

Low-Slope Roof Spans 125% Non-Snow

ALLOWABLE ROOF SPANS – 20 PSF LIVE LOAD - 10 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span Slopes to 1 in 12			Multiple Spans Slopes to 1 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	21'-7" ⁽¹⁾	20'-4" ⁽¹⁾	18'-9" ⁽¹⁾	24'-2" ⁽¹⁾	22'-8" ⁽¹⁾	20'-3" ⁽¹⁾
	11½"	26'-1" ⁽¹⁾	24'-6" ⁽¹⁾	22'-8" ⁽¹⁾	28'-4" ⁽¹⁾	25'-10" ⁽¹⁾	23'-1" ⁽¹⁾
	14"	29'-8" ⁽¹⁾	27'-11" ⁽¹⁾	25'-3" ⁽¹⁾	30'-11" ⁽¹⁾	28'-2" ⁽¹⁾	25'-2" ⁽¹⁾
PWI 45	9½"	23'-9" ⁽¹⁾	22'-4" ⁽¹⁾	20'-8" ⁽¹⁾	26'-7" ⁽¹⁾	24'-11" ⁽¹⁾	23'-1" ⁽¹⁾
	11½"	28'-6" ⁽¹⁾	26'-9" ⁽¹⁾	24'-9" ⁽¹⁾	31'-10" ⁽¹⁾	29'-8" ⁽¹⁾	26'-6" ⁽¹⁾
	14"	32'-5" ⁽¹⁾	30'-5" ⁽¹⁾	28'-2" ⁽¹⁾	35'-7" ⁽¹⁾	32'-5" ⁽¹⁾	29'-0" ⁽¹⁾
PWI 47	16"	36'-0" ⁽¹⁾	33'-10" ⁽¹⁾	31'-1" ⁽¹⁾	38'-1" ⁽¹⁾	34'-9" ⁽¹⁾	31'-0" ⁽¹⁾
	9½"	24'-3" ⁽¹⁾	22'-10" ⁽¹⁾	21'-1" ⁽¹⁾	27'-2" ⁽¹⁾	25'-6" ⁽¹⁾	23'-4" ⁽¹⁾
	11½"	28'-10" ⁽¹⁾	27'-1" ⁽¹⁾	25'-1" ⁽¹⁾	32'-3" ⁽¹⁾	29'-7" ⁽¹⁾	26'-5" ⁽¹⁾
PWI 50	14"	32'-9" ⁽¹⁾	30'-9" ⁽¹⁾	28'-5" ⁽¹⁾	35'-4" ⁽¹⁾	32'-3" ⁽¹⁾	28'-10" ⁽¹⁾
	16"	36'-2" ⁽¹⁾	34'-0" ⁽¹⁾	30'-10" ⁽¹⁾	37'-9" ⁽¹⁾	34'-5" ⁽¹⁾	30'-9" ⁽¹⁾
	9½"	23'-6" ⁽¹⁾	22'-1" ⁽¹⁾	20'-5" ⁽¹⁾	26'-3" ⁽¹⁾	24'-7" ⁽¹⁾	22'-9" ⁽¹⁾
PWI 60	11½"	28'-3" ⁽¹⁾	26'-6" ⁽¹⁾	24'-7" ⁽¹⁾	31'-7" ⁽¹⁾	29'-8" ⁽¹⁾	27'-5" ⁽¹⁾
	14"	32'-3" ⁽¹⁾	30'-4" ⁽¹⁾	28'-1" ⁽¹⁾	36'-1" ⁽¹⁾	33'-11" ⁽¹⁾	31'-0" ⁽¹⁾
	16"	36'-0" ⁽¹⁾	33'-10" ⁽¹⁾	31'-4" ⁽¹⁾	40'-3" ⁽¹⁾	37'-1" ⁽¹⁾	33'-2" ⁽²⁾
PWI 70	9½"	25'-3" ⁽¹⁾	23'-8" ⁽¹⁾	21'-11" ⁽¹⁾	28'-2" ⁽¹⁾	26'-5" ⁽¹⁾	24'-6" ⁽¹⁾
	11½"	30'-3" ⁽¹⁾	28'-5" ⁽¹⁾	26'-4" ⁽¹⁾	33'-10" ⁽¹⁾	31'-8" ⁽¹⁾	28'-4" ⁽¹⁾
	14"	34'-6" ⁽¹⁾	32'-4" ⁽¹⁾	30'-0" ⁽¹⁾	38'-1" ⁽¹⁾	34'-9" ⁽¹⁾	31'-1" ⁽¹⁾
PWI 77	16"	38'-3" ⁽¹⁾	36'-0" ⁽¹⁾	33'-4" ⁽¹⁾	41'-1" ⁽¹⁾	37'-5" ⁽¹⁾	33'-6" ⁽²⁾
	11½"	31'-4" ⁽¹⁾	29'-5" ⁽¹⁾	27'-3" ⁽¹⁾	35'-0" ⁽¹⁾	32'-10" ⁽¹⁾	30'-5" ⁽¹⁾
	14"	35'-7" ⁽¹⁾	33'-5" ⁽¹⁾	30'-11" ⁽¹⁾	39'-10" ⁽¹⁾	37'-4" ⁽¹⁾	34'-7" ⁽²⁾
PWI 90	16"	39'-5" ⁽¹⁾	37'-0" ⁽¹⁾	34'-4" ⁽¹⁾	44'-1" ⁽¹⁾	41'-5" ⁽²⁾	38'-4" ⁽²⁾
	18"	43'-2" ⁽¹⁾	40'-6" ⁽¹⁾	37'-6" ⁽¹⁾	48'-3" ⁽¹⁾	45'-4" ⁽²⁾	40'-8" ⁽²⁾
	20"	46'-9" ⁽¹⁾	43'-11" ⁽¹⁾	40'-8" ⁽¹⁾	52'-3" ⁽²⁾	48'-8" ⁽²⁾	40'-8" ⁽²⁾
PWI 77	22"	50'-6" ⁽¹⁾	47'-6" ⁽¹⁾	44'-0" ⁽¹⁾	55'-8" ⁽²⁾	50'-9" ⁽²⁾	45'-5" ⁽²⁾
	24"	54'-0" ⁽¹⁾	50'-9" ⁽¹⁾	47'-0" ⁽¹⁾	58'-1" ⁽²⁾	53'-0" ⁽²⁾	47'-4" ⁽²⁾
	9½"	26'-4" ⁽¹⁾	24'-9" ⁽¹⁾	22'-11" ⁽¹⁾	29'-5" ⁽¹⁾	27'-8" ⁽¹⁾	25'-7" ⁽¹⁾
PWI 77	11½"	31'-5" ⁽¹⁾	29'-6" ⁽¹⁾	27'-4" ⁽¹⁾	35'-2" ⁽¹⁾	33'-0" ⁽¹⁾	30'-7" ⁽¹⁾
	14"	35'-9" ⁽¹⁾	33'-7" ⁽¹⁾	31'-1" ⁽¹⁾	40'-0" ⁽¹⁾	37'-7" ⁽¹⁾	34'-9" ⁽²⁾
	16"	39'-8" ⁽¹⁾	37'-3" ⁽¹⁾	34'-6" ⁽¹⁾	44'-4" ⁽¹⁾	41'-8" ⁽²⁾	38'-7" ⁽²⁾
PWI 77	18"	43'-4" ⁽¹⁾	40'-9" ⁽¹⁾	37'-9" ⁽¹⁾	48'-7" ⁽¹⁾	45'-7" ⁽²⁾	41'-1" ⁽²⁾
	20"	47'-0" ⁽¹⁾	44'-2" ⁽¹⁾	40'-11" ⁽¹⁾	52'-7" ⁽²⁾	48'-5" ⁽²⁾	43'-4" ⁽²⁾
	22"	50'-6" ⁽¹⁾	47'-6" ⁽¹⁾	44'-0" ⁽¹⁾	55'-8" ⁽²⁾	50'-9" ⁽²⁾	45'-5" ⁽²⁾
PWI 90	24"	54'-0" ⁽¹⁾	50'-9" ⁽¹⁾	47'-0" ⁽¹⁾	58'-1" ⁽²⁾	53'-0" ⁽²⁾	47'-4" ⁽²⁾
	9½"	30'-2" ⁽¹⁾	28'-4" ⁽¹⁾	26'-2" ⁽¹⁾	33'-8" ⁽¹⁾	31'-7" ⁽¹⁾	29'-3" ⁽¹⁾
	11½"	35'-11" ⁽¹⁾	33'-9" ⁽¹⁾	31'-3" ⁽¹⁾	40'-2" ⁽¹⁾	37'-9" ⁽¹⁾	34'-11" ⁽²⁾
PWI 90	14"	40'-9" ⁽¹⁾	38'-4" ⁽¹⁾	35'-6" ⁽¹⁾	45'-8" ⁽¹⁾	42'-10" ⁽²⁾	39'-8" ⁽²⁾
	16"	45'-2" ⁽¹⁾	42'-5" ⁽¹⁾	39'-3" ⁽¹⁾	50'-6" ⁽²⁾	47'-5" ⁽²⁾	43'-11" ⁽²⁾
	18"	49'-4" ⁽¹⁾	46'-5" ⁽¹⁾	43'-0" ⁽¹⁾	55'-3" ⁽²⁾	51'-11" ⁽²⁾	48'-0" ⁽²⁾
PWI 90	20"	53'-5" ⁽¹⁾	50'-2" ⁽¹⁾	46'-6" ⁽¹⁾	59'-10" ⁽²⁾	56'-2" ⁽²⁾	52'-0" ⁽²⁾
	22"	57'-4" ⁽¹⁾	53'-11" ⁽¹⁾	49'-11" ⁽¹⁾	64'-3" ⁽²⁾	60'-4" ⁽²⁾	55'-10" ⁽²⁾
	24"	61'-3" ⁽¹⁾	57'-6" ⁽¹⁾	53'-3" ⁽¹⁾	68'-6" ⁽²⁾	64'-4" ⁽²⁾	58'-10" ⁽²⁾

Notes:

- Table values apply to uniformly loaded roof joists that are sloped at least ¼" in 12".
- Span is measured on the horizontal from face to face of supports.
- Table values do not account for stiffness added by glued or nailed sheathing.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- The numbers in parentheses refer to the minimum connection required at each support.
 - Beveled plate and two nails (205 lbs. lateral capacity @ 125%), or joist hangers at end supports
 - Beveled plate and four nails (410 lbs. lateral capacity @ 125%) at intermediate supports, two nails or joist hangers at end supports
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing conditions, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

Low-Slope Roof Spans 125% Non-Snow

ALLOWABLE ROOF SPANS – 20 PSF LIVE LOAD - 15 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span Slopes to 1 in 12			Multiple Spans Slopes to 1 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	20'-6" ⁽¹⁾	19'-3" ⁽¹⁾	17'-10" ⁽¹⁾	22'-11" ⁽¹⁾	20'-11" ⁽¹⁾	18'-8" ⁽¹⁾
	11¾"	24'-9" ⁽¹⁾	23'-3" ⁽¹⁾	21'-5" ⁽¹⁾	26'-2" ⁽¹⁾	23'-10" ⁽¹⁾	21'-4" ⁽¹⁾
	14"	28'-2" ⁽¹⁾	26'-2" ⁽¹⁾	23'-4" ⁽¹⁾	28'-7" ⁽¹⁾	26'-1" ⁽¹⁾	23'-4" ⁽¹⁾
PWI 45	9½"	22'-6" ⁽¹⁾	21'-2" ⁽¹⁾	19'-7" ⁽¹⁾	25'-2" ⁽¹⁾	23'-7" ⁽¹⁾	21'-7" ⁽¹⁾
	11¾"	27'-0" ⁽¹⁾	25'-4" ⁽¹⁾	23'-6" ⁽¹⁾	30'-1" ⁽¹⁾	27'-6" ⁽¹⁾	24'-7" ⁽¹⁾
	14"	30'-9" ⁽¹⁾	28'-11" ⁽¹⁾	26'-9" ⁽¹⁾	32'-11" ⁽¹⁾	30'-0" ⁽¹⁾	26'-10" ⁽¹⁾
PWI 47	16"	34'-2" ⁽¹⁾	32'-1" ⁽¹⁾	28'-9" ⁽¹⁾	35'-3" ⁽¹⁾	32'-1" ⁽¹⁾	28'-8" ⁽²⁾
	9½"	23'-0" ⁽¹⁾	21'-7" ⁽¹⁾	20'-0" ⁽¹⁾	25'-9" ⁽¹⁾	24'-2" ⁽¹⁾	21'-7" ⁽¹⁾
	11¾"	27'-4" ⁽¹⁾	25'-8" ⁽¹⁾	23'-9" ⁽¹⁾	30'-0" ⁽¹⁾	27'-4" ⁽¹⁾	24'-5" ⁽¹⁾
PWI 50	14"	31'-0" ⁽¹⁾	29'-2" ⁽¹⁾	26'-9" ⁽¹⁾	32'-8" ⁽¹⁾	29'-10" ⁽¹⁾	26'-8" ⁽¹⁾
	16"	34'-4" ⁽¹⁾	31'-11" ⁽¹⁾	28'-7" ⁽¹⁾	34'-11" ⁽¹⁾	31'-10" ⁽¹⁾	28'-6" ⁽²⁾
	9½"	22'-3" ⁽¹⁾	20'-11" ⁽¹⁾	19'-4" ⁽¹⁾	24'-10" ⁽¹⁾	23'-4" ⁽¹⁾	21'-7" ⁽¹⁾
PWI 60	11¾"	26'-9" ⁽¹⁾	25'-2" ⁽¹⁾	23'-3" ⁽¹⁾	29'-11" ⁽¹⁾	28'-1" ⁽¹⁾	26'-0" ⁽¹⁾
	14"	30'-7" ⁽¹⁾	28'-9" ⁽¹⁾	26'-8" ⁽¹⁾	34'-3" ⁽¹⁾	32'-1" ⁽¹⁾	28'-8" ⁽²⁾
	16"	34'-2" ⁽¹⁾	32'-1" ⁽¹⁾	29'-8" ⁽¹⁾	37'-8" ⁽¹⁾	34'-4" ⁽¹⁾	28'-10" ⁽²⁾
PWI 70	9½"	23'-11" ⁽¹⁾	22'-5" ⁽¹⁾	20'-9" ⁽¹⁾	26'-9" ⁽¹⁾	25'-1" ⁽¹⁾	23'-0" ⁽¹⁾
	11¾"	28'-8" ⁽¹⁾	26'-11" ⁽¹⁾	24'-11" ⁽¹⁾	32'-1" ⁽¹⁾	29'-4" ⁽¹⁾	26'-2" ⁽¹⁾
	14"	32'-8" ⁽¹⁾	30'-8" ⁽¹⁾	28'-5" ⁽¹⁾	35'-3" ⁽¹⁾	32'-2" ⁽¹⁾	28'-9" ⁽²⁾
PWI 77	16"	36'-4" ⁽¹⁾	34'-1" ⁽¹⁾	31'-0" ⁽¹⁾	38'-0" ⁽¹⁾	34'-8" ⁽¹⁾	31'-0" ⁽²⁾
	11¾"	29'-8" ⁽¹⁾	27'-11" ⁽¹⁾	25'-10" ⁽¹⁾	33'-2" ⁽¹⁾	31'-2" ⁽¹⁾	28'-10" ⁽²⁾
	14"	33'-9" ⁽¹⁾	31'-8" ⁽¹⁾	29'-4" ⁽¹⁾	37'-9" ⁽¹⁾	35'-5" ⁽²⁾	32'-9" ⁽²⁾
PWI 90	16"	37'-5" ⁽¹⁾	35'-1" ⁽¹⁾	32'-6" ⁽¹⁾	41'-10" ⁽¹⁾	39'-3" ⁽²⁾	34'-10" ⁽²⁾
	18"	40'-11" ⁽¹⁾	38'-5" ⁽¹⁾	35'-7" ⁽¹⁾	45'-9" ⁽²⁾	42'-9" ⁽²⁾	34'-10" ⁽²⁾
	20"	44'-4" ⁽¹⁾	41'-8" ⁽¹⁾	38'-7" ⁽¹⁾	49'-4" ⁽²⁾	43'-7" ⁽²⁾	34'-10" ⁽²⁾
PWI 77	9½"	25'-0" ⁽¹⁾	23'-5" ⁽¹⁾	21'-8" ⁽¹⁾	27'-11" ⁽¹⁾	26'-2" ⁽¹⁾	24'-3" ⁽¹⁾
	11¾"	29'-10" ⁽¹⁾	28'-0" ⁽¹⁾	25'-11" ⁽¹⁾	33'-4" ⁽¹⁾	31'-4" ⁽¹⁾	29'-0" ⁽²⁾
	14"	33'-11" ⁽¹⁾	31'-10" ⁽¹⁾	29'-6" ⁽¹⁾	37'-11" ⁽¹⁾	35'-7" ⁽²⁾	33'-0" ⁽²⁾
PWI 90	16"	37'-7" ⁽¹⁾	35'-4" ⁽¹⁾	32'-9" ⁽¹⁾	42'-1" ⁽²⁾	39'-6" ⁽²⁾	35'-10" ⁽²⁾
	18"	41'-2" ⁽¹⁾	38'-8" ⁽¹⁾	35'-10" ⁽¹⁾	46'-0" ⁽²⁾	42'-6" ⁽²⁾	38'-0" ⁽²⁾
	20"	44'-7" ⁽¹⁾	41'-11" ⁽¹⁾	38'-10" ⁽¹⁾	49'-1" ⁽²⁾	44'-10" ⁽²⁾	38'-2" ⁽²⁾
PWI 90	22"	47'-11" ⁽¹⁾	45'-0" ⁽¹⁾	41'-9" ⁽¹⁾	51'-6" ⁽²⁾	47'-0" ⁽²⁾	42'-0" ⁽²⁾
	24"	51'-2" ⁽¹⁾	48'-1" ⁽¹⁾	43'-11" ⁽¹⁾	53'-9" ⁽²⁾	49'-0" ⁽²⁾	43'-10" ⁽²⁾
	9½"	28'-7" ⁽¹⁾	26'-10" ⁽¹⁾	24'-10" ⁽¹⁾	31'-11" ⁽¹⁾	30'-0" ⁽¹⁾	27'-9" ⁽¹⁾
PWI 90	11¾"	34'-1" ⁽¹⁾	32'-0" ⁽¹⁾	29'-7" ⁽¹⁾	38'-1" ⁽¹⁾	35'-9" ⁽²⁾	33'-1" ⁽²⁾
	14"	38'-8" ⁽¹⁾	36'-4" ⁽¹⁾	33'-8" ⁽¹⁾	43'-3" ⁽²⁾	40'-7" ⁽²⁾	37'-7" ⁽²⁾
	16"	42'-10" ⁽¹⁾	40'-3" ⁽¹⁾	37'-3" ⁽¹⁾	47'-11" ⁽²⁾	45'-0" ⁽²⁾	41'-8" ⁽²⁾
PWI 90	18"	46'-10" ⁽¹⁾	44'-0" ⁽¹⁾	40'-9" ⁽¹⁾	52'-5" ⁽²⁾	49'-2" ⁽²⁾	45'-6" ⁽²⁾
	20"	50'-8" ⁽¹⁾	47'-7" ⁽¹⁾	44'-1" ⁽¹⁾	56'-8" ⁽²⁾	53'-3" ⁽²⁾	47'-7" ⁽²⁾
	22"	54'-5" ⁽¹⁾	51'-2" ⁽¹⁾	47'-4" ⁽¹⁾	60'-11" ⁽²⁾	57'-2" ⁽²⁾	52'-2" ⁽²⁾
24"	58'-1" ⁽¹⁾	54'-7" ⁽¹⁾	50'-6" ⁽¹⁾	65'-0" ⁽²⁾	60'-10" ⁽²⁾	54'-5" ⁽²⁾	

Notes:

- Table values apply to uniformly loaded roof joists that are sloped at least ¼" in 12".
- Span is measured on the horizontal from face to face of supports.
- Table values do not account for stiffness added by glued or nailed sheathing.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- The numbers in parentheses refer to the minimum connection required at each support.
 - Beveled plate and two nails (205 lbs. lateral capacity @ 125%), or joist hangers at end supports
 - Beveled plate and four nails (410 lbs. lateral capacity @ 125%) at intermediate supports, two nails or joist hangers at end supports
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. roof sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing conditions, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

Low-Slope Roof Spans 125% Non-Snow

ALLOWABLE ROOF SPANS – 20 PSF LIVE LOAD – 20 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span Slopes to 1 in 12			Multiple Spans Slopes to 1 in 12		
		16" o.c.	19.2" o.c.	24" o.c.	16" o.c.	19.2" o.c.	24" o.c.
PWI 20	9½"	19'- 7" ⁽¹⁾	18'- 4" ⁽¹⁾	17'- 0" ⁽¹⁾	21'- 5" ⁽¹⁾	19'- 7" ⁽¹⁾	17'- 6" ⁽¹⁾
	11⅞"	23'- 7" ⁽¹⁾	22'- 2" ⁽¹⁾	20'- 0" ⁽¹⁾	24'- 6" ⁽¹⁾	22'- 4" ⁽¹⁾	19'- 11" ⁽¹⁾
	14"	26'- 10" ⁽¹⁾	24'- 5" ⁽¹⁾	21'- 10" ⁽¹⁾	26'- 9" ⁽¹⁾	24'- 4" ⁽¹⁾	21'- 9" ⁽¹⁾
PWI 45	9½"	21'- 6" ⁽¹⁾	20'- 2" ⁽¹⁾	18'- 8" ⁽¹⁾	24'- 0" ⁽¹⁾	22'- 6" ⁽¹⁾	20'- 2" ⁽¹⁾
	11⅞"	25'- 9" ⁽¹⁾	24'- 2" ⁽¹⁾	22'- 5" ⁽¹⁾	28'- 2" ⁽¹⁾	25'- 8" ⁽¹⁾	22'- 11" ⁽¹⁾
	14"	29'- 4" ⁽¹⁾	27'- 7" ⁽¹⁾	25'- 2" ⁽¹⁾	30'- 9" ⁽¹⁾	28'- 1" ⁽¹⁾	25'- 1" ⁽²⁾
PWI 47	16"	32'- 8" ⁽¹⁾	30'- 1" ⁽¹⁾	26'- 11" ⁽¹⁾	32'- 11" ⁽¹⁾	30'- 0" ⁽¹⁾	26'- 10" ⁽²⁾
	9½"	22'- 0" ⁽¹⁾	20'- 8" ⁽¹⁾	19'- 1" ⁽¹⁾	24'- 7" ⁽¹⁾	22'- 7" ⁽¹⁾	20'- 3" ⁽¹⁾
	11⅞"	26'- 2" ⁽¹⁾	24'- 6" ⁽¹⁾	22'- 8" ⁽¹⁾	28'- 1" ⁽¹⁾	25'- 7" ⁽¹⁾	22'- 10" ⁽¹⁾
PWI 50	14"	29'- 7" ⁽¹⁾	27'- 10" ⁽¹⁾	25'- 0" ⁽¹⁾	30'- 7" ⁽¹⁾	27'- 10" ⁽¹⁾	24'- 8" ⁽²⁾
	16"	32'- 9" ⁽¹⁾	29'- 10" ⁽¹⁾	26'- 8" ⁽¹⁾	32'- 8" ⁽¹⁾	29'- 9" ⁽¹⁾	25'- 5" ⁽²⁾
	9½"	21'- 3" ⁽¹⁾	19'- 11" ⁽¹⁾	18'- 5" ⁽¹⁾	23'- 9" ⁽¹⁾	22'- 3" ⁽¹⁾	20'- 7" ⁽¹⁾
PWI 60	11⅞"	25'- 7" ⁽¹⁾	24'- 0" ⁽¹⁾	22'- 3" ⁽¹⁾	28'- 7" ⁽¹⁾	26'- 10" ⁽¹⁾	24'- 6" ⁽²⁾
	14"	29'- 3" ⁽¹⁾	27'- 6" ⁽¹⁾	25'- 5" ⁽¹⁾	32'- 8" ⁽¹⁾	30'- 0" ⁽¹⁾	25'- 2" ⁽²⁾
	16"	32'- 7" ⁽¹⁾	30'- 7" ⁽¹⁾	28'- 4" ⁽¹⁾	35'- 2" ⁽¹⁾	31'- 7" ⁽²⁾	25'- 2" ⁽²⁾
PWI 70	9½"	22'- 10" ⁽¹⁾	21'- 5" ⁽¹⁾	19'- 10" ⁽¹⁾	25'- 6" ⁽¹⁾	23'- 11" ⁽¹⁾	21'- 5" ⁽¹⁾
	11⅞"	27'- 5" ⁽¹⁾	25'- 8" ⁽¹⁾	23'- 9" ⁽¹⁾	30'- 0" ⁽¹⁾	27'- 5" ⁽¹⁾	24'- 6" ⁽²⁾
	14"	31'- 2" ⁽¹⁾	29'- 4" ⁽¹⁾	26'- 11" ⁽¹⁾	32'- 11" ⁽¹⁾	30'- 1" ⁽¹⁾	26'- 10" ⁽²⁾
PWI 77	16"	34'- 8" ⁽¹⁾	32'- 6" ⁽¹⁾	29'- 0" ⁽¹⁾	35'- 6" ⁽¹⁾	32'- 5" ⁽²⁾	28'- 10" ⁽²⁾
	11⅞"	28'- 4" ⁽¹⁾	26'- 7" ⁽¹⁾	24'- 8" ⁽¹⁾	31'- 8" ⁽¹⁾	29'- 9" ⁽¹⁾	27'- 6" ⁽²⁾
	14"	32'- 3" ⁽¹⁾	30'- 3" ⁽¹⁾	28'- 0" ⁽¹⁾	36'- 0" ⁽¹⁾	33'- 10" ⁽²⁾	30'- 5" ⁽²⁾
PWI 90	16"	35'- 9" ⁽¹⁾	33'- 6" ⁽¹⁾	31'- 0" ⁽¹⁾	39'- 11" ⁽²⁾	37'- 6" ⁽²⁾	30'- 5" ⁽²⁾
	18"	39'- 1" ⁽¹⁾	36'- 8" ⁽¹⁾	34'- 0" ⁽¹⁾	43'- 8" ⁽²⁾	38'- 1" ⁽²⁾	30'- 5" ⁽²⁾
	20"	42'- 4" ⁽¹⁾	39'- 9" ⁽¹⁾	36'- 0" ⁽¹⁾	45'- 9" ⁽²⁾	38'- 1" ⁽²⁾	30'- 5" ⁽²⁾
PWI 77	9½"	23'- 10" ⁽¹⁾	22'- 5" ⁽¹⁾	20'- 9" ⁽¹⁾	26'- 8" ⁽¹⁾	25'- 0" ⁽¹⁾	23'- 2" ⁽¹⁾
	11⅞"	28'- 6" ⁽¹⁾	26'- 9" ⁽¹⁾	24'- 9" ⁽¹⁾	31'- 10" ⁽¹⁾	29'- 11" ⁽¹⁾	27'- 8" ⁽²⁾
	14"	32'- 5" ⁽¹⁾	30'- 5" ⁽¹⁾	28'- 2" ⁽¹⁾	36'- 3" ⁽¹⁾	34'- 0" ⁽²⁾	31'- 3" ⁽²⁾
PWI 90	16"	35'- 11" ⁽¹⁾	33'- 9" ⁽¹⁾	31'- 3" ⁽¹⁾	40'- 2" ⁽²⁾	37'- 5" ⁽²⁾	33'- 4" ⁽²⁾
	18"	39'- 4" ⁽¹⁾	36'- 11" ⁽¹⁾	34'- 2" ⁽¹⁾	43'- 7" ⁽²⁾	39'- 9" ⁽²⁾	33'- 4" ⁽²⁾
	20"	42'- 7" ⁽¹⁾	40'- 0" ⁽¹⁾	37'- 1" ⁽¹⁾	45'- 11" ⁽²⁾	41'- 9" ⁽²⁾	33'- 4" ⁽²⁾
PWI 90	22"	45'- 9" ⁽¹⁾	43'- 0" ⁽¹⁾	39'- 4" ⁽¹⁾	48'- 2" ⁽²⁾	43'- 11" ⁽²⁾	39'- 3" ⁽²⁾
	24"	48'- 11" ⁽¹⁾	45'- 11" ⁽¹⁾	41'- 1" ⁽¹⁾	50'- 3" ⁽²⁾	45'- 10" ⁽²⁾	41'- 0" ⁽²⁾
	9½"	27'- 3" ⁽¹⁾	25'- 7" ⁽¹⁾	23'- 8" ⁽¹⁾	30'- 6" ⁽¹⁾	28'- 7" ⁽¹⁾	26'- 5" ⁽²⁾
PWI 90	11⅞"	32'- 6" ⁽¹⁾	30'- 7" ⁽¹⁾	28'- 3" ⁽¹⁾	36'- 4" ⁽¹⁾	34'- 1" ⁽²⁾	31'- 7" ⁽²⁾
	14"	36'- 11" ⁽¹⁾	34'- 8" ⁽¹⁾	32'- 1" ⁽¹⁾	41'- 4" ⁽²⁾	38'- 9" ⁽²⁾	35'- 10" ⁽²⁾
	16"	40'- 11" ⁽¹⁾	38'- 5" ⁽¹⁾	35'- 7" ⁽¹⁾	45'- 9" ⁽²⁾	42'- 11" ⁽²⁾	39'- 9" ⁽²⁾
PWI 90	18"	44'- 9" ⁽¹⁾	42'- 0" ⁽¹⁾	38'- 11" ⁽¹⁾	50'- 0" ⁽²⁾	47'- 0" ⁽²⁾	41'- 7" ⁽²⁾
	20"	48'- 5" ⁽¹⁾	45'- 6" ⁽¹⁾	42'- 1" ⁽¹⁾	54'- 2" ⁽²⁾	50'- 10" ⁽²⁾	41'- 7" ⁽²⁾
	22"	52'- 0" ⁽¹⁾	48'- 10" ⁽¹⁾	45'- 3" ⁽¹⁾	58'- 2" ⁽²⁾	54'- 6" ⁽²⁾	48'- 9" ⁽²⁾
24"	55'- 6" ⁽¹⁾	52'- 1" ⁽¹⁾	48'- 3" ⁽¹⁾	62'- 1" ⁽²⁾	56'- 11" ⁽²⁾	49'- 0" ⁽²⁾	

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