

Column Force : Service Load Env.

Story	Column	Load Case/Combo	P	V2	V3	T	M2	M3
			tonf	tonf	tonf	tonf-m	tonf-m	tonf-m
Story3	C3	WSD Env Min	-363.6368	-0.2189	0.2874	-0.0955	-3.1513	-0.354
Story3	C4	WSD Env Min	-343.7434	-0.4912	0.5156	-0.0955	-2.4678	-0.8123
Story3	C5	WSD Env Min	-209.7458	-0.0841	-1.8544	-0.0597	-4.0085	-0.1246
Story3	C6	WSD Env Min	-195.8648	-0.5136	-1.655	-0.0597	-3.6186	-0.808
Story3	C7	WSD Env Min	-176.834	-0.6995	-0.4787	-0.0597	-1.5631	-1.0258
Story3	C8	WSD Env Min	-354.144	-0.858	0.8335	-0.0955	-1.4805	-1.277
Story3	C9	WSD Env Min	-228.7792	0.4741	0.8759	-0.0955	-1.6835	0.5604
Story3	C10	WSD Env Min	-85.9692	-1.6557	-3.7444	-0.0955	-9.9225	-2.3295
Story3	C11	WSD Env Min	-253.171	-2.4585	-7.6036	-0.0955	-15.2412	-3.5005
Story3	C12	WSD Env Min	-324.278	-0.4757	-8.3732	-0.0955	-16.2485	-0.7861
Story3	C13	WSD Env Min	-301.2986	-0.3878	-7.6918	-0.0955	-14.9478	-0.6634
Story3	C14	WSD Env Min	-256.4055	-0.6496	-6.0638	-0.0955	-12.0224	-1.0051
Story3	C15	WSD Env Min	-290.8316	-0.5948	-8.9126	-0.0955	-15.885	-0.9534
Story3	C16	WSD Env Min	-281.6652	-0.4981	-8.2252	-0.0955	-14.9449	-0.8173
Story3	C17	WSD Env Min	-271.8261	-0.4655	-8.0776	-0.0955	-14.7268	-0.8015
Story3	C18	WSD Env Min	-130.9309	-0.3566	-5.1751	-0.0955	-7.569	-2.6756
Story3	C19	WSD Env Min	-298.6978	1.5898	-0.6801	-0.0955	-1.1333	0.7757
Story3	C20	WSD Env Min	-92.2548	1.0735	-0.6769	-0.0597	-1.8509	1.4439
Story3	C21	WSD Env Min	-88.0743	-1.9822	-0.3474	-0.0597	-1.092	-2.8325
Story3	C22	WSD Env Min	-167.7708	-2.7617	-2.7353	-0.0955	-3.9452	-5.2134
Story3	C23	WSD Env Min	-287.0433	1.0996	-1.3694	-0.0955	-2.15	0.167
Story3	C24	WSD Env Min	-309.7706	2.359	-0.8979	-0.0955	-1.4799	1.8516
Story3	C25	WSD Env Min	-263.1262	-4.7173	-0.6603	-0.0955	-1.1109	-7.8105
Story3	C26	WSD Env Min	-136.9296	-0.5822	-0.5839	-0.0597	-1.4572	-0.9204
Story3	C27	WSD Env Min	-171.654	-1.7581	-0.4827	-0.0597	-1.3301	-2.5737
Story3	C28	WSD Env Min	-316.054	-5.1967	-1.9209	-0.0955	-2.8837	-8.6786
Story3	C29	WSD Env Min	-307.1843	2.4216	-0.7443	-0.0955	-1.2586	1.5145
Story3	C30	WSD Env Min	-306.8166	-3.6499	-0.451	-0.0955	-0.8446	-7.2721
Story3	C31	WSD Env Min	-199.651	-1.2461	-0.8486	-0.0597	-1.9436	-1.9022
Story3	C32	WSD Env Min	-104.5782	1.4583	-0.9582	-0.0597	-2.2724	1.9461
Story3	C33	WSD Env Min	-90.0939	-0.7493	0.9143	-0.0955	1.1045	-3.9878
Story2	C1	WSD Env Min	-117.1645	-2.2411	-0.7546	-0.0414	-2.9068	-2.2471
Story2	C2	WSD Env Min	-192.7412	-3.0367	-0.6025	-0.0662	-6.7703	-3.1457
Story2	C3	WSD Env Min	-417.912	-0.5412	-0.6236	-0.0662	-7.3123	-1.3848
Story2	C4	WSD Env Min	-395.23	-0.3877	-0.4485	-0.0662	-6.5241	-0.73
Story2	C5	WSD Env Min	-240.3646	-0.4641	-1.0015	-0.0414	-2.9712	-1.2848
Story2	C6	WSD Env Min	-224.7482	-0.3517	-0.7912	-0.0414	-2.422	-0.573
Story2	C7	WSD Env Min	-202.434	-0.5173	-0.3072	-0.0414	-1.6626	-0.8345
Story2	C8	WSD Env Min	-408.1432	-0.6355	0.5488	-0.0662	-3.3555	-1.0643
Story2	C9	WSD Env Min	-268.3418	0.3103	0.7375	-0.0662	-3.0227	0.1668
Story2	C10	WSD Env Min	-97.4539	-1.5083	-1.359	-0.0662	-6.7012	-2.3863
Story2	C11	WSD Env Min	-291.1804	-1.9519	-2.1946	-0.0662	-6.2777	-2.833
Story2	C12	WSD Env Min	-371.2	-0.4017	-1.1919	-0.0662	-4.0974	-0.8216
Story2	C13	WSD Env Min	-345.5254	-0.3694	-0.9192	-0.0662	-3.2103	-0.7993
Story2	C14	WSD Env Min	-294.2222	-0.7382	-1.4969	-0.0662	-4.0483	-1.3898
Story2	C15	WSD Env Min	-332.9567	-0.4658	-3.1556	-0.0662	-5.2177	-0.8901
Story2	C16	WSD Env Min	-322.7753	-0.4657	-3.1361	-0.0662	-5.7723	-0.9365
Story2	C17	WSD Env Min	-312.5338	-0.2609	-3.9599	-0.0662	-7.5734	-0.5212
Story2	C18	WSD Env Min	-149.2443	-0.3605	-3.6773	-0.0662	-4.9634	-3.4179
Story2	C19	WSD Env Min	-343.4404	-0.5191	-0.6173	-0.0662	-1.4137	-4.9355
Story2	C20	WSD Env Min	-105.9691	0.8473	-0.4413	-0.0414	-1.9069	0.9982
Story2	C21	WSD Env Min	-98.8124	-1.5649	-0.4994	-0.0414	-1.7992	-2.403

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			tonf	tonf	tonf	tonf-m	tonf-m	tonf-m
Story2	C22	WSD Env Min	-193.543	-2.8452	-2.021	-0.0662	-3.0401	-5.9192
Story2	C23	WSD Env Min	-329.3227	-0.7453	-0.9071	-0.0662	-1.5606	-5.0466
Story2	C24	WSD Env Min	-355.0023	-0.2913	-0.6571	-0.0662	-1.3032	-4.8158
Story2	C25	WSD Env Min	-300.6399	-4.2415	-0.4266	-0.0662	-0.9304	-7.6494
Story2	C26	WSD Env Min	-151.888	-0.3737	-0.978	-0.0414	-2.5735	-0.7357
Story2	C27	WSD Env Min	-190.6236	-1.3439	-0.8757	-0.0414	-2.5818	-2.024
Story2	C28	WSD Env Min	-360.7784	-4.69	-1.4815	-0.0662	-2.2962	-8.5367
Story2	C29	WSD Env Min	-352.6319	-0.2186	-0.5577	-0.0662	-1.1554	-5.1225
Story2	C30	WSD Env Min	-352.4892	-3.5638	-0.3347	-0.0662	-0.8064	-8.1832
Story2	C31	WSD Env Min	-227.1996	-0.8257	-1.2205	-0.0414	-3.1886	-1.2856
Story2	C32	WSD Env Min	-120.1993	1.2295	-1.1218	-0.0414	-3.0864	1.4312
Story2	C33	WSD Env Min	-102.7844	-1.0901	0.8517	-0.0662	0.8396	-5.6563
Story1	C1	WSD Env Min	-124.357	-0.1536	-1.3273	-0.0165	-4.3085	-0.3556
Story1	C2	WSD Env Min	-205.6705	-0.2767	-3.0365	-0.0264	-12.1431	-0.5822
Story1	C3	WSD Env Min	-446.8444	-2.3803	-5.7346	-0.045	-15.8981	-2.1094
Story1	C4	WSD Env Min	-433.6984	-0.6178	-5.2899	-0.045	-14.3076	-1.1087
Story1	C5	WSD Env Min	-264.01	-2.4332	-1.9572	-0.0285	-5.694	-1.9848
Story1	C6	WSD Env Min	-256.0523	-0.4078	-1.5715	-0.0285	-4.9231	-0.7268
Story1	C7	WSD Env Min	-231.6737	-0.7551	-1.4354	-0.0285	-4.1747	-0.9498
Story1	C8	WSD Env Min	-461.6428	-0.9455	-2.6284	-0.045	-10.663	-1.3111
Story1	C9	WSD Env Min	-305.62	0.0395	-1.616	-0.0264	-8.1125	-0.3556
Story1	C10	WSD Env Min	-109.6661	-1.4845	-2.1922	-0.0264	-11.5552	-1.3574
Story1	C11	WSD Env Min	-334.2895	-2.6249	-1.9609	-0.045	-14.085	-2.3865
Story1	C12	WSD Env Min	-424.9012	-0.8128	0.0417	-0.045	-11.6224	-1.3776
Story1	C13	WSD Env Min	-397.8744	-0.8397	0.4823	-0.045	-10.1112	-1.3961
Story1	C14	WSD Env Min	-358.401	-1.6279	-0.984	-0.045	-9.8432	-1.902
Story1	C15	WSD Env Min	-405.5751	-0.8347	-1.4784	-0.045	-9.7969	-1.3929
Story1	C16	WSD Env Min	-394.8076	-1.0116	-1.9669	-0.045	-10.8927	-1.4945
Story1	C17	WSD Env Min	-376.5742	-0.2965	-3.0841	-0.045	-12.7633	-1.0196
Story1	C18	WSD Env Min	-174.1448	-0.9996	-2.2464	-0.0264	-2.1537	-6.7411
Story1	C19	WSD Env Min	-407.4254	-1.7916	-1.4924	-0.045	-8.6845	-2.4834
Story1	C20	WSD Env Min	-120.7809	0.537	-1.1093	-0.0165	-3.1337	0.1281
Story1	C21	WSD Env Min	-112.4229	-1.4152	-0.8396	-0.0165	-2.2595	-1.3419
Story1	C22	WSD Env Min	-216.9994	-2.3915	-1.6663	-0.0264	-1.7248	-5.5172
Story1	C23	WSD Env Min	-397.4585	-1.3906	-0.9037	-0.045	-7.4407	-2.2051
Story1	C24	WSD Env Min	-424.3966	-1.3318	-0.5186	-0.045	-7.318	-2.1644
Story1	C25	WSD Env Min	-337.2076	-0.9719	-1.1953	-0.045	-7.4303	-1.7816
Story1	C26	WSD Env Min	-172.343	-0.4534	-1.3658	-0.0165	-2.4675	-0.7122
Story1	C27	WSD Env Min	-216.6429	-1.9553	-1.7792	-0.0285	-3.7553	-1.9842
Story1	C28	WSD Env Min	-404.2655	-2.1528	-1.2028	-0.045	-7.9699	-2.4617
Story1	C29	WSD Env Min	-423.227	-1.2537	-0.9905	-0.045	-8.6218	-2.1103
Story1	C30	WSD Env Min	-399.098	-0.9075	-2.0081	-0.045	-9.6513	-1.704
Story1	C31	WSD Env Min	-261.3246	-1.1149	-2.1161	-0.0285	-4.4178	-1.5204
Story1	C32	WSD Env Min	-136.3964	0.6917	-1.2375	-0.0165	-3.3141	0.0976
Story1	C33	WSD Env Min	-115.3084	-1.8016	0.3944	-0.0264	-0.3139	-7.8753
Story1	C34	WSD Env Min	-18.4373	-0.067	-0.2878	-0.0011	-0.2455	-0.0814
Story1	C35	WSD Env Min	-18.288	-0.0837	-0.1282	-0.0011	-0.1352	-0.0932
Story1	C36	WSD Env Min	-19.6566	-0.1311	-0.2449	-0.0011	-0.2179	-0.1256
Story1	C37	WSD Env Min	-22.2331	-0.0786	-0.1678	-0.0011	-0.1759	-0.0895
Story1	C38	WSD Env Min	-14.9367	-0.0794	-0.2975	-0.0011	-0.2612	-0.0901

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Story	Column	Load Case/Combo	P	V2	V3	T	M2	M3
			tonf	tonf	tonf	tonf-m	tonf-m	tonf-m
Story1	C39	WSD Env Min	-21.0159	-0.0858	-0.1255	-0.0011	-0.1467	-0.0912
Story1	C40	WSD Env Min	-13.3741	-0.0756	-0.1109	-0.0011	-0.1364	-0.0817
Story1	C21	WSD Env Min	-364.4988	-0.1941	-5.1006	-0.0153	-4.4423	-0.3588
Story1	C22	WSD Env Min	-562.0635	-0.6854	-1.1417	-0.0262	-3.8141	-0.8517
Story1	C23	WSD Env Min	-90.0539	-0.4518	-0.4374	-0.0153	-2.4934	-0.5512
Story1	C24	WSD Env Min	-179.0485	-0.482	-0.4161	-0.0153	-2.4822	-0.5596
Story1	C25	WSD Env Min	-168.0878	0.4734	-0.9005	-0.0153	-2.4045	0.0519
Story1	C26	WSD Env Min	-84.2435	0.2196	-0.3875	-0.0153	-2.2857	-0.1286
Story1	C27	WSD Env Min	-83.4076	-0.9034	-0.4688	-0.0153	-2.4647	-0.7778
Story1	C28	WSD Env Min	-141.3803	-0.2549	-2.5083	-0.0153	-3.1519	-0.4209
Story1	C29	WSD Env Min	-237.2307	-0.2097	-0.1837	-0.0153	-2.3771	-0.3694
Story1	C30	WSD Env Min	-551.1689	0.8385	-0.0574	-0.0262	-3.0427	0.1228
Story1	C31	WSD Env Min	-370.9892	-0.356	-5.1918	-0.0153	-4.2315	-0.4664
Story1	C32	WSD Env Min	-243.8948	-0.4259	-0.5119	-0.0153	-2.3705	-0.5179
Story1	C33	WSD Env Min	-261.3354	-0.2499	-0.4448	-0.0153	-2.4457	-0.3998
Story1	C34	WSD Env Min	-336.4855	-0.0242	-3.7486	-0.0153	-3.8381	-0.2485
Story1	C35	WSD Env Min	-274.7234	-0.4544	-0.3691	-0.0153	-2.6703	-0.5364
Story1	C36	WSD Env Min	-183.037	-0.3026	-1.4039	-0.0153	-3.2401	-0.4314
Story1	C37	WSD Env Min	-162.4643	-0.1134	-1.481	-0.0153	-3.7244	-0.3058
Story1	C38	WSD Env Min	-230.3673	0.1008	-0.6867	-0.0153	-3.2256	-0.172
Story1	C39	WSD Env Min	-68.4429	-0.2509	-1.1607	-0.0153	-3.287	-0.4267
Story1	C40	WSD Env Min	-115.5789	-0.7384	-2.1543	-0.0153	-3.87	-0.7214
Story1	C41	WSD Env Min	-141.9714	-1.3754	-0.6156	-0.0153	-0.7128	-2.9785
Story1	C42	WSD Env Min	-259.4562	-1.2232	-1.1893	-0.0153	-1.0366	-2.7276
Story1	C43	WSD Env Min	-200.2726	-11.1322	-3.4313	-0.0153	-2.5266	-7.3725
Story1	C44	WSD Env Min	-232.5998	-0.7901	-0.8494	-0.0153	-0.9151	-2.4344
Story1	C45	WSD Env Min	-190.1054	-5.2577	-2.5188	-0.0153	-1.9417	-4.2349
Story1	C46	WSD Env Min	-148.8196	-1.2742	-0.7197	-0.0153	-0.7972	-2.5225
Story1	C47	WSD Env Min	-130.4	-0.7682	-1.0555	-0.0153	-0.9918	-2.26
Story1	C48	WSD Env Min	-64.6478	-0.6412	-0.1208	-0.0153	-0.4685	-2.2052
Story1	C49	WSD Env Min	-124.7931	0.5655	-1.9957	-0.0153	-1.6331	-1.5724
Story1	C50	WSD Env Min	-85.2789	-0.1219	-2.9877	-0.0153	-5.3334	-0.3061
Story1	C51	WSD Env Min	-114.8867	0.3271	-1.1878	-0.0153	-3.8798	-0.0247
Story1	C54	WSD Env Min	-0.8637	0.0566	0.0682	-0.0009	0.071	0.0966
Story1	C55	WSD Env Min	-24.8009	0.0572	-0.0257	-0.0008	-0.0378	0.0843
Story1	C70	WSD Env Min	-12.1751	-0.0246	-0.1633	-0.0009	-0.1411	-0.0428
Story1	C73	WSD Env Min	-13.0196	-0.1865	-0.1185	-0.0009	-0.1127	-0.1419
Story1	C74	WSD Env Min	-16.9209	-0.0842	-0.0632	-0.0009	-0.0694	-0.0815
Story1	C75	WSD Env Min	-22.5959	-0.089	0.0335	-0.0009	-0.006	-0.0832
Story1	C76	WSD Env Min	-22.9029	-0.0557	0.0169	-0.0009	-0.0178	-0.0616
Story1	C77	WSD Env Min	-11.0219	-0.1118	-0.0295	-0.0009	-0.0473	-0.1011
Story1	C78	WSD Env Min	-24.9435	-0.0336	-0.0591	-0.0009	-0.0702	-0.0506
Story1	C79	WSD Env Min	-9.08	-0.0494	-0.1334	-0.0009	-0.1233	-0.061
Story1	C80	WSD Env Min	-13.4504	-0.1284	-0.1405	-0.0009	-0.1269	-0.1048
Story1	C57	WSD Env Min	-19.9011	-0.1012	-0.1429	-0.0009	-0.1233	-0.0925
Story1	C63	WSD Env Min	-19.2724	-0.0741	-0.1638	-0.0009	-0.1395	-0.0754









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Story	Column	Load Case/Combo	P	V2	V3	T	M2	M3
			tonf	tonf	tonf	tonf-m	tonf-m	tonf-m
Story3	C15	USD ENV Min	-424.4316	-0.9268	-12.6972	-0.1472	-20.4382	-1.444
Story3	C16	USD ENV Min	-411.2702	-0.7903	-11.5405	-0.1472	-18.7626	-1.2497
Story3	C17	USD ENV Min	-397.0663	-0.7307	-11.1414	-0.1472	-19.2753	-1.2116
Story3	C18	USD ENV Min	-190.6534	-0.6619	-7.3442	-0.1472	-10.521	-3.6167
Story3	C19	USD ENV Min	-436.025	2.2791	-1.0735	-0.1472	-1.7779	1.485
Story3	C20	USD ENV Min	-121.7282	1.5902	-1.0984	-0.0921	-2.9147	2.1545
Story3	C21	USD ENV Min	-116.4079	-2.5672	-0.5301	-0.0921	-1.5271	-3.6721
Story3	C22	USD ENV Min	-224.6777	-3.8479	-3.7202	-0.1472	-5.3631	-7.4637
Story3	C23	USD ENV Min	-418.6993	1.5597	-1.9272	-0.1472	-2.9914	0.4687
Story3	C24	USD ENV Min	-451.5476	3.4714	-1.298	-0.1472	-2.1383	2.8315
Story3	C25	USD ENV Min	-387.2919	-6.3578	-1.0468	-0.1472	-1.7494	-11.2395
Story3	C26	USD ENV Min	-206.0442	-0.929	-0.9411	-0.0921	-2.1507	-1.4613
Story3	C27	USD ENV Min	-257.9691	-2.2616	-0.7104	-0.0921	-1.9271	-3.3137
Story3	C28	USD ENV Min	-465.3255	-6.9849	-2.5332	-0.1472	-3.815	-12.5473
Story3	C29	USD ENV Min	-448.5659	3.5826	-1.1751	-0.1472	-1.9739	2.2483
Story3	C30	USD ENV Min	-449.6441	-5.2264	-0.7483	-0.1472	-1.3708	-10.8153
Story3	C31	USD ENV Min	-293.5781	-1.5486	-1.2426	-0.0921	-2.8113	-2.3729
Story3	C32	USD ENV Min	-151.959	2.1521	-1.3816	-0.0921	-3.2829	2.866
Story3	C33	USD ENV Min	-129.5916	-1.2106	1.3519	-0.1472	1.6207	-6.1035
Story2	C1	USD ENV Min	-169.2896	-3.1572	-1.4439	-0.0651	-4.9201	-3.132
Story2	C2	USD ENV Min	-280.9919	-4.3317	-1.5895	-0.1041	-11.6983	-4.3689
Story2	C3	USD ENV Min	-609.9997	-0.9495	-1.6867	-0.1041	-12.5172	-2.2672
Story2	C4	USD ENV Min	-578.0139	-0.6493	-1.3008	-0.1041	-11.0649	-1.1923
Story2	C5	USD ENV Min	-349.5713	-0.8004	-1.7858	-0.0651	-5.076	-1.9939
Story2	C6	USD ENV Min	-327.1426	-0.5746	-1.4387	-0.0651	-4.2367	-0.9285
Story2	C7	USD ENV Min	-294.6768	-0.8154	-0.5783	-0.0651	-2.7867	-1.3298
Story2	C8	USD ENV Min	-596.5707	-1.0119	0.5403	-0.1041	-5.8071	-1.7074
Story2	C9	USD ENV Min	-365.097	0.3511	0.9675	-0.1041	-5.1134	0.0744
Story2	C10	USD ENV Min	-141.6424	-2.1802	-2.6164	-0.1041	-11.2941	-3.5793
Story2	C11	USD ENV Min	-425.0112	-2.7974	-3.6462	-0.1041	-11.1302	-4.2311
Story2	C12	USD ENV Min	-541.7605	-0.6917	-2.4138	-0.1041	-7.7248	-1.3791
Story2	C13	USD ENV Min	-505.1973	-0.6499	-1.9803	-0.1041	-6.233	-1.346
Story2	C14	USD ENV Min	-430.7566	-1.2113	-2.3058	-0.1041	-7.192	-2.2997
Story2	C15	USD ENV Min	-485.8117	-0.79	-4.0823	-0.1041	-7.958	-1.4824
Story2	C16	USD ENV Min	-471.229	-0.7913	-4.0425	-0.1041	-8.5458	-1.561
Story2	C17	USD ENV Min	-456.4462	-0.4808	-5.3399	-0.1041	-10.4917	-0.9277
Story2	C18	USD ENV Min	-217.2987	-0.9974	-5.3912	-0.1041	-7.0316	-5.962
Story2	C19	USD ENV Min	-501.2538	-1.181	-0.9205	-0.1041	-2.0748	-8.5337
Story2	C20	USD ENV Min	-140.7136	1.2285	-0.722	-0.0651	-3.037	1.4294
Story2	C21	USD ENV Min	-130.6139	-2.0312	-0.9137	-0.0651	-2.9888	-3.1471
Story2	C22	USD ENV Min	-260.8524	-4.2407	-2.759	-0.1041	-4.2013	-9.7791
Story2	C23	USD ENV Min	-480.3116	-1.3991	-1.3173	-0.1041	-2.244	-8.6248
Story2	C24	USD ENV Min	-517.445	-0.5534	-0.9513	-0.1041	-1.8653	-8.0944
Story2	C25	USD ENV Min	-441.9852	-6.1138	-0.6744	-0.1041	-1.4478	-12.2651
Story2	C26	USD ENV Min	-227.7717	-0.5975	-1.6645	-0.0651	-4.2264	-1.1734
Story2	C27	USD ENV Min	-285.5439	-1.7339	-1.4862	-0.0651	-4.114	-2.6451
Story2	C28	USD ENV Min	-530.506	-6.7118	-1.9612	-0.1041	-3.1095	-13.6118
Story2	C29	USD ENV Min	-514.8458	-0.3913	-0.8677	-0.1041	-1.7949	-8.2151
Story2	C30	USD ENV Min	-516.2872	-5.4369	-0.5455	-0.1041	-1.295	-13.0637
Story2	C31	USD ENV Min	-333.7267	-1.081	-1.904	-0.0651	-4.8825	-1.6713
Story2	C32	USD ENV Min	-174.7909	1.8219	-1.702	-0.0651	-4.6451	2.0965
Story2	C33	USD ENV Min	-148.3762	-1.703	1.2689	-0.1041	1.2199	-8.7314

Column Force : Strength Load Env.

Story	Column	Load Case/Combo	P	V2	V3	T	M2	M3
			tonf	tonf	tonf	tonf-m	tonf-m	tonf-m
Story1	C1	USD ENV Min	-180.2665	-0.2774	-2.0267	-0.0259	-6.7427	-0.5706
Story1	C2	USD ENV Min	-300.4493	-0.5793	-4.4474	-0.0414	-19.0137	-0.997
Story1	C3	USD ENV Min	-653.7508	-3.4026	-8.0175	-0.0706	-24.0463	-3.396
Story1	C4	USD ENV Min	-636.2167	-0.9511	-7.3372	-0.0706	-21.4416	-1.7487
Story1	C5	USD ENV Min	-385.0368	-3.3416	-3.1056	-0.0448	-8.9582	-2.9879
Story1	C6	USD ENV Min	-374.1316	-0.6423	-2.4879	-0.0448	-7.7865	-1.1509
Story1	C7	USD ENV Min	-338.6052	-1.1927	-2.1906	-0.0448	-6.1717	-1.497
Story1	C8	USD ENV Min	-677.2731	-1.4822	-3.9785	-0.0706	-15.732	-2.0639
Story1	C9	USD ENV Min	-422.6751	-0.0156	-2.4107	-0.0414	-12.0455	-0.6248
Story1	C10	USD ENV Min	-159.8829	-2.1697	-3.2518	-0.0414	-18.1152	-2.2355
Story1	C11	USD ENV Min	-490.1231	-3.9248	-3.1089	-0.0706	-22.8481	-3.9771
Story1	C12	USD ENV Min	-622.8496	-1.3099	-0.1216	-0.0706	-19.0509	-2.2241
Story1	C13	USD ENV Min	-584.0974	-1.3309	0.5929	-0.0706	-16.5208	-2.2384
Story1	C14	USD ENV Min	-527.4595	-2.6359	-1.5302	-0.0706	-15.6353	-3.082
Story1	C15	USD ENV Min	-595.232	-1.3381	-2.2361	-0.0706	-14.8881	-2.2438
Story1	C16	USD ENV Min	-579.7773	-1.6218	-2.97	-0.0706	-16.3659	-2.3983
Story1	C17	USD ENV Min	-552.9752	-0.5322	-4.6302	-0.0706	-18.7306	-1.6847
Story1	C18	USD ENV Min	-254.7184	-1.5224	-3.1469	-0.0414	-3.0627	-10.8604
Story1	C19	USD ENV Min	-597.6961	-2.5717	-2.5159	-0.0706	-14.2508	-3.5061
Story1	C20	USD ENV Min	-163.0337	0.7816	-1.6681	-0.0259	-4.5849	0.1535
Story1	C21	USD ENV Min	-151.36	-1.8437	-1.4119	-0.0259	-3.6848	-1.7854
Story1	C22	USD ENV Min	-296.9553	-3.7186	-2.2942	-0.0414	-2.4006	-8.7119
Story1	C23	USD ENV Min	-582.9673	-2.0092	-1.5395	-0.0706	-11.9674	-3.1645
Story1	C24	USD ENV Min	-621.9643	-1.8984	-0.8747	-0.0706	-11.2923	-3.0878
Story1	C25	USD ENV Min	-497.0222	-1.484	-1.9477	-0.0706	-11.5662	-2.6223
Story1	C26	USD ENV Min	-258.4966	-0.6984	-2.1749	-0.0259	-3.9834	-1.088
Story1	C27	USD ENV Min	-324.6142	-2.5464	-2.9648	-0.0448	-5.8814	-2.652
Story1	C28	USD ENV Min	-595.9825	-2.9052	-1.8872	-0.0706	-12.1723	-3.4131
Story1	C29	USD ENV Min	-621.2654	-1.8854	-1.5308	-0.0706	-13.016	-3.0788
Story1	C30	USD ENV Min	-586.5413	-1.394	-3.046	-0.0706	-14.5232	-2.5596
Story1	C31	USD ENV Min	-385.1067	-1.5012	-3.3916	-0.0448	-6.7425	-2.1128
Story1	C32	USD ENV Min	-199.1389	1.029	-1.9462	-0.0259	-4.9993	0.1225
Story1	C33	USD ENV Min	-168.4547	-2.7065	0.5947	-0.0414	-0.4914	-12.0002
Story1	C34	USD ENV Min	-27.7819	-0.1068	-0.4023	-0.0017	-0.349	-0.1303
Story1	C35	USD ENV Min	-27.9389	-0.1451	-0.2201	-0.0017	-0.2254	-0.1574
Story1	C36	USD ENV Min	-29.3974	-0.2214	-0.356	-0.0017	-0.326	-0.2087
Story1	C37	USD ENV Min	-33.3481	-0.1285	-0.2532	-0.0017	-0.2664	-0.1457
Story1	C38	USD ENV Min	-22.3425	-0.1285	-0.461	-0.0017	-0.4209	-0.1457
Story1	C39	USD ENV Min	-31.6102	-0.1377	-0.2077	-0.0017	-0.2414	-0.1463
Story1	C40	USD ENV Min	-20.0538	-0.1209	-0.1838	-0.0017	-0.2245	-0.1303
Story1	C21	USD ENV Min	-534.4321	-0.2703	-6.8436	-0.0208	-5.6799	-0.5084
Story1	C22	USD ENV Min	-836.9668	-1.0844	-1.6008	-0.0357	-5.4225	-1.2964
Story1	C23	USD ENV Min	-141.8342	-0.7164	-0.6036	-0.0208	-3.543	-0.8451
Story1	C24	USD ENV Min	-280.7157	-0.7662	-0.5707	-0.0208	-3.5256	-0.8592
Story1	C25	USD ENV Min	-264.4518	0.7351	-1.0913	-0.0208	-3.4313	0.113
Story1	C26	USD ENV Min	-133.2937	0.3525	-0.538	-0.0208	-3.2532	-0.1575
Story1	C27	USD ENV Min	-130.6134	-1.2995	-0.6599	-0.0208	-3.516	-1.2236
Story1	C28	USD ENV Min	-221.8767	-0.4672	-3.656	-0.0208	-4.1704	-0.665
Story1	C29	USD ENV Min	-353.4506	-0.2814	-0.2035	-0.0208	-3.3662	-0.5157
Story1	C30	USD ENV Min	-825.7099	1.2921	0.0174	-0.0357	-4.2918	0.2364

Column Force : Strength Load Env.

Story	Column	Load Case/Combo	P	V2	V3	T	M2	M3
			tonf	tonf	tonf	tonf-m	tonf-m	tonf-m
Story1	C31	USD ENV Min	-545.748	-0.5581	-7.2615	-0.0208	-5.2512	-0.7061
Story1	C32	USD ENV Min	-357.6415	-0.6756	-0.6918	-0.0208	-3.3611	-0.7916
Story1	C33	USD ENV Min	-387.6153	-0.3511	-0.5923	-0.0208	-3.471	-0.5677
Story1	C34	USD ENV Min	-498.9024	-0.0118	-4.855	-0.0208	-4.9421	-0.3404
Story1	C35	USD ENV Min	-409.5894	-0.6091	-0.4676	-0.0208	-3.7878	-0.7483
Story1	C36	USD ENV Min	-272.694	-0.398	-2.0027	-0.0208	-4.5939	-0.5915
Story1	C37	USD ENV Min	-237.9904	-0.1435	-2.0325	-0.0208	-5.1685	-0.4251
Story1	C38	USD ENV Min	-338.3336	0.1767	-0.9436	-0.0208	-4.5971	-0.2249
Story1	C39	USD ENV Min	-100.3722	-0.3497	-1.6398	-0.0208	-4.6928	-0.603
Story1	C40	USD ENV Min	-168.8685	-1.0912	-2.7794	-0.0208	-5.1907	-1.0959
Story1	C41	USD ENV Min	-207.5549	-1.9448	-0.741	-0.0208	-0.9213	-4.2471
Story1	C42	USD ENV Min	-380.3241	-1.8641	-1.5092	-0.0208	-1.306	-3.9344
Story1	C43	USD ENV Min	-295.4295	-16.7709	-5.0597	-0.0208	-3.344	-10.6214
Story1	C44	USD ENV Min	-339.8791	-1.0942	-1.1079	-0.0208	-1.1505	-3.4552
Story1	C45	USD ENV Min	-278.733	-7.2641	-3.5848	-0.0208	-2.513	-6.5975
Story1	C46	USD ENV Min	-217.2551	-1.8301	-0.971	-0.0208	-1.035	-3.6676
Story1	C47	USD ENV Min	-190.579	-1.0771	-1.395	-0.0208	-1.3381	-3.2179
Story1	C48	USD ENV Min	-94.0044	-0.8968	-0.1511	-0.0208	-0.6567	-3.1412
Story1	C49	USD ENV Min	-187.8634	0.9093	-2.3555	-0.0208	-2.0169	-2.1941
Story1	C50	USD ENV Min	-129.0464	-0.1707	-3.9946	-0.0208	-7.6066	-0.442
Story1	C51	USD ENV Min	-167.7751	0.5102	-1.6891	-0.0208	-5.4475	-0.0079
Story1	C54	USD ENV Min	-0.914	0.0897	0.1084	-0.0012	0.1123	0.1495
Story1	C55	USD ENV Min	-37.0777	0.0906	-0.032	-0.0011	-0.0505	0.1309
Story1	C70	USD ENV Min	-18.0501	-0.0314	-0.197	-0.0012	-0.1769	-0.0586
Story1	C73	USD ENV Min	-19.5642	-0.2704	-0.1563	-0.0012	-0.1514	-0.2155
Story1	C74	USD ENV Min	-25.6676	-0.1218	-0.0891	-0.0012	-0.0984	-0.1179
Story1	C75	USD ENV Min	-34.0246	-0.1425	0.0556	-0.0012	-0.0034	-0.1298
Story1	C76	USD ENV Min	-34.4677	-0.0776	0.0306	-0.0012	-0.0212	-0.0866
Story1	C77	USD ENV Min	-16.6584	-0.1675	-0.0393	-0.0012	-0.0656	-0.1501
Story1	C78	USD ENV Min	-37.5077	-0.0444	-0.0826	-0.0012	-0.0992	-0.0698
Story1	C79	USD ENV Min	-13.4331	-0.0686	-0.1763	-0.0012	-0.1657	-0.0857
Story1	C80	USD ENV Min	-20.1046	-0.1907	-0.1901	-0.0012	-0.1733	-0.1619
Story1	C57	USD ENV Min	-30.1811	-0.1368	-0.1889	-0.0012	-0.1613	-0.1277
Story1	C63	USD ENV Min	-28.8375	-0.1057	-0.2052	-0.0012	-0.1798	-0.1075

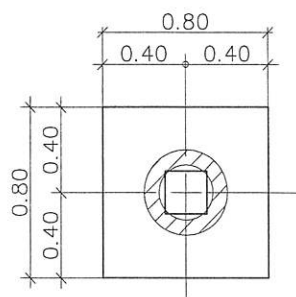




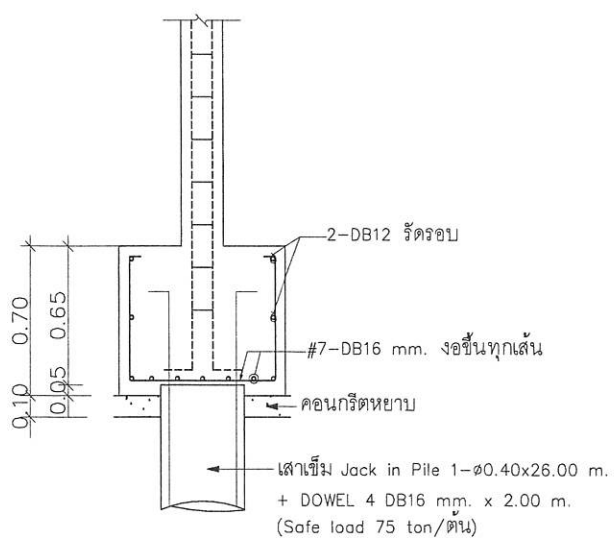




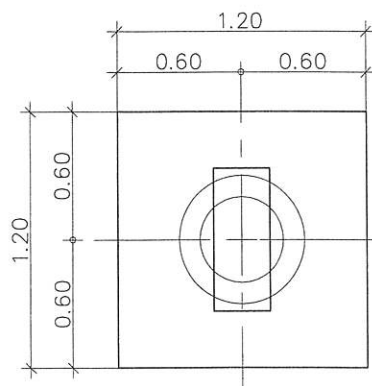




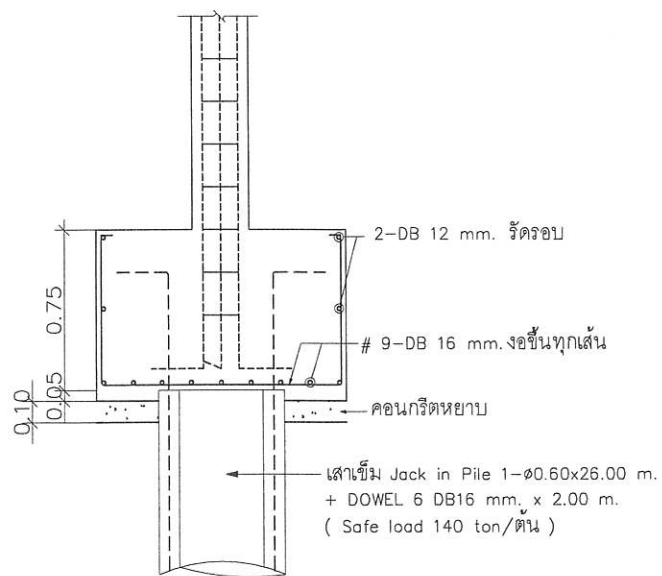
F1A-PLAN



F1A-SECTION



F1-PLAN



F1-SECTION

## ออกแบบฐานราก F2

$$f_y = 4000 \text{ kg/cm}^2$$

$$f_c = 280 \text{ kg/cm}^2$$

$$\text{ขนาดฐานราก} = 1.20 \times 3.00 \times 1.10 \text{ m.}$$

น้ำหนักบรรทุก

$$DL = 180.20 \text{ T.} \quad LL = 69.42 \text{ T.}$$

น้ำหนักบรรทุกใช้งานที่เพิ่มค่าแล้ว

$$= 1.4 DL + 1.7 LL$$

$$= (1.4 \times 180.2) + (1.7 \times 69.42)$$

$$= 370.30 \text{ T.}$$

น้ำหนักฐานราก

$$= 1.4 \times (1.20 \times 3.00 \times 1.10 \times 2.4)$$

$$= 13.31 \text{ T.}$$

น้ำหนักที่เสาเข็มต้องรับในแต่ละต้น

$$= \frac{383.61}{2} = 191.81 \text{ T.}$$

พิจารณาแรงเฉือนแบบคานกว้างที่หน้าตัดซึ่งห่างจากขอบเสา = 100 cm.

เนื่องจากศูนย์กลางของเสาเข็มอยู่ภายใต้หน้าตัดวิกฤต ทำให้แรงต้านทานเป็นศูนย์

พิจารณาแรงเฉือนทะลุ

- ตามเส้นขอบเสา ซึ่งห่างจากขอบเสาเป็นระยะ  $100/2 = 50 \text{ cm.}$

$$b_o = 494 \text{ cm.}$$

$$V_u = 2 \times 191.81 = 383.62 \text{ T.}$$

$$\phi V_c = 1.06 \phi \sqrt{f_c} b_o d = 1.06 \times 0.85 \times \sqrt{280} \times 494 \times 100 / 1000$$

$$= 744.78 \text{ T.} > V_u \quad \text{O.K.}$$

หาเหล็กเสริม

ด้านสั้น  $b = 3.00 \text{ m.}$

$$A_{smin} = 0.0018 \times 300 \times 110 = 59.40 \text{ cm}^2$$

ใช้เหล็ก 20 - DB 20 m. ( $A_s = 62.83 \text{ cm}^2$ )

ด้านยาว  $b = 1.20 \text{ m}$ .

โมเมนต์  $M_u$  ที่ขอบเสา

$$M_u = 191.81 \times 0.77 = 147.70 \text{ T-m.}$$

$$R_u = \frac{M_u}{\phi b d^2} = \frac{147.7 \times 1000 \times 100}{0.90 \times (120 \times 100^2)} = 13.68 \text{ kg/cm}^2$$

$$\rho = \frac{0.85 \times 280}{4000} \left[ 1 - \sqrt{1 - 2 \times \frac{13.68}{0.85 \times 280}} \right] = 0.0036 \quad ; (\rho < \rho_{\max})$$

$$A_s = \rho b d = 0.0036 \times 120 \times 100 = 43.20 \text{ cm}^2$$

$$A_{s_{\min}} = 0.0018 \times 120 \times 110 = 23.76 \text{ cm}^2$$

ใช้เหล็ก 13 - DB 25 m. ( $A_s = 63.83 \text{ cm}^2$ )

#### ตรวจสอบหน่วยแรงยึดเหนี่ยว

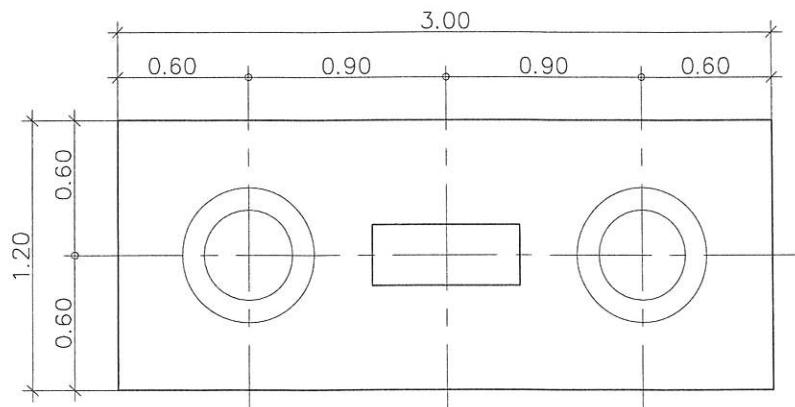
$$V_u = 191.81 \text{ T.}$$

$$\rho = \frac{A_s}{b d} = \frac{13 \times 4.91}{120 \times 100} = 0.0053$$

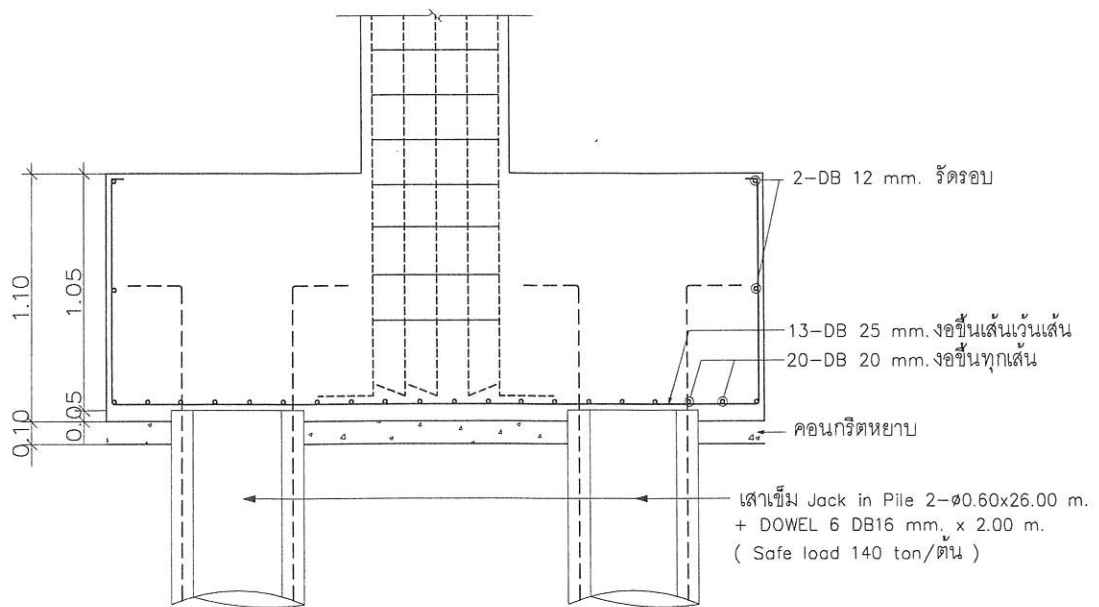
$$j = \frac{(1 - 0.59 \rho f_y)}{f_c} = \frac{(1 - 0.59 \times 0.0053 \times 4000)}{280} = 0.955$$

$$U_u = \frac{V_u}{\sum O_{jd}} = \frac{191.81 \times 1000}{(13 \times 7.86) \times 0.955 \times 100} = 19.67 \text{ kg/cm}^2$$

$$U_n = \frac{6.39 \sqrt{f'_c}}{d b} = \frac{6.39 \sqrt{280}}{2.5} = 42.77 > U_u \text{ OK.}$$



F2-PLAN



F2-SECTION

### ออกแบบฐานราก F3

$$f_y = 4000 \text{ kg/cm}^2$$

$$f_c = 280 \text{ kg/cm}^2$$

$$\text{ขนาดฐานราก} = 5.89 \times 1.10 \text{ m}^3$$

น้ำหนักบรรทุก

$$DL = 307.78 \text{ T.} \quad LL = 81.50 \text{ T.}$$

$$\begin{aligned} \text{น้ำหนักบรรทุกใช้งานที่เพิ่มค่าแล้ว} &= 1.4 DL + 1.7 LL \\ &= (1.4 \times 307.78) + (1.7 \times 81.5) \\ &= 569.45 \text{ T.} \end{aligned}$$

$$\begin{aligned} \text{น้ำหนักฐานราก} &= 1.4 \times (5.89 \times 1.10 \times 2.4) \\ &= 21.77 \text{ T.} \end{aligned}$$

$$\begin{aligned} \text{น้ำหนักที่เสาเข็มต้องรับในแต่ละต้น} &= \frac{591.22}{3} = 197.08 \text{ T.} \end{aligned}$$

พิจารณาแรงเฉือนแบบคานกว้างที่หน้าตัดซึ่งห่างจากขอบเสา = 100 cm.

เนื่องจากศูนย์กลางของเสาเข็มอยู่ภายใต้หน้าตัดวิกฤต ทำให้แรงต้านทานเป็นศูนย์

พิจารณาแรงเฉือนทะลุ

- ตามเส้นขอบเสา ซึ่งห่างจากขอบเสาเป็นระยะ  $100/2 = 50 \text{ cm.}$

$$b_o = 465 \text{ cm.}$$

$$V_u = 3 \times 197.08 = 591.24 \text{ T.}$$

$$\begin{aligned} \phi V_c &= 1.06 \phi \sqrt{f_c} b_o d \\ &= 1.06 \times 0.85 \times \sqrt{280} \times 465 \times 100 / 1000 \\ &= 701.06 \text{ T.} > V_u \quad \text{O.K.} \end{aligned}$$

หาเหล็กเสริม

$$b = 1.94 \text{ m.}$$

โมเมนต์  $M_u$  ที่ขอบเสา

$$M_u = 197.08 \times 0.8 = 157.66 \text{ T-m.}$$

$$R_u = \frac{M_u}{\phi b d^2} = \frac{157.66 \times 1000 \times 100}{0.90 \times (194 \times 100^2)} = 9.03 \text{ kg/cm}^2$$

$$\rho = \frac{0.85 \times 280}{4000} \left[ 1 - \sqrt{1 - \frac{2 \times 9.03}{0.85 \times 280}} \right] = 0.0023 ; (\rho < \rho_{\max})$$

$$A_s = \rho b d = 0.0023 \times 194 \times 100 = 44.62 \text{ cm}^2$$

$$A_{s_{\min}} = (0.0018 \times 194 \times 110) = 38.41 \text{ cm}^2$$

ใช้เหล็ก 12 - DB 25 m. (  $A_s = 58.92 \text{ cm}^2$  )

ตรวจสอบหน่วยแรงยึดเหนี่ยว

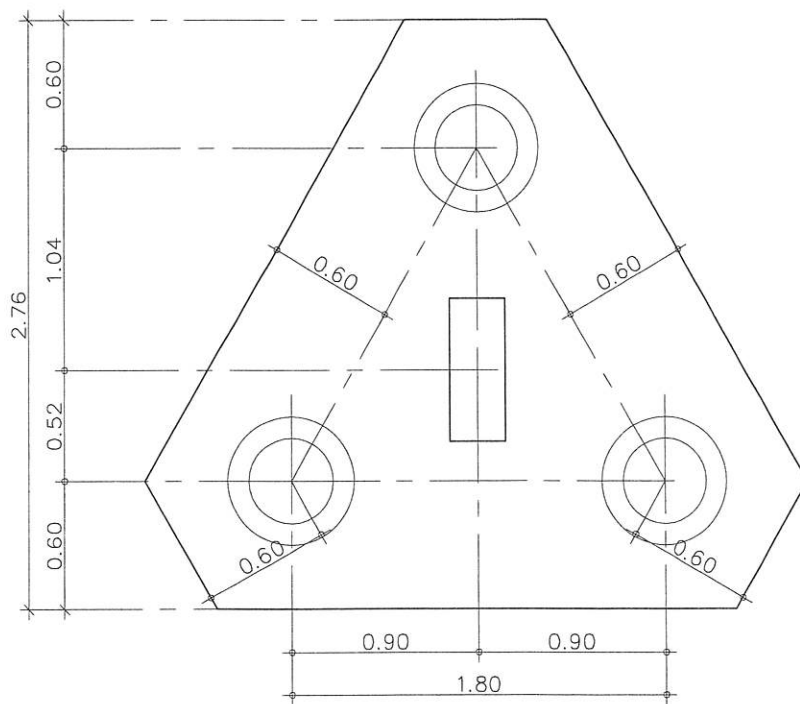
$$V_u = 197.08 \text{ T.}$$

$$\rho = \frac{A_s}{b d} = \frac{12 \times 4.91}{194 \times 100} = 0.0030$$

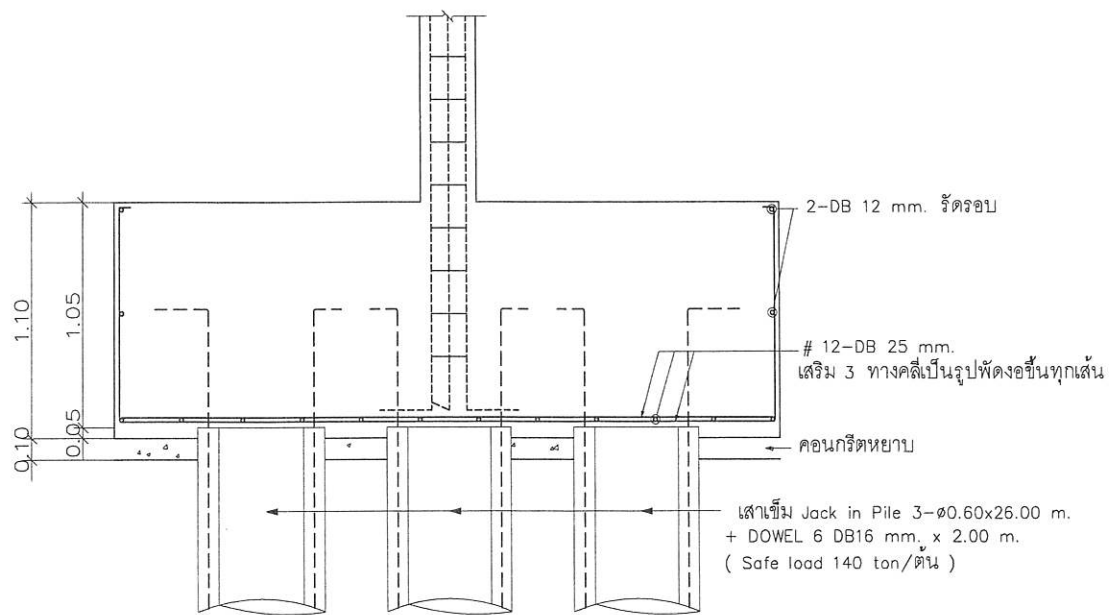
$$j = \frac{(1 - 0.59 \rho f_y)}{f_c} = \frac{(1 - 0.59 \times 0.003 \times 4000)}{280} = 0.975$$

$$U_u = \frac{V_u}{\sum O_{jd}} = \frac{197.08 \times 1000}{(12 \times 7.86) \times 0.975 \times 100} = 21.45 \text{ kg/cm}^2$$

$$U_n = \frac{6.39 \sqrt{f'_c}}{d_b} = \frac{6.39 \sqrt{280}}{2.5} = 42.77 > U_u \text{ OK.}$$



F3-PLAN



F3-SECTION

#### ออกแบบฐานราก F4

$$f_y = 4000 \text{ kg/cm}^2$$

$$f_c = 280 \text{ kg/cm}^2$$

$$\text{ขนาดฐานราก} = 3.00 \times 3.00 \times 1.10 \text{ m.}$$

น้ำหนักบรรทุก

$$DL = 378.45 \text{ T.} \quad LL = 160.00 \text{ T.}$$

$$\begin{aligned} \text{น้ำหนักบรรทุกใช้งานที่เพิ่มค่าแล้ว} &= 1.4 DL + 1.7 LL \\ &= (1.4 \times 378.45) + (1.7 \times 160) \\ &= 801.83 \text{ T.} \end{aligned}$$

$$\begin{aligned} \text{น้ำหนักฐานราก} &= 1.4 \times (3.00 \times 3.00 \times 1.10 \times 2.4) \\ &= 33.26 \text{ T.} \end{aligned}$$

$$\begin{aligned} \text{น้ำหนักที่เสาเข็มต้องรับในแต่ละต้น} &= \frac{835.09}{4} = 208.78 \text{ T.} \end{aligned}$$

พิจารณาแรงเฉือนแบบคานกว้างที่หน้าตัดซึ่งห่างจากขอบเสา = 100 cm.

เนื่องจากศูนย์กลางของเสาเข็มอยู่ภายใต้หน้าตัดวิกฤต ทำให้แรงต้านทานเป็นศูนย์

พิจารณาแรงเฉือนทะลุ

- ตามเส้นขอบเสา ซึ่งห่างจากขอบเสาเป็นระยะ  $100/2 = 50 \text{ cm.}$

$$b_o = 588 \text{ cm.}$$

$$V_u = 4 \times 208.78 = 835.12 \text{ T.}$$

$$\phi V_c = 1.06 \phi \sqrt{f'_c} b_o d = 1.06 \times 0.85 \times \sqrt{280 \times 588 \times 100 / 1000}$$

$$= 886.50 \text{ T.} > V_u \quad \text{O.K.}$$

หาเหล็กเสริม

$$b = 3.00 \text{ m.}$$

โมเมนต์  $M_u$  ที่ขอบเสา

$$M_u = 2 \times 208.78 \times 0.77 = 321.53 \text{ T-m.}$$

$$R_u = \frac{M_u}{\phi b d^2} = \frac{321.53 \times 1000 \times 100}{0.90 \times (300 \times 100^2)} = 11.91 \text{ kg/cm}^2$$

$$\rho = \frac{0.85 \times 280}{4000} \left[ 1 - \sqrt{1 - \frac{2 \times 11.91}{0.85 \times 280}} \right] = 0.0031 ; (\rho < \rho_{\max})$$

$$A_s = \rho b d = 0.0031 \times 300 \times 100 = 93.00 \text{ cm}^2$$

$$A_{s_{\min}} = 0.0018 b t = 0.0018 \times 300 \times 110 = 59.40 \text{ cm}^2$$

ใช้เหล็ก 20 - DB 25 m. ( $A_s = 98.2 \text{ cm}^2$ )

ตรวจสอบหน่วยแรงยึดเหนี่ยว

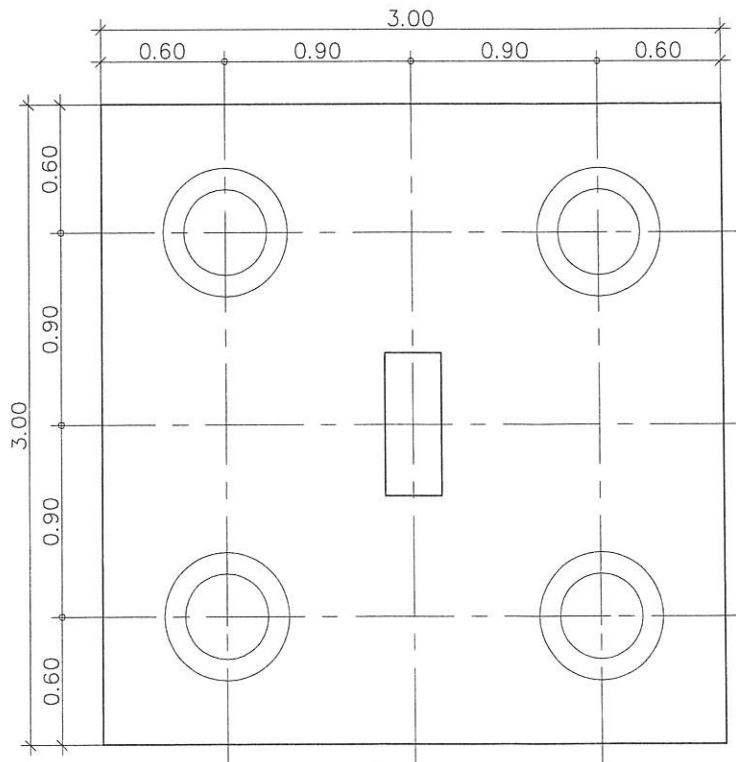
$$V_u = 2 \times 208.78 = 417.56 \text{ T.}$$

$$\rho = \frac{A_s}{b d} = \frac{20 \times 4.91}{300 \times 100} = 0.0033$$

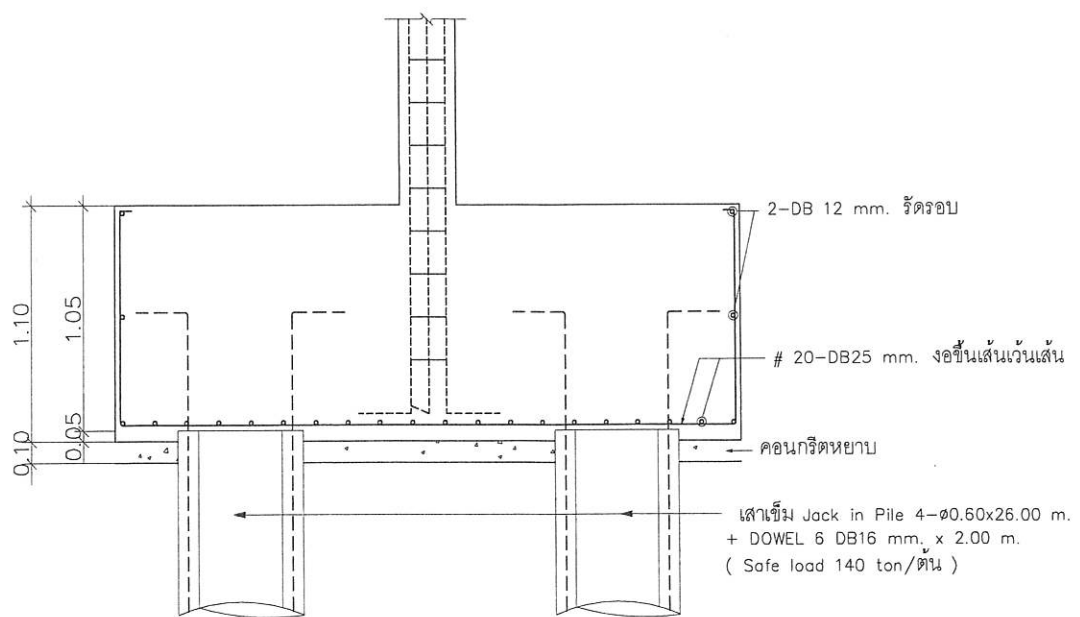
$$j = \frac{(1 - 0.59 \rho f_y)}{f'_c} = \frac{(1 - \frac{0.59 \times 0.0033 \times 4000}{280})}{280} = 0.972$$

$$U_u = \frac{V_u}{\sum O, j d} = \frac{417.56 \times 1000}{(20 \times 7.86) \times 0.972 \times 100} = 27.35 \text{ kg/cm}^2$$

$$U_n = \frac{6.39 \sqrt{f'_c}}{d b} = \frac{6.39 \sqrt{280}}{2.5} = 42.77 > U_u \text{ OK.}$$



F4-PLAN



F4-SECTION

### ออกแบบฐานราก F3B

$$f_y = 4000 \text{ kg/cm}^2$$

$$f_c = 280 \text{ kg/cm}^2$$

$$\text{ขนาดฐานราก} = 1.20 \times 4.80 \times 1.10 \text{ m.}$$

น้ำหนักบรรทุก

$$DL = 224.13 \text{ T.} \quad LL = 61.75 \text{ T.}$$

$$\begin{aligned} \text{น้ำหนักบรรทุกใช้งานที่เพิ่มค่าแล้ว} &= 1.4 DL + 1.7 LL \\ &= (1.4 \times 224.13) + (1.7 \times 61.75) \\ &= 418.76 \text{ T.} \end{aligned}$$

$$\begin{aligned} \text{น้ำหนักฐานราก} &= 1.4 \times (1.20 \times 4.80 \times 1.10 \times 2.4) \\ &= 21.29 \text{ T.} \end{aligned}$$

$$\begin{aligned} \text{น้ำหนักที่เสาเข็มต้องรับในแต่ละต้น} &= \frac{440.05}{3} = 146.69 \text{ T.} \end{aligned}$$

พิจารณาแรงเฉือนแบบคานกว้างที่หน้าตัดซึ่งห่างจากขอบเสา = 100 cm.

$$b = 440 \text{ cm.}$$

$$V_u = 2 \times 146.69 = 293.37 \text{ T.}$$

$$\begin{aligned} \phi V_c &= 0.53 \phi \sqrt{f_c} b_o d \\ &= 0.53 \times 0.85 \times \sqrt{280} \times 440 \times 100 / 1000 \\ &= 331.69 \text{ T.} > V_u \text{ O.K.} \end{aligned}$$

พิจารณาแรงเฉือนทะลุ

- ตามเส้นขอบเสา ซึ่งห่างจากขอบเสาเป็นระยะ  $100/2 = 50 \text{ cm.}$

$$b_o = 440 \text{ cm.}$$

$$V_u = 2 \times 146.69 = 293.38 \text{ T.}$$

$$\begin{aligned} \phi V_c &= 1.06 \phi \sqrt{f_c} b_o d \\ &= 1.06 \times 0.85 \times \sqrt{280} \times 440 \times 100 / 1000 \\ &= 663.37 \text{ T.} > V_u \text{ O.K.} \end{aligned}$$

หาเหล็กเสริม

$$\text{ด้านสั้น } b = 4.80 \text{ m.}$$

$$A_{smin} = 0.0018 \times 480 \times 110 = 95.04 \text{ cm}^2$$

$$\text{ใช้เหล็ก 21 - DB 25 m. ( } A_s = 103.08 \text{ cm}^2 \text{ )}$$

ด้านยาว  $b = 1.20 \text{ m}$ .

โมเมนต์  $M_u$  ที่ข้อบเสา

$$M_u = 146.69 \times 1.32 = 193.64 \text{ T-m.}$$

$$R_u = \frac{M_u}{\phi b d^2} = \frac{193.64 \times 1000 \times 100}{0.90 \times (120 \times 100^2)} = 17.93 \text{ kg/cm}^2$$

$$\rho = \frac{0.85 \times 280}{4000} \left[ 1 - \sqrt{1 - 2 \times \frac{17.93}{0.85 \times 280}} \right] = 0.0047 \quad ; (\rho < \rho_{\max})$$

$$A_s = \rho b d = 0.0047 \times 120 \times 100 = 56.40 \text{ cm}^2$$

$$A_{s_{\min}} = 0.0018 \times 120 \times 110 = 23.76 \text{ cm}^2$$

ใช้เหล็ก 13 - DB 25 m. (  $A_s = 63.83 \text{ cm}^2$  )

#### ตรวจสอบหน่วยแรงยึดเหนี่ยว

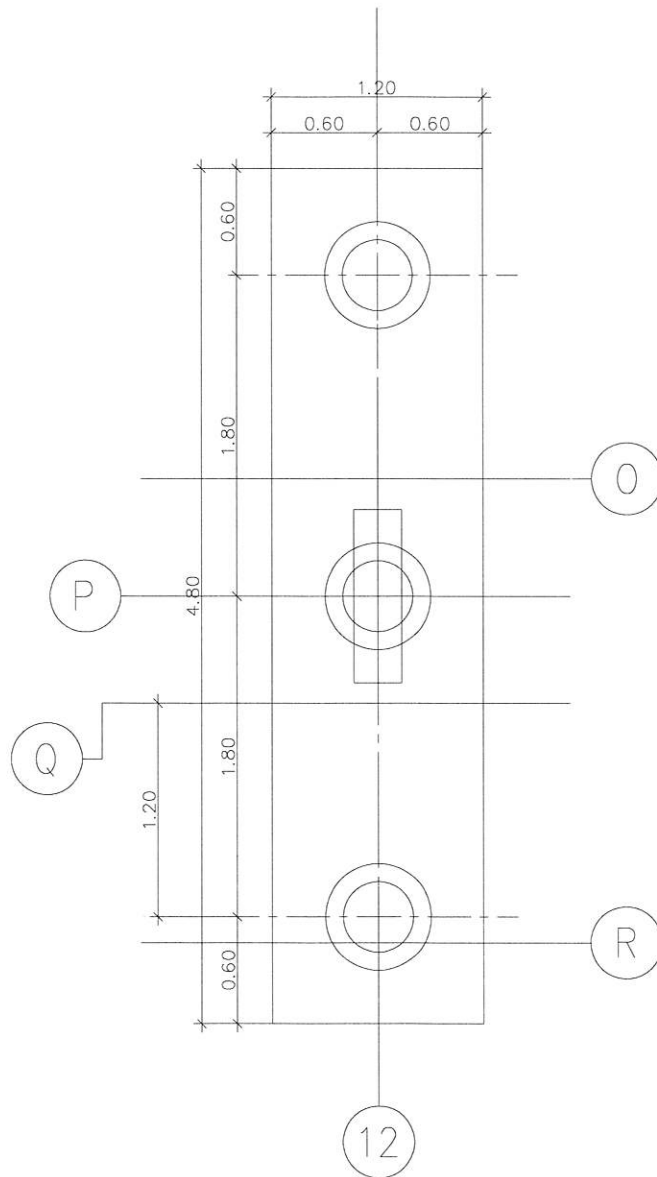
$$V_u = 146.69 \text{ T.}$$

$$\rho = \frac{A_s}{b d} = \frac{13 \times 4.91}{120 \times 100} = 0.0053$$

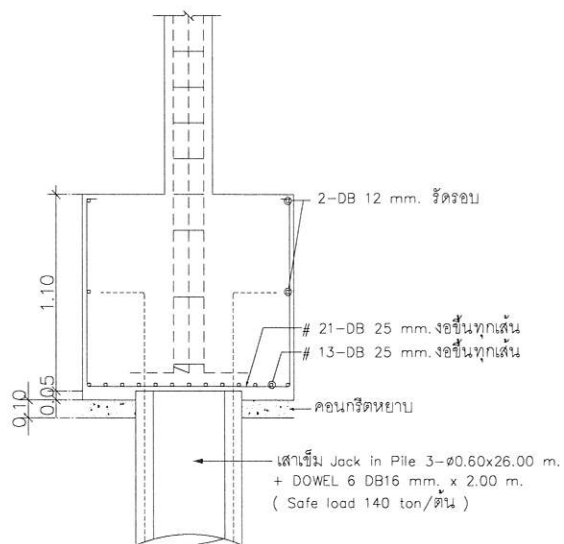
$$j = \frac{(1 - 0.59 \rho f_y)}{f_c} = \frac{(1 - 0.59 \times 0.0053 \times 4000)}{280} = 0.955$$

$$U_u = \frac{V_u}{\sum O_{jd}} = \frac{146.69 \times 1000}{(13 \times 7.86) \times 0.955 \times 100} = 15.04 \text{ kg/cm}^2$$

$$U_n = \frac{6.39 \sqrt{f'_c}}{d b} = \frac{6.39 \sqrt{280}}{2.5} = 42.77 > U_u \text{ OK.}$$



F3B - PLAN



F3B - SECTION

### ออกแบบฐานราก F8B1

$$f_y = 4000 \text{ kg/cm}^2$$

$$f_c = 280 \text{ kg/cm}^2$$

$$\text{ขนาดฐานราก} = 4.00 \times 6.80 \times 1.20 \text{ m.}$$

น้ำหนักจาก CORE 2B

$$DL = 750.69 \text{ T.} \quad LL = 180.60 \text{ T.}$$

$$\text{น้ำหนักฐานราก} = 4.00 \times 6.80 \times 1.20 \times 2.40 = 78.34 \text{ T.}$$

$$\begin{aligned} \text{น้ำหนักบรรทุกใช้งานที่เพิ่มค่าแล้ว} &= 1.4 DL + 1.7 LL \\ &= (1.4 \times 750.69) + (1.7 \times 180.6) + (1.4 \times 78.34) \\ &= 1467.66 \text{ T.} \end{aligned}$$

Load / pile

$$P1 = 180.84 \text{ T.}$$

$$P2 = 179.79 \text{ T.}$$

$$P3 = 178.74 \text{ T.}$$

$$P4 = 188.18 \text{ T.}$$

$$P5 = 187.13 \text{ T.}$$

$$P6 = 186.08 \text{ T.}$$

$$P7 = 183.99 \text{ T.}$$

$$P8 = 182.94 \text{ T.}$$

$$\text{Load / area} = 53.96 \text{ T./m}^2$$

$$S = 2.38$$

$$L = 5.08$$

$$m = 0.47$$

### หาเหล็กเสริม

#### ด้านสั้น

$$\begin{aligned} M_u^+ &= (53.96 \times 2.375^2) / 9 &= 33.82 \text{ T-m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{33.82 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} &= 3.11 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f_c}{f_y} \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f_c}} \right) &= \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 3.11}{0.85 \times 280}} \right) \\ & &= 0.00078 \\ A_s &= \rho b d = 0.00078 \times 100 \times 110 &= 8.58 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120) / 2 &= 10.80 \text{ cm}^2/\text{m} \\ \text{ใช้เหล็ก DB20 @ 0.20 m. ( } A_s &= 15.71 \text{ cm}^2/\text{m) } \end{aligned}$$

$$\begin{aligned} M_u^- &= (180.84 + 179.79 + 178.74) \times 0.61 &= 329.02 \text{ T-m./6.80 m.} \\ &= 48.38 \text{ T-m./m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{48.38 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} &= 4.45 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f_c}{f_y} \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f_c}} \right) &= \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 4.45}{0.85 \times 280}} \right) \\ & &= 0.00112 \\ A_s &= \rho b d = 0.00112 \times 100 \times 110 &= 12.32 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120) / 2 &= 10.80 \text{ cm}^2/\text{m} \\ \text{ใช้เหล็ก DB20 @ 0.20 m. ( } A_s &= 15.71 \text{ cm}^2/\text{m) } \end{aligned}$$

### ตรวจสอบหน่วยแรงยึดเหนี่ยว

$$\begin{aligned} V_u &= 180.84 + 178.74 + 179.79 &= 539.37 \text{ T.} \\ \rho &= \frac{A_s}{b d} = \frac{15.71}{100 \times 110} &= 0.00143 \\ j &= \frac{(1 - 0.59 \rho f_y)}{f_c} = \frac{(1 - 0.59 \times 0.00143 \times 4000)}{280} &= 0.988 \\ U_u &= \frac{V_u}{\sum O_{jd}} = \frac{539.37 \times 1000}{125.67 \times 0.988 \times 110} &= 39.49 \text{ kg/cm}^2 \\ U_n &= \frac{6.39 \sqrt{f_c}}{d_b} = \frac{6.39 \sqrt{280}}{2.0} &= 53.46 > U_u \text{ OK.} \end{aligned}$$

### หาเหล็กเสริม

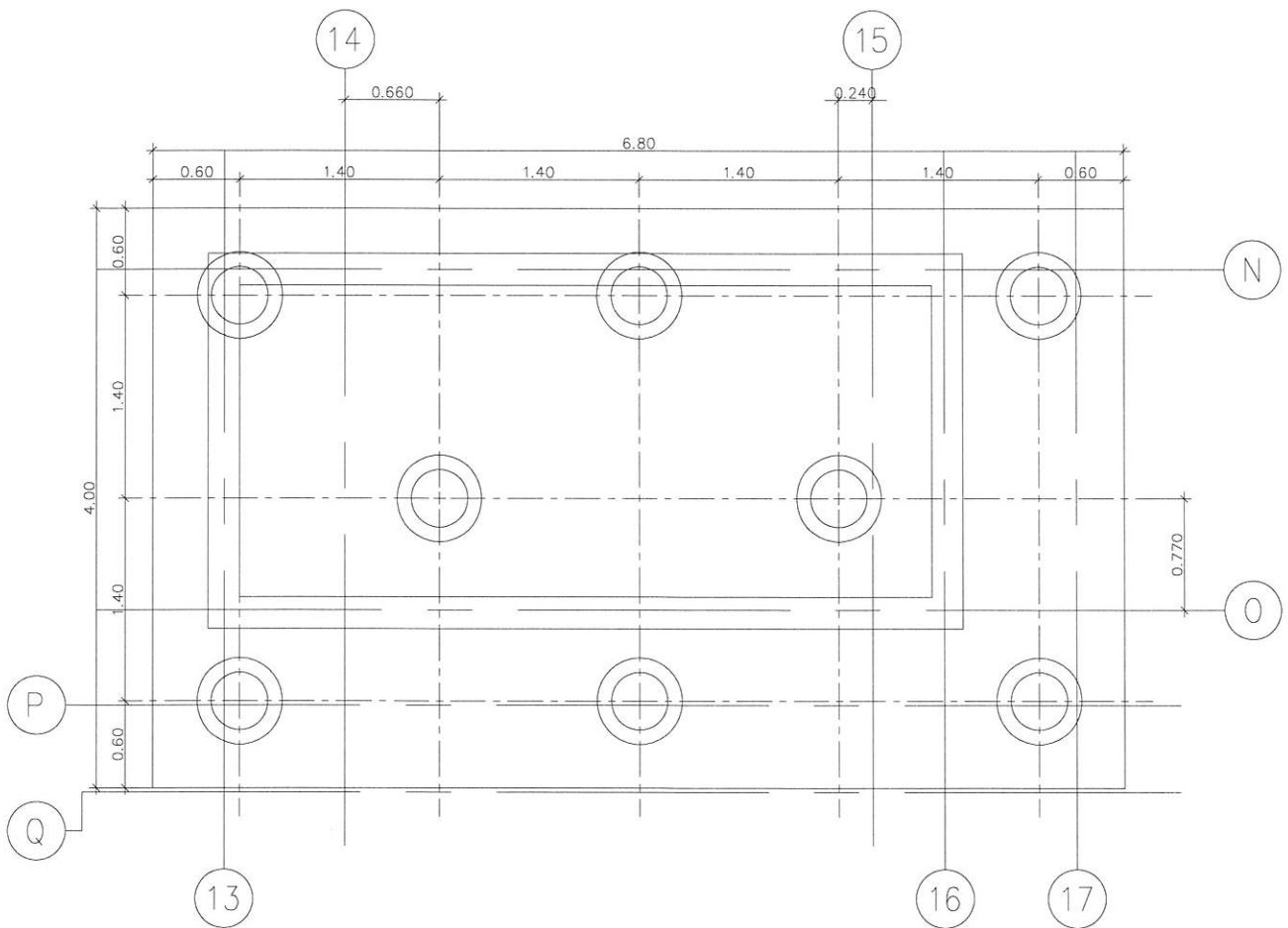
#### ด้านยาว

$$\begin{aligned} M_u^+ &= 0.05 \times 53.96 \times 2.375^2 &= 15.22 \text{ T-m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{15.22 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} &= 1.40 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f_c}{f_y} \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f_c}} \right) &= \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 1.4}{0.85 \times 280}} \right) \\ & &= 0.00035 \\ A_s &= \rho b d = 0.00035 \times 100 \times 110 &= 3.85 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120) / 2 &= 10.80 \text{ cm}^2/\text{m} \\ \text{ใช้เหล็ก DB20 @ 0.2 m. ( } A_s &= 15.71 \text{ cm}^2/\text{m) } \end{aligned}$$

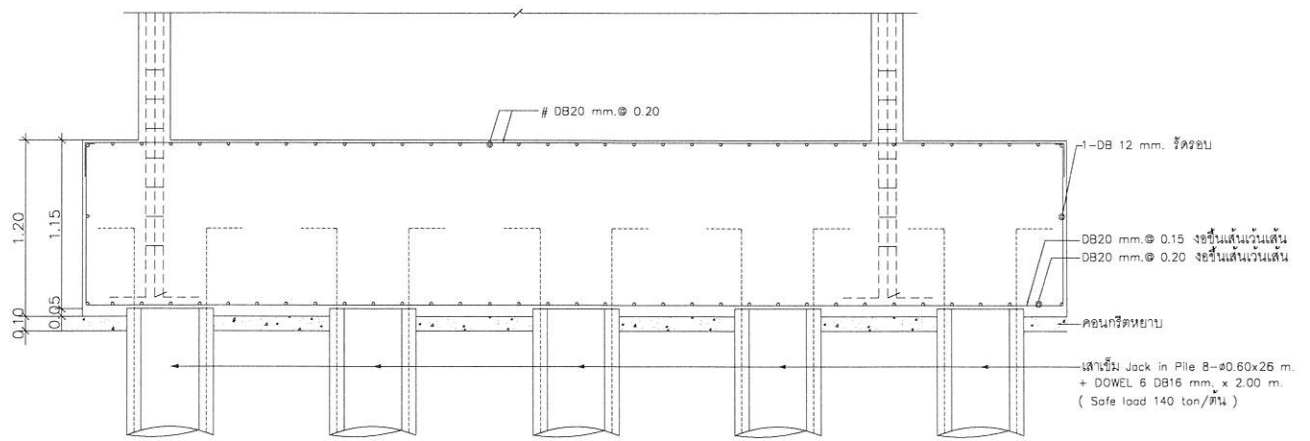
$$\begin{aligned} M_u^- &= (178.74 + 186.08) \times 0.64 &= 233.48 \text{ T-m./4.00 m.} \\ &= 58.37 \text{ T-m/m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{58.37 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} &= 5.36 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f_c}{f_y} \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f_c}} \right) &= \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 5.36}{0.85 \times 280}} \right) \\ & &= 0.00136 \\ A_s &= \rho b d = 0.00136 \times 100 \times 110 &= 14.96 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120) / 2 &= 10.80 \text{ cm}^2/\text{m} \\ \text{ใช้เหล็ก DB20 @ 0.15 m. ( } A_s &= 20.94 \text{ cm}^2/\text{m) } \end{aligned}$$

#### ตรวจสอบหน่วยแรงยึดเหนี่ยว

$$\begin{aligned} V_u &= 178.74 + 186.08 &= 364.82 \text{ T.} \\ \rho &= \frac{A_s}{b d} = \frac{20.94}{100 \times 110} &= 0.00190 \\ j &= \frac{(1 - 0.59 \rho f_y)}{f_c} = \frac{(1 - 0.59 \times 0.0019 \times 4000)}{280} &= 0.984 \\ U_u &= \frac{V_u}{\sum O_{jd}} = \frac{364.82 \times 1000}{167.58 \times 0.984 \times 110} &= 20.11 \text{ kg/cm}^2 \\ U_n &= \frac{6.39 \sqrt{f_c}}{d_b} = \frac{6.39 \sqrt{280}}{2.0} &= 53.46 > U_u \text{ OK.} \end{aligned}$$



F8B1 - PLAN



F8B1 - SECTION

### ออกแบบฐานราก F8B2

$$f_y = 4000 \text{ kg/cm}^2$$

$$f_c = 280 \text{ kg/cm}^2$$

$$\text{ขนาดฐานราก} = 4.20 \times 6.20 \times 1.20 \text{ m.}$$

น้ำหนักจาก CORE 2B

$$DL = 515.59 \text{ T.} \quad LL = 106.40 \text{ T.}$$

$$\text{น้ำหนักฐานราก} = 4.20 \times 6.20 \times 1.20 \times 2.40 = 75.00 \text{ T.}$$

$$\begin{aligned} \text{น้ำหนักบรรทุกใช้งานที่เพิ่มค่าแล้ว} &= 1.4 DL + 1.7 LL \\ &= (1.4 \times 515.59) + (1.7 \times 106.4) + (1.4 \times 75) \\ &= 1007.71 \text{ T.} \end{aligned}$$

Load / pile

$$P1 = 176.84 \text{ T.}$$

$$P2 = 173.94 \text{ T.}$$

$$P3 = 170.79 \text{ T.}$$

$$P4 = 78.56 \text{ T.}$$

$$P5 = 75.66 \text{ T.}$$

$$P6 = 72.51 \text{ T.}$$

$$P7 = 131.17 \text{ T.}$$

$$P8 = 128.26 \text{ T.}$$

$$\text{Load / area} = 38.70 \text{ T./m}^2$$

$$S = 3.10 \quad L = 4.97 \quad m = 0.62$$

### หาเหล็กเสริม

#### ด้านสั้น

$$\begin{aligned}Mu^+ &= 0.078 \times 38.7 \times 3.1^2 = 29.01 \text{ T-m.} \\Ru &= \frac{Mu}{\phi bd^2} = \frac{29.01 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 2.67 \text{ kg/cm}^2/\text{m.} \\P &= \frac{0.85f'_c}{f_y} \left( 1 - \sqrt{1 - \frac{2Ru}{0.85f'_c}} \right) = \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 2.67}{0.85 \times 280}} \right) \\&= 0.00067 \\As &= Pbd = 0.00067 \times 100 \times 110 = 7.37 \text{ cm}^2/\text{m} \\As_{min} &= (0.0018 \times 100 \times 120) / 2 = 10.80 \text{ cm}^2/\text{m} \\&\text{ใช้เหล็ก DB20 @ 0.2 m. ( } As = 15.71 \text{ cm}^2/\text{m) }\end{aligned}$$

$$\begin{aligned}Mu^- &= (176.84 + 173.94 + 170.79) \times 0.24 = 125.18 \text{ T-m./6.20 m.} \\&= 20.19 \text{ T-m./m.} \\Ru &= \frac{Mu}{\phi bd^2} = \frac{20.19 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 1.86 \text{ kg/cm}^2/\text{m.} \\P &= \frac{0.85f'_c}{f_y} \left( 1 - \sqrt{1 - \frac{2Ru}{0.85f'_c}} \right) = \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 1.86}{0.85 \times 280}} \right) \\&= 0.00047 \\As &= Pbd = 0.00047 \times 100 \times 110 = 5.17 \text{ cm}^2/\text{m} \\As_{min} &= (0.0018 \times 100 \times 120) / 2 = 10.80 \text{ cm}^2/\text{m} \\&\text{ใช้เหล็ก DB20 @ 0.2 m. ( } As = 15.71 \text{ cm}^2/\text{m) }\end{aligned}$$

### ตรวจสอบหน่วยแรงยึดเหนี่ยว

$$\begin{aligned}Vu &= 176.84 + 173.94 + 170.79 = 521.57 \text{ T.} \\P &= \frac{As}{bd} = \frac{15.71}{100 \times 110} = 0.00143 \\j &= \frac{(1 - 0.59P)f_y}{f'_c} = \frac{(1 - 0.59 \times 0.00143 \times 4000)}{280} = 0.988 \\Uu &= \frac{Vu}{\sum O_j d} = \frac{521.57 \times 1000}{194.78 \times 0.988 \times 110} = 24.64 \text{ kg/cm}^2 \\Un &= \frac{6.39\sqrt{f'_c}}{db} = \frac{6.39\sqrt{280}}{2.0} = 53.46 > Uu \text{ OK.}\end{aligned}$$

### หาเหล็กเสริม

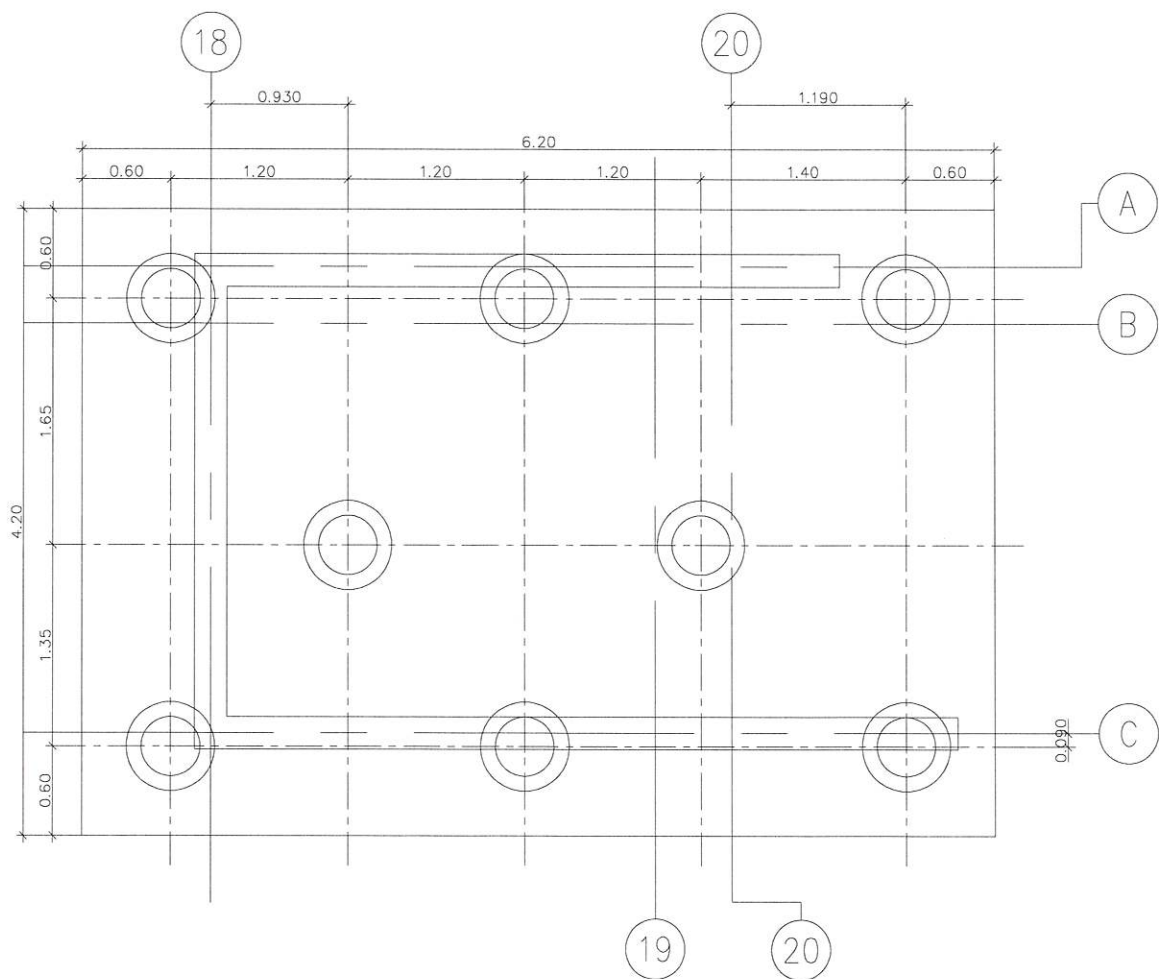
#### ด้านยาว

$$\begin{aligned} M_u^+ &= 0.05 \times 38.7 \times 3.1^2 = 18.60 \text{ T-m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{18.6 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 1.71 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f'_c \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f'_c}} \right)}{f_y} = \frac{0.85 \times 280 \left( 1 - \sqrt{1 - \frac{2 \times 1.71}{0.85 \times 280}} \right)}{4000} \\ &= 0.00043 \\ A_s &= \rho b d = 0.00043 \times 100 \times 110 = 4.73 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120) / 2 = 10.80 \text{ cm}^2/\text{m} \\ &\text{ใช้เหล็ก DB20 @ 0.2 m. ( } A_s = 15.71 \text{ cm}^2/\text{m) } \end{aligned}$$

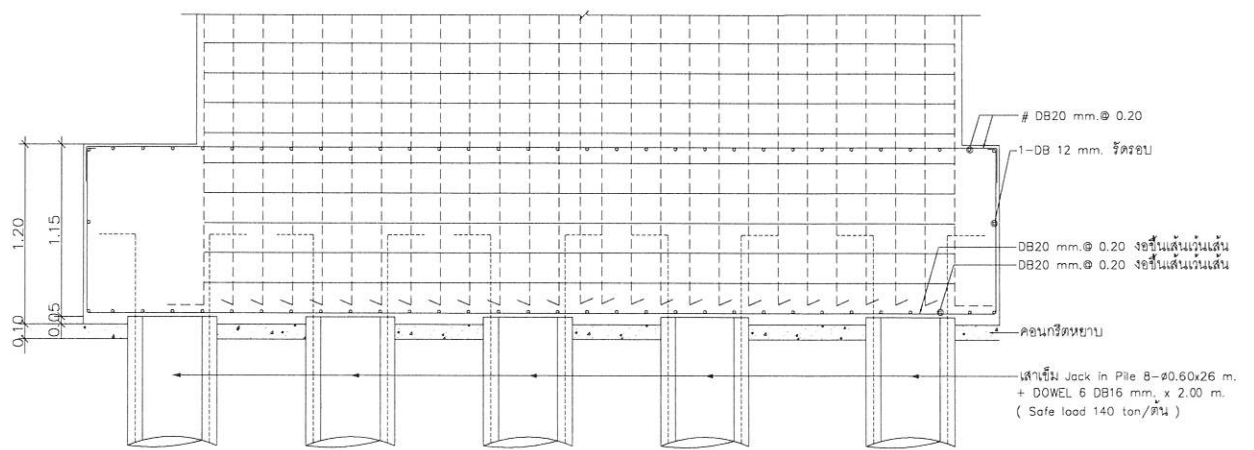
$$\begin{aligned} M_u^- &= (176.84 + 173.94) \times 0.45 = 157.85 \text{ T-m./4.20 m.} \\ &= 37.58 \text{ T-m./m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{37.58 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 3.46 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f'_c \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f'_c}} \right)}{f_y} = \frac{0.85 \times 280 \left( 1 - \sqrt{1 - \frac{2 \times 3.46}{0.85 \times 280}} \right)}{4000} \\ &= 0.00087 \\ A_s &= \rho b d = 0.00087 \times 100 \times 110 = 9.57 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120) / 2 = 10.80 \text{ cm}^2/\text{m} \\ &\text{ใช้เหล็ก DB20 @ 0.2 m. ( } A_s = 15.71 \text{ cm}^2/\text{m) } \end{aligned}$$

#### ตรวจสอบหน่วยแรงยึดเหนี่ยว

$$\begin{aligned} V_u &= 176.84 + 173.94 = 350.78 \text{ T.} \\ \rho &= \frac{A_s}{b d} = \frac{15.71}{100 \times 110} = 0.00143 \\ j &= \frac{(1 - 0.59 \rho f_y)}{f'_c} = \frac{(1 - 0.59 \times 0.00143 \times 4000)}{280} = 0.988 \\ U_u &= \frac{V_u}{\sum O_j d} = \frac{350.78 \times 1000}{131.95 \times 0.988 \times 110} = 24.46 \text{ kg/cm}^2 \\ U_n &= \frac{6.39 \sqrt{f'_c}}{d_b} = \frac{6.39 \sqrt{280}}{2.0} = 53.46 > U_u \text{ OK.} \end{aligned}$$



F8B2 - PLAN



F8B2 - PLAN

### ออกแบบฐานราก F11B

$$f_y = 4000 \text{ kg/cm}^2$$

$$f_c = 280 \text{ kg/cm}^2$$

$$\text{ขนาดฐานราก} = 7.40 \times 4.80 \times 1.20 \text{ m.}$$

น้ำหนักจาก CORE 1B

$$DL = 1061.08 \text{ T.} \quad LL = 283.76 \text{ T.}$$

$$\text{น้ำหนักฐานราก} = 7.40 \times 4.80 \times 1.20 \times 2.40 = 102.30 \text{ T.}$$

$$\begin{aligned} \text{น้ำหนักบรรทุกใช้งานที่เพิ่มค่าแล้ว} &= 1.4 DL + 1.7 LL \\ &= (1.4 \times 1061.08) + (1.7 \times 283.76) + (1.4 \times 102.3) \\ &= 2111.12 \text{ T.} \end{aligned}$$

Load / pile

$$P1 = 194.21 \text{ T.}$$

$$P7 = 191.57 \text{ T.}$$

$$P2 = 194.21 \text{ T.}$$

$$P8 = 188.94 \text{ T.}$$

$$P3 = 194.21 \text{ T.}$$

$$P9 = 188.94 \text{ T.}$$

$$P4 = 194.21 \text{ T.}$$

$$P10 = 188.94 \text{ T.}$$

$$P5 = 191.57 \text{ T.}$$

$$P11 = 188.94 \text{ T.}$$

$$P6 = 191.57 \text{ T.}$$

$$\text{Load / area} = 59.43 \text{ T./m}^2$$

$$S = 3.72$$

$$L = 5.47$$

$$m = 0.68$$

### หาเหล็กเสริม

#### ด้านสั้น

$$\begin{aligned} M_u^+ &= 0.074 \times 59.43 \times 3.72^2 = 60.86 \text{ T-m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{60.86 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 5.59 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f'_c \left(1 - \sqrt{1 - \frac{2R_u}{0.85 f'_c}}\right)}{f_y} = \frac{0.85 \times 280 \left(1 - \sqrt{1 - \frac{2 \times 5.59}{0.85 \times 280}}\right)}{4000} \\ &= 0.00141 \\ A_s &= \rho b d = 0.00141 \times 100 \times 110 = 15.51 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120)/2 = 10.80 \text{ cm}^2/\text{m} \\ &\text{ใช้เหล็ก DB20 @ 0.125 m. ( } A_s = 25.13 \text{ cm}^2/\text{m) } \end{aligned}$$

$$\begin{aligned} M_u^- &= (188.94 + 188.94 + 188.94 + 188.94) \times 0.22 = 166.27 \text{ T-m./7.40 m.} \\ &= 22.47 \text{ T-m./m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{22.47 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 2.07 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f'_c \left(1 - \sqrt{1 - \frac{2R_u}{0.85 f'_c}}\right)}{f_y} = \frac{0.85 \times 280 \left(1 - \sqrt{1 - \frac{2 \times 2.07}{0.85 \times 280}}\right)}{4000} \\ &= 0.00052 \\ A_s &= \rho b d = 0.00052 \times 100 \times 110 = 5.72 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120)/2 = 10.80 \text{ cm}^2/\text{m} \\ &\text{ใช้เหล็ก DB20 @ 0.125 m. ( } A_s = 25.13 \text{ cm}^2/\text{m) } \end{aligned}$$

#### ตรวจสอบหน่วยแรงยึดเหนี่ยว

$$\begin{aligned} V_u &= 188.94 + 188.94 + 188.94 + 188.94 = 755.76 \text{ T.} \\ \rho &= \frac{A_s}{b d} = \frac{25.13}{100 \times 110} = 0.00228 \\ j &= \frac{(1 - 0.59 \rho f_y)}{f'_c} = \frac{(1 - 0.59 \times 0.00228 \times 4000)}{280} = 0.981 \\ U_u &= \frac{V_u}{\sum O_j d} = \frac{755.76 \times 1000}{241.28 \times 0.981 \times 110} = 29.03 \text{ kg/cm}^2 \\ U_n &= \frac{6.39 \sqrt{f'_c}}{d_b} = \frac{6.39 \sqrt{280}}{2.0} = 53.46 > U_u \text{ OK.} \end{aligned}$$

### หาเหล็กเสริม

#### ด้านยาว

$$\begin{aligned} M_u^+ &= 0.05 \times 59.43 \times 3.72^2 = 41.13 \text{ T-m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{41.13 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 3.78 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f_c'}{f_y} \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f_c'}} \right) = \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 3.78}{0.85 \times 280}} \right) \\ &= 0.00095 \\ A_s &= \rho b d = 0.00095 \times 100 \times 110 = 10.45 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120)/2 = 10.80 \text{ cm}^2/\text{m} \end{aligned}$$

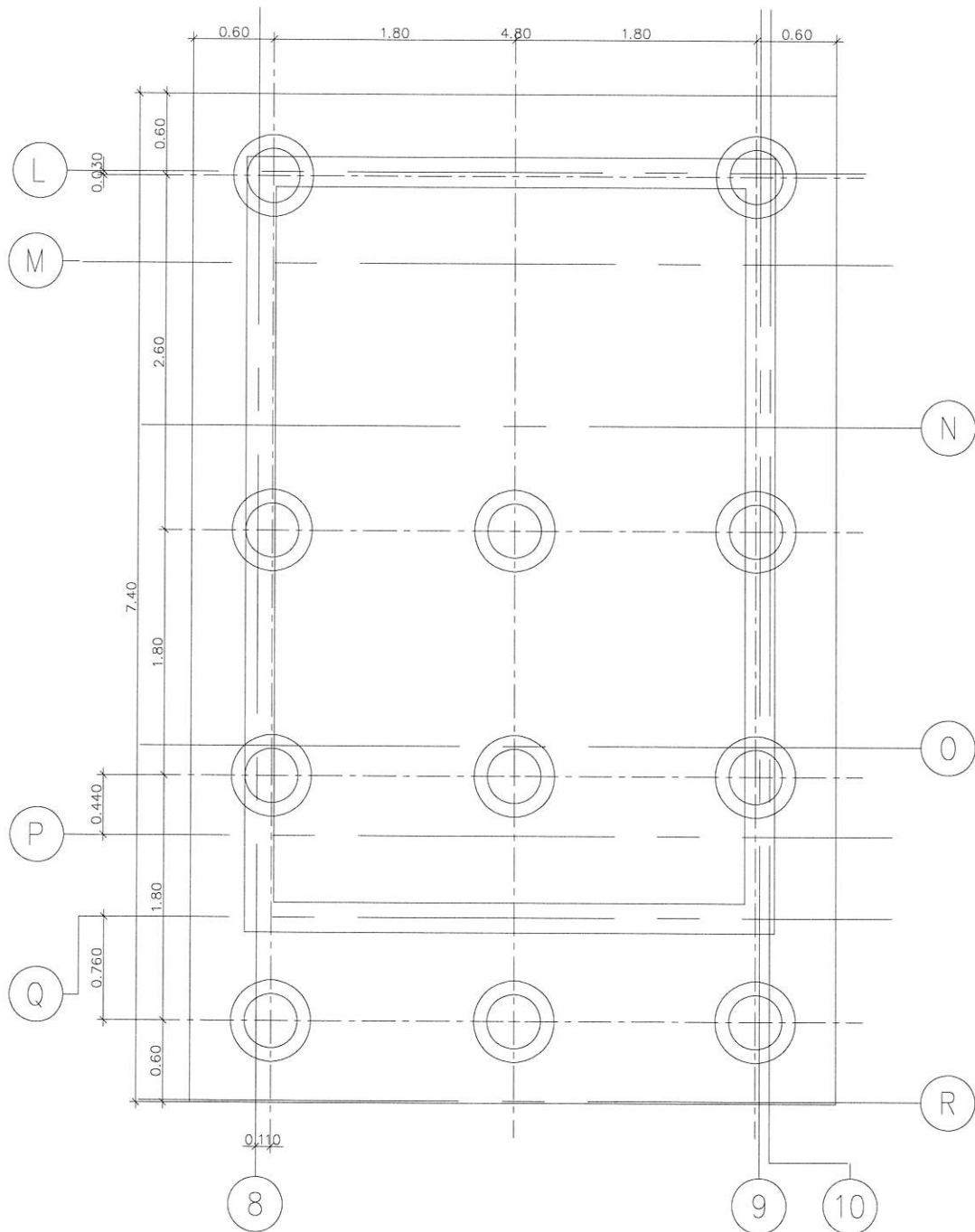
ใช้เหล็ก DB20 @ 0.15 m. ( $A_s = 20.94 \text{ cm}^2/\text{m}$ )

$$\begin{aligned} M_u^- &= (194.21 + 191.57 + 188.94) \times 0.74 = 425.29 \text{ T-m./4.80 m.} \\ &= 88.60 \text{ T-m./m.} \\ R_u &= \frac{M_u}{\phi b d^2} = \frac{88.6 \times 1000 \times 100}{0.9 \times (100 \times 110^2)} = 8.14 \text{ kg/cm}^2/\text{m.} \\ \rho &= \frac{0.85 f_c'}{f_y} \left( 1 - \sqrt{1 - \frac{2 R_u}{0.85 f_c'}} \right) = \frac{0.85 \times 280}{4000} \left( 1 - \sqrt{1 - \frac{2 \times 8.14}{0.85 \times 280}} \right) \\ &= 0.00207 \\ A_s &= \rho b d = 0.00207 \times 100 \times 110 = 22.77 \text{ cm}^2/\text{m} \\ A_{smin} &= (0.0018 \times 100 \times 120)/2 = 10.80 \text{ cm}^2/\text{m} \end{aligned}$$

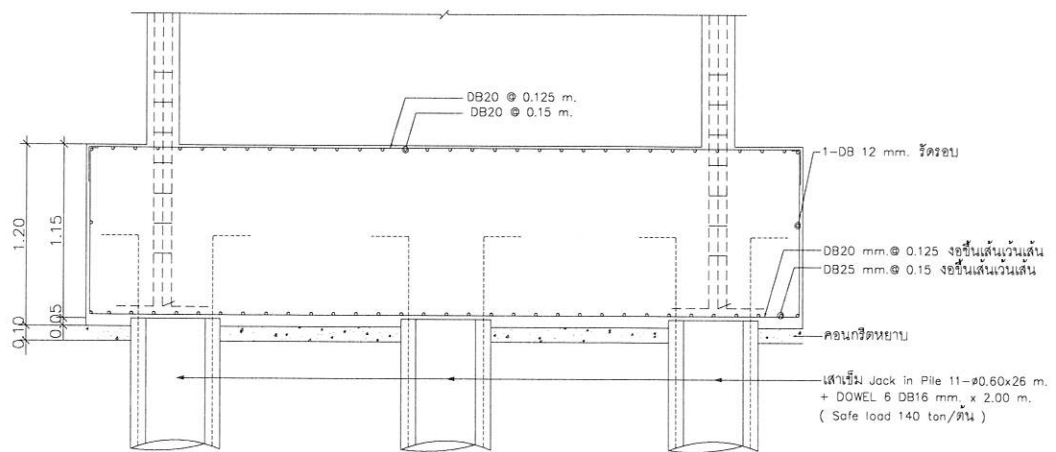
ใช้เหล็ก DB25 @ 0.15 m. ( $A_s = 32.72 \text{ cm}^2/\text{m}$ )

### ตรวจสอบหน่วยแรงยึดเหนี่ยว

$$\begin{aligned} V_u &= 194.21 + 191.57 + 188.94 = 577.35 \text{ T.} \\ \rho &= \frac{A_s}{b d} = \frac{32.72}{100 \times 110} = 0.00297 \\ j &= \frac{(1 - 0.59 \rho f_y)}{f_c} = \frac{(1 - 0.59 \times 0.00297 \times 4000)}{280} = 0.975 \\ U_u &= \frac{V_u}{\sum O_j d} = \frac{577.35 \times 1000}{387.52 \times 0.975 \times 110} = 13.89 \text{ kg/cm}^2 \\ U_n &= \frac{6.39 \sqrt{f_c}}{d_b} = \frac{6.39 \sqrt{280}}{2.5} = 42.77 > U_u \text{ OK.} \end{aligned}$$



F11B - PLAN



F11B - SECTION



Concrete Column Design Summary

Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m <sup>2</sup>	As m <sup>2</sup>
ROOF TOP	C21	C-0.27x0.67 Fc320	Design	No Message	UEQ1	0.001809	0.002447
ROOF TOP	C22	C-0.97x0.27 Fc320	Design	No Message	UEQ1	0.002619	0.003286
RWT	C21	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.002719
RWT	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C1	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.002274
ROOF	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C3	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C4	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C5	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
ROOF	C6	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
ROOF	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
ROOF	C8	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C12	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C13	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C15	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C16	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C17	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C18	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.002713
ROOF	C19	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C20	C-0.27x0.67 Fc320	Design	No Message	UEQ1	0.001809	0.001843
ROOF	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
ROOF	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C23	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C24	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C25	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
ROOF	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
ROOF	C28	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C29	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C30	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
ROOF	C31	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
ROOF	C32	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.001859
ROOF	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C3	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C4	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C5	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C6	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C8	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C12	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619

Concrete Column Design Summary

Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m <sup>2</sup>	As m <sup>2</sup>
Story8	C13	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C15	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C16	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C17	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C19	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C23	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C24	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C25	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C28	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C29	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C30	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story8	C31	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story8	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C3	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C4	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C5	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C6	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C8	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C12	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C13	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C15	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C16	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C17	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C19	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C23	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C24	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C25	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C28	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619

# Concrete Column Design Summary

Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m²	As m²
Story7	C29	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C30	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story7	C31	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story7	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C3	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C4	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C5	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C6	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C8	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C12	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C13	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C15	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C16	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C17	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C19	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C23	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C24	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C25	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C28	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C29	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C30	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story6	C31	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story6	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C3	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C4	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C5	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C6	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C8	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619

Concrete Column Design Summary

Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m <sup>2</sup>	As m <sup>2</sup>
Story5	C12	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C13	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C15	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C16	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C17	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C19	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C23	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C24	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C25	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C28	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C29	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C30	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story5	C31	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story5	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C3	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.003355
Story4	C4	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C5	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C6	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C8	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.002737
Story4	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C12	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C13	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C15	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C16	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C17	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C19	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C23	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C24	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C25	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809

# Concrete Column Design Summary

Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m <sup>2</sup>	As m <sup>2</sup>
Story4	C28	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C29	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C30	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story4	C31	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story4	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C3	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.007114
Story3	C4	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.005823
Story3	C5	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.001909
Story3	C6	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.001885
Story3	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C8	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.006522
Story3	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C12	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.004699
Story3	C13	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.003164
Story3	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C15	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C16	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C17	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C19	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C23	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C24	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.003478
Story3	C25	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story3	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C28	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.004065
Story3	C29	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.003333
Story3	C30	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.003208
Story3	C31	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story3	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story2	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story2	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story2	C3	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.010379
Story2	C4	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.010149
Story2	C5	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.005685
Story2	C6	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.003447
Story2	C7	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story2	C8	C-0.27x0.97 Fc320	Design	No Message	UEQ2	0.002619	0.01027
Story2	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story2	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619

Concrete Column Design Summary

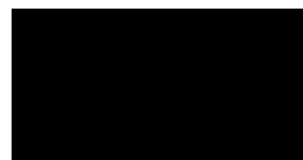
Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m <sup>2</sup>	As m <sup>2</sup>
Story2	C11	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story2	C12	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.007604
Story2	C13	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.005991
Story2	C14	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story2	C15	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.005791
Story2	C16	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.004456
Story2	C17	C-0.27x0.97 Fc320	Design	No Message	USD1	0.002619	0.003461
Story2	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story2	C19	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.008193
Story2	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story2	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story2	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story2	C23	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.00442
Story2	C24	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.006059
Story2	C25	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.00472
Story2	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story2	C27	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story2	C28	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.007081
Story2	C29	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.008533
Story2	C30	C-0.97x0.27 Fc320	Design	No Message	USD1	0.002619	0.006519
Story2	C31	C-0.27x0.67 Fc320	Design	No Message	USD1	0.001809	0.003196
Story2	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story2	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story1	C1	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story1	C2	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story1	C3	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.007851
Story1	C4	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.007064
Story1	C5	C-0.32x0.72 Fc320	Design	No Message	UWL4	0.002304	0.002304
Story1	C6	C-0.32x0.72 Fc320	Design	No Message	UWL4	0.002304	0.002304
Story1	C7	C-0.32x0.72 Fc320	Design	No Message	UWL4	0.002304	0.002304
Story1	C8	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.008755
Story1	C9	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story1	C10	C-0.27x0.97 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story1	C11	C-0.32x1.02Fc320	Design	No Message	UWL4	0.003264	0.003264
Story1	C12	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.006024
Story1	C13	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.004451
Story1	C14	C-0.32x1.02Fc320	Design	No Message	UWL4	0.003264	0.003264
Story1	C15	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.004894
Story1	C16	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.004229
Story1	C17	C-0.32x1.02Fc320	Design	No Message	UWL4	0.003264	0.003264
Story1	C18	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story1	C19	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.004944
Story1	C20	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story1	C21	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story1	C22	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story1	C23	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.004306
Story1	C24	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.005979
Story1	C25	C-0.32x1.02Fc320	Design	No Message	UWL4	0.003264	0.003264
Story1	C26	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809

# Concrete Column Design Summary

Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m²	As m²
Story1	C27	C-0.32x0.72 Fc320	Design	No Message	UWL4	0.002304	0.002304
Story1	C28	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.004899
Story1	C29	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.005951
Story1	C30	C-0.32x1.02Fc320	Design	No Message	USD1	0.003264	0.004464
Story1	C31	C-0.32x0.72 Fc320	Design	No Message	UWL4	0.002304	0.002304
Story1	C32	C-0.27x0.67 Fc320	Design	No Message	UWL4	0.001809	0.001809
Story1	C33	C-0.97x0.27 Fc320	Design	No Message	UWL4	0.002619	0.002619
Story1	C34	C-0.20x0.20 Fc280	Design	No Message	UWL4	0.0004	0.0004
Story1	C35	C-0.20x0.20 Fc280	Design	No Message	UWL4	0.0004	0.0004
Story1	C36	C-0.20x0.20 Fc280	Design	No Message	UWL4	0.0004	0.0004
Story1	C37	C-0.20x0.20 Fc280	Design	No Message	UWL4	0.0004	0.0004
Story1	C38	C-0.20x0.20 Fc280	Design	No Message	UWL4	0.0004	0.0004
Story1	C39	C-0.20x0.20 Fc280	Design	No Message	UWL4	0.0004	0.0004
Story1	C40	C-0.20x0.20 Fc280	Design	No Message	UWL4	0.0004	0.0004
Story1	C17	-0.32x0.82 Fc400 SD	Design	No Message	USD1	0.002624	0.010295
Story1	C18	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C19	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C20	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C21	C-0.27x0.77 Fc400	Design	No Message	USD1	0.002079	0.007396
Story1	C22	-0.32x0.82 Fc400 SD	Design	No Message	USD1	0.002624	0.013867
Story1	C23	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C24	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C25	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C26	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C27	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C28	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C29	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C30	-0.32x0.82 Fc400 SD	Design	No Message	USD1	0.002624	0.013341
Story1	C31	C-0.27x0.77 Fc400	Design	No Message	USD1	0.002079	0.007964
Story1	C32	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C33	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C34	C-0.27x0.77 Fc400	Design	No Message	USD1	0.002079	0.005647
Story1	C35	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C36	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C37	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C38	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C39	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C40	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C41	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C42	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C43	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C44	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C45	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C46	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C47	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C48	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C49	C-0.77x0.27 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C50	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079
Story1	C51	C-0.27x0.77 Fc400	Design	No Message	UWL4	0.002079	0.002079

### Concrete Column Design Summary

Story	Label	Design Section	Design/Check	Status	PMM Combo	As,min m²	As m²
Story1	C54	C-0.20x0.20 Fc400	Design	No Message	USD1	0.0004	0.000821
Story1	C55	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C70	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C73	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C74	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C75	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C76	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C77	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C78	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C79	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C80	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C57	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004
Story1	C63	C-0.20x0.20 Fc400	Design	No Message	UWL4	0.0004	0.0004







# Concrete Shear Wall Design

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
ROOF TOP	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.25	8.53
ROOF TOP	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.25	8.53
RWT	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.28	8.53
RWT	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.50	8.53
ROOF	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.51	8.53
ROOF	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.50	8.53
Story8	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.44	8.53
Story8	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.37	8.53
Story7	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.25	8.53
Story7	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.25	8.53
Story6	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.25	8.53
Story6	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.25	8.53
Story5	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.25	8.53
Story5	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.31	8.53
Story4	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.31	8.53
Story4	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.47	8.53
Story3	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.43	8.53
Story3	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.68	8.53
Story2	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.48	8.53
Story2	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.73	8.53
Story1	CORE LIFT - 1	Top	Uniform	DB12	DB20	0.2	0.55	8.53
Story1	CORE LIFT - 1	Bottom	Uniform	DB12	DB20	0.2	0.71	8.53
ROOF TOP	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF TOP	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.50	10.88
ROOF	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.43	10.88
ROOF	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.33	10.88
Story8	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.38	10.88
Story8	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.26	10.88
Story7	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.31	10.88
Story7	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story6	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.40	10.88
Story6	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.39	10.88
Story5	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.50	10.88
Story5	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.53	10.88
Story4	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.68	10.88
Story4	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	0.80	10.88
Story3	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	0.83	10.88
Story3	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	1.04	10.88
Story2	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	1.01	10.88
Story2	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	1.31	10.88
Story1	CORE LIFT - 2	Top	Uniform	DB12	DB20	0.2	1.14	10.88
Story1	CORE LIFT - 2	Bottom	Uniform	DB12	DB20	0.2	1.47	10.88
ROOF TOP	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF TOP	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.25	10.88

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
RWT	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.44	10.88
ROOF	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story8	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story8	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story7	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story7	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story6	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.30	10.88
Story6	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.27	10.88
Story5	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.45	10.88
Story5	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.46	10.88
Story4	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.63	10.88
Story4	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.64	10.88
Story3	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	0.83	10.88
Story3	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	0.92	10.88
Story2	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	1.13	10.88
Story2	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	1.32	10.88
Story1	CORE LIFT - 3	Top	Uniform	DB12	DB20	0.2	1.32	10.88
Story1	CORE LIFT - 3	Bottom	Uniform	DB12	DB20	0.2	1.60	10.88
ROOF TOP	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.49	10.88
ROOF TOP	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.59	10.88
RWT	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.31	10.88
ROOF	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.47	10.88
Story8	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story8	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.37	10.88
Story7	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story7	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.32	10.88
Story6	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story6	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.35	10.88
Story5	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story5	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.46	10.88
Story4	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story4	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.60	10.88
Story3	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story3	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.73	10.88
Story2	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.46	10.88
Story2	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	1.26	10.88
Story1	CORE LIFT - 4	Top	Uniform	DB12	DB20	0.2	0.58	10.88
Story1	CORE LIFT - 4	Bottom	Uniform	DB12	DB20	0.2	0.78	10.88
ROOF TOP	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.45	10.88
ROOF TOP	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.45	10.88
ROOF TOP	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.50	10.88
ROOF TOP	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.50	10.88
RWT	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
RWT	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.31	10.88
ROOF	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.31	10.88
ROOF	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story8	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.27	10.88
Story8	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.27	10.88
Story8	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story8	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story7	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story7	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story7	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story7	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story6	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story6	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.25	10.88
Story6	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story6	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story5	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.33	10.88
Story5	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.33	10.88
Story5	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story5	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
Story4	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.44	10.88
Story4	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.44	10.88
Story4	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.27	10.88
Story4	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.27	10.88
Story3	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.49	10.88
Story3	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.49	10.88
Story3	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.46	10.88
Story3	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.46	10.88
Story2	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.67	10.88
Story2	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.67	10.88
Story2	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.74	10.88
Story2	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.74	10.88
Story1	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.80	10.88
Story1	CORE LIFT - 5	Top	Uniform	DB12	DB20	0.2	0.80	10.88
Story1	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.98	10.88
Story1	CORE LIFT - 5	Bottom	Uniform	DB12	DB20	0.2	0.98	10.88
ROOF TOP	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	0.48	10.88
ROOF TOP	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	0.49	10.88
RWT	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	0.84	10.88
ROOF	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	1.10	10.88
Story8	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	0.50	10.88
Story8	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	0.96	10.88
Story7	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	0.61	10.88
Story7	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	1.05	10.88
Story6	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	0.75	10.88

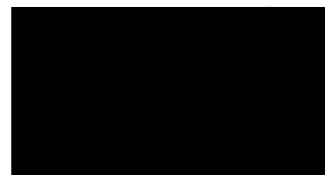
Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
Story6	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	1.15	10.88
Story5	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	0.94	10.88
Story5	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	1.33	10.88
Story4	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	1.26	10.88
Story4	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	1.67	10.88
Story3	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	1.42	10.88
Story3	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	1.75	10.88
Story2	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	2.17	10.88
Story2	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	2.50	10.88
Story1	CORE LIFT - 6	Top	Uniform	DB12	DB20	0.2	1.67	10.88
Story1	CORE LIFT - 6	Bottom	Uniform	DB12	DB20	0.2	1.72	10.88
ROOF TOP	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	0.83	10.88
ROOF TOP	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	0.82	10.88
RWT	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	0.25	10.88
RWT	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	0.25	10.88
ROOF	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	0.84	10.88
ROOF	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	1.04	10.88
Story8	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	0.54	10.88
Story8	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	0.74	10.88
Story7	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	0.51	10.88
Story7	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	0.82	10.88
Story6	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	0.56	10.88
Story6	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	0.91	10.88
Story5	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	0.77	10.88
Story5	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	1.15	10.88
Story4	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	1.11	10.88
Story4	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	1.43	10.88
Story3	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	1.31	10.88
Story3	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	1.69	10.88
Story2	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	1.96	10.88
Story2	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	2.42	10.88
Story1	CORE LIFT - 7	Top	Uniform	DB12	DB20	0.2	1.83	10.88
Story1	CORE LIFT - 7	Bottom	Uniform	DB12	DB20	0.2	1.93	10.88
ROOF TOP	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.25	12.74
ROOF TOP	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
RWT	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.25	12.74
RWT	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
ROOF	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.25	12.74
ROOF	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
Story8	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.25	12.74
Story8	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
Story7	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.25	12.74
Story7	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
Story6	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.44	12.74
Story6	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.43	12.74
Story5	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.69	12.74
Story5	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.68	12.74
Story4	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	0.97	12.74

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
Story4	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	0.97	12.74
Story3	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	1.29	12.74
Story3	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	1.31	12.74
Story2	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	1.71	12.74
Story2	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	1.63	12.74
Story1	CORE ST - 1a	Top	Uniform	DB12	DB20	0.2	1.76	12.74
Story1	CORE ST - 1a	Bottom	Uniform	DB12	DB20	0.2	1.84	12.74
ROOF TOP	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.25	12.74
ROOF TOP	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
RWT	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.25	12.74
RWT	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.43	12.74
ROOF	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.49	12.74
ROOF	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.45	12.74
Story8	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.45	12.74
Story8	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.42	12.74
Story7	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.41	12.74
Story7	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.43	12.74
Story6	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.38	12.74
Story6	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.47	12.74
Story5	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.42	12.74
Story5	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.57	12.74
Story4	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.47	12.74
Story4	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.72	12.74
Story3	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.52	12.74
Story3	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	0.97	12.74
Story2	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.70	12.74
Story2	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	1.06	12.74
Story1	CORE ST - 1b	Top	Uniform	DB12	DB20	0.2	0.90	12.74
Story1	CORE ST - 1b	Bottom	Uniform	DB12	DB20	0.2	1.10	12.74
ROOF TOP	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.25	7.27
ROOF TOP	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.25	7.27
ROOF TOP	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.25	7.27
RWT	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.25	7.27
RWT	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.25	7.27
RWT	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.25	7.27
RWT	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.25	7.27
ROOF	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.40	7.27
ROOF	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.40	7.27
ROOF	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.40	7.27
Story8	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.32	7.27
Story8	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.31	7.27
Story8	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.31	7.27
Story7	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.31	7.27
Story7	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.34	7.27
Story7	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.34	7.27
Story6	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.41	7.27
Story6	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.46	7.27
Story6	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.46	7.27

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
Story5	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.50	7.27
Story5	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.65	7.27
Story5	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.65	7.27
Story4	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.65	7.27
Story4	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.83	7.27
Story4	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	0.83	7.27
Story3	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.79	7.27
Story3	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	1.27	7.27
Story3	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	1.27	7.27
Story2	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.93	7.27
Story2	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	1.92	7.27
Story1	CORE ST - 1c	Top	Uniform	DB12	DB20	0.2	0.99	7.27
Story1	CORE ST - 1c	Bottom	Uniform	DB12	DB20	0.2	1.16	7.27
ROOF TOP	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.25	12.74
ROOF TOP	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.25	12.74
ROOF TOP	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
ROOF TOP	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.25	12.74
RWT	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.25	12.74
RWT	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.25	12.74
RWT	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.37	12.74
RWT	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.37	12.74
ROOF	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.46	12.74
ROOF	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.46	12.74
ROOF	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.57	12.74
ROOF	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.57	12.74
Story8	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.39	12.74
Story8	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.39	12.74
Story8	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.48	12.74
Story8	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.48	12.74
Story7	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.38	12.74
Story7	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.38	12.74
Story7	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.49	12.74
Story7	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.49	12.74
Story6	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.40	12.74
Story6	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.40	12.74
Story6	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.55	12.74
Story6	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.55	12.74
Story5	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.47	12.74
Story5	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.47	12.74
Story5	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.73	12.74
Story5	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.73	12.74
Story4	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.54	12.74
Story4	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.54	12.74
Story4	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.86	12.74
Story4	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.86	12.74
Story3	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.71	12.74
Story3	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.71	12.74
Story3	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	1.05	12.74

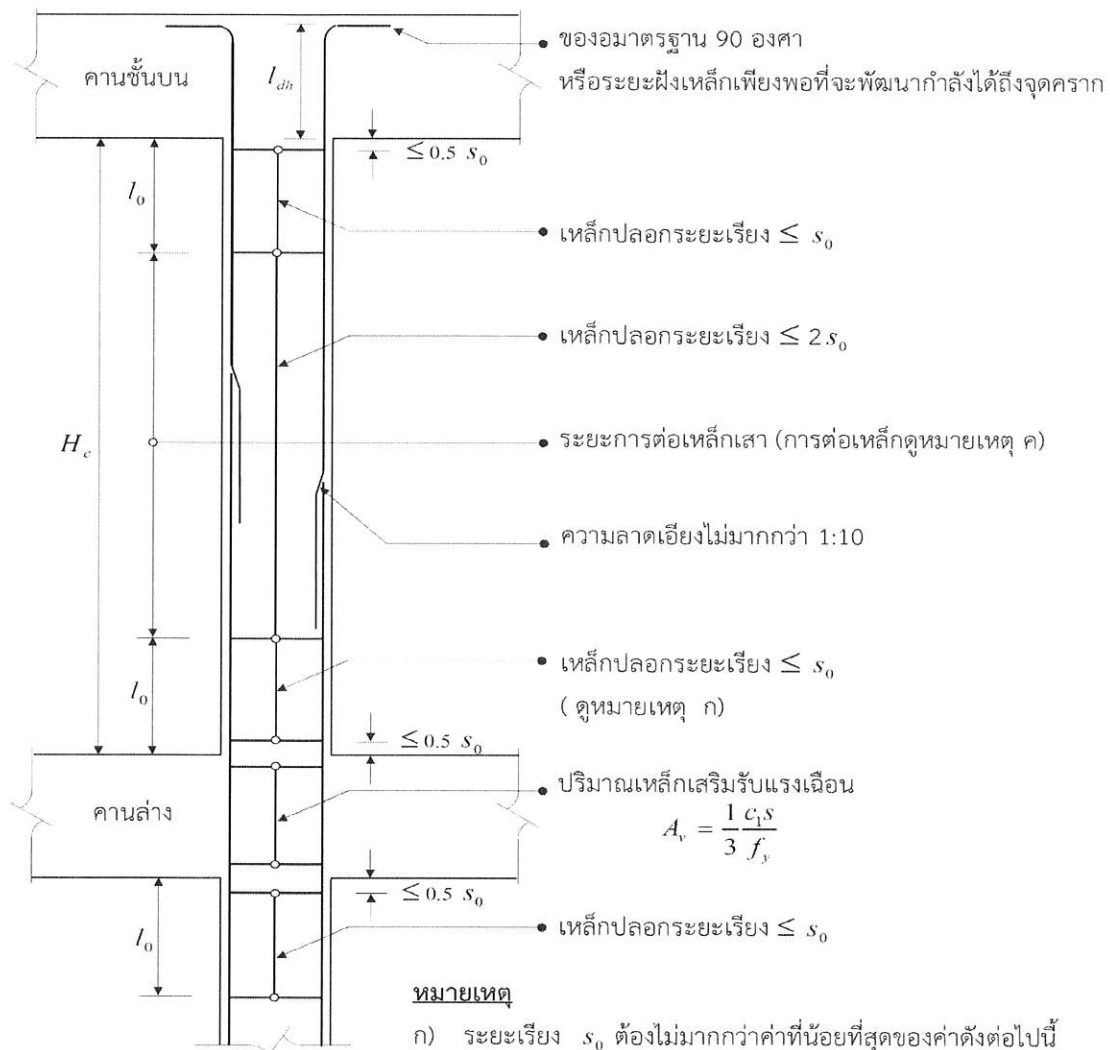
Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
Story3	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	1.05	12.74
Story2	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.72	12.74
Story2	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.72	12.74
Story2	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	1.40	12.74
Story2	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	1.40	12.74
Story1	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.68	12.74
Story1	CORE ST - 1d	Top	Uniform	DB12	DB20	0.2	0.68	12.74
Story1	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.85	12.74
Story1	CORE ST - 1d	Bottom	Uniform	DB12	DB20	0.2	0.85	12.74
ROOF	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	0.25	39.925
ROOF	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	0.37	39.925
Story8	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	0.25	39.925
Story8	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	0.39	39.925
Story7	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	0.25	39.925
Story7	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	0.48	39.925
Story6	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	0.25	39.925
Story6	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	0.69	39.925
Story5	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	0.43	39.925
Story5	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	0.94	39.925
Story4	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	0.56	39.925
Story4	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	1.24	39.925
Story3	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	0.81	39.925
Story3	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	1.72	39.925
Story2	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	1.18	39.925
Story2	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	1.76	39.925
Story1	CORE ST - 2a	Top	Uniform	DB12	DB20	0.2	1.58	39.925
Story1	CORE ST - 2a	Bottom	Uniform	DB12	DB20	0.2	1.86	39.925
ROOF	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	0.53	36.8
ROOF	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	0.51	36.8
Story8	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	0.43	36.8
Story8	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	0.47	36.8
Story7	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	0.39	36.8
Story7	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	0.48	36.8
Story6	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	0.35	36.8
Story6	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	0.54	36.8
Story5	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	0.42	36.8
Story5	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	0.71	36.8
Story4	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	0.49	36.8
Story4	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	0.87	36.8
Story3	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	0.69	36.8
Story3	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	1.20	36.8
Story2	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	1.08	36.8
Story2	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	1.61	36.8
Story1	CORE ST - 2b	Top	Uniform	DB12	DB20	0.2	1.22	36.8
Story1	CORE ST - 2b	Bottom	Uniform	DB12	DB20	0.2	1.47	36.8
ROOF	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.25	39.925
ROOF	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	0.25	39.925
Story8	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.25	39.925
Story8	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	0.25	39.925

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing m	Required Reinf %	Shear Rebar m <sup>2</sup> /m
Story7	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.25	39.925
Story7	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	0.25	39.925
Story6	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.25	39.925
Story6	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	0.25	39.925
Story5	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.30	39.925
Story5	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	0.42	39.925
Story4	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.46	39.925
Story4	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	0.58	39.925
Story3	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.69	39.925
Story3	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	0.81	39.925
Story2	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	0.86	39.925
Story2	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	1.20	39.925
Story1	CORE ST - 2c	Top	Uniform	DB12	DB20	0.2	1.25	39.925
Story1	CORE ST - 2c	Bottom	Uniform	DB12	DB20	0.2	1.43	39.925



ผลการเคลื่อนตัวระหว่างชั้น

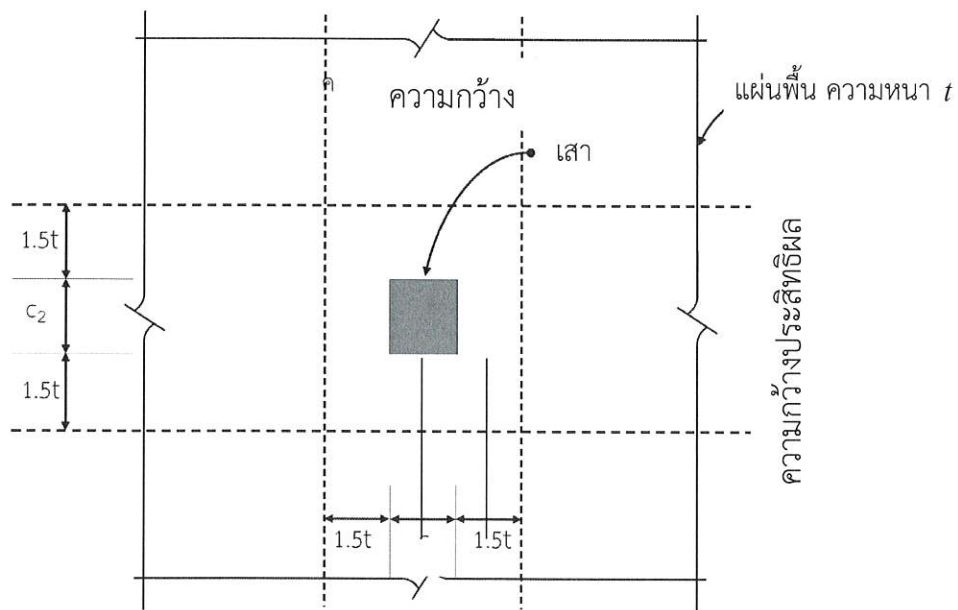
Story	Load Case	Direction	Label	X (m)	Y (m)	Z (m)	Drift	Cd/I	Story Drift m	Story height hx (m)	Allowable Drift =0.01hx (m)	Status
ROOF TOP	SPECX Max	X	79	44.08	9.71	24.15	0.000395	4.50	0.00178	1.15	0.0115	OK
ROOF TOP	SPECX Max	Y	49	23.14	7.27	24.15	0.000223	4.50	0.00100	1.15	0.0115	OK
ROOF TOP	SPECY Max	X	45	26.86	7.27	24.15	0.000189	4.50	0.00085	1.15	0.0115	OK
ROOF TOP	SPECY Max	Y	47	24.37	7.27	24.15	0.000552	4.50	0.00248	1.15	0.0115	OK
RWT	SPECX Max	X	47	24.37	7.27	23.00	0.000386	4.50	0.00174	0.50	0.0050	OK
RWT	SPECX Max	Y	70	23.14	9.46	23.00	0.000223	4.50	0.00100	0.50	0.0050	OK
RWT	SPECY Max	X	49	23.14	7.27	23.00	0.000206	4.50	0.00093	0.50	0.0050	OK
RWT	SPECY Max	Y	71	23.14	10.55	23.00	0.000544	4.50	0.00245	0.50	0.0050	OK
ROOF	SPECX Max	X	161	58.07	39.98	22.50	0.000610	4.50	0.00275	2.80	0.0280	OK
ROOF	SPECX Max	Y	92	-0.25	-1.83	22.50	0.000541	4.50	0.00243	2.80	0.0280	OK
ROOF	SPECY Max	X	121	57.77	-1.93	22.50	0.000280	4.50	0.00126	2.80	0.0280	OK
ROOF	SPECY Max	Y	92	-0.25	-1.83	22.50	0.000719	4.50	0.00324	2.80	0.0280	OK
Story8	SPECX Max	X	161	58.07	39.98	19.70	0.000631	4.50	0.00284	2.80	0.0280	OK
Story8	SPECX Max	Y	92	-0.25	-1.83	19.70	0.000565	4.50	0.00254	2.80	0.0280	OK
Story8	SPECY Max	X	121	57.77	-1.93	19.70	0.000297	4.50	0.00134	2.80	0.0280	OK
Story8	SPECY Max	Y	92	-0.25	-1.83	19.70	0.000742	4.50	0.00334	2.80	0.0280	OK
Story7	SPECX Max	X	161	58.07	39.98	16.90	0.000639	4.50	0.00288	2.80	0.0280	OK
Story7	SPECX Max	Y	92	-0.25	-1.83	16.90	0.000580	4.50	0.00261	2.80	0.0280	OK
Story7	SPECY Max	X	121	57.77	-1.93	16.90	0.000308	4.50	0.00139	2.80	0.0280	OK
Story7	SPECY Max	Y	92	-0.25	-1.83	16.90	0.000749	4.50	0.00337	2.80	0.0280	OK
Story6	SPECX Max	X	161	58.07	39.98	14.10	0.000630	4.50	0.00284	2.80	0.0280	OK
Story6	SPECX Max	Y	92	-0.25	-1.83	14.10	0.000578	4.50	0.00260	2.80	0.0280	OK
Story6	SPECY Max	X	121	57.77	-1.93	14.10	0.000310	4.50	0.00140	2.80	0.0280	OK
Story6	SPECY Max	Y	92	-0.25	-1.83	14.10	0.000734	4.50	0.00330	2.80	0.0280	OK
Story5	SPECX Max	X	161	58.07	39.98	11.30	0.000595	4.50	0.00268	2.80	0.0280	OK
Story5	SPECX Max	Y	92	-0.25	-1.83	11.30	0.000552	4.50	0.00248	2.80	0.0280	OK
Story5	SPECY Max	X	121	57.77	-1.93	11.30	0.000300	4.50	0.00135	2.80	0.0280	OK
Story5	SPECY Max	Y	92	-0.25	-1.83	11.30	0.000691	4.50	0.00311	2.80	0.0280	OK
Story4	SPECX Max	X	161	58.07	39.98	8.50	0.000528	4.50	0.00238	2.80	0.0280	OK
Story4	SPECX Max	Y	92	-0.25	-1.83	8.50	0.000496	4.50	0.00223	2.80	0.0280	OK
Story4	SPECY Max	X	121	57.77	-1.93	8.50	0.000275	4.50	0.00124	2.80	0.0280	OK
Story4	SPECY Max	Y	92	-0.25	-1.83	8.50	0.000615	4.50	0.00277	2.80	0.0280	OK
Story3	SPECX Max	X	161	58.07	39.98	5.70	0.000421	4.50	0.00189	2.80	0.0280	OK
Story3	SPECX Max	Y	92	-0.25	-1.83	5.70	0.000401	4.50	0.00180	2.80	0.0280	OK
Story3	SPECY Max	X	121	57.77	-1.93	5.70	0.000229	4.50	0.00103	2.80	0.0280	OK
Story3	SPECY Max	Y	92	-0.25	-1.83	5.70	0.000501	4.50	0.00225	2.80	0.0280	OK
Story2	SPECX Max	X	83	56.17	39.93	2.90	0.000285	4.50	0.00128	2.90	0.0290	OK
Story2	SPECX Max	Y	92	-0.25	-1.83	2.90	0.000271	4.50	0.00122	2.90	0.0290	OK
Story2	SPECY Max	X	121	57.77	-1.93	2.90	0.000156	4.50	0.00070	2.90	0.0290	OK
Story2	SPECY Max	Y	92	-0.25	-1.83	2.90	0.000329	4.50	0.00148	2.90	0.0290	OK
Story1	SPECX Max	X	83	56.17	39.93	0.00	0.000108	4.50	0.00049	2.15	0.0215	OK
Story1	SPECX Max	Y	2	-0.04	7.87	0.00	0.000106	4.50	0.00048	2.15	0.0215	OK
Story1	SPECY Max	X	18	55.97	-1.68	0.00	0.000063	4.50	0.00028	2.15	0.0215	OK
Story1	SPECY Max	Y	2	-0.04	7.87	0.00	0.000132	4.50	0.00059	2.15	0.0215	OK



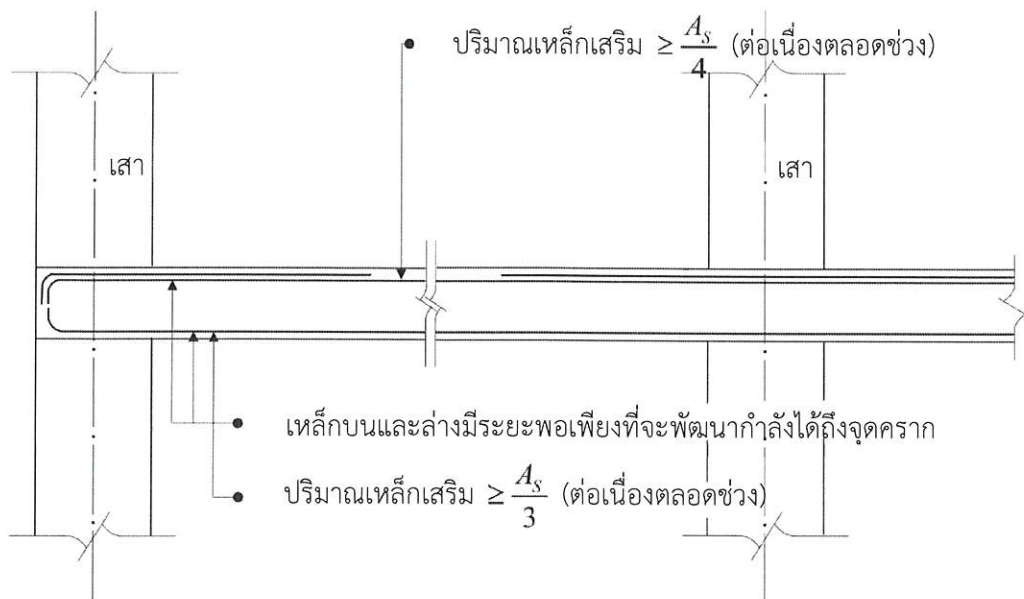
#### หมายเหตุ

- ระยะเรียง  $s_0$  ต้องไม่มากกว่าค่าที่น้อยที่สุดของค่าดังต่อไปนี้
  - 8 เท่าของเส้นผ่านศูนย์กลางเหล็กเสริมตามยาวที่มีขนาดเล็กสุด
  - 24 เท่าของเส้นผ่านศูนย์กลางเหล็กปลอก
  - $c_2 / 2$  และ (4) 300 มิลลิเมตร
- ระยะ  $l_0$  ต้องไม่น้อยกว่าค่าที่มากที่สุดของค่าดังต่อไปนี้
  - $H/6$  (2)  $c_1$  และ (3) 500 มิลลิเมตร
- การต่อเหล็กเสาให้ต่อบริเวณช่วงกลางความสูงเสา
- อัตราส่วนพื้นที่หน้าตัด  $A_s / A_g$  ของเสา ต้องไม่น้อยกว่าร้อยละ 1 และไม่ควรมากกว่าร้อยละ 6

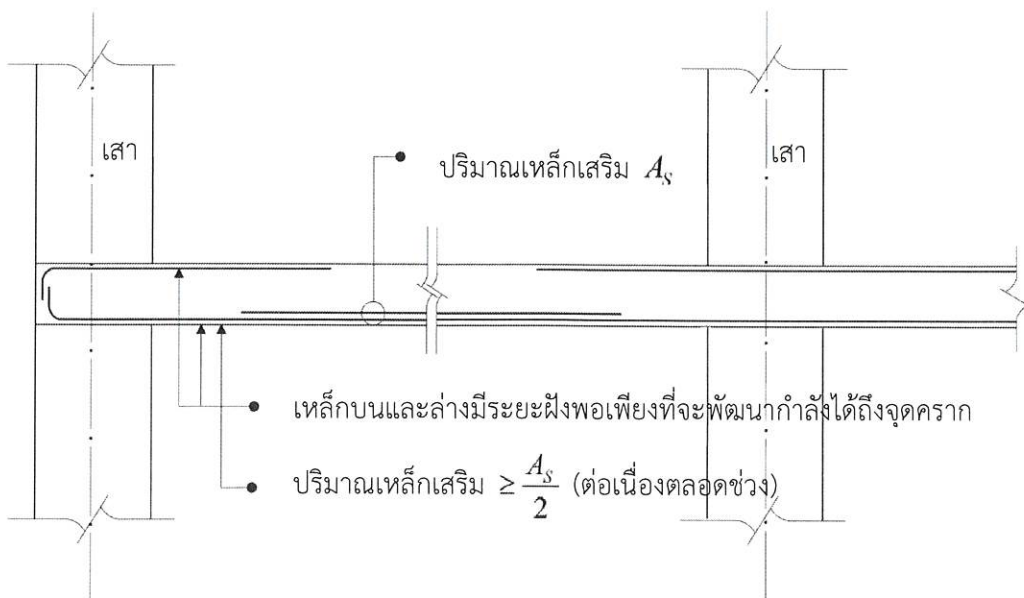
รายละเอียดการเสริมเหล็กในเสา



(ก) ความกว้างประสิทธิภาพ  
รายละเอียดการเสริมเหล็กในแผ่นพื้นสองทางแบบไร้คาน



(ข) รายละเอียดการเสริมเหล็กในแถบเสา



(ค) รายละเอียดการเสริมเหล็กในแถบกลาง

รายละเอียดการเสริมเหล็กในแผ่นพื้นสองทางแบบไร้คาน (ต่อ)