



Representing the Washington
Association of Building Officials

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WOBO and WABO

A Perfect Partnership!

Special Inspection Programs

- The WABO program was developed in accordance with the requirements of the International Building Code and the requirements of the building official members of WABO.

Special Inspection Registration Program

- Background
- Standard 1701
- Program components
- What it does for you
- Categories
- Responsibilities
- Duties
- Qualifications

Special Inspection Is:

- Inspection of materials, installation, fabrication, erection, or placement of components and connections requiring special expertise to ensure compliance to the approved construction documents.

A Special Inspector Is:

- A qualified person who has demonstrated competence
 - TO the Building Official, showing compliance:
 - To various adopted standards reference an organization meeting the requirements of ASTM E329
 - To the inspector qualifications based on the latest recognized standards

A Person with Expertise to Inspect Specialized Work



Understanding the Job Site to Begin



Background

- Building Official and Industry request for the program
- Need for consistency
- Need for qualified special inspectors
- Ad-hoc committee took several years to develop program. Implementation in 1993
- The ICC certification wasn't enough
- Intended as a revenue neutral program

Standard 1701

- The WABO adopted document based on IBC Chapter 17
- Sets policy, procedures and qualifications for SI's (agencies) and si's (individuals)
- Establishes registration categories
- Sets procedures for suspensions, revocation, and non renewal
- Sets fees
- Requires renewal on 3 year cycle

Special Inspection Registration Program (SIRP)

- Based on philosophy that a Special Inspector is a management and record keeping system
- National accreditation
- Has qualified technical supervision
- Testing and inspection or inspection only
- Based on certification, education and experience

What it does for you

- Voluntary program
- Sets standard of qualifications
- Tool for Building Official, engineers, owners
- Level playing field for SI industry
- Confidence in quality control
- Saves you time
- Limits liability
- Easy to use and its free
- Supports your association

Registration Categories

- Reinforced Concrete
- Prestressed/Post tensioned Concrete
- Shotcrete
- Rebar Inspector
- Structural Masonry
- Structural Steel and Bolting
- Structural Welding
- Spray Applied Fireproofing
- Lateral Framing (wood and cold-formed)

Structural Steel Expertise



IBC 1704 Categories NOT Included in WABO Program, yet

- Approved Fabricators
- Soils
- Pile and Pier Foundations
- Mastic and Intumescent Fire-resistant Coatings
- Exterior Insulation and Finish Systems
- Smoke Control

Soils Compaction



Continued, Not Included in WABO Program, yet

- Storage Racks and Access Floors
- Architectural Components
- Mechanical and Electrical Components

Qualifications

- Agency required to obtain accreditation from approved accreditors such as A2LA, IAS or NVLAP*
- Must have Technical Director – Engineer or non-engineer with references. Both must meet experience requirements and be interviewed
- Must have qualified field and lap supervisors for each category

**Laboratory accreditation is based on internationally accepted criteria for competence (ISO/IEC 17025:2005)*

Qualifications cont.

- Inspectors must have current ICC certifications, meet education and experience requirements and pass oral examination
- Agency, Key Personnel and Inspectors must renew on a three year cycle

The Responsibility For Inspection— An Overview of Those Involved:

- Engineer or Architect
- Building Official
- Plans Examiner
- Building Inspector
- Special Inspector
- Contractor
- Owner

Engineer/Architect

- Specify Special Inspections Required
- Specify Structural Inspections Required by Engineer of Record
- Engineer Structural Observation Seismic Design Categories D, E, & F and/or high wind areas

Responsibilities of Building Official

- Prescribe a Policy & Procedure for Special Inspection
- Require Special Inspection
- Review and Examine Plans for Compliance
- Approve the Special Inspector and Agency
- Require and Review Reports
- Take Corrective Action on Discrepancies Reported
- Receive, Review, and Approve Final Report

Responsibilities of Plans Examiner

- Review Plans and Specifications for Material Types
- Review Engineer's Requirements for Special Inspection
- Identify any Pre-Testing Required (i.e. Masonry Prisms, Shotcrete Pre-qualification)
- Review Letter of Commitment to Employ Special Inspector
- Clearly Detail Any Additional Shop Drawings or Specifications Needed

Responsibilities of Building Inspector

- Perform All Inspections Required by IBC Section 109: Electrical, Plumbing, Framing, Fire Safety, etc.
- Monitor Jobsite for Compliance with Special Inspector Requirements
- Resolve Code Related Field Issues
- Know the Special Inspectors

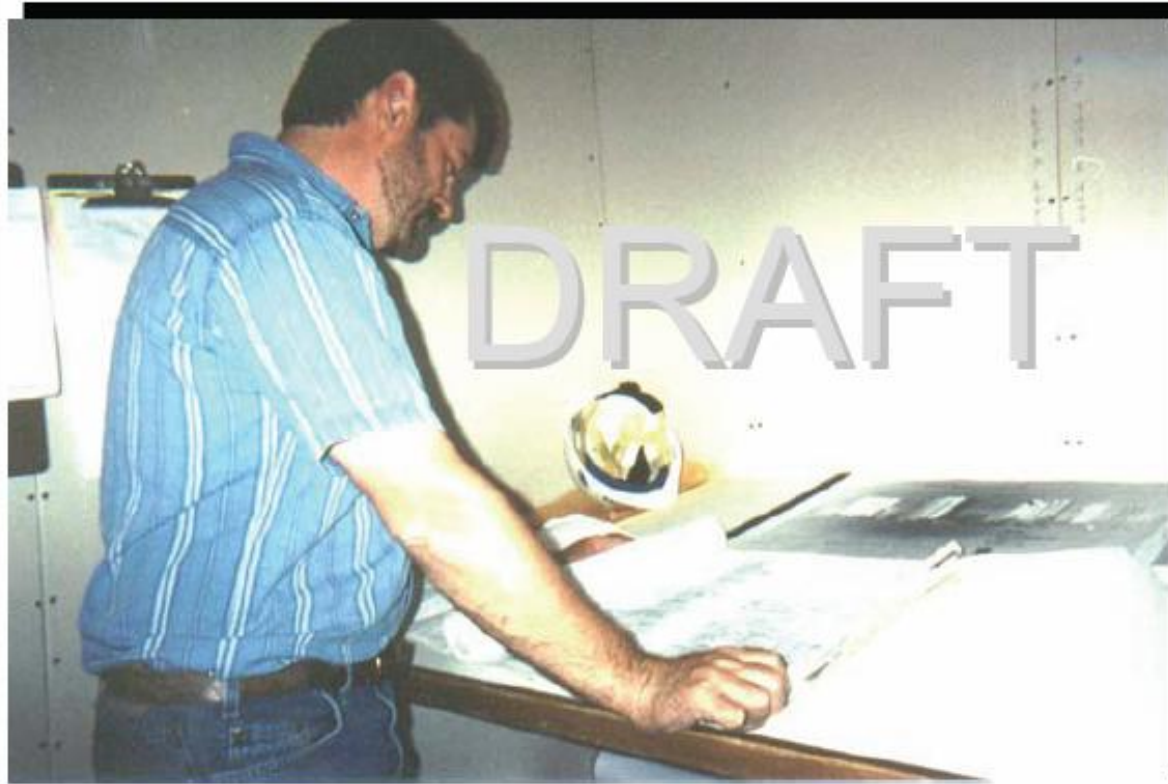
Responsibilities of Building Department

- Nominate inspection agency prior to permit
- Plan Review -> Authorization Letter
- Pre-Construction Meeting Required?
- Special inspection agency final letter required prior to final inspection and issuance of Certificate of Occupancy

Duties of Special Inspector

- Observe Work for Conformance with Approved Plans and Specifications
- Perform or observe All Tests Required by IBC and adopted reference standards
- Furnish Reports to Owner, Building Official, Engineer, Architect and Contractor
- Perform all inspections required by IBC Chapter 17

Special Inspector



**Understanding the Plans
Thoroughly Before Starting**

Duties of Special Inspector

- Bring Discrepancies to Immediate Attention of Contractor, If Left Uncorrected ➡ to Engineer and Building Official
- Submit Final Report to Building Official
- Usually only Full-Time Objective Observer for the Construction Process

Duties of Special Inspection Agency

- Provide competent and certified inspectors
- Provide accurate reports
- Distribute reports in a timely manner
- Expect sufficient notice for required inspections

Duties of Contractor

- Provide Statement of Responsibility
- Provide Access to Plans
- Provide Safe Access to Site
- Retain Special Inspection Reports
- Correct Discrepancies
- Obtain Proper Approval for Changes
- Should Not Hire Special Inspector

Owner Responsibilities

- Owner Should Always Hire Special Inspector
- Owner May Require Other Non-Code Items such as Asphalt and Concrete Paving, Roofing, Waterproofing, Flat Floors and Architectural Finishes

Why Special Inspection?

- Verification of Materials Used
- Testing of Materials for Strength
- Detailed Inspection of Critical Components
- Assurance of Compliance with Plans and Specifications
- Monitoring of Construction Modifications
- Code Requires Special Inspection

Verifying Materials on Site



Jobsite Problem Resolution

- First try to solve with contractor
- Last resort Building Official = Stop the Work (Red Tag)
- Clear description to Engineer to determine acceptance or resolution of non-conforming item. Also to owner to assess cost and schedule impacts
- Photos can be invaluable
- Inspector must keep log or record of non-conforming items and resolutions

Inspector and Testing Laboratory Qualifications

- Minimum Expectation
 - Owners must demand high standards
 - Procure a professional service
 - Check qualifications and references
 - Lump sum & lowest bidder not always adequate

Inspector and Testing Laboratory Qualifications

- Laboratory Facilities
 - Inspector needs full support of testing facilities
 - Accuracy of tests can never be a question
 - Lab procedures and calibrations must be followed

**Qualified
Laboratory
for Testing**



Inspector and Testing Laboratory Qualifications

- Nonconformance Tracking System
 - Often have multiple inspectors which disrupts continuity
 - Need to resolve problems before end of project
 - Contractor must be given every opportunity to fix problems

Inspector and Testing Laboratory Qualifications

- Technical Support
 - Too complex for inspector to work alone
 - Must have technical expertise in office
 - Management of Inspection Agency critical

Concrete

- Routing Testing
 - Material Conformance
 - Forming & Shoring
 - Reinforcement Placement – Size, Location, Splices, Stability, and Cleanliness
 - Concrete Batching, Delivery, Placement, and Curing
 - Representative Sampling & Testing

Concrete Field Testing



Properly Marking Test Cylinders on Site



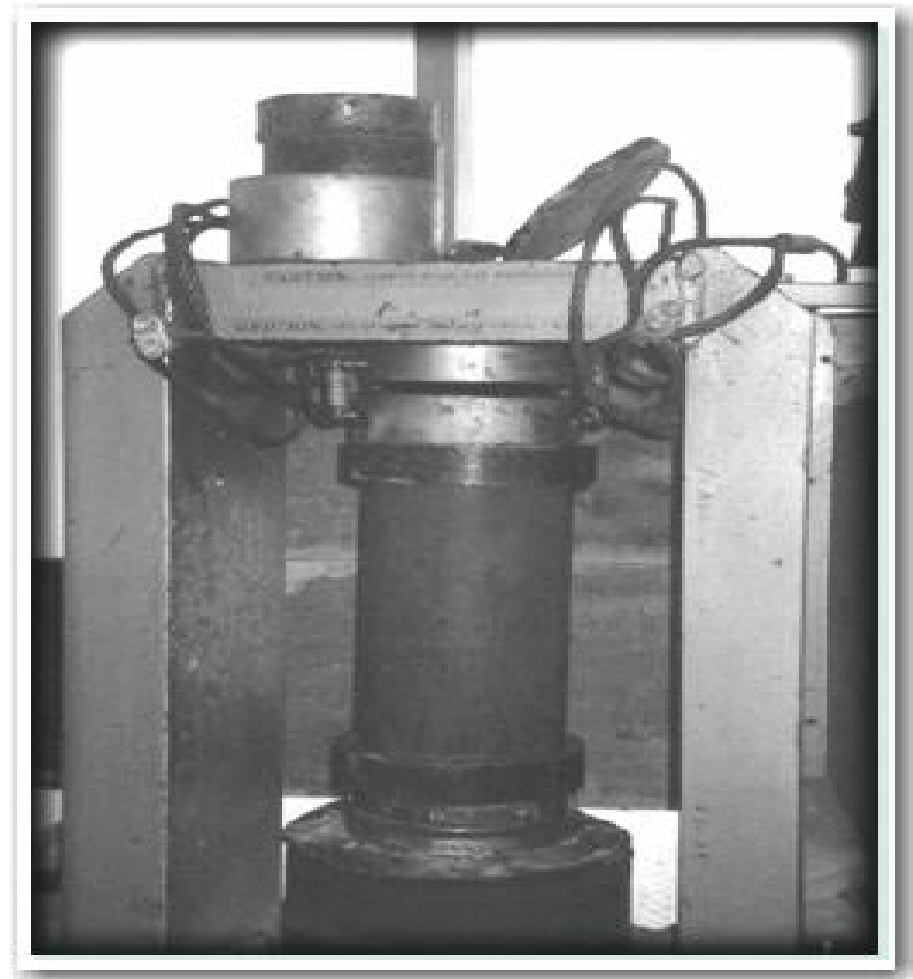
Concrete Slump Test



Concrete Reinforcing



Concrete Lab Testing



Post-tensioning



Post-tensioning



Field Structural Steel/Welding



Welding Procedures

- Submit Prior to Welding
- Engineer Approves
- Inspector and Welder have a copy
- Measure Variables

Structural Steel/Welding

- Bolting – High Strength
 - Several Tightening Systems: Twist Off, Load Indicator Washers, Calibrated Wrench and Turn-of-Nut Method
 - Each system must be calibrated to show proper tension has been achieved

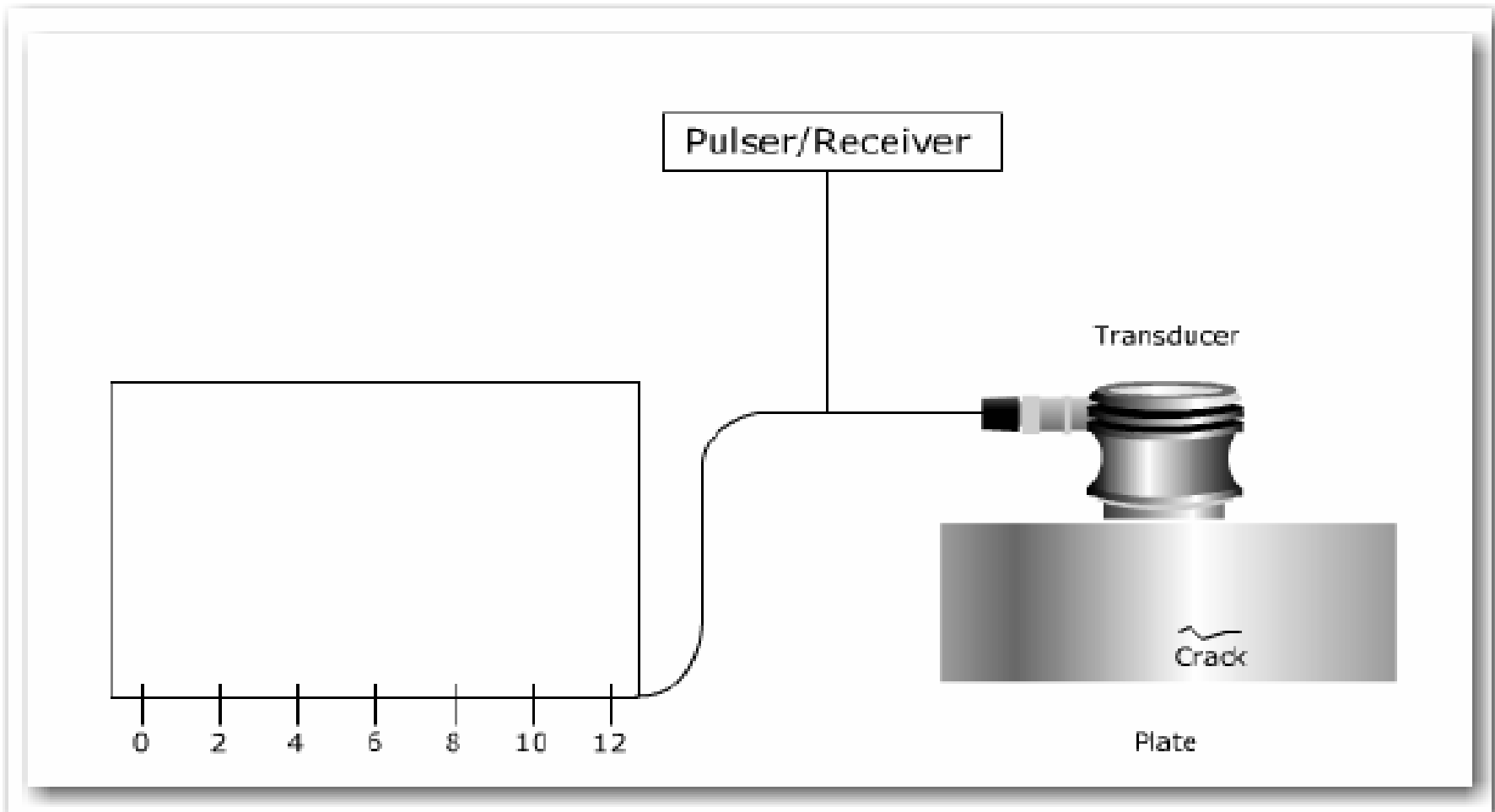
Structural Steel/Welding

- Shop Fabrication
 - Prefabrication Meeting Required
 - Full-Time or periodic inspection depending on complexity of project and shop quality
 - Code requires 100% visual inspection of welds – best to do in shop to eliminate delays and solve quality problems early
 - Need to verify materials are as specified: Base Metal, Bolts, and Welding Rod

Structural Steel/Welding

- Nondestructive Testing (NDT)
 - Specifications must identify NDT
 - Typically 100% of full penetration welds are tested
 - Wide variation in inspector skills

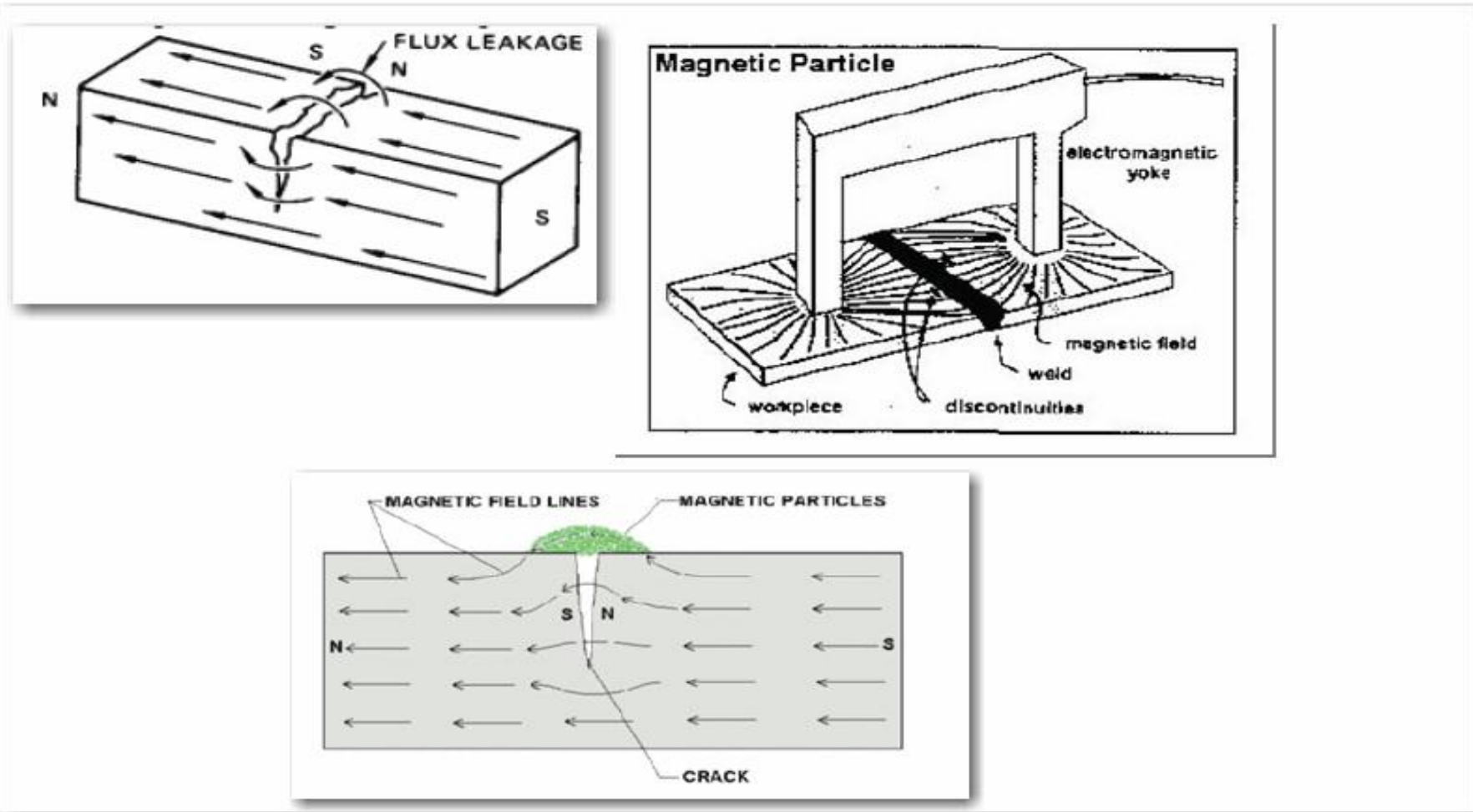
Ultrasonic Testing (UT)



Ultra-Sonic Testing



Magnetic Particle Testing (MT)



Northridge Damage



Lateral Framing Inspection

- Material Verification
- Member Size Layout
- Continuity of Load Path
- Hardware: Straps, Ties, Anchors
 - For Wood-Framed and Cold-Formed Steel Structures

On Behalf of WABO, I Thank You.



End of Presentation

