

2019 MICHIGAN SKILLS USA CHAMPIONSHIPS

glasses) with side shields or safety goggles that meet OSHA Z87.1.

WELDING TASKS & MATERIAL



Purpose:

To evaluate each contestant's preparation for employment and recognize outstanding performance

HIGH SCHOOL:

First, refer to General Regulations.

General:

CONTEST LOCATION:

M-TEC Tassell Center
622 Godfrey Ave SW
Grand Rapids, MI, US
(616) 234-3800
<http://cms.grcc.edu/node/2006>

RESUME:

Each student must submit a one-page printed resume before the contest start at the contest site (present to contest coordinator, not judges). The resume is no longer submitted online. This is the only time that resumes can be turned in. Failure to do so will result in a 10 point penalty.

Clothing Requirement

1. Required 100 percent cotton, fire resistant work pants, protective welder's clothing including welder's hat or skullcap, leather cape with sleeves or fire resistant welding coat or sleeves, leather gauntlet welding gloves (for other than GTAW), leather welding gloves for GTAW, high-top (6" minimum height) leather shoes and welder's helmet. All outer clothing must be fire-resistant. Industrial quality safety glasses (No tinted safety

Eligibility

Open to active Skills USA-VICA members enrolled in programs with welding as the occupational objective.

Equipment and Materials:

1. Supplied by the technical committee:
 1. All necessary welding equipment and materials
 2. All instructions and procedure sheets with drawings
 3. All necessary information and furnishings for judges and technical committee
2. Supplied by the **contestant**:
 - a. Hearing and/or ear protection
 - b. Welding helmet with appropriate filter plate/lens and protective cover plate/lens for the arc process(s) being performed.
 - c. Welding helmet/face shield/goggles with appropriate #5/#7 filter plate/lens and protective cover plate/lens for OFC. (Safety glasses must be able to be worn underneath.)
 - d. No external filler metals.
 - e. Spare spatter and filter lenses/plates for arc welding helmet and oxyacetylene goggles
 - f. Calculator
 - g. Lead pencil and/or ballpoint pen
 - h. Soap stone with holder
 - i. Scribe with magnet
 - j. Combination square set
 - k. 10-foot steel tape measure
 - l. Fillet weld gauge
 - m. 16-ounce ball peen hammer
 - n. Center punch
 - o. 6-inch side cutting pliers or diagonal cutting pliers
 - p. 6-inch standard slip lock pliers
 - q. Chipping hammer with or without wire brush
 - r. Stainless steel wire brush
 - s. Tungsten GTAW 3/32 or 1/8 electrodes for DC- + AC welding – pre-sharpened (can be re-sharpened). Contestant may bring multiple Tungsten.
 - t. Flat or Half Round, Bastard cut type- Metal Hand File- 12" - 14" length.
 - u. 2 – vise grip type pliers
 - v. 1 page resume

w. No gas lens allowed!

Specific Rules for Contest Participants

1. Contestants must correctly use the welding equipment during the contest. The contest chairman or contest coordinator may stop a contestant at any section of the contest if they deem a contestant's manner to be hazardous to either themselves or others. Such stoppage shall disqualify the participant for that section of the contest. If the contestant is warned a second time, he or she will be disqualified as a contest participant.
2. Contestants will be assigned a contest number for use during the welding contest. The contest judges will know the contestants by their assigned number only.
3. While the contest is in progress, there shall be no communication between the contestants or between the contestants and anyone else except as directed by a judge, contest coordinator or contest chairperson.
4. The welding contest will be of a performance nature.
5. All terms and definitions and welding symbols will be in accordance with the current editions of ANSI/AWSA3.0 (Terms and Definitions) and ANSI/AWSA2.4 (Symbols).
6. Time limits will be established on the contest procedure sheets for all segments of the test.
7. Evaluation of the completed project will be judged visually. Nondestructive and/or destructive tests may be used to complete the project evaluation.
8. Welding and cutting operation instructions will be specified in drawings and procedure sheets provided to the contestants.
9. Drawings/prints will be provided at the day of competition. Drawings must be returned in after the project is welded complete.
10. Reference – base metal may include, but is not limited to Mild Steel, Stainless Steel, and Aluminum.
11. No cell phones or cameras allowed in the welding lab.

Scope of the Contest

1. Contestants will demonstrate their ability to perform jobs and skills selected from the following list of competencies as determined by the Skills USA Championships Technical Committee.
 - a. **Safety**
 1. Demonstrate personal safety.
 2. Demonstrate general shop safety.
 3. Demonstrate gas, electrical and chemical safety.
 4. Demonstrate knowledge of proper actions to be taken in an emergency.
 - b. **Measurements**
 1. Identify basic metal working tools used in measuring.
 2. Use visual measuring tools to accurate of 1/32 of an inch.
 3. Employ the components of a combination square set.
 4. Use layout and marking tools as required.
 - c. **Blueprint Reading**
 1. Use information found in the information block of the drawing.
 2. Read and understand three-dimensional drawings.
 3. Identify the basic views used in blueprints including assembly, detail and fit-up drawings.
 4. Identify common types of lines, abbreviations and symbols in accordance with national drawing standards –ANSI.
 5. Identify basic welding symbols and components of a symbol (such as arrow, reference line, tail, size or length) in accordance with the national welding symbols standards – AWS.
 - d. **Shielded Metal Arc Welding (SMAW)**
 1. **I/O** Demonstrate safety procedures for SMAW.
 2. **I/O** Demonstrate the ability to correctly set up SMAW power sources, related welding equipment, and do basic process and equipment troubleshooting.
 3. **I/O** Correctly identify base metal prior to welding.
 4. **I/O** Set up and shut down equipment.

I = Individual Competition

O = Overall Competition

5. **I/O** Select the correct type of filler metal and size of electrode based on the base material (1/8-inch to 1/2" thickness).
 6. **I/O** Prepare base material for welding.
 7. **I/O** Start, stop and restart stringer beads on the base material in the flat, horizontal, vertical up and down and overhead positions.
 8. **I/O** Weld a lap joint with a single pass and multi pass, fillet weld on the base material in flat, horizontal, vertical up and down and overhead positions.
 9. **I/O** Weld a T-joint with a single pass, fillet weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 10. **I/O** Weld a T-joint with a multiple pass, fillet weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 11. **I/O** Weld a butt joint with a single pass, square groove weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 12. **I/O** Weld a butt joint with a single pass, V-groove weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 13. **I/O** Weld a butt joint with a partial joint penetration, single pass, double V-groove weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 14. **I/O** Weld a butt joint with a multiple pass, double groove weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 15. **O** Weld 2 inch through 6 inch diameter, schedule 40, pipe, single/multiple pass V-groove weld in the 2G position. Also, fillet weld in the 2F and 5F positions.
 16. **I/O** Weld a plug weld in the flat position.
- e. Gas Metal Arc Welding (GMAW)**
1. **I/O** Demonstrate correct safety procedures for GMAW.
 2. **I/O** Demonstrate ability to correctly set up GMAW power sources, related welding equipment, and do basic process and equipment troubleshooting.
 3. **I/O** Correctly identify base metal prior to welding.
 4. **I/O** Set up and shut down equipment.
 5. **I/O** For the electrode being used, be able to select correct, wire feed speed and voltage based on the material (14ga to 3/8-inch thickness).
6. **I/O** Prepare the base material for welding.
 7. **I/O** Start, stop and restart stringer beads on the base material in the flat, horizontal, vertical up and down and overhead positions.
 8. **I/O** Weld a lap joint with a single pass and multi pass fillet weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 9. **I/O** Weld a T-joint with a single pass and multi pass fillet weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 10. **I/O** Weld a butt joint with a single pass, square groove weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 11. **I/O** Weld a butt joint with a single pass and multi pass V-groove weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 12. **I/O** Weld a butt joint with complete joint penetration, multiple pass, double V-groove weld on the base material in the flat, horizontal, vertical up and down and overhead positions.
 13. **O** Weld 2-inch through 6-inch diameter schedule 40, and thinner carbon steel pipe, single/multiple pass V-groove weld in the 2G position. Also, fillet welds in the 2F and 5F positions.
 14. **I/O** Weld a plug weld in the flat position.
- f. Gas Tungsten Arc Welding (GTAW)**
1. **I/O** Demonstrate safety procedures for GTAW.
 2. **I/O** Demonstrate ability to correctly set up GTAW power sources, related welding equipment, and do basic process and equipment troubleshooting.
 3. **I/O** Correctly identify base metal prior to welding.
 4. **I/O** Set up and shut down equipment for welding of the base material
 5. **I/O** Select the correct size and type of tungsten and/or filler material for the base material (1/16-inch to 1/4-inch thickness).
 6. **I/O** Prepare the base material for welding.
 7. **I/O** Start, stop and restart stringer beads on the base material in the flat, horizontal, vertical up and overhead positions.
 8. **I/O** Weld a lap joint with a single pass, fillet weld on the base material in flat, horizontal, vertical up, and overhead positions.

I = Individual Competition

O = Overall Competition

9. **I/O** Weld a T-joint with a single pass fillet weld on the base material in the flat, horizontal, vertical up, and overhead positions.
10. **I/O** Weld a butt joint with a single pass, square groove on the base material in the flat, horizontal, vertical up, and overhead positions.
11. **I/O** Weld a butt joint with a single pass and multi pass, V-groove weld on the base material in the flat, horizontal, vertical up, and overhead positions.
12. **I/O** Weld a butt joint with a multiple pass, V-groove weld on the base material in the flat, horizontal, vertical up, and overhead positions.
13. **I/O** Weld a butt joint with complete joint penetration, multiple pass, double V-groove weld on the base material in the flat, horizontal, vertical up, and overhead positions.
14. **O** Weld 2-inch through 4-inch diameter, schedule 40 and thinner, pipe, single/multiple pass V-groove weld in the 2G position. Also, fillet welds in the 2F and 5F positions.

g. Oxygen Fuel Cutting (OFC)

1. **I/O** Demonstrate safety procedures for OFC.
2. **I/O** demonstrates ability to correctly set up OAC equipment for cutting and do basic process troubleshooting.
3. **I/O** correctly identifies base metal prior to cutting.
4. **I/O** Set up and shut down equipment for cutting carbon steel plate.
5. **I/O** Select correct tip size and gas pressure for cutting carbon steel plate (1/4-inch to 1/2-inch thickness).
6. **I/O** Prepare carbon steel for cutting.
7. **I/O** Cutting operations will be specified in drawings and procedure sheets provided to the contestants.
8. **I/O** Properly light, adjust the flame, and shut down the OFC equipment.
9. **I/O** Use a straight edge and soaps stone for laying out the prescribed pattern.
10. **I/O** Make a square cut on carbon steel in flat, horizontal and vertical positions.
11. **I/O** Make a bevel cut (45-degree angle) on carbon steel plate in the flat, horizontal and vertical positions.
12. **I/O** Pierce a hole in carbon steel in the flat, horizontal and vertical position.
13. **I/O** Make a cut on carbon steel pipe in flat, horizontal, and vertical positions.
14. **No cutting guides allowed**

h. Oxygen Acetylene Welding

1. **I** Demonstrate the ability to correctly set up OAW equipment for gas welding and do basic process troubleshooting.
2. **I** Correctly identify base metal prior to welding.
3. **I** Select correct tip size and gas pressures for joining carbon steel plate (1/16 inch to 1/4 inch thickness).
4. **I** Demonstrate the ability to weld a butt joint in flat, horizontal, vertical or overhead positions.
5. **I** Demonstrate the ability to weld a fillet weld in flat, horizontal, vertical or overhead positions.

2. Judging Criteria

The contestant will be evaluated on the competencies based on the following rating system. The technical committee according to the difficulty of the assigned task will establish point values for each item. Final judging of the welded projects will be evaluated using the following:

a. Visual Inspection Criteria:

1. Dimensional accuracy, including distortion. Reference the notes concerning the allowable tolerances on the print
2. Conformity to drawing requirements including determination of whether all welds have been completed and whether the finished welds conform to the required size and contour.
3. Visual examination of the welds for:
 - i. Cracks
 - ii. Undercut
 - iii. Overlap
 - iv. Crater fill
 - v. Spatter
 - vi. Arc strikes
 - vii. Porosity
 - viii. Convexity and reinforcement
 - ix. Tungsten inclusions
 - x. Inadequate joint penetration
 - xi. Surface irregularities
 - xii. Other irregularities

b. Welding equipment may be obtained from a variety of manufacturers and may include transformers, rectifiers and/or inverters.

c. Filler metals will be compatible with the metals being welded and will be detailed on the contest procedure sheet. Instructions to the contestants will define more specifically the filler metals that may be used. Below is a suggested list of electrodes and filler metal types and sizes:

1. Shielded Metal Arc
 - i. E 6010 – 1/8-inch diameter

I = Individual Competition

O = Overall Competition

- ii. E7018 – 3/32-inch, 1/8 inch diameter
2. Gas Metal Arc
 - i. E70S-3 (or -6) .035 - .045 diameter (75% Ar 25% CO2 Shielding Gas)
 3. Gas Tungsten Arc
 - i. 3/32-inch, 1/8-inch diameter
 - ii. ER70-2 – 1/16-inch – 1/8-inch diameter
 - iii. ER4043 – 3/32-inch and 1/8-inch diameter
 - iv. ER308L – 1/16-inch, 3/32-inch diameter
 4. Oxyacetylene Welding
 - i. RG45 – 3/32-inch – 1/8-inch diameter
- d. Cutting and Welding Tip Sizes:
 1. Oxyacetylene Cutting
 - i. Cutting tip sizes: 0 – 1 (Victor or Harris equipment)
 - ii. Welding tip sizes: 0 – 3 (Victor or Harris equipment)
 - iii. Equipment
 - (i) CC/CV machines
 - (ii) GMAW – CV only
 - (iii) SMAW – CC
 - (iv) GTAW– CC

SkillsUSA Michigan Welding Competition
High School: April 5-6, 2019, M-TEC Tassell, Grand Rapids

The following is the group meeting times and places for Secondary Welders at M-TEC Tassell Welding Lab on Friday and Saturday, April 5 & 6, 2019.

- **April 5 – Fri. – Overall Contestants Only. 4:00pm @ M-TEC Tassell Welding Lab.**
Tack overall projects – All 18 overall contestants need to be at M-TEC Tassell welding lab by 4:00pm. Contestants are responsible for their own transportation to and from M-TEC Tassel on Friday. Contestants will be given their prints; they will tack their projects together and begin welding between 4:00 and 6:30pm on Friday evening. (You will finish welding your projects on Saturday). Contest for Overall starts at 4:00pm on Friday night.
Shop tour – 4:00 to 4:15
Briefing – 4:15 to 4:30
Welding – 4:30 to 6:30

Anyone who is not on time forfeits that time allotment.

Saturday April 6, 2019 - Performance Test Schedule

Time	Location	Description
8:00am – 8:20am	M-TEC Lobby	Introduction
8:20am – 8:30am	Welding Lab	Welding Lab Tour
8:30am – 11:40am	Welding Lab	Overall Welding Contestants
8:30am – 8:40am	MTEC Room TBA	Oxy Fuel Introduction
8:40am – 10:40am	Welding Lab	Oxy Fuel Contestants
11:20am – 11:40am	MTEC Room TBA	GMAW Introduction
11:40am – 1:10pm	Welding Lab	GMAW Contestants
11:40am – 12:00pm	MTEC Room TBA	GTAW Introduction
12:00pm – 2:00pm	Welding Lab	GTAW Contestants
1:10pm – 1:30pm	MTEC Room TBA	SMAW Introduction
1:30pm – 3:00pm	Welding Lab	SMAW Contestants

I = Individual Competition
 O = Overall Competition

Note:

Your Contest numbers must be visible at all times and will be checked at your scheduled contestant's times. If you miss the time of your contest you might not be allowed to compete in the event.

- **Special Notes to Overall Contestants:**

- This year the overall contestants will start their projects on Friday evening. Please arrive no later than 4:00 pm to the M-TEC Tassell Welding Lab.

**Written Test Schedule
(Both Skills Knowledge and Welding Knowledge Test)**

Saturday April 6, 2019

GMAW – 9:00am – 10:00 am Written Test

GTAW - 9:00am – 10:00 am Written Test

SMAW – 10:00am – 11:00 am Written Test

Overall – 11:45am – 1:00 pm - Written Test – (after weld test)

Oxyacetyene 12:15pm – 1:00 pm Written Test – (after weld test)

Overall Contestant Job Interviews 1:30 pm

All competitors must have 1 page resume.

Revised 12/21/18

COLLEGE/POSTSECONDARY:

Skills USA Michigan College Postsecondary Welding Competition

Note: Washtenaw Community College Reserves the right to alter this list at any time.

Purpose:

To evaluate each contestant's preparation for employment and recognize outstanding performance

Contest Date: March 29, 2019

Contest Location:

Washtenaw Community College Welding Lab
4800 East Huron River Drive
Ann Arbor MI, 48104

Resume:

Each student must submit a one-page printed resume before the contest start during competitor orientation. This is the only time that resumes can be turned in. Failure to do so will result in a 10-point penalty.

Clothing Requirement:

- 100% Cotton or denim clothing
- Welding jacket
- All leather, above ankle (6" minimum height) work boots. Steel toe not required.
- All leather, gauntlet style welding gloves
- Safety Glasses (Must meet ANSI Z87.1)

Eligibility:

Open to active Skills USA members enrolled in programs with welding as the occupational objective.

Equipment and Materials:

1. Supplied by the College
 1. All Necessary welding equipment and materials.
 2. All Instructions and procedure sheets with drawings
 3. All necessary information and furnishing for judges and technical committee
2. Supplied by the contestant:
 1. Hearing protection
 2. Welding helmet with appropriate filter plate for the welding or cutting processes being performed.
 3. No filler materials are to be brought to the competition site by the competitor.
 4. Calculator
 5. Pencil and/or ball point pen.
 6. Soap Stone
 7. Scribe with magnet
 8. Combination Square set
 9. Ruler or Measuring Tape

I = Individual Competition

O = Overall Competition

10. Center punch
11. Ball peen hammer
12. 6-inch side cutting pliers or diagonal cutting pliers
13. 6-inch standard slip lock pliers
14. Chipping hammer
15. Stainless steel wire brush
16. Tungsten GTAW 3/32 or 1/8 electrodes for DC- + AC welding – pre-sharpened (can be re-sharpened).
Contestant may bring multiple Tungsten. College will supply 3/32” tungsten.
17. Vice Grip pliers
18. Half Round File
19. 1-page resume
20. No Electric or pneumatic grinders allowed.

3. **Specific Rules for contest participants.**

1. Contestants must be able to safely and properly use the welding equipment provided by the college. Contest floor judges may stop a competitor at any time if they feel the competitor is using the equipment incorrectly, or in a manor deemed to be unsafe by the floor judge. A stop of this sort will result in a safety violation. This will be reflected as a point deduction for the competitor on the final score sheet.
2. Competitors will be assigned a competitor number. The competition judges will know the competitors by their competitor numbers only.
3. After each competitor enter the orientation room, communication between competitors and between competitors and their instructors shall be prohibited except by permission from the contest supervisor until the competition is complete.
4. All terms and definitions and welding symbols will be in accordance with the current editions of ANSI/AWSA3.0 (Terms and Definitions) and ANSI/AWSA2.4 (Symbols).
5. All aspects of competition must be done within the time limit set by the competition organizer. Failure to complete all aspects of the competition in the allotted time will result in point deductions.
6. All evaluation of completed projects will be done visually, in accordance with the score sheets provided by the competition organizer.
7. All GMAW, SMAW, OFW project will be welded using mild steel. GTAW projects will be welded using Aluminum. Base material thickness may vary.
8. Drawings/prints will be provided at the day of competition. Drawings must be returned in after the project is welded complete.
9. No cell phones or cameras allowed in the welding lab.

4. **Judging Criteria**

Each competitor will be judged based on visual criteria outlined in the scoresheets provided by the competition organizer. The scoring scheme is deductive and based on the difficulty of each graded portion of the weldment. For example, arc strikes on an SMAW project will be weighted less in the overall scoring of the project than the welder’s ability to accurately hit leg sizes in accordance with the weld symbols on the provided blueprints. Each welder will be given a score out of 1000 points. Visual examination of welds will include assessment of the following...

- Undercut
- Cracks
- Crater fill
- Spatter/Smoke
- Arc Strikes
- Overlap
- Weld face reinforcement
- Weld root reinforcement

I = Individual Competition

O = Overall Competition

- Inadequate Penetration
- Touch Downs
- Porosity
- Weld size
- Final Assembly of projects in accordance with blueprints
- Welders ability to complete the project in the allotted time.

5. **Infrastructure list (Equipment and Consumables provided by the College)**

1. **GTAW** – Miller Dynasty 350
 - 3/32” EWCe-2 (2% Ceriated Tungsten)
 - #6 Non-Diffused Cup
 - 100% Argon Gas
 - 1/16”, 1/8” 4043 Filler rods
2. **SMAW** – Miller XMT 304/350 or Lincoln Power wave S500
 - 1/8” Lincoln Excalibur E7018 Electrodes
 - 1/8” Lincoln E6010 5P+ Electrodes
3. **GMAW-S (only)** – Miller XMT 304/350 70 Series Dual Wire Feed or Lincoln Power wave S500 with Power Feed 84 Dual wire feed system.
 - Super Arc L56 .035 ER70S-5 Wire
 - 75% Argon 25% C02 Gas
4. **OFW** – Victor Welding Torches
 - Size 0 and Size 1 Welding tips
 - RG60 3/32 filler rod
5. **OFC** – Victor Cutting Torches
 - Size 0 and Size 1 Cutting Tips

6. **Agenda**

1. Detailed agendas will be sent to advisors one week prior to the scheduled competition date by the competition organizer.

SCORECARD Welding

Items Evaluated	Possible Points	Contestant Number					
GMAW (Gas Metal Arc Welding)	220						
GTAW (Gas Tungsten Arc Welding)	200						
OFC (Oxy Fuel Cutting)	100						
SMAW (Shielded Metal Arc Welding)	220						
Interview	60						
Visual Inspection Workstation	100						
Weld Written Test	100						
Résumé Penalty	0 or -10 only						
Clothing Penalty	0 to -50						
Safety Violation FCAW	-30						
Safety Violation GMAW-P	-30						
Safety Violation GTAW	-30						
Safety Violation OFC	-30						
Safety Violation SMAW	-30						
Total Possible Points	1000						

Date: _____

Judges' Signatures: _____

Competitor Number	
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CPS GMAW

Max Mark	Mark Awarded
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Project is free from wire whiskers (Each Wire whiskers equals one defect)				
1 defect = 40 points	3 defects = 20 points	5 or greater= 0 points	50	
2 defects = 30 points	4 defects = 10 points			
Project is free of Smoke and spatter 99% free of both.				
Yes/no			50	
Project is free of arc strikes				
1 defect = 40 points	3 defects = 20 points	5 defects = 0 points	50	
2 defects = 30 points	4 defects = 10 points			
Weld Joints are free of undercut. Greater in depth than 1/32" equals one defect (Less than or equal to 1/8" in length = one defect)				
1 defect = 130 points	3 defects = 90 points	5 defects = 50 points	150	
2 defects = 110 points	4 defects = 70 points	6 or greater = 0 points		
Weld craters are properly filled through cross section. Yes/no				
1 defect = 50 points	3+ defects = 0 points		100	
2 defects = 30 points				
All welds free from Porosity (Less than or equal to 1/4" Dia. Cluster in any direction = one defect) (Any one more exceeding 3/32" in diameter = one defect)				
1 defect = 130 points	3 defects = 90 points	5 defects = 50 points	150	
2 defects = 110 points	4 defects = 70 points	6 or greater = 0 points		
Fillet weld legs are in accordance to with specifications (-0+1/16") (Length of defect Less than or equal to 1/8"= one defect)				
1 defect = 130 points	3 defect = 90 points	5 defects = 50 points	150	
2 defect = 110 points	4 defects = 70 points	6 or greater = 0 points		
All butt welds display complete joint penetration (Length of defect Less than or equal to 1/8" = one defect)				
1 defect = 90 points	3 defects = 70 points	5 defects = 50 Points	100	
2 defects = 80 points	4 defects = 60 points	6 or greater = 0 points		
All butt joints display proper face and root reinforcement. (Greater than or equal to 1/8" equals one defect) (Length of defect less than or equal to 1/8" equals one defect)				
1 defect = 90 points	3 defects = 70 points	5 defects = 50 Points	100	

2 defects = 80 points	4 defects = 60 points	6 or greater = 0 points	100	
Correct measurements according to print				
Yes = 50 Points			50	
No= 0 points				
Properly wrapped all corners (Weld continuity and fusion is maintained through the full radius of the corner.)				
Yes = 40 Points			40	
No= 0 points				
Competitor Resume				
Yes = 10 Points			10	
No= 0 points				
Safety violations				
Yes = -50 points			Minus 50	
No= 0			points	

1000	
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Signature Judge 1	
Signature Judge 2	

Competitor Number	
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CPS SMAW

Max Mark	Mark Awarded
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Welds are placed properly according to print (refer to locations of E6010 and E7018 welds as specified by blueprint)				
1 defect = 40 points	3 defects = 20 points	5 or greater = 0 points	50	
2 defects = 30 points	4 defects = 10 points			
Project is free of Smoke and spatter 99% free of both.				
Yes/no			50	
Project is free of arc strikes				
1 defect = 40 points	3 defects = 20 points	5 defects = 0 points	50	
2 defects = 30 points	4 defects = 10 points			
Weld Joints are free of undercut. Greater in depth than 1/32" equals one defect (Less than or equal to 1/8" in length = one defect)				
1 defect = 130 points	3 defects = 90 points	5 defects = 50 points	150	
2 defects = 110 points	4 defects = 70 points	6 or greater = 0 points		
Weld craters are properly filled through cross section. Yes/no				
1 defect = 50 points	3+ defects = 0 points		100	
2 defects = 30 points				
All welds free from Porosity (Less than or equal to 1/4" Dia. Cluster in any direction = one defect) (Any one more exceeding 3/32" in diameter = one defect)				
1 defect = 130 points	3 defects = 90 points	5 defects = 50 points	150	
2 defects = 110 points	4 defects = 70 points	6 or greater = 0 points		
Fillet weld legs are in accordance to with specifications (-0+1/16") (Length of defect Less than or equal to 1/8"= one defect)				
1 defect = 130 points	3 defect = 90 points	5 defects = 50 points	150	
2 defect = 110 points	4 defects = 70 points	6 or greater = 0 points		
All butt welds display complete joint penetration (Length of defect Less than or equal to 1/8" = one defect)				
1 defect = 90 points	3 defects = 70 points	5 defects = 50 Points	100	
2 defects = 80 points	4 defects = 60 points	6 or greater = 0 points		
All butt joints display proper face and root reinforcement. (Greater than or equal to 1/8" equals one defect) (Length of defect less than or equal to 1/8" equals one defect)				
1 defect = 90 points	3 defects = 70 points	5 defects = 50 Points	100	
2 defects = 80 points	4 defects = 60 points	6 or greater = 0 points		
Correct measurements according to print				
Yes = 50 Points			50	
No = 0 points				
Properly wrapped all corners (Weld continuity and and fusion is maintained through the full radius of the corner.)				
Yes = 40 Points			40	
No = 0 points				
Competitor Resume				
Yes = 10 Points			10	
No = 0 points				
Safety violations				
Yes = -50 points			Minus 50 points	
No = 0				

1000	
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Signature Judge 1	
Signature Judge 2	

Competitor Number	
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CPS Aluminum

			Max Mark	Mark Awarded
Aluminum Project is free from Touchdowns				
1 defect = 130 points	3 defects = 70 points	5 defects = 10 points	150	
2 defects = 100 points	4 defects = 40 points	6 or more defects = 0 points		
Butt welded joints free from underfill. Any Visible discontinuity greater than 1/8" in length = 1 defect.)				
1 defect = 50 points	3+ defects = 0 points		100	
2 defects = 30 points				
Weld Joints are completely welded, and display full craters.				
1 defect = 90 points	3 defects = 70 points	5 defects = 50 Points	100	
2 defects = 80 points	4 defects = 60 points	6 or greater = 0 points		
All Fillet welds that do not call for melt through are free from burn through or melt through (Any indication less than or equal to 1/8" in length = one defect)				
1 defect = 130 points	3 defects = 90 points	5 defects = 50 Points	150	
2 defects = 110 points	4 defects = 70 points	6 or greater = 0 points		
Fillet weld legs are in accordance to specifications (-0+1/16") Length of discontinuity Less than or equal to 1/8" = one defect)				
1 defects = 90 points	3 defects = 50 points	5 defects = 1 Points	100	
2 defects = 70 points	4 defects = 30 points	6 or greater = 0 points		
All welds labled for melt through display full root fusion (Length of defect Less than or equal to 1/8" = one defect)				
1 defect = 150 points	3 defects = 100 points	5 defects = 50 Points	200	
2 defects = 130 points	4 defects = 70 points	6 or greater = 0 points		
All butt joints display proper face and root reinforcement. (Greater than or equal to 3/32" equals one defect) (Length of discontinuity less than or equal to 1/8" equals one defect)				
1 defects = 90 points	3 defects = 70 points	5 defects = 50 Points	100	
2 defects = 80 points	4 defects = 60 points	6 or greater = 0 points		
Correct measurements according to print (Any disconcontinuity greater than or equal to 1/32" = 1 defect)				
1 defect = 60 points	3+ defects = 0		90	
2 defects = 30 points				
Safety violations				
Yes = -5 points			Minus 5 points	
No= 0				
Competitor Resume (Yes/No)				
Yes = 10 points			10	
No= 0 points				
			1000	

Signature Judge 1	
Signature Judge 2	

Competitor Number	
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CPS OFW

	Max Mark	Mark Awarded
Weld Joints are free of undercut. Greater in depth than 1/32" equals one defect (Less than or equal to 1/8" in length = one defect)		
1 defect = 90 points 3 defects = 70 points 5 defects = 30 Points	100 Point	
2 defects = 70 points 4 defects = 50 points 6 or greater = 0 points		
Weld Joints are completely welded, and craters are filled through cross section		
1 defect = 90 points 3 defects = 70 points 5 defects = 30 Points	100 points	
2 defects = 70 points 4 defects = 50 points 6 or greater = 0 points		
All Fillet welds that do not call for melt through are free from burn through or melt through (Any indication less than or equal to 1/8" in length = one defect)		
1 defect = 90 points 3 defects = 70 points 5 defects = 30 Points	100 points	
2 defects = 70 points 4 defects = 50 points 6 or greater = 0 points		
Fillet weld legs are in accordance to specifications (-0+1/16") (Length of defect Less than or equal to 1/8" = one defect)		
1 defect = 90 points 3 defects = 70 points 5 defects = 30 Points	100 points	
2 defects = 70 points 4 defects = 50 points 6 or greater = 0 points		
All welds labled for melt through display full root fusion (Length of defect Less than or equal to 1/8" = one defect)		
1 defect = 180 points 3 defects = 100 points 5 defects = 30 Points	200 points	
2 defects = 140 points 4 defects = 70 points 6 or greater = 0 points		
Correct measurements according to print		
1 defect = 60 points 3+ defects = 0	100 points	
2 defects = 30 points		
All butt joints display proper face and root reinforcement. (Greater than or equal to 1/16" equals one defect) (Length of defect less than or equal to 1/8" equals one defect)		
1 defect = 170 points 3 defects = 120 points 5 defects = 50 Points	190 points	
2 defects = 150 points 4 defects = 100 points 6 or greater = 0 points		
Butt welded plates are free from missalignment. (greater than or equal to 1/16 of missalignment. Length of defect less than or equal 1/8" = one defect)		
1 defect = 90 points 3 defects = 70 points 5 defects = 30 Points	100 points	
2 defects = 70 points 4 defects = 50 points 6 or greater = 0 points		
Competitor Resume (Yes/No)		
Yes = 10 points	10 points	
No= 0 points		
Safety violations		
Yes = -50 points	Minus 50 points	
No= 0		
	Total Score (1000)	

Signature Judge 1	
Signature Judge 2	

Competitor Number	
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CPS OVERALL

Max Mark	Mark Awarded
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Welds are placed properly according to print (refer to locations of E6010, E7018 welds and GMAW as specified by blueprint)				
1 defect = 20 points	3 defects = 14 points	5 or greater = 0 points	25	
2 defects = 17 points	4 defects = 11 points			
Project is free of Smoke and spatter 99% free of both.				
Yes/no			25	
Project is free of arc strikes				
1 defect = 20 points	3 defects = 14 points	5 or greater = 0 points	25	
2 defects = 17 points	4 defects = 11 points			
Weld Joints are free of undercut. Greater in depth than 1/32" equals one defect (Less than or equal to 1/8" in length = one defect)				
1 defect = 65 points	3 defects = 45 points	5 defects = 35 points	75	
2 defects = 55 points	4 defects = 40 points	6 or greater = 0 points		
Weld craters are properly filled through cross section. Yes/no				
1 defect = 25 points	3+ defects = 0 points		50	
2 defects = 10 points				
All welds free from Porosity (Less than or equal to 1/4" Dia. Cluster in any direction = one defect) (Any one more exceeding 3/32" in diameter = one defect)				
1 defect = 65 points	3 defects = 45 points	5 defects = 35 points	75	
2 defects = 55 points	4 defects = 40 points	6 or greater = 0 points		
Fillet weld legs are in accordance to with specifications (-0+1/16") (Length of defect Less than or equal to 1/8" = one defect)				
1 defect = 65 points	3 defects = 45 points	5 defects = 35 points	75	
2 defects = 55 points	4 defects = 40 points	6 or greater = 0 points		
All butt welds display complete joint penetration (Length of defect Less than or equal to 1/8" = one defect)				
1 defect = 40 points	3 defects = 25 points	5 defects = 15 Points	50	
2 defects = 30 points	4 defects = 20 points	6 or greater = 0 points		
All butt joints display proper face and root reinforcement. (Greater than or equal to 1/8" equals one defect) (Length of defect less than or equal to 1/8" equals one defect)				
1 defect = 40 points	3 defects = 25 points	5 defects = 15 Points	50	

2 defects = 30 points	4 defects = 20 points	6 or greater = 0 points	30	
Correct measurements according to print (Any discontinuity greater than or equal to 1/32" = 1 defect.)				
Yes = 25 Points			25	
No= 0 points				
Properly wrapped all corners (Weld continuity and fusion is maintained through the full radius of the corner.)				
Yes = 30 Points			30	
No= 0 points				
Safety violations				
Yes = -50 points			Minus 50 points	
No= 0				
			500	0
Signature Judge 1				
Signature Judge 2				

Aluminum

			Max Mark	Mark Awarded
Aluminum Project is free from Touchdowns				
1 defect = 55 points	3 defects = 35 points	5 defects = 15 points	65	
2 defects = 45 points	4 defects = 25 points	6 or more defects = 0 points		
Butt welded joints free from underfill. Any visible discontinuity greater than 1/8" in length = 1 defect.)				
1 defect = 30 points	3+ defects = 0 points		40	
2 defects = 15 points				
Weld Joints are completely welded, and display full craters.				
1 defect = 35 points	3 defects = 25 points	5 defects = 10 Points	40	
2 defects = 30 points	4 defects = 15 points	6 or greater = 0 points		
All Fillet welds that do not call for melt through are free from burn through or melt through (Any indication less than or equal to 1/8" in length = one defect)				
1 defect = 55 points	3 defects = 35 points	5 defects = 15 points	65	
2 defects = 45 points	4 defects = 25 points	6 or more defects = 0 points		
Fillet weld legs are in accordance to specifications (-0+1/16") Length of discontinuity Less than or equal to 1/8" = one defect)				
1 defect = 35 points	3 defects = 25 points	5 defects = 10 Points	40	
2 defects = 30 points	4 defects = 15 points	6 or greater = 0 points		

All welds labled for melt through display full root fusion (Length of defect Less than or equal to 1/8" = one defect)				
1 defect = 60 points	3 defects = 30 points	5 defects = 10 Points	70	
2 defects = 50 points	4 defects = 20 points	6 or greater = 0 points		
All butt joints display proper face and root reinforcement. (Greater than or equal to 3/32" equals one defect) (Length of discontinuity less than or equal to 1/8" equals one defect)				
1 defect = 35 points	3 defects = 25 points	5 defects = 10 Points	40	
2 defects = 30 points	4 defects = 15 points	6 or greater = 0 points		
Correct measurements according to print (Any disconcontinuity greater than or equal to 1/32" = 1 defect. Length of discontinuity less than or equal to 1/8" = one defect)				
1 defect = 20 points	3+ defects = 0		40	
2 defects = 10 points				
Safety violations				
Yes = -50 points			Minus 50 points	
No= 0				
			400	

Signature Judge 1 _____
Signature Judge 2 _____

OFC

			Max Mark	Mark Awarded
Line is cut to proper dimensions according to print. (Any disconcontinuity greater than or equal to 1/32" = 1 defect. Length of discontinuity less than or equal to 1/8" = one defect)				
1 defect = 30 points	3+ defects = 0		50	
2 defects = 10 points				
Line is cut to proper angle (Any discontinuity less than or equal to 5 degrees = 1 defect.)				
1 defect = 30 points	3+ defects = 0		40	
2 defects = 10 points				

Resume

Competitor Resume (Yes/No)

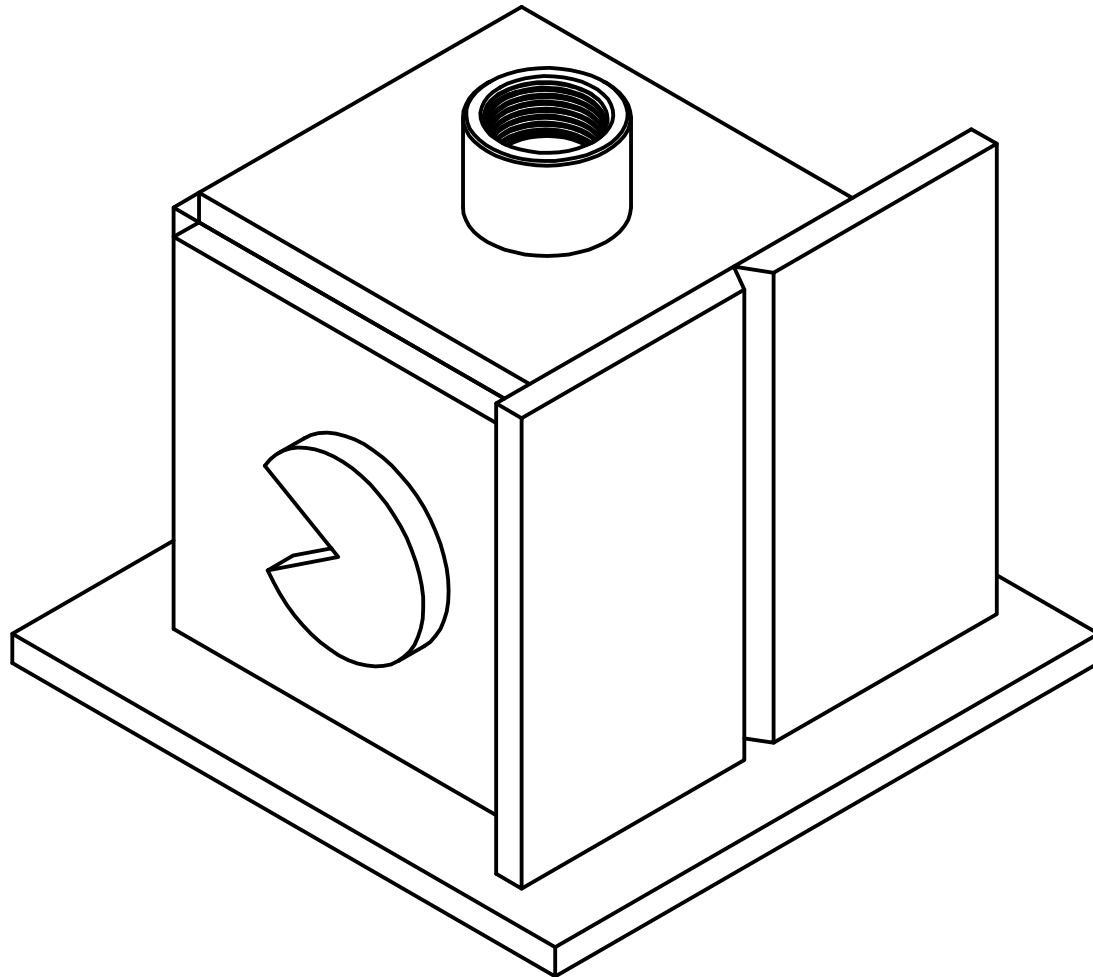
Yes = 10 points			10	
No= 0 points				

Total Score				
Signature Judge 1			1000	
Signature Judge 2				0

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WASHTENAW COMMUNITY COLLEGE
POST SECONDARY SKILLS USA
GMAW



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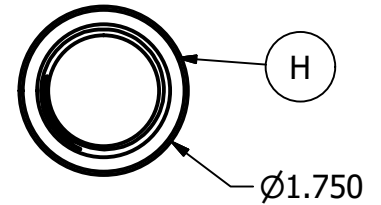
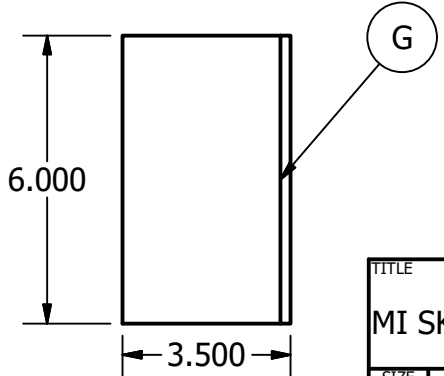
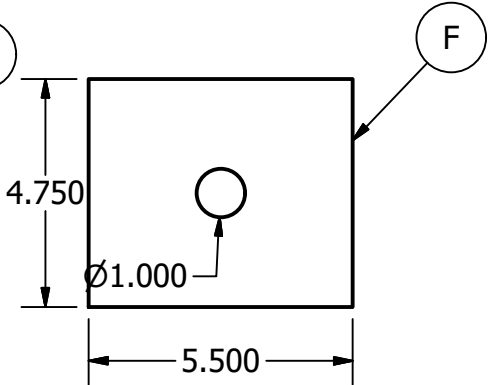
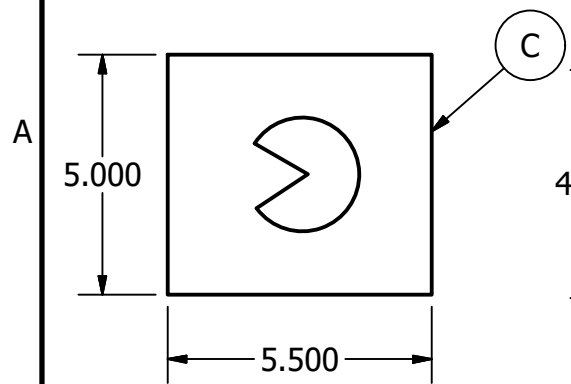
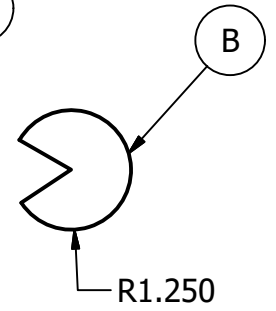
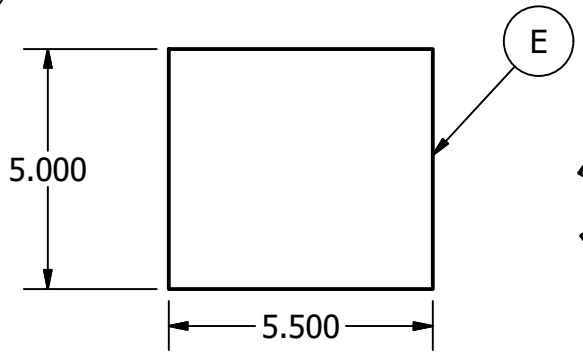
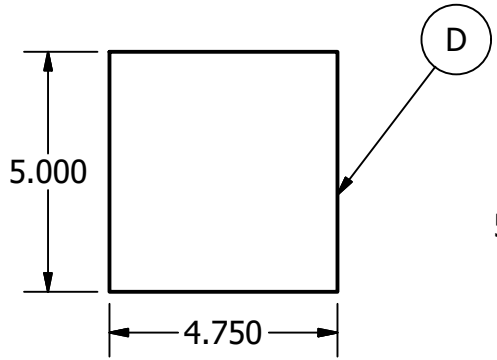
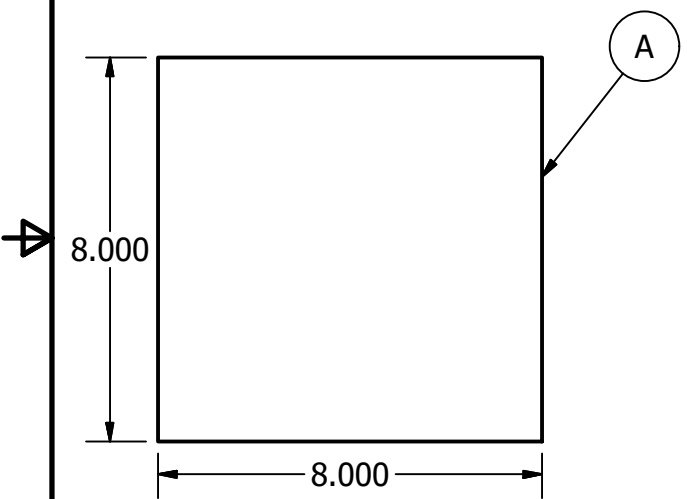
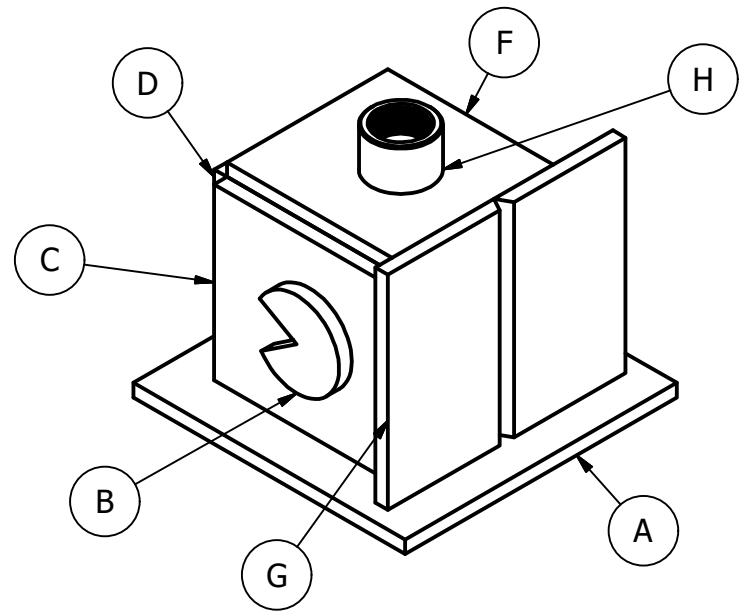
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PARTS LIST		
ITEM	QTY	DESCRIPTION
A	1	BASE PLATE
B	1	CUTOUT
C	1	SIDE A
D	1	SIDE B
E	1	SIDE C
F	1	TOP
G	2	V-GROOVE
H	1	PIPE COUPLING

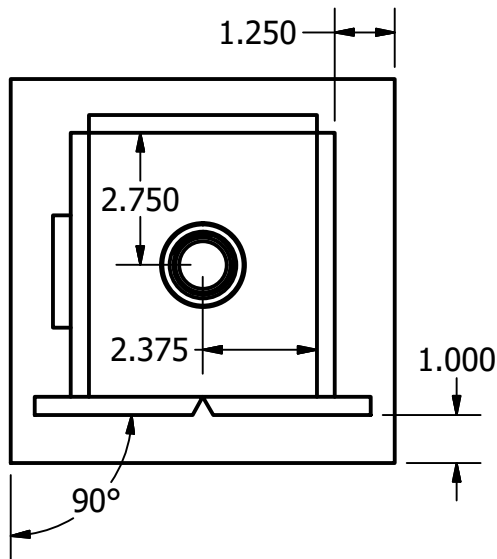
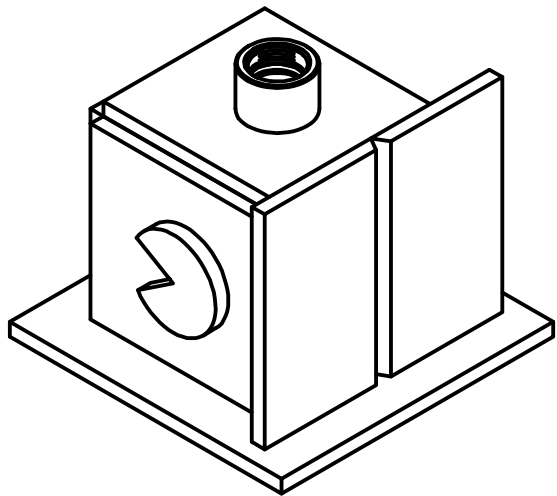


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SIZE	DWG NO	REV
A	Overall_StatePS_2019	
SCALE	SHEET 2 OF 4	
1 / 4		

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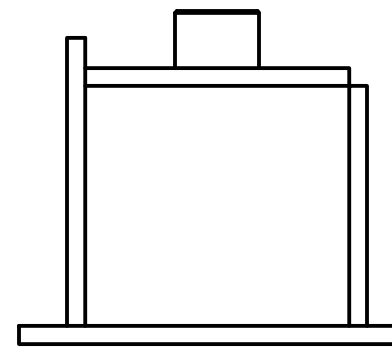
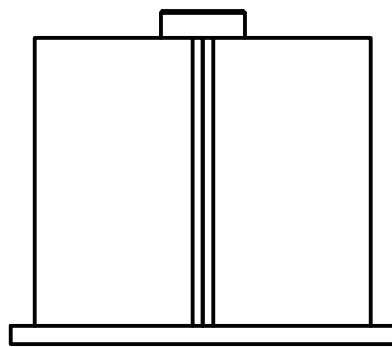
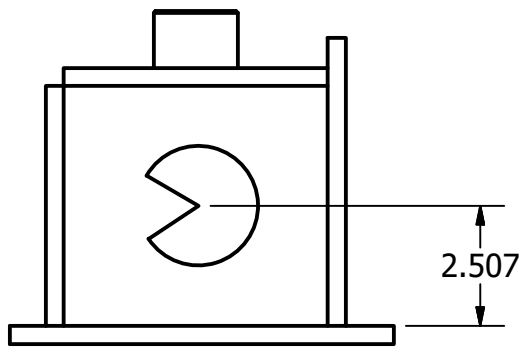


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B

B



A

A

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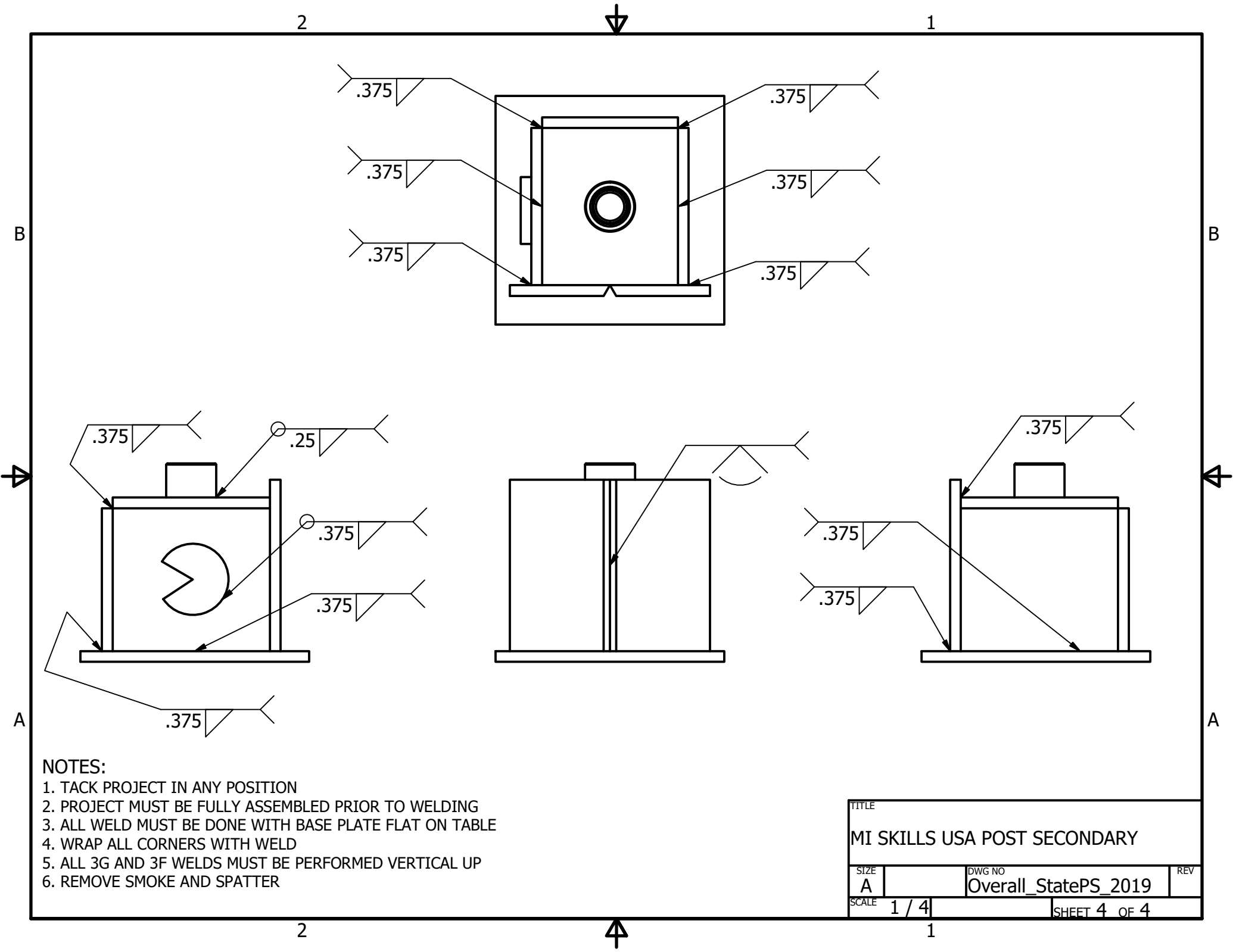
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2. PROJECT MUST BE FULLY ASSEMBLED PRIOR TO WELDING
3. ALL WELD MUST BE DONE WITH BASE PLATE FLAT ON TABLE
4. WRAP ALL CORNERS WITH WELD
5. ALL 3G AND 3F WELDS MUST BE PERFORMED VERTICAL UP
6. REMOVE SMOKE AND SPATTER

TITLE			
MI SKILLS USA POST SECONDARY			
SIZE	DWG NO	REV	
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SCALE	1 / 4		SHEET 3 OF 4

2



1



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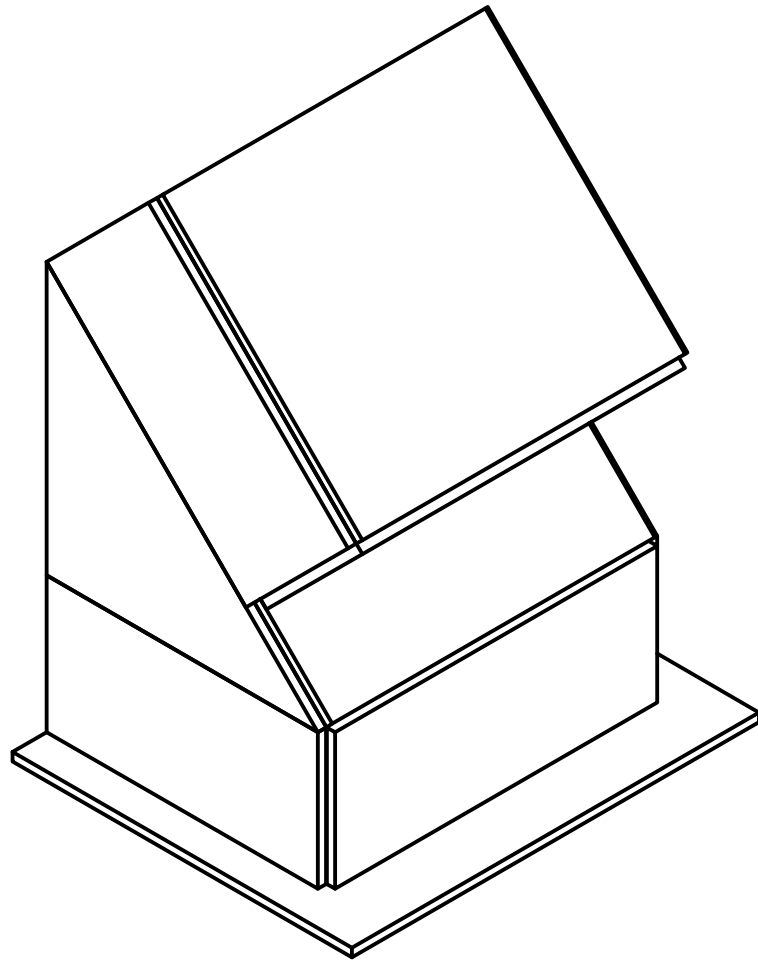
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6. REMOVE SMOKE AND SPATTER

TITLE			
MI SKILLS USA POST SECONDARY			
SIZE	DWG NO	REV	
A	Overall_StatePS_2019		
SCALE	1 / 4		SHEET 4 OF 4

2 1

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WASHTENAW COMMUNITY COLLEGE
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GTAW



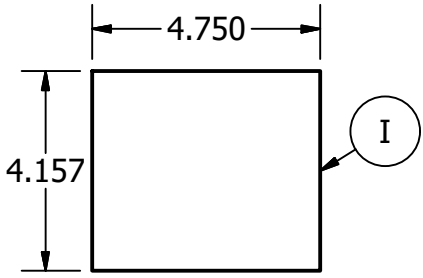
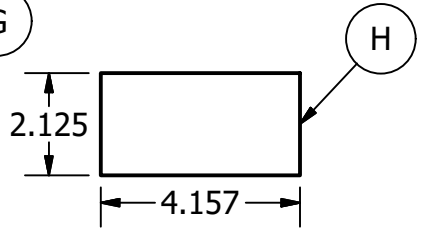
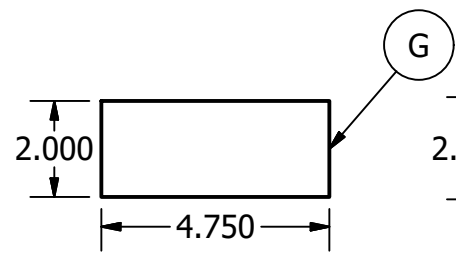
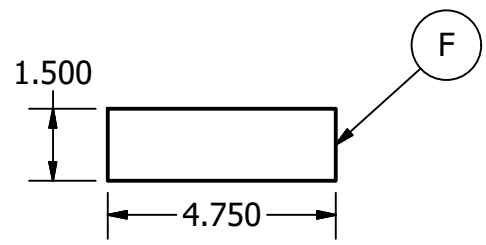
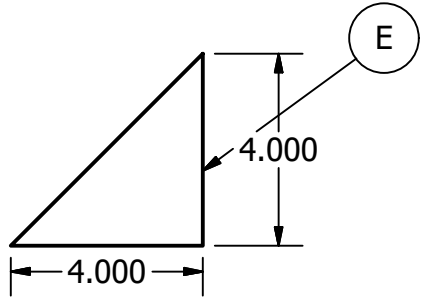
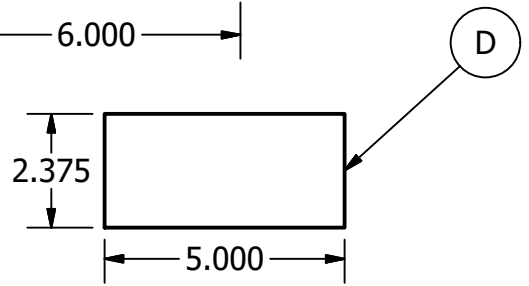
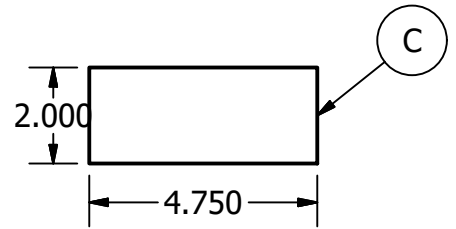
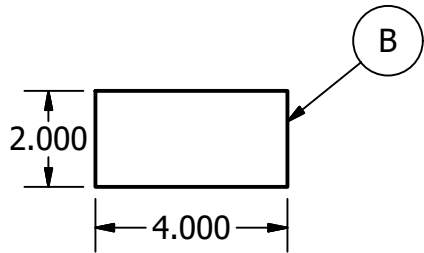
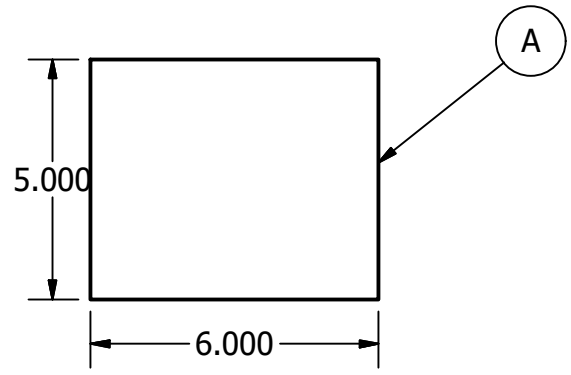
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B	1	PartC	
C	1	PartF	
D	1	PartG	
E	1	PartI	
F	2	PartB	
G	2	PartD	
H	2	PartE	
I	2	PartH	

B

B



A

A

TITLE		
MI POST SECONDARY SKILLS USA		
SIZE	DWG NO	REV
A	GTAW_StatePS_2019	
SCALE	SHEET 2 OF 4	
1 / 4		

2

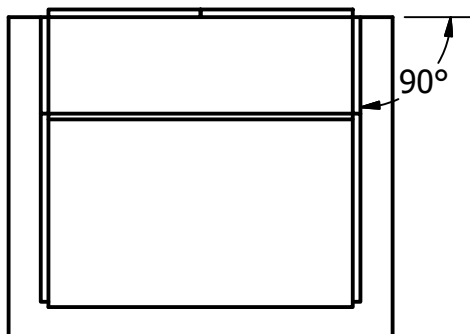
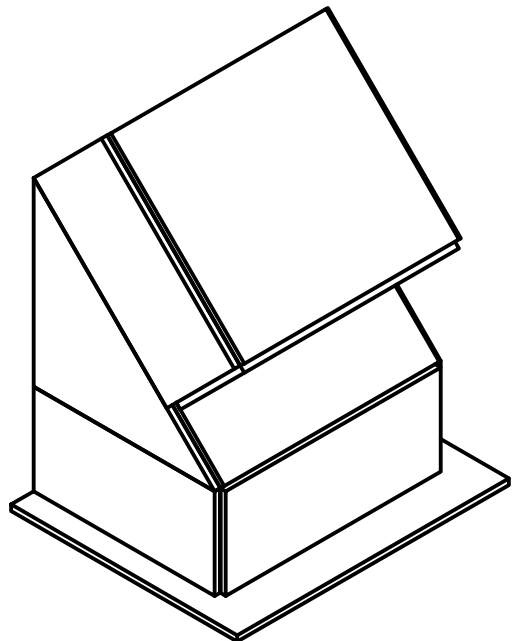
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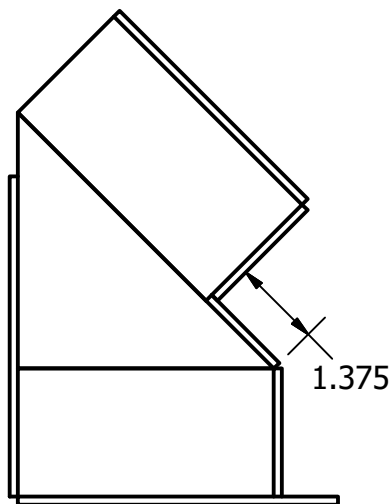
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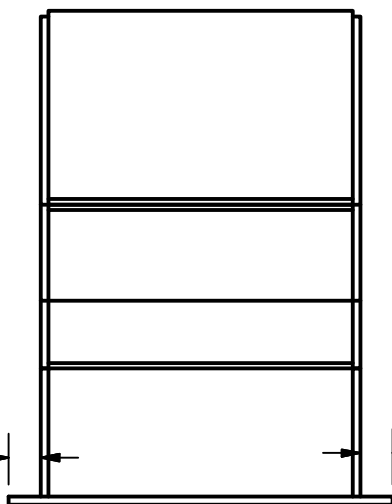
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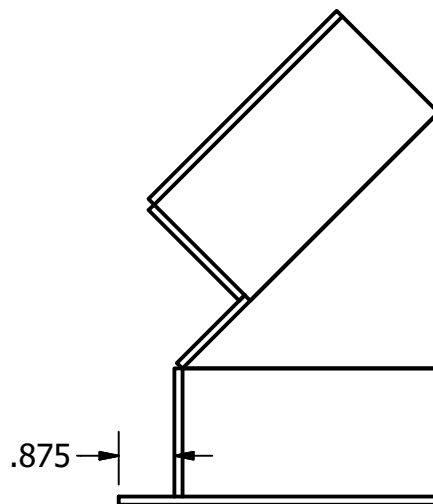
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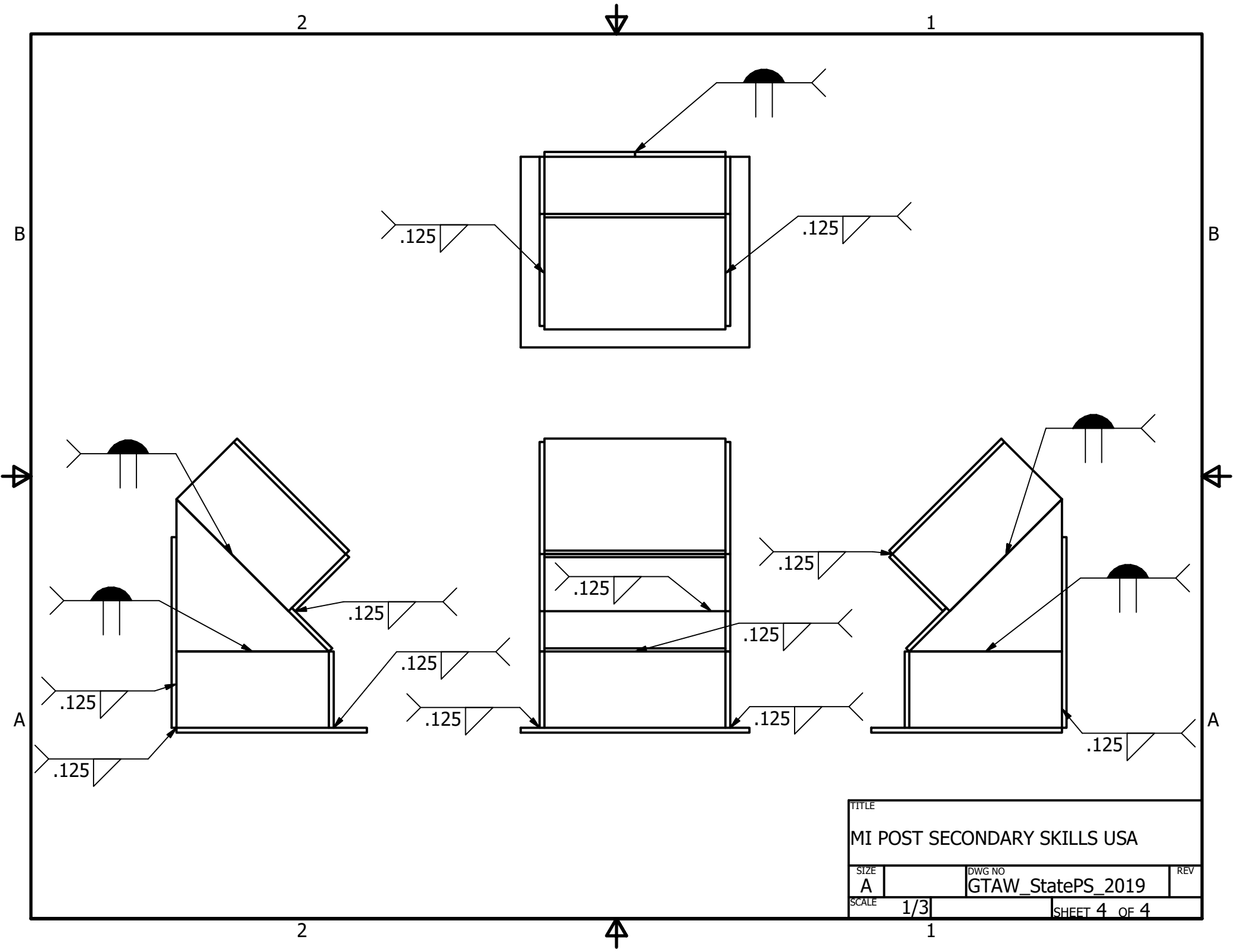


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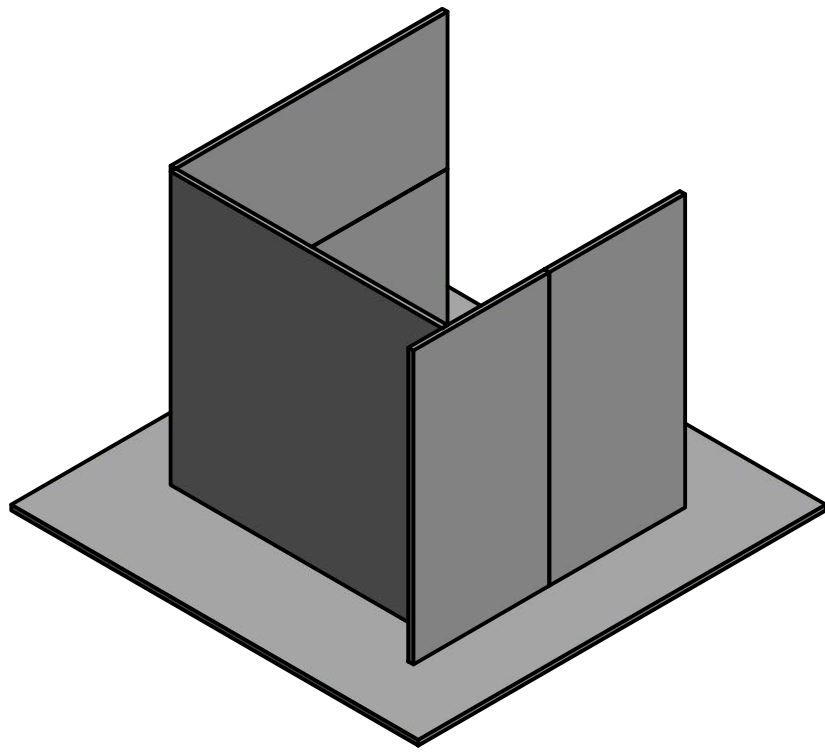


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SIZE	DWG NO	REV	
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POST SECONDARY SKILLS USA
OAW



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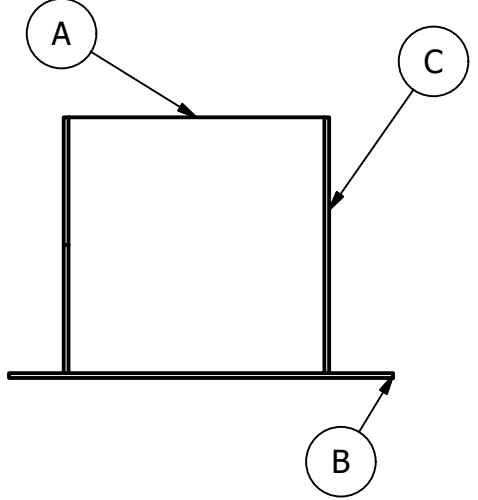
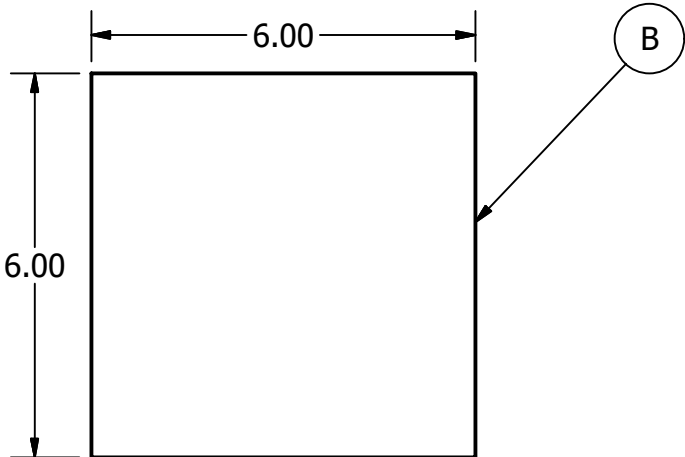
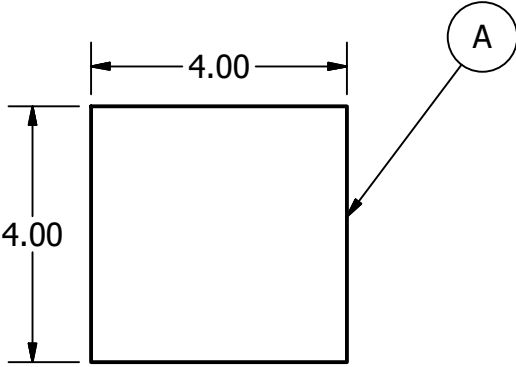
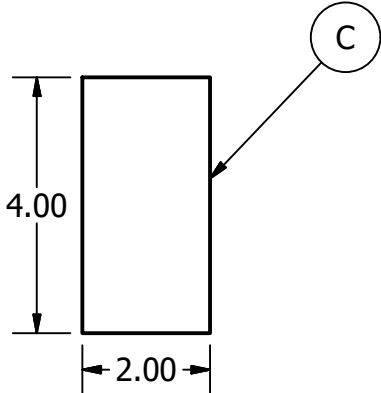
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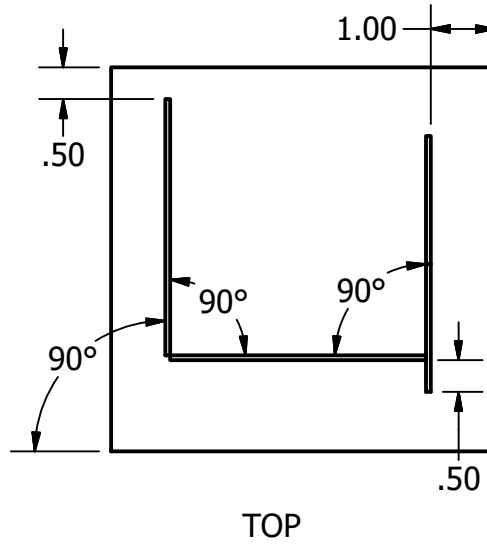
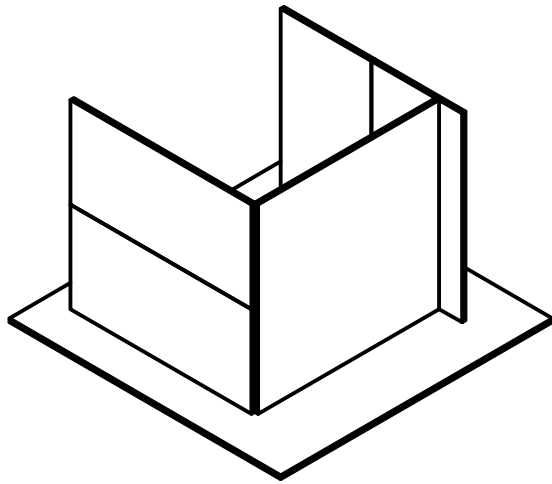
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B

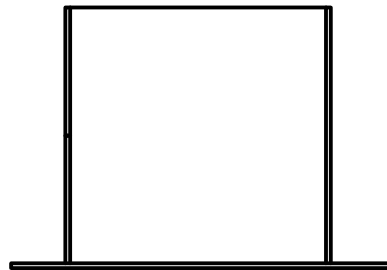
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B	1	BASE PLATE
C	4	2x4 INCH RECT.



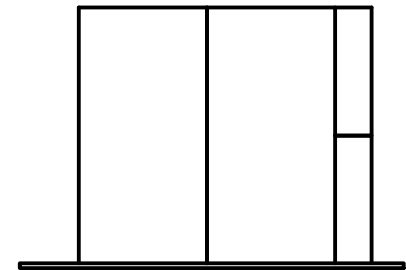
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MI SKILLS USA PS		
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SCALE	SHEET 2 OF 4	
1/3		



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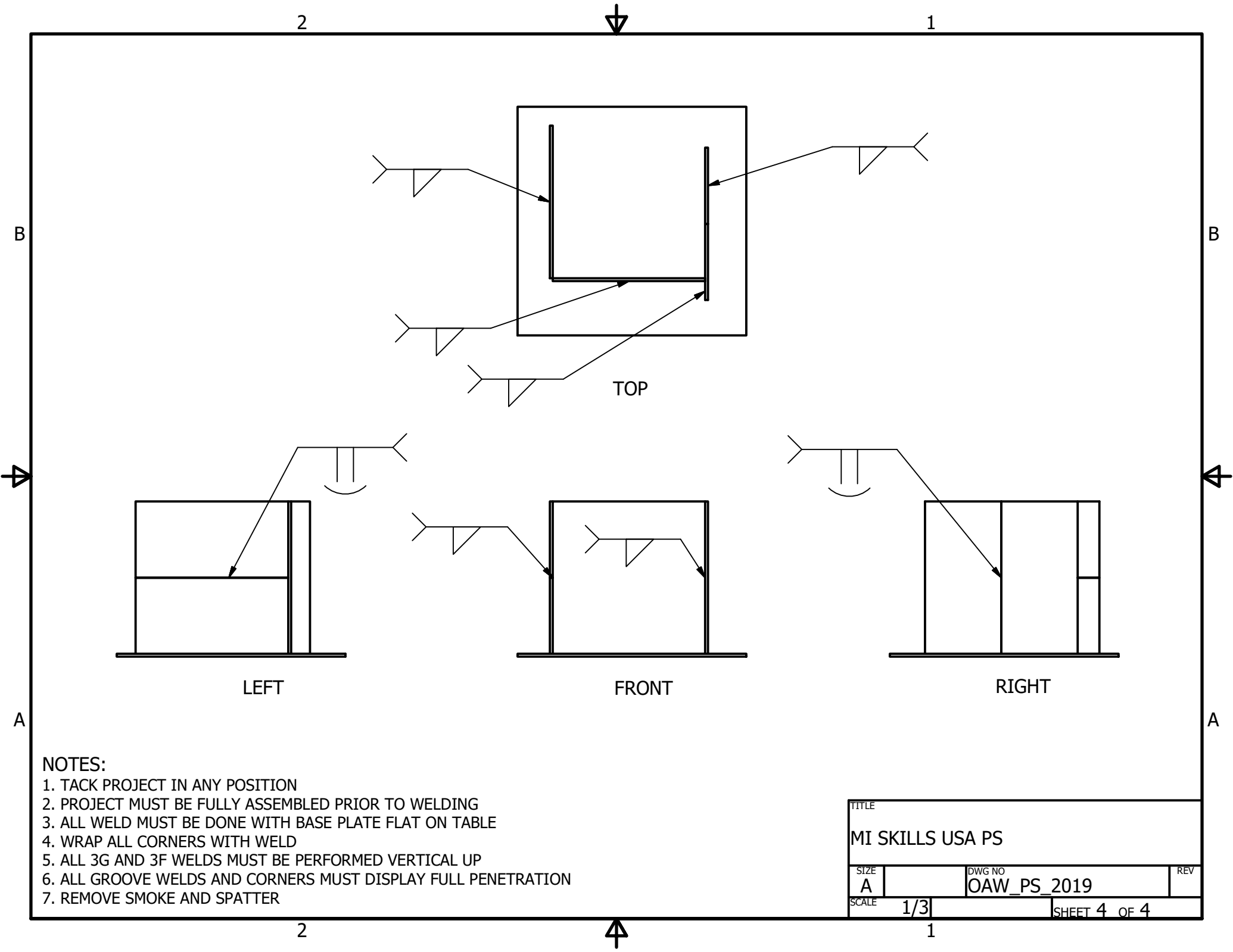


RIGHT

NOTES:

1. TACK PROJECT IN ANY POSITION
2. PROJECT MUST BE FULLY ASSEMBLED PRIOR TO WELDING
3. ALL WELD MUST BE DONE WITH BASE PLATE FLAT ON TABLE
4. WRAP ALL CORNERS WITH WELD
5. ALL 3G AND 3F WELDS MUST BE PERFORMED VERTICAL UP
6. ALL GROOVE WELDS AND CORNERS MUST DISPLAY FULL PENETRATION
7. REMOVE SMOKE AND SPATTER

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MI SKILLS USA PS			
SIZE	DWG NO	REV	
A	OAW_PS_2019		
SCALE	1/3		SHEET 3 OF 4



NOTES:

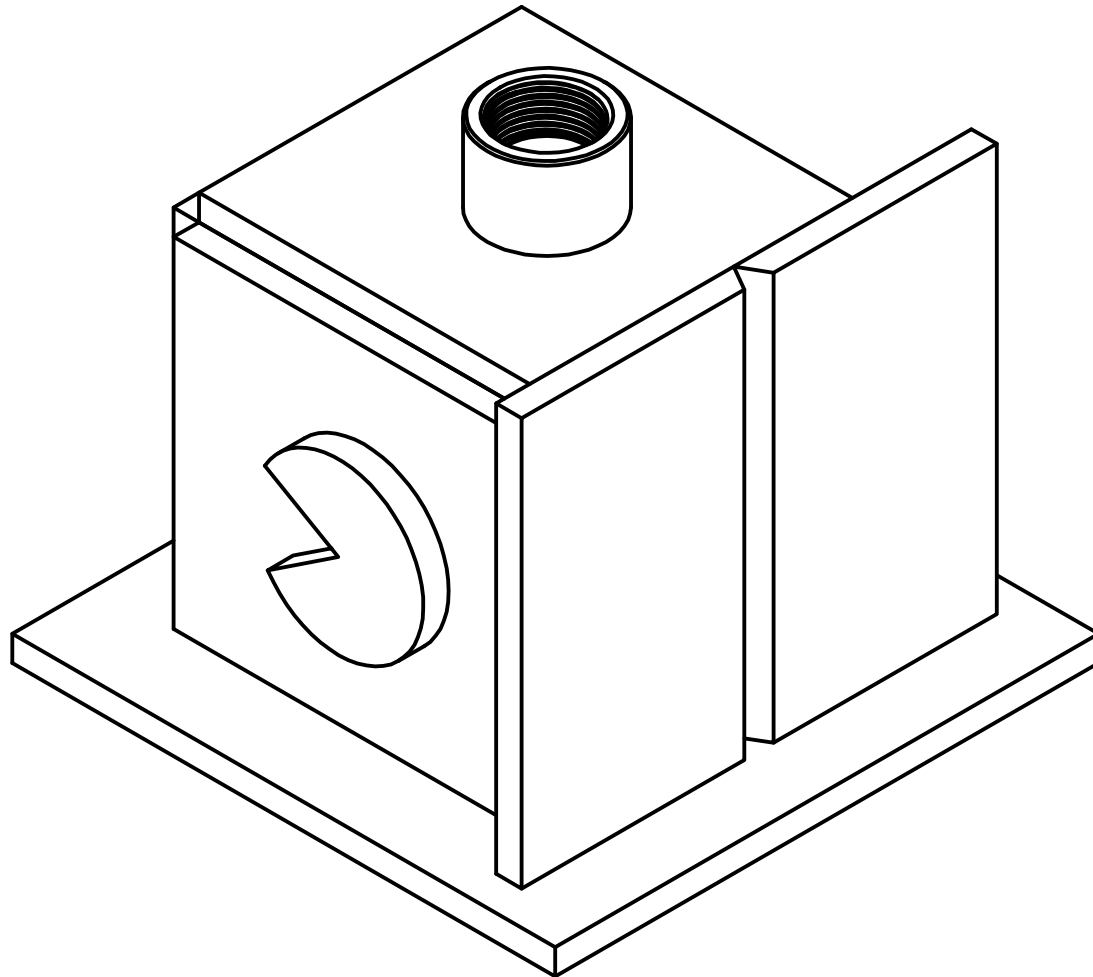
1. TACK PROJECT IN ANY POSITION
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6. ALL GROOVE WELDS AND CORNERS MUST DISPLAY FULL PENETRATION
7. REMOVE SMOKE AND SPATTER

TITLE			
MI SKILLS USA PS			
SIZE	DWG NO	REV	
A	OAW_PS_2019		
SCALE	1/3		SHEET 4 OF 4

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WASHTENAW COMMUNITY COLLEGE
POST SECONDARY SKILLS USA
OVERALL



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B



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2

1

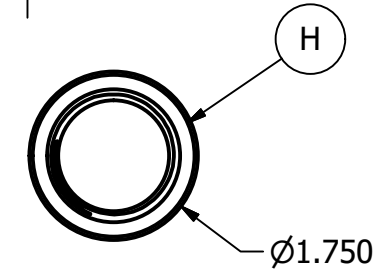
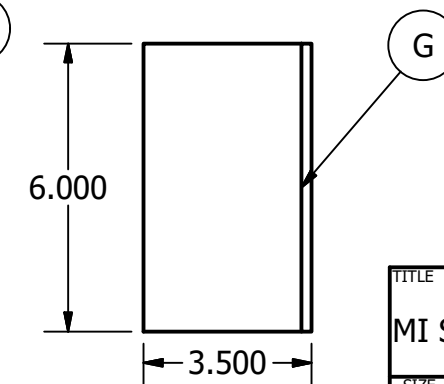
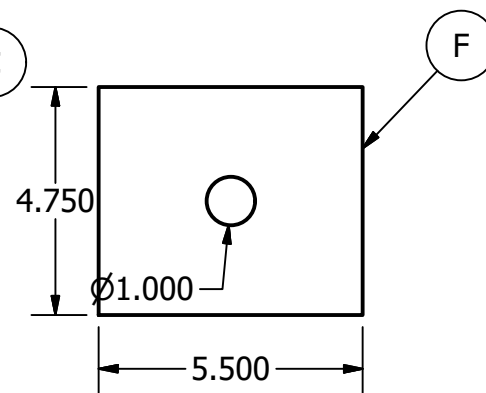
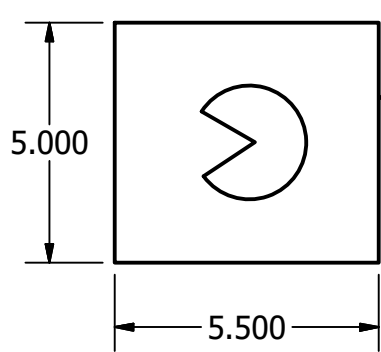
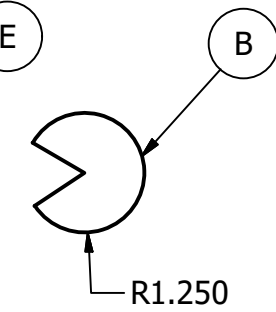
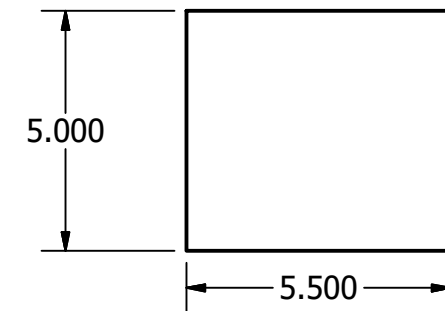
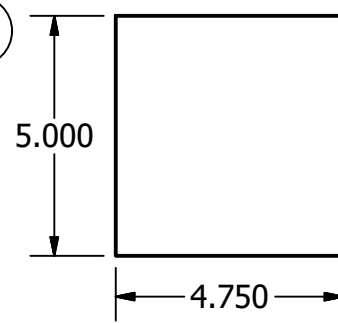
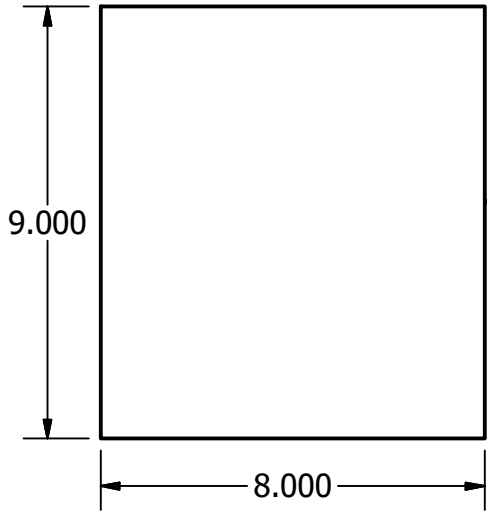
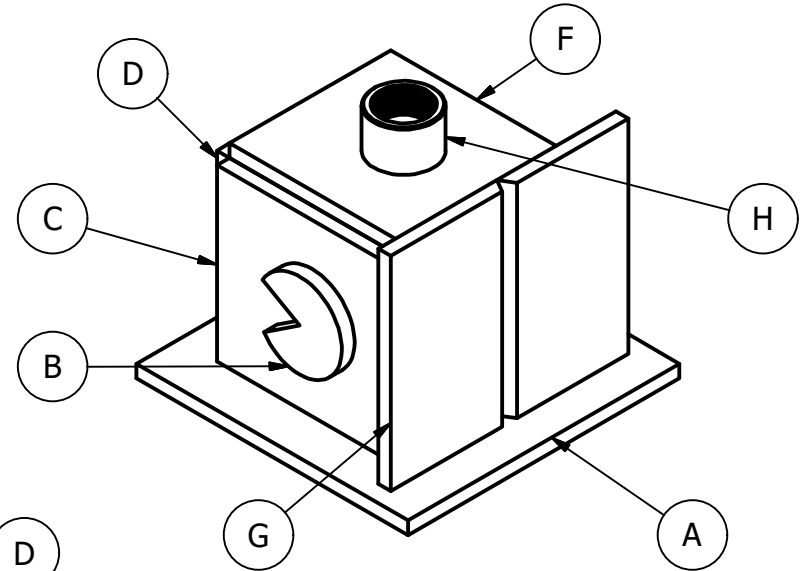


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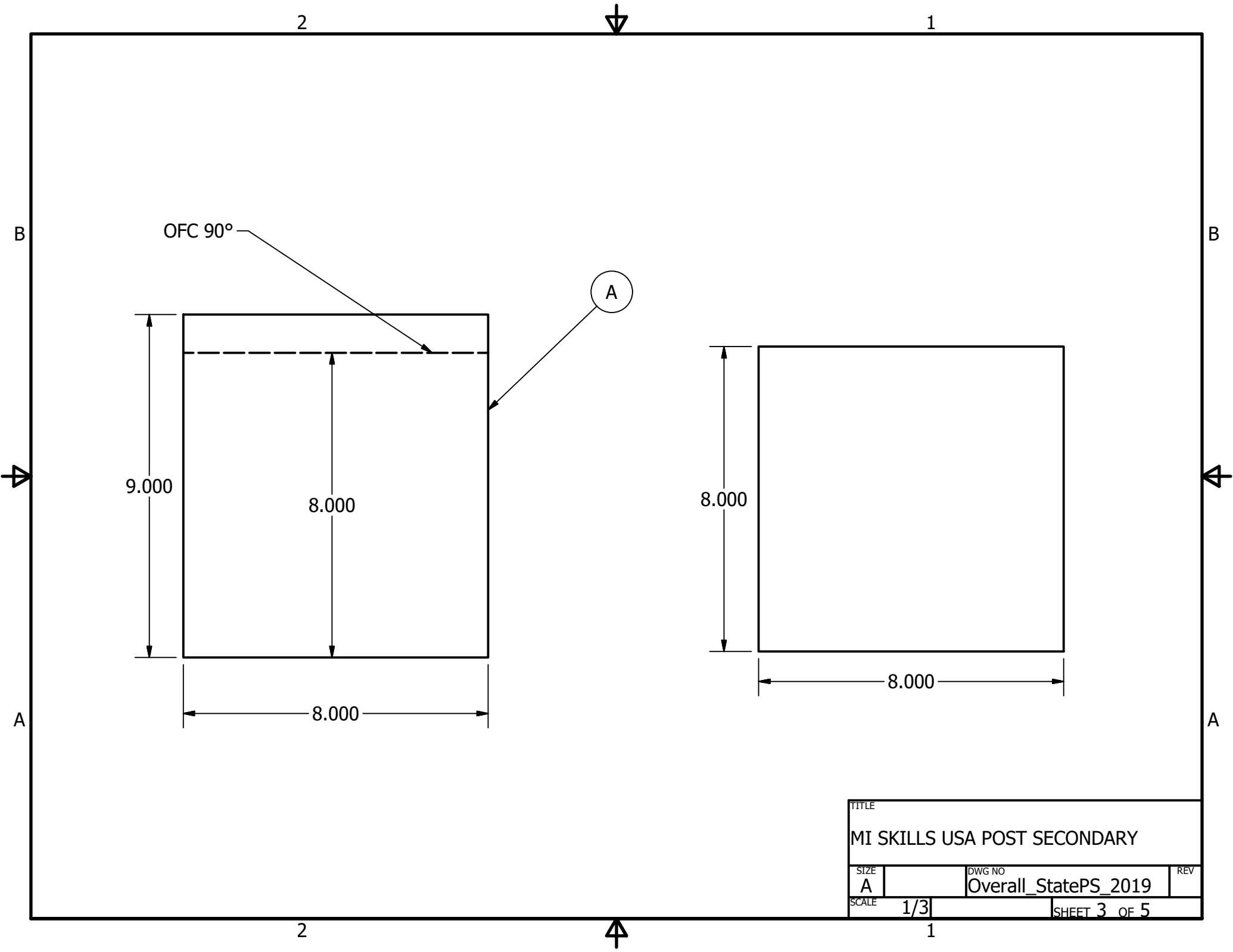
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PARTS LIST		
ITEM	QTY	DESCRIPTION
A	1	BASE PLATE
B	1	CUTOUT
C	1	SIDE A
D	1	SIDE B
E	1	SIDE C
F	1	TOP
G	2	V-GROOVE
H	1	PIPE COUPLING



TITLE		
MI SKILLS USA POST SECONDARY		
SIZE	DWG NO	REV
A	Overall_StatePS_2019	
SCALE	SHEET 2 OF 5	
1 / 4		

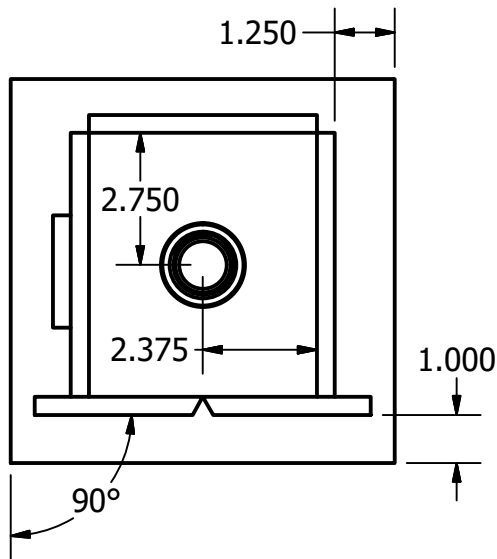
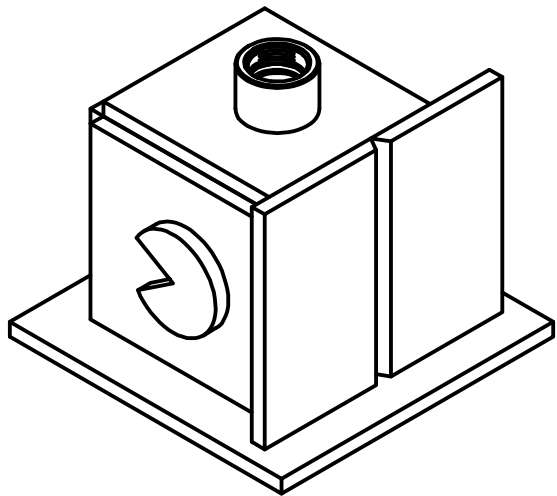


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SIZE	DWG NO	REV	
A	Overall_StatePS_2019		
SCALE	1/3		SHEET 3 OF 5

2

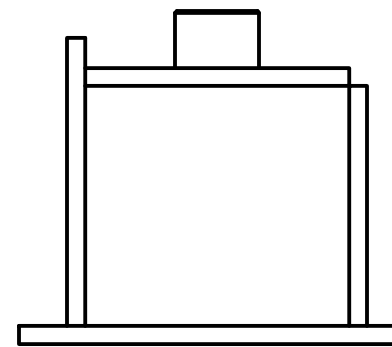
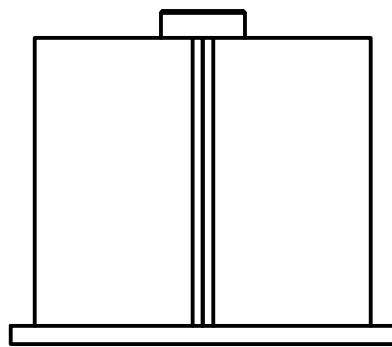
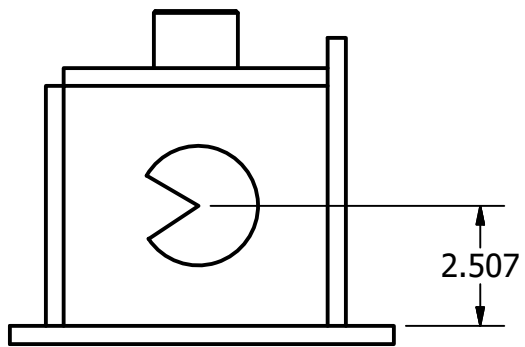


1



B

B



A

A

NOTES:

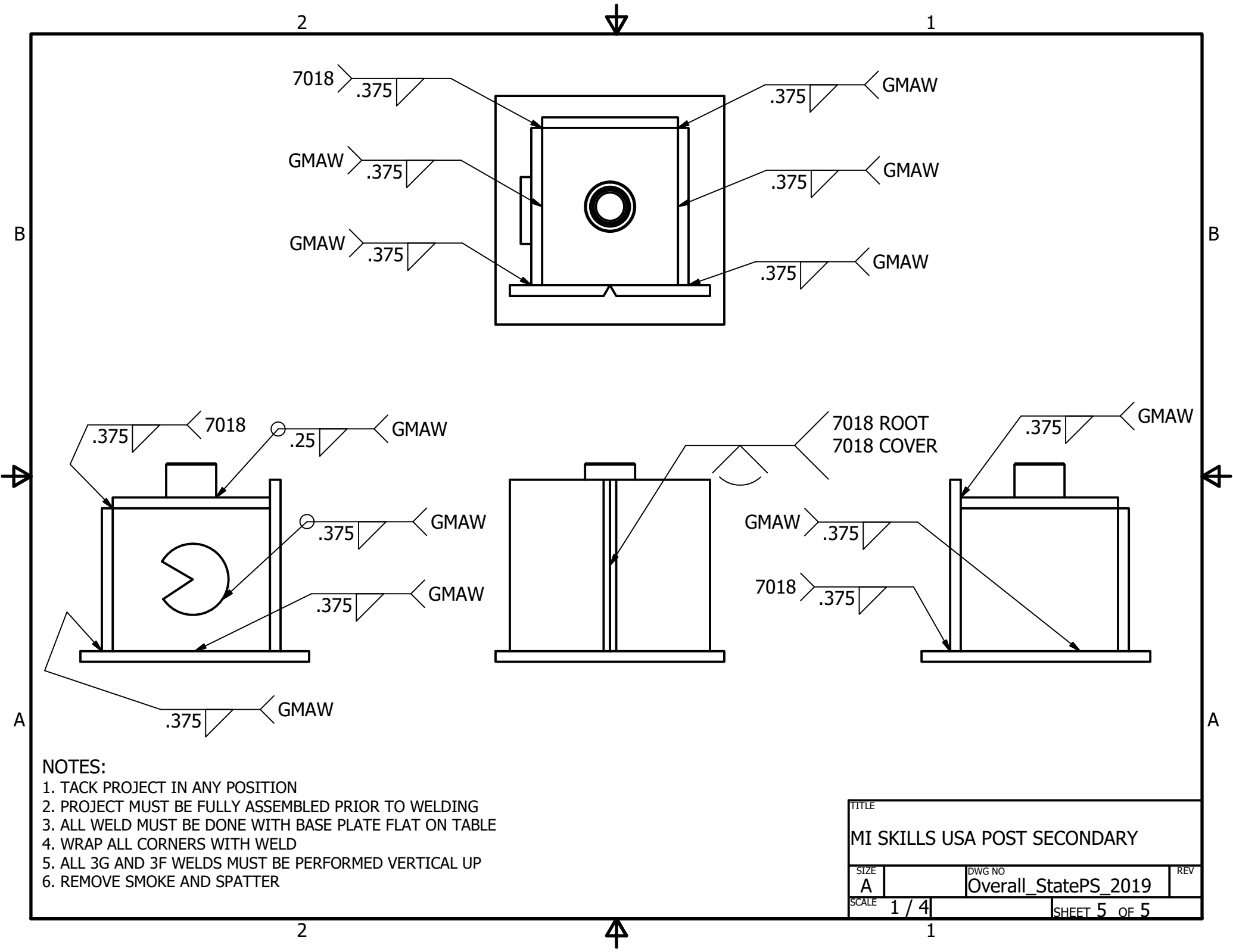
- 1. TACK PROJECT IN ANY POSITION
- 2. PROJECT MUST BE FULLY ASSEMBLED PRIOR TO WELDING
- 3. ALL WELD MUST BE DONE WITH BASE PLATE FLAT ON TABLE
- 4. WRAP ALL CORNERS WITH WELD
- 5. ALL 3G AND 3F WELDS MUST BE PERFORMED VERTICAL UP
- 6. REMOVE SMOKE AND SPATTER

TITLE			
MI SKILLS USA POST SECONDARY			
SIZE	DWG NO	REV	
A	Overall_StatePS_2019		
SCALE	1 / 4		SHEET 4 OF 5

2



1



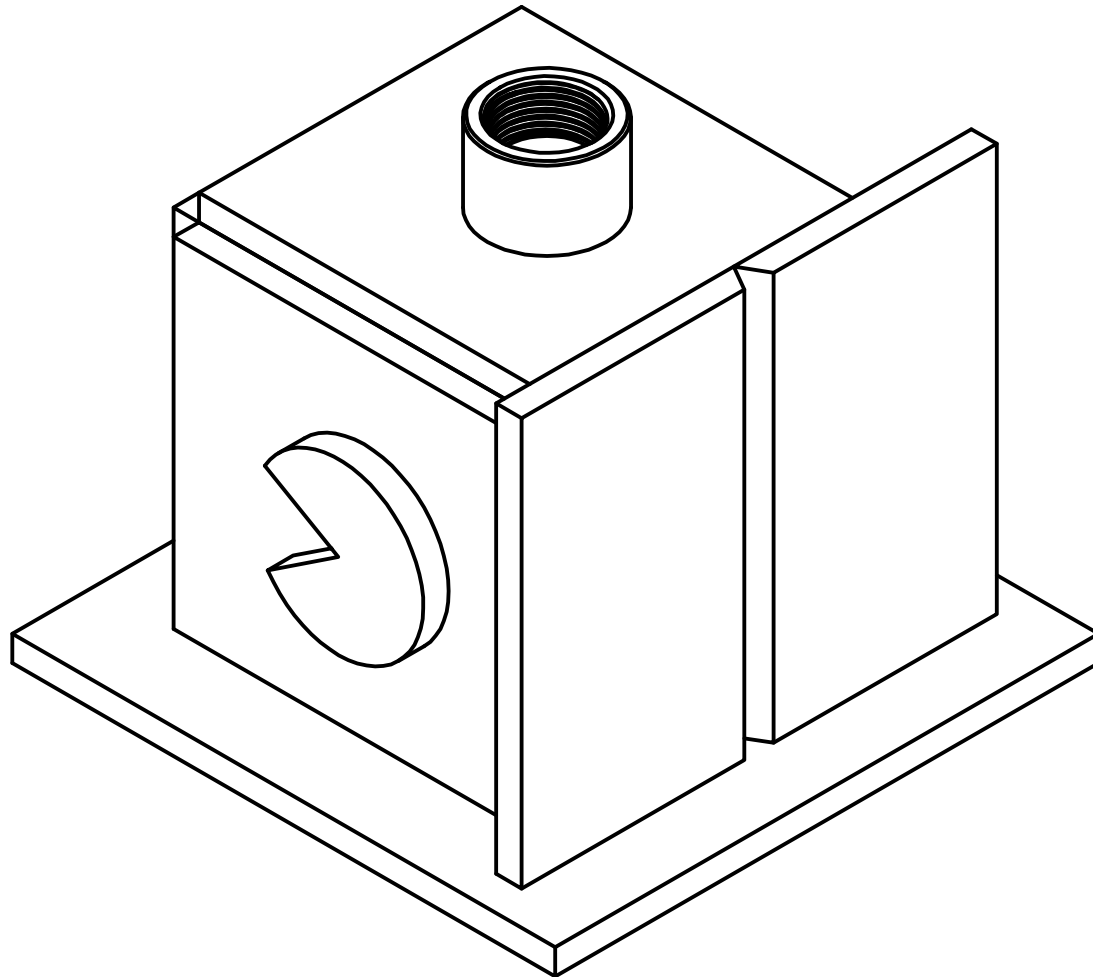
NOTES:

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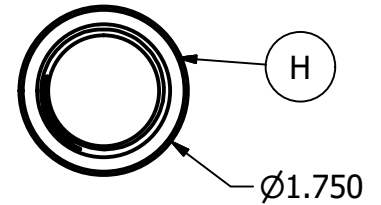
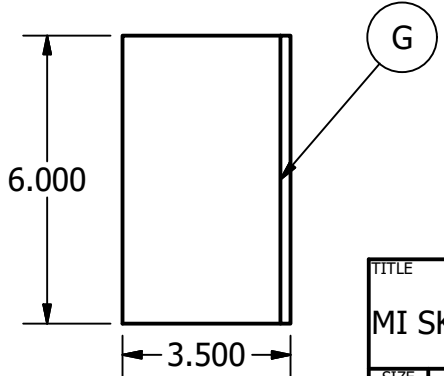
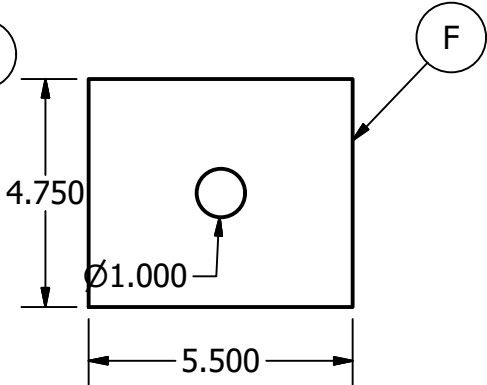
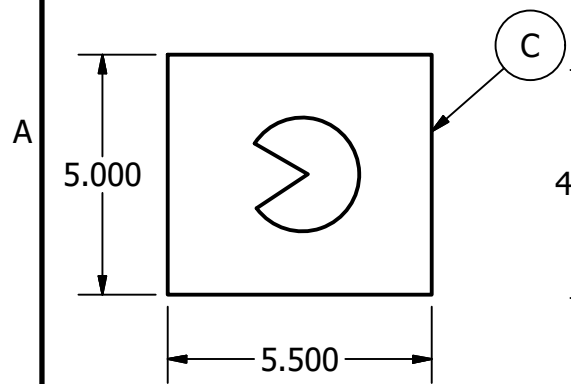
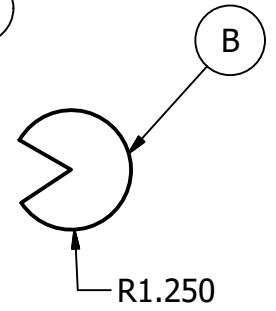
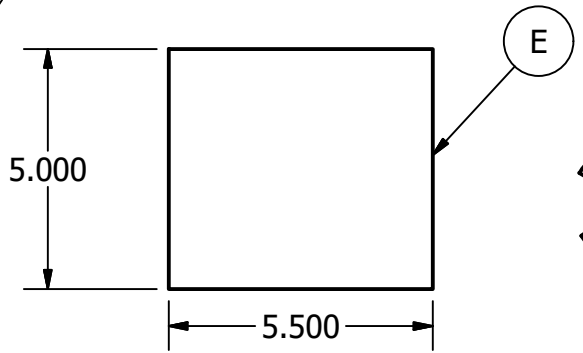
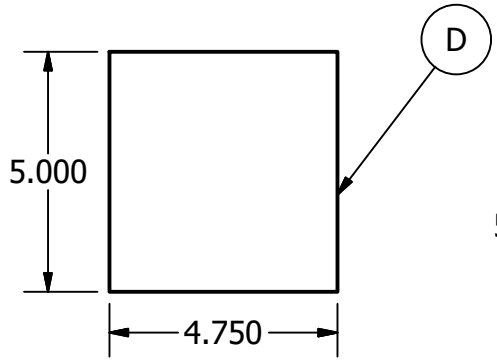
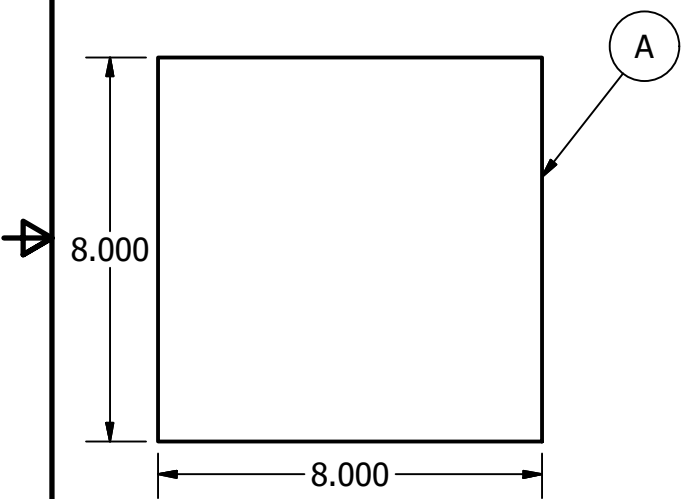
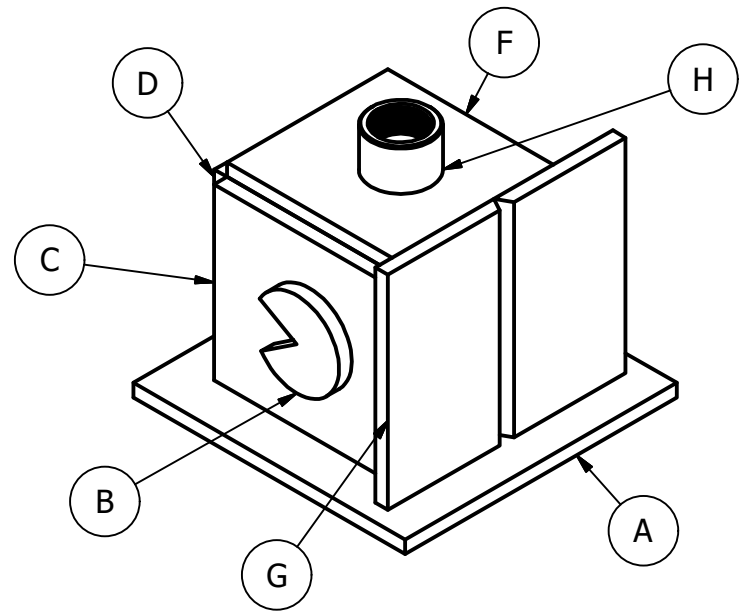
TITLE			
MI SKILLS USA POST SECONDARY			
SIZE	DWG NO	REV	
A	Overall_StatePS_2019		
SCALE	1 / 4		SHEET 5 OF 5

2 1

WASHTENAW COMMUNITY COLLEGE
POST SECONDARY SKILLS USA
SMAW



PARTS LIST		
ITEM	QTY	DESCRIPTION
A	1	BASE PLATE
B	1	CUTOUT
C	1	SIDE A
D	1	SIDE B
E	1	SIDE C
F	1	TOP
G	2	V-GROOVE
H	1	PIPE COUPLING

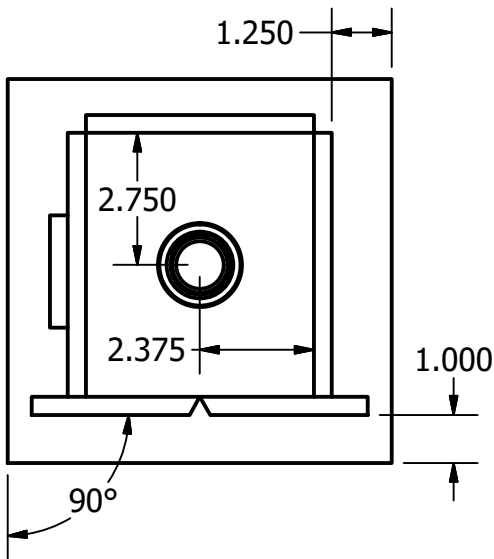
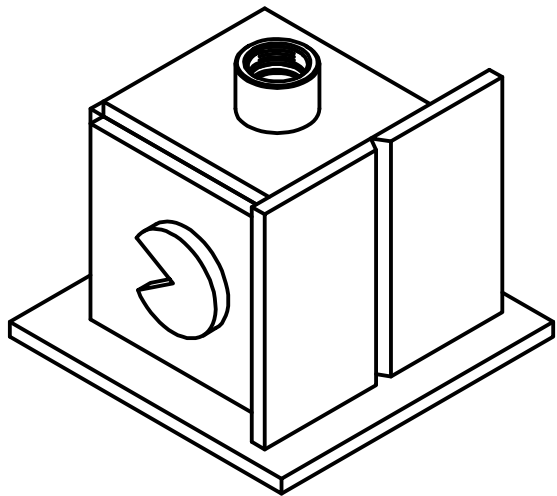


TITLE		
MI SKILLS USA POST SECONDARY		
SIZE	DWG NO	REV
A	Overall_StatePS_2019	
SCALE	SHEET 2 OF 4	
1 / 4		

2

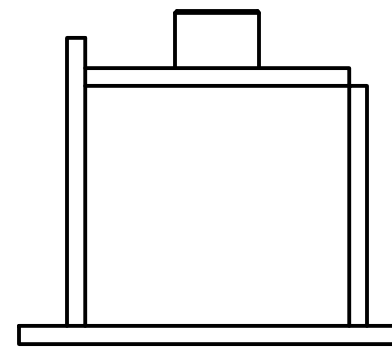
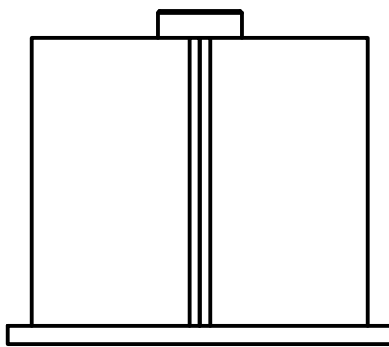
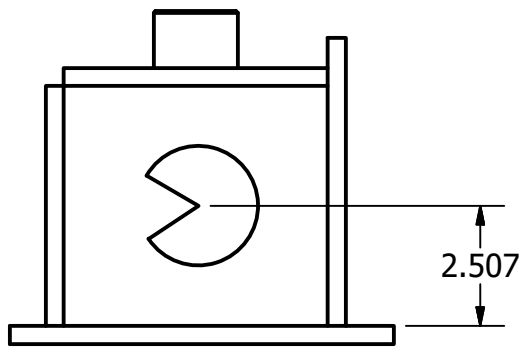


1



B

B



A

A

NOTES:

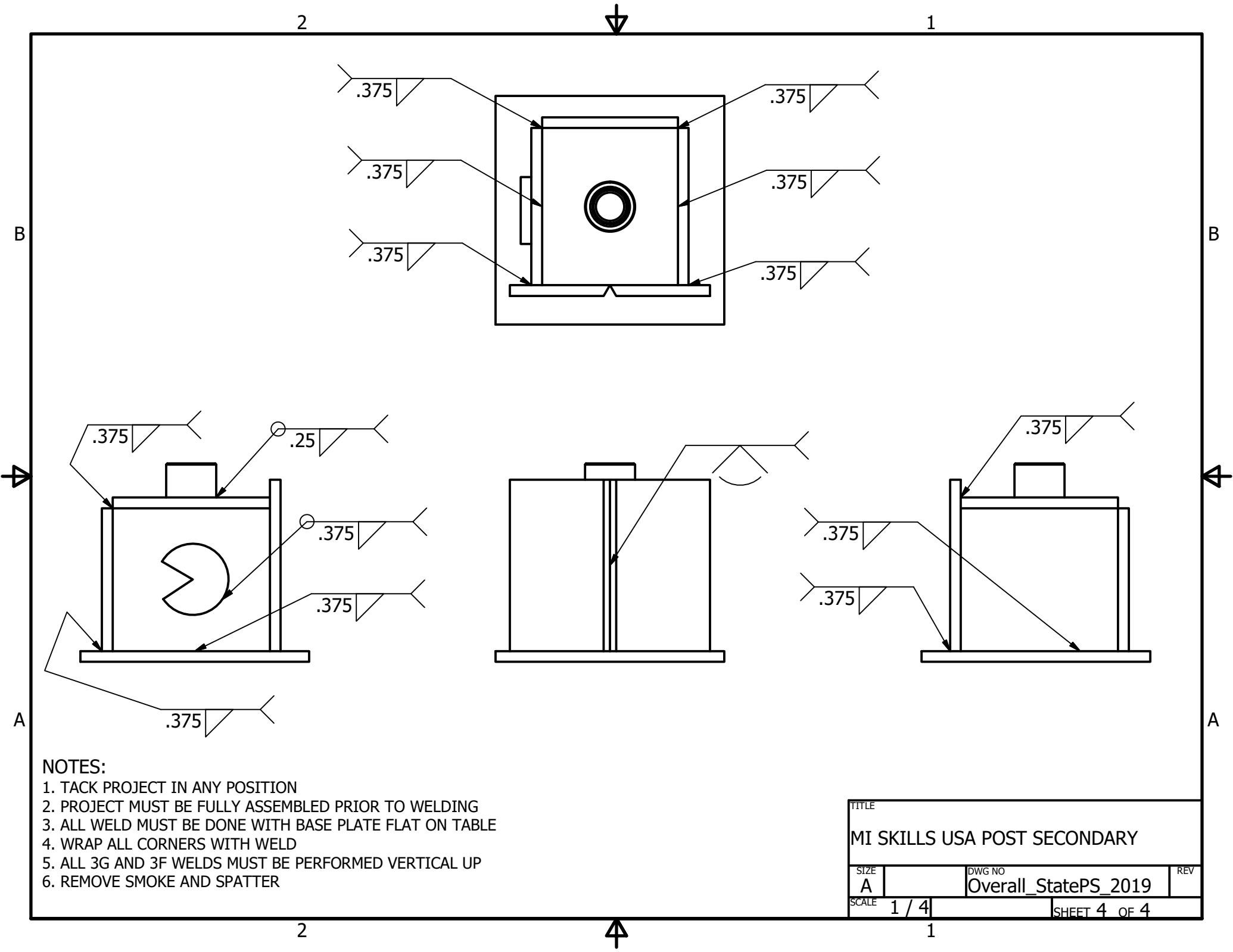
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TITLE			
MI SKILLS USA POST SECONDARY			
SIZE	DWG NO	REV	
A	Overall_StatePS_2019		
SCALE	1 / 4		SHEET 3 OF 4

2



1



NOTES:

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TITLE			
MI SKILLS USA POST SECONDARY			
SIZE	DWG NO	REV	
A	Overall_StatePS_2019		
SCALE	1 / 4		SHEET 4 OF 4