

CHAPTER FOUR

RESEARCH RESULTS AND DISCUSSION

4.1 Discusses result

In order to study the structural performance of elevated tanks displacements and bending moment were taken into account.

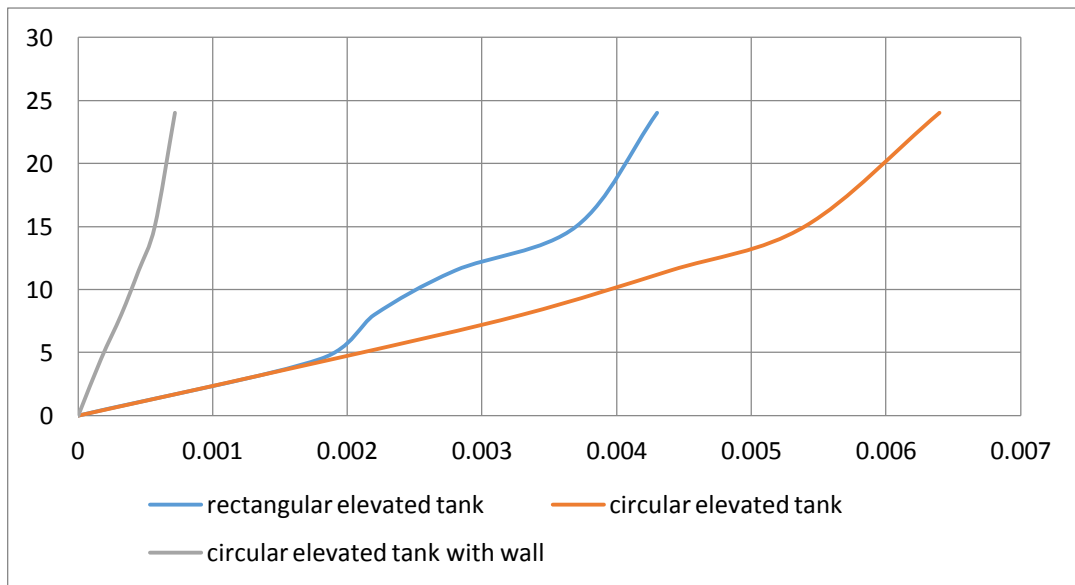


Fig (4.1): Displacement due to wind load.

It was shown that circular elevated tanks with wall gave minimum displacement due to wind load in comparison with braced rectangular and circular tanks. The wall tanks reduce the effect of displacement.

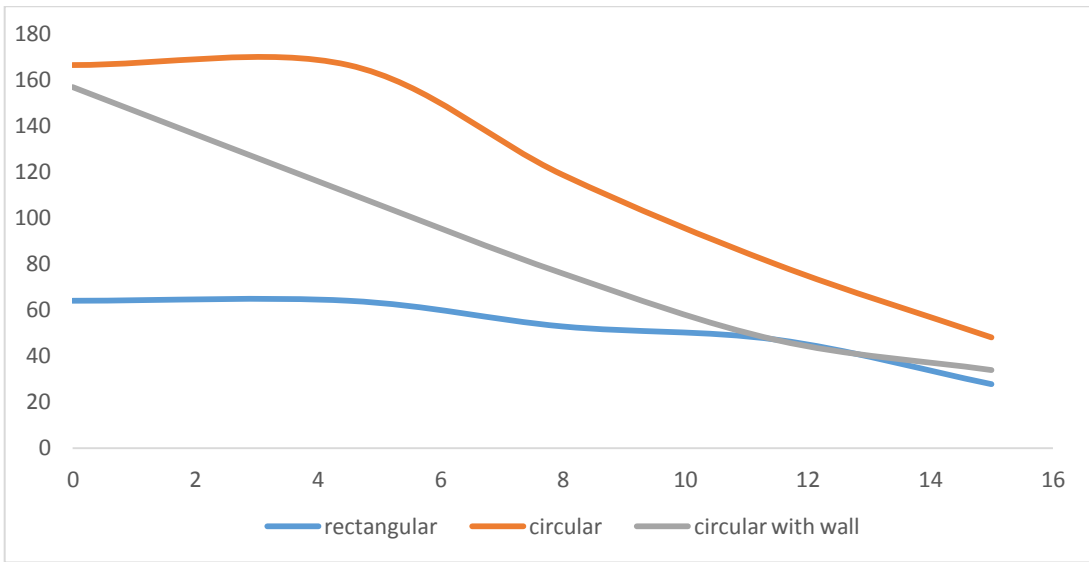


Fig (4.2): Column axial load due to wind load

It was found that; circular tank without wall gave minimum self weight in comparison with other two types.

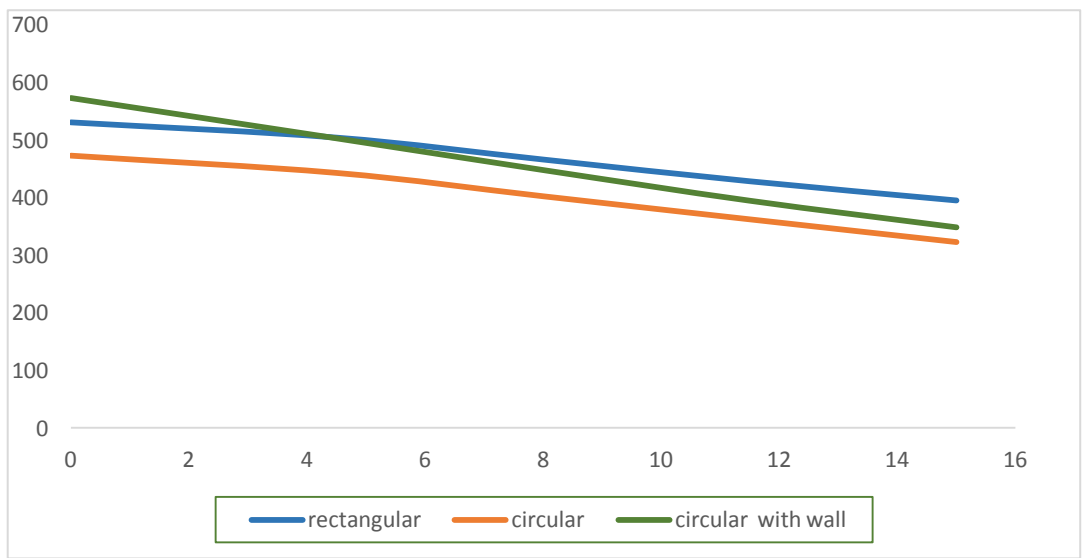


Fig (4.3): Dead load performance

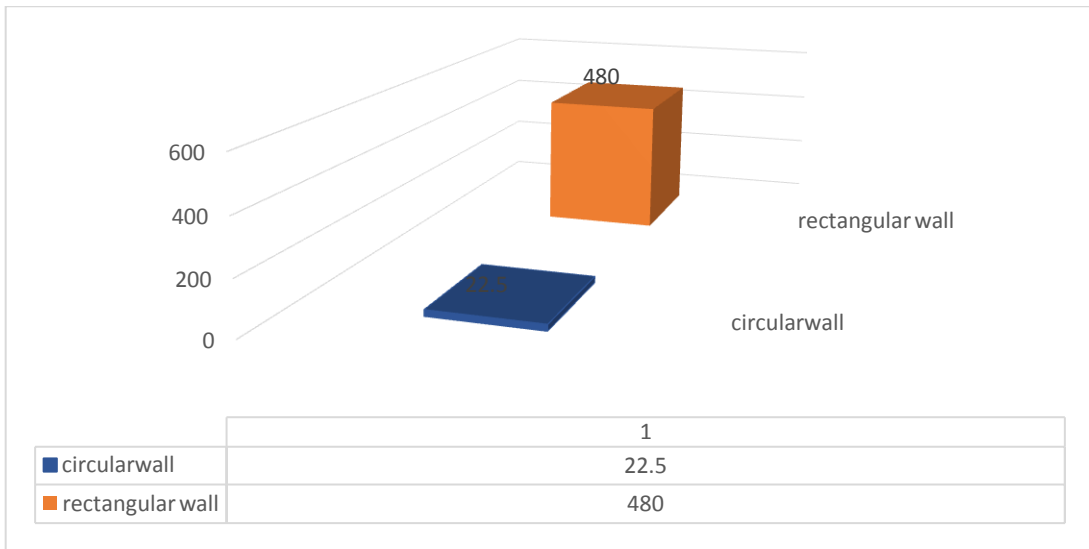


Fig (4.5): Wall moment performance

It was shown that, the wall of circular elevated water tank has minimum value of bending moment in comparison with other two types, because ring action.

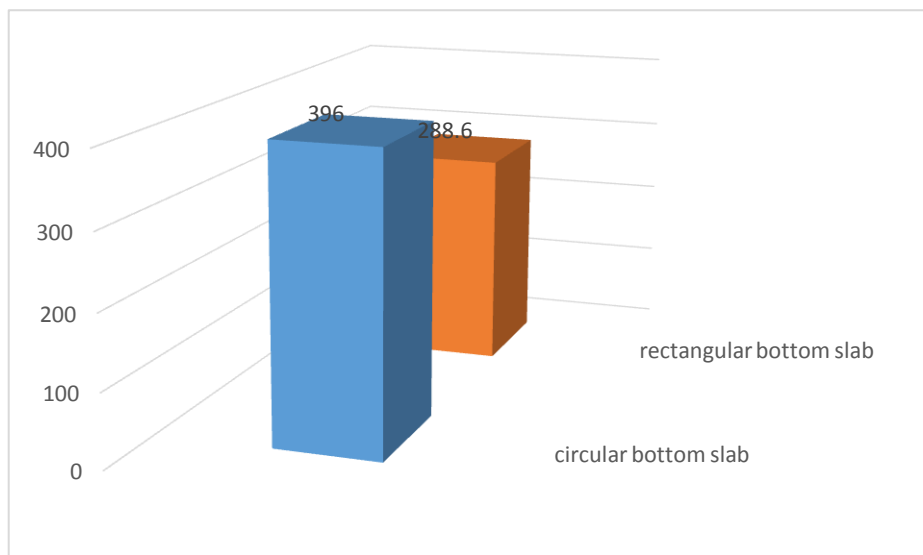


Fig (4.6): Slab moment performance

It was shown that, the bending moment of rectangular slab on rectangular elevated tank has minimum value in comparison with circular slabs.

Table (4.1): Approximated method and program results.

	Approximated method	program
Axial load due to wind bottom of tank(kN)	80.468	64
Total working load (kN)	1346.47	1109.46
Column moment due to wind (kN.m)	30.5	60.47
Bracing Moment (kN.m)	60.925	39.6
Bracing shear (kN)	35	22.21
Axial load due to wind bottom of tank(kN)	88.065	166.38
Total working load (kN)	1214	1144
Column moment due to wind (kN.m)	23	60.3
Bracing Moment (kN.m)	65.1	49
Bracing shear (kN)	48.75	31

Table (4.1) shows the comparison between results of approximate method and structural analysis program SAP2000.