

AWWA D110 Type 1 Water Tank

- AWWA D110 Type 1 Core Wall, Strand Wound, Prestressed, Concrete Circular Water Tank and Foundation.
 - Mapped Spectral Response Acceleration Ss of 1.5 g or greater.
- Selected Contractor: GPPC and DN Tanks.

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San Vicente Tank

- 750,000 gallons
- 52’ Inside Diameter
- 47’-6” Water Depth
- Dead Load: 150 pcf Concrete and 490 pcf for steel
- Live Load: 62.4 pcf liquid
- Backfill Height 6” below top of footing

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Design Calculations by Tank Contractor

- **Seismic Design Criteria**
 - Total lateral force and total base overturning moment
 - Damping for convective (sloshing) force
 - Vertical earthquake forces
 - Sloshing Height
 - Dynamic Effects of Backfill
 - Base Restraint Cable Design
- Wind Loads: The Design Wind Speed Shall be 210 mph in accordance with the ASCE 7-10.
- Vent Capacity Requirements: 1000 cfm

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<https://www.dntanks.com/resources/design-resources/>

Geotechnical Documentation

Download prestressed concrete tank foundation information and geotechnical guidelines.

[DNTANKS GEOTECH GUIDELINES CHECKLIST](#)

Specifications & Drawings

Sample tank specifications and drawings are available for your reference and use. Please select the location of your project and enter your email address to receive an automatic email with the sample specification and drawing documents attached.

Please do not hesitate to contact us if you don't see your specific region listed below or to get a customized specification and drawing set that meets your specific project needs.

*We respect our customer's privacy and we promise not to sell, rent, or share your email address with anyone.

☒ Water/Wastewater

☐ TES

Choose Your Region

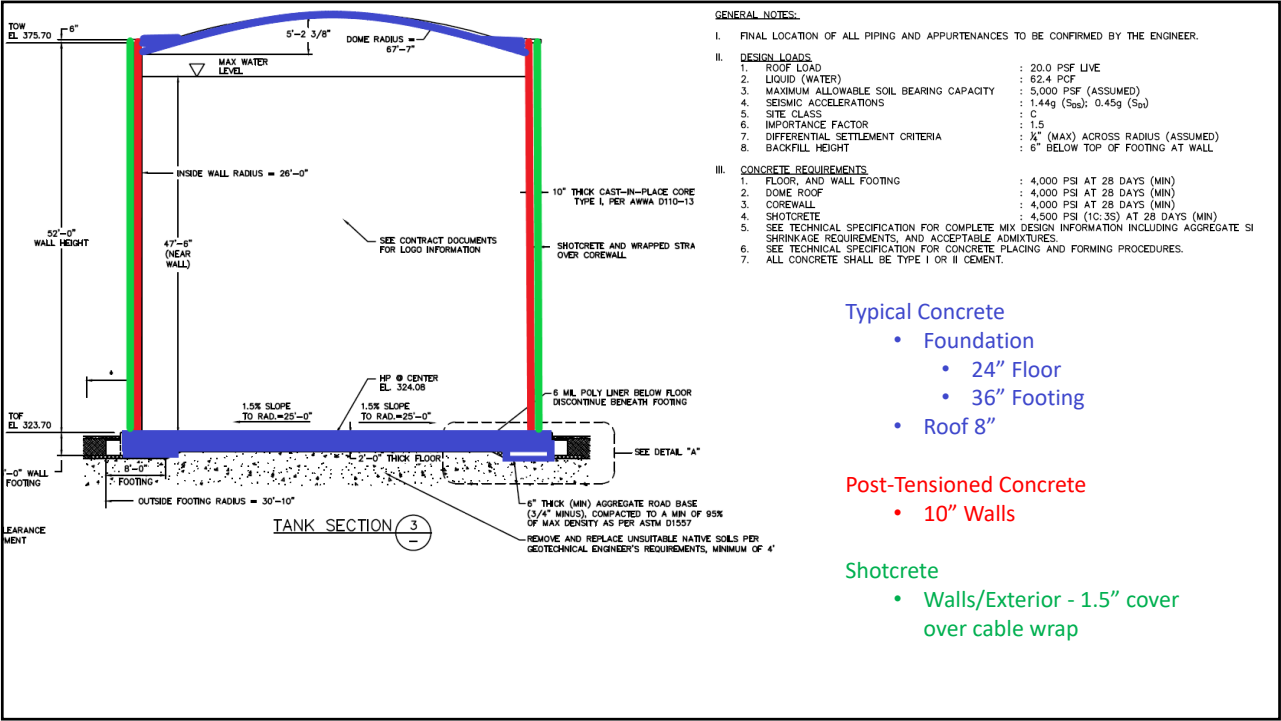
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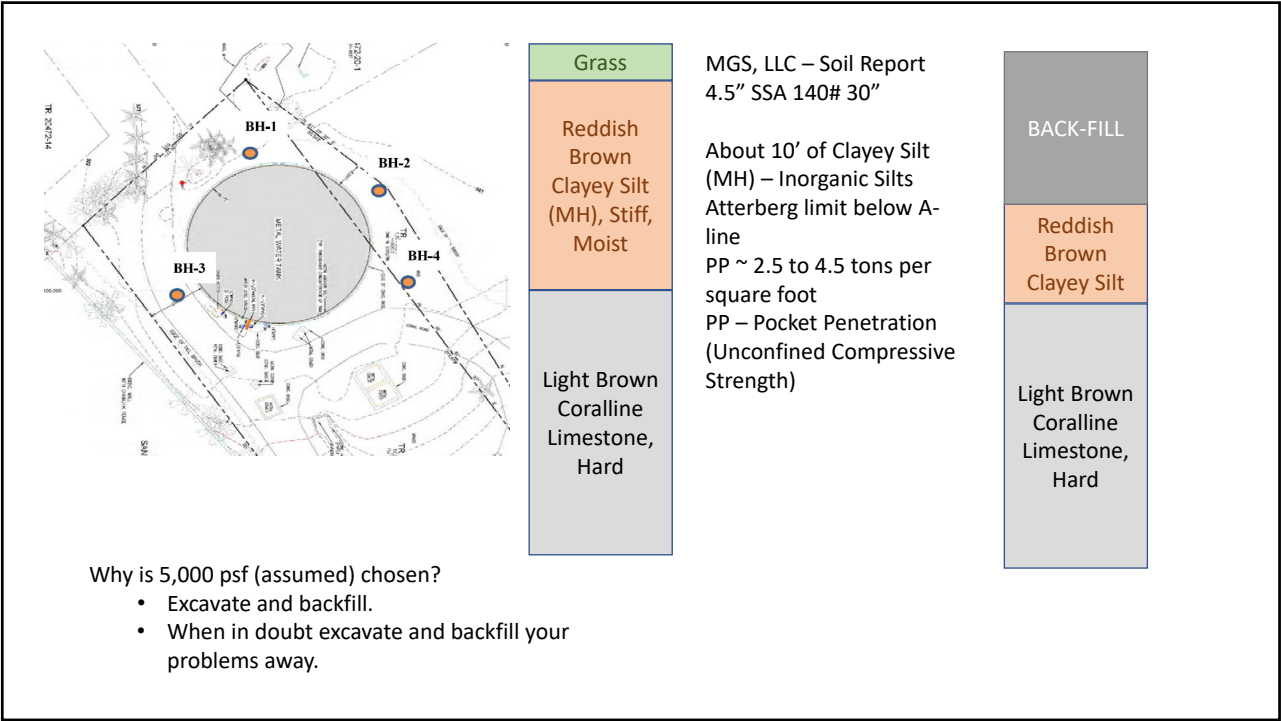
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- Go here and get the source information yourself.

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Table 8: Compaction Requirements

| Material Type and Location | Minimum Compaction Requirement (%) | Range of Moisture Contents above Optimum Moisture | | Maximum Lift Thickness (in.) | |
|----------------------------|------------------------------------|---|---------|------------------------------|-----------|
| | | Minimum | Maximum | Loose | Compacted |
| Engineered Fill: | | | | | |
| Beneath foundations | 95 | -1% | +3% | 8 | 6 |
| Beneath minor structures | 95 | -1% | +3% | 8 | 6 |
| Beneath pavements | 95 | -1% | +3% | 8 | 6 |

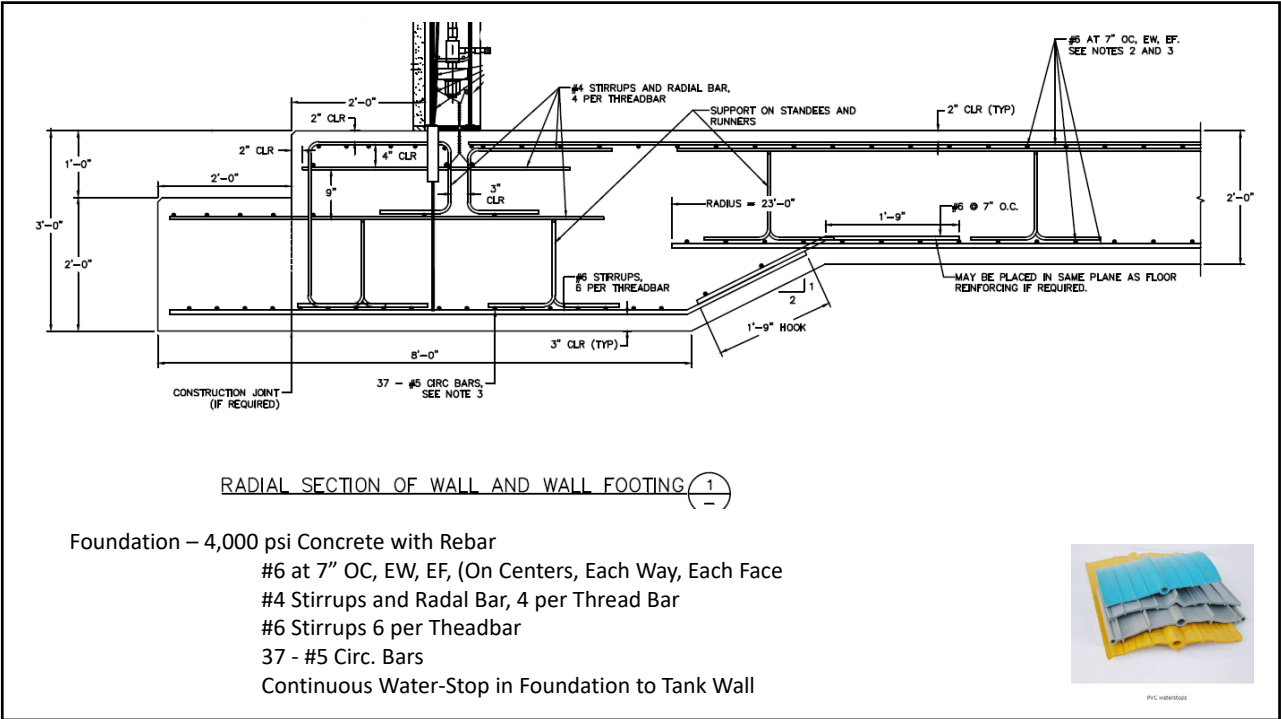
Table 9: Design Recommendations –Rigid Ring Beam with Slab

| Item | Design Parameters |
|------------------------------------|--|
| Allowable bearing capacity | Dead + Live = 4,000 psf Dead + Live + Wind/Seismic = 5,000 psf |
| Approximate total settlement* | Approximately 1 inch |
| Estimated differential settlement* | Approximately 0.5 inch |
| Engineered fill below foundation | Minimum thickness of 48 inches Minimum lateral placement beyond foundation width of 48 inches |
| Modulus of Subgrade Reaction | 250 pci |

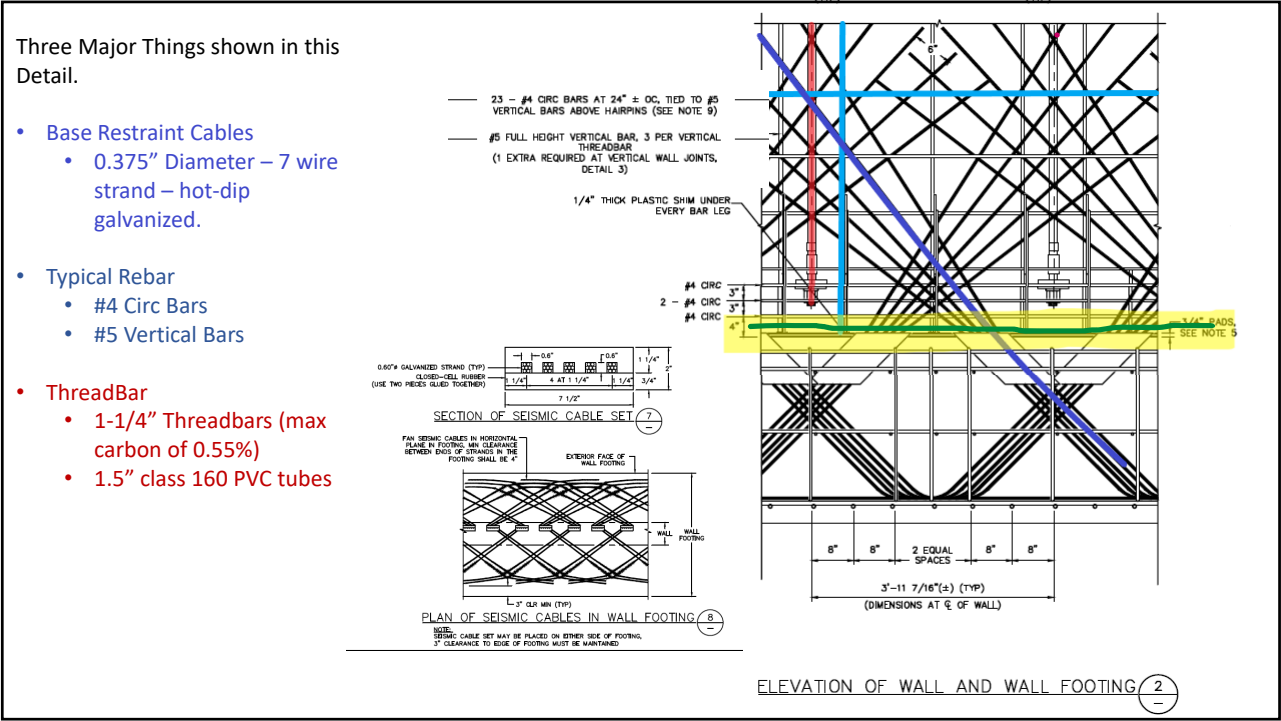
**Foundation system should be designed to tolerate.*

The base of all foundation excavations should be free of standing water and loose soil prior to placement of concrete. Concrete should be placed as soon as possible after the finished fill surface is placed. Any soil at the finished fill surface that becomes disturbed or saturated, be removed and replaced prior to concrete placement.

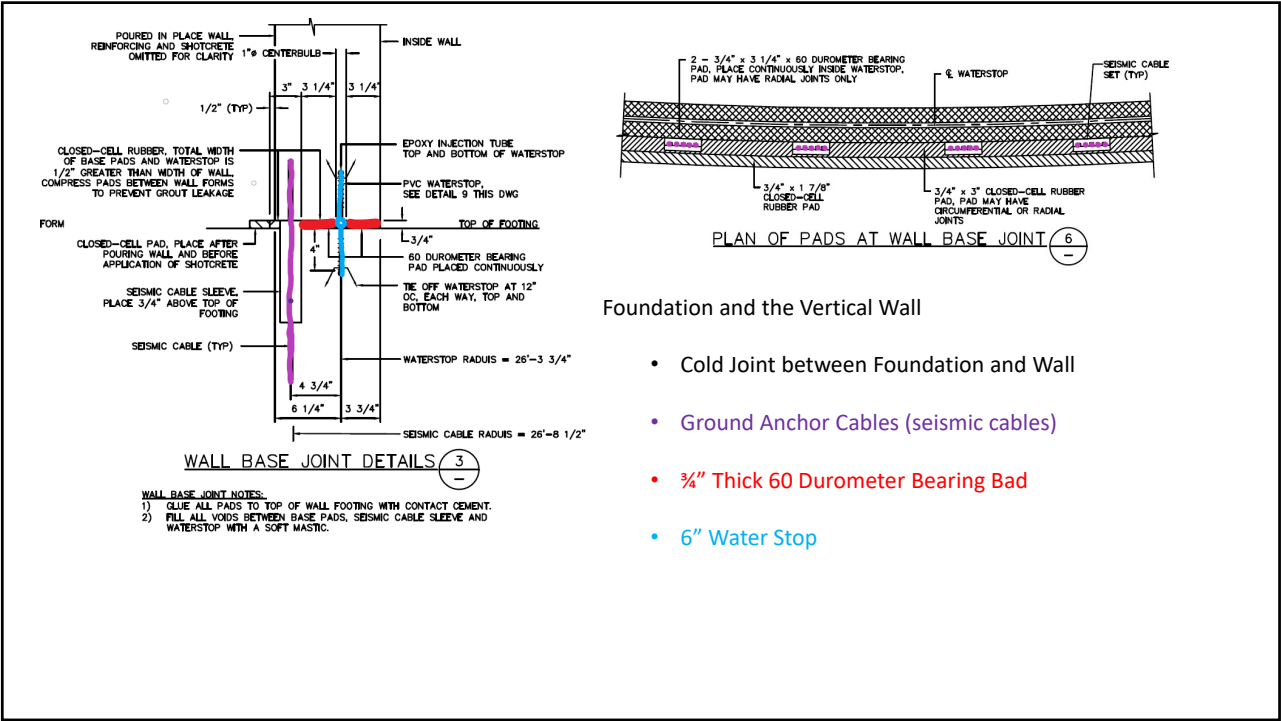
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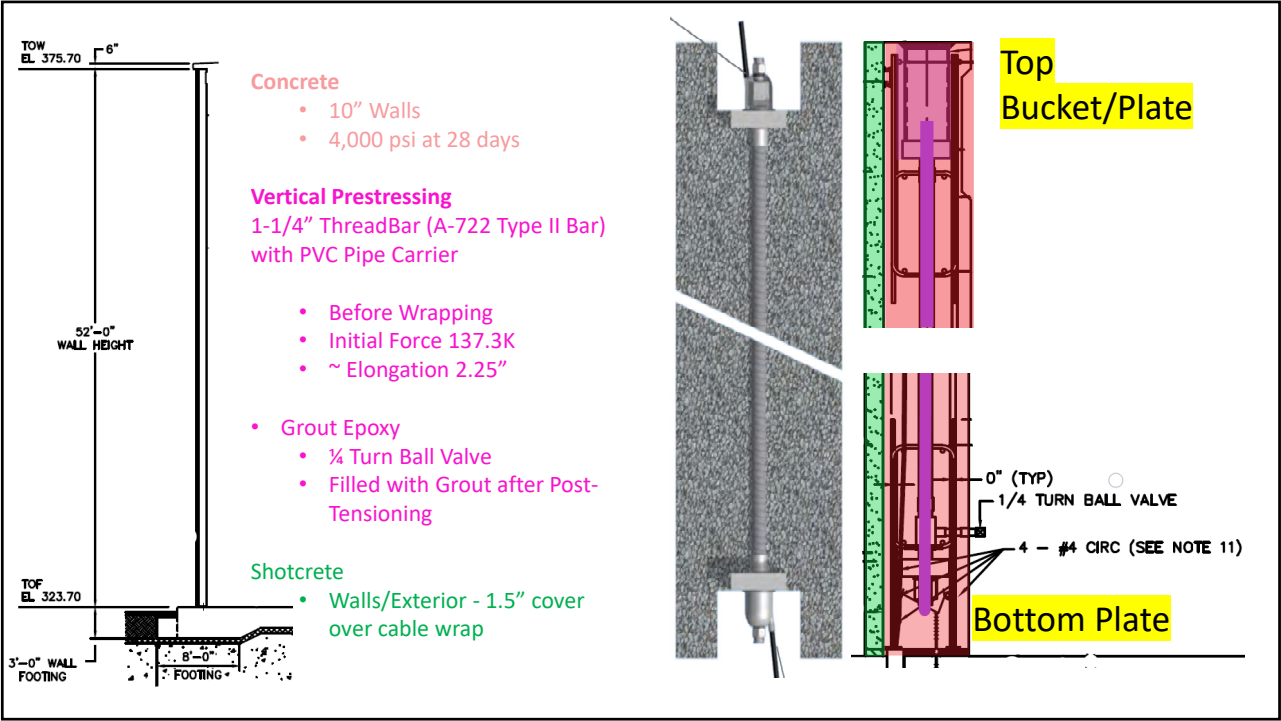
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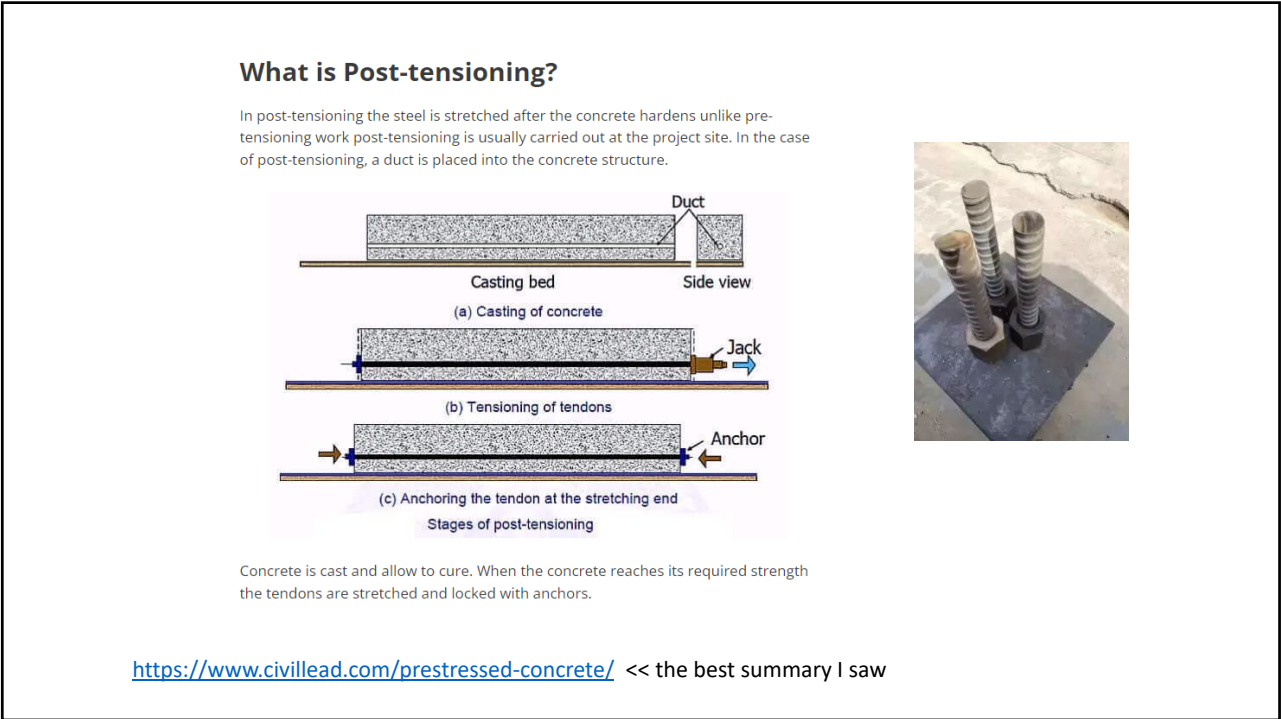
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Advantages of Prestressed Concrete

With the help of pre-stressed concrete, sleek and slender concrete structures can be constructed. due to these dead load of the structure gets reduced.

- Consumption of materials like concrete, steel is reduced.
- Longer beams spans and girders can be constructed which gives the untroubled floor space and parking facilities.
- It has long-term durability.
- Possibility of steel corrosion and subsequent concrete deterioration are declined because of concrete is crack free.
- Pre-stressed concrete bridges are not easily damaged by fire they have excellent fire resistance and low maintenance costs in comparison to reinforced concrete.
- Pre-stressed concrete offers greater load resistance and shock resistance.
- The compressive strength of concrete and tensile strength of steel is used to their fullest.

<https://www.civillead.com/prestressed-concrete/> << the best summary I saw

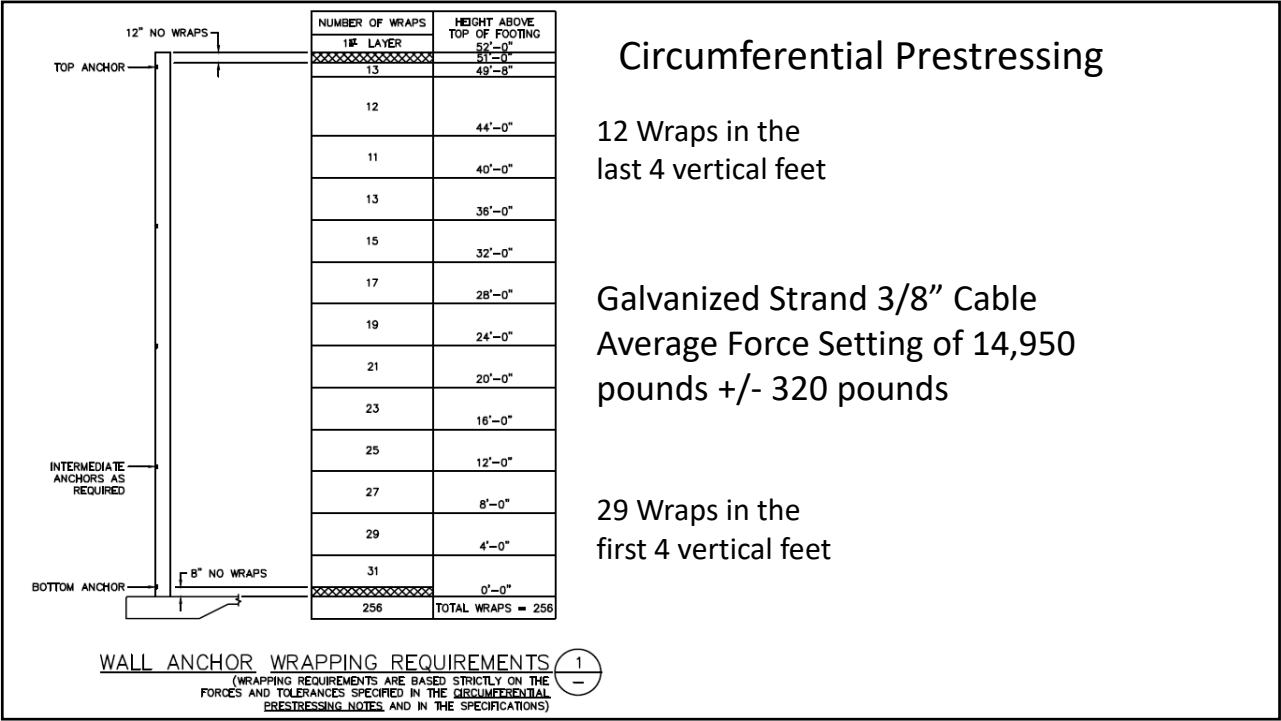
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Disadvantages of Prestressed Concrete

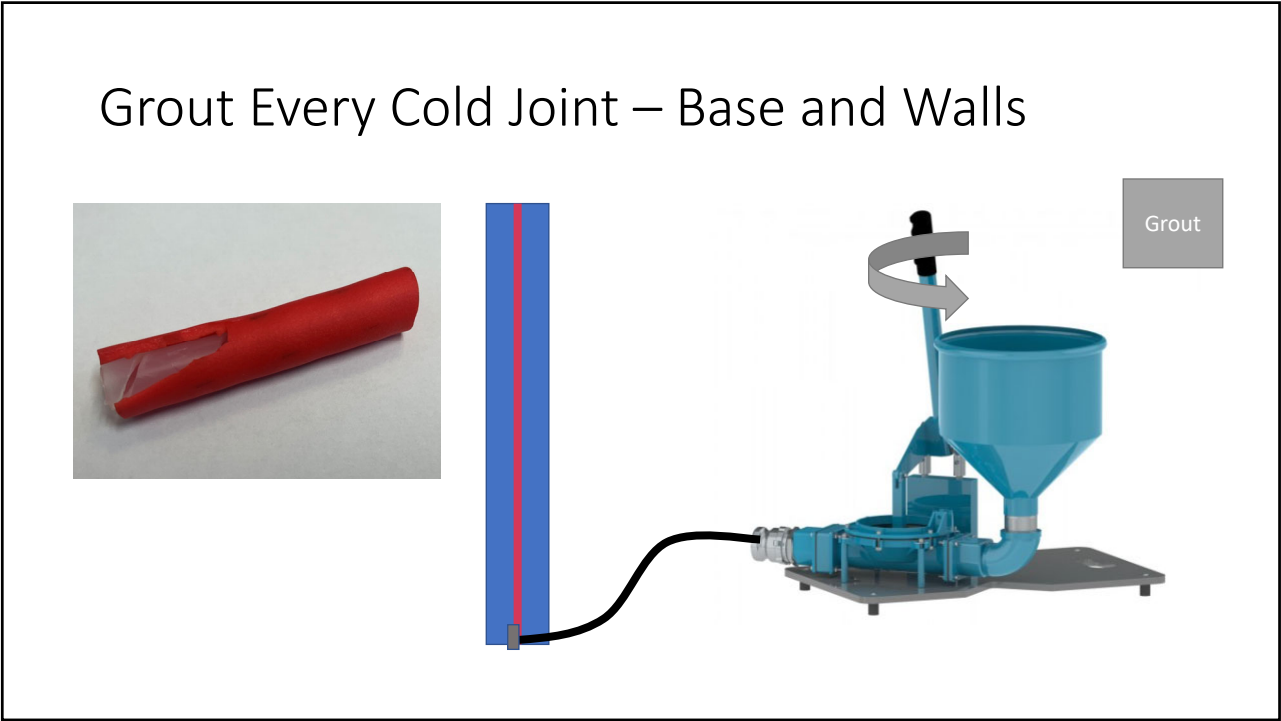
- Pre-stressed concrete requires high-quality dense concrete of high-strength.
- High strength concrete in production, placement and compaction is required.
- It requires high tensile steel which is 2.5 to 3.5times costlier than mild steel.
- Prestressing process requires complicated tensioning equipment and anchoring devices which are very costly.
- Pre-stressed concrete construction requires very good quality control and supervisions.
- Pre-stressed concrete needs skilled labourers.
- Prestressing is uneconomical for shorts spans and light loads.

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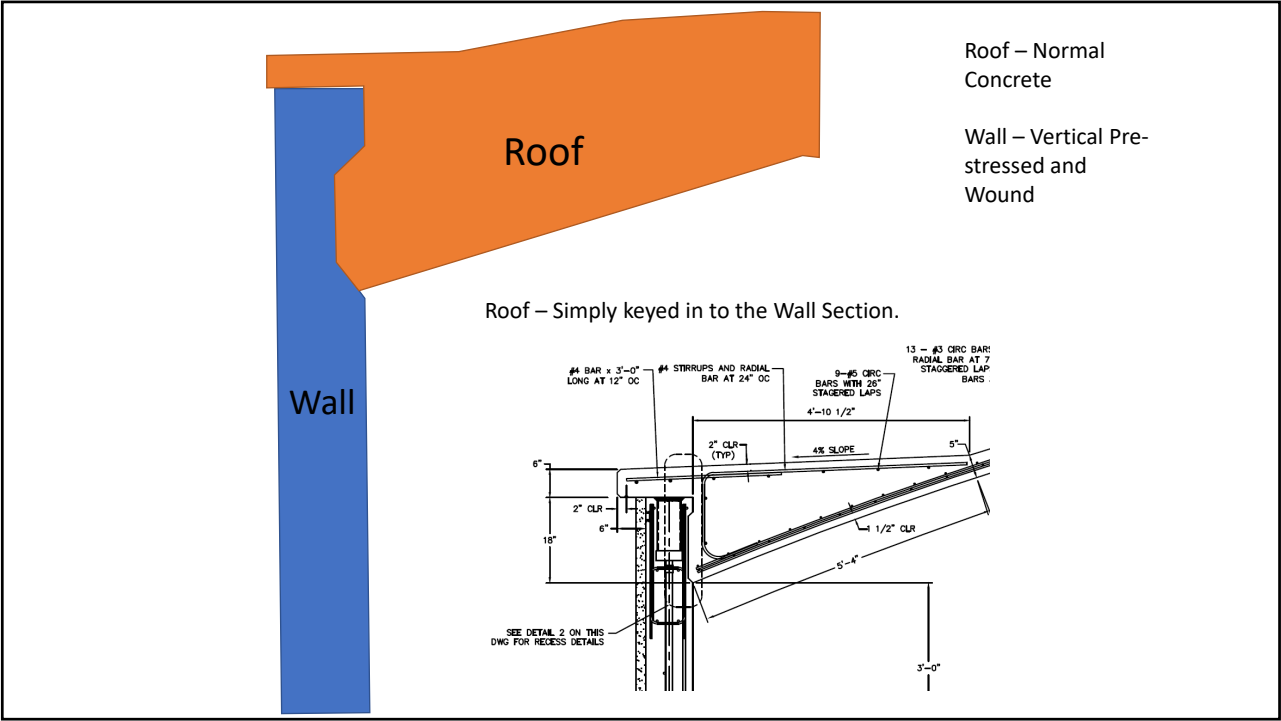
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