

# **W**ORK **S**PECIFICATION

**New Administration Building Construction, Sintrupvej  
13, 8220, Aarhus**

**M**IRET **D**ESIGNS

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4. Building component specifications

The building component-ID, title for the building component specifications

*Each building component comprises the following points:*

  - Scope and location
  - Reference to drawings
  - Adjacent and adjoining components
  - Design
  - Materials and products
  - Execution of works
  - Surfaces
  - Samples
  - Control
  - The work environment

## 2. Scope

### 2.1. General information

The work comprises the building components and other services stated in point 2.2, which are described in more detail in the work specifications or in the drawings.

In addition, the work comprises the stipulations in the Case Specifications and any services required in tender forms, for example extra work or omissions that can be connected to the current works.

### 2.2. Building components

The work comprises all works and deliveries that are necessary for the full completion of building components.

The work encompasses the following building components:

1.5 Carpentry works External wall

1.52 New doors and windows

1.53 Fixed furniture

1.54 Internal metal framed gypsum walls

- Transportation of material
- C profiles
- Insulation
- Gypsum boards
- Screw
- Internal partition light walls
- Light walls around service

1.55 Suspended ceiling

1.56 Joinery

The following components, delivered by the employer/other contractor, are mounted as part of the current works:

- Balcony construction
- Railings
- Nails and screws
- Brackets
- Steel beam

## 2.3. Design and detail design

Design according to delivered tender material. On basis of tender material it is the responsibility of the contractor to work out further details if needed. This must be sent to the project management for approval.

## 2.4. The building site

See Case Specification chapter 4.

## 2.5 Health and Safety

It is the contractor's responsibility to make sure all protective equipment for the employees are provided and safety regulations are upheld.

- All workers must have attended a course in health and safety onsite.
- All safety precautions must be taken at all times, such as hard-hats, safety shoes, safety line, gloves, etc.
- Selecting low-noise and low-vibration equipment.
- Using materials and methods which are less toxic and safer for workers.
- During winter work, special attention should be taken towards icy and slippery areas.

See Case Specification chapter 5.

## 2.6 The surrounding environment

In the working hours from 7.00 to 8.00 the sound level outside the building site should be lower than 80 dB and the vibration level should be lower than 120 dB. No activities when the site is closed.

See Case Specification chapter 6.

## 2.7. Quality Assurance

### 2.7.1. General information

Contractor is obligated to fulfill and document all assurance tasks stated in Tender Control Plan.

Contractor may perform any additional quality assurance if he considers it relevant.

See Case Specification chapter 7.

### 2.7.2. Documentation of quality

As documentation for the contractor's quality control and control of the quality of the work the contractor must keep an archive. This must contain documentation of material control, delivery control, control of the executed work and the final control of the finished product.

Photo documentation of all constructions that later on will be hidden is mandatory to full fill the control. This might be e.g. insulation in internal and external walls. The photo must show the give story. It must be put in the quality control folder. The picture is not replacing ordinary control but is a supplement to this.

See Case Specification chapter 7.

See Tender Control Plan

### 2.7.3. O&M (Operation and Maintenance)-documentation

The following documentation for the work's quality must be delivered:

- Documentation for material and component control
- Document for the quality of the execution of work control
- Information for operation and maintenance of the building component
- Documentation for final control works

### 2.8. Planning and scheduling of work

Contractors must, before the start of the work, prepare detailed work scheduling.

The main contractor has to assure that the project follow its time schedule and price calculations.

### 2.9. Samples

In cases that materials in the building are not found suitable by the contractor, proposals for new materials must be shown to the client with samples of the new material.

## 3. General Specifications

### 3.1. Reference

#### 3.1.1. Norms and standards

The norms and standards mentioned below, in their latest editions and with any enclosures are valid for the works - - with any amendments, additions and omissions that are stated in these work specifications and on the drawings.

The notes and directions, etc. stated in the references are to be construed as requirements that only can be deviated from if they are stated in these work specifications and/or on the drawings, or agreed with the project management.

- DS 146 Sawn pinewood. Longitudinal and cross sectional measures, 1981
- DS 409/410 Norm for constructions and load on constructions, 1982
- DS 412 Norm for steel construction, 1983
- DS 413 Norm for wood constructions, 1982
- DS 419 Norm for alumni constructions, 2002
- DS 1002 Plane pine. Cross section measures, 1987
- DS 1030 Wood in joiners work. Quality specification, 1986

#### 3.1.2. Directions/instructions

Where the directions, reports and other documents in their latest edition, with any enclosures and together with the project documents, are made valid for the works, the stated recommendations, directions, procedures, advice, etc., must be construed as demands.

- Gyprock whitebook
- Manual básico PLADUR
- Manual usuario PLADUR
- Timber in construction
- Site Book
- The wood trades, information counsel
- BPS 116 Internal Building components
- BPS 117 General conditions
- BPS 103 Roof
- BPS 102 Windows and external woodwork
- Fire technical examples, 2<sup>nd</sup> edition 2000

## 3.2 Materials and products

The required documentation for the materials and products used, for example in the form of product certificates, receipts, etc., must be presented for the project management for their approval.

The following materials and products must not be delivered onto the building site before the project management's documentation for them are available:

- **Wood**  
All wood delivered on site must be in good condition as regular commodity, meaning without defects deteriorating strength, handling or life span of the material.  
The wood has to be strong, straight and aligned without mayor cracks.  
It cannot be infected with rot, fungus or insects.  
Constructional wood must fulfill the visual inspection acc DS/EN 518 and/or the machinery inspection acc DS/EN 519.  
The moist content in the wood must not exceed the given values of the dry weight:
  - Wood used outside: 16% - 18%
  - Wood used inside: (in partly heated rooms) 12% - 15% (heated rooms) 6% - 12%
- **Plywood**  
Plywood has to be manufactured according to one of the ministry of housing recognized checking programs and marking.  
Weather resistant plywood has to carry marking of.: "Exterior".  
Usable plywood has a maximum moist content of 20%
- **Insulation**  
Unspecified insulation in the project material must have a thermal conductivity at  $H_p = 0.034 \text{ W/mK}$ .  
The insulation must full-fill and be controlled according to VIK ("the heat insulation control"/"Varme isolerings kontrolen") and be of a non combustible material.
- **Nails and brackets**  
Nails and brackets have to be of at least a anti-corrosive by electricity zinking product according to DS 413 table 3.7.2 in accordance with DS/EN 12329. All fixtures exposed to weather must be stainless steel A2 class.  
Unspecified nails and brackets in the project material must follow DS 413 section 6.5.2
- **Bolts and screws in wood**  
Bolts, nuts and screws must at least be of quality 4.6 according to DS/EN 20898-1 and 20898-2.  
Unspecified bolts and screws in the project material must follow DS 413 section 6.5.4 and 6.5.5, 7.3.3, 7.3.4 and 7.3.5.

Materials and products of specific brands can be prescribed for the works. Other product brands can be used if they are on the same footing as the ones prescribed. Documentation for this must be presented to the project management.

## 3.3 Execution of works

All sub-contractors are marking according to the already put fixing points at site that is necessary for his work.

Done constructions pacing and measures has to (where nothing else is mentioned in the project) follow these given tolerances

Main measures/levels: +/- 10mm

Holes for windows and doors: +5mm/0mm

Finished component and construction: +/-3mm in length, +/-2mm in height

## 3.4. Control

The following Tender Control Plan must be worked into the contractor's Control Plan.

Nº	Subject	Method	Frequency	Time	Accept/ criterion	Documen tation	Responsible
1	Gypsum board	Delivery notes with specifications	Once	Delivery	No defects	Notes	Main Contractor
2	Steel profiles	Visual control	Once	Mounting	No defects	Notes	Main Contractor
3	Screw	Measurement	All measures	Mounting		Report	Workers
4	Insulation in int. light wall	Visual control	Daily	Before closing	Sound demand	Report	Main Contractor
5	Distance between the steel profiles	Measurement	Once	Mounting	References	Report	Workers
6	Leveling of the light wall	Measurement	Once	Finishing	Straight	Notes	Workers
7	Sealed of the joints	Visual control	Once	Finishing	No holes and good execution	Notes	Workers
8	Hole of the door	Measurement	Once	Mounting	Straight	Notes	Workers
9	Union in corners	Measurement	Once	Before finish	Straight	Notes	Main Contractor
10	Level of the floor	Measurement	Once	Before start	The same level, straight	Notes	Main Contractor

## 3.5 Relation to other works

All relevant information for other works that may have influence on the current work must be given. There can be relationships to preceding, simultaneous and following works.

## 3.6. Work environment

The main contractor has to make sure that the building site has sufficient accommodation and equipment like first aid kit, telephone and fire extinguisher.

It is a demand that everyone working on this building site wears proper safety equipment such as a safety helmet and shoes, all such equipment has to be CE marked, it is the site manager's job to inform all his workers about these obligations' and make sure they are full filled.

All the workers should have safety belts while mounting the outer walls.

Working on the roof also requires safety belts.

Fencing has to be established, where there is a risk of falling higher then 1,5m

When working with open fire, there has to be brought at least two fire extinguishers to this work.



## 4. Building Component Specifications

Building Component ID, the title for the building component specifications

- Extent and location  
The work comprises delivery and execution of internal walls, gypsum internal walls; taking care of the connections and the openings for the doors.
- References to drawings

DRAWING	CODE
Gypsum wall 1_ Building Site	DD2_GW1
Gypsum wall 2_ Overview Plan	DD2_GW2
Gypsum wall 3_ Building Component Drawing	DD2_GW3
Gypsum wall 4_ Construction Process	DD2_GW4
Gypsum wall 5_ Ceiling Detail	DD2_GW5
Gypsum wall 6_ Floor Detail	DD2_GW6
Gypsum wall 7_ Corner Connection	DD2_GW7
Gypsum wall 8_ T Connection	DD2_GW8
Gypsum wall 9_ Internal wall Junction	DD2_GW9
Gypsum wall 10_ External wall Junction	DD2_GW10

- Adjoining building components  
External-internal walls.
- Materials and products
  - Gypsum boards
    - Gyproc Wallboard (Standard board product)
    - Gyproc Moisture resistant (With water repellent additives. Using in wet areas)
  - Metal components
    - Gypframe Standard floor & ceiling channel (Horizontal C profile)
    - Gypframe 'C' studs (Vertical C profile)
    - Gypframe steel angles (Vertical profile in corners)
  - Fixings/ Screws
    - Gyproc Drywall screw (For fixing boards)
    - Gyproc Wafer Head Drywall Screw (For fixing gypframe metal)
  - Insulation
    - Isowool APR 1200

- Finishing Products
  - Gyproc Sealant
  - Gyproc jointing materials

*Gyproc uk company*

- Execution

Execution of work is to be done according to good common practice in the carpentry trade and at all times following relevant drawings.

## STEPS:

- Mark the wall position and make allowance for openings
  - Set horizontal C profile in the slab by screws
  - Set horizontal C profile in the ceiling by screws
  - Apply sealant to both sides of the frame perimeters to provide optimum acoustic performance
  - Put the vertical C profile of the ends to give to the structure more stability
  - Set vertical C profile by screws every 400/600 mm and make the hole for the door
  - Place one of the faces with plasterboard and screw to the vertical C profile every 250mm
  - Introduce the installations
  - Put the insulation
  - Close the wall placing the other face with plasterboard and screw to the vertical C profiles every 250 mm
- Surfaces
    - Light internal wall dividing different rooms
  - Tests and samples

See chapter 2.9 *Samples* above
  - Quality Control

The contractor must deliver information about materials and components, used in the contract, for aiding the working-up of the operational plan for the building. This must include amounts and times for the materials, etc. used and built-into the construction as described in the work specifications.

See chapter 3.4 *Control* above
  - Work Environment

See chapter 3.6 *Work environment* above