

# FLEXSTREN

## Reinforced Block Walls



**A new system that greatly speeds up the block wall construction process. Also improves the load capacity and dynamic behavior even for strong winds and seismic loads, expanding the market for block manufacturers.**



## CURRENT MARKET SCENARIO for Block Walls 1/2

Traditional masonry block wall construction has been losing market share for quite a few years for many reasons:

- It is highly labor intensive
- It provides poor insulation
- It is very slow
- It is not a clean process

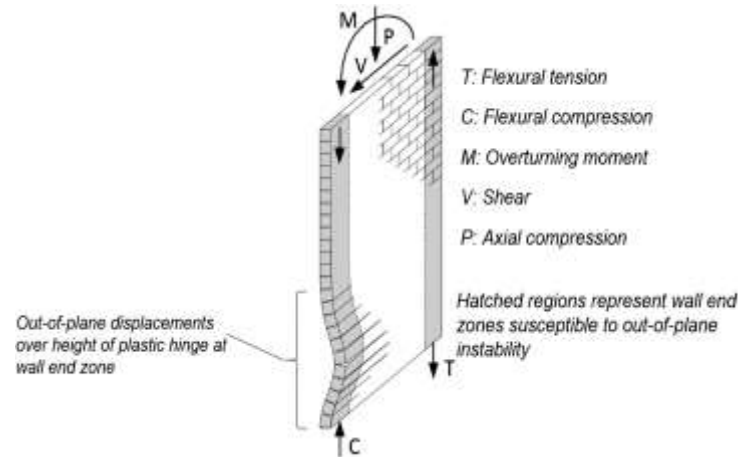
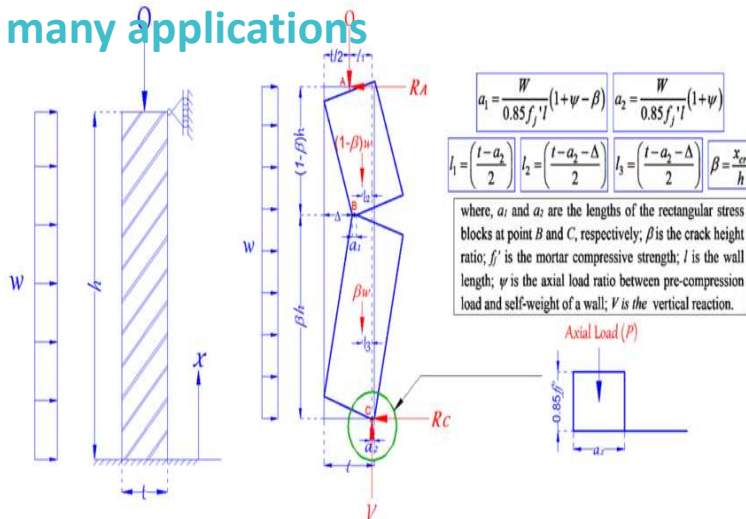






# CURRENT MARKET SCENARIO for Block Walls 2/2

Various attempts have been made to make the block wall technology more appealing to current construction needs, and the first attempt has been to glue the blocks instead of using mortar. Glues have significantly higher tensile and shear strength vs. concrete mortar but they do not provide any additional tensile or shear capacity to the walls, since the glue is only used for connecting the blocks that themselves have very minimal tensile and shear stress capacity. For this reason, glued block walls never took off and the market for concrete block walls has continued to erode in many applications



Now, thanks to the FLEXSTREN technology, glue blocks become feasible and very effective.



# FLEXSTREN

## Reinforced Block Walls Introduction

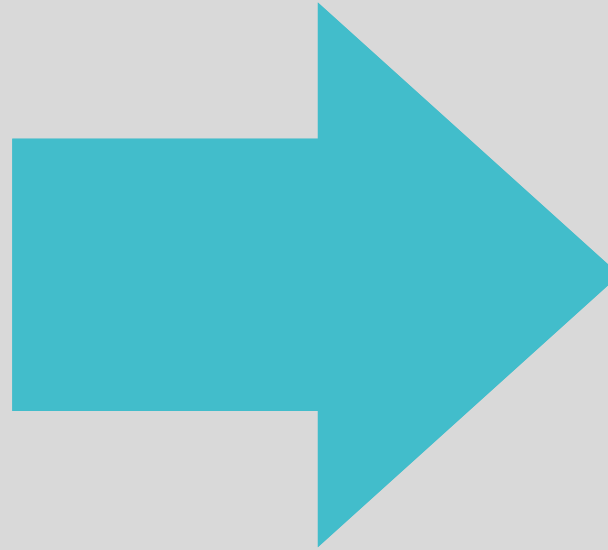
In the following pages you can find an introduction about the FLEXSTREN Technology for reinforced block walls:

- How each Block is reinforced
- The effect of wrapping
- The benefits of the system
- Flexural test
- Additional details on the whole system



# FLEXSTREN Reinforced Block Walls

## 1 – HOW EACH BLOCK IS REINFORCED



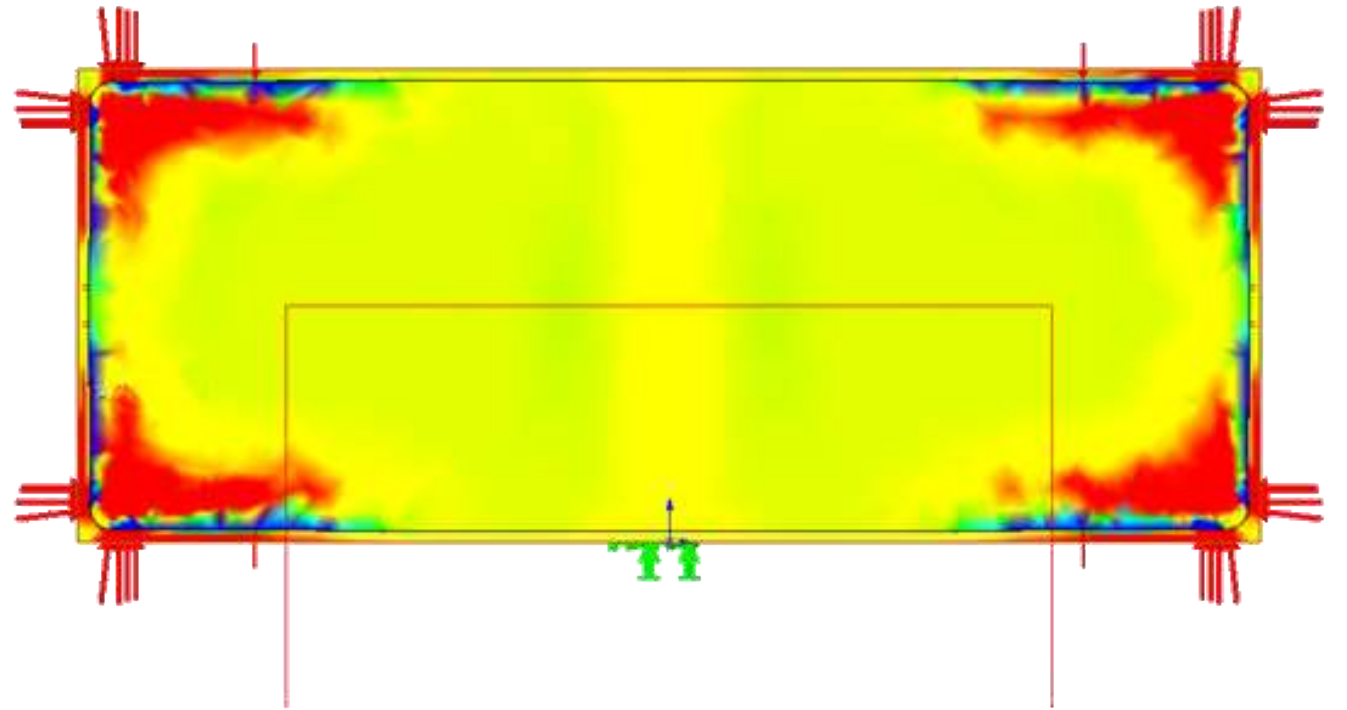
**A typical block with hollow cavities (picture on the left), is wrapped in tension with an impregnated fiber up to where the recess is filled (picture on the right)**



## FLEXSTREN Reinforced Block Walls

### 2 – THE EFFECT OF WRAPPING

The effect of wrapping as shown in the picture means that almost the entire block is placed in compression. This results in a significant improvement in a single block's flexural strength and direct tensile capacity, with a significant reduction in block cracks, even in case of soil movements etc.

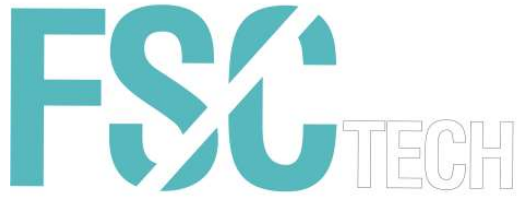


# FLEXSTREN Reinforced Block Walls

## 3 – HOW BLOCKS ARE CONNECTED

The blocks are glued together in the area where the tensioned wrapped composite is placed. This generate a very strong and predictable bond since the tensile stresses on this wall construction are almost entirely taken by the wrapped composite reinforcing, it does not rely on the concrete/glue adhesion as in the early attempts at using glued joints. Thanks to polyurethane or other resin-based glue, in 20 minutes the structure reaches 100% of the strength.





# FLEXSTREN Reinforced Block Walls

## 4 – BENEFITS

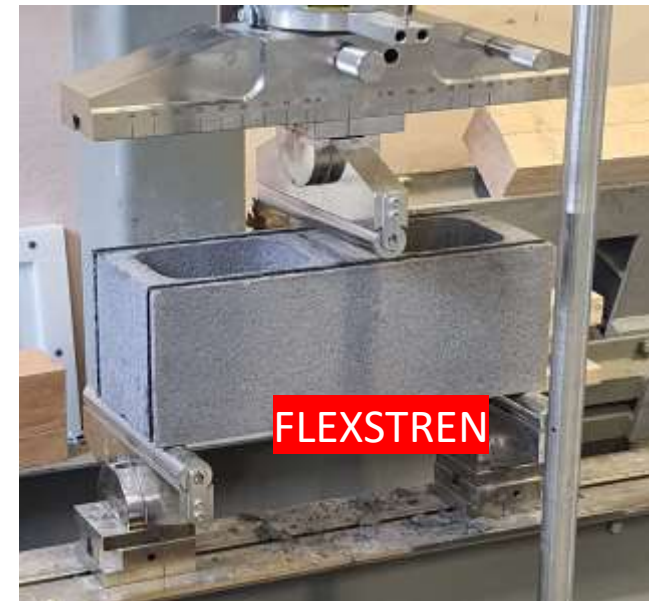
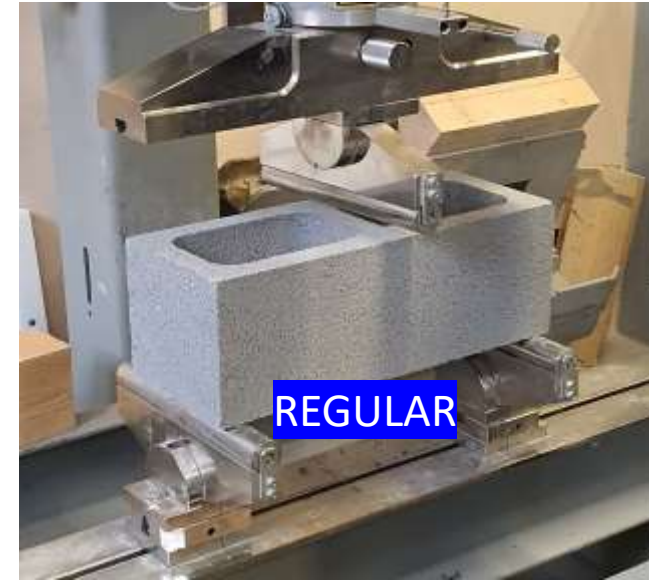
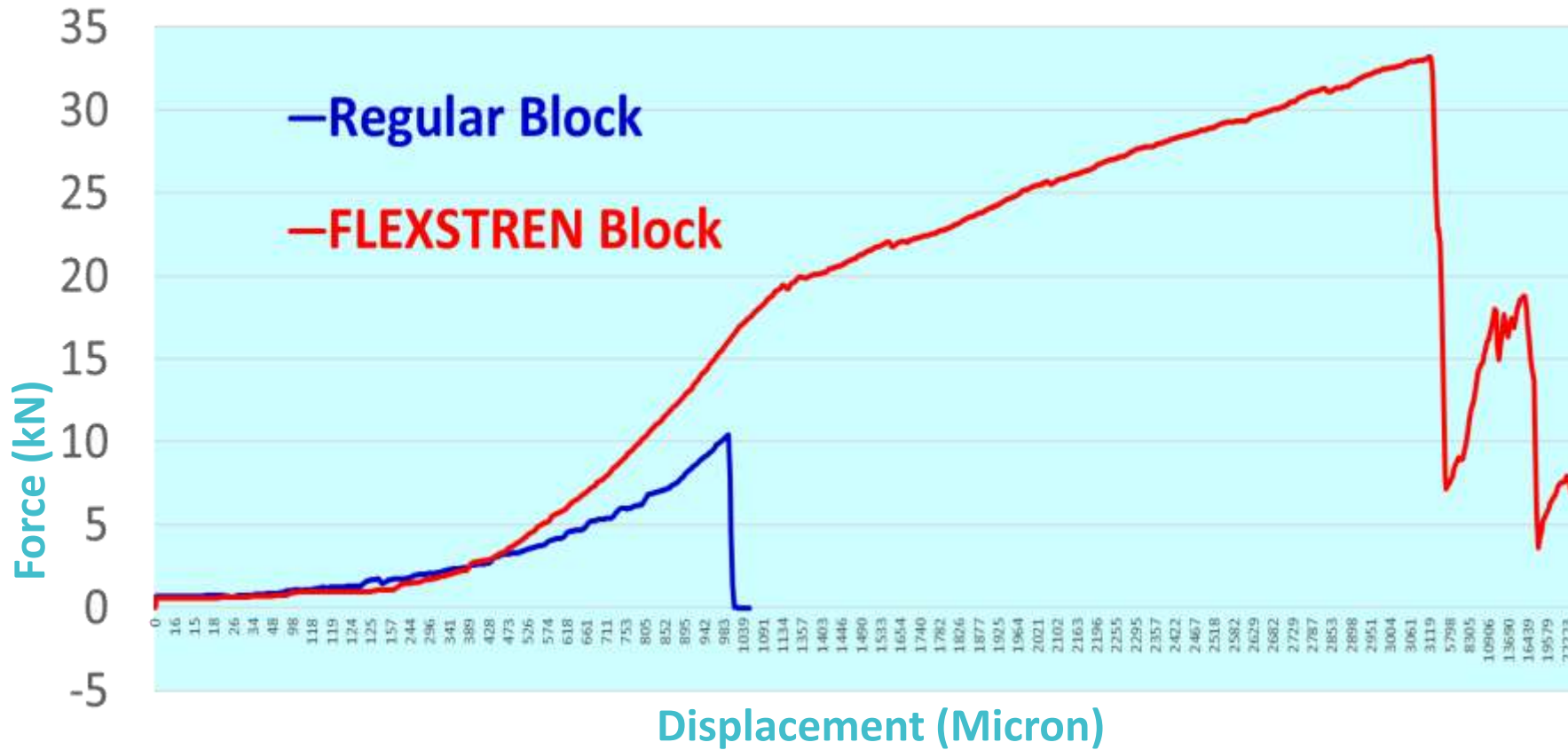
- Fast erection and cost savings (no more mortar, no concrete, no reinforcement, for a dry assembly system bringing a cleaner construction site).
- Structural behavior more ductile than traditional steel reinforced/concrete filled cores.
- Not subject to adverse effects of steel corrosion and leaves the internal cavity to be filled with insulation materials.
- Gluing resin produces a very fast building erection even in cold climates.
- Easy for areas with difficult access.
- Easier do-it-yourself installation.
- Applicable also for light weight blocks.





# FLEXSTREN Reinforced Block Walls

Flexural Test on Blocks  
190x190x490mm





# FLEXSTREN

Reinforced Block Walls  
Additional information

- Application with light weight blocks
- Integration with dry floor and roof systems
- Testing in University Laboratories



## Additional information

### 1 – APPLICATIONAL WITH LIGHT WEIGHT BLOCKS

The FLEXSTREN wrapping system can be applied also to light weight blocks (that have a lower thermal conductivity), insert an insulation material on the outside side.

The inner side of the cavity could be filled with PCM embedded granules creating a very well insulated wall with a significant thermal inertia in a relatively thin thickness.

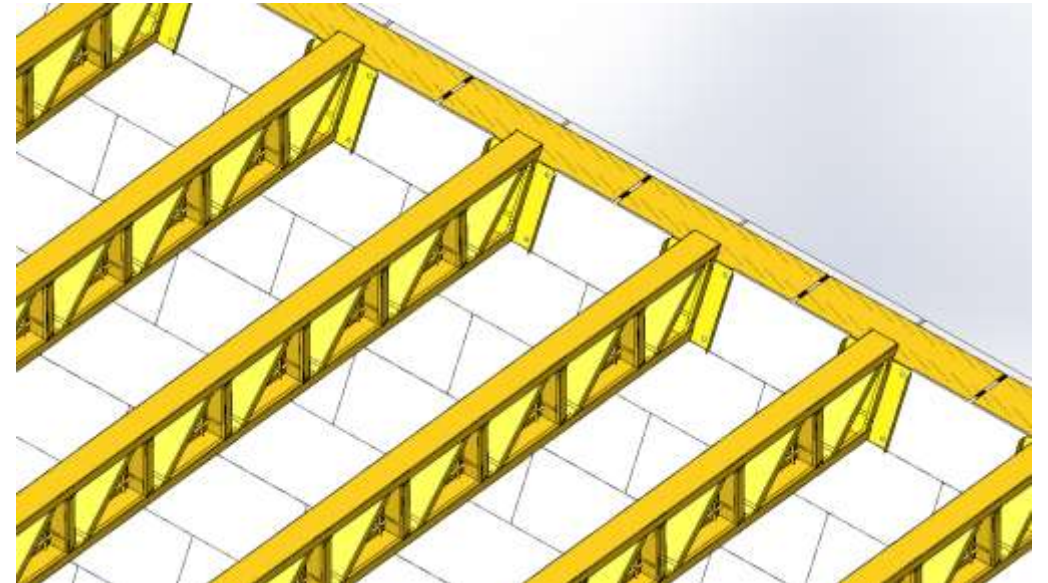
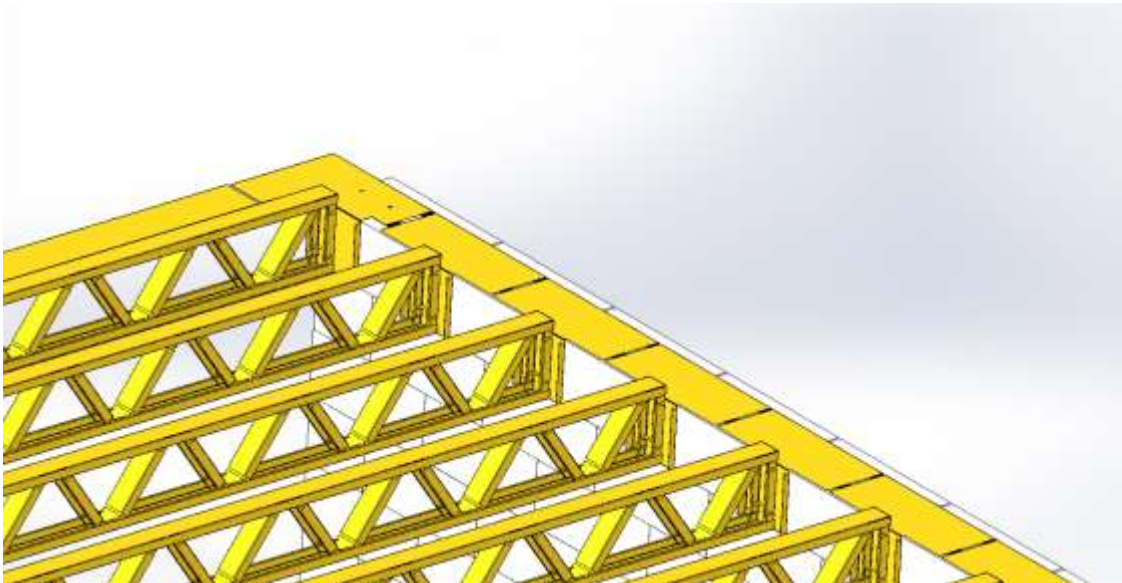




## Additional information

### 2 – INTREGRATION WITH DRY FLOOR AND ROOF SYSTEMS

This full dry assembly system for the walls integrates very well with dry floor and roof systems like thin gauge steel, CLT, and hollow-core slabs.



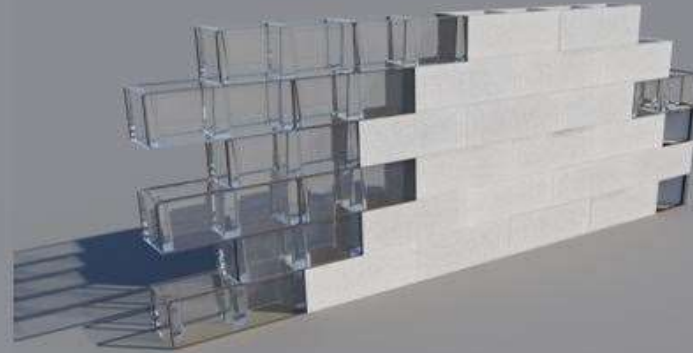
## Additional information

### 3 – TESTING IN UNIVERSITY LABORATORIES

We have done extensive testing in major Universities confirming the unique and ductile-like behavior that opens new ways on how to use blocks to create structures with performance not attainable from any other known system for blocks.



[info@fsc-tech.com](mailto:info@fsc-tech.com)



**FSC Technologies LLC – 500 WESTOVER DR. #91583 SANFORD, NC 27330 USA**  
**Branch Office Europe: via V. Veneto 52, 43046 Solignano PR, Italy**