[Company name - fill on Project tab]	PRELIMINARY
	JOB NO.
PROJECT	CALC NO. / REV **Rev 0**
SUBJECT **Beam-Column Design (Combined Forces) - C1 - NPB 400x180x66.31**	MADE / DATE
CLIENT	CHKD / APPD

1 Design Data

Member	**C1**	M_z / M_y	**80.0 / 5.0** kNm
Section	**NPB 400x180x66.31**	P_dz / P_dy	**1862 / 969** kN
Database	**IS 808:2021**	M_dz / M_dy	**225.0 / 39.** kNm
Steel grade / f_y	**E250 / 250 MPa**	χ_LT / f_m	**0.762 / 1.25**
Section class (under N + M)	**Compact**	C_mz / C_my / C_mLT	**0.60 / 0.60 / 0.60**
KL_z / KL_y / L_LT	**4.00 / 4.00 / 4** m	K_zz / K_yy	**0.611 / 0.990**
P / T	**450.0 / 0.0** kN	K_zy / K_yz	**0.653 / 0.867**

2 Design Checks

Check	Clause	Demand	Capacity	UR	Status
Tension	13	0.0 kN	1,918.2 kN	**0.000**	OK
Compression	14.1.2	450.0 kN	969.2 kN	**0.464**	OK
Bending M_z (incl. LTB)	15.2	80.0 kNm	225.0 kNm	**0.356**	OK
Bending M_y	15.2	5.0 kNm	39.8 kNm	**0.126**	OK
Shear V_z	15.4	60.0 kN	451.4 kN	**0.133**	OK
Shear V_y	15.4	3.0 kN	637.7 kN	**0.005**	OK
Section strength N + M	16.3.1			**0.320**	OK
Member buckling N + M	16.3.2.2			**0.897**	OK
Tension + bending	16.3.2.1	80.0 kNm	225.0 kNm	**0.000**	OK
Slenderness KL/r	Table 3	101.3	180.0	**0.563**	OK
GgovernING: Member buckling N+M (allowable UR = 1.00)				**0.897**	ADEQUATE

3 Section Properties

Mass	66.31 kg/m	Moment of inertia I_y	1,310.0 cm⁴
Depth h (long leg)	400.0 mm	Radius of gyration r_z	16.50 cm
Width b (short leg)	180.0 mm	Radius of gyration r_y	3.95 cm
Web thickness t_w	8.6 mm	Elastic modulus Z_ez	1,150.0 cm³
Flange thickness t_f	13.5 mm	Elastic modulus Z_ey	146.0 cm³
Area A	84.40 cm²	Plastic modulus Z_pz	1,300.0 cm³
Moment of inertia I_z	23,100.0 cm⁴	Plastic modulus Z_py	229.0 cm³

4 Remarks

Design as per IS 800:2026 (Fourth Revision), limit state method. Axes: z-z major, y-y minor. Forces are factored design values.

Section properties from the selected database; confirm availability with the supplier before specifying.

The member is ADEQUATE for the design forces as per IS 800:2026.