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April 27, 2011

Mr. Timothy A. Fecker
LHS Facilities Development Group, Inc.
5308 West Plano Parkway
Plano, TX 75093

**Ref: Lawrence Hospital Expansion – Bronxville, NY
Mechanical Equipment Analysis
C&A Project #19695**

Dear Mr. Fecker:

We have completed our review of the proposed mechanical equipment for the Lawrence Hospital expansion in Bronxville, NY. It is our understanding that a new 3 floor expansion is planned for the hospital and as part of the expansion new mechanical equipment will be installed. There has been some concern over the potential noise impact from this new mechanical equipment to neighboring residences and properties and an acoustical evaluation was performed to determine if noise impact was expected. The following letter summarizes our findings, comments and recommendations based on our review of the project drawings, proposed mechanical equipment, and site observations.

1.0 ACOUSTICAL TERMINOLOGY

The following summarizes the various acoustical terminology and criteria applicable to this project:

A. Environmental Noise

Environmental noise is typically given in terms of the overall A-Weighted decibel level (dB(A), or just dBA). A-Weighting is a way of scaling the overall noise level of various sources to better represent human hearing response. For reference, a table is attached showing the typical A-Weighted sound levels for various types of sources.

B. Noise Criterion (NC) Ratings

To describe interior background noise levels we refer to the Noise Criterion (NC) ratings as established by ASHRAE. The NC ratings are a single-number rating which correspond to the steady-state noise level produced by building mechanical, plumbing, electrical and elevator systems.

2.0 SITE VISIT FINDINGS AND OBSERVATIONS

We visited the hospital to observe the existing conditions and identify the nearest impacted adjacencies to the proposed mechanical equipment. An existing patio area just outside the ground floor cafeteria space will be replaced by the hospital expansion. The subject residences are located across Pondfield Road, approximately 130 ft from the edge of the existing hospital building. While on site we measured the typical daytime ambient sound level along Pondfield Road. The existing ambient sound level along Pondfield Road measured between 50 to 55 dBA. This represents the L₉₀ sound level, or the level exceeded 90% of the measurement period. This essentially “filters out” loud, transient sounds such as vehicle passes and is indicative of the average ambient level.

We also inspected a typical patient room on the 3rd floor. The patient rooms along the east façade on floors 3 through 5 will overlook the mechanical penthouse and chillers. Thus there is potential for exposure to noise levels from the chillers. Patient rooms have operable insulated windows, however we understand that they are permanently locked to prevent manual operation by patients. Background noise level measurements taken within a typical patient room showed a level of NC-32 due to the HVAC system.

3.0 ACOUSTICAL CRITERIA

Based on our observations on site, we recommend the following acoustical criteria for the design of the chillers and generator:

C. Environmental Noise

Often times local noise codes or ordinances will be given in terms of maximum allowable dBA levels to be maintained by various types of equipment or activity. The Village of Bronxville does not specify limits for noise emissions from the equipment under review, rather the Village prohibits “unreasonable noise”. However, based on our measurements the existing daytime ambient sound level at the neighboring residential property along Pondfield Rd measures between 50 and 55 dBA. Nighttime ambient sound levels in suburban areas can reach as low as 10 dB lower than the daytime ambient level. Since the chillers can reasonably be expected to operate at all times of the day, we therefore recommend establishing a maximum criteria of **45 dBA** at the residential properties due to the chillers. This is subjectively approximately half as loud as the existing daytime ambient sound level and is consistent with nighttime ambient levels measured in nearby areas. By designing for this level, sound levels from the chillers would not likely be considered intrusive or unreasonable at nighttime, and most likely inaudible during the daytime.

D. Noise Criterion (NC) Ratings

For patient rooms, the Federal Guidelines Institute (FGI) state a maximum level of NC-30 to 40 (or 35 – 45 dBA). Note that this would not equate to a condition of inaudibility in patient rooms due to the chillers. In order for the chillers to be inaudible in the patient rooms, the chiller sound levels would have to be up to 10-points lower than the existing ambient level, or maximum NC-22 based on the existing ambient level of NC-32 as noted in Section 2.0.

4.0 PROPOSED EQUIPMENT

Two chillers and one generator are included in the proposed expansion. The chillers are Trane models RTAC170 (CH-1, 150-tons) and CGAM052 (CH-2, 33-tons), both with Trane’s optional acoustical package. The chillers will be located on the 2nd floor roof of the expansion building in a mechanical penthouse. The mechanical penthouse will be located just to the south of a roof garden area with existing hospital space beyond. Each chiller will be housed behind a solid screen with open air top.

5.0 ANTICIPATED SOUND LEVELS

Chiller CH-1 is estimated to be approximately 130 ft from the residential building across Pondfield Rd. Detail 3 on Drawing A802 shows the chiller behind an architectural barrier wall which extends above the height of the chiller by approximately 1’-6”. With the comprehensive acoustical package, we project sound levels from CH-1 at the

neighboring residential building to be $50\pm$ dBA. This would exceed the recommended level as established in Section 3.C.

We further project sound levels from CH-1 within 3rd floor patient rooms to be less than NC-30. At upper patient rooms on floors 4 or above, sound levels are projected to be roughly NC-35 or less. Therefore sound levels within patient rooms overlooking the chiller are expected to comply with the FGI criteria.

Chiller CH-2 is approximately 120 ft from the residential building. Detail 1 on Drawing A803 shows an architectural barrier extending approximately 2'-6" above the chiller. Using acoustical data from Trane, we estimate sound levels with either acoustical treatment package at the residential building to be less than 40 dBA and therefore are unlikely to be audible or intrusive. Sound levels in patient rooms are also anticipated to comply with the FGI criteria and be well below existing ambient levels. Therefore sound levels from chiller CH-2 should not be audible within patient rooms.

6.0 RECOMMENDATIONS

As noted above, sound levels from chiller CH-1 are estimated to be $50\pm$ dBA at the residential building and thus would exceed the recommended level as established in Section 3.C. Therefore in order to achieve a level at the residential property of 45 dBA, we recommend the following:

- A. Reorient the unit. Our calculations assume the worst case using sound level measured from the side of the chiller. Per Trane literature, sound levels at either the control box end or end opposite the control box measure 2 and 4 dB lower than from the side, respectively. We therefore recommend that chiller CH-1 be oriented such that the end opposite the control box faces towards the residences. This should reduce sound levels by 4 dB, or approximately 45 dBA, thus complying with the recommended level.
- B. Increase Barrier Height. If reorienting the unit as recommended is not practical or feasible, then we recommend increasing the height of the architectural barrier such that it is a minimum 3 ft above the tallest point of the chiller. Alternatively, the chiller could be lowered on the dunnage to achieve the same relative height requirement. Either option should result in sound levels of approximately 45 dBA at the residential property.

In addition to the above recommendations, regardless of the acoustical treatments above it will be necessary to provide proper vibration isolation treatment for the chillers in order to minimize any structure-borne noise transmission. We discuss these requirements below:

- C. Vibration Isolation. The chillers are shown on dunnage. However it will be necessary to provide restrained spring isolators between the chillers and dunnage. We recommend restrained spring isolators such as Mason Industries type SLR, or an approved equivalent, sized for a minimum static deflection of 2.00". In addition, all piping connected to the chillers should be isolated from the roof structure up/downstream from the chiller for a minimum of 50 ft or 100 pipe-diameters, which



ever is greater. This may be from supporting stanchions on neoprene pads, such as Mason type Super W, or loosely securing pipe clamps around exterior pipe insulation. Lastly, all piping connected to the chillers shall be via flexible connectors.

7.0 CONCLUSION

Based on our findings and recommendations discussed in the previous sections, sound levels from the chillers can be made to comply with applicable criteria at the sensitive receiver locations. By complying with the established criteria, sound levels from the chillers should not be intrusive and therefore should not be considered "unreasonable" per the Village of Bronxville Code.

After completion of construction additional testing and measurement of the chillers may be performed to assess compliance with the established criteria and sound levels. If it is deemed necessary to provide further acoustical treatment then Cerami & Associates will assist with coordination of this effort.

This concludes our comments at this time. Manufacturer product literature is enclosed for products referenced in this report. Should you have any questions, comments or concerns please do not hesitate to contact us.

Very truly yours,

A handwritten signature in black ink, appearing to read "Justin Y. Lau", is written over a printed name and title.

Justin Y. Lau
Senior Associate





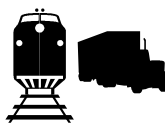

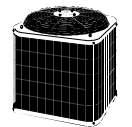
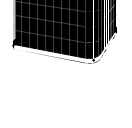

JYL:bh

Enclosures

cc: Stephen G. Lindsey / Cerami & Associates, Inc.

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Figure SCS-1
Typical Noise in the Urban Environment

	Over-all Level (Noise level, dB(A))		Community (Outdoor)	Home or Industry (Indoor)	Loudness (Human Judgement of Different Sound Levels)
	120-130	Uncomfortably Loud	Military Jet Aircraft Take-Off With After-Burner From Aircraft Carrier @ 50 ft. (130)	Oxygen Torch (121)	32 times as loud as 70 dB(A)
	110-119		Turbo Fan Aircraft @ Take-Off Power @ 200 ft. (118)	Riveting Machine (110) Rock and Roll Band (108-114)	16 times as loud as 70 dB(A)
	100-109		Boeing 707, DC-8 @ 6080 ft. Before Landing (106), Jet Flyover @ 1000 ft. (103), Bell J-2A Helicopter @ 100 ft. (100)		8 times as loud as 70 dB(A)
	90-99	Very Loud	Power Mower (96) Boeing 707, CD-8 @ 6080 ft. Before Landing (97) Motorcycle @ 25 ft. (90)	Newspaper Press (97)	4 times as loud as 70 dB(A)
	80-89		Car Wash @ 20 ft. (89) Propellor Plane Flyover @ 1000 ft. (88) Diesel Truck, 40 mph @ 50 ft. (84) Diesel Train, 45 mph @ 100 ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	2 times as loud as 70 dB(A)
	70-79	Moderately Loud	High Urban Ambient Sound (80) Passenger Car, 65 mph @ 25 ft. (77) Freeway @ 50 ft. From Pavement Edge @ 10 a.m. (76 +/- 6)	Living Room Music (76) TV-Audio, Vacuum Cleaner (70)	
	60-69		Air Conditioning Unit @ 100 ft. (60)	Cash Register @ 10 ft. (65-70)	1/2 as loud as 70 dB(A)
	50-59	Quiet	Large Transformers @ 100 ft. (50)		1/4 as loud as 70 dB(A)
	40-49		Bird Calls (44) Lower Limit of Urban Ambient Sound in daytime (40)		1/8 as loud as 70 dB(A)
		Just Audible	dB(A) Scale Interrupted		
	0-10	Threshold of Hearing			

Source: Adapted by CBA from Melville C. Branch and R. Dale Beland. *Outdoor Noise in the Metropolitan Environment*. City of Los Angeles. 1970.

2" Deflection B, B2, C2 SPRING SERIES SLR SINGLE and MULTIPLE SPRING WELDED RESTRAINED MOUNTS

SLR-B2-450, B2-680, C2-880 thru C2-1870 & 2-C2-1760 thru 6-C2-11220 mounts have minimum 25% of rated deflection additional travel to solid. The last two columns in the ratings table show ratings at 50% additional travel.

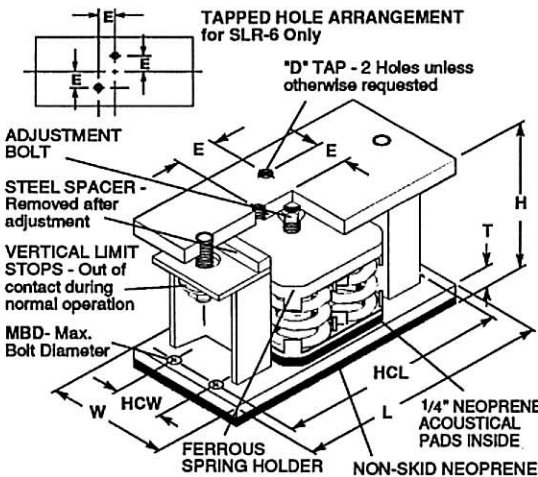


Illustration shows a 4 spring SLR-4-C2. SLR-B, -B2 & -C2 have 1 spring; SLR-2-C2 & 6-C2 have 2 and 6 springs respectively.

SPRING DATA

Spring Size	Free OD	Free HT.	Ratio Kx/Ky	Ratio OD/OH
B&B2	2 3/8	4 1/2	0.55-0.90	0.95-1.48
C2	2 7/8	5	0.63-0.85	0.96-1.15

Solid Spring Height = Free Height minus 1.5 times the rated deflection from the *50% additional travel to solid* column.

TYPE SLR DIMENSIONS (inches)

Size	D	E	H	L	T	W	HCL	HCW	MBD
SLR-B & B2	5/8	1 3/8	7 1/2	10 1/4	1/2	4	9	2 3/4	5/8
SLR-1-C2	5/8	1 3/8	7 1/2	10 1/4	1/2	4	9	2 3/4	5/8
SLR-2-C2	5/8	1 3/8	7 1/2	15	5/8	4	13 3/4	2 3/4	5/8
SLR-4-C2	5/8	1 3/8	7 1/2	13 1/2	1/2	6	12 1/4	2 3/4	5/8
SLR-6-C2	3/4	1 3/4	8 3/8	17 3/4	5/8	6	15 3/4	3	3/4

TYPE SLR RATINGS

*with RED core spring

Size	Standard Ratings				Ratings at 50% additional travel to solid			
	Rated Capacity (lbs)	Rated Defl (in)	Mount Constant (lbs/in)	Spring Color/Stripe	Seismic G Rating	MEFA (R ²)	Capacity (lbs)	Defl (in)
SLR-B-20 [†]	20	2.40	8	Tan	127.5	85	20	2.40
SLR-B-26 [†]	26	2.18	12	White/Blue	98.1	85	26	2.18
SLR-B-35 [†]	35	2.20	16	Purple	72.9	85	35	2.20
SLR-B-50 [†]	50	2.20	24	White/Red	51.0	85	50	2.20
SLR-B-65 [†]	65	2.10	31	Brown	39.2	85	65	2.10
SLR-B-85 [†]	85	2.10	40	White/Black	30.0	85	85	2.10
SLR-B-115 [†]	115	2.00	57	Silver	22.2	85	115	2.00
SLR-B-150 [†]	150	2.00	75	Orange	17.0	85	150	2.00
SLR-B2-210 [†]	210	2.12	99	Silver	12.1	85	210	2.12
SLR-B2-290 [†]	290	2.00	144	Blue	8.8	85	290	2.00
SLR-B2-450 [†]	450	2.00	224	Tan	5.7	85	410	1.83
SLR-B2-680 [†]	680	2.00	340	Gray	3.8	85	565	1.66
SLR-C2-125 [†]	125	2.50	50	Purple	20.4	85	125	2.50
SLR-C2-170 [†]	170	2.40	70	Brown	15.0	85	170	2.40
SLR-C2-210 [†]	210	2.30	90	Red	12.1	85	210	2.30
SLR-C2-260 [†]	260	2.20	120	White	9.8	85	260	2.20
SLR-C2-330 [†]	330	2.00	165	Black	7.7	85	330	2.00
SLR-C2-460 [†]	460	2.00	230	Blue	5.5	85	460	2.00
SLR-C2-610 [†]	610	2.00	305	Green	4.2	85	610	2.00
SLR-C2-880 [†]	880	2.00	440	Gray	2.9	85	800	1.82
SLR-C2-1210 [†]	1210	2.00	605	Silver	2.1	85	1010	1.67
SLR-C2-1540 [†]	1540	2.00	770	Gray*	1.7	85	1285	1.67
SLR-C2-1870 [†]	1870	2.00	935	Silver*	1.4	85	1560	1.67
SLR-2-C2-340 [†]	340	2.40	140	Brown	9.0	102	340	2.40
SLR-2-C2-420 [†]	420	2.30	180	Red	7.3	102	420	2.30
SLR-2-C2-520 [†]	520	2.20	240	White	5.9	102	520	2.20
SLR-2-C2-660 [†]	660	2.00	330	Black	4.6	102	660	2.00
SLR-2-C2-920 [†]	920	2.00	460	Blue	3.3	102	920	2.00
SLR-2-C2-1220 [†]	1220	2.00	610	Green	2.5	102	1220	2.00
SLR-2-C2-1760 [†]	1760	2.00	880	Gray	1.7	102	1600	1.82
SLR-2-C2-2420 [†]	2420	2.00	1210	Silver	1.3	102	2020	1.67
SLR-2-C2-3080 [†]	3080	2.00	1540	Gray*	1.0	102	2570	1.67
SLR-2-C2-3740 [†]	3740	2.00	1870	Silver*	0.8	102	3120	1.67
SLR-4-C2-4840 [†]	4840	2.00	2420	Silver	0.8	125	4040	1.67
SLR-4-C2-6160 [†]	6160	2.00	3080	Gray*	0.6	125	5145	1.67
SLR-4-C2-7480 [†]	7480	2.00	3740	Silver*	0.5	125	6245	1.67
SLR-6-C2-7260	7260	2.00	3630	Silver	0.9	225	6060	1.67
SLR-6-C2-9240	9240	2.00	4620	Gray*	0.5	225	7715	1.67
SLR-6-C2-11220	11220	2.00	5610	Silver*	0.6	225	9370	1.67

*SLR-B, -B2, -C2, -2-C2 & -4-C2 have CALIF. OSHPD Anchorage Preapproval Number R-0194.

2" Deflection B, B2, C2 SPRING SERIES SLRW SINGLE and MULTIPLE SPRING WELDED RESTRAINED MOUNTS

SLRW-B2-450, B2-680, C2-880 thru C2-1870 & 2-C2-1760 thru 6-C2-11220 mounts have minimum 25% of rated deflection additional travel to solid. The last two columns in the ratings table show ratings at 50% additional travel.

NOTE - Do not use for seismic or wind load applications.

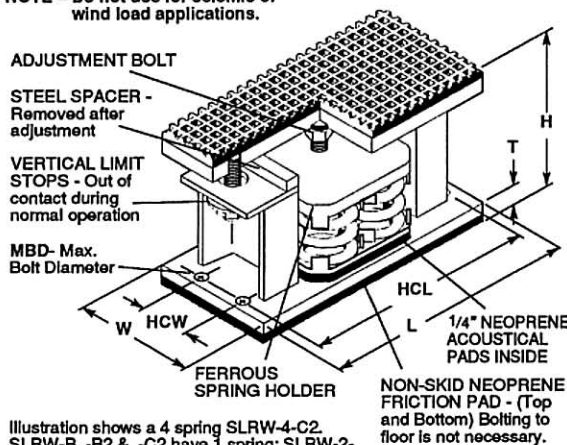


Illustration shows a 4 spring SLRW-4-C2. SLRW-B, -B2 & -C2 have 1 spring; SLRW-2-C2 & 6-C2 have 2 and 6 springs respectively.

SPRING DATA

Spring Size	Free OD	Free HT.	Ratio Kx/Ky	Ratio OD/OH
B&B2	2 3/8	4 1/2	0.55-0.90	0.95-1.48
C2	2 7/8	5	0.63-0.85	0.96-1.15

Solid Spring Height = Free Height minus 1.5 times the rated deflection from the *50% additional travel to solid* column.

TYPE SLRW DIMENSIONS

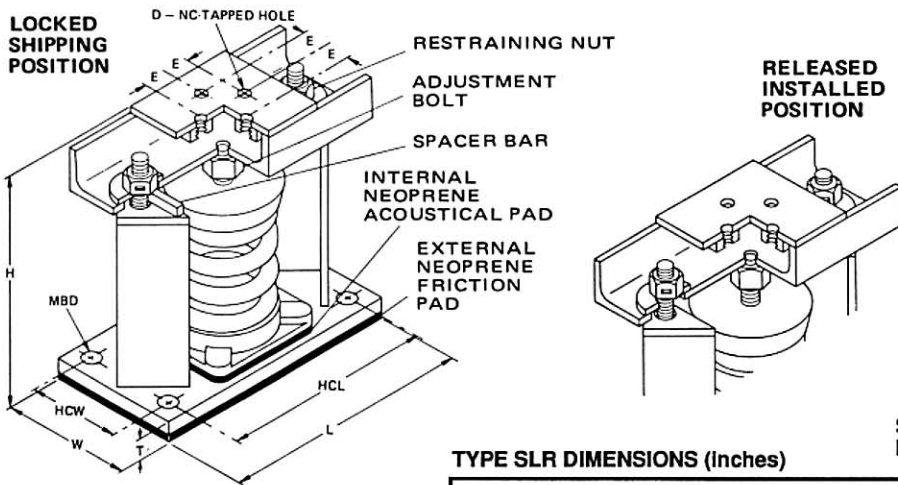
Size	L	W	H	T	MBD	HCW	HCL
SLRW-B & B2	10 1/4	4	7 3/4	1/2	5/8	2 3/4	9
SLRW-1-C2	10 1/4	4	7 3/4	1/2	5/8	2 3/4	9
SLRW-2-C2	15	4	7 3/4	5/8	5/8	2 3/4	13 3/4
SLRW-4-C2	13 1/2	6	7 3/4	1/2	5/8	2 3/4	12 1/4
SLRW-6-C2	17 3/4	6	8 5/8	5/8	3/4	3	15 3/4

TYPE SLRW RATINGS

*with RED core spring

Size	Standard Ratings				Ratings at 50% additional travel to solid	
	Rated Capacity (lbs)	Rated Defl (in)	Mount Constant (lbs/in)	Spring Color/Stripe	Capacity (lbs)	Defl (in)
SLRW-B-20	20	2.40	8	Tan	20	2.40
SLRW-B-26	26	2.18	12	White/Blue	26	2.18
SLRW-B-35	35	2.20	16	Purple	35	2.20
SLRW-B-50	50	2.20	24	White/Red	50	2.20
SLRW-B-65	65	2.10	31	Brown	65	2.10
SLRW-B-85	85	2.10	40	White/Black	85	2.10
SLRW-B-115	115	2.00	57	Silver	115	2.00
SLRW-B-150	150	2.00	75	Orange	150	2.00
SLRW-B2-210	210	2.12	99	Silver	210	2.12
SLRW-B2-290	290	2.00	144	Blue	290	2.00
SLRW-B2-450	450	2.00	224	Tan	410	1.83
SLRW-B2-680	680	2.00	340	Gray	565	1.66
SLRW-C2-125	125	2.50	50	Purple	125	2.50
SLRW-C2-170	170	2.40	70	Brown	170	2.40
SLRW-C2-210	210	2.30	90	Red	210	2.30
SLRW-C2-260	260	2.20	120	White	260	2.20
SLRW-C2-330	330	2.00	165	Black	330	2.00
SLRW-C2-460	460	2.00	230	Blue	460	2.00
SLRW-C2-610	610	2.00	305	Green	610	2.00
SLRW-C2-880	880	2.00	440	Gray	800	1.82
SLRW-C2-1210	1210	2.00	605	Silver	1010	1.67
SLRW-C2-1540	1540	2.00	770	Gray*	1285	1.67
SLRW-C2-1870	1870	2.00	935	Silver*	1560	1.67
SLRW-2-C2-340	340	2.40	140	Brown	340	2.40
SLRW-2-C2-420	420	2.30	180	Red	420	2.30
SLRW-2-C2-520	520	2.20	240	White	520	2.20
SLRW-2-C2-660	660	2.00	330	Black	660	2.00
SLRW-2-C2-920	920	2.00	460	Blue	920	2.00
SLRW-2-C2-1220	1220	2.00	610	Green	1220	2.00
SLRW-2-C2-1760	1760	2.00	880	Gray	1600	1.82
SLRW-2-C2-2420	2420	2.00	1210	Silver	2020	1.67
SLRW-2-C2-3080	3080	2.00	1540	Gray*	2570	1.67
SLRW-2-C2-3740	3740	2.00	1870	Silver*	3120	1.67
SLRW-4-C2-4840	4840	2.00	2420	Silver	4040	1.67
SLRW-4-C2-6160	6160	2.00	3080	Gray*	5145	1.67
SLRW-4-C2-7480	7480	2.00	3740	Silver*	6245	1.67
SLRW-6-C2-7260	7260	2.00	3630	Silver	6060	1.67
SLRW-6-C2-9240	9240	2.00	4620	Gray*	7715	1.67
SLRW-6-C2-11220	11220	2.00	5610	Silver*	9370	1.67

**2" Deflection 100 SPRING SERIES
SLR SINGLE SPRING WELDED RESTRAINED MOUNTS**



TYPE SLR RATINGS

Size	Rated Capacity (lbs)	Rated Defl (in)	Mount Constant (lbs/in)	Max G Ratings
101	125	2.50	50	5.6
102	200	2.50	80	3.5
103	310	2.50	125	2.3
104	500	2.50	200	1.4
105	740	2.40	310	0.9
106	1050	2.10	500	0.7
107	1400	2.00	700	0.5
108	1660	2.05	810	1.0
109	2250	2.00	1125	0.7
110	3000	2.00	1500	1.3
111	4000	2.00	2000	1.0
112	5300	2.00	2665	0.6
113	7100	2.00	3550	0.5
114	9300	2.00	4650	0.5
115	12600	2.00	6300	0.4

SLR-101 thru -115 have Calif. OSHPD Anchorage Preapproval Number R-0204 pending.

TYPE SLR DIMENSIONS (Inches)

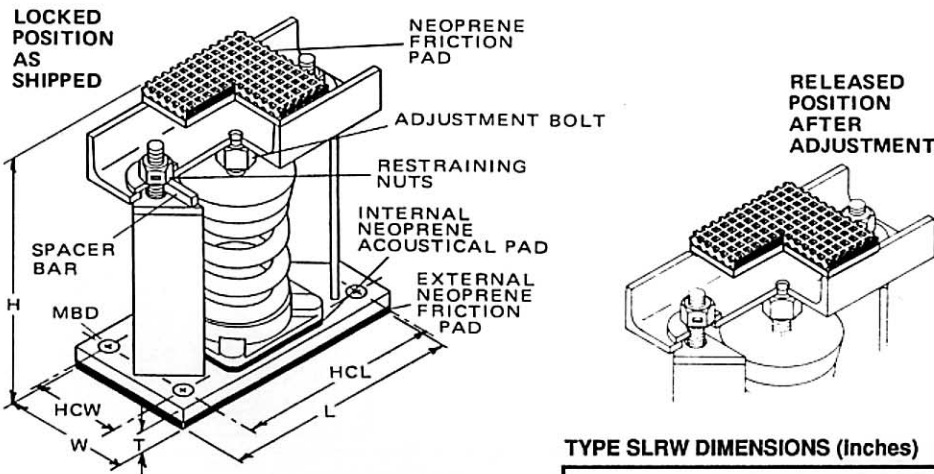
Size	L	W	H	T	MBD	HCW	HCL	D	E	Spring		Spring Color/Stripe
										OD	HT	
101	9	4 1/2	10 1/4	3/8	1/2	3 1/4	7 3/4	1/2	1 1/8	3 3/4	5 3/4	Purple
102	9	4 1/2	10 1/4	3/8	1/2	3 1/4	7 3/4	1/2	1 1/8	3 3/4	5 3/4	Brown
103	9	4 1/2	10 1/4	3/8	1/2	3 1/4	7 3/4	1/2	1 1/8	3 3/4	5 3/4	Pink
104	9	4 1/2	10 1/4	3/8	1/2	3 1/4	7 3/4	1/2	1 1/8	3 3/4	5 3/4	Green
105	9	4 1/2	10 1/4	3/8	1/2	3 1/4	7 3/4	1/2	1 1/8	3 3/4	5 3/4	Red
106	9	4 1/2	10 1/4	3/8	1/2	3 1/4	7 3/4	1/2	1 1/8	3 3/4	5 7/8	White
107	9	4 1/2	10 1/4	3/8	1/2	3 1/4	7 3/4	1/2	1 1/8	3 3/4	5 7/8	Blue
108	9 3/4	5	11 1/2	3/8	1/2	3 3/4	8 1/4	5/8	1 1/8	4 1/2	6 3/4	Silver
109	9 3/4	5	11 1/2	3/8	1/2	3 3/4	8 1/4	5/8	1 1/8	4 1/2	7 1/2	Orange
110	11 1/2	5 1/2	12	1/2	1/2	3 1/2	10	5/8	1 1/8	5	7 1/2	Gray
111	11 1/2	5 1/2	12	1/2	1/2	3 1/2	10	5/8	1 1/8	5	7 1/2	Tan
112	11 1/2	7	13 7/8	1/2	5/8	4 1/2	9 1/2	5/8	1 1/4	5 1/2	8 1/2	Black
113	11 1/2	7	13 7/8	1/2	5/8	4 1/2	9 1/2	5/8	1 1/4	6	8 3/4	Yellow
114	14	8	15	1/2	5/8	4 1/2	11 3/4	3/4	1 3/8	6 3/4	10	Blue/Orange
115	14	8	15	1/2	5/8	4 1/2	11 3/4	3/4	1 3/8	6 3/4	10	Blue/Red

All springs have additional travel to solid equal to 50% of the rated deflection.

Solid Spring Height = Free Height minus 1.5 times Rated Deflection.

OD/OH = Ratio of Spring Outside Diameter to Operating Height = 0.82 - 1.15

**2" Deflection 100 SPRING SERIES
SLRW SINGLE SPRING WELDED RESTRAINED MOUNTS**



TYPE SLRW RATINGS

Size	Rated Capacity (lbs)	Rated Defl (in)	Mount Constant (lbs/in)
101	125	2.50	50
102	200	2.50	80
103	310	2.50	125
104	500	2.50	200
105	740	2.40	310
106	1050	2.10	500
107	1400	2.00	700
108	1660	2.05	810
109	2250	2.00	1125
110	3000	2.00	1500
111	4000	2.00	2000
112	5300	2.00	2665
113	7100	2.00	3550
114	9300	2.00	4650
115	12600	2.00	6300

TYPE SLRW DIMENSIONS (Inches)

Size	L	W	H	T	MBD	HCW	HCL	Spring		Spring Color/Stripe
								OD	HT	
101	9	4 1/2	10 1/2	3/8	1/2	3 1/4	7 3/4	3 3/4	5 3/4	Purple
102	9	4 1/2	10 1/2	3/8	1/2	3 1/4	7 3/4	3 3/4	5 3/4	Brown
103	9	4 1/2	10 1/2	3/8	1/2	3 1/4	7 3/4	3 3/4	5 3/4	Pink
104	9	4 1/2	10 1/2	3/8	1/2	3 1/4	7 3/4	3 3/4	5 3/4	Green
105	9	4 1/2	10 1/2	3/8	1/2	3 1/4	7 3/4	3 3/4	5 3/4	Red
106	9	4 1/2	10 1/2	3/8	1/2	3 1/4	7 3/4	3 3/4	5 7/8	White
107	9	4 1/2	10 1/2	3/8	1/2	3 1/4	7 3/4	3 3/4	5 7/8	Blue
108	9 3/4	5	11 3/4	3/8	1/2	3 3/4	8 1/4	4 1/2	6 3/4	Silver
109	9 3/4	5	11 3/4	3/8	1/2	3 3/4	8 1/4	4 1/2	7 1/2	Orange
110	11 1/2	5 1/2	12 1/4	1/2	1/2	3 1/2	10	5	7 1/2	Gray
111	11 1/2	5 1/2	12 1/4	1/2	1/2	3 1/2	10	5	7 1/2	Tan
112	11 1/2	7	14 1/8	1/2	5/8	4 1/2	9 1/2	5 1/2	8 1/2	Black
113	11 1/2	7	14 1/8	1/2	5/8	4 1/2	9 1/2	6	8 3/4	Yellow
114	14	8	15 1/4	1/2	5/8	4 1/2	11 3/4	6 3/4	10	Blue/Orange
115	14	8	15 1/4	1/2	5/8	4 1/2	11 3/4	6 3/4	10	Blue/Red

NOTE- SLRW Mounts are not to be used in seismic or wind load applications.

All springs have additional travel to solid equal to 50% of the rated deflection.

Solid Spring Height = Free Height minus 1.5 times Rated Deflection.

OD/OH = Ratio of Spring Outside Diameter to Operating Height = 0.82 - 1.15