

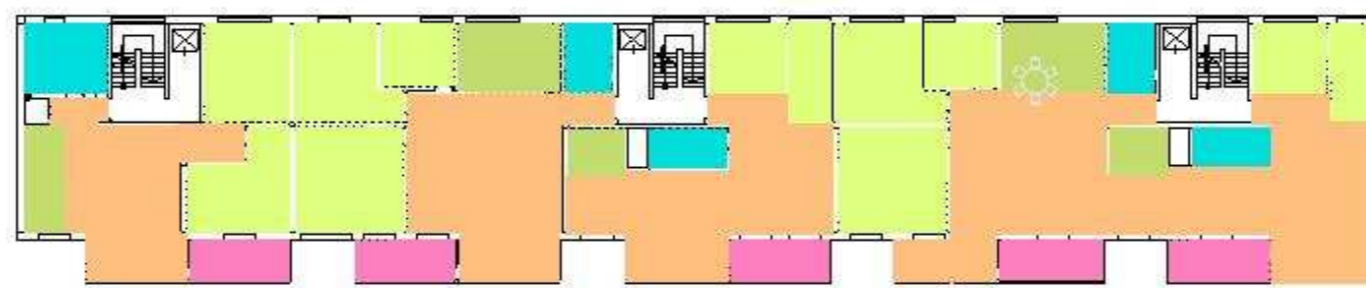
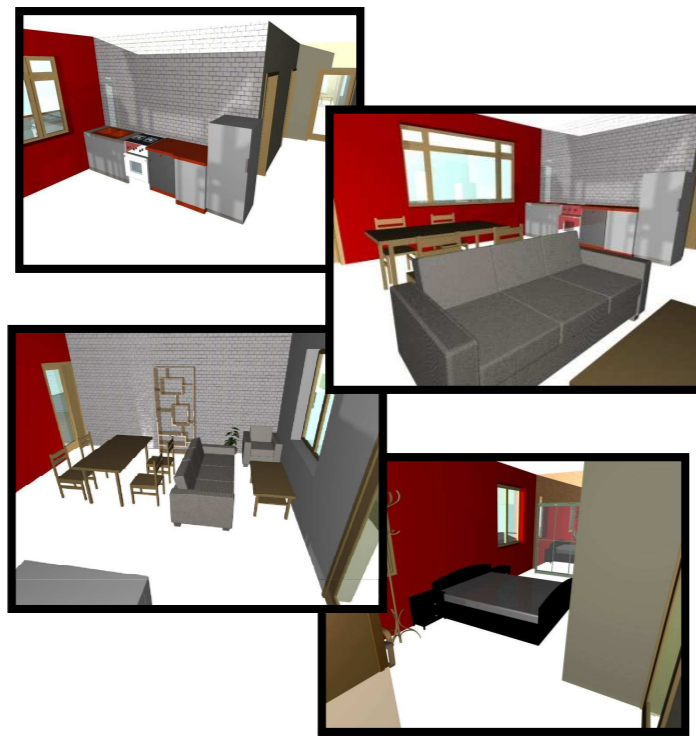
# Rehabilitación y ampliación de un antiguo edificio multiplanta

## Refurbishment & extension of older multi-storey city house

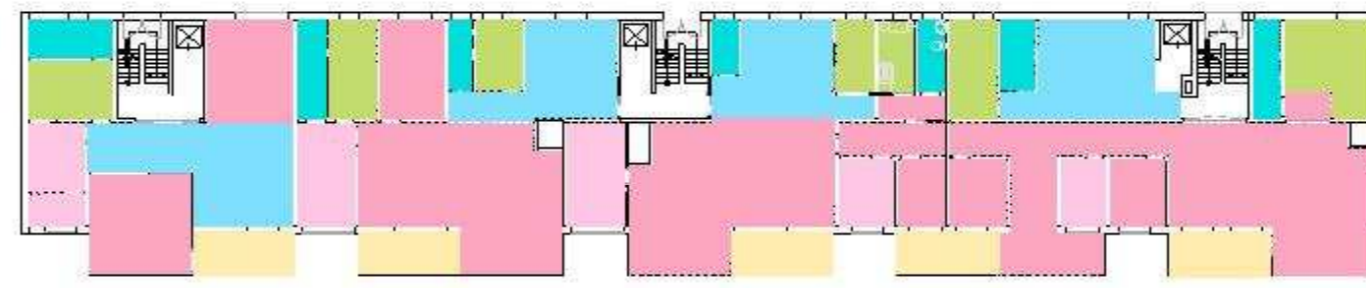


Location plan / Plano emplazamiento

Old and new appearance / Antigua y nueva apariencia

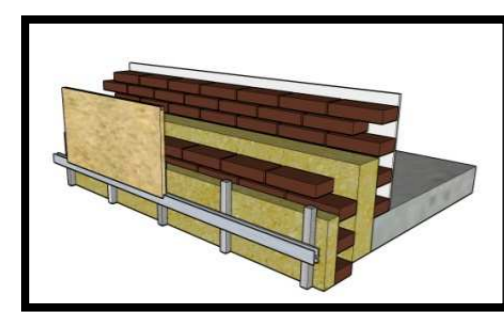


**APARTMENTS:**  
 Livingroom  
 Rooms  
 Kitchen area  
 Bathroom  
 Balconie



**OFFICES:**  
 Common area for clients  
 Offices area  
 Storage and others  
 Bathroom  
 Kitchen  
 Balconie

New distribution / Nueva distribución



New external wall composition fulfilling the U-Value demands  
 Nueva composición del muro exterior cumpliendo los valores de transmitancia

Existing wall	d (m)	λ (W/mk)	d/λ
Surface res Rse			0,04
Bricks	0,11	0,55	0,2
Isolation	0,13	0,044	2,95
Bricks	0,11	0,55	0,2
Gypsum plaster	0,01	0,5	0,02
Surface res Rsi			0,13
$\Sigma R_{t1}$			3,54
U			0,282 > 0,200

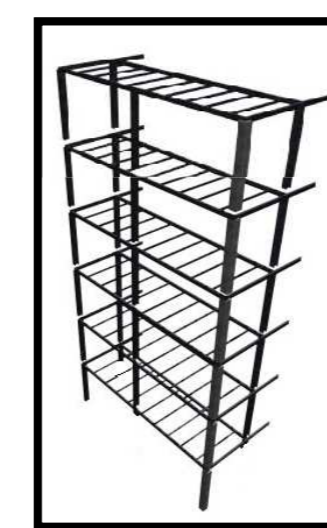
  

New wall	d (m)	λ (W/mk)	d/λ
Surface res Rse			0,04
Ceramic plate	0,02	1	0,02
Ventilation gap	0,05		0,13
Isolation	0,05	0,034	1,47
Cement rendering	0,015	1	0,015
Bricks (original)	0,11	0,55	0,2
Isolation (orig.)	0,13	0,044	2,95
Bricks (original)	0,11	0,55	0,2
Gypsum plaster	0,01	0,5	0,02
Surface res Rsi			0,13
$\Sigma R_{t2}$			5,18
U			0,191 < 0,200



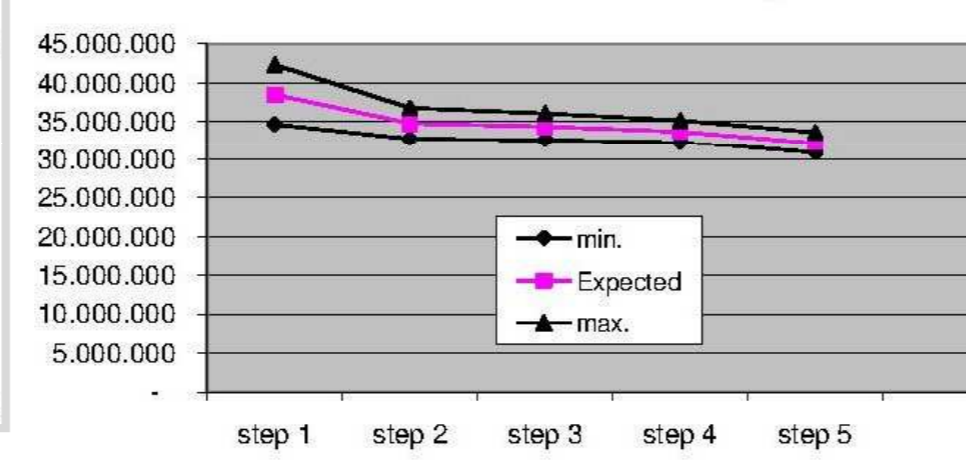
Longitudinal section/Sección longitudinal

North Elevation/Alzado Norte



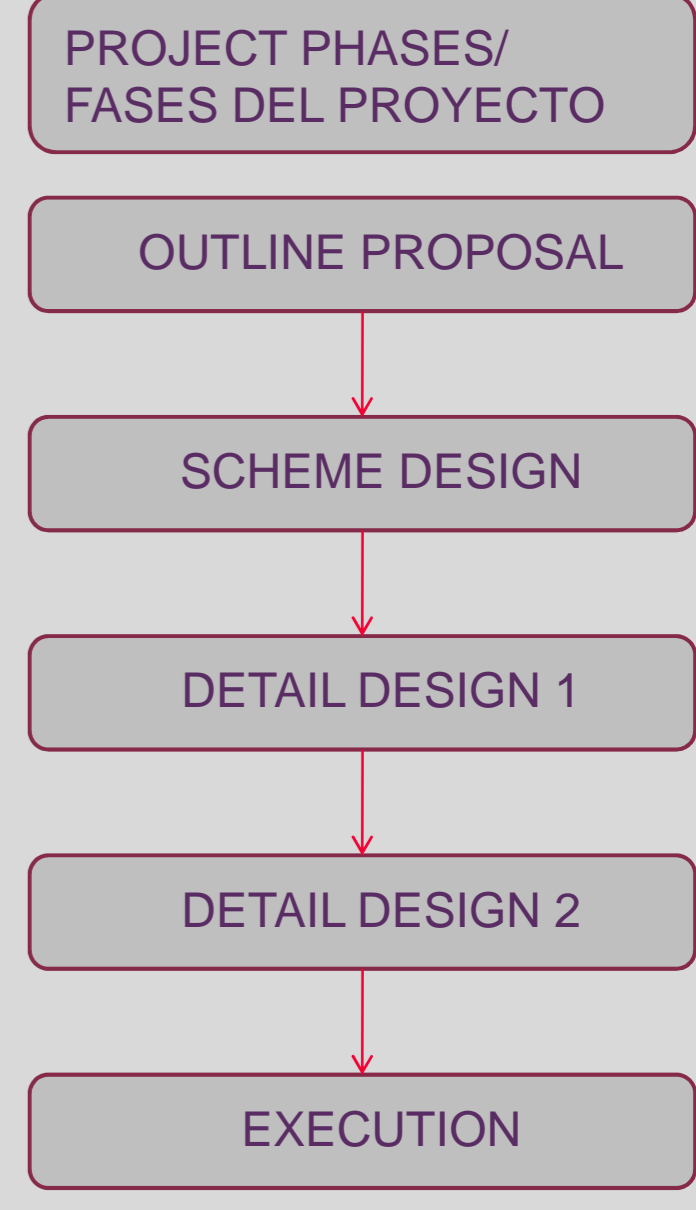
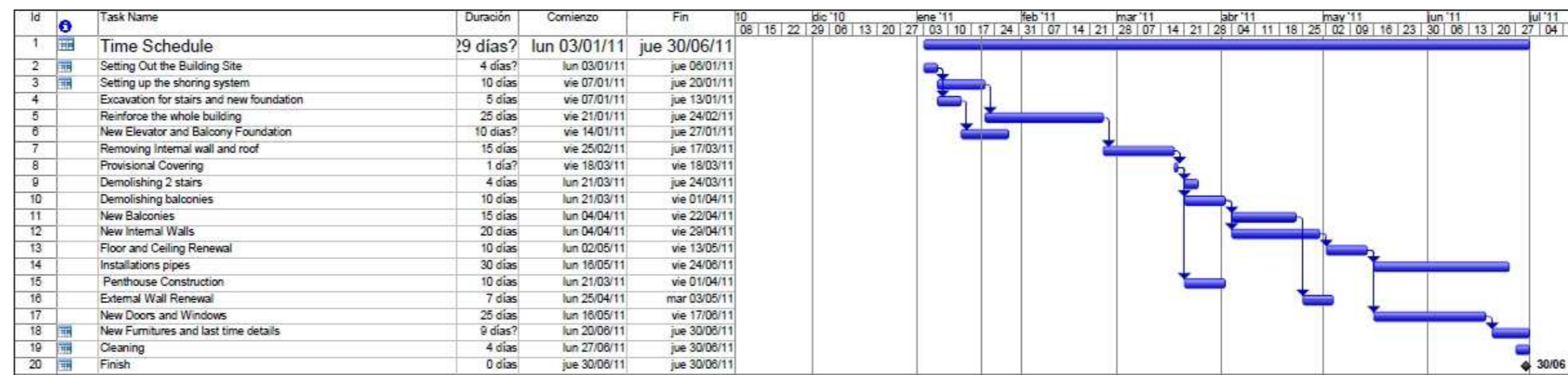
New outer metallic structure by HEB & IPE profiles  
 Nueva estructura metálica externa compuesta por perfiles HEB e IPE

Successive estimation for residential housing



Total cost	min.	Expected	max.
step 1	34.660.911	38.484.213	42.307.514
step 2	32.771.299	34.776.069	36.780.838
step 3	32.631.772	34.356.341	36.080.911
step 4	32.282.267	33.730.341	35.178.416
step 5	30.810.083	32.205.614	33.601.145

Total cost obtained by the continuous detailing of the different parts of the project, removing at the same time the initial uncertainty.  
 El coste total se obtiene detallando los diferentes apartados del proyecto, lo que elimina al mismo tiempo la incertidumbre inicial.



Penthouse: main object of the extension / Áticos: objeto principal de la ampliación

