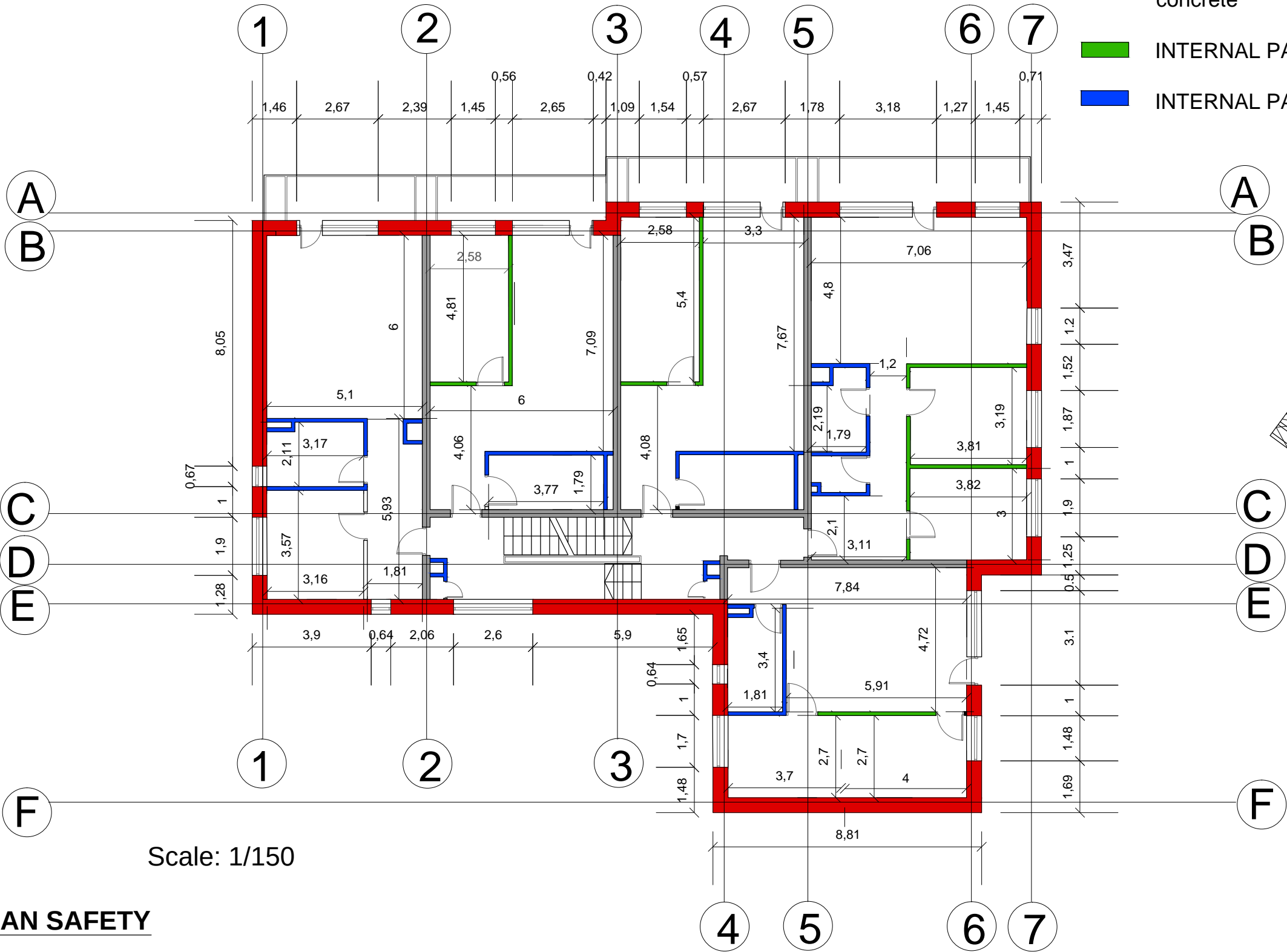


# TECHNOLOGICAL CARD I: MASONRY WORKS

## INTRODUCTION

In this card we are going to talk about the masonry works of the outside walls. In the project we count with some monolithic walls that are going to be built in a parallel way, they are made of reinforced concrete. There are also internal partitions of clinker bricks and plasterboards. The facade wall is going to be part of the structure as there are no pillars in the project.

## LOCATION OF DIFFERENT WALLS

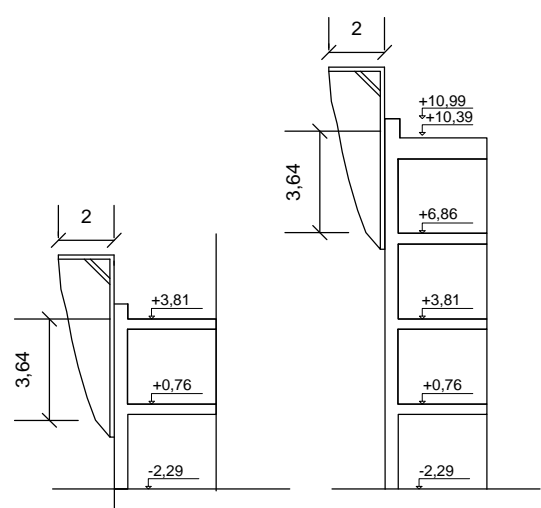


Scale: 1/150

## HUMAN SAFETY

RISKS	CAUSES	COLECTIVE PROTECTIONS	INDIVIDUAL PROTECTIONS	SAFETY MEASURES
- Falls of personal at different level - Falls of personal at the same level - Cuts - Fall of elements or materials - Stuck by objects - Overexertion	- Working at height - manipulate heavy elements - Disorder and dirtiness. - Materials stoked up in a wrong place - Same position for a long time - Exposure to harmful substances	- security rail in the border of the slab - Net - Boards in holes	- Security boots - Helmet - Security gloves	- Keep the working area clean and tidy - Mark the stocking areas

In the masonry works there will be a gallow type safety net. the net will save two floors to keep a height of fall less than 6m.



## ORGANIZATION OF WORKS

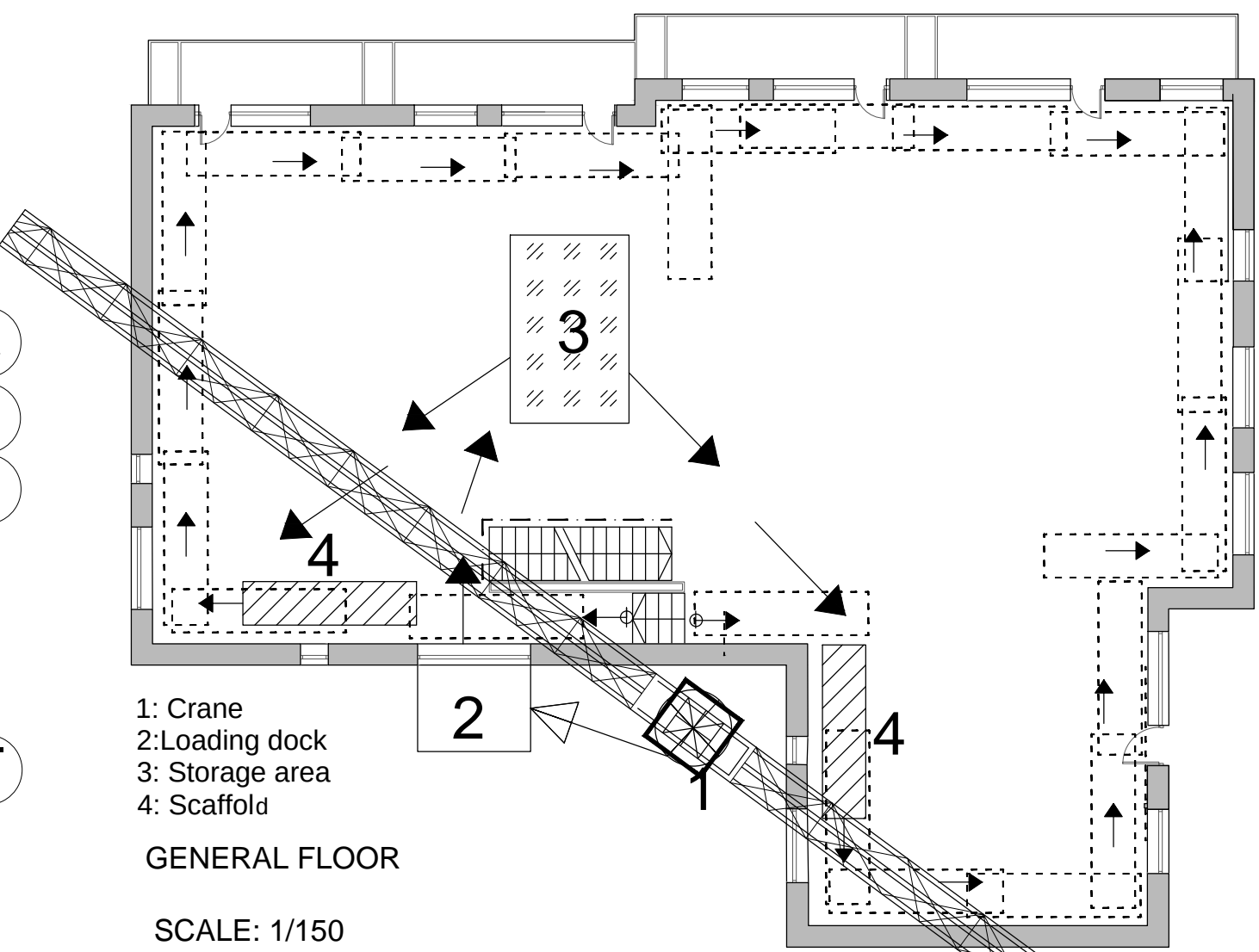
	WORK	PERFORMANCE (h/m2)	AREA (m2)	Nº WORKERS	DAYS
ground floor	MASONRY OUTSIDE WALLS	0,438	179,07	5	2
	MONOLITHIC WALLS	0,41	137,54	5	1,5
	SLABS + STAIRS	0,163	327,92	5	1,5
	PARTITIONS of brick	0,41	95,22	3	1,5
1st floor	plaster board partitions	0,263	93,96	2	1,5
	MASONRY OUTSIDE WALLS	0,438	214,9	5	2,5
	MONOLITHIC WALLS	0,41	137,54	5	1,5
	SLABS + STAIRS	0,163	352,2	5	1,5
2nd floor	PARTITIONS of brick	0,41	120,3	3	2
	plaster board partitions	0,263	102,6	2	2
	MASONRY OUTSIDE WALLS	0,438	214,9	5	2,5
	MONOLITHIC WALLS	0,41	137,54	5	1,5
3rd floor	SLABS + STAIRS	0,163	352,2	5	1,5
	PARTITIONS of brick	0,41	120,3	3	2
	plaster board partitions	0,263	102,6	2	2
	MASONRY OUTSIDE WALLS	0,438	214,9	5	2,5

DAYS		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
ground floor	MASONRY WORKS	29 DAYS																												
	MASONRY OUTSIDE WALLS	5workers																												
	MONOLITHIC WALLS	5workers																												
	SLABS + STAIRS	5workers																												
	PARTITIONS of brick	3workers																												
	PLASTER BOARD PARTITIONS	2workers																												
1st floor	MASONRY OUTSIDE WALLS	5workers																												
	MONOLITHIC WALLS	5workers																												
	SLABS +STAIRS	5workers																												
	PARTITIONS of brick	3workers																												
2nd floor	PLASTER BOARD PARTITIONS	2workers																												
	MASONRY OUTSIDE WALLS	5workers																												
	MONOLITHIC WALLS	5workers																												
	SLABS + STAIRS	5workers																												
3rd floor	PARTITIONS of brick	3workers																												
	PLASTER BOARD PARTITIONS	2workers																												
	MASONRY OUTSIDE WALLS	5workers																												
	MONOLITHIC WALLS	5workers																												
3rd Floor	SLABS + STAIRS	5workers																												
	PARTITIONS of brick	3workers																												
	PLASTER BOARD PARTITIONS	2workers																												
		3workers																												

## MATERIAL AND TECHNICAL RESOURCES

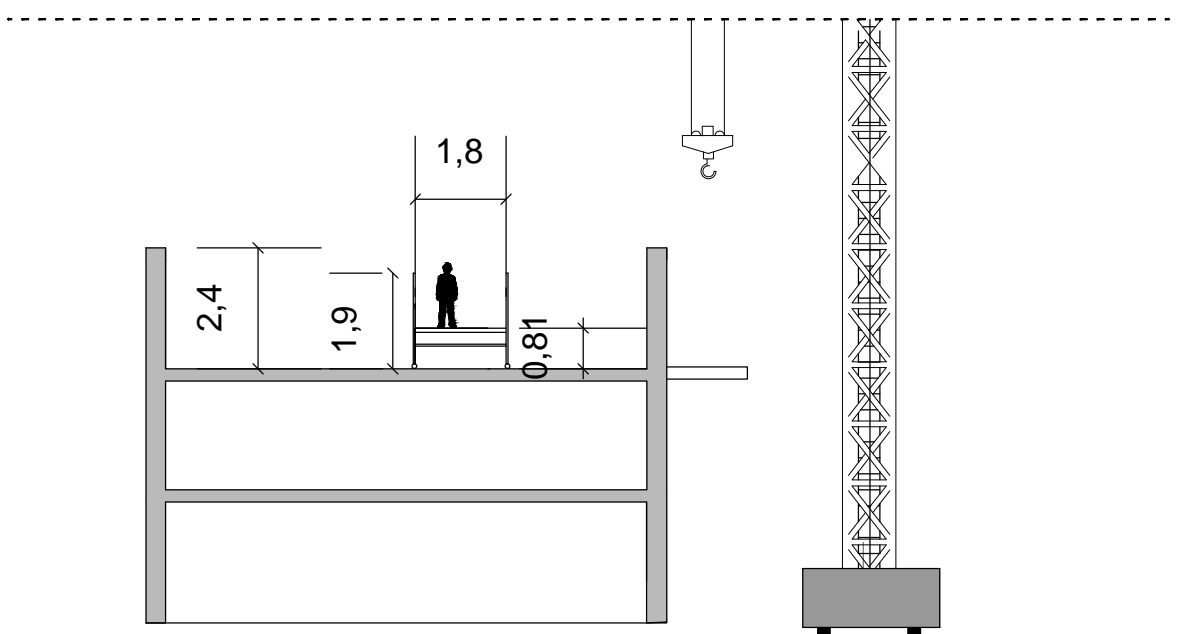
U	MATERIALS	QUANTITY
u	Expanded clay block	14704,3
m³	Water	7,41
t	Cement mortar M-5	38,71
m	Prestressed concret joist, T-18, Lmedium = <4 m	148,27
	Expanded clay tile, 30x15x4,8 cm	1235,65
MACHINERY AND TOOLS		
u	forklift	1
u	cutting machine	1
u	tower crane	1
u	trowel	2
u	level	2
u	hammer	2
u	plumb	2
AUXILIARY RESOURCES		
u	loading and unloading platform	1
WORKERS		
u	1ª class expert of bricklaying.	1
u	Workman of bricklaying.	1

## SEQUENCE OF MASONRY WORKS



GENERAL FLOOR

SCALE: 1/150



## QUALITY CONTROL

RECEPTION: There will be a control in the reception, where all the products will have to get with them the information of their qualities, the commercial brand, and the first quality mark in case. It is obligatory to all the pieces to have the European Certificate (CE). All the documents will be according to the project and according to the Spanish normative CTE(Technical Code) its Basic Document about fabrics DB-SE-F they will bring the supplier's declaration's on its strength and manufacturing category.

FOR THE EXPANDED CLAY BLOCKS:

-In the zone of work there will be a checking of the pieces to verify that any piece is broken or any characteristic is affected by its transport or storage.

-There will be assay for some inspection lots to guarantee the required characteristics in the project.

-The pieces will be properly storage in an specific area and put in a correct way that don't deteriorate the pieces. They will be collected on a site far from substances or environments that can damage the physical or chemical material of the pieces

THE CEMENT MORTAR:

-The cement mortar will be used following the manufacturer's

instructions that shall include the type of mixer, the mixing time and the amount of water.

-The mortar must be used before expiry of the period of use defined by

the manufacturer. If the water is evaporated it may be added only during the period of use that the manufacturer defines. The mortar will be used before starting to set, the mortar that has started to set will be refused and not reused.

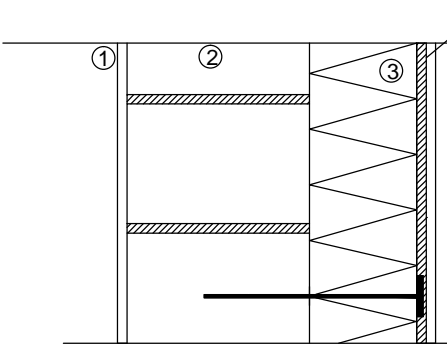
-The resistance of the mortar will be test according to the UNE EN 1015-11:2000

## TECHNICAL-ECONOMIC INDICATORS

	UNITY PRICE (€/m2)	AREA (m2)	PRICE (€)
EXPANDED CLAY BLOCK WALL	37,44	823,77	30.841,95

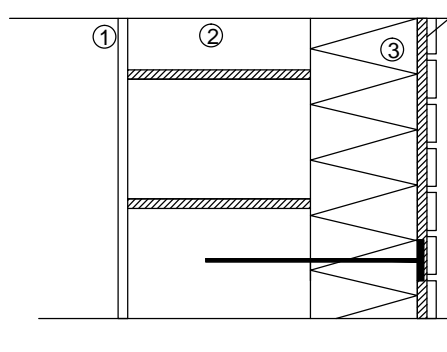
WORK	PERFORMANCE (h/m2)	AREA (m2)	Nº WORKERS	HOURS (h/day)	DAYS
MASONRY OUTSIDE WALLS	0,438	823,77	5	8	9

## SINGULAR DETAILS



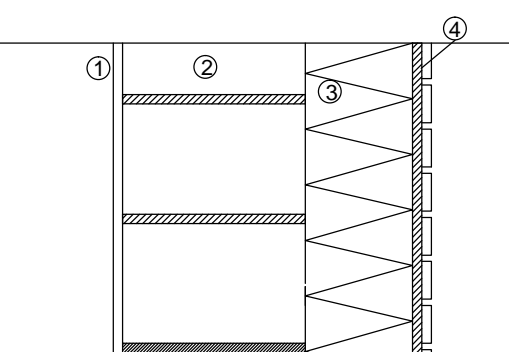
- 1 INNER COATING: Plaster 0.015m Paint
- 2 SUPPORT: Expanded clay block 0.29m Cement mortar 0.015m
- 3 INSULATION: Mineral wool 0.17m
- 4 OUTER COATING: Cement mortar 0.15m Plaster 0.15m

FIGURE1: General section with plaster coating.



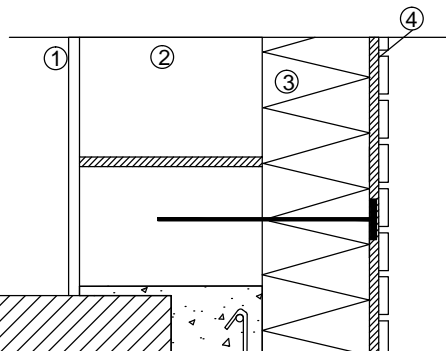
- 1 INNER COATING: Plaster 0.015m Paint
- 2 SUPPORT: Expanded clay block 0.29m Cement mortar 0.015m
- 3 INSULATION: Mineral wool 0.17m
- 4 OUTER COATING: Cement glue mortar 0.15m Ceramic Tiles 0.15m

FIGURE2: General section with ceramic tiles coating.



- 1 INNER COATING: Plaster 0.015m Paint
- 2 SUPPORT: Expanded clay block 0.29m Cement mortar 0.015m
- 3 INSULATION: Mineral wool 0.17m
- 4 OUTER COATING: Cement glue mortar 0.015m Ceramic Tiles 0.015m
- 5 LINTEL: Reinforced concrete 4 Ø 16mm Expanded clay special piece Water-repellent mortar
- 6 WINDOWSILL: Artificial Stone sill Water-repellent mortar Wooden frame Silicone seal

FIGURE3: Lintel and widowsill detail.



- 1 INNER COATING: Plaster 0.015m Paint
- 2 SUPPORT: Expanded clay block 0.29m Cement mortar 0.015m
- 3 INSULATION: Mineral wool 0.17m
- 4 OUTER COATING: Cement glue mortar 0.015m Ceramic Tiles 0.015m
- 5 SLAB: Prefabricated concrete
- 6 BEAM IN BORDER: Reinforced concrete 2 Ø 12
- 7 PVC film

FIGURE4: Slab and masonry wall detail.

## TOLERANCES

	Position	Tolerance (mm)
Plumb desviation	In floor	20
	In the Building	50
Axiality		20
Flatness	In 1m	5
	In 10m	20
Thickness		+/- 25

	NAME	SIGNATURE	DATE	TITLE OF FINAL THESIS PROJECT	
STUDENT	Celia Chardi Perez			Daugiau apie gyvenamojo namo žymėjimą g. 1L, Vilnius, statybos projektavimas Construction planning of the residential building at Zimnai str. 1L in Vilnius	
SUPERVISOR	Jonas Saparauskas			PLAN NAME	NUMBER OF PLAN
HEAD OF DEPARTMENT	Edmundas Kazimieras Zavadskas			TECHNOLOGICAL CARD I: MASONRY WORKS	2
REVIEWER				UNIVERSITY	DEPARTMENT
				VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETAS	Department of Construction Technology and Management