LWS - Light Weight Shutter

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LWS is a ventilated facade system specifically adapted for installation with rope access techniques, removing the need for scaffolding or auxiliary structures.

Developed within the European framework of sustainability programs, LWS system is the product of an investigation project carried out through a period of 3 years. This innovative investigation started when looking for alternatives to the more traditional techniques that currently exist in the market for multi-housing construction. The existing construction methods in Europe, and in Spain particularly, require a complex scaffolding structure. These structures add more time, noise, blocked windows… to the construction process. Once these problems were identified, the search for alternatives started.

After evaluating different options, the rope access industry offered the greatest advantages to the installation process. In this moment, a local rope access company from Spain was added to the research team and the development of LWS started.

Technology, prefabrication, and efficiency are the three fundamental pillars of this project, whose aim is to create a high-quality product resulting from a complex industrial development process.

LWS is a system with a high degree of prefabrication, which allows for an additional time reduction at the job site. Additionally, the mechanical assembly of the pieces provides a greater guarantee and durability to the façade system, reducing imperfections or installation errors.

The installation of the facade is one of the most revolutionary aspects of it. This process can be divided into five different steps:

Step 1: Attaching the vertical tracks to the structure of the existing building

The first step consists of installing the vertical tracks in a perfect vertical line. These should be fixed, preferably to the structural floors of each plant, providing a continuous cavity behind the ventilated facade.

Step 2: Installing the thermal insulation

Once the vertical aluminum tracks are placed the thermal insulation layer is installed. The insulation must be placed continuously, to avoid thermal bridges.

Step 3: Assembling the shutters into panels

The facade panels arrive at the site assembled in smaller sections. They are then joined together with an automatic seamer and they are then stacked.

Step 4: Raising the shutter panels along the tracks

The shutter panels are raised with the help of a worker at the street level. A system of triangulated pulleys located on the roof ensures the sliding of the panels safely. The tracks ensure the correct lifting of the facade.

Step 5: Attaching the shutter panels to the tracks

Once the panels are in place, they are mechanically attached to the tracks.

In 2015, the facade system was successfully installed in a multifamily housing block in Bilbao, Spain. The efficiency, fast installation of the facade, and aesthetics of the final product made the owners very satisfied with the result.

After installing the first system, some aspects of the system, like the gaskets, and tracks have been redesigned to be even more efficient. Since then, the interest in the system is growing in the area.

LWS

LIGHT WEIGHT SHUTTER

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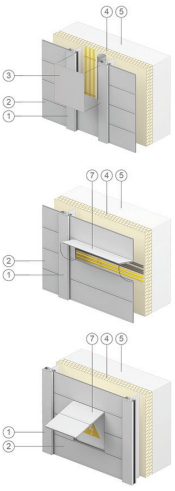
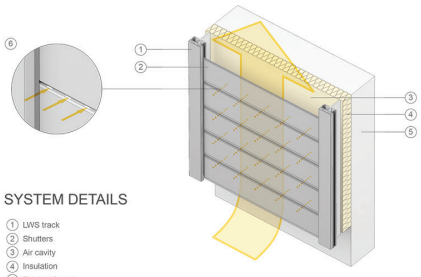
MAIN ADVANTAGES



SYSTEM DETAILS



1. LWS track
2. Shutters
3. Air cavity
4. Insulation
5. Existing facade
6. Microperforations
7. Operable shutter

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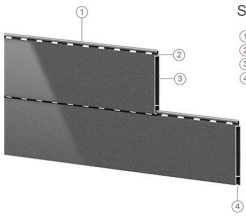
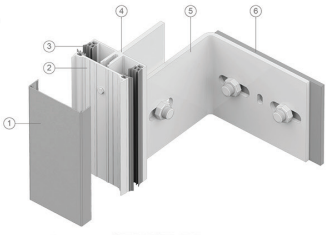
SHUTTER DETAIL



1. Casted profile
2. Hanger
3. Cavity
4. Shutter track



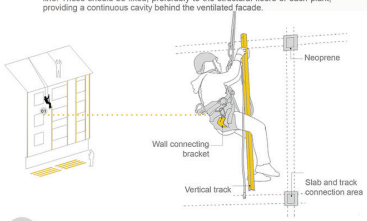
STRUCTURE CONNECTION DETAIL

1. Cover
2. Pressure cap
3. Rubber gasket
4. Vertical track
5. Bracket
6. Neoprene gasket

THE INSTALLATION PROCESS

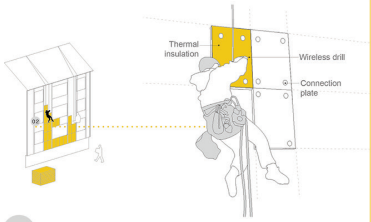
01 ATTACHING THE VERTICAL TRACKS TO THE EXITING BUILDING

The first step consists of installing the vertical tracks in a perfect vertical line. These should be fixed, preferably to the structural floors of each plant, providing a continuous cavity behind the ventilated facade.



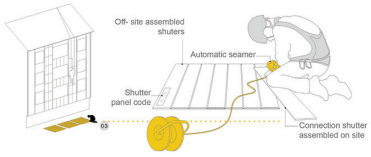
02 INSTALLING THE THERMAL INSULATION

Once the vertical aluminum tracks are placed the thermal insulation layer is installed. The insulation must be placed continuously, to avoid thermal bridges.



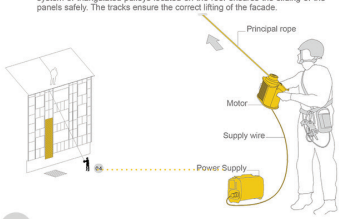
03 ASSEMBLING THE SHUTTERS INTO PANELS

The facade panels arrive at the site assembled in smaller sections. They are then joined together with an automatic seamer and they are then stacked.



04 RAISING THE SHUTTER PANELS ALONG THE TRACKS

The shutter panels are raised with the help of a worker at the street level. A system of triangulated pulleys located on the roof ensures the sliding of the panels safely. The tracks ensure the correct lifting of the facade.



05 ATTACHING THE SHUTTER PANELS TO THE TRACKS

Once the panels are in place, they are mechanically attached to the tracks.