

2024 TECHNICAL ASSISTANCE PROGRAM CORPORATE WEBINAR



HENSEL PHELPS
Plan. Build. Manage.



PROJECT QUALITY CONTROL

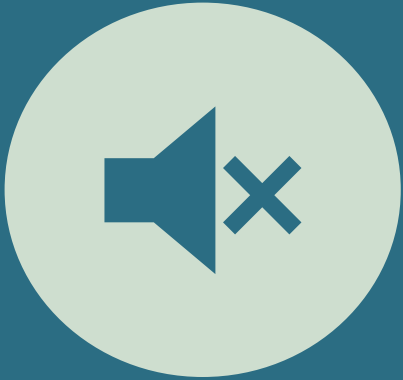
MODERATED BY

Jason Jones

Manager of Supplier Diversity



HOUSEKEEPING



MUTE

PLEASE **MUTE** YOUR
LINE THROUGHOUT
THE PRESENTATION



CAMERA

WE ENCOURAGE YOU
TO HAVE YOUR
CAMERA **ON**.



QUESTIONS

HAVE A QUESTION?
ASK IN THE **CHAT**.
WE WILL HAVE A Q&A
SECTION AT THE END
OF THE
PRESENTATION



REACT

REACT! STAY ENGAGED
WITH REACTIONS



PROJECT QUALITY CONTROL

PRESENTED BY

William "Bill" Scott

Senior QC Manager



DEFINING QUALITY CONTROL

DEFINITION

Quality control refers to a company's methods for assessing product quality and, if necessary, improving it.

What are some of the goals of Quality Control on Hensel Phelps Projects?

- Eliminating re-work
- Maintain a project workflow by efficiently coordinating and sequencing trades in a safe manner while creating an atmosphere of cooperation on the jobsite.
- Exceed our clients' quality expectations.



DEFINING QUALITY CONTROL

- **Quality** - The standard of something as measured against other things of a similar kind; the degree of excellence of something
- **Control** - The power to influence or direct people's behavior or the course of events
- **Quality Control** – The activity of checking goods as they are produced to make sure that the final products are good



KEY ASPECTS TO QUALITY CONTROL

- Understanding what is purchased.
- Making sure QC administrative procedures are taken care of:
 - Submittals (submitted on time to support the project schedule)
 - RFIs (proactively/accurately written to limit project delays)
 - Document approvals (drawings/specs)
 - Specification Review
 - Inspection Requests (understand IR submission timelines, tracked to completion to ensure jurisdictional acceptance of installed work.)
- Work is installed correctly/safely
- All work is completed.

FUNDAMENTALS OF SUCCESSFUL PROJECTS

- All Four Are Critical to Success
- None Are Less Important Than Others
- Problems With One Will Affect the Others



BUILDING A QC PLAN

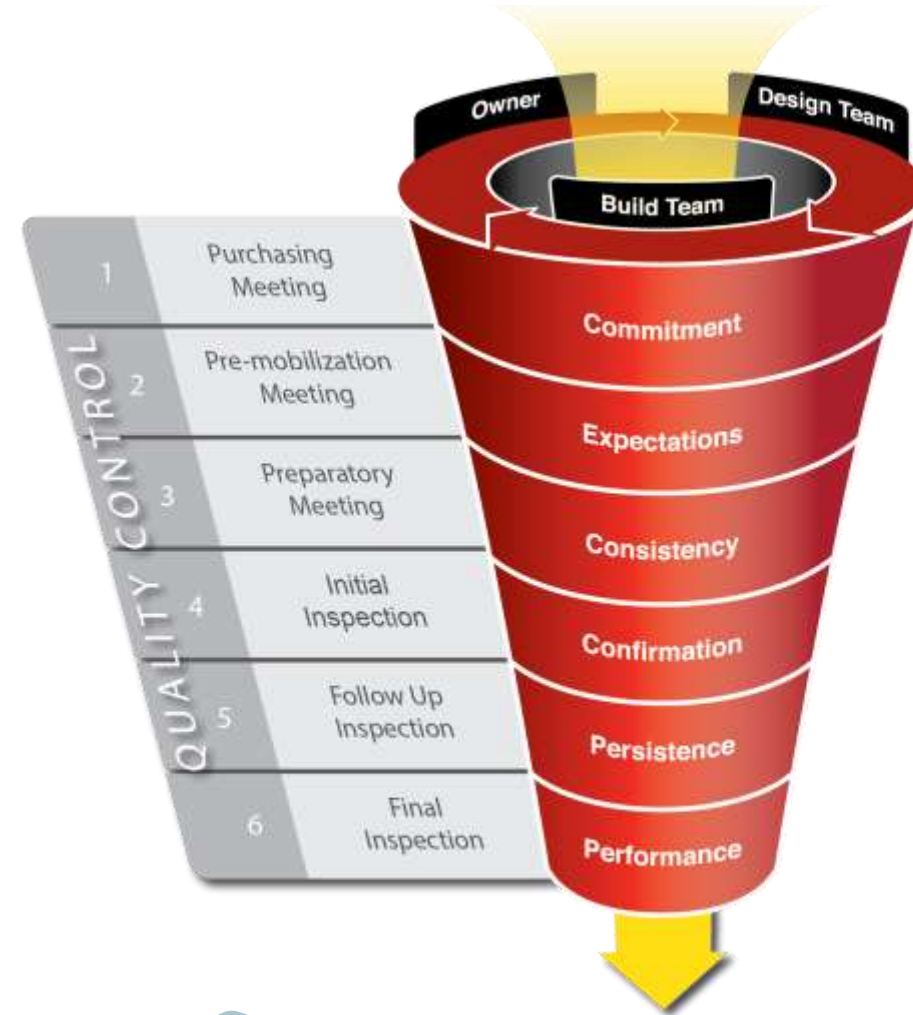
**Does your team have an internal QC plan specific to your scope?
If so, does your plan contain the following information:**

- Who is on your team – Will your foreman act as QC/Safety for the project?
- Make the plan project specific
- Testing & Inspections
- Understanding your role in the Commissioning Process
- Documentation: Checklists or other supporting documentation
- Communication: Know key players and communication to and from HP/Owner

If your company does not have an internal QC plan refer to the JIP Brochure (Job Information Policy). This will be included with your contract.

INTEGRATING QUALITY CONTROL

- Quality Control Activities
- Safety Activities
- Other Team Involvement
- Trade Partner Involvement



PROVEN 6-STEP QUALITY PROCESS

INTRODUCTION TO HENSEL PHELPS'S SIX STEP QUALITY PROCESS (QC 201)

Step 1 – Purchasing Meeting

Step 2 – Pre-Mobilization Meeting

Step 3 – Preparatory Meeting

Step 4 – Initial Inspection

Step 5 – Follow Up Inspection

Step 6 – Final Inspection



The image shows a detailed flow chart titled "HENSEL PHELPS Six-Step Quality Control-Safety Flow Chart". It is a complex document with multiple columns and rows, detailing the steps of the quality control process. The steps are numbered 1 through 6, corresponding to the list on the left. The chart includes various sub-steps, responsibilities, and checklists. A hand icon is visible on the right side of the chart, pointing to a specific section.

Step	Step Description	Responsibility	Checklist
1	Purchasing Meeting	Project Manager	Checklist 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.10, 1.11, 1.12, 1.13, 1.14, 1.15, 1.16, 1.17, 1.18, 1.19, 1.20, 1.21, 1.22, 1.23, 1.24, 1.25, 1.26, 1.27, 1.28, 1.29, 1.30, 1.31, 1.32, 1.33, 1.34, 1.35, 1.36, 1.37, 1.38, 1.39, 1.40, 1.41, 1.42, 1.43, 1.44, 1.45, 1.46, 1.47, 1.48, 1.49, 1.50, 1.51, 1.52, 1.53, 1.54, 1.55, 1.56, 1.57, 1.58, 1.59, 1.60, 1.61, 1.62, 1.63, 1.64, 1.65, 1.66, 1.67, 1.68, 1.69, 1.70, 1.71, 1.72, 1.73, 1.74, 1.75, 1.76, 1.77, 1.78, 1.79, 1.80, 1.81, 1.82, 1.83, 1.84, 1.85, 1.86, 1.87, 1.88, 1.89, 1.90, 1.91, 1.92, 1.93, 1.94, 1.95, 1.96, 1.97, 1.98, 1.99, 2.00
2	Pre-Mobilization Meeting	Project Manager	Checklist 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12, 2.13, 2.14, 2.15, 2.16, 2.17, 2.18, 2.19, 2.20, 2.21, 2.22, 2.23, 2.24, 2.25, 2.26, 2.27, 2.28, 2.29, 2.30, 2.31, 2.32, 2.33, 2.34, 2.35, 2.36, 2.37, 2.38, 2.39, 2.40, 2.41, 2.42, 2.43, 2.44, 2.45, 2.46, 2.47, 2.48, 2.49, 2.50, 2.51, 2.52, 2.53, 2.54, 2.55, 2.56, 2.57, 2.58, 2.59, 2.60, 2.61, 2.62, 2.63, 2.64, 2.65, 2.66, 2.67, 2.68, 2.69, 2.70, 2.71, 2.72, 2.73, 2.74, 2.75, 2.76, 2.77, 2.78, 2.79, 2.80, 2.81, 2.82, 2.83, 2.84, 2.85, 2.86, 2.87, 2.88, 2.89, 2.90, 2.91, 2.92, 2.93, 2.94, 2.95, 2.96, 2.97, 2.98, 2.99, 3.00
3	Preparatory Meeting	Project Manager	Checklist 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.24, 3.25, 3.26, 3.27, 3.28, 3.29, 3.30, 3.31, 3.32, 3.33, 3.34, 3.35, 3.36, 3.37, 3.38, 3.39, 3.40, 3.41, 3.42, 3.43, 3.44, 3.45, 3.46, 3.47, 3.48, 3.49, 3.50, 3.51, 3.52, 3.53, 3.54, 3.55, 3.56, 3.57, 3.58, 3.59, 3.60, 3.61, 3.62, 3.63, 3.64, 3.65, 3.66, 3.67, 3.68, 3.69, 3.70, 3.71, 3.72, 3.73, 3.74, 3.75, 3.76, 3.77, 3.78, 3.79, 3.80, 3.81, 3.82, 3.83, 3.84, 3.85, 3.86, 3.87, 3.88, 3.89, 3.90, 3.91, 3.92, 3.93, 3.94, 3.95, 3.96, 3.97, 3.98, 3.99, 4.00
4	Initial Inspection	Project Manager	Checklist 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, 4.11, 4.12, 4.13, 4.14, 4.15, 4.16, 4.17, 4.18, 4.19, 4.20, 4.21, 4.22, 4.23, 4.24, 4.25, 4.26, 4.27, 4.28, 4.29, 4.30, 4.31, 4.32, 4.33, 4.34, 4.35, 4.36, 4.37, 4.38, 4.39, 4.40, 4.41, 4.42, 4.43, 4.44, 4.45, 4.46, 4.47, 4.48, 4.49, 4.50, 4.51, 4.52, 4.53, 4.54, 4.55, 4.56, 4.57, 4.58, 4.59, 4.60, 4.61, 4.62, 4.63, 4.64, 4.65, 4.66, 4.67, 4.68, 4.69, 4.70, 4.71, 4.72, 4.73, 4.74, 4.75, 4.76, 4.77, 4.78, 4.79, 4.80, 4.81, 4.82, 4.83, 4.84, 4.85, 4.86, 4.87, 4.88, 4.89, 4.90, 4.91, 4.92, 4.93, 4.94, 4.95, 4.96, 4.97, 4.98, 4.99, 5.00
5	Follow Up Inspection	Project Manager	Checklist 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15, 5.16, 5.17, 5.18, 5.19, 5.20, 5.21, 5.22, 5.23, 5.24, 5.25, 5.26, 5.27, 5.28, 5.29, 5.30, 5.31, 5.32, 5.33, 5.34, 5.35, 5.36, 5.37, 5.38, 5.39, 5.40, 5.41, 5.42, 5.43, 5.44, 5.45, 5.46, 5.47, 5.48, 5.49, 5.50, 5.51, 5.52, 5.53, 5.54, 5.55, 5.56, 5.57, 5.58, 5.59, 5.60, 5.61, 5.62, 5.63, 5.64, 5.65, 5.66, 5.67, 5.68, 5.69, 5.70, 5.71, 5.72, 5.73, 5.74, 5.75, 5.76, 5.77, 5.78, 5.79, 5.80, 5.81, 5.82, 5.83, 5.84, 5.85, 5.86, 5.87, 5.88, 5.89, 5.90, 5.91, 5.92, 5.93, 5.94, 5.95, 5.96, 5.97, 5.98, 5.99, 6.00
6	Final Inspection	Project Manager	Checklist 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15, 6.16, 6.17, 6.18, 6.19, 6.20, 6.21, 6.22, 6.23, 6.24, 6.25, 6.26, 6.27, 6.28, 6.29, 6.30, 6.31, 6.32, 6.33, 6.34, 6.35, 6.36, 6.37, 6.38, 6.39, 6.40, 6.41, 6.42, 6.43, 6.44, 6.45, 6.46, 6.47, 6.48, 6.49, 6.50, 6.51, 6.52, 6.53, 6.54, 6.55, 6.56, 6.57, 6.58, 6.59, 6.60, 6.61, 6.62, 6.63, 6.64, 6.65, 6.66, 6.67, 6.68, 6.69, 6.70, 6.71, 6.72, 6.73, 6.74, 6.75, 6.76, 6.77, 6.78, 6.79, 6.80, 6.81, 6.82, 6.83, 6.84, 6.85, 6.86, 6.87, 6.88, 6.89, 6.90, 6.91, 6.92, 6.93, 6.94, 6.95, 6.96, 6.97, 6.98, 6.99, 7.00

SIX STEP QUALITY CONTROL PROCESS FLOW CHART

Activities by Process Step	Quality Control Activities	Safety Activities	Overall Hensel Phelps and Project Team Involvement
Step 2. Pre-Mobilization Meeting (as soon as possible after issuance of subcontract to support the Project Schedule)			
<ul style="list-style-type: none"> Review the 6 Step Quality Control/Safety Process Obtain commitments for all Preparatory Meeting prerequisites Develop plan for mockup construction as required Develop the DFOW breakdown for Preparatory Meetings with a tentative schedule Define project administrative requirements Obtain commitments to dates for the scope of submittals and schedule input requested Review 90-day preliminary schedule Review JIP brochure highlights Review Trade Partner Startup Risk Assessment Questionnaire 	<ul style="list-style-type: none"> Review Site-Specific Quality Control Plan and requirements of the 6 Step Process Define general expectations/preparation for Preparatory Meetings Define inspection process Initiate development of Project-Specific DFOW Checklists Review Master Test Register and define testing procedures and responsibilities – on/off site Obtain commitments to Source and Special Inspections process Update QPL listing of all DFOWs with Trade Partner Define commissioning needs and implementation requirements (if applicable) 	<ul style="list-style-type: none"> Review Site-Specific Accident Prevention Plan Review AHA requirements/expectations/schedule with DFOW list Highlight safety requirements per applicable standards (OSHA 1926/EM 385/other) Jobsite employee orientations SAFE participation and accountability Commitment to the "Zero Accident Culture" Commitment to the Disciplinary Action Plan Acquire Trade Partner safety submittals Obtain commitment to participate in Jobsite Safety Committee and Inspection's Review Accident Investigation procedure and the Trade Partner's role 	<ul style="list-style-type: none"> HP Project Manager (P) HP Superintendent (P) HP Area Superintendent (O) HP Project Engineer (R) (L) HP Office Engineer (P) (SU) HP Quality Control (P) HP Safety (P) Trade Partner Principal (R) Trade Partner Project Manager (R) Trade Partner Superintendent (P) 2nd Tier/Sub-tier Trade Partners (P)*
Step 3. Preparatory Meetings (1-2 weeks prior to start of DFOW)			
<ul style="list-style-type: none"> Confirm prerequisites are complete prior to scheduling Preparatory Meeting Review Pre-Mobilization action items with jobsite supervision Review quality and safety expectations Define scope, location and parameters of Initial Inspection Review interfaces and define coordination responsibilities with all trades Finalize testing expectations, requirements, and responsibilities Review current schedule needs for quality, safety and production Mockup constructed and approved (if required) Review CPM, 90-day detailed schedule and 4-week schedules (acquire additional input as needed) Determine productivity rates for production trending 	<ul style="list-style-type: none"> Review "means and methods" in detail to achieve the desired quality Concentrate on high risk and "difficult details" of the DFOW Review outcome of any Special or Source Inspections completed Provide adequate planning time to conduct an effective Preparatory Meeting Review and finalize inspection requirements Review and finalize testing requirements Clearly define QC responsibilities and procedures Finalize project-specific DFOW QC Checklists Update QPL Define procedure and importance of daily documentation Integrate commissioning requirements (if applicable) Define deficiency process and allowable time to correct Identify if any substrates are critical for follow-on work 	<ul style="list-style-type: none"> Clearly define roles/responsibilities/expectations of Site-Specific Accident Prevention Plan Review the accepted AHA, focus on high risk areas Define Competent, Qualified, and Certified personnel per DFOW Schedule Foreman's Indoctrination Review qualifications/training expectations Acquire employee qualifications and training documentation Obtain commitment to participate in SAFE Review permit expectations and other specific plans associated with this DFOW (e.g., cranes, Subpart R, confined space). All plans must be accepted prior to Preparatory Meeting Confirm all employees will attend orientation prior to start of work Determine if this work represents a hazard to other Trade Partner employees 	<ul style="list-style-type: none"> HP Project Manager (O) HP Project Superintendent (P) HP Area Superintendent (R) (L) HP Project Engineer (O) HP Office Engineer (P) (SU) HP Field Engineer (P) (SU) HP Quality Control (R) (SU) HP Safety (P) (SU) Trade Partner Project Manager (P) Trade Partner Superintendent (P) Trade Partner Foreman (R) Trade Partner Quality Control (P) Trade Partner Safety (P) 2nd Tier/Sub-tier Trade Partners (P)* Owner's Representative (P)* Third Party Testing Agency (P)* Commissioning Agent (P)* Municipal Authorities (O) Regulatory Agency (O)

START OF FIELD ACTIVITIES

Start of Field Activities - Material Inspections

- Done prior to material being loaded into the building.
- Done with the foreman/quality representative, Hensel Phelps and the owner's representative.
- Items checked against the approved submittals.
- Done at intervals to limit risk.
- Expiration/shelf-life dates verified.
- Understanding, storage environment, and temperatures is a must.



CHECKLISTS

What is included when building a checklist?

- Collaboration
- Codes and Standards
- Materials Installation Req.
- Project Specific Requirements
- Past Experience
- Inspection requirements.



COMPLETED CHECKLISTS

What is included?

- Action Items
 - Description of work – compliant and non-compliant items.
 - Due dates for completion of noncomplying items.
- Photos
 - Conforming and non-conforming items.
 - Non-conforming items
- Signatures

When are checklists used:

Initial and Follow-Up Inspections (Internal QC Process - Not Jurisdictional Inspection)

TEST AND INSPECTION PROCESS

- Pre-Testing and Inspecting
- Scheduling Tests and Inspections
 - Self-Performed Tests
 - Third Party Testing
 - Group Inspections
- Witnesses
- Documenting Tests and Inspections

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Subcontractor Request for Inspection or Test

To:	Applicable RFI No.	Log No.
From:	Specification No.	Phone No.
Contractor:	Drawing Reference:	Fax No.
Date of Request:	Floor Level:	Room No.
Inspection Date:	Days: M T W T F S (circle one)	AM: PM:

Types of Inspection or Test:

<input type="checkbox"/> Piles	<input type="checkbox"/> Structural Welding	<input type="checkbox"/> Electrical
<input type="checkbox"/> Soil Compaction Testing	<input type="checkbox"/> Miscellaneous Welding	<input type="checkbox"/> Plumbing
<input type="checkbox"/> Reinforcement Steel	<input type="checkbox"/> Fire Proofing	<input type="checkbox"/> Mechanical
<input type="checkbox"/> Concrete Placement	<input type="checkbox"/> Framing	<input type="checkbox"/> Other _____

(The signature below acknowledges that the work has been installed per the Contract Documents, per inspected and ready for final inspection.)

Contractors Signature: _____

☐ Partial ☐ Rough-In ☐ Final

Detailed Description of Site Location and Specific Code Inspection or Test Requested:

☐ Approved ☐ Re-inspection Required ☐ Cancelled / Re-scheduled

Inspector Comments: (Attach additional sheets if required)

Inspector Signature: _____ Date: _____

Important: Inspection requests must be submitted to Hensel Phelps office a minimum of 24 hours prior to the requested date. Contractors must pre-inspect all work prior to requesting inspections or tests. Re-inspection fees may apply for failed inspections. Inspection requests must be completely filled out and signed. Inspection requests must be submitted by 2:00pm the day before the requested inspection.

Modified: 05/2016

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Form QC302

TEST AND INSPECTION PROCESS

Inspection Examples

- Concrete Pour Card Form
- Concrete Placement Card
- Subcontractor Request for Inspection
- Wall Close-In Inspection
- Ceiling Close-In Inspection
- Raised Floor Close-In Inspection
- Backfill Inspection Checklist

INITIAL AND FOLLOW UP INSPECTIONS

HENSEL PHELPS
Plan. Build. Manage.

Checklist 00484, Rev. 1
Detailed Checklist

ATLO Facility Project
475 Atlas Circle
Littleton, CO 80127

Project # 3057194
Tel:
Fax:

Hensel Phelps Construction Co.

Number: 00484, Rev. 1
Passed? Yes
Approved? N/A

Description: Initial Inspection - DFM/Roofing

Module: Created From Checklist Template
Initial Inspection
DFM/Roofing System, Rev. 1

Prepared By Company: Hensel Phelps Construction Co.
Prepared By Contact: Bryan Silvers
Conducted Time: 5/15/2018 3:00:18 PM

Location: Approx East 1/4 S - approx 30' East of G. D.

Comments: Overall, the safety and quality of Douglass' work has been great. The few issues that have come up have been minor and easily resolved.

Personnel Involved:
Bryan Silvers - HPCOR Engineer
Zach Wagner - HP Field Engineer
Brandon Barber - HP Area Superintendent
Lara Wells - Douglass Foreman

Checklist Items

Description	Response	Result	Comments
Is this an initial, follow-up, or final inspection?	Initial	Yes	
Subcontractor: The foreman currently supervising installation attended the Preparatory Meeting?		Yes	
If this is an initial inspection, the foreman supervising the installation is in attendance		Yes	
Action Items from the DFM Preparatory Meeting have been recorded	No		Douglass to provide back-up from fireproofing starting. Insulation adhesive can be stored outside of the specified 40-60° range. Douglass to submit low-VOC adhesive option for glulam work.
Deficient items from previous DFM inspection have been resolved and are not retesting	N/A		Neither item is an immediate concern for the work currently going into place.
Are the installation procedures outlined in the process meeting completed?	Yes		
Do the subcontractor accept the substitute is waiting prior to the initial sample installation? If not, explain why and how item issue was resolved.	Yes		

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HENSEL PHELPS
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Checklist 00484, Rev. 1
Detailed Checklist

ATLO Facility Project
475 Atlas Circle
Littleton, CO 80127

Project # 3057194
Tel:
Fax:

Hensel Phelps Construction Co.

Checklist Items

Description	Response	Result	Comments
Are the products, equipment, materials and details being used in strict compliance with the approved Submittals and Shop Drawings? If not, explain why and how work is non-compliant.		No	Several end laps in the V-force did not meet the approved requirements. This issue was addressed immediately and has been resolved.
Are procedures, work methods, and quality of work in strict compliance with the requirements of the contract drawings and specifications? If not, explain why and how the work is non-compliant.		No	See comment above regarding the V-force.
Overall, the quality of work has been great			
All crew members performing this work scope have reviewed and signed the ddm.		Yes	
The AIA is readily available on site and all crew members know where it is kept.		Yes	
Installation methods follow the reviewed AIA.		Yes	
All evident construction hazards are covered within the AIA.		No	It was discovered during this inspection that the crew was using an old version of the AIA. They have since received and reviewed the updated AIA.
Subcontractor: Have all products been delivered to the job in original unopened containers, dry, undamaged, and with seals and labels intact?		Yes	
Are manufacturer's storage and installation instructions being utilized? If not, identify.		Yes	
Do all materials match approved product data submittals?		No	The insulation adhesive did not match the approved submittal. However, the delivered material is identical to what was approved and has now been approved for use.
Subcontractor Preparation: Subcontractor has accepted the substitute		Yes	
Roofing substrate is clean and dry prior to installing roofing material		Yes	
Deck is clean and smooth, free of depressions, waves, or projections.		No	Douglass denied the roof deck while loading the roof. A fix has been identified and is in the process of being addressed via RFI.
Flugs are in place to prevent material from entering and clogging roof drains.		No	Temp drains will be utilized in lieu of plugs to remove any water from the roof.
Roof decking will adequately support the roofing without racking, gaps, or voids.		Yes	
Initial roof decking has been inspected to ensure it is properly secured		Yes	

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HENSEL PHELPS
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Checklist 00484, Rev. 1
Detailed Checklist

ATLO Facility Project
475 Atlas Circle
Littleton, CO 80127

Project # 3057194
Tel:
Fax:

Hensel Phelps Construction Co.

Checklist Items

Description	Response	Result	Comments
Locations around mechanical or other walls where a significant amount of work will take place have sufficient work pad coverage to adequately protect the roof.		N/A	
Gap between pads is at least 2" wide to allow water drainage between the pads.		N/A	
Membrane at wall/step and locations has been prepped prior to installation to allow for proper adhesion.		N/A	
Protection of floor: Roof is kept clean of nails, screws, metal filings, or anything else that could puncture the membrane.		Yes	
Metal cans, fire extinguishers, or other objects that will leave rust marks are not set directly on the membrane.		Yes	
Temporary work pads are used to protect main walking paths or work areas that do not have permanent work pads installed during construction and are adequately maintained.		N/A	Douglass has requested their work to minimize traffic over installed roofing. Some people that will be installed on an as-needed basis.
Areas where people have to repeatedly step down onto the roof membrane or over expansion joints are protected to prevent the insulation from being compressed.		N/A	
Materials, temporary construction measures, scaffolds, and other equipment are stored and used in a manner that will not damage the roof membrane.		Yes	

There are no Checklist Approvers on this Checklist
THE NEXT INSPECTION FOR THE ROOFING DFM WILL BE CONDUCTED ON JUNE 6TH, 2018.


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INITIAL AND FOLLOW UP INSPECTIONS


ATLO Facility - Inspection Sign Off

Inspection Approval Signatures:


Subcontractor Representative


ZACH WAGNER- HP


Design Team Representative


LUIS HERNANDEZ - DOUGLASS COLONY


Subcontractor Foreman



ALL CREW MEMBERS REVIEWED AND SIGNED THE AHA PRIOR TO STARTING WORK



THE AHA THE CREW WAS USING WAS OUTDATED. THE UPDATED AHA HAS NOW BEEN REVIEWED BY THE CREW



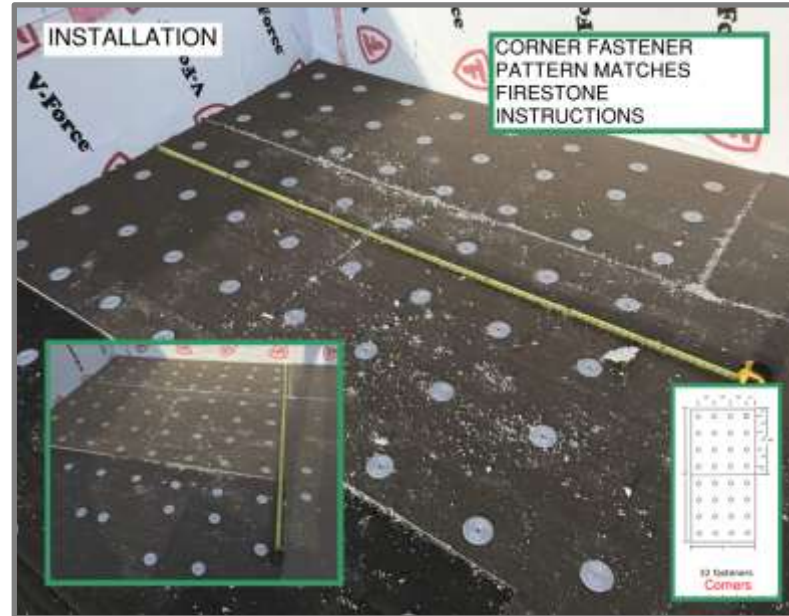


INITIAL AND FOLLOW UP INSPECTIONS

2024 TECHNICAL
ASSISTANCE
PROGRAM
CORPORATE WEBINAR



INITIAL AND FOLLOW UP INSPECTIONS



2024 TECHNICAL ASSISTANCE PROGRAM
CORPORATE WEBINAR

Enhance trade partner awareness and expectations



**SUPPLIER
DIVERSITY**

INTEGRATING QUALITY CONTROL

- List of Required Tests
- Developed Early Once Requirements Are Known
- Reviewed with Trade Partners During 6-Step Process

SPEC SECTION

TEST NAME


DESCRIPTION

METHOD OF TESTING

TESTING CONTRACTOR

PASSING CRITERIA

TESTING FREQUENCY



HENSEL PHELPS

2020 North Main Street

MASTER TEST REGISTER

Project Name

Specification	Paragraph	Test Name	Portion of Work	Description	Method of Testing	Testing Contractor	Passing Criteria	Frequency
04 30 00 00 00 Cast-In-Place Concrete								
04 30 00 00 00	1.3.3.1	Flow Pattern and Location	Concrete	Measure the flow pattern (FP) and flow thickness (FT) number in accordance with ASTM C1113/M.	AST C1113/M	Utman Associates	Overall: FT=31 and FT=31	3 test within 12 hours of placement for each building floor or roof slab.
04 30 00 00 00	1.3.3.2 & 1.3.3.3	Air Content Test	Concrete	Perform air content tests when test specimens are fabricated for air content shall be made on randomly selected batches of each separate concrete mixture.	ASTM C231/C231M for normal weight concrete ASTM C375/C375M for lightweight concrete	Utman Associates	1) 1% of the following as tested for the corresponding location: A-5% for Footings and Grade Beams; B-0% for Foundation Walls; C-0% for Cooling Tower Waterproof Concrete; D-6% Air Entrainment for Slabs and Grouted Piers; E-0% for All Other Uses.	With compressive strength specimens. In addition, at least two tests shall be made on randomly selected batches of each separate concrete mixture produced during each 8-hour period of concrete production. Perform additional tests when excessive variation in workability is reported by the placing foreman or Government inspector. When a single test result reaches either the upper or lower action limit, perform a second test immediately.
04 30 00 00 00	1.3.3.4 & 1.3.3.5	Slump Test	Concrete	Slump tests shall be made of randomly selected batches in accordance with ASTM C 143/C 143M.	ASTM C143/C143M	Utman Associates	4" for Footings & Grade Beams 6" for Grouted Piers 6" for Foundation Walls 6" for Slabs on Grade 4" for Structural Floors, Girders, Beams, & Columns 4" for Cooling Tower Waterproof Concrete 6" for Maximal Wt. Slabs on Metal Deck 4" for All Other Uses	With compressive strength specimens. In addition to slump tests which are made when test specimens are fabricated, at least four slump tests shall be made on randomly selected batches for each separate concrete mixture produced during each 8-hour or less period of concrete production each day. Additional tests shall be made when excessive variation in workability is reported by the placing foreman or Government inspector.
04 30 00 00 00	1.3.3.6	Temperature Test	Concrete	Measure the temperature of the concrete when compressive strength specimens are fabricated in accordance with	ASTM C 1064/C 1064M	Utman Associates	Less than 80 degrees F When Ambient Temp is less than 40 degrees, concrete temp is to be between 50 and 75 degrees F.	With compressive strength specimens.
04 30 00 00 00	1.3.3.7 & 1.3.3.8	Strength Test	Concrete	Perform at least one set of test specimens for compressive or flexure strength as appropriate, on each different concrete mixture placed during the day for each 500 cubic yards. A set of test specimens for concrete shall consist of four specimens, two to be tested at 7 days and two at 28 days.	ASTM C39/C39M ASTM C84/C84M ASTM C78/C78M	Utman Associates	No individual cylinder more than 5% below the design strength and the 5% break average is at least design strength.	Perform at least one set of test specimens for compressive or flexure strength as appropriate, on each different concrete mixture placed during the day for each 500 cubic yards or portion thereof of that concrete mixture placed each day. Perform additional sets of test specimens, as directed by the Contracting Officer, when the material properties are changed or when low strengths have been detected.
04 30 00 00 00	1.3.3.9	Concrete Vibration Test	Concrete	Determine the frequency and amplitude of each vibrator. The frequency shall be determined while the vibrator is operating in concrete with the tachometer being held against the upper end of the vibrator head while almost submerged and just before the vibrator is withdrawn from the concrete. Determine the amplitude with it's head resting in air. Take two measurements, one near the top and another near the upper end of the vibrator head, and these results averaged.	COI C90 C 321	Hensel Phelps	Vibrator operates at the stated frequency and amplitude.	Prior to initial use and at least once a month when concrete is being placed.

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RISK ASSESSMENT DATABASE

Identifies potential concerns that could negatively impact cost and / or schedule.

Division 09 Finishes

Division 09.09 90 00 Painting and Coating

Policies + Forms

Checklists

+

Safety Considerations

+

Preconstruction Considerations

+

Construction Considerations

+

Commissioning / Start-up Considerations

+

Closeout Considerations

Division 09 Finishes

Division 09.09 90 00 Painting and Coating

Policies + Forms

Checklists

+

Safety Considerations

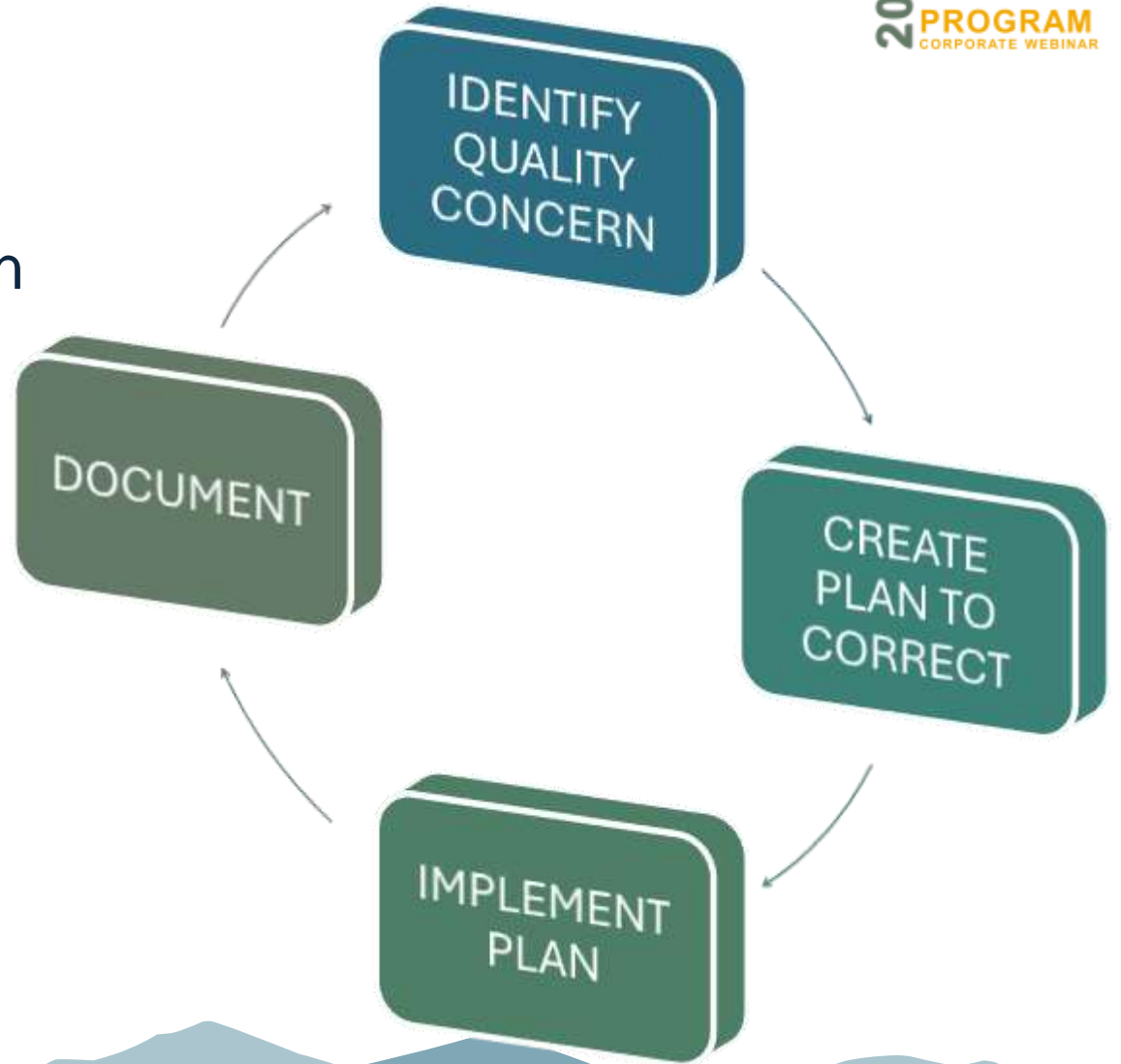
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Preconstruction Considerations

- Determine if block filter is required for CMU walls.
- Semi-gloss and gloss paints will show every imperfection in the substrate. On design-build projects, these paints and their applications should be carefully considered. Areas of concern are corridors, any areas of direct down lighting or metal applications (such as door frames).
- Purchase door frame protection for post finish paint.
- Clearly identify in contract whether conduits, duct, etc. should be painting in and telecom rooms. Define "exposed to view" to match the owner's requirements so the painter will know what interior surfaces need coatings.
- Much like a concrete wash out container, paint cannot just be washed down the drain or onto the ground for a LEED project. During purchasing, make sure that funds for a wash out container of some sort are included in the painter's scope. In one case, it started out as sharing a wash out bin with the concrete trade partner, then evolved into washing into a tipper dumpster full of sand to catch all the chemicals and debris.
- If a texture finish is required on the exterior face of the building, do not allow the trade partner to "roll on" the texture finish. Rolling looks great at the start of the workday, but as the employee fatigues the finish quality drops exponentially. Only allow trade partners to spray apply the texture for a uniform finish all day, every day.
- Buyout final coat of paint of hollow metal doors/frames prior to punchlist or as a punchlist activity. This avoids repeated touch up trips due to continual construction damage.
- Buyout all cleaning and prep of metal stairs with painter. This avoids repeat trips due to cleaning not being satisfactory to the painter.
- Buyout final coat of paint just before punch, and schedule it accordingly. If this has not been discussed, the painter may want more money to tape off the finished surfaces.
- Determine who is responsible (preferably the painter) for preparing (pressure washing) and painting exposed structural steel.
- Determine who will do the caulking for doors and windows. If it's the painter, make sure it's in the contract. Typically, the painter will caulk painted surfaces when dissimilar materials join (such as frames to walls).
- Make sure reasonable "touch up" is included in the subcontract.

QUALITY AUDIT

- Quarterly
- Full Report of Strengths and Action Items
- Follow-Up Action Required



CONTINUOUS IMPROVEMENT PROCESS

2024 TECHNICAL
ASSISTANCE
PROGRAM
CORPORATE WEBINAR



Continuous Improvement
Process

Helps us implement betterments to our
construction methods throughout the project

Do it **BETTER!!!**

Do it **FASTER!!!**

Do it **CHEAPER!!!**

Do it **SAFER!!!**



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Plan. Build. Manage.



Q&A



William Scott

Senior QC Manager



wscott@henselphelps.com

THANK YOU