APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0757

HCAI Special Seismic Certification Preapproval (OSP)

Type: [X] New [ ] Renewal

Manufacturer Information

Manufacturer: Carrier Corporation

Manufacturer's Technical Representative: Scott Mautz

Mailing Address: 13995 Pasteur Boulevard, Palm Beach, Gardens, FL 33418

Telephone: (561) 365-2000 Email: scott.mautz@carrier.com

Product Information

Product Name: Air Conditioning Units

Product Type: Air Conditioning Units - Split

Product Model Number: 38VBM,38VMA,40VMC,40VMF,40VMF,40VMM,40VMV,40VMD,40VMW

General Description: Indoor/Outdoor Split Air Conditioning Units

Mounting Description: See Certified Product Tables

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: Structural Integrity Associates, Inc.

Contact Person: Katie Braman

Mailing Address: 233 SW Wilson, Suite 101, Bend, OR 92201

Telephone: (541) 526-1947 Email: kbraman@structint.com

Title: Program Manager

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

Company Name: STRUCTURAL INTEGRITY ASSOCIATES, INC.

Name: Andrew Coughlin California License Number: S6082

Mailing Address: 5215 Hellyer Ave, Suite 101, San Jose, CA 95138-1025

Telephone: (415) 635-8461 Email: acoughlin@structint.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Brady Richard

Mailing Address: 11034 Indian Trail, Dallas, TX 75229-3513

Telephone: (972) 247-9657 Email: brady@etldallas.com

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.5(SDS=2.00), 1.13(SDS=2.50)

S_{DS} (Design spectral response acceleration at short period, g) = 2.00; z/h = 1; 2.50; z/h = 0

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 01/25/2029

Date: 01/25/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

2200776-CR-001-R1

TRU COMPLIANCE

Manufacturer: Carrier Corporation
Model Line: 38VMA and 38VBM Outdoor VRF Units

TABLE 1

Certified Product Construction Summary:
Carbon steel

Certified Options Summary:
Model number uniquely identifies subcomponents.

Mounting Configuration:
Base mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
38VBM Heat Pump 36,000-60,000 Btuh Single Phase	38VMB036HDS3-1	15.8	35.5	52.3	231	Identical units, software determines capacity.	4
	38VMB048HDS3-1	15.8	35.5	52.3	231		Extrap.
	38VMB060HDS3-1	15.8	35.5	52.3	231		Extrap.
38VMA Heat Pump 72,000-432,000 Btuh Three Phase	38VMA072HDS5-1	31.1	52.8	64.4	675		1
	38VMA072HDS6-1	31.1	52.8	64.4	675		Interp.
	38VMA096HDS5-1	31.1	52.8	64.4	675		Interp.
	38VMA096HDS6-1	31.1	52.8	64.4	675		Interp.
	38VMA120HDS5-1	31.1	52.8	64.4	675		Interp.
	38VMA120HDS6-1	31.1	52.8	64.4	675		Interp.
	38VMA144HDS5-1	31.1	52.8	64.4	769		2
	38VMA144HDS6-1	31.1	52.8	64.4	769		Interp.
38VMA Heat Recovery 72,000-336,000 Btuh Three Phase	38VMA072RDS5-1	31.1	52.8	64.4	698		Extrap.
	38VMA072RDS6-1	31.1	52.8	64.4	698		Extrap.
	38VMA096RDS5-1	31.1	52.8	64.4	698		Extrap.
	38VMA096RDS6-1	31.1	52.8	64.4	698		Extrap.
	38VMA120RDS5-1	31.1	52.8	64.4	698		3
	38VMA120RDS6-1	31.1	52.8	64.4	698		Interp.
	38VMA144RDL5-1	31.1	78.4	64.4	1,137		Interp.
	38VMA144RDL6-1	31.1	78.4	64.4	1,137		Interp.
	38VMA168RDS5-1	31.1	78.4	64.4	1,137		Interp.
	38VMA168RDS6-1	31.1	78.4	64.4	1,137		Interp.

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

TRU COMPLIANCE

Manufacturer:	Carrier Corporation
Model Line:	38VMA and 38VBM Outdoor VRF Units

TABLE 1

Certified Product Construction Summary:

Carbon steel

Certified Options Summary:

Model number uniquely identifies subcomponents.

Mounting Configuration:

Base mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= *2.0 g* *z/h=1.0* S_{DS}= *2.5 g* *z/h=0.0* I_P= *1.5*

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
38VMA Heat Recovery 72,000-336,000 Btuh Three Phase	38VMA192RDS5-1	31.1	78.4	64.4	1,137		Interp.
	38VMA192RDS6-1	31.1	78.4	64.4	1,137		Interp.
	38VMA216RDS5-1	31.1	78.4	64.4	1,137		Interp.
	38VMA216RDS6-1	31.1	78.4	64.4	1,137		Interp.
	38VMA240RDS5-1	31.1	78.4	64.4	1,137		Interp.
	38VMA240RDS6-1	31.1	78.4	64.4	1,137		Interp.
	38VMA240RDL5-1	31.1	105.9	64.4	1,659		Interp.
	38VMA240RDL6-1	31.1	105.9	64.4	1,659		Interp.
	38VMA264RDS5-1	31.1	105.9	64.4	1,659		Interp.
	38VMA264RDS6-1	31.1	105.9	64.4	1,659		Interp.
	38VMA288RDS5-1	31.1	105.9	64.4	1,659		Interp.
	38VMA288RDS6-1	31.1	105.9	64.4	1,659		Interp.
	38VMA312RDS5-1	31.1	105.9	64.4	1,659		Interp.
	38VMA312RDS6-1	31.1	105.9	64.4	1,659		Interp.
	38VMA336RDS5-1	31.1	105.9	64.4	1,659		Interp.
	38VMA336RDS6-1	31.1	105.9	64.4	1,659		5

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SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

Manufacturer:	Carrier Corporation
Model Line:	38VMA and 38VBM Outdoor VRF Units

TABLE 1.1

For Reference Only[1]

VMB Heat Pump Single Phase Nomenclature

38 VM B 036 H D S 3 - 1

Equipment Type
38 — Outdoor Unit

Product Type
VM — VRF

Model Number Modifier
A — Revision Number
B — Revision Number

Capacity (Btuh)
036 — 36,000
048 — 48,000
060 — 60,000

System Type
H — Heat Pump

Variations
D — Domestic

Cabinet Type
S — Standard

Voltage (V-Ph-Hz)
3 — 208/230-1-60

Blank

Packaging
1 — USA & Canada

VMA Heat Pump Three Phase Nomenclature

38 VM A 072 H D S 5 - 1

Equipment Type
38 — Outdoor Unit

Product Type
VM — VRF

Model Number Modifier
A — Revision Number

Capacity (Btuh)

072 — 72,000	**216** — 216,000	**360** — 360,000
096 — 96,000	**240** — 240,000	**384** — 384,000
120 — 120,000	**264** — 264,000	**408** — 408,000
144 — 144,000	**288** — 288,000	**432** — 432,000
168 — 168,000	**312** — 312,000	
192 — 192,000	**336** — 336,000	

System Type
H — Heat Pump

Variations
D — Domestic

Cabinet Type
S — Standard

Voltage (V-Ph-Hz)
5 — 208/230-3-60
6 — 460-3-60

Blank

Packaging
1 — USA & Canada

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

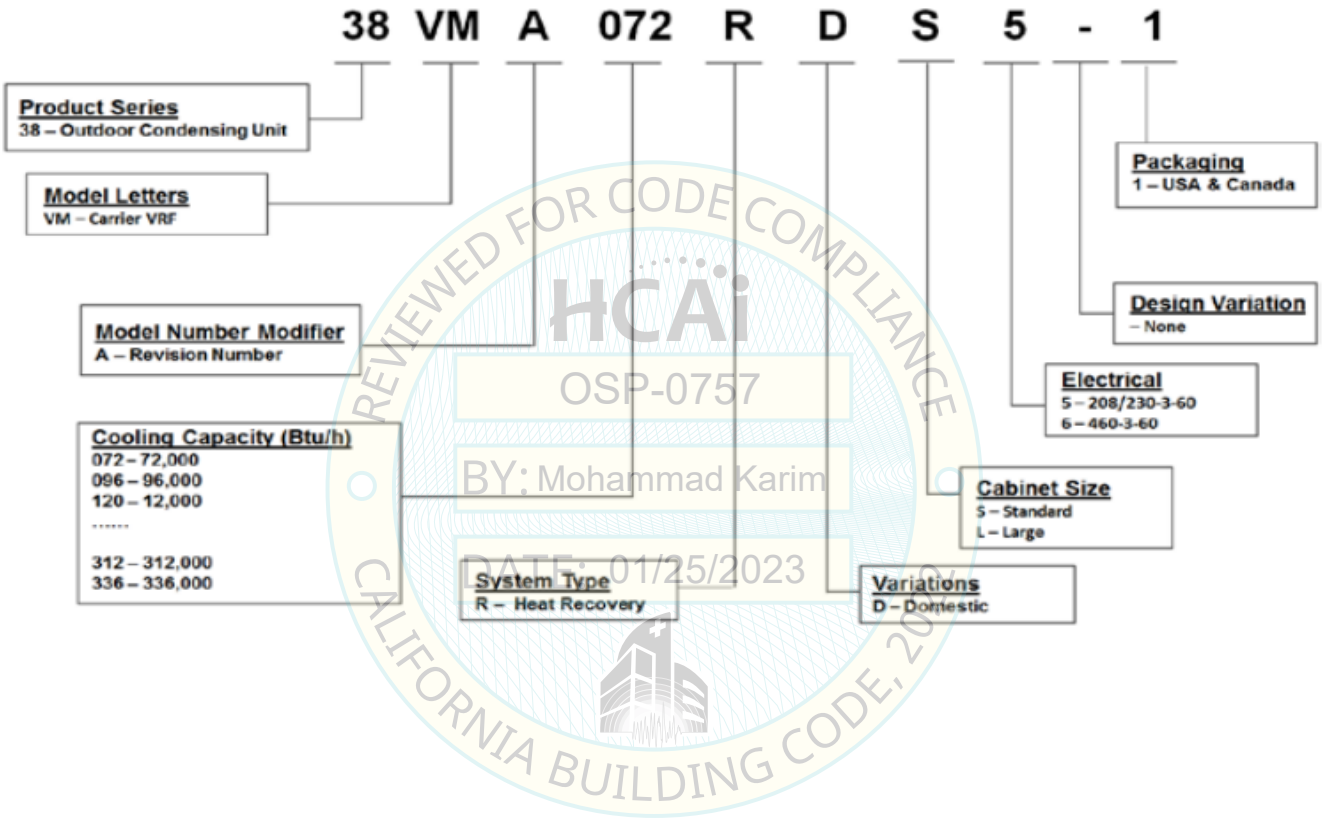
SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

Manufacturer:	Carrier Corporation	**TABLE 1.1**
Model Line:	38VMA and 38VBM Outdoor VRF Units	

For Reference Only[1]

VMA Heat Recovery Nomenclature



[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

TRU COMPLIANCE

Manufacturer:	Carrier Corporation
Model Line:	40VMC, 40VMD, 40VMF, 40VMH, and 40VMM Ceiling VRF Units

TABLE 2

Certified Product Construction Summary:

Carbon steel

Certified Options Summary:

Model number uniquely identifies subcomponents.

Mounting Configuration:

Ceiling mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
40VMC Compact 4-Way Cassette 5,000 - 15,000 Btuh Single Phase	40VMC005A--3	25.5	25.5	12.3	44		6
	40VMC007A--3	25.5	25.5	12.3	44		Interp.
	40VMC009A--3	25.5	25.5	12.3	44		Interp.
	40VMC012A--3	25.5	25.5	12.3	59		Interp.
	40VMC015A--3	25.5	25.5	12.3	59		7
40VMF 4-Way Cassette 9,000 - 48,000 Btuh Single Phase	40VMF009A--3	37.4	37.4	10.8	64		10
	40VMF012A--3	37.4	37.4	10.8	64		Interp.
	40VMF015A--3	37.4	37.4	10.8	64		Interp.
	40VMF018A--3	37.4	37.4	10.8	78		Interp.
	40VMF024A--3	37.4	37.4	13.5	78		Interp.
	40VMF030A--3	37.4	37.4	13.5	78		Interp.
	40VMF036A--3	37.4	37.4	13.5	78		Interp.
	40VMF048A--3	37.4	37.4	13.5	78		11
40VMH High Static Duct 24,000 - 96,000 Btuh Single Phase	40VMH024---3	27.2	37.5	16.5	112		12
	40VMH030---3	27.2	37.5	16.5	115		Interp.
	40VMH036---3	27.2	37.5	16.5	115		Interp.
	40VMH048---3[2]	27.2	51.2	16.5	159		Interp.
	40VMH054---3[2]	27.2	51.2	16.5	159		Interp.
	40VMH072---3[2]	36.4	56.8	20.0	277		Interp.
	40VMH096---3[2]	36.4	56.8	20.0	277		13

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

[2]Seismic modification required for installation, see UUT 13 for details.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

TRU COMPLIANCE

Manufacturer:	Carrier Corporation
Model Line:	40VMC, 40VMD, 40VMF, 40VMH, and 40VMM Ceiling VRF Units

TABLE 2

Certified Product Construction Summary:

Carbon steel

Certified Options Summary:

Model number uniquely identifies subcomponents.

Mounting Configuration:

Ceiling mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
40VMM Medium Static Duct 7,000 - 48,000 Btuh Single Phase	40VMM007A--3	19.8	39.3	8.3	49		14
	40VMM009A--3	19.8	39.3	8.3	49		Interp.
	40VMM012A--3[2]	25.0	39.8	10.6	76		Interp.
	40VMM015A--3[2]	30.5	48.5	10.6	99		Interp.
	40VMM018A--3[2]	30.5	48.5	10.6	99		Interp.
	40VMM024A--3[2]	30.5	48.5	10.6	99		Interp.
	40VMM030A--3[2]	34.1	50.8	11.8	131		Interp.
	40VMM036A--3[2]	34.1	50.8	11.8	131		Interp.
	40VMM048A--3[2]	34.1	50.8	11.8	131		15
40VMV Horizontal AHU 12,000 - 54,000 Btuh Single Phase	40VMV012---3	20.6	19.6	46.5	118		20
	40VMV018---3	20.6	19.6	46.5	123		Interp.
	40VMV024---3	20.6	19.6	46.5	123		Interp.
	40VMV030---3	20.6	19.6	46.5	123		Interp.
	40VMV036---3	24.0	22.0	54.5	163		Interp.
	40VMV048---3	24.0	22.0	54.5	163		Interp.
	40VMV054---3	24.0	22.0	54.5	163		Interp.
	40VMV012A--3	21.6	19.6	46.5	115		Interp.
	40VMV018A--3	21.6	19.6	46.5	115		Interp.
	40VMV024A--3	21.6	19.6	46.5	119		Interp.
	40VMV030A--3	21.6	19.6	46.5	119		Interp.

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

[2]Seismic modification required for installation, see UUT 15 for details.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

TRU COMPLIANCE

Manufacturer:	Carrier Corporation
Model Line:	40VMC, 40VMD, 40VMF, 40VMH, and 40VMM Ceiling VRF Units

TABLE 2

Certified Product Construction Summary:

Carbon steel

Certified Options Summary:

Model number uniquely identifies subcomponents.

Mounting Configuration:

Ceiling mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
40VMV Horizontal AHU 12,000 - 54,000 Btuh Single Phase	40VMV030A--3	21.6	19.6	46.5	119		Interp.
	40VMV036A--3	24.0	22.0	54.5	158		Interp.
	40VMV048A--3	24.0	22.0	54.5	158		Interp.
	40VMV054A--3	24.0	22.0	54.5	158		21

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

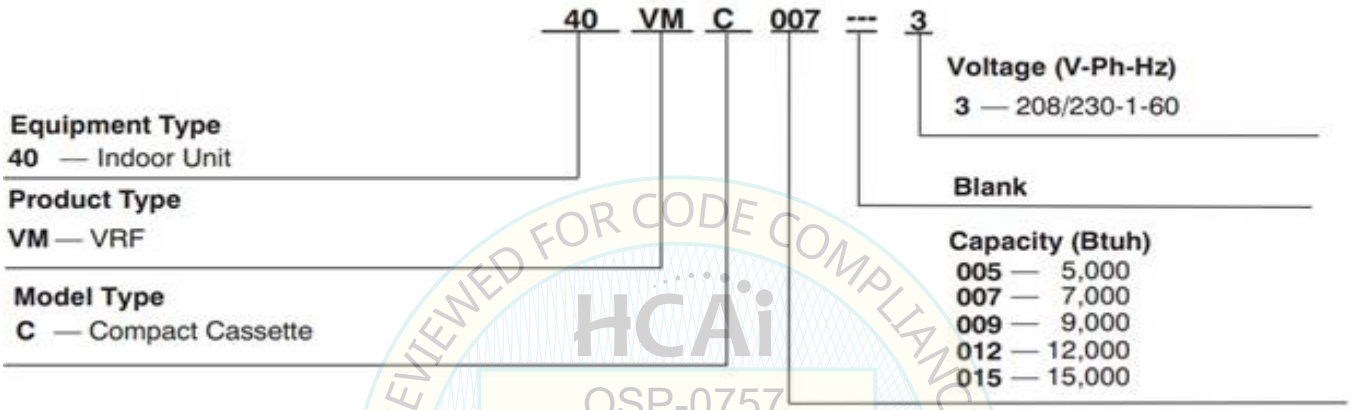
2200776-CR-001-R1

Manufacturer:	Carrier Corporation
Model Line:	40VMC, 40VMD, 40VMF,40 VMH, and 40VMM Ceiling VRF Units

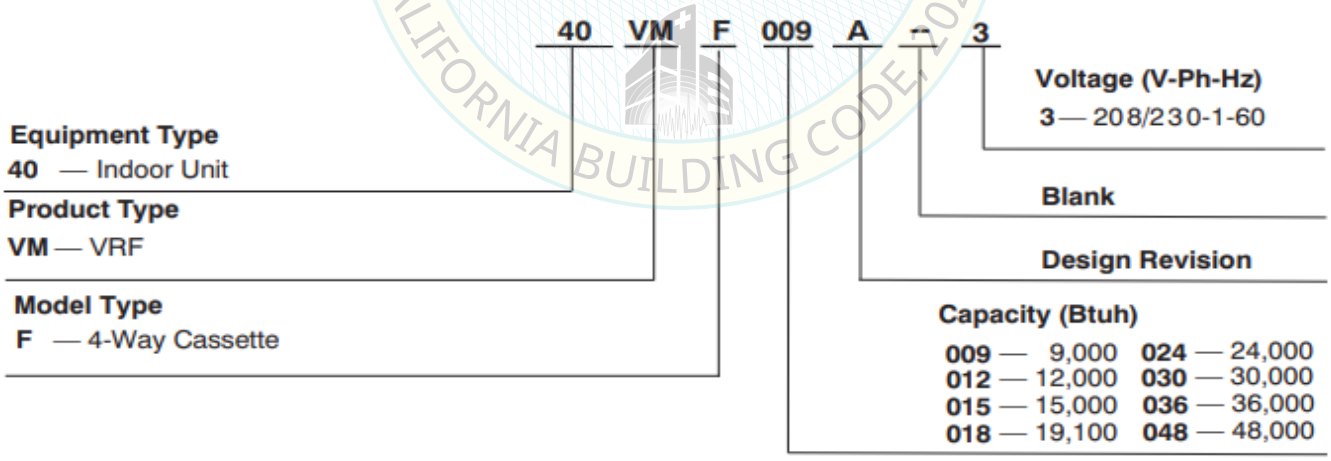
TABLE 2.1

For Reference Only[1]

VMC Compact Cassette Nomenclature



VMF Cassette Nomenclature



[1]Carrier, Bryant, or International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

Manufacturer:	Carrier Corporation	**TABLE 2.1**
Model Line:	40VMC, 40VMD, 40VMF,40 VMH, and 40VMM Ceiling VRF Units	

For Reference Only[1]

VMH High Static Nomenclature

40 VM H 024 - - - 3

Equipment Type
40 — Indoor Unit

Product Type
VM — VRF

Model Type
H — High Static Duct

Capacity (Btuh)
024 — 24,000
030 — 30,000
036 — 36,000
048 — 48,000
054 — 53,500
072 — 72,000
096 — 96,000

Blank

Voltage (V-Ph-Hz)
3 — 208/230-1-60

VMM Medium Static Nomenclature

40 VM M 007 A -- 3

Equipment Type
40 — Indoor Unit

Product Type
VM — VRF

Model Type
M — Medium Static Duct

Capacity (Btuh)
007 — 7,000
009 — 9,000
012 — 12,000
015 — 15,000
018 — 18,000
024 — 24,000
030 — 30,000
036 — 36,000
048 — 48,000

Design Revision

Blank

Voltage (V-Ph-Hz)
3 — 208/230-1-60

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

TABLE 3

Manufacturer: Carrier Corporation
Model Line: 40VMD Ceiling Multiport Distribution Controller VRF Units

Certified Product Construction Summary:
Carbon steel

Certified Options Summary:
Model number uniquely identifies subcomponents.

Mounting Configuration:
Ceiling mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
40VMD Multiport Distribution Controller 6 -16 Ports Single Phase	40VMD006M--3[2]	22.6	36.0	12.8	128		8
	40VMD006S--3[2]	22.6	36.0	12.8	128		Interp.
	40VMD008M--3[2]	22.6	36.0	12.8	137		Interp.
	40VMD008S--3[2]	22.6	36.0	12.8	130		Interp.
	40VMD010M--3[2]	22.6	36.0	12.8	143		Interp.
	40VMD010S--3[2]	22.6	36.0	12.8	137		Interp.
	40VMD016M--3[2]	22.6	46.5	12.8	190		Interp.
	40VMD016S--3[2]	22.6	46.5	12.8	183		Interp.
	40VMD016ML-3[2]	22.6	46.5	12.8	196		9

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

[2]Seismic modification required for installation, see UUT 8 and UUT 9 for details.

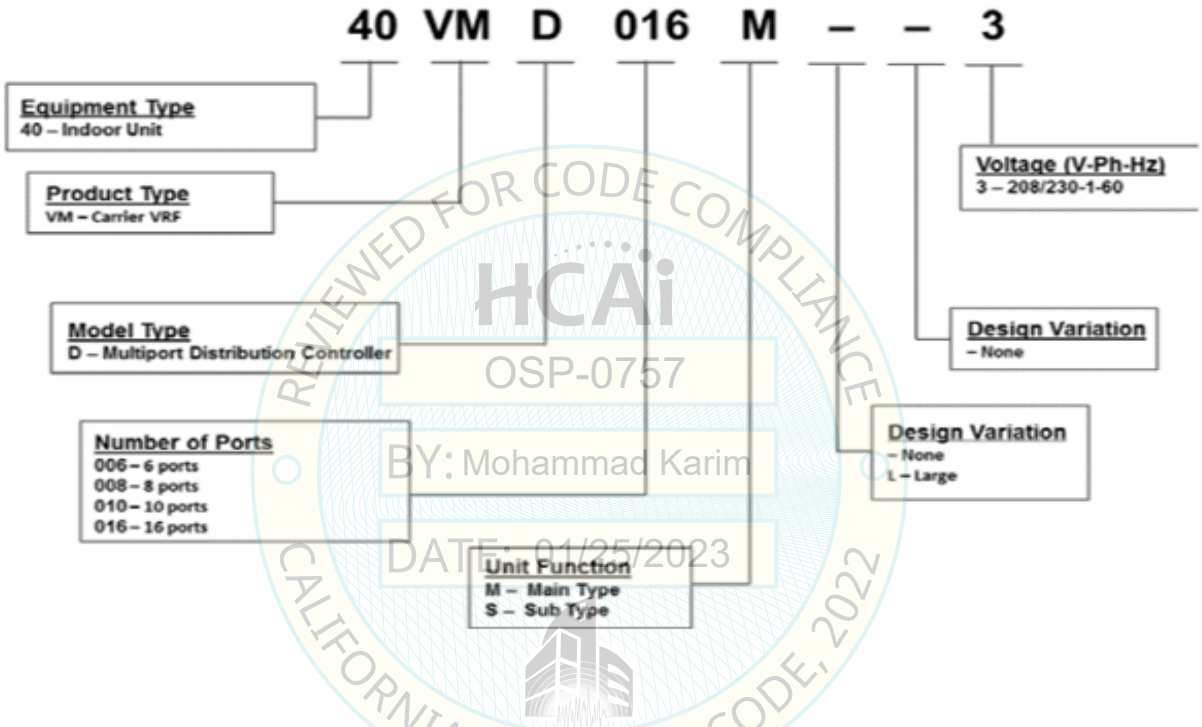
SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

Manufacturer:	Carrier Corporation	**TABLE 3.1**
Model Line:	40VMD Ceiling Multiport Distribution Controller VRF Units	

For Reference Only[1]

VMD Multiport Nomenclature



[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

TRU COMPLIANCE

Manufacturer:	Carrier Corporation
Model Line:	40VMV Indoor VRF Units

TABLE 4

Certified Product Construction Summary:

Carbon steel

Certified Options Summary:

Model number uniquely identifies subcomponents.

Mounting Configuration:

Base mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
40VMV Vertical AHU 12,000 - 54,000 Single Phase	40VMV012---3	20.6	19.6	46.5	118		16
	40VMV018---3	20.6	19.6	46.5	123		Interp.
	40VMV024---3	20.6	19.6	46.5	123		Interp.
	40VMV030---3	20.6	19.6	46.5	123		Interp.
	40VMV036---3	24.0	22.0	54.5	163		Interp.
	40VMV048---3	24.0	22.0	54.5	163		Interp.
	40VMV054---3	24.0	22.0	54.5	163		Interp.
	40VMV012A--3	21.6	19.6	46.5	115		Interp.
	40VMV018A--3	21.6	19.6	46.5	115		Interp.
	40VMV024A--3	21.6	19.6	46.5	119		Interp.
	40VMV030A--3	21.6	19.6	46.5	119		Interp.
	40VMV036A--3	24.0	22.0	54.5	158		Interp.
	40VMV048A--3	24.0	22.0	54.5	158		Interp.
	40VMV054A--3	24.0	22.0	54.5	158		17

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

Manufacturer:	Carrier Corporation
Model Line:	40VMV Indoor VRF Units

TABLE 4.1

For Reference Only[1]

VMV Vertical AHU Nomenclature

40 VM V 18 --- 3

Equipment Type
40 — Indoor Fan Unit Coil

Product Type
VM — VRF

Model Type
V — Vertical AHU

Capacity (Btuh)
012 — 12,000
018 — 18,000
024 — 24,000
030 — 30,000
036 — 36,000
048 — 48,000
054 — 48,000

Blank

Voltage (V-Ph-Hz)
3 — 208/230-1-60

40 VM V 18 A -- 3

Equipment Type
40 — Indoor Fan Unit Coil

Product Type
VM — VRF

Model Type
V — Vertical AHU

Capacity (Btuh)
012 — 12,000
018 — 18,000
024 — 24,000
030 — 30,000
036 — 36,000
048 — 48,000
054 — 48,000

A — Design Revision

Blank

Voltage (V-Ph-Hz)
3 — 208/230-1-60

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

TRU COMPLIANCE

Manufacturer:	Carrier Corporation	**TABLE 5**
Model Line:	40VMW Indoor VRF Wall Units	

Certified Product Construction Summary:

Carbon steel

Certified Options Summary:

Model number uniquely identifies subcomponents.

Mounting Configuration:

Wall mounted - rigid

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022 ***Seismic Certification Limits:*** S_{DS}= ***2.0 g*** ***z/h=1.0*** S_{DS}= ***2.5 g*** ***z/h=0.0*** I_P= ***1.5***

Model Line[1]	Model	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
40VMW High Wall Units 5,000 - 30,000 Single Phase	40VMW005---3[2]	9.0	36.0	11.4	28		18
	40VMW007---3[2]	9.0	36.0	11.4	28		Interp.
	40VMW009---3[2]	9.0	36.0	11.4	28		Interp.
	40VMW012---3[2]	9.0	36.0	11.4	28		Interp.
	40VMW015---3[2]	9.0	42.3	12.4	32		Interp.
	40VMW018---3[2]	9.0	42.3	12.4	32		Interp.
	40VMW024---3[2]	10.1	47.0	13.5	39		Interp.
	40VMW030---3[2]	10.1	47.0	13.5	39		19

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

[2]Seismic modification required for installation, see UUT 18 and UUT 19 for details.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

2200776-CR-001-R1

Manufacturer:	Carrier Corporation
Model Line:	40VMW Indoor VRF Wall Units

TABLE 5.1

For Reference Only[1]

VMW Wall Nomenclature

40 VM W 005 --- 3

Equipment Type
40 — Indoor Unit

Product Type
VM — VRF

Model Type
W — High Wall

Capacity(Btuh)
005 — 5,000
007 — 7,500
009 — 9,500
012 — 12,000
015 — 15,000
018 — 18,000
024 — 24,000
030 — 30,000

Blank

Voltage (V-Ph-Hz)
3 — 208/230-1-60

[1]Carrier, Bryant, and International Comfort Products brands are used interchangeably. Model numbers are identical across all brands.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

Manufacturer: Carrier Corporation

Model Line: Carrier Variable Refrigerant Flow (VRF) AHUs

UUT	Unit Description (Mounting)	Report Number (UUT #)	Testing Lab	Year Tested	ISO 17025 Accredited?	S_{DS}	z/h	I_P
1	38VMA072HDS5-1 Base Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
2	38VMA144HDS5-1 Base Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
3	38VMA120RDS5-1 Base Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
4	38VMB036HDS3-1 Base Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
5	38VMA336RDS6-1 Base Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
6	40VMC005A--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
7	40VMC015A--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
8	40VMD006M--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
9	40VMD016ML--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
10	40VMF009A--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
11	40VMF048A--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
12	40VMH024---3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
13	40VMH096---3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
14	40VMM007A--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
15	40VMM048A--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
16	40VMV012---3 Base Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
17	40VMV054A--3 Base Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

Manufacturer: Carrier Corporation

Model Line: Carrier Variable Refrigerant Flow (VRF) AHUs

UUT	Unit Description (Mounting)	Report Number (UUT #)	Testing Lab	Year Tested	ISO 17025 Accredited?	S_{DS}	z/h	I_P
18	40VMW005---3 Wall Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
19	40VMW030---3 Wall Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
20	40VMV012---3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5
21	40VMV054A--3 Ceiling Mounted	2200776-TR-001-R0	Environmental Testing Lab (ETL)	2022	Yes	2.0 2.5	1.0 0.0	1.5

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 1

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	38VMA072HDS5-1	***Serial Number:***	4221V00197

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
675	31.1	52.8	64.4	15.61	10.03	8.34

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT1 was base mounted - rigid using four (4) 3/8" bolts with channel washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 2

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	38VMA144HDS5-1	***Serial Number:***	3322V00568

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
769	31.1	52.8	64.4	28.74	8.76	8.31

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT2 was base mounted - rigid using four (4) 3/8" Grade 8 bolts with channel washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 3

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	38VMA120RDS5-1	***Serial Number:***	4621V00245

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
698	31.1	52.8	64.4	8.61	8.33	14.37

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT3 was base mounted - rigid using four (4) 3/8"Grade 8 bolts with channel washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 4

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	38VMB036HDS3-1	***Serial Number:***	4021V02044

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
231	13.5	35.5	52.3	33.15	9.59	5.41

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT4 was base mounted - rigid using 3/8" Grade 8 bolts and washers. Bolts torqued to 25 lb-ft each.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 5

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	38VMA336RDS6-1	***Serial Number:***	4021V00662

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1,659	31.1	105.9	64.4	5.47	10.59	23.72

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT5 was base mounted - rigid using eight (8) 3/8" Grade 8 bolts with channel washers.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 6

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMC005A--3	***Serial Number:***	2822V00741

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

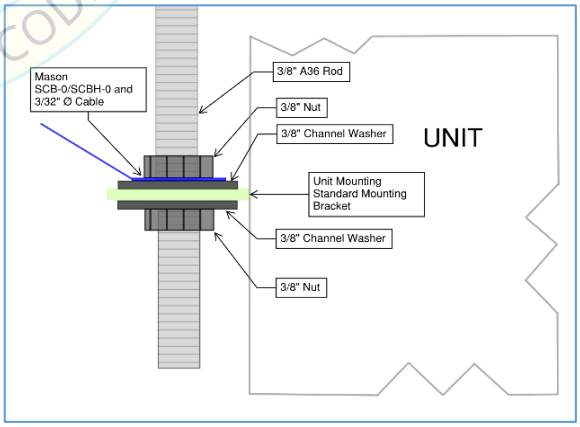
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
44	25.5	25.5	12.3	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT6 was ceiling mounted - rigid with four (4) 3/8"Ø A36 hanger rods w/rod stiffeners & eight (8) 3/32"Ø cable braces w/Mason SCB-0/SCBH-0 clips at each end. The supports and bracings are attached to the bottom of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 7

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMC015A--3	***Serial Number:***	232V01290

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

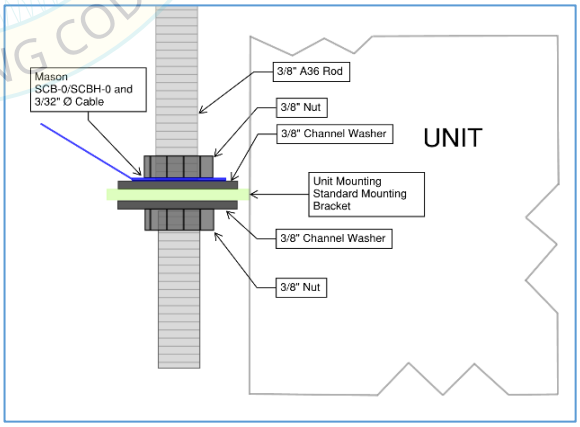
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
59	25.5	25.5	12.3	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT7 was ceiling mounted - rigid with four (4) 3/8"Ø A36 hanger rods w/rod stiffeners & eight (8) 3/32"Ø cable braces w/Mason SCB-0/SCBH-0 clips at each end. The supports and bracings are attached to the bottom of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 8

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMD006M--3	***Serial Number:***	4221V00511

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
128	22.6	36.0	12.8	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

Mounting Modification:
The unit was modified by adding 20" sections of unistrut with two (2) 1/2 Grade 5 thru bolts with washer and nut to each mounting bracket as shown in the image above .

UUT8 was ceiling mounted - rigid with four (4) 1/2"Ø A36 hanger rods w/rod stiffeners & four (4) 1/8"Ø cable braces w/Mason SCB-1/SCBH-1 clips at each end. See image above for additional modification to mounting bracket. The supports and bracings are attached to the top of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 9

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMD016ML--3	***Serial Number:***	4021V01303

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
196	22.6	46.5	12.8	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

Mounting Modification:
The unit was modified by adding 30" sections of unistrut with two (2) 1/2 Grade 5 thru bolts with washer and nut to each mounting bracket as shown in the image above .

UUT9 was ceiling mounted - rigid with four (4) 1/2"Ø A36 hanger rods w/rod stiffeners & eight (8) 1/8"Ø cable braces w/Mason SCB-1/SCBH-1 clips at each end. See image above for additional modification to mounting bracket. The supports and bracings are attached to the top of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 10

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMF009A--3	***Serial Number:***	1922V00198

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

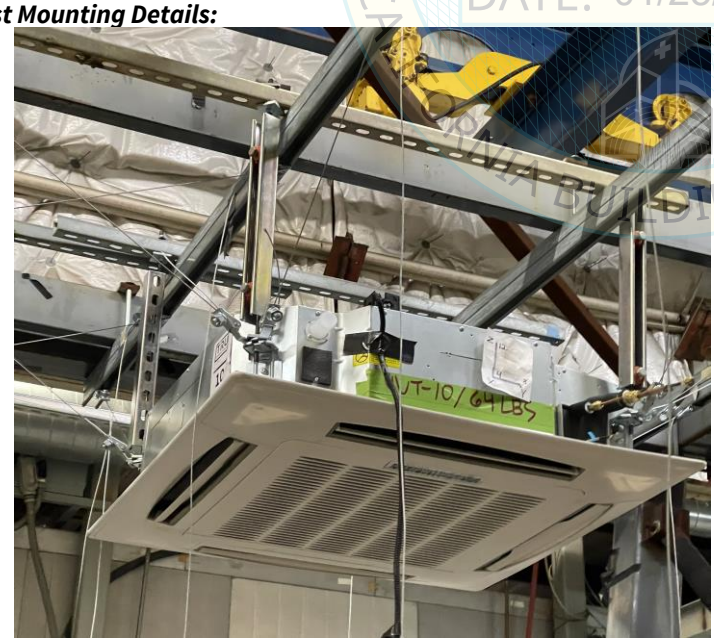
UUT Properties

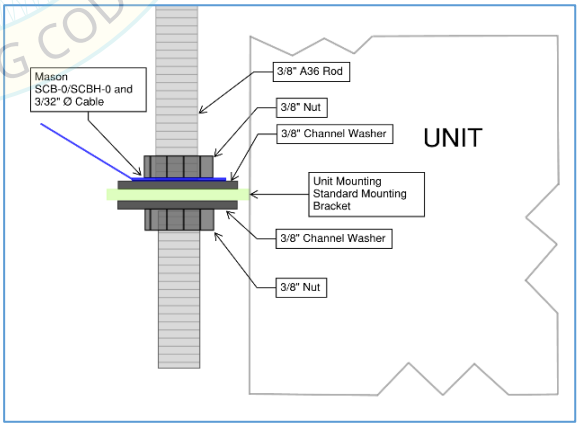
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
64	37.4	37.4	10.8	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:





UUT10 was ceiling mounted - rigid using four (4) 3/8"Ø A36 hanger rods w/rod stiffeners & eight (8) 3/32"Ø cable braces w/Mason SCB-0/SCBH-0 clips at each end. The supports and bracings are attached to the middle of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 11

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMF048A--3	***Serial Number:***	1922V00356

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

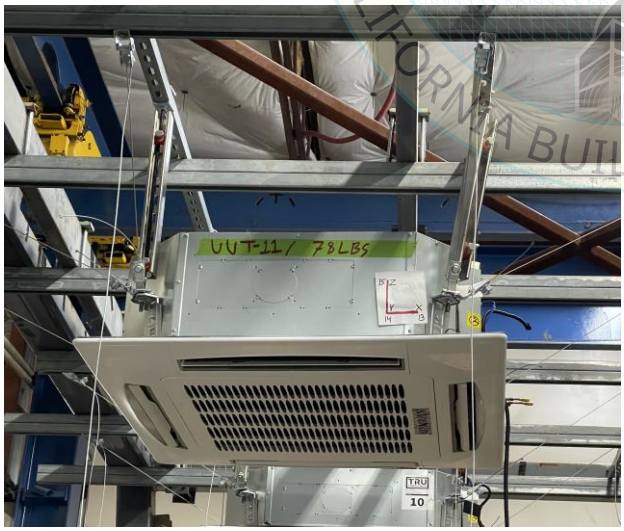
UUT Properties

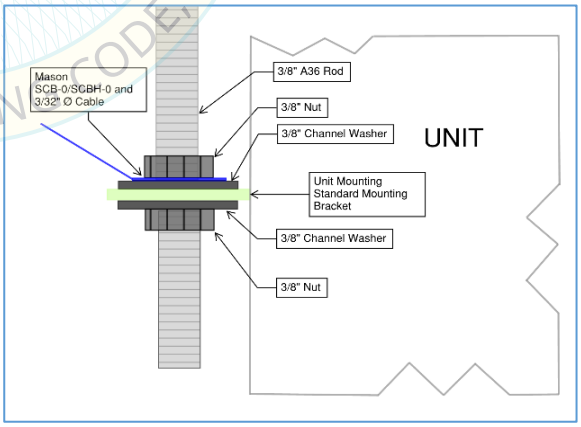
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
78	37.4	37.4	13.5	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:





UUT11 was ceiling mounted - rigid using four (4) 3/8"Ø A36 hanger rods w/rod stiffeners & eight (8) 3/32"Ø cable braces w/Mason SCB-0/SCBH-0 clips at each end. The supports and bracings are attached to the middle of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 12

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMH024---3	***Serial Number:***	2819V01288

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

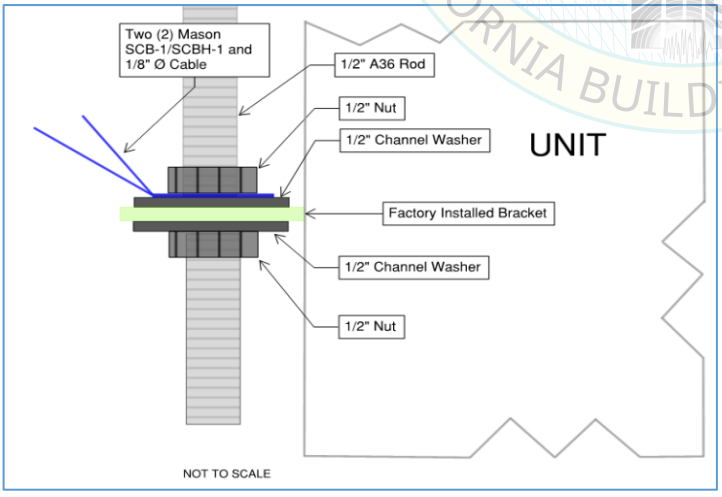
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
112	27.2	37.5	16.5	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT12 was ceiling mounted - rigid with four (4) 3/8"Ø A36 hanger rods w/rod stiffeners & eight (8) 3/32"Ø cable braces w/Mason SCB-0/SCBH-0 clips at each end. The supports and bracings are attached to the bottom of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 13

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMH096---3	***Serial Number:***	1122V00499

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

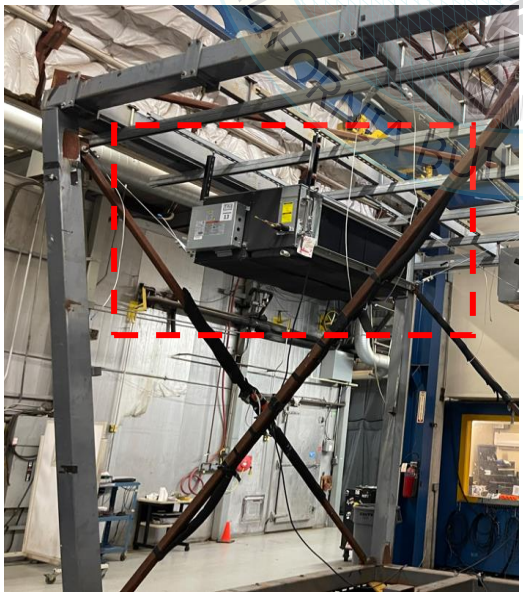
UUT Properties

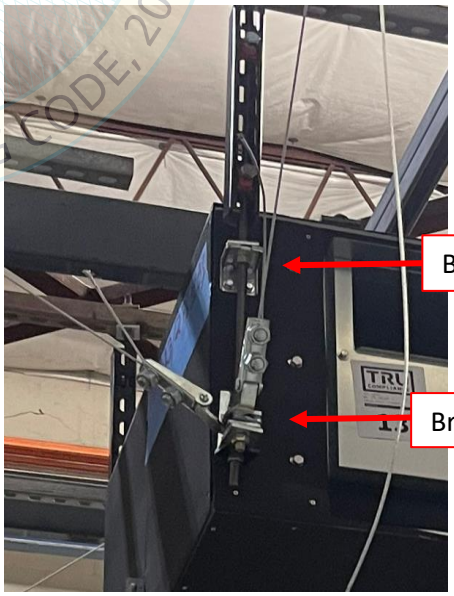
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
277.0	36.5	56.8	20.0	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:





UUT13 was ceiling mounted - rigid with four (4) 1/2"Ø A36 hanger rods w/rod stiffeners & eight (8) 1/8"Ø cable braces w/Mason SCB-1/SCBH-1 clips at each end. The supports and bracings are attached to the bottom of the unit. Additional bracket added to base of unit. See detail on next page.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

Manufacturer:	Carrier Corporation		**UUT 13**
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMH096---3	***Serial Number:***	1122V00499

Additional Mounting Details:
Bracket 1 (Factory Installed Bracket): 1/2" rod secured to bracket with two (2) 1/2" strut washers and 1/2" nuts.

Bracket 2 (Additional Bracket Installed at Testing): 4-Hole 90 Degree Angle Strut PN: ZAB205MEG

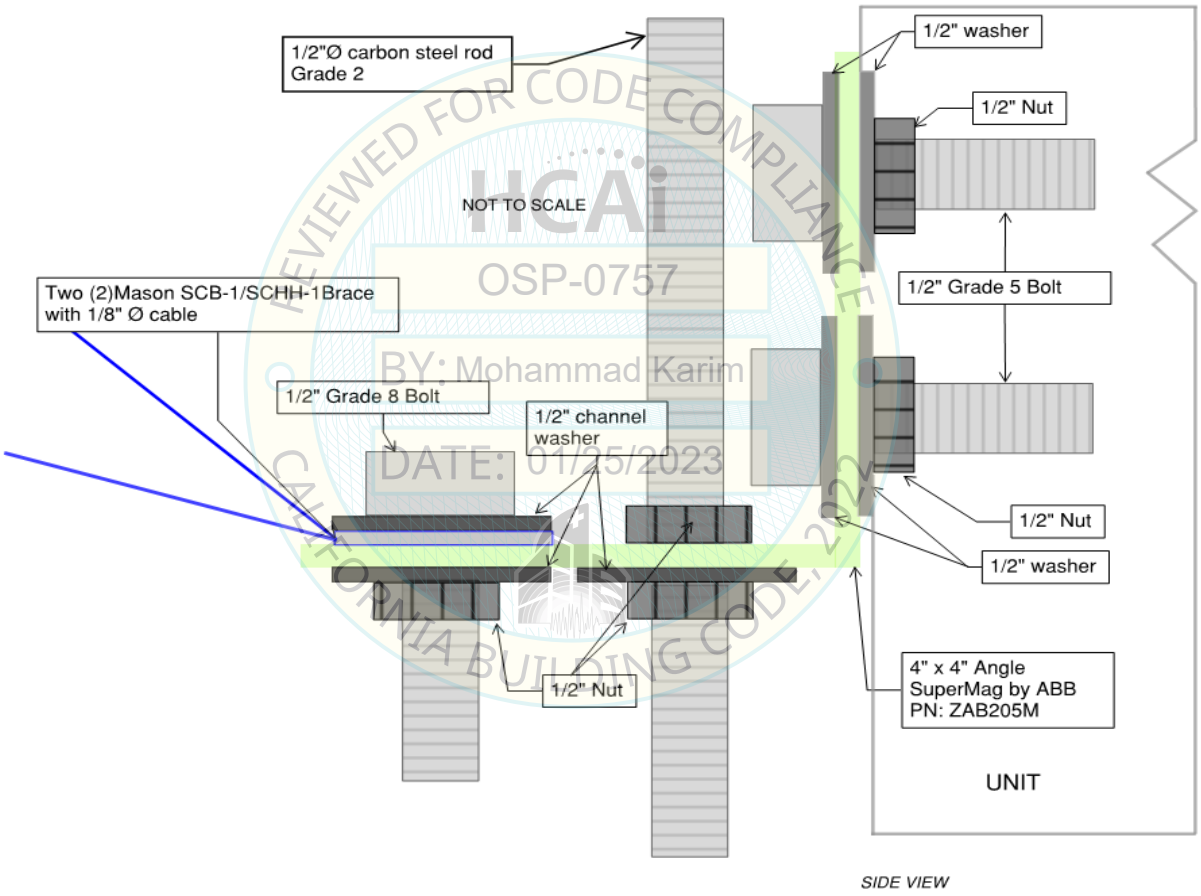


Figure is of Bracket 2

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 14

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMM007A--3	***Serial Number:***	2822V00824

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

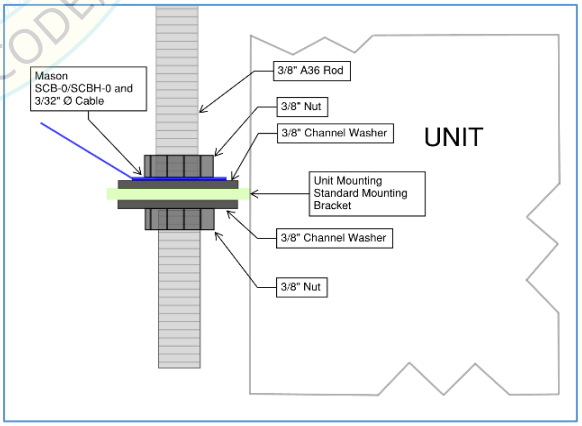
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
49	19.8	39.3	8.3	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT14 was ceiling mounted - rigid with four (4) 3/8"Ø A36 hanger rods w/rod stiffeners & four (4) 3/32"Ø cable braces w/Mason SCB-0/SCBH-0 clips at each end. The supports and bracings are attached to the top of the unit.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 15

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMM048A--3	***Serial Number:***	1021V00159

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
131	34.1	50.8	11.8	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT15 was ceiling mounted - rigid using four (4) 1/2"Ø hanger rods w/rod stiffeners & four (4) 1/8"Ø cable braces w/Mason SCB-1/SCBH-1 clips at each end. The supports and bracings are attached to the bottom of the unit. Further mounting details are shown in the next page.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.

Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

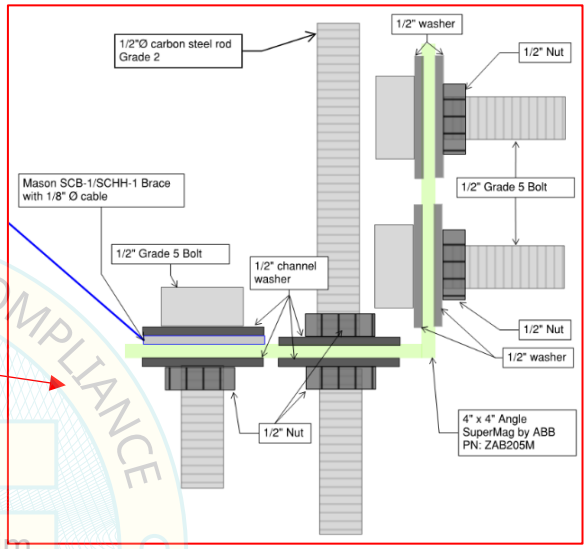
2200776-CR-001-R1

Manufacturer:	Carrier Corporation	**UUT 15**	
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMM048A--3	***Serial Number:***	1021V00159

Mounting Detail 1 - Stock Bracket Modification

To accommodate 1/2" rod - factory bracket was notched. Modification done to all four stock brackets.

Mounting Detail 2 - Two (2) Angles Additions



On the condensate side of unit 4" x 4" angles were attached using two (2) 1/2" Grade 5 bolts with nut an washer. The mounting rod runs through the factory bracket and the added angle.

Mounting Detail 3 - Unistruct

On the electrical panel side of the unit used a length of Unistrut at the bottom of the unit. This was attached with three (3) 1/2" Grade 5 bolts with nut and washer.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 16

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMV012---3	***Serial Number:***	1920V0043

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

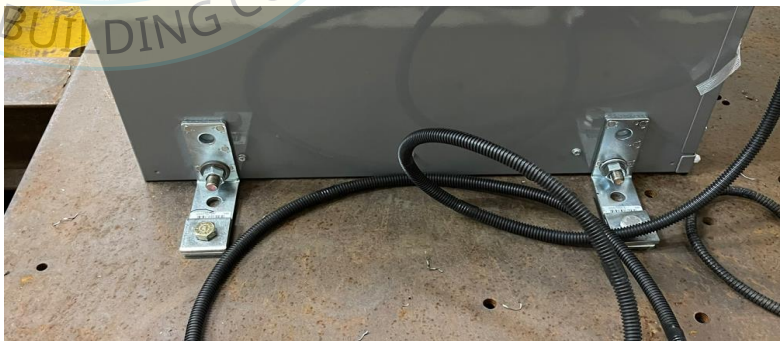
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
118	20.6	19.6	46.5	15.85	15.48	16.29

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT16 was base mounted - rigid using four(4) 4" x 4" angles. Outer hole only used with 1/2" Grade 8 bolts with washer.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 17

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMV054A--3	***Serial Number:***	2822V01111

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
158	24.0	22.0	54.5	11.82	11.73	11.59

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT17 was base mounted - rigid using four(4) 4" x 4" angles. Outer hole only used with 1/2" Grade 8 bolts with washer.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 18

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMW005---3	***Serial Number:***	2022V00384

Product Construction Summary:

Carbon steel and plastic

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
28	9.0	36.0	11.4	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT 18 was wall mounted - rigid using five (5) #8 x 1/2" self-piercing lath screws for for mouting bracket. Four additional #8 x 1-5/8" self-piercing lath screws at the base and top of unit. See images below.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

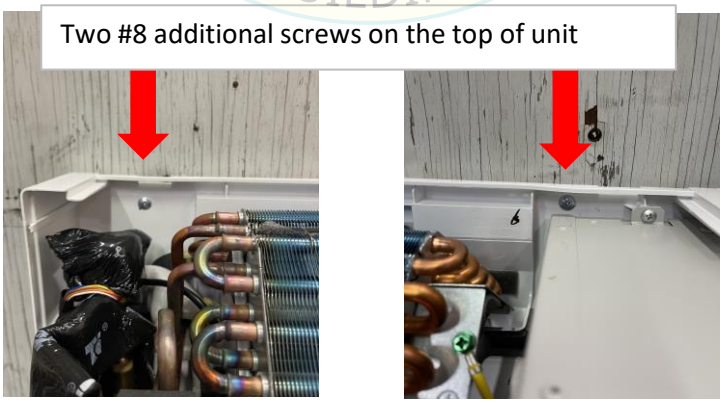
UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

Manufacturer:	Carrier Corporation		**UUT 18**
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMW005---3	***Serial Number:***	2022V00384

Additional mounting screws:

The additional mounting holes were predrilled to prevent damage to the plastic housing.



UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 19

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMW030---3	***Serial Number:***	3322V00467

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
39	10.1	47.0	13.5	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

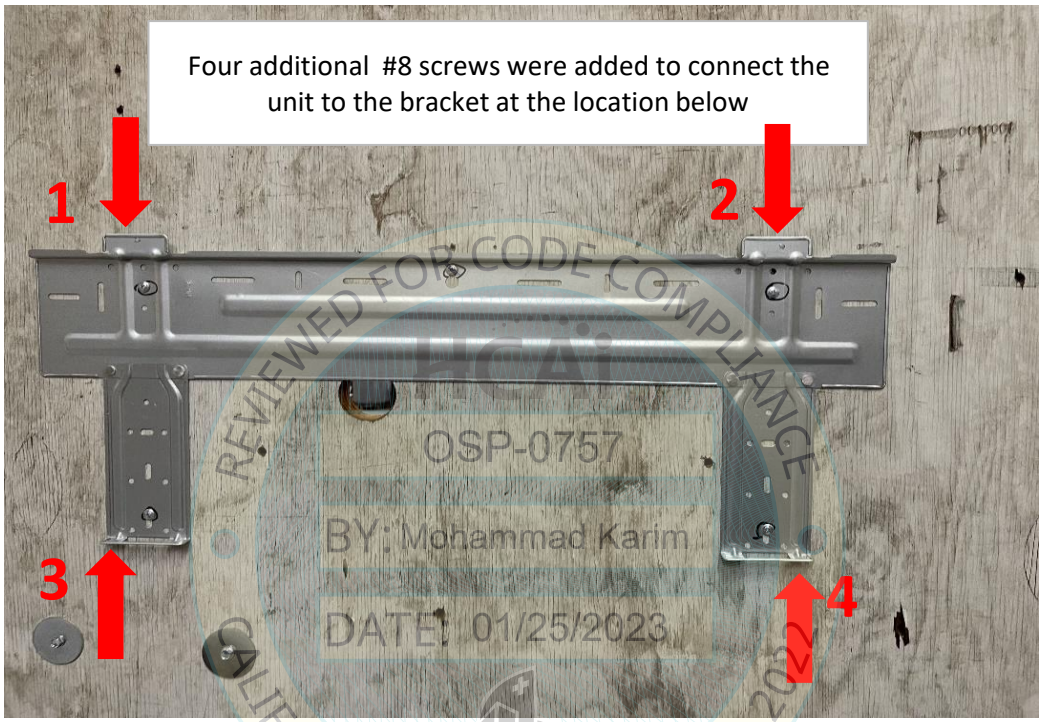
UUT19 was wall mounted - rigid using five (5) #8 x 1/2" self-piercing lath screws in mounting plate. Four (4) additional #8 x 1-5/8" self-piercing lath screws at the base and top of unit. See images below.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

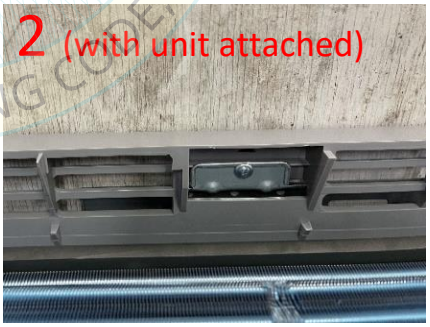
UNIT UNDER TEST (UUT) SUMMARY SHEET

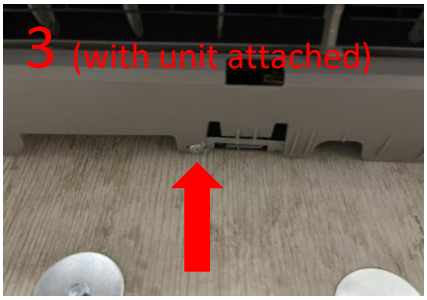
2200776-CR-001-R1

Manufacturer:	Carrier Corporation		**UUT 19**
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMW030---3	***Serial Number:***	3322V00467

Additional mounting screws:







UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 20

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMV012---3	***Serial Number:***	1920V0044b

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

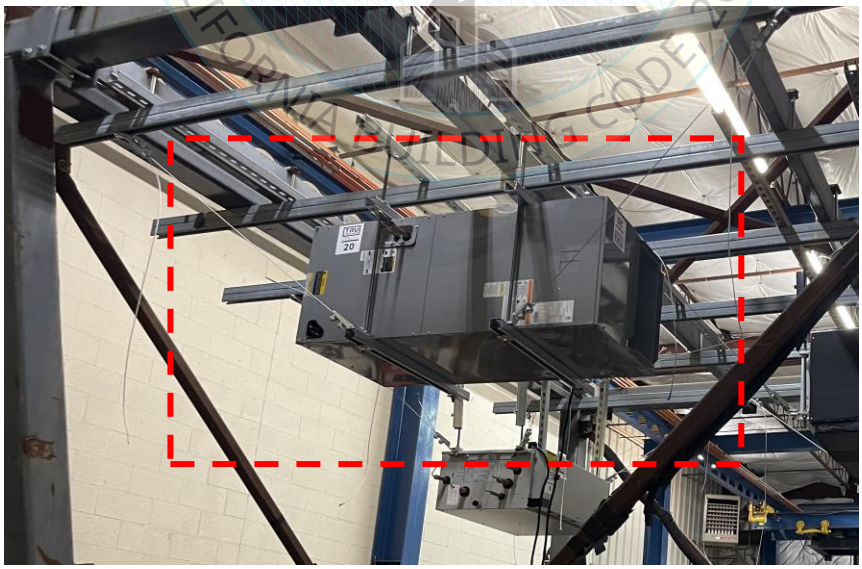
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
118	20.6	19.6	46.5	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



UUT20 was ceiling mounted rigidly using four (4) 1/2"Ø rods and four (4) Mason SCB-1/SCBH-1 braces with 1/8"Ø cable. Further mounting details are shown in the next page.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

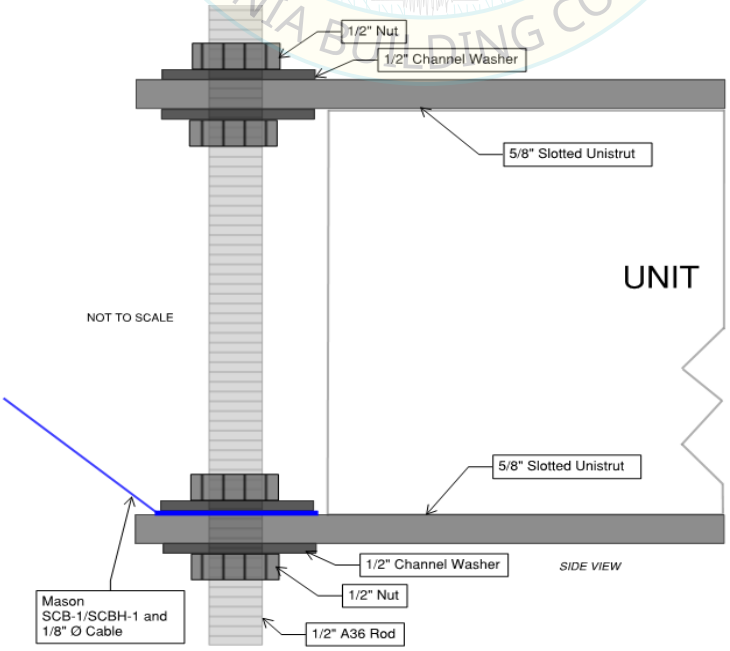
2200776-CR-001-R1

Manufacturer:	Carrier Corporation		**UUT 20**
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMV012---3	***Serial Number:***	1920V0044b

Additional mounting details:

Unistrut was attached to top and bottom on unit. Each piece of unistrut (top and bottom) was attached with three (3) 1/2" Grade 5 Bolts with washer and nut.

Hanging rod and cable attachment details:



UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

UUT 21

Manufacturer:	Carrier Corporation		
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMV054A--3	***Serial Number:***	282201110

Product Construction Summary:

Carbon steel

Options/Subcomponent Summary:

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
158.0	24.0	22.0	54.0	N/A	N/A	N/A

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)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:

UUT21 was ceiling mounted rigidly using four (4) 1/2"Ø rods with Mason stiffeners and four (4) Mason SCB-1/SCBH-1 braces with 1/8"Ø cable. Further mounting details are shown in the next page.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET

2200776-CR-001-R1

Manufacturer:	Carrier Corporation		**UUT 21**
Model Line:	Carrier Variable Refrigerant Flow (VRF) AHUs		
Model Number:	40VMV054A--3	***Serial Number:***	282201110

Additional mounting details:

Unistrut was attached to top and bottom on unit. Each piece of Unistrut (top and bottom) was attached with three (3) 1/2" Grade 5 Bolts with washer and nut.

Hanging rod and cable attachment details: