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Steel Bridge Coatings Lectures

Tuesdays, March 13 and March 20, 2018

Transportation Building, 10 Park Plaza, 2nd Floor Conference Rooms, Boston, MA
8:00 AM Registration, 8:15 AM Start, 12:15-1:00 PM Lunch, 4:30 PM Adjourn

Day 1 – Tuesday, March 13, 2018
Sessions 1 – 3
Kenneth A. Trimber, President, KTA-Tator, Inc.

Session 1 – Corrosion Control Using Protective Coatings

Corrosion is a process where metals (e.g., steel) give up energy and return to their natural state. There are significant costs and consequences associated with corrosion; the National Association of Corrosion Engineers estimates that the cost of corrosion approaches $300 billion annually. While corrosion cannot be completely halted, it can be slowed. The most widely used method to prevent/slow the onset of corrosion today, particularly on carbon steel, is the application of high performance coating systems. Session One includes the definition of corrosion, explains the corrosion process and the elements of a corrosion cell, describes various types of corrosion present on bridge structures, and highlights design configurations that are conducive to corrosion. The role of high-performance coatings in corrosion prevention is explained, including the various protective properties of coatings: barrier, inhibitive and galvanic. Session one is worth 1.5 PDH credits.

Session 2 - Bridge Coating Maintenance Strategies

While properly installed coating systems can protect steel bridges for 25 years or more, they require interim maintenance to control corrosion and minimize surface preparation requirements. Cost-effective maintenance requires scheduling the repair of coatings before deterioration progresses to the point that the only option is total removal and replacement of the coating system. However, prior to selecting a maintenance strategy, the condition of the existing coating system must be carefully assessed. This session will emphasize the importance of steel bridge coating system maintenance and will explain the impact on installation costs and life-cycle costs. The importance of assessing the condition of the existing coating system will also be described, as well as how the results of the coating condition assessment are used to determine whether maintenance painting is warranted, and which strategies are likely to provide adequate preservation of the structure. There are five maintenance painting strategies that may be selected for any given painted steel bridge. These include: do nothing, spot repair, spot repair and overcoat, removal and replacement in zones, and removal and replacement of the existing system for the entire structure. The advantages and limitations of each will be explored. Session two is worth 2.5 PDH credits.

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Completion of each session provides Professional Development Hours (PDH) as noted

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Session 3 – Coating System Selection for Steel Bridges

There are a variety of coatings and coating systems that can be used to protect steel bridges; selection is based on the prevailing service environment, the maintenance strategy, available funding and other factors. The advantages, limitations and curing mechanisms of common steel bridge coating systems will be described in Session Three, along with the function of the various coating layers, the importance of coating thickness and when selection of two coat systems may be justified over traditional three-coat systems. The impact of Volatile Organic Compound (VOC) regulations on coating system selection will also be explained. The use of duplex coatings systems (hot-dip galvanizing with liquid or powder coating finishes) and thermal spray coatings (and the associated industry guides/standards) will be discussed, as well as when and where the use of weathering steel may be justified.

Most steel bridges contain connections that are slip-critical. When the EOR elects to coat faying surfaces, the coatings (i.e., primers) are required to demonstrate resistance to slip once the bolts are tensioned. Session Three will include an explanation of how coatings are tested and classified according to the requirements of Appendix A of the RCSC Specification for Structural Joints Using High-Strength Bolts.

Because not all generic coatings systems are created equally, many transportation agencies will create an Approved Products List (APL) or Qualified Products List (QPL) based on laboratory testing of candidate coating systems and/or successful track records. Session Three will conclude with an overview of the National Transportation Product Evaluation Program (NTPEP) for Structural Steel Coatings, as well as how the Northeast Protective Coatings Committee (NEPCOAT), a consortium of ten northeastern states, including Massachusetts uses NTPEP-generated data to generate an APL. Session three is worth 2.5 PDH credits.

Day 2 – Tuesday, March 20, 2018
Sessions 4 – 6

William D. Corbett, Chief Operating Officer, KTA-Tator, Inc.
Michael Hewins, Coatings Engineer, Massachusetts Department of Transportation

Session 4 – Surface Preparation Methods & Standards

Preparation of steel surfaces for coating application is typically regarded as the most important step, as it effectively lays the foundation for the coating system. Session Four begins a discussion of pre-surface preparation concerns that may need to be addressed in coating specifications (e.g., edges, weld spatter, laminations, section loss, grease/oil, chemical contaminants, etc.). Various methods of surface preparation will be described, including advantages and limitations of each, and which are appropriate for shop work versus field preparation. Subsequently, factors associated with selection of surface preparation method(s) for inclusion in coating specifications (e.g., maintenance strategy, coating system requirements, access and worker/environmental concerns) will be discussed. Session Four will conclude with a discussion of the industry standards for surface preparation published by organizations such as ASTM International, SSPC: The Society for Protective Coatings, and NACE International that can be used in the preparation of project specifications. Session four is worth 2.5 PDH credits.

Session 5 – Quality Assurance & Quality Control

Verification of quality is a shared responsibility of the facility owner and contractor. The roles and responsibilities of quality assurance (QA) and quality control (QC) personnel and the associated reporting relationships will be explored in Session Five. The inspection requirements that may be invoked by project specifications related to pre-surface preparation, surface preparation and coating application for both existing and new steel bridges will be described. Session Five will conclude with a discussion of the inspection instruments, visual guides and test kits that are used to verify quality at each step of the surface preparation and coating application process. Session five is worth 2.5 PDH credits.

Session 6, Part 1 – Coating Specifications

The first part will focus on the purpose and content of coating specifications, including common formats. The instructor will compare coating specification content for new steel bridge structures, (including the advantages and limitations of total shop painting), and coating specifications for maintenance painting of existing structures (including sequencing and impact of the maintenance strategy on specification content). Part one will conclude with a discussion of specification preparation, including common submittal requirements. Session six, part one is worth 1.5 PDH credits.

Session 6, Part 2 – MassDOT's Approach to Protection of Steel Structures

The second part of Session Six will be led by Michael Hewins, Bridge Coatings Engineer, who will describe Mass Highway's approach to protecting steel bridge structures from corrosion using protective coatings. Mike will describe the maintenance strategies employed by the Agency; the coating systems used; surface preparation methods specified; contractor certification requirements; and management of quality assurance inspection. Mike will also share some of the challenges his Agency encounters related to corrosion control of steel bridges in Massachusetts. Session six, part two is worth 1 PDH credit.

SPEAKERS

Kenneth A. Trimber, President, KTA-Tator, Inc.

Ken Trimber is the President of KTA-Tator, Inc. (KTA) in Pittsburgh, Pennsylvania, where he has been employed since his graduation from Indiana University of Pennsylvania in 1974. With nearly 45 years of experience in the industrial painting field, he oversees the technical delivery of KTA's products and services, acts as a senior coatings consultant and client liaison on multi-disciplinary and DB/P3 projects, and serves as a principal specification writer/reviewer. Ken is a NACE Level 3 Certified Coatings Inspector, an SSPC Certified Protective Coatings Specialist, and an SSPC C-3 Supervisor/Competent Person for the Deleading of Industrial Structures. He is a Past President of the SSPC, Chairman of the Commercial Coatings Committee, Chairman of the Committee on Surface Preparation, Chairman of the Visual Standards Committee, Chairman of the Task Group on Containment, and is a member of the Standards Review Committee. He is also Past Chairman of ASTM D1 on Paints and Related Coatings, Materials, and Applications. Mr. Trimber authored The Industrial Lead Paint Removal Handbook and co-authored Volume 2 of the Handbook: Project Design. He has been formally recognized by industry associations/publications on numerous occasions including being selected by the Journal of Protective Coatings and Linings (JPCL) in 2004, 2009, and 2012 as one of the Top Leaders and Thinkers in the Coatings & Linings Industry. He was named the SSPC Honorary Life Member in 2015.

William D. Corbett, Chief Operations Officer, KTA-Tator, Inc.

Bill Corbett is the Chief Operations Officer for KTA-Tator Inc. (KTA) in Pittsburgh, Pennsylvania, where he has been employed for 39 years. He holds an AD in Business Administration from Robert Morris University. He is an SSPC Certified Protective Coating Specialist, an SSPC Level 3 Certified Protective Coatings Inspector, an SSPC Level 2 Certified Bridge Coatings Inspector, as well as a NACE Level 3 Certified Coatings Inspector. He is an approved training course instructor for both SSPC and KTA. Bill authored the first, second and third editions of the KTA publication, *Using Coatings Inspection Instruments.* He received SSPC's Coating Education Award in 2006, the SSPC John D. Keane Award of Merit in 2011, an ASTM Committee D01 Award of Appreciation in 2016, and the SSPC President's Lecture Series Award in 2017. He is the Chair of the SSPC Dry Film Thickness Committee and Chair of the SSPC Education and Certification Committee. He is also a member of ASTM Subcommittees D01.23 and D01.46.

Michael Hewins, Coatings Engineer, Massachusetts Department of Transportation

Michael Hewins is the Coatings Engineer for MassDOT – Highway. Michael started with MassDOT in 1997 and is responsible for the administration and oversite of consultant contracts providing 3rd party coating inspection services for both the field and shop. He also provides technical assistance for various aspects of the maintenance coating of bridges and related issues. He is a NACE Level 3 Certified Coating inspector.

Registration Deadline: Wednesday, March 7, 2018

Register to attend individual lectures or the full lecture series and pay by credit card online at http://bit.ly/SEILectures2018. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. To register for multiple lectures, please complete the registration form below and mail, email or fax it to BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108, bscesreg@engineers.org or 617/227-6783, respectively. Cancellations received after March 7, 2018 and no-shows will be billed.

Handouts: Registered attendees will be provided a website reference for downloading handouts/notes.

Lunch and Refreshments: Morning and afternoon refreshments will be provided. Lunch will be the attendee's responsibility.

Registration Form

BSCES SEI Steel Bridge Coatings Lectures

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Registrant Information

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Registration Fees

Full Series – Both Days

- ☐ $200 BSCES/ASCE Member
- ☐ $250 Non-Member
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Day 1 or Day 2

- ☐ $140 BSCES/ASCE Member
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Check Day Attending: ☐ 1 ☐ 2

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