

Table 4a - Member Summary Sheet

Member	Shape	Pu (kip) [(C) or (T)]	Mu (ft-kip)	ϕP_n (kip)* Comp.	ϕP_n (kip)* Tension	ϕM_n (ft-kip)*
RB1	W12x19	-	80.37	-	-	92.6
RB2	W12x19	-	80.37	-	-	92.6
RG1	W21x44	-	172.45	-	-	303
RG2	W21x44	-	172.45	-	-	303
A1/A4	W8x31	27.45 (C)	-	170	-	-
C1/C4	W8x31	27.45 (C)	-	170	-	-
B1/B4	W8x31	26.60 (C)	-	170	-	-
A2/A3/C2/C3	W8x31	85.42 (C)	-	170	-	-
B2/B3	W12x40	217.3 (C)	-	235	-	-
FB1	W21x62	-	382.35	-	-	540
FG1	W30x99	-	660.77	-	-	1151
Brace B/C	WT4x5	5.884	-	-	66.6	-
Brace 2/3	WT4x5	5.4026	-	-	66.6	-
	Type Joist	Live Load (plf)	Total Load (plf)	Deflection Capacity (plf)	Strength Capacity (plf)	Rows Bridging
RJ1	28k6	184.8	485.76	275	523	2

Table 4b - Connection Summary Sheet

Connection	Type	Reaction (kips)	Capacity (kips)	App. L pages
FB1 to FG1	Double Angle	44.537	98.32	19
FB1 to Col B2/3	Unstiffened	44.537	51.773	16
FG1 to Col B2/3	Unstiffened	63.714	69.03	21
Base plate B2/3	Base Plate	217.318	331.5	App. K pg.13

Table 5 - Structural System Cost Calculation Sheet

Member	# Members	Length (ft)	Members Selected	Weight per Foot (lbs/ft)	Total Member Weight (lbs)	
RB1	4	35	W12x19	19	2660	
RB2	2	35	W12x19	19	1330	
RG1	2	32	W21x44	44	2816	
RG2	2	32	W21x44	44	2816	
FB1	21	35	W21x62	62	45570	
FG1	4	32	W30x99	99	12672	
Columns A1/A4	2	20	W8x31	31	1240	
Columns C1/C4	2	20	W8x31	31	1240	
Columns B1/B4	2	20	W8x31	31	1240	
Columns A2/A3/C2/C3	4	20	W8x31	31	2480	
Columns B2/B3	2	18	W12x40	40	1440	
Total Weight of Rolled Steel = (lbs) ----->					75504	
RJ1 Joist	21	35	28k6	8.9	6541.50	
Bracing	8	40.3	WT4x5	5	1612.00	
Total weight of all Steel = Rolled Steel + Joints (lbs)					83657.50	
Total weight of steel all Steel (Tons)					41.83	
				Units Required	Unit Cost	Total Cost
M1 - Total Cost of Rolled Steel Shapes (\$)				75504.00 lbs	\$ 0.50 /lb	\$ 37,752.00
M2 - Total Cost of Open Web Steel Joists (\$)				6541.50 lbs	\$ 0.55 /lb	\$ 3,597.83
E - Total Cost of Erection				41.83 tons	\$ 750.00 /ton	\$ 31,371.56
F1 - Total Cost of Joist Connections (\$)				21 pairs	\$ 50.00 /pair	\$ 1,050.00
F2 - Total Cost of Simple Framing Connections (\$)				35 pairs	\$ 200.00 /pair	\$ 7,000.00
F3 - Total Cost of Column Base Plates (\$)				12 columns	\$ 500.00 /column	\$ 6,000.00
F4 - Bracing Connections (\$)				4 sets	\$ 400.00 /set	\$ 1,600.00
F5 - Unique Member Fabrication Cost (\$) (include all members except joists and decks)				6 members	\$ 100.00 /member	\$ 600.00
Total Cost for Gravity System (M1+M2+E+F1+F2+F3+F4+F5) ----->						\$ 88,971.39