



VMC GROUP
THE POWER OF TOGETHER™



CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS



Certification No.

VMA-51224-01C (Revision 5)

Expiration Date: 11/30/2026

Certification Parameters:

The nonstructural products (mechanical and/or electrical components) listed on this certificate are CERTIFIED¹ FOR SEISMIC APPLICATIONS in accordance with the following building code² releases.

IBC 2015, 2012, 2009, 2006; EC8 2004

The following model designations, options, and accessories are included in this certification. Reference report number VMA-51224-01 as issued by VMC Group for a complete list of certified models, included accessories/options, and certified installation methods.

**Neptronics Building Controls; Humidification System
SKE4, SKS4, SKG4, SKD, MS, and MF SAM; Various Ratings**

The above referenced equipment is APPROVED for seismic application when properly installed³, used as intended, and contains a Seismic Certification Label referencing this Certificate of Compliance⁴. As limited by the tabulated values, below grade, grade, and roof-level installations, installations in essential facilities, for life safety applications, and/or of equipment containing hazardous contents are permitted and included in this certification with an Equipment Importance Factor assigned as $I_p=1.5$. The equipment is qualified by successful seismic shake table testing at the nationally recognized Dynamic Certification Laboratories under the witness of the ISO Accredited Product Certification Agency, the VMC Group.

Certified Seismic Design Levels ⁸			
Certified IBC	Importance $I_p \leq 1.5$ Soil Classes A-E Risk Categories I-IV Design Categories A-F	$z/h \leq 1.0$	$z/h = 0.0$
Certified EC8 ⁹	Importance $Y_a \leq 1.5$ Soil Classes A-E, Type I-II		
		$a_g \leq 0.165 \text{ g}$	$a_g \leq 0.374 \text{ g}$

The qualified seismic design level stated is the lowest for all series this certificate covers. For more information, see the certified product tables on page 2.

Certified Seismic Installation Methods	
Rigid Mounting From Unit Base To Rigid Structure	Directly To Non-Structural Wall/Enclosure
Directly To Structural Wall	Directly To Suspended Duct

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Certified Product Table:

Product	Model (North America)	Model (Europe)	Max Rating	Max Length [in]	Max Width [in]	Max Height [in]	Max Weight [lb]	Mounting Configuration
SKE4W (Outdoor)	SKE4-N90W	SKE4-E120W	90kW	29.8	40.5	55.7	590	Rigid Base Mounting
	SKE4-N100W	N/A	100kW					
SKG4	SKG4-N8104	SKG4-E4004	996 kBtu/h	52.9	55.6	74.7	1820	
SKS4	SKS4-1250-SLP	N/A	1250lbs/hr @15psi	58.7	33.3	46.2	1574	
SKE4 (Indoor, no SDU)	SKE4-N60	SKE4-E80	60kW	15.2	33.2	32	210	Rigid/Isolated Wall Mounting
	SKE4-N63	N/A	63kW					
SKE4 (Indoor, w/ SDU) ⁴	SKE4-N30 w/ SDU	SKE4-E40 w/ SDU	30kW		22.2	43.4	175	
	SKE4-N32 w/ SDU		32kW					
MF SAM	36x36	N/A	36x36	5	36	5	3	Duct Mounting (Inside)
SKD - J ³	12X12		12X12	3.5	15.9	4	2	
	36X36		36X36	17.8	45.5		16	
MS-HD	12X12 - 120X120		12X12 - 120X120	120	11.5	116	275	Non-Structural Wall (AHU) Mounting ² , Duct Mounting (Inside/Outside)
MS-SD					7.4		120	
SKD - MS-SD					9	139		
SKD- MS-HD					12	275		

Notes: 1) Maximum values and ranges are listed. Contact manufacturer for detailed list of product dimensions, materials, and nomenclature.

2) AHU grids tested to $S_{DS}=2.0 @ z/h=1.0$ only. All other units tested to $S_{DS}=2.0 @ z/h=1.0$ and $S_{DS}=2.5 @ z/h=0$.

3) 12x12 with 1 tube (0.5in), 36x36 with 2 tubes (0.5in)

4) With SDU4-3

Standard	$S_{DS} (z/h=0)$	$S_{DS} (z/h=1)$	A_{Flex-H}	A_{Rig-H}	A_{Flex-V}	A_{Rig-V}	F_p/W_p
AC156	2.000	2.000	3.200	2.400	1.533	0.533	1.500

This certification includes the product and factory supplied accessories and options. The product and included accessories and options shall be a catalogue design and factory supplied. The product shall be installed and attached to the building structure per the manufacturer supplied seismic installation instructions. This certification excludes all non-factory supplied accessories, including but not limited to enclosures, isolation/restraint devices, remote control panels, mounting brackets, and other electrical/mechanical components.



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Cross-Code Compliance:

EC8 Approved Equivalent a_g							
Earthquake Type	Install Height	f_1/f_a					
		0.01	0.10	0.50	1.0	2.0	100.0
Type 2 Only	z/h = 0.0	0.701	0.614	0.374	0.284	0.711	0.711
Type 1 Only		0.567	0.567	0.481	0.366	0.567	0.567
Type 1 and Type 2		0.374	0.284	0.567	0.567		
Type 2 Only	z/h = 1.0	0.281	0.253	0.165	0.129	0.284	0.711
Type 1 Only		0.361	0.325	0.213	0.166	0.366	0.567
Type 1 and Type 2		0.281	0.253	0.165	0.129	0.284	

- * The type of earthquake to use per country/region is listed in the national annex
- * The f_1/f_a is fundamental frequency of the building divided by that of the component
- * The column for f_1/f_a can be used as the most conservative approved ground motion



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Notes & Comments:

1. All equipment listed herein successfully passed the seismic acceptance criteria for shake testing non-structural components and systems as set forth in the ICC AC-156. The Test Response Spectrum (TRS) enveloped the Required Response Spectrum (RRS) for all units tested. The tested units were representative sample(s) of a contingent of models and all remained captive and structurally sound after the seismic shake simulation. The units also remained functionally operational after the simulation testing as functional testing was completed by the equipment manufacturer before and after the seismic simulations. Although a seismic qualified unit inherently contains some wind resisting capacity, that capacity is undetermined and is excluded from this certification. Snow/Ice loads have been neglected and thus limit the unit to be installed both indoors (covered by an independent protective structure) and out of doors (exposed to accumulating snow/ice) for ground snow loads no greater than 30 psf for all applications.
2. The following building codes are addressed under this certification:
 - IBC 2015 referencing ASCE7-10 and ICC-ES AC-156
 - IBC 2012 referencing ASCE7-10 and ICC-ES AC-156
 - IBC 2009 referencing ASCE7-05 and ICC-ES AC-156
 - IBC 2006 referencing ASCE7-05 and ICC-ES AC-156
 - EC8 2004 full reference Eurocode EN-1998 2004
3. Refer to the manufacturer supplied installation drawings for anchor requirements and mounting considerations for seismic applications. Required anchor locations, size, style, and load capacities (tension and shear) may be specified on the installation drawings or specified by a 3rd party. Mounting requirement details such as anchor brand, type, embedment depth, edge spacing, anchor-to-anchor spacing, concrete strength, special inspection, wall design, and attachment to non-building structures must be outlined and approved by the Engineer of Record for the project or building. Structural walls, structural floors, and housekeeping pads must also be seismically designed and approved by the project or building Structural Engineer of Record to withstand the seismic anchor loads as defined on the installation drawings. The installing contractor is responsible for ensuring the proper installation of all anchors and mounting hardware.
4. For this certificate and certification to remain valid, this certificate must correspond to the "Seismic Certification Label" found affixed to the unit by the factory. The label ensures the manufacturer built the unit in conformance to the IBC seismic design criteria set forth by the Certified Seismic Qualification Agency, the VMC Group, and meets the seismic design levels claimed by this certificate.
5. Mechanical, Electrical, and Plumbing connections to the equipment must be flexibly attached as to not transfer load through the connection. The structural integrity of any conduit, cable trays, piping, ductwork and/or flexible connections is the responsibility of others. This certification makes no statements of compliance in regards to NEMA, IP, UL, CSA, or other relevant standards after a seismic event. For compliance to other relevant standards, please contact the manufacturer.
6. This certificate applies to units manufactured at:
Neptronic, 400 Bd Lebeau, Saint-Laurent, QC H4N 1R6, Canada
7. This certification follows the VMC Group's ISO-17065 Scheme.
8. The qualified seismic design level stated is the lowest for all series this certificate covers. For more information, see the certified product tables on page 2.
9. The Eurocode 8 maximum ground motion for equipment installed at grade or roof listed assumes that the fundamental frequency of the component is exactly twice that of the building (approximately 5 times more stiff compared to the building). If the frequency of the building or equipment is not known for a particular project, the cross-code table for EC8 may be used after the certified product table for the value of f_1/f_a as it represents the worst case amplification (and thus approves the lowest most conservative maximum ground motion).



John P. Giuliano, PE
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