



ENERGY STAR® Multifamily High Rise: As Built Submittal Checklist

Performance Path Calculator

- Update the PPC that was “accepted” during the Proposed Design Submittal review, to reflect changes that occurred during construction. You may choose to copy the data into the most recent version of the PPC, but that is not required
- Be prepared to justify and document all changes between the Proposed and As-Built submittals
- Ensure consistency with T&V and the Photo Template
- Address all “comments” that were requested in the final Proposed Design Submittal review document. Submit that review document, with any replies needed, written directly in the Word document
- (Prescriptive Path)** Update only the Basic Info, In-Unit Lighting, Interior Lighting, and Exterior Lighting worksheets and include with the submission.

Basic Info

- Read the Instructions!
- Update blue cells, if they changed during construction
- Don't overwrite the white cells (but, if you HAVE to, there's no password to unprotect)
- Check W/Sf column against model inputs
- Confirm schedules in software
 - Apts: 2.34 hrs/day
 - Lobbies/Corridors/Stairs/Garage: 24 hrs/day
 - Most others : 8-12 hrs/day
- Compare annual kWh savings to Table 6 in Reporting Summary

Reporting Summary

- Update blue cells, if they changed during construction
- Table 1: Identify county so that Climate Zone in Table 2 can be confirmed
- Table 2: Confirm the Baseline (90.1 Standard) is consistent with Project Application and confirm that the modeler is well versed in ASHRAE 90.1 and all of its Appendices, plus the Simulation Guidelines
- Table 4: Use Notes to give brief narrative of building and any notable changes
- Table 5: Make sure Baseline column matches Appendix G (steel-frame Baseline building)
- Table 5: Make sure Proposed column is updated with the As-Built values. U-values must still be supported by Appendix A
- Table 5: Confirm WWR in Baseline does not exceed 40% and Baseline window frame material is correct for the building type (nonmetal for wood-framed building, metal for others)
- Table 5: Confirm that ventilation fan power is not added to Baseline beyond the 0.0003kW/CFM
- Table 5: Verify Baseline HVAC meets Appendix G and that Baseline Corridor OA CFM/sf is 0.06 - 0.09
- Table 6: Check that the savings in each end use can be justified by the measures in Table 5
- Table 6: Compare the Interior Lighting savings (kWh/yr) to value calculated on Basic Info worksheet
- Table 6: Compare the Appliance savings to Appliances worksheet



- Table 6: Determine if DHW end use is reasonable (~2,000 kWh/unit or ~80 therms/unit)
- Table 6: Be prepared to justify any measure that contributes more than 3% savings toward the Performance Target or reduces the end use by more than 30%
- Table 6 & 8: If not using eQUEST, ensure that these Tables are overwritten with data from software and are consistent when converting
- Table 6 & 8: Compare to the Proposed Design Submittal. Be prepared to explain any changes that are not supported by a change in As-Built performance of a specific building component. Example: changes to modeling approach or corrections to schedules, etc.

Windows eQUEST , Water Savings, DHW Demand, and Appliances [for eQUEST users]

- Read the Instructions!
- Update blue cells, if they changed during construction
- Make sure data is consistent with T&V, Photo Template and Table 5 & 6 of Reporting Summary

In-unit Lighting

- Read the Instructions and update blue cells, if they changed during construction
- Don't list spaces that don't have hard-wired lighting installed
- Don't assume that a light fixture can illuminate the entire room
- If the footcandle warning is displayed, submit a sample of light meter readings to demonstrate compliance
- Make sure fixtures, counts, and Wattages are consistent with T&V and Photo Template

Interior Lighting

- Read the Instructions/Notes and update blue cells, if they changed during construction
- For spaces with more than one fixture type, use multiple rows, but pro-rate the square footage
- Make sure ballast power is added for pin-type fixtures (not just bulb Wattage)
- If the footcandle warning is displayed, submit a sample of light meter readings to demonstrate compliance
- Make sure fixtures, counts, and Wattages are consistent with T&V and Photo Template

Exterior Lighting

- Read the Instructions and update blue cells, if they changed during construction
- Do not enter square footage for an exterior space type if lighting is not installed
- Use formulas to link back to the lighting schedule, and use the Description field
- Make sure fixtures, counts, and Wattages are consistent with T&V and Photo Template

EIR for PTAC/PTHP

- Verify consistency with Reporting Summary and T&V

Results from eQUEST

- Enter energy measures as parametric runs to identify savings by measure

Simulation Summary

- Assess the reasonableness of the results (Do the \$ per apartment make sense?)



T&V Worksheets

- Update the T&V that was “accepted” during the Proposed Design Submittal review, to reflect changes that occurred during construction. Be prepared to justify and document all changes between the Proposed and As-Built submittals
- Avoid leaving cells blank (instead, use NA)
- Ensure consistency with Performance Path Calculator and the Photo Template
- Address all “comments” that were requested in the final Proposed Design Submittal review document. Submit that review document, with any replies needed, written directly in the Word document

Project Info

- (**Prescriptive Path**) Ensure units and square footage are consistent with Basic Info from Performance Path Calculator

ERMs

- (**Performance Path**) Confirm that column B, C, D and G are complete and consistent with green worksheets as well as Performance Path Calculator
- (**Prescriptive Path**) Complete column C and G; ensure consistency with green worksheets

Prerequisites Checklist or Prescriptive Path Checklist

- Ensure that “Final Inspection” is selected, and explanations provided for anything flagged as “NA”

Protocol Worksheets

- Appliances: Look up installed model number on ENERGY STAR website; confirm certification. If not listed, check archive list. Save as PDF or screenshot. Do not rely on cut sheets with ENERGY STAR logos
- DHW: Look up installed DHW model number in AHRI to confirm efficiency; list AHRI certificate number
- DHW: Look up installed showerhead and toilet in WaterSense directory to confirm certification; save as PDF or screenshot. Do not rely on cut sheets with WaterSense logos
- DHW (**Prescriptive Path**): Also look up installed lavatory faucet in WaterSense directory to confirm certification and confirm WaterSense showerhead is also <1.75 gpm
- Envelope: Confirm installed assemblies comply with Appendix A of ASHRAE 90.1-2007. Provide reference to specific tables and percentages requested. Retain cut sheets that support R per inch if higher than defaults.
- Heating/Cooling: Look up installed model numbers in AHRI to confirm efficiency; list in the table
- Heating/Cooling: Enter data into table for duct leakage testing results; data doesn’t need to be entered in both Heating and Cooling worksheets. Confirm that the correct sample size was tested (7 + 1 in 7)
- Lighting: Ensure that this worksheet is consistent with the Performance Path Calculator
- Blower Door Test: Enter data into table for testing results to confirm that threshold has been met and the correct sample size was tested
- Ventilation: Confirm all the supply, exhaust and OA fans are listed in schedule and rates comply with 62.1 or 62.2. Report supply and exhaust airflow testing results. If central risers for apartment exhaust, confirm that ventilation riser duct leakage testing results are reported in 8.2-VENT DUCT TIGHTNESS



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Photo Template

- Follow the instruction for the Template option you are choosing
- Insert legible photos of nameplates. If not clear, type the model number below the photo.
- If there are multiple models of the same component, insert additional photos and use the Notes field to distinguish (Example: Apt Window NFRC, Stairwell Window NFRC)
- For low-flow fixtures, if GPM is not legible in the photo, provide delivery invoice to confirm model.
- For WaterSense certified toilet, photograph both the bowl and tank model numbers.
- For insulation, use Notes to describe assembly R-value and thickness (Example: R-10, 2"). If multiple assemblies, use the same ID that is used in the T&V Worksheets.
- If using equipment or appliance IDs in T&V Worksheets, use the same IDs in the Notes field below the photo for easy cross reference
- For cooling equipment, include photos of both the indoor and outdoor unit model numbers
- Include 1 photo of each lighting fixture noted in lighting fixture schedule; use the same ID number/letter