

June 27, 2024
T2403598
Permit No. NOT APPLICABLE
PO No.

FIELD INSPECTION REPORT

DATES COVERED: June 3 and June 14, 2024

PROJECT: EVERFAB - SHOWER FIXTURE TESTING
ADDRESS: 9050 Porter Way SE
Aumsville, Oregon 97325
INSPECTOR: Tim Suess

6/3/24 and 6/14/24

CTI Performed load testing on two EverFab units to comply with the **2010 ADA Standards for Accessible Design subsections 609.8 Structural Strength of Grab Bars and 610.4 Structural Strength of Seat.**

Standards to be tested:

609.8 Structural Strength of Grab Bars. Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of **250 pounds (1112 N)** is applied at any point on the grab bar, fastener, mounting device, or supporting structure.

610.4 Structural Strength of Seat. Allowable stresses shall not be exceeded for materials used when a vertical or horizontal force of **250 pounds (1112 N)** is applied at any point on the seat, fastener, mounting device, or supporting structure.

Results of test:

609.8 Structural Strength of Grab Bars	<u> X </u>	PASS	<u> </u>	FAIL
610.4 Structural Strength of Seat	<u> X </u>	PASS	<u> </u>	FAIL

CTI performed load testing on the grab bars as requested on (2) two showers and (1) floor pan submitted to our lab on May 9, 2024 and are seen at our Tigard facility in the pictures embedded in this report and as an attachment. The red arrows indicate the different loading pints used for testing. CTI tested the factory-installed grab bars & seat on the ADA Compliant Shower (S3839A) and factory-installed grab bars on the ADA Compliant Tub Shower (TS6032A). A simulated field-installed grab bar was also tested on the ADA Compliant Tub Shower (TS6032A) which was installed using a 3" wood screw into wall of tub liner.

The scope of the test was as follows:

It is our intentions to load various grab bars, a floor pan and seat. An initial load of 250lbs was conducted and released to observe return of element without deformation. Upon passing a 250lbs test, the element will be loaded to 500lbs with the load released to observe return of element without deformation from initial measurement.

Factory-Installed Grab Bars & Seat (SS3842RFA)

Horizontal L-Shaped bar with 3 anchor points

1. Horizontal pull to 250 lbs. at midpoint
2. Vertical pull to 250 lbs. at midpoint
3. Horizontal pull to 500 lbs. at midpoint (after successful test at 250 lbs.)
4. Vertical pull to 500 lbs. at midpoint (after successful test at 250 lbs.)
5. Horizontal pull to failure at midpoint

Folding seat

6. First load test to 273 lbs. second load to 523 lbs. using dead weight
7. A final load was applied to failure in a press with digital readout

Factory-Installed Grab Bars (TS6032MA)

Horizontal bar with 2 anchor points

1. Horizontal pull to 250 lbs. at midpoint
2. Vertical pull to 250 lbs. at midpoint

Field-Installed Grab Bars (SS3842RFA)

Horizontal bar with 2 anchor points

1. Horizontal pull to 250 lbs. at midpoint
2. Vertical pull to 250 lbs. at midpoint

Specimen fabrication was by EverFab in general accordance with the published shop drawings. Tables of results are presented below and locations are described in attached photographs.

ADA Compliant Transfer Shower (SS3842RFA)

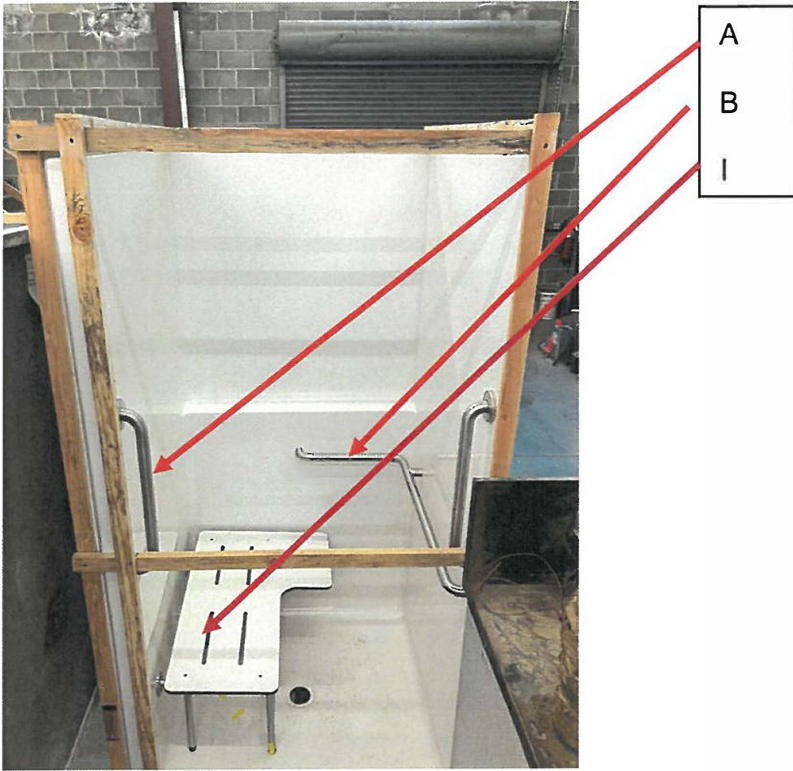


Photo 2 - 43" Shower Insert

A – Field Installed (screws) Vertical Bar, see attached Photo

B – Factory Installed (threaded with nuts and washer), see attached Photo

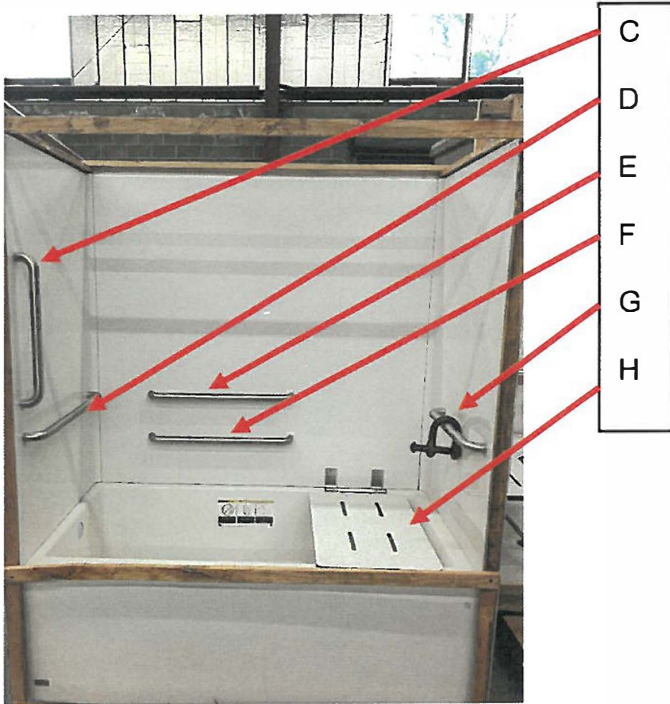
I – Seat

Location	Element	Pull Direction	Load (lbs)	Displacement, Initial / Final	Return	Pass/Fail
A*	Vertical Grab	Horizontal	250	30 1/8" / 29 3/4"	30 1/8"	Pass
A*	Vertical Grab	Horizontal	500	30 1/8 / 29 1/8"	30 1/8"	Pass
B	Horizontal Grab	Horizontal	250	34 1/4" / 34 1/16"	34 1/4"	Pass
B	Horizontal Grab	Horizontal	500	34 1/4" / 33 5/8"	34 1/8"	Pass
B	Horizontal Grab	Vertical	250	30 1/2" / 30 9/16"	30 1/2"	Pass
B	Horizontal Grab	Vertical	500	30 1/2" / 30 9/16"	30 1/2"	Pass
I	Folding Seat	Vertical	223	18 1/2" / 18 1/8"	18 1/2"	Pass
I	Folding Seat	Vertical	423	18 1/2" / 18"	18 1/2"	Pass
I	Folding Seat	Vertical	523	18 1/2" / 18"	18 1/2"	Pass
I	Folding Seat	Vertical	1810/2200	NA	NA	Cracked/Load to failure

* Field installed grab bar with #10 – 2 1/2" Philips screw head;

Shop installed grab bars have nuts and bolts that are 1" long stainless steel with a 1/2" hex-head

ADA Compliant 4-piece Tub Shower (TS6032MA)

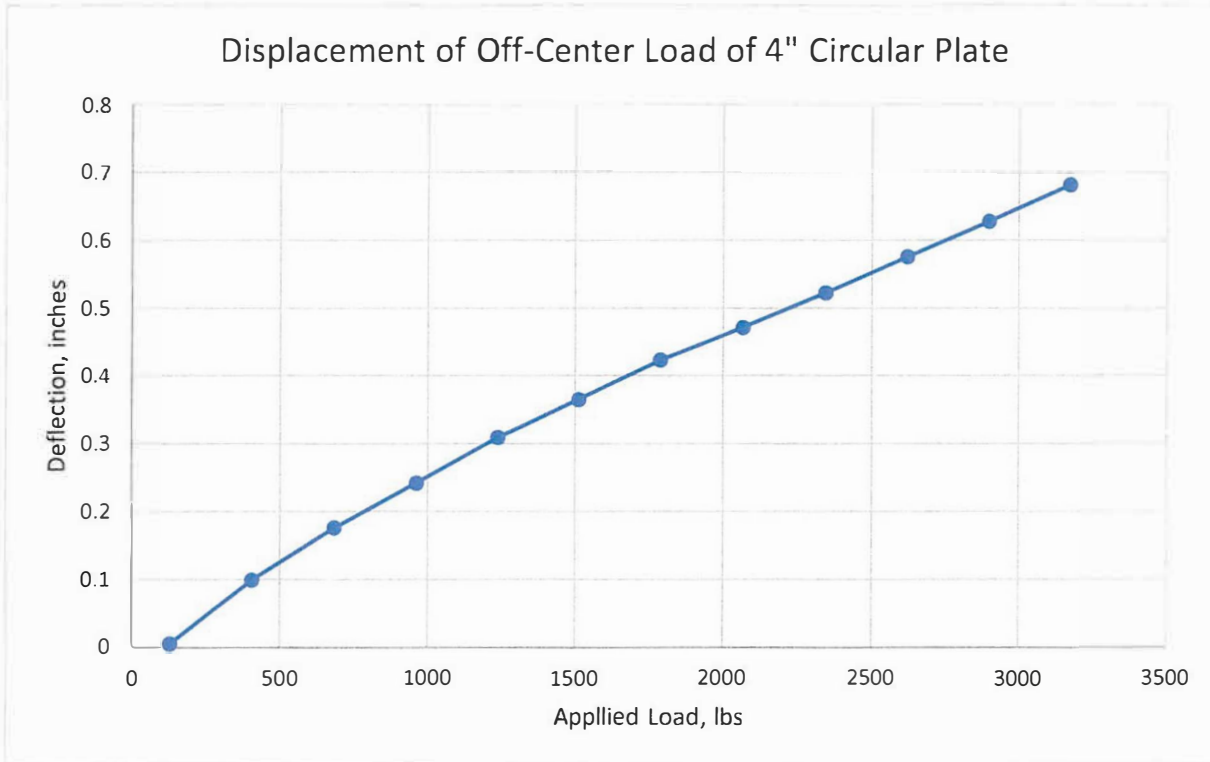


Grab Bars Installed by Screws

Location	Element	Pull Direction	Load (lbs)	Displacement, Initial/Final	Return	Pass/Fail
C	Vertical Grab	Horizontal	250	26 1/2" / 26 5/8"	26 1/2"	Pass
C	Vertical Grab	Horizontal	500	26 1/2" / 27"	26 1/2"	Pass
E	Horizontal Grab	Horizontal	250	31 3/8" / 31"	31 3/8"	Pass
E	Horizontal Grab	Horizontal	500	31 5/8" / 30 3/4"	31 5/8"	Pass
F	Horizontal Grab	Horizontal	250	33" / 33 1/2"	33"	Pass
G	Vertical Grab	Vertical	250	37" / 36 3/4"	37"	Pass
G	Vertical Grab	Horizontal	500	57 1/8" / 56 1/2"	57 1/8"	Pass
H	Seat	Vertical	223	14 1/8" / 13 7/8"	14 1/8"	Pass
H	Seat	Vertical	423	14 1/8" / 13 5/8"	14 1/8"	Pass
H	Seat	Vertical	523	14 1/8" / 13 1/2"	14 1/8"	Pass
D	Horizontal Grab	Horizontal	500	57 1/8" / 56 1/2"	57 1/8"	Pass
E	Horizontal Grab	Horizontal	480	29 3/4" / 30 1/8"	NA	Load to failure
Floor Pan	Center Load	Vertical	620	.433" at failure	NA	Load to failure
Floor Pan	Off-Center Load	Vertical	1567	.681" at failure	NA	Load to failure

The folding shower seat was loaded in a hydraulic machine where a continuous load was applied to the top of the seat with a steel plate at 5" x 15" bearing in the center. The load was applied until a loss of pressure was observed in the machine, see attached Photo 14 and 15 for test set-up.

An independent floor-pan insert, model SP3937RFB was submitted to out laboratory for testing where two loads were applied at the center of the drain, see attached Photo 12 and 13 and another load was offset from center using a 4" circular steel plate with a ram assembly and bridge, See attached photo for test set-up. The table below indicates the displacement of load for the off-center floor-pan.



Load testing was conducted using Ram CTI#5081 and Gauge CTI#5082 with calibrations due 2/25. Additionally, compression machine CTI#785 was used in loading shower seat calibration due date 4/25 and digital display CTI#5096 calibration due 5/25.

Our reports pertain to the material tested/inspected only. Information contained herein is not to be reproduced, except in full, without prior authorization from this office. Under all circumstances, the information contained in this report is provided subject to all terms and conditions of CTI's General Conditions in effect at the time this report is prepared. No party other than those to whom CTI has distributed this report shall be entitled to use or rely upon the information contained in this document.

If there are any questions regarding this matter, please do not hesitate to contact this office.

Respectfully submitted,
CARLSON TESTING, INC.



Jay Hathaway
Project Manager

Attachments: Photos
MM/TAS

cc: EVERFAB - DILLON BRYAN

DILLON@EVERFABBATH.COM

PHOTOS OF TESTING



Photo 1 – Horizontal Test at Location A



Photo 2 – Vertical Test at Location B



Photo 3 – Seat Load Test of 523lbs

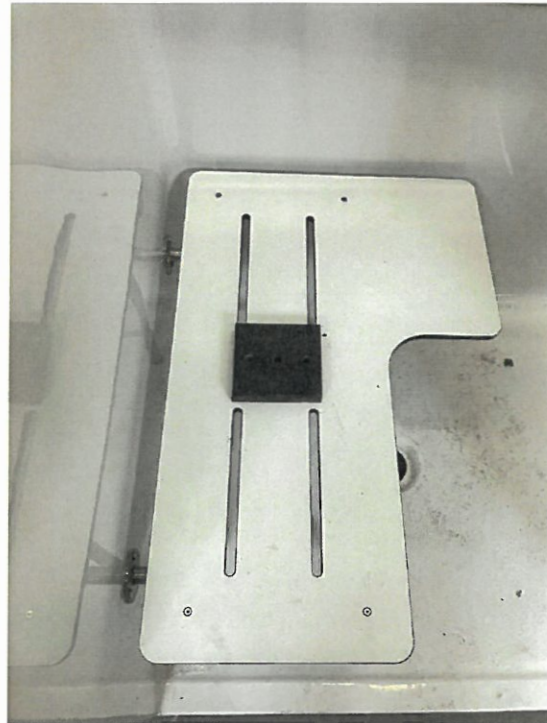


Photo 4 – 5" x 5" plate for bearing of test



Photo 5 - Horizontal Test at Location C



Photo 6 - Horizontal Test at Location D to G



Photo 7 - Horizontal Test at Location E



Photo 8 - Horizontal Test at Location F



Photo 9 – 5” x 5” bearing plate for seat load test



Photo 10 – Load test of 523lbs on seat

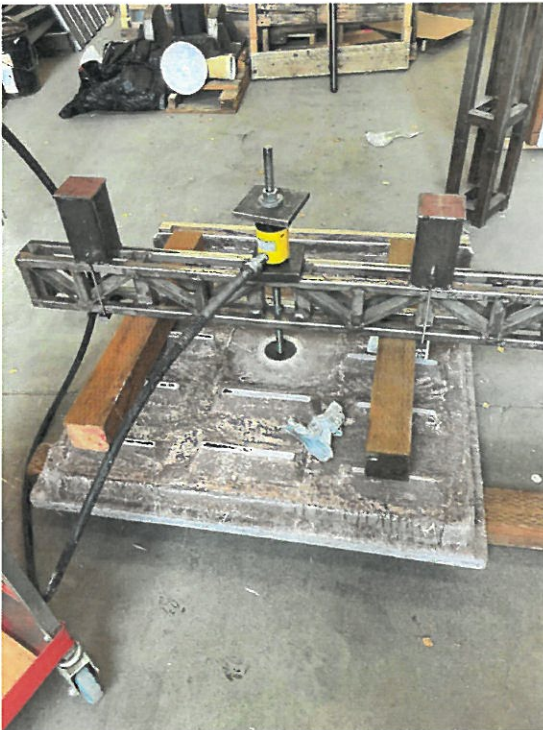


Photo 11 – Center load test of Floor-Pan



Photo 12 – Off-center load test of floor pan



Photo 13 – Off-center load test failure location



Photo 14 – Seat load test in hydraulic apparatus



Photo 15 – Crack developed at failure of seat with 5" by 15" bearing plate



Photo 16 – Factory installed nuts and washer



Photo 17 – Field installed wood screws