	Job Performance Review	**Paratech Raker Shore System Operations**	**Individual Level Competency**

JPR Title

Paratech Raker Shore System Operations

JPR Number

JPR-TR-8

Reference

NFPA 1670 – Standard on Operations and Training for Technical Search and Rescue Incidents
NFPA 1006 – Standard for Technical Rescuer Professional Qualifications
IFSTA Essentials of Firefighting
Paratech Product Specifications
MUSAR Training Foundation
ATFD Standards of Cover and Risk Analysis

Performance Criteria

Firefighter is able to articulate the various aspects of establishing the Paratech Raker Shore System and the assembly of such.

Time Parameters

15 minutes from staging to cross bracing

Safety Precautions

Space allocation to prevent injury to self or others while operating
Appropriate PPE
Attention to surroundings

Procedure

The firefighter is able to identify the following elements of the Raker Shore System:

- ✓ Long Shore Struts
- ✓ Long Shore Strut Extensions
- ✓ Raker Rail
- ✓ Splice Plate
- ✓ Rail Latch Base
- ✓ Raker Junction Base
- ✓ Raker Brace Nail Pad
- ✓ Hinged Base Plate
- ✓ Angle Base

Awareness for Raker System Insertion Point – Between Top of Floor Joist and with 2 feet Below Joist

45 Degrees Most Efficient for Load Transfer – 30 to 60 Degree Angles are Acceptable

Always Use Minimum of Two Rakers – No More Than 8 feet Apart – Tied Together with “X” Bracing (Typ. 5 Nail Pattern – 3” Nails Including Intersection)

Refer to Photograph Below for Set-Up Illustration

Note – The Load Cell Indicators are Considered an Extension and Should be Factored in with the Desired Angle and Strut Extension Arrangement

Each Load Cell Indicator is Measuring a Maximum of 10,000 lbs. Per Indicator. Further, a recent non-destructive testing session of the Paratech Raker System revealed a system failure at 18,000 lbs. when a load shift was exerted on the system. Each load cell recorded a pressure of 9,000 lbs. when the system failed.

For Additional Details Pertaining to the Paratech Raker Shores – Refer to the Job Aid on the Following Pages

Firehouse Software Evaluator Notes

Link to "General Training in the Rescue Section" of FHS

L. Siefken
2016

Paratech Raker Shores

ABINGTON TOWNSHIP FIRE DEPARTMENT
SPECIAL OPERATIONS GROUP
TECHNICAL RESCUE WORKSHOP – SEPTEMBER 2016

LongShore Struts

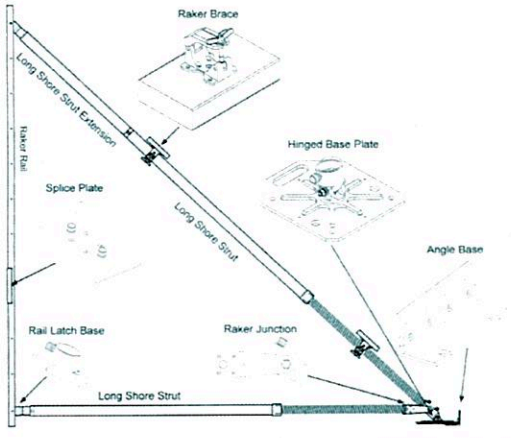
- 3" diameter aluminum alloy inner acme threaded shaft
- 3.5" diameter aluminum alloy outer tube
- Acme thread permits infinite number of extended positions within strut's range
- 6-10'
- 8-12'
- 12-16'

LongShore Strut Extensions

- Use only 1 extension, not exceeding a total of 16'
  - Gray struts – may use 2 extensions, not exceeding 36" in total extension length
- 24" (235)
- 48" (435)
- 67"(635)

Paratech Raker Kit

- Raker Rail
- Splice Plate
- Rail Latch Base
- Raker Junction Base
- Raker Brace/Nail Pad
- Hinged Base Plate
- Angle Base



Raker Basics

- Cracked, leaning, bulged exterior walls
- Racked structures
- Raker shores, anchored and braced together will stop an unstable wall from moving outward any further
  - Load is transferred from unstable wall
  - Down strut
  - Into ground
  - X bracing protects from lateral movement
- 30-60 degree angles acceptable, 45 degrees most efficient

Raker Basics

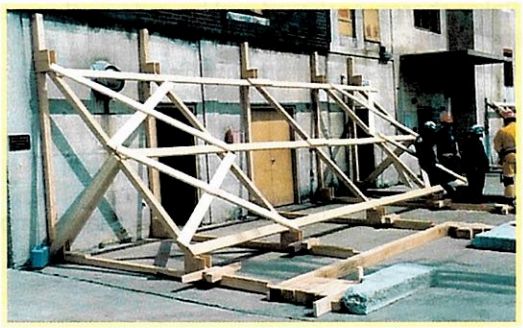
- Insertion Point
  - Between top of floor joist and 2 ft below joist
- Determining raker strut length
  - 45 degrees: Insertion Point x 17 = Strut Length
  - 60 degrees: Insertion Point x 14 = Strut Length
  - Or use the table

RAKER LENGTH BASED ON INSERTION POINT HEIGHT

Insertion Point	45° Raker L Inches / Feet	60 ° Raker L Inches / Feet	60 ° Horiz. Dist. Inches / Feet
3 ft	51" / 4'- 3"	42" / 3'- 6"	21" / 1'-9"
4	68" / 5'- 8"	56" / 4'- 8"	28" / 2'-4"
5	85" / 7'-1"	70" / 5'- 10"	35" / 2'-11"
6	102" / 8'- 6"	84" / 7'- 0"	42" / 3'-6"
7	119" / 9'- 11"	98" / 8'- 2"	49" / 4'-1"
8	136" / 11'- 4"	112" / 9'- 4"	56" / 4'-8"
9	153" / 12'- 9"	126" / 10'- 6"	63" / 5'-3"
10	170" / 14'- 2"	140" / 11'- 8"	70" / 5'-10"
11	187" / 15'- 7"	154" / 12'- 10"	77"/ 6'-5"
12	204" / 17'- 0"	168" / 14'- 0"	84"/ 7'-0"
13	221" / 18'- 5"	182" / 15'- 2"	91" / 7'-7"
14	238" / 19'- 10"	196"/ 16'- 4"	98" /8'-2"
15	255" / 21'- 3"	210" / 17'- 6"	105"/ 8'-9"
16	272" / 22'- 8"	224" / 18'- 8"	112"/ 9'-4"
17	289" / 24'- 1"	238" / 19'- 10"	119"/ 9'-11"
18	306" / 25'- 6"	252" / 21'- 0"	126"/ 10'-6"
19	323" / 26'- 11"	266" / 22'- 2"	133"/ 11'-1"
20 ft	340"/ 28'- 4"	280" / 23'- 4"	140"/ 11'-8"

Raker Basics

- Spacing
  - Always have to use a minimum of 2 rakers, tied together with X bracing
  - No more than 8 ft apart
- X bracing
  - On the ends
  - No more than 32' between X bracing
- Mid bracing
  - Needed when raker struts are over 11'
  - X bracing will go above and below mid brace



Scenario

- Hurricane Bob moved into the area last night with Category 1 winds
- Tornado formed in the Roslyn section of the township, destroying a single-story dwelling
- Reports of a child trapped in the B/C corner area of the residence
- D side of residence has standing exterior wall
- Area is being avoided for now
- Incident Commander wants exterior shoring placed to make area safe

This is what we need to build:

- 45 degree raker
- 7.5' insertion point