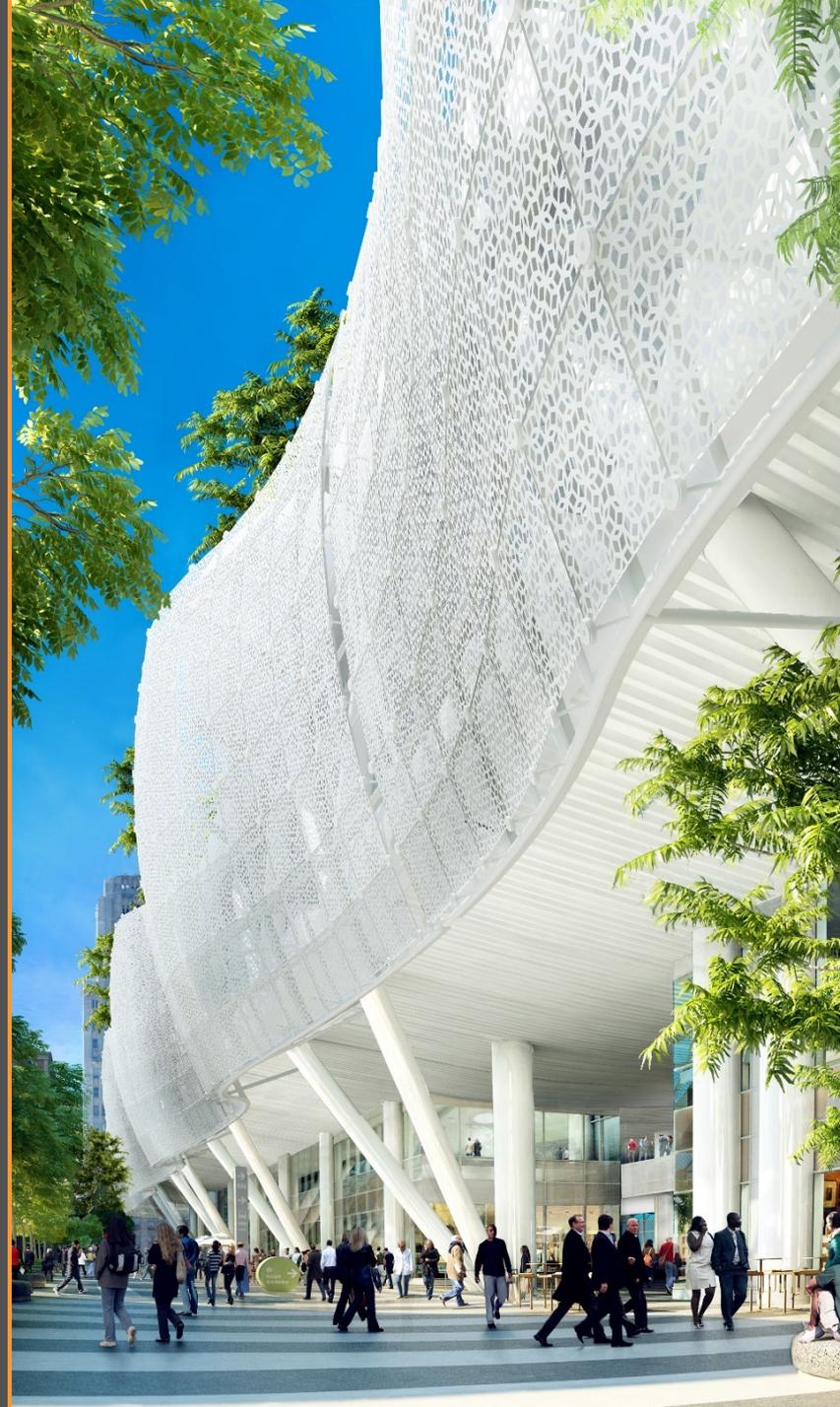
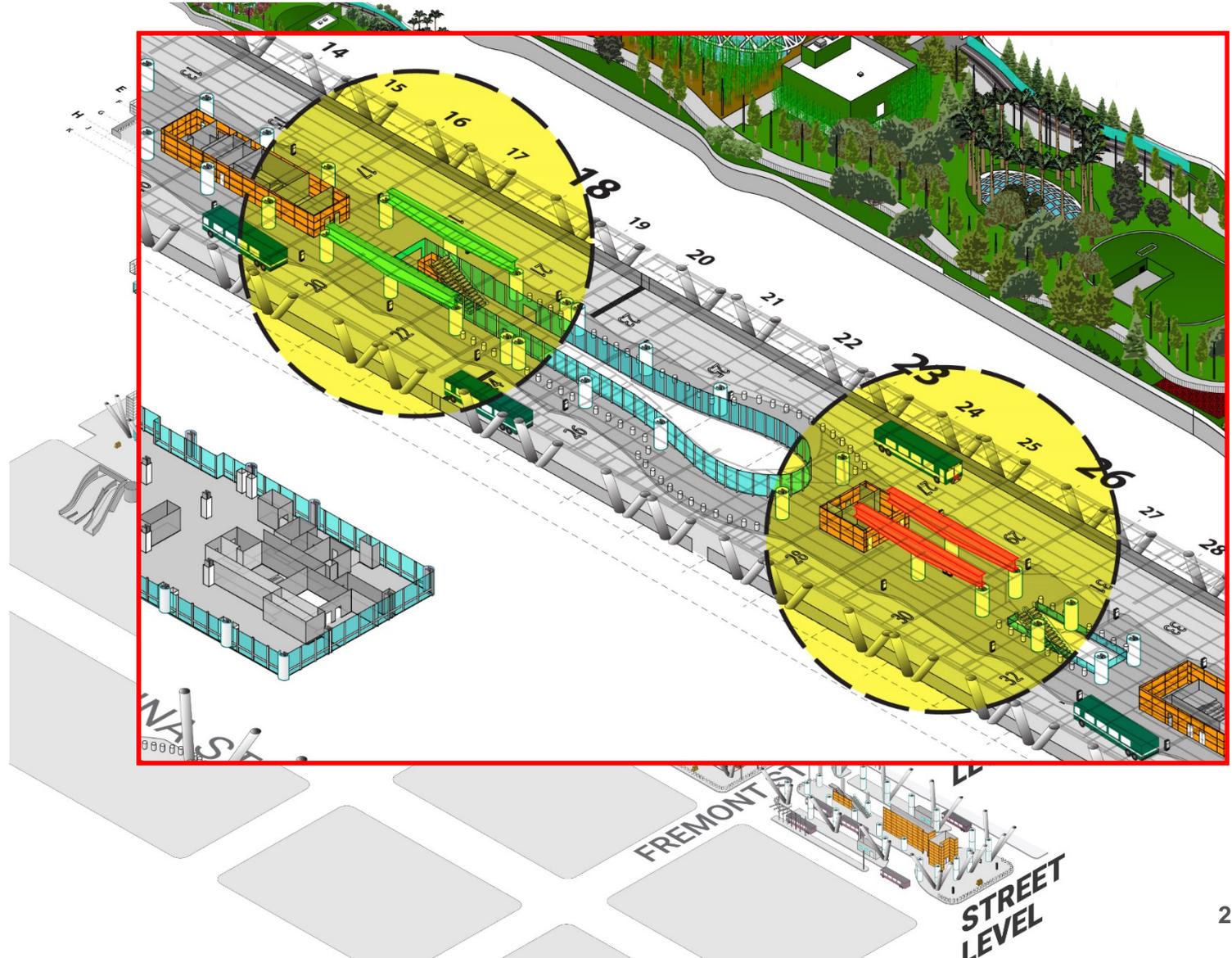


Update on Construction and temporary closure of the Salesforce Transit Center

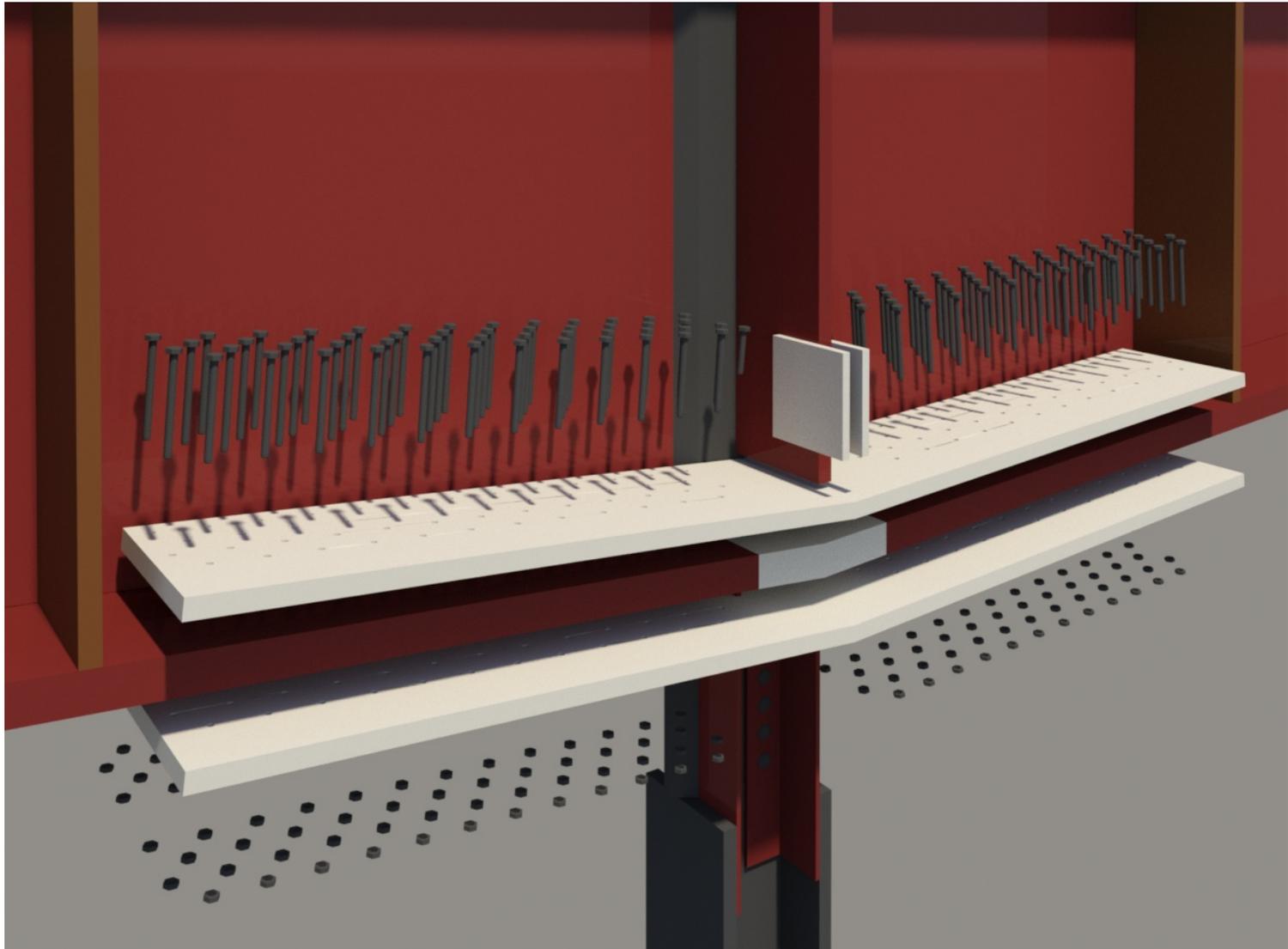
January 10, 2019



Isometric View



Girder Remediation Detail



This graphic has details specific to Fremont street girders

Recent Actions

Actions taken since last Board meeting:

- Fremont Street repair designed and material being procured; MTC Peer Review Panel (PRP) in concurrence
- Same detail proposed at First Street with PRP concurrence
- Load Shedding analysis completed and submitted to the PRP
- Bolts in load path received Ultrasonic/Non-Destructive Testing; no damage detected
- Initiated search for other areas susceptible to brittle fracture. PRP actively participating in review of the effort, supported by Ruby & Associates

Next Steps

January 2019 actions:

- Finite Element Analysis (FEA) ongoing; to be presented to PRP.
- Hanger material sampling and testing.
- Project Team* to finalize criteria with PRP for building-wide search for other areas susceptible to brittle fracture.

Post-January 2019 actions:

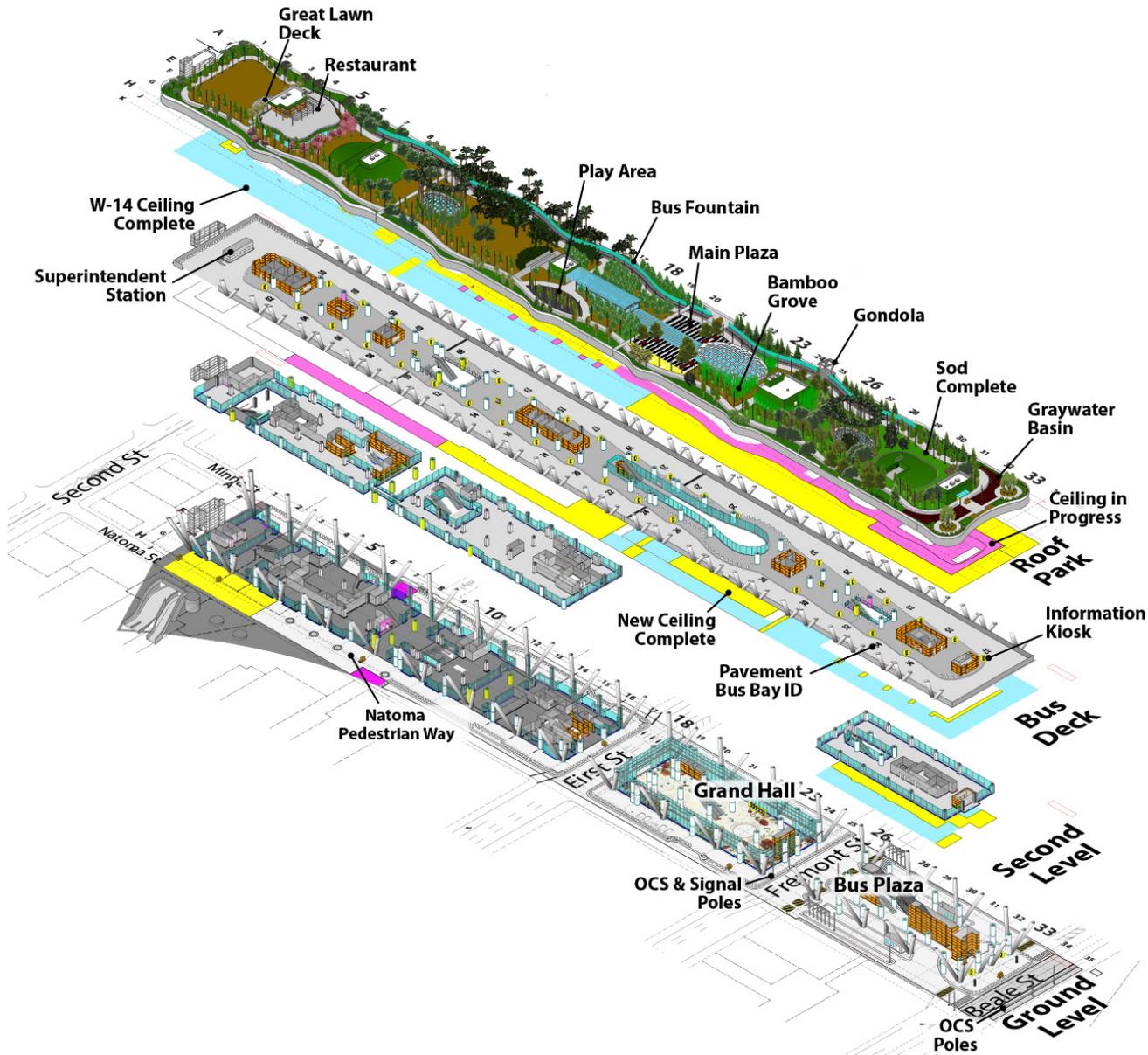
- Follow-up on hanger evaluation and FEA.
- Project Team* continues search for other areas susceptible to brittle fracture with PRP oversight .
- Installation of Fremont and First remediation, and others if necessary.

*Project team consists of TJPA, TT, CM/GC with associated subcontractors and suppliers/fabricators

Schedule

| | December | | | | January | | | | February | | | | March | | | |
|---|---------------------------------------|-------|-------|-------|------------------------------------|------|------|------|------------------------------|-----|------|------|--|-----|------|------|
| | 12/7 | 12/14 | 12/21 | 12/28 | 1/4 | 1/11 | 1/18 | 1/25 | 2/1 | 2/8 | 2/15 | 2/22 | 3/1 | 3/8 | 3/15 | 3/22 |
| MTC ONGOING PEER REVIEW | [Blue bar from 12/7 to 12/28] | | | | [Blue bar from 1/4 to 1/25] | | | | [Blue bar from 2/1 to 2/22] | | | | [Blue bar from 3/1 to 3/22] ONGOING | | | |
| FINDINGS/RESULTS | [Blue bar from 12/7 to 12/14] | | | | | | | | | | | | | | | |
| DESIGN PERMANENT FIX | [Blue bar from 12/7 to 12/14] ◆ 12/14 | | | | | | | | | | | | | | | |
| MTC PEER REVIEW FOR PERMANENT FIX | [Blue bar from 12/7 to 12/19] ◆ 12/19 | | | | | | | | | | | | | | | |
| PERMANENT FIX INSTALLATION Procurement & Installation | [Blue bar from 12/7 to 12/21] ◆ 12/21 | | | | [Blue bar from 1/4 to 1/25] | | | | [Blue bar from 2/1 to 2/22] | | | | [Blue bar from 3/1 to 3/22] TBD | | | |
| PERMANENT FIX SAMPLING & TESTING | | | | | [Blue bar from 1/11 to 1/25] | | | | [Blue bar from 2/1 to 2/8] | | | | | | | |
| REINSTALLATION OF SYSTEMS, FINISHES & CEILINGS | [Blue bar from 12/7 to 12/21] ◆ 12/21 | | | | [Blue bar from 1/4 to 1/25] ◆ 1/02 | | | | [Blue bar from 2/1 to 2/22] | | | | [Blue bar from 3/1 to 3/22] ONGOING | | | |
| MTC PEER REVIEW VERIFICATION | [Blue bar from 12/7 to 12/18] ◆ 12/18 | | | | [Blue bar from 1/4 to 1/25] | | | | [Blue bar from 2/1 to 2/22] | | | | [Blue bar from 3/1 to 3/22] ONGOING | | | |
| PERFORM ANY REQUIRED BUILDING MITIGATION | | | | | | | | | [Blue bar from 2/15 to 2/22] | | | | [Blue bar from 3/1 to 3/22] ONGOING | | | |

Facility-Wide Validation Framework



Facility-Wide Validation Framework

- Reaffirm Structural Integrity of Building
- Revalidate Full Fire & Life Safety Systems
- Review Tests & Inspection Records
 - QA/QC Overview & Status
- Building Management Systems Commissioning
- Develop Re-Occupancy Criteria

Facility-wide Validation Framework

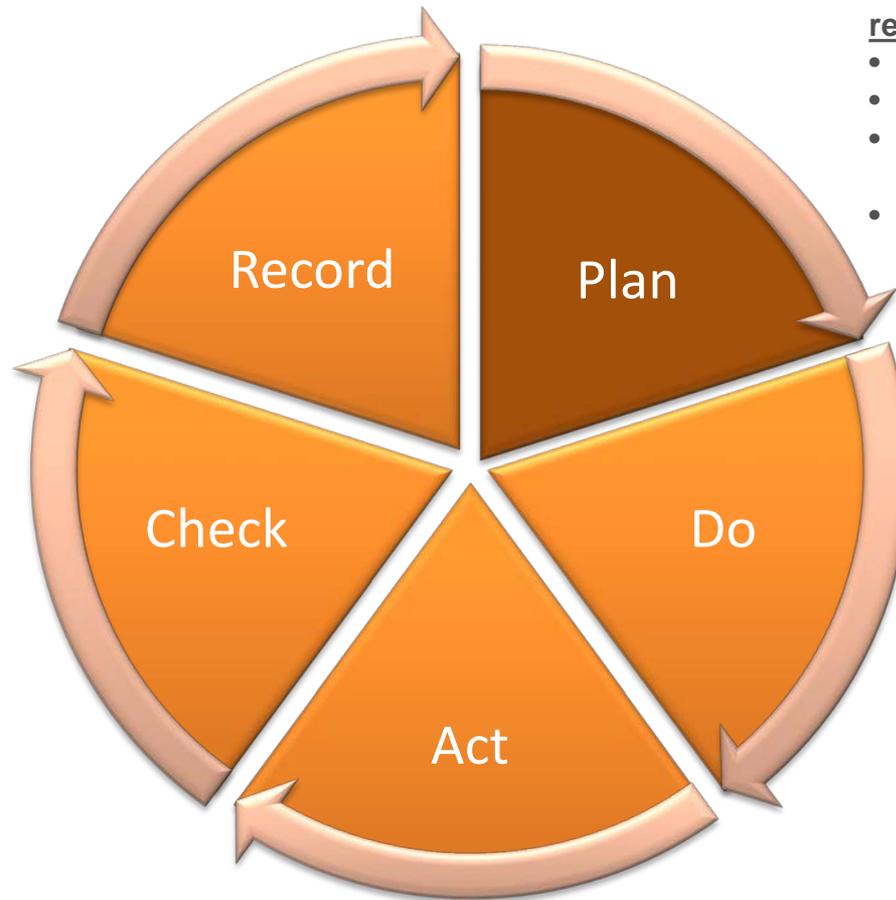
- Reaffirm Structural Integrity of Building
 - Complete Engineering Findings & Reports
 - Fracture-related Investigations
 - Complete PRP Remediation Recommendations
 - Follow PRP Building Evaluation Criteria
- Revalidate Full Fire & Life Safety (F&LS) Systems
 - Authority Having Jurisdiction (AHJ) Accepted Fire & Life Safety Systems Operational; Temporary Certificate of Occupancy issued August, 2018
 - Restore Localized Interruptions Created by Girder Work
 - Test and Recertification of F&LS Systems

Facility-wide Validation Framework

- Review Tests and Inspections
 - Review Inspection Records
 - Interview Inspectors for Areas of Concern
 - Identify/Revisit Areas meeting PRP Evaluation Criteria for re-evaluation / re-inspection
 - Review Field Condition Reports (FCR's) and Non-Compliance Reports (NCR's)
 - Continue to address any open FCR's
 - Address any new FCR/NCR's resulting from PRP evaluation / remediation process
 - Continue FCR and NCR Process through remediation efforts
 - Current FCR/NCR Stats:
- Establish QA/QC Overview and Status

Review Tests & Inspections

QA/QC Overview



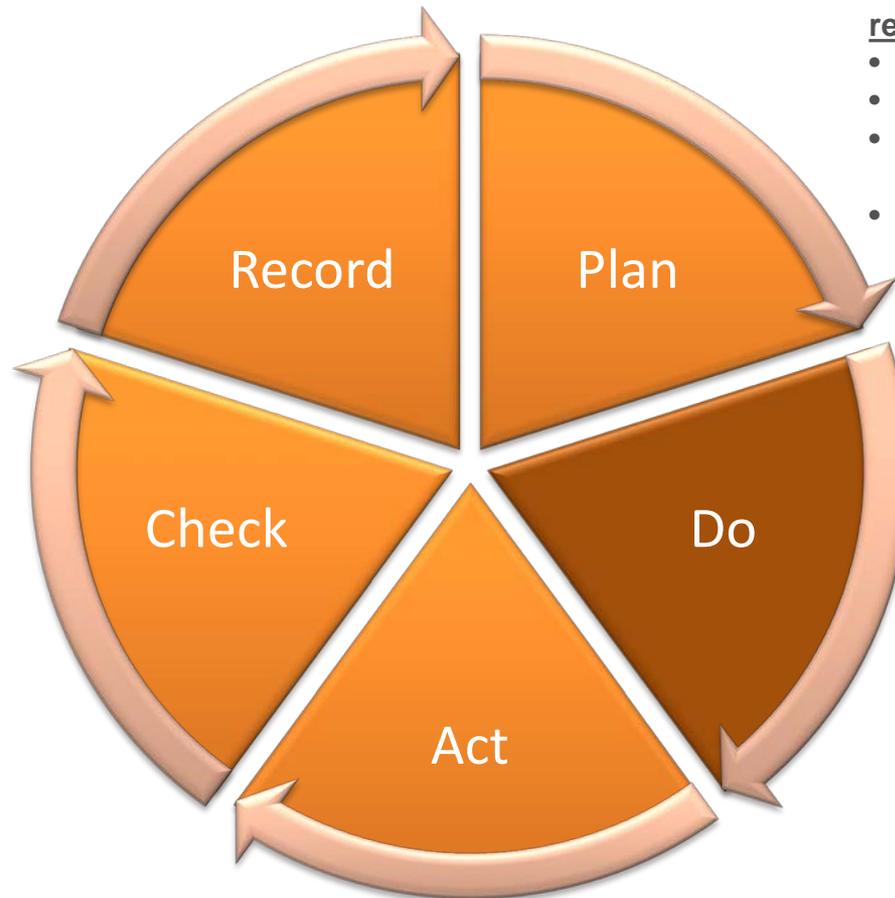
Architects & Engineers provide the design of the Project thus setting the **requirements** through:

- Drawings
- Specifications
- Architectural Supplemental Instructions (ASI)
- Sketches

Quality Efforts in this 'Plan' phase are led by: Design Subject Matter Experts (SMEs)

Review Tests & Inspections

QA/QC Overview



Architects & Engineers provide the design of the Project thus setting the **requirements** through:

- Drawings
- Specifications
- Architectural Supplemental Instructions (ASI)
- Sketches

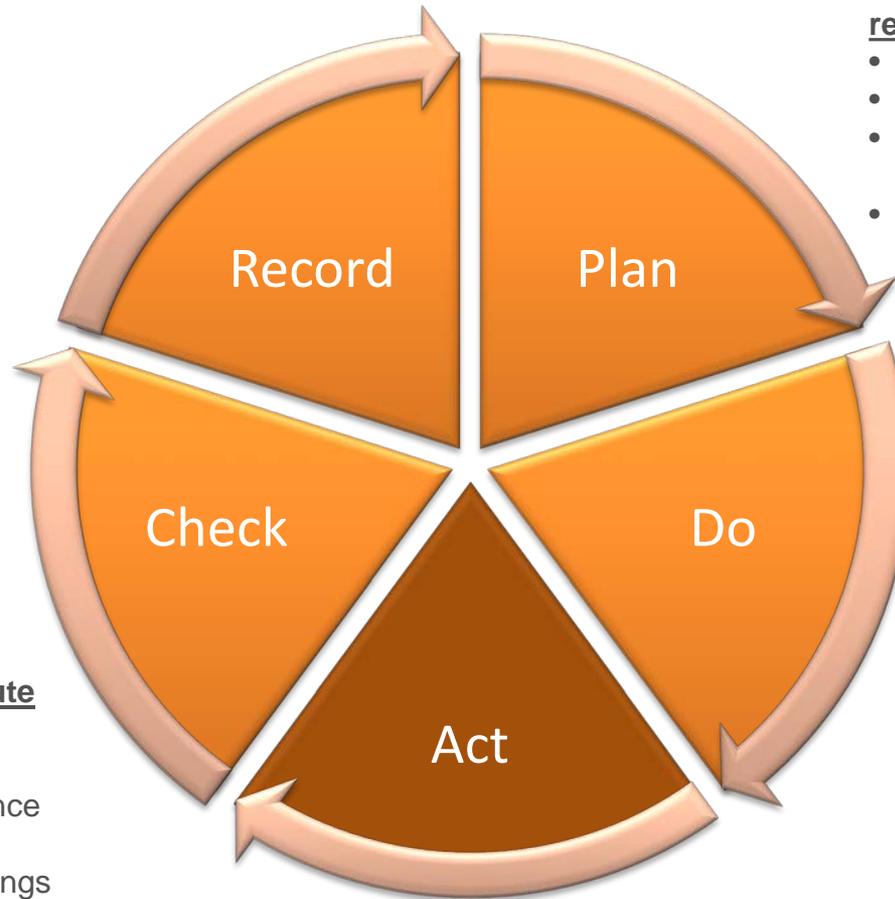
The CM/GC and Trades outline in more detail **how** the requirements will be met during construction through:

- Submittals
- RFIs
- QC Plans
- Logistic Plans
- Schedules
- Mockups
- Reverse Scheduling

Quality Efforts in this 'Do' phase are led by: Construction Manager / General Contractor & Trade Subcontractors

Review Tests & Inspections

QA/QC Overview



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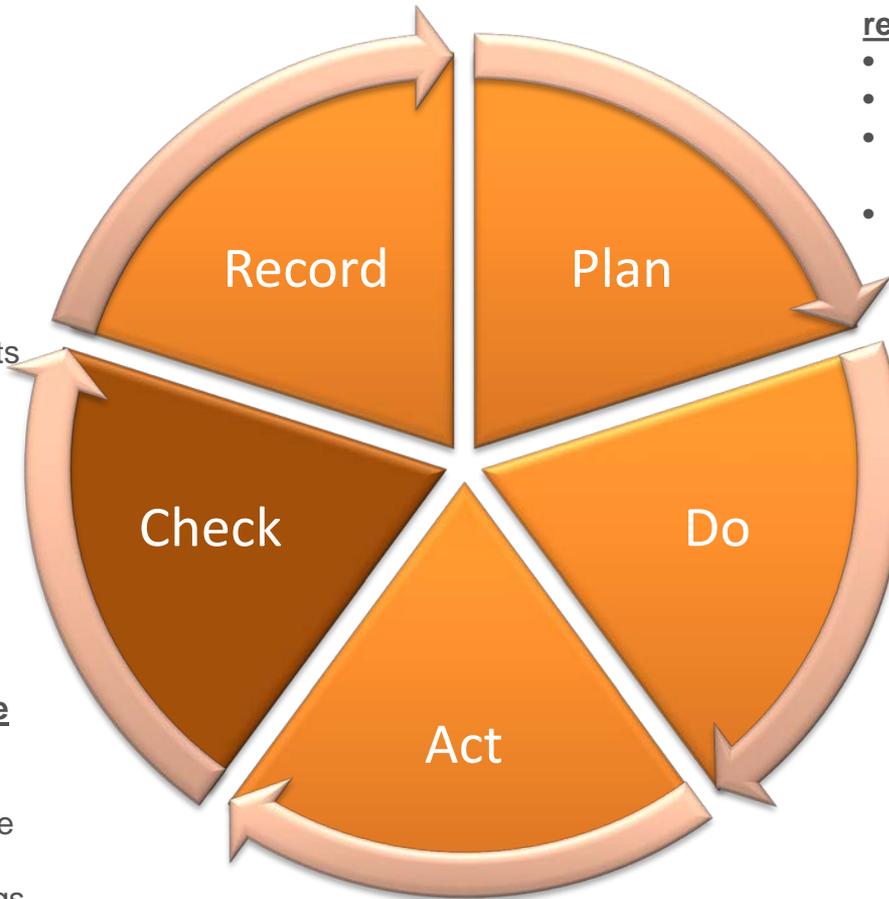
The CM/GC and Trades **execute** the work using QC oversight through:

- Fabrication Surveillance
- Delivery Checklists
- Pre-Installation Meetings
- Installation Checklists
- Submittal & RFI Review

Quality Efforts in this 'Act' phase are led by: Construction Manager / General Contractor & Trade Subcontractors

Review Tests & Inspections

QA/QC Overview



Architects & Engineers provide the design of the Project thus setting the **requirements** through:

- Drawings
- Specifications
- Architectural Supplemental Instructions (ASI)
- Sketches

QA **verifies** that the requirements have been met through:

- Inspection
- Special Inspection
- Tests
- Observation & reporting by Design SME

The CM/GC and Trades **execute** the work using QC oversight through:

- Fabrication Surveillance
- Delivery Checklists
- Pre-Installation Meetings
- Installation Checklists
- Submittal & RFI Review

The CM/GC and Trades outline in more detail **how** the requirements will be met during construction through:

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- QC Plans
- Logistic Plans
- Schedules
- Mockups

Quality Efforts in this 'Check' phase are led by: Program and CMO QA

Review Tests & Inspections

QA/QC Overview

All Parties **record** the compliance with the requirements:

- Material Records
- Daily QC Reports
- Testing Reports
- Calibration Reports
- Completed Checklists

QA **verifies** that the requirements have been met through:

- Inspection
- Special Inspection
- Tests
- Observation & reporting by Design SME

The CM/GC and Trades **execute** the work using QC oversight through:

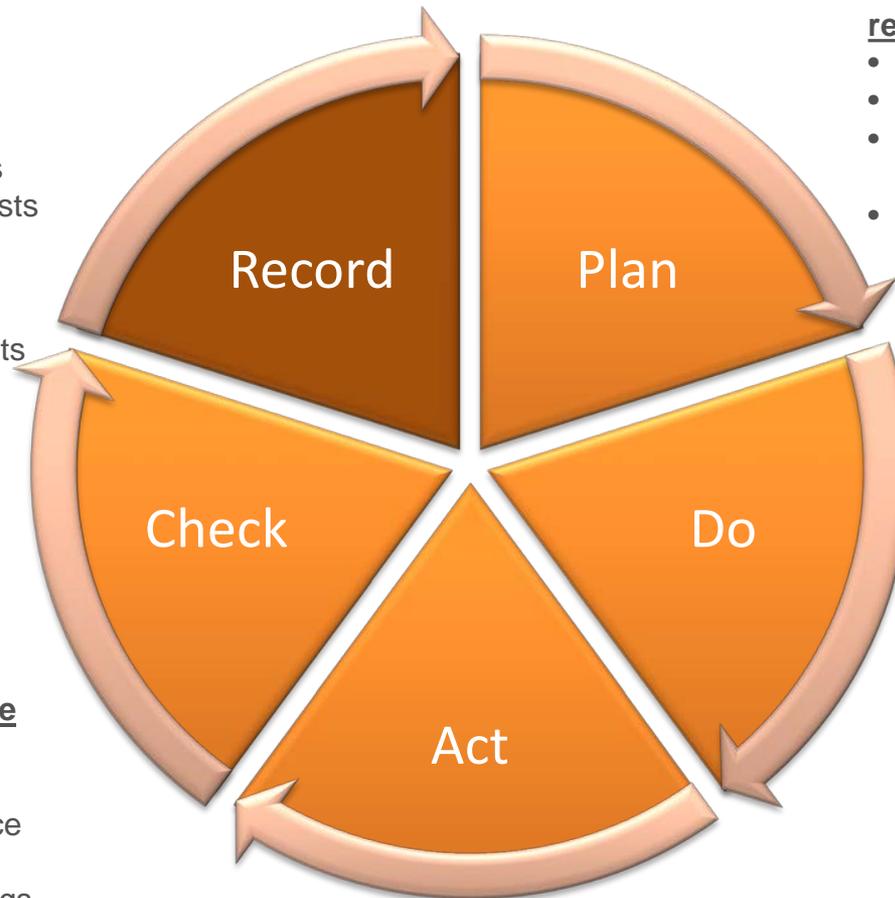
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The CM/GC and Trades outline in more detail **how** the requirements will be met during construction through:

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- RFIs
- QC Plans
- Logistic Plans
- Schedules
- Mockups



Quality Efforts in this 'Record' phase are led by: Construction Manager / General Contractor & Trade Subcontractors

Review Tests & Inspections

QA/QC Overview



Issues Reported on monthly:
 Code and Specialty Inspections
 Construction Quality
 Field Condition Reports
 Non-Conformance Reports

Third Party Oversight Including:
 Department of Building Inspections (DBI)
 San Francisco Fire Department
 Various Agencies: SFMTA, SFPUC, PG&E, DPH, BAAQMD, SF Public Works
 Special Inspections (Inspection Services Inc.)
 Third Party Commissioning (Enovity, Inc.)

Turner

Transbay Transit Center
 Turner Construction Monthly Quality
 119 Main St. San Francisco CA, 941
 November 2015

The following monthly report summary work is performed in accord with Turner Construction Monthly Quality (CMQ) is performed through special inspection of the Contractor's Quality Control (C

Code and Specialty Inspection and
 All special inspections and testing of by Inspection Services Inc. (ISI). At Francisco Department of Building 1 Underground electrical, plumbing and Commission (SFPUC / SFPDW). Do by Turner QA staff for completeness:

- Transbay Transit Center: Types of**
- Concrete Formwork: Curbs, walls
 - Concrete Placement: Curbs, walls
 - Concrete Laboratory Testing: Cur
 - Grout Placement: miscellaneous
 - Electrical Conduits and grounding
 - Electrical Conduits and duct bank
 - Plumbing Piping and Accessories
 - Drilled Expansion Anchors (e.g. J
 - Electrical Conduits and grounding
 - Electrical Conduits and grounding
 - HVAC Duct and Accessories: Wa
 - HVAC Duct and Accessories: Sy
 - Plumbing Piping and Accessories
 - Plumbing Piping and Accessories
 - Fire Sprinkler Piping and Access
 - Fire Sprinkler Piping Hydrostatic
 - Metal Ceiling Systems Framing (V
 - Interior Framing Fire Rated walls
 - Ceilings Pre-Cover-Up final Code
 - Column Cover Pre-Cover-Up fina
 - Wall Systems Pre-Cover-Up final
 - Wall Penetration Firestopping, inspection).
 - Final System Inspections and Tes
 - Structural Steel Welding: Field I

Off-Site Fabrication Facilities: ISI Code weld Inspection and Code weld NDT Testing.

- No inspections this month.

Transbay Center Interior Builds

Bus Ramp Project: Types of In

- No inspections this month.

Field Inspection Requests - BI

| Year and Month | Inspection Requests |
|----------------|---------------------|
| | |

Inspection and testing - Trend

There was a total of 26 Inspe Satisfactory and Closed. WOJV Requested for piping rough in in

A total of one (1) inspection req Turner is tracking the added insp

Field Inspection Requests - Su

| WOJV & Subcontractor |
|--|
| WOJV (Commissioning & final Code Inspection) |
| Anvil Builders/WOJV TG |
| Shimnick TG6.0/7.2 SCS |
| Shimnick TG7.9 BOL |
| Shimnick TG15.2 FAE |
| Shimnick TG18.1 BRP |
| Skanska TG7.1 (SFDDB/IS |
| Obay Steel TG7.3 & TG7 |
| Concrete North TG7.6 |
| Pacific Erectors Metal Wa |
| Southwest Specialties Ceil |
| Crown Corr TG8.11R & T |
| DMI Plumbing/HVAC TG (SFDDB/ISI) |
| Fisk Electric TG 10.4 (SFI |
| Rosendin Electric TG10.4 |
| Transbay Fire Protection T |

| | | | | |
|---|-----------|----------|----------|----------|
| Gordon N. Ball Civil TG12.1 (ISI/QA Surveillance) | 0 | 0 | 0 | 0 |
| Best Waterproofing TG13.2 (SGI QA Surveillance) | 0 | 0 | 0 | 0 |
| McGuire and Hester TG 13.1 (ISI or QA Surveillance) | 0 | 0 | 0 | 0 |
| Otto Elevator Company TG14.1a | 0 | 0 | 0 | 0 |
| Schindler Elevator Corporation TG14.1b | 0 | 0 | 0 | 0 |
| Skanska Interiors TG16.0 (SFDDB/ISI) | 0 | 0 | 0 | 0 |
| Clayton National Fireproofing TG16.8 | 0 | 0 | 0 | 0 |
| Arch. Design and Signs TG17.1 | 0 | 0 | 0 | 0 |
| MSquared TG04.2 & TG04.1 | 0 | 0 | 0 | 0 |
| Metro Electric | 0 | 0 | 0 | 0 |
| Turner Construction (QA Surveillance) | 0 | 0 | 1 | 0 |
| Inspection Requests total: 26 | 25 | 0 | 1 | 0 |

Inspection and Test Records Archive - Autodesk Constructware

Field Inspection Records

All inspections requested requiring Code or Special Inspection and the inspection results are documented using the Autodesk BIM360 Field's "Ins" module. ISI Inspection, Testing and NDE Testing records are reviewed by ISI and again by Turner QA staff for completeness and accuracy prior to uploading in Constructware.

Lab Inspection and Test Records

During the month lab testing of concrete sample cylinders continues - with testing occurring and reported at 7 days, 14 days, 28 days and 56 days in accord with the concrete specifications, but the testing is archived as one summary Test Report. All Test Reports (TR) and results are recorded in BIM360 Field and archived in Constructware. All special inspection and testing records are reviewed by an ISI Supervisor and again by Turner QA staff for completeness and accuracy prior to archiving.

Code Inspection and Test Records

All Agency code inspections and tests are completed by PG&E, SFPDW, SFPUC, SFFD or SFDDBI with results recorded using Autodesk BIM360 Field software program.

Construction QA/QC coordination

Standing QA/QC meetings:

Turner continues active participation in QA/QC coordination with the TJPA Program QA Manager (QE), the WOJV Construction QC Manager and Trade Subcontractor QC Managers as follows:
 Weekly QA/QC coordination meetings: None.
 Bi-Weekly Bus Ramp Close Out meeting: None.
 Weekly Punch Look ahead meetings: None
 Review of Webcor/Obayashi's warranty/training schedule DUE/Attic stock: None.

Special QA/QC coordination meetings:

No Commissioning Meeting this month

Review Tests & Inspections

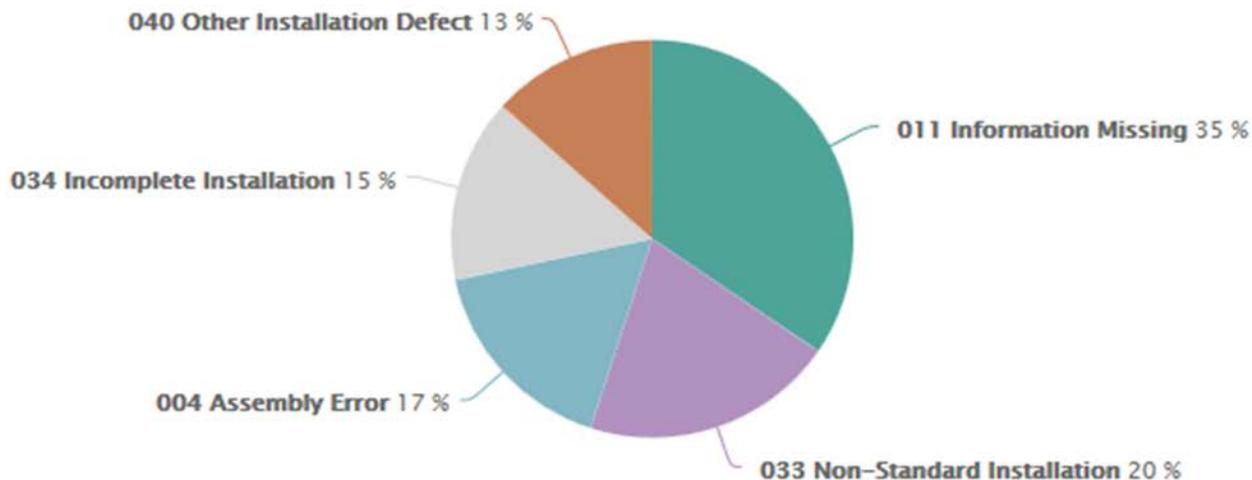
QA/QC Overview



QA/QC to date has been produced:

| | |
|---------------------------|---------------|
| Total Inspections: | 21,333 |
| Closed: | 18,522 |
| Cancelled: | 2,106 |
| Rejected: | 530 |
| Ongoing: | 145 |

Inspection Failure Root Causes: (277 NCRs+2,491 FCRs = 2,768 items)



Building Management Systems Commissioning

■ Commissioning Process

- Pre-functional Check-list
 - Successfully Complete Inspections
 - Receive and Accept Operations & Maintenance Manuals
 - Operational and Maintenance Staff Trained
 - Developed Sequence of Operations
 - Developed Testing Procedure Plan
- Functional Performance Testing
 - Implement Testing Plan
 - Measure, Monitor & Report on Functional Test
 - Validate Systems Performance

■ Normal Operations

- Continual Systems Operational Parameters Monitored
- Real-time Systems Reporting and Alarming of Issues or Failures

Building Management Systems Commissioning

| | January | | | | February | | | | March | | | | | April | | | | |
|--|---|------|------|------|----------|-----|------|------|-------|-----|------|------|------|-------|------|------|------|--|
| | 1/4 | 1/11 | 1/18 | 1/25 | 2/1 | 2/8 | 2/15 | 2/22 | 3/1 | 3/8 | 3/15 | 3/22 | 3/29 | 4/5 | 4/12 | 4/19 | 4/26 | |
| HVAC Equipment & Controls | | | | | | | | | | | | | | | | | | |
| Air Handling Units | | | | | | | | | | | | | | | | | | |
| Cooling Towers & Variable Frequency Drives (VFD) | | | | | | | | | | | | | | | | | | |
| Computer Room Air Conditioning (CRAC) units | | | | | | | | | | | | | | | | | | |
| Heat Pumps | | | | | | | | | | | | | | | | | | |
| Radiant Flooring | | | | | | | | | | | | | | | | | | |
| Stair Pressurization | | | | | | | | | | | | | | | | | | |
| Exhaust Fans | | | | | | | | | | | | | | | | | | |
| Supply Fans | | | | | | | | | | | | | | | | | | |
| Dampers / Actuation | | | | | | | | | | | | | | | | | | |
| Domestic Hot Water System | | | | | | | | | | | | | | | | | | |
| Building Management Control System | | | | | | | | | | | | | | | | | | |
| (BMCS) Mechanical | | | | | | | | | | | | | | | | | | |
| (BMCS) Electrical | | | | | | | | | | | | | | | | | | |
| Lighting Systems Control | | | | | | | | | | | | | | | | | | |
| Occupancy Sensors | | | | | | | | | | | | | | | | | | |
| Daylight Dimming | | | | | | | | | | | | | | | | | | |
| Switching Systems | | | | | | | | | | | | | | | | | | |
| Time Schedules | | | | | | | | | | | | | | | | | | |
| General Electrical Systems | | | | | | | | | | | | | | | | | | |
| Uninterrupted Power Supplies (UPS) | | | | | | | | | | | | | | | | | | |
| Generators & ATS Systems | | | | | | | | | | | | | | | | | | |
| Transformers | | | | | | | | | | | | | | | | | | |
| Electrical Distribution Boards | | | | | | | | | | | | | | | | | | |
| Power & Energy Monitoring | | | | | | | | | | | | | | | | | | |
| Fire Alarm System | Completed with Recertification Pending Structural Repairs | | | | | | | | | | | | | | | | | |
| Fire Suppression System | Completed with Recertification Pending Structural Repairs | | | | | | | | | | | | | | | | | |
| Vertical Transportation | Completed | | | | | | | | | | | | | | | | | |

Partial
 Recommissioning
 Pending
 Structural
 Repairs



Thank You

TJPA
TRANSBAY JOINT POWERS AUTHORITY

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