Successful Project Completion Demands a Successful Start

Quite often, a project that has had a successful run fails miserably in an owner’s eyes because of a project manager’s inability to bring it to a swift and final conclusion. Punch lists that remain incomplete for weeks, failures to correct rejected work, and an inability to assemble all warranties, guarantees, and Operating and Maintenance manuals (O&Ms) promptly are just some of the reasons owners may become disappointed with their general contractors.

Owners get very upset with ongoing problems such as uneven air or water balancing, cracked sidewalks, improperly functioning door hardware, and other items that “the contractor just doesn’t seem able to fix.” A contractor’s reputation is one of their most important assets, and it is the responsibility of the project manager to protect and enhance that reputation by successfully closing out the project.

What Owners Consider Important

In 2004, the Construction Management Association of America (CMAA) in conjunction with FMI, a Colorado-based construction consulting, management, and research company, conducted their fifth annual survey of owners. Although primarily directed toward the role played by construction managers, responses received from owners can certainly apply to general contractors working with cost-plus, lump-sum, or GMP-type contracts.

The following comments expressed by owners should alert the project manager to some of the concerns that can make or break a project, and which deserve attention as the job unfolds.
A perceived decline in design documents leading to cost overruns was reported by 71 percent of the respondents. Project managers who conduct a thorough review of the construction documents early on to assist both owner and design consultants in remedying any design deficiencies will certainly earn some points with not only the owner but also with the design consultants. A project manager embarking on an effective value engineering program to counter some of these potential cost overruns will surely gain extra credibility.

Problems with communication and lack of collaboration were also listed by owners as one of several reasons for cost overruns. Project managers need to enhance their efforts to form an effective project team, open lines of communication between all team members, encourage the open sharing of information, and create an environment that avoids adversarial relationships.

Ethics and ethical behavior play a vital role in creating and maintaining the integrity of the project team, so said many owners. This CMAA survey indicated that 84 percent of the owners, architects, and contractors responding to questions of ethical practices said that they had had experience with unethical acts many times. This is actually a three-way street, traveled not only by the contractor, but by the owner and their design consultants, each of whom is responsible for upholding ethical behavior when dealing with the other party. Unethical behavior by any one of the team members should not be met with a like response but countered with a renewed commitment to practice high standards of behavior. Ethics and trust go together.

Starting Off on the Right Foot

Successful completion of a project begins with its commencement. When project managers work with a new group of design consultants and owners, each participant will form a distinct impression of the others at the opening salvo. The project manager, at that first meeting, must display a sound understanding of the unfolding project—the obligations of the contract, and knowledge of the plans and specifications (maybe not all the details, but enough to map out a narrative of its key components). A perception of organization, professionalism, and a well thought-out progression of construction activities will add to the owner’s initial impression of the project manager.

Remember one of the key owner concerns expressed in the CMAA survey: cost overruns due to less than adequate plans and specifications. Also recall Article 3 of AIA A201—General Conditions: “The contractor shall carefully study and compare the various drawings . . . any design errors or omissions noted by the contractor . . . shall be reported promptly to the architect.”
This review should take place before the initial meeting with the owner’s group so that, if necessary, any requests for information can be passed on to the design consultants early on.

**Controlling the Project Start**

Although it would appear obvious, one of the first responsibilities of the project manager is to become familiar with the project, not only the plans and specifications but the construction site and the contract for construction with all of its modifications, exhibits, and addendums.

**Review of the Contract with the Owner**

Familiarity with the contract for construction is the first step as a new project unfolds. Read the contract from beginning to end, noting all modifications that may affect the performance of the general contractor and future relationships with the subcontractors and vendors. Most subcontract agreements refer to the contract with the owner using language similar to the following:

> The subcontractor agrees to perform all work described in accordance with the contract between the contractor and the owner, and assume toward the contractor in reference to the work all obligations that the contractor assumes toward the owner.

This tie-in between the contractor-owner contract and the contractor-subcontract agreement adds further importance to the understanding of all terms and conditions that affect this “pass-through” provision. There are several provisions in this contract with the owner that merit attention:

- Date when requisitions are to be submitted and the format and content of their submission
- Restrictions on allowable overhead and profit on change orders, both to the general contractor, prime and second-tier subcontractors
- Unit prices contained in the agreement that will impact the subcontractor/vendor negotiations
- Allowance and alternates, and methods of dealing with them
- Restrictions on use of the contingency, if one is included in the contract
- Provisions for liquidated damages or bonus arrangements
- Requirements for the general contractor to submit a list of personnel to be assigned to the project, and obtain the owner’s acceptance of the same
- Requirements to submit names of proposed subcontractors for the owner’s review and comment prior to the award of subcontract agreements
Appointment of an owner’s representative, and the authority and responsibilities vested in them

Requirement for noise abatement and restriction during work hours

Any other restrictive language that should be incorporated into subcontract agreements or notifications to the field

Review of the Project Specifications

Not only will project start-up and close-out provisions in Division 1 be of importance, but a thorough reading of the specifications should be made at least once to uncover any unusual requirements. Specific sections of the specifications ought to be read very carefully if the project manager has any responsibility for negotiating subcontract awards.

If the project manager will “buy-out” the job, this review of the specifications will include noting all items to be included in each subcontractor’s scope of work, especially those that deviate from the norm. Too frequently, we glance through the specifications and assume that they are similar to the last project, even though they may have been prepared by a different group of design consultants. Sometimes these assumptions can prove costly.

The author of this book was managing an office project being built for an established developer who controlled several million square feet of commercial space. The owner’s representative stated several times that “All we will require of you is what’s in the plans and specs—no more, no less.” This seemed like a fair approach. As the work progressed, there were some changes in the finish hardware requested by the owner that amounted to approximately $40,000, so a change order was prepared for that amount. At about that time, we had placed about 300,000 ft² of concrete slab-on-grade and concrete suspended slabs. The specifications required a survey and an as-built drawing to verify compliance with the specifications. The survey revealed level tolerances in the plus or minus range of approximately 3/16 in. as measured below a 10-foot-long straightedge. The subcontractor and the author thought the owner would be pleased with the results. And they were, to a degree, pointing out however that the specification required a 1/8 in. tolerance—unheard of for general commercial office space, but nonetheless designated “in the specs.” At first, we were told that all 300,000 ft² would have to be replaced, but the owner relented, agreeing that this was too punitive. Just the same, they were willing to trade this off for the added $40,000 hardware costs. This author read every specification section after that episode!
Specific items to look for when reviewing the specifications

A careful review of each section of the specifications can produce several checklists:

- One checklist should be for the project superintendent which can be used to serve as a reminder of items and activities requiring attention during the life of the project (for example, field inspections and mock-ups required at various time during construction). A copy of this list should be distributed to the field.

- There should be one checklist for each subcontractor concerned which should be distributed at the appropriate project meeting, highlighting the key provisions of their section. This is also the appropriate time to distribute close-out elements of the spec for which they are responsible: items to track as they develop their as-builds, coordination shop drawings, and other start-up requirements. The super can be given a copy of each of these checklists that he or she can review with the appropriate subcontractor from time to time to insure they are tracking them correctly.

Record Drawings

Depending upon the sophistication of the designers and the complexity of the project, record (“as-built”) drawings may be prepared as paper or electronic copies. Whatever the format, it’s important that they are prepared carefully and contain accurate information, including:

- Records of all changes, either those made because of field conditions or those caused by changes in scope (for instance, change orders)
- Records of all changes due to the acceptance of any alternates listed in the contract
- Dimensions—vertical and horizontal—that either confirm or correct the design dimensions of entire areas or components within those areas
- Elevations relating to site and site utilities work, line and grade for all underground utilities, manhole rim and invert elevations for storm, sanitary sewers, pipe inverts, duct banks, and their concrete encasements
- Floor-to-floor elevations and floor-to-ceiling elevations
- The locations of concealed items, MEP risers, branch piping, and wiring
- Structural changes
- The locations of plumbing valves (generally via a valve chart), sometimes noted by colored tacks in accessible ceiling panels
Fire dampers and adjustable HVAC dampers
Heat tracings, particularly when encapsulated under insulation

Inspections and Test Reports (Other than Those Required by Local Officials)
- Earth compaction inspections and tests
- Concrete compression tests—the number of cylinders to be taken; notes on the proper storage of the same
- Infiltration and exfiltration tests for underground storm sewers
- Mill reports from the structural steel supplier
- Weld, bolt up steel connections (if tension control—TC bolts are not required), shear stud testing
- Mortar cube testing
- HVAC and plumbing testing—includes water/air tests and pump performance duct leakage tests
- Acoustical batts or insulation batts, concealed in partitions/exterior walls
- Inspections of flashings—around exterior wall penetrations and fenestration, roof accessories, and penetrations
- Inspections of various substrates before being encased or enclosed
- Fire protection testing—including underground piping, fire pumps, and the pressure testing of filled lines

Responsibility for these inspections and tests are fixed in the specifications, and a checklist prepared after a review of the specifications will aid in alerting the appropriate subcontractor and design consultant that a test needs to be scheduled.

If you recall from the discussion of the General Conditions document, failure to conduct a test may result in the contractor having to expose the concealed item and then recover it at their expense. Local building departments or building officials may also require copies of compaction reports, concrete test breaks and steel bolt or weld inspection reports before issuing a certificate of occupancy.

Operations and Maintenance Manuals

Each subcontractor required to submit Operations and Maintenance manuals (O&Ms) should be familiar with the format in which they are to be submitted (for instance, in three-ring binders with tabbed sections), and the number required for submission to the architect and engineer.
The subcontractors might use this information as a guide during their procurement activities to insure that their vendors provide all required materials. It is important that the company submitting the manuals verify that the information is all inclusive and the project manager should review these submittals before sending them on to ensure that they, in fact, include all pertinent equipment.

Do the specifications require a video presentation of the operation of a specific piece of equipment? Is the owner entitled to a certain number of instruction sessions with the manufacturer or subcontractor? Check the specifications with the subcontractor to determine the extent of these instructional materials.

**Commissioning and TAB**

Few things can turn a previously satisfied owner into an angry bull more quickly than experiencing erratic heating and cooling after they move into their new building. Today’s sophisticated HVAC equipment, coupled with very tight tolerances and complex direct digital controls designed to meet indoor air quality standards, make the commissioning of a building’s systems a real challenge. Sound and vibration tolerances become more acute and require special testing equipment and highly trained technicians to achieve the necessary results. Not only are the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) standards to be met, but the National Environmental Balancing Bureau (NEBB) founded in 1971 has further defined these commissioning standards.

The commissioning of equipment is often a lengthy process that begins prior to occupancy and continues as the building’s tenants move in. In the case of HVAC equipment where occupancy during a cold period precludes start-up and testing of the air-conditioning system, this commissioning process may last for several months.

**TAB—A Procedure that Requires Special Attention**

The mechanical and electrical trades often have very special close-out procedures and this may require a separate meeting, held after the regular subcontractor meeting to review their specific requirements. None will be more critical than TAB.

TAB (Test-Adjust-Balance) is a critical operation that requires the project manager’s close attention. According to ASHRAE, the following procedures define TAB.

- **Testing**: Determining the qualitative performance of the equipment.
- **Adjust**: Regulating the specified fluid flow rate and air patterns at the terminal equipment through operations such as adjusting dampers, and the fan and pump speed via sheaves and belts.
Balance: Checking proportion flows within the distribution system (branch piping, sub-mains, and terminals) according to specified design quantities.

This process, commissioning, can make-or-break a project. An extended process where heating and cooling systems remain dysfunctional will bring lots of complaints if the building is occupied and the HVAC contractor is struggling to provide properly conditioned air. Some owners may become very belligerent, while others can be quite forgiving if their HVAC systems are awry. The author of this book was project manager in charge of a corporate headquarters’ project for a major book store chain. A few days after occupancy, he received a call from the president’s secretary, who was very upset and complaining that the Top Guy’s office temperature was in the mid-90s (this was in mid-July). She wanted someone to check it out immediately, so I assembled the HVAC and control team as soon as the call ended, and when they reached the CEO’s office an hour or two later, found him working away in his undershirt. A quick glance around the office and its furnishings revealed the problem. Someone had hung a large picture directly over the wall thermostat, preventing it from responding to heat loads generated through adjacent windows. With the picture removed, temperatures went down, and Mr. CEO put on his shirt and tie as his secretary apologized. But not all clients are so reasonable in their demands to fix a nonresponsive system—and fix it ASAP!

Depending upon systems and equipment, TAB can include

- Fan equations affecting speed, fan curves
- Duct system pressure losses
- Unit air measurements
- Heat transfer
- Indoor air quality
- Energy recovery
- Pumps, curves, and pump and hydronic equations affecting flow
- Flow measurements
- Control systems, including direct digital controls (DDCs)
- Sound and vibration transmission

When TAB requirements are reviewed at the beginning of the job and commitments to prompt and quality commissioning procedures are requested and acknowledged by the subcontractors involved in the process, a positive step will have been taken that may pay solid dividends at close-out.
The Punch List

It is everyone’s intention at the start of a project that punch-list work during the closing phases of the project will be kept to a minimum. These stated goals often go the way of all good intentions, and unless this goal is actively pursued, not much will be accomplished. Completing the punch list promptly and properly can become a frustrating experience for a project manager who is unable to close out a project because of some lingering incomplete punch-list items that are the responsibility of one or more subcontractors.

Sometimes empty promises seem to be the order of the day: “I’ll be there tomorrow” or “We’re just waiting for that replacement part and we should be there Friday” or “Our guy is out sick,” and so on. The effort to produce a zero-item punch list at the end of the job begins with that first subcontractor’s job meeting, and is reinforced as other subcontractors are brought on board.

It must be made clear to all parties that there is a common interest in punching out a project. Retainage for the entire project may be withheld by an owner because of one to two subcontractors being unable to promptly complete their punch-list work. As a result, all subcontractors suffer the consequences. Certain procedures can be established upfront to make the punch-list portion of the project close-out finish more smoothly.

Consider implementing the following policies:

- A stated zero-tolerance policy toward the punch list with a goal of producing a punch list–free job.
- A formal inspection of each trade’s work to be conducted by the project superintendent prior to a subcontractor’s demobilization, at which time any punch-list items not already corrected by their supervisor will be prepared for immediate action (This is prior to an official inspection by the design consultants to prepare the “contract” punch list).
- When items remain incomplete beyond two weeks of an official notice (or one week if you choose), unless substantiating documentation can be provided for the delay, each incomplete item shall be valued at 300 percent of cost, and if not completed within an additional 72 hours, this amount will be deducted from the subcontractor’s current requisition. The project manager may then elect to have another subcontractor complete the work and deduct such sums from the responsible sub’s next payment. In the case where a permit may be required from MEP work, these costs will also be included in the cost of work.

Is it a punch list or a warranty item?

An owner or architect may, at times, consider an item punch list when it should more correctly be determined warranty work. Remember that
a punch list represents contract work that was not completed or improperly installed, or that was rejected because of nonconformance with the contract documents. A warranty item, on the other hand, applies to a part, equipment, or material that has been furnished and installed and which complies with the contract documents, but that fails and must be either replaced or repaired.

An owner that withholds funds for outstanding punch-list work is certainly within their contractual rights to do so, but unless the contract is written otherwise, it is not contractually correct to withhold money awaiting warranty repairs or replacement. So, when that next punch list is prepared, review each item to determine whether any “warranty” items are included.

Attic stock, special tools, and spare parts

Requirements for attic stock are very clear, but problems may arise when a subcontractor has used all or a portion of their attic stock materials in the final phases of construction to either replace damaged material or make up for purchasing shortages. If attic stock is not readily available at the close of a project, the owner should be advised that it is on order and scheduled for delivery at a future specified date. The project manager must monitor delivery and when received by the owner, obtain a written record of receipt.

Items such as spare finish hardware components, key blanks, and such must all be catalogued when received from the vendor and stocked in a secure place so that it can be located and turned over to the owner when required.

Special tools necessary for special work during construction, if required to be returned to the owner, must be in serviceable condition, preferably in the original packing box and with all operating, maintenance, and warranty papers included.

Material safety data sheets

Material safety data sheets (MSDSs) pertaining to all hazardous materials delivered to the site or incorporated in building materials are often required to be collected in a binder and turned over to the owner as part of the close-out documentation. OSHA requires MSDSs for hazardous materials (hazmats) to be sent to the construction site prior to the delivery of the item that they refer to. As a result, these sheets are often lost in the shuffle. Obtaining duplicates is time-consuming and if close-out requirements include submitting a binder of MSDSs, a separate folder should be set aside at the jobsite to collect these sheets when they are received and reviewed.
Preparing for that First Project Meeting with the Subcontractors

All of the pertinent information extracted from the contract with the owner, and the review of the specifications as discussed in the earlier portion of this chapter, can now be distilled for presentation at that first subcontractor’s meeting.

The time spent during this review will be repaid many times over, and the thoroughness and professionalism displayed at that first construction meeting will set the tone for the balance of the project.

The project manager at that initial subcontractor meeting, should proceed with the belief that everyone may not have completely read their section of the specifications, nor the Special and General Conditions in Division 1. This first meeting, where the subcontractor’s project manager and their onsite supervisor are in attendance, is the time to briefly review the specification sections dealing with each subcontractor and the startup and close-out procedures that apply to all.

Does it appear that the key subcontractors “know” their job? Are there some subcontractors that appear weak and in need of special attention?

Copies of selected portions of the specs can be made for distribution to all attendees. Sections dealing with coordination drawings (Figure 6.1) and submittal procedures (Figure 6.2) can then be distributed. After briefly reviewing these procedures and other general and special requirements, and distributing copies of the actual specification pages, entries in the meeting minutes detailing everything should later hold everyone accountable. As new subcontractors are brought on board in subsequent meetings, this procedure should be repeated.

Depending upon the nature of the contract, four procedures (although spelled out in the specifications) may require special attention: change orders, time and material work, premium or overtime work, and winter conditions. It is that rare project that does not generate a change order or two, or that doesn’t require some time and material work (T&M) or premium-time work, or which has no need to take into account colder climates and winter conditions.

Requirements by the general contractor, when any of these conditions are encountered, are quite often much more precise than those in the architect’s book of specifications. The project manager is well advised to provide a rather detailed procedure, which should be followed by a subcontractor preparing a proposal to request a change order in order to properly document their T&M work when directed by the general contractor, or justify overtime work and substantiate costs for work during winter. Figure 6-3 sets forth a set of procedures to be followed whenever any of these items of work are requested, and provides the subcontractor with explicit instructions and documentation that must be submitted with their work.
Special Requirements for a GMP Contract. When a cost-plus-not-to-exceed-GMP contract is being administered, the owner usually has the option of auditing the contractor’s books to validate the entire project’s final costs. The time to make provisions for a final cost accounting begins as the project unfolds. Coordinating with the Accounting department to segregate all costs is a first step. Costs to be reimbursed must be kept separate from costs that will not be reimbursed. Changes in scope that increase or decrease the contract sum must be clear and concise and represented by fully executed change orders or other forms of correspondence. Logs or other means of documentation must be set in place before costs begin to accumulate.

As costs are presented each month in the form of applications for payment, any disagreements related to acceptable or nonacceptable costs ought to be resolved quickly and not allowed to remain open until the...
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B. Timing: Prior to fabricating materials or beginning work, supervise and direct the creation of one complete set of coordination drawings showing complete coordination and integration of work, including, but not limited to, structural, architectural, mechanical, plumbing, fire protection, elevators, and electrical disciplines.

C. Intent: Coordination drawings are for the Construction Manager’s use during construction and are not to be construed as replacing shop drawings or record drawings. Architect’s review of submitted coordination drawings shall relieve the Construction Manager from his overall responsibility for the coordination of the Work of the Contract.

D. Base sheets: Architect will provide CAD files for use by the Contractor for the development of building coordination drawing “base sheets”. Contractor is responsible to prepare and provide one accurately scaled set of building coordination drawing “base sheets” on reproducible transparencies showing all architectural and structural work. Base sheets shall be at appropriate scale; congested areas and sections through vertical shafts shall be at larger scale.
   1. Highlight all fire rated and smoke partitions.
   2. Indicate horizontal and vertical dimensions to avoid interference with structural framing, ceilings, partitions, and other services.
   3. Indicate elevations relative to finish floor for bottom of ductwork and piping and conduit (6 inches and greater in diameter).
   4. Indicate the main paths for the installation, or removal of, equipment from mechanical and electrical rooms.

E. Construction Manager shall circulate coordination drawings to the following subcontractors and any other installers whose work might conflict with other work. Each of the above subcontractors shall accurately and neatly show actual size and location of respective equipment and work. Each subcontractor shall note apparent conflicts, suggest alternate solutions, and return drawings to Construction Manager.
   1. Elevator subcontractor.
   2. Plumbing subcontractor.
   3. Fire protection subcontractor.
   4. Heating ventilating and air conditioning subcontractor(s).
   5. Electrical discipline subcontractors.
   6. Control system subcontractors.

F. Review and modify and approve coordination drawings in cooperation with individual installers and subcontractors to assure conflicts are resolved before work in field is begun and to ensure location of work exposed to view is as indicated or as approved by Architect.
   1. The Contractor shall stamp, and sign coordination drawing originals, Make coordination drawings available for Architect to review on-site.

FIGURE 6.1 (Continued.)
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Section 01330
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUBMITTAL COORDINATION

A. Make submittals in a proper and timely fashion, allowing for administrative procedures, Architect’s review, corrections to submissions and resubmittal, if necessary, and fabrication of products without delaying the project. Minimum processing times required by the Architect are as follows:

1. Review for Architect’s Office only: Allow a minimum of 10 working days for review and processing.
2. Review by Architect and its consultant: Allow 10 working days for review and processing of submittals by Architect plus an additional 5 working days for review by each consultant.
3. Reprocessing of submittals: For submittals requiring resubmittal, reprocessing time required shall be the same as first submittal.
4. No extension of Contract Time will be authorized due to failure to transmit submittals sufficiently in advance of scheduled performance of Work.

B. Make submittals of similar items, systems, or those specified in a single specification section together.

C. Make submittals for products which other products are contingent upon, first.

D. The Contractor is fully responsible for delay in the delivery of materials or progress of work caused by late review of shop drawings due to failure of the Contractor to submit, revise, or resubmit shop drawings in adequate time to allow the Architect checking and processing of each submission or resubmission.

1.2 SCHEDULE OF SUBMISSIONS

A. Schedule procedure: Immediately after being awarded the Contract, meet with the Architect to discuss the schedule of submissions and then prepare and submit within 14 calendar days for approval a schedule of submissions for the Work. The schedule of submissions shall be related to the entire Project, and shall contain the following:

1. Shop Drawing Schedule (for shop and setting drawings to be provided by the Contractor).
2. Sample Schedule (for samples to be provided by the Contractor).
3. With respect to portions of the Work to be performed by Subcontractors, such schedule of submissions for the work of each Subcontractor shall be submitted for approval within 30 calendar days after execution of a subcontract with such Subcontractor.

B. List all submissions required of each trade:

1. Include the Specification Section number, name of subcontractor or vendor, submittal type, item, description, type, quantity and size (where applicable) of each submission.
2. For each submission, provide the following dates, as estimated:

FIGURE 6.2 Submittal procedures.
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a. Scheduled date of submission.
b. Required date of approval. (permit time for appropriate review and resubmissions as may be required).
c. Estimated date of beginning fabrication or manufacture of product (where applicable).
d. Required date of submission of product to testing laboratory.
e. Required date of testing laboratory approval.
f. Required date for delivery of product to site.
g. Required date for beginning of installation of product.
h. Required date for completion of installation (and in-place testing).

C. For each submittal, schedule to allow adequate time for review by the Architect and its consultants. The Architect will not be responsible for Work performed in shop or field prior to approval. Long-lead items requiring expedited action must be clearly indicated.

1. The schedule shall be reviewed and resubmitted as necessary to conform to approved modifications to the construction Project Schedule, and shall be updated as may be required by the Architect.

D. Posting of submittal schedule: Print and distribute the submittal schedule to Architect, Owner, subcontractors and other parties affected. Post copies in field.

E. Update schedule throughout progress of the Project, coordinated with scheduling changes in the Work, and redistribute monthly in conjunction with submittal of Application for Payment.

1.3 SUBMITTAL PROCEDURES AND GRADING

A. Prepare and submit to the Architect a Construction Schedule, a Schedule of Values, and a Schedule of shop drawings, product data, and samples.

B. Provide space for Contractor, Architect and engineering consultant review stamps, on the front page of each item's submittal copy. Apply Contractor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and the Contract Documents. The Architect's stamp shall contain the following data:

- NO EXCEPTIONS TAKEN
- MAKE CORRECTIONS NOTED
- REVISE AND RESUBMIT
- SUBMIT SPECIFIED ITEM
- REJECTED

1. The Architect will insert the date of action taken and an identification of the person taking the action.

2. Submittal grading:
   a. NO EXCEPTIONS TAKEN - No corrections, no marks.
   b. MAKE CORRECTIONS NOTED - Resubmission not required. Minor amount of corrections; all items can be fabricated without further

FIGURE 6.2 (Continued.)
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Re: Protocol for Change Orders, Premium Costs, Winter Conditions –

Change Orders
1. Each proposed change order is to contain a brief explanation of the nature of the change and who has initiated it (owner, A/E, contractor). Attach all supporting documentation, i.e., letter from owner, SK from A/E, request from subcontractor, etc.
2. If scope of work is increased or decreased, state prior condition and proposed condition (i.e., railings added – col. 9-10 – “X” lineal feet-none existed in this area on contract drawings, or in the case of a deduct – 20 ft railings deleted between Col. 10-13)
3. All costs submitted by Contractor for self-performed work and costs submitted by subcontractors to be broken down into Labor (hours x rate), materials (number if applicable, lineal or square feet if applicable), Overhead and profit to be added to “costs” and percentage of OH&P to conform to contract requirements
4. Equipment – indicate whether rental by Contractor or from independent rental company. List number of hours/days x applicable rate. Provide receipt of delivery, return.
5. If work is T&M follow procedures indicated below
6. If, requested by owner, allow owner’s representative to be present when change order negotiations with subcontractor(s) are taking place.

Time and Material Work authorized by Owner
1. Contractor’s supervisor to obtain Daily Tickets for all T&M work self-performed to include, worker’s trade category (carpenter, laborer, etc.) number of hours worked, task performed. Ticket to be signed by Contractor’s supervisor
2. For subcontracted work, Daily tickets from Subcontractor listing tradesman by category (apprentice, journeyman, etc), number of hours each person work and task performed. This ticket to be signed by Contractor’s supervisor. Receiving tickets for all materials and equipment to be attached.

Premium Costs:
1. For Contractor’s self-performed work, follow procedures outlined above for T&M work, but include reason for premium time work, i.e., weather delays, request by owner to maintain previously agreed upon schedule, failure of subcontractor to provide adequate manpower, late delivery of critical material, lack of response from owner or A/E. All subject to Owner’s approval.
2. For subcontractor, follow procedures for T&M work outlined above. Contractor to indicate on tickets reason for overtime work, i.e., weather delays, late delivery of materials, etc. All subject to owner’s approval.
3. Contractor to accumulate and present all such tickets to the owner on a weekly basis. Identify all known costs or hourly rate to be applied to each trade.

Winter Conditions (if applicable):
1. Indicate operation taking place requiring winter conditions
2. Provide log with temperature readings at 7:00 A.M., Noon, 2:00 P.M.
3. Provide daily tickets for labor as outlined above
4. Provide list of materials used, type of fuel consumed
5. Provide list of any equipment used
6. All such tickets to be signed by Contractor’s supervisor
7. Contractor to accumulate and present all such tickets to the owner on a weekly basis with a running total for Winter Conditions- costs to date for each operation or task (cast-in-place concrete, steel, etc.) requiring winter conditions.

FIGURE 6.3 Procedures for work order requests.
wanning moments of the project. If monthly requests for payments are all processed with approved costs, the final accounting should be rather easy and rapid, allowing the project manager to proudly announce that there were final savings amounting to $XXX,XXX shortly after payment for the last requisition was received.

That Dangerous End-of-Project Syndrome

As the project nears completion, supervisors and managers alike start thinking about that new project. Your Vice-President may have already given you the plans and specifications for your next job and it looks really interesting. The superintendent may also have been given a set of plans and specs for the job he will be moving to, and key subcontractor personnel may be drifting offsite permanently or at least to do part-time work in connection with their next assignment. These are people that have an intimate knowledge of the current project.

Any new replacements may not be able to get a firm grasp of some of the older, ongoing problems. There is the normal malaise that occurs after a long period of intense effort to close out a project. Unless everyone’s attention and efforts are directed to the unfinished job at hand, those last weeks of wrapping things up will undoubtedly stretch out much longer.

The project manager needs to recognize these symptoms and direct all energies back to complete the current project; thus, there’s a need to “rally the troops.” Any change in subcontractor supervision must be scrutinized carefully, and if an alteration would result in the development of a new learning curve for the supervisor’s replacement, a call to the subcontractor’s office expressing concern that the project demands more should be made.

Human nature being what it is, those last days or weeks trying to button-up loose ends, will test the project manager’s mettle, but this is the time when that last final push needs to be made. Remember that the goal of every project manager is fourfold:

- The project must be brought in on time.
- The project’s costs must be contained and the initial profit goal achieved.
- No outstanding claims or disputes should remain once the project is finished.
- The relationship with the design consultants and the owner should be a professional and rewarding one.

A successful completion occurs when a well thought-out plan of execution is formulated before the project commences.
Successful Project Completion Demands a Successful Start