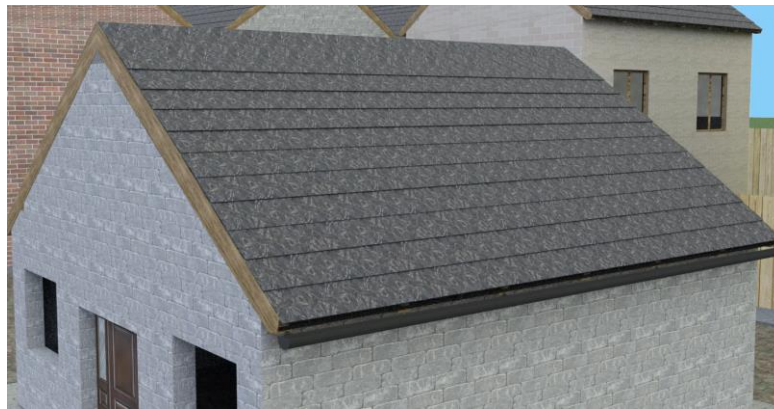


## TASK 02/A1

# IT PRODUCTION OF BIMstone MULTIMEDIA CARDS



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## BIMSTONE

BIM LEARNING APPLICATION FOCUSED ON LCA QUALIFICATION AND TECHNIFICATION OF  
WORKERS IN NATURAL STONE SECTOR

### INTELLECTUAL OUTPUT 2. BIMstone MULTIMEDIA MATERIALS. NEW INTERACTIVE BIM-LEARNING METHODS

#### TASK 02.1 IT production of BIMstone Multimedia Cards

##### Final version of the BIMstone Multimedia Cards

Channel of YouTube: BIMstone Project

<https://www.youtube.com/channel/UCwXerYlfmtNzy7Zxn0DaHfw/featured>

Playlists of BIMstone Project on YouTube

<https://www.youtube.com/channel/UCwXerYlfmtNzy7Zxn0DaHfw/videos>

##### Extra content

OER of the BIMstone web page

<https://www.bimstoneproject.eu/en-oer/>

Reports of the project

<https://www.bimstoneproject.eu/en-reports/>



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# 1. INTRODUCTION

In this task O2/A1 “*IT production of BIMstone Multimedia Cards*”, an ICT based tool has been produced including 10 Multimedia Cards based on stone product placing and BIM technology.

These 10 animations include sustainable construction methods and procedures used for the placement of the most used stone products in the construction sector.

The methods explained in the 3D animations are those selected in task O1/A2 “*Sustainable construction methods and procedures used for placing stone products*”.

All the placement methods treated in the BIMstone Multimedia Cards are systems that serve to extend the life of stone products, thereby achieving greater sustainability of these products. They have been designed and produced to support the implementation of BIMstone course and the OER (Open Educational Resource).

The BIMstone Multimedia Cards are available for free in the project website ([www.bimstoneproject.eu](http://www.bimstoneproject.eu)) as well as on the BIMstone project's YouTube channel ([www.youtube.com/channel/UCwXerYlfmtNzy7Zxn0DaHfw/featured](http://www.youtube.com/channel/UCwXerYlfmtNzy7Zxn0DaHfw/featured)).

All the multimedia material developed during the project is key for companies for the companies of stone and construction sectors. Graphic multimedia material clearly explains how to place the most common stone products in detailed sketches that has been used in companies of the consortium project countries to be shown to workers of the sector.

The content of the BIMstone Multimedia Cards has been developed by teachers and professionals from the consortium organisations, therefore, the didactic materials have an educational aspect from the pedagogical point of view, so that the contents included in these 3D animations are easier to assimilate by the main target groups of this project.

These target groups and end users of the project products are:

- Companies related to industry of stone products.
- Companies related to architecture, construction and heritage.
- Workers of industry of stone products and architects, building engineers, etc.
- VET institutions giving courses in sector of stone products.
- Universities giving courses in sector of stone products.
- Any type of organisation giving courses in architecture, construction and heritage.

All the information is available about the animations and more technical documentation in the following url:

- BIMstone project web: [www.bimstoneproject.eu](http://www.bimstoneproject.eu)



In the sections:

- Channel of YouTube: BIMstone Project:

<https://www.youtube.com/channel/UCwXerYlfmtNzy7Zxn0DaHfw/featured>

- Playlists of BIMstone Project on YouTube:

<https://www.youtube.com/channel/UCwXerYlfmtNzy7Zxn0DaHfw/videos>

- OER of the BIMstone web page:

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- Reports of the project:

<https://www.bimstoneproject.eu/en-reports/>

## 2. PRESENTATION FINAL VERSIONS OF 3D ANIMATIONS OF BIMstone PROJECT

### ANIMATION 01. Ventilated slate roofs

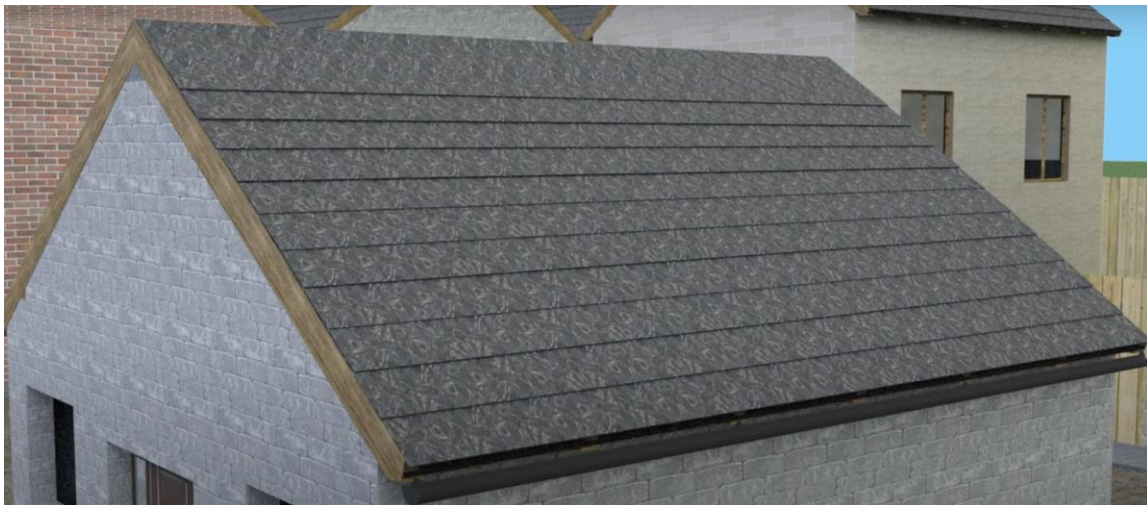
1<sup>st</sup> 3D Animation of BIMstone Project. This animation describes the construction process of a slate inclined roof.

<https://youtu.be/f-6kltG6Zuw>

Slates for roof coverings are available in various forms, such as scale or rectangular formats. The standard roof inclinations of the rafters and the slip-ons on the eaves depend on the different types of covering.

The most special feature of natural stone is its versatility which makes every surface, be it a façade, roof or floor, unique and offers architects and builders countless design options. In addition, the natural stone is one of the most sustainable construction materials because of its ecological properties. Apart from the small energy expenditure required to extraction of this material, it can be easily disposed of and recycled since natural stone does not contain any major pollutants.

For more information about the procedure described in this animation, you can find the technical documentation in the OER (Open Educational Resource) of the BIMstone project in English, German, Spanish, Croatian and Romanian: <http://www.bimstoneproject.eu/en-oer/>



Source: BIMSTONE project website.

## ANIMATION 02. Marble or granite inclined roofs construction process

2<sup>nd</sup> 3D Animation of BIMStone Project. This animation describes the construction process of a marble or granite inclined roof.

<https://youtu.be/pQHL5ak0uHw>

This construction system allows a perfect lead and flatness of the outer leaf of the façade to be achieved, regardless of the geometric deviations of the structure, as well as homogeneity in the tonality of the cloth of the façade.

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Source: BIMSTONE project website.

## ANIMATION 03. Ventilated facades construction process

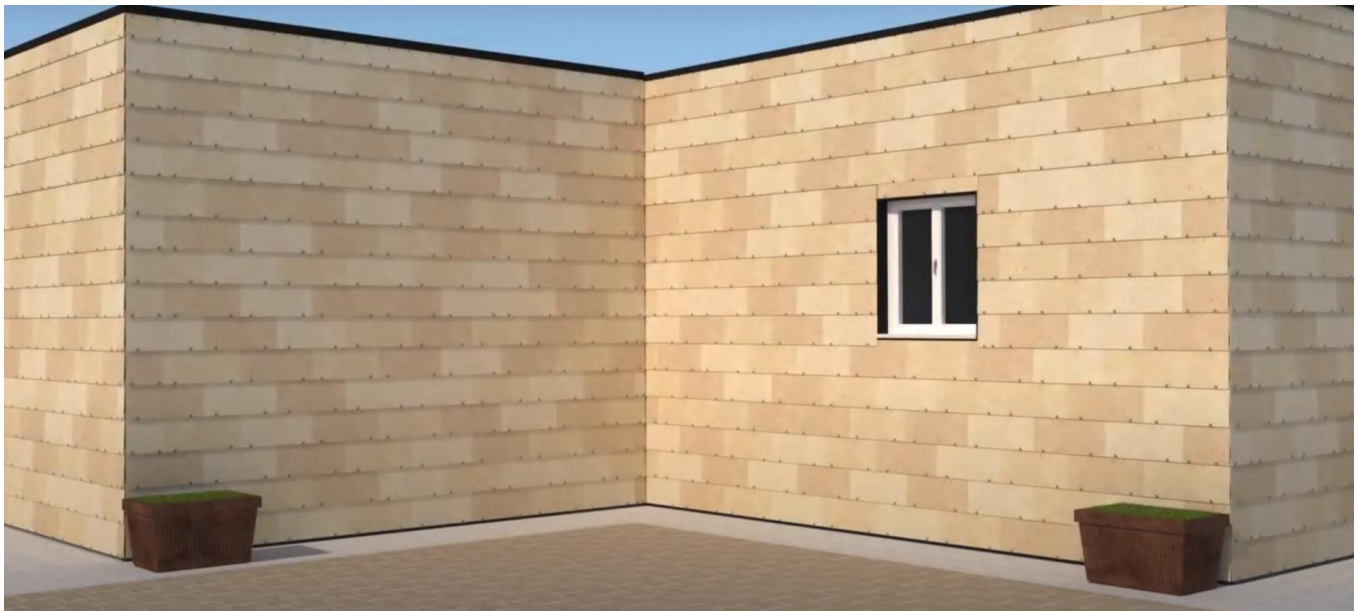
3<sup>rd</sup> 3D Animation of BIMstone Project. This animation describes the construction process of a ventilated façade with natural stone slabs.

<https://youtu.be/dF2IPxRojLU>

The natural stone ventilated façades have multiple technical and aesthetic advantages as, thermal insulator, non-flammable material, mitigator of the “heat island” effect, durability and improve well-being.

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Source: *BIMSTONE project website.*



## ANIMATION 04. Floating floor construction process

4<sup>th</sup> 3D Animation of BIMstone Project. This animation describes the construction process of a technical or floating floor with natural stone slabs.

<https://youtu.be/j8KwXRCuCJY>

The technical or floating floor consists of an elevated load-bearing structure on which the slabs will be installed, leaving a free space between the support and the passable slabs, in this particular case, natural stone slabs.

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For more information about the procedure described in this animation, you can find the technical documentation in the OER (Open Educational Resource) of the BIMstone project in English, German, Spanish, Croatian and Romanian: <http://www.bimstoneproject.eu/en-oer/>



Source: BIMSTONE project website.

## ANIMATION 05. Placing without mortar (exterior flooring)

5<sup>th</sup> 3D Animation of BIMstone Project. This animation describes the construction process of an exterior pavement placed without mortar.

<https://youtu.be/hcDL3GnJvL8>

The system of big format natural stone floor realization without mortar, starts from some premises that constitute determinant advantages from a sustainable point of view. These include:

- The reversibility of the system, by the fact that no mortar is used.
- The possibility to easily recover and reuse the component layers, especially the finished layer of natural stone.
- The permeability to precipitations of the system including water evaporation, ensuring soil and groundwater of their natural qualities, thus following the natural cycle of water in nature.

The most special feature of natural stone is its versatility which makes every surface, be it a façade, roof or floor, unique and offers architects and builders countless design options. In addition, the natural stone is one of the most sustainable construction materials because of its ecological properties. Apart from the small energy expenditure required to extraction of this material, it can be easily disposed of and recycled since natural stone does not contain any major pollutants.

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Source: BIMSTONE project website.

## ANIMATION 06. Interior stone pavement without mortar (interior flooring)

6th 3D Animation of BIMStone Project. This animation describes the construction process of an interior pavement placed without mortar.

<https://youtu.be/y4CyG1UL2UM>

The Interior stone pavement without mortar consists of a natural stone slab on a thin layer of cork or PEHD foam (polyethylene high-density or HDPE (high-density polyethylene) and a perimeter neoprene gasket perimeter around the perimeter of the room to be laid with natural stone. This system is valid for surfaces where the product does not suffer great thermal expansion.

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For more information about the procedure described in this animation, you can find the technical documentation in the OER (Open Educational Resource) of the BIMStone project in English, German, Spanish, Croatian and Romanian: <http://www.bimstoneproject.eu/en-oer/>



Source: BIMSTONE project website.

## ANIMATION 07. Traditional roof. Croatian constructive method

7<sup>th</sup> 3D Animation of BIMstone Project. This animation describes a traditional construction process from Croatia of an inclined roof.

<https://youtu.be/sSGUY6g3EwM>

The construction process is based on the traditional Dalmatian roof construction methodology. Traditionally, the beams and battens are constructed from untreated cypress, spruce or casks of silk. Once cut, the stakes are only peeled and protected from insects by smoking, without any further treatment.

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Source: BIMSTONE project website.

## ANIMATION 08. Large-format ashlar façade

8<sup>th</sup> 3D Animation of BIMStone Project. This animation describes the construction process of a façade with **large-format ashlars of natural stone**.

<https://youtu.be/3vK9A8fvBAI>

Ashlar masonry are works executed with ashlars that are worked on their support or base faces, on their front faces or faces and on their joints or lateral faces, either vertically or plumb, or according to inclined planes, or according to various shapes, in different and successive operations of the stonemason's work. In this animation, the laying of large ashlars is explained.

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Source: BIMSTONE project website.

## ANIMATION 09. Pavers on sand bed

9<sup>th</sup> 3D Animation of BIMStone Project. This animation describes the construction process of a pavement of pavers on sand bed.

<https://youtu.be/buGFJTKXutM>

The stone paving is made up of a series of layers prior to the placement of the paving stones. And one of these layers is a sand bed on which the paving stone will rest. This sandy bed has several important functions.

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Source: BIMSTONE project website.

## ANIMATION 10. Renovation floor tiling

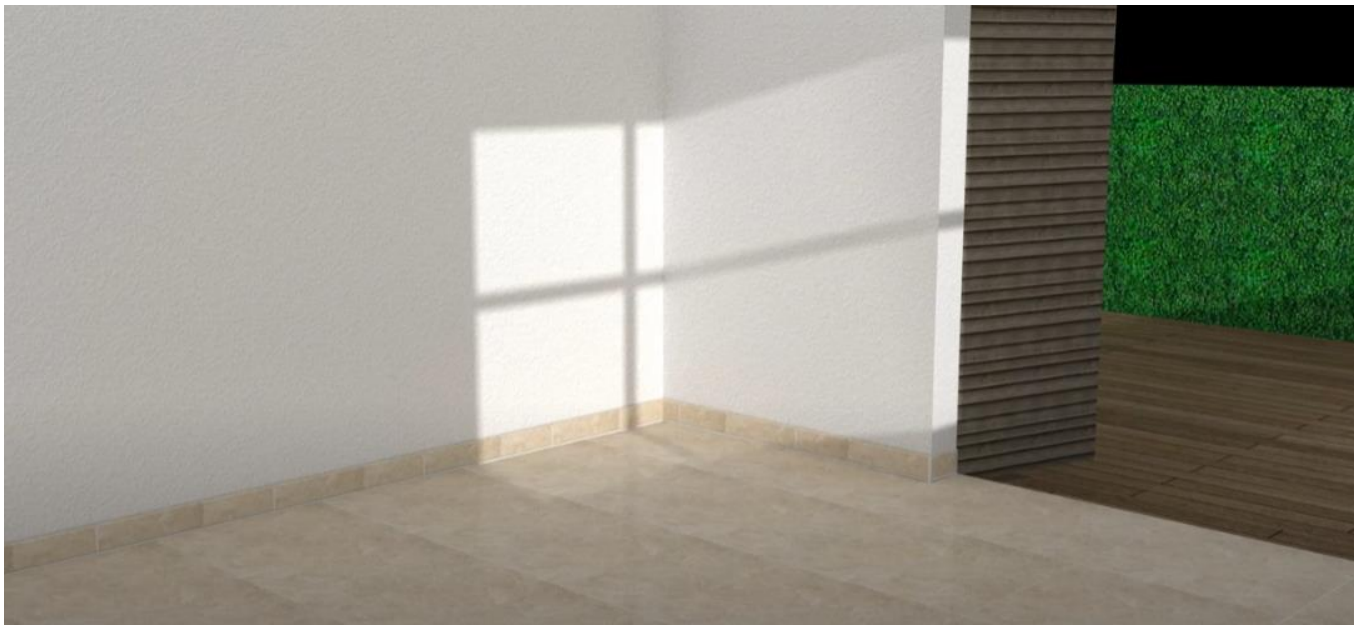
10th 3D Animation of BIMstone Project. This animation describes the construction process of an pavement over an existing previous pavement.

[https://youtu.be/Ak\\_Z4aXLBCI](https://youtu.be/Ak_Z4aXLBCI)

This option is the most ecological, cheapest and quickest to execute. It is not necessary to demolish the old paving, with all that this entails (longer construction time, noise, dust, removing all the material to landfill, etc.). In order to do this, it will be necessary that the old paving does not have problems of unevenness of any kind and defects.

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Source: BIMSTONE project website.

### 3. SUMMARY OF LINKS

ANIMATION 01. Ventilated slate roofs:

<https://youtu.be/f-6kltG6Zuw>

ANIMATION 02. Marble or granite inclined roofs construction process:

<https://youtu.be/pQHL5ak0uHw>

ANIMATION 03. Ventilated facades construction process:

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ANIMATION 04. Floating floor construction process:

<https://youtu.be/j8KwXRCuCJY>

ANIMATION 05. Placing without mortar (exterior flooring):

<https://youtu.be/hcDL3GnJvL8>

ANIMATION 06. Interior stone pavement without mortar (interior flooring):

<https://youtu.be/y4CyG1UL2UM>

ANIMATION 07. Traditional roof. Croatian constructive method:

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ANIMATION 08. Large-format ashlar façade:

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ANIMATION 09. Pavers on sand bed:

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