GAYNES LABS, INCORPORATED

9708 INDUSTRIAL DRIVE • BRIDGEVIEW, ILLINOIS 60455

MEMBER: AMERICAN COUNCIL OF INDEPENDENT LABORATORIES

PHONE: 708-233-6655
FAX: 708-233-6985
EMAIL: gayneslabs@aol.com
http://www.nrinc.com/gaynes

February 15, 2007

AMCO Engineering, Co.
3801 N. Rose Street
Schiller Park, IL 60176-2190

Attention: Mr. Jim Walenda

Regarding: Dynamic and Static Loading of Server Cabinets
Gaynes Job No. 07149 AMCO Purchase Order: PO22780

Dear Mr. Walenda:

This report describes the procedures and results of the Static and Dynamic Load Tests of 2 AMCO Server Cabinets. The overall dimensions of each cabinet are 29" x 45" x 87 1/4" high. Testing was conducted at Gaynes Labs, Inc. on February 9, 2007 and was witnessed by yourself, Paul Dickson, and Steve Jarog.

TEST PROCEDURES:

Testing was based on a previously agreed upon test plan and your verbal instructions during testing.

Dynamic Load Testing - rolling across a floor hazard: The cabinet that was equipped with eight evenly spaced shelves and four casters was subjected to the Dynamic Load Test. Each shelf of the cabinet was loaded with six evenly distributed 50 lb. lead weights (300 pounds per shelf) for a total loading of 2,400 lbs., as shown in Photo 1. The loaded cabinet was setting on a smooth, flat, concrete floor with the rear of the cabinet facing the runway. The loaded cabinet was pushed by hand rearward for a distance of 25 feet in a straight line across the concrete floor. At 12 1/2 feet, the cabinet encountered a metal hazard that was attached to the floor (see photo 2). Dimensions of the hazard are 36" wide x 2" deep x 1/8" high with a 1/8" radius across the leading and trailing edges. The hazard was perpendicular to the direction of travel so that both rear wheels made contact with the hazard at the same time followed by the front wheels. At the end of the 25' run way, the direction of the cabinet was reversed so that the front casters made contact with the hazard first, followed by the rear casters. The cabinet was inspected and dimensional measurements of various areas were taken, as per your request.

Rolling up an incline: The loaded cabinet, starting on a smooth flat horizontal floor, was manually pushed up a smooth, flat, 5° angle incline until all four casters were on the incline (photo 3). The cabinet was pushed so that the both front casters made contact with the incline, followed by both rear casters. The cabinet was brought back to the horizontal surface and rotated 180°. The procedure was repeated with the rear wheels making contact first with the incline. The cabinet was inspected and dimensional measurements were recorded, as mentioned above. An additional 100 lbs. per shelf was added to the cabinet for a total load of 3,200 lbs. The cabinet was again subjected to the incline with the front wheels making contact first. The cabinet was rigged with four pulling straps (two each, to each rear vertical frame member) that were in turn attached to a fork lift. The fork lift pulled the cabinet up the incline until all four casters were on the incline surface (photo 4). The cabinet was returned to the horizontal floor where a final inspection and dimensional measurements were recorded.

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Static Load Testing: The cabinet that was equipped with twelve evenly spaced shelves and no casters was subjected to the Static Load Test. The cabinet was placed on a smooth, flat, concrete floor. Each shelf of the cabinet was loaded with eight evenly distributed 50 lb. lead weights (400 lbs. per shelf) for a total loading of 4,800 lbs., as shown in photo 5. The fully loaded cabinet was allowed to set at least 20 minutes while visual inspections and photos were taken. Measurements of various areas of the cabinet were recorded per your request, as empty before loading, when fully loaded, and again empty.

TEST RESULTS of DYNAMIC LOAD TESTING:

The letters shown in parenthesis indicate the location of the measurements. See photo 6 for the vertical alignment measuring technique of the lower frame rails.
(A) Front Horizontal Rail at Mid-span
(B) Front Horizontal Rail Near Casters
(C) Rear Horizontal Rail at Mid-span
(D) Rear Horizontal Rail Near Casters
(E) Left Horizontal Rail at Mid-span
(F) Right Horizontal Rail at Mid-span

See photo 7 for the measuring technique of the gusset distortion. The dimensions in the subsequent tables represent the amount of distortion along the top of the gusset, in reference to the horizontal plane. The amount of distortion was measured at 6" from the center line along the top of the gusset.
(G) Front Right Gusset Distortion
(H) Front Left Gusset Distortion
(I) Rear Left Gusset Distortion
(J) Rear Right Gusset Distortion

See photo 8 for the measuring technique of the span between the inside of the lower frame rails.
(K) Front - Inside Span of Cabinet
(L) Mid-span of Frame Rails - Inside Span of Cabinet.
(M) Rear - Inside Span of Cabinet.

Table 1 Dimensions (Inches) Following Rolling and Crossing the Hazard

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
3/16	0	2/16	0	3/16	3/16	2/16	3/16	2/16	1/16	27 9/16	27 13/16	27 7/16

Table 2 Dimensions (Inches) Following 1st Roll Up 5° Incline with 2400 Lbs.

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
3/16	0	2/16	0	7/32	3/16	2/16	3/16	2/16	1/16	27 9/16	27 13/16	27 7/16

Table 3 Dimensions (Inches) Following 2nd Roll Up 5° Incline with 2400 Lbs.

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
3/16	0	2/16	0	4/16	3/16	5/32	3/16	2/16	1/16	27 9/16	27 13/16	27 7/16

Table 4 Dimensions (Inches) Following 3rd Roll Up 5° Incline with 3200 Lbs.

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
3/16	0	2/16	0	4/16	3/16	3/16	3/16	2/16	1/16	----	----	----

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TEST RESULTS of DYNAMIC LOAD TESTING continued:

Visual Inspections following the rolling procedures.

Cabinet loaded with 2,400 lbs. and manually rolled 25' across one floor hazard, reverse direction and roll across floor hazard again. *Result:* Cabinet appears to be unchanged except for minor dimensional changes as recorded.

Cabinet loaded with 2,400 lbs. and manually rolled up a 5° incline and back to level surface. *Result:* Cabinet appears to be unchanged except for minor dimensional changes as recorded.

Cabinet loaded with 2,400 lbs., rotated 180°, and manually rolled up a 5° incline a second time and back to level surface. *Result:* Cabinet appears to be unchanged except for minor dimensional changes as recorded.

Cabinet loaded with 3200 lbs. and rolled by straps/fork lift up a 5° incline and back to level surface. *Result:* Cabinet appears to be unchanged, except for minor dimensional changes as recorded, and the vertical corner frames became slightly distorted near the connecting hardware (photo 9).

TEST RESULTS of STATIC LOAD TESTING

See Tables for Dimensional Measurements of Frame, Before - During - After Loading.

See photo 10 for the technique of measuring horizontally between the vertical corner frames.
(A) Front - Outside dimension of vertical corner frame, measured at 44" from the floor.
(B) Rear - Outside dimension of vertical corner frame, measured at 44" from the floor.
(C) Left Side - Outside dimension of vertical corner frame, measured at 44" from the floor.
(D) Right Side - Outside dimension of vertical corner frame, measured at 44" from the floor.

See photo 8 for the measuring technique of the span between the inside of the lower frame rails.
(E) Front inside span between lower horizontal frame rails.
(F) Mid-span inside span between lower horizontal frame rails.
(G) Rear inside span between lower horizontal frame rails.

Table 5 Outside Dimensions (Inches) of Vertical Corner Frame

	(A)	(B)	(C)	(D)
Cabinet Empty, Pre-load	28 15/16	28 15/16	4415/16	4415/16
4800 Lb. Load	29 2/16	29 3/16	44 14/16	44 14/16
Cabinet Empty, Post-load	29 1/16	28 15/16	4415/16	44 15/16

Table 6 Inside Dimensions (Inches) of Lower Horizontal Frame Rails

	(E)	(F)	(G)
Cabinet Empty, Pre-load	27 5/16	27 5/16	27 5/16
4800 Lb. Load	27 6/16	27 8/16	27 6/16
Cabinet Empty, Post-load	27 5/16	27 5/16	27 5/16

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TEST RESULTS of STATIC LOAD TESTING (continued):

Visual Inspection of the cabinet loaded with 4800 lbs. - The cabinet appeared to be unchanged during and after the loading of the 4800 lbs. with the following exceptions: The four vertical corner frames and the 2 upper and 2 lower horizontal rails that connect to the vertical corner frames became distorted during the loading of the 4800 lbs. Most of the distortion occurred to the vertical corner frame near the connecting hardware as shown in photos 12, 13, and 14. The distortion of the rails was greater at the front connections than at the rear connections.

CONCLUSION:

This conclusion is in response to your question regarding the potential rated capacity of the cabinet, The aforementioned testing was conducted based on a mutually agreed upon test plan and not in strict accordance with ANSI MH28.1-1997 American National Standard For the Design, Testing, Utilization and Application of Industrial Grade Steel Shelving-Specifications. The formula given in Section 6 - Shelf Capacities 6.2.3 (a) states: Two-thirds (factor of safety of 1.5) of the ultimate average failure load carried by the shelf. The conducted static load testing of the cabinet did not subject the shelves or cabinet to the point of failure. The maximum applied load was 4800 lbs. therefore, based on the aforementioned formula (2/3 x 4800), a potential rated capacity of 3200 lbs. could be conservatively implied.

Please contact me if you need additional information regarding this test program.

Sincerely,

Leonard Roesner

Leonard Roesner

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Photo 1: 2400 lbs. Dynamic Load

Photo 2: Steel Floor Hazard

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Photo 3: Cabinet Loaded with 2400 Lbs. on 5° Incline

Photo 4: Cabinet Loaded with 3200 Lbs. on 5° Incline

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Photo 5: Static Loading with 4800 Lbs. (400 lbs./Shelf)

Photo 6: Measuring Technique to Determine Distortion of Vertical Alignment

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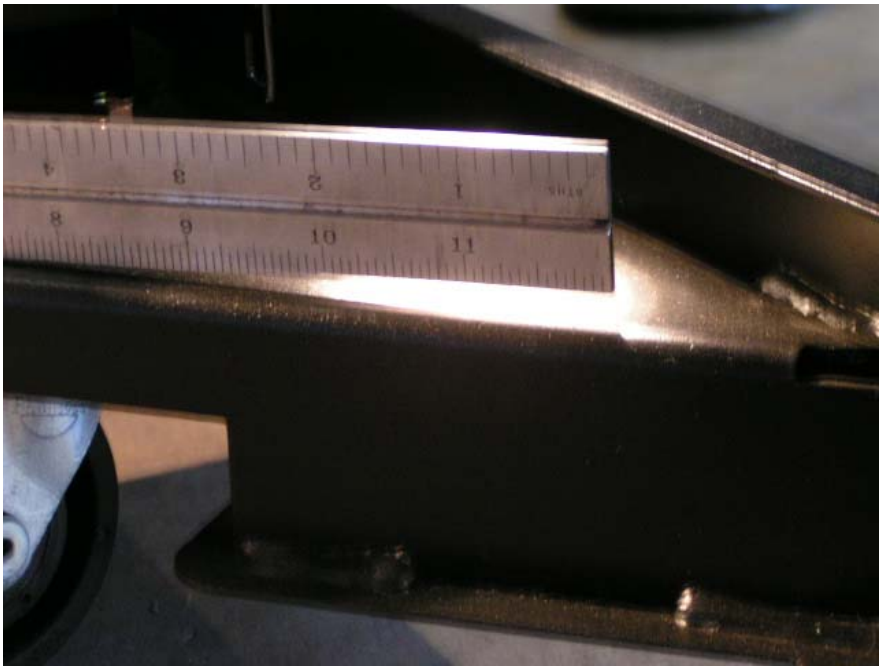

Photo 7: Measuring Technique of the Gusset Horizontal Distortion

Photo 8: Measuring Technique Between the Lower Frame Rails

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Photo 9: Distortion of vertical corner frames during 3200 lb. Dynamic Load Test.

Photo 10: Measuring technique between vertical corner frames.

Photo 11: Location of distortion of the side rails.

Photo 12: Distortion of the vertical corner frame and horizontal side rails.

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Photo 13: Distortion of the vertical corner frame and upper horizontal side rail.

Photo 14: Distortion of the vertical corner frame and lower horizontal side rail.

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Gaynes Labs, Inc.

Leonard Roesner

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