### Residential Energy: Architectural Plan Review Checklist

#### Information on Construction Documents
- A continuous building thermal envelope is represented on the construction drawings
- Typical cross sections clearly indicate insulation R-value, type, and material for each unique assembly type
- Compliance path is clearly noted on the plans or accompanying documentation. Otherwise, assume prescriptive.
- Notes indicate the *Air Barrier and Insulation Installation Checklist* will be completed by an approved party
- Notes indicate the *Duct and Envelope Testing Certificate* will be completed by an approved party

#### Indicate the compliance path selected by the applicant and complete the appropriate section below

<table>
<thead>
<tr>
<th>Prescriptive</th>
<th>Total UA (REScheck)</th>
<th>Performance</th>
<th>Energy Rating Index</th>
<th>Above Code Program</th>
</tr>
</thead>
</table>

**Prescriptive Path (with no tradeoffs)**
- R-values and U-factors on plans meet Table 402.1.2 for Climate Zone 4 for each assembly

**Total UA Alternative: REScheck Reports**
- Compliance field says “PASSES”
- Verify correct code edition
- Address matches the plans
- REScheck version 4.6.5 or higher
- Each unique assembly type is listed (including cantilevered floors, floors over garages, and bump-out ceilings)
- Listed R-values and U-factors match plans
- Cavity insulation R-values are not listed in the Continuous R-value column
- Signed by the person completing the report

**Simulated Performance Alternative Reports**
- For IRC-scope buildings, 2015 IECC Performance Report is present
- For IBC/IECC (RE) buildings, 2018 IECC Performance Report is present
- Annual Energy Cost of Design Home ≤ IECC Home in the “SubTotal – Used to Determine Compliance” line
  (Note: Report may fail, provided the only non-compliant item is the *Home Infiltration Check* and the design infiltration value is ≤ 5.0 ACH50)
- Energy Code Inspection Checklist is present
- Report contains the name of the individual completing the report
- Report contains the name and version of the software tool (REM/Rate or Ekotrope)
- Address matches the plans
- Each unique assembly type is listed (including cantilevered floors, floors over garages, and bump-out ceilings)
- Conditioned floor area matches plans
- Listed R-values and U-factors match plans

**Energy Rating Index Reports**
- For IRC-scope buildings, 2015 IECC Energy Rating Index Report is present
- For IBC-scope residential buildings, 2018 IECC Energy Rating Index Report is present
- ERI ≤ 62 (Note: The 2015 ERI Report may fail provided the only non-compliant items are: (1) *The Home Infiltration Check* where the design infiltration value is ≤ 5.0 ACH50, and (2) the ERI score provided it is ≤ 62.)
- Energy Code Inspection Checklist is present
- Report contains the name of the individual completing the report
- Report contains the name and version of the software tool (REM/Rate or Ekotrope)
- Address matches the plans
- Each unique assembly type is listed (including cantilevered floors, floors over garages, and bump-out ceilings)
- Conditioned floor area matches plans
- Listed R-values and U-factors match plans

**Above Code Program**
- Preliminary HERS report and statement indicating project will receive ENERGY STAR certification or PECO New Home Rebates report and statement indicating project will meet all program requirements
# Residential Energy: Mechanical Plan Review Checklist

## HVAC Equipment Design Form
- [ ] **HVAC Design Worksheet** is present and completed (both sides)

## HVAC System Sizing and Selection (Page 1)
- [ ] Address matches construction documents
- [ ] Design heating and cooling loads match the Manual J report
- [ ] Cooling system make and model match specs
- [ ] Cooling system output capacity is ≤ 1.15X (1.25X for heat pumps) the design cooling load or next nominal size
- [ ] Heating system make and model match specs
- [ ] Heating system output capacity is ≤ 1.40X the design heating load or next nominal size
- [ ] Air handler specs contain manufacturer’s designation of ≤ 2% air leakage (ASHRAE 193)

## Whole-House Mechanical Ventilation Design Worksheet (Page 2)
- [ ] Address matches construction documents
- [ ] Conditioned floor area and number of bedrooms match plans
- [ ] The correct ventilation rate has been circled based on the floor area and number of bedrooms
- [ ] Intermittent fans only – Required ventilation airflow has been multiplied by the appropriate factor
- [ ] Rated fan airflow meets or exceed required airflow
  - [ ] HVI-rated fan efficacy is ≥ 1.4 cfm/watt for fans with < 90 cfm maximum airflow
  - [ ] HVI-rated fan efficacy is ≥ 2.8 cfm/watt for fans with ≥ 90 cfm maximum airflow
- [ ] Rated fan airflow and HVI-rated fan efficacy match specs

## Additional Information on Construction Documents
- [ ] Construction documents indicate whether any portion of the HVAC system will be outside the building thermal envelope. If yes, notes indicate that:
  - [ ] Duct leakage testing will be performed and DET form will be submitted to the inspector
  - [ ] Ducts ≥ 3” diameter will be insulated to ≥ R-8 in attics and ≥ R-6 elsewhere
  - [ ] Ducts < 3” diameter will be insulated to ≥ R-6 in attics and ≥ R-4.2 elsewhere
- [ ] Programmable thermostat is specified
- [ ] Building cavities are not used as ducts (IBC-scope buildings only)
- [ ] Notes indicate HVAC pipe insulation is specified, R-3 minimum (e.g. hydronic systems, refrigerant lines)
### Plumbing Energy Code Requirements

**R-3 pipe insulation is required if any of the following conditions exist (excludes Simulated Performance and ERI path):**

- Piping ¾” or greater in nominal diameter (piping > ” for IBC buildings)
- Piping serves more than one dwelling unit
- Piping is located outside the conditioned space
- There is piping from a water heater to a distribution manifold
- Piping is buried or located under a floor slab

**Circulation systems (where present):**

- System is provided with a pump (no gravity or thermosyphon systems)
- Controls installed to start and stop the pump based on demand for hot water within the occupancy
<table>
<thead>
<tr>
<th>Residential Energy: Electrical Plan Review Checklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ 75% of lamps in permanently installed fixtures are high-efficacy (CFL, LED, or T-8 or lower fluorescent tube), or</td>
</tr>
<tr>
<td>□ 75% of permanently installed lighting fixtures contain only high-efficacy lamps</td>
</tr>
<tr>
<td>□ Fuel gas lighting systems do not have continuously burning pilot lights</td>
</tr>
</tbody>
</table>