

# NEI ONE-DAY SEMINARS

## ***BIM for Mechanical Contractors Seminars***

MCAA, the “education association,” proudly presents these courses to help practitioners in the mechanical contracting industry who have an immediate need for broad and basic knowledge of building information modeling, or BIM.

The day when building information modeling will be standard practice on construction projects is coming...and fast! In fact, having the wherewithal to staff and perform BIM-delivered projects is rapidly becoming a pre-qualification to bid projects! Studies show that BIM use among project owners, architects, and contractors has steadily increased and is projected to become even more widespread in the years ahead. So, what is BIM and why is it being used in mechanical construction? BIM provides mechanical contractors with the benefits of improved visualization of a project through the use of a 3D virtual model. It also provides the ability to retrieve information such as the geometry of the building, spatial relationships among objects, and the properties of building components. Advanced implementation of BIM includes using virtual models to determine material quantities and installation sequences.

BIM is not software, although it is software intensive. It is not a workflow process, but it does establish new project workflows that can increase collaboration among all members of a project team. This saves time, money, and relationships, and can help eliminate the errors and conflicts that cost you all three!

### **Who Should Attend?**

Owners of mechanical contracting companies, senior management, CAD/BIM managers and project managers are the primary audience for these seminars. It is recommended that attendees begin with the BIM Kick-Start and BIM Project Execution Plans courses or have equivalent knowledge or experience.

### **Course Descriptions**

#### ***BIM—Managing the Process, Controlling the Cost*** – 8 Hours

This course is intended for member owners, senior executives, operations managers, estimators, project managers, and BIM managers who are interested in learning new strategies for creating and managing the BIM process and budgets.

Skilled BIM organizations and beginners will benefit from this presentation and the discussions. We will discuss approaches to budget and schedule creation and staff planning that allow organizations to be better prepared for BIM execution. This course is mainly focused on the activities “around” the BIM process not directly related to model creation, such as:

- Creating real budgets for BIM (Plan and Spec/ IPD/Design Assist)
- Developing BIM schedules that support project execution
- Staff planning, staff development
- BIM execution plans—why should my organization have one?
- BIM Execution plans—why should my project have one?
- Identifying red flags in the coordination process (and how to mitigate them)
- What is the true cost of that late submittal, information, or decision?
- Coordination leadership (Cost / Benefits)
- Planning to maximize the benefits of spatial coordination through fabrication
- Organizational IT strategies and discussions
- Authoring software platform selection (planning for the future)
- Collaboration software selection and use
- Using BIM to support job cost tracking (material/ production)
- Estimate model to fabrication model strategies and benefits

#### ***Kick-Starting BIM, Because You Must: A Primer for Entering BIM*** – 8 Hours

New projects like the ones you’ve done in the past are now starting to include BIM requirements; worse, there’s a plum project bidding that has everything you look for in profitable job, you have just the project manager and foreman for it and it’s with a GC you know well, except...it requires the MEP portions to be spatially coordinated in BIM. You’ve never done a BIM job, you’ve heard of BIM but you’re not sure exactly what it entails, or what’s required. Or worse yet you’ve been awarded the BIM-coordinated job and now you actually have to build it. What do you do?

This course is designed to help you begin to answer that question by providing a foundation

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for making informed decisions and choices and to help guide you to the best BIM solutions for your company.

The course will begin with a BIM primer, describing the BIM process, how it is structured and used and most importantly the advantages and opportunities it can provide the mechanical and plumbing contractor by providing a complete, thorough, accurate and detailed plan for constructing a building.

Options available for becoming involved in the BIM process will be reviewed and examined, including:

- Starting up CAD/BIM in your company
- Hiring and staffing
- Budgeting
- Infrastructure
- Outsourcing
- Partnering

By the end of the course participants will be able to:

- Describe how BIM is used as a construction process
- List five benefits BIM can bring to a mechanical and/or plumbing contractor
- Identify and evaluate the typical BIM requirements
- Identify the minimum requirements needed to start up BIM within your company
- Identify five challenges you will face
- Evaluate which options best suit your situation and develop a BIM action plan

*Note: Because of the interrelated subject matter, it is suggested that this course be scheduled back-to-back with BIM Project Execution Plans.*

### **Getting the Most from BIM Project Execution Plans** – 8 Hours

A BIM project execution plan is the written requirements and specifications that govern the use of BIM on a specific building project. A well-executed BIM project is generally the reflection of a thorough, complete and well defined BIM execution plan. Conversely, poorly executed BIM projects are often characterized by poorly defined execution plans. A well-defined BIM execution plan or the lack of one can make or break a BIM project.

As owners and general contractors become increasingly knowledgeable and sophisticated in

their application of the BIM process, so too must mechanical and plumbing contractors thoroughly understand the requirements and specifications of the BIM projects they are bidding or have been awarded.

This course will examine the typical BIM execution plan at length and identify characteristics of well written, clearly defined plans that all mechanical and plumbing contractors should look for when evaluating or planning a BIM project. The course will also identify and discuss cost impacts of the hidden or more difficult to quantify requirements. Finally, this class will cover preparing BIM execution plans for those projects where the mechanical or plumbing contractor assumes the lead in managing and facilitating the BIM process.

By the end of the course, participants will be able to:

- Evaluate a BIM execution plan for completeness, contractor requirements and “red flags”
- Identify the resources and skills required to successfully execute the BIM project
- Determine those parts of an execution plan that are critical to its success and those that do not add value and should be discouraged or challenged
- Determine five opportunities for improved execution and cost savings
- Gain exposure to negotiation strategies for key contract language
- Prepare an execution plan for a sample project using an execution plan template

*Note: Because of the interrelated subject matter, it is suggested that this course be scheduled back-to-back with BIM Kick-Start.*

### **Implementing and Managing the BIM Process Within Your Organization** – 8 Hours

A comprehensive plan for implementing and managing the BIM process is a necessity for its successful use. The adaptation of BIM in your company is much more than buying software and hiring detailers. BIM is a complex process. For those taking the plunge, entering the BIM process can be an intimidating undertaking. As for those currently involved in BIM projects, they must continually evolve and refine their use of the process in order to realize its maximum benefits. The successful implementation of BIM into your organization can open the door to numerous opportunities. It can promote

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teamwork and streamline your construction processes thus saving you time and money while improving quality and safety and enhancing your competitive position in the MEP marketplace.

Through the combined use of lecture and interactive activities, this course will address the use of BIM as a central function of project management and will describe methods for fully integrating the BIM process into your organization. The course will focus on specific strategies that allow mechanical and plumbing contractors to pick the "low hanging fruit" that BIM offers to the MEP contractor. Additionally, identifying and dealing with negative trends or "red flags" that may emerge during the process will be discussed.

This course offers strategies for:

- Beginning BIM users
- Contractors who may be struggling with implementing or managing BIM
- Experienced BIM professionals

By the end of the course, participants will be able to:

- Describe the concept of centering project management activities around BIM
- Create a list of five goals and expectations to achieve through the use of BIM technology
- Identify methods for integrating BIM into management and construction processes as they relate to scheduling, fabrication, deliverables and purchasing
- Identify specific staffing needs including positions to be filled and skills and experience required
- Identify both initial and ongoing training needs and outline an effective training program
- Formulate effective metrics for evaluating the results of BIM projects

*Note: It is strongly suggested that attendees be familiar with BIM basics or have attended the Kick Starting BIM course.*

### **Who is the Presenter?**



**Brett Endres** is a senior project manager and BIM manager at Modern Construction Services LLC (MCS) in Seattle, WA. He began his career as a detailer at University Mechanical Contractors, Inc. (UMC), one

of the largest mechanical contractors in Seattle. During his 20 years with UMC he grew detailing from a two-person department drawing 2D shop drawings for installation to a group of 26, providing 3D modeling, estimating, and trade coordination services. He was also responsible for the re-implementation of Autodesk Fabrication (CAD/EST) across the organization, streamlining detailing and estimating efforts to become an integral part of the company's overall construction process. Brett's passion for the Virtual Design and Construction (VDC) process has been contagious for those who have heard him present on topics such as "Re-Implementation of Trade Software," "Advanced Modeling Software and IPD" and "The Fundamentals of Organizational/Project Success" at national user group meetings, as well as training sessions he has done for national software distributors on the "Fundamentals of Software Implementation for Contractors." Prepare to be inspired by what BIM can do for you!

### **FOR MORE INFORMATION OR TO SCHEDULE A COURSE, CONTACT:**

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You may also contact MCAA's **Priya Craig** at **800-556-3653** or **[pcraig@mcaa.org](mailto:pcraig@mcaa.org)**.