Excavation/Backfill Comparison

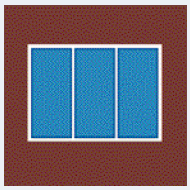
Plasteel® Tank vs. FRP Tank

U.L. Listed Plasteel® Elutron® Double Wall Jacketed Tank

Assume: 3–10,000 Gallon Tanks per site (Stable Walls)

Hole Size Requirements: Minimum requirements for calculations

• Nominal tank dimensions:	9'6" diameter x 20'6" long
• Actual Capacity:	10,054 gallons
• Tank burial requirements:	6" between tank sides and banks of the hole 6" between tank heads and banks of the hole 6" beneath tank
• Backfill requirements:	Clean, Debris Free, Sand or Pea Gravel
• Tank excavation dimensions:	31.5' x 21.5' x 14' deep (4' burial)



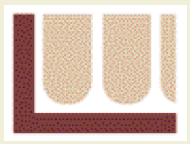
Hole Volume = 9482 cf = 351 cy

Total (3) Tank Volume = 149 cy

Backfill required: 351 cy – 149 cy
= **202 cubic yards**

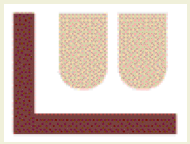
Typical Non-Metallic (FRP) Double Wall Tank

Assume: 3–10,000 Gallon Tanks per site (Stable Walls)



Stable Walls
In stable soil conditions for 4' through 10' diameter tanks (550-20,000 gallons), the hole must be large enough to allow a minimum of 18" (24" preferred) between the tank sides and ends and the banks of the hole.

Twelve foot diameter tanks (25,000-48,000) gallon models require 24" between tanks and hole sides, and require 24" between adjacent tanks.



Unstable Walls (all size tanks)
In muck, bog, peat, swamp or landfill type areas with expansive clay soils, a larger hole is required to support tanks. In these types of conditions, the holes must be large enough to allow a minimum of ½ the tank diameter from ends and sides of tanks to hole walls.

Unstable soils are defined as those soils

FRP Published Data: 4/90
- 10,000 gal tank dimensions:
  8' diameter x 30' 9" long
- Actual Capacity:
  9,730 gals
- Minimum excavation:
  32' x 35' x 13' deep; 4' burial
- Required backfill:
  Pea Gravel or Crushed Stone
- Excavation Volume:
  539 cy

Total (3) tank volume:
145 cy

Backfill Required:
539 cy – 145 cy
= **394 cubic yards**

	having less than 750 lbs/sq. ft. cohesion as calculated from an unconfined compression test; or soils with an ultimate bearing capacity of less than 3,500 lbs/sq. ft. Unstable soils or areas with expansive clay may require a reinforced concrete slab under tank for support. For unstable soils with less than 250 lbs/sq. ft., a filter fabric hole liner is recommended to prevent backfill migration.

Backfill Material Cost Comparison Summary

Average cost of backfill materials in Southern California, USA
Pea Gravel = $29.00/cy
Washed Sand = $19.00/cy

FRP Tank Installation: Pea Gravel or Crushed Stone
Pea Gravel cost for FRP Tank Installation: 394 cy x $29.00/cy = **$11,426.00**

vs.

Plasteel® Tank Installation: Pea Gravel or Washed Sand

Pea Gravel cost for Plasteel® Tank Installation: 202 cy x $29.00/cy = $5,858.00
Plasteel Savings over FRP = $11,426.00 – $5,858.00 = **$5,568.00**

Washed Sand cost for Plasteel® Tank Installation: 202 cy x $19.00/cy = $3,838.00
Plasteel Savings over FRP = $11,426.00 – $3,838.00 = **$7,408.00**

NOTE: Above savings does not include installation labor.

Additional positive cost reductions factors for Plasteel tanks:

1. Reduced volume of backfill that must be removed and disposed.
2. Flexibility of backfill choice.
3. Reduced surface cut.
4. No additional backfill required for unstable walls.