

BOARD OF
BUILDING AND SAFETY
COMMISSIONERS

—
HELENA JUBANY
PRESIDENT

VAN AMBATIELOS
VICE-PRESIDENT

E. FELICIA BRANNON
VICTOR H. CUEVAS
SEPAND SAMZADEH

CITY OF LOS ANGELES

CALIFORNIA



ANTONIO R. VILLARAIGOSA
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

—
RAYMOND S. CHAN, C.E., S.E.
SUPERINTENDENT OF BUILDING
INTERIM GENERAL MANAGER

HY-TEK Fasteners, Inc.
415 Mountain Vista Pkwy.
Livermore, CA 94551

Attn: Amador Fajardo
(925) 980-0114

RESEARCH REPORT: RR 25959
(CSI # 06 05 23.13)

BASED UPON ICC EVALUATION SERVICE
REPORT NO. ESR- 2648

REEVALUATION DUE
DATE: July 1, 2014
Issued Date: July 1, 2013
Code: 2011 LABC

GENERAL APPROVAL – HY-TEK NAILS

DETAILS

The above assemblies and/or products are approved when in compliance with the description, use, identification and findings of ICC ES Report No. ESR-2648 reissued May 2012, of the ICC Evaluation Service, Incorporated. The report, in its entirety, is attached and made part of this general approval.

The parts of Evaluation Report No. ESR-2648 marked by an asterisk are deleted by the Los Angeles City Building Department from this approval.

The approval is subject to the following conditions:

1. Design of the connections and installation of the Hy-Tek nails shall be per the manufacturer's published instructions and the attached ICC ES ESR-2648, copies which shall be available at the job site.
2. The material fastened shall be investigated for compliance with accepted design criteria and code requirements by California licensed Architect, Civil, or Structural engineer.
3. Diaphragm and shear wall construction must conform to applicable provisions of sections 2306.2.1 and 2306.3 of the 2011 LABC.

RR 25959
Page 1 of 2

Hytek Fasteners Inc.
RE: Hy-Tek Nails

4. All nails shall have a uniform round head.

DISCUSSION

The report is in compliance with the 2011 Los Angeles City Building Code.

The approval was based on data in accordance with ICC-ES Acceptance Criteria for Nails and Spikes (AC116), dated October 2006.

This general approval will remain effective provided the Evaluation Report is maintained valid and unrevised with the issuing organization. Any revisions to the report must be submitted to this Department, with appropriate fee, for review in order to continue the approval of the revised report.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this approval have been met in the project in which it is to be used.

ALLEN PEERY, Chief
Engineering Research Section
201 N. Figueroa St., Room 880
Los Angeles, CA 90012
Phone- 213-202-9812
Fax- 213-202-9943

KH
RR25959/MSWord2010
R05/31/13
5D3/104.2.6

Attachments: ICC-ES Evaluation Report No. ESR-2648 (6-Pages)

ICC-ES Evaluation Report

ESR-2648

Reissued May 1, 2012

This report is subject to renewal June 1, 2013.

www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

**DIVISION: 06 00 00—WOOD, PLASTICS AND
COMPOSITES**
Section: 06 05 23.13—Nails
REPORT HOLDER:
**HY-TEK FASTENERS, INC.
415 MOUNTAIN VISTA PKWY
LIVERMORE, CALIFORNIA 94551
www.hytekfasteners.com**
EVALUATION SUBJECT:
HY-TEK NAILS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 and 2006 *International Building Code*® (IBC)
- * ■ 2009 ~~and 2006~~ *International Residential Code*® (IRC) *

Property evaluated:

Structural

2.0 USES

Hy-Tek nails are used for wood-framed connections, wood-structural-panel shear walls and diaphragms; and for engineered connections of wood structural panels to wood framing.

3.0 DESCRIPTION

Hy-Tek nails are available in lengths from 1³/₄ to 6 inches (44.4 to 152.4 mm). The top third of the nail length has a smooth shank and the bottom two-thirds has a helical screw shank. Refer to Table 1 for Hy-Tek nail designations, diameters, and tip styles.

The nails are manufactured from SAE J403 low-carbon steel wire, grade 1015-1030. The nails are available with a hot-dip galvanizing coating complying with ASTM A 153, Class D. Hy-Tek nails are supplied in strips, coils or in bulk.

4.0 DESIGN AND INSTALLATION

4.1 Design:

4.1.1 Nail Bending Yield Strength (F_{yb}): Hy-Tek 0.120, 0.120M, and 0.135 nails have a minimum bending yield strength, F_{yb} , of 100,000 psi (689 MPa). Hy-Tek 0.148 nails have a minimum bending yield strength, F_{yb} , of 90,000 psi (21 MPa).

4.1.2 Lateral Design Values: The reference lateral design values (Z), for connections of wood structural panels and solid sawn lumber to wood framing using the Hy-Tek nails are shown in Table 2. The tabulated values must be adjusted in accordance with the NDS, as applicable.

4.1.3 Withdrawal Design Values: The reference withdrawal design values (W), for the Hy-Tek nails are as shown in Table 3. The withdrawal values must be adjusted in accordance with the NDS, as applicable.

4.1.4 Diaphragms and Shear Walls: The Hy-Tek 0.120 and 0.135 nails described in this report may be substituted for 8d and 10d common nails, respectively, and 0.120M and 0.148 nails may be substituted for 10d and 16d common nails, respectively, to attach wood-based sheathing prescribed in Tables 2306.2.1(1), 2306.2.1(2), 2306.3 and 2306.5 of the 2009 IBC, and Tables 2306.3.1, 2306.3.2, 2306.4.1 and 2306.4.3 of the 2006 IBC, and Table R602.3(1) of the 2009 ~~and 2006~~ IRC, as shown in Tables 5 through 7 of this report. Nail slip values are provided in Table 4.

4.1.5 Framing Connections: The Hy-Tek 0.120M and 0.148 screw shank nails may be used as alternate fasteners for specific framing applications referenced in Table 2304.9.1 of the IBC and Table R602.3(1) of the IRC. The minimum number of fasteners must comply with the fastening schedule noted in Table 2304.9.1 of the IBC and Table R602.3(1) of the IRC. Refer to Footnote 4 to Table 3 for end grain nailing requirements under the IBC and IRC.

4.2 Installation:

The nails must be installed in accordance with the Hy-Tek Fasteners published installation instructions and this evaluation report. Nail installation must also comply with applicable requirements in Section 11.1.5 of the NDS. The nails are driven either pneumatically or manually.

5.0 CONDITIONS OF USE

The Hy-Tek nails 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 Design of the connections and installation of Hy-Tek nails must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between this report and the manufacturer's published installation instructions, this report governs.

- 5.2 Diaphragm and shear wall construction must conform to applicable provisions in the IBC and IRC.
- 5.3 Calculations demonstrating that the applied loads are less than the design values specified in this report must be submitted to the code official for approval. Calculations 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 Use of nails in chemically treated wood, such as preservative-treated or fire-retardant-treated wood, must comply with 2009 and 2006 IBC Section 2304.9.5 and 2009 IRC Section R317.3 ~~and 2006 IRC Section R319.3.~~

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Nails and Spikes (AC116), dated October 2006 (editorially revised July 2010).

7.0 IDENTIFICATION

The nails are packaged in cartons bearing labels that provide the manufacturer name (Hy-Tek Fasteners); nail designation, nail description (type, length, and smooth-shank diameter); the minimum bending yield strength; and the evaluation report number (ESR-2648). Packages of galvanized nails must be labeled “ASTM A 153, Class D.”

TABLE 1—HY-TEK SCREW SHANK NAILS

NAIL DESIGNATION	SMOOTH SHANK DIAMETER (inch)	SCREW MAJOR SHANK DIAMETER (inch)	HEAD DIAMETER (inch)	TIP STYLE
0.120	0.120	0.130	0.260	Diamond tapered
0.120M	0.120	0.135	0.280	Blunt diamond
0.135	0.135	0.141	0.280	Diamond tapered
0.148	0.148	0.156	0.280	Diamond tapered

For SI: 1 inch = 25.4 mm

TABLE 2—REFERENCE LATERAL DESIGN VALUES (Z) FOR SINGLE FASTENER CONNECTIONS^{1,2}

SIDE MEMBER THICKNESS (inches)	SIDE MEMBER	NAIL DESIGNATION	0.50 DOUGLAS FIR-LARCH (lbs)
15/32	OSB ³	0.120	76
		0.120M	91
		0.135	103
25/32	Plywood ³	0.120	82
		0.135	112
		0.148	180
1 1/2	Wood member ⁴	0.120M	131
		0.148	180

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

¹Tabulated lateral design values (Z) must be multiplied by all applicable adjustment factors.

²Tabulated lateral design values are for nails inserted in side grain with axis perpendicular to wood fiber; minimum nail penetration into the main member must equal 10 times the nail’s smooth shank diameter (inch).

³Wood structural panel side members with specific gravity (G) = 0.50 or greater.

⁴Wood member may be either solid sawn or engineered lumber (e.g., LVL, PSL, or LSL) having specific gravity of 0.5 or greater (equivalent specific gravity of 0.5 or greater for engineered lumber). Edge distance, end distance, and spacings shall be sufficient to prevent splitting of the wood members and must not be less than the minimum edge and end distances specified in the ICC-ES evaluation report for the engineered lumber products.

TABLE 3—REFERENCE WITHDRAWAL DESIGN VALUES (W) IN POUNDS PER INCH FOR SINGLE FASTENER CONNECTIONS^{1,2,3}

NAIL DESIGNATION	MAIN MEMBER	
	Installed into Side Grain	Installed in End Grain
0.120	35	15
0.12M ⁴	44	20
0.135	50	20
0.148 ⁴	45	22

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.45 N.

¹Tabulated withdrawal values must be multiplied by all applicable adjustment factors in accordance with the 2005 NDS Table 10.3.1.

²Tabulated withdrawal values are for nails driven into the side grain or end grain of the main member, with the nail axis perpendicular or parallel to the wood fibers, respectively. The minimum specific gravity must be 0.50 or greater for the solid sawn main member (equivalent specific gravity of 0.50 or greater for the engineered lumber main member).

³Edge distance, end distance, and fastener spacings shall be sufficient to prevent splitting of the wood members and must not be less than the minimum edge and end distances specified in the ICC-ES evaluation report for the engineered lumber products.

⁴For end nailing under the IBC, the 0.120M and 0.148 screw shank nails may be substituted for 3-inch-by-0.131-inch (76 by 3.33 mm) and 16d common [3 1/2-inch-by-0.162-inch (89 by 4.11 mm)] nails, respectively, to attach top or sole plate to stud. For end nailing under the IRC, the 0.120M or 0.148 screw shank nails may be substituted for 16d [3 1/2-inch-by-0.135-inch (89 by 3.43 mm)] nails to attach top or sole plate to stud. The minimum number of fasteners may be determined based on the tabulated reference withdrawal design values for 0.120M and 0.148 screw shank nails installed into the end grain of the main member and must comply with the fastening schedule noted in Table 2304.9.1 of the IBC and Table R602.3(1) of the IRC. The minimum length of fasteners must be 3 inches (76 mm).

TABLE 4—NAIL SLIP, e_n , VALUES (FOR CALCULATING SHEAR WALL AND DIAPHRAGM DEFLECTION DUE TO NAIL SLIP)^{1,2}

NAIL DESIGNATION	LOAD PER NAIL ³ (pounds)									
	60	80	100	120	140	160	180	200	220	240
	NAIL SLIP, e_n (inch)									
0.120	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.03	0.03	0.05
0.120M	0.00	0.006	0.010	0.015	0.021	0.029	0.04	0.053	0.067	0.083
0.135	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02

For **SI**: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound = 4.45 N.

¹Nail slip, e_n , values are based on Structural I wood structural panel fastened to lumber with a specific gravity of 0.50 or greater. Increase e_n values 20 percent for OSB or plywood grades other than Structural I.

²Decrease e_n values 50 percent for seasoned lumber (moisture content \leq 19 percent).

³Load per fastener is equal to the maximum shear per foot divided by the number of fasteners per foot at interior panel edge.

TABLE 5—ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE¹ FOR WIND OR SEISMIC LOADING BASED ON THE 2009 AND 2006 IBC^{6,7}

PANEL GRADE	MINIMUM NOMINAL PANEL THICKNESS (inch)	NAIL DESIGNATION	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	NOMINAL WIDTH OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AND BOUNDARIES (inches) ⁵	BLOCKED DIAPHRAGMS				UNBLOCKED DIAPHRAGMS	
					FASTENERS SPACING (INCHES) AT DIAPHRAGM BOUNDARIES (ALL CASES) AT CONTINUOUS PANEL EDGES PARALLEL TO LOAD (CASES 3, 4), AND AT ALL PANEL EDGES (CASES 5, 6) ²				FASTENERS SPACED 6 INCHES MAXIMUM AT SUPPORTED EDGES ²	
					6	4	2 ¹ / ₂ ³	2 ³		
					FASTENER SPACING (INCHES) AT OTHER PANEL EDGES (CASE 1,2,3,4)					
					6	6	4	3		
Structural 1	3/8	0.120	1 ³ / ₈	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	15/32	0.120M	1 ¹ / ₄	2	320	425	640	730	285	215
				3	360	480	720	820	320	240
	15/32	0.135 ⁴	1 ¹ / ₂	2	320	425	640	730	285	215
				3	360	480	720	820	320	240
Other grades	3/8	0.120	1 ³ / ₈	2	240	320	480	545	215	160
				3	270	360	540	610	240	180
	7/16	0.120	1 ³ / ₈	2	255	340	505	575	230	170
				3	285	380	570	645	255	190
	15/32	0.120	1 ³ / ₈	2	270	360	530	600	240	180
				3	300	400	600	675	265	200
	15/32	0.135 ⁴	1 ¹ / ₂	2	290	385	575	655	255	190
				3	325	430	650	735	290	215
	19/32	0.135 ⁴	1 ¹ / ₂	2	320	425	640	730	285	215
				3	360	480	720	820	320	240

For **SI**: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

¹For framing of other species: (1) Find specific gravity for species of lumber in AF & PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1-(0.5 - SG)], where SG = Specific Gravity of the framing lumber. This adjustment factor must not be greater than 1.

²Space fasteners a maximum of 12 inches o.c. along intermediate framing members (6 inches o.c. where supports are spaced 48 inches o.c.).

³Framing at adjoining panel edges must be 3 inches nominal or wider, and nails must be staggered where nails are spaced 2 inches o.c. or 2¹/₂ inches o.c.

⁴Framing at adjoining panel edges must be 3 inches nominal or wider, and nails must be staggered where both of the following conditions are met: (1) 0.135-inch screw shank nails having penetration into framing of more than 1¹/₂ inches and (2) panel edge nailing are spaced 3 inches o.c. or less.

⁵The minimum nominal width of framing members not located at boundaries or adjoining panel edges must be 2 inches.

⁶For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above must be multiplied by 0.63 or 0.56, respectively.

⁷See Figure 1 for case patterns.

TABLE 6—ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS UTILIZING MULTIPLE ROWS OF FASTENERS (HIGH LOAD DIAPHRAGMS) WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE¹ FOR WIND OR SEISMIC LOADING BASED ON THE 2009 AND 2006 IBC^{2,6,7,8,9,10}

PANEL GRADE ³	MINIMUM NOMINAL PANEL THICKNESS (inch)	NAIL DESIGNATION	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBER AT ADJOINING PANEL EDGES AND BOUNDARIES ⁵	LINES OF FASTENERS	BLOCKED DIAPHRAGMS					
						CASE 1 AND 2 ⁴					
						NAIL SPACING PER LINE AT BOUNDARIES (inches)					
						4		2 ¹ / ₂			
						NAIL SPACING PER LINE AT OTHER PANEL EDGES (inches)					
6		4		4		3					
Structural 1	1 ⁵ / ₃₂	0.120M	1 ¹ / ₄	3	2	605	815	875	1,150		
						4	2	700	915	1,005	1,290
						4	3	875	1,220	1,285	1,395
	1 ⁵ / ₃₂	0.135	1 ¹ / ₂	3	2	605	815	875	1,150		
						4	2	700	915	1,005	1,290
						4	3	875	1,220	1,285	1,395
	1 ⁹ / ₃₂	0.135	1 ¹ / ₂	3	2	670	880	965	1,255		
						4	2	780	990	1,110	1,440
						4	3	965	1,320	1,405	1,790
Other grades	1 ⁵ / ₃₂	0.135	1 ¹ / ₂	3	2	525	725	765	1,010		
						4	2	605	815	875	1,105
						4	3	765	1,085	1,130	1,195
	1 ⁹ / ₃₂	0.135	1 ¹ / ₂	3	2	650	860	935	1,225		
						4	2	755	965	1,080	1,370
						4	3	935	1,290	1,365	1,480

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

¹For framing of other species: (1) Find specific gravity for species of framing lumber in AF&PA NDS. (2) For nails, find shear value from table above for nail size of actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1 - (0.5 - SG)], where SG = Specific gravity of the framing lumber. This adjustment factor must not be greater than 1.

²Fastening along intermediate framing members: Space fasteners a maximum of 12 inches on center, except 6 inches on center for spans greater than 32 inches.

³Panels conforming to PS 1 or PS 2.

⁴This table gives shear values for Cases 1 and 2 as shown in 2009 IBC Table 2306.2.1(1) and 2006 IBC Table 2306.3.1. The values shown are applicable to Cases 3, 4, 5 and 6 as shown in 2009 IBC Table 2306.2.1(1) and 2006 IBC Table 2306.3.1 providing fasteners at all continuous panel edges are spaced in accordance with the boundary fastener spacing. See Figure 1 for case patterns.

⁵The minimum nominal depth of framing members must be 3 inches nominal. The minimum nominal width of framing members not located at boundaries or adjoining panel edges must be 2 inches.

⁶High load diaphragms must be subject to special inspection in accordance with IBC Section 1704.6.1.

⁷For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above must be multiplied by 0.63 or 0.56, respectively.

⁸Sheathing nails must be driven so that their head is flush with the surface of the sheathing.

⁹The allowable shear capacities are permitted to be calculated by principles of mechanics without limitations by using values for fastener strength in the AF&PA NDS, structural panel design properties given in the *APA Panel Design Specification (PDS)*.

¹⁰See Figure 2 for nailing requirements.

TABLE 7—ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE¹ FOR WIND OR SEISMIC LOADING BASED ON 2009 AND 2006 IBC^{2,7,8,9,10}

PANEL GRADE	MINIMUM NOMINAL PANEL THICKNESS (inches)	MINIMUM NAIL PENETRATION IN FRAMING (inches)	PANEL APPLIED DIRECTLY TO FRAMING				PANELS APPLIED OVER 1/2-INCH OR 5/8-INCH GYPSUM SHEATHING					
			NAIL DESIGNATION	NAIL SPACING AT PANEL EDGE (inches)				NAIL DESIGNATION	NAIL SPACING AT PANEL EDGE (inches)			
				6	4	3	2 ⁴		6	4	3	2 ⁴
Structural 1	3/8	1 3/8	0.120	230 ³	360 ³	460 ³	610 ³	0.135	280	430	550 ⁵	730
	7/16			255 ³	395 ³	505 ³	670 ³					
	15/32			280	430	550	730					
	15/32	1 1/4	0.120M	340	510	665 ⁵	870	—	—	—	—	
	15/32	1 1/2	0.135	340	510	665 ⁵	870	—	—	—	—	
Other grades ⁶	3/8	1 3/8	0.120	220 ³	320 ³	410 ³	530 ³	0.135	260	380	490 ⁵	640
	7/16			240 ³	350 ³	450 ³	585 ³					
	15/32			260	380	490	640					
	15/32	1 1/2	0.135	310	460	600 ⁵	770	—	—	—	—	
	19/32			340	510	665 ⁵	870					

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

¹For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = [1-(0.5 - SG)], where SG = specific Gravity of the framing lumber. This adjustment factor must not be greater than 1.

²Panel edges backed with 2-inch nominal or wider framing. Install panels either horizontally or vertically. Space fasteners maximum 6 inches on center along intermediate framing members for 3/8-inch and 7/16-inch panels installed on studs spaced 24 inches on center. For other conditions and panel thickness, space fasteners maximum 12 inches on center on intermediate supports.

³Allowable shear values are permitted to be increased to values shown for 15/32-inch sheathing with same nailing provided (a) studs are spaced a maximum of 16 inches on center, or (b) panels are applied with long dimension across studs.

⁴Framing at adjoining panel edges must be 3 inches nominal or wider, and nails must be staggered where nails are spaced 2 inches on center.

⁵Framing at adjoining panel edges must be 3 inches nominal or wider, and nails must be staggered where both of the following conditions are met: (1) 0.135-inch-diameter screw shank nails having penetration into framing of more than 1 1/2 inches and (2) nails are spaced 3 inches on center.

⁶Values apply to all-veneer plywood. Thickness at point of fastening on panel edges governs shear values.

⁷Where panels applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints must be offset to fall on different framing members, or framing must be 3-inch nominal or thicker at adjoining panel edges and nails on each side must be staggered.

⁸In Seismic Design Category D, E or F, where shear design values exceed 350 pounds per linear foot, all framing members receiving edge nailing from abutting panels must not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together in accordance with IBC Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing must be staggered in all cases. See Sections 4.3.6.1 and 4.3.6.4.3 of AF&PA SDPWS (2009 IBC) and 2006 IBC Section 2305.3.11 for sill plate size and anchorage requirements.

⁹For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above must be multiplied by 0.63 or 0.56, respectively.

¹⁰See Figure 2 for nailing requirements.

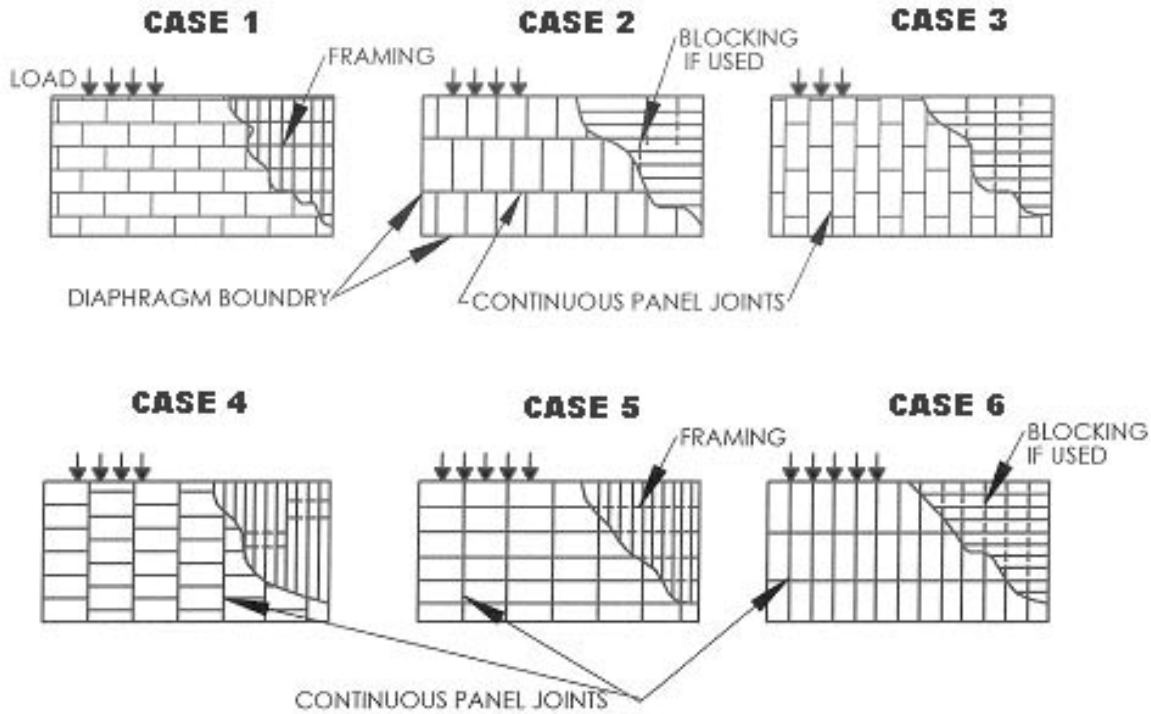
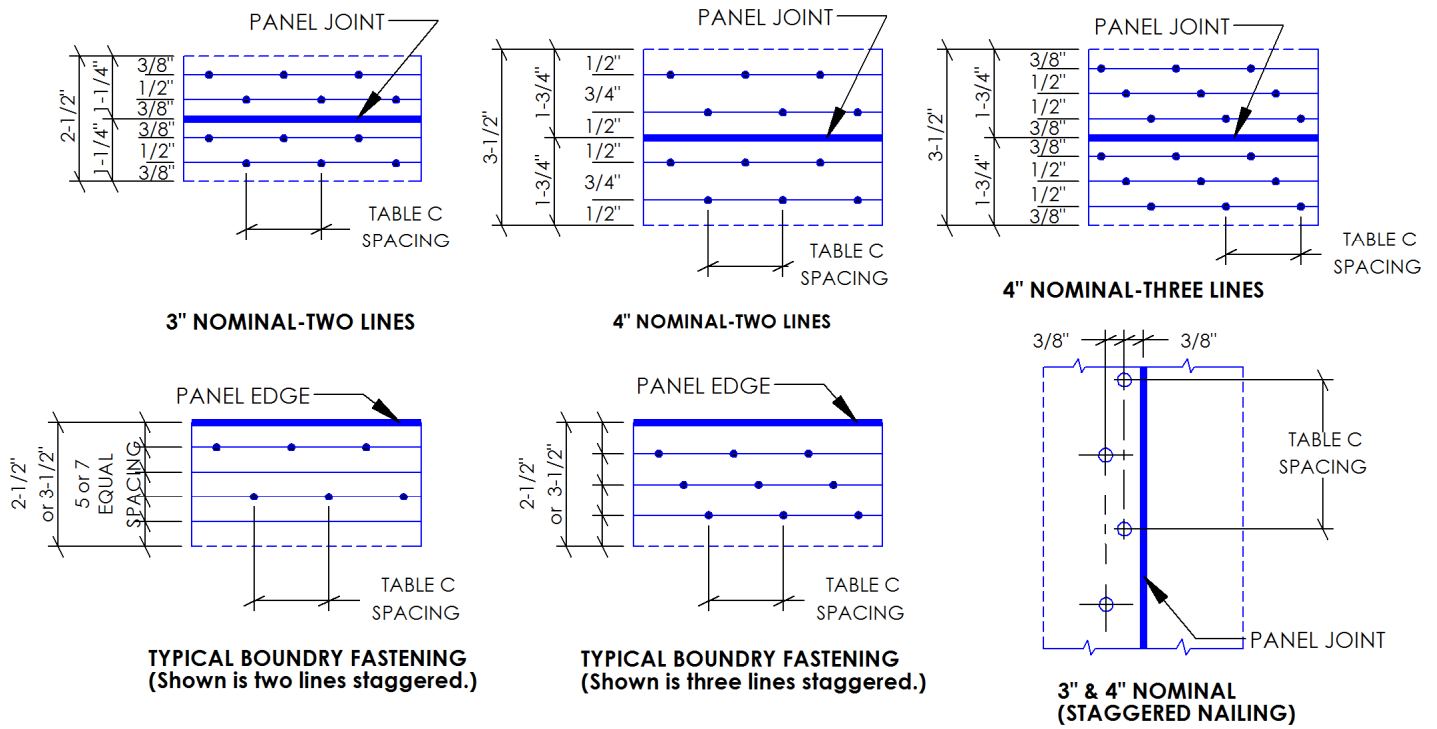


FIGURE 1



Note: Space panel end and edge joints $\frac{1}{8}$ inch (3.175 mm). Reduce spacing between lines of nails as necessary to maintain minimum $\frac{3}{8}$ inch (9.5 mm) fastener edge margins, minimum spacing between lines is $\frac{3}{8}$ inch (9.5 mm).

FIGURE 2