

Project Title:
 Engineer:
 Project ID:
 Project Descr:

54/109

Concrete Beam

File = P:\2018\180114\Structural\180114.001 Pma County 5th floor TI - floor check\180114.001.ec6

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Description: J1 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	6.59	17.50	2.58	2.58	35.05	0.11	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.64	17.50	2.55	2.55	35.17	0.11	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.69	17.50	2.51	2.51	35.29	0.10	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.73	17.50	2.48	2.48	35.41	0.10	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.78	17.50	2.44	2.44	35.52	0.10	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.83	17.50	2.41	2.41	35.63	0.10	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.87	17.50	2.37	2.37	35.75	0.10	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.92	17.50	2.33	2.33	35.86	0.09	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.97	17.50	2.30	2.30	35.96	0.09	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.01	17.50	2.26	2.26	36.07	0.09	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.06	17.50	2.23	2.23	36.17	0.09	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.11	17.50	2.19	2.19	36.28	0.09	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.15	17.50	2.16	2.16	36.38	0.09	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.20	17.50	2.12	2.12	36.48	0.08	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.25	17.50	2.08	2.08	36.58	0.08	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.29	17.50	2.05	2.05	36.67	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.34	17.50	2.01	2.01	36.77	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.39	17.50	1.98	1.98	36.86	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.43	17.50	1.94	1.94	36.95	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.48	17.50	1.91	1.91	37.04	0.07	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.53	17.50	1.87	1.87	37.13	0.07	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.57	17.50	1.83	1.83	37.22	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.62	17.50	1.80	1.80	37.30	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.67	17.50	1.76	1.76	37.39	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.72	17.50	1.73	1.73	37.47	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.76	17.50	1.69	1.69	37.55	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.81	17.50	1.65	1.65	37.63	0.06	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.86	17.50	1.62	1.62	37.70	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.90	17.50	1.58	1.58	37.78	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	7.95	17.50	1.55	1.55	37.85	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.00	17.50	1.51	1.51	37.92	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.04	17.50	1.48	1.48	37.99	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.09	17.50	1.44	1.44	38.06	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.14	17.50	1.40	1.40	38.13	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.18	17.50	1.37	1.37	38.19	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.23	17.50	1.33	1.33	38.26	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.28	17.50	1.30	1.30	38.32	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.32	17.50	1.26	1.26	38.38	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.37	17.50	1.23	1.23	38.44	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.42	17.50	1.19	1.19	38.49	0.05	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.46	17.50	1.15	1.15	38.55	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.51	17.50	1.12	1.12	38.60	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.56	17.50	1.08	1.08	38.65	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.60	17.50	1.05	1.05	38.70	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.65	17.50	1.01	1.01	38.75	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.70	17.50	0.98	0.98	38.80	0.04	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.74	17.50	0.94	0.94	38.84	0.04	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.79	17.50	0.90	0.90	38.88	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.84	17.50	0.87	0.87	38.92	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.88	17.50	0.83	0.83	38.96	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.93	17.50	0.80	0.80	39.00	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.98	17.50	0.76	0.76	39.04	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.02	17.50	0.73	0.73	39.07	0.03	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.07	17.50	0.69	0.69	39.11	0.03	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0 0.0

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Description: J1 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	9.12	17.50	0.65	0.65	39.14	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.16	17.50	0.62	0.62	39.17	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.21	17.50	0.58	0.58	39.20	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.26	17.50	0.55	0.55	39.22	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.30	17.50	0.51	0.51	39.25	0.02	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.35	17.50	0.48	0.48	39.27	0.02	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.40	17.50	0.44	0.44	39.29	0.02	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.45	17.50	0.40	0.40	39.31	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.49	17.50	0.37	0.37	39.33	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.54	17.50	0.33	0.33	39.35	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.59	17.50	0.30	0.30	39.36	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.63	17.50	0.26	0.26	39.37	0.01	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.68	17.50	0.23	0.23	39.39	0.01	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.73	17.50	0.19	0.19	39.40	0.01	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.77	17.50	0.15	0.15	39.40	0.01	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.82	17.50	0.12	0.12	39.41	0.00	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	9.87	17.50	-0.13	0.13	24.43	0.01	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	9.91	17.50	-0.15	0.15	24.42	0.01	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	9.96	17.50	-0.18	0.18	24.41	0.01	9.47	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.01	17.50	-0.20	0.20	24.41	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.05	17.50	-0.23	0.23	24.40	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.10	17.50	-0.25	0.25	24.38	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.15	17.50	-0.27	0.27	24.37	0.02	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.19	17.50	-0.30	0.30	24.36	0.02	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.24	17.50	-0.32	0.32	24.34	0.02	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.29	17.50	-0.35	0.35	24.33	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.33	17.50	-0.37	0.37	24.31	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.38	17.50	-0.40	0.40	24.29	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.43	17.50	-0.42	0.42	24.27	0.03	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.47	17.50	-0.45	0.45	24.25	0.03	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.52	17.50	-0.47	0.47	24.23	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.57	17.50	-0.50	0.50	24.21	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.61	17.50	-0.52	0.52	24.19	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.66	17.50	-0.55	0.55	24.16	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	10.71	17.50	-0.57	0.57	24.14	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.75	17.50	-0.60	0.60	39.19	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.80	17.50	-0.63	0.63	39.16	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.85	17.50	-0.67	0.67	39.13	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.89	17.50	-0.70	0.70	39.10	0.03	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.94	17.50	-0.74	0.74	39.06	0.03	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.99	17.50	-0.77	0.77	39.03	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.03	17.50	-0.81	0.81	38.99	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.08	17.50	-0.85	0.85	38.95	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.13	17.50	-0.88	0.88	38.91	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.18	17.50	-0.92	0.92	38.87	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.22	17.50	-0.95	0.95	38.82	0.04	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.27	17.50	-0.99	0.99	38.78	0.04	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.32	17.50	-1.02	1.02	38.73	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.36	17.50	-1.06	1.06	38.68	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.41	17.50	-1.10	1.10	38.63	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.46	17.50	-1.13	1.13	38.58	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.50	17.50	-1.17	1.17	38.53	0.04	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.55	17.50	-1.20	1.20	38.47	0.05	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.60	17.50	-1.24	1.24	38.41	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0

Project Title:
Engineer:
Project ID:
Project Descr:

56/109

Concrete Beam

File = P:\2018\180114\Structural\180114.001 Pma County 5th floor TI - floor check\180114.001.ec6

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Licensee: m3 engineering & technology corp

Description: J1 with Standard filing load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Spacing (in) Suggest
+1.20D+1.60L+0.50S+1.60H	1	11.64	17.50	-1.28	1.28	38.36	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.69	17.50	-1.31	1.31	38.29	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.74	17.50	-1.35	1.35	38.23	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.78	17.50	-1.38	1.38	38.17	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.83	17.50	-1.42	1.42	38.10	0.05	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.88	17.50	-1.45	1.45	38.04	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.92	17.50	-1.49	1.49	37.97	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.97	17.50	-1.53	1.53	37.90	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.02	17.50	-1.56	1.56	37.82	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.06	17.50	-1.60	1.60	37.75	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.11	17.50	-1.63	1.63	37.68	0.06	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.16	17.50	-1.67	1.67	37.60	0.06	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.20	17.50	-1.70	1.70	37.52	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.25	17.50	-1.74	1.74	37.44	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.30	17.50	-1.78	1.78	37.36	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.34	17.50	-1.81	1.81	37.27	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.39	17.50	-1.85	1.85	37.19	0.07	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.44	17.50	-1.88	1.88	37.10	0.07	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.48	17.50	-1.92	1.92	37.01	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.53	17.50	-1.95	1.95	36.92	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.58	17.50	-1.99	1.99	36.83	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.62	17.50	-2.03	2.03	36.73	0.08	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.67	17.50	-2.06	2.06	36.64	0.08	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.72	17.50	-2.10	2.10	36.54	0.08	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.76	17.50	-2.13	2.13	36.44	0.09	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.81	17.50	-2.17	2.17	36.34	0.09	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.86	17.50	-2.20	2.20	36.24	0.09	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.91	17.50	-2.24	2.24	36.14	0.09	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.95	17.50	-2.28	2.28	36.03	0.09	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.00	17.50	-2.31	2.31	35.92	0.09	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.05	17.50	-2.35	2.35	35.81	0.10	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.09	17.50	-2.38	2.38	35.70	0.10	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.14	17.50	-2.42	2.42	35.59	0.10	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.19	17.50	-2.45	2.45	35.48	0.10	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.23	17.50	-2.49	2.49	35.36	0.10	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.28	17.50	-2.53	2.53	35.25	0.10	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.33	17.50	-2.56	2.56	35.13	0.11	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.37	17.50	-2.60	2.60	35.01	0.11	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.42	17.50	-2.63	2.63	34.88	0.11	9.59	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.47	17.50	-2.67	2.67	34.76	0.11	9.59	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.51	17.50	-2.71	2.71	34.63	0.11	9.59	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.56	17.50	-2.76	2.76	34.51	0.12	9.59	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.61	17.50	-2.81	2.81	34.38	0.12	9.60	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.65	17.50	-2.86	2.86	34.24	0.12	9.60	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.70	17.50	-2.90	2.90	34.11	0.12	9.60	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.75	17.50	-2.95	2.95	33.97	0.13	9.61	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.79	17.50	-3.00	3.00	33.83	0.13	9.61	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.84	17.50	-3.05	3.05	33.69	0.13	9.61	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.89	17.50	-3.10	3.10	33.55	0.13	9.61	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.93	17.50	-3.15	3.15	33.40	0.14	9.62	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.98	17.50	-3.20	3.20	33.25	0.14	9.62	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.03	17.50	-3.25	3.25	33.10	0.14	9.62	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.07	17.50	-3.30	3.30	32.95	0.15	9.63	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.12	17.50	-3.35	3.35	32.79	0.15	9.63	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0

Project Title:
Engineer:
Project ID:
Project Descr:

57/109

Concrete Beam

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Description: J1 with Standard filing load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	14.17	17.50	-3.40	3.40	32.64	0.15	9.63	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.21	17.50	-3.45	3.45	32.48	0.15	9.64	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.26	17.50	-3.50	3.50	32.31	0.16	9.64	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.31	17.50	-3.54	3.54	32.15	0.16	9.64	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.35	17.50	-3.59	3.59	31.98	0.16	9.65	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.40	17.50	-3.64	3.64	31.81	0.17	9.65	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.45	17.50	-3.69	3.69	31.64	0.17	9.65	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.49	17.50	-3.74	3.74	31.47	0.17	9.66	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.54	17.50	-3.79	3.79	31.29	0.18	9.66	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.59	17.50	-3.84	3.84	31.11	0.18	9.67	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.64	17.50	-3.89	3.89	30.93	0.18	9.67	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.68	17.50	-3.94	3.94	30.75	0.19	9.67	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.73	17.50	-3.99	3.99	30.56	0.19	9.68	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.78	17.50	-4.04	4.04	30.38	0.19	9.68	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.82	17.50	-4.09	4.09	30.19	0.20	9.69	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.87	17.50	-4.13	4.13	29.99	0.20	9.69	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.92	17.50	-4.18	4.18	29.80	0.20	9.69	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	14.96	17.50	-4.23	4.23	29.60	0.21	9.70	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.01	17.50	-4.28	4.28	29.40	0.21	9.70	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.06	17.50	-4.33	4.33	29.20	0.22	9.71	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.10	17.50	-4.38	4.38	29.00	0.22	9.71	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.15	17.50	-4.43	4.43	28.79	0.22	9.72	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.20	17.50	-4.48	4.48	28.58	0.23	9.72	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.24	17.50	-4.53	4.53	28.37	0.23	9.72	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.29	17.50	-4.58	4.58	28.16	0.24	9.73	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.34	17.50	-4.63	4.63	27.95	0.24	9.73	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.38	17.50	-4.68	4.68	27.73	0.25	9.74	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.43	17.50	-4.73	4.73	27.51	0.25	9.74	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.48	17.50	-4.77	4.77	27.29	0.26	9.75	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.52	17.50	-4.82	4.82	27.06	0.26	9.76	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.57	17.50	-4.87	4.87	26.84	0.26	9.76	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	15.62	17.50	-4.92	4.92	26.61	0.27	9.77	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.66	17.50	-4.97	4.97	26.38	0.27	9.77	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.71	17.50	-5.02	5.02	26.14	0.28	9.78	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.76	17.50	-5.07	5.07	25.91	0.29	9.78	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.80	17.50	-5.12	5.12	25.67	0.29	9.79	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.85	17.50	-5.17	5.17	25.43	0.30	9.80	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.90	17.50	-5.22	5.22	25.18	0.30	9.80	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.94	17.50	-5.27	5.27	24.94	0.31	9.81	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	15.99	17.50	-5.32	5.32	24.69	0.31	9.82	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.04	17.50	-5.36	5.36	24.44	0.32	9.82	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.08	17.50	-5.41	5.41	24.19	0.33	9.83	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.13	17.50	-5.46	5.46	23.94	0.33	9.84	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.18	17.50	-5.51	5.51	23.68	0.34	9.85	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.22	17.50	-5.56	5.56	23.42	0.35	9.85	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.27	17.50	-5.61	5.61	23.16	0.35	9.86	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.32	17.50	-5.66	5.66	22.90	0.36	9.87	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.37	17.50	-5.71	5.71	22.63	0.37	9.88	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.41	17.50	-5.76	5.76	22.36	0.38	9.89	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.46	17.50	-5.81	5.81	22.09	0.38	9.89	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.51	17.50	-5.86	5.86	21.82	0.39	9.90	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.55	17.50	-5.91	5.91	21.54	0.40	9.91	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.60	17.50	-5.98	5.96	21.27	0.41	9.92	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.65	17.50	-6.00	6.00	20.99	0.42	9.93	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

58/109

Concrete Beam

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Description: J1 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	16.69	17.50	-6.05	6.05	20.70	0.43	9.94	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.74	17.50	-6.10	6.10	20.42	0.44	9.95	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.79	17.50	-6.15	6.15	20.13	0.45	9.96	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.83	17.50	-6.20	6.20	19.85	0.46	9.98	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.88	17.50	-6.25	6.25	19.55	0.47	9.99	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.93	17.50	-6.30	6.30	19.26	0.48	10.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	16.97	17.50	-6.35	6.35	18.96	0.49	10.01	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.02	17.50	-6.40	6.40	18.67	0.50	10.03	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.07	17.50	-6.45	6.45	18.37	0.51	10.04	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.11	17.50	-6.50	6.50	18.06	0.52	10.05	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.16	17.50	-6.55	6.55	17.76	0.54	10.07	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.21	17.50	-6.59	6.59	17.45	0.55	10.08	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.25	17.50	-6.64	6.64	17.14	0.57	10.10	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.30	17.50	-6.69	6.69	16.83	0.58	10.12	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.35	17.50	-6.74	6.74	16.52	0.60	10.13	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.39	17.50	-6.79	6.79	16.20	0.61	10.15	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.44	17.50	-6.84	6.84	15.88	0.63	10.17	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.49	17.50	-6.89	6.89	15.56	0.65	10.19	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.53	17.50	-6.94	6.94	15.24	0.66	10.21	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.58	17.50	-6.99	6.99	14.91	0.68	10.23	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.63	17.50	-7.04	7.04	14.58	0.70	10.25	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.67	17.50	-7.09	7.09	14.25	0.73	10.28	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.72	17.50	-7.14	7.14	13.92	0.75	10.30	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.77	17.50	-7.19	7.19	13.59	0.77	10.33	PhiVc/2 < Vu <=	Min 9.6.3.1	24.8	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.81	17.50	-7.23	7.23	13.25	0.80	10.36	PhiVc/2 < Vu <=	Min 9.6.3.1	24.8	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.86	17.50	-7.28	7.28	12.91	0.82	10.39	PhiVc/2 < Vu <=	Min 9.6.3.1	24.8	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.91	17.50	-7.33	7.33	12.57	0.85	10.42	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	17.95	17.50	-7.38	7.38	12.22	0.88	10.45	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.00	17.50	-7.43	7.43	11.88	0.91	10.49	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.05	17.50	-7.48	7.48	11.53	0.95	10.53	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.10	17.50	-7.53	7.53	11.18	0.98	10.57	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.14	17.50	-7.58	7.58	10.82	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.19	17.50	-7.63	7.63	10.47	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.24	17.50	-7.68	7.68	10.11	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.28	17.50	-7.73	7.73	9.75	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.33	17.50	-7.78	7.78	9.39	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.38	17.50	-7.82	7.82	9.02	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.42	17.50	-7.87	7.87	8.66	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.47	17.50	-7.92	7.92	8.29	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.52	17.50	-7.97	7.97	7.92	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.56	17.50	-8.02	8.02	7.54	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.61	17.50	-8.07	8.07	7.17	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.66	17.50	-8.12	8.12	6.79	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.70	17.50	-8.17	8.17	6.41	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.75	17.50	-8.22	8.22	6.02	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.80	17.50	-8.27	8.27	5.64	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.84	17.50	-8.32	8.32	5.25	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.89	17.50	-8.37	8.37	4.86	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.94	17.50	-8.42	8.42	4.47	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.98	17.50	-8.46	8.46	4.07	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.03	17.50	-8.51	8.51	3.68	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.08	17.50	-8.56	8.56	3.28	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.12	17.50	-8.61	8.61	2.88	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.17	17.50	-8.66	8.66	2.47	1.00	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

59/109

Concrete Beam

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Description: J1 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k)	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in)	Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	19.22	17.50	-8.71	8.71	2.07	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.26	17.50	-8.76	8.76	1.66	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.31	17.50	-8.81	8.81	1.25	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.36	17.50	-8.86	8.86	0.83	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.40	17.50	-8.91	8.91	0.42	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.45	17.50	-8.96	8.96	0.00	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.50	16.50	-9.01	9.01	0.42	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.54	16.50	-9.05	9.05	0.84	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.59	16.50	-9.10	9.10	1.27	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.64	16.50	-9.15	9.15	1.69	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.69	16.50	-9.20	9.20	2.12	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.73	16.50	-9.25	9.25	2.55	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.78	16.50	-9.30	9.30	2.99	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.83	16.50	-9.35	9.35	3.42	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.87	16.50	-9.40	9.40	3.86	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.92	16.50	-9.45	9.45	4.30	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	19.97	16.50	-9.50	9.50	4.75	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.01	16.50	-9.55	9.55	5.19	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.06	16.50	-9.60	9.60	5.64	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.11	16.50	-9.65	9.65	6.09	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.15	16.50	-9.69	9.69	6.54	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.20	16.50	-9.74	9.74	6.99	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.25	16.50	-9.79	9.79	7.45	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.29	16.50	-9.84	9.84	7.91	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.34	16.50	-9.89	9.89	8.37	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.39	16.50	-9.94	9.94	8.84	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.43	16.50	-9.99	9.99	9.30	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.48	16.50	-10.04	10.04	9.77	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.53	16.50	-10.09	10.09	10.24	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.57	16.50	-10.14	10.14	10.71	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.62	16.50	-10.19	10.19	11.19	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.67	16.50	-10.24	10.24	11.67	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.71	16.50	-10.28	10.28	12.15	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.76	16.50	-10.33	10.33	12.63	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.81	16.50	-10.38	10.38	13.11	1.00	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.85	16.50	-10.43	10.43	13.60	1.00	PhiVc < Vu	0.02868	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.90	16.50	-10.48	10.48	14.09	1.00	PhiVc < Vu	0.07788	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.95	16.50	-10.53	10.53	14.58	0.99	PhiVc < Vu	0.1371	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	20.99	16.50	-10.58	10.58	15.07	0.97	PhiVc < Vu	0.2278	24.0	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.04	16.50	-10.63	10.63	15.57	0.94	PhiVc < Vu	0.3161	23.9	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.09	16.50	-10.68	10.68	16.07	0.91	PhiVc < Vu	0.4022	23.9	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.13	16.50	-10.73	10.73	16.57	0.89	PhiVc < Vu	0.4862	23.9	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.18	16.50	-10.78	10.78	17.07	0.87	PhiVc < Vu	0.5684	23.8	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.23	16.50	-10.83	10.83	17.57	0.85	PhiVc < Vu	0.6489	23.8	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.27	16.50	-10.88	10.88	18.08	0.83	PhiVc < Vu	0.7277	23.8	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.32	16.50	-10.92	10.92	18.59	0.81	PhiVc < Vu	0.8051	23.7	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.37	16.50	-10.97	10.97	19.10	0.79	PhiVc < Vu	0.8811	23.7	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.42	16.50	-11.02	11.02	19.62	0.77	PhiVc < Vu	0.9559	23.7	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.46	16.50	-11.07	11.07	20.13	0.76	PhiVc < Vu	1.029	23.7	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.51	16.50	-11.12	11.12	20.65	0.74	PhiVc < Vu	1.102	23.6	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.56	16.50	-11.17	11.17	21.17	0.73	PhiVc < Vu	1.173	23.6	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.60	16.50	-11.22	11.22	21.70	0.71	PhiVc < Vu	1.244	23.6	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.65	16.50	-11.27	11.27	22.22	0.70	PhiVc < Vu	1.314	23.6	8.3	8.0	
+1.20D+1.60L+0.50S+1.60H	1	21.70	16.50	-11.32	11.32	22.75	0.68	PhiVc < Vu	1.382	23.5	8.3	8.0	

Project Title:
 Engineer:
 Project ID:
 Project Descr:

60/109

Concrete Beam

File = P:\2018\180114\Structural\180114.001 Pma County 5th floor TI - floor check\180114.001.ec6
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Licensee: m3 engineering & technology corp

Description: J1 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Spacing (in) Suggest
+1.20D+1.60L+0.50S+1.60H	1	21.74	16.50	-11.37	11.37	23.28	0.67	9.92	PhiVc < Vu	1.450	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.79	16.50	-11.42	11.42	23.81	0.66	9.90	PhiVc < Vu	1.518	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.84	16.50	-11.47	11.47	24.35	0.65	9.88	PhiVc < Vu	1.584	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.88	16.50	-11.51	11.51	24.89	0.64	9.86	PhiVc < Vu	1.650	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.93	16.50	-11.56	11.56	25.43	0.63	9.85	PhiVc < Vu	1.715	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.98	16.50	-11.61	11.61	25.97	0.61	9.83	PhiVc < Vu	1.780	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.02	16.50	-11.66	11.66	26.51	0.60	9.82	PhiVc < Vu	1.844	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.07	16.50	-11.71	11.71	27.06	0.60	9.80	PhiVc < Vu	1.908	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.12	16.50	-11.76	11.76	27.61	0.59	9.79	PhiVc < Vu	1.971	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.16	16.50	-11.81	11.81	28.16	0.58	9.78	PhiVc < Vu	2.033	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.21	16.50	-11.86	11.86	28.71	0.57	9.76	PhiVc < Vu	2.095	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.26	16.50	-11.91	11.91	29.27	0.56	9.75	PhiVc < Vu	2.157	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.30	16.50	-11.96	11.96	29.82	0.55	9.74	PhiVc < Vu	2.219	23.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.35	16.50	-12.01	12.01	30.39	0.54	9.73	PhiVc < Vu	2.279	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.40	16.50	-12.06	12.06	30.95	0.54	9.72	PhiVc < Vu	2.340	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.44	16.50	-12.11	12.11	31.51	0.53	9.70	PhiVc < Vu	2.40	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.49	16.50	-12.15	12.15	32.08	0.52	9.69	PhiVc < Vu	2.460	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.54	16.50	-12.20	12.20	32.65	0.51	9.68	PhiVc < Vu	2.520	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.58	16.50	-12.25	12.25	33.22	0.51	9.67	PhiVc < Vu	2.579	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.63	16.50	-12.30	12.30	33.79	0.50	9.66	PhiVc < Vu	2.638	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.68	16.50	-12.35	12.35	34.37	0.49	9.65	PhiVc < Vu	2.697	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.72	16.50	-12.40	12.40	34.95	0.49	9.64	PhiVc < Vu	2.755	23.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.77	16.50	-12.45	12.45	35.53	0.48	9.64	PhiVc < Vu	2.813	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.82	16.50	-12.50	12.50	36.11	0.48	9.63	PhiVc < Vu	2.871	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.86	16.50	-12.55	12.55	36.70	0.47	9.62	PhiVc < Vu	2.929	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.91	16.50	-12.60	12.60	37.29	0.46	9.61	PhiVc < Vu	2.987	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	22.96	16.50	-12.65	12.65	37.88	0.46	9.60	PhiVc < Vu	3.044	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.00	16.50	-12.70	12.70	38.47	0.45	9.59	PhiVc < Vu	3.101	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.05	16.50	-12.74	12.74	39.07	0.45	9.59	PhiVc < Vu	3.158	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.10	16.50	-12.79	12.79	39.66	0.44	9.58	PhiVc < Vu	3.214	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.15	16.50	-12.84	12.84	40.26	0.44	9.57	PhiVc < Vu	3.271	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.19	16.50	-12.89	12.89	40.86	0.43	9.56	PhiVc < Vu	3.327	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.24	16.50	-12.94	12.94	41.47	0.43	9.56	PhiVc < Vu	3.383	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.29	16.50	-12.99	12.99	42.07	0.42	9.55	PhiVc < Vu	3.439	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.33	16.50	-13.04	13.04	42.68	0.42	9.54	PhiVc < Vu	3.495	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.38	16.50	-13.09	13.09	43.29	0.42	9.54	PhiVc < Vu	3.551	23.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.43	16.50	-13.14	13.14	43.91	0.41	9.53	PhiVc < Vu	3.606	23.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.47	16.50	-13.19	13.19	44.52	0.41	9.53	PhiVc < Vu	3.662	23.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.52	16.50	-13.24	13.24	45.14	0.40	9.52	PhiVc < Vu	3.717	23.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.57	16.50	-13.29	13.29	45.76	0.40	9.51	PhiVc < Vu	3.772	23.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.61	16.50	-13.34	13.34	46.38	0.40	9.51	PhiVc < Vu	3.827	23.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.66	16.50	-13.38	13.38	47.01	0.39	9.50	PhiVc < Vu	3.882	23.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	23.71	1.50	-13.43	13.43	47.63	0.04	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	23.75	1.50	-13.48	13.48	48.26	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	23.80	1.50	-13.53	13.53	48.89	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	23.85	1.50	-13.58	13.58	49.53	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	23.89	1.50	-13.63	13.63	50.16	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	23.94	1.50	-13.68	13.68	50.80	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	23.99	1.50	-13.73	13.73	51.44	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.03	1.50	-13.78	13.78	52.09	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.08	1.50	-13.83	13.83	52.73	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.13	1.50	-13.88	13.88	53.38	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.17	1.50	-13.93	13.93	54.03	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.22	1.50	-13.97	13.97	54.68	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0

Project Title:
Engineer:
Project ID:
Project Descr:

6/1/09

Concrete Beam

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Description : J1 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k)	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in)	Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	24.27	1.50	-14.02	14.02	55.34	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.31	1.50	-14.07	14.07	55.99	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.36	1.50	-14.12	14.12	56.65	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.41	1.50	-14.17	14.17	57.31	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.45	1.50	-14.22	14.22	57.98	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.50	1.50	-14.27	14.27	58.64	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.55	1.50	-14.32	14.32	59.31	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.59	1.50	-14.37	14.37	59.98	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.64	1.50	-14.42	14.42	60.66	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.69	1.50	-14.47	14.47	61.33	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.73	1.50	-14.52	14.52	62.01	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.78	1.50	-14.56	14.56	62.69	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.83	1.50	-14.61	14.61	63.37	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.88	1.50	-14.66	14.66	64.05	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.92	1.50	-14.71	14.71	64.74	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	24.97	1.50	-14.76	14.76	65.43	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.02	1.50	-14.81	14.81	66.12	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.06	1.50	-14.86	14.86	66.82	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.11	1.50	-14.91	14.91	67.51	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.16	1.50	-14.96	14.96	68.21	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.20	1.50	-15.01	15.01	68.91	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.25	1.50	-15.06	15.06	69.61	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.30	1.50	-15.11	15.11	70.32	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.34	1.50	-15.16	15.16	71.03	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.39	1.50	-15.20	15.20	71.74	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.44	1.50	-15.25	15.25	72.45	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.48	1.50	-15.30	15.30	73.16	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.53	1.50	-15.35	15.35	73.88	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.58	1.50	-15.40	15.40	74.60	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.62	1.50	-15.45	15.45	75.32	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	25.67	1.50	-15.50	15.50	76.04	0.03	0.81	Vu > PhiVc	s > Vs: max p	0.8	0.0	0.0

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	Phi*Mnx	Stress Ratio
MAXIMUM BENDING Envelope					
Span # 1	1	25.670	-76.04	106.17	0.72
+1.40D+1.60H					
Span # 1	1	25.670	-43.45	106.17	0.41
+1.20D+0.50Lr+1.60L+1.60H					
Span # 1	1	25.670	-76.04	106.17	0.72
+1.20D+1.60L+0.50S+1.60H					
Span # 1	1	25.670	-76.04	106.17	0.72
+1.20D+1.60Lr+0.50L+1.60H					
Span # 1	1	25.670	-49.37	106.17	0.47
+1.20D+1.60Lr+0.50W+1.60H					
Span # 1	1	25.670	-37.25	106.17	0.35
+1.20D+0.50L+1.60S+1.60H					
Span # 1	1	25.670	-49.37	106.17	0.47
+1.20D+1.60S+0.50W+1.60H					
Span # 1	1	25.670	-37.25	106.17	0.35
+1.20D+0.50Lr+0.50L+W+1.60H					
Span # 1	1	25.670	-49.37	106.17	0.47
+1.20D+0.50L+0.50S+W+1.60H					
Span # 1	1	25.670	-49.37	106.17	0.47
+0.90D+W+0.90H					
Span # 1	1	25.670	-27.94	106.17	0.26
+0.90D+E+0.90H					

Project Title:
Engineer:
Project ID:
Project Descr:

62/109

Concrete Beam

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Description : J1 with Standard filling load

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	Phi*Mnx	Stress Ratio
Span # 1	1	25.670	-27.94	106.17	0.26

Overall Maximum Deflections

Load Combination	Span	Max. "+" Defl (in)	Location in Span (ft)	Load Combination	Max. "+" Defl (in)	Location in Span (ft)
+D+L+H	1	0.2185	11.152		0.0000	0.000

Project Title:
 Engineer:
 Project ID:
 Project Descr:

6/3/109

Concrete Beam

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Description : J4 with Standard filling load

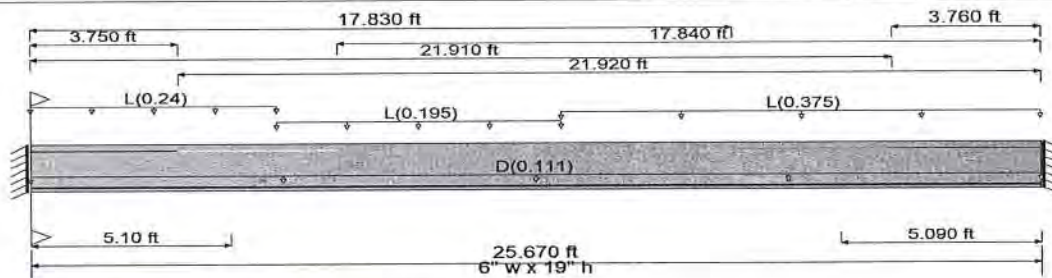
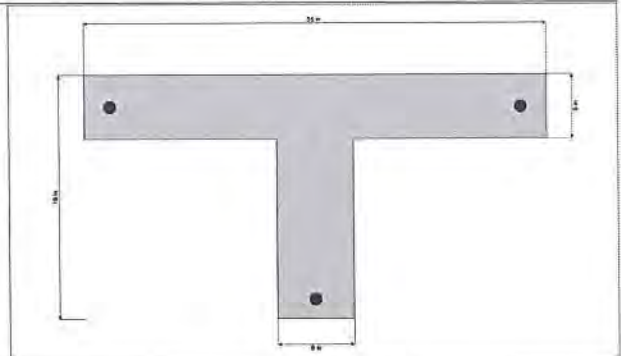
CODE REFERENCES

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : ASCE 7-10

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c \cdot 7.50$	=	474.342 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	F_y - Stirrups	=	40.0 ksi
f_y - Main Rebar	=	60.0 ksi	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
			Number of Resisting Legs Per Stirrup	=	2



Cross Section & Reinforcing Details

Tee Section, Stem Width = 6.0 in, Total Height = 19.0 in, Top Flange Width = 36.0 in, Flange Thickness = 5.0 in

Span #1 Reinforcing....

- 2-#8 at 2.50 in from Top, from 0.0 to 3.750 ft in this span
- 1-#8 at 1.50 in from Bottom, from 0.0 to 25.670 ft in this span
- 1-#8 at 2.50 in from Top, from 3.750 to 7.830 ft in this span

- 2-#8 at 2.50 in from Top, from 21.910 to 25.670 ft in this span
- 1-#8 at 1.50 in from Bottom, from 5.10 to 20.580 ft in this span
- 1-#8 at 2.50 in from Top, from 17.830 to 21.910 ft in this span

Service loads entered. Load Factors will be applied for calculations.

Applied Loads

Beam self weight calculated and added to loads

Load for Span Number 1

Uniform Load : D = 0.0370 ksf, Tributary Width = 3.0 ft, (floor dead load)

Uniform Load : L = 0.0650 ksf, Extent = 6.250 --> 13.50 ft, Tributary Width = 3.0 ft, (office space floor live with partition load)

Uniform Load : L = 0.1250 ksf, Extent = 13.50 --> 25.667 ft, Tributary Width = 3.0 ft, (standard filing live load)

Uniform Load : L = 0.080 ksf, Extent = 0.0 --> 6.250 ft, Tributary Width = 3.0 ft, (floor live)

*CONSERVATIVELY, NEGLECTED SLAB REINFORCING:
 WWF - WZ.9 x WZ.9 (6x6 - 6/6)
 $A_s = 0.058 \text{ in}^2/\text{ft}$*

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.490 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward Transient Deflection	0.025 in Ratio = 12146 >= 800.
μ_u : Applied	-52.393 k-ft	Max Upward Transient Deflection	0.000 in Ratio = 0 < 800.C
$M_n \cdot \Phi$: Allowable	106.920 k-ft	Max Downward Total Deflection	0.082 in Ratio = 3743 >= 360.
Location of maximum on span	25.670 ft	Max Upward Total Deflection	0.000 in Ratio = 0 < 360.C
Span # where maximum occurs	Span # 1		

Vertical Reactions

Support notation : Far left is #1

Load Combination	Support 1	Support 2
Overall MAXimum	8.069	9.081
Overall MINimum	2.902	2.902

Project Title:
 Engineer:
 Project ID:
 Project Descr:

6A/109

Concrete Beam

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Description: J4 with Standard filling load

Vertical Reactions

Support notation: Far left is #1

Load Combination	Support 1	Support 2
+D+H	4.837	4.837
+D+L+H	8.069	9.081
+D+Lr+H	4.837	4.837
+D+S+H	4.837	4.837
+D+0.750Lr+0.750L+H	7.262	8.018
+D+0.750L+0.750S+H	7.262	8.018
+D+0.60W+H	4.837	4.837
+D+0.70E+H	4.837	4.837
+D+0.750Lr+0.750L+0.450W+H	7.262	8.018
+D+0.750L+0.750S+0.450W+H	7.262	8.018
+D+0.750L+0.750S+0.5250E+H	7.262	8.018
+0.60D+0.60W+0.60H	2.902	2.902
+0.60D+0.70E+0.60H	2.902	2.902
D Only	4.837	4.837
Lr Only		
L Only	3.145	4.331
S Only		
W Only		
E Only		
H Only		

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	0.00	16.50	10.84	10.84	47.30	0.32	9.86	PhiVc < Vu	0.9806	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.05	16.50	10.80	10.80	46.79	0.32	9.86	PhiVc < Vu	0.9348	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.09	16.50	10.76	10.76	46.29	0.32	9.87	PhiVc < Vu	0.8889	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.14	16.50	10.72	10.72	45.79	0.32	9.88	PhiVc < Vu	0.8429	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.19	16.50	10.68	10.68	45.29	0.32	9.88	PhiVc < Vu	0.7968	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.23	16.50	10.64	10.64	44.79	0.33	9.89	PhiVc < Vu	0.7505	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.28	16.50	10.60	10.60	44.29	0.33	9.90	PhiVc < Vu	0.7042	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.33	16.50	10.56	10.56	43.80	0.33	9.90	PhiVc < Vu	0.6577	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.37	16.50	10.52	10.52	43.30	0.33	9.91	PhiVc < Vu	0.6111	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.42	16.50	10.48	10.48	42.81	0.34	9.92	PhiVc < Vu	0.5644	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.47	16.50	10.45	10.45	42.32	0.34	9.93	PhiVc < Vu	0.5175	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.51	16.50	10.41	10.41	41.84	0.34	9.94	PhiVc < Vu	0.4705	23.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.56	16.50	10.37	10.37	41.35	0.34	9.94	PhiVc < Vu	0.4233	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.61	16.50	10.33	10.33	40.87	0.35	9.95	PhiVc < Vu	0.3760	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.65	16.50	10.29	10.29	40.39	0.35	9.96	PhiVc < Vu	0.3286	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.70	16.50	10.25	10.25	39.91	0.35	9.97	PhiVc < Vu	0.2810	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.75	16.50	10.21	10.21	39.43	0.36	9.98	PhiVc < Vu	0.2333	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.79	16.50	10.17	10.17	38.95	0.36	9.99	PhiVc < Vu	0.1853	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.84	16.50	10.13	10.13	38.48	0.36	10.00	PhiVc < Vu	0.1373	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.89	16.50	10.09	10.09	38.00	0.37	10.00	PhiVc < Vu	0.08901	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.94	16.50	10.05	10.05	37.53	0.37	10.01	PhiVc < Vu	0.04057	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	0.98	16.50	10.02	10.02	37.06	0.37	10.02	PhiVc/2 < Vu <=	Min 9.6.3.1	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.03	16.50	9.98	9.98	36.60	0.37	10.03	PhiVc/2 < Vu <=	Min 9.6.3.1	23.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.08	16.50	9.94	9.94	36.13	0.38	10.04	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.12	16.50	9.90	9.90	35.67	0.38	10.05	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.17	16.50	9.86	9.86	35.20	0.39	10.06	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.22	16.50	9.82	9.82	34.74	0.39	10.07	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.26	16.50	9.78	9.78	34.29	0.39	10.08	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.31	16.50	9.74	9.74	33.83	0.40	10.10	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.36	16.50	9.70	9.70	33.37	0.40	10.11	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.40	16.50	9.66	9.66	32.92	0.40	10.12	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.45	16.50	9.62	9.62	32.47	0.41	10.13	PhiVc/2 < Vu <=	Min 9.6.3.1	23.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.50	16.50	9.58	9.58	32.02	0.41	10.14	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3 8.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

65/109

Concrete Beam

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Description: J4 with Standard filing load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in)	
				Actual	Design							Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	1.54	16.50	9.55	9.55	31.57	0.42	10.15	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.59	16.50	9.51	9.51	31.13	0.42	10.17	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.64	16.50	9.47	9.47	30.69	0.42	10.18	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.68	16.50	9.43	9.43	30.24	0.43	10.19	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.73	16.50	9.39	9.39	29.80	0.43	10.21	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.78	16.50	9.35	9.35	29.37	0.44	10.22	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.82	16.50	9.31	9.31	28.93	0.44	10.23	PhiVc/2 < Vu <=	Min 9.6.3.1	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.87	16.50	9.27	9.27	28.50	0.45	10.25	PhiVc/2 < Vu <=	Min 9.6.3.1	23.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.92	16.50	9.23	9.23	28.06	0.45	10.26	PhiVc/2 < Vu <=	Min 9.6.3.1	23.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.96	16.50	9.19	9.19	27.63	0.46	10.28	PhiVc/2 < Vu <=	Min 9.6.3.1	23.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.01	16.50	9.15	9.15	27.20	0.46	10.29	PhiVc/2 < Vu <=	Min 9.6.3.1	23.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.06	16.50	9.12	9.12	26.78	0.47	10.31	PhiVc/2 < Vu <=	Min 9.6.3.1	23.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.10	16.50	9.08	9.08	26.35	0.47	10.33	PhiVc/2 < Vu <=	Min 9.6.3.1	23.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.15	16.50	9.04	9.04	25.93	0.48	10.34	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.20	16.50	9.00	9.00	25.51	0.49	10.36	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.24	16.50	8.96	8.96	25.09	0.49	10.38	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.29	16.50	8.92	8.92	24.67	0.50	10.40	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.34	16.50	8.88	8.88	24.25	0.50	10.41	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.38	16.50	8.84	8.84	23.84	0.51	10.43	PhiVc/2 < Vu <=	Min 9.6.3.1	24.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.43	16.50	8.80	8.80	23.42	0.52	10.45	PhiVc/2 < Vu <=	Min 9.6.3.1	24.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.48	16.50	8.76	8.76	23.01	0.52	10.47	PhiVc/2 < Vu <=	Min 9.6.3.1	24.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.52	16.50	8.72	8.72	22.60	0.53	10.49	PhiVc/2 < Vu <=	Min 9.6.3.1	24.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.57	16.50	8.69	8.69	22.20	0.54	10.52	PhiVc/2 < Vu <=	Min 9.6.3.1	24.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.62	16.50	8.65	8.65	21.79	0.55	10.54	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.67	16.50	8.61	8.61	21.39	0.55	10.56	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.71	16.50	8.57	8.57	20.99	0.56	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.76	16.50	8.53	8.53	20.59	0.57	10.61	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.81	16.50	8.49	8.49	20.19	0.58	10.64	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.85	16.50	8.45	8.45	19.79	0.59	10.66	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.90	16.50	8.41	8.41	19.40	0.60	10.69	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.95	16.50	8.37	8.37	19.01	0.61	10.72	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	2.99	16.50	8.33	8.33	18.62	0.62	10.75	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.04	16.50	8.29	8.29	18.23	0.63	10.78	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.09	16.50	8.26	8.26	17.84	0.64	10.81	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.13	16.50	8.22	8.22	17.46	0.65	10.84	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.18	16.50	8.18	8.18	17.07	0.66	10.87	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.23	16.50	8.14	8.14	16.69	0.67	10.91	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.27	16.50	8.10	8.10	16.31	0.68	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.32	16.50	8.06	8.06	15.93	0.70	10.98	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.37	16.50	8.02	8.02	15.56	0.71	11.02	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.41	16.50	7.98	7.98	15.18	0.72	11.06	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.46	16.50	7.94	7.94	14.81	0.74	11.11	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.51	16.50	7.90	7.90	14.44	0.75	11.15	PhiVc/2 < Vu <=	Min 9.6.3.1	24.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.55	16.50	7.86	7.86	14.07	0.77	11.20	PhiVc/2 < Vu <=	Min 9.6.3.1	24.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.60	16.50	7.83	7.83	13.71	0.79	11.25	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.65	16.50	7.79	7.79	13.34	0.80	11.30	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.69	16.50	7.75	7.75	12.98	0.82	11.35	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.74	16.50	7.71	7.71	12.62	0.84	11.41	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.79	16.50	7.67	7.67	12.26	0.86	11.47	PhiVc/2 < Vu <=	Min 9.6.3.1	25.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.83	16.50	7.63	7.63	11.90	0.88	11.53	PhiVc/2 < Vu <=	Min 9.6.3.1	25.1	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.88	16.50	7.59	7.59	11.54	0.90	11.60	PhiVc/2 < Vu <=	Min 9.6.3.1	25.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.93	16.50	7.55	7.55	11.19	0.93	11.67	PhiVc/2 < Vu <=	Min 9.6.3.1	25.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.97	16.50	7.51	7.51	10.84	0.95	11.75	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.02	16.50	7.47	7.47	10.49	0.98	11.83	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.3	8.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

66/109

Concrete Beam

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Description: J4 with Standard filing load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	4.07	16.50	7.43	7.43	10.14	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.11	16.50	7.40	7.40	9.79	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.16	16.50	7.36	7.36	9.45	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.21	16.50	7.32	7.32	9.10	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.25	16.50	7.28	7.28	8.76	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.30	16.50	7.24	7.24	8.42	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.35	16.50	7.20	7.20	8.08	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.40	16.50	7.16	7.16	7.75	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.44	16.50	7.12	7.12	7.42	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.49	16.50	7.08	7.08	7.08	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.54	16.50	7.04	7.04	6.75	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.58	16.50	7.00	7.00	6.42	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.63	16.50	6.97	6.97	6.10	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.68	16.50	6.93	6.93	5.77	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.72	16.50	6.89	6.89	5.45	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.77	16.50	6.85	6.85	5.13	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.82	16.50	6.81	6.81	4.81	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.86	16.50	6.77	6.77	4.49	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.91	16.50	6.73	6.73	4.18	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	4.96	16.50	6.69	6.69	3.86	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.00	16.50	6.65	6.65	3.55	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.05	16.50	6.61	6.61	3.24	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.10	16.50	6.57	6.57	2.93	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.14	16.50	6.54	6.54	2.63	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.19	16.50	6.50	6.50	2.32	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.24	16.50	6.46	6.46	2.02	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.28	16.50	6.42	6.42	1.72	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.33	16.50	6.38	6.38	1.42	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.38	16.50	6.34	6.34	1.12	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.42	16.50	6.30	6.30	0.83	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.47	16.50	6.26	6.26	0.53	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.52	16.50	6.22	6.22	0.24	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.56	17.50	6.18	6.18	0.05	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.61	17.50	6.14	6.14	0.34	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.66	17.50	6.11	6.11	0.62	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.70	17.50	6.07	6.07	0.91	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.75	17.50	6.03	6.03	1.19	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.80	17.50	5.99	5.99	1.47	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.84	17.50	5.95	5.95	1.75	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.89	17.50	5.91	5.91	2.03	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.94	17.50	5.87	5.87	2.30	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	5.98	17.50	5.83	5.83	2.58	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.03	17.50	5.79	5.79	2.85	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.08	17.50	5.75	5.75	3.12	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.13	17.50	5.71	5.71	3.39	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.17	17.50	5.68	5.68	3.65	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.22	17.50	5.64	5.64	3.92	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.27	17.50	5.60	5.60	4.18	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.31	17.50	5.56	5.56	4.44	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.36	17.50	5.53	5.53	4.70	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.41	17.50	5.49	5.49	4.96	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	6.45	17.50	5.46	5.46	5.22	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.50	17.50	5.42	5.42	5.47	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	6.55	17.50	5.38	5.38	5.72	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0 0.0

Project Title:
Engineer:
Project ID:
Project Descr:

62/109

Concrete Beam

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Description : J4 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Spacing (in) Suggest
+1.20D+1.60L+0.50S+1.60H	1	6.59	17.50	5.35	5.35	5.97	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.64	17.50	5.31	5.31	6.22	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.69	17.50	5.28	5.28	6.47	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.73	17.50	5.24	5.24	6.72	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.78	17.50	5.20	5.20	6.96	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.83	17.50	5.17	5.17	7.20	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.87	17.50	5.13	5.13	7.44	1.00	10.94	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.92	17.50	5.10	5.10	7.68	0.97	10.90	Vu < PhiVc/2	lot Req'd 9.6.	10.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	6.97	17.50	5.06	5.06	7.92	0.93	10.84	Vu < PhiVc/2	lot Req'd 9.6.	10.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.01	17.50	5.03	5.03	8.16	0.90	10.79	Vu < PhiVc/2	lot Req'd 9.6.	10.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.06	17.50	4.99	4.99	8.39	0.87	10.75	Vu < PhiVc/2	lot Req'd 9.6.	10.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.11	17.50	4.95	4.95	8.62	0.84	10.70	Vu < PhiVc/2	lot Req'd 9.6.	10.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.15	17.50	4.92	4.92	8.85	0.81	10.66	Vu < PhiVc/2	lot Req'd 9.6.	10.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.20	17.50	4.88	4.88	9.08	0.78	10.62	Vu < PhiVc/2	lot Req'd 9.6.	10.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.25	17.50	4.85	4.85	9.31	0.76	10.59	Vu < PhiVc/2	lot Req'd 9.6.	10.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.29	17.50	4.81	4.81	9.54	0.74	10.55	Vu < PhiVc/2	lot Req'd 9.6.	10.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.34	17.50	4.78	4.78	9.76	0.71	10.52	Vu < PhiVc/2	lot Req'd 9.6.	10.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.39	17.50	4.74	4.74	9.98	0.69	10.49	Vu < PhiVc/2	lot Req'd 9.6.	10.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.43	17.50	4.70	4.70	10.20	0.67	10.46	Vu < PhiVc/2	lot Req'd 9.6.	10.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.48	17.50	4.67	4.67	10.42	0.65	10.43	Vu < PhiVc/2	lot Req'd 9.6.	10.4	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.53	17.50	4.63	4.63	10.64	0.64	10.40	Vu < PhiVc/2	lot Req'd 9.6.	10.4	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.57	17.50	4.60	4.60	10.86	0.62	10.38	Vu < PhiVc/2	lot Req'd 9.6.	10.4	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.62	17.50	4.56	4.56	11.07	0.60	10.35	Vu < PhiVc/2	lot Req'd 9.6.	10.4	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.67	17.50	4.53	4.53	11.28	0.59	10.33	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.72	17.50	4.49	4.49	11.49	0.57	10.31	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.76	17.50	4.45	4.45	11.70	0.56	10.29	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.81	17.50	4.42	4.42	11.91	0.54	10.26	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.86	17.50	4.38	4.38	12.12	0.53	10.24	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.90	17.50	4.35	4.35	12.32	0.51	10.23	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	7.95	17.50	4.31	4.31	12.52	0.50	10.21	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.00	17.50	4.28	4.28	12.72	0.49	10.19	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.04	17.50	4.24	4.24	12.92	0.48	10.17	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.09	17.50	4.20	4.20	13.12	0.47	10.16	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.14	17.50	4.17	4.17	13.31	0.46	10.14	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.18	17.50	4.13	4.13	13.51	0.45	10.12	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.23	17.50	4.10	4.10	13.70	0.44	10.11	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.28	17.50	4.06	4.06	13.89	0.43	10.09	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.32	17.50	4.03	4.03	14.08	0.42	10.08	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.37	17.50	3.99	3.99	14.27	0.41	10.07	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.42	17.50	3.95	3.95	14.45	0.40	10.05	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.46	17.50	3.92	3.92	14.64	0.39	10.04	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.51	17.50	3.88	3.88	14.82	0.38	10.03	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.56	17.50	3.85	3.85	15.00	0.37	10.02	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.60	17.50	3.81	3.81	15.18	0.37	10.01	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.65	17.50	3.78	3.78	15.36	0.36	9.99	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.70	17.50	3.74	3.74	15.53	0.35	9.98	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.74	17.50	3.70	3.70	15.71	0.34	9.97	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.79	17.50	3.67	3.67	15.88	0.34	9.96	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.84	17.50	3.63	3.63	16.05	0.33	9.95	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.88	17.50	3.60	3.60	16.22	0.32	9.94	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.93	17.50	3.56	3.56	16.39	0.32	9.93	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	8.98	17.50	3.53	3.53	16.55	0.31	9.92	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.02	17.50	3.49	3.49	16.72	0.30	9.91	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.07	17.50	3.45	3.45	16.88	0.30	9.91	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0

Project Title:
Engineer:
Project ID:
Project Descr:

68/109

Concrete Beam

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Description: J4 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Spacing (in) Suggest
+1.20D+1.60L+0.50S+1.60H	1	9.12	17.50	3.42	3.42	17.04	0.29	9.90	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.16	17.50	3.38	3.38	17.20	0.29	9.89	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.21	17.50	3.35	3.35	17.36	0.28	9.88	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.26	17.50	3.31	3.31	17.51	0.28	9.87	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.30	17.50	3.28	3.28	17.67	0.27	9.86	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.35	17.50	3.24	3.24	17.82	0.27	9.86	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.40	17.50	3.20	3.20	17.97	0.26	9.85	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.45	17.50	3.17	3.17	18.12	0.26	9.84	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.49	17.50	3.13	3.13	18.26	0.25	9.83	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.54	17.50	3.10	3.10	18.41	0.25	9.83	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.59	17.50	3.06	3.06	18.55	0.24	9.82	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.63	17.50	3.03	3.03	18.70	0.24	9.81	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.68	17.50	2.99	2.99	18.84	0.23	9.81	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.73	17.50	2.95	2.95	18.98	0.23	9.80	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.77	17.50	2.92	2.92	19.11	0.22	9.79	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.82	17.50	2.88	2.88	19.25	0.22	9.79	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.87	17.50	2.85	2.85	19.38	0.21	9.78	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.91	17.50	2.81	2.81	19.52	0.21	9.77	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	9.96	17.50	2.78	2.78	19.65	0.21	9.77	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.01	17.50	2.74	2.74	19.77	0.20	9.76	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.05	17.50	2.70	2.70	19.90	0.20	9.76	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.10	17.50	2.67	2.67	20.03	0.19	9.75	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.15	17.50	2.63	2.63	20.15	0.19	9.75	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.19	17.50	2.60	2.60	20.27	0.19	9.74	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.24	17.50	2.56	2.56	20.39	0.18	9.73	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.29	17.50	2.53	2.53	20.51	0.18	9.73	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.33	17.50	2.49	2.49	20.63	0.18	9.72	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.38	17.50	2.45	2.45	20.75	0.17	9.72	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.43	17.50	2.42	2.42	20.86	0.17	9.71	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.47	17.50	2.38	2.38	20.97	0.17	9.71	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.52	17.50	2.35	2.35	21.08	0.16	9.70	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.57	17.50	2.31	2.31	21.19	0.16	9.70	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.61	17.50	2.27	2.27	21.30	0.16	9.69	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.66	17.50	2.24	2.24	21.40	0.15	9.69	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.71	17.50	2.20	2.20	21.51	0.15	9.68	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.75	17.50	2.17	2.17	21.61	0.15	9.68	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.80	17.50	2.13	2.13	21.71	0.14	9.68	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.85	17.50	2.10	2.10	21.81	0.14	9.67	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.89	17.50	2.06	2.06	21.91	0.14	9.67	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.94	17.50	2.02	2.02	22.00	0.13	9.66	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	10.99	17.50	1.99	1.99	22.10	0.13	9.66	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.03	17.50	1.95	1.95	22.19	0.13	9.65	Vu < PhiVc/2	lot Req'd 9.6.	9.7	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.08	17.50	1.92	1.92	22.28	0.13	9.65	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.13	17.50	1.88	1.88	22.37	0.12	9.64	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.18	17.50	1.85	1.85	22.46	0.12	9.64	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.22	17.50	1.81	1.81	22.54	0.12	9.64	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.27	17.50	1.77	1.77	22.62	0.11	9.63	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.32	17.50	1.74	1.74	22.71	0.11	9.63	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.36	17.50	1.70	1.70	22.79	0.11	9.62	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.41	17.50	1.67	1.67	22.87	0.11	9.62	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.46	17.50	1.63	1.63	22.94	0.10	9.62	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.50	17.50	1.60	1.60	23.02	0.10	9.61	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.55	17.50	1.56	1.56	23.09	0.10	9.61	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.60	17.50	1.52	1.52	23.16	0.10	9.61	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0

Project Title:
Engineer:
Project ID:
Project Descr:

68/109

Concrete Beam

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Description: J4 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	11.64	17.50	1.49	1.49	23.23	0.09	9.60	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.69	17.50	1.45	1.45	23.30	0.09	9.60	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.74	17.50	1.42	1.42	23.37	0.09	9.59	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.78	17.50	1.38	1.38	23.44	0.09	9.59	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.83	17.50	1.35	1.35	23.50	0.08	9.59	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.88	17.50	1.31	1.31	23.56	0.08	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.92	17.50	1.27	1.27	23.62	0.08	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	11.97	17.50	1.24	1.24	23.68	0.08	9.58	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.02	17.50	1.20	1.20	23.74	0.07	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.06	17.50	1.17	1.17	23.79	0.07	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.11	17.50	1.13	1.13	23.85	0.07	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.16	17.50	1.10	1.10	23.90	0.07	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.20	17.50	1.06	1.06	23.95	0.06	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.25	17.50	1.02	1.02	24.00	0.06	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.30	17.50	0.99	0.99	24.05	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.34	17.50	0.95	0.95	24.09	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.39	17.50	0.92	0.92	24.13	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.44	17.50	0.88	0.88	24.18	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.48	17.50	0.85	0.85	24.22	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.53	17.50	0.81	0.81	24.26	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.58	17.50	0.77	0.77	24.29	0.05	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.62	17.50	0.74	0.74	24.33	0.04	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.67	17.50	0.70	0.70	24.36	0.04	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.72	17.50	0.67	0.67	24.39	0.04	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.76	17.50	0.63	0.63	24.42	0.04	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.81	17.50	0.60	0.60	24.45	0.04	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.86	17.50	0.56	0.56	24.48	0.03	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.91	17.50	0.52	0.52	24.51	0.03	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	12.95	17.50	0.49	0.49	24.53	0.03	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.00	17.50	0.45	0.45	24.55	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.05	17.50	0.42	0.42	24.57	0.02	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.09	17.50	0.38	0.38	24.59	0.02	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.14	17.50	0.35	0.35	24.61	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.19	17.50	0.31	0.31	24.62	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.23	17.50	0.27	0.27	24.64	0.02	9.49	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	13.28	17.50	0.24	0.24	24.65	0.01	9.48	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.33	17.50	-0.26	0.26	14.42	0.03	9.50	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.37	17.50	-0.28	0.28	14.41	0.03	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.42	17.50	-0.31	0.31	14.39	0.03	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.47	17.50	-0.33	0.33	14.38	0.03	9.51	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.51	17.50	-0.36	0.36	14.36	0.04	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.56	17.50	-0.38	0.38	14.35	0.04	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.61	17.50	-0.41	0.41	14.33	0.04	9.52	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.65	17.50	-0.43	0.43	14.31	0.04	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.70	17.50	-0.46	0.46	14.29	0.05	9.53	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.75	17.50	-0.48	0.48	14.27	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.79	17.50	-0.51	0.51	14.24	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.84	17.50	-0.53	0.53	14.22	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.89	17.50	-0.56	0.56	14.19	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.5	0.0	0.0
+1.40D+1.60H	1	13.93	17.50	-0.58	0.58	14.17	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.40D+1.60H	1	13.98	17.50	-0.60	0.60	14.14	0.06	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.40D+1.60H	1	14.03	17.50	-0.63	0.63	14.11	0.07	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.40D+1.60H	1	14.07	17.50	-0.65	0.65	14.08	0.07	9.56	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0
+1.40D+1.60H	1	14.12	17.50	-0.68	0.68	14.05	0.07	9.57	Vu < PhiVc/2	lot Req'd 9.6.	9.6	0.0	0.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

70/109

Concrete Beam

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Description: J4 with Standard filing load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.40D+1.60H	1	14.17	17.50	-0.70	0.70	14.02	0.07	9.57	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.40D+1.60H	1	14.21	17.50	-0.73	0.73	13.98	0.08	9.58	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.40D+1.60H	1	14.26	17.50	-0.75	0.75	13.95	0.08	9.58	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.31	17.50	-0.78	0.78	24.39	0.05	9.53	Vu < PhiVc/2	lot Req'd 9.6	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.35	17.50	-0.83	0.83	24.36	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.40	17.50	-0.88	0.88	24.32	0.05	9.54	Vu < PhiVc/2	lot Req'd 9.6	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.45	17.50	-0.93	0.93	24.27	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6	9.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.49	17.50	-0.98	0.98	24.23	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.54	17.50	-1.03	1.03	24.18	0.06	9.55	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.59	17.50	-1.08	1.08	24.13	0.07	9.56	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.64	17.50	-1.13	1.13	24.08	0.07	9.56	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.68	17.50	-1.17	1.17	24.03	0.07	9.57	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.73	17.50	-1.22	1.22	23.97	0.07	9.57	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.78	17.50	-1.27	1.27	23.91	0.08	9.58	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.82	17.50	-1.32	1.32	23.85	0.08	9.58	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.87	17.50	-1.37	1.37	23.79	0.08	9.59	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.92	17.50	-1.42	1.42	23.73	0.09	9.59	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.96	17.50	-1.47	1.47	23.66	0.09	9.60	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.01	17.50	-1.52	1.52	23.59	0.09	9.60	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.06	17.50	-1.57	1.57	23.52	0.10	9.61	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.10	17.50	-1.62	1.62	23.44	0.10	9.61	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.15	17.50	-1.67	1.67	23.36	0.10	9.62	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.20	17.50	-1.72	1.72	23.29	0.11	9.62	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.24	17.50	-1.76	1.76	23.20	0.11	9.63	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.29	17.50	-1.81	1.81	23.12	0.11	9.63	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.34	17.50	-1.86	1.86	23.03	0.12	9.64	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.38	17.50	-1.91	1.91	22.95	0.12	9.64	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.43	17.50	-1.96	1.96	22.86	0.13	9.65	Vu < PhiVc/2	lot Req'd 9.6	9.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.48	17.50	-2.01	2.01	22.76	0.13	9.65	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.52	17.50	-2.06	2.06	22.67	0.13	9.66	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.57	17.50	-2.11	2.11	22.57	0.14	9.66	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.62	17.50	-2.16	2.16	22.47	0.14	9.67	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.66	17.50	-2.21	2.21	22.37	0.14	9.68	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.71	17.50	-2.26	2.26	22.26	0.15	9.68	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.76	17.50	-2.31	2.31	22.16	0.15	9.69	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.80	17.50	-2.35	2.35	22.05	0.16	9.69	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.85	17.50	-2.40	2.40	21.94	0.16	9.70	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.90	17.50	-2.45	2.45	21.82	0.16	9.71	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.94	17.50	-2.50	2.50	21.71	0.17	9.71	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	15.99	17.50	-2.55	2.55	21.59	0.17	9.72	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.04	17.50	-2.60	2.60	21.47	0.18	9.72	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.08	17.50	-2.65	2.65	21.35	0.18	9.73	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.13	17.50	-2.70	2.70	21.22	0.19	9.74	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.18	17.50	-2.75	2.75	21.09	0.19	9.74	Vu < PhiVc/2	lot Req'd 9.6	9.7	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.22	17.50	-2.80	2.80	20.96	0.19	9.75	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.27	17.50	-2.85	2.85	20.83	0.20	9.76	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.32	17.50	-2.90	2.90	20.70	0.20	9.77	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.37	17.50	-2.95	2.95	20.56	0.21	9.77	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.41	17.50	-2.99	2.99	20.42	0.21	9.78	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.46	17.50	-3.04	3.04	20.28	0.22	9.79	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.51	17.50	-3.09	3.09	20.14	0.22	9.79	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.55	17.50	-3.14	3.14	19.99	0.23	9.80	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.60	17.50	-3.19	3.19	19.84	0.23	9.81	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	16.65	17.50	-3.24	3.24	19.69	0.24	9.82	Vu < PhiVc/2	lot Req'd 9.6	9.8	0.0 0.0

Project Title:
Engineer:
Project ID:
Project Descr:

7/1/09

Concrete Beam

File = P:\2018\180114\Structural\180114.001 Pma County 5th floor TI - floor check\180114.001.ac6

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Lic. # : KW-06006899

Licensee : m3 engineering & technology corp

Description : J4 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	16.69	17.50	-3.29	3.29	19.54	0.25	9.83	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	16.74	17.50	-3.34	3.34	19.39	0.25	9.84	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	16.79	17.50	-3.39	3.39	19.23	0.26	9.84	Vu < PhiVc/2	lot Req'd 9.6.	9.8	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	16.83	17.50	-3.44	3.44	19.07	0.26	9.85	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	16.88	17.50	-3.49	3.49	18.91	0.27	9.86	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	16.93	17.50	-3.54	3.54	18.74	0.28	9.87	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	16.97	17.50	-3.58	3.58	18.58	0.28	9.88	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.02	17.50	-3.63	3.63	18.41	0.29	9.89	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.07	17.50	-3.68	3.68	18.24	0.29	9.90	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.11	17.50	-3.73	3.73	18.06	0.30	9.91	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.16	17.50	-3.78	3.78	17.89	0.31	9.92	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.21	17.50	-3.83	3.83	17.71	0.32	9.93	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.25	17.50	-3.88	3.88	17.53	0.32	9.94	Vu < PhiVc/2	lot Req'd 9.6.	9.9	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.30	17.50	-3.93	3.93	17.35	0.33	9.95	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.35	17.50	-3.98	3.98	17.16	0.34	9.96	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.39	17.50	-4.03	4.03	16.98	0.35	9.98	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.44	17.50	-4.08	4.08	16.79	0.35	9.99	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.49	17.50	-4.13	4.13	16.59	0.36	10.00	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.53	17.50	-4.18	4.18	16.40	0.37	10.01	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.58	17.50	-4.22	4.22	16.20	0.38	10.03	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.63	17.50	-4.27	4.27	16.00	0.39	10.04	Vu < PhiVc/2	lot Req'd 9.6.	10.0	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.67	17.50	-4.32	4.32	15.80	0.40	10.05	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.72	17.50	-4.37	4.37	15.60	0.41	10.07	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.77	17.50	-4.42	4.42	15.40	0.42	10.08	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.81	17.50	-4.47	4.47	15.19	0.43	10.10	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.86	17.50	-4.52	4.52	14.98	0.44	10.11	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.91	17.50	-4.57	4.57	14.76	0.45	10.13	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	17.95	17.50	-4.62	4.62	14.55	0.46	10.15	Vu < PhiVc/2	lot Req'd 9.6.	10.1	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.00	17.50	-4.67	4.67	14.33	0.47	10.17	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.05	17.50	-4.72	4.72	14.11	0.49	10.19	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.10	17.50	-4.77	4.77	13.89	0.50	10.20	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.14	17.50	-4.81	4.81	13.67	0.51	10.22	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.19	17.50	-4.86	4.86	13.44	0.53	10.24	Vu < PhiVc/2	lot Req'd 9.6.	10.2	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.24	17.50	-4.91	4.91	13.21	0.54	10.27	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.28	17.50	-4.96	4.96	12.98	0.56	10.29	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.33	17.50	-5.01	5.01	12.75	0.57	10.31	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.38	17.50	-5.06	5.06	12.51	0.59	10.34	Vu < PhiVc/2	lot Req'd 9.6.	10.3	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.42	17.50	-5.11	5.11	12.28	0.61	10.36	Vu < PhiVc/2	lot Req'd 9.6.	10.4	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.47	17.50	-5.16	5.16	12.04	0.63	10.39	Vu < PhiVc/2	lot Req'd 9.6.	10.4	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.52	17.50	-5.21	5.21	11.79	0.64	10.42	Vu < PhiVc/2	lot Req'd 9.6.	10.4	0.0	0.0
+1.20D+1.60L+0.50S+1.60H	1	18.56	17.50	-5.26	5.26	11.55	0.66	10.45	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.61	17.50	-5.31	5.31	11.30	0.68	10.48	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.66	17.50	-5.36	5.36	11.05	0.71	10.51	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.70	17.50	-5.41	5.41	10.80	0.73	10.54	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.75	17.50	-5.45	5.45	10.55	0.75	10.58	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.80	17.50	-5.50	5.50	10.29	0.78	10.62	PhiVc/2 < Vu <=	Min 9.6.3.1	25.1	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.84	17.50	-5.55	5.55	10.03	0.81	10.66	PhiVc/2 < Vu <=	Min 9.6.3.1	25.1	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.89	17.50	-5.60	5.60	9.77	0.84	10.70	PhiVc/2 < Vu <=	Min 9.6.3.1	25.1	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.94	17.50	-5.65	5.65	9.51	0.87	10.75	PhiVc/2 < Vu <=	Min 9.6.3.1	25.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	18.98	17.50	-5.70	5.70	9.24	0.90	10.80	PhiVc/2 < Vu <=	Min 9.6.3.1	25.2	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.03	17.50	-5.75	5.75	8.97	0.93	10.85	PhiVc/2 < Vu <=	Min 9.6.3.1	25.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.08	17.50	-5.80	5.80	8.70	0.97	10.90	PhiVc/2 < Vu <=	Min 9.6.3.1	25.3	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.12	17.50	-5.85	5.85	8.43	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.17	17.50	-5.90	5.90	8.16	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

72/109

Concrete Beam

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Description: J4 with Standard filing load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	19.22	17.50	-5.95	5.95	7.88	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.26	17.50	-6.00	6.00	7.60	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.31	17.50	-6.04	6.04	7.32	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.36	17.50	-6.09	6.09	7.04	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.40	17.50	-6.14	6.14	6.75	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.45	17.50	-6.19	6.19	6.46	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.50	17.50	-6.24	6.24	6.17	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.54	17.50	-6.29	6.29	5.88	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.59	17.50	-6.34	6.34	5.58	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.64	17.50	-6.39	6.39	5.29	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.69	17.50	-6.44	6.44	4.99	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.73	17.50	-6.49	6.49	4.68	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.78	17.50	-6.54	6.54	4.38	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.83	17.50	-6.59	6.59	4.07	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.87	17.50	-6.64	6.64	3.76	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.92	17.50	-6.68	6.68	3.45	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	19.97	17.50	-6.73	6.73	3.14	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.01	17.50	-6.78	6.78	2.82	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.06	17.50	-6.83	6.83	2.50	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.11	17.50	-6.88	6.88	2.18	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.15	17.50	-6.93	6.93	1.86	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.20	17.50	-6.98	6.98	1.53	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.25	17.50	-7.03	7.03	1.21	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.29	17.50	-7.08	7.08	0.88	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.34	17.50	-7.13	7.13	0.55	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.39	17.50	-7.18	7.18	0.21	1.00	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.43	16.50	-7.23	7.23	0.13	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.48	16.50	-7.27	7.27	0.46	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.53	16.50	-7.32	7.32	0.81	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.57	16.50	-7.37	7.37	1.15	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.62	16.50	-7.42	7.42	1.50	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.67	16.50	-7.47	7.47	1.84	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.71	16.50	-7.52	7.52	2.19	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.76	16.50	-7.57	7.57	2.55	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.81	16.50	-7.62	7.62	2.90	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.85	16.50	-7.67	7.67	3.26	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.90	16.50	-7.72	7.72	3.62	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.95	16.50	-7.77	7.77	3.98	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	20.99	16.50	-7.82	7.82	4.35	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.04	16.50	-7.87	7.87	4.71	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.09	16.50	-7.91	7.91	5.08	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.13	16.50	-7.96	7.96	5.45	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.18	16.50	-8.01	8.01	5.83	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.23	16.50	-8.06	8.06	6.20	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.27	16.50	-8.11	8.11	6.58	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.32	16.50	-8.16	8.16	6.96	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.37	16.50	-8.21	8.21	7.34	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.42	16.50	-8.26	8.26	7.73	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.46	16.50	-8.31	8.31	8.12	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.51	16.50	-8.36	8.36	8.50	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.56	16.50	-8.41	8.41	8.90	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.60	16.50	-8.46	8.46	9.29	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.65	16.50	-8.50	8.50	9.69	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	21.70	16.50	-8.55	8.55	10.09	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3	8.0

Project Title:
Engineer:
Project ID:
Project Descr:

7/3/109

Concrete Beam

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Description: J4 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	21.74	16.50	-8.60	8.60	10.49	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	21.79	16.50	-8.65	8.65	10.89	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	21.84	16.50	-8.70	8.70	11.30	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	21.88	16.50	-8.75	8.75	11.70	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	21.93	16.50	-8.80	8.80	12.11	1.00	11.88	PhiVc/2 < Vu <=	Min 9.6.3.1	25.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	21.98	16.50	-8.85	8.85	12.53	0.97	11.80	PhiVc/2 < Vu <=	Min 9.6.3.1	25.4	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.02	16.50	-8.90	8.90	12.94	0.95	11.72	PhiVc/2 < Vu <=	Min 9.6.3.1	25.3	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.07	16.50	-8.95	8.95	13.36	0.92	11.65	PhiVc/2 < Vu <=	Min 9.6.3.1	25.3	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.12	16.50	-9.00	9.00	13.78	0.90	11.58	PhiVc/2 < Vu <=	Min 9.6.3.1	25.2	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.16	16.50	-9.05	9.05	14.20	0.88	11.52	PhiVc/2 < Vu <=	Min 9.6.3.1	25.1	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.21	16.50	-9.10	9.10	14.62	0.86	11.46	PhiVc/2 < Vu <=	Min 9.6.3.1	25.1	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.26	16.50	-9.14	9.14	15.05	0.84	11.40	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.30	16.50	-9.19	9.19	15.48	0.82	11.34	PhiVc/2 < Vu <=	Min 9.6.3.1	25.0	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.35	16.50	-9.24	9.24	15.91	0.80	11.29	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.40	16.50	-9.29	9.29	16.34	0.78	11.24	PhiVc/2 < Vu <=	Min 9.6.3.1	24.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.44	16.50	-9.34	9.34	16.78	0.77	11.19	PhiVc/2 < Vu <=	Min 9.6.3.1	24.8	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.49	16.50	-9.39	9.39	17.22	0.75	11.14	PhiVc/2 < Vu <=	Min 9.6.3.1	24.8	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.54	16.50	-9.44	9.44	17.66	0.74	11.10	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.58	16.50	-9.49	9.49	18.10	0.72	11.06	PhiVc/2 < Vu <=	Min 9.6.3.1	24.7	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.63	16.50	-9.54	9.54	18.55	0.71	11.02	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.68	16.50	-9.59	9.59	18.99	0.69	10.98	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.72	16.50	-9.64	9.64	19.44	0.68	10.94	PhiVc/2 < Vu <=	Min 9.6.3.1	24.6	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.77	16.50	-9.69	9.69	19.89	0.67	10.91	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.82	16.50	-9.73	9.73	20.35	0.66	10.87	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.86	16.50	-9.78	9.78	20.80	0.65	10.84	PhiVc/2 < Vu <=	Min 9.6.3.1	24.5	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.91	16.50	-9.83	9.83	21.26	0.64	10.81	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	22.96	16.50	-9.88	9.88	21.72	0.63	10.78	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.00	16.50	-9.93	9.93	22.19	0.62	10.75	PhiVc/2 < Vu <=	Min 9.6.3.1	24.4	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.05	16.50	-9.98	9.98	22.65	0.61	10.72	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.10	16.50	-10.03	10.03	23.12	0.60	10.69	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.15	16.50	-10.08	10.08	23.59	0.59	10.66	PhiVc/2 < Vu <=	Min 9.6.3.1	24.3	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.19	16.50	-10.13	10.13	24.06	0.58	10.64	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.24	16.50	-10.18	10.18	24.54	0.57	10.61	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.29	16.50	-10.23	10.23	25.01	0.56	10.59	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.33	16.50	-10.28	10.28	25.49	0.55	10.56	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.38	16.50	-10.33	10.33	25.98	0.55	10.54	PhiVc/2 < Vu <=	Min 9.6.3.1	24.2	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.43	16.50	-10.37	10.37	26.46	0.54	10.52	PhiVc/2 < Vu <=	Min 9.6.3.1	24.1	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.47	16.50	-10.42	10.42	26.95	0.53	10.50	PhiVc/2 < Vu <=	Min 9.6.3.1	24.1	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.52	16.50	-10.47	10.47	27.43	0.52	10.48	PhiVc/2 < Vu <=	Min 9.6.3.1	24.1	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.57	16.50	-10.52	10.52	27.93	0.52	10.46	PhiVc < Vu	0.06471	24.1	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.61	16.50	-10.57	10.57	28.42	0.51	10.44	PhiVc < Vu	0.1335	24.1	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.66	16.50	-10.62	10.62	28.91	0.51	10.42	PhiVc < Vu	0.2017	24.0	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.71	16.50	-10.67	10.67	29.41	0.50	10.40	PhiVc < Vu	0.2694	24.0	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.75	16.50	-10.72	10.72	29.91	0.49	10.38	PhiVc < Vu	0.3366	24.0	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.80	16.50	-10.77	10.77	30.41	0.49	10.36	PhiVc < Vu	0.4033	24.0	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.85	16.50	-10.82	10.82	30.92	0.48	10.35	PhiVc < Vu	0.4696	24.0	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.89	16.50	-10.87	10.87	31.43	0.48	10.33	PhiVc < Vu	0.5354	23.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.94	16.50	-10.92	10.92	31.93	0.47	10.31	PhiVc < Vu	0.6008	23.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	23.99	16.50	-10.96	10.96	32.45	0.46	10.30	PhiVc < Vu	0.6658	23.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	24.03	16.50	-11.01	11.01	32.96	0.46	10.28	PhiVc < Vu	0.7303	23.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	24.08	16.50	-11.06	11.06	33.48	0.45	10.27	PhiVc < Vu	0.7945	23.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	24.13	16.50	-11.11	11.11	33.99	0.45	10.25	PhiVc < Vu	0.8584	23.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	24.17	16.50	-11.16	11.16	34.52	0.44	10.24	PhiVc < Vu	0.9219	23.9	8.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	24.22	16.50	-11.21	11.21	35.04	0.44	10.23	PhiVc < Vu	0.9850	23.8	8.3 8.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

74/109

Concrete Beam

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Description: J4 with Standard filling load

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k)	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in)	Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	24.27	16.50	-11.26	11.26	35.56	0.44	10.21	PhiVc < Vu	1.048	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.31	16.50	-11.31	11.31	36.09	0.43	10.20	PhiVc < Vu	1.110	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.36	16.50	-11.36	11.36	36.62	0.43	10.19	PhiVc < Vu	1.173	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.41	16.50	-11.41	11.41	37.15	0.42	10.17	PhiVc < Vu	1.234	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.45	16.50	-11.46	11.46	37.69	0.42	10.16	PhiVc < Vu	1.296	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.50	16.50	-11.51	11.51	38.22	0.41	10.15	PhiVc < Vu	1.357	23.8	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.55	16.50	-11.56	11.56	38.76	0.41	10.14	PhiVc < Vu	1.418	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.59	16.50	-11.60	11.60	39.31	0.41	10.12	PhiVc < Vu	1.479	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.64	16.50	-11.65	11.65	39.85	0.40	10.11	PhiVc < Vu	1.540	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.69	16.50	-11.70	11.70	40.40	0.40	10.10	PhiVc < Vu	1.60	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.73	16.50	-11.75	11.75	40.94	0.39	10.09	PhiVc < Vu	1.660	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.78	16.50	-11.80	11.80	41.49	0.39	10.08	PhiVc < Vu	1.720	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.83	16.50	-11.85	11.85	42.05	0.39	10.07	PhiVc < Vu	1.780	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.88	16.50	-11.90	11.90	42.60	0.38	10.06	PhiVc < Vu	1.839	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.92	16.50	-11.95	11.95	43.16	0.38	10.05	PhiVc < Vu	1.899	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	24.97	16.50	-12.00	12.00	43.72	0.38	10.04	PhiVc < Vu	1.958	23.7	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.02	16.50	-12.05	12.05	44.28	0.37	10.03	PhiVc < Vu	2.017	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.06	16.50	-12.10	12.10	44.85	0.37	10.02	PhiVc < Vu	2.075	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.11	16.50	-12.15	12.15	45.41	0.37	10.01	PhiVc < Vu	2.134	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.16	16.50	-12.19	12.19	45.98	0.36	10.00	PhiVc < Vu	2.192	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.20	16.50	-12.24	12.24	46.55	0.36	9.99	PhiVc < Vu	2.250	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.25	16.50	-12.29	12.29	47.13	0.36	9.98	PhiVc < Vu	2.308	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.30	16.50	-12.34	12.34	47.70	0.36	9.98	PhiVc < Vu	2.366	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.34	16.50	-12.39	12.39	48.28	0.35	9.97	PhiVc < Vu	2.424	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.39	16.50	-12.44	12.44	48.86	0.35	9.96	PhiVc < Vu	2.481	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.44	16.50	-12.49	12.49	49.44	0.35	9.95	PhiVc < Vu	2.539	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.48	16.50	-12.54	12.54	50.03	0.34	9.94	PhiVc < Vu	2.596	23.6	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.53	16.50	-12.59	12.59	50.62	0.34	9.94	PhiVc < Vu	2.653	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.58	16.50	-12.64	12.64	51.21	0.34	9.93	PhiVc < Vu	2.710	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.62	16.50	-12.69	12.69	51.80	0.34	9.92	PhiVc < Vu	2.767	23.5	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	25.67	16.50	-12.73	12.73	52.39	0.33	9.91	PhiVc < Vu	2.822	23.5	8.3	8.0

Maximum Forces & Stresses for Load Combinations

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	Phi*Mnx	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	25.670	-52.39	106.92	0.49
+1.40D+1.60H					
Span # 1	1	25.670	-28.97	106.92	0.27
+1.20D+0.50Lr+1.60L+1.60H					
Span # 1	1	25.670	-52.39	106.92	0.49
+1.20D+1.60L+0.50S+1.60H					
Span # 1	1	25.670	-52.39	106.92	0.49
+1.20D+1.60Lr+0.50L+1.60H					
Span # 1	1	25.670	-33.44	106.92	0.31
+1.20D+1.60Lr+0.50W+1.60H					
Span # 1	1	25.670	-24.83	106.92	0.23
+1.20D+0.50L+1.60S+1.60H					
Span # 1	1	25.670	-33.44	106.92	0.31
+1.20D+1.60S+0.50W+1.60H					
Span # 1	1	25.670	-24.83	106.92	0.23
+1.20D+0.50Lr+0.50L+W+1.60H					
Span # 1	1	25.670	-33.44	106.92	0.31
+1.20D+0.50L+0.50S+W+1.60H					
Span # 1	1	25.670	-33.44	106.92	0.31
+1.20D+0.50L+0.20S+E+1.60H					
Span # 1	1	25.670	-33.44	106.92	0.31
+0.90D+W+0.90H					
Span # 1	1	25.670	-18.62	106.92	0.17
+0.90D+E+0.90H					

Project Title:
 Engineer:
 Project ID:
 Project Descr:

25/109

Concrete Beam

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Description : J4 with Standard filing load

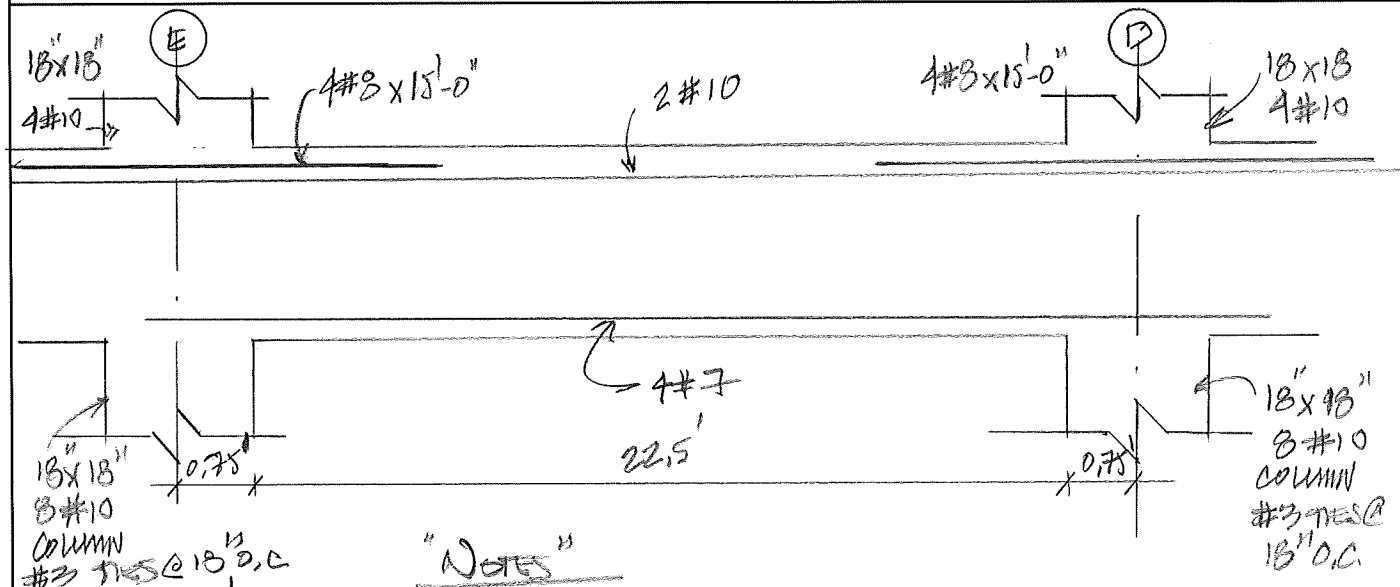
Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	Phi*Mnx	Stress Ratio
Span # 1	1	25.670	-18.62	106.92	0.17

Overall Maximum Deflections

Load Combination	Span	Max. *- Defl (in)	Location in Span (ft)	Load Combination	Max. *+ Defl (in)	Location in Span (ft)
+D+L+H	1	0.0823	13.256		0.0000	0.000

Subject: GIRDER ALONG GRID 18

Date: APR. 2019



"NOTES"

- J2/J4 JOISTS FRAME ON BOTH SIDES OF GIRDER
- COLUMN INFO FROM S-2 AS-BUILT DRAWINGS

GIRDER LOADING, JOIST SPACED @ 3'-0" o.c. STARTING @ GRIDLINE (D)

JOIST REACTIONS' SUMMARY

		LEFT	RIGHT
J2 + HD FILING	D	4.915	5.25
	L	3.08	4.96
J2 + STD FILING	D	4.84	4.84
	L	3.15	4.33
J2 TYP	D	4.84	4.84
	L	2.77	2.52
J1 + STD. FILING	D	3.76	5.91
	L	2.35	5.13
J4 + STD. FILING	D	4.84	4.84
	L	3.15	4.33

Project Title:
 Engineer:
 Project ID:
 Project Descr:

77/109

Concrete Beam

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Description : Beam along grid 18

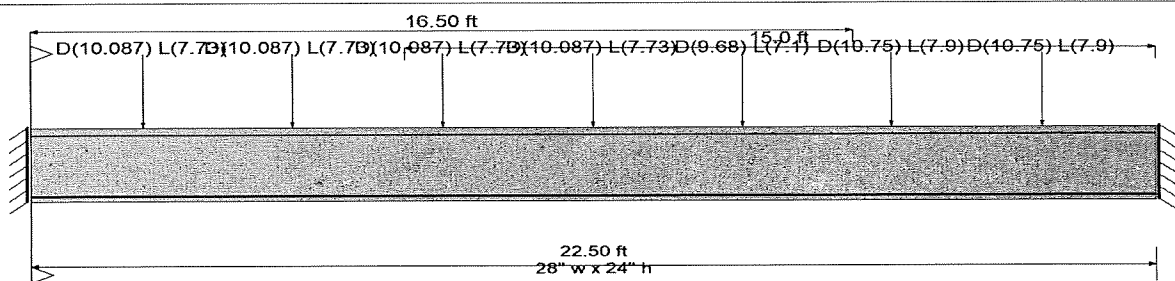
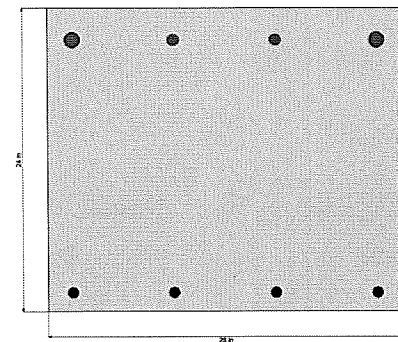
CODE REFERENCES

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : ASCE 7-10

Material Properties

f'_c	=	4.0 ksi	ϕ Phi Values	Flexure :	0.90
$f_r = f'_c^{1/2} \cdot 7.50$	=	474.342 psi		Shear :	0.750
Ψ Density	=	145.0 pcf	β_1	=	0.850
λ LtWt Factor	=	1.0			
Elastic Modulus	=	3,122.0 ksi	Fy - Stirrups	=	40.0 ksi
fy - Main Rebar	=	60.0 ksi	E - Stirrups	=	29,000.0 ksi
E - Main Rebar	=	29,000.0 ksi	Stirrup Bar Size #	=	3
			Number of Resisting Legs Per Stirrup	=	4



Cross Section & Reinforcing Details

Rectangular Section, Width = 28.0 in, Height = 24.0 in

Span #1 Reinforcing....

2-#10 at 2.50 in from Top, from 0.0 to 22.50 ft in this span

4-#8 at 2.50 in from Top, from 16.50 to 22.50 ft in this span

4-#8 at 2.50 in from Top, from 0.0 to 7.50 ft in this span

4-#7 at 1.50 in from Bottom, from 0.0 to 22.50 ft in this span

Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Point Load : D = 10.087, L = 7.730 k @ 2.250 ft, (J2+J2HD filing)

Point Load : D = 10.087, L = 7.730 k @ 5.250 ft, (J2+J2HD filing)

Point Load : D = 10.087, L = 7.730 k @ 8.250 ft, (J2+J2HD filing)

Point Load : D = 10.087, L = 7.730 k @ 11.250 ft, (J2+J2HD filing)

Point Load : D = 9.680, L = 7.10 k @ 14.250 ft, (J2+J4STD filing)

Point Load : D = 10.750, L = 7.90 k @ 17.250 ft, (J2+J1STD filing)

Point Load : D = 10.750, L = 7.90 k @ 20.250 ft, (J2+J1STD filing)

$$D = 4.84 + 5.25 = 10.09 \text{ k}$$

$$L = 2.77 + 4.96 = 7.73 \text{ k}$$



$$D = 4.84 + 4.84 = 9.68 \text{ k}$$

$$L = 2.77 + 4.33 = 7.1 \text{ k}$$

$$D = 4.84 + 5.91 = 10.75 \text{ k}$$

$$L = 2.77 + 5.13 = 7.9 \text{ k}$$

DESIGN SUMMARY

Design OK

Maximum Bending Stress Ratio =	0.818 : 1	Maximum Deflection	
Section used for this span	Typical Section	Max Downward Transient Deflection	0.029 in Ratio = 9272 >= 800.
Mu : Applied	193.739 k-ft	Max Upward Transient Deflection	0.000 in Ratio = 0 < 800.0
Mn * Phi : Allowable	236.819 k-ft	Max Downward Total Deflection	0.131 in Ratio = 2064 >= 360.
Location of maximum on span	11.230 ft	Max Upward Total Deflection	0.000 in Ratio = 0 < 360.0
Span # where maximum occurs	Span # 1		

Project Title:
 Engineer:
 Project ID:
 Project Descr:

78/109

Concrete Beam

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Description: Beam along grid 18

Vertical Reactions

Support notation: Far left is #1

Load Combination	Support 1	Support 2
Overall MAXimum	69.817	70.756
Overall MINimum	25.742	26.310
+D+H	42.939	43.814
+D+L+H	69.817	70.756
+D+Lr+H	42.939	43.814
+D+S+H	42.939	43.814
+D+0.750Lr+0.750L+H	63.095	64.023
+D+0.750L+0.750S+H	63.095	64.023
+D+0.60W+H	42.939	43.814
+D+0.70E+H	42.939	43.814
+D+0.750Lr+0.750L+0.450W+H	63.095	64.023
+D+0.750L+0.750S+0.450W+H	63.095	64.023
+D+0.750L+0.750S+0.5250E+H	63.095	64.023
+0.60D+0.60W+0.60H	25.742	26.310
+0.60D+0.70E+0.60H	25.742	26.310
D Only	42.939	43.814
Lr Only		
L Only	26.891	26.929
S Only		
W Only		
E Only		
H Only		

$$\phi V_c = 0.75 (2) \frac{\sqrt{4000}}{1000} (28)(24-2.5) = 57.1 \text{ K}$$

$$\phi V_c = 57.1 \text{ K}$$

$$\frac{\phi V_c}{2} = 28.56 \text{ K} < 95.71 \text{ K}$$

REINFC. REQ'D

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k)		Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in)	
				Actual	Design							Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	0.00	21.50	94.51	94.51	377.36	0.45	59.05	Phi*Vc < Vu	35.459	94.5	8.0	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.04	21.50	94.48	94.48	373.49	0.45	59.10	Phi*Vc < Vu	35.377	94.6	8.0	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.08	21.50	94.44	94.44	369.62	0.46	59.15	Phi*Vc < Vu	35.295	94.6	8.0	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.12	21.50	94.41	94.41	365.75	0.46	59.20	Phi*Vc < Vu	35.212	94.7	8.1	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.16	21.50	94.38	94.38	361.88	0.47	59.25	Phi*Vc < Vu	35.127	94.7	8.1	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.20	21.50	94.34	94.34	358.01	0.47	59.30	Phi*Vc < Vu	35.042	94.8	8.1	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.25	21.50	94.31	94.31	354.14	0.48	59.35	Phi*Vc < Vu	34.955	94.8	8.1	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.29	21.50	94.28	94.28	350.28	0.48	59.41	Phi*Vc < Vu	34.868	94.9	8.1	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.33	21.50	94.24	94.24	346.42	0.49	59.46	Phi*Vc < Vu	34.779	94.9	8.2	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.37	21.50	94.21	94.21	342.56	0.49	59.52	Phi*Vc < Vu	34.689	95.0	8.2	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.41	21.50	94.18	94.18	338.70	0.50	59.58	Phi*Vc < Vu	34.597	95.1	8.2	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.45	21.50	94.14	94.14	334.84	0.50	59.64	Phi*Vc < Vu	34.504	95.1	8.2	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.49	21.50	94.11	94.11	330.98	0.51	59.70	Phi*Vc < Vu	34.410	95.2	8.2	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.53	21.50	94.08	94.08	327.12	0.52	59.76	Phi*Vc < Vu	34.315	95.2	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.57	21.50	94.04	94.04	323.27	0.52	59.83	Phi*Vc < Vu	34.218	95.3	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.61	21.50	94.01	94.01	319.41	0.53	59.89	Phi*Vc < Vu	34.119	95.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.66	21.50	93.98	93.98	315.56	0.53	59.96	Phi*Vc < Vu	34.019	95.4	8.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.70	21.50	93.94	93.94	311.71	0.54	60.03	Phi*Vc < Vu	33.918	95.5	8.4	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.74	21.50	93.91	93.91	307.86	0.55	60.10	Phi*Vc < Vu	33.814	95.6	8.4	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.78	21.50	93.88	93.88	304.01	0.55	60.17	Phi*Vc < Vu	33.709	95.6	8.4	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.82	21.50	93.84	93.84	300.17	0.56	60.24	Phi*Vc < Vu	33.602	95.7	8.4	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.86	21.50	93.81	93.81	296.32	0.57	60.32	Phi*Vc < Vu	33.493	95.8	8.5	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.90	21.50	93.78	93.78	292.48	0.57	60.39	Phi*Vc < Vu	33.383	95.9	8.5	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.94	21.50	93.74	93.74	288.63	0.58	60.47	Phi*Vc < Vu	33.270	95.9	8.5	8.0
+1.20D+1.60L+0.50S+1.60H	1	0.98	21.50	93.71	93.71	284.79	0.59	60.56	Phi*Vc < Vu	33.155	96.0	8.6	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.02	21.50	93.68	93.68	280.95	0.60	60.64	Phi*Vc < Vu	33.038	96.1	8.6	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.07	21.50	93.64	93.64	277.11	0.61	60.73	Phi*Vc < Vu	32.918	96.2	8.6	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.11	21.50	93.61	93.61	273.28	0.61	60.81	Phi*Vc < Vu	32.797	96.3	8.7	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.15	21.50	93.58	93.58	269.44	0.62	60.91	Phi*Vc < Vu	32.672	96.4	8.7	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.19	21.50	93.54	93.54	265.61	0.63	61.00	Phi*Vc < Vu	32.545	96.5	8.7	8.0
+1.20D+1.60L+0.50S+1.60H	1	1.23	21.50	93.51	93.51	261.77	0.64	61.10	Phi*Vc < Vu	32.416	96.6	8.8	8.0

Project Title:
Engineer:
Project ID:
Project Descr:

7/9/109

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	1.27	21.50	93.48	93.48	257.94	0.65	61.19	PhiVc < Vu	32.283	96.7	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.31	21.50	93.44	93.44	254.11	0.66	61.30	PhiVc < Vu	32.148	96.8	8.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.35	21.50	93.41	93.41	250.28	0.67	61.40	PhiVc < Vu	32.009	96.9	8.9 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.39	21.50	93.38	93.38	246.46	0.68	61.51	PhiVc < Vu	31.868	97.0	8.9 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.43	21.50	93.34	93.34	242.63	0.69	61.62	PhiVc < Vu	31.723	97.1	8.9 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.48	21.50	93.31	93.31	238.80	0.70	61.74	PhiVc < Vu	31.574	97.2	9.0 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.52	21.50	93.28	93.28	234.98	0.71	61.86	PhiVc < Vu	31.422	97.3	9.0 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.56	21.50	93.24	93.24	231.16	0.72	61.98	PhiVc < Vu	31.266	97.5	9.1 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.60	21.50	93.21	93.21	227.34	0.73	62.11	PhiVc < Vu	31.105	97.6	9.1 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.64	21.50	93.18	93.18	223.52	0.75	62.24	PhiVc < Vu	30.941	97.7	9.2 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.68	21.50	93.15	93.15	219.70	0.76	62.37	PhiVc < Vu	30.772	97.8	9.2 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.72	21.50	93.11	93.11	215.88	0.77	62.51	PhiVc < Vu	30.598	98.0	9.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.76	21.50	93.08	93.08	212.07	0.79	62.66	PhiVc < Vu	30.419	98.1	9.3 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.80	21.50	93.05	93.05	208.25	0.80	62.81	PhiVc < Vu	30.235	98.3	9.4 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.84	21.50	93.01	93.01	204.44	0.82	62.97	PhiVc < Vu	30.045	98.4	9.4 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.89	21.50	92.98	92.98	200.63	0.83	63.13	PhiVc < Vu	29.849	98.6	9.5 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.93	21.50	92.95	92.95	196.82	0.85	63.30	PhiVc < Vu	29.648	98.8	9.6 8.0
+1.20D+1.60L+0.50S+1.60H	1	1.97	21.50	92.91	92.91	193.01	0.86	63.47	PhiVc < Vu	29.439	98.9	9.6 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.01	21.50	92.88	92.88	189.20	0.88	63.66	PhiVc < Vu	29.224	99.1	9.7 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.05	21.50	92.85	92.85	185.40	0.90	63.84	PhiVc < Vu	29.001	99.3	9.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.09	21.50	92.81	92.81	181.59	0.92	64.04	PhiVc < Vu	28.770	99.5	9.9 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.13	21.50	92.78	92.78	177.79	0.93	64.25	PhiVc < Vu	28.531	99.7	9.9 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.17	21.50	92.75	92.75	173.99	0.96	64.46	PhiVc < Vu	28.283	99.9	10.0 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.21	21.50	92.71	92.71	170.19	0.98	64.69	PhiVc < Vu	28.026	100.2	10.1 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.25	21.50	68.21	68.21	166.49	0.73	62.10	PhiVc < Vu	6.107	97.6	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.30	21.50	68.17	68.17	163.70	0.75	62.23	PhiVc < Vu	5.944	97.7	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.34	21.50	68.14	68.14	160.90	0.76	62.36	PhiVc < Vu	5.776	97.8	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.38	21.50	68.11	68.11	158.11	0.77	62.50	PhiVc < Vu	5.603	98.0	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.42	21.50	68.07	68.07	155.32	0.79	62.65	PhiVc < Vu	5.426	98.1	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.46	21.50	68.04	68.04	152.53	0.80	62.80	PhiVc < Vu	5.244	98.3	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.50	21.50	68.01	68.01	149.74	0.81	62.95	PhiVc < Vu	5.055	98.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.54	21.50	67.97	67.97	146.96	0.83	63.11	PhiVc < Vu	4.862	98.6	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.58	21.50	67.94	67.94	144.17	0.84	63.28	PhiVc < Vu	4.662	98.8	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.62	21.50	67.91	67.91	141.39	0.86	63.45	PhiVc < Vu	4.455	98.9	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.66	21.50	67.87	67.87	138.60	0.88	63.63	PhiVc < Vu	4.242	99.1	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.70	21.50	67.84	67.84	135.82	0.89	63.82	PhiVc < Vu	4.021	99.3	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.75	21.50	67.81	67.81	133.04	0.91	64.01	PhiVc < Vu	3.793	99.5	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.79	21.50	67.77	67.77	130.27	0.93	64.22	PhiVc < Vu	3.556	99.7	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.83	21.50	67.74	67.74	127.49	0.95	64.43	PhiVc < Vu	3.311	99.9	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.87	21.50	67.71	67.71	124.71	0.97	64.65	PhiVc < Vu	3.057	100.1	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.91	21.50	67.67	67.67	121.94	0.99	64.88	PhiVc < Vu	2.792	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.95	21.50	67.64	67.64	119.17	1.00	64.94	PhiVc < Vu	2.698	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	2.99	21.50	67.61	67.61	116.39	1.00	64.94	PhiVc < Vu	2.665	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.03	21.50	67.57	67.57	113.62	1.00	64.94	PhiVc < Vu	2.632	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.07	21.50	67.54	67.54	110.86	1.00	64.94	PhiVc < Vu	2.599	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.11	21.50	67.51	67.51	108.09	1.00	64.94	PhiVc < Vu	2.565	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.16	21.50	67.47	67.47	105.32	1.00	64.94	PhiVc < Vu	2.532	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.20	21.50	67.44	67.44	102.56	1.00	64.94	PhiVc < Vu	2.499	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.24	21.50	67.41	67.41	99.79	1.00	64.94	PhiVc < Vu	2.465	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.28	21.50	67.37	67.37	97.03	1.00	64.94	PhiVc < Vu	2.432	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.32	21.50	67.34	67.34	94.27	1.00	64.94	PhiVc < Vu	2.399	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.36	21.50	67.31	67.31	91.51	1.00	64.94	PhiVc < Vu	2.366	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.40	21.50	67.27	67.27	88.75	1.00	64.94	PhiVc < Vu	2.332	100.4	10.8 8.0
+1.20D+1.60L+0.50S+1.60H	1	3.44	21.50	67.24	67.24	86.00	1.00	64.94	PhiVc < Vu	2.299	100.4	10.8 8.0

Project Title:
Engineer:
Project ID:
Project Descr:

80/107

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	3.48	21.50	67.21	67.21	83.24	1.00	64.94	PhiVc < Vu	2.266	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.52	21.50	67.18	67.18	80.49	1.00	64.94	PhiVc < Vu	2.232	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.57	21.50	67.14	67.14	77.74	1.00	64.94	PhiVc < Vu	2.199	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.61	21.50	67.11	67.11	74.99	1.00	64.94	PhiVc < Vu	2.166	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.65	21.50	67.08	67.08	72.24	1.00	64.94	PhiVc < Vu	2.133	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.69	21.50	67.04	67.04	69.49	1.00	64.94	PhiVc < Vu	2.099	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.73	21.50	67.01	67.01	66.74	1.00	64.94	PhiVc < Vu	2.066	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.77	21.50	66.98	66.98	63.99	1.00	64.94	PhiVc < Vu	2.033	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.81	21.50	66.94	66.94	61.25	1.00	64.94	PhiVc < Vu	2.0	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.85	21.50	66.91	66.91	58.51	1.00	64.94	PhiVc < Vu	1.966	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.89	21.50	66.88	66.88	55.77	1.00	64.94	PhiVc < Vu	1.933	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.93	21.50	66.84	66.84	53.03	1.00	64.94	PhiVc < Vu	1.90	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	3.98	21.50	66.81	66.81	50.29	1.00	64.94	PhiVc < Vu	1.866	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.02	21.50	66.78	66.78	47.55	1.00	64.94	PhiVc < Vu	1.833	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.06	21.50	66.74	66.74	44.81	1.00	64.94	PhiVc < Vu	1.80	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.10	21.50	66.71	66.71	42.08	1.00	64.94	PhiVc < Vu	1.767	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.14	21.50	66.68	66.68	39.35	1.00	64.94	PhiVc < Vu	1.733	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.18	21.50	66.64	66.64	36.61	1.00	64.94	PhiVc < Vu	1.70	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.22	21.50	66.61	66.61	33.88	1.00	64.94	PhiVc < Vu	1.667	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.26	21.50	66.58	66.58	31.15	1.00	64.94	PhiVc < Vu	1.633	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.30	21.50	66.54	66.54	28.43	1.00	64.94	PhiVc < Vu	1.60	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.34	21.50	66.51	66.51	25.70	1.00	64.94	PhiVc < Vu	1.567	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.39	21.50	66.48	66.48	22.97	1.00	64.94	PhiVc < Vu	1.534	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.43	21.50	66.44	66.44	20.25	1.00	64.94	PhiVc < Vu	1.50	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.47	21.50	66.41	66.41	17.53	1.00	64.94	PhiVc < Vu	1.467	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.51	21.50	66.38	66.38	14.81	1.00	64.94	PhiVc < Vu	1.434	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.55	21.50	66.34	66.34	12.09	1.00	64.94	PhiVc < Vu	1.401	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.59	21.50	66.31	66.31	9.37	1.00	64.94	PhiVc < Vu	1.367	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.63	21.50	66.28	66.28	6.65	1.00	64.94	PhiVc < Vu	1.334	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.67	21.50	66.24	66.24	3.94	1.00	64.94	PhiVc < Vu	1.301	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.71	21.50	66.21	66.21	1.22	1.00	64.94	PhiVc < Vu	1.267	100.4	10.8	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.75	22.50	66.18	66.18	1.49	1.00	61.28	PhiVc < Vu	4.898	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.80	22.50	66.14	66.14	4.20	1.00	61.28	PhiVc < Vu	4.865	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.84	22.50	66.11	66.11	6.91	1.00	61.28	PhiVc < Vu	4.832	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.88	22.50	66.08	66.08	9.62	1.00	61.28	PhiVc < Vu	4.798	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.92	22.50	66.04	66.04	12.33	1.00	61.28	PhiVc < Vu	4.765	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	4.96	22.50	66.01	66.01	15.03	1.00	61.28	PhiVc < Vu	4.732	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.00	22.50	65.98	65.98	17.74	1.00	61.28	PhiVc < Vu	4.698	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.04	22.50	65.94	65.94	20.44	1.00	61.28	PhiVc < Vu	4.665	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.08	22.50	65.91	65.91	23.14	1.00	61.28	PhiVc < Vu	4.632	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.12	22.50	65.88	65.88	25.84	1.00	61.28	PhiVc < Vu	4.599	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.16	22.50	65.84	65.84	28.54	1.00	61.28	PhiVc < Vu	4.565	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.20	22.50	65.81	65.81	31.24	1.00	61.28	PhiVc < Vu	4.532	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.25	22.50	65.78	65.78	33.94	1.00	61.28	PhiVc < Vu	4.499	98.4	11.3	8.0
+1.20D+1.60L+0.50S+1.60H	1	5.29	22.50	41.27	41.27	35.73	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.33	22.50	41.24	41.24	37.42	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.37	22.50	41.21	41.21	39.11	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.41	22.50	41.17	41.17	40.80	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.45	22.50	41.14	41.14	42.48	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.49	22.50	41.11	41.11	44.17	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.53	22.50	41.07	41.07	45.85	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.57	22.50	41.04	41.04	47.54	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.61	22.50	41.01	41.01	49.22	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	5.66	22.50	40.97	40.97	50.90	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0

Project Title:
Engineer:
Project ID:
Project Descr:

8/1/09

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	5.70	22.50	40.94	40.94	52.58	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	5.74	22.50	40.91	40.91	54.25	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	5.78	22.50	40.87	40.87	55.93	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	5.82	22.50	40.84	40.84	57.60	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	5.86	22.50	40.81	40.81	59.28	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	5.90	22.50	40.77	40.77	60.95	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	5.94	22.50	40.74	40.74	62.62	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	5.98	22.50	40.71	40.71	64.29	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.02	22.50	40.67	40.67	65.96	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.07	22.50	40.64	40.64	67.62	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.11	22.50	40.61	40.61	69.29	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.15	22.50	40.57	40.57	70.95	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.19	22.50	40.54	40.54	72.61	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.23	22.50	40.51	40.51	74.27	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.27	22.50	40.47	40.47	75.93	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.31	22.50	40.44	40.44	77.59	0.98	61.18	PhiVc/2 < Vu <=	Min 9.6.3.1	88.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.35	22.50	40.41	40.41	79.25	0.96	61.08	PhiVc/2 < Vu <=	Min 9.6.3.1	88.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.39	22.50	40.37	40.37	80.90	0.94	60.99	PhiVc/2 < Vu <=	Min 9.6.3.1	88.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.43	22.50	40.34	40.34	82.56	0.92	60.90	PhiVc/2 < Vu <=	Min 9.6.3.1	87.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.48	22.50	40.31	40.31	84.21	0.90	60.82	PhiVc/2 < Vu <=	Min 9.6.3.1	87.8	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.52	22.50	40.27	40.27	85.86	0.88	60.74	PhiVc/2 < Vu <=	Min 9.6.3.1	87.7	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.56	22.50	40.24	40.24	87.51	0.86	60.66	PhiVc/2 < Vu <=	Min 9.6.3.1	87.7	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.60	22.50	40.21	40.21	89.16	0.85	60.58	PhiVc/2 < Vu <=	Min 9.6.3.1	87.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.64	22.50	40.17	40.17	90.81	0.83	60.51	PhiVc/2 < Vu <=	Min 9.6.3.1	87.5	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.68	22.50	40.14	40.14	92.45	0.81	60.44	PhiVc/2 < Vu <=	Min 9.6.3.1	87.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.72	22.50	40.11	40.11	94.10	0.80	60.38	PhiVc/2 < Vu <=	Min 9.6.3.1	87.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.76	22.50	40.07	40.07	95.74	0.78	60.31	PhiVc/2 < Vu <=	Min 9.6.3.1	87.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.80	22.50	40.04	40.04	97.38	0.77	60.25	PhiVc/2 < Vu <=	Min 9.6.3.1	87.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.84	22.50	40.01	40.01	99.02	0.76	60.19	PhiVc/2 < Vu <=	Min 9.6.3.1	87.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.89	22.50	39.97	39.97	100.66	0.74	60.13	PhiVc/2 < Vu <=	Min 9.6.3.1	87.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.93	22.50	39.94	39.94	102.30	0.73	60.07	PhiVc/2 < Vu <=	Min 9.6.3.1	87.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	6.97	22.50	39.91	39.91	103.93	0.72	60.02	PhiVc/2 < Vu <=	Min 9.6.3.1	87.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.01	22.50	39.87	39.87	105.57	0.71	59.97	PhiVc/2 < Vu <=	Min 9.6.3.1	87.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.05	22.50	39.84	39.84	107.20	0.70	59.91	PhiVc/2 < Vu <=	Min 9.6.3.1	86.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.09	22.50	39.81	39.81	108.83	0.69	59.86	PhiVc/2 < Vu <=	Min 9.6.3.1	86.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.13	22.50	39.77	39.77	110.47	0.68	59.82	PhiVc/2 < Vu <=	Min 9.6.3.1	86.8	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.17	22.50	39.74	39.74	112.09	0.66	59.77	PhiVc/2 < Vu <=	Min 9.6.3.1	86.8	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.21	22.50	39.71	39.71	113.72	0.65	59.72	PhiVc/2 < Vu <=	Min 9.6.3.1	86.7	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.25	22.50	39.67	39.67	115.35	0.64	59.68	PhiVc/2 < Vu <=	Min 9.6.3.1	86.7	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.30	22.50	39.64	39.64	116.97	0.64	59.64	PhiVc/2 < Vu <=	Min 9.6.3.1	86.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.34	22.50	39.61	39.61	118.60	0.63	59.60	PhiVc/2 < Vu <=	Min 9.6.3.1	86.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.38	22.50	39.57	39.57	120.22	0.62	59.56	PhiVc/2 < Vu <=	Min 9.6.3.1	86.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.42	22.50	39.54	39.54	121.84	0.61	59.52	PhiVc/2 < Vu <=	Min 9.6.3.1	86.5	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.46	22.50	39.51	39.51	123.46	0.60	59.48	PhiVc/2 < Vu <=	Min 9.6.3.1	86.5	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.50	22.50	39.47	39.47	125.08	0.59	59.44	PhiVc/2 < Vu <=	Min 9.6.3.1	86.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.54	22.50	39.44	39.44	126.70	0.58	59.41	PhiVc/2 < Vu <=	Min 9.6.3.1	86.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.58	22.50	39.41	39.41	128.31	0.58	59.37	PhiVc/2 < Vu <=	Min 9.6.3.1	86.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.62	22.50	39.37	39.37	129.93	0.57	59.34	PhiVc/2 < Vu <=	Min 9.6.3.1	86.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.66	22.50	39.34	39.34	131.54	0.56	59.30	PhiVc/2 < Vu <=	Min 9.6.3.1	86.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.70	22.50	39.31	39.31	133.15	0.55	59.27	PhiVc/2 < Vu <=	Min 9.6.3.1	86.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.75	22.50	39.28	39.28	134.76	0.55	59.24	PhiVc/2 < Vu <=	Min 9.6.3.1	86.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.79	22.50	39.24	39.24	136.37	0.54	59.21	PhiVc/2 < Vu <=	Min 9.6.3.1	86.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.83	22.50	39.21	39.21	137.98	0.53	59.18	PhiVc/2 < Vu <=	Min 9.6.3.1	86.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.87	22.50	39.18	39.18	139.59	0.53	59.15	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0

Project Title:
Engineer:
Project ID:
Project Descr:

82/109

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	7.91	22.50	39.14	39.14	141.19	0.52	59.12	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.95	22.50	39.11	39.11	142.79	0.51	59.09	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	7.99	22.50	39.08	39.08	144.40	0.51	59.06	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	8.03	22.50	39.04	39.04	146.00	0.50	59.04	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	8.07	22.50	39.01	39.01	147.60	0.50	59.01	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	8.11	22.50	38.98	38.98	149.19	0.49	58.98	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	8.16	22.50	38.94	38.94	150.79	0.48	58.96	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	8.20	22.50	38.91	38.91	152.39	0.48	58.93	PhiVc/2 < Vu <=	Min 9.6.3.1	85.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	8.24	22.50	38.88	38.88	153.98	0.47	58.91	PhiVc/2 < Vu <=	Min 9.6.3.1	85.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	8.28	22.50	14.37	14.37	154.87	0.17	57.56	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.32	22.50	14.34	14.34	155.46	0.17	57.56	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.36	22.50	14.30	14.30	156.05	0.17	57.55	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.40	22.50	14.27	14.27	156.63	0.17	57.55	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.44	22.50	14.24	14.24	157.22	0.17	57.54	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.48	22.50	14.20	14.20	157.80	0.17	57.54	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.52	22.50	14.17	14.17	158.38	0.17	57.53	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.57	22.50	14.14	14.14	158.96	0.17	57.53	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.61	22.50	14.10	14.10	159.54	0.17	57.52	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.65	22.50	14.07	14.07	160.12	0.16	57.52	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.69	22.50	14.04	14.04	160.69	0.16	57.52	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.73	22.50	14.00	14.00	161.27	0.16	57.51	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.77	22.50	13.97	13.97	161.84	0.16	57.51	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.81	22.50	13.94	13.94	162.41	0.16	57.50	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.85	22.50	13.90	13.90	162.98	0.16	57.50	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.89	22.50	13.87	13.87	163.55	0.16	57.49	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.93	22.50	13.84	13.84	164.12	0.16	57.49	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	8.98	22.50	13.80	13.80	164.69	0.16	57.49	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.02	22.50	13.77	13.77	165.25	0.16	57.48	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.06	22.50	13.74	13.74	165.81	0.16	57.48	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.10	22.50	13.70	13.70	166.38	0.15	57.47	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.14	22.50	13.67	13.67	166.94	0.15	57.47	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.18	22.50	13.64	13.64	167.50	0.15	57.47	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.22	22.50	13.60	13.60	168.06	0.15	57.46	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.26	22.50	13.57	13.57	168.61	0.15	57.46	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.30	22.50	13.54	13.54	169.17	0.15	57.45	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.34	22.50	13.50	13.50	169.72	0.15	57.45	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.39	22.50	13.47	13.47	170.27	0.15	57.45	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.43	22.50	13.44	13.44	170.83	0.15	57.44	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.47	22.50	13.40	13.40	171.38	0.15	57.44	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.51	22.50	13.37	13.37	171.93	0.15	57.43	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.55	22.50	13.34	13.34	172.47	0.15	57.43	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.59	22.50	13.31	13.31	173.02	0.14	57.43	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.63	22.50	13.27	13.27	173.56	0.14	57.42	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.67	22.50	13.24	13.24	174.11	0.14	57.42	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.71	22.50	13.21	13.21	174.65	0.14	57.42	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.75	22.50	13.17	13.17	175.19	0.14	57.41	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.80	22.50	13.14	13.14	175.73	0.14	57.41	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.84	22.50	13.11	13.11	176.27	0.14	57.41	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.88	22.50	13.07	13.07	176.80	0.14	57.40	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.92	22.50	13.04	13.04	177.34	0.14	57.40	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	9.96	22.50	13.01	13.01	177.87	0.14	57.40	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.00	22.50	12.97	12.97	178.40	0.14	57.39	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.04	22.50	12.94	12.94	178.93	0.14	57.39	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.08	22.50	12.91	12.91	179.46	0.13	57.39	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0

Project Title:
Engineer:
Project ID:
Project Descr:

83/109

Concrete Beam

File = P:\2018\180114\Structural\180114.001 Pma County 5th floor TI - floor check\180114.001.ec6

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	10.12	22.50	12.87	12.87	179.99	0.13	57.38	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.16	22.50	12.84	12.84	180.52	0.13	57.38	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.20	22.50	12.81	12.81	181.04	0.13	57.38	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.25	22.50	12.77	12.77	181.57	0.13	57.37	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.29	22.50	12.74	12.74	182.09	0.13	57.37	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.33	22.50	12.71	12.71	182.61	0.13	57.37	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.37	22.50	12.67	12.67	183.13	0.13	57.36	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.41	22.50	12.64	12.64	183.65	0.13	57.36	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.45	22.50	12.61	12.61	184.17	0.13	57.36	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.49	22.50	12.57	12.57	184.68	0.13	57.35	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.53	22.50	12.54	12.54	185.20	0.13	57.35	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.57	22.50	12.51	12.51	185.71	0.13	57.35	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.61	22.50	12.47	12.47	186.22	0.13	57.34	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.66	22.50	12.44	12.44	186.74	0.12	57.34	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.70	22.50	12.41	12.41	187.24	0.12	57.34	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.74	22.50	12.37	12.37	187.75	0.12	57.33	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.78	22.50	12.34	12.34	188.26	0.12	57.33	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.82	22.50	12.31	12.31	188.76	0.12	57.33	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.86	22.50	12.27	12.27	189.27	0.12	57.33	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.90	22.50	12.24	12.24	189.77	0.12	57.32	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.94	22.50	12.21	12.21	190.27	0.12	57.32	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	10.98	22.50	12.17	12.17	190.77	0.12	57.32	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.02	22.50	12.14	12.14	191.27	0.12	57.31	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.07	22.50	12.11	12.11	191.77	0.12	57.31	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.11	22.50	12.07	12.07	192.26	0.12	57.31	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.15	22.50	12.04	12.04	192.75	0.12	57.31	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.19	22.50	12.01	12.01	193.25	0.12	57.30	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.23	22.50	11.97	11.97	193.74	0.12	57.30	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.27	22.50	-12.53	12.53	193.73	0.12	57.32	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.31	22.50	-12.56	12.56	193.21	0.12	57.33	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.35	22.50	-12.60	12.60	192.70	0.12	57.33	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.39	22.50	-12.63	12.63	192.18	0.12	57.33	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.43	22.50	-12.66	12.66	191.66	0.12	57.34	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.48	22.50	-12.70	12.70	191.14	0.12	57.34	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.52	22.50	-12.73	12.73	190.62	0.13	57.34	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.56	22.50	-12.76	12.76	190.10	0.13	57.35	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.60	22.50	-12.80	12.80	189.58	0.13	57.35	Vu < PhiVc/2	lot Req'd 9.6.	57.3	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.64	22.50	-12.83	12.83	189.05	0.13	57.35	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.68	22.50	-12.86	12.86	188.52	0.13	57.35	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.72	22.50	-12.90	12.90	188.00	0.13	57.36	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.76	22.50	-12.93	12.93	187.47	0.13	57.36	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.80	22.50	-12.96	12.96	186.94	0.13	57.36	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.84	22.50	-13.00	13.00	186.40	0.13	57.37	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.89	22.50	-13.03	13.03	185.87	0.13	57.37	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.93	22.50	-13.06	13.06	185.34	0.13	57.37	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	11.97	22.50	-13.10	13.10	184.80	0.13	57.38	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.01	22.50	-13.13	13.13	184.26	0.13	57.38	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.05	22.50	-13.16	13.16	183.72	0.13	57.38	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.09	22.50	-13.20	13.20	183.18	0.14	57.39	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.13	22.50	-13.23	13.23	182.64	0.14	57.39	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.17	22.50	-13.26	13.26	182.10	0.14	57.39	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.21	22.50	-13.30	13.30	181.55	0.14	57.40	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.25	22.50	-13.33	13.33	181.01	0.14	57.40	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.30	22.50	-13.36	13.36	180.46	0.14	57.40	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0

Project Title:
Engineer:
Project ID:
Project Descr:

84/109

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	12.34	22.50	-13.40	13.40	179.91	0.14	57.41	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.38	22.50	-13.43	13.43	179.36	0.14	57.41	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.42	22.50	-13.46	13.46	178.81	0.14	57.41	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.46	22.50	-13.50	13.50	178.26	0.14	57.42	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.50	22.50	-13.53	13.53	177.71	0.14	57.42	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.54	22.50	-13.56	13.56	177.15	0.14	57.42	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.58	22.50	-13.60	13.60	176.59	0.14	57.43	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.62	22.50	-13.63	13.63	176.04	0.15	57.43	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.66	22.50	-13.66	13.66	175.48	0.15	57.44	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.70	22.50	-13.70	13.70	174.92	0.15	57.44	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.75	22.50	-13.73	13.73	174.35	0.15	57.44	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.79	22.50	-13.76	13.76	173.79	0.15	57.45	Vu < PhiVc/2	lot Req'd 9.6.	57.4	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.83	22.50	-13.80	13.80	173.23	0.15	57.45	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.87	22.50	-13.83	13.83	172.66	0.15	57.45	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.91	22.50	-13.86	13.86	172.09	0.15	57.46	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.95	22.50	-13.90	13.90	171.52	0.15	57.46	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	12.99	22.50	-13.93	13.93	170.95	0.15	57.47	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.03	22.50	-13.96	13.96	170.38	0.15	57.47	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.07	22.50	-14.00	14.00	169.81	0.15	57.47	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.11	22.50	-14.03	14.03	169.23	0.16	57.48	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.16	22.50	-14.06	14.06	168.66	0.16	57.48	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.20	22.50	-14.10	14.10	168.08	0.16	57.49	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.24	22.50	-14.13	14.13	167.50	0.16	57.49	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.28	22.50	-14.16	14.16	166.92	0.16	57.49	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.32	22.50	-14.20	14.20	166.34	0.16	57.50	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.36	22.50	-14.23	14.23	165.76	0.16	57.50	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.40	22.50	-14.26	14.26	165.18	0.16	57.51	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.44	22.50	-14.30	14.30	164.59	0.16	57.51	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.48	22.50	-14.33	14.33	164.00	0.16	57.52	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.52	22.50	-14.36	14.36	163.42	0.16	57.52	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.57	22.50	-14.40	14.40	162.83	0.17	57.52	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.61	22.50	-14.43	14.43	162.24	0.17	57.53	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.65	22.50	-14.46	14.46	161.65	0.17	57.53	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.69	22.50	-14.50	14.50	161.05	0.17	57.54	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.73	22.50	-14.53	14.53	160.46	0.17	57.54	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.77	22.50	-14.56	14.56	159.86	0.17	57.55	Vu < PhiVc/2	lot Req'd 9.6.	57.5	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.81	22.50	-14.59	14.59	159.26	0.17	57.55	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.85	22.50	-14.63	14.63	158.66	0.17	57.56	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.89	22.50	-14.66	14.66	158.06	0.17	57.56	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.93	22.50	-14.69	14.69	157.46	0.17	57.57	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	13.98	22.50	-14.73	14.73	156.86	0.18	57.57	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.02	22.50	-14.76	14.76	156.26	0.18	57.58	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.06	22.50	-14.79	14.79	155.65	0.18	57.58	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.10	22.50	-14.83	14.83	155.04	0.18	57.59	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.14	22.50	-14.86	14.86	154.43	0.18	57.59	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.18	22.50	-14.89	14.89	153.82	0.18	57.60	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.22	22.50	-14.93	14.93	153.21	0.18	57.60	Vu < PhiVc/2	lot Req'd 9.6.	57.6	0.0 0.0
+1.20D+1.60L+0.50S+1.60H	1	14.26	22.50	-37.94	37.94	152.32	0.47	58.88	PhiVc/2 < Vu <=	Min 9.6.3.1	85.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.30	22.50	-37.97	37.97	150.76	0.47	58.90	PhiVc/2 < Vu <=	Min 9.6.3.1	85.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.34	22.50	-38.00	38.00	149.21	0.48	58.93	PhiVc/2 < Vu <=	Min 9.6.3.1	85.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.39	22.50	-38.04	38.04	147.65	0.48	58.95	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.43	22.50	-38.07	38.07	146.09	0.49	58.98	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.47	22.50	-38.10	38.10	144.53	0.49	59.00	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.51	22.50	-38.14	38.14	142.97	0.50	59.03	PhiVc/2 < Vu <=	Min 9.6.3.1	86.0	11.3 11.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

85/109

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd Suggest
+1.20D+1.60L+0.50S+1.60H	1	14.55	22.50	-38.17	38.17	141.40	0.51	59.06	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.59	22.50	-38.20	38.20	139.84	0.51	59.08	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.63	22.50	-38.24	38.24	138.27	0.52	59.11	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.67	22.50	-38.27	38.27	136.70	0.52	59.14	PhiVc/2 < Vu <=	Min 9.6.3.1	86.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.71	22.50	-38.30	38.30	135.13	0.53	59.17	PhiVc/2 < Vu <=	Min 9.6.3.1	86.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.75	22.50	-38.34	38.34	133.56	0.54	59.20	PhiVc/2 < Vu <=	Min 9.6.3.1	86.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.80	22.50	-38.37	38.37	131.99	0.55	59.23	PhiVc/2 < Vu <=	Min 9.6.3.1	86.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.84	22.50	-38.40	38.40	130.42	0.55	59.26	PhiVc/2 < Vu <=	Min 9.6.3.1	86.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.88	22.50	-38.44	38.44	128.84	0.56	59.30	PhiVc/2 < Vu <=	Min 9.6.3.1	86.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.92	22.50	-38.47	38.47	127.27	0.57	59.33	PhiVc/2 < Vu <=	Min 9.6.3.1	86.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	14.96	22.50	-38.50	38.50	125.69	0.57	59.36	PhiVc/2 < Vu <=	Min 9.6.3.1	86.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.00	22.50	-38.54	38.54	124.11	0.58	59.40	PhiVc/2 < Vu <=	Min 9.6.3.1	86.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.04	22.50	-38.57	38.57	122.53	0.59	59.43	PhiVc/2 < Vu <=	Min 9.6.3.1	86.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.08	22.50	-38.60	38.60	120.95	0.60	59.47	PhiVc/2 < Vu <=	Min 9.6.3.1	86.5	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.12	22.50	-38.64	38.64	119.37	0.61	59.51	PhiVc/2 < Vu <=	Min 9.6.3.1	86.5	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.16	22.50	-38.67	38.67	117.78	0.62	59.55	PhiVc/2 < Vu <=	Min 9.6.3.1	86.5	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.20	22.50	-38.70	38.70	116.20	0.62	59.59	PhiVc/2 < Vu <=	Min 9.6.3.1	86.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.25	22.50	-38.74	38.74	114.61	0.63	59.63	PhiVc/2 < Vu <=	Min 9.6.3.1	86.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.29	22.50	-38.77	38.77	113.02	0.64	59.67	PhiVc/2 < Vu <=	Min 9.6.3.1	86.7	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.33	22.50	-38.80	38.80	111.43	0.65	59.72	PhiVc/2 < Vu <=	Min 9.6.3.1	86.7	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.37	22.50	-38.84	38.84	109.84	0.66	59.76	PhiVc/2 < Vu <=	Min 9.6.3.1	86.8	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.41	22.50	-38.87	38.87	108.25	0.67	59.81	PhiVc/2 < Vu <=	Min 9.6.3.1	86.8	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.45	22.50	-38.90	38.90	106.66	0.68	59.86	PhiVc/2 < Vu <=	Min 9.6.3.1	86.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.49	22.50	-38.94	38.94	105.06	0.69	59.91	PhiVc/2 < Vu <=	Min 9.6.3.1	86.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.53	22.50	-38.97	38.97	103.46	0.71	59.96	PhiVc/2 < Vu <=	Min 9.6.3.1	87.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.57	22.50	-39.00	39.00	101.87	0.72	60.01	PhiVc/2 < Vu <=	Min 9.6.3.1	87.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.61	22.50	-39.04	39.04	100.27	0.73	60.06	PhiVc/2 < Vu <=	Min 9.6.3.1	87.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.66	22.50	-39.07	39.07	98.67	0.74	60.12	PhiVc/2 < Vu <=	Min 9.6.3.1	87.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.70	22.50	-39.10	39.10	97.07	0.76	60.18	PhiVc/2 < Vu <=	Min 9.6.3.1	87.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.74	22.50	-39.14	39.14	95.46	0.77	60.24	PhiVc/2 < Vu <=	Min 9.6.3.1	87.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.78	22.50	-39.17	39.17	93.86	0.78	60.30	PhiVc/2 < Vu <=	Min 9.6.3.1	87.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.82	22.50	-39.20	39.20	92.25	0.80	60.36	PhiVc/2 < Vu <=	Min 9.6.3.1	87.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.86	22.50	-39.23	39.23	90.64	0.81	60.43	PhiVc/2 < Vu <=	Min 9.6.3.1	87.4	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.90	22.50	-39.27	39.27	89.04	0.83	60.50	PhiVc/2 < Vu <=	Min 9.6.3.1	87.5	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.94	22.50	-39.30	39.30	87.43	0.84	60.57	PhiVc/2 < Vu <=	Min 9.6.3.1	87.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	15.98	22.50	-39.33	39.33	85.81	0.86	60.65	PhiVc/2 < Vu <=	Min 9.6.3.1	87.6	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.02	22.50	-39.37	39.37	84.20	0.88	60.72	PhiVc/2 < Vu <=	Min 9.6.3.1	87.7	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.07	22.50	-39.40	39.40	82.59	0.89	60.80	PhiVc/2 < Vu <=	Min 9.6.3.1	87.8	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.11	22.50	-39.43	39.43	80.97	0.91	60.89	PhiVc/2 < Vu <=	Min 9.6.3.1	87.9	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.15	22.50	-39.47	39.47	79.36	0.93	60.98	PhiVc/2 < Vu <=	Min 9.6.3.1	88.0	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.19	22.50	-39.50	39.50	77.74	0.95	61.07	PhiVc/2 < Vu <=	Min 9.6.3.1	88.1	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.23	22.50	-39.53	39.53	76.12	0.97	61.16	PhiVc/2 < Vu <=	Min 9.6.3.1	88.2	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.27	22.50	-39.57	39.57	74.50	1.00	61.26	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.31	22.50	-39.60	39.60	72.87	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.35	22.50	-39.63	39.63	71.25	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.39	22.50	-39.67	39.67	69.63	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.43	22.50	-39.70	39.70	68.00	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.48	22.50	-39.73	39.73	66.37	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.52	22.50	-39.77	39.77	64.74	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.56	22.50	-39.80	39.80	63.11	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.60	22.50	-39.83	39.83	61.48	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.64	22.50	-39.87	39.87	59.85	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.68	22.50	-39.90	39.90	58.21	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0
+1.20D+1.60L+0.50S+1.60H	1	16.72	22.50	-39.93	39.93	56.58	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3 11.0

Project Title:
Engineer:
Project ID:
Project Descr:

86/109

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	16.76	22.50	-39.97	39.97	54.94	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	16.80	22.50	-40.00	40.00	53.30	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	16.84	22.50	-40.03	40.03	51.66	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	16.89	22.50	-40.07	40.07	50.02	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	16.93	22.50	-40.10	40.10	48.38	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	16.97	22.50	-40.13	40.13	46.73	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	17.01	22.50	-40.17	40.17	45.09	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	17.05	22.50	-40.20	40.20	43.44	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	17.09	22.50	-40.23	40.23	41.79	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	17.13	22.50	-40.27	40.27	40.14	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	17.17	22.50	-40.30	40.30	38.49	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	17.21	22.50	-40.33	40.33	36.84	1.00	61.28	PhiVc/2 < Vu <=	Min 9.6.3.1	88.3	11.3	11.0
+1.20D+1.60L+0.50S+1.60H	1	17.25	22.50	-65.91	65.91	35.08	1.00	61.28	PhiVc < Vu	4.628	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.30	22.50	-65.94	65.94	32.38	1.00	61.28	PhiVc < Vu	4.661	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.34	22.50	-65.97	65.97	29.67	1.00	61.28	PhiVc < Vu	4.694	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.38	22.50	-66.01	66.01	26.97	1.00	61.28	PhiVc < Vu	4.728	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.42	22.50	-66.04	66.04	24.26	1.00	61.28	PhiVc < Vu	4.761	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.46	22.50	-66.07	66.07	21.56	1.00	61.28	PhiVc < Vu	4.794	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.50	22.50	-66.11	66.11	18.85	1.00	61.28	PhiVc < Vu	4.827	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.54	22.50	-66.14	66.14	16.14	1.00	61.28	PhiVc < Vu	4.861	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.58	22.50	-66.17	66.17	13.43	1.00	61.28	PhiVc < Vu	4.894	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.62	22.50	-66.21	66.21	10.71	1.00	61.28	PhiVc < Vu	4.927	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.66	22.50	-66.24	66.24	8.00	1.00	61.28	PhiVc < Vu	4.960	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.70	22.50	-66.27	66.27	5.29	1.00	61.28	PhiVc < Vu	4.994	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.75	22.50	-66.31	66.31	2.57	1.00	61.28	PhiVc < Vu	5.027	103.7	11.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.79	21.50	-66.34	66.34	0.15	1.00	64.94	PhiVc < Vu	1.396	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.83	21.50	-66.37	66.37	2.87	1.00	64.94	PhiVc < Vu	1.430	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.87	21.50	-66.41	66.41	5.59	1.00	64.94	PhiVc < Vu	1.463	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.91	21.50	-66.44	66.44	8.31	1.00	64.94	PhiVc < Vu	1.496	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.95	21.50	-66.47	66.47	11.04	1.00	64.94	PhiVc < Vu	1.529	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	17.99	21.50	-66.51	66.51	13.76	1.00	64.94	PhiVc < Vu	1.563	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.03	21.50	-66.54	66.54	16.49	1.00	64.94	PhiVc < Vu	1.596	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.07	21.50	-66.57	66.57	19.21	1.00	64.94	PhiVc < Vu	1.629	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.11	21.50	-66.61	66.61	21.94	1.00	64.94	PhiVc < Vu	1.663	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.16	21.50	-66.64	66.64	24.67	1.00	64.94	PhiVc < Vu	1.696	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.20	21.50	-66.67	66.67	27.41	1.00	64.94	PhiVc < Vu	1.729	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.24	21.50	-66.71	66.71	30.14	1.00	64.94	PhiVc < Vu	1.762	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.28	21.50	-66.74	66.74	32.87	1.00	64.94	PhiVc < Vu	1.796	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.32	21.50	-66.77	66.77	35.61	1.00	64.94	PhiVc < Vu	1.829	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.36	21.50	-66.80	66.80	38.35	1.00	64.94	PhiVc < Vu	1.862	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.40	21.50	-66.84	66.84	41.09	1.00	64.94	PhiVc < Vu	1.896	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.44	21.50	-66.87	66.87	43.83	1.00	64.94	PhiVc < Vu	1.929	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.48	21.50	-66.90	66.90	46.57	1.00	64.94	PhiVc < Vu	1.962	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.52	21.50	-66.94	66.94	49.31	1.00	64.94	PhiVc < Vu	1.995	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.57	21.50	-66.97	66.97	52.05	1.00	64.94	PhiVc < Vu	2.029	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.61	21.50	-67.00	67.00	54.80	1.00	64.94	PhiVc < Vu	2.062	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.65	21.50	-67.04	67.04	57.55	1.00	64.94	PhiVc < Vu	2.095	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.69	21.50	-67.07	67.07	60.29	1.00	64.94	PhiVc < Vu	2.128	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.73	21.50	-67.10	67.10	63.04	1.00	64.94	PhiVc < Vu	2.162	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.77	21.50	-67.14	67.14	65.79	1.00	64.94	PhiVc < Vu	2.195	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.81	21.50	-67.17	67.17	68.55	1.00	64.94	PhiVc < Vu	2.228	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.85	21.50	-67.20	67.20	71.30	1.00	64.94	PhiVc < Vu	2.262	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.89	21.50	-67.24	67.24	74.05	1.00	64.94	PhiVc < Vu	2.295	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	18.93	21.50	-67.27	67.27	76.81	1.00	64.94	PhiVc < Vu	2.328	105.5	10.8	7.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

82/109

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd	Suggest
+1.20D+1.60L+0.50S+1.60H	1	18.98	21.50	-67.30	67.30	79.57	1.00	64.94	PhiVc < Vu	2.361	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.02	21.50	-67.34	67.34	82.33	1.00	64.94	PhiVc < Vu	2.395	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.06	21.50	-67.37	67.37	85.09	1.00	64.94	PhiVc < Vu	2.428	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.10	21.50	-67.40	67.40	87.85	1.00	64.94	PhiVc < Vu	2.461	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.14	21.50	-67.44	67.44	90.61	1.00	64.94	PhiVc < Vu	2.495	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.18	21.50	-67.47	67.47	93.38	1.00	64.94	PhiVc < Vu	2.528	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.22	21.50	-67.50	67.50	96.14	1.00	64.94	PhiVc < Vu	2.561	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.26	21.50	-67.54	67.54	98.91	1.00	64.94	PhiVc < Vu	2.594	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.30	21.50	-67.57	67.57	101.68	1.00	64.94	PhiVc < Vu	2.628	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.34	21.50	-67.60	67.60	104.45	1.00	64.94	PhiVc < Vu	2.661	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.39	21.50	-67.64	67.64	107.22	1.00	64.94	PhiVc < Vu	2.694	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.43	21.50	-67.67	67.67	109.99	1.00	64.94	PhiVc < Vu	2.727	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.47	21.50	-67.70	67.70	112.77	1.00	64.94	PhiVc < Vu	2.761	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.51	21.50	-67.74	67.74	115.54	1.00	64.94	PhiVc < Vu	2.794	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.55	21.50	-67.77	67.77	118.32	1.00	64.94	PhiVc < Vu	2.827	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.59	21.50	-67.80	67.80	121.10	1.00	64.94	PhiVc < Vu	2.861	105.5	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.63	21.50	-67.84	67.84	123.88	0.98	64.74	PhiVc < Vu	3.095	105.3	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.67	21.50	-67.87	67.87	126.66	0.96	64.52	PhiVc < Vu	3.354	105.1	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.71	21.50	-67.90	67.90	129.44	0.94	64.30	PhiVc < Vu	3.603	104.8	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.75	21.50	-67.94	67.94	132.22	0.92	64.09	PhiVc < Vu	3.843	104.6	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.80	21.50	-67.97	67.97	135.01	0.90	63.90	PhiVc < Vu	4.074	104.4	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.84	21.50	-68.00	68.00	137.80	0.88	63.71	PhiVc < Vu	4.298	104.2	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.88	21.50	-68.04	68.04	140.58	0.87	63.52	PhiVc < Vu	4.514	104.1	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.92	21.50	-68.07	68.07	143.37	0.85	63.35	PhiVc < Vu	4.723	103.9	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	19.96	21.50	-68.10	68.10	146.16	0.83	63.18	PhiVc < Vu	4.926	103.7	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.00	21.50	-68.14	68.14	148.95	0.82	63.01	PhiVc < Vu	5.122	103.6	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.04	21.50	-68.17	68.17	151.75	0.80	62.86	PhiVc < Vu	5.312	103.4	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.08	21.50	-68.20	68.20	154.54	0.79	62.71	PhiVc < Vu	5.497	103.2	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.12	21.50	-68.24	68.24	157.34	0.78	62.56	PhiVc < Vu	5.676	103.1	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.16	21.50	-68.27	68.27	160.13	0.76	62.42	PhiVc < Vu	5.851	103.0	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.20	21.50	-68.30	68.30	162.93	0.75	62.28	PhiVc < Vu	6.020	102.8	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.25	21.50	-68.34	68.34	165.73	0.74	62.15	PhiVc < Vu	6.185	102.7	10.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.29	21.50	-93.91	93.91	169.48	0.99	64.87	PhiVc < Vu	29.043	105.4	9.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.33	21.50	-93.94	93.94	173.33	0.97	64.63	PhiVc < Vu	29.309	105.2	9.7	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.37	21.50	-93.98	93.98	177.18	0.95	64.41	PhiVc < Vu	29.564	105.0	9.6	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.41	21.50	-94.01	94.01	181.03	0.93	64.20	PhiVc < Vu	29.810	104.7	9.5	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.45	21.50	-94.04	94.04	184.88	0.91	64.00	PhiVc < Vu	30.047	104.5	9.4	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.49	21.50	-94.08	94.08	188.74	0.89	63.80	PhiVc < Vu	30.276	104.3	9.4	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.53	21.50	-94.11	94.11	192.59	0.88	63.61	PhiVc < Vu	30.497	104.2	9.3	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.57	21.50	-94.14	94.14	196.45	0.86	63.43	PhiVc < Vu	30.711	104.0	9.2	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.61	21.50	-94.18	94.18	200.31	0.84	63.26	PhiVc < Vu	30.917	103.8	9.2	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.66	21.50	-94.21	94.21	204.17	0.83	63.09	PhiVc < Vu	31.118	103.6	9.1	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.70	21.50	-94.24	94.24	208.03	0.81	62.93	PhiVc < Vu	31.312	103.5	9.1	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.74	21.50	-94.28	94.28	211.90	0.80	62.77	PhiVc < Vu	31.50	103.3	9.0	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.78	21.50	-94.31	94.31	215.76	0.78	62.62	PhiVc < Vu	31.683	103.2	9.0	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.82	21.50	-94.34	94.34	219.63	0.77	62.48	PhiVc < Vu	31.861	103.0	8.9	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.86	21.50	-94.37	94.37	223.49	0.76	62.34	PhiVc < Vu	32.034	102.9	8.9	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.90	21.50	-94.41	94.41	227.36	0.74	62.21	PhiVc < Vu	32.202	102.7	8.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.94	21.50	-94.44	94.44	231.23	0.73	62.08	PhiVc < Vu	32.366	102.6	8.8	7.0
+1.20D+1.60L+0.50S+1.60H	1	20.98	21.50	-94.47	94.47	235.10	0.72	61.95	PhiVc < Vu	32.525	102.5	8.7	7.0
+1.20D+1.60L+0.50S+1.60H	1	21.02	21.50	-94.51	94.51	238.97	0.71	61.83	PhiVc < Vu	32.680	102.4	8.7	7.0
+1.20D+1.60L+0.50S+1.60H	1	21.07	21.50	-94.54	94.54	242.85	0.70	61.71	PhiVc < Vu	32.832	102.3	8.6	7.0
+1.20D+1.60L+0.50S+1.60H	1	21.11	21.50	-94.57	94.57	246.72	0.69	61.60	PhiVc < Vu	32.979	102.1	8.6	7.0
+1.20D+1.60L+0.50S+1.60H	1	21.15	21.50	-94.61	94.61	250.60	0.68	61.48	PhiVc < Vu	33.124	102.0	8.6	7.0

Project Title:
 Engineer:
 Project ID:
 Project Descr:

88/109

Concrete Beam

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Description: Beam along grid 18

Detailed Shear Information

Load Combination	Span Number	Distance (ft)	'd' (in)	Vu (k) Actual	Vu (k) Design	Mu (k-ft)	d*Vu/Mu	Phi*Vc (k)	Comment	Phi*Vs (k)	Phi*Vn (k)	Spacing (in) Req'd/Suggest
+1.20D+1.60L+0.50S+1.60H	1	21.19	21.50	-94.64	94.64	254.48	0.67	61.38	PhiVc < Vu	33.265	101.9	8.5 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.23	21.50	-94.67	94.67	258.36	0.66	61.27	PhiVc < Vu	33.402	101.8	8.5 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.27	21.50	-94.71	94.71	262.24	0.65	61.17	PhiVc < Vu	33.537	101.7	8.5 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.31	21.50	-94.74	94.74	266.12	0.64	61.07	PhiVc < Vu	33.669	101.6	8.4 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.35	21.50	-94.77	94.77	270.00	0.63	60.98	PhiVc < Vu	33.798	101.5	8.4 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.39	21.50	-94.81	94.81	273.89	0.62	60.88	PhiVc < Vu	33.924	101.4	8.4 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.43	21.50	-94.84	94.84	277.78	0.61	60.79	PhiVc < Vu	34.048	101.3	8.3 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.48	21.50	-94.87	94.87	281.66	0.60	60.71	PhiVc < Vu	34.169	101.2	8.3 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.52	21.50	-94.91	94.91	285.55	0.60	60.62	PhiVc < Vu	34.288	101.2	8.3 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.56	21.50	-94.94	94.94	289.44	0.59	60.54	PhiVc < Vu	34.405	101.1	8.2 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.60	21.50	-94.97	94.97	293.33	0.58	60.45	PhiVc < Vu	34.519	101.0	8.2 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.64	21.50	-95.01	95.01	297.23	0.57	60.38	PhiVc < Vu	34.631	100.9	8.2 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.68	21.50	-95.04	95.04	301.12	0.57	60.30	PhiVc < Vu	34.742	100.8	8.2 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.72	21.50	-95.07	95.07	305.02	0.56	60.22	PhiVc < Vu	34.850	100.8	8.1 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.76	21.50	-95.11	95.11	308.91	0.55	60.15	PhiVc < Vu	34.957	100.7	8.1 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.80	21.50	-95.14	95.14	312.81	0.54	60.08	PhiVc < Vu	35.061	100.6	8.1 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.84	21.50	-95.17	95.17	316.71	0.54	60.01	PhiVc < Vu	35.164	100.6	8.1 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.89	21.50	-95.21	95.21	320.61	0.53	59.94	PhiVc < Vu	35.266	100.5	8.0 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.93	21.50	-95.24	95.24	324.52	0.53	59.87	PhiVc < Vu	35.365	100.4	8.0 7.0
+1.20D+1.60L+0.50S+1.60H	1	21.97	21.50	-95.27	95.27	328.42	0.52	59.81	PhiVc < Vu	35.463	100.4	8.0 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.01	21.50	-95.31	95.31	332.33	0.51	59.75	PhiVc < Vu	35.560	100.3	8.0 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.05	21.50	-95.34	95.34	336.23	0.51	59.68	PhiVc < Vu	35.655	100.2	8.0 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.09	21.50	-95.37	95.37	340.14	0.50	59.62	PhiVc < Vu	35.749	100.2	7.9 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.13	21.50	-95.41	95.41	344.05	0.50	59.57	PhiVc < Vu	35.841	100.1	7.9 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.17	21.50	-95.44	95.44	347.96	0.49	59.51	PhiVc < Vu	35.933	100.1	7.9 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.21	21.50	-95.47	95.47	351.87	0.49	59.45	PhiVc < Vu	36.022	100.0	7.9 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.25	21.50	-95.51	95.51	355.79	0.48	59.40	PhiVc < Vu	36.111	99.9	7.9 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.30	21.50	-95.54	95.54	359.70	0.48	59.34	PhiVc < Vu	36.199	99.9	7.8 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.34	21.50	-95.57	95.57	363.62	0.47	59.29	PhiVc < Vu	36.285	99.8	7.8 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.38	21.50	-95.61	95.61	367.54	0.47	59.24	PhiVc < Vu	36.370	99.8	7.8 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.42	21.50	-95.64	95.64	371.45	0.46	59.19	PhiVc < Vu	36.454	99.7	7.8 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.46	21.50	-95.67	95.67	375.37	0.46	59.14	PhiVc < Vu	36.537	99.7	7.8 7.0
+1.20D+1.60L+0.50S+1.60H	1	22.50	21.50	-95.71	95.71	379.30	0.45	59.09	PhiVc < Vu	36.619	99.6	7.8 7.0

Maximum Forces & Stresses for Load Combinations

Load Combination	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
Segment			Mu : Max	Phi*Mnx	Stress Ratio
MAXimum BENDING Envelope					
Span # 1	1	22.500	193.74	236.82	0.82
+1.40D+1.60H	1	22.500	122.56	236.82	0.52
+1.20D+0.50Lr+1.60L+1.60H	1	22.500	193.74	236.82	0.82
+1.20D+1.60L+0.50S+1.60H	1	22.500	193.74	236.82	0.82
+1.20D+1.60Lr+0.50L+1.60H	1	22.500	132.77	236.82	0.56
+1.20D+1.60Lr+0.50W+1.60H	1	22.500	105.05	236.82	0.44
+1.20D+0.50L+1.60S+1.60H	1	22.500	132.77	236.82	0.56
+1.20D+1.60S+0.50W+1.60H	1	22.500	105.05	236.82	0.44
+1.20D+0.50Lr+0.50L+W+1.60H	1	22.500	132.77	236.82	0.56
+1.20D+0.50L+0.50S+W+1.60H	1	22.500	132.77	236.82	0.56
+1.20D+0.50L+0.20S+E+1.60H	1	22.500	132.77	236.82	0.56

Project Title:
 Engineer:
 Project ID:
 Project Descr:

89/109

Concrete Beam

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Description : Beam along grid 18

Load Combination Segment	Span #	Location (ft) along Beam	Bending Stress Results (k-ft)		
			Mu : Max	Phi*Mnx	Stress Ratio
+0.90D+W+0.90H Span # 1	1	22.500	78.79	236.82	0.33
+0.90D+E+0.90H Span # 1	1	22.500	78.79	236.82	0.33

Overall Maximum Deflections

Load Combination	Span	Max. "+" Defl (in)	Location in Span (ft)	Load Combination	Max. "+" Defl (in)	Location in Span (ft)
+D+L+H	1	0.1308	11.250		0.0000	0.000

Subject: SHEAR CAPACITY OF JOISTS AND GIRDER Date: JUNE 2019

JOIST
~~FOR~~ ACI 318-14, 9.6.3.1

- AV MIN NOT REQUIRED WHEN $\frac{\phi V_c}{2} \leq V_u \leq \phi V_c$ IF MEMBER
 - SHALLOW DEPTH $h \leq 10 \rightarrow$ NONE COMPLY WITH THIS
 - INTEGRAL W/ SLAB $h \leq$ greater $\left\{ \begin{array}{l} 2.5 t_f = 2.5(5) = 12.5'' \rightarrow \text{NONE} \\ \text{OR} \\ 0.5 b_w = 0.5(28) = 14'' \rightarrow \text{NO FOR GIRDER} \end{array} \right.$
 - ONE WAY JOIST SYSTEM (SECTION 9.8)

9.8.1.1 - NON-PRESTRESSED JOISTS W/ MONOLITHIC SLAB, CAST SPAN IN ONE DIRECTION $\rightarrow$ YES FOR JOIST

9.8.1.2 - WIDTH OF RIBS AT LEAST 4 INCHES $\rightarrow$ YES

9.8.1.3 - OVERALL DEPTH $< 3.5 b_w \rightarrow h'' < 3.5(6) = 21'' \rightarrow$ YES

9.8.1.4 - CLEAR SPACING BETWEEN RIBS $\leq 30'' \rightarrow$ YES

9.8.1.5 $\phi V_c = 1.1 (0.75)(2)(4000)^{1/2}(6)(16.5) = 10,331$ LBS

9.8.1.6 AT LEAST ONE BAR @ BOTTOM CONTINUOUS.

∴ JOIST REQUIRE SHEAR STRENGTHENING FOR THOSE SPECIAL LOADING, FOR 4'-0" FROM END CLOSE TO GROUNDLINE (18)

GIRDER

SHEAR CAPACITY OF CONCRETE (ϕV_c) IS EXCEEDED BY V_u , IN ADDITION, STIRRUPS PROVIDED EXCEED MINIMUM SPACING REQUIRED, THEREFORE STRENGTHENING IS REQUIRED FOR 9'-0" ON EACH END (3 JOIST SPACES/BAYS)

THE FOLLOWING PAGES ILLUSTRATE THE CFRP STRENGTHENING

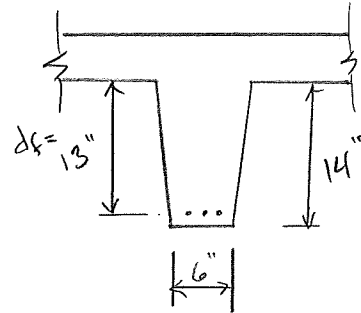
Subject: CFRP Shear Reinforcement

Date: July 2019

Joist Reinforcement

$f'_c = 4,000 \text{ psi}$ $C_E = 0.95 \text{ (interior)}$

CFU10T $E = 11300 \text{ ksi}$
 $f_{fu}^* = 171 \text{ ksi}$
 $\epsilon_{fu}^* = 0.013$
 $t_f = 0.021 \text{''}$



$f_{fv} = C_E f_{fu}^* = (0.95)(171) = 162.5 \text{ ksi}$
 $\epsilon_{fv} = C_E \epsilon_{fu}^* = (0.95)(0.013) = 0.01235$

Try 1 layer CFU10T

$\phi V_n = \phi V_f$ $V_f = \frac{A_{fv} f_{fe} d_{fv}}{s_f}$ $A_{fv} = 2 n t_f W_f = (2)(1)(0.021)(24) = 1.008 \text{ in}^2$

$f_{fe} = E_f \epsilon_{fe}$ $\epsilon_{fe} = k_v \epsilon_{fu} \leq 0.004$ $k_v = \frac{k_1 k_2 L_e}{468 \epsilon_{fu}} \leq 0.75$

$L_e = \frac{2500}{(n t_f E_f)^{0.58}} = \frac{2500}{[(1)(0.021)(11300000)]^{0.58}} = 1.91$

$k_1 = \left(\frac{f'_c}{4000} \right)^{2/3} = \left(\frac{4000}{4000} \right)^{2/3} = 1.0$

$k_2 = \frac{d_{fv} - L_e}{d_{fv}} = \frac{13 - 1.91}{13} = 0.853$

$k_v = \frac{(1.0)(0.853)(1.91)}{(468)(0.01235)} = 0.282$

$\epsilon_{fe} = (0.282)(0.01235) = 0.00348 \leq 0.004 \text{ (OK)}$

$f_{fe} = (11300 \text{ ksi})(0.00348) = 39.3 \text{ ksi}$ $V_f = \frac{(1.008)(39.3)(13)}{24} = 21.5 \text{ k}$

$\phi V_n = \underbrace{(0.75)}_{\text{CFRP}} (0.85) \underbrace{(21.5)}_{\text{CONCR}} + 10.3 = 24 \text{ k}$ 1 LAYER of CFU10T OK
 $> V_u = 15.5 \text{ k @ 31 W/ STD FLNG}$



Subject: CFRP Shear Reinforcement

Date: July 2019

Girder Reinforcement

$$f'_c = 4000 \text{ psi} \quad C_E = 0.95 \text{ (interior)}$$

$$\text{CFU40T} \quad E = 14980 \text{ ksi}$$

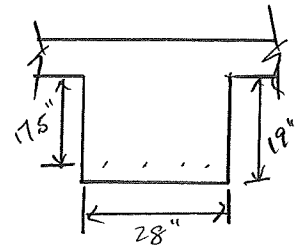
$$f_{fu}^* = 137.4 \text{ ksi}$$

$$\epsilon_{fu}^* = 0.0093$$

$$t_f = 0.073''$$

$$f_{fu} = C_E f_{fu}^* = (0.95)(137.4) = 130.5 \text{ ksi}$$

$$\epsilon_{fu} = C_E \epsilon_{fu}^* = (0.95)(0.0093) = 0.008835$$



Try 3 layers CFU40T $\rightarrow$ U-wrap 28" wide spaced $\rightarrow$ $w_f = 28''$, $s_f = 36''$
 $\Rightarrow$ SPACED AT 36" O.C. BETWEEN JOISTS.

$$\phi V_n = \phi V_f \quad V_f = \frac{A_{fu} f_{fu} d_{fu}}{s_f} \quad A_{fu} = 2n t_f w_f = (2)(3)(0.073)(28'') = 12.26 \text{ in}^2$$

$$f_{fe} = E_f \epsilon_{fe} \quad \epsilon_{fe} = k_v \epsilon_{fu} \leq 0.004 \quad k_v = \frac{k_1 k_2 L_e}{468 \epsilon_{fu}} \leq 0.75$$

$$L_e = \frac{2500}{(n t_f E_f)^{0.58}} = \frac{2500}{[(3)(0.073)(14980000)]^{0.58}} = 0.416$$

$$k_1 = \left(\frac{f'_c}{4000} \right)^{2/3} = \left(\frac{4000}{4000} \right)^{2/3} = 1.0$$

$$k_2 = \frac{d_{fu} - L_e}{d_{fu}} = \frac{17.5 - 0.416}{17.5} = 0.976$$

$$k_v = \frac{(1.0)(0.976)(0.416)}{(468)(0.008835)} = 0.0982 < 0.75$$

$$\epsilon_{fe} = (0.0982)(0.008835) = 0.000868 < 0.004$$

$$f_{fe} = (14980)(0.000868) = 13 \text{ ksi}$$

$$V_f = \frac{(12.26)(13)(17.5)}{36''} = 77.5 \text{ k}$$

$$\phi V_n = \overbrace{(0.75)(0.85)(77.5)}^{\text{CFRP}} + \overbrace{57}^{\text{CONCR}} \text{ k}$$

$$\phi V_n = 49.47 + 57 \text{ k}$$

$$\phi V_n = 106.4 \text{ k} > V_u 95.71 \text{ k} \text{ (NEGLECTING } \phi V_s)$$

OK

3 layers of CFU40T ok
28" wide @ 36" o.c. BETWEEN JOISTS.



Subject: COLUMN STRENGTH

Date: JUNE 2019

LOADS

→ ROOF TRIP AREA $\frac{(16' + 24')}{2} (28') = 560'$
DL = 100 psf (CONSERVATIVE) + JOIST & GIRDERS SELF WT.

LL = 20 psf $\left\{ \begin{array}{l} (1.2 - 0.001(560)) = 12.8 \text{ psf FULL ROOF} \\ ((1.2 - 0.001(560/2)) = 18.4 \text{ psf HALF AREA} \end{array} \right.$
JOISTS @ TRIP AREA ✓ GIRDERS w/o SLAB

$$P_{DL} = \frac{1}{1000} \left(100 \times 560 + 88 \text{ psf} \times (28' - 28'/2) \times (2 + 3.5) + \frac{28 \times 19}{144} \times 150 \times \frac{(16 + 24)}{2} \right)$$

$$= 56 + 12.43 \text{ K} + 11.1 \text{ K} + 11.1 \text{ K}$$

$P_{DL \text{ ROOF}} = 90.63$

$$P_{LL} = \left\{ \begin{array}{l} 560 \times 12.8 \text{ psf} = 7.17 \text{ K} \leftarrow \text{GIRDERS} \\ 280 \times 18.4 \text{ psf} = 5.15 \text{ K} \end{array} \right.$$

→ SIXTH FLOOR

TRIP AREA = $\frac{(16 + 24)}{2} (28) = 560'$

DL = 100 psf + JOIST & GIRDERS SELF WT.
✓ ASSUMED

LL = 80 psf $\times \left(0.25 + \frac{15}{\sqrt{(4)(560)}} \right) = 45.4 \text{ psf} < 0.4 L_o$
(FULL AT) $\leftarrow \text{COLUMN supports TWO FLOORS} = 32 \text{ psf OK}$

LL = 80 psf $\times \left(0.25 + \frac{15}{\sqrt{(4)(280)}} \right) = 55.9 \text{ psf}$
(1/2 AT) $\leftarrow \text{JOISTS @ TRIP AREA}$

$$P_{DL} = \frac{1}{1000} \left(100 \times 560 + 88 \text{ psf} \times (28' - 28'/2) \times (2 + 3.5) + \frac{28 \times 37}{144} \times 150 \times \frac{(16 + 24)}{2} \right)$$

$$P_{DL \text{ SIXTH}} = 56 \text{ K} + 12.43 \text{ K} + 21.58 \text{ K} + 11.1 \text{ K}$$

$P_{DL \text{ SIXTH}} = 101.11 \text{ K}$

$$P_{LL \text{ SIXTH}} = 45.4 \text{ psf} \left(\frac{560}{1000} \right) = 25.4 \text{ K} > 55.9 \left(\frac{280}{1000} \right) = 15.64 \text{ K}$$

Subject: COLUMN STRENGTH CONTD.

Date: JUNE 2019

5TH FLOOR

GIRDER REACTIONS

① DL = 43.81K (DOWN 0 & E)

② DL = $(100 \text{ psf} \times \frac{28 \times 24}{2} + 88 \text{ psf} (\frac{28 - 28}{12}) \times (3.5) + \frac{28 \times 19}{144} \times 150 \times \frac{24}{2} + \frac{28 \times 19}{144} \times 150 \times 28) \frac{1}{1000}$

② DL = 33.6K + 7.2K + 6.65K + 11.1K

② DL = 59.24K

DL → ① + ② DL = 43.81K + 59.24K = 103.0K

LIVE

L = 26.93K + 80 $(0.25 + \frac{15}{(4(28 \times \frac{24}{2}))^{1/2}})$ $\frac{28 \times 24}{2} =$

L = 26.93K* + 17.72K

L = 44.65K* (CONSERVATIVE AS SOME OF THE FLOOR LIVE COULD BE REDUCED)

ALSO A LIVE LOAD MOMENT @ 5TH FLR OF $26.93 \times \frac{18''}{(12)''} = 20.2$

SUMMARY

	DEAD	LIVE
ROOF	90.63K	7.2K
6TH	101.11K	25.4K
5TH	103K	44.65K

COLUMN IS @ 43.9% OF ITS CAPACITY, (OK) SEE OUTPUT NEXT PAGE

Project Title:
 Engineer:
 Project ID:
 Project Descr:

95/109

Concrete Column

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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Code References

Calculations per ACI 318-14, IBC 2018, CBC 2019, ASCE 7-10

Load Combinations Used : ASCE 7-16

General Information

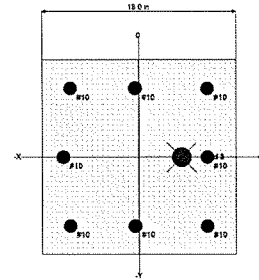
f'_c : Concrete 28 day strength = 5.0 ksi
 E = 4,286.83 ksi
 Density = 150.0 pcf
 β = 0.80
 f_y - Main Rebar = 60.0 ksi
 E - Main Rebar = 29,000.0 ksi
 Allow. Reinforcing Limits *ASTM A615 Bars Used*
 Min. Reinf. = 1.0 %
 Max. Reinf. = 8.0 %

Overall Column Height = 14.0 ft
 End Fixity Top Fixed, Bottom Fixed
 Brace condition for deflection (buckling) along columns :
 X-X (width) axis :
 Unbraced Length for X-X Axis buckling = 14.0 ft, $K = 0.7883$ (adjacent mem
 Y-Y (depth) axis :
 Unbraced Length for Y-Y Axis buckling = 14.0 ft, $K = 0.8767$ (adjacent mem)

Column Cross Section

Column Dimensions : 18.0in Square Column, Column Edge to Rebar Edge Cover = 2.0in

Column Reinforcing : 4 - #10 bars @ corners,, 1.0 - #10 bars top & bottom between corner bars, 1.0 - #10 bars left & right between corner bars



Applied Loads

Entered loads are factored per load combinations specified by user.

Column self weight included : 4,725.0 lbs * Dead Load Factor

AXIAL LOADS . . .

6th flr: Axial Load at 14.0 ft above base, $X_{ecc} = 4.0$ in, $D = 101.10$, $L = 25.40$ k

roof: Axial Load at 14.0 ft above base, $X_{ecc} = 4.0$ in, $D = 90.630$, $LR = 8.0$ k

5th floor: Axial Load at 14.0 ft above base, $X_{ecc} = 4.0$ in, $D = 103.0$, $L = 45.0$ k

BENDING LOADS . . .

floor moment: Moment acting about X-X axis at 13.90 ft, $L = 20.20$ k-ft

DESIGN SUMMARY

Load Combination +1.20D+0.50Lr+1.60L+1.60H
 Location of max. above base 13.906 ft
Maximum Stress Ratio 0.467 : 1
 $\text{Ratio} = (P_u^2 + M_u^2)^{.5} / (\phi P_n^2 + \phi M_n^2)^{.5}$
 $P_u = 475.986$ k $\phi * P_n = 1,010.58$ k
 $M_{u-x} = -31.410$ k-ft $\phi * M_{n-x} = 66.073$ k-ft
 $M_{u-y} = 0.0$ k-ft $\phi * M_{n-y} = 0.05948$ k-ft
 M_u Angle = 180.0 deg
 M_u at Angle = 31.410 k-ft ϕM_n at Angle = 68.196 k-ft
 P_n & M_n values located at P_u - M_u vector intersection with capacity curve
Column Capacities . . .
 P_{nmax} : Nominal Max. Compressive Axial Capacity 1,943.42 k
 P_{nmin} : Nominal Min. Tension Axial Capacity k
 ϕP_n , max : Usable Compressive Axial Capacity 1,010.58 k
 ϕP_n , min : Usable Tension Axial Capacity k

Maximum SERVICE Load Reactions . .

Top along Y-Y 0.0 k Bottom along Y-Y 0.0 k
 Top along X-X 0.06141 k Bottom along X-X 0.06141 k

Maximum SERVICE Load Deflections . . .

Along Y-Y 0.000190 in at 9.302 ft above base
 for load combination : +D+L+H

Along X-X 0.0in at 0.0 ft above base
 for load combination :

General Section Information . $\phi = 0.650$ $\beta = 0.80$ $\theta = 0.80$

ρ : % Reinforcing 3.136 % Rebar % Ok
 Reinforcing Area 10.160 in²
 Concrete Area 324.0 in²

Project Title:
 Engineer:
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96/109

Concrete Column

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Description: column at grids D-18 and E-18 (18"x18" w/ 8#10)

Governing Load Combination Results

Governing Factored Load Combination	Moment		Dist. from base ft	Axial Load k		Bending Analysis k-ft						Utilization	
	X-X	Y-Y		Pu	$\phi * Pn$	δx	$\delta x * Mu_x$	δy	$\delta y * Mu_y$	Alpha (deg)	δMu	ϕMn	Ratio
+1.40D+1.60H			13.91	419.24	1,010.58					0.000			0.415
+1.20D+0.50Lr+1.60L+1.60H	Actual		13.91	475.99	1,010.58	1.000	-31.41			180.000	31.41	68.20	0.467
+1.20D+1.60L+0.50S+1.60H	Actual		13.91	471.99	1,010.58	1.000	-31.41			180.000	31.41	68.20	0.464
+1.20D+1.60Lr+L+1.60H	Actual		13.91	442.55	1,010.58	1.000	-19.63			180.000	19.63	46.47	0.434
+1.20D+1.60Lr+0.50W+1.60H			13.91	372.15	1,010.58					0.000			0.368
+1.20D+L+1.60S+1.60H	Actual		13.91	429.75	1,010.58	1.000	-19.63			180.000	19.63	46.47	0.425
+1.20D+1.60S+0.50W+1.60H			13.91	359.35	1,010.58					0.000			0.356
+1.20D+0.50Lr+L+W+1.60H	Actual		13.91	433.75	1,010.58	1.000	-19.63			180.000	19.63	46.47	0.428
+1.20D+L+0.50S+W+1.60H	Actual		13.91	429.75	1,010.58	1.000	-19.63			180.000	19.63	46.47	0.425
+0.90D+W+1.60H			13.91	269.51	1,010.58					0.000			0.267
+1.20D+L+0.20S+E+1.90H	Actual		13.91	429.75	1,010.58	1.000	-19.63			180.000	19.63	46.47	0.425
+0.90D+E+0.90H			13.91	269.51	1,010.58					0.000			0.267

Maximum Reactions

Note: Only non-zero reactions are listed.

Load Combination	X-X Axis Reaction		k	Y-Y Axis Reaction		Axial Reaction @ Base	My - End Moments k-ft		Mx - End Moments	
	@ Base	@ Top		@ Base	@ Top		@ Base	@ Top	@ Base	@ Top
+D+H						299.455				
+D+L+H				0.061	0.061	369.855	0.286	19.626		
+D+Lr+H						307.455				
+D+S+H						299.455				
+D+0.750Lr+0.750L+H				0.046	0.046	358.255	0.214	14.719		
+D+0.750L+0.750S+H				0.046	0.046	352.255	0.214	14.719		
+D+0.60W+H						299.455				
+D+0.750Lr+0.450W+H						305.455				
+D+0.750S+0.450W+H						299.455				
+0.60D+0.60W+0.60H						179.673				
+D+0.70E+0.60H						299.455				
+D+0.750L+0.750S+0.5250E+H				0.046	0.046	352.255	0.214	14.719		
+0.60D+0.70E+H						179.673				
D Only						299.455				
Lr Only						8.000				
L Only				0.061	0.061	70.400	0.286	19.626		
S Only										
W Only										
E Only										
H Only										

Note: Only non-zero reactions are listed.

Maximum Moment Reactions

Load Combination	Moment About X-X Axis			Moment About Y-Y Axis	
	@ Base	@ Top		@ Base	@ Top
+D+H			k-ft		k-ft
+D+L+H	0.286	19.626	k-ft		k-ft
+D+Lr+H			k-ft		k-ft
+D+S+H			k-ft		k-ft
+D+0.750Lr+0.750L+H	0.214	14.719	k-ft		k-ft
+D+0.750L+0.750S+H	0.214	14.719	k-ft		k-ft
+D+0.60W+H			k-ft		k-ft
+D+0.750Lr+0.450W+H			k-ft		k-ft
+D+0.750S+0.450W+H			k-ft		k-ft
+0.60D+0.60W+0.60H			k-ft		k-ft
+D+0.70E+0.60H			k-ft		k-ft
+D+0.750L+0.750S+0.5250E+H	0.214	14.719	k-ft		k-ft
+0.60D+0.70E+H			k-ft		k-ft
D Only			k-ft		k-ft
Lr Only			k-ft		k-ft
L Only	0.286	19.626	k-ft		k-ft
S Only			k-ft		k-ft
W Only			k-ft		k-ft

Project Title:
 Engineer:
 Project ID:
 Project Descr:

97/109

Concrete Column

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Maximum Moment Reactions

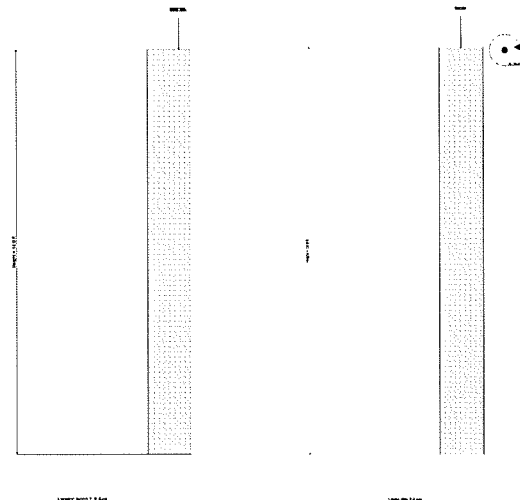
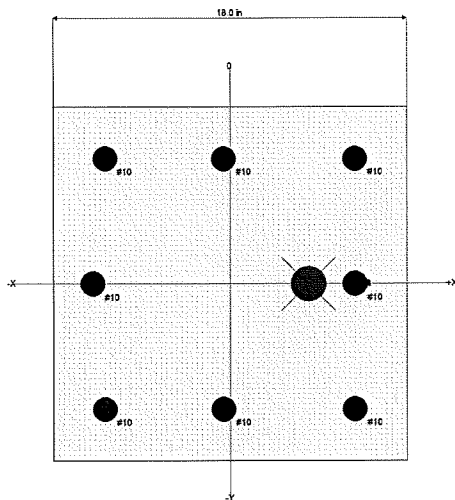
Note: Only non-zero reactions are listed.

Load Combination	Moment About X-X Axis		Moment About Y-Y Axis	
	@ Base	@ Top	@ Base	@ Top
E Only		k-ft		k-ft
H Only		k-ft		k-ft

Maximum Deflections for Load Combinations

Load Combination	Max. X-X Deflection	Distance	Max. Y-Y Deflection	Distance
+D+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+L+H	0.0000 in	0.000 ft	0.000 in	9.302 ft
+D+Lr+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+S+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750Lr+0.750L+H	0.0000 in	0.000 ft	0.000 in	9.302 ft
+D+0.750L+0.750S+H	0.0000 in	0.000 ft	0.000 in	9.302 ft
+D+0.60W+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750Lr+0.450W+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750S+0.450W+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+0.60D+0.60W+0.60H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.70E+0.60H	0.0000 in	0.000 ft	0.000 in	0.000 ft
+D+0.750L+0.750S+0.5250E+H	0.0000 in	0.000 ft	0.000 in	9.302 ft
+0.60D+0.70E+H	0.0000 in	0.000 ft	0.000 in	0.000 ft
D Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
Lr Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
L Only	0.0000 in	0.000 ft	0.000 in	9.302 ft
S Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
W Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
E Only	0.0000 in	0.000 ft	0.000 in	0.000 ft
H Only	0.0000 in	0.000 ft	0.000 in	0.000 ft

Sketches



Interaction Diagrams

Project Title:
Engineer:
Project ID:
Project Descr:

98/109

Concrete Column

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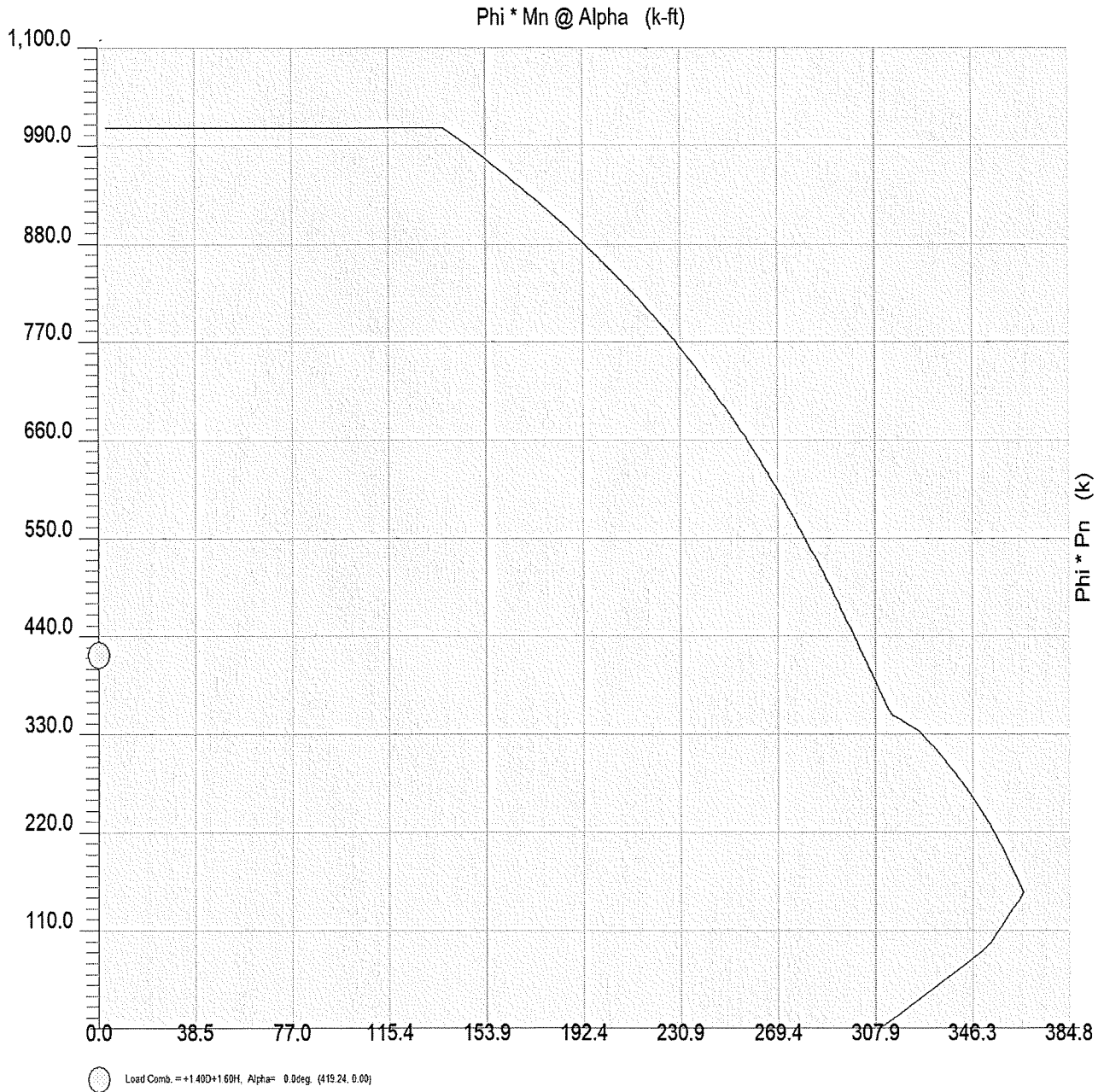
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

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Concrete Column

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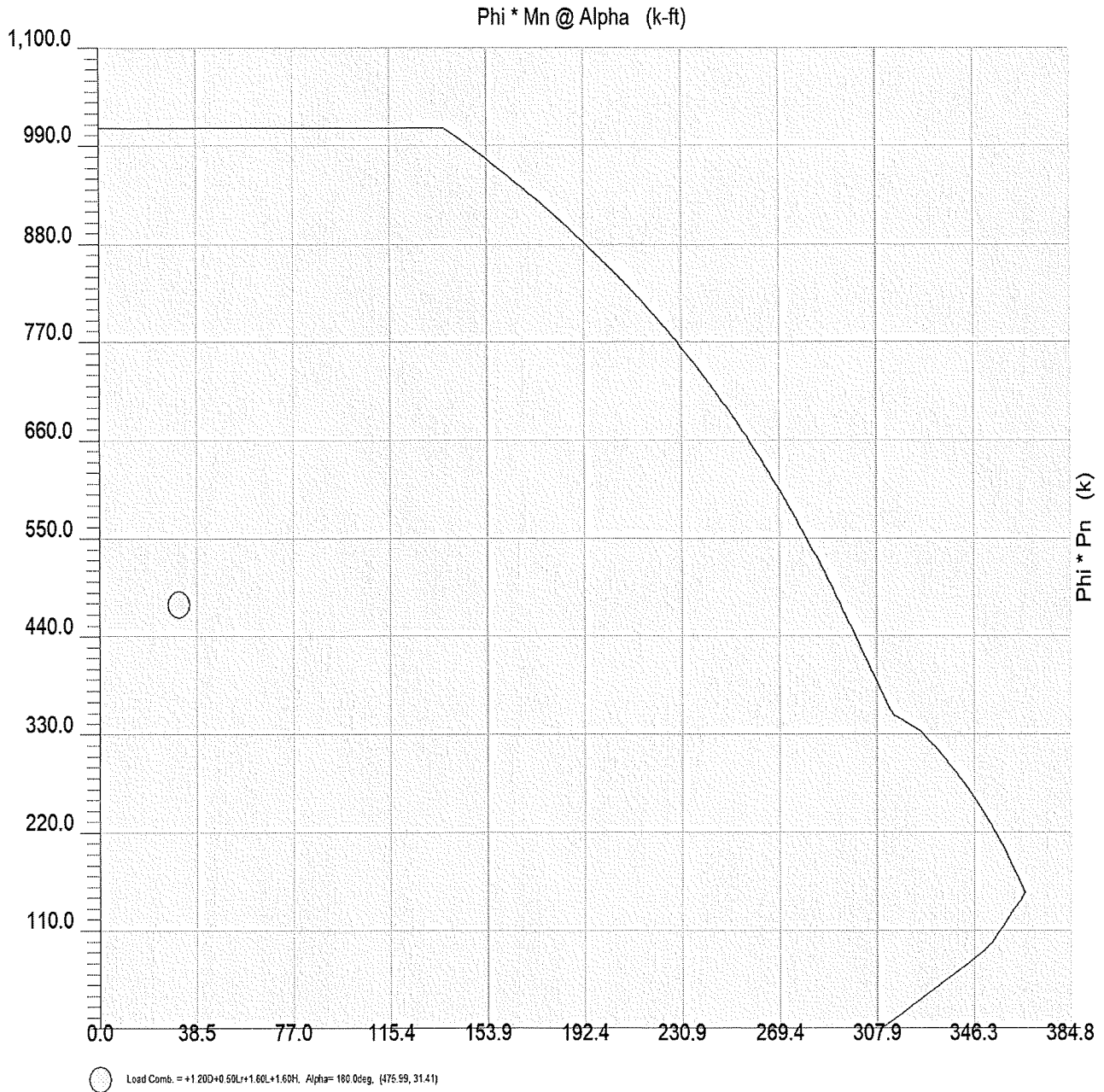
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
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Concrete Column

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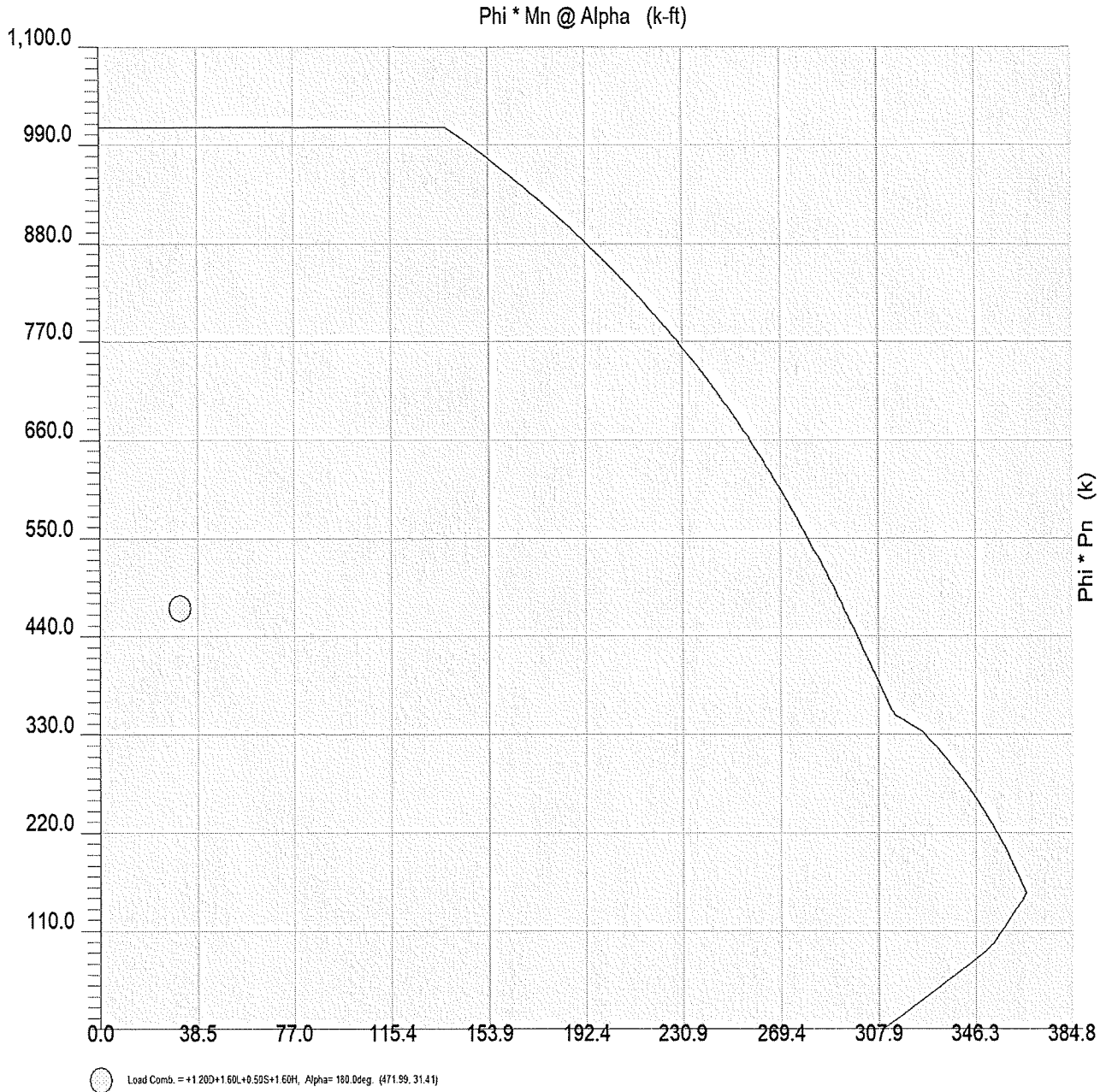
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
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10/1/09

Concrete Column

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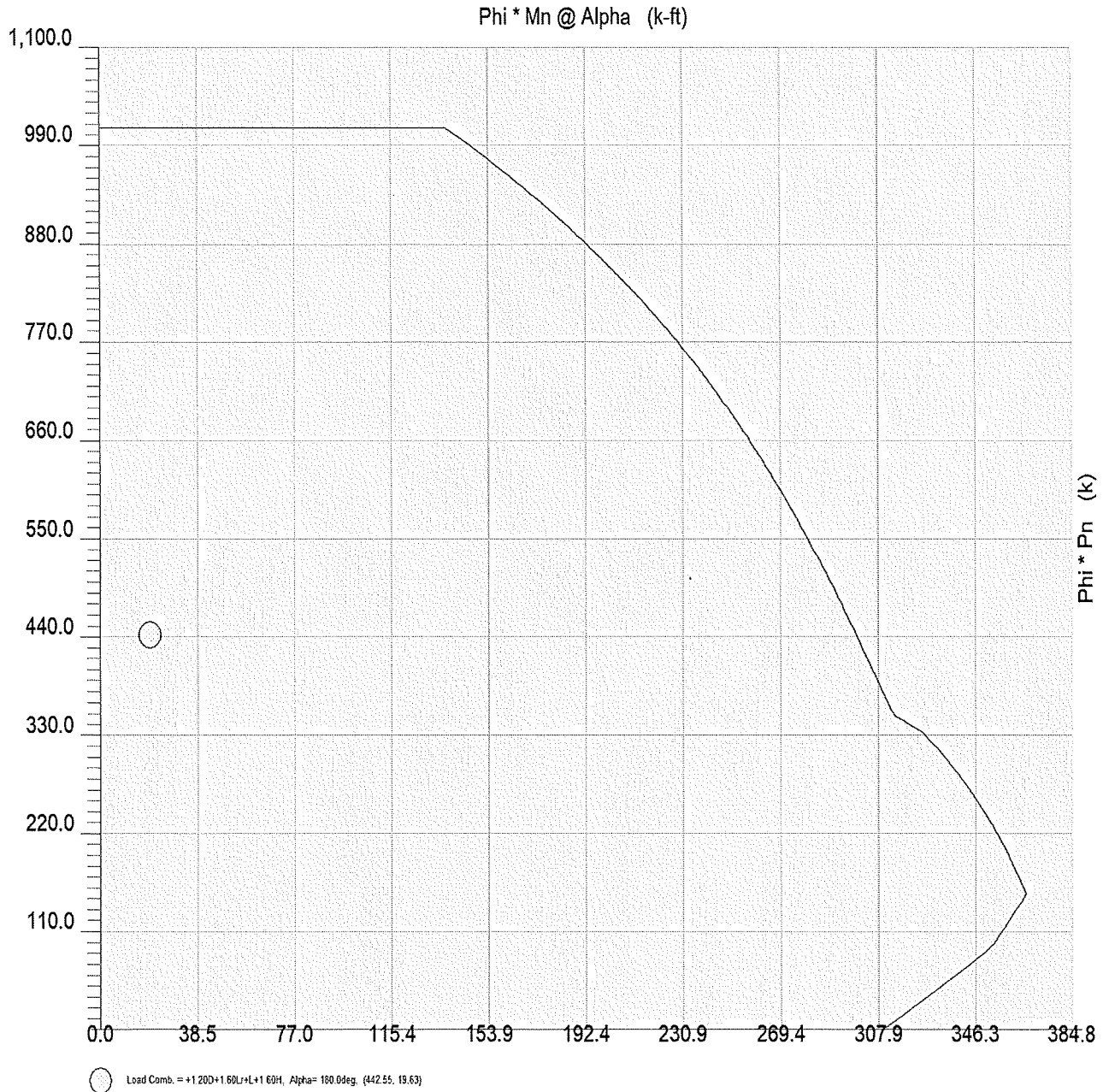
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

102/109

Concrete Column

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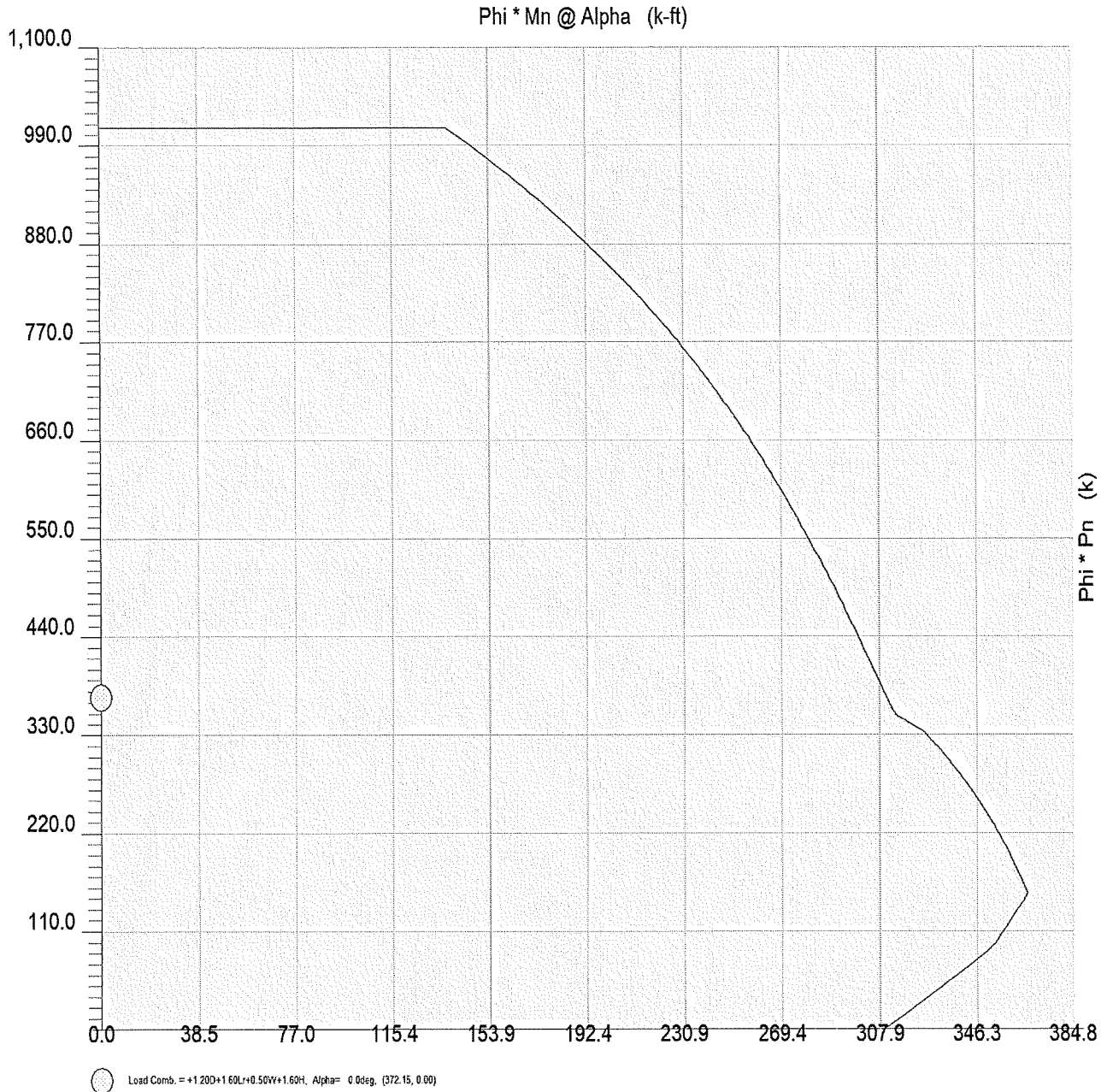
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

103/109

Concrete Column

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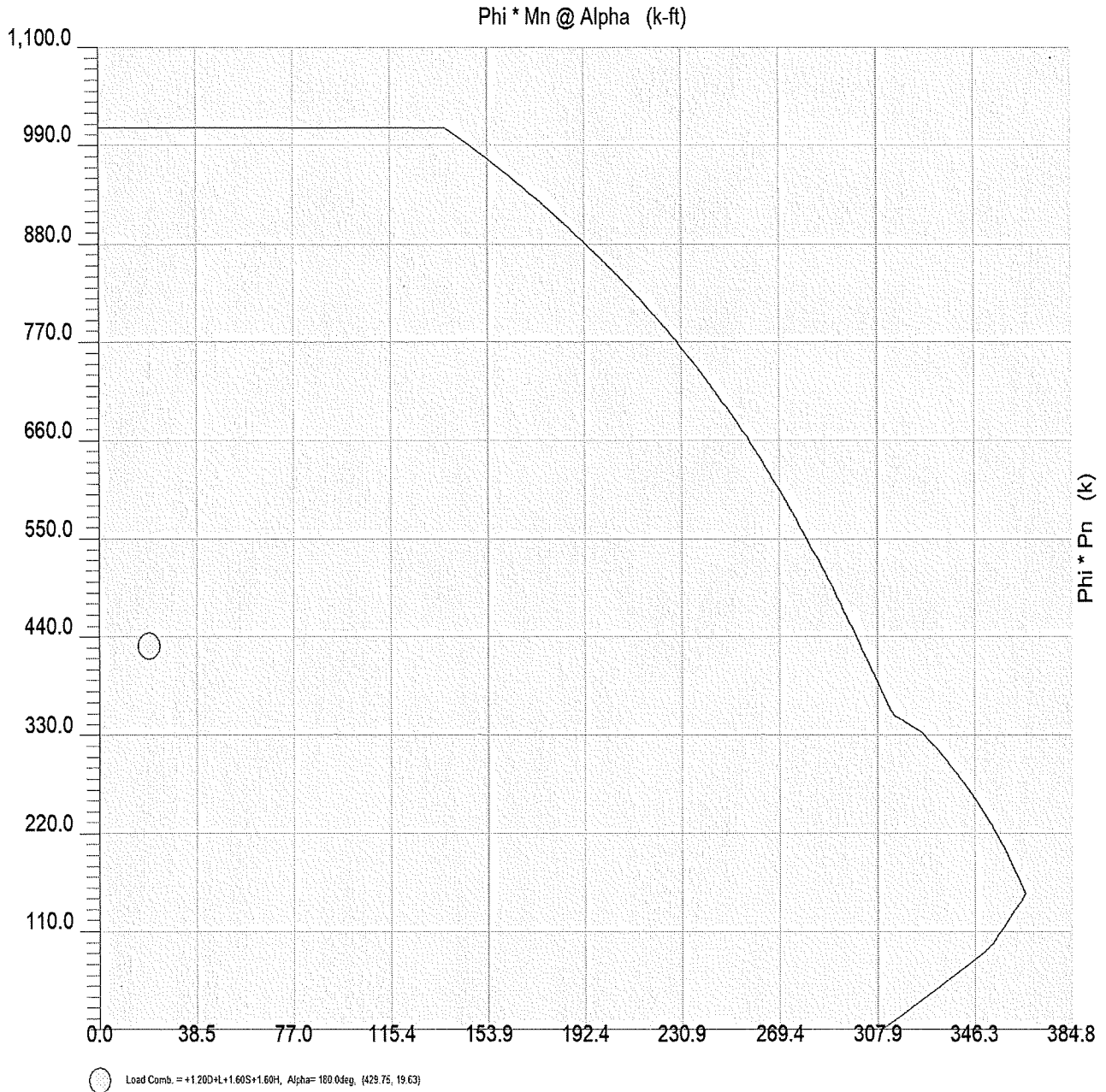
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

104/109

Concrete Column

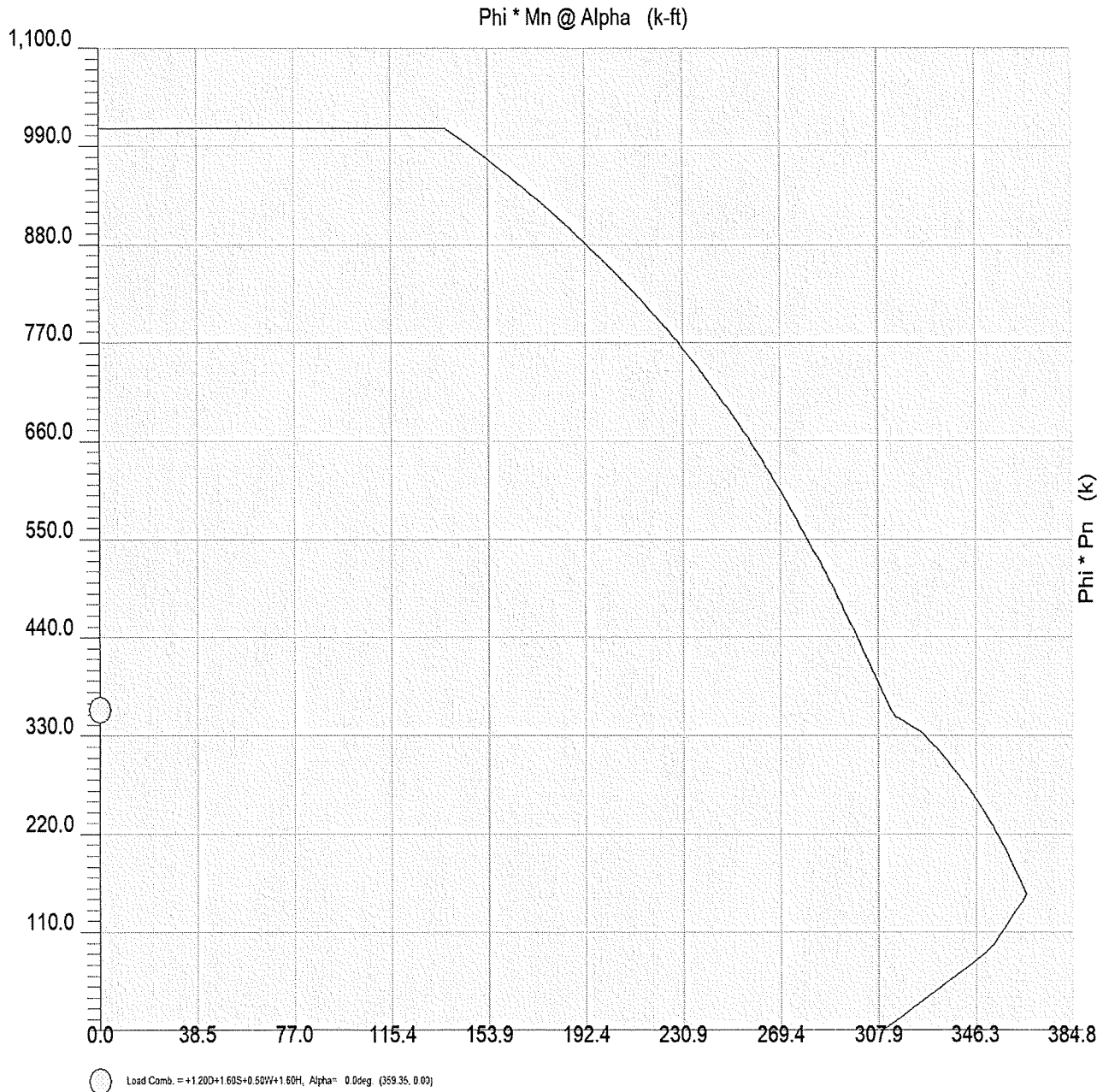
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

105/109

Concrete Column

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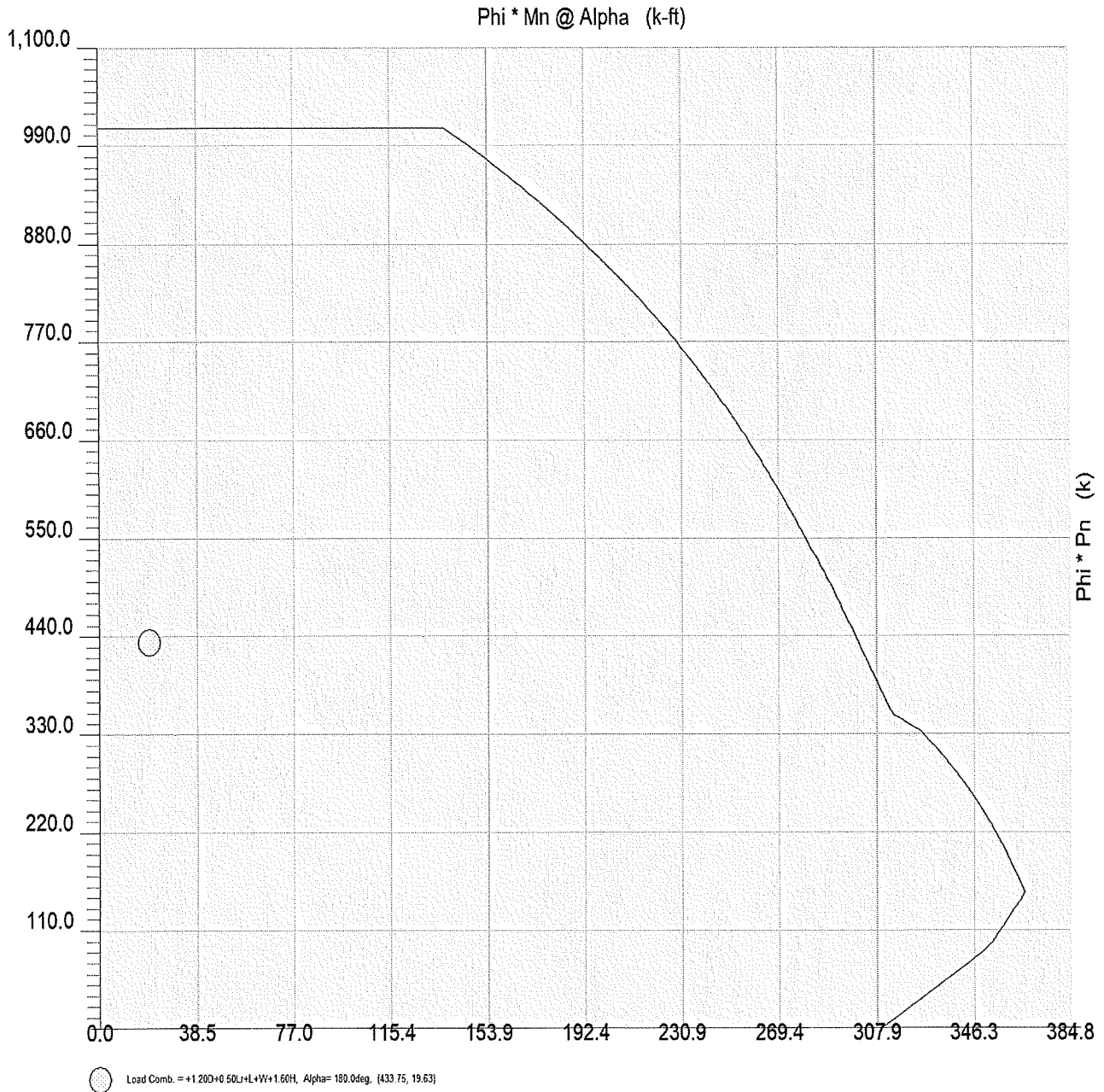
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Description: column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

106/109

Concrete Column

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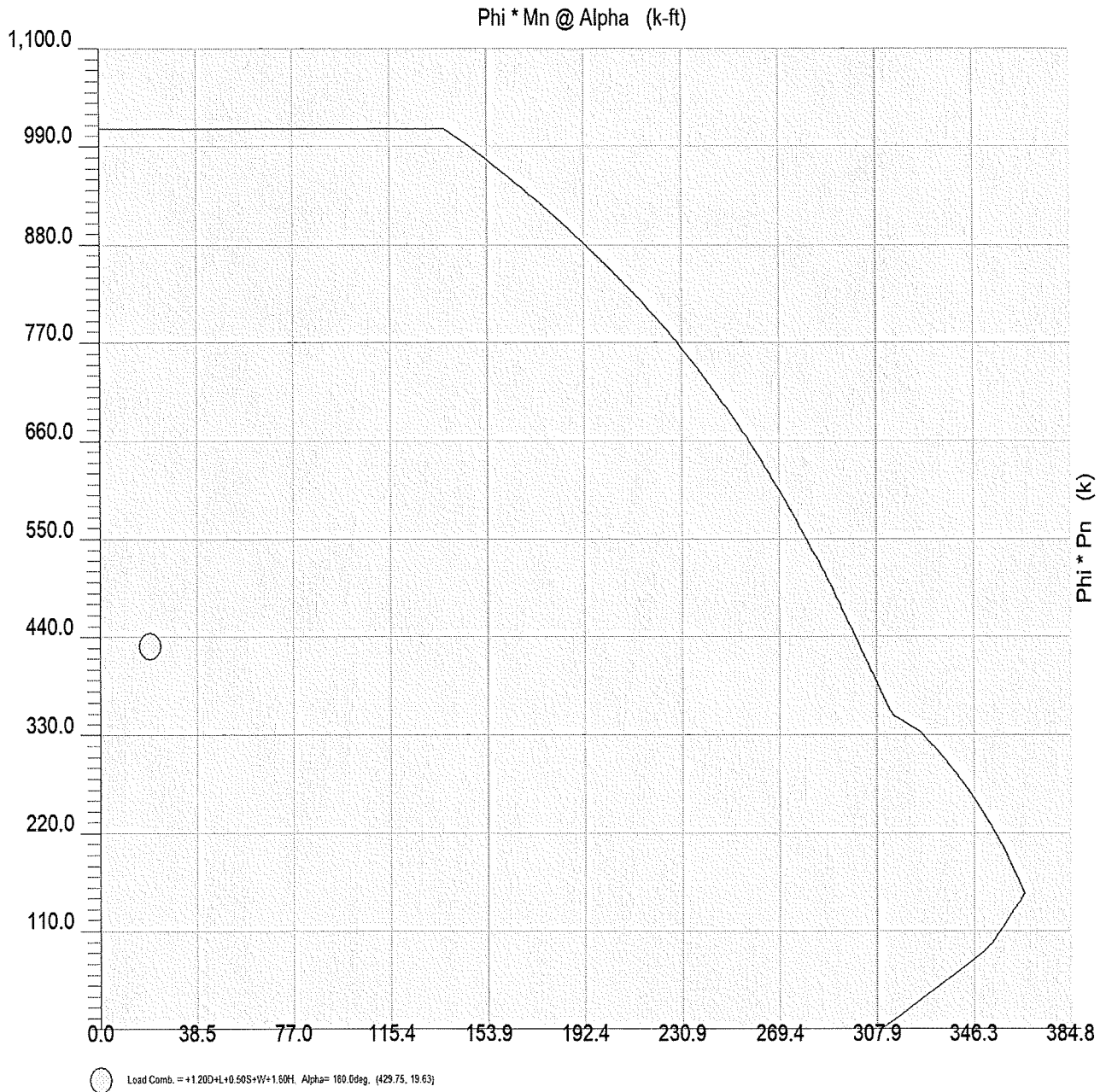
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

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Concrete Column

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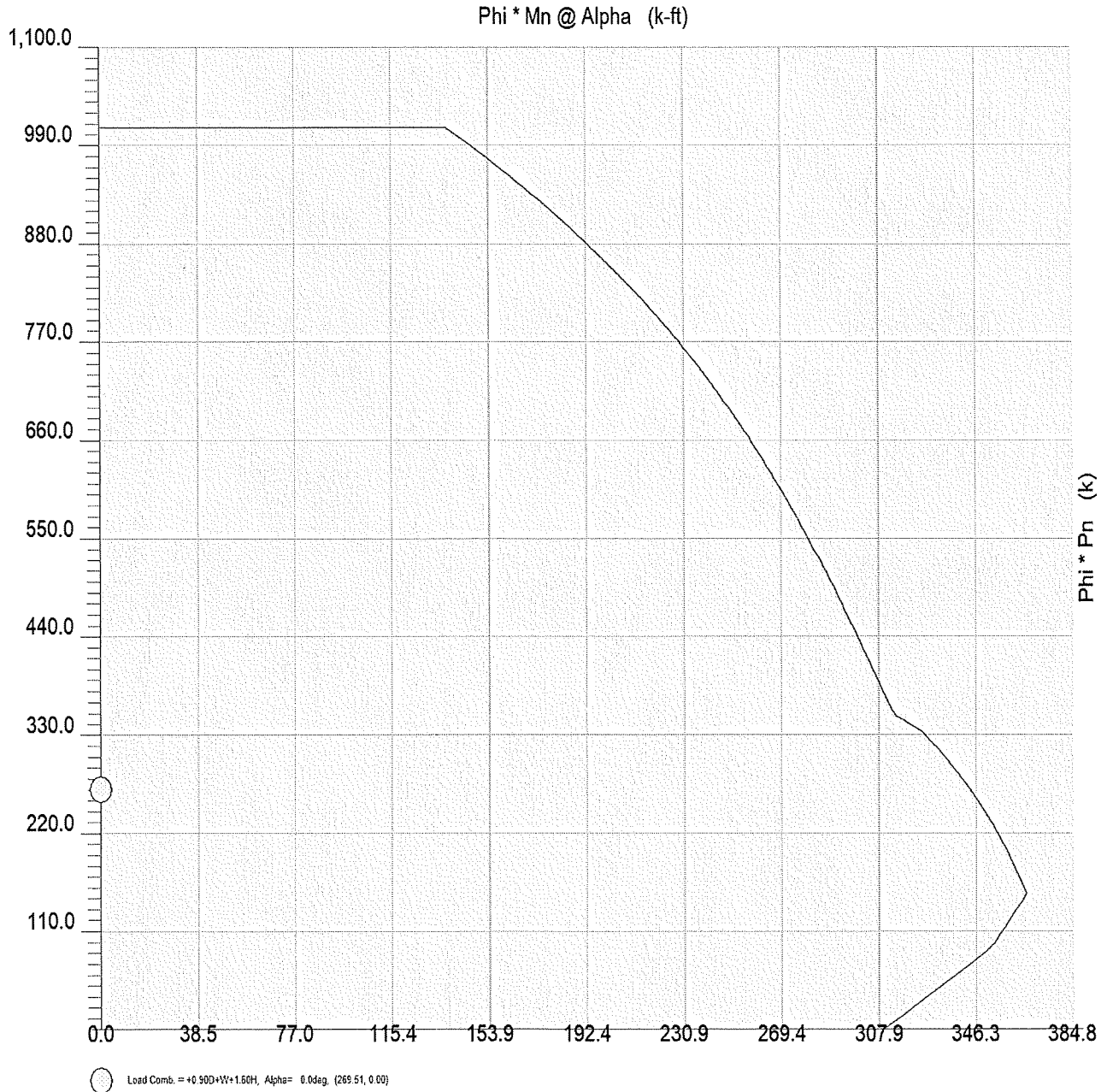
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Description : column at grids D-18 and E-18 (18"x18" w/ 8#10)

Concrete Column P-M Interaction Diagram



Project Title:
Engineer:
Project ID:
Project Descr:

108/109

Concrete Column

File = P:\2018\180114\Structural\180114.001 Pma County 5th floor TI - floor check\180114.001.ec6 .

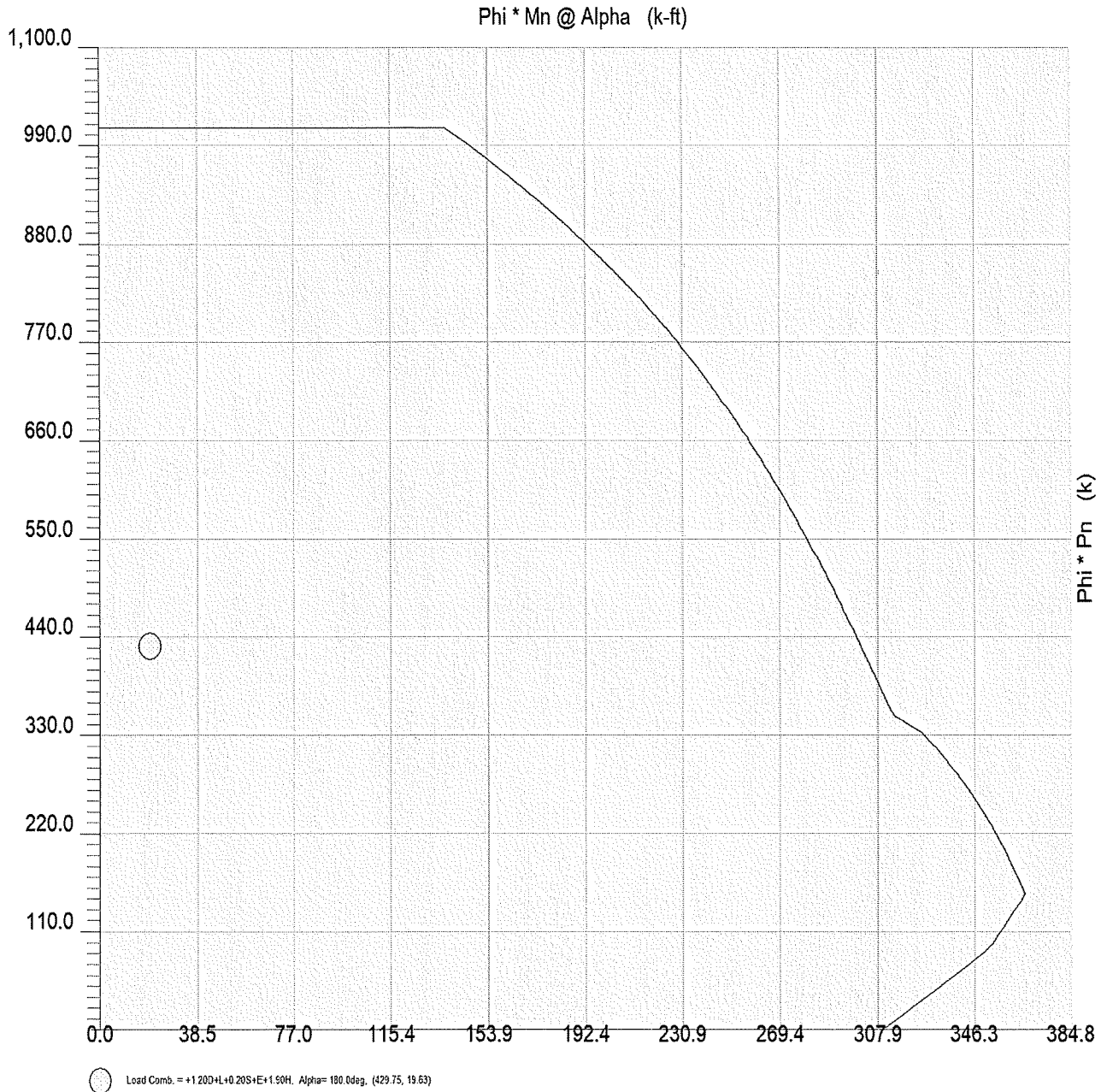
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Concrete Column P-M Interaction Diagram



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Concrete Column

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