



EnergyGuard™

Polyiso Insulation

Polyiso and Cover Board Fastening Guide

Standard Guarantee Requirements



We protect what matters most™



The below referenced fastening densities are provided for the purposes of obtaining coverage under a **GAF Diamond Pledge™ NDL Roof Guarantee** only. Depending on a project's individual requirements, increased fastening densities may be necessary, as our requirements are not intended to modify, supersede, negate, or alter, what is specified by a project's design professional, local buildings codes, or insurance provider. For additional information, consult GAF Installation manuals by attachment method and membrane type, consult ROOFnav.com, or contact GAF: designservices@gaf.com or 877-423-7663.

For insulation attachment, use Table 1 to determine the proper fastener and plate, and use Tables 2 and 3 to determine the number of fasteners per board. The values and rates in the charts apply when the membrane is adhered to the insulation.

TABLE 1 — Insulation Fastener and Plate

Deck Type	Drill-Tec™ Fastener Type	Drill-Tec™ Plate Type	Penetration (min.)
Steel (Min. 22 gauge)	#12	3" (76 mm) Steel	¾" (19 mm) through the deck
	HD #14		
Wood (Plywood, OSB, and Plank)	#12	3" (76 mm) Steel	¾" (19 mm) through the deck (plywood or OSB) and 1" (25 mm) thread into the deck (plank)
	HD #14		
	XHD #15		
Structural Concrete (Min. 2,500 psi)	HD #14	3" (76 mm) Steel	1" (25 mm) thread into the deck
	CD-10 (non-threaded)		1" (25 mm) shank into the deck
Gypsum, Lightweight Concrete, Cementitious Wood Fiber (Tectum)	Polymer GypTec™	3" (76 mm) GypTec™	1½" (38 mm) thread into deck
	LD (Lite Deck)	3" (76 mm) LD (Lite Deck)	

TABLE 2 — Adhered Single-Ply Membrane Insulation Attachment: Standard Attachment for Approved Steel and Structural Concrete

Insulation / Cover Board Type	Board Size	Thickness	Attachment Fasteners per Board					
			Building Hts up to 60 ft.			Building Hts 61–100 ft.		
			Field	Perimeter	Corner	Field	Perimeter	Corner
EnergyGuard™ Polyiso ¹	4' x 4' (1.2 m x 1.2 m)	.5" – 1.4" (13 – 35 mm)	8	8	8	8	12	12
	4' x 8' (1.2 m x 2.4 m)	.5" – 1.4" (13 – 35 mm)	16	16	16	16	24	24
	4' x 4' (1.2 m x 1.2 m)	1.5" – 1.9" (38 – 48 mm)	5	5	5	5	8	8
	4' x 8' (1.2 m x 2.4 m)	1.5" – 1.9" (38 – 48 mm)	10	10	10	10	15	15
	4' x 4' (1.2 m x 1.2 m)	2" (51 mm) minimum	4	4	4	4	6	6
	4' x 8' (1.2 m x 2.4 m)	2" (51 mm) minimum	8	8	8	8	12	12
EnergyGuard™ HD Polyiso Cover Board ²	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	6	8	6	9	12
EnergyGuard™ Barrier Polyiso ³	4' x 4' (1.2 m x 1.2 m)	2" (51 mm) minimum	4	4	4	4	6	6
	4' x 8' (1.2 m x 2.4 m)	2" (51 mm) minimum	8	8	8	8	12	12
Ultra HD Composite Insulation ²	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	6	8	6	9	12
Gypsum Cover Board ⁴	4' x 8' (1.2 m x 2.4 m)	.25" (6 mm) minimum	8	8	8	8	12	12
Blue Ridge STRUCTODEK™ HD Fiberboard	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	16	24	32	16	32	32

Limited to building heights up to 100 feet. Attachment rates listed above are not applicable for regions prone to "high-winds," such as Florida's HVHZ counties, or Special Wind Regions as designated in ASCE's Basic Wind Speed Maps. Perimeter and corner zone fastening densities need to be enhanced 50% from the field on Buildings between 61 and 100 feet. Maximum Guarantee Wind Speed — 55 mph. If higher wind speed coverage is required, or a building's parameters fall outside of what is listed above, please contact GAF Design Services at designservices@gaf.com or 877-423-7663.

TABLE 3 — Adhered Single-Ply Membrane Insulation Attachment: Standard Attachment for Wood, Gypsum, Lightweight Concrete, Cementitious Wood Fiber

Insulation / Cover Board Type	Board Size	Thickness	Attachment Fasteners per Board		
			Field	Perimeter	Corner
EnergyGuard™ Polyiso ¹	4' x 4' (1.2 m x 1.2 m)	.5" – 1.4" (13 – 35 mm)	8	12	16
	4' x 8' (1.2 m x 2.4 m)	.5" – 1.4" (13 – 35 mm)	16	24	32
	4' x 4' (1.2 m x 1.2 m)	1.5" – 1.9" (38 – 48 mm)	5	8	10
	4' x 8' (1.2 m x 2.4 m)	1.5" – 1.9" (38 – 48 mm)	10	15	20
	4' x 4' (1.2 m x 1.2 m)	2" (51 mm) minimum	4	6	8
	4' x 8' (1.2 m x 2.4 m)	2" (51 mm) minimum	8	12	16
EnergyGuard™ HD Polyiso Cover Board ²	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	12	16
EnergyGuard™ Barrier Polyiso ³	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	12	16
Ultra HD Composite Insulation	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	12	16
Gypsum Cover Board ⁴	4' x 8' (1.2 m x 2.4 m)	.25" (6 mm) minimum	8	12	16
Blue Ridge STRUCTODEK™ HD Fiberboard	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	16	24	32

Maximum Guarantee Wind Speed — 55 mph. If higher wind speed coverage is required, please contact GAF Design Services at designservices@gaf.com or 877-423-7663.

¹ EnergyGuard™ Ultra Polyiso Insulation | EnergyGuard™ Tapered Polyiso Insulation | EnergyGuard™ Ultra Tapered Polyiso Insulation | EnergyGuard™ NH Polyiso Insulation | EnergyGuard™ NH Tapered Polyiso Insulation | EnergyGuard™ NH Ultra Polyiso Insulation | EnergyGuard™ NH Ultra Tapered Polyiso Insulation

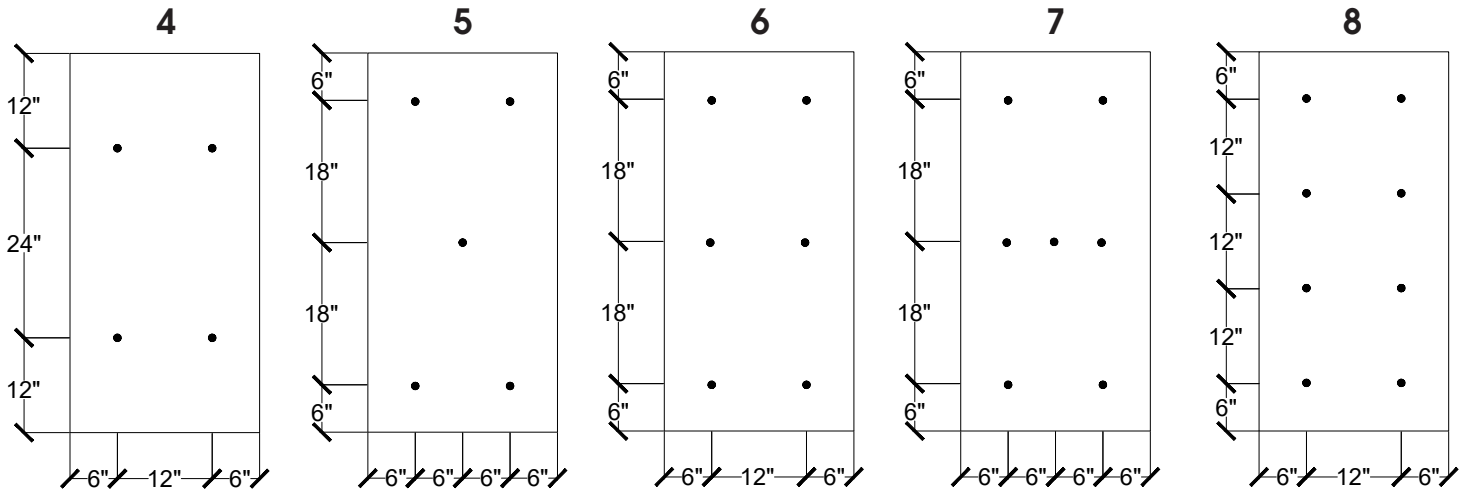
² EnergyGuard™ HD Plus Polyiso Cover Board | EnergyGuard™ HD Barrier Polyiso Cover Board | EnergyGuard™ NH HD Barrier Polyiso Cover Board | EnergyGuard™ NH HD Polyiso Cover Board | EnergyGuard™ NH HD Plus Polyiso Cover Board | Ultra HD Composite Polyiso Insulation

³ EnergyGuard™ NH Barrier Polyiso Insulation

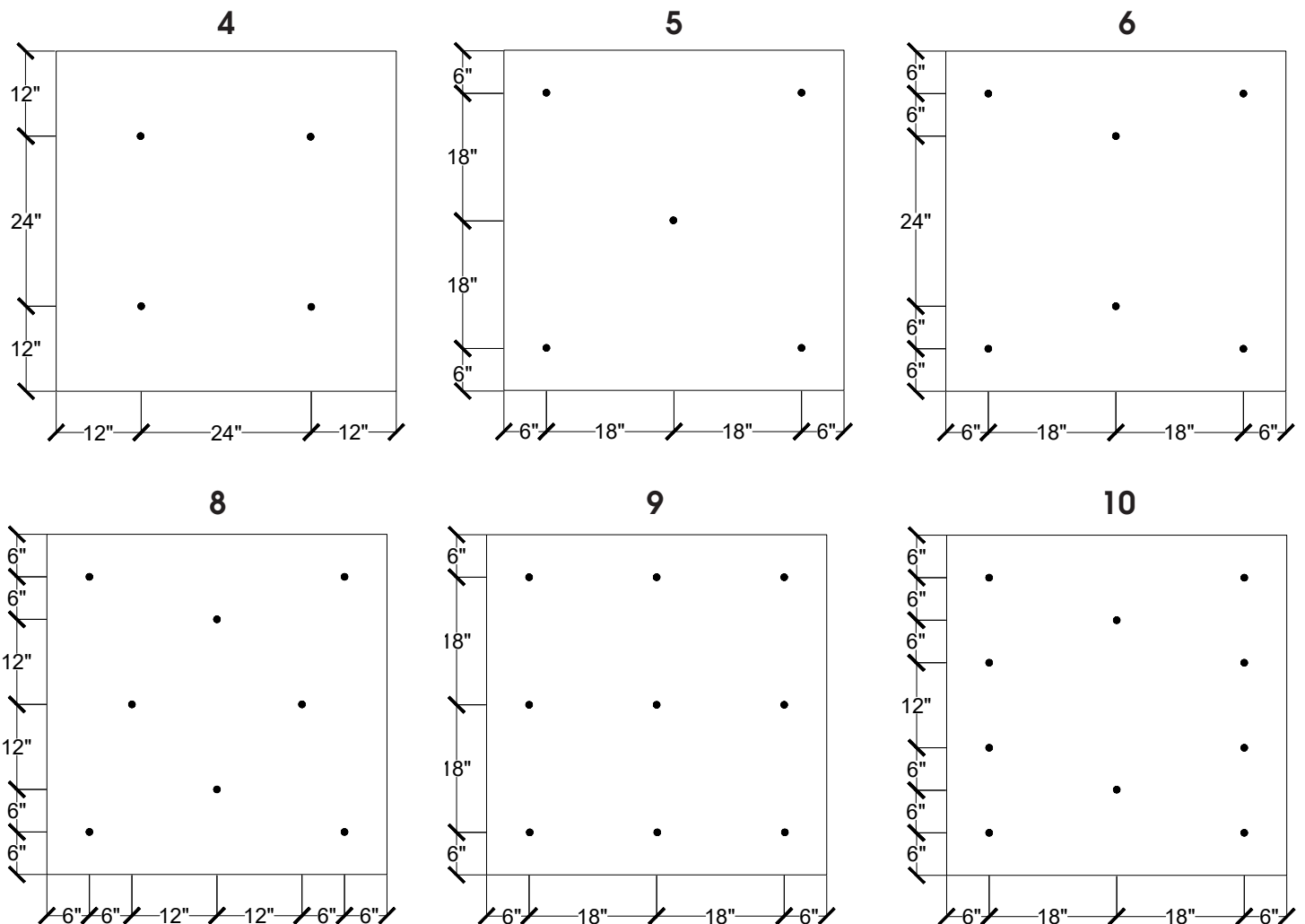
⁴ USG Securock® Brand Gypsum-Fiber Roof Board | USG Securock® Brand Ultralight Coated Glass-mat Roof Board | Georgia Pacific DensDeck® Prime Roof Board | Georgia Pacific DensDeck® StormX™ Prime Roof Board | National Gypsum DEXcell FA™ Glass Mat Roof Board | National Gypsum DEXcell FA VSH™ Glass Mat Roof Board
Note: Some gypsum coverboards come in 4' x 4' board sizes. Attachment rate can be reduced by 50% from the 4' x 8' board listed in the table above, but must have at least 4 fasteners.



2' x 4' (.61 m x 1.2 m) Boards



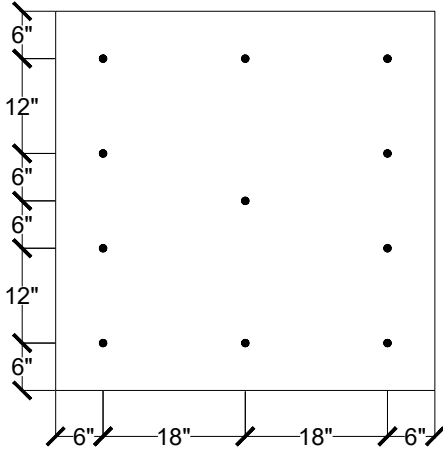
4' x 4' (1.2 m x 1.2 m) Boards



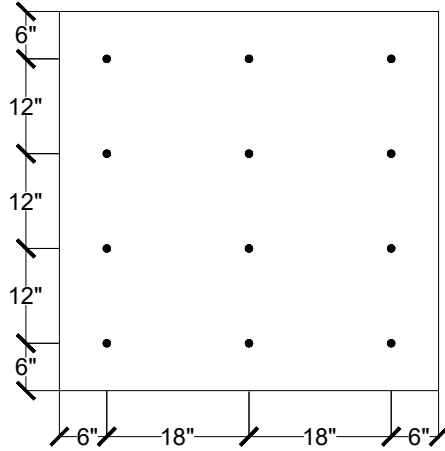


4' x 4' (1.2 m x 1.2 m) Boards

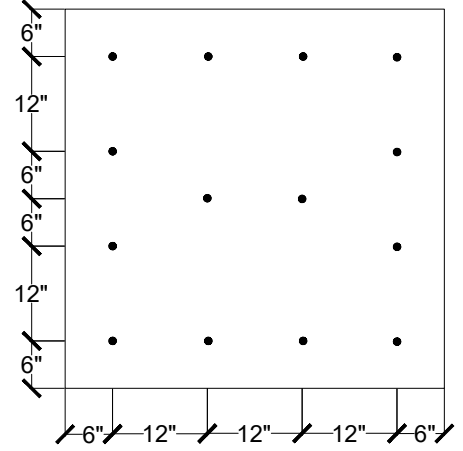
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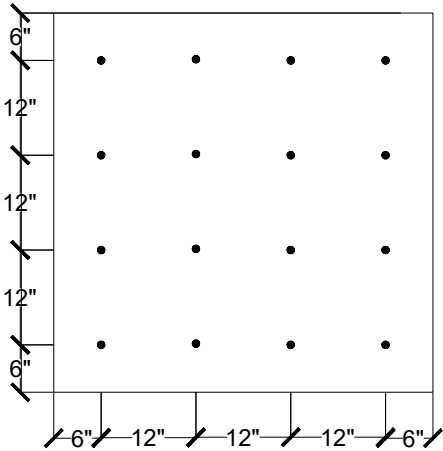
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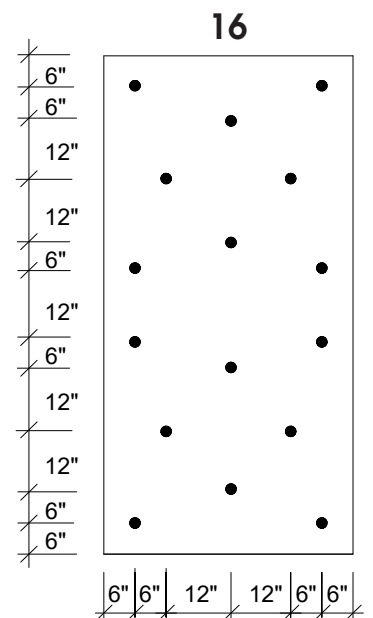
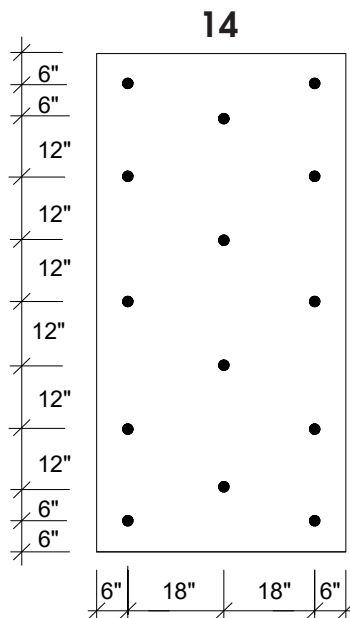
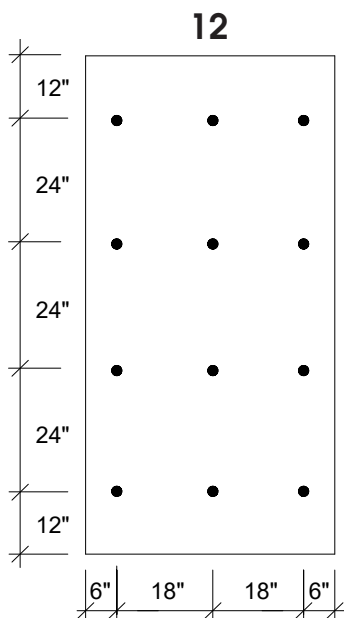
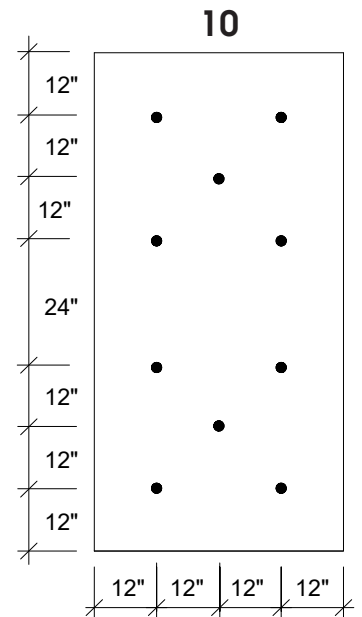
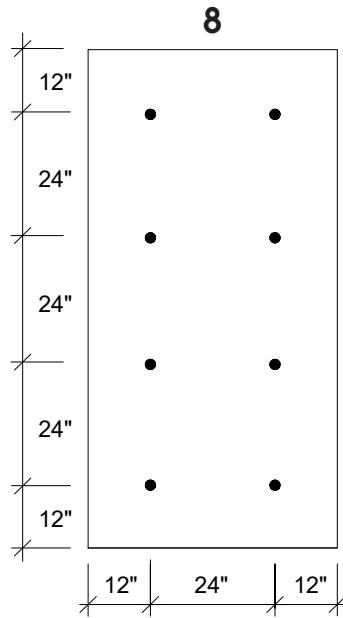
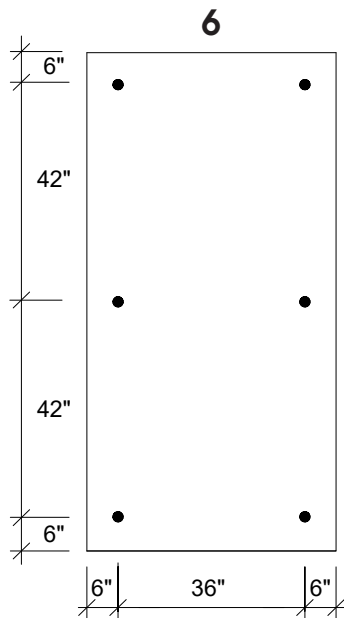


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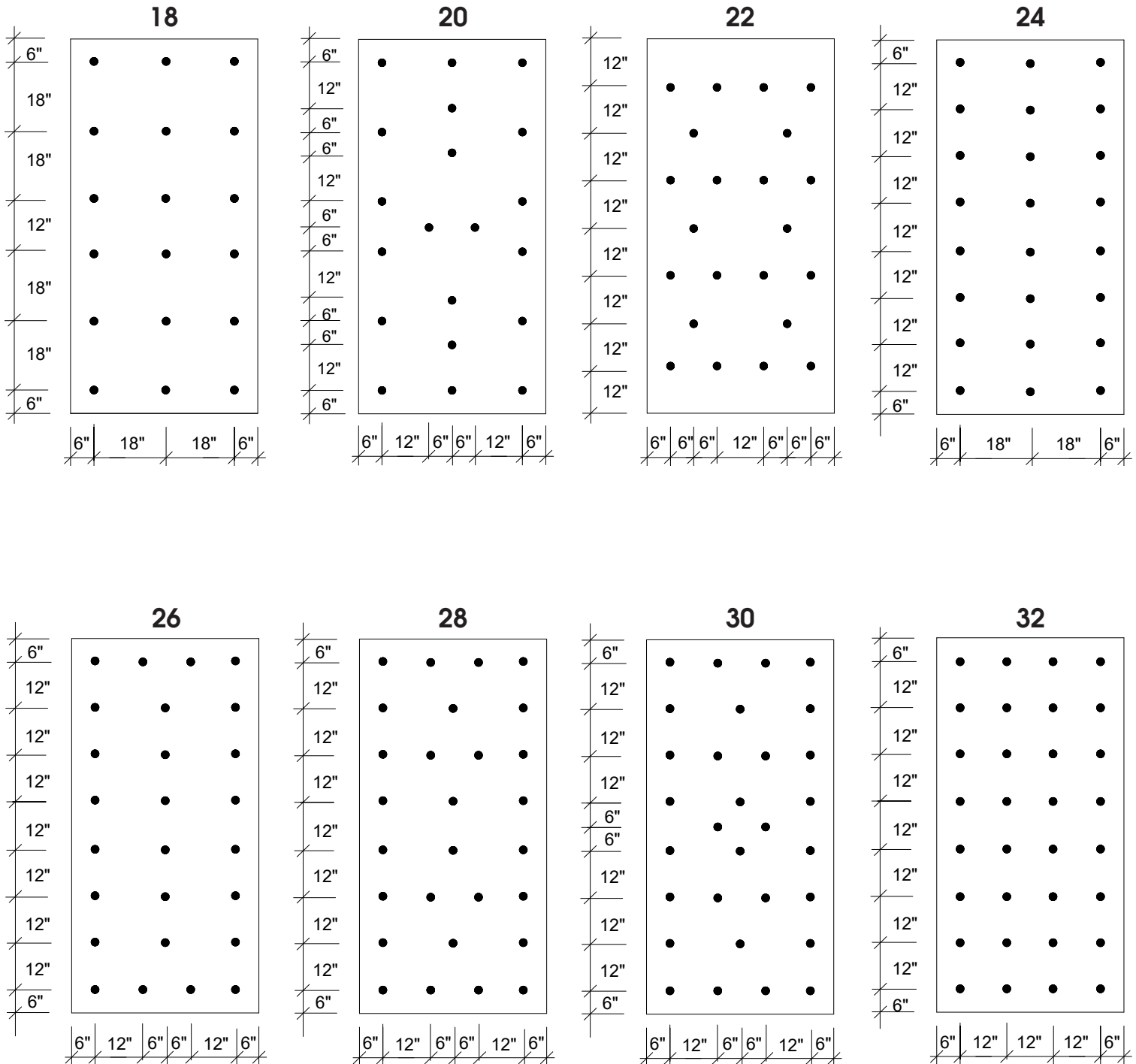
Adhered Membrane Fastening Pattern Guides

4' x 8' (1.2 m x 2.4 m) Boards





4' x 8' (1.2 m x 2.4 m) Boards





EnergyGuard™

Induction-Welded Membranes

The below referenced fastening densities are provided for the purposes of obtaining coverage under a **GAF Diamond Pledge™ NDL Roof Guarantee** only. Depending on a project's individual requirements, increased fastening densities may be necessary, as our requirements are not intended to modify, supersede, negate, or alter, what is specified by a project's design professional, local buildings codes, or insurance provider. For additional information, consult GAF Installation manuals by attachment method and membrane type, consult ROOFnav.com, or contact GAF: designservices@gaf.com or 877-423-7663.

For insulation attachment, use Table 1 to determine the proper fastener and plate, and use Tables 2 and 3 to determine the number of fasteners per board.

The values and rates in the charts apply when the membrane is induction-welded to the induction-weld plate securing the insulation.

TABLE 1 — Induction-Welded Insulation Fastener and Plate

Deck Type	Minimum Pull-Out Value (lbf)	Drill-Tec™ Fastener	Drill-Tec™ Plate	Minimum Penetration
Steel 22 Gauge (standard 33 ksi)	450	#15 XHD	RhinoBond® TPO or PVC XHD	¾" (19 mm) through the deck
	600	#21 SXHD		1" (25 mm) through the deck
Steel 22 Gauge (high-strength 80 ksi)	450	#15 XHD	RhinoBond® TPO or PVC XHD	¾" (19 mm) through the deck
	750	#21 SXHD		1" (25 mm) through the deck
Structural Concrete (min. 2,500 psi)	700	#14 HD	RhinoBond® TPO or PVC XHD	1" (25 mm) into the deck
	900	CD-10		1" (25 mm) into the deck
Lightweight Insulating Concrete (LWIC over 22 gauge Standard Form)	450	#15 XHD	RhinoBond® TPO or PVC XHD	¾" (19 mm) through form
	350	#14 HD		¾" (19 mm) through form
Lightweight Insulating Concrete (LWIC over 24–26 gauge standard form)	350	#15 XHD	RhinoBond® TPO or PVC XHD	¾" (19 mm) through form
	350	#14 HD		¾" (19 mm) through form

TABLE 2 — Induction-Welded Single-Ply Membrane Insulation Attachment: Standard Attachment for Approved Steel and Structural Concrete

Insulation / Cover Board Type	Board Size	Thickness	Attachment Fasteners per Board					
			Building Hts up to 60 ft.			Building Hts 61–100 ft.		
			Field	Perimeter	Corner	Field	Perimeter	Corner
EnergyGuard™ Polyiso ¹	4' x 4' (1.2 m x 1.2 m)	1.5" (38 mm) minimum	4	4	4	4	6	6
	4' x 8' (1.2 m x 2.4 m)	1.5" (38 mm) minimum	6	6	8	6	9	12
EnergyGuard™ HD Polyiso Cover Board ²	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	6	8	6	9	12
EnergyGuard™ Barrier Polyiso ³								
Ultra HD Composite Insulation	4' x 8' (1.2 m x 2.4 m)	2" (51 mm) minimum	6	6	8	6	9	12
Gypsum Coverboard ⁴	4' x 8' (1.2 m x 2.4 m)	.25" (6 mm) minimum	6	6	8	6	9	12
Blue Ridge STRUCTODEK™ HD Fiberboard	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	8	8	8	12	12

Limited to building heights up to 100 feet. Attachment rates listed above are not applicable for regions prone to "high-winds", such as Florida's HVHZ counties, or Special Wind Regions as designated in ASCE's Basic Wind Speed Maps. Perimeter and corner zone fastening densities need to be enhanced 50% from the field on Buildings between 61 and 100 feet. Maximum Guarantee Wind Speed — 55 mph. If higher wind speed coverage is required, or a building's parameters fall outside of what is listed above, please contact GAF Design Services at designservices@gaf.com or 877-423-7663.

TABLE 3 — Induction-Welded Single-Ply Membrane Insulation Attachment: Standard Attachment for Lightweight Insulating Concrete

Insulation / Cover Board Type	Board Size	Thickness	Attachment Fasteners per Board		
			Field	Perimeter	Corner
EnergyGuard™ Polyiso ¹	4' x 4' (1.2 m x 1.2 m)	.5" (13 mm) minimum	4	5	6
	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	9	12
EnergyGuard™ HD Polyiso Cover Board ²	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	9	12
EnergyGuard™ Barrier Polyiso ³	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	9	12
Ultra HD Composite Insulation	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	9	12
Gypsum Cover Board ⁴	4' x 8' (1.2 m x 2.4 m)	.25" (6 mm) minimum	6	9	12
Blue Ridge STRUCTODEK™ HD Fiberboard	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	6	9	12

Maximum Guarantee Wind Speed — 55 mph. If higher wind speed coverage is required, please contact GAF Design Services at designservices@gaf.com or 877-423-7663.

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³ EnergyGuard™ NH Barrier Polyiso Insulation

⁴ USG Securock® Brand Gypsum-Fiber Roof Board | USG Securock® Brand UltraLight Glass-mat Roof Board | USG Securock® Brand UltraLight Coated Glass-mat Roof Board | Georgia Pacific DensDeck® Roof Board | Georgia Pacific DensDeck® Prime Roof Board | Georgia Pacific DensDeck® StormX™ Prime Roof Board | National Gypsum DEXcell® Glass-mat Roof | National Gypsum DEXcell® FA Glass-mat Roof Board | National Gypsum DEXcell® FA VSH™ Glass-mat Roof Board

Note: Some gypsum cover boards come in 4' x 4' board sizes. Attachment rate can be reduced by 50% from the 4' x 8' board listed in the table above, but must have at least 4 fasteners.



For induction-welded attachments into plywood, OSB, or plank, the starting fastener field attachment required is based on the minimum pull-out value achieved when verifying the substrate's suitability prior to installation.

TABLE 1 — Induction-Welded Insulation Fastener and Plate: Wood

Deck Type	Minimum Pull-Out Value (lbf)	Drill-Tec™ Fastener	Drill-Tec™ Plate	Minimum Penetration
Wood (Plywood, OSB, and Plank)	200 60' (max. bldg. ht.)	HD #14 XHD #15	RhinoBond® TPO or PVC XHD	¾" minimum into Plywood or OSB
				1" minimum into Wood plank deck. Fasteners shall not be driven into the joints of the wood plank.
	300 60' (max. bldg. ht.)	HD #14 XHD #15	RhinoBond® TPO or PVC XHD	¾" minimum into Plywood or OSB
				1" minimum into Wood plank deck. Fasteners shall not be driven into the joints of the wood plank.

TABLE 2 — Induction-Welded Single-ply Membrane Insulation Attachment: Standard Attachment for Wood

Insulation Type	Board Size	Thickness	Standard Attachment Fasteners per Board					
			200 (lbf) Pull			300 (lbf) Pull		
			Field	Perimeter	Corner	Field	Perimeter	Corner
EnergyGuard™ Polyiso ¹	4' x 4' (1.2 m x 1.2 m)	.5" (13 mm) minimum	4	6	6	4	5	5
	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	12	12	6	10	10
EnergyGuard™ HD Polyiso Cover Board ²	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	12	12	6	10	10
EnergyGuard™ Barrier Polyiso ³	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	12	12	6	10	10
Ultra HD Composite Insulation	4' x 8' (1.2 m x 2.4 m)	2" (51 mm) minimum	8	12	12	6	10	10
Gypsum Cover Board ⁴	4' x 8' (1.2 m x 2.4 m)	.25" (6 mm) minimum	8	12	12	6	10	10
Blue Ridge STRUCTODEK™ HD Fiberboard	4' x 8' (1.2 m x 2.4 m)	.5" (13 mm) minimum	8	12	12	6	10	10

Limited to enclosed buildings with heights up to 60 feet in exposure categories B or C, per local ASCE wind zone. Maximum warranty wind speed — 55 mph. For projects requiring higher wind speed coverage or other parameters not addressed above, contact GAF Design Services at designservices@gaf.com or 877-423-7663.

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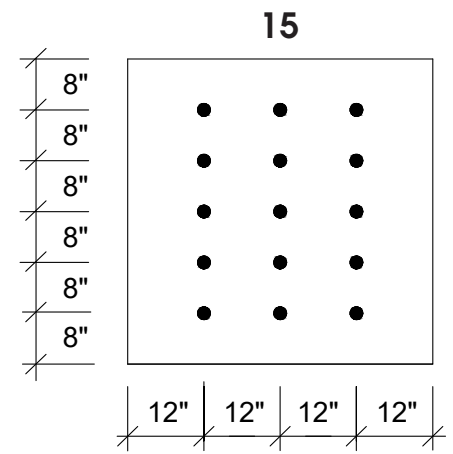
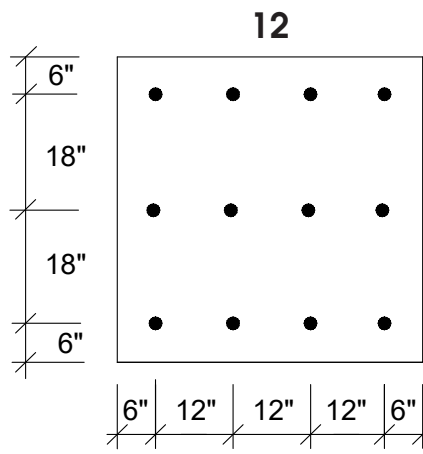
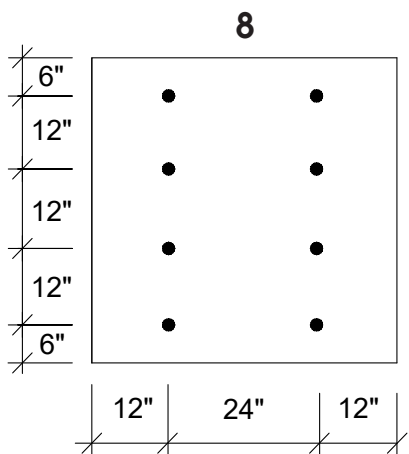
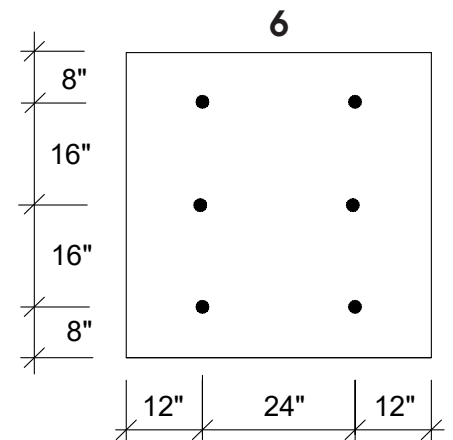
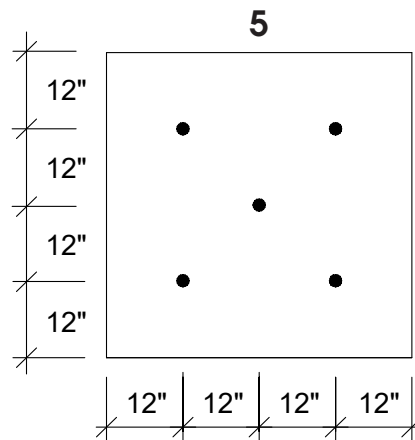
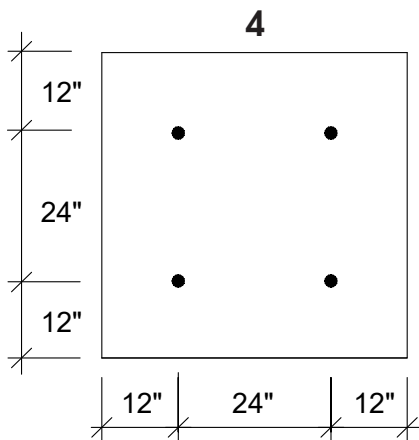
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Note: Some gypsum cover boards come in 4' x 4' board sizes. Attachment rate can be reduced by 50% from the 4' x 8' board listed in the table above, but must have at least 4 fasteners.



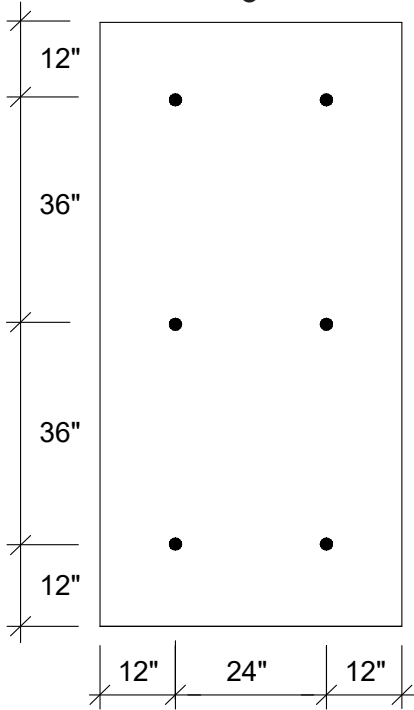
4' x 4' (1.2 m x 1.2 m) Boards



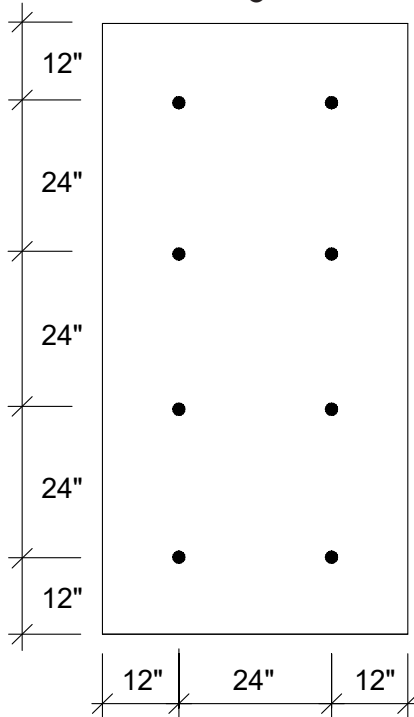


4' x 8' (1.2 m x 2.4 m) Boards

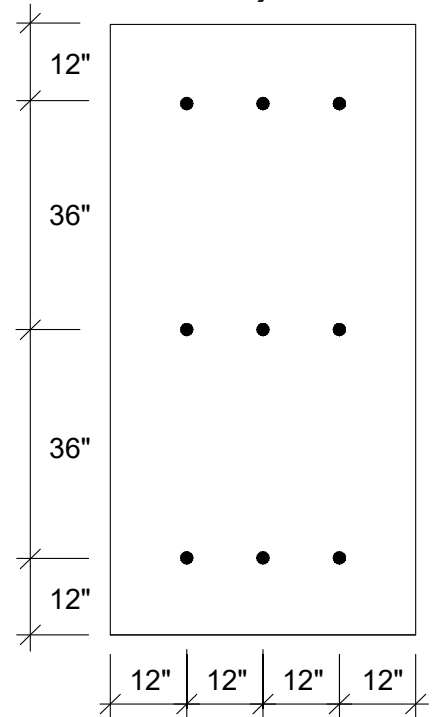
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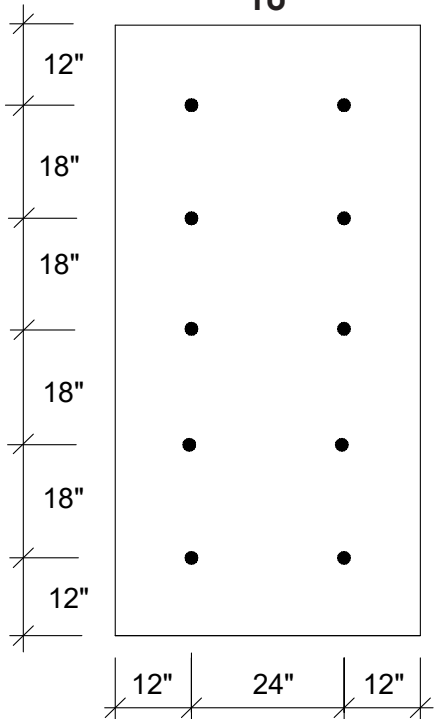
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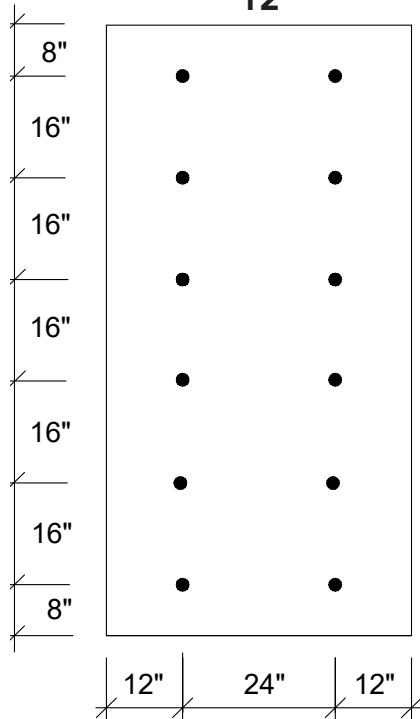
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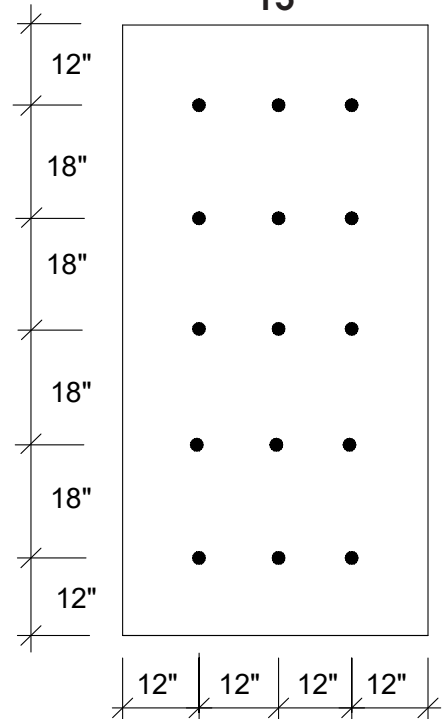
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4' x 8' (1.2 m x 2.4 m) Boards

