



# FIRE DEPARTMENT

9 METRO TECH CENTER  
Brooklyn, NY 11201-3857

## BUREAU OF OPERATIONS

TO: All Borough Commands  
Special Operations Command

FROM: James E. Esposito Chief of Operations

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SUBJECT: Interim Operational Procedures For Bowstring Truss Buildings

### 1. INTRODUCTION

1.1 It has recently come to light that an engineering miscalculation has resulted in an underestimation of load bearing capabilities in all wooden bowstring roof designs. When the bowstring truss was originally designed, engineers used certain assumptions pertaining to the tensile strength of wood. Today using updated testing methods those assumptions have been proven incorrect. The bottom cords of many bowstring trusses have inadequate tensile strength to support the code-prescribed loads. Updated calculations have revealed that bowstring truss roofs can only support 40% of the load that they were originally designed to hold.

At a recent bowstring collapse in Newark, N.J (2012) *WIND* caused the collapse of a bowstring truss roof. There was **no** fire involvement.

### 2. INTERIM PROCEDURES

2.1 Pending revisions to Department policy, the following interim procedures shall be in effect: Prior to implementing interior operations, the Incident Commander (IC) must perform a risk assessment keeping in mind that the *life hazard and safety of the members* involved in the operation is of paramount concern.

The IC may implement an interior attack after a risk assessment has been performed based on the following factors:

- Current structural stability of the building.
- Any known life hazard.
- Size and location of the fire.
- Verification of safe access to fire area.

If interior operations are implemented, the operating force and interior operational time shall be kept to a minimum with the maximum amount of supervision.

At large and/or advanced fires, exterior operations should be the primary tactical consideration.

Notes: **Under no circumstances shall any member operate on the roof of any building involved in a content or structural fire with a wooden, metal or combination bowstring truss design.**

### 3. FAMILIARIZATION

✓ 3.1 The ideal time to become familiar with the bowstring trusses in your area is during BISP and company drill.

All trusses and information pertaining to them should be entered into the CIDS program. Any structural problems should be reported with an immediate A-8 to the Building Department. In addition, the Battalion and all surrounding units should be informed of all particulars.

### 4. TRAINING

✓ 4.1 A video titled "*Why does the Bowstring Truss Roof Collapse...*" is available on the DiamondPlate, Bureau of Safety homepage. All members are directed to view this video as it contains important information to promote enhanced situational awareness on the fireground. Units shall periodically incorporate the viewing of this video into drill periods. Chief Officers shall discuss the importance of this information with all members during visits to quarters.