



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP – 0494 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Carrier Corporation

Manufacturer's Technical Representative: Jorge Sanchez

Mailing Address: 7310 West Morris St., Indianapolis, IN 46206

Telephone: 714.764.4822 Email: jasanchez@siglers.com

Product Information

Product Name: Single-Packaged Rooftop Air Conditioning Units

Product Type: Packaged Rooftop Air Conditioning Units

Product Model Number: 48HC, 50HC, 50HCQ, 50TCQ

(List all unique product identification numbers and/or part numbers)

General Description: Packaged Rooftop heating/cooling units

Mounting Description: Rigid base mounted on 14" carbon steel roof curb

Applicant Information

Applicant Company Name: TRU Compliance, LLC

Contact Person: Matthew J. Tobolski, PhD, S.E.

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

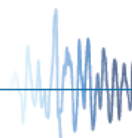
Telephone: 844.878.0200 Email: mtobolski@trucompliance.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant:  Date: 12/20/2016

Title: President Company Name: TRU Compliance, LLC

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: TRU Compliance, LLC

Name: Matthew J. Tobolski, PhD, S.E. California License Number: S5648

Mailing Address: 960 SW Disk Dr., Suite 104, Bend, OR 97702

Telephone: 844.878.0200 Email: mtobolski@trucompliance.com

Supports and Attachments Preapproval

- ☐ Supports and attachments are preapproved under OPM-
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- ☒ Supports and attachments are not preapproved

Certification Method

- ☒ Testing in accordance with: ☒ ICC-ES AC156
- ☐ Other (Please Specify): _____

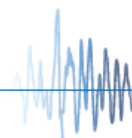
Testing Laboratory

Company Name: Pacific Earthquake Engineering and Research Center (PEER)

Contact Name: Clement B. Barthes

Mailing Address: 1301 South 46th St., Bldg. 420, Richmond, CA 94804

Telephone: 510.642.3437 Email: peer_center@berkeley.edu





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FACILITIES DEVELOPMENT DIVISION

Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 1.5 ($S_{DS} = 2.0$); 1.125 ($S_{DS} = 2.5$)

S_{DS} (Design spectral response acceleration at short period, g) = 2.0g ($z/h = 1.0$); 2.5g ($z/h = 0.0$)

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0 ($S_{DS} = 2.0g$); 0.0 ($S_{DS} = 2.5g$)

Equipment or Component Natural Frequencies (Hz) = See Attachment

Overall dimensions and weight (or range thereof) = See Attachment

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: ☐ Yes ☒ No

Design Basis of Equipment or Components (V/W) = _____

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2015: ☐ Yes ☐ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☐ Drawings ☐ Calculations ☐ Manufacturer's Catalog

☒ Other(s) (Please Specify): Attachment

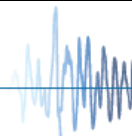
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: Ali Sumer Date: March 6, 2017

Print Name: Ali Sumer Title: DSE

Special Seismic Certification Valid Up to : S_{DS} (g) = See Above z/h = See Above

Condition of Approval (if applicable): _____



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation						TABLE 1	
Model Line: 48HC/50HC/50HCQ/50TCQ							
Certified Product Construction Summary: Formed carbon steel construction.							
Certified Options Summary: 14" Welded Carbon Steel Roof Curb; See Tables 2 - 14 for all other certified options							
Mounting Configuration: Base mounted - rigid Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0 g \quad z/h=1.0$ $S_{DS} = 2.5 g \quad z/h=0.0$		$I_p = 1.5$	
Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
50TCQ	50TCQ-04	46.8	74.4	33.4	505		Interp.
	50TCQ-05	46.8	74.4	33.4	510		Interp.
	50TCQ-06	46.8	74.4	41.4	590		Interp.
	50TCQ-07	59.5	88.1	41.3	630		Interp.
	50TCQ-08	59.5	88.1	49.4	885		Interp.
	50TCQ-09	59.5	88.1	49.4	910		Interp.
	50TCQ-12	59.5	88.1	49.4	1050		Interp.
	50TCQ-14	63.4	115.9	57.4	1370		Interp.
	50TCQ-17	86.4	152.8	49.4	1775		Interp.
	50TCQ-24	86.4	166.4	49.4	2100		Interp.
50HCQ	50HCQ-04	46.8	74.4	33.4	495		Interp.
	50HCQ-05	46.8	74.4	41.4	580		Interp.
	50HCQ-06	46.8	74.4	41.4	610		Interp.
	50HCQ-07	59.5	88.1	41.3	710		Interp.
	50HCQ-08	59.5	88.1	49.4	875		Interp.
	50HCQ-09	59.5	88.1	49.4	1020		Interp.
	50HCQ-12	63.4	115.9	57.4	1390	UUT: 1740 lbs.	4
50HC	50HC-04	46.8	74.4	33.4	458		Interp.
	50HC-05	46.8	74.4	41.4	545		Interp.
	50HC-06	46.8	74.4	41.4	550		Interp.
	50HC-07	59.5	88.1	41.3	715		Interp.
	50HC-08	59.5	88.1	49.4	860		Interp.
	50HC-09	59.5	88.1	49.4	860		Interp.
	50HC-11	59.5	88.1	49.4	1025		Interp.

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SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation						TABLE 1	
Model Line: 48HC/50HC/50HCQ/50TCQ							
Certified Product Construction Summary: Formed carbon steel construction.							
Certified Options Summary: 14" Welded Carbon Steel Roof Curb; See Tables 2 - 14 for all other certified options							
Mounting Configuration: Base mounted - rigid Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0\text{ g}$ $z/h=1.0$ $S_{DS} = 2.5\text{ g}$ $z/h=0.0$		$I_p = 1.5$	
Model Line	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
50HC	50HC-12	59.5	88.1	49.4	1025		Interp.
	50HC-14	63.4	115.9	57.4	1360		Interp.
	50HC-17	86.4	152.8	49.4	1793		Interp.
	50HC-20	86.4	166.4	49.4	2003		Interp.
	50HC-24	86.4	166.4	57.4	2148		Interp.
	50HC-28	86.4	182.5	57.4	2193		Interp.
48HC	48HC-04	46.8	74.4	33.4	505		Interp.
	48HC-05	46.8	74.4	41.4	590		Interp.
	48HC-06	46.8	74.4	41.4	600	UUT: 760 lbs.	3
	48HC-07	59.5	88.1	41.4	765		Interp.
	48HC-08	59.5	88.1	49.4	925		Interp.
	48HC-09	59.5	88.1	49.4	925		Interp.
	48HC-11	59.5	88.1	49.4	1090		Interp.
	48HC-12	59.5	88.1	49.4	1090		Interp.
	48HC-14	63.4	115.9	57.4	1430		Interp.
	48HC-17	86.4	152.8	49.4	1892		Interp.
	48HC-20	86.4	166.4	49.4	2102		Interp.
	48HC-24	86.4	166.4	57.4	2247		Interp.
	48HC-28	86.4	182.5	57.4	2292	UUT1: 2960 lbs./UUT2: 2720 lbs.	1,2

SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		48HC 4-14 Model Line Numbering	TABLE 1
Model Line: 48HC/50HC/50HCQ/50TCQ			
Columns 1&2	Product type	48 = Gas heat package (rooftop)	
Columns 3&4	Model series	HC = High efficiency	
Column 5	Heat Size	D = Low Gas Heat	
		E = Medium Gas Heat	
		F = High Gas Heat	
		L = Low No _x - Low Gas Heat	
		M = Low No _x - Med Gas Heat	
		N = Low No _x - High Gas Heat	
		S = Low Heat w/Stainless Steel Exchanger	
		R = Med Heat w/Stainless Steel Exchanger	
		T = High Heat w/Stainless Steel Exchanger	
Column 6	Refrigerant System Options	A = Single stage cooling models	
		B = Single stage cooling w/Humidi-MiZer	
		D = 2 stage cooling	
		E = 2 stage cooling w/Humidi-MiZer	
		F = Single stage cooling w/MotorMaster low amb cntl	
		G = 2 stage cooling w/MotorMaster low amb cntl	
Columns 7&8	Cooling Tons	04 = 3 ton	
		05 = 4 ton	
		06 = 5 ton	
		07 = 6 ton	
		08 = 7.5 ton	
		09 = 8.5 ton	
		11 = 10 ton (12.0 EER)	
		12 = 10 ton (11.5 EER)	
		14 = 12.5 ton	
Column 9	Sensor Options	A = None	
		B = RA Smoke Detector	
		C = SA Smoke Detector	
		D = RA + SA Smoke Detector	
		E = CO ₂ Sensor	
		F = RA Smoke Detector + CO ₂	
		G = SA Smoke Detector + CO ₂	
		H = RA + SA Smoke Detector + CO ₂	
Column 10	Indoor Fan Options 3, 4, 5 ton models only	0 = Electric (Direct) Drive x13 motor	
		2 = Medium Static Option - Belt Drive	
		3 = High Static Option - Belt Drive	

SPECIAL SEISMIC CERTIFICATION

MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation Model Line: 48HC/50HC/50HCQ/50TCQ		48HC 4-14 Model Line Numbering	TABLE 1
Column 10 cont.	Indoor Fan Options 6 - 12.5 Ton Models Only	1 = Standard Static Option - Belt Drive 2 = Medium Static Option - Belt Drive 3 = High Static Option - Belt Drive C = High Static Option w/High Eff Motor - Belt Drive	
Column 11	Coil Options	A = Al/Cu - Al/Cu B = Pre-coat Al/Cu - Al/Cu C = E-coat Al/Cu - Al/Cu D = E-coat Al/Cu - E-coat Al/Cu E = Cu/Cu - Al/Cu F = Cu/Cu - Cu/Cu M = Al/Cu - Al/Cu - Louvered hail guard N = Pre-Coat Al/Cu - Al/Cu - Louvered Hail Guard P = E-Coat Al/Cu - Al/Cu Louvered Hail Guard Q = E-Coat Al/Cu - E-Coat Al/Cu - Louvered Hail Guard R = Cu/Cu - Al/Cu - Louvered Hail Guard	
Column 12	Voltage	1 = 575/3/60 3 = 208-230/1/60 5 = 208-230/3/60 6 = 460/3/60	
Column 13	Design revision	- = Factory Design Revision	
Column 14	Base Unit Controls	0 = Electromechanical controls (Used with W7212) 1 = PremierLink Controller 2 = RTU Open Multi-Protocol Controller 6 = Electromechanical Controls (Used with W7220) D = ComfortLink Controls	
Column 15	Intake/Exhaust Options	A = None B = Temperature Economizer w/Barometric Relief F = Enthalpy Economizer w/Barometric Relief K = 2 position Damper U = Temp Ultra Low Leak Economizer w/Barometric Relief W = Enthalpy Ultra Low Leak Econo w/Barometric Relief	
Column 16	Service Options	0 = None 1 = Un-Powered Convenience Outlet 2 = Powered Convenience Outlet 3 = Hinged Panels 4 = Hinged Panels, un-powered C.O. 5 = Hinged Panels, powered C.O. C = Foil faced insulation	

SPECIAL SEISMIC CERTIFICATION
MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039

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SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation 48 HC 17-28 Model Line Numbering Model Line: 48HC/50HC/50HCQ/50TCQ		TABLE 1
Columns 1&2	Product type	48 = Gas heat package (rooftop)
Columns 3&4	Model series	HC = High efficiency
Column 5	Heat Size	D = Low Gas Heat
		E = Medium Gas Heat
		F = High Gas Heat
		S = Low Heat w/Stainless Steel Exchanger
		R = Med Heat w/Stainless Steel Exchanger
		T = High Heat w/Stainless Steel Exchanger
Column 6	Refrigerant System Options	D = 2 stage cooling
		E = 2 stage cooling w/Humidi-MiZer
		G = 2 stage cooling w/MotorMaster low amb cntl
Columns 7&8	Nominal Cooling Capacity (Tons)	17 = 15 tons
		20 = 17.5 tons
		24 = 20 tons
		28 = 25 tons
Column 9	Sensor Options	A = None
		B = RA Smoke Detector
		C = SA Smoke Detector
		D = RA + SA Smoke Detector
		E = CO ₂ Sensor
		F = RA Smoke Detector + CO ₂
		G = SA Smoke Detector + CO ₂
		H = RA + SA Smoke Detector + CO ₂
Column 10	Indoor Fan Options & Air Flow Configuration	1 = Standard Static/Vertical Supply, Return Air Flow
		2 = Medium Static/Vertical Supply, Return Air Flow
		3 = High Static/ Vertical Supply, Return Air Flow
		B = Med Static High Eff Motor / Vert Supply, Return Air Flow
		C = High Static High Eff Motor / Vert Supply, Return Air Flow
		2 = Medium Static Option - Belt Drive
		5 = Standard Static/Horizontal Supply, Return Air Flow
		6 = Medium Static/Horizontal Supply, Return Air Flow
		7 = High Static/ Horizontal Supply, Return Air Flow
		F = Med Static High Eff Motor / Horizontal Supply, Return Air Flow
		G = High Static High Eff Motor / Horiz Supply, Return Air Flow
Column 11	Coil Options	A = Al/Cu - Al/Cu
		B = Pre-coat Al/Cu - Al/Cu
		C = E-coat Al/Cu - Al/Cu
		D = E-coat Al/Cu - E-coat Al/Cu
		E = Cu/Cu - Al/Cu

SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation 48 HC 17-28 Model Line Numbering Model Line: 48HC/50HC/50HCQ/50TCQ		TABLE 1
Column 11 cont.	Coil Options	F = Cu/Cu - Cu/Cu
		M = Al/Cu - Al/Cu - Louvered hail guard
		N = Pre-Coat Al/Cu - Al/Cu - Louvered Hail Guard
		P = E-Coat Al/Cu - Al/Cu Louvered Hail Guard
		Q = E-Coat Al/Cu - E-Coat Al/Cu - Louvered Hail Guard
		R = Cu/Cu - Al/Cu - Louvered Hail Guard
		S = Cu/Cu - Cu/Cu - Louvered Hail Guard
Column 12	Voltage	1 = 575/3/60
		5 = 208-230/3/60
		6 = 460/3/60
Column 13	Design revision	- = Factory Design Revision
Column 14	Base Unit Controls	0 = Electromechanical controls (Used with W7212)
		1 = PremierLink Controller
		2 = RTU Open Multi-Protocol Controller
		6 = Electromechanical Controls (Used with W7220)
		D = ComfortLink Controls
Column 15	Intake/Exhaust Options	A = None
		B = Temperature Economizer w/Barometric Relief
		F = Enthalpy Economizer w/Barometric Relief
		K = 2 position Damper
		U = Temp Ultra Low Leak Economizer w/Barometric Relief
		V = Temp Ultra Low Leak Economizer w/Power Exhaust & Bar. Relief
		W = Enthalpy Ultra Low Leak Econo w/Barometric Relief
		X = Enthalpy Ultra Low Leak Econ w/P (cent) - Vertical Air Only
Column 16	Service Options	0 = None
		1 = Un-Powered Convenience Outlet
		2 = Powered Convenience Outlet
		3 = Hinged Panels
		4 = Hinged Panels, un-powered C.O.
		5 = Hinged Panels, powered C.O.
		C = Foil faced insulation
Column 17	Electrical Options	A = None
		B = HACR breaker
		C = Non-fused disconnect
		G = 2-speed indoor fan (VFD) controller
		J = 2-speed contriller (VFD) & non -fused disconnect
Column 18	Packaging	0 = Standard

SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation Model Line: 48HC/50HC/50HCQ/50TCQ		50HC 4-14 Model Line Numbering	TABLE 1
Columns 1&2	Product type	50 = Electric heat package (rooftop)	
Columns 3&4	Model series	HC = High efficiency	
Column 5	Electric Heater Option	- = Standard (No Electric Heat)	
		A = Low Electric Heat	
		B = Medium Electric Heat	
		C = High Electric Heat	
Column 6	Refrigerant System Options	A = Single stage cooling models	
		B = Single stage cooling w/Humidi-MiZer	
		D = 2 stage cooling	
		E = 2 stage cooling w/Humidi-MiZer	
		F = Single stage cooling w/MotorMaster low amb cntl	
		G = 2 stage cooling w/MotorMaster low amb cntl	
Columns 7&8	Cooling Tons	04 = 3 ton	
		05 = 4 ton	
		06 = 5 ton	
		07 = 6 ton	
		08 = 7.5 ton	
		09 = 8.5 ton	
		11 = 10 ton (12.0 EER)	
		12 = 10 ton (11.7 EER)	
		14 = 12.5 ton	
Column 9	Sensor Options	A = None	
		B = RA Smoke Detector	
		C = SA Smoke Detector	
		D = RA + SA Smoke Detector	
		E = CO ₂ Sensor	
		F = RA Smoke Detector + CO ₂	
		G = SA Smoke Detector + CO ₂	
		H = RA + SA Smoke Detector + CO ₂	
Column 10	Indoor Fan Options 3, 4, 5 ton models only	0 = Electric (Direct) Drive x13 motor	
		2 = Medium Static Option - Belt Drive	
		3 = High Static Option - Belt Drive	
	Indoor Fan Options 6 - 12.5 Ton Models Only	1 = Standard Static Option - Belt Drive	
		2 = Medium Static Option - Belt Drive	
		3 = High Static Option - Belt Drive	
		C = High Static Option w/High Eff Motor - Belt Drive	
Column 11	Coil Options	A = Al/Cu - Al/Cu	
		B = Pre-coat Al/Cu - Al/Cu	
		C = E-coat Al/Cu - Al/Cu	

SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation 50HC 4-14 Model Line Numbering Model Line: 48HC/50HC/50HCQ/50TCQ		TABLE 1
Column 11	Coil Options	D = E-coat Al/Cu - E-coat Al/Cu
		E = Cu/Cu - Al/Cu
		F = Cu/Cu - Cu/Cu
		M = Al/Cu - Al/Cu - Louvered hail guard
		N = Pre-Coat Al/Cu - Al/Cu - Louvered Hail Guard
		P = E-Coat Al/Cu - Al/Cu Louvered Hail Guard
		Q = E-Coat Al/Cu - E-Coat Al/Cu - Louvered Hail Guard
		R = Cu/Cu - Al/Cu - Louvered Hail Guard
		S = Cu/Cu - Cu/Cu - Louvered Hail Guard
Column 12	Voltage	1 = 575/3/60
		3 = 208-230/1/60
		5 = 208-230/3/60
		6 = 460/3/60
Column 13	Design revision	- = Factory Design Revision
Column 14	Base Unit Controls	0 = Electromechanical controls (Used with W7212)
		1 = PremierLink Controller
		2 = RTU Open Multi-Protocol Controller
		6 = Electromechanical Controls (Used with W7220)
		D = ComfortLink Controls
Column 15	Intake/Exhaust Options	A = None
		B = Temperature Economizer w/Barometric Relief
		F = Enthalpy Economizer w/Barometric Relief
		K = 2 position Damper
		U = Temp Ultra Low Leak Economizer w/Barometric Relief
		W = Enthalpy Ultra Low Leak Econo w/Barometric Relief
Column 16	Service Options	0 = None
		1 = Un-Powered Convenience Outlet
		2 = Powered Convenience Outlet
		3 = Hinged Panels
		4 = Hinged Panels, un-powered C.O.
		5 = Hinged Panels, powered C.O.
		C = Foil faced insulation
Column 17	Electrical Options	A = None
		B = HACR breaker
		C = Non-fused disconnect
		D = Thru-the -base Connections
		F = Non-fused Disconnect & thru-the base
		G = 2-speed indoor fan (VFD) controller
		J = 2-speed contriller (VFD) & non -fused disconnect

TRU PROJECT NO. 16039

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SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		50HC 17-28 Model Line Numbering	TABLE 1
Model Line: 48HC/50HC/50HCQ/50TCQ			
Columns 1&2	Product type	50 = Electric heat package (rooftop)	
Columns 3&4	Model series	HC = High efficiency	
Column 5	Electric Heater Option	- = Standard (No Electric Heat)	
		A = Low Electric Heat	
		B = Medium Electric Heat	
		C = High Electric Heat	
Column 6	Refrigerant System Options	D = 2 stage cooling w/RTPF	
		E = 2 stage cooling w/Humidi-MiZer	
		G = 2 stage cooling w/MotorMaster low amb cntl	
Columns 7&8	Cooling Tons	17 = 15 tons	
		20 = 17.5 tons	
		24 = 10 tons	
		28 = 25 tons	
Column 9	Sensor Options	A = None	
		B = RA Smoke Detector	
		C = SA Smoke Detector	
		D = RA + SA Smoke Detector	
		E = CO ₂ Sensor	
		F = RA Smoke Detector + CO ₂	
		G = SA Smoke Detector + CO ₂	
		H = RA + SA Smoke Detector + CO ₂	
Column 10	Indoor Fan Options & Air Flow Configuration	1 = Standard Static/Vertical Supply, Return Air Flow	
		2 = Medium Static/Vertical Supply, Return Air Flow	
		3 = High Static/ Vertical Supply, Return Air Flow	
		B = Med Static High Eff Motor / Vert Supply, Return Air Flow	
		C = High Static High Eff Motor / Vert Supply, Return Air Flow	
		5 = Standard Static/Horizontal Supply, Return Air Flow	
		6 = Medium Static/Horizontal Supply, Return Air Flow	
		7 = High Static/ Horizontal Supply, Return Air Flow	
		F = Med Static High Eff Motor / Horizontal Supply, Return Air Flow	
		G = High Static High Eff Motor / Horiz Supply, Return Air Flow	
Column 11	Coil Options	A = Al/Cu - Al/Cu	
		B = Pre-coat Al/Cu - Al/Cu	
		C = E-coat Al/Cu - Al/Cu	
		D = E-coat Al/Cu - E-coat Al/Cu	
		E = Cu/Cu - Al/Cu	
		F = Cu/Cu - Cu/Cu	
		M = Al/Cu - Al/Cu - Louvered hail guard	
		N = Pre-Coat Al/Cu - Al/Cu - Louvered Hail Guard	

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SPECIAL SEISMIC CERTIFICATION

MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation Model Line: 48HC/50HC/50HCQ/50TCQ		50HC 17-28 Model Line Numbering	TABLE 1
Column 11 cont.	Coil Options	P = E-Coat Al/Cu - Al/Cu Louvered Hail Guard	
		Q = E-Coat Al/Cu - E-Coat Al/Cu - Louvered Hail Guard	
		R = Cu/Cu - Al/Cu - Louvered Hail Guard	
		S = Cu/Cu - Cu/Cu - Louvered Hail Guard	
Column 12	Voltage	1 = 575/3/60	
		5 = 208-230/3/60	
		6 = 460/3/60	
Column 13	Design revision	- = Factory Design Revision	
Column 14	Base Unit Controls	0 = Electromechanical controls (Used with W7212)	
		1 = PremierLink Controller	
		2 = RTU Open Multi-Protocol Controller	
		6 = Electromechanical Controls (Used with W7220)	
		D = ComfortLink Controls	
Column 15	Intake/Exhaust Options	A = None	
		B = Temperature Economizer w/Barometric Relief	
		F = Enthalpy Economizer w/Barometric Relief	
		K = 2 position Damper	
		U = Temp Ultra Low Leak Economizer w/Barometric Relief	
		V = Temp Ultra Low Leak Econo w/Baro Relief	
		W = Enthalpy Ultra Low Leak Econo w/Barometric Relief	
		X = Enthalpy Ultra Low Leak Econo w/PE(cent) Vert.	
Column 16	Service Options	0 = None	
		1 = Un-Powered Convenience Outlet	
		2 = Powered Convenience Outlet	
		3 = Hinged Panels	
		4 = Hinged Panels, un-powered C.O.	
		5 = Hinged Panels, powered C.O.	
		C = Foil faced insulation	
Column 17	Electrical Options	A = None	
		B = HACR breaker	
		C = Non-fused disconnect	
		G = 2-speed indoor fan (VFD) controller	
		J = 2-speed contriller (VFD) & non -fused disconnect	
Column 18	Packaging	0 = Standard	

SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		50TCQ 4-14 Model Line Numbering	TABLE 1
Model Line: 48HC/50HC/50HCQ/50TCQ			
Columns 1&2	Unit Heat t\Type	50 = Electric Heat Package Rooftop	
Columns 3&4	Model series	TC = Standard Efficiency	
Column 5	Heat Options	Q = Heat Pump	
Column 6	Ref. System Options	A = 1-stage cooling model	
		D = 2-Stage cooling model	
Columns 7&8	Cooling Tons	04 = 3 ton	
		05 = 4 ton	
		06 = 5 ton	
		07 = 6 ton	
		08 = 7.5 ton	
		09 = 8.5 ton	
		12 = 10 ton	
		14 = 12.5 ton	
Column 9	Sensor Options	A = None	
		B = RA Smoke Detector	
		C = SA Smoke Detector	
		D = RA + SA Smoke Detector	
		E = CO ₂ Sensor	
		F = RA Smoke Detector + CO ₂	
		G = SA Smoke Detector + CO ₂	
		H = RA + SA Smoke Detector + CO ₂	
Column 10	Indoor Fan Options	0 = Electric drive X13 Motor (04-06)	
		1 = Standard Static Option - Belt Drive	
		2 = Medium Static Option - Belt Drive	
		3 = High Static Option - Belt Drive	
		C = High Static Option w/High Efficiency Motor - Belt Drive (size 14 only)	
Column 11	Coil Options	A = Al/Cu - Al/Cu	
		B = Pre-coat Al/Cu - Al/Cu	
		C = E-coat Al/Cu - Al/Cu	
		D = E-coat Al/Cu - E-coat Al/Cu	
		E = Cu/Cu - Al/Cu	
		F = Cu/Cu - Cu/Cu	
		M = Al/Cu - Al/Cu - Louvered hail guard	
		N = Pre-Coat Al/Cu - Al/Cu - Louvered Hail Guard	
		P = E-Coat Al/Cu - Al/Cu Louvered Hail Guard	
		Q = E-Coat al/Cu - E-Coat Al/Cu - Louvered Hail Guard	
		R = Cu/Cu - Al/Cu - Louvered Hail Guard	
		S = Cu/Cu - Cu/Cu - Louvered Hail Guard	
Column 12	Voltage	1 = 575/3/60	

SPECIAL SEISMIC CERTIFICATION
MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039

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SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation Model Line: 48HC/50HC/50HCQ/50TCQ		50TCQ 17-24 Model Line Numbering	TABLE 1
Columns 1&2	Unit Heat t\Type	50 = Electric Heat Package Rooftop	
Columns 3&4	Model series	TC = Standard Efficiency	
Column 5	Heat Options	Q = Heat Pump	
Column 6	Ref. System Options	D = 2-Stage cooling compressor models	
Columns 7&8	Cooling Tons	17 = 15 ton	
		24 = 20 ton	
Column 9	Sensor Options	A = None	
		B = RA Smoke Detector	
		C = SA Smoke Detector	
		D = RA + SA Smoke Detector	
		E = CO ₂ Sensor	
		F = RA Smoke Detector + CO ₂	
		G = SA Smoke Detector + CO ₂	
		H = RA + SA Smoke Detector + CO ₂	
Column 10	Indoor Fan Options	1 = Standard Static Option, Vertical	
		2 = Medium Static Option, Vertical	
		3 = High Static Option, Vertical	
		B = Medium Static, High Eff Motor, Vertical	
		C = High Static, High Eff Motor, Vertical	
		5 = Standard Static Option, Horizontal	
		6 = Medium Static Option, Horizontal	
		7 = High Static Option, Horizontal	
		F = Medium Static, High Eff Motor, Horizontal	
Column 11	Coil Options	A = Al/Cu - Al/Cu	
		B = Pre-coat Al/Cu - Al/Cu	
		C = E-coat Al/Cu - Al/Cu	
		D = E-coat Al/Cu - E-coat Al/Cu	
		E = Cu/Cu - Al/Cu	
		F = Cu/Cu - Cu/Cu	
		M = Al/Cu - Al/Cu - Louvered hail guard	
		N = Pre-Coat Al/Cu - Al/Cu - Louvered Hail Guard	
		P = E-Coat Al/Cu - Al/Cu Louvered Hail Guard	
		Q = E-Coat Al/Cu - E-Coat Al/Cu - Louvered Hail Guard	
		R = Cu/Cu - Al/Cu - Louvered Hail Guard	
		S = Cu/Cu - Cu/Cu - Louvered Hail Guard	
Column 12	Voltage	1 = 575/3/60	
		5 = 208-230/3/60	
		6 = 460/3/60	

SPECIAL SEISMIC CERTIFICATION
MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039

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SPECIAL SEISMIC CERTIFICATION MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		50HCQ 4-12 Model Line Numbering	TABLE 1
Model Line: 48HC/50HC/50HCQ/50TCQ			
Columns 1-4	Series	50HC = Packaged Rooftop - High Efficiency	
Column 5	Model series	Q = Heat Pump	
Column 6	Refrigerant System Options	A = One Stage Cooling Models	
		D = Two Stage Cooling Models	
Columns 7&8	Cooling Tons	04 = 3 ton	
		05 = 4 ton	
		06 = 5 ton	
		07 = 6 ton	
		08 = 7.5 ton	
		09 = 8.5 ton	
		12 = 10 ton	
Column 9	Sensor Options	A = None	
		B = RA Smoke Detector	
		C = SA Smoke Detector	
		D = RA + SA Smoke Detector	
		E = CO ₂ Sensor	
		F = RA Smoke Detector + CO ₂	
		G = SA Smoke Detector + CO ₂	
		H = RA + SA Smoke Detector + CO ₂	
Column 10	Indoor Fan Options	0 = Electric Drive X13 Motor (04-06)	
		1 = Standard Static Option - Belt Drive	
		2 = Medium Static Option - Belt Drive	
		3 = High Static Option - Belt Drive	
		C = High Static Option with High Efficiency Motor - Belt Drive (size 12 only)	
Column 11	Coil Options - Round Tube/Plate Fin Condenser Coil	A = Al/Cu - Al/Cu	
		B = Pre-coat Al/Cu - Al/Cu	
		C = E-coat Al/Cu - Al/Cu	
		D = E-coat Al/Cu - E-coat Al/Cu	
		E = Cu/Cu - Al/Cu	
		F = Cu/Cu - Cu/Cu	
		M = Al/Cu - Al/Cu - Louvered hail guard	
		N = Pre-Coat Al/Cu - Al/Cu - Louvered Hail Guard	
		P = E-Coat Al/Cu - Al/Cu Louvered Hail Guard	
		Q = E-Coat Al/Cu - E-Coat Al/Cu - Louvered Hail Guard	
		R = Cu/Cu - Al/Cu - Louvered Hail Guard	
		S = Cu/Cu - Cu/Cu - Louvered Hail Guard	
Column 12	Voltage	1 = 575/3/60	
		3 = 208-230/1/60	
		5 = 208-230/3/60	

SPECIAL SEISMIC CERTIFICATION
MODEL LINE NUMBERING - REFERENCE ONLY

TRU PROJECT NO. 16039

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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		Table Description: Compressors			TABLE 2
Model Line: 48HC/50HC/50HCQ/50TCQ					
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$	$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
Compressor	Emerson Climate Technologies	ZP31K5E	3 tons		Interp.
		ZP34K5E	3 tons		Interp.
		ZP38K5E	7.5 tons		Interp.
		ZP39K5E	4 - 7.5 tons		Interp.
		ZP42K5E	4 - 8.5 tons		Interp.
		ZP44K5E	8.5 tons		Interp.
		ZP49K5E	5 - 10 tons		3
		ZP51K5E	10 tons		4
		ZP54K5E	5 - 10 tons		4
		ZPS60K5E	6 tons		Interp.
		ZP61K5E	6 - 12.5 tons		Interp.
		ZP67KCE	12.5 tons		Interp.
		ZP76K5E	15 tons		Interp.
		ZP83KCE	15 - 17.5 tons		Interp.
		ZP91KCE	17.5 tons		Interp.
		ZP103KCE	20 tons		Interp.
		ZP104K5E	20 tons		Interp.
		ZP120KCE	20 tons		Interp.
		ZP122KCE	25 tons		1
		ZP137KCE	25 tons		1,2

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		Table Description: Heat Cell			TABLE 3
Model Line: 48HC/50HC/50HCQ/50TCQ					
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$	$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
Single Phase Gas Heat	Carrier	48TM400789	65 MBTUh, Al		Interp.
		48TM400790	90 MBTUh, Al		Interp.
		48TM400791	130 MBTUh, Al		Interp.
Three Phase Gas Heat	Carrier	48TM401736	72 MBTUh, Al		Interp.
		48TM402783	72 MBTUh, Al		3
		0005400103	115 MBTUh, Al		Interp.
		48TM402789	115 MBTUh, Al		Interp.
		48TM402770	125 MBTUh, Al		Interp.
		48TM400792	150 MBTUh, Al		Interp.
		50TM400675	150 MBTUh, Al		Interp.
		48TM402018	150 MBTUh, Al		Interp.
		48TM401059	180 MBTUh, Al		Interp.
		50TM400559	180 MBTUh, Al		Interp.
		48TM401061	224 MBTUh, Al		Interp.
		48TM401067	250 MBTUh, Al		Interp.
		50TM400562	240 MBTUh, Al		Interp.
		50HE400811	220 MBTUh, Al, vertical		Interp.
		50HE401229	220 MBTUh, Al, horizontal		Interp.
		50HE400805	310 MBTUh, Al, vertical		Interp.
		50HE401223	310 MBTUh, Al, horizontal		Interp.
		50HE400799	400 MBTUh, Al, vertical/horizontal		1,2

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		Table Description: Condenser coils			TABLE 4
Model Line: 48HC/50HC/50HCQ/50TCQ					
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$	$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
Condenser Coil	Carrier	Custom size coils	Al/Cu; 2 rows; 10.7 Sq. Ft.		Interp.
			Al/Cu; 2 rows; 12.7 Sq. Ft.		Interp.
			Al/Cu; 2 rows; 15.0 Sq. Ft.		Interp.
			Al/Cu; 2 rows; 16.5 Sq. Ft.		Interp.
			Al/Cu; 2 rows; 20.5 Sq. Ft.		Interp.
			Al/Cu; 2 rows; 21.3 Sq. Ft.		3
			Al/Cu; 2 rows; 25.1 Sq. Ft.		Interp.
			Al/CU; 3 rows; 25.1 Sq. Ft.		Interp.
			Al/Cu; 2 rows; 36.1 Sq. Ft.		Interp.
			Al/Cu; 2 rows; 46.2 Sq. Ft.		Interp.
			Al/Cu; 2 row; 19.5 Sq. Ft. ; 2 row 22 Sq. Ft.		Interp.
			Al/Cu; (2) @ 2 rows; 21.4 Sq. Ft. each		Interp.
			Al/Cu; (2) @ 2 rows; 23.1 Sq. Ft. each		4
			Al/Cu; (2) @ 2 rows; 25.1 Sq. Ft. each		Interp.
			Al/Cu; (2) @ 2 rows; 29.6 Sq. Ft. each		Interp.
			Al/Cu; (2) @ 2 rows; 34.3 Sq. Ft. each		1,2

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16039



Manufacturer: Carrier Corporation		Table Description: Evaporator coils			TABLE 5
Model Line: 48HC/50HC/50HCQ/50TCQ					
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$	$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
Evaporator coil	Carrier	Custom size coils	Al fins/Cu tubes; 3 rows; 5.5 Sq. Ft.		Interp.
			Al fins/Cu tubes; 4 rows; 5.5 Sq. Ft.		Interp.
			Al fins/Cu tubes; 3 rows; 7.3 Sq. Ft.		3
			Al fins/Cu tubes; 4 rows; 7.3 Sq. Ft.		Interp.
			Al fins/Cu tubes; 3 rows; 8.9 Sq. Ft.		Interp.
			Al fins/Cu tubes; 3 rows; 11.1 Sq. Ft.		Interp.
			Al fins/Cu tubes; 4 rows; 11.1 Sq. Ft.		Interp.
			Al fins/Cu tubes; 3 rows; 17.3 Sq. Ft.		4
			Al fins/Cu tubes; 3 rows; 17.5 Sq. Ft.		Interp.
			Al fins/Cu tubes; 4 rows; 17.5 Sq. Ft.		Interp.
			Al fins/Cu tubes; 3 rows; 19.6 Sq. Ft.		Interp.
			Al fins/Cu tubes; 4 rows; 22.0 Sq. Ft.		Interp.
			Al fins/Cu tubes; 4 rows; 26.0 Sq. Ft.		1,2

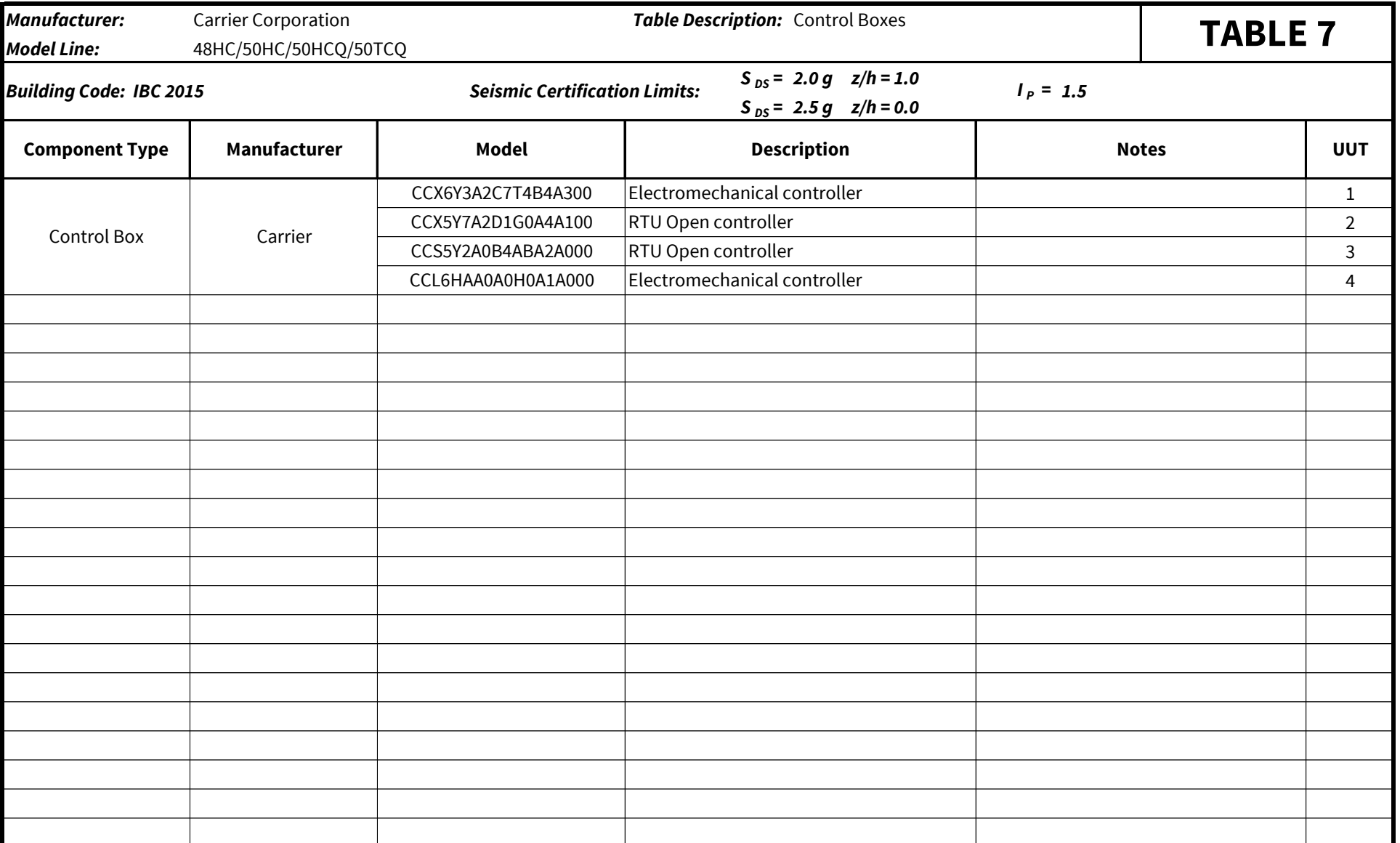
SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

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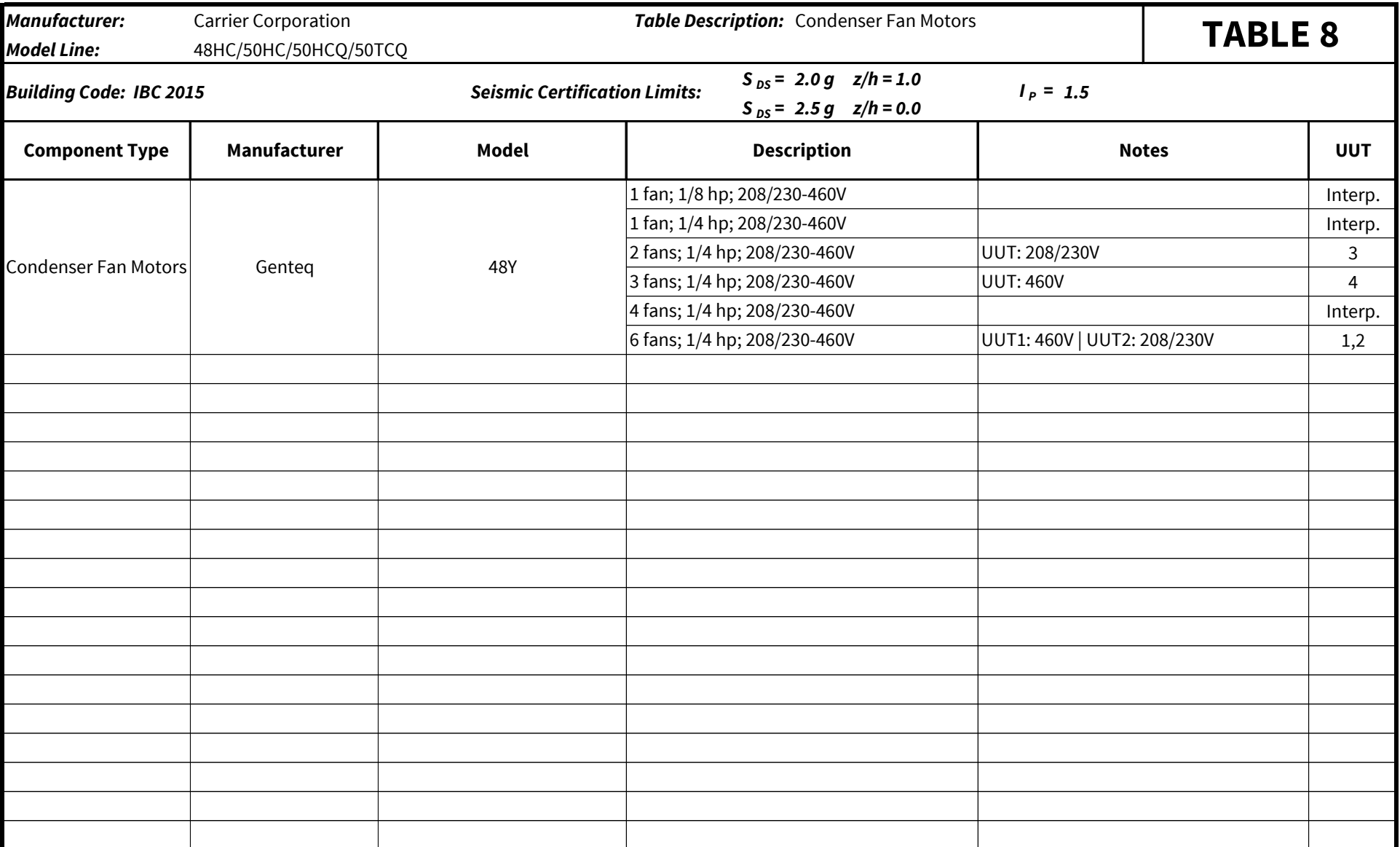


Manufacturer: Carrier Corporation		Table Description: Refrigerant Expansion Device			TABLE 6
Model Line: 48HC/50HC/50HCQ/50TCQ					
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$	$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
Refrigerant Expansion Device (Indoor)	Sporlan Division - Parker Hannifin	BBIZE-2-GA-B10	Indoor type TXV - 2 tons nominal		Interp.
		BBIZE-3-GA-B5	Indoor type TXV - 3 tons nominal		Interp.
		BBIZE-3-GA-B10	Indoor type TXV - 3 tons nominal		Interp.
		BBIZE-4-GA-B5	Indoor type TXV - 4 tons nominal	UUT: Qty (1)	3
		BBIZE-4-GA-B10	Indoor type TXV - 4 tons nominal		Interp.
		BBIZE-5-GA-B5	Indoor type TXV - 5 tons nominal	UUT: Qty (2)	4
		BBIZE-6-GA-B5	Indoor type TXV - 6 tons nominal		Interp.
		BBIZE-6-GA-B10	Indoor type TXV - 6 tons nominal		Interp.
		BBIZE-8-GA-B5	Indoor type TXV - 8 tons nominal		Interp.
		BBIZE-12.5-GA-B5	Indoor type TXV - 12.5 tons nominal		Interp.
		BBIZE-15-GA-B5	Indoor type TXV - 15 tons nominal	UUTs: Qty (2)	1,2
Refrigerant Expansion Device (Outdoor)	Weiss Precision Stamping	Acutrol 3 ton	Outdoor type Acutrol - 3 tons nominal	See note below	Extrap.
		Acutrol 4 ton	Outdoor type Acutrol - 4 tons nominal	See note below	Extrap.
		Acutrol 5 ton	Outdoor type Acutrol - 5 tons nominal	See note below	Extrap.
		Acutrol 6 ton	Outdoor type Acutrol - 6 tons nominal	See note below	Extrap.
		Acutrol 7.5 ton	Outdoor type Acutrol - 7.5 tons nominal	See note below	Extrap.
		Acutrol 8.5 ton	Outdoor type Acutrol - 8.5 tons nominal	See note below	Extrap.
		Acutrol 10 ton	Outdoor type Acutrol - 10 tons nominal	UUT: Qty (2)	4
		Acutrol 12.5 ton	Outdoor type Acutrol - 12.5 tons nominal	See note below	Extrap.
		Acutrol 15 ton	Outdoor type Acutrol - 15 tons nominal	See note below	Extrap.
		Acutrol 20 ton	Outdoor type Acutrol - 20 tons nominal	See note below	Extrap.
Note: Accutrol is a set of two punched cups in a 3/8” tube that allow for metering flow. The cups are the same size regardless of tonnage. The only difference between tonnages is the hole size in the cup (which varies from 0.028” to ~0.042” in diameter) and the number of sets of cups.					

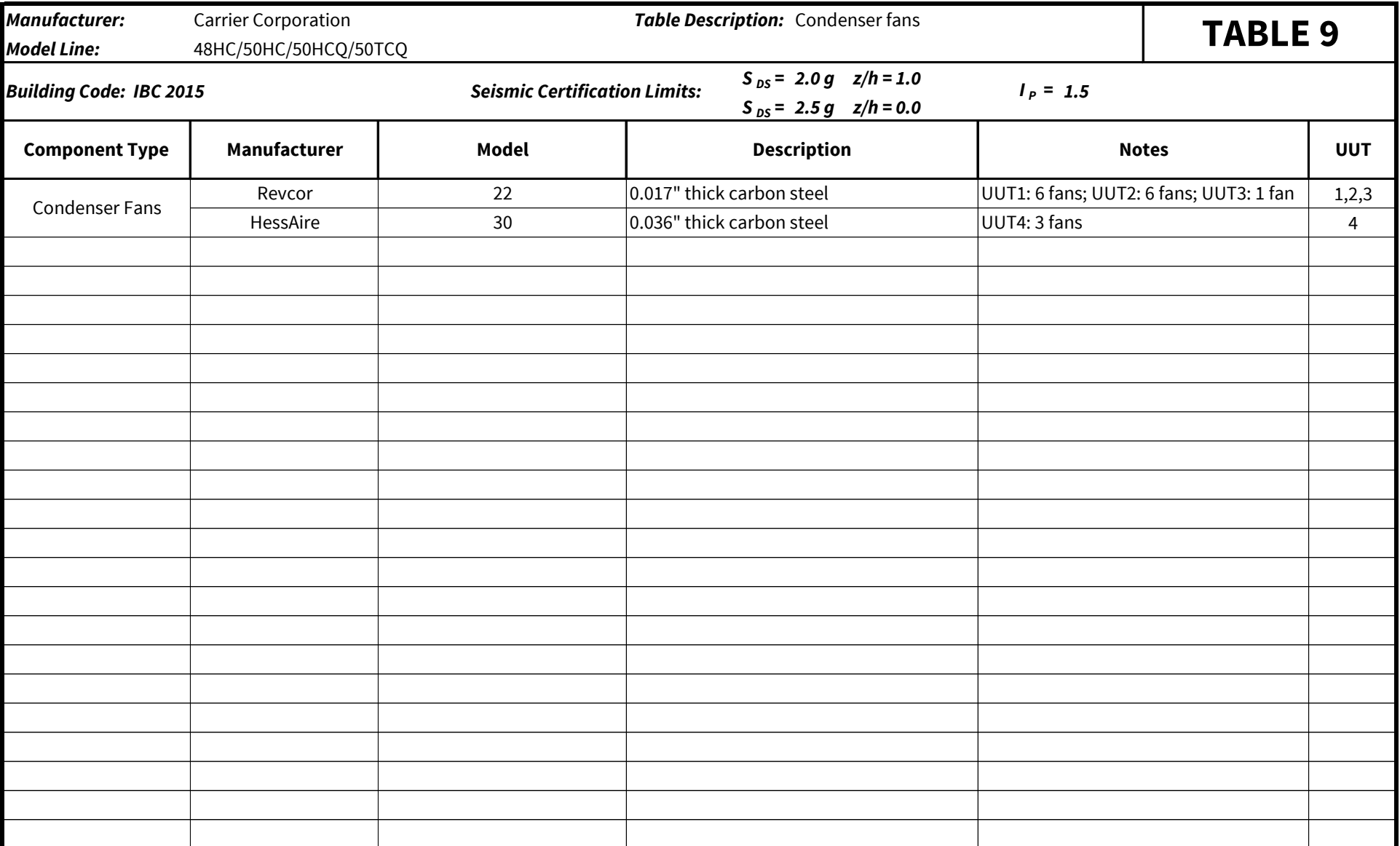
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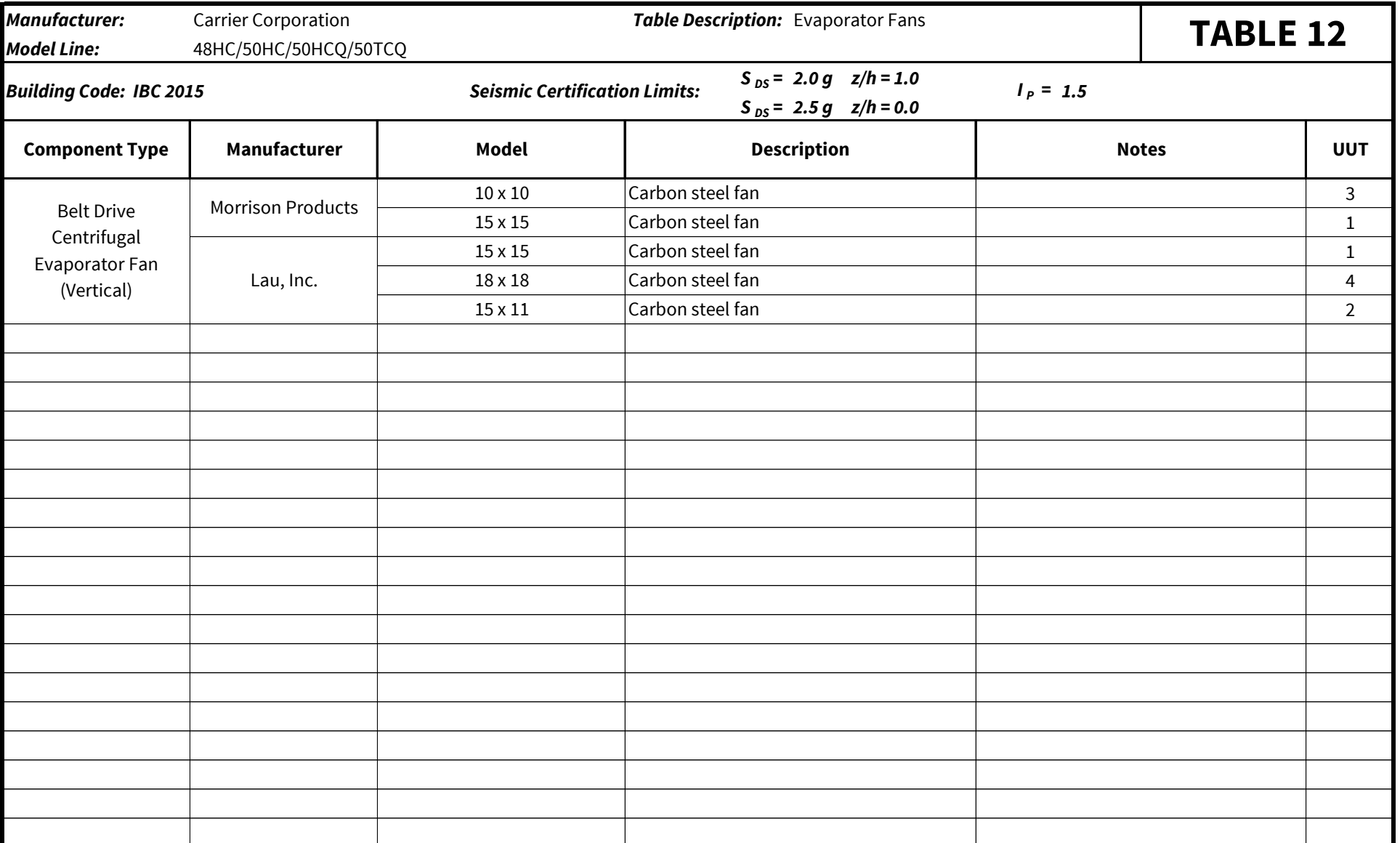
SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

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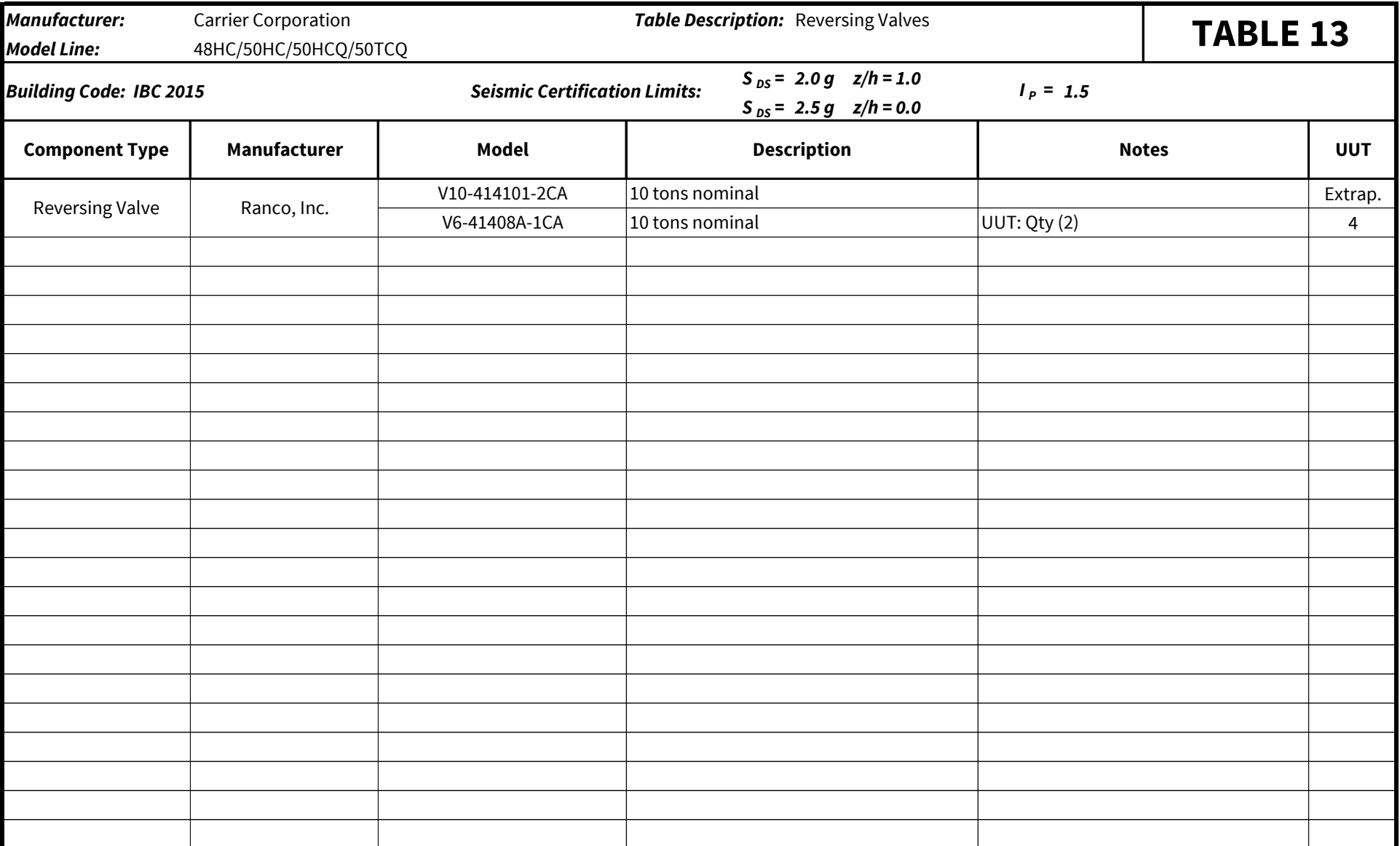


Manufacturer: Carrier Corporation		Table Description: Variable Frequency Drives			TABLE 11
Model Line: 48HC/50HC/50HCQ/50TCQ					
Building Code: IBC 2015		Seismic Certification Limits:		$S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$	$I_P = 1.5$
Component Type	Manufacturer	Model	Description	Notes	UUT
208/230V Variable Frequency Drives (VFDs)	ABB	0753	R2 Frame; 7.5 hp, 19.8 lbs		Interp.
		0853	R1 Frame; 3-5 hp, 14.3 lbs		Interp.
		0953	R1 Frame; 3-5 hp, 14.3 lbs		Interp.
		1153	R2 Frame; 7.5 hp, 19.8 lbs		Interp.
		1253	R2 Frame; 7.5 hp, 19.8 lbs		Interp.
		1453	R2 Frame; 7.5 hp, 19.8 lbs		Interp.
		1753	R2 Frame; 7.5 hp, 19.8 lbs		Interp.
		2053	R2 Frame; 7.5 hp, 19.8 lbs		Interp.
		2453	R2 Frame; 7.5 hp, 19.8 lbs		Interp.
		2853	R2 Frame; 7.5 hp, 19.8 lbs		2
460V Variable Frequency Drives (VFDs)	ABB	0763	R1 Frame; 7.5 hp, 19.8 lbs		Interp.
		0863	R1 Frame; 3-5 hp, 14.3 lbs		Interp.
		0963	R1 Frame; 3-5 hp, 14.3 lbs		Interp.
		1163	R1 Frame; 7.5 hp, 14.3 lbs		Interp.
		1263	R1 Frame; 7.5 hp, 14.3 lbs		4
		1463	R1 Frame; 7.5 hp, 14.3 lbs		Interp.
		1763	R1 Frame; 7.5 hp, 14.3 lbs		Interp.
		2063	R1 Frame; 7.5 hp, 14.3 lbs		Interp.
		2463	R1 Frame; 7.5 hp, 14.3 lbs		Interp.
		2863	R1 Frame; 7.5 hp, 14.3 lbs		1
Model numbers: Columns 1&2 = Nominal Tonnage; Column 3 = Voltage (5 = 208/230V 6 = 460V) ; Column 4 = Static Option (3 = High Static)					

TRU PROJECT NO. 16039



TRU PROJECT NO. 16039



TRU PROJECT NO. 16039

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UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16039



Manufacturer:	Carrier Corporation	UUT 1
Model Line:	48HC/50HC/50HCQ/50TCQ	
Model Number:	48HC-28	
Serial Number:		3716P18818

Product Construction Summary:

Formed carbon steel construction.

Options/Subcomponent Summary:

ZP137KCE compressor | 400 MBTUH Gas heat | Condenser Coils: Al fins/Cu tubes, (2) @ 2 rows - 34.3 Sq. Ft. each | Evaporator Coils: Al fins/Cu tubes; 4 rows; 26.0 Sq. Ft. | (2) BBIZE-15-GA-B5 Refrigerant expansion device | Electromechanical controller | 48V - 1/4 Hp Condenser Fan Motor w/ 6-Revcor 22 fans | S213T; 460V; 7.5 Hp Evap fan motor with (2) 15 X 15 fans | 460V 7.5 Hp VFD | See Table 14 for additional installed options.

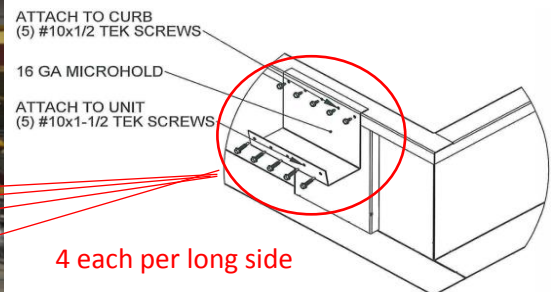
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
2960	86.4	182.5	57.4	8.5	9.0	9.0

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
IBC 2015	ICC-ES AC156	2.0	1.0	1.5	3.2	2.4	1.33	0.53
		2.5	0.0	1.5	3.2	1.28	2.13	0.85

Test Mounting Details:



The unit was mounted to the curb using eight (8) 16 GA microholds as shown above with ten (10) #10 Tek Screws each. The curb was then mounted to the table using sixteen (16) 1/2" Grade 8 Bolts.

Unit maintained structural integrity and remained functional per manufacturer requirement.

Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16039



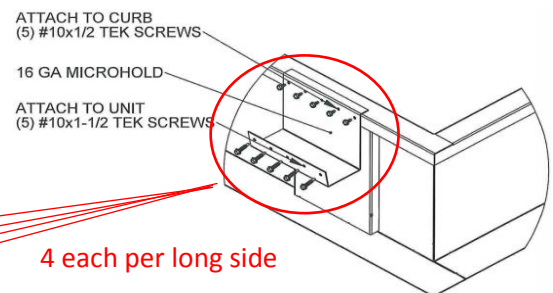
Manufacturer:	Carrier Corporation	UUT 2
Model Line:	48HC/50HC/50HCQ/50TCQ	
Model Number:	48HC-28	
		Serial Number: 3716P18817

Product Construction Summary:
Formed carbon steel construction.

Options/Subcomponent Summary:
ZP137KCE compressor | 400 MBTUH Gas heat | Condenser Coils: Al fins/Cu tubes, (2) @ 2 rows - 34.3 Sq. Ft. each | Evaporator Coils: Al fins/Cu tubes; 4 rows; 26.0 Sq. Ft. | (2) BBIZE-15-GA-B5 Refrigerant expansion device | RTU Open controller | 48Y - 1/4 Hp Condenser Fan Motor w/ 6-Revcor 22 fans | S213T; 208-230V; 7.5 Hp Evap fan motor with (2) 15 X 11 fans | 208-230V 7.5 Hp VFD | See Table 14 for additional installed options.

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
2720	86.4	182.5	57.4	8.5	9.0	9.0				
UUT Highest Passed Seismic Run Information										
Building Code		Test Criteria		S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
IBC 2015		ICC-ES AC156		2.0	1.0	1.5	3.2	2.4	1.33	0.53
				2.5	0.0	1.5	3.2	1.28	2.13	0.85

Test Mounting Details:



The unit was mounted to the curb using eight (8) 16 GA microholds as shown above with ten (10) #10 Tek Screws each. The curb was then mounted to the table using sixteen (16) 1/2" Grade 8 Bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16039



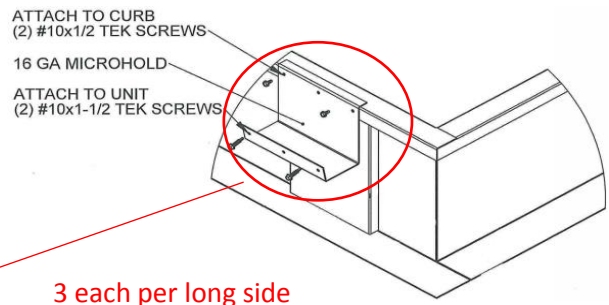
Manufacturer:	Carrier Corporation	UUT 3
Model Line:	48HC/50HC/50HCQ/50TCQ	
Model Number:	48HC-06	
Serial Number:		3716C87231

Product Construction Summary:
Formed carbon steel construction.

Options/Subcomponent Summary:
ZP49K5E compressor | 72 MBTUH Gas heat | Condenser Coils: Al/Cu; 2 rows; 21.3 Sq. Ft. | Evaporator Coils: Al fins/Cu tubes; 3 rows; 7.3 Sq. Ft. | BBIZE-4-GA-B5 Refrigerant expansion device | RTU Open controller | 48Y - 1/4 Hp Condenser Fan Motor w/Revcor 22 fan | 56HY; 208-230V, 2.9 Hp Evap fan motor with 10 X 10 fan | See Table 14 for additional installed options.

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
760	46.8	74.4	41.4	9.2	7.5	8.2				
UUT Highest Passed Seismic Run Information										
Building Code		Test Criteria		S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
IBC 2015		ICC-ES AC156		2.0	1.0	1.5	3.2	2.4	1.33	0.53
				2.5	0.0	1.5	3.2	1.28	2.13	0.85

Test Mounting Details:



The unit was mounted to the curb using six (6) 16 GA microholds as shown above with four (4) #10 Tek Screws each. The curb was then mounted to the table using ten (10) 1/2" Grade 8 Bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16039



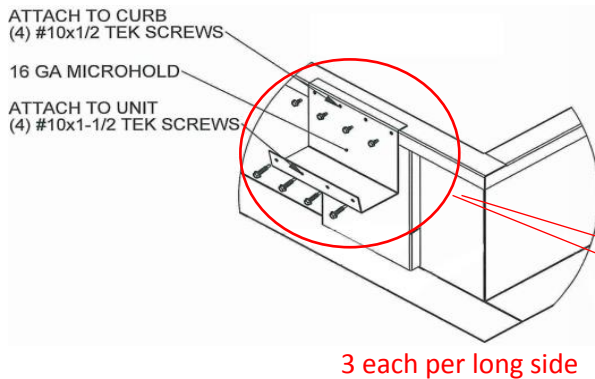
Manufacturer:	Carrier Corporation	UUT 4
Model Line:	48HC/50HC/50HCQ/50TCQ	
Model Number:	50HCQ-12	
		Serial Number: 3716PO8397

Product Construction Summary:
Formed carbon steel construction.

Options/Subcomponent Summary:
ZP54K5E compressor | Condenser Coils: Al/Cu; (2) @ 2 rows; 23.1 Sq. Ft. each | Evaporator Coils: Al fins/Cu tubes; 3 rows; 17.3 Sq. Ft. | (2) BBIZE-5-GA-B5 Refrigerant expansion devices | Electromechanical controller | 48Y - 1/4 Hp Condenser Fan Motor w/ (3) - HessAire 30 fans | 184T; 208-230V; 5 Hp Evap fan motor with (2) 18 X 18 fans | 460V 7.5 Hp VFD | See Table 14 for additional installed options.

UUT Properties										
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)						
	Depth	Width	Height	Front-Back	Side-Side	Vertical				
1740	63.4	115.9	57.4	9.2	7.5	8.2				
UUT Highest Passed Seismic Run Information										
Building Code		Test Criteria		S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
IBC 2015		ICC-ES AC156		2.0	1.0	1.5	3.2	2.4	1.33	0.53
				2.5	0.0	1.5	3.2	1.28	2.13	0.85

Test Mounting Details:



The unit was mounted to the curb using six (6) 16 GA microholds as shown above with eight (8) #10 Tek Screws each. The curb was then mounted to the table using fourteen (14) 1/2" Grade 8 Bolts.
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.