
SEMINAR

Resilience of Dutch Masonry Structures: buildings and infrastructure

Contribution of the group of Structural Mechanics, 3MD

Friday 30 October 2026 — TU Delft (Aula, Frans van Hasseltzaal)

Programme

On the occasion of the farewell of prof. dr. ir. Jan G. Rots, this seminar brings together colleagues and collaborators from academia and practice to examine the resilience of Dutch masonry structures: the demands placed upon buildings and infrastructure by the subsurface and a changing climate; demands such as induced seismicity, subsidence, settlement, and ageing, and the research devoted to characterising, assessing and modelling their response.

The programme is set up in four parts: from Delft research to engineering practice, the demands on Dutch masonry today and in the decades ahead, the characterisation and modelling of the response, and a closing lunch with posters and networking.

Each talk comprises a 15-minute on-topic presentation followed by 10 minutes for reminiscing, questions and discussion.

09:00–09:20 Walk-in (coffee available)

09:20–09:30 **Opening by
Henk Jonkers**

Head of the Department of Materials, Mechanics, Management and Design (3MD)
Faculty of Civil Engineering and Geosciences

Part I — From Delft research to engineering practice

Moderator: Rita Esposito

09:30–09:55 **Paulo Lourenço** University of Minho

Computational masonry mechanics: from Delft early models to worldwide practice

How the computational strategies for masonry structures developed in Delft in the 1990s (micro-modelling, homogenisation and macro-modelling) have been applied, over three decades, to the assessment and conservation of existing masonry buildings and infrastructure worldwide.

09:55–10:20 **Holger Netzel** CRUX Engineering

Building response due to ground movements: settlement risk management from research to engineering practice

Two decades of settlement risk management in geotechnical practice.

10:20–10:30 *Coffee break I*

Part II — Demands on Dutch masonry structures, today and in the decades ahead

Moderator: Francesco Messali

10:30–10:55 **Jan van Elk** NAM

Induced seismicity and subsidence in Groningen: hazard, risk and lessons for future use of the Dutch subsurface

The seismological and risk models developed for the Groningen gas field, decision-making based on damage and safety predictions, and the lessons this programme offers for future subsurface activities such as geothermal energy and storage.

- 10:55–11:20** **Mandy Korff** Deltares & TU Delft
Foundations and quay walls in soft soil: settlement, groundwater and climate as growing demands on Dutch masonry
(Timber) foundations and urban quay walls subjected to ongoing settlement and to changing groundwater levels in a changing climate – with attention to monitoring, the observational method and forensic geotechnics.
- 11:20–11:30** *Coffee break II*

Part III – Characterising and modelling the response: research at TU Delft

Moderator: *Jan Rots*

- 11:30–11:40** **Jan Rots** TU Delft
Bridge: from the demands to the response
A short presentation and reflection, connecting the demands on structures to the response of the group.
- 11:40–12:05** **Francesco Messali** TU Delft
Assessment of existing masonry structures: from Groningen houses to Amsterdam quay walls
How can high-fidelity numerical simulations inform large-scale safety assessments? From constitutive modelling to regional-scale assessment through a tiered framework of experimentally validated models.
- 12:05–12:30** **Paul Korswagen** TU Delft
From hairline cracks to fragility curves: light damage to Dutch masonry housing under settlements, earthquakes and temperature
When does masonry begin to crack, and how can this be predicted? Combining experiments and models to quantify light damage and the fragility of the Dutch housing stock subjected to (differential) settlements, induced earthquakes and temperature variations.
- 12:30–12:55** **Rita Esposito** TU Delft
Characterising masonry mechanics: relevance, challenges and opportunities
With today's extensive use of advanced modelling strategies for structural response prediction, there is a need to improve our knowledge of masonry mechanics. What do we know, and what can we improve?

Part IV – Posters, lunch & closure

Moderator: *Paul Korswagen*

- 12:55–13:05** **Introduction of the posters** Group of Structural Mechanics, 3MD

EDUCATION

Francesco Messali	Structural Mechanics in the BSc programme
Rita Esposito	Teaching computational modelling
Paul Korswagen	Bend & Break: masonry

RESEARCH

Rita Esposito	The masonry laboratory
Belen Gaggero	Self-healing masonry
Ziwei Dai	Modelling masonry with Total-SLA
Michele Longo	Modelling multi-hazards on masonry buildings and infrastructure
Abridhi Khadka	Meso- vs macro-scale modelling of masonry in flexure
Navid Vafa	Comparison of DIC vs fibre optic at the bed joint
Abide Aşıkoğlu	Compromises in model calibration
Amirhossein Ghezelbash	Dynamic out-of-plane behaviour of masonry buildings
Giovanna Cera	Cohesive-zone model of masonry under cyclic loading
Uday Jain	Characterising historic masonry from infrastructure
Yopi Oktiovan	Masonry Advanced Softening Contact Model

(Further posters to be added.)

13:05–13:50

Lunch & Networking

Lunch (provided) & display of posters and laboratory samples. Networking & discussion.

13:50–14:00

Closure of the seminar by Paul Korswagen TU Delft

15:00

Farewell lecture of prof. Jan Rots

(Aula auditorium, TU Delft; requires a separate registration)