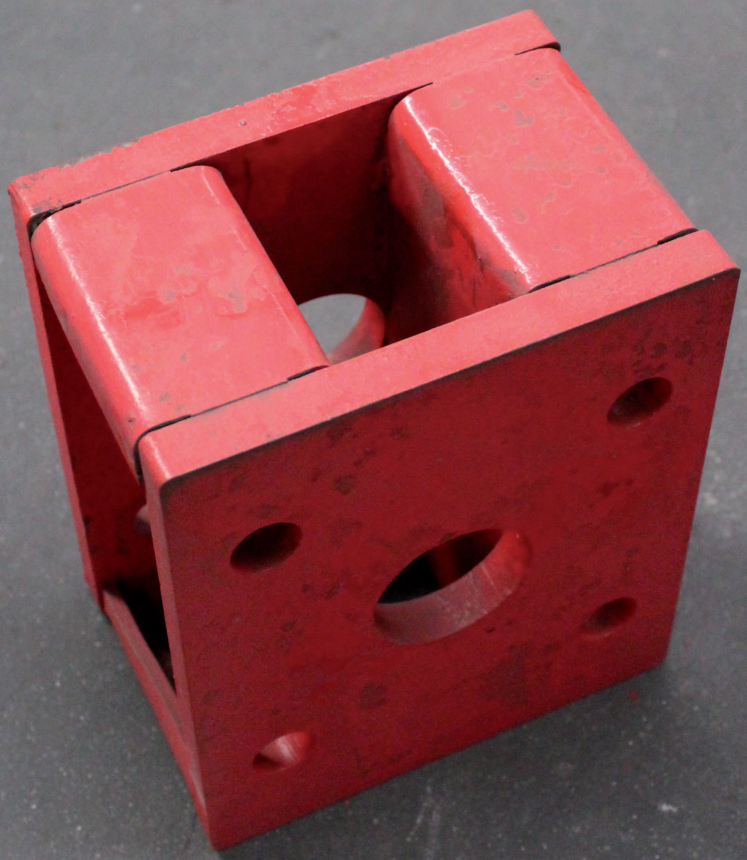
DIY shelter

TALLERDEDISEÑOFABRICACIONYMONTAJE

Workshop



Ie University 2012

Construction Systems III

Sistemas Constructivos III

DIY shelter

Do-it-yourself Shelter

Ie University. Segovia 2011/12

Workshop

Asignaturas

Construction Systems III
Sistemas Constructivos III

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Taller de diseño+fabricación+montaje

INDEX/INDICE

INTRODUCTION

This course aims to introduce the students to the theory and practice of component-based construction systems covering everything from the conceptualisation of the initial idea to the final product and understanding the materialisation of space and form, primarily from the point of view of the methods and processes that underlie its making.
Existing and commercialised component-based systems were studied and critically reviewed under the new possibilities that new advanced design and fabrication processes present to the building industry.

The workshop was focused on the design, manufacturing and assembly of a 1:1 scale small architectural prototype. For this purpose, several manufacturers collaborated and donated some materials and construction systems which were used to design and build a real mock up. This implied a deep understanding and debate of issues such as the study of materials and components, modulation, fabrication, solution of joints and seams, transportation, assembly, performance and disassembly.

THEME

PROTOTYPE OF A SHELTER.

SPONSORSHIPS
BASE BUILDING (STRUCTURE)
SCAFFOLDING SYSTEM (REHASA)
MODULES TO BE ASSEMBLED IN SITU

INFO: catalogue, pictures, dwg
http://www.rehasa.es/rehasa/

OUT-FIT
PLASTERBOARD PANELS
(PLADUR, GRUPO URALITA)

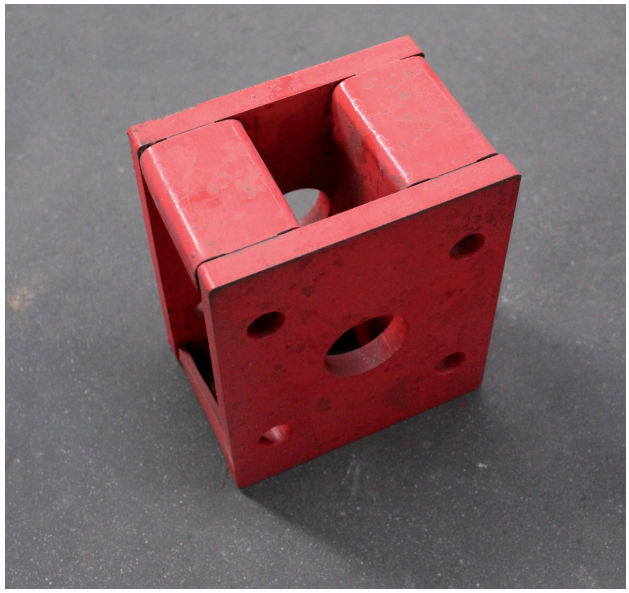
ELEMENTS

1 PALLET OF PLASTERBOARDS,
15mm thick. 48 boards of 1,200 x 2,500 mm. (100 M2)

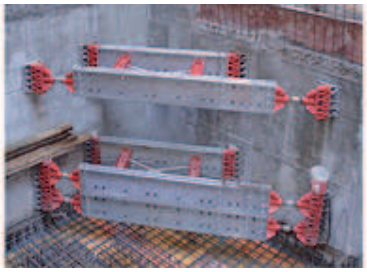
Galvanized steel profiles
Studs (46 mm) 525 units /2,500 mm
U-Channels (48 mm) 142 units/ 3,000 mm
Screws.
+ info
http://www.pladur.com/en-us/Pages/default.aspx

+ Material

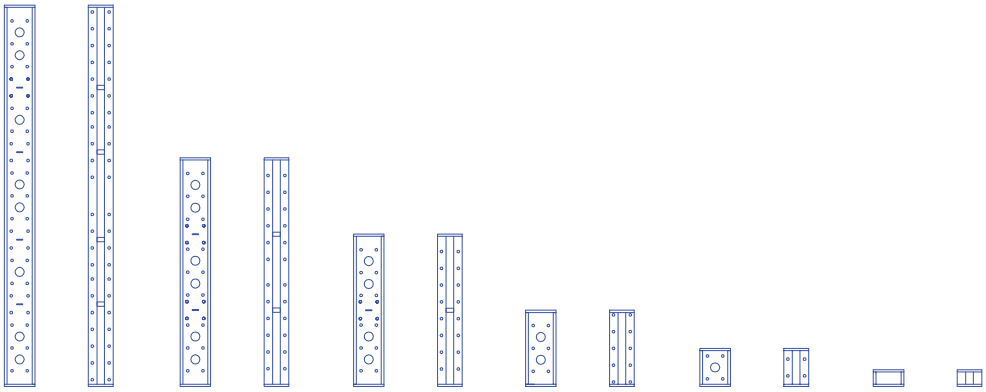
Wood planks 20 mm



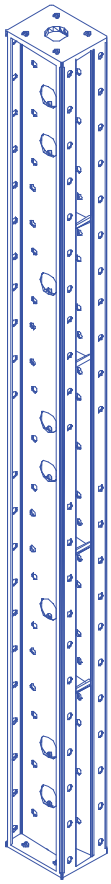
REHASA
RH
ESTRUCTURAS

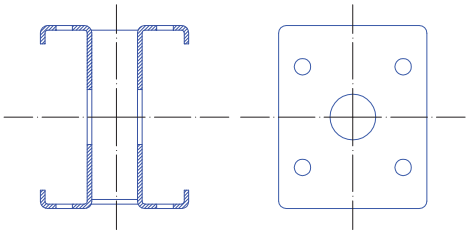


FRAME STRUCTURE SYSTEM ST-200R VIGA STR



Lenght (mm)	L-2500	L-1500	L-1000	L-500	L-250	L-110
Weight (Kg)	65,43	40,18	29,50	17,53	12,14	9,12





REHASA RH ESTRUCTURAS

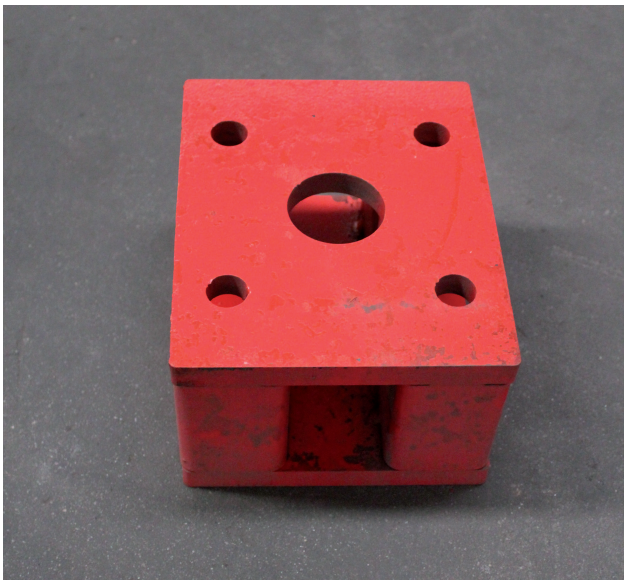
CHARACTERISTICS PROFILE TYPE VIGA STR	
Maximum Moment	27,84 kN.m
Compressión Maximum	460,58 kN
Tractión Maximum	328 kN
Stiffness	3500 kN.m4

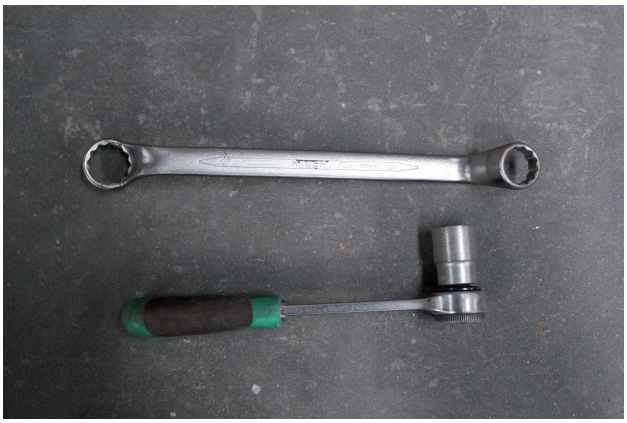
MACHINES

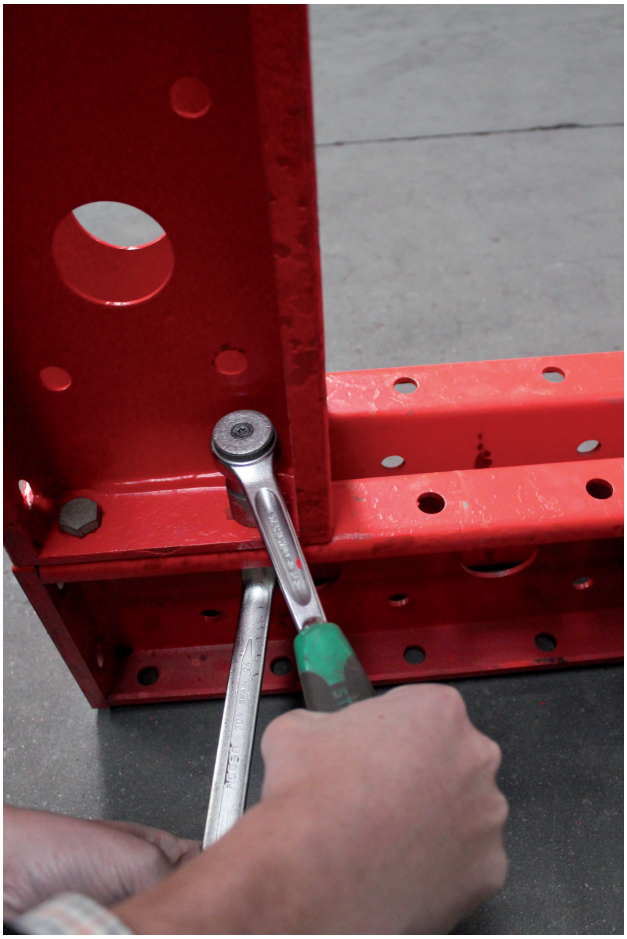
#LASER CUTTER
#MILLING MACHINE

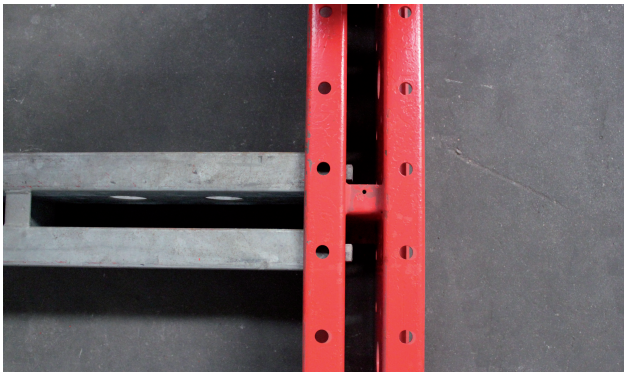
TOOLS

SCREWDRIVER (PLASTER BOARDS)
(AUTOMATIC SCREW GUN)
SCISSORS (SPECIAL FOR STEEL PROFILES)
CUTTER / HAND SAW
HAMMERS
TAPE MEASURE
EQUIPMENT / WORKS SAFETY
HARD HATS

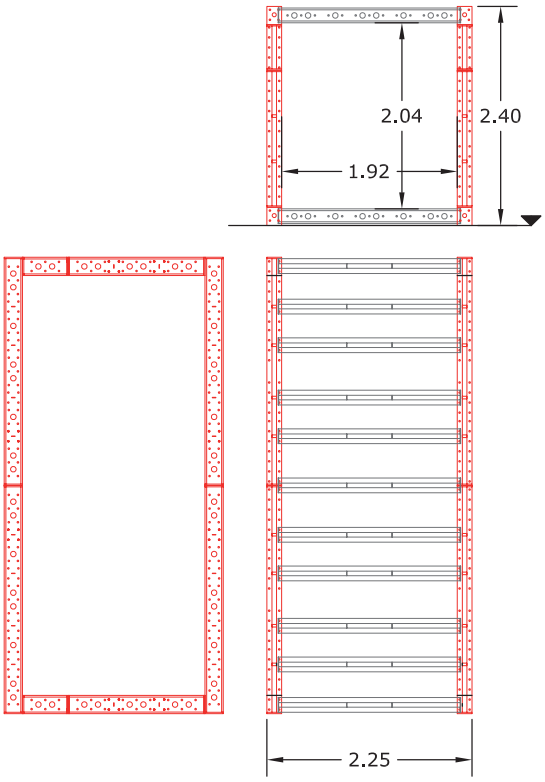


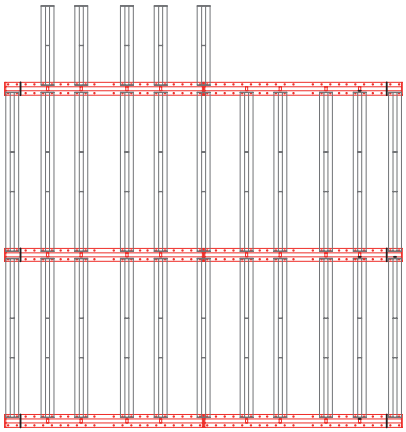


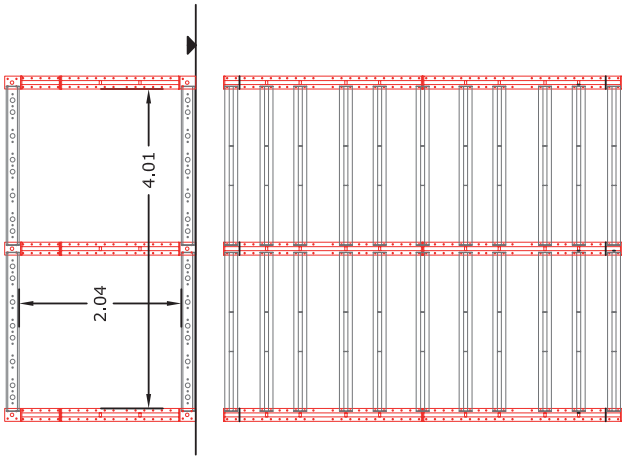




El sistema estructural REHASA se basa en dos piezas fundamentales ; las vigas (rojo) y las correas (gris), todas ellas moduladas según módulos de 500 mm en 500 mm a excepción de las piezas de 250 y las pequeñas de 110 (imagen superior).
Para el taller se utilizaron principalmente vigas y correas de 500 mm, 1500 mm y 2500 mm por su facilidad de manejo y seguridad de los participantes. La mayor de las piezas tiene un peso de 65.43 Kg y fueron colocadas en grupo. La relación con la escala 1:1 con todas sus consecuencias es una de las claves de la actividad. El prototipo proyectado debe poder ser ejecutado por el menor numero de personas de forma simultánea y por supuesto sin la necesidad de grúas o complejos metodos de montaje.
Detalles del modo de unión de los módulos, como se observa en las imagenes se utiliza una llave de carraca de dos embocaduras 27 y 24, para todos los posibles encuentros entre piezas.







Planimetria de modulo de ejemplo, montado en taller y versiones duplicando el módulo.
En la parte inferior se muestra el juego de modulos con que trabajaremos, vigas (rojo) y correas (gris). Las medidas de cada elemento y su peso.