

DESIGN ERRORS, CONSTRUCTION MISTAKES AND BUILDING FAILURES

INTRODUCTION

Design errors, construction mistakes and building failures continue to plague us into the 21st Century even though they are avoidable. Understanding the mechanisms of failure in relation to the building process will enable us to design and construct more durable buildings and structures. Increased durability will result in reduced maintenance costs and longer service life of buildings and structures. This program is designed to develop an increased awareness of the proper design and specification of materials and methods of construction to produce durable buildings and structures. This program will provide many new and insightful topics, including the role of Forensic Investigations, current trends in North American Construction Claims, and the cost-effective remediation of errors and mistakes.

BENEFITS

This program will teach participants how to identify and avoid common design errors and construction mistakes through intense and interactive case studies and group discussions.

PRESENTER

Martin Gerskup, B. ARCH., OAA, MRAIC

Martin Gerskup is one of the few Canadian Architects specializing in the theory and practice of Building Science. He is an Investigative Architect who has spent the last 20 years carrying out research and detailed hands-on investigations in the field of Building Science with particular emphasis on the resolution of problems affecting the building envelope. Based in Maple, Ontario, Canada, Martin Gerskup is President of BEST Consultants Martin Gerskup Architect Inc., a professional firm he founded in 1992, which specializes in building science and technology. He has been a practicing architect for more than 20 years and has extensive knowledge and experience in the design, construction, inspection, repair and maintenance of all types of buildings and structures. He has been responsible for the development of numerous technical audits, reserve fund and life cycle cost studies, and has frequently resolved complex technical problems in the field both during and after construction.

PROGRAM

DAY ONE

○ THE DESIGN AND CONSTRUCTION PROCESS DESIGN AND CONSTRUCTION ISSUES

- Air Barriers
- Vapour Retarders
- Environmental Separation
- Fire & Sound Assemblies
- Reinforced Concrete Structures
- Windows & Glazing
- Curtain Walls
- Roofing

○ DESIGN TRENDS

RAIN SCREEN TECHNOLOGY

- Curtain Walls
- EIFS

BARRIER WALL SYSTEMS

- Reinforced Concrete
- Masonry
- Coatings

DAY TWO

○ FORENSIC INVESTIGATIONS (CASE STUDIES)

DESIGN ERROR CASE STUDIES

- Exterior Walls
- Windows
- Roofing

CONSTRUCTION MISTAKE CASE STUDIES

- Reinforced Concrete
- Window Anchorage
- Curtain Walls

BUILDING FAILURE CASE STUDIES

- Leakage
- Condensation
- Premature Deterioration

DAY THREE

○ CURRENT TRENDS

NORTH AMERICAN CONSTRUCTION CLAIMS

- Air Quality
- Mould
- Moisture Damage

THE REAL COST OF POOR DESIGN

- Premature Deterioration
- Dangerous Conditions
- Litigation

AVOIDING COMMON DESIGN ERRORS

- 10 Essential Steps

DAY FOUR

○ TOP 10 CONSTRUCTION MISTAKES

- Alternates in Materials
- Changes in Construction
- Short Cuts
- Errors of Knowledge
- Errors in Performance
- Errors of Intent
- Design Errors
- Workmanship
- Inspection Errors
- Codes and Standards
- Causes of Failure

○ CAUSES OF FAILURE

- Design
- Performance
- Use

○ BUILDING REPAIRS (CASE STUDIES)

- Concrete Walls
- Concrete Slabs
- Curtain Walls
- Roofs

DAY FIVE

○ REMEDIATION

- Remediation of errors and mistakes
- Mitigating Damages
- Repair Specifications

○ BUILDING CONSTRUCTION

- Getting It Right the First Time!
- Standards
- Inspection and Testing