

Test Comparisons between Vector Connector, Mini V, Mid V

Tension normal to edge - Welds on top and bottom of weld slug

| VECTOR CONNECTOR TESTS | | |
|------------------------|-----------|--------------------|
| Test Set | Peak Load | Failure Mode |
| Jun-00 (4A) | 7,300 | connector rupture |
| Jun-00 (9B) | 12,700 | connector rupture |
| Aug-04 (13) | 15,014 | connector yielding |
| Aug-04 (14) | 16,341 | connector yielding |
| Aug-04 (15) | 16,894 | connector yielding |
| Aug-04 (16) | 15,288 | connector yielding |
| | | |
| Mean | 13,923 | |
| 95% Fractile | 2,943 | |

| MINI-V TESTS | | |
|--------------|-----------|-------------------|
| Test Set | Peak Load | Failure Mode |
| Jan-05 (21) | 10,552 | connector rupture |
| Jan-05 (22) | 9,608 | anchorage pullout |
| Jan-05 (27) | 10,952 | connector rupture |
| Jan-05 (28) | 11,508 | connector rupture |
| | | |
| Mean | 10,655 | |
| 95% Fractile | 7,487 | |

| MID-V TESTS | | |
|------------------|-----------|--------------|
| Test Set | Peak Load | Failure Mode |
| 7/27/09 (E,1A/B) | 11,500 | steel, leg |
| 7/27/09 (E,2) | 10,800 | steel, leg |
| 7/27/09 (E,3) | 11,200 | steel, leg |
| | | |
| Mean | 11,167 | |
| 95% Fractile | 9,499 | |

Vertical Shear - NO Tension

| VECTOR CONNECTOR TESTS | | |
|------------------------|-----------|-------------------|
| Test Set | Peak Load | Failure Mode |
| Jun-00 (5A) | 8,600 | concrete spalling |
| Jun-00 (6A) | 5,600 | concrete spalling |
| Sep-02 (BA361-12) | 5,876 | concrete spalling |
| Sep-02 (BA361-13) | 5,500 | concrete spalling |
| Aug-04 (5) | 7,651 | concrete spalling |
| Aug-04 (6) | 7,956 | concrete spalling |
| Aug-04 (7) | 6,635 | concrete spalling |
| Aug-04 (8) | 6,430 | concrete spalling |

| MINI-V TESTS | | |
|--------------|-----------|-------------------|
| Test Set | Peak Load | Failure Mode |
| Jan-05 (19) | 5,412 | concrete spalling |
| Jan-05 (20) | 4,497 | concrete spalling |
| | | |

| MID-V TESTS | | |
|---------------|-----------|-------------------|
| Test Set | Peak Load | Failure Mode |
| 7/27/09 (A,3) | 3,850 | concrete @ bottom |
| 7/27/09 (C,2) | 3,580 | concrete @ bottom |
| 7/27/09 (E,4) | 5,410 | concrete @ bottom |

1 - Mean and 95% Fractile are not applicable due to slab differences and not enough tests for similar Connector concrete covers.

2 - The above data varies due to leg cover distance. For example, Mid-V C,2 has lowest capacity and least cover below leg to bottom concrete and E,4 has largest capacity and biggest cover below legs to bottom concrete. See other table for cover dimensions.

3 - Mid-V test slabs had no mesh in the area of failure while other tests may have had mesh

Test Comparisons between Vector Connector, Mini V, Mid V

Monotonic Horizontal Shear with Tension (Gap = 0.10")

| VECTOR CONNECTOR TESTS | | |
|------------------------|-----------|--------------------|
| Test Set | Peak Load | Failure Mode |
| Jun-00 (5B) | 19,000 | anchorage pullout |
| Jun-00 (6B) | 16,500 | anchorage pullout |
| Sep-02 (BA361-7) | 13,183 | anchorage pullout |
| Sep-02 (BA361-8) | 13,120 | anchorage pullout |
| Aug-04 (1) | 19,524 | connector yielding |
| | | |
| Mean | 16,265 | |
| 95% Fractile | 5,849 | |

| MINI-V TESTS | | |
|--------------|-----------|-------------------|
| Test Set | Peak Load | Failure Mode |
| Jan-05 (5) | 12,110 | connector rupture |
| Jan-05 (6) | 11,919 | connector rupture |
| Jan-05 (7) | 13,187 | connector rupture |
| Jan-05 (8) | 12,921 | connector rupture |
| | | |
| Mean | 12,534 | |
| 95% Fractile | 10,101 | |

| MID-V TESTS | | |
|---------------|-----------|--------------|
| Test Set | Peak Load | Failure Mode |
| 7/22/09 (B,1) | 16,200 | Leg pullout |
| 7/22/09 (B,2) | 18,300 | Leg pullout |
| 7/22/09 (B,3) | 16,100 | steel, leg |
| 7/22/09 (B,4) | 16,400 | steel, leg |
| | | |
| Mean | 16,750 | |
| 95% Fractile | 12,631 | |

Cyclic Horizontal Shear with Tension (Gap = 0.10")

| VECTOR CONNECTOR TESTS | | |
|------------------------|-----------|-------------------|
| Test Set | Peak Load | Failure Mode |
| Jun-00 (7B) | 16,100 | connector rupture |
| Jun-00 (8B) | 12,400 | connector rupture |
| Sep-02 (BA361-9) | 14,802 | connector rupture |
| Sep-02 (BA361-10) | 15,573 | connector rupture |
| Aug-04 (2) | 12,222 | connector rupture |
| Aug-04 (3) | 11,673 | connector rupture |
| Aug-04 (4) | 16,483 | connector rupture |
| Aug-04 (17) | 13,268 | connector rupture |
| | | |
| Mean | 14,065 | |
| 95% Fractile | 8,824 | |

| MINI-V TESTS | | |
|--------------|-----------|-------------------|
| Test Set | Peak Load | Failure Mode |
| Jan-05 (15) | 9,023 | connector rupture |
| Jan-05 (16) | 8,958 | connector rupture |
| Jan-05 (17) | 9,012 | connector rupture |
| Jan-05 (18) | 7,817 | connector rupture |
| | | |
| Mean | 8,703 | |
| 95% Fractile | 6,364 | |

| MID-V TESTS | | |
|---------------|-----------|---------------------------|
| Test Set | Peak Load | Failure Mode |
| 7/22/09 (D,1) | 14,500 | steel, tear @ face/corner |
| 7/22/09 (D,2) | 15,200 | steel, tear @ face/corner |
| 7/23/09 (D,3) | 14,800 | steel, tear @ face/corner |
| 7/23/09 (D,1) | 13,200 | steel, tear @ face/corner |
| | | |
| Mean | 14,425 | |
| 95% Fractile | 11,000 | |