

Construction: Truss Demolition



Construction: Truss Demolition



Construction: Replacement Spans



Construction: Replacement Spans



Construction: Maintain Channel



Phase 2: Lighting and Painting



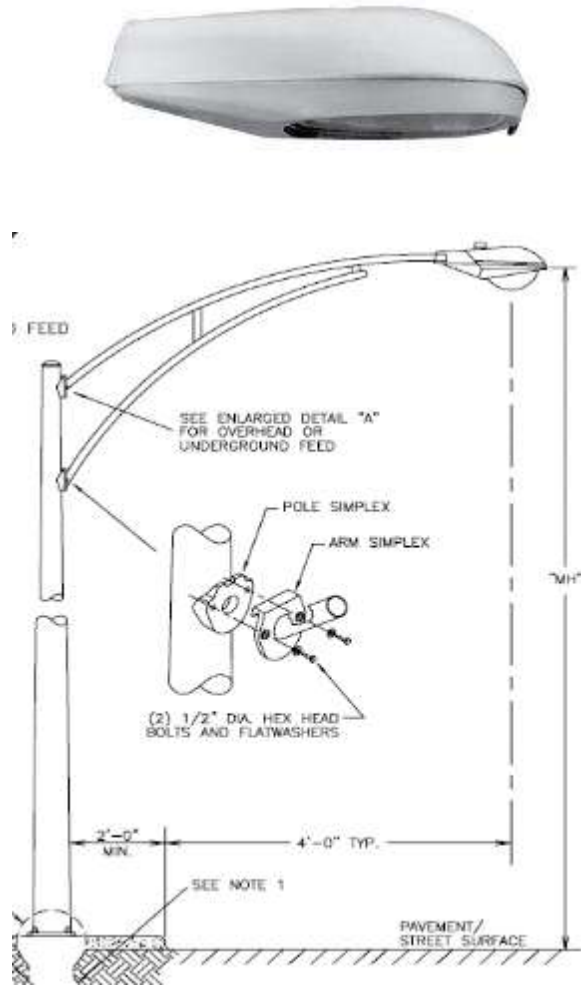
Lighting Systems
Roadway
Top of Tower
Decorative

Painting System

Existing Lighting System



Roadway



Relocate from Sidewalk to
Median

Change to LED

Top of Tower

Historic housing
to remain

Replace internal
HPS lamps with
custom LED light
source

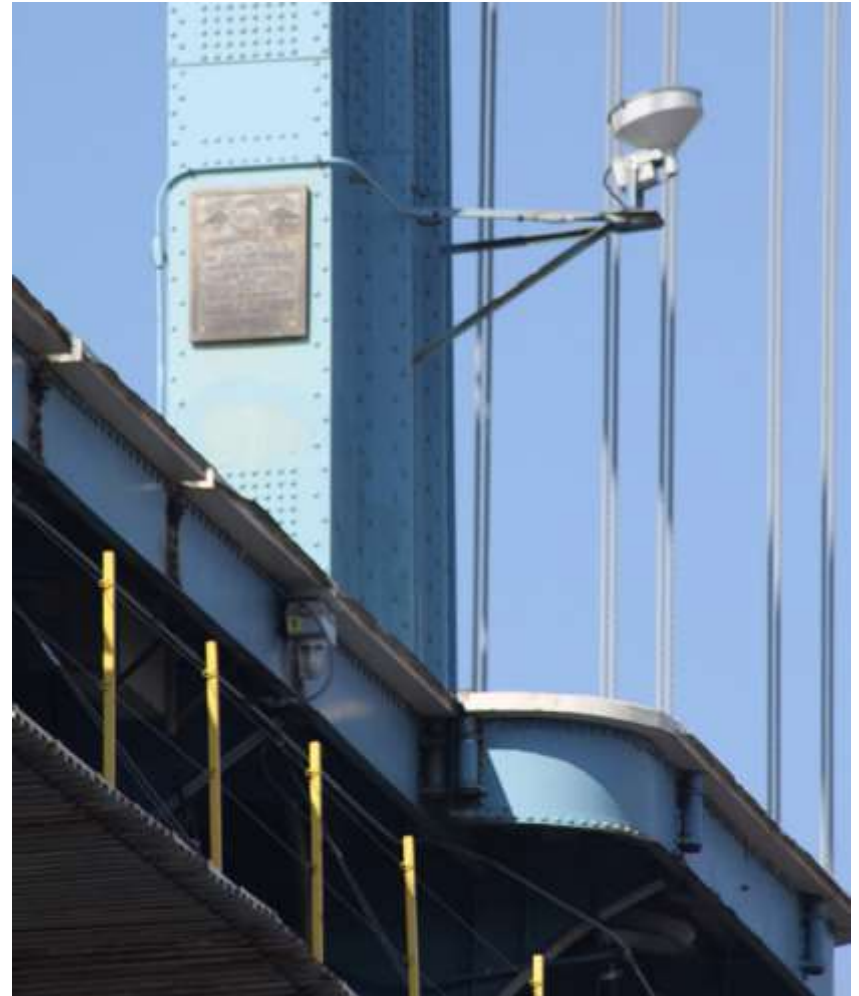


Decorative Lighting

Tower Up/Down
Cable
Deck Edge



Decorative – Tower Up/Down



Decorative – Deck Edge Lighting



Decorative – Cable Lighting



George Washington Tower (Static - White) Cables (Dynamic – Full)



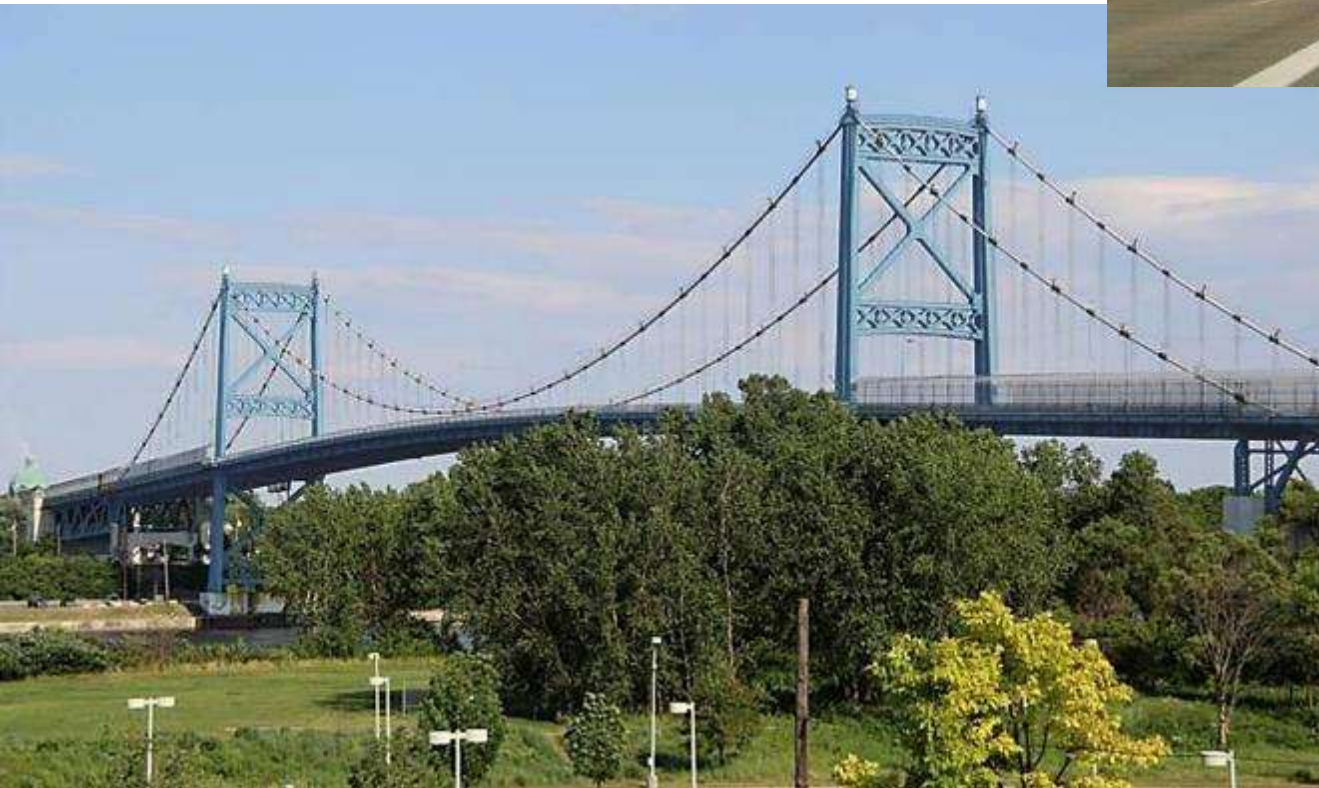
Ben Franklin (Dynamic – Full)



Painting Existing



Painting Light Blue



Painting Dark Blue

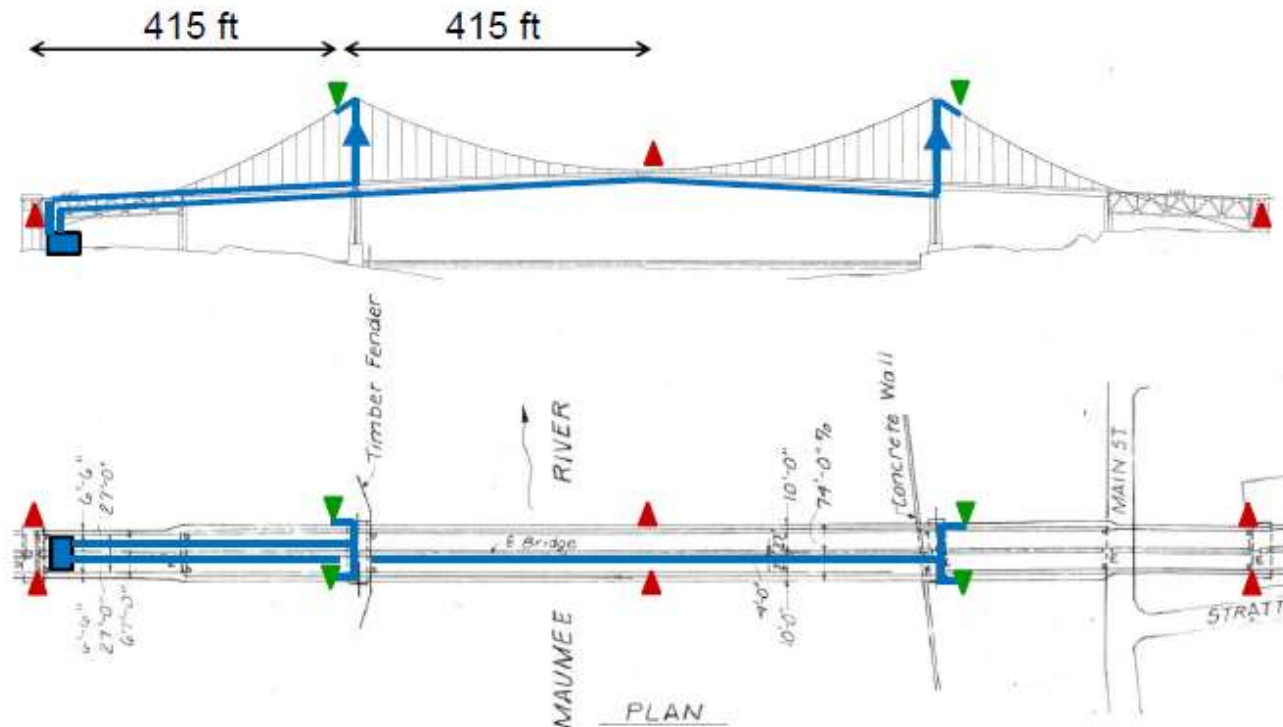


Painting Green

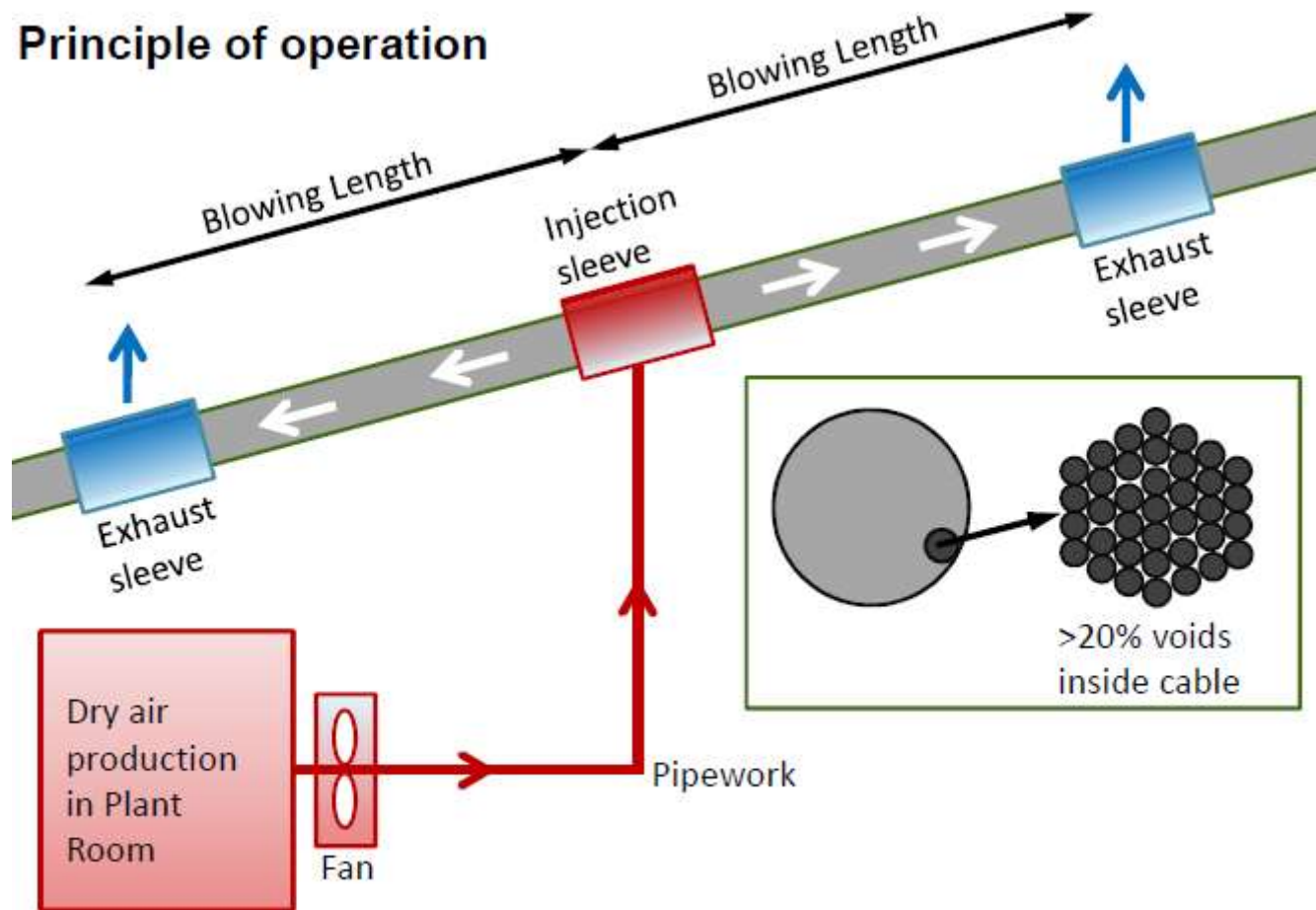


Phase 3: Dehumidification System

Potential layout for Anthony Wayne Bridge



Dehumidification:



Dehumidification Experience

AECOM's experience in the UK



Severn Bridge



Tamar Bridge

Anthony Wayne Cable Dehumidification



Forth Road Bridge



Humber Bridge

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AECOM

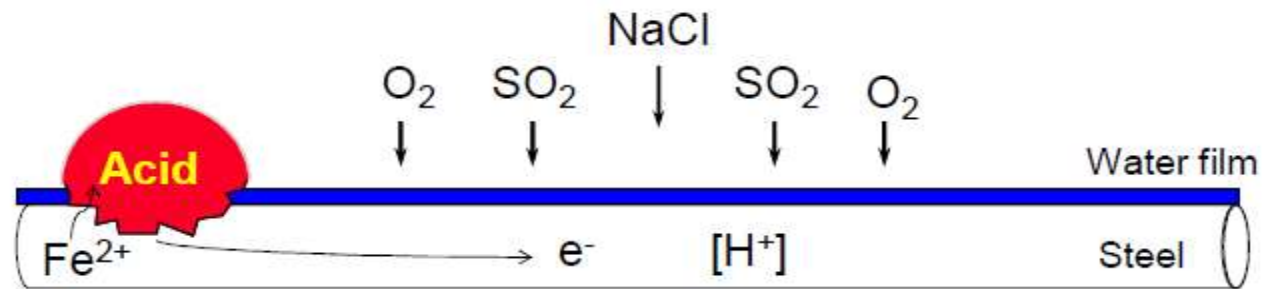
Dehumidification Experience

AECOM's experience in the US



Dehumidification: The Science

The problem



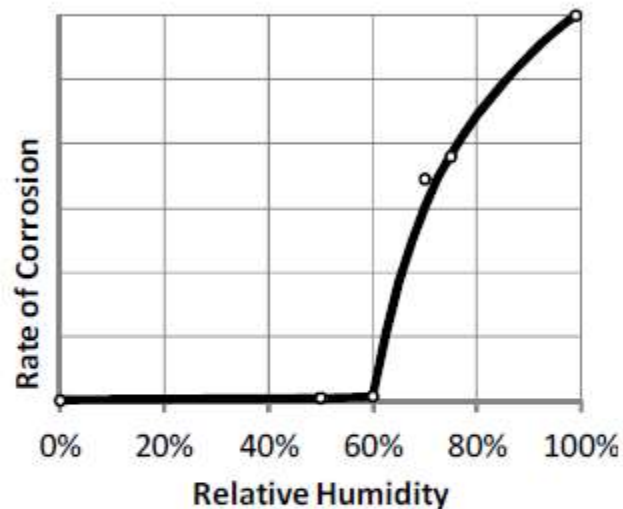
Need to exclude either:

- Oxygen
- Water



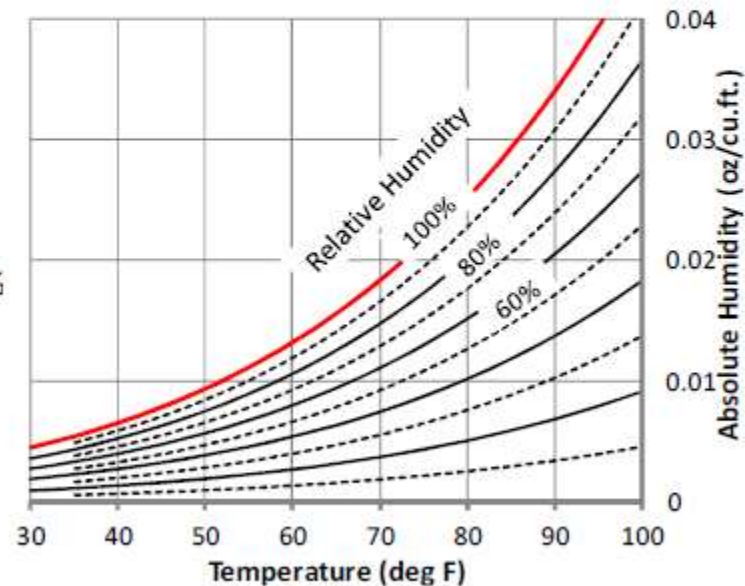
Dehumidification: The Science

The solution



W.H.J. Vernon (1935)

Psychrometric Chart



Dehumidification Equipment:

Mechanical and Electrical Plant

- The desiccant wheel dehumidifier maintains required RH condition and is efficient for all air conditions

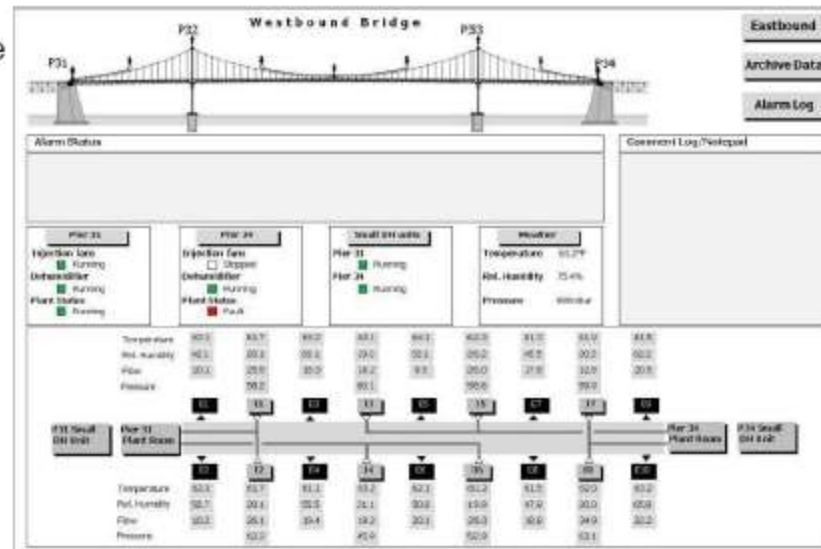


- Filters ensure a clean air supply to cable, preventing future blockage
- Plant room used as a 'buffer' increase long term energy efficiency
- All components are off-the-shelf

Dehumidification Monitoring:

Remote (Web based) Control and Monitoring System

- Air condition is monitored in the plant room, and at injection & exhaust sleeves
- All vital information can be **monitored** and **controlled** remotely from a website or central computer
- Fault reporting and alarm notification by email/SMS
- Trend / historic logging and monitoring is provided



Anthony Wayne Cable Dehumidification

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Dehumidification- Exterior Wrap:

Cable wrapping – Test Rig

Quality of wrapping and sealing needs to be very high.

A pressure test rig is a very useful tool to teach the contractor's team how to achieve the required quality



Project

Acknowledgements



- Ohio Department of Transportation
 - District 2
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- City of Toledo
- Toledo Metroparks
- University of Toledo
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 - AECOM
 - MISTRAS
 - Lucius Pitkin, Inc. (LPI)

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Imagine the result



Infrastructure · Water · Environment · Buildings

Extra Slides for Reference





Phase 2: Painting and Lighting



John A. Roebling (Static – White)



Vincent Thomas (Static - Blue)



Construction: Deck Pour



Construction Photos: Salvage Railing



Wire Inspection PP65 North



Recompacting the Cable



Binding Straps



Neoprene Wrap Installation & Heat Bonding



Wire Testing -Ductile Failure



Wire Testing – Brittle Failure

