



BRANZ Appraised
Appraisal No. 1152 [2021]

VENT-AXIA MECHANICAL EXTRACT VENTILATION SYSTEM

Appraisal No. 1152 [2021]



Automated Humidity
Sensing and Control



Continuous Trickle
Extract Ventilation



Ultra Quiet Performance



MEV
for Healthy Homes

BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 The Vent-Axia Mechanical Extract Ventilation (MEV) System is an interior mechanical ventilation system intended for use in housing - including standalone housing, semi-detached townhouses, apartments and similar residential occupancies that may have minimal exterior wall area. The Vent-Axia MEV Ventilation System also includes a ventilation system design service provided by SIMX Limited which creates a detailed system design for the ventilation system to meet the requirements of NZS 4303.

Scope

- 2.1 The Vent-Axia MEV Ventilation System has been appraised for use as a mechanical air-handling and ventilation system for housing within buildings that are within the following scope:
- Buildings that are included within Risk Groups 'SH' and 'SM' as given by NZBC Acceptable Solutions C/AS1 and C/AS2, and;
 - Buildings where individual installations of the Vent-Axia MEV Ventilation System are contained within individual firecells.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, the Vent-Axia MEV Ventilation System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years, B2.3.1 [c] 5 years and B2.3.2. The Vent-Axia MEV Ventilation System meets these requirements. See Paragraph 9.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The Vent-Axia MEV Ventilation System can contribute to meeting this requirement. See Paragraphs 14.1-14.2.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. The Vent-Axia MEV Ventilation System can contribute to meeting this requirement. See Paragraphs 15.1-15.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Vent-Axia MEV Ventilation System meets this requirement.

Clause G4 VENTILATION: G4.3.1, G4.3.2, G4.3.3 and G4.3.4. The Vent-Axia MEV Ventilation System meets these requirements. See Paragraph 16.1.

Clause G9 ELECTRICITY: G9.3.1. The Vent-Axia MEV Ventilation System meets this requirement. See Paragraphs 17.1 and 17.2.



Technical Specification

- 4.1 System components and accessories supplied by SIMX Limited, their dealers or agents are as follows:
- **Mechanical Extract Ventilation [MEV] unit** - an electrically powered extract fan unit that is configurable to provide ventilation flow rates appropriate for the required system design for the occupancy into which it is installed.
 - **Ventilation ducting** - a solid-walled or flexible mechanical ventilation ducting specified and supplied by SIMX Limited to connect the extract fan box to ventilation extract points and exterior exhaust grilles.
 - **Ventilation extracts** - ceiling-mounted plastic diffusers.
 - **Exterior exhaust grille** - an exterior wall mounted stainless steel duct outlet with a weather excluding cowling and integrated wind-excluding interior flap to limit backflow into the system.
 - **SIMX Ventilation System Design** - a ventilation design service method that is provided by SIMX Limited. The SIMX Ventilation System Design is a design process to create an output which is the design of the ventilation extract system to the requirements of NZS 4303.
- 4.2 Accessories used with the Vent-Axia MEV Ventilation System, which are supplied by the building contractor, are:
- **Trickle ventilators** - passive air inlets that allow outside air to enter the interior spaces. Trickle vents can either be provided by through wall solutions such as air bricks or purpose provided ventilators incorporating a rain hood and internal controls, or trickle ventilators incorporated within window and door joinery.

Handling and Storage

- 5.1 Handling and storage of Vent-Axia MEV Ventilation System components on-site is the responsibility of the installer. All components shall be handled with care to avoid damage.

Technical Literature

- 6.1 Refer to the Appraisals listings on the BRANZ website for details of the current Technical Literature for the Vent-Axia MEV Ventilation System. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 The ventilation system design service provided by SIMX Limited is a process that creates a ventilation system design for a single occupancy – a singular apartment or dwelling. The layout, configuration and ventilation requirements of the spaces contained within the occupancy are considered in the design process. The process outputs include a system specification and a detailed ventilation system layout for construction designed specifically to meet the requirements of NZS 4303.
- 7.2 Extract ventilation is provided within the completed system design to spaces within occupancies where moisture is generated such as kitchens, bathrooms and laundries. The Vent-Axia MEV Ventilation System is unsuitable to be used as a means of extraction to cooking appliances. Where required, recirculating cooker hoods or intermittent extracting cooker hoods shall be used in addition to the Vent-Axia MEV Ventilation System. The MEV extract grille must be fixed a minimum of 2 m horizontally from a cooktop.



- 7.3 Building designers and contractors must ensure that occupancy design, layout and configuration is finalised prior to engaging with the ventilation system design service. Subsequent changes in the construction of the occupancy may affect the system design and be detrimental to the in-service performance of the ventilation system and its compliance with NZS 4303.
- 7.4 The Vent-Axia MEV Ventilation System includes extract outlets around the exterior of the occupancy with locations nominated within the ventilation design. The incorporation of the extract outlets into the design of the exterior building envelope is the responsibility of the designer. Consideration should be given to any specific guidance contained within the relevant technical literature for the cladding system and relevant NZBC Acceptable Solutions.
- 7.5 Where practicable, it is recommended that the extract outlets are located in sheltered locations on the exterior of the building where they are shielded from rain. Roof or deck overhangs or similar projections can be effective in providing additional resistance to moisture ingress.

Ventilation Rates

- 8.1 The Vent-Axia MEV Ventilation System is specifically designed to suit a particular occupancy to achieve the requirements of NZS 4303.
- 8.2 The ventilation rate of the Vent-Axia MEV System can be adjusted to ensure the correct airflow rate is achieved based on the requirements of the occupancy, the system design and layout of the particular system installed. The ventilation rates, and hence the number of air changes is determined during the set-up phase of the system and will vary for each particular building. Final set-up must be determined by the owner and set by the ventilation contractor in accordance with the system design prepared by SIMX Limited.
- 8.3 The ventilation delivered by the Vent-Axia MEV Ventilation System is calculated based on windows and exterior doors typically remaining closed in service. Opening of windows and exterior doors where desirable by the occupant will not be detrimental to ventilation of interior spaces or the in-service performance of the Vent-Axia MEV Ventilation System.

Durability

Serviceable Life

- 9.1 The Vent-Axia MEV Ventilation System is anticipated to have a serviceable life of at least 15 years providing normal maintenance is carried out as described below. Like all electrical or mechanical equipment, the fan units and system controllers can be expected to require maintenance or replacement at some time during their life. Non-electrical components such as ducting, inlets and outlets are not expected to require any maintenance during the life of the system and should perform satisfactorily for at least the life of the other componentry.

Maintenance

- 10.1 Access to the Mechanical Extract Ventilation unit must be provided at all times during the life of the Vent-Axia MEV Ventilation System in order to maintain access to the fan and control panel. This is typically achieved by locating the MEV unit in a cupboard, the ceiling space or another similar space within the building envelope.
- 10.2 Electrical components may be maintained or replaced at the discretion of the owner, and decisions are usually based on economic considerations.
- 10.3 Ducting must be protected against damage. Should damage occur, the ducting must be repaired with aluminium foil tape where necessary.
- 10.4 SIMX Limited or their dealers or agents can provide maintenance services upon request.

Control of External Fire Spread

Vertical Fire Spread

- 11.1 NZBC Functional Requirement C3.2 identifies that external vertical fire spread to upper floors only needs to be considered for buildings with a building height greater than 10 m. In instances where the building height exceeds 10 m, the incorporation of Vent-Axia MEV Ventilation System within the building's external facade shall be supported by specific fire design.



Fire affecting areas beyond the fire source

Fire Resistance Ratings

- 12.1 Where the Vent-Axia MEV Ventilation System passes through fire rated systems, these installations shall be supported by specific fire design.

Prevention of Fire Occurring

- 13.1 Separation or protection must be provided to the Vent-Axia MEV Ventilation System from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 14.1 The Vent-Axia MEV Ventilation System, when installed in accordance with this Appraisal and the Technical Literature, will prevent the penetration of moisture that could cause undue dampness or damage to building elements.
- 14.2 Where practicable, it is recommended that the vent inlets and outlets are located in sheltered locations on the exterior of the building where they are shielded from rain. Roof or deck overhangs or similar projections can be effective in providing additional resistance to moisture ingress.

Internal Moisture

- 15.1 When the Vent-Axia MEV Ventilation System is used in accordance with this Appraisal, the indoor moisture control capability of buildings will be improved.
- 15.2 However, indoor moisture control is reliant upon a number of exiting conditions, and as well as installing the Vent-Axia MEV Ventilation System, this can be best achieved by attending to the following matters:
- Minimising indoor moisture sources.
 - Providing adequate general levels of ventilation and special ventilation in high moisture release areas [e.g. range hoods and bathroom ventilation].
 - Providing adequate heating [solar and purchased].
 - Insulating external walls, ceilings and floors to discourage condensation and mould growth.

Ventilation

- 16.1 Vent-Axia MEV Ventilation Systems are specifically designed in each instance to comply with the ventilation provisions in NZBC Acceptable Solution G4/AS1, Paragraph 1.4.

Electrical Safety

- 17.1 Installation of the electrical wiring for the system must be in accordance with New Zealand Electrical Code of Practice NZECP 51, to meet the requirements of the Electricity [Safety] Regulations and NZBC Clause G9.3.1 [a].
- 17.2 Electrical safety of the MEV fan units complies with AS/NZS 60335.1 and AS/NZS 60335.2.80.

Installation Information

Installation Skill Level Requirements

- 18.1 The Vent-Axia MEV Ventilation System must be installed by a mechanical or electrical ventilation technician, conversant in the installation requirements and system design of mechanical ventilation systems.

System Installation

- 19.1 Installation must be in accordance with the Vent-Axia MEV Ventilation System installation manual, the system design supplied by SIMX Limited and this Appraisal.



Basis of Appraisal

The following is a summary of the technical investigations carried out.

Tests

20.1 Testing of electrical components for electrical safety was carried out by accredited testing bodies in accordance with AS/NZS 60335.1 and AS/NZS 60335.2.80 and found to be satisfactory.

Other Investigations

21.1 Site inspections were carried out by BRANZ to assess methods used for the installation of the Vent-Axia MEV Ventilation System and to examine completed installations for operation.

21.2 An opinion on the use of the Vent-Axia MEV Ventilation System to control moisture and provide ventilation has been given by BRANZ experts.

21.3 The manufacturer's installation manual that supports the installation and owner operating guides has been examined by BRANZ and found to be satisfactory.

Quality

22.1 Details of the quality and composition of the materials and components used within the system were obtained by BRANZ and found to be satisfactory.

23.1 The quality of installation on site is the responsibility of the contractor in accordance with the instructions of SIMX Limited.

24.1 Building owners are responsible for the maintenance of Vent-Axia MEV Ventilation Systems in accordance with the instructions of SIMX Limited.

Sources of Information

- AS/NZS 3100:2017 Approval and test specification - General requirements for electrical equipment.
- AS/NZS 60335.1:2020 Household and similar electrical appliances - Safety - Part 1: General requirements.
- AS/NZS 60335.2.80:2016 Household and similar electrical appliances - Safety - Particular requirements for fans.
- Electricity [Safety] Regulations 2010.
- NZECP 51:2004 New Zealand electrical code of practice for homeowner/occupier's electrical wiring work in domestic installations, Ministry of Economic Development, 2004.
- NZS 4303:1990 Ventilation for acceptable indoor air quality.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions and Verification Methods and handbooks.
- The Building Regulations 1992.



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03 November 2021

VENT-AXIA MECHANICAL
EXTRACT VENTILATION SYSTEM



In the opinion of BRANZ, **Vent-Axia MEV Ventilation System** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **SIMX Limited** and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **SIMX Limited**:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **SIMX Limited**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **SIMX Limited** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

03 November 2021