Évaluation de la performance:
CONSIDÉRATIONS TECHNIQUES LIÉES AUX ASPECTS SOCIO-HISTORIQUES DE L'ENVELOPPE DES ÉDIFICES

Richard Trempe, architecte, M.Sc.
Vice-president Consultation
CLEB Consultant Inc.
rtrempe@cleb.com

Outline

1. Mise en contexte **3 minutes**
- a. Mise en contexte de la conservation
  - i. Considérations socio-historiques
  - ii. Développement durable
  - iii. Efficacité énergétique
  - iv. Durée de vie
  - v. Performance vs travaux
- b. Références aux guides et considérations actuelles

2. Les périodes clés dans la vie d'un édifice (tableau sommaire) **2 minutes**
- a. L'état initial du bâtiment
- b. L'état actuel et ses modifications
  - i. Usages et réaffections
  - ii. Agrandissements et altération
  - iii. Enveloppe

3. La qualification par le contexte d'édification, les valeurs et les contraintes (organigramme) **8 minutes**
- a. Les facteurs ciblés
  - i. La représentation du bâtiment dans son contexte d'édification
  - ii. Les valeurs de mémoire véhiculées par l'édifice
  - iii. Approche d'Alois Riegl
- b. Classification des valeurs et matérialité
- c. Les contraintes exercées sur l'enveloppe au cours de sa vie en service
  - i. Inventaires des contraintes
  - ii. Typologie et conséquences
- d. Le contexte qui favorise ou non la conservation
  - i. Valeurs de mémoire
  - ii. Considérations financières et techniques, énergétiques. […]
  - iii. Potentiel de récupération
- e. Synthèse et grille de qualification

4. L'analyse de l'état actuel de l'édifice **5 minutes**
- a. Les conditions du bâtiment et de son enveloppe
  - i. Connaissance des éléments constructifs
  - ii. Cause des détériorations
  - iii. Investigation et curetage
  - iv. L'évaluation de la performance
- b. Reconnaissance du contexte et de l'histoire
  - i. Historique, enquête et entretien
  - ii. Documentation
  - iii. Valeurs et usages
- c. Connaissances générales
  - i. Techniques des constructions
  - ii. Savoir-faire, métiers et matériaux

5. Conclusion : La recherche de la performance et la réhabilitation **2 minutes**
- a. État vs performance
- b. Conditions socio-historiques vs performance
- c. Exemple d'analyse, bâtiment institutionnel début du XX$_{e}$ siècle
- d. Perspectives d'avenir et intérêt

ENERGY ANALYSIS FOR PRESERVATION PROJECTS:
THE RIGHT TOOLS AT THE RIGHT TIMES

Robert J. Hotes, AIA, LEED AP BD+C
Senior Associate / Senior Historic Preservation Expert
EYP Architecture & Engineering
rhotes@eypae.com
202-471-5052

Outline

1. What is Energy Modeling?
    a. Taking Cues from the Auto Industry
        i. Crash Test Model
        ii. Computer Model
        iii. Mock-up Model
        iv. Simulation Model
        v. Empirical Data Model
    b. Rules of Thumb – Science Calls It Heuristics
    c. Beyond Rules of Thumb
    d. Energy Models are Use Case Specific
        i. All Models are Not Made Equal
    e. Building Performance Continuum
        i. Reduce Arbitrary Decisions
        ii. Design vs. Operations
    f. Modeling Variables
        i. Physical
        ii. Operational
        iii. Environmental
2. Types of Energy Models
    a. Key Energy Modeling Concepts
    b. Emergent View of Energy Models
        i. Intentional Models from Guidance Through Operations
    c. Operating Premise
        i. Design vs. Operations
    d. Types of Energy Models
        i. Energy Modeling for Design Decisions
        ii. Energy Modeling for Certifications
        iii. Energy Modeling for Operations
    e. Summary
3. Energy Modeling Tools
    a. Obstacles in Performance Modeling Process
        i. Difficulty
        ii. Cost
        iii. Experience
        iv. Time

b. Building Performance Continuum
    i. Compliance Tools
        1. LEED Online
        2. ComCheck
    ii. System Performance Modeling
        1. Trane Trace 700
        2. DaySim
    iii. Whole Building Energy Modeling
        1. NEO
        2. Sefaira
    iv. Benchmarking
        1. B3 Benchmarking
        2. EnergyStar
4. Questions

‘Wet walls’: developing non-destructive multi-sensor moisture monitoring methodologies for stone masonry

Scott Allan Orr
APT Student Scholar 2017
Doctoral Student
University of Oxford Centre for the Environment
scott.orr@ouce.ox.ac.uk
+44(0)7541486816

Outline

1. Motivation
    a. Moisture in the historic environment
        i. Why bother?
        ii. The role of mortar/pointing mortar
    b. Uncertainty in future climate
        i. Driving rain, spells characteristics
2. NDT and moisture
    a. microwave moisture meters
    b. ground penetrating radar
3. Experimental highlights
    a. Site-based example
        i. New College (Edinburgh), exposed tower
    b. Laboratory studies
        i. Purpose-built test walls
4. Driving rain predictions
    a. Driving rain index
        i. Rain *spells*
    b. UKCIP/weather generator
    c. Example of past/future driving rain statistics

Understanding the delicate balance between occupancy loads and building envelope performance in large complex buildings with cavity wall construction: Roger-Gaudry Pavillon, Université de Montréal

John Diodati, OAQ, OAA, IRAC/RAIC, FAPT, ACECP/CAHP
Architect, Senior Associate
EVOQ Architecture
diodati@evoqarchitecture.com

Outline

1) Introduction

2) Description of existing building conditions
    - Construction history
    - Heritage values
    - Wall compositions
    - HVAC systems
    - Maintenance history

3) Mandate and team members
    - Defining the mandate and project objectives
    - Assembling the team

4) Methodology
    - Cursory survey of conditions and mapping of building occupancies
    - Theoretical modeling
    - Installation of in-situ monitoring
    - In-situ measurement of RH levels and air pressure differentials
    - Thermography

5) Results and analysis
    - Relationship between building occupancies and observed deterioration in wall faces
    - Effects of wind and sun on building faces
    - Moisture in wall cavities and masonry assemblies
    - The role of windows in managing temperature and moisture in the building

6) Recommendations
    - Addressing identified weaknesses in wall assemblies to be addressed through maintenance and repair campaigns
    - Parameters for new HVAC systems
    - Compartmentalization to better manage building pressure
    - Improvements to overall wall assembly and dealing with historic finishes