# Structural Integrity Evaluation Checklist

This checklist is designed to guide you through a step-by-step process of evaluating the structural integrity of a building or infrastructure. It includes sections for documentation review, visual inspection, non-destructive testing (NDT) criteria, and monitoring equipment.

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| **1. Documentation Review*** □ Concrete Crushing Tests
* □ Mix Design Analysis
* □ Previous Inspection Reports
* □ Maintenance Logs
* □ Construction Drawings
* □ Permits and Approvals
* □ Material Certifications
* □ Design Calculations

**2. Visual Inspection*** □ Cracks and Deformations
* □ Water Damage (e.g., stains, mold, efflorescence)
* □ Corrosion and Rust (e.g., rebar, metal components)
* □ Foundation Settlement (e.g., uneven floors, tilting)
* □ Joint and Connection Integrity (e.g., gaps, misalignment)
* □ Spalling or Delamination of Concrete
* □ Drainage and Waterproofing Issues
* □ Signs of Overloading (e.g., sagging beams, deflections)

**Non-Destructive Testing (NDT) Considerations*** □ Determine When to Move to NDT (e.g., based on visual findings)
* □ Ultrasonic Testing (e.g., for internal flaws, thickness measurement)
* □ Radiographic Testing (e.g., for weld integrity, internal cracks)
* □ Dye Penetrant Testing (e.g., for surface cracks)
 | * □ Acoustic Emission Monitoring (e.g., for active crack growth)
* □ Ground Penetrating Radar (GPR) (e.g., for subsurface defects)
* □ Rebound Hammer Test (e.g., for concrete strength)
* □ Infrared Thermography (e.g., for moisture detection, thermal anomalies)

**4. Monitoring Tools*** □ Strain Gauges (e.g., for stress measurement)
* □ Displacement Sensors (e.g., for movement monitoring)
* □ Vibration Monitoring (e.g., for dynamic loads)
* □ Temperature Sensors (e.g., for thermal effects)
* □ Tiltmeters (e.g., for angular changes)
* □ Crack Monitors (e.g., for crack width measurement)
* □ Load Cells (e.g., for load distribution analysis)
* □ Data Loggers (e.g., for continuous monitoring)

**5. Additional Notes*** □ Review Environmental Factors (e.g., seismic activity, weather conditions)
* □ Assess Compliance with Building Codes and Standards
* □ Document Findings and Recommendations
* □ Schedule Follow-Up Inspections or Repairs
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