## Spire – Whitworth Art Gallery

Localised timber repairs and redecoration were undertaken to the spire on a like-for-like basis. All decayed timber was cut back precisely to the full extent of decay and repaired using traditional splicing techniques in yellow pine to match the existing timber. Spliced repairs were mechanically dowelled and/or bonded using Rotafix Structural Adhesive (RSA).

Where moulded or decorative timber elements were decayed beyond repair, these were replaced in matching timber, carefully worked to replicate the existing profiles, scale, and detailing.

Open grain, minor defects, and small areas of surface loss were filled using EVERBUILD 2-Part High Performance Wood Filler, selected for its durability, flexibility, and suitability for exterior timber repairs and/or Rotafix moulding mortar was as a fine timber filling material only, to refine surface transitions and small areas of loss, and not to form primary decorative elements.

Existing corroded latches were replaced with new stainless steel latches to match the original appearance. Corroded metal mesh was retained where possible, wire brushed, prepared, and primed with a non-ferrous metal primer.

Decorative finishes were colour matched to the existing appearance and applied using Dulux Trade Weathershield Quick Dry Satin in accordance with the manufacturer's guidance. Works were undertaken in line with accepted conservation principles, prioritising minimal intervention and retention of historic fabric.

Paint samples were taken to a Dulux Paint Centre, where staff verbally advised that the existing coating was a modern oil-based paint. The spire has evidence of previous repairs, so extents of the existing timber is modern, and the spire is already coated in a non-breathable, film-forming paint – likely due to the very exposed location of the Spire where maximum protection is needed. Decorative finishes were subsequently colour matched to the existing appearance and applied using with the manufacturer's guidance to match existing to update the structure while maintaining the heritage.

Works were undertaken in line with accepted conservation principles, prioritising minimal intervention and retention of historic fabric and matching existing coatings.

## Timber Repairs – Specification & Method

### Removal of Decay

- All decayed timber was carefully cut back only to the full extent of unsound material.
- Cutting back was undertaken incrementally to ensure sound timber was reached without unnecessary loss of historic fabric.

### Spliced Timber Repairs

- New timber introduced using traditional splicing techniques, aligned with existing joints and profiles.
- Replacement timber: yellow pine, selected to match the existing timber in species, grain, density, and appearance.
- Splices were drilled and dowelled to provide mechanical fixing.
- All joints were bonded using Rotafix Structural Adhesive (RSA) to achieve a durable structural repair while maintaining minimal visual impact.

### Ornamental Timber Elements

- Ornate and moulded sections that were missing or beyond repair were reproduced to match the existing detailing, including profile, scale, and finish.
- New mouldings were integrated into adjacent historic fabric using appropriate traditional fixing methods.

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## Filling & Surface Preparation

- Open grain, minor defects, and junctions between existing and new timber were filled using a two-part wood filler.
- Fine surface detailing and moulded areas were refined using Rotafix moulding mortar also.
- All filled areas were allowed to cure fully, then sanded smooth and feathered into surrounding surfaces to provide a uniform finish prior to decoration.

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## Ironmongery & Latches

- Existing latches were assessed and found to be corroded beyond repair.
- Latches were carefully removed and replaced with new stainless steel latches, to match the existing design, proportions, and appearance.
- Fixings were selected to provide long-term durability in an exposed external environment.

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## Metal Mesh Repairs

- Existing metal mesh was retained.
- Corrosion was removed by manual wire brushing to a sound surface.
- The mesh was cleaned and prepared prior to decoration.
- A non-ferrous metal primer was applied in accordance with the manufacturer's instructions to provide corrosion protection prior to finishing coats in Sandtex exterior paint.

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## Decoration – Paint Specification & Application

Product Specification

### Preservative Basecoat / Primer:
– *Product:* Dulux Trade Weathershield Preservative Primer + (BP) (water-based preservative primer).

### Undercoat:
– *Product:* Dulux Trade Weathershield Exterior Flexible Undercoat (solvent-based).

### Topcoat (Finish):
– **Dulux Trade Weathershield Exterior**Quick Dry Satin

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## Surface Preparation

1. All surfaces must be sound, clean, dry, and free of loose material, grease, mould, and contaminants.
2. Remove all loose and defective coatings; feather edges and de-denature timber to achieve a clean surface.
3. Pre-existing failed coatings should be removed back to a firm edge or bare timber.
4. Treat any areas affected by mould / algae with appropriate fungicidal wash and allow to dry.
5. Ensure moisture content of timber is suitable (fully dry) before coating.

### Priming:

- Apply **Preservative Primer** to all new bare wood.
- On previously coated but sound surfaces, spot prime only areas of exposed bare timber.
- Allow primer to dry according to manufacturer's datasheet before undercoating

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Application Method

Primer (Basecoat):

- Apply one coat of **Weathershield Preservative Primer + (BP)** to bare wood.
- Coverage typically **4–5 m²/litre**.
- Allow to dry fully before next coat.
- **Undercoat:**
- Apply one coat of **Weathershield Exterior Flexible Undercoat**.
- Coverage up to **16 m²/litre**.
- Ensure undercoat is flexible and fully adherent.
- Allow adequate drying time per manufacturer before topcoat.
- **Topcoat (Finish):**
- Apply one or two coats of chosen **topcoat** (e.g. high gloss or satin finish).
- Typical coverage varies by product but generally **14–20 m²/litre**.
- Ensure full curing between coats as per technical datasheets.

# Materials & Products Schedule

| Element | Material / Product | Technical Specification |
|---|---|---|
| Timber repairs & mouldings | Yellow pine | Used for spliced repairs and replacement of decayed moulded elements; selected to match existing timber species, grain, density, and appearance |
| Structural bonding | Rotafix Structural Adhesive (RSA) | Structural epoxy adhesive used in conjunction with dowels and bonding for timber splicing |
| Timber filling | EVERBUILD 2-Part High Performance Wood Filler | Two-component polyester filler; exterior-grade, waterproof, shatter-resistant; sandable and workable after approx. 30 minutes; flexible to accommodate timber movement; temperature resistance −20°C to +100°C |
| Timber filling | Rotafix moulding mortar | Used locally as a fine surface filling material to timber only; not used to form primary moulded elements |
| Latches | Stainless steel | To match original pattern and proportions |
| Metal mesh primer | Non-ferrous metal primer & Sandtex | Applied following wire brushing and surface preparation |
| Decorative finish | Dulux Trade Weathershield Timber System | Water-borne exterior paint; colour matched |

# Conservation Rationale

The repair and redecoration works to the spire were guided by established conservation principles, including minimal intervention, repair rather than replacement, and retention of historic fabric wherever practicable. Timber repairs were limited strictly to areas of confirmed decay and undertaken using traditional splicing techniques with matching timber to ensure visual and material continuity.

Where moulded or decorative elements were beyond repair, these were replaced in matching timber and detailed to replicate the existing profiles. Minor surface defects, open grain, and small areas of loss were addressed using a combination of a durable two-part exterior-grade wood filler and fine timber filling mortar, enabling repairs to be blended without unnecessary replacement of sound fabric.

Associated metalwork was repaired on a like-for-like basis to maintain the appearance and function of original elements.

Decorative finishes were colour matched to preserve the established appearance of the spire. The works secure the long-term performance of the structure while safeguarding its architectural and historic significance. Coatings shall be fully reversible, breathable, and compatible with existing historic timber finishes to avoid damage or inappropriate alteration to the fabric of the building. The system provides durable, flexible, and breathable protection for exterior joinery, helping to prevent moisture ingress and decay while preserving the historic fabric. All coatings are compatible with existing finishes, avoid irreversible alteration, and respect the character and appearance of the building.