

The background is a faded, blue-tinted photograph of a large-scale construction project. It shows a complex network of steel beams and girders forming a skeletal structure. In the center, a tall, vertical column is visible. The overall scene is one of industrial activity and structural engineering.

**1926.758-Appendices**  
**Subpart R Steel Erection**

Steel Erection

# **.758 Pre-engineered Metal Buildings**

Steel Erection

# .758 Pre-engineered Metal Buildings

- Each column must have 4 anchor bolts
- Rigid frames must have 50% of their bolts installed and tightened on both sides of the web adjacent to each flange before the load line is released



# Metal Building Joists & Purlins

- Ends must be fully bolted or welded before:
  - Releasing the hoisting cables
  - Allowing an employee on the joists
  - Allowing any construction loads on the joists.



# .758 Pre-engineered Metal Buildings

- No construction loads until the framework is safely secured
- Purlins and girts are not to be used as anchorage points for fall arrest unless approved in writing by a qualified person
- Purlins may only be used as a walking/working surface after all permanent bridging is installed and fall protection provided

# .758 Pre-engineered Metal Buildings



Steel Erection

# **.759 Falling Object Protection**

Steel Erection

# .759 Falling Object Protection

- All materials, equipment, and tools which are not in use aloft must be secured from accidental displacement





# .759 Falling Object Protection

- The controlling contractor shall bar other construction processes below steel erection unless overhead protection for the employees below is provided



# .760 Fall Protection



# .760 Fall Protection

- All employees except connectors, and deckers in a CDZ shall be protected at 15 ft.



# .760 Fall Protection

- Fall protection will consist of perimeter safety cable systems, guardrail systems, safety net or personal fall arrest or fall restraint systems
- Systems must comply with 1926.502



# .760 Fall Protection

- Connectors shall be protected from fall hazards of more than 2 stories or 30 ft and have completed connector training;
  - And be provided, at heights between 15 and 30 feet with a personal fall arrest or fall restraint system *and* wear the equipment necessary to be able to tie off; or be provided with other means of protection from fall hazards



# Personal Fall Arrest System

- System consists of
  - An anchorage
  - connectors
  - a body harness



# .760 Fall Protection - CDZ

- A controlled decking zone (CDZ) may be used over 15 ft and up to 30 ft where metal deck is initially being installed and forms the leading edge of a work area
- Access to the CDZ is limited to those engaged in leading edge work



# .760 Fall Protection - CDZ

- CDZ boundaries must be designated and clearly marked (use Appendix D for guidance, do **NOT** use painted lines), and can not be more than 90 ft x 90 ft
- Each employee working in a CDZ shall be trained
- During initial placement, deck panels must be on structural support
- No more than 3000 sq. ft. of unsecured decking
- At least 2 safety deck attachments per panel
- Final deck attachments and installation of shear studs shall not be performed in the CDZ



# .760 Fall Protection - CDZ

- Each employee working at the leading edge in a CDZ shall be protected from fall hazards of more than 2 stories or 30 ft



## *Important Note:*

*A CDZ may not be used when fall exposures exceed 2 stories or 30 ft*

# Roof Decking



- Insulation and roof panels on Systems Engineered Buildings fall under this section.

# .760 Fall Protection - Openings

- Covers for roof and floor openings must support, without failure, twice the maximum intended load.
- All covers must be secured
- All covers marked with high visibility paint and the word HOLE or COVER
- Skylights must meet the same load requirements



# .760 Fall Protection - Transfer

- Fall protection provided by the steel erector shall remain in an area to be used by other trades only if the controlling employer has directed the steel erector to leave it in place and has inspected and accepted control and responsibility of the fall protection



# .761 Training

Steel Erection

# .761 Training

- Required training must be provided by a qualified person
- Fall hazard training must be provided for all employees exposed to fall hazards.
  - This must include hazard recognition;
  - use and operation of fall protection systems;
  - correct procedures for installation, use, and maintenance of fall protection systems;
  - correct procedures to prevent falls through floor/roof openings

# .761 Training

- Multiple lift rigging procedure training shall be provided
- Connector training shall be provided which will include the nature of the hazards and the establishment, access, proper connecting techniques and work practices required
- Controlled Decking training shall be provided to address the nature of the hazards and the establishment, access, proper installation techniques and work practices required

# Appendix A

## Guidelines for Establishing a Site-Specific Erection Plan

- Guidelines are provided for use where a plan is required in 1926.752(e), 1926.753(c)(5), 1926.757(a)(4) and 1926.757(e)(4). *They serve well to guide all steel erection activities, however.*
- Pre-construction conference between the erector and the controlling contractor
- The site must be identified
- The plan is signed and dated by the qualified person responsible for its preparation



# Site-Specific Erection Plan Cont'd

- Components are:
  - Sequence of erection activity
    - Material deliveries, material staging and storage, coordination with other trades and construction activities
  - Crane selection and placement procedures
    - Site preparation, path for overhead loads, critical lifts
  - Steel erection activities
    - stability considerations requiring guying
    - erection bridging terminus point
    - anchor bolt notifications
    - columns and beams
    - connections
    - decking
    - ornamental and miscellaneous iron

# Site-Specific Erection Plan Cont'd

- Fall protection procedures
- Falling object protection
- Special procedures for non-routine tasks



# Site-Specific Erection Plan Cont'd

- Certification of training in steel erection activities
- List of qualified and competent persons
- Rescue or emergency response procedures
- The plan must be signed and dated by the qualified person responsible for its preparation

# Appendix F

## Installation of Perimeter Safety Cables

- Structural Engineer of record may design the column splices high enough to allow installation of the safety cables at 42-45 in. above the finished floor. He may also allow the column web to be punched.



# Appendix G

## Fall Protection Systems Criteria

- Re-states the Fall Protection system (guardrails, etc.) requirements from 1926.502

