

Proper fasteners are a critical component in a sound wood frame structure. To ensure successful installations of its connectors, USP offers a full range of structurally-rated nails. All galvanized nails supplied by USP are Hot-dipped for greater corrosion resistance. Stainless steel nails are available on a stock basis size of 8d x 1 1/2" (see Nail Specification table). Any USP connector requiring a NA16D-RS, NA20D, NA25, or NA250 nail is shipped with the nails attached to the connector in convenient poly bags.

Finish: See chart

Materials: ASTM A 123; ASTM A 153 (HDG)



Installation:

- Allowable shear values assume nail embedment into the wood of the entire nail or 10 nail diameters (whichever is less). Otherwise, the nail must be embedded at least 6 nail diameters, with the load reduced using the equation below:

$$\text{Reduced Load} = \frac{\text{Published Load} \times \text{Actual Penetration}}{\text{Nail Diameter} \times 10}$$

- Load reductions may occur if nails are used other than those specified. See the chart Optional Nails for Face Mount Hangers and Straight Straps on page 21 for load reduction factors regarding nail substitutions.
- For pneumatic nail use, see Installation Notes on page 18 and reference USP's technical bulletins.

Nail Specification table

USP Stock No.	Ref. No.	Finish ⁴	Description	Nail Diameter	Length	Withdrawal Load ⁷	Nails Per Lb.	Allowable Shear per Nail (Lbs.) ^{1,2,3,5}								
								Steel Gauge								
								3	7	10	12	14	16	18	20	22
NA11 N8-GC	N8HDG ---	HDG GC	8d x 1-1/2	0.131	1-1/2	48	152	---	---	---	---	---	96	95	94	94
NA11SS	SSN8	SS	8d x 1-1/2	0.131	1-1/2	48	143	---	---	---	---	---	96	95	94	94
NA9D N10-GC	N10HDG ---	HDG GC	10d x 1-1/2	0.148	1-1/2	54	100	---	---	126	118	114	112	112	112	111
NA16D	N16HDG	HDG	16d x 2-1/2	0.162	2-1/2	99	66	192	177	158	147	140	138	136	136	---
NA16D-RS	---	Bright	16d Ring Shank	0.148	3-1/2	140	47	181	164	147	---	---	---	---	---	---
NA21	---	HDG	20d x 1-3/4	0.192	1-3/4	81	65	211	184	168	159	152	---	---	---	---
NA20D	---	HDG	20d x 2-1/2	0.192	2-1/2	117	41	231	202	184	174	167	---	---	---	---
NA250	N54AHDG	HDG	1/4 x 2-1/2	0.250	2-1/2	152	27	275	241	225	216	---	---	---	---	---
NA25	---	HDG	1/4 x 3	0.250	3	183	22	275	241	225	216	---	---	---	---	---
N8C-GC	---	GC	8d Common	0.131	2-1/2	80	126	---	---	---	---	98	96	95	94	94
8d Common	---	Bright	8d Common													
N10C-GC	---	GC	10d Common	0.148	3	108	70	---	154	136	125	118	115	114	113	112
10d Common	---	Bright	10d Common													
16d Sinker	---	Bright	16d Sinker	0.148	3-1/4	117	60	160	154	136	125	118	115	114	113	---
N16C-GC	---	GC	16d Common													
16d Common	---	Bright	16d Common	0.162	3-1/2	138	48	192	177	158	147	140	138	136	136	---
20d Common	---	Bright	20d Common													
				0.192	4	187	29	231	202	184	174	167	---	---	---	---

1) Loads are calculated according to specifications of Part II of the National Design Specifications for Wood Construction (NDS®), 2005 Edition.
 2) Loads apply to Douglas Fir-Larch (G=0.50) and Southern Pine (G=0.55). For Spruce-Pine-Fir (G=0.42) multiply above values by 0.86, for other wood types refer to NDS® or consult USP.
 3) Shear values assumes full penetration of at least 10 nail diameters.
 4) HDG = Hot-Dip Galvanized; GC = Gold Coat; SS = Stainless Steel; Bright = No Finish.
 5) For steel with Fu=45,000 psi, and gage minimum bare metal thickness.
 6) Fastener values may be increased for duration of load.
 7) Withdrawal loads assume full penetration.

New products or updated product information are designated in red

Minimum Fastener Penetration table

Nail Penny	Wire Gauge	Shank Diameter (inches)	Minimum Penetration for Full Shear Load (inches)	Minimum Penetration for Reduced Shear Load ² (inches)
6d	11-1/2 ga.	.113	1.13	0.68
8d	10-1/4 ga.	.131	1.31	0.79
10d/16d Sinker	9 ga.	.148	1.48	0.89
12d	9 ga.	.148	1.48	0.89
16d	8 ga.	.162	1.62	0.97
20d	6 ga.	.192	1.92	1.15

1) Less than the specified nail penetration shall be multiplied by the applicable adjustment factor.
 2) For penetration less than this distance, the nail has no value.
 3) Penetrations are derived according to the 2005 NDS®.

⚠ Reduced Fastener Penetration Example (See chart on left):

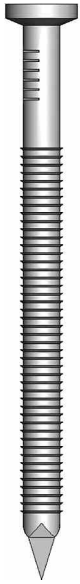
HD210 – listed load is 1680 lbs. @ 100% for 16d common nails.

Reduced HD210 capacity if using a 2x DF-L or SP header:

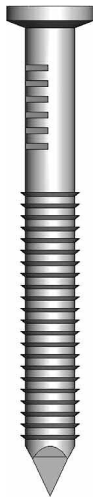
1680 lbs. x 1.5 = 1555 lbs. @ 100%
1.62

continued on next page

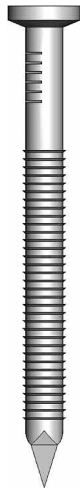
NA25
.250 x 3"



NA250
.250 x 2 1/2"



NA20D
.192 x 2 1/2"



NA21
.192 x 1 3/4"



NA16D-RS
.148 x 3 1/2"



NA16D
.162 x 2 1/2"



NA9D
.148 x 1 1/2"



NA11
.131 x 1 1/2"



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Optional Nails for Face Mount Hangers and Straight Straps load table

Catalog Nail	Replacement Fastener ¹	Allowable Load Adjustment Factor			
		DF-L	SP	S-P-F	LVL
16d common	8d common	0.70	0.75	0.60	0.70
16d common	10d Box	0.67	0.72	0.58	0.67
16d common	10d common	0.83	0.91	0.72	0.83
16d common	12d common	0.83	0.91	0.72	0.83
16d common	10d x 1-1/2	0.81	0.88	0.70	0.81
16d common	10d Sinker	0.59	0.64	0.51	0.59
16d common	16d Box	0.74	0.80	0.64	0.74
16d common	16d Sinker	0.83	0.91	0.72	0.83
16d common	16d x 2-1/2	1.00	1.00	0.86	1.00
16d common	No. 8 x 1-1/2 Wood Screw	0.60	0.66	0.52	0.60
10d common	8d Box	0.63	0.68	0.54	0.63
10d common	10d Sinker	0.70	0.77	0.61	0.70
10d common	8d common	0.83	0.90	0.72	0.83
10d common	10d Box	0.80	0.87	0.70	0.80
10d common	8d x 1-1/4	0.64	0.69	0.55	0.64
10d common	No. 8 x 1-1/2 Wood Screw	0.72	0.79	0.63	0.72
10d common	10d x 1-1/2	0.97	1.00	0.84	0.97
10d common	16d Sinker	1.00	1.00	0.86	1.00
10d common	No. 8 x 1-1/2 Wood Screw	0.72	0.79	0.63	0.72
10d common	10d x 1-1/2	0.97	1.00	0.84	0.97
12d common	16d Sinker	1.00	1.00	0.86	1.00
12d common	No. 8 x 1-1/2 Wood Screw	0.72	0.79	0.63	0.72
8d common	8d Box	0.75	0.81	0.65	0.75
8d common	8d x 1-1/4	0.76	0.83	0.66	0.76
8d common	No. 8 x 1-1/2 Wood Screw	0.86	0.95	0.75	0.86
8d x 1-1/2	8d x 1-1/4	0.76	0.83	0.66	0.76
8d x 1-1/2	No. 8 x 1-1/2 Wood Screw	0.86	0.95	0.75	0.86
10d x 1-1/2	8d x 1-1/2	0.86	0.93	0.74	0.86
10d x 1-1/2	No. 8 x 1-1/2 Wood Screw	0.74	0.81	0.64	0.74

1) No. 8 x 1-1/2 Wood Screw has a shank diameter of 0.164" and shall conform to ANSI/ASME Standard B18.6.1-1981.

How to Use:

The base value is the catalog listed nail in Douglas Fir-Larch and the adjustment factor is the multiplier for the applicable replacement nail and wood combination.

- Adjustment factors may vary with some custom hangers or steel thicker than 10 gauge. Contact USP for exceptions.
- Roofing nails shall not be substituted for any nail size or type.

⚠ Optional Nails Example:

JL210 – listed load is 1595 lbs. @ 100% for 10d common nails.

If substituting:

8d common nails with DF-L or LVL:
1595 lbs. x .83 = 1323 lbs.

8d common nails with SP:
1595 lbs. x .90 = 1435 lbs.

8d common nails with S-P-F:
1595 lbs. x .72 = 1148 lbs.

No further reductions are required.

USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Fasteners / Anchors				
AB1212-HDG		X		
AB1218-HDG		X		
AB126-HDG		X		
AB128-HDG		X		
AB5817-HDG		X		
BP1		X		
BP12		X		
BP34		X		
BP58		X		
BP582		X		
BP583		X		
BP78		X		
HBPS12		X		
HBPS34		X		
LBP12-TZ	X			
LBP34-TZ	X			
LBP58-TZ	X			
LBPS12-TZ	X			
LBPS58-TZ	X			
N8-GC				X
N8C-GC				X
N10-GC				X
N10C-GC				X
N16C-GC				X
NA11		X	X	
NA16D		X		
NA20D		X		
NA21		X		
NA25		X		
NA250		X		
NA9D		X		
STB16		X		
STB20		X		
STB24		X		
STB28		X		
STB34		X		
STB36		X		
STBL16		X		
STBL20		X		
STBL24		X		
STBL28		X		
STBL34		X		
WS15-GC				X
Holdowns / Foundation Anchors				
FA3	X			
HPA35		X		
PA18	X			
PA23	X			
PA28	X			
PA35	X			
ST1-TZ	X			
ST2-TZ	X			
TA51	X			
TA71	X			
TDL5	X			
TDL10	X			
TDX2	X	X		
TDX6		X		
TDX8		X		
Embedded Truss Anchors				
H1A20	X			
HTA24	X			
TA20	X			
TA24	X			

USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Stud Plate Ties				
RSPT4		X		
RSPT6		X		
RSPT6-2		X		
SPT4		X		
SPT6		X		
SPT22		X		
SPT24		X		
SPTH4		X		
SPTH6		X		
Column / Post Bases				
CBS44		X		
CBS66		X		
CBSQ44-TZ	X			
CBSQ46-TZ	X			
CBSQ66-TZ	X			
D44	X			
D46	X			
D66	X			
EBG44	X			
EPB4408		X		
KCB44		X		
KCB46		X		
KCB48		X		
KCB66		X		
KCB68		X		
KCB88		X		
KCB1010		X		
KCB1212		X		
PA44	X			
PA44E	X			X
PA46	X			
PA46E	X			X
PA66	X			
PA66E	X			X
PAU44	X			
PAU46	X			
PAU66	X			
PAU88	X			
WAS44	X			
WAS46	X			
WAS66	X			
WE44	X			
WE46	X			
WE66	X			
Column / Post Caps				
C44	X			
C46	X			
C66	X			
EPCM4416	X			
EPCM4616	X			
KCC44		X		
KCC46		X		
KCC64		X		
KCC66		X		
KECC44		X		
KECC46		X		
KECC64		X		
KECC66		X		
PB44-6	X			X
PB66-6	X			X
PBC44-TZ	X			
PBC66-TZ	X			

USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Column / Post Caps				
PBES44		X		
PBES66		X		
PBS44		X		
PBS66		X		
PCM44		X		
PCM4416		X		
PCM46		X		
PCM4616		X		
PCM66		X		
PCM6616		X		
Joist Hangers				
HUS26		X		
HUS28		X		
HUS28-2IF		X		
HUS210		X		
HUS210-2IF		X		
JUS24			X	X
JUS26			X	X
JUS26-2			X	X
JUS28			X	
JUS28-2			X	
JUS28-3			X	
JUS210			X	X
JUS210-2			X	X
JUS210-3			X	
JUS44			X	
JUS46			X	
JUS48			X	
JUS410			X	
JUS414			X	
LSSH15-TZ			X	
LSSH210			X	
LSSH31			X	
SKH26R/L				X
SKH28R/L				X
SKH210R/L				X
TMU26			X	
Hurricane / Seismic Anchors				
HHCP2		X		
LFTA6		X		
RT3A		X		
RT4		X		X
RT5		X		X
RT7		X		X
RT7A		X		X
RT10		X		X
RT15		X		X
RT16		X		X
RT16-2		X		
RT20		X		
Truss Hangers				
HJH28L/R		X		
MSH418		X		
MSH422		X		
THD26		X		
THD26-2		X		
THD210-2		X		

USP Stock No.	Triple Zinc (TZ)	Hot-Dip Galvanized (HDG)	Stainless Steel (SS)	Gold Coat (GC)
Framing Plates & Angles				
A3		X		
AC5		X		
AC7		X		X
AC9		X		X
JA1		X		
MP3		X		
MP34		X		X
MP4F		X		
MP5		X		
MP7		X		X
MP9		X		X
MPA1		X		X
MPA1F		X		X
Straps				
KRPS18		X		
KRPS22		X		
L6		X		X
LSTA24				X
MSTA9		X		
MSTA12		X		X
MSTA15		X		X
MSTA18		X		X
MSTA21		X		
MSTA24		X		
MSTA30		X		
MSTA36		X		
PS218-HDG			X	
PS418-HDG			X	
PS720-HDG			X	
RS150		X		
RT24F		X		
T6		X		X
Twist Straps				
LTW12		X		X
LTW18		X		X
LTW20				X
MTW12		X		
MTW16		X		
MTW20		X		
MTW30		X		
RT16T		X		
RT24T		X		
Miscellaneous				
ANJ44S		X		
DC50-TZ		X		
CSH-TZ		X		
ERB24-TZ		X		
FB14-TZ		X		
FB16-TZ		X		
FB23-TZ		X		
FB240-TZ		X		
FRB24-TZ		X		
ICPL58		X		
ICPL516-TZ		X		
PRT2-TZ		X		
SCA9-TZ		X		X
SCA10-TZ		X		X
SDJT14-TZ		X		
SDPT5-TZ		X		
SDPT7-TZ		X		