



THE SHELTER PROJECT BOKE DESIGN SPECIFICATIONS

DRAFT

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as of September 5, 2018

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SUMMARY

These design specifications are intended to enable the production of building components—and, eventually, houses and community buildings—in communities within about 200 km of the treeline.

The intention is to lay the groundwork for a small production shop in each of these communities that can employ local people, using local materials, to make these building components.

The intention is to make building components which, when compared to “equivalent” buildings components brought in from the south, are:

- Strongly preferred by local people
- More suitable for use in these communities and their climates
- Competitive in price, once the cost of ordering, shipping, storage and installation are included

The building components made to these specifications are also intended to:

- Be very well made
- Exceed building code requirements

At this point (September 2018) this document focuses on only one product—doors—and only one material—wood. However, the intention is to expand to other products and materials in the coming months, including:

- Outdoor garbage boxes
- Interior Doors
- Windows
- Shutters
- Walls
- Flooring
- Trim
- Foundations

1. THE BOREAL FOREST EXTERIOR DOOR

1.1. *Product Purpose*

The purpose of the Boreal Forest Exterior Door design is to enable remote northern communities to build their own doors, from local wood (pine, spruce and larch), suitable to their climate and uses.

This is also intended to serve as a prototype for other designs using local materials in these communities.

1.2. *Current Situation*

Currently, the most commonly used exterior door in these communities is an insulated steel door in a steel or wooden frame.

Figure 1: Steel Door on Band Building



Sometimes the fact that they are made of steel is obvious (as above) and sometimes the steel has been formed and painted to look like wood (as below).

Figure 2: Steel Door on a Residence



Most exterior doors in these communities do not function as intended. They have often been damaged in some way and, because there is no facility in the community to repair a steel door, repairs do not restore the door to its original function or appearance.

As well, these steel doors are expensive to purchase, ship and install. An all-in cost of \$1,000 is not unusual.

1.3. *An Alternative to Shipped-In Steel Doors—The Boreal Forest Door*

The Boreal Forest Door is a wooden door, made with local materials, by local people, that can be used instead of an insulated steel door.

Table 1: Comparison Between an Insulated Steel Door and the Boreal Forest Door

variable	insulated steel door	The Boreal Forest Door
resistance to cold	✓✓	✓
fire resistance	✓✓✓	✗✗
use of local materials	✗✗✗	✓✓✓
use of local labour for construction	✗✗✗	✓✓✓
ease of customization	✗✗	✓✓✓
ease of repairs	✗✗	✓✓
materials reusable at end-of-life	✗	✓✓✓

1.4. *Materials Characteristics*

These communities have access to shorter boreal forest trees.

A typical mature tree in this region is 150 mm (6") in diameter at its base, and 5 m (16 ft) in length. In riparian areas (along river banks), larger trees—200 to 250 mm (8" to 10") diameter and 6 to 8 m (20 ft to 25 ft) tall—can be found.

These trees often take 50 years to grow to these dimensions. They grow very straight and—except in high-precipitation areas—have very low moisture content.¹

The resulting wood is very dense, with low moisture content, straight fine grain, and only occasional, small knots. The colour is pale.

This wood has more in common with hardwoods than with pine or spruce harvested in southern Canada. The most prominent difference from hardwood is probably weight; this wood is considerably lighter than an equivalent hardwood.

1.5. *Materials Sourcing*

This material is abundant within easy harvesting distance of the communities.

The boreal forest is the planet's largest land-based ecosystem.

¹ In burn areas, these trees remain standing after a fire, losing their bark and branches within a year or two. These burn-area trees are even dryer, with a moisture content of 5% to 10%. Typically, the fire burns away the bark but leaves the wood itself largely untouched.

Figure 3: Boreal Forest, Showing Managed and Unmanaged Areas



- Managed boreal forest
- Unmanaged boreal forest

The area of focus for this design is the most northerly 100 to 200 km of this forest.

The extreme conditions on northerly the edge of this ecosystem's viable range pushes the tree growth to extremes, resulting in distinctive characteristics of the wood.

In North American, these areas have generally been considered non-viable for commercial forestry. However, they have been considered viable for harvesting for firewood and for artisanal woodworking.

1.5.1. HARVESTING PROCESS

Large-scale logging, with road construction, heavy equipment and significant ecosystem disruption is not appropriate for this process, because:

- It would be very expensive, particularly in the capital input required.
- The trees are small and light enough to be loaded by hand.
- The damage to the ecosystem would be very significant.
 - Given the slow growth of flora this far north, the disruption would endure for many decades.
 - This type of logging would very probably prompt caribou to change their migration routes and avoid the area.

Minimal-impact harvesting is both desirable and practical, because:

- Felling can:
 - Occur at any time of year
 - Be done with minimal equipment—primarily chain saws and commercial-grade safety equipment, with boats for transportation to harvest sites.
- Hauling is best done after freeze-up, with small hauling vehicles, so the mosses and other fragile flora on the forest floor will not be damaged.
 - For small quantities of wood—in the range of 10 m³/year—two snowmobiles and two wooden sleds is all that is required for hauling.
 - For larger volumes—at least up to 1,000 m³—a truck and trailer (in addition to the snowmobiles) are all that's needed.

1.6. Tools

A Construction Shop, with basic shop tools, is needed. Ideally, this shop would be associated with the school in some way, with door construction happening when the shop is not being used for educational instruction. This Construction Shop will also be valuable for the Waste & Recycling Initiative.

The Shelter Initiative (of which these design specifications are a part) will have a higher chance of success if student learning is integrated into product design and construction.

1.6.1. REQUIRED

1.6.1.1. Chainsaw

Figure 4: Chainsaw²



Indicative Product: Stihl MS 461 or Husqvarna 576 XP

Two needed, plus bulk chain & oil.

1.6.1.2. Small Portable Sawmill

Figure 5: Portable Sawmill³



Indicative Product⁴: WoodMizer LT35

Sawmill supplies such as lubricating oil and blades will also be needed.

² Source: <https://www.stihlusa.com/products/chain-saws/professional-saws/ms461/>

³ Source: <http://woodmizer.ca/en/Products/Portable-Equipment/Manual-Sawmills/LT35-Sawmill> **Note:** The inclusion of an image of a particular brand in this report is for illustration purposes only. It is **not** an indication of a preference for this product over other equivalent products.

⁴ An “Indicative Product” is an item whose specifications meet the needs of the project. If other makes and models have equivalent or superior specifications, they are an acceptable substitute.

1.6.1.3. Table Saw

Figure 6: Table Saw⁵



Indicative Product: Ridgid Professional Cast Iron Table Saw Model #R4512

1.6.1.4. Planer

Figure 7: Planer⁶



Indicative Product: Shop Fox W1754

⁵ Source: <https://www.homedepot.ca/en/home/p.13-amp-10-in-professional-cast-iron-table-saw.1000676081.html>

⁶ Source: https://www.amazon.ca/Shop-Fox-W1754-20-Inch-Planer/dp/B001R23TDK/ref=sr_1_2?ie=UTF8&qid=1536089845&sr=8-2&keywords=Shop+Fox+W1754

1.6.1.5. Drill Press

Figure 8: Drill Press⁷



Indicative Product: Porter-Cable Bench Drill Press - 3.2A - 1/2 HP - 5 Speed - 10"

Required for Option C: Mortise & Tenon Construction.

1.6.1.6. Mortising Set

Figure 9: Mortising Set⁸



Indicative Product: Atoplee 6pcs Woodworker Square Hole Drill Bits Mortising Chisel Set

Required for Option C: Mortise & Tenon Construction.

⁷ Source: <https://www.rona.ca/en/bench-drill-press-32a-1-2-hp-5-speed-10-32019856>

⁸ Source: https://www.amazon.ca/Atoplee-Woodworker-Square-Mortising-Mortise/dp/B077PHH8TK/ref=pd_sbs_469_5?encoding=UTF8&pd_rd_i=B077PHH8TK&pd_rd_r=0d8d9fe3-9342-11e8-bac5-a34d8716c49e&pd_rd_w=Uipsg&pd_rd_wg=nzXNe&pf_rd_i=desktop-dp-sims&pf_rd_m=A3DWYIK6Y9EEQB&pf_rd_p=7452810999151854150&pf_rd_r=5YGKXZJ96H7M6YPPZCGQ&pf_rd_s=desktop-dp-sims&pf_rd_t=40701&pvc=1&refRID=5YGKXZJ96H7M6YPPZCGQ

1.6.1.7. Hole Saw Set

Figure 10: Hole Saw Set⁹



Indicative Product: Bosch HB25M Bi-metal 25-Piece Hole Saw Master Set

Primarily to cut the holes for the deadbolt and latch.

1.6.1.8. Glue Clamps

Figure 11: Glue Clamp¹⁰



Indicative Product: Bessey BPC-H34 3/4-Inch H Style Pipe Clamp

Minimum of 4 needed, with pipes.

⁹Source: https://www.amazon.ca/Bosch-HB25M-Bi-metal-25-Piece-Master/dp/B000WA4XCY/ref=asc_df_B0012YNJRO/?tag=googleshop0c-20&linkCode=df0&hvadid=263628123576&hvpos=1o1&hvnetw=g&hvrnd=1868223050271576681&hvponetw=g&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9001171&hvtargid=pla-338189059586&pvc=1

¹⁰ Source: https://www.amazon.ca/Bessey-BPC-H34-4-Inch-Style-Clamp/dp/B0012YNJRO/ref=asc_df_B0012YNJRO/?tag=googleshop0c-20&linkCode=df0&hvadid=263628123576&hvpos=1o1&hvnetw=g&hvrnd=1868223050271576681&hvponetw=g&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9001171&hvtargid=pla-338189059586&pvc=1

1.6.1.9. Chisels

Figure 12: Chisels¹¹



Indicative Product: Stanley 16-150 150 Series Short Blade 3-Piece Wood Chisel Set

Required for finishing tongues and grooves.

1.6.1.10. Wooden Mallet

Figure 13: Wooden Mallet¹²



Indicative Product: 4-1/2" Beech Mallet

Required for assembly.

¹¹ Source: https://www.amazon.ca/STANLEY-16-150-Short-3-Piece-Chisel/dp/B00002X1YO/ref=pd_sbs_469_1?encoding=UTF8&pd_rd_i=B00002X1YO&pd_rd_r=e9326bcc-b083-11e8-96dd-777fa7fb2507&pd_rd_w=fOcxV&pd_rd_wg=auE6U&pf_rd_i=desktop-dp-sims&pf_rd_m=A3DWYIK6Y9EEQB&pf_rd_p=d4c8ffae-b082-4374-b96d-0608daba52bb&pf_rd_r=NXDKXPF56HBYVEHG9ZMW&pf_rd_s=desktop-dp-sims&pf_rd_t=40701&psc=1&refRID=NXDKXPF56HBYVEHG9ZMW

¹² Source: <http://www.leevalley.com/US/wood/page.aspx?p=30004&cat=1,41504,43688&ap=1>

1.6.1.11. Router

Figure 14: Router¹³



Indicative Product: Bosch 1617EVSPK 2.25 HP Combination Plunge- and Fixed-Base Router

Required for installing hinges.

1.6.1.12. Hand Belt Sander

Figure 15: Hand Belt Sander¹⁴



Indicative Product: Makita Heavy Duty 3"x 24" Belt Sander Model: TF795

1.6.1.13. Jigs

¹³ Source: https://www.lowes.ca/routers/bosch-1617evspk-225-hp-combination-plunge-and-fixed-base-router_g2844337.html

¹⁴ Source: <https://www.tenaquip.com/product/makita-heavy-duty-3x-24-belt-sander-9924db-tf795>

1.6.2. NOT ESSENTIAL, BUT WOULD BE VERY USEFUL

1.6.2.1. Router Table

Figure 16: Router Table¹⁵



Indicative Product: Bosch RA1171 Cabinet Style Router Table

1.6.2.2. Belt & Disc Sander

Figure 17: Belt & Disc Sander¹⁶



Indicative Product: King Canada Model WK947

¹⁵ Source: https://www.amazon.ca/Bosch-RA1171-Cabinet-Style-Router/dp/B000H14DLY/ref=asc_df_B000H14DLY/?tag=googleshopc0c-20&linkCode=df0&hvadid=263628129519&hvpos=lo2&hvnetw=g&hvrnd=9172272674546012167&hvpon=&hvptwo=&hvqmt=&hvdev=c&hvdvcmdl=&hvlocint=&hvlocphy=9001171&hvtargid=pla-383712729001&psc=1

¹⁶ Source: <https://www.tenaquip.com/product/king-canada-6-x-48-belt-and-12-disc-sanders-kc-788fx-wk947>

1.7. Product Specifications

Although the Boreal Exterior Door is designed to be built primarily from local materials, there are still some components that must be purchased.

1.7.1. GLUE

All wood is to be glued with ANSI Type III PVA glue

Figure 18: Glue¹⁷



Indicative Product: Franklin Titebond III.

¹⁷ https://www.amazon.ca/Franklin-1415-Titebond-Ultimate-32-Ounce/dp/B0002YQ3KU?th=1&psc=1&source=googleshopping&locale=en-CA&tag=googcana-20&ref=pd_sl_83o89b1r3v_e

1.7.2. HINGES

When the door is closed, the hinges used on these doors are to be hidden inside the door and frame so they are tamper-proof and not exposed to the elements. The hinges also need to allow the door to be opened a full 180°.

Figure 19: Soss “Invisible Hinges”¹⁸

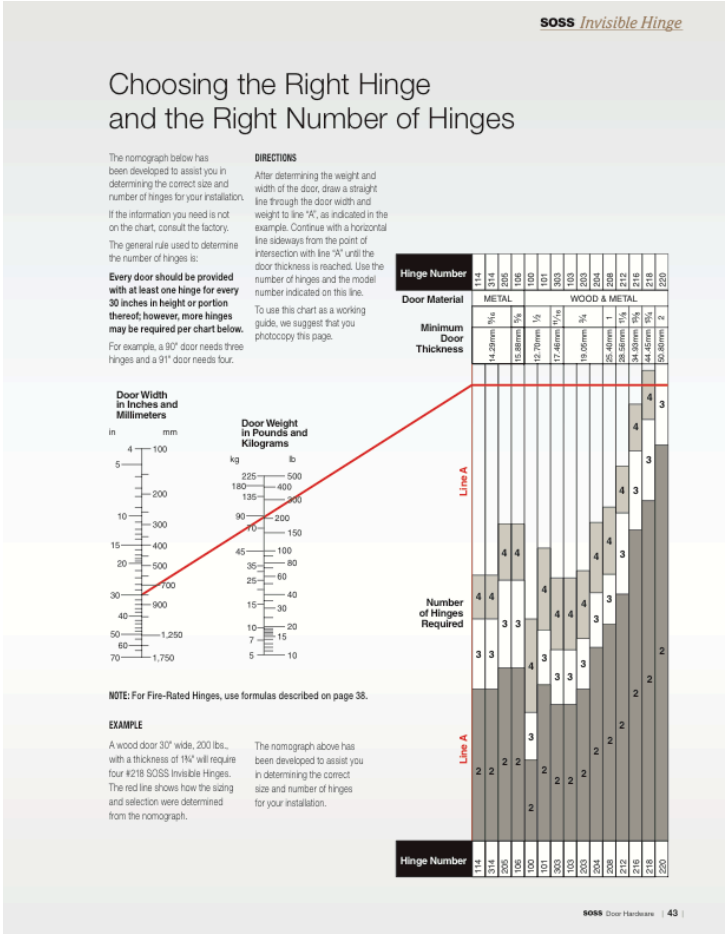


Indicative Product: Soss “Invisible Hinge”, model 218

Until prototype doors are made, the weight can only be estimated. And, because the number of hinges required is dependent on the door’s weight, the estimated number of hinges required is 4 (for model 218) or 3 (for model 220).

¹⁸ Source: <http://jaenin.com/blog/thz-astonishing-west-seattle-residence-by-lawrence-architecture/z>

Figure 20: Soss Hinge Sizing Graph¹⁹



¹⁹ Source: <http://s2.img-b.com/build.com/mediabase/specifications/soos/1140025/soos-install-chart.pdf>

1.8. Door R-Value

Archtoolbox estimates the R-value of a 1 ¾" solid wood door at 2.17.²⁰

Table 2: Estimated R-Value of Various Doors²¹

<i>door</i>	<i>thickness</i>	<i>estimate method</i>	<i>R-value</i>
wood, solid core, 1 ¾"	1 ¾"	not given	2.17
solid insulated metal door, polystyrene insulation	1.5" - 2"	calculated	6.00 - 7.00
		operable	2.20 - 2.80
solid insulated metal door, polyurethane insulation	1.5" - 2"	calculated	10.00 - 11.00
		operable	2.50 - 3.50

Until a representative door is tested, 2.17 will be used as the estimated R-value of the Boreal Forest Exterior Door.

1.8.1. HOWEVER...

The insulation value of the door system (the door, the lock and latch, the weather-stripping, the lintel, and the door frame) is a function of multiple factors and beyond the scope of this section. It, too, will need to be tested.

²⁰ Archtoolbox, "R-values of Insulation and Other Building Materials"
<https://www.archtoolbox.com/materials-systems/thermal-moisture-protection/rvalues.html>, accessed July 30, 2018.

²¹ *Ibid.* Archtoolbox's table of R-values for doors contains a crucial note: "In the chart above, you will notice that there are two vastly different R-values provided for insulated metal doors with polyurethane insulation. Based on ASTM C518 (Calculation Method) the door has an R-value of up to 11, but using ASTM C1363 (Tested/Operable) the same door only have an R-value of up to 3.5. This is a huge difference and essentially comes down to ASTM C518 being a theoretical maximum based on a steady-state thermal test of only a portion of the door panel. However, we all know that the frame, gasketing, and, hardware will significantly affect the thermal transmittance. So a new standard test has been implemented, ASTM C1363, which tests the entire door assembly including the frame and hardware.

The results of ASTM C1363 are much lower, but are much more accurate to the actual installed conditions. In fact, the doors are performing the same as before – it is just that the R-values are much more in line with how the door really performs. Many architects are now specifying doors with the ASTM C1363 test as the standard for thermal transmittance. It is expected that other products will follow suit."

1.9. *Prototyping Process*

There are at least four basic door structures that are feasible in this situation:

- Option A: Tongue & Groove
- Option B: Spline
- Option C: Mortise & Tenon
- Option D: Cross-Laminated Timber

We will build one of each, based on the drawings below. We will record:

- How many person-hours did it take to build the door?
 - As nearly as we can judge, how much of that time is due to this being our first experience of building this door, and how much is inherent in the design?
- What were the differences in non-local material requirements?
- Do we have the right tools for the job?

We will solicit feedback from community members on their opinions about the doors.

We will then test all four doors for durability and resistance to break-in.

1.10. *Production Process*

From all of the information received during the prototyping process, we will determine a sales price for one or more of the door types. The sales price will need to include the cost of the builders' time, materials, tools use, and installation. If that cost is equal to or less than the cost of an installed steel door, we will offer them for sale, in competition with steel doors.

1.11. Drawings

Detailed production drawings are included in the appendices. Only summary drawings are included here.

Figure 21: Exterior Door – Option A: Tongue & Groove – Assembled & Exploded Views

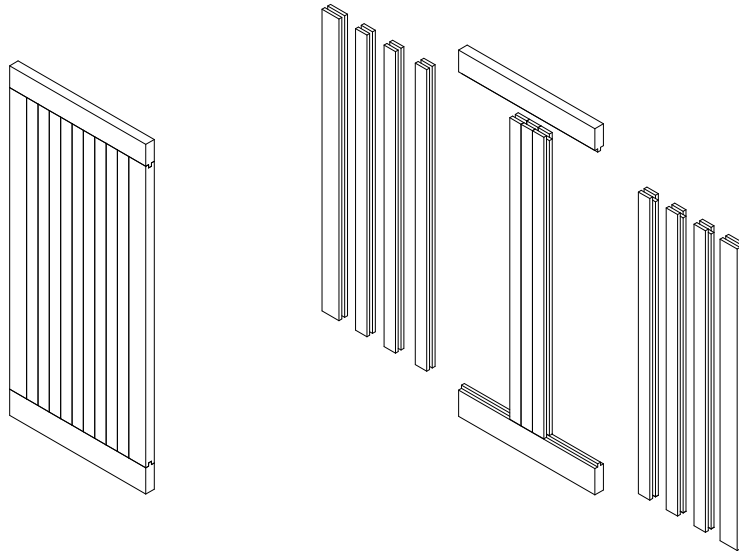


Figure 22: Exterior Door – Option B: Spline – Assembled & Exploded Views

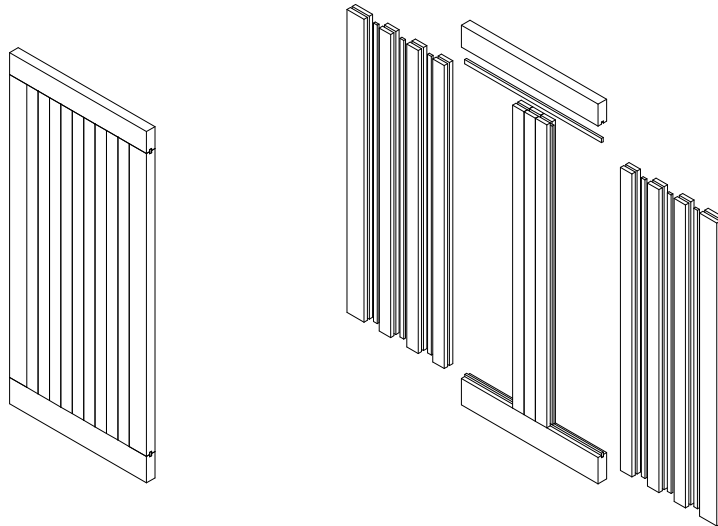


Figure 23: Exterior Door – Option C: Mortise & Tenon Timber – Assembled & Exploded Views

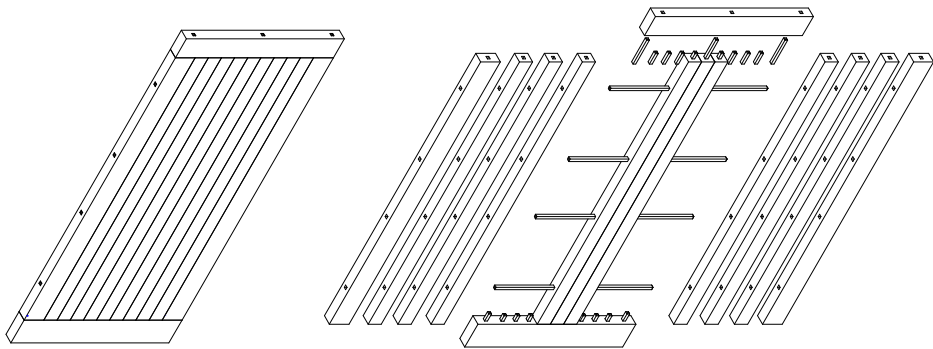
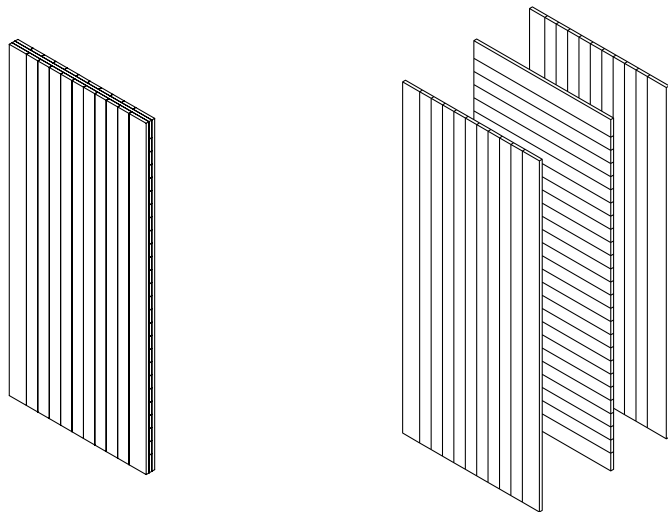


Figure 24: Exterior Door – Option D: Cross-Laminated Timber – Assembled & Exploded Views



2. APPENDICIES

2.1. *Production Drawings - The Boreal Forest Exterior Door*

B

DOOR HANDLE AND
DEADBOLT HEIGHT
LOCATION

42"
36"

USE JIG FOR SOSS
INVISIBLE
HINGE MODEL 218 4
HINGES
USED CENTER OF HINGE
IS 6" FROM TOP OR
BOTTOM
OF DOOR 2 HINGES
EQUALITY
SPACED BETWEEN TOP
AND BOTTOM

SECONDARY HINGE
SPECIFICATION
COMMERCIAL GRADE
SELF CLOSING
INDICATIVE CRL 4" X 4"
DULL NICKEL
HEAVY DUTY SPRING
HINGE FINISH
SHOULD MATCH LATCH

OPTIONS
PEEPHOLE
DOOR KNOCKER
WOOD ROSETTE
ROUTER INCISED DESIGN
WOOD OR STONE INLAY

B

A

A

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		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL ±
		ANGULAR: MACH ± BEND ±
		TWO PLACE DECIMAL ±
		THREE PLACE DECIMAL ±
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
NEXT ASSY	USED ON	FINISH
APPLICATION		DO NOT SCALE DRAWING

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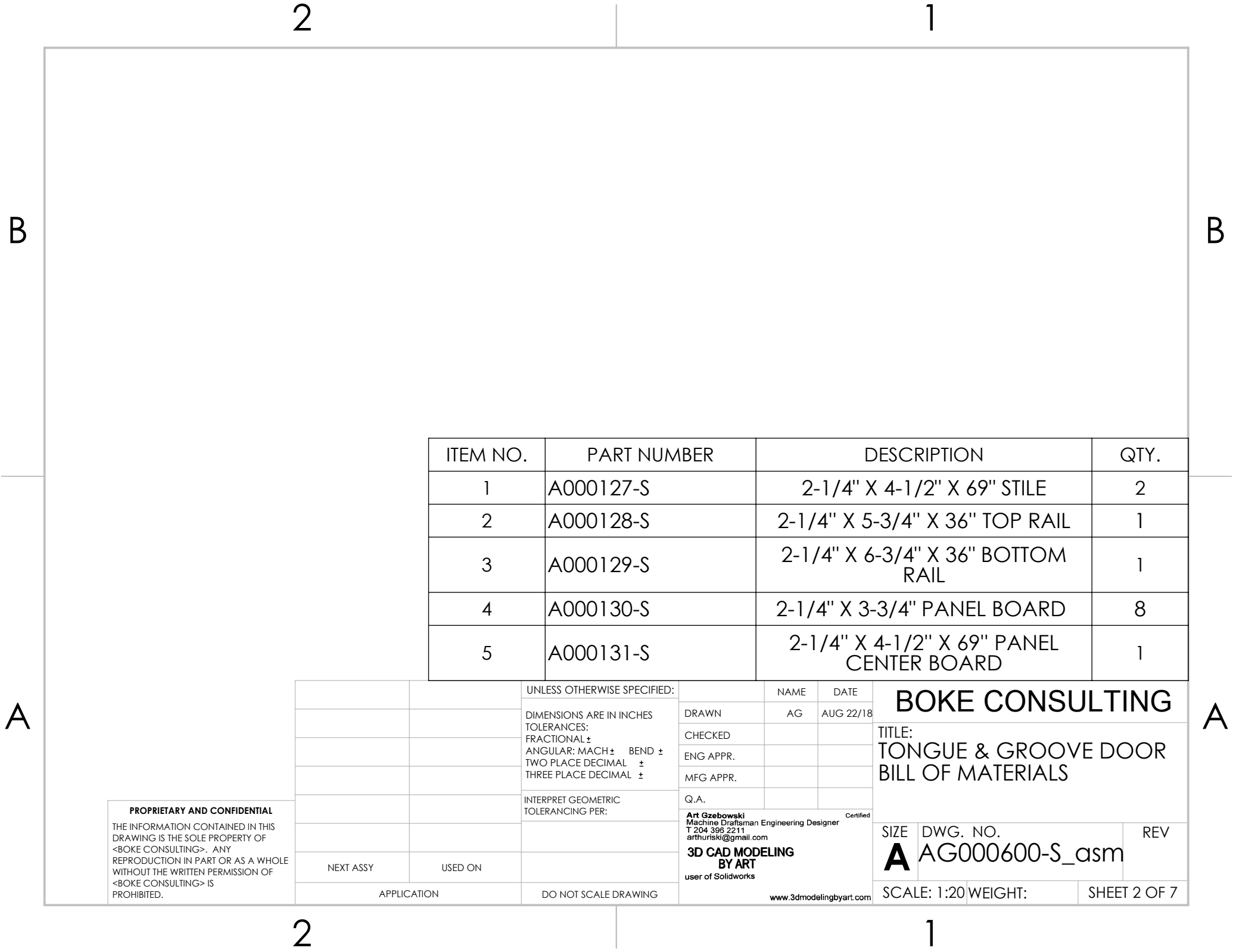
TITLE:
TONGUE & GROOVE DOOR
HINGE, DEADBOLT, AND DOOR HANDLE
LOCATION

SIZE	DWG. NO.	REV
A	AG000600-1-S_ASM	

SCALE: 1:20	SHEET 7A OF 7
-------------	---------------

2

1

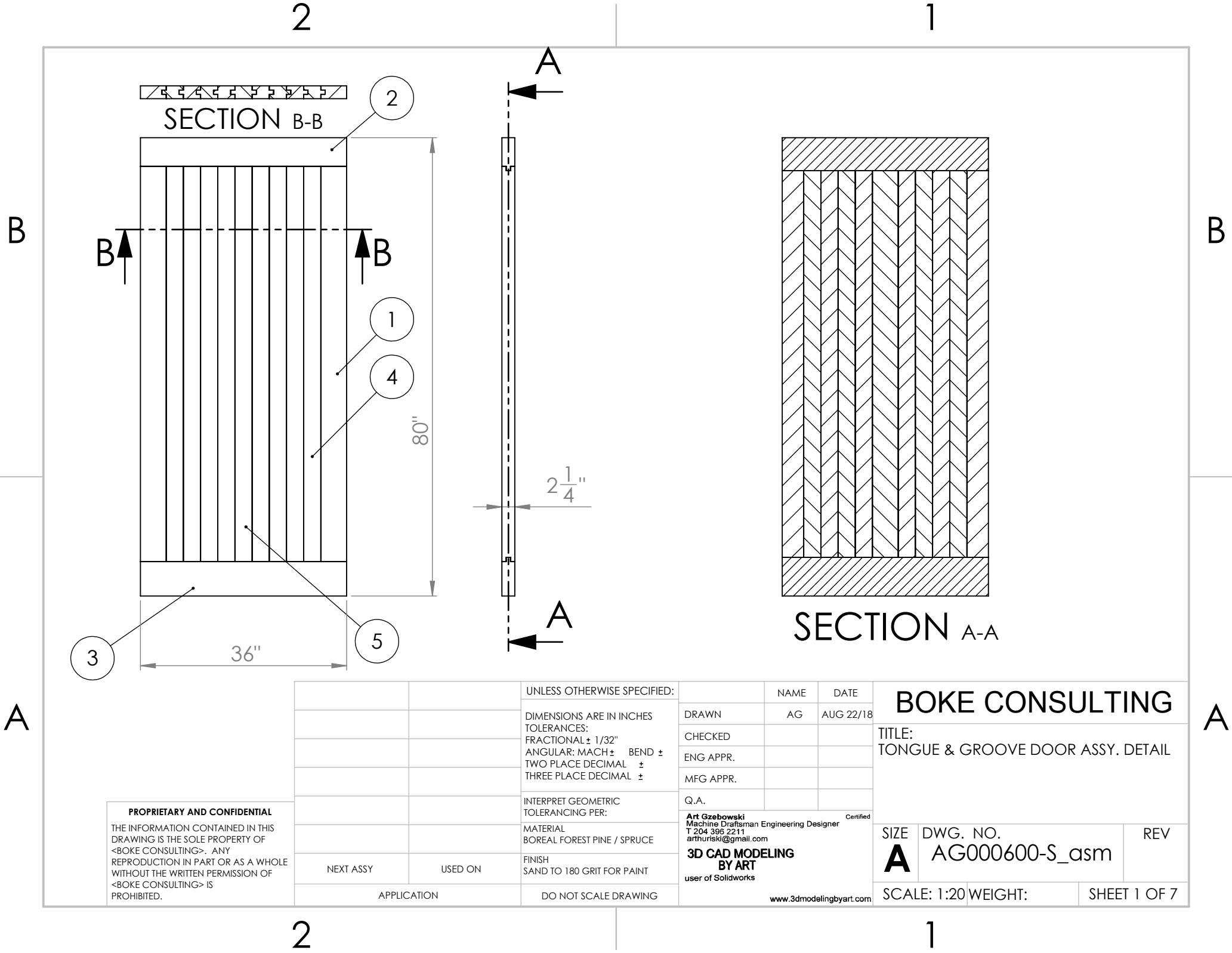


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	A000127-S	2-1/4" X 4-1/2" X 69" STILE	2
2	A000128-S	2-1/4" X 5-3/4" X 36" TOP RAIL	1
3	A000129-S	2-1/4" X 6-3/4" X 36" BOTTOM RAIL	1
4	A000130-S	2-1/4" X 3-3/4" PANEL BOARD	8
5	A000131-S	2-1/4" X 4-1/2" X 69" PANEL CENTER BOARD	1

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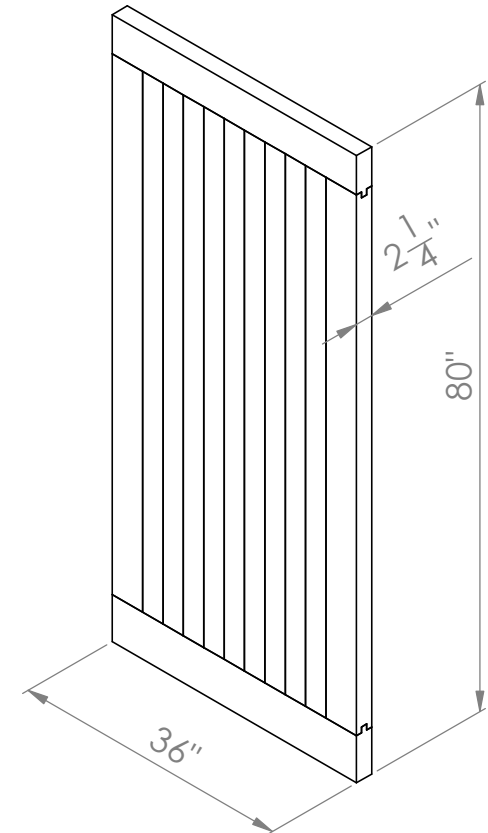
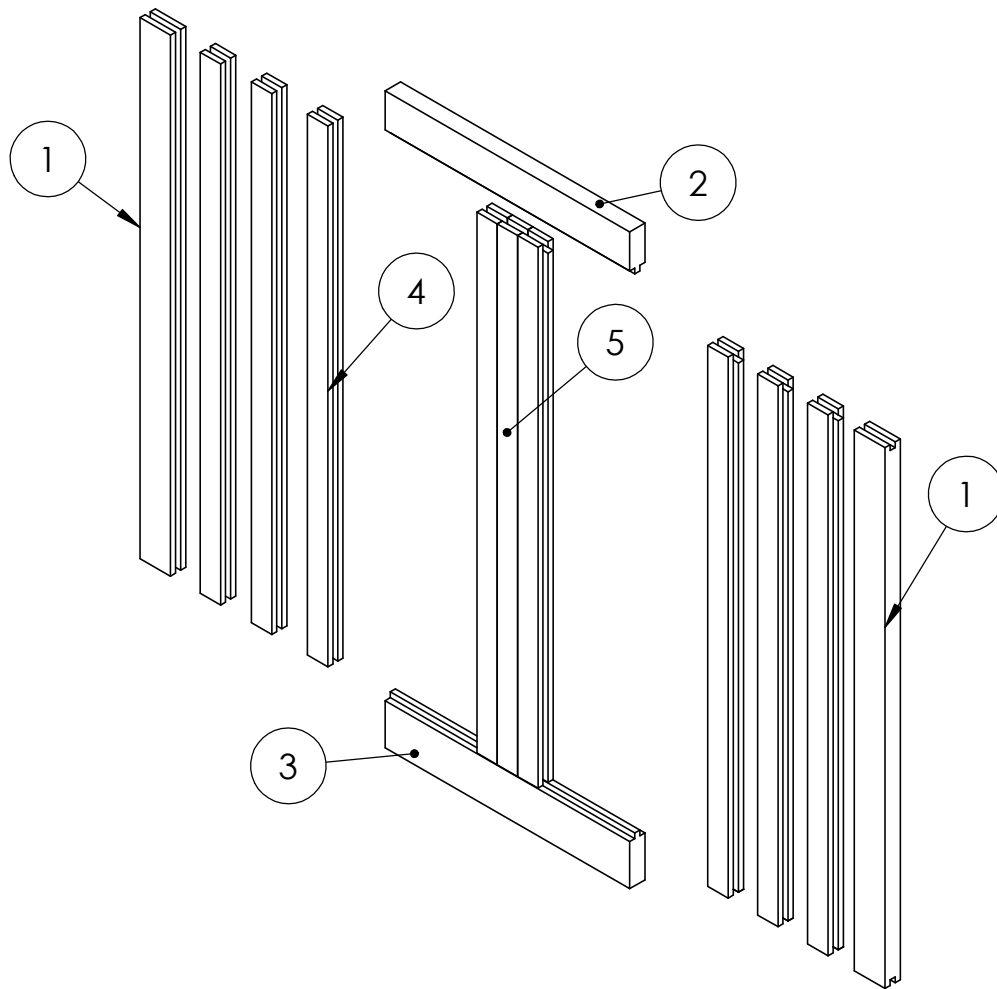
		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 22/18
		TOLERANCES:	CHECKED		
		FRACTIONAL ±	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±			
		INTERPRET GEOMETRIC TOLERANCING PER:			
			Art Gzebowski Machine Draftsman Engineering Designer T 204 396 2211 arthuriski@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		
NEXT ASSY	USED ON		Certified		
APPLICATION		DO NOT SCALE DRAWING			

BOKE CONSULTING					
TITLE: TONGUE & GROOVE DOOR BILL OF MATERIALS					
SIZE	DWG. NO.				REV
A	AG000600-S_asm				
SCALE: 1:20		WEIGHT:		SHEET 2 OF 7	



B

B



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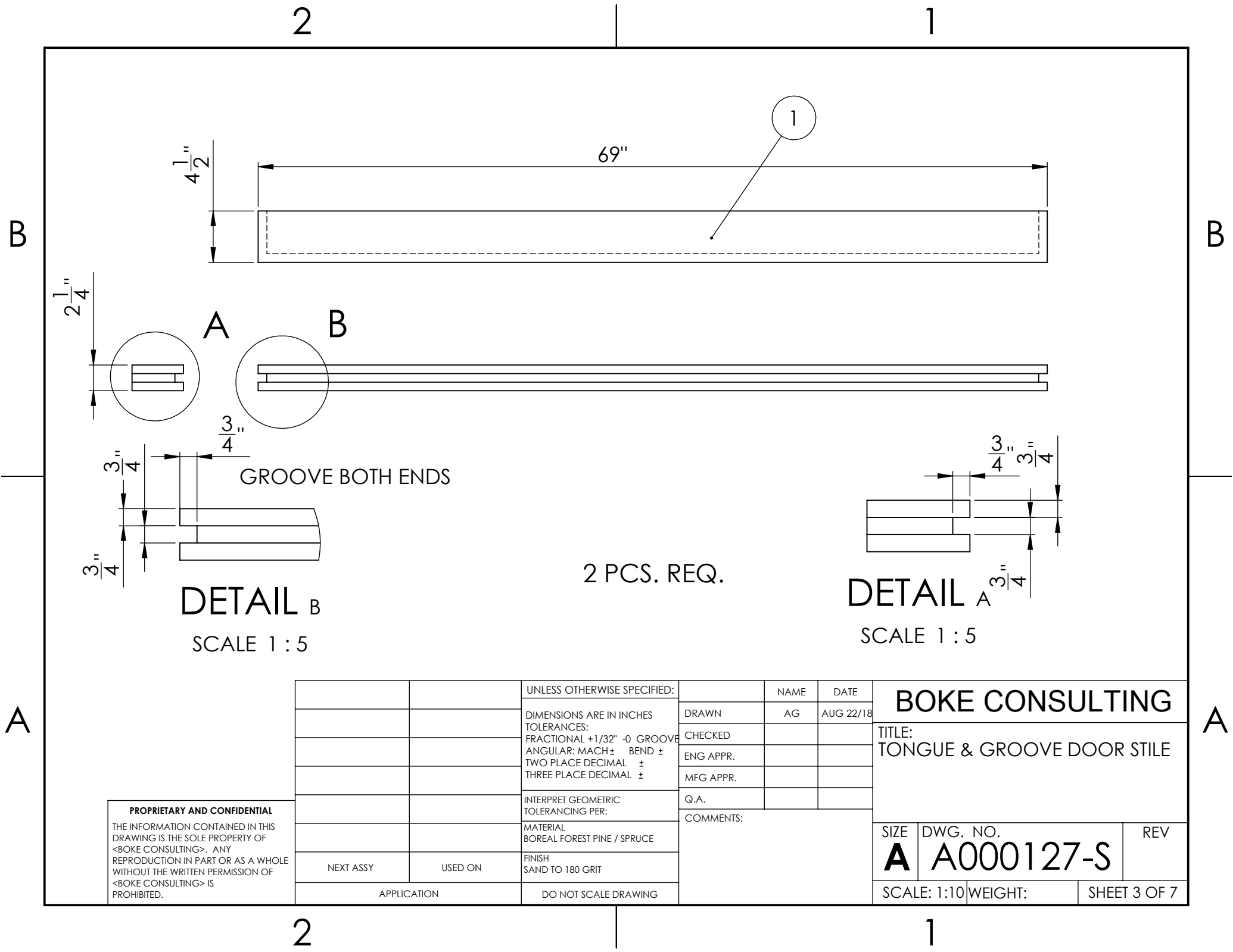
		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL $\pm 1/32"$ ANGULAR: MACH \pm BEND \pm TWO PLACE DECIMAL \pm THREE PLACE DECIMAL \pm	DRAWN AG	AUG 29/18
		INTERPRET GEOMETRIC TOLERANCING PER:	CHECKED	
		MATERIAL BOREAL FOREST PINE / SPRUCE	ENG APPR.	
		FINISH FINISH SAND TO 180 GRIT	MFG APPR.	
NEXT ASSY	USED ON		Q.A.	
APPLICATION		DO NOT SCALE DRAWING	Art Gzebowski Machine Draftsman Engineering Designer T 204 396 2211 arthuriski@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com	

BOKE CONSULTINGTITLE:
TONGUE & GROOVE DOOR ASSY.
EXPLODED VIEW

SIZE	DWG. NO.	REV
A	AG000600-SX_ASM	
SCALE: 1:20		SHEET 7B OF 7

2

1



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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 22/18
		TOLERANCES:	CHECKED		
		FRACTIONAL +1/32" -0 GROOVE	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	COMMENTS:		
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

BOKE CONSULTING		
TITLE: TONGUE & GROOVE DOOR STILE		
SIZE	DWG. NO.	REV
A	A000127-S	
SCALE: 1:10	WEIGHT:	SHEET 3 OF 7

2

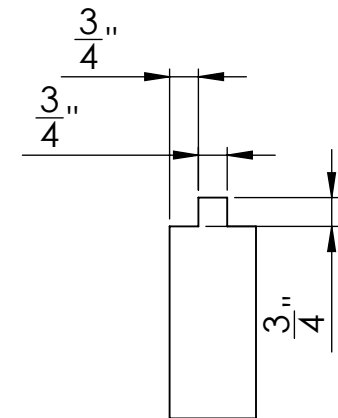
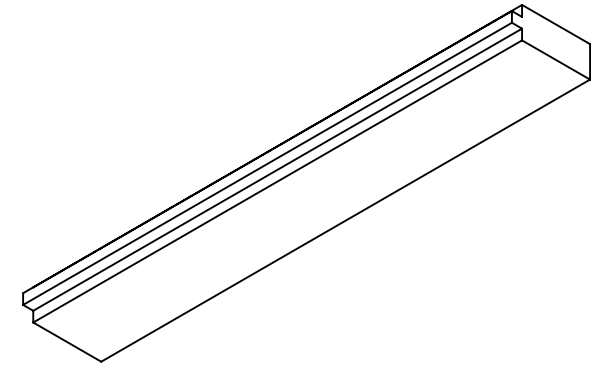
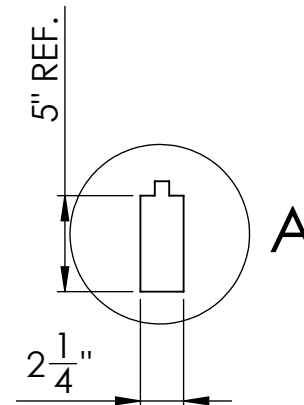
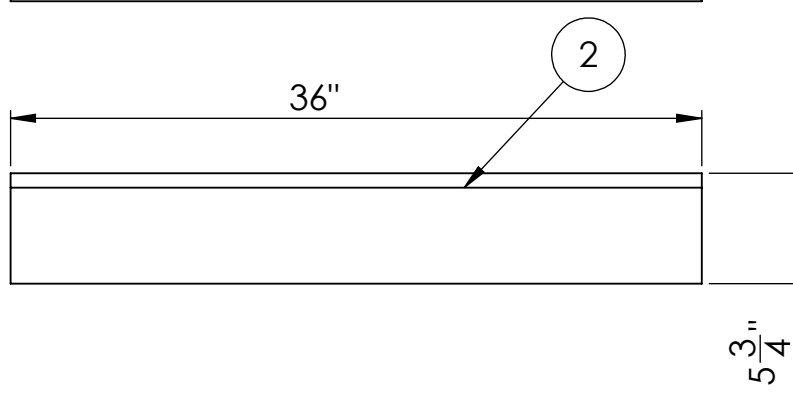
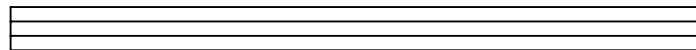
1

2

1

B

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1 PCS. REQ.

DETAIL A

SCALE 1 : 5

B

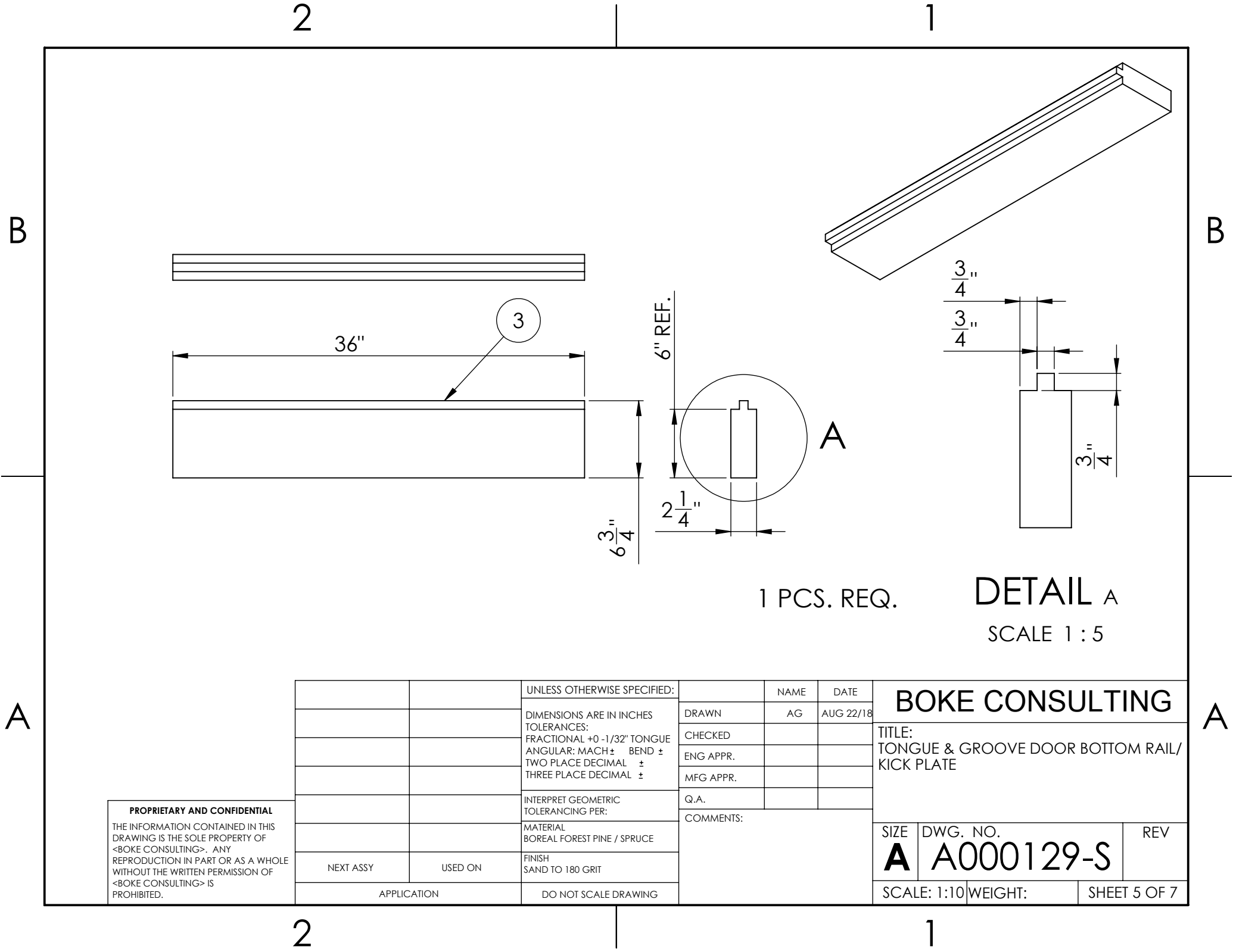
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		DIMENSIONS ARE IN INCHES TOLERANCES:	DRAWN	AG	AUG 22/18							
		FRACTIONAL +0 - 1/32" TONGUE	CHECKED						TITLE: TONGUE & GROOVE DOOR TOP RAIL			
		ANGULAR: MACH± BEND ±	ENG APPR.									
		TWO PLACE DECIMAL ±	MFG APPR.									
		THREE PLACE DECIMAL ±				SIZE DWG. NO. REV A A000128-S						
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.									
		MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:									
		FINISH SAND TO 180 GRIT										
NEXT ASSY	USED ON											
APPLICATION		DO NOT SCALE DRAWING										
			SCALE: 1:10						WEIGHT:		SHEET 4 OF 7	

2

1



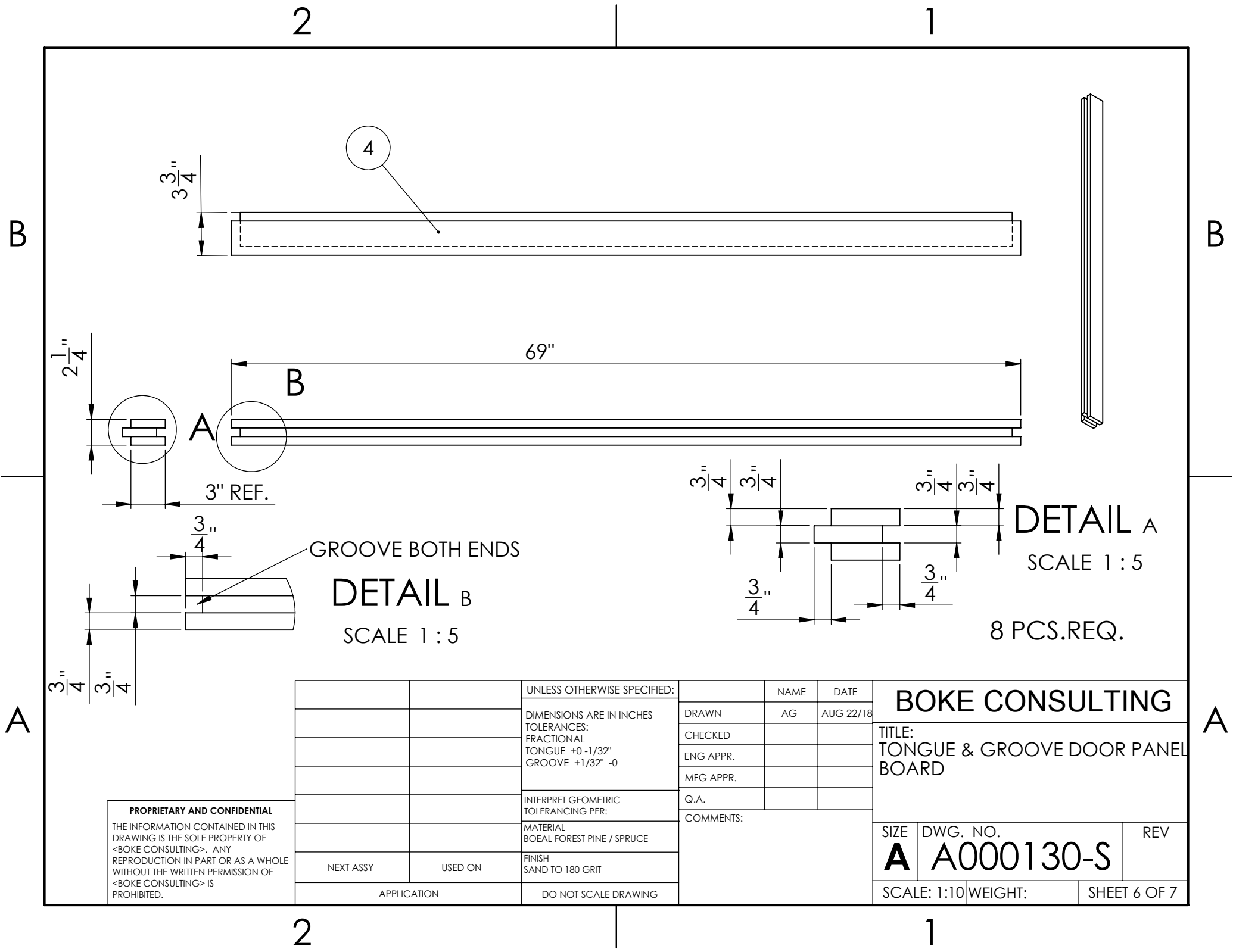
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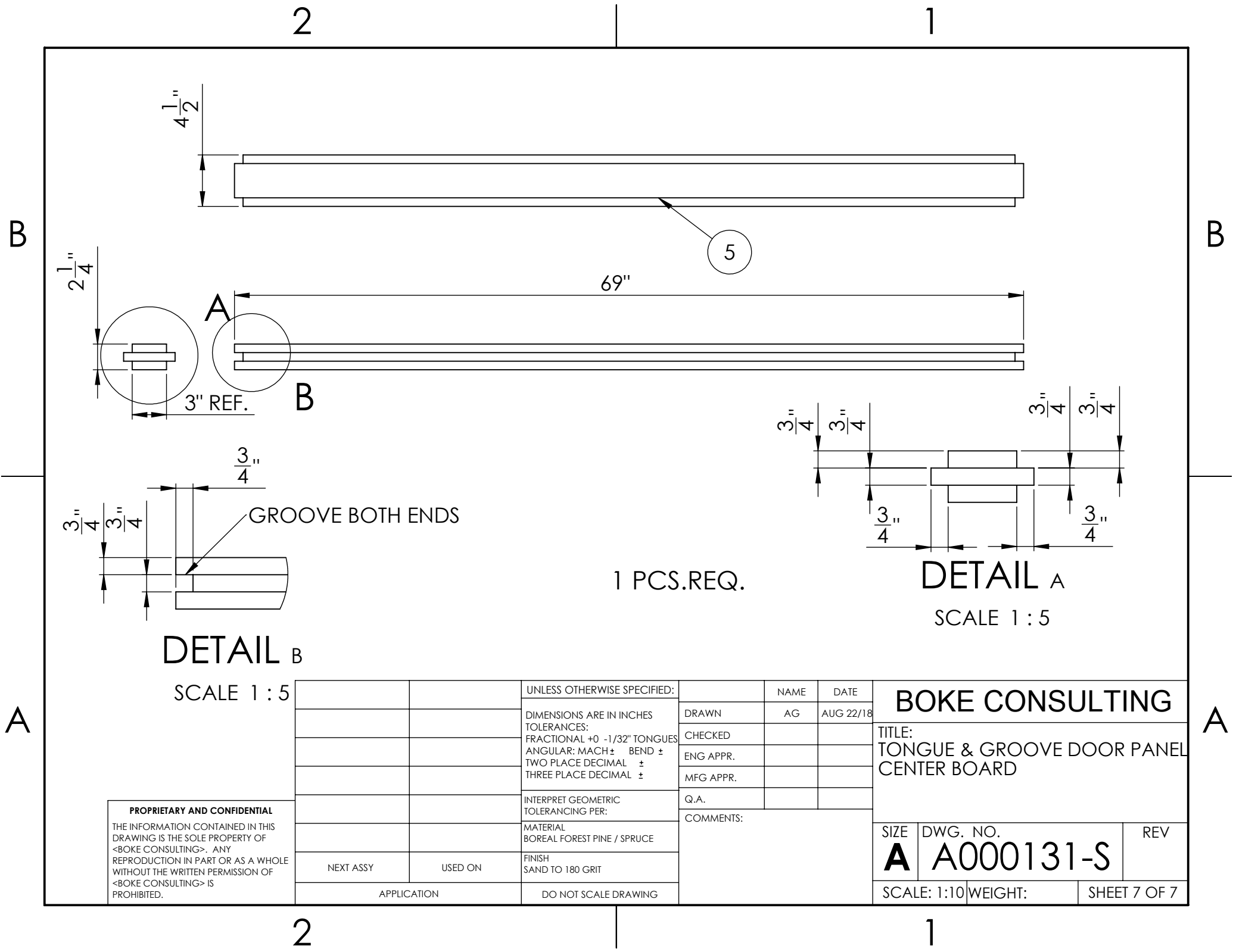
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			DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 22/18	TITLE: TONGUE & GROOVE DOOR BOTTOM RAIL/ KICK PLATE		
			TOLERANCES:	CHECKED					
			FRACTIONAL +0 -1/32" TONGUE	ENG APPR.					
			ANGULAR: MACH ± BEND ±	MFG APPR.					
			TWO PLACE DECIMAL ±	Q.A.					
			THREE PLACE DECIMAL ±	COMMENTS:			SIZE DWG. NO. REV A A000129-S		
			INTERPRET GEOMETRIC TOLERANCING PER:						
			MATERIAL						
			BOREAL FOREST PINE / SPRUCE						
	NEXT ASSY	USED ON	FINISH				SCALE: 1:10WEIGHT:SHEET 5 OF 7		
			SAND TO 180 GRIT						
	APPLICATION		DO NOT SCALE DRAWING						

2

1





DETAIL B

SCALE 1 : 5

DETAIL A

SCALE 1 : 5

1 PCS.REQ.

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		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 22/18
		TOLERANCES:	CHECKED		
		FRACTIONAL +0 -1/32" TONGUES	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

BOKE CONSULTING					
TITLE: TONGUE & GROOVE DOOR PANEL CENTER BOARD					
SIZE	DWG. NO.			REV	
A	A000131-S				
SCALE: 1:10		WEIGHT:		SHEET 7 OF 7	

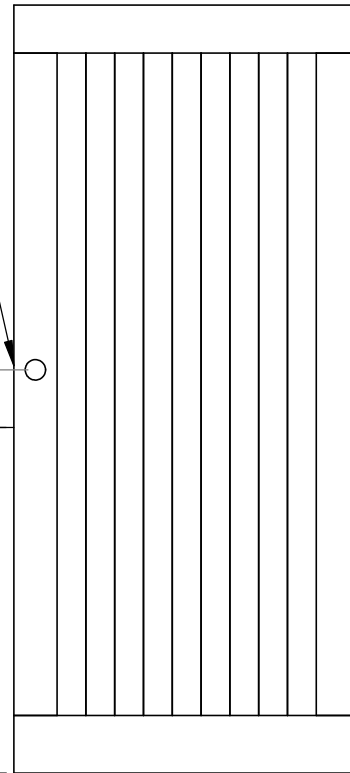
B

B

DOOR HANDLE AND
DEADBOLT HEIGHT LOCATION



42"
36"



USE JIG FOR SOSS
INVISIBLE
HINGE MODEL 218 4
HINGES
USED CENTER OF HINGE
IS 6" FROM TOP OR
BOTTOM
OF DOOR 2 HINGES
EQUALITY
SPACED BETWEEN TOP
AND BOTTOM

SECONDARY HINGE
SPECIFICATION
COMMERCIAL GRADE
SELF CLOSING
INDICATIVE CRL 4" X 4"
DULL NICKEL
HEAVY DUTY SPRING
HINGE FINISH
SHOULD MATCH LATCH

OPTIONS
PEEPHOLE
DOOR KNOCKER
WOOD ROSETTE
ROUTER INCISED
DESIGN
WOOD OR STONE INLAY

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		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 30/18
		TOLERANCES:	CHECKED		
		FRACTIONAL ±	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	Art Gzebowski Machine Draftsman Engineering Designer T 204 396 2211 arthuriski@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

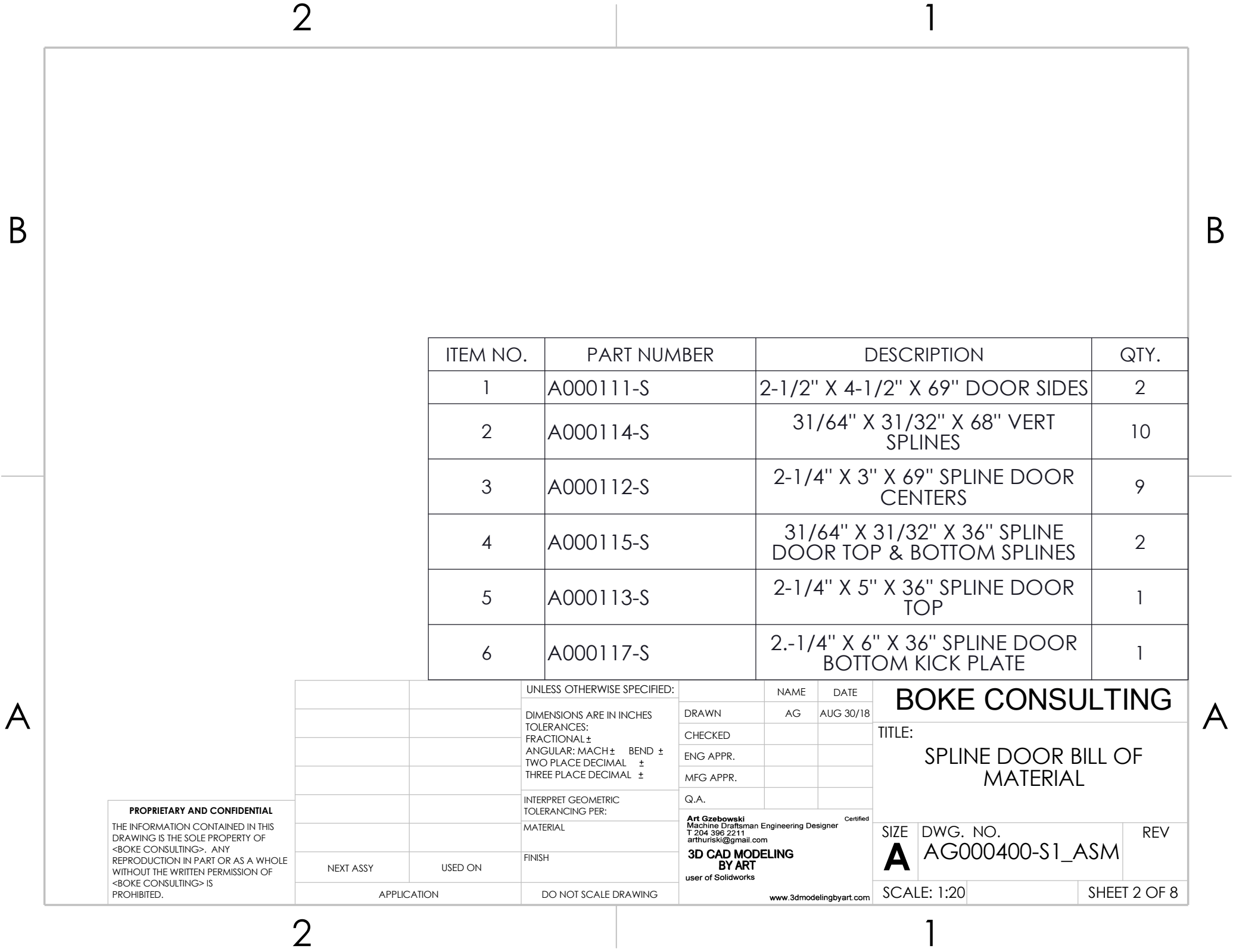
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TITLE:
SPLINE DOOR, HINGE, DEADBOLT,
AND DOOR KNOB LOCATION

SIZE	DWG. NO.	REV
A	AG000400DB_ASM	
SCALE: 1:20		SHEET 8B OF 8

2

1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	A000111-S	2-1/2" X 4-1/2" X 69" DOOR SIDES	2
2	A000114-S	31/64" X 31/32" X 68" VERT SPLINES	10
3	A000112-S	2-1/4" X 3" X 69" SPLINE DOOR CENTERS	9
4	A000115-S	31/64" X 31/32" X 36" SPLINE DOOR TOP & BOTTOM SPLINES	2
5	A000113-S	2-1/4" X 5" X 36" SPLINE DOOR TOP	1
6	A000117-S	2.-1/4" X 6" X 36" SPLINE DOOR BOTTOM KICK PLATE	1

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		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 30/18
		TOLERANCES:	CHECKED		
		FRACTIONAL ±	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±			
		INTERPRET GEOMETRIC	Art Gzebowski Certified Machine Draftsman Engineering Designer T 204.396.2211 arthuriski@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		
		TOLERANCING PER:			
		MATERIAL			
		FINISH			
NEXT ASSY	USED ON				
APPLICATION		DO NOT SCALE DRAWING			

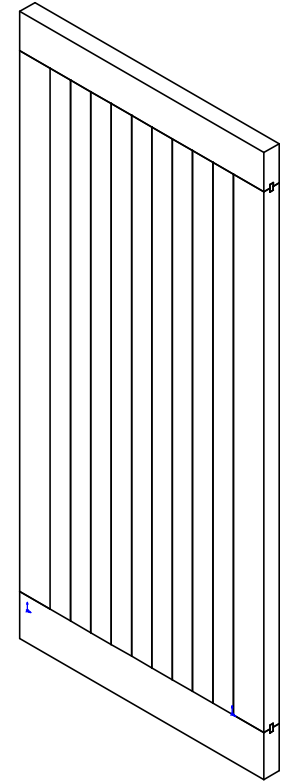
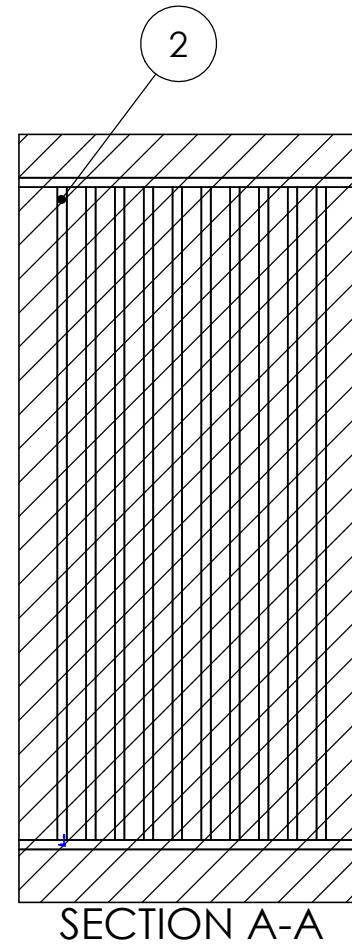
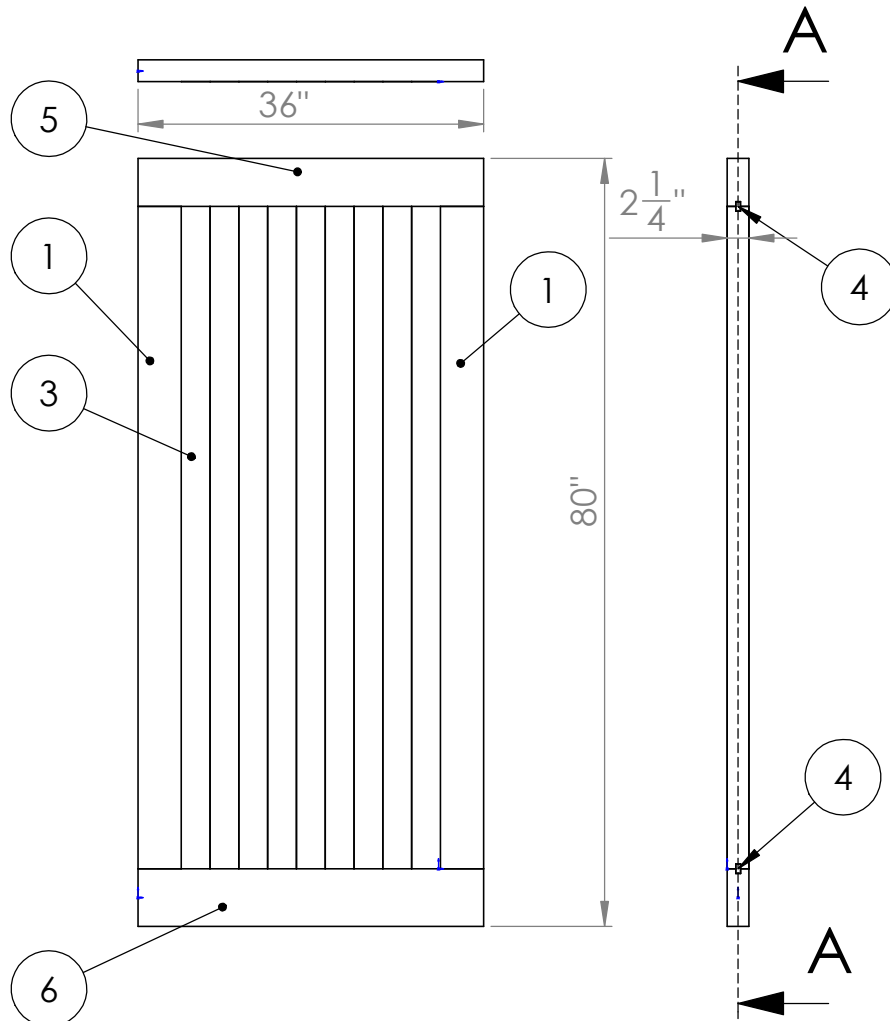
BOKE CONSULTING		
TITLE: SPLINE DOOR BILL OF MATERIAL		
SIZE A	DWG. NO. AG000400-S1_ASM	REV
SCALE: 1:20		SHEET 2 OF 8

B

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		UNLESS OTHERWISE SPECIFIED:
		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL $\pm 1/32"$
		ANGULAR: MACH \pm BEND \pm
		TWO PLACE DECIMAL \pm
		THREE PLACE DECIMAL \pm
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
		BOREAL FOREST PINE / SPRUCE
NEXT ASSY	USED ON	FINISH
		SAND TO 180 GRIT READY FOR PAINT
APPLICATION		DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	AG	AUG 30/18
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
Art Gzebowski Machine Draftsman Engineering Designer T 204.396.2211 arthuriski@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		

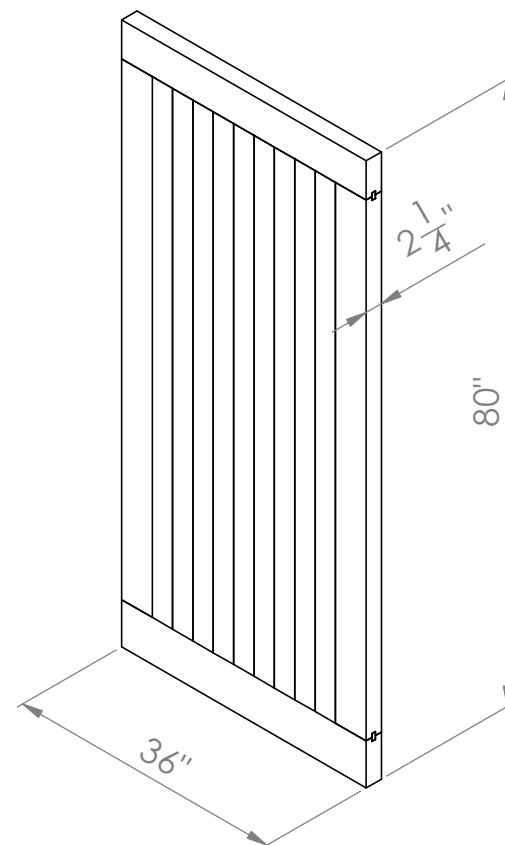
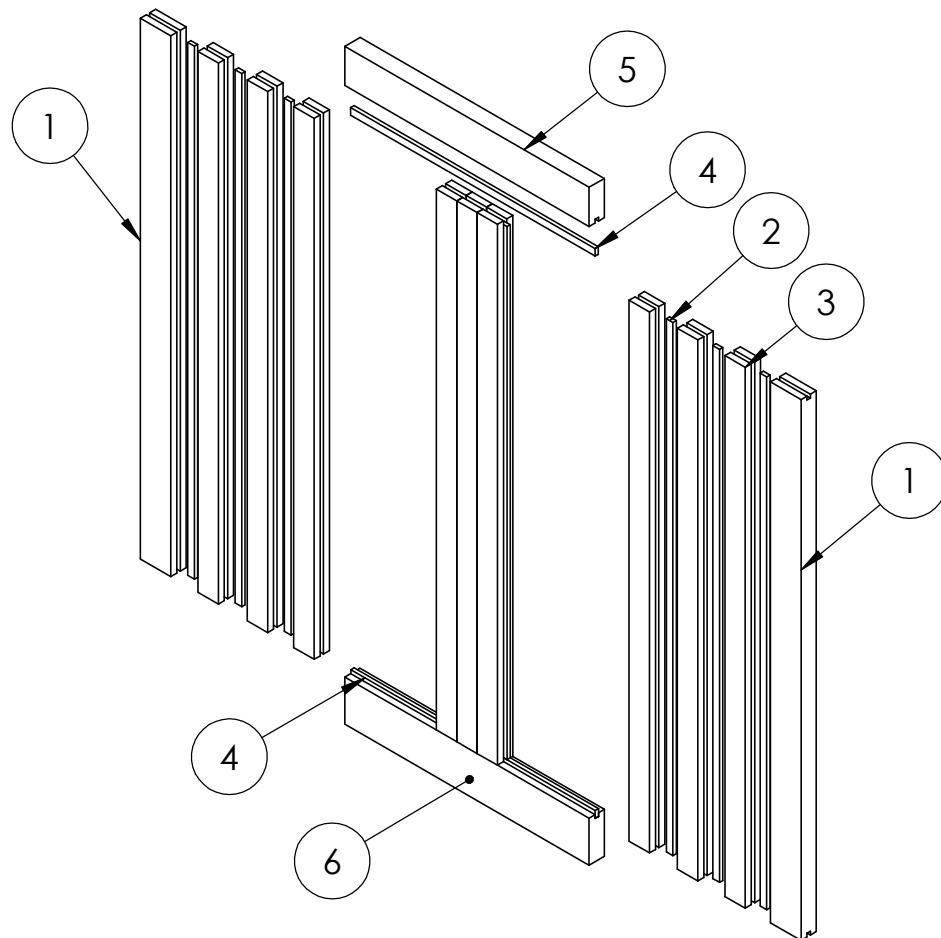
BOKE CONSULTING		
TITLE: SPLINE DOOR ASSY. DR		
SIZE	DWG. NO.	REV
A	AG000400-S1_ASM	
SCALE: 1:20		SHEET 1 OF 8

2

1

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		UNLESS OTHERWISE SPECIFIED:
		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL ±
		ANGULAR: MACH ± BEND ±
		TWO PLACE DECIMAL ±
		THREE PLACE DECIMAL ±
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
		FINISH
NEXT ASSY	USED ON	
APPLICATION		DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	AG	AUG 30/18
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
Art Gzebowski Machine Draftsman Engineering Designer T 204.396.2211 arthuriskii@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		

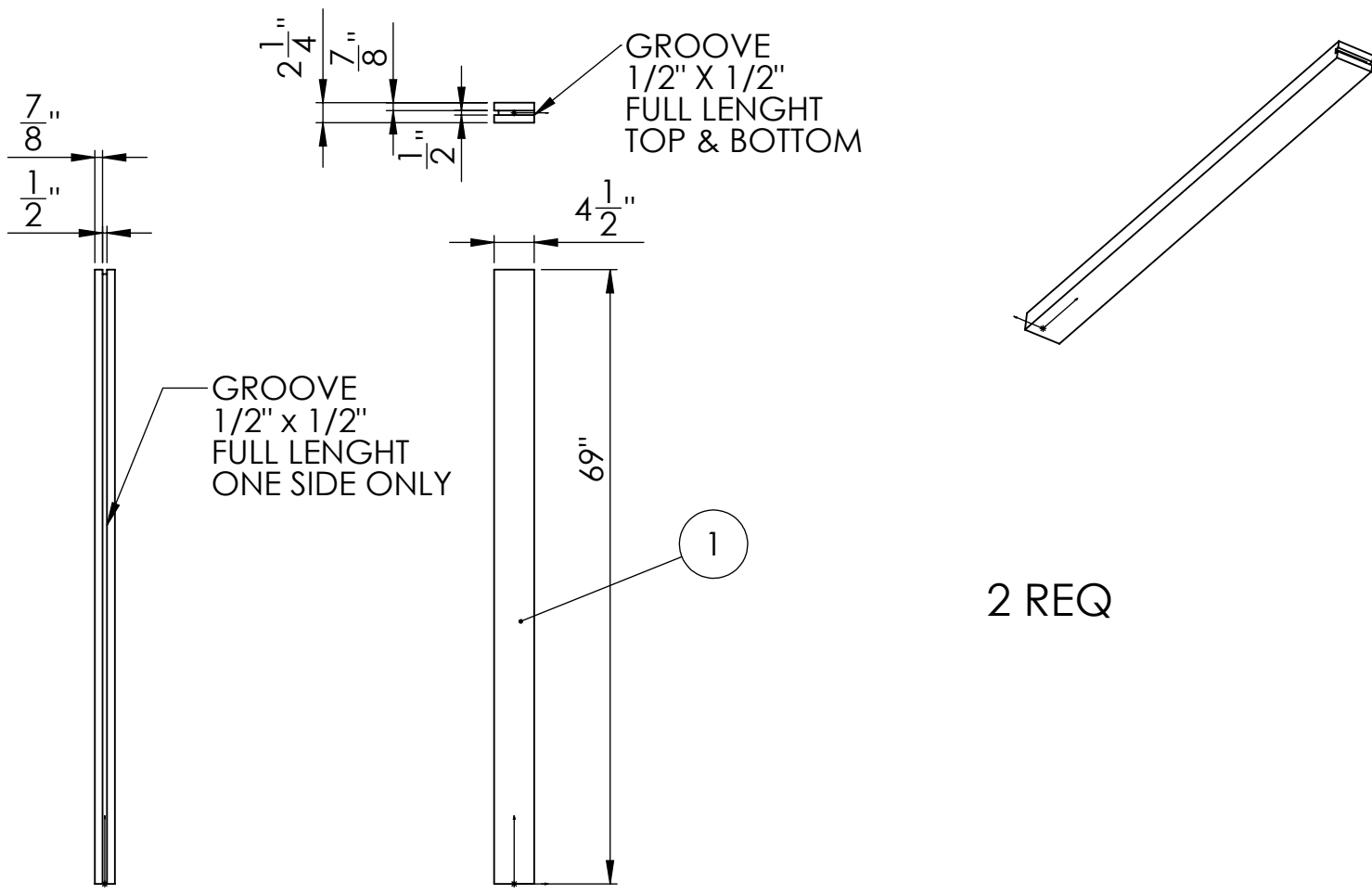
BOKE CONSULTING		
TITLE: SPLINE DOOR EXPLODED VIEW		
SIZE	DWG. NO.	REV
A	AG000400-S_ASM	
SCALE: 1:20		SHEET 8A OF 8

2

1

B

A



B

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			DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32 ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 13/18	TITLE: SPLINE DOOR SIDE		
				CHECKED					
				ENG APPR.					
				MFG APPR.					
			INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.					
			MATERIAL BOREAL FOREST PINE/SPRUCE	COMMENTS:			SIZE	DWG. NO.	REV
	NEXT ASSY	USED ON	FINISH SAND TO 180 GRIT				A	A000111-S	
	APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:20		SHEET 3 OF 8

2

1

B

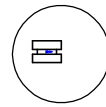
A

2

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A



A

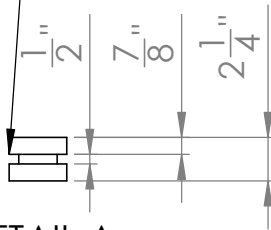
3"

 $\frac{7}{8}$ "
 $\frac{1}{2}$ "

3

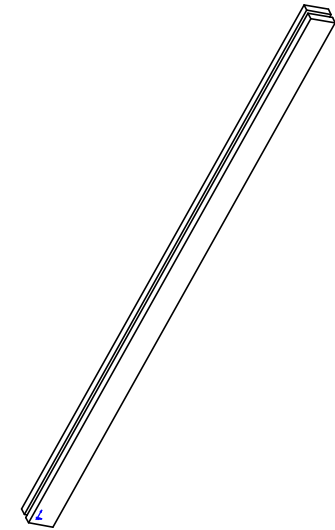
69"

GROOVE 1/2" X 1/2"
FULL WIDTH
TOP & BOTTOM



DETAIL A
SCALE 1 : 10

GROOVE 1/2" X 1/2"
FULL LENGTH
BOTH SIDES



9 PCS. REQ.

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NEXT ASSY

USED ON

APPLICATION

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL $\pm 1/32$ "
ANGULAR: MACH \pm BEND \pm
TWO PLACE DECIMAL \pm
THREE PLACE DECIMAL \pm

INTERPRET GEOMETRIC
TOLERANCING PER:

MATERIAL
BOREAL FOREST PINE / SPRUCE

FINISH
SAND TO 180 GRIT

DO NOT SCALE DRAWING

DRAWN

CHECKED

ENG APPR.

MFG APPR.

Q.A.

COMMENTS:

NAME

AG

DATE

AUG 13/18

BOKE CONSULTING

TITLE:
SPLINE DOOR CENTERS

SIZE

A

DWG. NO.

A000112-S

REV

SCALE: 1:20

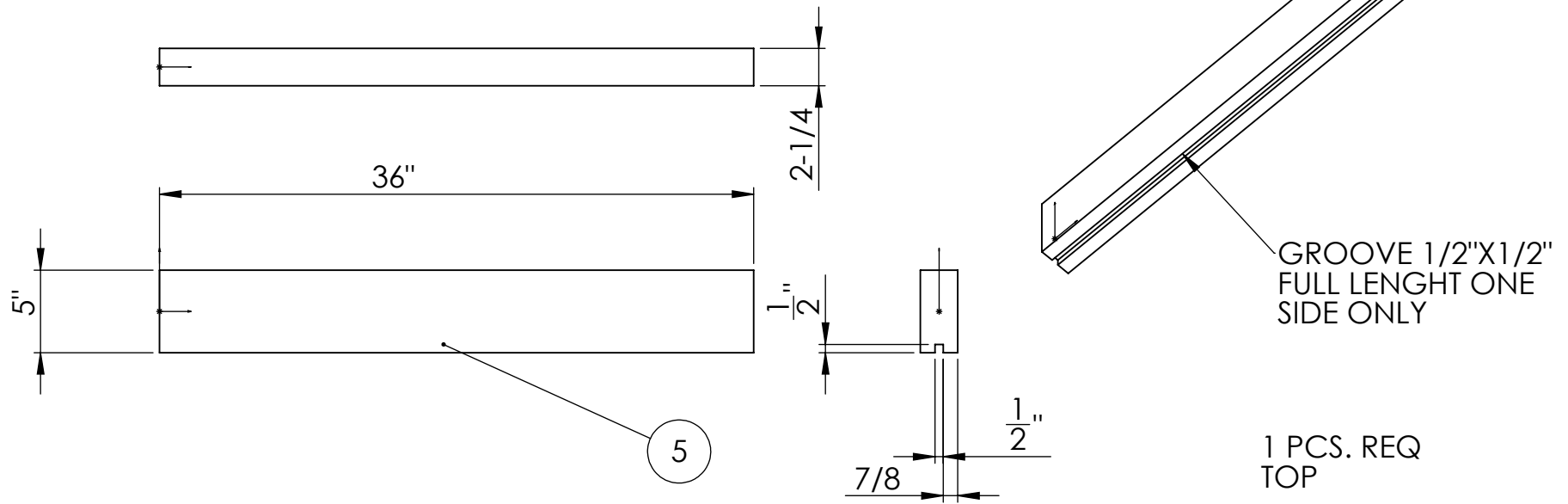
SHEET 5 OF 8

2

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B

B



1 PCS. REQ
TOP

A

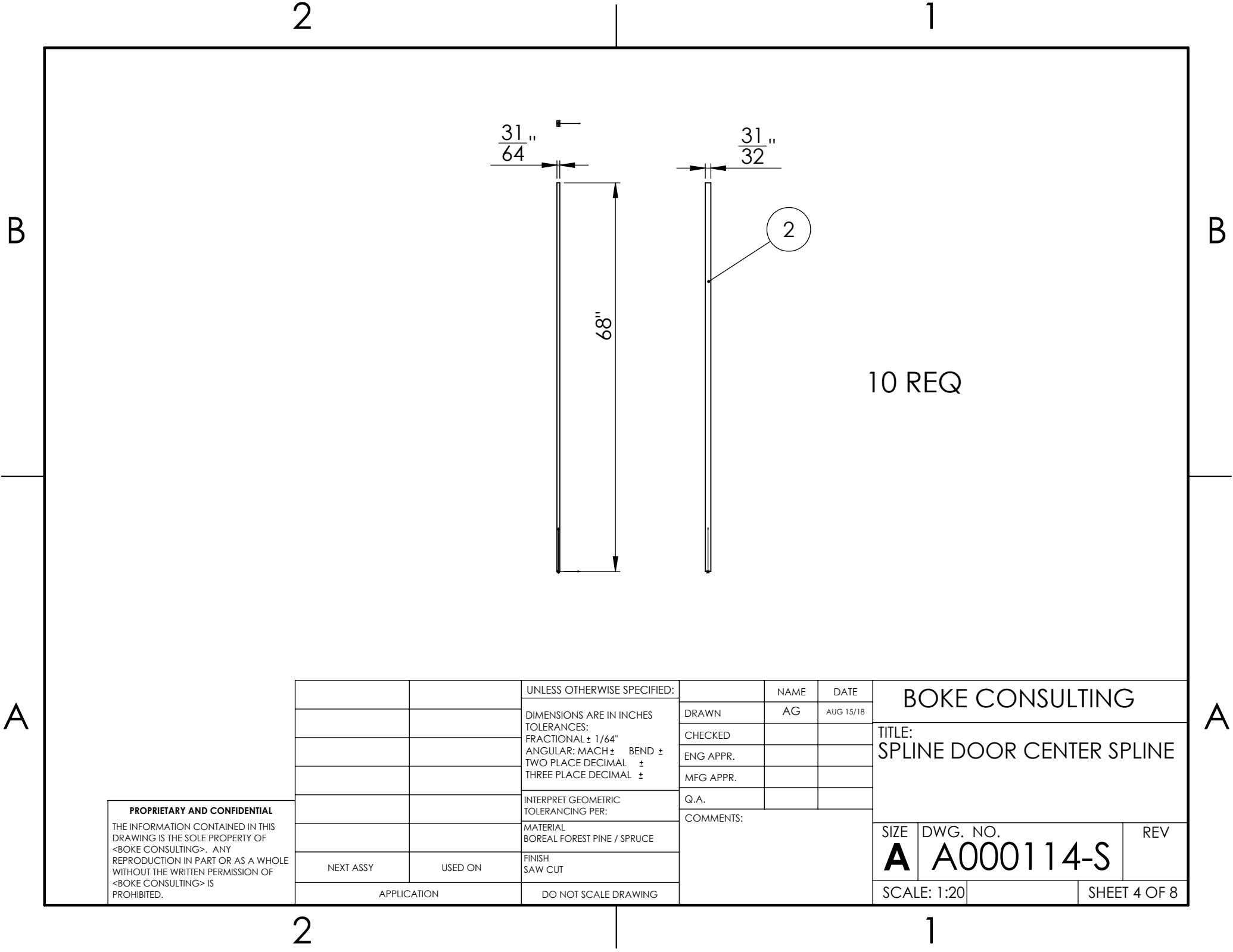
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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32" ANGULAR: MACH± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 13/18	TITLE: SPLINE DOOR TOP.			
			CHECKED						
			ENG APPR.						
			MFG APPR.						
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.			SIZE DWG. NO. REV A A000113-S SCALE: 1:10 SHEET 7 OF 8			
		MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:						
		FINISH SAND TO 180 GRIT							
NEXT ASSY	USED ON								
APPLICATION		DO NOT SCALE DRAWING							

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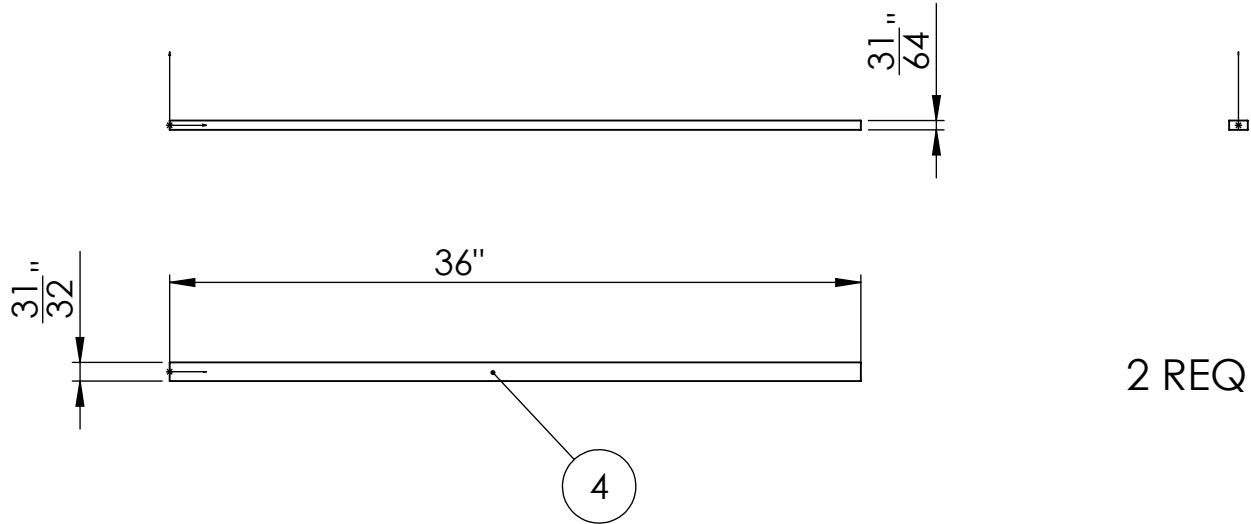
		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	BOKE CONSULTING		
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/64" ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 15/18	TITLE: SPLINE DOOR CENTER SPLINE		
			CHECKED					
			ENG APPR.					
			MFG APPR.					
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.					
		MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:			SIZE	DWG. NO.	REV
NEXT ASSY	USED ON	FINISH SAW CUT				A	A000114-S	
APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:20		

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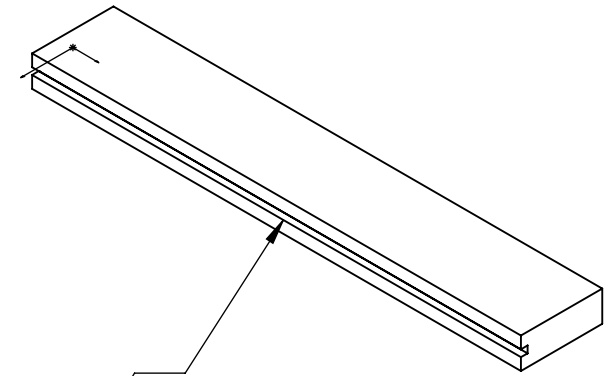
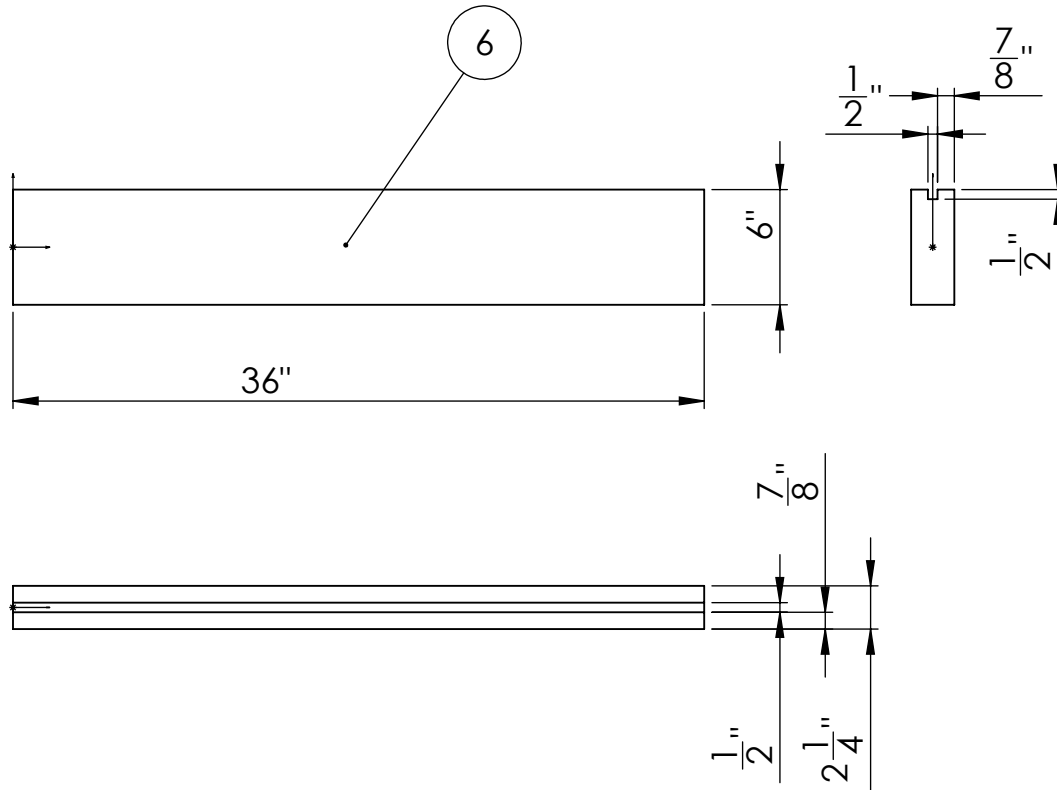
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		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/64" ANGULAR: MACH± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 15/18	TITLE: SPLINE DOOR TOP AND BOTTOM SPLINES				
			CHECKED							
			ENG APPR.							
			MFG APPR.							
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.							
		MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:			SIZE	DWG. NO.	REV		
NEXT ASSY	USED ON	FINISH SAW CUT				A	A000115-S			
APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:10				SHEET 6 OF 8

2

1

B



GROOVE 1/2"X1/2"
FULL LENGHT ONE
SIDE ONLY

1 REQ.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	BOKE CONSULTING		
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 15/18	TITLE: SPLINE DOOR BOTTOM KICK PLATE		
		TOLERANCES:	CHECKED					
		FRACTIONAL $\pm 1/32"$	ENG APPR.					
		ANGULAR: MACH \pm BEND \pm	MFG APPR.					
		TWO PLACE DECIMAL \pm	Q.A.			SIZE DWG. NO. REV		
		THREE PLACE DECIMAL \pm	COMMENTS:					
		INTERPRET GEOMETRIC TOLERANCING PER:				A A000117-S		
		MATERIAL						
		BOREAL FOREST PINE/SPRUCE				SCALE: 1:10 SHEET 8 OF 8		
		FINISH						
		SAND TO 180 GRIT						
NEXT ASSY	USED ON							
APPLICATION		DO NOT SCALE DRAWING						

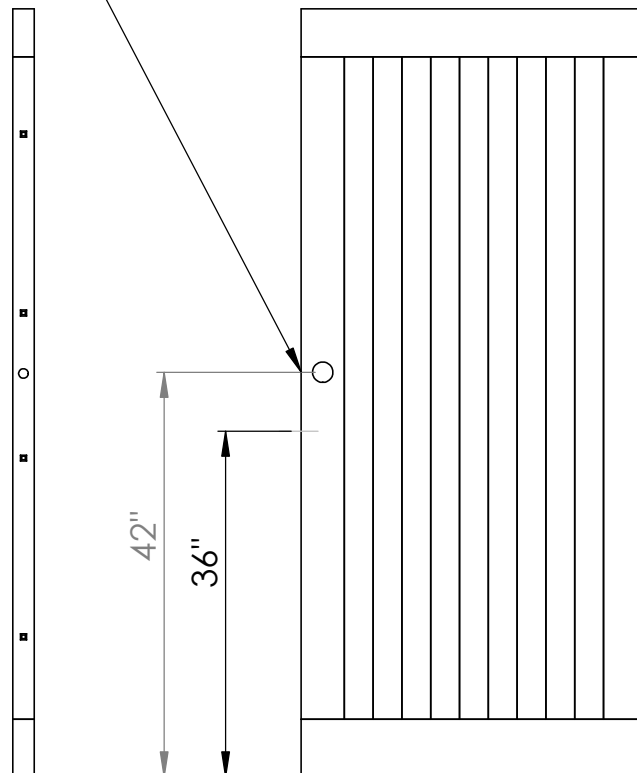
2

1

2

1

DOOR HANDLE AND
DEADBOLT HEIGHT LOCATION



USE JIG FOR SOSS
INVISIBLE
HINGE MODEL 218 4
HINGES
USED CENTER OF HINGE
IS 6" FROM TOP OR
BOTTOM
OF DOOR 2 HINGES
EQUALITY
SPACED BETWEEN TOP
AND BOTTOM

SECONDARY HINGE
SPECIFICATION
COMMERCIAL GRADE
SELF CLOSING
INDICATIVE CRL 4" X 4"
DULL NICKEL
HEAVY DUTY SPRING
HINGE FINISH
SHOULD MATCH LATCH

OPTIONS
PEEPHOLE
DOOR KNOCKER
WOOD ROSETTE
ROUTER INCISED DESIGN
WOOD OR STONE INLAY

B

A

		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG
		TOLERANCES:	CHECKED	AUG 30/18
		FRACTIONAL ±	ENG APPR.	
		ANGULAR: MACH ± BEND ±	MFG APPR.	
		TWO PLACE DECIMAL ±	Q.A.	
		THREE PLACE DECIMAL ±		
		INTERPRET GEOMETRIC		
		TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING		

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Art Gzebowski
Machine Draftsman Engineering Designer
T 204 396 2211
arthuriski@gmail.com

Certified

3D CAD MODELING
BY ART
user of Solidworks

www.3dmodelingbyart.com

BOKE CONSULTING

TITLE:
MORTISE AND TENON DOOR
HINGE, DEADBOLT, AND DOOR KNOB
LOCATION

SIZE	DWG. NO.	REV
A	AG000500DB_ASM	

SCALE: 1:20

SHEET 11A OF 11

2

1

B

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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	A000118-S	2-1/4" X 4-1/2" X 69" DOOR STILE	2
2	A000121-S	2-1/4" X 3" X 69" CENTER PANEL BOARDS	9
3	A000122-S	5/8" X 5/8" X 6-1/2" TOP RAIL LONG TENON	3
4	A000123-S	5/8" X 5/8" X 3" TOP RAIL SHORT TENON	8
5	A000119-S	2-1/4" X 5" X 36" TOP RAIL	1
6	A000124-S	5/8" X 5/8" X 36" PANEL BOARDS TENON	4
7	A000120-S	2-1/4" X 6" X 36" X BOTTOM RAIL	1
8	A000125-S	5/8" X 5/8" X 8" BOTTOM RAIL LONG TENON	3
9	A000126-S	5/8" X 5/8" X 3-1/2" BOTTOM RAIL SHORT TENON	8

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		DIMENSIONS ARE IN INCHES	DRAWN	AG
		TOLERANCES:	CHECKED	AUG 30/18
		FRACTIONAL ±	ENG APPR.	
		ANGULAR: MACH ± BEND ±	MFG APPR.	
		TWO PLACE DECIMAL ±	Q.A.	
		THREE PLACE DECIMAL ±		
		INTERPRET GEOMETRIC TOLERANCING PER:		
			Art Gzebowski Certified Machine Draftsman Engineering Designer T 204.396.2211 arthurisk@gmail.com 3D CAD MODELING BY ART user of Solidworks	
NEXT ASSY	USED ON			
APPLICATION		DO NOT SCALE DRAWING	www.3dmodelingbyart.com	

BOKE CONSULTING

TITLE:
MORTISE & TENON DOOR ASSY.
DRAWING BILL OF MATERIALS

SIZE	DWG. NO.	REV
A	AG000500_ASM	
SCALE: 1:20		SHEET 2 OF 11

2

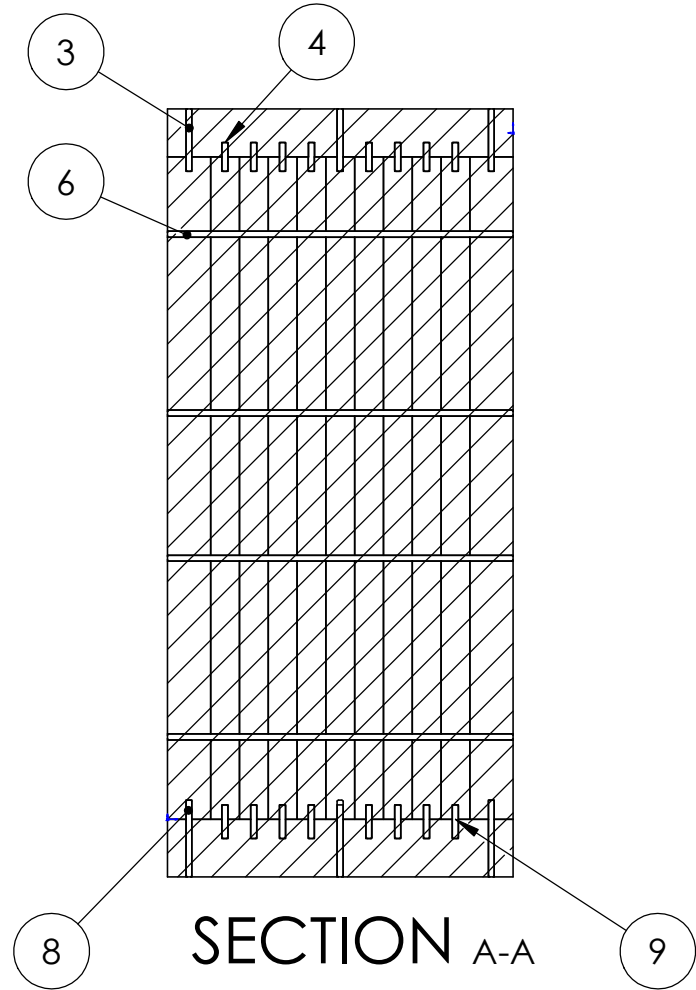
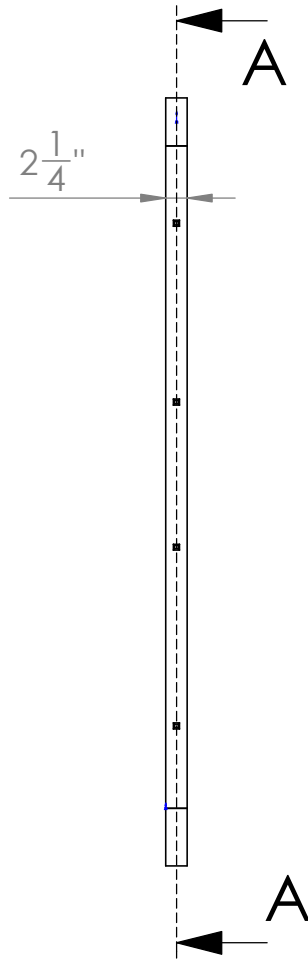
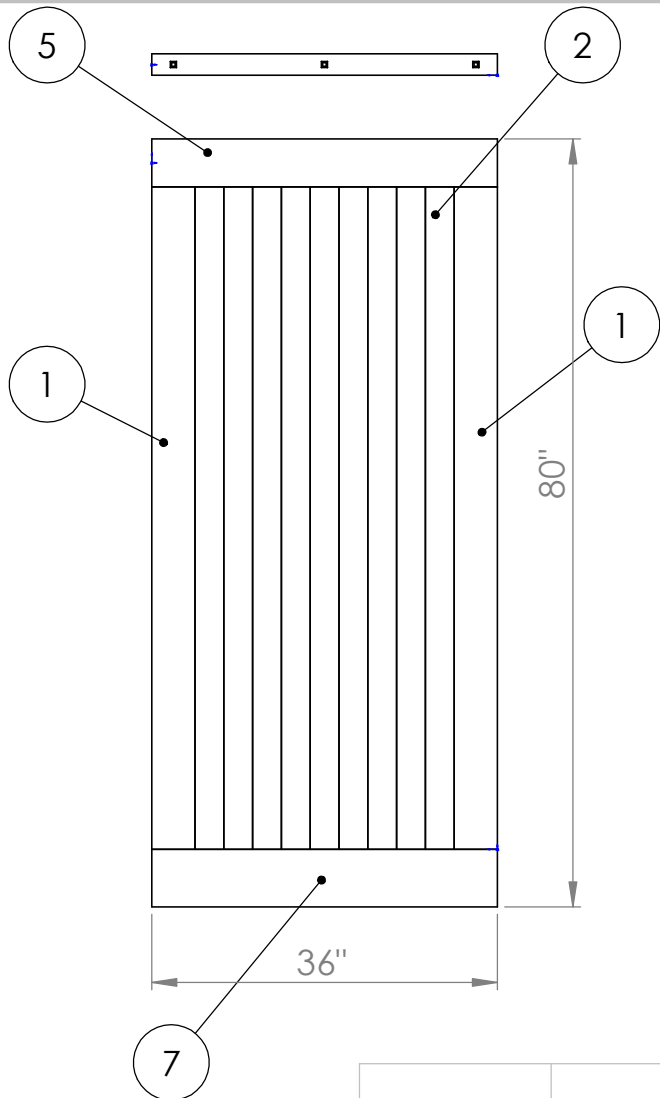
1

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		UNLESS OTHERWISE SPECIFIED:
		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL $\pm 1/32"$
		ANGULAR: \pm BEND \pm
		TWO PLACE DECIMAL \pm
		THREE PLACE DECIMAL \pm
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
		BOREAL FOREST PINE / SPRUCE
NEXT ASSY	USED ON	FINISH
		SAND TO 180 GRIT READY FOR PAINT
APPLICATION		DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	AG	AUG 30/18
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
Art Gzebowski Machine Draftsman Engineering Designer T 204.396.2211 arthuriski@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		

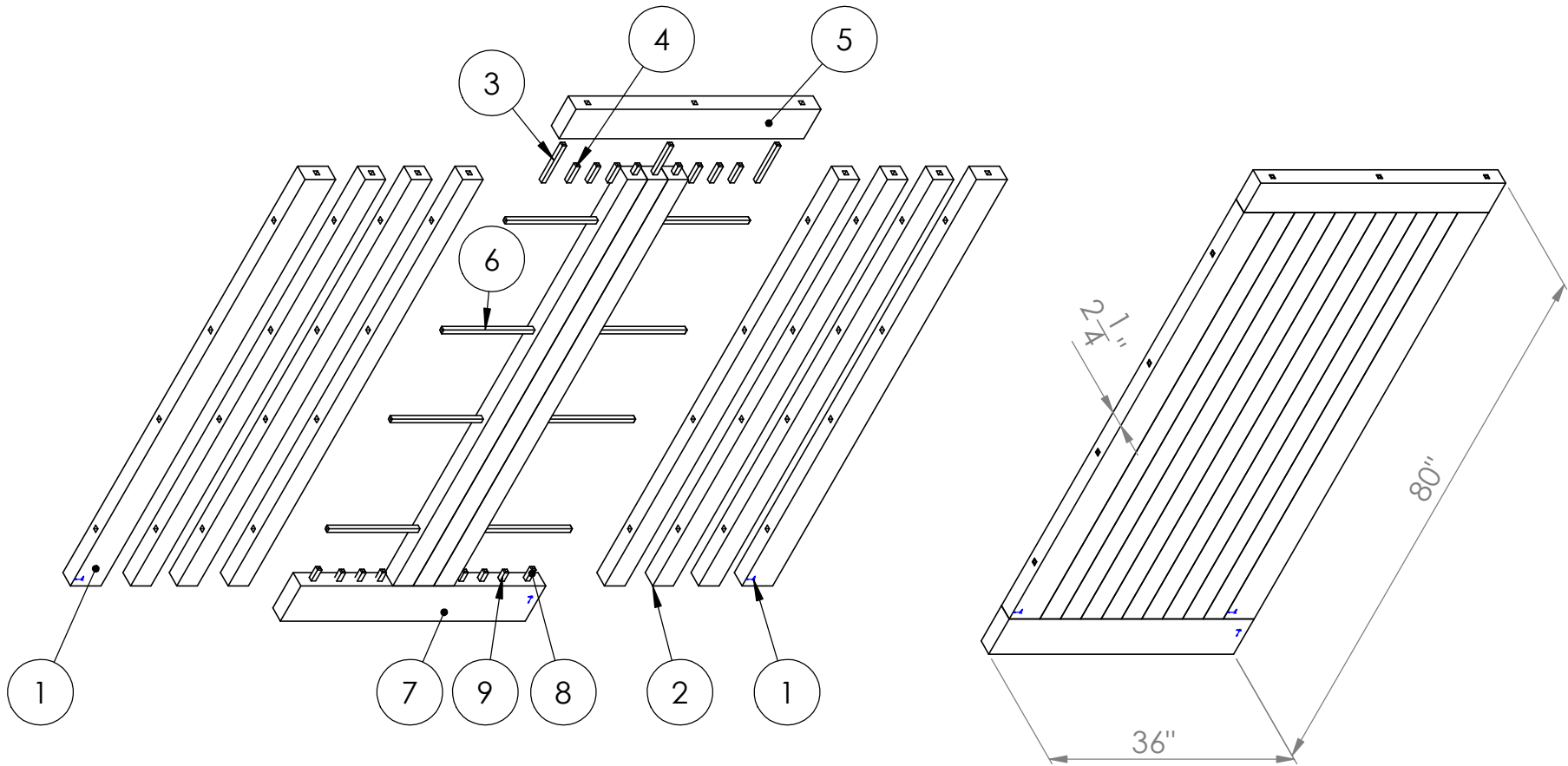
BOKE CONSULTING		
TITLE: MORTISE AND TENON DOOR ASSY DETAIL		
SIZE	DWG. NO.	REV
A	AG000500_ASM	
SCALE: 1:20		SHEET 1 OF 21

2

1

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		UNLESS OTHERWISE SPECIFIED:
		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL ±
		ANGULAR: MACH ± BEND ±
		TWO PLACE DECIMAL ±
		THREE PLACE DECIMAL ±
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
		FINISH
NEXT ASSY	USED ON	
APPLICATION		DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	AG	AUG 30/18
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
Art Gzebowski Machine Draftsman Engineering Designer T 204 396 2211 arthuriski@gmail.com 3D CAD MODELING BY ART user of Solidworks		
www.3dmodelingbyart.com		

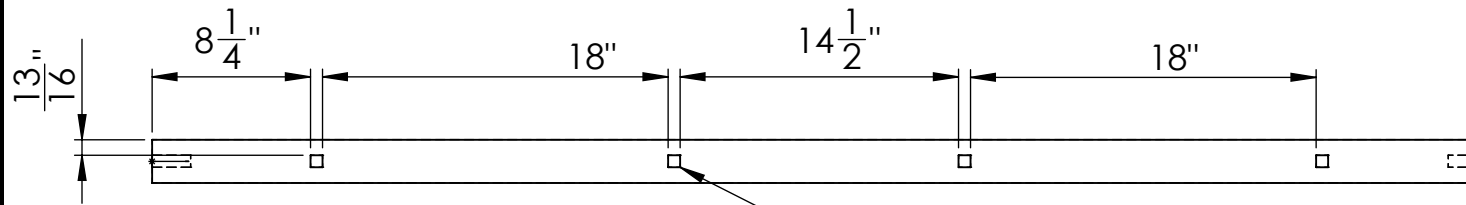
BOKE CONSULTING		
TITLE: MORTISE AND TENON DOOR ASSY. EXPLODED VIEW		
SIZE	DWG. NO.	REV
A	AG000500-SX_ASM	
SCALE: 1:20		SHEET 11B OF 11

2

1

B

B



5/8" SQ. HOLES THRU.
4 PL.

5/8" SQ. HOLE
2" DP.

5/8" SQ.
HOLE
1-1/2" DP.

69"

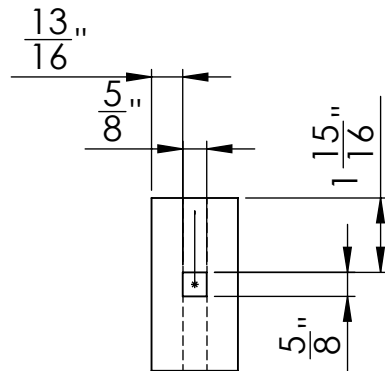
1

A

4 1/2"

2 PCS. REQ.

2 1/4"



DETAIL A
SCALE 1 : 5

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		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG19 /18	TITLE: MORTISE & TENON DOOR STILES		
		TOLERANCES:	CHECKED					
		FRACTIONAL $\pm 1/32"$	ENG APPR.					
		ANGULAR: MACH \pm BEND \pm	MFG APPR.					
		TWO PLACE DECIMAL \pm	Q.A.			SIZE DWG. NO. REV		
		THREE PLACE DECIMAL \pm	COMMENTS:					
		INTERPRET GEOMETRIC TOLERANCING PER:				A A000118-S		
		MATERIAL						
		BOREAL FOREST PINE/SPRUCE				SCALE: 1:10 SHEET 3 OF 11		
		FINISH						
		SAND TO 180 GRIT						
NEXT ASSY	USED ON							
APPLICATION		DO NOT SCALE DRAWING						

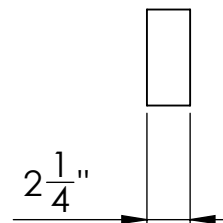
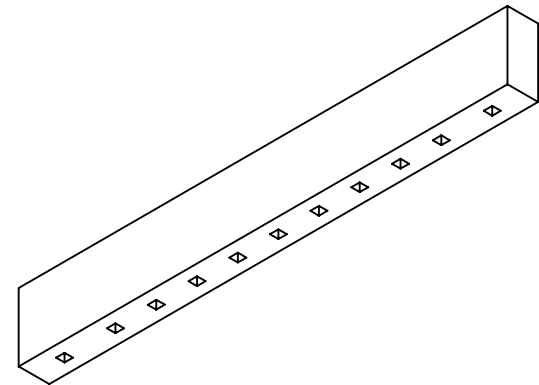
2

1

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1

B



1 PCS REQ.

5/8" SQ. HOLES
8PL. 1-1/2" DP.

2 3/8" 2 3/8" 2 3/8" 2 3/8" 2 3/8" 2 3/8" 2 3/8" 2 3/8" 2 3/8" 2 3/8" 2 3/8"

13/16"

5 11/16"

2 3/8" 2 3/8"

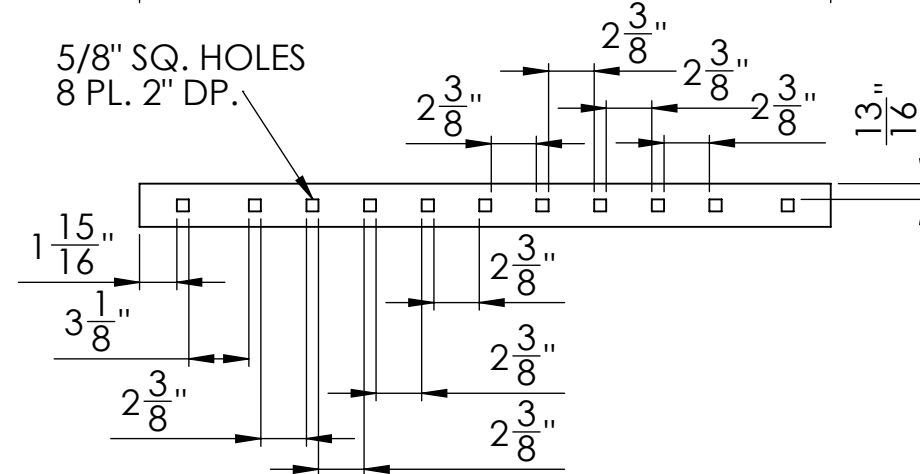
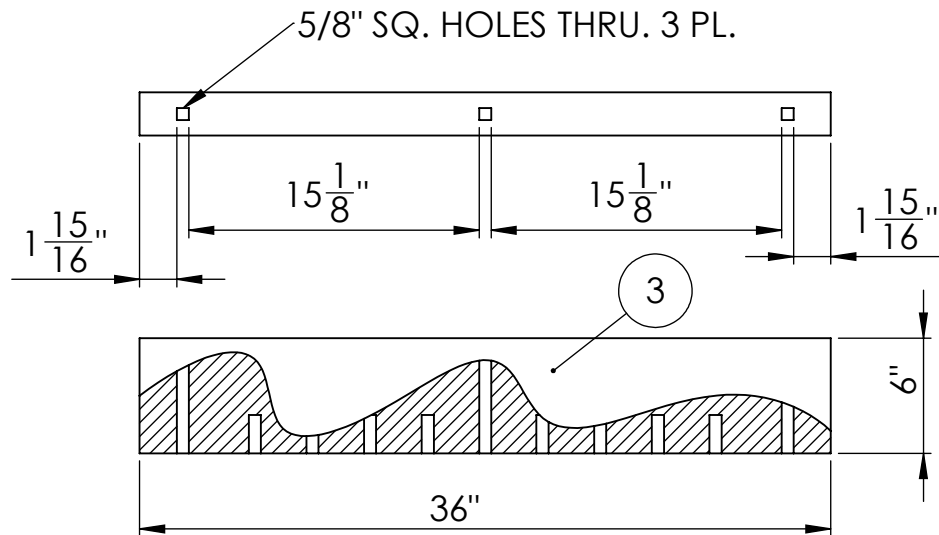
3 1/8" REF

A

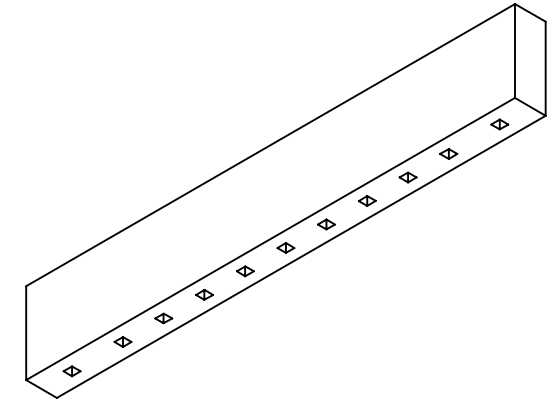
1

B

B



1 PCS. REQ.



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		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 20/18
		TOLERANCES:	CHECKED		
		FRACTIONAL $\pm 1/32$ "	ENG APPR.		
		ANGULAR: MACH \pm BEND \pm	MFG APPR.		
		TWO PLACE DECIMAL \pm	Q.A.		
		THREE PLACE DECIMAL \pm	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

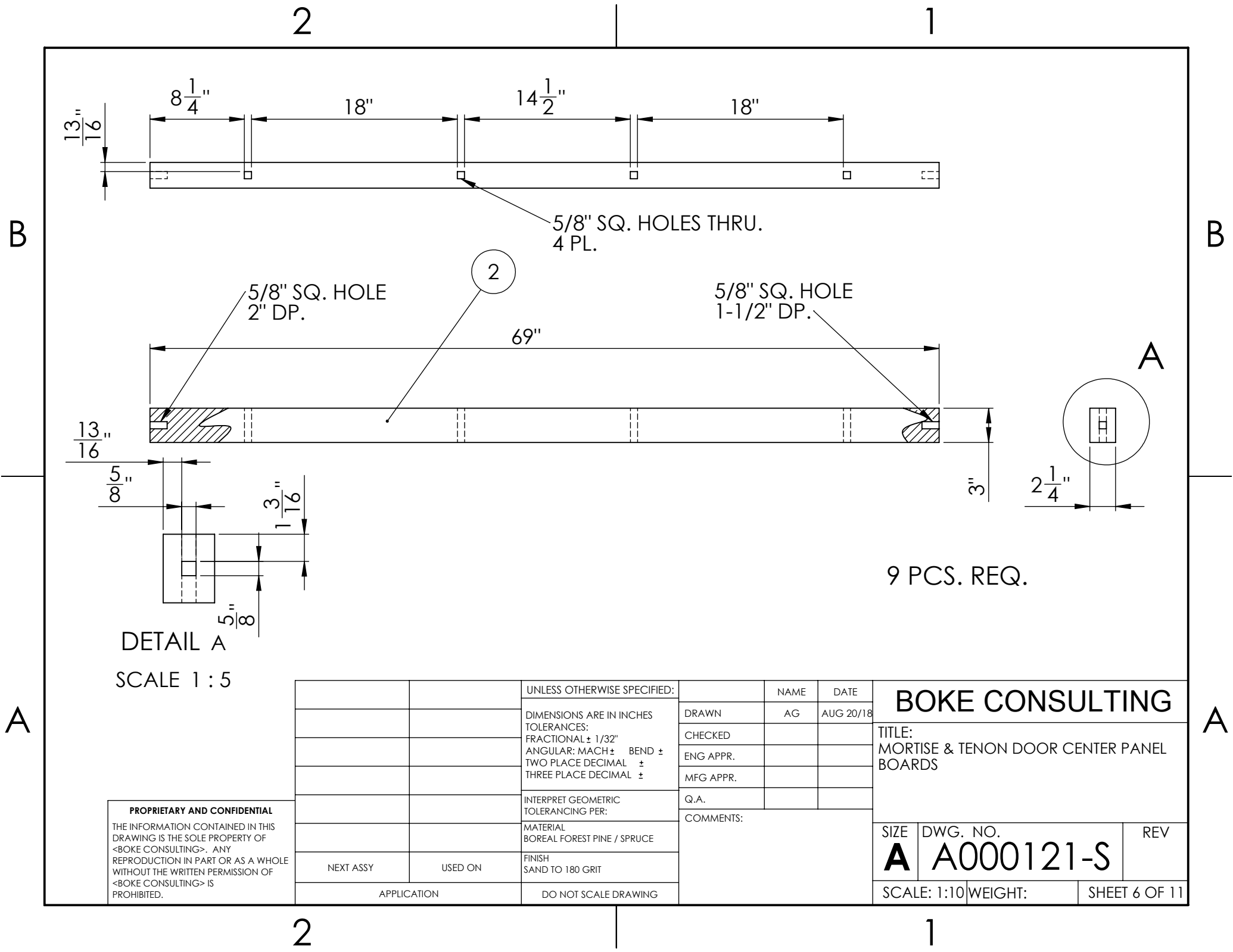
BOKE CONSULTING

TITLE:
MORTISE & TENON DOOR BOTTOM RAIL / KICK PLATE

SIZE	DWG. NO.	REV
A	A000120-S	
SCALE: 1:10	WEIGHT:	SHEET 1 OF 1

2

1



9 PCS. REQ.

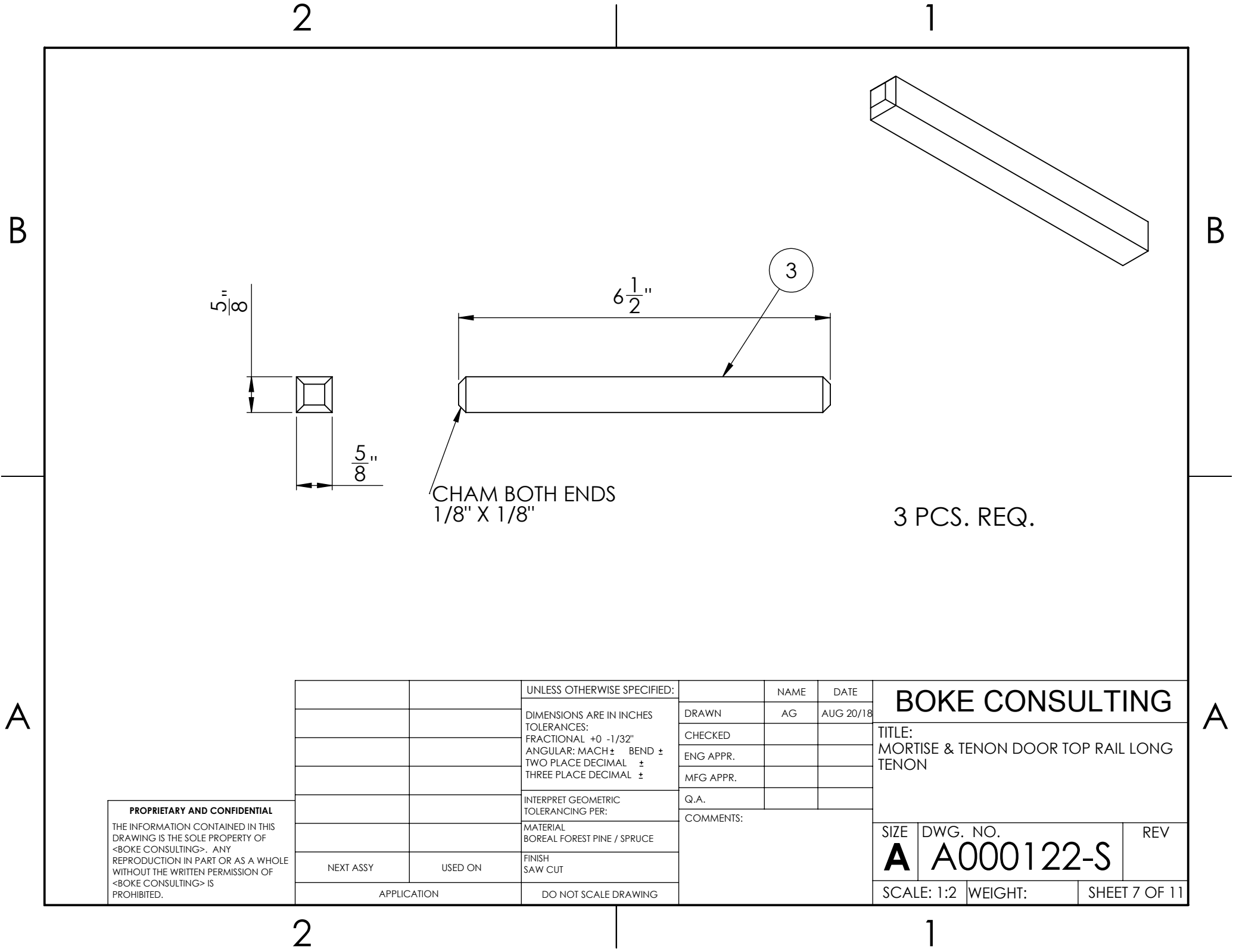
DETAIL A
SCALE 1 : 5

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 20/18
		TOLERANCES:	CHECKED		
		FRACTIONAL $\pm 1/32"$	ENG APPR.		
		ANGULAR: MACH \pm BEND \pm	MFG APPR.		
		TWO PLACE DECIMAL \pm	Q.A.		
		THREE PLACE DECIMAL \pm	COMMENTS:		
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

BOKE CONSULTING
TITLE:
MORTISE & TENON DOOR CENTER PANEL
BOARDS

SIZE	DWG. NO.	REV
A	A000121-S	
SCALE: 1:10	WEIGHT:	SHEET 6 OF 11



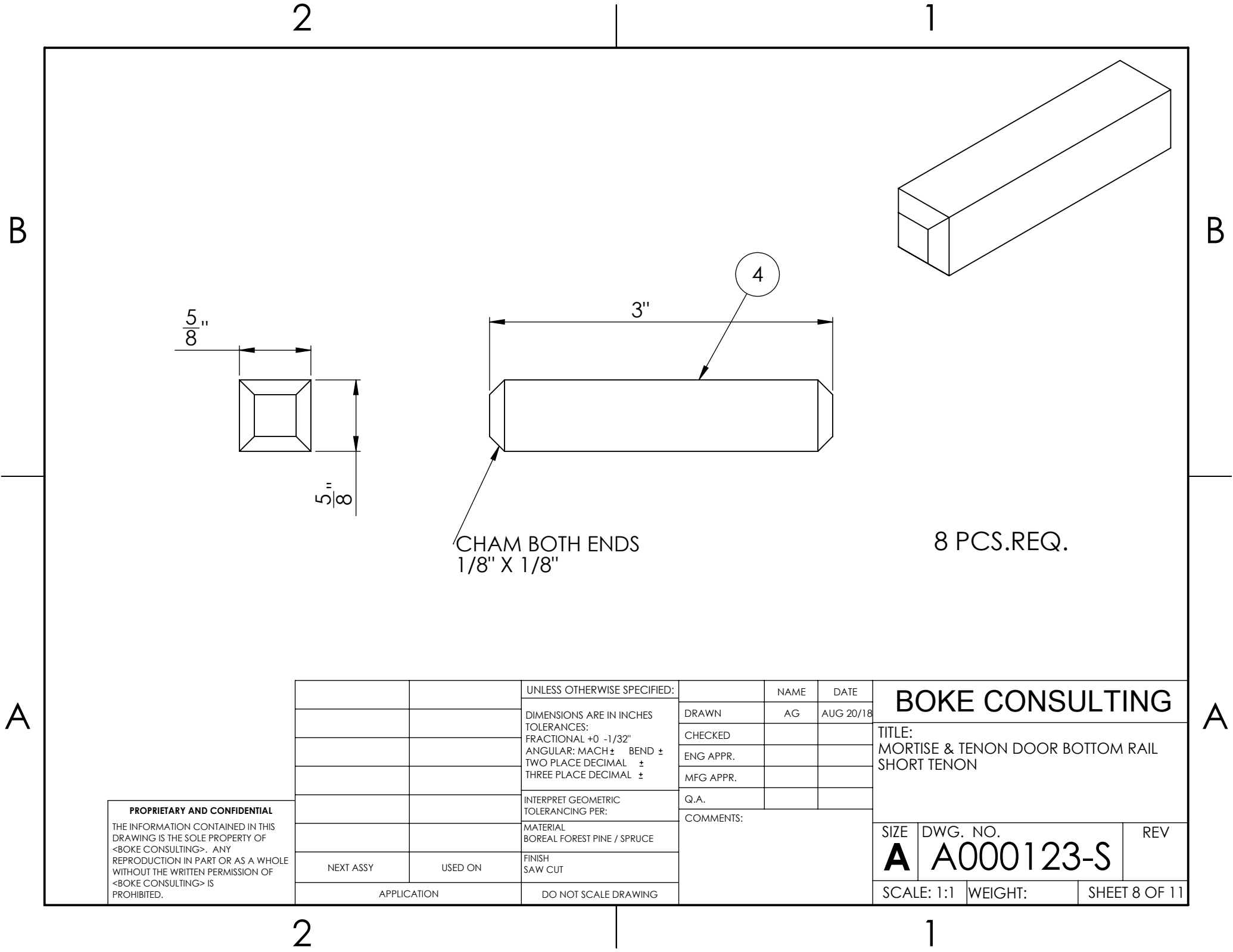
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 20/18
		TOLERANCES:	CHECKED		
		FRACTIONAL +0 -1/32"	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	COMMENTS:		
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAW CUT			
APPLICATION		DO NOT SCALE DRAWING			

BOKE CONSULTING		
TITLE: MORTISE & TENON DOOR TOP RAIL LONG TENON		
SIZE	DWG. NO.	REV
A	A000122-S	
SCALE: 1:2	WEIGHT:	SHEET 7 OF 11



CHAM BOTH ENDS
1/8" X 1/8"

8 PCS.REQ.

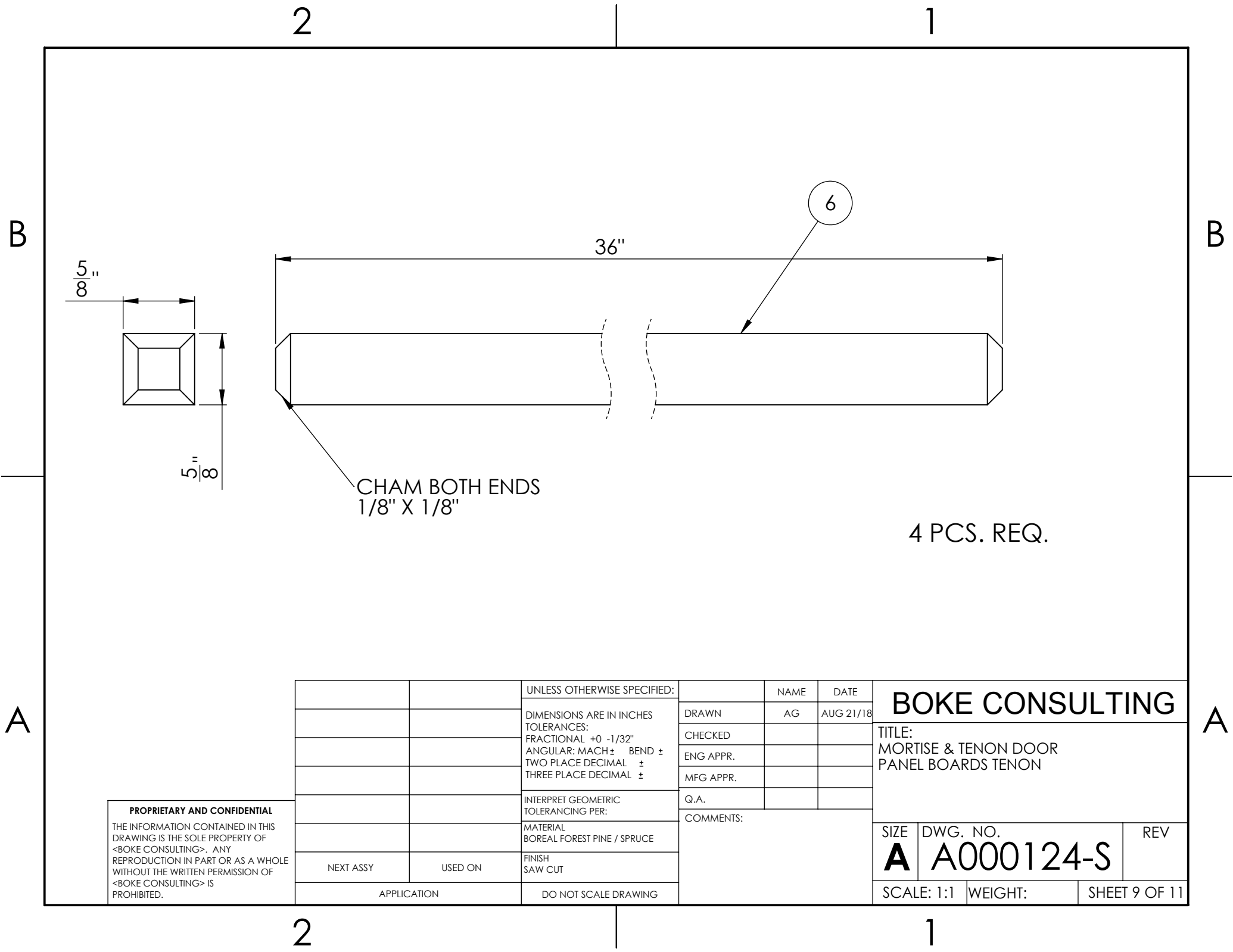
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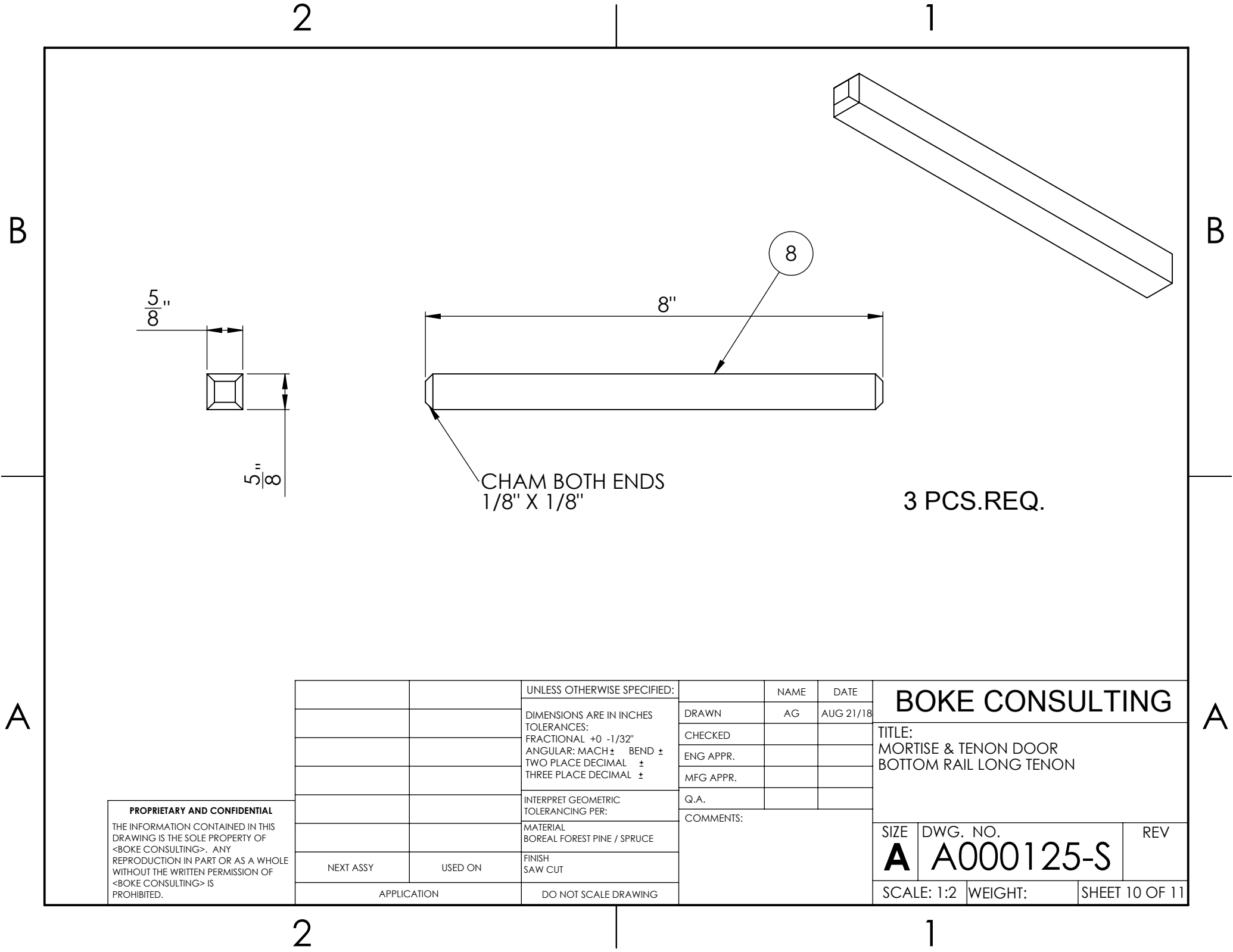
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			DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL +0 -1/32" ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 20/18	TITLE: MORTISE & TENON DOOR BOTTOM RAIL SHORT TENON		
				CHECKED					
				ENG APPR.					
				MFG APPR.					
			INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.			SIZE DWG. NO. REV <div>A A000123-S </div>		
			MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:					
	NEXT ASSY	USED ON	FINISH SAW CUT						
APPLICATION		DO NOT SCALE DRAWING		SCALE: 1:1		WEIGHT:		SHEET 8 OF 11	

2

1





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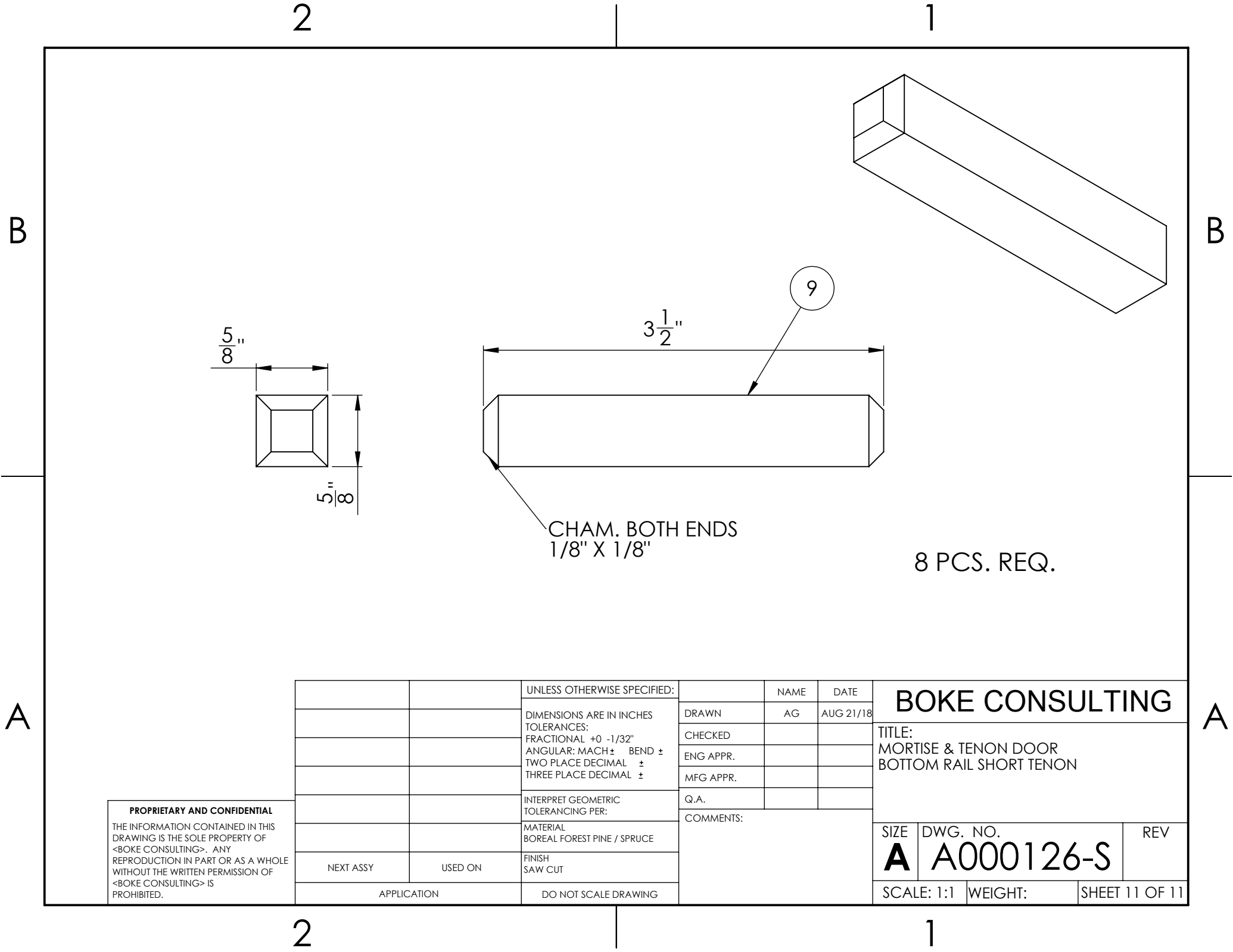
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		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	COMMENTS:		
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAW CUT			
APPLICATION		DO NOT SCALE DRAWING			

3 PCS.REQ.

BOKE CONSULTING

TITLE:
MORTISE & TENON DOOR
BOTTOM RAIL LONG TENON

SIZE	DWG. NO.	REV
A	A000125-S	
SCALE: 1:2	WEIGHT:	SHEET 10 OF 11



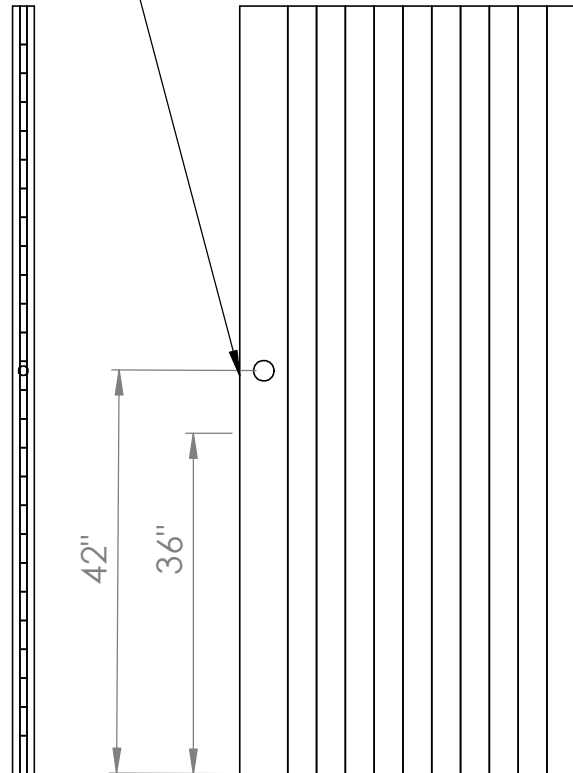
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE	BOKE CONSULTING			
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL +0 -1/32" ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 21/18				
			CHECKED						
			ENG APPR.						
			MFG APPR.						
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.			TITLE: MORTISE & TENON DOOR BOTTOM RAIL SHORT TENON			
		MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:						
NEXT ASSY	USED ON	FINISH SAW CUT							
APPLICATION		DO NOT SCALE DRAWING							
						SIZE	DWG. NO.	REV	
						A	A000126-S		
						SCALE: 1:1		WEIGHT:	SHEET 11 OF 11

B

A

DOOR HANDLE AND
DEADBOLT HEIGHT LOCATION



USE JIG FOR SOSS
INVISIBLE
HINGE MODEL 218 4
HINGES
USED CENTER OF HINGE
IS 6" FROM TOP OR
BOTTOM
OF DOOR 2 HINGES
EQUALITY
SPACED BETWEEN TOP
AND BOTTOM

SECONDARY HINGE
SPECIFICATION
COMMERCIAL GRADE
SELF CLOSING
INDICATIVE CRL 4" X 4"
DULL NICKEL
HEAVY DUTY SPRING
HINGE FINISH
SHOULD MATCH LATCH

OPTIONS
PEEPHOLE
DOOR KNOCKER
WOOD ROSETTE
ROUTER INCISED DESIGN
WOOD OR STONE INLAY

B

A

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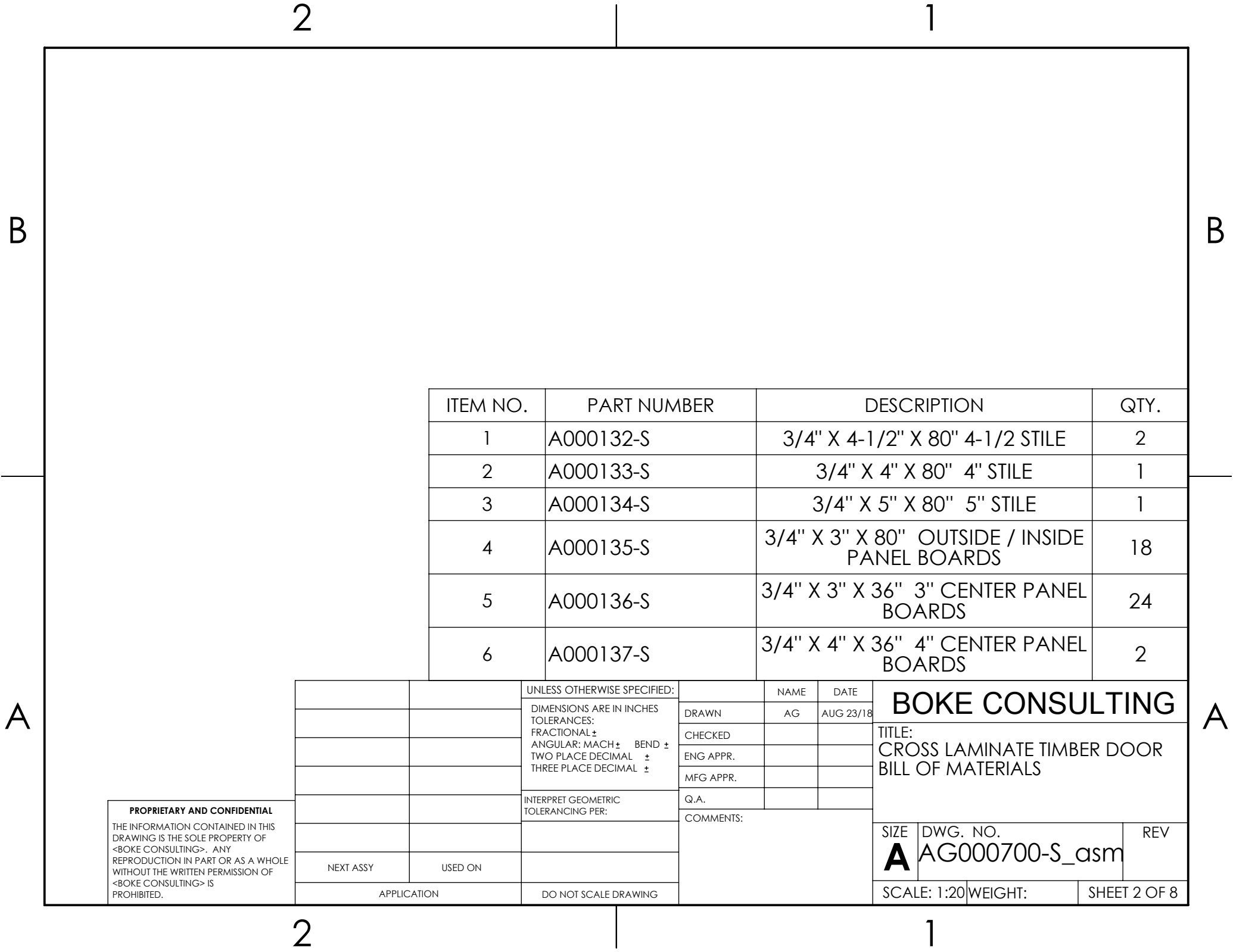
		UNLESS OTHERWISE SPECIFIED:
		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL ±
		ANGULAR: MACH ± BEND ±
		TWO PLACE DECIMAL ±
		THREE PLACE DECIMAL ±
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
		FINISH
NEXT ASSY	USED ON	
APPLICATION		DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	AG	AUG 29/18
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
Art Gzebowski Machine Draftsman Engineering Designer T 204.396.2211 arthuriskil@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		

BOKE CONSULTING		
TITLE: CROSS LAMINATED TIMBER DOOR HINGE, DEADBOLT, AND DOOR HANDLE LOCATION		
SIZE	DWG. NO.	REV
A	AG00700-S1_ASM	
SCALE: 1:20		SHEET 8A OF 8

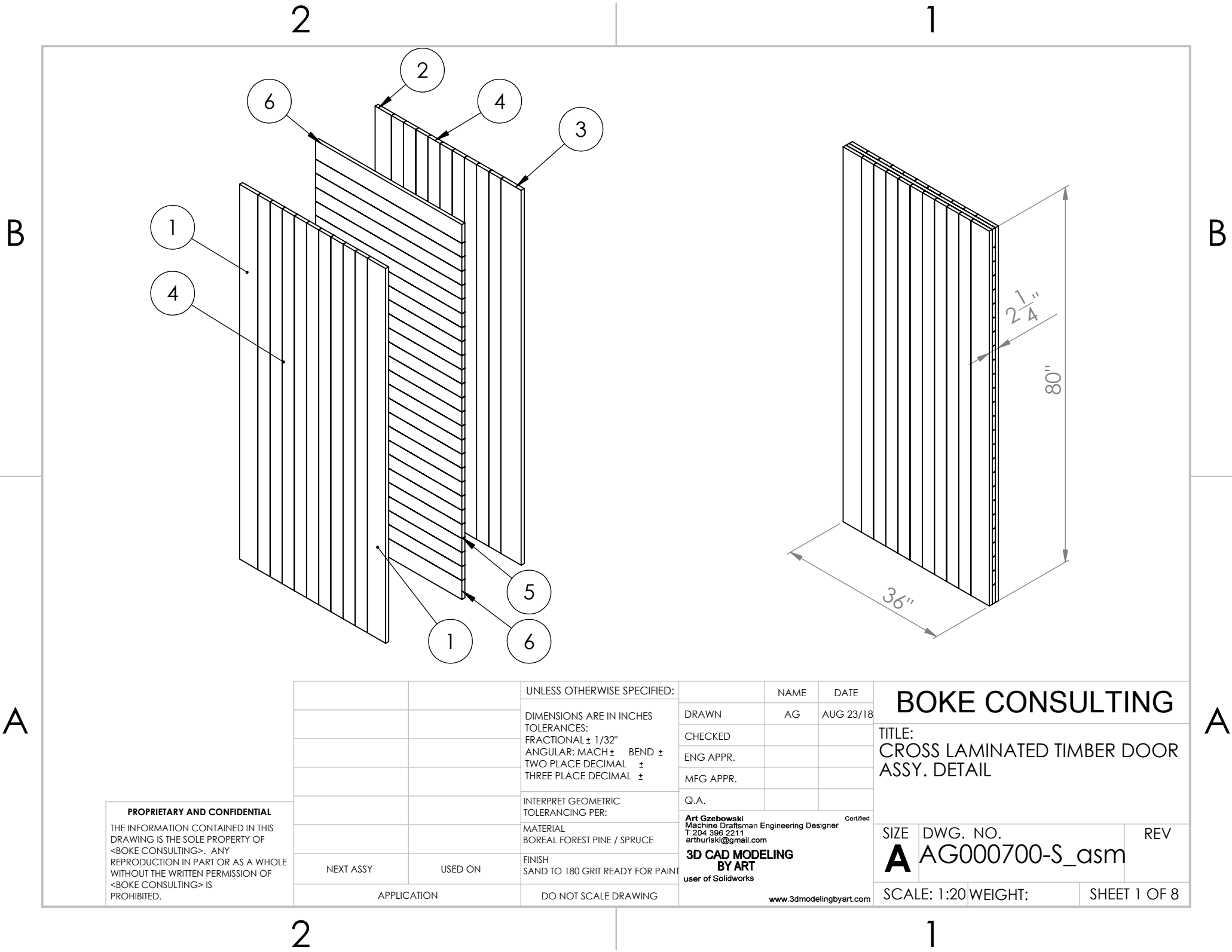
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1



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	A000132-S	3/4" X 4-1/2" X 80" 4-1/2 STILE	2
2	A000133-S	3/4" X 4" X 80" 4" STILE	1
3	A000134-S	3/4" X 5" X 80" 5" STILE	1
4	A000135-S	3/4" X 3" X 80" OUTSIDE / INSIDE PANEL BOARDS	18
5	A000136-S	3/4" X 3" X 36" 3" CENTER PANEL BOARDS	24
6	A000137-S	3/4" X 4" X 36" 4" CENTER PANEL BOARDS	2

			UNLESS OTHERWISE SPECIFIED:		NAME	DATE	BOKE CONSULTING			
			DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 23/18				
				CHECKED						
				ENG APPR.						
				MFG APPR.						
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				COMMENTS:						
		NEXT ASSY	USED ON							
	APPLICATION		DO NOT SCALE DRAWING				SCALE: 1:20		WEIGHT:	SHEET 2 OF 8

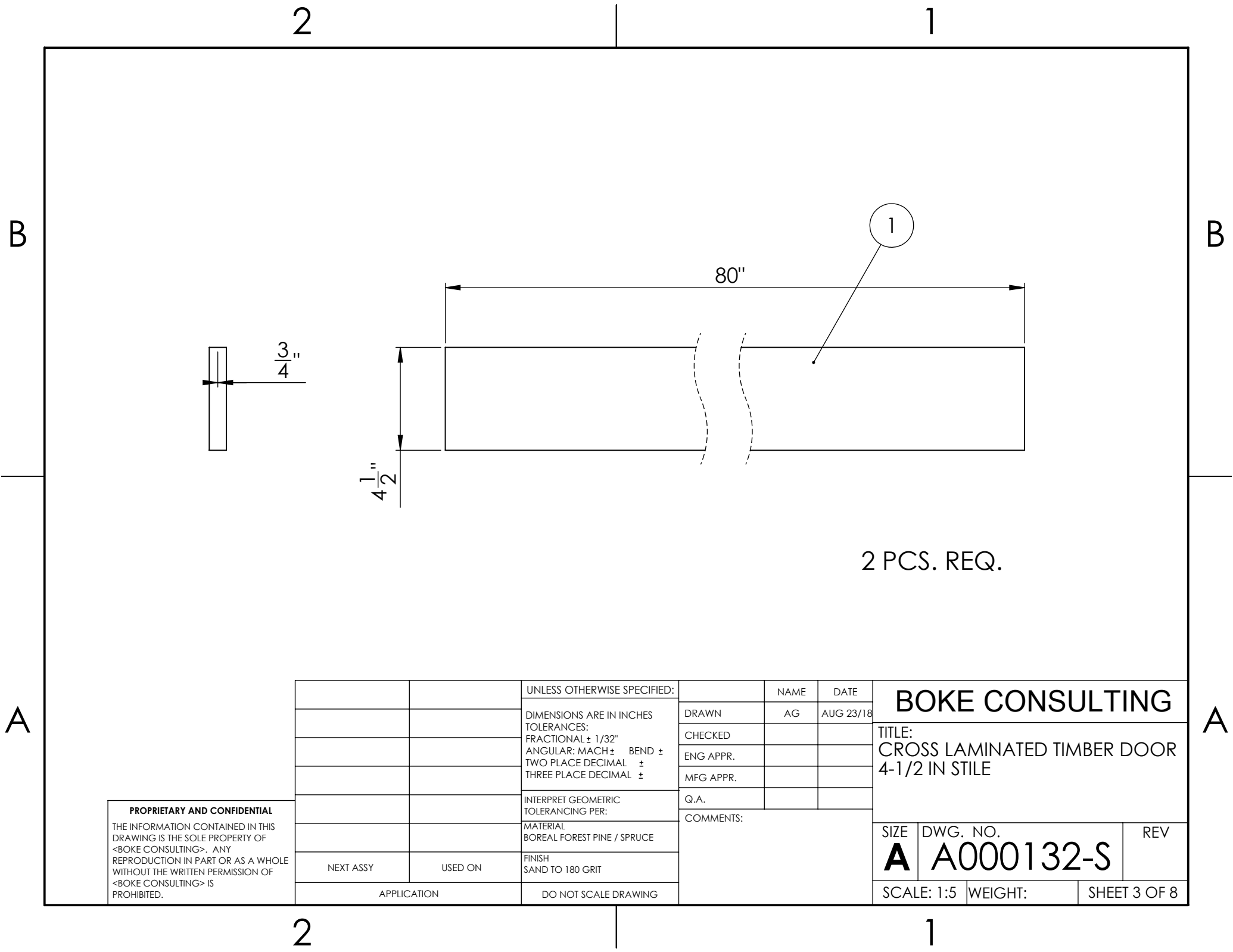


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		UNLESS OTHERWISE SPECIFIED:
		DIMENSIONS ARE IN INCHES
		TOLERANCES:
		FRACTIONAL ± 1/32"
		ANGULAR: MACH ± BEND ±
		TWO PLACE DECIMAL ±
		THREE PLACE DECIMAL ±
		INTERPRET GEOMETRIC TOLERANCING PER:
		MATERIAL
		BOREAL FOREST PINE / SPRUCE
NEXT ASSY	USED ON	FINISH
		SAND TO 180 GRIT READY FOR PAINT
APPLICATION		DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	AG	AUG 23/18
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		
Art Gzebowski Machine Draftsman Engineering Designer T 204 396 2211 arthurisk@gmail.com 3D CAD MODELING BY ART user of Solidworks www.3dmodelingbyart.com		

BOKE CONSULTING		
TITLE: CROSS LAMINATED TIMBER DOOR ASSY. DETAIL		
SIZE	DWG. NO.	REV
A	AG000700-S_asm	
SCALE: 1:20		WEIGHT:
		SHEET 1 OF 8



B

B

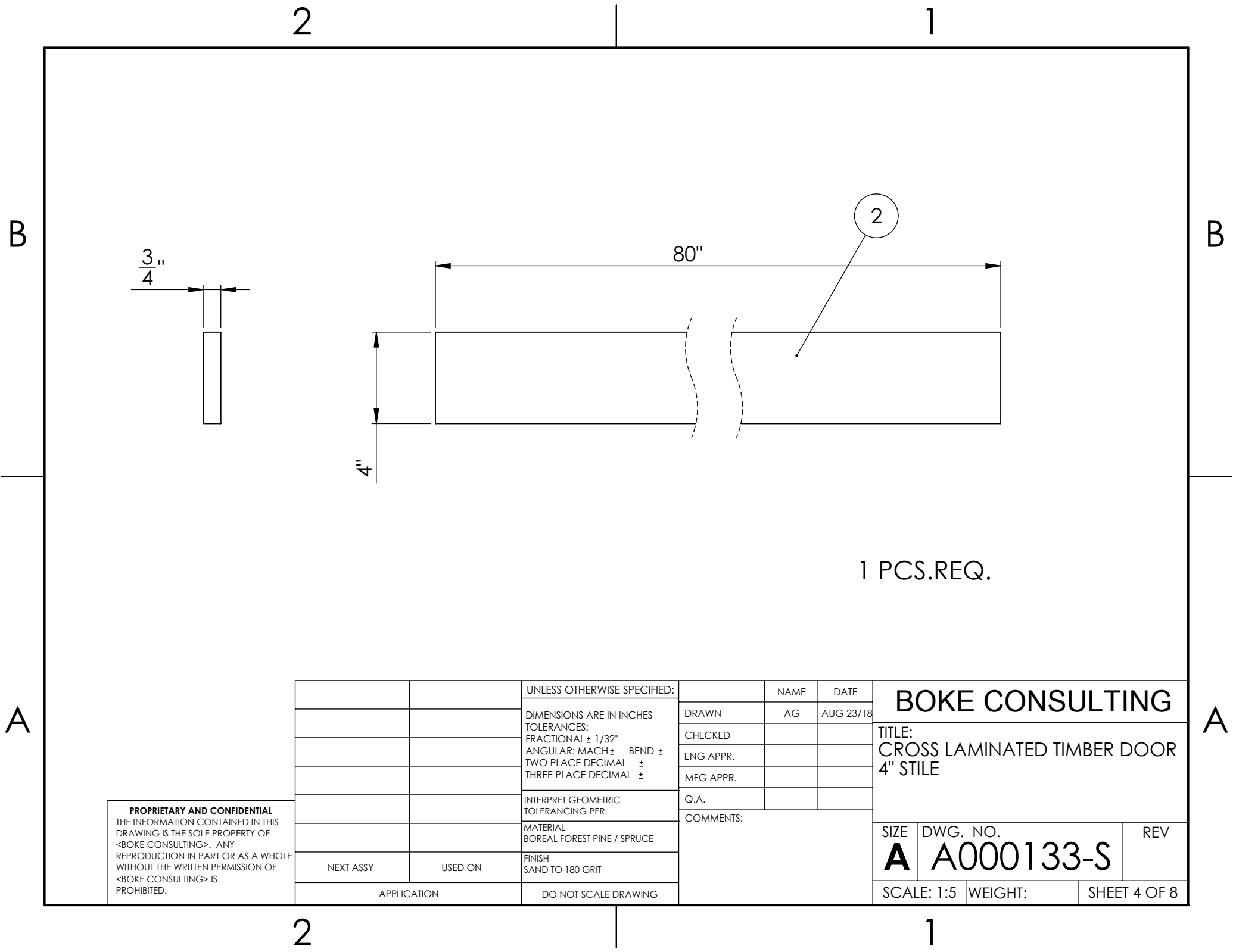
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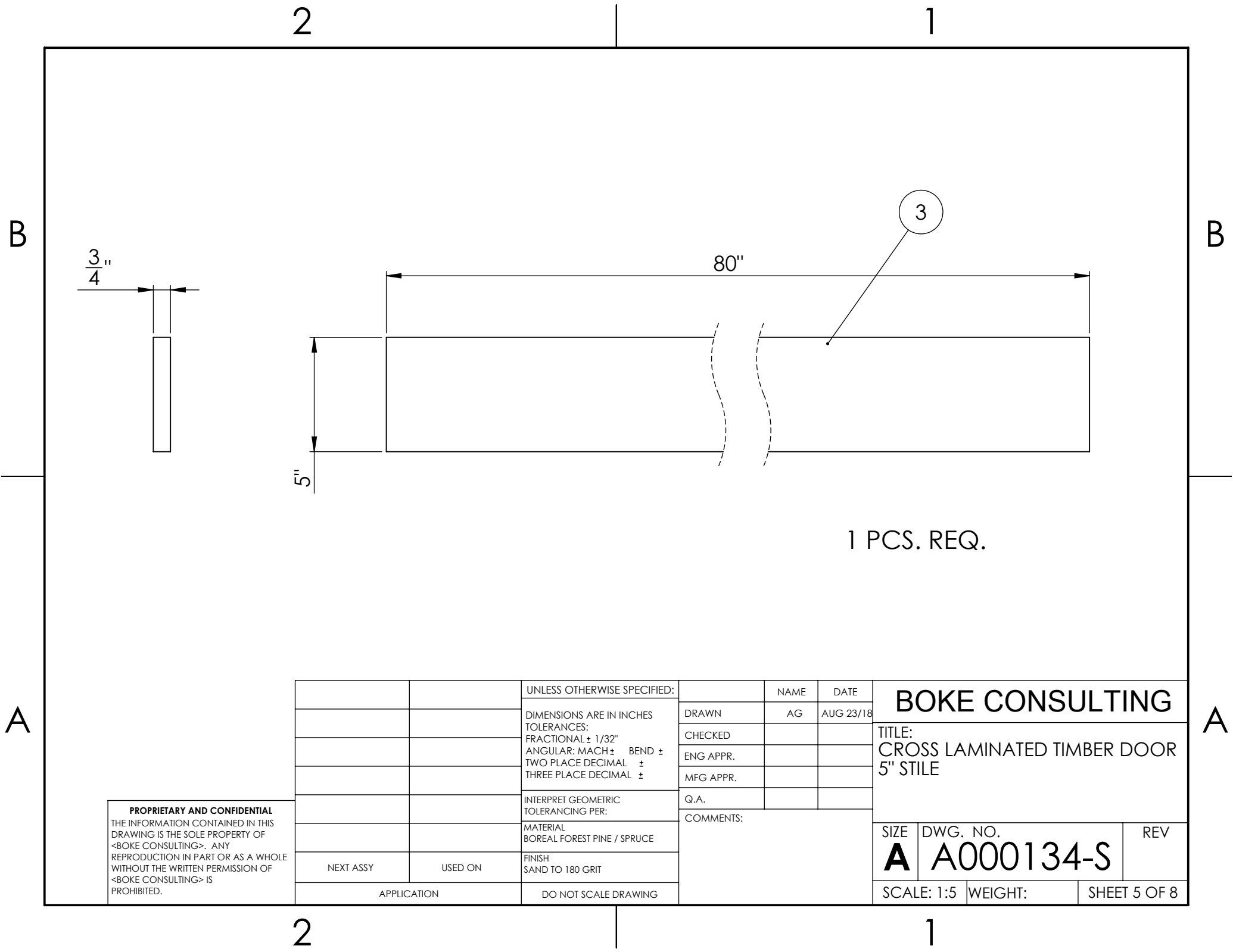
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		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 23/18
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/32"	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

BOKE CONSULTING		
TITLE: CROSS LAMINATED TIMBER DOOR 4-1/2 IN STILE		
SIZE	DWG. NO.	REV
A	A000132-S	
SCALE: 1:5	WEIGHT:	SHEET 3 OF 8



1 PCS.REQ.

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			DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/32" ANGULAR: MACH ± BEND ± TWO PLACE DECIMAL ± THREE PLACE DECIMAL ±	DRAWN	AG	AUG 23/18	TITLE: CROSS LAMINATED TIMBER DOOR 4" STILE		
				CHECKED					
				ENG APPR.					
				MFG APPR.					
			INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.			SIZE DWG. NO. REV <div>A A000133-S </div>		
			MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:					
	NEXT ASSY	USED ON	FINISH SAND TO 180 GRIT						
	APPLICATION		DO NOT SCALE DRAWING						



3

3/4"

80"

5"

1 PCS. REQ.

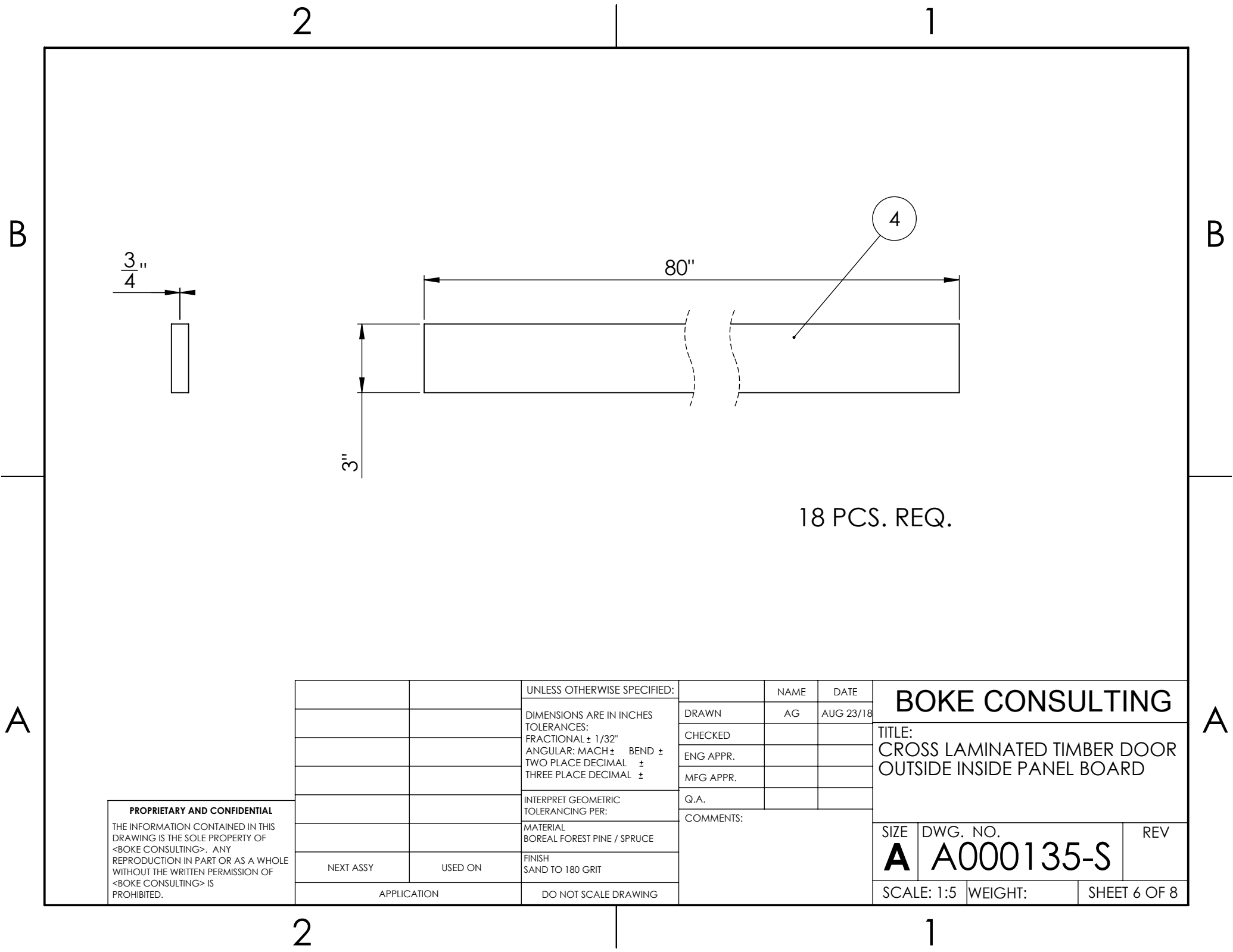
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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 23/18
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/32"	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	COMMENTS:		
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

BOKE CONSULTING

TITLE:
CROSS LAMINATED TIMBER DOOR
5" STILE

SIZE	DWG. NO.	REV
A	A000134-S	
SCALE: 1:5	WEIGHT:	SHEET 5 OF 8



A

A

B

B

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 23/18
		TOLERANCES:	CHECKED		
		FRACTIONAL $\pm 1/32"$	ENG APPR.		
		ANGULAR: MACH \pm BEND \pm	MFG APPR.		
		TWO PLACE DECIMAL \pm	Q.A.		
		THREE PLACE DECIMAL \pm	COMMENTS:		
		INTERPRET GEOMETRIC TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

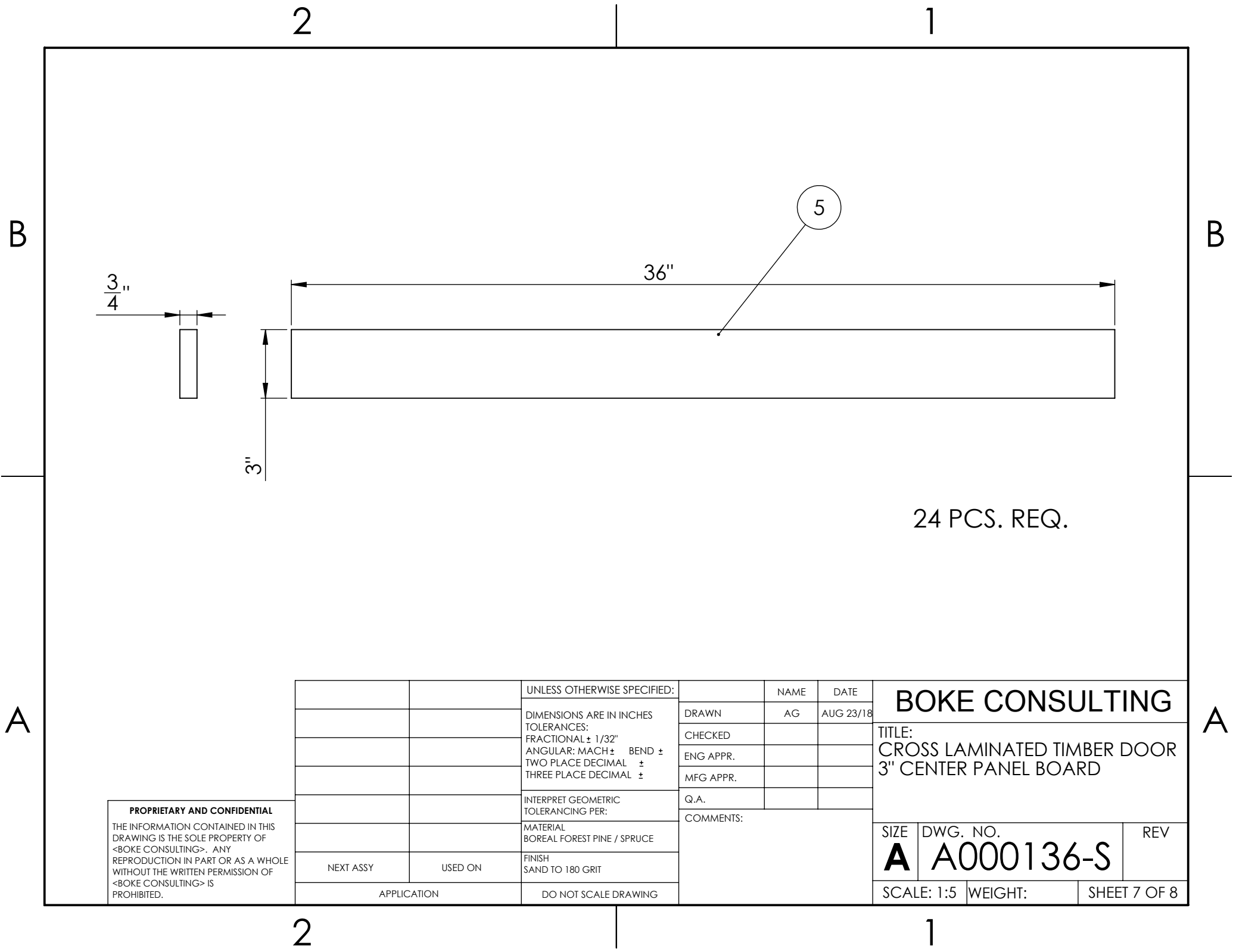
BOKE CONSULTING		
TITLE: CROSS LAMINATED TIMBER DOOR OUTSIDE INSIDE PANEL BOARD		
SIZE	DWG. NO.	REV
A	A000135-S	
SCALE: 1:5	WEIGHT:	SHEET 6 OF 8

2

1

2

1



B

B

A

A

24 PCS. REQ.

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		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 23/18
		TOLERANCES:	CHECKED		
		FRACTIONAL ± 1/32"	ENG APPR.		
		ANGULAR: MACH ± BEND ±	MFG APPR.		
		TWO PLACE DECIMAL ±	Q.A.		
		THREE PLACE DECIMAL ±	COMMENTS:		
		INTERPRET GEOMETRIC			
		TOLERANCING PER:			
		MATERIAL			
		BOREAL FOREST PINE / SPRUCE			
NEXT ASSY	USED ON	FINISH			
		SAND TO 180 GRIT			
APPLICATION		DO NOT SCALE DRAWING			

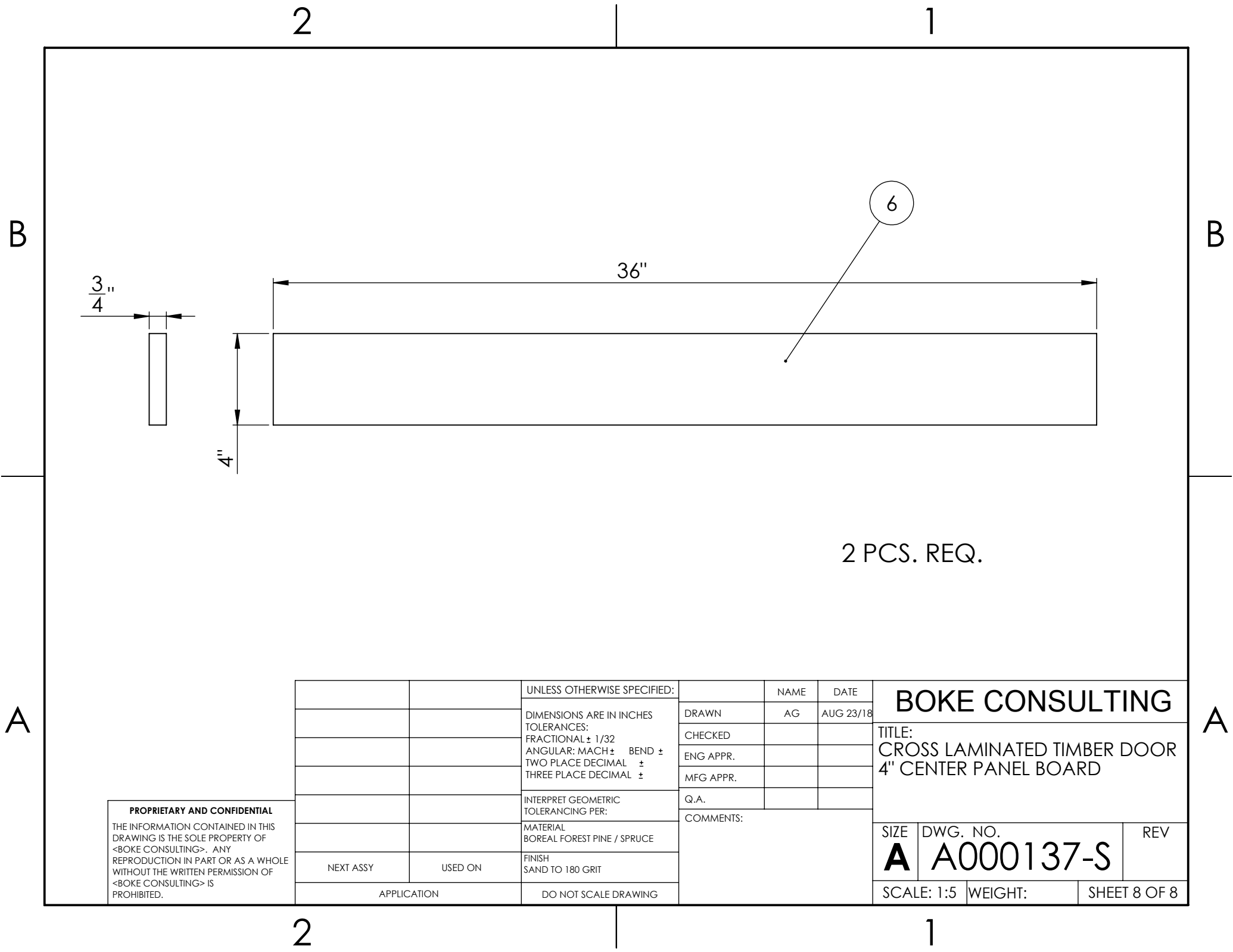
BOKE CONSULTING		
TITLE: CROSS LAMINATED TIMBER DOOR 3" CENTER PANEL BOARD		
SIZE	DWG. NO.	REV
A	A000136-S	
SCALE: 1:5	WEIGHT:	SHEET 7 OF 8

2

1

2

1



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			DIMENSIONS ARE IN INCHES	DRAWN	AG	AUG 23/18				
			TOLERANCES:	CHECKED						
			FRACTIONAL ± 1/32	ENG APPR.						
			ANGULAR: MACH ± BEND ±	MFG APPR.						
			TWO PLACE DECIMAL ±				TITLE: CROSS LAMINATED TIMBER DOOR 4" CENTER PANEL BOARD			
			THREE PLACE DECIMAL ±							
			INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.						
			MATERIAL BOREAL FOREST PINE / SPRUCE	COMMENTS:						
			FINISH SAND TO 180 GRIT							
	NEXT ASSY	USED ON					SIZE	DWG. NO.	REV	
			APPLICATION	DO NOT SCALE DRAWING				A	A000137-S	
								SCALE: 1:5	WEIGHT:	SHEET 8 OF 8