

The background of the slide is a grayscale photograph of a large stadium, likely the University City Stadium in Philadelphia. The stadium is mostly empty, with the seating bowl visible on both sides of a central field. In the background, a city skyline with various skyscrapers is visible under a clear sky. The text is overlaid on this image.

ACI Committee 132 – Responsibility in Concrete Construction

Case Studies on Repair – Expanding Responsibility Lines for the Engineer of Record

**David A. VanOcker, PE, FACI
CVM Professional**



Guidelines for Authorities and Responsibilities in Concrete Design and Construction

PREPARED BY THE ACI COMMITTEE ON RESPONSIBILITY IN CONCRETE CONSTRUCTION

Preface

The ACI Committee on Responsibility in Concrete Construction prepared these guidelines to help ACI technical committees prepare documents. The guidelines will also be useful to those writing contract documents for projects involving concrete and to anyone managing and controlling such projects.

Practices for assigning and accepting responsibility in design and construction vary throughout the world and within the U.S. In many cases, confusion about responsibilities of design and construction team members has led to protracted legal proceedings. To address this problem, the American Society of Civil Engineers (ASCE) prepared the document "Quality in the Constructed Project." These guidelines conform in principle with that work but provide more details pertaining to concrete projects.

One over-riding principle in these guidelines is the simple notion that responsibility and authority must be congruent. The other principle is that every entity should be responsible for its own work. These principles are frequently violated in the construction industry. For example, an engineer may require that certain steps cannot be taken by the constructor without the engineer's approval. But the engineer may not wish to accept responsibility for problems that develop after those steps are approved. This is the case of demanding authority without accepting responsibility. There have also been cases where owners have held engineers responsible for poor quality construction without having given them a contract to monitor the work as it progressed. Safety enforcement agencies and plaintiffs' lawyers also have charged engineers or architects with responsibility for construction accidents. These are cases of responsibility without authority.

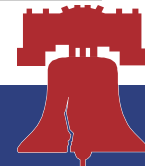
PREAMBLE

The Board of Direction, American Concrete Institute, adopted the Guidelines, developed by the ACI Committee on Responsibility in Concrete Construction, in March 1995. These Guidelines have been written in nonmandatory language, but are intended to describe practical ways to handle responsibility and to help ACI technical committees prepare documents. Although it is not possible to cover all responsibility and authority issues in this short document, this document provides the principles that are relevant to situations not specifically addressed. Originally published in the September 1995 issue of *CI*, this printing reflects changes made to the definition of Owner. The entire document was reappraised by the Board of Direction in October of 2004.

Guide for Responsibility in Concrete Construction

Reported by ACI Committee 132

ACI 132R-14



An ACI Standard

Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures and Commentary

Reported by ACI Committee 562

ACI 562-16



ACI 562-16: Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures

ACI 563-__: Specifications for Repair of Structural Concrete in Buildings



Responsibility During Evaluation



Responsibility During Evaluation

- ACI 364.1R-07: Guide for Evaluation of Concrete Structures before Rehabilitation
- SEI / ASCE 11-99: Guideline for Structural Condition Assessment of Existing Buildings
- SEI / ASCE 30-00: Guideline for Condition Assessment of the Building Envelope
- ASTM E2018-15: Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process
- JCI 2014: Guidelines for Assessment of Existing Concrete Structures
- Periodic Inspections of Exterior Walls aka Façade Ordinance



Responsibility During Evaluation

Japan Concrete Institute

(39) Responsible engineer: An engineer who has sufficient knowledge regarding assessment of existing concrete structures and is capable of responsibly accomplishing the work of assessment on his/her own or leading a group of engineers and appropriately reporting the results to the client (ordering party).

ASCE

1.6.6 Legal Obligations: The professional in responsible charge has certain legal and/or professional obligations under governing law regarding unsafe conditions that are discovered and a duty to notify specified parties when such conditions are encountered ...

... It is the professional's responsibility to know what type of notification is required and whom he or she is to notify as required by the jurisdiction where the building is located



Responsibility During Evaluation

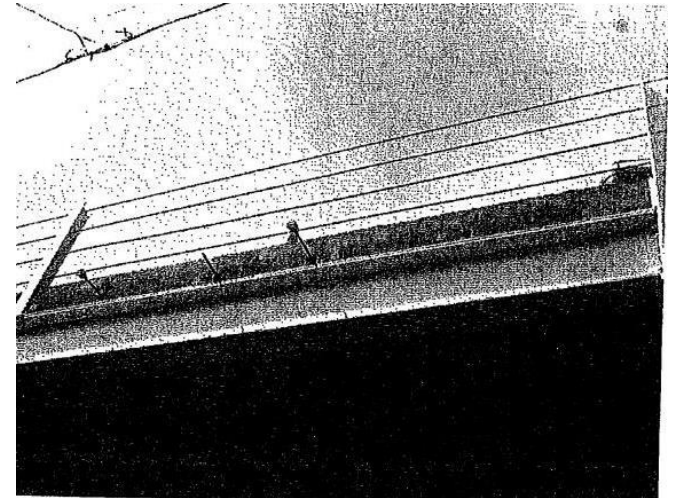
Facade Ordinance

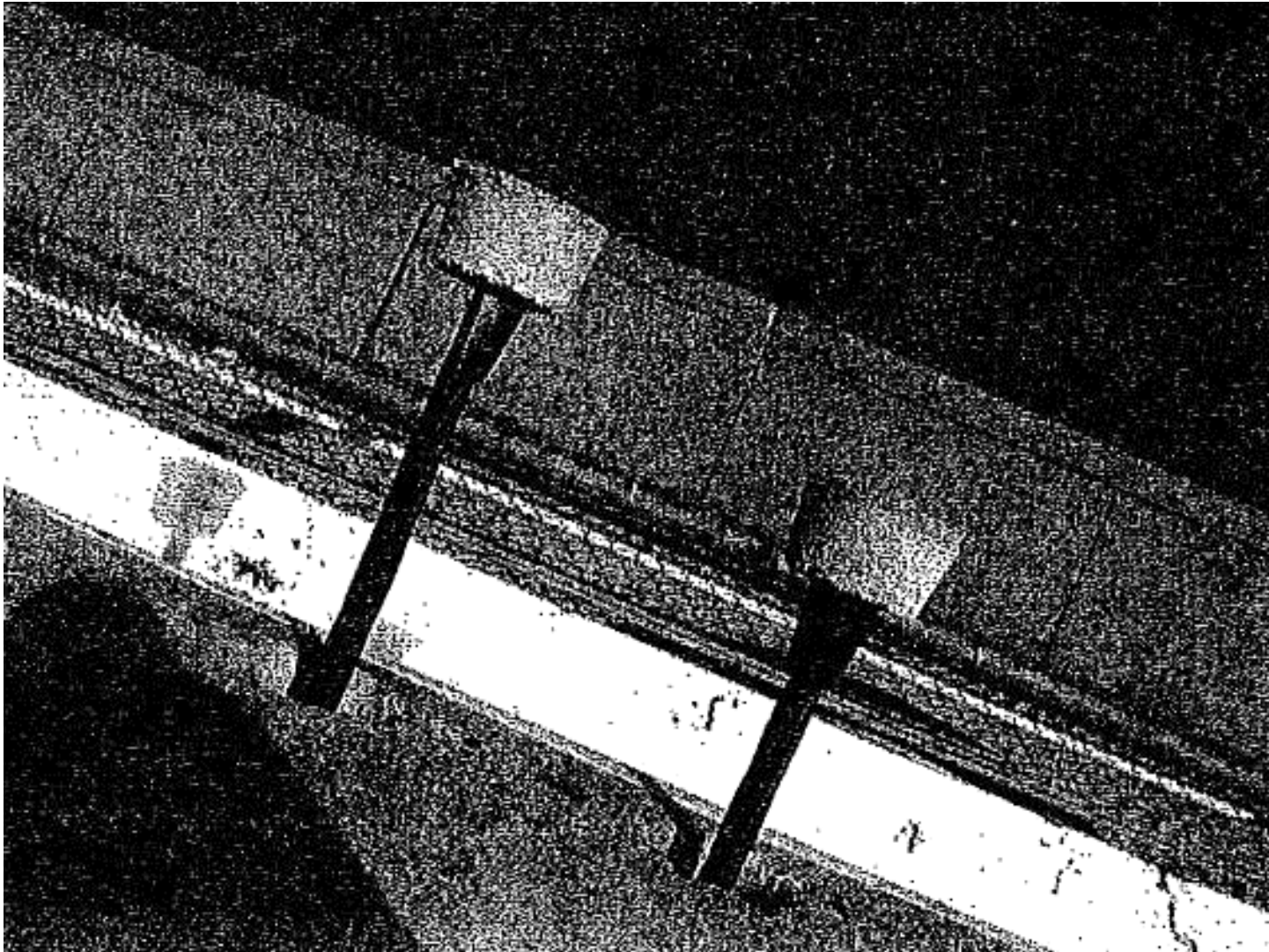
*PM-304.10.3.4 The Professional shall employ the **appropriate professional standard of care to detect distressed conditions** such as delaminating, separating, splitting or fracturing of material or components as well as movement or displacement indicative of unsound facade materials or loss of structural support. If a distressed condition is identified, the Professional shall **order any other inspections and/or tests that may be required** to determine the significance and probable cause of the observed distress.*

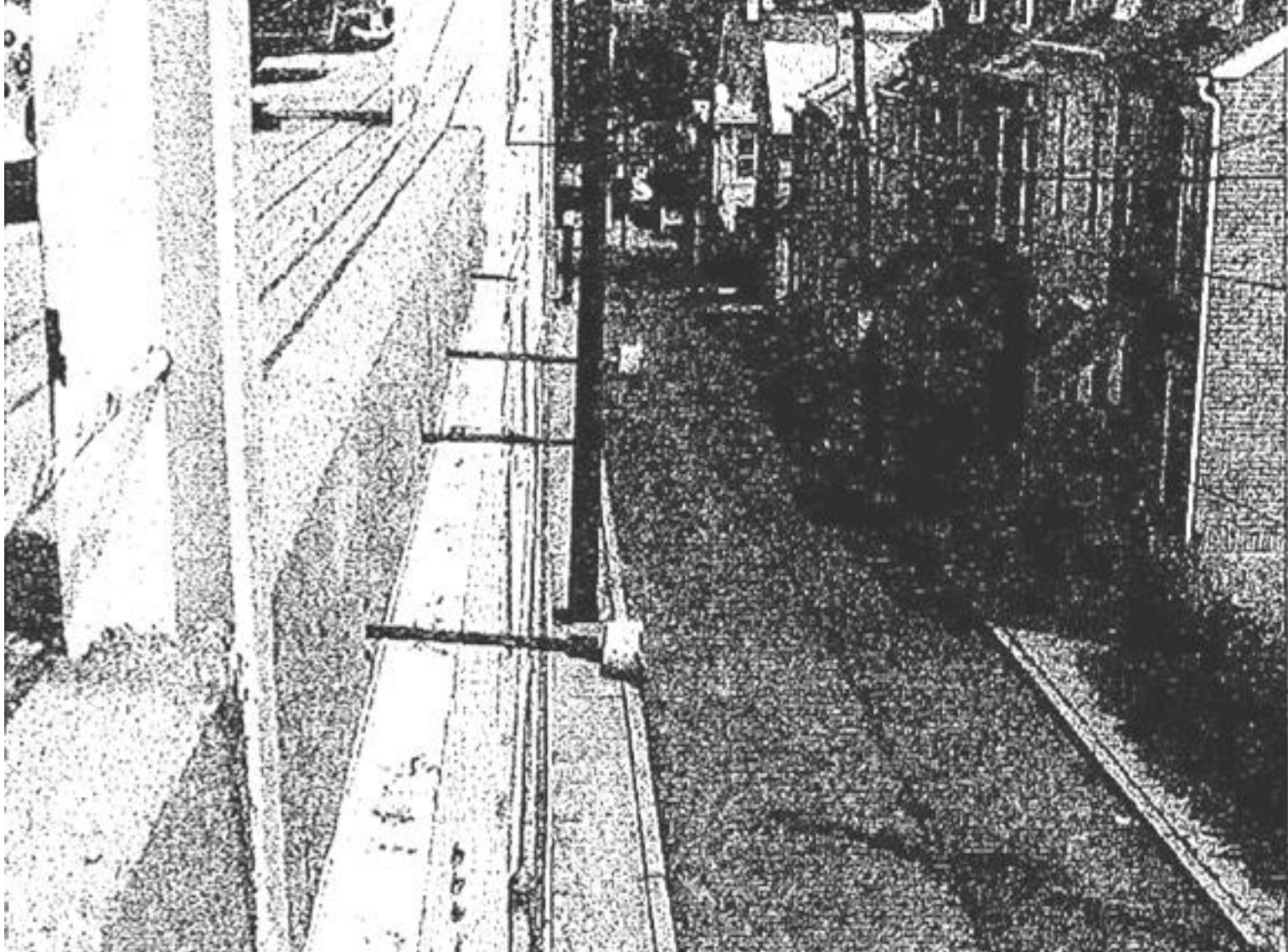
*PM-304.10.3.6 **Upon discovery of any Unsafe condition** the Professional shall immediately notify the owner of the building by electronic mail or by fax; and shall, **within 12 hours of discovery**, notify the Department in writing and in an electronic format determined by the Department.*



Responsibility During Evaluation







Responsibility During Evaluation



Responsibility During Evaluation



Responsibility During Evaluation

Due-diligence surveys: Client is potential purchaser, not present owner

What does one do here??



Responsibility During Evaluation Leading to Repair Program Design

Provision in ACI 562:

9.1.1: ...Adequate temporary shoring and bracing of affected members shall be provided **during evaluation** and repair construction (emphasis added)



Responsibility During Evaluation Leading to Repair Program Design

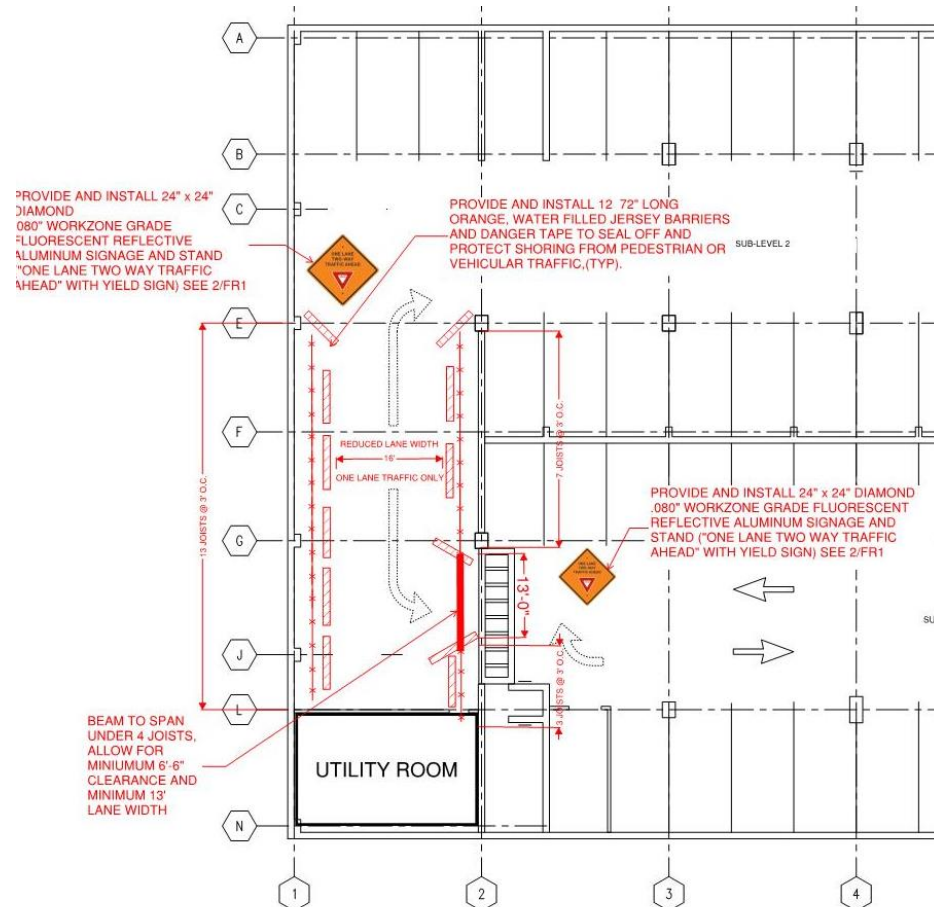
Shoring preceding repair:



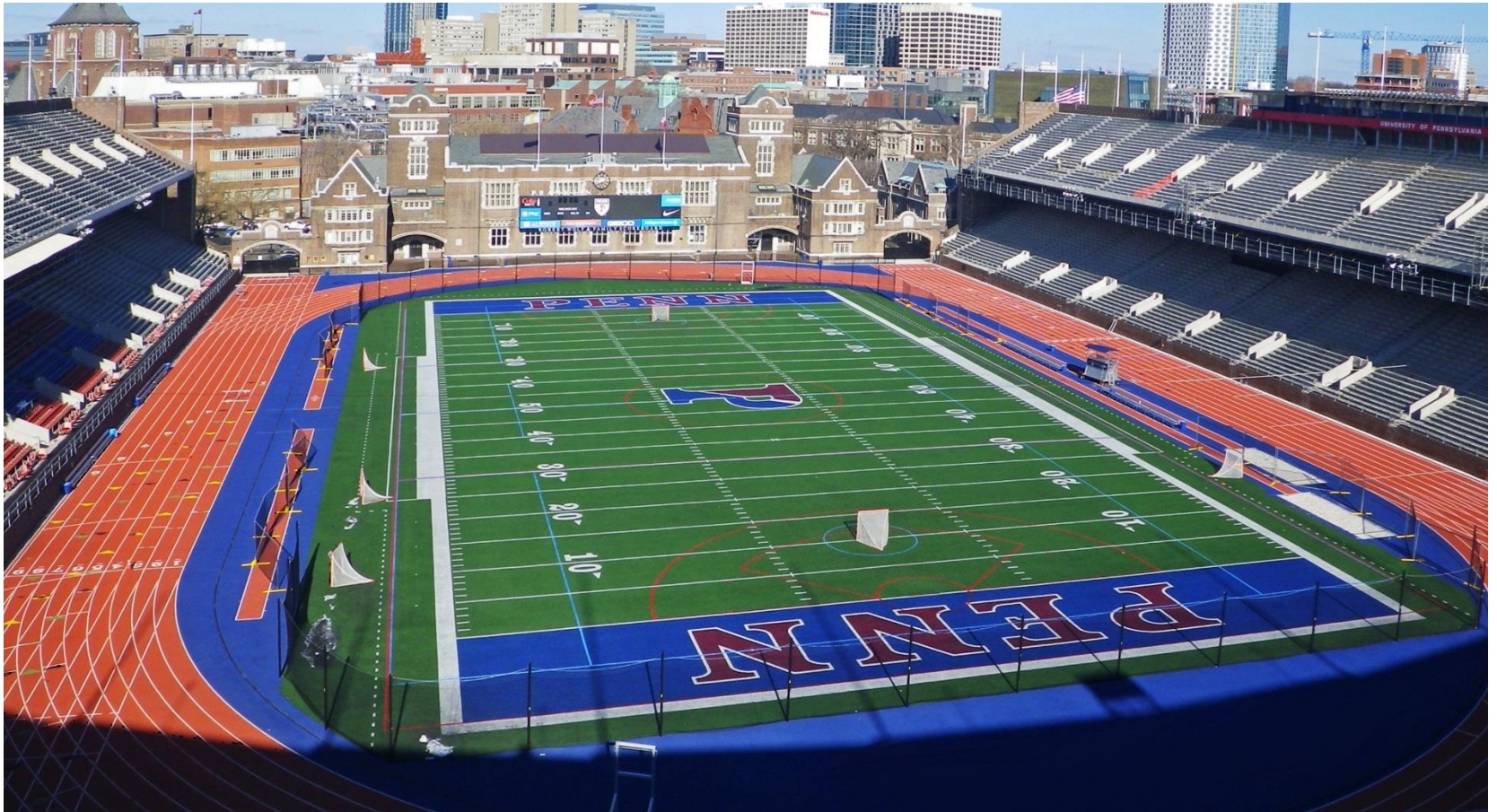
S



Responsibility During Evaluation Leading to Repair Program Design



Responsibility During Repair Program Design



Responsibility During Repair Program Design

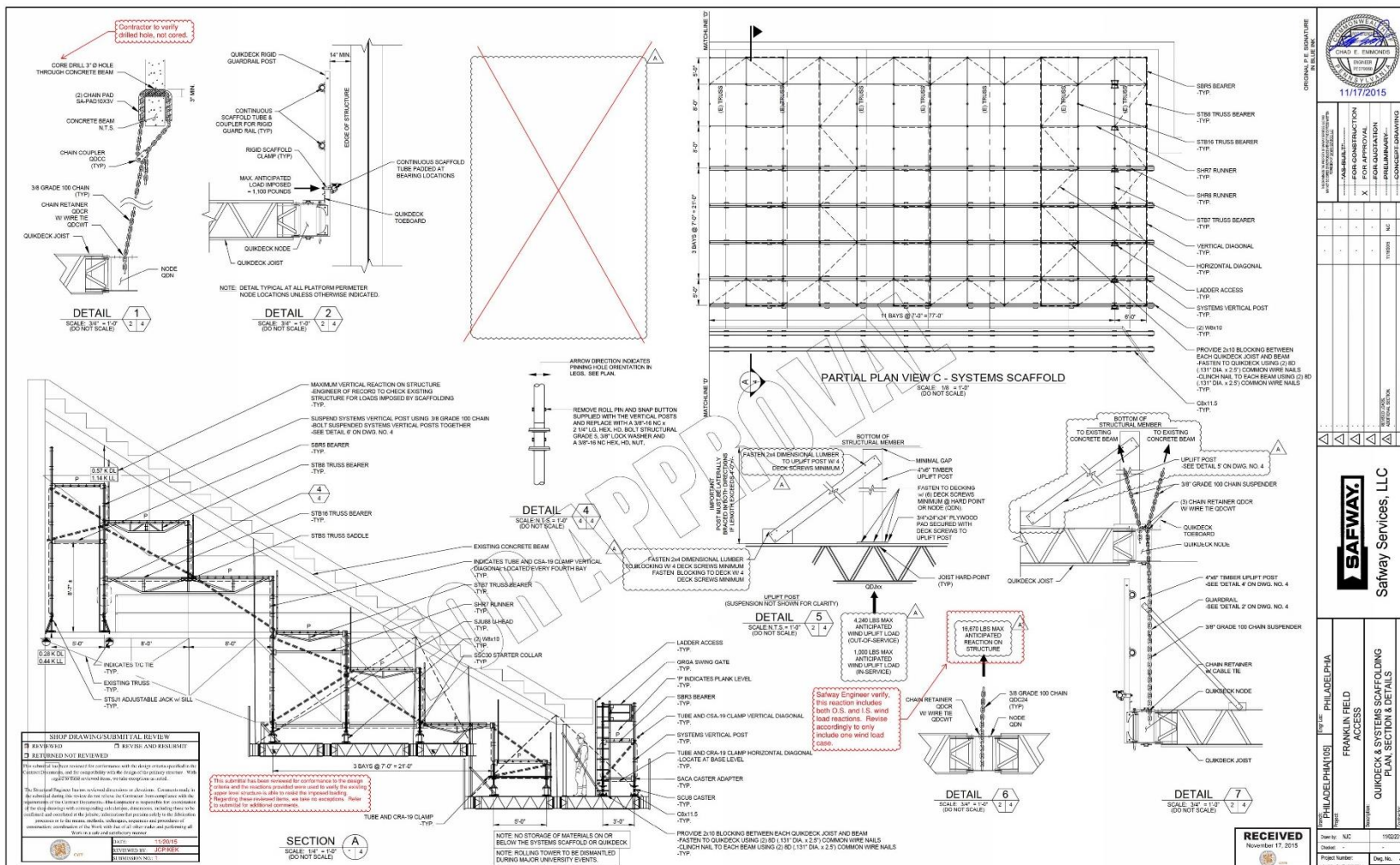
Means, methods, sequences of construction

ACI 562:

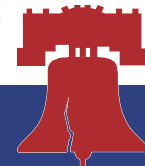
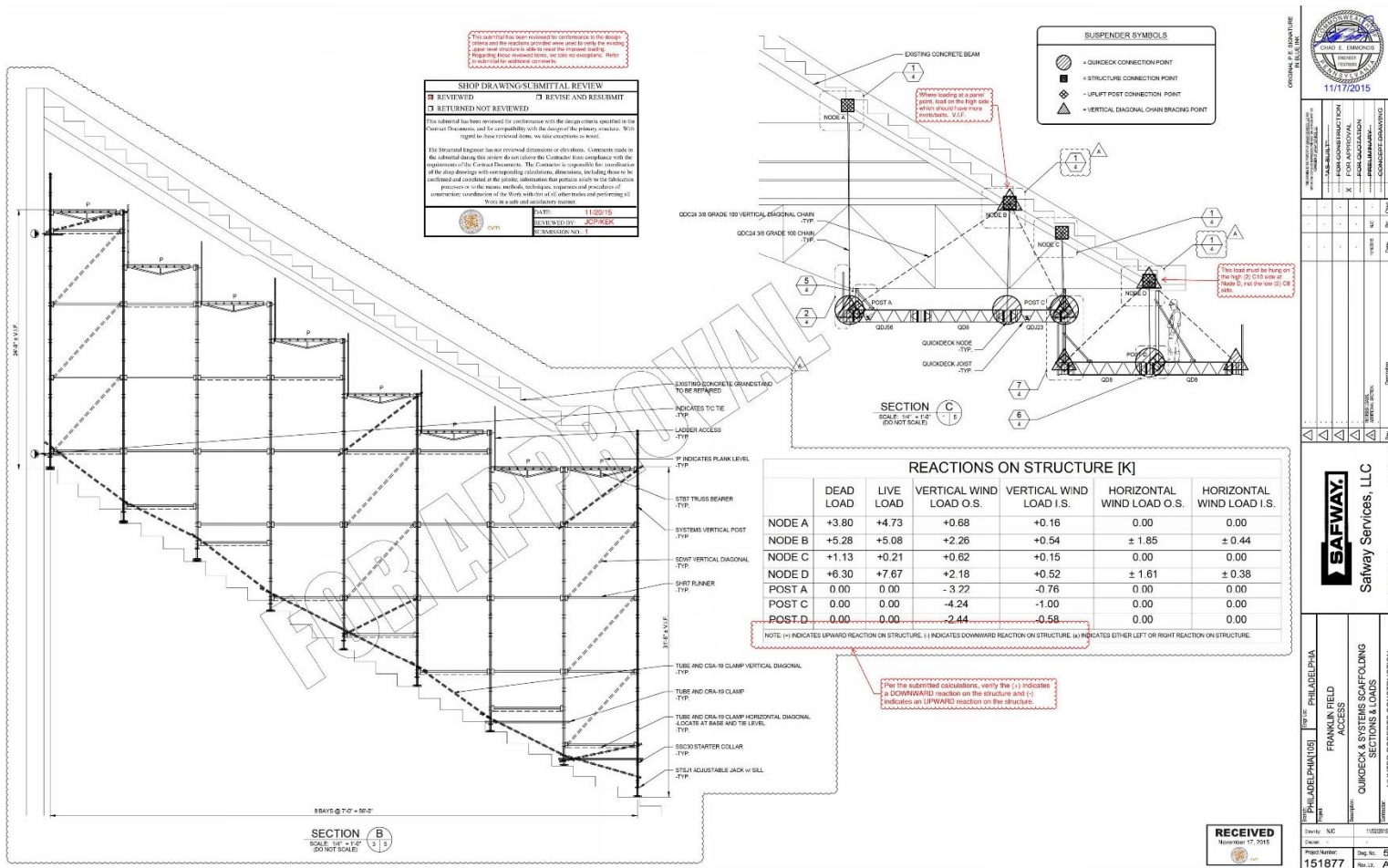
9.1.2C The assessment of structural stability includes the overall existing structure, existing members affected by repair, and temporary bracing elements that contribute to overall stability. Stability of these elements should be considered during all phases of the repair process



Responsibility During Repair Program Design



Responsibility During Repair Program Design



Responsibility During Repair Program Design



Responsibility During Repair Program Design

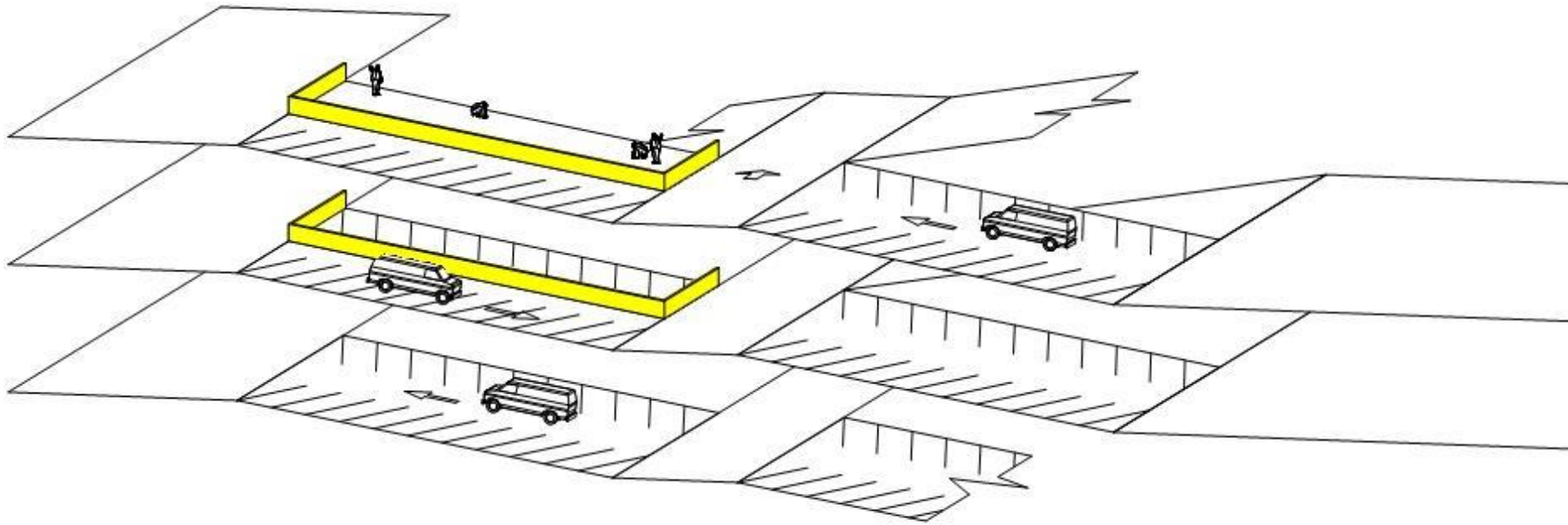
Effects on existing structure – shoring / staging

ACI 562:

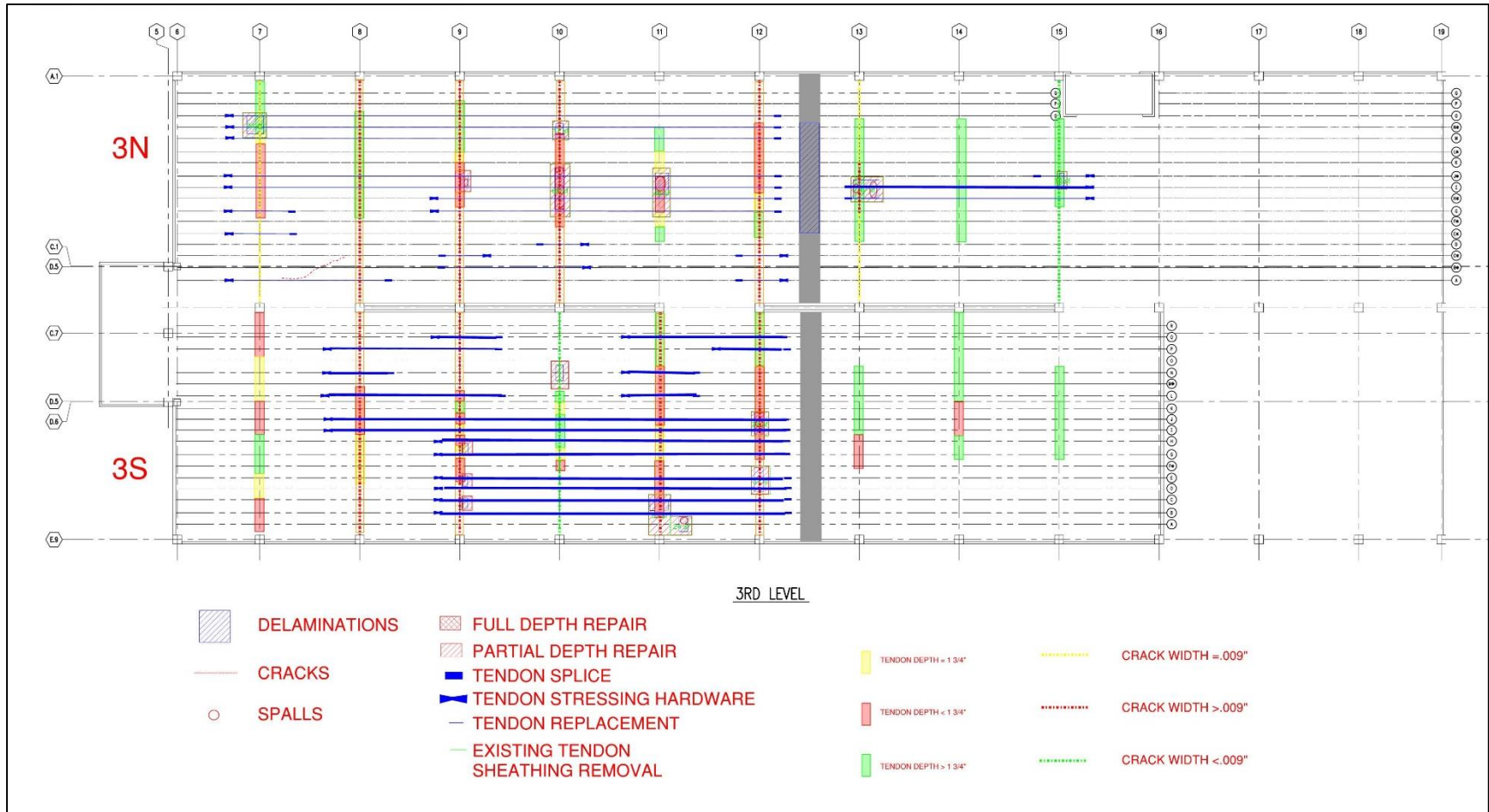
9.1.5C The design of shoring and bracing members and the assessment of existing members should be based on the **existing cross sections present** at the time of repair implementation.



Responsibility During Repair Program Design



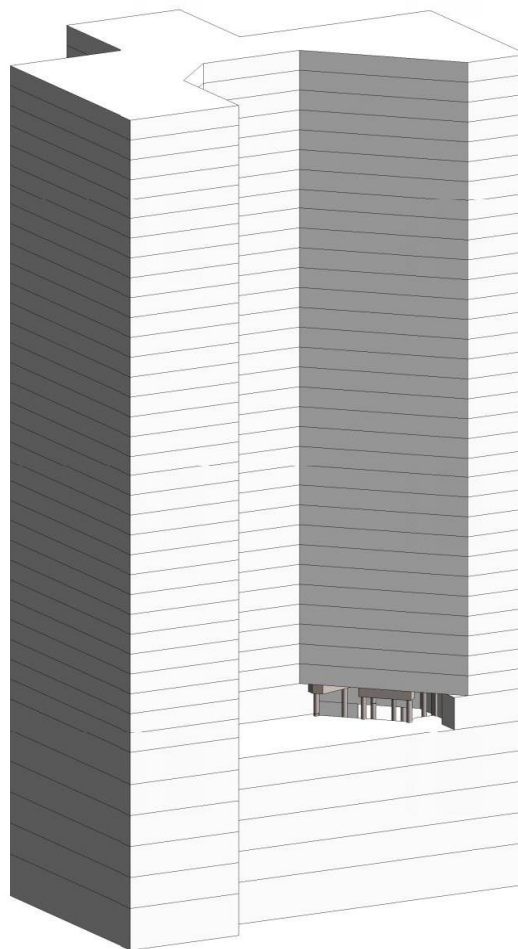
Responsibility During Repair Program Design



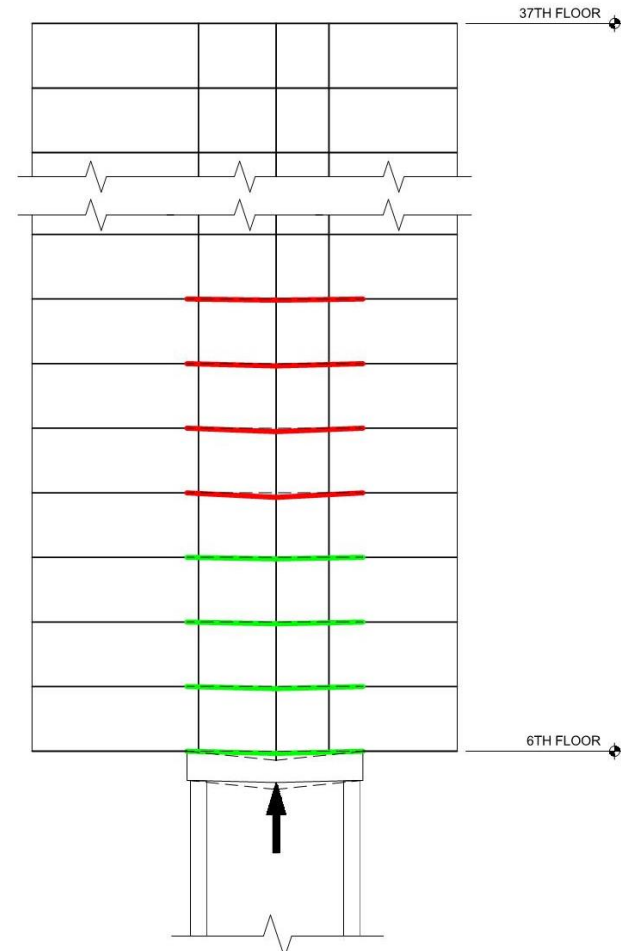
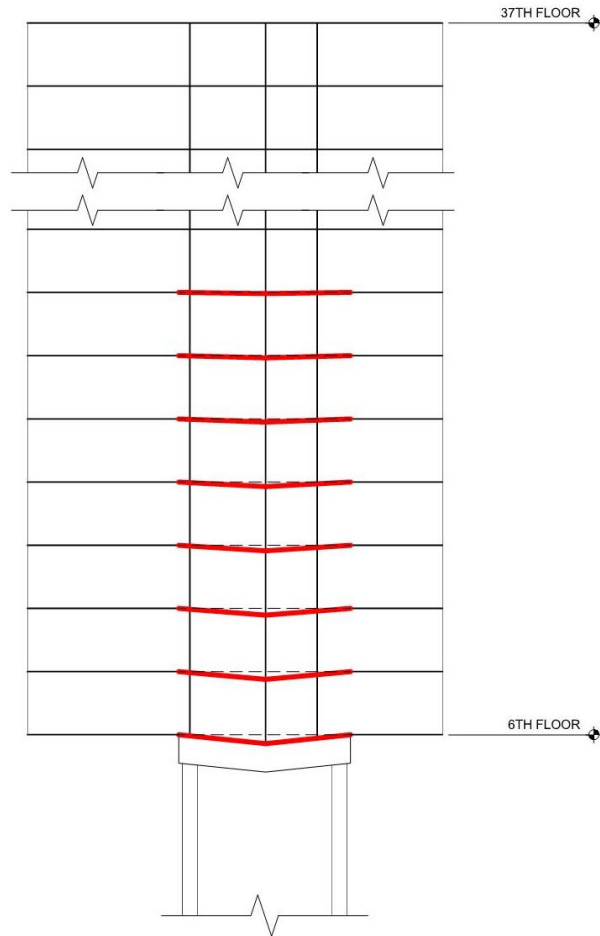
Responsibility During Construction



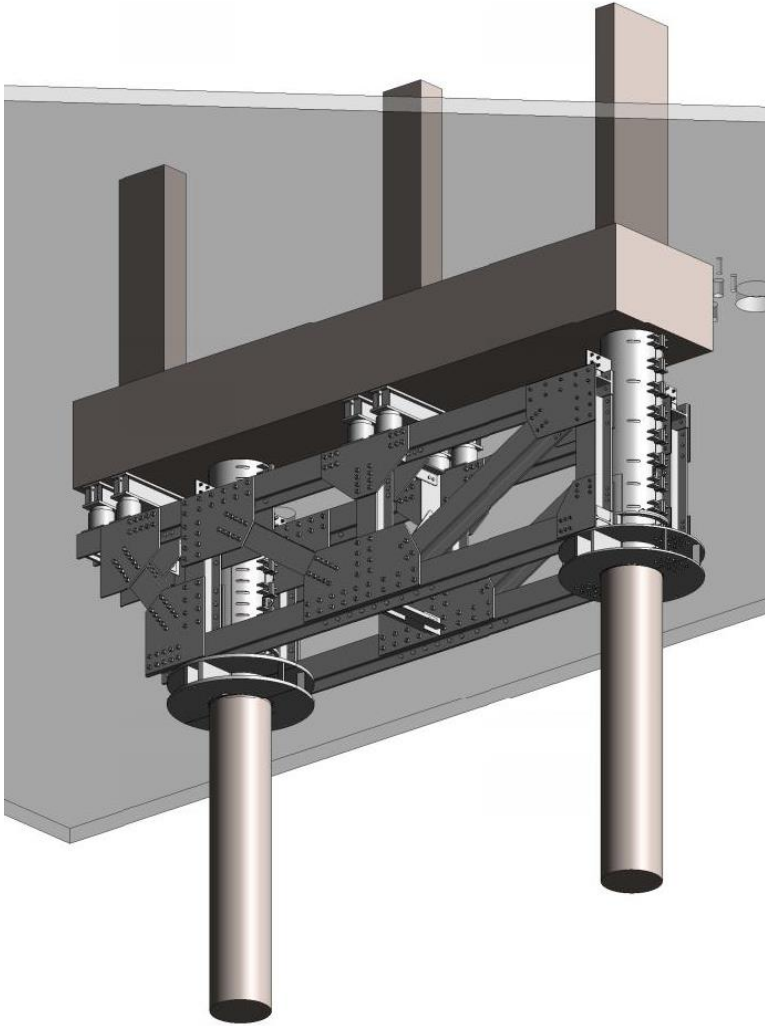
Responsibility During Construction



Responsibility During Construction



Responsibility During Construction



Responsibility During Construction



Responsibility During Construction



Responsibility During Construction



Responsibility During Construction



Responsibility in Repair Programs

