APPENDIX F: RETROFIT COMPONENT ISOLATION PROJECT TECHNICAL REQUIREMENTS

I. Application Submission

Component isolation projects that involve retrofit of existing conditions must ***achieve a 15% energy savings above the current energy efficiency standards*** adopted by the Ohio Board of Building Standards in rules 4101:1-13-01 and 4101:1-35-01 of the Ohio Administrative Code***.*** The process includes: (1) a complete description of the existing component and either the measured energy use of the existing, base-case component, or an analysis of the existing, base-case component; (2) an analysis of the proposed, new component that exceeds the current energy efficiency standards in the State of Ohio and federal equipment; and (3) a Monitoring and Verification (M&V) plan for how the project will be inspected and commissioned, and how the energy savings from the project will be measured and reported once the project is built.

II. Project Review

The project review process for component isolation – retrofit projects also begins with a code compliance review of the proposed project. The purpose is aimed at ensuring the new component(s) is/are more stringent than the current building code and the federal equipment standards and the existing component that will be replaced. Where no existing component exists, the model parameters for the 'hypothetical' existing component must be no less stringent than the current building code and federal equipment standards."

Once a project successfully completes this stage of the review, then there is a review of the metering or monitoring plan to determine compliance with ASHRAE Guideline 14-2014 (ASHRAE 2014) and/or the Uniform Methods Project (UMP 2020) to ensure that the measurement and verification of the project complies with industry standards. Then there will be a review of the construction plan and commissioning plan. Successful completion of all these plans is then followed by the project construction and project commissioning report. After satisfactory review of the commissioning report, the metered data collection begins, or an annual monitoring plan is initiated for review of monthly utility usage/bills.

III. Measurement & Verification

In general, the measurement and verification process for projects consists of three stages: (1) the Application Submittal and Review stage as described in Section III, A; (2) the M&V Plan Submittal and Review stage as described in Section III, B; and (3) the Project M&V Process stage as described below.

All projects need to comply with each stage in sequence to qualify as an Air Quality Facility and OAQDA will work with the applicant to ascertain if and where meters are to be placed in the building (or project), or if whole-building gas and/or electric meters are appropriate for measuring savings, and what end-use energy use quantities are to be measured before construction begins. OAQDA may also request the use of ENERGY STAR Portfolio Manager as a free industry-standard tool to assist in benchmarking the project's impact on the building's performance.

Project M&V Process. Data collection efforts and required information is submitted by the applicant and must comply with the agreed upon M&V Plan reviewed by OAQDA. The review begins before the retrofit is complete and proceeds throughout the project period. At the discretion of OAQDA and after a sufficient period of data is collected, a calibrated component isolation model, which may be a building simulation or detailed data calculation/analysis, may be developed and compared to data from the existing component, or the simulated, code-compliant component. The model is a useful

tool to determine whether the measured savings agree with the estimated savings predictions.

In addition, adherence to the recommendations in ASHRAE Guideline 14 (ASHRAE 2015) and/or the Uniform Performance Measurement (UMP) guidelines (UMP 2020) is important to ensure accurate measurement and reporting.