



## LEED 2009 for Existing Buildings: Operations and Maintenance

### IEQ PREREQUISITE 1: MINIMUM INDOOR AIR QUALITY PERFORMANCE

Project #

All fields and uploads are required unless otherwise noted.

#### THRESHOLD ATTEMPTED

Points Attempted: 0

#### ALL OPTIONS

Note: The content highlighted in yellow below is linked to IEQc1.3.

Select all that apply to the project building:

- ☒ The project building is mechanically ventilated, in part or in whole.
- ☐ The project building is naturally ventilated, in part or in whole.
- ☒ The project building is mechanically conditioned, in part or in whole.
- ☐ The project building is naturally conditioned, in part or in whole.

#### MECHANICAL VENTILATION

Performance period start: Apr 1, 2012

Performance period end: Jul 31, 2012

Select all that apply to the project space:

- ☒ **Case 1.** One or more AHUs are able to meet the ASHRAE Standard 62.1-2007 outdoor air requirement.
- ☐ **Case 2.** One or more AHUs are unable to meet the ASHRAE Standard 62.1-2007 outdoor air requirement.

Note: Projects with one or more AHUs unable to meet the ASHRAE Standard 62.1-2007 outdoor air requirement are not eligible for IEQ Credit 1.3: Increased Ventilation.

## AHUs THAT MEET ASHRAE STANDARD 62.1-2007 OUTDOOR AIR REQUIREMENTS

The ASHRAE 62.1-2007 Ventilation Rate Procedure documentation for each air handling unit must be submitted using one of the documentation methods below. All documentation methods should account for the worst case ventilation conditions (generally heating mode), and should list all relevant variables used in the calculations (e.g. Ez, Ds, Ev, etc.). All AHUs must be included in one, not all, of the documents below.

Select one of the following:

- ☐ Complete the "VRP Compliance Calculator" found in Appendix 1 of this form.
- ☒ Download, complete, and upload ASHRAE calculator "62MZCalc".

### ASHRAE Calculator

**Upload IEQp1-1.** Complete "62MZCalc" (found under "Credit Resources") for all AHUs in the project building using this method. It is acceptable to provide values only for the critical zones.

Upload

Files: 4

*Note: Project teams pursuing IEQ Credit 1.3 must use the 62MZCalc provided by USGBC in the credit resources section of LEED Online to document compliance with IEQp1 and IEQc1.3. All other projects may use 62MZCalc provided by ASHRAE.*

Describe how critical zones are selected and how all occupiable zones are accounted for in the determination of the critical zone. A critical zone is defined as the zone which requires the largest fraction of outdoor air in the primary air stream.

The critical zones have been identified according to the guidance provided by ASHRAE 62.1-2007. Specifically, for each system, conference rooms (including interior and exterior) have been selected based on those conference rooms that are expected to have the largest fraction of outdoor air within the primary air stream. Selection of critical zones in this fashion also follows the guidance of the "Directions" tab within the 62MZ calculator.

**Table IEQp1-2. Mechanical Ventilation AHU Summary - ASHRAE Calculator**

System Name and Number	Required Outdoor Air Intake Flow (Vot)	Required Outdoor Air Intake Flow to Meet IEQc1.3 (Optional)	Measured Outdoor Airflow (cfm)		
Supply Fan 1	8,293	12,484	12,800	+	-
Supply Fan 2	5,622	7,374	7,536	+	-
Supply Fan 3	1,321	1,748	1,900	+	-
Supply Fan 4	1,088	1,415	1,510	+	-
Compliance with IEQ Prerequisite 1			Y		
Compliance with IEQ Credit 1.3			Y		

Compliance with IEQc1.3 documented for all mechanical ventilation AHUs:

Y

## MEASUREMENT AND MAINTENANCE

For all variable air volume systems, describe how the VAV outside air flow was set up during the air flow measurements to operate at the worst-case condition expected during normal operations (i.e., fan speeds set at minimum normal operating level, OA dampers set at their minimum normal operating opening, etc.).

All systems are constant volume.

### Required Signatory IEQp1.1. Facility Manager, Property Manager, or Building Engineer

All values of occupancy used to define minimum outside air flow requirements for this prerequisite are based on the maximum occupancy expected during normal facility operation (e.g., not design occupancy, minimum occupancy, or unusual or emergency conditions).

Select one of the following:

- ☒ **Facility Manager, Property Manager, or Building Engineer Signature.** Provide a digital signature affirming the required signatory statement in gray directly above.

Initial here: [Redacted]

[Redacted] Building Engineer; October 10, 2012

- OR ☐ **Upload IEQp1-RS1.** Provide a document with the required signatory statement, copied directly from the form, signed and dated on letterhead.

### Required Signatory IEQp1.2. Facility Manager, Property Manager, or Building Engineer

The project team has performed or overseen tests on all project building exhaust systems during the performance period to confirm proper function.

Select one of the following:

- ☒ **Facility Manager, Property Manager, or Building Engineer Signature.** Provide a digital signature affirming the required signatory statement in gray directly above.

Initial here: [Redacted]

[Redacted] Building Engineer; October 10, 2012

- OR ☐ **Upload IEQp1-RS2.** Provide a document with the required signatory statement, copied directly from the form, signed and dated on letterhead.

Describe the outside air flow measurement method or protocol used for each AHU, explaining the measurement device or system, its accuracy, and how the measurements were taken.

A certified testing and balancing contractor was hired to conduct the outside air testing for each system. The contractor used the Alnor Balometer, accuracy +/- 3%, to take outside air measurements. Measurements were taken at equal increments across the outside air intake and then averaged to determine the actual outside air for each individual system.

Describe the ventilation maintenance program, including a description of the periodic checks and scheduled maintenance performed, and whether the checks are manual, based on a building automation system, or both.

Please see attached Preventative Maintenance Summary. The attached summary addresses the frequency of scheduled maintenance and specific maintenance activities associated with the ventilation systems.

**Upload IEQp1-3.** Provide documentation verifying an HVAC system maintenance program related to outdoor air introduction and exhaust was implemented for the project building during the performance period. If a building automation system is used for any ventilation components, include a periodic system status report taken during the performance period. For ventilation components handled manually, include the maintenance log written during the performance period.

Upload

Files: 1

**Upload IEQp1-4.** Upload a testing report for each type of exhaust system in the project building.

Upload

Files: 1

## ADDITIONAL DETAILS

- ☐ Special circumstances preclude documentation of prerequisite compliance with the submittal requirements outlined in this form.
- ☐ The project team is using an alternative compliance approach in lieu of standard submittal paths.

## SUMMARY

IEQ Prerequisite 1: Minimum Indoor Air Quality Performance  
Compliance Documented:

N

Check Compliance

Save Form

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## APPENDIX

Select all that apply to the project building:

- ☐ Mechanical Ventilation Multiple Zone Unit
- ☐ Mechanical Ventilation Single Zone Unit
- ☐ Mechanical Ventilation 100% Outside Air
- ☐ Natural Ventilation