SkillsUSA California
Cabinetmaking
Regional Contest

Coordinator Notes

The contest criteria were drawn from the CTE Curriculum Standards for the Wood and Wood Products Industry with emphasis in Cabinetmaking.

The core elements to be tested are:

1. **Planning and Layout** – will include exercise in plan reading, estimating and cost calculations. It will include a written and hands-on activity.

2. **Materials Processing and Assembly** – will involve layout, cutting and assembling of typical components representative of the cabinetmaking industry.

3. **Tool Handling and Techniques** – contestants will demonstrate their ability to safely use, care for and transport hand tools and portable power tools.

Skills Addressed

Contestants should be prepared to do the following:

- Safety and PPE (safety glasses at all times!!!)
- Prepare bill of materials (use your best penmanship!)
- Material layout ("optimization of material")
- Manufacture:
    - Use of biscuit and pocket hole joinery.
    - Use router to detail edges.
    - Use of jigsaw and/or band saw for radius cuts.
    - Safe table saw setup and use.
    - Setup and use of the miter saw in a production environment (stops), i.e. cross-cutting.
    - Proper gluing of all components and using mechanical fasteners.
    - Easing edges.
    - Preparation of finished product.
    - Presentation!

Description:

Contestants will have 3-3.5 hours (depending on regional schedule) to complete the two components of the contest. For example, if contest begins with orientation at 8 a.m., contestants should finish by 12 noon.

1. **Bill of Materials (written test) and Material Layout worksheet**
   Contestants must prepare a material cut list for a small wall-hung cabinet (reading drawings). They will need to prepare two copies of both the Bill of Materials and the Material Layout Worksheet -- one to be turned in and graded and the other to be used by the contestant to complete the project.

Material Layout Worksheet Instructions:
Once you've completed your Bill of Materials, lay out your parts on the corresponding material by drawing a line vertically and/or horizontally.

2. **Cabinet Component Construction:**
Contestants will build a small wall hung cabinet (via French cleat) with drawer. They will need to know how to use a biscuit joiner, table saw, pocket hole system, miter saw, routers, band saw and/or jigsaw and small hand tools. Students will cut, drill, detail, route, glue, assemble and sand all of their component parts.

Contest Requirements:

1. **Tools Required for Contest** (provided by Organizers; ratios are suggestions):
    a. Table saw – 1 saw:5 student ratio (for pre-cutting by organizers and for contestant use)
    b. Power miter saw – 1:5 ratio
    c. Pocket hole system – 1:4 ratio
    d. Biscuit joiner – 1:4 ratio
    e. Router with flush-cutting bit with minimum 1" flute (to be used for flush trimming) (min 1)
    f. Template created by contest coordinator for cove on the bottom of the sides.
    g. Router with 1/4" roundover bit with bearing (min 1)
    h. Router with flush trim bit for laminate
    i. Band saw and/or jigsaw (min 1)
    j. Nail guns, 18 or 23 gauge for drawer box construction – 1:5 ratio
    k. Rubber Roller for laminate – 1:5 ratio

2. **Materials Required for Contest** (provided by Organizers; based on 24 contestants):
    a. ¾" Plywood, 4' x 8' sheet – 11 to 12 sheets
    b. ½" Plywood, 4' x 8' sheet – 2 sheets
    c. ¼" Plywood or Melamine, 4' x 8' sheet – 2 sheets
    d. HPL Plastic Laminate – 2 sheets
    e. Solid stock, 4/4 x 75 Bd. Ft.
    f. Pocket hole screws, 1-1/4" x 16 per student
    g. Finish nails, 1-1/4" (3D) x 12 per student
    h. Drawer Front screws, 1" x 2 per student
    i. Yellow wood glue with brushes.
    j. Wood filler, match to wood.
    k. Spray adhesive
    l. Blum 230M3000 12" slides x 1 pair per student (Supplied by State Organizers)
    m. Ives 571A92 Coat Hook x 2 per student
    n. Biscuits #20 – 20 per student

3. **Facility Requirements for Contest**
    a. Workbenches/tables
    b. Chairs
    c. Electrical outlets (approximately 8 at 15 amps each)
    d. Extension cords (for routers and jig saws)

e. Air Compressor (or portable air compressor with manifold)

4. **Estimated Cost of Materials and Supplies** (per contestant): approximately $56 per student for materials and supplies. **Contest limit:** *(recommended)* 14 students

5. **Student Tool List** (required; bring 1 of each unless otherwise noted)
   Ensure that all cutting tools are properly sharpened.

   a. Required Items:

   i. Tool box (no buckets)
   ii. Nail apron
   iii. *Clear* safety glasses
   iv. Dust mask
   v. #2 pencils, sharpened – qty 2
   vi. Tape measure (1/16" graduations)
   vii. Calculator
   viii. Square: speed, try or combo
   ix. Utility Knife
   x. 13 oz (or larger) curved claw hammer
   xi. 1/16" or 1/32" nail set (min 1)
   xii. Backsaw
   xiii. Screwdriver with interchangeable bits
   xiv. #2 square drive bit, 6" long
   xv. Cordless drill motor/driver w/bits and charger
   xvi. 24" parallel jaw/quick grip bar clamps (qty 2)
   xvii. Block Plane (low angle recommended)
   xviii. 10 mill bastard file
   xix. Sanding block for ¼ sheet
   xx. Sheet sandpaper (80, 120, & 220 grit)
   xxi. Cabinet scraper
   xxii. 1" flexible putty knife
   xxiii. Air hose, 25' long
   xxiv. Pliers

   b. Optional/Permitted items:

   i. Air nailer, 18 or 23 gauge
   ii. Cross cut saw
   iii. Drill bits (1/16" to 3/8")
   iv. Compass
   v. 1 set (4 pc) wood chisels ¼" – 1", sharpened
   vi. Rubber or Wood Mallet
   vii. 6" "C" clamps (qty 2)

6. **“Oral Interview” Expectations:** Cabinetmaking is a national SkillsUSA competition; an oral interview is part of the national scorecard judging criteria and therefore a requirement of the competition. Accordingly, contestants should be prepared to be informally “interviewed” by judges during the contest. They may be asked 1-2 questions about basic woodworking knowledge, the contest project, or about their school woodworking program.

7. **Dress Requirement**
    a. Tucked-in twill khaki work shirt or button-up short sleeve shirt
    b. Khaki work pants
    c. Black or brown belt
    d. Black or brown leather work shoes
    e. Safety glasses with side shields or goggles; wrap-around safety glasses are ok. (Prescription glasses can be used only if they are equipped with side shields. If not, they must be covered with goggles.)
    f. Earplugs
    g. Hats are OK; all logos must be taped or covered
    h. No loose clothing, ties or jewelry. Hair must be tied back.

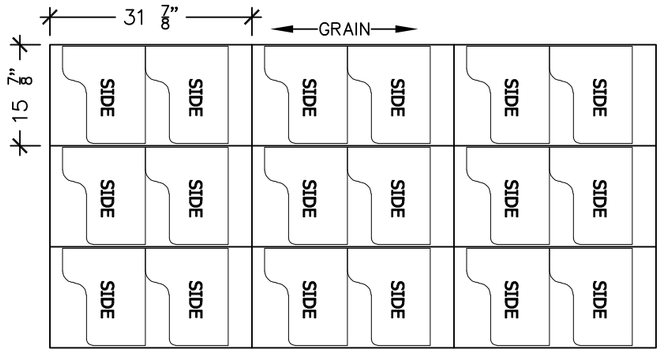
6. **Resume Requirement**: students must present a resume on the day of competition in order to compete.

7. Sample Agenda for Regional Contest

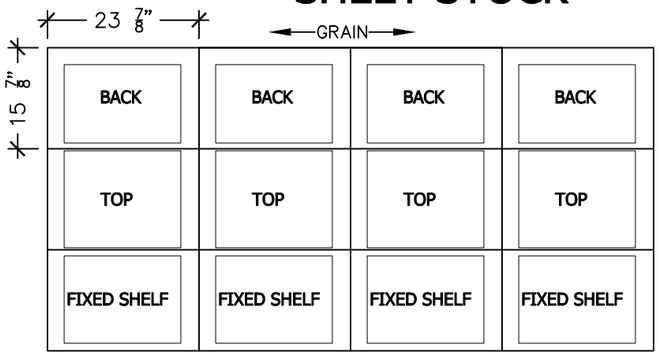
8:00 AM	Students report to contest site; contest orientation and safety review
8:30 AM	Begin written test portion of contest
9:00 AM	Collect written tests to score; Begin hands-on technical portion of contest
11:45 AM	15 Minute Warning
12:00 noon	**End contest**
12:01 PM	Round up all projects in one area for judging / Begin Judging
12:05 PM	Contestants go to lunch
12:35 PM	Contestants return to clean up contest site Judges complete scoring and turn in score sheets
12:45	Contest wrap-up discussion (Q&A)
1:00	Students dismissed

2016 Regional Cabinetmaking Materials (24 Contestants) - Material Provider PRELIMINARY

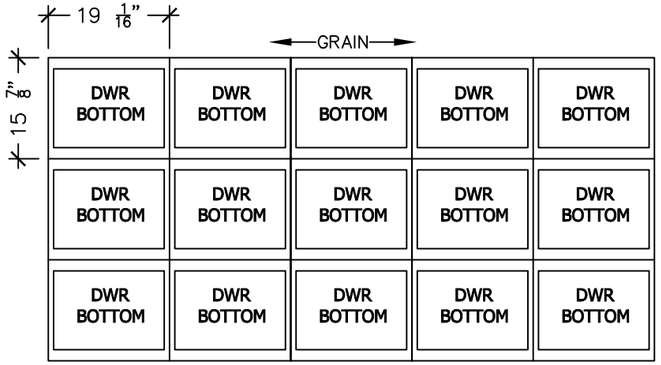
SHEET STOCK



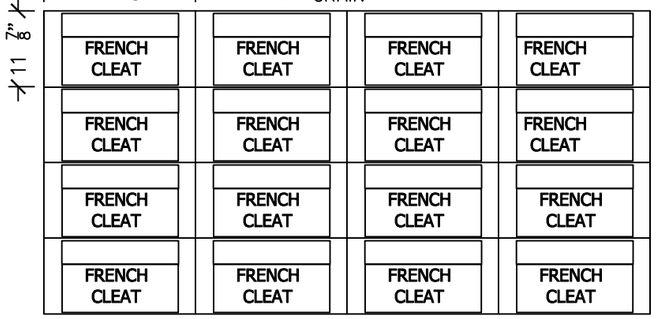
$\frac{3}{4}$" PLYWOOD
3 SHEETS



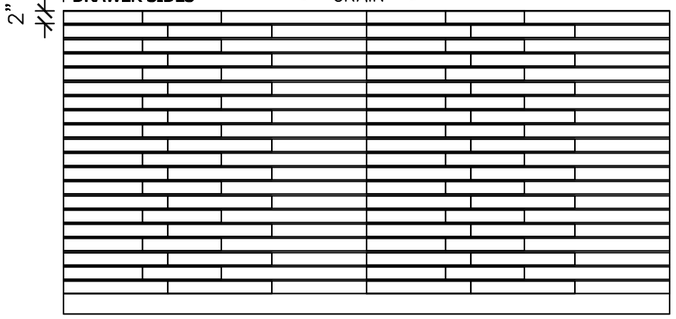
$\frac{3}{4}$" PLYWOOD
6 SHEETS



$\frac{1}{4}$" PLYWOOD OR MELAMINE
2 SHEETS

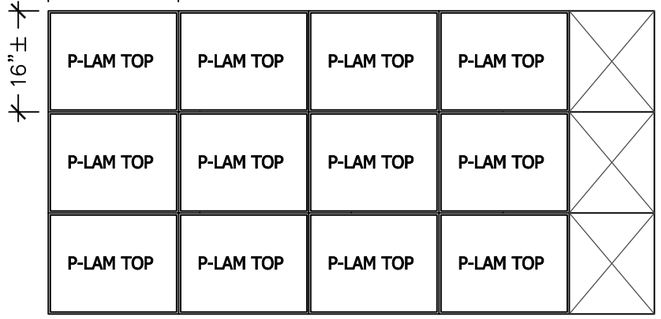


$\frac{3}{4}$" PLYWOOD
2 SHEETS



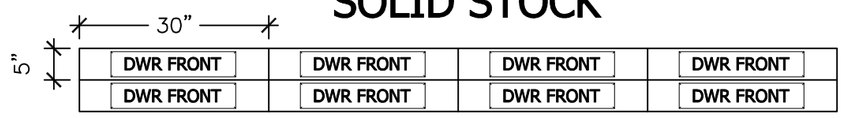
$\frac{1}{2}$" PLYWOOD
2 SHEETS

DRAWER BOX SIDES (2) ROUGH SIZED PER STUDENT
48 Pcs. ~48" x 2" x $\frac{1}{2}$"



HPL LAMINATE
2 SHEETS

SOLID STOCK



3 Solid Wood Boards, Finished @ $\frac{3}{4}$" X 10"+ X 10'±
(need 24 pieces @ ~30" x ~5" x $\frac{3}{4}$" for contest)

SkillsUSA
CALIFORNIA
REGIONAL CONTEST

ITEM: WOOD CABINET MATERIAL SHEET

DATE:	COMPETITION DATE:
11/28/17	2018
SCALE: 1/4"=1"	DWG #: COORD
DRAWN BY: AK	

SPECIAL SPONSOR:
AWFS®
ASSOCIATION OF WOODWORKING & FURNISHINGS SUPPLIERS

BILL OF MATERIALS

#		QTY	DESCRIPTION	MATERIAL	THICKNESS	WIDTH	LENGTH	NOTES
1			Ends	Sheet Stock	¾"		13 1/8"	Use biscuits, pocket screws, nails, and glue to attach cabinet pieces
2		1	Top	Sheet Stock	¾"	15 3/8"		Use biscuits, pocket screws, nails, and glue to attach cabinet pieces
3		1	Fixed Shelf	Sheet Stock		13 7/8"	18 ½"	Use biscuits, pocket screws, nails, and glue to attach cabinet pieces
4		1	Back	Sheet Stock	¾"	12 3/8"		Use biscuits, pocket screws, nails, and glue to attach cabinet pieces
5			Drawer Front	Solid Stock	¾"	4"		Profile on all front edges. Screw Drawer Front to Drawer Box
6		1	Drawer Box Bottom	Sheet Stock			17 ½"	Use 3/4" finish nails or air nailer
7			Drawer Box Sides	Sheet Stock	½"		12 ½"	Use 3/4" finish nails or air nailer
8		2	Drawer Box SubFront+Back	Sheet Stock			16 ½"	Use 3/4" finish nails or air nailer
9			Cabinet Cleat	Sheet Stock	¾"		18 ½"	Cut to size, countersink and screw to back of cabinet.
10			Wall Cleat	Sheet Stock	¾"		18 3/8"	Cut to size, countersink and screw to wall studs to hang cabinet.
11			Laminate Top	Sheet Stock	3mm		20"	Use spray adhesive to attach an oversized piece, use router to trim

NOTES:

BILL OF MATERIAL INSTRUCTIONS

In this phase of the competition you will have to look at Sheets 3, 4 & 5.
You will have to calculate some dimensions while others are given.
This portion of the competition is worth 75 of 1000 points.
ALL DIMENSIONS HAVE A ± 1/32" TOLERANCE

11/28/17

SkillsUSA CALIFORNIA

CABINETMAKING

BILL OF MATERIALS

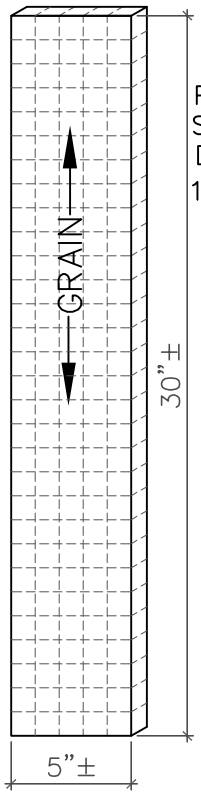
DATE: 2018

JOB #: CM

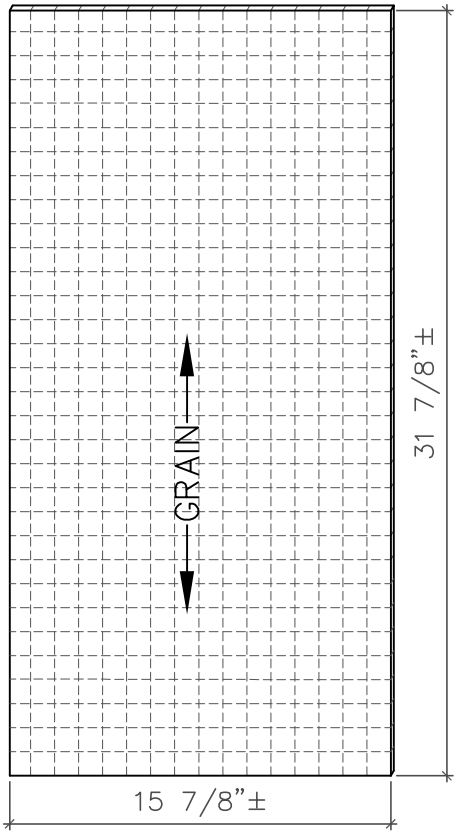
DRAWN BY: AK

SCALE: NTS

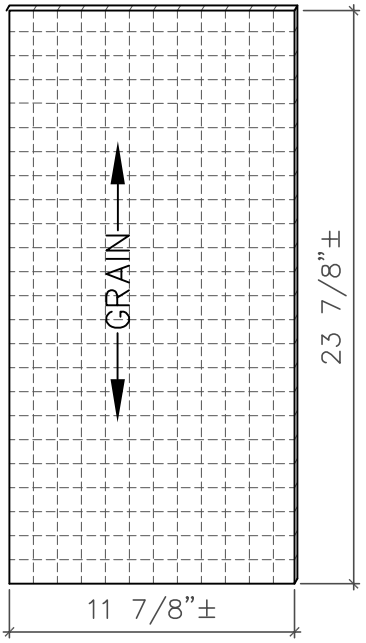
DWG. NO. 1



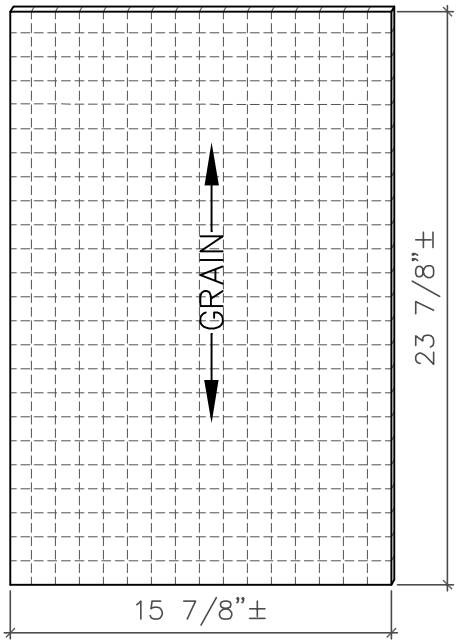
—YOU WILL RECEIVE ONE PIECE OF SOLID STOCK FOR THE DRAWER FRONT
1 @ ¾" x 5"± x 30"±

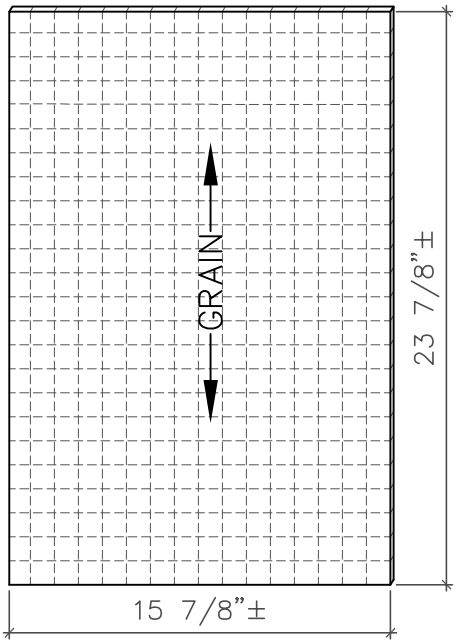


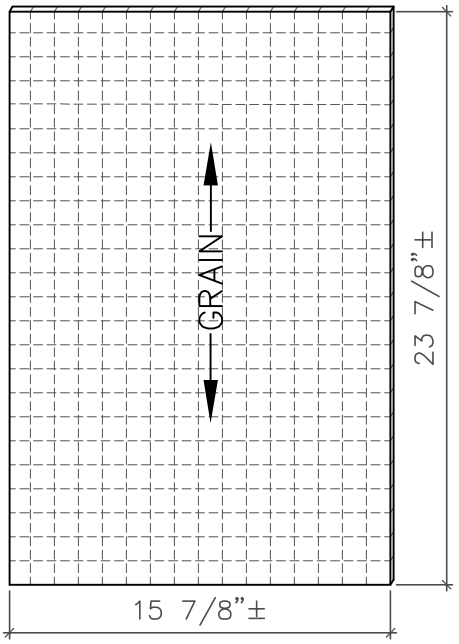
—YOU WILL RECEIVE ONE PIECE OF SHEET STOCK FOR THE CABINET ENDS
1 @ ¾" x 15 7/8"± x 31 7/8"±



—YOU WILL RECEIVE ONE PIECE OF SHEET STOCK FOR THE FRENCH CLEAT 1 @ ¾" x 11 7/8"± x 23 7/8"±







—YOU WILL RECEIVE THREE PIECES OF SHEET STOCK FOR THE CABINET TOP, FIXED SHELF, AND BACK
3 @ ¾" x 15 7/8"± x 23 7/8"±

MATERIAL LAYOUT INSTRUCTIONS

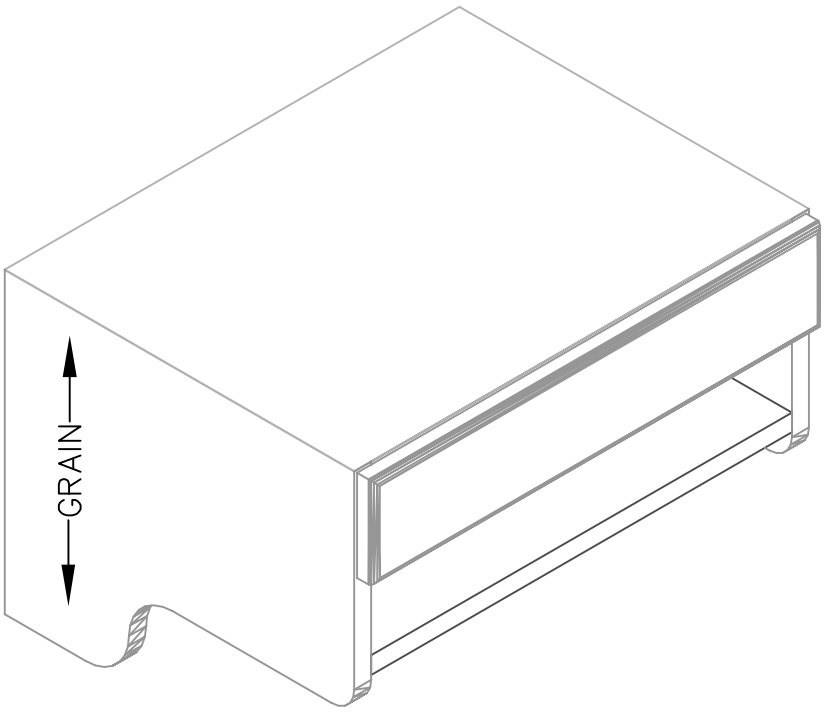
Once you've completed your Bill of Materials, lay out your parts on the corresponding material by drawing lines vertically and horizontally. This portion of the competition is worth 75 of 1000 points. Note: Each square is scaled to a 1" square. 11/28/17

SkillsUSA CALIFORNIA

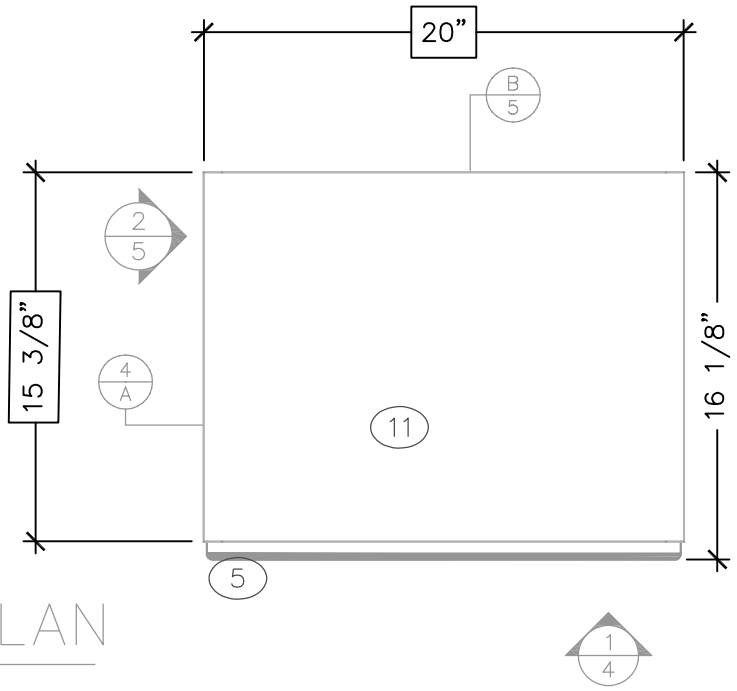
CABINETMAKING

MATERIAL LAYOUT

DATE: 2018	JOB #: CM
DRAWN BY: AK	SCALE: NTS
DWG. NO. 2	



WALL CABINET
ISOMETRIC: NTS



PLAN

SCALE: 1–1/2”=1’–0”

1
4

CABINET - INSTRUCTIONS

In this part of the contest you will take your sheet stock and cut it to make the Top, Fixed Shelf, Back, Sides, Drawer Box, Drawer Front, and French Cleat of your cabinet. Refer to page 2 - Material Layout or page 8 - Drawer Box Details, to determine which pieces of sheet stock to use for each cabinet part.

Use a biscuit joiner to insert 2-3 biscuits into the appropriate edge or side to attach each cabinet part.

Use wood glue with pocket screws, finish nails, or clamps to assemble your cabinet Top, Fixed Shelf, Back, and Ends.

Use wood glue with either a nail gun or finish nails to construct your Drawer Box (see details on page 8). Use screws to attach the Slides to the Drawer Box and the interior of the Cabinet. Attach the Drawer Front using 2 screws with oversized heads for adjustments.

Use spray adhesive to laminate the HPL to the cabinet top. The piece of laminate should cover the seams on top and be slightly larger in size than the top of the assembled cabinet. Spray the adhesive onto the cabinet top and on the laminate. Let the adhesive dry for about 3 minutes before sticking the surfaces together. Use a roller to apply pressure to the laminate. Then use a trim router to remove the excess laminate. No edging required.

Attach 2 small coat hooks beneath the Fixed Shelf.

This component will be judged based on 765 points remaining from 1,000 max points available, based on measurements, machine skills, safety, neatness, completed product and finished product.

ALL DIMENSIONS HAVE A ± $\frac{1}{32}$" TOLERANCE

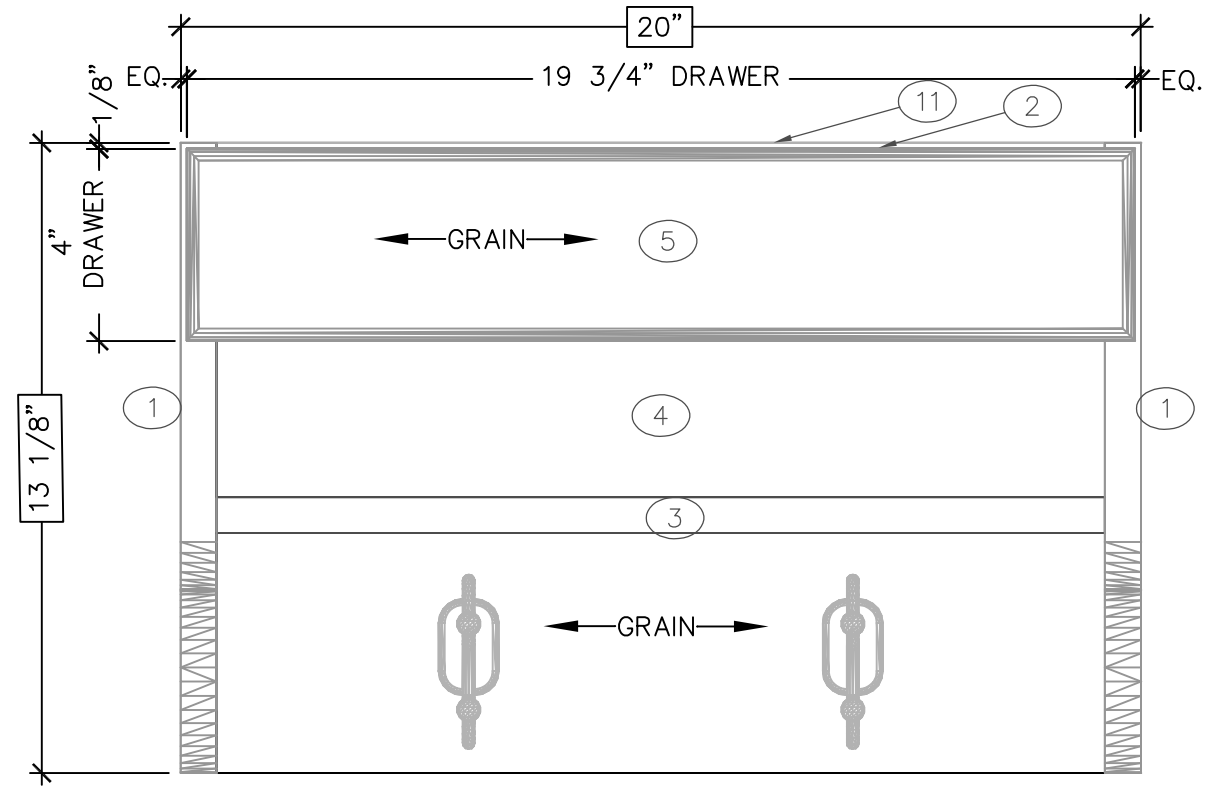
11/28/17

SkillsUSA CALIFORNIA

CABINETMAKING

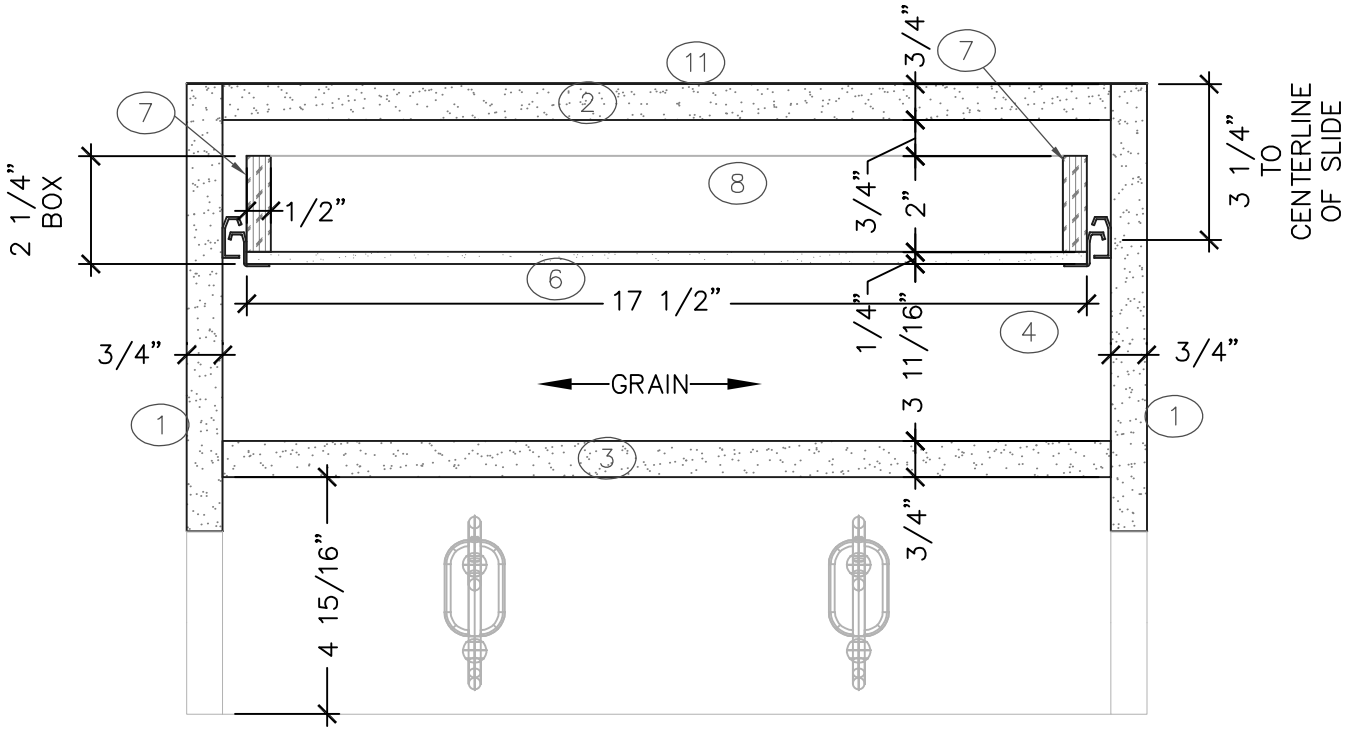
PLAN VIEW
AND ISOMETRIC VIEW

DATE: 2018	JOB #: CM
DRAWN BY: AK	SCALE: NTS
DWG. NO. 3	



1 ELEVATION

SCALE: 3"=1'-0"



A LONGIT SECTION

SCALE: 3"=1'-0"

11/28/17

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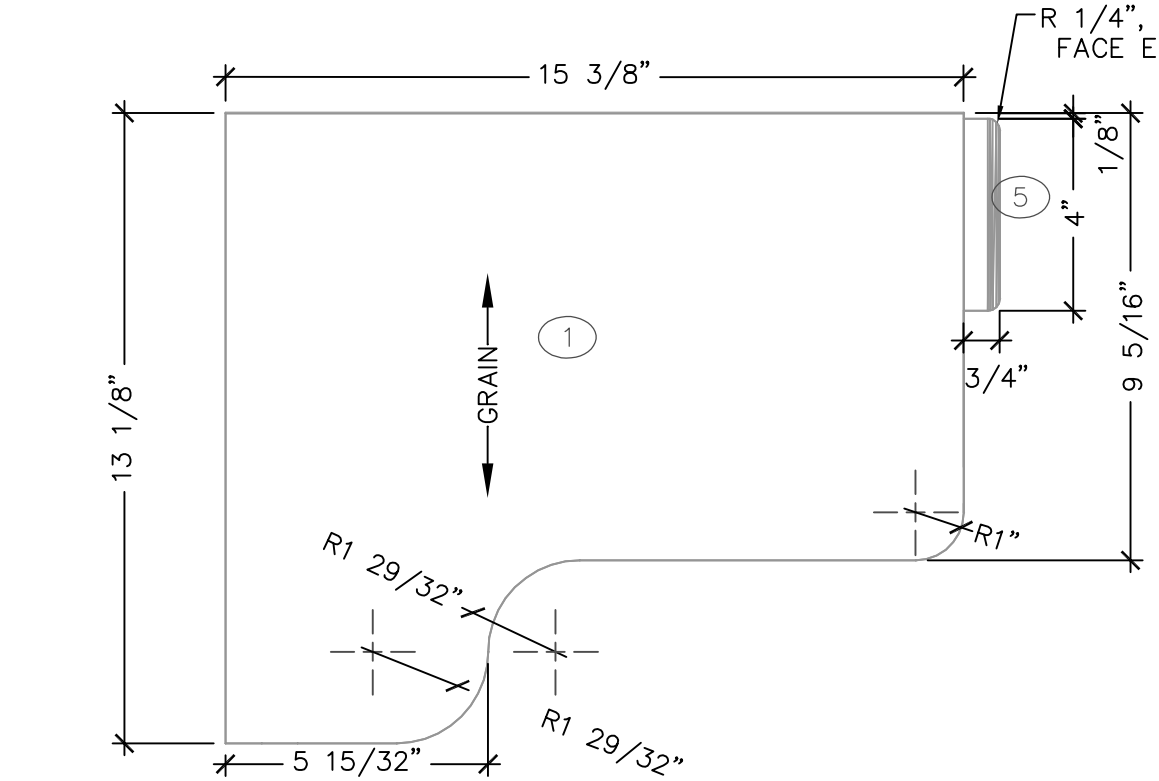
CABINETMAKING

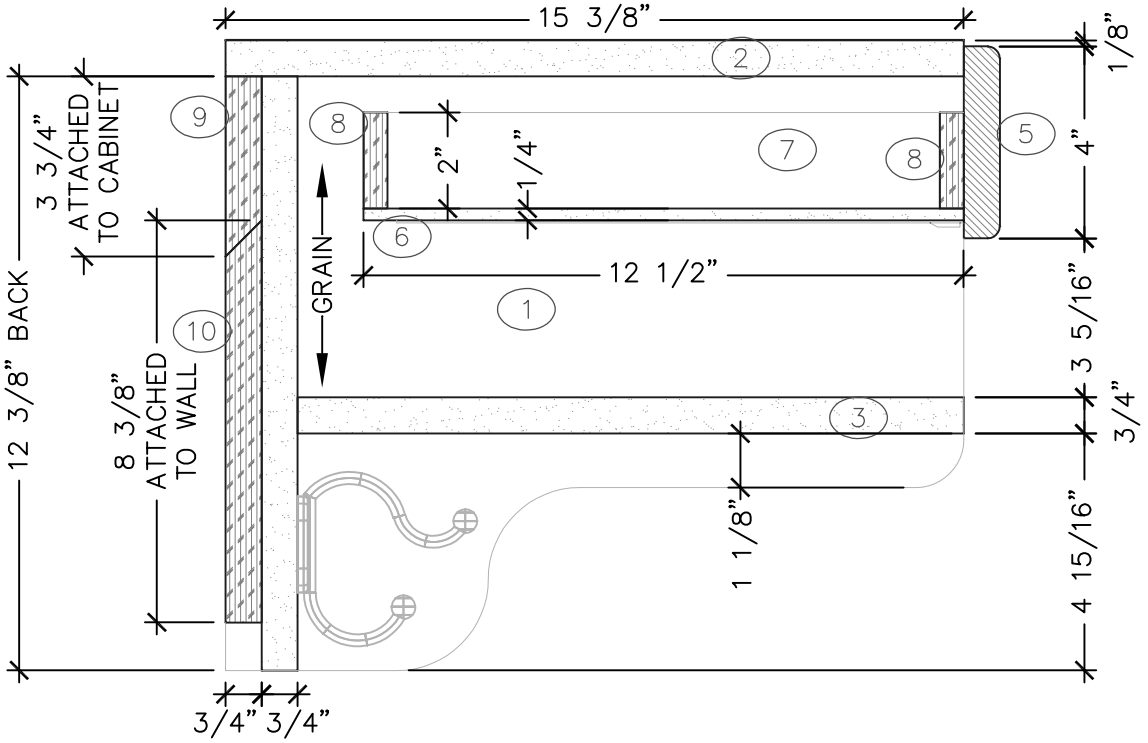
FRONT VIEW

DATE: 2018	JOB #: CM
DRAWN BY: AK	SCALE: NTS
DWG. NO. 4	



2 ELEVATION

SCALE: 3"=1'-0"



B VERT SECTION

SCALE: 3"=1'-0"

11/28/17

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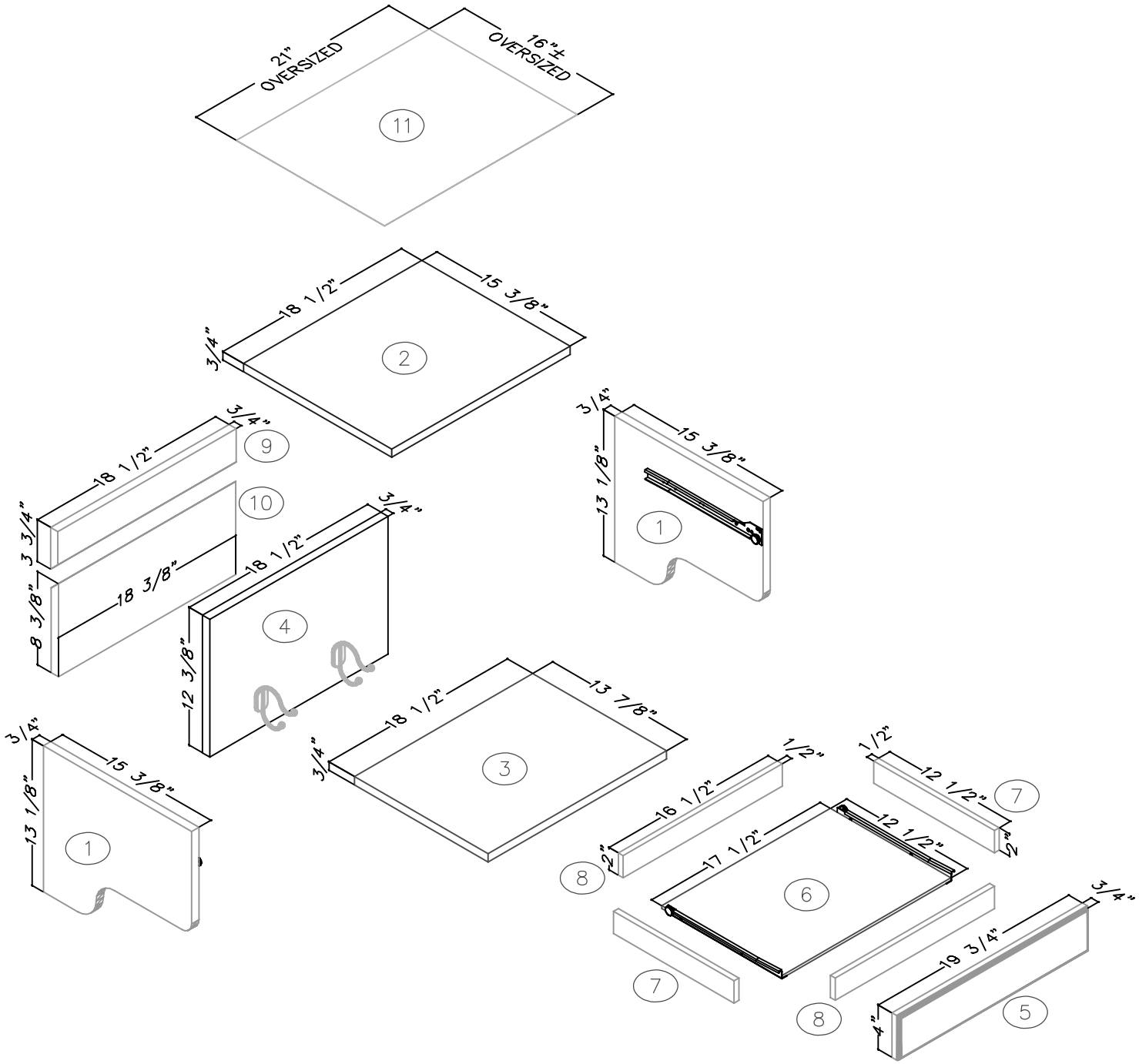
CABINETMAKING

FRONT VIEW

DATE: 2018	JOB #: CM
DRAWN BY: AK	SCALE: NTS
DWG. NO. 5	

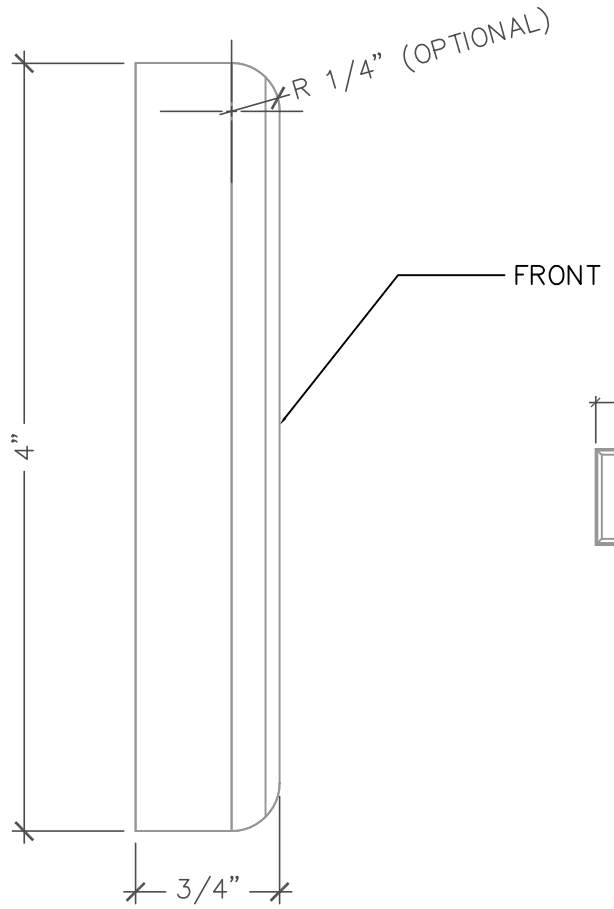


EXPLODED VIEW

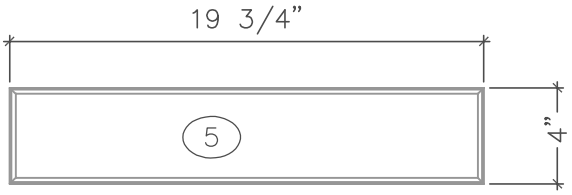
SCALE: NTS

11/28/17

SkillsUSA CALIFORNIA	CABINETMAKING EXPLODED VIEW	DATE: 2018	JOB #: CM
		DRAWN BY: AK	SCALE: NTS
		DWG. NO. 6	



3 ELEVATION
SCALE: FULL



4 ELEVATION
SCALE: FULL

–YOU WILL RECEIVE ONE PIECE OF SOLID STOCK
1 @ $\frac{3}{4}$" x 5"± x 30"±

–RIP & CROSS CUT TO MAKE THE DRAWER FRONT.

–ATTACH THE DRAWER FRONT TO THE DRAWER BOX USING (2) DRAWER FRONT SCREWS (PROVIDED)

DRAWER FRONT - INSTRUCTIONS

**In this part of the contest you will take your piece of solid stock and cut it to make the Drawer Front.
Once your Drawer Front is cut, proceed to route a profile to the front perimeter of your part.
Depending on your Region or what may be available, the profiled router bit
may be a round over, chamfer or a detailed profile bit with bearing.
Attach the drawer front to the drawer box using (2) drawer front screws (provided).
This component will be judged based on 765 points remaining from 1,000 max points available,
based on measurements, machine skills, safety, neatness, completed product and finished product.**

ALL DIMENSIONS HAVE A ± $\frac{1}{32}$" TOLERANCE

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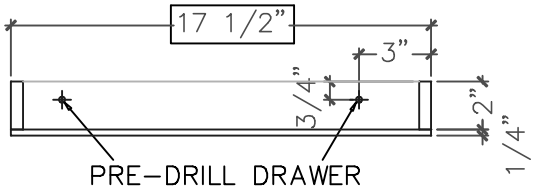
CABINETMAKING

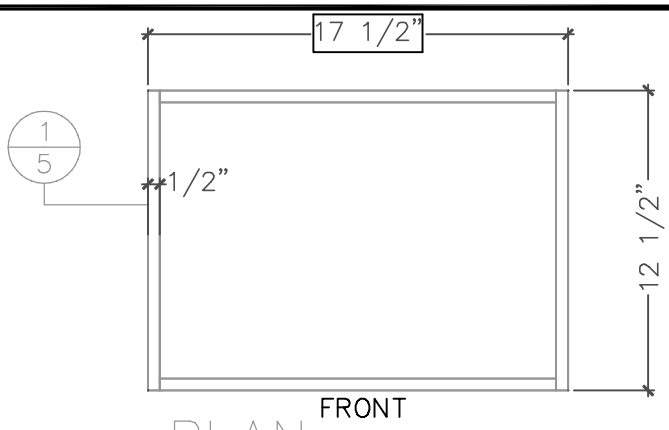
DRAWER FRONT

DATE: 2018	JOB #: CM
DRAWN BY: AK	SCALE: NTS
DWG. NO. 7	



1 VERT SECTION

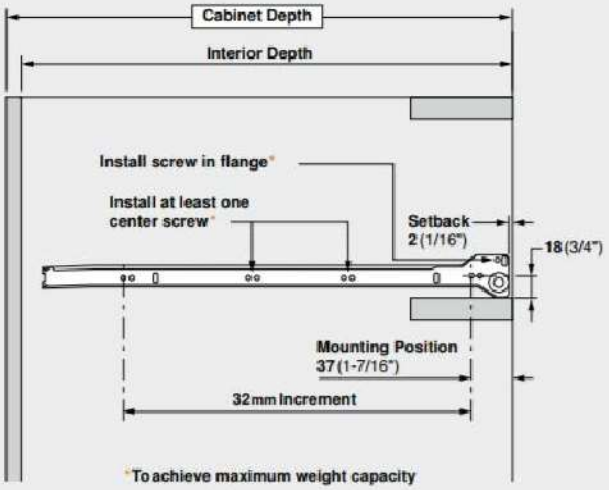
SCALE: 1"=1'-0"

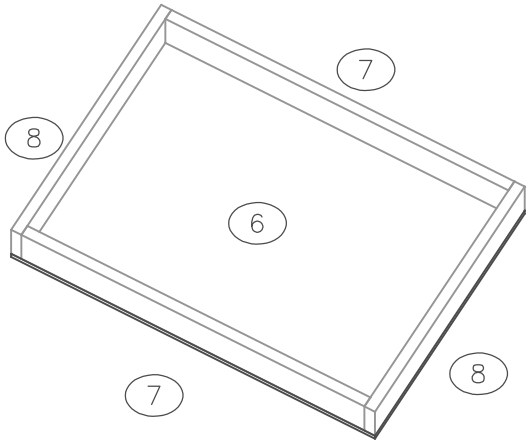


PLAN

SCALE: 1-1/2"=1'-0"

Panel Cabinet Installation

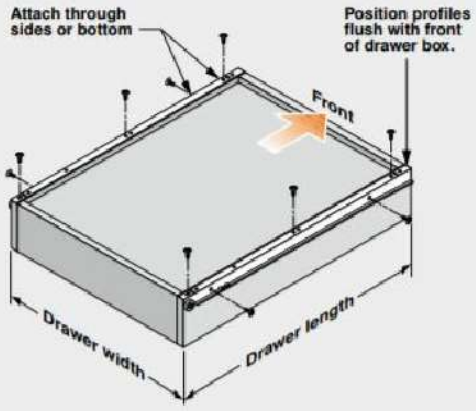




ISOMETRIC

SCALE: 1-1/2"=1'-0"

Drawer Profile Mounting



-YOU WILL RECEIVE THE FOLLOWING,
SHEET STOCK- 1 @ $\frac{1}{4}$" x 16"± x 19 $\frac{3}{16}$"±
SHEET STOCK- 2 @ $\frac{1}{2}$" x 2" x 48"±
-RIP & CROSS CUT TO MAKE THE DRAWER BOTTOM
-CUT DRAWER SIDES TO LENGTH
- CUT DRAWER SUBFRONT AND BACK TO LENGTH
-PRE-DRILL DRAWER BOX SUBFRONT FOR SCREWS

DRAWER BOX - INSTRUCTIONS

In this part of the contest you will take your drawer stock and a piece of $\frac{1}{4}$" sheet stock to cut your component parts to make the Drawer Box. This component will be judged based on 765 points remaining from 1,000 max points available, based on measurements, machine skills, safety, neatness, completed product and finished product.

ALL DIMENSIONS HAVE A ± $\frac{1}{32}$" TOLERANCE

11/28/17

SkillsUSA CALIFORNIA

CABINETMAKING

DRAWER BOX

DATE: 2018	JOB #: CM
DRAWN BY: AK	SCALE: NTS
DWG. NO. 8	