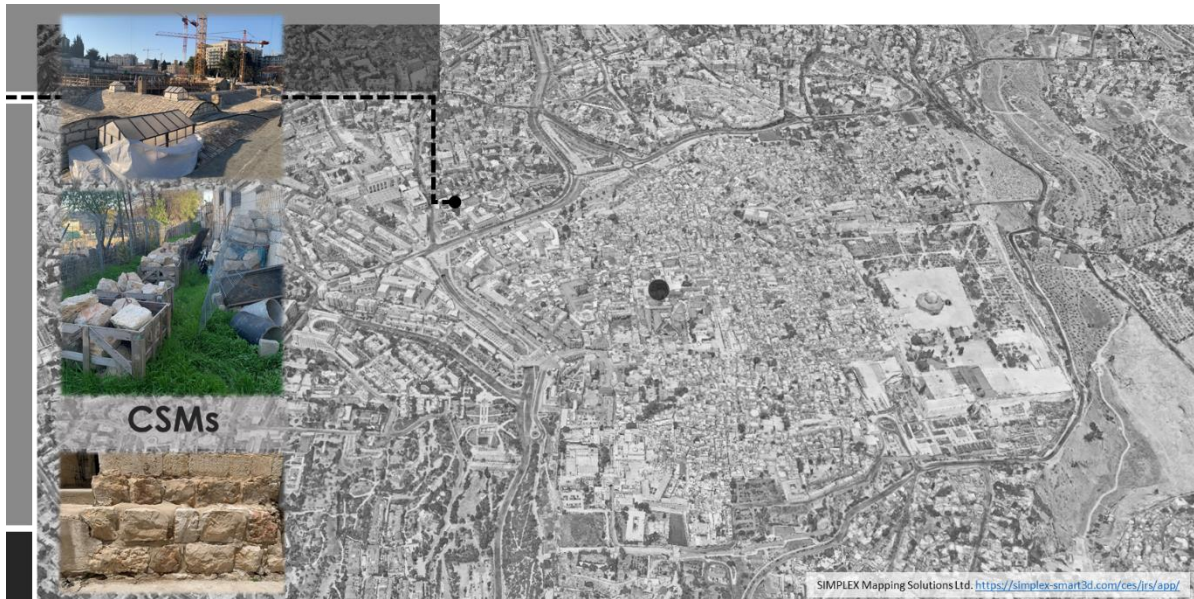


CSMs | City Scape Materials and Materiality

Redefining urban heritage materiality: a conceptual study of Jerusalem



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RESEARCH OBJECTIVES

Understanding the relative role of **materials** and **materiality** in the notion of historic urban areas (HUA) and urban life identity, and impact of new materials and contemporary intervention on the continuity of **urban heritage**. Capturing the balance between conceptualization and practicality.

SPECIFIC

- Specifying the role of materials and materiality as components in HUA definition and as contributing attributes
- Proposing cultural and material characterization for 'Jerusalem stone'
- Accumulation of *good practice* examples of contemporary interventions and new materials uses in Jerusalem as compared to Rome
- Examination of the impact of new materials use in HUA on tangible and intangible perception of a CityScape - Jerusalem case study
- Promoting the significance of materials use and materiality essence in planning consideration and education training

The research will be conducted with [EDICULA](#) (Educational Digital Innovative CULTural heritage related Learning Alliance) project. The European Union's Erasmus+

STATE OF THE ART

Historic urban areas represent urban heritage continuity. Buildings, structures, public spaces, setting and context are their finest features [1]. **Materials** are their building blocks, interlacing nature, culture, and *spirit of place*. **Materiality** supports them all. Familiarity with materials provenance, characteristics and impact on **tangible** and **intangible CityScape** perception, is invaluable in urban renewal processes.

Historic Urban Areas & Landscape (HUA&HUL); Materials & Materiality are this research cornerstones. Conceptual occupation will lead moving from theory to practice to theory, using Jerusalem as a case study and Rome for comparison, exploring materials perception and importance in HUA.

Treatment of original **materials**, respect for existing fabric and minimal loss are among conservation fundamental principles [2]. Although materials are conceived as past cultures evidence, it is stressed that in parallel to ensure minimal intervention "modern techniques and materials may be used in restoration work" distinguishing them from original artifact and structure [3]. Macro wise, materials significance is represented by the urban fabric integrity and authenticity, and as cultural significance contributors [4]. **Materiality**, obligatory for architectural work, is conceived as secondary to ideas, creativity, and design [5]. Recently it is gaining new perspective with virtual and digital materials use. Yet, whereas both are present in architecture discourse, their magnitude in urban design and intervening in HUA is somewhat lacking.

Cut from city vicinity quarries – **Jerusalem stone** – the most common – construction material became a trademark. Whether it was the British Mandate ordinance, prohibiting 'inappropriate' materials use and resulting in stone building; it is still embedded in planning schemes, building

permits and ordinances. Backed by studies presenting a three phase metamorphosis: *Material – Cultural – and Administrative stone* [6] recent trends are calling to re-examine cladding stone use in contemporary construction [7,8].

Questions of conservation: structures' materiality compatibility, architectural authenticity, and HUL integrity are gaining relevancy. Whereas in the past familiarity with environment and natural resources, hydrological, geological, and geomorphological were keys for urban and culture prosperity, explicitly presented by Rome [9], they also insure CityScape compatibility to its landscape. Today I argue, new interventions' compatibility is examined mostly by suitability to built environment - historic or contemporary. All reinforce the need of multidisciplinary discourse among environmental sciences, architecture, engineering, urban design and planning policy.

With the 2011 UNESCO HUL Recommendation 10th anniversary, contemporary layers in urban context are conceived as THE urban heritage of tomorrow. Implementation tools development - educational and practical - are timely [10].

FUTURE IMPLICATIONS

Planning wise: learning from Jerusalem and Rome along with HUL approach, will enable drafting recommendations on new materials applicability in HUA. As part of developing planning guidelines for integrated conservation in urban regeneration processes in Israel.

Educational wise: insights from the field work and the Hand-on workshop, with EDICULA project's Joint MA degree in conservation initiative, will support developing educational modules on materials and materiality in HUA.

REFERENCES

- [1] ICOMOS Nairobi (1976). *Recommendation concerning the Safeguarding and Contemporary Role of Historic Areas*
- [2] ICOMOS Zimbabwe (2003). *Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage*
- [3] The Second International Congress of Architects and Technicians of Historic Monuments (1964). *The Venice Charter*
- [4] ICOMOS Australia (2013). *Charter for Places of Cultural Significance (Burra Charter)*
- [5] Janson, A., & Tigges, F. (2014). *Fundamental concepts of architecture: The vocabulary of spatial situations*. p. 189-192
- [6] Shalom, O. et al. (2020). *Under Cover – on the question of stone in Jerusalem*
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- [8] Weiss, I. (2016). *Jerusalem of plaster*. Street Language Urban Magazine
- [9] Heiken, G., Funicello, R., & Rita, D. (2013). *The Seven Hills of Rome: A Geological Tour of the Eternal City*. Princeton: Princeton University Press. p. ix-xiii
- [10] WHC (2019). *The UNESCO Recommendation on HUL, Report of the Second Consultation on its Implementation by Member States*

WORK PLAN

Four stages with specific tasks composed the proposed work, presented with their description, methodology and expected results:

Stage 1 | Literature research (months 1-6)

Theoretical and physical foundation of the research

Task 1: Architectural and theoretical background

- Understanding materials, materiality, and their role in historic areas' definitions.
- Standard setting documents in conservation i.e. conventions, recommendations, charters, and policy papers will be examined to understand and define the relative part and significance of materials and materiality as historic areas' components, characteristics and attributes.
- Review of the topic and its development in conservation discourse.

Task 2: Geological and scientific background

- Focuses on mineralogical and petrographic studies and GIS tools to develop the field investigation's methodological format.
- According to the future field work assignments and data types to be collected: 1) developing a uniform format of data sheet; 2) composing a list of necessary and accessible information sources.
- A well structure framework for stage 2.

Stage 2 | Field Investigation (months 7-24)

Gathering data and information to be used in answering the research specific objectives.

Task 1: The 'Jerusalem stone' cultural and material definition

- Focusing on the 'Jerusalem stone', sub-task #1 will explore the development of stone use in Jerusalem since the late Othman period. Sub-task #2 will explore materials' provenance and characterization.
- Study of stones' provenance using geological maps and archeological surveys reports of Jerusalem vicinity. Analyzing stones' samples by i.e. Optical Microscopy, X-Ray Powder Diffraction, Scanning Electron Microscopy with Energy Dispersive Spectroscopy, Electron Microprobe. Mineralogical petrographic and chemical composition of limestone and dolomite, used in Jerusalem, will be compared to define their types, characteristics, uses and preservation condition.
- 1) A periodical outline of stone use in Jerusalem; 2) Graphic representation of city areas according to building material use.

Task 2: CityScape materiality

- Whereas task 1 focused on the micro scale, this task concentrates on the macro scale. It intends to explore the CityScape materiality.
- Mapping areas of non-stone buildings and new interventions by using existing mapping of the city's built areas, with the municipal GIS system ([Simplex](#)) and a targeted field survey. Examining selected street views by criteria set and attributes that are measurable by GIS tools i.e. ariel views superposed with maps, orthophoto,

diagonal views, and observable and hidden areas. Defining urban characteristics and qualities and identify *good practice* examples of new interventions. Using the research uniform format to gather information. Offering a comparative analyzes with examples from Rome and its CityScape.

- 1) A superposition mapping of built area's development with non-stone buildings areas and large-scale new interventions; 2) A graphic representation of analyzed street views; 3) *good practice* examples inventory (Jerusalem & Rome); 4) Questions for the stage 3.

MILESTONE 1

Month 24. Presentation of the field investigation's findings, conclusions, and summary along with proposed questionnaire for the research third stage.

Stage 3 | Aspects of perception (months 25-28)

Exploring tangible and intangible perception of material and materiality

Task 1: Planning perception

- Examining various aspects of planning perception on how materials and materiality are being assimilated and emphasized in planning guidelines and regulation.
- Analyzing planning schemes and master plans for historic areas and new neighborhoods for a compression since the British governance (1917). Collecting examples of guidelines and manuals for both stone and new materials use during various periods. Comparative examinations of planning scheme from Rome will be conducted considering linguistic limitation.
- Detailed summary of the finding presented in accordance to periods of governance, geographical areas, HUL, and environmental and heritage sensitivity.

Task 2: Sense of place perception

- Exploring materiality and materials significant in intangible perception of the cityscape, and their contribution to the sense of urban identity among professionals.
- Compiling and distributing questionnaire on materials and materiality in Jerusalem, conducting personal interviews to professionals in Israel and Rome.
- Analyzing responses to be used in the thesis discussion and deliverables plan.

MILESTONE 2

Month 28. Presentation of aspects of the conceptual perception, planning approaches and norms of materials uses in Jerusalem.

Stage 4 | Multidisciplinary integration (months 29-36)

Thesis writing

DISSEMINATION OF RESULTS

- Oral presentation & paper: [2nd International Conference TMM-CH](#); 12-15 Dec. 2021; Athens Greece
- [EDICULA](#) Project Workshop: The Holy Sepulchre Hands-on Experience, Bezalel and the Israel Antiquities Authority; Mar. 2021; Jerusalem

- Oral presentation & paper: [6th Conference for the Conservation of Cultural Heritage in Israel](#); Oct. 2023; Western Galilee College; Israel
- Professionals panel discussion at Bezalel Urban Design Master's Program colloquium

TRAINING ACTIVITIES

- Institutional courses i.e.: How to make a good presentation, write research proposal and scientific article; Introduction to Excel; GIS applications; Diagnostica applicata: progetto di valutazione e tutela di un bene culturale.
- ICCROM online [Training on Impact Assessments for World Heritage](#); Nov. 1st, 2021

MOBILITY ABROAD

- Bezalel Urban Design Master's Program & Department of Architecture
- National Technical University of Athens

GANTT CHART

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