

# Test Project document template

## ES2012\_TPnnnn\_AA

Submitted by:

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Member Country: ES

Notes:

- The blue text in the following pages is provided as a guide or tip to help complete the Test Project submission according to WorldSkills Europe requirements.
- Please refer to WorldSkills Europe document ES2012\_TP\_prep\_pres.pdf “Test Projects for the 3<sup>rd</sup> EuroSkills Competition – preparation and presentation of Test Projects”.

## **INTRODUCTION TO TEST PROJECT DOCUMENTATION**

Introduction to test project documentation .....	2
Contents .....	3
Introduction.....	3
Description of project and tasks .....	3
Instructions to the competitor .....	9
Equipment, machinery, installations and materials required .....	12
Marking scheme .....	14
other .....	14

## CONTENTS

This Test Project proposal consists of the following documentation/files:

1. ES2012\_TP4070\_ES.doc
2. ES2012\_TP4070\_ES\_01.dwg (AutoCAD file of drawing 1)
3. ES2012\_TP4070\_ES\_01.pdf (pdf version of drawing 01)

## INTRODUCTION

This is a TEAMWORK Test Project, including the trades Joinery, Cabinetmaker and Wood Machinist. Each trade Test Project is organized by daily modules that shall be finished and accessed at the end of their related days.

## DESCRIPTION OF PROJECT AND TASKS

<b>Daily Tasks / Modules</b>			
	<b>C 1 – 1<sup>st</sup> Day Competition</b>	<b>C 2 – 2<sup>nd</sup> Day Competition</b>	<b>C 3 – 3<sup>rd</sup> Day Competition</b>
<b>Teamwork</b>	Work Cleaning Area.	Work Cleaning Area.	Final assembling. Work Cleaning Area.
<b>Joiner</b>	Module 1: Draw/Setting out execution Module 3: Window (Internal Joints: A, B, O, H and I).	Module 3: Window (Internal Joints: C, D, E, F and G).	Module 3: Window (Internal Joints: J, K, L, M and N). Module 2: Frame (Internal Joints).
<b>Cabinetmaker</b>	Module 1: Inner Cabinet.	Module 2: Drawer	Module 3: Door
<b>Wood Machining Technician</b>	Module 1: Parts machining	Module 2: Organize Machine work Module 3: AlphaCAM exercise	Module 2: Organize Machine work Module 3: AlphaCAM exercise

- The drawing of joinery must be done only by joiner.
- The drawer of cabinetmaking must be done only by cabinetmaker.
- The CNC modules must be done only by wood machining technician

### **Daily Marking**

Each day will be marked the following criteria

	<b>C 1 – 1st Day competition</b>	<b>C2 – 2nd Day competition</b>	<b>C3 – 3rd Day Competition</b>
<b>Teamwork</b>	H – Teamwork.	H – Teamwork.	D – Finish and Appearance. E – Measurements. F – Conformity. H – Teamwork.
<b>Joiner</b>	A – Draw/Setting out Execution. B – Internal Joints Window: A, B, O, H and I.	B-Internal Joints Window: C, D, E, F and G).	B-Internal Joints Window: J, K, L, M and N). B-Internal Joints Frame. C – External Joints – Window and Frame. D – Finish and Appearance. E – Measurements – Window and Frame. F – Conformity G – Use of materials.
<b>Cabinetmaker</b>	Module 1 (Inner Cabinet). A – Dimensions. B – Face marking and setting out. C – Joints before gluing. D – Joints after gluing.	Module 2 (Drawer). A – Dimensions. B – Face marking and setting out. C – Joints before gluing. D – Joints after gluing. F – Surfaces finish and Conforming to drawing.	Module 3 (Door) A – Dimensions. B – Face marking and setting out. C – Joints before gluing. D – Joints after gluing. E – Fitting and movable parts. F – Surfaces finish and Conforming to Drawing. G – Use of materials.
<b>Wood Machinist</b>	A –Dimensions of needed pieces for joiner and cabinetmaker in C1. B – Machined surfaces pieces for joiner and cabinetmaker in C1. C – Machine setting and Health.	A –Dimensions of needed pieces for joiner and cabinetmaker in C2. B – Machined surfaces pieces for joiner and cabinetmaker in C2. C – Machine setting and Health.	A – Dimensions needed pieces for joiner and cabinetmaker in C3. C – Machine setting and Health needed pieces for joiner and cabinetmaker in C3. D – Time and machine

	D – Time and machine management and safety.	D – Time and machine. E – CNC– Programming.	management and safety. E– CNC - AlphaCAM Operating. F – Conforming to Drawing. G – Use of materials.
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Note: All the marking aspects must be ready to assess in the end of the stipulated day and will no longer be assessed in the future.

## Competency specification

### Drawing

Knowledge and understanding of drawing:

- Interpretation of drawings/setting-out according to ISO standards
- Understand the need for accurate drawing to produce accurate work
- Competitors shall be able to:
  - Draw a full size, 1:1, a front elevation of a two dimensional project, the door and frame
  - Draw lines that are straight, 'crisp', accurate, and meet cleanly at intersections.
  - Draw lines of a consistent thickness and correct weight
  - Draw all line types required: finish lines, hidden lines, break lines
  - Draw joint details that are accurate and proportioned correctly. All hidden detail must be shown.
  - Measurements - Ensure that all measurements are accurate to within 1mm.
  - Draw the horizontal and vertical sections if required of each component if required, ensuring accuracy to within 1mm.
  - Produce a finished drawing/setting out that is clean and not marked with smudges from pencil led or from the use of an eraser.

### Joints

- Knowledge and understanding of joints:
- Knowledge of materials and their processes of manufacture
- Application of safety regulations when running machines in the host country
- Understanding the need for close fitting joints to form good surface area for gluing

Competitors shall be able to:

- Produce accurately mortises by hand and/or using a variety of machines, for example hollow chisel mortises
- Produce mortises that are parallel and free from cutter or chisel marks
- Produce mortises with a precision of 1mm
- Produce tenons by hand and/or machine, for example handsaws, bandsaw, spindle moulder and mitre saw.
- Produce tenons that are parallel and free from undulations caused by saw or chisel.
- Produce well fitting mortise and tenon joints that fit together with a hand 'push fit'
- Form joints that conform to the drawing
- Form joints that are complete
- Form joints that have a maximum gap of 0.15mm on the shoulders
- Form joints that have no filing or piecing in of gaps

### **Finish and appearance**

Knowledge and understanding of finish and appearance:

- Understand that the visual appearance of a Woodcraft project is what the client bases their appreciation on
- Competitors shall be able to:
- Make a joinery project with twist within 1mm
  - Make a joinery project square to within 1mm
  - Make a joinery project with flush surfaces
  - Make a joinery project with consistency of curved shapes
  - Make a joinery project with perfect fit of panels
  - Make a joinery project without chips or other defects

### **Conformity**

Knowledge and understanding of conformity:

- Interpretation of drawings/setting-out according to ISO standards
- Understand that what a customer orders must be what a customer receives

Competitors will be able to:

- Ensure that the finished project is built exactly as the drawing

- Ensure that the finished project has no piecing in or repairs

### **Measurements**

Knowledge and understanding of measurements

- Interpretation of drawings/setting-out according to ISO standards
- Demonstrate that sizes are critical; an incorrect size will not fit the required location

Competitors shall be able to:

- Make a joinery project within 1mm of given sizes

### **Material**

Knowledge and understanding of material:

- Knowledge of materials and their processes of manufacture
- Understand that mistakes are costly and the need to cut down on waste

Competitors shall be able to:

- Make a joinery project without mistake/s requiring replacement timber

### **Theoretical knowledge**

Theoretical knowledge is required but not tested explicitly.

- Interpretation of drawings/setting-out according to ISO-standards, A and E.
- Knowledge of materials and their processes of manufacture.
- Application of safety regulations when running the machines in the Host Member country.

The competitors will abide by the safety procedures of the Host Member as determined prior to each Competition by the Chief Expert and Host Member.

### **Practical work**

- Only practical work is assessed in this Competition. However, Competitors will require a wide range of theoretical knowledge to adequately demonstrate their practical skills during the Competition. Joinery knowledge and skill, project planning, time allocation, the order of processes and safe work methods will all be factors during the Competition.

### **The Test Project**

- The format of the Test Project is modular.
- It comprises basic tasks from the 3 Trades (Joinery, Cabinetmaking and Wood Machine Technician) and should be developed as a team work.
- It must be accomplished in 18 hours (3 days)
  - Joiner;
    - Module 1: Draw/Setting out execution
    - Module 2: Frame
    - Module 3: Window
  - Cabinetmaker;
    - Module 1: Inner Cabinet
    - Module 2: Drawer
    - Module 3: Door
  - Wood machinist.
    - Module 1: Parts machining
    - Module 2: Organize machine work.
    - Module 3: CNC knowledge
  - Teamwork;
    - Module 1: Work Cleaning Area
    - Module 2: Assembling extra cabinet

## **C1 Day**

### **Joinery:**

The aim of the first day is to run the draw / Setting out and the Internal Joints: A, O, B, H and I of the Window.

The Competitors must submit planted for evaluation. If it is not submitted it will not be assessed.

### **Cabinetmaking:**

Module 1: Inner Module

The aim of the first day for the competitor is to complete the Inner Module.



At the end of the first day Competitors must submit a properly glued cabinet for full evaluation. If it is not submitted it will not be assessed.

### **Wood Machining Technician:**

The aim of the first day is for the Competitors is machining and preparing materials for joiner and cabinetmaker.

### **C2 Day**

#### **Joinery:**

The aim of the second day is to run the Module 3 – Internal Joints of the Window. C, D, E, F, G, J, K, L, M and N.

Competitors must submit the internal joints for reviewing before gluing.

#### **Cabinetmaking:**

The aim of the second day is to run the Module 2: Drawer.

Competitors must submit Face marking, joints marking before cutting the dovetails, and the internal Joints for reviewing before gluing.

Note: At the end of the second day the competitors have to deliver Drawer glued and flattered. If it is not submitted it will not be assessed.

### **Wood Machining Technician:**

The aim of the second day of preparation materials, organize Machine work and CNC Programming.

Note: At the end of the second day Competitors are required to deliver the machined pad. If it is not submitted it will not be assessed.

### **C3 Day**

#### **Joinery:**

The aim of the third day is run Module 3: Window

The Competitors must submit for review before the door of the glue.

Ins Note: At the end of the third day the Competitors Have To Deliver the frame, and the full set mounted.

### **Cabinetmaking:**

The aim of the third day is run Module 3: Door

Bidders must submit for review before the door of the glue

Note: At the end of the third day the competitors have to deliver the door, and the full set mounted.

### **Wood Machining Technician:**

The goal at the end of the third day - : AlphaCAM exercise and the competitors have to deliver the complete and assembled modules.

## **INSTRUCTIONS TO THE COMPETITOR**

This would be the instructions that would be given to the competitor if doing this project. The instructions can be increased and improved at the Competition during the preparation time.

1. - The trades consist of the following work processes and needs the following competences: A competitor should be able to:

### 1.1 Joinery:

Produce floorboards and staircases, doors and windows, kitchen units. They operate machines that saw, shape, bore holes in, cuts slots and grooves, assemble, and finish raw wood to make the doors, windows, cabinets, trusses, plywood, flooring, panelling, moulding, and trim that are components of most homes and buildings.

The main competences required include:

- Following detailed technical drawings to plan jobs.
- Selecting the type of wood to suit a particular product.
- Working out the amount of timber needed.

- Selecting, installing and adjusting saw blades, cutter heads, boring bids, and sanding belts in respective machines, using hand tools and rule.
- Starting machine and making trial cut.
- Periodically verifying dimensions of parts for adherence to specifications, using gauges and templates.
- Assembling fabricated parts to make millwork products, such as doors, sashes, door and window frames, cabinets, etc.
- Cleaning workshop tools and servicing equipment.

### 1.2 Cabinetmaking:

A competitor should be able to:

Construct a piece of furniture from a working drawing and written instructions, using the material supplied.

The main competences required include:

- Reading and interpreting drawings and written instructions.
- Planning processes, sequences and time management.
- Construct joints or components using hand or machine tool techniques.
- Cutting dovetails by hand.
- Frame or panel construction using solid timber or composite materials.
- Working with veneers.
- Fitting hardware.
- Fit and adjust movable parts to allow smooth movement.
- Obtaining dimensional accuracy within given tolerances.
- Sand and prepare ready for polishing / accepting a finish.
- Produce curve surfaces by hand or machine techniques.
- Cleaning workshop tools and servicing equipment.

### 1.3 Wood Machining Technician:

A competitor should be able to:

Preparing and operate machines that saw, shape, tenoning, bore holes in and mould profiles such as chamfers, slots and grooves. In traditional or

numeric controlled machines. The integrations of computers with equipment has improved production speed and capability, simplified setup and maintenance requirements, and increased the demand for workers with computers skills.

The main competences required include:

- Reading, interpreting and following detailed technical drawings and written instructions.
- Planning processes, lists of materials, sequences and time management.
- Selecting the type of wood to suit a particular product.
- Working out the amount of timber needed.
- Selecting, installing and adjusting saw blades, cutter heads, boring bits, and sanding belts in respective machines, using hand tools and rule.
- Starting machine and making trial cut.
- Periodically verifying dimensions of parts for adherence to specifications, using gauges and templates.
- Basic knowledge of AlphaCAM functionalities.
- Programming ISO CNC programs.
- Cleaning workshop tools and servicing equipment.

## ***2. The competences include general social/soft skills:***

- Creativity
- Critical thinking
- Flexibility/adaptability
- Honesty/integrity
- Interpersonal communication
- Proactive work attitude
- Self motivation
- Teamwork
- Time management
- Work ethics skills

- Ability to take, create, acknowledge and live up to personal responsibilities
- Problem-solving skills
- Working under pressure

### **3. Scope of Skills promotion at EuroSkills**

The Skills promotion consists of

- \_ a Skills competition,
- \_ an try a trade event.

### **4. *Description of the Skills competition:***

The competition is a multi trade team competition.

The work processes explained in the section 1.2.2 will be part of the competition. The work processes will be representative of the daily activities in the trade. Some will be quick some will take more time but never exceed a normal day work.

The activities will be assembled in modules and a detailed work schedule will be established in such a way that the competition area will constantly demonstrate activities during the whole day.

### **5. *Description of the try a trade event:***

### **6. Test Project developer**

The Test Project/modules is/are developed by:

Some experts

All experts should bring a proposal for a 30% change to the competition, under the condition of keeping the same material list.

### **7. Test Project marking scheme**

Each Test Project must be accompanied by a marking scheme proposal based on the assessment criteria defined in Annex I.

7.1 The marking scheme proposal is developed by the person(s) developing the

Test Project. The detailed and final marking scheme is developed and agreed by all Experts at the Competition.

7.2 As it is a team competition with overall results, the overall results will be produced by the total amount of points of all the parts (result Joinery + result Cabinetmaking + Apprentices of the Woodcraft Technology will prepare several joints for the spectators should get together as a puzzle, in a given time. The winners will get some prizes result Wood Machining Technician).

7.3 - Marking schemes should be entered into the CIS prior to the Competition.

## 8. Test Project selection

The Test Project is selected as follows. By vote of Experts on the Discussion Forum.

## 9. Test Project circulation

The Test Project is circulated 3 month before the current Competition via ESPO discussion forums.

## 10. Assessment of Test Project

Annex I defines the assessment criteria and the number of marks (subjective and objective) awarded. The total number of marks for all assessment criteria must be 100.

## 11. SKILL-SPECIFIC SAFETY REQUIREMENTS

Refer to Organizer Health & Safety documentation for Organizer regulations.

- The Shopmaster is responsible for the safety measures on the machines
- All circular saws must have a riving knife and top guard.
- The safety protection devices, as guards, fences and stops can't be removed from operating machines.
- For all machines wooden safety aids may be requested by Experts.
- Compressed air is not to be used for dust removal.
- The light conditions must be uniform for all Competitors and must be a minimum 300 lux at each bench top.
- Each Team of Competitors will have a minimum working area of 30 m<sup>2</sup>.

- Each bench must have a minimum of one vice with wooden chops mounted on the long side.
- The work surface of the bench must be height adjustable.
- The competition site requires a smooth, flat and level floor. This floor must not have large cracks, gaps, irregularities or other tripping hazards.

## **EQUIPMENT, MACHINERY, INSTALLATIONS AND MATERIALS REQUIRED**

It is expected that all Test Projects can be done by competitors based on the equipment and materials specified in the Infrastructure Lists\*.

- Attachment: Infrastructure List

\* (Definition: the Infrastructure Lists is the equipment, machinery, installations and materials supplied by the organizer – it does not include tools and material to be supplied by competitors and/or experts).

### **Infrastructure List**

The Infrastructure List lists all equipment, materials and facilities provided by the Organizer or Competition Partner.

The Infrastructure List specifies the items & quantities requested by the Experts for the next Competition. At each Competition, the Experts must review and update the Infrastructure List in preparation for the next Competition. Experts must advise the Secretary General of any increases in space and/or equipment.

The Infrastructure List does not include items that Competitors and/or Experts are required to bring and items that Competitors are not allowed to bring – they are specified below.

## **MATERIALS, EQUIPMENT AND TOOLS SUPPLIED BY COMPETITORS IN THEIR TOOLBOX**

Information about materials, equipment and tools supplied by Competitors will be distributed with the Test Project 3 months prior the current competition.

The Competitor may bring the following tools to the Competition. The list is a suggestion only and is not limited. However only 2 bench mounted static power tools are allowed.

- Set of drawing instruments
- Awls

- Planes
- Chisels
- Shaping tools
- Rebate plane
- Plough plane
- Gauges
- Squares
- Mallet
- Drill and bits
- Hammer
- Screwdrivers
- Hand tool sharpening equipment
- Electric powered routers, which may be bench mounted, with the necessary safety guards.
- Portable compound mitre saw that may have sliding mechanism that is depth adjustable, having suitable rear guarding so as to protect other Competitors, the public and Experts from dust and flying materials.
- The only stationary machines allowed in a Competitor's area are a bench mounted router and a drop saw on a stand (mitre saw). All other power tools must be handheld.
- Hand-held routers
- Sander
- Trammel points
- Portable lamp
- Portable vice

Note: The maximum open height of the toolbox MUST not exceed 1.5 m. No other object in the Competitor's area is to exceed 1.5m in height.

Upon arrival and unpacking of toolboxes, Competitors will show all tools and demonstrate all jigs and templates to the tool inspection team for validation prior to the commencement of the Competition.

### **MATERIALS & EQUIPMENT AND TOOLS PROHIBITED IN THE SKILL AREA**

Please list all Information about prohibited materials, equipment and tools.



During the Competition, Competitors are prohibited from using mobile phones, cameras, personal music devices, radios and any other device deemed to be a distraction by the Chief Expert.

### **MARKING SCHEME**

Every Test Project must be accompanied by an associated marking scheme matching the assessment criteria as given in the Technical Outline (Marking Summary). For each of these criteria a detailed list of aspects to be assessed must be defined (this would be a draft proposal that is discussed and finalised during preparation time at the Competition).

Each Test Project must be accompanied by a marking scheme proposal based on the assessment criteria defined in Section 5.

The marking scheme proposal is developed by the person(s) developing the Test Project. The detailed and final marking scheme is developed and agreed by all Experts on the Discussion Forum.

Marking schemes are to be entered into the CIS prior to the Competition.

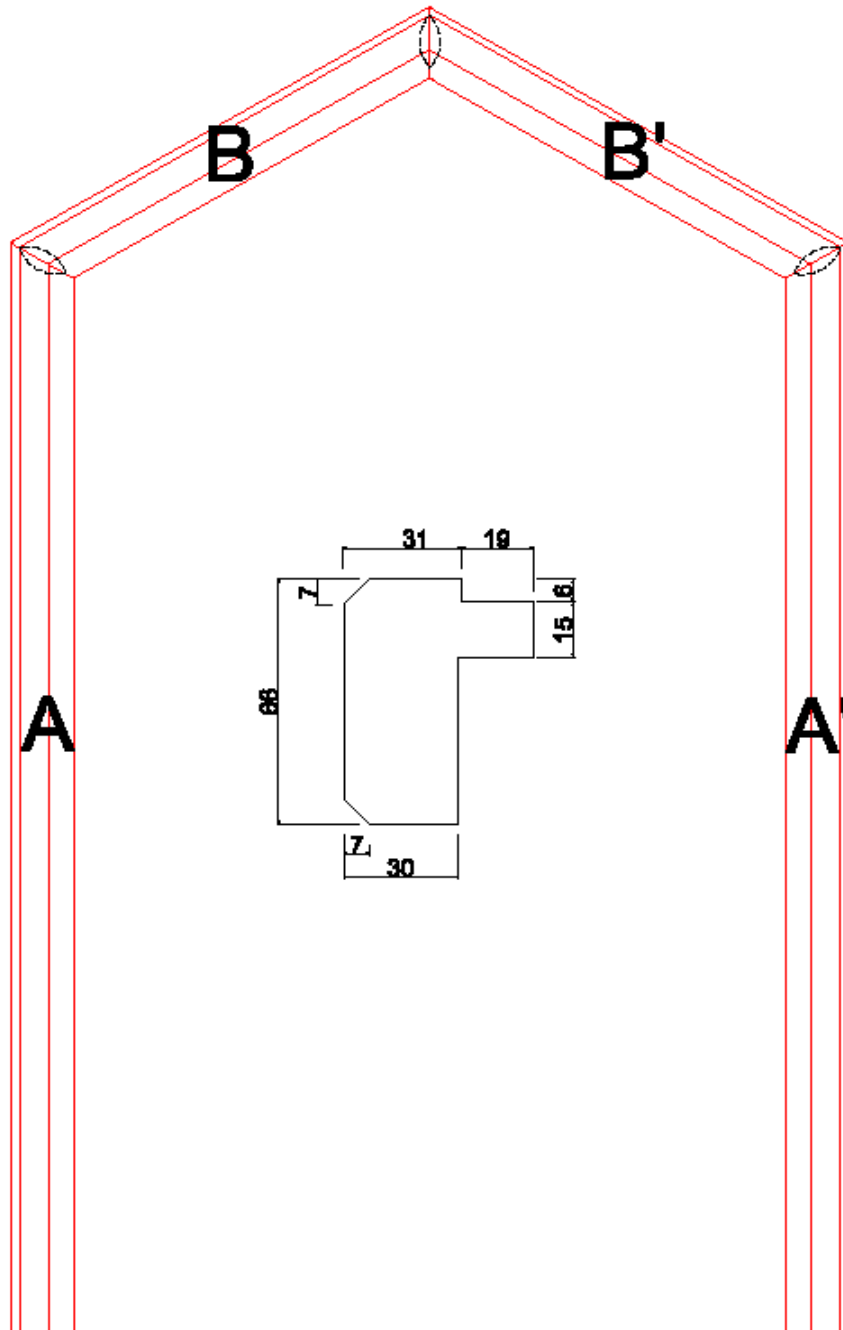
### **OTHER**

Use this section for information that is important but is not covered in the previous sections.

- After parts marking competitors must warn the jury that the task is ready for evaluation.
- The competitors must presents all marks and joints before execute any gluing the pieces.

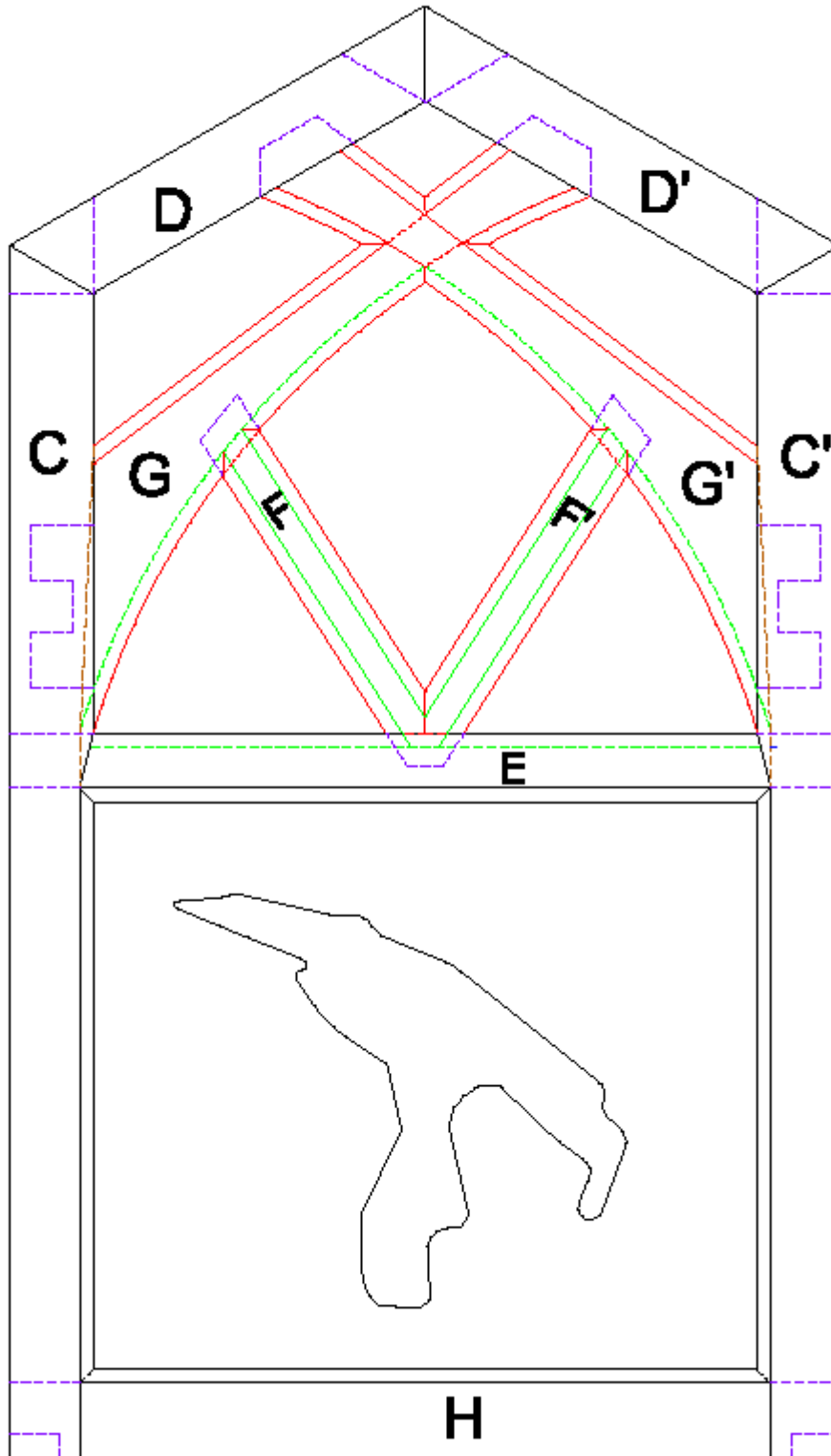
#### 4070 WOODCRAFT TECHNOLOGY - MATERIAL LIST

Item No.	Pieces	Characterization	Material	Length	Width	Thickness
<b>Frame</b>						
1	2	A and A'	Beech	912	66	50
2	2	B and B'	Beech	400	66	50
<b>Door (joinery)</b>						
3	2	C and C'	Beech		60	45
4	2	D and D'	Beech	400	60	45
5	1	E	Beech	600	50	45
6	2	F and F'	Beech	295	40	36
7	2	G and G'	Beech	600	170	36
8	1	H	Beech	600	65	45
<b>External Body</b>						
9	2	Right and left side (1)	Veneered MDF	877	440	19
10	2	Top panels (2)	Veneered MDF	346	430	19
11	1	Bottom panel (3)	Veneered MDF	562	440	19
12	2	Plinth (4)	Veneered MDF	562	50	19
13	1	Back (5)	Veneered MDF	982	580	11
14	2	Edge (6)	Beech	877	19	10
15	2	Edge (7)	Beech	345	19	10
16	2	Edge (8)	Beech	562	19	10
<b>Inner body</b>						
17	2	Right and left side (9)	Veneered MDF	797	370	19
18	2	Top and bottom panels (10)	Veneered MDF	562	370	19
19	1	Shelf (11)	Veneered MDF	524	330	19
20	2	Side rails of the drawer (12)	Veneered MDF	431	81	19
21	1	Top drawer (13)	Veneered MDF	281	362	19
22	2	Edge (14)	Beech	797	30	19
23	2	Edge (15)	Beech	562	30	19
24	1	Edge (16)	Beech	524	19	10
25	2	Front triangle (17)	Beech	139	81	19
26	2	Left and Right triangle (18)	Beech	281	62	19
27	1	Back (19)	Veneered MDF	779	543	11
<b>Door (Cabinetmaking)</b>						
28	2	Left and right rail (20)	Beech	763	45	24
29	2	Top and bottom rail (21)	Beech	510	45	24
30	1	Panel (22)	Veneered MDF	695	460	11
31	5	Veneered (23)	Veneered Beech	347	230	
<b>Drawer</b>						
32	1	Front (24)	Beech	281	79	20
33	1	Back (25)	Beech	281	70	12
34	2	Left and right side (26)	Beech	395	79	12
35	1	Bottom (27)	Plywood beech	378	267	4
<b>Accessory</b>						
36	60	Biscuits	20			
37	25	Screws	3x30			
38	18	Screws	2,5x16			
39	2	Hinges				
40	1	Catch				
41	4	Support shelf				
42	1	Drawing Board	mdf	1200	800	10

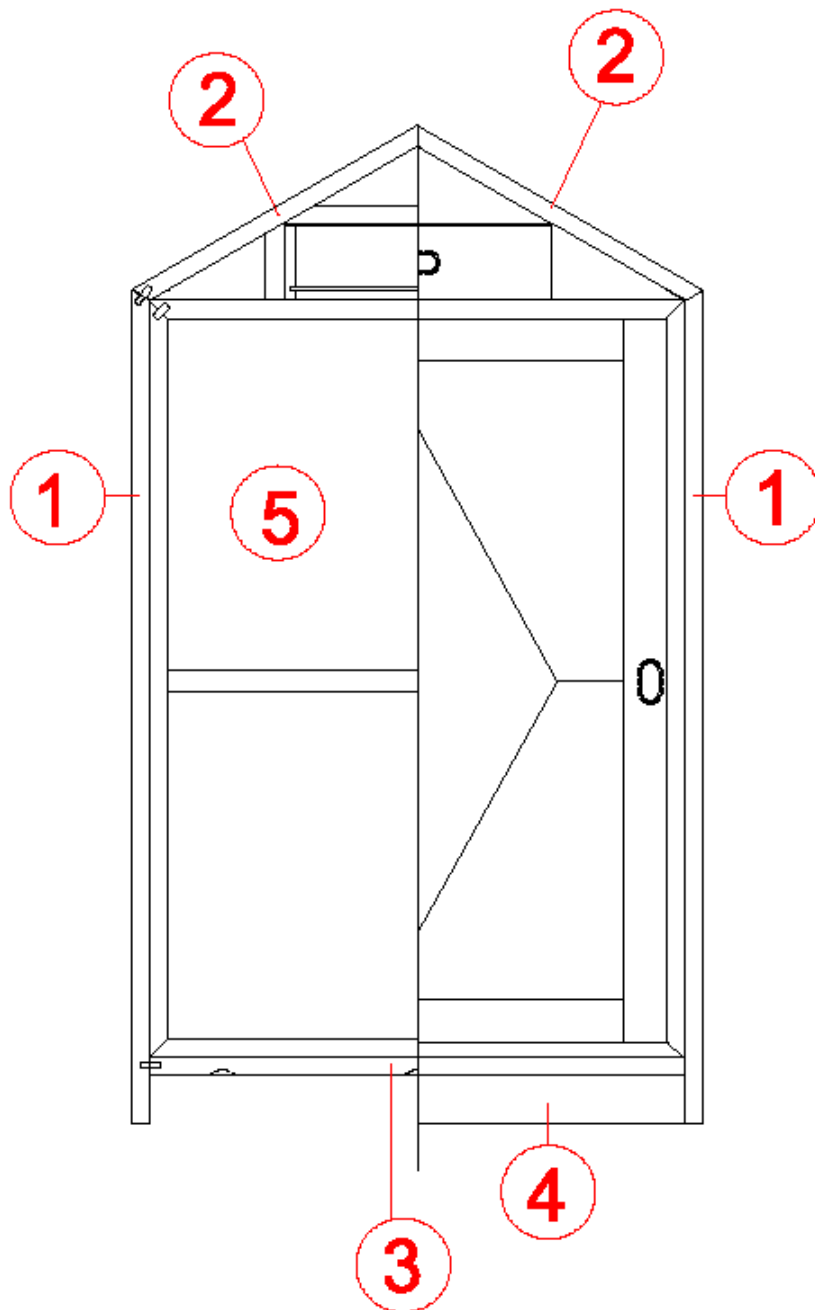


FRAME

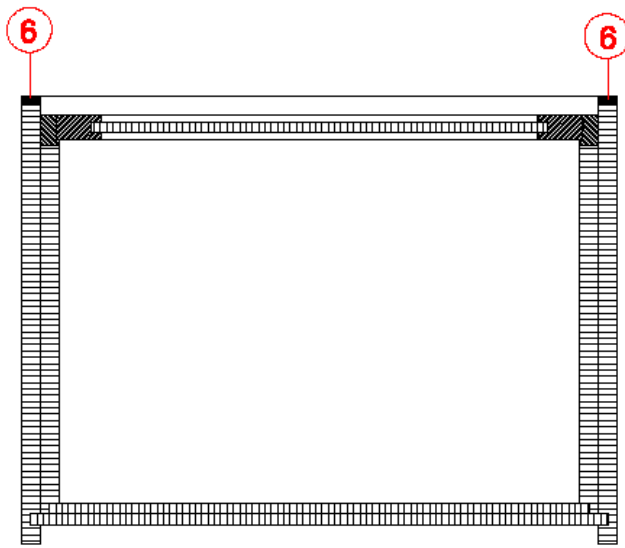
DOOR



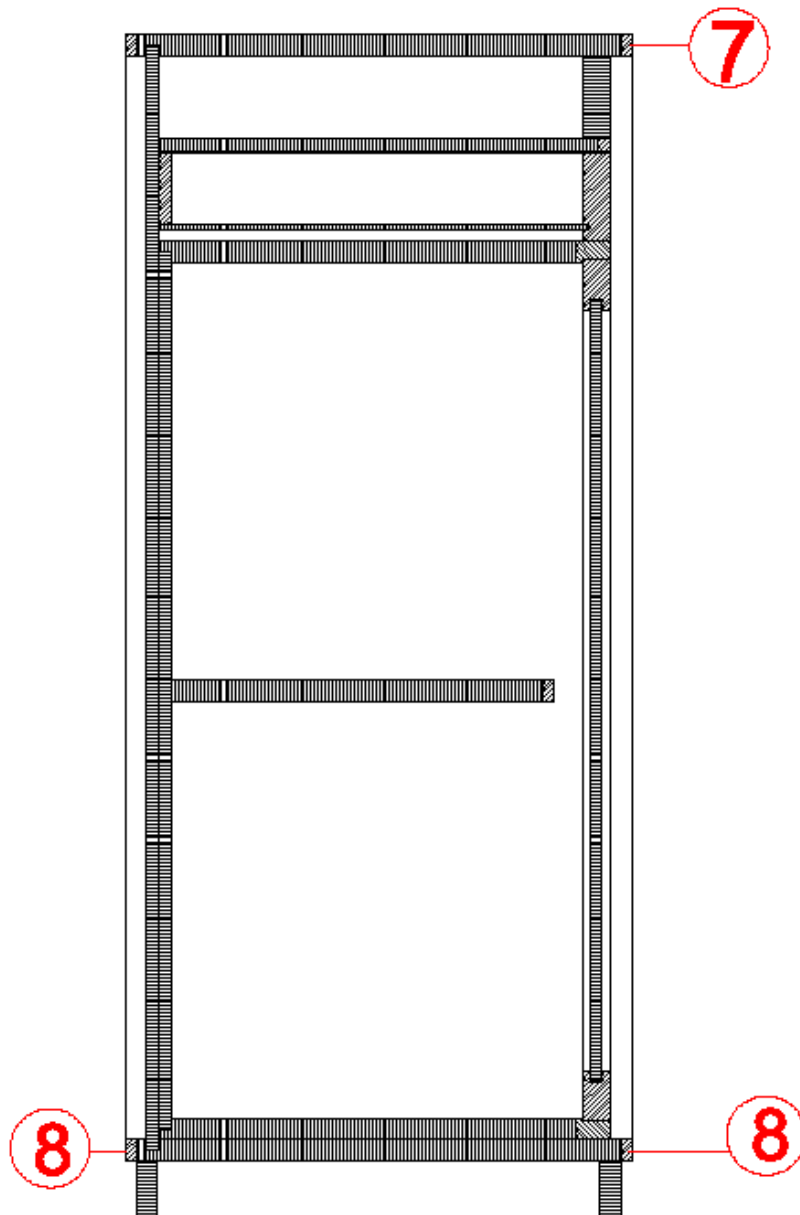
EXTERNAL BODY



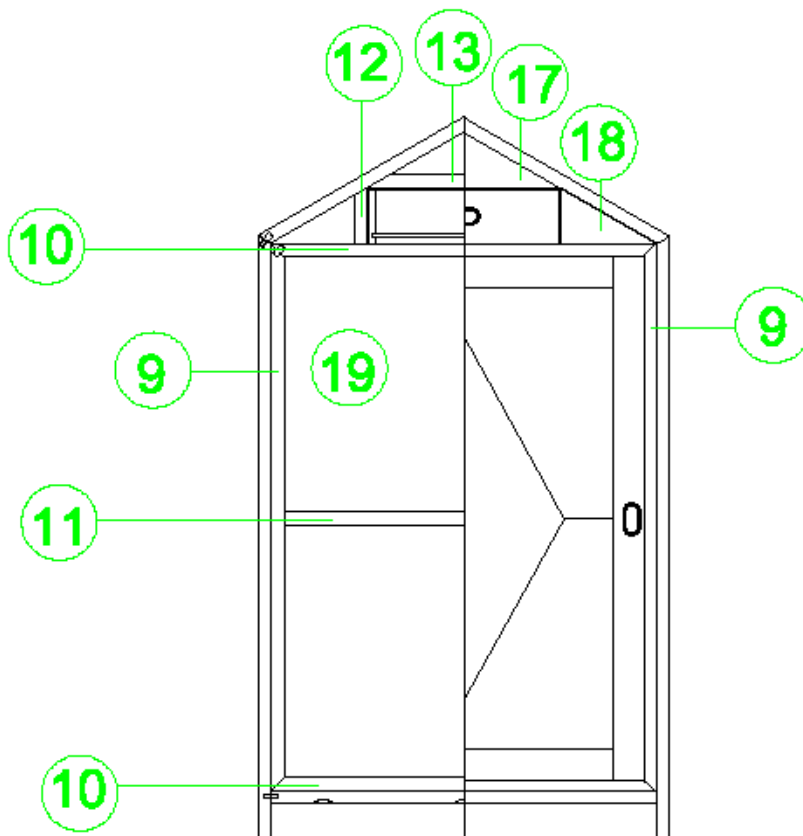
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## EXTERNAL BODY

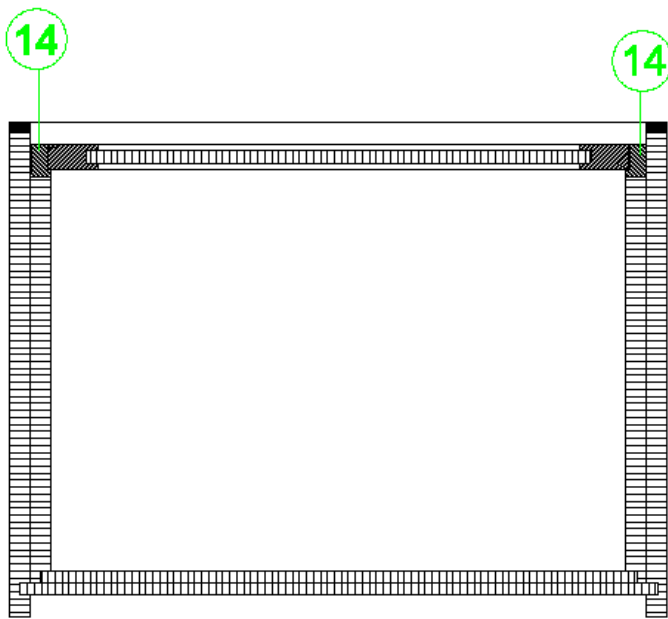


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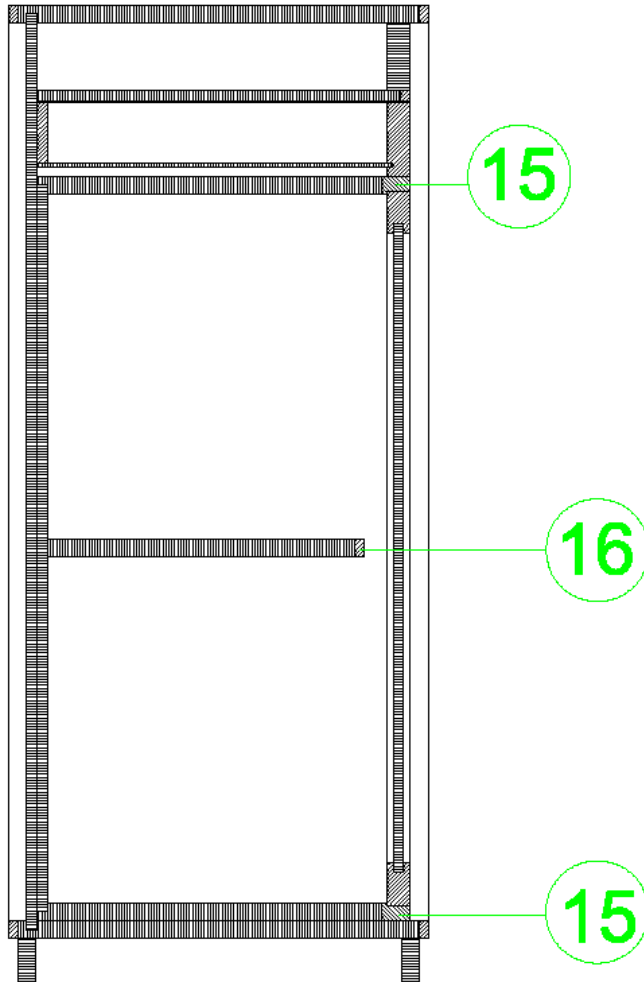




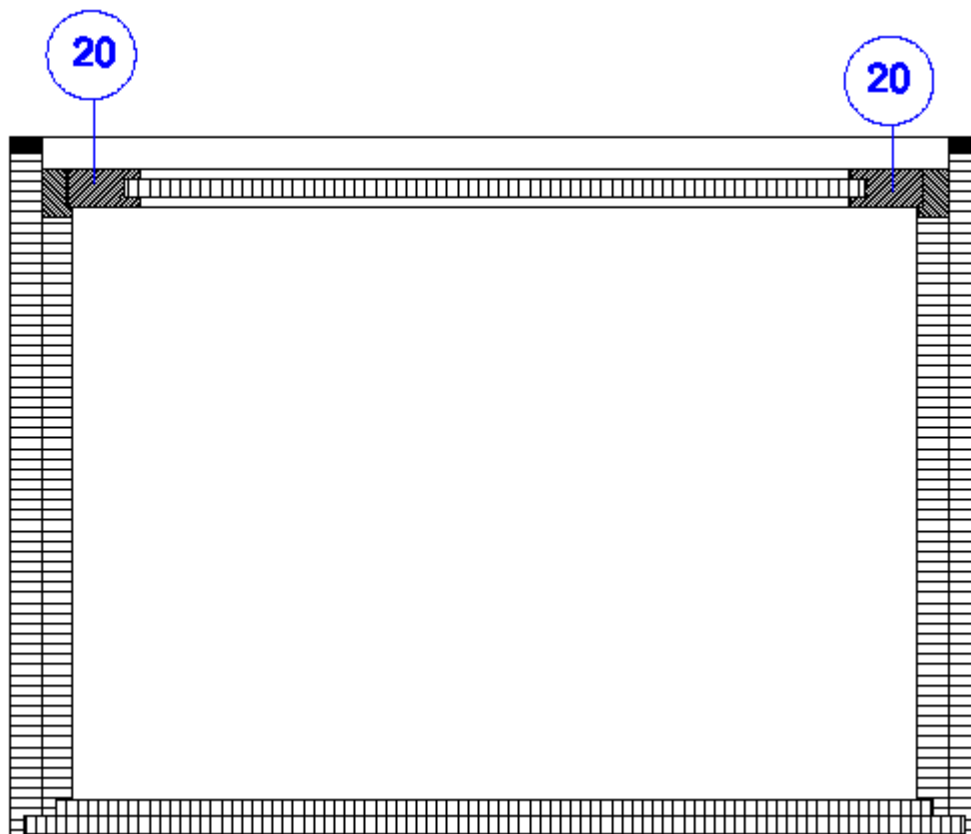
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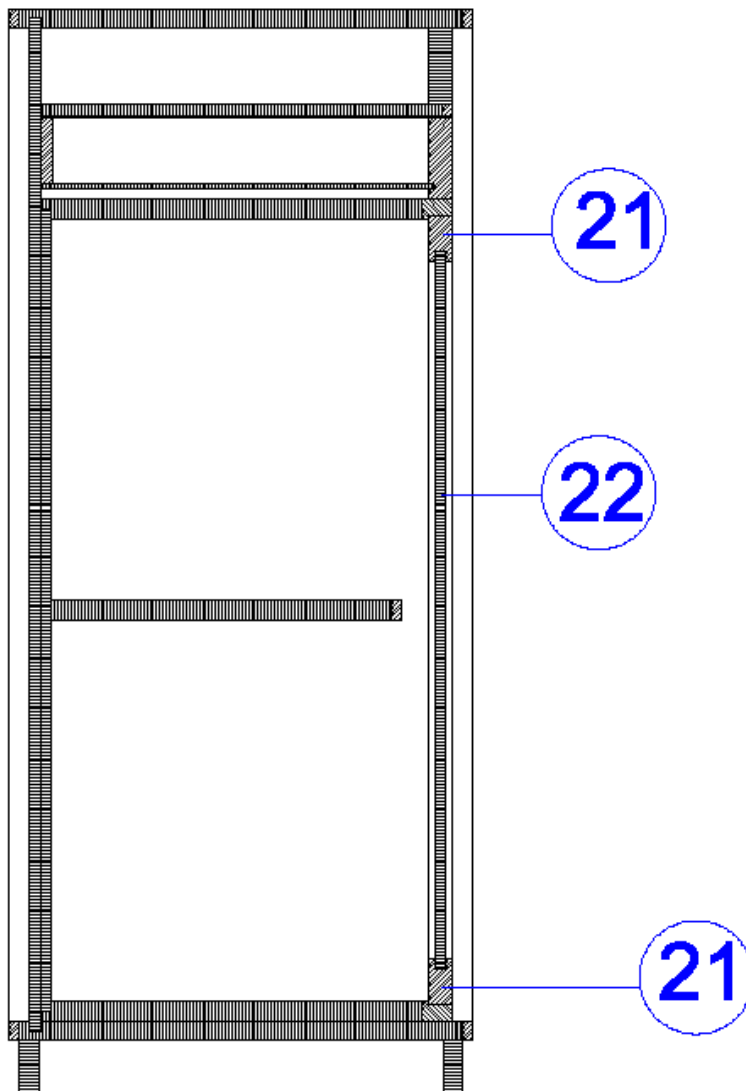
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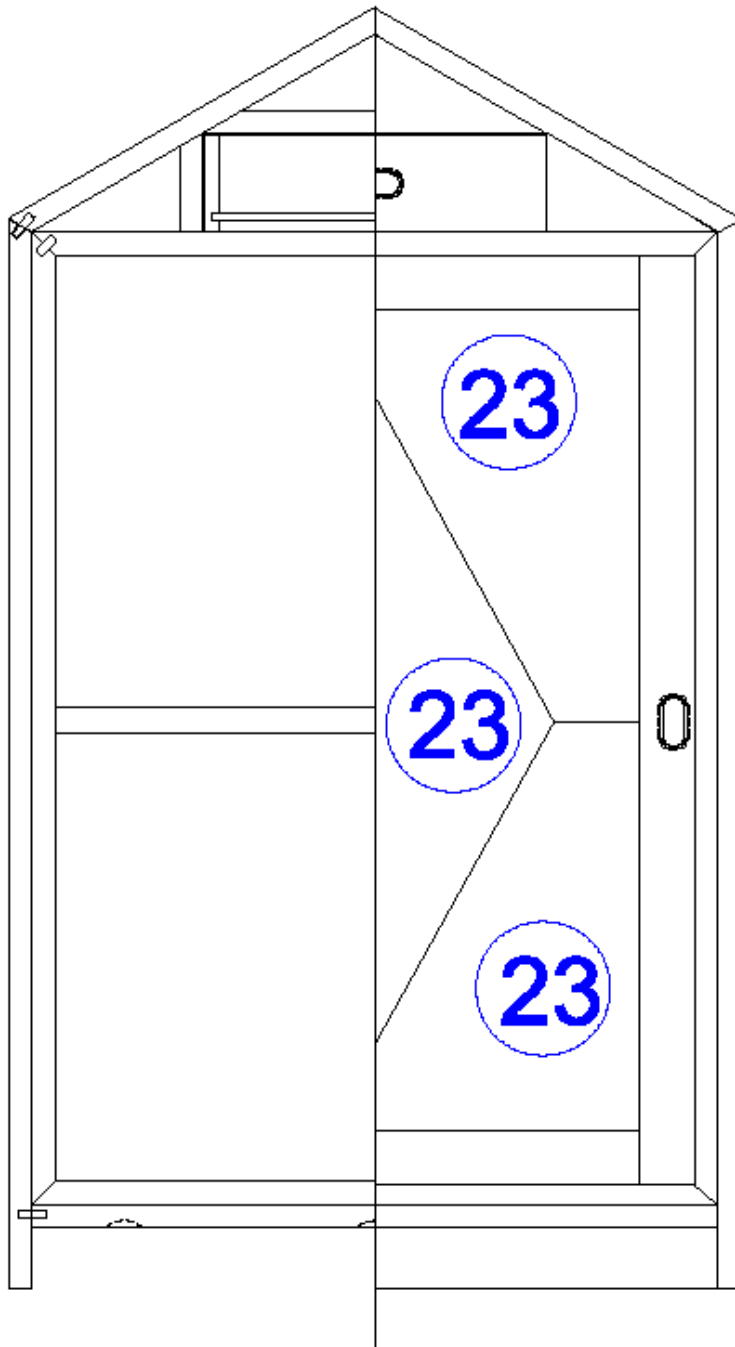
DOOR CABINET



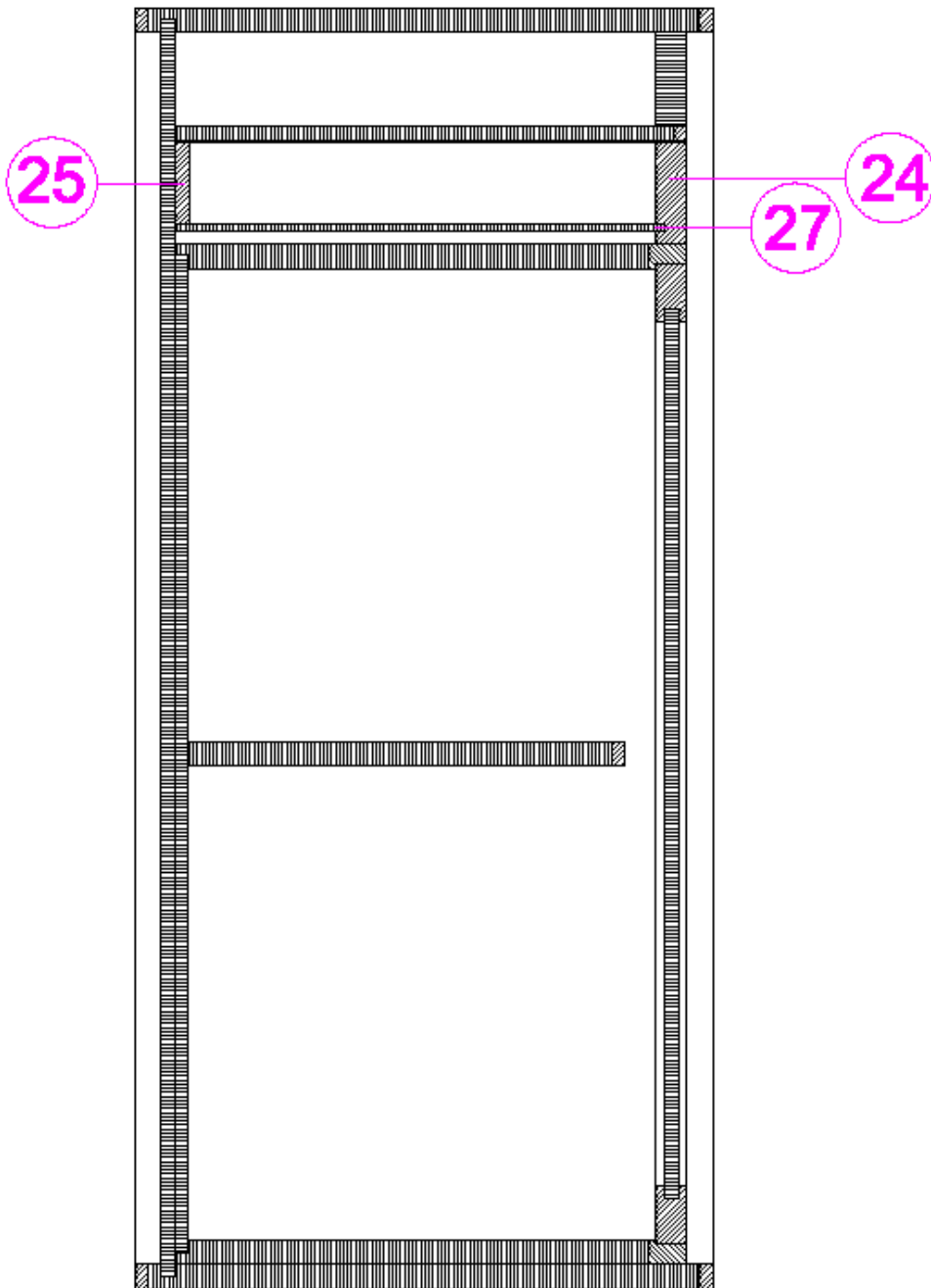
DOOR CABINET



DOOR CABINET



## DRAWER



DRAWER

