VIRTUAL CITIES

TRAINING

AUTODESK REVIT – INTRODUCTION TO HBIM

Beginners Workshop

Duration: 1 day (6-7 hours)
Audience: Heritage professionals, architects, and surveyors new to HBIM
Level: Beginners

Training Focus

This intensive one-day course introduces participants to Historic Building Information Modelling (HBIM) using Autodesk Revit. Participants will learn the fundamental concepts of HBIM, understand how it differs from traditional BIM, and gain hands-on experience creating parametric models of historic building elements.

Learning Objectives

By the end of this course, participants will be able to:

- Understand the principles and importance of HBIM in heritage conservation
- Navigate the Revit interface and utilise key HBIM-specific tools
- Model existing historic structures from survey data
- Document and annotate historic buildings appropriately
- Understand LOD (Level of Development) considerations for heritage assets

Course Schedule

Session 1: Introduction & Foundations (10:00 AM - 11:30 AM)

10.00 – 10.30 Welcome & Workshop Introduction

- Course objectives and structure
- Participant introductions and experience levels
- Overview of HBIM vs traditional BIM
- The role of HBIM in heritage conservation and documentation
- Key challenges in modelling historic structures

10.30 – 11.30 HBIM Fundamentals & Revit Interface

- Heritage-specific considerations (irregularities, materials, decay)
- Levels of Development (LOD) for historic buildings
- Introduction to Revit interface for HBIM applications
- Project setup and templates for historic buildings
- Units, levels, and grids in heritage contexts

Activities:

- Setting up a sample historic building project
- Creating custom project templates for HBIM work

Key Concepts:

- Data accuracy and tolerance in heritage documentation
- Information management for non-extant buildings

11.30 – 1.00 Modelling Historic Elements Part 1

- Understanding historic construction techniques
- Creating walls with irregular geometry
- Modelling traditional masonry and composite walls
- Wall modifications: openings, niches, reveals
- Working with non-standard dimensions
- Capturing material deterioration and patina

Hands-On Exercise:

- Model a section of historic masonry wall with irregular surfaces
- Create a traditional window opening with stone surrounds

Tools & Techniques:

- In-place families for unique elements
- Wall sweep and reveal tools
- Model-in-place components for irregular geometry
- Reference planes and adaptive components

LUNCH (1.00 – 1.30PM)

Session 2: HBIM Data Fields & Properties Management

1.30 – 3.30 Datasmith for Revit Deep Dive

- Understanding metadata in HBIM for heritage documentation
- Creating custom shared parameters for historic buildings
- Essential data fields for non-extant buildings:
    - Historical dates (construction, modification, demolition)
    - Archival references and source documentation
    - Material specifications and traditional techniques
    - Architectural style and period classifications
    - Historical ownership and use
    - Condition at various time periods
    - Evidence quality and certainty levels
- Project parameters vs. shared parameters
- Organising parameter groups for heritage data
- Creating type vs. instance parameters
- Data standards and consistency

Hands-On Exercise:

- Create a shared parameters file for HBIM projects
- Add custom parameters to wall, window, and door families:
    - Construction date
    - Demolition date

    - Source documentation (archival reference)
    - Material origin (local/imported)
    - Craftsperson/builder (if known)
    - Evidence confidence level (confirmed/probable/speculative)
    - Historical notes field
- Populate parameters with sample historical data
- Create a schedule showing all heritage metadata

Best Practices:

- Establishing naming conventions for parameters
- Using yes/no parameters for presence/absence of features
- Text parameters for descriptive historical information
- Dropdown lists for standardised classifications
- Managing uncertainty in historical records
- Cross-referencing with archival sources

Tools Covered:

- Shared Parameters dialogue
- Project Parameters settings
- Family parameter management
- Schedule creation with custom fields
- Parameter formulas for calculated values

3.30 – 4.50 Documentation & Annotation for Heritage Projects

- Creating sheets and views for heritage documentation
- Annotation standards for historic buildings
- Phasing for existing conditions and interventions
- Creating schedules for historic materials and elements
- Colour-coding systems for construction periods
- Condition assessment documentation
- Generating reports from HBIM models

Hands-On Exercise:

- Set up project phases (existing, demolished, new construction)
- Create an annotated elevation showing historic details
- Generate a schedule of historic windows with condition notes
- Apply graphic overrides to distinguish construction periods

Deliverables Discussion:

- HBIM outputs for conservation plans
- Reports for heritage authorities
- Models for heritage interpretation and VR

4.50 – 5.00 Wrap-Up & Q&A

- Open discussion and problem-solving
- Resources for continued learning
- Community and support channels
- Course evaluation and feedback