



VMC GROUP
THE POWER OF TOGETHER™



CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS



Certification No.

VMA-50510-01C (Revision 4)

Expiration Date: 1/31/2026

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 2018, 2015, 2012, 2009

The following model designations, options, and accessories are included in this certification. Reference report number VMA-50510-01E as issued by The VMC Group for a complete list of certified models, included accessories/options, and certified installation methods.

**Baltimore Aircoil Company; Cooling Towers and Evaporative Condensers
FXV Closed Circuit Cooling Towers and CXVB Evaporative Condensers**

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 University of California Berkeley Pacific Earthquake Engineering Research Center under the review of the ISO Accredited Product Certification Agency, the VMC Group.

Certified Seismic Design Levels			
Certified IBC	Importance $I_p \leq 1.5$ Soil Classes A-E Risk Categories I-IV Design Categories A-F	z/h ≤ 1.0	z/h = 0.0
		$S_{DS} \leq 1.500\text{ g}$	$S_{DS} \leq 2.500\text{ g}$

Certified Seismic Installation Methods	
Rigid Mounting From Unit Base To Rigid Structure	External Isolation Mounting From Unit Base To Rigid Structure

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Certified Product Table:

Base FXV Model No.	Base Unit Width (in)	Base Unit Length (in)	Base Unit Height (in)	Max Operating Weight (lb)
FXV-0806A&B-(12,16,20,24,28,32,36)D-(G,H,J,K,L)	102	90	150-217	7,800-11,500
FXV-0809A&B-(16,20,24,28,30,32,36)D-(G,H,J,K,L,M)		132	148-215	11,270-16,520
FXV-0809B-36D,T-(H,J,K,L,M)		215	16,530-17,160	
FXV-0812A-(12,16,20,23)D,Q,T-(J,K,L,M)		168	150	14,170-22,560
FXV-0812B-(12,16,20,23,24,28,30,32,36)D,Q,T-(J,K,L,M,N,O)		182-217	14,910-21,170	
FXV-0818A-(12,16,23,24,32)D,Q,T-(K,L,M)		240	156-191	21,220-29,080
FXV-0818B-(12,16,23,24,32)D,Q,T-(K,L,M,N,O)			188-223	22,580-30,750
FXV-1212B-(12,16,20,23,24,28)D-(M,N,O)			168	182-218
FXV-1212C-(12,16,20,23,24,28,30,32,36)D,Q,T-(K,L,M,N,O,P)		142	198-234	20,230-30,210
FXV-1218B-(12,16,20,23,24)D,Q,T-(K,L,M,N,O)			246	188-224
FXV-1218C-(12,16,20,23,24,30,32,36)D,Q,T-(K,L,M,N,O,P)	204-240		32,220-46,400	
CXVB-(075-137)-0806-(3,5,7.5,10,15)	102	90	150-217	7,490-10,570
CXVB-(113-190)-0809-(3,5,7.5,10,15,20)		132	180-215	11,590-15,130
CXVB-(172-284)-0809-(7.5,10,15,20,30)		182-217	15,390-19,100	
CXVB-(248-409)-0818-(15,22.5,30,37.5,45)		240	156-223	20,470-29,230
CXVB-(237-420)-1212-(10,15,20,25,30,40)	142	168	198-234	19,200-27,140
CXVB-(360-643)-1218-(15,22.5,30,37.5,45,60)		246	204-240	30,680-42,380
CXVB-(473-840)-1224-(20,30,40,50,60,80)		341	198-234	38,400-54,270
CXVB-(719-1287)-1236-(30,45,60,75,90,120)		497	204-240	61,360-84,750

Group	Type	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
Seismic	AC156	2.50	1.50	2.50	1.80	1.67	0.67	3.38

This certification includes condensing units and factory supplied accessories and options. The condensing unit and applicable accessories and options shall be a catalogue design and factory supplied. The condensing unit shall be installed and attached to the building structure per the manufacturer's instructions. This certification excludes all non-factory supplied accessories and options, including but not limited to isolation/restraint devices, air handlers, other electrical/mechanical components and all connections for electrical, fuel, heating or cooling fluid, or other pipe/conduit connections and configurations not detailed in the above charts. Flexibility in the connections must be detailed in the above charts. Flexibility in the connections must be maintained as to not transmit load into the equipment. Design specials are outside the scope of this certification.



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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 2018 referencing ASCE7-16 and ICC-ES AC-156
 - 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
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 does not guarantee the equipment will remain compliant to NEMA, IP, UL, or CSA standards after a seismic event.
6. This certificate applies to units manufactured at:
 - 15341 Rd. 28 ½, Madera, CA 93638
 - 1162 Holly Hill Rd, Milford, DE 19963
7. This certification follows the VMC Group's ISO-17065 Scheme.

John P. Giuliano, PE
President, VMC Group



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