US Warehouse Portal Frame

80ft span · 24ft eave · AISC 360-22

Code:	AISC 360-22 + ASCE 7-22
Tonnage:	3.2 tons
Connections:	4 joints
Date:	2026-06-14
Prepared by:	FrameAI Autonomous Engine
Standard:	AISC 360-22 / ASCE 7-22 LRFD

Mark	Profile	Length (ft)	Qty	Grade	Role
R1	W14x30	44.7	2	A992	Rafter
C1	W12x26	24.0	2	A992	Column
P1	PL 3/8x6	0.5	4	A572-50	Base Plate
EP1	PL 1/2x8	0.3	2	A572-50	End Plate

This document is a worked example for demonstration purposes only.

MEMBER UTILISATION CHECKS

AISC 360-22 + ASCE 7-22

Member	Check	Code Ref	Demand	Capacity	Util	OK
R1 (rafter)	Flexure	AISC 360-22 §F2	120 kip-ft	142 kip-ft	84%	OK
R1 (rafter)	Combined N+M	AISC 360-22 §H1-1a	8 kips	187 kips	87%	OK
C1 (column)	Compression	AISC 360-22 §E3	22 kips	187 kips	12%	OK
C1 (column)	Flexure	AISC 360-22 §F2	90 kip-ft	105 kip-ft	86%	OK

BOLT SCHEDULE

Connection	Grade	Diameter	Qty	Install Torque
Ridge EP (J1)	A325-N	7/8"	8	440 ft-lb
Base Plate (P1)	F1554-Gr36	1"	8	620 ft-lb

CONNECTION REPORT — AISC 360-22 §J2/J3/B3.1

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J1 — 4-bolt extended unstiffened endplate

Bolt grade:	A325-N
Bolt diameter:	7/8"
Weld electrode:	E70XX
Demand Mu:	120 kip-ft
Demand Vu:	12 kips
Capacity φMn:	142.3 kip-ft
Utilisation:	84% — OK

Code references:

- AISC 360-22 §J3.6 — Bolt tension capacity: φRn = 0.75 × Fnt × Ab
- AISC 360-22 §J3.7 — Combined tension + shear: Fnt' = 1.3Fnt − (Fnt/φFnv)·frv
- AISC 360-22 §J2.4 — Fillet weld capacity: φRn = 0.75 × 0.6FEXX × Aw × 1.0 (E70XX)
- AISC 360-22 §B3.1 — LRFD: Required strength ≤ Design strength