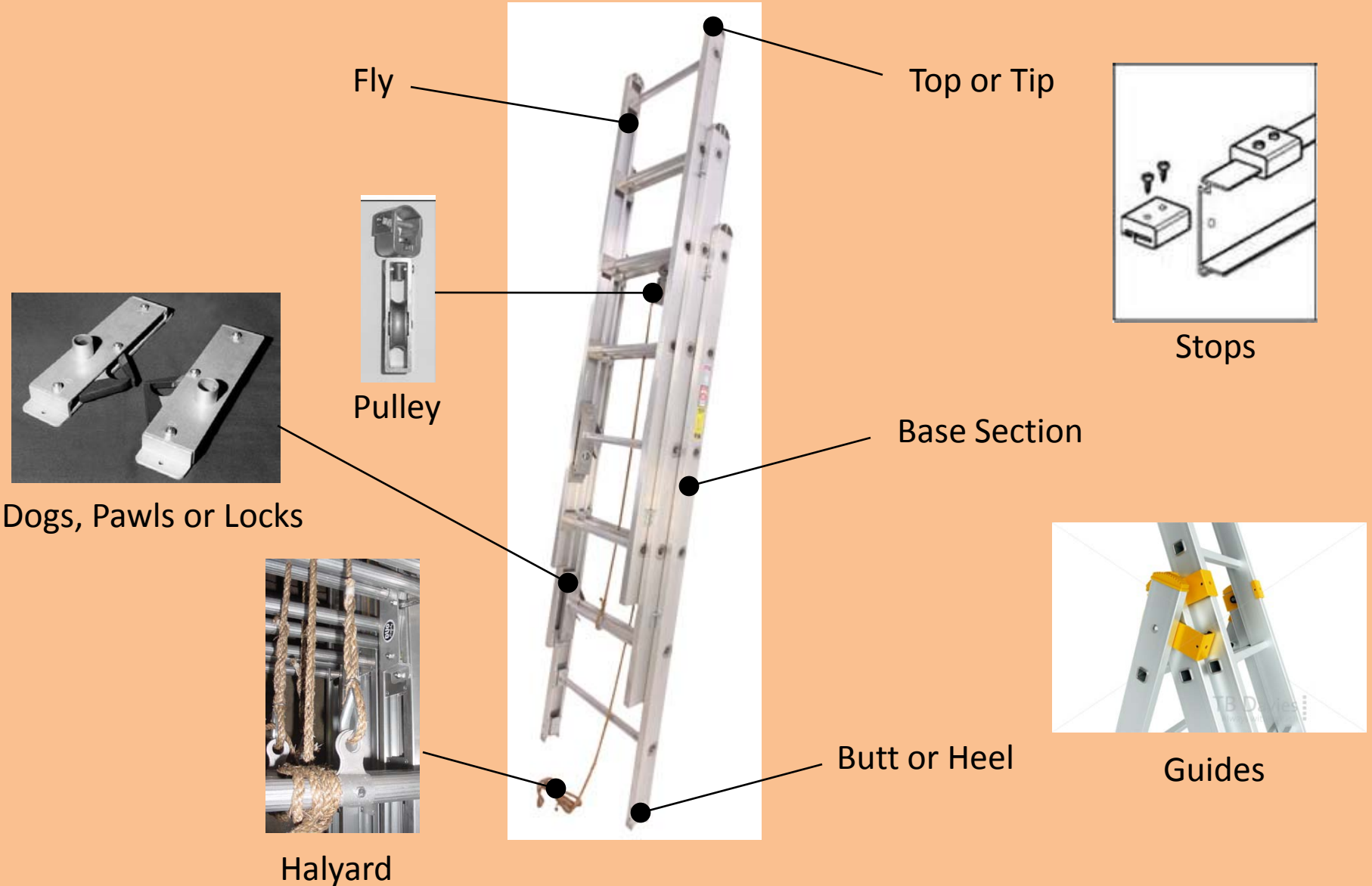


**Ladders**

# Identify the Primary Materials Used in the Construction of Ladders

- Metal
  - Conducts heat, cold and electricity
  - Not easily repaired
  - Subject to failure when exposed to heat or flame
- Wood
  - Most expensive
  - Heaviest
  - May preserve its strength under fire conditions
- Fiberglass
  - Poor conductor electricity
  - May crack or fail when overloaded
  - Exposure to flame may cause it to burn

# Identify the Components of a Ladder



# Identify the Components of a Ladder



Heat Sensor Label



Hooks



Beam

Rungs



Safety Shoes



Butt Spurs

# Identify the Components of a Ladder



Toggles/Swivel Joint



Stay Pole  
Or  
Tormentor Pole



Spurs

# Identify the Components of a Ladder



Beam Bolts

Truss Blocks

# Identify Techniques for Safe Ladder Operation

- Always wear protective gear including gloves
- Use proper ladder for job
- Use proper lifting techniques – example – leg muscles when lifting ladder from below waist level
- Use appropriate number of personnel for carries and raises
- Be careful not to raise ladder into electrical wires
- Check for proper climbing angle (approx. 75%)
- Make sure prows / locks are seated over the rungs
- Ladder should be secured at top or bottom before climbing
- Climb in a smooth and rhythmic motion
- Be careful not to overload, most ladders are rated for 750 lbs
- No more than one firefighter per section
- Tie into ground ladders with a leg lock or ladder belt, if working from the ladder
  - Ladder Belt Method
    - Use only ladder belt approved by NFPA 1983
    - Utility belts should not be used for this purpose
  - Leg Lock
    - The Firefighter climbs to the desired work height and then steps up to the next higher rung
    - The firefighter decides which side of the ladder he/she will work off of.
    - The leg opposite of the working side is extended thru the rungs
    - Once thru the rungs, the firefighter bends the knee and brings the foot back under the rung and through to the climbing side of the ladder
    - The foot is secured against the next lower rung or beam of the ladder
    - The firefighter uses the thigh for support and steps down one rung with the opposite foot
- M. Inspect for damage after each use

# Identify the Types of Ladders

- Folding/Attic
  - Hinged rungs so one beam rests on the other
  - Usually 10 feet long
  - Equipped with safety shoes





# Identify the Types of Ladders

- Roof
  - Straight ladder
  - Equipped with hooks on one end for anchoring to ridge
  - Usually 12 to 24 feet long



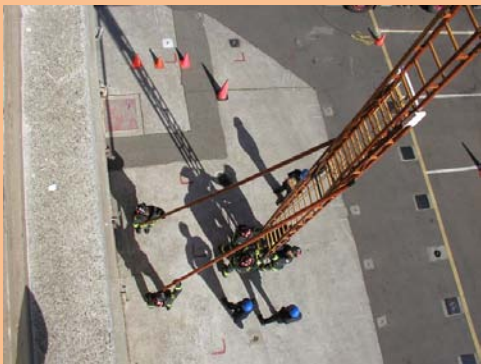
# Identify the Types of Ladders

- Extension
  - Adjustable in length
  - Base or bed section with one or more fly sections.
  - Heavier than single ladder
  - Range from 12 to 39 feet
  - Bangor 40 ft. or greater



# Identify the Types of Ladders

- Extension - Bangor



# Identify the Types of Ladders

- Straight/Wall
  - Non-adjustable, 1 section
  - Usually 12, 14, 16, 18 or 24 feet in length



# Identify the Types of Ladders

- Combination/A-Frame
  - 6 – 10 ft. in the A-frame
  - 10 – 15 ft. extended



# Identify the Types of Ladders

- Aerial Devices



# Identify the Use of Common Types of Ladders

- Folding/Attic
  - Attic scuttle holes
  - Small rooms
  - Closets
- Roof
  - Anchor ladder over ridge
  - Lies flat in on roof allowing firefighter to stand on ladder while performing roof work
  - Helps distribute firefighter's weight and prevents slipping
  - Use as single wall ladder

# Identify the Use of Common Types of Ladders

- Extension
  - Provides access to windows and roofs within limits of its length
- Straight/wall
  - Quick access to windows and roofs on one and two story buildings
- Aerial Ladder/Platform
  - Rescue
  - Ventilation
  - Elevated master stream application
  - Gaining access to upper levels



# Identify the Techniques for Inspecting, Cleaning and Maintaining

- Clean with scrub brush and rinse
- Lubricate when warranted
- Check heat sensors for color change
- Check rungs for wear/damage
- Bolts and rivets for tightness
- Cracks, splintering, breaks, gouges and deformation
- Check dogs, pawls and locks

# Identify the Selection Process for Using Ladders

- Additional considerations
  - Ground conditions
  - Height of structure
  - Purpose
    - Rescue
    - Ventilation
    - Hose deployment
  - Accessibility
  - Portability of ladders
  - Availability of personnel
  - Overhead considerations
  - Raising considerations
  - Stability
  - Place 5 rungs above roofline
  - 75 degree angle for maximum strength and stability

# Identify the Firefighter Carries Used to Move Ground Ladders

- One firefighter
  - Low shoulder method from the ground
  - Low shoulder method from the apparatus
- Two firefighters
  - Two Firefighter Low Shoulder Method (from the Ground)
  - Two Firefighter Low Shoulder Method (from Flat Rack)
  - Two Firefighter Low Shoulder Method (from Vertical Rack)
  - Two Firefighters Suitcase Carry

# Identify the Firefighter Carries Used to Move Ground Ladders

- Three firefighter
  - Three Firefighter Flat Shoulder Method (from Flat Rack)
  - Three Firefighter Flat Shoulder Method (from the Ground)
  - Three Firefighter Flat Arm's Length Method (Flat Carry)
  - Three Firefighter Suitcase Carry
- Four firefighter
  - Arm's Length Method (Flat Carry)
  - Flat Shoulder Carry

Identify Procedures for Raising,  
Lowering and Positioning of  
Ladders for Rescue, Ventilation and  
Hose Deployment