FRENCH FIBER & MAINTENANCE LLC

# Project Execution Details: White Epoxy & GRP Fiberglass Waterproofing for RCC Storage Tank

*Complete Surface Rehabilitation, Mechanical Grinding, Multi-Layer GRP Fiberglass Mesh Reinforcement & Potable-Grade White Epoxy Lining*

| Project Parameter | Technical Specification |
|---|---|
| **Service Category** | RCC Water Storage Tank Rehabilitation & Waterproofing |
| **Structure Type** | Underground / Elevated Reinforced Cement Concrete (RCC) Tank |
| **Lining System** | Solvent-Free White Epoxy + Woven GRP Fiberglass Mesh Reinforcement |
| **Substrate Preparation** | Complete Stripping of Failed Coating & Diamond-Cup Mechanical Grinding |
| **Water Compatibility** | Potable, Domestic & Commercial Storage Water |
| **Quality Assurance** | 72-Hour Water-Tightness Hydro-Test & Comprehensive Workmanship Warranty |

## 01. PROJECT OVERVIEW & ENGINEERING OBJECTIVE

Reinforced Cement Concrete (RCC) water storage tanks are continuously exposed to hydrostatic water pressure, treated or chlorinated water, and structural micro-movement. Over time, conventional cementitious waterproofing or aged coatings blister, delaminate, and crack—causing water leakage, contamination risks, and steel reinforcement corrosion.

**French Fiber & Maintenance LLC** executes a heavy-duty **Glass Reinforced Plastic (GRP) fiberglass mesh and solvent-free white epoxy waterproofing system** engineered to permanently seal, structurally reinforce, and hygienically protect RCC storage tanks.

## 02. COMPLETE SCOPE OF REHABILITATION WORKS

1. **De-watering, Isolation & Confined Space Safety:** Complete draining of the storage tank, forced-air ventilation setup, low-voltage LED lighting, and full technician PPE compliance.
2. **Complete Removal of Existing Failed Waterproofing:** Mechanical chipping, scraping, and stripping of all loose, blistered, or delaminated old coatings, hollow plaster, and laitance down to sound structural concrete.
3. **Concrete Wall & Floor Surface Grinding:** Diamond-cup mechanical grinding across all internal walls, columns, and floor slabs to open concrete pores, remove contaminants, and establish an optimal bonding profile.
4. **Crack Repair, Cove Filleting & Primer Application:** V-groove routing and epoxy mortar sealing of structural cracks, formation of 45° epoxy cove fillets at all wall-to-floor and corner junctions, and application of penetrating epoxy primer.

5. **GRP Fiberglass Mesh Lamination & White Epoxy Topcoats:** Wet-layup embedding of woven fiberglass mesh/mat into base epoxy resin, followed by two seamless, high-build glossy white potable-grade epoxy protective coats.
6. **Curing, Pin-Hole Inspection & Hydro-Testing:** Controlled curing period, 100% visual and thickness inspection, disinfection wash, and final water-tightness hydro-testing prior to handover.

## 03. SYSTEM LAYER ARCHITECTURE & MATERIAL SPECIFICATIONS

| System Layer | Material & Technical Specification | Functional Purpose |
|---|---|---|
| **Layer 1: Primer Coat** | Low-viscosity, two-component solvent-free penetrating epoxy primer | Deeply penetrates concrete pores and maximizes substrate adhesion |
| **Layer 2: Corner Fillet** | Heavy-duty thixotropic epoxy repair mortar (45° cove profile) | Eliminates sharp 90° stress concentrations at wall-floor & corner joints |
| **Layer 3: Base Laminate** | High-strength white epoxy laminating resin (wet base coat) | Saturates and bonds the fiberglass reinforcement to the RCC substrate |
| **Layer 4: GRP Mesh** | Alkali-resistant woven fiberglass mesh / 300–450 gsm glass fiber mat | Provides high tensile strength and bridges hairline concrete cracks |
| **Layer 5: Topcoats (×2)** | Two coats of high-build, non-toxic white epoxy protective finish | Creates a glossy, seamless, anti-bacterial, easy-to-clean hygienic barrier |

## 04. STAGE 1 & STAGE 2 — SURFACE STRIPPING & GRINDING

### Step 01: Removal of Existing Damaged Waterproofing

Long-term adhesion of any new GRP epoxy lining depends entirely on removing weak, deteriorated layers. Our technicians systematically strip away failed membranes, blistered epoxy, loose cementitious slurry, and calcified deposits using heavy-duty scrapers and mechanical chipping tools until clean, structurally sound RCC concrete is exposed.



*Figure 1 — Stage 1 Execution: Mechanical removal and stripping of failed, peeling old waterproofing coating from the RCC storage tank wall.*

### Step 02: Mechanical Concrete Wall Surface Grinding

Following old coating removal, the entire internal wall and floor concrete surface is mechanically abraded using industrial diamond-cup concrete grinders fitted with dust-extraction shrouds. Grinding removes surface laitance, algae residue, and minor unevenness while creating an open-pore Concrete Surface Profile (CSP 3–4) essential for deep epoxy primer penetration.



*Figure 2 — Stage 2 Execution: Diamond-cup mechanical grinding of the RCC wall surface with dust control to achieve an optimal bonding profile.*

## 05. STAGE 3 — WHITE EPOXY & GRP FIBERGLASS LAMINATION

### Step 03: Applying White Epoxy Waterproofing with GRP Fiberglass Mesh

Once the ground substrate is vacuum-cleaned, primed, and reinforced at all corners with epoxy cove fillets, our specialists apply a generous base coat of high-build white epoxy resin. Woven fiberglass mesh is immediately embedded into the wet resin with minimum 50 mm overlaps and consolidated using grooved rollers to eliminate entrapped air pockets, followed by two seamless white epoxy topcoats.



*Figure 3 — Stage 3 Execution: Application of white epoxy waterproofing resin integrated with woven GRP fiberglass mesh for high-tensile crack bridging.*

### Key Technical Controls During GRP & White Epoxy Lamination

- **Zero Air Entrapment:** Ribbed consolidation rollers are rolled systematically across the saturated fiberglass mesh to expel all air bubbles and ensure 100% resin wet-out.
- **Reinforced Overlap & Penetration Detailing:** All fiberglass mesh sheets overlap by at least 50 mm, with extra double-layer reinforcement collars around inlet/outlet pipe sleeves, sumps, and ladder anchors.
- **Seamless Glossy Topcoat Finish:** Two full coats of high-gloss white epoxy encapsulate the fiberglass texture, producing a smooth, non-porous surface that inhibits algae and bacterial growth.
- **Controlled Inter-Coat Window & Curing:** Strict adherence to manufacturer over-coating intervals ensures chemical cross-linking between layers, followed by a 7-day full cure before water filling.

## 06. BEFORE & AFTER RESULTS, QUALITY ASSURANCE & WARRANTY

### Step 04: Before & After Transformation Results

The side-by-side comparison below illustrates the structural and hygienic transformation achieved by **French Fiber & Maintenance LLC**—converting a stained, cracked, leaking RCC tank interior into a bright, monolithic, and completely watertight storage facility.




*Figure 4 — Before & After Comparison: Left: Deteriorated, cracked concrete substrate prior to works. Right: Completed seamless white GRP & epoxy waterproof lining.*

### 07. Quality Assurance, Testing & Service Warranty

| Verification Stage | Inspection & Testing Standard |
|---|---|
| **Substrate Moisture & Profile Check** | Verified dry, dust-free concrete surface (moisture < 4%) and uniform CSP 3–4 diamond-ground profile prior to priming. |
| **Dry Film Thickness (DFT) & Visual Audit** | 100% inspection of all walls, columns, coves, and pipe penetrations to verify uniform resin saturation and a pinhole-free gloss finish. |
| **72-Hour Water-Tightness Hydro-Test** | Tank filled to operational capacity and monitored for 72 hours to confirm zero drop in water level and zero external dampness. |
| **Comprehensive Workmanship Warranty** | Every project executed by **French Fiber & Maintenance LLC** is backed by a dependable warranty for complete confidence and lasting peace of mind. |

> **Service Guarantee:** At French Fiber & Maintenance LLC, every waterproofing project is backed by a dependable workmanship warranty for complete confidence and lasting peace of mind.

**FRENCH FIBER & MAINTENANCE LLC — SPECIALIST WATERPROOFING & GRP CONTRACTORS**

GRP Lamination • Potable & Storage Tank Epoxy Waterproofing • Roof Waterproofing • Industrial Flooring • Swimming Pool Re-Grouting