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Kinetics Noise Control, Inc.
6300 Irelan Place
Dublin, OH 43017

RESEARCH REPORT: RR 25997

Attn: Greg Hively
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REEVALUATION DUE
DATE: March 1, 2020
Issued Date: January 1, 2019
Code: 2017 LABC

GENERAL APPROVAL –Technical Modification – MUTA Ceiling Hanger, KSCH Ceiling Hanger, KSCH-APB Ceiling Hanger, RH Hanger.

DETAILS

MUTA (Drawing AA001979)

A stamped steel framed isolation hanger with a steel spring in series with an elastomeric isolator housed inside the frame with eyebolts top and bottom of housing. Springs have a minimum overload capacity of 1 1/2X the rated capacity of the spring. The hanger frame has a minimum safety factor of 6X.

<u>MUTA 1" Deflection Spring Hanger</u>		
<u>Models</u>	<u>Rated Capacity (lbs.)</u>	<u>Spring Color Outer/inter coils</u>
<u>MUTA-1-12</u>	<u>12</u>	<u>Silver/Black</u>
<u>MUTA-1-24</u>	<u>24</u>	<u>Blue/Black</u>
<u>MUTA-1-37</u>	<u>37</u>	<u>White/Black</u>
<u>MUTA-1-50</u>	<u>50</u>	<u>Green/Black</u>
<u>MUTA-1-75</u>	<u>75</u>	<u>Black/Black</u>
<u>MUTA-1-100</u>	<u>100</u>	<u>Gray/Black</u>
<u>MUTA-1-150</u>	<u>150</u>	<u>Red/Red</u>
<u>MUTA-1-210</u>	<u>210</u>	<u>Brown/Green</u>

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<u>MUTA-1-300</u>	<u>300</u>	<u>Purple/Green</u>
<u>MUTA-1-370</u>	<u>370</u>	<u>Orange/White</u>

UniBrace L and Double L (Drawing AA001994 & AA001995)

UniBrace L and Double L Isolation Brackets consist of one or two L-shaped stamped steel bracket captured and held securely by an elastomeric element with two anchoring points.

Style	Rated Shear Loading (lbs.)	Safety factor in Shear	Rated Tensile Loading (lbs.)	Safety factor in Tension
UniBrace L	35	3	50	3
UniBrace Double L	50	5	100	3

Wallmat/KAI – (Drawings AA001991 & AA001998)

Fiberglass isolation pad and elastomeric bushing/spacer assembly. Design load 25psi with a safety factor of 5X.

AF – (Drawing AA001989)

Fiberglass isolator housed within two interlocking stamped steel brackets. The hanger assembly is zinc-plated reinforced steel. Minimum safety factor 8X

Model	Design Load (lbs.)
AF-100	100
AF -200	200

SRH (Drawing AA001917, AA001958 & AA001959)

An interlocking stamped steel framed isolation hanger with a steel spring in series with an elastomeric isolator housed inside the frame with thread steel rod top and bottom of housing. Springs have a minimum overload capacity of 1 1/2X the rated spring capacity. The hanger frame has a minimum safety factor of 8X.

SRH Spring Hanger			
Models	Rated Capacity (lbs.)	Spring Color	Insert Color
SRH-1-12	12	Silver	Black
SRH-1-18	18	Yellow	Black
SRH-1-24	24	Blue	Black
SRH-1-30	30	Pink	Black
SRH-1-37	37	White	Black

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SRH-1-50	50	Green	Black
SRH-1-75	75	Black	Black
SRH-1-100	100	Gray	Black
SRH-1-150	150	Red	Red
SRH-1-210	210	Brown	Green
SRH-1-300	300	Purple	Green
SRH-1-370	370	Orange	White
SRH-1-500	500	Silver	Black
SRH-1-600	600	Yellow	Black
SRH-1-700	700	Silver	Black
SRH-1-805	805	Yellow	Black

ICW (Drawing AA001977)

A stamped steel hanger bracket isolator holding a steel spring in series with an elastomeric cup. The springs have an overload capacity of 1 1/2X rated capacity of the spring. Minimum isolator assembly safety factor 8x.

ICW 1" Deflection Spring Hanger		
Models	Rated Capacity (lbs.)	Spring Color
ICW-12	12	Silver
ICW-18	18	Yellow
ICW-24	24	Blue
ICW-30	30	Pink
ICW-37	37	White
ICW-50	50	Green
ICW-75	75	Black
ICW-100	100	Gray
ICW-150	150	Red
ICW-210	210	Brown

KSCH (Drawing AA001955 & AA001975)

A stamped steel isolated hanger with steel springs mounted in parallel. Springs have an overload capacity of 1 1/2X the rated capacity of the spring. Minimum isolator assembly safety factor 11X.

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KSCH 1" Deflection Spring Hanger		
Models	Rated Capacity (lbs.)	Spring Color Outer/inter coils
KSCH-22	22	Gray
KSCH-35	35	Blue
KSCH-48	48	Black
KSCH-73	73	Gray/Silver
KSCH-90	90	Brown
KSCH-120	120	Orange
KSCH-140	140	Brown/Silver
KSCH-172	172	Red
KSCH-223	223	Red/Silver

KSCH-APB (AA001906 & AA001976)

A stamped steel isolated hanger with steel springs mounted in parallel, and threaded rod extending for center of hanger with attached channel clip. Springs have an over load capacity of 1 1/2X the rated capacity of the spring. Minimum isolator assembly safety factor 5X brackets.

KSCH-APB 1" Deflection Spring Hanger		
Models	Rated Capacity (lbs.)	Spring Color Outer/inter coils
KSCH-22-APB	22	Gray
KSCH-35-APB	35	Blue
KSCH-48-APB	48	Black
KSCH-73-APB	73	Gray/Silver
KSCH-90-APB	90	Brown
KSCH-120-APB	120	Orange
KSCH-140-APB	140	Brown/Silver
KSCH-172-APB	172	Red
KSCH-223-APB	223	Red/Silver

IsoMax clips (Drawing AA001849)

Elastomeric element interconnected with and enclosed by steel brackets at each end.

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Loading Direction	Design Load (lbs.)	Safety Factor X
Vertical Down	90	3
Lateral Load, Parallel (along) to Furring Channel	21	3
Lateral Load Perpendicular to Furring Channel	54	3

ICC (Drawing A001978)

A stamped steel framed isolation hanger with a steel spring in series with an elastomeric cup housed inside the frame with thread steel rod extending through the bottom of the frame attached to a channel clip. Springs have a minimum overload capacity of 1 1/2X the rated spring capacity. The hanger frame has a minimum safety factor of 8X.

ICC 1" Deflection Spring Hanger		
Models	Rated Capacity (lbs.)	Spring Color
ICC-12	12	Silver
ICC-18	18	Yellow
ICC-24	24	Blue
ICC-30	30	Pink
ICC-37	37	White
ICC-50	50	Green
ICC-75	75	Black
ICC-100	100	Gray
ICC-150	150	Red
ICC-210	210	Brown

RH (Drawing AA001992)

Welded steel bracket isolated hanger incorporates an elastomeric isolator. Minimum hanger safety factor 19X

Model	Design Load (lbs.)
RH-75-A	75
RH-125-A	125

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LiftWrx (Drawings AA001988 & AA001987)

Floor spring isolator in cast iron housing. These isolators use 1” or 2” deflection steel spring coils. Springs have a minimum overload capacity of 1 1/2X the rated capacity of the spring. Cast housing has a minimum safety factor of 1.9X.

LiftWrx 1” Deflection Spring Coils		
Models	Rated Capacity (lbs.)	Spring Color Outer/inter coils
LIFTWRX 1-50-4/2	50	beige
LIFTWRX 1-100-4/2	100	chrome
LIFTWRX 1-140-4/2	140	blue
LIFTWRX 1-175-4/2	175	chrome/green
LIFTWRX 1-235-4/2	235	chrome/blue
LIFTWRX 1-293-4/2	293	green
LIFTWRX 1-368-4/2	368	green/green
LIFTWRX 1-434-4/2	434	black
LIFTWRX 1-569-4/2	569	black/blue
LIFTWRX 1-611-4/2	611	gray
LIFTWRX 1-746-4/2	746	gray/blue
LIFTWRX 1-870-4/2	870	red
LIFTWRX 1-1005-4/2	1005	red/blue
LIFTWRX 1-1147-4/2	1147	brown
LIFTWRX 1-1270-4/2	1270	red/gray
LIFTWRX 1-1547-4/2	1547	brown/gray
LIFTWRX 1-1790-4/2	1790	orange
LIFTWRX 1-2190-4/2	2190	orange/gray
LIFTWRX 1-2465-4/2	2465	blue
LIFTWRX 1-2865-4/2	2865	blue/gray
LIFTWRX 1-3500-4/2	3500	blue/brown
LiftWrx 2” Deflection Spring Coils		
Models	Rated Capacity (lbs.)	Spring Color Outer/inter1/inter2 coils
LIFTWRX 2-50-4/2	100	gray
LIFTWRX 2-68-4/2	136	Beige
LIFTWRX 2-93-4/2	185	Brown
LIFTWRX 2-113-4/2	226	Gray/brown
LIFTWRX 2-125-4/2	250	Blue
LIFTWRX 2-188-4/2	376	Blue/brown
LIFTWRX 2-250-4/2	500	Green
LIFTWRX 2-313-4/2	626	Green/brown
LIFTWRX 2-375-4/2	750	Black

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LIFTWRX 2-438-4/2	875	Black/brown
LIFTWRX 2-498-4/2	996	Orange
LIFTWRX 2-560-4/2	1120	Orange/brown
LIFTWRX 2-650-4/2	1300	Black/brown/yellow
LIFTWRX 2-698-4/2	1396	Orange/green
LIFTWRX 2-800-4/2	1600	Red
LIFTWRX 2-910-4/2	1820	Orange/green/yellow
LIFTWRX 2-1000-4/2	2000	Red/green
LIFTWRX 2-1113-4/2	2226	Red/green/white
LIFTWRX 2-1225-4/2	2450	Silver/green
LIFTWRX 2-1423-4/2	2826	Silver/pink/white
LIFTWRX 2-1513-4/2	3026	Silver/pink/yellow

LSM (Drawings AA001982 thru AA001985)

Floor spring isolators in welded steel housings. These isolators use 1" or 2" deflection steel springs coils. Springs have a minimum overload capacity of 1 1/2X the rated capacity of the spring. Cast housing has a minimum safety factor of 1.87X.

LSM 1" Deflection Spring Coils		
Models	Rated Capacity (lbs.)	Spring Color Outer/inter coils
LSM 1-50-4/2	50	beige
LSM 1-100-4/2	100	chrome
LSM 1-140-4/2	140	blue
LSM 1-175-4/2	175	chrome/green
LSM 1-235-4/2	235	chrome/blue
LSM 1-293-4/2	293	green
LSM 1-368-4/2	368	green/green
LSM 1-434-4/2	434	black
LSM 1-569-4/2	569	black/blue
LSM 1-611-4/2	611	gray
LSM 1-746-4/2	746	gray/blue
LSM 1-870-4/2	870	red
LSM 1-1005-4/2	1005	red/blue
LSM 1-1147-4/2	1147	brown
LSM 1-1270-4/2	1270	red/gray
LSM 1-1547-4/2	1547	brown/gray
LSM 1-1790-4/2	1790	orange
LSM 1-2190-4/2	2190	orange/gray
LSM 1-2465-4/2	2465	blue
LSM 1-2865-4/2	2865	blue/gray
LSM 1-3500-4/2	3500	blue/brown

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LSM 2" Deflection Spring Coils		
Models	Rated Capacity (lbs.)	Spring Color Outer/inter1/inter2 coils
LSM 2-50-4/2	100	gray
LSM 2-68-4/2	136	Beige
LSM 2-93-4/2	185	Brown
LSM 2-113-4/2	226	Gray/brown
LSM 2-125-4/2	250	Blue
LSM 2-188-4/2	376	Blue/brown
LSM 2-250-4/2	500	Green
LSM 2-313-4/2	626	Green/brown
LSM 2-375-4/2	750	Black
LSM 2-438-4/2	875	Black/brown
LSM 2-498-4/2	996	Orange
LSM 2-560-4/2	1120	Orange/brown
LSM 2-650-4/2	1300	Black/brown/yellow
LSM 2-698-4/2	1396	Orange/green
LSM 2-800-4/2	1600	Red
LSM 2-910-4/2	1820	Orange/green/yellow
LSM 2-1000-4/2	2000	Red/green
LSM 2-1113-4/2	2226	Red/green/white
LSM 2-1225-4/2	2450	Silver/green
LSM 2-1423-4/2	2826	Silver/pink/white
LSM 2-1513-4/2	3026	Silver/pink/yellow

FLM (Drawing AA002002)

Floor isolators using fiberglass or elastomeric isolation element inside a cast iron housing.

FLM Isolator		
Model	Rated Capacity (lbs.)	Safety Factor
FLM-44Q	1150	7
FLM-44R	2450	3.3
FLM-44N	1500	6

RIM (Drawing AA002016)

KIP fiberglass isolators installed in light density fibrous batt. Safety factor 2X

KIP Isolation Pad	
Pad Density	Bearing Load (psi)
G	25
I	35
L	50

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Q	100
QR	200
R	300

KSM (Drawing AA002003)

Rectangular elastomeric coated fiberglass isolation element pad with flanged steel bushing in center. Safety factor 2X.

KSM Partition Isolator	
Model	Capacity (lbs.)
KSM-338	475
KSM-450	645

NAFP-10 (Drawing AA002004)

Continuous fiberglass isolation pad encased in elastomeric coating with a 1/4" hardboard top plate load surface. The design load for these isolators is 15 psi. Safety factor 3X.

PC-10 (Drawing AA002007)

Continuous fiberglass isolation pad encased in elastomeric coating with a galvanized steel channel top plate load surface. The design load for these isolators is 15 psi. Safety factor 4X.

QT-F (Drawing AA00002010)

Recycled, re-bonded crumb rubber underlayment. Design load 1000 psf. Minimum safety factor 90X.

QT Underlayment	
Model	Thickness
QT-F02	2mm
QT-F05	5mm

UniBrace F and Double F (Drawing AA001996 & AA001997)

UniBrace F and Double F Isolation Brackets consist of a flat stamped steel bracket captured and held securely by an elastomeric element with two anchoring points.

Style	Shear loading (lbs.)	Safety Factor
UniBrace F	35	4.9
UniBrace Double F	50	5.9

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PSB-S & -M (Drawing AA002008 & AA002009)

Hat shaped stamped steel bracket with mounting holes in each flange. A steel rod extends from the center of the bracket supported by elastomeric bushings on each side of the steel bracket.

Model	Design Load (lbs.)	Min. Safety Factor
PSB-S-75	75	13
PSB-S-125	125	8
PSB-M-175	175	2.4
PSB-M-300	300	3.3
PSB-M-450	450	2.3
PSB-M-750	750	2
PSB-M-1100	1100	1.7
PSB-M-2000	2000	1.6

AR (Drawing AA002000)

Elastomeric isolation hanger housed within two interlocking stamped steel brackets. Minimum hanger safety factor 8.9X.

Model	Design Load (lbs.)
AR-75	75
AR -125	125
AR-200	200

ARS (Drawing AA001999)

Steel spring isolation hanger housed within two interlocking steel brackets. Springs have a minimum overload capacity of 1 1/2X the rated capacity of the spring. Minimum safety factor of the hanger 26X.

Model	Design Load (lbs.)
ARS-15	15
ARS-30	30
ARS-50	50
ARS-70	70

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IsoGrid (Drawing AA002001)

Hanger with an elastomeric isolation element enclosed in a stamped steel bracket. Minimum hanger safety factor 5X.

Model	Design Load (lbs.)
ISOGRID-40	40
ISOGRID-105	105
ISOGRID-160	160

QuakeKit –P and QuakeKit D (Drawings AA002011, AA002012 & AA002013)

Seismic restraint cable kits consisting of two swaged steel cable assemblies, thimbles and connectors.

Model	Cable dia. (in)	Tensile Capacity (lbs.)	Min Safety Factor
QuakeKit- D-2	1/8	1000	1.8
QuakeKit- D-3	3/16	2100	2.2
QuakeKit- D-4	1/4	3350	2.2
QuakeKit-P -2	1/8	1000	1.8
QuakeKit-P -3	3/16	2100	2.2
QuakeKit-P -4	1/4	3350	2.2

GOTHAM (Drawing AA001980)

A stamped steel framed isolation hanger with a steel spring in series with an elastomeric isolator housed inside the frame with a bolt extending from the bottom of housing supporting a channel clip. Springs have a minimum overload capacity of 1 1/2X the rated capacity of the spring. The hanger frame has a minimum safety factor of 6.7X.

GOTHAM 1" Deflection Spring Hanger		
Models	Rated Capacity (lbs.)	Spring Color Outer/inter coils
GOTHAM-1-12	12	Silver/Black
GOTHAM-1-24	24	Blue/Black

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GOTHAM-1-37	37	White/Black
GOTHAM-1-50	50	Green/Black
GOTHAM-1-75	75	Black/Black
GOTHAM-1-100	100	Gray/Black
GOTHAM-1-150	150	Red/Red
GOTHAM-1-210	210	Brown/Green

IsoMax Seismic Restraint Bracket (Drawing AA001986)

Stamped steel bracket with two holes for attachment used in conjunction with the IsoMax clip. IsoMax seismic restraint bracket mounts to furring channel and supports IsoMax on either side along the channel. IsoMax seismic restraint bracket safety factor 2.4X.

IsoMax Seismic Restraint Bracket Loading	Design Load (lbs.)
Lateral Load, Parallel (along) to Furring Channel	65

The approval is subject to the following conditions:

1. Calculations and details prepared by a California licensed civil or structural engineer or architect shall be submitted to plan check showing the product clip/hanger assembly designed to resist tension/shear loads in accordance with published test values for each project application.
2. Allowable loads may not be increased for short term loading.
3. Sound and fire ratings of isolators and assemblies in which they are installed are beyond the scope of this approval.
4. The effects of long term loading (effective creep) and cyclic loading are beyond the scope of this approval.
5. The approval addresses the Kinetics isolation products only. Connections to other components and substrates are not included under this approval.

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6. WallMatt/KAI isolator plate shall be installed in non-load bearing, non-shear wall assemblies only.
7. All products to be installed per manufacturer instructions.
8. Complete details and description of assemblies in which clips/hangers are installed shall be shown on the approved set of plans.

DISCUSSION

The technical modification is to add LiftWrx, LSM, FLM, and RIM Isolators; KSM, NAFP-10, and PC-10 Isolation Pads; QT-F underlayment; UniBrace F, Double F, PSBS-S and M steel brackets; AR, ARS, Gotham, and IsoGrid Isolation Hangers; and QuakeKit-P, QuakKit-D, and IsoMax seismic restraint brackets to the approval.

This report is in compliance with the 2017 City of Los Angeles Building Code.

This approval is based on load tests provided by Progressive Engineering, Inc.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this Approval have been met in the project in which it is to be used.

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Attachments: Kinetics Hanger/Clip Detail Sheets (43 Pages)

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