

Restoring Structural Steel Girders in Stirling Castle's Elphinstone tower

Project 863

Overview:

- 12th Century Scottish castle protected by Historic Scotland
- Concrete layer covering structural girders in Elphinstone tower flaking, revealing heavy corrosion
- Management specified stripping to bare metal and recoating
- Limited work schedule to accommodate museum days of operation (365 days/year)

Objective:

Blasting and painting without interruption to museum



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Substrate: steel

Size: (3) 1.5m(5ft) long by
0.25m(1ft) wide

Surface Condition: peeling paint;
heavy corrosion

Specified:

Level of Specified Cleanliness:
SA 2.5 / SSPC SP-10 / NACE 2
Near-White Blast Cleaning

Profile: 50-75micron (2-3mil)

Considered:

- Garnet and associated dust would take too long to clean, challenging requirement to open next day
- Hand tooling might achieve the required finish, but would have been slow

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Reasons for Using Sponge Media:

- Girders to be blasted without damaging nearby concrete/stone
- Blaster could see clearly; didn't run risk of blasting surroundings
- Low dust properties were essential to clean up within scheduled parameters

Production Rate: three girders took 20 minutes to prepare

Used: Silver 30 Sponge Media™ abrasives, 100-HP Feed Unit™, 35-P Sponge-Jet Recycler™



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Result:

- It took just over 2 hours to cleanup area and dismantle scaffolding and containment
- Project completed at a cost that was well within customer budget

Outcome:

- All requirements were covered
- Historic Scotland stated that they would continue to use on similar projects

