

## GRAIN PRESSURE TESTS No. 11.

Sand.—Round Steel Bin.—Bottom Pressure Tests.

12" Diam., 6' 6" high.

Sand, weighing 100 lbs. cu. ft., each draft represents  $\frac{1}{4}$  cu. ft., or 25

Diaphragm on bottom 12" Diam. (Area 113.10 sq. in.)

Sand weighed into bin.	Height of sand column.	Equivalent fluid pressure	Pressure of sand on diaphragm.	Sand carried on bottom.		Sand carried on bin-sides.	
				Weight.	% of total weight of sand.	Weight.	% of total weight of sand.
lbs.	ins.	in. water	in. water	lbs.		lbs.	
25	3.63	5.82	5 $\frac{1}{8}$	24.000	96.00	1.000	4.00
50	7.26	11.64	10 $\frac{1}{2}$	43.356	86.71	6.664	13.29
75	10.89	17.46	13 $\frac{1}{2}$	65.598	74.13	19.402	25.87
100	14.53	23.28	16	65.290	65.29	34.710	34.71
125	18.15	29.10	18	73.452	58.76	51.548	41.24
150	21.79	34.92	19 $\frac{1}{2}$	79.573	53.04	70.427	46.96
175	25.41	40.74	20 $\frac{1}{2}$	84.163	48.09	90.837	51.91
200	29.05	46.56	21 $\frac{1}{2}$	87.224	43.61	112.776	56.39
225	32.67	52.38	22 $\frac{1}{2}$	80.284	40.12	134.716	59.88
250	36.30	58.20	22 $\frac{1}{2}$	91.815	36.72	158.185	63.28
275	39.93	64.02	22 $\frac{1}{2}$	93.345	33.94	181.655	66.06
300	43.57	69.84	23 $\frac{3}{8}$	94.620	31.54	205.380	68.46
325	47.19	75.68	23 $\frac{1}{2}$	95.895	29.50	229.105	70.50
350	50.82	81.48	23 $\frac{1}{2}$	96.405	27.54	253.595	72.46
375	54.46	87.30	23 $\frac{1}{2}$	96.660	25.77	278.340	74.23
400	58.08	93.15	23 $\frac{1}{2}$	97.681	24.42	302.319	75.58
425	61.71	98.95	24 $\frac{1}{8}$	98.191	23.10	326.809	76.90
450	65.34	104.77	24 $\frac{1}{4}$	98.446	21.87	351.554	78.13
475	68.97	110.58	24 $\frac{1}{4}$	98.446	20.72	376.554	79.28
500	72.60	116.40	24 $\frac{3}{8}$	98.701	19.74	401.299	80.26
525	76.23	122.22	24 $\frac{1}{2}$	98.956	18.84	426.044	81.16
537 $\frac{1}{2}$	78.00	125.09	24 $\frac{5}{8}$	99.211	18.45	438.289	81.55
Carried on bottom				99.211	on sides	438.290	

By sharply tapping bin, sand settled 3 inches in bin, and gave maximum reading of gauge 29 $\frac{1}{2}$  inches of water, equals total load on bottom of 120,272 lbs., or 22.37 % of total sand in bin.

Sharp clean Chateauguay River sand, thoroughly dry :

Angle of Repose 34° from the horizontal.