

## FORCED ENTRY RESISTANCE LABORATORY TEST RESULTS

IN ACCORDANCE WITH STANDARD ASTM F476-14 ON ENTRANCE DOOR.

### Test Specimen Overview

The doors tested were side-hinged, with frame dimensions of 965 x 2101 mm (35.27 x 82.72 in) and slab dimensions of 905 x 2008 mm (33.63 x 79.05 in), installed in a test frame constructed from 2"x 4" spruce studs at 410 mm (16 in) on center, covered with 19 mm (3/4 in) plywood externally and 13 mm (1/2 in) gypsum board internally, secured to a steel wallfixture. The specimens included:

| Specimen | Lock Config.        | Frame Details                         | Slab Details                | Hardware                               |
|----------|---------------------|---------------------------------------|-----------------------------|--|
| #1       | Single Lock         | Pine Wood<br>7-1/4" deep 1-1/8" thick | Steel Panel<br>1-3/4" thick | 3 hinges (4" long)<br>Single lock      |
| #2       | Deadlock            | Pine Wood<br>7-1/4" deep 1-1/8" thick | Steel Panel<br>1-3/4" thick | 3 hinges (4" long)<br>Deadlock         |
| #3       | Multipoint lock     | Pine Wood<br>7-1/4" deep 1-1/8" thick | Steel Panel<br>1-3/4" thick | 3 hinges (4" long)<br>Multipoint lock  |
| #4       | Deadlock<br>+ T-REX | Pine Wood<br>7-1/4" deep 1-1/8" thick | Steel Panel<br>1-3/4" thick | 3 hinges (4" long)<br>Deadlock + T-REX |

Installation used three #10 x 4" screws per jamb, positioned 12" from both ends and at mid-span, with 3 mm (1/8") clearances at jambs and head. No alterations were made to the specimens during testing.

### Forced Entry Resistance Testing

The study focused on bolt impact resistance, using a 45 kg (99.2 lb) pendulum with a 152 mm (6 in) diameter steel cylinder, delivering horizontal impacts up to 200J (148 ft-lbf). Impacts were applied at the bolt edge, 200 mm (8 in) from the lock edge, intersecting the midpoint between the bolt and mid-height hinge, with a polystyrene foam buffer replaced after each impact.

Performance was graded from 10 to 40, with increasing impact energy:

| Test        | Measured Parameter        | GRADE 10                   | GRADE 20                              | GRADE 30                                | GRADE 40                                |
|-------------|---------------------------|----------------------------|---------------------------------------|---|---|
| Bolt Impact | Impact resistance at bolt | 2 blows of 80J (59 ft-lbf) | Grade 10 + 2 blows of 80J (89 ft-lbf) | Grade 20 + 2 blows of 160J (118 ft-lbf) | Grade 30 + 2 blows of 200J (148 ft-lbf) |

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### Test Results

The performance of each specimen was assessed by attempting to open the door after each impact set:



| PERFORMANCE GRADE | Specimen #1 (Single Lock)                              | Specimen #2 (Deadlock)                                  | Specimen #3 (Multipoint Lock)                           | Specimen #4 (Deadlock + T-REX)                          |
|-------------------|--|---|---|---|
| 10                | 2 blows of 80J<br>Entrance not gained<br><b>PASSED</b> | 2 blows of 80J<br>Entrance not gained<br><b>PASSED</b>  | 2 blows of 80J<br>Entrance not gained<br><b>PASSED</b>  | 2 blows of 80J<br>Entrance not gained<br><b>PASSED</b>  |
| 20                | Slab breakage<br>Entrance is gained<br><b>FAILED</b>   | 2 blows of 120J<br>Entrance not gained<br><b>PASSED</b> | 2 blows of 120J<br>Entrance not gained<br><b>PASSED</b> | 2 blows of 120J<br>Entrance not gained<br><b>PASSED</b> |
| 30                |  | Frame breakage<br>Entrance is gained<br><b>FAILED</b>   | 2 blows of 160J<br>Entrance not gained<br><b>PASSED</b> | 2 blows of 160J<br>Entrance not gained<br><b>PASSED</b> |
| 40                |  |   | Slab breakage<br>Entrance is gained<br><b>FAILED</b>    | 2 blows of 200J<br>Entrance not gained<br><b>PASSED</b> |

### Conclusion

The door (Specimen #4) with the deadlock + T-REX system achieved Grade 40, resisting all impacts up to 200J without entry, outperforming the single lock (failed at Grade 20), deadlock (failed at Grade 30), and multipoint lock (failed at Grade 40) configurations. Results apply only to the tested specimens.

### Laboratory Test Video



STRONGEST DOOR, REDICULOUS PRICE