



FUNDAMENTALS OF PROJECT MANAGEMENT (FPM)

FOR CONSTRUCTION

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Mechanical Contractors Association of America, Inc.

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Fund. of Project Management (FPM) Seminars

These seminars are specifically directed to junior and senior level project management personnel such as field engineers, project engineers, assistant project managers, project managers, senior project managers, estimators, senior estimators, etc.

FPM 100: 8 or 4 hours

Planning Skills for the Project Team

All great project managers are master planners; there is no such thing as a great project manager who is a “decent” planner. All wildly successful projects are incredibly well planned by all members of the project team; project manager, foreman, fabrication manager, coordination manager, safety manager, warehouse manager, purchasing manager, etc. The project manager is the “president of the project” and is ultimately responsible for all project planning and the quality of that planning. This session will focus on the project manager’s role and responsibilities in project planning and the three stages of planning; 1) Information Turnover, 2) Preconstruction Planning, and 3) Short Interval Planning. This session will also focus on the direct relationship between planning, productivity, and profitability. Topics include:

- What is the “Project Outcome influence Curve” and how does it affect project success or failure?
- When do a project manager and foreman have the majority of their ability to control project outcome and when do they lose most of their ability to control project outcome?
- Why is project planning more critical to success than ever before?
- Why is project planning more difficult to do than ever before?
- How does project type affect project planning?
- How does customer type affect project planning?
- How does size of project affect project planning?
- This session covers all the fundamentals for conducting an effective turnover meeting.
- Energetic in-class discussion will identify thorough pre-construction planning as a mandatory process for all projects.
- Investing project management resources in pre-construction project planning yields significantly higher productivity and profitability.
- Conducting an effective turnover meeting to maximize project profitability through the timely and complete transfer of information from estimators to project managers. They provide for standardized information exchange and facilitate project planning and control.
- What is a turnover meeting and why are they mandatory on ALL projects?
- What are the primary objectives of a turnover meeting?
- What is the relationship between planning, productivity, and profitability?
- What is the foreman’s role and responsibility for planning and how is it related to the project manager’s role?
- Why must the project manager and the foreman plan the project together?
- Why must all projects have a mechanical schedule? If you have no schedule you have no plan.
- What is short interval planning?
- Why is short interval planning so important?
- How does short interval planning affect productivity?
- What is the connection between great planning, great documentation, and great job cost control?

FPM 101: 4 hours

Productivity Improvement for Mechanical Projects

Great project management, by both the foreman and project manager, is primarily responsible for creating excellent productivity on every project. Due to the endless number of variables, which negatively effect worker efficiency, excellent productivity is the project team’s greatest challenge. Productivity also has the greatest positive or negative impact on project and company profitability. Excellent productivity requires proactive, diligent, and detailed planning by the project manager and foreman at each step of the project. This session will provide proven methods and practices for creating, controlling, and improving project productivity on all types of projects. The following topics will be presented and discussed:

- Material handling practices that guarantee improved jobsite productivity
- Understanding “average” productivity and the “typical” construction site work day
- Identifying, managing, and controlling recoverable lost time
- Understanding the differences between management-caused lost time and worker-caused lost time
- Understanding the differences and the important connection between punctuality and productivity
- Optimum crew size and its effect on productivity
- The relationship between planning, productivity, and profitability
- Planning activities that have huge impacts on productivity
- Identifying and controlling the internal and external factors that affect productivity
- Fabrication, preassembly, tagging, bagging, and its effect on productivity

FPM 102: 8 or 4 hours

Using the Contract as a Tool for Project Management

Gain a basic understanding of contract types and components, and learn how to use the contract to maximize profitability while managing a mechanical construction project. Learn skills to help you know what the contract says and how to organize and manage the project accordingly. An active presentation and class discussion will answer the following questions:

- Why should a project manager see, read, understand, and use their contract on every project?
- What is the proper method for reading and learning a project’s contract?
- What is “contractual privity” and how does it affect the project chain of command?
- What types of contracts do mechanical contractors enter into?
- How are government contracts and private contracts different?
- Why is it important to manage government contracts and private projects differently?
- What is a “flow through” clause?
- Why is it important to see the general contractors contract with the owner?
- What is “incorporation by reference”?
- What is a “liquidated damages” clause?

- What are “payment contingency” clauses?
- What do contracts say about time and schedules?
- What do contracts say about change order management?
- What do contracts say about “contractor engineering liability” and drawing errors and omissions?
- What do contracts say about coordination and coordination responsibilities?

FPM 103: 4 hours

Fundamentals of Job Cost Control

In this session attendees will gain an understanding of the job cost control and labor cost trending methods as detailed in the Job Cost Control section of the MCAA Project Manager’s Manual. All project managers must learn to use their job cost control system as a primary management tool to control and cause a positive project outcome rather than simply focusing on cost documentation and cost history. Great project managers CONTROL cost while average project managers tend to WATCH cost. This “basic” session is geared to new or potential project managers with little or no experience in job cost control systems and procedures and is also a great refresher for more experienced project managers. Topics include:

- Review a great job cost control analogy for understanding the project manager and foreman’s role and responsibilities for job cost control.
- What is job cost control?
- What is the most important function of a job cost control system?
- Great job cost control is required to have great project documentation.
- How is the mechanical schedule related to the labor cost control system?
- What are the different types of profit?
- What are four primary objectives of job cost control?
- What is target gross profit and how is different from original estimated profit?
- What are 5 categories of direct job costs and how do they drive a project manager’s focus on cost control?
- What are the project manager’s responsibilities regarding accurate project profit and cost forecasting?
- What are sandbagging and fading and how do they occur?
- What are the basics of cost forecasting “philosophy” regarding showing gains and losses earlier or later? Why is this important to understand and practice?
- How does accurate or inaccurate profit forecasting affect company management?
- Labor cost is the absolute key to accurate project cost forecasting. Why? How?
- How can labor cost be accurately forecasted?
- What is the relationship between the “Project Outcome Influence Curve” and great job cost control?
- The most critical point in job cost control is 15-30% complete. Why?
- The labor cost management system is your early warning system and your scoreboard.
- Review basic labor cost control concepts.
- Review general rules of thumb for setting up great labor cost control systems.
- Discuss how to determine fairly accurate % complete estimates.
- The importance of managing your manpower curve.
- The importance of managing optimum crew size.
- The importance of tracking, forecasting, and managing your project’s hourly mixed crew rate.

- The importance of having a great project manager/foreman partnership in managing labor cost.
- What is labor trending and how do you do it well?
- What is earned value?
- Review labor cost trending methods.

FPM 104: 4 hours

Time Management Skills and Managing Multiple Projects

Project management is a dynamic and challenging thing to do for a living. It creates numerous time management challenges for the project manager and causes daily chaos that must be successfully managed in a way that maintains project productivity, project profitability, and customer relationships. Effective and efficient managers of time who can successfully manage multiple projects are therefore invaluable to their firms. Improving time management skills is a difficult proposition that takes great personal commitment and self-discipline from the project manager. This session identifies the greatest time wasters and provides strategies for improving time management skills. Students will identify and discuss the best practices required for becoming a better manager of multiple projects. Topics include:

- What is time management?
- What is the difference between “time management” and “punctuality”?
- Why is a project manager’s time management ability critical to having great field productivity?
- Why is improving time management so difficult?
- What is the relationship between “time management difficulty” and “old habits”?
- What are the traits, qualities, and characteristics of all great managers of time?
- Why is “time ownership” so critical?
- What are the greatest “wasters” of a PM’s time?
- What is the importance of taking a “quiet hour” each day?
- How do you manage telephone interruptions? Are you the “slave” or the “master”?
- How do you leave good phone messages and how can they save you time?
- How do you manage emails?
- How do you manage the interruption of drop-in visitors?
- How do you manage meetings and prevent wasting of time?
- What are the rules for conducting efficient meetings?
- How does great planning increase time management ability and efficiency?
- What is the importance of prioritization?
- What is the importance of delegation?
- What are the rules for delegation?
- What is the importance of being “list driven”?
- What is the importance of being “goal driven”?
- What is the importance of being “calendar driven”?
- Why must you be organized? How do you become and stay organized?
- Why must you standardize? What should be standardized and how do you do it?
- Why must you have and maintain your own personal “time management system”?
- What are the primary components of your personal “time management system”?
- What is a paper handling system, why is it important, and how do you do it?
- What is problem with attempting too much and how does it cause failure?

FPM 105: 4 hours

Effective Project Documentation

Documentation is a very time consuming but necessary evil in the construction process. Due to the great risk accepted when a mechanical contractor signs a contract, all mechanical projects must have a contemporaneously written factual record/history of all significant events, written by the people closest to the work. The key is having the right amount and type of documentation based upon the specific characteristics of the customer and the project. Over documenting a project wastes valuable company resources and can distract the project team. Under documenting a project gives the project team a false sense of security and puts the company in an unnecessary position of risk if something goes terribly wrong on the project. This seminar will review project documentation types, discuss the steps necessary to plan and implement the project documentation process, and review the proven methods for successfully documenting all types of mechanical projects. Topics to be discussed include:

- Why is documentation required?
- What types of documentation do you need and why do you need them?
- How does your contact affect your project's documentation requirements?
- How does a mechanical schedule affect the quality and credibility of your documentation?
- What types of documentation are most critical and most credible? Why?
- How does "customer type" or "project type" affect documentation?
- Why do all great project managers and great foremen keep a journal?
- What is the difference between a LEADER and a MANAGER regarding documentation?
- How do you write a great foreman's daily log?
- Why is great job cost control such a critical piece of documentation?
- How do you properly document your own company's mistakes and missteps? Why is this so important?
- What is the most effective way to deliver "bad news"?
- How can documentation affect your relationship with your customer, both positively and negatively?
- How do you properly document changes, change orders, and project impacts?
- The following types of documentation will be discussed – schedule, contract, contractual notification, RFIs, job cost control, letters/memos/emails/text messages, photos and videos, meeting minutes, journals, foreman daily logs, submittals

FPM 106: 8 or 4 hours

Change Order Management: Best Practices for Success

Successfully managing change orders on a complex and constantly changing project is a seasoned project manager's greatest challenge and a new or inexperienced project manager's greatest nightmare. If not well managed by a proactive and knowledgeable project manager, change orders can cause unnecessary additional risk, destroy base contract labor productivity, ruin customer and contractor relationships, choke cashflow, reduce or eliminate profitability, and create nearly irreversible negative jobsite moral. Attendees will learn numerous strategies and proven best practices for successfully navigating this multi-faceted and complicated challenge.

Topics include:

- Being proactive in your approach to change
- Planning and identifying changes early
- Knowing and following your contract
- Cost identification and explanation
- Believing and knowing what you are selling
- Working hard to have great communication and documentation
- Knowing your numbers
- Maintaining solid trust-based relationships
- Your partnership with your foreman
- Proceeding under protest wisely
- Pricing before proceeding whenever possible
- Understanding the difference between CCDs and change orders
- Developing a standardized approach to changes
- Being able to identify, explain, and negotiate change order impact costs
- Negotiate price confidently and wisely

FPM 107: 4 hours

Project Billings and Maintaining Positive Cash Flow

Maintaining positive cash flow is one of the project manager's greatest challenges. The construction industry's standard billing and payment model has the potential to create poor cash flow on almost any project. This seminar focuses on how the project manager, with planning, creativity, excellent project execution, and positive customer relationships, can regularly create positive project cash flow. Topics reviewed and discussed include:

- Cash is the lifeblood of the company. Why?
- What is positive cash flow?
- How does positive/negative cash flow affect the company?
- What are the primary causes of cash flow problems?
- Why are GCs and CMs less concerned with cash flow than mechanical contractors?
- How does a project manager manage cash flow?
- What is the difference between over-billing and positive cash flow?
- Always bill for the full amount allowable
- Developing a schedule of values
- What is front end loading and why is it necessary?
- Always manage your cash flow
- What are the keys to achieving and maintaining a positive cash flow position?

FPM 108: 4 hours

Essential Management Skills for the Project Manager

Learn the unique, basic management skills of a mechanical project manager. The primary focus of this seminar is people management. Attendees will gain an understanding of the essential traits, skills, and behaviors that foster effective management. Topics include:

- How are leadership and management skills different and similar?
- What is management ability vs. technical savvy?
- What is management and what is a manager's role?
- How and why is the construction industry a people business?
- Understanding the important relationship between personality profile and managing yourself and other people
- Understanding how people are different and how it affects your management style and effectiveness

- The importance of knowing your “default” management style and knowing your own personal strengths and weaknesses as a manager
- The importance of self awareness and self control in difficult situations
- Developing a flexible but consistent management style
- The importance of organization and standardization
- Motivating others to perform and your role in doing so
- Managing the boss
- Delegation skills
- Communication skills and their importance
- Successfully working with difficult people

FPM 109: 4 hours

Basic Negotiating Skills for Project Managers

Mechanical project managers spend a substantial part of each day negotiating. They negotiate numerous items including customer issues, change orders, subcontracts, equipment and material purchases, rental equipment rates, submittal and shop drawing approval, time and space allocation, back charges, etc. Most project managers have no formal training in negotiating, putting them at a great disadvantage. This seminar provides the basic skills to improve negotiating abilities and increase the project manager’s comfort level when negotiating. Discussion topics will include:

- Understanding that negotiating ability is learned and requires certain skills and continuous practice and refinement
- Understanding how your “personality profile” and personal strengths and weaknesses affect negotiating ability and potential
- The process and methodology of negotiating
- The importance of creativity in negotiating
- Understanding the importance of “win-win” negotiating and long term relationships
- Negotiating consciously—following methodology rather than “winging it”
- Qualities, traits, and characteristics of great negotiators
- Myths and realities of negotiating
- The importance of controlling your emotions when negotiating
- Understanding the issue of leverage and using leverage to your advantage
- Dealing with the fear of rejection
- Getting over the resistance or fear of asking for what you need or want
- How to respond or deal with a “no” or “maybe” answer
- The importance of proper preparation
- Dealing with being blind-sided/surprised
- The importance of knowing and understanding the other person and their needs
- Why you must believe that everything is negotiable
- Learning to say NO
- Knowing when to walk away
- Understanding the importance of authority—theirs and yours
- Staying cool under fire
- Risk/benefit analysis
- The importance of patience and persistence
- Rules for negotiating price
- Rules for conceding
- Talking, questioning, listening, and silence

FPM 110: 4 hours

Mechanical Scheduling: Project Leader vs. Project Follower—Understanding the Basics

The days of relying upon unrealistic and illogical schedules created by general contractors (GC) and construction managers (CM) are long gone. Today, mechanical contractors must be project leaders. To be a project leader, the mechanical project manager and foreman must jointly develop a logical, reasonable, and achievable mechanical project schedule. The mechanical work must then be managed against that schedule, thereby using it as a project baseline. Scheduling the mechanical work also provides more project control and better documentation when projects, which are often delayed by others, are forced to accelerate to meet the original completion date. Mechanical contractors who do little project scheduling often find themselves at the mercy of unrealistic GC/CM/owners’ schedules. Attendees will learn, “If you have no schedule, you have no plan.” Topics addressed include:

- The importance of the foreman’s deep involvement in producing the schedule
- Understanding the GC and CM’s perspective
- Why do GC and CM schedules continue to be more milestone-based and marketing pretty and less detailed, complex, and practical?
- Strategies and practices of GCs and CMs regarding creation and management of project schedules
- Critical issues/rules for creating a mechanical schedule
- Understanding what contracts say about project schedules, subcontractor schedules, changes, acceleration, etc.
- How complicated or simple should the schedule be?
- Why do we need a mechanical schedule?
- What happens when projects go sideways and you have no mechanical schedule?
- What is the relationship between the labor cost control system and the mechanical schedule?
- Issues related to change orders and project schedules
- Different types of schedules and their application

FPM 111: 4 hours

Critical Leadership Skills for Project Managers

Strong leadership skills are critical to successful project management. The success of project managers, who typically manage multiple projects, largely depends on the performance of several jobsite teams. In turn, company success depends on the project manager’s performance. There is no such thing as a great project manager who is a weak leader. To have successful projects and a successful career, the project manager must develop critical leadership skills. This seminar provides an understanding of these critical leadership skills. It will include:

- What is great leadership?
- What is servant leadership and why is it important?
- What is emotional intelligence?
- Understanding the relationship between effective leadership and emotional intelligence
- Defining and dispelling the myths of leadership
- The difference between leadership and management
- A discussion of Maxwell’s irrefutable laws of leadership
- Making the emotional connection with teams and leaders
- The relationship between leadership and motivation
- Developing effective speaking and listening skills
- Creating an atmosphere of trust
- Leadership ability and its relationship to personal effectiveness and accomplishment

FPM 112: 4 hours

Profitability Managing Your Subcontractors

Subcontractors represent a significant portion of mechanical contracts, and the performance of your subcontractors is a direct reflection of your own performance in the eyes of an owner, construction manager, or general contractor. The project manager's effective management of subcontractors ensures a successful project that is profitable, completed on time, and completed within budget. When the project manager and foreman properly manage subcontractors, mechanical contractor risk is low, customer satisfaction is high, and strong, long-term relationships are developed between the mechanical contractor and their subcontractors. This session will include the following subcontractor management topics:

- Writing strong subcontracts
- Thorough review and analysis of subcontractor scope
- Managing change orders
- Proper communication
- Developing strong relationships
- Managing safety, billing, and payment procedures
- Documentation

FPM 113: 4 hours

Successful Survival of Project Closeout

The end of a project is usually a challenging and difficult time for the project manager and foreman. There are several tactics and strategies the project manager and foreman can implement to improve end-of-job performance and mitigate the difficulties of

project closeout. This seminar will include the following project closeout topics:

- Punch list
- Warranties
- As-built drawings
- O & M manuals
- Customer satisfaction
- Closeout productivity improvement
- Demobilization
- Change order finalization
- Final payment
- Feedback meeting

FPM 114: 4 hours

Best Practices of Blue Chip Mechanical Project Managers

Why are some project managers consistently more successful than the "typical" project manager in our industry? What separates good project managers from great project managers? While age, experience, attitude, and talent are important factors in a project manager's success, attendees will learn the best practices of any project manager who has the attitude, aptitude, and desire to improve and succeed. This seminar includes an overview and in-depth discussion of the best practices used by the industry's best project managers. It also provides a review of the traits and qualities that are the common denominators among excellent project managers. This seminar will serve as an overview and refresher for many of the seminars found in the Fundamentals of Project Management (FPM).



About the Instructor:

John R. Koontz, MCAA's Director for Project Management Education, has almost four decades of wide-ranging mechanical industry experience that includes contracting, academics, and consulting. He is a former Tenured Associate Professor in Purdue University's Department of Building Construction Management. He is also the founder and former director of Purdue's Mechanical Construction Management Specialization Program, and is the founder of the first MCAA student chapter at Purdue in 1993.

In addition to his academic career, he spent 15 years in the employment of MCAA contractors in a variety of positions including senior project manager, project manager, project engineer, and estimator. Koontz's family heritage of long-term UA family members (grandfather, great uncle, and father, and others) provides a sincere and deep-rooted pride, interest, and concern for the future success of all parties involved in union mechanical construction.

John has a Bachelor's Degree in Building Construction Management from Purdue University and a Master's Degree in Construction Management from Washington University in St. Louis. Since leaving Purdue in 1999 to join the MCAA full time, John has been travelling throughout America speaking, teaching, training, consulting, and writing about all subjects related to project management and the mechanical contracting industry.

Contact Information:

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About the National Education Initiative (NEI):

MCAA will bring lifelong learning directly to you! The National Education Initiative Seminars are our best MCAA programs—brought to your local association or even your company. Our goal is to provide ongoing and advanced education and training in support of individual and association growth across the mechanical contracting industry. We offer standard and custom-designed classes exclusively for your association or company's unique needs and challenges. If you need training quickly or have a large group, we are here to help!

For more information or to schedule a course:

Contact **Priya Nirmal** at **301-869-5800** or pnirmal@mcaa.org.