

SCFA
Ladder Company
Operations
Commercial /
Taxpayer Fires

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Class Objectives

- General Construction Features
- Ladder Company Ops
- Collapse considerations
- Apparatus Positioning
- Safety
- Special buildings



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Introduction to Commercial/ Taxpayer Fires

- Difficult & Fast Spreading Fires
- In Suffolk County, These Buildings Range From A Small Family Business To Large Malls
- Typical Ladder Company Operations
- Manpower Intensive



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Commercial Buildings

- Large, open, unprotected areas
- Maze like conditions
- Commonly renovated w/o permits
- No standardized store layout
- ***Lightweight construction
- Civilian Life hazard??



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Traditional taxpayer

- Type III Construction
- Ordinary or non-fireproof
- Apartments above
- Cellars
- Not sprinklered



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Modern Day Strip Mall

- *Lightweight Construction*
- *One Story*
- *12 – 20 Stores*
- *1960's to Present*



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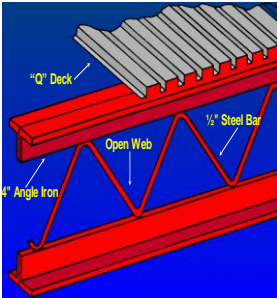
Stand alone stores are common



Type II Construction

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Open Web Steel Bar joist



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There are multiple construction methods used



C joist with screwed down plywood roof



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Newer Mickey D's
Type V



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Type V Taxpayer



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Other Commercial buildings

Low rise office



Self Storage



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“Don't judge a book by its cover”



C-Joist supporting marble

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General Truck Company Operations

- Force Entry
- Locate Fire
- Ventilate
- Open Ceilings & Walls



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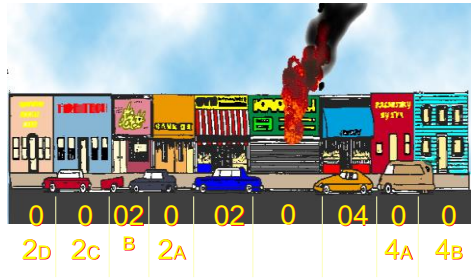
Size-Up: Fire Conditions

- Where?**
- How Much?**
- Where Is It Going?**
- Where Can It Go?**



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Exposure Identification Use Plain Language



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Forcible Entry

- Security Gates Delay Discovery Of Fire
- Increase Possibility Of Backdraft
- Require The Use Of Power Tools To Gain Entry
- Once Gate Locks Are Cut Further FE Maybe Required, Utilizing Conventional Methods



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FE



- Open All Gates Until Boundaries Of Fire Are Known
- Insure Charged Hose Lines In Place

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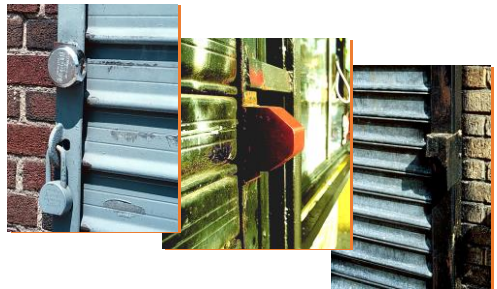
Manual Gates



- Cut the locks
- Pull the pins
- Open the gate
- Door behind the gate is normally unlocked

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Locking Devices



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Manual Gates - Type II



- Padlocks**
- Eye Bolts/Slide Locks**
- Chain Hoist**
- Larger Size**

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Electrically Operated Gates



- Padlocks**
- Eye Bolts/ Slide Locks**
- Large Motor Housing**
- Keyed Switch**

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Modern Gates



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Small Triangular Cut



- Below Center of Door**
- Stream Penetration**
- Observation**
- Rapid Examination**

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Large Triangular Cut



- Entry
- Egress
- Expandable
- Remove Slat Towards Cuts

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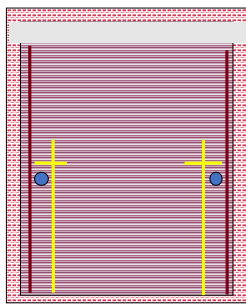
Vertical Cut

- Cut Entire Height 6" from Curtain Guide
- Pry Out Slat Approx. 1' Below Cut
- Top & One Side Detached



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Flush Type Locks



- Vertical Cut 1" Above Lock
- Horizontal Cut Across Vertical Cut
- Cut Guides
- Reach End of Slats

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Doors

- Thru the lock ?
- Take the glass?
- Remove the crossbar
- What challenges does the rear door present?



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Interior Ladder Company Ops

Most Critical Tasks For The Ladder Company:

- *Locate The Fire*
- *Search for occupants*
- *Define The Boundaries Of The Fire*



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Life Hazard

- Life Hazard Varies
- Business Vs. Non-Business Hours
- Size-Up
- Sleeping quarters in stores?
- Cleaning crews locked in at night
- 24 hour operations



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Searching

- Left or right hand lead
- Search rope
- Listen for the sprinkler system



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Search rope tips



- Use TIC
- Tie off outside
- Tie off often
- Keep rope off ground
- Tag lines
- Change of direction – tie off

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Fire doors



Beware ! Positive and negative?



Roll down type are common in supermarkets 33

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Cellar Fires

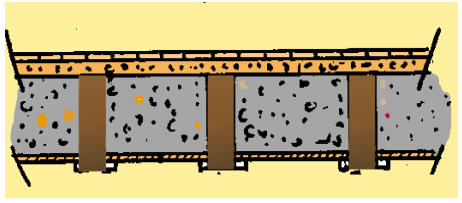
- Severe Heat/ Smoke
- Large Amounts of CO
- Delayed Discovery
- Maze conditions
- Inter connected



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Terrazzo Floor

Cement on Wood Floor



Note: Little Evidence of Conditions Below

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2nd Interior Team

- Assist 1st Team
- Check Exposures
- Search For Fire Extension



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Roof Operations

Getting To The Roof:



- Portable Ladders Primary Way To Roof
- Positioned At Opposite Ends Of Building
- All Sides If Possible
- Aerial Apparatus?

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On the Roof

Once On The Roof:



- Quick Survey
- Communicate With The IC
- Open All Natural Vents Once Fire Location Is Known (ex. skylights, scuttles)
- Initiate Power Saw Operations As Needed
- Roof Supervisor (Chief/Officer)

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Roof to Incident Commander

- Bldg – Size/Shape
- Fire/Smoke – Location/Volume
- Exposures
- Rear
- Roof Loading
- Cockloft Condition
- Roof Construction:
 - Fire Walls/Parapets
 - Difference In Levels
 - Cornices
 - False Fronts



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Main Vent Hole Traditional Lumber



- Cut over the main body of Fire
- 2ND Knock out cut
- Push down the ceilings
- Expand as required

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Knock out cut



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Would you operate on this roof?



- Risk vs reward
- What can you vent?
- No cutting !!
- What is supporting the firefighters?

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Open Web Steel Bar Joist

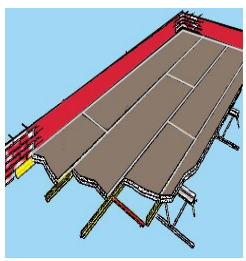
- 4' to 6' Apart
- Span Distances Up to 60'
- Failure Time
 - 5-10 min.
- Various Roof Coverings



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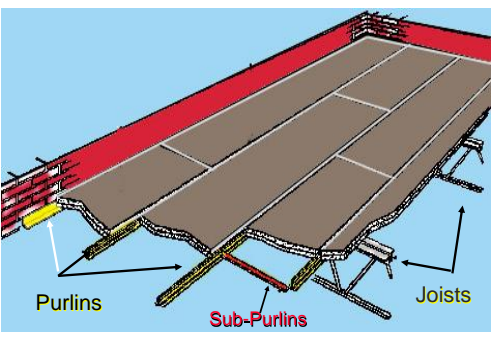
Gypsum Roof Decking System

- White Powdery Residue during Saw Ops
- Members Shall *NOT* be Committed to Roof Ops



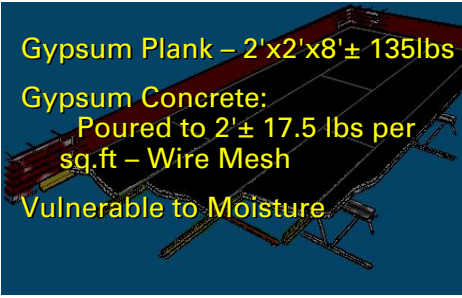
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Gypsum Roof System



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Gypsum Roof Decking System



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Bow String Truss

- 4" x 6" Members
- 10' - 20' Apart
- Failure Time
 - 10-15 min.>
- Steel Bolts/ Nuts/Washers



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Façade hides Bowstring



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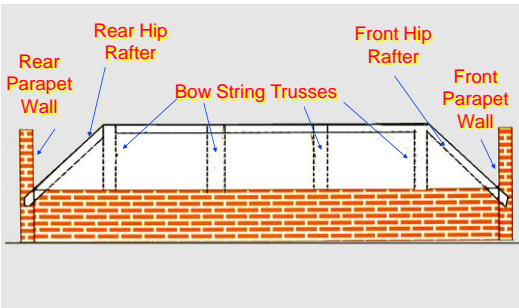
Hackensack Ford & Waldbaums

If a Serious Fire Involves the Roof Portion of this Type Truss...
... Firefighters are NOT to be Committed to Cut the Roof"



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Bow String Truss



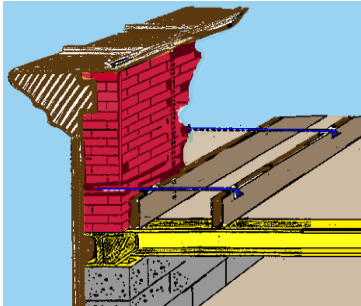
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Parapet Wall Collapse



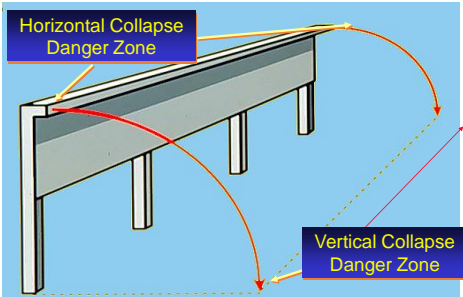
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Parapet Wall Construction



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Parapet Wall Collapse



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Apparatus Placement

- **1st Ladder Apparatus Front Of Building**
 - If Aerial Ladder/Quint Leave Room For Tower Ladder
 - Tower Ladder Preferable/Long Side
- **Engine Companies Must Allow For This**
- **Consider Mutual Aid For Aerial**
- **Platforms/Tower Ladders**
- **One On Each Street If Corner Building**



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Positioning Apparatus con't

- **Department Response Policy**
- **Largest Scrub Area Possible = Parking Rig Parallel to Building**
- **Corner Position Works Best**
- **Ground Stability Doubtful, Position Perpendicular to Building**



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What's wrong with this position?



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Chauffeur

- Experienced Members As Chauffeurs?
- Must Monitor The Radio
- Use Caution If Driving Over Hose
- Be Aware Of Hose When Deploying Outriggers/Jacks
- Must Wear Full PPE/Portable Radio
- Remain at Turntable/Pedestal !



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Unfavorable Conditions Affecting Aerial Ladder Use

- High Winds
- Steep Grade
 - In-Line With Slope
 - Operate Up-Hill
- Insecure Or Uneven Ground?
- Reduce Load If Question Of Stability



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Safety Considerations

- Always Have A Person At Turntable When In Operation
- Monitor Radio
- Prepared To Override Basket Operator
- Know Where You Are Placing Jacks Or Outriggers
- Do Not Move The Boom Or Basket Once Members Exit, Unless You Notify Them



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Master Stream Operation

- Only IC Should Order Use Of Master Streams
- Water Supply Should Be Independent Of Pumpers Who Are Supplying Hoselines
- Members Should Be Removed From Building
- Best Position Is At The Sidewalk Or Ground Level Angled Up Into The Cockloft
- Position Out Of Collapse Zone

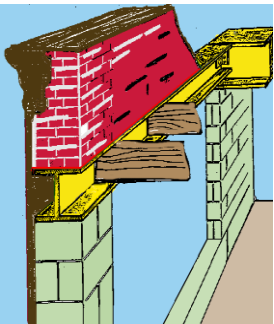


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Collapse Size-Up Factors

- Steel – Exposed/Plating
- Roof Loading
- Construction
- Occupancy/Use
- Contents
- Fire – Location/Extent/Duration
- LCS



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Shut down the sprinkler system

Control valves



Look for the room opposite the FDC



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Shut offs

OS & Y VALVE



Butterfly valve



64

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Windowless Buildings



- What are the Challenges?
- How would you search?
- How would you vent?

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Self storage



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Low Rise Office Bldg



- Enough of a challenge for a full course!!
- Recommend the Low Rise field drill
- Locate the fire
- Large area search
- Control the building systems
- Check the elevators (early)
- Communications issues

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Pop quiz



•What do this symbol indicate?

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Conclusion

- Commercial Building Fires Are Difficult & Fast Spreading
- Structural Collapse Potential
- Must Have An Organized Approach
- Manpower Intensive
- Force Entry
- Locate the Fire
- Vent
- Search



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Any questions, doubts or comments?



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