Catalog installation notes should be followed when installing pneumatic nail hangers using alternative nails. All fasteners should be installed into nailing zones and maintain minimum 1" center-to-center spacing. Alternative nail quantity required for installation of pneumatic nail hangers can be determined using the table below.

Alternative Nails for Installation of Pneumatic Hangers

Fastener Description	Dimensions (in)		DF/SP Allowable Shear per Nail (Lbs.)[1,2,3,4,5]			S-P-F Allowable Shear per Nail (Lbs.)[1,2,3,4,5]		
			Steel Gauge			Steel Gauge		
	Diameter	Length	14	18	20	14	18	20
0.099 x 1-1/2"	0.099	1-1/2	67	58	56	58	50	48
0.100 x 1-3/8"	0.100	1-3/8	68	60	57	59	51	49
0.105 x 1-1/2"	0.105	1-1/2	74	65	63	64	56	54
0.113 x 2-3/8"	0.113	2-3/8	83	75	72	72	64	62
0.131 x 1-1/2"	0.131	1-1/2	107	98	96	92	85	83
0.131 x 3"		3						
0.148 x 1-1/2"	0.148	1-1/2	127	118	116	110	102	100

1) Nail allowable load values were calculated as specified by the 2018 NDS; Sections 11 & 12, and Appendix I and L.
2) The nail lateral loads are adjusted by the Penetration depth factors, C_d, based on the length of the nails and thickness of the steel side members. However, this assumes sufficient wood thickness to receive the full length of the nail or at least ten times the diameter of the nail, whichever is less.
3) Adjustment factors for duration of load, service conditions and installation shall be applied to the nail values in accordance with the provisions of the NDS delineated in Sections 2, 11 and 12.
4) The allowable load for any connector shall not exceed the catalog value.
5) Fastener bending yield strength based on ASTM F1667-05 Table S1.1.
6) Quantity of fasteners must be used symmetrically in header flanges and into each side of joist.
7) Installation guidelines in MiTek's Product Catalog regarding pneumatic nail hangers must be followed.

Example:

JN28E (20 gauge) using .105 x 1-1/2" fasteners
JN28E downward load at 115% = 1055 lbs.
JN28E uplift load at 160% = 245 lbs.

Header material: S-P-F
Joist material: S-P-F

Nail Quantity Required for Downward Load:

Allowable shear capacity at 100% load duration = 54 lbs.

$$54 \left(\frac{\text{lbs}}{\text{nail}}\right) \times 1.15 = 62.1 \left(\frac{\text{lbs}}{\text{nail}}\right)$$

$$\frac{1055 \text{ lbs}}{62.1 \left(\frac{\text{lbs}}{\text{nail}}\right)} = 17 \text{ nails}$$

Use equal amount of fasteners in each side so use 9 nails in each flange for a total of 18.

Nail Quantity Required for Uplift:

$$54 \left(\frac{\text{lbs}}{\text{nail}}\right) \times 1.60 = 86.4 \left(\frac{\text{lbs}}{\text{nail}}\right)$$

$$\frac{245 \text{ lbs}}{86.4 \left(\frac{\text{lbs}}{\text{nail}}\right)} = 3 \text{ nails}$$

Use equal amount of fasteners per side of joist so use 2 in each side for a total of 4.
Also make sure there are as many or more fasteners in the hanger to header connection.
18 nails in header ≥ 4 nails in joist.