

# FORENSIC TESTING GUIDE

## POTENTIAL SOURCES EVALUATED BY EXPERT

COMPONENTS AND CLADDING
Stucco Delaminating or Cracking Peeling Corrosion Misalignment

STRUCTURAL
PT Collapse Concrete Expansion and cracking Concrete Spalls Materials Degradation Deck Overlay Delaminating Exposed Rebar or Cable in Concrete Insufficient Reinforcing Slab Deflection Collapsed Member

FUNCTIONAL
Cooling not Performing Heating not Performing Ventilation Equipment Vibration Water Accumulation Slippery Floor Low Water Pressure Low Air Pressure

INDOOR AIR QUALITY
Leaks Moisture Condensation Humidity Noise Smelt

AESTHETIC
Membrane Peeling-off Color Fading Homogeneity Out of Form

DESIGN SPECIFICATIONS
Design Concept Sizing Design Details Design Specifications Green Buildings Safety Violation

## TESTING CROSS-REFERENCE SELECTOR

EQUIPMENT
Ductwork Pressure Pump Pressure Ductwork Airflow Exhaust Airflow Air Pressure Air Balancing Temperature Energy Exchange Water Pressure Water Flow Cooling Load Calculations Vents Smoke Test Vents Video Camera Pipes Video Camera Roof Exhaust Airflow

GLAZING
Wind Load Calculations Fenestration Reinforcing Steel Glass Mullion Safe Load Test Waterproofing Testing Indentation Test Sealant Tension Test Absorption of Water Glass Thickness & Types Metal Frame Thickness Sound Attenuation Test Air Infiltration Test Thermal Energy Transfer Sun Radiation Blocking Wind Load Calculations

CONCRETE
Delaminating Sound Test Corrosion Mapping Compressive Strength Test Concrete Surface Strength Chlorides on Concrete Ph in Concrete Surface Water Absorption and Voids Density Test Pullout Bonding Strength Mapping Reinforcing Steel Measuring Reinforcing Coating Alkali-Silica Reaction Carbonation Content Content of Cement Crack Activity Monitoring Abrasion of Concrete Concrete Deck Slope Slab Deflection Survey

WATERPROOFING
Infrared Thermal Scanning Relative Moisture Scanning Scan for Insulation Fasteners Insulation Fasteners Uplift Load Insulation Core Drill Elevation of Drains and Safety Overflow Pitch against Drains Sound Test Scanning of Membranes Moisture Gravimetric Content Membrane Uplift Test Membrane Puncture Resistance Means of Drain Flow Test Roof Tiebacks Load Testing Membrane Thickness Scanning Density of Roof Foam Water Vapor Absorption Sun Radiation Reflection Underground Radar Scan

PAINTING & STUCCO
Pull-off Adhesion Strength of Sealants Chlorides Salt Content Painting and Coatings Adhesion Test Thermographic Scanning Microbial Growth Test Testing of Metal Thickness Delaminating Sound Test Stucco Surface Strength Chlorides on Stucco Ph in Stucco Surface Water Absorption and Voids Stucco Pullout Bonding Strength Alkali-Silica Reaction on Stucco Carbonation Content on Stucco Density Test Content of Cement Crack Activity Monitoring Thickness Evaluation

INTERIORS
Air Infiltration by Dilution Airborne Sound Air Dilution Structural Sound Vibration Humidity Temperature Pressurization Moisture Mold Asbestos Particles CO2 Ozone Floor Friction Factor

## CAUSES OF FAILURE DETERMINED BY TESTING

CONTRACTOR PROCESS
Surface Preparation Mixing PT Tensioning Storage Uncured Time Installation PT Tensioning Placing Trade coordination Weather Water / Cement Ratio

COMPONENTS
Incompatible Chemistry Adhesion Failure Unfitable Sizing Layout

BUILDING DYNAMICS
Air Distribution Envelope Air Leakage Elevator Shaft Ground Elevation Ductwork Condensation Ductwork Air Leaks Slab Settling Pressurization Filtering

OCCUPANCY AND PROCESS
Operation Planning Management Traffic Exposure

DESIGN SPECIFICATIONS
Mechanical Properties Chemistry Bacteriologic Degradation Specifications Design Detail Adhesion Failure

ENVIRONMENT
Flood Low Ground Elevation High Winds Neighbor Property Road Transit Ocean Waters Mist High Humidity

