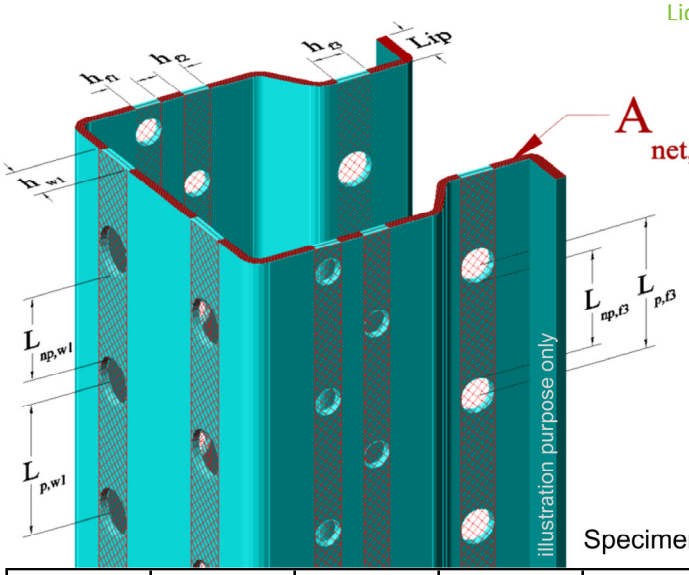
IAS ACCREDITED Testing Laboratory TL-732

# SMHE STRUCTURAL TESTING
FOR MATERIAL HANDLING ENGINEERED PRODUCTS

LA DBS DEPARTMENT OF BUILDING AND SAFETY
TESTING LABORATORY #TA24846

Steel Racks | Cantilevered Racks | Platform Connections | Welded-Wire Decking | R-Mark Submittals | Steel Shelving | Material Strengths | Boltless Shelving

Licensed in All 50 States




Test Certificate # 23-0255 T

Issued Date: 05/17/2023

For: JISE

Attention: Shelly Chan
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$A_{net\ total}$ all holes removed

$A_{net\ min}$ as defined per ANSI MH16.1-9.2

$A_{net\ g}$ as defined per ANSI MH16.1-13.2 for use in global buckling

$A_{net\ d}$ as defined per ANSI MH16.1-13.2 for use in distortional buckling

Specimen Length [in]: 11"

**Reference Standard: 2021 RMI/ANSI MH16.1-13.2**
Stub column tests for cold-formed steel and hot-rolled steel

| Material Strength | thickness [in] | Width [in] | Area [in²] | $P_{yield}$ [lbs] | $P_{ultimate}$ [lbs] | $F_{yield}$ [ksi] | $F_{ultimate}$ [ksi] | 2"-Elong. [%] | | $F_{ultimate} / F_{yield}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample TA1 | 0.0794 | 0.5043 | 0.04 | 2,585 | 3,507 | 64.6 | 87.6 | 10 | | 1.36 |
| Sample TA2 | 0.0788 | 0.5047 | 0.0398 | 2,552 | 3,507 | 64.2 | 88.2 | 18 | | 1.37 |
| Sample TA3 | | | | | | | | | | |
| | | | | Average | 3,507 | 64.4 | 87.9 | 14 | | 1.37 |

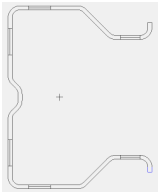
| Common / Average Dimensions | Web Depth [in] | Flange Width [in] | Lip Length [in] | Inside Bend Radius [in] | L = pitch [in] | $L_{np,f}$ [in] | $L_{np,w}$ [in] | Web Hole(s) Total Width [in] | Flange Hole(s) Total Width [in] | $A_{net,\ total}$* [in²] |
|---|---|---|---|---|---|---|---|---|---|---|
| 14Ga | 3.500 | 2.750 | 0.330 | 0.153 | 2.000 | 1.537 | 1.339 | 1.019 | 1.708 | 0.553 |
| thickness [in] | $t_{gw}$ [in] | $t_{gf}$ [in] | $t_{dw}$ [in²] | $t_{df}$ [in] | $A_{gross}$ [in²] | $A_{net\ min}$* [in²] | $Q_{9.2}$ | $A_{net\ d}$ [in²] | $A_{net\ g}$ [in²] | $Q_{13.2}$ |
| 0.778 | 0.034 | 0.039 | 0.056 | 0.059 | 0.759 | 0.644 | 0.830 | 0.674 | 0.629 | 0.850 |

| Stub Column | $P_{ultimate}$ [kN] | $P_{ultimate}$ [kip] | % diff. |
|---|---|---|---|
| Sample SA1 | 148.4 | 33.36 | 3.1 % |
| Sample SA2 | 156.8 | 35.25 | -2.4 % |
| Sample SA3 | 154.2 | 34.67 | -.7 % |
| Sample SA4 | | | |
| Sample SA5 | | | |
| Sample SA6 | | | |
| Average | 153.133 | 34.43 | -2.4/+3.1 % |

* $A_{net,\ min}$ is not necessarily the same as $A_{net,\ total}$

**Misc. Specifications:**
AISI S902/ ASTM A370

**Testing Equipment:**
Universal Testing Machine
(1000 kN/ SMHE #00111)



Engineering Technician(s):
Fady Herzalla

TESTED ® S MARK APPROVED

Quality/ Technical Manager:
Edward K. Choi