Composite Steel/Concrete Office — 4-Story

W21x44 composite beams · 3 ksi NW slab · AISC 360-22 §I3

Code:	AISC 360-22 §I3 + ACI 318-22
Tonnage:	98 tons
Connections:	40 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
B1	W21x44	30.0	24	A992	Composite Beam
G1	W24x68	30.0	8	A992	Girder
C1	W14x90	14.5	16	A992	Column
D1	PL 3/4x10	0.4	16	A572-50	Doubler Plate

MEMBER UTILISATION CHECKS

AISC 360-22 §I3 + ACI 318-22

Member	Check	Code Ref	Demand	Capacity	Util	OK
B1 composite	Composite Flexure (75%	AISC 360-22 §I3.2	390 kip-ft	485 kip-ft	80%	OK
B1 non-comp	Steel Only (constructi	AISC 360-22 §F2	220 kip-ft	295 kip-ft	75%	OK
G1 (girder)	Flexure	AISC 360-22 §F2	590 kip-ft	730 kip-ft	81%	OK
C1 (column)	Combined N+M	AISC 360-22 §H1-1b	410 kips	1100 kips	78%	OK

BOLT SCHEDULE

Connection	Grade	Diameter	Qty	Install Torque
Beam shear tab (J1)	A325-N	3/4"	192	280 ft-lb
Col splices	A325-N	1"	64	620 ft-lb

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

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J1 — Shear tab beam-to-column

Bolt grade:	A325-N
Bolt diameter:	3/4"
Weld electrode:	E70XX
Demand Mu:	—
Demand Vu:	48 kips
Capacity φMn:	71.4 kips (shear)
Utilisation:	67% — 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