

EXTERNAL POLICIES

Introduction:

The purpose of this document is to outline policies that our subcontractors are required to follow on projects.

The Policies:

- 1) Anchor Bolt and Embed Policy
- 2) Camber Survey Policy
- 3) Cleanup Policy Procedures
- 4) Conduit in Metal Deck Policy
- 5) Flooring Policy
- 6) Masonry School Policy
- 7) Membrane Installation Policy
- 8) Moisture Control Policy
- 9) No Smoking Policy
- 10) Subcontractor Site Specific Quality Plan Policy
- 11) Substitutions Policy
- 12) Wall Cavity Policy
- 13) Window School Policy
- 14) Window Testing Policy

ANCHOR BOLT AND EMBED POLICY

Introduction:

This policy outlines the requirements for verification of anchor bolt location and elevation by the Subcontractor and a professional surveyor. The policy also requires verification of embed location and elevation.

The Process:

1. Review contract documents and identify all required embeds and anchor bolts.
2. Determine who will provide embeds and anchor bolts and coordinate with schedule.
3. In the event anchor bolt repairs or modifications are required, the procedures must be approved by the Structural Engineer of Record and included as part of the [Authorization to Proceed with Steel Erection Explanation](#) form.
4. Review installation prior to concrete pour.
5. Verify orientation and placement of anchor bolts, plumb and level.
6. Verify embeds are plumb and level.
7. Subcontractor is responsible for verification. This should be done both pre-pour and post-pour.
8. Location and elevation to be confirmed by a professional surveyor after concrete pour and prior to commencing steel erection.
9. Document survey results and file in subcontractor contract file.

CAMBER SURVEY POLICY

Introduction:

The purpose of this policy is to outline the requirements for the proper documentation of the camber for steel and concrete structures, as indicated on the design drawings. The camber is determined by the design professionals to address issues of anticipated deflection. The required camber is based on theoretical data and is sometimes difficult to predict. Our responsibility is to document the camber prior to placement of concrete and the resulting deflection as a result of the loading. This documentation is to be submitted to the engineer of record, who will evaluate it and may make revisions to procedures.

The Process

1. Understand the design intent of the engineer through a Pre-Construction Conference. Ask how much of the camber should come out after loading.
2. Discuss concrete placement procedures, ie: loading the center of the bay and working out for a steel building, etc.
3. Discuss pour sequence.
4. Discuss wet screed vs. mechanical screed

Survey Requirements

1. Steel Frame Buildings
 - a. Survey bottom of all beams, girders at center of span and the free ends of cantilevers prior to pour. This will show that the fabricator provided cambered material.
 - b. Survey bottom of beam at center of span post pour. This needs to be performed prior to loading the floor with any other materials or loads. This will show how much of the camber came out with the pour.
2. Concrete Frame Building
 - a. Requirements for survey should be established at Pre-Construction Conference.
 - i. Center of Bays for flat plate work.
 - ii. Joist and beam centers for beam and joist work.
 - iii. The ends of any cantilevers.
 - iv. Timing needs to be discussed as it will not be clear how much camber comes out until after the shoring is released.
3. Survey can be performed in house or by professional surveyor.

CLEANUP POLICY PROCEDURES

It is the expectation that all contractors on Power projects are to clean up as required to provide for a safe, productive project site.

Project teams are to set this expectation with each contractor during the buyout and pre-construction meetings and with each tradesperson during the orientation that clean up is frequent enough to provide a safe, productive work environment. These expectations are then reinforced during the Foreman's Meetings as well as daily interaction during Site Observation Reports. If these expectations are not met, Power has provided the means to enforce this expectation through Article 29: Clean Up in the Master Subcontract Agreement. It provides the right to clean up, on behalf of the subcontractor, in the event they fail to do so after proper notification.

Master Agreement Reference:

ARTICLE 29: CLEAN UP

Subcontractor shall perform regular cleanup and prompt removal from Job Site and adjacent roadways of all dirt, mud, excessive dust, and debris resulting from Work performed under the Contract notwithstanding any reference in the Contract Documents requiring General Contractor to perform said cleanup or rubbish removal. In cleaning or utilizing adjacent roadways, Subcontractor shall, at no cost to General contractor, provide flagman to the extent that General Contractor determines they are required. In the event Subcontractor fails to perform regular cleanup and prompt removal from the Job site, General Contractor shall perform said cleanup on Subcontractor's behalf and charge Subcontractor for the cost thereof. If a general cleanup of the Project is required on behalf of all subcontractors which either are working, or recently have worked, at the Job Site, General Contractor shall perform said cleanup and charge the cost thereof to said subcontractors on a prorated basis using its sole discretion to determine the basis for the prorated charge. Upon completion of the cleanup, Subcontractor will be notified in writing within a reasonable time period, as to the costs expended in its behalf. If Subcontractor disagrees with such charge, it may pursue its remedies under Article 14 of this Contract.

CONDUIT IN SLAB ON METAL DECK POLICY

General:

We are recommending that we never install conduits in a slab on metal deck for any Healthcare Projects. On other Non-Healthcare Projects we recommend certain practices be followed as outlined below.

The risk of hitting a conduit during subsequent work is too great. The inability to effectively use detection methods to locate embedded conduit is further support for this policy.

Other means of running conduit to particular locations must be implemented such as overhead and drop down or suspended under deck and “poked through”. Most installations, though possibly more costly, can be achieved without embedding the conduit. Cost savings is not an acceptable justification for embedding conduit.

Exceptions in Healthcare Projects:

Instances may arise on Projects when despite all efforts to install a conduit in an acceptable method; the only solution is to embed the conduit. In these rare occasions the following steps must be taken.

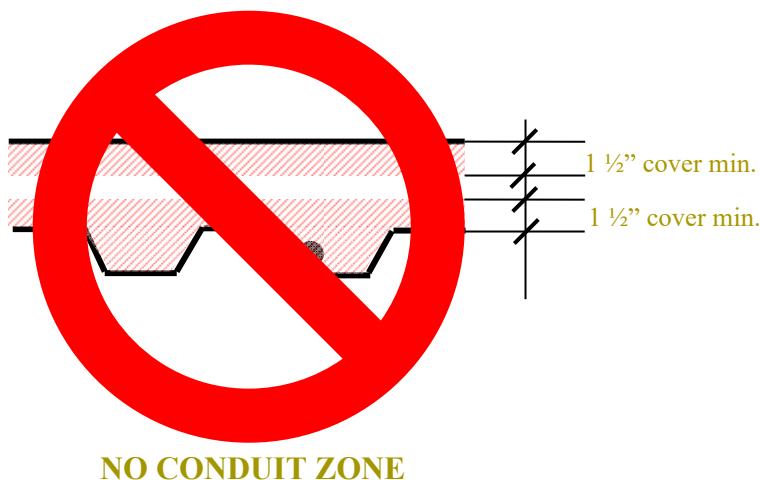
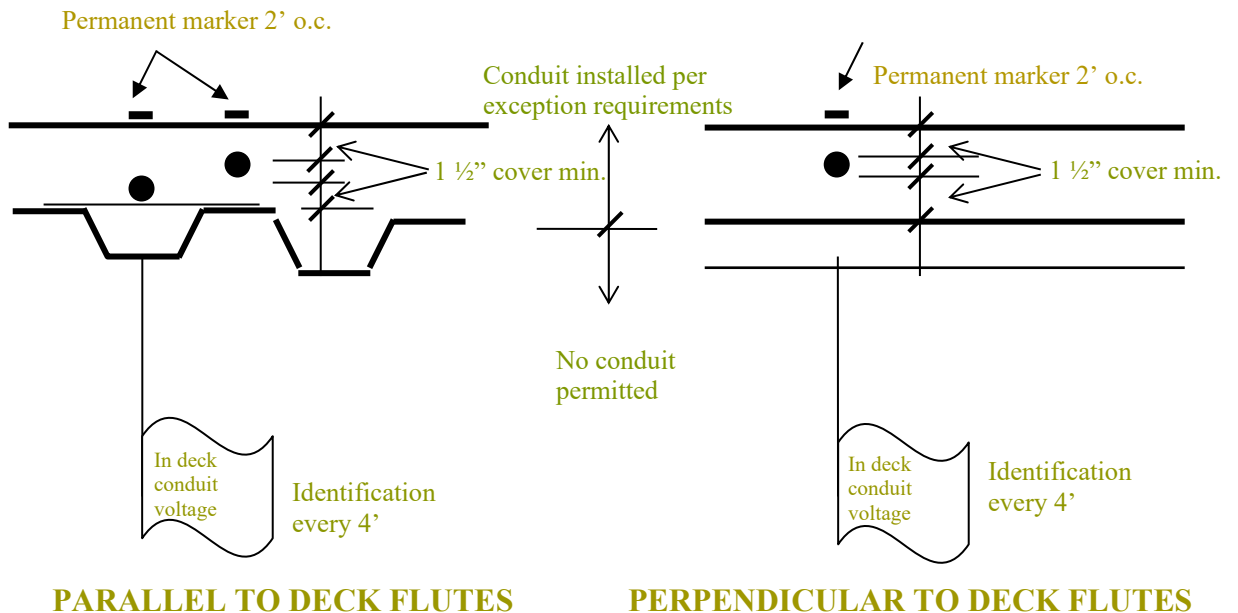
1. The conduit may ***never under any circumstance*** be placed directly on the metal deck parallel to the span in the bottom flute of the deck. ACI302.1R-16 section 3.4.6 requires a minimum of 1 ½” concrete cover top and bottom for all pipe and electrical conduit. Check with the Authority Having Jurisdiction (AHJ) for any other limitations.
2. Wherever the conduit is run the conduit must be identifiable from below with some sort of visual means to indicate the location of the conduit. Examples might include a “chair” screwed to the deck that holds the conduit up spaced 2’ to 3’ apart and leaves the screws exposed below for identification.
3. If the deck is to be fireproofed there may not be an adequate way to identify the location of embedded conduits. If this is the case install 12” hangers with red flags below the slab locating the conduit and its voltage.
4. The conduit must be located from above and marked every 2 feet in permanent marker immediately following the pour identifying it's location, including below the slab as recommended in # 3.
5. A precise as built accurately indicating the embedded conduit location must be submitted. The location must be referenced to a fixed building element that will be accessible after finishes are installed. (e.g.: column centerlines may not be accessible after finishes, fixed walls may be.)
6. If embedded conduits have been installed all subcontractors that may be effected must be made aware of the installation and the location.
7. Discussions with trades that will be installing anchors or hangers in slabs should always include limiting the location of these anchors or hangers to the deep flute of the deck only. No anchors or hangers to be installed in the shallow portion of the deck. A visual inspection of the area to locate the indicators of embedded conduits must occur prior to installing anchors or hangers. No anchors should be installed within 1’ either side of the indicator.
8. A specific documented discussion with the subs must occur outlining the steps to be taken to meet the criteria outlined above. This discussion will be filed in the subcontractor file and the as-builts must be submitted within 1 week of the pour.

CONDUIT IN SLAB ON METAL DECK POLICY

Exceptions in Non-Healthcare Projects:

Any conduit embedded in the slabs on metal deck must meet the following requirements:

1. The conduit may **never under any circumstance** be placed directly on the metal deck parallel to the span in the bottom flute of the deck. ACI302.1R-16 section 3.4.6 requires a minimum of 1 ½" concrete cover top and bottom for all pipe and electrical conduit. Check with the Authority Having Jurisdiction (AHJ) for any other limitations.
2. A precise as built accurately indicating the embedded conduit location must be submitted. The location must be referenced to a fixed building element that will be accessible after finishes are installed. (e.g.: column centerlines may not be accessible after finishes, fixed walls may be.)
3. A specific documented discussion with the subs must occur outlining the steps to be taken to meet the criteria outlined above. This discussion will be filed in the subcontractor file and the as-builts must be submitted within 1 week of the pour.



FLOORING INSTALLATION POLICY

Prior to installing **any** finish flooring over a substrate, that substrate must be tested and accepted by the manufacturer of the flooring material that will be covering it. For the majority of our projects, this means testing the concrete slab for surface moisture evaporation, relative humidity and alkalinity (pH). The specific tests will be determined by the manufacturer of each flooring product and will be identified in the product data.

There are three basic types of tests. One is the dome test for moisture vapor emission rate (ASTM-1869). This is an older test and is not commonly used. The more common test is the relative humidity test using probes drilled into the concrete slab (ASTM-2170). The third test is used to determine the alkalinity (pH) of the slab and is done in conjunction with either of the other two. It is vital that the project team adequately document the conditions of the substrate prior to releasing flooring for installation.

In preparation for installing any flooring product the project team must hold a preconstruction meeting with the flooring contractor and their manufacturer's technical representative(s) to discuss:

- The project's environmental conditions. The building should be at the anticipated normal operating temperatures and relative humidity.
- Identify curing compounds/ sealers (if any) used that may require surface preparation.
- Establish the appropriate number of tests, locations and protection of the areas.
- What surface preparation products, if any, have been used, or will be used, to level and or skim the concrete slab. Confirm compatibility of all products proposed for use. Discuss the need to take "mortar cube" compression test samples of any floor fill or surface preparation material that is being used.
- What the acceptable slab relative humidity and alkalinity levels are for each product being installed.
- What the action plan is if Rh levels remain too high. Mitigation is an option as well as waiting for the slab to dry out. Slab drying can be enhanced by dehumidifying the air. Probes should be placed well ahead of time to monitor the slabs rate of drying. Project teams can use this information to help decide the best approach to reducing the Rh to acceptable levels. Best practice is to use a different manufacturer's in situ probes, Delmhorst and Vaisala are two well respected industrial instrumentation manufacturers to verify readings which are above the allowable RH for the flooring adhesive to be installed.
- For projects with larger flooring installations (over 10,000 SF) it is best practice for a third party testing agency to confirm the contractor's test results with an independent test site or two.
- Discuss installation steps specifically. Establish and allow for "off-gassing" time of adhesive so bubbles and blisters will not occur.
- Discuss the proper materials/ method to protect the finished installation. Identify how long the flooring system must set before it cures and is useable.

MASONRY SCHOOL POLICY

Introduction:

It is critical that the masonry crew members understand the importance of their work as it relates to the long-term performance and durability of the building. A good mason produces a high quality, durable and attractive enclosure element that will perform well over the test of time. As each craftsperson will have different experiences and training, the purpose of these sessions is to ensure that Power's expectations and project requirements are clearly communicated to the crew.

The Process:

- 1) The masonry contractor is to coordinate the date and timing of any sessions with the International Masonry Institute and Power construction. As a guide this session must take place prior to more than 2% of any masonry being installed on the project. It is best that the project be fully staffed to minimize the amount of training required by the masonry contractor foreman to on-board new crew members.
- 2) There are typically two sessions for this Policy, one when starting block work and the other when starting masonry veneer work. If there is dimensional stone on the project that would be a separate session to cover that work.
- 3) Representation from the IMI is mandatory (Contact Jeff Diqui Director of Industry Development and Technical Service (630-606-8220 jdiqui@imiweb.org) as is Power Quality Support and Project team attendance. The masonry contractor is to have all masons on the project attend this session. If crew members are swapped out then new members must be brought up to speed by the foreman.
- 4) The agenda for the session will include the following general topic areas
 - a. **Substrate review** – what to expect from the previous trade(s). What to do if previous work is not up to standard. Power staff will address this topic area
 - b. **Membrane review** – Ideally the membrane manufacturer is in attendance as well and can speak to the proper procedures for:
 - i. Installation
 - ii. Repair of damage
 - iii. Detailing around openings and other penetrations
 - iv. Proper flashing
 - v. Any additional work that may be required at the masonry ties

MASONRY SCHOOL POLICY

If the technical representative from the membrane manufacturer is not available, then Power expects the masonry contractor's Supervisory personnel to cover this topic area

- c. Review of fundamentals for masonry laying (by IMI representative).
 - i. Power expects that all head joints are full. This is a critical element for the water performance of the masonry veneer.
 - ii. Power expects that minimum industry tolerances will be maintained, or better, for plumbness, alignment and coursing.
 - iii. All end dams are to be installed per the flashing manufacturers recommendations and photos taken to document the installation. Photos are to be transmitted to Power on a regular basis, ideally uploaded into the Issues management software as they are taken.
 - iv. Review Tie spacing
 - v. Review project specific details for: Drip edge installation 2. Weeps and venting
 - vi. Review proper installation procedures for cavity insulation materials
 - vii. Review procedures for maintaining a clean masonry cavity including mortar collection device installation
 - viii. Review jointing and tooling procedures
 - ix. Review end of day protection procedures
 - x. Review hot and cold weather masonry procedures as applicable for the project
- d. Review other project specific details as agreed to between the Masonry Contractor and Power.

MEMBRANE INSTALLATION POLICY

Introduction:

This Policy applies to Air, Moisture, and Vapor membranes as well as Masonry Flashing, roofing and below grade waterproofing. Whichever type of system is being installed, all aspects of installation should be reviewed with the manufacturer and contractor, in the field, on an actual installation with the tradesmen installing the product.

The Process:

1. Review the construction documents and understand the systems involved.
2. Review manufacturer's product data for conformance to project specifications.
3. Is the system specified based on a manufacturer's standard, or based on performance criteria?
4. Is the membrane the appropriate product for where it is installed in the building and how it is expected to perform? Have the Manufacturer confirm it is the appropriate product.
5. Review shop drawings, product data and installation instructions for compliance with design intent and manufacturer's recommendations.
6. Coordinate with adjacent trades. Do not forget to include signage and the MEP trades who may have outlets, vents or sensors to be installed through these membranes. These trades will need to make provisions for proper sealing of their penetrations. They may choose to furnish sleeves, or expedite the installation of their piping, back boxes, devices, etc.
 - a. Define the areas of work. Coordinate with the project schedule. This may be by elevation, area, enclosure system, or by floor. This will facilitate the documentation process.
 - b. Understand the substrates that the membrane will be installed on and preparation requirements. Is primer required? Do seams need to be pre-treated? Etc.
 - c. Understand limits on the size of gaps and out of plane limits.
 - d. Review requirements for structure and thermal movements.
 - e. Review compatibility issues with adjacent materials, waterproofing, roofing, sealants and finishes.
 - f. Review the sequence of product installation for best performance. For example is sealant installed before or after the membrane?
 - g. Discuss the appropriate measures that must be taken to maintain the integrity of the membrane when following trades install products over or through the membrane.
 - h. Review continuity of enclosure. How are membranes tied into adjacent systems such as; roof membranes, windows, doors, waterproofing, etc?
7. Review and understand the installation process for limits on temperature, moisture and exposure duration.
8. Review the step by step process for all details during each phase of the work.
9. Review requirements for transition membranes, termination details and requirements for detailing penetrations through the membrane.
10. For masonry flashing pay particular attention to end dams.
11. Document the approved process.
12. Have the manufacturer confirm the process is per their recommendations.
13. Incorporate the process as developed above into a checklist that can be used by both the installer and Power personnel to confirm compliance. Use this checklist to do visual inspection

MEMBRANE INSTALLATION POLICY

of the installed product. Pay close attention to termination details, flashing conditions, end dams, transitions to adjacent construction.

14. Photo document any terminations, penetrations and typical flashing details.
 - a. Photos may be by Power staff or by the installing contractor.
 - b. Photos are to be saved to a clearly labeled project file on Box on a weekly basis.
 - c. Best practice is to identify the location where the photo was taken. A small dry erase board is one means of accomplishing this.
15. Sign off of proper installation is required prior to releasing an area for application or installation of finish or cladding materials.
16. Manufacturer's **technical** representation review during the initial installation and then periodic work in process reviews are required. Follow up to obtain documentation from the representative for their observations.

A few minutes spent in assuring proper detailing and installation will prevent hours and potentially thousands of dollars in investigating and resolving improper installations.

MOISTURE CONTROL POLICY

INTRODUCTION

The Moisture Control Policy consists of the following parts:

1. The Moisture Control Policy.
2. The Moisture Control Division Checklists: Divisions 1 through 33.
3. Training: An on-going procedure to assist all projects in providing and maintaining the correct and adequate means and methods for implementing moisture control during the project duration.

Implementation:

The Moisture Control Policy is incorporated into the Quality Control Program. It is part of the Pre-Construction Process. This ensures that we will provide a building product that complies with all aspects of this policy and program.

The place to discuss and implement the Moisture Control Policy is during the Team Strategic Planning Meeting and the Pre-Construction Meetings with all Subcontractors.

The Moisture Control Checklists are designed to be guidelines for understanding the moisture levels associated with each Division of the Work. Once it is understood that moisture is a part of each Trade Division Work, it can be identified, discussed, controlled, monitored, and documented.

Uncontrolled moisture, of any kind, on our projects is detrimental and contrary to our goals.

Assigning Roles and Responsibilities

Each Subcontractor shall be responsible for managing their Work and managing the moisture associated with their Work. Each Subcontractor needs to be informed of this necessity and needs to inform Power as to what techniques they will deploy to accomplish this responsibility.

Monitoring and Documentation

Monitoring and documentation of the process and procedures will be the responsibility of the Subcontractor. This monitoring and documentation will become part of the project record.

The monitoring and documentation procedures can be found in each Trade Division Checklist.

Purpose:

Power Construction Company, LLC pledges itself to provide this policy to ensure that moisture is controlled on all our projects. Controlling moisture ensures that all materials installed on our projects comply with their associated Standards of Quality.

The Power Construction Company, LLC Moisture Control Policy will be implemented and maintained on all our projects.

MOISTURE CONTROL POLICY

Management

Post-Award and Pre-Construction Meetings are to be held with all Subcontractors and all other parties responsible for implementing the Moisture Control Policy. The purpose of the Moisture Control portion of these meetings is to discuss, evaluate and plan for any issue associated with controlling moisture from the work or the natural elements. This portion of the meeting will establish the guidelines for implementing the program with each Trade Division. It will determine the Roles and Responsibilities for establishing and maintaining the Moisture Control System. The intention of this system is to prevent, detect, control, monitor, and document all moisture issues associated with the Work.

Each Trade Division has Checklists associated with Divisional Work and they are to be used as guidelines in the Pre-Construction Meetings.

The Moisture Control Checklists are part of this document and are intended for your use in the Pre-Construction Meeting process.

Industry Standards

Every specification division of the Work has specific Industry Standards that are associated with the Work. These Standards identify the criteria and the Work must comply with these Standards to be acceptable and meet our Contract responsibilities.

Environment

Environment is defined as the acceptable condition(s) of the project work space or area where the materials or products of the project are being installed. The acceptable conditions are defined in the Industry Standards associated with the materials or products. The manufacturer must participate and assist and confirm that the environment is acceptable for their product's use.

The acceptable environment shall be established and maintained as defined by the Industry Standards and manufacturer's requirements for the materials and products being delivered, handled, stored and installed.

The Moisture Control portion of the Post-Award and Pre-Construction Meetings must emphasize and focus on a discussion that reaches an agreement for creating the acceptable environment(s) for delivery, handling, storing and installation.

Quality Assurance

Discussions shall be held to establish the procedures for delivery, storing, handling and installing materials. These discussions will focus on inspections, testing and documentation of all materials and methods associated with the Work.

Roles and Responsibilities shall be established and assigned to specific Trades for implementing these procedures.

Trade Division Checklists are to be used as part of this assignment procedure.

MOISTURE CONTROL POLICY

Documentation will become part of the project record and shall be used to establish compliance with the Moisture Control Policy. When the project is completed, this documentation will also be used to confirm that every effort has been taken to construct our projects with the utmost concern for controlling moisture and meeting the Standards of Quality associated with the Work.

Moisture Damage

Moisture infiltration requires that an immediate investigation be conducted and the moisture problem identified, controlled and resolved.

Moisture has been identified by the experts as one of the main contributors to the growth of fungi. Since we are not experts in identifying mold and we do not intend to become experts, suspicions or evidence of fungi should be directed to the Director of Safety.

If you require assistance in creating or developing a moisture control program, you are to contact your project's Quality Support Manager.

As part of the Preconstruction Meeting, using the Moisture Control Policy will enable each of you to implement Moisture Control Procedures that will successfully manage moisture on your projects. This management and documentation ensures that we have complied with our contract responsibilities.

NO SMOKING/E-CIGARETTE USE POLICY

Smoking and or E-Cigarette use is strictly prohibited:

1. At any time in any Power/project field office.
2. In a build-out or addition to an occupied building (tie-in and existing structure).
3. Anywhere in the building once window installation has begun on any floor.
4. When any temporary or permanent enclosure is installed (either partial or complete) on the building.
5. In any areas identified on the project as “non-smoking”
6. In any areas covered by the Illinois Smoke Free Law.

Smoking or E-cigarette use may also be prohibited by owner/client requirements site/campus wide or in specific buildings.

This policy may be modified on a site-specific basis as long as it is a written policy and included in the site orientation. In no case shall the owner requirements or the prohibition on smoking when windows are glazed on a floor be relaxed. In compliance with our tolerance enforcement, anyone in violation of the above will be subject to appropriate disciplinary action which may include removal from the site or termination.

SUBCONTRACTOR'S SITE-SPECIFIC QUALITY PLAN

Site Specific Quality Plan

Each subcontractor shall establish and submit for review a written Site-Specific Quality Plan that includes details commensurate with the work to be performed. The subcontractor's Site-Specific Quality Plan shall clearly describe the subcontractor's methods for meeting its obligations as listed in the project documents. The subcontractor's Company Quality Manual will not be accepted as a substitution for a Site-Specific Quality Plan. The following will be submitted prior to the subcontractor's mobilization to the project:

- A written Project Site-Specific Quality Plan (paper or electronic copy as required by the Power project team);
- Identify Quality roles and responsibilities for subcontractor employees;
- Subcontractor's disciplinary action program;
- Process for managing tier subcontractors;
- Methods of procedure to achieve specified quality
- As a condition of their contract, all Subcontractors shall submit to Power or designee a Site-Specific Quality Plan within fifteen (15) days after receipt of notice to proceed and prior to start of construction activities.
- See attached Template for other specific requirements. Click [here for the downloadable template](#).

The subcontractor shall be solely responsible for implementing the Site-Specific Quality Plan

Electronic Forms Process

Each subcontractor is solely responsible for providing access and the ability, to their project supervision, to upload and manage electronic documents required by Power Construction. This includes providing, at minimum, internet access and device (tablet or computer) to their project supervisor. Power Construction will provide portal access and initial use training as needed at no cost to the subcontractor and their tier subcontractors. All subcontractors are required to utilize the electronic forms process regardless of the scope of their work, contract value, contractor processes and forms, etc. Failure to provide documentation outlined in this section in its required timeframe will be a violation of this document resulting in disciplinary action, withholding of payment, and/or work stoppage.

Toolbox Talks

Each subcontractor shall conduct weekly quality toolbox meetings relevant to the work being performed by their employees. The toolbox talk or a description of the topic discussed along with all attendees' names shall be submitted to Power utilizing the electronic forms process. Power has developed some trade specific tool box talks which are expected to be covered during the project. Other suggested topics include a review of the installation instructions for materials being installed that week, review the industry standards associated with the work being installed that week a detailed walkthrough of any mock ups or accepted first installations so that project accepted quality standards are communicated clearly to the crew.

SUBCONTRACTOR'S SITE-SPECIFIC QUALITY PLAN

Inspections

In accordance with the contract documents, each subcontractor shall perform frequent and regular inspections of their work area(s) by a competent person. A copy of the report or documented inspection shall be submitted to Power within 24-hours of the commencement of the inspection. Subcontractor supervisors shall take immediate action to correct any issues found. The subcontractor will be solely responsible to review and monitor the work area or location of all their employees on a regular basis during the performance of work. In addition, each subcontractor must provide a documented inspection of the subcontractor's work by an individual not assigned to the daily operations on-site at a minimum of once per month.

Incident Reporting

Subcontractors are responsible to immediately notify Power of all Quality incidents including uncontrolled water intrusion from systems or the environment, or any other issues requiring re-work in excess of \$2500.00

Each subcontractor is required to investigate all incidents incurred by their employees, or incidents that are the result of their operations. Each subcontractor shall provide to Power a documented Incident Investigation Report within 24-hours of the occurrence.

Power may conduct an independent investigation at their own discretion or when they deem it necessary as a supplement to that required of the subcontractor. Subcontractors and their employees are expected to fully cooperate with the investigation process including completion of witness statements, photographs, completion of Power required documents and any other elements of the incident investigation process. Upon request, subcontractors involved in the incident shall participate in Incident Review Meetings.

SUBSTITUTION POLICY

Introduction:

Substitution requests must be made in accordance with the Contract documents which typically restrict the contractor's ability to make substitution requests. **Substitutions are strongly discouraged after the Contract has been executed, unless absolutely necessary.**

Necessary Substitutions:

Instances may arise on Projects when a substitution of material is necessary, i.e., the material or product is no longer manufactured as specified, or the manufacturer has gone out of business. In these cases, a Request for Substitution, along with supporting data, should be made as soon as the situation comes to our attention. Any re-design required by this situation is the responsibility of the design professional, and may entitle us to additional fees.

Voluntary Substitutions:

In some cases, a voluntary substitution may be an advantage to us and our client, in reduced cost or accelerated schedule. In some cases, it may be to our advantage to submit a substitution, even if we are required to absorb the additional cost. In these cases, your experience and good judgment will be essential in determining whether to pursue or reject a substitution request.

Any voluntary "Request for Substitution" should be submitted, reviewed and a course of action decided before the Contract is signed; all voluntary substitutions must have been submitted and approved prior to the Pre-Construction meeting.

Voluntary substitutions should never be allowed if the substitution will compromise the design intent or schedule, or if the necessity of the substitution is based on poor scheduling by the Subcontractor.

Voluntary substitutions will be considered only under the following circumstances:

- A. Making the substitution will result in a significant savings in price with no adverse affect on the schedule.
- B. Making the substitution will result in a positive affect on the schedule with no significant cost increase.

There may be circumstances when a modest increase in price will benefit the schedule beyond the value of the additional cost. All other conditions being equal (design intent not compromised, etc.), serious consideration should be afforded this opportunity. Again, in these cases, your experience and good judgment will be essential.

Remember that by voluntarily using a substituted product, the Contractor and subsequently Power Construction assumes the responsibility for all adjustments required to fit that product into the work, and for providing all additional work, equipment and services made necessary by the use of that product, at no additional cost to the Owner. Carefully review all implications of the substitution and review costs, schedule impacts and coordination issues that may result from the substitution.

The Owner and the Design Professional must agree to any proposed substitution.

WALL CAVITY POLICY

Introduction:

The purpose of this policy is to emphasize portions of the Moisture Control Policy. The intent of the is policy is to define the steps required to assure our projects are clean and dry when they are turned over to the Owner.

The Process:

1. Review the expectations of each subcontractor in regards to the condition of the wall cavities at the Pre-construction meeting.
2. Review the condition of every wall cavity prior to closing the second side.
3. All wall cavities should be clean and dry. This requires shop vac or blowing the track clean.
4. Document the condition of the walls with pictures and notes. Each photo is to have its location identified. Identification is to include room number and wall direction. For example room 104 East wall. In the case of corridors or other long walls an additional identifier to locate along the length to be provided. For example corridor 205 North wall near door 208.
5. At any recessed accessory location re-inspect the wall and document the condition prior to the installation of the accessory.
6. Document that all walls have been reviewed with marked up plans or detailed description.
7. File all documentation in subcontractors contract file.

Introduction:

It is critical that project teams and subcontractors thoroughly understand the window system(s) being used on the project. All aspects of the fabrication and installation should be reviewed with the manufacturer, fabricator, and installing contractor for each system being used on the project.

The Process:

1. Review the construction documents and understand the systems involved.
2. Review manufacturer's product data for conformance to project specifications.
3. Is the system specified based on a manufacturer's standard, or based on performance criteria.
4. Review shop drawings for compliance with design intent for profile and details.
5. Coordinate with structural drawings and adjacent trades.
 - a. Understand loading imposed on structure for gravity and wind load.
 - b. Understand tolerances of adjacent trades.
 - c. Review deflection requirements and thermal movement requirements.
 - d. Review compatibility issues with dissimilar metals, sealants and finishes.
6. Review and understand the fabrication process from initial submittal, die approval, painting, stock lengths, cutting and fabrication in the shop, assembly, shipping and installation.
7. Review the step by step process during each phase of the work.
8. Visit the fabrication facility and review the process.
 - a. Review the manufacturer's step by step instructions, confirm that they are being followed. If any deviations are noticed they are to be documented and the reasons for the deviation discussed with eth fabricator and they are to provide documentation from the manufacturer noting that they accept the modification.
 - b. Ask to see their internal QA / QC logs for sealants
9. Once the material arrives on site hold a jobsite training session for the installation crew. This session does not have to be the very first day of install but must take place prior to the installation of any critical seals for the system being installed. Power expects that the installing contractor is responsible to schedule and follow the process outlined below.
 - a. Review the steps required for on-site assembly and erection. Use the manufacturer's written assembly instructions as the basis for this review.
 - i. Focus on "critical air and water seal" areas within the system. Specific crew members are to be responsible for these seals.
 - ii. Installation crews are to photo document the installation of these seals
 - iii. Discuss "reset" procedures to be implemented when the system is not fitting up correctly. This does not mean grab a bigger hammer.
 1. Evaluate cause of poor fit – is there an error in fabrication? Who at the fabricator / manufacturer is the point of contact to resolve these issues.
 2. Any field repairs to be properly documented – step by step instructions to be furnished by the manufacturer/ fabricator.
 3. All seals need to be re-established
 - b. Manufacturer's representation is mandatory. Confirm with Contractor is manufacturer will charge for this service and budget accordingly.

WINDOW SCHOOL POLICY

- c. Quality Support Manager attendance is mandatory for the initial meeting.
- d. All crew members are to attend. If additional crews are added then additional training sessions will be required. The foreman is to train the additional crews and turn into Power the sign in sheets from those meetings.
- e. Establish the field quality control process. Who verifies the critical seals to ensure that they are correct prior to placing the next lift or covering?

WINDOW TESTING POLICY

Introduction:

Testing of window systems is a critical step to ensure the performance of the building enclosure. Whether required by specification or not a minimum level of testing should be performed on each type of window, curtain wall or window wall. For those projects with less than 5000 SF of glazed area then a single 100 SF test area of curtain wall or storefront, or one unit for windows or window wall shall be the minimum. The minimum test procedure shall be an AAMA 501.2 or hose stream test. This testing is to be performed as soon as the test area(s) or unit(s) are ready and must be prior to installing **any** surrounding interior finishes.

The Process:

1. Understand the project requirements as defined by the construction documents.
2. Review the requirements at the Pre-Construction Conference.
 - a. Determine if off site testing is required. Mock-up scope and details
 - b. Determine if on site chamber testing is required.
 - c. Determine if standard hose test is required.
 - d. Is existing performance test data available and acceptable?
3. Review performance test mock-up submittal.
4. Schedule mock-up to allow for revisions if required.
5. Schedule any on site testing early in the installation process to allow for revisions if required.
6. Review in place mock-up locations and coordinate with installation sequence. Mock-up should occur in the area of initial installation when possible.
7. Establish who is responsible for testing and documentation.
8. Verify that the test is appropriate for the application. It is not uncommon to have an AAMA 501.2, or hose test specified for operable windows. This is not the appropriate test for this type of window, an AAMA 502 or chamber test is the correct test for this application.
9. If no other testing procedure is specified, a hose stream test (AAMA501.2) should be performed on a representative number of windows or area. This test can be performed by the contractors' labor or contracted to an independent testing company.
10. Documentation of all testing is critical and should be filed in the subcontractors file.
11. A representative from Power is to be present for each test.
12. In the event of a failed test a minimum of one additional unit or test area shall be tested at the contractor's expense for each failed test.
13. Follow this link for [Window Testing Preparation](#)