NCVET
कौशल गुणवत्ता प्रगति

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
RE IMAGINE FUTURE

FFSC
FURNITURE
& FITTINGS
SKILL COUNCIL
कुशल • सक्षम • आत्मनिर्भर

Sector
Interiors, Furniture and Fixtures

Sub-Sector
Furniture Design and Production

Occupation
Furniture Production (Workshop)

Referece ID: **FFS/Q0902, Version 1, NSQF Level 4.5**

Technical Handbook
Cabinet Making

Table of Content

S. No.	Modules and Units	Page No.
1	Skill Explanation	1
2	Age Limit of Competitor	2
3	Applicable National Occupational Standards (NOS)	2
4	Working Instruction to the Competitor	15
5	Section A: Product Overview	15
6	Section B: Pre Execution Readiness	15
7	Section C: Materials & Resources	15
8	Section D: Construction Workflow	20
9	Section E: Quality Assurance	33
10	Section F: Handover & Documentation	33
11	Annexure 1- Furniture Measured Drawings	34
12	Annexure 2- Cutting List	36
13	Annexure 3- Bill of Materials	37
14	Annexure 4- Sample Drawing	38

Skill Explanation

Cabinetmaking covers the manufacture of free-standing and built-in furniture and units, using wood at the sole or main material. It may include the design of furniture, but normally comprises the creation of furniture and units from designs prepared by others. Cabinetmaking differs from joinery through the quality of the wood and associated materials used, and the intricacy and aesthetic quality of the finished items. There is, however, some overlap between cabinetmaking and joinery.

A cabinetmaker generally works on commercial and residential assignments of a high quality and value. They will therefore exhibit very high standards of skill and professionalism in order to justify clients' expectations and willingness to pay. Most cabinetmakers work in small companies which have to be very sensitive to their reputation and market in order to sustain their businesses' viability.

The cabinetmaker will produce furniture and fittings in a workshop, at least until installing fitted items. However, in order to meet clients' needs, including for the items to add to the aesthetic qualities of their environment they are placed in, they will know intimately where bespoke items are intended to be placed. For items produced speculatively rather than for known clients, the cabinetmaker will have a clear view of the types of location and setting that will show the items at their best.

The cabinetmaker will produce, interpret and/or adapt drawings, set out and measure, cut, form joints, assemble, install if need be, and finish to a high standard. The quality of their work will show in:

- The selection of the wood and other materials;
- The placing of the wood to bring out its particular characteristics;
- Construction techniques which allow for the natural movement of timber to achieve longevity and quality in the furniture piece;
- The selection of additional materials including veneers and fittings;
- The near-perfect fit of each part following accurate measurement, cutting and assembly, and the final appearance of the item.

Work organization and self-management, communication and interpersonal skills, problem solving, innovation and creativity, working precisely and accurately are the universal attributes of the cabinetmaker. They assume a high level of personal responsibility and autonomy. From working safely through to exceptional planning and organizing, accuracy, concentration, and attention to detail to achieve an excellent finish every step in the process matters and mistakes are largely irreversible and very costly.

Modern technology and mass production have enabled furniture and fittings, previously available only to the wealthy, to be more widely available. However, for those with disposable income and an eye for quality, the cabinetmaker is able to produce furniture and fittings that are a lasting pleasure both to use and to look at. In this discerning market the outstanding cabinetmaker will always be in demand

Age limit of Competitors

The Competitors must not be older than 22 years in the year of the Competition

Applicable National Occupational Standards (NOS)

1. FFS/N2228: Interpret the work docket and demonstrate proficiency in working with drawings
2. FFS/N0911: Select and prepare the materials for fabrication process
3. FFS/N0912: Perform the fabrication and assembly of product components into required specification
4. FFS/N0913: Install the architecture hardware and moving parts into finished product
5. FFS/N8209: Execute cabinet making work with safety and effective communication
6. FFS/N8210: Engage in dialogue with client and foster ideas for product improvement

1. FFS/N2228: Interpret the work docket and demonstrate proficiency in working with drawings

Description

This unit describes the performance outcomes required to perform drawing docket interpretation and optimization, material identification, and working with drawings at the workplace or site.

Scope

The scope covers the following :

- Drawing Docket Interpretation and Optimization
- Material Identification
- Working with Drawing

Elements and Performance Criteria

Drawing Docket Interpretation and Optimization

To be competent, the user/individual on the job must be able to:

PC1. conduct a thorough assessment of intended uses and environmental conditions based on drawing dockets, seeking clarity when needed.

PC2. interpret drawing dockets with precision, optimizing the potential for high-quality construction while considering design intent

PC3. extrapolate information from drawings and specifications to address gaps or uncertainties.

PC4. seek clarification and correct any missing or incorrect information in drawings, ensuring accuracy and eliminating potential issues in the construction process.

Material Identification

To be competent, the user/individual on the job must be able to:

PC5. identify the materials specified in drawing dockets, seeking clarification for any discrepancies.

PC6. identify materials and quantities needed for the product according to drawing docket specifications, showcasing proficiency in parts identification.

PC7. organize of all the necessary tools, materials, and equipment for the specified operations

Working with Drawing

To be competent, the user/individual on the job must be able to:

PC8. produce meticulous drawings both to scale and full size, adhering to drawing docket specifications.

PC9. perform the drawing annotation with appropriate dimensional points, specification, conventions and notes on the full-scale drawing

PC10. utilize geometric methods adeptly to determine missing complex angles, joints, and intersections

PC11. perform checking of angles, shapes and dimensions against specifications

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Drawing Docket Interpretation and Optimization	6	18	8	1
PC1. conduct a thorough assessment of intended uses and environmental conditions based on drawing dockets, seeking clarity when needed.	-	4	2	-
PC2. interpret drawing dockets with precision, optimizing the potential for high -quality construction while considering design intent	2	4	2	-
PC3. extrapolate information from drawings and specifications to address gaps or uncertainties.	2	6	4	1
PC4. seek clarification and correct any missing or incorrect information in drawings, ensuring accuracy and eliminating potential issues in the construction process.	2	4	-	2
Material Identification	6	14	6	2
PC5. identify the materials specified in drawing dockets, seeking clarification for any discrepancies.	2	4	-	1
PC6. identify materials and quantities needed for the product according to drawing docket specifications, showcasing proficiency in parts identification.	2	6	4	-
PC7. organize of all the necessary tools, materials, and equipment for the specified operations	2	4	2	1
Working with Drawing	8	20	8	3
PC8. produce meticulous drawings both to scale and full size, adhering to drawing docket specifications.	2	6	4	1
PC9. perform the drawing annotation with appropriate dimensional points, specification, conventions and notes on the full scale drawing	2	6	4	1
PC10. utilize geometric methods adeptly to determine missing complex angles, joints, and intersections	2	4	-	1
PC11. perform checking of angles, shapes and dimensions against specifications	2	4	-	-
NOS Total	20	52	22	6

2. 2.FFS/N0911: Select and prepare the materials for fabrication process

Description

This unit describes the performance outcomes required to execute project visualization, material preparation and setting out, as well as jig preparation tasks at the workplace or site.

Scope

The scope covers the following :

- Project Visualization and Challenge Resolution
- Material Selection and setting out
- Jig Creation for Stationery Machines

Elements and Performance Criteria

Project Visualization and Challenge Resolution

To be competent, the user/individual on the job must be able to:

PC1. visualize the entire projects and resolve potential challenges for efficient fabrication

PC2. collaborate with experts to gain insights and perspectives, enriching the project visualization process.

Material Selection and setting out

To be competent, the user/individual on the job must be able to:

PC3. evaluate and select fittings based on both functional requirements and aesthetic considerations

PC4. select materials, avoiding defects and enhance the overall appearance of the finished product.

PC5. assess the suitability of chosen materials concerning functionality, durability, and industry standards as indicated in drawings

PC6. set out materials meticulously to determine all necessary measurements, sections, angles, mitres, and joints

PC7. perform face marking of final dimensions and shapes for fabrication, maintaining fidelity to design specifications.

PC8. make use of digital tools and technology for accurate measurement determination and material set out

PC9. perform labelling on materials and items appropriately to maintain organization and clarity throughout the fabrication process.

Jig Creation for Stationery Machines

To be competent, the user/individual on the job must be able to:

PC10. access the requirement of jigs based on part specification

PC11. select the appropriate tools, material and process specifications for jig fabrication

PC12. produce jigs for stationery machines based on drawings, adhering to safety requirements and ensuring accuracy in manufacturing.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Project Visualization and Challenge Resolution	-	8	4	-
PC1. visualize the entire projects and resolve potential challenges for efficient fabrication	-	4	2	-
PC2. collaborate with experts to gain insights and perspectives, enriching the project visualization process.	-	4	2	-
Material Selection and setting out	14	32	10	5
PC3. evaluate and select fittings based on both functional requirements and aesthetic considerations	2	4	-	1
PC4. select materials, avoiding defects and enhance the overall appearance of the finished product.	2	4	2	1
PC5. assess the suitability of chosen materials concerning functionality, durability, and industry standards as indicated in drawings	2	4	-	-
PC6. set out materials meticulously to determine all necessary measurements, sections, angles, mitres, and joints	2	6	4	1
PC7. perform face marking of final dimensions and shapes for fabrication, maintaining fidelity to design specifications.	2	4	2	1
PC8. make use of digital tools and technology for accurate measurement determination and material set out	2	6	-	1
PC9. perform labelling on materials and items appropriately to maintain organization and clarity throughout the fabrication process.	2	4	2	-
Jig Creation for Stationery Machines	6	14	6	1
PC10. access the requirement of jigs based on part specification	2	4	-	-
PC11. select the appropriate tools, material and process specifications for jig fabrication	2	4	2	1
PC12. produce jigs for stationery machines based on drawings, adhering to safety requirements and ensuring accuracy in manufacturing.	2	6	4	-
NOS Total	20	54	20	6

3. FFS/N0912: Perform the fabrication and assembly of product components into required specification

Description

This unit describes the performance outcomes required to perform furniture component preparation, surface enhancement, and assembly processes.

Scope

The scope covers the following :

- Preparing components
- Apply laminates/veneer on surface
- Joining and Assembly

Elements and Performance Criteria

Preparing components

To be competent, the user/individual on the job must be able to:

PC1. perform the cutting of panels into required specifications using a cutting machine

PC2. produce shaped elements using jigs on stationery machines, aligning with design specifications

PC3. utilize woodworking machines skilfully to form grooves, rebates, and mouldings

PC4. adapt and refine shaped elements as necessary to meet evolving project requirements and design alterations.

PC5. check for seamless fitting of parts with other items from hand tools and machines, ensuring integration and compatibility.

Apply laminates/veneer on surface

To be competent, the user/individual on the job must be able to:

PC6. select and checked the surface for flaws pr defects before pasting

PC7. perform the measurement, marking of laminate/sheet and cut to size

PC8. apply edging strips and face veneers to panels with precision and suitable adhesives

Joining and Assembly

To be competent, the user/individual on the job must be able to:

PC9. undertake the preparation of accurate joints

PC10. employ and maintain traditional hand tools, portable power tools, and assorted stationary woodworking machines, to cut and prepare a wide range of joints.

PC11. prepare joints that are parallel, clean, and correct in size to the drawing

PC12. ensure faces, edges, and all shoulders are square straight and to the drawing

PC13. ensure proper checking of joints for strength and durability

PC14. assemble the product components into required shape and specifications

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Preparing components	6	18	8	1
PC1. perform the cutting of panels into required specifications using a cutting machine	-	4	2	-
PC2. produce shaped elements using jigs on stationery machines, aligning with design specifications	-	4	2	-
PC3. utilize woodworking machines skilfully to form grooves, rebates, and mouldings	2	4	2	1
PC4. adapt and refine shaped elements as necessary to meet evolving project requirements and design alterations.	2	4	2	-
PC5. check for seamless fitting of parts with other items from hand tools and machines, ensuring integration and compatibility.	2	2	-	-
Apply laminates/veneer on surface	6	10	4	2
PC6. select and checked the surface for flaws pr defects before pasting	2	2	-	-
PC7. perform the measurement, marking of laminate/sheet and cut to size	2	4	2	1
PC8. apply edging strips and face veneers to panels with precision and suitable adhesives	2	4	2	1
Joining and Assembly	10	22	8	5
PC9. undertake the preparation of accurate joints	2	4	2	1
PC10. employ and maintain traditional hand tools, portable power tools, and assorted stationary woodworking machines, to cut and prepare a wide range of joints.	2	4	2	1
PC11. prepare joints that are parallel, clean, and correct in size to the drawing	2	4	2	1
PC12. ensure faces, edges, and all shoulders are square straight and to the drawing	2	2	-	1
PC13. ensure proper checking of joints for strength and durability	2	4	-	1
PC14. assemble the product components into required shape and specifications	-	4	2	-1
NOS Total	22	50	20	8

4. FFS/N0913: Install the architecture hardware and moving parts into finished product

Description

This unit describes the performance outcomes required to execute tasks such as hinge positioning and fitting, drawer and moving item fitting, finished surface preparation, quality check, and final finish review.

Scope

The scope covers the following :

- Hinge Positioning and Fitting
- Drawer and Moving Item Fitting
- Finished Surface Preparation
- Quality check and Finish Review

Elements and Performance Criteria

Hinge Positioning and Fitting

To be competent, the user/individual on the job must be able to:

PC1. position and fit hinges with precision, ensuring proper functionality and alignment with project specifications.

PC2. ensure a snug fit along door edges for a polished and visually appealing outcome.

Drawer and Moving Item Fitting

To be competent, the user/individual on the job must be able to:

PC3. perform the fitting of drawers and other moving items into carcasses to achieve a glide fit

PC4. ensure proper functioning of drawers and other moving items after assembly

Finished Surface Preparation

To be competent, the user/individual on the job must be able to:

PC5. ensure that surfaces on complete assemblies are free from defects before final finishing process

PC6. prepare the surface of finished product, utilizing suitable sanding tools and equipment

PC7. produce soft edges to components or assemblies, ensuring a tactile and visually appealing finish.

PC8. polish components or assemblies to achieve a high-quality and reflective finish

Quality check and Finish Review

To be competent, the user/individual on the job must be able to:

Pc9. Inspect and adjust items for harmony, proportion, fit, and finish, considering both aesthetic and functional requirements.

PC10. provide constructive feedback for continuous improvement and refinement.

Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Hinge Positioning and Fitting	4	10	4	1
PC1. position and fit hinges with precision, ensuring proper functionality and alignment with project specifications.	2	6	4	1
PC2. ensure a snug fit along door edges for a polished and visually appealing outcome.	2	4	-	-
Drawer and Moving Item Fitting	2	12	4	-
PC3. perform the fitting of drawers and other moving items into carcasses to achieve a glide fit	-	6	4	-
PC4. ensure proper functioning of drawers and other moving items after assembly	2	6	-	-
Finished Surface Preparation	8	22	12	3
PC5. ensure that surfaces on complete assemblies are free from defects before final finishing process	2	4	-	1
PC6. prepare the surface of finished product, utilizing suitable sanding tools and equipment	2	6	4	1
PC7. produce soft edges to components or assemblies, ensuring a tactile and visually appealing finish.	2	6	4	-
PC8. polish components or assemblies to achieve a high-quality and reflective finish	2	6	4	1
Quality check and Finish Review	2	10	6	-
PC9. Inspect and adjust items for harmony, proportion, fit, and finish, considering both aesthetic and functional requirements.	2	6	4	-
PC10. provide constructive feedback for continuous improvement and refinement.	-	4	2	-
NOS Total	16	54	26	4

5. FFS/N8209: Execute cabinet making work with safety and effective communication

Description

This unit describes the performance outcomes required to adhere to health and safety standards for the usage of tools, equipment, and materials as well as performing efficient planning. This unit also includes skills for client trust building, supplier management, adaptability, and effective communication within specified deadlines.

Scope

The scope covers the following :

- Adherence to Health and Safety Standards
- Tools, Equipment, and Material Safety
- Work Area Planning and Efficiency
- Self-Evaluation and Client Trust Building
- Supplier Relations and Estimation
- Adaptability and Order Management
- Communication and Deadline Adherence

Elements and Performance Criteria

Adherence to Health and Safety Standards

To be competent, the user/individual on the job must be able to:

PC1. comply meticulously with health and safety standards.

PC2. maintain a secure working environment, implementing safety measures.

PC3. identify and utilize suitable personal protective equipment in line with established guidelines.

Tools, Equipment, and Material Safety

To be competent, the user/individual on the job must be able to:

PC4. safely select, employ, and maintain tools, following safety protocols diligently.

PC5. select and handle materials safely, adhering to safety guidelines.

Work Area Planning and Efficiency

To be competent, the user/individual on the job must be able to:

PC6. develop a strategic plan for the work area, emphasizing efficiency and regular tidying..

PC7. perform work efficiently, monitoring progress to prevent unnecessary costs.

Self-Evaluation and Client Trust Building

To be competent, the user/individual on the job must be able to:

PC8. assess personal work critically, implementing improvements.

PC9. cultivate client trust through proactive management of expectations & offering sound advice.

Supplier Relations and Estimation

To be competent, the user/individual on the job must be able to:

PC10. engage with suppliers effectively for negotiations and order placement.

PC11. provide accurate estimates for clients, showcasing financial proficiency.

Adaptability and Order Management

To be competent, the user/individual on the job must be able to:

PC12. recognize and adapt to changing circumstances efficiently.

PC13. order components with sufficient lead time for seamless production continuation.

Communication and Deadline Adherence

To be competent, the user/individual on the job must be able to:

PC14. communicate clearly regarding drawings, variations, & restrictions for effective collaboration.

PC15. follow instructions, meet deadlines, and report progress appropriately for timely project completion.

PC9. Inspect and adjust items for harmony, proportion, fit, and finish, considering both aesthetic and functional requirements.

PC10. provide constructive feedback for continuous improvement and refinement.

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Adherence to Health and Safety Standards	6	12	2	2
PC1. comply meticulously with health and safety standards.	2	4	-	1
PC2. maintain a secure working environment, implementing safety measures.	2	4	-	-
PC3. identify and utilize suitable personal protective equipment in line with established guidelines.	2	4	2	1
Tools, Equipment, and Material Safety	4	8	4	2
PC4. safely select, employ, and maintain tools, following safety protocols diligently.	2	4	2	1
PC5. select and handle materials safely, adhering to safety guidelines.	2	4	2	1
Work Area Planning and Efficiency	-	8	4	-
PC6. develop a strategic plan for the work area, emphasizing efficiency and regular tidying..	-	4	2	-
PC7. perform work efficiently, monitoring progress to prevent unnecessary costs.	-	4	2	-
Self-Evaluation and Client Trust Building	2	8	-	-
PC8. assess personal work critically, implementing improvements.	2	4	-	-
PC9. cultivate client trust through proactive management of expectations and offering sound advice.	-	4	-	-

Supplier Relations and Estimation	2	8	2	-
PC10. engage with suppliers effectively for negotiations and order placement.	2	4	-	-
PC11. provide accurate estimates for clients, showcasing financial proficiency.	-	4	2	-
Adaptability and Order Management	-	8	4	-
PC12. recognize and adapt to changing circumstances efficiently.	-	4	2	-
PC13. order components with sufficient lead time for seamless production continuation.	-	4	2	-
Communication and Deadline Adherence	2	8	4	-
PC14. communicate clearly regarding drawings, variations, and restrictions for effective collaboration.	2	4	2	-
PC15. follow instructions, meet deadlines, and report progress appropriately for timely project completion.	-	4	2	-
NOS Total	16	60	20	4

6. FFS/N8210: Engage in dialogue with client and foster ideas for product improvement

Description

This unit describes the performance outcomes required to engage in dialogues for work quality, contribute ideas for enhanced product quality, and stay informed about industry trends.

Scope

The scope covers the following :

- Engage in Dialogues and ensure work quality
- Contribute Ideas for Enhanced Product Quality
- Industry Trends and Awareness

Elements and Performance Criteria

Engage in Dialogues and ensure work quality

To be competent, the user/individual on the job must be able to:

PC1. perform in-depth discussions on style, form, and aesthetics with clients and specialists.

PC2. regularly inspect work with precision, minimizing issues at later stages.

PC3. recognize and articulate problems, ensuring a thorough understanding of project intricacies.

Contribute Ideas for Enhanced Product Quality

To be competent, the user/individual on the job must be able to:

PC4. develop inventive solutions when navigating challenges in complex projects, showcasing adaptability

PC5. contribute innovative ideas to enhance the product and elevate overall client satisfaction.

Industry Trends and Awareness

To be competent, the user/individual on the job must be able to:

PC6. keep abreast of changes and trends in the cabinet making industry.

PC7. display willingness to experiment with and embrace new and innovative methods.

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Engage in Dialogues and ensure work quality	8	22	12	1
PC1. perform in -depth discussions on style, form, and aesthetics with clients and specialists.	4	8	6	1
PC2. regularly inspect work with precision, minimizing issues at later stages.	4	6	-	-
PC3. recognize and articulate problems, ensuring a thorough understanding of project intricacies.	-	8	6	-
Contribute Ideas for Enhanced Product Quality	-	16	12	-
PC4. develop inventive solutions when navigating challenges in complex projects, showcasing adaptability	-	8	6	-
PC5. contribute innovative ideas to enhance the product and elevate overall client satisfaction.	-	8	6	-
Industry Trends and Awareness	8	14	6	1
PC6. keep abreast of changes and trends in the cabinet making industry.	4	8	6	1
PC7. display willingness to experiment with and embrace new and innovative methods.	4	6	-	-
NOS Total	16	52	30	2

Working Instructions to Competitors

For Construction of the task;

- After face marking and setting out of the case, competitors must bring them to the experts for marking
- Before gluing, it must present the frames to the experts for making
- The surface should be fit for the polishing
- The competitors must keep track of the time by themselves.
- The timing will be stop by experts, only in cases of illness and accidents
- Your own measuring equipment rulers etc. Can be available after finishing your test for controlling of the measurements
- Hand tools can be utilized for finishing your work

Product Execution Template

Section A: Product Overview

1. Product Details

Product Name	**Cabinet Making**
Dimensions	Length: 28” (720 mm), Width: 16” (400 mm), Height: 22” (560 mm)
Materials	Frame: Solid Hardwood (Steam Beech) - Panel - Pre - laminated MDF, Finish - natural mate
Design Features	Cabinet having drawer & door with wooden leg frame base
Intended Use	Indoor installation, Residential bedroom, Moderate humidity environment, Flat and level floor base required

Section B: Pre-Execution Readiness

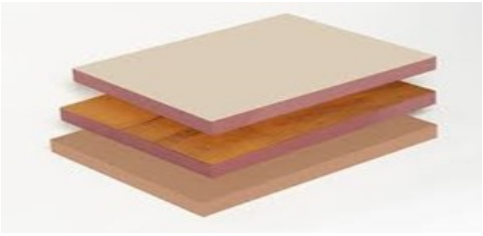
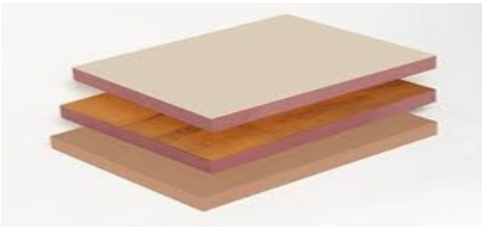
2. Pre-Production Checklist

Ensure all these are addressed before beginning production:

Task	**Status (✗/✓)**	**Remarks**
Final approval of product drawings	✓	Must include plan, elevation, section views
On-site space cleaned and prepared	✓	No obstructions or ongoing construction
All raw materials, hardware delivered and checked	✓	Verify quality, quantity, moisture content
Availability of Power tools, hand tools	✓	–
Availability of power outlets	✓	For power tool operation (220V preferred)

Section C: Materials & Resources

3. Raw Materials Required

Item	Specification/Use	Description	Image
Wood and Panels			
Solid wood	Steam beech wood	Used in Leg Frame doors, drawer & lipping	
Pre-laminated MDF	17mm Thick	Used in cabinet side, Top & Bottom	
Pre-laminated MDF	7.5mm Thick	Used in cabinet back panel	
Hardware			
Butt Hinges	50 x 38 mm brass metal finishes	For Door Frame Movement	
Screws	Various sizes	Used for fixing b utt hinges, Drawer runner & leg frame	
Wooden Dowel	20 x 4 mm dowel	Used for connecting the cabinet panel	
Adhesives & Consumables			

Adhesives & Consumables			
Resin Glue	For joint fixing	PVA-based wood adhesive for edge bonding & surface gluing	
Fast spray glue	Template holding for few minutes	A permanent contact adhesive in an aerosol format	
Orbital Sanding paper	120grid, 180 grid, 220 grid	For wood surface finishing	

4. Tools & Equipment

Tool	Specification/Use	Description	Image
Hand Tools			
Measuring Tape	3m/5m	For accurate measurements of wood panels	
Steel Ruler	300mm or 600mm	Precision steel measuring tool	
Marking Gauge	150 mm	Precision marking tool For mortise/Tennon joint	

Mitre Square	Adjustable angle tool	Used to mark and check angles	
Try Square	6"/8"	For marking and checking right angles	
clamps	6" to 12"	Holding materials during cutting or glueing	
Belt clamps	1”to 2”	Use for holding cabinet panel during glueing	
Power Tools			
Drill Machine	With wood bits	For drilling screw holes or dowel joints	
Hand Router	For edge profiling	Used for shaping decorative edges on panels	
Compound Mitre Saw	Cutting at 90-& 45-degree angle	For accurate cutting	

Stand Light	15000 luminus power	Dewalt stand light	
Stand - For Hand Tools	–	Used for tools storage on a arranged manner	
Clamp Stand	Metal body stand	Using for clamp holding	
MFT Table	Using for tools uses	Multifunction table for machine uses	
Working Table	Hard wood working table	–	
Accessories			
Carpenter's Pencil	Marking	Flat pencil for marking wood without rolling off	
Protractor Angle Finder	Angle marking	Stainless Steel 180 Degree Protractor Angle Finder Rotary Measuring Ruler	
Spirit Level	600mm or 1200mm	For ensuring level alignment	

Safety Gears			
Dust Masks	N95 or similar	Protection from MDF dust	
Nitrile Gloves	Medium/Large	Prevent glue/chemical contact with skin	
Safety Goggles	ANSI- rated	Eye protection from dust and splinters	
Noise Protection Plugs	Foam type	Ear protection during power tool use	
Fire Extinguisher	CO2 or dry powder	For immediate response to workshop fires	

Section D: Construction Workflow

5. Step-by-Step Build Process

1. Sizing & Shaping

Surface planning at 90-degree angle

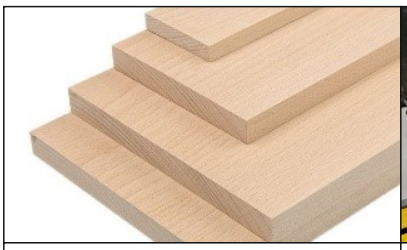
Thickness planning in accurate required size

Objective: Sizing at accurate dimensions from design drawings to the raw panel materials.

1. Cutting

Objective: Cut all to precise sizes ensuring clean edges and squareness

- Place the wood on an elevated base to avoid material damage and accidents.
- Rough trim all wood by 5–10 mm first, then finalize cuts to correct size.
- Ensure edges are straight (check visually and with a straight edge).

		
Raw materials for carpentry structure	Start cutting 5mm for right angle	Final cutting according to Drawing for making joint

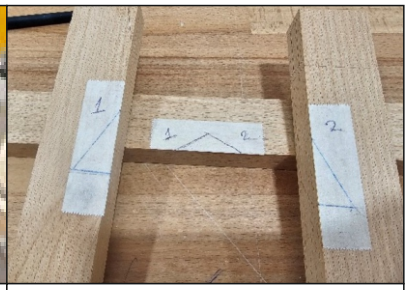
Tips:

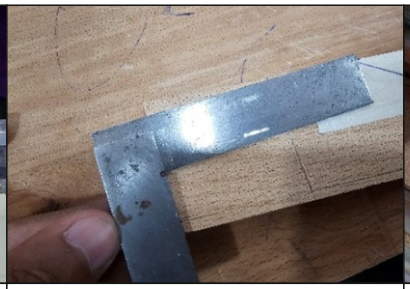
- Use F-clamps to stabilize material.
- Replace or clean saw blade regularly to avoid burn marks.

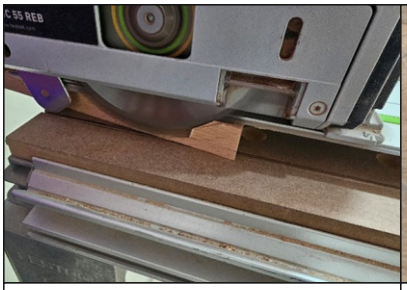
1. Module 1 – Leg Frame

Objective: Mortise & Tennon joint make the door frame stronger & durable

- Marking for Mortise joint

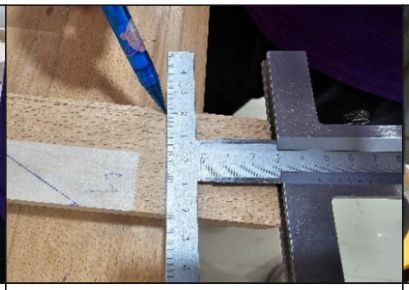
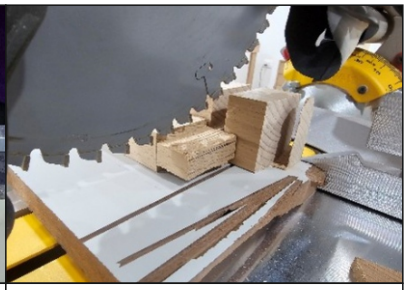
		
Marking for leg cutting at 84 degrees	Use mitre saw for cutting size of leg	Face marking leg frame with triangle sign or numbers

		
Use marking gauge for marking the mortise joint	Use Try square for marking top edge of leg at 90 degrees	Use track saw for cutting the 90-degree marking line

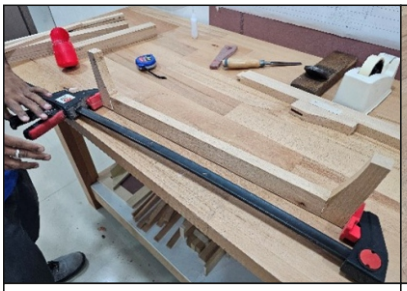
		
While using the track saw use nose mask & earmuff for safety	After cutting the leg, check properly	Marking for mortise drill

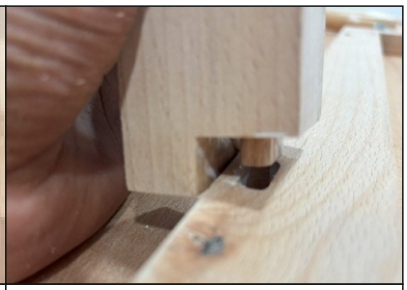
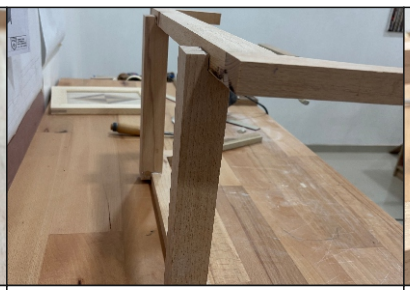
		
Check the marking properly before routing	Use 8mm router trim bit for mortise drill	After routing use chisel for cutting round edge of mortise

- Marking for tenon joint

		
Use F-clamp for holding the wood properly before chiselling	Use marking gauge for tenon marking	Use mitre saw for making tenon joint

		
After cutting tenon joint use router machine	Set the trim 25mm bit for smoothing the tenon joint	Check router machine gauge properly before using machine & use safety tools

		
set the bit for other side cutting	Start cutting tenon joint	Check mortise & tenon joints are fixing or not
		
Before gluing check all the joint properly	Use fevicol SH for fixing the mortise & tenon joints	Clean the access glue from leg frame
		
Use F- clamp for fixing it properly	Marking for cutting the connecting side rail	Use mitre saw for cutting the side rail
		
Marking for cutting the rabbet joint	Use mitre saw for cutting the rabbet joint	Use domino DF-500 For domino joint

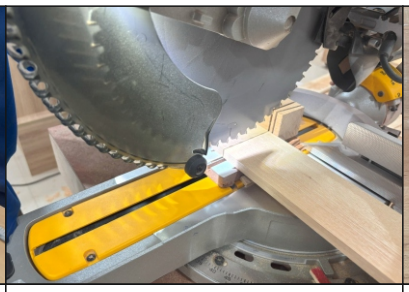
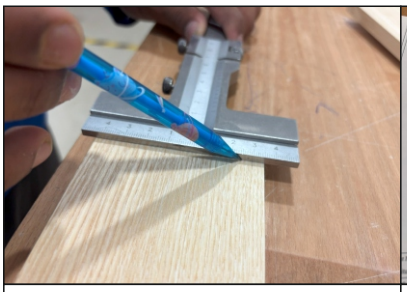
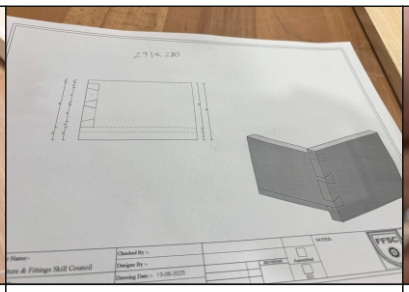
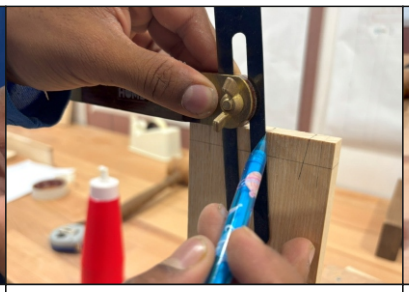
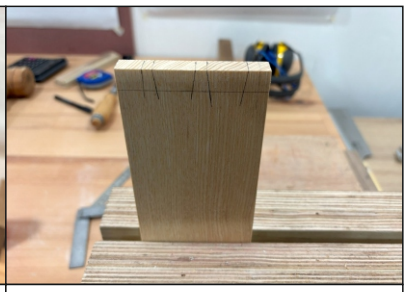
		
Domino joint drill 20x8mm & 20mm defth	Use 40 mm domino dowel	Use domino joint in front & back leg frame
		
Front & back Leg frame drilling	Check domino joint fixing properly or not	Use orbital sander for sanding the leg frame & Side rail
		
Use proper glue in domino joint	Put glue properly in leg frame joint	First fix all the joint one by one by gluing properly
		
Clean glue properly while fixing the leg frame	After applying glue clamp the leg frame	Use F-clamp to clamp the connecting side rail

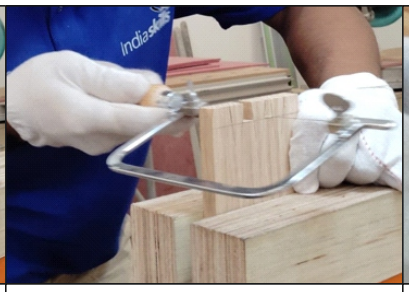
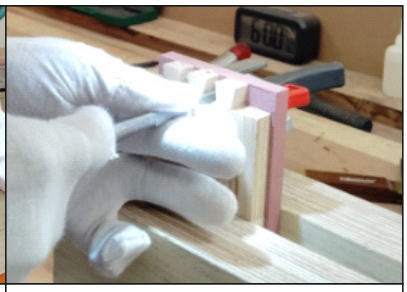
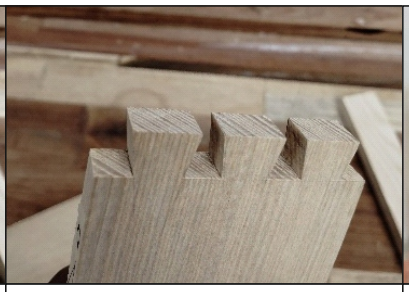
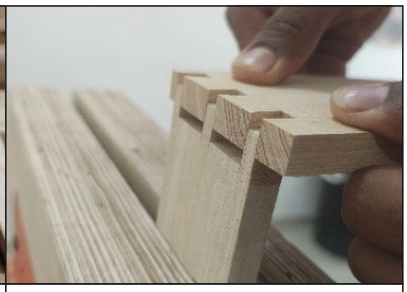
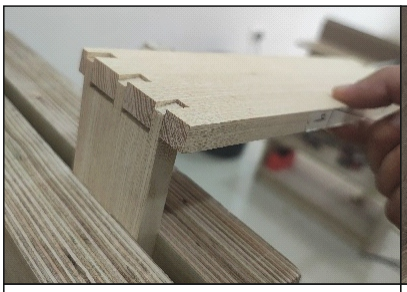
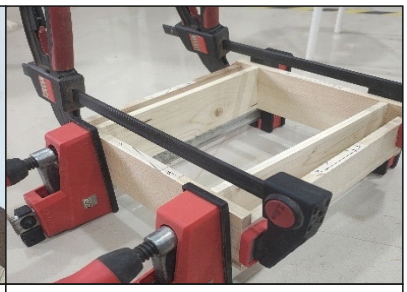
		
Use F- clamp for fixing front & back with Connecting side rail properly	After clamping the leg frame. Clean Access glue by wet tissue. than keep the leg frame for drying the glue	Remove all the Clamp and start sanding the leg frame

2. Module 2 - Drawer & Door

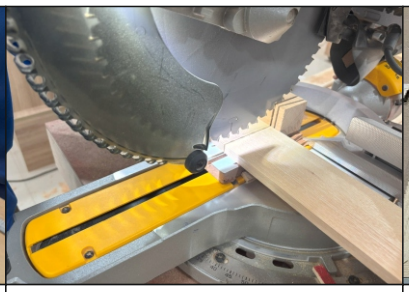
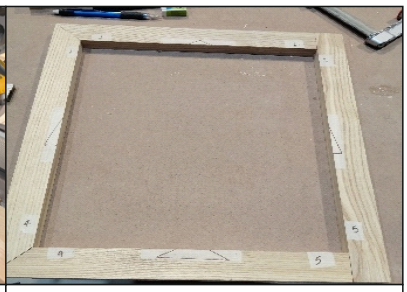
Objective: Dovetail joint is using for connecting the drawer box corner.

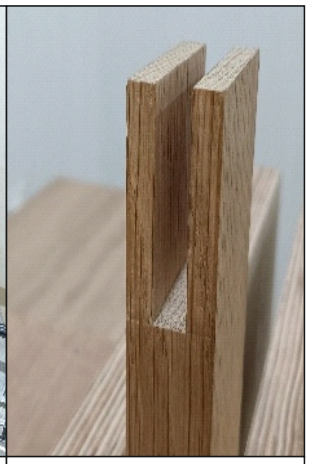
- Marking for dovetail joints

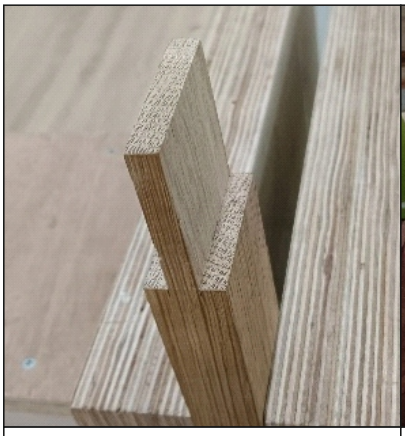
		
Drawer side panel marking for cutting	Use mitre saw for cutting side LH/Rh panel and front /back panel	Face making for making the drawer box
		
Use marking gauge for dovetail marking 12mm	Dovetail marking must be according to drawing	Use scale for marking the tails & pins of dovetail joints
		
Use try square for straight line marking	After that use bevel square for bevel marking	This is the final marking of dovetail joints

		
Use dovetail hand saw for cutting tails & pins	Use copping saw for cutting the extra part of tails & pins	Use chisel for smoothing the tails
		
Pins of dovetail joints	Tails of dovetail joints	Check the tails & pins fixing properly or not
		
Check the strength of dovetail joint	Use router machine for 7.5mm grooving the side panel of drawer box	Use F- clamp for clamping the drawer box & fix with fevicol SH

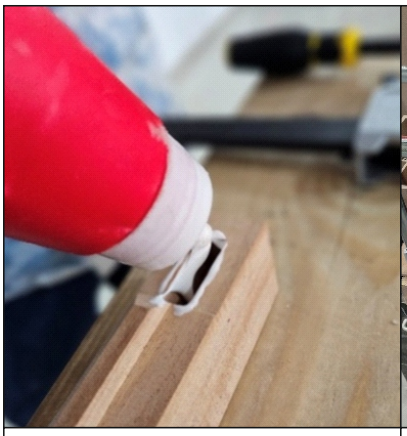
- Marking & Cutting: Bridel Joint

		
Marking for cutting the door Rail	Use miter saw for cutting door rail	Face marking of door frame

			
Use marking gauge for Bridel marking	Use marking gauge for tenon marking	Use 8mm bit router for cutting Bridel joint	Final bridel joint ready

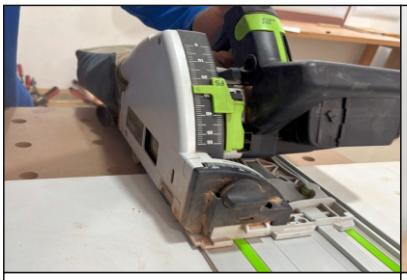
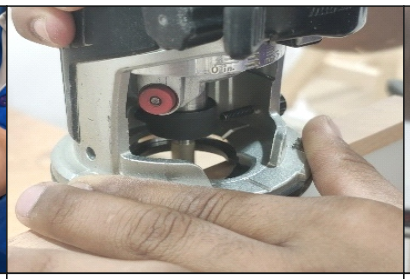
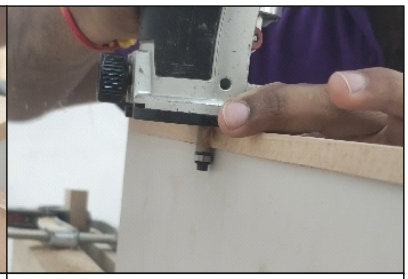
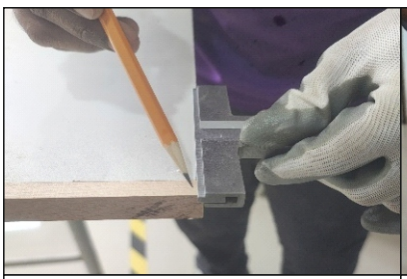
		
Final Tenon joint ready	Check joint properly	Final bridal joint ready

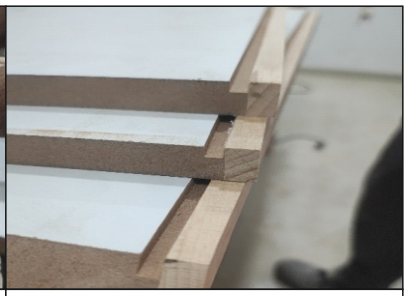
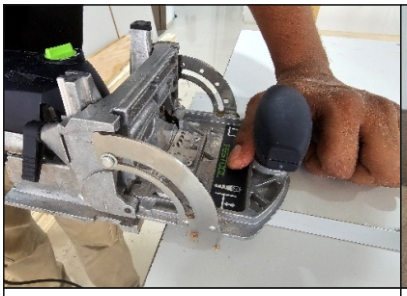
		
Use 45 degree chamfer bit for cutting	Use 6mm router grooving bit	After that use fevicol for fixing door frame

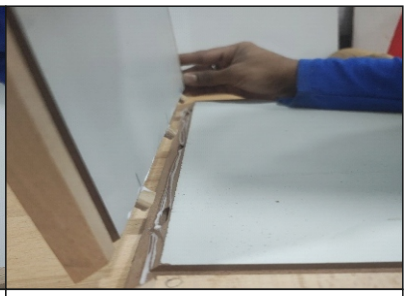
		
Use fevicol properly	Use F-clamp for fixing door frame	Use orbital sanding machine for sanding the door frame

3. Module 3-Carcase

- Marking & Cutting: mitre joint

		
Use track saw for cutting panel of cabinet	Use fevicol for pasting the lipping	Press the lipping hold it by applying masking tap
		
Appling masking tape for fix the lipping patti	Use flush trim bit for removing the excess part of lipping	Use router carefully while removing the excess part of lipping
		
Marking for 45-degree miter cut	Use track saw for cutting the miter cut	Check miter cutting properly

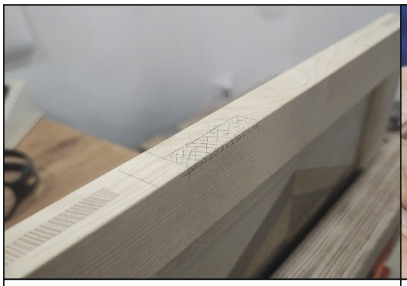
		
Use 7.5 mm grooving router bit for groove	Use router machine carefully	Final grooving of cabinet panel
		
Use domino machine for dowel drilling	Dowel drilling ready	Check domino drill by using dowel
		
Cutting the biding of top panel at 45-degree	Apply fevicol fix properly	Use masking tap to stabile biding the
		
Join the mitre cut properly	Use F-clamp for fixing top panel biding	Use 45-degree router bit for chamfer the top panel

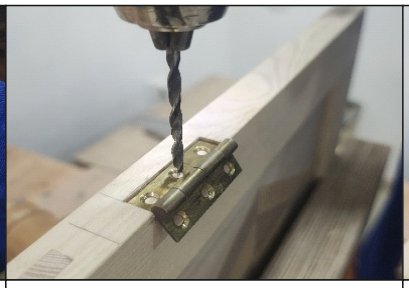
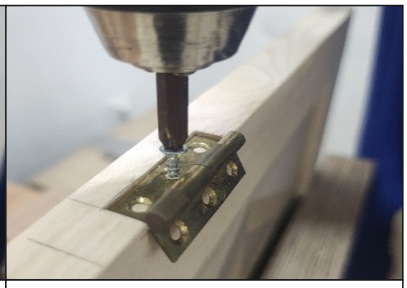
		
Use domino machine in top panel for dowel drilling	Start fixing cabinet box with fevicol SH	Fix mitre joint properly & carefully

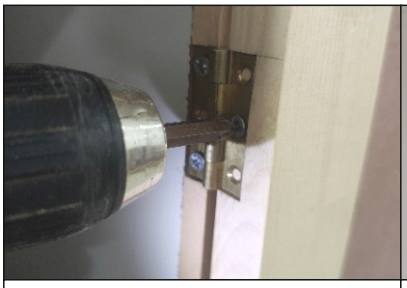
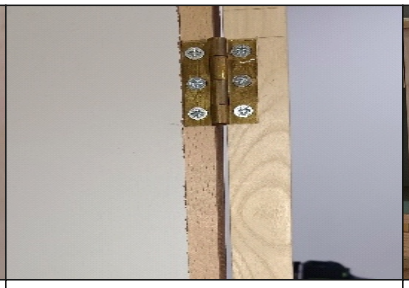
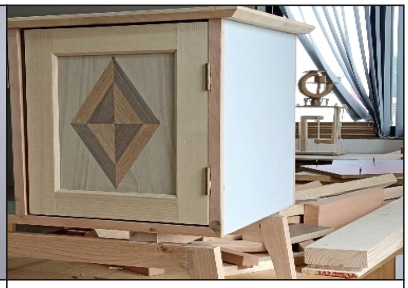
	
After joining side & bottom panel Slide the back panel in groove and fix it	At last, fix the top panel and fix with Belt Clamp or F-clamp properly

Hardware assembly

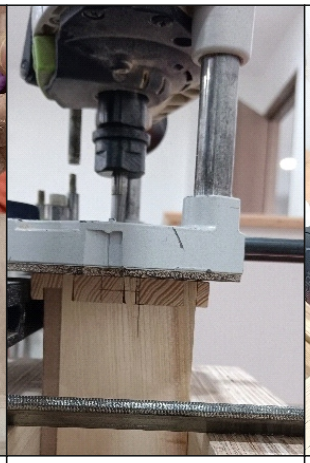
Butt Hinges installation

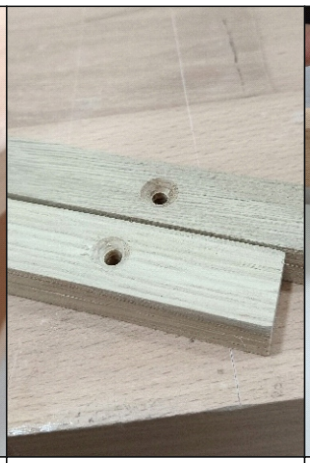
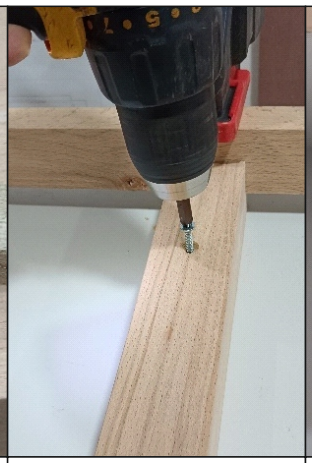
		
Start marking the butt hinge cutout	Use trim bit in router for cutting the hinge cutout	Use chisel for cut the hinge Knoch properly

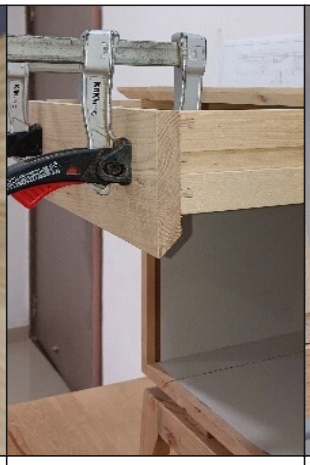
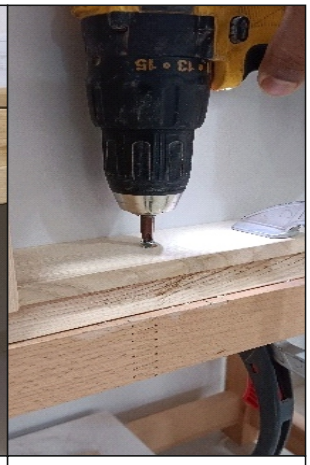
		
Chiselling the but hinges cutout	Start drilling hole in butt hinges	Fix the but hinges with 16mm screw

		
Fix the but hinges in cabinet side panel	Fix all the screw in door & side panel	Check door movement properly

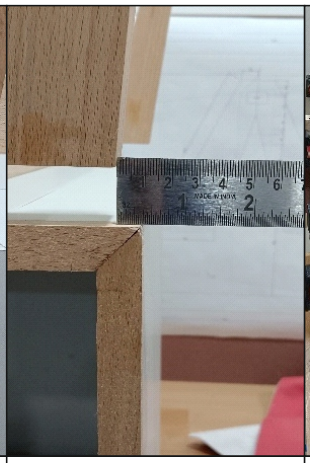
Drawer Installation

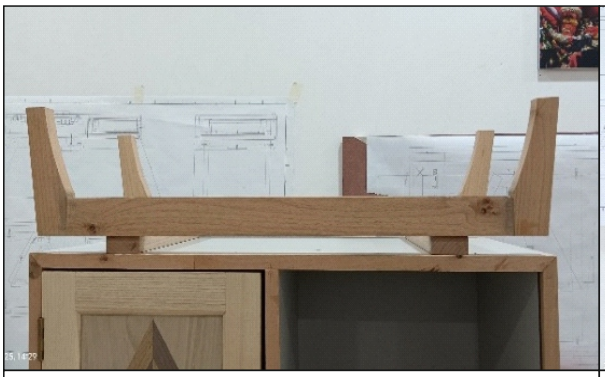
			
Marking for grooving the drawer box	Use router machine for grooving	Fix the router guide rail properly	20 x6 mm Grooving done

			
Use drill machine for screw hile	Guide rail patti ready for fixing	Use screw for fixing the guide rail in partition & side panel	After fixing guide rail use drawer box for check the drawer movement

		
After the fixing, start fixing drawer fascia in drawer box	Use F- clamp for clamp the drawer fascia	Fix the drawer fascia with screw

Leg Frame Installation

			
Level the leg frame with front of the cabinet	Leave equal space from both side of cabinet	Use F-clamp for holding the leg frame for fix screw	Use drill machine for drill or fixing the screw in leg frame

	
Check the leg base properly aligned with cabinet	Final use orbital sander for final sanding with 220 grid paper

7. Estimated Time Per Stage

Activity	Estimated Time (Hours)
Measurement & marking	3
Cutting & joining leg	12
Door & Drawer installation	3
Sanding & finishing	4
Total	22

Section E: Quality Assurance

8. Quality Checks

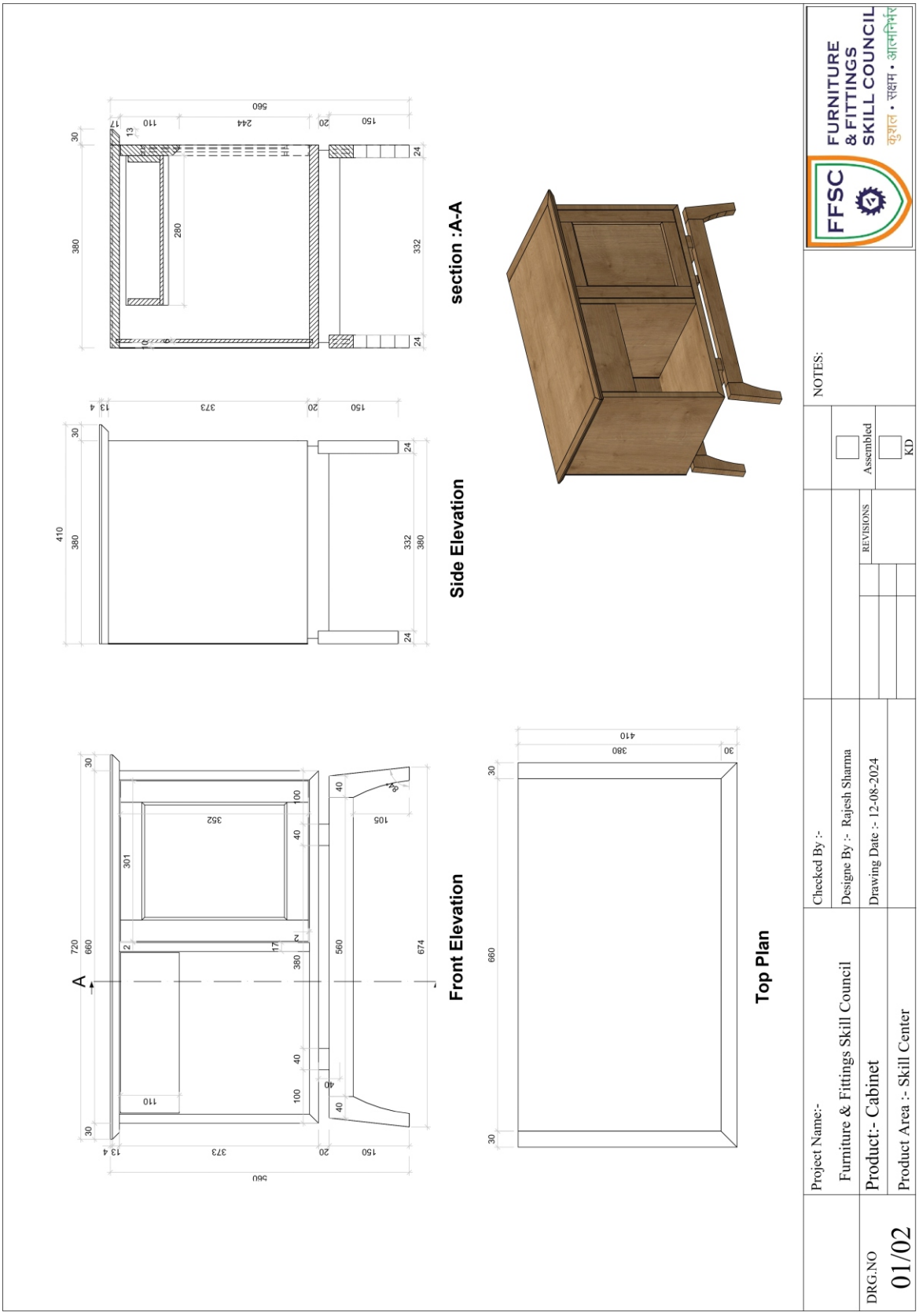
Stage	Checkpoint	Inspection Method
Cutting	Accuracy ±2mm, no burn marks	Tape measure, visual
Joinery	Flush joints, no glue seepage	Visual + feel test
Assembly	Square structure, proper levelling	Carpenter's square, level
Hardware Fitting	Tight screws, easy movement	Manual operation
Final Inspection	Smooth surfaces, aligned components	Visual & checklist -based

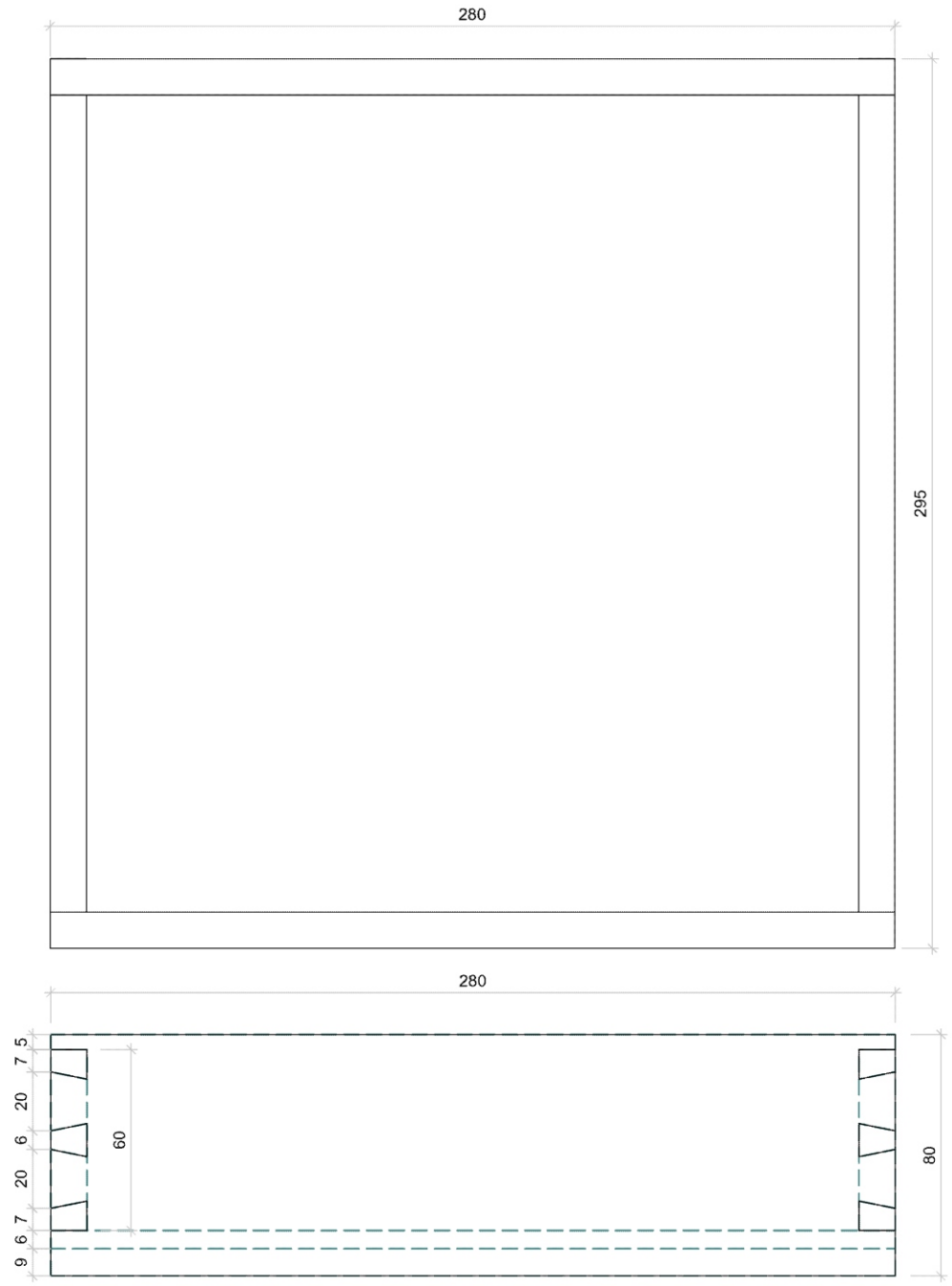
Section F: Handover & Documentation

10. Inspection & Handover Checklist

Parameter	Status (✗/✓)	Notes
Cabinet drawer & Door level & aligned	✓	–
Single Door opens & closes smoothly	✓	–
All components damage -free	✓	–
Cabinet cleaned after work	✓	–

Annexure 1: Furniture Measured Drawings





Drawer Detail

	Project Name:-	Checked By :-
	Furniture & Fittings Skill Council	Designe By :- Rajesh Sharma
DRG.NO	Product:-Cabinet	Drawing Date :- 12-08-2024
02/02	Product Area :- Skill Center	

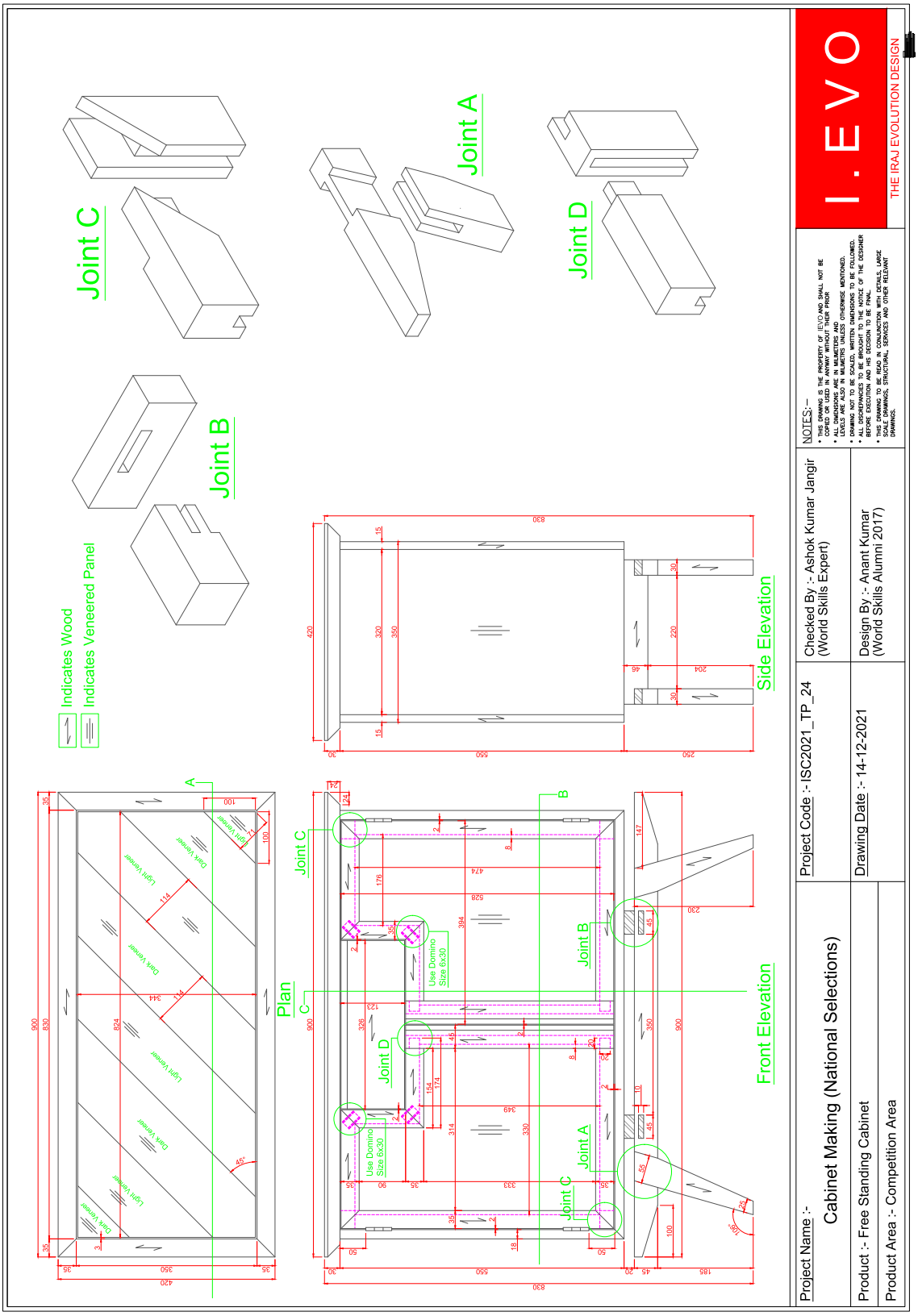
Annexure 2: Cutting List

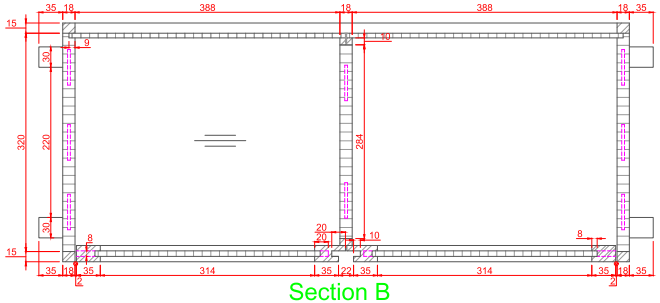
Part Name	Part Length	Part Width	Required Quantity	Material Code
Bottom	660	380	1	Plm_17mm Bsl Slate Gray
Division	356	364	1	Plm_17mm Bsl Slate Gray
Side LH	373	380	1	Plm_17mm Bsl Slate Gray
Side RH	373	380	1	Plm_17mm Bsl Slate Gray
Top	660	380	1	Plm_17mm Bsl Slate Gray
Door panel	278	226	1	Plm_17mm Bsl Slate Gray
Back Panel	638	368	1	Plm_7.5mm Bsl Slate Gray
Drawer Bottom panel	283	280	1	Plm_7.5mm Bsl Slate Gray
Lipping	850	20	8	Solid wood 10mm White ash
Drawer Back	295	60	1	Solid wood 12mm White ash
Drawer Front	295	60	1	Solid wood 12mm White ash
Drawer Side LH	280	80	1	Solid wood 12mm White ash
Drawer Side RH	280	80	1	Solid wood 12mm White ash
Top Moulding	720	30	1	Solid wood 17mm White ash
Top Moulding LH	410	30	1	Solid wood 17mm White ash
Top Moulding Rh	410	30	1	Solid wood 17mm White ash
Door bottom rail	220.5	45	1	Solid wood 20mm White ash
Door Side rail LH	352	45	1	Solid wood 20mm White ash
Door Side Rail RH	352	45	1	Solid wood 20mm White ash
Door top rail	220.5	45	1	Solid wood 20mm White ash
Drawer Fascia	300.5	110	1	Solid wood 20mm White ash
Leg	150	57	2	Solid wood 24mm White ash
Leg	150	57	2	Solid wood 24mm White ash
Leg back Rail	610	45	1	Solid wood 24mm White ash
Leg Front Rail	610	45	1	Solid wood 24mm White ash
Connecting Rail	360	40	2	Solid wood 40mm White ash

Annexure 3: Bill of Materials

		FFSC Furniture & Fittings Skill Council BILL OF MATERIAL (BOM)			
Project Code			2025_1112		Project
		Prototype			
S. No.	Category /sku code	Material Description	Make	Qty	Unit
1	PAN 2370	PLM MDf INT 17MM X 8'X4' BSL Fostry White	HERITAGE	1	NOS
2	PAN 2353	PLM MDF INT 7.5MM X 8'X4' BSL Fostry White	HERITAGE	1	NOS
3	SWT1531	Wood White Ash 26mm AB Euro KD	N/A	0.5	CFT
4	HNF1232G	Butt Hinges SS 2"x1.5"x2.5mm 9268395	Hettich	2	NOS
5	HNF 1573	CSK Screw 50x4 mm ss finish	Ebco	4	NOS
6	HNF 1574	Screw 25x4 mm ss finish	Ebco	6	NOS
7	HNF 1575	Screw 12x4 mm ss finish	Ebco	12	NOS
8	HNF 2022	Base Buffer 22x7 mm Brown	Hettich	4	NOS
9	HNF 2016	Domino Tenon Beech Wood (6x20x40 mm)	festool	4	NOS
10	HNF 2017	Domino Tenon Beech Wood (4x20x20 mm)	festool	18	NOS

Annexure 4 Sample Drawing
India Skills Test Project Drawing

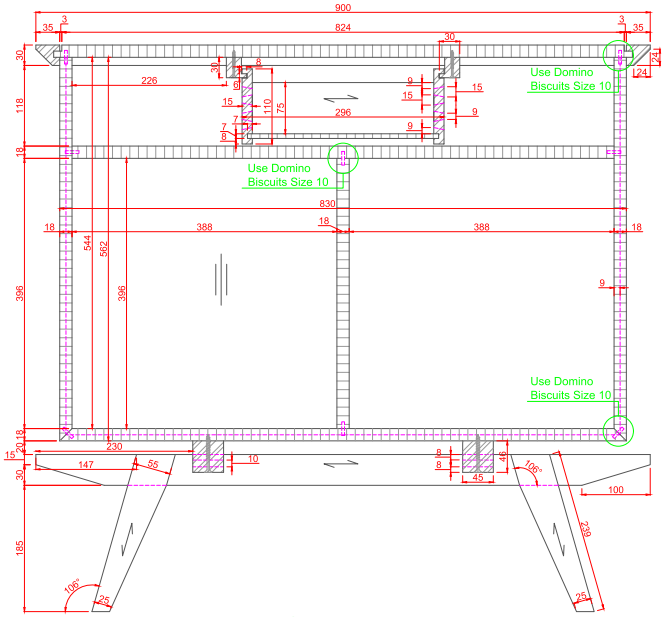




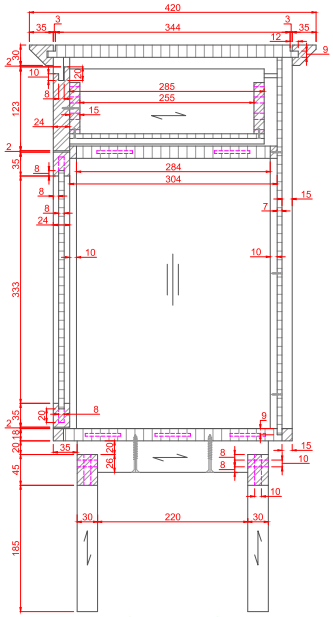
Section B

Indicates Wood

Indicates Veneered Panel

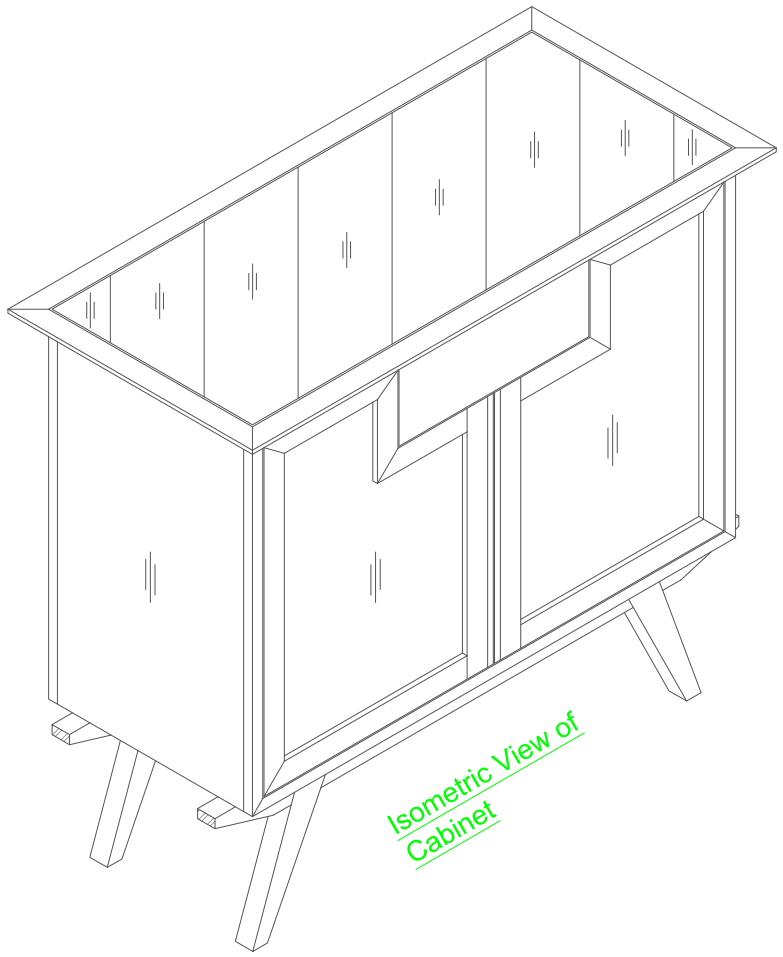


Section A

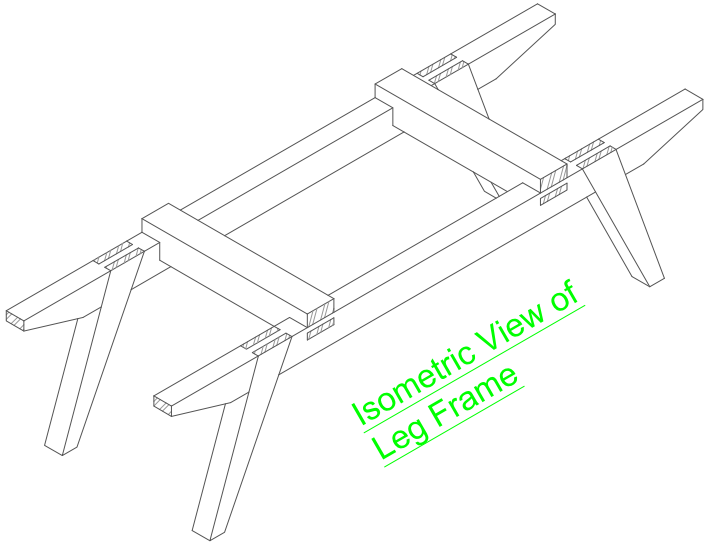


Section C

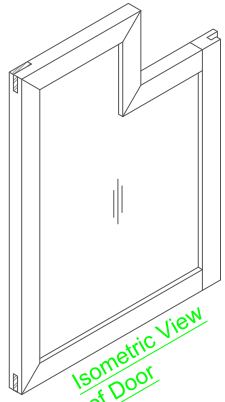
Project Name :- Cabinet Making (National Selections)	Project Code :- ISC2021_TP_24	Checked By :- Ashok Kumar Jangir (World Skills Expert)	NOTES:– • THIS DRAWING IS THE PROPERTY OF IEVO AND SHALL NOT BE COPIED OR USED IN ANYWAY WITHOUT THEIR PRIOR • ALL DIMENSIONS ARE IN MILIMETERS AND LEVELS ARE ALSO IN MILIMETRS UNLESS OTHERWISE MENTIONED. • DRAWING NOT TO BE SCALED, WRITTEN DIMENSIONS TO BE FOLLOWED. • ALL DISCREPANCIES TO BE BROUGHT TO THE NOTICE OF THE DESIGNER BEFORE EXECUTION AND HIS DECISION TO BE FINAL. • THIS DRAWING TO BE READ IN CONJUNCTION WITH DETAILS, LARGE SCALE DRAWINGS, STRUCTURAL, SERVICES AND OTHER RELEVANT DRAWINGS.	I.EVO THE IRAJ EVOLUTION DESIGN
Product :- Free Standing Cabinet	Drawing Date :- 14-12-2021	Design By :- Anant Kumar (World Skills Alumni 2017)		
Product Area :- Competition Area				



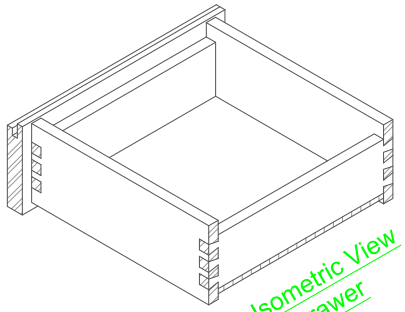
Isometric View of Cabinet



Isometric View of Leg Frame



Isometric View of Door



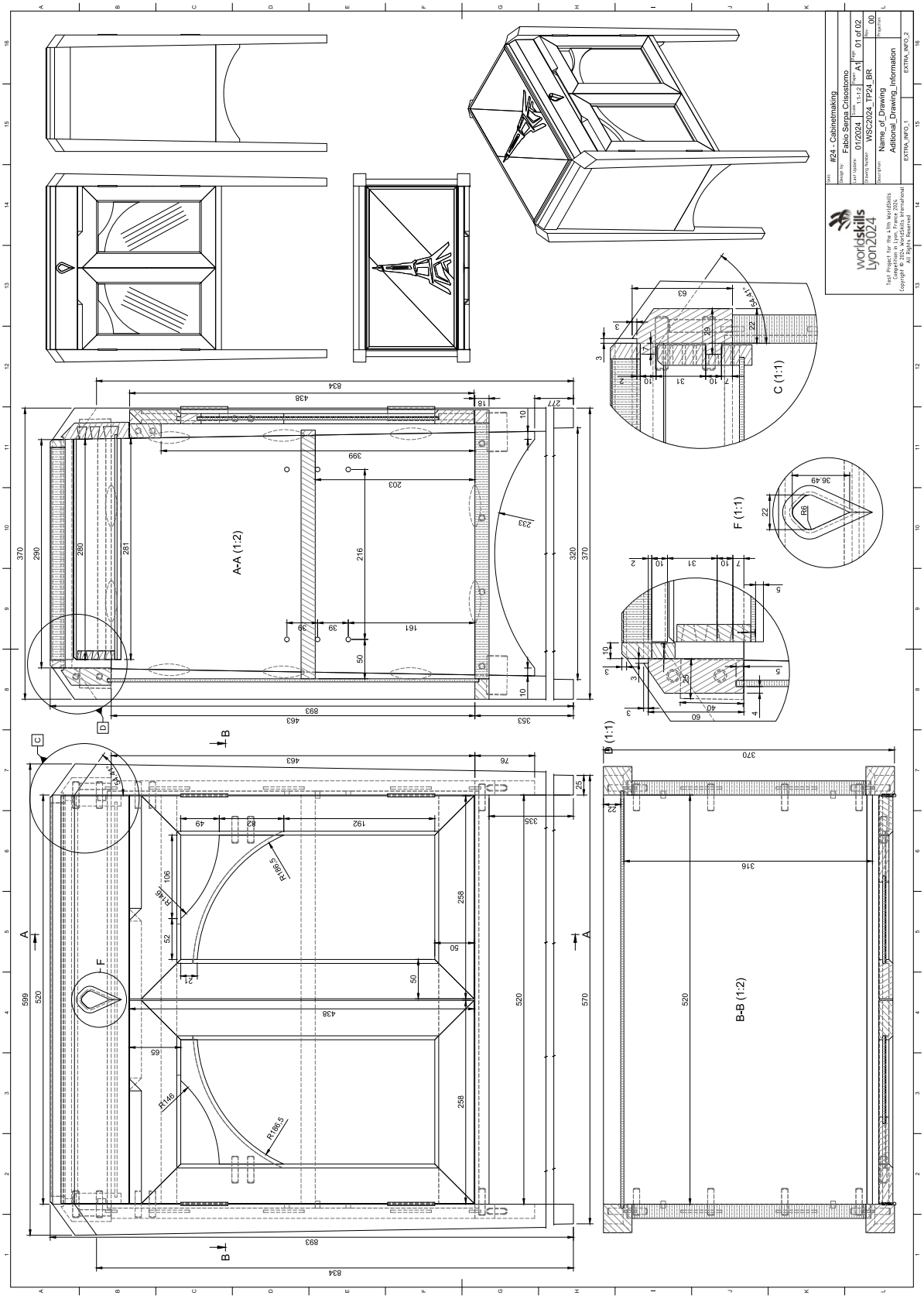
Isometric View of Drawer

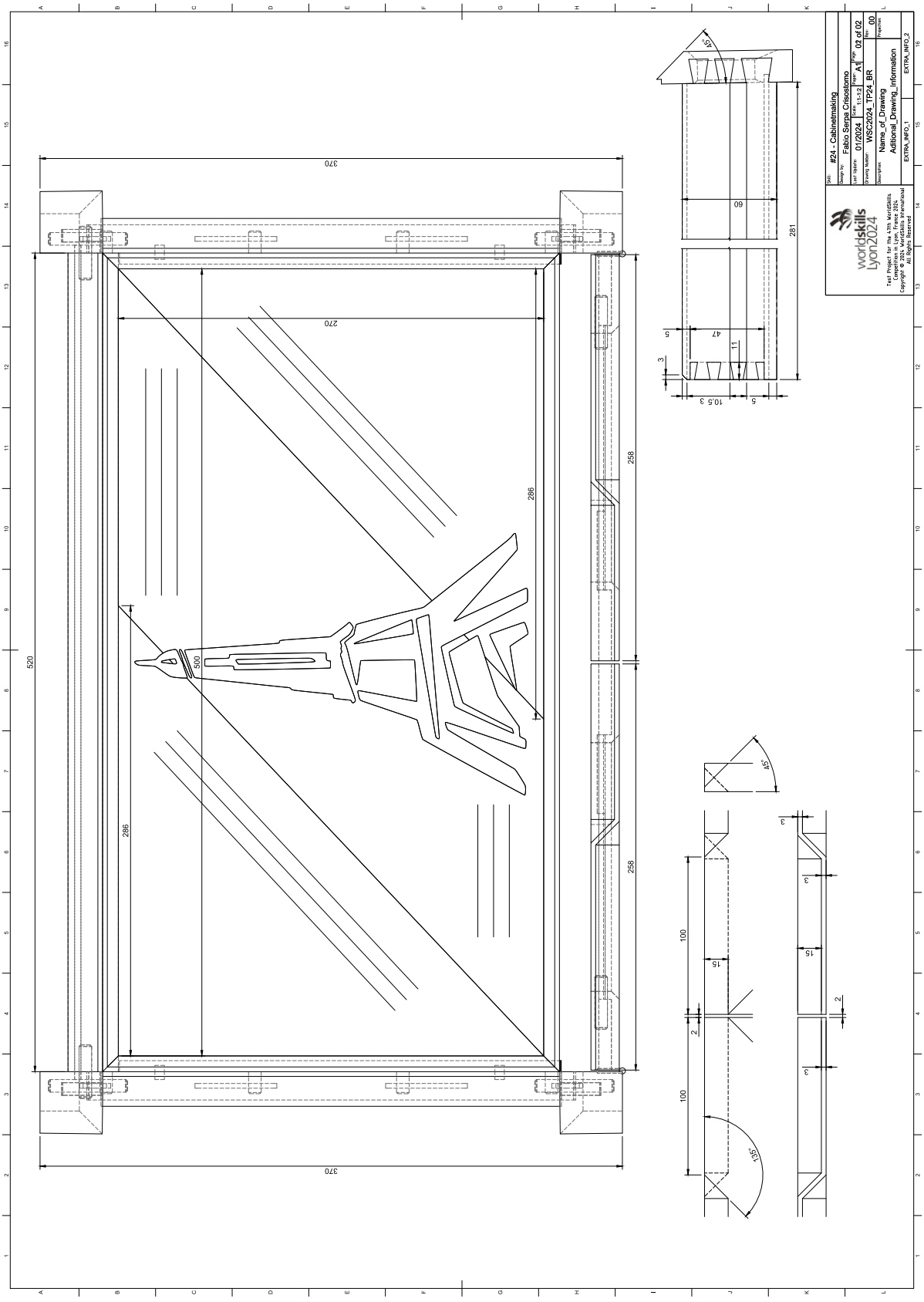
Project Name :- Cabinet Making (National Selections)	Project Code :- ISC2021_TP_24	Checked By :- Ashok Kumar Jangir (World Skills Expert)	NOTES:– • THIS DRAWING IS THE PROPERTY OF IEVO AND SHALL NOT BE COPIED OR USED IN ANYWAY WITHOUT THEIR PRIOR • ALL DIMENSIONS ARE IN MILIMETERS AND LEVELS ARE ALSO IN MILIMETRS UNLESS OTHERWISE MENTIONED. • DRAWING NOT TO BE SCALED, WRITTEN DIMENSIONS TO BE FOLLOWED. • ALL DISCREPANCIES TO BE BROUGHT TO THE NOTICE OF THE DESIGNER BEFORE EXECUTION AND HIS DECISION TO BE FINAL. • THIS DRAWING TO BE READ IN CONJUNCTION WITH DETAILS, LARGE SCALE DRAWINGS, STRUCTURAL, SERVICES AND OTHER RELEVANT DRAWINGS.
Product :- Free Standing Cabinet	Drawing Date :- 14-12-2021	Design By :- Anant Kumar (World Skills Alumni 2017)	
Product Area :- Competition Area			

I.EVO

THE IRAJ EVOLUTION DESIGN

WorldSkills Test Project Drawing




370
270
286
520
500
258
286
258
370
45°
60
281
47
11
5
3
10.5
5
45°
100
15
2
100
135°
3
3
15
2
3
#24 - Cabinetmaking
Fabio Serpa Crisostomo
01/2024
1:1-1:2
A1
02 of 02
00
WSC2024_TP24_BR
Name_of_Drawing
Aditional_Drawing_Information
EXTRA_INFO_1
EXTRA_INFO_2
worldskills Lyon2024
Test Project for the 47th WorldSkills Competition Lyon France 2024
Copyright © 2024 WorldSkills International
All Rights Reserved

NCVET
कौषल गुणवत्ता प्रगति

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
RE IMAGINE FUTURE

FFSC
FURNITURE
& FITTINGS
SKILL COUNCIL
कुशल • सक्षम • आत्मनिर्भर

Address: 407-408, 4th Floor, DLF City Court, Sikanderpur
Gurgaon 122002, Haryana, India
Email: info@ffsc.in
Web: www.ffsc.in
Phone: +91 124 4513900

Price: