



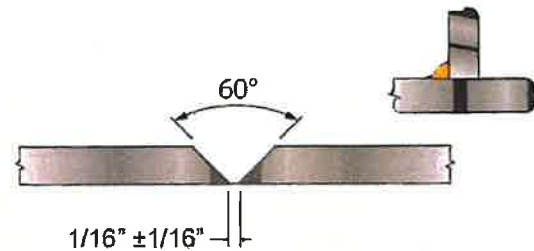
SkillsUSA

Welding Procedure Specification

WPS 101

WPS No. WPS 101 Revision 3 Date 3/21/2022 By NP
 Authorized By GH Date 3/15/2022 Prequalified
 Welding Process(es) SMAW Type: Manual Machine Semi-Auto Auto
 Supporting PQR(s) Prequalified

JOINT
 Type Butt / T-Joint
 Backing Yes No Single Weld Double Weld
 Backing Material A-36
 Root Opening 1/16" ±1/16" Root Face Dimension 0" - 1/8"
 Groove Angle 60 Deg. Radius (J-U) N/A
 Back Gouge Yes No
 Method N/A



BASE METALS
 Material Spec. A-36 to A-36
 Type or Grade _____ to _____
 Thickness: Groove (in) 1/8 - 3/4
 Fillet () Unlimited - _____
 Diameter (Pipe, in) 4 - Unlimited

POSITION
 Position of Groove 1G,2G,3G,4G Fillet 1F,2F,3F,4F
 Vertical Progression: Up Down

FILLER METALS
 AWS Specification A5.1
 AWS Classification E-7018

ELECTRICAL CHARACTERISTICS
 Transfer Mode (GMAW):
 Short-Circuiting Globular Spray
 Current: AC DCEP DCEN Pulsed
 Other N/A
 Tungsten Electrode (GTAW):
 Size N/A Type N/A

SHIELDING
 Flux _____ Gas N/A
N/A Composition N/A
 Electrode-Flux (Class) _____ Flow Rate N/A
N/A Gas Cup Size N/A

TECHNIQUE
 Stringer or Weave Bead Both
 Multi-pass or Single Pass (per side) Single / Multiple
 Number of Electrodes 1
 Electrode Spacing: Longitudinal N/A
 Lateral N/A
 Angle N/A
 Contact Tube to Work Distance N/A
 Peening N/A
 Interpass Cleaning Chip slag and wire brush

PREHEAT
 Preheat Temp., Min. N/A
 Thickness Up to 3/4" Temperature N/A
 Over 3/4" to 1-1/2" N/A
 Over 1-1/2" to 2-1/2" N/A
 Over 2-1/2" N/A
 Interpass Temp., Min. N/A Max. N/A

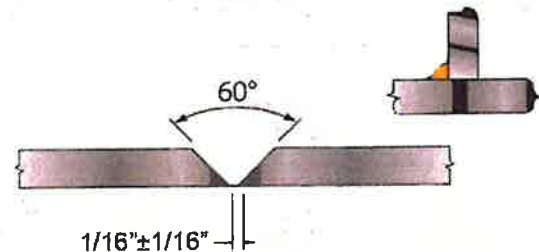
POSTWELD HEAT TREATMENT PWHT Required
 Temp. N/A Time N/A

WELDING PROCEDURE

| Layer/Pass | Process | Filler Metal Class | Diameter | Cur. Type | Amps | Volts | Travel Speed | Other Notes |
|------------|---------|--------------------|----------|-----------|--------|-------|--------------|-------------|
| All | SMAW | E-7018 | 3/32 | DCEP | 70-110 | N/A | 4-10 ipm | |
| OR | | | | | | | | |
| All | SMAW | E-7018 | 1/8 | DCEP | 90-150 | N/A | 4-10 ipm | |

WPS No. **WPS 106** Revision **2** Date **3/20/2022** By **NP**
 Authorized By **GH** Date **3/15/2022** Prequalified
 Welding Process(es) **SMAW** Type: Manual Machine Semi-Auto Auto
 Supporting PQR(s) **Prequalified**

JOINT
 Type **T-Joint / Butt**
 Backing Yes No Single Weld Double Weld
 Backing Material **N/A**
 Root Opening **1/16"±1/16"** Root Face Dimension **N/A**
 Groove Angle **60°** Radius (J-U) **N/A**
 Back Gouge Yes No
 Method **N/A**



BASE METALS
 Material Spec. **A-36** to **A-36**
 Type or Grade _____ to _____
 Thickness: Groove (in) **N/A** - **N/A**
 Fillet () **Unlimited** - _____
 Diameter (Pipe, in) **N/A** - **N/A**

POSITION
 Position of Groove **All** Fillet **All**
 Vertical Progression: Up Down

FILLER METALS
 AWS Specification **A5.1**
 AWS Classification **E-6010**

ELECTRICAL CHARACTERISTICS
 Transfer Mode (GMAW):
 Short-Circuiting Globular Spray
 Current: AC DCEP DCEN Pulsed
 Other **N/A**
 Tungsten Electrode (GTAW):
 Size **N/A** Type **N/A**

SHIELDING
 Flux **N/A** Gas **N/A**
 Composition **N/A**
 Electrode-Flux (Class) **N/A** Flow Rate **N/A**
 Gas Cup Size **N/A**

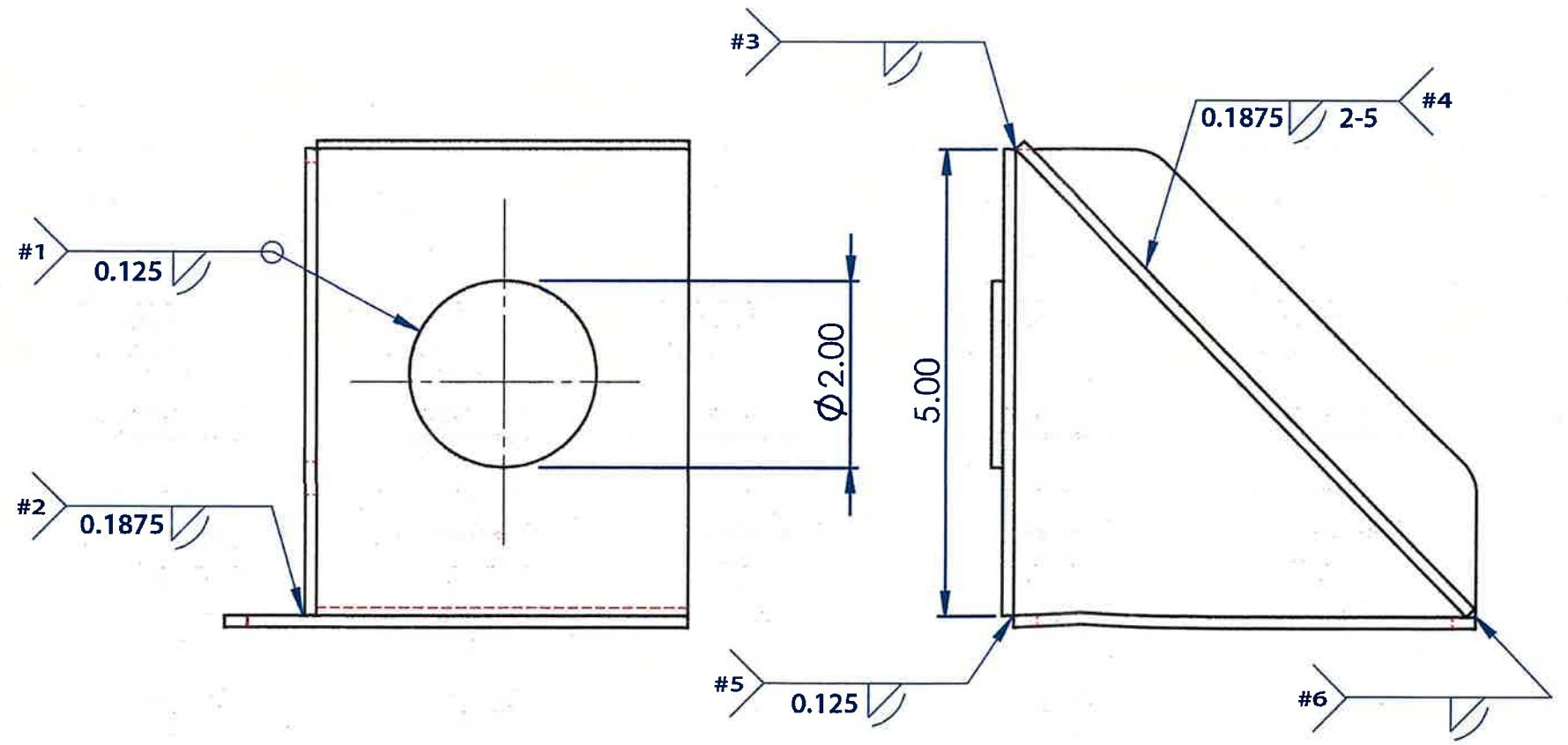
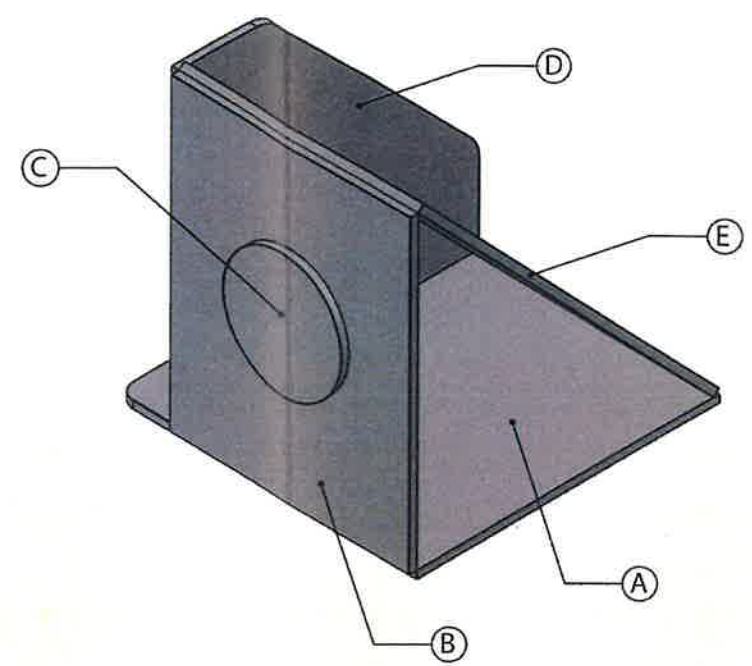
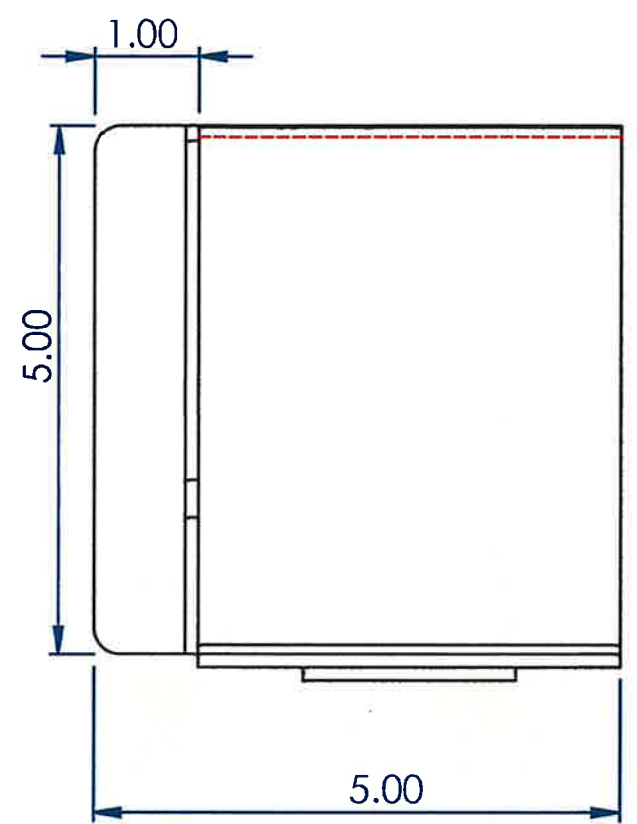
TECHNIQUE
 Stringer or Weave Bead **Both**
 Multi-pass or Single Pass (per side) **Multiple/Single**
 Number of Electrodes **1**
 Electrode Spacing: Longitudinal **N/A**
 Lateral **N/A**
 Angle **N/A**
 Contact Tube to Work Distance **N/A**
 Peening **N/A**
 Interpass Cleaning **Chip slag and wire brush**

PREHEAT
 Preheat Temp., Min. **N/A**
 Thickness Up to 3/4" Temperature **N/A**
 Over 3/4" to 1-1/2" **N/A**
 Over 1-1/2" to 2-1/2" **N/A**
 Over 2-1/2" **N/A**
 Interpass Temp., Min. **N/A** Max. **N/A**

POSTWELD HEAT TREATMENT PWHT Required
 Temp. **N/A** Time **N/A**

WELDING PROCEDURE

| Layer/Pass | Process | Filler Metal Class | Diameter | Cur. Type | Amps | Volts | Travel Speed | Other Notes |
|------------|---------|--------------------|----------|-----------|--------|-------|--------------|-------------|
| All | SMAW | E-6010 | 1/8 | DCEP | 90-115 | N/A | 4-10 ipm | |



| ID | QTY. | DESC. |
|----|------|----------------------|
| A | 1 | 0.125 x 5 x 5 |
| B | 1 | 0.125 x 4 x 5 |
| C | 1 | 0.125 x 2 Dia. |
| D | 1 | 0.125 x 5 x 5 Gusset |
| E | 1 | 0.125 x 4 x 7 |

ALL PROCESSES TO BE COMPLETED WITH THE MATERIALS PROVIDED

1. TACK COMPLETE ASSEMBLY IN ANY POSITION.
2. WELDING TO BE COMPLETED WITH PLATE A FLAT TO THE TABLE
3. ALL VERTICAL WELDS TO BE WELDED IN THE UPHILL PROGRESSION.
4. NO POST WELD CLEANING ALLOWED

TITLE: STATE

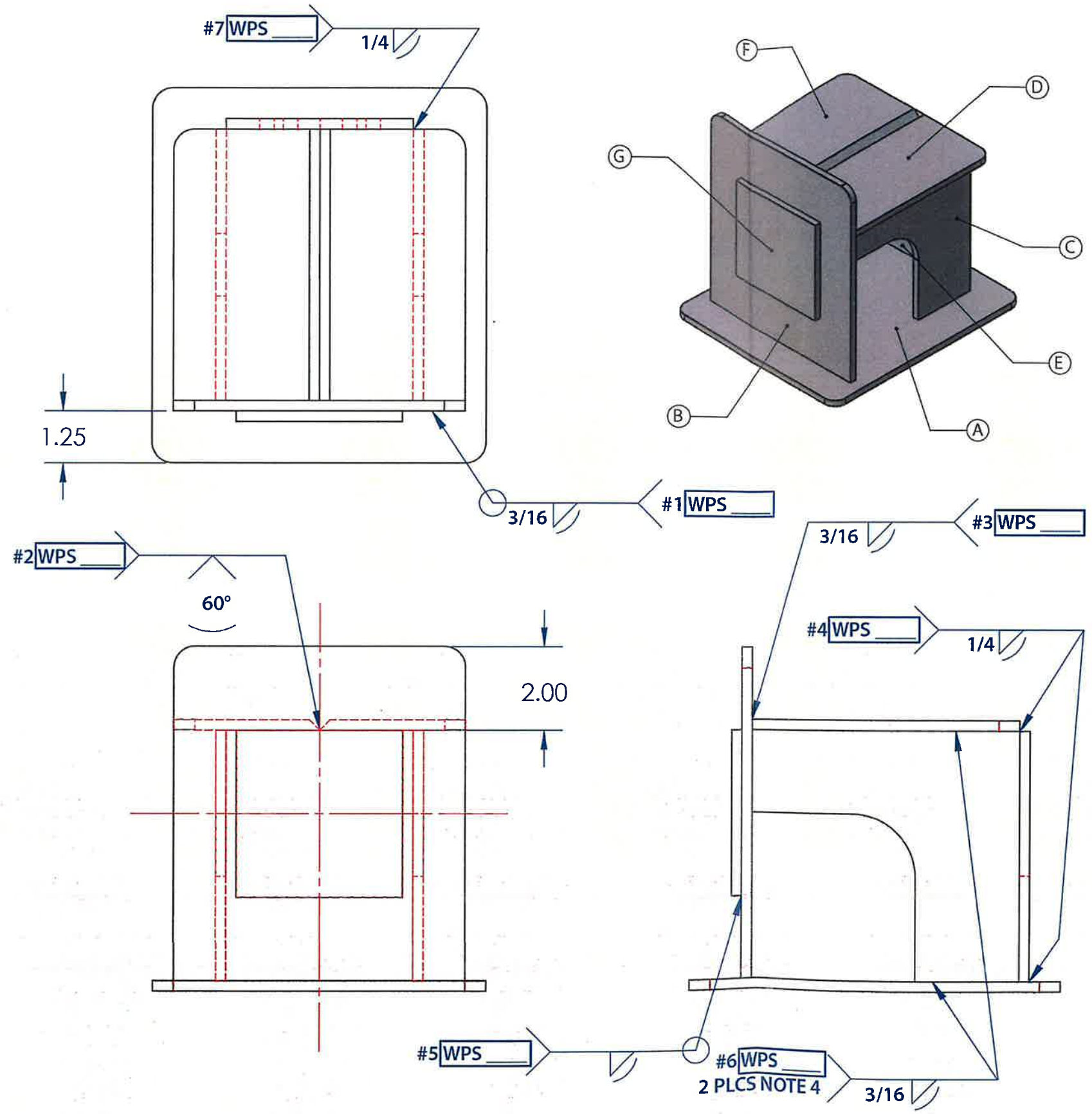


Welding Contest

DWG. NO.

GTAW - Aluminum

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| ID | QTY. | DESC. |
|----|------|--------------------------------|
| A | 1 | 0.25 x 9 x 8 |
| B | 1 | 0.25 x 7 x 8 |
| C | 2 | 0.25 x 6.5 x 6 |
| D | 1 | 0.25 x 3.5 x 6.5 30 deg. Bevel |
| E | 1 | 0.25 x 4.5 x 6 LOGO OUT |
| F | 1 | 0.25 x 3.5 x 6.5 30 deg. Bevel |
| G | 1 | 0.25 x 4 x 4 |

ALL PROCESSES TO BE COMPLETED WITH THE MATERIALS PROVIDED ALL WELD PROCESSES/PROCEDURES ASSIGNED BY TECHNICAL COMMITTEE

1. TACK AND COMPLETE ASSEMBLY IN ANY POSITION.
2. WELDING TO BE COMPLETED WITH PLATE A FLAT TO THE TABLE
3. ALL VERTICAL WELDS TO BE WELDED IN THE UPHILL PROGRESSION.
4. BOTH PARTS C MAY BE WELDED WITH THE SAME OR DIFFERENT PROCESSES

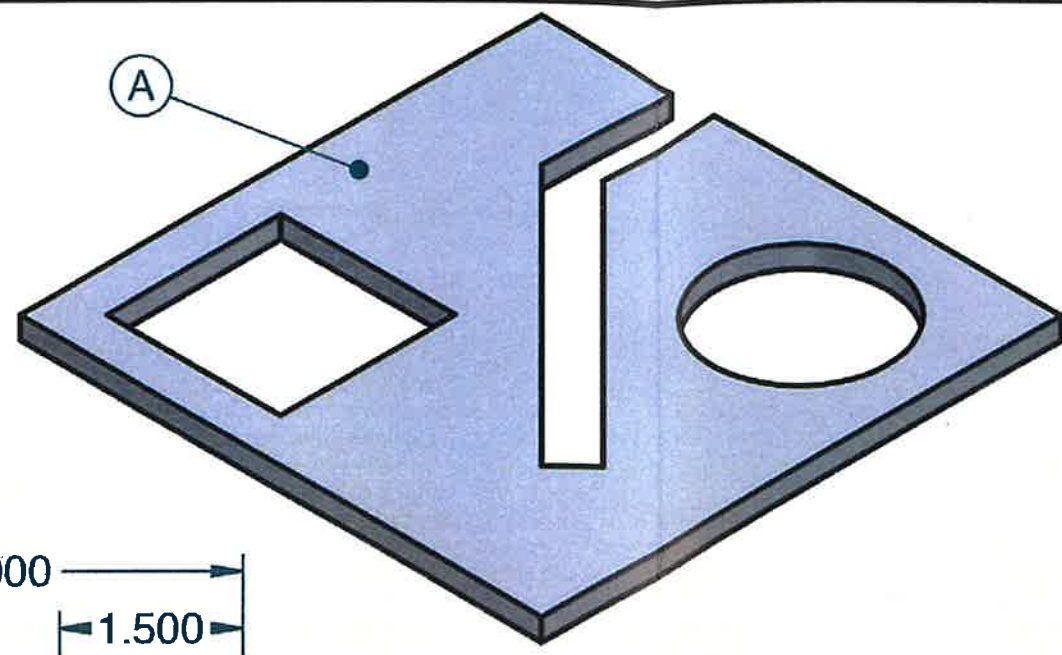
TITLE: STATE



Welding Contest

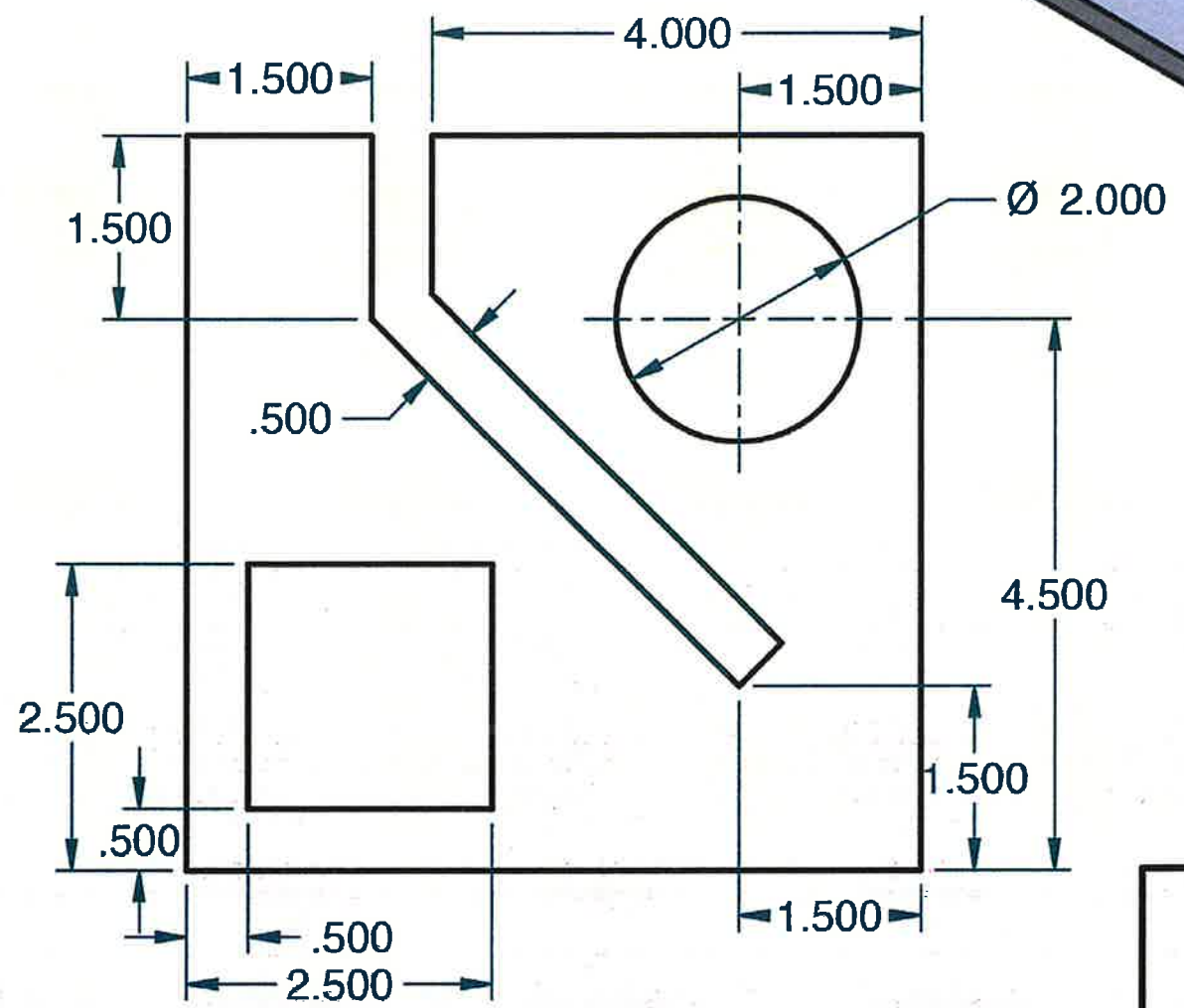
DWG. NO.

SMAW, GMAW, ~~FCAWG~~



| Item | Qty. | Description |
|------|------|--------------|
| A | 1 | 0.25 x 6 x 6 |

ALL PROCESSES TO BE COMPLETED WITH THE MATERIALS PROVIDED



SkillsUSA
Welding Contest

TITLE
PAC or OFC

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES

| | |
|--------------|--|
| SIZE | |
| A | |
| SHEET 1 OF 1 | |