Reservation QA Desk Review Procedure

A. Start the DESK Review:

1. Open the project's Reservation JRT.
2. Open blank "Advanced DESK template 4-8-4-8".
3. Import JRT data into DESK template:

   Home >> Data >> Edit Links >> highlight source: AB-Advanced RES JRT.4*, click "Change Source" >> locate project RES JRT >> click OPEN*.
4. SAVE AS: "EUCA #-Name-A-QC-DESK-Date" using EUC file nomenclature.
5. Cell G1: Enter date the RES documents were submitted to RHA from ICF.
6. Cell J1: Enter RES-QA reviewer initials
7. Cells D-J10: Enter document dates from QA document folder

B. DESK Review spreadsheet **text** formatting:

1. **BLACK** text indicates data that has either been imported into the spreadsheet from other documents;
   and
   BLACK text indicates data that has been checked and verified in project documents.
2. **GRAY** text indicates data that is copied from a document that needs to be verified in another project document. When verified, the **GRAY** text will be changed to **BLACK**.

   *EXAMPLE: RES JRT data is imported into columns D and E in **BLACK** text and automatically copied into the QA EPro model column G in **GRAY** text. When the data is verified in the EPro model, the text in column G will be manually changed to **BLACK**.*
3. **RED** text is for data that does not match between documents, generally the previous document to the left in the spreadsheet.

   *EXAMPLE: If the JRT indicates building orientation as West, and the EPro model indicates orientation as South, the text in G20 (model orientation) will be changed from **GRAY** to **RED**.*
4. **BLUE** text is for data that is changed or entered by the **reviewer** when verifiable data is missing, incorrectly shown or is being overridden by the reviewer. Generally **BLUE** text is used only in the QC EPro model columns O and AH.

   *EXAMPLE: If the QC inspection checklist does not show equipment efficiency data, the reviewer enters the vintage default data in the QC EPro model column in **BLUE.***

C. DESK Review spreadsheet **Row** formatting:

1. Row Height: Expand cells where row height is too small and text is partially obscured:

   Home>>Format>>AutoFit Row Height.
2. Hidden Rows: Unhide rows as needed for data on multiple stories, multiple systems, multiple roof insulation sections, multiple floor sections, etc.

   EXAMPLE: The JRT and the model show two HVAC systems.
   Highlight Rows 45-58>>Home>>Format>>Hide&Unhide>>Unhide Rows.

D. **Verifying the RES QA EnergyPro data**:

It is highly recommended to read and use the SCE-SCG EnergyPro Handbook for reference. Contractors are required to follow this manual when creating project models. Use the EnergyPro handbook to locate data in the model

1. Open the RES QA EnergyPro model.
2. Starting in Row 12, column G, **verify the Existing Conditions** in the model.

   *Existing conditions are shown in the model's Building Tree. In the DESK review template, **GREY** text in column G is a copy of data from the JRT (column E). This is the data that is checked against the JRT. When data in the model matches the JRT data, the **GRAY** text in column G is changed to **BLACK**. When data in the model does not match the JRT data, the **GRAY** text is changed to **RED,** and the model data is entered into column G. Do not change the text color without verifying each data point in the model. Do not modify settings in QA EnergyPro model.*

3. "Check" in **GREY** indicates data that must be manually located in the JRT and verified. "Check" is used for:
   a. Verifying combustion safety data – *located in JRT tab "Combustion Safety".* Verify data in DESK as "FAIL" if any Combustion Safty cells indicate FAIL. Otherwise change "Check" to "Pass"
   b. Verifying duct leakage % calculations. Verify contractor's duct leakage % calculation using one of the following methods:
      1) Using nominal heating airflow:
         % duct leakage = cfm25 / kBtu heating output x 21.7
      2) Using nominal cooling airflow:
         % duct leakage = cfm25 / cooling capacity tons x 400
      3) Using nominal measured airflow:
         % duct leakage = cfm25 / measured airflow

      Verify duct leakage % and change "Check" to indicate calculation method used.

4. Starting in Row 100, **verify the Proposed Conditions** in the model:
   a. In single-model simulations, proposed conditions are located in the Alternative Measures table in the model:

      Calculations>>Res.Performance>>Alternatives tab

      Verify single-model proposed conditions in column G.

   b. In two-model simulations, proposed conditions are shown in the building tree of the "Proposed" or "Improved" model.

      See EUC EnergyPro Handbook section 13: Two-model Simulations, pages 41-45.

      To verify proposed conditions in two-model simulations, pull down cell H2 to show "Y". Verify proposed conditions in column H.

c. Verify that proposed conditions will meet BASIC program minimum requirements that must be included in Advanced program retrofits:

   1) Proposed attic insulation: R-30 or greater

   2) Proposed duct leakage: sealing to 15% or less leakage

   3) Proposed building leakage: air sealing to 0.35 ACH or less *(0.35 ACH equals 100% BAS in row 137)*

   4) Additional required BASIC measures - DHW pipe insulation and thermostatically controlled shower valves - cannot be verified in the JRT or model.

5. **Exceptions:** data that cannot be verified between JRT and model:

   a. # of occupants – not in model*. (# of occupants is used in miniumum ventilation calculations.)*

   b. 2nd floor area – not in JRT. *(Models are required to show stories separately.)*

   c. DHW and HVAC equipment model year – not in model. *(Model year is used for determining vintage defaults for efficiencies.)*

   d. Duct leakage flow calculation – not in model.

   e. Blower door positive or negative pressure – not in model.

   f. Ventilation % of BAS – not in JRT or model

   g. Wall area – not in JRT.

   h. Window type – does not import from JRT.

   i. CAZ/CAS testing – not in model.

6. Starting in Row 178, **verify Site Energy data**:

   a. Single model projects:

      1) Verify the energy savings shown in the Res Performance table, bottom right corner.

      2) If the data matches, change G104 to **BLACK.**

      3) If the data does not match, change G104 to **RED**. Generate a temporary ECON report and enter ECON data in cells G178-186 in **RED**.

   b. Two model projects:

      1) Generate temporary ECON report from “Existing” model. Enter kWh, therm and kW data into G178-180.

      2) Generate temporary ECON report from “Proposed” model. Enter kWh, therm and kW data into H181-183.

   c. Verify QA ECON report(s):

      1) Open ECON report(s) in QA document package.

      2) Verify data shown in cells I178-186.

E.

F. Guidelines for Generating an RFI (Request for Additional Information):

1. **EnergyPro insensitivities** – certain data conflicts are not critical to the model and will not affect energy savings calculations. Non-critical data should not be used as a basis for generating an RFI. Model insensitivities include:
    a. Year built
    b. Ceiling height
    c. # of occupants
    d. DHW gallons, pipe insulation, tank wrap insulation
    e. HVAC heating output (cannot be "0 Btu" if heating equipment exists)
    f. HVAC cooling capacity (cannot be "0 Btu" if cooling equipment exists)
    g. CFM 25 test data (% leakage is the critical data)

2. **EnergyPro critical data** - Conflicting data in these areas will usually require an RFI and corrections to the JRT and/or model by the contractor. JRT and model data for these items must match.
    a. Location city – contractors select the nearest city listed in EnergyPro. Check conflicts on Google maps. (JRT and model must be within same climate zone)
    b. Conditioned floor area
    c. Orientation:
    EXCEPTION: JRT Ver.4 does not include "S" pull-down for South, so contractors sometimes use "SE" for South. If there is an SE vs. S conflict in the documents, verify front orientation in Google maps satellite view and enter "S-confirmed" or "SE-confirmed" in cell E20.
    d. HVAC equipment efficiencies - AFUE, HSPF, SEER
    e. Duct insulation R-value: (cannot be R-0)
    f. Duct leakage
    g. CFM50 test data
    h. Roof Insulation R-Value
    i. Floor insulation R-values
    j. Wall insulation R-value: (Must use vintage defaults R-0, R-11 or R-13)

3. **EnergyPro model structural defects**. Models with the following structural defects require an RFI and model corrections by the contractor.
    a. Projects requiring two-model simulations described as a single model. *(See SCE-SCG EnergyPro Handbook, Section 13, page 43: Two-model simulations for list of conditions requiring two-model simulations)*
    b. Multiple-story homes modeled as a single floor. *(Each story should be modeled separately as a room zone.)*

c. In single-model projects, DHW and HVAC equipment or ducts modeled as "New" with **proposed** Btu ratings and efficiencies in the building tree. *(Only existing conditions should be shown in the building tree of single-model projects.)*

d. Multiple HVAC system models with all building components (roof, floor walls, etc.) shown under one system, and no building components under the other system. *(Building components should be shown under the HVAC system that services that area of the building.)*

e. Multiple HVAC system models with total building leakage CFM50 shown in one system and "0" cfm50 or "not tested" shown in second system. *(Building leakage should be divided proportionally between systems by the conditioned floor area served by each system.)*

f. Floor area errors:

1) One-story models where combined area of floor sections in rows 69-74 does not equal total conditioned floor area in E19.

2) Two-story models with 2nd story raised floor section over 1st story conditioned space.

3) Two-story models without 2nd story raised floor over garage or other unconditioned space.

g. Roof area errors:

1) One-story models where combined area of roof sections in rows 62-67 does not equal conditioned floor area in E19.

2) Two-story models where combined area of 2nd story roof section does not equal 2nd story conditioned floor area (CFA).

3) Two-story models where combined area of 1st floor roof sections does not equal 1st floor conditioned space minus 2nd story conditioned space directly above 1st floor conditioned space.

G. Flagging QC inspections for data clarification:

(TBD)

(END)