BUILDING ACCORDING TO THE PLANS
SUPERVISION OF CONSTRUCTION
HAND-OVER OF THE BUILDING

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Department of construction technology and management

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Basics of construction

15-11-04

Erecting the building in accordance with the plans

Supervision of the construction (quality survey)

Handover of the building

1

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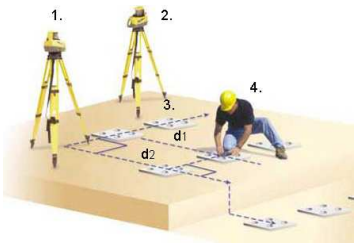
SITE LAYOUT

DEF.: Set out of the building = Fixing the characteristic points of the building on the site.

1. set out the boundaries of the site – placing markers called „monuments”
2. mark out the right place of the building with stakes - the stakes should stay outside of the construction pit
3. assemble (with nail or screw) batter boards on the stakes, setting them to a proper level (with definitive relation to the level of the elevations)
4. marking the sides using a tape (holding by the batter boards)
5. plumbing the corners to the excavation floor (at the intersections of the lines)
6. sign the end of the work pit with further posts
7. start of the excavation of the work pit

builder's level / transit



the placement of the studs are allocated by geodesic methods

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BUILDING ACCORDING TO THE PLANS

SITE LAYOUT

1. set out the characteristics points of the building with a GPS tool
2. mark out the right place of the building with stakes - the stakes should stay outside of the construction pit
3. …

GPS

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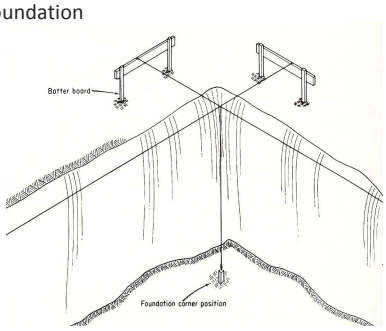
FURTHER LAYOUTS

1. Layout of the foundation



2. Alignment on the levels of the building – 1m line (reference level)

Reference level: On each level of the building – at 1m height from the **final floor level**.

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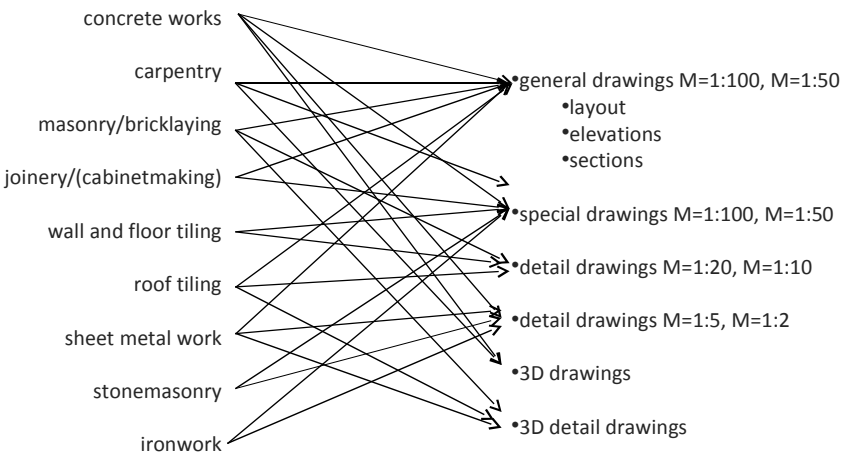
CONSTRUCTION WORKS

construction work - plan types



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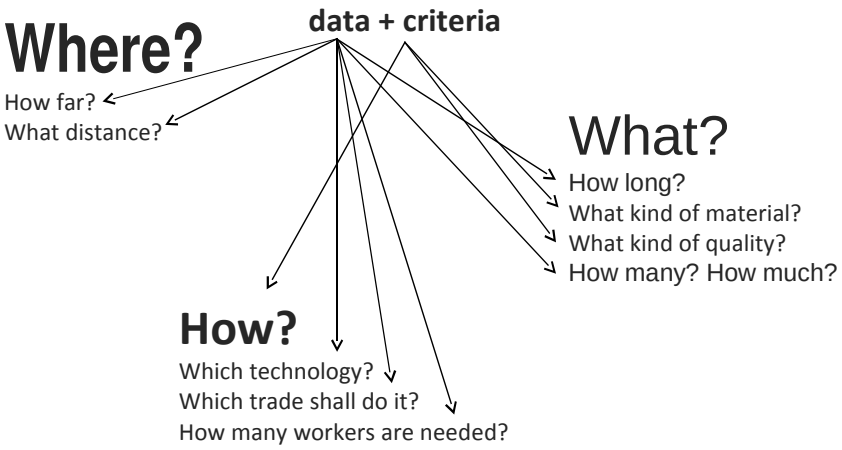
ESSENTIAL CONTENTS OF THE CONSTRUCTION DRAWINGS

providing information to the skilled workers



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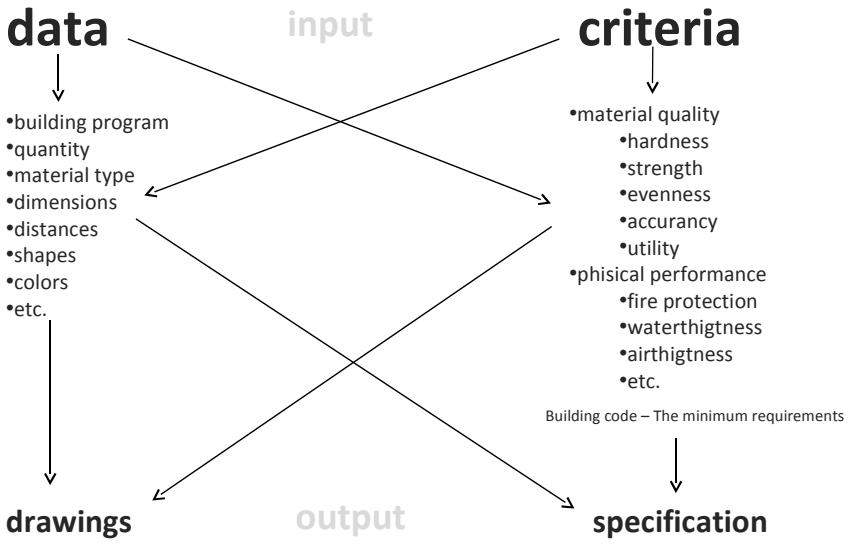

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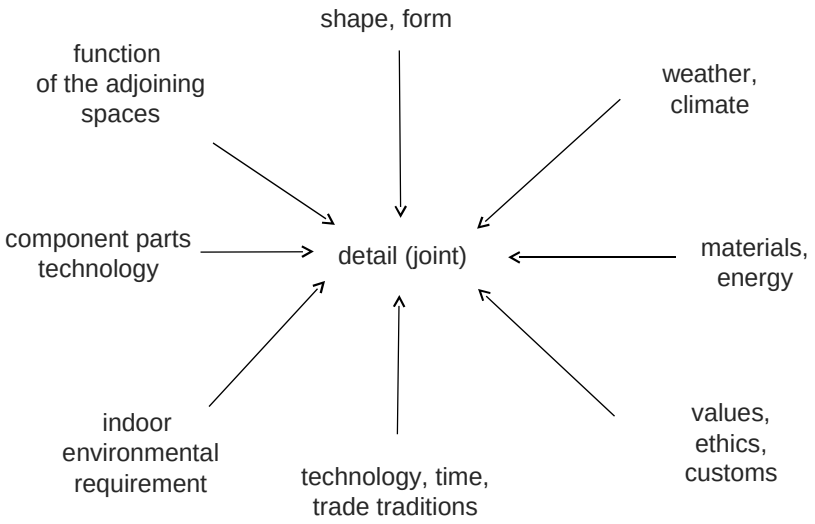
IMPACTS ON CONSTRUCTION DETAILS



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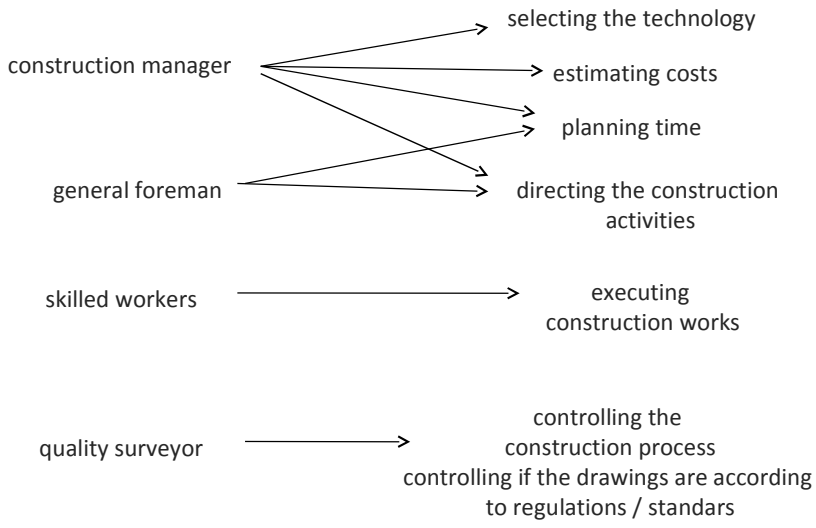
WHO USES THE CONSTRUCTION DRAWINGS AND FOR WHAT PROPOSES?



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THE CONTRADICTION OF INTERESTS BETWEEN CONTRACTOR AND DESIGNER

What does quality mean?

contractor — architect

time and cost has priority — time and cost are indifferent

QUALITY

material — aesthetical

Different priorities!

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THE CONSTRUCTION DOCUMENTATION

written part (specification) — construction drawings

equal information is essential!!!

synchronizing information

- with the co-operative designers
- on the different scale drawings
- of the written papers and the drawings

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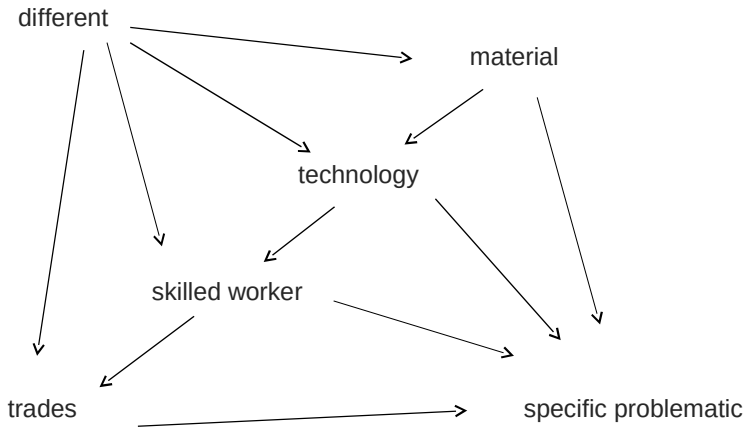
BUILDING TRADES – SKILLED WORKERS



precision, time, cost, rough material, prefabrication, technological sequence etc.

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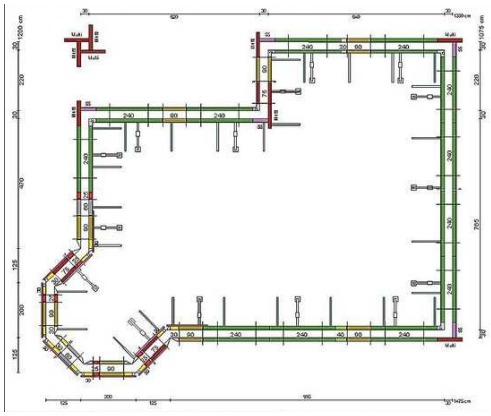
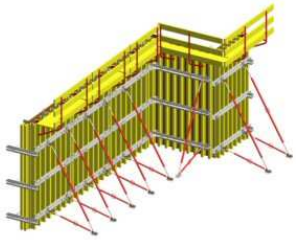
CONCRETE /REINFORCED CONCRETE WORKS

formwork drawings	M=1:100, M=1:50
reinforcement drawings	M=1:100; M=1:50
detail drawings	M=1:10; M=1:10
3D drawings	





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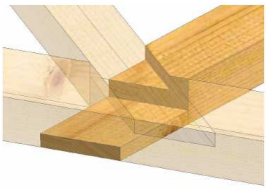
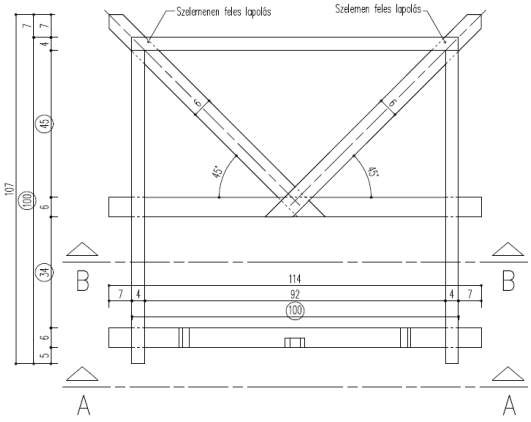
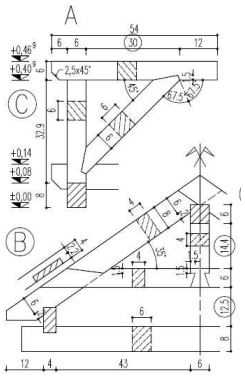
CARPENTER

general drawings	M=1:100, M=1:50
detail drawings	M=1:20; M=1:10
detail drawings	M=1:5; M=1:2
3D drawings;	
3D detail drawings	







real dimensions – drawings on site

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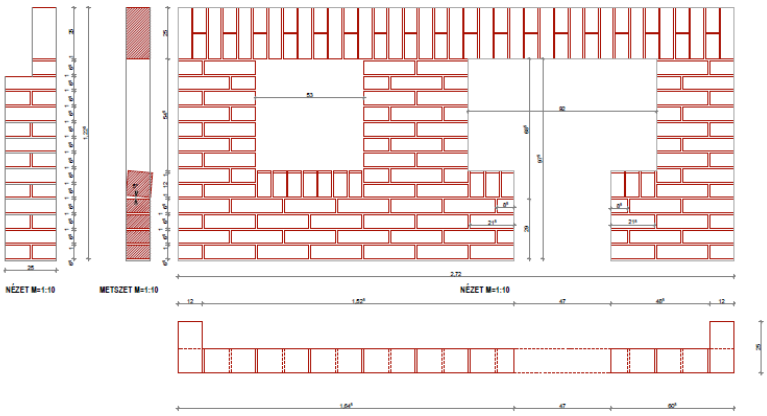
MASONRY / BRICKLAYER WORK

detail drawings/ brick layout for facades M=1:20; M=1:10



accuracy of the wall is 5mm <–> precision of the bricks is 2-8mm

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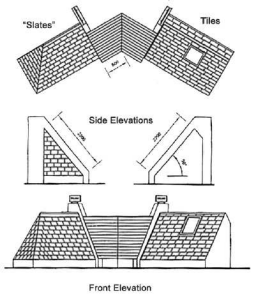
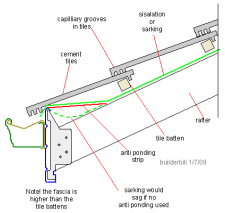
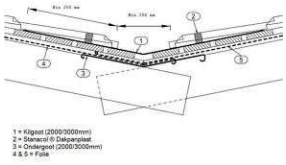
ROOF TILER

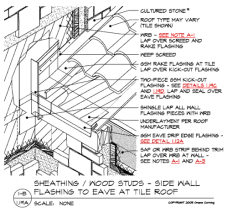
detail drawings / layout / elevation M=1:20; M=1:10





real dimension problem !





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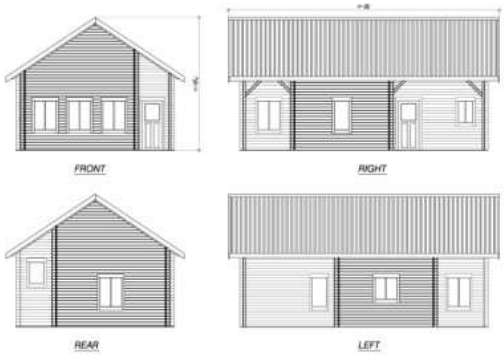
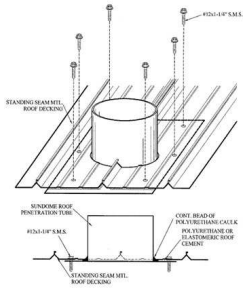
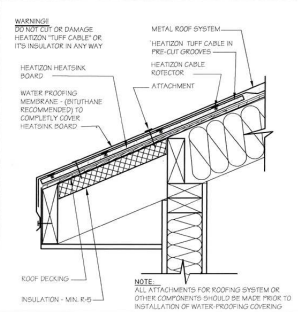
SHEETMETAL WORKER / METAL ROOFER

detail drawings M=1:20; M=1:10
detail drawings M=1:5; M=1:2
3D detail drawings







accuracy is 1mm

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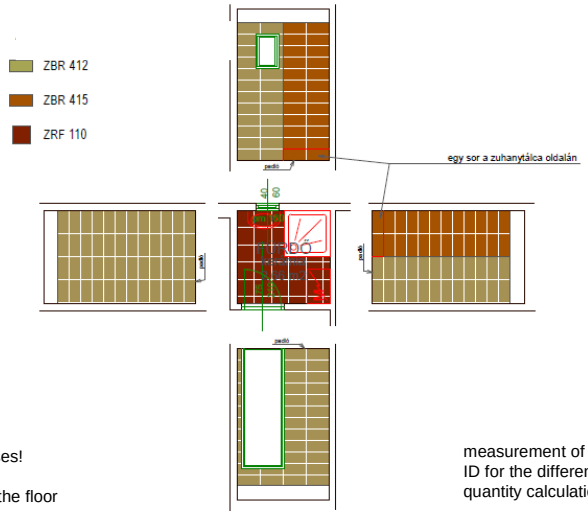
FLOOR AND WALL TILER

detail drawings/ tile layout M=1:20; M=1:10



starting point!
framing courses!
string course!
inclination of the floor

measurement of the joints!
ID for the different kind of elements
quantity calculation (+10%)

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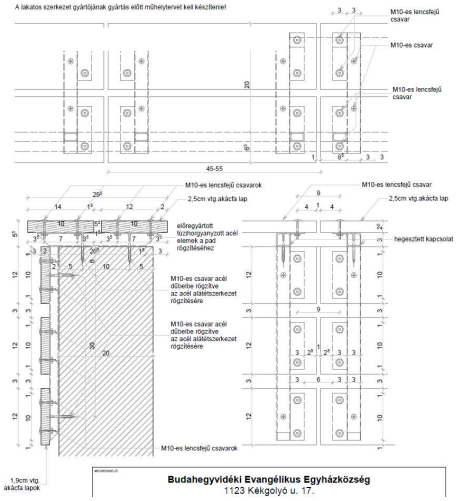
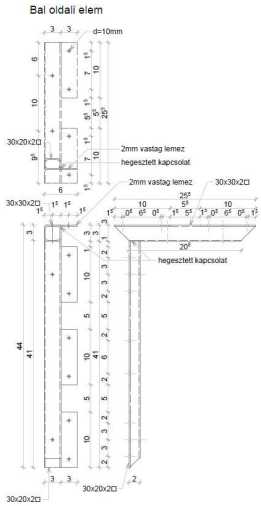
IRON WORK / LOCKSMITH'S WORK

detail drawings (consignation) M=1:20; M=1:10; M=1:5; M=1:2





accuracy is 1mm

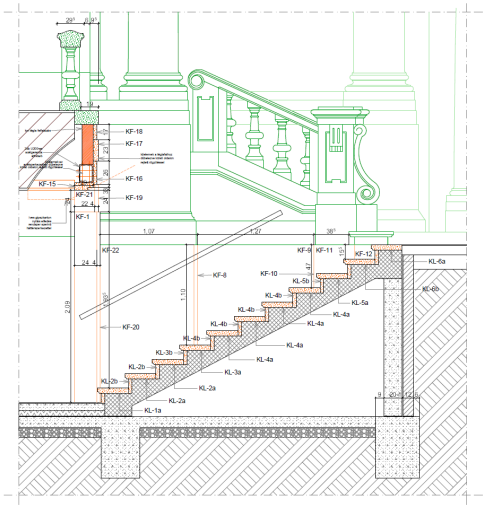
IDs for the elements

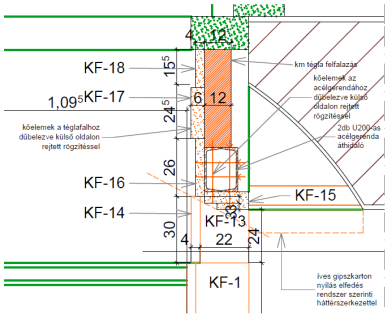
1

BUILDING ACCORDING TO THE PLANS

STONEMASON

detail drawings (consignation) M=1:20; M=1:10; M=1:5; M=1:2





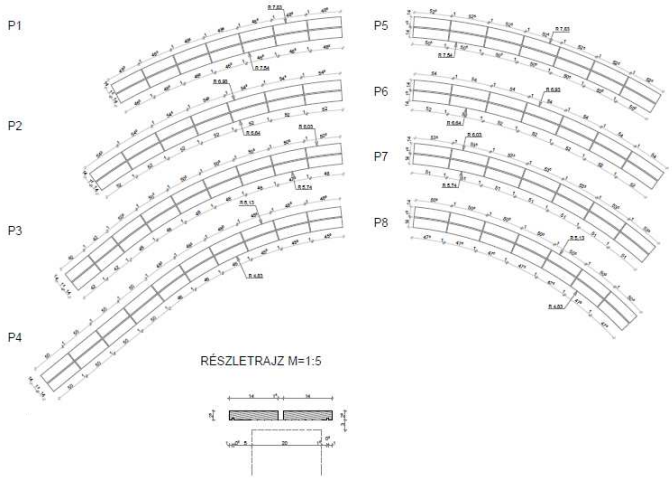
IDs for the elements

1

BUILDING ACCORDING TO THE PLANS

JOINER / CABINETMAKER

detail drawings (consignation) M=1:20; M=1:10; M=1:5; M=1:2



IDs for the elements

1

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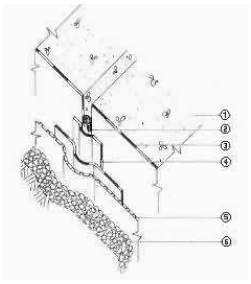
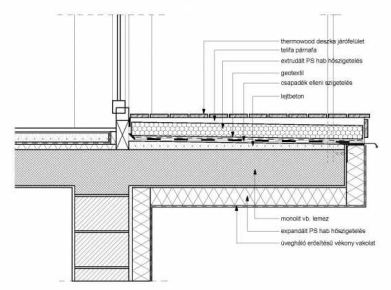
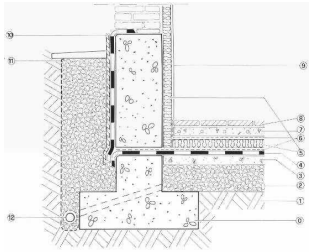
INSULATION WORKER

(thermal and moisture protection)

general drawings	M=1:100, M=1:50
detail drawings	M=1:10; M=1:5; M=1:2
3D drawings	







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BUILDING ACCORDING TO THE PLANS

ADDITIONAL DRAWINGS

Appendixes for construction logbook

- to make drawings for all the changes
- for the better understanding of the contractor
- drawings of the fulfilled state

1

BUILDING ACCORDING TO THE PLANS

SUSTAINABILITY ASPECTS

How to reduce wasting and loss?

- apply local materials and well known technologies
- apply standard sizes if applicable
- design easily mountable and dismountable joints
- design easily maintainable surfaces and structures
- ensure the easy change of parts and surfaces which most frequently wear out
- control documentation before issuing

2

QUALITY SURVEY

QUALITY SURVEYOR

(supervisor)

The education, the competences and the activity of the quality surveyor is legally prescribed .

Education:

- BSc or higher degree (+ some year practice) } in relation with construction

+ education as quality surveyor and/or exam

Competences: trained in building construction and building law

2

QUALITY SURVEY

SUPERVISING PROCESS

duties of the quality surveyor

1. ensure professionalism

- •control of the plans in accordance with the standards and the legal prescriptions
- •proposing alteration of the plan for the client, if it is technically or financially reasonable
- •control of the assignment of the building
- •ensure the prosecution of the prescribed tests (e.g. soil mechanics)
- •controlling quality prescribed by the standards

2

QUALITY SURVEY

SUPERVISING PROCESS

duties of the quality surveyor

2. following and controlling the construction work

- •continuous control of the construction logbook
- •note all failures (deficiencies and faults) in the construction logbook
- •controlling hidden structures and volume of the completed work before getting covered (e.g. reinforcement)
- •control of the conformance of the used materials (CE, etc.)
- •controlling volume of the completed work
- •informs the client if the completed work is according to the contract (volume, standards, prescriptions, etc.) – (Is it suggested for the client to pay all the bills or not?)
- •take part in the hand over process

3

HAND OVER PROCEDUE

HAND OVER

It is the legally prescribed final period of the construction process.

The hand over begins with the written statement of the contractor on the followings:

- the construction **works are finished** in accordance with the contract
- the works are **in accordance** with the technical **standards** and legal **prescriptions**
- the building is **ready for proper use** -> the process for the permission of use can be started

3

HAND OVER PROCEDUE

TYPES OF HAND OVER

Segmental hand over	if more building were constructed, or there are more independent construction phases of the building(s). In this case the independent functional units or construction phases have separated hand over procedures.
Partial hand over	if a part of the building have to be used before the whole construction is finished.
Complete hand over	means the end of all construction activities on the site.

3

HAND OVER PROCEDUE

PARTICIPANTS OF THE HAND OVER

- representatives of the contractor and sub-contractors
- the competent technical executive (site engineer)
- client
- quality surveyor
- architect and co-designers
- technical representative of the local authority
- representatives of different authorities and public utilities

3

HAND OVER PROCEDUE

REQUIRED DOCUMENTS

- statement of completeness
- contract of the construction
- attendance register
- hand over documentation (with the drawings of the fulfilled state)
- construction logbook with appendixes
- statement of the competent technical executive (site engineer)
- statement of the quality surveyor
- conformance documentation of the used materials
- technical and guarantee papers of the built-in equipments
- statements of guarantee
- measurement reports

3

HAND OVER PROCEDUE

HAND OVER PROCEDURE

1. Statement of completeness (by the contractor)
2. Appoint the date for the beginning of the hand over process (by the client)
3. Start up of the hand over process – it can be finished if:
   - the building is completed – no failures sets back from the proper use
   - the test run of all the installation systems are done - report has been made
   - if there are failures – they have been recorded
   - all the required documents have been prepared
4. Finish of the hand over process – The client takes over the building
5. If there were failures -> Correcting failures
6. The contractor leave the site – Start up of the process for the permission of use
7. The client settle the remaining bills

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