

The Kingspan KoolDuct System LEED SUBMITTAL

Prepared: 30th November 2012

LEED is an internationally recognised certification system for the design, construction and operation of high performance green buildings. Developed by the US Green Building Council (USGBC), **LEED** certification offers third party validation of a project's green features and verifies that the building is operating exactly the way it was designed to.

The **LEED** certification is available for all building types including new and existing commercial, institutional, and residential buildings. Based upon existing and proven technology, each system evaluates environmental performance from a whole building perspective over the life cycle of a building, providing a definitive standard for what constitutes a green building in design, construction and operation.

LEED is a point based system where building projects earn **LEED** points for satisfying specific green building criteria. Projects must satisfy particular prerequisites and earn points.

PRODUCTS & SERVICES DO NOT EARN POINTS – THEY CONTRIBUTE TOWARDS ACHIEVING POINTS AS PART OF A HOLISTIC APPROACH

The Kingspan KoolDuct System can help a project obtain points by satisfying the LEED specifications.

Category: IEQ Indoor Environmental Quality

IEQ Prerequisite 1: Minimum Indoor Air Quality Performance LEED NC version 3

"Meet the minimum requirements of Sections 4 through 7 of ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality"

The Kingspan KoolDuct System can help qualifying for Prerequisite IEQ 1

Reasons:

Resistance to Mold Growth. Material surfaces of ductwork fabricated from the Kingspan KoolDuct System are resistant to mold growth in accordance with the "Mold Growth and Humidity Test" in UL 181 (ref Ashrae 62.1 item 5.5)

Resistance to Erosion. Airstream surface materials of ductwork fabricated from the Kingspan KoolDuct System have been evaluated in accordance with the "Erosion Test" in UL 181 and did not break away, crack, peel, flake off, or show evidence of delamination or continued erosion under test conditions. (ref Ashrae 62.1 item 5.5.2)

Access for Inspection, Cleaning, and Maintenance: Access doors, panels, or other means can be provided in ductwork fabricated from the Kingspan KoolDuct system to allow convenient and unobstructed access for inspection, cleaning, and routine maintenance (ref Ashrae 62.1 item 5.14)

Clean air capability: The air stream flowing through ductwork fabricated from the Kingspan KoolDuct System flows over aluminium surfaces with no contact with a material that produces loose fibres. At start-up the air distribution systems can be clean of dirt and debris (ref Ashrae 62.1 item 7.2.4)

IEQ 4.1: Low-Emitting Materials - Adhesives and Sealants

LEED NC version 3

"All adhesives and sealants used on the interior of the building (i.e., inside of the weatherproofing system and applied on-site) must comply with the following requirements as applicable to the project scope":

- Adhesives, Sealants and Sealant Primers must comply with South Coast Air Quality Management District (SCAQMD) Rule #1168. Volatile organic compound (VOC) limits listed in the table below correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005.

The Kingspan KoolDuct System can help qualifying for IEQ Credit 4.1

Reasons:

Compliance to the VOC limits

Limit for Contact Adhesive: LEED/SCAQMD Standard= 80 grams/liter or less

Limit for Duct Sealants: LEED/SCAQMD Standard= 250 grams/liter or less

CASE 1

Fabrication off site: When ductwork from the Kingspan KoolDuct System is fabricated offsite and the adhesive and sealant used during fabrication are allowed to cure, the volatile organic compound (VOC) of the cured silicone and adhesive will be lower than the accepted limits.

CASE 2

Fabrication on site

- Ductwork from the Kingspan KoolDuct System can be assembled using the proprietary KoolDuct Tiger Clip system (having zero VOC) instead of contact adhesive
- Kingspan KoolDuct silicone sealant VOC = 43grams/litre

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Category: EA Energy & Atmosphere

EA Prerequisite 2: Minimum Energy Performance

LEED NC version 3

OPTION 1. Whole Building Energy Simulation

Calculate the baseline building performance rating according to the building performance rating method in Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2007 (with errata but without addenda1) using a computer simulation model for the whole building project.

The Kingspan KoolDuct System can help qualifying for Prerequisite EA 2

Reasons:

Ductwork insulation performance: the Kingspan KoolDuct System satisfy the requirements of ANSI/ASHRAE/IESNA Standard 90.1 Standard for the minimum ductwork insulation thickness as follows

R-value:

- KoolDuct 22 mm (7/8") 1.05 m².K/W (6.0 ft².hr.°F/Btu)
- Koolduct 30 mm (1 3/16") 1.43 m².K/W (8.1 ft².hr.°F/Btu)

(ref ANSI/ASHRAE/IESNA Standard 90.1 item 6.4.4.1.2)

Ductwork sealing and air leakage: the Kingspan KoolDuct System can satisfy the requirements of ANSI/ASHRAE/IESNA Standard 90.1 Standard for the maximum permitted air leakage as follows: The max air leakage can be lower than Class 6 (i.e. 6 cfm/100 ft² at 1 in.w.c.) (ref ANSI/ASHRAE/IESNA Standard 90.1 item 6.4.4.2)

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Category: MR Materials and Resources LEED NC version 3

MRc3: Materials Reuse

"Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 5%, based on cost, of the total value of materials on the project. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation

MRc4: Recycled Content

"Use materials with recycled content
Mechanical, electrical and plumbing components and specialty items such as elevators cannot be included in this calculation."

MRc5: Regional Materials

"Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site...
Mechanical, electrical and plumbing components and specialty items such as elevators and equipment must not be included in this calculation"

Nor the Kingspan KoolDuct System nor any other mechanical, electrical or plumbing component can help qualifying because they are not included in this calculation.