer and Training Entity.”

5.1.4 Practice F770 Section 4, Subsection 4.1.1, shall also include the operation policies and procedures with pertinent information from the Designer/Engineer, Manufacturer and Training Entity.

5.1.5 *Practice F770 Section 4, Section 4.1.2—*Specific emergency procedures in the event of an abnormal condition or an interruption of service shall include an access plan for performing evacuation, first aid and ground care of evacuated patrons.

5.1.6 Practice F770 Section 4, Subsection 4.1.4.4 shall be replaced with the following:

5.1.6.1 Prior to carrying patrons, the Course shall be inspected and tested per the Designer/Engineer, Manufacturer and Training Entity’s requirements.

5.1.7 *Practice F770 Section 4—*Add the following:

5.1.7.1 *Documentation Retention Requirements—*Material and quality conformance certifications and documentation as required by the Designer/Engineer as outlined in Practice F2291 or provided by Manufacturer’s requirements as outlined in Practice F1193, or both, must be retained during the life cycle of the of the Aerial Adventure Course.

5.1.7.2 The owner/operator shall develop a document retention policy for pertinent records including, but not limited to training and inspection records.

5.1.8 Practice F770 Section 5, Subsection 5.1 shall be replaced with the following:

5.1.8.1 There are inherent risks in the participation in or on any Aerial Adventure Course which require appropriate patron awareness, participation, physical ability and dexterity. Patrons of Aerial Adventure Courses by participating, accept the risks inherent in such participation of which the ordinary prudent person is or should be aware. Patrons have a duty to exercise good judgment and act in a responsible manner while in or on any Aerial Adventure Course, and to obey all oral or written warnings, or both, prior to or during participation.

5.1.9 Practice F770 Subsection 6.1 shall include the following:

5.1.9.1 Replace “Manufacturer” with “Designer/Engineer, Manufacturer and Training Entity.”

5.1.9.2 When one or more live tree(s) are utilized in an Aerial Adventure Course, qualified person(s) shall perform an arboricultural inspection to determine that the tree(s) are healthy and suitable for the intended use and that the original design intent is maintained. The inspections shall be performed:

(1) At a frequency of not less than once per year.

(2) After the occurrence of any significant environmental event, such as hurricane, tornado, lightning, ice storms, earthquake, flooding or drought,

(3) After any change in surrounding environment that could alter the health and integrity of the trees utilized, such as removal of adjacent trees or development of adjoining properties.

<sup>3</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036. <http://www.ansi.org>.

<sup>4</sup> Available from European Committee for Standardization (CEN), Avenue Marnix 17, B-1000, Brussels, Belgium, <http://www.cen.eu>.

<sup>5</sup> Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, <http://www.nfpa.org>.

<sup>6</sup> Available from International Mountaineering and Climbing Federation (UIAA), 61 Postfach CH-3000 Bern 23 Switzerland, <http://www.theuiaa.org/index.php>.

(4) Physical damage such as a major limb failure, when there is a change in the visible health of the tree or canopy, or both, due to disease or insect.

5.1.9.3 *Practice F770 Section 6, Subsection 6.3.8*—The course shall be tested per the Designer/Engineer, Manufacturer and Training Entity’s requirements.

5.1.9.4 *Practice F770 Subsection 8.3*—Replace “Manufacturer” with “Designer/Engineer, Manufacturer and Training Entity.”

## 6. Testing Performance

6.1 Testing performance shall be in accordance with Guide F846.

## 7. Auditing

7.1 Auditing requirements shall be in accordance with Guide F893.

## 8. Quality, Manufacture, and Construction Requirements

8.1 Quality, manufacture, and construction shall be in accordance with Practice F1193.

## 9. Testing Composite Foam

9.1 Testing Composite Foam shall be in accordance with Test Method F1957.

## 10. Measuring Dynamic Characteristics

10.1 Measuring Dynamic Characteristics shall be in accordance with Practice F2137.

## 11. Design Requirements

11.1 Design of Aerial Adventure Courses shall be in accordance with Practice F2291 with the following exceptions and inclusions:

11.1.1 *Practice F2291 Section 5.1.1.2 Patron Clearance Envelope Analysis*—Shall include the Patrons effects’ on the dynamics within the Aerial Adventure Course in accordance with 11.1.2.

11.1.2 *Practice F2291 Section 5.1.1: Ride Analysis*—The ride analysis shall consider the Patrons’ effects on the dynamics within the Aerial Adventure Course including but not limited to:

- 11.1.2.1 Patron orientation.
- 11.1.2.2 Patron consciousness.
- 11.1.2.3 Patron behaviors.

11.1.3 *Practice F2291 Section 5.1.3*—Shall include but not be limited to the following:

11.1.3.1 The deceleration and arrest of patrons arriving at landing zones shall be performed in a controlled manner.

11.1.3.2 Environmental factors including humidity, precipitation, temperature and the wind effects on patron velocity.

11.1.4 *Practice F2291 Section 5.5.3—Documentation supplied to the buyer, owner, or operator shall be complete and adequate for proper installation, maintenance, inspection, and operation of the amusement ride, device, or major modification. The documentation shall include, but not limited to the following:*

11.1.4.1 Daily pre-operational inspection. Prior to operating the course with patrons, a daily inspection shall be conducted which shall include, but not be limited to the following:

(1) Perform a visual inspection for the following components of the course, as applicable:

- (a) Platforms, stairways, pathways, ramps, support structures and trees included in and directly adjacent to the course.
- (b) Course restraint and zipline hardware including rope, attachment hardware and anchor system.

(c) Counterweight or other tension control system components such as cylinders or carriages shall have sufficient travel to operate as intended.

(d) Personal safety equipment such as harnesses, lanyard, carabineers, pulleys/trolleys and etc.

(e) Patron clearance envelope.

(2) Verify proper operation of the following, as applicable:

(a) Specified manual and automatic Patron control equipment.

(b) Specified safety related control system components.

(c) Braking systems.

(d) Communication systems.

(3) Ensure access routes and platforms are clear of ice and snow to the extent necessary to permit inspection and operation.

11.1.4.2 *Maintenance Inspection Requirements*—The inspection criteria requirements, frequency and retirement criteria shall be developed for the following components:

(1) *Wire Rope*—Wire rope shall be subject to detailed visual inspection at regularly established intervals based on usage, but not to exceed one year by a qualified wire rope inspector, or immediately after any event possibly affecting the integrity of the wire rope. The following items shall be considered in determining the continued use of the wire rope:

- (a) Broken wires.
- (b) Displaced or loose wire.
- (c) Physical damage at impact areas on cables.
- (d) Visual inspection of impact areas on the zip line.

(e) *Diameter: Reduction*—Original diameter of cable shall be recorded at time of commissioning and recorded for use in determining subsequent diameter reduction calculations.

(f) Tensioning procedures to ensure wire rope tensions are within specified operating parameters.

(2) Wire rope associated hardware.

(3) Anchorage systems.

(4) Personal Safety Equipment (PSE).

(5) Support structures and connection hardware.

(6) All components in the primary load path not listed above.

11.1.5 *Practice F2291 Section 6.6.2*—This requirement shall include the landing zone(s) of the course.

11.1.6 *Practice F2291 Section 6.6.3.2(3)* shall be replaced by the following:

11.1.6.1 The ability, as limited by the patron containment, of the patron to extend any body part, for example, arms and legs and shall include the patron’s ability to move their position or posture on the course.

11.1.7 *Practice F2291 Section 7*—Acceleration limits shall have the following inclusion:

11.1.7.1 For restraint and containment cases on Aerial Adventure Courses that are not covered in Practice F2291 Section 7, the designer/engineer shall consider biodynamic effects on the patrons including the pendulum effect.

11.1.8 *Practice F2291, Section 8.6*—Patron weights shall be modified as follows:

11.1.8.1 Delete Practice F2291, Subsections 8.6.1 through 8.6.5 and replace with: The weight assigned for design purposes shall be determined by the designer/engineer.

11.1.9 *Practice F2291 Section 8 Loads and Strengths, Subsection 8.12*—Add the following:

11.1.9.1 When trees are included in the load path, the designer/engineer's shall consider the special requirements for trees when developing the operating and maintenance instructions such as, but not limited to the following:

(1) Effects to surrounding environment that could alter the health and integrity of the trees utilized, such as removal of adjacent trees or development of adjoining properties.

(2) Effects to the visible health of the tree or canopy, or both, such as disease, insect infestation, or physical damage.

11.1.10 Delete Practice F2291-11, Subsection 8.13.1 and allow Subsection 8.13.2 to be the design guide for wind.

11.1.11 Practice F2291-11, Section 8 Load and Strengths shall be modified with the following:

11.1.11.1 When trees are used in the primary load path course the following shall be performed:

(1) Trees shall be selected based on the intended loads including environmentally induced loads.

(2) An arboricultural assessment shall be performed prior to completing the design by a qualified person to determine that the selected tree(s) are healthy and suitable for the expected load conditions.

(3) The systems used to affix Aerial Adventure Course elements shall be designed to minimize damage to the trees.

(4) Measures shall be prescribed to protect the root system, particularly against compaction and erosion.

11.1.12 *Practice F2291 Section 13, Mechanical Systems and Components:*

11.1.12.1 *Practice F2291 Section 13.3 Wire Rope (Excludes Fiber, Synthetic, etc., Rope and Line)*—Delete the word “Excludes” and replace with “Including.”

11.1.12.2 *Wire Rope:*

(1) *Practice F2291 Section 13.3.5*—Replace with the following:

(a) Primary load path systems strength including terminations, anchorage(s), anchorage connectors, and backups shall be designed to a minimum rated breaking strength of a minimum of five times the expected load (safety factor of 5:1). This calculation shall include rescue load limits and dynamics.

(b) A primary load path safety factor of less than 5:1 but greater than or equal to 3:1 shall be allowable for wire rope lifelines of nominal diameter greater than ½ in. (12.7 mm) when the requirements outlined in Practice F2291 Section 5 General Design Criteria are met.

(2) *Practice F2291, Subsection 13.3.6*—The wire rope factor of safety is defined as the ultimate tensile strength of the wire rope divided by the maximum expected load tension. This calculation shall include rescue load limits and dynamics.

(3) *Vertical Load Paths*—5000 lb minimum per person attached. The designer shall include in their testing procedures to measure and record actual tension to verify the design assumptions and calculations.

(4) *Practice F2291, Subsection 13.3.11*—Splices shall be done according to the wire rope splice specifications found in ANSI B77.

11.1.12.3 *Rope (includes, but not limited to Fiber, Synthetic, Rope, Line and etc.):*

(1) The strength and application of Rope, when used, shall be determined by the designer/engineer by applying standard structural engineering practice for expected dynamic, live and dead loads and uses materials that are applicable for the intended use.

(2) Rope and rope accessories in the primary load path shall have a minimum factor of safety of five (5). This calculation shall include rescue load limits and dynamics.

(3) The designer/engineer shall consider during the ride analysis, the effects of the environment and wear on the primary load path materials, including but not limited to Ultra-violet light, heat, vermin and etc.

11.1.12.4 *Practice F2291, Subsection 13.5.1 Machine Guards*—The ride analysis must identify unique risks and hazards associated with all moving elements risks and develop a mitigation plan.

11.1.12.5 *Practice F2291, Subsection 13.7 Brakes:*

(1) Substitute the word “device” to be “system.”

(2) *Landing Zone*—When the landing zone is used as an integral part of the braking system, each landing area shall provide sufficient space for system operations including arrest, dismount, and participant traffic.

11.1.13 *Practice F2291, Section 14 Fencing, Guardrails, Handrails, Gates and Walkways for Amusement Rides and Devices*—Add the following:

11.1.13.1 Devices which restrict or inhibit individuals from falling may be used in lieu of guardrails, gates and fencing.

11.1.13.2 Walkway requirements do not apply to trails and paths used to lead in, lead out or to connect the elements.

11.1.14 *Site Specific Design Requirements:*

11.1.14.1 Environmental conditions such as annual weather cycles, drainage and erosion risk evaluation.

11.1.14.2 *Geotechnical Conditions*—If load transfer system is utilized that directly interact with the soil, a soil analysis shall be performed by a qualified person gathering sufficient geotechnical information to determine the design of the system; including, but not limited to:

(1) Anchoring system design to match soil or rock mechanical properties under the worst case conditions.

(2) Corrosion of Anchoring system equipment.

(3) The design shall incorporate means and methods to monitor settling or pull out of mechanical systems and instructions on how to address anomalies.

11.1.14.3 Access for emergency equipment.

11.1.14.4 Utilities.

11.1.14.5 Plants and vegetation.

11.1.15 *Aerial Adventure Course Equipment:*

11.1.15.1 Personal Safety Equipment (PSE) may include but is not limited to: Harnesses, Helmets, Lanyards, Connectors, Pulleys, Goggles, Gloves, Belay and Descent Control Devices.

11.1.15.2 The designer/engineer shall:

(1) Determine what PSE is required for each course based on the application.

(2) Determine the specification for each equipment item.

(3) Select and identify the equipment required to meet the specifications.

11.1.15.3 When harnesses are used:

(1) Sizing requirements in Practice F2291-11, Subsection 6.3.1 shall apply.

(2) Shall meet the most current edition of UIAA 105, ANSI Z359, Specification F1772, EN 12277, NFPA 1983 or acceptable applicable standard with regard to their performance and construction.

## **12. Netting**

12.1 Netting requirements shall be in accordance with Practice F2375.

## **13. Keywords**

13.1 aerial adventure course; aerial trekking courses; challenge course; harness; personal safety equipment; PSE; ropes course; trees; trolley; zip line; zipline

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Lenggries, 16<sup>th</sup> February 2015

To whom it may concern

**RE: Compliance with ASTM standard**

KristallTurm® GmbH & Co. KG herewith confirms that the KristallTurm® aerial adventure park for

**SOAR Adventure Tower LLC, Franklin, TN, USA**

does comply with the ASTM standard **F2959 – 12**.

Sincerely yours,

Heinz Tretter



Gewinner des Bayerischen Staatspreises für Innovation und Technik 2011

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## Acceptance Inspection Report

### KristallTurm Aerial Adventure Park at

KristallTurm GmbH & Co.KG  
Raiffeisenstrasse 6  
D-83661 Lenggries, Germany  
Contact: Thomas Dichtl

Inspector: Rich Klajnscek  
Inspection Date:

#### GRADING SYSTEM

- Grade 1** The element or piece of equipment is in **very good condition**.
- Grade 2** The element or piece of equipment is in **satisfactory condition** and may be safely used. It is usually either showing some wear and deterioration from normal use or is aging. No remedial action is needed at this time.
- Grade 3** The element or piece of equipment is in **unsatisfactory condition** and **may not be safely used** without completion of recommended changes or repairs.
- Grade 4** The element or piece of equipment is in **poor condition** and **may not be safely used** without completion of recommended major changes, repairs or replacement.
- Grade NI** The element or piece of equipment was not inspected.



## OVERVIEW

On \_\_\_\_\_, 2014, an Acceptance Inspection was conducted of the KristallTurm Aerial Adventure Park at the Synergy Paintball Challenge facility located on \_\_\_\_\_

This prefabricated steel structure consists of sixteen elements total, with five elements on three different levels accessed from the ground by staircases and has a QuickJump exit. The elements on each level are made up of a sequence of ladders, platforms, nets, bridges, rope, wood and cable obstacles. Each level of the structure presents a different level of difficulty for the participant. A zip line exit is to be added in the future.

This is a Euro-style aerial park – a self-guided experience dependent on the choice of the individual based on their experience and skill to negotiate the challenges presented. It is by nature very different than either a traditional guided or facilitated challenge course experience.

The purpose of this inspection is to verify the integrity of all parts of the component systems including platforms, obstacles and cable systems and to ensure compliance with the 8<sup>th</sup> Edition Design, Performance and Inspection (DPI) Standards of the Association for Challenge Course Technology (ACCT). An annual inspection of the elements and associated equipment is a requirement of the ACCT standards and is therefore strongly recommended.

During this inspection, all components on each of the elements and the structure were reviewed. If no comment is made about a component, element or piece of equipment in this report, the element was considered to be in good condition and requires no modification. Many of the comments are simply recommendations that will improve the park but are not needed for a passing grade of 1 or 2. On all items marked “**REQ**”, the noted changes must be made before a passing grade of 1 or 2 is assigned. Once a signed repair log has been submitted showing that each of required repairs from this report have been made, a Certificate of Compliance will be provided.

## **INSPECTION COMMENTS**

**Staircases**

**Middle Level**

**Upper Level**

## **PARTICIPANT EQUIPMENT**

## **DISCLAIMER**

This inspection is a snapshot of the condition of the elements and associated equipment on the day of this inspection only and is limited to the apparent condition of the elements and associated equipment from visual and tactile inspection only. There are many factors which can affect the condition of the elements and associated equipment between inspections, including changes in tree health, weather events, corrosion, wear, unauthorized use and vandalism, all of which are not the responsibility of Sea Fox Consulting, LLC.

An Aerial Adventure Park inspection is not in any way a review of the overall program, including staff training and course operation. Proper operation of an Aerial Adventure Park uses an ongoing system of in-house periodic inspection of all elements and associated equipment as well as proper training of program staff. It is the responsibility of the program staff to insure that the elements and associated equipment are properly used under the direct supervision of trained staff. Programs also have the responsibility to be fully and properly insured.

Sea Fox Consulting, LLC is also not responsible for the following:

- Changes to elements or equipment after the inspection not done by Sea Fox Consulting, LLC employees
- Improper use of the elements or associated equipment
- Training of the program staff
- Injuries to staff or participants using the elements or associated equipment

Inspector:

Date:



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E [service@kristallturm.de](mailto:service@kristallturm.de)  
[www.kristallturm.de](http://www.kristallturm.de)

Lenggries, 26th January 2015

To whom it may concern

**RE: TÜV certification**

KristallTurm GmbH & Co. KG herewith confirms that the KristallTurm® climbing tower for:

**SOAR Adventure Climbing, 3794 Carothers Parkway, Franklin, TN, USA**  
**City reference code # 4682**

will be inspected and certified by TÜV Sued upon completion of installation.

Sincerely yours,

Christine Berry



Gewinner des Bayerischen Staatspreises für Innovation und Technik 2011

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Lenggries, Registergericht: München HRB 182995, Geschäftsführer: Heinz Tretter, UST-ID-Nr. DE270410915, St.-Nr. 104/166/53904



STATE OF TENNESSEE  
BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
DEPARTMENT OF COMMERCE AND INSURANCE  
500 James Robertson Parkway Nashville, TN 37243-1142  
800-256-5758 615-741-3221 (Nashville Area) 615-532-9410 (FAX)

## Early Architect Registration Exam (ARE) Eligibility Information

(for initial registration as a Registered Architect)

**You may fill out the application online. The application must then be printed because it must be signed by the applicant and the applicant's sponsor/reference.**

### Law and Rules

The Law and Rules can be accessed from the Board's homepage. The registration law for architects, engineers, landscape architects, and registered interior designers is found at *Tennessee Code Annotated*, Title 62, Chapter 2.

### Residency Requirements

An applicant for registration by exam must meet Tennessee's residency requirement ([Rule 0120-01-.03](#)).

### Early ARE Eligibility (before completing IDP)

Interns wishing to sit for the ARE before completing the Intern-Architect Development Program (IDP) of the National Council of Architectural Registration Boards (NCARB) must file the "Application for Early Architect Registration Exam Eligibility" with the Board. Applicants who have completed the IDP and the required experience should submit the complete "Application for Registration to Practice as a Professional Architect."

### Establishing Your Eligibility to Test

When your application is received, Board Staff will verify that you have begun the IDP program and that your degree is acceptable.

If you are approved to take the Architect Registration Exam (ARE), the Board office will notify you to request eligibility via the ARE tab in your NCARB Record.

Once you request eligibility, this Board will set your eligibility information in My Examination and you will receive an automated e-mail notification that you may now schedule an exam. Please contact NCARB at 202-879-0520 if you have any problems during this process.

### Fees

Application fee -- \$30.00

**ARE Fees – to be paid to NCARB. ([Click here](#) for test fee information)**

Make checks payable to the **Tennessee Department of Commerce and Insurance**. Payment must be made at the time of application and the fee is not refundable. Submit the completed application and fee to the address on the application form.

### Exam Sites and Scheduling Information

Candidates may take the ARE divisions in any order, and at any time, at any Prometric location they choose (subject to availability). Most test centers are open six days a week, 50 weeks a year.

A tutorial will be available at the test center. The specifics with regard to the location of test centers, scheduling and/or canceling an appointment, etc., should be worked out directly with the test center.

## Special Accommodations

If you have a disability that requires special accommodations to take the exam, you will need to provide the [appropriate documents](#) to this Board at the time you submit your application. Once you have been approved for testing accommodations by the Board and NCARB, you will receive notification from NCARB and instructions on how to schedule your exams.

## Score Reporting Procedures

You will have direct access to all score reports through My Examination.

## Upon Completion of the ARE and IDP

The following must be submitted before registration may be granted:

- the “Application for Registration to Practice as a Professional Architect,”
- references
- a complete NCARB record

## Applicants with Non-Accredited Degrees

Rule 0120-1-.11 states that an architectural curriculum of four (4) years or more which is not accredited by the National Architectural Accrediting Board (NAAB) shall be referred at the applicant’s expense to a person or entity approved by the Board and qualified to evaluate equivalency to a NAAB-accredited architectural program for evaluation and recommendation. The Board has approved Education Evaluation Services for Architects (EESA), which is administered by the NAAB, to evaluate non-accredited architecture degrees. For further information regarding the evaluation process, please contact EESA at the address below:

National Architectural Accrediting Board, Inc.  
1735 New York Avenue, NW  
Washington, DC 20006  
Phone: 202-638-3372  
Website: [www.eesa-naab.org](http://www.eesa-naab.org)  
E-mail: [eesa@naab.org](mailto:eesa@naab.org)

## Notice Regarding Disclosure of Social Security Numbers

Federal and state laws, including 42 U.S.C. § 405(c)(2)(C)(i), 42 U.S.C. § 666(a)(13), T.C.A. §§ 36-5-711 and 36-5-1301, require disclosure of the social security number for the purpose of administering the state child support program. The social security number will be redacted prior to making your record available for public inspection.

## Forms

### (1) Application Form –

Fill out the application form completely (on-line or after downloading it). Any major modification of state approved forms may cause the Board to reject your application.

- ♦ Sign the application and obtain the required signature from a sponsor/reference.
- ♦ An employer, company official, or former professor may sign your application as a sponsor or reference.
- ♦ Relatives are prohibited from serving as references.

### (2) Eligibility Verification for Entitlements –

If you are a natural person applying for a license, registration, certification or other benefit you must “Attest, under penalty of perjury, to your status as either a United States citizen, a qualified alien as defined in Tennessee’s Eligibility Verification for Entitlements Act, or a foreign national not physically present in the United States...” **Specific instructions are on the three (3) pages following the application.** Submit the appropriately signed form and documents, if required, with the application.

## **ARE Rolling Five-Year Clock**

To pass the ARE, an applicant must achieve a passing grade on each division. A passing grade for any division of the ARE shall be valid for five years, after which time the division must be retaken unless all divisions have been passed. NCARB may allow a reasonable extension of such period in circumstances where completion of all divisions is prevented by a medical condition, by active duty in military service, or by other like causes. Although NCARB will not accept scores beyond five years for the purpose of NCARB certification, *Tennessee Code Annotated* Section 62-2-504(c) allows candidates to retain credit indefinitely for any parts of the exam passed for the purpose of Tennessee registration.

For more information regarding the rolling clock [click here](#).

## **Pending Status**

An application that lacks required information or reflects a failure to meet any requirement will be held in a "pending" status for five (5) years from the date of the application. These requirements include passing the required registration exam.

## **Board Contact**

If you have questions about any of this information or about your application, call Joyce Shrum, Architect Applications Coordinator, at 800-256-5758, 615-741-3221, or send an e-mail: [joyce.shrum@tn.gov](mailto:joyce.shrum@tn.gov).

Updated February 2015



State of Tennessee  
 Department of Commerce and Insurance  
 Board of Architectural and Engineering Examiners  
 500 James Robertson Parkway  
 Nashville, TN 37243-1142

## APPLICATION FOR EARLY ARCHITECT REGISTRATION EXAM ELIGIBILITY

(Type or print legibly)

### PERSONAL INFORMATION

Full Name \_\_\_\_\_ Last First Middle Mr. Ms.

Social Security No. \_\_\_\_\_ Date of Birth \_\_\_\_\_

Residence Address \_\_\_\_\_ # Street, City, State, Zip Telephone Number

Business Affiliation \_\_\_\_\_ Telephone Number

Business Address \_\_\_\_\_ # Street, City, State, Zip

E-mail Address \_\_\_\_\_ Most of the correspondence pertaining to your application will be sent by e-mail.

Address for Correspondence: Business Residence

Citizen of \_\_\_\_\_ Can you speak and write English? Yes No  
State/Foreign Country

Other than the name shown on this application, I have been known by the name(s) of \_\_\_\_\_  
List name(s) and date(s) of change

**NOTE:** If you require special accommodations for the examination, refer to instructions for additional information.

### VIOLATIONS

Have you been convicted of or plead nolo contendere/no contest to a felony?

Yes No If **YES**, submit a letter of explanation and a certified copy(ies) of the judgment(s) with this application.

### EDUCATIONAL BACKGROUND

NAME AND LOCATION OF INSTITUTION	ATTENDANCE		MAJOR COURSE	DATE OF GRADUATION	DEGREE RECEIVED
	FROM MO/YR	TO MO/YR			



## TO BE COMPLETED BY APPLICANT

- I hereby apply for early Architect Registration Exam eligibility to the Tennessee Board of Architectural and Engineering Examiners. The information provided on this application is accurate.
- If this application is approved, I understand that I will be required to
  - take and pass the Architect Registration Examination (ARE),
  - complete the required experience *and* the Intern Development Program (IDP) and
  - submit an "Application for Registration to Practice as a Professional Architect" with required documents and registration fee before a license will be granted.

Applicant's signature \_\_\_\_\_ Date \_\_\_\_\_

## SECTION BELOW TO BE COMPLETED BY APPLICANT'S SPONSOR/REFERENCE

I believe that \_\_\_\_\_ is of good character and repute, and I hereby recommend the applicant to the Tennessee Board of Architectural and Engineering Examiners as worthy of consideration for early eligibility to take the Architect Registration Exam (ARE).

Sponsor/Reference's name (please print) \_\_\_\_\_

Signature of Sponsor/Reference \_\_\_\_\_

Title \_\_\_\_\_ Date \_\_\_\_\_

Business Affiliation \_\_\_\_\_

Business Address \_\_\_\_\_ Phone \_\_\_\_\_

E-mail Address \_\_\_\_\_

**NOTE:** Following approval by the Tennessee Board to sit for the exam, candidates must register with NCARB at [www.ncarb.org](http://www.ncarb.org) to pay the exam fees and schedule the exams.



STATE OF TENNESSEE  
BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
DEPARTMENT OF COMMERCE AND INSURANCE  
500 James Robertson Parkway Nashville, TN 37243-1142  
800-256-5758 615-741-3221 (Nashville Area) 615-532-9410 (FAX)

## Early Landscape Architect Registration Exam (LARE) Eligibility Information

(for initial registration as a Registered  
Architect)

**You may fill out the application online. The application must then be printed because it must be signed by the applicant and the applicant's sponsor/reference.**

### Law and Rules

The Law and Rules can be accessed from the Board's homepage. The registration law for architects, engineers, landscape architects, and registered interior designers is found at *Tennessee Code Annotated*, Title 62, Chapter 2.

### Residency Requirements

An applicant for registration by exam must meet Tennessee's residency requirement ([Rule 0120-01-.03](#)).

### Early LARE Eligibility

Interns wishing to sit for the LARE before completing the required experience must file this application with the Board.

Applicants who have completed the required experience should submit the completed "Application for Registration to Practice as a Professional Landscape Architect."

### Establishing Your Eligibility to Test

- ◆ Establish a CLARB record.
- ◆ Request transmittal of the education portion of the CLARB record to the Board.

When your application and transcript(s) are received, Board Staff will verify that your degree is acceptable. If you are approved to take the Landscape Architect Registration Exam (LARE), the Board office will notify CLARB and CLARB will notify you to begin scheduling exams. Please contact CLARB at 571-432-0332 if you have any problems during this process.

### Fees

Submit the application fee with your application. Make check payable to the **Tennessee Department of Commerce and Insurance**.

- ◆ Application fee -- \$30.00 (non-refundable)
- ◆ LARE Fees – to be paid to CLARB. ([Click here](#) for LARE administration dates, deadlines and fees)

### Exam Sites and Scheduling Information

Candidates may take the LARE divisions in any order at any Pearson VUE location they choose (subject to availability). Contact CLARB for LARE administration dates and deadlines.

## Special Accommodations

- ◆ Registering for the exam. Should you require special accommodations for a disability, please contact CLARB as soon as possible to ensure that the testing environment will meet your needs. You may also contact CLARB to apply for approval to test under the Special Accommodations policy.
- ◆ Scheduling a test appointment. Candidates who test with special accommodations cannot schedule a test appointment with Pearson VUE via the internet. Once you have registered for the LARE, please contact CLARB to obtain information on how to schedule your appointment with Pearson VUE.

## Score Reporting Procedures

You will have direct access to all score reports through My Account.

## Upon Completion of the LARE and the Experience Requirement

The following must be submitted before registration may be granted:

- ◆ the "Application for Registration to Practice as a Professional Landscape Architect,"
- ◆ references
- ◆ a complete CLARB record

## Notice Regarding Disclosure of Social Security Numbers

Federal and state laws, including 42 U.S.C. § 405(c)(2)(C)(i), 42 U.S.C. § 666(a)(13), T.C.A. §§ 36-5-711 and 36-5-1301, require disclosure of the social security number for the purpose of administering the state child support program. The social security number will be redacted prior to making your record available for public inspection.

## Forms

### (1) Application Form –

Fill out the application form completely (on-line or after downloading it). Any major modification of state approved forms may cause the Board to reject your application.

- ◆ Sign the application and obtain the required signature from a sponsor/reference.
- ◆ An employer, company official, or former professor may sign your application as a sponsor or reference.
- ◆ Relatives are prohibited from serving as references.

### (2) Eligibility Verification for Entitlements –

If you are a natural person applying for a license, registration, certification or other benefit you must "Attest, under penalty of perjury, to your status as either a United States citizen, a qualified alien as defined in Tennessee's Eligibility Verification for Entitlements Act, or a foreign national not physically present in the United States..." **Specific instructions are on the three (3) pages following the application.** Submit the appropriately signed form and documents, if required, with the application.

## Pending Status

An application that lacks required information or reflects a failure to meet any requirement will be held in a "pending" status for five (5) years from the date of the application. These requirements include passing the required registration exam.

## Board Contact

If you have questions about any of this information or about your application, call Joyce Shrum, Architect Applications Coordinator, at 800-256-5758, 615-741-3221, or send an e-mail: [joyce.shrum@tn.gov](mailto:joyce.shrum@tn.gov).



State of Tennessee  
 Department of Commerce and Insurance  
 Board of Architectural and Engineering Examiners  
 500 James Robertson Parkway  
 Nashville, TN 37243-1142

## APPLICATION FOR EARLY LANDSCAPE ARCHITECT REGISTRATION EXAM ELIGIBILITY

(Type or print legibly)

### PERSONAL INFORMATION

Full Name \_\_\_\_\_ Mr. Ms.  
Last First Middle

Social Security No. \_\_\_\_\_ Date of Birth \_\_\_\_\_

Residence Address \_\_\_\_\_ Telephone Number \_\_\_\_\_  
# Street, City, State, Zip

Business Affiliation \_\_\_\_\_ Telephone Number \_\_\_\_\_

Business Address \_\_\_\_\_  
# Street, City, State, Zip

E-mail Address \_\_\_\_\_ Most of the correspondence pertaining to your application will be sent by e-mail.

Address for Correspondence: Business Residence

Citizen of \_\_\_\_\_ Can you speak and write English? Yes No  
State/Foreign Country

Other than the name shown on this application, I have been known by the name(s) of \_\_\_\_\_  
List name(s) and date(s) of change

**NOTE:** If you require special accommodations for the examination, refer to instructions for additional information.

### VIOLATIONS

Have you been convicted of or plead nolo contendere/no contest to a felony?

Yes No If **YES**, submit a letter of explanation and a certified copy(ies) of the judgment(s) with this application.

### EDUCATIONAL BACKGROUND

NAME AND LOCATION OF INSTITUTION	ATTENDANCE		MAJOR COURSE	DATE OF GRADUATION	DEGREE RECEIVED
	FROM MO/YR	TO MO/YR			

## TO BE COMPLETED BY APPLICANT

- I hereby apply for early Landscape Architect Registration Exam eligibility to the Tennessee Board of Architectural and Engineering Examiners. The information provided on this application is accurate.
- If this application is approved, I understand that I will be required to
  - take and pass the Landscape Architect Registration Examination (LARE),
  - complete the required experience and
  - submit an "Application for Registration to Practice as a Professional Landscape Architect" with required documents and registration fee before a license will be granted.

Applicant's signature \_\_\_\_\_ Date \_\_\_\_\_

## SECTION BELOW TO BE COMPLETED BY APPLICANT'S SPONSOR/REFERENCE

I believe that \_\_\_\_\_ is of good character and repute, and I hereby recommend the applicant to the Tennessee Board of Architectural and Engineering Examiners as worthy of consideration for early eligibility to take the Landscape Architect Registration Exam (LARE).

Sponsor/Reference's name (please print) \_\_\_\_\_

Signature of Sponsor/Reference \_\_\_\_\_

Title \_\_\_\_\_ Date \_\_\_\_\_

Business Affiliation \_\_\_\_\_

Business Address \_\_\_\_\_ Phone \_\_\_\_\_

E-mail Address \_\_\_\_\_

**NOTE:** Following approval by the Tennessee Board to sit for the exam, candidates must register with CLARB at [www.clarb.org](http://www.clarb.org) to pay the exam fees and schedule the exams.

## REPORT ON 2015 NCARB REGIONAL SUMMIT LONG BEACH, CA

The following issues were discussed at the NCARB Regional Summit on March 12-14, 2015:

- Member Board Executive (MBE) Workshop:
  - Kingsley Glasgow (AR) was elected to serve as the Member Board Executive on the NCARB Board of Directors.
  - Roundtable discussion topics included regional dues, qualifications-based selection (this discussion was led by John Cothron), enforcement, defining the practice of architecture, and MBE Director succession.
  - Attendees received information on communication best practices and preventing harassment and discrimination in the workplace.
  - The workshop closed with a review of the newly revised Board Member Orientation Manual.
  
- Draft Resolutions:
  - Resolution 2015-A—Amends the alternatives to the education requirement in the *Certification Guidelines* by eliminating the “Broadly Experienced Architect” (BEA) designation and requiring:
    - Two (2) years of licensed practice in any U.S. jurisdiction;
    - Documentation of work experience gained pre-licensure and/or post-licensure, to be verified in accordance with the requirements of the Intern Development Program (IDP) or by an NCARB-certified architect.
      - Applicants with a pre-professional degree in architecture must document two times (2x) the experience requirement of the IDP (7,480 core hours).
      - Applicants with any other baccalaureate or higher degree must document three times (3x) the experience requirement of the IDP (11,220 core hours).
    - Applicants with a degree in architecture that is not accredited by the National Architectural Accrediting Board (NAAB) or the Canadian Architectural Certification Board (CACB) must obtain an Education Evaluation Services for Architects (EESA) evaluation.
  - Resolution 2015-B—Amends the requirements for certification of foreign architects in the *Certification Guidelines* by eliminating the “Broadly Experienced Foreign Architect” (BEFA) designation and requiring that applicants:
    - Hold a recognized education credential in an architecture program that leads to licensure/credential in a foreign county. (*Existing Requirement*)
    - Be credentialed in a foreign country that has a formal record-keeping mechanism for disciplinary actions. (*Existing Requirement*)
    - Complete the IDP. (*New Requirement*)
    - Pass the Architect Registration Examination (ARE). (*New Requirement*)

- Resolution 2015-C—Amends the qualifications of the Public Director on the Council Board of Directors in the *Bylaws* to require that candidates for this position be serving as a public or consumer member on a Member Board.
- Other Issues: Member Boards are being given access through NCARB to Top Regulatory Cases, a subscription service provided by the Federation of Associations of Regulatory Boards (FARB).
- Regional Meeting:
  - Carlos Rosado (PR) was elected to serve as the Member Board Executive representative, Julie McLaurin (NC) was elected to serve as Secretary, Richard McNeel (MS) was elected as Treasurer, Robert McKinney (LA) was elected as Vice Chair, John Cardone (LA) was elected as Chair, and Alfred Vidaurri (TX) was elected as Director of the Southern Conference (Region 3).
  - The 2016 Educators' Conference will likely be held in New Orleans, LA in conjunction with Louisiana's IDP Forum.

The Annual Meeting is scheduled for June 17-20, 2015, in New Orleans, LA. The next Regional Summit is scheduled for March 10-12, 2016, in Savannah, GA.



MINUTES OF A MEETING OF THE  
TENNESSEE BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
Davy Crockett Tower  
Nashville, Tennessee  
Thursday, February 12, 2015

---

**CALL TO ORDER**

Richard Thompson, Chair, called the regular meeting of the Tennessee Board of Architectural and Engineering Examiners to order at 9:05 a.m. on February 12, 2015, at the Davy Crockett Tower in Nashville, Tennessee. A quorum was declared present.

The following **Board members** were present:

Susan Ballard	Registered Interior Designer
Hal Balthrop	Professional Engineer
Robert Campbell, Jr.	Professional Engineer
Jerome Headley	Registered Architect
Philip Lim	Professional Engineer
Bill Lockwood	Registered Landscape Architect
Rick Thompson	Registered Architect
Frank Wagster	Registered Architect

The following **Board member** was absent:

Wilson Borden	Public Member
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The following **Associate Engineer members** were present:

Richard Bursi	Professional Engineer
Stephen King	Professional Engineer
Laura Reinbold	Professional Engineer

The following **Board staff** was present:

John Cothron	Executive Director
Ellery Richardson	Legal Counsel
Wanda Phillips	Office Manager
Wanda Garner	Administrative Assistant

The following **guests** were present for part or all of the meeting:

Ashley Cates, American Institute of Architects of Tennessee (AIA-TN)  
Candy Toler, Tennessee Society of Professional Engineers/American Council of Engineering  
Companies of Tennessee (TSPE/ACEC-TN)  
Chris Bainbridge, Director of Codes Enforcement



Bill Giannini, Deputy Commissioner, Department of Commerce and Insurance  
Brian McCormack, Assistant Commissioner, Regulatory Boards Division  
Bill Huddleston, CPA, Accounting Manager, Regulatory Boards Division

Guests were introduced.

Mr. Cothron announced that

- Staff member Joyce Shrum has returned from medical leave;
- Ellery Richardson is now the Board's staff attorney;
- Brian McCormack is the new Assistant Commissioner for Regulatory Boards, and
- Public Board member Wilson Borden is absent today because his wife is having surgery.

No changes/additions were made to the agenda.

**CONSENT AGENDA** (attached)

Motion was made by Mr. Lockwood and seconded to approve the minutes of the December 4, 2014 meeting. The motion passed unanimously.

Motion was made by Mr. Lockwood and seconded to approve the Complaints for Board Decision. The motion passed unanimously.

**MEETING WITH STATE FIRE MARSHAL'S OFFICE REPRESENTATIVES**

*Chris Bainbridge, Director of Codes Enforcement*, via a question and answer session, informed Board members that

- he will review proposed revisions to the sprinkler shop drawings review policy;
- he is not aware of any major problems that Codes Enforcement is having with designers;
- the State Fire Marshal's Office (SFMO) is considering amending their rules to adopt new codes; they are recommending adoption of the 2012 International Building Code;
- the Tennessee Advisory Commission on Intergovernmental Relations (TACIR) released a report last year opposing changes to fire sprinkler requirements for places of worship; and
- the SFMO is conducting safety inspections of marinas and boat docks to ensure compliance with applicable codes.

Mr. Bainbridge also reviewed some legislation of interest to the SFMO and the Board.

**PROFESSIONAL SOCIETY REPORTS**

*Candy Toler, TSPE/ACEC-TN*, reported on the status of pending legislation:

- SB0095/HB0084—Authorizes public institutions of higher education and the department of general services to participate in, sponsor, conduct, or administer cooperative purchasing agreements with other states or local governments for the procurement of certain goods or services, including architectural or engineering services. The Board expressed concern that, as introduced, the bill may circumvent qualifications-based selection of architectural and engineering services. Ms. Toler noted that the

Department of General Services will request an amendment to delete architectural and engineering services from the bill.

Motion was made by Mr. Campbell and seconded to oppose SB0095/HB0084 as introduced, but to support the exclusion of architectural and engineering services. The motion passed unanimously.

- SB0345/HB0228—Designates the welcome center at Johnsonville State Historic Park in honor of former state representative John C. Tidwell.
- SB0836/HB0477—Requires that edges of steps into certain public buildings constructed, purchased, or leased by the state or its political subdivisions after July 1, 2015, be marked with yellow paint to assist persons with vision impairment. Ms. Toler remarked that the bill is poorly worded, and Mr. Thompson stated that it could pose a slip and fall hazard.
- SB0620/HB0628—Exempts local jurisdictions that have an established codes department from audit of its records and transactions by the state fire marshal; removes a provision of law stating that state building codes supersede all less stringent provisions of municipal ordinances.

Motion was made by Mr. Balthrop and seconded to oppose SB0620/HB0628. The motion passed unanimously.

- SB0978/HB0823—Increases, from \$25,000 to \$100,000, the threshold for public works projects that require a registered architect, registered engineer, or registered landscape architect. Mr. Bursi noted that he attended a meeting on this issue with officials from the City of Bartlett; the city's primary concern is with the replacement of heating, ventilation, and air conditioning (HVAC) units.
- Legislation may be introduced to reduce seismic requirements in the Memphis area, which are viewed by many homebuilders as costly and burdensome. AIA-TN and TSPE/ACEC-TN are likely to oppose this legislation, if filed (it could be filed as an amendment to another bill). Mr. Campbell remarked that affordability is a legitimate concern.
- Ms. Toler reported that the bill from last session that would have removed fire sprinkler requirements from places of worship under certain circumstances (SB1749/HB1649) has not, as yet, been reintroduced.

*Ashley Cates, Executive Vice President of AIA-TN* reported that they are working with the State Architect's office on designer contract and fee schedule revisions. She noted that Senate Joint Resolution 77 recognizes Candy Toler on the occasion of her retirement.

#### **DIRECTOR'S REPORT**

1. Mr. Cothron reported his activities and those of his staff and Board members.
2. *Licensing Data* was presented for informational purposes only. (attached)
3. *Complaint Data* was presented for informational purposes only. (attached)
4. *Financial Data* was presented for informational purposes only. (attached)

### **LEGISLATIVE UPDATE**

Copies of *pending legislation* of interest to the Board were submitted. (attached)

### **ENGINEER COMMITTEE REPORT**

The Engineer Committee, through Mr. Balthrop, reported on topics discussed. The minutes of the Engineer Committee meeting follow these minutes. (attached)

### **LAW AND RULES/POLICIES COMMITTEE REPORT**

The Law and Rules/Policies Committee, through Mr. Thompson, reported on topics discussed. The minutes of the Law and Rules/Policies Committee meeting follow these minutes. (attached)

### **BUDGET PRESENTATION**

Deputy Commissioner Bill Giannini and Assistant Commissioner Brian McCormack, reviewed the financial status of the Board.

### **UNFINISHED BUSINESS**

1. *Action Items* (attached)

The action items taken from the December meeting were reviewed and the required action had either been taken or is in process.

- (a) Ms. Ballard reported that she will continue to work with AIA-TN to help establish a fee schedule for Registered Interior Designers.
- (b) Mr. Lockwood reported that applicants who have more diversified experience tend to have a higher pass rate on Section 4 (Grading, Drainage and Construction) of the Landscape Architecture Registration Exam (LARE).

2. *Rulemaking Update* (attached)

Ms. Richardson explained that the rulemaking hearing rules filed last year, in which the \$15 engineer intern application fee was inadvertently omitted, have been stayed and have a new effective date of May 1, 2015. The Secretary of State's office may allow a correction of the error in the rules. Ms. Richardson suggested that the Board could file proposed rules for the additional changes under consideration. Proposed rules take effect 90 days after filing without a rulemaking hearing unless a petition for a public hearing is filed by 25 persons who will be affected by the rule, an association of 25 or more members, a municipality or by a majority vote of any standing committee of the General Assembly.

Motion was made by Mr. Balthrop and seconded to approve the proposed rule changes and, in lieu of a rulemaking hearing, to file the proposed rules with the Secretary of State pursuant to T.C.A. § 4-5-202. The motion passed unanimously.

The proposed rules will be published via the Board's website, newsletter and e-mail notification.

3. *Qualifications-Based Selection* (attached)

Ms. Richardson reported on a meeting with Ashley Carter in the Attorney General's

office to discuss qualifications-based selection (QBS). Ms. Carter agreed with the Board's position regarding subconsultants, but she stated that the QBS law (T.C.A. § 12-4-107) may not apply to public school systems. T.C.A. § 49-2-203(a)(3)(C) prescribes the specific procedures to be utilized by local education agencies in contracts for professional services. Ms. Carter recommended revision of the QBS rule to clearly prohibit submission of fee information with a proposal. Discussion was deferred for further scrutiny of legal implications.

**LEGAL CASE REPORT** (presented by Ellery Richardson) (attached)

1. *Case No. L14-AEL-RBS-2014031381* *Complaint #201403138*  
Motion was made by Mr. Lim and seconded to close the case. The motion passed unanimously.
  
2. *Case No. L14-AEL-RBS-2014028361* *Complaint #201402836*  
Motion was made by Mr. Headley and seconded to close the case with a Letter of Caution including a citation of the appropriate authorities. The motion passed unanimously.
  
3. *Case No. L14-AEL-RBS-2014028891* *Complaint #201402889*  
Motion was made by Mr. Lockwood and seconded to place the case in litigation monitoring status pending resolution of the civil case. The motion passed unanimously.
  
4. *Case No. L14-AEL-RBS-2014031161* *Complaint #201403116*  
Motion was made by Mr. Campbell and seconded to authorize a formal hearing with the authority to settle with a Consent Order for a civil penalty of five hundred dollars (\$500.00) and a requirement to take and pass the Board's law and rules examination. The motion passed unanimously.

*Cases Under Board Member Review*

5. *Case No. L14-AEL-RBS-2014021241* *Complaint #201402124*
6. *Case No. L14-AEL-RBS-2014021242* *Complaint #201402124*  
The case was reviewed by Ms. Reinbold, assisted by Mr. Bursi. Mr. Bursi disclosed that, although he knows the respondent, he felt that he could provide an objective review. Motion was made by Mr. Headley and seconded to close the case. The motion passed unanimously.
  
7. *Case No. L14-AEL-RBS-2014026091* *Complaint #201402609*  
Motion was made by Mr. Campbell and seconded to issue a Letter of Caution to the Respondent and, at the April Board meeting, consider whether the Board has the authority to discipline the owner. The motion passed unanimously.

Break: 12:15-12:33 p.m.

8. *Case No. L14-AEL-RBS-2014026301* *Complaint #201402630*

Motion was made by Mr. Wagster and seconded to issue a Letter of Caution. The motion passed unanimously.

9. *Case No. L14-AEL-RBS-2014017901* *Complaint #201401790*

*Case No. L14-AEL-RBS-2014017902* *Complaint #201401790*

Motion was made by Mr. Lockwood and seconded to close the case. The motion passed unanimously.

10. *Case No. L13-AEL-RBS-2013022491* *Complaint #201302249*

11. *Case No. L13-AEL-RBS-2013022501* *Complaint #201302250*

Motion was made by Mr. Campbell and seconded to close the cases with a Letter of Instruction. The motion passed unanimously.

12. *Case No. L14-AEL-RBS-2014004821* *Complaint #201400482*

Motion was made by Mr. Lockwood and seconded to close the case but flag it in case the Respondent reapplies for licensure. The motion passed unanimously.

13. *Case No. L14-AEL-RBS-2014023691* *Complaint #201402369*

14. *Case No. L14-AEL-RBS-2014023692* *Complaint #201402369*

Motion was made by Mr. Lim and seconded to keep the Consent Order and defer any additional action until the April meeting. The motion passed unanimously.

## **NEW BUSINESS**

### **1. *Call for Officer Nominations***

Mr. Thompson announced that a Nominations Committee meeting will be scheduled for April.

### **2. *Authorization of Travel and Speakers***

Motion was made by Mr. Lockwood and seconded to authorize Mr. Cothron and Mr. Campbell to speak to members of the Knoxville Branch of the American Society of Civil Engineers (ASCE) on March 27, 2015, and to seek mileage reimbursement. The motion passed unanimously.

Motion was made by Mr. Lockwood and seconded to authorize Mr. Balthrop to speak to senior engineering students at Tennessee Technological University in Cookeville in March and to seek mileage reimbursement. The motion passed unanimously.

### **3. *October 2015 Meeting Dates (Retreat/Board Meeting at University of Tennessee Chattanooga)***

Motion was made by Ms. Ballard and seconded to change the October 2015 meeting dates to October 14-16, 2015. The motion passed unanimously.

### **4. *Correspondence from Joseph Tomasello, P.E., re: IRC Code Certification (attached)***

Mr. Headley noted that, in general, a registrant cannot seal what the registrant did not design. Mr. Bursi commented that the Sealing Manufactured Product Details, Review Letters, and Shop Drawings policy may be relevant to the discussion. Mr. Campbell stated that a registrant cannot certify that a design will work—only that it is built according to plans—and he suggested that perhaps the certification form should be modified.

Motion was made by Mr. Balthrop and seconded for the Engineer Committee members to meet with Mr. Tomasello and representatives of the Town of Collierville in April. The motion passed unanimously.

5. *New Application Forms (attached)*

The Architect and Landscape Architect Committees will consider the new applications and submit their recommendation for Board decision at the April meeting.

The Chair adjourned the meeting at 1:25 p.m.

**Attachments**

December Minutes

Complaints for Board Decision

Licensing Data

Complaint Data

Financial Data

Pending Legislation

SB0081/HB0071

SB0095/HB0084

SB0474/HB0787

SB0556/HB0678

Action Items

Notice of Rulemaking Hearing

QBS Q&A's

Legal Report

Joseph Tomasello's letter of 1/22/15

Early Architect and Landscape Architect Exam

Eligibility application forms for approval



MINUTES  
BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
ENGINEER COMMITTEE MEETING  
Davy Crockett Tower- Conference Room 1B  
Nashville, Tennessee  
Wednesday, February 11, 2015

---

**CALL TO ORDER**

Hal Balthrop, P.E., Committee Chair, called the Engineer Committee meeting to order at 1:05 p.m. on February 11, 2015 in Room 1B of the Davy Crockett Tower at 500 James Robertson Parkway, Nashville, Tennessee.

The following **Board members** were present:

Hal Balthrop, P.E.	Chair, Middle TN Member
Robert Campbell, P.E.	East TN Member
Philip Lim, P.E.	West TN Member
Ricky Bursi, P.E.	West TN Associate Member
Stephen King, P.E.	East TN Associate Member
Laura Reinbold, P.E.	Middle TN Associate Member

A quorum was present.

The following **Board staff** was present:

John Cothron	Executive Director
Ellery Richardson	Legal Counsel
Wanda Phillips	Administrative Manager

**NEW BUSINESS**

**APPLICATIONS FOR DISCUSSION**

- **BROWN, April Michelle (Exam)** Application was previously approved by Mr. Lim. The committee concluded that the experience submitted by Ms. Brown did not include enough application of engineering theory through design, and requested that she submit detailed information regarding her experience.

- **GERGES, Rafik Refaat (Comity)** Application was previously disapproved because of educational deficiencies, and Mr. Gerges appealed the Board’s decision. The committee instructed Ms. Phillips to request that Mr. Gerges submit information regarding civic involvement that may address the deficiencies.
- **O’NEILL, Gerald C. (Comity)** Applicant’s degree is in civil engineering technology. The application was disapproved.
- **WHEELER, Julian Edward (Exam)** Application was approved.
- **YONTZ, Raymond Reese (Exam)** Application was previously approved by Mr. Lim. The committee requested that Mr. Yontz submit more information elaborating on his experience in updating and reviewing regulations.

### **2014 EXAMINATION RESULTS**

The committee reviewed Fundamentals of Engineering, Principles and Practice of Engineering, and Structural Engineering examination results for 2014.

Mr. Lim arrived at 2:10 p.m.

### **REPORT ON NCEES BOARD PRESIDENTS’ ASSEMBLY**

Mr. Balthrop attended the National Council of Examiners for Engineering and Surveying (NCEES) Board Presidents’ Assembly in Atlanta, Georgia on February 6-7, 2015. He reported that attendees received an update on computer-based testing, efforts to standardize continuing education requirements among jurisdictions, international exam administrations, and NCEES marketing and public outreach efforts.

\*\*\*\*\*

- Mr. Balthrop received an inquiry from Walter Ashford, who is a registered engineer in another jurisdiction with a graduate degree in engineering. Mr. Ashford contacted him to verify if he would meet Tennessee’s registration requirements after he completes a B.S. degree in engineering. The committee agreed that he would qualify for registration after completing the bachelor’s degree since the order in which registration requirements are completed is not considered for comity applicants.
- Mr. Cothron received an e-mail from Dr. John W. Smith regarding use of the title “Utilities Engineer” by an employee of the Town of Collierville on the town’s website. The employee is not a registered engineer. Mr. Cothron was instructed to send a letter of information to the employee stating that posting the title “engineer” on a website constitutes holding oneself out to the general public as an engineer, and requesting that the employee remove the title “engineer” from the town’s website.



- Robert Campbell and Hal Balthrop were designated to attend the NCEES regional meeting as NCEES-funded delegates. Ricky Bursi and John Cothron will attend as state-funded delegates.
- Ricky Bursi discussed SB0978/HB0823, which increases, from \$25,000 to \$100,000, the threshold for public works projects that require a registered architect, registered engineer, or registered landscape architect. Mr. Bursi noted that he attended a meeting on this issue with officials from the City of Bartlett; the city's primary concern is with the replacement of heating, ventilation, and air conditioning (HVAC) units.

### **UNFINISHED BUSINESS**

#### **REVISIONS TO STANDARD OF CARE FOR FIRE SPRINKLER SYSTEM DESIGN RE: DELEGATED DESIGN OF FIRE SPRINKLER SYSTEMS**

The committee members agreed that the word "Division" in the first paragraph of the Sprinkler Shop Drawings Plans Review policy should be changed to "Division of Fire Prevention" for clarity. The proposed policy revisions will now be sent to the State Fire Marshal's Office, sprinkler contractors and engineering societies for comment.

#### **DECOUPLING OF EXPERIENCE AND EXAMINATION REQUIREMENTS FOR PE REGISTRATION**

The committee discussed options for pursuing legislation to allow decoupling of the experience and examination requirements. Committee members agreed to ask Candy Toler, Executive Director of the Tennessee Society of Professional Engineers/American Council of Engineering Companies of Tennessee (TSPE/ACEC-TN), for a response to the decoupling presentation delivered in December.

#### **DEFINITIONS OF PRACTICE**

A majority of committee members opposed adding definitions of practice to the law.

#### **PROPOSED COMITY STATUTE REVISION**

The committee took no exception to the proposed comity statute revision.

**Adjourn.** The Chair adjourned the meeting at 4:10 p.m.



MINUTES  
BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
LAW AND RULES/POLICIES COMMITTEE MEETING  
Davy Crockett Tower  
Nashville, Tennessee  
Thursday, February 12, 2015

---

**CALL TO ORDER**

Rick Thompson, Committee Chair, called the Law and Rules/Policies Committee meeting to order at 8:20 a.m. on February 12, 2015, in Room 1A of the Davy Crockett Tower at 500 James Robertson Parkway, Nashville, Tennessee.

The following **Board members** were present:

Robert Campbell, Jr., P.E.  
Jerry Headley, R.A.  
Bill Lockwood, R.L.A.  
Laura Reinbold, P.E., Associate Member  
Rick Thompson, R.A.  
Susan Ballard, R.I.D.

A quorum was present.

The following **Board staff** was present:

John Cothron	Executive Director
Ellery Richardson	Legal Counsel

**UNFINISHED BUSINESS**

**DEFINITIONS OF PRACTICE**

Mr. Thompson reported that Ashley Cates, Executive Vice President of the American Institute of Architects of Tennessee (AIA-TN), will provide the AIA definition of practice for discussion. Further discussion was deferred until the AIA definition is received. Mr. Campbell stated that the engineers are not supportive of adding definitions to the law.

**PROPOSED COMITY STATUTE REVISION**

Mr. Thompson noted that the architects are supportive of the change. He will ask Ashley Cates for AIA-TN's position on the proposal.

**Adjourn.** The Chair adjourned the meeting at 8:30 a.m.



MINUTES  
BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
PUBLICATIONS COMMITTEE MEETING  
Davy Crockett Tower  
Nashville, Tennessee  
Thursday, February 12, 2015

---

**CALL TO ORDER**

Stephen King, Committee Chair, called the Publications Committee meeting to order at 1:25 p.m. on February 12, 2015, in Room 1A of the Davy Crockett Tower at 500 James Robertson Parkway, Nashville, Tennessee.

The following **Board members** were present:

Susan Ballard, R.I.D.  
Ricky Bursi, P.E., Associate Member  
Stephen King, P.E., Associate Member  
Bill Lockwood, R.L.A.

A quorum was present.

The following **Board staff** was present:

John Cothron                      Executive Director  
Ellery Richardson              Legal Counsel

**UNFINISHED BUSINESS**

**REFERENCE MANUAL REVISIONS**

Committee members reviewed the *Reference Manual for Building Officials and Design Professionals* and designated sections to be revised by staff and committee members as follows:

- John Cothron—Introduction, The Requirements for Building Design (adding occupancy definitions)

- Bill Lockwood—Most Commonly Asked Questions #24 (expand based on Robert Campbell’s newsletter article regarding electronic seals and signatures); Appendix H (Design and Practice Policies)
- Stephen King—Most Commonly Asked Questions #32, #33, and #34
- Ricky Bursi—Standard of Care for Fire Sprinkler System Design; Appendix G (Engineering Exemption Policy for Fire Sprinkler System Design)—pages 21-31
- Rick Thompson—Appendix E (Cover Sheet for Plans Submissions)

Mr. Cothron was asked to send out a Word document to all committee members to facilitate revision and to schedule another committee meeting in April.

**Adjourn.** The Chair adjourned the meeting at 2:00 p.m.

## 2015 PENDING LEGISLATION

Bill Number(s)/Sponsor(s)	Description	House	Senate	Board Position
SB0081*/HB0071 Norris/McCormick	Authorizes Board to deny certain certificates of registration to persons with felony convictions; removes certain board notifications to governmental entities when revoking or suspending certificates of registration; removes certain fees for engineer intern certifications or enrollment and for certain exams.	Recommended for passage; Business and Utilities Committee (4/1/15)	<b>Passed</b>	
SB0095*/HB0084 Norris/McCormick	Authorizes public institutions of higher education and the department of general services to participate in, sponsor, conduct, or administer cooperative purchasing agreements with other states or local governments for the procurement of certain goods or services, including architectural or engineering services.	Recommended for passage with amendment excluding architectural and engineering services; placed on 4/1/15 calendar	State and Local Government Committee	Oppose as introduced, but support amendment to exclude architectural and engineering services
SB0474*/HB0787 Bell/Williams	As introduced, prohibits the requirement of fire sprinkler systems for townhouses by any local or statewide adopted building codes. - Amends TCA Title 68, Chapter 120.	Recommended for passage with amendment allowing local gov'ts to adopt sprinkler req's for townhouses; Business and Utilities Comm. (4/1/15)	<b>Passed</b> with amendment allowing local governments to adopt sprinkler requirements for townhouses	
SB0620/HB0628* Tracy/Littleton	Exempts local jurisdictions that have an established codes department from audit of its records and transactions by the state fire marshal; removes provision of law stating that state building codes supersede all less stringent provisions of municipal ordinances.	State Government Subcommittee (4/1/15)	Commerce and Labor Committee (3/31/15)	Oppose
SB0556*/HB0678 Bowling/VanHuss	As introduced, phases out the privilege tax on persons engaged in certain occupations by annually decreasing it by 20 percent over the next five years; eliminates the tax in 2019 and thereafter.	Finance, Ways & Means Subcommittee —placed behind the budget	FW&M Revenue Subcommittee (3/31/15)	
SB0978/HB0823* Norris/Lollar	Increases, from \$25,000 to \$100,000, the threshold for public works projects that require a registered architect, registered engineer, or registered landscape architect.	Recommended for passage with amendment raising threshold to \$50,000; Finance, Ways & Means Committee	<b>Passed</b> with amendment raising threshold to \$50,000	

SB0836/HB0477* Yager/Beck	Requires that edges of steps into certain public buildings constructed, purchased, or leased by the state or its political subdivisions after July 1, 2015, be marked with yellow paint to assist persons with vision impairment.	Deferred to TACIR for study	<b>Passed</b>	
SB1092*/HB1300 Harris/Sparks	Requires the state fire marshal, in consultation with TACIR, to submit a report to the legislature addressing fire safety standards affecting places of worship.	Local Government Subcommittee	State and Local Government Committee	
SB1346/HB1261* McNally/Ragan	Authorizes counties and municipalities to opt out of the International Energy Conservation Code standards applicable statewide to buildings classified for certain industrial or storage uses; authorizes counties and municipalities to adopt alternative industrial or storage use standards.	State Government Subcommittee	Commerce and Labor Committee	

Section 7, Item 28 of the appropriations bill (SB1399/HB1374) earmarks \$350,000 for the Board's grants program.

**Board of Architectural and Engineering Examiners  
Open Complaints**

	<b>Profession</b>	<b>Complaint #</b>	<b>Received</b>	<b>Allegation</b>	<b>Status</b>	<b>Comments</b>
<b>1</b>	Architect	201202668	12/17/2012	Practice outside area(s) of competence.	Open-Legal	Formal
<b>2</b>	Architect	201401761	7/23/2014	Practice outside area(s) of competence.	Open-Legal	Formal
<b>3</b>	Architect	201402215	9/9/2014	Practice on an expired license.	Open-Legal	Formal
<b>4</b>	Architect	201500789	3/25/2015	Disciplined in another jurisdiction.	Open-Staff	Letter of Caution
<b>5</b>	Engineer	201300578	3/14/2013	Practice outside area(s) of competence.	Open-Legal	Formal
<b>6</b>	Engineer	201500102	1/5/2015	Misconduct re: e-mail communications.	Open-Legal	
<b>7</b>	Engineer	201500204	1/12/2015	Disciplined in another jurisdiction.	Open-Legal	
<b>8</b>	Engineer	201500446	2/3/2015	Violation of Rule 0120-02-.04 [Public Statements].	Open-Legal	
<b>9</b>	Engineer	201500597	3/9/2015	Disciplined in another jurisdiction.	Open-Staff	Letter of Caution
<b>10</b>	Engineer	201500720	3/20/2015	Practice outside area(s) of competence.	Open-Staff	Response requested
	<b>Number over 180 days old: 4 (40%)</b>					
	<b>Number over 180 days old without "clock stopping" action: 0 (0%)</b>					
	<b>Number of formal hearings authorized to be heard by Board: 4</b>					
	<b>Number in Investigations: 0</b>					
	<b>Percent on time (clock stopped within 180 days) last 18 months: 99% (80% is goal)</b>					



# TN BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS

## ACTION ITEMS

From February 12, 2015 Meeting

### Rick Thompson



Schedule a Nominations Committee meeting for April



Review the *Reference Manual for Building Officials and Design Professionals* and revise the Appendix E (Cover Sheet for Plans Submissions).

### John Cothron



Review the *Reference Manual for Building Officials and Design Professionals* and revise the Introduction, The Requirements for Building Design (adding occupancy definitions)

### Bill Lockwood



Review the *Reference Manual for Building Officials and Design Professionals* and revise the Most Commonly Asked Questions #24 (expand based on Robert Campbell's newsletter article regarding electronic seals and signatures); Appendix H (Design and Practice Policies)

### Stephen King



Review the *Reference Manual for Building Officials and Design Professionals* and revise the Most Commonly Asked Questions #32, #33, and #34

### Ricky Bursi



Review the *Reference Manual for Building Officials and Design Professionals* and revise the Standard of Care for Fire Sprinkler System Design; Appendix G (Engineering Exemption Policy for Fire Sprinkler System Design)—pages 21-31

### Engineer Committee



Meet with Mr. Tomasello and representatives of the Town of Collierville in April.



Send proposed Sprinkler Shop Drawings Plans Review policy revisions to the State Fire Marshal's Office, sprinkler contractors and engineering societies for comment.

### Ellery Richardson



File the proposed rules with the Secretary of State pursuant to T.C.A. § 4-5-202.



Regarding subconsultants: Revise the QBS rule to clearly prohibit submission of fee information with a proposal.



Revise QBS FAQ's in light of discussions with AG's office.

### Susan Ballard



Communicate with AIA in regard to a state fee schedule for interior designers.

### Architect and Landscape Architect Committees



Consider the new applications and submit their recommendation for Board decision at April meeting

## Board Discussion:

Case # L14-AEL-RBS-2014026091 -- consider whether the Board has the authority to discipline the owner.

## Long Range

- Licensure Outreach Committee Draft a structured format for the program reports provided by the educators for use at the next meeting with deans.
- SUSAN Write an article on the interior design profession for inclusion in the newsletter.
- Grants To Higher Education Committee
  - Revise the grant distribution methodology to establish a 1% minimum for all programs (which, based on the current grants appropriation, would set the minimum at \$3,000),
  - Request a \$50,000 increase in the grants appropriation (which, if approved, would bring the total appropriation to \$350,000).
  - Use the additional funds above \$300,000 for the purpose of providing the minimum amount to all programs.

## Potential Law and Rule Changes

Interior designer rules be amended to allow teaching experience and to exempt educators from the client reference requirement. It was suggested that a similar allowance for teaching experience could be added to the rules for architects and landscape architects, as well.

Amend the comity statute (T.C.A. § 62-2-304) to read that applicants holding an unexpired national certificate issued by the National Council of Architectural Registration Boards (NCARB) may be deemed to have met the registration requirements of the law and the rules established by the Board.



State of Tennessee  
Department of Commerce and Insurance  
Board of Architectural and Engineering Examiners  
500 James Robertson Parkway  
800-256-5758 615-741-3221 (Nashville Area)  
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## **FREQUENTLY ASKED QUESTIONS ABOUT QUALIFICATIONS-BASED SELECTION FOR PUBLIC PROJECTS AS DEFINED BY T.C.A. § 12-4-107(a)**

### **1. To what projects does T.C.A. § 12-4-107(a) apply?**

T.C.A. § 12-4-107 applies to all contracts for architectural, engineering and construction services procured by any municipal corporation, county, state, development district, utility district, human resource agency, or other political subdivision created by statute. Some communications from the Board refer to “public works projects,” which should not be understood in the narrow sense of projects typically associated with public works departments. The term “public works” is used in the general sense of any project paid for by government funds for public use. The statute does not actually use the term “public works.” There may be an exception for certain public school projects (see FAQ #4).

### **2. What has changed? Is the Board of Architectural and Engineering Examiners imposing a new requirement?**

The requirement to select design professionals for public projects through qualifications-based selection is not a new requirement. This requirement has been in the law for many years, and the Board of Architectural and Engineering Examiners is not imposing any additional requirements on the state or local jurisdictions. The only change is that, effective March 11, 2013, the Board may now discipline registered architects, engineers, and landscape architects for failing to comply with T.C.A. § 12-4-107(a) and Rule 0120-02-.02(6).

### **3. Does T.C.A. § 12-4-107(a) encompass studies and other services that do not involve the preparation of sealed plans?**

Version 1: In the event that any study or service, such as Property Condition Assessments (PCAs), planning studies, or other documents, requires professional architectural, engineering, or landscape architectural services and expertise that require the seal of a registrant, or if these professional services are offered by the proposer, it would fall under the scope of the statute.

Version 2: In the event that aAny study or service that ,such as Property Condition Assessments (PCAs), planning studies, or other documents, requires professional architectural, engineering, or landscape architectural services and expertise that requires the seal of a registrant, or if these professional services are offered by the proposer, it would fall under the scope of the statute.

**4. Does T.C.A. § 12-4-107(a) apply to public school systems and public building authorities?**

Yes. T.C.A. § 12-4-107 applies to all contracts for professional services by any municipal corporation, county, state, development district, utility district, human resource agency, or other political subdivision created by statute. However, T.C.A. § 49-2-203(a)(3)(C), which prescribes the specific procedures to be utilized by school systems in contracts for professional services, allows public school systems to utilize competitive bidding for the construction of school buildings or additions to existing buildings. “Construction” would include construction-related services, including design. This exception does not apply to contracts for energy-related services that include engineering services, pursuant to T.C.A. § 49-2-203(a)(3)(F).

**5. Does T.C.A. § 12-4-107(a) apply to non-profit organizations that receive public funds, such as charter schools?**

No. T.C.A. § 12-4-107 applies only to contracts for professional services by any municipal corporation, county, state, development district, utility district, human resource agency, or other political subdivision created by statute. It does not apply to private non-profit organizations, regardless of the source of funding. However, although T.C.A. § 12-4-107(a) does not require qualifications-based selection in these instances, the conditions of the source of funding, such as a governmental grant, may still require qualifications-based selection.

**6. Does T.C.A. § 12-4-107(a) apply to landscape architectural services?**

Yes. Although the statute does not specifically reference landscape architectural services, it may be safely assumed that such services are included due to the overlap among the architectural, engineering, and landscape architectural professions, and the fact that similar qualifications and standards apply to all three design professions. Additionally, Rule 0120-02-.02(6) does reference landscape architectural services.

**7. Does T.C.A. § 12-4-107(a) apply to interior design services?**

No. The statute does not reference interior design services, and the Board of Architectural and Engineering Examiners does not regulate the practice of interior design—only use of the title “registered interior designer.”

**8. Is it permissible for a registrant to provide a description of intended compensation (i.e., whether you charge a fixed fee, percentage, etc.) in response to a RFQ/RFP for a public project?**

Yes, provided that a specific monetary amount or percentage is not included in the response.

**9. Is it permissible for a registrant to submit hourly rates and an estimate of man-hours required to complete a design project in response to a RFQ/RFP for a public project?**

No. T.C.A. § 12-4-107(a) and Rule 0120-02-.02(6) preclude a registrant from submitting any information that could be used to determine compensation in response to a RFQ/RFP for a public project. However, it is permissible to submit hourly rates if an estimate of man-hours is not provided.

**10. Is it permissible for a registrant to submit a price in a sealed envelope in response to a RFQ/RFP for a public project?**

No. Registrants may only state compensation to a prospective client in direct negotiation following selection based on qualifications.

**11. Does the following procedure comply with T.C.A. § 12-4-107 and Rule 0120-02-.02(6)?**

***A jurisdiction requests responses to a RFQ. Responses are evaluated to prequalify firms for participation in the RFP process. Prequalified proposers then submit formal proposals (RFPs)—including fees— for consideration and final selection.***

No. The prequalification procedure outlined above would not comply. In accordance with T.C.A. § 12-4-107(a), once the public body (client) has selected the most qualified design professional/firm, it may request a fee proposal from that firm. The agency may then negotiate a satisfactory contract with the selected firm. If an agreement cannot be reached and the negotiations are formally terminated, the agency may then proceed to select the next most qualified design

professional/firm on the list and continue negotiations until an agreement is reached. However, this procedure would be in compliance if the agency wishes to contract with as many qualified respondents as possible, multiple firms are selected, and a contract is negotiated with each firm separately following selection based on qualifications.

**12. What alternate methods are available for determining possible architectural, engineering, or landscape architectural costs?**

- a. Enlist the aid of a professional or agency such as a Development District in determining the scope of the project for a RFQ. This should allow a realistic budget for the entire project, including construction, so that price surprises are minimized.
- b. State the budget range for professional services in the RFQ. The budgeted amount allows the design professional to determine if they can meet the stated requirements within the budget range and minimizes review time for the municipality.
- c. Use standard cost basis schedules such as used by the State Building Commission or Rural Development to determine expected design costs. These schedules have been used for many years by both governments and design professionals to establish reasonable compensation for projects of various sizes.

**13. Is it unethical for one firm/registrant to sit in on a proposal interview for another firm/registrant (a competitor)? Would this be a violation of the Rules of Professional Conduct?**

Although such conduct is unprofessional, it does not violate the Rules of Professional Conduct.

**14. Does Rule 0120-02-.02(6) apply only to individual design professionals, or does it also apply to corporations, partnerships, and firms?**

The rule applies to both individual design professionals and corporations, partnerships, and firms registered in the State of Tennessee (see Rule 0120-02-.01 Applicability).

**15. What disciplinary action may result from a violation of Rule 0120-02-.02(6)?**

Formal discipline could range from a civil penalty (\$100-\$1,000 per violation) to suspension or even revocation for repeated, grave offenses. The Board considers mitigating and aggravating factors when determining discipline.

**16. Can price be considered when selecting a design professional for a public project?**

The law does not prevent jurisdictions from negotiating price on projects requiring professional services. Upon selecting the most qualified design professional, the jurisdiction may then negotiate compensation with the registrant/firm. If the contracting agency and most highly qualified firm are unable to negotiate a fair and reasonable contract, the agency may formally terminate negotiations and undertake negotiations with the next most qualified firm, continuing the process until an agreement is reached. The initial selection, however, must be based upon qualifications.

**17. Does T.C.A. § 12-4-107(a) and Rule 0120-02-.02(6) apply to transportation planning services for Metropolitan Planning Organizations?**

See response to question #3.

**18. Does T.C.A. § 12-4-107(a) and Rule 0120-02-.02(6) apply to subconsultants who do not contract directly with a government agency?**

No, based on the Board's current interpretation of the statute. T.C.A. § 12-4-107(a) applies only to contracts between a state or local government agency and an architect/engineer/landscape architect. If a registrant is not entering into a contract with a governmental entity, then they may include a fee in their proposal for a public project. However, in keeping with the spirit of the law, the Board urges registrants to select subconsultants on the basis of their qualifications.

**19. What is an appropriate way for a registrant to respond to a request for a price?**

If a registrant becomes aware of a state or local agency that is requesting a fee in a proposal for a public project, this should be brought to the attention of the Board office. In such cases, Board staff will send a letter to the agency issuing the RFP asking them to eliminate fees from their request. The Board has no jurisdiction over state and local government agencies, but, in most cases, the



issuing agency will voluntarily remove the requirement to submit fees and reissue the request. Registrants may wish to provide information on Tenn. Code Ann. § 12-4-107(a) and Rule 0120-02-.02(6) to prospective clients so they will understand why submittals for public projects are non-responsive on the issue of fees. State professional societies may also offer assistance in educating government agencies regarding qualifications-based selection.

*The above responses reflect the Board of Architectural and Engineering Examiners' interpretation of T.C.A. § 12-4-107, as necessary to enforce Rule 0120-02-.02(6), and were adopted on June 12, 2014, and October 10, 2014.*



STATE OF TENNESSEE  
DEPARTMENT OF COMMERCE AND INSURANCE  
BOARD OF ARCHITECTURAL AND ENGINEERING EXAMINERS  
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615-741-3221

POTENTIAL LAW CHANGES FOR DISCUSSION

- Adding definitions of architecture, engineering, and landscape architecture to the law.

- Architecture (from NCARB Model Law):

**“Practice of architecture.”**

Providing or offering to provide those services, hereinafter described, in connection with the design and construction, enlargement, or alteration of a building or group of buildings and the space within and the site surrounding such buildings, which have as their principal purpose human occupancy or habitation. The services referred to include pre-design, programming, planning, providing designs, drawings, specifications and other technical submissions, the administration of construction contracts, and the coordination of any elements of technical submissions prepared by others including, as appropriate and without limitation, consulting engineers and landscape architects; provided that the practice of architecture shall not include the practice of engineering as defined in [Statute Reference], but a registered architect may perform such engineering work as is incidental to the practice of architecture.

- Engineering (from NCEES Model Law):

5. Practice of Engineering—The term “Practice of Engineering,” as used in this Act, shall mean any service or creative work requiring engineering education, training, and experience in the application of engineering principles and the interpretation of engineering data to engineering activities that potentially impact the health, safety, and welfare of the public.

The services may include, but not be limited to, providing planning, studies, designs, design coordination, drawings, specifications, and other technical submissions; teaching engineering design courses; performing surveying that is incidental to the practice of engineering; and reviewing construction or other design products for the purposes of monitoring compliance with drawings and specifications related to engineered works.

Surveying incidental to the practice of engineering excludes the surveying of real property for the establishment of land boundaries, rights of way, easements, and the dependent or independent surveys or resurveys of the public land survey system.

A person shall be construed to practice engineering, within the meaning and intent of this Act, if he or she does any of the following:

- a. Practices any discipline of the profession of engineering or holds himself or herself out as able and entitled to practice any discipline of engineering
- b. Represents himself or herself to be a professional engineer by verbal claim, sign, advertisement, letterhead, or card or in any other way
- c. Through the use of some other title, implies that he or she is a professional engineer or licensed under this Act

- Landscape Architecture (from CLARB Model Law):

Practice of Landscape Architecture – Any service where landscape architectural knowledge training, and experience are applied.

The practice of Landscape Architecture applies the principles of mathematical, physical and social sciences in consultation, evaluation, planning, design (including, but not limited to, the preparation and filing of plans, drawings, specifications and other contract documents) and administration of contracts relative to projects principally directed at the functional and aesthetic use and preservation of land.

These services include, but are not limited to:

1. Investigation, selection and allocation of land and water resources for appropriate uses;
2. Formulation of feasibility studies, and graphic and written criteria to govern the planning, design and management of land and water resources;
3. Preparation, review and analysis of land use master plans, subdivision plans and preliminary plats;
4. Determining the location and siting of improvements, including buildings and other features, as well as the access and environs for those improvements;
5. Design of land forms, storm water drainage, soil conservation and erosion control methods, site lighting, water features, irrigation systems, plantings, pedestrian and vehicular circulation systems and related construction details.

- Amend Comity statute to read as follows:

**62-2-304. Comity.**

The board may, upon proper application therefor, issue a certificate of registration as an architect, engineer, registered interior designer or landscape architect to any person who holds a like unexpired certificate of qualification or registration issued to such person by any state, territory or possession of the United States, or of any country; provided, that the applicant's qualifications meet the requirements of this chapter and the rules established by the board. Any applicant for registration as an architect or landscape architect, pursuant to this section, shall hold an unexpired national certificate issued by

the National Council of Architectural Registration Boards or the Council of Landscape Architectural Registration Boards and shall present proof of the same upon application to the board. Applicants for registration as an architect who hold a like unexpired certificate of qualification or registration issued to such person by any state, territory or possession of the United States, or of any country, and who hold an unexpired national certificate issued by the National Council of Architectural Registration Boards, shall [or “may”] be deemed to have met the registration requirements of this chapter and the rules established by the board.

FOR DISCUSSION ONLY

# REFERENCE MANUAL FOR BUILDING OFFICIALS AND DESIGN PROFESSIONALS

Sections requiring revision are highlighted.

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## Foreword

This manual has been published by the Tennessee State Board of Architectural and Engineering Examiners to aid building officials, design and construction professionals, and the general public in understanding the laws of this state governing the practice of architecture, engineering, landscape architecture, and use of the title "registered interior designer."

Information contained herein is basic and not intended to be a complete discussion of the Tennessee law. A major effort has been made to identify and address questions most asked by building officials; to this end a list of these questions, with their answers, is included as part of the manual.

The regulatory board responsible for assembling this manual protects the public by assuring its registrants and licensees are qualified to competently provide professional design and construction services in their respective disciplines. The principal focus of this Board is the protection of public health, safety and welfare.

The Board has a further responsibility to halt nonexempt, unregistered or unlicensed practice. The Board possesses the authority to investigate violations of its respective statutes and regulations and either discipline or prosecute violators accordingly.

Building officials protect the public by enforcing building code requirements. Throughout their plan check and inspection process, building officials ensure that registrants comply with building codes, local codes and ordinances. Building officials have the authority to reject documents as submitted and to withhold permits for projects that do not adhere to these requirements. Building officials rely on the Tennessee Board of Architectural and Engineering Examiners to assure its registrants and licensees are competent to practice.

A listing of currently registered architects, engineers, landscape architects, and interior designers as well as valid architectural, engineering, and landscape architectural firms, the law delineating the registration requirements and procedures, with the rules of professional conduct including civil penalties for violations of the law, is available on the Board's website.

For further information, contact:

State of Tennessee  
Department of Commerce and Insurance  
State Board of Architectural and Engineering Examiners  
500 James Robertson Parkway  
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(615) 741-3221 (Nashville and Vicinity) 800-256-5758 (Toll Free)  
615-532-9410 (FAX)  
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## Introduction

The people of the State of Tennessee live and work in an environment which is largely manmade. Tennessee law recognizes the need "to safeguard life, health and property, and to promote public welfare" in that environment by ensuring that design professionals — architects, engineers, landscape architects, and registered interior designers — who shape that environment are properly qualified. Through the State Board of Architectural and Engineering Examiners, the State sets standards for the education, experience, and performance of those who wish to practice these professions.

Similarly, building officials — through their enforcement of building codes — safeguard life, health and property, and promote public welfare. The State Board of Architectural and Engineering Examiners, the building officials, and the State Fire Marshal's Office each have a vital role in the protection of the public; each must be able to depend on the others to fill its assigned role. The building official must be able to depend on professionals who are licensed by the Board to design competently and according to required standards. The Board must depend primarily upon the local building official and State Fire Marshal, particularly in nonexempt municipalities, to assure that only those who are properly licensed are allowed to provide design services.

This manual is provided to assist in the understanding of the laws and rules under which the Board and its registrants are governed with the goal of better serving the people of Tennessee, and updates and replaces the manual published in 2006.

### **The following portions of this manual have been significantly revised since the last publication:**

- The Requirements for Building Design
- A Check List for the Examination of Building Construction Documents
- Appendix B—Letter of Clarification
- Appendix C—Seal Exemptions Clarification [T.C.A., Section 62-2-102(b)]. The former Appendix C (Example of Minimum Conditions Requiring a Registered Architect and/or Engineer When Space is Less Than 5,000 Square Feet) has been deleted due to changes to the Seal Exemptions Clarification policy.
- Appendix H—Design and Practice Policies
  - Addition of As-Built Drawings Policy
  - Revised Delineation of Engineering and Surveying Policy
  - Revised Design Competitions/Requests for Proposals/Requests for Qualifications Policy
  - Replacement of Townhouses Policy with One-Family and Two-Family Dwellings Policy
  - Addition of Signs Policy

### **The Requirements for Building Design**

In general, all structures must have plans prepared by design professionals registered by the Board. Plans and specifications for all structures classified as "assembly," "educational," and "institutional" in the Standard Building Code must also be prepared by architects or engineers.

The only exceptions to this requirement are:

- Structures classified as "business," "factory-industrial," "hazardous," "mercantile," "residential" and "storage" occupancies, as such occupancies are defined in the 1985 edition of the Standard Building Code, which are:
  1. Less than three (3) stories in height; AND
  2. Less than five thousand square feet (5,000 sq. ft.) in total gross area;
- One-family and two-family dwellings and domestic outbuildings pertaining thereto; and

- Farm buildings not designed or intended for human occupancy.
- Signs that do not exceed either of the following limits (unless failure of the support system for the sign is likely to cause harm to people or property):
  - (i) Any portion of the sign is twenty feet (20') or more above the ground level; or
  - (ii) Any portion of the sign is fifteen feet (15') or more above the ground level, if the sign has more than one hundred twenty square feet (120 sq. ft.) in total sign face area.

In addition, other Tennessee laws and regulations require that plans and specifications for buildings in these classifications be approved by the State Fire Marshal or the State Department of Health as is appropriate to their use. It should be noted that the law provides that any awarding authority, public or private, may require the services of a design professional for any project.

Following is a summary of occupancy definitions from the 1985 edition of the Standard Building Code, which is cited for occupancy definitions in T.C.A. § 62-2-102:

- Assembly Occupancies (A) - buildings or structures, or any portion thereof, for the gathering of persons for purposes such as civic, social, or religious functions or for recreation, food or drink consumption, or awaiting transportation, having a capacity of 50 or more persons. A registered design professional is required to prepare plans and specifications for this type of occupancy regardless of the size of the facility. Examples include: amusement park buildings; auditoriums; churches, synagogues, mosques; dance halls; motion picture theaters; museums; passenger depots; public assembly halls; and restaurants that accommodate 100 or more people, or that have a stage, provide dancing or entertainment features.
- Business Occupancies (B) - use of a building or structure, or any portion thereof, for office, professional, or service transactions including normal accessory storage and the keeping of records or accounts. A registered design professional is required to prepare plans and specifications if the building or structure is over two stories in height or is five thousand square feet or more in total gross area. Examples include: office buildings; service stations; bowling alleys; greenhouses; banks; libraries (other than school); restaurants and dry cleaning establishments using nonflammable solvents.
- Educational Occupancies (E) - use of a building or structure, or any portion thereof, for the gathering together of persons for the purpose of instruction. A registered design professional is required to prepare plans and specifications for this type of occupancy regardless of the size of the facility. Examples include: public and private schools; colleges; universities, academies and day care facilities.
- Factory-Industrial Occupancies (F) - use of a building or structure, or any portion thereof, for assembling, disassembling, repairing, fabricating, finishing, manufacturing, packaging or processing operations, but does not include buildings used principally for any purpose involving highly combustible, flammable, or explosive products or materials. A registered design professional is required to prepare plans and specifications if the building or structure is over two stories in height or is five thousand square feet or more in total gross area. Examples include: manufacturing plants, factories, assembly plants, processing plants and mills.
- Hazardous Occupancies (H) - principal use of a building or structure, or any portion thereof, that involves highly combustible materials or flammable materials, or explosive materials that have inherent characteristics that constitute a high fire hazard. A registered design professional is required to prepare plans and specifications if the building or structure is over two stories in height or is five thousand square feet or more in total gross area. Examples include: dry cleaning establishments using flammable solvents, explosive manufacturing, grain elevators, paint or solvent manufacturing, pyroxylin plastic manufacturing, sodium nitrate or ammonium nitrate, storage of combustible film and tank farms used to store flammable liquids or gases.
- Institutional Occupancy (I) - A registered design professional is required to prepare plans and specifications for this type of occupancy regardless of the size of the facility:



1. unrestrained occupancy - use of a building or structure, or any portion thereof, for the purpose of providing medical care and sleeping facilities for four or more persons who are mostly incapable of self-preservation because of physical or mental disability; examples include: hospitals, nursing homes, mental institutions (restrained and unrestrained) and nursery facilities providing full time 24-hour care for persons under six years of age.
  2. restrained occupancy - use of a building or structure, or any portion thereof, for the purpose of providing sleeping facilities for four or more persons who are confined or housed under some degree of restraint or security; examples include: jails, detention centers, correctional institutions, reformatories, pre-release centers and other residential-restrained care facilities.
- Mercantile Occupancies (M) - use of a building or structure, or any portion thereof, for the display and sale of merchandise. A registered design professional is required to prepare plans and specifications if the building or structure is over two stories in height or is five thousand square feet or more in total gross area. Examples include: shopping malls, stores, shops and markets.
  - Residential Occupancy (R) - use of a building or structure, or any portion thereof, for sleeping accommodations not classified as institutional occupancies. A registered design professional is required to prepare plans and specifications if the building or structure is over two stories in height or is five thousand square feet or more in total gross area. Examples include: multiple dwellings (more than two families), hotels and motels, dormitories, lodging houses and convents and monasteries.
  - Storage Occupancy (S) - principal use of a building or structure, or any portion thereof, for storage that is not classified as hazardous, or for the purpose of sheltering animals. A registered design professional is required to prepare plans and specifications if the building or structure is over two stories in height or is five thousand square feet or more in total gross area. Examples include: aircraft hangars, garages, warehouses, storage buildings, freight depots and automobile parking structures.

Full definitions may be obtained from the Board office.

### The Board

The Tennessee Board of Architectural and Engineering Examiners is composed of twelve members — three registered architects, three registered engineers, one registered landscape architect, one registered interior designer, a public member who is not engaged in the practice of architecture, engineering, or landscape architecture, and three non-voting associate engineer members. The members are appointed by the governor and serve for a period of four (4) years. The Board usually meets six (6) times a year and at such other times as the business of the Board may require.

The Board is charged with the examination of the qualifications of applicants for registration and, in proper cases, the issuing of certificates of registration. The Board may also suspend or revoke certificates of registration in cases of misconduct and has the duty to inquire into the identity of any person (or firm) claiming to be an architect, engineer, landscape architect, or registered interior designer and to prosecute persons violating provisions of the registration law. Suspected violations of the registration law should be reported to the Board office. State investigators, representing the Board, gather evidence for use in the examination of reported violations. Their work often includes joint investigations with building officials. If, in the opinion of the Board's legal staff, evidence warrants the filing of formal charges, an outline of the case is presented to the Board for action. The identity of persons involved is not known to the members of the Board until presented to them for formal action. If charges are filed, a formal hearing is held with an administrative judge from the Secretary of State's office conducting the proceeding and the Board members sitting as jury, rendering decisions and penalties where appropriate.

The terms of the act governing the four professions are found in Tennessee Code Annotated (T.C.A.), Title 62, Professions, Businesses and Trades; Chapter 2, Architects, Engineers, Landscape Architects,

and Registered Interior Designers; and in the Rules, Chapters 0120-01, 0120-02, 0120-04, 0120-05, and 0120-06. The law and rules may be viewed on the Board's website located at [www.tn.gov/regboards/ae](http://www.tn.gov/regboards/ae).

### **The Registration Process**

Candidates for registration must be of good character and repute, must have professional degrees, a specified period of experience, and must have passed an examination. Candidates holding unexpired certificates of registration from any state or jurisdiction may be registered without additional examination, provided that the applicant's qualifications meet the requirements of the Tennessee Board.

Examinations are prepared by the four (4) national professional councils of state registration boards—the National Council of Architectural Registration Boards (NCARB), the National Council of Examiners for Engineering and Surveying (NCEES), the Council of Landscape Architectural Registration Boards (CLARB), and the Council for Interior Design Qualification (CIDQ)—to provide consistent national standards of examination and to facilitate reciprocal registration among the various state registration boards.

Upon application, the candidates are required to submit records of education, experience, and letters of recommendation. The submittals are reviewed by Board members of the applicant's profession, and, if found satisfactory, the candidate is admitted to the examination. Registration certificates are awarded at the satisfactory completion of the examination.

### **Corporations, Partnerships and Firms**

Corporations, partnerships, and firms (such as LLC's, LP's, and LLP's) may engage in the practice of architecture, engineering, or landscape architecture in this state, provided that at least one (1) of the principals or officers of the firm is in responsible charge of that practice and is a registered architect, engineer, or landscape architect as required by state law. Corporations, partnerships, and firms must file a disclosure form prescribed by the Board.

### **Professional Responsibility**

Professional registration allows the architect, engineer, or landscape architect registrant to practice his or her profession and allows the interior designer to use the title "registered interior designer." Professional registration imposes on the registrant an obligation to protect the safety, health, and welfare of the public and to render competent service. A primary part of that obligation is the recognition on the part of the registrant of the limit of the registrant's professional competence and the voluntary limitation of professional assignments to activities for which the registrant is qualified by education or experience. The "Rules of Professional Conduct," which carry the enforcement of law, specify the proper conduct of practice (or title in the case of registered interior designers), service in areas of competence, the need for objectivity and truth in public statements, the avoidance of conflicts of interest and improper acceptance of work, and misconduct in practice.

Visible identification of work produced by architects, engineers, and landscape architects is in the form of the registrant's seal, which is required to be placed on all sheets of working drawings, cover or index pages of specifications, and on reports or other documents which are for the use of those other than the originating registrant. The seal must be signed by the registrant and dated. No registrant shall affix his or her seal or signature to sketches, working drawings, specifications, or other documents developed by others not under his or her responsible charge and not subject to the authority of that registrant in critical professional judgments.

The Tennessee registration law requires that members of the Board and registrants of the Board report violations of the law and cooperate with the Board in furnishing information and rendering assistance as the Board may require. The law provides for the assessment of civil penalties against both registrants and nonregistrants for violations of statutes, rules, or orders enforceable by the Board. Violations should be reported to the Board office. The Board believes it is the registrants' responsibility to be familiar with codes and applicable jurisdictional requirements.

## Relationship to Building Officials

The building officials of Tennessee and the Tennessee Board of Architectural and Engineering Examiners have the same goal: the safeguarding of life, health and property, and the promotion of public welfare. Building officials move toward that goal by the adoption of building codes and standards and the enforcement of the requirements of those codes and standards. The Board moves toward that goal by the adoption of standards of education, experience, and professional practice and the enforcement of those standards. In actual practice, each group is dependent on the other for both the creation of standards and enforcement. Much of the material contained in the codes and standards originates in the research and practice experience of the professions. The everyday policing of the requirement that registrants design most structures is dependent upon the building officials. The solutions to building design problems which do not fit the requirements of the building code depend on the experience, knowledge, creativity, and cooperation of the building official and the design professional. The common goal is achieved only by joint cooperative effort.

### A Check List for the Examination of Building Construction Documents

Construction documents for most projects consist of drawings and specifications. All elements shall complement each other. Completeness and coordination of all necessary information is the responsibility of the registered architect and/or professional engineer. Construction documents submitted to the building official must be of sufficient nature to clearly show the project in its entirety.

The list below is suggested as a pattern for the examination of building construction documents prior to the issuance of a building permit.

#### 1. In general, in order to be complete, the documents must depict the following:

- a. The overall work required for the building project, including the architectural, landscape, civil, structural, mechanical, and electrical systems where required by law;
- b. Compliance with Life Safety Code; and
- c. Compliance with applicable building, fire, and handicap accessibility codes.

#### 2. Identification Plans Cover Sheet

The required construction documents will depend upon the size, nature, and complexity of the project. **Appendix E** lists the suggested standard of the minimum required construction documents that should be submitted for review by building officials and the information that should appear on the cover sheet. **Appendix F** addresses the State Fire Marshal's Office policy regarding the review of sprinkler shop drawings and the standard of care adopted by the Board of Architectural and Engineering Examiners regarding the required minimum documentation for fire protection sprinkler design documents.

#### 3. Preparation by a design professional registered by the State of Tennessee

- a. All plans and specifications for buildings and structures must be prepared by a registered architect and/or engineer, except as noted below.
- b. Exceptions are:
  1. Structures classified as "business," "factory-industrial," "hazardous," "mercantile," "residential," and "storage" occupancies (classifications as described in 1985 edition of Standard Building Code)

WHICH ARE:

- a. Less than three stories in height; AND
- b. Less than 5,000 square feet in total gross area;

2. One-family and two-family dwellings and domestic outbuildings pertaining thereto;
  3. Farm buildings not designed or intended for human occupancy; or
  4. Signs that do not exceed either of the following limits (unless failure of the support system for the sign is likely to cause harm to people or property):
    - (i) Any portion of the sign is twenty feet (20') or more above the ground level; or
    - (ii) Any portion of the sign is fifteen feet (15') or more above the ground level, if the sign has more than one hundred twenty square feet (120 sq. ft.) in total sign face area.
- c. When building officials receive a set of documents for permitting purposes without an architect or engineer's seal, they should ask the designer of record to sign a statement, such as the one contained in **Appendix B**.

*Explanatory Notes:* The Board has interpreted the above exceptions (See **Appendix C** entitled "Seal Exemptions Clarification") only for those structures classified as above which are also separated from other buildings and/or spaces/tenants by the minimum fire-rated separation required by the applicable code.

Additionally, registered interior designers, while not permitted to practice architecture or engineering, may engage in design services including consultations, studies, drawings, and specifications in connection with reflected ceiling plans, space utilization, furnishings, or the fabrication of non-structural elements within the interior spaces of buildings, but specifically excluding the services specified by law to require other licensed professionals, such as the design of life safety, mechanical, plumbing, electrical, and load-bearing structural systems, except for specification of fixtures and their location within interior spaces.

- d. See **Appendix C** entitled "Seal Exemptions Clarification," which was prepared and approved by the Board on April 27, 1989, and revised and adopted on June 25, 2009.
- e. See **Appendix G** entitled "Engineering Exemption Policy for Fire Sprinkler System Design," which was adopted by the Board on August 25, 2005, and became effective on April 1, 2006.

#### **4. Is the design professional properly identified?**

The plans and specifications shall be prepared by a design professional registered by the State of Tennessee who shall place that professional's seal (electronically or manually) on each drawing and the title page of specifications containing work for which the professional is responsible. An example of how documents should be sealed is reviewed in **Appendix D**. Since some documents may contain the work of several professionals, documents may contain several seals. The professional's signature and the date of the signature must be across the seal. An architect, engineer, or landscape architect may not affix his or her seal to any document which has not been prepared by him or her or under his or her responsible charge. (The Board imposes serious penalties against those who violate seal restriction provisions.) The registration law for interior designers is a "title" act and not a "practice" act; therefore, it is not necessary to seal any documents they may prepare under the exempt provision stated in the Explanatory Notes above.

#### **5. Statement with Regard to Standard of Care**

The design documents submitted to the building official should reveal the complete design intent in all building trades. There should be no areas of incompleteness wherein any building trade or contractor is compelled to make design decisions. Unless the documents meet these criteria, the building official should reject the documents in order to safeguard life, health and property by requiring that only qualified architects, engineers, and landscape architects may practice architecture, engineering, and landscape architecture.

## 6. Public Works Projects

Public works projects involving architecture, engineering or landscape architecture by the State, any county, city, town, village, or other political subdivision of the state must have plans, specifications, and estimates prepared by registered design professionals when they are:

- greater than \$25,000 (contemplated expenditure for complete project, except state park maintenance projects described below), or
- alter the structural, mechanical, or electrical system of the project.

There is an exemption for public works projects located in a state park if the project meets the following conditions:

- 1) The contemplated expenditure for the complete project does not exceed \$100,000 in value and the work is defined solely as maintenance under the policy and procedures of the State Building Commission, or
- 2) If the project is located in a state park and existing plans are used which have been designed and sealed by a registered architect, engineer, or landscape architect and a registered architect, engineer, or landscape architect reviews such plans for compliance with all applicable codes and standards and appropriateness for the site conditions of the project, makes changes if required, and seals the plans in accordance with state law.

## Most Commonly Asked Questions

### **1. Building officials receive prints of plans with a copy of the seal on them. Is this acceptable or should each print be originally sealed, signed, and dated?**

The seal is placed on all original documents and signed and dated by the registrant. In the case of documents which are on translucent material for printing, this would mean that the seal, signature, and date would be reproduced. Similarly, photo copies of sealed, signed, and dated originals are acceptable. The seal without signature and date is unacceptable. (Reference Rules of Professional Conduct 0120-02-.08) An example of how documents should be sealed is on **Appendix D**.

### **2. When the building official observes the following, certain questions may arise:**

**Construction plans are submitted with the same engineer's seal on structural, mechanical, plumbing, and/or electrical drawings. Should these designs be executed by separate engineers representing each discipline?**

**Construction plans are submitted where an architect has sealed structural, mechanical, plumbing and/or electrical drawings. Should these designs, other than architectural, be done by an engineer?**

**Construction plans are submitted where an architect or engineer has sealed landscape architectural drawings. Should these designs be done by a landscape architect?**

A registrant may have expertise beyond the discipline in which he or she is educated and examined. While the building official should not be called upon to judge competence, any time he or she is confronted with the suspicion of incompetence, he or she should contact the Board so that it can make such judgment.

When a complete set of project drawings has been submitted bearing the seal of only one registered architect or engineer, the Board suggests that the building official require that the registrant sign a statement, such as the one contained in the attached form (**Appendix A**), as to authorship and competence. A copy of any such signed form should be forwarded to the Board for its attention. If a registrant refuses to sign such a statement, the Board should be notified immediately. Regardless, the building official should notify the Board if he or she believes the registrant of one discipline is incompetent to seal the work of another discipline when the documents look incomplete or suspect.

### **3. If on-site drainage detention is required for a site plan or plat, is a separate seal required for the hydrological calculations? If so, whose seal is adequate — architect, engineer, landscape architect, or surveyor, or is there a special seal for this particular field?**

Drainage design, such as storm water retention/detention, can be a highly complex technical process and should be prepared and sealed by a qualified registrant of this Board competent to provide this design and perform the necessary calculations. Major flood construction that would fall within the jurisdiction of the federal and state regulatory agencies would require an engineer's seal along with major flood studies.

### **4. May site plans and preliminary plats be prepared by an architect, engineer, landscape architect, or a surveyor?**

Land surveying, measurement and calculation of areas, boundaries, property lines and the plotting thereof should be performed by a surveyor registered by the Land Surveyors Board. Design changes to the topography and drainage should be performed by a qualified registrant of the Architects and Engineers Board. Design of underground utilities and electric power lines should be performed by the engineer. The arrangement of building(s) on the site, finished grading, and finished site details should be performed by a qualified registrant of the Architects and Engineers Board.

**5. When an owner calls to complain that there has been a failure in construction and the structure was built per specifications, who is responsible? What is the responsibility of each person involved?**

The determination of degrees of responsibility for construction failures is beyond the scope of the duties of the Board. If there is indication of incompetence on the part of a registrant, the Board should be notified. The Board may then authorize an investigation of the events involved in the failure and, if warranted, take appropriate disciplinary action.

**6. If a freestanding building classified as "business" has an area greater than 5,000 gross square feet but is only one or two stories high, must the plans and specifications be prepared by a registered architect or engineer?**

Yes. The building must meet both the requirement for an area less than 5,000 square feet and the requirement for a height of less than three stories to be exempt from the requirement for plans and specifications prepared by an architect or engineer. For instance, if a two-story building has 4,000 square feet per floor (or 8,000 total square feet), the plans and specifications shall be prepared by an architect or engineer.

**7. If a designer, owner, contractor, or other nonregistrant prepares plans for a building which requires the use of architects or engineers and applies for a building permit, should the building official suggest that the nonregistrant contact an architect or engineer and have him or her review and place his or her seal on the plans and specifications?**

No. Under Tennessee law, a registrant may not take over, review, revise, or place his or her seal on plans and specifications begun by persons not properly qualified. A registrant may seal only work which he or she has prepared or which has been prepared under his or her responsible charge. The building official should contact the State Board and refuse to issue a permit until appropriately sealed plans are submitted.

**8. Are registrants required for design of building utilities such as electrical service, steam systems, refrigeration systems, etc., where no changes or additions to the building are necessary?**

Yes. The intent of the law is that registrants be involved in design work pertaining to the lawful practice of architecture, engineering, or landscape architecture. Use of an electrical or mechanical engineer is not precluded simply because a general contractor is not involved in building or building structure addition and/or modifications.

**9. Do registered interior designers have to seal any documents prepared by them?**

No. The registration law passed by the State of Tennessee in 1993 is a "title" act requiring that any interior designer who calls himself or herself a registered interior designer must be registered by the Board. The law is not a "practice" act; therefore, interior designers are allowed to do no more and no less than before the legislation was passed. A registered interior designer may provide plans and specifications in connection with reflected ceiling plans, furnishings, the fabrication of non-structural elements within the interior spaces of buildings, or space utilization not affecting life safety.

**10. Should a building permit be issued when the building official receives a set of plans for tenant space that is part of a new multi-story office building's construction and the plans are not sealed by a licensed architect or engineer?**

No, unless the tenant space is less than 5,000 square feet and separated from other tenant spaces by the minimum fire-rated separation required by the applicable code. A qualified registrant of this board must prepare and seal the plans prepared by him or her for the tenant space, even if the shell of the building is prepared by another registrant. A registered interior designer or non-registrant may provide plans and specifications with reflected ceiling plans, furnishings, the fabrication of non-structural elements within the interior spaces of buildings, or space utilization not affecting life safety.

**11. If the building official receives a set of architectural plans for construction or renovation of an existing building without accompanying structural, mechanical, plumbing, and electrical information, should a building permit be issued?**

No, unless there are no requirements for work in these accompanying disciplines.

**12. What registrant is qualified to prepare site grading and site drainage plans?**

A qualified registrant of this board who is competent in that area of design may provide site grading and site drainage plans.

**13. When a nonregistrant prepares construction documents for a building, may that individual obtain a review and written certification of adequacy from a registrant and thereby obtain a building permit?**

No. The written certification may not be accepted for permit issuance in lieu of construction documents prepared and sealed by a registrant. The registrant must demonstrate responsible charge for the proposed work or face disciplinary action.

**14. Are designs (plans and specifications) for "pre-engineered" buildings exempt from the requirement that a registrant of the Board prepare and seal them?**

No, unless the building qualifies for an exemption under Tenn. Code Ann. § 62-2-102(b). Pre-engineered buildings are not automatically exempt. The design of pre-engineered steel structures or structural components (i.e., trusses, buildings, etc.) must be prepared, sealed, signed, and dated by a Tennessee registrant. There may be additional engineers, architects, or landscape architects needed for the remaining portions of the project (i.e., electrical, plumbing, HVAC, site design, soils analysis, building circulation and exiting, physically handicapped criteria, landscaping, etc.).

**15. May any person provide inspection or review of buildings or sites to determine if the project construction phase conforms to the architectural and engineering construction documents?**

Yes. However, the Board recommends a registrant of this board provide construction administration or review of construction. Administration of construction contracts is defined as periodic site visits, change orders, shop drawing reviews, and reports to owners of any observed substantial deviation from the contract documents. Building officials who inspect for conformance with building codes are in no way restricted from performing their duties.

**16. May a Tennessee registrant review and "over seal" plans prepared by an out-of-state professional for a design project in Tennessee?**

No. A qualified registrant of this board may only seal drawings designed and prepared by or under his or her responsible charge. Sealing any drawings prepared by others will result in disciplinary action.

**17. May an owner, builder, or contractor make changes to final architectural, engineering, or landscape architectural plans?**

No. When plans are prepared by a Tennessee registrant, no changes may be made except by that registrant.

**18. What procedures should a building official follow when the registrant does not provide plans or changes necessary to the project?**

Notify the owner of the project. It is the owner's responsibility to hire the proper registrants to provide plans or submittals for the permit.



**19. What should building officials do if they know that someone may be violating the registration law?**

Notify the Board.

**20. May a building official require a structure to be designed by an architect or engineer, although exempt under the registration law, if it is deemed that such a structure is an undue risk to public safety, health, or welfare?**

Yes. The building official may require part or all of the structure to be designed by an architect or engineer. The Board and registration law do not supersede the building official's authority to protect the health, safety, or welfare of the public.

**21. Are interior designers licensed by the State to "practice" interior design?**

No. Registered Interior Designers and Architects are licensed to use the title "registered interior designer." Nonregistrants may not use the title "registered interior designer."

**22. Are full height, non-bearing, non-rated partitions considered components that affect the safety of the building?**

The addition, relocation, or removal of full height, non-bearing, non-rated partitions could change or affect the safety of a building. Each situation must be judged within its specific context; thus, the building official must decide whether such partitions would affect the safety of the building.

**23. Now that the Tennessee Board of Architectural and Engineering Examiners requires interior designers to be registered in order to use the title "registered interior designer," may another registrant call himself or herself a "registered interior designer?"**

Any person may render interior design services. Only Registered Interior Designers and Architects registered in the State of Tennessee may use the title "Registered Interior Designer". (Reference T.C.A., Section 62-2-903.)

**24. May the seal used by the registrant on construction documents be computer generated?**

Yes. The Board has determined that the seal may be an embossed, rubber, sticky, or electronic seal. The registrant must personally sign or affix his or her signature, either manually or electronically, using a secure method.

**25. If an existing building or space within a building expands by less than 5,000 square feet, is a registered architect or engineer required to provide appropriate plans and specifications?**

Yes, if the cumulative or combined space or spaces (existing or expanded areas) is 5,000 square feet or more, a qualified registrant of this board is required.

**26. When does it become necessary for a registrant to prepare and seal drawings and details for landscape construction?**

Landscaping associated with new and existing construction of buildings of 5,000 square feet or more or greater than two stories requires the use of a registrant. For non-building/landscape related projects where site improvements are 5,000 square feet or more in area, a registrant is required.

Per T.C.A., Section 62-2-102, nothing shall prevent any awarding authority, public or private, from requiring the services of a registered architect, engineer or landscape architect for any project. See T.C.A., Section 62-2-107 for "Employment of licensees on public works."

**27. Is it necessary for a registered architect or engineer to prepare documents for a roof replacement on an existing building?**

Yes. A qualified registrant is required for roof replacements or reroofs of all buildings of 5,000 square feet or more or greater than two stories in height. When a roof is replaced, structural loads during and after installation can change, energy requirements may be affected, drainage conditions can change, etc. Notwithstanding the above, a registrant is also required for public works projects under \$25,000 if the structural, mechanical, or electrical system of the project is altered.

**28. When is a registrant required to prepare plans and specifications for public works projects?**

Public works projects involving architecture, engineering or landscape architecture by the State, any county, city, town, village, or other political subdivision of the state must have plans, specifications, and estimates prepared by registered design professionals when they are:

- greater than \$25,000 (contemplated expenditure for complete project, except state park maintenance projects described below), or
- alter the structural, mechanical, or electrical system of the project.

There is an exemption for public works projects located in a state park if the project meets the following conditions:

- 1) The contemplated expenditure for the complete project does not exceed \$100,000 in value and the work is defined solely as maintenance under the policy and procedures of the State Building Commission, or
- 2) If the project is located in a state park and existing plans are used which have been designed and sealed by a registered architect, engineer, or landscape architect and a registered architect, engineer, or landscape architect reviews such plans for compliance with all applicable codes and standards and appropriateness for the site conditions of the project, makes changes if required, and seals the plans in accordance with state law.

~~Plans and specifications for any public works construction or maintenance project involving architecture, engineering or landscape architecture that exceeds \$25,000 shall be prepared by a registrant. Notwithstanding the above, a registrant is also required for projects under \$25,000 if the structural, mechanical, or electrical system of the project is altered. Construction on any part of an electric distribution system owned by a political subdivision of the State is excluded. (Reference T.C.A., Section 62-2-107.)—A registrant is also required for public works projects which have a contemplated expenditure over \$25,000.~~

**29. Is a registered architect or engineer required to prepare and seal drawings for an existing building space of 5,000 square feet or more if the space is going to be divided into several spaces less than 5,000 square feet?**

Yes. While the particular use of a facility may ultimately have individual spaces less than 5,000 square feet and separated by fire-rated construction from other tenants, the overall space requires a registered architect or engineer to be sure construction, egress, systems, etc., are properly designed and integrated collectively.

**30. Is a company without a registrant in full-time employ that provides preliminary design services (i.e., schematics, where drawings are prepared to describe the basic plans and elevations) required to have a registrant licensed in the State of Tennessee?**

Yes. Preliminary designs and schematic designs that may be used to continue and complete a project, even if intended to be completed by a registrant, shall be prepared by a registrant.

**31. May design professionals for local public works projects in Tennessee be selected through the competitive bid process?**

No. Design professionals for public works projects in Tennessee are not selected through the competitive bid process, but are chosen through qualifications-based selection, meaning that the

contract is awarded based on recognized competence and integrity. In the procurement of architectural and engineering services, the selection committee/procurement official:

- may seek qualifications and experience data from any firm or firms licensed in Tennessee and interview such firms;
- shall evaluate statements of qualifications and experience data regarding the procurement of architectural and engineering services, and shall conduct discussions with such firm or firms regarding the furnishing of required services and base selection on the firm deemed to be qualified to provide the services required; and
- shall negotiate a contract with the qualified firm for architectural and engineering services at compensation which the selection committee/procurement official determines to be fair and reasonable to the government and in making such determination, the selection committee/procurement official shall take into account the estimated value of the services to be rendered, the scope of work, complexity and professional nature thereof. (Reference T.C.A., Section 12-4-106.)

**32. If a registrant's license has expired between the time construction documents were prepared and the time when they are submitted to an authority for review, do the documents need to be re-sealed by a registrant with a current license?**

No. As long as the license was current at the time the documents were prepared, the documents do not need to be re-sealed prior to review. However, any changes (updates or modifications) to the documents that are made following the review must be prepared and sealed by a registrant with a current license.

**33. May an engineer's calculations be used as plans for construction work?**

- a. Yes, but only when the document provides a clear description of work acceptable to the building official for the work intended.
- b. No, when the document presents only engineering analysis and does not provide a satisfactory description of the work for construction purposes.
- c. No, when amended submittals conflict with the original approved description of work.

**34. Under what circumstances may a registrant revise plans prepared by another registrant?**

In circumstances where a registrant can no longer provide services on a project (such as death, retirement, disability, contract termination, etc.), a successor registrant may perform work on a set of plans originally prepared by another registrant. If the plans are incomplete (are at a stage prior to submittal to a reviewing official), the successor registrant may not seal the set of drawings prepared by the original registrant; rather, the successor registrant must take all steps necessary to ensure that the drawings were prepared under his or her responsible charge before sealing them. If the plans are complete and have been submitted to a reviewing official, the successor registrant may prepare and seal addenda sheets or document and seal changes to the original sheets if revisions are necessary. With the exception of this provision, any changes made to the final plans, specifications, drawings, reports or other documents after final revision and sealing by the registrant are prohibited by any person other than the registrant, including but not limited to owners/clients, contractors, subcontractors, other design professionals, or any of their agents, employees or assigns. (Rule 0120-02-.08)

**APPENDIX A**

**LETTER OF ASSURANCE**

*When a complete set of project drawings has been submitted bearing the seal of only one registered architect or engineer, the Board suggests that the building official require that the registrant sign a statement, such as the following:*

The documents you have submitted on the above-referenced project have your architect's/engineer's seal on all phases of the plans, which is somewhat unusual to find on construction documents for a project of this size and type. In order for this office to recognize you as the total project designer, you will need to provide the following assurances:

I, \_\_\_\_\_, confirm that:  
(print or type name)

1. All project drawings bearing my seal were prepared under my responsible charge.
2. I am competent in the design of architectural, landscape architectural, civil, electrical, mechanical, plumbing, and structural systems for a project of this size and type either by reason of my education and/or experience.

\_\_\_\_\_  
Signature                      Profession                      TN License No.                      Date

You will need to sign, date, and return this letter of assurance in order for this office to consider you as the total project designer. This letter of assurance may be sent to the Tennessee Board of Architectural and Engineering Examiners if the building inspection department deems appropriate.

Thank you, in advance, for your cooperation in this matter.

Sincerely,

**APPENDIX B**

**LETTER OF CLARIFICATION**

*When building officials receive a set of documents for permitting purposes without an architect or engineer's seal, they should ask the designer of record to sign a statement, such as the following:*

The drawings you have submitted on the above-referenced project do not have the seal of an architect or engineer, which is somewhat unusual to find on construction documents for a project of this type. In order to recognize the fact that a registered architect or engineer is not required for this project, we need you to provide the following assurances (circle all that apply):

1. The design being submitted is less than 5,000 gross square feet and less than three stories in height or a tenant space less than 5,000 gross square feet and separated from other tenant spaces by the minimum fire-rated separation required by the applicable code.

and/or

2. I am competent in the design of this type of space planning, which does not include changes that affect the structural, mechanical, electrical system, or the life safety of the building and occupants of this space.

and/or

3. The building or space is not an "A," "E," or "I" occupancy, which would require a registered architect or engineer regardless of size.

and/or

4. I am a registered interior designer, and these plans and specifications are for build out of spaces less than 5,000 square feet, or these plans and specifications are in connection with reflected ceiling plans, furnishings, the fabrication of non-structural elements within the interior spaces of buildings, or space utilization not affecting life safety. My registration number is \_\_\_\_\_.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

In order for this office to continue to recognize you as the total project designer so that it can process the building permit, you will need to circle the appropriate statement(s) that applies(ly) in this case and sign, date, and return this letter of clarification.

Thank you, in advance, for your cooperation in this matter.

Sincerely,

## APPENDIX C

### SEAL EXEMPTIONS CLARIFICATION [T.C.A., Section 62-2-102(b)]

The following are situations where a registered architect, engineer, or landscape architect is not required unless an awarding authority deems it necessary:

1. Tenant finishes and tenant improvements to a building of B, F, H, R, M, or S occupancy may be designed by a non-registrant with the following provisions:
  - A. Each separate tenant space is less than 5,000 square feet and the tenant spaces are separated from other tenant spaces by the minimum fire-rated separation required by the applicable code. In accordance with Section 402.1.2 of the 1985 edition of the Standard Building Code, "each part of a building or structure included within fire walls shall be considered a separate building."
  - B. Remodeling, maintenance, or renovation of any building or structure, which does not alter the structural system, or fire protection, or egress requirements.
2. The following exemptions apply to buildings, structures and spaces of B, F, H, R, M, or S occupancy that are 5,000 square feet or more in total gross area or over two stories in height:
  - A. Existing interior space. Normal maintenance or remodeling of an existing interior space in an existing building where the occupancy or floor plan do not change but upgrades are needed, such as, remove and replace finishes (wall, floor, ceiling, where these are not a part of a required fire rated assembly), change light bulbs or filters, and rearrange prefabricated partitions.
  - B. Mechanical design.
    - i. The design of a mechanical system for a building or structure of B, F, H, R, M, or S occupancy, and a temporary structure, wherein the HVAC system developed is not more than a total of 12.5 ton capacity and not more than a total of 500,000 BTU of heating per hour output.
    - ii. Normal maintenance or replacement of defective mechanical equipment with like equipment with like size may be accomplished by contractors licensed in their respective trades.
  - C. Plumbing design. Minor plumbing upgrades and additions up to the equivalent of three (3) fixture unit values, which do not require any change to the capacity of any waste, vent or supply system.
  - D. Electrical design. Minor electrical additions, such as receptacles, lighting, or other circuits, not to exceed 20 amperes, may be designed without benefit of a registrant, if the additional circuits do not require additional distribution panel(s) and/or the need for upgrading, resizing, or enlarging branch circuits and main feeders. In addition, such work shall be performed by an appropriately licensed individual in the state of Tennessee, and such person shall certify to any authority having jurisdiction, in writing, that he/she has evaluated such work in relation to the National Electrical Code and local codes, providing, for the record, the number of circuits added and the revised loads on the existing panel(s).
  - E. Roof Maintenance or Repair. Normal maintenance or repair of an existing roof where the weight, drainage, fire protection, and other code related requirements of the original design are not changed or compromised.

Note: In no case can anyone other than an architect or engineer registered in Tennessee provide design documentation with regard to assembly, institutional, and educational occupancies.

Note Regarding Public Works Projects: T.C.A. 62-2-107. (Employment of licensees on public works — Excluded public works)

- a. Neither the state, any county, city, town, or village, or other political subdivision of the state, shall engage in the construction or maintenance of any public work involving architecture, engineering, or landscape architecture for which the plans, specifications, and estimates have not been made by a registered architect, registered engineer, or registered landscape architect.
- b. Nothing in this section shall be held to apply to such public work wherein the contemplated expenditure for the complete project does not exceed twenty-five thousand dollars (\$25,000), and such work does not alter the structural, mechanical, or electrical system of the project.
- c. For the purposes of this chapter, "public work" does not include construction, reconstruction, or renovation of all or any part of an electric distribution system owned or operated directly or through a board by a municipality, county, power district, or other subdivision of the state of Tennessee, that is to be constructed, reconstructed or renovated according to specifications established in the American National Standard Electrical Safety Code, the National Electrical Code, or other recognized specifications governing design and construction requirements for such facilities. Notwithstanding the foregoing, "electrical distribution system" does not include any office buildings, warehouses, or other structures containing walls and a roof, which are to be open to the general public. [Acts 1979, ch. 263, § 36; T.C.A., 62-236; Acts 1988, ch. 990, § 9; 1994, ch. 644, § 3.]

(a) Neither the state, nor any county, city, town or village, or other political subdivision of the state, shall engage in the construction or maintenance of any public work involving architecture, engineering or landscape architecture for which the plans, specifications and estimates have not been made by a registered architect, registered engineer or registered landscape architect.

(b) (1) Nothing in this section shall be held to apply to such public work if:

(A) The contemplated expenditure for the complete project does not exceed twenty-five thousand dollars (\$25,000), and the work does not alter the structural, mechanical or electrical system of the project; or

(B) The contemplated expenditure for the complete project does not exceed one hundred thousand dollars (\$100,000), the project is located in a state park, and the work is solely maintenance, as defined in the policy and procedures of the state building commission.

(2) For a public work located in a state park, existing plans may be used as a basis of design if the plans have been designed and sealed by a registered architect, engineer, or landscape architect and a registered architect, engineer, or landscape architect reviews such plans for compliance with all applicable codes and standards and appropriateness for the site conditions of the project, makes changes if required, and seals the plans in accordance with the requirements of this chapter.

(c) For the purposes of this chapter, "public work" does not include construction, reconstruction or renovation of all or any part of an electric distribution system owned or operated directly or through a board by a municipality, county, power district or other subdivision of the state of Tennessee, that is to be constructed, reconstructed or renovated according to specifications established in the American National Standard Electrical Safety Code, the National Electrical Code, or other recognized specifications governing design and construction requirements for such facilities. Notwithstanding the foregoing, "electrical distribution system" does not include any office buildings, warehouses or other structures containing walls and a roof which are to be open to the general public.

[Acts 1979, ch. 263, § 36; T.C.A., § 62-236; Acts 1988, ch. 990, § 9; 1994, ch. 644, § 3; 2012, ch. 927, § 1.]

HISTORICAL FOOTNOTE: This policy was adopted by the Board as a result of negotiations with construction-related industry representatives to get T.C.A., Section 62-2-102(b), enacted into law.

Adopted 4-27-89

Revised and adopted 6-8-89

Revised and adopted 10-4-97

Revised and adopted 10-12-01

Revised and adopted 1-9-03

Revised and adopted 4-22-04

Revised and adopted 5-22-08

Revised and adopted 7-10-08

Revised and adopted 9-18-08

Revised and adopted 12-11-08

Revised and adopted 6-25-09

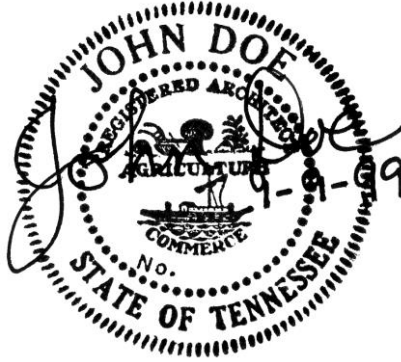
Revised and adopted 10-23-09



APPENDIX D

Example of a Properly Signed and Dated Seal

Architect



Engineer



Landscape Architect



APPENDIX E

Several code references in this appendix likely require updating.

COVER SHEET FOR PLANS SUBMISSIONS

PROJECT NAME:

PROJECT ADDRESS:

PROJECT DESCRIPTION (Scope of Work):

FIRE DISTRICT:

PROJECT CONTACT PERSON: (Registered Architect or Professional Engineer in Responsible Charge)

\*\*\*\*\*

ARCHITECTS/ENGINEERS/LANDSCAPE ARCHITECTS: List all names and pertinent information for each registrant (architect, engineers, and landscape architect) involved in the project. Include each engineering discipline represented in the project (civil, electrical, mechanical, plumbing, structural)

Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Phone (including area code): \_\_\_\_\_ (ofc.)

\_\_\_\_\_ (fax)

E-Mail Address (if applicable) \_\_\_\_\_

Tennessee License Number: \_\_\_\_\_

Design Codes/Edition ICC \_\_\_\_\_ SBCCI \_\_\_\_\_ NFPA \_\_\_\_\_

Handicapped Code Edition Used NCHC \_\_\_\_\_ CABO/ANSI \_\_\_\_\_

Type of Construction ICC \_\_\_\_\_ SBCCI \_\_\_\_\_ NFPA \_\_\_\_\_

Occupancy Group(s) ICC \_\_\_\_\_ SBCCI \_\_\_\_\_ NFPA \_\_\_\_\_

Number of Stories (excluding basement unless educational or assembly occupancy) \_\_\_\_\_

Height of Building from Average Grade \_\_\_\_\_

Building Area Per Story \_\_\_\_\_ Existing \_\_\_\_\_ Proposed \_\_\_\_\_

Occupant Load Per Floor ICC \_\_\_\_\_ SBCCI \_\_\_\_\_ NFPA \_\_\_\_\_

Required Exit Width Per Floor ICC \_\_\_\_\_ SBCCI \_\_\_\_\_ NFPA \_\_\_\_\_

Number of Parking Spaces Required \_\_\_\_\_ Proposed \_\_\_\_\_ Handicapped \_\_\_\_\_

Van \_\_\_\_\_

Fire Protection hourly ratings for all structural components and separation of hazards components required by the applicable building code.

\_\_\_\_\_ Edition of the SBC \_\_\_\_\_ Edition of the IBC

\_\_\_\_\_ Columns \_\_\_\_\_ Beams \_\_\_\_\_ Walls

\_\_\_\_\_ Floor/Ceiling \_\_\_\_\_ Roof/Ceiling \_\_\_\_\_ Roof Covering

\_\_\_\_\_ Corridors \_\_\_\_\_ Shaft Enclosures \_\_\_\_\_ Stair Enclosure

\_\_\_\_\_ Tenant Separations      \_\_\_\_\_ Occupancy Separations

**Sprinkler System Type** \_\_\_\_\_ **Standpipe System** \_\_\_\_\_

**Fire/Smoke Alarm System:** \_\_\_\_\_

**Abbreviations Used and Meaning:** \_\_\_\_\_

**WATER SUPPLY DATA (FROM NEAREST HYDRANT TO SITE)**

Provide the following flow test data on the plans for hydrant(s) used to meet the 500 feet or less hose lay requirement in accordance with the local authority having jurisdiction. [State Fire Marshal's Office Policy based on NFPA 24 4.2.1]. Show flow test data next to the hydrant tested. Flow test must have been conducted within the last six months from start of design process.

- a.     Static pressure \_\_\_\_\_ psi  
       Residual pressure \_\_\_\_\_ psi (20 psi minimum)  
       Flow \_\_\_\_\_ gpm (500 gpm minimum)  
       Tennessee Department of Environment and Conservation Rules and Regulations 1200-5-1-.17, paragraph 18.
- b.     Party responsible for taking test (name and address)  
\_\_\_\_\_  
\_\_\_\_\_
- c.     Date test taken: \_\_\_\_\_                      Time test taken: \_\_\_\_\_ am/pm
- d.     Elevation of test hydrant: \_\_\_\_\_

**General Notes:**

- Identify use of rooms and spaces.
- Show area increase calculations per SBC 503.3 and SBC 503.4 or ICC
- Show wall ratings on structural, mechanical, plumbing, electrical, and fire protection drawings.
- Provide design live load values on plans for wind, snow, roof, floor, stairs, guard and hand railings, seismic per SBC 1607.1.2, etc. [SBC Chapter 16] or ICC
- Identify any exceptions/appeals/equivalencies and authority granting approval.

**Note: This plans cover sheet was developed during discussions with the State Fire Marshal's Office and local Codes Enforcement Officials and should be used as a guideline when submitting plans to the designated reviewing authority.**

## APPENDIX F

### DIVISION OF FIRE PREVENTION/CODES ENFORCEMENT PLANS REVIEW POLICY FOR REVIEW OF SPRINKLER SHOP DRAWINGS

Pursuant to Tennessee Code Annotated, Section 62-32-112, a registered fire protection sprinkler system contractor, through its responsible managing employee, may submit shop drawings of proposed fire protection sprinkler system installations in projects whose construction plans and specifications are subject to review by the Division. After receipt of the shop drawings, the Division must review the drawings and may approve or disapprove the shop drawings.

The above-cited section is not intended to circumvent the requirement for plans prepared and sealed by registered architects and/or engineers where appropriate; rather, the section is intended to allow the sprinkler system contractor to submit shop drawings to provide for the installation of the sprinkler systems. These drawings should be coordinated with the architect or engineer of record. The architect or engineer of record should always provide the design intent of the system and should review and approve or disapprove the shop drawings submitted by the sprinkler system contractor. Attached and incorporated herein by reference is a copy of the policy of the Tennessee State Board of Architectural and Engineering Examiners which sets forth the architect's or engineer's design responsibilities concerning sprinkler drawings. The goal is for the design drawings to provide sufficient information to indicate compliance with applicable building codes and ensure that the builder or installing contractor will not be required to make design decisions. The registered architect or engineer should also provide design from the point of service—that point at which the system is dedicated solely to fire protection—to the building.

To that end, the Division of Fire Prevention will accept shop drawings submitted by sprinkler system contractors. It will review such shop drawings and shall require the seal of a registered architect or engineer where engineering design is involved, as authorized by Tennessee Code Annotated, Section 62-32-112.

Adopted 4-10-97

**Several code references in the Standard of Care likely require updating.**

#### STANDARD OF CARE FOR FIRE SPRINKLER SYSTEM DESIGN (Effective January 1, 2006)

#### COMMENTARY

This standard of care is intended to be utilized only by engineers for the design of fire sprinkler systems. The standard is not intended for use by others as a code compliance checklist or to replace existing regulatory agency checklists. This standard was developed to assist in design and preparation of contract documents for fire sprinkler systems. This commentary and associated standard is the Board's policy regarding the responsibilities and interactions of an engineer with the design and construction team.

The Standard of Care for Fire Sprinkler Systems Design complements NFPA 13, Chapter 14, Appendix "A" (A-14.1 Preliminary Plans, 2002 edition), and should be interpreted only as a minimum standard of design. Just as the National Fire Protection Association standards are a minimum requirement, so is the Standard of Care for engineers. The engineer is required to evaluate local job conditions for the fire sprinkler system design and coordinate with authorities having jurisdiction (AHJ).

The Design Concept in the Standard of Care refers to those inputs and calculations initially done by the engineer to develop the conceptual ideas and limitations of the system (i.e. the density, water flow, and pressure requirements; classification of the commodities to be protected; and confirmation of the hydraulic data and preliminary hydraulic design). Initial design calculations will be included in the Design

Concept. In a building with several different occupancies and fire loadings, only the area of highest demand needs to be calculated.

The engineer shall establish a margin of safety between the available water pressure and the required demand pressure. When sizing pipe using the initial design calculations, the engineer should leave more safety margin than the contractor. The difference is that the contractor's calculations will enumerate the various fittings and offsets that may not be delineated in the engineer's preliminary design.

A substantial deviation, such as a contractor's proposal for a major design change, should be recalculated and redrawn by the contractor's own Responsible Managing Employee (RME). The RME will certify his changes and submit for approval. If a competent sprinkler contractor submits a reasonable proposal for change, and if the contractor's drawings and calculations meet all the requirements of the engineer's design, and there is not a valid reason why the engineer has used a different layout configuration, the engineer should accept the contractor's drawings and calculations.

Field changes may not require recalculation by the engineer. Deviations in the field such as offsets around ductwork should be anticipated. Initial design calculations by the engineer containing a reasonable, practical pressure safety margin should cover these. Substantial deviations could require the contractor to prove his calculations are still adequate to provide the protection stipulated in the design documents.

The shop drawings and calculations should be submitted to the engineer of record prior to transmittal to the reviewing authorities for documentation and approval. The engineer of record will document his review of the shop drawings and calculations, using a review stamp. This is an engineer's acceptance, acceptance as noted, rejection, or revise and resubmit, etc. of the shop drawings. This is based on review of the shop drawings against the design concept identified in the preliminary plans. The engineer should never place his P. E. seal on the sprinkler contractor's drawings or calculations unless he actually prepared them or supervised their preparation. The reviewing authorities may accept the sprinkler contractor's drawings and calculations even if different from the preliminary design submitted by the engineer, as long as they have been approved by the engineer of record.

The water supply information and flow testing addressed in the Standard of Care requires a flow test less than six months old. The engineer should supervise the performance of the flow test and/or will verify the accuracy of the test during preliminary design.

The engineer's drawings should clearly indicate the point that the licensed plumbing or site utilities contractor's work stops and the licensed fire sprinkler contractor's work begins. Note that the fire service piping is required to be installed and certified by a licensed fire sprinkler contractor. The point of service is defined in state law, including but not limited to, Tennessee Code Annotated, Title 62, Chapter 32 (Fire Sprinkler Contractors) and Rules Chapter 0780-2-7-.01 (Definitions) of the Department of Commerce and Insurance. The drawings are to be prepared to assure continuity in materials and performance in accordance with the various codes, especially National Fire Protection Association, Standards 13 and 24.

### ***STANDARD OF CARE*** ***The Design Concept (Bid Package)***

- I. The Engineer develops the conceptual ideas and limitations of the system. Plans shall be drawn to an indicated scale, on sheets of uniform size, with a plan of each floor, and shall show those items from the following lists that pertain to the design of the system:
  1. Size and location of all risers, mains, and branch lines as required to provide preliminary hydraulic calculations (See Commentary and Section III).
  2. Size, type (i.e. wet, dry, deluge, pre-action, etc.), and location of risers and standpipes with description and arrangement of valving and accessories, including location of any and all hose valves, alarms and signal devices. Include area protected by each riser, each system, and each floor.
  3. The location and size of the hydraulically most remote area.

4. A description of Occupancy and Commodity classifications.
5. Preliminary hydraulic calculation results including, required design density, area of application, required hose stream, and required duration.
6. Clear statement on the required water supply margin of safety between the required water supply (including hose-streams) and the available supply. A suggested safety margin is a 5% difference between the system demand and the available water supply.
7. Type and finish of sprinkler heads in finished areas. Verify if specific sprinkler head location parameters exist.
8. Clear statement on any required seismic bracing. A statement to the effect of, "Install seismic bracing per NFPA 13" is *not* acceptable as NFPA 13 describes only how to install bracing.
9. Fire pump (if required) room layout, fire pump and controller specification, and transfer switch.
10. Standpipe design (if required) must be clearly delineated on the drawings.
11. A completed Owner's certificate. See NFPA 13, 2002 edition, Figure A.14.1(b) Owner's Information Certificate.

It is understood that, for many projects, a total design package prepared by a design team of various disciplines will be completed. These design documents may consist of multi-disciplinary drawings and specifications, and shall show:

12. Name of owner and occupant.
  13. Location, including street address.
  14. North arrow.
  15. Construction type, building height in feet, building area, and occupancy of each building.
  16. Full height cross section, or schematic diagram, including structural member information if required for clarity and including ceiling construction and method of protection for nonmetallic piping.
  17. Building features such as combustible concealed spaces, floor openings, window openings, areas subject to freezing, and areas from which it is intended to omit sprinkler protection.
  18. Location of fire barriers and their fire resistance rating.
  19. Proposed location and approximate size, if a water supply employing pumps or tanks is contemplated.
  20. Name and address of party submitting the preliminary plans.
  21. Tentative location of underground major piping, including mains, risers, overhead mains, and fire department connections.
- II. Site plans (may be combined with floor plans) contain information pertinent to the proper operation of suppression systems. Information below, with the appropriate details, is required:
1. Size and location of water supplies.
  2. Size and location of all piping indicating, where possible, the class and type of new pipe to be installed, and the depth to which it is to be buried.
  3. Size, type, and location of valves. Indicate if located in pit or if operation is by post indicator or key wrench through a curb box.
  4. Size, type, and location of meters and backflow prevention devices.
  5. Size, type, and location of hydrants. Include number and size of outlets. Indicate if hose houses and equipment are to be provided and by whom.
  6. Size and location of standpipe risers, hose outlets, monitor nozzles, and related equipment.
  7. Location of Fire Department connections; if part of private fire service main system, including detail of connections.
  8. Water supply information:
    - a. Information regarding whether the main is circulating or dead-end.
    - b. Pressures under flowing and static conditions. Information on orifice size and co-efficient of orifice used in the test, and pitot pressure.
    - c. Elevations of slabs, floors, ceilings, street main connection, test hydrant, etc.
    - d. Information on who conducted the flow test, when, and where the test was conducted. If reliable or current (less than six months old) information is not available, the engineer should supervise the performance of a new flow test and/or will verify the accuracy of a new flow test during preliminary design.

III. Preliminary hydraulic calculations.

1. The Engineer shall prepare and submit preliminary hydraulic calculations proving availability of adequate water, (volume, duration, and pressure) for protection of the area of greatest demand.

IV. Specifications

1. Specifications shall be prepared for fire protection the same as for any other portion of the project.

V. Engineer's Seal

1. The engineer of record submitting fire protection system design construction documents shall seal, sign, and date each page or sheet of drawings and the first page of specifications and calculations.

VI. Legend

1. The engineer's drawings should clearly indicate the point that the licensed plumbing or site utilities contractor's work stops and the licensed fire sprinkler contractor's work begins. Note that the fire service piping is required to be installed and certified by a licensed fire sprinkler contractor. The point of service is defined in state law, including but not limited to, Tennessee Code Annotated, Title 62, Chapter 32 (Fire Sprinkler Contractors) and Rules Chapter 0780-2-7-.01 (Definitions) of the Department of Commerce and Insurance.

Adopted 11-1-90

Revised and adopted 9-20-02

Revised and adopted 1-20-05

Revised and adopted 10-17-08

## APPENDIX G

**Several code references in this policy likely require updating.**

### **ENGINEERING EXEMPTION POLICY FOR FIRE SPRINKLER SYSTEM DESIGN (Effective April 1, 2006)**

This policy works in conjunction with the Engineering Exemption Policy for Fire Sprinkler Design Decision Trees. The Decision Trees should be referred to first to determine the parameters for use of this policy (see list at the end of this policy). Please note that the head counts in this policy are based on standard sprinkler heads and not extended coverage sprinkler heads. The installation of a sprinkler system in a non-sprinklered existing building which is required due to a change of occupancy or building renovation will automatically fail the System Capacity test.

#### **1: NEW BUILDING CONSTRUCTION REQUIRING SPRINKLERS.**

New building construction AND ADDITIONS OF 5,000 SF OR MORE will require the services of a Professional Engineer, competent in Automatic Fire Sprinkler design, for the design of the new fire sprinkler system. These services shall be provided in accordance with **T.C.A. § 62-2-102** [Practice and persons exempt from registration].

#### **2: RENOVATION OF AN EXISTING FIRE SPRINKLER SYSTEM.**

If there is no occupancy classification change and adequate capacity has been determined, a Professional Engineer, competent in Automatic Fire Sprinkler design, shall not be required unless the Automatic Fire Sprinklers to be installed or modified in the renovation exceed the following:

- |                      |                     |
|----------------------|---------------------|
| A. Light Hazard      | 225 Sprinkler Heads |
| B. Ordinary Hazard   | 225 Sprinkler Heads |
| C. Extra Hazard      | 225 Sprinkler Heads |
| D. High Pile Storage | 400 Sprinkler Heads |

#### **3: UPGRADING AN EXISTING AUTOMATIC FIRE SPRINKLER SYSTEM.**

If there is no occupancy classification change and adequate capacity has been determined, a Professional Engineer, competent in Automatic Fire Sprinkler design, shall not be required unless the Automatic Fire Sprinklers to be installed or modified in the renovation exceed the following:

- |                      |                     |
|----------------------|---------------------|
| A. Light Hazard      | 225 Sprinkler Heads |
| B. Ordinary Hazard   | 225 Sprinkler Heads |
| C. Extra Hazard      | 225 Sprinkler Heads |
| D. High Pile Storage | 400 Sprinkler Heads |

#### **4: NON-SPRINKLERED EXISTING BUILDING.**

If an owner elects to install an automatic fire sprinkler system in a non-sprinklered building, which under current code compliance analysis would not require an automatic sprinkler system, it shall not require the services of a Professional Engineer, competent in Automatic Fire Sprinkler design, unless the Automatic Fire Sprinklers to be installed in the new system exceed the following:

- |                    |                     |
|--------------------|---------------------|
| A. Light Hazard    | 225 Sprinkler Heads |
| B. Ordinary Hazard | 225 Sprinkler Heads |
| C. Extra Hazard    | 225 Sprinkler Heads |
| D. High Pile       | 400 Sprinkler Heads |

Classifications are as outlined in current NFPA13 standards.



The Owner or his agent has the option to hire the services of a Professional Engineer, competent in Automatic Fire Sprinkler design, or a Licensed Fire Sprinkler Contractor to prepare the Design Concepts in:

- RENOVATION OF AN EXISTING FIRE SPRINKLER SYSTEM,
- UPGRADING AN EXISTING AUTOMATIC FIRE SPRINKLER SYSTEM, or
- NON-SPRINKLERED EXISTING BUILDING (BY CODE NOT REQUIRING SPRINKLERS).

If the total fire sprinklers exceed the parameters of this policy, a licensed Fire Sprinkler Contractor is not authorized to prepare the Design Concept.

If an Automatic Fire Sprinkler Contractor prepares the Design Concept, the adopted Board of Architectural and Engineering Examiners Board Standard of Care should be followed in preparing the Design Concept.

Installation of Fire Sprinkler Systems in One-and-Two Family Dwellings and Manufactured Homes shall be installed in accordance with NFPA 13-D and shall not be part of this policy.

**DEFINITIONS:**

<p><b>ADEQUATE CAPACITY.</b> The existing public water supply or the current system configuration will serve the proposed renovations, upgrades, or additions to the structure. Adequate capacity can be calculated by an RME or PE and submitted to the AHJ for approval.</p>
<p><b>AHJ (AUTHORITY HAVING JURISDICTION).</b> The organization, office, or individual responsible for approving equipment, materials, an installation, or a procedure. The phrase “authority having jurisdiction” is used in NFPA documents in a broad manner, since jurisdictions and approval agencies vary, as do their responsibilities. Where public safety is primary, the authority having jurisdiction may be a federal, state, local, or other regional department or individual such as a fire chief; fire marshal; chief of a fire prevention bureau, labor department, or health department; building official; electrical inspector; or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the authority having jurisdiction. In many circumstances, the property owner or his or her designated agent assumes the role of the authority having jurisdiction; at government installations, the commanding officer or departmental official may be the authority having jurisdiction. Source: NFPA 1.</p>
<p><b>BUILDING.</b> Any structure used or intended for supporting or sheltering any use or occupancy. Source: Life Safety Code (NFPA 101), 2003 edition.</p>
<p><b>BUILDING OFFICIAL.</b> The officer or other designated authority charged with the administration and enforcement of this code, or a duly authorized representative. Source: International Building Code.</p>
<p><b>COMMODITY.</b> Combinations of products, packing material, and container upon which the commodity classification is based. Source: NFPA 13.</p>
<p><b>FIRE CODE OFFICIAL.</b> The fire chief or other designated authority charged with the administration and enforcement of the code, or a duly authorized representative. Source: International Fire Code.</p>
<p><b>FIRE PROTECTION SPRINKLER SYSTEM CONTRACTOR.</b> A person who contracts, offers to contract, or represents that such person is able to contract with a general contractor, subcontractor, or the general public for the undertaking of the sale, installation or service of a fire protection sprinkler system or any part thereof, or who actually installs or services a fire protection sprinkler system, provided that an owner of real property on which a fire protection sprinkler system is located, or a full-time employee of the owner of real property on which a fire protection sprinkler system is located, may perform simple maintenance of the fire protection sprinkler system, such as replacing a sprinkler head. Source: T.C.A. Section 62, Chapter 32.</p>
<p><b>HAZARD CLASSIFICATIONS:</b>            Light Hazard Occupancies -- Occupancies or portions of other occupancies where the quantity and/or combustibility of contents is low and fires with relatively low rates of heat release are expected.             Ordinary Hazard Occupancies –</p> <ul style="list-style-type: none"> <li>• Ordinary Hazard (Group 1). Occupancies or portions of other occupancies where combustibility is low, quantity of combustibles is moderate, stockpiles of combustibles do not exceed 8 ft (2.4 m), and fires with moderate rates of heat release are expected.</li> <li>• Ordinary Hazard (Group 2). Occupancies or portions of other occupancies where the quantity and combustibility of contents are moderate to high, stockpiles do not exceed 12 ft (3.7 m), and fires with moderate to high rates of heat release are expected.</li> </ul>

Extra Hazard Occupancies --

- Extra Hazard (Group 1). Occupancies or portions of other occupancies where the quantity and combustibility of contents are very high and dust, lint, or other materials are present, introducing the probability of rapidly developing fires with high rates of heat release but with little or no combustible or flammable liquids.
- Extra Hazard (Group 2). Occupancies or portions of other occupancies with moderate to substantial amounts of flammable or combustible liquids or occupancies where shielding of combustibles is extensive.

High-Piled Storage -- Solid-piled, palletized, rack storage, bin box, and shelf storage in excess of 12 ft (3.7 m) in height. Source: NFPA 13.

**OCCUPANCY CLASSIFICATION.** The purpose for which a building or portion thereof is used or intended to be used. Source: Life Safety Code (NFPA 101), 2003 edition.

**PE (PROFESSIONAL ENGINEER).** An individual who is registered to practice engineering by the Board of Architectural and Engineering Examiners.

**RENOVATION.** The act of improving by renewing and restoring. Source: Model building code and sprinkler standards (defined in accordance with the latest adopted by the Tennessee State Fire Marshal's Office).

**RME (RESPONSIBLE MANAGING EMPLOYEE).** An individual who is, or is designated to be, in active and responsible charge of the work of a fire protection sprinkler system contractor. Source: T.C.A. Section 62, Chapter 32.

**STANDARD SPRINKLER HEAD.** A standard, fast, or quick response fire sprinkler head that does not include an extended coverage head as defined by NFPA 13.

**STRUCTURE.** That which is built or constructed. Source: Life Safety Code (NFPA 101), 2003 edition.

**UPGRADE** (upgraded, upgrading, upgrades). To raise to a higher grade or standard. Source: Model building code and sprinkler standards (defined in accordance with the latest adopted by the Tennessee State Fire Marshal's Office).

Adopted 8-25-05

### Engineering Exemption Policy for Fire Sprinkler Design Decision Trees

Fire Sprinkler System – New Construction Including Additions – page 1

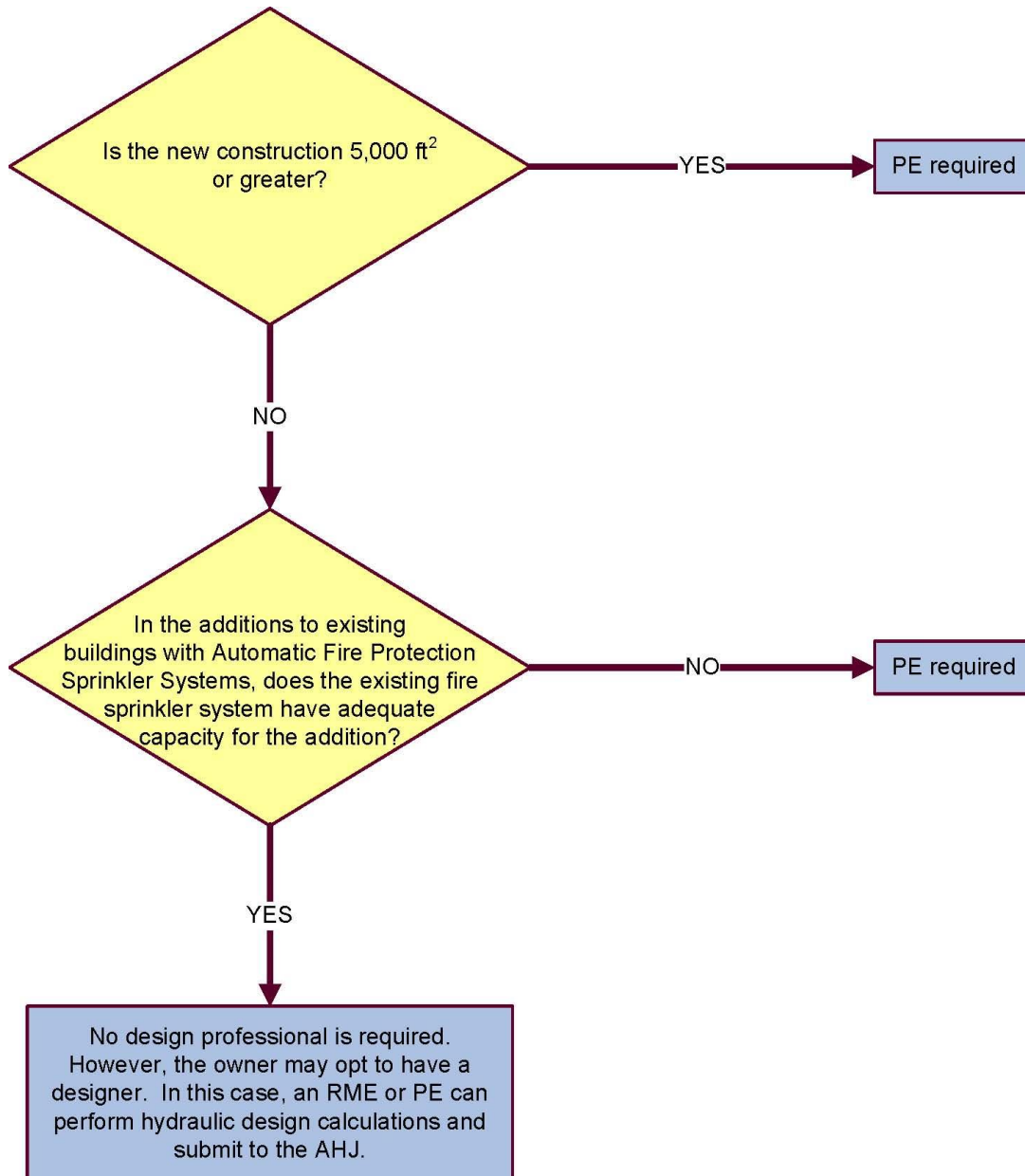
Fire Sprinkler System – Renovation/Upgrade (no occupancy change) – page 2

Fire Sprinkler System – Existing Non-Sprinklered Building – page 3

Fire Sprinkler System – Occupancy Classification Change – page 4

# Engineering Exemption Policy for Fire Sprinkler Design Decision Tree

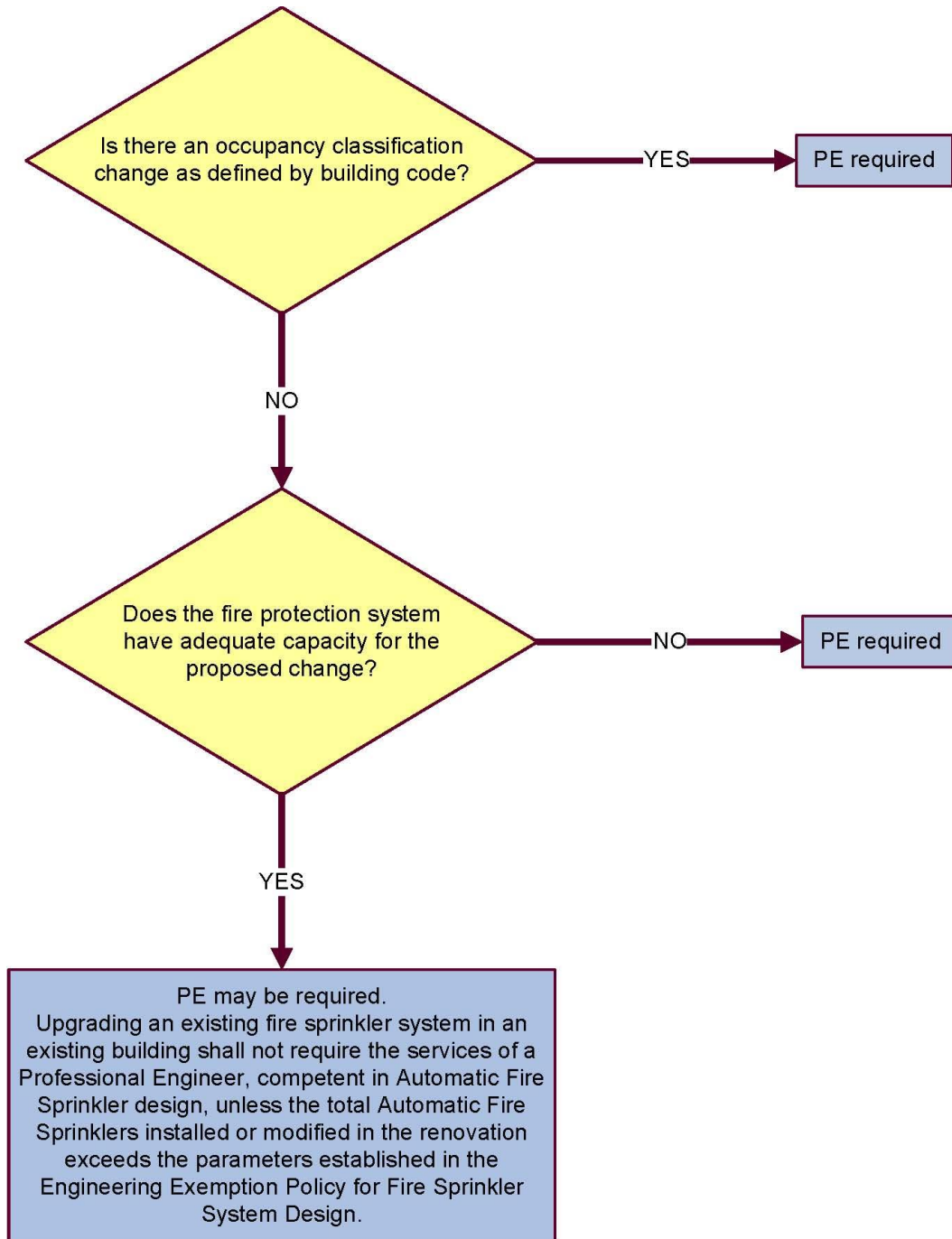
## Fire Sprinkler System – New Construction Including Additions



This Decision Tree is the companion document to the Engineering Exemption Policy for Fire Sprinkler System Design.

(Page 1 of 4)

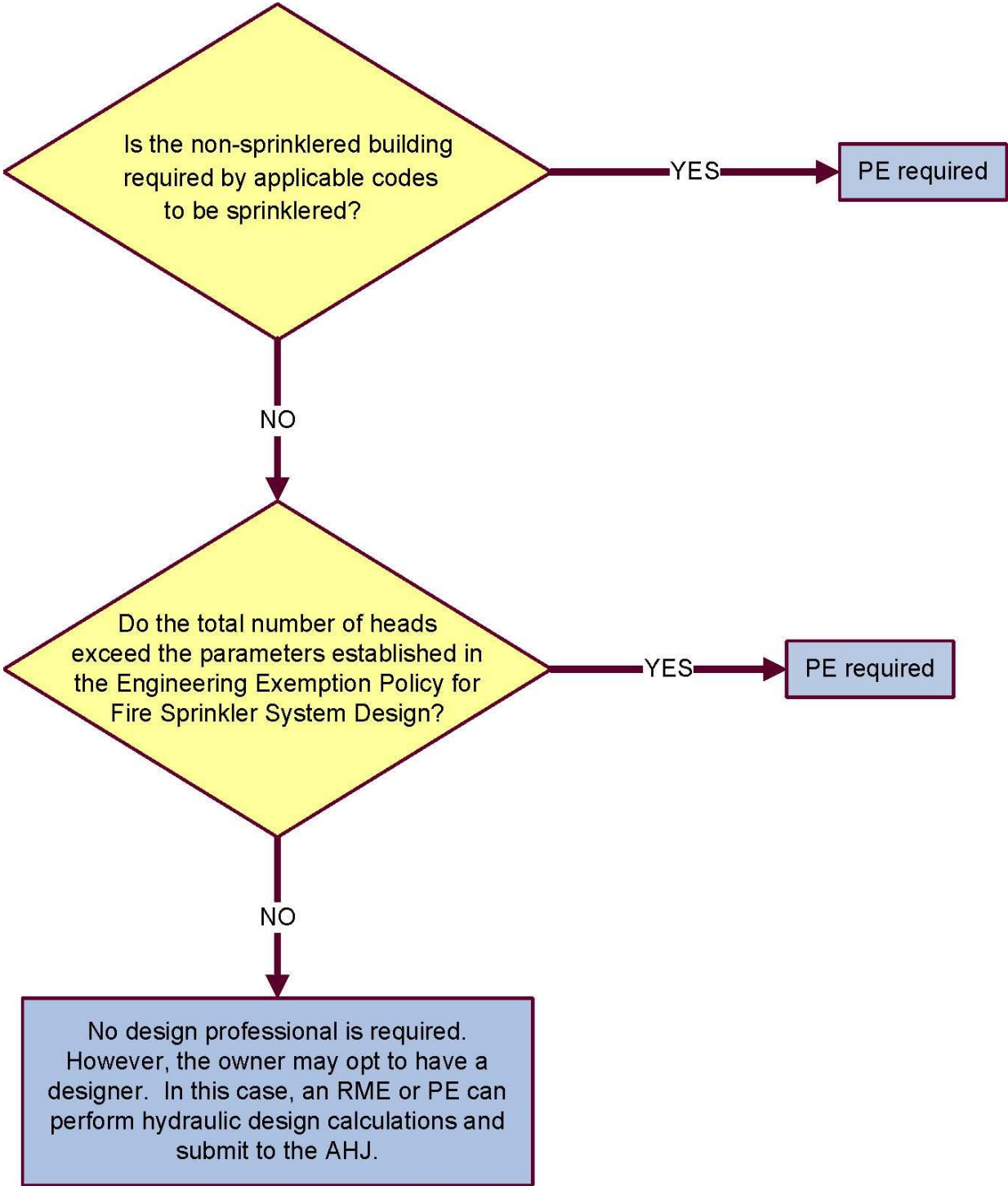
## Fire Sprinkler System – Renovation/Upgrade (no occupancy change)



This Decision Tree is the companion document to the Engineering Exemption Policy for Fire Sprinkler System Design.

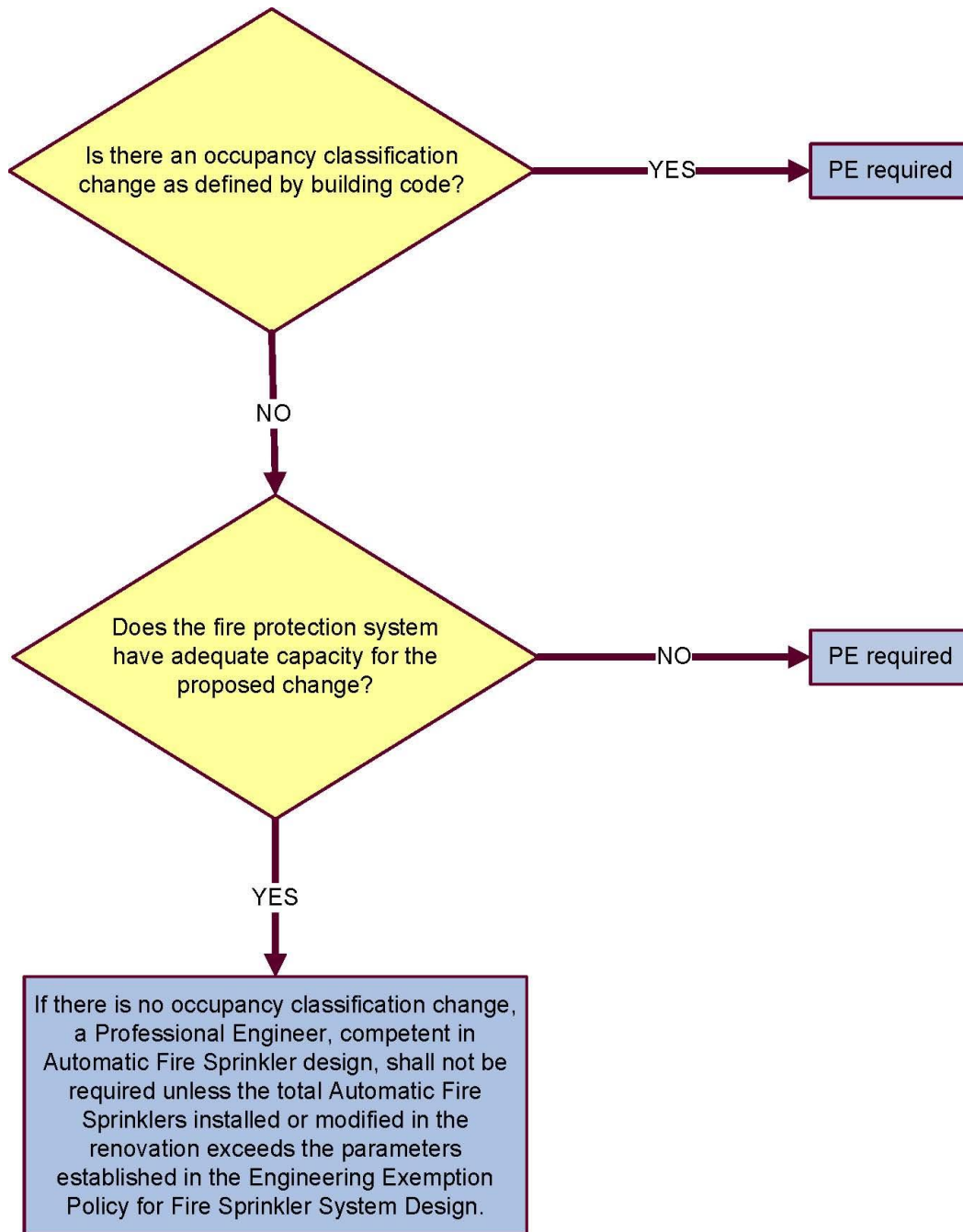
(Page 2 of 4)

# Fire Sprinkler System – Existing Non-Sprinklered Building



This Decision Tree is the companion document to the Engineering Exemption Policy for Fire Sprinkler System Design.

## Fire Sprinkler System – Occupancy Classification Change



This Decision Tree is the companion document to the Engineering Exemption Policy for Fire Sprinkler System Design.

(Page 4 of 4)

## APPENDIX H

### DESIGN AND PRACTICE POLICIES

**Several policies may need to be added or revised.**

#### I. AS-BUILT DRAWINGS

As-built drawings are often used to document how an existing structure, building site, or other development project was constructed.

The Board does not consider the representation of what was believed to be constructed to be the practice of architecture, engineering or landscape architecture. Therefore, the Board does not require that these drawings bear the seal of a design professional. However, occasions may arise when a registered design professional is required to seal such drawings. In such cases, a caveat should be included on the sealed as-built drawings, incorporating the following factors as applicable:

- This as-built drawing is a compiled representation of the constructed project.
- The sources and the basis of information used in the preparation of this as-built drawing are as follows: (insert appropriate sources, such as field inspector's notes, contractor's notes, field measurements, etc.).
- This as-built drawing is believed to be correct to the best of the professional's knowledge.

Adopted 5-22-08

#### II. ASBESTOS ABATEMENT DESIGN POLICY STATEMENT

Where asbestos abatement design involves the design or modification of buildings, building systems, (including, but not limited to fireproofing, fire protection systems, building ventilation systems, and fire resistive construction), and utilities, or the consequent refitting of buildings, it constitutes the practice of architecture or engineering. Subject to the exemptions listed in Tennessee Code Annotated (T.C.A.), Sections 62-2-102 and 62-2-107, asbestos abatement project drawings and specifications which deal with the design or modification of buildings, building systems, and utilities, or the refitting of buildings shall be prepared by a registered architect or engineer with competence and expertise in asbestos abatement. All such drawings shall, in accordance with T.C.A. Sections 62-2-306(b) and Rule 0120-2-.08 (Seals), bear the seal and signature of the registrant.

The above policy notwithstanding, the Board recognizes that certain aspects of asbestos abatement design which do not involve the design or modification of buildings, building systems, and utilities, or the consequent refitting of buildings may be addressed by a qualified certified industrial hygienist, as certified by the American Board of Industrial Hygiene. A certified industrial hygienist with competence and expertise in asbestos abatement design may develop a written plan and specifications for selection of personal protective equipment, employee training, medical surveillance, employee and equipment decontamination procedures, analytical requirements for monitoring, employee and area monitoring, temporary containment and negative pressure systems, work area clearance, and record keeping.

In addition, the inspection and collection of data as to possible existing asbestos in structures may be performed by a properly trained nonregistrant. Management plans and operation and maintenance plans should be prepared by a qualified registered architect or engineer or by a qualified certified industrial hygienist.

Adopted 1/26-27/89

Revised and adopted 3-30-90

Revised and adopted 10-30-91

### **III. CONSTRUCTION DOCUMENTS AND USE OF THE SEAL**

Pursuant to Rule 0120-2-.08(2)(a), the registrant is required to stamp with his/her seal all original sheets of any bound or unbound set of construction documents. The Board considers that some drawings or sketches are not in the construction documents category when they communicate concepts only and are not to be used for consideration in a machine, process or building project. However, any drawings prepared for the purpose of formal submittal to regulatory authorities (i.e., codes, fire marshals, etc.) as representative of fabrication or construction must be sealed by the registrant. It is recommended that drawings that are not construction documents be clearly designated "preliminary – not for construction" or by some other means indicating the drawings are not complete.

For the purpose of this policy, "working drawings or plans" means "construction documents."

Adopted 4-28-88  
Revised and adopted 10-4-97  
Revised and adopted 04-25-02  
Revised and adopted 05-18-06

### **IV. DELINEATION OF ENGINEERING AND SURVEYING**

In rural areas regarding subdivision development of property, an issue has arisen between surveyors and engineers wherein the surveyors feel they should take responsibility for engineering design because engineering expertise is not available and the importance of such engineering expertise is questionable. Engineers do not subscribe to this extension of the responsibilities of surveyors into their practice.

On September 17, 1987, three members of the State Board of Architectural and Engineering Examiners (Messrs. Lannom, Adsit, and Wynne) met with the Honorable Bill Richardson, Tennessee State Senator, to discuss his original intent in the delineation of the two professions during the Senate's deliberations in 1976, when the surveyors' law was passed.

The language below is the A/E Board's interpretation of the delineation of engineering and surveying:

1. Land surveying, measurement and calculation of areas, boundaries, property lines, the subdivision of property and the plotting thereof must be done by a surveyor and his drawing must bear his seal.
2. Subdivision road alignment, road grades, cutting and filling of subdivision lots, and changes to the topography which involves a final grading plan may be performed by either an engineer or a surveyor; the designer's seal must be applied to the drawing. In localities where instability of final grades and slopes requires analysis of soils to prevent conditions hazardous to life and property, design of roads, slopes, ditches, and building sites must be done by an engineer.
3. Culverts, storm drainage pipes, water lines, sewer lines, electric power lines or other utilities not existing prior to development shall not be shown on a subdivision drawing unless that drawing bears the seal of the engineer who designed them.
4. The issue of whether or not the design of storm water drainage systems may be conducted by a licensed land surveyor was addressed in an opinion by the Attorney General's Office on February 9, 2004 (Opinion No. 04-018). That Opinion answers the question: "Does the statute (Tenn. Code Ann. §62-18-102(3), defining the "practice of land surveying") allow land surveyors to conduct and perform drainage design and calculations required for the construction of



subdivisions, including determining the detention and retention of storm water as well as determining the size of ponds, basins, pipes and culverts which hold and through which storm water will flow?" The Opinion concludes, based on its analysis and past authorities, that a licensed land surveyor **who is not a registered engineer** may not conduct drainage design and calculations of this kind. The Tennessee State Board of Architectural and Engineering Examiners agrees with this opinion.

Adopted 1-26-90  
Revised and adopted 10-4-97  
Revised and adopted 7-10-08

## **V. DESIGN COMPETITIONS/REQUESTS FOR PROPOSALS (RFP)/REQUESTS FOR QUALIFICATIONS (RFQ)**

A person who is properly registered or licensed as an architect, engineer or landscape architect in another jurisdiction but who is not registered in Tennessee may participate in a design competition or submit RFPs or RFQs in Tennessee so long as prior to participating in the design competition or submitting RFPs or RFQs, the person files an application for registration (without the application fee and supporting documentation) with the Board and certifies therein his or her intent to complete the application process and obtain registration in Tennessee prior to executing any contract that may result from the design competition, RFP or RFQ. In no event may a person who is not registered by the Board enter into a contract to provide architectural, engineering or landscape architectural services in Tennessee.

Adopted 1-19-06  
Revised and adopted 2-19-09

## **VI. DESIGN/BUILD BY CONTRACTORS**

Contractors, without in-house registrants, offering "design/build" services are in no way authorized to perform actual architectural, engineering, or landscape architectural services. Such professional services must be performed by duly qualified registrants in conformity with the provisions of Tennessee Code Annotated (T.C.A.), Title 62, Chapter 2, and the Board's Rules of Professional Conduct.

Contractors may offer "design/build" services to the public without having to comply with the firm disclosure and supervision requirements of T.C.A., Title 62, Chapter 2, Part 6, provided no "architectural," "engineering," or "landscape architectural" services are offered in-house. In such event, any contractor without in-house registrants offering design/build services should have organized the design team, comprised of Tennessee registered architects, engineers and landscape architects competent in the work to be performed, prior to the time services are formally proposed. Additionally, qualified Tennessee registrant(s) shall be involved in any activity in preparation for or leading to a signed contract. Members of the design team should be included in any meeting with clients in which the project is discussed.

Any plans, specifications, and/or reports which are part of a proposal, and all subsequent construction documents, shall be prepared and sealed by the registrant(s) having responsible charge of the project. Any person offering design/build services should make every effort to ensure proper coordination of design drawings for the project.

Adopted 10-22-92  
Revised and adopted 7-18-97  
Revised and adopted 4-25-02  
Revised and adopted 1-9-03

## **VII. DRAFTING FIRMS AND SPECIFICATION WRITERS**

As Computer Aided Design (CAD) and drafting play an ever expanding role in our professions, questions arise as to the relationship of these systems to the requirements of the registration law. Among these questions is that of the role of businesses providing drafting services to professional offices. These drafting/CAD services are either by traditional manual methods or by the use of CAD equipment. At the July 31, 1987, meeting, the Board stated the following policy in this regard:

1. The drawings prepared by the drafting service are to be taken from complete information provided by the registrant whose seal will appear on the drawings.
2. The drafting or CAD firm's preparation shall not consist of any original or design work whatsoever produced by that drafting firm, including decisions for use of previously drawn or stored work. The registrant shall retain documented evidence to prove the source of such original or design work is that of the registrant.

This policy also applies to specification writers.

Adopted 7-31-87  
Revised and adopted 9-29-95  
Revised and adopted 10-4-97  
Revised and adopted 4-25-02

#### **VIII. EXPERT TESTIMONY**

A person testifying as an expert witness is not required to be registered in Tennessee, so long as the person does not misrepresent his or her credentials as being registered in Tennessee, the person does not present a written document that would be required to be sealed, and the person does not do any other act that would constitute the practice of architecture, engineering, or landscape architecture pursuant to *Tennessee Code Annotated* Title 62, Chapter 2.

Adopted 1-19-06

#### **IX. MULTIPLE REGISTRANTS' SEALS ON A DOCUMENT**

If a registrant has been in responsible charge of work done on a document, the registrant's seal should be on it. Where multiple registrants in responsible charge provide content on the same document, all such registrants should seal the document, and, if there is any question, description of the areas of responsibility should be included.

**Cover Page:** A registrant is not required to seal the cover page of a set of construction documents unless the cover page contains architectural, engineering, or landscape architectural information (i.e. building code information). All registrants in responsible charge who work on a set of specifications are required to seal either the cover page of the specifications, or the cover page(s) for the section(s) of the specifications they produce.

For the purpose of this rule, "working drawings or plans" means "construction documents."

Adopted 1-26-89  
Revised and adopted 10-4-97  
Revised and adopted 4-23-98  
Revised and adopted 4-25-02  
Revised and adopted 5-18-06  
Revised and adopted 7-20-06

#### **X. ONE-FAMILY AND TWO-FAMILY DWELLINGS**

In keeping with the definitions in the 1985 edition of the Standard Building Code, the Board defines a "one-family or two-family dwelling" [T.C.A. Section 62-2-102(b)(2)] as a structure occupied exclusively for residential purposes by not more than two families. A townhouse is considered a single-family dwelling unit constructed in a series or group of attached units with property lines separating such units. The common wall between townhouses must be designed with the minimum fire-rated separation required by the applicable code.

The following are not considered to be one-family or two family dwellings:

- A lodging house, which is defined as any building or portion thereof containing not more than five guest rooms which are used by not more than five guests where rent is paid in money, goods, labor or otherwise.
- An apartment house or multiple dwelling, which is defined as any building or portion thereof used as a multiple dwelling for the purpose of providing three or more separate dwelling units which may share means of egress and other essential facilities.

Note: A "dwelling unit" is defined as a single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

Adopted 6-25-09

#### **XI. ORIGINAL SHEETS, DEFINITION OF**

The words "all original sheets" in Rule 0120-2-.08(2)(a) mean "tracings or reproducible sheets."

Adopted 5-10-91

#### **XII. PROTOTYPICAL PLANS, COMPUTER AIDED DESIGN, AND UNITED STATES POSTAL SERVICES KIT OF PARTS**

The substantial portion of any project sealed by an architect, engineer, or landscape architect should be developed under his or her responsibility. The use of predrawn detail items or detail units by a registrant who has reviewed and accepted same, as long as the health, safety, and welfare of the public are protected, is allowed.

Adopted 3-30-90

Revised and adopted 10-4-97

Revised and adopted 4-25-02

#### **XIII. PUBLIC WORKS - STRUCTURAL/WATER LINES**

The term "structural" in Tennessee Code Annotated, Section 62-2-107(b), shall not include single water lines not more than 3,000 feet serving up to ten homes. (This does not include wastewater line extensions.)

NOTE: The Board's policy is based on its opinion that the above-described water line is clearly "civil" in nature, rather than "structural." This interpretation is confined to T.C.A., Section 62-2-107(b) and is not to be construed as addressing any other provision of state law.

Adopted 4-30-92

#### **XIV. REVISIONS TO PLANS PREPARED BY PRIOR REGISTRANT**

A registrant is prohibited from sealing plans originally prepared by a person not under the registrant's responsible charge, whether or not that person is another registrant. In special circumstances, specifically where the first registrant has changed employment or is deceased, a

second registrant may perform work on a set of plans originally prepared by another registrant. If the plans are incomplete (are at a stage prior to submittal to a reviewing official), the second registrant may not seal the set of drawings prepared by the first registrant; rather, the second registrant must take all steps necessary to ensure that the drawings were prepared under his or her responsible charge. If the plans are complete and have been submitted to a reviewing official, the second registrant may prepare and seal addenda sheets if revisions are necessary.

Adopted 1-19-06

## **XV. SIGNS**

The Board defines a "sign" [T.C.A. Section 62-2-102(b)(4)] as a self-supporting structure that is arranged, intended, designed or used as an advertisement, announcement or direction, and includes a sign, sign screen, billboard and advertising devices of every kind (from the 1985 edition of the Standard Building Code).

Signs that do not exceed the limits outlined in T.C.A. Section 62-2-102(b)(4) are exempted from the requirement to have plans and specifications prepared by a registered architect or engineer unless an awarding authority deems it necessary. Maintenance or repair of an existing sign that does not require technical calculation or compromise the original design is also exempted.

Adopted 6-25-09



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