

Job Autopsies

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“Those who cannot remember the past are condemned to repeat it.”

- George Santayana, *The Life of Reason*, Volume 1, 1905

We finally developed a strong job cost reporting system, giving us plenty of information about our plan for a project and what actually happened on that project. How often do we look at a project and its job cost reporting, especially after it is completed? All we really want to do is get on with the next project! That's what most of us focus on – finishing one and moving on to the next.

How often do we critically review our job cost reports? We can pull out and read the reports at any time. We quickly scan for big budget variances and then we probably just file them away (perhaps even in the “circular file”). They are a quick indicator of progress on the job, but what do we really learn from those reports?

Job Autopsies (also called Project Post-Mortems, Project Autopsies or After-Project Reviews) can be invaluable tools for improving profitability on our construction projects. Most contractors realize the importance of their bidding and estimating efforts (sales and pricing decisions) and their project management and production efforts. They know they must have accounting and job costing systems in place, too. However, they often fail to close the circle – they fail to analyze what happened on a project, using information collected during the project and turn that information into an action plan for improving the next project.

The military has a similar process for learning from battles and training exercises. After-Action Briefings occur shortly after engagements and exercises to collect information about what went well and what went wrong during the engagement. Findings are recorded and analyzed to see what can be used in the future to improve the likelihood of success. Conclusions are distributed to those in the chain of command to take advantage of the findings. Contractors can follow a similar process to learn from projects that are recently completed and apply that learning to future projects.

Contractors can implement Job Autopsies in many ways. The following guidelines are an example and should be modified to fit a contractor's needs and company culture.

Guidelines for Job Autopsies

When:

Job Autopsies are scheduled shortly after a project is completed, when all project costs are known (except perhaps warranty costs) and customer satisfaction has been surveyed.

Who:

Job Autopsies are attended by, and input solicited from, all major participants in the project, including the project estimator, project manager, field superintendent, project accountant and anyone else in a position to tell what happened or why. It is wise to designate a senior executive as a moderator or leader of the review.

Where:

The Job Autopsy is usually held in the company's office, in a conference room where interruptions and distractions are minimized.

What:

The participants bring information to the meeting that will help to understand the project, including:

- ☐ Original estimate, proposal and contract documents.
- ☐ Estimates and related change orders for extra work approved or proposed.
- ☐ Project correspondence files, including all requests for proposals, requests for information, transmittals, submittals and minutes or notes from all project related meetings.
- ☐ Information related to subcontracts and major purchase orders, including requests for proposals, received proposals, change orders approved or proposed and a history of invoices submitted under the subcontracts and major purchase orders.
- ☐ Final job cost reports that show actual costs and, if appropriate, labor and equipment hours incurred on the project, compared to current budgets. It is best to have both summary job cost reports and detailed job cost reports if further information is needed.
- ☐ Project schedules, including original schedule and revisions as the project progressed.
- ☐ Project diary or job book maintained by the field superintendent, if available.
- ☐ Results of written or oral customer satisfaction survey, if available.

How:

The review leader prepares and follows an agenda that lists the areas to be reviewed and, perhaps, the questions to be considered. Another person is designated to take notes during the review.

The agenda may include the following:

- ☐ Review the project bidding process, including competitive environment and pricing of competing bids, if known.
- ☐ Review summary job cost reports to identify areas that require more detailed analysis.
- ☐ Analyze in detail the problem areas noted in job cost review.
- ☐ Review subcontracting process, including technical performance of subcontractors, subcontractors' financial capabilities, reasonableness of change orders requested, etc.
- ☐ Review purchasing process, including timeliness of pricing proposals, timeliness of deliveries, quality of goods, financial terms, etc.
- ☐ Review project hand-off from estimating to production.
- ☐ Review production methods employed.
- ☐ Review opportunities for change orders.
- ☐ Review billing and collection processes.
- ☐ Review project administration processes, including handling of paperwork to and from the office, payroll time cards, vendor invoice approvals, communications, etc.
- ☐ Review results of customer satisfaction survey.

Why:

Job Autopsies are conducted to improve all company processes, not to lay blame for possible shortcomings. During a Job Autopsy, the review team looks for answers to many questions, such as:

- ❑ Did the estimating process properly identify and quantify the project scope? Can the estimating process be improved to eliminate scope problems?
- ❑ Did the estimating process rely on the best pricing information available at the time? Should pricing information be updated for future projects?
- ❑ Did the estimating process use the most effective production rate assumptions? Should production rate assumptions be changed for future projects?
- ❑ Did the estimating process anticipate the appropriate level of staffing? How can appropriate staffing levels be predicted for future projects?
- ❑ Did the subcontracting process identify appropriate subcontractors for the project and reasonably anticipate pricing for the work? How can the process for selecting subcontractors be improved for future projects?
- ❑ Should anything be changed in the hand-off of a job from estimating to production for future projects?
- ❑ Did production use the best methods and techniques for the work? If the method used was different from the estimating plan, should estimating use that technique for future estimates?
- ❑ Did we learn anything new about production during this job? Is additional training needed for our production staff? Did production improve a technique that may be important for future projects?
- ❑ Did we use scheduling techniques effectively to minimize the time to complete the work? How can we improve scheduling for future projects?
- ❑ Did we use the best suppliers and subcontractors for the work? Did the suppliers and subcontractors contribute positively to the outcome of the project? How can we select suppliers and subcontractors for future projects that will contribute positively?
- ❑ Were the materials supplied to the project appropriate for the plans and specifications? Should we change our materials selection process for future projects?
- ❑ Did we communicate effectively with the client, suppliers, subcontractors, employees and company management to eliminate problems and maximize performance and profitability? How can we improve the communication processes for future projects?
- ❑ Did we capture all significant opportunities for change orders? How can we improve our awareness of project scope and identify future change order opportunities?
- ❑ Did we properly price our change orders? How can we improve our opportunities to profit from change orders for future projects?
- ❑ Did we bill for our work appropriately and timely? How can we change our internal procedures to bill more completely and more timely?
- ❑ Did the client pay our invoices within expected terms? How can we improve our collection time?
- ❑ Did we effectively process our supplier and subcontractor payments? Were invoices processed, coded, approved and paid in a timely fashion? How can we change in our internal procedures to improve the processing of vendor payments?
- ❑ Did we collect payroll time from production in a timely and complete fashion? How can we change our internal procedures to improve the timeliness and completeness of the payroll information?
- ❑ Did we work safely on the project? If we had no accidents, was it a result of a well thought-out and implemented safety program, or were we just lucky this time? If we had an accident (involving our employees or those of our subcontractors), what should we have been done to prevent the accident? Are changes to our safety program needed?
- ❑ Was our customer satisfied with our performance? Were the customer's expectations reasonable? Were the customer's expectations properly managed during the project? Are we proud of our work? Will the customer be a reference for future projects? How can we improve our processes to ensure future customer satisfaction?

Closing thoughts:

Job Autopsies should be viewed as constructive learning opportunities – a chance to learn from everyone's experience in completing the project. It should be a positive experience, emphasizing improvement for future projects, not laying blame for disappointing performance on the completed project. Don't overlook the views of all potential contributors – often workers in the field have very valuable insights into problems and opportunities on a project. Tailor your JOB AUTOPSY procedures to your own company's culture, needs and circumstances. These guidelines should be expanded or decreased to fit allotted time and needs. Take little steps – don't try to solve all of your problems with the first review. Identify and make changes at a pace that ensures that the changes will be well understood and implemented thoroughly. Monitor the changes and revisit the processes in the future to ensure that you have the best possible processes and procedures.

Continuous improvement is a journey, not a destination, and successful contractors never stop traveling down that road.