



**BOKU**

Institute of Green  
Civil Engineering



## Bachelor Thesis

### Debonding of Solid Bricks

In-depth investigations into debonding methods for automation

Solid bricks have a long tradition as a building material and are widely used in both historical and modern buildings. Due to their high compressive strength and durability, they are generally suitable for reuse. Additionally, the high amount of primary energy used in production is a strong reason to retrieve this material when deconstruction or demolishing existing buildings. In first tests, a previous Bachelor's thesis investigated various methods for debonding brick samples made by three different typical historic and contemporary mortars.

Following up on the previous studies it needs to be further analyzed which debonding approach is most valuable to be used in practice. While the overarching goal is to utilize the method on our mobile robot, the method first needs to be tested individually. This work also sets the base for the development of an end effector for the robot system.

#### Research Focus:

- Evaluation of the previous research and selecting one or two approaches.
- Trials to debond small samples as well as whole walls with different masonry bonds.
- Comparison of test results and assessment for automation potential.

#### Expected Outcome:

- Quantitative results for debonding performance of the chosen method.
- Evaluation of the reusability of deconstructed solid bricks.
- Assessment of the best performing method and its potential for automation.
- Vision for automation incorporating the mobile robot system of the chosen method.

**Starting Date:** As soon as possible

#### Contact Persons:

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