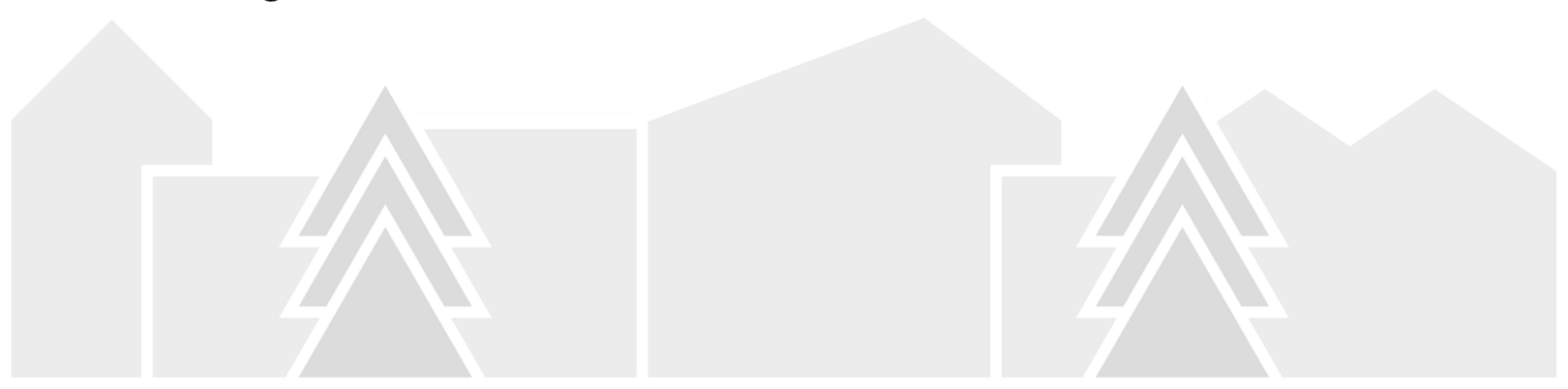


# OREGON HOUSING & COMMUNITY SERVICES **Multifamily Energy Program**

## Verification Protocols

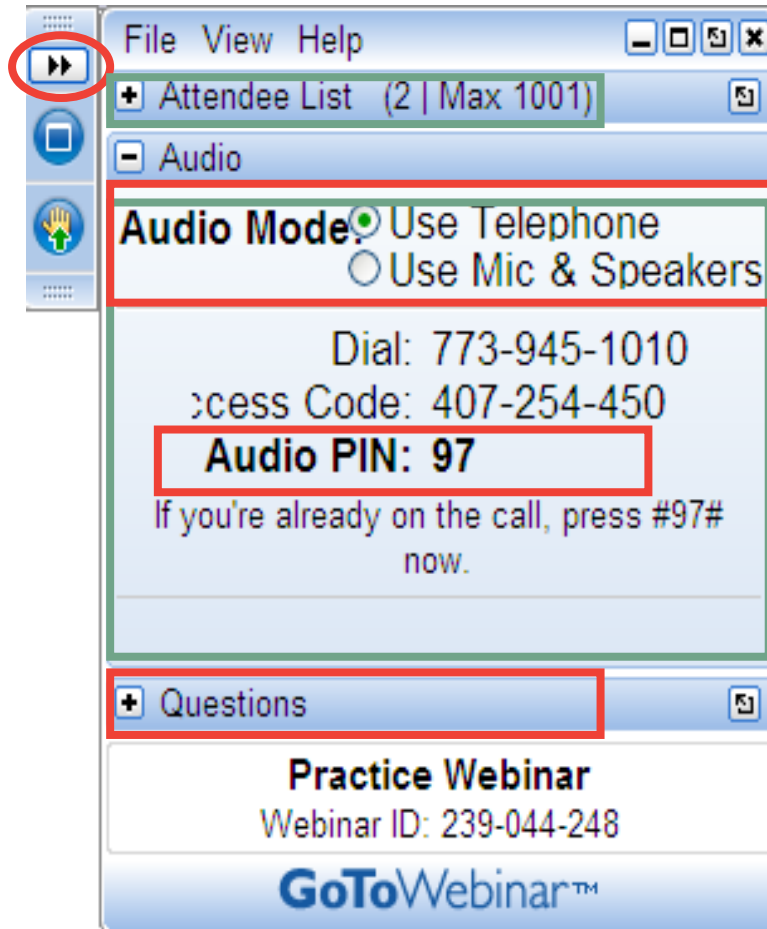
**Date:** June 27, 2019

**Presenter:** Mekha Abraham



# USING GOTOWEBINAR

Open and close  
your **control panel**



Choose **audio mode**

Questions will be  
taken  
at the end of the  
presentation.

Enter your **audio pin**

Type **questions** in  
the chat box

# REGISTER FOR UPCOMING TRAININGS

- ◆ Thursday, July 25, 2019, 12pm:

*All Things Solar for Affordable Multifamily* | [REGISTER NOW](#)

**REGISTER**

for the monthly newsletter  
to stay updated on future  
trainings!



OREGON HOUSING & COMMUNITY SERVICES  
**Multifamily Energy Program**



POWERED BY ENTERPRISE COMMUNITY PARTNERS

## Measuring Opportunity

Discover Enterprise Community Partners' Opportunity360 tool which



## Training Series Launch

We are excited to launch our 2019 webinar training series, which will occur at noon on the 4th Thursday of

# VERIFICATION PROTOCOLS

## AGENDA

**WHY?**

**WHAT?**

**WHO?**

**WHEN?**

**HOW?**

# VERIFICATION PROTOCOLS

**WHY?**

**WHAT?**

**WHO?**

**WHEN?**

**HOW?**

# WHY VERIFICATION?

**To verify measures are installed as proposed to issue program incentives and be sure program funds are utilized properly.**



**To confirm measures are properly installed as proposed and with high quality to ensure energy savings estimated is realized.**



**To maximize energy savings benefit of proposed measures for owners and tenants through comprehensive verification.**

# VERIFICATION PROTOCOLS

WHY?

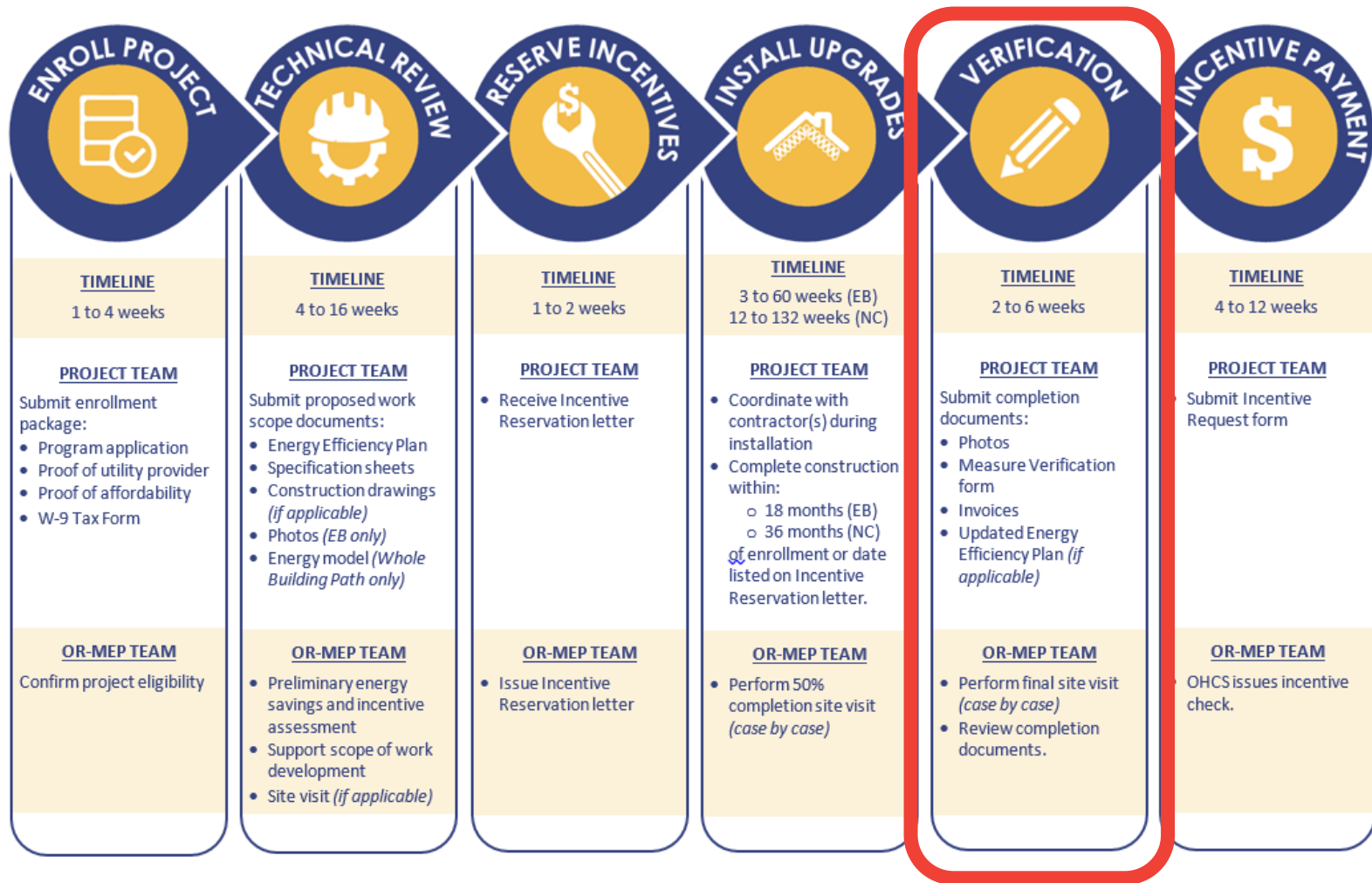
WHAT?

WHO?

WHEN?

HOW?

# WHAT IS VERIFICATION?





# WHAT IS VERIFICATION?



## Required Submittal Documents

- ◆ Photos
- ◆ Measure Verification Form
- ◆ Invoices
- ◆ Updated Energy Efficiency Plan (if scope changed)

# ON-SITE INSPECTION BY OR-MEP STAFF

- ◆ **On-site inspections by OR-MEP staff are completed at random.**
  - To ensure installation quality and compliance with incentive requirements, OR-MEP reserves the right to inspect any project at any time.
- ◆ **For selected projects, the OR-MEP Energy Advisor will work with the Participant to schedule these on-site verifications.**

# VERIFICATION PROTOCOLS

WHY?

WHAT?

WHO?

WHEN?

HOW?

# WHO'S INVOLVED IN VERIFICATION?

## Project Team

- ◆ Owner/Developer
- ◆ Contractor
- ◆ Third Party Verifier
  - Energy Consultant
  - Architect
  - Other

## OR-MEP Team

- ◆ OR-MEP Energy Advisor

# VERIFICATION PROTOCOLS

WHY?

WHAT?

WHO?

WHEN?

HOW?

# VERIFICATION TIMELINE

**Before  
construction  
starts...**

- Begin planning for verification when scope of work is finalized and prior to construction start with key team members.
- Identify schedule of when measures will be installed, and when third party verifier will need to be onsite.

**During  
construction...**

- Timing is key! Capture photos of measures before they are no longer visible/accessible (*i.e. wall insulation measures before drywall installed*)

**After  
construction is  
completed...**

- Assemble verification submittal documents (*i.e. photos, Measure Verification Form, invoices, etc.*) and submit to your project's OR-MEP Energy Advisor.

# MAXIMIZE EFFORTS

All OHCS funded projects required to follow the Sustainable Development Standards of the Project Development Manual (PDM) can leverage verification requirements from those programs to satisfy OR-MEP requirements.

## ◆ New Construction:

- Enterprise Green Communities
- Earth Advantage Homes
- LEED for Homes

## ◆ Existing Buildings

- Enterprise Green Communities

# VERIFICATION PROTOCOLS

WHY?

WHAT?

WHO?

WHEN?

HOW?



# WHAT IS VERIFICATION?



## Required Submittal Documents

- ◆ Photos
- ◆ Measure Verification Form
- ◆ Invoices
- ◆ Updated Energy Efficiency Plan *(if scope change)*

# MEASURE VERIFICATION FORM

OREGON HOUSING & COMMUNITY SERVICES  
Multifamily Energy Program



## Measure Verification Letter

I, \_\_\_\_\_ of \_\_\_\_\_  
(Third Party Verifier) (Third Party Verifier Company)  
confirm I conducted a field verification at \_\_\_\_\_ to verify  
(Project Name)  
the property completed the work scope listed in the table below in accordance with Oregon Housing  
and Community Services Multifamily Energy Program protocols, on \_\_\_\_\_  
(Date of test-out verification)

Measure	Specification	Cost
Total cost:		

Signed,

\_\_\_\_\_  
Electronic Signature  
(Please type first and last name)

\_\_\_\_\_  
Date



503.505.6787

[OregonMultifamilyEnergy@trccompanies.com](mailto:OregonMultifamilyEnergy@trccompanies.com)  
[www.oregonmultifamilyenergy.com](http://www.oregonmultifamilyenergy.com)

## To be completed by third party verifier:

- Energy Consultant
- Architect
- Other

# MEASURE VERIFICATION FORM

OREGON HOUSING & COMMUNITY SERVICES  
**Multifamily Energy Program**



## Measure Verification Letter

I, Jane Smith of ABC Verifiers,  
*(Third Party Verifier)* *(Third Party Verifier Company)*

confirm I conducted a field verification at Main Street Apartments to verify  
*(Project Name)*

the property completed the work scope listed in the table below in accordance with Oregon Housing  
and Community Services Multifamily Energy Program protocols, on June 27, 2019.  
*(Date of test-out verification)*

# MEASURE VERIFICATION FORM

Measure	Specification	Cost
Wall Insulation	R-30	\$170,072
Windows	U-0.23, SHGC-0.29	\$20,458
Doors	R-5	\$3,360
Attic/Roof Insulation	R-60	\$3,478
Reduced Infiltration	3.5 ACH50	\$27,722
VRF Heat Pumps	12.0 HSPF, 15.0 SEER	\$74,531
Energy Recovery Ventilation	70% recovery efficiency	\$105,625
Refrigerators	358 kWh, ENERGY STAR	\$10,800
Dishwashers	270 kWh, ENERGY STAR	\$12,000
LED Interior Lighting	100% LED's in Apartment Units, Corridors, and Stairwells.	\$34,364
Total cost:		\$462,410

Signed,

Jane Smith

**Electronic Signature**  
(Please type first and last name)

June 27, 2019

**Date**

# INVOICES

- ◆ **Submit invoices with totals costs for each installed measure.**
  - If invoices are complex, submit summary of labor and material costs for each installed measure on company letterhead.

**TIP: Reach out to your project's OR-MEP Energy Advisor if you are unsure of invoice documentation.  
We are here to help!**

# PHOTOS

- ◆ **Submit photos of all installed measures.**
  - Photos should clearly show equipment name plates, make/model number, levels of insulation, etc.
- ◆ **How to Submit Photos:**
  - Option 1: Use OR-MEP Verification Photo Template
  - Option 2: Submit in zip files, with photos organized in individual folders for each installed measure.

# PHOTO TEMPLATE

## OREGON HOUSING & COMMUNITY SERVICES Multifamily Energy Program



### Instructions:

Use this template as a sample format to submit photos for the Verification submittal for the OHCS Multifamily Energy Program (OR-MEP). Add, delete or re-size photo boxes and descriptions as necessary. OR-MEP suggests compressing the resolution of photos prior to inserting into the template to make the file size more manageable, however all nameplates and details demonstrating compliance must be clearly identifiable.

Common measures are listed based on end use. For unique measures, enter photos as "additional measures". Photos are only required for measures that are in approved OR-MEP scope of work. Measures that are not applicable to project can be left blank or deleted.

*Tip: Once the cursor is inside the desired photo box, select "Insert" > "Picture" > "From File" from the menu above in order to automatically resize the photos to fit the boxes.*

### Verification Photo Template Version 1.0

Main Street Apartments  
123 Main Street, Salem, Oregon  
June 27, 2019

503.505.6787  
OregonMultifamily@trccompanies.com  
www.oregonmultifamilyenergy.com

## APPLIANCES

### Refrigerators

Notes: Nameplate (list model number here if illegible)	Notes: ENERGY STAR label (if applicable)

### Dishwashers

Notes: Nameplate (list model number here if illegible)	Notes: ENERGY STAR label (if applicable)

Page | 4

# PHOTOS BELOW GRADE WALLS

*Include a photo clearly identifying type of insulation installed and thickness using ruler.*





# PHOTOS

## ABOVE GRADE WALLS - EXTERIOR

*Include a photo clearly identifying type of insulation installed and thickness using ruler.*



# PHOTOS

## ABOVE GRADE WALLS - INTERIOR

*Include a photo clearly identifying type of insulation installed and thickness using ruler.*



# PHOTOS ROOF/ATTIC

Include a photo clearly identifying type of insulation installed and thickness using ruler.



# PHOTOS

## FLOORS ABOVE UNCONDITIONED SPACE

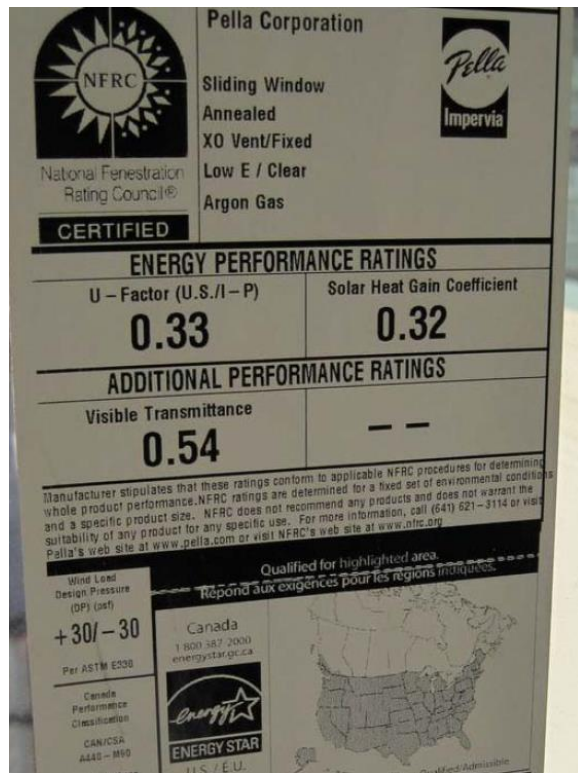
Include a photo clearly identifying type of insulation installed and thickness using ruler.





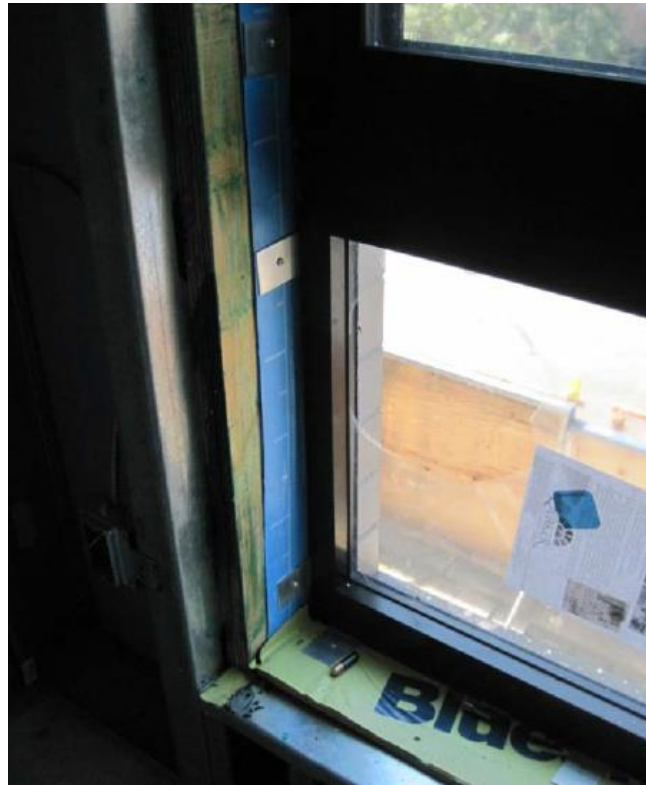
# PHOTOS WINDOWS

*Include a photo of each unique window type with details of U-value, SHGC (ie: specification sheet, NFRC label if applicable).*



# PHOTOS WINDOWS

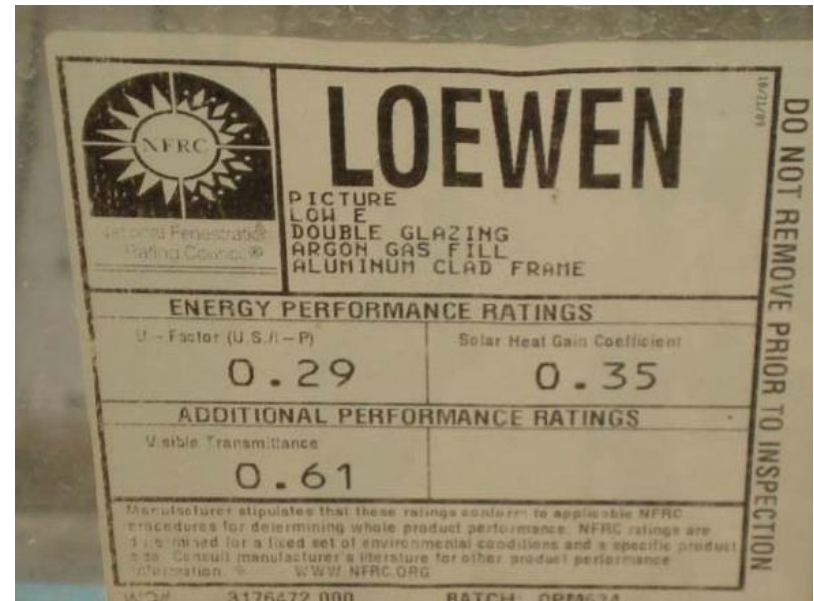
*Include a photo of installed window that verifies proper fit and effective connections to envelope's weather and air barriers.*



# PHOTOS

## EXTERIOR DOORS

*Include a photo of each unique door type with details of U-value, SHGC (ie: specification sheet, NFRC label if applicable).*



# PHOTOS

## EXTERIOR DOORS



*Include a photo of installed door that verifies proper fit and effective connections to envelope's weather and air barriers.*





# PHOTOS

## AIR SEALING - EXTERIOR

*Include representative photos of air barrier at all types of typical joints, junctions, and general coverage areas.*



A/C Opening



Windows

# PHOTOS

## AIR SEALING - EXTERIOR

*Include representative photos of air barrier at all types of typical joints, junctions, and general coverage areas.*



Door Opening



Door Frame

# PHOTOS

## AIR SEALING - EXTERIOR

*Include representative photos of air barrier at all types of typical joints, junctions, and general coverage areas.*



Transition Between Wall and  
Roof Barrier



Plank/Slab Edge (*Masonry and Steel  
Construction*) or Rim Joist (*Wood  
Framed Construction*)

# PHOTOS

## AIR SEALING - INTERIOR

*Include representative photos of air barrier at all types of typical joints, junctions, and general coverage areas.*



Rough Openings to Windows  
and Door



A/C Opening



# PHOTOS

## AIR SEALING - INTERIOR

*Include representative photos of air barrier at all types of typical joints, junctions, and general coverage areas.*



Window to Interior Gypsum  
Board



A/C Sleeve Sealed to Drywall

# PHOTOS

## AIR SEALING - INTERIOR

*Include representative photos of air barrier at all types of typical joints, junctions, and general coverage areas.*



Outlet/Electrical Box – Exterior  
to Demising Walls

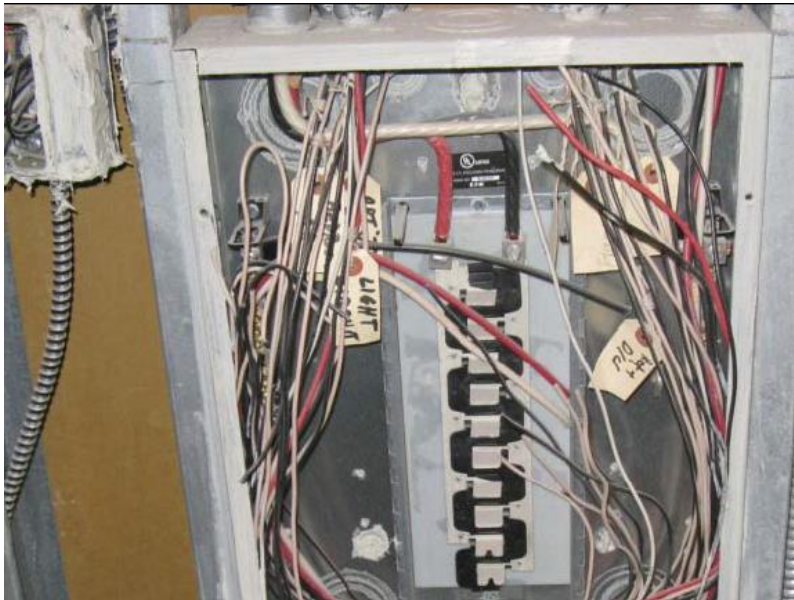


Pipe Penetration through Interior &  
Exterior Walls

# PHOTOS

## AIR SEALING - INTERIOR

*Include representative photos of air barrier at all types of typical joints, junctions, and general coverage areas.*



Electrical Panel



Thermostats

# PHOTOS

## AIR SEALING

### A Note on Blower Door Testing

- ◆ OR-MEP does not require blower door testing. However, blower door testing may be necessary for scopes of work with high infiltration reductions, where air sealing is contributing to significant savings.
- ◆ Blower door testing is encouraged and recommend to maximize air sealing related savings.

### Additional Resources

- ◆ ENERGY STAR Thermal Bypass Checklist



# PHOTOS HEATING & COOLING SYSTEMS

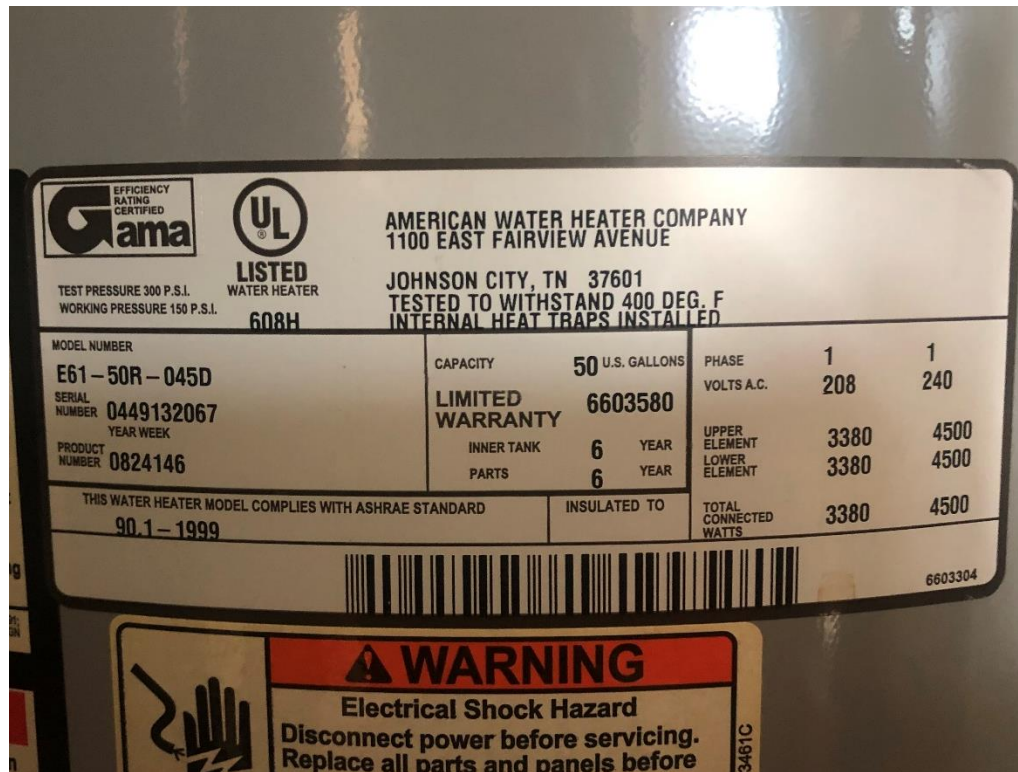
*Provide photos of each unique heating and cooling system and nameplates to verify proper installation and compliance with proposed design.*



# PHOTOS

## DOMESTIC HOT WATER

*Provide photos of each unique DHW system and nameplate to verify proper installation and compliance with proposed design.*



# PHOTOS

## DOMESTIC HOT WATER

Include a clear photo of each type of plumbing fixture being inspected indicating the flow rate.



Faucet Aerator



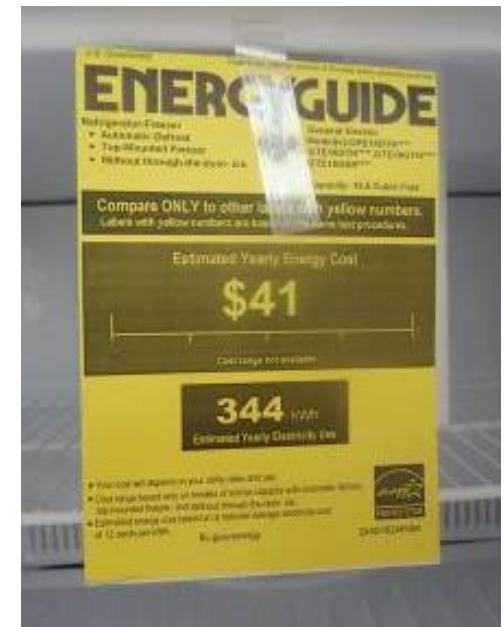
Showerhead

# PHOTOS APPLIANCES

Include a clear photo of the nameplate of each type of appliance.



Refrigerator Nameplate



Refrigerator ENERGY  
STAR label



# PHOTOS

## LIGHTING – IN-UNIT

*Include a photo of each unique in-unit fixture type.*



In-Unit Recessed Light



In-Unit Sconce

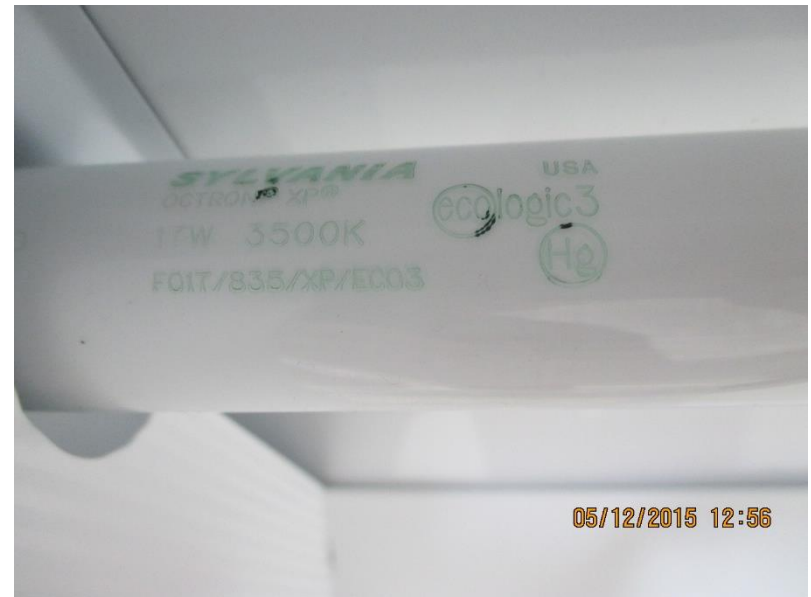
# PHOTOS

## LIGHTING – COMMON AREA

*Include a photo of each unique common area fixture type.*



Mechanical Room Light Fixture



Mechanical Room Lamp

# PHOTOS

## LIGHTING – EXTERIOR

*Include a photo of each unique exterior fixture type.*



Bulkhead Light



Outdoor Accent Light

# PHOTOS

## LIGHTING CONTROLS

*Include a photo of each type of lighting control specified for each unique space (motion sensors, timers, and daylight sensors).*

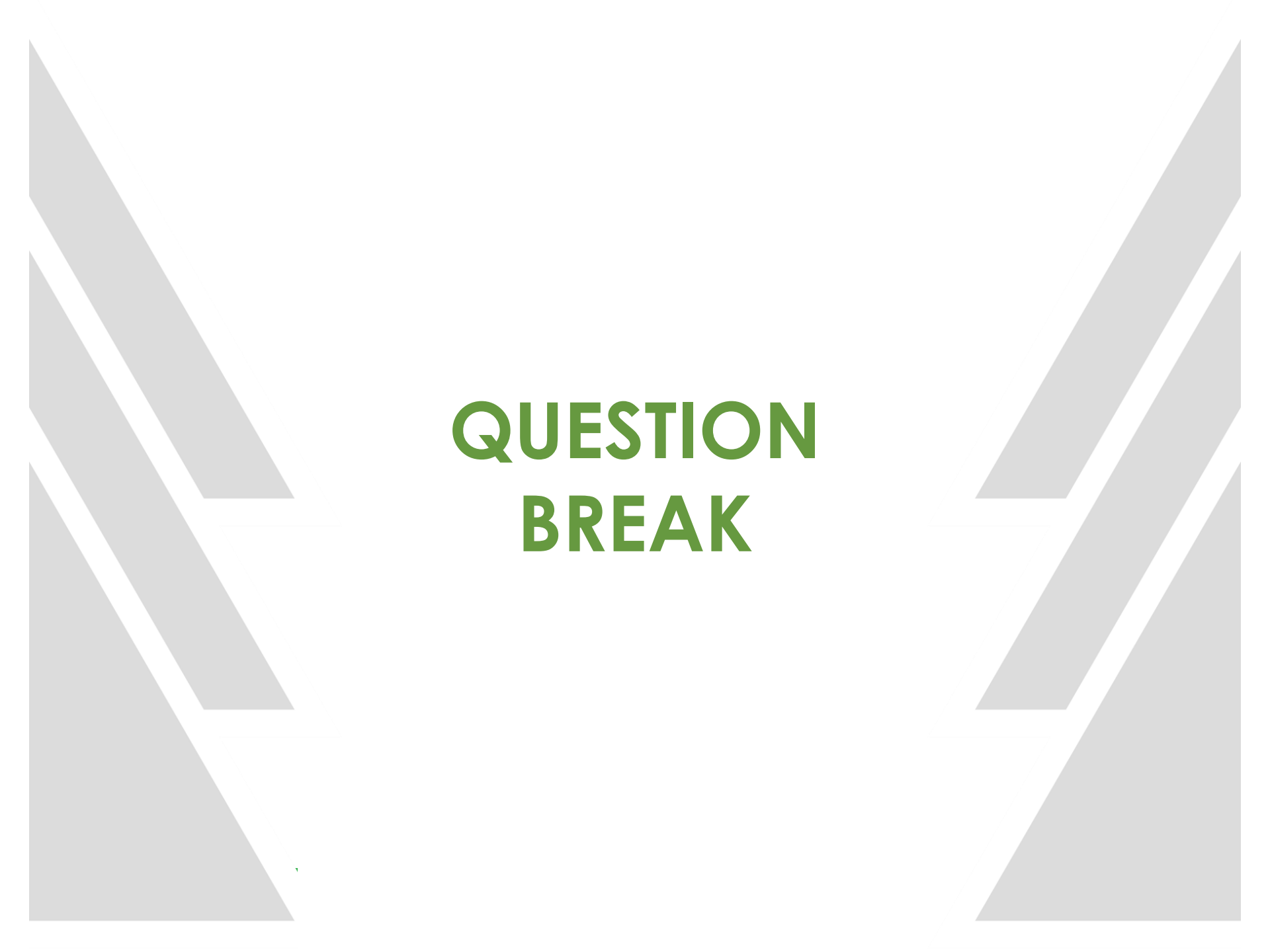


Laundry Room Motion Sensor



Corridor Occupancy Sensor



The slide features decorative geometric patterns on the left and right sides. These patterns consist of several parallel diagonal lines in a light gray color, creating a sense of movement and depth. The lines are arranged in a way that they appear to be part of a larger, abstract structure.

# **QUESTION BREAK**

# THANK YOU FOR ATTENDING

**Oregon Housing and Community  
Services Multifamily Energy Program**

[www.oregonmultifamilyenergy.com](http://www.oregonmultifamilyenergy.com)

**Mekha Abraham**

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