



Industrial Technology

Stage 5 - Year 10

Children's Table and Chairs

Model: Mortise and Tenon



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1. Rationale

The purpose of this project is to design, develop and construct a project from a set of specifications. Students are to complete design research. This will hopefully allow greater understanding of the purpose of the project as well as the design and construction methods selected.

Design development resulting in individualisation of project is encouraged. An accompanying Portfolio will document all of these processes.

2. Description of project

The Children's table and chairs is designed to be a useful item for families of all ages in an average Australian home. This project is designed to be taken home by students and used practically in the home, it should be a visual reminder in years to come, of the usefulness the Stage 5 Industrial Technology course was. It also allows family member to see, use and appreciate something that the student has made.

The Children's table and chairs employs many of the techniques used in larger projects and is designed as part of a sequenced progression of skill building. This is especially helpful for those students looking at completing Industrial Technology or Design and Technology in Stage 6. Widening Joints, leg and rail construction, mortise and tenon, doweling, planing and routed edge detailing are all elements of the project.

3. Materials

Radiata Pine is native to the central coast of California but is widely planted in Australia and New Zealand. It makes up 28% of Tasmania's timber plantations and is an environmentally sustainable softwood popular in all types of construction and decorative uses. These include framing, lining, glue laminated beams, veneer and plywood. It can be used for many exposed structural and non-structural applications if it is treated with the right preservatives.

The texture of Radiata Pine is fine, but uneven, and knots are common. The timber is fairly soft and has a low density, often with very wide annual growth rings. The sapwood is white to pale yellow, but often indistinguishable from the heartwood, which is light brown to yellow. The grain is usually straight, apart from a central core of 100mm, which can twist if the moisture content of the timber changes.

Radiata Pine is easy to work, apart from the knots, and it readily accepts preservatives.

www.woodsolutions.com.au

4. Cutting list and Costing

Table – Pine (One table per group)

Item	Timber size (mm)	Length (mm)	Quantity	\$ per meter	Cost (\$)
Table Top	140 x 19	800	4	\$5.36	\$17.15
Table Leg	42 x 42	480	4	\$4.10	\$7.87
Long Rail	70 x 19	725	2	\$2.71	\$3.93
Short Rail	70 x 19	425	2	\$2.71	\$2.30
				Total	\$31.25

Chairs – Pine (this price is for one chair only)

Item	Timber size (mm)	Length (mm)	Quantity	\$ per meter	Cost (\$)
Chair Top	140 x 19	265	2	\$5.36	\$2.84
Left Back Leg	32 x 32	600	1	\$2.98	\$1.79
Right Back Leg	32 x 32	600	1	\$2.98	\$1.79
Left Front Leg	32 x 32	300	1	\$2.98	\$0.89
Right Front Leg	32 x 32	300	1	\$2.98	\$0.89
Left/Right Bottom Rail	42 x 19	226	2	\$1.92	\$0.87
Front Bottom Rail	42 x 19	226	1	\$1.92	\$0.43
Front Rail	42 x 19	226	1	\$1.92	\$0.43
Back Rail	70 x 19	226	1	\$2.71	\$0.61
Left Rail	42 x 19	226	1	\$1.92	\$0.43
Right Rail	42 x 19	226	1	\$1.92	\$0.43
				Total	\$11.40

Note: you need to make two chairs so everything will be doubled in this table.

5. Construction Process (Class Task)

Fill this section with each construction stage

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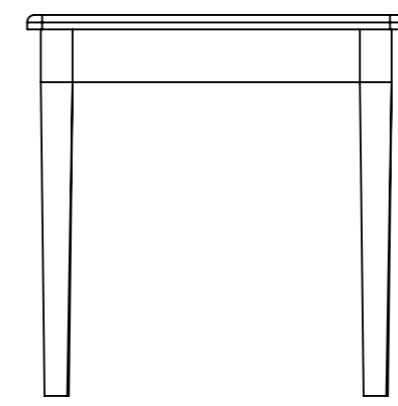
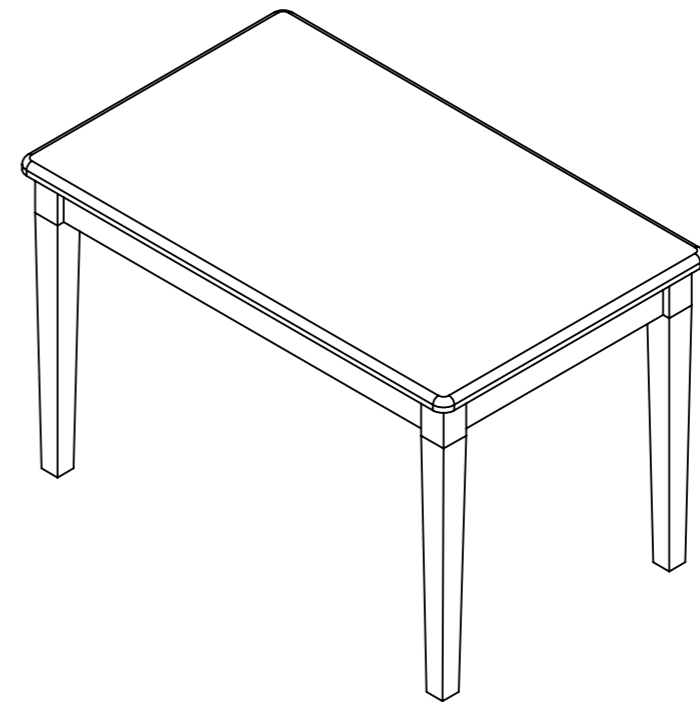
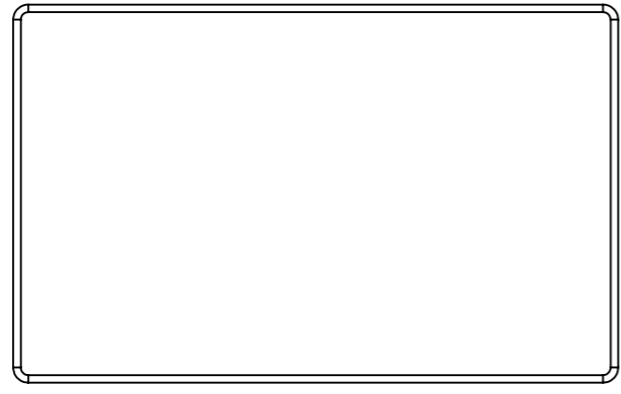
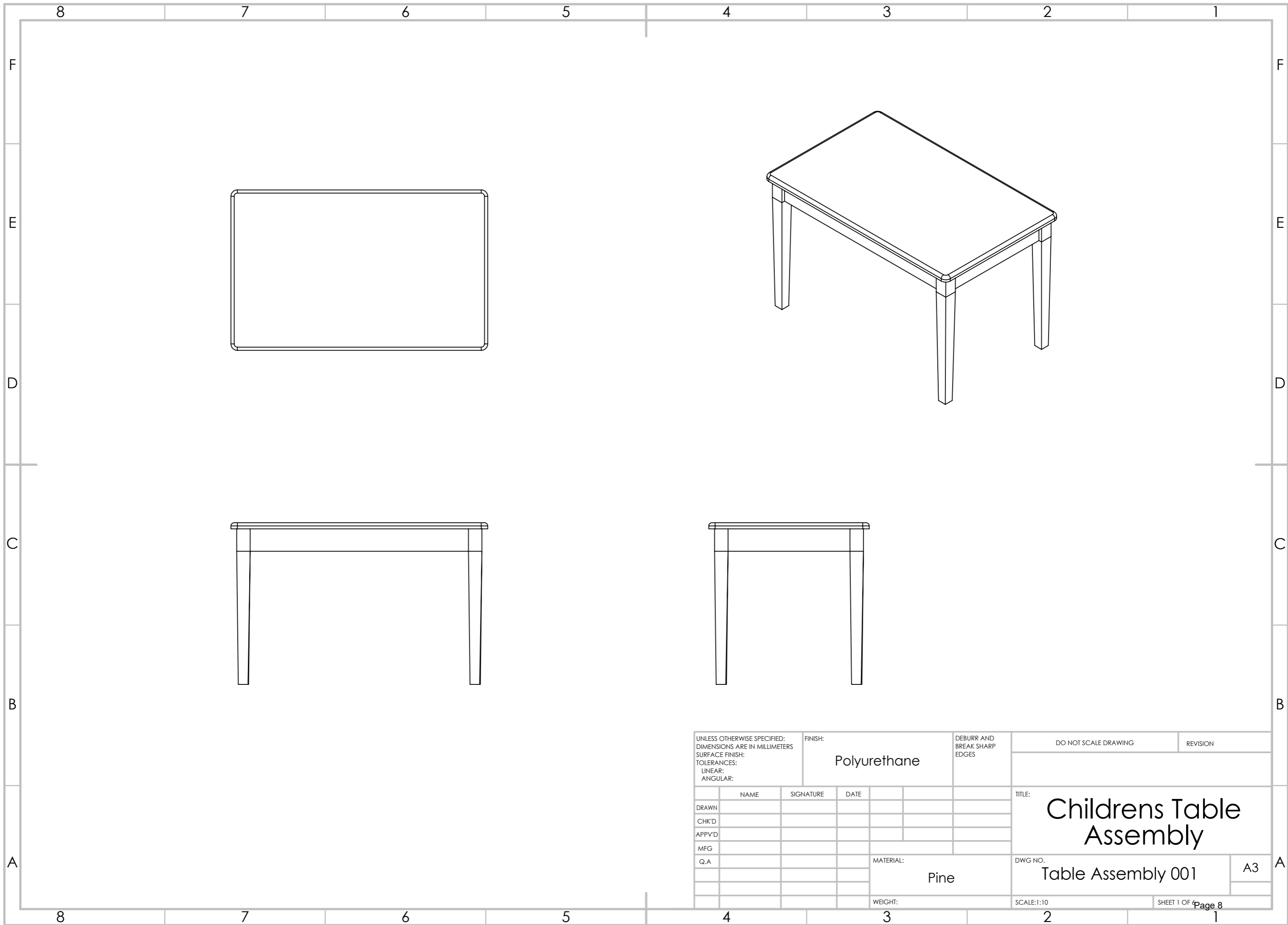
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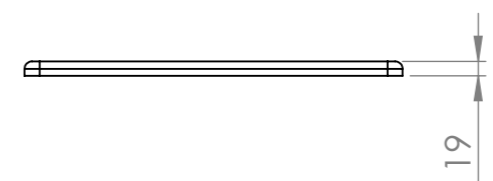
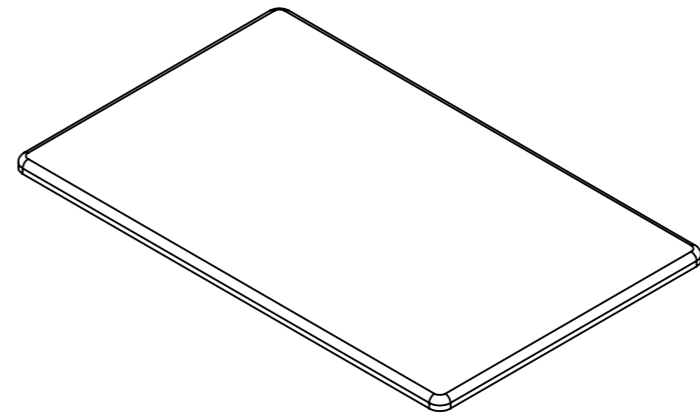
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18.



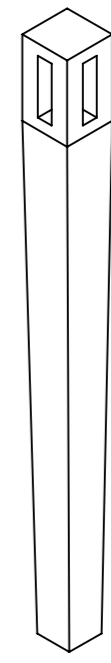
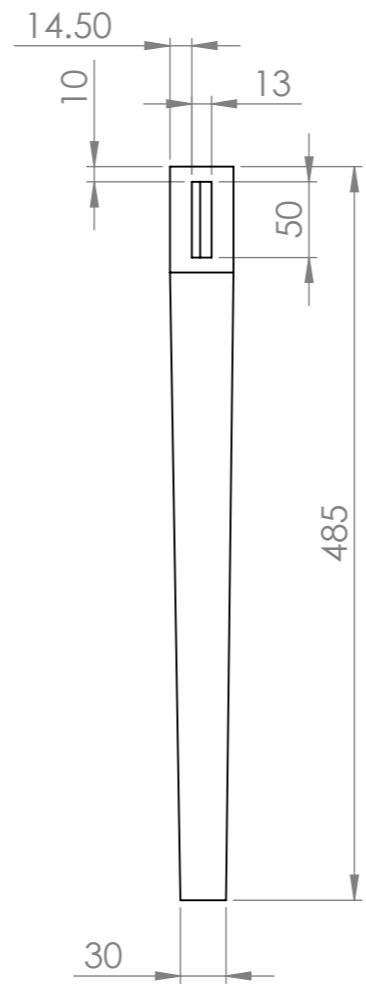
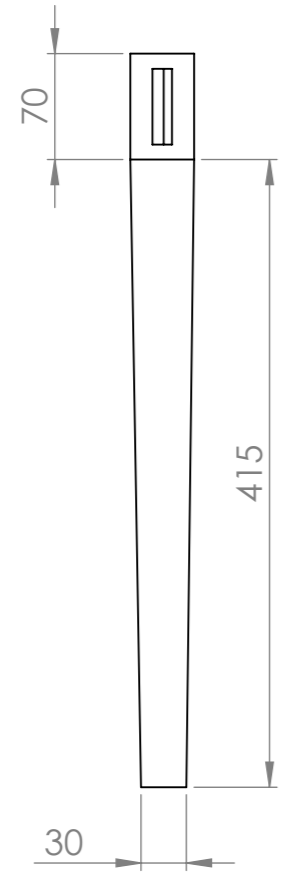
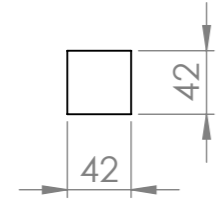
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							TITLE: <h1 style="text-align: center;">Childrens Table Assembly</h1>								
												DWG NO.		A3	
												MATERIAL:		Table Assembly 001	
												Pine			
												WEIGHT:		SCALE:1:10	
DRAWN		NAME		SIGNATURE		DATE		SHEET 1 OF 4		Page 8					
CHK'D															
APPV'D															
MFG															
Q.A															

8	7	6	5	4	3	2	1
ITEM NO.	PART NUMBER	Length	Width	Thickness	QTY.		
1	Table Top	800	140	19	4		



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
DRAWN	NAME	SIGNATURE	DATE			TITLE: Childrens Table Assembly			
CHK'D									
APPV'D									
MFG									
Q.A					MATERIAL: Pine	DWG NO. Table Top 002		A3	
					WEIGHT:	SCALE:1:10		SHEET 2 OF 4 Page 9	

ITEM NO.	Part Name	Length	Width	Thickness	QTY.
2	Table Leg	485	42	42	4

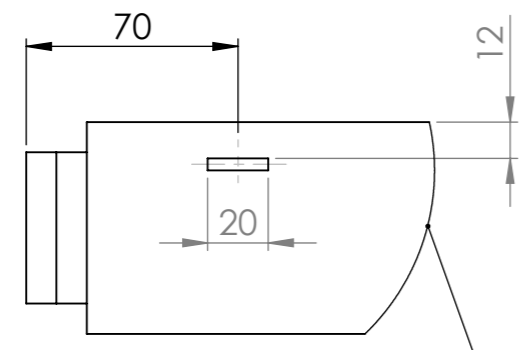
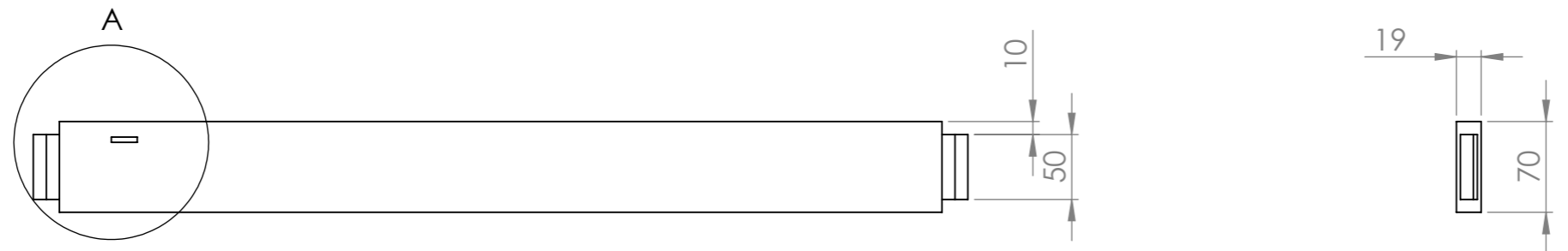
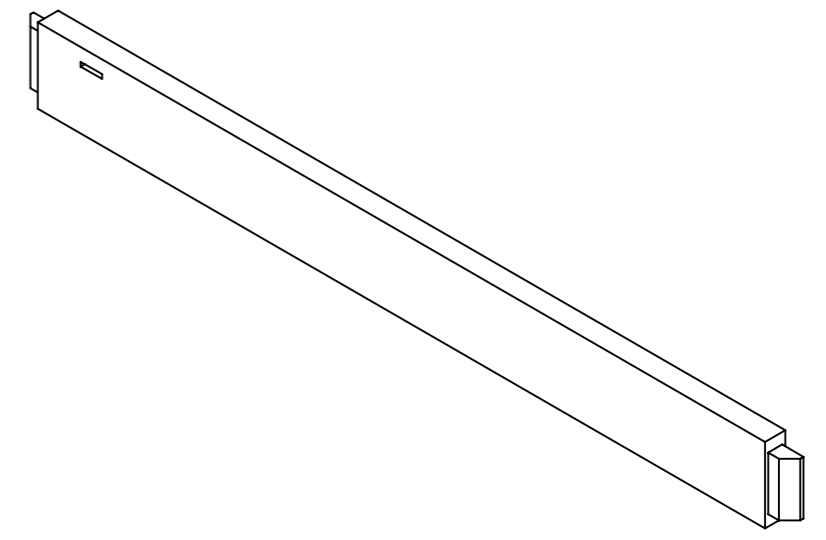
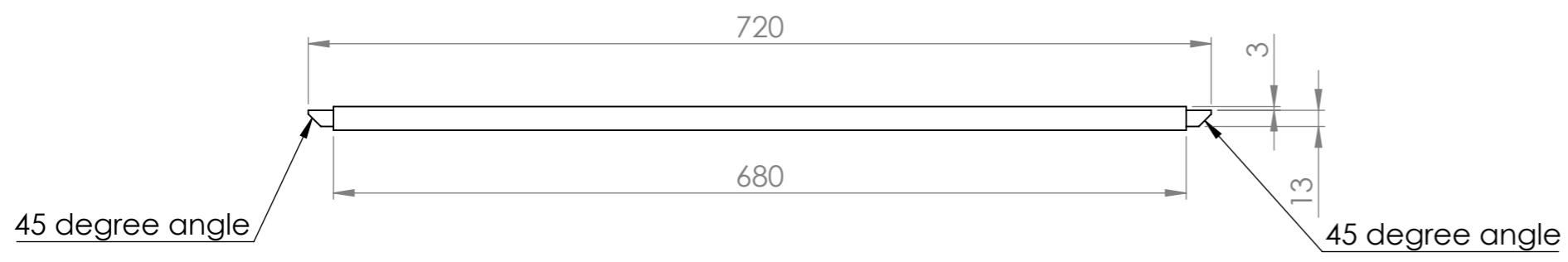


Note: the table leg is the same for all four legs you do not need another drawing for the table leg.

Note: Tapered angle at the bottom of leg 415mm long by 5mm. This angle is to be taken off all four sides.

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SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
DRAWN		NAME	SIGNATURE	DATE			TITLE: Childrens Table Assembly		
CHK'D									
APPV'D									
MFG									
Q.A					MATERIAL: Pine		DWG NO. Table Leg 003		A3
					WEIGHT:		SCALE:1:10		SHEET 3 OF 4 Page 10

8	7	6	5	4	3	2	1
ITEM NO.	PART NUMBER	Length	Width	Thickness	QTY.		
3	Long Rail	720	70	19	2		

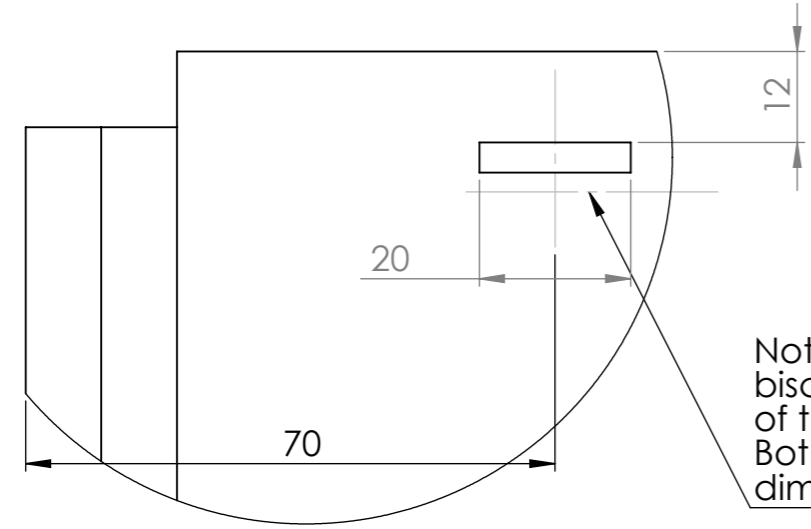
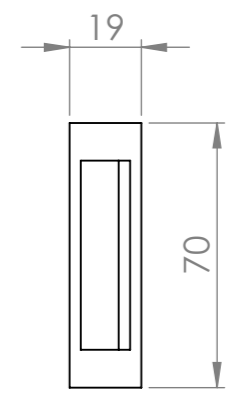
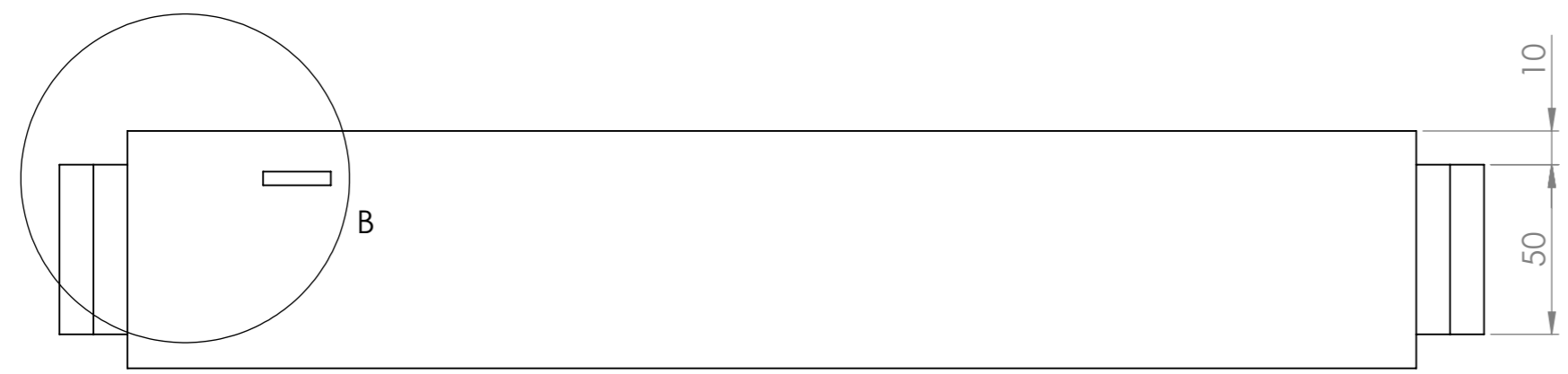
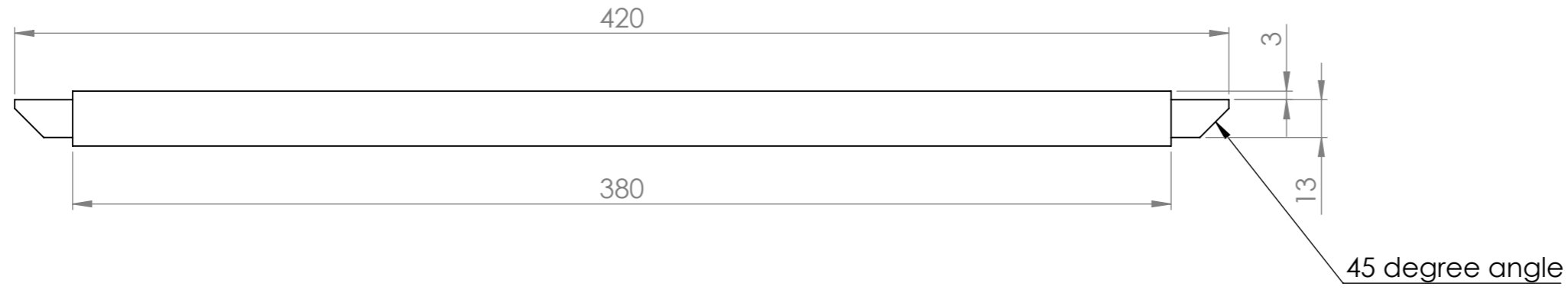
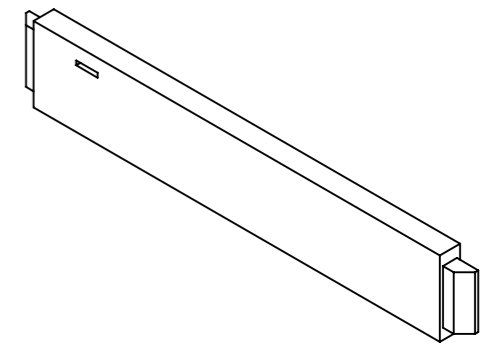


DETAIL A
SCALE 2 : 5

Note: This cut out is a simple biscuit joint. Measure the top of the cut out for machining. Both ends have the same dimension.

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DRAWN			NAME		SIGNATURE		DATE		TITLE: Childrens Table Assembly		
CHK'D									DWG NO. Long Rail 004		
APPV'D									A3		
MFG									SCALE:1:10		
Q.A							MATERIAL: Pine		SHEET 4 OF 4 Page 11		
							WEIGHT:				

8	7	6	5	4	3	2	1
ITEM NO.	PART NUMBER	Length	Width	Thickness	QTY.		
4	Short Rail	420	70	19	2		

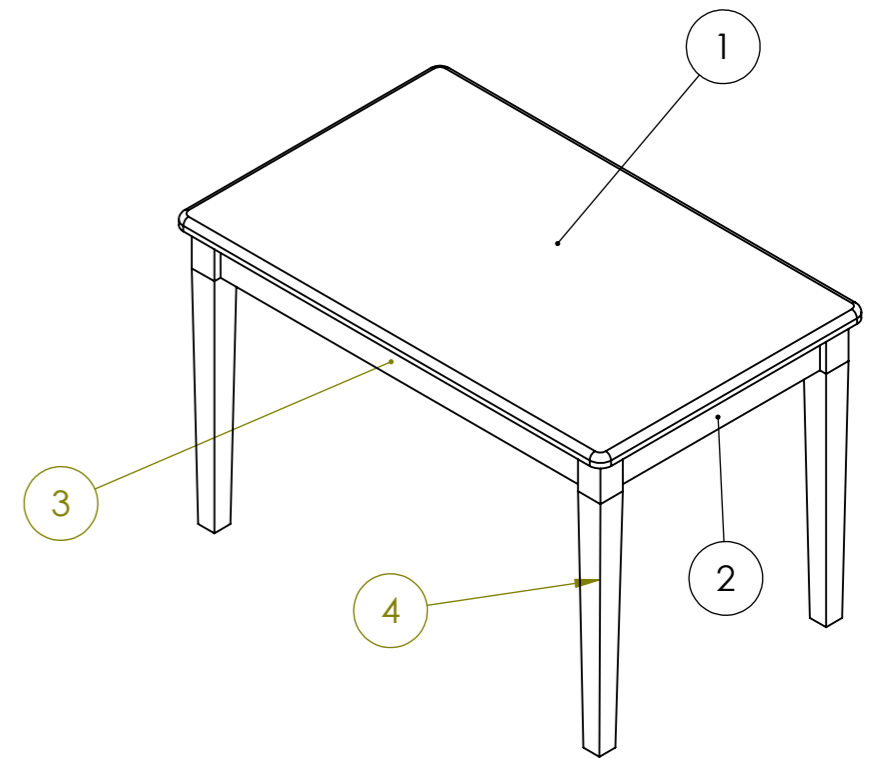


Note: This cut out is a simple biscuit joint. Measure the top of the cut out for machining. Both ends have the same dimension.

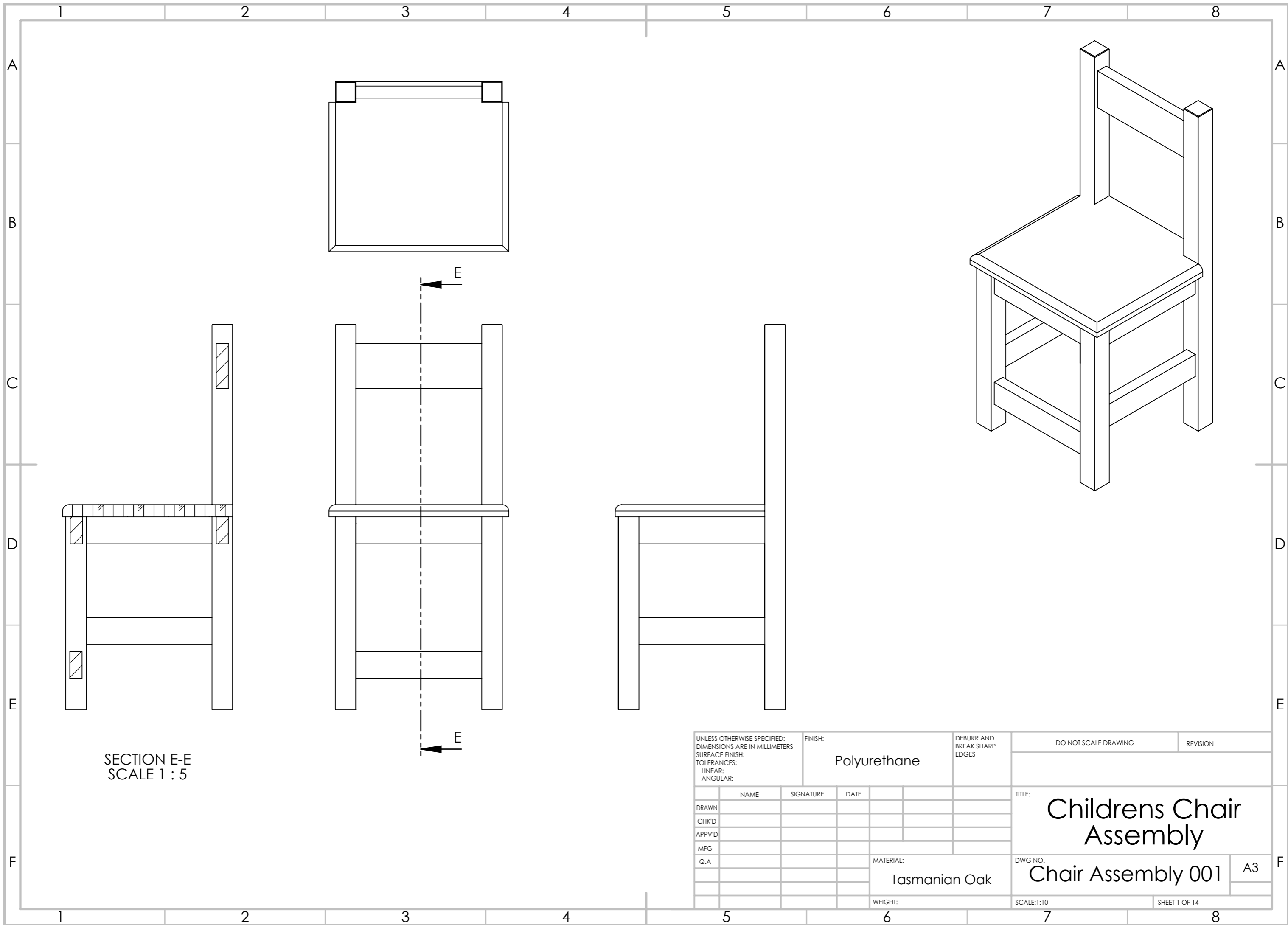
DETAIL B
SCALE 1 : 1

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SURFACE FINISH:											
TOLERANCES:											
LINEAR:											
ANGULAR:											
DRAWN		NAME		SIGNATURE		DATE		TITLE:		Childrens Table Assembly	
CHK'D								DWG NO.		Short Rail 005	
APPV'D								MATERIAL:		Pine	
MFG								WEIGHT:		SCALE:1:10	
Q.A								SHEET 5 OF 12		Page 12	

ITEM NO.	Part Name	Length	Width	Thickness	QTY.
1	Table Top	800	140	19	1
2	Table Leg	485	42	42	4
3	Long Rail	720	70	19	2
4	Short Rail	420	70	19	2



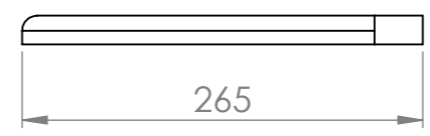
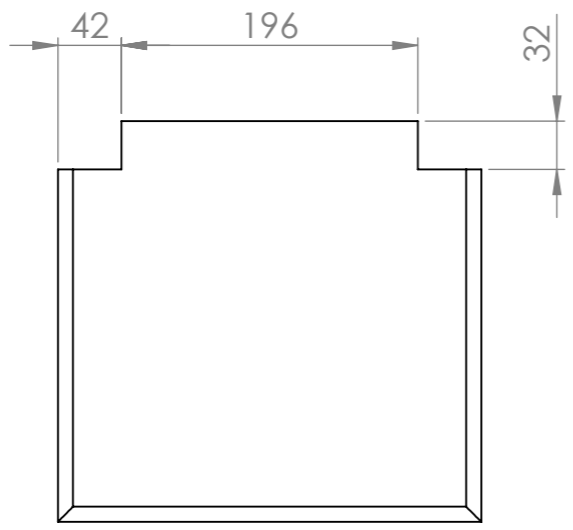
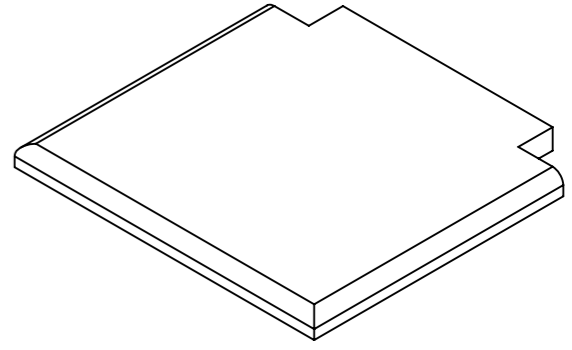
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DRAWN	NAME	SIGNATURE	DATE			TITLE: Childrens Table Assembly	
CHK'D						DWG NO. Table Cutting List 006	
APPV'D						A3	
MFG					MATERIAL: Pine	SCALE:1:10	
Q.A					WEIGHT:	SHEET 6 OF 6 Page 13	



SECTION E-E
SCALE 1 : 5

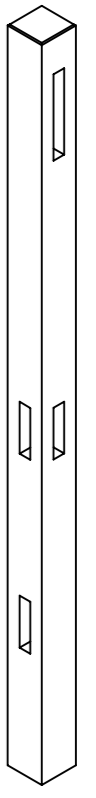
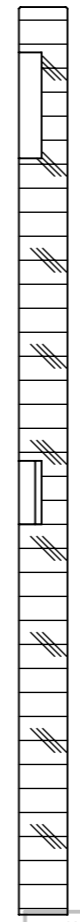
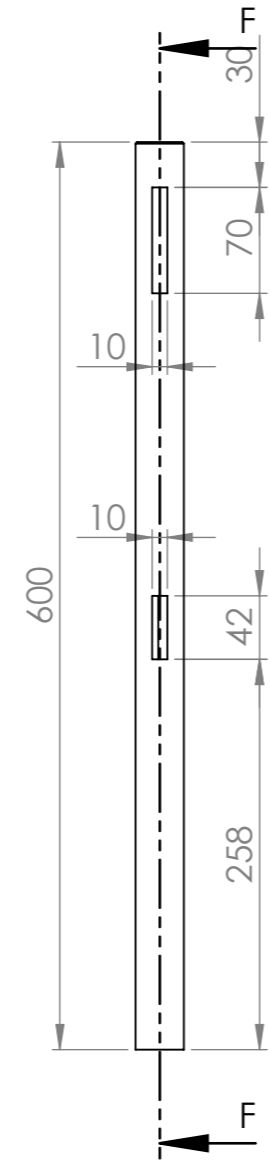
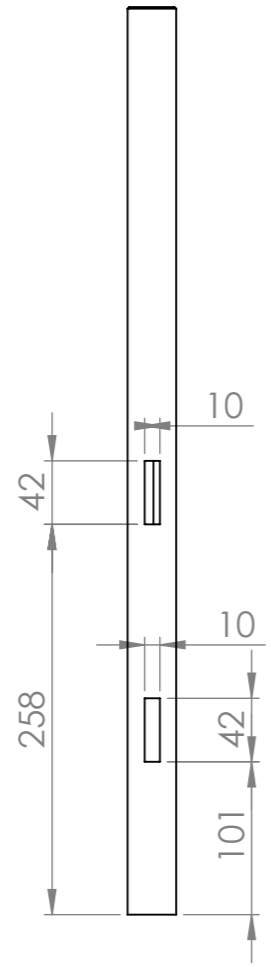
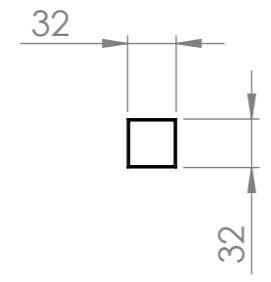
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DRAWN			NAME		SIGNATURE		DATE		TITLE: Childrens Chair Assembly		
CHK'D									DWG NO. Chair Assembly 001		
APPV'D									A3		
MFG									SCALE:1:10		
Q.A							MATERIAL: Tasmanian Oak		SHEET 1 OF 14		
							WEIGHT:				

1	2	3	4	5	6	7	8
ITEM NO.	PART NUMBER	Length	Width	Thickness	QTY.		
1	Chair Top	280	140	19	2		



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:			FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION
DRAWN	NAME	SIGNATURE	DATE			TITLE: Childrens Chair Assembly	
CHK'D						DWG NO. Chair Top 002	
APPV'D						A3	
MFG					MATERIAL: Pine	SCALE:1:10	
Q.A					WEIGHT:	SHEET 2 OF 14	

1	2	3	4	5	
ITEM NO.	PART NUMBER	Length (mm)	Width (mm)	Thickness (mm)	QTY.
2	Left Back Leg	600	32	32	1

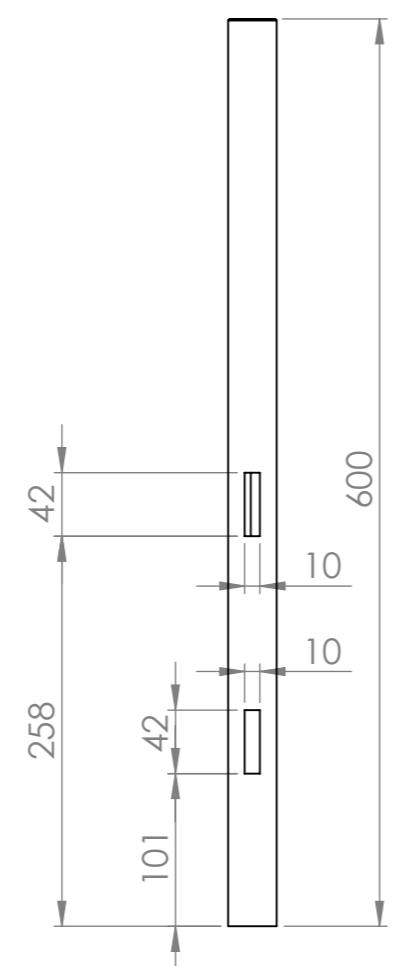
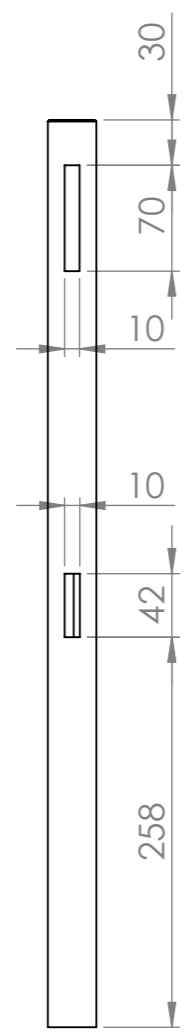
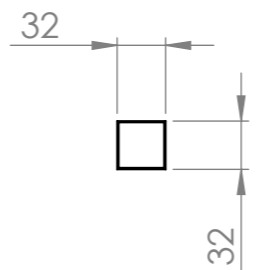


Note: All slots are central to the thickness of the leg

SECTION F-F
SCALE 1 : 5

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SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
NAME	SIGNATURE	DATE				TITLE: Childrens Chair Assembly			
DRAWN						DWG NO. Left Back Leg 003			
CHK'D						A3			
APPV'D									
MFG									
Q.A									
		MATERIAL: Pine				SCALE:1:10		SHEET 3 OF 14	
		WEIGHT:							

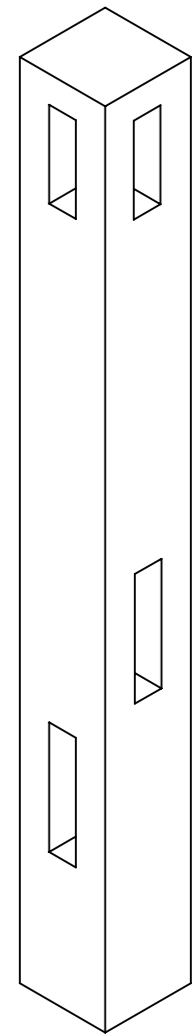
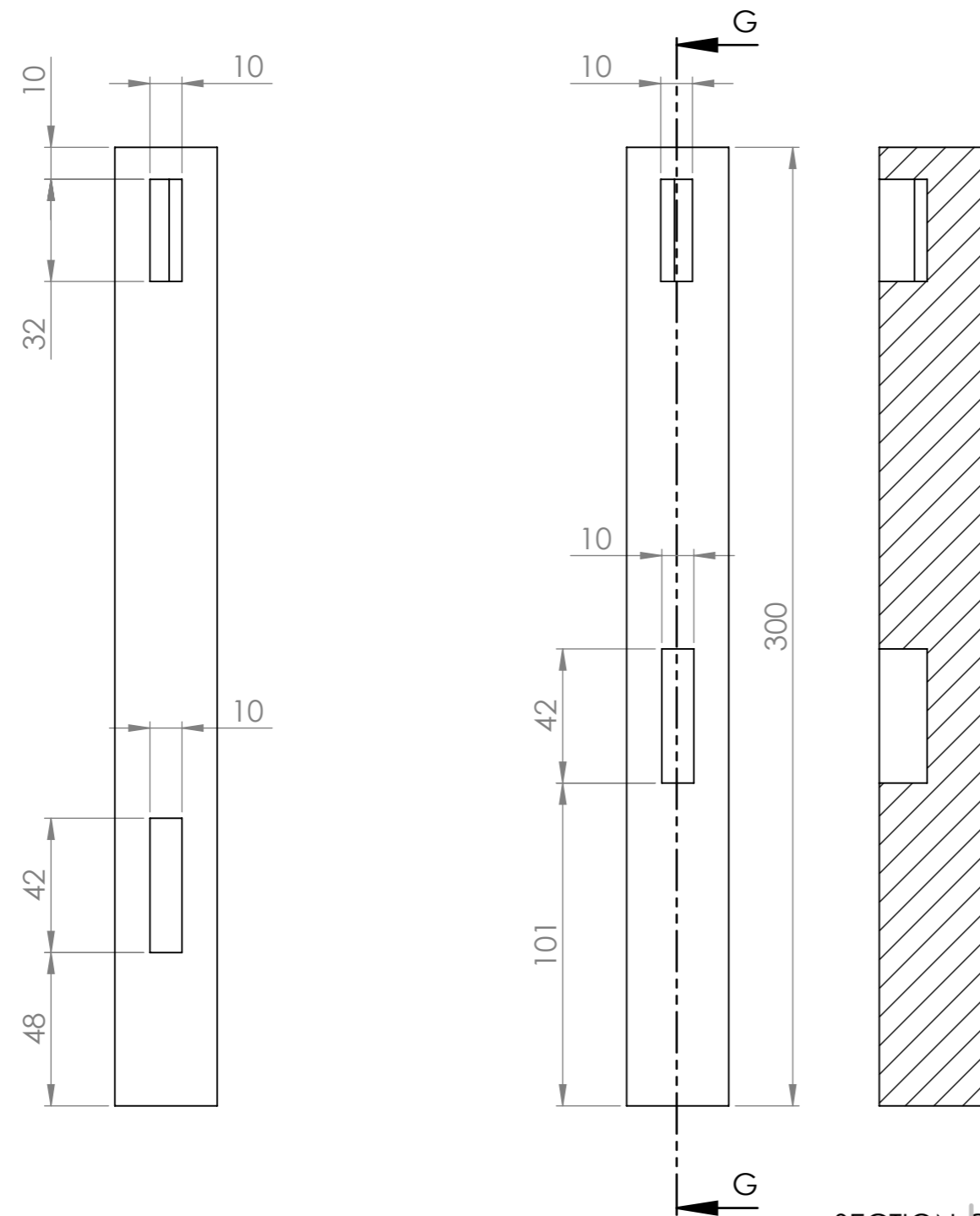
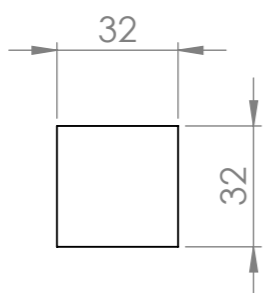
ITEM NO.	PART NUMBER	Length (mm)	Width (mm)	Thickness (mm)	QTY.
3	Front Leg	600	32	32	1



Note: All slots are central to the thickness of the leg

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
DRAWN		NAME		SIGNATURE		DATE		TITLE: Childrens Chair Assembly	
CHK'D								DWG NO. Right Back Leg 004	
APPV'D								A3	
MFG						MATERIAL: Pine		SCALE:1:10	
Q.A						WEIGHT:		SHEET 4 OF 14	

1	2	3	4	5	6	7	8
ITEM NO.	PART NUMBER	Length (mm)	Width (mm)	Thickness (mm)	QTY.		
4	Left Front Leg	600	32	32	1		

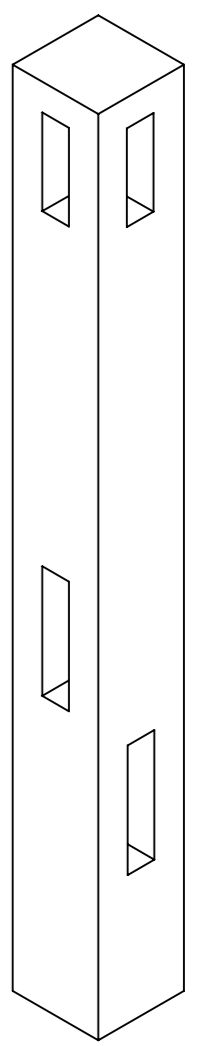
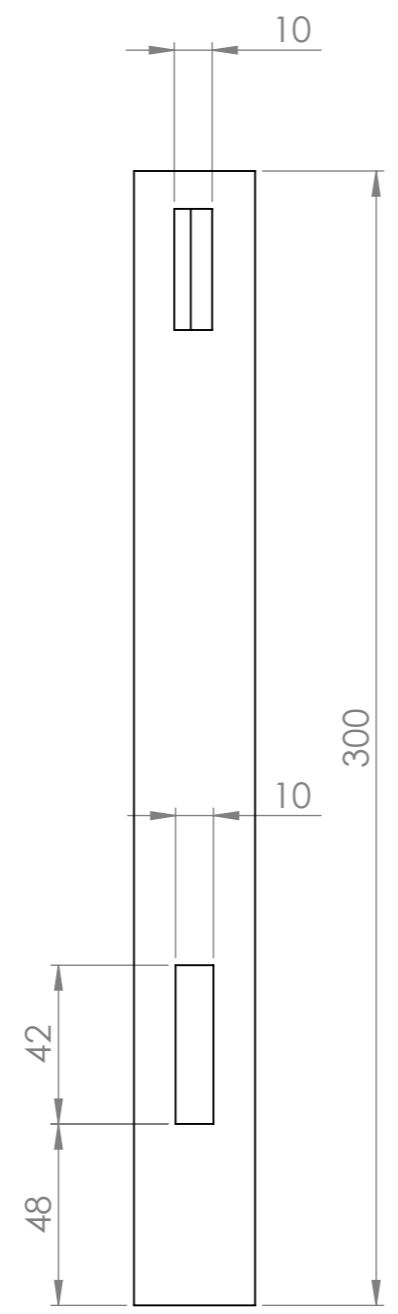
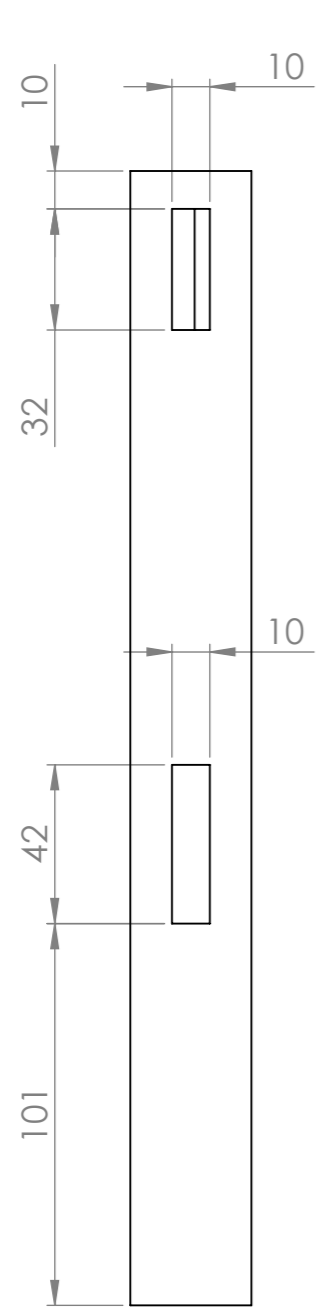
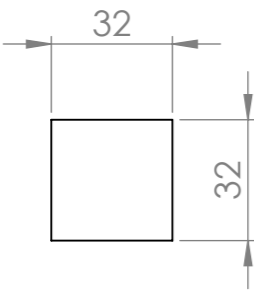


Note: All slots are central to the thickness of the leg

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:				FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
DRAWN						TITLE: Childrens Chair Assembly					
CHK'D						DWG NO. Left Front Leg 005					
APPV'D						MATERIAL: Pine					
MFG						SCALE:1:10					
Q.A						WEIGHT:					
						SHEET 5 OF 14					

SECTION G-G
SCALE 1:2

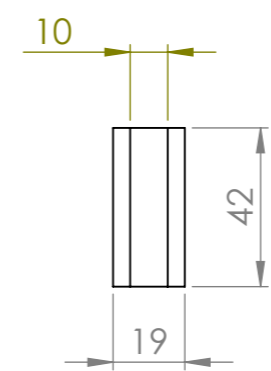
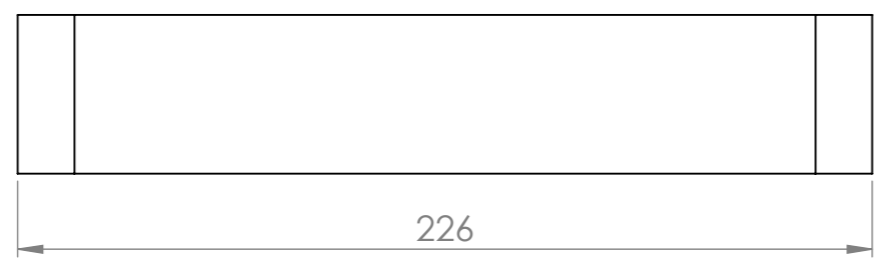
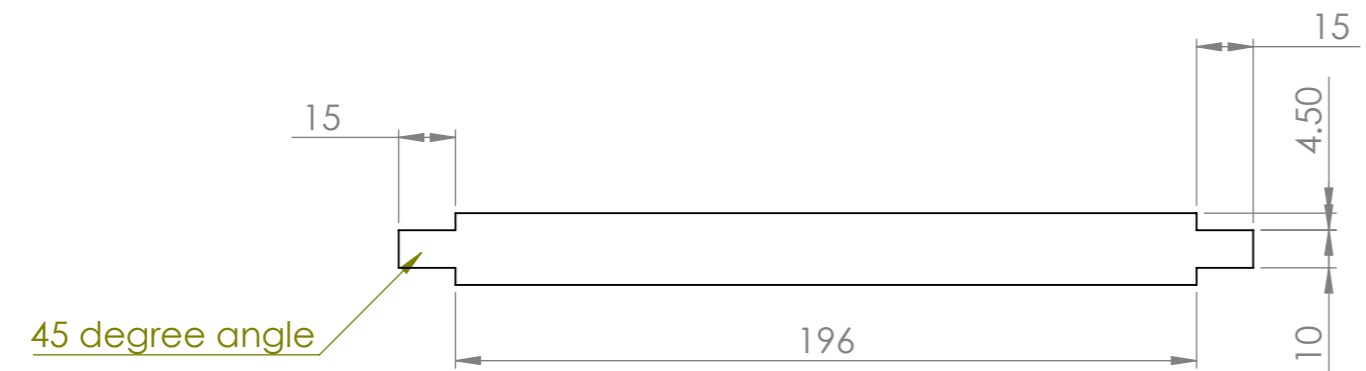
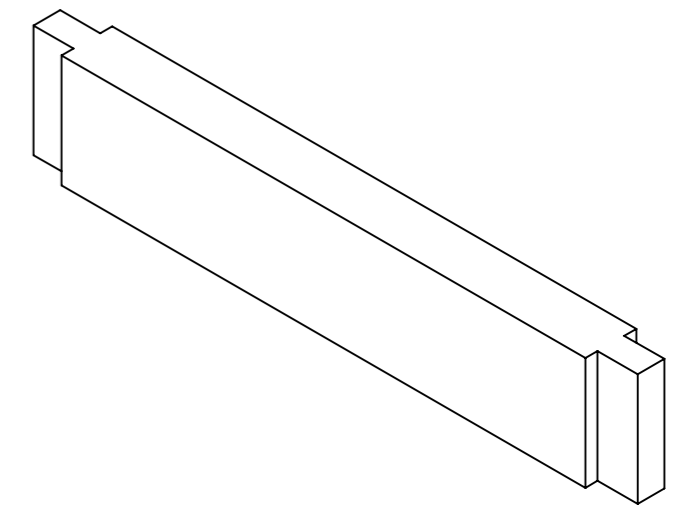
1	2	3	4	5	6	7	8
ITEM NO.	PART NUMBER	Length	Width	Thickness	QTY.		
5	Right front Leg	300	32	32	1		



Note: All slots are central to the thickness of the leg

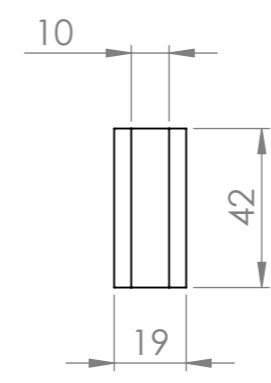
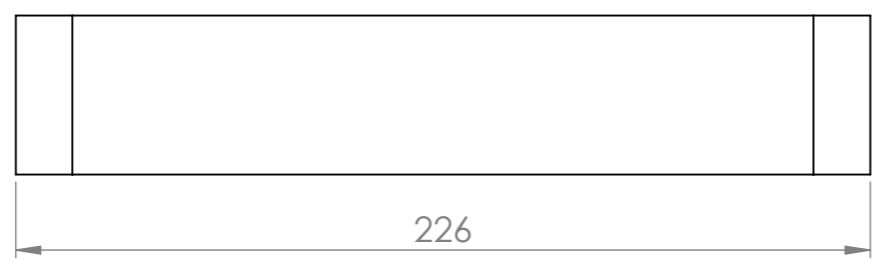
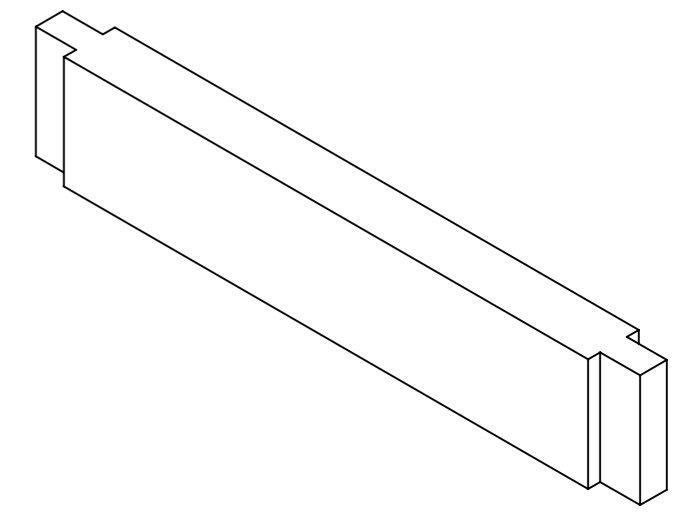
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SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
DRAWN		NAME		SIGNATURE		DATE		TITLE: Childrens Chair Assembly	
CHK'D									
APPV'D									
MFG									
Q.A								DWG NO. Right Front Leg 006	
								A3	
						MATERIAL: Pine		SCALE:1:10	
						WEIGHT:		SHEET 6 OF 14	

ITEM NO.	PART NUMBER	Length (mm)	Width (mm)	Thickness (mm)	QTY.
6	Left - Right Bottom Rail	600	42	19	2



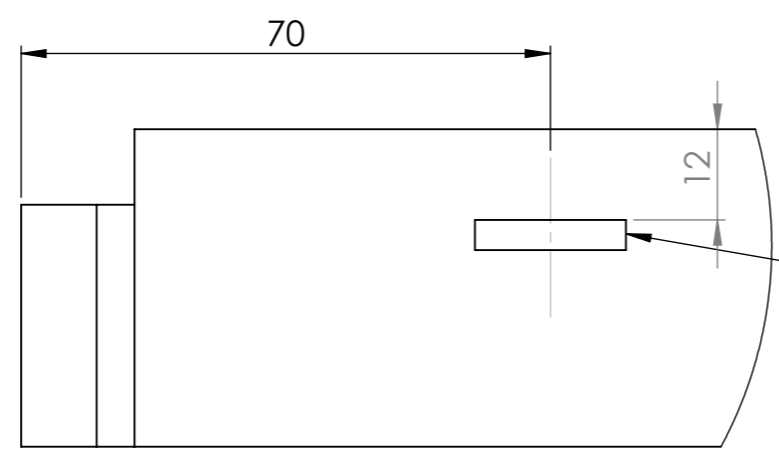
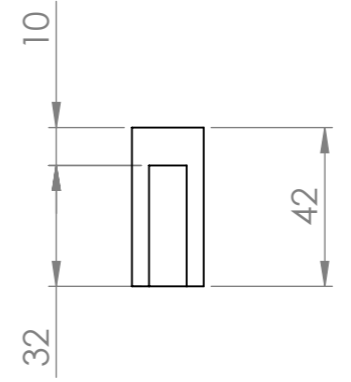
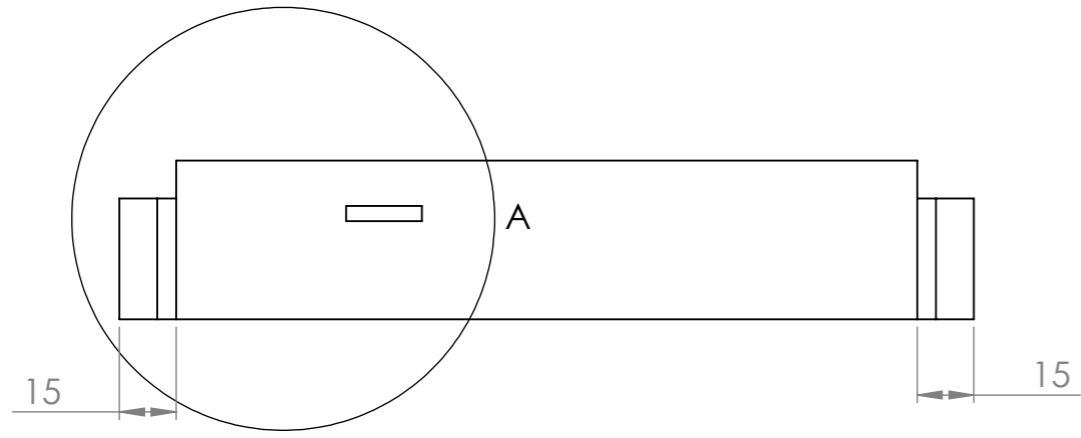
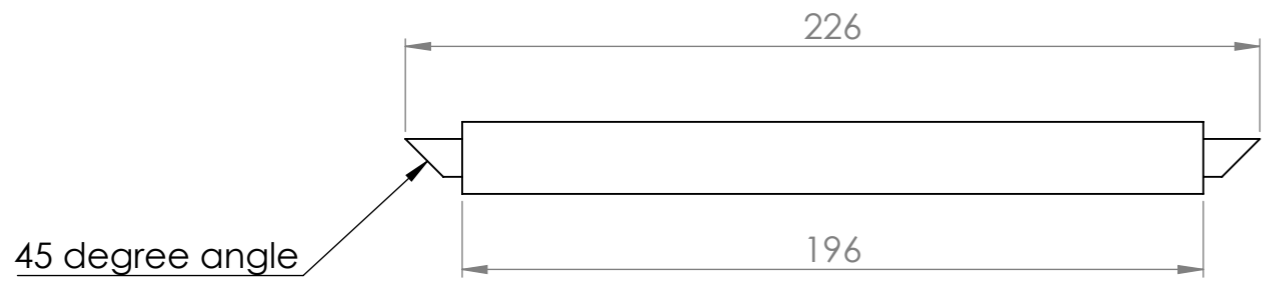
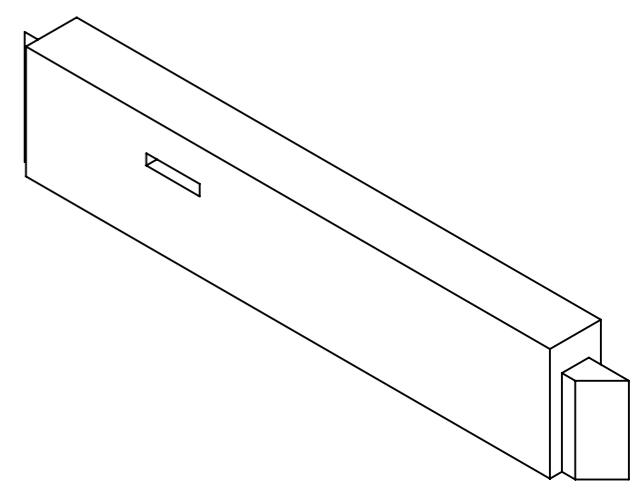
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:			FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION
NAME	SIGNATURE	DATE	TITLE: Childrens Chair Assembly				
DRAWN			MATERIAL: Pine		DWG NO. Left/Right Bottom Rail 007	A3	
CHK'D			WEIGHT:		SCALE:1:10	SHEET 7 OF 14	
APPV'D							
MFG							
Q.A							

1	2	3	4	5
ITEM NO.	PART NUMBER	Length	Width	Thickness
7	Front Bottom Rail	196	42	19
				QTY.
				1



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:		FINISH: Polyurethane	DEBURR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION
NAME	SIGNATURE	DATE		TITLE: Childrens Chair Assembly	
DRAWN					
CHK'D					
APPV'D					
MFG					
Q.A			MATERIAL: Pine	DWG NO. Front Bottom Rail 008	A3
			WEIGHT:	SCALE:1:10	SHEET 8 OF 14

1	2	3	4	5
ITEM NO.	PART NUMBER	Length	Width	Thickness
8	Front Rail	196	42	19
				QTY.
				1

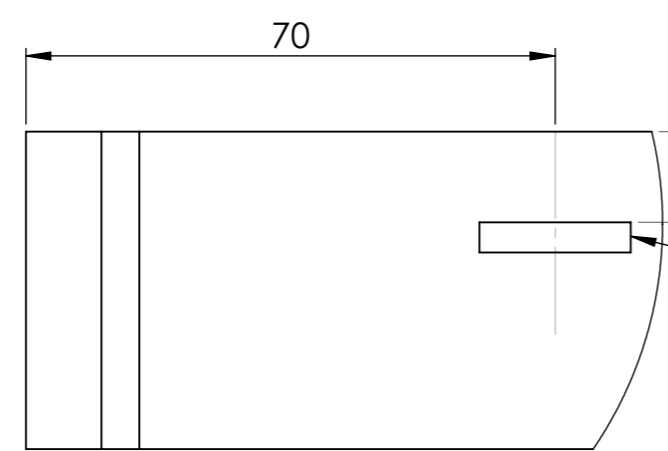
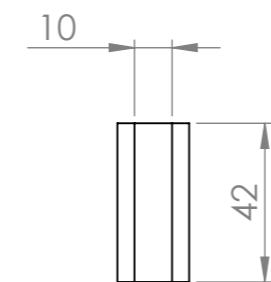
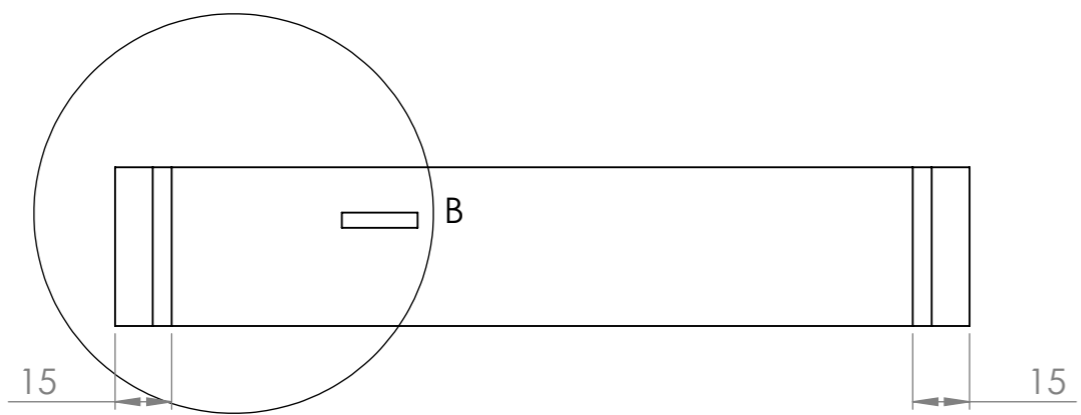
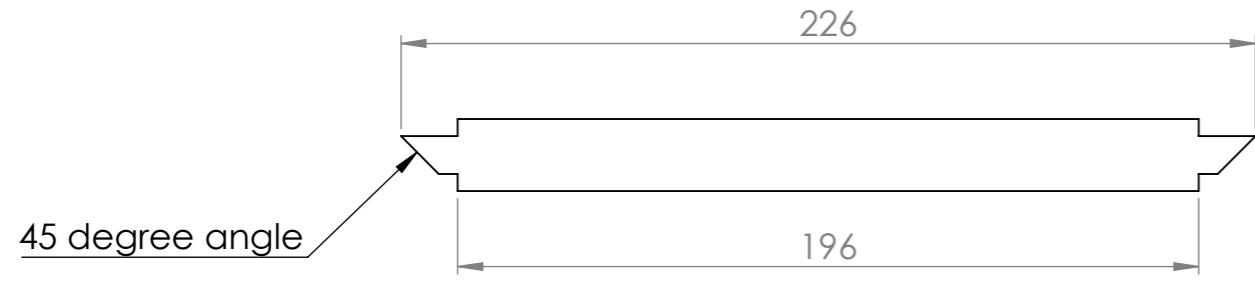
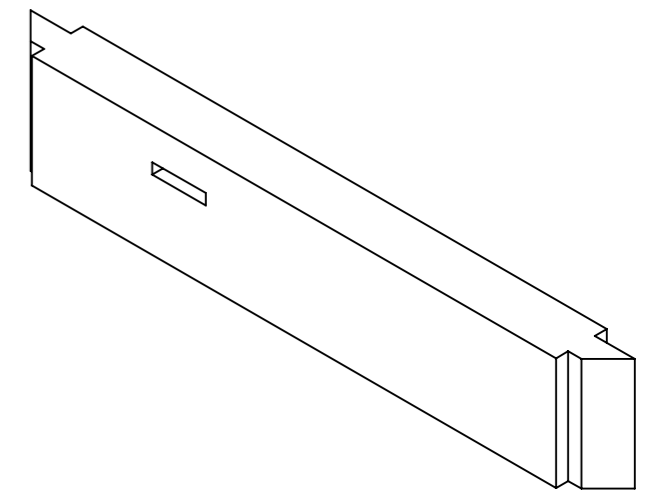


Note: This cut out is a simple biscuit joint. Measure the top of the cut out for machining. Both ends have the same dimension.

DETAIL A
SCALE 1 : 1

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
DRAWN		NAME		SIGNATURE		DATE		TITLE:	
CHK'D								Childrens Chair Assembly	
APPV'D								DWG NO.	
MFG								Front Rail 009	
Q.A								A3	
						MATERIAL: Pine		SCALE:1:10	
						WEIGHT:		SHEET 9 OF 14	

1	2	3	4	5
ITEM NO.	PART NUMBER	Length	Width	Thickness
9	Back Rail	196	42	19

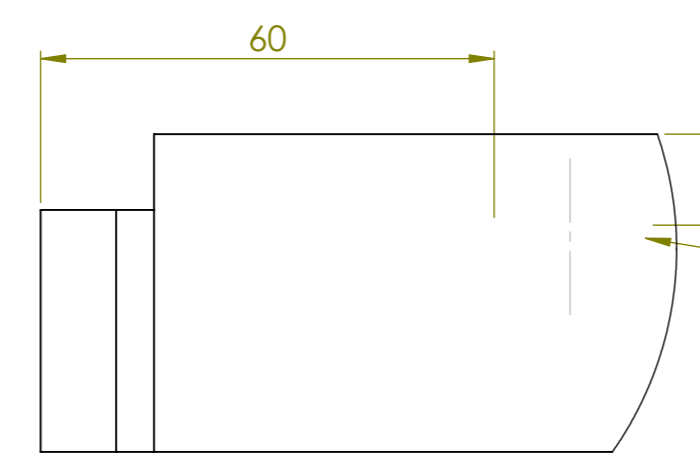
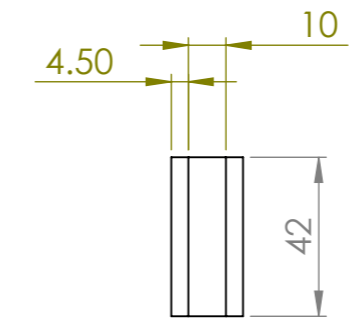
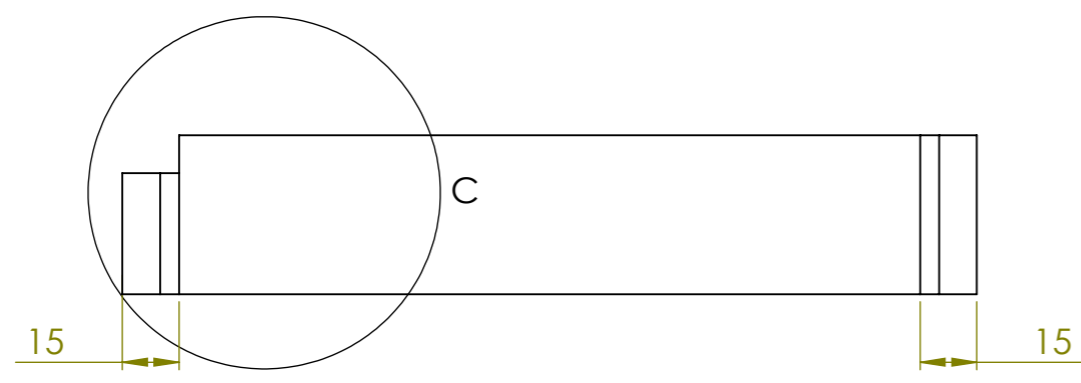
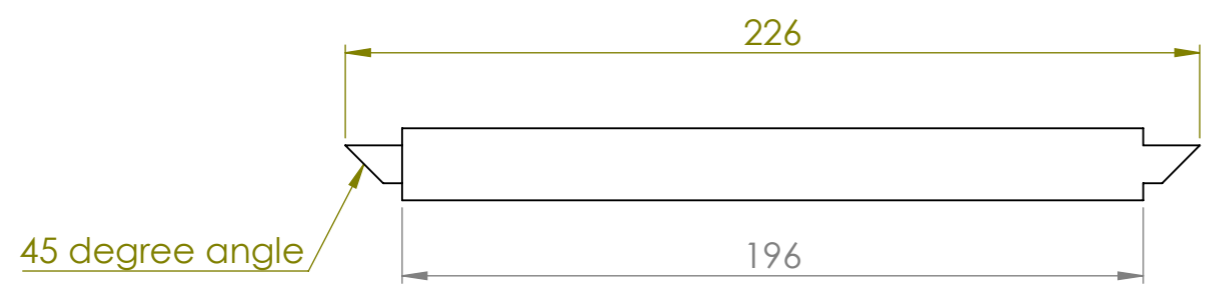
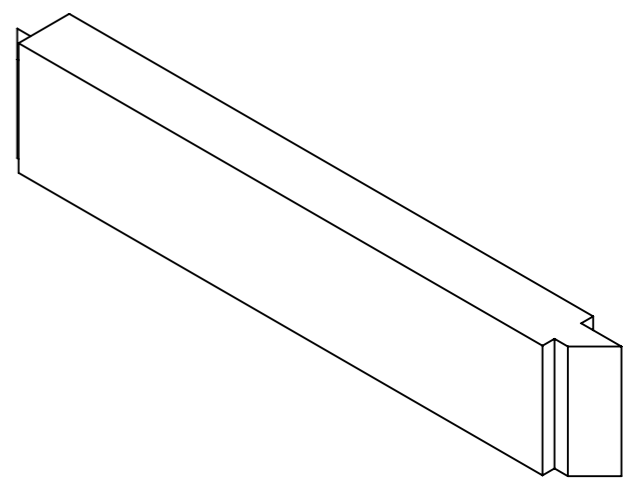


Note: This cut out is a simple biscuit joint. Measure the top of the cut out for machining. Both ends have the same dimension.

DETAIL B
SCALE 1 : 1

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
DRAWN		NAME		SIGNATURE		DATE		TITLE:	
CHK'D								Childrens Chair Assembly	
APPV'D								DWG NO.	
MFG								Back Rail 010	
Q.A						MATERIAL: Pine		A3	
						WEIGHT:		SCALE:1:10	
								SHEET 10 OF 14	

1	2	3	4	5
ITEM NO.	PART NUMBER	Length	Width	Thickness
10	Left Rail	196	42	19
				QTY.
				1

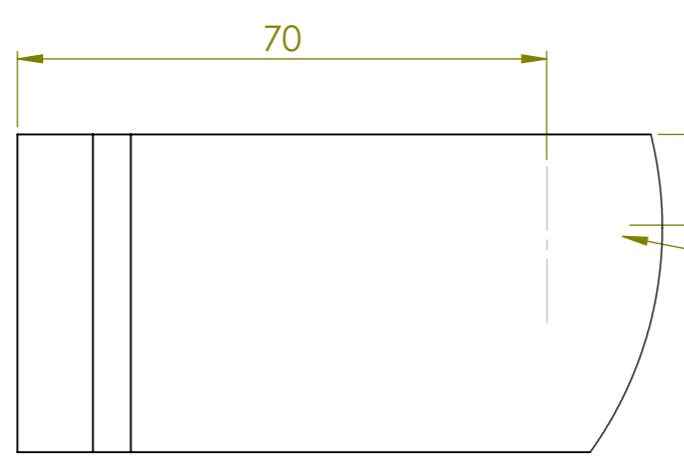
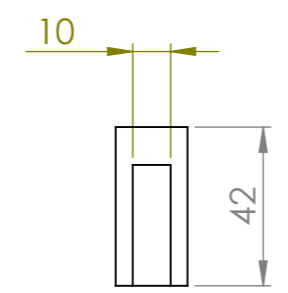
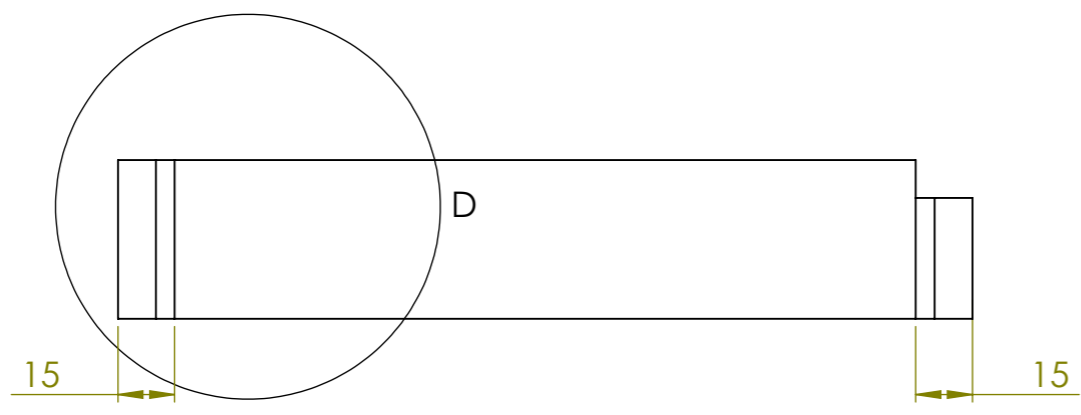
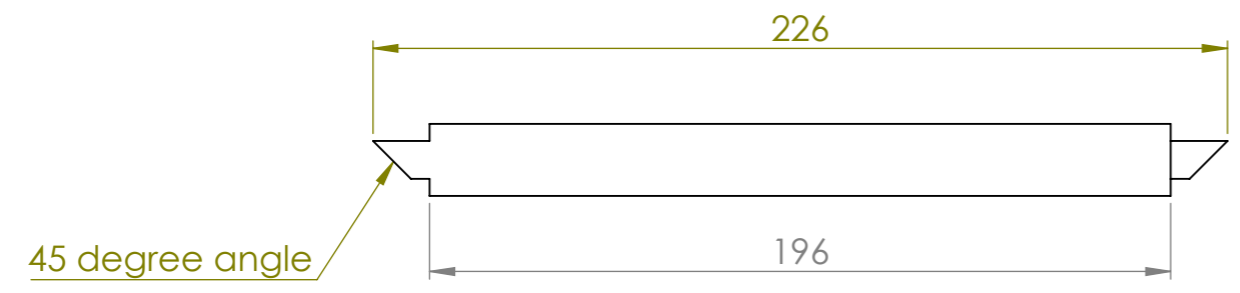
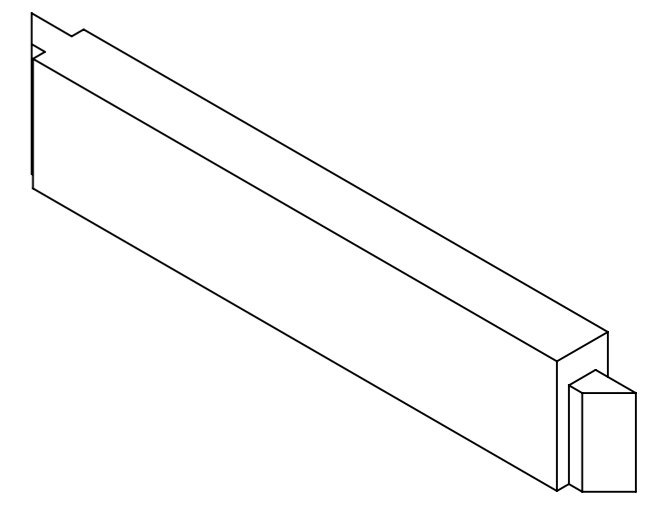


Note: This cut out is a simple biscuit joint. Measure the top of the cut out for machining. Both ends have the same dimension.

DETAIL C
SCALE 1 : 1

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
DRAWN	NAME	SIGNATURE	DATE			TITLE: Childrens Chair Assembly			
CHK'D									
APPV'D									
MFG									
Q.A					MATERIAL: Pine	DWG NO. Left Rail 011		A3	
					WEIGHT:	SCALE:1:10		SHEET 11 OF 14	

1	2	3	4	5
ITEM NO.	PART NUMBER	Length	Width	Thickness
11	Right Rail	196	42	19



Note: This cut out is a simple biscuit joint. Measure the top of the cut out for machining. Both ends have the same dimension.

DETAIL D
SCALE 1 : 1

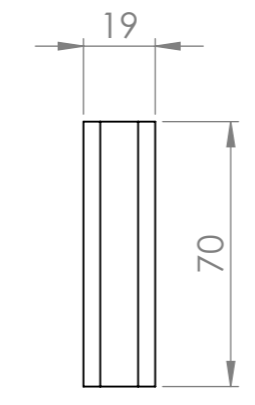
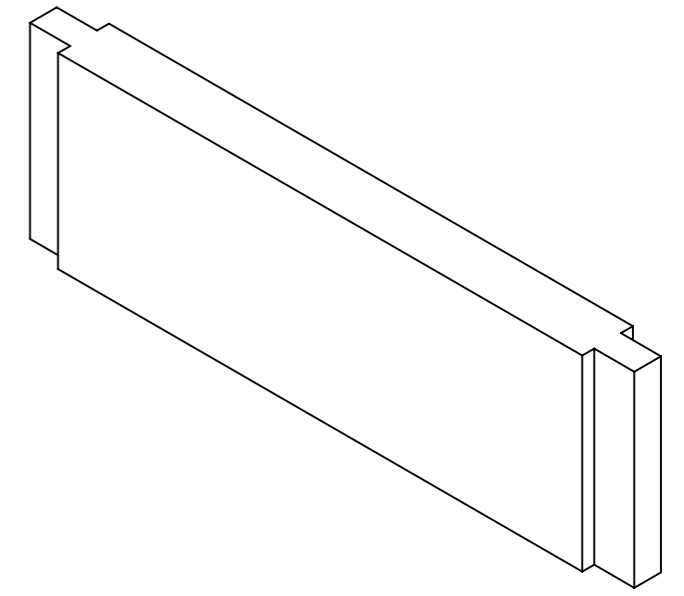
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
SURFACE FINISH:									
TOLERANCES:									
LINEAR:									
ANGULAR:									
DRAWN		NAME		SIGNATURE		DATE		TITLE: Childrens Chair Assembly	
CHK'D									
APPV'D									
MFG									
Q.A						MATERIAL: Pine		DWG NO. Right Rail 012	
						WEIGHT:		SCALE:1:10	
								SHEET 12 OF 14	

A
B
C
D
E
F

A
B
C
D
E
F

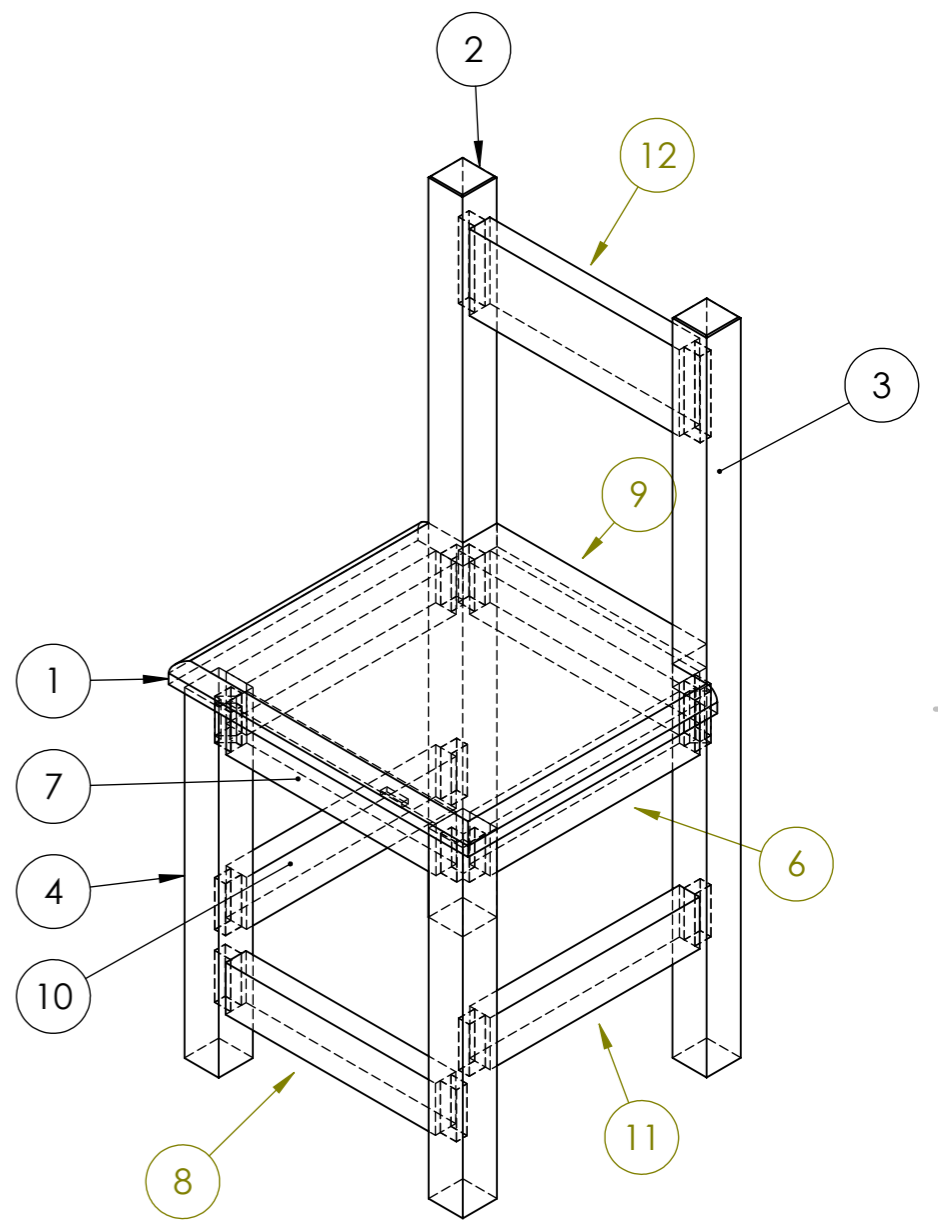
1 2 3 4 5 6 7 8

1	2	3	4	5	
ITEM NO.	PART NUMBER	Length	Width	Thickness	QTY.
12	Front Back Top Rails	196	70	19	1



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		DO NOT SCALE DRAWING		REVISION	
DRAWN	NAME	SIGNATURE	DATE			TITLE: Childrens Chair Assembly			
CHK'D						DWG NO.		A3	
APPV'D						Right Rail 013			
MFG				MATERIAL: Pine		SCALE:1:10		SHEET 13 OF 14	
Q.A				WEIGHT:					

ITEM NO.	PART NUMBER	Length	Width	Thickness	QTY.
1	Chair Top	280	140	19	2
2	Left Back Leg	600	32	32	1
3	Front Leg	600	32	32	1
4	Left Front Leg	300	32	32	1
5	Right Front Leg	300	32	32	1
6	Left/Right Bottom Rail	300	42	19	2
7	Front Bottom Rail	226	42	19	1
8	Front Rail	226	42	19	1
9	Front Back Top Rails	196	42	19	1
10	Left Rail	226	42	19	1
11	Right Rail	226	42	19	1
12	Back Rest	226	70	19	1



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:		FINISH: Polyurethane		DEBURR AND BREAK SHARP EDGES		5 DO NOT SCALE DRAWING		REVISION	
DRAWN		NAME		SIGNATURE		DATE		TITLE: Childrens Chair Assembly	
CHK'D								DWG NO. Chair Cutting List	
APPV'D									
MFG									
Q.A									
				MATERIAL: Tasmanian Oak		SCALE:1:10		SHEET 14 OF 14	
				WEIGHT:				A3	