

# Transbay Transit Center Commissioning for LEED

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Prepared For:

**Transbay Joint Power Authority** 



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# OUTLINE

- 1. What is Commissioning (Cx)?
- 2. Cx Benefits
- 3. Cx Scope
- 4. Cx Current Status
- 5. Cx Requirements
- 6. Cx Deliverables



# WHAT IS COMMISSIONING?

A quality assurance process for verifying and documenting proper equipment and system installation and performance per the Owners Project Requirements (OPR), Basis of Design (BOD) and construction documents.

- Verify systems operation
- O&Ms
- Verify Training
- Warranty Phase work included
- Commissioning is a Prerequisite for LEED Certification



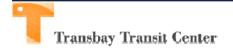
## COMMISSIONING BENEFITS

#### **Contractor Benefits**

- Smoother, more predictable schedule flow with decreased delays from systems in Cx Scope
- Reduced contractor call-backs & warranty claims

#### Owner and Occupant Benefits

- Energy savings to the owner
- Fully optimized functionality of building systems
- Better indoor air quality and comfort
- Reduced HVAC, EMCS & electrical problems found while maintaining equipment
- Longer equipment life
- Better trained O&M staff





### COMMISSIONING SCOPE

#### **Enovity will commission the following LEED systems:**

- Mechanical Systems
  - Central Building Automation System (BAS)
  - HVAC Equipment
  - HVAC Distribution Piping and Ductwork
- Electrical Systems
  - Lighting Controls Systems (scheduled and occupancy)
  - Daylight Dimming Controls Systems
- Plumbing Systems
  - Domestic Hot Water Systems





# **COMMISSIONING SCOPE**

#### **Enovity will also commission the following Non-LEED systems:**

- Additional Mechanical Systems
  - Refrigeration systems
- Additional Electrical Systems
  - Distribution (switchgear, panelboards)
  - Generator systems
  - Uninterruptible power systems
- Additional Plumbing systems
  - Graywater and Reclaimed Water Systems
- Fire Alarm and Suppression Systems

- Vertical Transportation Systems
- Ramps
- Traffic Signaling Systems
- Security and Access Systems
- Communication Systems
  - PA
  - Phone
  - CCTV
  - AV
  - IT
  - Telecom
  - Digital Signage

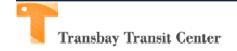




# COMMISSIONING CURRENT STATUS

- Commissioning is a Design, Construction and Warranty Phase process
  - Currently in Design Phase
- Assisted owner in developing the OPR document
- Assisted MEP Design Engineer in developing the BOD document
- Completed Commissioning specifications for inclusion in bid documents detailing Contractor and CxA requirements
- Completed detailed Design reviews at 100%DD and 50%CD milestones
  - Working with MEP Engineer to implement comments
- Completed Design Phase Commissioning Plan
- Working on Construction Phase Commissioning Plan
- Working with Webcor and Turner regarding Commissioning activity and milestones being incorporated into overall construction schedule





# COMMISSIONING REQUIREMENTS

- Provide Commissioning Specifications detailing the commissioning procedure for each scoped system
- Inclusion of Commissioning schedule tasks into overall schedule
- Team cohesion to achieve benefits
- Clear and timely communication to maximize effectiveness

# COMMISSIONING REQUIREMENTS

- Enovity is Commissioning Authority as agent of the Owner
- Reviews design documents and submittals
- Wrote commissioning specifications
- Develops pre-functional and functional test forms
- Witnesses pre-start checks, equipment startups, TAB, and functional tests
- Documents commissioning history for the Owner and O&M staff
- Is not responsible for design of systems



# COMMISSIONING DELIVERABLES

- Fully operating systems that meet design intent
- All accompanying documentation
- Complete and documented training of staff
- Complete O&M manuals as required
- Team assistance in creating LEED Systems Manual





# QUESTIONS

#### **Questions and Discussion**





# enovity

#### energy innovation integrity

Providing commissioning, energy engineering, sustainable design and building operations and maintenance services to the construction and property management industry.