# 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.

|  |  |
| --- | --- |
| **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 |